REPORT

Proposed Duntroon Quarry Deepening

Level 1 and 2 Water Study Report

Submitted to:

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Executive Summary

The Duntroon Quarry (Site) operated by Walker Aggregates Inc. (WAI) is located on Township Road 91, west of the village of Duntroon in the Township of Clearview, County of Simcoe. The Duntroon Main Quarry (Aggregate Resources Act (ARA) Licence no. 3514) is located south of Township Road 91, while the Extension Quarry (ARA Licence no. 607841) is located north of Township Road 91. The Main Quarry has been in operation since the early 1960s; however, extraction from the Site currently occurs within the Extension Quarry. This licence was granted in 2014, and extraction within Phase 1 was initiated in June 2016. The two quarries are connected by a tunnel under Township Road 91.

The Main Quarry and Phases 1 to 3 of the Extension Quarry are licenced to extract the bedrock resources to a geodetic elevation of 500 metres above sea level (masl). Phase 4 of the Extension Quarry is licenced to extract the bedrock resources to a geodetic elevation of 490 masl. The proposed quarry deepening would facilitate extraction of bedrock resources to the elevation of the Fossil Hill Formation contact across both quarries within the existing limit of extraction area. WAI is required to obtain a Site Plan amendment for the proposed deepening under the ARA. Like the existing licences, the proposed quarry deepening will be developed below the natural groundwater table and will continue to be dewatered to maintain dry working conditions.

A Level 1 and 2 Water Study has been completed to meet the study requirements for the proposed Duntroon Quarry deepening. The conceptual understanding of the hydrogeological conditions within the study area have been extensively monitored as part of the ongoing Adaptive Management Plan (AMP) for the Site, with additional hydraulic testing completed as part of the current study.

A steady-state numerical groundwater flow model was used to predict the effects of the proposed quarry deepening on local groundwater and surface water features. The calibrated baseline model was modified to predict the effects of the approved extraction phases of the Extension Quarry through to Phase 4. The Phase 4 model was then used as a basis for impact assessment of the proposed Phase 5 (Extension Quarry) and Phase 6 (Main Quarry) deepening. Conditions at final rehabilitation to quarry lakes were also assessed. Cumulative impacts from the neighbouring St. Mary's Osprey Quarry were considered in the model scenarios.

The proposed quarry deepening during Phase 5 results in a drawdown of groundwater elevation of up to 1 m relative to baseline water levels in the Amabel bedrock aquifer around the Extension quarry, with the more significant drawdown of 5 m to 15 m constrained to WAI-owned properties and the Osprey Quarry licence area. In the case of Phase 6 quarry deepening, Amabel aquifer water levels around the Main Quarry (which are currently under the influence of the existing excavation during the baseline period) will also be subject to additional drawdown due to the lowered sump elevation. A portion of the properties to the south and east of the Main Quarry are predicted to experience between 1 m to 5 m of additional groundwater elevation drawdown.

No adverse groundwater quality impacts are predicted as a result of the proposed quarry deepening and a Spill Action Plan for quarry equipment is included in the mitigation plan.

The closest municipal drinking water system Well Head Protection Area (WHPA) located in the Nottawasaga Valley Source Protection Area is for the Stayner wellfield, located approximately 9 km east of the Site. To the west, the closest WHPA in the Grey Sauble Source Protection Area is for the Kimberley wellfield, located over

20 km away from the Site. Therefore, the Site is well outside of any WHPA and does not represent a potential threat to municipal drinking water supplies.

Closer to the Site, private residential wells RW1 and RW3 are within the predicted radius of influence but there is sufficient available drawdown and no impact to the functionality of these wells is predicted. The AMP includes contingency measures (if required) to maintain well function. A search of the Ministry of Environment, Conservation and Parks (MECP) Water Well Record database indicates that three new private supply wells have been installed within a 1 km radius of the Site since 2004. Of these newer wells, two are situated within the predicted radius of influence, but to the west of Osprey-Clearview Townline. Therefore, future monitoring of these wells and impact assessment is undertaken as part of the Osprey Quarry licence conditions. Groundwater and surface water monitoring data are exchanged between both quarry operators on an annual basis for reporting purposes.

The escarpment seeps and springs to the east of the Extension Quarry are predicted to experience a limited decrease in groundwater discharge relative to the predicted groundwater discharge for the approved Phase 4 extraction of less than 10% below baseline conditions at maximum quarry depth. The predicted decrease in discharge would likely not be distinguishable from natural variability in the seepage discharge. The contingency measures in the AMP were included to mitigate potential impacts to the escarpment seeps and springs.

Groundwater discharge to the Beaver River tributaries is also predicted to decrease due to the proposed quarry deepening. However, both the Duntroon Quarry and Osprey Quarry dewatering discharge is directed to this feature and more than compensates for the predicted losses in groundwater discharge.

No adverse surface water quality impacts are predicted as a result of the proposed quarry deepening. Surface water flow rates and temperature are rigorously monitored as part of the AMP, and quarry discharge quality is monitored as part of the existing Site Environmental Compliance Approval for Industrial Sewage Works (ECA (Sewage)). No adverse surface water quality impacts attributable to the existing quarry have been observed to date.

Wetland features including Rob Roy Swamps 1, 2, 3, 5 and 6 and ANSI Wetlands A and B are predicted to experience an increase in drawdown in the underlying Amabel bedrock aquifer above the predicted drawdown for approved Phase 4 extraction. The impacts to these features were anticipated as part of the development of the AMP and approved as part of the historical Extension Quarry licencing. It is noted that routine water management mitigation measures in the AMP include supplemental water discharge to wetland features as needed to maintain the baseline hydroperiods based on the Performance Indicator Trigger Monitoring (PITM) results. To date, the existing extraction of Phase 2A within the Extension Quarry has not influenced the hydroperiods of Rob Roy Swamp 2 or ANSI Wetlands A or B, which suggests that these features are supported primarily by surface water runoff rather than groundwater discharge.

Upon completion of the operational phase, the quarry excavations will be allowed to fill with a combination of groundwater discharge and excess runoff, with the end use for the Site as two quarry lakes. The predicted lake elevations for the proposed quarry deepening are similar to the predicted lake elevations for the approved existing quarry extraction. For each lake, passive seasonal discharge will occur via outlet control structures to Rob Roy Swamps 2 and 6, and ANSI Wetland B.

It is noted that the existing Rehabilitation Plan for the Site assumes that the tunnel under Township Road 91 will be sealed to prevent direct flow from the Main Quarry lake to the Extension Quarry lake. However, it is now

proposed that a passive hydraulic connection will remain throughout the life of the quarry. Under these conditions, the stage elevations in both lakes will equilibrate and the elevation in the Main Quarry lake will equilibrate to the lower predicted average stage elevation of the Extension Quarry lake.

Because the predicted average stage elevation of the final lakes is marginally lower than the existing water table in the bedrock aquifer, localized reconfiguring of the water table around the perimeter of the quarry lakes will result in small areas of future drawdown. The only feature which is situated within an area of future drawdown is ANSI Wetland B; however, it is noted that the Extension Quarry lake will discharge seasonally to this feature via the above noted outlet control structure.

No surface water impacts are predicted under final rehabilitation conditions. Once the final lake stages have reached steady-state conditions, groundwater discharge to the escarpment seeps and springs and to the Beaver River tributaries is predicted to increase to marginally greater than baseline conditions.

To mitigate the impacts of the proposed quarry deepening, the following recommendations should be implemented:

- The AMP monitoring program outlined in **Section 1.5.1** should be continued until the quarry licence is surrendered to MNR;
- Continue to follow the well interference mitigation plan outlined in **Section 4.1**;
- Continue to administer the existing Spill Action Plan in compliance with the prescribed conditions for a Class A Category 2 licence under the ARA; and
- The Site Plan notes for both the Main and Extension Quarries should include a statement indicating that "*the final passive outlet elevations from the quarry lakes will be based on on-going AMP monitoring, with a predicted approximate elevation of 511.4 masl*".

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1.0 INTRODUCTION

1.1 Background

The Duntroon Quarry (Site) operated by Walker Aggregates Inc., (WAI) is located on Township Road 91, west of the village of Duntroon in the Township of Clearview, County of Simcoe, as shown on **Figure 1**. The Duntroon Main Quarry (ARA Licence no. 3514) is located south of Township Road 91 on Part Lot 24, Concessions XI and XII, while the Extension Quarry (ARA Licence no. 607841) is located north of Township Road 91 on Part Lot 25, Concessions XI and XII. The Site is located east of Osprey Quarry (ARA Licence no. 608061) operated by St. Mary's Cement (formerly referred to as the MAQ Aggregates Inc. (MAQ) Highland Quarry), which is located on Part Lots 20 and 21, Concession A, Town of The Blue Mountains, Grey County. The boundary between Simcoe and Grey Counties occurs along Osprey-Clearview Townline (Grey Road 31) on the west boundary of the Site. The locations of these quarry properties and additional lands owned by WAI are shown on **Figure 2**.

The Main Quarry has been in operation on the south side of Township Road 91 since the early 1960s. However, extraction from the Site currently occurs within the Extension Quarry licence granted in 2014, and extraction within Phase 1 was initiated in June 2016. The two quarries are connected by a tunnel under Township Road 91. A summary of the Licence area and Limit of Extraction is provided in **Table 1.1**.

Table 1.1: Quarry Licence Area and Limit of Extraction

	Main Quarry (ARA Licence 3514)	Extension Quarry (ARA Licence 607841)
Licence Area	57.5 hectares (142.1 acres)	65.9 hectares (162.8 acres)
Limit of Extraction	47.1 hectares (116.4 acres)	58.5 hectares (144.6 acres)

The Main Quarry and Phases 1 to 3 of the Extension Quarry are licenced to extract the bedrock resources to a geodetic elevation of 500 metres above sea level (masl). Phase 4 of the Extension Quarry is licenced to extract the bedrock resources to a geodetic elevation of 490 masl. The proposed quarry deepening would facilitate extraction to the interpolated elevation of the Fossil Hill Formation contact across both quarries within the existing limit of extraction area.

Like the existing licences, the proposed quarry deepening will be developed below the natural groundwater table and will continue to be dewatered to maintain dry working conditions. WAI is required to obtain a Site Plan amendment for the proposed quarry deepening under the ARA.

WSP Canada Inc. (WSP) was retained by WAI to provide hydrogeological services, including the completion of this Level 1 and 2 Water Study in support of the Site Plan amendment.

1.2 Evaluation Requirements

In the Aggregate Resources of Ontario Technical Reports and Information Standards (Ministry of Natural Resources and Forestry (MNRF), August 2020), Part 2.5 outlines the following requirements for a Water Report to meet the study requirements for a Category 2 Class A quarry below groundwater:

> *Water Report Level 1:*
>
> *Determine the potential for impacts to ground water and surface water resources and their uses (e.g. water wells, ground water aquifers, surface water courses and bodies, springs, discharge areas) and identify if the proposed site is in a Wellhead Protection Area for Quantity (WHPA-Q) set out in an applicable source water protection plan under the Clean Water Act. If so, identify applicable source water protection policies and mitigation measures that will be implemented at the site.*
>
> *Water Report Level 2:*
>
> *Where the results of Level 1 have identified a potential for impacts from the aggregate site on ground water and / or surface water resources and their uses, an impact assessment is required. The assessment is to determine the significance of the effect and the potential for mitigation.*
>
> *The assessment must address the potential effects of the operation on any ground water and surface water features located within the zone of influence, including but not limited to:*
>
> *a) water wells (includes all types e.g. municipal, private, industrial, commercial, geothermal and agricultural)*
> *b) springs (e.g., place where ground water flows out of the ground)*
> *c) ground water aquifers;*
> *d) surface water courses and bodies (e.g., lakes, rivers, brooks)*
> *e) wetlands*
>
> *The assessment must include but not be limited to the following:*
>
> *f) a description of the physical setting including local geology, hydrogeology, and surface water systems;*
> *g) proposed water diversion, discharge, storage and drainage facilities;*
> *h) water budget (e.g. how water is managed on-site);*
> *i) the possible positive or negative impacts that the proposed site may have on the water regime;*
>
> *The Level 2 water report must also contain:*
>
> *j) monitoring plan(s); and*
> *k) technical support data in the form of tables, graphs and figures, usually appended to the report.*

This report addresses the Level 1 and Level 2 Water Report requirements for the hydrogeological evaluation of the Site. It is noted that the permitted takings specified in the existing Permit to Take Water (PTTW) for the Site are sufficient to meet the predicted maximum discharge rates of the proposed quarry deepening and therefore, changes to the PTTW are not required. However, the existing ECA (Sewage) for the Site should be amended to

permit discharge (as required) to the routine and contingency mitigation measures as contemplated in the AMP, including the wetland discharge systems and the bedrock injection well network.

Additional requirements considered in the preparation of this study include the Provincial Policy Statement (2024) and the Clean Water Act (2006).

1.3 Objectives and Scope

The principal objectives of this Level 1 and 2 Water Study are as follows:

- Characterize the baseline groundwater and surface water conditions and uses;
- Establish a baseline water budget for the Site and local study area;
- Provide input to the proposed quarry deepening design and end use, particularly related to water management at the Site;
- Predict potential effects of the proposed quarry deepening on local groundwater users and surface water features by using the existing calibrated steady-state numerical groundwater flow model and simulating baseline hydrogeological conditions, quarry deepening effects on the baseline conditions, and potential mitigation or contingency measures; and
- Confirm that the existing Adaptive Management Plan (AMP) for the Site is sufficient to assess the predicted effects of the proposed quarry deepening on the groundwater and surface water features to ensure compliance with the Site Plan and other permits.

1.4 Statement of Qualifications

This Level 1 and 2 Water Study was completed by a project team at WSP Canada Inc. The project and technical manager was Kevin Fitzpatrick, P.Eng., and the technical project co-ordinator and numerical groundwater modeller was Leigh Davis, M.A.Sc., P.Eng. A team of internal technical support staff assisted with the field work, data collection and analyses. Curriculum vitae are provided in **Appendix H**.

1.5 Study Methodology

The objective of the study was to review the conceptual understanding of the hydrogeological conditions in the vicinity of the Site in order to predict the potential effects of the proposed quarry deepening on local groundwater users and surface water features. The work program began with a review of an extensive number of previous studies and Site monitoring data collected since 2003 to identify any potential gaps in the conceptual understanding of the Site. Previous studies include:

- Jagger Hims Limited (2005). Duntroon Quarry Expansion, Geological Report and Level 2 Hydrogeological Assessment. Prepared for Georgian Aggregates and Construction Inc., September 29, 2005.
- Azimuth Environmental Consulting, Inc. (2006). Level 2 Hydrogeological Assessment Report: Highland Quarry. Prepared for M.A.Q. Aggregates Inc., March 31, 2006.
- Marcus J. Buck Karst Solutions and Worthington Groundwater (2007). Karst Investigation of the Duntroon Quarry Expansion Lands. Prepared for Jagger Hims Limited, October 3, 2007.
- Jagger Hims Limited (2007). Duntroon Quarry Expansion, Level 2 Hydrogeological Assessment Addendum, Cumulative Impact Assessment, Proposed Expansion and Proposed MAQ Highland Quarry, Computer

Groundwater Modeling Response to Agency Review Comments. Prepared for Walker Aggregates Inc., October 10, 2007.

- Azimuth Environmental Consulting, Inc. (2011). Hydrogeological Response, Highland Quarry. Prepared for M.A.Q. Aggregates Inc., March 31, 2011.
- Stantec Consulting Ltd. and Hims GeoEnvironmental (2013). Adaptive Management Plan (AMP), Duntroon Expansion Quarry. Prepared for Walker Aggregates Inc., December 6, 2013.
- WSP (2017 to 2024). Duntroon Quarry Extension, Adaptive Management Plan Annual Summary Reports (2016 to 2023). Prepared for Walker Aggregates Inc.
- WSP (2021). Duntroon Quarry Extension, Adaptive Management Plan Five Year Comprehensive Review Report. Prepared for Walker Aggregates Inc., September 30, 2021.

1.5.1 Existing Groundwater and Surface Water Monitoring Program

The groundwater and surface water monitoring requirements for the Site are governed by three documents.

1) The AMP is a requirement of the Extension Quarry ARA Licence and was finalized on December 6, 2013. The AMP outlines the monitoring required during each operational phase until final rehabilitation of the Site.

2) To maintain dry working conditions, the quarry is dewatered under PTTW number 7725-AACS54, issued September 16, 2016. The PTTW specifies a maximum offsite discharge rate of 250 L/s, as measured at the sump discharge line. A copy of the PTTW is provided in **Appendix A-1**.

3) Discharge from the Site is permitted under ECA (Sewage) number 1521-A4VJ4X, issued October 17, 2016. The discharge is directed to Rob Roy Swamp 6 located west of the Main Quarry and flows to twin culverts located on Grey Road 31 (designated as station “SW1”) and eventually to the Beaver River South Tributary further west of the Site. A copy of the ECA (Sewage) is provided in **Appendix A-1**.

Monitoring data included in the recent 2023 AMP Summary and Performance Report (WSP, 2024) were used for characterization of Site conditions for this study. A description of the monitoring program is provided below.

1.5.1.1 Groundwater Levels and Temperature

Manual water level measurements are obtained at the wells and drivepoints outlined in **Table A-1**, **Appendix A-2**. The monitoring locations are shown on the Site Plan, **Figure 2**. Available borehole logs are provided in **Appendix A-3**. In late 2022, all wells and drivepoints in the monitoring program were equipped with automated dataloggers for continuous water level monitoring. As part of the current program, monitoring well loggers are downloaded twice per year in May and October, while the drivepoint loggers are downloaded during each monthly / bi-weekly monitoring event between March and August and during the October monthly event. In addition to water levels, the drivepoint loggers also continuously monitor temperature. It is noted that some loggers experienced malfunctioning communications in mid- to late-2023 as a result of a manufacturer defect. These loggers were repaired under warranty and reinstalled in October 2023.

Monitoring Wells

Groundwater levels are obtained at five (5) monitoring wells situated on the Main Quarry licence, designated MW6, PW99-1, BH98-8, BH98-9 and BH98-12. Manual water level data are provided in **Table B-1** while hydrographs are provided in **Figures B-1 to B-5**.

In the spring of 2003, a groundwater monitoring well network was established for the Extension Quarry and was later expanded with additional locations in 2015 as a condition of licence. The network currently consists of twenty-four (24) monitoring wells as noted on **Table A-1**. Manual water level data are provided in **Table B-2** while hydrographs are provided in **Figures B-6 to B-30**. It is noted that loggers have also been installed to monitor water levels at staff gauges SG1 and SG2 at BH03-7 near Rob Roy Swamp 2 north of the Extension Quarry, and at drivepoint NW10DP at well nest NW10 northwest of the Extension Quarry. Staff gauge water levels are shown in **Figure B-73**.

As extraction within the Extension Quarry has progressed, a number of monitoring wells have been removed from the program as they are situated within the limit of extraction. Monitoring ceased at NW2 in 2018, BH02-3, BH02-4 and NW4 in 2019, BH02-1 in 2020, NW3 in 2022 and NW5 in 2023. It is noted that BH02-2 (Phase 2A), NW6 and NW7 (Phase 2B) and NW8, BH03-9, TW04-2 and TW04-3 (Phase 3A) are also situated within the limit of extraction and will be removed from the program as the quarry development progresses.

Groundwater levels are also monitored by loggers at seven (7) off-site monitoring wells situated at the undeveloped former Osprey Quarry property west of the Main Quarry. Manual water level data are provided in **Table B-6** while hydrographs are provided in **Figures B-55 to B-62**. It is noted that OW1-6 was destroyed in 2009 and OW3-1 was destroyed in 2016 and both wells are no longer monitored.

Injection Wells

In 2015, five (5) injection wells were installed east / northeast of the Extension Quarry on WAI-owned lands as a condition of licence as part of the AMP potential contingency measures. Use of these contingency injection wells has not been required to date. Manual water level data are provided in **Table B-3** while hydrographs are shown in **Figures B-31 to B-34**.

Domestic Wells

In 2003, monthly groundwater level monitoring was initiated at a number of domestic wells located at private residences surrounding the Main and Extension Quarries. Additional domestic wells were added to the monitoring program in 2008. Currently, ten (10) domestic wells are included in the monthly water level monitoring as shown in **Table A-1**. Manual water level data are provided in **Table B-4** while hydrographs are provided in **Figures B-35 to B-49**. It is noted that RW16 and RW18 are situated on property owned by WAI. Former domestic wells RW18 and RW19 were also located on WAI-owned lands but were removed from the monitoring program in 2022 and 2020 respectively, as they were located within the Phase 2A limit of extraction.

Annual groundwater sampling is completed at domestic wells RW1 and RW2 as per the AMP Long-Term Trend Groundwater and Surface Water Monitoring (LTTWM).

It is noted that monitoring of RW9 was discontinued in 2009 as it is located within the St. Mary's Osprey Quarry licence, while monitoring of RW4 and RW6 were discontinued in 2019 and 2022 respectively, at their owner's request.

Since 1996, manual groundwater level measurements have also been obtained at three (3) domestic wells situated on the Carmarthen Lakes Farms (CLF) property south of the Main Quarry. Manual water level data are provided in **Table B-5** while hydrographs are provided in **Figures B-50 to B-54**. Historically, water level monitoring was also completed at domestic wells CLF1 and CLF2 but the well casings have failed and these wells are unusable and can no longer be monitored.

Wetland Drivepoints

Water level elevation and temperature measurements are obtained at ten (10) drivepoints installed at the wetland features surrounding the Site. Surface water depth surrounding the drivepoint is also recorded for comparison. Bi-weekly monitoring at selected drivepoints is also completed during May, June and July. Drivepoints DP1 to DP4 were installed in 1999 in the vicinity of the Main Quarry, while the remaining drivepoints were installed later as part of the Extension Quarry licencing. Manual water level data are provided in **Table B-7**, temperature data are provided in **Table B-8** and hydrographs are provided in **Figures B-63 to B-74**. It is noted that DP4 in Rob Roy Swamp 6 west of the Main Quarry and DP10 and DP11 in Rob Roy Swamp 3 northwest of the Site are monitored as part of the St. Mary's Osprey Quarry monitoring program.

1.5.1.2 Surface Water Flows and Quality

Surface water monitoring is completed to monitor features outside of the limit of extraction that are potentially sensitive to fluctuations in groundwater levels, such as wetlands and fish habitat. Monitoring includes:

- Springs that discharge at the Niagara Escarpment east of the Site. These springs contribute to surface water flow and fish habitat below the brow of the Niagara Escarpment in tributary streams of the Pretty River and Batteaux Creek;
- Surface water flows that contribute to fish habitat in the Beaver River west of the Site; and
- Surface water levels and flows that contribute to wetland features and functions.

Monthly manual flow measurements and field parameters (pH, conductivity, temperature and dissolved oxygen) are obtained during the trigger period at the surface water stations shown on the AMP Tables 3.4 and 4.2. Bi-weekly monitoring during June, July and August is also undertaken at selected Escarpment Spring stations as noted on AMP Table 3.4. The monitoring locations are shown on the Site Plan, **Figure 2**. In late 2022, all surface water stations were equipped with automated dataloggers for continuous water level and temperature monitoring and are downloaded during each monthly / bi-weekly monitoring event. Preliminary stage-discharge relationships were developed using manual water level measurement data at the stilling wells installed at each station and the manual flow measurements. The preliminary rating curve parameters are provided on the station logs in **Appendix A-4**. Logger water level data converted to estimated flow rates are shown on the hydrographs in **Appendix C**. In addition, quarterly sampling is completed at the quarry dewatering sumps and annual surface water sampling is completed at selected stations as shown on the AMP Tables 3.4 and 4.2. Laboratory analysis is completed by BureauVeritas, a CALA-accredited laboratory.

Surface Water Stations

Surface water flow and field parameter measurements are currently obtained at thirty-six (36) stations as shown on **Table A-2**, **Appendix A-2**. Surface water station instrumentation details are provided in **Appendix A-4**. Stations SW1, SW2, SW0-2, and QFSW2 were historically monitored as part of the Main Quarry monitoring program; however, station SW0-2 is now monitored as part of the St. Mary's Osprey Quarry monitoring program and has been removed from the PITM monitoring. Additional stations were added to the monitoring program as part of the Extension Quarry licencing. Stations SW3B (Rob Roy Swamp 3 Karst) and SW3C (Rob Roy Swamp 3 Out) northwest of the Site and SW6A west of the Site are monitored as part of the St. Mary's Osprey Quarry monitoring program and are no longer included in the Site monitoring program. Also, monitoring of station SW7 (former Millar Pond outlet) was discontinued in 2022 once the former Millar Pond was decommissioned. Staff

gauges have been installed at stations: SW1, SW2, SW0-2, SW3, SW6A, SW9, SW10, SW11E, SW14, SW15, SW16, SW17, SW18, SW19, SW24A, PR Control and BC Control.

Manual flow measurement data are provided in **Tables C-1 and C-2**, **Appendix C**. Field parameter data are provided in **Table C-3**. Concentration versus time graphs for flow and temperature are provided in **Figures C-1 to C-49**.

Quarterly water quality sampling is completed for the discharge at the Main Quarry Sumps 1 and 2 and at station QFSW2 while annual water quality sampling is conducted at selected stations. The laboratory analysis includes general chemistry (alkalinity, hardness, colour and ammonia), total suspended solids, major ions, nutrients, metals, total petroleum hydrocarbons and BTEX compounds. The surface water quality data are shown in **Table C-4**. Microbial analyses are completed at selected stations as shown in **Table C-5**.

During the winter months, some surface water monitoring stations typically have limited access due to snow cover and/or ice accumulation.

Escarpment Springs

During the months of June, July and August, bi-weekly monitoring is completed at the Escarpment Springs stations SW10, SW11, SW11A-E, SW21C, SW24A and SW77. Monthly monitoring is conducted at other times of the year. Monitoring includes field temperature measurement and an assessment of flow conditions through either the use of an electromagnetic flow meter or in some cases by visual assessment.

1.5.1.3 Climate Data

Historically, climate data from the Thornbury Slama climate station were used to assess annual water budget components as part of the monitoring programs at the Main Quarry. Operation of the Thornbury Slama climate station was cancelled in May 2005. The Shanty Bay climate station, located on Lake Simcoe approximately 60 km east of the Site, has historically provided a reasonable correlation with the climate data from the Thornbury Slama climate station.

In 2008, WAI established an automatic weather station (WAI station) in the vicinity of the Site to provide the following local climate data:

- Wind speed and direction;
- Average hourly air temperature (°C); and
- Total hourly precipitation (mm).

The station has operated since 2015. Limited data gaps due to equipment failure have occurred sporadically and operations have been adjusted as required to limit data loss.

The combination of climate data from the Shanty Bay climate station and WAI station have been used to assess deviation from historic climate norms and evaluate the potential impact on the surrounding local hydrology and ecology. The 30-year climate normal (1971 – 2000) for Thornbury Slama climate station is provided in **Table D-1**, **Appendix D**. Annual water budgets based on the Thornthwaite-Mather method using the available Shanty Bay and WAI climate station data since 2003 are provided in **Tables D-2 to D-22**. Graphs of the estimated monthly net surplus and average temperature are provided in **Figures D-1 and D-2**.

The long-term regional flow data for the Mad River and the Pretty River Environment Canada hydrometric stations are presented in **Figures D-3 and D-4**. The data for these figures were obtained from the Environment Canada real-time hydrometric data website (https://wateroffice.en.gc.ca). Baseline (pre-Phase 2A) data for the Mad River station (02ED015) are available from 1988 through 2020 and for the Pretty River station (02ED031) from 2006 through 2020. The average daily surface water flow data for both stations in 2023 was obtained from the available real-time data set. These data provide an indication of the surface water runoff, a component of the available water surplus, for the current monitoring period compared to the baseline monitoring period.

1.5.2 Water Well Survey

Water well surveys of the local residents have previously been undertaken as part of the above noted hydrogeological studies related to the Expansion Quarry and the neighbouring Osprey Quarry. As noted in **Section 1.5.1.1**, private water wells which are situated within 1 km of the Site have historically been included in the AMP monitoring program; however, access is contingent on landowner permission and a number of landowners have opted out of the program over time. For the current study, a search of the Ministry of the Environment, Conservation and Parks (MECP) Water Well Record database was undertaken to identify any new private supply wells within a 1 km radius of the Site. The results of the well record database search are included in **Appendix E**.

1.5.3 Hydraulic Testing Program

Based on our review of the previous studies undertaken at the Site, an additional hydraulic testing program was undertaken for this study to confirm the hydrogeological properties of the bedrock interval between 500 masl and the lower Fossil Hill Formation contact. Results and discussion are provided in **Appendix F**.

1.5.4 Numerical Groundwater Flow Model

The existing steady-state numerical groundwater flow model described in the AMP Five Year Comprehensive Review Report (WSP, 2021) was used to predict the effects of the proposed quarry deepening on local groundwater users and surface water features. MODFLOW-USG (Un-Structured Grid) (Panday et al, 2017) was used as the numerical simulation code for the groundwater model as it is capable of simulating steady-state three-dimensional groundwater flow in unconfined bedrock aquifers in any physical setting. MODFLOW-USG is similar to the more traditional MODFLOW code (USGS 1988-2005); however, it permits additional flexibility with the model grid, for instance, for easier grid refinement in areas of increased interest.

Companion programs, such as ZoneBudget (Harbaugh, 1990 and updates) were used during the modeling process to assess mass balance and flow directions within the model. Groundwater Vistas version 9 was used as the pre- and post-processor for the model simulations. The detailed numerical groundwater model documentation is included as **Appendix G**.

2.0 PHYSICAL SETTING

2.1 Physiography, Topography and Land Uses

The Site is situated adjacent to the Niagara Escarpment physiographic region, as described by Chapman and Putnam (1984). The Simcoe lowlands, located below the escarpment to the east of the Site, slope gently towards Georgian Bay to the north. The Horseshoe moraines physiographic region lies to the west of the escarpment, where the land surface topography is comprised of a series of low rounded hills up to 30 m in height, separated by low-lying valleys associated with surface drainage features. The hills are formed by knobs of bedrock typically overlain by a relatively thin veneer of surficial soils consisting of stony glacial till or silty soils. The Beaver Valley physiographic region is located further to the west, stretching from the community of Flesherton in the south to Thornbury in the north, where the Beaver River outlets to Georgian Bay.

The Niagara Escarpment is the most prominent terrain feature within the study area, with a brow elevation ranging from 500 masl to 535 masl. The escarpment is oriented roughly north-south from the Mad River at Devil's Glen Provincial Park south of the Site to just north of the Site where it changes to an east-west orientation and forms the southern extent of the Pretty River valley. The dolostone rock of the Amabel Formation, which forms the erosion-resistant cap-rock of the escarpment, is visible as near-vertical cliffs at the escarpment face that can be up to 40 m high. At the base of the escarpment face, talus can accumulate as a result of erosion of the dolostone bedrock. Erosion has also resulted in formation of karst features, such as the deep crevasses observed at the Singhampton Caves trailhead north of the Site near Nottawasaga Lookout Provincial Park, or the sinking streams and sinkholes that have been mapped along the escarpment brow closer to the Site. A detailed study of the karst features near the Site was completed as part of the technical studies for the Extension Quarry licence application (Marcus J. Buck Karst Solutions and Worthington Groundwater, 2007); further discussion is provided below.

The surrounding land use is typically rural / rural residential, with zoning for mineral resource extraction within the Main and Extension Quarry licences at the Site, the St. Mary's Osprey Quarry licence area and the former Osprey quarry lands to the south. Other lands within the Niagara Escarpment Commission (NEC) Policy Area are designated Escarpment Natural Area or Escarpment Protection Area.

2.2 Surface Water Drainage and Features

The identified boundaries for the Beaver River, Pretty River, Batteaux Creek and Mad River Watersheds are shown on **Figure 1**. Brief descriptions of the surface water features within these basins are provided below. A discussion of conditions within these surface water features based on the on-going AMP monitoring program results is provided in **Section 2.5.2**.

2.2.1 Beaver River Watershed

The Beaver River Watershed now includes the Main Quarry and the entire portion of the Extension Quarry; although it is inferred that the original pre-development watershed boundary likely did not extend as far to the east. Surface drainage near the Site generally flows from east to west and forms the headwaters of one of the eastern tributaries of Beaver River, which ultimately outlets to Georgian Bay at the community of Thornbury.

Surface drainage is generally slow and meandering due to the relatively flat topography and as a result, wetland features are commonly observed. The Rob Roy Swamp wetland complex, designated a Provincially Significant Wetland (PSW), is situated to the west of the Site. The individually mapped wetland features in closest proximity to the Site have been previously designated with numbers 1 through 7, as shown on **Figure 2**. It is noted that discharge from both the Main and Extension Quarries (under ECA No. 1521-A4VJ4X) as well as the St. Mary's

Osprey Quarry (under ECA No. 1371-AFQN25) is directed to Rob Roy Swamp 6 west of the Main Quarry near station SW1 (see **Figure 2** for location). Quarry discharge quality is monitored at station QFSW2 and within Sumps 1 and 2 (see **Figure 2A** for locations).

Surface water stations SW1, SW2, SW0-2 and SW6A and drivepoints DP1, DP2, DP4 and DP8 are included in the on-going AMP monitoring program to monitor flow and temperature conditions within Rob Roy Swamp 6. Surface water station SW3 and drivepoints DP5 and DP7 are also in place to monitor conditions within Rob Roy Swamp 2 north of the Extension Quarry. Flow at SW3 has typically not been observed outside of the spring freshet and late fall. It is noted that Rob Roy Swamp 3, 4 and 5 are monitored under the St. Mary's Osprey Quarry monitoring program.

2.2.2 Batteaux Creek Watershed

The headwaters of Batteaux Creek originate at the escarpment east of the Site, with flow east and then north to Nottawasaga Bay just east of Collingwood. The watershed formerly includes the eastern portion of the Extension Quarry limit of extraction; however, runoff within the extracted area is now diverted to the Main Quarry for discharge off-site to Rob Roy Swamp 6 as noted previously. It is inferred that the eastern portion of the Main Quarry would likely also have been included in the Batteaux Creek watershed prior to development of the Site.

Flow within many of the tributaries which originate along the escarpment originates as discharge from springs and seeps that occur near the base of the Amabel and / or Manitoulin Formation dolostone. In the upper reaches of the drainage basin, flow is relatively high owing to the steep grades along the escarpment. Flow and temperature monitoring at these headwater locations are included in the on-going AMP monitoring program as stations SW9, SW10, SW11 (A through E), SW13, SW14, SW15, SW19, SW21 (A to C) and SW22 (A and C). The individual channels progressively merge to form the main channel of Batteaux Creek just west of County Road 124 at station SW19 (see **Figure 1** for location).

It is noted that the AMP monitoring program also includes flow and temperature monitoring at station BC Control, situated outside of the influence of quarry dewatering (see **Figure 1** for location). The control station monitoring was included in the AMP to distinguish the effects of climate conditions on Batteaux Creek from potential quarry impacts for assessment of trigger exceedances and AMP annual reporting.

The Duntroon Escarpment Regional Area of Natural or Scientific Interest (ANSI) is situated northeast of the Extension Quarry. During previous studies undertaken as part of the Extension Quarry licencing, two wetland features were identified within this area, designated ANSI Wetland A (north of the Extension Quarry) and ANSI Wetland B (northeast of the Extension Quarry) (see **Figure 2** for locations). Drivepoints DP6, DP9 and Bridson-DP are included in the on-going AMP monitoring program to monitor conditions within these wetland features.

To the south of the Main Quarry, there is a relatively large, mapped wetland feature, referred to as the Carmarthen Lakes Farms wetland. A watercourse drains south out of the wetland to a nearby sinkhole feature approximately 22 m in diameter and 6 m deep. This sinking stream is inferred to discharge as a spring or seep at the escarpment face to the east. Drivepoint DP3 is included in the on-going AMP monitoring program to monitor flow and temperature conditions within the wetland feature.

Finally, there is a small dugout pond feature situated east of the Extension Quarry on the former Bridson property. This pond is fed by a small intermittent spring and local surface runoff. When the pond levels are high, the pond discharges through an overflow culvert, where conditions are monitored at station SW8. A poorly defined surface

drainage channel conveys intermittent flow through the ANSI Wetland B and becomes a sinking stream near station SW9 to the east. It is noted that discharge from the dug-out pond has only been occasionally observed at SW8 to date, including during the baseline monitoring period for the Extension Quarry.

2.2.3 Pretty River Watershed

The Pretty River watershed is situated north of the Site, with headwaters originating at the escarpment and flowing north into Georgian Bay at Collingwood. Drainage conditions in the headwaters of the basin are similar to those of Batteaux Creek, with flow originating as discharge from springs and seeps occurring near the base of the Amabel and / or Manitoulin Formation dolostone. Flow is relatively high in the upper reaches of the basin due to the steep grades along the escarpment. Surface water stations SW16, SW17, SW17A, SW18, SW24A and SW77 at spring / seep locations northeast of the Extension Quarry are included in the on-going AMP monitoring program to monitor flow and temperature conditions. The individual channels merged to form the main channel which is monitored at station SW18 where the tributary intersects Concession 10 (see **Figure 2** for location).

Similar to the Batteaux Creek watershed, the AMP monitoring program includes control station PR Control for flow and temperature monitoring to distinguish the effects of climate conditions on Pretty River from potential quarry impacts. Refer to **Figure 1** for the location.

Flow within Pretty River is also monitored at Environment Canada (EC) station 02ED031. A summary of baseline data from 2006 to 2020 is provided in **Appendix D**.

2.2.4 Mad River Watershed

The Mad River watershed is situated south of the Site and includes Edward Lake, an offline waterbody located within the Carmarthen Lakes Farms agricultural lands south of the Main Quarry. The Mad River flows to the Nottawasaga River east of the study area and ultimately discharges to Georgian Bay at Wasaga Beach. The headwaters of Mad River originate above the escarpment west of the community of Singhampton, where flow conditions are slow moving due to the relatively flat grade. East of Singhampton, the river cuts through the escarpment bedrock at Devil's Glen Provincial Park and forms a 75 m to 100 m steep-walled valley where much of the upper section of the escarpment bedrock units are exposed. The Mad River is considered beyond the influence of quarry operations at the Site since it is situated more than 3 km to the south and as such, no monitoring stations are included in the AMP.

South of the Main Quarry, there is a relatively large waterbody situated on the Carmarthen Lakes Farms property, referred to as Edward Lake. The lake is reportedly about 4 m deep and is bounded to the west, north and east by bedrock knob hills. It is inferred that recharge to the lake occurs as localized runoff and groundwater discharge from the bedrock aquifer. Excess water discharges via an overflow outlet in the southwest corner of the lake, where it is directed to the roadside ditch and is inferred to flow south. This feature is not monitored as part of the AMP monitoring program as it is outside of the quarry influence.

Flow within Mad River is monitored at EC station 02ED015. A summary of baseline data from 1988 to 2020 is provided in **Appendix D**.

2.3 Geology

As noted previously, overburden deposits on lands above the escarpment are relatively thin with frequent bedrock outcrops at surface. The surficial geology mapping (**Figure 3**) indicates large areas of paleozoic bedrock outcrops in the vicinity of the Site (i.e., overburden thickness of less than 3 m), with glaciolacustrine till deposits to the north of the Extension Quarry and organic deposits to the north, west and south of the Site, associated with the Rob Roy wetland complex features. Glaciofluvial outwash sands and glaciolacustrine till deposits are noted on the lower flanks of the Escarpment east of the Site. Some thin cemented gravelly sands were noted within kettle-like erosion features on the bedrock surface in the Phase 2A area of the Extension Quarry. Overburden thicknesses measured at Site monitoring wells range between 0.6 m at BH98-9 to 9.9 m at IW4, as illustrated on **Figure 4**. The overburden deposits at the Site typically consist of silt till and fine sands, although elevated clay content is noted at some locations. Within the wetland features surrounding the Site, shallow soils consist of organic rich silts.

The paleozoic bedrock geology for the Site and surrounding area is shown on **Figure 5**. The Site is situated near the northeastern edge of the Michigan Basin, an ancient large marine embayment present during the Middle Silurian period approximately 400 million years ago. Marine sediments were deposited during this period which would eventually form the sequence of sedimentary rock which characterizes southern Ontario. Regionally, the bedrock strata dip gently toward the south-southwest at a slope of several metres per kilometre (0.3 to 0.6 degrees) or 0.05% to 0.1%.

The local bedrock strata consists of a thick sequence of relatively undisturbed sedimentary limestones, dolostones and shales that subcrop as a sequence of parallel northwest-southeast trending bands. Differential erosion between the rock strata have lead to the formation of several escarpments, the most prominent of which is the Niagara Escarpment. A conceptual cross section sketch of the geologic units present in the vicinity of the Site from west to east along Township Road 91 is provided on **Figure 6**.

The Silurian sequence and specific naming of bedrock units in southern Ontario has been the subject of much recent study by the Ontario Geologic Survey (OGS) and others. For the purpose of this study, the full sequence of bedrock units in the vicinity of the Site is provided in **Table 2.1**.

Table 2.1: Summary of Bedrock Stratigraphy

Formation	Description	Approximate Thickness at Site (m)
Amabel	Grey medium to coarse grained fossiliferous dolostone (reefal and flank facies)	15 to 40+
Fossil Hill	Grey thin bedded fossiliferous dolostone	5 to 10
Cabot Head	Red to greenish grey shale with limestone interbeds	10
Manitoulin	Grey medium grained argillaceous dolostone	15
Whirlpool	Grey fine grained quartz sandstone	2
Queenston	Red shale with siltstone and carbonate layers	84
Georgian Bay	Grey shale with limestone interbeds	120

The Amabel Formation dolostone forms the cap rock of the Escarpment brow and is often exposed at surface in the local vicinity of the Site. This unit represents the traditional aggregate resource rock at the Site, owing to its high-quality mechanical and geochemical properties. A distinction is made between the “reefal” and “flank” facies of the Amabel Formation as the nature of the deposition has an influence on the geologic properties of the rock. The reefal facies were deposited as coral reefs in an ancient shallow warm sea environment, containing abundant fossils which became irregularly bedded rock over geologic time. The flank facies contain broken skeletal remains of the reef-forming organisms which were washed off the reef into adjacent areas and broken into sand or gravel-sized pieces and becoming more regularly bedded rock over time. The flank facies dominate, while the reefal facies tend to occur as layers within the flank facies.

The Fossil Hill Formation dolostone is a thinner bedded unit which underlies the Amabel Formation but is not considered suitable as an aggregate resource and therefore, the contact between these two units represents the maximum proposed quarry extraction depth.

The Manitoulin Formation is exposed at a number of small historic quarries east of the Site near Concession Road 10 that are situated along the secondary Manitoulin Scarp. Similarly, the Whirlpool Formation is exposed in the floor of a small historical quarry south of Township Road 91, west of Concession Road 10. **Figure 6** also illustrates the presence of groundwater seeps and springs which occur at the Escarpment face near the base of the Fossil Hill and Manitoulin Formations.

The top of bedrock elevation at the Site is illustrated on **Figure 7**, which ranges from a high of 527.5 masl at BH02-6 within the central portion of the extension quarry north of Township Road 91, to a low of 500.4 masl at injection well IW4 situated to the northeast of the extension quarry licence in closer proximity to the Escarpment brow.

The interpolated top of the Fossil Hill Formation is provided on **Figure 8**, based on the stratigraphic contact information in the Site borehole logs. It is noted that this surface has been interpreted using information from boreholes completed in 2015 which were not available at the time of the original study. As part of the current study, ground surface elevations were also confirmed with GPS based survey instruments to ensure accuracy. For the interpolation shown in **Figure 8**, it is noted that the data from BH02-4, NW2 and NW8 were not included in the analysis as the stratigraphic elevations do not appear to be consistent with the surrounding boreholes. Ground surface elevations at BH02-4 and NW2 can no longer be confirmed as they are within the licenced extraction area and have been removed. The ground surface at NW8 could not be determined as the heavy forest canopy prevented a reliable satellite signal at that location.

The Amabel / Fossil Hill Formation contact is gradational and historically, the contact has been determined based on a subtle colour change from light grey to bluish-grey and the presence of shale partings. The data indicates that there is an overall dip from 490 masl along the eastern extraction limit to about 485 masl along the western extraction limit, which is consistent with the regional interpretation. As noted previously, this contact represents the proposed lower limit of the quarry deepening.

Fracture mapping and analysis was completed during previous studies, which found two major vertical joint sets at bearings of 100° and 142.5°. The presence of these joint sets imparts a characteristic blocky appearance to the exposed upper portions of the Amabel Formation bedrock surrounding the Site. Historically, a portion of the northwestern Main Quarry face consisted of a single, full-face joint plane. The observable surfaces of the joint planes varied from flat and smooth to more undulating and rougher and were observed to be both open and closed, indicating variable capacity to transmit groundwater over time. Open fractures typically exhibited an

oxidized brown colouration, and some were observed to be partially infilled with sediment. Vertical joint sets were observed in the exposed extension quarry faces during field investigations undertaken as part of the current study; however, none of the observable vertical joints in either quarry excavation appear to be hydraulically active.

Five (5) cross sections were prepared to illustrate the geologic and hydrogeologic conditions at the Site, the locations of which are provided on the Site Plan, **Figure 2**. Cross sections D-D', E-E' and F-F' were originally included in previous studies but have been modified / updated with more recent data, as shown on **Figures 9, 10 and 11**. Additional cross sections I-I' and J-J' were created to illustrate conditions where monitored escarpment groundwater springs are monitored, as shown on **Figures 12 and 13**.

2.3.1 Karst Features

The Amabel and Manitoulin Formation dolostone bedrock layers in the vicinity of the Site are susceptible to dissolution over time, which increases the hydraulic conductivity of the bedrock and can result in preferential groundwater flow in underground channels or conduits. Such features are referred to as karst.

Evidence of karst features during the course of previous studies lead to a detailed investigation completed by specialists in karst hydrogeology, as documented in the report titled *Karst Investigation of the Duntroon Quarry Expansion Lands* (Marcus J. Buck Karst Solutions and Worthington Groundwater, 2007), hereafter referred to as the Karst Investigation.

The Karst Investigation study area encompassed the Niagara Escarpment and adjacent lands extending 2 km both north and south of the Site. The table lands situated to the west of the Escarpment (referred to as the Amabel plateau) and the Manitoulin Scarp physiographic features were the focus of the study as they are underlain by carbonate bedrock susceptible to karstification. The most prevalent karst features mapped in the study area include dolines (i.e., sinkholes), sinking streams and 131 identifiable springs both along the Escarpment and on the Amabel plateau. Monitoring of key Escarpment springs identified in the Karst Investigation is on-going as part of the AMP monitoring program. Spring monitoring locations are shown in plan view on **Figure 2**, and selected springs are also included on the cross sections in **Figures 9 to 13**.

In 2007, it was determined that the SW11 series of escarpment springs were the likeliest to be potentially impacted by the Extension Quarry. These springs were determined to be resurgences for the sinking stream located east of the Extension Quarry downstream of station SW9. These monitoring locations are shown on cross section I-I', **Figure 12**. Tracer dye testing completed as part of the Karst Investigation demonstrated that about 90% of the flow in the SW9 sinking stream rapidly discharges along flowpaths estimated to range between 400 m to 700 m through the Amabel Formation bedrock to the SW11 series springs, at estimated velocities of up to 2,700 m/day. At the time of the tracer test (i.e., spring conditions), the flow within the SW9 watercourse accounted for only 43% of the combined flow at the SW11 series seeps. The remainder of the flow (i.e., nearly 60%) was attributed to distributed infiltration and recharge to the Amabel bedrock aquifer. Under baseline conditions, the SW9 watercourse frequently dried out during the summer months, during which time it is inferred that 100% of the resurgent flow to the SW11 seeps originates as distributed recharge to the aquifer. The study authors therefore concluded that the Escarpment seeps would not be impacted by the quarry dewatering as they would continue to be maintained by the distributed aquifer recharge even if the flow within the SW9 watercourse were impacted.

Karst modeling results published in the literature suggest that for fractured bedrock settings with high hydraulic gradients and distributed recharge occuring over relatively large areas, display conditions that promote the development of many smaller karst "conduits" rather than a smaller number of large diameter conduits (i.e.,

sinking streams). These are the conditions that were observed at the Site during the Karst Investigation, and the results of the tracer dye testing are consistent with published karst modeling. The lack of surface streams within the Amabel plateau east of the Site are also indicative that distributed aquifer recharge is occurring along the Escarpment brow. The study authors indicated that the use of an “equivalent porous medium” approach for the numerical groundwater flow model is appropriate for such conditions and that model results are representative at the scale of the study.

Finally, the Karst Investigation study authors also predicted no thermal impacts to the tributaries receiving flow from the Escarpment springs since the discharge water temperature would rapidly approach surface temperature while flowing down the talus slopes. In addition, the presence of in-line ponds downstream of the Escarpment springs also has a modifying effect on downstream surface water temperatures.

2.4 Hydrogeology

2.4.1 Regional Groundwater Setting

The Amabel Formation dolostone is the principal groundwater supply aquifer for residential, agricultural and commercial activities above and to the west of the Niagara Escarpment. This aquifer, known as the Amabel Aquifer, is part of the Guelph and Lockport-Amabel Aquifer System, as described by the MECP in its series on Major Aquifers in Ontario (1978). Re-interpretations of these hydrostratigraphic units have been conducted more recently by the OGS to align bedrock nomenclature throughout the Paleozoic sequence over broad areas. However, as a conceptual model for hydrogeology of the Site, these 1978 descriptions remain quite useful.

In the vicinity of the Site, the northern and eastern limits of the Amabel aquifer coincide with the face of the Niagara Escarpment. Groundwater movement in the aquifer occurs along open sections of bedding planes and fracture planes and causes preferential chemical dissolution of the dolostone along some discontinuities (i.e., karstification). The MECP notes that, in general, the dolostone appears to be most transmissive in the upper 6 m of the rock, which is reflective of the greater number of fractures in that zone, and the accompanying karstification that can occur.

Underlying the Amabel Formation dolostone is the more thinly bedded Fossil Hill Formation dolostone. At the Site, the Fossil Hill Formation is considered to act as a lower-activity basal section of the Amabel aquifer system.

The configuration of the groundwater contours within the Amabel Formation bedrock has historically reflected the topography of the ground surface. The Amabel plateau is bounded by the steep slopes of the Escarpment, the eastern valley wall of the Beaver River valley, and the Mad River valley wall to the south. Based on the historical groundwater contour mapping, there was a local groundwater high in the eastern section of the Extension Quarry, and another local groundwater high in the western section of the Extension Quarry, resulting in a groundwater divide through the area under baseline conditions. To the west, groundwater flow is interpreted to be westwards, towards the Beaver River valley. Adjacent to the Escarpment, groundwater flow is eastwards towards the Niagara Escarpment.

The Amabel and Fossil Hill Formations are underlain by shale of the Cabot Head Formation. The shale is considered to be an aquitard which restricts the vertical movement of groundwater. As a result, groundwater flow in the Amabel Formation is generally sub-horizontal towards the Escarpment or towards the Beaver River valley in response to the prevailing hydraulic gradient. At the Escarpment face, groundwater can discharge from the lower sections of the aquifer at or near the contact with the underlying shale. The discharge may occur both as diffuse seepage areas and as individual spring locations. These groundwater springs form the headwaters of small

tributary streams that feed into the main reaches of Batteaux Creek, Pretty River and Mad River, as illustrated on **Figure 1**.

Beneath the Cabot Head shale is the argillaceous dolostone of the Manitoulin Formation and the thinner sandstone of the Whirlpool Formation. Both the Manitoulin and the Whirlpool Formations are considered to be confined aquifers and water yields typically are low. The Cabot Head shale aquitard overlies these two formations and restricts the amount of vertical groundwater recharge into these confined aquifers. In the vicinity of the Escarpment, groundwater movement in the Manitoulin and Whirlpool Formations is towards the Escarpment where it is inferred to discharge. Historical field investigations at the Escarpment have identified groundwater springs discharging from these deeper units to the east and northeast of Duntroon Quarry.

Beneath the Whirlpool sandstone are thick Ordovician shale sequences of the Queenston Formation and the deeper Georgian Bay Formation. Both of these shale formations are considered to be regional aquitards that generally restrict the vertical and horizontal movement of groundwater.

For this report, the active groundwater system in the vicinity of the Site consists of the Amabel aquifer with monitoring of local discharge from the Manitoulin Formation at the Escarpment face. The groundwater systems in the bedrock beneath the Cabot Head shale aquitard are not part of the routine monitoring completed at the Site.

2.4.2 Site Groundwater Setting

2.4.2.1 Hydraulic Conductivity

The hydraulic conductivity of the Amabel and Fossil Hill Formations were studied as part of historical investigations. Field studies included packer testing of the boreholes advanced within the Extension Quarry lands and at BH98-8 and BH98-9 at the Main Quarry; the results for the various intervals are provided on the borehole logs included in **Appendix A-2**. A summary of the historical packer test results is provided on **Table 2.2**.

Table 2.2: Summary of Historical Packer Test Results

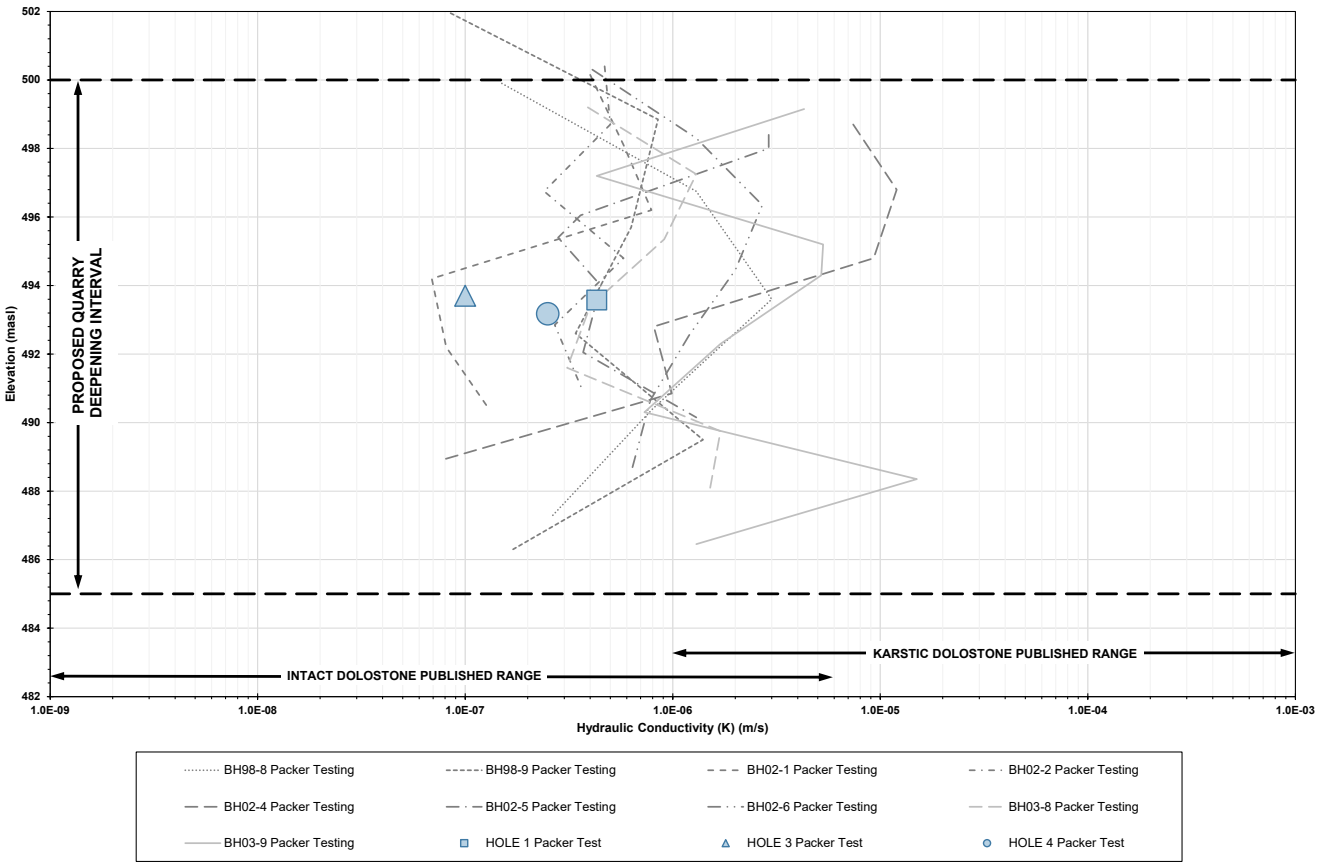
Formation	Range of Bulk Hydraulic Conductivity Values (m/s)	Geometric Mean (m/s)
Amabel (Reefal Facies)	$1x10^{-7}$ to $4x10^{-5}$	$1x10^{-6}$
Amabel (Flank Facies)	$5x10^{-8}$ to $2x10^{-5}$	$7x10^{-7}$
Fossil Hill	$6x10^{-10}$ to $4x10^{-6}$	$2x10^{-8}$
Cabot Head	$5x10^{-8}$ (one value)	

A number of pumping tests have been completed at the Site and surrounding area historically; however, the focus of these tests was the Amabel Aquifer. The pumping test results suggest that the bulk hydraulic conductivity of the Amabel Formation dolostone is on the order of $1x10^{-6}$ m/s, which is consistent with the packer test results for the reefal facies as shown above.

As part of the current study, seven (7) test boreholes were advanced to the Amabel / Fossil Hill Formation contact within the Extension and Main Quarries to augment the historical packer test data. The test holes were advanced using the WAI on-site drill rig at the locations shown on **Figure 2B**. The depth of the test holes ranged from 11.7 m to 12.8 m below the quarry floor. Licenced well driller Country Water Systems of Barrie, Ontario completed the packer testing in late August 2024. A 102 mm (4”) diameter inflatable packer was installed in the

test holes to isolate the lower competent bedrock from the disturbed quarry floor. It is inferred that previous blasting and quarrying activities could enhance fracturing and hydraulic connectivity of the upper 2 m to 3 m of bedrock within the quarry floor. The test holes were then purged and allowed to recover to complete a rising head single-well response test for estimation of hydraulic conductivity. Analysis of the rising head tests completed in August 2024 are provided in **Appendix F**. It is noted that the packer could not be installed at test holes 2, 5 and 6 as the borehole had caved in prior to the testing date. A representative test could not be completed at hole 7 as a satisfactory packer seal within a shallow interval could not be achieved.

A comparison of the August 2024 and historical packer test results is provided on the graph below. Estimated hydraulic conductivities from the 2024 tests ranged from $1x10^{-7}$ m/s to $4.3x10^{-7}$ m/s, which is within the lower range of previously reported packer test results.



2.4.2.2 Groundwater Elevations

Typically, groundwater levels at the Site achieve seasonal high elevations in the spring following the snow melt and then progressively decline throughout the summer months due to higher evapotranspiration (ET) rates. In the fall, the balance between precipitation rates and lower evapotranspiration rates can result in a rise in groundwater levels. In the winter months, when precipitation is bound up in the snowpack and the shallow ground surface is frozen, groundwater levels tend to decline until the spring snow melt, when the cycle repeats.

The magnitude of seasonal variation is generally the greatest at the topographically high groundwater recharge areas, with less seasonal variation occurring in the topographically lower lying areas and adjacent to surface water courses and / or lakes that serve as groundwater discharge areas.

Water levels at the Site have typically remained within historical data ranges. Localized drawdown due to quarry extraction activities is observed at some locations in close proximity to the quarries, as expected based on the numerical model predictions.

A summary of long-term water level trends at each location is presented below.

Main Quarry Monitoring Wells

The groundwater hydrographs for the Main Quarry monitoring wells indicate that the groundwater levels along the north boundary of the Main Quarry in proximity to the tunnel, showed signs of local influence from this excavation. The remaining wells show variations consistent with historical data. The operation of the Storage Reservoir and the secondary reservoir on the quarry floor appears to be mitigating drawdown at PW99-1 and 98-8 to the west and southwest of the Main Quarry.

Table 2.3: Long-Term Water Level Trends at Main Quarry Monitoring Wells

Monitoring Well	Figure	Discussion
MW6	**B-1**	Approximately 15 m of historical drawdown through 2003 and generally stable groundwater level variations since that time. Potentially influenced by tunnel construction (began October 2015).
98-8	**B-2**	Groundwater levels gradually increased between 2001 and 2015 with the operation of the Storage Reservoir and have generally remained stable since that time.
98-9	**B-3**	Approximately 11 m of historical impact from aggregate extraction through 2003. Stable groundwater variations since 2003 with water levels showing seasonal fluctuations comparable to previous monitoring years. Seasonal high elevations have generally decreased since 2020, although a rebound of about 4 m was observed in 2023.
98-12	**B-4**	Approximately 14 m of historical impact from aggregate extraction through 2007. Stable groundwater levels with muted seasonal variation observed since 2008.
PW99-1	**B-5**	Similar to 98-8, operation of the Storage Reservoir caused increase in water levels between 2001 and 2015, with generally stable groundwater levels since that time.

Extension Quarry Monitoring Wells

The Extension Quarry monitoring wells that show influence from quarry dewatering and extraction tend to be close to (i) the active extraction areas located at the north property boundary of the Main Quarry and (ii) the south portion of Phase 1 of the Extension Quarry, near the tunnel construction. Aggregate extraction in Phase 1 of the Extension Quarry began at the end of June 2016.

Table 2.4: Long-Term Water Level Trends at Extension Quarry Monitoring Wells

Monitoring Well	Figure	Discussion
BH02-1	**B-6**	Historically this monitor has shown drawdown impacts prior to Extension Quarry extraction. Approximately 2 m of additional decline in groundwater level since 2015. Seasonal variation in water levels slightly above 10 m. *(removed from monitoring program in 2020)*
BH02-2	**B-7**	Groundwater level shows a drawdown of about 10 m since 2016 as the quarry face moves northeast towards the monitoring location.
BH02-3	**B-8**	Fluctuating water levels with no apparent trend. *(removed from monitoring program in 2019)*
BH02-4	**B-9**	Seasonal fluctuation of about 7 m. About 8 m drawdown between 2015 and 2019. *(removed from monitoring program in 2019)*
BH02-5 (nest)	**B-10(a,b,c)**	Groundwater levels within previously recorded seasonal variation of about 2 m in the overburden, shallow Amabel bedrock and deeper Amabel / Fossil Hill bedrock. There is no discernable vertical hydraulic gradient between the three monitor intervals, which indicates that these units function as a single aquifer.
BH02-6	**B-11**	Decline in water level of about 8 m in 2015 due to tunnel construction. Water levels have remained stable since that time.
BH03-7 (nest)	**B-12(a,b,c)**	Groundwater levels within previously recorded seasonal variation of about 2 m in the overburden, shallow Amabel bedrock and deeper Amabel / Fossil Hill bedrock. There is typically a slight upward gradient from the deeper Amabel / Fossil Hill interval to the shallower units, while no discernable vertical hydraulic gradient is observed between the shallow Amabel bedrock interval and the overburden.
BH03-8	**B-13**	Groundwater levels within previously recorded seasonal variation of about 3 m.
BH03-9	**B-14**	Water levels began showing larger seasonal variations in 2016. New minimum groundwater elevation reported in October 2019 due to dry conditions, however water levels have recovered to historical ranges since 2020. Changes in groundwater levels in the southwest corner of the Extension property at BH03-9 have historically been buffered by the presence of a spring located in this area. After the new minimum water elevation was set in October 2019, groundwater levels rebounded by the end of the year to within seasonal averages. The spring also provides flow to SW2.
TW4-01 TW4-02 TW4-03	**B-15 B-16 B-17**	Wells are in close proximity to each other and show redundant information. Similar to BH03-9, water levels began showing larger seasonal variations in 2016 with historic lows observed in October 2019 due to dry conditions but have recovered to historical ranges since 2021.
BH08-1 BH08-2 BH08-3	**B-18 B-19 B-20**	Wells are in close proximity to each other and show redundant information. Historic lows observed in late fall 2022, inferred to be the result of lower than normal precipitation. However, these wells are noted to be in the predicted radius of influence of the Extension Quarry. Water levels in 2023 appear to have marginally rebounded. Monitoring of emerging trends will be continued.
NW1	**B-21**	Groundwater levels declined after July 2016, now stable at about 502 masl, the approximate elevation of the Extension Quarry transient sump.
NW2	**B-22**	Monitoring ceased in June 2018 due to extraction progression.
NW3	**B-23**	Groundwater levels have been consistent and display seasonal variation of about 5 m. *(removed from monitoring program in 2022)*

Monitoring Well	Figure	Discussion
NW4	**B-24**	Groundwater levels have shown an overall decline since 2016. *(removed from monitoring program in 2019)*
NW5	**B-25**	Groundwater levels show drawdown of about 8 m since 2016. *(removed from monitoring program in late 2023)*
NW6	**B-26**	Groundwater levels show drawdown of about 5 m since 2016.
NW7	**B-27**	The groundwater levels have been variable. The cause of this is undetermined but may be related to monitor construction / location. Overall drawdown of about 2 m since 2016.
NW8	**B-28**	Groundwater levels have been consistent and display seasonal variation of about 2 m. It is noted that the measuring point elevation for this location is likely inaccurately high. Attempts to re-survey to confirm the elevation data in 2024 were not successful due to thick forest canopy. Therefore, the water level from this well is not used in the current water table interpretation.
NW9	**B-29**	Groundwater levels have been consistent and display seasonal variation of about 2 m. Similar to BH03-9 and TW04-1 to TW04-3, minimum water levels were observed in 2019 but the water levels appear to have recovered to the historical range since that time.
NW10 (nest)	**B-30**	Overburden groundwater levels remain stable with about 1 m seasonal variation. Shallow and deep bedrock monitoring well groundwater levels have been consistent and display seasonal variation of about 2 m.

Extension Quarry Injection Wells

Table 2.5: Long-Term Water Level Trends at Extension Quarry Injection Wells

Injection Well	Figure	Discussion
IW1 / IW1a	**B-31**	Groundwater levels displaying seasonal variations. Approximately 10 m difference between peak and low water levels.
IW2	**B-32**	Groundwater levels displaying seasonal variation of about 4 m. Historic low observed in late fall 2022, inferred to be the result of lower than normal precipitation. However, these wells are noted to be in the predicted radius of influence of the Extension Quarry. Water levels in 2023 appear to have rebounded.
IW3	**B-33**	Groundwater levels displaying seasonal variations. About 9 m difference between peak and low groundwater levels.
IW4	**B-34**	Groundwater levels show fluctuations related to seasonal climate variations of about 4 m.

Domestic Wells

Review of the hydrographs for the domestic wells indicates that groundwater levels have generally remained within the historical range with no apparent influence from ongoing quarry extraction.

Table 2.6: Long-Term Water Level Trends at Domestic Wells

Domestic Well	Figure	Discussion
RW1	**B-35**	Groundwater levels have fluctuated within a 6 m seasonal variation. In the late fall of 2022, a new low water level, marginally below the historic range, was observed. Water levels in 2023 appear to have rebounded.
RW2	**B-36**	Access not initially granted by new homeowners in 2018 but access restored in 2019. The 2019 to 2022 water levels were observed to vary over a wider range compared to pre-2018 data. The 2023 logger data range is similar to the historical logger data range from 2009 to 2017.
RW3	**B-37**	Groundwater levels within previously recorded seasonal variation of about 4 m.
RW4	**B-38**	Seasonal variation of about 3 m. *(removed from monitoring program in 2019 at well owner's request)*
RW5	**B-39**	Groundwater levels have fluctuated within previously recorded seasonal variation of about 2 m. Groundwater level spikes were observed in 2020 and 2021but are likely anomalous. A historic low water level was observed in late 2022 but appears to be anomalous. Going forward, the logger data will be used to assess trends at this well. It is noted that RW5 is below the escarpment and baseline water levels (~460 masl) are substantially below the quarry sump elevation (~500 masl) and as such, quarry impacts at this well are not anticipated. This is shown schematically in cross section E-E', **Figure 10**.
RW6	**B-40**	Groundwater levels within seasonal variation of about 2 m. *(removed from monitoring program in 2022 at well owner's request)*
RW7	**B-41**	Groundwater levels within previously recorded seasonal variation of about 2 m. New minimum groundwater levels reported in August and September 2020, but levels returned to historic range since that time.
RW8	**B-42**	RW8 is located on a local topographical high north of the Main and Extension quarries and outside of their influence. Groundwater levels within previously recorded seasonal variation of about 3 m.
RW9	**B-43**	*(removed from monitoring program in 2014, within Osprey Quarry licence boundary)*
RW12	**B-44**	Seasonal variation of about 2 m.
RW13	**B-45**	Seasonal variation of about 2 m.
RW16 (owned by WAI)	**B-46**	Groundwater levels within seasonal variation of about 5 m, with the exception of the late fall 2022 where a historical low was observed. Seasonal low water levels in 2023 appear to have rebounded by about 1 m.
RW17	**B-47**	Groundwater levels within previously recorded seasonal variation of about 2 m.
RW18 (owned by WAI)	**B-48**	Historical seasonal variation of about 2 m. Decrease in water level of about 2 m in 2021. *(removed from monitoring program in 2022 as it is within Phase 2A)*
RW19 (owned by WAI)	**B-49**	Decrease in water level of about 4 m between 2015 and 2020. *(removed from monitoring program in 2020 as it is within Phase 2A)*

Carmarthen Lake Farms has several domestic wells that are used for livestock watering and for the various residences that are present on the property.

CLF2 is located close to the southern property boundary of the Main Quarry and is approximately 700 m from the southern limit of the extraction face. The water levels at CLF2 have historically shown influences from aggregate extraction. However, since the Storage Reservoir has been used consistently, the groundwater levels at CLF2 have remained relatively stable, showing seasonal fluctuations but no apparent influences from aggregate extraction. Monitoring of CLF2 ceased in 2020 as the well casing has reportedly failed. As noted previously, the well casing at CLF1 also failed and monitoring was discontinued in 2013. Adequate water level monitoring data is provided by the remaining wells CLF3, CLF4 and CLF5.

Table 2.7: Long-Term Water Level Trends at Carmarthen Lake Farm Domestic Wells

Domestic Well	Figure	Discussion
CLF3	**B-52**	Groundwater levels within previously recorded seasonal variation of about 2 m.
CLF4	**B-53**	Groundwater levels within previously recorded seasonal variation of about 2 m.
CLF5	**B-54**	Groundwater levels within previously recorded seasonal variation of about 1.5 m.

Off-Site Monitoring Wells

Table 2.8 summarizes the long-term trends at the groundwater monitoring wells on the undeveloped former Osprey Quarry property.

Table 2.8: Long-Term Water Level Trends at Off-Site Monitoring Wells

Monitoring Well	Figure	Discussion
101-B	**B-55**	Groundwater levels within previously recorded seasonal variation of about 2 m.
102-C	**B-56**	Groundwater levels within previously recorded seasonal variation of about 1 m.
103-D	**B-57**	Groundwater levels within previously recorded seasonal variations. Seasonal variation has decreased from 2 m in 2003 to about 1 m since 2013.
104-A	**B-58**	Groundwater levels within previously recorded seasonal variation of about 4 m.
OW1-4	**B-59**	Groundwater levels have increased since 2005, seasonal variation of about 1 m.
OW5-2	**B-61**	Groundwater levels within previously recorded seasonal variation of about 2 m.
OW6-3	**B-62**	Groundwater levels within previously recorded seasonal variation of about 1 m.

Wetland Drivepoints

The wetland drivepoints included in the groundwater monitoring program represent the shallow groundwater table near various sensitive features in close proximity to the Site. During the winter and summer months, drivepoint water levels can become unmeasurable when the surrounding water freezes or dries up. These events are noted in **Table B-7** where they were observed during the monitoring event. Trends and observations for drivepoint monitoring stations are summarized in **Table 2.9**.

Table 2.9: Long-Term Water Level Trends at Wetland Drivepoints

Drivepoint	Figure	Discussion
DP1	**B-63**	Groundwater levels have increased by about 1 m since 2015 at this drivepoint situated in Rob Roy Swamp 6 possibly due to discharge pipeline leakage. In late 2023, replacement of the discharge pipe (running through Rob Roy Swamp 6) with a new solid pipe was initiated, with completion in February 2024. Operation of the new solid discharge pipe will be monitored to see if lower surface water levels in Rob Roy Swamp 6 result.
DP2	**B-64**	Water levels display a slight increasing trend since 2010-2011. Historical high water levels were observed on several occasions in 2022 but these are believed to be related to a field data transcription issue which has been corrected. The logger water level data confirms a historic high water level in March 2023.
DP3	**B-65**	Water levels have fluctuated within the historical seasonal variation of about 1.5 m.
DP4	**B-66**	Seasonal variation generally consistent prior to 2011. Since 2011, water levels during drier periods have remained above the historical range and since 2018, water levels have increased by about 0.5 m. These results suggests that the Rob Roy 6 wetland has remained saturated for longer periods of time in comparison to baseline observations. In previous reports, an incorrect measuring point elevation was used to correct water level data to geodetic elevation since 2018. The historical geodetic elevation data has been corrected as presented in **Figure B-66**. It is noted that this wetland receives discharge from both the Site and the Osprey Quarry operated by St. Mary's Cement.
DP5	**B-67**	Seasonal variation within historical range of about 1.5 m.
DP6	**B-68**	Seasonal variation within historical range of about 1.5 m.
DP7	**B-69**	Seasonal variation within range of about 1 m. Elevated water levels observed in September 2021 and early 2022 attributed to a field data transcription issue which has been corrected. The 2023 manual and logger water level data are consistent with pre-2021 ranges.
DP8	**B-70**	Muted seasonal variation within a narrow range of less than 0.5 m. Elevated water level in mid-2022 may be related to field data transcription issue which has been corrected. It appears that water levels at this drivepoint in Rob Roy Swamp 6 have increased by about 0.3 m since 2016 attributed to a leaking discharge pipe. Operation of the new discharge pipe will be monitored to see if lower surface water levels in Rob Roy Swamp 6 result.
DP9	**B-71**	Seasonal variation within a range of about 1 m. Elevated water levels observed in September 2021 and mid 2022 are believed to be related to a field data transcription issue which has been corrected. The 2023 manual and logger water level data are consistent with pre-2021 ranges.
Bridson DP	**B-72**	Seasonal variation within historical range of about 1.5 m.

The temperature of the surface water ponded at the drivepoints is recorded when possible. Surface water at these locations is often frozen in the winter months and can dry up in the summer / fall. Temperature values are presented in **Table B-8**, **Appendix B**.

2.4.2.3 Groundwater Configuration

The monitoring wells and domestic wells included in the monitoring program are generally constructed as open holes that extend into, and sometimes through, the Amabel Formation into the Fossil Hill Formation. The open hole monitors and water wells provide a generalized measure of potentiometric head through the entire rock column.

Groundwater elevations were contoured for May 2023 (spring conditions) and October 2023 (fall conditions), to illustrate the local groundwater configuration and general flow directions within the Amabel aquifer, presented as **Figures 14 and 15**. The groundwater configuration and flow pattern remain similar throughout the year.

Within the Main Quarry extraction area, Sump 1 extends below the quarry floor to approximate elevation 498 masl, such that sump water levels can be maintained at or below the quarry floor elevation of approximately 500 masl. The transient Sump 3 water levels in the Extension Quarry are maintained at about 502 masl, which promotes gravity flow to the Main Quarry sumps.

The interpreted groundwater configuration exhibits an elliptical pattern that is centred upon the areas of higher surface elevation. A groundwater divide is present in the Extension Quarry. The groundwater flow direction in the eastern portion is towards the Escarpment and generally to the Batteaux Creek sub-catchment. In the western portion, groundwater flow is to the north, generally towards the Pretty River sub-catchment, and to the west, contributing to the Beaver River sub-catchment. Groundwater levels at BH02-6 show influence from the construction of the tunnel in 2015 and from the subsequent aggregate extraction activities in the Extension Quarry. However, drawdown at this location is inferred to be mitigated by operation of the Storage Reservoir.

South of the Main Quarry, groundwater flow is interpreted to be radially away from areas of higher elevation towards the Carmarthen Lake Farms wetland (DP3). Further south, Edward Lake is interpreted to be a local groundwater discharge area as well as a collection area for local surface water run-off. The surface elevation is approximately 507 masl and the lake is reported to be approximately 4 m deep. There is an overflow outlet culvert at the southwest corner of the lake.

At the Osprey Quarry west of the Site, water level data are available through 2023. The average May and October elevations are shown on **Figures 14 and 15**. The quarry extraction is influencing water levels at Osprey Quarry monitoring well nests OW1, OW2 and OW3 located in close proximity to the active quarry face. It is noted that well nests OW1 and OW3 were decommissioned in 2022 and 2023, respectively, due to quarry extraction. Water level data included in the interpolation is from prior to their decommissioning.

2.4.3 Source Protection Plans

As part of the enactment of the Ontario Clean Water Act (2006), Source Protection Plans (SPPs) were developed to protect municipal drinking water sources for each region in southern Ontario. The results of the technical studies undertaken as part of the SPP for South Georgian Bay - Lake Simcoe Source Protection (SGB-LSSP) Region are outlined in the Approved Assessment Report (SGB-LSSP Committee, 2015). The Saugeen, Grey Sauble, Northern Bruce Peninsula Source Protection (SGSNBPSP) Region Approved Assessment Report (SGSNBPSP Committee, 2015) was also reviewed as the Site straddles the boundary between these two source protection regions.

The closest WHPA located in the Nottawasaga Valley Source Protection Area is for the Stayner wellfield, located approximately 9 km east of the Site. To the west, the closest WHPA in the Grey Sauble Source Protection Area is

for the Kimberley wellfield, located over 20 km away from the Site. Therefore, the Site is well outside of any WHPA and does not represent a potential threat to municipal drinking water supplies.

Highly vulnerable aquifers (HVAs) are designated for areas where an aquifer is relatively shallow and there is minimal protection from the overburden. Portions of both the Main and Extension Quarries are situated within an area designated as an HVA. Aggregate operations are also considered a high vulnerability transport pathway which impacts the HVA designation. As noted previously, there are no nearby municipal groundwater supplies, but the proposed quarry does represent a potential drinking water threat to local groundwater users. The recommendations in **Section 4** of this report are specifically designed to mitigate potential threats to private well drinking water quantity or quality, and include a comprehensive monitoring program, a well interference complaint mechanism and Spills Contingency Program. Further discussion is provided below.

Significant groundwater recharge areas (SGRAs) are also considered vulnerable to drinking water threats and have been mapped for the region. Portions of both the Main and Extension Quarries are also situated within an SGRA.

2.4.4 Groundwater Use

2.4.4.1 MECP Water Well Record Search

As noted previously, private water wells which are situated on properties within 1 km of the Site have historically been included in the AMP monitoring program; however, access is contingent on landowner permission and a number of landowners have opted out of the program over time.

For the current study, a search of the MECP Water Well Record database was undertaken to identify any new private supply wells within a 1 km search radius of the Site. The results of the search are shown on **Figure 16** and summarized in **Table E-1**, **Appendix E**.

Residential water supplies in the area can be grouped into those located above the Niagara Escarpment, and those located “below” the brow of the Escarpment. Above the Escarpment, potable water supplies are typically obtained by means of drilled wells that are developed in the Amabel Aquifer. Below the brow of the Niagara Escarpment, drilled water supplies can be more difficult to develop due to the nature of the Queenston and the Georgian Bay Formations. Also, it is noted that a number of landowners below the Escarpment utilize cisterns to capture spring flows as a potable water source.

A total of sixty-five (65) water well records plot within the search area. Of these well records, thirty-six (36) were completed prior to 2004 and were identified in previous reporting. The remaining twenty-nine (29) water well records submitted after 2004 mostly relate to drilling and decommissioning programs undertaken as part of subsequent studies. Based on a review of the newer well records, only three (3) appear to be related to new private supply well installation:

- Record no. 7162177 which plots at address 469712 Grey Road 31 (Grey County) northwest of the Site and north of the St. Marys Osprey Quarry;
- Record no. 7195976 which plots at address 449724 10th Concession (Grey County) southwest of the Site and south of the St. Marys Osprey Quarry; and
- Record no. 7160031 which plots at address 1218 Concession 10 N (Simcoe County) northeast of the Site.

Due to their distances from the Site and for the case of 7160031, location below the Escarpment, none of these newly installed wells has the potential to offer additional data which the existing AMP monitoring program does not already adequately cover and therefore, none of these wells have been incorporated into the AMP.

A summary of the forty-six (46) parcels with addresses included in the water well record search is provided on **Table E-2**, **Appendix E**. The majority of these addresses were included in previous water well surveys and their historical references (i.e., landowner surnames) and their current designation (e.g., RW1, etc.) are provided for clarity. Landowners who have opted out of the program or who are monitored as part of the St. Marys Osprey Quarry monitoring program are also identified. Water level monitoring data is provided in **Section 2.4.2.2**, while water quality data is provided in **Section 2.5.1**.

2.4.4.2 Permits-To-Take-Water

A search of the MECP Permit-to-Take-Water (PTTW) database was undertaken as part of the current study to identify permitted groundwater users within the study area.

A total of four (4) active PTTWs are mapped within a 1 km radius of the Site, summarized as follows:

Groundwater Takings

PTTW no. 7725-AACS54 (Duntroon Quarry, WAI) authorizes groundwater takings for quarry dewatering up to a maximum rate of 21,600,000 L/day (250 L/s).

Surface Water and Groundwater Takings

PTTW no. 5571-C7RH3L (Osprey Quarry, St. Marys Cement Inc) authorizes groundwater takings for quarry dewatering up to a maximum rate of 6,480,000 L/day (75 L/s), and surface water takings for aggregate washing from their on-site settling pond up to a maximum rate of 10,424,400 L/day (121 L/s).

Surface Water Takings

PTTW no. 5108-B44JXF (Highlands Nordic Inc.) authorizes surface water takings from a spring-fed watercourse for snowmaking up to a maximum rate of 250,000 L/day (3 L/s). It is noted that the springs associated with this watercourse are currently monitored as part of the AMP monitoring program (SW22 series stations).

PTTW no. 2350-CF2LNW (Duntroon Highlands Golf) authorizes surface water takings from their on-site pond for irrigation up to a maximum rate of 900,000 L/day (10 L/s). It is noted that this taking is also associated with the groundwater springs that are monitored at the SW22 stations as part of the AMP.

2.5 Water Quality

2.5.1 Private Supply Wells

As noted previously, domestic wells RW1 and RW2 are also sampled annually for general chemistry, major and minor ions, nutrients, total petroleum and hydrocarbons, BTEX, total suspended solids and bacteriological parameters. The historical results are provided in **Tables B-9 and B-10**, **Appendix B**. The groundwater chemical results for RW1 and RW2 are compared to the Ontario Drinking Water Quality Standards, Objectives and Guidelines (ODWQS) (MECP, June 2003 and updates). The groundwater quality at these locations has generally met the ODWQS, with the following exceptions:

- As shown on **Table B-10**, the total coliform counts exceeded the ODWQS health-related guideline at RW1 in 2020 and 2023 and at RW2 during each annual sampling event since 2016. E. coli counts have also

exceeded the ODWQS health-related guideline at RW2 since 2020. In June 2021 and May 2023, re-sampling was completed at both an outside tap (upstream of the treatment system) and an inside tap (downstream of the treatment system). It was determined that the inside tap meets the ODWQS objectives for total coliforms and E. coli, while the outside tap does not. In 2023 the well casing at RW2 was inspected and was found to be in good condition with no obvious surface seal issues. However, there is a large chicken coop in close proximity to the well which may be the cause of the persistent bacteriological exceedances at RW2.

- Sodium has an aesthetic objective of 200 mg/L and a suggested maximum concentration of 20 mg/L under the ODWQS. As shown in **Table B-9**, sodium concentrations have generally exceeded the ODWQS suggested maximum concentration of 20 mg/L at RW1 and RW2 during each annual sampling event since 2016; however, concentrations do not exceed the aesthetic objective. The elevated sodium concentrations are inferred to be the result of natural conditions in the aquifer, and not related to quarry operations.
- Hardness concentrations have generally exceeded the ODWQS operational guideline for treatment systems at RW1 and RW2 during each annual sampling event since 2016. The elevated hardness concentrations are inferred to be the result of natural conditions in the aquifer, and not related to quarry operations.

The ODWQS guidelines for sodium and hardness are related to aesthetic objectives / treatment system operational guidelines and are not health related.

2.5.2 Stream Flow and Temperature

A summary of the stream flow monitoring results is presented in **Table 2.10**.

Table 2.10: Stream Flow and Temperature Long-Term Trend Observations

Station	Figure	Discussion
Beaver River Tributary System		
SW1	**C-1**	Surface water flows and temperature fluctuating within seasonal ranges. Historic high flow observed in April 2020 but flows have returned to historic range since that time.
SW2	**C-2**	Surface water flows and temperature fluctuating within seasonal ranges.
SW0-2	**C-3**	Surface water flows and temperature fluctuating within seasonal ranges. Historic high flow observed in March 2023.
QFSW2	**C-4**	Surface water flows and temperature fluctuating seasonally. Decreasing trend in flows between 2012 and 2021 but stable since that time. Historic low flow observed in February 2023.
SW3	**C-5**	Surface water flows and temperature fluctuating within seasonal ranges.
SW4	**C-7**	Surface water flows and temperature fluctuating within seasonal ranges.
SW6A	**C-10**	Surface water flows and temperature fluctuating within seasonal ranges. High flow measured in April 2023 similar to previous highs observed in April 2005 and February 2018.
Batteaux Creek Tributary System		
SW8	**C-12**	Minimal flow typically observed at this station.
SW9	**C-13**	Surface water flows and temperature fluctuating within seasonal ranges.
SW13	**C-23**	Surface water flows and temperature fluctuating within seasonal ranges.
SW14	**C-24**	Surface water flows and temperature fluctuating within seasonal ranges.

Station	Figure	Discussion
SW15	**C-25**	Surface water flows and temperature fluctuating within seasonal ranges. It is noted that in 2021, the culvert at this station was replaced as part of Concession 10 road re-construction. The new culvert invert appears to be at a higher elevation than the previous culvert from which the flow trigger values were developed.
SW19	**C-31**	Surface water flows and temperature fluctuating within seasonal ranges.
SW21	**C-33**	Minimal flow typically observed at this station.
SW21A	**C-34**	Surface water flows and temperature fluctuating within seasonal ranges.
SW21B	**C-35**	Surface water flows and temperature fluctuating within seasonal ranges. Historic high flow observed in March 2021 likely anomalous.
SW22	**C-38**	Surface water flows and temperature fluctuating within seasonal ranges.
SW22A	**C-39**	Surface water flows and temperature fluctuating within seasonal ranges. Historic high flow in June 2020 likely anomalous.
SW22C	**C-40**	Surface water flows and temperature fluctuating within seasonal ranges.
BC Control	**C-49**	Surface water flows and temperature fluctuating within seasonal ranges.
Pretty River Tributary System		
SW16	**C-26**	Surface water flows and temperature fluctuating within seasonal ranges. Historic high temperature observed in June 2023 is not consistent with logger data and appears to be anomalous.
SW17	**C-27**	Surface water flows and temperature fluctuating within seasonal ranges. Temperature maximum observed in late August 2021 likely associated with high ambient air temperatures / very low flow conditions in the watercourse.
SW17A	**C-28**	Surface water flows and temperature fluctuating within seasonal ranges. Historic high temperature observed in August 2020 appears to be anomalous.
SW18	**C-30**	Surface water flows and temperature fluctuating within seasonal ranges. Accessibility limited in 2021 due to Concession 10 re-construction.
SW20	**C-32**	Surface water flows and temperature fluctuating within seasonal ranges.
PR Control	**C-48**	Surface water flows and temperature fluctuating within seasonal ranges.

2.5.3 Escarpment Springs

A summary of the stream flow monitoring results is presented in **Table 2.11**.

Table 2.11: Escarpment Spring Flow and Temperature Long-Term Trend Observations

Station	Figure	Discussion
SW10	**C-14**	Surface water flows and temperature fluctuating within seasonal ranges.
SW11	**C-15**	Surface water flows and temperature fluctuating within seasonal ranges.
SW11A	**C-16**	Surface water flows and temperature fluctuating within seasonal ranges.
SW11B	**C-17**	Surface water flows and temperature fluctuating within seasonal ranges.

Station	Figure	Discussion
SW11C	**C-18**	Surface water flows and temperature fluctuating within seasonal ranges.
SW11D	**C-19**	Surface water flows and temperature fluctuating within seasonal ranges.
SW11E	**C-20**	Surface water flows and temperature fluctuating within seasonal ranges.
SW21C	**C-36**	Surface water flows and temperature fluctuating within seasonal ranges. Elevated temperatures observed in August 2021 and June 2023 likely associated with high ambient air temperatures / low flow conditions in the watercourse.
SW24A	**C-42**	Surface water flows and temperature fluctuating within seasonal ranges. Landowner significantly altered this watercourse in 2021.
SW77	**C-45**	Surface water flows and temperature fluctuating within seasonal ranges. Higher than normal seasonal flows observed between late 2020 to early 2022.

2.5.4 Surface Water Quality

Surface water quality results obtained as part of the AMP monitoring are included in **Table C-4**. Surface water quality analytical results are compared to the Provincial Water Quality Objectives (PWQO) (MECP, July 1994 and updates). Water quality samples have generally met the PWQO with the exception of sporadic exceedances of total phosphorus and metals. The data indicates that surface water quality has not been impacted since the baseline studies were completed as part of the historical Extension Quarry licencing.

2.6 Water Budget

The climate data from the Shanty Bay station are used to calculate the water budget for the Site using the Thornthwaite-Mather method to estimate the available monthly net water surplus available for runoff or infiltration to the groundwater system. The results are shown graphically on **Figure D-1**, **Appendix D**.

Baseline (2003 – 2020) monthly net water surplus estimates for the Shanty Bay climate station are summarized in box and whisker plots in **Figure D-1**. In the plot, the “whiskers” represent the maximum and minimum historic monthly values, the upper and lower edges of the “box” represent the 75th and 25th percentile of the historic data range and the solid line through the box represents the median value. Individual data points occasionally may plot outside of the “whiskers”. These data points are interpreted to be outliers, as they are outside of 1.5 times the interquartile range (i.e., 1.5 times the range of the “box”).

The Thornbury Slama 30-year monthly climate normal is also shown for comparison. The baseline data for the Shanty Bay stations are similar to that of the climate normal.

The monthly net water surplus values calculated using the 2023 Site data from WAI station and the Shanty Bay station are also shown on the plot. Recent water surplus values calculated for the period since 2020 are generally consistent with the baseline range; however, periods of above or below normal have been observed since 2020 and have been interpreted to influence groundwater elevations and surface water flows measured at the Site as part of the AMP.

Baseline average monthly temperature data for the Shanty Bay climate station are summarized in box and whisker plots in **Figure D-2**, with the 30-year normal shown for comparison. Once again, the baseline data for Shanty Bay station is similar to that of the climate normal.

The average monthly temperatures from the 2023 Site data from WAI station and the Shanty Bay station are also shown on the plot. The temperature data collected at the WAI station are typically 1°C to 2°C cooler than the Shanty Bay station temperature measurements. The WAI station data have been similar to the median of the baseline temperature data.

Baseline average daily discharge data for the Mad River hydrometric station south of the Site and the Pretty River hydrometric station north of the Site are also summarized in box and whisker plots in **Figures D-3 and D-4**. Since 2020, average daily discharge data have been generally similar to the median of the baseline data for both watercourses. However, a number of isolated discharge events were observed to exceed the 75th percentile of the baseline flow ranges, while drier periods (i.e., discharge below the 25th percentile) have also been observed. These stations are situated outside of the inferred radius of influence of the Site and are attributed to natural climatic conditions.

3.0 IMPACT ASSESSMENT

3.1 Existing Quarry Impacts

3.1.1 Current Site Operations

Currently, extraction is ongoing within the Extension Quarry Phase 1 and within Phase 2A as of 2021. Extraction during Phase 1 was not expected to result in any negative impacts to off-site water resources or ecological features. AMP monitoring program data obtained during the Phase 1 extraction has been used as input to establish baseline ranges for ecological and water features that will be compared to later phases as the quarry footprint expands.

The Main Duntroon Quarry has been mined such that bedrock resource is no longer extracted from within that Licence. Rehabilitation slopes have been constructed along the east and south quarry faces, while internal berms have been constructed in the western portion of the quarry to form the Storage Reservoir pond and wash plant ponds. These ponds also help mitigate potential dewatering impacts to the Rob Roy Swamp 6 (RR6) wetland to the west.

Aggregate processing of the Extension Quarry resources is primarily completed within the Main Quarry. The movement of aggregate resources between the Main Quarry and the Extension Quarry is facilitated by the tunnel under Township Road 91.

The current water management system as depicted on **Figure 2A** consists of two sumps in the Main Quarry, Sump 1 and Sump 2, both of which are equipped with submersible pumps. Sump 2 was moved to its current location in 2016 to allow for the construction of the Storage Reservoir. Water that collects in the Extension Quarry flows via gravity from Transient Sump 3 to the Main Quarry, where the water is managed with the existing discharge works.

In the Main Quarry, water from Sump 2 is either pumped to the Storage Reservoir within the western portion of the Site or directly to Sump 1. Water outflow from the Storage Reservoir is controlled using a weir to direct water as needed to Sump 1 via a gravity sewer line. Any leakage from the Storage Reservoir is directed across the quarry floor to Sump 1. The water elevation in Sump 1 is controlled with a float-activated switch. Water from Sump 1 is discharged either directly off site or can be redirected to the Storage Reservoir via a 300 mm solid pipe. The 300 mm pipe outlets on WAI property, in the wetland, north of SW1; however, leaks and breaks in the pipe were observed in 2023. It is noted that replacement of this solid pipe was initiated in late 2023 and was completed in February 2024. The Storage Reservoir is used to retain water if it is needed for operations, or if there are concerns with water quality.

Pump DN1 in Sump 1 is operated by means of a float switch that can be raised or lowered to maintain the desired water level at the sump. The partitioning of water pumped by DN1 (i.e., between the reservoir and wetland) is facilitated through the manual operation of a control valve by the quarry operator. The flow meter that measures the quarry discharge is located on the pipe directed to the wetland, downstream of the valve. It is noted that the flow meter was most recently replaced in 2023. During the spring snowmelt period or during particularly wet periods at other times of the year, additional pumps may be required to manage excess water on the quarry floor and direct them to Sump 1.

Pump DN2 is located in Sump 2 within the channel that directs water collected from the quarry floor to Sump 1. Water pumped by DN2 is directed into the Storage Reservoir. Historically, DN2 has operated periodically, as required in the winter / spring months to manage increased water flow across the quarry floor (i.e., in response to

snowmelt or significant precipitation events) and / or to prevent freezing conditions within the water collection channel. It is noted that pump DN2 was used intermittently during the current monitoring period.

Pump DN3A is located in a shallow water collection channel on the quarry floor along the toe of the containment berm of the Storage Reservoir. Pump DN3A is used on an as-needed basis to remove excess water from the quarry floor. Water pumped via DN3A is directed over the containment berm and re-circulated into the Storage Reservoir. It is noted that pump DN3A was used intermittently during the current monitoring period.

Aggregate washing is completed using portable wash plants located on the Main Quarry floor. Water used for aggregate processing is pumped from the Sump 1 (via pump WP1), located on the quarry floor. Similarly, Sump 1 and / or the three (3) Sedimentation Ponds along the southwest quarry wall are used for settling of the wash water fines. When operational, the aggregate washing process functions as a closed-loop system with all water contained and recycled within the Main Quarry excavation.

3.1.2 St. Mary's Cement Osprey Quarry

As of the end of 2023, extraction at the St. Mary's Osprey Quarry was ongoing within its Phase 1 extraction area. The approximate extent of the working face is illustrated on **Figure 2**. The 2023 Groundwater and Surface Water Compliance Monitoring Report (Tatham Engineering, March 2024) indicates that the floor elevation within the extraction area remains at 514 masl. Groundwater level data through 2023 in the excavation corresponds to the Osprey Quarry second bench floor elevation of 502 masl. Quarry sump discharge is directed to the on-site settling ponds and then to an interior ditch at grade, ultimately flowing to the roadside ditch on Osprey-Clearview Townline road and Rob Roy Swamp 6. The 2023 discharge rates to the roadside ditch were reported to average about 3 L/s.

3.1.3 Inferred Radius of Influence

Historically, during extraction of the Main Quarry, there has been a progressive maximum drawdown influence of 12 m to 20 m on the local water table. As the size of the extraction area increased, the radius of influence of the quarry on the local groundwater system increased. The magnitude and lateral extent of the drawdown zone of influence is somewhat variable around the Site.

In order to estimate the magnitude and lateral extent of the radius of influence and the distance drawdown effects of the Extension Quarry on the local groundwater system, long-term trends in groundwater level data obtained from the monitoring network wells have been evaluated.

Figure 17 provides a summary of the drawdown observed at individual monitoring well and domestic well locations. Only wells where drawdown is observed are labelled on the figure. Similar to the Main Quarry, there has also been a progressive drawdown influence from dewatering of the Extension Quarry. To date, drawdown is inferred to have occurred at NW1 and BH02-6 generally south of Phase 1, NW6 and NW7 west / northwest of Phase 1 and BH02-2 north of Phase 1 / Phase 2A. It is noted that the majority of the observed drawdown to date has occurred within the Extension Quarry limit of extraction. In 2022, historical low water elevations were observed east of the Extension Quarry Phase 2A at RW16, BH08-1, BH08-2, BH08-3 and IW2. These low water levels coincided and are attributed to lower than normal precipitation during the late fall of 2022. Seasonal low water levels in 2023 appear to have rebounded by about 1 m. These wells are within the predicted radius of influence and therefore a quarry influence is not unexpected. Monitoring is ongoing as part of the AMP.

In 2021, the 5-year Comprehensive AMP Report was completed for the Site, which included an update / re-calibration of the numerical groundwater models, and revised predictions for the drawdown influence for Phase 2A

and 2B. The predicted limit of drawdown during Phase 2A extraction is shown on **Figure 17**. Quarry dewatering impacts have been limited to the monitoring wells within the predicted limit.

Domestic well CLF2, located approximately 700 m southwest of the Main Quarry, has historically shown drawdown effects from excavation of the Main Quarry. Since 2010 however, it appears that the operation of the Storage Reservoir is providing a hydraulic buffer; stabilizing the influence of quarry dewatering on local groundwater levels in the area to the west and southwest of the Main Quarry.

3.1.4 AMP Compliance Summary

3.1.4.1 Monitoring Requirements

The AMP is a requirement of the Extension Quarry ARA Licence and was finalized on December 6, 2013 (Stantec and Hims GeoEnvironmental Inc.). The AMP provides an in-depth review of the monitoring planned during each operational phase until final rehabilitation of the site.

The groundwater and surface water monitoring components, as required by the AMP, consist of the following categories:

- **Performance Indicator Trigger Monitoring (PITM):** Comparison of annual surface water flow and temperature monitoring data and wetland water levels to historical values / performance triggers to ensure extraction activities are not having an adverse impact on these features.
- **Long-Term Groundwater and Surface Water Monitoring Program (LTTWM):** Review of groundwater and surface water monitoring results to confirm that the data match forecasted trends.

3.1.4.2 PITM Trigger Levels

Updated interim trigger values using available baseline data from 2003 to 2020 were included in the 5-Year Comprehensive Review report (WSP and Stantec, September 2021) and are provided in the tables below following the same methodology for red / yellow trigger designation as outlined in Table 3.2 of the AMP. It was intended that the triggers would apply once extraction in the Extension Quarry proceeded beyond Phase 1 (i.e., beginning in 2021).

Surface Water Flow and Temperature Triggers

The red flow trigger value is set as the baseline monitoring period lowest monthly flow recorded at each station. The yellow flow trigger value is calculated either by increasing the red value by 15%, or by using the third-lowest monthly flow value over the baseline monitoring period, whichever is the higher value. Green flow trigger values (i.e., normal quarry operating conditions) are set above the yellow trigger value.

The red temperature trigger value is set as the baseline monitoring period highest monthly temperature recorded at each station. The yellow temperature trigger value is set at 10% below the red value. Green temperature trigger values are set below the yellow trigger value.

The surface water flow and temperature triggers generally apply from June to September, except at stations SW1, SW2 and SW0-2 where they apply for each month of the year. PITM monitoring of stations SW0-2, SW3B and SW6A has been discontinued as they are included in the St. Mary's Osprey Quarry monitoring program; however, monitoring of SW0-2 has continued as per the PTTW Conditions.

The updated interim surface water flow and temperature triggers are summarized in the **Tables 3.1 to 3.4** below.

Table 3.1: Updated Interim Surface Water Flow Triggers – January to December Stations

Month	SW1		SW2	
	Red	Yellow	Red	Yellow
January	0.9	10.5	0.8	1.1
February	4.8	9.0	0.6	0.9
March	0.6	4.3	0.7	2.4
April	1.5	7.1	2.7	5.8
May	0	2.5	3.1	3.6
June	(nf)	(nf)	1.6	1.8
July	(nf)	(nf)	0.2	0.5
August	(nf)	(nf)	0.1	0.3
September	(nf)	(nf)	0.4	0.5
October	(nf)	(nf)	0.01	0.1
November	(nf)	(nf)	0.2	0.4
December	(nf)	(nf)	(nf)	0.1

NOTES:

[1] All flow triggers in litres / second (L/s).

[2] (nf) indicates no flow observed during baseline monitoring period.

Table 3.2: Updated Interim Surface Water Flow Triggers – June to September Stations

Month	SW3		SW9		SW10		SW11		SW14	
	Red	Yellow	Red	Yellow	Red	Yellow	Red	Yellow	Red	Yellow
June	(nf)	(nf)	(nf)	(nf)	(nf)	0.1	(nf)	2.3	1.2	1.7
July	(nf)	(nf)	(nf)	(nf)	(nf)	(nf)	0.7	0.8	0.5	1.1
August	(nf)	(nf)	(nf)	(nf)	(nf)	(nf)	0.1	0.4	0.4	1.1
September	(nf)	(nf)	(nf)	(nf)	(nf)	(nf)	0.28	0.32	0.5	0.6

Month	SW15		SW16		SW17		SW17A		SW18	
	Red	Yellow	Red	Yellow	Red	Yellow	Red	Yellow	Red	Yellow
June	(nf)	0.2	0.06	0.6	0.3	0.5	3.9	6.8	7.0	11.8
July	(nf)	(nf)	(nf)	0.2	0.2	0.3	1.7	2.9	3.8	5.9
August	(nf)	0.05	(nf)	(nf)	0.1	0.3	0.5	1.1	3.0	3.5
September	(nf)	(nf)	(nf)	(nf)	0.2	0.3	1.2	1.4	2.4	2.7

Month	SW21C		SW24A		SW77	
	Red	Yellow	Red	Yellow	Red	Yellow
June	(nf)	1.2	(nf)	0.2	0.06	0.1

Month	SW21C		SW24A		SW77	
	Red	Yellow	Red	Yellow	Red	Yellow
July	0.7	1.2	0.1	0.2	0.04	0.1
August	0.1	0.3	0.1	0.12	0	0.1
September	0.6	0.7	0.1	0.12	0.04	0.1

NOTES:

[1] All flow triggers in litres / second (L/s).

[2] (nf) indicates no flow observed during baseline monitoring period.

Table 3.3: Updated Interim Surface Water Temperature Triggers – January to December Stations

Month	SW1		SW2	
	Red	Yellow	Red	Yellow
January	8.4	7.5	7.5	6.7
February	3.7	3.4	6.5	5.9
March	10.5	9.5	7.7	6.9
April	11.5	10.3	8.6	7.7
May	20.8	18.7	13.7	12.3
June	26.0	23.4	13.5	12.2
July	24.1	21.7	17.4	15.7
August	20.6	18.5	17.3	15.6
September	19.0	17.1	14.2	12.8
October	14.0	12.6	12.4	11.1
November	10.9	9.8	10.9	9.8
December	7.6	6.8	9.2	8.3

NOTES:

[1] All temperature triggers in degrees Celcius (°C).

Table 3.4: Updated Interim Surface Water Temperature Triggers – June to September Stations

Month	SW3		SW9		SW10		SW11		SW14	
	Red	Yellow	Red	Yellow	Red	Yellow	Red	Yellow	Red	Yellow
June	18.8	16.9	16.4	14.8	18.3	16.4	12.1	10.9	21.8	19.6
July	19.8	17.9	19.2	17.3	21.3	19.2	16.0	14.4	24.0	21.6
August	(dry)	(dry)	(dry)	(dry)	22.0	19.8	16.6	15.0	22.2	20.0
September	(dry)	(dry)	(dry)	(dry)	20.0	18.0	14.9	13.4	20.3	18.3

Month	SW15		SW16		SW17		SW17A		SW18	
	Red	Yellow	Red	Yellow	Red	Yellow	Red	Yellow	Red	Yellow
June	23.0	20.7	19.4	17.5	21.4	19.2	14.0	12.6	17.9	16.1
July	23.8	21.4	20.7	18.6	23.0	20.7	16.0	14.4	20.7	18.6
August	21.5	19.4	19.1	17.2	21.2	19.1	22.0	19.8	19.3	17.4
September	16.9	15.2	18.3	16.5	21.6	19.4	15.1	13.6	18.9	17.0

Month	SW21C		SW24A		SW77	
	Red	Yellow	Red	Yellow	Red	Yellow
June	13.5	12.2	13.5	12.2	10.9	9.8
July	13.0	11.7	15.0	13.5	13.0	11.7
August	12.2	10.9	17.7	15.9	15.7	14.1
September	12.1	10.9	15.6	14.0	14.2	12.8

NOTES:

[1] All temperature triggers in degrees Celcius (°C).

[2] (dry) indicates no baseline monitoring period temperature data due to dry conditions.

Wetland Drivepoint Water Level Triggers

The wetland drivepoint water level triggers for wetland vegetation apply to both “too dry” and “too wet” conditions. For dry conditions, the red trigger value is greater than one (1) month where the water level is below the lowest baseline monitoring period water level by 10% while the yellow trigger value is set at up to 20% above the red trigger value. For wet conditions, the red trigger value is greater than one (1) month where the water level is above the highest baseline monitoring period water level by 10% while the yellow trigger value is set at up to 20% below the red trigger value.

The wetland drivepoint water level triggers for wetland vegetation apply from spring to fall (i.e., March to August), as summarized in **Table 3.5** below. PITM monitoring of drivepoint DP4 has been discontinued as it is included in the St. Mary’s Osprey Quarry monitoring program; however, monitoring of DP4 has continued as per the PTTW Conditions.

Table 3.5: Wetland Water Level Triggers for Wetland Vegetation

Month	DP2				DP5				DP6			
	Dry		Wet		Dry		Wet		Dry		Wet	
	Red	Yellow	Yellow	Red	Red	Yellow	Yellow	Red	Red	Yellow	Yellow	Red
March	510.79	511.03	511.96	512.20	509.72	509.82	510.22	510.32	511.45	511.55	511.94	512.04
April	511.72	511.83	512.27	512.38	509.75	509.84	510.20	510.29	511.33	511.44	511.88	511.99
May	511.08	511.30	512.20	512.42	509.51	509.64	510.13	510.26	511.60	511.66	511.87	511.93
June	510.64	510.94	512.14	512.44	509.54	509.66	510.12	510.23	510.81	511.01	511.83	512.03
July	510.64	510.94	512.18	512.48	508.91	509.14	510.05	510.27	509.99	510.39	512.02	512.43
August	510.63	510.93	512.12	512.42	508.50	508.79	509.96	510.25	509.86	510.28	511.97	512.39

Month	DP7				DP8				DP9			
	Dry		Wet		Dry		Wet		Dry		Wet	
	Red	Yellow	Yellow	Red	Red	Yellow	Yellow	Red	Red	Yellow	Yellow	Red
March	509.31	509.33	509.37	509.39	511.29	511.29	511.29	511.29	507.76	507.78	507.83	507.85
April	509.32	509.33	509.37	509.38	511.02	511.10	511.40	511.48	507.79	507.79	507.83	507.83
May	509.03	509.09	509.37	509.43	511.25	511.29	511.41	511.45	507.67	507.70	507.82	507.85
June	509.16	509.20	509.33	509.37	511.21	511.25	511.38	511.42	507.57	507.61	507.76	507.80
July	508.75	508.85	509.27	509.37	511.20	511.24	511.40	511.44	507.04	507.18	507.73	507.87
August	508.29	508.45	509.09	509.25	511.18	511.22	511.39	511.43	506.54	506.76	507.66	507.88

Month	BRIDSON DP			
	Dry		Wet	
	Red	Yellow	Yellow	Red
March	509.90	510.02	510.46	510.58
April	510.38	510.44	510.66	510.72
May	510.36	510.38	510.50	510.52
June	510.07	510.15	510.46	510.54
July	509.01	509.31	510.55	510.85
August	508.80	509.12	510.36	510.68

NOTES:
[1] All water level triggers in metres above sea level (masl).

Additional wetland drivepoint water level triggers also apply for amphibian habitat vernal pools at DP5, DP6 and DP7. The red trigger value is no standing water during the breeding period (March to 2nd week of July) (i.e., the surveyed ground surface elevation). The yellow trigger value is the depth of pond below 80% of the baseline monitoring period pond depth during the extended breeding period (March to 2nd week of August). The wetland drivepoint water level triggers for amphibian habitat are summarized in **Table 3.6** below.

It is noted that where amphibian habitat wetland water level triggers are applicable, in each case, the trigger values are below the wetland vegetation triggers above. Therefore, the amphibian habitat wetland water level triggers are redundant.

Table 3.6: Wetland Water Level Triggers for Amphibian Habitat

Month	DP5		DP6		DP7	
	Red	Yellow	Red	Yellow	Red	Yellow
March	509.66	509.74	511.45	511.49	509.18	509.29
April	509.66	509.77	(dry)	(dry)	509.18	509.29
May	(dry)	(dry)	511.45	511.60	(dry)	(dry)
June	(dry)	(dry)	(dry)	(dry)	(dry)	(dry)

Month	DP5		DP6		DP7	
	Red	Yellow	Red	Yellow	Red	Yellow
July	(dry)	(dry)	(dry)	(dry)	(dry)	(dry)
August	(n/a)	(dry)	(n/a)	(dry)	(n/a)	(dry)

NOTES:

[1] All water level triggers in metres above sea level (masl).

[2] (n/a) – red water level triggers are not applicable in August.

[3] (dry) – no red or yellow water level trigger as minimum monthly water level during the baseline monitoring period was below ground surface.

3.1.4.3 Summary of AMP Trigger Exceedances

A number of PITM trigger exceedances have been observed since extraction within the Extension Quarry proceeded into the Phase 2A area in 2021. However, the exceedances are not attributed to the quarry due to (a) the sporadic, generally discontinuous nature of the trigger exceedances, and (b) the interpreted drawdown cone from the Extension Quarry currently does not extend beyond the Licence boundary.

Consistent “too wet” trigger exceedances have been noted at the Rob Roy Swamp 6 stations DP2 and DP8. Where trigger exceedances have been observed, conditions typically returned to the “green zone” for the subsequent event suggesting that no trend exists. In any case, replacement of the discharge pipe (running through the RR6 wetland) was completed in early 2024 to limit direct discharge to the wetland and help reduce “too wet” trigger exceedances.

3.2 Impacts from Proposed Quarry Deepening

The proposed quarry deepening will induce a reduction in groundwater levels (i.e., drawdown) around the Site due to lowering of the dewatering sump elevations, referred to as the radius of influence. The purpose of this impact assessment is to quantify potential effects of the proposed quarry deepening to features within the radius of influence, over and above the predicted effects of the approved Extension Quarry and neighbouring Osprey Quarry extraction.

The existing AMP includes monitoring of the following features within the predicted radius of influence for the proposed quarry deepening:

- Local private residential wells;
- Wetland hydroperiods for the Rob Roy Swamp wetland complex and the ANSI Wetlands A and B;
- Groundwater seeps and springs along the Escarpment east of the Site which form the headwaters for tributaries of Pretty River and Batteaux Creek; and
- Groundwater / quarry dewatering discharge to tributaries of the Beaver River west of the Site.

3.2.1 Proposed Changes to Site Operation

The proposed quarry deepening would proceed under two phases: Phase 5 representing deepening of the Extension Quarry and Phase 6 representing deepening of the Main Quarry. For both phases, it was assumed that excavation would proceed to the inferred elevation of the Fossil Hill Formation contact, which varies from approximately 490 masl in the east to 485 masl in the west (refer to **Section 2.3**). For the Main Quarry, existing

rehabilitation slopes and the sedimentation ponds along the western portion of the quarry would be removed to facilitate quarry deepening during Phase 6.

Model scenarios were completed as part of this study to simulate the effects from quarry dewatering during each phase of development. The Phase 4 model of the Extension Quarry was used as a basis for simulation of the proposed Phase 5 and 6 extraction and to predict potential additional impacts beyond the currently approved quarry extraction. Following quarrying, the excavation areas will be allowed to fill with groundwater and precipitation with a final Site end use as a series of lakes. The impact assessment considers the effects of both the proposed quarry deepening under full development of Phase 6 as well as final rehabilitation to a lake.

The numerical groundwater modeling results completed for this study (included in **Appendix G**) were used as a basis for quantifying the effects of the proposed quarry deepening on the features noted above.

The study area baseline conditions in were simulated using a steady-state numerical groundwater flow model calibrated to average conditions from the baseline monitoring program (2003 to 2020). The simulated groundwater flow conditions in the calibrated baseline model are a reasonable representation of observed conditions, and the model is considered sufficiently robust such that predictive model simulations for the proposed quarry deepening and final rehabilitation can be interpreted with confidence.

3.2.1.1 Cumulative Impacts from Osprey Quarry

Numerical modeling of the extraction phase scenarios was completed separately for extraction at the Site alone, and with extraction phase scenarios for the Osprey Quarry to gain insight into how the cumulative effects influence the model predictions. The full results are included in **Appendix G**; however, for the purposes of the impact assessment, the cumulative effects predictions were considered below.

Development both at Duntroon and Osprey Quarry are independent. Therefore, conservative assumptions were made for phase combinations in the scenario models, as outlined in **Section G.5.1.3**. For the simulation of the final rehabilitation conditions, it was assumed that the final quarry lakes at both sites had reached their long-term steady-state conditions.

3.2.2 Full Development Conditions

3.2.2.1 Groundwater Impacts

The predicted radius of influence for proposed Phases 5 and 6 including the cumulative effects of Osprey Quarry dewatering is shown on **Figure 18**.

The proposed quarry deepening during Phase 5 results in a drawdown of up to 1 m relative to baseline water levels around the Extension quarry, with more significant drawdown of 5 m to 15 m constrained to WAI-owned properties and the Osprey Quarry licence area. In the case of Phase 6 quarry deepening, water levels around the Main Quarry (which are under the influence of the existing excavation during the baseline period) will be subject to additional drawdown due to the lowered sump elevation. A portion of the properties to the south and east of the Main Quarry are predicted to experience between 1 m to 5 m of additional drawdown.

Wetland features including Rob Roy Swamps 1, 2, 3, 5 and 6 and ANSI Wetlands A and B are predicted to experience an increase in drawdown in the underlying Amabel bedrock aquifer above the predicted drawdown for approved Phase 4 extraction. The impacts to these features were anticipated as part of the development of the AMP and approved as part of the historical Extension Quarry licencing. It is noted that routine water management mitigation measures were included in Section 2.3 of the AMP, which include supplemental water discharge to wetland features as needed to maintain the baseline hydroperiods based on the PITM results. To date, the existing extraction of Phase 2A in the Extension Quarry has not influenced the hydroperiods of Rob Roy Swamp 2 or ANSI Wetlands A or B, which suggests that these features are supported primarily by surface water runoff rather than groundwater discharge.

Residential wells RW1 and RW3 are also predicted to experience limited additional drawdown during the proposed Phase 6 extraction, up to 2.9 m to 2.3 m below baseline conditions, respectively. The well construction and water level data indicate that there is sufficient available drawdown at these locations (at least 7.5 m and 7.8 m, respectively) to maintain the functionality of these wells during the operational period of the proposed quarry deepening. Section 2.4 of the AMP includes contingency measures such as discharge to a network of injection wells or deepening of existing residential wells to maintain well function. It is noted that the owner of residential well RW4 has opted out of the voluntary LTTWM program but is situated within the predicted radius of influence. The above noted contingency measures could be employed for RW4, if required. Finally, there are a number of private residential wells situated within the predicted radius of influence to the west of Osprey-Clearview Townline which are included in the monitoring and mitigation plans as part of the Osprey Quarry AMP.

No adverse groundwater quality impacts are predicted as a result of the proposed quarry deepening. A Spill Action Plan for quarry equipment is included in the mitigation plan, further discussion is provided below.

3.2.2.2 Surface Water Impacts

The escarpment seeps and springs to the east of the Extension Quarry are predicted to experience a limited decrease in groundwater discharge relative to the predicted groundwater discharge for approved Phase 4 extraction of less than 10% below baseline conditions at maximum quarry depth. The predicted decrease in discharge would likely not be distinguishable from natural variability in the seepage discharge. Groundwater discharge to the Beaver River tributaries is also predicted to decrease due to the proposed quarry deepening; however, it is noted that both the Duntroon Quarry and Osprey Quarry dewatering discharge is directed to this feature. Predicted maximum dewatering rates of about 2,900 m^3/day for Duntroon Quarry and 2,500 m^3/day for Osprey Quarry more than compensates for the predicted decrease in groundwater discharge to the Beaver River tributaries. For reference, previous historical reports predicted a discharge of 1,711 m^3/day from the Extension

Quarry (not including contributions from the Main Quarry dewatering sumps). The contingency measures in the AMP, such as discharge to the injection well network, were included to mitigate potential impacts to the escarpment seeps and springs.

No adverse surface water quality impacts are predicted as a result of the proposed quarry deepening. As noted previously, surface water flow rates and temperature are rigorously monitored as part of the PITM, and quarry discharge quality is monitored as part of the ECA. No adverse surface water quality impacts attributable to the existing quarry have been observed to date.

3.2.3 Final Rehabilitation Conditions

Upon completion of the operational phase, the quarry excavations will be allowed to fill with a combination of groundwater discharge and excess runoff, with the end use for the Site as two quarry lakes. To compare to the previous model predictions, numerical groundwater modeling was completed assuming that the tunnel under Township Road 91 would be closed. Long-term steady-state lake stage elevations of up to 513.5 masl for the Main Quarry lake, 511.4 masl for the Extension Quarry lake, and 510.7 masl for the Osprey Quarry lake were predicted from these simulations. These predicted lake elevations for the proposed quarry deepening are similar to the predicted lake elevations for the approved existing quarry extraction.

It is noted that for each lake, passive seasonal discharge will occur via outlet control structures as per the existing Rehabilitation Site Plans. For the Main Quarry lake, a control structure with an approximate elevation of 512 masl was previously contemplated to permit seasonal discharge to the southeastern portion of Rob Roy Swamp 6. For the Extension Quarry lake, separate control structures will allow seasonal discharge to the eastern portion of Rob Roy Swamp 2, and the western portion of ANSI Wetland B. The existing Rehabilitation Plan for the Site assumes that the tunnel under Township Road 91 will be sealed to prevent direct flow from the Main Quarry lake to the Extension Quarry lake. However, it is now proposed that a passive hydraulic connection will remain throughout the life of the quarry. Under these conditions, the stage elevations in both lakes will equilibrate to the lower predicted average stage elevation of the Extension Quarry lake. Finally, for the Osprey Quarry lake, a control structure with an approximate elevation of 508 masl will allow seasonal discharge to the southern portion of Rob Roy Swamp 3.

The existing Main Quarry Progressive Rehab Plan (Page 3 of 5, MHBC, October 9, 1997) indicates a final lake elevation of 512 masl, to be controlled by an outlet structure which discharges to the Rob Roy Swamp 6 wetland to the west. The Extension Quarry Rehab Plan (Page 3 of 4, MHBC, May 28, 2014) indicates a final lake elevation of 511.9 masl, with outlet structure elevations designed to allow passive seasonal discharge to the Rob Roy Swamp 2 and ANSI B wetland features to the north and northeast. The AMP requires WAI revisit, recalibrate and rerun the numerical groundwater model throughout the operating life of quarry. The final lake elevation of 511.4 masl was predicted based on the modelling completed as part of this study; however, future model recalibrations could result in slightly different final lake elevation predictions. Therefore, it is recommended that the Site Plan notes for both the Main and Extension Quarries include a statement indicating that "*the final passive outlet elevations from the quarry lakes will be based on on-going AMP monitoring, with a predicted approximate elevation of 511.4 masl*". This will allow passive discharge to the three features (Rob Roy Swamp 6, Rob Roy Swamp 2 and ANSI B wetland) as currently contemplated by the approved Site Plans.

3.2.3.1 Groundwater Impacts

Because the predicted average stage elevation of the final lakes is marginally lower than the existing water table in the bedrock aquifer, localized reconfiguring of the water table around the perimeter of the quarry lakes will

result in small areas of future drawdown of approximately 1 m below baseline conditions. The only feature which is situated within an area of future drawdown is ANSI Wetland B; however, it is noted that the Extension Quarry lake will discharge seasonally to this feature via the above noted outlet control structure.

3.2.3.2 Surface Water Impacts

No surface water impacts are predicted under final rehabilitation conditions. Once the final lake stages have reached steady-state conditions, groundwater discharge to the escarpment seeps and springs and to the Beaver River tributaries is predicted to increase to marginally greater than baseline conditions.

4.0 MITIGATION

To mitigate the impacts of the proposed quarry deepening, the following measures are proposed:

- Continue the AMP PITM and LTTWM programs as outlined in **Section 1.5.1**.
- Continue the well interference and mitigation plan outlined below to ensure that groundwater users will continue to have adequate future groundwater supplies; and
- Continue to administer the existing Spill Action Plan throughout all phases of quarry operations.

4.1 Well Interference Mitigation Plan

Local landowners surrounding the Site rely on a mix of groundwater wells and / or cisterns for domestic supply. Because dewatering of the proposed quarry deepening may potentially induce additional drawdown in the bedrock in the vicinity of the Site, the well interference mitigation plan will be maintained to protect local groundwater users in the unlikely event that the operation of their well is impaired.

The existing monitoring program is comprehensive and is designed to assess any potential impact to a well and allow proactive mitigation in advance of a well being adversely impacted. In the event a well interference claim is received, the licensee will be required to implement the following mitigation plan to protect the local groundwater users.

Water Well Interference Mitigation Plan

A) If a water well interference claim is received by the licensee the following actions will be taken:

- The licensee will immediately notify MNRF and MECP of the complaint.
- The licensee will contact a well contractor in the event of a well malfunction and residents will be provided a temporary water supply within 24 hours, if the issue cannot be easily determined and rectified.

B) The well contractor will contact the resident with the supply issue to rectify the problem as expediently as possible, provided landowner authorization of the work.

C) If the issue raised by the landowner is related to loss of water supply, the licensee will have a consultant / contractor determine the likely causes of the loss of water supply, which can result from a number of factors, including pump failure (owner's expense), extended overuse of the well (owner's expense), lack of well maintenance / well cleaning (owner's expense) or lowering of the water level in the well from the quarry development (licensee expense). This assessment process would be carried out at the expense of the licensee and the results provided to the homeowner.

D) If it has been determined that the quarry caused the water supply interference (i.e., lowering of the water level), the quarry shall continue to supply water at the licensee's expense until the problem is rectified. The following mitigation measures shall be considered and the appropriate measure(s) implemented at the expense of the licensee:

- adjust pump pressure;
- lowering of the pump to take advantage of existing water storage within the well;

- deepening of the well to increase the available water column, if the well deepening changes the water quality a water treatment shall be provided;
- widening of the well to increase the available storage of water;
- relocation of the well to another area on the property;
- drilling multiple wells; or
- implementing mitigative measures as contemplated in the AMP (i.e., injection wells).

E) If the issue raised by the landowner is related to water quality, the licensee will have a consultant / contractor determine the likely causes of the change in water quality, and review monitoring results at the quarry and background monitoring results from the baseline well survey to determine if there is any potential correlation with the quarry. If it has been determined that the quarry caused a water quality issue, the quarry shall continue to supply water at the licensee's expense until the problem is rectified. The licensee shall be responsible for restoring the water supply by replacing the well or providing a water treatment system. The licensee is responsible for the expense to restore the water quality.

4.2 Spill Action Plan

WAI will maintain the existing detailed Spill Action Plan (SAP) throughout all phases of quarry operations. Fuel and petroleum products are managed according to applicable Ontario regulations. No impact to surface or groundwater resources is anticipated from petroleum handling as a result of the proposed quarry deepening.

5.0 SUMMARY OF FINDINGS AND RECOMMENDATIONS

The following is a summary of the key findings of the Level 1 and 2 Water Study undertaken in support of the proposed Duntroon Quarry deepening.

- A Level 1 and 2 Water Study has been completed to meet the study requirements for the proposed Duntroon Quarry deepening. The conceptual understanding of the hydrogeological conditions within the study area was confirmed through additional hydraulic testing of the deeper bedrock to be removed and used to predict the potential effects of the proposed quarry deepening on local groundwater and surface water features.
- A steady-state numerical groundwater flow model was used to predict the effects of the proposed quarry deepening on local groundwater users and surface water features. The calibrated baseline model was modified to predict the effects of the approved extraction phases of the Extension Quarry through to Phase 4. The Phase 4 model was then used as a basis for impact assessment of the proposed Phase 5 and 6 quarry deepening. Conditions at final rehabilitation to quarry lakes were also assessed. Cumulative impacts from neighbouring St. Mary's Osprey Quarry were considered in the model scenarios.
- The proposed quarry deepening during Phase 5 results in a drawdown of groundwater elevation of up to 1 m relative to baseline water levels in the Amabel bedrock aquifer around the Extension quarry, with the more significant drawdown of 5 m to 15 m constrained to WAI-owned properties and the Osprey Quarry licence area. In the case of Phase 6 quarry deepening, Amabel aquifer water levels around the Main Quarry (which are currently under the influence of the existing excavation during the baseline period) will also be subject to additional drawdown due to the lowered sump elevation. A portion of the properties to the south and east of the Main Quarry are predicted to experience between 1 m to 5 m of additional groundwater elevation drawdown.
- No adverse groundwater quality impacts are predicted as a result of the proposed quarry deepening and a Spill Action Plan for quarry equipment is included in the mitigation plan.
- The closest WHPA located in the Nottawasaga Valley Source Protection Area is for the Stayner wellfield, located approximately 9 km east of the Site. To the west, the closest WHPA in the Grey Sauble Source Protection Area is for the Kimberley wellfield, located over 20 km away from the Site. Therefore, the Site is well outside of any WHPA and does not represent a potential threat to municipal drinking water supplies.
- Residential wells RW1 and RW3 are within the predicted radius of influence but there is sufficient available drawdown and no impact to the functionality of these wells is predicted. The AMP includes contingency measures (if required) to maintain well function. A search of the MECP Water Well Record database indicates that three new private supply wells have been installed within a 1 km radius of the Site since 2004. Of these newer wells, two are situated within the predicted radius of influence, but to the west of Osprey-Clearview Townline. Therefore, future monitoring and assessment of impacts to these wells is undertaken as part of the Osprey Quarry licence conditions. Groundwater and surface water monitoring data are exchanged between both quarry operators on an annual basis for reporting purposes.
- The escarpment seeps and springs to the east of the Extension Quarry are predicted to experience a limited decrease in groundwater discharge relative to the predicted groundwater discharge for the approved Phase 4 extraction of less than 10% below baseline conditions at maximum quarry depth. The predicted decrease in discharge would likely not be distinguishable from natural variability in the seepage discharge. The

contingency measures in the AMP were included to mitigate potential impacts to the escarpment seeps and springs.

- Groundwater discharge to the Beaver River tributaries is also predicted to decrease due to the proposed quarry deepening. However, both the Duntroon Quarry and Osprey Quarry dewatering discharge is directed to this feature and more than compensates for the predicted losses in groundwater discharge.
- No adverse surface water quality impacts are predicted as a result of the proposed quarry deepening. Surface water flow rates and temperature are rigorously monitored as part of the PITM, and quarry discharge quality is monitored as part of the ECA. No adverse surface water quality impacts attributable to the existing quarry have been observed to date.
- Wetland features including Rob Roy Swamps 1, 2, 3, 5 and 6 and ANSI Wetlands A and B are predicted to experience an increase in drawdown in the underlying Amabel bedrock aquifer above the predicted drawdown for approved Phase 4 extraction. The impacts to these features were anticipated as part of the development of the AMP and approved as part of the historical Extension Quarry licencing. It is noted that routine water management mitigation measures were included in Section 2.3 of the AMP, which include supplemental water discharge to wetland features as needed to maintain the baseline hydroperiods based on the PITM results. To date, the existing extraction of Phase 2A in the Extension Quarry has not influenced the hydroperiods of Rob Roy Swamp 2 or ANSI Wetlands A or B, which suggests that these features are supported primarily by surface water runoff rather than groundwater discharge.
- Upon completion of the operational phase, the quarry excavations will be allowed to fill with a combination of groundwater discharge and excess runoff, with the end use for the Site as two quarry lakes. The predicted lake elevations for the proposed quarry deepening are similar to the predicted lake elevations for the approved existing quarry extraction. For each lake, passive seasonal discharge will occur via outlet control structures to Rob Roy Swamps 2 and 6, and ANSI Wetland B.
- It is noted that the current Rehabilitation Plan for the Site assumes that the tunnel under Township Road 91 will be sealed to prevent direct flow from the Main Quarry lake to the Extension Quarry lake. Since it is proposed that a passive hydraulic connection will remain during rehabilitation, the stage elevations in both lakes will equilibrate to the lower predicted average stage elevation of the Extension Quarry lake.
- Because the predicted average stage elevation of the final lakes is marginally lower than the existing water table in the bedrock aquifer, localized reconfiguring of the water table around the perimeter of the quarry lakes will result in small areas of future drawdown. The only feature which is situated within an area of future drawdown is ANSI Wetland B; however, it is noted that the Extension Quarry lake will discharge seasonally to this feature via the above noted outlet control structure.
- No surface water impacts are predicted under final rehabilitation conditions. Once the final lake stages have reached steady-state conditions, groundwater discharge to the escarpment seeps and springs and to the Beaver River tributaries is predicted to increase to marginally greater than baseline conditions.

To mitigate the impacts of the proposed quarry deepening, the following recommendations should be implemented:

- The AMP monitoring program outlined in **Section 1.5.1** should be continued until the quarry licence is surrendered to MNRF;
- Continue to follow the well interference mitigation plan outlined in **Section 4.1**;
- Continue to administer the existing Spill Action Plan in compliance with the prescribed conditions for a Class A Category 2 licence under the ARA; and
- The Site Plan notes for both the Main and Extension Quarries should include a statement indicating that "*the final passive outlet elevations from the quarry lakes will be based on on-going AMP monitoring, with a predicted approximate elevation of 511.4 masl*".

Signature Page

WSP Canada Inc.



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Senior Project Engineer, Earth & Environment

JLD/KJF/jld

https://wsponlinecan.sharepoint.com/sites/ca-ca00333548741/shared documents/06. deliverables/duntroon quarry deepening - level 1 and 2 water study - wsp oct 2025.docx

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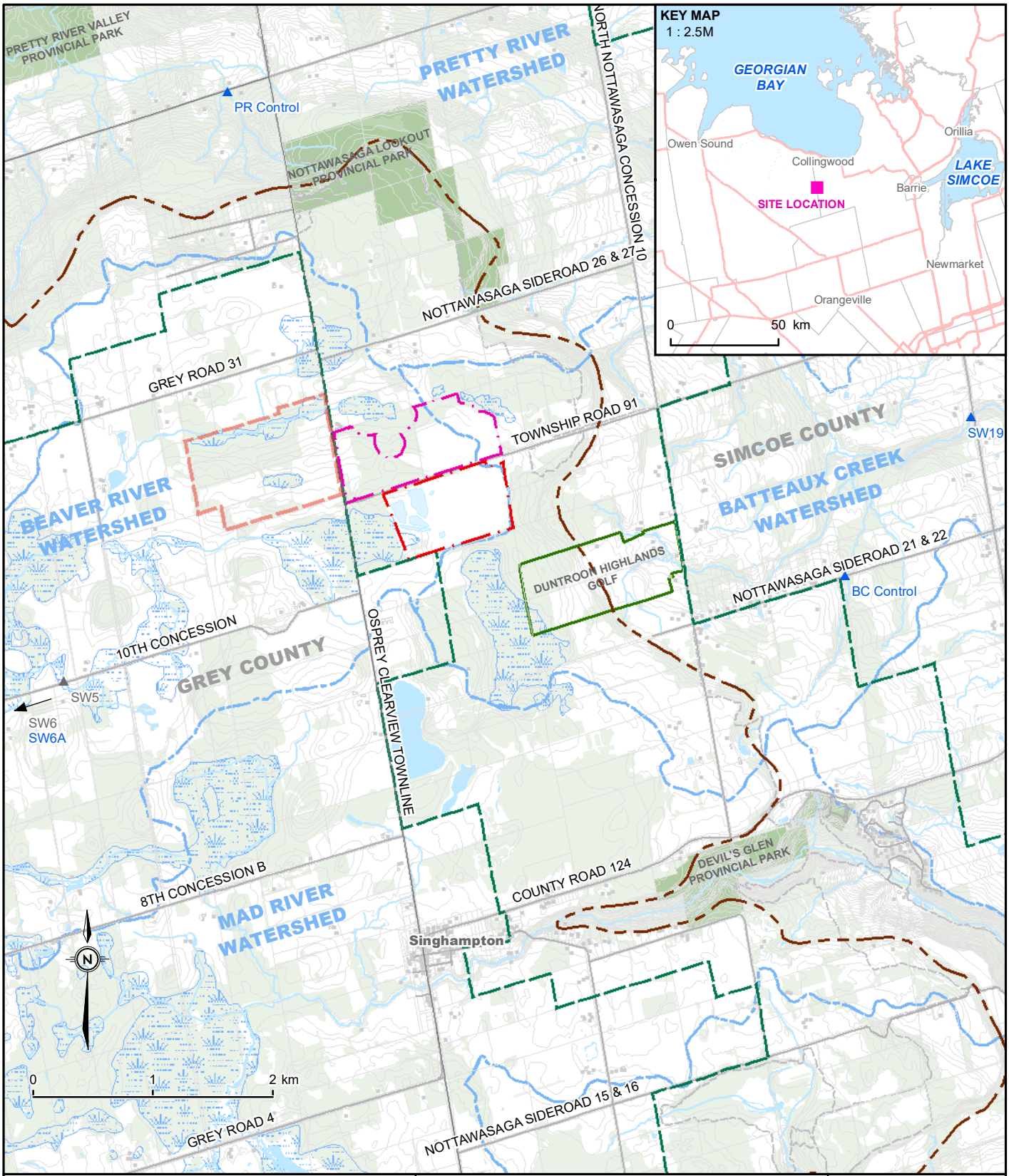
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Figures



LEGEND

- EXTENSION QUARRY LICENSED AREA
- OLD QUARRY LICENSED AREA
- OSPREY QUARRY (ST. MARY'S CEMENT) LICENSED AREA
- NIAGARA ESCARPMENT COMMISSION POLICY AREA
- APPROX. NIAGARA ESCARPMENT

NAD 1983 UTM Zone 17N

SITE LOCATION MAP

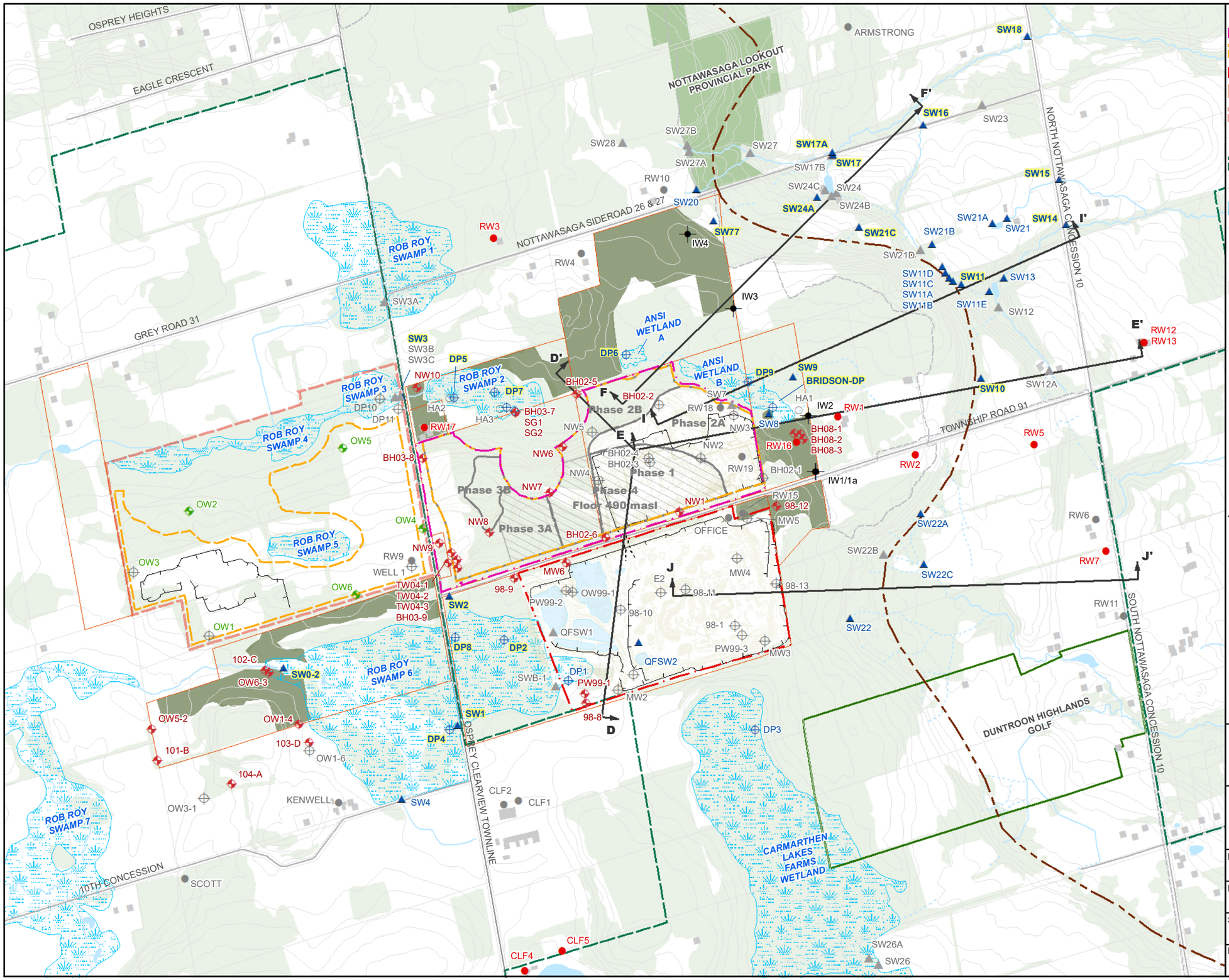
LEVEL 1 AND 2 WATER STUDY
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE:	PROJECT:	FIGURE No:
OCTOBER 2025	CA0033354.8741	1

SCALE: 1 : 45,000

DRAWN BY: JLD

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LEGEND

- EXTENSION QUARRY LICENSED AREA
- LIMIT OF EXTRACTION
- OLD QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. WORKING FACE
- NIAGARA ESCARPMENT COMMISSION POLICY AREA
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WATERCOURSE
- INTERMITTENT WATERCOURSE
- WOODLOT
- APPROX. REFORESTED AREA
- MONITORING WELL
- HISTORICAL MONITORING WELL
- OSPREY QUARRY MONITORING WELL
- INJECTION WELL
- DRIVEPOINT
- HAND-AUGER
- DOMESTIC WELL
- HISTORIAL DOMESTIC WELL
- SURFACE WATER STATION
- HISTORICAL SURFACE WATER STATION
- CROSS SECTION LOCATION AND DESIGNATION

NOTE:
YELLOW HIGHLIGHT INDICATES SURFACE WATER STATION IS ASSOCIATED WITH FLOW / TEMPERATURE TRIGGER, DRIVEPOINT IS ASSOCIATED WITH WATER LEVEL TRIGGER.

N

0 300 600 m

NAD 1983 UTM Zone 17N

SITE PLAN

LEVEL 1 AND 2 WATER STUDY
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE: OCTOBER 2025	
PROJECT: CA0033354.8741	
SCALE: 1 : 15,000	
DRAWN BY: JLD	FIGURE No: 2

wsp
55 KING STREET, SUITE 600
ST CATHARINES, ON L7R 3H5
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ROB ROY SWAMP 3
ROB ROY SWAMP 2
ANSI WETLAND A
ANSI WETLAND B
OSPREY CLEARVIEW TOWNLINE / GREY ROAD 31
PHASE 2B
PHASE 3B
PHASE 4
PHASE 2A
PHASE 3A
PHASE 1
TRANSIENT SUMP # 3
TOWNSHIP ROAD 91
TUNNEL
SITE ENTRANCE
SUMP # 2
STORAGE RESERVOIR
SITE OFFICE
FLOW METER
VALVE
SETTLING PONDS
STOCKPILE AREA
BALL VALVE FOR SAMPLING
ROB ROY SWAMP 6
QFSW2
PLANT AREA
SUMP # 1
SW1

LEGEND

- EXTENSION QUARRY LICENSED AREA
- LIMIT OF EXTRACTION
- OLD QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. WORKING FACE
- WETLAND
- SURFACE WATER STATION
- MAIN QUARRY DISCHARGE
- EXTENSION QUARRY DISCHARGE

NOTES:
1. 2020 ORTHOIMAGERY PROVIDED BY GREY COUNTY.
2. 2023 ORTHOIMAGERY PROVIDED BY SIMCOE COUNTY.
3. SITE AERIAL PHOTOGRAPH OBTAINED DURING OCTOBER 2023 DRONE SURVEY BY WAI.

N

0 150 300 m

NAD 1983 UTM Zone 17N

2023 QUARRY CONFIGURATION

LEVEL 1 AND 2 WATER STUDY
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE: OCTOBER 2025	
PROJECT: CA0033354.8741	
SCALE: 1 : 6,000	
DRAWN BY: JLD	FIGURE No: **2A**

55 KING STREET, SUITE 600
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LEGEND

- EXTENSION QUARRY LICENSED AREA
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- APPROX. WORKING FACE
- WETLAND
- TEST HOLE LOCATION AND DESIGNATION

NOTES:
1. 2020 ORTHOIMAGERY PROVIDED BY GREY COUNTY.
2. 2023 ORTHOIMAGERY PROVIDED BY SIMCOE COUNTY.
3. SITE AERIAL PHOTOGRAPH OBTAINED DURING OCTOBER 2023 DRONE SURVEY BY WAI.

N

0 60 120 m

NAD 1983 UTM Zone 17N

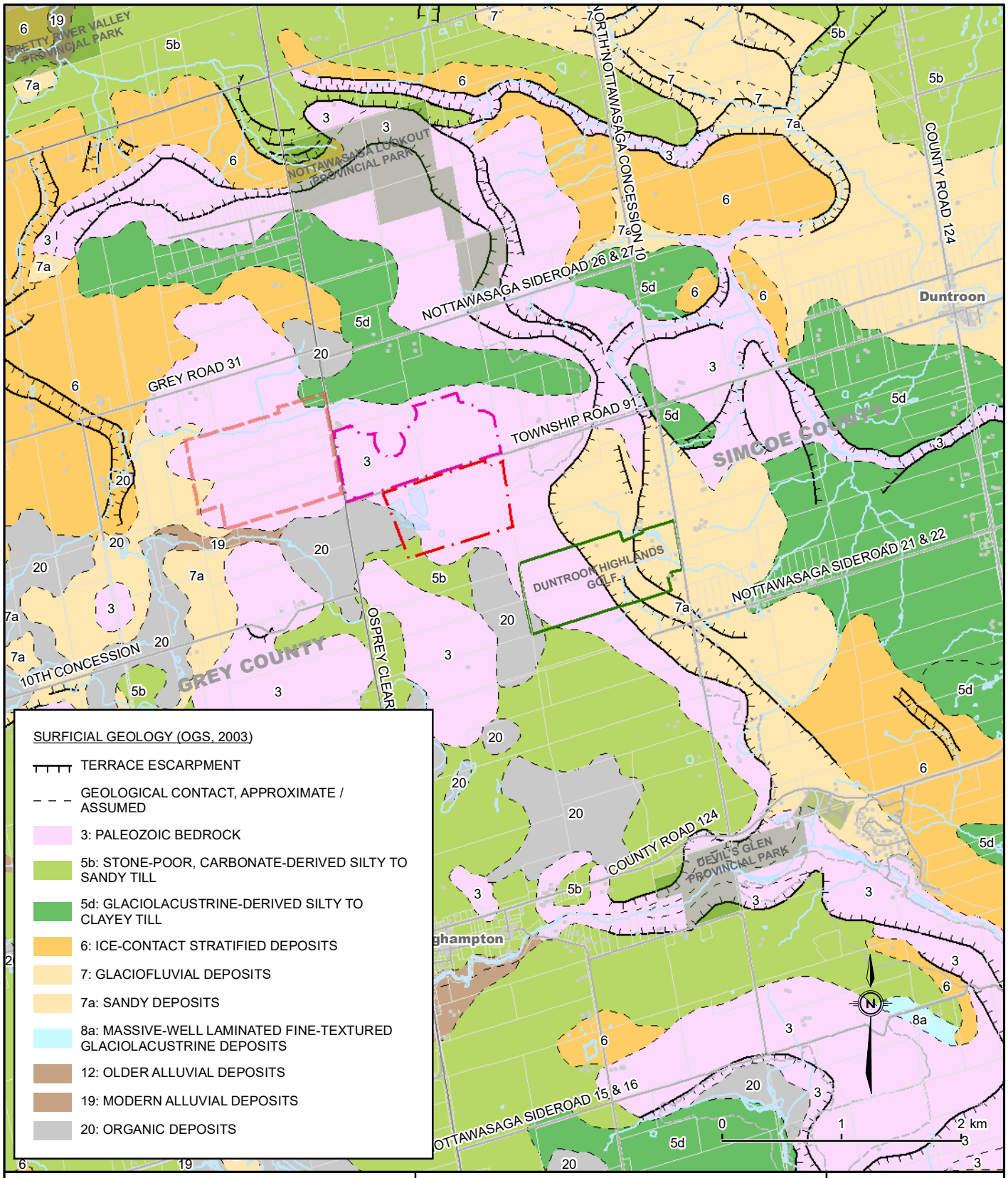
2024 TEST BOREHOLE LOCATIONS

LEVEL 1 AND 2 WATER STUDY
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE: OCTOBER 2025	
PROJECT: CA0033354.8741	
SCALE: 1 : 3,000	
DRAWN BY: JLD	FIGURE No: **2B**

55 KING STREET, SUITE 600
ST. CATHARINES, ON L7R 3H5
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LEGEND

- EXTENSION QUARRY LICENSED AREA
- MAIN QUARRY LICENSED AREA
- OSPREY QUARRY (ST. MARY'S CEMENT) LICENSED AREA

NAD 1983 UTM Zone 17N

SURFICIAL GEOLOGY

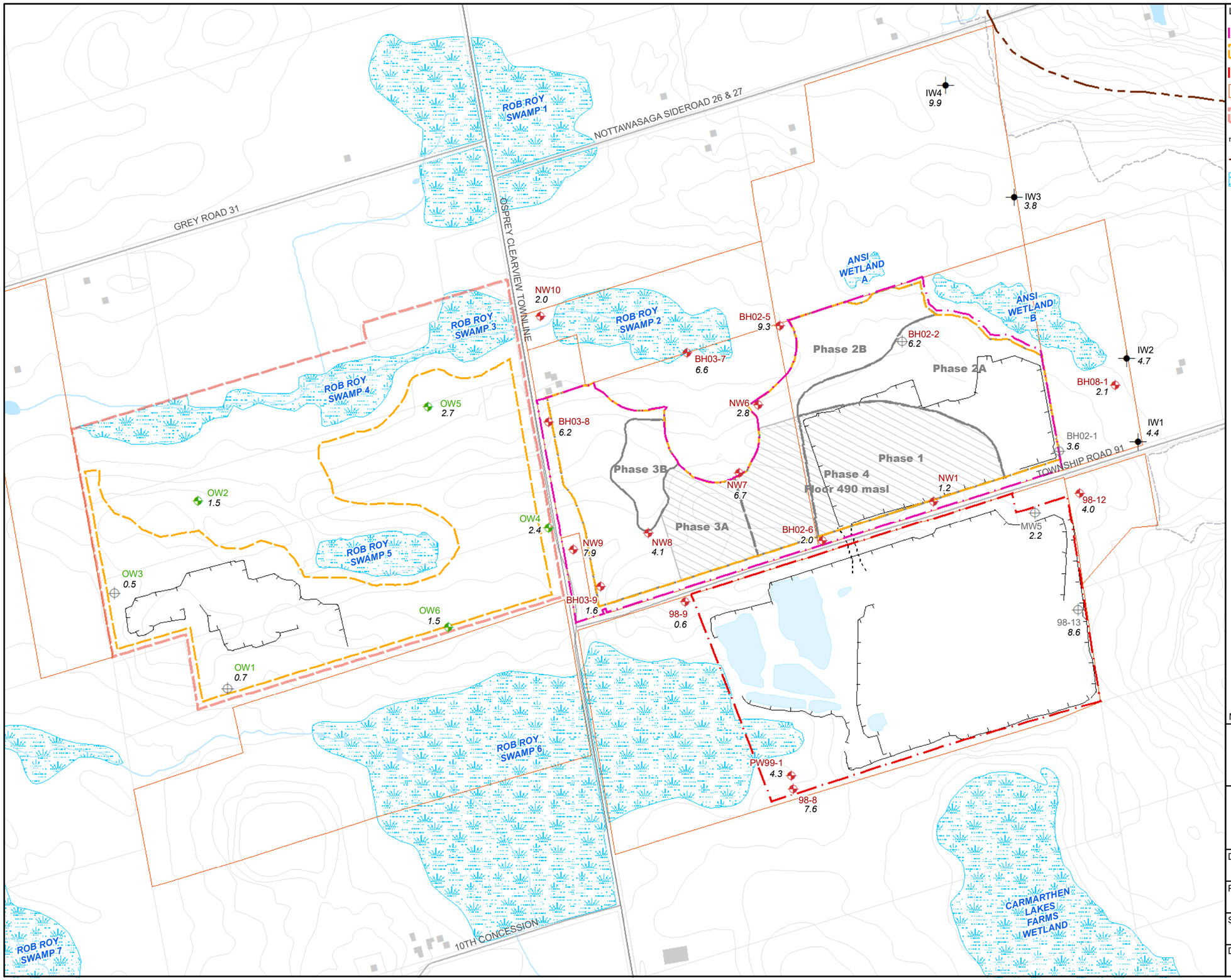
LEVEL 1 AND 2 WATER STUDY
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE:	PROJECT:	FIGURE No:
OCTOBER 2025	CA0033354.8741	3

SCALE: 1 : 45,000

DRAWN BY: JLD

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LEGEND

- EXTENSION QUARRY LICENSED AREA
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. WORKING FACE
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- MONITORING WELL
- HISTORICAL MONITORING WELL
- OSPREY QUARRY MONITORING WELL
- INJECTION WELL
- *8.6* OVERBURDEN THICKNESS (m)

0 200 400 m

NAD 1983 UTM Zone 17N

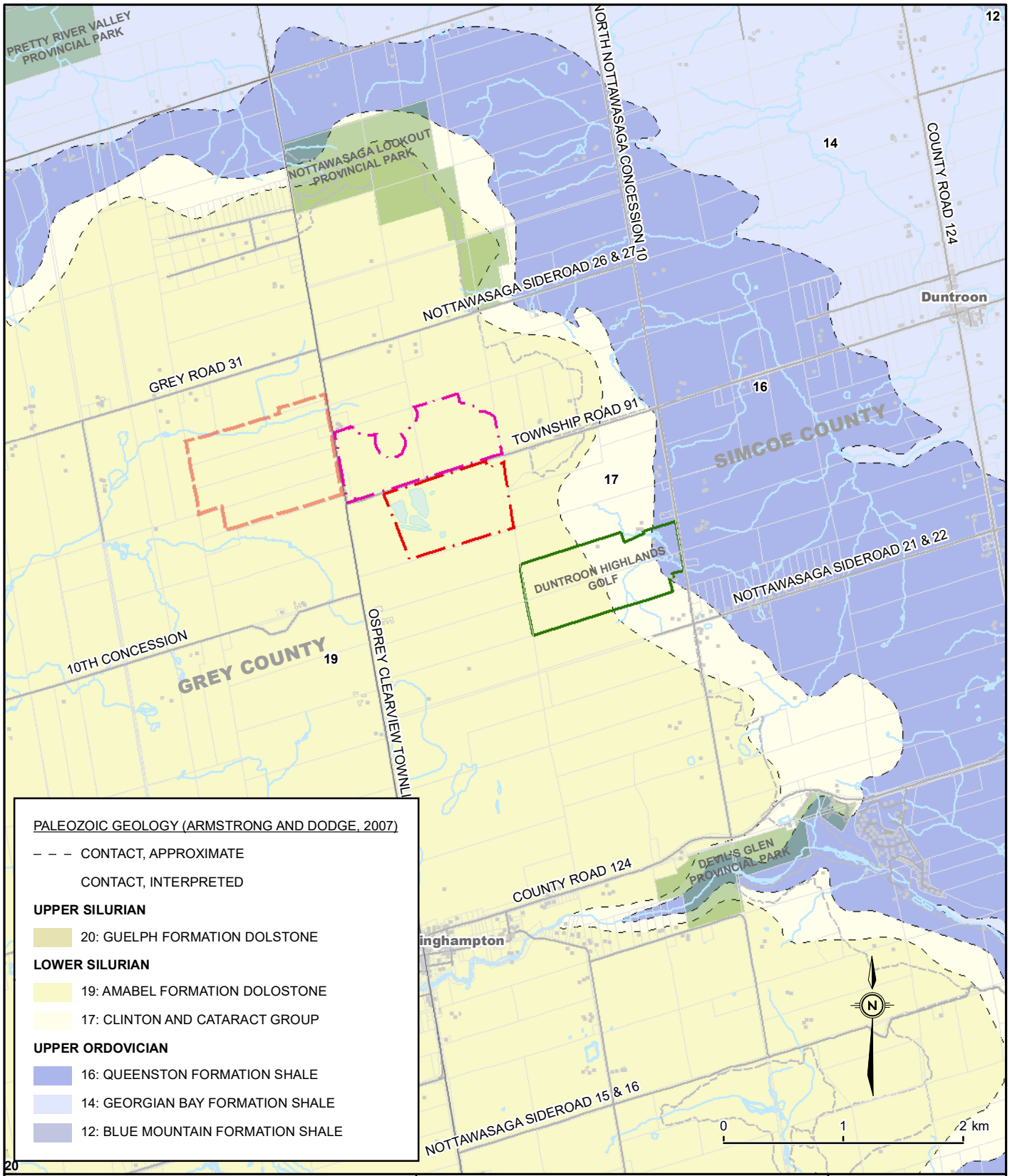
OVERBURDEN THICKNESS

LEVEL 1 AND 2 WATER STUDY
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE: OCTOBER 2025	
PROJECT: CA0033354.8741	
SCALE: 1 : 10,000	
DRAWN BY: JLD	FIGURE No: 4

55 KING STREET, SUITE 600
ST. CATHARINES, ON L7R 3H5
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LEGEND

- EXTENSION QUARRY LICENSED AREA
- MAIN QUARRY LICENSED AREA
- OSPREY QUARRY (ST. MARY'S CEMENT) LICENSED AREA

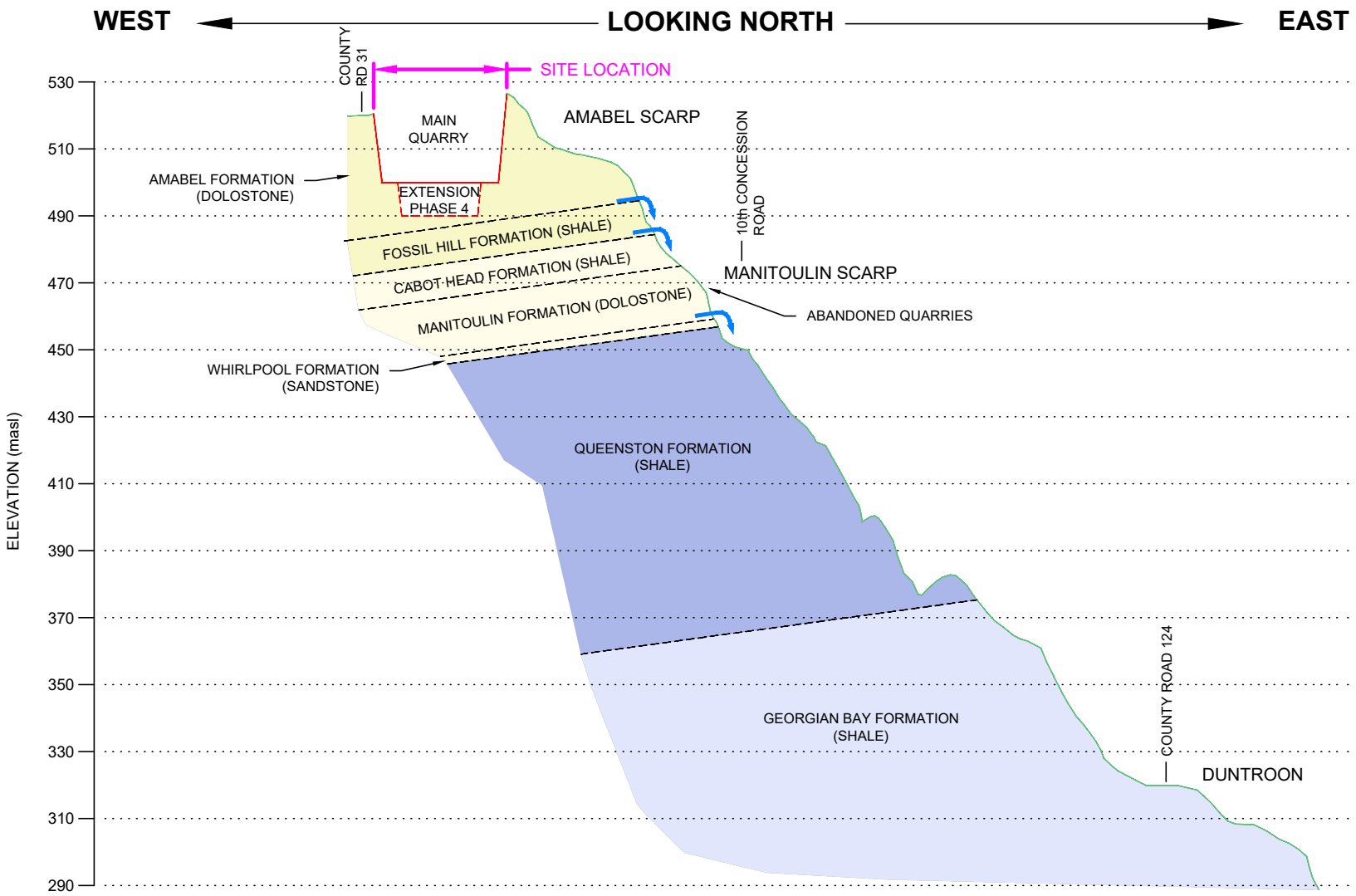
NAD 1983 UTM Zone 17N

PALEOZOIC GEOLOGY

LEVEL 1 AND 2 WATER STUDY
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

SCALE:	1 : 45,000
DRAWN BY:	JLD
DATE:	OCTOBER 2025
PROJECT:	CA0033354.8741
FIGURE No:	5

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LEGEND

TYPICAL ELEVATION FOR GROUNDWATER SEEPAGE / SPRINGS

HORIZONTAL SCALE:

0 750 1,500 m

NOTE: 20X VERTICAL EXAGGERATION

CONCEPTUAL ESCARPMENT CROSS SECTION

LEVEL 1 AND 2 WATER STUDY
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE: OCTOBER 2025

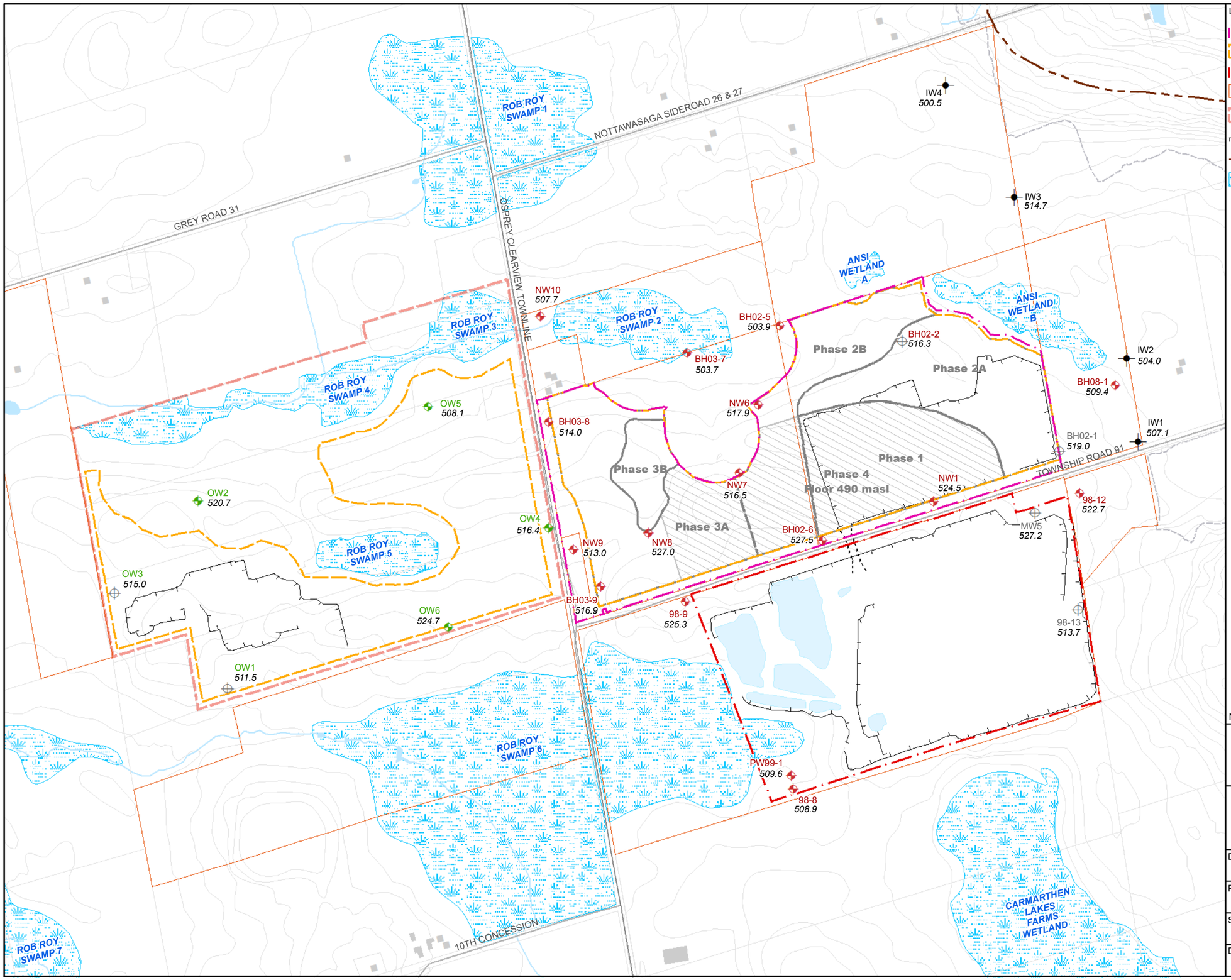
PROJECT: CA0033354.8741

DRAWN BY: JLD

HORIZONTAL SCALE: 1 : 37,500

FIGURE No: 6

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LEGEND

- EXTENSION QUARRY LICENSED AREA
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. WORKING FACE
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- MONITORING WELL
- HISTORICAL MONITORING WELL
- OSPREY QUARRY MONITORING WELL
- INJECTION WELL
- *513.7* BEDROCK ELEVATION (masl)

0 200 400 m

NAD 1983 UTM Zone 17N

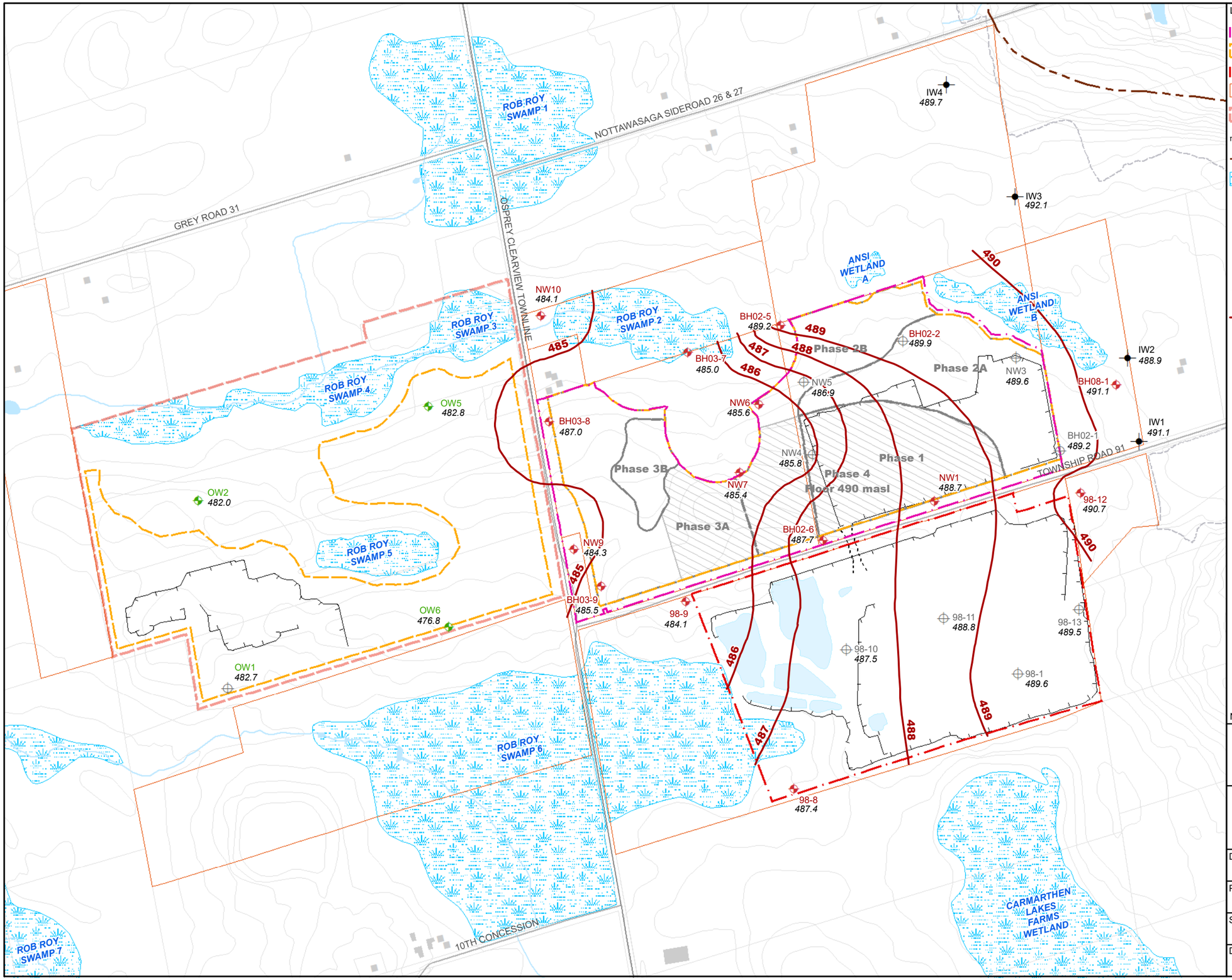
BEDROCK ELEVATION

LEVEL 1 AND 2 WATER STUDY
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE: OCTOBER 2025	
PROJECT: CA0033354.8741	
SCALE: 1 : 10,000	
DRAWN BY: JLD	FIGURE No: 7

55 KING STREET, SUITE 600
ST. CATHARINES, ON L7R 3H5
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LEGEND

- EXTENSION QUARRY LICENSED
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. WORKING FACE
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- MONITORING WELL
- HISTORICAL MONITORING WELL
- OSPREY QUARRY MONITORING WELL
- INJECTION WELL
- 489.5 TOP OF FOSSIL HILL FORMATION ELEVATION (masl)
- INTERPOLATED TOP OF FOSSIL HILL FORMATION (masl)

0 200 400 m

NAD 1983 UTM Zone 17N

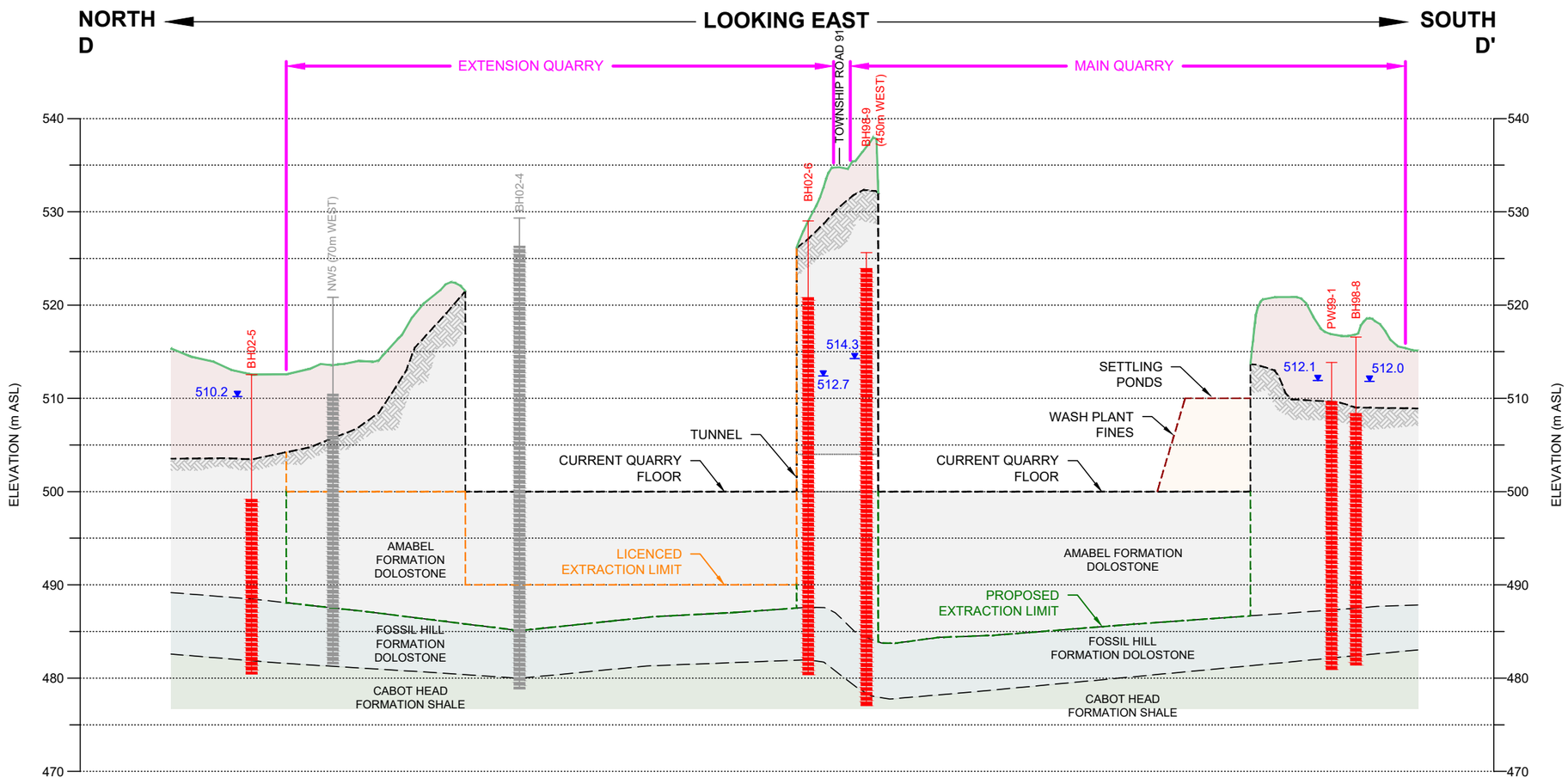
INTERPOLATED TOP OF FOSSIL HILL FORMATION

LEVEL 1 AND 2 WATER STUDY
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE: OCTOBER 2025	
PROJECT: CA0033354.8741	
SCALE: 1 : 10,000	
DRAWN BY: JLD	FIGURE No: 8

55 KING STREET, SUITE 600
ST CATHARINES, ON L7R 3H5
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NOTE: GEOLOGICAL CONTACTS HAVE BEEN INTERPOLATED AND MAY DIFFER FROM THAT DEPICTED.

HORIZONTAL SCALE
0 110 220 m
NOTE: 10x VERTICAL EXAGGERATION

LEGEND

BH02-5 WELL NEST DESIGNATION

EXISTING GROUND SURFACE ELEVATION

WATER LEVEL ELEVATION, MAY 2023 (masl)

TOP OF BEDROCK ELEVATION

INTERPOLATED STRATIGRAPHIC CONTACT

WELL SCREEN (OPEN HOLE)

MODIFIED CROSS SECTION D-D'

LEVEL 1 AND 2 WATER STUDY
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE: OCTOBER 2025
PROJECT: CA0033354.8741
HORIZONTAL SCALE: 1 : 5,500
DRAWN BY: JLD
FIGURE No: 9

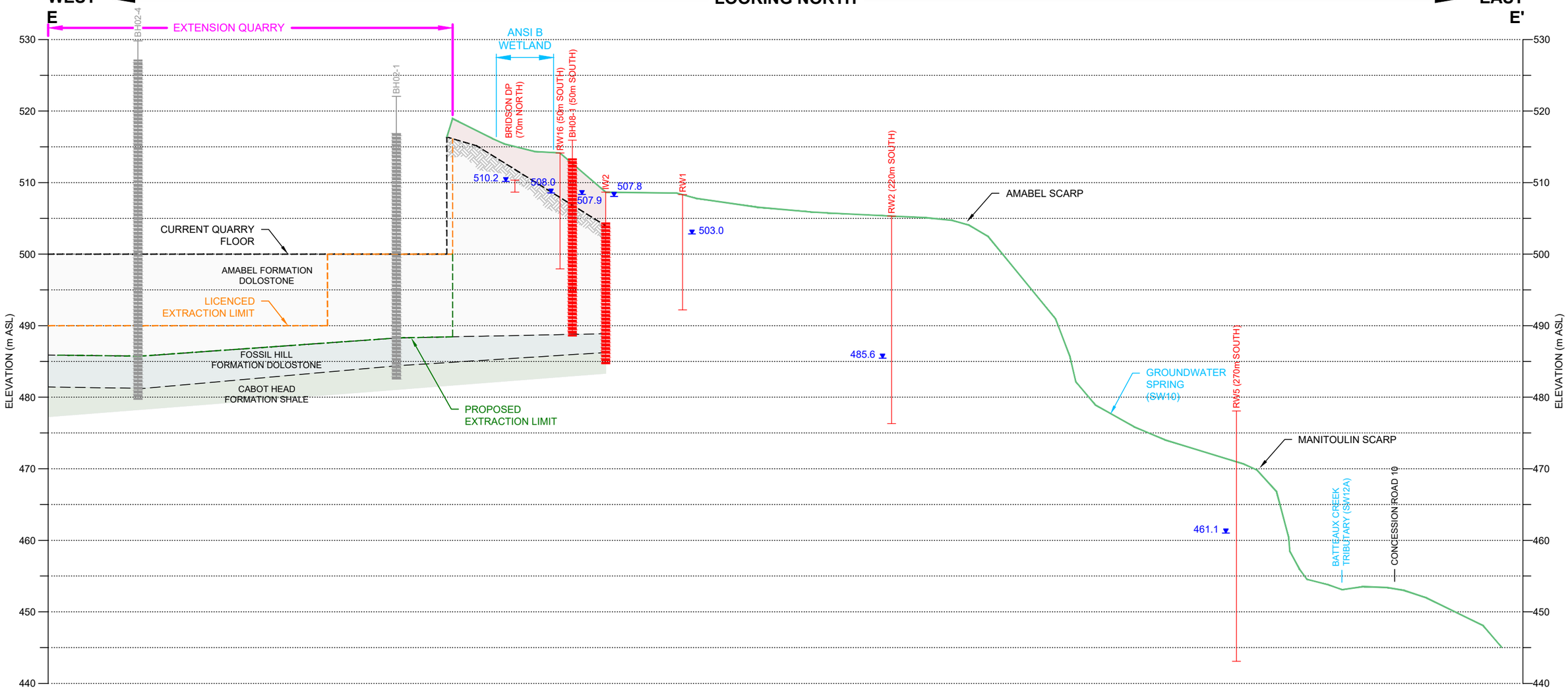
55 KING STREET, SUITE 700
ST. CATHARINES, ON L2R 3H5
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WEST
E

LOOKING NORTH

EAST
E'



NOTE: GEOLOGICAL CONTACTS HAVE BEEN INTERPOLATED AND MAY DIFFER FROM THAT DEPICTED.

HORIZONTAL SCALE
0 110 220 m
NOTE: 10x VERTICAL EXAGGERATION

LEGEND

- BH02-5 — WELL NEST DESIGNATION
- EXISTING GROUND SURFACE ELEVATION
- WATER LEVEL ELEVATION, MAY 2023 (masl)
- TOP OF BEDROCK ELEVATION
- INTERPOLATED STRATIGRAPHIC CONTACT
- WELL SCREEN (OPEN HOLE)

MODIFIED CROSS SECTION E-E'

LEVEL 1 AND 2 WATER STUDY
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

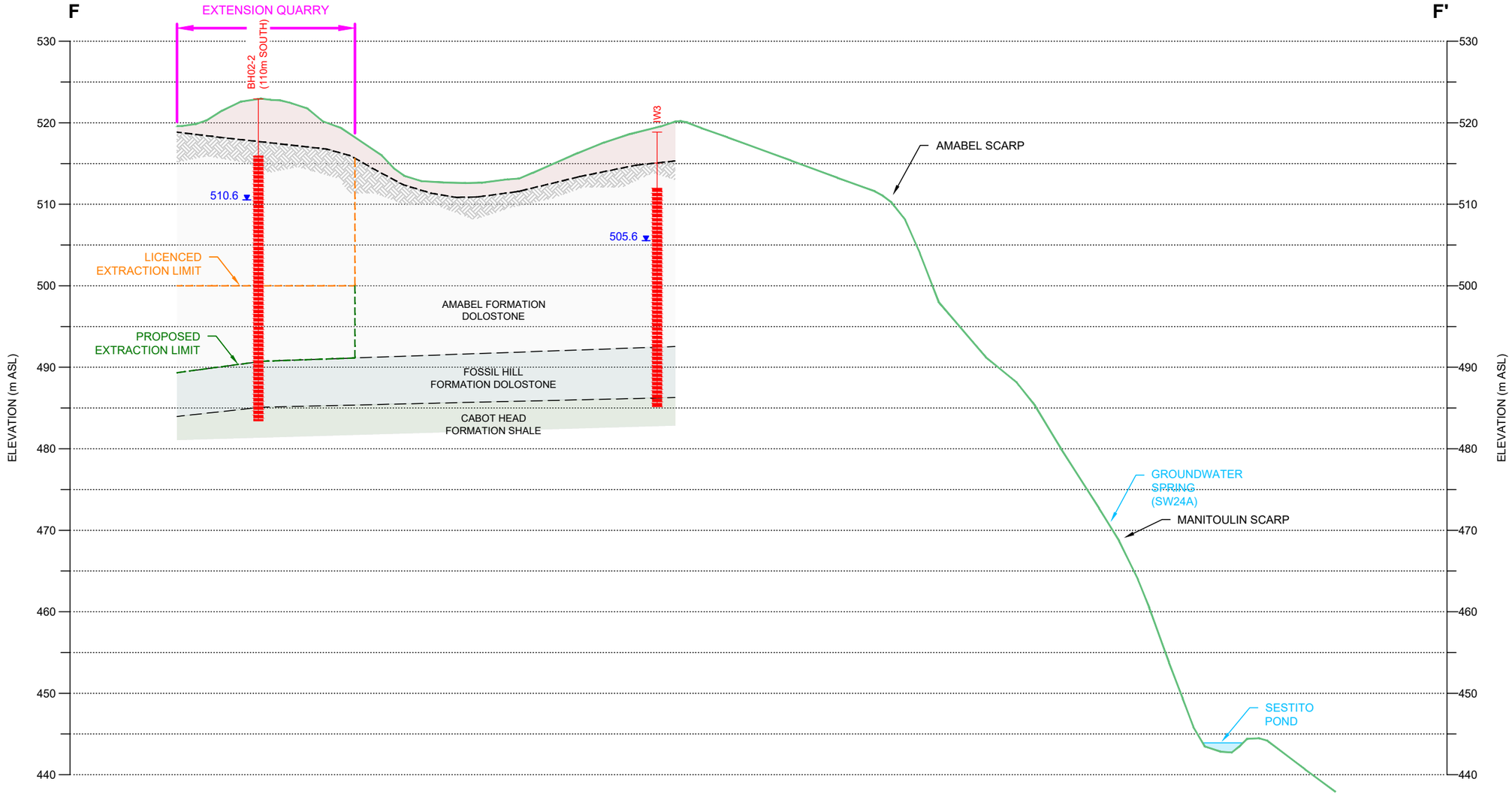
DATE: OCTOBER 2025	
PROJECT: CA0033354.8741	
HORIZONTAL SCALE: 1 : 5,500	
DRAWN BY: JLD	FIGURE No: 10

55 KING STREET, SUITE 700
ST. CATHARINES, ON L2R 3H5
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SOUTHWEST ◄ LOOKING NORTHWEST ► NORTHEAST

F F'



NOTE: GEOLOGICAL CONTACTS HAVE BEEN INTERPOLATED AND MAY DIFFER FROM THAT DEPICTED.

HORIZONTAL SCALE
0 110 220 m
NOTE: 10x VERTICAL EXAGGERATION

LEGEND

- BH02-5 — WELL NEST DESIGNATION
- EXISTING GROUND SURFACE ELEVATION
- WATER LEVEL ELEVATION, MAY 2023 (masl)
- TOP OF BEDROCK ELEVATION
- INTERPOLATED STRATIGRAPHIC CONTACT
- WELL SCREEN (OPEN HOLE)

MODIFIED CROSS SECTION F-F'

LEVEL 1 AND 2 WATER STUDY
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

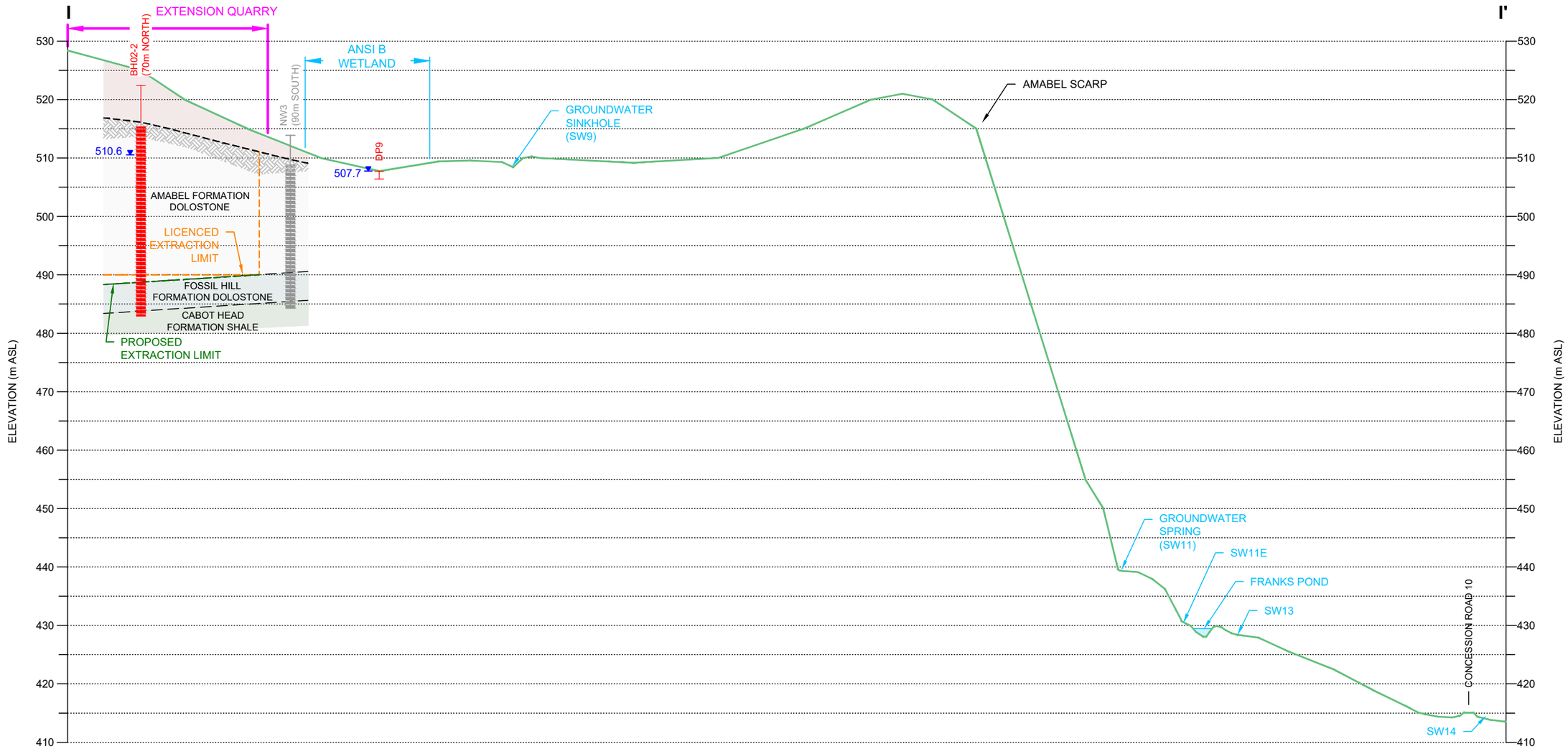
DATE: OCTOBER 2025	
PROJECT: CA0033354.8741	
HORIZONTAL SCALE: 1 : 5,500	
DRAWN BY: JLD	FIGURE No: 11

55 KING STREET, SUITE 700
ST. CATHARINES, ON L2R 3H5
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WEST ◄ LOOKING NORTH ► EAST

I I'



NOTE: GEOLOGICAL CONTACTS HAVE BEEN INTERPOLATED AND MAY DIFFER FROM THAT DEPICTED.

HORIZONTAL SCALE
0 110 220 m
NOTE: 7.5x VERTICAL EXAGGERATION

LEGEND

- BH02-5 — WELL NEST DESIGNATION
- EXISTING GROUND SURFACE ELEVATION
- WATER LEVEL ELEVATION, MAY 2023 (masl)
- TOP OF BEDROCK ELEVATION
- INTERPOLATED STRATIGRAPHIC CONTACT
- WELL SCREEN (OPEN HOLE)

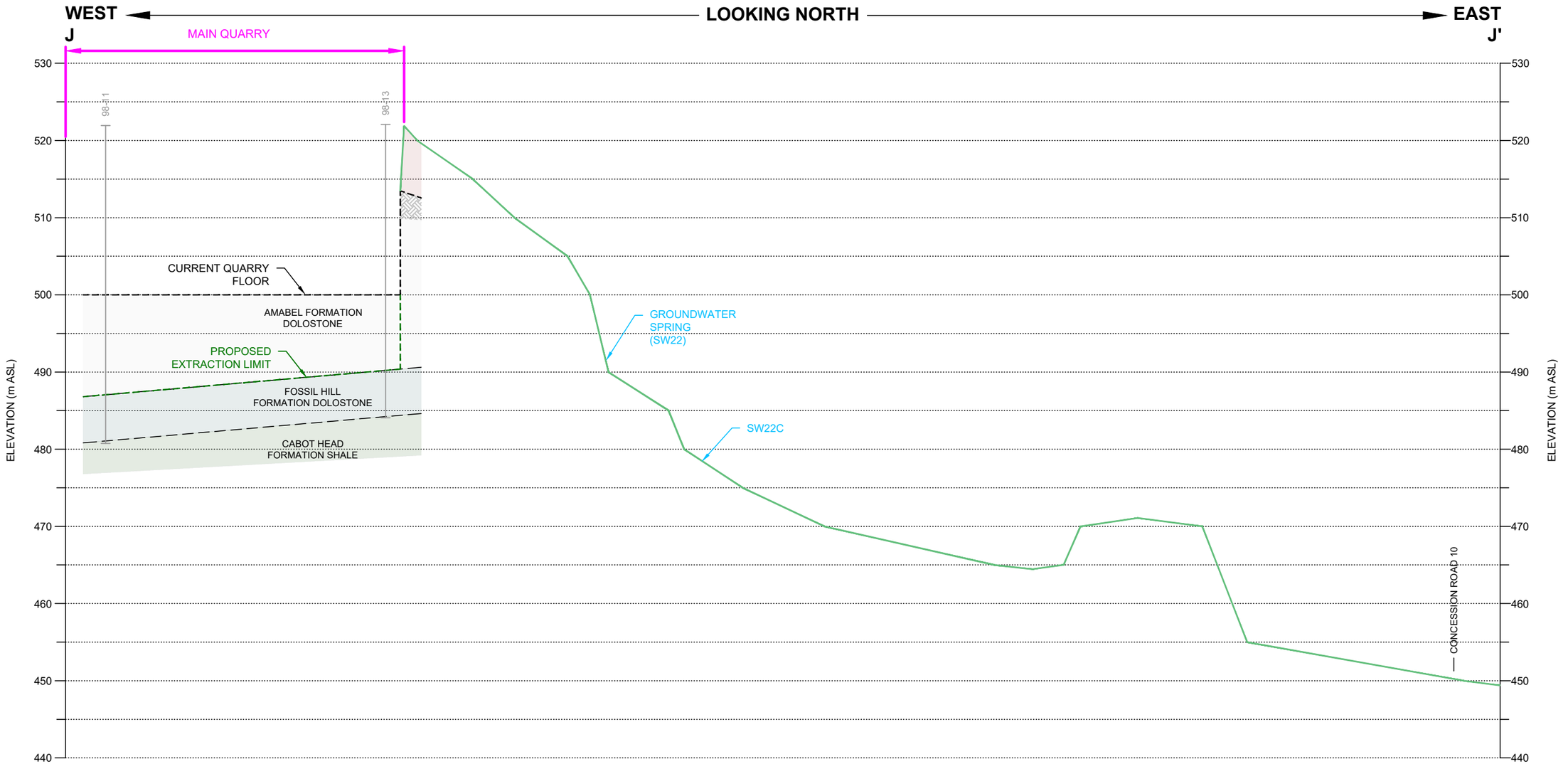
CROSS SECTION I-I'

LEVEL 1 AND 2 WATER STUDY
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE: OCTOBER 2025	
PROJECT: CA0033354.8741	
HORIZONTAL SCALE: 1 : 5,500	
DRAWN BY: JLD	FIGURE No: 12

55 KING STREET, SUITE 700
ST. CATHARINES, ON L2R 3H5
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LEGEND

- BH02-5 — WELL NEST DESIGNATION
- EXISTING GROUND SURFACE ELEVATION
- WATER LEVEL ELEVATION, MAY 2023 (masl)
- TOP OF BEDROCK ELEVATION
- INTERPOLATED STRATIGRAPHIC CONTACT
- WELL SCREEN (OPEN HOLE)

HORIZONTAL SCALE
0 110 220 m
NOTE: 10x VERTICAL EXAGGERATION

NOTE: GEOLOGICAL CONTACTS HAVE BEEN INTERPOLATED AND MAY DIFFER FROM THAT DEPICTED.

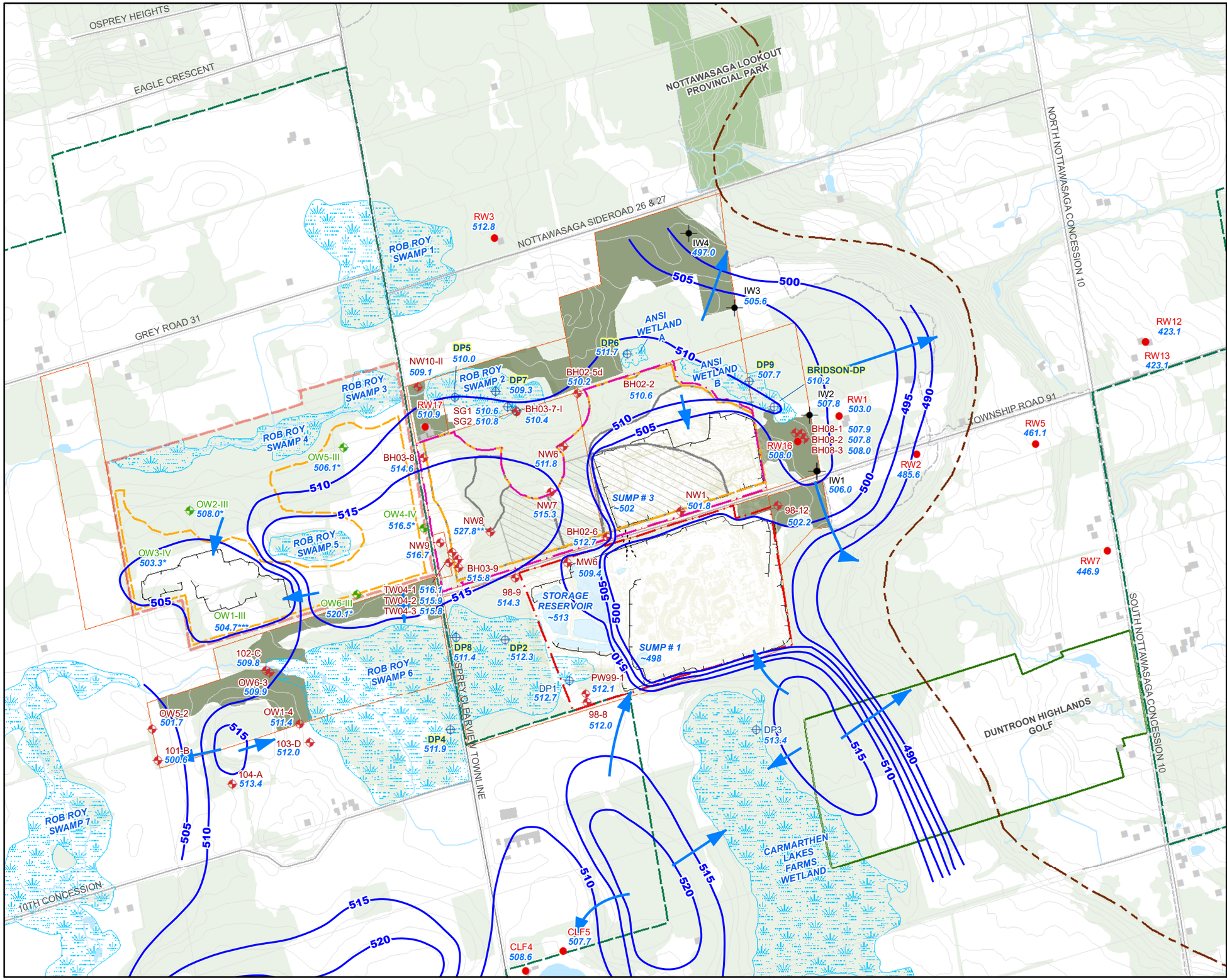
CROSS SECTION J-J'

LEVEL 1 AND 2 WATER STUDY
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE:	OCTOBER 2025
PROJECT:	CA0033354.8741
HORIZONTAL SCALE:	1 : 5,500
DRAWN BY:	JLD
FIGURE No:	13

55 KING STREET, SUITE 700
ST. CATHARINES, ON L2R 3H5
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LEGEND

- EXTENSION QUARRY LICENSED AREA
- LIMIT OF EXTRACTION
- OLD QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. WORKING FACE
- NIAGARA ESCARPMENT COMMISSION POLICY AREA
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WOODLOT
- APPROX. REFORESTED AREA
- MONITORING WELL
- OSPREY QUARRY MONITORING WELL
- INJECTION WELL
- DRIVEPOINT
- DOMESTIC WELL
- *500.7* WATER LEVEL ELEVATION, MAY 2023 (mASL)
- INTERPRETED BEDROCK GROUNDWATER CONTOUR, 5m INTERVALS (mASL)
- INFERRED GROUNDWATER FLOW DIRECTION

NOTES:
YELLOW HIGHLIGHT INDICATES DRIVEPOINT IS ASSOCIATED WITH WATER LEVEL TRIGGER.
* OSPREY QUARRY AVERAGE MAY 2023 WATER LEVEL ELEVATIONS SHOWN.
** WATER LEVELS FOR NW8 NOT USED IN INTERPOLATION.
*** OSPREY QUARRY WELL NEST OW1 DECOMMISSIONED IN 2022, MAY 2021 WATER LEVEL ELEVATIONS SHOWN.

N

0 300 600 m

NAD 1983 UTM Zone 17N

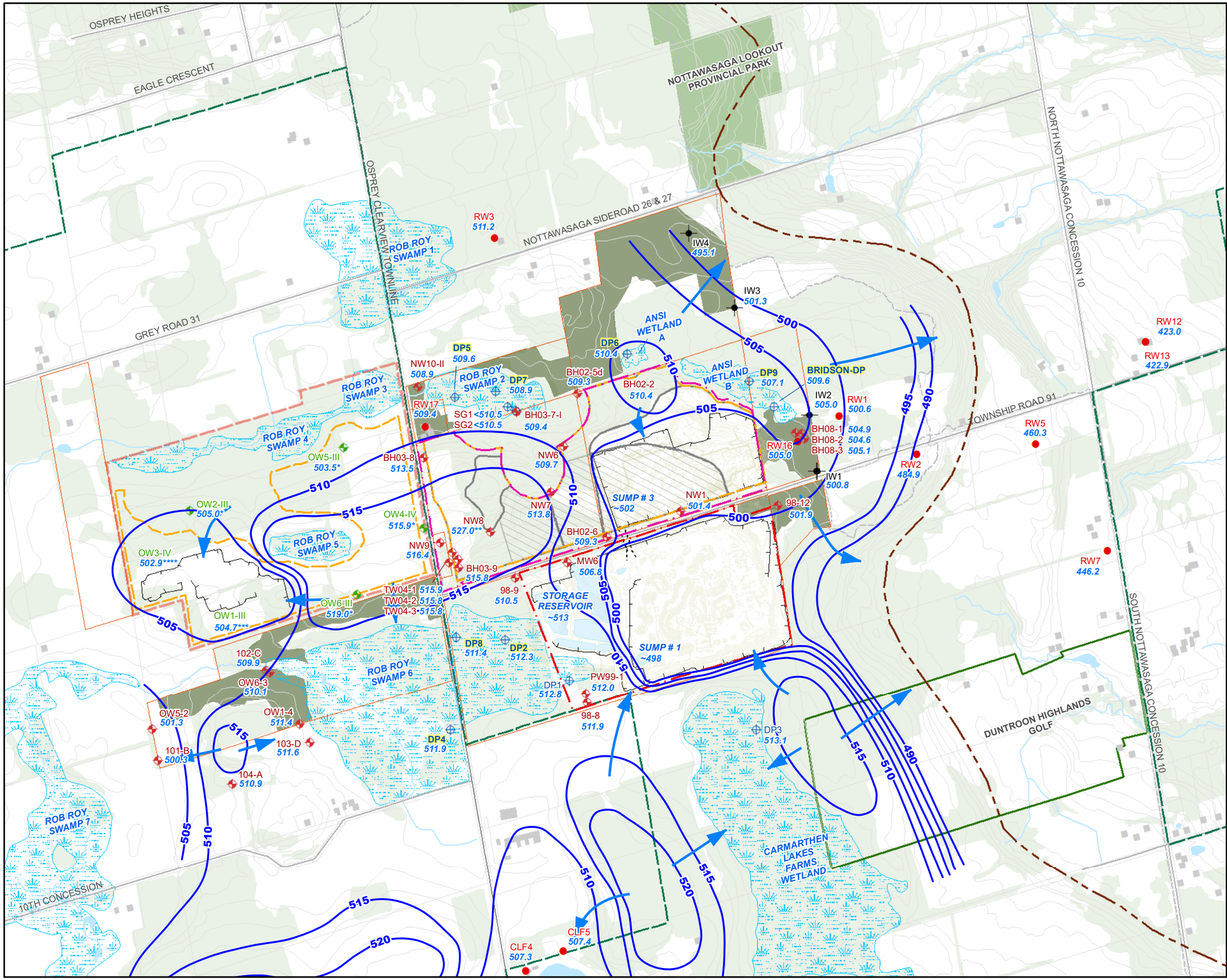
BEDROCK GROUNDWATER LEVELS - MAY 2023

LEVEL 1 AND 2 WATER STUDY
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE:	OCTOBER 2025
PROJECT:	CA0033354.8741
SCALE:	1 : 15,000
DRAWN BY:	JLD
FIGURE No:	14

55 KING STREET, SUITE 600
ST. CATHARINES, ON L7R 3H5
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LEGEND

- EXTENSION QUARRY LICENSED AREA
- LIMIT OF EXTRACTION
- OLD QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. WORKING FACE
- NIAGARA ESCARPMENT COMMISSION POLICY AREA
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WOODLOT
- APPROX. REFORESTED AREA
- MONITORING WELL
- OSPREY QUARRY MONITORING WELL
- INJECTION WELL
- DRIVEPOINT
- DOMESTIC WELL
- 500.7 WATER LEVEL ELEVATION, OCTOBER 2023 (mASL)
- INTERPRETED BEDROCK GROUNDWATER CONTOUR, 5m INTERVALS (mASL)
- INFERRED GROUNDWATER FLOW DIRECTION

NOTES:
YELLOW HIGHLIGHT INDICATES DRIVEPOINT IS ASSOCIATED WITH WATER LEVEL TRIGGER.
* OSPREY QUARRY AVERAGE OCTOBER 2023 WATER LEVEL ELEVATIONS SHOWN.
** WATER LEVELS FOR NW8 NOT USED IN INTERPOLATION.
*** OSPREY QUARRY WELL NEST OW1 DECOMMISSIONED IN 2022, OCTOBER 2021 WATER LEVEL ELEVATIONS SHOWN.
**** OSPREY QUARRY WELL NEST OW3 DECOMMISSIONED IN 2023, OCTOBER 2022 WATER LEVEL ELEVATIONS SHOWN.

N

0 300 600 m

NAD 1983 UTM Zone 17N

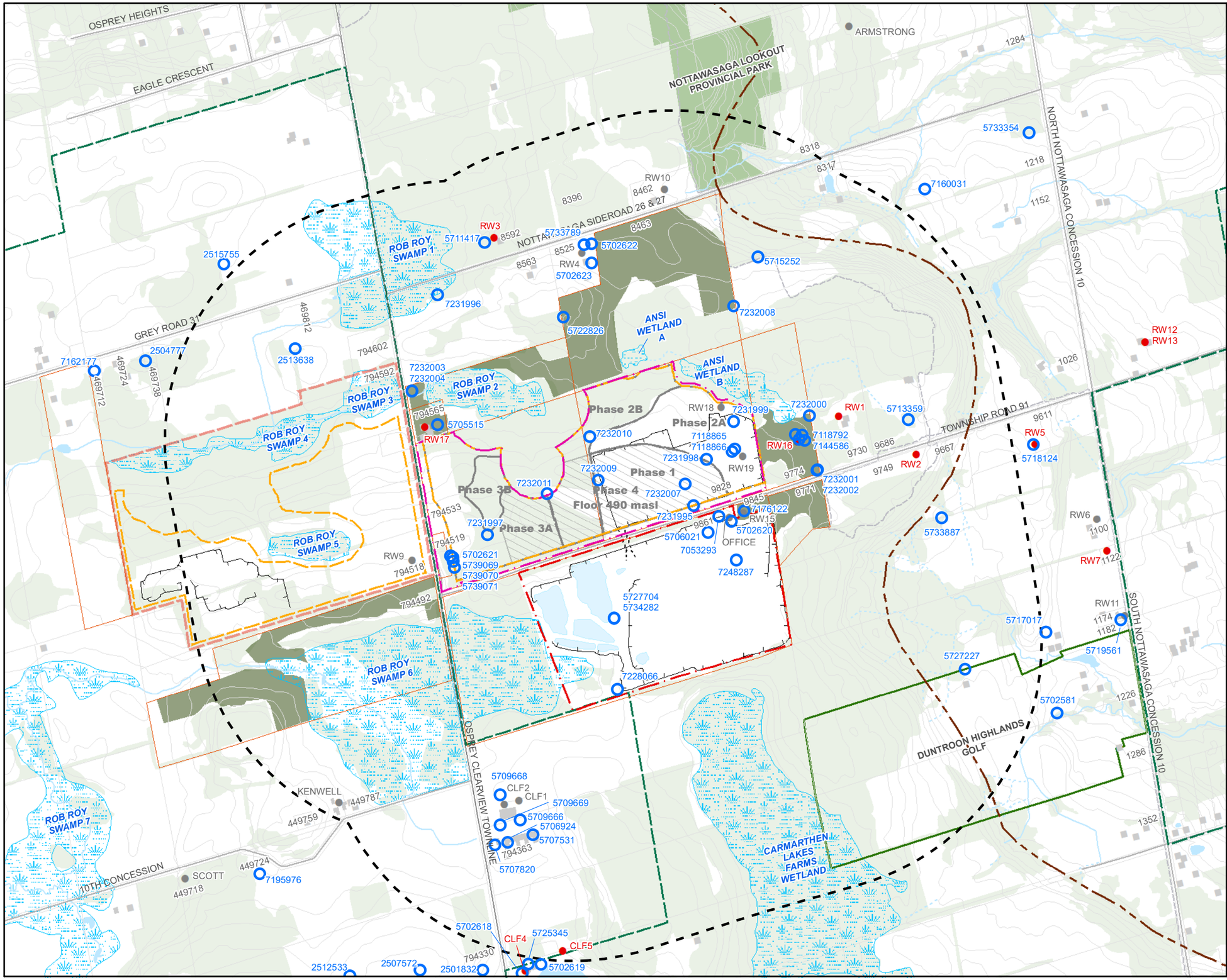
BEDROCK GROUNDWATER LEVELS - OCTOBER 2023

LEVEL 1 AND 2 WATER STUDY
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE:	OCTOBER 2025
PROJECT:	CA0033354.8741
SCALE:	1 : 15,000
DRAWN BY:	JLD
FIGURE No:	15

55 KING STREET, SUITE 600
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LEGEND

- EXTENSION QUARRY LICENSED AREA
- LIMIT OF EXTRACTION
- OLD QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. WORKING FACE
- NIAGARA ESCARPMENT COMMISSION POLICY AREA
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WATERCOURSE
- INTERMITTENT WATERCOURSE
- WOODLOT
- APPROX. REFORESTED AREA
- DOMESTIC WELL
- HISTORIAL DOMESTIC WELL
- 9861 PARCEL ADDRESS
- 1km BUFFER
- MECP WATER WELL RECORD LOCATION AND DESIGNATION

N

0 300 600 m

NAD 1983 UTM Zone 17N

WATER WELL RECORDS

LEVEL 1 AND 2 WATER STUDY
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE: OCTOBER 2025	
PROJECT: CA0033354.8741	
SCALE: 1 : 15,000	
DRAWN BY: JLD	FIGURE No: 16

55 KING STREET, SUITE 600
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OSPREY HEIGHTS
EAGLE CRESCENT
NOTTAWASAGA LOOKOUT PROVINCIAL PARK
NORTH NOTTAWASAGA CONCESSION 10
NOTTAWASAGA SIDEROAD 26 & 27
GREY ROAD 31
TOWNSHIP ROAD 91
ROB ROY SWAMP 1
ROB ROY SWAMP 2
ROB ROY SWAMP 3
ROB ROY SWAMP 4
ROB ROY SWAMP 5
ROB ROY SWAMP 6
ROB ROY SWAMP 7
ANSI WETLAND A
ANSI WETLAND B
BH02-2 10.0
BH02-6 8.0
NW6 5.0
NW7 2.0
NW1 11.0
IW2 <1.0
RW16 <1.0
BH08-1
BH08-2
BH08-3 <1.0
OSPREY CLEARVIEW TOWNLINE
10TH CONCESSION
SOUTH NOTTAWASAGA CONCESSION 10
DUNTROON HIGHLANDS GOLF
CARMARTHEN LAKES FARMS WETLAND

LEGEND

- EXTENSION QUARRY LICENSED AREA
- LIMIT OF EXTRACTION
- OLD QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. WORKING FACE
- NIAGARA ESCARPMENT COMMISSION POLICY AREA
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WOODLOT
- APPROX. REFORESTED AREA
- MONITORING WELL
- OSPREY QUARRY MONITORING WELL
- INJECTION WELL
- DRIVEPOINT
- DOMESTIC WELL
- <1.0 ESTIMATED DRAWDOWN (m)
- PREDICTED LIMIT OF DRAWDOWN DURING PHASE 2A EXTRACTION (WSP, SEPTEMBER 2021)

NOTE:
ONLY LOCATIONS WHERE DRAWDOWN IS ESTIMATED TO HAVE OCCURRED ARE LABELLED.

N

0 300 600 m

NAD 1983 UTM Zone 17N

INTERPRETED RADIUS OF INFLUENCE - PHASE 2A

LEVEL 1 AND 2 WATER STUDY
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE:	OCTOBER 2025
PROJECT:	CA0033354.8741
SCALE:	1 : 15,000
DRAWN BY:	JLD

55 KING STREET, SUITE 600
ST. CATHARINES, ON L7R 3H5
T 905-687-1771 | F 905-687-1773 | www.wsp.com

FIGURE No: 17

C:\Users\leigh.davis\WSP O365\CA0033354.8741 CA-Duntroon Quarry - 2024 Hydrogeological Study - Project Folders\05. Technical\Graphics\

OSPREY HEIGHTS
EAGLE CRESCENT
NOTTAWASAGA LOOKOUT PROVINCIAL PARK
NOTTAWASAGA SIDEROAD 26 & 27
GREY ROAD 31
ROAD 87B
TOWNSHIP ROAD 91
OSPREY CLEARVIEW TOWNLINE
10TH CONCESSION
DUNTROON HIGHLANDS GOLF
CARMARTHEN LAKES FARMS WETLAND
ROB ROY SWAMP 1
ROB ROY SWAMP 2
ROB ROY SWAMP 3
ROB ROY SWAMP 4
ROB ROY SWAMP 5
ROB ROY SWAMP 6
ROB ROY SWAMP 7
ANSI WETLAND A
ANSI WETLAND B
1:0
5:0
10
15

LEGEND

- EXTENSION QUARRY LICENSED AREA
- LIMIT OF EXTRACTION
- OLD QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- NIAGARA ESCARPMENT COMMISSION POLICY AREA
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WOODLOT
- APPROX. REFORESTED AREA
- MONITORING WELL
- OSPREY QUARRY MONITORING WELL
- INJECTION WELL
- DRIVEPOINT
- DOMESTIC WELL
- AREA OF EXTRACTION
- AREA OF EXTRACTION (DEPTH 490 masl)
- AREA OF EXTRACTION (TO FOSSIL HILL FORMATION DEPTH)
- PREDICTED DRAWDOWN CONTOURS (m)

N

0 300 600 m

NAD 1983 UTM Zone 17N

PREDICTED RADIUS OF INFLUENCE - PHASE 6

LEVEL 1 AND 2 WATER STUDY
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE: OCTOBER 2025	
PROJECT: CA0033354.8741	
SCALE: 1 : 15,000	
DRAWN BY: JLD	FIGURE No: 18

55 KING STREET, SUITE 600
ST. CATHARINES, ON L7R 3H5
T 905-687-1771 | F 905-687-1773 | www.wsp.com

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APPENDIX A

Site Data

APPENDIX A-1

Permits

Ontario

Ministry of the Environment and Climate Change
Ministère de l'Environnement et de l'Action en matière de changement climatique

AMENDED PERMIT TO TAKE WATER

Surface and Ground Water
NUMBER 7725-AACS54

Pursuant to Section 34.1 of the Ontario Water Resources Act, R.S.O. 1990 this Permit To Take Water is hereby issued to:

Walker Aggregates Inc.
Post Office Box 100
Thorold, Ontario, L2V 3Y8
Canada

For the water taking from: Sump #1

Located at: Lot 24, Concession 12, Geographic Township of Nottawasaga
Clearview, County of Simcoe

For the purposes of this Permit, and the terms and conditions specified below, the following definitions apply:

DEFINITIONS

(a) "Director" means any person appointed in writing as a Director pursuant to section 5 of the OWRA for the purposes of section 34.1, OWRA.

(b) "Provincial Officer" means any person designated in writing by the Minister as a Provincial Officer pursuant to section 5 of the OWRA.

(c) "Ministry" means Ontario Ministry of the Environment and Climate Change.

(d) "District Office" means the Barrie District Office.

(e) "Permit" means this Permit to Take Water No. 7725-AACS54 including its Schedules, if any, issued in accordance with Section 34.1 of the OWRA.

(f) "Permit Holder" means Walker Aggregates Inc..

(g) "OWRA " means the *Ontario Water Resources Act,* R.S.O. 1990, c. O. 40, as amended.

You are hereby notified that this Permit is issued subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. Compliance with Permit

1.1 Except where modified by this Permit, the water taking shall be in accordance with the application for this Permit To Take Water, dated August 12, 2014 and signed by Kevin Kehl, and all Schedules included in this Permit.

1.2 The Permit Holder shall ensure that any person authorized by the Permit Holder to take water under this Permit is provided with a copy of this Permit and shall take all reasonable measures to ensure that any such person complies with the conditions of this Permit.

1.3 Any person authorized by the Permit Holder to take water under this Permit shall comply with the conditions of this Permit.

1.4 This Permit is not transferable to another person.

1.5 This Permit provides the Permit Holder with permission to take water in accordance with the conditions of this Permit, up to the date of the expiry of this Permit. This Permit does not constitute a legal right, vested or otherwise, to a water allocation, and the issuance of this Permit does not guarantee that, upon its expiry, it will be renewed.

1.6 The Permit Holder shall keep this Permit available at all times at or near the site of the taking, and shall produce this Permit immediately for inspection by a Provincial Officer upon his or her request.

1.7 The Permit Holder shall report any changes of address to the Director within thirty days of any such change. The Permit Holder shall report any change of ownership of the property for which this Permit is issued within thirty days of any such change. A change in ownership in the property shall cause this Permit to be cancelled.

2. General Conditions and Interpretation

2.1 Inspections

The Permit Holder must forthwith, upon presentation of credentials, permit a Provincial Officer to carry out any and all inspections authorized by the OWRA, the *Environmental Protection Act* , R.S.O. 1990, the *Pesticides Act* , R.S.O. 1990, or the *Safe Drinking Water Act,* S. O. 2002.

2.2 Other Approvals

The issuance of, and compliance with this Permit, does not:

(a) relieve the Permit Holder or any other person from any obligation to comply with any other applicable legal requirements, including the provisions of the *Ontario Water Resources Act* , and the *Environmental Protection Act* , and any regulations made thereunder; or

(b) limit in any way any authority of the Ministry, a Director, or a Provincial Officer, including the authority to require certain steps be taken or to require the Permit Holder to furnish any further information related to this Permit.

2.3 Information

The receipt of any information by the Ministry, the failure of the Ministry to take any action or require any person to take any action in relation to the information, or the failure of a Provincial Officer to prosecute any person 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 this Permit or other legal requirement; or

(b) acceptance by the Ministry of the information's completeness or accuracy.

2.4 Rights of Action

The issuance of, and compliance with this Permit shall not be construed as precluding or limiting any legal claims or rights of action that any person, including the Crown in right of Ontario or any agency thereof, has or may have against the Permit Holder, its officers, employees, agents, and contractors.

2.5 Severability

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

2.6 Conflicts

Where there is a conflict between a provision of any submitted document referred to in this Permit, including its Schedules, and the conditions of this Permit, the conditions in this Permit shall take precedence.

3. Water Takings Authorized by This Permit

3.1 **Expiry**

This Permit expires on **December 31, 2026**. No water shall be taken under authority of this Permit after the expiry date.

3.2 Amounts of Taking Permitted

The Permit Holder shall only take water from the source, during the periods and at the rates and amounts of taking specified in Table A. Water takings are authorized only for the purposes specified in Table A.

Table A

	Source Name / Description:	Source: Type:	Taking Specific Purpose:	Taking Major Category:	Max. Taken per Minute (litres):	Max. Num. of Hrs Taken per Day:	Max. Taken per Day (litres):	Max. Num. of Days Taken per Year:	Zone/ Easting/ Northing:
1	Sump #1	Pond Dugout	Pits and Quarries	Dewatering	15,000	24	21,600,000	365	17 559860 4914550
						Total Taking:	21,600,000		

Notes:

- This Permit allows water taking for quarry de-watering purposes at the "existing" quarry located on Lot 24, concession 12, Clearview as well as Phase 1 of the "expansion" quarry located on Lot 25, concession 12, Clearview.

- Dewatering of the quarry is achieved by pumping from Sump # 1. Water management at the site also includes pumping for various **on-site** uses including: aggregate washing, dust suppression and watering of landscaped areas. Water is also pumped from the sump locations to the on-site reservoir for storage. Pumps at the new sump established within Phase 1 of the "expansion" area (Sump 3) are used to transfer water from Phase 1 of the expansion area to the sump locations within the "existing" quarry (Sump 1 and Sump 2). In addition, water collecting in various parts of the quarry may be directed to the sump locations by temporary pumps and/ or via gravity.

- The rate and amount restrictions reflected in Table 1 above apply only to the taking of water from Sump 1 **for off-site discharge** purposes. All other internal uses and transfers of water within the quarry are not considered water takings for purposes of this Permit and are not required to be metered as a condition of this Permit. The rate and amount of water taken and discharged off-site is monitored using a meter installed on the pipe that conveys the dewatering effluent to the off-site discharge location, within the adjacent wetland designated as Rob Roy Wetland 6 (RR6). The outflow from RR6 joins a small headwater tributary to the Beaver River.

3.3 Notwithstanding Table A, the taking of water from Sump 1 for purposes of discharge into the RR6 wetland shall be adjusted as necessary, in accordance with any recommendation resulting from the assessments required under Condition 4.4 of this Permit (below). The adjustment may include lowering of the maximum rate, amount and/ or duration of taking from those shown in Table A. Seasonally adjusted rates and amounts may also be applied, if necessary.

4. Monitoring

4.1 The Permit Holder shall, on each day water is taken under the authorization of this Permit, record the date, the volume of water taken on that date and the rate at which it was taken. The daily volume of water taken shall be measured by a flow meter installed on the discharge pipe. The Permit Holder shall keep all records required by this condition current and available at or near the site of the taking and shall produce the records immediately for inspection by a Provincial Officer upon his or her request. The Permit Holder shall submit, on or before March 31st in every year, the daily water taking data collected and recorded for the previous year to the Ministry's Water Taking Reporting System.

4.2 The Permit Holder shall implement the the groundwater monitoring and well interference investigation & mitigation programs as described in Items 2 (i) and 2 (ii) of Schedule A of this Permit.

4.3 The Permit Holder shall monitor stream flows and water levels at appropriate locations, including locations SW1, SW2, SW02 and SW4 (a historical stream flow monitoring location on the tributary stream, located upstream of SW02) and drive point piezometers DP2 and DP4 within the wetland designated as RR6. The monitoring type and frequency shall be consistent with the descriptions provided in Table 3.4 of Item No. 4 of Schedule A of this Permit (i.e. the Adaptive Management Plan or AMP).

4.4 The Permit Holder shall engage relevantly qualified persons to periodically analyse the water taking and discharge, stream flow and groundwater monitoring data, along with any other relevant information/ data, to:

i) evaluate if conditions within the RR6 wetland receiving the discharge and within the Beaver River tributary stream have been altered beyond their historical ranges as a result of the taking and discharge. The assessment shall consider the historical range of flows in the stream as described in Table 3.5 of Item No. 4 of Schedule A of this Permit (the AMP). If values significantly different from those in the AMP are used to describe historical ranges, the rationale shall be provided. A record of the evaluation undertaken by the qualified person(s) shall be maintained; and

ii) determine the significance of any observed changes and make recommendations on necessary adjustments to lower the the rate, amount and/ or duration of the taking and discharge from those shown in Table A. Seasonally adjusted rates and amounts may also be recommended, if necessary.

4.5 The Permit Holder shall prepare an annual monitoring report which includes the following:

i) all monitoring data collected under this Permit. The data shall be presented in

appropriate format (graphical and tabular) along with the historical data. Maps prepared at appropriate scales that clearly identify the various monitoring locations, including historical ones, shall also be included;

ii) details of the periodic evaluations undertaken by qualified persons and the recommendations made as well as details on how the recommendations were implemented;

iii) any proposed changes to the monitoring program or the Permit, along with the justification for the modification;

iv) an evaluation of the quarry operation and analysis and interpretation of all monitoring data collected under this Permit to determine if the operation has resulted in any undesirable environmental impacts. The report shall contain conclusions with respect to any effects of quarry operation on groundwater resources; surface water resources and wells.

The report shall be prepared by qualified individual(s), and submitted to the Director and the District no later than May 31st of the each year.

5. Impacts of the Water Taking

5.1 Notification

The Permit Holder shall immediately notify the local District Office of any complaint arising from the taking of water authorized under this Permit and shall report any action which has been taken or is proposed with regard to such complaint. The Permit Holder shall immediately notify the local District Office if the taking of water is observed to have any significant impact on the surrounding waters. After hours, calls shall be directed to the Ministry's Spills Action Centre at 1-800-268-6060.

5.2 For Surface-Water Takings

The taking of water (including the taking of water into storage and the subsequent or simultaneous withdrawal from storage) shall be carried out in such a manner that streamflow is not stopped and is not reduced to a rate that will cause interference with downstream uses of water or with the natural functions of the stream.

For Groundwater Takings

If the taking of water is observed to cause any negative impact to other water supplies obtained from any adequate sources that were in use prior to initial issuance of a Permit for this water taking, the Permit Holder shall take such action necessary to make available to those affected, a supply of water equivalent in quantity and quality to their normal takings, or shall compensate such persons for their reasonable costs of so doing, or shall reduce the rate and amount of taking to prevent or alleviate the observed negative impact. Pending permanent restoration of the affected supplies, the Permit Holder shall provide, to those affected, temporary water supplies adequate to meet their normal requirements, or shall compensate such persons for their

reasonable costs of doing so.

If permanent interference is caused by the water taking, the Permit Holder shall restore the water supplies of those permanently affected.

6. Director May Amend Permit

The Director may amend this Permit by letter requiring the Permit Holder to suspend or reduce the taking to an amount or threshold specified by the Director in the letter. The suspension or reduction in taking shall be effective immediately and may be revoked at any time upon notification by the Director. This condition does not affect your right to appeal the suspension or reduction in taking to the Environmental Review Tribunal under the *Ontario Water Resources Act* , Section 100 (4).

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is included to ensure that the conditions in this Permit are complied with and can be enforced.

2. Condition 2 is included to clarify the legal interpretation of aspects of this Permit.

3. Conditions 3 through 6 are included to protect the quality of the natural environment so as to safeguard the ecosystem and human health and foster efficient use and conservation of waters. These conditions allow for the beneficial use of waters while ensuring the fair sharing, conservation and sustainable use of the waters of Ontario. The conditions also specify the water takings that are authorized by this Permit and the scope of this Permit.

In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, 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 101 of the Ontario Water Resources Act, R.S.O. 1990, as amended, provides that the Notice requiring the hearing shall state:

1. The portions of the Permit or each term or condition in the Permit in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

In addition to these legal requirements, the Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Permit to Take Water number;
6. The date of the Permit to Take Water;
7. The name of the Director;
8. The municipality within which the works are located;

This notice must be served upon:

The Secretary
Environmental Review Tribunal
655 Bay Street, 15th Floor
Toronto ON
M5G 1E5
Fax: (416) 326-5370
Email: ERTTribunalsecretary@ontario.ca

AND

The Director, Section 34.1, Ministry of the Environment and Climate Change
8th Floor
5775 Yonge St
Toronto ON M2M 4J1
Fax: (416) 325-6347

Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal:

by Telephone at	by Fax at	by e-mail at
(416) 212-6349	(416) 326-5370	www.ert.gov.on.ca
Toll Free 1(866) 448-2248	Toll Free 1(844) 213-3474	

This Permit cancels and replaces Permit Number 1168-665NHB, issued on 2005/11/21.

Dated at Toronto this 22nd day of September, 2016.



Karoly Tajnay
Director, Section 34.1
Ontario Water Resources Act , R.S.O. 1990

Schedule A

This Schedule “A” forms part of Permit To Take Water 7725-AACS54, dated September 22, 2016.

1. Application for Permit To Take Water, signed signed by Kevin Kehl on August 8, 2014.

2. Report entitled "Permit To Take Water Amendment Application, Duntroon Quarry..." prepared by WSP and dated July 2014. Section of this report have been revised by the following documents:

    i. "Permit To Take Water Amendment Application, CLARIFICATION DOCUMENT, Duntroon Quarry..." prepared by WSP and dated April 2016;
    ii. "Permit To Take Water Amendment Application, CLARIFICATION DOCUMENT, Duntroon Quarry..." prepared by WSP and dated May 2016;

3. E-mail from Sara Watts of WSP to Ted Belayneh of MOECC dated June 16, 2016 and containing responses to questions regarding pumping rates and proposed PTTW conditions.

4. Report entitled: "Adaptive Management Plan (AMP), Duntroon Expansion Quarry...", Prepared for Walker Aggregates Inc., and dated December 6, 2013.

Ontario

Ministry of the Environment and Climate Change
Ministère de l'Environnement et de l'Action en matière de changement climatique

ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 1521-A4VJ4X
Issue Date: October 17, 2016

Walker Aggregates Inc.
Post Office Box, No. 100
Thorold, Ontario
L2V 3Y8

Site Location: Duntroon Quarry
9881 County Road 91
Township of Clearview, County of Simcoe
L9Y 3Z7

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:

proposed and existing sewage Works for collection, transmission, treatment and disposal of up to 130 L/s of water that accumulates within the confines of existing 47.1 hectares the Duntroon Quarry (a total land area of approximately 57.5 hectares located on Part Lot 24 and Expansion Property located on Lot 25, Concession XII in the Township of Clearview (former Township of Nottawasaga), County of Simcoe) aggregate extraction area from direct precipitation, surface runoff, snow melt and groundwater inflow, discharging to a wetland located at the west side of the property, and then to the twin culverts at Grey Road 31 and ultimately to Beaver River South Tributary, consisting of the following:

Proposed Works

- a future sump no. 3 equipped with a submersible pump, located on the quarry floor within the Phase 1 of the expansion property discharging via a gravity sewer line to sump no.1 and/or sump no.2 as described below.

Existing Works

- sump no. 2 equipped with a submersible pump, located at the western part of the aggregate extraction area (near the water storage reservoir) discharging via a gravity sewer line to sump no.1, or pumped directly to the adjacent water storage reservoir during extreme wet weather events;

- sump no. 1, approximately 17,050 m^3 in capacity and located south of the sump no. 2, equipped with a submersible pump and a 300 mm diameter forcemain laid on ground and traversing in a westerly direction, discharging to a wetland located and then to the twin culverts at Grey Road 31 which drains to Beaver River

South Tributary,

all other controls, electrical equipment, instrumentation, piping, valves and appurtenances essential for the proper operation of the aforementioned sewage Works.

all in accordance with the supporting documents listed in Schedule 'A'.

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

"Approval" means this entire document and any schedules attached to it, and the application;

"District Manager" means the District Manager of the Barrie District Office of the Ministry;

"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;

"EPA" means the *Environmental Protection Act,* R.S.O. 1990, c.E.19, as amended;

"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;

"Owner" means Walker Aggregates Inc. and its successors and assignees;

"OWRA" means the *Ontario Water Resources Act* , R.S.O. 1990, c. O.40, as amended;

"Works" means the sewage works described in the Owner's application and this Approval.

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 A, 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.

(6) The issuance of, and compliance with the conditions of, this Approval does not:

(a) relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement, including, but not limited to, the obligation to obtain approval from the local conservation authority/MNR or any other agency necessary to construct or operate the sewage Works; or

(b) limit in any way the authority of the Ministry to require certain steps be taken to require the Owner to furnish any further information related to compliance with this Approval.

2. CHANGE OF OWNER

(1) The Owner shall notify the District Manager and the Director, in writing, of any of the following changes within 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; or
(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) In the event of any change in ownership of the Works, the Owner shall notify in writing the succeeding owner of the existence of this Approval, and a copy of such notice shall be forwarded to the District Manager and the Director.

(3) The Owner shall ensure that all communications made pursuant to this condition will refer to this Approval's number.

3. OPERATION AND MAINTENANCE

(1) The Owner shall ensure that at all times, the Works and related equipment and appurtenances which are installed or used to achieve compliance with this Approval are properly operated and maintained. The Owner shall also ensure that all monitoring programs and maintenance schedules for the Works and related equipment are complied with.

(2) The Owner shall ensure that the maximum discharge rate from these Works does not exceed 250 L/s.

(3) Within three (3) months of the issuance date of this Approval, the Owner shall prepare an operations manual for the operation of the Works that includes, but is not necessarily limited to, the following information:

(a) operating procedures for routine operation of the Works; including reduction or termination of discharge during major rain events, if necessary;
(b) inspection programs, including frequency of inspection for the Works and the methods or tests employed to detect when maintenance is necessary, as well as downstream receiver inspections for the occurrence of erosion and flooding;
(c) repair and maintenance programs, including the frequency of repair and maintenance for the Works;
(e) contingency plans and procedures for dealing with potential spill, bypasses and any other abnormal situations and for notifying the District Manager; and
(f) complaint procedures for receiving and responding to public complaints.

(4) The Owner shall maintain the operations manual up to date through revisions undertaken from time to time and retain a copy at the location of the sewage Works. Upon request, the Owner shall make the manual available for inspection and copying by Ministry personnel.

4. EFFLUENT LIMITS

(1) The Owner shall design, construct, operate and maintain the Works such that the concentrations of the materials named below as effluent parameters are not exceeded in the effluent discharge from the Works.

Table 1 Effluent Limits

Effluent Parameter	**Concentration Limit** (milligrams per litre unless otherwise indicated)
Column 1	Column 2
Oil & Grease	15
Total Suspended Solid (TSS)	25
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times	

(2) For the purposes of determining compliance with and enforcing subsection (1):

(a) For purposes of determining compliance with and enforcing subsection (1), non-compliance with respect to the parameters concentration limit as outlined in Column 1 is deemed to have occurred

when any single sample analyzed for Oil & Grease and Total Suspended Solids, (along with a follow-up confirmation sample collected within 7 days of the receipt of the original sample result that indicated that an exceedance had occurred), is greater than the corresponding maximum concentration set out in Column 2 of subsection (1).

(b) non-compliance with respect to pH is deemed to have occurred when any single measurement is outside of the indicated range.

5. EFFLUENT - VISUAL OBSERVATIONS

Notwithstanding any other condition in this Approval, the Owner shall ensure that the treated 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, sheen or foam on the receiving waters.

6. EFFLUENT QUALITY 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) Samples shall be collected and analyzed at the following sampling locations, at the sampling frequencies and using the sample type specified for each parameter listed:

Table 2 - Effluent Monitoring	
Sampling Location	The outlet channel discharge point to the wetland
Sampling Frequency	once each month during periods of effluent discharge
Sampling Type	Grab
Sampling Parameters	Total Suspended Solids, Oil and Grease, Nitrite Nitrogen, Nitrate Nitrogen, Total Ammonia Nitrogen, pH (field), Temperature (field), Total Phosphorus, Conductivity (field), Chloride, Sulphate, Sodium, Potassium, Boron, Cadmium, Total Chromium, Cobalt, Copper, Iron, Lead, Nickel, Silicon, Silver, Zinc, Alkalinity, Total Dissolved Solids, Phenols (4AAP), Hardness and Turbidity

(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:

(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 1999), ISBN 0-7778-1880-9, as amended from time to time by more recently published editions; and

(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.

(5) Conductivity, Temperature and pH shall be measured and recorded in the field at the time of sampling. 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 (PWQO)" dated July 1994, as amended, for ammonia (un-ionized).

(6) The Owner shall measure, record and calculate the discharge rate and volume of water pumped from the quarry sump on a daily basis during the discharging period and separately water not discharged from the Works but taken for other uses on a daily basis.

(7) The Owner shall undertake monthly inspections of the pumping sump and the outlet channel, and have excess settled material cleaned-out on a regular basis with results recorded in a log book to be made available for review by the Ministry upon request. The log shall include the name of the inspector, date of inspection and description of cleaning and maintenance measures undertaken for the sewage Works.

(8) The measurement frequencies and analytical parameters specified in subsections (2), in respect of any parameter are minimum requirements which may, after twelve (12) months of monitoring in accordance with this Condition, be modified by the District Manager in writing from time to time.

(9) 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) The Owner shall report to the District Manager or designate, of any exceedence of any parameter specified in Conditions 4 or 5 orally, as soon as reasonably possible, and in writing within seven (7) days of the exceedence, as defined in Condition 4(2).

(2) In addition to the obligations under Part X of the *Environmental Protection Act,* the Owner shall, within 10 working days of the occurrence of a reportable spill, bypass or loss of any product, by product, intermediate product, oils, solvents, 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 prepare and submit a performance report to the District Manager on an annual basis within ninety (90) days following the end of the period being reported upon. The reports shall contain, but shall not be limited to, the following information:

(a) a summary and interpretation of all monitoring data collected pursuant to Condition 6 and a comparison to the effluent limits outlined in Condition 4 and the Provincial Water Quality Objective and/or Ontario Drinking Water Objective for the monitored parameter, including an overview of the success and adequacy of the Works and recommendations of monitoring program changes. The report should provide an interpretation of the data as to the impact of the discharge of treated effluent form the quarry to the receiver with respect to water quality and quantity during periods of low/high flows and periods of discharge/no discharge;
(b) a tabulation of the total daily discharge rate and volume from the quarry sump and the total daily volume of water not discharged from the Works but taken for other uses;
(c) a description of any operating problems encountered and corrective actions taken;
(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; and
(f) any other information the District Manager may require from time to time.

Schedule 'A' forms part of this Approval and contains a list of supporting documentation/information received, reviewed and relied upon in the issuance of this Approval.

SCHEDULE 'A'

1. Environmental Compliance Approval Application submitted by Was Foebel, Environmental Specialist Walker Aggregates Inc. dated June 3, 2013

2. Design Report entitled "Environmental Protection Act (R.S.O. 1990) Environmental Compliance Approval Application (Industrial Sewage Works) Duntroon Quarry, Part of Lot 24, Concession XII, Township of Clearview, County of Simcoe" dated May 2013 submitted under covering letter dated May 29, 2013 signed by Was Foebel, Environmental Specialist, Walker Aggregates Inc. and supporting information.

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 imposed 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.

3. Condition 3 is imposed to ensure that a comprehensive operations manual governing all significant areas of operation, maintenance and repair is prepared, implemented and kept up-to-date by the Owner and made available to the Ministry. Such a manual is an integral part of the operation of the Works. Its compilation and use should assist the Owner in staff training, in proper plant operation and in identifying and planning for contingencies during possible abnormal conditions. The manual will also act as a benchmark for Ministry staff when reviewing the Owner's operation of the Work.

4. Conditions 4 and 5 are imposed to ensure that the effluent discharged from the Works meets the Ministry's effluent quality requirements thus minimizing environmental impact on the receiver.

5. Condition 6 is imposed to require the Owner to demonstrate on a continual basis that the quality of the effluent from the approved Works is consistent with the effluent limits specified in the Approval and that the approved Works do not cause any impairment to the receiving watercourse.

6. Condition 7 is imposed to provide a performance record for future references and to ensure that the Ministry is made aware of problems as they arise, so that the Ministry can work with the Owner in resolving the problems in a timely manner.

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:

1. 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;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;

6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. 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 and
Climate Change
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 17th day of October, 2016

Fariha Pannu.

Fariha Pannu, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

HV/
c: District Manager, MOECC Barrie
Jason Murchison, GENIVAR Inc.

APPENDIX A-2

Monitoring Network Details

Table A-1 Monitoring Well Details

Well ID	GPS Coordinates (NAD 83 Zone 17) Easting	Northing	Type	Well Pipe Diameter mm	Measuring Point Elevation mASL	Ground Elevation mASL	Screened Interval mASL or m	Geologic Formation Monitored	Monitoring Program
Old Quarry Monitoring Wells									
1. 98-8	559,631	4,914,368	O	102	517.25	516.50	Open Hole 35.1 m	Amabel/Fossil Hill	LTT
2. 98-9	559,354	4,914,817	O	102	526.35	525.90	Open Hole 48.5 m	Amabel/Fossil Hill	LTT
98-10			O	102	519.55	519.40	Open Hole 37.9 m	Amabel/Fossil Hill	Historical
98-11			O	102	522.58	522.20	Open Hole 41.2 m	Amabel/Fossil Hill	Historical
3. 98-12	560,373	4,915,090	O	102	527.22	526.70	Open Hole 42.4 m	Amabel/Fossil Hill	LTT
98-13			O	102	522.44	522.30	Open Hole 38.0 m	Amabel/Fossil Hill	Historical
OW99-1			O	102	519.38	519.10	Open Hole 29.5 m	Amabel	Historical
OW99-2			O	102	500.78	500.60	Open Hole 19.7 m	Amabel/Fossil Hill	Historical
4. PW99-1	559,630	4,914,385	O	152	513.98	513.90	Open Hole 32.9 m	Amabel/Fossil Hill	LTT
PW99-2			O	152	519.33	519.20	Open Hole 34.4 m	Amabel	Historical
PW99-3			O	152	501.13	500.90	Open Hole 21.4m	Amabel/Fossil Hill	Historical
MW2			O	102	524.86	523.20	Open Hole 20.8 m	Amabel	Historical
MW3 (R)			O	102	514.98	514.40	Open Hole 15.4 m	Amabel	Historical
MW4			O	102	522.45	521.90	Open Hole 39.9 m	Amabel/Fossil Hill	Historical
MW5			O	102	529.43	529.40	Open Hole 46.1 m	Amabel/Fossil Hill	Historical
5. MW6	559,545	4,914,893	O	102	534.87	533.60	Open Hole 36.4 m	Amabel	LTT
E2			O	203	520.97	521.00	Open Hole	Amabel	Historical
QUARRY HOUSE			O	102	529.38	528.72	Open Hole 14.6m	Amabel	Historical
SHOP WELL			O	102	523.50	522.49	Not Measured	Amabel	Historical
OFFICE WELL			O	152	532.52	532.40	Open Hole 24.7m	Amabel/Fossil Hill	Historical
OFFICE WELL (NEW)			O	152	532.04	531.35	Open Hole 37.2m	Amabel	Historical

Notes:
- PITM - Performance Indicator Trigger Monitoring
- LTTWM - Long Term Groundwater and Surface Water Monitoring
- Elevations provided in metres above sea level (mASL)
- Type 'O' indicates Open Hole
- Type 'S' indicates Standpipe
- Shading indicates well is decommissioned / no longer monitored.
- (R) indicates Replacement Monitoring Well
- N/A indicates information not available

Table A-1 Monitoring Well Details

Well ID	GPS Coordinates (NAD 83 Zone 17) Easting	Northing	Type	Well Pipe Diameter mm	Measuring Point Elevation mASL	Ground Elevation mASL	Screened Interval mASL or m	Geologic Formation Monitored	Monitoring Program
Extension Quarry Monitoring Wells									
BH02-1			O	102	523.30	522.64	Open Hole 39.5 m	Amabel/Fossil Hill	LTT
1. BH02-2	559,915	4,915,535	O	102	523.18	522.46	Open Hole 39.5 m	Amabel/Fossil Hill	LTT
BH02-3			O	102	530.58	529.64	Open Hole 9.5 m *	Amabel/Fossil Hill	LTT
BH02-4			O	102	530.70	530.02	Open Hole 50.1 m	Amabel/Fossil Hill	LTT
2. BH02-5	559,587	4,915,585	O	102	513.89	513.24	Open Hole 31.9 m	Amabel/Fossil Hill	LTT
3. BH02-5 (mid)			O	102	514.20	513.24	Open Hole 12.4 m	Amabel	LTT
4. BH02-5 (shallow)			O	102	514.17			Overburden	LTT
5. BH02-6	559,707	4,915,008	O	102	530.25	529.50	Open Hole 48.5 m	Amabel/Fossil Hill	LTT
6. BH03-7-I	559,356	4,915,510	O	102	511.01	510.27	502.9 - 501.1	Amabel	LTT
7. BH03-7-II			O	102	511.03	510.27	508.7 - 504.8	Overburden	LTT
8. BH03-7-III			O	102	511.72	510.56	Open Hole 30.7 m	Amabel/Fossil Hill	LTT
9. BH03-8	558,971	4,915,324	O	102	520.79	520.22	Open Hole 37.9 m	Amabel/Fossil Hill	LTT
10. BH03-9	559,106	4,914,893	O	102	518.93	518.45	Open Hole 39.5 m	Amabel/Fossil Hill	LTT
11. TW04-1	559,080	4,914,912	O	152	517.53	517.05	Open Hole 34.1 m	Amabel/Fossil Hill	LTT
12. TW04-2	559,084	4,914,928	O	152	518.11	517.46	Open Hole 34.1 m	Amabel/Fossil Hill	LTT
13. TW04-3	559,096	4,914,916	O	152	518.63	517.97	Open Hole 37.5 m	Amabel/Fossil Hill	LTT
14. BH08-1	560,485	4,915,410	O	102	512.32	511.51	Open Hole 27.4 m	Amabel/Fossil Hill	LTT
15. BH08-2	560,500	4,915,390	O	102	512.00	511.15	Open Hole 25.8 m	Amabel/Fossil Hill	LTT
16. BH08-3	560,462	4,915,414	O	102	513.41	512.57	Open Hole 28.8 m	Amabel/Fossil Hill	LTT
17. IW1	560,548	4,915,270	O	152	512.12	511.52	Open Hole 27.3 m	Amabel/Fossil Hill	LTT
18. IW1a	560,551	4,915,272	O	152	511.96	511.35	Open Hole 27.3 m	Amabel/Fossil Hill	N/A
19. IW2	560,519	4,915,490	O	152	509.22	508.66	Open Hole 24 m	Amabel/Fossil Hill	LTT
20. IW3	560,210	4,915,929	O	152	519.13	518.53	Open Hole 33.7 m	Amabel/Fossil Hill	LTT
21. IW4	560,026	4,916,230	O	152	511.02	510.36	Open Hole 25.4 m	Amabel/Fossil Hill	LTT
22. NW1	560,056	4,915,117	O	152	526.19	525.67	Open Hole 42.7 m	Amabel/Fossil Hill	LTT
NW2			O	152	531.99	531.35	Open Hole 54.7 m	Amabel/Fossil Hill	LTT

Notes:
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- Elevations provided in metres above sea level (mASL)
- Type 'O' indicates Open Hole
- Type 'S' indicates Standpipe
- (R) indicates Replacement Monitoring Well
- N/A indicates information not available
- Shading indicates well is decommissioned / no longer monitored.

Table A-1 Monitoring Well Details

Well ID	GPS Coordinates (NAD 83 Zone 17) Easting	Northing	Type	Well Pipe Diameter mm	Measuring Point Elevation mASL	Ground Elevation mASL	Screened Interval mASL or m	Geologic Formation Monitored	Monitoring Program
Extension Quarry Monitoring Wells (continued)									
NW3			O	152	515.13	514.44	Open Hole 29.6 m	Amabel/Fossil Hill	LTT
NW4			O	152	529.86	529.00	Open Hole 48.9 m	Amabel/Fossil Hill	LTT
NW5			O	152	521.68	520.95	Open Hole 39.7 m	Amabel/Fossil Hill	LTT
23. NW6	559,523	4,915,360	O	102	521.99	520.68	Open Hole 41.2 m	Amabel/Fossil Hill	LTT
24. NW7	559,474	4,915,175	O	152	523.92	523.18	Open Hole 42.1 m	Amabel/Fossil Hill	LTT
25. NW8	559,254	4,915,016	O	152	531.87	531.07	Open Hole 43 m	Amabel/Fossil Hill	LTT
26. NW9	559,032	4,914,979	O	152	521.45	520.86	Open Hole 41.7 m	Amabel/Fossil Hill	LTT
27. NW10-DP	558,939	4,915,604	S	152	511.18	509.69	509.6 - 509.1	Overburden	LTT
28. NW10-Shallow			O	152	510.31	509.69	Open Hole 3.8 m	Amabel	LTT
29. NW10-Deep			O	152	510.45	509.69	Open Hole 29.5 m	Amabel/Fossil Hill	LTT
HA1								Overburden	N/A
HA2								Overburden	N/A
HA3								Overburden	N/A
Drivepoints									
1. DP1	559,561	4,914,433	S	51	513.05	511.80	511.3 - 510.8	Overburden	LTT
2. DP2	559,302	4,914,600	S	51	512.94	512.10	511.3 - 510.8	Overburden	PITM
3. DP3	560,307	4,914,281	S	51	514.65	513.60	511.9 - 511.4	Overburden	LTT
4. DP4	559,084	4,914,245	S	51	512.11	511.40	510.4 - 509.9	Overburden	PITM
5. DP5	559,094	4,915,562	S	51	510.49	509.66	509.6 - 508.7	Overburden	PITM
6. DP6	559,788	4,915,730	S	51	512.20	511.45	511.0 - 510.1	Overburden	PITM
7. DP7	559,282	4,915,583	S	51	509.91	509.18	507.4 - 506.9	Overburden	PITM
8. DP8	559,105	4,914,573	S	51	511.88	511.12	510.9 - 510.5	Overburden	PITM
9. DP9	560,274	4,915,622	S	51	508.88	507.74	507.2 - 506.6	Overburden	PITM
DP10			S	51				Overburden	PITM
DP11			S	51				Overburden	PITM
10. BRIDSON DP	560,371	4,915,534	S	38	511.30	510.40	509.6 - 508.8	Overburden	PITM

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- Type 'DW' indicates Domestic Well
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- ND indicates Not Determined
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Table A-1 Monitoring Well Details

Well ID	GPS Coordinates (NAD 83 Zone 17) Easting	Northing	Type	Well Pipe Diameter mm	Measuring Point Elevation mASL	Ground Elevation mASL	Screened Interval mASL or m	Geologic Formation Monitored	Monitoring Program
Domestic Wells									
1. RW1	560,654	4,915,472	DW	Drilled 152	508.75	508.57	Depth: 16.1 m	Amabel	LTT
2. RW2	560,955	4,915,330	DW	Drilled 152	505.20	504.50	Depth: 29.0 m	Amabel	LTT
3. RW3	559,271	4,916,187	DW	Drilled 152	519.00	518.70	Depth: 16.5 m	Amabel	LTT
RW4			DW	Drilled 152	510.50	509.80	Depth: 55.5 m	Amabel/Fossil Hill/	LTT
4. RW5	561,414	4,915,373	DW	Drilled 152	478.60	478.00	Depth: 35.0 m	Manitoulin/Shale	LTT
RW6			DW	Dug 800	451.00	451.00	Depth: 8.2 m	Overburden	LTT
5. RW7	561,701	4,914,943	DW	Drilled 152	453.00	452.30	Depth: 10.1 m	Overburden/Shale	LTT
6. RW8	560,669	4,917,079	DW	Dug 750	431.00	431.00	Depth: 3.5 m	Overburden	LTT
RW9			DW	Drilled 152	524.00	524.00	Depth: 27.4 m	Amabel	LTT
RW10			DW	Dug 750	494.50	Not surveyed	N/A	N/A	Historical
RW11			DW	Drilled 152	453.10	453.00	Depth: 48.8 m	Overburden/Shale	Historical
RW11 DUG			DW	Dug 750	453.00	453.00	Depth: 6.0 m	Overburden	Historical
7. RW12	561,826	4,915,816	DW	Dug	425.80	Not surveyed	Depth 3.7 m	Overburden	Historical
8. RW13			DW	Dug	425.80	Not surveyed	Depth 3.7 m	Overburden	Historical
RW15			DW	Drilled 152	529.74	529.19	Depth: 24.4 m	Amabel	Historical
9. RW16	560,474	4,915,397	DW	Drilled 152	513.32	512.48	Depth: 16.2 m	Amabel	LTT
10. RW17	558,976	4,915,443	DW	Drilled 127	514.70	Not surveyed	Depth: 8.5 m	N/A	LTT
RW18			DW	Dug 1000	513.80	513.00	Depth: 2.7 m	Overburden/Amabel	LTT
RW19			DW	Drilled 152	523.80	Not Surveyed	Depth: 36.3 m	Amabel	LTT

Notes:
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- Type 'S' indicates Standpipe
- Type 'DW' indicates Domestic Well
- (R) indicates Replacement Monitoring Well
- N/A indicates information not available
- ND indicates Not Determined
- Shading indicates well is decommissioned / no longer monitored.

Table A-1 Monitoring Well Details

Well ID	GPS Coordinates (NAD 83 Zone 17) Easting	Northing	Type	Well Pipe Diameter mm	Measuring Point Elevation mASL	Ground Elevation mASL	Screened Interval mASL or m	Geologic Formation Monitored	Monitoring Program
Carmarthen Lake Farms Monitoring Wells									
CLF1			DW	152	521.05	520.76	Open Hole 36.6 m	Amabel/Fossil Hill	LTT
CLF2			DW	152	519.23	519.57	Open Hole 49.4 m	Amabel/Fossil Hill	LTT
1. CLF3	559,156	4,913,134	DW	152	517.62	517.11	Open Hole ND	Amabel	LTT
2. CLF4	559,380	4,913,266	DW	152	509.96	509.48	Open Hole 15.2 m	Amabel	LTT
3. CLF5	559,526	4,913,347	DW	152	509.16	508.80	Open Hole ND	Amabel	LTT
Offsite Monitoring Wells									
1. 101-B	557,929	4,914,109	O	152	502.98	502.51	Open Hole 6.1 m	Amabel	LTT
2. 102-C	558,319	4,914,489	O	102	511.39	510.53	Open Hole 7.0 m	Amabel	LTT
3. 103-D	558,523	4,914,172	O	152	513.40	513.18	Open Hole 7.9 m	Amabel	LTT
4. 104-A	558,215	4,914,020	O	152	517.67	516.89	Open Hole 9.6 m	Amabel	LTT
5. OW1-4	558,477	4,914,250	O	102	514.40	513.21	Open Hole 28.6 m	Amabel/Fossil Hill	LTT
OW1-6			O	102	514.96	513.92	Open Hole 30.0 m	Amabel/Fossil Hill	N/A
OW3-1			O	102	508.75	508.01	Open Hole 29.3 m	Amabel/Fossil Hill	LTT
6. OW5-2	557,888	4,914,245	O	102	504.21	502.84	Open Hole 27.9 m	Amabel/Fossil Hill	LTT
7. OW6-3	558,317	4,914,465	O	102	511.12	510.63	Open Hole 5.3 m	Amabel	LTT

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Table A-1 Monitoring Well Details

Well ID	GPS Coordinates (NAD 83 Zone 17) Easting	Northing	Type	Well Pipe Diameter mm	Measuring Point Elevation mASL	Ground Elevation mASL	Screened Interval mASL or m	Geologic Formation Monitored	Monitoring Program
St. Mary's Cement Osprey Quarry Monitoring Wells									
1. OW1-I					513.29	512.22	507.7 - 506.2	Amabel	
2. OW1-II					513.29	512.22	503.1 - 501.6	Amabel	
3. OW1-III					513.21	512.18	487.0 - 485.5	Amabel	
4. OW1-IV					513.21	512.18	482.8 - 481.3	Fossil Hill	
5. OW2-I					523.42	522.24	512.2 - 510.7	Amabel	
6. OW2-II					523.42	522.24	503.1 - 501.6	Amabel	
7. OW2-III					523.18	522.14	500.3 - 498.8	Amabel	
8. OW2-IV					523.18	522.14	480.2 - 478.7	Fossil Hill/Cabot Head	
9. OW3-I					516.34	515.57	511.1 - 509.6	Amabel	
10. OW3-II					516.34	515.57	500.2 - 498.7	Amabel	
11. OW3-III					516.58	515.53	494.7 - 493.2	Amabel	
12. OW3-IV					516.58	515.53	486.5 - 485.0	Amabel	
13. OW4-I					519.76	518.87	513.4 - 511.9	Amabel	
14. OW4-II					519.76	518.87	510.8 - 509.3	Amabel	
15. OW4-III					519.72	518.85	498.3 - 496.8	Amabel	
16. OW4-IV					519.72	518.85	492.9 - 491.4	Amabel	
17. OW5-I					510.75	510.01	503.5 - 502.0	Amabel	
18. OW5-II					510.75	510.01	499.3 - 497.8	Amabel	
19. OW5-III					510.85	510.06	493.8 - 492.3	Amabel	
20. OW5-IV					510.85	510.06	481.8 - 480.3	Fossil Hill/Cabot Head	
21. OW6-I					528.51	526.28	514.6 - 513.1	Amabel	
22. OW6-II					528.51	526.28	503.1 - 501.6	Amabel	
23. OW6-III					528.08	526.21	482.4 - 480.9	Amabel	
24. OW6-IV					528.08	526.21	477.3 - 475.8	Fossil Hill/Cabot Head	

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Table A-2 Surface Water Station Details

Designation	GPS Coordinates (NAD 83 Zone 17)		Ground Elevation	Description	Culvert Dimensions	Monitoring Program	Measurement Type
	Easting	Northing	mASL				
1. SW1	559,117	4,914,254	513	Twin culverts located at southwest corner of quarry wetland at Grey County Road 31 (Townline Road)	South culvert dia. 0.62m, North culvert dia. 0.60m	PITM	V, M
2. SW2	559,070	4,914,769	515	Single culvert located at northwest corner of quarry wetland	Oblong shaped culvert	PITM	V,M
SWB-1			513	Single culvert located at southwest corner of quarry; outlet into quarry wetland	Oblong shaped culvert	Historical	-
QFSW1			500	Quarry floor influx from west face	Stream Channel Flow	Historical	-
3. QFSW2	559,825	4,914,595	499	Quarry floor surface water flow in channel prior to main sump pond	Stream Channel Flow	LTTWM	V
4. SW0-2	558,329	4,914,495	510	Stream Channel west of SW1 on Osprey Quarry Property	Stream Channel Flow	PITM	V,M
5. SW3	558,890	4,915,581	510	Single culvert located across Grey Rd 31 at north edge of proposed quarry property	Oblong shaped culvert	PITM	V,M,E
SW3A			511	Single culvert located under Grey Rd 31, just south of intersection with 26/27 Sideroad	Oblong shaped culvert	Historical	V,B,E
6. SW4	558,893	4,913,962	515	Single culvert located on Osprey 10th Line, east of Kenwell farm buildings	Culvert Diameter: 0.57 m	PTTW	E,V
SW5			499	Single concrete culvert located on Osprey 10th Line	4.91 m wide square concrete culvert	Historical	V
SW6			500	Single concrete culvert located on Osprey 10th Line	4.78 m wide square concrete culvert	Historical	V
7. SW6A	555,263	4,912,697	495	Double culvert on Osprey Sideroad 30, south of Osprey 10th Line	Stream Channel Flow	PITM	V
SW7			512	Millar pond outlet	Stream Channel Flow	LTTWM	V,E
8. SW8	560,355	4,915,502	510	Bridson pond outlet	Bucket Capture of Flow out of partial culvert	LTTWM	V,E
9. SW9	560,454	4,915,647	508	Channel flow beneath walking path into sinkhole on Bridson property	Stream Channel Flow	PITM	V,M,E
10. SW10	561,200	4,915,641	477	Seep uphill of B. Franks' well tile catchment	Stream Channel Flow	PITM	V,M,E

Notes:
- PITM - Performance Indicator Trigger Monitoring
- LTTWM - Long Term Groundwater and Surface Water Monitoring
- PTTW - Permit to Take Water Monitoring
- Elevations provided in metres above sea level (mASL)
- Ground Elevation data approximated from Ontario Base Map elevation contours
- * indicates historical surface water station that is not included in the PITM
- V indicates Valeport Electronic Flow Velocity Meter measurement
- M indicates manual velocity measurement
- - indicates SW location not currently monitored for discharge volumes
- E indicates visual estimate velocity measurement
- B indicates bucket collection velocity measurement
- Shading indicates surface water station is no longer monitored

Table A-2 Surface Water Station Details

Designation	GPS Coordinates (NAD 83 Zone 17)		Ground Elevation	Description	Culvert Dimensions	Monitoring Program	Measurement Type
	Easting	Northing	mASL				
11. SW11	561,151	4,916,011	445	Culmination of B. Franks' seeps into a stream; taken near toe of scarp where stream passes beneath path	Stream Channel Flow	PITM	V,M,E
12. SW11A	561,128	4,916,011	446	B. Franks' seep, located near toe of scarp in rock talus	Stream Channel Flow	PITM	V,M,E
13. SW11B	561,098	4,916,018	446	B. Franks' seep, located near toe of scarp in rock talus	Stream Channel Flow	PITM	V,M,E
14. SW11C	561,079	4,916,034	446	B. Franks' seep, located near toe of scarp in rock talus	Stream Channel Flow	PITM	V,M,E
15. SW11D	561,052	4,916,043	446	B. Franks' seep, located near toe of scarp in rock talus	Stream Channel Flow	PITM	V,M,E
16. SW11E	561,238	4,915,997	435	Stream from B. Franks' seeps into pond; downstream from SW11 and just upstream of pond	Stream Channel Flow	PITM	V,E,B
SW12			435	Single culvert into B. Franks' pond from south	Bucket capture of flow out of culvert	Historical	V,E,B
SW12A			450	Single culvert near B. Franks' barn	Stream Channel Flow	Historical	V,E
17. SW13	561,288	4,916,042	427	B. Franks' pond outlet	Bucket capture of flow out of culvert	LTTWM	V,E,B
18. SW14	561,526	4,916,249	410	Channel flow east of Conc. 10, from culvert crossing Conc. 10 south of H. Franks' driveway	Stream Channel Flow	PITM	V
19. SW15	561,495	4,916,432	420	Channel flow east of Conc. 10, from culvert crossing Conc. 10 north of H. Franks' driveway	Stream Channel Flow	PITM	V
20. SW16	561,198	4,916,724	415	Single culvert under 26/27 Sideroad east of F. Sestito's property	Stream Channel Flow	PITM	E
21. SW17	560,607	4,916,532	431	Sestito pond outlet channel on south side of 26/27 Sideroad, measured just west Sestito property driveway	Stream Channel Flow	PITM	V,M,E
22. SW17A	560,603	4,916,543	430	Stream channel on north side of 26/27 Sideroad, measured across from Sestito property driveway	Stream Channel Flow	PITM	V
SW17B			431	Stream channel on south side of 26/27 Sideroad, measured west of Sistito property driveway, upstream of where 17/17B join.	Stream Channel Flow	Historical	V
23. SW18	561,401	4,917,002	390	Single culvert on Concession 10, north of 26/27 Sideroad	Stream Channel Flow	PITM	V
24. SW19	564,257	4,915,492	335	Single large diameter culvert for Batteaux Creek on County Rd. 124	Stream Channel Flow	LTTWM	V
25. SW20	560,066	4,916,392	495	Concrete crib north of 26/27 sideroad adjacent to Pretty River Provincial Park/Bruce Trail	Stream Channel Flow	LTTWM	V,E

Notes:
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- Ground Elevation data approximated from Ontario Base Map elevation contours
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- Shading indicates surface water station is no longer monitored
- V indicates Valeport Electronic Flow Velocity Meter measurement
- M indicates manual velocity measurement
- - indicates SW location not currently monitored for discharge volumes
- E indicates visual estimate velocity measurement
- B indicates bucket collection velocity measurement

Table A-2 Surface Water Station Details

Designation	GPS Coordinates (NAD 83 Zone 17)		Ground Elevation	Description	Culvert Dimensions	Monitoring Program	Measurement Type
	Easting	Northing	mASL				
26. SW21	560,308	4,916,284	430	H. Franks' pond outlet	Bucket capture of flow out of culvert	LTTWM	V,E,B
27. SW21A	561,246	4,916,261	433	H. Franks' pond inlet	Stream Channel Flow	LTTWM	V,E,B
28. SW21B	561,039	4,916,193	449	Cistern overflow channel uphill of H. Franks' pond, feeds pond inlet	Stream Channel Flow	LTTWM	V,M,E
29. SW21C	560,708	4,916,241	470	H. Franks' water supply system cistern inlet/overflow culvert	Stream channel Flow	PITM	V,E
SW21D			450	Single culvert under H. Franks field access trail at base of scarp	Bucket capture of flow out of culvert	Historical	V,B,E
30. SW22	560,686	4,914,713	492	Single culvert under ski trail west of Sampson fields	Bucket capture of flow out of culvert	LTTWM	V,B
31. SW22A	560,952	4,915,039	485	Seep feeding small stream in northwest corner of Sampson fields	Stream Channel Flow	LTTWM	B,E
SW22B			477	Swamp/seep area on north side of access trail from Sampson fields to ski trails	Stream Channel Flow	Historical	-
32. SW22C	560,977	4,914,876	477	Culvert on south side of access trail from Sampson fields to ski trails. Culvert is infilled with sediment and channel is relatively flat. Treated as stream flow.	Stream Channel Flow just downstream of culvert	LTTWM	V
SW23			410	Single culvert crossing 26/27 Sideroad west of Concession 10	Bucket capture of flow out of culvert	Historical	-
SW24			445	F. Sestito's pond inlet from H. Franks' property	Stream Channel Flow	Historical	V,M,E
33. SW24A	560,566	4,916,379	460	F. Sestito's water supply: barrel overflow and pipe discharges (below Manitoulin formation outcrop)	Bucket capture of flow out of pipes, Valeport measurement of stream channel	PITM	V,B,E
SW24B			445	Seep channel just up from F. Sestito's garden	Bucket capture of flow out of pipes, Valeport measurement of stream channel	Historical	V,B,E
SW24C			442	Stream just east of where SW24A and SW24B combine and upstream of outlet into Sistito pond.	Stream Channel Flow	Historical	V
SW25			507	Single culvert outlet into swamp southwest of Edward Lake; fed by Edward Lake and open grate in the ditch north of SW25	Culvert Diameter: 0.62 m	Historical	-
SW25A			508	Channel outlet from Edward Lake into a culvert which crosses beneath Grey Road 31. Only monitored when input from open grate/ditch is observed when monitoring SW25.	Stream Channel Flow	Historical	-

Notes:
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- Shading indicates surface water station is no longer monitored
- V indicates Valeport Electronic Flow Velocity Meter measurement
- M indicates manual velocity measurement
- - indicates SW location not currently monitored for discharge volumes
- E indicates visual estimate velocity measurement
- B indicates bucket collection velocity measurement

Table A-2 Surface Water Station Details

Designation	GPS Coordinates (NAD 83 Zone 17) Easting	Northing	Ground Elevation mASL	Description	Culvert Dimensions	Monitoring Program	Measurement Type
SW26			507	Channel flow upstream of sinkhole on ski trails near unopened road allowance for 21/22 Sideroad	Stream Channel Flow	Historical	-
SW26A			512	Two culverts upstream of SW26 sinkhole	East Culvert Diameter: 0.38 m West Culvert: Oblong Shaped	Historical	-
SW27			462	Culmination of SW27A and SW27B	Stream Channel Flow	Historical	-
SW27A			492	Groundwater seep, located east of SW28, east of Bruce Trail	Stream Channel Flow	Historical	-
SW27B			497	Groundwater seep, located north-west of SW27A, east of Bruce Trail	Stream Channel Flow	Historical	-
34. SW77	560,150	4,916,292	494	Groundwater seep, located south-east of SW20, west of Bruce Trail	Stream Channel Flow	PITM	V
SW3B (RR3 KARST)			510	RR3 Wetland Karst Sink Point Channel, west of Grey County Road 31, downstream of SW3 and SW3C.	Stream Channel Flow	PITM	V
SW3C (RR3 OUT)			510	RR3 Wetland outflow from pond that is downstream of SW3. West of Grey County Road 31.	Stream Channel Flow	LTTWM	V
35. PR Control	558,059	4,918,224	360	Pretty River Control Station on 30/31 Sideroad. Flow measured on south side of road, upstream of culvert.	Stream Channel Flow	PITM	V
36. BC Control	563,251	4,914,197	405	Batteaux Creek Control Station on 21/22 Sideroad. Flow measured on north side of road, downstream of culvert.	Stream Channel Flow	PITM	V
37. BH03-7 SG1	559,349	4,915,519	510.5	Pretty River Control Station on 30/31 Sideroad. Flow measured on south side of road, upstream of culvert.	Stream Channel Flow	PITM	V
38. BH03-7 SG2	559,323	4,915,530		Batteaux Creek Control Station on 21/22 Sideroad. Flow measured on north side of road, downstream of culvert.	Stream Channel Flow	PITM	V

Notes:
- PITM - Performance Indicator Trigger Monitoring
- LTTWM - Long Term Groundwater and Surface Water Monitoring
- Elevations provided in metres above sea level (mASL)
- Ground Elevation data approximated from Ontario Base Map elevation contours
- * indicates historical surface water station that is not included in the PITM
- Shading indicates surface water station is no longer monitored
- V indicates Valeport Electronic Flow Velocity Meter measurement
- M indicates manual velocity measurement
- - indicates SW location not currently monitored for discharge volumes
- E indicates visual estimate velocity measurement
- B indicates bucket collection velocity measurement

APPENDIX A-3

Borehole Logs

BOREHOLE LOG EXPLANATION FORM

This explanatory section provides the background to assist in the use of the borehole logs. Each of the headings used on the borehole log, is briefly explained.

DEPTH

This column gives the depth of interpreted geologic contacts in metres below ground surface.

STRATIGRAPHIC DESCRIPTION

This column gives a description of the soil based on a tactile examination of the samples and/or laboratory test results. Each stratum is described according to the following classification and terminology.

Soil Classification *		Terminology	Proportion
Clay	<0.002 mm		
Silt	0.002 to 0.06 mm	"trace" (eg. trace sand)	<10%
Sand	0.06 to 2 mm	"some" (eg. some sand)	10% - 20%
Gravel	2 to 60 mm	adjective (eg. sandy)	20% - 35%
Cobbles	60 to 200 mm	"and" (eg. and sand)	35% - 50%
Boulders	>200 mm	noun (eg. sand)	>50%

* Extension of MIT Classification system unless otherwise noted.

The use of the geologic term "till" implies that both disseminated coarser grained (sand, gravel, cobbles or boulders) particles and finer grained (silt and clay) particles may occur within the described matrix.

The compactness of cohesionless soils and the consistency of cohesive soils are defined by the following:

COHESIONLESS SOIL		COHESIVE SOIL	
Compactness	Standard Penetration Resistance "N", Blows / 0.3 m	Consistency	Standard Penetration Resistance "N", Blows / 0.3 m
Very Loose	0 to 4	Very Soft	0 to 2
Loose	4 to 10	Soft	2 to 4
Compact	10 to 30	Firm	4 to 8
Dense	30 to 50	Stiff	8 to 15
Very Dense	Over 50	Very Stiff	15 to 30
		Hard	Over 30

The moisture conditions of cohesionless and cohesive soils are defined as follows.

COHESIONLESS SOILS	COHESIVE SOILS		
Dry	DTPL	-	Drier Than Plastic Limit
Moist	APL	-	About Plastic Limit
Wet	WTPL	-	Wetter Than Plastic Limit
Saturated	MWTPL	-	Much Wetter Than Plastic Limit

STRATIGRAPHY

Symbols may be used to pictorially identify the interpreted stratigraphy of the soil and rock strata.

MONITOR DETAILS

This column shows the position and designation of standpipe and/or piezometer ground water monitors installed in the borehole. Also the water level may be shown for the date indicated.


Standpipe and Designation


Piezometer and Designation


Gas Monitor and Designation


Borehole Seal (Peltonite, Bentonite or Hole Plug)


Cement Seal


Granular Pack


Granular Backfill


Native Soil Backfill/Cave

Where monitors are placed in separate boreholes, these are shown individually in the "Monitor Details" column. Otherwise, monitors are in the same borehole. For further data regarding seals, screens, etc., the reader is referred to the summary of monitor details table.

SAMPLE

These columns describe the sample type and number, the "N" value, the water content, the percentage recovery, and Rock Quality Designation (RQD), of each sample obtained from the borehole where applicable. The information is recorded at the approximate depth at which the sample was obtained. The legend for sample type is explained below.

SS =	Split Spoon	GS =	Grab Sample
ST =	Thin Walled Shelby Tube	CS =	Channel Sample
AS =	Auger Flight Sample	WS =	Wash Sample
CC =	Continuous Core	RC =	Rock Core

$$\%\ \text{Recovery} = \frac{\text{Length of Core Recovered Per Run}}{\text{Total Length of Run}} \times 100$$

Where rock drilling was carried out, the term RQD (Rock Quality Designation) is used. The RQD is an indirect measure of the number of fractures and soundness of the rock mass. It is obtained from the rock cores by summing the length of core recovered, counting only those pieces of sound core that are 100 mm or more in length. The RQD value is expressed as a percentage and is the ratio of the summed core lengths to the total length of core run. The classification based on the RQD value is given below.

RQD Classification	RQD (%)
Very poor quality	< 25
Poor quality	25 - 50
Fair quality	50 - 75
Good quality	75 - 90
Excellent quality	90 - 100

TEST DATA

The central section of the log provides graphs which are used to plot selected field and laboratory test results at the depth at which they were carried out. The plotting scales are shown at the head of the column.

Dynamic Penetration Resistance - The number of blows required to advance a 51 mm diameter, 60° steel cone fitted to the end of 45 mm OD drill rods, 0.3 m into the subsoil. The cone is driven with a 63.5 kg hammer over a fall of 750 mm.

Standard Penetration Resistance - Standard Penetration Test (SPT) "N" Value - The number of blows required to advance a 51 mm diameter standard split-spoon sampler 300 mm into the subsoil, driven by means of a 63.5 kg hammer falling freely a distance of 750 mm. In cases where the split spoon does not penetrate 300 mm, the number of blows over the distance of actual penetration in millimetres is shown as $\frac{x Blows}{mm}$

Water Content - The ratio of the mass of water to the mass of oven-dry solids in the soil expressed as a percentage.

W_P - Plastic Limit of a fine-grained soil expressed as a percentage as determined from the Atterberg Limit Test.

W_L - Liquid Limit of a fine-grained soil expressed as a percentage as determined from the Atterberg Limit Test.

REMARKS

The last column describes pertinent drilling details, field observations and/or provides an indication of other field or laboratory tests that were performed.

BOREHOLE NO. 98-8

PROJECT NAME: ROCK QUALITY INVESTIGATION - DUNTROON QUARRY
PROJECT NO.: 930521.50

CLIENT: GEORGIAN AGGREGATES AND CONSTRUCTION INC.
DATE: DECEMBER 14,15 1998

BOREHOLE TYPE: HQ SIZED (64 mm) ROCK CORE
GEOLOGIST: KJF

GROUND ELEVATION: ESTIMATED 516 mASL
REVIEWER: AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE RQD (%)	RATE OF DRILL PENETRATION m / min	HYDRAULIC CONDUCTIVITY m / sec	REMARKS
0	OVERBURDEN: MEDIUM TO DARK BROWN CLAYEY SILT TILL, BECOMING SANDY BELOW 3.1 m.	OVERBURDEN	102 mm ID CASING	AS					ORIGINAL GROUND SURFACE ELEVATION HAS CHANGED DUE TO QUARRY OPERATIONS. LOCATED IN SOUTHWEST CORNER OF EXISTING QUARRY.
2	– CUTTING RETURNS WET BELOW 1.8 m								108 mm ID HOLLOW STEM AUGERS USED IN OVERBURDEN.
4									CASING STICKUP 165 mm.
6									102 mm CASING SET TO 8.4 m.
7.6									
8	DOLOSTONE: LIGHT BROWNISH GREY TO VERY LIGHT GREY COLOUR, CHALKY APPEARANCE, MEDIUM GRAINED, FOSSIL REMNANTS. (AMABEL FORMATION, UNIT 2)	AMABEL FORMATION UNIT 2	OPEN HQ BOREHOLE	RC	100	69	N/A		
				RC	100	16	0.29	$1.7X10^{-5}$	
10	– 230 mm VERTICAL FRACTURE AT 9.1 m. – VUGS 1–2% UNIFORMLY DISTRIBUTED								
				RC	100	88	0.28		
12	– HORIZONTAL TO SUBHORIZONTAL BEDDING			RC	100	83	0.28	$7.8X10^{-7}$	
14				RC	100	100	0.29		
				RC	100	97	0.31		
16								$1.5X10^{-7}$	
				RC	100	100	0.31		
18				RC	100	97	0.27	$1.3X10^{-6}$	NOTE: AMABEL FORMATION: UNIT 1: REEFAL FACIES UNIT 2: FLANK FACIES FH: FOSSIL HILL FORMATION CH: CABOT HEAD FORMATION
20				RC	100	97	0.32		

BOREHOLE NO. 98-8

PROJECT NAME: ROCK QUALITY INVESTIGATION - DUNTROON QUARRY
PROJECT NO.: 930521.50

CLIENT: GEORGIAN AGGREGATES AND CONSTRUCTION INC.
DATE: DECEMBER 14,15 1998

BOREHOLE TYPE: HQ SIZED (64 mm) ROCK CORE
GEOLOGIST: KJF

GROUND ELEVATION: ESTIMATED 516 mASL
REVIEWER: AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE RQD (%)	RATE OF DRILL PENETRATION m / min	HYDRAULIC CONDUCTIVITY m / sec (E^{-11} to E^{-4})	REMARKS
20	DOLOSTONE: (CONT) 150 mm REEFAL FACIES BED AT 19.9 m	AMABEL FORMATION UNIT 2	OPEN HQ BOREHOLE					1.3×10^{-6}	ORIGINAL GROUND SURFACE ELEVATION HAS CHANGED DUE TO QUARRY OPERATIONS. LOCATED IN SOUTHWEST CORNER OF EXISTING QUARRY.
22				RC	100	95	0.28		
24				RC	100	100	0.26	3.0×10^{-6}	
26				RC RC	100 100	87 100	0.28 N/A	8.0×10^{-7}	
28	– GRADATIONAL LOWER CONTACT OVER ±1 m. – FIRST STYLOLITE AT 28.3 m.			RC	100	82	0.26		
	29.1			RC RC	100 100	63 89	N/A N/A	2.6×10^{-7}	
30	DOLOSTONE: CREAMY GREY TO GREY BROWN COLOURED, FINE TO MEDIUM GRAINED, STYLOLITES AND SHALE 1 mm TO 10 mm THICK INCREASING FREQUENCY WITH DEPTH.	FOSSIL HILL FORMATION							
32				RC	100	68	0.15	6.9×10^{-8}	
34	34.0			RC RC	100 100	83 11	0.13 0.13		
	SHALE: GREENISH GREY, CALCAREOUS. (CABOT HEAD FORMATION)	CH							
	35.1								
36	BOREHOLE TERMINATED AT 35.1 m IN SHALE.								
38									
40									NOTE: AMABEL FORMATION: UNIT 1: REEFAL FACIES UNIT 2: FLANK FACIES FH: FOSSIL HILL FORMATION CH: CABOT HEAD FORMATION

BOREHOLE NO. 98-9

PROJECT NAME: ROCK QUALITY INVESTIGATION - DUNTROON QUARRY **PROJECT NO.:** 930521.50

CLIENT: GEORGIAN AGGREGATES AND CONSTRUCTION INC. **DATE:** DECEMBER 15,16 1998

BOREHOLE TYPE: HQ SIZED (64 mm) ROCK CORE **GEOLOGIST:** KJF

GROUND ELEVATION: 525.9 mASL **REVIEWER:** AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE RQD (%)	RATE OF DRILL PENETRATION m / min	HYDRAULIC CONDUCTIVITY m / sec (E^{-11} – E^{-4})	REMARKS
0									LOCATED IN NORTHWEST CORNER OF EXISTING QUARRY.
0.6	OVERBURDEN: MEDIUM BROWN CLAYEY SILT TILL.		102 mm ID CASING	RC	47	0	N/A		102 mm CASING SET AT 1.7 m.
	DOLOSTONE: LIGHT BROWNISH GREY TO VERY LIGHT GREY, MEDIUM TO COARSE GRAINED WITH A CRAGGY APPEARANCE, IRREGULAR BEDDING. (AMABEL FORMATION, UNIT 1)	AMABEL FORMATION UNIT 1		RC	95	65	0.26		
2	– FOSSILS THROUGHOUT								
				RC	100	55	0.23		
	– IRREGULARLY SHAPED VUGS 2–3%								
4	– OCCASIONAL FLANK FACIES UNITS INTERBEDDED UP TO 300 mm THICK.			RC	100	66	0.24		
	– BROWN CLAYEY SILT INFILLING WITH RUSTY STAINING ON FRACTURES AND VUGS								
6				RC	100	88	0.23		
				RC	100	88	0.24		
8								$6.7X10^{-6}$	
				RC	100	100	0.25		
10									
			OPEN HQ BOREHOLE	RC	100	93	0.28	$7.8X10^{-6}$	
12									
				RC	100	73	0.27		
				RC	100	88	0.28		
14								$2.2X10^{-6}$	
				RC	100	89	0.37		
16									
				RC	100	79	0.23		
18								$1.0X10^{-6}$	
				RC	100	85	0.27		NOTE: AMABEL FORMATION: UNIT 1: REEFAL FACIES UNIT 2: FLANK FACIES FH: FOSSIL HILL FORMATION CH: CABOT HEAD FORMATION
				RC	100	92	0.27	$3.2X10^{-7}$	
20									

BOREHOLE NO. 98-9

PROJECT NAME: ROCK QUALITY INVESTIGATION - DUNTROON QUARRY
PROJECT NO.: 930521.50

CLIENT: GEORGIAN AGGREGATES AND CONSTRUCTION INC.
DATE: DECEMBER 15,16 1998

BOREHOLE TYPE: HQ SIZED (64 mm) ROCK CORE
GEOLOGIST: KJF

GROUND ELEVATION: 525.9 mASL
REVIEWER: AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE RQD (%)	RATE OF DRILL PENETRATION m / min	HYDRAULIC CONDUCTIVITY m / sec (E^{-11} – E^{-4})	REMARKS
20									
	20.1 DOLOSTONE: (CONT)								LOCATED IN NORTHWEST CORNER OF EXISTING QUARRY.
	DOLOSTONE: LIGHT GREY, MEDIUM GRAINED WITH A DULL CHALKY APPEARANCE, SLIGHT RUSTY STAINING THROUGHOUT, UNIFORM DISTRIBUTION OF VUGS, 1–2%, HORIZONTAL TO SUBHORIZONTAL BEDDING. (AMABEL FORMATION, UNIT 2)	AMABEL FORMATION UNIT 2	OPEN HQ BOREHOLE	RC	100	95	0.22	$3.2X10^{-7}$	
22									
	– BECOMING DARKER GREY WITH DEPTH			RC	100	95	0.25		
24								$8.5X10^{-8}$	
				RC	100	89	0.20		
	– 0.2 m REEFAL FACIES AT 25.9 m AND 34.7 m.			RC	100	100	0.28		
26									
				RC	100	90	0.34	$8.5X10^{-7}$	
28									
				RC	100	92	0.29		
30									
				RC	100	85	0.26	$6.3X10^{-7}$	
32									
				RC	100	90	0.29		
				RC	100	95	0.28	$3.4X10^{-7}$	
34									
				RC	100	93	0.31		
36									
				RC	100	92	0.26	$1.4X10^{-6}$	
38									
				RC	100	100	0.23		
				RC	100	95	N/A	$1.7X10^{-7}$	NOTE: AMABEL FORMATION: UNIT 1: REEFAL FACIES UNIT 2: FLANK FACIES FH: FOSSIL HILL FORMATION CH: CABOT HEAD FORMATION
40									

BOREHOLE NO. 98-9

PROJECT NAME: ROCK QUALITY INVESTIGATION - DUNTROON QUARRY
PROJECT NO.: 930521.50

CLIENT: GEORGIAN AGGREGATES AND CONSTRUCTION INC.
DATE: DECEMBER 15,16 1998

BOREHOLE TYPE: HQ SIZED (64 mm) ROCK CORE
GEOLOGIST: KJF

GROUND ELEVATION: 525.9 mASL
REVIEWER: AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE RQD (%)	RATE OF DRILL PENETRATION m / min	HYDRAULIC CONDUCTIVITY m / sec	REMARKS
40	DOLOSTONE: (CONT) – GRADATIONAL LOWER CONTACT OVER ±1 m INTERVAL	UNIT 2		RC	100	85	0.22	$1.7X10^{-7}$	LOCATED IN NORTHWEST CORNER OF EXISTING QUARRY. FIRST STYLOLITE AT 40.6 m.
41.8 / 42	DOLOSTONE: MEDIUM GREY TO BUFF GREY WITH A CREAMY APPEARANCE, FINE GRAINED. – STYLOLITES AND OCCASIONAL THIN SHALE INTERBEDS UP TO 2 mm THICK	FOSSIL HILL FORMATION	OPEN HQ BOREHOLE	RC	100	73	0.17	$3.1X10^{-8}$	
44				RC	100	75	0.17		
46				RC	43	41	0.19	$4.1X10^{-8}$	
48	– 105 mm SHALE BED AT 47.5 m.			RC	N/A	N/A	0.01		
48.0 / 48.5	SHALE: GREENISH GREY, CALCAREOUS. (CABOT HEAD FORMATION) BOREHOLE TERMINATED AT 48.5 m IN SHALE.	CH							
50									
52									
54									
56									
58									
60									

NOTE:
AMABEL FORMATION:
UNIT 1: REEFAL FACIES
UNIT 2: FLANK FACIES
FH: FOSSIL HILL FORMATION
CH: CABOT HEAD FORMATION

BOREHOLE NO. 98-10

PROJECT NAME: ROCK QUALITY INVESTIGATION - DUNTROON QUARRY
PROJECT NO.: 930521.50

CLIENT: GEORGIAN AGGREGATES AND CONSTRUCTION INC.
DATE: JANUARY 18,19 1999

BOREHOLE TYPE: HQ SIZED (64 mm) ROCK CORE
GEOLOGIST: KJF

GROUND ELEVATION: 519.4 mASL
REVIEWER: AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE	SAMPLE	SAMPLE % RECOVERY	SAMPLE RQD (%)	DRILL PENETRATION m/min	WATER CONTENT % 10 20 30 (Wp — WL)	REMARKS
0											LOCATED IN CENTRAL PART OF EXISTING QUARRY ON QUARRY FLOOR.
	OVERBURDEN: MEDIUM BROWN FILL AND SILTY CLAY TILL.	OVERBURDEN	102 mm ID CASING	AS							102 mm ID CASING SET TO 3.1 m.
2											
2.3				RC			100	0	N/A		CASING STICKUP 230 mm.
	DOLOSTONE: INTERBEDDED REEFAL AND FLANK FACIES, LIGHT GREY TO BUFF GREY WITH A FAINT RUSTY TINGE, CHALKY APPEARANCE, MEDIUM TO COARSE GRAINED, IRREGULARLY SHAPED VUGS 1–4%, FOSSILS AND FOSSIL REMNANTS. (AMABEL FORMATION, UNIT 2/1)	AMABEL FORMATION UNIT 2/1		RC			100	58	N/A		BROKEN BEDROCK AT SURFACE 1.8 m TO 2.3 m.
4				RC			100	100	0.17		
6				RC			100	97	0.29		
8				RC			100	68	0.30		
10				RC			100	92	0.26		
11.0				RC			100	90	0.37		
	DOLOSTONE: LIGHT TO MEDIUM GREY, WITH A RUSTY TINGE TO 27.7 m, MEDIUM GRAINED, HORIZONTAL TO SUBHORIZONTAL BEDDING. (AMABEL FORMATION, UNIT 2)	AMABEL FORMATION UNIT 2	OPEN HQ BOREHOLE	RC			100	82	0.28		
12											
	– VUGS 1–2%, UNIFORMLY DISTRIBUTED			RC			100	82	0.27		
14	– OCCASIONAL REEFAL FACIES BEDS UP TO 0.1 m THICK FROM 11.0 m TO 16.1 m.										
	– FOSSIL REMNANTS			RC			100	95	0.25		
16											
				RC			100	88	0.34		
18											
				RC			100	100	0.32		NOTE: AMABEL FORMATION: UNIT 1: REEFAL FACIES UNIT 2: FLANK FACIES FH: FOSSIL HILL FORMATION CH: CABOT HEAD FORMATION
20				RC			100	81	0.31		

BOREHOLE NO. 98-10

PROJECT NAME: ROCK QUALITY INVESTIGATION - DUNTROON QUARRY
PROJECT NO.: 930521.50
CLIENT: GEORGIAN AGGREGATES AND CONSTRUCTION INC.
DATE: JANUARY 18,19, 1999
BOREHOLE TYPE: HQ SIZED (64 mm) ROCK CORE
GEOLOGIST: KJF
GROUND ELEVATION: 519.4 mASL
REVIEWER: AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE RQD (%)	DRILL PENETRATION m/min	WATER CONTENT % (10 20 30; W_P W_L)	REMARKS
20	DOLOSTONE: (CONT)	AMABEL FORMATION UNIT 2	OPEN HQ BOREHOLE						LOCATED IN CENTRAL PART OF EXISTING QUARRY ON QUARRY FLOOR.
22				RC	100	100	0.29		
				RC	100	95	0.29		
24				RC	100	92	0.37		
26				RC	100	98	0.27		
				RC	100	92	N/A		
28				RC	100	94	0.22		
30	– FIRST STYLOLITE AT 30.6 m.			RC	100	100	0.26		
32	GRADATIONAL LOWER CONTACT OVER ±1 m.			RC	100	93	N/A		
31.9	DOLOSTONE: LIGHT TO MEDIUM GREY TO CREAMY BUFF GREY, BECOMING DARKER WITH DEPTH, FINE GRAINED.	FOSSIL HILL FORMATION							
	– OCCASIONAL STYLOLITES AND THIN SHALE BEDS UP TO 2 mm – ARGILLACEOUS BELOW 37.5 m			RC	100	87	0.14		
34									
36				RC	100	88	0.17		
				RC	98	55	0.26		
37.8	– 110 mm SHALE BED AT 37.3 m.								
38									
37.9	SHALE: GREENISH GREY, CALCAREOUS. (CABOT HEAD FORMATION)	CH							NOTE: AMABEL FORMATION: UNIT 1: REEFAL FACIES UNIT 2: FLANK FACIES FH: FOSSIL HILL FORMATION CH: CABOT HEAD FORMATION
	BOREHOLE TERMINATED AT 37.9 m IN SHALE.								
40									

BOREHOLE NO. 98-11

PROJECT NAME: ROCK QUALITY INVESTIGATION - DUNTROON QUARRY
PROJECT NO.: 930521.50

CLIENT: GEORGIAN AGGREGATES AND CONSTRUCTION INC.
DATE: DECEMBER 22,23 1998

BOREHOLE TYPE: HQ SIZED (64 mm) ROCK CORE
GEOLOGIST: KJF

GROUND ELEVATION: 522.2 mASL
REVIEWER: AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE	SAMPLE	SAMPLE % RECOVERY	SAMPLE RQD (%)	DRILL PENETRATION m/min	WATER CONTENT % (10 20 30; W_P – W_L)	REMARKS
0											
	OVERBURDEN: GRAVEL FILL, LIGHT GREY, DRY TO MOIST. (FOUNDATION FOR PLANT)	OVERBURDEN	102 mm ID CASING	AS							LOCATED IN CENTRAL PART OF EXISTING QUARRY ON QUARRY FLOOR. 102 mm ID CASING SET TO 5.6 m.
2											
4											
4.9				RC			73	0	N/A		
6	DOLOSTONE: LIGHT GREY BROWN TO BUFF GREY WITH A MOTTLED APPEARANCE, MEDIUM TO COARSE GRAINED. (AMABEL FORMATION, UNIT 1) – IRREGULAR SHAPED VUGS INCREASING TO 5–6% BELOW 17.4 m.	AMABEL FORMATION UNIT 1	OPEN HQ BOREHOLE	RC			100	76	0.22		BROKEN BEDROCK SURFACE.
8	– BROWN CLAYEY SILT INFILLING WITH RUSTY STAINING ON FRACTURES AND VUGS.			RC			100	48	0.25		
10	– FOSSILS THROUGHOUT			RC			100	82	0.22		
12				RC			100	92	0.22		
14				RC			100	82	0.21		
16				RC			100	46	0.27		
18				RC			100	53	0.25		
20				RC			100	58	0.26		
				RC			100	83	0.25		NOTE: AMABEL FORMATION: UNIT 1: REEFAL FACIES UNIT 2: FLANK FACIES FH: FOSSIL HILL FORMATION CH: CABOT HEAD FORMATION
				RC			100	65	0.26		

BOREHOLE NO. 98-11

PROJECT NAME: ROCK QUALITY INVESTIGATION - DUNTROON QUARRY **PROJECT NO.:** 930521.50

CLIENT: GEORGIAN AGGREGATES AND CONSTRUCTION INC. **DATE:** DECEMBER 22,23 1998

BOREHOLE TYPE: HQ SIZED (64 mm) ROCK CORE **GEOLOGIST:** KJF

GROUND ELEVATION: 522.2 mASL **REVIEWER:** AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE 'N' VALUE	SAMPLE % WATER	SAMPLE % RECOVERY	SAMPLE RQD (%)	DRILL PENETRATION m/min	WATER CONTENT % (10 20 30; W_P – W_L)	REMARKS
20	DOLOSTONE: (CONT)	AMABEL UNIT 1	OPEN HQ BOREHOLE								LOCATED IN CENTRAL PART OF EXISTING QUARRY ON QUARRY FLOOR.
				RC			100	55	N/A		
22											
	22.9			RC			100	68	N/A		
24	DOLOSTONE: LIGHT BUFF GREY TO A MEDIUM GREY WITH A CHALKY APPEARANCE, MEDIUM TO FINE GRAINED, HORIZONTAL TO SUBHORIZONTAL BEDDING. (AMABEL FORMATION, UNIT 2)	AMABEL FORMATION UNIT 2		RC			100	48	0.23		
	– FAINT RUSTY STAINING THROUGHOUT										
26				RC			100	84	0.26		
				RC			98	95	0.27		
28	–VUGS 1–2% WITH A UNIFORM DISTRIBUTION										
				RC			100	93	0.23		
30											
	– FOSSIL REMNANTS THROUGHOUT			RC			98	94	0.26		
32	– GRADATIONAL LOWER CONTACT OVER ±1 m			RC			98	95	0.25		
	– FIRST STYLOLITE AT 32.7 m.										
	33.4			RC			100	55	0.22		
34	DOLOSTONE: LIGHT GREY TO MEDIUM CREAMY GREY TO BROWN, FINE TO MEDIUM GRAINED.	FOSSIL HILL FORMATION									
				RC			100	100	0.20		
36	– OCCASIONAL STYLOLITES AND SHALE INTERBEDS UP TO 2 mm THICK										
				RC			100	87	0.19		
38											
				RC			100	98	0.29		
	– PYRITE CRYSTALS AT 39.0 m.										
40				RC			100	N/A	0.20		

NOTE:
AMABEL FORMATION:
UNIT 1: REEFAL FACIES
UNIT 2: FLANK FACIES
FH: FOSSIL HILL FORMATION
CH: CABOT HEAD FORMATION

BOREHOLE NO. 98-11

PROJECT NAME: ROCK QUALITY INVESTIGATION - DUNTROON QUARRY **PROJECT NO.:** 930521.50

CLIENT: GEORGIAN AGGREGATES AND CONSTRUCTION INC. **DATE:** DECEMBER 22,23 1998

BOREHOLE TYPE: HQ SIZED (64 mm) ROCK CORE **GEOLOGIST:** KJF

GROUND ELEVATION: 522.2 mASL **REVIEWER:** AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE	SAMPLE	SAMPLE % RECOVERY	SAMPLE RQD (%)	DRILL PENETRATION m/min	WATER CONTENT % 10 20 30 (W_P – W_L)	REMARKS
40											
40.6	DOLOSTONE: (CONT) – 80 mm SHALE BED AT 40.1 m.	FH	OPEN HQ BOREHOLE								LOCATED IN CENTRAL PART OF EXISTING QUARRY ON QUARRY FLOOR.
41.2	SHALE: GREY GREENISH, CALCAREOUS. (CABOT HEAD FORMATION)	CH									
42	BOREHOLE TERMINATED AT 41.2 m IN SHALE.										
44											
46											
48											
50											
52											
54											
56											
58											
60											NOTE: AMABEL FORMATION: UNIT 1: REEFAL FACIES UNIT 2: FLANK FACIES FH: FOSSIL HILL FORMATION CH: CABOT HEAD FORMATION

BOREHOLE NO. 98-12

PROJECT NAME: ROCK QUALITY INVESTIGATION - DUNTROON QUARRY
PROJECT NO.: 930521.50

CLIENT: GEORGIAN AGGREGATES AND CONSTRUCTION INC.
DATE: DECEMBER 21, 1998

BOREHOLE TYPE: HQ SIZED (64 mm) ROCK CORE
GEOLOGIST: KJF

GROUND ELEVATION: 526.7 mASL
REVIEWER: AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE	SAMPLE	SAMPLE % RECOVERY	SAMPLE RQD (%)	DRILL PENETRATION m/min	WATER CONTENT % 10 20 30 W_P W_L	REMARKS
0											
	OVERBURDEN: CLAYEY SILT, MEDIUM BROWN.	OVERBURDEN	102 mm ID CASING	AS							LOCATED IN NORTHEAST CORNER OF EXISTING QUARRY. 102 mm ID CASING SET TO 5.6 m. BOREHOLE SET INTO BERM
2											
4	4.0			RC			77	0	N/A		
	DOLOSTONE: LIGHT GREYISH BROWN TO MOTTLED GREYISH BUFF BROWN APPEARANCE. MEDIUM TO COARSE GRAINED, CRAGGY APPEARANCE, FOSSILS THROUGHOUT. (AMABEL FORMATION, UNIT 1)	AMABEL FORMATION UNIT 1	OPEN HQ BOREHOLE	RC			100	46	N/A		
6	– IRREGULARLY SHAPED VUGS 2–3%			RC			100	82	0.29		
	– SOME CLAYEY SILT INFILLING AND RUSTY STAINS ON FRACTURES			RC			100	83	0.16		
8											
				RC			100	93	0.16		
10											
				RC			100	80	0.30		
12											
				RC			100	88	0.30		
				RC			100	97	0.31		
14											
				RC			100	95	0.26		
16											
	16.7			RC			100	100	0.31		
	DOLOSTONE: LIGHT TO MEDIUM BROWN GREY WITH FAINT RUSTY STAINING THROUGHOUT, MEDIUM GRAINED, CHALKY APPEARANCE. (AMABEL FORMATION, UNIT 2)	AMABEL FORMATION UNIT 2									
18				RC			100	100	0.26		
				RC			100	97	N/A		
20											

NOTE:
AMABEL FORMATION:
UNIT 1: REEFAL FACIES
UNIT 2: FLANK FACIES
FH: FOSSIL HILL FORMATION
CH: CABOT HEAD FORMATION

BOREHOLE NO. 98-12

PROJECT NAME: ROCK QUALITY INVESTIGATION - DUNTROON QUARRY
PROJECT NO.: 930521.50
CLIENT: GEORGIAN AGGREGATES AND CONSTRUCTION INC.
DATE: DECEMBER 21, 1998
BOREHOLE TYPE: HQ SIZED (64 mm) ROCK CORE
GEOLOGIST: KJF
GROUND ELEVATION: 526.7 mASL
REVIEWER: AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE	SAMPLE	SAMPLE % RECOVERY	SAMPLE RQD (%)	DRILL PENETRATION m/min	WATER CONTENT % 10 20 30 W_P W_L	REMARKS
20	DOLOSTONE: (CONT)	AMABEL FORMATION UNIT 2	OPEN HQ BOREHOLE								LOCATED IN NORTHEAST CORNER OF EXISTING QUARRY.
				RC			100	96	0.37		
22	– VUGS 1–2% WITH A UNIFORM DISTRIBUTION – FOSSIL REMNANTS			RC			100	90	0.34		
24	– HORIZONTAL TO SUBHORIZONTAL BEDDING			RC			100	52	0.29		
				RC			100	52	0.37		
26											
				RC			100	80	0.29		
28											
				RC			100	95	0.32		
30											
				RC			100	87	0.29		
	– FIRST STYLOLITE AT 30.9 m.										
32				RC			100	97	0.28		
	– BECOMING FINER GRAINED AND LESS VUGGY BELOW 32.5 m.			RC			100	92	0.25		
34											
				RC			100	90	0.28		
	– GRADATIONAL LOWER CONTACT OVER ±2 m INTERVAL										
36	36.0										
	DOLOSTONE: MEDIUM GREY TO LIGHT CREAMY GREY, MEDIUM TO FINE GRAINED, OCCASIONAL THIN SHALE LAMINAE OR STYLOLITE UP TO 2 mm THICK.	FOSSIL HILL FORMATION		RC			100	97	0.17		
38	– INCREASING SHALE CONTENT BELOW 37.5 m.										
				RC			100	89	N/A		
	– MINOR PYRITE MINERALIZATION AT 39.5 m AND 40.8 m.										NOTE: AMABEL FORMATION: UNIT 1: REEFAL FACIES UNIT 2: FLANK FACIES FH: FOSSIL HILL FORMATION CH: CABOT HEAD FORMATION
				RC			100	97	N/A		
40											

BOREHOLE NO. 98-12

PROJECT NAME: ROCK QUALITY INVESTIGATION - DUNTROON QUARRY
PROJECT NO.: 930521.50

CLIENT: GEORGIAN AGGREGATES AND CONSTRUCTION INC.
DATE: DECEMBER 21, 1998

BOREHOLE TYPE: HQ SIZED (64 mm) ROCK CORE
GEOLOGIST: KJF

GROUND ELEVATION: 526.7 mASL
REVIEWER: AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE	SAMPLE	SAMPLE % RECOVERY	SAMPLE RQD (%)	DRILL PENETRATION m/min	WATER CONTENT % 10 20 30 W_P W_L	REMARKS
40											
	DOLOSTONE: (CONT)										LOCATED IN NORTHEAST CORNER OF EXISTING QUARRY.
	– 50 mm SHALE BED AT 41.6 m.	FH	OPEN HQ BH	RC			97	97	N/A		
42	– PYRITE CRYSTALS AT 41.8 m IN 20 mm VUG.										
42.1	SHALE: GREENISH GREY, CALCAREOUS. (CABOT HEAD FORMATION)	CH		RC			100	0	0.17		
42.4	BOREHOLE TERMINATED AT 42.4 m IN SHALE.										
44											
46											
48											
50											
52											
54											
56											
58											
60											NOTE: AMABEL FORMATION: UNIT 1: REEFAL FACIES UNIT 2: FLANK FACIES FH: FOSSIL HILL FORMATION CH: CABOT HEAD FORMATION

BOREHOLE NO. 98-13

PROJECT NAME: ROCK QUALITY INVESTIGATION - DUNTROON QUARRY **PROJECT NO.:** 930521.50

CLIENT: GEORGIAN AGGREGATES AND CONSTRUCTION INC. **DATE:** DECEMBER 17,18,19 1998

BOREHOLE TYPE: HQ SIZED (64 mm) ROCK CORE **GEOLOGIST:** KJF

GROUND ELEVATION: 522.3 mASL **REVIEWER:** AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE RQD (%)	DRILL PENETRATION m/min	WATER CONTENT % (10 20 30) W_P W_L	REMARKS
0	OVERBURDEN: MEDIUM BROWN SILTY CLAY TILL, OCCASIONAL BOULDERS.	OVERBURDEN	102 mm ID CASING	AS					LOCATED ON EAST SIDE OF EXISTING QUARRY. 102 mm ID CASING SET TO 9.7 m.
8.6	BOULDERS ENCOUNTERED 0.5 m ABOVE BEDROCK.								
8.6	DOLOSTONE: LIGHT GREY TO VERY LIGHT GREY, MEDIUM TO COARSE GRAINED. (AMABEL FORMATION, UNIT 1)	AMABEL FORMATION UNIT 1	OPEN HQ BOREHOLE	RC	66	41	N/A		
10	– IRREGULAR BEDDING WITH AN OVERALL CRAGGY AND WEATHERED APPEARANCE – FOSSILS AND FOSSIL REMNANTS			RC	96	50	0.22		
12				RC	80	100	N/A		
12	– RUST STAINED FRACTURES WITH CLAYEY SILT INFILLING			RC	100	88	0.20		
14	– IRREGULARLY SHAPED VUGS 3–5% WITH LOCAL ZONES TO 10% – 250 mm VOID AT 14.3 m.			RC	83	61	N/A		
16				RC	100	92	N/A		
16	– SOME FLANK FACIES INTERBEDDED, 0.6 m BED AT 13.7 m AND 1.2 m BED AT 17.1 m, LIGHT GREY WITH A CHALKY APPEARANCE			RC	100	35	0.16		
18				RC	100	78	0.20		NOTE: AMABEL FORMATION: UNIT 1: REEFAL FACIES UNIT 2: FLANK FACIES FH: FOSSIL HILL FORMATION CH: CABOT HEAD FORMATION
20				RC	100	100	0.29		

BOREHOLE NO. 98-13

PROJECT NAME: ROCK QUALITY INVESTIGATION - DUNTROON QUARRY **PROJECT NO.:** 930521.50

CLIENT: GEORGIAN AGGREGATES AND CONSTRUCTION INC. **DATE:** DECEMBER 17,18,19 1998

BOREHOLE TYPE: HQ SIZED (64 mm) ROCK CORE **GEOLOGIST:** KJF

GROUND ELEVATION: 522.3 mASL **REVIEWER:** AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE 'N' VALUE	SAMPLE % WATER	SAMPLE % RECOVERY	SAMPLE RQD (%)	DRILL PENETRATION mm/sec	WATER CONTENT % (10 20 30) W_P W_L	REMARKS
20	DOLOSTONE: (CONT)	UNIT 1	OPEN HQ BOREHOLE								LOCATED ON EAST SIDE OF EXISTING QUARRY.
				RC			93	43	0.18		
22	22.1										
	DOLOSTONE: LIGHT TO MEDIUM GREY, MEDIUM GRAINED, CHALKY APPEARANCE, FAINT RUSTY TINGE. (AMABEL FORMATION, UNIT 2)	AMABEL FORMATION UNIT 2		RC			100	78	0.23		
	– VUGS 2–3% WITH A UNIFORM DISTRIBUTION										
24	– HORIZONTAL TO SUBHORIZONTAL BEDDING			RC			100	45	0.27		
	– 0.7 m SILT INFILLED VERTICAL FRACTURE AT 25.6 m.			RC			100	68	0.30		
26											
				RC			100	62	0.19		
	– OCCASIONAL REEFAL FACIES INTERBEDS ±1 m BED AT 28.0 m										
28											TWO 100 mm ZONES OF BROKEN RECOVERY AT 28.7 m AND 30.2 m.
				RC			100	53	0.30		
30											
				RC			100	75	0.26		
	– FIRST STYLOLITE AT 31.0 m.										
32	– GRADATIONAL LOWER CONTACT OVER ±2 m INTERVAL			RC			100	85	0.28		
	32.8										
	DOLOSTONE: LIGHT TO MEDIUM BUFF GREY TO CREAM COLOURED, FINE GRAINED.	FOSSIL HILL FORMATION		RC			100	76	0.28		
34	– STYLOLYTES AND OCCASIONAL THIN SHALE INTERBEDS UP TO 2 mm INCREASING WITH DEPTH.										
				RC			100	98	0.23		
36											
				RC			100	65	N/A		
	– 35 mm SHALE BED AT 37.6 m. – PYRITE CRYSTALS AT 37.7 m.										
38	37.9										
	38.0 SHALE: GREENISH GREY, CALCAREOUS. (CABOT HEAD FORMATION)	CH									NOTE:
	BOREHOLE TERMINATED AT 38.0 m IN SHALE.										AMABEL FORMATION: UNIT 1: REEFAL FACIES UNIT 2: FLANK FACIES FH: FOSSIL HILL FORMATION CH: CABOT HEAD FORMATION
40											

BOREHOLE NO. OW99-1

PROJECT NAME: DUNTROON QUARRY | **PROJECT NO.:** 930521.08

CLIENT: GEORGIAN AGGREGATES AND CONSTRUCTION INC. | **DATE:** MAY, 1999

BOREHOLE TYPE: 150 mm AIRTRACK HOLE | **GEOLOGIST:**

GROUND ELEVATION: 519.0 mASL | **CONTRACTOR:** GEORGIAN AGGREGATES

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE 'N' VALUE	SAMPLE % WATER	SAMPLE % RECOVERY	SAMPLE RQD (%)	CONE PENETRATION "N" VALUE 10 20 30 / SHEAR STRENGTH	WATER CONTENT % 10 20 30 / W_P W_L	REMARKS
0	DOLOSTONE BEDROCK										100 mm ø PVC PROTECTIVE CASING
5											
10											100 mm ø OPEN HOLE
15											
20											
25											
29.5 / 30	HOLE TERMINATED AT 29.5 m BELOW GRADE										
35											
40											
45											
50											

BOREHOLE NO. OW99-2

PROJECT NAME: DUNTROON QUARRY
PROJECT NO.: 930521.08

CLIENT: GEORGIAN AGGREGATES AND CONSTRUCTION INC.
DATE: MAY, 1999

BOREHOLE TYPE: 100 mm AIRTRACK HOLE
GEOLOGIST:

GROUND ELEVATION: 500.6 mASL
CONTRACTOR: GEORGIAN AGGREGATES

DEPTH (m)		STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE 'N' VALUE	SAMPLE % WATER	SAMPLE % RECOVERY	SAMPLE RQD (%)	CONE PENETRATION "N" VALUE 10 20 30 / SHEAR STRENGTH	WATER CONTENT % 10 20 30 / W_P W_L	REMARKS
0		DOLOSTONE BEDROCK										100 mm ø PROTECTIVE CASING
5												
10												100 mm ø OPEN HOLE
15												
20	19.7											
		HOLE TERMINATED AT 19.7 m BELOW GRADE										
25												
30												
35												
40												
45												
50												

BOREHOLE NO. PW99-1

PROJECT NAME: DUNTROON QUARRY | **PROJECT NO.:** 930521.50

CLIENT: GEORGIAN AGGREGATES AND CONSTRUCTION INC. | **DATE:** JULY 09, 1999

BOREHOLE TYPE: 150 mm ROTARY WATER WELL | **GEOLOGIST:**

GROUND ELEVATION: 513.9 mASL | **CONTRACTOR:** HIGHLAND WATERWELLS

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE 'N' VALUE	SAMPLE % WATER	SAMPLE % RECOVERY	SAMPLE RQD (%)	CONE PENETRATION "N" VALUE 10 20 30 / SHEAR STRENGTH	WATER CONTENT % 10 20 30 / W_P W_L	REMARKS
0	WELL DRILLERS LOG										
	BROWN SANDY CLAY WITH GRAVEL										150 mm ø STEEL CASING
4.3											BENSEAL PLUG
5	LIGHT BROWN BROKEN LIMESTONE (OVERBURDEN)										150 mm ø OPEN HOLE WELL
9.4											
10	LIGHT BROWN LIMESTONE, HARD										
15											
20											
25											
29.0											
30	GREY LIMESTONE										
31.4											
	BROWN LIMESTONE										
32.9											
	WELL TERMINATED AT 32.9 m BELOW GRADE										
35											
40											
45											
50											

BOREHOLE NO. PW99-2

PROJECT NAME: DUNTROON QUARRY | **PROJECT NO.:** 930521.08

CLIENT: GEORGIAN AGGREGATES AND CONSTRUCTION INC. | **DATE:** MAY, 1999

BOREHOLE TYPE: 150 mm AIRTRACK HOLE | **GEOLOGIST:**

GROUND ELEVATION: 519.2 mASL | **CONTRACTOR:** GEORGIAN AGGREGATES

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE 'N' VALUE	SAMPLE % WATER	SAMPLE % RECOVERY	SAMPLE RQD (%)	CONE PENETRATION "N" VALUE 10 20 30 / SHEAR STRENGTH	WATER CONTENT % 10 20 30 (W_P – W_L)	REMARKS
0	DOLOSTONE BEDROCK										150 mm ø PROTECTIVE CASING
5											150 mm ø OPEN HOLE
10											
15											
20											
25											
30											
34.4											
35	HOLE TERMINATED AT 34.4 m BELOW GRADE										
40											
45											
50											

BOREHOLE NO. PW99-3

PROJECT NAME: DUNTROON QUARRY | **PROJECT NO.:** 930521.08

CLIENT: GEORGIAN AGGREGATES AND CONSTRUCTION INC. | **DATE:** MAY, 1999

BOREHOLE TYPE: 150 mm AIRTRACK HOLE | **GEOLOGIST:**

GROUND ELEVATION: 500.9 mASL | **CONTRACTOR:** GEORGIAN AGGREGATES

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE 'N' VALUE	SAMPLE % WATER	SAMPLE % RECOVERY	SAMPLE RQD (%)	CONE PENETRATION "N" VALUE 10 20 30 / SHEAR STRENGTH	WATER CONTENT % 10 20 30 / W_P W_L	REMARKS
0	DOLOSTONE BEDROCK										150 mm ø PROTECTIVE CASING
5											150 mm ø OPEN HOLE
10											
15											
20											
20.8											
21.4	SHALE BEDROCK										SHALE INTERPOLATED FROM BH98-1
25	HOLE TERMINATED AT 21.4 m BELOW GRADE IN SHALE										
30											
35											
40											
45											
50											

BOREHOLE NO. BH02-1

PROJECT NAME: DUNTROON QUARRY EXPANSION
PROJECT NO.: 930521.50
CLIENT: GEORGIAN AGGREGATES LIMITED
DATE: DECEMBER 4, 2002
BOREHOLE TYPE: H.Q. (64 mm) ROCK CORE
SUPERVISOR: PFR
GROUND ELEVATION: 522.6 mASL
REVIEWER: AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE RQD (%)	RATE OF DRILL PENETRATION m / min	HYDRAULIC CONDUCTIVITY m / sec	REMARKS
0								E⁻¹¹ E⁻⁴	
2	SILT: BROWN SILT, SOME SAND, TRACE GRAVEL, TRACE CLAY, MOIST.	OVERBURDEN	H.Q. CASING						LOCATED IN S.E. CORNER OF EXPANSION PROPERTY
3.6									
4	DOLOSTONE: WHITE TO CREAMY, UNIFORM MEDIUM GRAINED WITH SACCHAROIDAL TEXTURE. WEAKLY BEDDED. 2%–5% VUGS UP TO 16 mm IN SIZE. – 5.5 m TO 5.7 m LIGHT GREY TO CREAMY, CHAOTIC BEDDED MEDIUM TO COARSE GRAINED DOLOSTONE WITH CHRINOIDAL FOSSIL FRAGMENTS UP TO 4 cm.	AMABEL FORMATION UNIT 2	5.2 m	RC	98	98	0.15		
6				RC	98	73	0.15		
8			OPEN H.Q. BOREHOLE	RC	100	100	0.13		
8.2									
10	DOLOSTONE: LIGHT GREY, WITH WHITE "SPECKLED" APPEARANCE, MEDIUM TO COARSE TEXTURE. WEAKLY BEDDED CRINOIDAL FOSSIL FRAGMENTS UP TO 3 cm. – 9.0 m TO 9.9 m IRREGULAR VERTICAL FRACTURE WITH SLIGHT RUST STAINING	AMABEL FORMATION UNIT 1		RC	98	76	0.18		
				RC	98	90	0.22	4.3E–6	
12	–BELOW 10.7 m LIGHT GREY TO CREAMY WHITE, CHAOTIC BEDDING, FOSSILIFEROUS, 2%–3% VUGS UP TO 3 cm WITH CRYSTALLINE CALCITE INFILL.			RC	100	100	0.27	2.5E–6	
12.6									
14	DOLOSTONE: MOTTLED LIGHT/ MEDIUM GREY, UNIFORM MEDIUM GRAINED WITH SACCHAROIDAL TEXTURE. WEAKLY DEVELOPED BEDDING. 3%–5% VUGS UP TO 9 mm WITH BROWN SEDIMENT INFILL. BECOMING FINE GRAINED WITH DEPTH. FRACTURES HAVE BROWN SEDIMENT ON FACES.	AMABEL FORMATION UNIT 2		RC	98	100	0.24	5.1E–08	
				RC	100	100	0.23	7.0E–08	
16				RC	100	100	0.19	2.4E–07	
18	–BELOW 17.4 m UNIFORM FINE TO MEDIUM GRAINED, AND OCCASIONAL POORLY DEVELOPED BROWN STYLOLITE.			RC	100	100	0.23	5.8E–08	
				RC	100	97	0.17	7.6E–08	
20									

NOTE
AMABEL FORMATION:
UNIT 1: REEFAL FACIES
UNIT 2: FLANK FACIES
FH: FOSSIL HILL FM
CH: CABOT HEAD FM

BOREHOLE NO. BH02-1

PROJECT NAME: DUNTROON QUARRY EXPANSION
PROJECT NO.: 930521.50
CLIENT: GEORGIAN AGGREGATES LIMITED
DATE: DECEMBER 4, 2002
BOREHOLE TYPE: H.Q. (64 mm) ROCK CORE
SUPERVISOR: PFR
GROUND ELEVATION: 522.6 mASL
REVIEWER: AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE RQD (%)	RATE OF DRILL PENETRATION m / min	HYDRAULIC CONDUCTIVITY m / sec	REMARKS
20	DOLOSTONE CONTINUED	AMABEL FORMATION UNIT 2	OPEN H.Q. BOREHOLE	RC	100	100	0.25	1.1E-07	LOCATED IN S.E. CORNER OF EXPANSION PROPERTY
22	−21.9 m GREY, UNIFORM MEDIUM GRAINED WITH SACCHAROIDAL TEXTURE AND "SPECKLED" APPEARANCE. UP TO 5% CRINOIDAL FOSSIL FRAGMENTS, WEAKLY BEDDED.			RC	97	95	0.25	4.0E-7	
24	− 24.0 TO 24.8 m VERTICAL FRACTURES WITH WEAK RUSTY ORANGE STAINING, PARTIALLY RESEALED WITH CARBONATE. FRACTURES OCCUR DOMINANTLY PARALLEL TO BEDDING.			RC	100	78	0.30	5.8E-7	
26				RC	100	100	0.27	7.9E-7	
28				RC	98	100	0.25	6.9E-08	
30	− 30.4 m TO 31.1 m MOTTLED MEDIUM GREY TO BROWN FINE GRAINED DOLOSTONE			RC	100	100	0.13	8.1E-08	
32				RC	97	100	0.19	1.3E-07	
33.4				RC	98	100	0.22		
34	DOLOSTONE: MOTTLED BLUE−GREY/ GREY FINE GRAINED WITH SACCHAROIDAL TEXTURE. INCREASING STYLOLITES, BECOMING GREY IN COLOUR WITH DEPTH. OCCASIONAL PARTING OF PALE GREEN TO GREY SHALE UP TO 2 mm THICK. OCCASIONAL PINCH−AND−SWELL TYPE BEDS AND NODULES OF WHITE TO LIGHT GREY CHERT. BECOMING PINKISH−BROWN BELOW 35.7 m WITH UP TO 2% PATCHY MASSIVE PYRITE.	FOSSIL HILL FM		RC	100	100	0.19		
36	FRACTURES OCCUR DOMINANTLY AT STYLOLITES/ PARTINGS.			RC	100	100	0.15	2.9E-09	
37.4				RC	100	100	0.12		
38	SHALE: GREENISH−GREY SHALE, VARIABLE SOFT TO HARD, FISSILE.	CH		RC	100	100	0.12	9.0E-09	NOTE AMABEL FORMATION: UNIT 1: REEFAL FACIES UNIT 2: FLANK FACIES FH: FOSSIL HILL FM CH: CABOT HEAD FM
39.5	BOREHOLE TERMINATED AT 39.5 m IN SHALE.			RC	100	100	0.15	4.8E-08	CIRCULATION MAINTAINED FOR ENTIRE BOREHOLE.
40									

BOREHOLE NO. BH02-2

PROJECT NAME: DUNTROON QUARRY EXPANSION
PROJECT NO.: 930521.50
CLIENT: GEORGIAN AGGREGATES LIMITED
DATE: DECEMBER 10, 2002
BOREHOLE TYPE: H.Q. (64 mm) ROCK CORE
SUPERVISOR: PFR
GROUND ELEVATION: 522.5 mASL
REVIEWER: AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE RQD (%)	RATE OF DRILL PENETRATION m / min	HYDRAULIC CONDUCTIVITY m / sec (E⁻¹¹ – E⁻⁴)	REMARKS
0	SILT: BROWN SILT, SOME SAND, TRACE GRAVEL, TRACE CLAY, MOIST.	OVERBURDEN	H.Q. CASING						LOCATED IN NE QUADRANT OF PROPERTY
6.2	DOLOSTONE: MOTTLED LIGHT GREY/ LIGHT BROWN, MEDIUM GRAINED UNIFORM TEXTURE, WEAKLY BEDDED.	UNIT 2	7.0 m	RC	92	96	0.78		
7.0	DOLOSTONE: PATCHY LIGHT GREY/ LIGHT BROWN, MEDIUM GRAINED WITH "SPECKLED" APPEARANCE. CRINOIDAL FOSSIL FRAGMENTS UP TO 5%, WEAKLY DEVELOPED BEDDING. FRACTURES MAINLY PARALLEL TO BEDDING.	AMABEL FORMATION UNIT 1	OPEN H.Q. BOREHOLE	RC	93	100	0.28		
				RC	98	100	0.20		
				RC	100	100	0.27	1.1E−7	
				RC	100	98	0.28	3.1E−7	
				RC	100	100	0.23		
14.7	DOLOSTONE: MOTTLED LIGHT GREY/ MEDIUM GREY, MEDIUM GRAINED WITH SACCHAROIDAL TEXTURE. NUMEROUS CRINOIDAL FOSSIL FRAGMENTS WITH WEAKLY DEVELOPED BEDDING.	UNIT 2		RC	100	97	0.22	1.1E−6	
16.6	DOLOSTONE: MOTTLED LIGHT GREY/ MEDIUM GREY, MEDIUM TO COARSE GRAINED WITH CHAOTIC APPEARANCE AND FOSSIL FRAGMENTS. OVERALL "ROUGH" APPEARANCE, BRITTLE. OCCASIONAL BROWN STYLOLITE.	AMABEL UNIT 1		RC	98	92	0.24	4.7E−7	
				RC	100	100	0.26	2.7E−7	
				RC	100	100	0.25	1.2E−7	

NOTE
AMABEL FORMATION:
UNIT 1: REEFAL FACIES
UNIT 2: FLANK FACIES
FH: FOSSIL HILL FM
CH: CABOT HEAD FM

BOREHOLE NO. BH02-2

PROJECT NAME: DUNTROON QUARRY EXPANSION
PROJECT NO.: 930521.50
CLIENT: GEORGIAN AGGREGATES LIMITED
DATE: DECEMBER 10, 2002
BOREHOLE TYPE: H.Q. (64 mm) ROCK CORE
SUPERVISOR: PFR
GROUND ELEVATION: 522.5 mASL
REVIEWER: AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE RQD (%)	RATE OF DRILL PENETRATION m / min	HYDRAULIC CONDUCTIVITY m / sec (E⁻¹¹ – E⁻⁴)	REMARKS
20	DOLOSTONE CONTINUED	UNIT 1	OPEN H.Q. BOREHOLE					1.2E-7	LOCATED IN NE QUADRANT OF PROPERTY
21.2	DOLOSTONE: PATCHY LIGHT GREY/ LIGHT BROWN MEDIUM TO FINE GRAINED, WITH SACCHAROIDAL TEXTURE. MODERATE TO WEAKLY DEVELOPED BEDDING WITH 1–2 mm CRINOIDAL FOSSIL FRAGMENTS PRODUCING LOCAL "SPECKLED" TEXTURE. OCCASIONAL BROWN MODERATE TO WELL DEVELOPED STYLOLITE, INCREASING WITH DEPTH.	AMABEL FORMATION UNIT 2		RC	98	100	0.24	4.7E-7	
22									
				RC	100	95	0.30		
24								5.0E-7	
				RC	100	100	0.24		
26				RC	100	100	0.31	2.4E-7	
				RC	98	100	0.29	5.8E-7	
28									
				RC	98	100	0.26		
30								2.7E-7	
				RC	100	100	0.21		
32				RC	100	100	0.20	3.7E-7	
32.6	DOLOSTONE: MOTTLED BLUE–GREY TO GREY FINE TO MEDIUM GRAINED WITH SACCHAROIDAL TEXTURE. OCCASIONAL STYLOLITE, BECOMING GREY IN COLOUR. OCCASIONAL 10 mm–SCALE PINCH–AND–SWELL TYPE BEDS/ NODULES OF LIGHT GREY CHERT. – AT 34.9 m BECOMING PINKISH–BROWN, FINE GRAINED WITH OCCASIONAL FAINT PARTINGS/ LAMINAE OF SHALE UP TO 3 mm THICK WITH UP TO 5 mm AGGLOMERATIONS OF PATCHY MASSIVE PYRITE. FRACTURES OCCUR MAINLY ALONG STYLOLITES/ LAMINAE. – 37.6 m TO 37.9 m SHALE INTERBED	FOSSIL HILL FORMATION		RC	100	100	0.18	1.8E-07	
34									
				RC	100	100	0.14	5.9E-09	
36									
								1.2E-07	
38									CIRCULATION MAINTAINED FOR ENTIRE BOREHOLE.
38.4	SHALE: GREENISH–GREY, SOFT TO HARD, FISSILE.	CH							NOTE AMABEL FORMATION: UNIT 1: REEFAL FACIES UNIT 2: FLANK FACIES FH: FOSSIL HILL FM CH: CABOT HEAD FM
39.5	BOREHOLE TERMINATED AT 39.5 m IN SHALE.								
40									

BOREHOLE NO. BH02-3

PROJECT NAME: DUNTROON QUARRY EXPANSION
PROJECT NO.: 930521.50
CLIENT: GEORGIAN AGGREGATES LIMITED
DATE: DECEMBER 12, 2002
BOREHOLE TYPE: H.Q. (64 mm) ROCK CORE
SUPERVISOR: PFR
GROUND ELEVATION: 529.7 mASL
REVIEWER: AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE	SAMPLE	SAMPLE % RECOVERY	SAMPLE RQD (%)	RATE OF DRILL PENETRATION m / min	WATER CONTENT % 10 20 30 (W_P – W_L)	REMARKS
0											
	SILT: BROWN SILT, SOME SAND, TRACE GRAVEL, TRACE CLAY, MOIST.	OVERBURDEN	H.Q. CASING								LOCATED NEAR CENTRE OF PROPERTY.
2											
3.1											
	DOLOSTONE: LIGHT GREY MEDIUM TO COARSE GRAINED DOLOSTONE, CHAOTIC APPEARANCE WITH UP TO 10% WHITE FOSSIL FRAGMENTS, "HONEYCOMB" TEXTURE (CORAL) UP TO 30 mm. 2%–3% VUGS UP TO 13 mm.	AMABEL FORMATION UNIT 1		RC			88	96	0.24		
4			4.6 m								
			OPEN H.Q. BOREHOLE (64 mm)	RC			98	86	0.30		
6	– 5.8 m TO 6.7 m IRREGULAR VERTICAL FRACTURE WITH MODERATE ORANGE RUSTY STAINING ON FACES.										
				RC			100	93	0.33		
8				RC			100	88	0.35		
				RC			56	76	0.41		
10											
				RC			0	N/A	0.53		
12											
12.0											
	BOREHOLE TERMINATED AT 12.0 m IN DOLOSTONE.		DRY								NO CORE RECOVERY IN LAST RUN. LOST CIRCULATION AT 9.5 m BELOW GROUND SURFACE.
14											
16											
18											
											NOTE AMABEL FORMATION: UNIT 1: REEFAL FACIES UNIT 2: FLANK FACIES FH: FOSSIL HILL FM CH: CABOT HEAD FM
20											

BOREHOLE NO. BH02-4

PROJECT NAME: DUNTROON QUARRY EXPANSION
PROJECT NO.: 930521.50
CLIENT: GEORGIAN AGGREGATES LIMITED
DATE: DECEMBER 13, 2002
BOREHOLE TYPE: H.Q. (64 mm) ROCK CORE
SUPERVISOR: PFR
GROUND ELEVATION: 530.0 mASL
REVIEWER: AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE RQD (%)	RATE OF DRILL PENETRATION m / min	HYDRAULIC CONDUCTIVITY m / sec	REMARKS
0									
	SILT: BROWN SILT, SOME SAND, TRACE GRAVEL, TRACE CLAY, MOIST.	OVER-BURDEN	H.Q. CASING						LOCATED NEAR CENTRE OF PROPERTY
1.3			3.0 m						
	DOLOSTONE: LIGHT GREY, MEDIUM TO COARSE GRAINED DOLOSTONE, CHAOTIC BEDDING WITH LOCALLY UP TO 7% WHITE FOSSIL FRAGMENTS (POSSIBLY CORAL) WITH "HONEYCOMB" TEXTURE, UP TO 30 mm. 3%–5% VUGS UP TO 30 mm.	AMABEL FORMATION UNIT 1		RC	100	67	0.22		
2									
	FRACTURES DOMINANTLY SUBHORIZONTAL, IRREGULAR.			RC	100	100	0.25		
4									
				RC	100	100	0.31		
6									
				RC	100	90	0.26		
8				RC	98	100	0.30		
			OPEN H.Q. BOREHOLE						
				RC	97	100	0.31		
10									
				RC	94	98	0.30		AT 11.0 m TEMPORARY LOSS OF CIRCULATION. (RECOVERED)
12									
				RC	94	100	0.30	2.5E–06	
13.1									
	DOLOSTONE: MOTTLED LIGHT GREY/ LIGHT BROWN, WITH OCCASIONAL CREAM COLOURED BANDS, UNIFORM, MEDIUM GRAINED. OCCASIONAL CRINOIDAL FOSSIL FRAGMENTS, WEAKLY BEDDED. 1%–2% VUGS UP TO 20 mm WITH CRYSTALLINE CALCITE INFILLING.	AMABEL FORMATION UNIT 2		RC	100	100	0.31	5.3E–07	
14									
				RC	100	100	0.28		
16								4.5E–07	
				RC	100	100	0.30		
18								2.2E–06	
				RC	100	35	0.30		NOTE
	– 19.0 m TO 20.0 m IRREGULAR VERTICAL FRACTURE WITH MODERATE TO STRONG RUST STAINING.								AMABEL FORMATION: UNIT 1: REEFAL FACIES UNIT 2: FLANK FACIES FH: FOSSIL HILL FM CH: CABOT HEAD FM
				RC	100	100	0.30	4.8E–07	
20									

BOREHOLE NO. BH02-4

PROJECT NAME: DUNTROON QUARRY EXPANSION
PROJECT NO.: 930521.50
CLIENT: GEORGIAN AGGREGATES LIMITED
DATE: DECEMBER 13, 2002
BOREHOLE TYPE: H.Q. (64 mm) ROCK CORE
SUPERVISOR: PFR
GROUND ELEVATION: 530.0 mASL
REVIEWER: AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE RQD (%)	RATE OF DRILL PENETRATION m / min	HYDRAULIC CONDUCTIVITY m / sec	REMARKS
20	DOLOSTONE CONTINUED	AMABEL FORMATION UNIT 2	OPEN H.Q. BOREHOLE					4.8E−07	LOCATED NEAR CENTRE OF PROPERTY
	FRACTURES BECOMING DOMINANTLY PARALLEL TO SUB−HORIZONTAL BEDDING.			RC	100	62	0.35	8.5E−06	
22	– 22.4 m TO 22.6 m GREY FINE GRAINED DOLOSTONE WITH WEAKLY DEVELOPED, CREAMY "STRIPED" APPEARANCE, BRITTLE.			RC	98	100	0.30		
	– AT 23.2 m BECOMING UNIFORM WITH SACCHAROIDAL TEXTURE.			RC	100	100	0.30	1.2E−05	
24									
				RC	100	97	0.31	1.3E−06	
26									
				RC	98	100	0.30	9.0E−08	
28	– 27.5 m TO 27.6 m DIAGONAL FRACTURE WITH WEAK RUSTY STAINING.			RC	100	100	0.30		
								1.5E−06	
30				RC	100	100	0.21		
	– 30.1 m TO 31.0 m GREY FINE GRAINED DOLOSTONE WITH POORLY DEVELOPED, DISCONTINUOUS CREAMY "STRIPES". BRITTLE, CRUMBLY. LOCALLY UP TO 10% PATCHY VUGS WITH CALCITE CRYSTALS UP TO 2 mm.			RC	100	95	0.23	7.4E−06	
32									
				RC	98	100	0.23	1.2E−05	
	– 33.1 m TO 35.3 m MOTTLED BROWN/ LIGHT BROWN FINE GRAINED DOLOSTONE WITH OCCASIONAL WISPY PARTING OF DULL GREEN SHALE. OCCASIONAL POORLY DEVELOPED BROWN STYLOLITE. INCREASING FREQUENCY WITH DEPTH.			RC	100	100	0.26		
34								9.3E−06	
36				RC	98	100	0.29		
				RC	100	100	0.30	8.1E−07	
	– 35.3 TO 37.0 m GREY, UNIFORM, MEDIUM GRAINED DOLOSTONE WITH "SPECKLED" APPEARANCE. OCCASIONAL CRINOID FOSSIL FRAGMENTS, WEAKLY BEDDED.								NOTE AMABEL FORMATION: UNIT 1: REEFAL FACIES UNIT 2: FLANK FACIES FH: FOSSIL HILL FM CH: CABOT HEAD FM
38				RC	100	100	0.24	9.9E−07	
40									

BOREHOLE NO. BH02-4

PROJECT NAME: DUNTROON QUARRY EXPANSION
PROJECT NO.: 930521.50
CLIENT: GEORGIAN AGGREGATES LIMITED
DATE: DECEMBER 13, 2002
BOREHOLE TYPE: H.Q. (64 mm) ROCK CORE
SUPERVISOR: PFR
GROUND ELEVATION: 530.0 mASL
REVIEWER: AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE RQD (%)	RATE OF DRILL PENETRATION m / min	HYDRAULIC CONDUCTIVITY m / sec (E⁻¹¹ – E⁻⁴)	REMARKS
40	DOLOSTONE CONTINUED	AMABEL UNIT 2	OPEN H.Q. BOREHOLE	RC	100	100	0.31		LOCATED NEAR CENTRE OF PROPERTY
	FRACTURES OCCUR DOMINANTLY AT PARTINGS/LAMINAE.			RC	100	85	0.24	7.6E−08	
42									
	– 43.2 m TO 44.0 m MOTTLED BROWN/ GREY–BROWN FINE GRAINED DOLOSTONE. OCCASIONAL GREY SHALE PARTINGS UP TO 2 mm THICK.			RC	98	100	0.21	5.4E−08	
44	44.0								
	DOLOSTONE: MOTTLED BLUE–GREY/GREY FINE GRAINED DOLOSTONE, OCCASIONAL GREY SHALE PARTINGS UP TO 3 mm THICK INCREASING WITH DEPTH. OCCASIONAL PINCH–AND–SWELL TYPE BEDS UP TO 3 cm THICK, OCCASIONAL NODULES OF LIGHT GREY CHERT TO 30 mm.	FOSSIL HILL FM		RC	100	100	0.18	6.1E−09	
46	– AT 46.3 m BECOMING PINKISH–BROWN DOLOSTONE WITH 1%–2% PATCHY PYRITE.			RC	100	100	0.20	8.0E−09	
				RC	100	100	0.11	2.8E−08	
48									
	48.8								
	SHALE: GREENISH–GREY, SOFT TO HARD, FISSILE.	CH							
50	50.1								
	BOREHOLE TERMINATED AT 50.1 m IN SHALE.								
52									
									CIRCULATION MAINTAINED FOR ENTIRE BOREHOLE.
54									
56									
58									NOTE AMABEL FORMATION: UNIT 1: REEFAL FACIES UNIT 2: FLANK FACIES FH: FOSSIL HILL FM CH: CABOT HEAD FM
60									

LOG OF BOREHOLE BH02-5 (deep)

WSP

project |	Duntroon Quarry			**project no.** |	111-53312-00
client |	Walker Aggregates Inc.	**rig type** |	CME 75, track-mounted	**date started** |	2014/10/09
location |	Duntroon, Ontario	**method** |	Rock coring	**supervisor** |	BTC
position |	E: 559585 N: 4915584 (17T, Geodetic)	**coring** |	HQ core, OD=96mm, ID=64mm	**reviewer** |	KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY	Graphic Plot	Sample Number	Sample Type	SPT N-Value / Core Recovery	Elevation Scale (mASL)	Penetration Test Values (Blows / 0.3m) / Undrained Shear Strength (kPa)	Water Content (%) & Plasticity	PID Readings	Well Details	Lab Data and Comments
0	513.3	**GROUND SURFACE** **OVERBURDEN**					513	Dynamic Cone: 10 20 30 40 Unconfined / Pocket Penetrometer / Field Vane / Lab Vane: 40 80 120 160	PL MC LL: 10 20 30			GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL
1							512					
2							511					
3							510					
4							509					
5							508					
6							507					
7							506					
8							505					
9	504.3 9.0	**DOLOSTONE (Amabel Formation)** Creamy white with a dull appearance; uniform; fine to medium grained; fossiliferous, strong core with a rough cut texture, thickly bedded, scratched by a knife; slightly weathered with muddy reddish brown staining on fracture surfaces, ~5%, vugs typically 1 mm to 3 mm, poor to fair RQD. (Flank facies)		R1		TCR = **100**% RQD = **63**%	504					
10				R2		TCR = **96**% RQD = **80**%	503					
11	502.6						502					10 cm void at 10.7 m depth.
12	500.9 12.4			R3		TCR = **92**% RQD = **34**%	501					

END OF BOREHOLE

Borehole was open upon completion.

Open hole well installed in borehole. Casing cemented in bedrock at 9.24 m depth.

library: genivar - library.glb **report:** gen log v1 **file:** bh logs.gpj

LOG OF BOREHOLE BH02-5 (mid)

WSP

project |	Duntroon Quarry			**project no. |**	111-53312-00
client |	Walker Aggregates Inc.	**rig type |**	CME 75, track-mounted	**date started |**	2014/10/09
location |	Duntroon, Ontario	**method |**	Rock coring	**supervisor |**	BTC
position |	E: 559585 N: 4915584 (17T, Geodetic)	**coring |**	HQ core, OD=96mm, ID=64mm	**reviewer |**	KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY	Graphic Plot	Sample Number	Sample Type	SPT N-Value / Core Recovery	Elevation Scale (mASL)	Penetration Test Values (Blows / 0.3m) / Undrained Shear Strength (kPa)	Water Content (%) & Plasticity	PID Readings	Well Details	Lab Data and Comments
0	513.3	**GROUND SURFACE**					513	Dynamic Cone 10 20 30 40; Unconfined / Pocket Penetrometer / Field Vane / Lab Vane 40 80 120 160	PL MC LL 10 20 30			GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL
		OVERBURDEN										
1							512					
2							511					
3							510					
4							509					
5							508					
6							507					
7							506					
8							505					
9	504.3 / 9.0	**DOLOSTONE (Amabel Formation)** Creamy white with a dull appearance; uniform; fine to medium grained; fossiliferous, strong core with a rough cut texture, thickly bedded, scratched by a knife; slightly weathered with muddy reddish brown staining on fracture surfaces, ~5%, vugs typically 1 mm to 3 mm, poor to fair RQD. (Flank facies)		R1		TCR = **100%** RQD = **63%**	504					
10				R2		TCR = **96%** RQD = **80%**	503					
11	502.6			R3		TCR = **92%** RQD = **34%**	502					10 cm void at 10.7 m depth.
12	500.9 / 12.4						501					

END OF BOREHOLE

Borehole was open upon completion.

Open hole well installed in borehole. Casing cemented in bedrock at 9.24 m depth.

library: genivar - library.glb **report:** gen log v1 **file:** bh logs.gpj

BOREHOLE NO. BH02-5

PROJECT NAME: DUNTROON QUARRY EXPANSION
PROJECT NO.: 930521.50
CLIENT: GEORGIAN AGGREGATES LIMITED
DATE: DECEMBER 18, 2002
BOREHOLE TYPE: H.Q. (64 mm) ROCK CORE
SUPERVISOR: PFR
GROUND ELEVATION: 513.2 mASL
REVIEWER: AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE RQD (%)	RATE OF DRILL PENETRATION m / min	HYDRAULIC CONDUCTIVITY m / sec	REMARKS
0	SILT: BROWN SILT, SOME SAND, TRACE GRAVEL, TRACE CLAY, MOIST.	OVERBURDEN	H.Q. CASING						LOCATED IN NORTH–CENTRAL PART OF PROPERTY
9.3	DOLOSTONE: LIGHT GREY, MEDIUM TO COARSE GRAINED DOLOSTONE, CHAOTIC BEDDING, OCCASIONAL WHITE FOSSIL FRAGMENTS WITH "HONEYCOMB" TEXTURE UP TO 30 mm. 2%–5% VUGS UP TO 20 mm.	AMABEL UNIT 1		RC	100	93	0.23		
	11.6 TO 12.2 m SUBHORIZONTAL FRACTURES, IRREGULAR WITH WEAK ORANGE RUSTY STAINING.			RC	100	44	0.27		LOST CIRCULATION AT 11.2 m AND 12.8 m, ADVANCED CASING TO 13.4 m. CIRCULATION RECOVERED
			13.4 m	RC	100	100	0.27		
13.9	DOLOSTONE: PATCHY LIGHT GREY/LIGHT BROWN, UNIFORM, MEDIUM GRAINED DOLOSTONE WITH SACCHAROIDAL TEXTURE. OCCASIONAL CRINOIDAL FOSSIL FRAGMENT, WEAKLY BEDDED. 1%–2% VUGS UP TO 2 cm. OCCASIONAL BROWN STYLOLITE, INCREASING FREQUENCY WITH DEPTH.	AMABEL UNIT 2	OPEN H.Q. BOREHOLE	RC	100	92	0.29	2.9E–06	
								2.9E–06	
				RC	100	100	0.29	3.6E–07	
				RC	98	100	0.28	2.8E–07	NOTE AMABEL FORMATION: UNIT 1: REEFAL FACIES UNIT 2: FLANK FACIES FH: FOSSIL HILL FM CH: CABOT HEAD FM
	– 19.5 m TO 20.7 m WHITE "SPECKLED" APPEARANCE WITH INCREASING CRINOIDAL FOSSIL FRAGMENTS, WEAKLY BEDDED.			RC	100	97	0.28	4.5E–07	

BOREHOLE NO. BH02-5

PROJECT NAME: DUNTROON QUARRY EXPANSION
PROJECT NO.: 930521.50
CLIENT: GEORGIAN AGGREGATES LIMITED
DATE: DECEMBER 18, 2002
BOREHOLE TYPE: H.Q. (64 mm) ROCK CORE
SUPERVISOR: PFR
GROUND ELEVATION: 513.2 mASL
REVIEWER: AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE RQD (%)	RATE OF DRILL PENETRATION m / min	HYDRAULIC CONDUCTIVITY m / sec (E-11 to E-4)	REMARKS
20									
	DOLOSTONE CONTINUED	AMABEL UNIT 2	OPEN H.Q. BOREHOLE	RC	100	100	0.31	3.7E-07	LOCATED IN NORTH-CENTRAL PART OF PROPERTY
22				RC	100	100	0.38	1.3E-06	
				RC	100	100	0.32		
24	24.0								
	DOLOSTONE: MOTTLED BLUE-GREY/ GREY FINE GRAINED DOLOSTONE. STYLOLITES BECOMING GREY IN COLOUR. OCCASIONAL WISPY PARTING OF GREY SHALE UP TO 2 mm THICK, INCREASING FREQUENCY WITH DEPTH.	FOSSIL HILL FORMATION						5.1E-08	
26	- AT 24.9 m DISCOLORED BROWN HALO AT FRACTURE.			RC	100	100	0.31		
				RC	100	95	0.28	4.1E-08	
	FRACTURES OCCUR DOMINANTLY AT SHALE PARTINGS WITH GREY SEDIMENT ON FACES.								
28				RC	100	73	0.24	6.8E-08	
				RC	100	88	0.26		
30	- AT 29.6 m BECOMING PINKISH-BROWN WITH 2%-3% PATCHY MASSIVE PYRITE. LOCALLY UP TO 15% WHITE FOSSIL FRAGMENTS AT UPPER CONTACT.							3.8E-06	
	30.9								
	- 30.4 m TO 30.5 m GREEN SHALE INTERBED.	CH		RC	100	76	0.16		
32	31.9								
	SHALE: GREENISH-GREY, SOFT TO HARD, FISSILE.								
	BOREHOLE TERMINATED AT 31.9 m IN SHALE.								
34									
36									
38									NOTE AMABEL FORMATION: UNIT 1: REEFAL FACIES UNIT 2: FLANK FACIES FH: FOSSIL HILL FM CH: CABOT HEAD FM
40									

BOREHOLE NO. BH02-6

PROJECT NAME: DUNTROON QUARRY EXPANSION
PROJECT NO.: 930521.50
CLIENT: GEORGIAN AGGREGATES LIMITED
DATE: DECEMBER 20, 2002
BOREHOLE TYPE: H.Q. (64 mm) ROCK CORE
SUPERVISOR: PFR
GROUND ELEVATION: 529.5 mASL
REVIEWER: AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE RQD (%)	RATE OF DRILL PENETRATION m / min	HYDRAULIC CONDUCTIVITY m / sec	REMARKS
0									
2.0	SILT: BROWN SILT, SOME SAND, TRACE GRAVEL, TRACE CLAY, MOIST.	OVERBURDEN	H.Q. CASING						LOCATED SOUTH CENTRAL PROTION OF PROPERTY
	DOLOSTONE: GREY, MEDIUM TO COARSE GRAINED WITH WHITE FOSSIL FRAGMENTS, "HONEYCOMB" TEXTURE AND CHAOTIC BEDDING. 2%–3% VUGS WITH WHITE CHALKY APPEARANCE.	AMABEL FORMATION UNIT 1		RC	100	88	0.29		
4				RC	98	98	0.30		
	– 3.3 m TO 4.2 m CREAMY WHITE, UNIFORM, MEDIUM GRAINED DOLOSTONE WITH OCCASIONAL CRINOIDAL FOSSIL FRAGMENTS, WEAKLY BEDDED.								
6	WEAK BROWN SEDIMENT STAIN ON FRACTURE FACES.			RC	98	80	0.30		
				RC	100	100	0.38		
8									LOST CIRCULATION AT 7.0 m. ADVANCE CASING TO 8.2 m.
			8.2 m	RC	98	49	0.25		
8.8	– 8.7 m TO 9.1 m VERTICAL UNDULATING FRACTURE WITH WEAK RUSTY STAINING AND BROWN SEDIMENT ON FACES.								
10	DOLOSTONE: MOTTLED GREY/ LIGHT GREY, UNIFORM, MEDIUM GRAINED WITH UP TO 10% WHITE CRINOIDAL FOSSIL FRAGMENTS, WEAKLY BEDDED. "SPECKLED" APPEARANCE. 3%–5% VUGS UP TO 9 mm.	UNIT 2		RC	100	82	0.29		
				RC	98	100	0.26		
12			OPEN H.Q. BOREHOLE						
13.1				RC	100	83	0.33		
	DOLOSTONE: GREY, FINE GRAINED DOLOSTONE. HARD, BRITTLE WITH PATCHY VUGS UP TO 11 mm WITH FINE GRAINED CALCITE ± DOLOMITE INFILL.	AMABEL FORMATION UNIT 1							
14	– 13.6 m TO 17.9 m BECOMING MOTTLED LIGHT BROWN/ LIGHT GREY.			RC	100	100	0.31	1.0E–06	
				RC	98	56	0.31		
16								1.7E–06	
				RC	100	100	0.34		
18								1.3E–06	
				RC	100	100	0.34		NOTE AMABEL FORMATION: UNIT 1: REEFAL FACIES UNIT 2: FLANK FACIES FH: FOSSIL HILL FM CH: CABOT HEAD FM
20				RC	100	100	0.35	1.0E–06	

BOREHOLE NO. BH02-6

PROJECT NAME: DUNTROON QUARRY EXPANSION
PROJECT NO.: 930521.50
CLIENT: GEORGIAN AGGREGATES LIMITED
DATE: DECEMBER 20, 2002
BOREHOLE TYPE: H.Q. (64 mm) ROCK CORE
SUPERVISOR: PFR
GROUND ELEVATION: 529.5 mASL
REVIEWER: AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE RQD (%)	RATE OF DRILL PENETRATION m / min	HYDRAULIC CONDUCTIVITY m / sec (E⁻¹¹ – E⁻⁴)	REMARKS
20									
	DOLOSTONE CONTINUED	UNIT 1						1.0E−06	LOCATED SOUTH CENTRAL PROTION OF PROPERTY
20.7									
	DOLOSTONE: MOTTLED LIGHT BROWN/ LIGHT GREY DOLOSTONE, UNIFORM, FINE GRAINED WITH SACCHAROIDAL TEXTURE. OCCASIONAL CRINOIDAL FOSSIL FRAGMENTS, WEAKLY BEDDED. <2% VUGS UP TO 20 mm. OCCASIONAL POORLY DEVELOPED BROWN STYLOLITE, INCREASING FREQUENCY WITH DEPTH.	AMABEL FORMATION UNIT 2	OPEN H.Q. BOREHOLE	RC	100	84	0.27	7.3E−07	
22									
	– 23.4 m TO 23.7 m IRREGULAR VERTICAL, FRACTURE WITH BROWN RUSTY STAINING ON FACES.			RC	100	76	0.37	1.5E−06	
24									
				RC	100	100	0.35	2.0E−06	
26				RC	100	100	0.28		
	FRACTURES DOMINANTLY PARALLEL TO SUB−HORIZONTAL BEDDING.			RC	100	100	0.24	5.8E−07	
28									
				RC	100	100	0.28	4.1E−07	
30									
				RC	100	100	0.31	1.3E−06	
32				RC	100	73	0.32		
	– 32.1 m TO 32.7 m MOTTLED LIGHT GREY/ GREY FINE GRAINED, HARD, BRITTLE.			RC	100	100	0.37	2.7E−06	
34									
				RC	100	100	0.30	2.0E−06	
36									
				RC	100	100	0.29	1.2E−06	
38				RC	100	100	0.31		
				RC	100	100	0.29	7.8E−07	NOTE AMABEL FORMATION: UNIT 1: REEFAL FACIES UNIT 2: FLANK FACIES FH: FOSSIL HILL FM CH: CABOT HEAD FM
40									

BOREHOLE NO. BH02-6

PROJECT NAME: DUNTROON QUARRY EXPANSION
PROJECT NO.: 930521.50
CLIENT: GEORGIAN AGGREGATES LIMITED
DATE: DECEMBER 20, 2002
BOREHOLE TYPE: H.Q. (64 mm) ROCK CORE
SUPERVISOR: PFR
GROUND ELEVATION: 529.5 mASL
REVIEWER: AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE RQD (%)	RATE OF DRILL PENETRATION m / min	HYDRAULIC CONDUCTIVITY m / sec	REMARKS
40	DOLOSTONE CONTINUED	UNIT 2	OPEN H.Q. BOREHOLE	RC	100	100	0.26	6.4E−07	LOCATED SOUTH CENTRAL PROTION OF PROPERTY
41.8				RC	100	100	0.22		
42	DOLOSTONE: MOTTLED BLUE−GREY/ GREY, FINE GRAINED DOLOSTONE. OCCASIONAL WISPY GREY SHALE PARTINGS INCREASING WITH DEPTH, UP TO 3 mm THICK. OCCASIONAL PINCH−AND−SWELL TYPE BEDS, NODULES OF LIGHT GREY CHERT UP TO 30 mm THICK. FRACTURES OCCUR DOMINANTLY AT STYLOLITE/ PARTINGS WITH GREY SHALE. − 43.7 m TO 44.2 m LIGHT BROWN DISCOLORATION, WITH WEAKLY DEVELOPED HALO.	FOSSIL HILL FORMATION						2.7E−09	
44				RC	100	100	0.17		
46				RC	100	100	0.17	1.7E−08	
				RC	100	100	0.16	9.0E−09	
47.3									
48	SHALE: GREENISH−GREY, SOFT TO HARD, FISSILE.	CH							
48.5	BOREHOLE TERMINATED AT 48.5 m IN SHALE.								
50									
52									
54									
56									
58									
60									

NOTE
AMABEL FORMATION:
UNIT 1: REEFAL FACIES
UNIT 2: FLANK FACIES
FH: FOSSIL HILL FM
CH: CABOT HEAD FM

LOG OF BOREHOLE BH03-7 (deep)

WSP

project |	Duntroon Quarry			**project no.** |	111-53312-00
client |	Walker Aggregates Inc.	**rig type** |	CME 75, track-mounted	**date started** |	2014/10/03
location |	Duntroon, Ontario	**method** |	Rock coring	**supervisor** |	BTC
position |	E: 559353 N: 4915510 (17T, Geodetic)	**coring** |	HQ core, OD=96mm, ID=64mm	**reviewer** |	KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY	Graphic Plot	SAMPLE Number	SAMPLE Type	SPT N-Value / Core Recovery	Elevation Scale (mASL)	Penetration Test Values (Blows / 0.3m) / Undrained Shear Strength (kPa)	Water Content (%) & Plasticity	PID Readings	Well Details	Lab Data and Comments
0	510.6	**GROUND SURFACE**					510	Dynamic Cone 10 20 30 40; Unconfined, Pocket Penetrometer, Field Vane, Lab Vane 40 80 120 160	PL MC LL 10 20 30		▼	GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL
		OVERBURDEN										
1							509					
2							508					
3							507					
4							506					
5							505					
6	504.0						504					
7	6.6	**DOLOSTONE (Amabel Formation)** Creamy white with a dull appearance; uniform; fine to medium grained; thickly bedded; fossiliferous (fossil debris); strong core with a rough cut texture, scratched with a knife; slightly weathered appearance with minor rusy staining on fracture surfaces; vugs up to 5%, typically 1 mm to 2 mm. Poor to very poor RQD to 10.1 m depth, then good RQD. (Flank facies)			R1	TCR = **100**% RQD = **11**%	503					
8	502.6				R2	TCR = **100**% RQD = **16**%	502					
9	501.2	Reefal facies with an open vuggy appearance from 6.4 m to 10.1 m depth, broken core recovered as fragments and numerous vertical fractures. Reddish brown muddy infilling to 13.1 m depth.										
10					R3	TCR = **95**% RQD = **52**%	501					
11	499.6	Core becoming darker bluish grey with a decrease in vugs below 16.2 m and finer textured.					500					
12					R4	TCR = **100**% RQD = **78**%	499					
	498.1	Thin stylolytes (<1 mm) below 22.9 m depth, 2 to 3 per 0.3 m.										
13		White chert bed 25 mm thick at 24.6 m depth and 50 mm nodule at 25.3 m depth.			R5	TCR = **100**% RQD = **63**%	498					
		Gradational lower contact at 25.6 m depth at change in colour and texture.										
14	496.6				R6	TCR = **100**% RQD = **78**%	497					
15	495.1						496					
16					R7	TCR = **100**% RQD = **98**%	495					
	493.6						494					

(continued next page)

library: genivar - library.glb **report:** gen log v1 **file:** bh logs.gpj

LOG OF BOREHOLE BH03-7 (deep)

project | Duntroon Quarry
project no. | 111-53312-00
client | Walker Aggregates Inc.
rig type | CME 75, track-mounted
date started | 2014/10/03
location | Duntroon, Ontario
method | Rock coring
supervisor | BTC
position | E: 559353 N: 4915510 (17T, Geodetic)
coring | HQ core, OD=96mm, ID=64mm
reviewer | KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY (continued)	Graphic Plot	Sample Number	Sample Type	SPT N-Value / Core Recovery	Elevation Scale (mASL)
17							493
18	492.0				R8	TCR = 98% RQD = 86%	492
19					R9	TCR = 98% RQD = 98%	491
20	490.5				R10	TCR = 98% RQD = 98%	490
21							
22	489.0				R11	TCR = 100% RQD = 100%	489
23	487.4				R12	TCR = 100% RQD = 95%	488
24	486.0				R13	TCR = 100% RQD = 88%	487
25	485.0						486
	25.6	**DOLOSTONE (Fossil Hill Formation)** Light pinkish brown to greyish brown; fine grained, stylolytes 10 to 12 per 0.3 m, 1 mm thick. Sharp lower contact on change in texture.			R14	TCR = 50% RQD = 97%	485
26	484.5						484
27	482.9						483
28	482.2				R15	TCR = * RQD = *	482
	28.4	**SHALE (Cabot Head Formation)** Greenish grey calcareous shale; completely weathered, plastic texture. Some reddish coloured beds up to 0.3 m thick, very poor RQD.					
29	481.4				R16	TCR = * RQD = *	481
30	479.9						480
	30.7	**END OF BOREHOLE** Borehole was open upon completion. Open hole well installed in borehole. Casing cemented in bedrock at 10.51 m depth.					

Penetration Test Values (Blows / 0.3m) — Dynamic Cone: 10 20 30 40
Undrained Shear Strength (kPa) — ○ Unconfined ● Pocket Penetrometer + Field Vane ■ Lab Vane: 40 80 120 160
Water Content (%) & Plasticity — PL MC LL: 10 20 30
PID Readings
Well Details
Lab Data and Comments
GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

Dark coloured fine grained dolostone bed from 28.6 m to 28.9 m depth.

* Core barrel not catching core.

WATER LEVEL MONITORING

Date	Depth (m)	Elevation (m)
Oct 8, 2014	0.7	509.9

library: genivar - library.glb report: gen log v1 file: bh logs.gpj

BOREHOLE NO. BH03-7

PROJECT NAME: DUNTROON QUARRY EXPANSION
PROJECT NO.: 930521.50
CLIENT: GEORGIAN AGGREGATES LIMITED
DATE: APRIL 10, 2003
BOREHOLE TYPE: H.Q. (64 mm) ROCK CORE
SUPERVISOR: PFR
GROUND ELEVATION: 510.3 mASL
REVIEWER: AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS I	MONITOR DETAILS II	SAMPLE TYPE	SAMPLE 'N' VALUE	SAMPLE % WATER	SAMPLE % RECOVERY	SAMPLE RQD (%)	RATE OF DRILL PENETRATION m / min	WATER CONTENT % 10 20 30 (W_P – W_L)	REMARKS
0												
	CLAYEY SILT: LIGHT BROWN, MOTTLED BROWN, TRACE SAND, TRACE GRAVEL. OCCASIONAL LAMINAE OF FINE TO MEDIUM SAND.				SS	3		50				LOCATED NEAR WETLAND NORTHWEST QUADRANT OF PROPERTY
					SS	6		42				
1.4												
2	SILTY SAND: LIGHT BROWN, TRACE GRAVEL, TRACE CLAY. WET, COMPACT. OCCASIONAL LAMINAE OF FINE TO MEDIUM SAND.	OVERBURDEN			SS	10		54				
					SS	23		58				
4					SS	19		75				
					SS	27		71				
5.5					SS	11		75				
6	SANDY SILT TILL: GREY SANDY SILT, TRACE CLAY. VERY STIFF TO HARD.				SS	35		54				
6.6												
	DOLOSTONE: LIGHT BROWN TO LIGHT GREY, MEDIUM GRAINED WITH SACCHAROIDAL TEXTURE, WEAKLY BEDDED, 3–5% VUGS UP TO 20 mm, BROKEN.	UNIT 2			SS	24		79				
7.5					RC	–		100	90	0.21		
8	DOLOSTONE: PATCHY GREY TO LIGHT GREY, FINE GRAINED DOLOSTONE, UNIFORM TEXTURE, BROKEN TO BLOCKY. – AT 8.0 m FRACTURE WITH 5 mm THICK RED–BROWN SEDIMENT INFILL.	UNIT 1			RC	–		81	77	0.15		
9.2												
10	BOREHOLE TERMINATED AT 9.2 m IN DOLOSTONE.											
12												
14												
16												
18												NOTE AMABEL FORMATION: UNIT 1: REEFAL FACIES UNIT 2: FLANK FACIES FH: FOSSIL HILL FM CH: CABOT HEAD FM
20												

BOREHOLE NO. BH03-8

PROJECT NAME: DUNTROON QUARRY EXPANSION
PROJECT NO.: 930521.50
CLIENT: GEORGIAN AGGREGATES LIMITED
DATE: APRIL 11, 2003
BOREHOLE TYPE: H.Q. (64 mm) ROCK CORE
SUPERVISOR: PFR
GROUND ELEVATION: 520.2 mASL
REVIEWER: AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE RQD (%)	RATE OF DRILL PENETRATION m / min	HYDRAULIC CONDUCTIVITY m / sec (E-11 to E-4)	REMARKS
0	SILT TILL: DARK BROWN, SILT SOME SAND, SOME GRAVEL, TRACE CLAY, OCCASIONAL COBBLE/BOULDER, VERY STIFF, DTPL.	OVERBURDEN	H.Q. CASING	SS	41				LOCATED ON WEST SIDE OF PROPERTY
2				SS					
4				SS					
6				SS					
6.2	DOLOSTONE: PATCHY GREY/LIGHT GREY, MEDIUM TO COARSE GRAINED DOLOSTONE, CHAOTIC TEXTURE, 3–5% VUGS UP TO 40 mm.	AMABEL FM. UNIT 1	7.3 m	RC	84	75	0.29		
8				RC	95	51	0.14	1.7E–06	
10				RC	98	81	0.16	2.0E–07	
	– BELOW 10.5 m BECOMING FINE GRAINED, 1–2% VUGS UP TO 20 mm.			RC	82	87	0.18		
11.8	DOLOSTONE: MOTTLED LIGHT BROWN/LIGHT GREY, UNIFORM MEDIUM GRAINED DOLOSTONE WITH SACCHAROIDAL TEXTURE, MODERATE TO WELL DEVELOPED BEDDING.	AMABEL FM. UNIT 2	OPEN H.Q. BOREHOLE	RC	100	100	0.29	2.5E–07	
12									
14				RC	100	83	0.25	3.4E–07	
16				RC	98	92	0.30	9.0E–07	
16.3	DOLOSTONE: PATCHY GREY/LIGHT GREY, FINE GRAINED DOLOSTONE, CHAOTIC TEXTURE, 1–2% VUGS UP TO 50 mm.	AMABEL FM. UNIT 1		RC	100	100	0.15	1.9E–07	
18				RC	100	93	0.21		NOTE AMABEL FORMATION: UNIT 1: REEFAL FACIES UNIT 2: FLANK FACIES FH: FOSSIL HILL FM CH: CABOT HEAD FM
20				RC	100	100	0.18	2.2E–06	

BOREHOLE NO. BH03-8

PROJECT NAME: DUNTROON QUARRY EXPANSION
PROJECT NO.: 930521.50
CLIENT: GEORGIAN AGGREGATES LIMITED
DATE: APRIL 11, 2003
BOREHOLE TYPE: H.Q. (64 mm) ROCK CORE
SUPERVISOR: PFR
GROUND ELEVATION: 520.2 mASL
REVIEWER: AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE RQD (%)	RATE OF DRILL PENETRATION m / min	HYDRAULIC CONDUCTIVITY m / sec (E^{-11} – E^{-4})	REMARKS
20									
	DOLOSTONE: CONTINUED.	AMABEL FM. UNIT 1	OPEN H.Q. BOREHOLE	RC	98	100	0.25	3.9E−07	LOCATED ON WEST SIDE OF PROPERTY
22				RC	97	100	0.22		
				RC	100	97	0.26	1.3E−06	
24									
				RC	100	97	0.29	9.1E−07	
26	25.8								
	DOLOSTONE: LIGHT GREY, UNIFORM, MEDIUM GRAINED DOLOSTONE WITH "SPECKLED" APPEARANCE, WEAKLY BEDDED, 3–5% WHITE CRINOIDAL FOSSIL FRAGMENTS, BROKEN TO MASSIVE, RARE BROWN STYOLITES, OCCASIONAL GREY SHALE LAMINAE/PARTING UP TO 2 mm.			RC	100	100	0.31	4.0E−07	
28				RC	100	89	0.31		
	– BELOW 31.4 m INCREASING BROWN STYLOLITES.	AMABEL FM. UNIT 2						3.1E−07	
				RC	100	95	–		
30									
				RC	98	88	0.29	1.7E−06	
32				RC	100	100	0.22		
								1.5E−06	
	33.2								
	DOLOSTONE: BLUE–GREY, FINE GRAINED WITH SACCHAROIDAL TEXTURE, INCREASING STYLOLITES, BECOMING GREY IN COLOUR.			RC	93	100	0.22		
34								3.6E−07	
	– AT 34.1 m BECOMING PINKISH–BROWN WITH OCCASIONAL cm SCALE PINCH–AND –SWELL TYPE BEDS AND NODULES OF GREY CHERT, OCCASIONAL PYRITE	FOSSIL HILL FM		RC	93	100	–		
36	– AT 34.7 m FRACTURE WITH LIGHT BROWN HALO ± 30 mm.							6.2E−10	
	37.4								
	37.9 SHALE: GREENISH–GREY, SOFT TO HARD, FISSILE.	CH							CIRCULATION MAINTAINED FOR ENTIRE HOLE.
38	BOREHOLE TERMINATED AT 37.9 m IN SHALE.								NOTE AMABEL FORMATION: UNIT 1: REEFAL FACIES UNIT 2: FLANK FACIES FH: FOSSIL HILL FM CH: CABOT HEAD FM
40									

BOREHOLE NO. BH03-9

PROJECT NAME: DUNTROON QUARRY EXPANSION
PROJECT NO.: 930521.50
CLIENT: GEORGIAN AGGREGATES LIMITED
DATE: APRIL 14, 2003
BOREHOLE TYPE: H.Q. (64 mm) ROCK CORE
SUPERVISOR: PFR
GROUND ELEVATION: 518.5 mASL
REVIEWER: AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE RQD (%)	RATE OF DRILL PENETRATION m / min	HYDRAULIC CONDUCTIVITY m / sec	REMARKS
0									
	SILT TILL: DARK BROWN, SILT, SOME SAND, SOME GRAVEL, TRACE CLAY, OCCASIONAL BOULDER/COBBLE.	OVER-BURDEN	H.Q. CASING	SS	90				LOCATED IN SOUTHEAST PART OF PROPERTY.
1.6									
	DOLOSTONE: PATCHY LIGHT BROWN/LIGHT GREY, MEDIUM TO COARSE GRAINED DOLOSTONE WITH CHAOTIC TEXTURE, FREQUENT FOSSIL FRAGMENTS UP TO 60 mm, 3–5% VUGS UP TO 30 mm WITH OCCASIONAL CALCITE INFILL.	AMABEL FORMATION UNIT 1		RC	85	76	0.24		TEMPORARILY LOST CIRCULATION AT 1.8 m mBGS. LOST CIRCULATION AT 7.9 mBGS.
2									
				RC	45	19	0.16		
4			4.0 m						
				RC	100	76	0.14		
6									
				RC	100	100	0.12		
								9.9E−07	
8				RC	95	96	0.18		
				RC	100	100	0.17		
								4.1E−05	
10									
				RC	100	95	0.15		
								9.2E−07	
12									
				RC	100	88	0.18		
			OPEN H.Q. BOREHOLE						
14				RC	93	85	0.21	2.3E−06	
				RC	100	100	0.22		
								8.6E−06	
16									
				RC	100	100	0.21		
								8.9E−07	
18									
				RC	98	92	0.19		NOTE
									AMABEL FORMATION:
									UNIT 1: REEFAL FACIES
									UNIT 2: FLANK FACIES
				RC	95	100	0.19	4.3E−06	FH: FOSSIL HILL FM
20									CH: CABOT HEAD FM

BOREHOLE NO. BH03-9

PROJECT NAME: DUNTROON QUARRY EXPANSION
PROJECT NO.: 930521.50
CLIENT: GEORGIAN AGGREGATES LIMITED
DATE: APRIL 14, 2003
BOREHOLE TYPE: H.Q. (64 mm) ROCK CORE
SUPERVISOR: PFR
GROUND ELEVATION: 518.5 mASL
REVIEWER: AJC

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE RQD (%)	RATE OF DRILL PENETRATION m / mIn	HYDRAULIC CONDUCTIVITY m / sec (E-11 to E-4)	REMARKS
20									
	DOLOSTONE: CONTINUED. – 21.0 TO 21.3 m VERTICAL FRACTURE WITH MODERATE ORANGE STAINING.	UNIT 1	OPEN H.Q. BOREHOLE	RC	100	100	0.21	4.3E–07	LOCATED IN SOUTHEAST PART OF PROPERTY.
22									
	22.3								
	DOLOSTONE: LIGHT GREY, MEDIUM GRAINED DOLOSTONE, UNIFORM WITH "SPECKLED" TEXTURE. WEAKLY BEDDED, 3–5% CRINOIDAL FOSSIL FRAGMENTS (CRINOIDS), RARE BROWN STYLOLITES. – BREAKS DOMINANTLY PARALLEL TO BEDDING, MODERATE ORANGE STAINING, 23.8 m AND 26.5 m.	AMABEL FORMATION UNIT 2		RC	100	95	0.19	5.3E–06	
24				RC	100	95	0.18	5.2E–06	
				RC	100	100	0.19	1.7E–06	
26									
				RC	100	88	0.18	7.3E–07	
28									
				RC	100	100	0.20	1.5E–05	
30									
				RC	100	97	0.20	1.3E–06	
32									
	33.0			RC	100	95	0.16	5.2E–07	
	DOLOSTONE: BLUE–GREY, FINE TO MEDIUM GRAINED DOLOSTONE WITH SACCHAROIDAL TEXTURE, INCREASING STYLOLITES, BECOMING GREY. – AT 33.7 m FRACTURE WITH LIGHT BROWN HALO ±100 mm. – AT 34.6 m PINKISH–BROWN, FINE GRAINED DOLOSTONE WITH SACCHAROIDAL TEXTURE, OCCASIONAL SHALE LAMINAE UP TO 3 mm THICK, OCCASIONAL PINCH–AND–SWELL TYPE BED OR NODULE OF GREY CHERT, OCCASIONAL PYRITE. – AT 33.7 m FRACTURE WITH LIGHT BROWN HALO ±100 mm.	FOSSIL HILL FORMATION		RC	100	100	0.16	7.9E–09	
34									
				RC	95	100	0.13	4.9E–09	
36									
38									
	38.9								
	SHALE: GREENISH–GREY, SOFT TO HARD, FISSILE.	CH							
40	39.5 BOREHOLE TERMINATED AT 39.5 m IN SHALE								

NOTE
AMABEL FORMATION:
UNIT 1: REEFAL FACIES
UNIT 2: FLANK FACIES
FH: FOSSIL HILL FM
CH: CABOT HEAD FM

BOREHOLE NO. BH08-1

PROJECT NAME: DUNTROON EXPANSION - BRIDSON MONITORS
PROJECT NO.: 04-930521.52

CLIENT: WALKER INDUSTRIES HOLDINGS
DATE COMPLETED: Dec 02, 2008

BOREHOLE TYPE: HQ CORE
SUPERVISOR: SLW

GROUND ELEVATION: 511.5 mASL
REVIEWER: AGH

UTM CO-ORDINATES
UTM Zone: 17 NAD: 27
Easting: 560471
Northing: 4915197

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE N VALUE	SAMPLE % WATER	SAMPLE % RECOVERY	SAMPLE RQD (%)	CONE PENETRATION "N" VALUE / SHEAR STRENGTH	WATER CONTENT % (W_P – W_L)	REMARKS
0.0	SILT: BROWN SILT, SOME SAND, TRACE GRAVEL, TRACE CLAY, MOIST. 50 mm SEAM OF COARSE GRAVEL AT 1.8 m.			SS1	29		54				
				SS2	18		46				
				SS3	63		54		63		
2.1	DOLOSTONE: LIGHT GREY TO WHITE DOLOSTONE BANDED IN DARK GREY, MEDIUM HARD, FRACTURED TO VERY BROKEN, WEATHERED. - VUGGY - FOSSILIFEROUS			RC4			75	0			AUGER REFUSAL AT 2.1 m. ASSUMED BEDROCK. CASING SEATED TO 2.6 m. OPEN HOLE INSTALLATION.
				RC5			100	54			
4.3	DOLOSTONE: GREY DOLOSTONE, BECOMING YELLOW TINGED WITH DEPTH, MEDIUM HARD, FRACTURED TO MASSIVE, SOME WEATHERING AND SEDIMENT INFILLING IN FRACTURES. - VUGGY - FOSSILIFEROUS			RC6			100	92			
				RC7			100	97			
7.4	DOLOSTONE: LIGHT GREY TO WHITE DOLOSTONE WITH DARK GREY MOTTLING, MEDIUM HARD, FRACTURED TO MASSIVE, SLIGHT WEATHERING. - NUMEROUS SMALL VUGS - FEW FOSSILS			RC8			100	79			
				RC9			97	95			
				RC10			98	99			
				RC11			100	95			
13.7	DOLOSTONE: GREY DOLOSTONE WITH INCREASING DARK GREY BANDING AND MOTTLING WITH DEPTH. BRONZE COLOURED, INCLUSIONS BEGINNING AT 18 m. MEDIUM HARD, FRACTURED TO MASSIVE, SOME STAINING AND WEATHERING IN FRACTURES. - VUGGY			RC12			100	88			
				RC13			100	82			
				RC14			100	90			
				RC15			100	92			
20.0											

GENIVAR GEOLOGIC B/W (M) WITH UTM 4-93052152 BRIDSON MONITORS.GPJ JAGGER HIMS BASIC.GDT 3/10/10

BOREHOLE NO. BH08-1

PROJECT NAME: DUNTROON EXPANSION - BRIDSON MONITORS
PROJECT NO.: 04-930521.52

CLIENT: WALKER INDUSTRIES HOLDINGS
DATE COMPLETED: Dec 02, 2008

BOREHOLE TYPE: HQ CORE
SUPERVISOR: SLW

GROUND ELEVATION: 511.5 mASL
REVIEWER: AGH

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE N VALUE	SAMPLE % WATER	SAMPLE % RECOVERY	SAMPLE RQD (%)	CONE PENETRATION "N" VALUE / SHEAR STRENGTH	WATER CONTENT % (W_P – W_L)	UTM CO-ORDINATES / REMARKS
20.0											UTM Zone: 17 NAD: 27 Easting: 560471 Northing: 4915197
20.4	DOLOSTONE: CONTINUED.										
	DOLOSTONE: BLUE-GREEN MOTTLED DOLOSTONE, WHITE INCLUSIONS, MEDIUM HARD, TEXTURE IS SMOOTH, FRACTURED TO MASSIVE. (FOSSIL HILL FORMATION) - VUGS (MINOR)			RC16			100	93			
21.0											
22.0				RC17			100	92			
23.0											
				RC18			100	89			
24.0											
24.8											
24.9	SHALE: BLUE-GREEN GREY SHALE, VARIABLE SOFT TO HARD.			RC19			100	70			
25.0											
25.8	DOLOSTONE: BLUE-GREEN MOTTLED DOLOSTONE, MEDIUM HARD, FRACTURED TO MASSIVE.										
26.0											
	SHALE: BLUE-GREEN GREY SHALE, VARIABLE SOFT TO HARD. (CABOT HEAD FORMATION)			RC20			100	20			
27.0											
27.4	BOREHOLE TERMINATED AT 27.4 m IN SHALE.										BOREHOLE TERMINATED AT 27.4 m IN BLUE-GREEN SHALE. WATER LEVEL 2.49 mBGL MEASURED ON DEC. 5, 2008. FINAL STICK-UP 1.83 m ABOVE GROUND LEVEL.
28.0											
29.0											
30.0											
31.0											
32.0											
33.0											
34.0											
35.0											
36.0											
37.0											
38.0											
39.0											
40.0											

GENIVAR GEOLOGIC B/W (M) WITH UTM 4-93052152 BRIDSON MONITORS.GPJ JAGGER HIMS BASIC.GDT 3/10/10

BOREHOLE NO. BH08-2

PROJECT NAME: DUNTROON EXPANSION - BRIDSON MONITORS
PROJECT NO.: 04-930521.52

CLIENT: WALKER INDUSTRIES HOLDINGS
DATE COMPLETED: Dec 03, 2008

BOREHOLE TYPE: HQ CORE
SUPERVISOR: SLW

GROUND ELEVATION: 511.2 mASL
REVIEWER: AGH

UTM CO-ORDINATES
UTM Zone: 17 NAD: 27
Easting: 560484
Northing: 4915175

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE N VALUE	SAMPLE % WATER	SAMPLE % RECOVERY	SAMPLE RQD (%)	CONE PENETRATION "N" VALUE / SHEAR STRENGTH	WATER CONTENT % (W_P – W_L)	REMARKS
0.0	SILT: DARK BROWN TO BROWN SILT, SOME SAND, TRACE GRAVEL, TRACE CLAY, MOIST, DENSE. ORGANIC MATTER AT GROUND SURFACE.			SS1	33		38		43		
1.0				SS2	43		21				
				SS3	50		100				
1.8											
2.0	DOLOSTONE: CREAMY WHITE DOLOSTONE, MOTTLED WITH LIGHT AND DARK GREY, MEDIUM HARD, BROKEN BECOMING MASSIVE WITH DEPTH, WEATHERED FRACTURES. - FOSSILIFEROUS - VUGGY - SOME CALCITE INFILL WITHIN LARGER VUGS			RC4			100	0			AUGER REFUSAL AT 1.8 m. ASSUMED BEDROCK.
				RC5			100	0			CASING SEATED TO 2.7 m. OPEN HOLE INSTALLATION.
3.0											
				RC6			100	52			
4.0											
5.0				RC7			100	60			
6.0											
				RC8			100	84			
7.0											
7.5											
8.0	DOLOSTONE: LIGHT GREY DOLOSTONE BANDED AND MOTTLED WITH DARK GREY, SOME RUST COLOURED MOTTLING, MEDIUM HARD, FRACTURED TO MASSIVE. FRACTURES SHOWING RUST STAINING WITH DEPTH. - NUMEROUS SMALL VUGS - FEW FOSSILS			RC9			100	89			
9.0											
				RC10			100	79			
10.0											
10.5											
11.0	DOLOSTONE: LIGHT GREY DOLOSTONE MOTTLED WITH DARK GREY, BROWN SPOTS, MEDIUM HARD, SMOOTH TEXTURE, MASSIVE. - VUGS (MINOR)			RC11			100	100			
12.0											
12.3											
13.0	DOLOSTONE: LIGHT GREY DOLOSTONE, VERY DARK GREY MOTTLING AND BANDING, MEDIUM HARD, MASSIVE. - VUGGY			RC12			100	98			
14.0											
				RC13			100	92			
15.0											
16.0				RC14			100	97			
16.6											
17.0	DOLOSTONE: LIGHT GREY TO MEDIUM GREY DOLOSTONE, DARK GREY MOTTLING, RUST COLOURED THIN BANDING, MEDIUM HARD, MASSIVE TO FRACTURED. - VUGGY			RC15			100	98			
18.0											
19.0				RC16			100	98			
19.7											
20.0	DOLOSTONE:										

GENIVAR GEOLOGIC B/W (M) WITH UTM 4-93052152 BRIDSON MONITORS.GPJ JAGGER HIMS BASIC.GDT 3/10/10

BOREHOLE NO. BH08-2

PROJECT NAME: DUNTROON EXPANSION - BRIDSON MONITORS
PROJECT NO.: 04-930521.52

CLIENT: WALKER INDUSTRIES HOLDINGS
DATE COMPLETED: Dec 03, 2008

BOREHOLE TYPE: HQ CORE
SUPERVISOR: SLW

GROUND ELEVATION: 511.2 mASL
REVIEWER: AGH

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE N VALUE	SAMPLE % WATER	SAMPLE % RECOVERY	SAMPLE RQD (%)	CONE PENETRATION "N" VALUE / SHEAR STRENGTH	WATER CONTENT % (W_P – W_L)	UTM CO-ORDINATES / REMARKS
20.0											UTM Zone: 17 NAD: 27 Easting: 560484 Northing: 4915175
21.0	DOLOSTONE: CONTINUED. BLUE GREEN MOTTLED GREY DOLOSTONE, DARKER BLUE-GREEN THIN BANDING, BROWN SPOTS AND MOTTLING, WHITE INCLUSIONS, SMOOTH TEXTURE, MEDIUM HARD, MASSIVE TO FRACTURED. (FOSSIL HILL FORMATION) - VUGS (MINOR)			RC17			100	83			
22.0				RC18			100	80			
23.0											
24.0				RC19			100	78			
25.0											
25.0	SHALE: BLUE GREEN SHALE, SOFT, VERY BROKEN. (CABOT HEAD FORMATION)			RC20			100	40			
25.8	BOREHOLE TERMINATED AT 25.8 m IN SHALE.										BOREHOLE TERMINATED AT 25.8 m IN BLUE-GREEN SHALE. WATER LEVEL 2.26 mBGL MEASURED ON DEC. 5, 2008. FINAL STICK-UP 1.82 m ABOVE GROUND LEVEL.
26.0											
27.0											
28.0											
29.0											
30.0											
31.0											
32.0											
33.0											
34.0											
35.0											
36.0											
37.0											
38.0											
39.0											
40.0											

GENIVAR GEOLOGIC B/W (M) WITH UTM 4-93052152 BRIDSON MONITORS.GPJ JAGGER HIMS BASIC.GDT 3/10/10

BOREHOLE NO. BH08-3

PROJECT NAME: DUNTROON EXPANSION - BRIDSON MONITORS
PROJECT NO.: 04-930521.52

CLIENT: WALKER INDUSTRIES HOLDINGS
DATE COMPLETED: Dec 04, 2008

BOREHOLE TYPE: HQ CORE
SUPERVISOR: SLW

GROUND ELEVATION: 512.6 mASL
REVIEWER: AGH

UTM CO-ORDINATES
UTM Zone: 17 NAD: 27
Easting: 560447
Northing: 4915198

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE N VALUE	SAMPLE % WATER	SAMPLE % RECOVERY	SAMPLE RQD (%)	CONE PENETRATION "N" VALUE / SHEAR STRENGTH	WATER CONTENT % (W_P – W_L)	REMARKS
0.0	SILT: DARK BROWN TO BROWN SILT, SOME SAND, TRACE GRAVEL, TRACE CLAY, MOIST, DENSE. ORGANIC MATTER AT GROUND SURFACE.			SS1	18		42				
1.0				SS2	27		50				
2.0				SS3	44		58		44		
3.0				SS4	27		58				
3.0	DOLOSTONE: CREAMY WHITE DOLOSTONE, MOTTLED WITH LIGHT AND DARK BLUE-GREY, MEDIUM HARD, BROKEN BECOMING MASSIVE WITH DEPTH, WEATHERING OF FRACTURES DECREASING WITH DEPTH. - VUGGY - FOSSILIFEROUS - SOME CALCITE INFILL WITHIN LARGER VUGS			RC5			100	84			AUGER REFUSAL AT 3.0 m. ASSUMED BEDROCK. CASING SEATED TO 3.2 m. OPEN HOLE INSTALLATION.
4.0											
5.0				RC6			100	78			
6.0											
7.0				RC7			100	83			
8.0											
9.0				RC8			95	91			
9.0	DOLOSTONE: LIGHT GREY DOLOSTONE BANDED AND MOTTLED WITH DARK GREY, MEDIUM HARD, FRACTURED TO MASSIVE. FRACTURES SHOWING STAINING AND SILTY INFILLING WITH DEPTH. - NUMEROUS SMALL VUGS - FEW FOSSILS			RC9			98	84			
10.0											
11.0				RC10			100	86			
12.0											
12.5	DOLOSTONE: LIGHT GREY DOLOSTONE MOTTLED WITH DARK GREY, BROWN SPOTS, MEDIUM HARD, SMOOTH TEXTURE, MASSIVE. - FEW VUGS			RC11			100	95			
13.0											
14.0				RC12			100	93			
14.0	DOLOSTONE: LIGHT TO MEDIUM GREY DOLOSTONE WITH DEPTH, DARK GREY BANDING, MEDIUM HARD, MASSIVE.										
15.0											
15.1	DOLOSTONE: MEDIUM GREY DOLOSTONE BECOMING LIGHT GREY WITH DEPTH. DARK GREY MOTTLING, RUST COLOURED THIN BANDING, MEDIUM HARD, MASSIVE. - NUMEROUS SMALL VUGS			RC13			100	98			
16.0											
17.0				RC14			100	92			
18.0											
19.0				RC15			100	93			
19.7	DOLOSTONE:										
20.0											

GENIVAR GEOLOGIC B/W (M) WITH UTM 4-93052152 BRIDSON MONITORS.GPJ JAGGER HIMS BASIC.GDT 3/10/10

BOREHOLE NO. BH08-3

PROJECT NAME: DUNTROON EXPANSION - BRIDSON MONITORS
PROJECT NO.: 04-930521.52

CLIENT: WALKER INDUSTRIES HOLDINGS
DATE COMPLETED: Dec 04, 2008

BOREHOLE TYPE: HQ CORE
SUPERVISOR: SLW

GROUND ELEVATION: 512.6 mASL
REVIEWER: AGH

UTM CO-ORDINATES
UTM Zone: 17 NAD: 27
Easting: 560447
Northing: 4915198

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE N VALUE	SAMPLE % WATER	SAMPLE % RECOVERY	SAMPLE RQD (%)	CONE PENETRATION "N" VALUE / SHEAR STRENGTH	WATER CONTENT % (W_P – W_L)	REMARKS
20.0											
	DOLOSTONE: CONTINUED. LIGHT GREY DOLOSTONE WITH INCREASING LIGHT/DARK BANDING WITH DEPTH, RUST COLOURED THIN BANDING, MEDIUM HARD, MASSIVE. - NUMEROUS SMALL VUGS			RC16			100	91			
21.0											
22.0				RC17			100	93			
22.1	DOLOSTONE: BLUE GREEN MOTTLED GREY DOLOSTONE, DARKER BLUE-GREEN THIN BANDING, INCREASING WHITE BANDING WITH DEPTH. WHITE INCLUSIONS AND BROWN SPOTTING WITH DEPTH. SMOOTH TEXTURE, MEDIUM HARD, MASSIVE TO FRACTURED. (FOSSIL HILL FORMATION) - VUGS (MINOR)										
23.0				RC18			100	88			
24.0											
25.0				RC19			100	90			
26.0											
27.0				RC20			100	84			
27.5	SHALE: BLUE GREEN SHALE, SOFT, VERY BROKEN. (CABOT HEAD FORMATION)										
28.0				RC21			100	11			
28.8	BOREHOLE TERMINATED AT 28.8 m IN SHALE.										BOREHOLE TERMINATED AT 28.8 m IN BLUE-GREEN SHALE. WATER LEVEL 3.53 mBGL MEASURED ON DEC. 5, 2008. FINAL STICK-UP 1.55 m ABOVE GROUND LEVEL.
29.0											
30.0											
31.0											
32.0											
33.0											
34.0											
35.0											
36.0											
37.0											
38.0											
39.0											
40.0											

GENIVAR GEOLOGIC B/W (M) WITH UTM 4-93052152 BRIDSON MONITORS.GPJ JAGGER HIMS BASIC.GDT 3/10/10

LOG OF BOREHOLE NW1

WSP

project | Duntroon Quarry		**project no.** | 111-53312-00
client | Walker Aggregates Inc.	**rig type** |	**date started** | 2014/08/26
location | Duntroon, Ontario	**method** | Rock coring	**supervisor** | KMT
position | E: 560059 N: 4915125 (17T, Geodetic)	**coring** | PQ core, OD=123mm, ID=85mm	**reviewer** | KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY	Graphic Plot	Sample Number	Sample Type	SPT N-Value / Core Recovery	Elevation Scale (mASL)
0	525.7	**GROUND SURFACE**					525
		OVERBURDEN					
1	524.5						524
	1.2	**DOLOSTONE (Amabel Formation)** Creamy white with a dull appearance; uniform; fine to medium grained; strong core with a rough texture, scratched by a knife, slightly weathered with rusty orange staining on fracture surfaces; thickly bedded, good to excellent RQD, vugs <5%, 2 to 4 mm. (Flank facies)			R1	TCR = **73**% RQD = **47**%	523
2							522
3							521
4	521.4	Reefal facies texture with more open cavities and increased fossil content from 1.2 m to 5.1 m, 11.0 m to 12.8 m and from 17.0 m to 18.2 m depth.			R2	TCR = **64**% RQD = **31**%	520
5							519
6	519.3	Core becoming darker bluish grey in colour below 17.1 m. Mottled grey and white appearance from 25.9 m to 37.0 m depth.			R3	TCR = **99**% RQD = **85**%	518
7							517
8							516
9	516.3	Gradational lower contact at change in texture at 37.0 m depth.			R4	TCR = **100**% RQD = **99**%	515
10							514
11							513
12	513.2				R5	TCR = **98**% RQD = **96**%	512
13							511
14							510
15	510.2				R6	TCR = **77**% RQD = **74**%	509
16							508
17							507
18	507.1				R7	TCR = **98**% RQD = **94**%	506
19							505
20							504
21	504.1				R8	TCR = **100**% RQD = **70**%	503
22							502
23	501.0						

Penetration Test Values (Blows / 0.3m) — Dynamic Cone: 10 20 30 40

Undrained Shear Strength (kPa) — Unconfined, Pocket Penetrometer, Field Vane, Lab Vane: 40 80 120 160

Water Content (%) & Plasticity — PL MC LL: 10 20 30

PID Readings

Well Details

Lab Data and Comments — GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

Vertical fracture from 22.0 m to 22.6 m depth.

(continued next page)

library: genivar - library.glb **report:** gen log v1 **file:** bh logs.gpj

LOG OF BOREHOLE NW1

WSP

project |	Duntroon Quarry			**project no.** |	111-53312-00
client |	Walker Aggregates Inc.	**rig type** |		**date started** |	2014/08/26
location |	Duntroon, Ontario	**method** |	Rock coring	**supervisor** |	KMT
position |	E: 560059 N: 4915125 (17T, Geodetic)	**coring** |	PQ core, OD=123mm, ID=85mm	**reviewer** |	KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY (continued)	Graphic Plot	Number	Type	SPT N-Value / Core Recovery	Elevation Scale (mASL)
24	501.0				R8		501
25					R9	TCR = **100**% RQD = **100**%	500
26							499
27	498.0				R10	TCR = **94**% RQD = **89**%	498
28							497
29							496
30	494.9				R11	TCR = **100**% RQD = **93**%	495
31							494
32							493
33	491.9				R12	TCR = **1**% RQD = **1**%	492
34	491.0				R13	TCR = **1**% RQD = **1**%	491
35							490
36	488.8						489
37	488.7 / 37.0	**DOLOSTONE (Fossil Hill Formation)** Bluish grey fine grained stycolytic typically 3 to 5 per 0.3 m. Cherty lenses, 25 mm thick, 2 per 0.3 m from 37.8 m to 39.0 m depth. Sharp lower contact at change in texture.			R14	TCR = **100**% RQD = **96**%	488
38							487
39	485.8						486
40	484.6 / 41.2	**SHALE (Cabot Head Formation)** Greenish grey shale, calcareous, weathered, plastic texture. 0.6 m thick dolostone bed at 41.3 m.			R15	TCR = **100**% RQD = **100**%	485
41							484
42	483.0 / 42.7	**END OF BOREHOLE** Borehole was open upon completion. Open hole well installed in borehole. Casing cemented in bedrock at 2.24 m depth.					483

Penetration Test Values (Blows / 0.3m) — Dynamic Cone: 10 20 30 40

Undrained Shear Strength (kPa) — ○ Unconfined ● Pocket Penetrometer + Field Vane ■ Lab Vane: 40 80 120 160

Water Content (%) & Plasticity — PL MC LL: 10 20 30

PID Readings

Well Details

Lab Data and Comments — GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

Red mud filled vertical fracture, with enhanced weathering from 33.6 m to 36.8 m depth.

WATER LEVEL MONITORING

Date	Depth (m)	Elevation (m)
Sep 17, 2014	13.2	512.5

library: genivar - library.glb **report:** gen log v1 **file:** bh logs.gpj

LOG OF BOREHOLE NW2

WSP

project |	Duntroon Quarry			**project no. |**	111-53312-00
client |	Walker Aggregates Inc.	**rig type |**		**date started |**	2014/08/12
location |	Duntroon, Ontario	**method |**	Rock coring	**supervisor |**	TKC
position |	E: 560108 N: 4915311 (17T, Geodetic)	**coring |**	PQ core, OD=123mm, ID=85mm	**reviewer |**	KJF

Depth Scale (m)	Elev Depth (m)	STRATIGRAPHY	Graphic Plot	Sample Number	Sample Type	SPT N-Value / Core Recovery	Elevation Scale (mASL)
0	531.4	**GROUND SURFACE**					531
		OVERBURDEN					
3	527.7						528
4	3.7	**DOLOSTONE (Amabel Formation)** Creamy white with a dull appearance; uniform; fine to medium grained; strong core with a rough cut texture, scratched by a knife; slightly weathered with rusty orange staining on fractures, vuggy typically 5%, thickly bedded, overall good to excellent RQD. (Flank facies)			R1	TCR = **99%** RQD = **90%**	527
6	524.8	Reefal facies texture with vugs and cavities up to 10 cm and increased fossil content from 12.2 m to 13.4 m and 36.7 m to 37.4 m.			R2	TCR = **100%** RQD = **95%**	525
8	522.4	Core becoming darker bluish grey below 24.2 m. Mottled grey and white to light pinkish brown below 42.1 m.			R3	TCR = **100%** RQD = **100%**	523
10	519.7	Gradational lower contact on change in texture.			R4	TCR = **98%** RQD = **79%**	521
12	516.9				R5	TCR = **99%** RQD = **72%**	519
14	513.7				R6	TCR = **95%** RQD = **71%**	517
16	510.3				R7	TCR = **95%** RQD = **90%**	515
18	507.1				R8	TCR = **97%** RQD = **87%**	513
20	503.8				R9	TCR = **100%** RQD = **97%**	511
22	500.7						509
24							507
26							505
28							503
29							502

Penetration Test Values (Blows / 0.3m)
× Dynamic Cone
10 20 30 40

Undrained Shear Strength (kPa)
○ Unconfined + Field Vane
● Pocket Penetrometer ■ Lab Vane
40 80 120 160

Water Content (%) & Plasticity
PL MC LL
10 20 30

PID Readings

Well Details

Lab Data and Comments
GRAIN SIZE DISTRIBUTION (%) (MIT)
GR SA SI CL

Some reddish mud infilling on vertical fracture from 18.1 m to 18.3 m.

(continued next page)

library: genivar - library.glb **report:** gen log v1 **file:** bh logs.gpj

LOG OF BOREHOLE NW2

project | Duntroon Quarry | **project no. |** 111-53312-00

client | Walker Aggregates Inc. | **rig type |** | **date started |** 2014/08/12

location | Duntroon, Ontario | **method |** Rock coring | **supervisor |** TKC

position | E: 560108 N: 4915311 (17T, Geodetic) | **coring |** PQ core, OD=123mm, ID=85mm | **reviewer |** KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY (continued)	Graphic Plot	Sample Number	Sample Type	SPT N-Value / Core Recovery	Elevation Scale (mASL)
30	500.7				R9		501
31							500
32					R10	TCR = 98% RQD = 74%	499
33	497.5						498
34							497
35					R11	TCR = 89% RQD = 76%	496
36							495
37	494.0						494
38					R12	TCR = 96% RQD = 93%	493
39							492
40	490.8						491
41					R13	TCR = 89% RQD = 85%	490
42							489
43	487.6						488
44					R14	TCR = 100% RQD = 70%	487
45							486
46	484.8 / 484.8 / 46.6	**DOLOSTONE (Fossil Hill Formation)** Dark pinkish brown fine grained, stylolytes typically 3 to 5 per 0.3 m, typically 3 mm thick, stylolytes increasing with depth. 10 cm coral fossil at lower contact. Sharp lower contact at first shale bed.			R15	TCR = 100% RQD = 90%	485
47							484
48							483
49	481.5						482
50					R16	TCR = 100% RQD = 89%	481
51	479.9						480
52	51.5	**SHALE (Cabot Head Formation)** Greenish grey calcareous, weathered, plastic texture. 10 cm thick at contact overlying 0.33 m thick dolostone bed. Reddish fossiliferous sandstone beds 25 mm to 100 mm thick comprise 20% of recovered core.					479
53	478.4				R17	TCR = 100% RQD = 82%	478
54	476.7						477
	54.7	**END OF BOREHOLE** Borehole was open upon completion. Open hole well installed in borehole. Casing cemented in bedrock at 3.66 m depth.					

Penetration Test Values (Blows / 0.3m) — Dynamic Cone: 10 20 30 40

Undrained Shear Strength (kPa) — Unconfined, Pocket Penetrometer, Field Vane, Lab Vane: 40 80 120 160

Water Content (%) & Plasticity — PL MC LL: 10 20 30

PID Readings

Well Details

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

Broken core recovery from 32.3 m to 33.1 m.

WATER LEVEL MONITORING

Date	Depth (m)	Elevation (m)
Sep 2, 2014	25.9	505.5

library: genivar - library.glb report: gen log v1 file: bh logs.gpj

LOG OF BOREHOLE NW3

WSP

project |	Duntroon Quarry			**project no.** |	111-53312-00
client |	Walker Aggregates Inc.	**rig type** |		**date started** |	2014/09/12
location |	Duntroon, Ontario	**method** |	Rock coring	**supervisor** |	TKC/SLW
position |	E: 560217 N: 4915465 (17T, Geodetic)	**coring** |	PQ core, OD=123mm, ID=85mm	**reviewer** |	KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY	Graphic Plot	Sample Number	Sample Type	SPT N-Value / Core Recovery	Elevation Scale (mASL)	Penetration Test Values (Blows / 0.3m) / Undrained Shear Strength (kPa)	Water Content (%) & Plasticity	PID Readings	Well Details	Lab Data and Comments
0	514.4	**GROUND SURFACE**					514					
		OVERBURDEN										
1							513					
2							512					
3							511				▼	
4	510.4						510					
	4.0	**DOLOSTONE (Amabel Formation)** Creamy white with a dull appearance; uniform; fine to medium grained; fossiliferous, strong core with a rough cut texture, scratched by a knife; porous to vuggy with vugs representing 10% to 20% of recovered core. Reddish muddy infilling to 11.4 m. Minor weathering with rusty stained fracture surfaces, thickly bedded, overall fair to good RQD.			R1	TCR = **97**% RQD = **46**%						
5							509					
6		Reefal facies appearance from 4.0 m to 13.6 m and from 14.9 m to 15.0 m with a more open vuggy texture and significant fossil debris, lower RQD values.										
7	507.8				R2	TCR = **99**% RQD = **76**%	508					
		Core darker in colour below 12.2 m. Core becoming mottled grey/white below 23.8 m with a wispy stylolytic texture.										
8							507					
		Gradational lower contact on change in texture.										
9	505.6						506					
10					R3	TCR = **97**% RQD = **55**%	505					Vertical fractures from 10.1 m to 11.5 m, 16.0 m to 16.3 m and 18.3 m to 18.8 m depth.
11							504					
12	502.4						503					
13					R4	TCR = **98**% RQD = **86**%	502					
14							501					
15	499.2						500					
	496.1				R5	TCR = **88**% RQD = **69**%	499					

(continued next page)

library: genivar - library.glb **report:** gen log v1 **file:** bh logs.gpj

LOG OF BOREHOLE NW3

project | Duntroon Quarry
project no. | 111-53312-00
client | Walker Aggregates Inc.
rig type |
date started | 2014/09/12
location | Duntroon, Ontario
method | Rock coring
supervisor | TKC/SLW
position | E: 560217 N: 4915465 (17T, Geodetic)
coring | PQ core, OD=123mm, ID=85mm
reviewer | KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY (continued)	Graphic Plot	Sample Number	Sample Type	SPT N-Value / Core Recovery	Elevation Scale (mASL)
16							498
17					R5	TCR = **88%** RQD = **69%**	497
18	496.1						496
19					R6	TCR = **98%** RQD = **78%**	495
20							494
21	493.2						493
22					R7	TCR = **98%** RQD = **86%**	492
23							491
24	489.9						490
	489.6						
25	24.8	**DOLOSTONE (Fossil Hill Formation)** Light greyish brown to pinkish brown, fine grained with stylolytic to shaley partings 2 to 5 mm thick, typically 5 per 0.3 m. Sharp lower contact on first shale bed.					489
26					R8	TCR = **92%** RQD = **80%**	488
27	486.7						487
28	486.1						486
	28.4	**SHALE (Cabot Head Formation)** Greenish grey calcareous shale, weathered, plastic texture, thin reddish coloured fossiliferous sandstone beds from 28.7 m to 29.4 m depth.			R9	TCR = **100%** RQD = **57%**	
29	484.8						485
	29.6	**END OF BOREHOLE**					

Penetration Test Values (Blows / 0.3m) — Dynamic Cone: 10 20 30 40
Undrained Shear Strength (kPa) — ○ Unconfined ● Pocket Penetrometer + Field Vane ■ Lab Vane: 40 80 120 160
Water Content (%) & Plasticity — PL MC LL: 10 20 30
PID Readings
Well Details
Lab Data and Comments — GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

Borehole was open upon completion.

Open hole well installed in borehole. Casing cemented in at least 1 m of competent bedrock.

WATER LEVEL MONITORING

Date	Depth (m)	Elevation (m)
Sep 17, 2014	3.4	511.0

library: genivar - library.glb **report:** gen log v1 **file:** bh logs.gpj

LOG OF BOREHOLE NW4

WSP

project | Duntroon Quarry		**project no.** | 111-53312-00
client | Walker Aggregates Inc.	**rig type** |	**date started** | 2014/08/28
location | Duntroon, Ontario	**method** | Rock coring	**supervisor** | KMT
position | E: 559674 N: 4915228 (17T, Geodetic)	**coring** | PQ core, OD=123mm, ID=85mm	**reviewer** | KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY	Graphic Plot	Sample Number	Sample Type	SPT N-Value / Core Recovery	Elevation Scale (mASL)
0	529.0	**GROUND SURFACE**					529
		OVERBURDEN					
1							528
2	526.3						527
3	2.7	**DOLOSTONE (Amabel Formation)** Creamy white with a dull appearance; uniform; fine to medium grained; fossiliferous, slightly brittle rock core with a rough cut texture, scratched by a knife; porous texture with interconnected vugs up to 50 mm. Reefal facies appearance (fossil debris) with a poorer RQD from contact to 28.5 m. Flank facies appearance below 28.5 m with less vugs and higher RQD. Minor weathering with mud infilling to 13.1 m, thickly bedded, fair to good RQD. (Flank facies)					526
4							525
5				R1		TCR = **97%** RQD = **89%**	524
6							523
7	522.1	Core becoming darker bluish grey in colour below 14.9 m. Mottled grey/white appearance below 34.1 m, shaley to wispy stylolytes (typically 5 per 0.3 m) below 41.5 m.		R2		TCR = **98%** RQD = **90%**	522
8							521
9	520.1	Gradational lower contact on change in texture at 43.2 m.		R3		TCR = **100%** RQD = **87%**	520
10							519
11							518
12	517.1			R4		TCR = **100%** RQD = **92%**	517
13							516
14							515
15	514.0			R5		TCR = **98%** RQD = **98%**	514
16							513
17							512
18	510.8			R6		TCR = **99%** RQD = **87%**	511
19							510
20							509
21	507.7			R7		TCR = **100%** RQD = **94%**	508
22							507
23							506
24	504.5			R8		TCR = **98%** RQD = **95%**	505
25							504
26							503
27	501.4			R9		TCR = **100%** RQD = **100%**	502
28							501
29							500
	498.4						

Penetration Test Values (Blows / 0.3m) — Dynamic Cone: 10 20 30 40

Undrained Shear Strength (kPa) — ○ Unconfined ● Pocket Penetrometer + Field Vane ■ Lab Vane: 40 80 120 160

Water Content (%) & Plasticity — PL MC LL: 10 20 30

PID Readings

Well Details

Lab Data and Comments — GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

(continued next page)

library: genivar - library.glb **report:** gen log v1 **file:** bh logs.gpj

LOG OF BOREHOLE NW4

WSP

project | Duntroon Quarry		**project no.** | 111-53312-00
client | Walker Aggregates Inc.	**rig type** |	**date started** | 2014/08/28
location | Duntroon, Ontario	**method** | Rock coring	**supervisor** | KMT
position | E: 559674 N: 4915228 (17T, Geodetic)	**coring** | PQ core, OD=123mm, ID=85mm	**reviewer** | KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY (continued)	Graphic Plot	Number	Type	SPT N-Value / Core Recovery	Elevation Scale (mASL)
30	498.4				R9		499
31							498
32					R10	TCR = **99**% RQD = **96**%	497
33	495.2						496
34							495
35					R11	TCR = **98**% RQD = **98**%	494
36	492.3						493
37							492
38					R12	TCR = **98**% RQD = **98**%	491
39	489.1						490
40							489
41					R13	TCR = **100**% RQD = **84**%	488
42	486.1						487
43	485.8						486
44	43.2	**DOLOSTONE (Fossil Hill Formation)** Light pinkish grey to greenish grey, fine grained, stylolytic to shaley minor pyrite mineralization.			R14	TCR = **100**% RQD = **94**%	485
45		Sharp lower contact on first appearance of shale.					484
46	483.2						483
47	481.9				R15	TCR = **100**% RQD = **49**%	482
48	47.1	**SHALE (Cabot Head Formation)** Greenish grey calcareous shale, weathered, plastic texture, thin reddish coloured fossiliferous sandstone beds below 48.6 m.					481
	480.1						
	48.9	**END OF BOREHOLE**					

Penetration Test Values (Blows / 0.3m): Dynamic Cone 10 20 30 40

Undrained Shear Strength (kPa): ○ Unconfined ● Pocket Penetrometer + Field Vane ■ Lab Vane — 40 80 120 160

Water Content (%) & Plasticity: PL MC LL — 10 20 30

PID Readings

Well Details

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

Vertical fracture from 45.8 m to 47.1 m depth.

Dolostone bed from 47.1 m to 47.5 m depth.

Borehole was open upon completion.

Open hole well installed in borehole. Casing cemented in bedrock at 3.66 m depth.

WATER LEVEL MONITORING

Date	Depth (m)	Elevation (m)
Sep 5, 2014	10.6	518.4

library: genivar - library.glb report: gen log v1 file: bh logs.gpj

LOG OF BOREHOLE NW5

WSP

project | Duntroon Quarry		**project no.** | 111-53312-00
client | Walker Aggregates Inc.	**rig type** |	**date started** | 2014/08/27
location | Duntroon, Ontario	**method** | Rock coring	**supervisor** | KMT
position | E: 559641 N: 4915406 (17T, Geodetic)	**coring** | PQ core, OD=123mm, ID=85mm	**reviewer** | KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY	Graphic Plot	Sample Number	Sample Type	SPT N-Value / Core Recovery	Elevation Scale (mASL)
0	521.0	**GROUND SURFACE**					520
		OVERBURDEN					
1							519
2							
3							518
4							
5							517
6							
7							516
8							
9							515
10	510.6						
	10.4	**DOLOSTONE (Amabel Formation)** Creamy white with a dull appearance; uniform; fine to medium grained; strong core with a rough texture, scratched by a knife; slightly weathered with light rusty orange staining on fractures and some reddish mud staining to 27.1 m, thickly bedded, good to excellent RQD. Vugs <5%, typically 2 to 4 mm. (Flank facies)			R1	TCR = **99**% RQD = **94**%	514
11							
12							513
13	507.6	Reefal texture with more open cavities and increased fossil content from 15.0 m to 18.0 m and 18.8 m to 19.6 m.					
					R2	TCR = **100**% RQD = **94**%	512
14		Core becoming darker grey below 17.7 m.					
15	505.5	Mottled apeparance below 25.9 m with increasing vugs (15%). Less vuggy below 30.8 m.					511
					R3	TCR = **100**% RQD = **97**%	
16		Gradational lower contact on change in texture at 34.1 m.					510
17							
18	502.4						509
19					R4	TCR = **100**% RQD = **75**%	
20							508
21	499.4						
	496.8				R5		507

Penetration Test Values (Blows / 0.3m) — Dynamic Cone: 10 20 30 40

Undrained Shear Strength (kPa) — Unconfined, Pocket Penetrometer, Field Vane, Lab Vane: 40 80 120 160

Water Content (%) & Plasticity — PL MC LL: 10 20 30

PID Readings

Well Details

Lab Data and Comments — GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

Vertical fracture with red mud infilling from 20.7 m to 23.3 m and 24.0 m 24.6 m.

(continued next page)

library: genivar - library.glb **report:** gen log v1 **file:** bh logs.gpj

LOG OF BOREHOLE NW5

project |	Duntroon Quarry			**project no.** |	111-53312-00
client |	Walker Aggregates Inc.	**rig type** |		**date started** |	2014/08/27
location |	Duntroon, Ontario	**method** |	Rock coring	**supervisor** |	KMT
position |	E: 559641 N: 4915406 (17T, Geodetic)	**coring** |	PQ core, OD=123mm, ID=85mm	**reviewer** |	KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY (continued)	Graphic Plot	Sample Number	Sample Type	SPT N-Value / Core Recovery	Elevation Scale (mASL)
22							498
23					R5	TCR = **100**% RQD = **29**%	497
24	496.8						496
25					R6	TCR = **100**% RQD = **86**%	495
26							494
27	493.7						493
28					R7	TCR = **99**% RQD = **94**%	492
29							491
30	490.6						490
31					R8	TCR = **98**% RQD = **89**%	489
32							488
33	487.5						487
34	486.9 / 34.1	**DOLOSTONE (Fossil Hill Formation)** Bluish grey, fine grained, stylolytes typically 1 to 2 per metre. Rare shale partings up to 1 cm thick. Sharp lower contact at first shale bed.			R9	TCR = **98**% RQD = **91**%	486
35							485
36	484.3						484
37	483.5 / 37.5	**SHALE (Cabot Head Formation)** Greenish grey calcareous, weathered plastic shale, thin reddish coloured fossiliferous sandstone bed below 39.2 m depth.			R10	TCR = **99**% RQD = **88**%	483
38							482
39	481.3 / 39.7						

Penetration Test Values (Blows / 0.3m) — Dynamic Cone: 10 20 30 40

Undrained Shear Strength (kPa) — ○ Unconfined ● Pocket Penetrometer + Field Vane ■ Lab Vane: 40 80 120 160

Water Content (%) & Plasticity — PL MC LL: 10 20 30

PID Readings

Well Details

Lab Data and Comments — GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

END OF BOREHOLE

Borehole was open upon completion.

Open hole well installed in borehole. Casing cemented in bedrock at 10.36 m depth.

WATER LEVEL MONITORING

Date	Depth (m)	Elevation (m)
Sep 8, 2014	5.4	515.5

library: genivar - library.glb **report:** gen log v1 **file:** bh logs.gpj

LOG OF BOREHOLE NW6

WSP

project |	Duntroon Quarry			**project no.** |	111-53312-00
client |	Walker Aggregates Inc.	**rig type** |	CME 75, track-mounted	**date started** |	2014/09/29
location |	Duntroon, Ontario	**method** |	Rock coring	**supervisor** |	BTC
position |	E: 559515 N: 4915354 (17T, Geodetic)	**coring** |	HQ core, OD=96mm, ID=64mm	**reviewer** |	KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY	Graphic Plot	Sample Number	Sample Type	SPT N-Value / Core Recovery	Elevation Scale (mASL)
0	520.7	**GROUND SURFACE**					520
		OVERBURDEN					
1							519
2							
	517.9						518
3	2.8	**DOLOSTONE (Amabel Formation)** Creamy white with a chalky dull appearance; uniform; fine to medium grained; strong core with a rough texture, scratched by a knife; slightly weathered with red mud infilling to 12.5 m then light rusty orange staining on fractures, thickly bedded, overall good to excellent RQD, vugs <5% with cavities up to 20 mm, vugs are poorly interconnected. (Flank facies)		R1		TCR = **81**% RQD = **44**%	517
4	516.4			R2		TCR = **100**% RQD = **100**%	
				R3		TCR = **95**% RQD = **73**%	516
5							
6	514.5	Minor reefal texture 20.7 m to 21.6 m with a more open, fossiliferous appearance.		R4		TCR = **100**% RQD = **82**%	515
7	513.1	Core becoming darker blue grey with a mottled appearance below 12.2 m. Less vuggy below 23.3 m. Core has mottled grey/white appearance below 23.3 m.		R5		TCR = **98**% RQD = **80**%	514
8							
9	511.5	Gradational lower contact at change in texture at 35.1 m.		R6		TCR = **100**% RQD = **85**%	513
10	510.0			R7		TCR = **100**% RQD = **72**%	512
11							
12	508.5			R8		TCR = **100**% RQD = **50**%	511
13	507.0			R9		TCR = **100**% RQD = **87**%	510
14							
15	505.4			R10		TCR = **100**% RQD = **100**%	509
16	503.9			R11		TCR = **100**% RQD = **0**%	508
17							
18	502.5			R12		TCR = **100**% RQD = **0**%	507
19	500.9			R13		TCR = **100**% RQD = **83**%	506
20							
21	499.4						505
	497.8			R14		TCR = **100**% RQD =	504
							503
							502
							501
							500
							499

Penetration Test Values (Blows / 0.3m) — Dynamic Cone: 10 20 30 40

Undrained Shear Strength (kPa) — ○ Unconfined ● Pocket Penetrometer + Field Vane ■ Lab Vane: 40 80 120 160

Water Content (%) & Plasticity — PL MC LL: 10 20 30

PID Readings

Well Details

Lab Data and Comments — GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

(continued next page)

library: genivar - library.glb **report:** gen log v1 **file:** bh logs.gpj

LOG OF BOREHOLE NW6

WSP

project | Duntroon Quarry
project no. | 111-53312-00
client | Walker Aggregates Inc.
rig type | CME 75, track-mounted
date started | 2014/09/29
location | Duntroon, Ontario
method | Rock coring
supervisor | BTC
position | E: 559515 N: 4915354 (17T, Geodetic)
coring | HQ core, OD=96mm, ID=64mm
reviewer | KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY (continued)	Graphic Plot	Sample Number	Sample Type	SPT N-Value / Core Recovery
22						92%
	497.8				R14	TCR = 100% RQD = 92%
23					R15	TCR = 100% RQD = 96%
24	496.5					
					R16	TCR = 98% RQD = 98%
25	494.9					
26					R17	TCR = 100% RQD = 88%
27	493.4					
					R18	TCR = 100% RQD = 94%
28	491.9					
29					R19	TCR = 100% RQD = 96%
30	490.1					
					R20	TCR = 100% RQD = 93%
31						
32	488.6				R21	TCR = 100% RQD = 0%
33	487.1					
					R22	TCR = 100% RQD = 95%
34						
35	485.6 / 35.1	**DOLOSTONE (Fossil Hill Formation)** Bluish grey, fine grained, stylolytic typically 4 to 5 per 0.3 m up to 3 mm thick, chert as 1 cm thick veins 35.6 m to 36.1 m depth. Sharp lower contact at first shale bed appearance.			R23	TCR = 100% RQD = 72%
36	484.0					
37					R24	TCR = 100% RQD = 83%
38	482.5					
	482.0 / 38.7	**SHALE (Cabot Head Formation)** Greenish grey calcareous shale, weathered, plastic texture, thin reddish coloured fossiliferous sandstone beds from 40.2 m to 40.8 m depth.			R25	TCR = 35% RQD = 27%
39	481.0					
40					R26	TCR = 93% RQD = 0%
41	479.6 / 41.2					

END OF BOREHOLE

Borehole was open upon completion.

Open hole well installed in borehole. Casing cemented in bedrock at 4.88 m depth.

Elevation Scale (mASL): 498, 497, 496, 495, 494, 493, 492, 491, 490, 489, 488, 487, 486, 485, 484, 483, 482, 481, 480

Penetration Test Values (Blows / 0.3m) — Dynamic Cone: 10 20 30 40
Undrained Shear Strength (kPa) — Unconfined, Pocket Penetrometer, Field Vane, Lab Vane: 40 80 120 160
Water Content (%) & Plasticity — PL, MC, LL: 10 20 30
PID Readings
Well Details
Lab Data and Comments
GRAIN SIZE DISTRIBUTION (%) (MIT) — GR SA SI CL

WATER LEVEL MONITORING

Date	Depth (m)	Elevation (m)
Oct 1, 2014	5.5	515.2

library: genivar - library.glb **report:** gen log v1 **file:** bh logs.gpj

LOG OF BOREHOLE NW7

WSP

project | Duntroon Quarry		**project no.** | 111-53312-00
client | Walker Aggregates Inc.	**rig type** |	**date started** | 2014/09/04
location | Duntroon, Ontario	**method** | Rock coring	**supervisor** | KMT
position | E: 559466 N: 4915175 (17T, Geodetic)	**coring** | PQ core, OD=123mm, ID=85mm	**reviewer** | KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY	Graphic Plot	Sample Number	Sample Type	SPT N-Value / Core Recovery	Elevation Scale (mASL)
0	523.2	**GROUND SURFACE**					523
		OVERBURDEN					
1							522
2							521
3							520
4							519
5							518
6	516.5						517
7	6.7	**DOLOSTONE (Amabel Formation)** Creamy white with a dull appearance; uniform; fine to medium grained; strong core with a rough cut texture, scratched by a knife; slightly weathered with rusty orange staining on fracture surfaces, thickly bedded, good to excellent RQD, vugs typically 5%, 2 to 5 mm. (Flank facies)			R1	TCR = **76**% RQD = **43**%	516
8							515
9	513.9	Reefal facies texture with open porous structure slumped biohorns and abundant fossils from 12.5 m to 18.7 m depth.			R2	TCR = **100**% RQD = **100**%	514
10							513
11		Core becoming darker bluish grey below 12.5 m. Mottled blue/grey and white below 27.1 m.					512
12	510.9	Gradational lower contact on change in texture.			R3	TCR = **100**% RQD = **91**%	511
13							510
14							509
15	507.9				R4	TCR = **100**% RQD = **96**%	508
16							507
17							506
18	504.8				R5	TCR = **88**% RQD = **74**%	505
19							504
20							503
21	502.1				R6	TCR = **98**% RQD = **94**%	502
	499.0						

Penetration Test Values (Blows / 0.3m) — Dynamic Cone: 10 20 30 40

Undrained Shear Strength (kPa) — Unconfined, Pocket Penetrometer, Field Vane, Lab Vane: 40 80 120 160

Water Content (%) & Plasticity — PL MC LL: 10 20 30

PID Readings

Well Details

Lab Data and Comments — GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

(continued next page)

library: genivar - library.glb **report:** gen log v1 **file:** bh logs.gpj

LOG OF BOREHOLE NW7

WSP

project | Duntroon Quarry		**project no.** | 111-53312-00
client | Walker Aggregates Inc.	**rig type** |	**date started** | 2014/09/04
location | Duntroon, Ontario	**method** | Rock coring	**supervisor** | KMT
position | E: 559466 N: 4915175 (17T, Geodetic)	**coring** | PQ core, OD=123mm, ID=85mm	**reviewer** | KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY (continued)	Graphic Plot	Sample Number	Sample Type	SPT N-Value / Core Recovery	Elevation Scale (mASL)
22							501
23					R6	TCR = **98%** RQD = **94%**	500
24	499.0						499
25					R7	TCR = **90%** RQD = **52%**	498
26							497
27	495.6						496
28					R8	TCR = **100%** RQD = **95%**	495
29							494
30	492.4						493
31					R9	TCR = **100%** RQD = **88%**	492
32							491
33	489.5						490
34					R10	TCR = **100%** RQD = **91%**	489
35							488
36	486.5						487
37	485.4				R11	TCR = **98%** RQD = **85%**	486
38	37.8	**DOLOSTONE (Fossil Hill Formation)** Bluish grey fine grained dolostone, stylolytes 2 to 3 per 0.3 m, 2 mm thick. Chert as 50 mm nodules from 38.3 m to 38.6 m. Sharp lower contact at first shale bed.					485
39							484
40	483.4						483
41	481.7				R12	TCR = **98%** RQD = **80%**	482
42	41.5 / 481.1 / 42.1	**SHALE (Cabot Head Formation)** Greenish grey calcareous shale, weathered, plastic texture, rare thin redish fossiliferous sandstone beds up to 20 mm thick.					

END OF BOREHOLE

Borehole was open upon completion.

Open hole well installed in borehole. Casing cemented in bedrock at 6.71 m depth.

Penetration Test Values (Blows / 0.3m)
× Dynamic Cone
10 20 30 40

Undrained Shear Strength (kPa)
○ Unconfined + Field Vane
● Pocket Penetrometer ■ Lab Vane
40 80 120 160

Water Content (%) & Plasticity
PL MC LL
10 20 30

PID Readings

Well Details

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) (MIT)
GR SA SI CL

Vertical fracture from 26.0 m to 27.2 m with minor orange staining.

WATER LEVEL MONITORING

Date	Depth (m)	Elevation (m)
Sep 19, 2014	5.6	517.6

library: genivar - library.glb report: gen log v1 file: bh logs.gpj

LOG OF BOREHOLE NW8

WSP

project | Duntroon Quarry		**project no.** | 111-53312-00
client | Walker Aggregates Inc.	**rig type** |	**date started** | 2014/09/15
location | Duntroon, Ontario	**method** | Rock coring	**supervisor** | BTC
position | E: 559244 N: 4915009 (17T, Geodetic)	**coring** | PQ core, OD=123mm, ID=85mm	**reviewer** | KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY	Graphic Plot	SAMPLE: Number	SAMPLE: Type	SAMPLE: SPT N-Value / Core Recovery	Elevation Scale (mASL)	Penetration Test Values (Blows / 0.3m) / Undrained Shear Strength (kPa)	Water Content (%) & Plasticity	PID Readings	Well Details	Lab Data and Comments
0	531.1	**GROUND SURFACE**					531	Dynamic Cone: 10 20 30 40				GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL
1		**OVERBURDEN**					530	Undrained Shear Strength (kPa): Unconfined, Pocket Penetrometer, Field Vane, Lab Vane; 40 80 120 160	PL MC LL; 10 20 30			
2							529					
3							528				▼	
4	527.0 / 4.1						527					
5		**DOLOSTONE (Amabel Formation)** Creamy white with a dull appearance; uniform; fine to medium grained; fossiliferous, strong core with a rough cut texture, scratched by a knife; slightly weathered with minor rusty orange staining and pitting, and vugs ~5% with vugs up to 1 cm, but locally greater 15% to 20% from 27.9 m to 33.2 m, 3 mm to 5 mm, thickly bedded, good to excellent RQD, except 37.0 m to 38.7 m where recovered core pieces are smaller. (Flank facies)			R1	TCR = **95%** RQD = **60%**	526					
6							525					
7	524.0						524					
8					R2	TCR = **100%** RQD = **100%**	523					
9	521.7	Reefal facies texture with higher porosity and more fossiliferous from 7.6 m to 9.4 m, 11.3 m to 11.4 m, 13.9 m to 14.3 m and 18.3 m to 20.6 m.					522					
10		Core becoming darker bluish grey below 13.4 m. Becoming less vuggy and mottled grey-white below 27.7 m.			R3	TCR = **98%** RQD = **88%**	521					
11							520					
12	518.6	Gradational lower contact on change in texture at 37.8 m.					519					
13							518					
14					R4	TCR = **100%** RQD = **90%**	517					
15	515.6						516					
16							515					
17					R5	TCR = **94%** RQD = **92%**	514					
18	512.5						513					
19							512					
20					R6	TCR = **100%** RQD = **84%**	511					
21	509.5						510					
22							509					
23					R7	TCR = **95%** RQD = **87%**	508					
	506.4											

(continued next page)

library: genivar - library.glb **report:** gen log v1 **file:** bh logs.gpj

LOG OF BOREHOLE NW8

WSP

project | Duntroon Quarry		**project no.** | 111-53312-00
client | Walker Aggregates Inc.	**rig type** |	**date started** | 2014/09/15
location | Duntroon, Ontario	**method** | Rock coring	**supervisor** | BTC
position | E: 559244 N: 4915009 (17T, Geodetic)	**coring** | PQ core, OD=123mm, ID=85mm	**reviewer** | KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY (continued)	Graphic Plot	Sample Number	Sample Type	SPT N-Value / Core Recovery	Elevation Scale (mASL)
24	506.4				R7		507
25							506
26					R8	TCR = **100**% RQD = **97**%	505
27	503.4						504
28					R9	TCR = **100**% RQD = **98**%	503
29							502
30	500.3						501
31					R10	TCR = **100**% RQD = **100**%	500
32							499
33	497.3						498
34					R11	TCR = **95**% RQD = **90**%	497
35							496
36	494.2						495
37	493.3				R12	TCR = **100**% RQD = **62**%	494
38	37.8	**DOLOSTONE (Fossil Hill Formation)** Pinkish grey to greenish grey, fine grained, stylolytes 3 to 5 per 0.3 m, up to 3 mm thick, glauconite "blebs" associated wtih stylolytes below 41.0 m.					493
39							492
40	491.2	Sharp lower contact at first shale bed.					491
41	489.6				R13	TCR = **81**% RQD = **42**%	490
42	41.5	**SHALE (Cabot Head Formation)** Greenish grey calcareous shale, weathered, plastic texture, thin typically 5 to 10 cm reddish coloured fossiliferous sandstone beds below 41.9 m.					489
	488.1						
	43.0	**END OF BOREHOLE**					

Penetration Test Values (Blows / 0.3m)
× Dynamic Cone
10 20 30 40

Undrained Shear Strength (kPa)
○ Unconfined + Field Vane
● Pocket Penetrometer ■ Lab Vane
40 80 120 160

Water Content (%) & Plasticity
PL MC LL
10 20 30

PID Readings

Well Details

Lab Data and Comments
GRAIN SIZE DISTRIBUTION (%) (MIT)
GR SA SI CL

Borehole was open upon completion.

Open hole well installed in borehole. Casing cemented in bedrock at 3.96 m depth.

WATER LEVEL MONITORING

Date	Depth (m)	Elevation (m)
Sep 25, 2014	3.5	527.6

library: genivar - library.glb report: gen log v1 file: bh logs.gpj

LOG OF BOREHOLE NW9

WSP

project | Duntroon Quarry		**project no.** | 111-53312-00
client | Walker Aggregates Inc.	**rig type** |	**date started** | 2014/09/11
location | Duntroon, Ontario	**method** | Rock coring	**supervisor** | KMT
position | E: 559031 N: 4914966 (17T, Geodetic)	**coring** | PQ core, OD=123mm, ID=85mm	**reviewer** | KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY	Graphic Plot	Sample Number	Sample Type	SPT N-Value / Core Recovery	Elevation Scale (mASL)
0	520.9	**GROUND SURFACE**					520
		OVERBURDEN					
1							519
2							518
3							517
4							516
5							515
6							514
7							513
8	513.0 / 7.9	**DOLOSTONE (Amabel Formation)** Creamy white with a chalky dull appearance; uniform; fine to medium grained; fossiliferous, strong core with a rough cut texture (drilling method artifact), scratched by a knife; slightly weathered, vugs (5%) typically 2 mm to 5 mm but up to 32 mm, vugs are interconnected, overall good to excellent RQD. (Flank facies)			R1	TCR = **98**% RQD = **80**%	512
9							511
10							510
11	509.9	Reefal facies texture, with higher porosity, lower RQD and more fossiliferous 9.1 m to 9.4 m, 11.6 m, to 14.3 m, 15.8 m to 20.4 m and 23.5 m to 23.8 m.			R2	TCR = **91**% RQD = **68**%	509
12							508
13							507
14	506.7	Core becoming darker bluish grey in colour below 14.9 m and less vuggy below 23.8 m. Becoming mottled gery/white below 32.3 m.			R3	TCR = **100**% RQD = **98**%	506
15	505.7	Gradational lower contact at 26.6 m at change in colour and texture.			R4	TCR = **100**% RQD = **99**%	505
16							504
17							503
18	502.9				R5	TCR = **99**% RQD = **83**%	502
19							501
20							500
21	499.8				R6	TCR = **100**% RQD = **78**%	499
22							498
23	496.9						497

Penetration Test Values (Blows / 0.3m) — Dynamic Cone: 10 20 30 40

Undrained Shear Strength (kPa) — ○ Unconfined ● Pocket Penetrometer + Field Vane ■ Lab Vane: 40 80 120 160

Water Content (%) & Plasticity — PL MC LL: 10 20 30

PID Readings

Well Details

Lab Data and Comments — GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

(continued next page)

library: genivar - library.glb report: gen log v1 file: bh logs.gpj

LOG OF BOREHOLE NW9

project |	Duntroon Quarry			**project no.** |	111-53312-00
client |	Walker Aggregates Inc.	**rig type** |		**date started** |	2014/09/11
location |	Duntroon, Ontario	**method** |	Rock coring	**supervisor** |	KMT
position |	E: 559031 N: 4914966 (17T, Geodetic)	**coring** |	PQ core, OD=123mm, ID=85mm	**reviewer** |	KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY (continued)	Graphic Plot	Sample Number	Sample Type	SPT N-Value / Core Recovery	Elevation Scale (mASL)
24							496
25					R7	TCR = **100**% RQD = **97**%	495
26							494
27	493.8						493
28					R8	TCR = **101**% RQD = **94**%	492
29							491
30	490.7						490
31					R9	TCR = **100**% RQD = **98**%	489
32	488.3						488
33							487
34					R10	TCR = **99**% RQD = **98**%	486
35	485.4						485
36	484.3						484
37	36.6	**DOLOSTONE (Fossil Hill Formation)** Light bluish grey, fine grained, stylolytic to shaley partings 1 to 5 per 0.3 m up to 3 mm thick.			R11	TCR = **101**% RQD = **92**%	483
38	482.3	Sharp lower contact at first shale bed.					482
39							481
40	480.4				R12	TCR = **99**% RQD = **90**%	480
41	40.5	**SHALE (Cabot Head Formation)** Greenish grey calcareous shale, weathered, plastic texture, thin reddish coloured fossiliferous sandstone beds from 41.2 m to 41.7 m depth.					
	479.2						
	41.7						

Penetration Test Values (Blows / 0.3m) — Dynamic Cone: 10 20 30 40

Undrained Shear Strength (kPa) — ○ Unconfined ● Pocket Penetrometer + Field Vane ■ Lab Vane: 40 80 120 160

Water Content (%) & Plasticity — PL MC LL: 10 20 30

PID Readings

Well Details

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) (MIT) — GR SA SI CL

END OF BOREHOLE

Borehole was open upon completion.

Open hole well installed in borehole. Casing cemented in bedrock at 8.28 m depth.

WATER LEVEL MONITORING

Date	Depth (m)	Elevation (m)
Sep 23, 2014	4.5	516.3

library: genivar - library.glb **report:** gen log v1 **file:** bh logs.gpj

LOG OF BOREHOLE NW10

WSP

project |	Duntroon Quarry			**project no.** |	111-53312-00
client |	Walker Aggregates Inc.	**rig type** |		**date started** |	0214/09/09
location |	Duntroon, Ontario	**method** |	Rock coring	**supervisor** |	KMT
position |	E: 558938 N: 4915593 (17T, Geodetic)	**coring** |	PQ core, OD=123mm, ID=85mm	**reviewer** |	KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY	Graphic Plot	Sample Number	Sample Type	SPT N-Value / Core Recovery	Elevation Scale (mASL)
0	509.7	**GROUND SURFACE**					509
		OVERBURDEN					
1							508
	507.7						
2	2.0	**DOLOSTONE (Amabel Formation)** Creamy white with a dull appearance; uniform; fine to medium grained; fossiliferous, strong core with a rough cut texture, scratched by a knife; vugs 2% to 3% typically 1 mm to 4 mm, slightly weathered (noticably less weathered than adjacent boreholes), thickly bedded, overall good to excellent RQD. (Flank facies)			R1	TCR = **90**% RQD = **53**%	507
3		Reefal texture with large vugs and fossiliferous from 4.3 m to 8.8 m.					506
4							
5	504.6	Core becoming darker grey in colour below 14.6 m, becoming mottled grey-white below 20.4 m.					505
					R2	TCR = **100**% RQD = **94**%	504
6		Gradational lower contact at change in texture at 25.6 m.					
7							503
8	501.4						502
					R3	TCR = **96**% RQD = **74**%	
9	500.4						501
10							500
					R4	TCR = **100**% RQD = **89**%	
11							499
12	497.2						498
					R5	TCR = **100**% RQD = **97**%	497
13							
14							496
	494.2						495
15	491.2				R6	TCR = **100**% RQD =	494

Penetration Test Values (Blows / 0.3m) — Dynamic Cone: 10 20 30 40

Undrained Shear Strength (kPa) — ○ Unconfined ● Pocket Penetrometer + Field Vane ■ Lab Vane: 40 80 120 160

Water Content (%) & Plasticity — PL MC LL: 10 20 30

PID Readings

Well Details

Lab Data and Comments — GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

(continued next page)

library: genivar - library.glb **report:** gen log v1 **file:** bh logs.gpj

LOG OF BOREHOLE NW10

project | Duntroon Quarry
project no. | 111-53312-00
client | Walker Aggregates Inc.
rig type |
date started | 0214/09/09
location | Duntroon, Ontario
method | Rock coring
supervisor | KMT
position | E: 558938 N: 4915593 (17T, Geodetic)
coring | PQ core, OD=123mm, ID=85mm
reviewer | KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY	Graphic Plot	Sample Number	Sample Type	SPT N-Value / Core Recovery	Elevation Scale (mASL)
16		*(continued)*				97%	
17					R6	TCR = **100**% RQD = **97**%	493
18	491.2						492
19					R7	TCR = **98**% RQD = **97**%	491
20							490
21	488.3						489
22					R8	TCR = **100**% RQD = **95**%	488
23							487
24	485.2						486
25	484.1						485
26	25.6	**DOLOSTONE (Fossil Hill Formation)** Bluish grey, fine grained, stylolytic 3 to 5 per 0.3 m up to 3 mm thick, dark shaley partings 5 mm thick at 25 mm to 50 mm intervals below 28.0 m.			R9	TCR = **100**% RQD = **100**%	484
27	482.4	Sharp lower contact at first appearance of a shale bed.					483
28					R10	TCR = **100**% RQD = **54**%	482
29	480.3						481
	480.2 29.5	**SHALE (Cabot Head Formation)** Greenish grey calcareous shale, weathered, plastic texture.					

END OF BOREHOLE

Borehole was open upon completion.

Open hole well installed in borehole. Casing cemented in bedrock at 2.59 m depth.

Penetration Test Values (Blows / 0.3m) — Dynamic Cone: 10 20 30 40
Undrained Shear Strength (kPa) — ○ Unconfined ● Pocket Penetrometer + Field Vane ■ Lab Vane: 40 80 120 160
Water Content (%) & Plasticity — PL MC LL: 10 20 30

PID Readings | Well Details | Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

Glauconite as 1 cm blebs at 26.7 m depth.

WATER LEVEL MONITORING

Date	Depth (m)	Elevation (m)
Sep 24, 2014	0.7	509.0

library: genivar - library.glb **report:** gen log v1 **file:** bh logs.gpj

BOREHOLE NO. NW10 Shallow

PROJECT NAME: DUNTROON EXPANSION
PROJECT NO.: 111-53312-00 52.1
CLIENT: WALKER AGGREGATES INC.
DATE COMPLETED: Sep 18, 2014
BOREHOLE TYPE: 123 mm OD PQ CORE
SUPERVISOR: BTC
GROUND ELEVATION: 509.7 mASL
REVIEWER: SLW

DEPTH (m)	ELEV (mASL)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE N VALUE	SAMPLE % WATER	SAMPLE % RECOVERY	SAMPLE RQD (%)	CONE PENETRATION "N" VALUE / SHEAR STRENGTH	WATER CONTENT % (W_P – W_L)	UTM CO-ORDINATES / REMARKS
0.0	509.7	OVERBURDEN										
2.0	507.7	DOLOSTONE (AMABEL FORMATION): CREAMY WHITE WITH A DULL APPEARANCE; UNIFORM; FINE TO MEDIUM GRAINED; FOSSILIFEROUS; STRONG CORE WITH A ROUGH CUT TEXTURE.										
3.8	505.9	MONITOR TERMINATED AT 3.82 m IN DOLOSTONE.										

UTM CO-ORDINATES
UTM Zone: 17 NAD: 83
Easting: 558940
Northing: 4915376

REMARKS

BOREHOLE NO. NW10-DP

PROJECT NAME: DUNTROON EXPANSION
PROJECT NO.: 111-53312-00 52.1
CLIENT: WALKER AGGREGATES INC.
DATE COMPLETED: Sep 18, 2014
BOREHOLE TYPE: 1 1/4" HAND AUGER
SUPERVISOR: BTC
GROUND ELEVATION: 509.7 mASL
REVIEWER: SLW

DEPTH (m)	ELEV (mASL)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE N VALUE	SAMPLE % WATER	SAMPLE % RECOVERY	SAMPLE RQD (%)	CONE PENETRATION "N" VALUE / SHEAR STRENGTH	WATER CONTENT % (W_P – W_L)	UTM CO-ORDINATES / REMARKS
0.0	509.7	TOP SOIL										
0.2	509.5	BROWN SILT AND SAND, TRACE GRAVEL. MOIST.										
0.8	508.9	DRIVEPOINT TERMINATED AT 0.8 m.										

UTM CO-ORDINATES
UTM Zone: 17 NAD: 83
Easting: 558940
Northing: 4915376

REMARKS

LOG OF BOREHOLE IW1

WSP

project |	Duntroon Quarry			**project no.** |	111-53312-00
client |	Walker Aggregates Inc.	**rig type** |		**date started** |	2014/08/05
location |	Duntroon, Ontario	**method** |	Rock coring	**supervisor** |	BTC/TKC
position |	E: 560551 N: 4915269 (17T, Geodetic)	**coring** |	PQ core, OD=123mm, ID=85mm	**reviewer** |	KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY	Graphic Plot	Sample Number	Sample Type	SPT N-Value / Core Recovery	Elevation Scale (mASL)	Penetration Test Values (Blows / 0.3m) & Undrained Shear Strength (kPa)	Water Content (%) & Plasticity	PID Readings	Well Details	Lab Data and Comments
0	511.5	**GROUND SURFACE**					511					
		OVERBURDEN										
1							510					
2							509					
3							508					
4	507.1											
	4.4	**DOLOSTONE (Amabel Formation)** Creamy white with a dull appearance; uniform; fine to medium grained; strong core with a rough cut texture, scratched by a knife; slightly weathered with rusty orange staining on fracture surfaces, thickly bedded, good RQD, vugs typically 5%, 2 to 6 mm. (Flank facies)			R1	TCR = **100**% RQD = **32**%	507					
5		Reefal facies texture with open cavities and increased and mounded fossil content from 4.6 m to 6.1 m and 10.1 m to 11.9 m.					506					
6							505					
7	504.2	Core becoming darker bluish grey below 7.6 m. Mottled pinkish grey appearance below 17.1 m.										Broken core recovery from 7.0 m to 7.5 m depth.
		Gradational lower contact on change in texture.			R2	TCR = **99**% RQD = **64**%	504					
8							503					
9	502.4										▼	
					R3	TCR = **98**% RQD = **78**%	502					
10							501					
11							500					
12	499.4											Broken core recovery from 11.8 m to 13.3 m depth with minor red mud infilling.
					R4	TCR = **98**% RQD = **80**%	499					
13							498					
14							497					
	496.3											

(continued next page)

library: genivar - library.glb **report:** gen log v1 **file:** bh logs.gpj

LOG OF BOREHOLE IW1

project | Duntroon Quarry
project no. | 111-53312-00
client | Walker Aggregates Inc.
rig type |
date started | 2014/08/05
location | Duntroon, Ontario
method | Rock coring
supervisor | BTC/TKC
position | E: 560551 N: 4915269 (17T, Geodetic)
coring | PQ core, OD=123mm, ID=85mm
reviewer | KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY (continued)	Graphic Plot	Sample Number	Sample Type	SPT N-Value / Core Recovery	Elevation Scale (mASL)
15					R4		
16							496
17					R5	TCR = 100% RQD = 72%	495
18	493.3						494
19							493
20					R6	TCR = 100% RQD = 80%	492
	491.1						
	20.4	**DOLOSTONE (Fossil Hill Formation)** Bluish grey fine grained dolostone, stylolytes 2 to 3 per 0.3 m, 2 to 3 mm thick, 12 mm chert nodule at 23.9 m.					491
21	490.2	Sharp lower contact at first appearance of shale.					
22							490
23					R7	TCR = 100% RQD = 73%	489
24	487.2						488
	24.3	**SHALE (Cabot Head Formation)** Greenish grey calcareous shale, weathered, plastic texture. 0.3 m dolostone bed at 24.4 m.					487
25							
26					R8	TCR = 100% RQD = 9%	486
27	484.2						485
	27.3	**END OF BOREHOLE**					

Penetration Test Values (Blows / 0.3m) — Dynamic Cone: 10 20 30 40
Undrained Shear Strength (kPa) — Unconfined, Pocket Penetrometer, Field Vane, Lab Vane: 40 80 120 160
Water Content (%) & Plasticity — PL MC LL: 10 20 30
PID Readings
Well Details
Lab Data and Comments — GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

Borehole was open upon completion.

Open hole well installed in borehole. Casing cemented in 3 m of competent bedrock.

WATER LEVEL MONITORING

Date	Depth (m)	Elevation (m)
Aug 6, 2014	8.8	502.8

library: genivar - library.glb report: gen log v1 file: bh logs.gpj

LOG OF BOREHOLE IW1a

WSP

project |	Duntroon Quarry			**project no.** |	111-53312-00
client |	Walker Aggregates Inc.	**rig type** |		**date started** |	2014/08/06
location |	Duntroon, Ontario	**method** |	Rock coring	**supervisor** |	BTC/TKC
position |	E: 560554 N: 4915269 (17T, Geodetic)	**coring** |	PQ core, OD=123mm, ID=85mm	**reviewer** |	KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY	Graphic Plot	SAMPLE: Number	SAMPLE: Type	SAMPLE: SPT N-Value / Core Recovery
0	511.4	**GROUND SURFACE**				
		OVERBURDEN				
4	507.0 / 4.4	**DOLOSTONE (Amabel Formation)** Creamy white with a dull appearance; uniform; fine to medium grained; strong core with a rough cut texture, scratched by a knife; slightly weathered with rusty orange staining on fracture surfaces, thickly bedded, good RQD, vugs typically 5%, 2 to 6 mm. (Flank facies) Reefal facies texture with open cavities and increased and mounded fossil content from 4.6 m to 6.1 m and 10.1 m to 11.9 m. Core becoming darker bluish grey below 7.6 m. Mottled pinkish grey appearance below 17.1 m. Gradational lower contact on change in texture.				

Elevation Scale (mASL): 511, 510, 509, 508, 507, 506, 505, 504, 503, 502, 501, 500, 499, 498, 497

Penetration Test Values (Blows / 0.3m) × Dynamic Cone: 10 20 30 40

Undrained Shear Strength (kPa): ○ Unconfined ● Pocket Penetrometer + Field Vane ■ Lab Vane: 40 80 120 160

Water Content (%) & Plasticity: PL MC LL 10 20 30

PID Readings

Well Details

Lab Data and Comments — GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

(continued next page)

library: genivar - library.glb report: gen log v1 file: bh logs.gpj

LOG OF BOREHOLE IW1a

project |	Duntroon Quarry	**project no.** |	111-53312-00
client |	Walker Aggregates Inc.	**rig type** |	
location |	Duntroon, Ontario	**method** |	Rock coring
position |	E: 560554 N: 4915269 (17T, Geodetic)	**coring** |	PQ core, OD=123mm, ID=85mm
date started |	2014/08/06		
supervisor |	BTC/TKC		
reviewer |	KJF		

SUBSURFACE PROFILE | SAMPLE

Depth Scale (m) | Elev / Depth (m) | STRATIGRAPHY (continued) | Graphic Plot | Number | Type | SPT N-Value / Core Recovery | Elevation Scale (mASL) | Penetration Test Values (Blows / 0.3m) × Dynamic Cone 10 20 30 40 | Undrained Shear Strength (kPa) ○ Unconfined ● Pocket Penetrometer + Field Vane ■ Lab Vane 40 80 120 160 | Water Content (%) & Plasticity PL MC LL 10 20 30 | PID Readings | Well Details | Lab Data and Comments / GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

491.0 / 20.4 — **DOLOSTONE (Fossil Hill Formation)**
Bluish grey fine grained dolostone, stylolytes 2 to 3 per 0.3 m, 2 to 3 mm thick, 12 mm chert nodule at 23.9 m.

Sharp lower contact at first appearance of shale.

487.1 / 24.3 — **SHALE (Cabot Head Formation)**
Greenish grey calcareous shale, weathered, plastic texture. 0.3 m dolostone bed at 24.4 m.

484.1 / 27.3

END OF BOREHOLE

Borehole was open upon completion.

No samples collected. Stratigraphy inferred from adjacent borehole IW1.

Open hole well installed in borehole. Casing cemented in 3 m of competent bedrock.

WATER LEVEL MONITORING

Date	Depth (m)	Elevation (m)
Sep 15, 2014	8.8	502.6

library: genivar - library.glb **report:** gen log v1 **file:** bh logs.gpj

LOG OF BOREHOLE IW2

WSP

project | Duntroon Quarry		**project no.** | 111-53312-00
client | Walker Aggregates Inc.	**rig type** |	**date started** | 2014/08/11
location | Duntroon, Ontario	**method** | Rock coring	**supervisor** | SLW/TKC
position | E: 560521 N: 4915489 (17T, Geodetic)	**coring** | PQ core, OD=123mm, ID=85mm	**reviewer** | KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY	Graphic Plot	Sample Number	Sample Type	SPT N-Value / Core Recovery	Elevation Scale (mASL)
0	508.7	**GROUND SURFACE**					508
		OVERBURDEN					
1							507
2							506
3							505
4	504.0						504
5	4.7	**DOLOSTONE (Amabel Formation)** Creamy white with a dull appearance; uniform; fine to medium grained; strong core with a rough texture, scratched by a knife, slightly weathered with minor light rusty orange staining on fracture surfaces; thickly bedded, good to excellent RQD, vugs <5%, typically 2 to 4 mm. (Flank facies)			R1	TCR = **100**% RQD = **84**%	503
6		Rare thin reefal facies beds 50 mm thick with open, fossiliferous appearance.					502
7		Core becoming darker bluish grey in colour below 7.3 m. Becoming mottled grey white below 15.5 m.					501
8	500.8	Gradational lower contact at change in texture.			R2	TCR = **100**% RQD = **100**%	500
9							499
10	498.9				R3	TCR = **100**% RQD = **98**%	498
11							497
12							496
13	495.9				R4	TCR = **97**% RQD = **78**%	495
14							494
	492.7						

Penetration Test Values (Blows / 0.3m) — × Dynamic Cone — 10 20 30 40

Undrained Shear Strength (kPa) — ○ Unconfined ● Pocket Penetrometer + Field Vane ■ Lab Vane — 40 80 120 160

Water Content (%) & Plasticity — PL MC LL — 10 20 30

PID Readings

Well Details

Lab Data and Comments — GRAIN SIZE DISTRIBUTION (%) (MIT) — GR SA SI CL

(continued next page)

library: genivar - library.glb **report:** gen log v1 **file:** bh logs.gpj

LOG OF BOREHOLE IW2

project | Duntroon Quarry
project no. | 111-53312-00
client | Walker Aggregates Inc.
rig type |
date started | 2014/08/11
location | Duntroon, Ontario
method | Rock coring
supervisor | SLW/TKC
position | E: 560521 N: 4915489 (17T, Geodetic)
coring | PQ core, OD=123mm, ID=85mm
reviewer | KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY (continued)	Graphic Plot	Sample Number	Sample Type	SPT N-Value / Core Recovery	Elevation Scale (mASL)
15					R4	TCR = **97%** RQD = **78%**	
	492.7						493
16							
							492
17					R5	TCR = **97%** RQD = **87%**	
							491
18							
	489.8						490
19							
	488.9						489
	19.8	**DOLOSTONE (Fossil Hill Formation)** Bluish grey fine grained stycolytic typically 6 per 0.3 m. Sharp lower contact on first appearance of shale.			R6	TCR = **97%** RQD = **56%**	
20							488
21							
	486.6						487
22	486.3						
	22.4	**SHALE (Cabot Head Formation)** Greenish grey calcareous, weathered, plastic shale bed 25 mm thick. Dolostone bed from 22.4 m to 23.2 m depth. Three 25 m reddish coloured fossiliferous sandstone beds below 23.5 m depth.			R7	TCR = **97%** RQD = **61%**	486
23							
	484.7						485
24	24.0						

Penetration Test Values (Blows / 0.3m) — Dynamic Cone: 10 20 30 40
Undrained Shear Strength (kPa) — ○ Unconfined ● Pocket Penetrometer + Field Vane ■ Lab Vane: 40 80 120 160
Water Content (%) & Plasticity — PL MC LL: 10 20 30
PID Readings
Well Details
Lab Data and Comments
GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

Broken core recovery from 20.4 m to 20.4 m depth.

Vertical fracture from 21.5 m to 21.7 m depth.

END OF BOREHOLE

Borehole was open upon completion.

Open hole well installed in borehole. Casing cemented in bedrock at 4.27 m depth.

WATER LEVEL MONITORING

Date	Depth (m)	Elevation (m)
Sep 16, 2014	1.7	507.0

library: genivar - library.glb **report:** gen log v1 **file:** bh logs.gpj

LOG OF BOREHOLE IW3

WSP

project | Duntroon Quarry		**project no.** | 111-53312-00
client | Walker Aggregates Inc.	**rig type** |	**date started** | 2014/09/05
location | Duntroon, Ontario	**method** | Rock coring	**supervisor** | KMT
position | E: 560214 N: 4915919 (17T, Geodetic)	**coring** | PQ core, OD=123mm, ID=85mm	**reviewer** | KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY	Graphic Plot	Sample Number	Sample Type	SPT N-Value / Core Recovery	Elevation Scale (mASL)	Penetration Test Values (Blows / 0.3m) / Undrained Shear Strength (kPa)	Water Content (%) & Plasticity	PID Readings	Well Details	Lab Data and Comments / GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL
0	518.5	**GROUND SURFACE**					518	Dynamic Cone: 10 20 30 40				
		OVERBURDEN						Undrained Shear Strength (kPa): ○ Unconfined ● Pocket Penetrometer + Field Vane ■ Lab Vane; 40 80 120 160	PL MC LL; 10 20 30			
1							517					
2							516					
3							515					
	514.7											
4	3.8	**DOLOSTONE (Amabel Formation)** Creamy white with a dull appearance; uniform fine to medium grained; fossiliferous; strong core with rough texture; scratched with a knife; thickly bedded; slightly weathered with minor rusty staining on fracture surfaces; vugs throughout (~5%), 2 to 4 mm; fair to good RQD. (Flank facies)			R1	TCR = **99**% RQD = **65**%	514					
5							513					
6							512					
	511.9	Reefal facies with an open vuggy appearance up to 30% vugs, and a chalky texture, minor reddish muddy infilling with poor RQD from 3.8 m to 8.5 m and from 15.6 m to 16.8 m depth.			R2	TCR = **100**% RQD = **55**%						
7		Core becoming darker greyish brown in colour below 24.4 m, finer grained texture with wispy stylolytic contacts and a decrease in vugs (~1%).					511					
8							510					
	509.6	Gradational lower contact at change in colour and texture.										
9							509					
10					R3	TCR = **99**% RQD = **89**%	508					
11							507					
	506.5											
12							506					
13												
14					R4	TCR = **99**% RQD = **82**%	505					
	503.4						504					
15												
16							503				▼	
					R5	TCR = **100**% RQD = **85**%	502					
17												
	500.3						501					

(continued next page)

library: genivar - library.glb **report:** gen log v1 **file:** bh logs.gpj

LOG OF BOREHOLE IW3

WSP

project |	Duntroon Quarry			**project no.** |	111-53312-00
client |	Walker Aggregates Inc.	**rig type** |		**date started** |	2014/09/05
location |	Duntroon, Ontario	**method** |	Rock coring	**supervisor** |	KMT
position |	E: 560214 N: 4915919 (17T, Geodetic)	**coring** |	PQ core, OD=123mm, ID=85mm	**reviewer** |	KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY (continued)	Graphic Plot	Number	Type	SPT N-Value / Core Recovery	Elevation Scale (mASL)
18					R5		500
19							499
20					R6	TCR = **100**% RQD = **67**%	498
21	497.3						497
22					R7	TCR = **100**% RQD = **87**%	496
23							495
24	494.3						494
25					R8	TCR = **99**% RQD = **96**%	493
26	492.1						492
	26.4	**DOLOSTONE (Fossil Hill Formation)** Light greyish brown to pinkish brown; fine grained with wispy to wavy stylolytes (2 to 5 per 0.3 m), up to 2 mm thick, minor pyrite mineralization.					
27	491.2						491
28							490
29					R9	TCR = **100**% RQD = **72**%	489
30	488.1						488
31							487
32					R10	TCR = **56**% RQD = **44**%	486
33	484.8						485
	33.7						

Penetration Test Values (Blows / 0.3m) — Dynamic Cone: 10 20 30 40

Undrained Shear Strength (kPa) — ○ Unconfined ● Pocket Penetrometer + Field Vane ■ Lab Vane: 40 80 120 160

Water Content (%) & Plasticity — PL MC LL: 10 20 30

PID Readings

Well Details

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

Lower 1.8 m of core lost to drilling. Cabot Head Shale not recovered, but confirmed by return water fragments.

END OF BOREHOLE

Borehole was open upon completion.

Open hole well installed in borehole. Casing cemented in bedrock at 6.86 m depth.

WATER LEVEL MONITORING

Date	Depth (m)	Elevation (m)
Sep 29, 2014	15.7	502.9

library: genivar - library.glb **report:** gen log v1 **file:** bh logs.gpj

LOG OF BOREHOLE IW4

WSP

project |	Duntroon Quarry	**project no. |**	111-53312-00
client |	Walker Aggregates Inc.	**rig type |**		**date started |**	2014/09/08
location |	Duntroon, Ontario	**method |**	Rock coring	**supervisor |**	KMT
position |	E: 560023 N: 4916216 (17T, Geodetic)	**coring |**	PQ core, OD=123mm, ID=85mm	**reviewer |**	KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY	Graphic Plot	Sample Number	Sample Type	SPT N-Value / Core Recovery
0	510.4	**GROUND SURFACE**				
		OVERBURDEN				
	500.5					
10	9.9	**DOLOSTONE (Amabel Formation)** Creamy white with a dull appearance; uniform fine to medium grained; fossiliferous; strong core with rough texture; scratched with a knife; thickly bedded; slightly weathered with minor rusty staining on fracture surfaces; vugs throughout (~5%) up to 1 cm but typically 2 mm to 4 mm. Overall fair to good RQD. (Flank facies)			R1	TCR = * RQD = *
11	499.0	Slight reefal facies appearance (11.0 m - 13.9 m depth) with poor recovery, vuggy, reddish mud staining and poor RQD.			R2	TCR = * RQD = *
12		Core becoming darker bluish in colour below 18.1 m depth with shaley stylolytes (2 mm to 3 mm) and wispy stylolytic contacts typically 1 per 0.3 m.				
13	496.5	Gradational lower contact at 20.7 m depth at change in colour and texture.			R3	TCR = **77**% RQD = **33**%
14	495.3					

Elevation Scale (mASL): 510, 509, 508, 507, 506, 505, 504, 503, 502, 501, 500, 499, 498, 497, 496

Penetration Test Values (Blows / 0.3m) — Dynamic Cone: 10 20 30 40

Undrained Shear Strength (kPa) — Unconfined, Pocket Penetrometer, Field Vane, Lab Vane: 40 80 120 160

Water Content (%) & Plasticity — PL MC LL: 10 20 30

PID Readings

Well Details

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

* Core barrel not catching core.

(continued next page)

library: genivar - library.glb **report:** gen log v1 **file:** bh logs.gpj

LOG OF BOREHOLE IW4

project | Duntroon Quarry
project no. | 111-53312-00
client | Walker Aggregates Inc.
rig type |
date started | 2014/09/08
location | Duntroon, Ontario
method | Rock coring
supervisor | KMT
position | E: 560023 N: 4916216 (17T, Geodetic)
coring | PQ core, OD=123mm, ID=85mm
reviewer | KJF

Depth Scale (m)	Elev / Depth (m)	STRATIGRAPHY (continued)	Graphic Plot	Sample Number	Sample Type	SPT N-Value / Core Recovery	Elevation Scale (mASL)	Penetration Test Values (Blows / 0.3m) / Undrained Shear Strength (kPa)	Water Content (%) & Plasticity	PID Readings	Well Details	Lab Data and Comments
15							495					
16							494					Vertical fracture 16.3 m to 16.9 m.
17					R4	TCR = 100% RQD = 66%	493				▼	
18	492.3						492					
19					R5	TCR = 100% RQD = 93%	491					
20	489.7						490					Pyrite mineralization for 5 cm at 20.4 m.
21	489.4 20.7	**DOLOSTONE (Fossil Hill Formation)** Light greyish brown to pinkish brown; fine grained with wispy blue stylolytes typically 3 mm to 5 mm thick; minor pyrite mineralization; occasional chert as white crystals 2 mm to 3 mm. 30 mm reddish calcareous sandstone bed at 21.9 m depth. Sharp lower contact on change in texture.			R6	TCR = 90% RQD = 76%	489					
22							488					
23							487					
24	486.2						486					
25	485.7 24.7	**SHALE (Cabot Head Formation)** Greenish grey calcareous shale; soft, muddy appearance.			R7	TCR = 97% RQD = 77%	485					
	485.0 25.4	**END OF BOREHOLE** Borehole was open upon completion. Open hole well installed in borehole. Casing cemented in bedrock at 6.86 m depth.										

Penetration Test Values (Blows / 0.3m): Dynamic Cone 10 20 30 40
Undrained Shear Strength (kPa): ○ Unconfined ● Pocket Penetrometer + Field Vane ■ Lab Vane 40 80 120 160
Water Content (%) & Plasticity: PL MC LL 10 20 30
Lab Data and Comments: GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

WATER LEVEL MONITORING

Date	Depth (m)	Elevation (m)
Sep 30, 2014	17.4	493.0

library: genivar - library.glb **report:** gen log v1 **file:** bh logs.gpj

BOREHOLE NO. DP99-1

PROJECT NAME: DUNTROON QUARRY | **PROJECT NO.:** 930521.08

CLIENT: GEORGIAN AGGREGATES AND CONSTRUCTION INC. | **DATE:** JUNE 29, 1999

BOREHOLE TYPE: 60 mm ID HAND AUGER | **GEOLOGIST:** WDN

GROUND ELEVATION: 511.8 mASL | **REVIEWER:** AGH

DEPTH (m)		STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE 'N' VALUE	SAMPLE % WATER	SAMPLE % RECOVERY	SAMPLE RQD (%)	CONE PENETRATION "N" VALUE 10 20 30 / SHEAR STRENGTH	WATER CONTENT % 10 20 30 / W_P W_L	REMARKS
0												
		ORGANICS BLACK SILTY, FIBROUS ORGANICS, SATURATED										
	0.4											
0.5		SILT, SOME CLAY BROWN, MOTTLED WITH ORANGE, RED, AND GREEN SILT, SOME CLAY, STONY, WET										
1.0	1.0											0.45 m SLOT 10 SCREEN 0.50 m SAND PACK
		AUGER REFUSAL AT 1.0 m ON ASSUMED BEDROCK										
1.5												
2.0												
2.5												
3.0												
3.5												
4.0												
4.5												
5.0												

BOREHOLE NO. DP99-2

PROJECT NAME: DUNTROON QUARRY | **PROJECT NO.:** 930521.08

CLIENT: GEORGIAN AGGREGATES AND CONSTRUCTION INC. | **DATE:** JUNE 29, 1999

BOREHOLE TYPE: 60 mm ID HAND AUGER | **GEOLOGIST:** WDN

GROUND ELEVATION: 512.1 mASL | **REVIEWER:** AGH

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE 'N' VALUE	SAMPLE % WATER	SAMPLE % RECOVERY	SAMPLE RQD (%)	CONE PENETRATION "N" VALUE 10 20 30 / SHEAR STRENGTH	WATER CONTENT % 10 20 30 / W_P W_L	REMARKS
0	ORGANICS DARK BROWN TO BLACK SILTY FIBROUS ORGANICS, BECOMES PEATY WITH DEPTH, SATURATED										
0.5											
1.0											0.45 m SLOT 10 SCREEN 0.50 m SAND PACK
1.3	CALCAREOUS AUGER CUTTINGS										
1.5	AUGER REFUSAL AT 1.0 m ON ASSUMED BEDROCK										
2.0											
2.5											
3.0											
3.5											
4.0											
4.5											
5.0											

BOREHOLE NO. DP99-3

PROJECT NAME: DUNTROON QUARRY | **PROJECT NO.:** 930521.08

CLIENT: GEORGIAN AGGREGATES AND CONSTRUCTION INC. | **DATE:** JULY 21, 1999

BOREHOLE TYPE: 60 mm ID HAND AUGER | **GEOLOGIST:** AGH

GROUND ELEVATION: 513.6 mASL | **REVIEWER:**

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE 'N' VALUE	SAMPLE % WATER	SAMPLE % RECOVERY	SAMPLE RQD (%)	CONE PENETRATION "N" VALUE / SHEAR STRENGTH	WATER CONTENT % (W_P – W_L)	REMARKS
0	ORGANICS DARK BROWN TO BLACK SILTY FIBROUS ORGANICS, SOME ORGANIC SILT, ROOTLETS AND WOOD VEGETATION, SOFT, MOIST TO WET, BECOMING SATURATED AT ABOUT 1.5 m										
0.5											
1.0											0.45 m SLOT 10 SCREEN 0.50 m SAND PACK
1.5											
2.0											
2.14 / 2.20	GREY SILTY SAND, SATURATED										
	HOLE TERMINATED AT 2.20 m IN GREY SILTY SAND										
2.5											
3.0											
3.5											
4.0											
4.5											
5.0											

BOREHOLE NO. DP99-4

PROJECT NAME: DUNTROON QUARRY | **PROJECT NO.:** 930521.08

CLIENT: GEORGIAN AGGREGATES AND CONSTRUCTION INC. | **DATE:** JUNE 30, 1999

BOREHOLE TYPE: 60 mm ID HAND AUGER | **GEOLOGIST:** WDN

GROUND ELEVATION: 511.4 mASL | **REVIEWER:** AGH

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE 'N' VALUE	SAMPLE % WATER	SAMPLE % RECOVERY	SAMPLE RQD (%)	CONE PENETRATION "N" VALUE 10 20 30 / SHEAR STRENGTH	WATER CONTENT % 10 20 30 / W_P W_L	REMARKS
0	ORGANICS BLACK FIBROUS ORGANICS, PEAT, SATURATED										
0.5											
1.0											0.45 m SLOT 10 SCREEN 0.50 m SAND PACK
1.35	SILT, SOME FINE SAND: GREENISH GREY SILT, SOME FINE SAND, RANDOM PEBBLES, SATURATED										
1.5	1.50 AUGER REFUSAL AT 1.5 m ON ASSUMED BEDROCK										
2.0											
2.5											
3.0											
3.5											
4.0											
4.5											
5.0											

BOREHOLE NO. DP5

PROJECT NAME: PROPOSED DUNTROON QUARRY EXPANSION
PROJECT NO.: 04 930521.52

CLIENT: WALKER AGGREGATES INC.
DATE COMPLETED: Jul 03, 2007

BOREHOLE TYPE: HAND AUGER
SUPERVISOR: SLW

GROUND ELEVATION: 509.5 NOT DETERMINED
REVIEWER: MJL

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE N VALUE	SAMPLE % WATER	SAMPLE % RECOVERY	SAMPLE RQD (%)	CONE PENETRATION "N" VALUE 10 20 30 / SHEAR STRENGTH	WATER CONTENT % 10 20 30 / W_P W_L	UTM CO-ORDINATES / REMARKS
0.0											UTM Zone: 17 NAD: 83 Easting: 559086 Northing: 4915559
0.0 – 0.2	ORGANIC SILT: DARK BROWN ORGANIC SILT, TRACE CLAY, ORGANICS, WET TO SATURATED.			AS1			100				ROB ROY PSW WETLAND COMPLEX UNIT 2
0.2 – 0.4	CLAYEY SILT: LIGHT BROWN CLAYEY SILT, TRACE SAND, WTPL.			AS2			100				
0.4 – 1.0	SAND: LIGHT BROWN FINE SAND, TRACE TO SOME SILT TO FINE TO MEDIUM SAND, TRACE TO SOME SILT WITH DEPTH, SATURATED.			AS3 AS4 AS5			100 100 100				
1.0	HAND AUGER HOLE TERMINATED AT 1.0 m DUE TO REFUSAL.										
2.0											
3.0											
4.0											
5.0											

JHL GEOLOGIC B/W (METRIC) WITH UTM 4-93052152 DRIVE POINTS.GPJ JAGGER HIMS BASIC.GDT 9/7/07

BOREHOLE NO. DP6

PROJECT NAME: PROPOSED DUNTROON QUARRY EXPANSION
PROJECT NO.: 04 930521.52
CLIENT: WALKER AGGREGATES INC.
DATE COMPLETED: Jul 03, 2007
BOREHOLE TYPE: HAND AUGER
SUPERVISOR: SLW
GROUND ELEVATION: 511.3 NOT DETERMINED
REVIEWER: MJL

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE N VALUE	SAMPLE % WATER	SAMPLE % RECOVERY	SAMPLE RQD (%)	CONE PENETRATION "N" VALUE / SHEAR STRENGTH	WATER CONTENT % (W_P W_L)	UTM CO-ORDINATES / REMARKS
0.0											UTM Zone: 17 NAD: 27 Easting: 559774 Northing: 4915513
0.1	ORGANIC SILT: DARK BROWN ORGANIC SILT, ORGANICS, MOIST.			AS1			100				EXPANSION LANDS ESCARPMENT ANSI A WETLAND
	SILT: LIGHT BROWN SILT, SOME TO TRACE FINE SAND, TRACE CLAY, DTPL TO APL AT 0.6 m.			AS2			100				
				AS3			100				
				AS4			100				
				AS5			100				
				AS6			100				
				AS7			100				
1.0											
				AS8			100				
1.4	HAND AUGER HOLE TERMINATED AT 1.4 m DUE TO REFUSAL.										
2.0											
3.0											
4.0											
5.0											

JHL GEOLOGIC B/W (METRIC) WITH UTM 4-93052152 DRIVE POINTS.GPJ JAGGER HIMS BASIC.GDT 9/7/07

BOREHOLE NO. DP7

PROJECT NAME: DUNTROON EXPANSION
PROJECT NO.: 111-53312-00 52.1
CLIENT: WALKER AGGREGATES INC.
DATE COMPLETED: Jul 10, 2014
BOREHOLE TYPE: 1 1/4" HAND AUGER
SUPERVISOR: TKC
GROUND ELEVATION: 509.2 mASL
REVIEWER: SLW

DEPTH (m)	ELEV (mASL)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE N VALUE	SAMPLE % WATER	SAMPLE % RECOVERY	SAMPLE RQD (%)	CONE PENETRATION "N" VALUE / SHEAR STRENGTH	WATER CONTENT % (W_P – W_L)	UTM CO-ORDINATES / REMARKS
0.0	509.2	TOPSOIL										UTM Zone: 17 NAD: 83 Easting: 559345 Northing: 4915351
0.2	509.0	FINE SAND, SOME SILT										
0.8	508.4	SILTY TILL, TRACE SAND										
2.5	506.7	DRIVEPOINT TERMINATED AT 2.5 m.										

BOREHOLE NO. DP8

PROJECT NAME: DUNTROON EXPANSION
PROJECT NO.: 111-53312-00 52.1
CLIENT: WALKER AGGREGATES INC.
DATE COMPLETED: Jul 10, 2014
BOREHOLE TYPE: 1 1/4" HAND AUGER
SUPERVISOR: BTC
GROUND ELEVATION: 511.1 mASL
REVIEWER: SLW

DEPTH (m)	ELEV (mASL)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE N VALUE	SAMPLE % WATER	SAMPLE % RECOVERY	SAMPLE RQD (%)	CONE PENETRATION "N" VALUE / SHEAR STRENGTH	WATER CONTENT % (W_P – W_L)	UTM CO-ORDINATES / REMARKS
0.0	511.1	TOPSOIL										UTM Zone: 17 NAD: 83 Easting: 559094 Northing: 4914360
0.5	510.6	DARK BROWN SOIL										
0.9	510.2	DRIVEPOINT TERMINATED AT 0.9 m.										

WSP GEOLOGIC (METRIC) WITH MASL 111-53312-00 DRIVEPOINTS.GPJ WSP_ENV_V1.GDT 7/19/16

BOREHOLE NO. DP9

PROJECT NAME: DUNTROON EXPANSION
PROJECT NO.: 111-53312-00 52.1
CLIENT: WALKER AGGREGATES INC.
DATE COMPLETED: Sep 10, 2014
BOREHOLE TYPE: 1 1/4" HAND AUGER
SUPERVISOR: KMT
GROUND ELEVATION: 507.7 mASL
REVIEWER: KJF

DEPTH (m)	ELEV (mASL)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE N VALUE	SAMPLE % WATER	SAMPLE % RECOVERY	SAMPLE RQD (%)	CONE PENETRATION "N" VALUE / SHEAR STRENGTH	WATER CONTENT % (W_P – W_L)	REMARKS
0.0	507.7	BROWN SATURATED TOPSOIL										
0.1	507.6	BROWN AND GREYISH CLAYEY SILT, SATURATED. RUST STAINING.										WATER PONDED AT 0.12 m ABOVE GROUND.
0.5	507.2	BROWN CLAYEY SILT TO SILTY CLAY. TRACE GRAVEL.										
1.3	506.4	DRIVEPOINT TERMINATED AT 1.33 m.										

UTM CO-ORDINATES
UTM Zone: 17 NAD: 83
Easting: 560273
Northing: 4915407

BOREHOLE NO. DP-5 (BRIDSON PROPERTY)

PROJECT NAME: DUNTROON QUARRY EXPANSION **PROJECT NO.:** 930521.50

CLIENT: GEORGIAN AGGREGATES AND CONSTRUCTION INC. **DATE:** SEPTEMBER 26, 2003

BOREHOLE TYPE: HAND AUGER **SUPERVISOR:** AGH

GROUND ELEVATION: ESTIMATED 510 mASL **REVIEWER:**

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE 'N' VALUE	SAMPLE % WATER	SAMPLE % RECOVERY	SAMPLE RQD (%)	CONE PENETRATION "N" VALUE 10 20 30 / SHEAR STRENGTH	WATER CONTENT % 10 20 30 / W_P W_L	REMARKS
0	SILT: DARK BROWN ORGANIC SILT, TOPSOIL, ROOTLETS, APL TO WTPL.			AS							LOCATED ON BRIDSON PROPERTY
0.2				AS							
0.26	SILT: LIGHT BROWN/MOTTLED GREYISH BROWN SILT, TRACE TO SOME SAND, TRACE CLAY, TRACE GRAVEL, MOIST.			AS							
0.4											
0.6				AS							
0.67	SILTY FINE SAND: LIGHT BROWN /MOTTLED GREYSIH BROWN SILTY FINE SAND TO FINE SANDY SILT, TRACE CLAY, MOIST			AS							
0.8				AS							
1.0				AS							
1.06	SILT: LIGHT BROWN TO GREYISH BROWN SILT, SOME SAND, TRACE CLAY, APL TO WTPL.			AS							
1.2				AS							
1.4				AS							
1.6				AS							
1.72	HAND AUGER HOLE TERMINATED AT 1.72 m IN SILT.			AS							
1.8											
2.0											

BOREHOLE NO. HA1

PROJECT NAME: DUNTROON QUARRY EXPANSION
PROJECT NO.: 930521.50

CLIENT: GEORGIAN AGGREGATES AND CONSTRUCTION INC.
DATE: SEPTEMBER 11, 2003

BOREHOLE TYPE: HAND AUGER
SUPERVISOR: MJL

GROUND ELEVATION: ESTIMATED 510 mASL
REVIEWER: AGH

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE 'N' VALUE	SAMPLE % WATER	SAMPLE % RECOVERY	SAMPLE RQD (%)	CONE PENETRATION "N" VALUE 10 20 30 / SHEAR STRENGTH	WATER CONTENT % 10 20 30 / W_P W_L	REMARKS
0	SILT: DARK BROWN ORGANIC SILT, TOPSOIL, ROOTLETS, DTPL TO APL.			AS							LOCATED ON BRIDSON PROPERTY
0.2											
0.23	SILT: LIGHT BROWN MOTTLED SILT, SOME SAND, TRACE CLAY BECOMING SANDY SILT WITH DEPTH, MOIST.			AS							
0.4				AS							
0.6				AS							
0.76				AS							
0.8	HAND AUGER HOLE TERMINATED AT 0.76 m IN SILT.										
1.0											
1.2											
1.4											
1.6											
1.8											
2.0											

BOREHOLE NO. HA2

PROJECT NAME: DUNTROON QUARRY EXPANSION | **PROJECT NO.:** 930521.50

CLIENT: GEORGIAN AGGREGATES AND CONSTRUCTION INC. | **DATE:** SEPTEMBER 26, 2003

BOREHOLE TYPE: HAND AUGER | **SUPERVISOR:** AGH

GROUND ELEVATION: ESTIMATED 511 mASL | **REVIEWER:**

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE 'N' VALUE	SAMPLE % WATER	SAMPLE % RECOVERY	SAMPLE RQD (%)	CONE PENETRATION "N" VALUE / SHEAR STRENGTH	WATER CONTENT % (W_P – W_L)	REMARKS
0									10 20 30	10 20 30	
	SILT: DARK BROWN TO BROWN ORGANIC SILT (PEATY), MOIST BECOMING APL.			AS							LOCATED IN WETLAND, NORTHWEST CORNER OF EXPANSION LANDS
0.15				AS							
0.2	SILT: BROWN/MOTTLED BROWN–GREY ORGANIC SILT, TRACE CLAY BECOMING SILT, TRACE TO SOME CLAY, APL TO WTPL. –GRADES TO FINE SANDY SILT, TRACE TO SOME CLAY			AS							
0.4				AS							
0.50											
	SILTY SAND: BROWN SILTY SAND, TRACE CLAY, WET TO SATURATED. THIN LAYER OF CLAYEY SILT AT BASE.										
0.6				AS							
0.8				AS							
0.90	REFUSAL ON BOULDER OR BEDROCK			AS							
	HAND AUGER HOLE TERMINATED AT 0.90 m DUE TO AUGER REFUSAL ON BOULDER OR BEDROCK.										
1.0											
1.2											
1.4											
1.6											
1.8											
2.0											

BOREHOLE NO. HA3

PROJECT NAME: DUNTROON QUARRY EXPANSION
PROJECT NO.: 930521.50

CLIENT: GEORGIAN AGGREGATES AND CONSTRUCTION INC.
DATE: SEPTEMBER 26, 2003

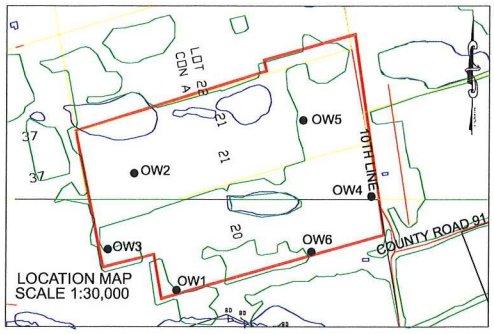
BOREHOLE TYPE: HAND AUGER
SUPERVISOR: AGH

GROUND ELEVATION: ESTIMATED 511 mASL
REVIEWER:

DEPTH (m)	STRATIGRAPHIC DESCRIPTION	STRATIGRAPHY	MONITOR DETAILS	SAMPLE TYPE	SAMPLE 'N' VALUE	SAMPLE % WATER	SAMPLE % RECOVERY	SAMPLE RQD (%)	CONE PENETRATION "N" VALUE 10 20 30 / SHEAR STRENGTH	WATER CONTENT % 10 20 30 / W_P W_L	REMARKS
0											
	SILT: DARK BROWN ORGANIC SILT (PEATY), BECOMING BROWN–GREY ORGANIC SILT (LESS PEATY), MOIST.			AS							LOCATED IN WETLAND, NORTHWEST CORNER OF EXPANSION LANDS
	0.15			AS							
0.2	SILT: BROWN GREY SILT, SOME CLAY, TRACE SAND, APL TO WTPL.			AS							
	0.35			AS							
0.4	SILTY SAND: MOTTLED BROWN TO BROWN SILTY SAND, TRACE TO SOME CLAY, TRACE GRAVEL AT BASE, APL TO WTPL, WET TO SATURATED.										
				AS							
0.6				AS							
0.8				AS							GRAIN SIZE SAMPLE MIT CLASSIFICATION GRAVEL 11 % SAND 61 % SILT 23 % CLAY 5 % FINE SAND 31 % MED. SAND 18.5 % COARSE SAND 11.5 %
				AS							
1.0											
				AS							
1.2	1.20 SILT LAYERS AT DEPTH.										
	HAND AUGER HOLE TERMINATED AT 1.20 m IN BROWN SILTY SAND.										
1.4											
1.6											
1.8											
2.0											

OW1 NEST

Drill Date: August 2004
Drilling Method: Continuous Core
Driller: Lantech Drilling
Geologist: TLW
Ground Surface Elevation: 512.2 masl



Depth (m)	Strat.	Geology Formation	Geology Member	Stratigraphic Description
				Overburden
4		Amabel Formation		**Dolostone** Light grey to beige, fine crystalline, occasional fossils (brachiopods), low porosity, vuggy (vugs lined with fine calcite crystals)
8				Massive dolostone between 8 and 12.2 m, mottled, fossiliferous (crinoids, bivalves, brachiopods)
12				Less dense dolostone between 12.2 and 20.7 m Below 12.2 m - iron staining in vugs
16				
20				Between 18 and 19 m - blue / white mottling
24				Massive dolostone Blue / white mottling from 20.7 m to bottom of hole Vug frequency decreasing with depth Stylolites between 22 and 29 m
28			Lions Head	**Dolostone** Massive, light to dark grey, occasional tan beds, aphanitic, low fossil content
32		Fossil Hill		**Dolostone,** mottled blue-grey, low fossil content occasional shale interbeds

Transmissivity Profile (m^2/s): 10^{-6}, 10^{-5}, 10^{-4}

Monitoring Well: I, II, III, IV

Bottom of Borehole = 31.93 m

NOTES:
Borehole OW1-04 was logged by John Emery Geotechnical Engineering Limited
For a detailed description of the geological units refer to Section 5.0 of the report
Information on well construction details refer to Appendix A: Methodology
Information on stratigraphic contacts refer to Appendix D: Borehole Geophysics
Information on transmissivity profiles refer to Appendix F: Packer Testing Data

Water levels measured on:
- April 13,2005
- November 15,2005

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

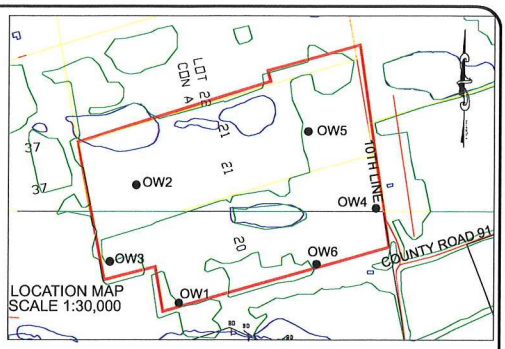
Observation Well Nest 1

Date Issued:	December 2005
Geologist:	TLW
Project No.	04-015
File Name:	OW1-page 1.cdr

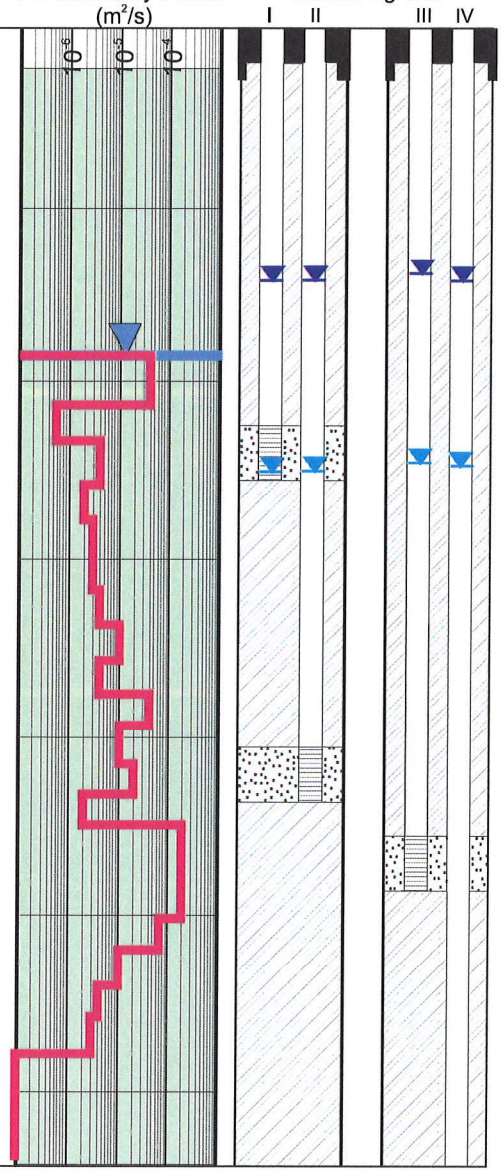
Highland Quarry
Hydrogeological Assessment

OW2 NEST

Drill Date: August 2004
Drilling Method: Continuous Core
Driller: Lantech Drilling
Geologist: TLW
Ground Surface Elevation: 522.2 masl



Depth (m)	Strat.	Geology Formation	Geology Member	Stratigraphic Description
0				**Overburden** Brown, silty sand, occasional gravel
4		Amabel Formation		**Dolostone** Light grey to beige, slightly mottled, fine crystalline fossiliferous (brachiopods), medium bedded, vuggy fractures between 1.6 and 3.7 m are weathered
8				At 8.5 m - highly fractured for 0.4 m, weathered (iron staining)
12				
16				
20				
24				Light grey to bluish grey, iron staining in vugs Weathered fractures between 24 and 27 m
28				**Dolostone** Light grey, massive, fine crystalline with aphanitic sections
32				



NOTES:
Borehole OW2-04 was logged by John Emery Geotechnical Engineering Limited
For a detailed description of the geological units refer to Section 5.0 of the report
Information on well construction details refer to Appendix A: Methodology
Information on stratigraphic contacts refer to Appendix D: Borehole Geophysics
Information on transmissivity profiles refer to Appendix F: Packer Testing Data

Water levels measured on:
- April 13,2005
- November 15,2005

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

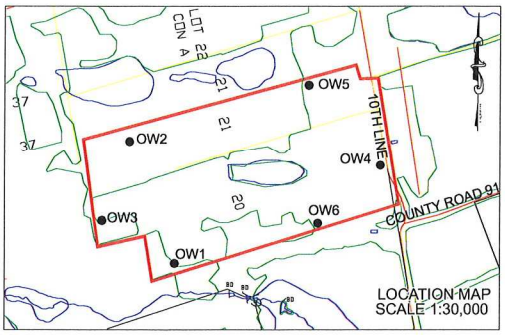
Observation Well Nest 2

Date Issued:	December 2005
Geologist:	TLW
Project No.	04-015
File Name:	OW2-page 1.cdr

Highland Quarry
Hydrogeological Assessment

OW2 NEST

Drill Date: August 2004
Drilling Method: Continuous Core
Driller: Lantech Drilling
Geologist: TLW
Ground Surface Elevation: 522.2 masl



Depth (m)	Strat.	Geology Formation	Geology Member	Stratigraphic Description
		Amabel Formation		(Continued from previous page)
36			Lions Head	**Dolostone** Light grey, stylolites, occasional pyrite, filled fracture and tan beds
40		Fossil Hill		**Dolostone** Mottled blue-grey, low fossil content, occasional shale interbed
44		Cabot Head		**Shale** Dark green, thin bedded, massive to brittle
				Bottom of Borehole = 44.46 mbgl
48				
52				
56				
60				
64				

Transmissivity Profile (m^2/s): 10^{-6} 10^{-5} 10^{-4}

Monitoring Well: III IV

NOTES:
Borehole OW2-04 was logged by John Emery Geotechnical Engineering Limited
For a detailed description of the geological units refer to Section 5.0 of the report
Information on well construction details refer to Appendix A: Methodology
Information on stratigraphic contacts refer to Appendix D: Borehole Geophysics
Information on transmissivity profiles refer to Appendix F: Packer Testing Data

Water levels measured on:
- April 13,2005
- November 15,2005

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

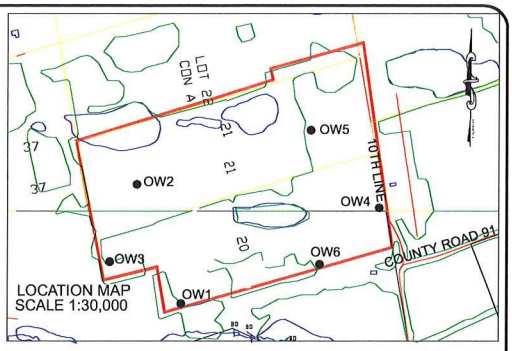
Observation Well Nest 2

Date Issued:	December 2005
Geologist:	TLW
Project No.	04-015
File Name:	OW2-page 2.cdr

Highland Quarry
Hydrogeological Assessment

OW3 NEST

Drill Date: August 2004
Drilling Method: Continuous Core
Driller: Lantech Drilling
Geologist: TLW
Ground Surface Elevation: 515.5 masl



Depth (m)	Strat.	Geology Formation	Geology Member	Stratigraphic Description
0		Amabel Formation		**Overburden**
				Dolostone Light grey to beige, fine crystalline, occasional fossils (brachiopods), massive bedded, vugs with iron staining to 7.3 m
4				
				Between 7.3 and 20.1 m mottled light grey to grey
8				Weathered fracture at 9 m (iron staining)
12				
				Stylolites between 15 and 16 m
16				Between 17 and 18 m - large weather fracture with crystallization
20				
				Vuggy between 23.5 and 26.3 m
24				
28				
			Lions Head	**Dolostone** Massive, light to dark grey, occasional tan bed
32				

Transmissivity Profile (m^2/s): 10^{-6}, 10^{-5}, 10^{-4}

Monitoring Well: I, II, III, IV

Bottom of Borehole = 31.57 m

NOTES:
For a detailed description of the geological units refer to Section 5.0 of the report
Information on well construction details refer to Appendix A: Methodology
Information on stratigraphic contacts refer to Appendix D: Borehole Geophysics
Information on transmissivity profiles refer to Appendix F: Packer Testing Data

Water levels measured on:
- April 13,2005
- November 15,2005

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

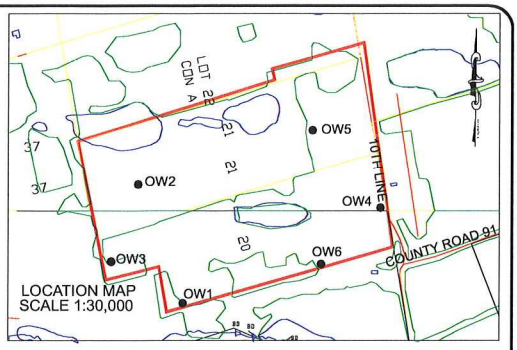
Observation Well Nest 3

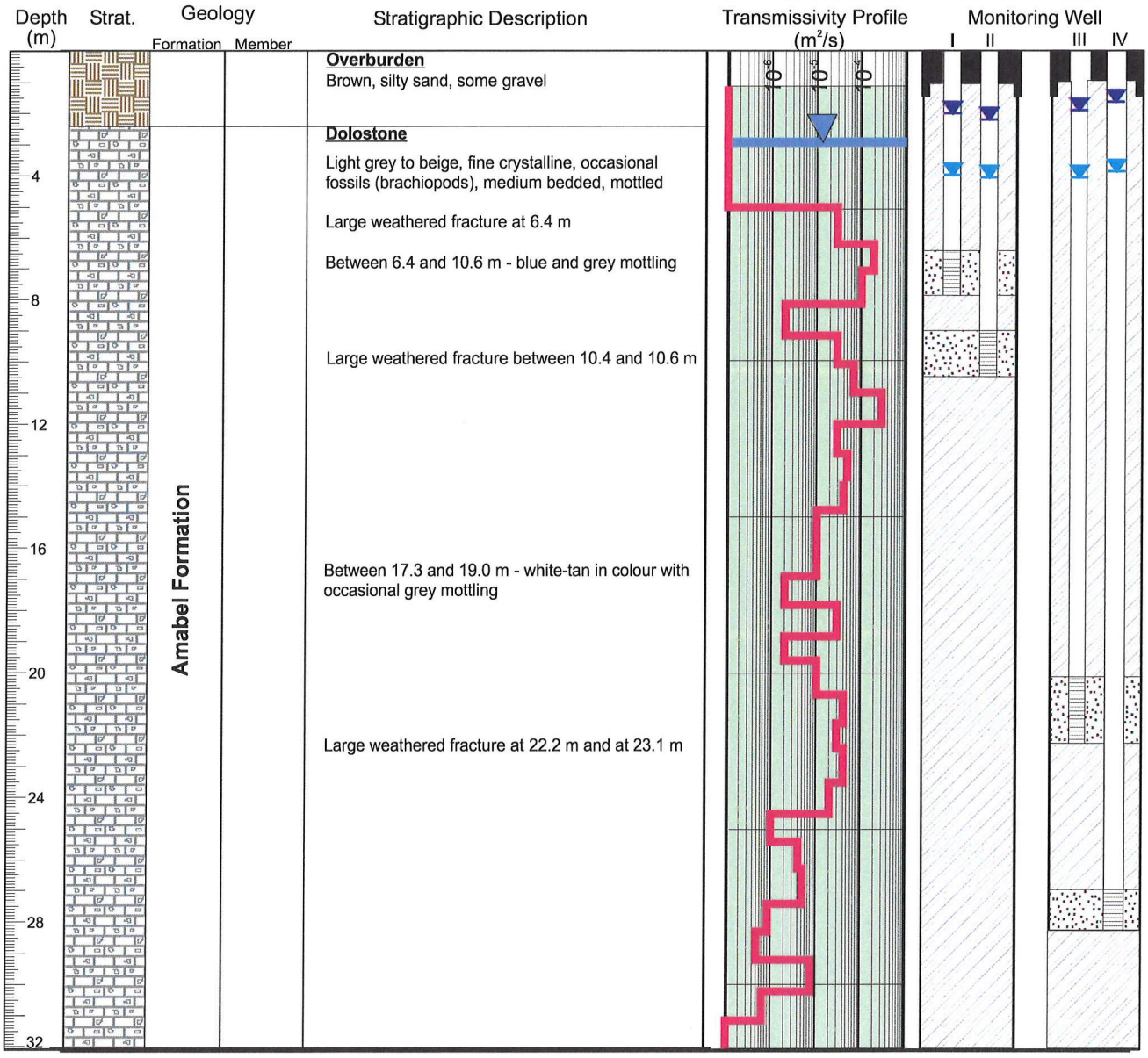
Date Issued:	December 2005
Geologist:	TLW
Project No.	04-015
File Name:	OW3-page 1.cdr

Highland Quarry
Hydrogeological Assessment

OW4 NEST

Drill Date: August 2004
Drilling Method: Continuous Core
Driller: Lantech Drilling
Geologist: TLW
Ground Surface Elevation: 518.8 masl





Bottom of Borehole = 32.9 m

NOTES:
Borehole OW4-04 was logged by John Emery Geotechnical Engineering Limited
For a detailed description of the geological units refer to Section 5.0 of the report
Information on well construction details refer to Appendix A: Methodology
Information on stratigraphic contacts refer to Appendix D: Borehole Geophysics
Information on transmissivity profiles refer to Appendix F: Packer Testing Data

Water levels measured on:
- April 13,2005
- November 15,2005

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

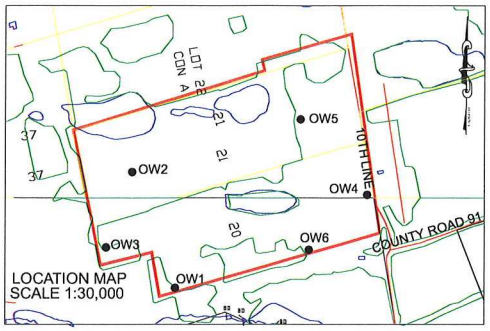
Observation Well Nest 4

Date Issued:	December 2005
Geologist:	TLW
Project No.	04-015
File Name:	OW4-page 1.cdr

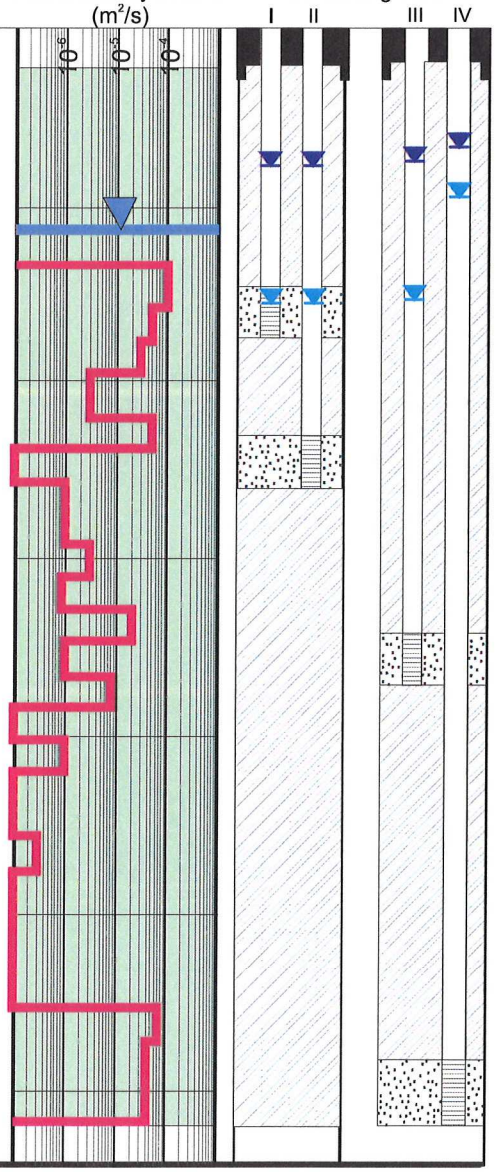
Highland Quarry
Hydrogeological Assessment

OW5 NEST

Drill Date: August 2004
Drilling Method: Continuous Core
Driller: Lantech Drilling
Geologist: TLW
Ground Surface Elevation: 510.8 masl



Depth (m)	Strat.	Geology Formation	Geology Member	Stratigraphic Description
0				**Overburden** Brown, silty sand, some gravel
4		Amabel Formation		**Dolostone** Light grey to beige, fine crystalline, occasional fossils (brachiopods), medium bedded, mottled, vuggy, alternating dense to less dense
8				Weathered fracture at 7.6 m
12				Whitish to light grey, massive Weathered fracture at 12.1 m
16				Between 14.5 and 20.5 iron staining in vugs and fractures
20				Light to medium grey, massive
24				
28			Lions Head	**Dolostone** Distinct change in lithology - blue/white mottling massive
		Fossil Hill		**Dolostone**, greenish grey, low fossil content, occasional shale seam
		Cabot Head		**Shale** Dark green, thin bedded, massive to brittle
32				Bottom of Borehole = 31.0 m



NOTES:
For a detailed description of the geological units refer to Section 5.0 of the report
Information on well construction details refer to Appendix A: Methodology
Information on stratigraphic contacts refer to Appendix D: Borehole Geophysics
Information on transmissivity profiles refer to Appendix F: Packer Testing Data

Water levels measured on:
- April 13,2005
- November 15,2005

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

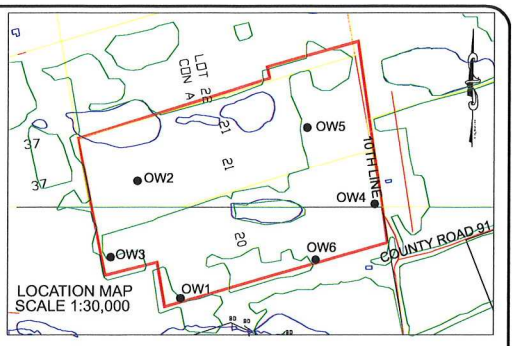
Observation Well Nest 5

Date Issued:	December 2005
Geologist:	TLW
Project No.	04-015
File Name:	OW5-page 1.cdr

Highland Quarry
Hydrogeological Assessment

OW6 NEST

Drill Date: August 2004
Drilling Method: Continuous Core
Driller: Lantech Drilling
Geologist: TLW
Ground Surface Elevation: 526.2 masl



Depth (m)	Strat.	Geology Formation	Geology Member	Stratigraphic Description
0				**Overburden** Brown, silty sand, occasional gravel
4		Amabel Formation		**Dolostone** Light grey to beige, slightly mottled, fine crystalline fossiliferous (brachiopods), medium bedded, vuggy, dense fractures between 1.6 and 3.7 m are weathered
8				
12				Weathered fractures at 11.5, 12.8, 13.4, 14.2 m (fracture at 14.2 is on a 45 degree angle)
16				Light grey, less dense, vuggy, weathered fracture at 18.2 m
20				Highly fractured and weathered between 23.5 and 27.0 m (drill rods dropped between 24.5 - 25.5 m)
24				
28				Whitish-grey, dense
32				

Transmissivity Profile (m^2/s): 10^{-6}, 10^{-5}, 10^{-4}

Monitoring Well: I, II, III, IV

NOTES:
For a detailed description of the geological units refer to Section 5.0 of the report
Information on well construction details refer to Appendix A: Methodology
Information on stratigraphic contacts refer to Appendix D: Borehole Geophysics
Information on transmissivity profiles refer to Appendix F: Packer Testing Data
Water levels measured on:
April 13,2005
November 15,2005
*Represents zone of packer communication t
no analysis possible

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

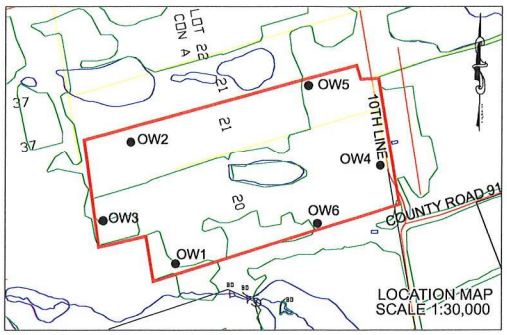
Observation Well Nest 6

Date Issued:	December 2005
Geologist:	TLW
Project No.	04-015
File Name:	OW6-page 1.cdr

Highland Quarry
Hydrogeological Assessment

OW6 NEST

Drill Date: August 2004
Drilling Method: Continuous Core
Driller: Lantech Drilling
Geologist: TLW
Ground Surface Elevation: 526.2 masl



Depth (m)	Strat.	Geology Formation	Geology Member	Stratigraphic Description
36		Amabel Formation		(Continued from previous page)
40				
44				
48			Lions Head	**Dolostone** Light grey, mottled, occasional tan bed, low fossil content
52		Fossil Hill		**Dolostone** Greenish grey, shale seams, thin bedded, low fossil content
		Cabot Head		**Shale** Dark green, thin bedded, massive to fissile
				Bottom of Borehole = 51.19 mbgl
56				
60				
64				

Transmissivity Profile (m^2/s): 10^{-6}, 10^{-5}, 10^{-4} *

Monitoring Well: III IV

NOTES:
For a detailed description of the geological units refer to Section 5.0 of the report
Information on well construction details refer to Appendix A: Methodology
Information on stratigraphic contacts refer to Appendix D: Borehole Geophysics
Information on transmissivity profiles refer to Appendix F: Packer Testing Data
Water levels measured on:
- April 13,2005
- November 15,2005

*Represents zone of packer communication t no analysis possible

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Observation Well Nest 6

Date Issued:	December 2005
Geologist:	TLW
Project No.	04-015
File Name:	OW6-page 2.cdr

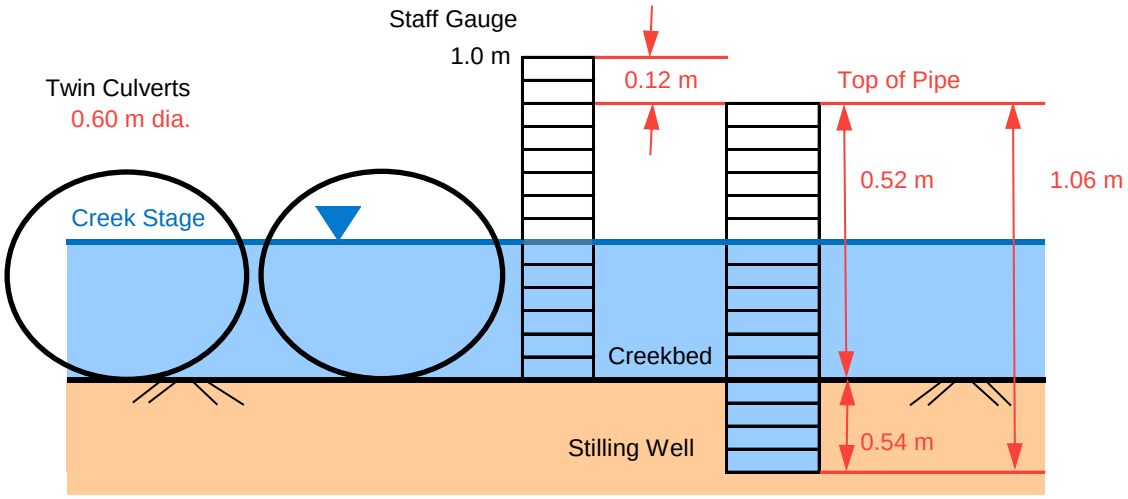
Highland Quarry
Hydrogeological Assessment

APPENDIX A-4

Surface Water Station Instrumentation Details

Station SW1

Project Name:	Duntroon Quarry	**Date:**	July 30, 2015
Client:	Walker Aggregates Inc.	**Supervisor:**	JHL
Project Number:	111-53312-05	**Scale:**	NTS



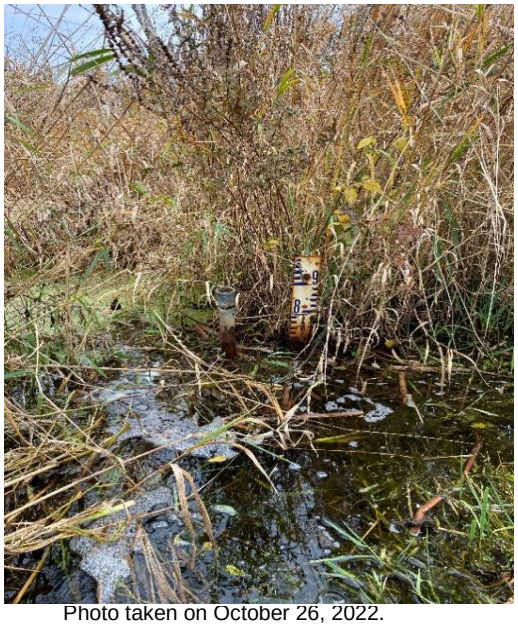
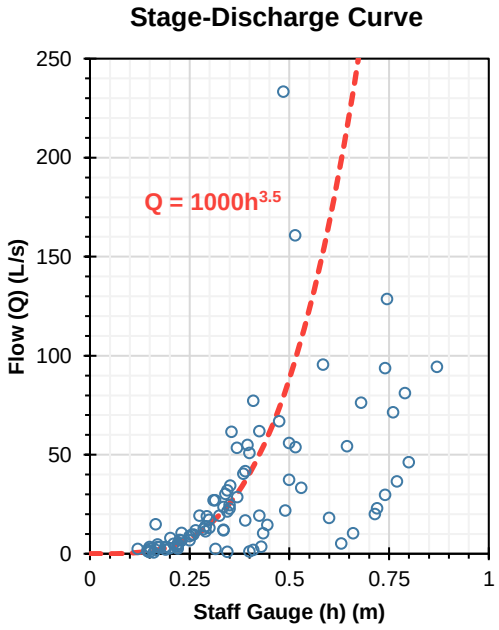


Photo taken on October 26, 2022.



Notes:

Twin culverts outflow from RR6 west of Main Quarry west of Grey County Road 31.

GPS Coordinates 559,117 E 4,914,254 N (NAD 83 Zone 17).

Approximate ground elevation is 513 masl (estimated from Ontario Base Mapping).

Station SW2

Project Name:	Duntroon Quarry	**Date:**	July 30, 2015
Client:	Walker Aggregates Inc.	**Supervisor:**	JHL
Project Number:	111-53312-05	**Scale:**	NTS

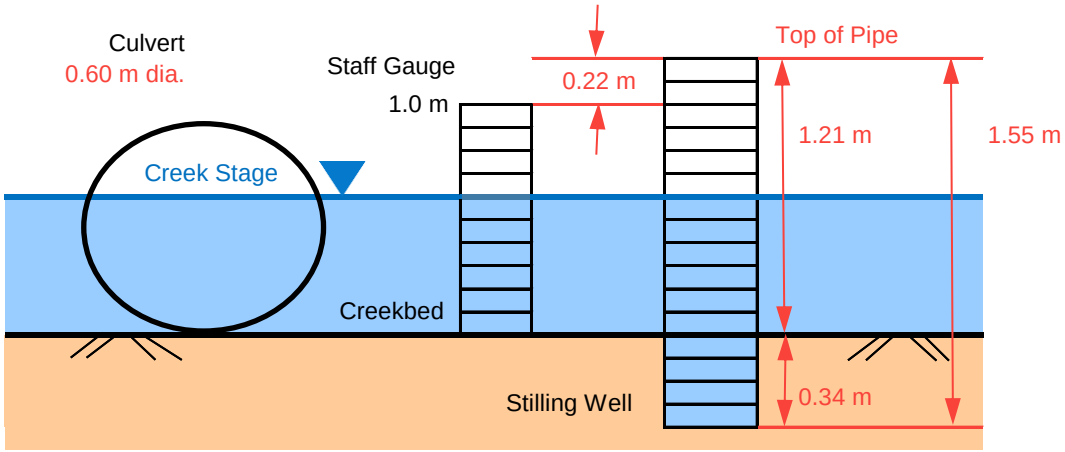
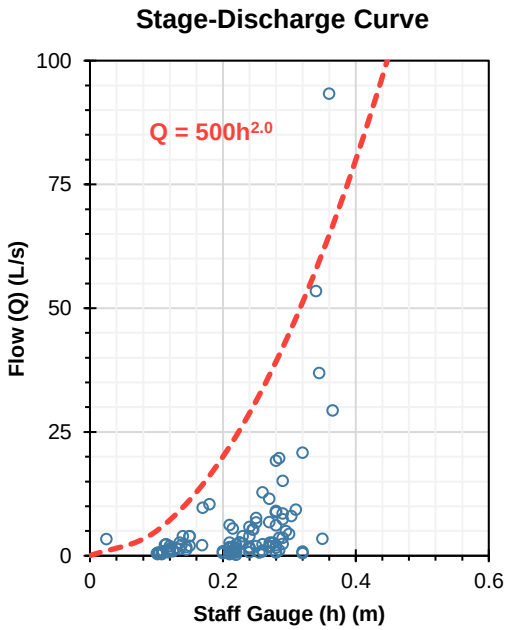




Photo taken on October 26, 2022.



Notes:

Upstream flow to RR6 west of Main Quarry south of Grey County Road 91.

GPS Coordinates 559,070 E 4,914,769 N (NAD 83 Zone 17).

Approximate ground elevation is 515 masl (estimated from Ontario Base Mapping).

Station SW0-2

Project Name:	Duntroon Quarry	**Date:**	July 12, 2023
Client:	Walker Aggregates Inc.	**Supervisor:**	BC
Project Number:	111-53312-05	**Scale:**	NTS

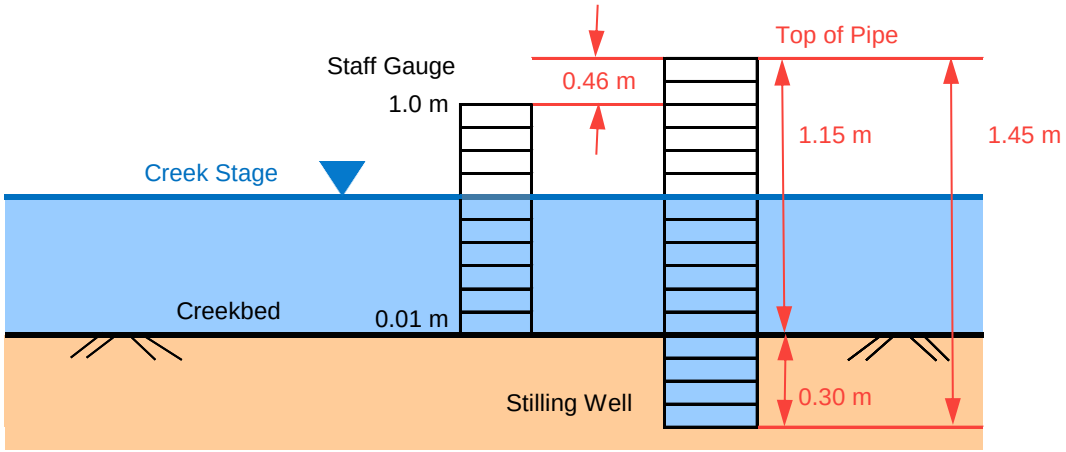
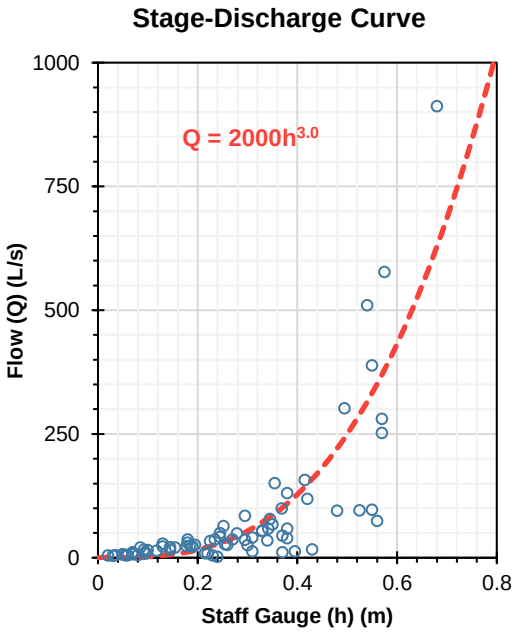




Photo taken on July 12, 2023.



Notes:

Outflow from RR6 west of Main Quarry west of Grey County Rd 31

GPS Coordinates 558,329 E 4,914,495 N (NAD 83 Zone 17).

Approximate ground elevation is 510 masl (estimated from Ontario Base Mapping).

Station SW3

Project Name:	Duntroon Quarry	**Date:**	July 31, 2015
Client:	Walker Aggregates Inc.	**Supervisor:**	JHL
Project Number:	111-53312-05	**Scale:**	NTS

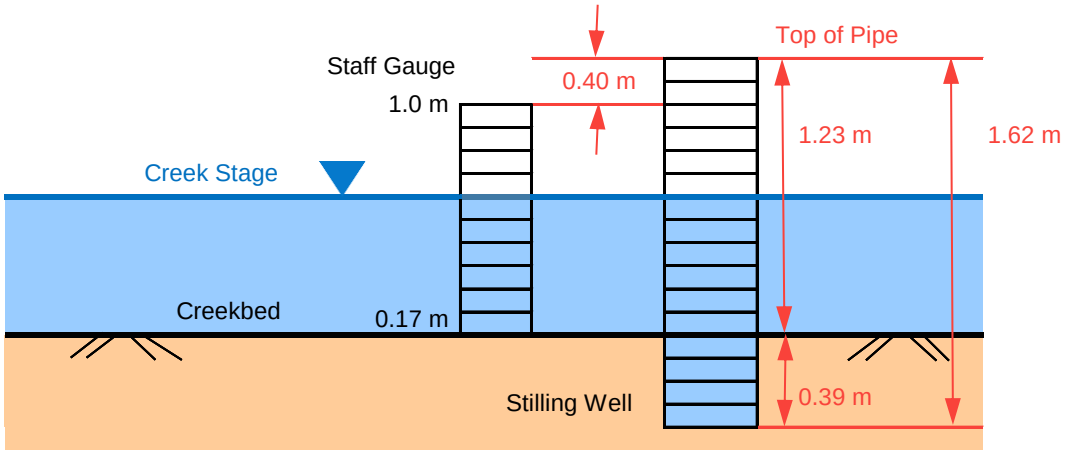
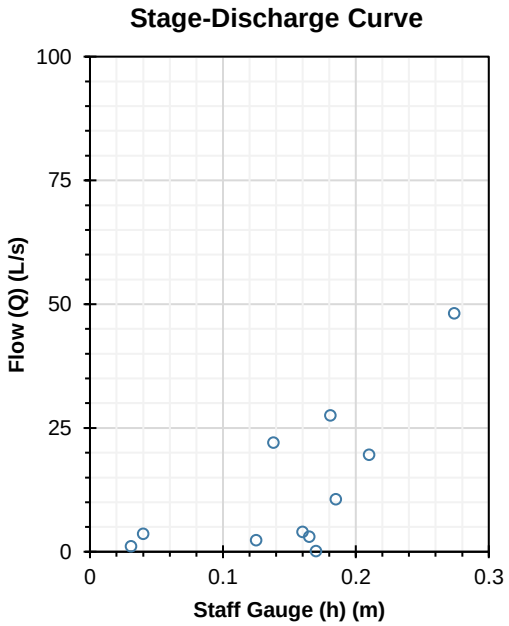




Photo taken on September 29, 2022.



Notes:

Outflow from RR2 northwest of Extension Quarry west of Grey County Rd 31

GPS Coordinates 558,890 E 4,915,581 N (NAD 83 Zone 17).

Approximate ground elevation is 510 masl (estimated from Ontario Base Mapping).

Station SW4

Project Name:	Duntroon Quarry	**Date:**	November 21, 2022
Client:	Walker Aggregates Inc.	**Supervisor:**	BC
Project Number:	111-53312-05	**Scale:**	NTS

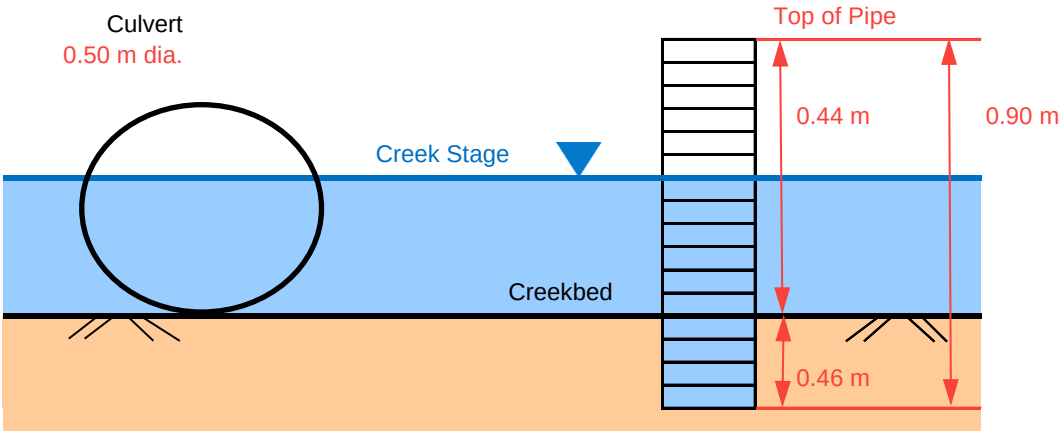
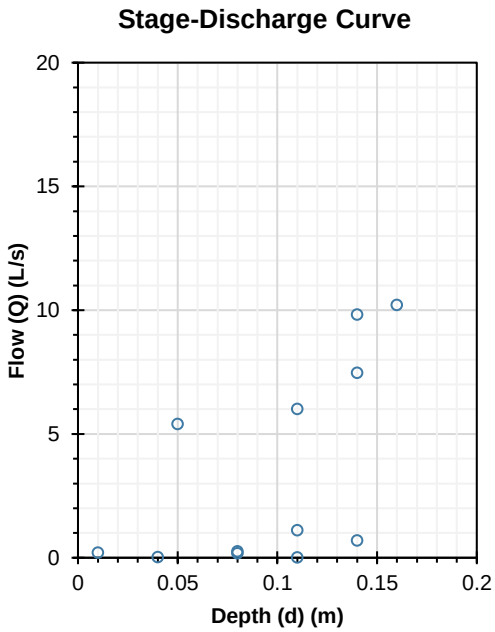




Photo taken on November 21, 2022.



Notes:

RR6 inlet at southwest along north of 10th Conc.

GPS Coordinates 558,893 E 4,913,962 N (NAD 83 Zone 17).

Approximate ground elevation is 515 masl (estimated from Ontario Base Mapping).

Station SW6A

Project Name:	Duntroon Quarry	**Date:**	July 16, 2015
Client:	Walker Aggregates Inc.	**Supervisor:**	JHL
Project Number:	111-53312-05	**Scale:**	NTS

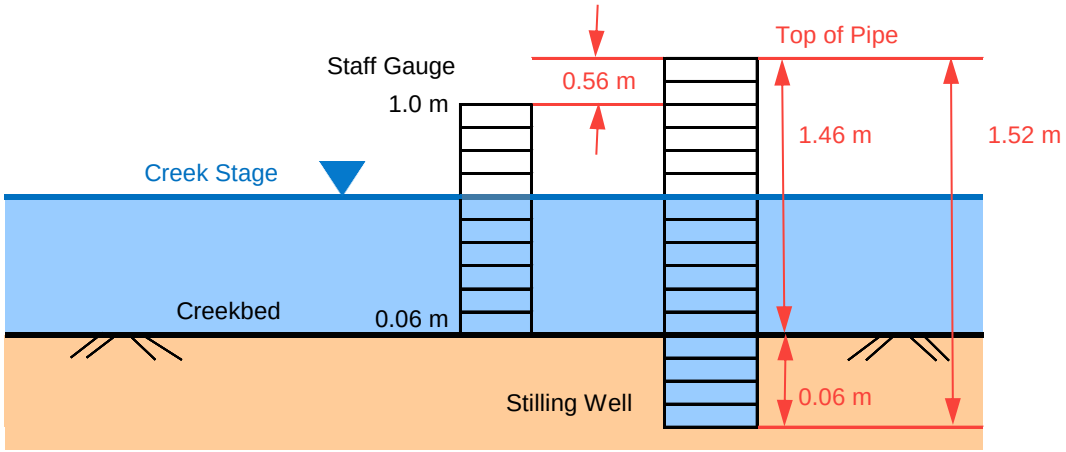
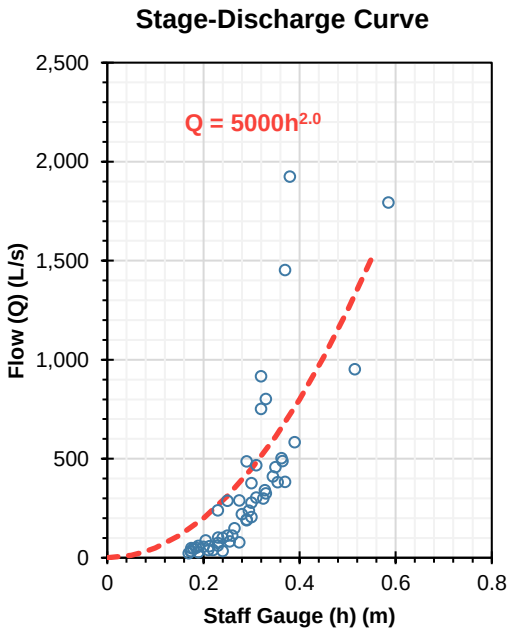




Photo taken on September 27, 2022.



Notes:

Beaver River southwest of Main Quarry west of Osprey Sideroad 30.

GPS Coordinates 555,263 E 4,912,697 N (NAD 83 Zone 17).

Approximate ground elevation is 495 masl (estimated from Ontario Base Mapping).

Station SW8

Project Name:	Duntroon Quarry	**Date:**	November 23, 2022
Client:	Walker Aggregates Inc.	**Supervisor:**	BC
Project Number:	111-53312-05	**Scale:**	NTS

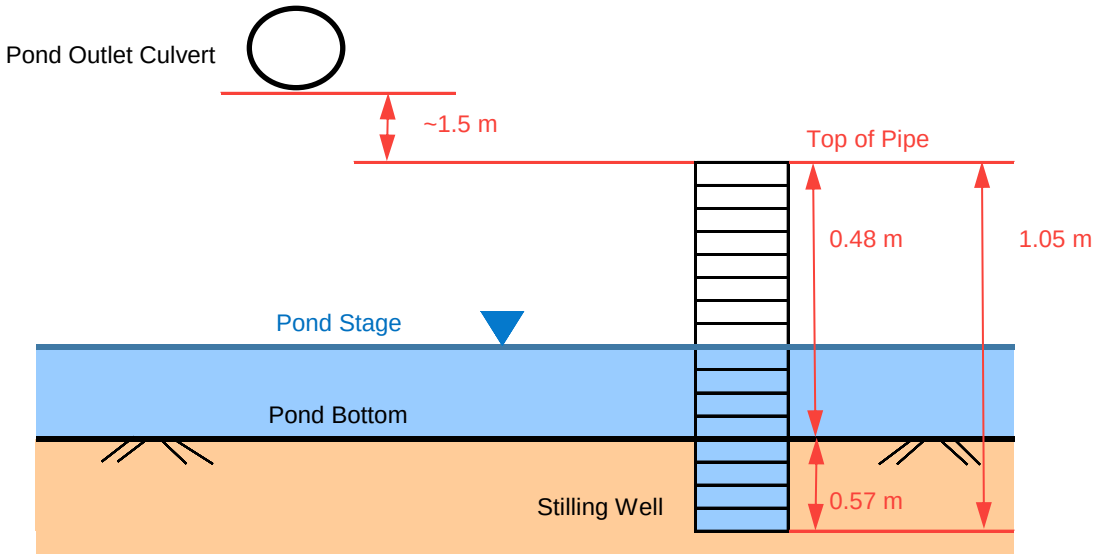




Photo taken on November 23, 2022.

Notes:

Bridson Pond outlet culvert.

GPS Coordinates 560,355 E 4,915,502 N (NAD 83 Zone 17).

Approximate ground elevation is 510 masl (estimated from Ontario Base Mapping).

Station SW9

Project Name:	Duntroon Quarry	**Date:**	July 31, 2015
Client:	Walker Aggregates Inc.	**Supervisor:**	JHL
Project Number:	111-53312-05	**Scale:**	NTS

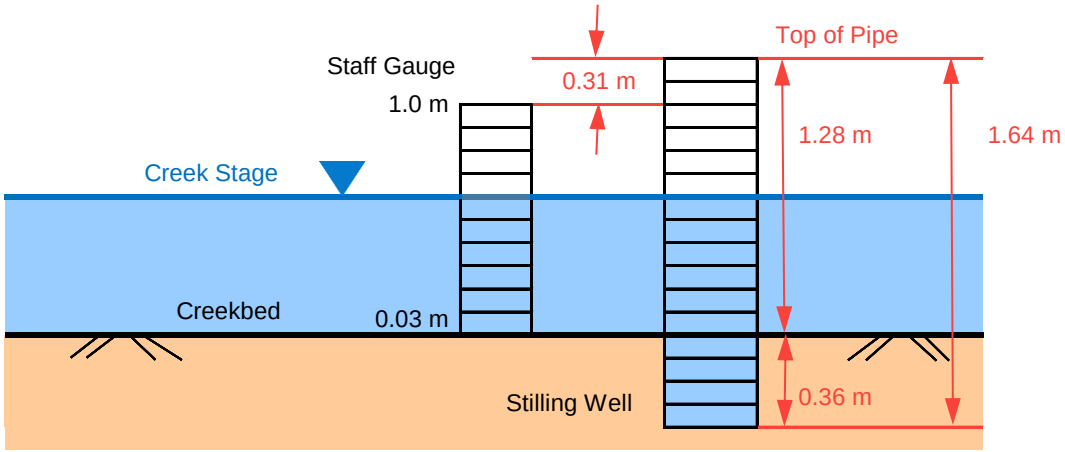
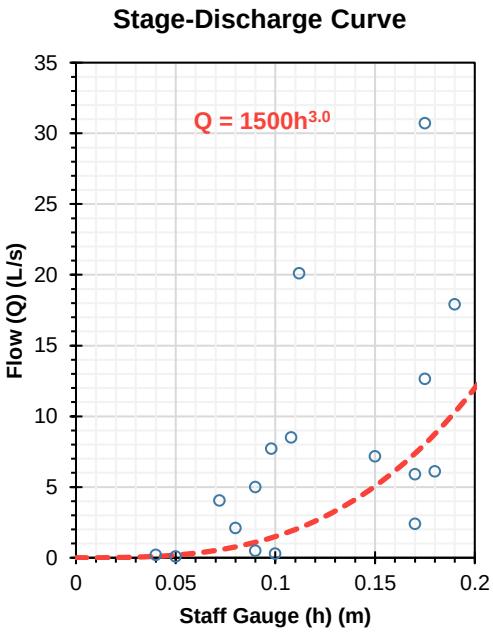




Photo taken on October 28, 2022.



Notes:

Outflow from ANSI Wetland B east of Extension Quarry to sinkhole area.

GPS Coordinates 560,454 E 4,915,647 N (NAD 83 Zone 17).

Approximate ground elevation is 508 masl (estimated from Ontario Base Mapping).

Station SW10

Project Name:	Duntroon Quarry	**Date:**	October 27, 2022
Client:	Walker Aggregates Inc.	**Supervisor:**	BC / SRF / BC
Project Number:	111-53312-05	**Scale:**	NTS

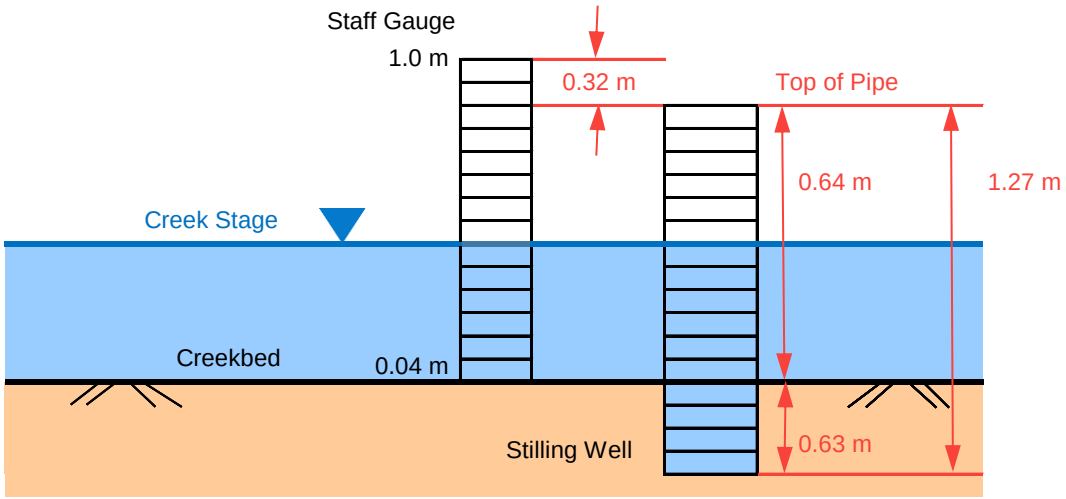
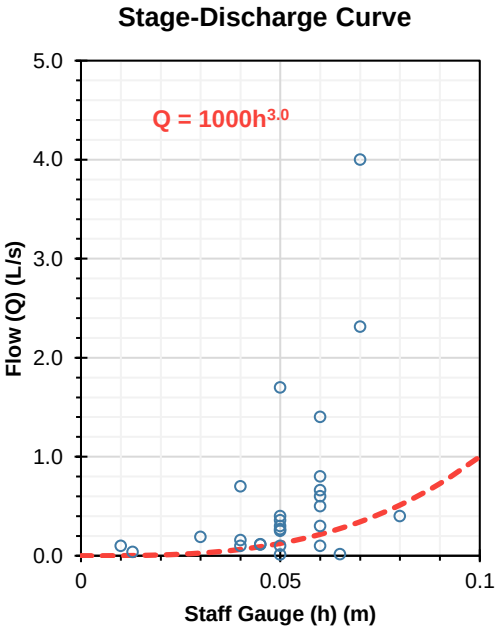




Photo taken on October 27, 2022.



Notes:

Escarpment seep east of Extension Quarry, upgradient of farm well tile collection system.

GPS Coordinates 561,200 E 4,915,641 N (NAD 83 Zone 17).

Approximate ground elevation is 477 masl (estimated from Ontario Base Mapping).

Station SW11

Project Name:	Duntroon Quarry	**Date:**	November 22, 2022
Client:	Walker Aggregates Inc.	**Supervisor:**	BC
Project Number:	111-53312-05	**Scale:**	NTS

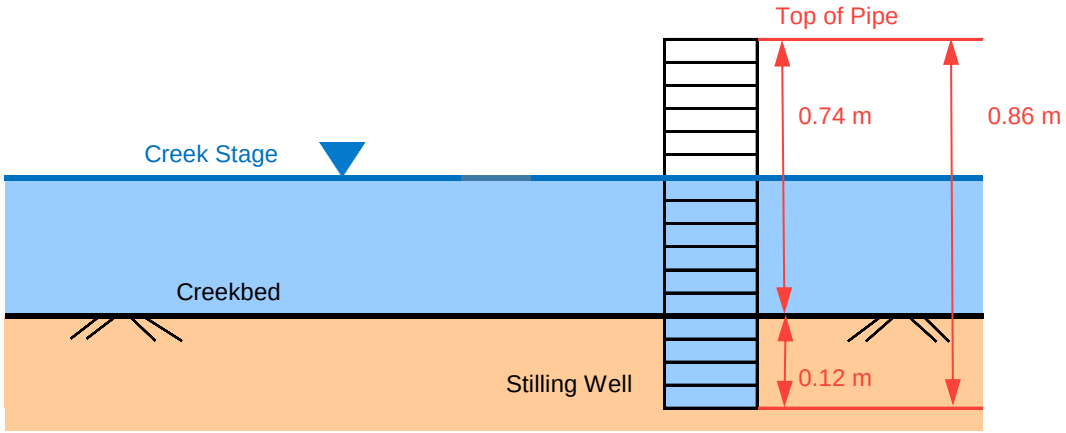
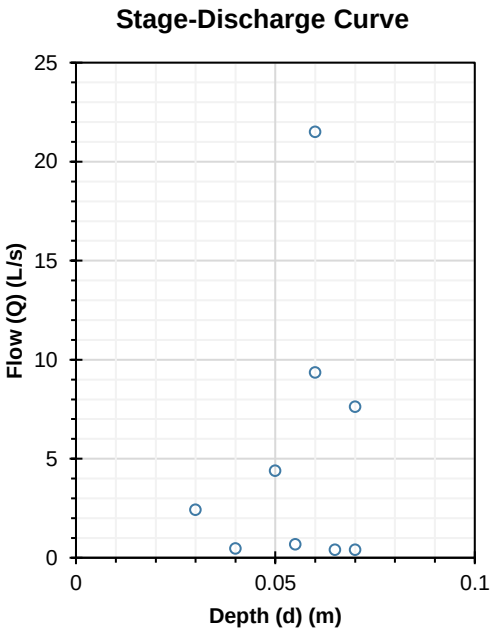




Photo taken on November 22, 2022.



Notes:

Culmination of escarpment seeps SW11A-D on Franks property east of Extension Quarry.

GPS Coordinates 561,151 E 4,916,011 N (NAD 83 Zone 17).

Approximate ground elevation is 445 masl (estimated from Ontario Base Mapping).

Station SW11A

Project Name:	Duntroon Quarry	**Date:**	November 22, 2022
Client:	Walker Aggregates Inc.	**Supervisor:**	BC
Project Number:	111-53312-05	**Scale:**	NTS

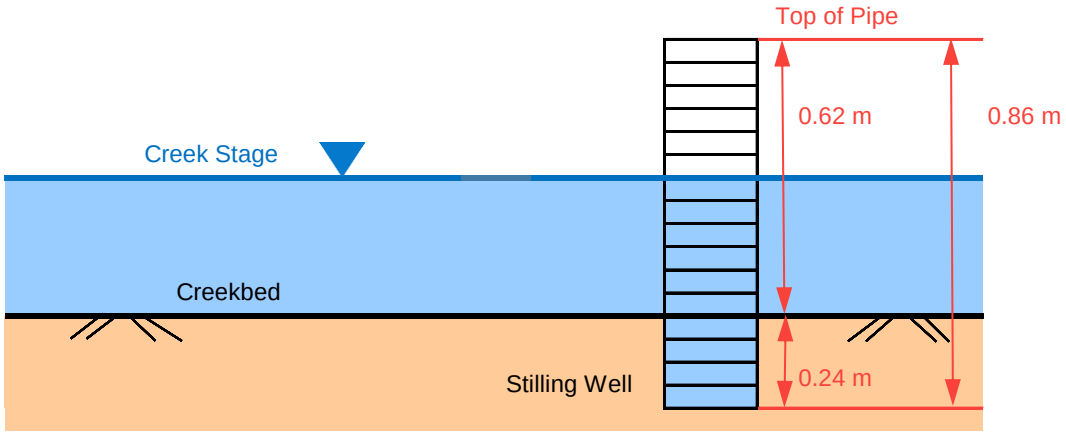
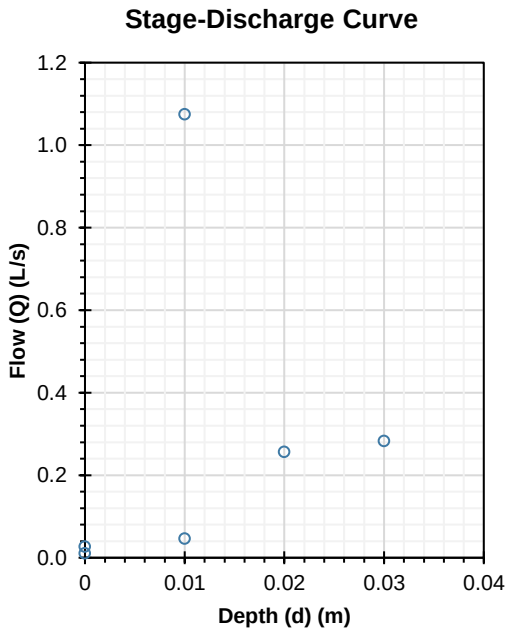




Photo taken on November 22, 2022.



Notes:

Escarpment seep on Franks property east of Extension Quarry.

GPS Coordinates 561,128 E 4,916,011 N (NAD 83 Zone 17).

Approximate ground elevation is 446 masl (estimated from Ontario Base Mapping).

Station SW11B

Project Name:	Duntroon Quarry	**Date:**	November 22, 2022
Client:	Walker Aggregates Inc.	**Supervisor:**	BC
Project Number:	111-53312-05	**Scale:**	NTS

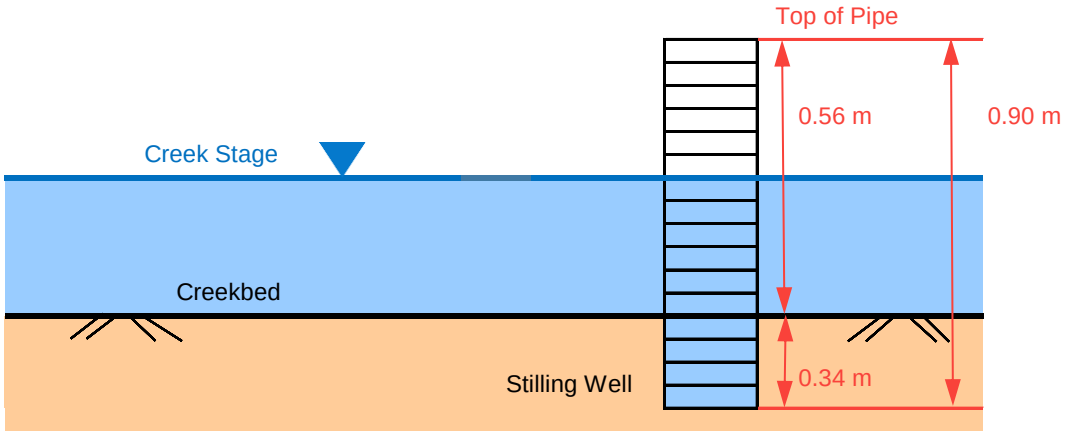
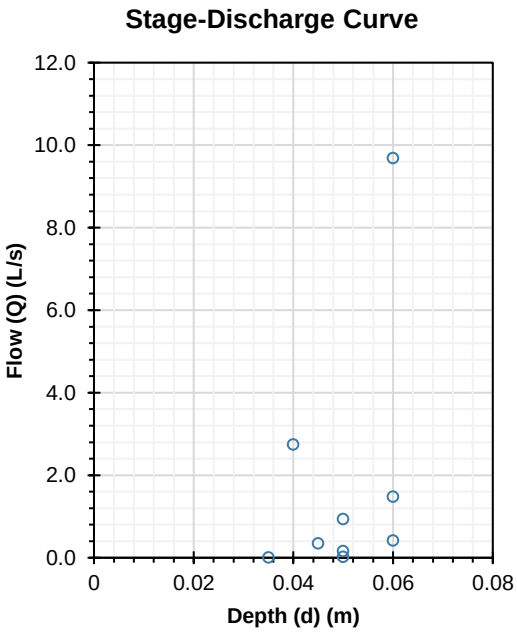




Photo taken on November 22, 2022.



Notes:

Escarpment seep on Franks property east of Extension Quarry.

GPS Coordinates 561,098 E 4,916,018 N (NAD 83 Zone 17).

Approximate ground elevation is 446 masl (estimated from Ontario Base Mapping).

Station SW11C

Project Name:	Duntroon Quarry	**Date:**	November 22, 2022
Client:	Walker Aggregates Inc.	**Supervisor:**	BC
Project Number:	111-53312-05	**Scale:**	NTS

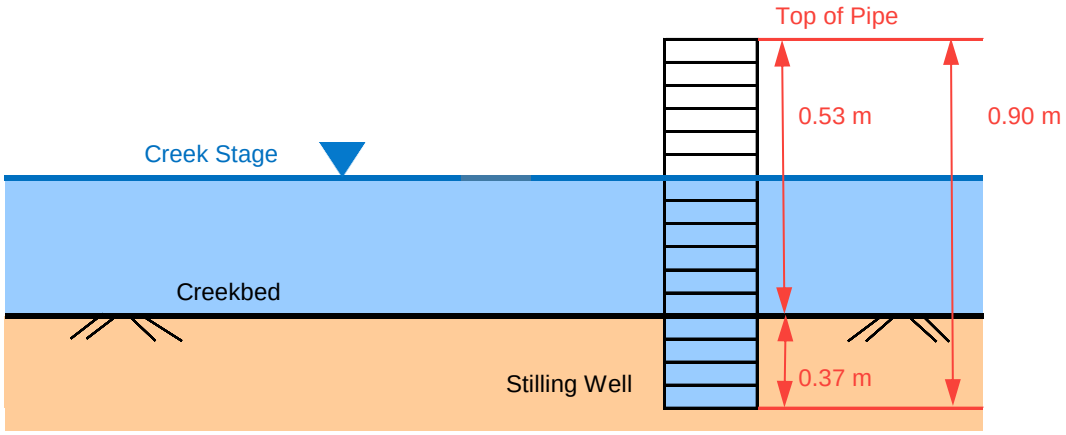
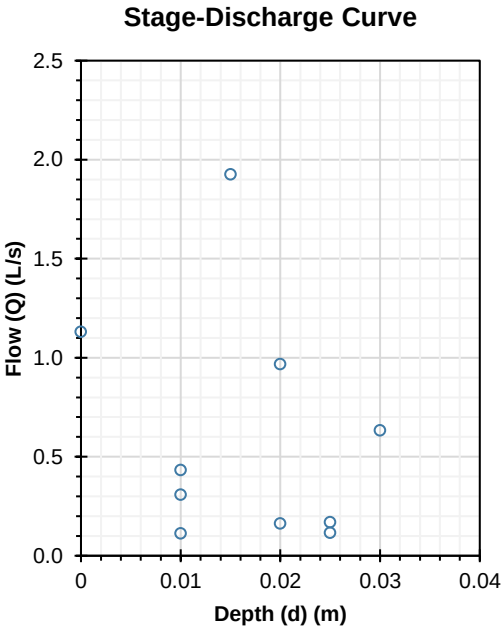




Photo taken on November 22, 2022.



Notes:

Escarpment seep on Franks property east of Extension Quarry.

GPS Coordinates 561,079 E 4,916,034 N (NAD 83 Zone 17).

Approximate ground elevation is 446 masl (estimated from Ontario Base Mapping).

Station SW11D

Project Name:	Duntroon Quarry	**Date:**	November 22, 2022
Client:	Walker Aggregates Inc.	**Supervisor:**	BC
Project Number:	111-53312-05	**Scale:**	NTS

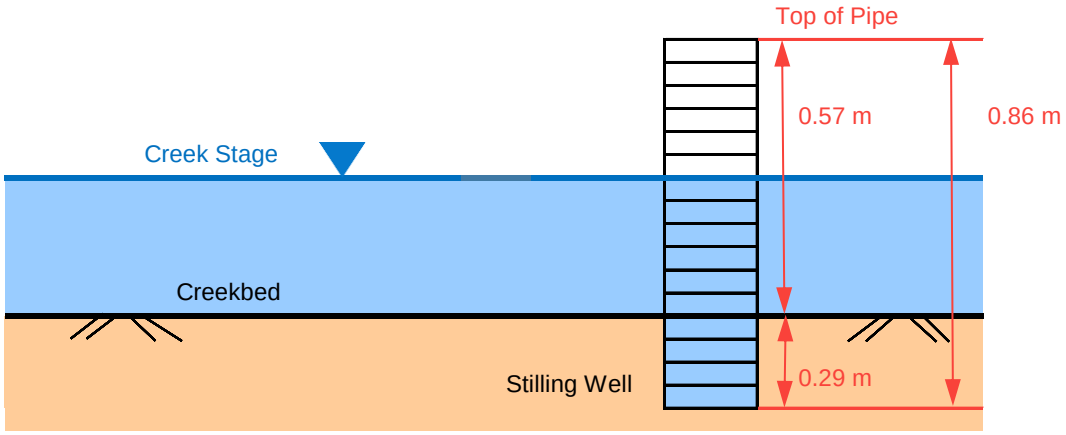
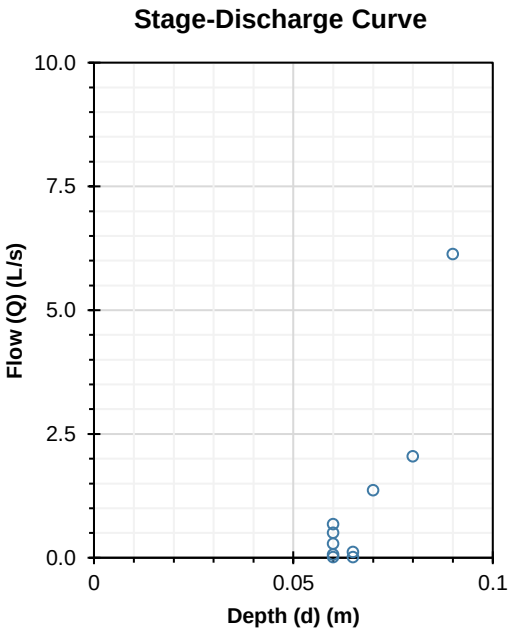




Photo taken on November 22, 2022.



Notes:

Escarpment seep on Franks property east of Extension Quarry.

GPS Coordinates 561,052 E 4,916,043 N (NAD 83 Zone 17).

Approximate ground elevation is 446 masl (estimated from Ontario Base Mapping).

Station SW11E

Project Name:	Duntroon Quarry	**Date:**	October 27, 2022
Client:	Walker Aggregates Inc.	**Supervisor:**	BC / SRF / BC
Project Number:	111-53312-05	**Scale:**	NTS

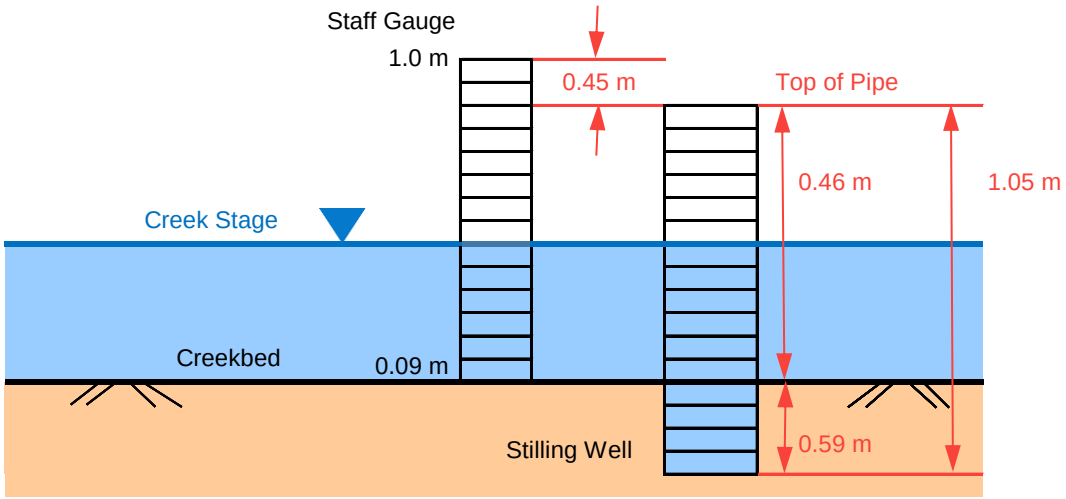
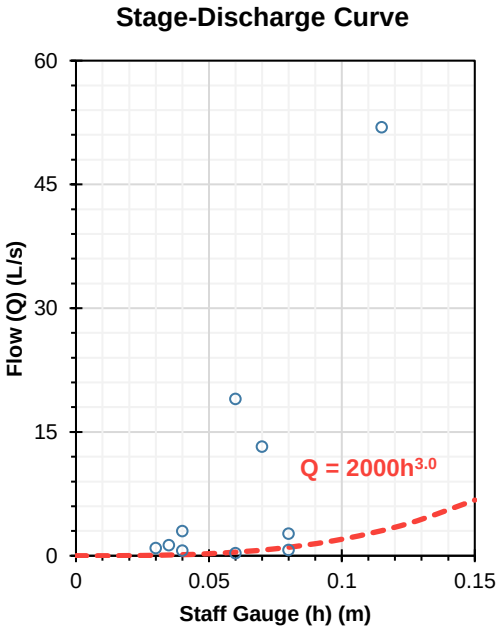




Photo taken on October 27, 2022.



Notes:

Escarpment seep northeast of Extension Quarry, upstream of in-line pond.

GPS Coordinates 561,238 E 4,915,997 N (NAD 83 Zone 17).

Approximate ground elevation is 435 masl (estimated from Ontario Base Mapping).

Station SW13

Project Name:	Duntroon Quarry	**Date:**	November 22, 2022
Client:	Walker Aggregates Inc.	**Supervisor:**	BC
Project Number:	111-53312-05	**Scale:**	NTS

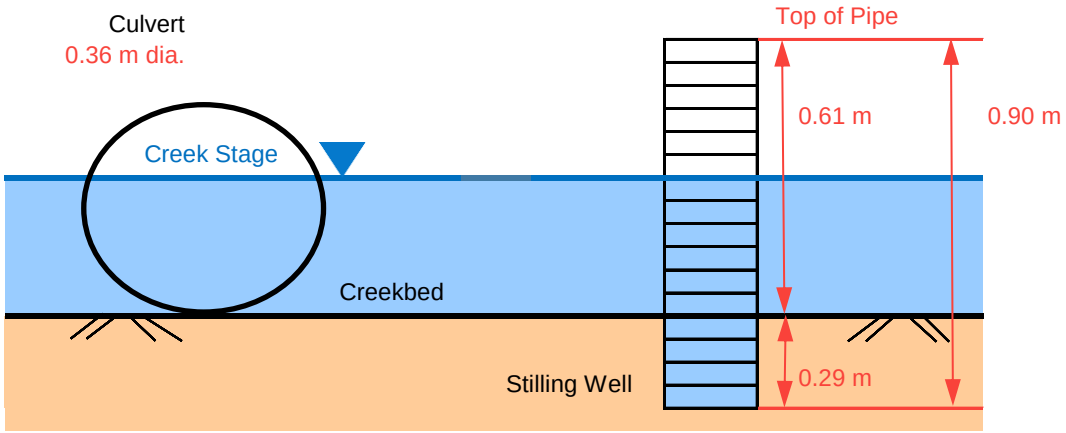
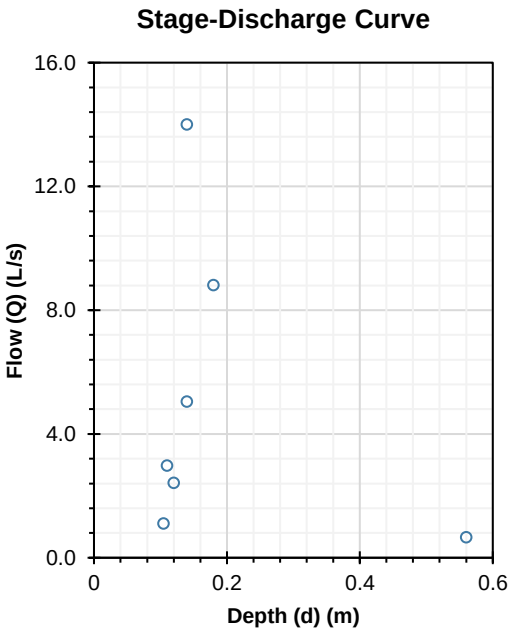




Photo taken on November 22, 2022.



Notes:

Franks Pond outlet culvert east of Extension Quarry.

GPS Coordinates 561,288 E 4,916,042 N (NAD 83 Zone 17).

Approximate ground elevation is 427 masl (estimated from Ontario Base Mapping).

Station SW14

Project Name:	Duntroon Quarry	**Date:**	October 27, 2022
Client:	Walker Aggregates Inc.	**Supervisor:**	BC / SRF / BC
Project Number:	111-53312-05	**Scale:**	NTS

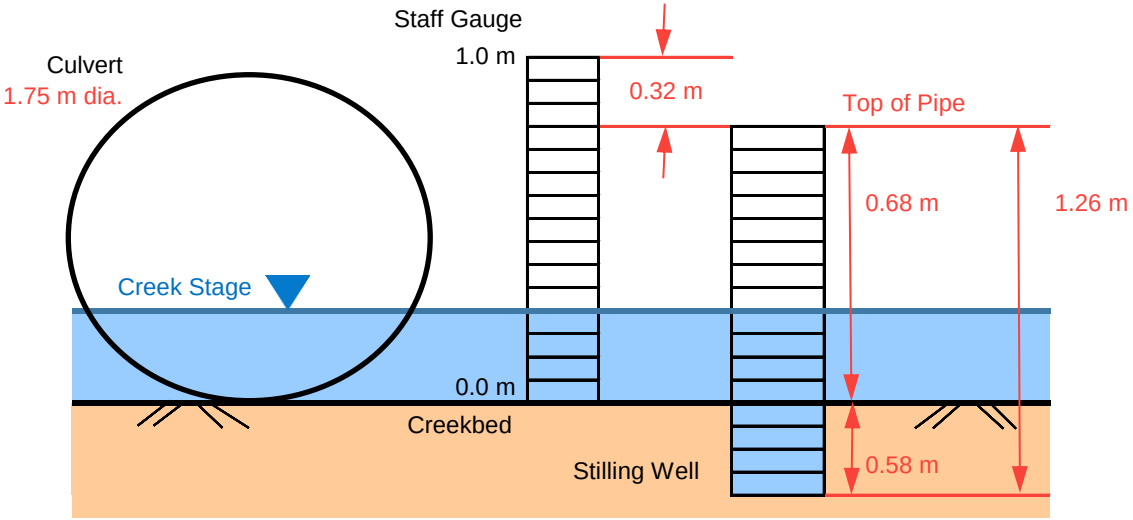
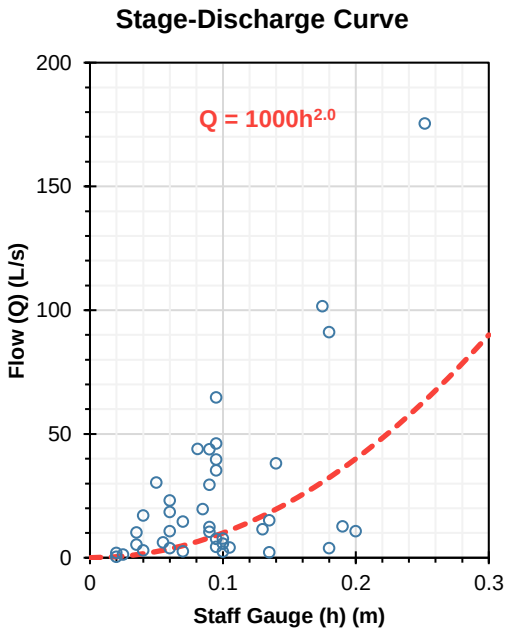




Photo taken on October 27, 2022.



Notes:

Batteaux Creek northeast of Extension Quarry east of Conc 10.

GPS Coordinates 561,526 E 4,916,249 N (NAD 83 Zone 17).

Approximate ground elevation is 410 masl (estimated from Ontario Base Mapping).

Station SW15

Project Name:	Duntroon Quarry	**Date:**	May 16, 2023
Client:	Walker Aggregates Inc.	**Supervisor:**	BC
Project Number:	111-53312-05	**Scale:**	NTS

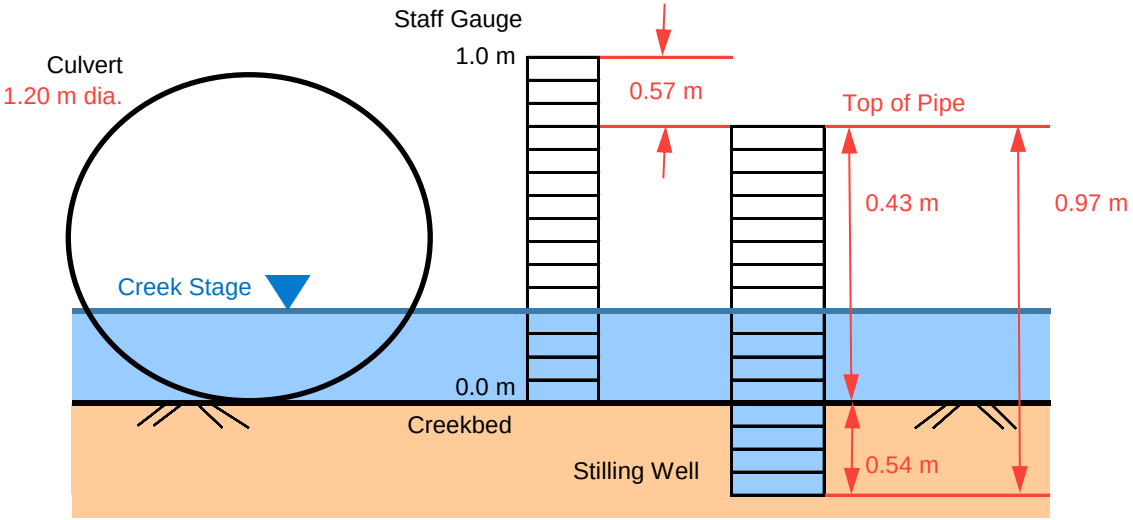
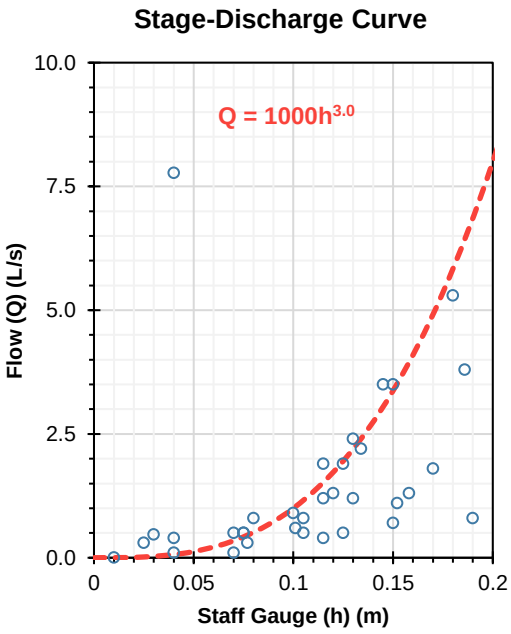




Photo taken on May 16, 2023.



Notes:

Batteaux Creek northeast of Extension Quarry east of Conc 10.

GPS Coordinates 561,495 E 4,916,432 N (NAD 83 Zone 17).

Approximate ground elevation is 420 masl (estimated from Ontario Base Mapping).

Station SW16

Project Name:	Duntroon Quarry	**Date:**	November 23, 2022
Client:	Walker Aggregates Inc.	**Supervisor:**	BC
Project Number:	111-53312-05	**Scale:**	NTS

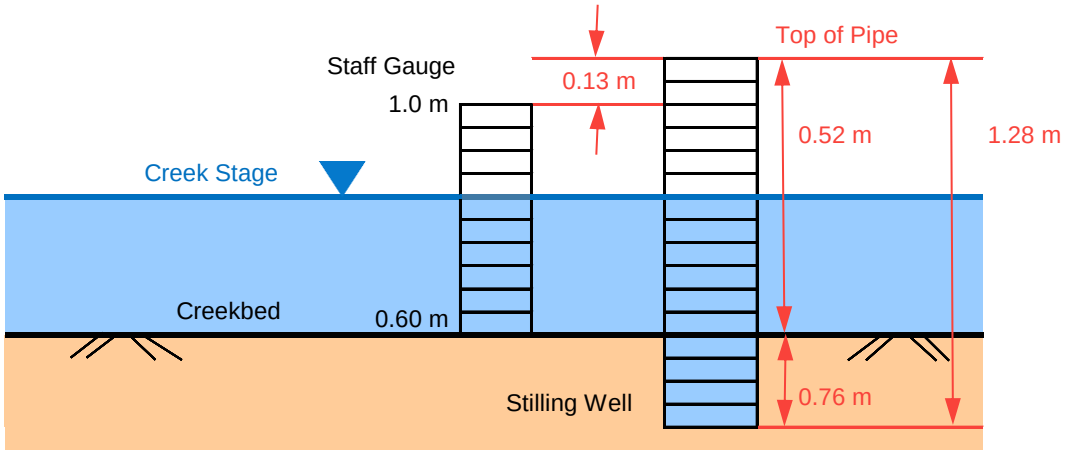
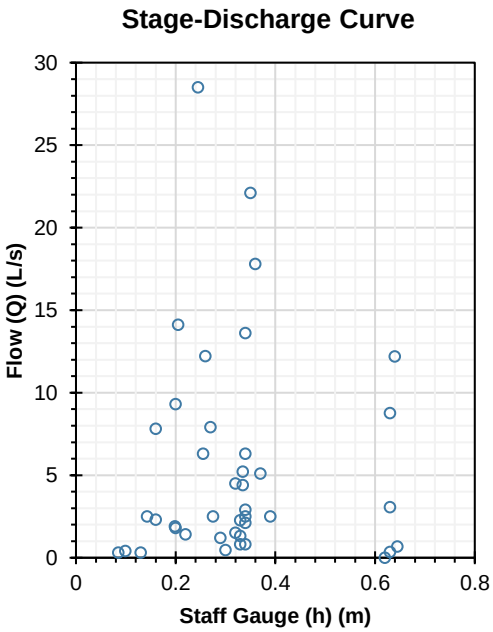




Photo taken on October 27, 2022.



Notes:

Pretty River tributary northeast of Extension Quarry at 26/27 Sideroad.

GPS Coordinates 561,198 E 4,916,724 N (NAD 83 Zone 17).

Approximate ground elevation is 415 masl (estimated from Ontario Base Mapping).

Station SW17

Project Name:	Duntroon Quarry	**Date:**	July 31, 2015
Client:	Walker Aggregates Inc.	**Supervisor:**	JHL
Project Number:	111-53312-05	**Scale:**	NTS

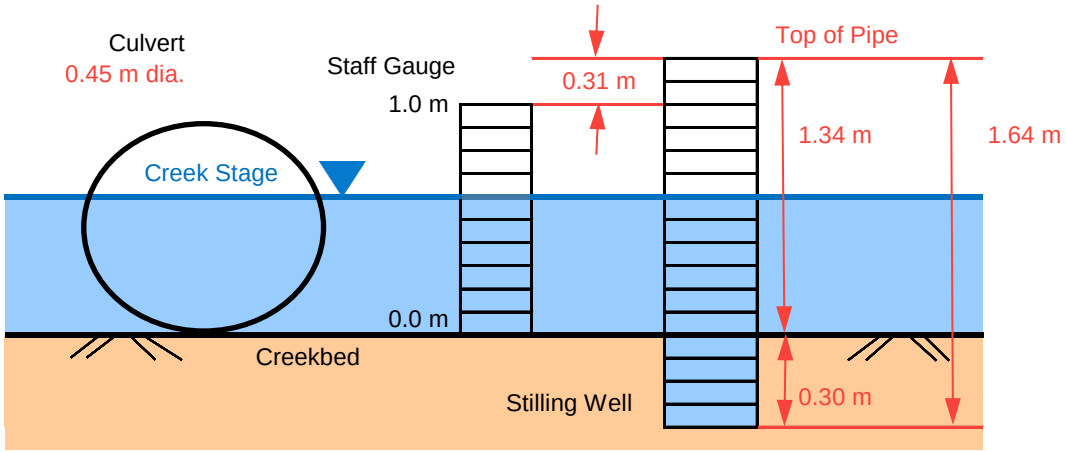
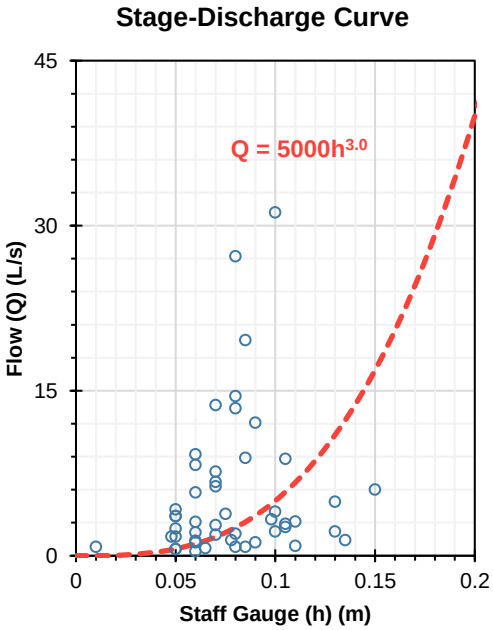




Photo taken on September 29, 2022.



Notes:

Pretty River in-line pond outlet northeast of Extension Quarry south of 26/27 Sideroad.

GPS Coordinates 560,607 E 4,916,532 N (NAD 83 Zone 17).

Approximate ground elevation is 431 masl (estimated from Ontario Base Mapping).

Station SW17A

Project Name:	Duntroon Quarry	**Date:**	November 23, 2022
Client:	Walker Aggregates Inc.	**Supervisor:**	BC
Project Number:	111-53312-05	**Scale:**	NTS

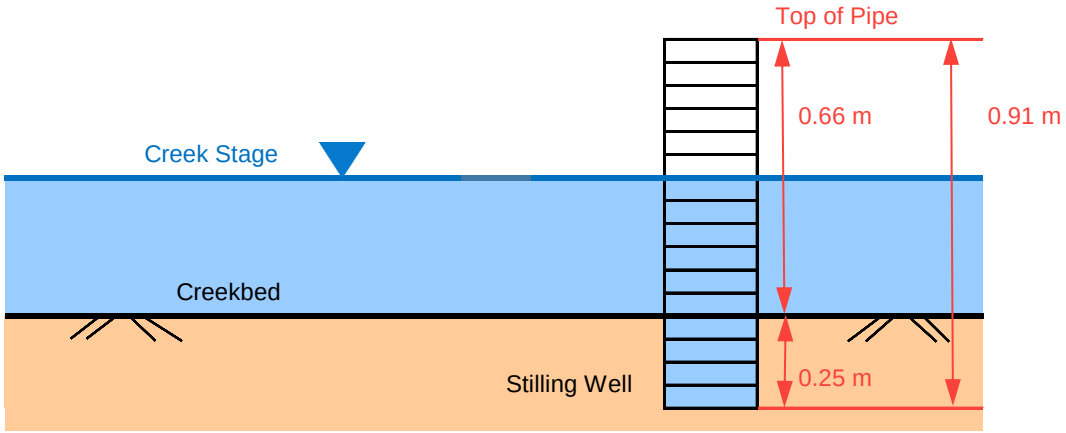
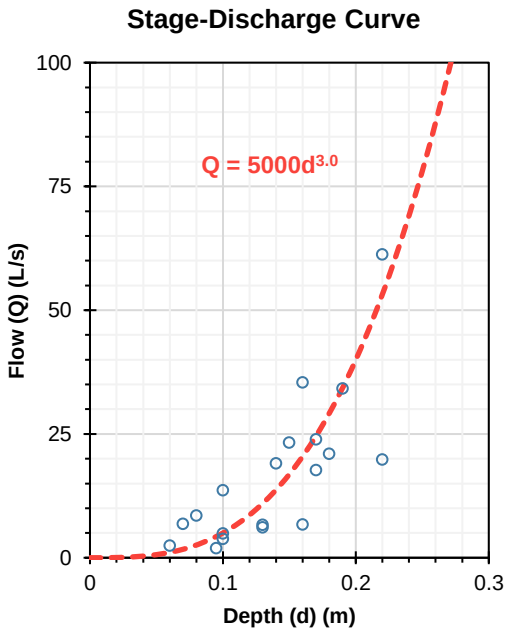




Photo taken on November 23, 2022.



Notes:

Pretty River tributary northeast of Extension Quarry north of 26/27 Sideroad.

GPS Coordinates 560,603 E 4,916,543 N (NAD 83 Zone 17).

Approximate ground elevation is 430 masl (estimated from Ontario Base Mapping).

Station SW18

Project Name:	Duntroon Quarry	**Date:**	November 22, 2022
Client:	Walker Aggregates Inc.	**Supervisor:**	BC
Project Number:	111-53312-05	**Scale:**	NTS

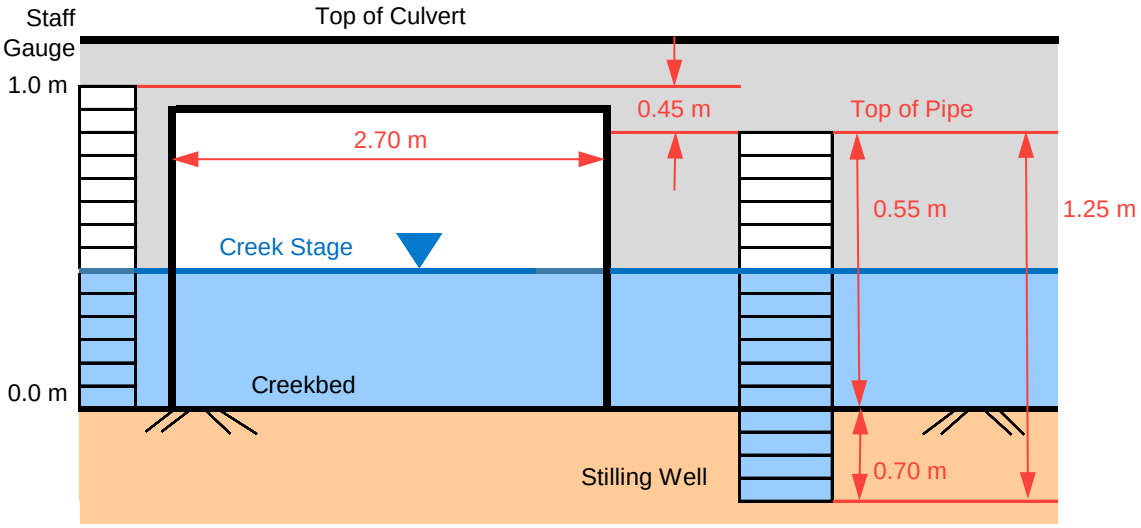
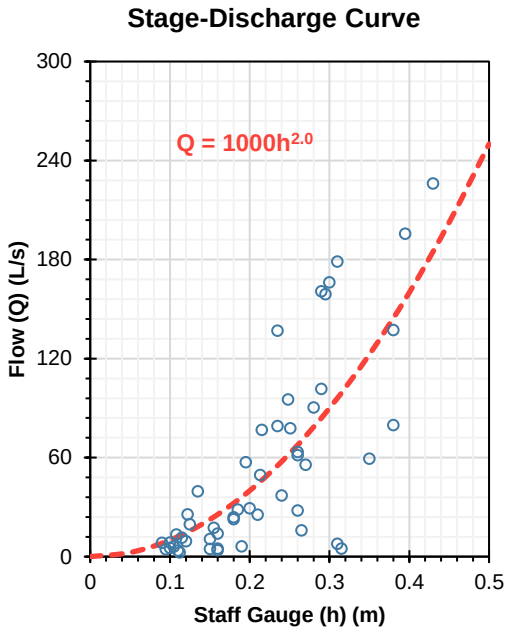




Photo taken on November 22, 2022.



Notes:

Pretty River tributary northeast of Extension Quarry west of Conc 10.

GPS Coordinates 561,401 E 4,917,002 N (NAD 83 Zone 17).

Approximate ground elevation is 390 masl (estimated from Ontario Base Mapping).

Station SW19

Project Name:	Duntroon Quarry	**Date:**	July 12, 2023
Client:	Walker Aggregates Inc.	**Supervisor:**	BC
Project Number:	111-53312-05	**Scale:**	NTS

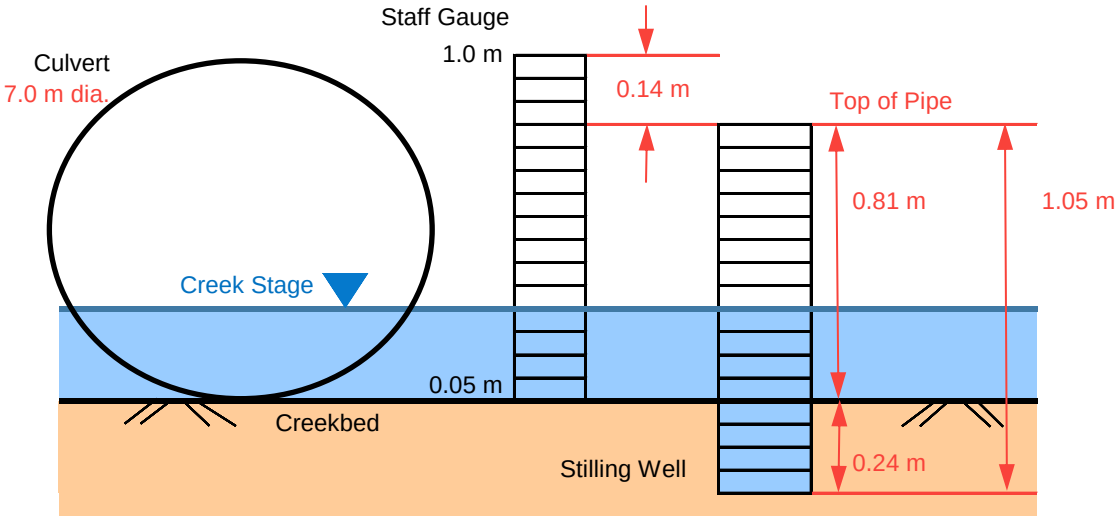
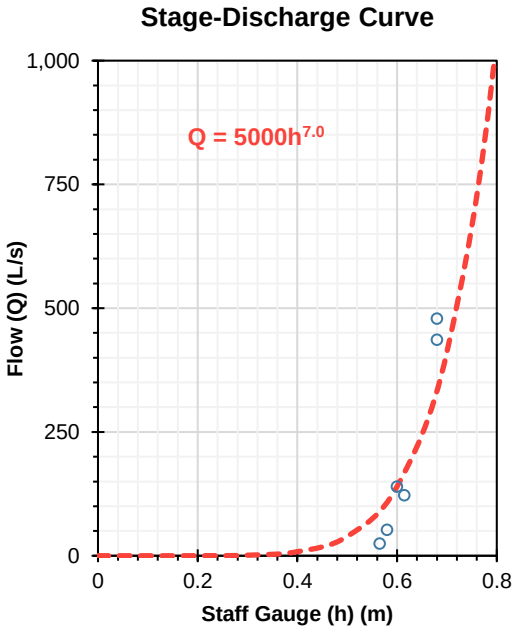




Photo taken on July 12, 2023.



Notes:

Batteaux Creek east of Extension Quarry at County Road 124.

GPS Coordinates 564,257 E 4,915,492 N (NAD 83 Zone 17).

Approximate ground elevation is 335 masl (estimated from Ontario Base Mapping).

Station SW20

Project Name:	Duntroon Quarry	**Date:**	May 16, 2023
Client:	Walker Aggregates Inc.	**Supervisor:**	BC
Project Number:	111-53312-05	**Scale:**	NTS

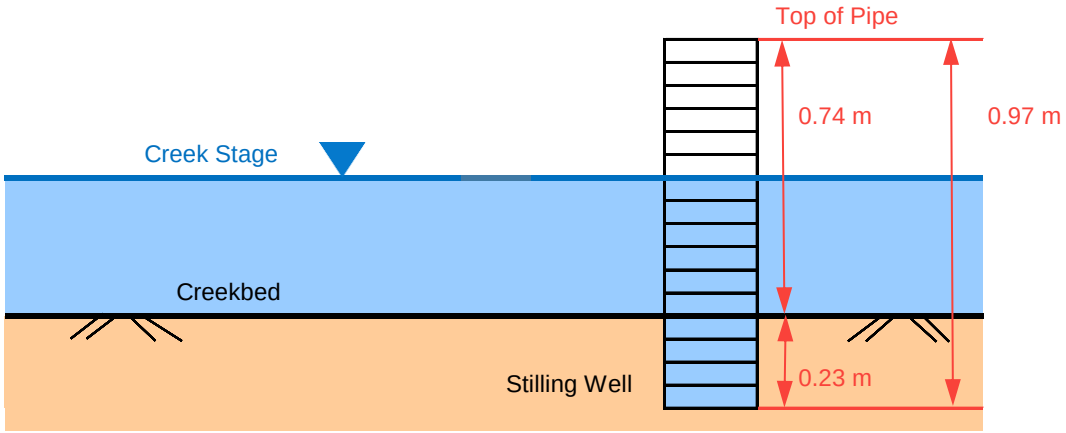
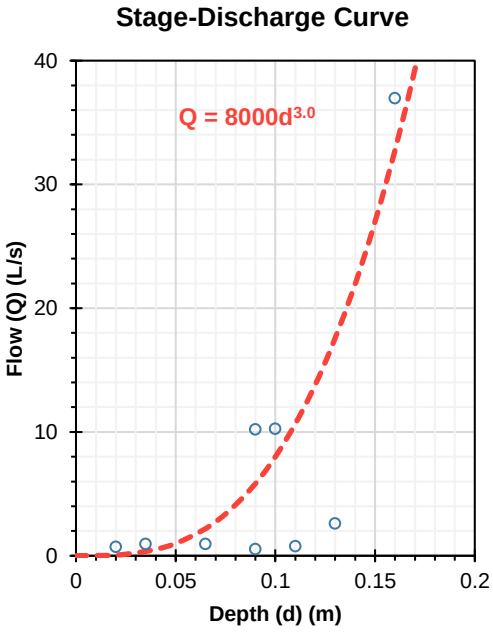




Photo taken on May 16, 2023.



Notes:

Escarpment seep to Pretty River northeast of Extension Quarry.

GPS Coordinates 560,066 E 4,916,392 N (NAD 83 Zone 17).

Approximate ground elevation is 495 masl (estimated from Ontario Base Mapping).

Station SW21

Project Name:	Duntroon Quarry	**Date:**	November 22, 2022
Client:	Walker Aggregates Inc.	**Supervisor:**	BC
Project Number:	111-53312-05	**Scale:**	NTS

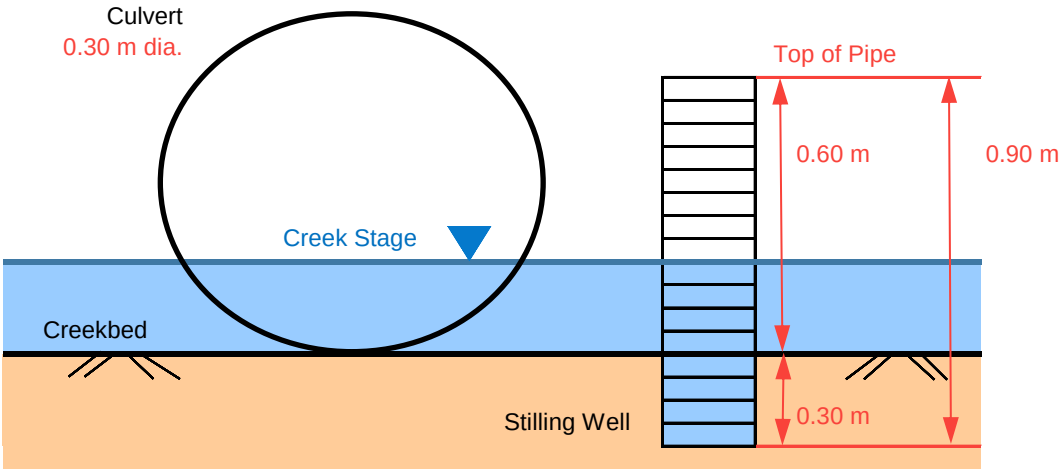
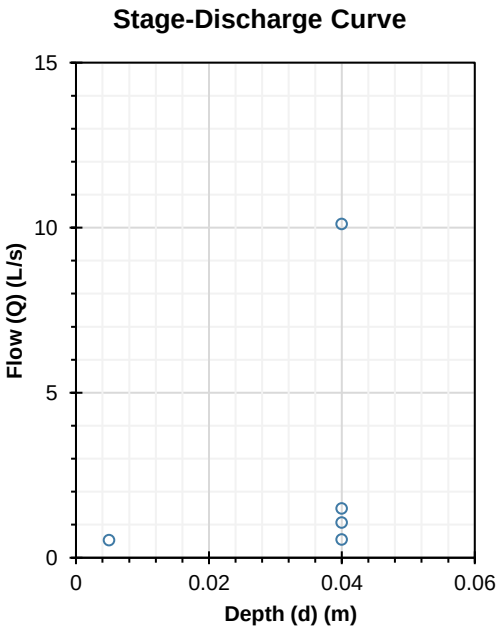




Photo taken on November 22, 2022.



Notes:

In-line pond discharge below escarpment east of Extension Quarry.

GPS Coordinates 560,308 E 4,916,284 N (NAD 83 Zone 17).

Approximate ground elevation is 430 masl (estimated from Ontario Base Mapping).

Station SW21A

Project Name:	Duntroon Quarry	**Date:**	November 22, 2022
Client:	Walker Aggregates Inc.	**Supervisor:**	BC
Project Number:	111-53312-05	**Scale:**	NTS

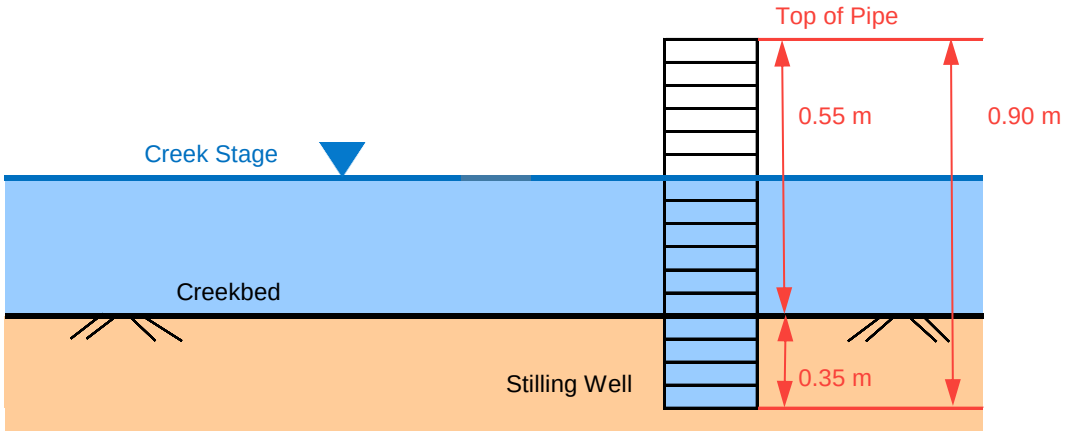




Photo taken on November 22, 2022.

Notes:

In-line pond inlet below escarpment east of Extension Quarry.

GPS Coordinates 561,246 E 4,916,261 N (NAD 83 Zone 17).

Approximate ground elevation is 433 masl (estimated from Ontario Base Mapping).

Station SW21B

Project Name:	Duntroon Quarry	**Date:**	November 22, 2022
Client:	Walker Aggregates Inc.	**Supervisor:**	BC
Project Number:	111-53312-05	**Scale:**	NTS

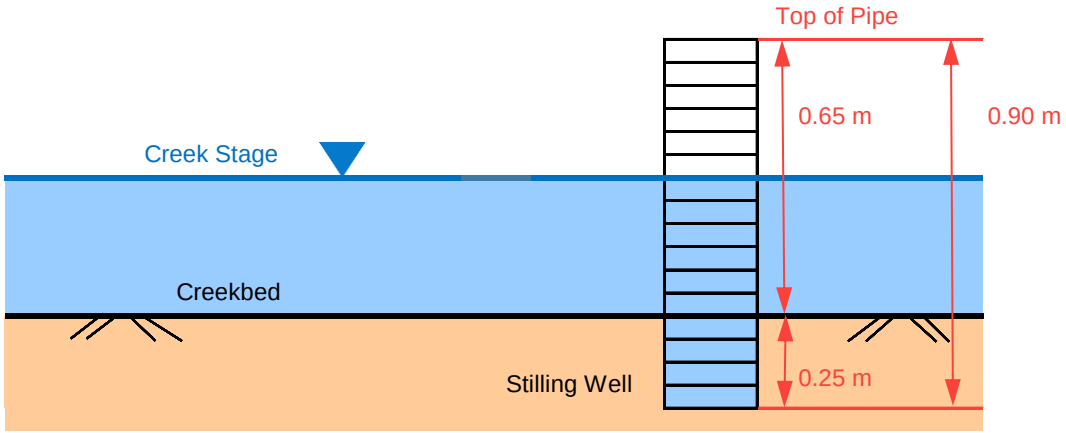




Photo taken on September 29, 2022.

Notes:

Residential cistern overflow outlet below escarpment east of Extension Quarry.

GPS Coordinates 561,039 E 4,916,193 N (NAD 83 Zone 17).

Approximate ground elevation is 449 masl (estimated from Ontario Base Mapping).

Station SW21C

Project Name:	Duntroon Quarry	**Date:**	October 27, 2022
Client:	Walker Aggregates Inc.	**Supervisor:**	BC / SRF / BC
Project Number:	111-53312-05	**Scale:**	NTS

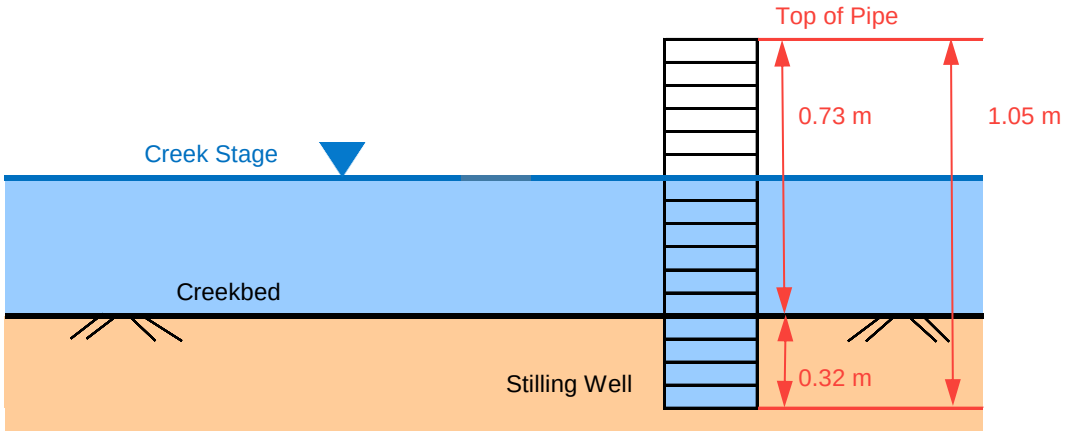
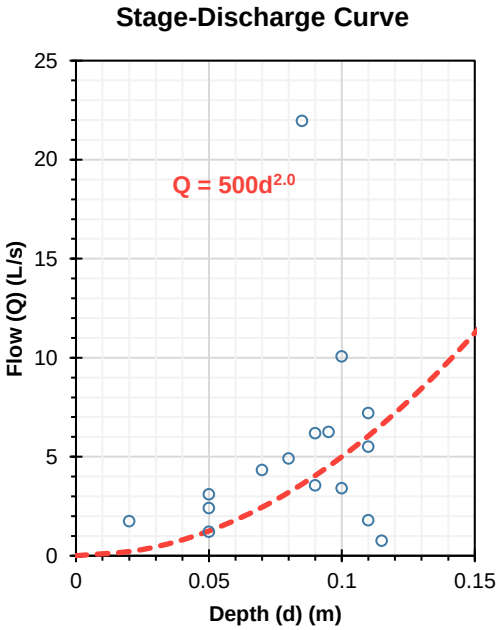




Photo taken on October 27, 2022.



Notes:

Escarpment seep northeast of Extension Quarry, upgradient of cistern inlet pipe.

GPS Coordinates 560,708 E 4,916,241 N (NAD 83 Zone 17).

Approximate ground elevation is 470 masl (estimated from Ontario Base Mapping).

Station SW22

Project Name:	Duntroon Quarry	**Date:**	November 23, 2022
Client:	Walker Aggregates Inc.	**Supervisor:**	BC
Project Number:	111-53312-05	**Scale:**	NTS

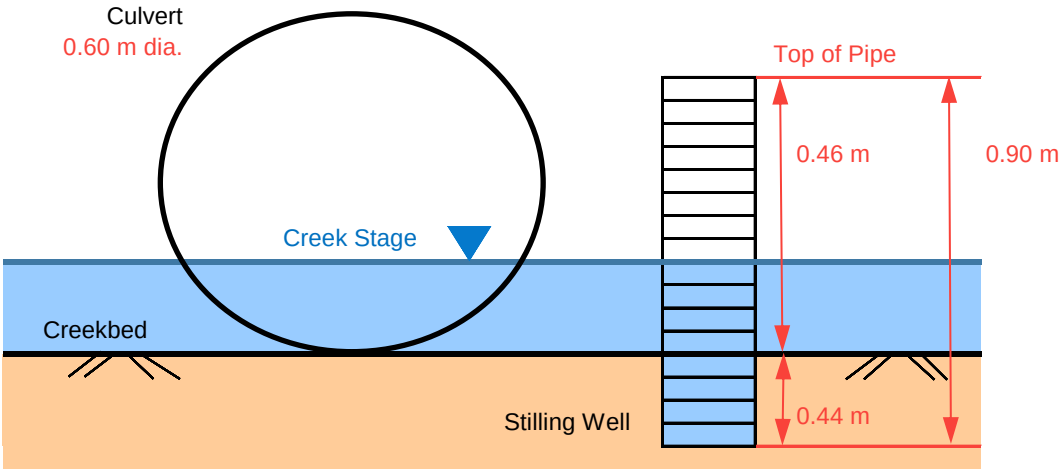
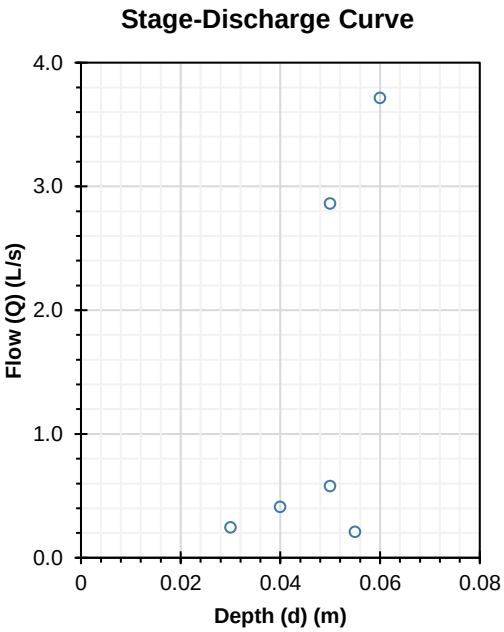




Photo taken on November 23, 2022.



Notes:

Escarpment seep culvert beneath ski trail east of Main Quarry.

GPS Coordinates 560,686 E 4,914,713 N (NAD 83 Zone 17).

Approximate ground elevation is 492 masl (estimated from Ontario Base Mapping).

Station SW22A

Project Name:	Duntroon Quarry	**Date:**	November 23, 2022
Client:	Walker Aggregates Inc.	**Supervisor:**	BC
Project Number:	111-53312-05	**Scale:**	NTS

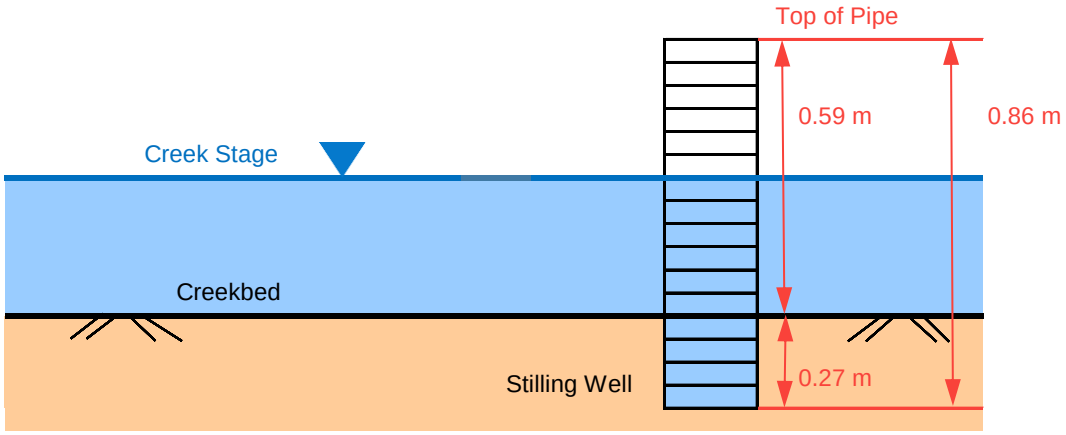
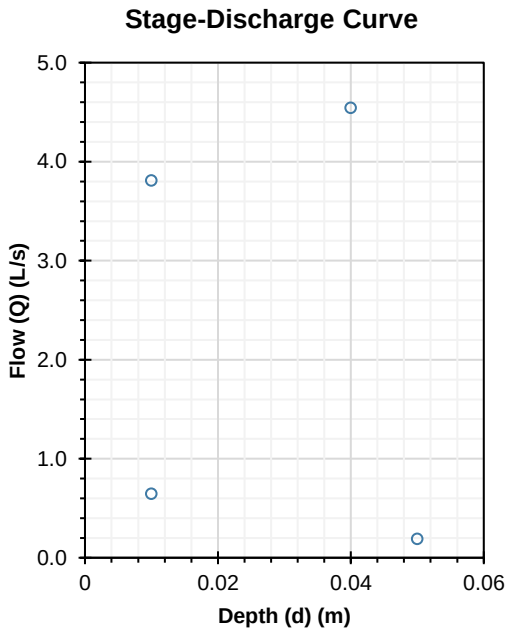




Photo taken on November 23, 2022.



Notes:

Escarpment seep east of Main Quarry.

GPS Coordinates 560,952 E 4,915,039 N (NAD 83 Zone 17).

Approximate ground elevation is 485 masl (estimated from Ontario Base Mapping).

Station SW22C

Project Name:	Duntroon Quarry	**Date:**	November 23, 2022
Client:	Walker Aggregates Inc.	**Supervisor:**	BC
Project Number:	111-53312-05	**Scale:**	NTS

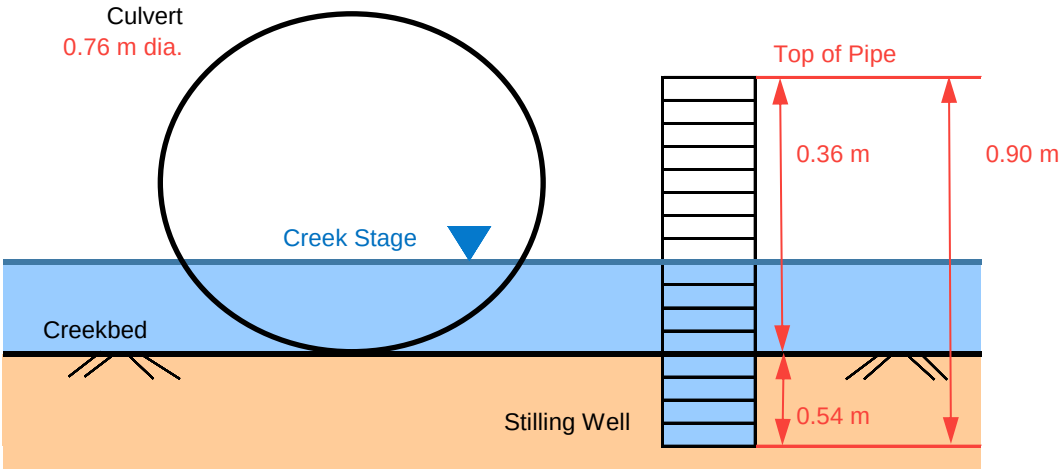
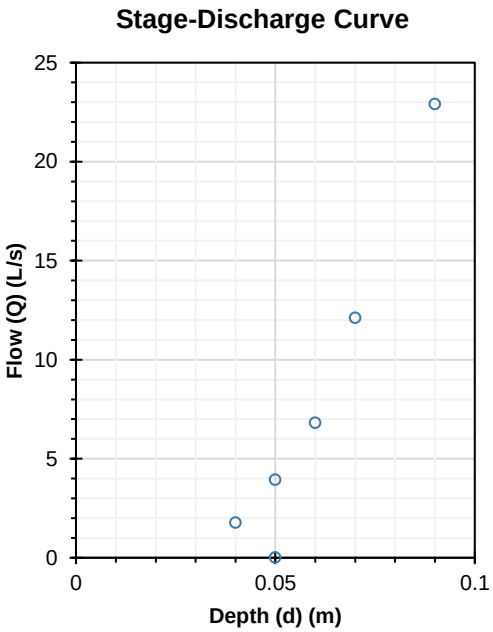




Photo taken on November 23, 2022.



Notes:

Escarpment seep flow channel culvert east of Main Quarry.

GPS Coordinates 560,977 E 4,914,876 N (NAD 83 Zone 17).

Approximate ground elevation is 477 masl (estimated from Ontario Base Mapping).

Station SW24A

Project Name:	Duntroon Quarry	**Date:**	November 23, 2022
Client:	Walker Aggregates Inc.	**Supervisor:**	BC
Project Number:	111-53312-05	**Scale:**	NTS

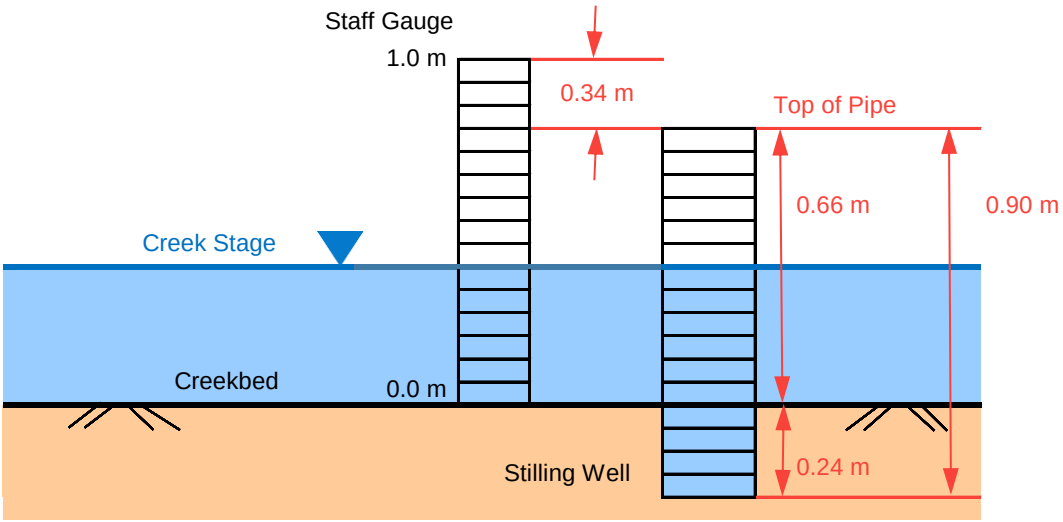
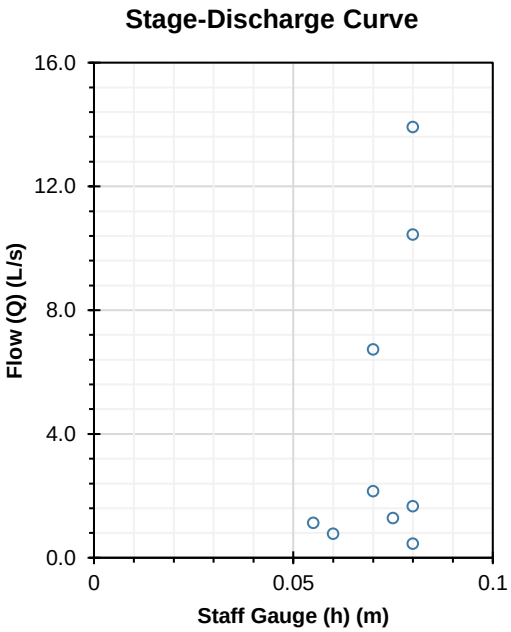




Photo taken on November 23, 2022.



Notes:

Escarpment seep channel at water supply collection system northeast of Extension Quarry.

GPS Coordinates 560,566 E 4,916,379 N (NAD 83 Zone 17).

Approximate ground elevation is 460 masl (estimated from Ontario Base Mapping).

Station SW77

Project Name:	Duntroon Quarry	**Date:**	November 21, 2022
Client:	Walker Aggregates Inc.	**Supervisor:**	BC
Project Number:	111-53312-05	**Scale:**	NTS

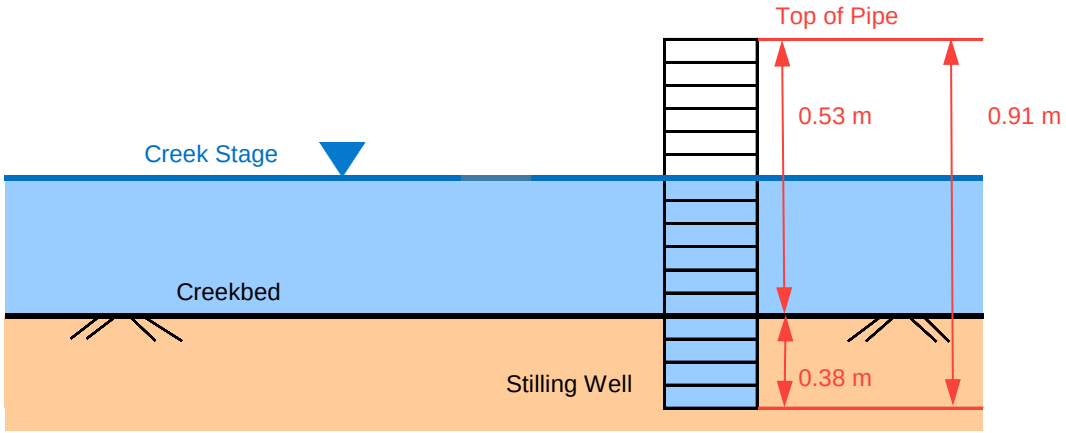
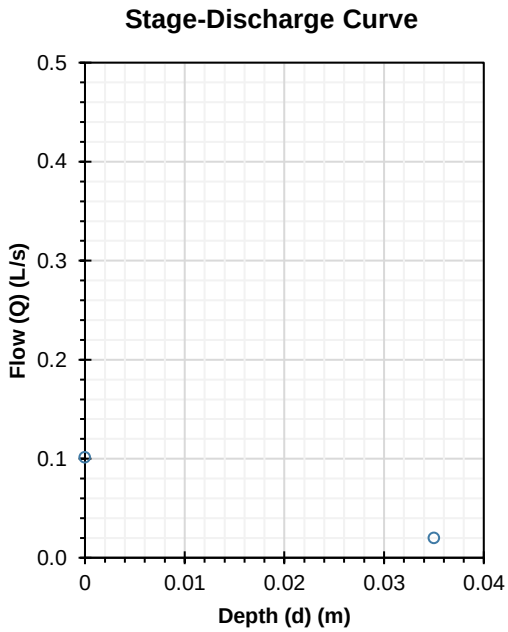




Photo taken on November 21, 2022.



Notes:

Escarpment seep northeast of Extension Quarry.

GPS Coordinates 560,150 E 4,916,292 N (NAD 83 Zone 17).

Approximate ground elevation is 494 masl (estimated from Ontario Base Mapping).

Station PR Control

Project Name:	Duntroon Quarry	**Date:**	October 28, 2022
Client:	Walker Aggregates Inc.	**Supervisor:**	BC / SRF / BC
Project Number:	111-53312-05	**Scale:**	NTS

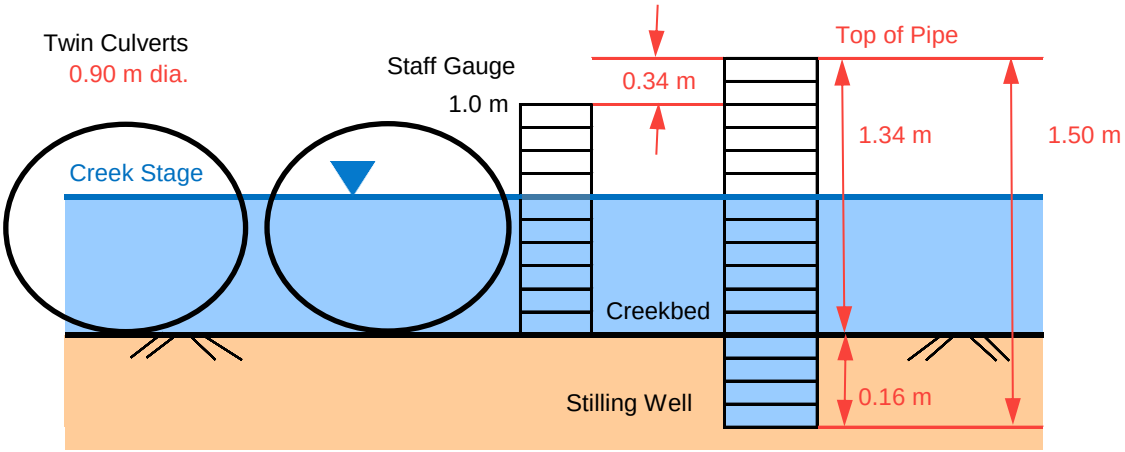
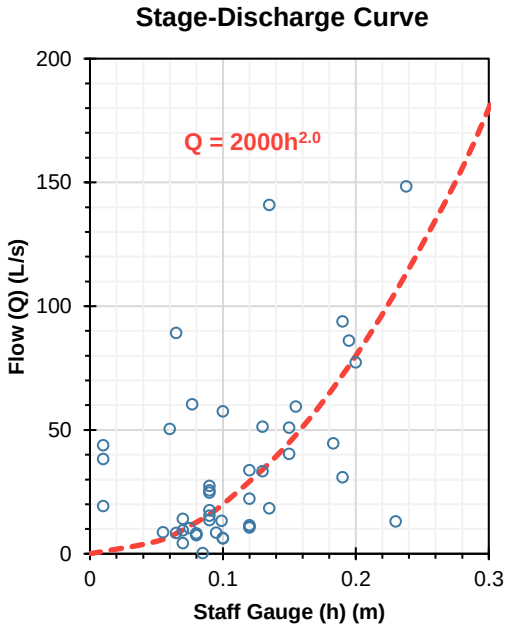




Photo taken on October 28, 2022.



Notes:

Pretty River Control Station identified with NVCA north of Quarry on 30/31 Sideroad.

GPS Coordinates 558,059 E 4,918,224 N (NAD 83 Zone 17).

Approximate ground elevation is 360 masl (estimated from Ontario Base Mapping).

Station BC Control

Project Name:	Duntroon Quarry	**Date:**	November 22, 2022
Client:	Walker Aggregates Inc.	**Supervisor:**	BC
Project Number:	111-53312-05	**Scale:**	NTS

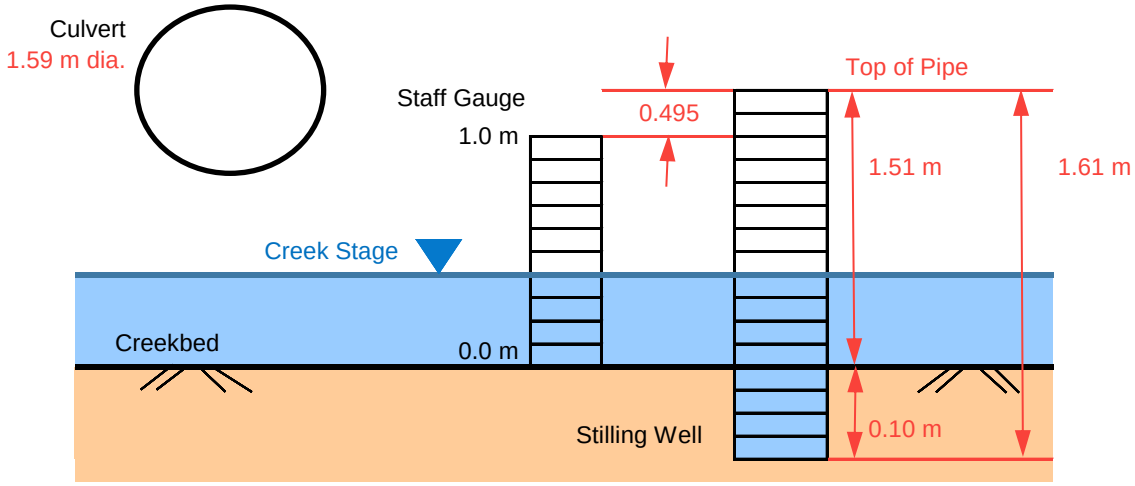
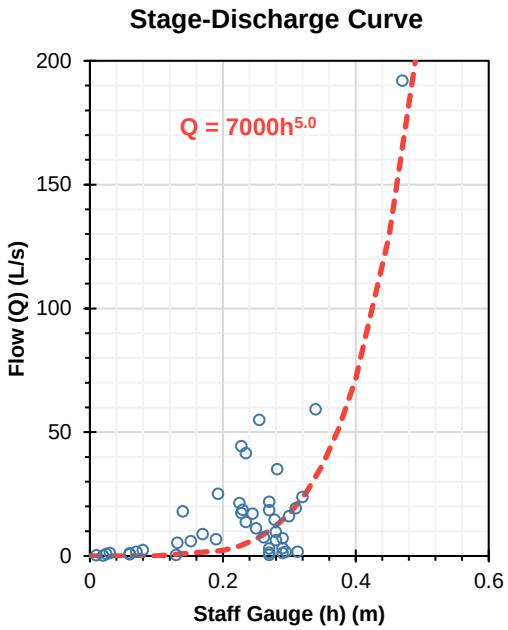




Photo taken on November 22, 2022.



Notes:

Batteaux Creek Control Station identified with NVCA southeast of Quarry on 21/22 Sideroad

GPS Coordinates 563,251 E 4,914,197 N (NAD 83 Zone 17).

Approximate ground elevation is 405 masl (estimated from Ontario Base Mapping).

BH03-7 SG1

Project Name:	Duntroon Quarry	**Date:**	November 23, 2022
Client:	Walker Aggregates Inc.	**Supervisor:**	BC
Project Number:	111-53312-05	**Scale:**	NTS

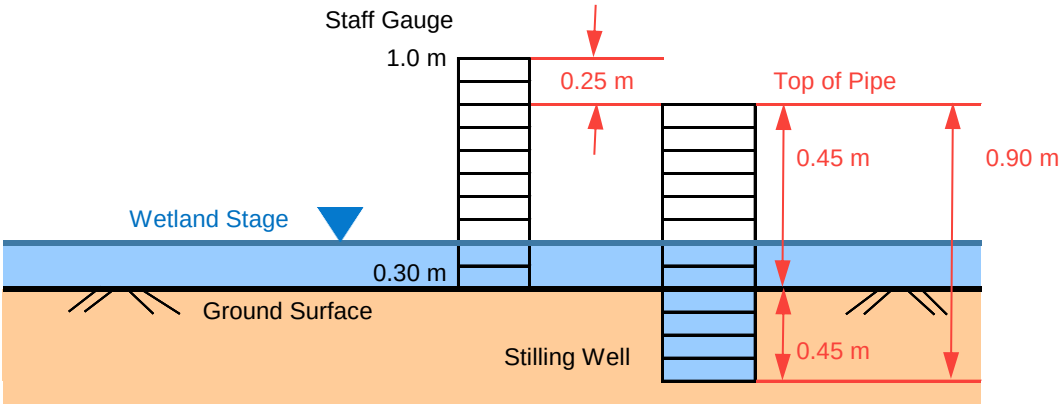




Photo taken on November 23, 2022.

Notes:

RR2 north of BH03-7 well nest

GPS Coordinates 559,349 E 4,915,519 N (NAD 83 Zone 17).

Approximate ground elevation is 510.5 masl (estimated from April 2022 LIDAR survey).

BH03-7 SG2

Project Name:	Duntroon Quarry	**Date:**	November 23, 2022
Client:	Walker Aggregates Inc.	**Supervisor:**	BC
Project Number:	111-53312-05	**Scale:**	NTS

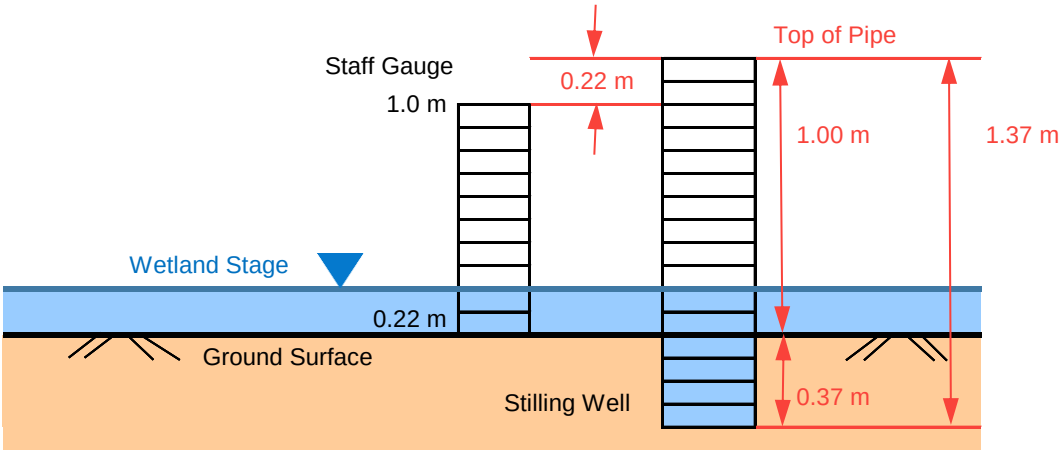




Photo taken on November 23, 2022.

Notes:

RR2 northwest of BH03-7 well nest

GPS Coordinates 559,323 E 4,915,530 N (NAD 83 Zone 17).

Approximate ground elevation is 510.5 masl (estimated from April 2022 LIDAR survey).

APPENDIX B

Groundwater Data

Figure B-1 Groundwater Hydrograph

MW6

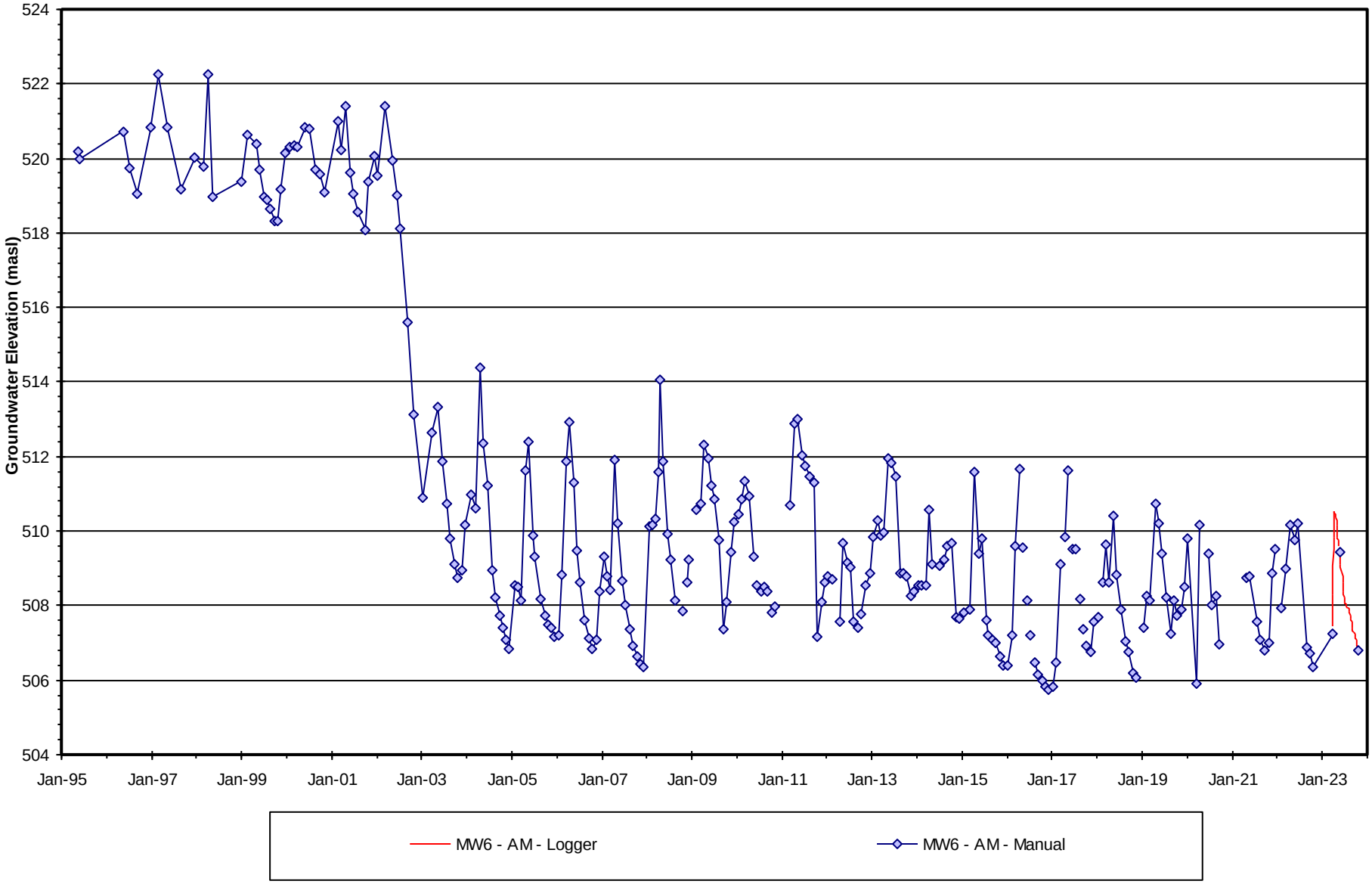


Figure B-2 Groundwater Hydrograph

BH98-8

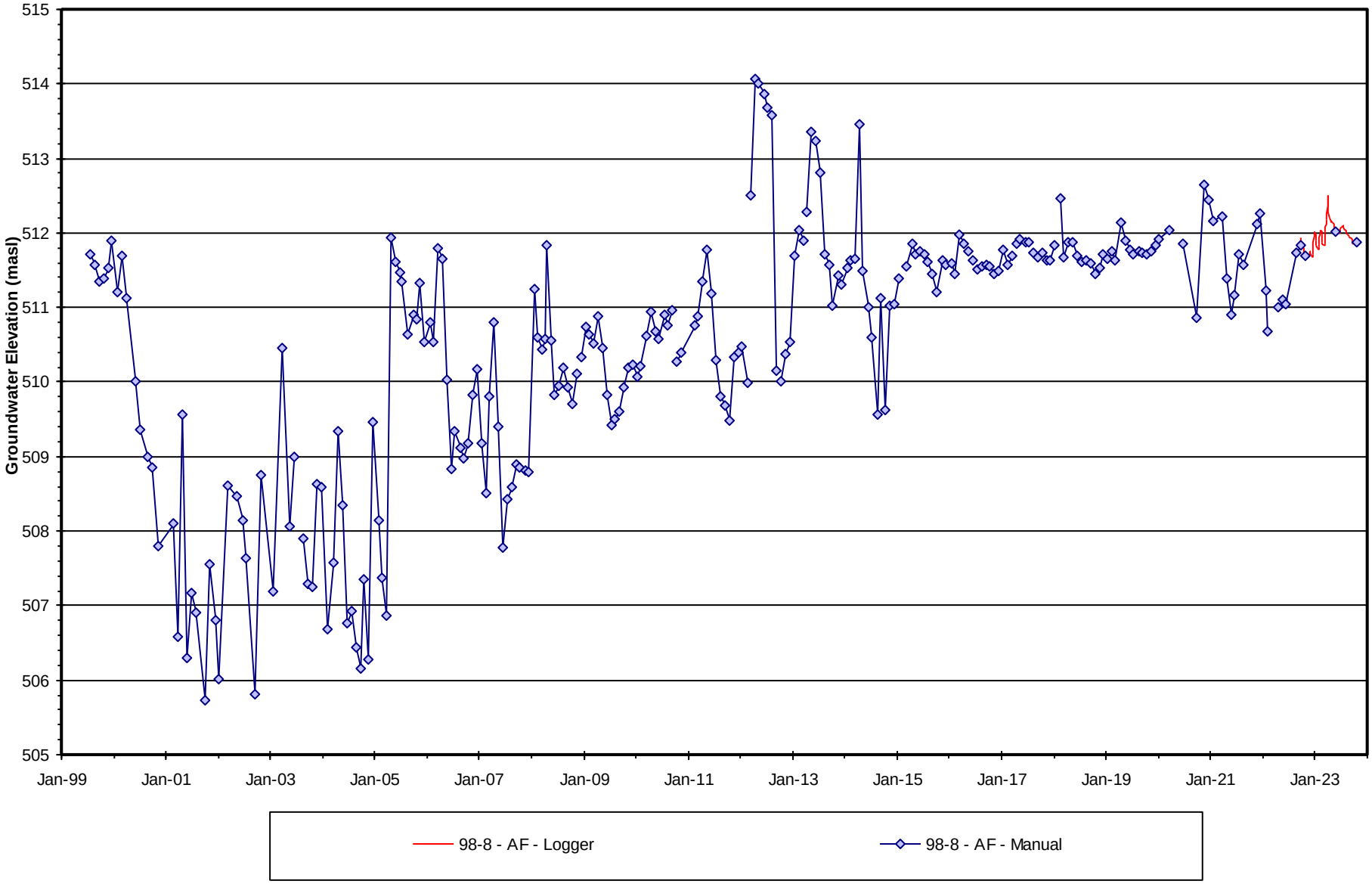


Figure B-3 Groundwater Hydrograph

BH98-9

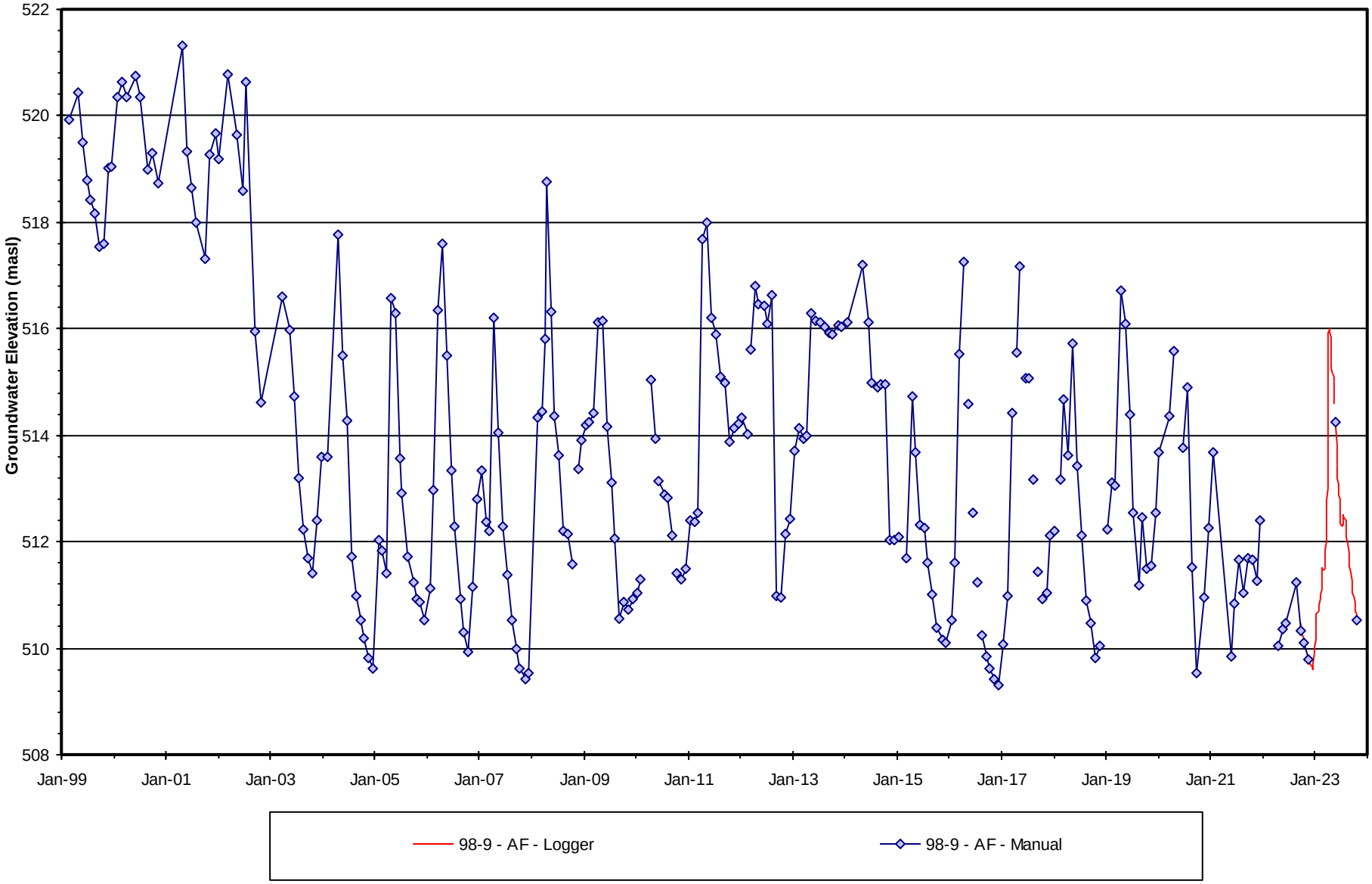


Figure B-4 Groundwater Hydrograph

BH98-12

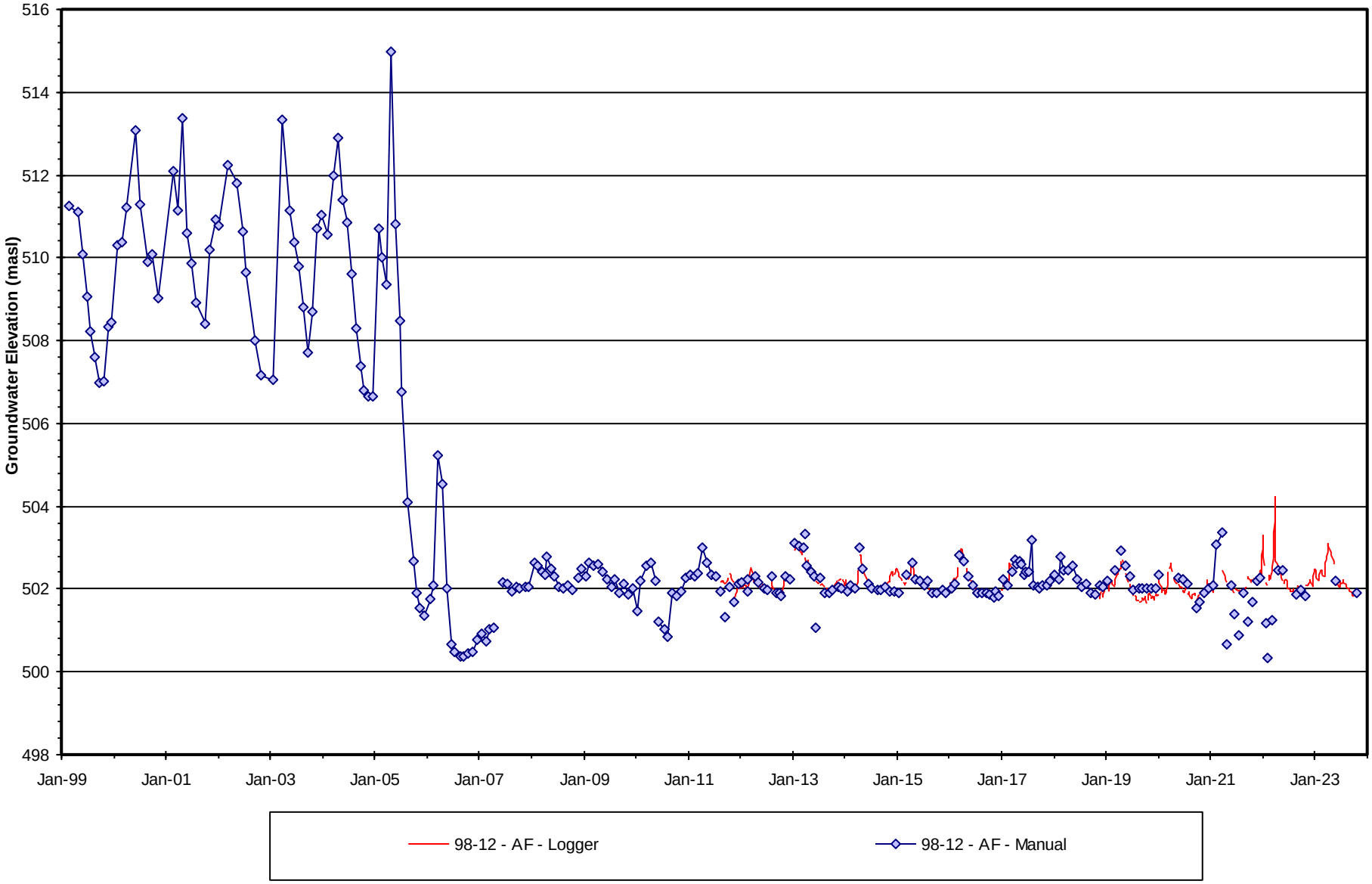


Figure B-5 Groundwater Hydrograph

PW99-1

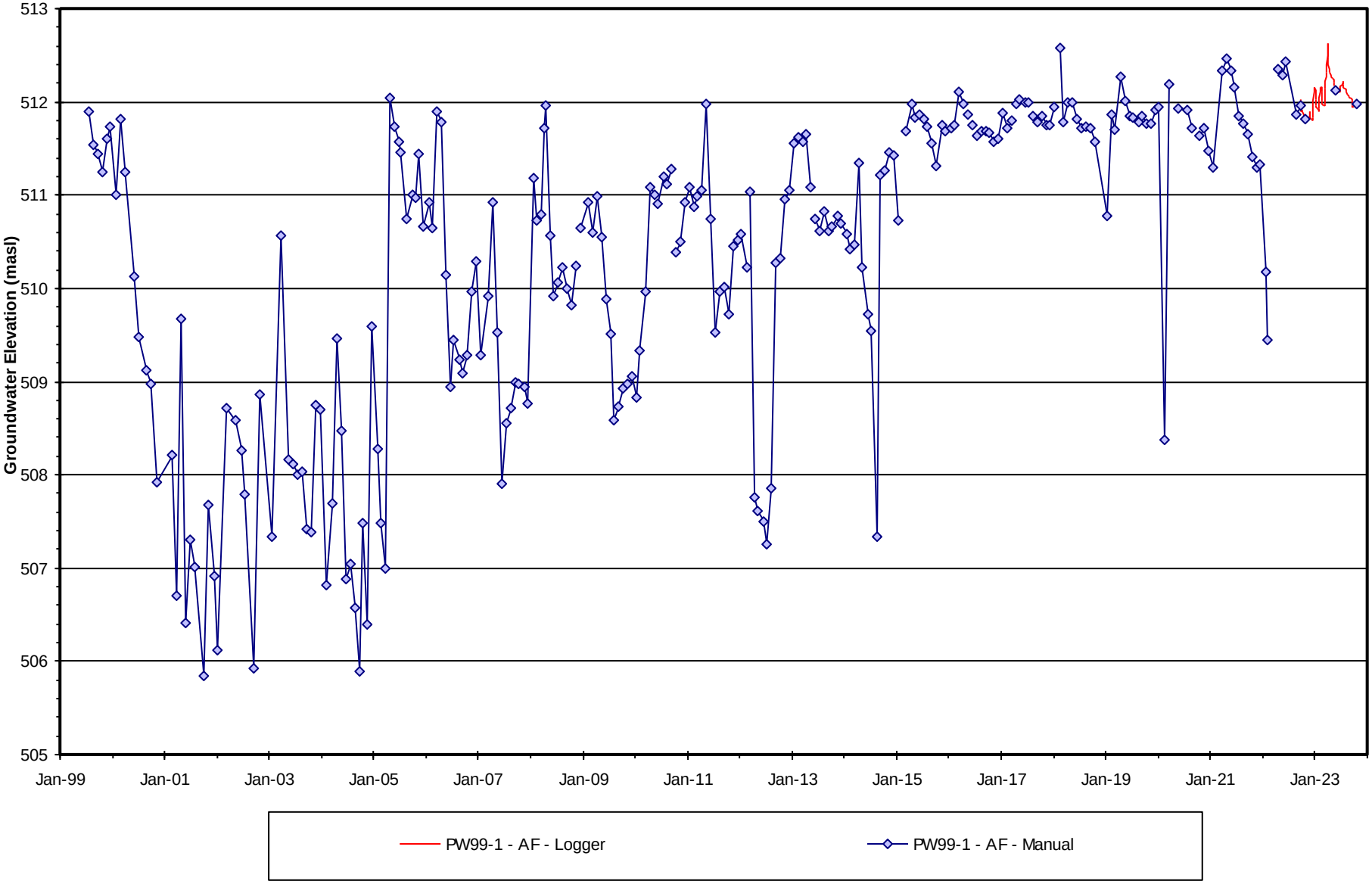


Figure B-6 Groundwater Hydrograph

BH02-1

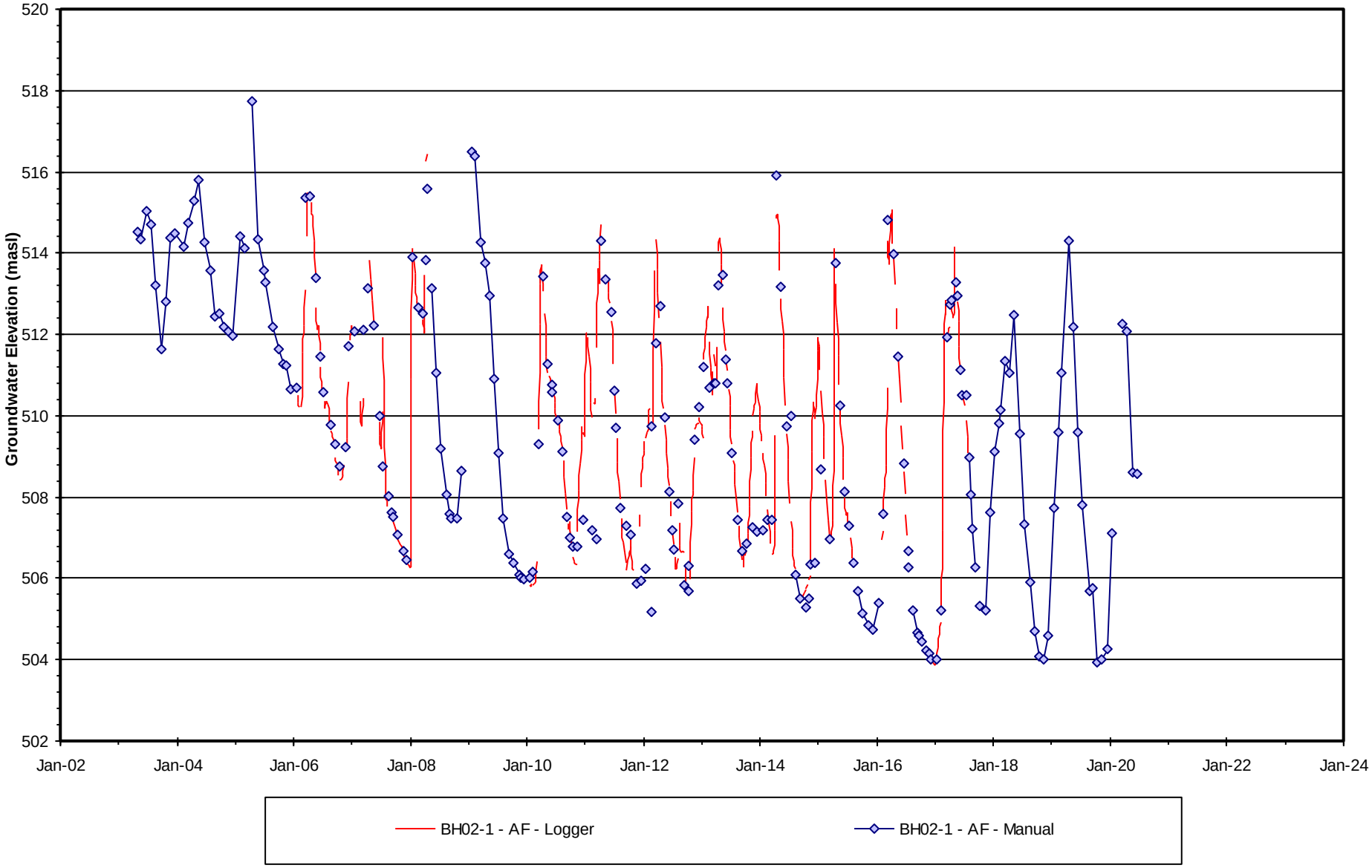


Figure B-7 Groundwater Hydrograph

BH02-2

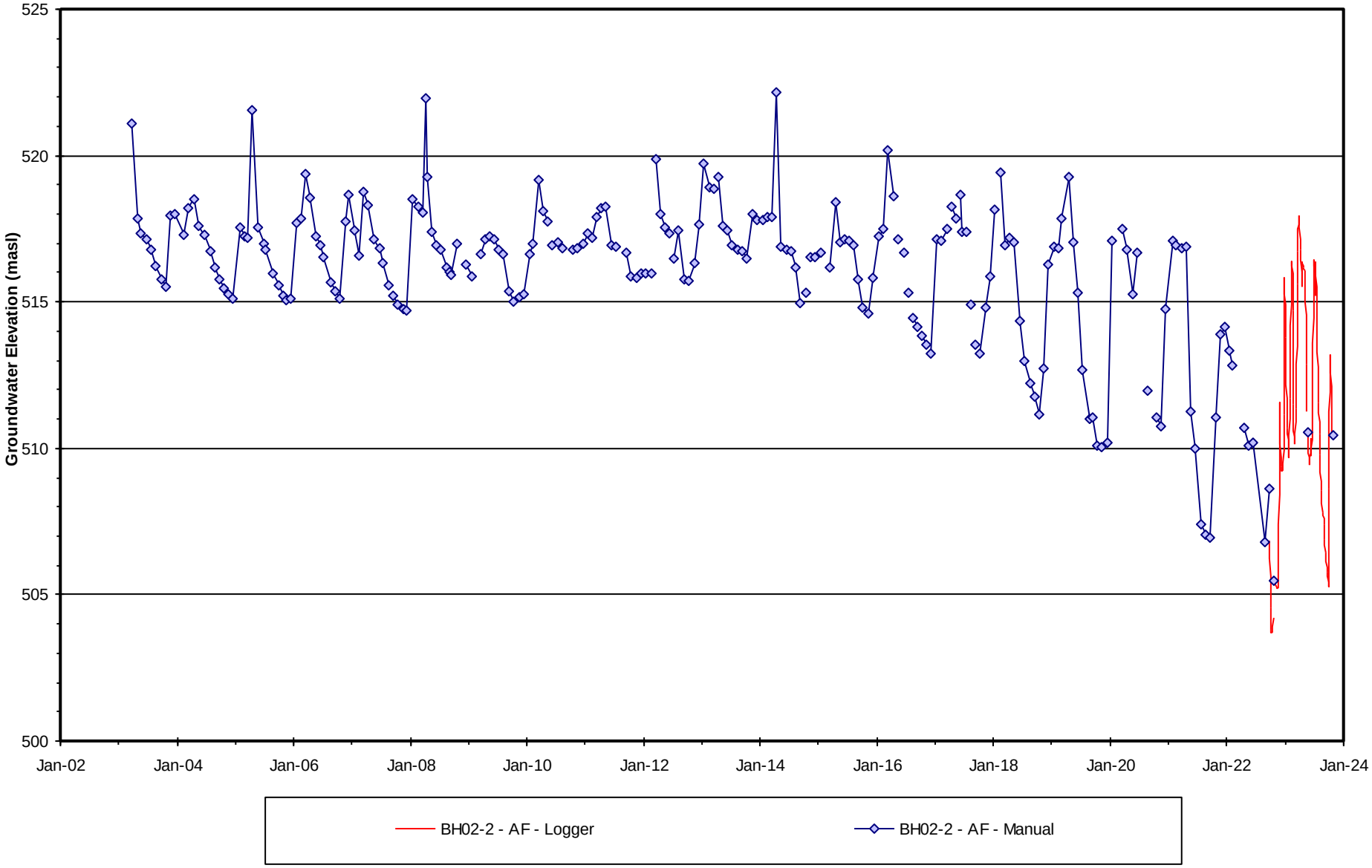


Figure B-8 Groundwater Hydrograph

BH02-3

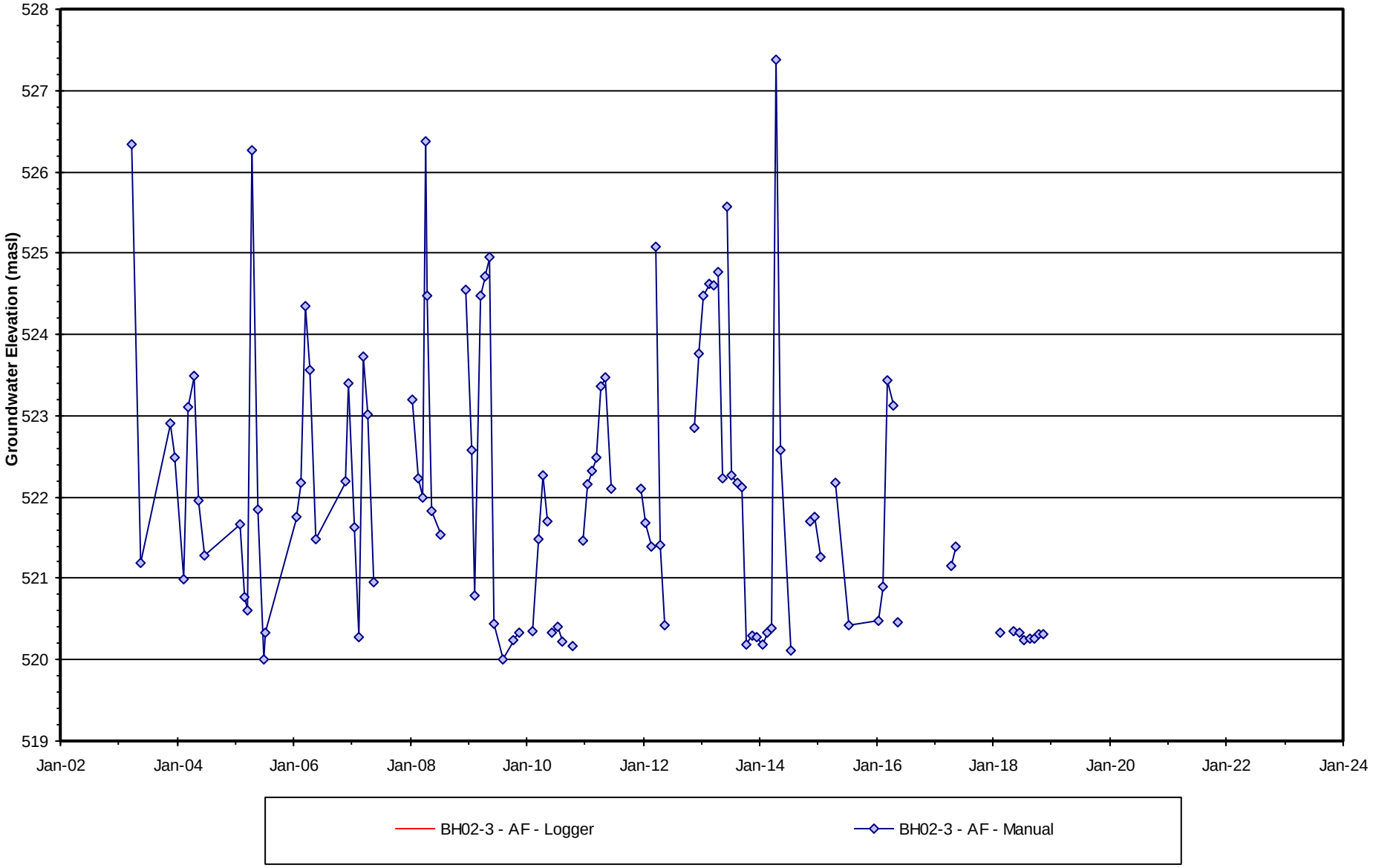


Figure B-9 Groundwater Hydrograph

BH02-4

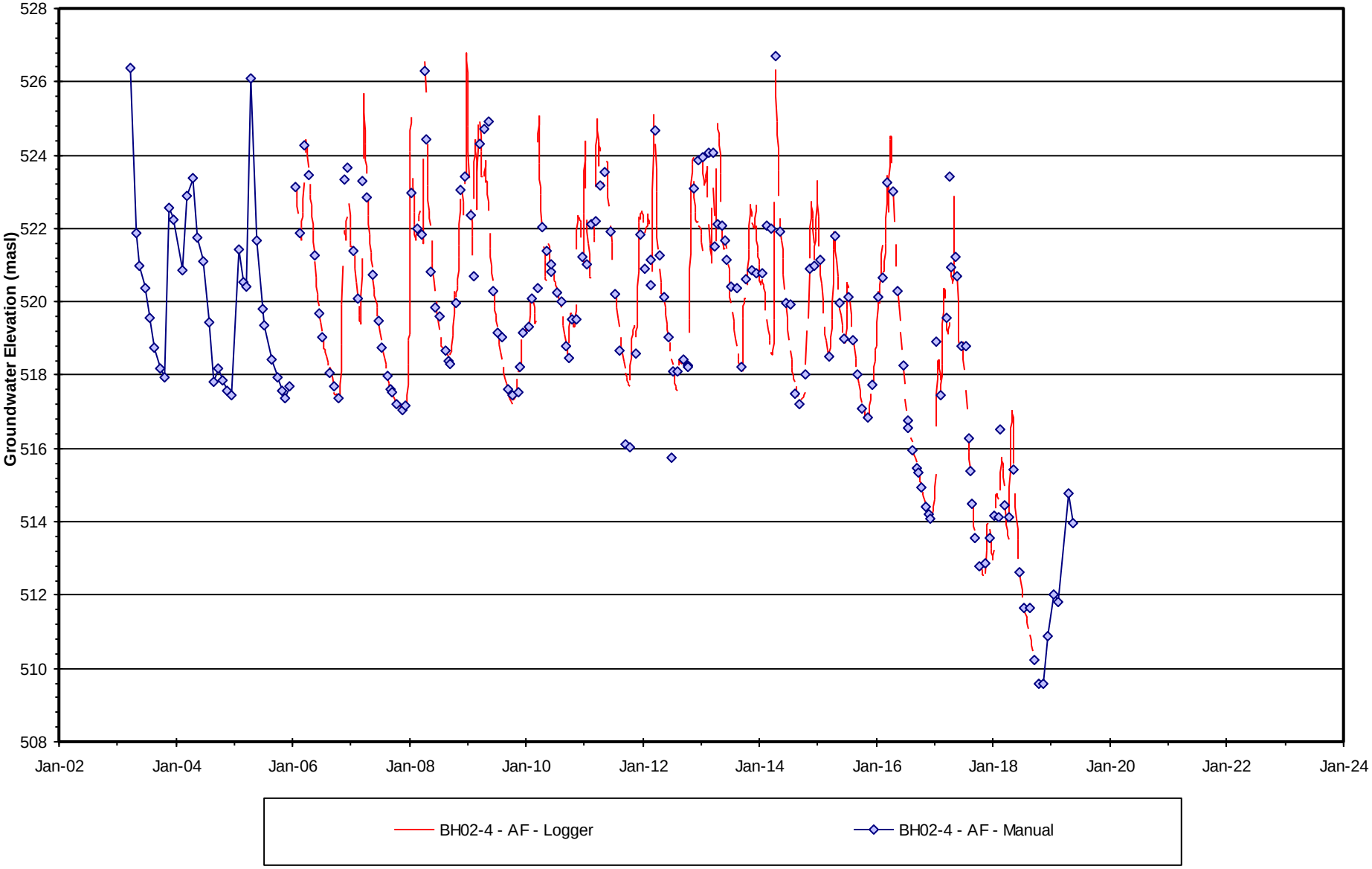


Figure B-10a Groundwater Hydrograph

Nest BH02-5 - Overburden

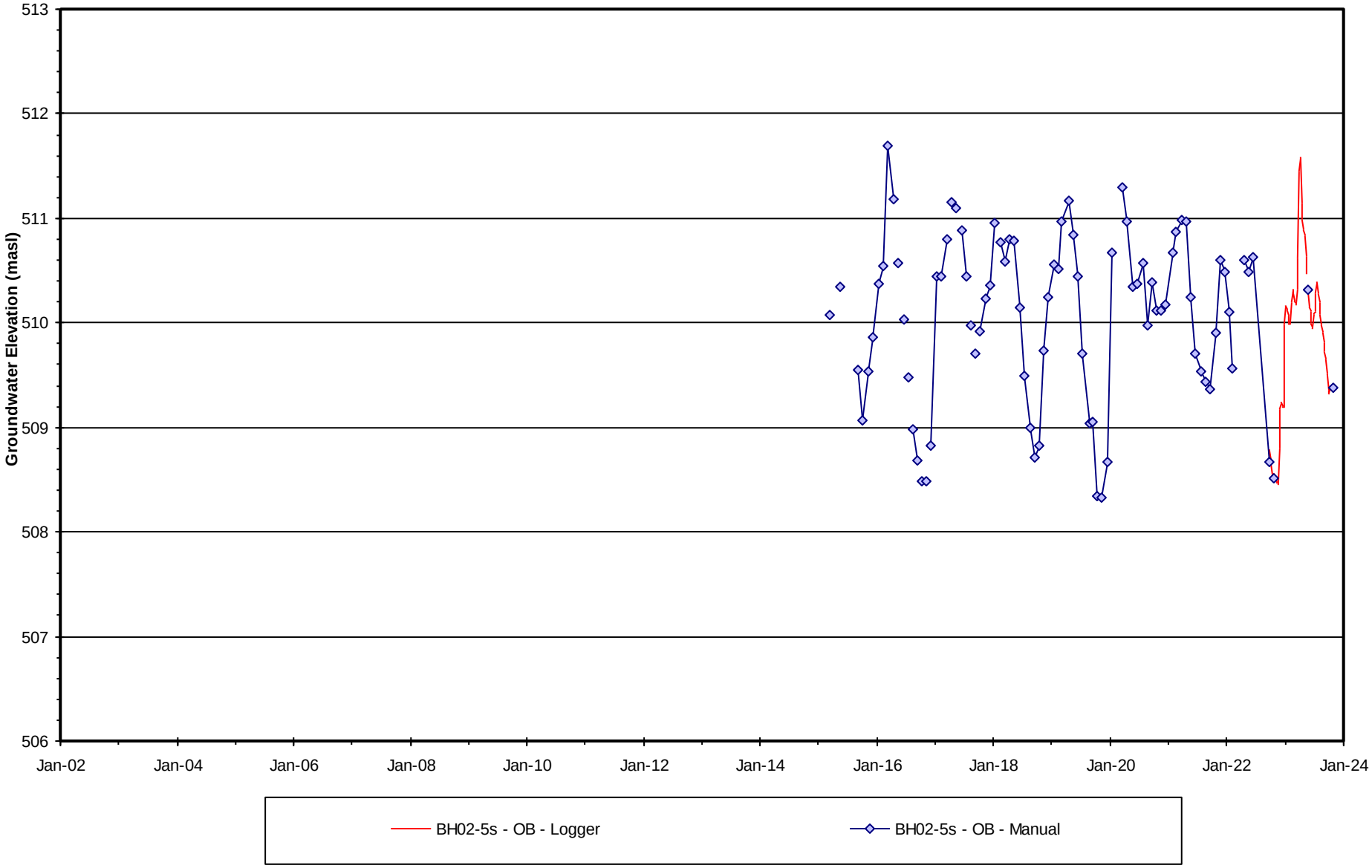


Figure B-10b Groundwater Hydrograph

Nest BH02-5 - Shallow Amabel Bedrock

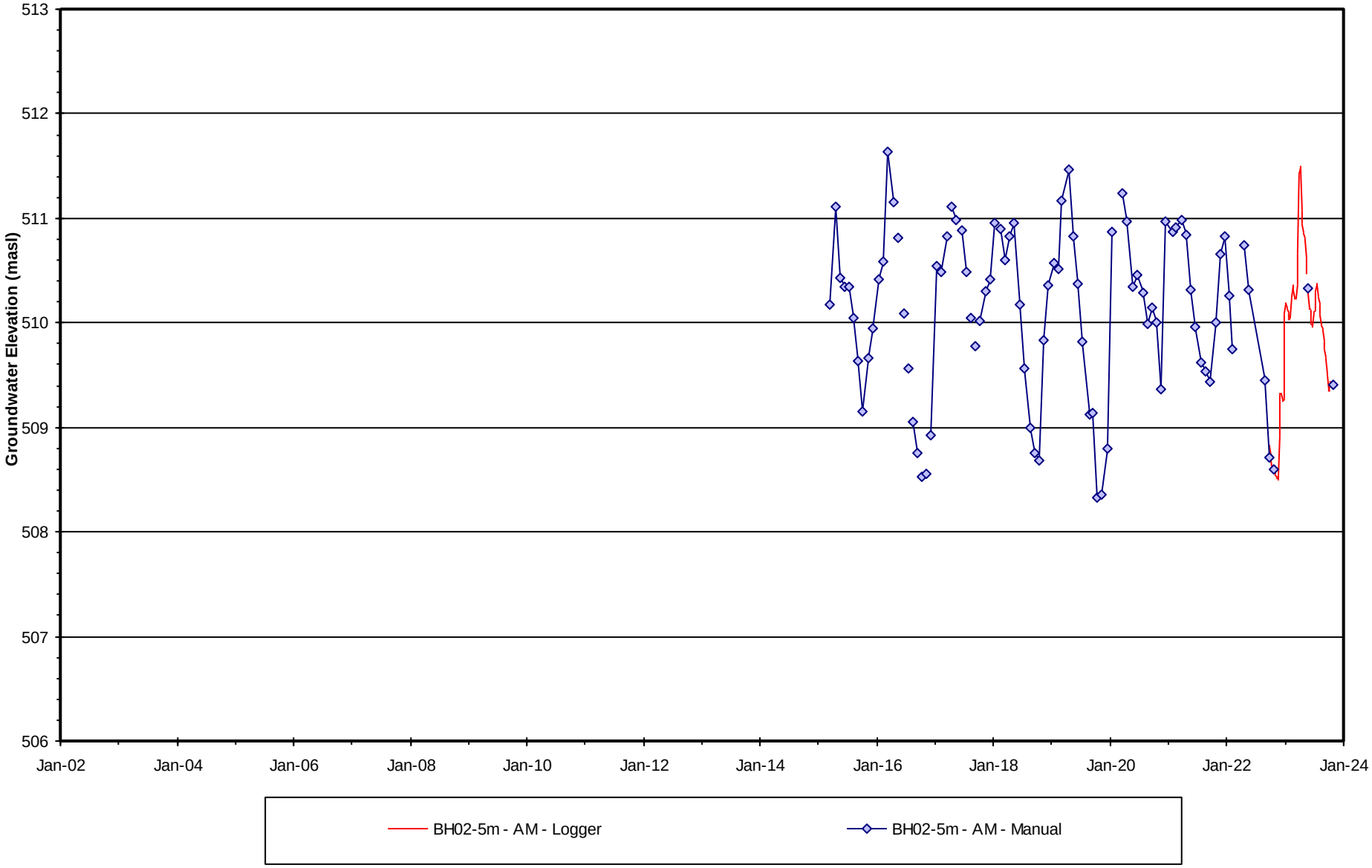


Figure B-10c Groundwater Hydrograph

Nest BH02-5 - Deep Amabel / Fossil Hill Bedrock

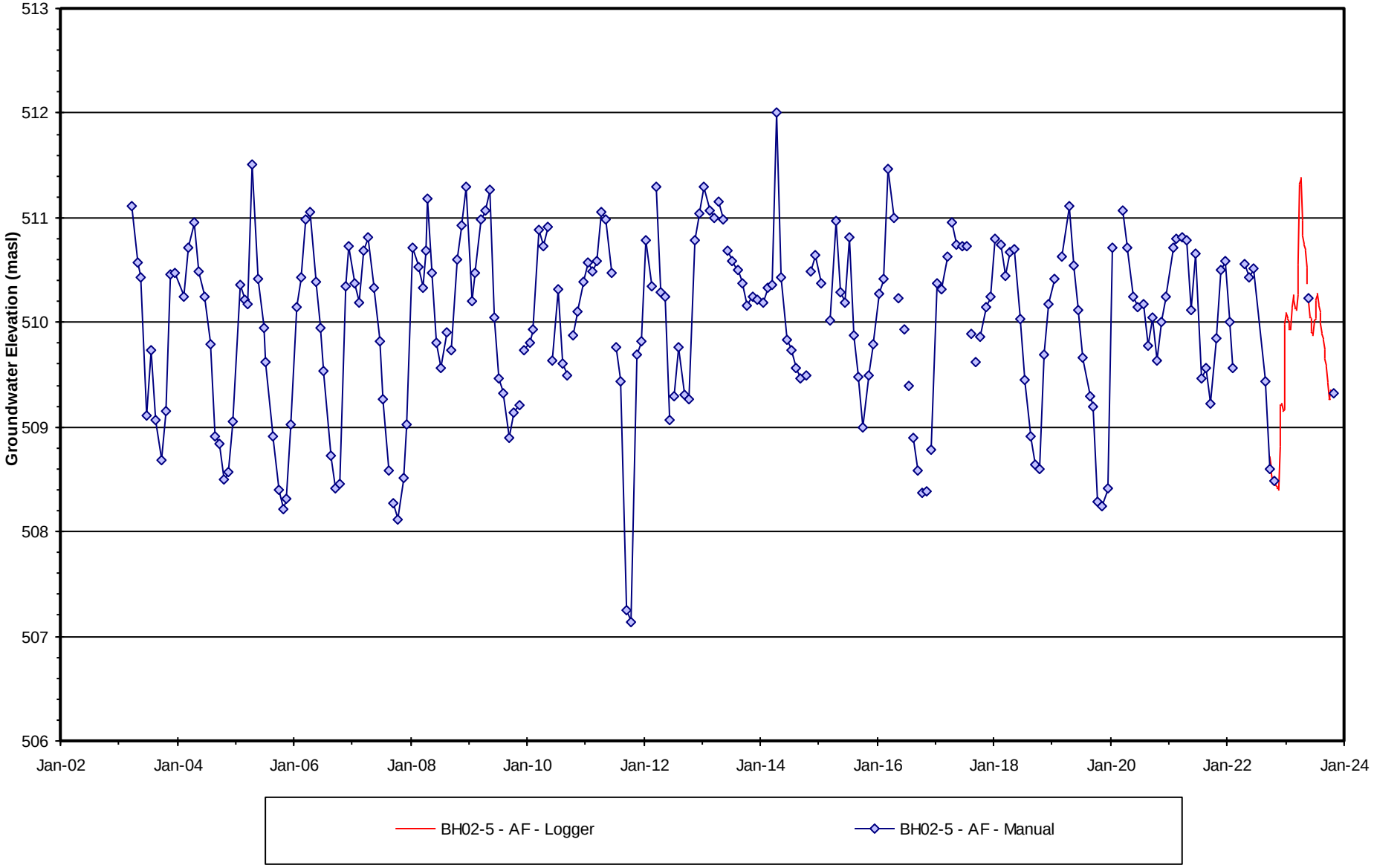


Figure B-11 Groundwater Hydrograph

BH02-6

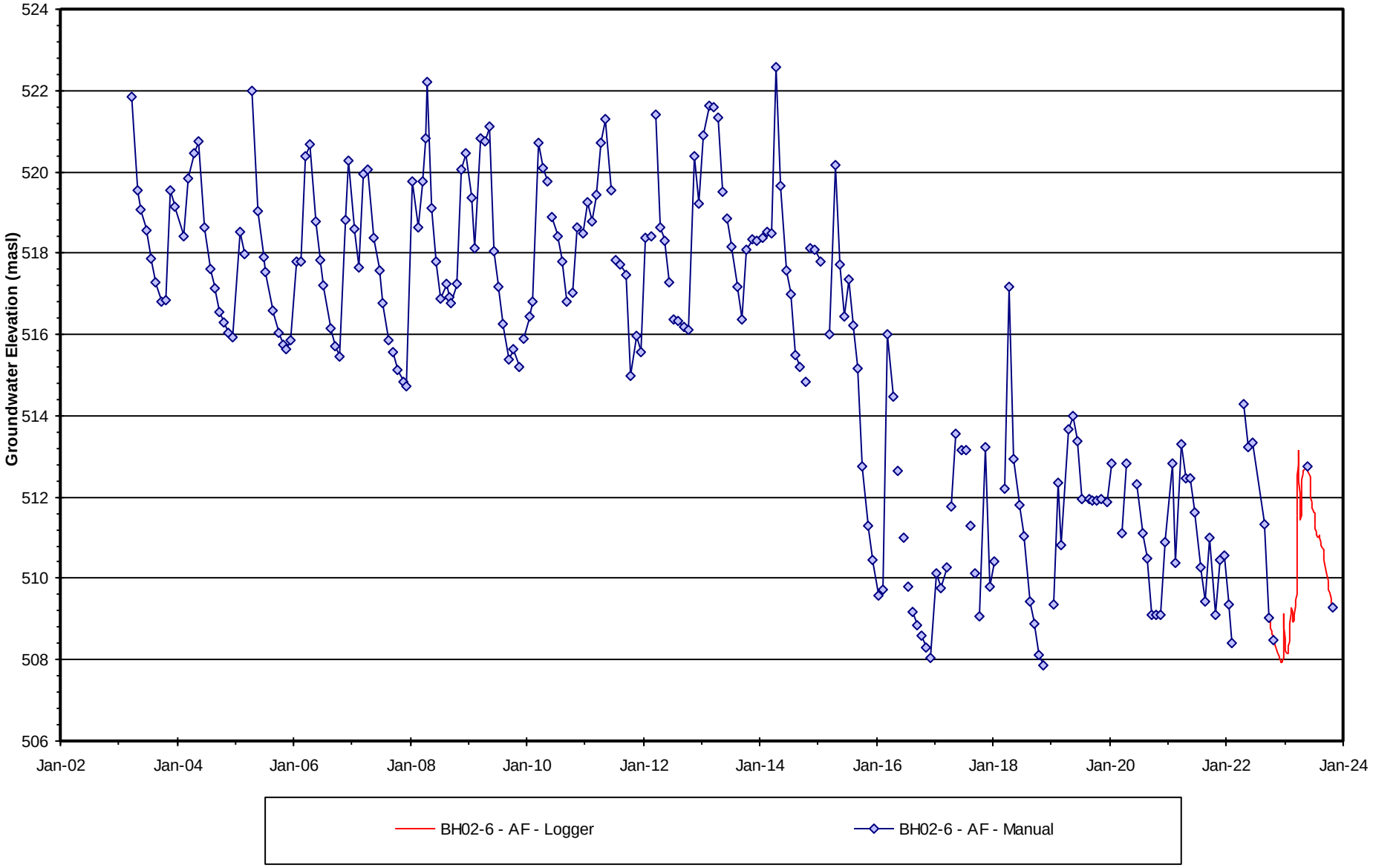


Figure B-12a Groundwater Hydrograph

Nest BH03-7 - Overburden

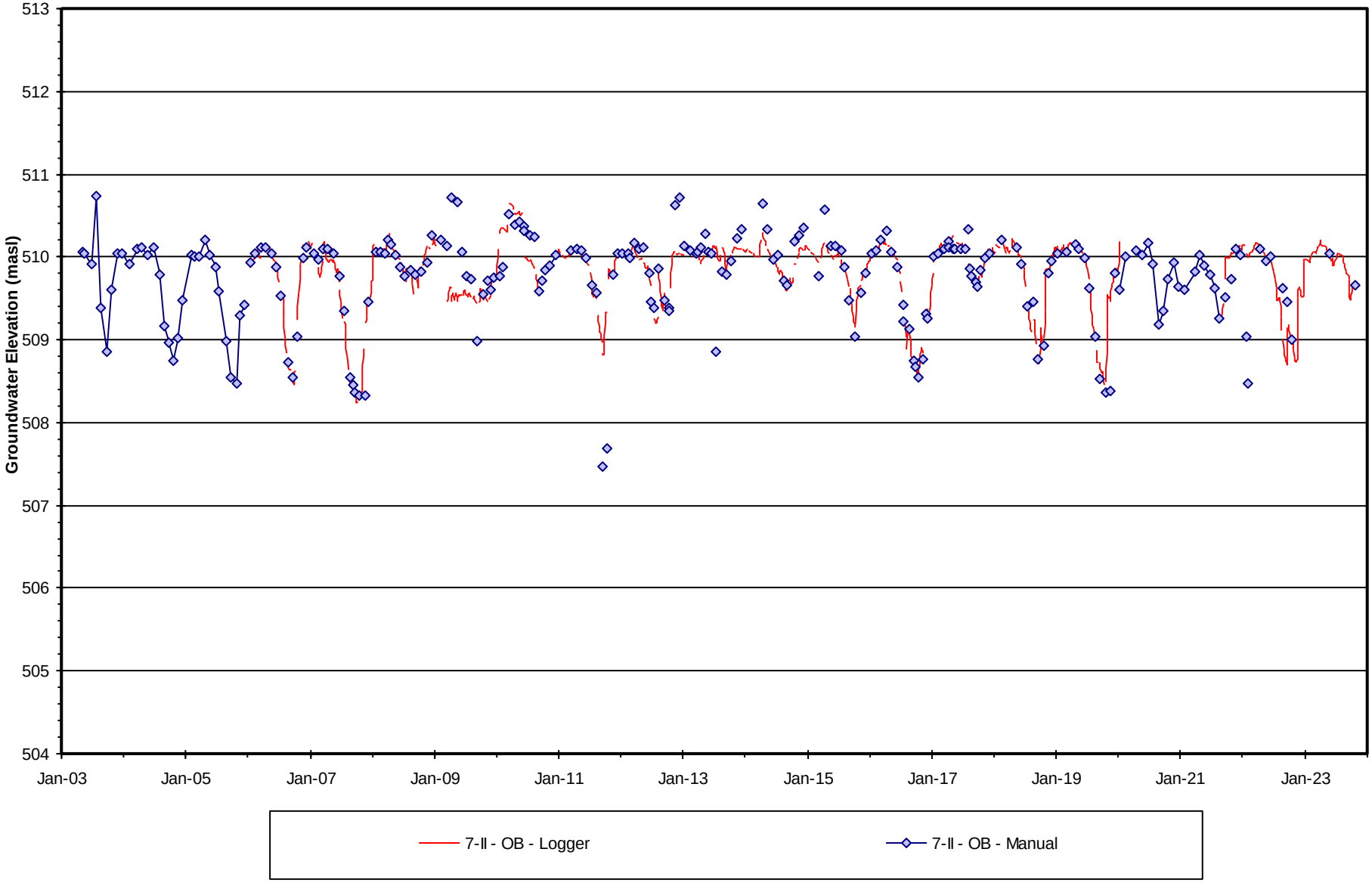


Figure B-12b Groundwater Hydrograph

Nest BH03-7 - Shallow Amabel Bedrock

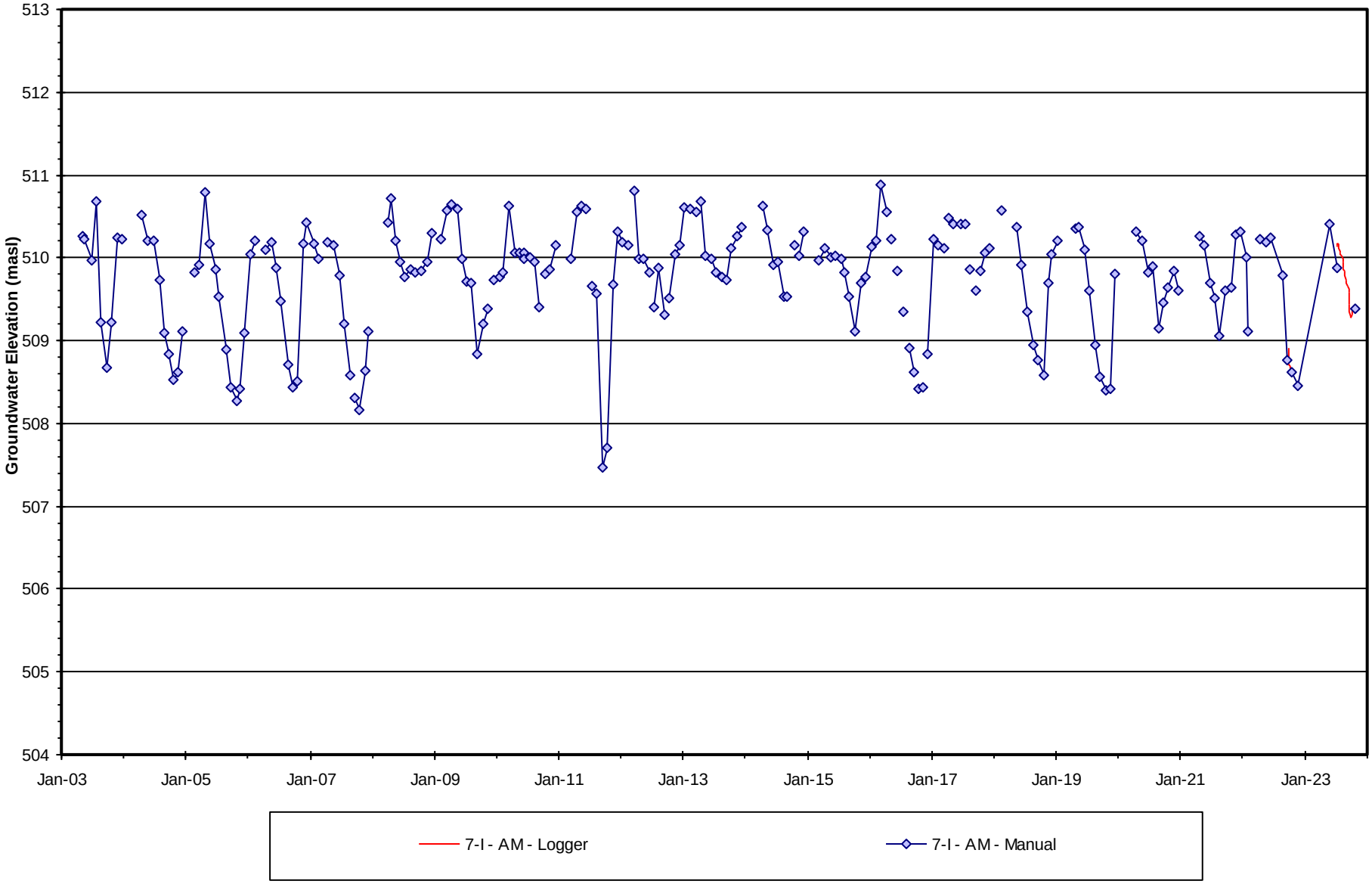


Figure B-12c Groundwater Hydrograph

Nest BH03-7 - Deep Amabel / Fossil Hill Bedrock

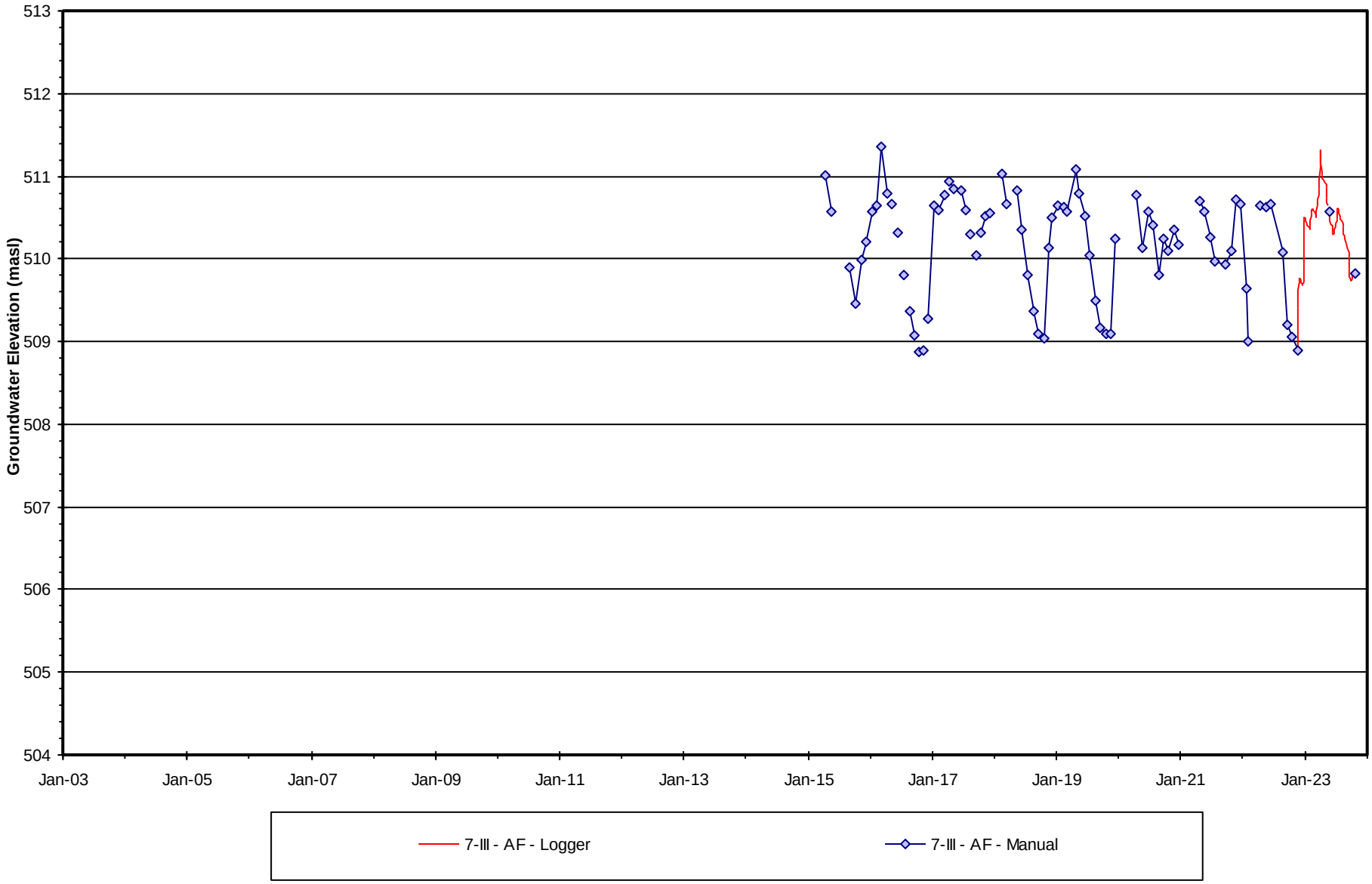


Figure B-13 Groundwater Hydrograph

BH03-8

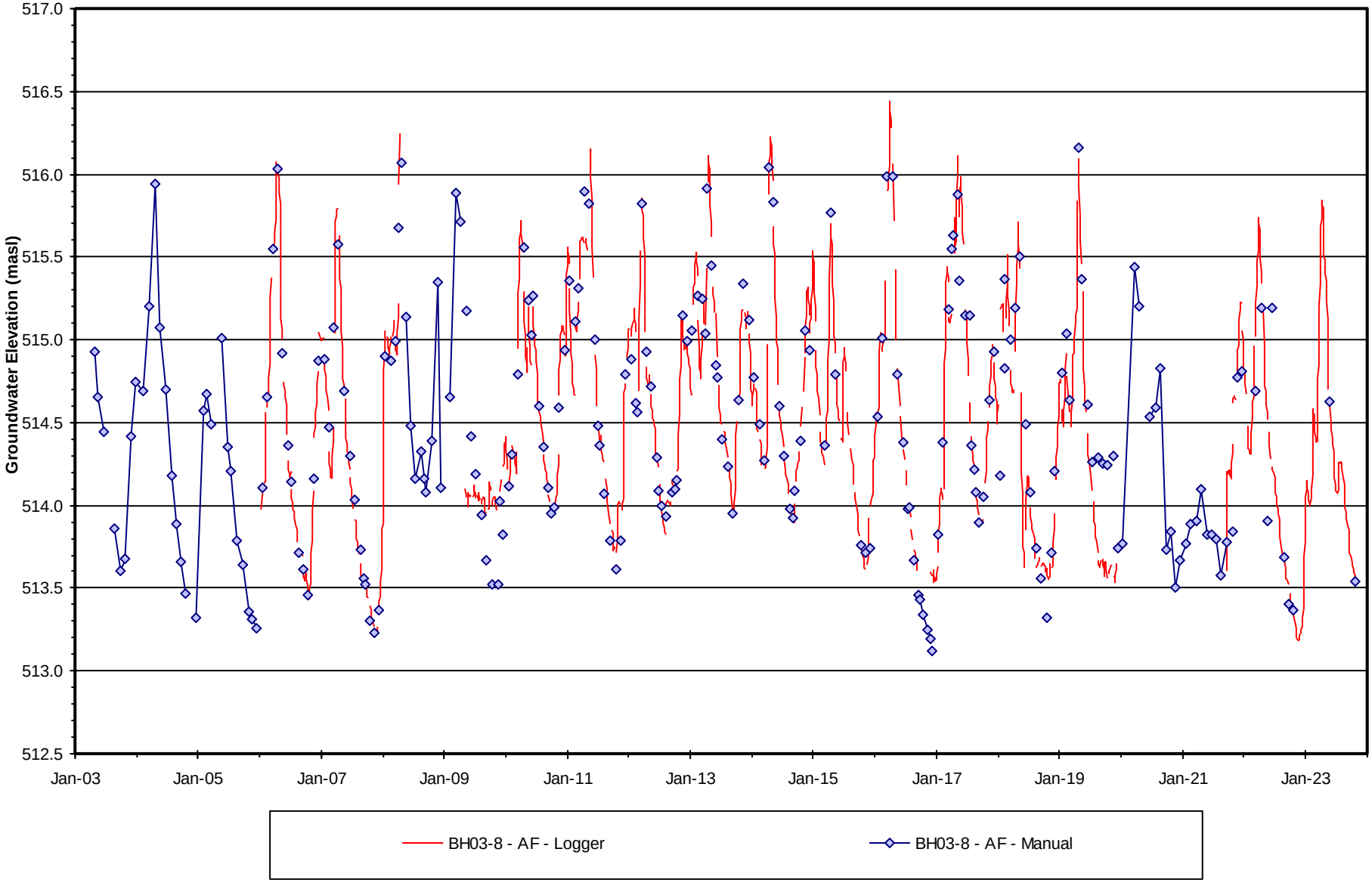


Figure B-14 Groundwater Hydrograph

BH03-9

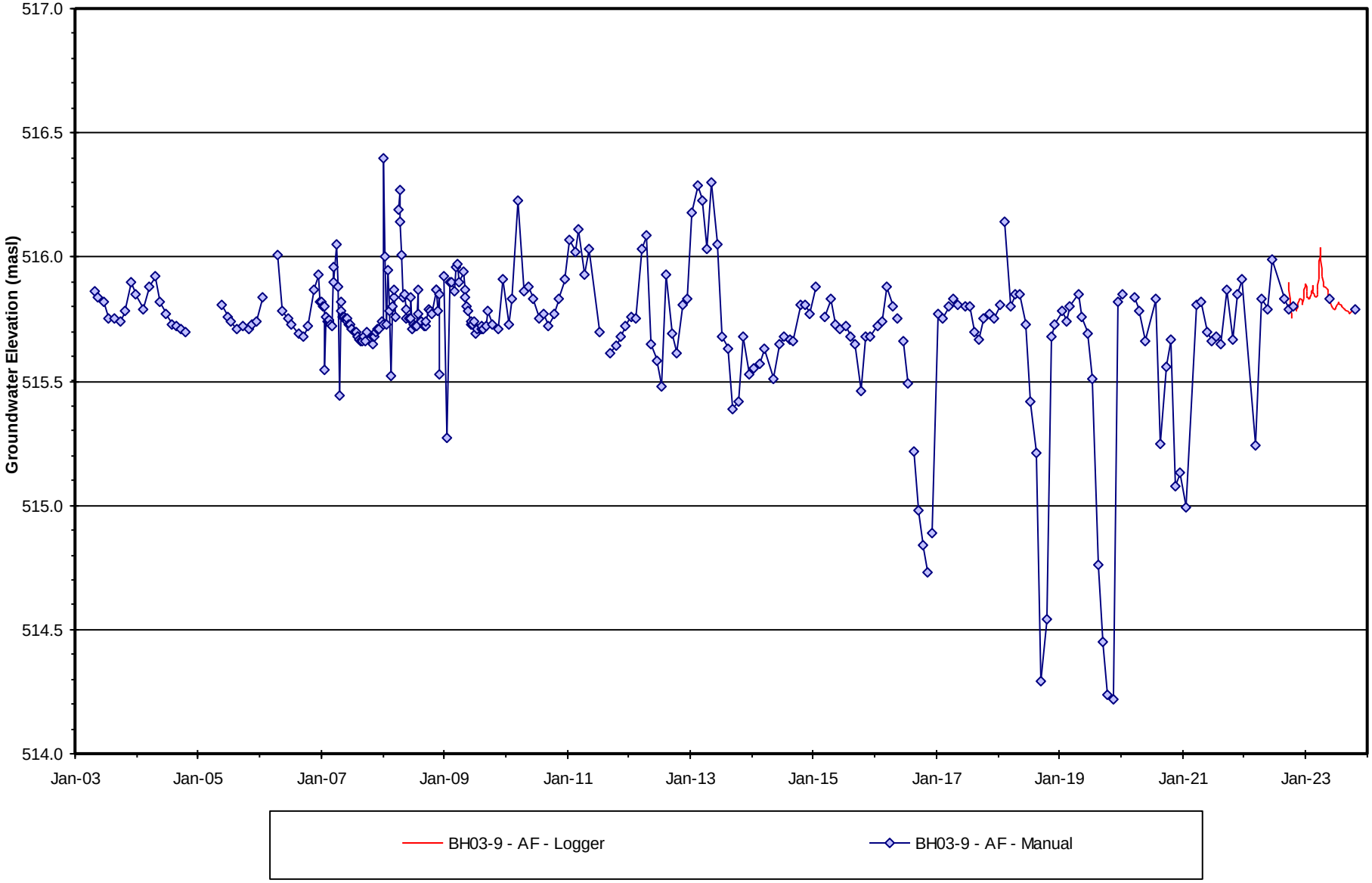


Figure B-15 Groundwater Hydrograph

TW04-1

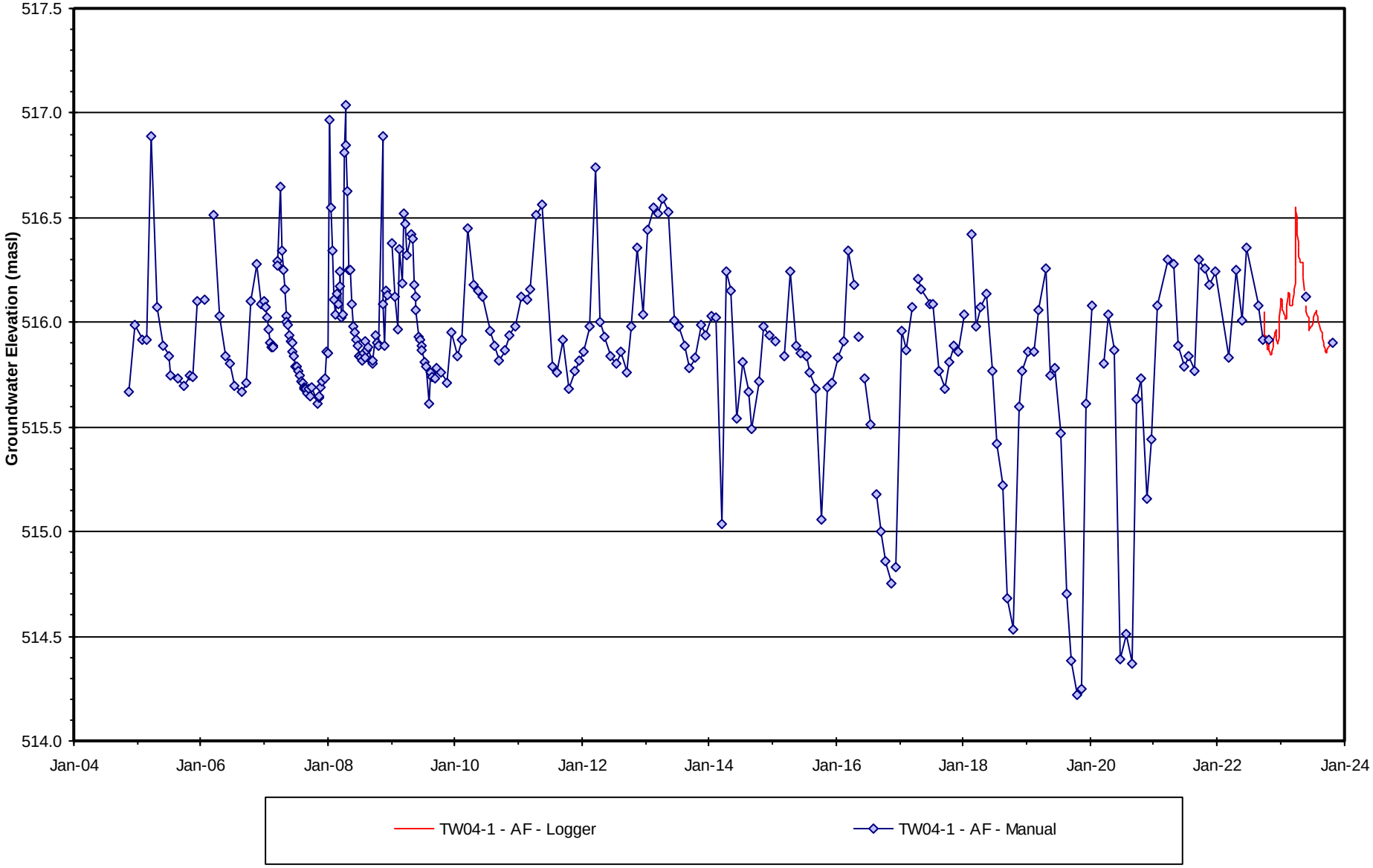


Figure B-16 Groundwater Hydrograph

TW04-2

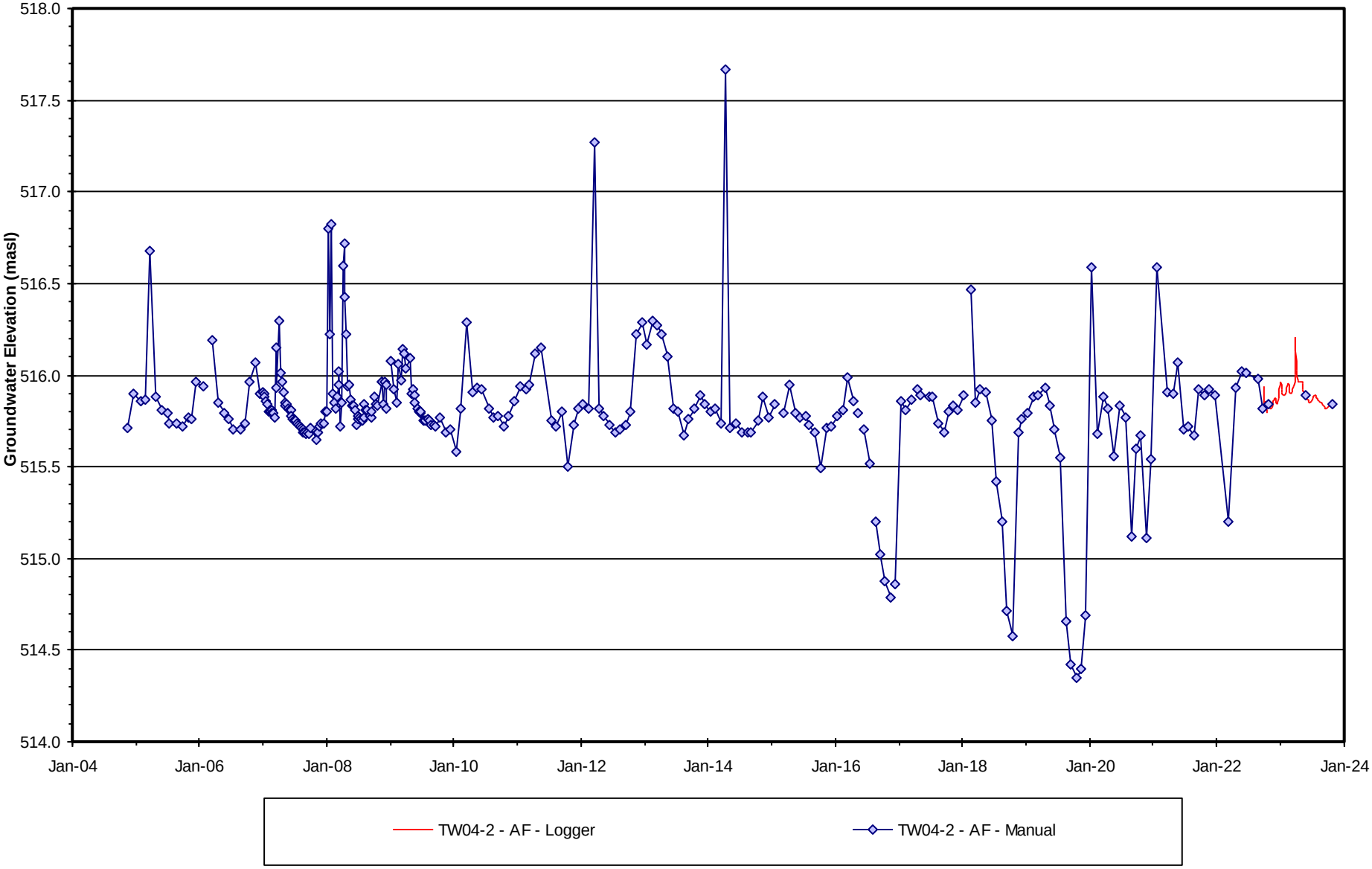


Figure B-17 Groundwater Hydrograph

TW04-3

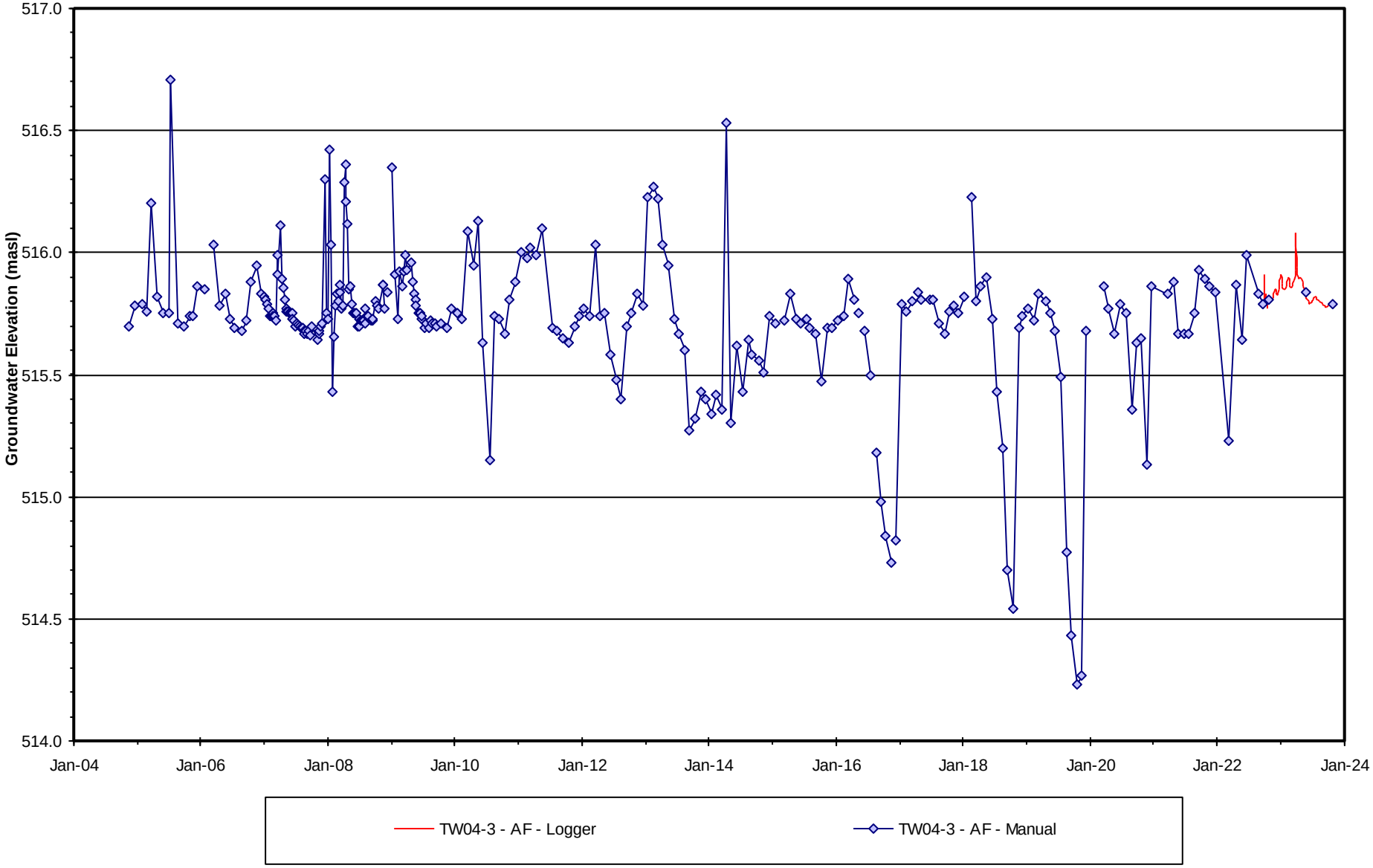


Figure B-18 Groundwater Hydrograph

BH08-1

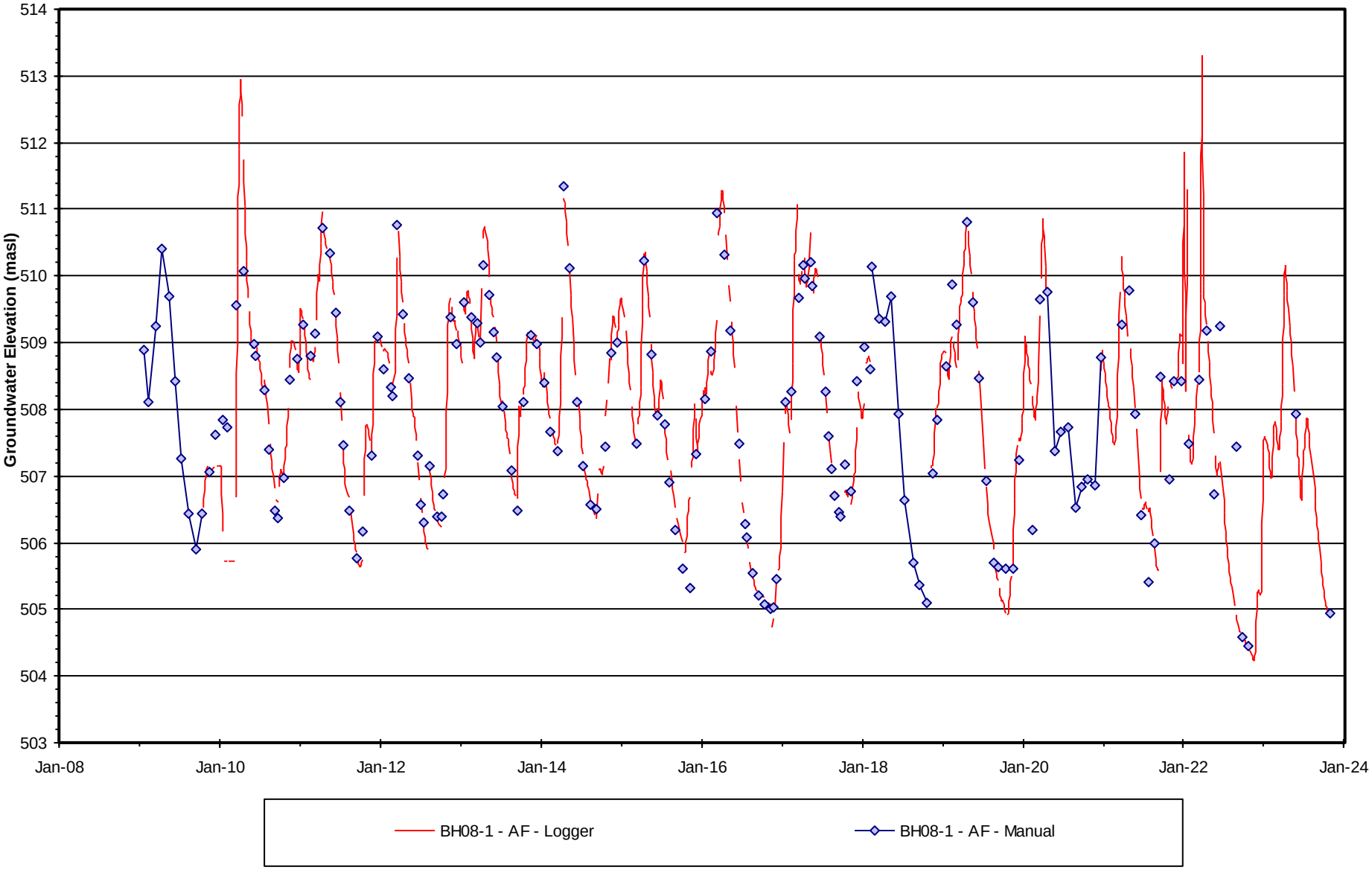


Figure B-19 Groundwater Hydrograph

BH08-2

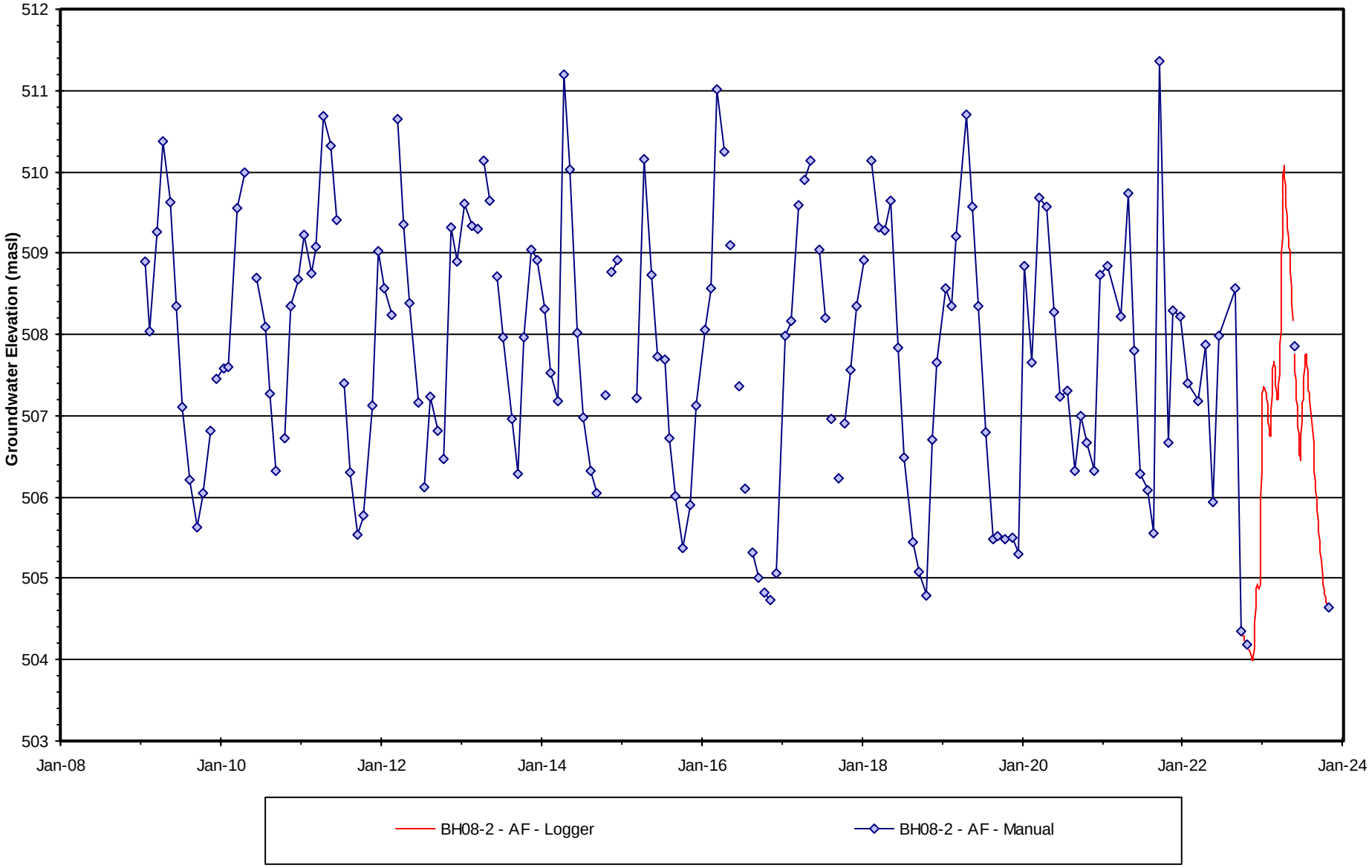


Figure B-20 Groundwater Hydrograph

BH08-3

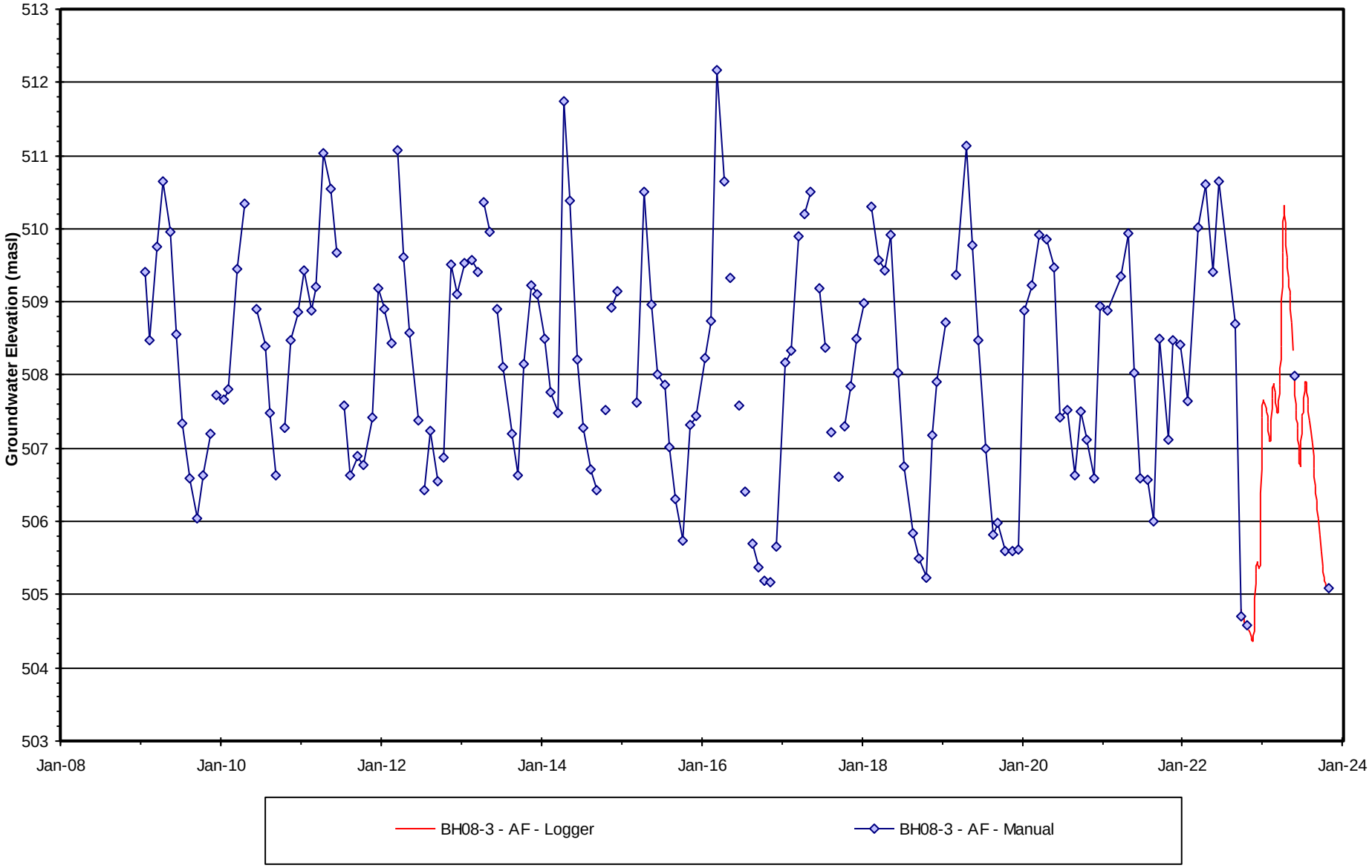


Figure B-21 Groundwater Hydrograph

NW1

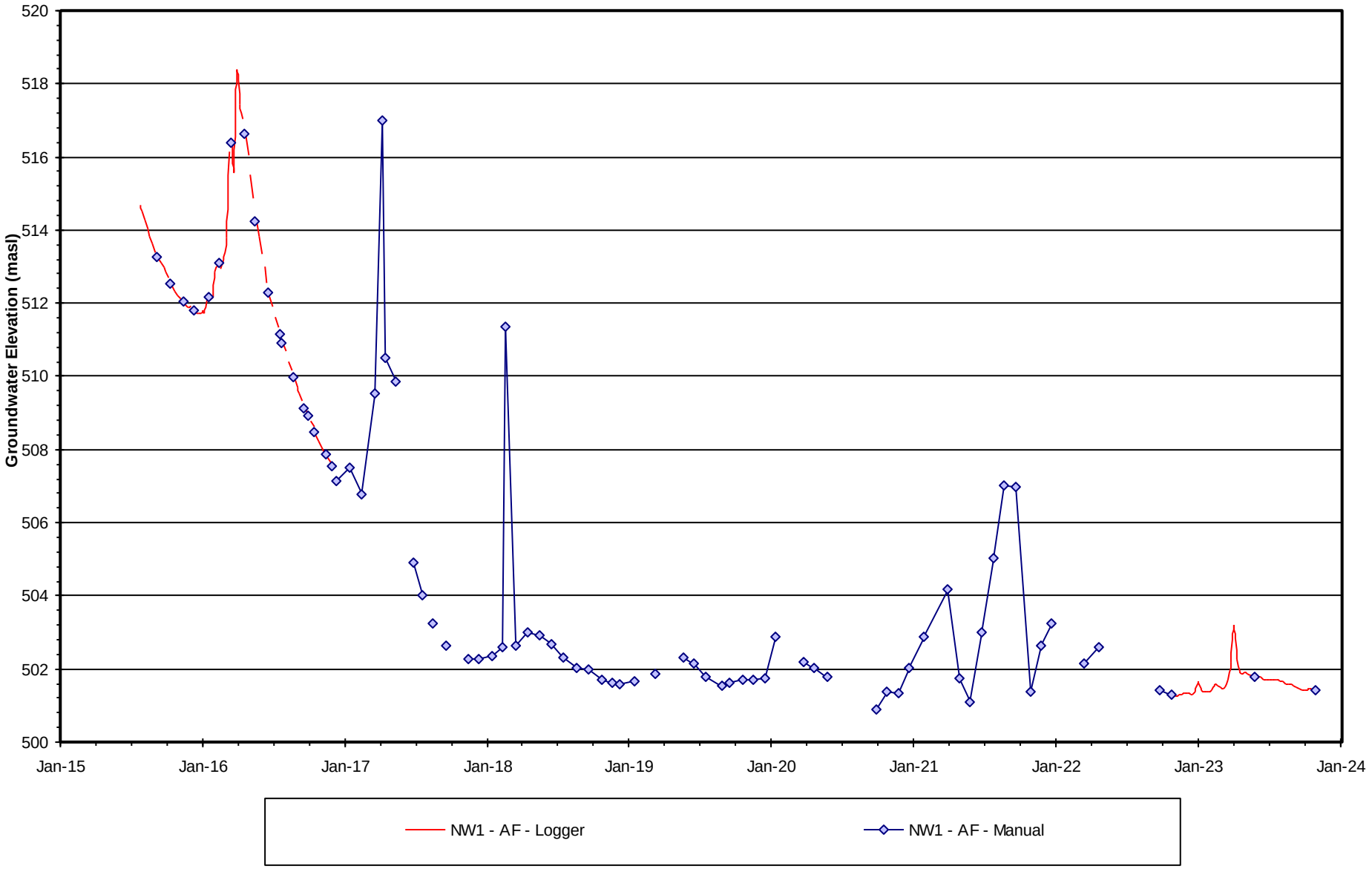


Figure B-22 Groundwater Hydrograph

NW2

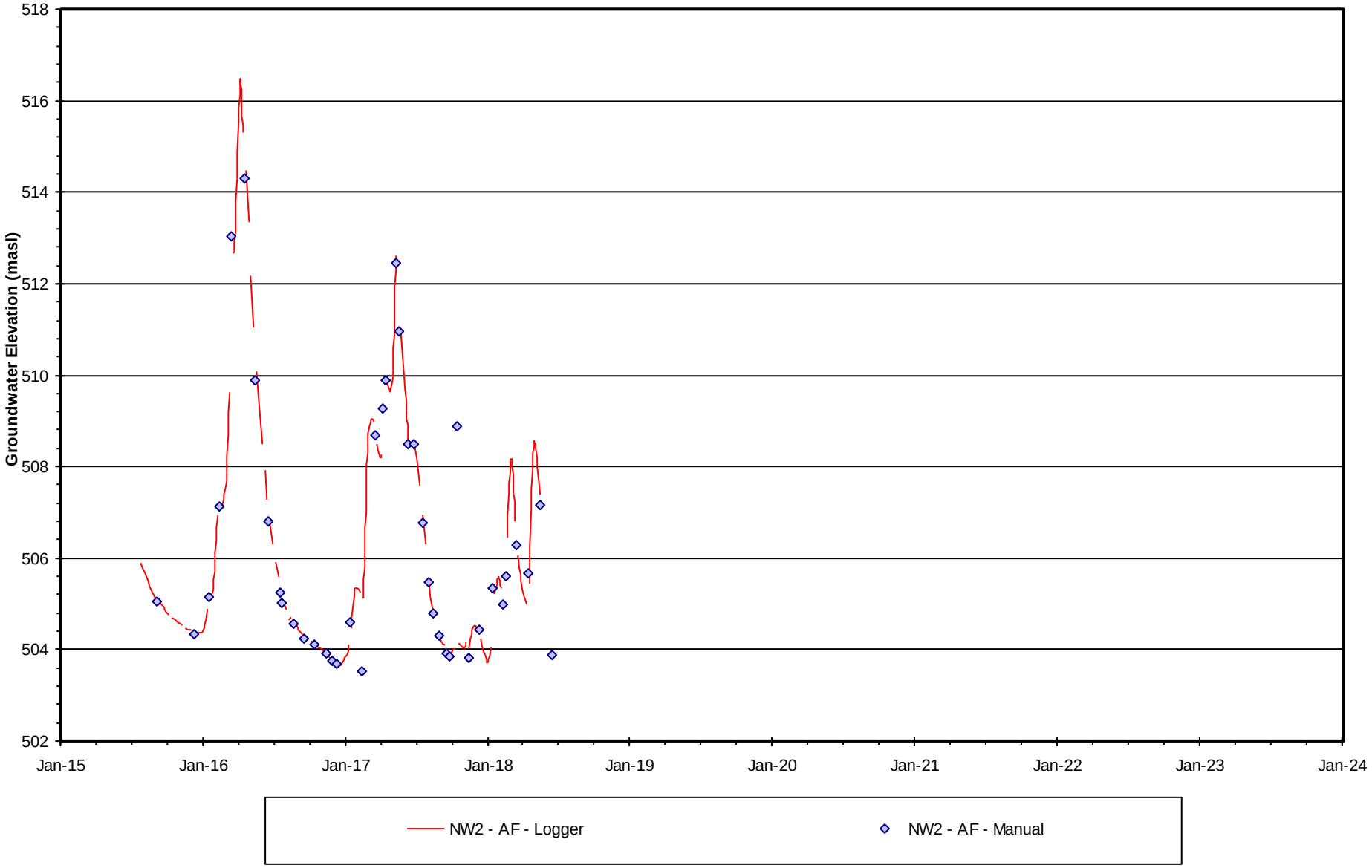


Figure B-23 Groundwater Hydrograph

NW3

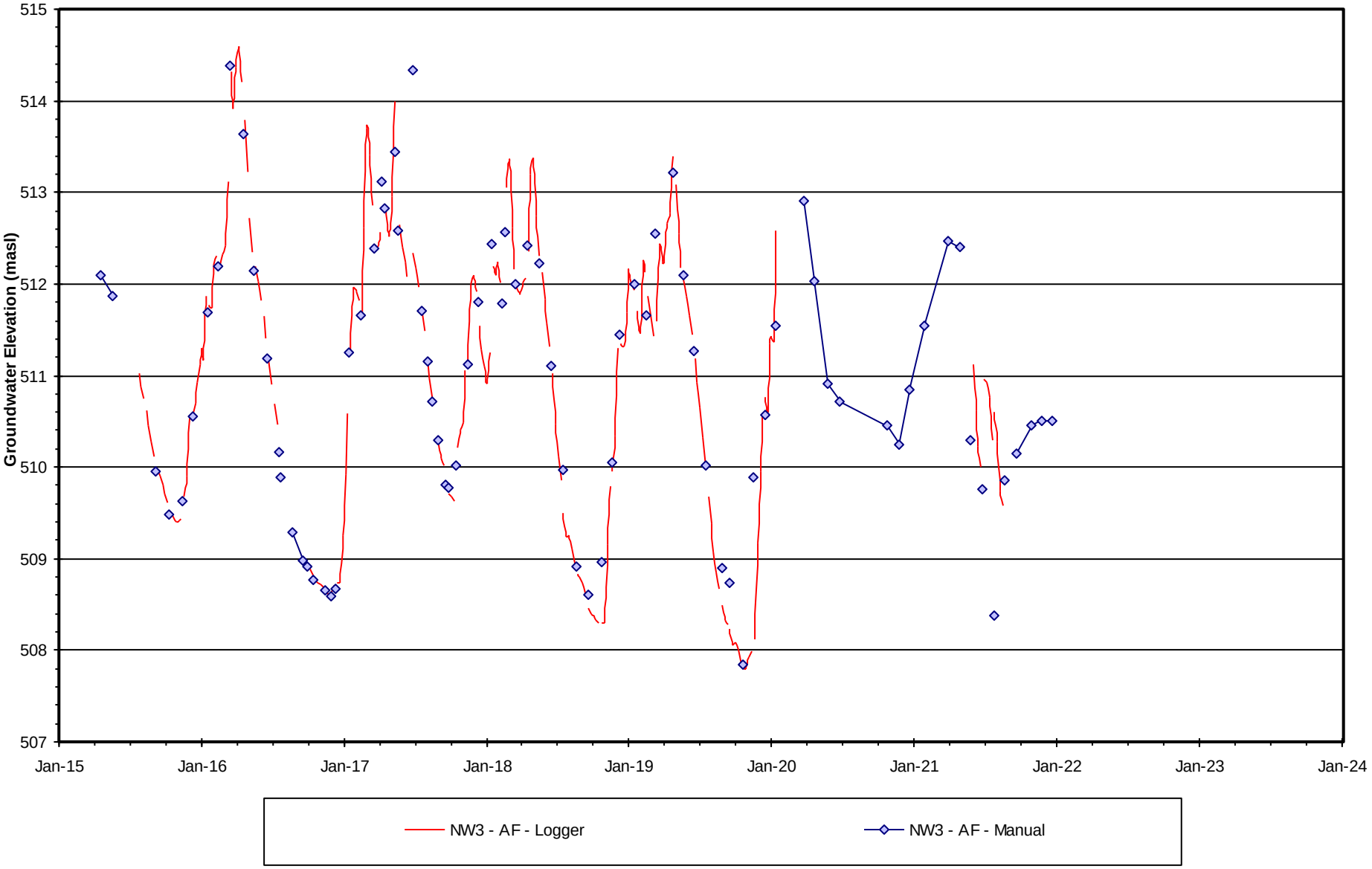


Figure B-24 Groundwater Hydrograph

NW4

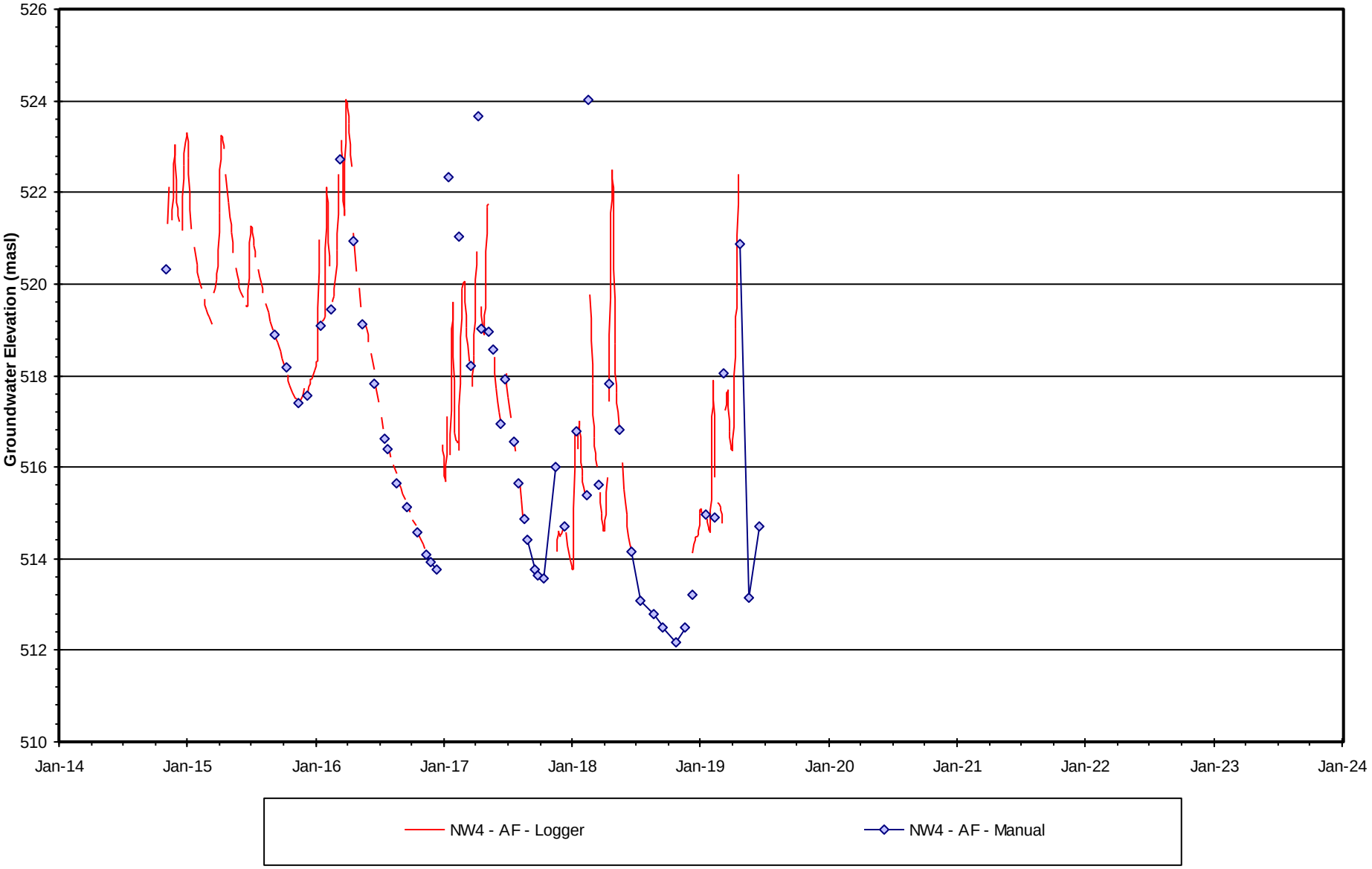


Figure B-25 Groundwater Hydrograph

NW5

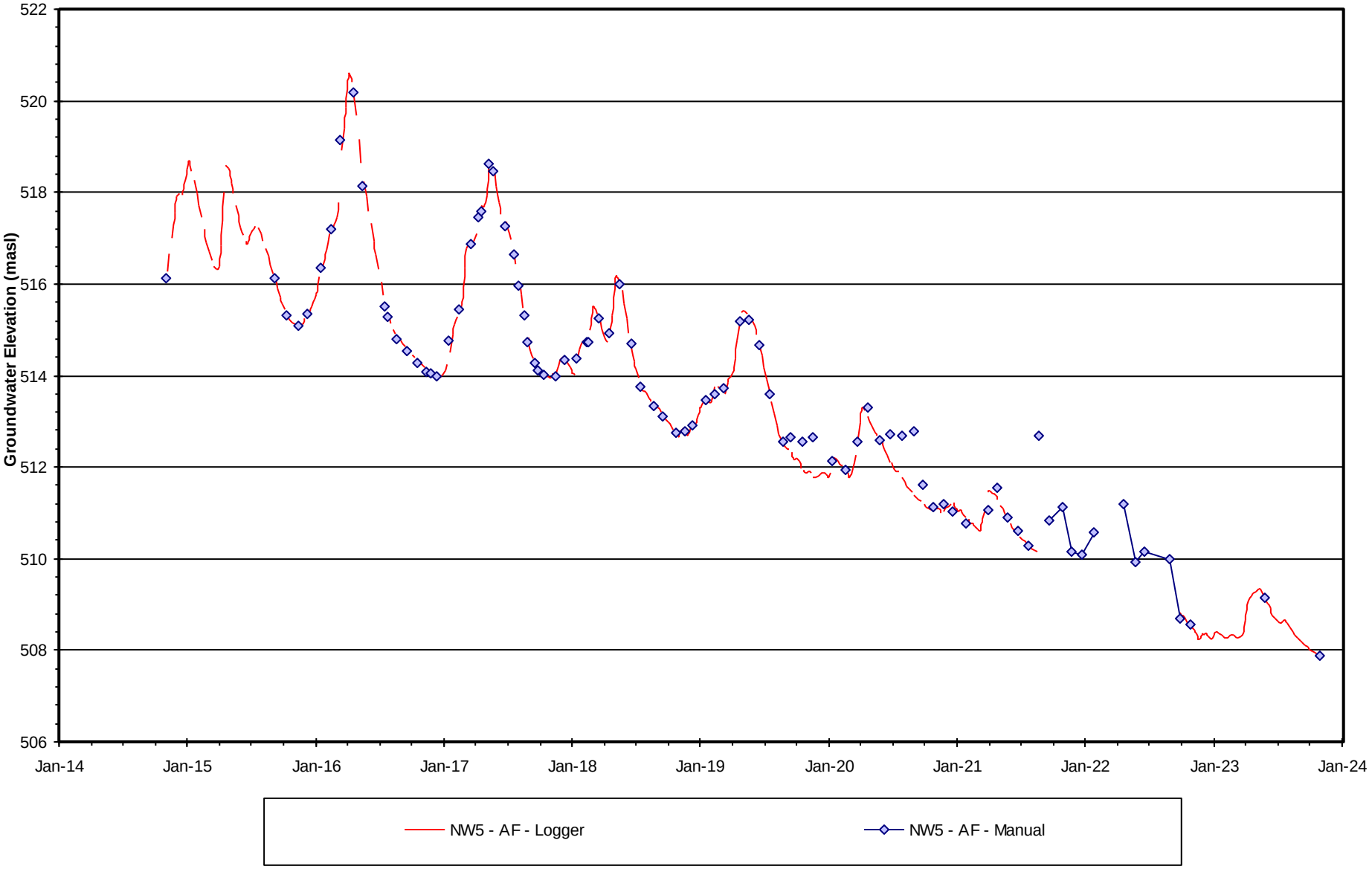


Figure B-26 Groundwater Hydrograph

NW6

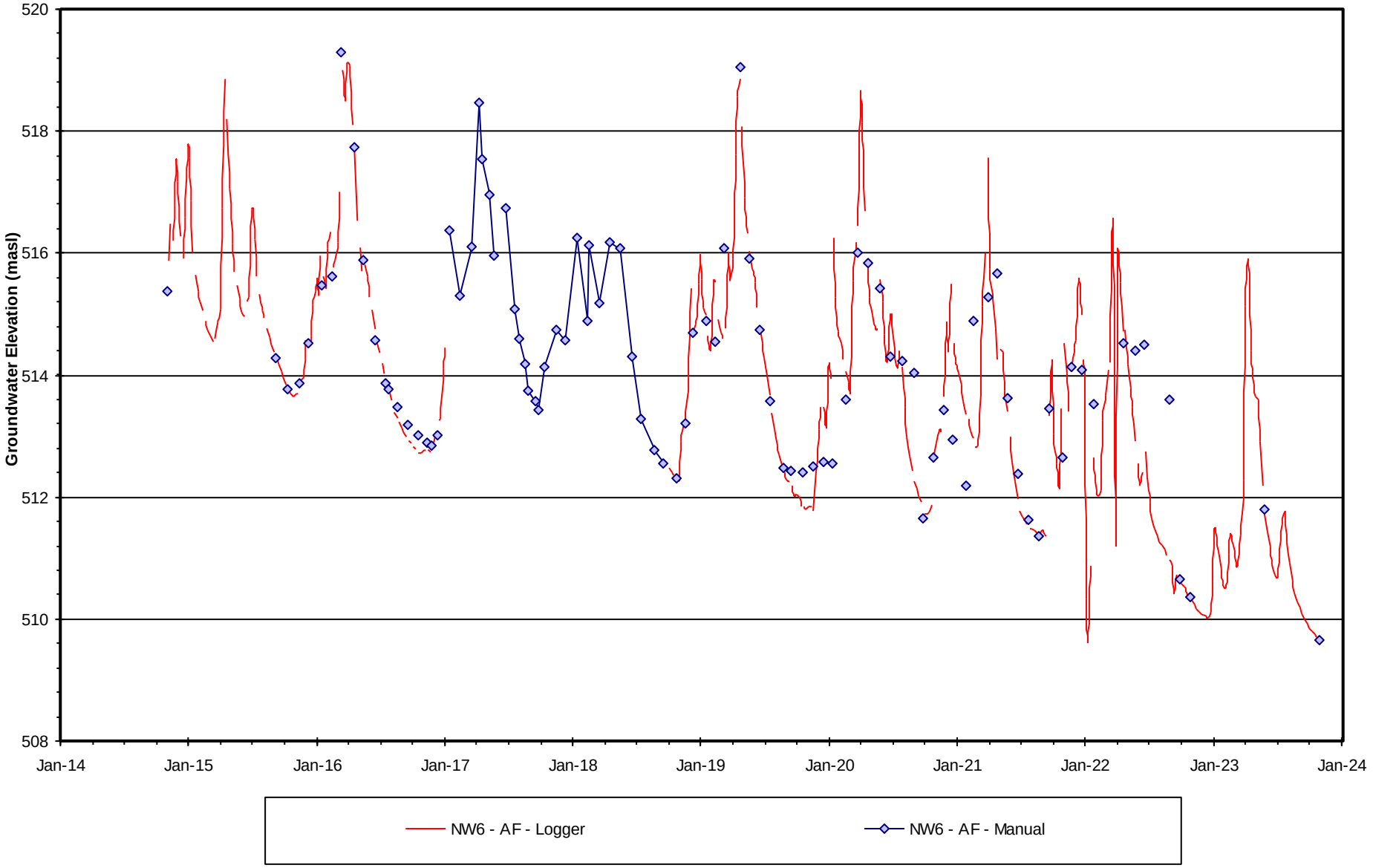


Figure B-27 Groundwater Hydrograph

NW7

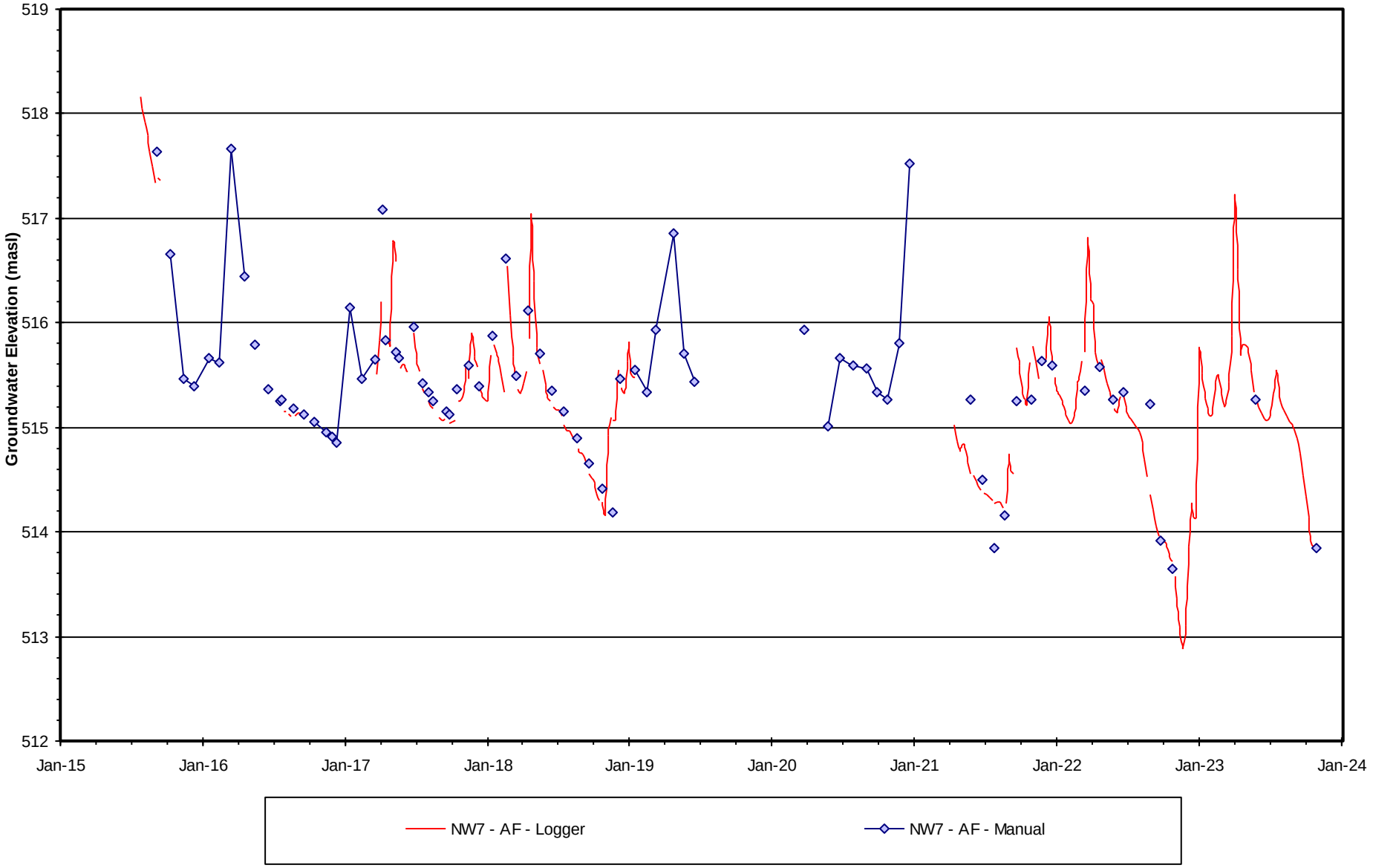


Figure B-28 Groundwater Hydrograph

NW8

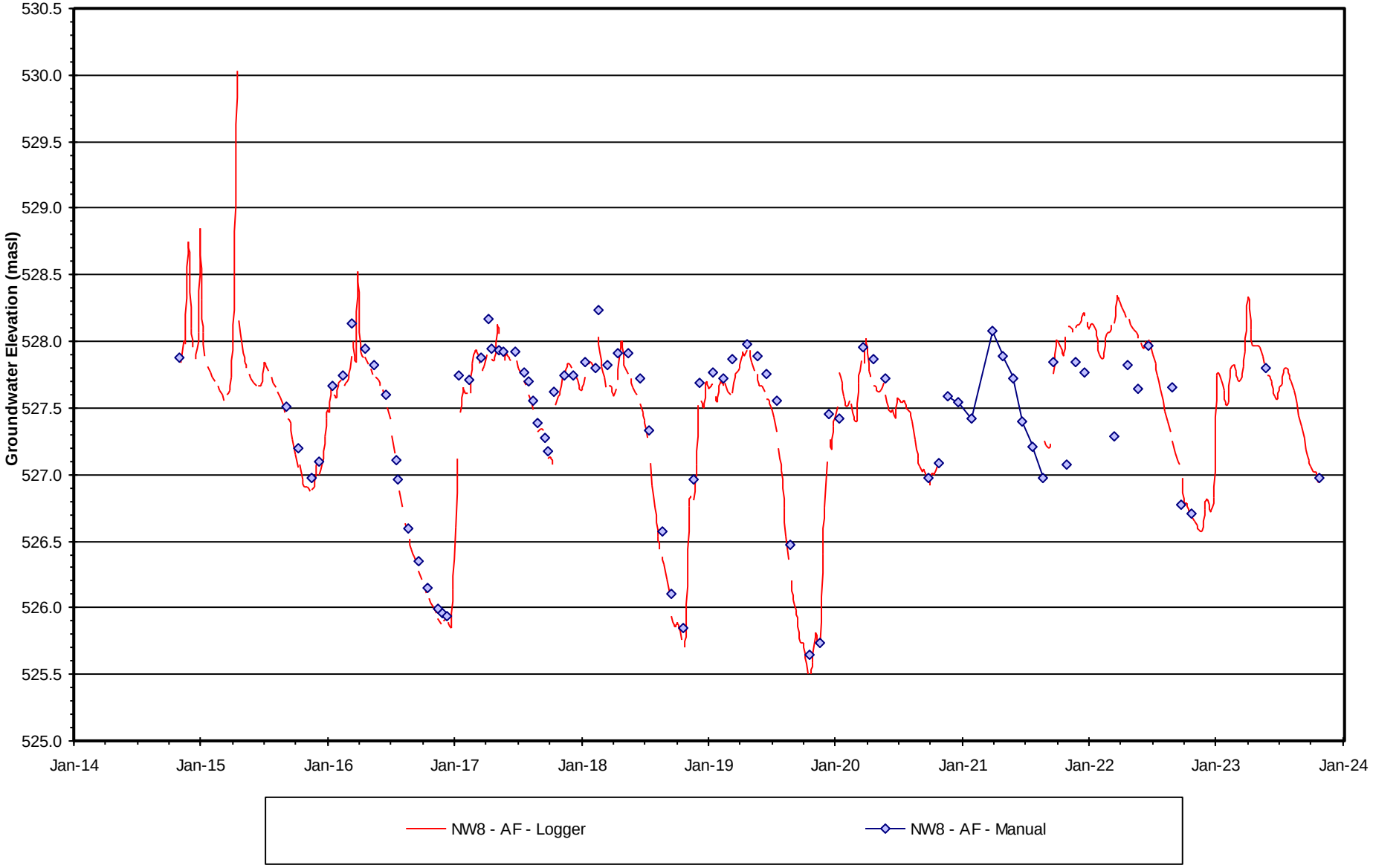


Figure B-29 Groundwater Hydrograph

NW9

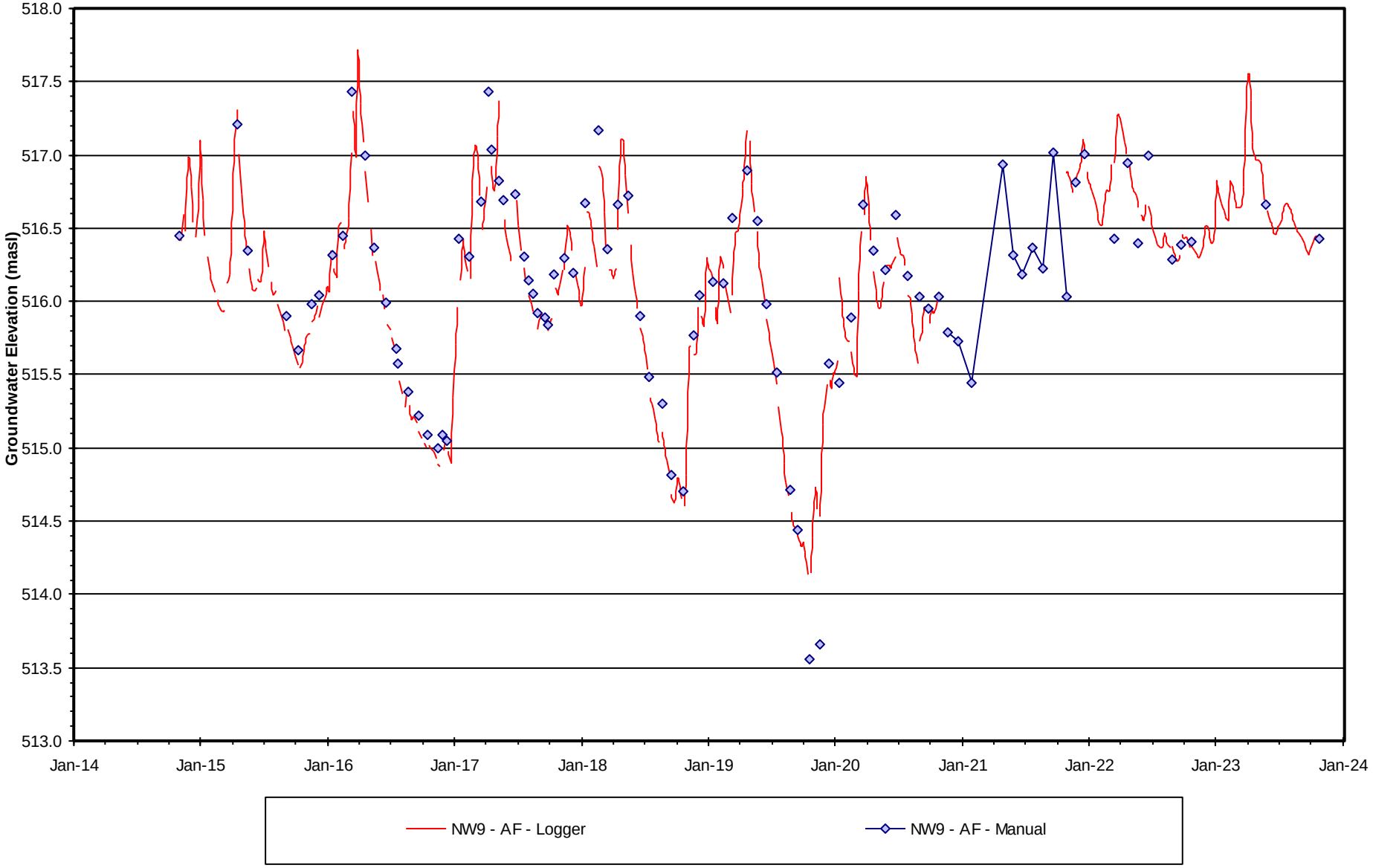


Figure B-30a Groundwater Hydrograph

Nest NW10 - Overburden

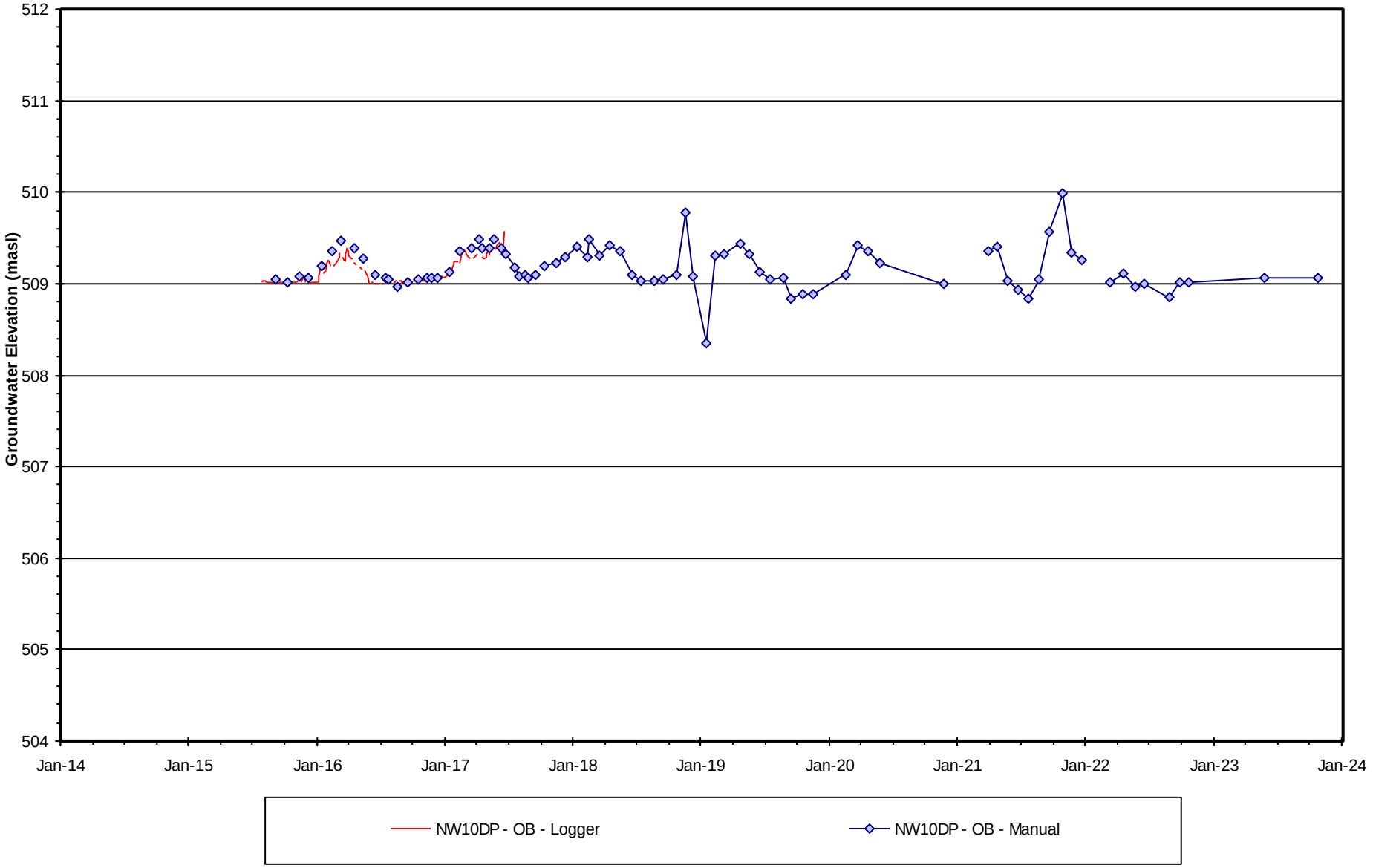


Figure B-30b Groundwater Hydrograph

Nest NW10 - Shallow Amabel Bedrock

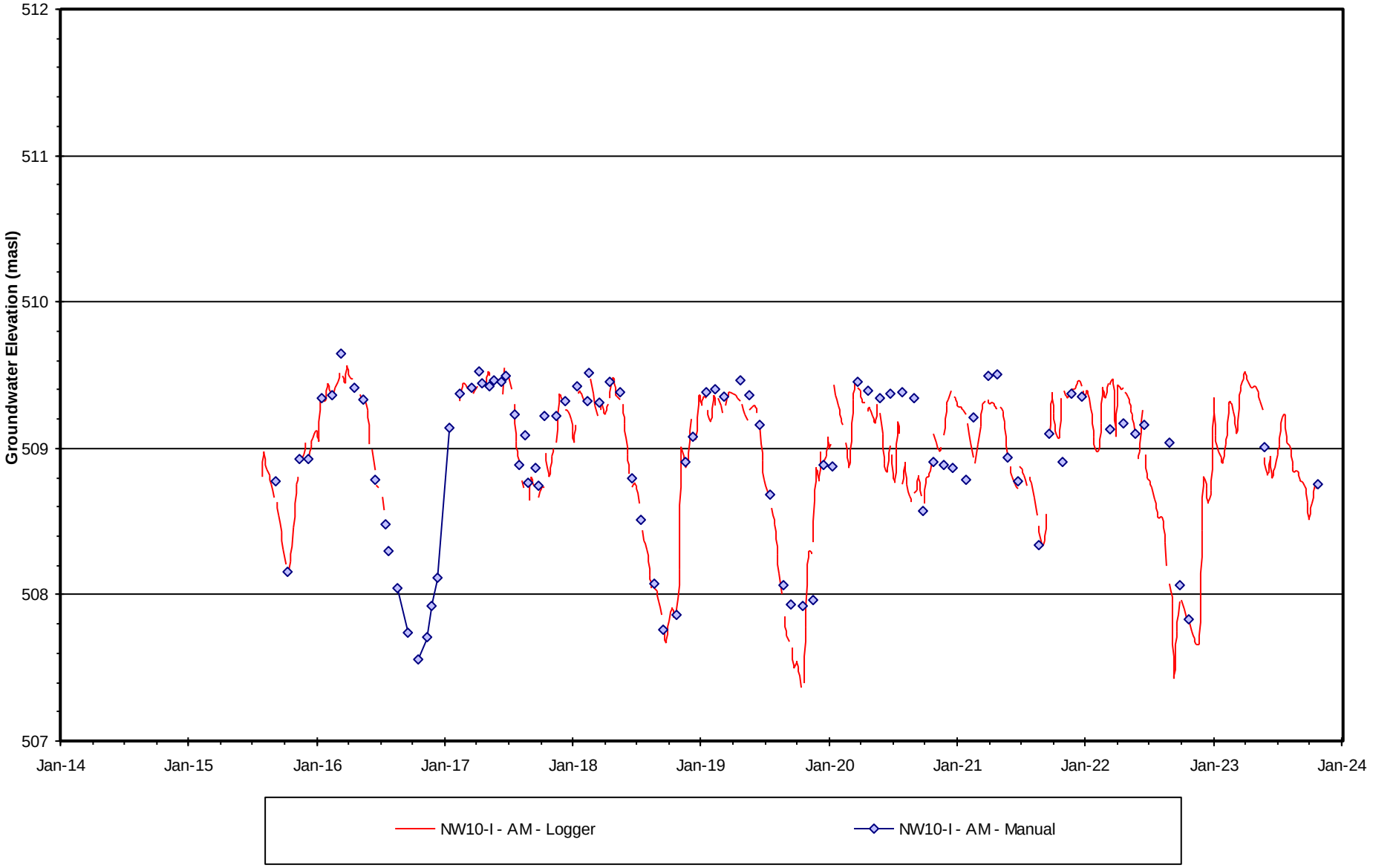


Figure B-30c Groundwater Hydrograph

Nest NW10 - Deep Amabel / Fossil Hill Bedrock

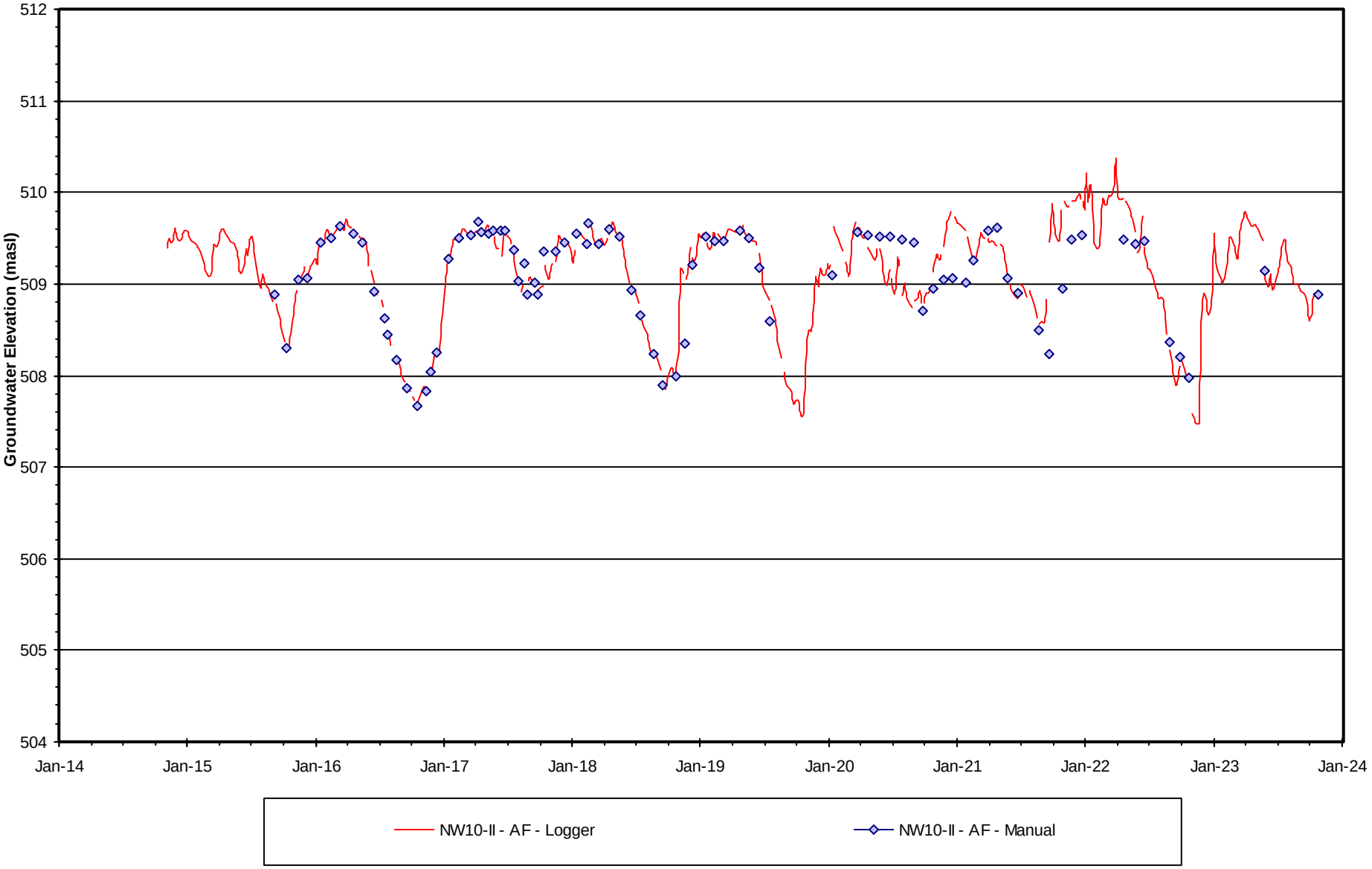


Figure B-31 Groundwater Hydrograph

Nest IW1

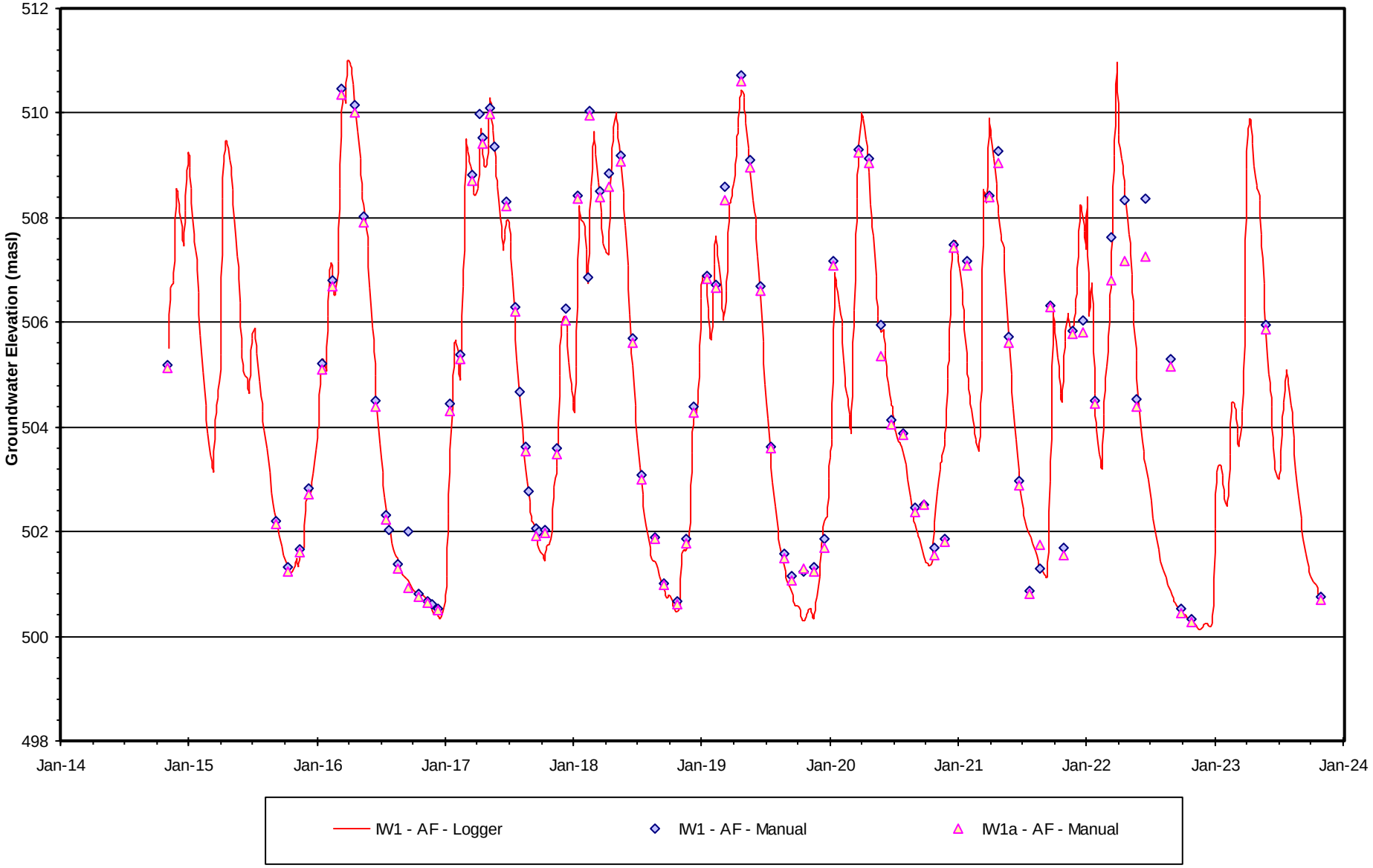


Figure B-32 Groundwater Hydrograph

IW2

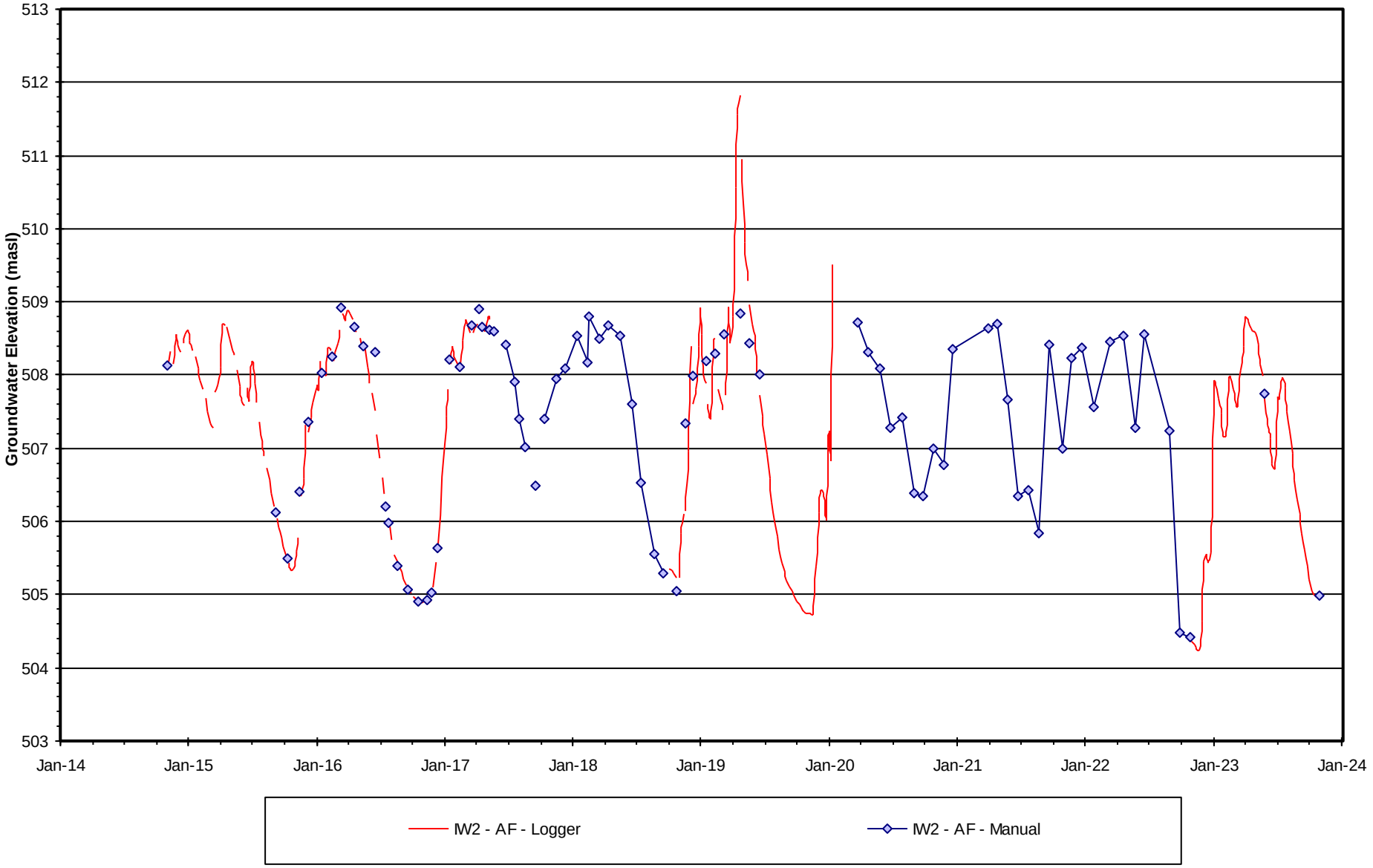


Figure B-33 Groundwater Hydrograph

IW3

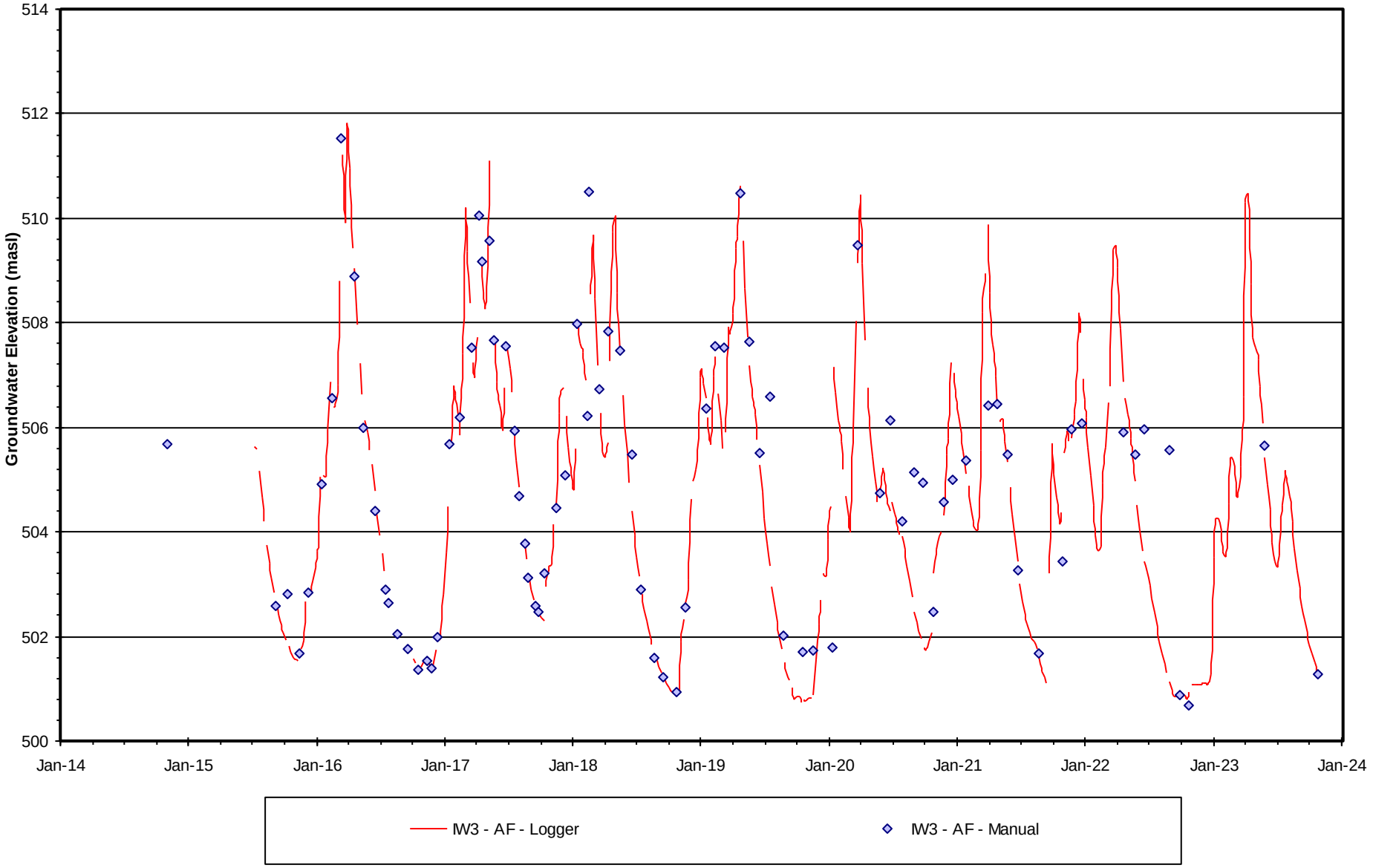


Figure B-34 Groundwater Hydrograph

IW4

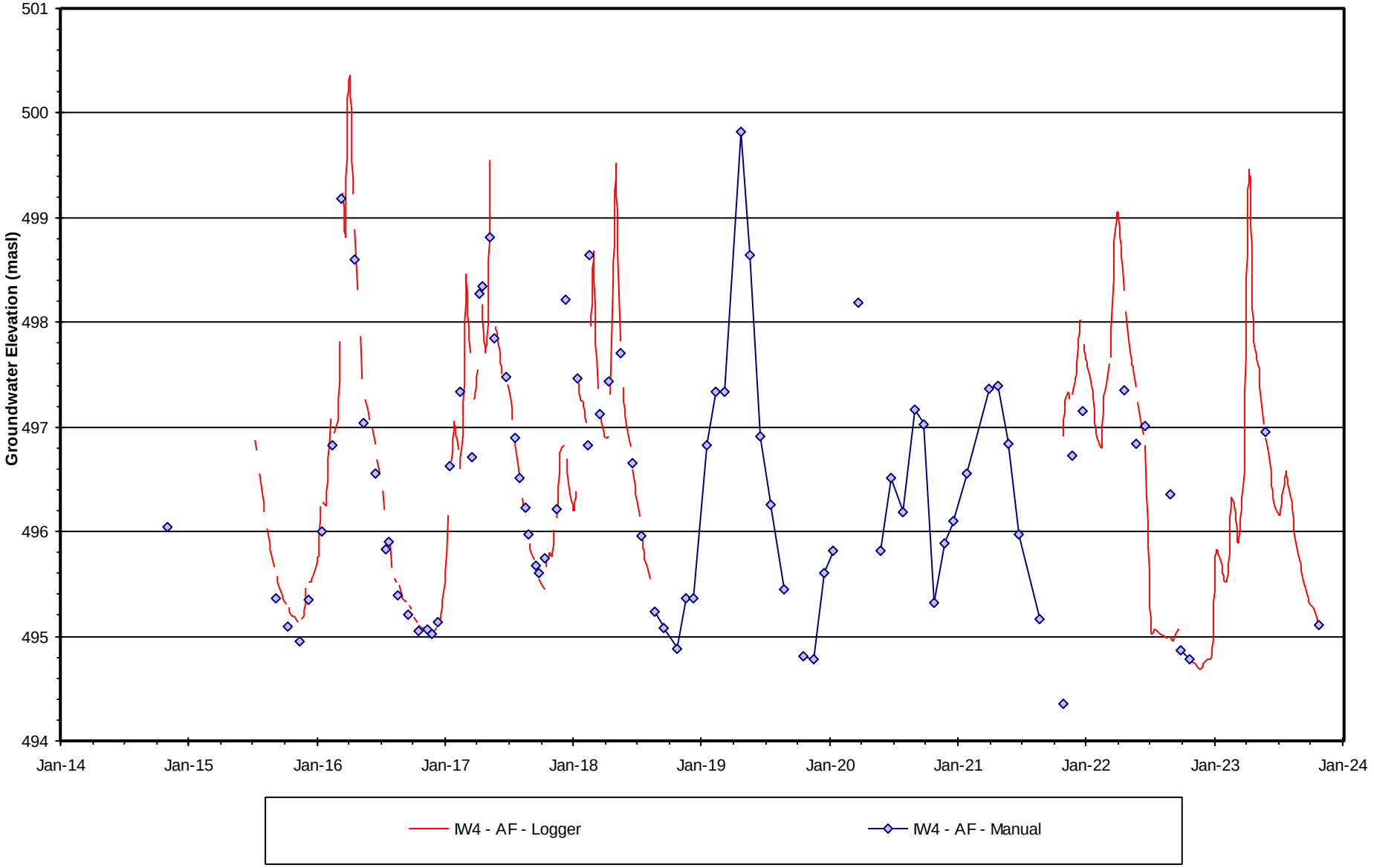


Figure B-35 Groundwater Hydrograph

RW1

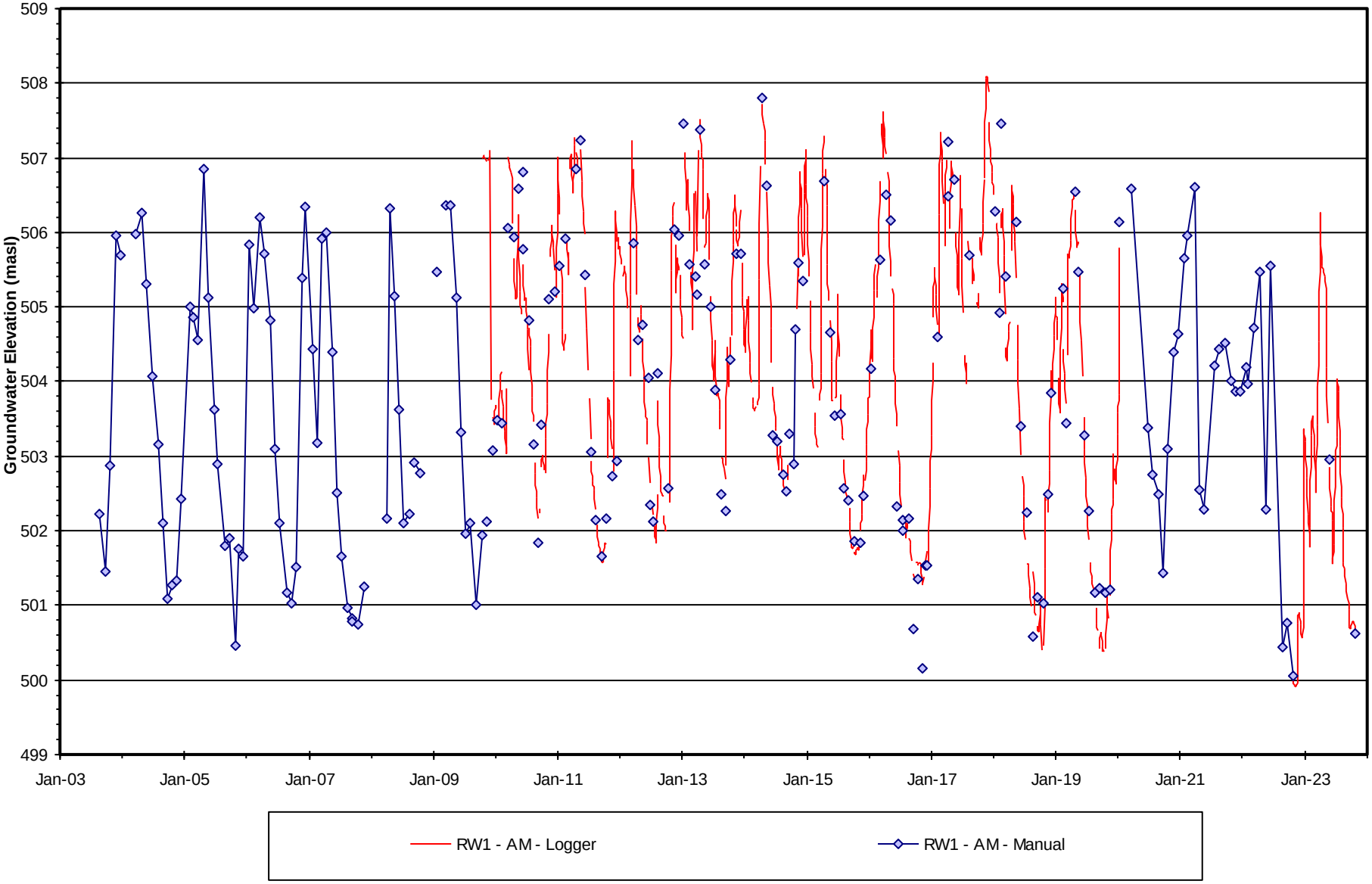


Figure B-36 Groundwater Hydrograph

RW2

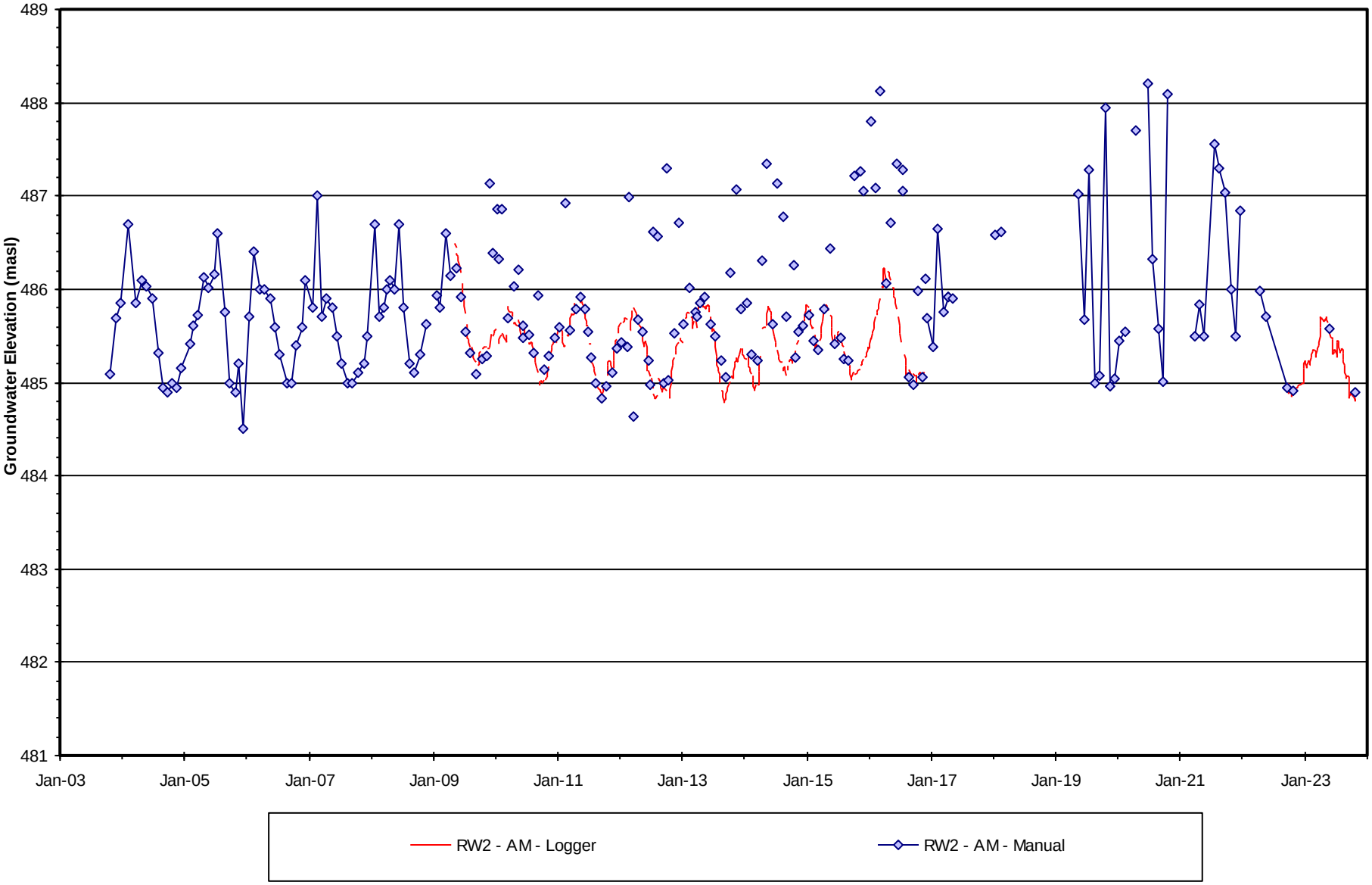


Figure B-37 Groundwater Hydrograph

RW3

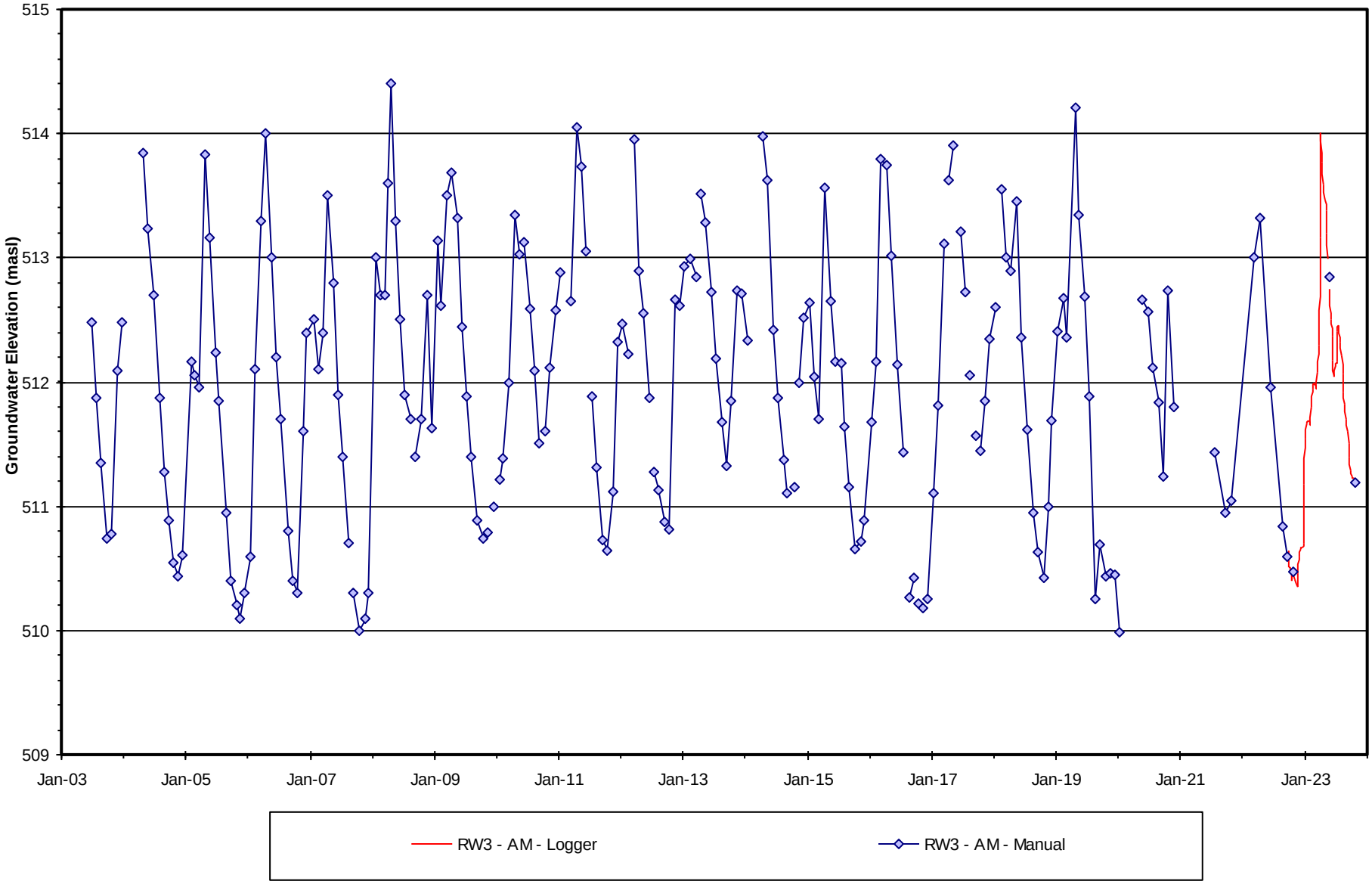


Figure B-38 Groundwater Hydrograph

RW4

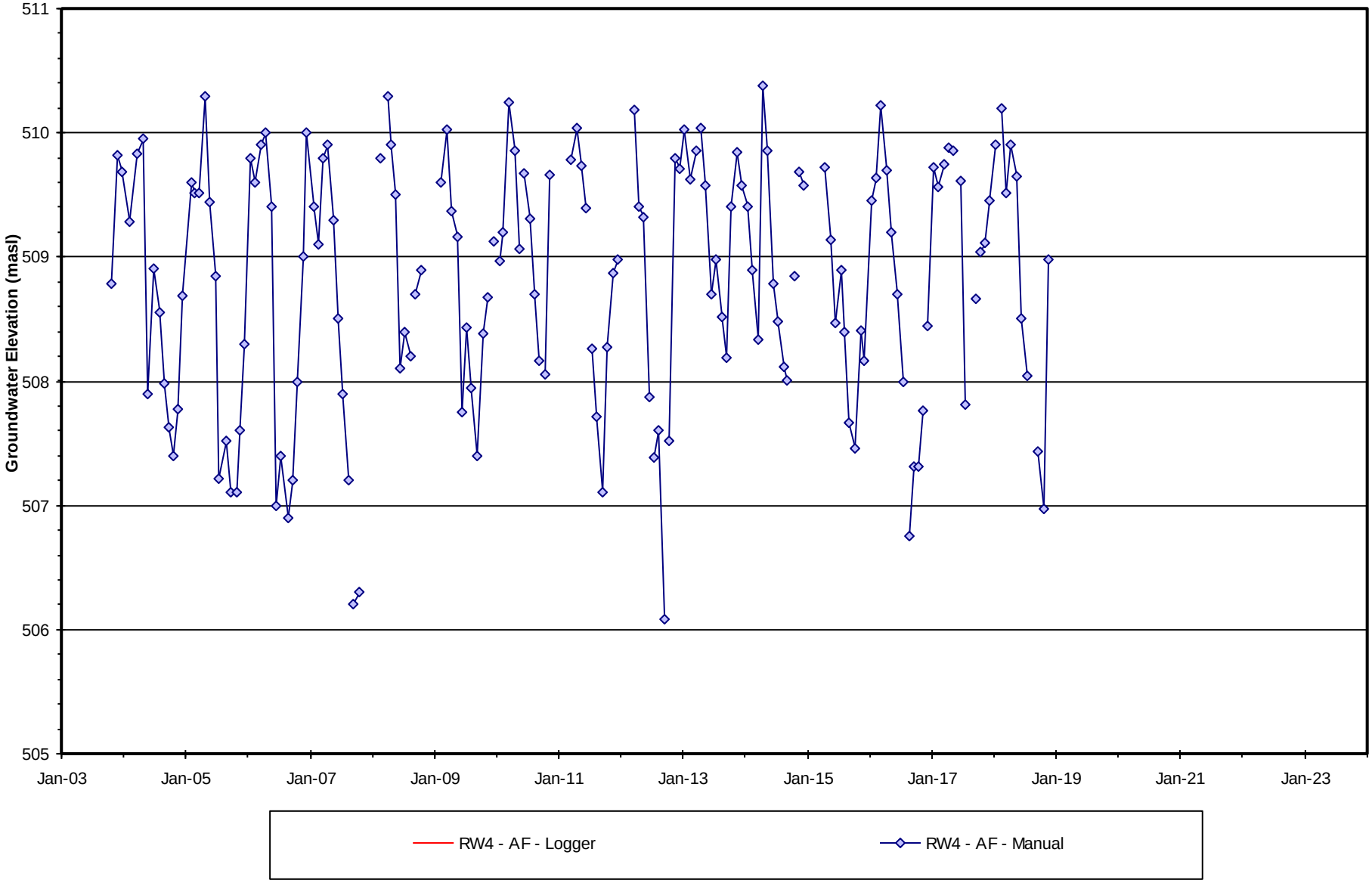


Figure B-39 Groundwater Hydrograph

RW5

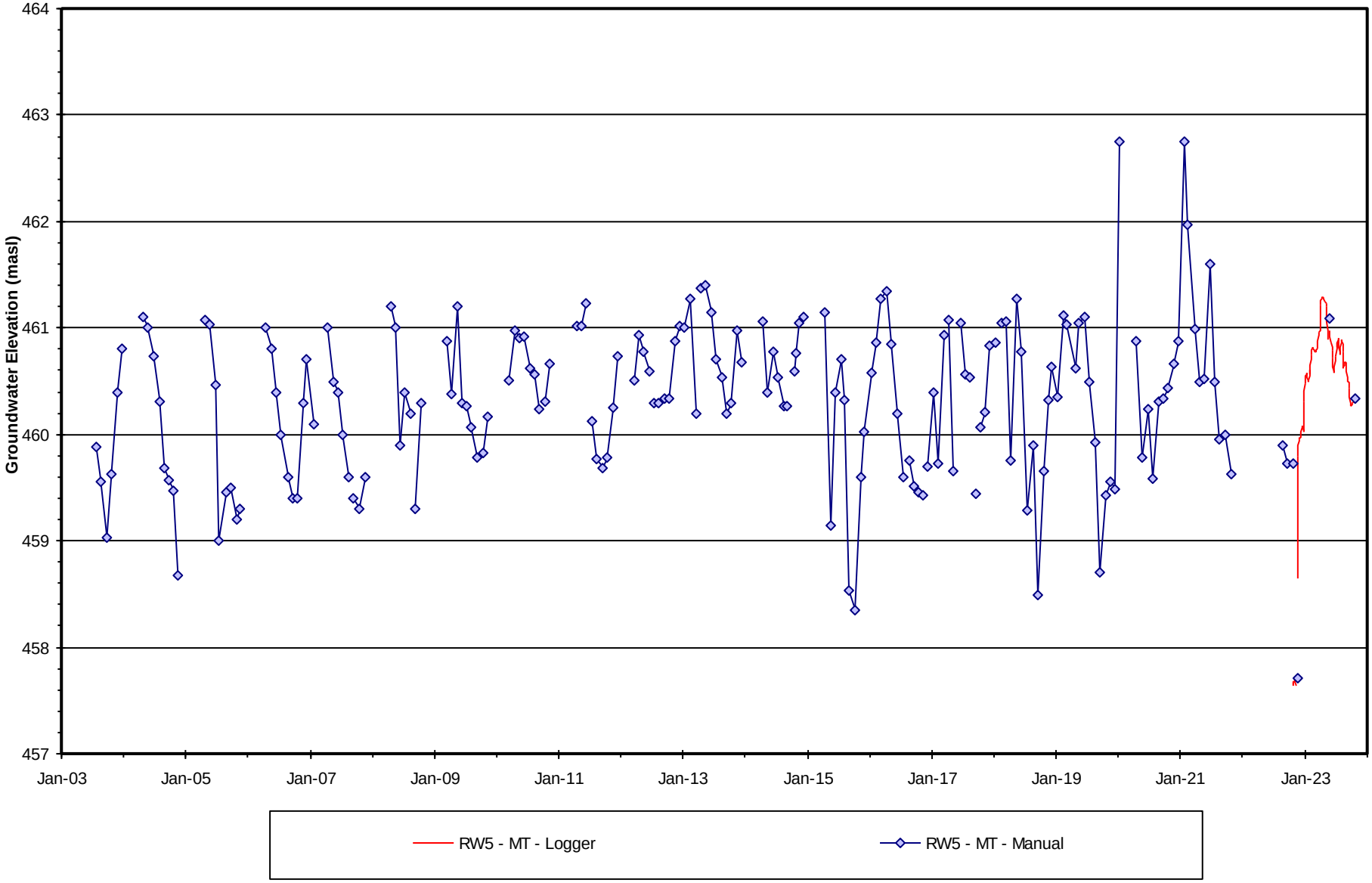


Figure B-40 Groundwater Hydrograph

RW6

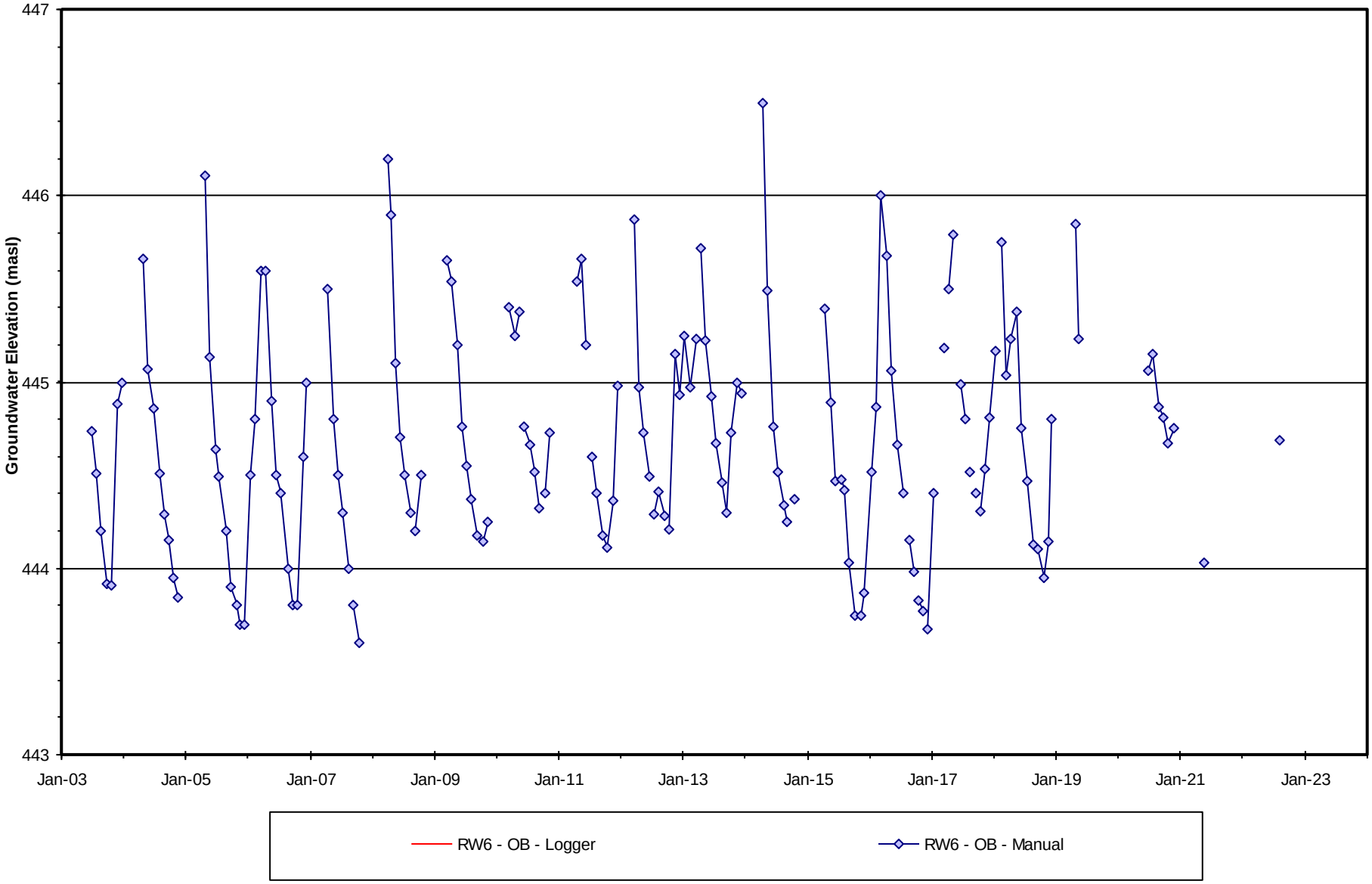


Figure B-41 Groundwater Hydrograph

RW7

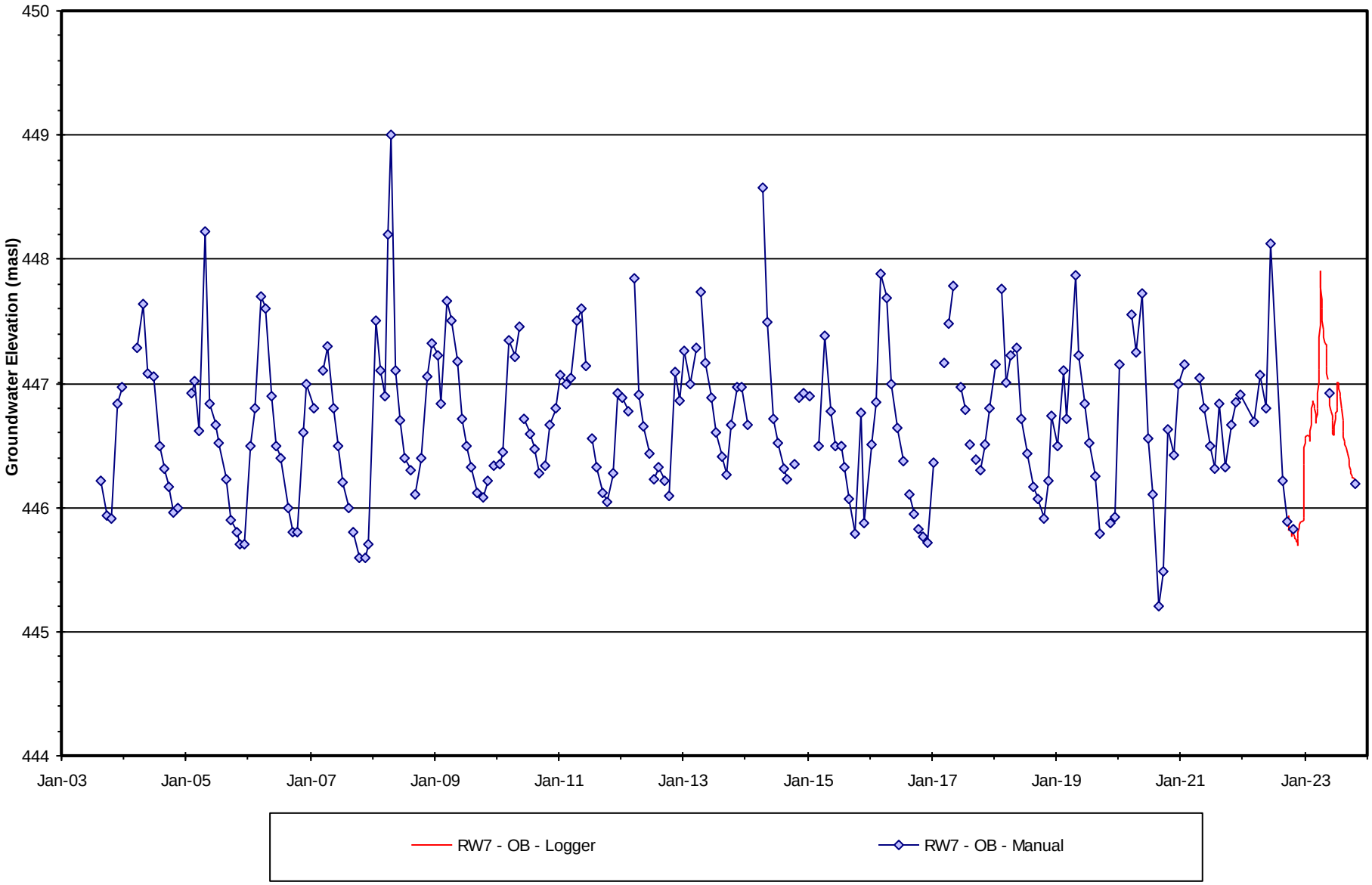


Figure B-42 Groundwater Hydrograph

RW8

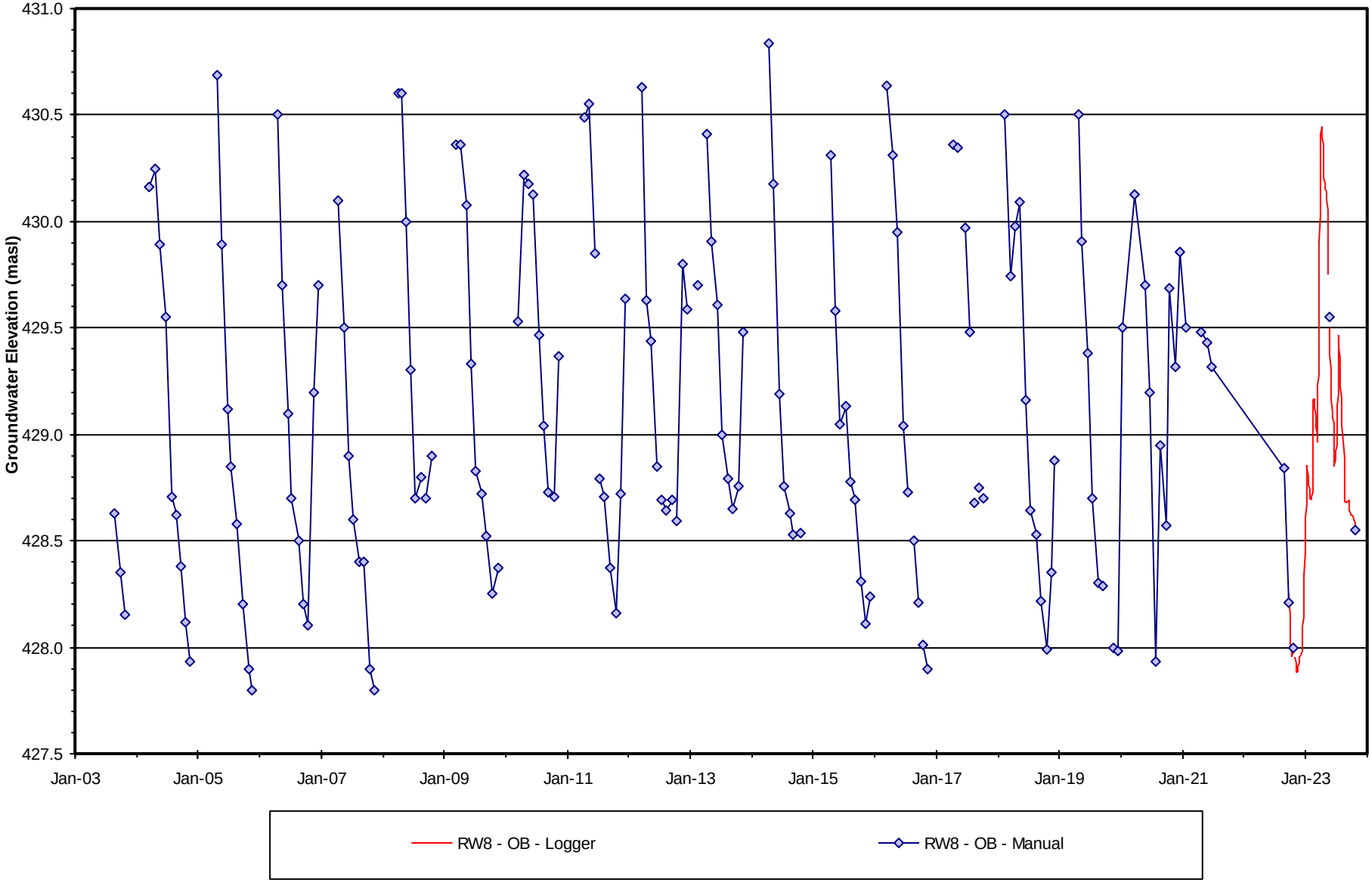


Figure B-43 Groundwater Hydrograph

RW9

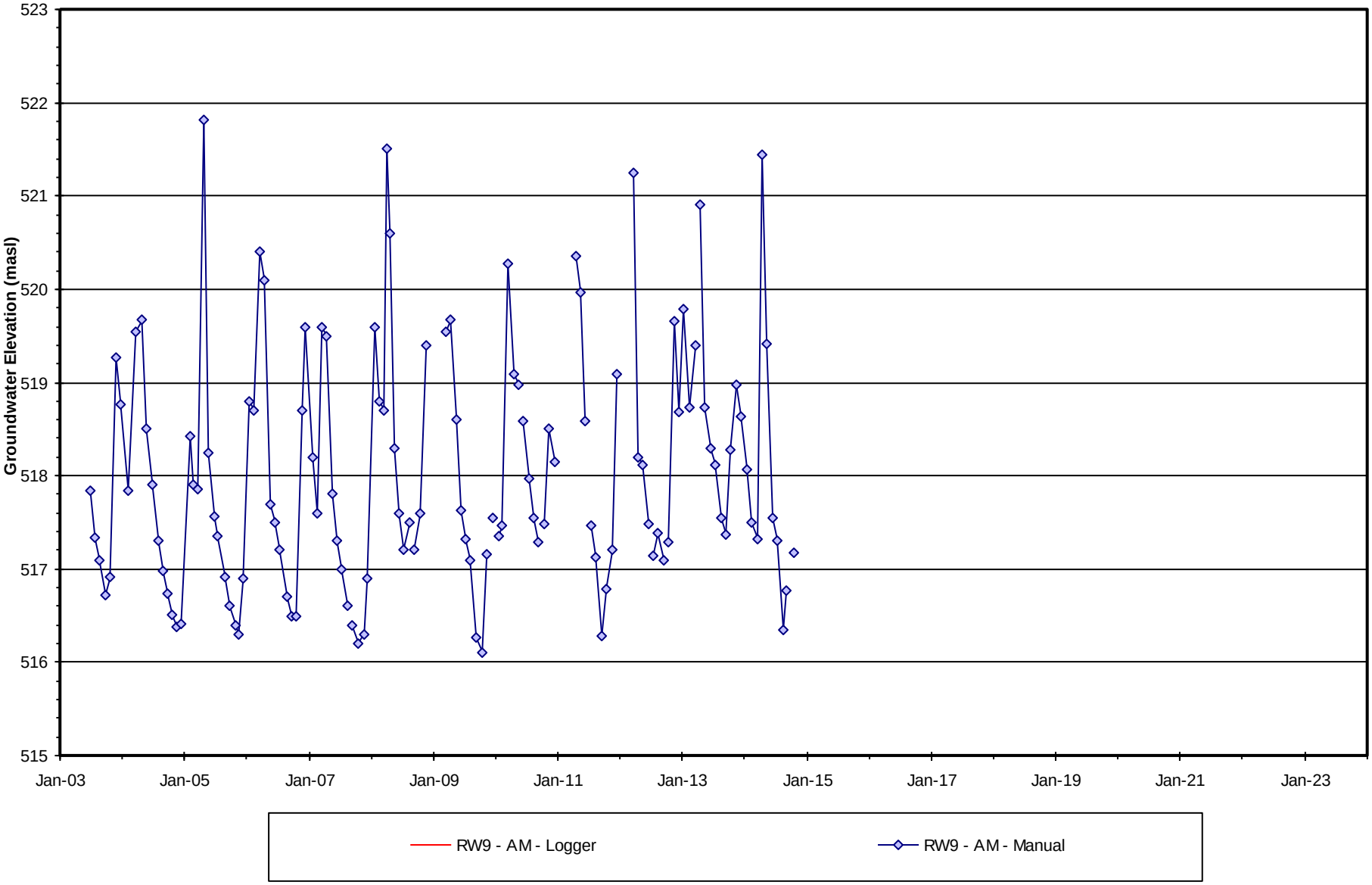


Figure B-44 Groundwater Hydrograph

RW12

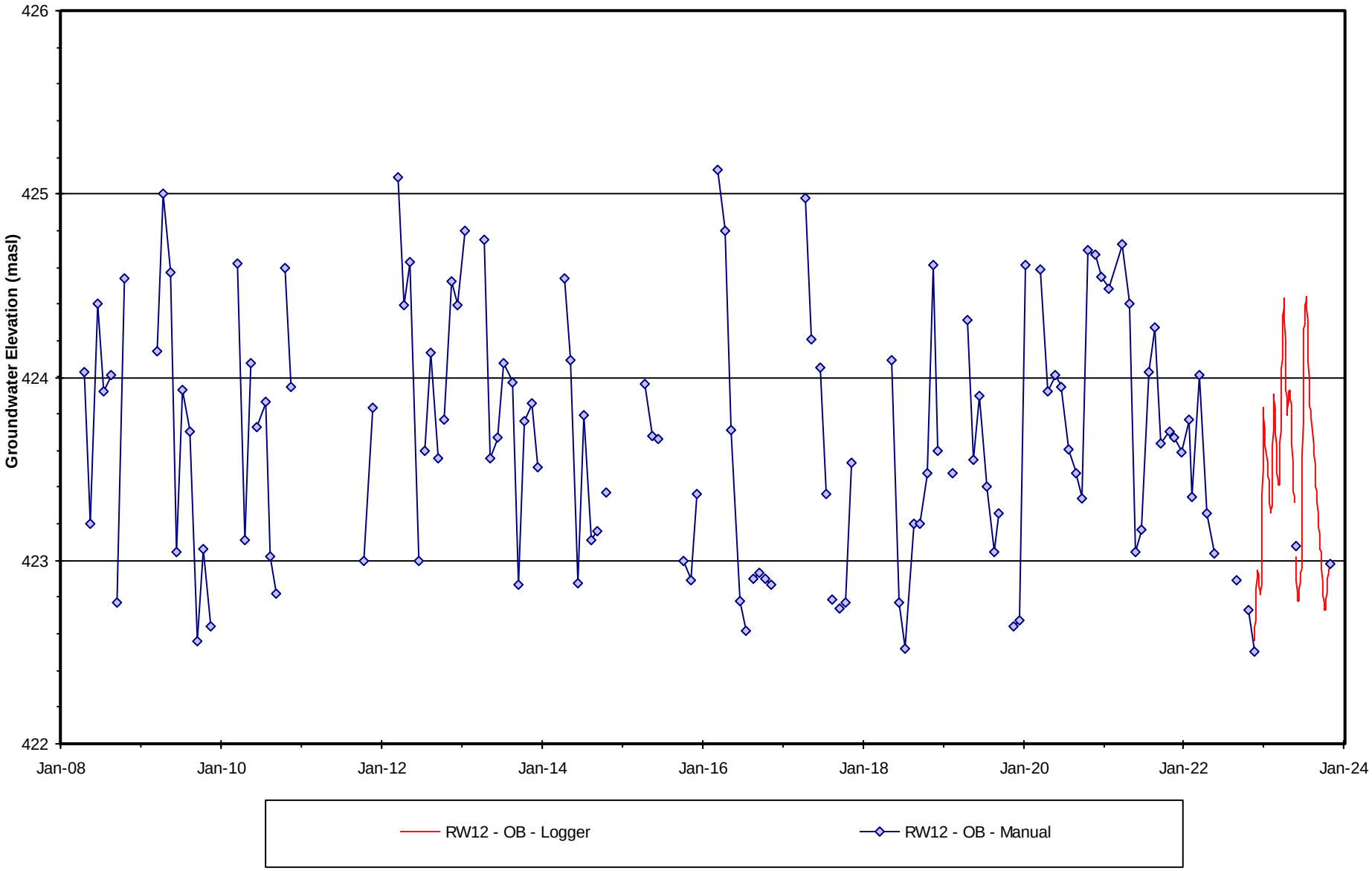


Figure B-45 Groundwater Hydrograph

RW13

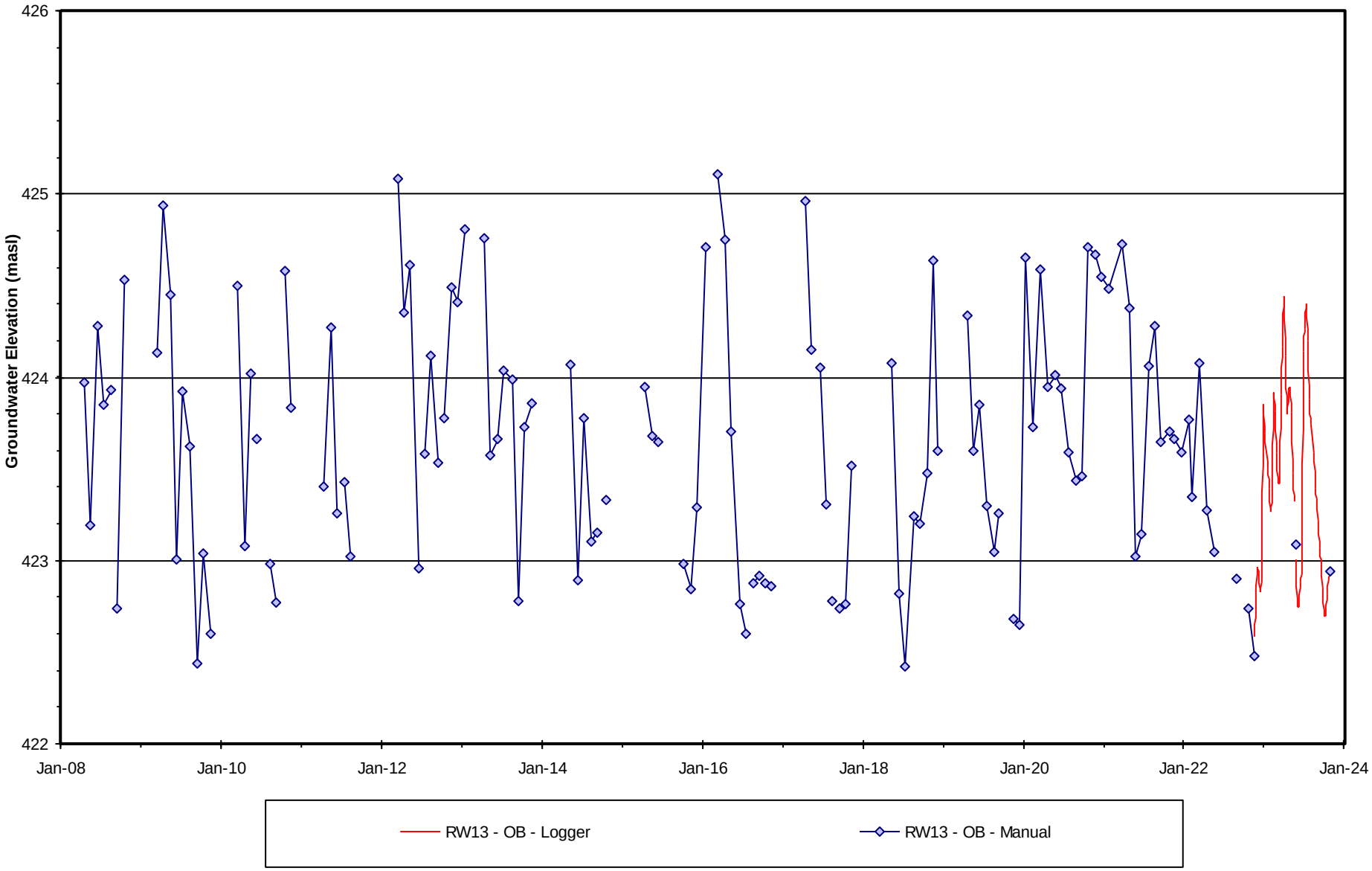


Figure B-46 Groundwater Hydrograph

RW16

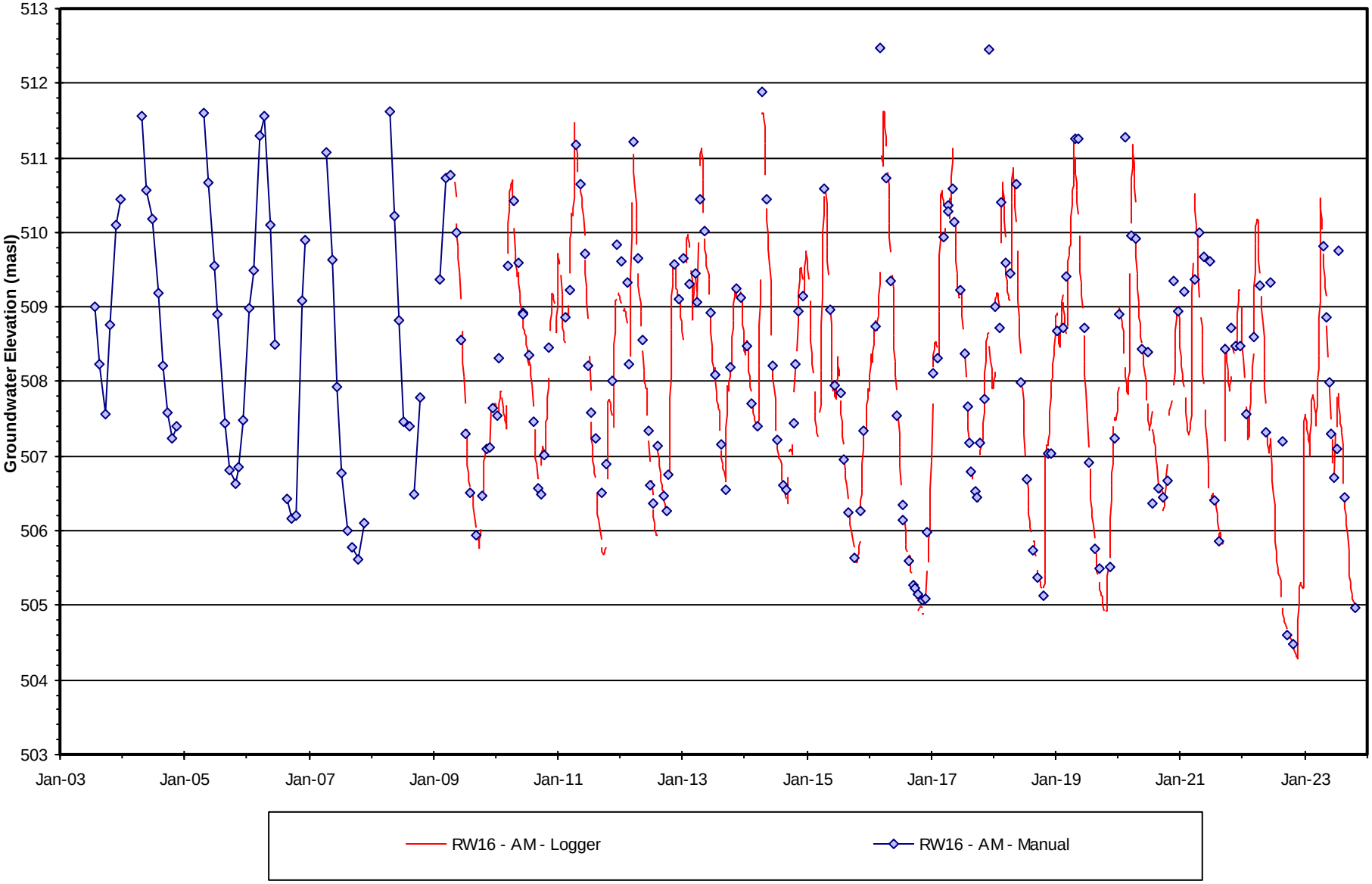


Figure B-47 Groundwater Hydrograph

RW17

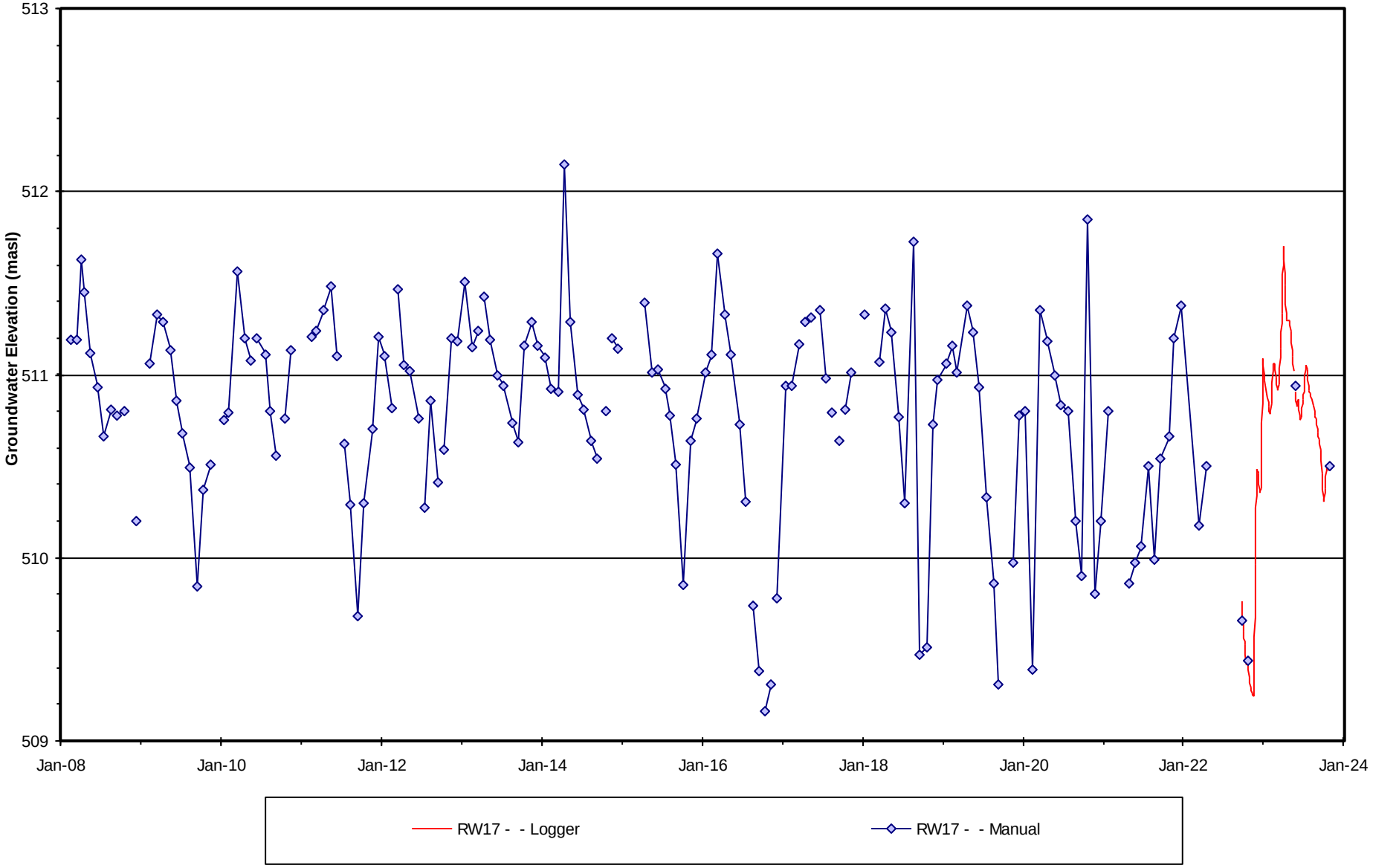


Figure B-48 Groundwater Hydrograph

RW18

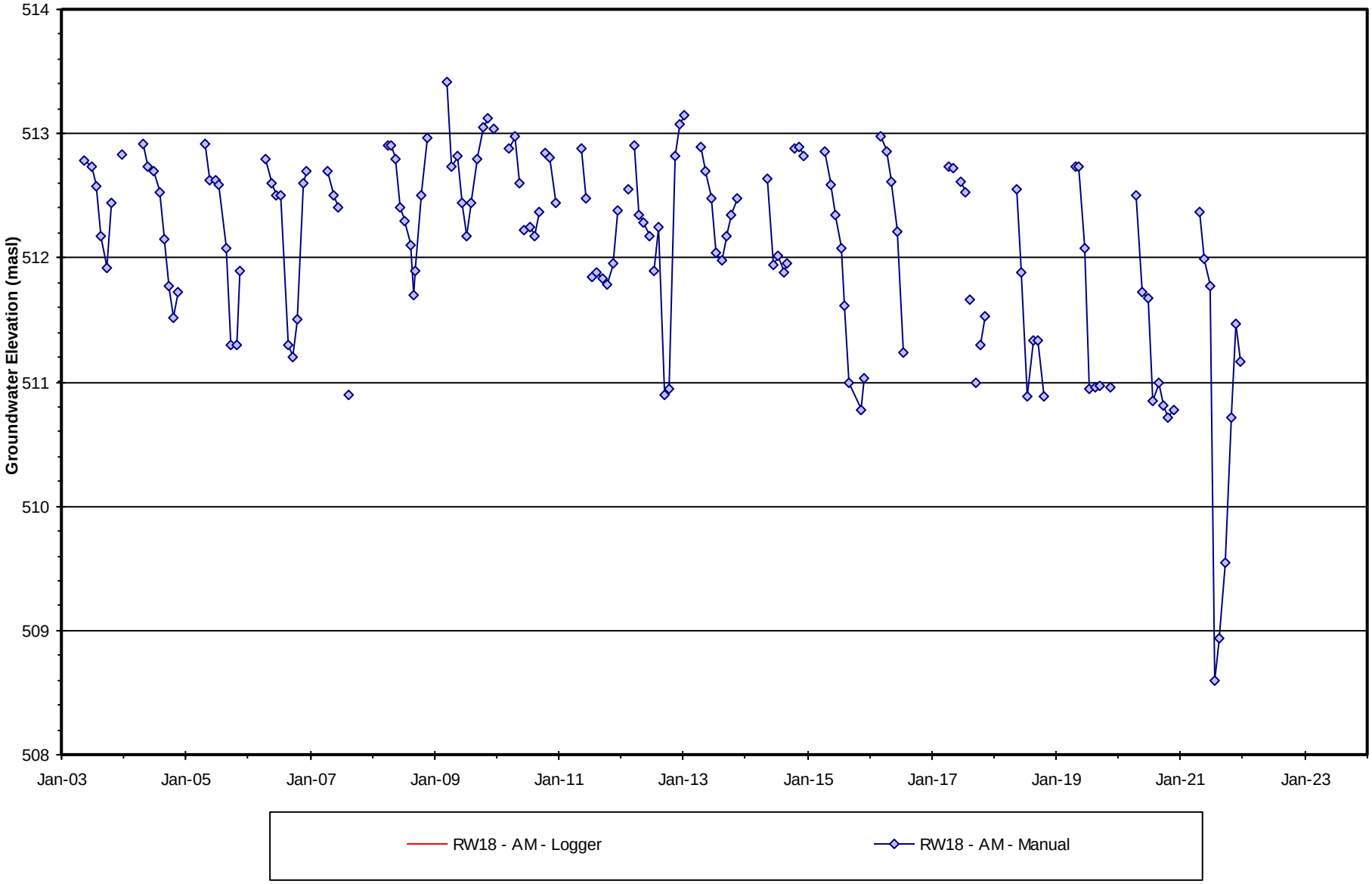


Figure B-49 Groundwater Hydrograph

RW19

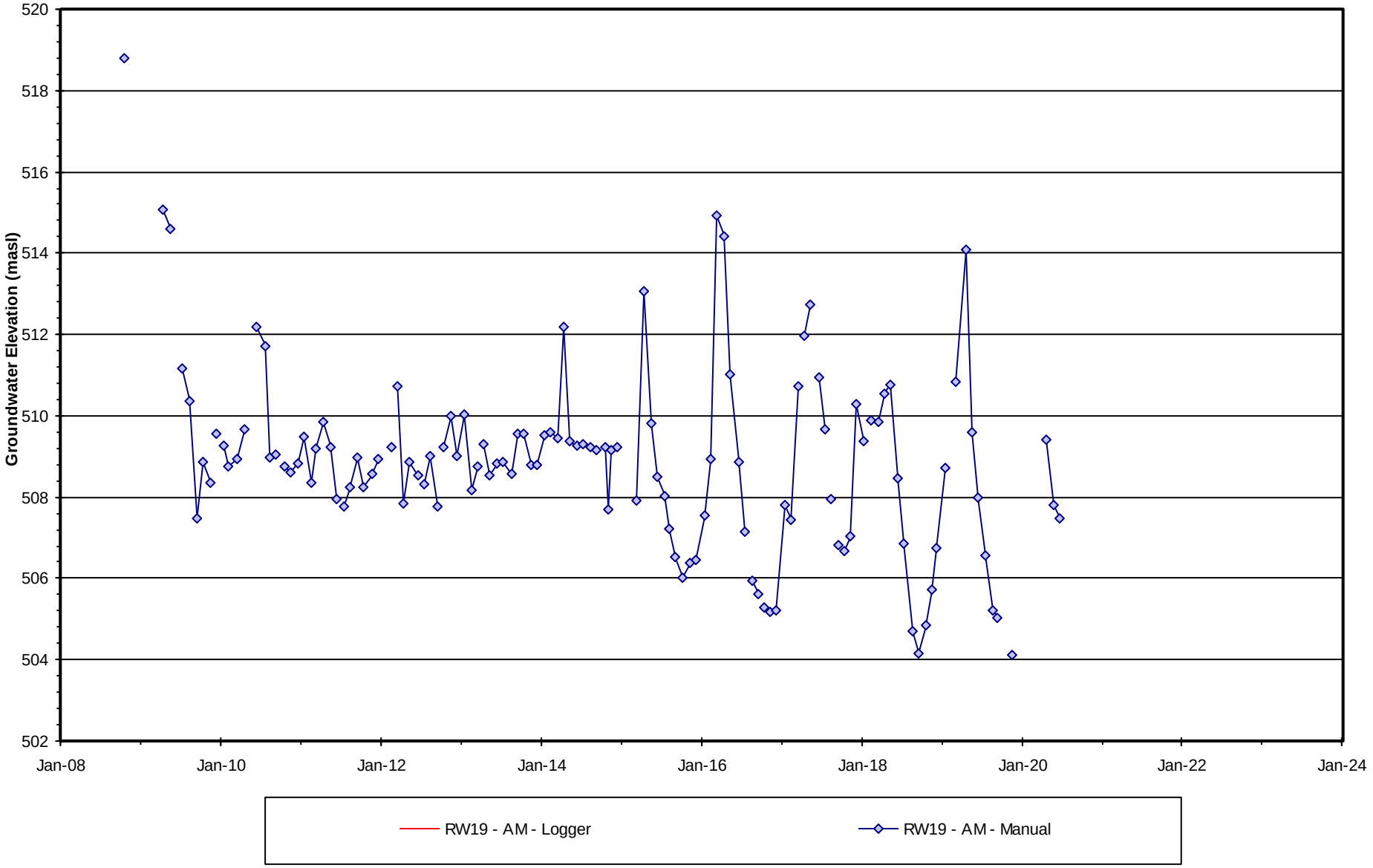


Figure B-50 Groundwater Hydrograph

CLF1

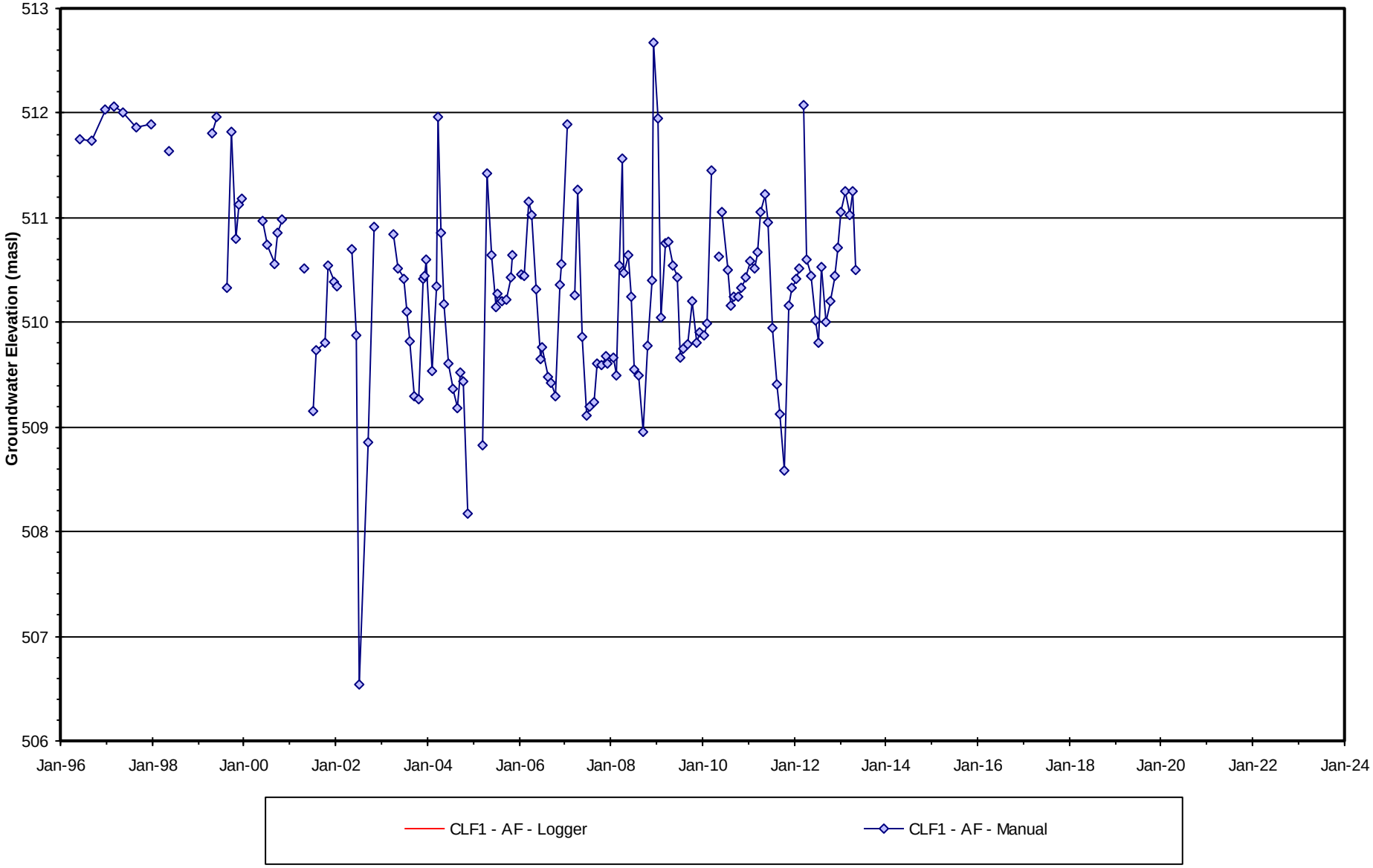


Figure B-51 Groundwater Hydrograph

CLF2

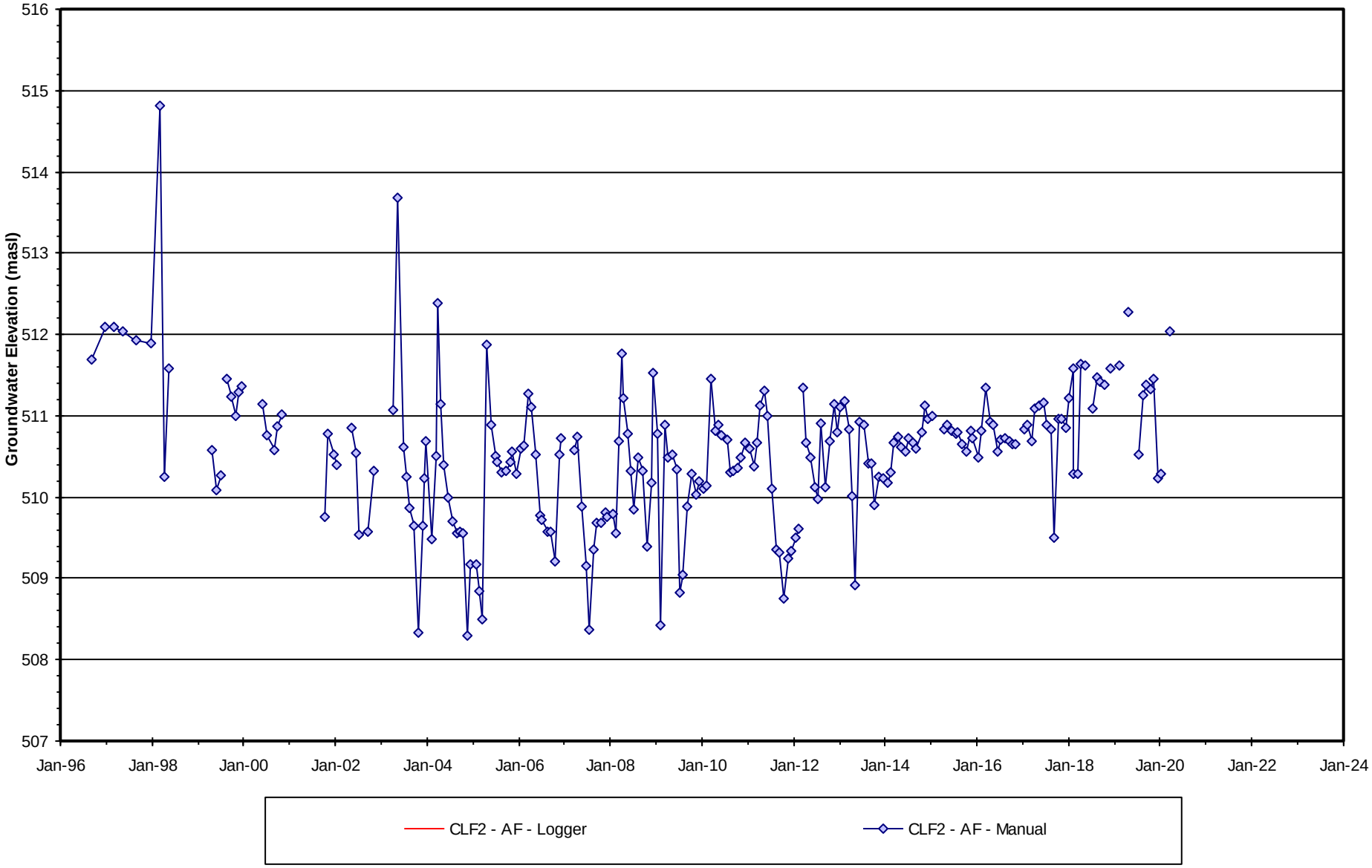


Figure B-52 Groundwater Hydrograph

CLF3

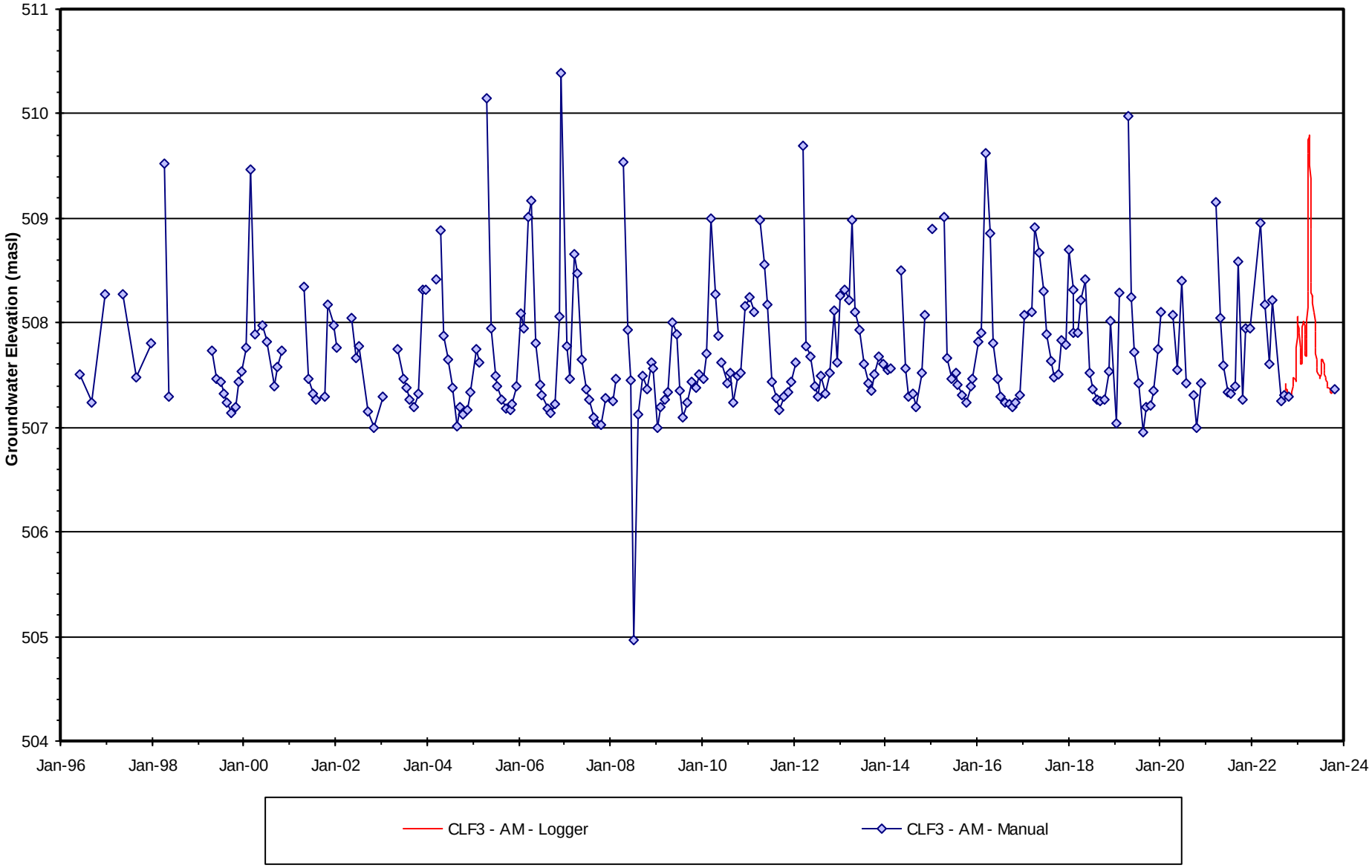


Figure B-53 Groundwater Hydrograph

CLF4

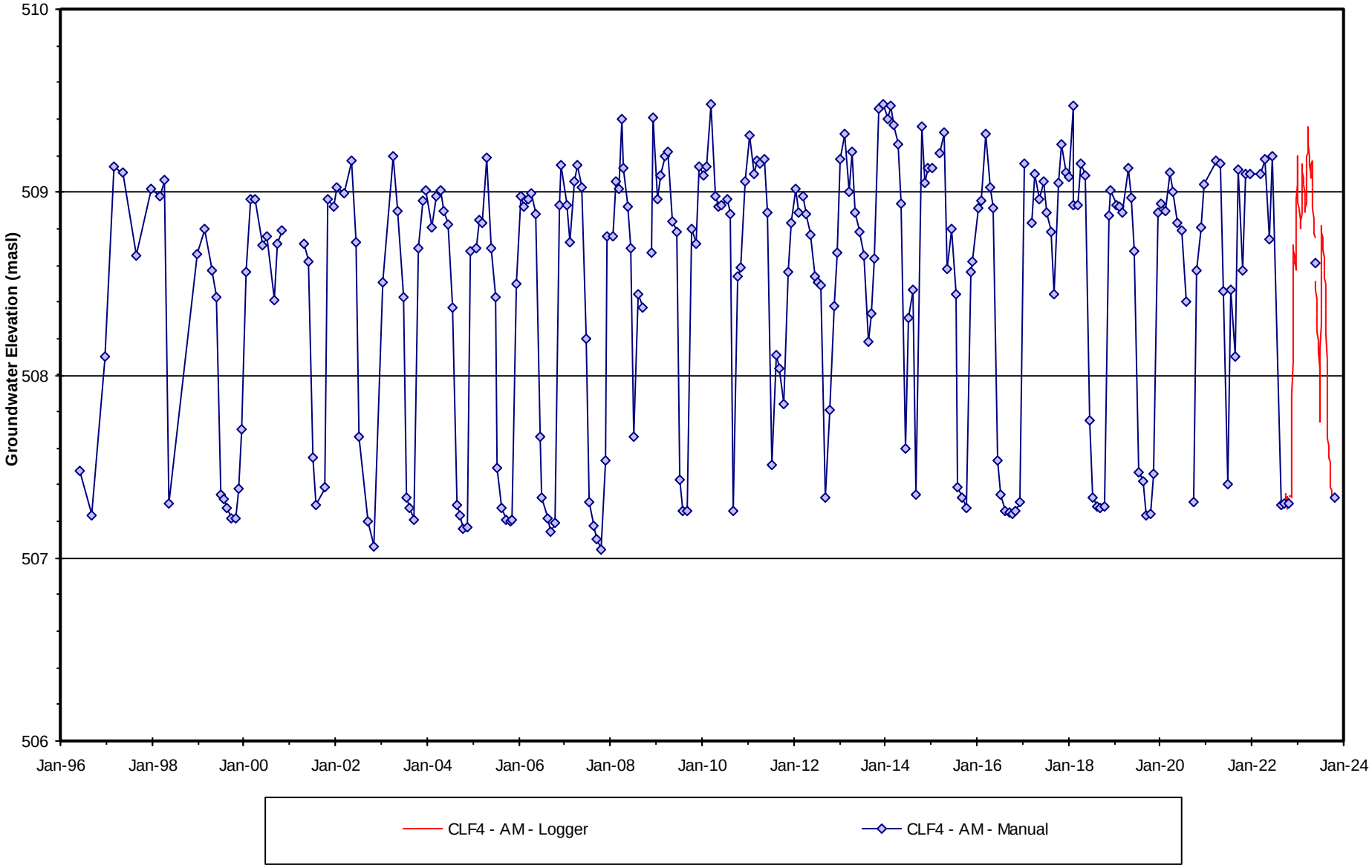


Figure B-54 Groundwater Hydrograph

CLF5

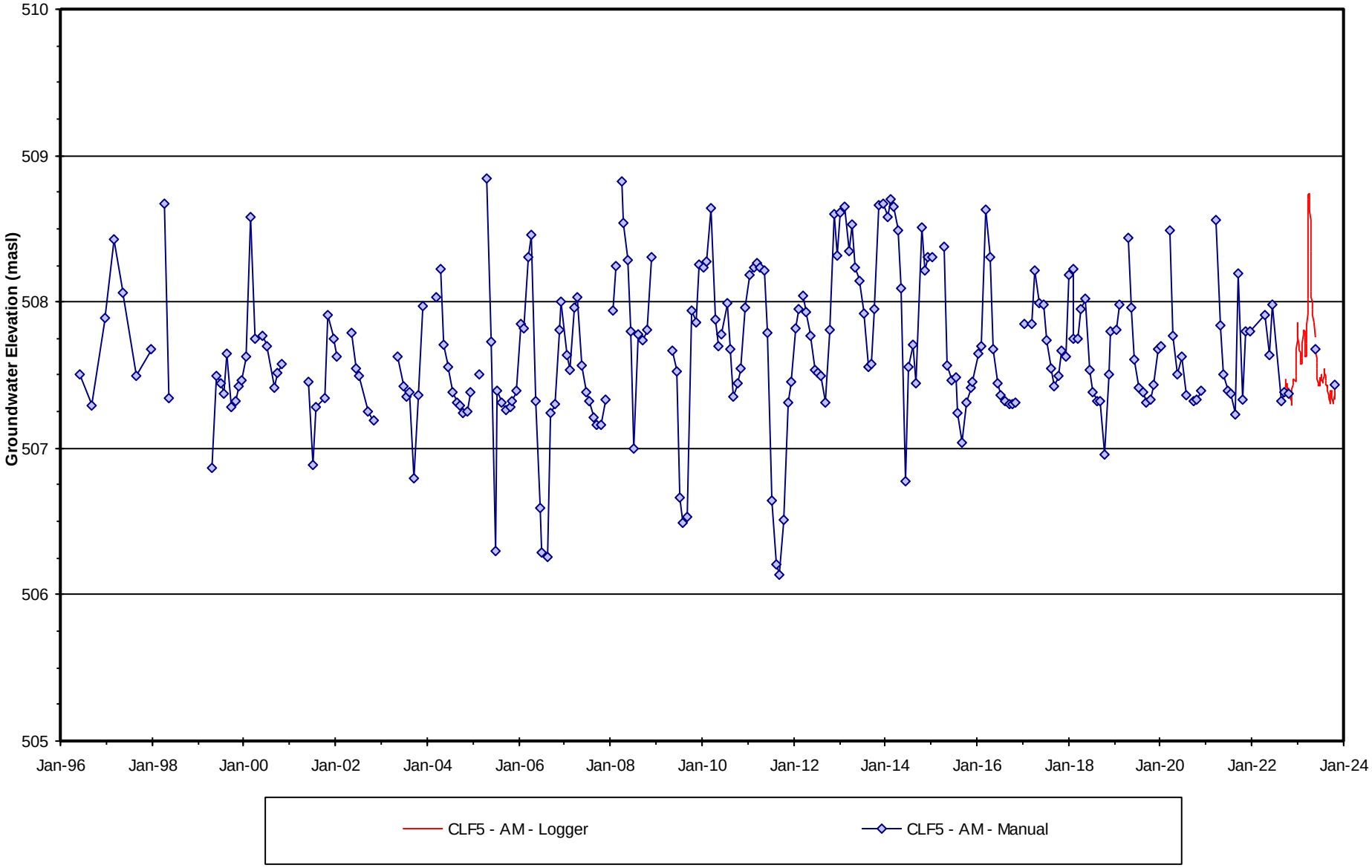


Figure B-55 Groundwater Hydrograph

101-B

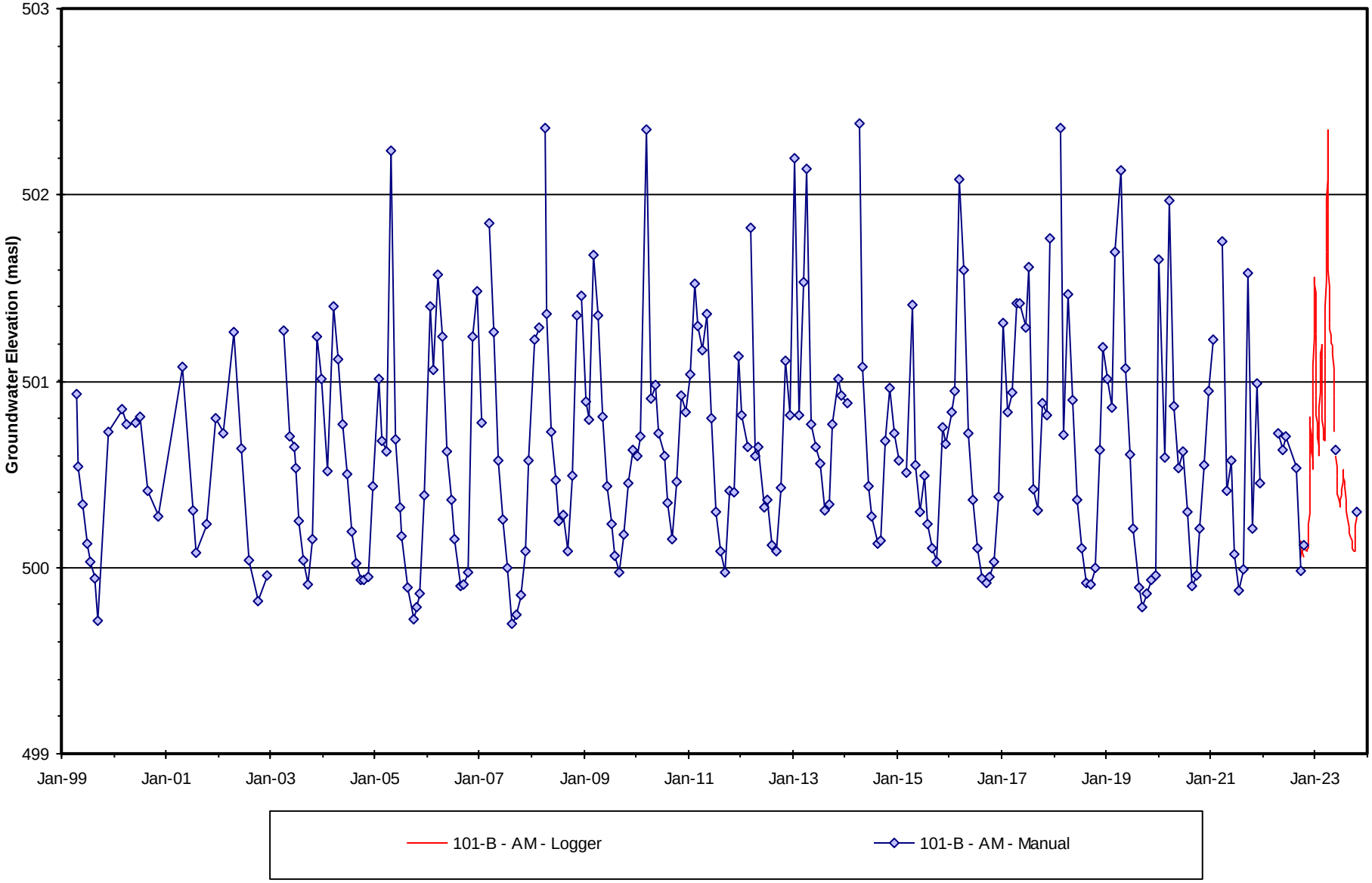


Figure B-56 Groundwater Hydrograph

102-C

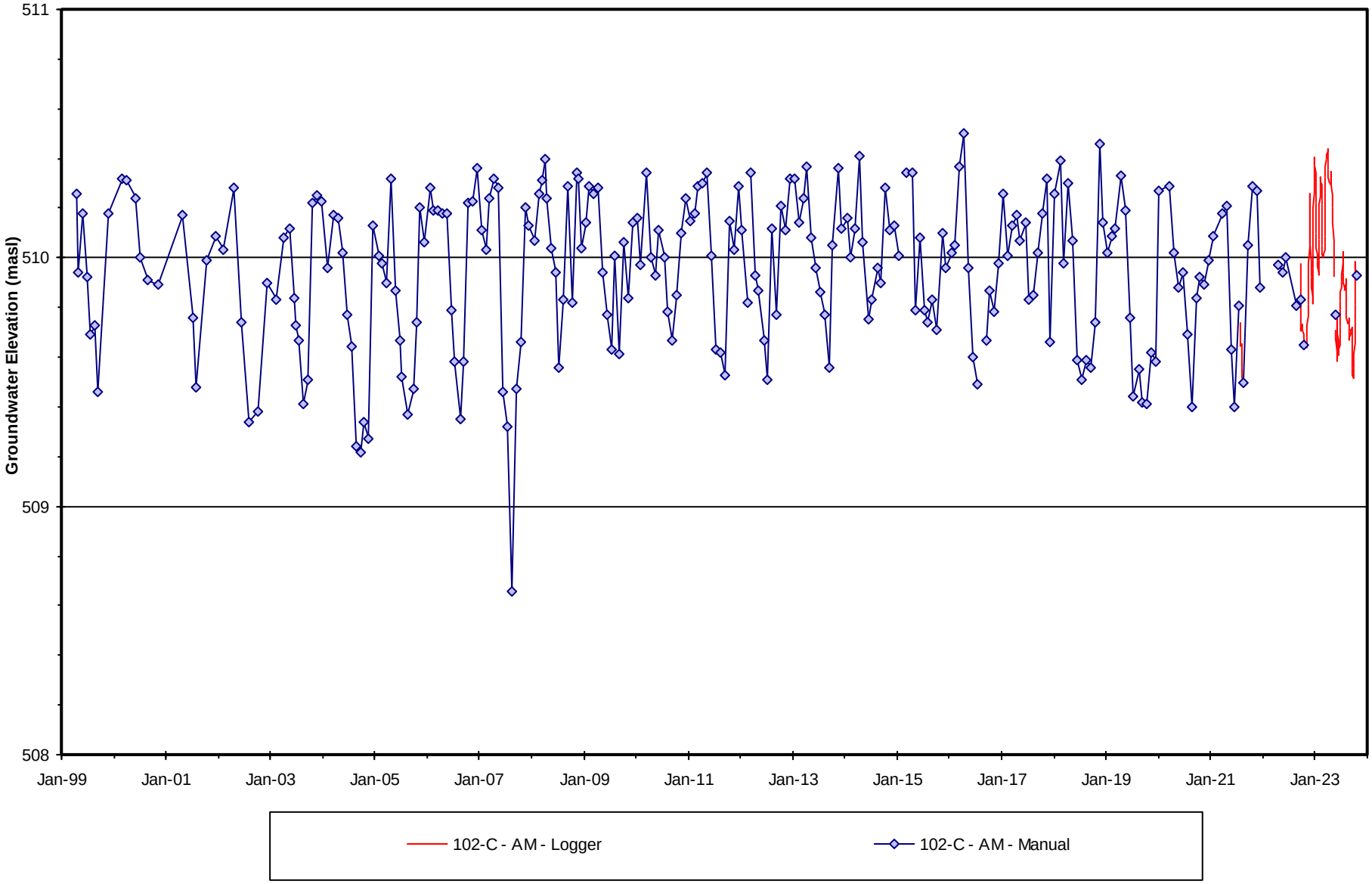


Figure B-57 Groundwater Hydrograph

103-D

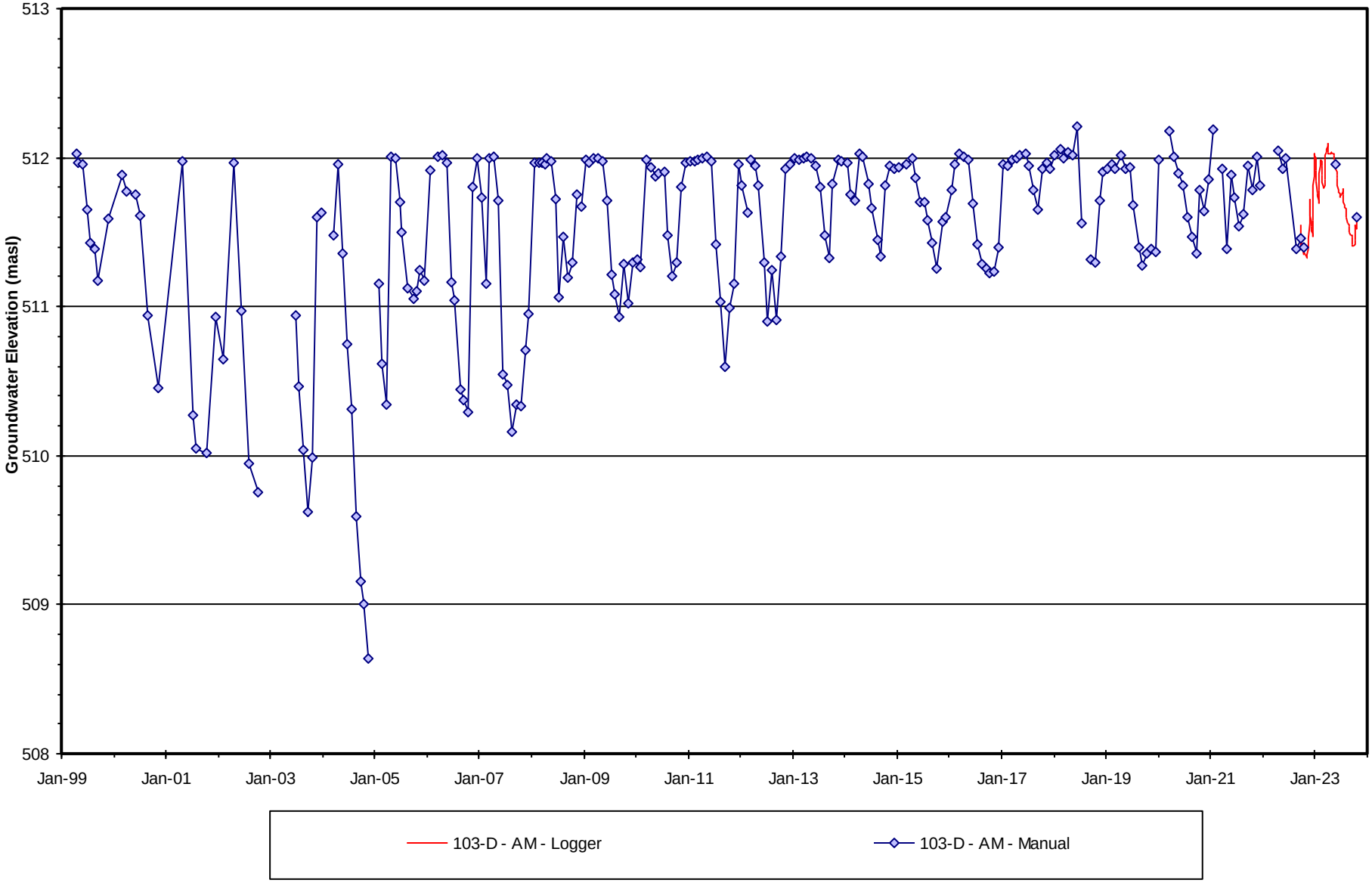


Figure B-58 Groundwater Hydrograph

104-A

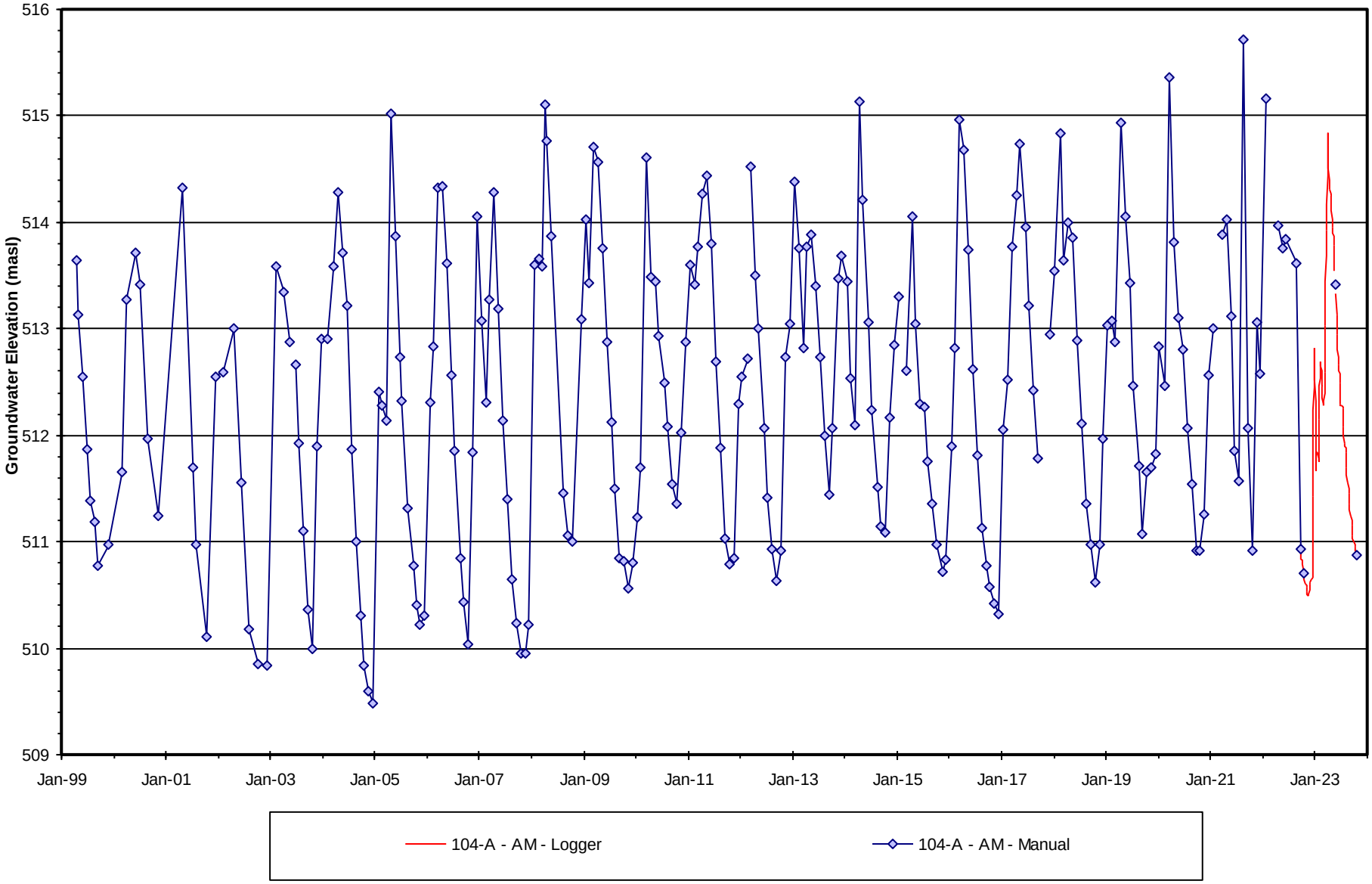


Figure B-59 Groundwater Hydrograph

OW1-4

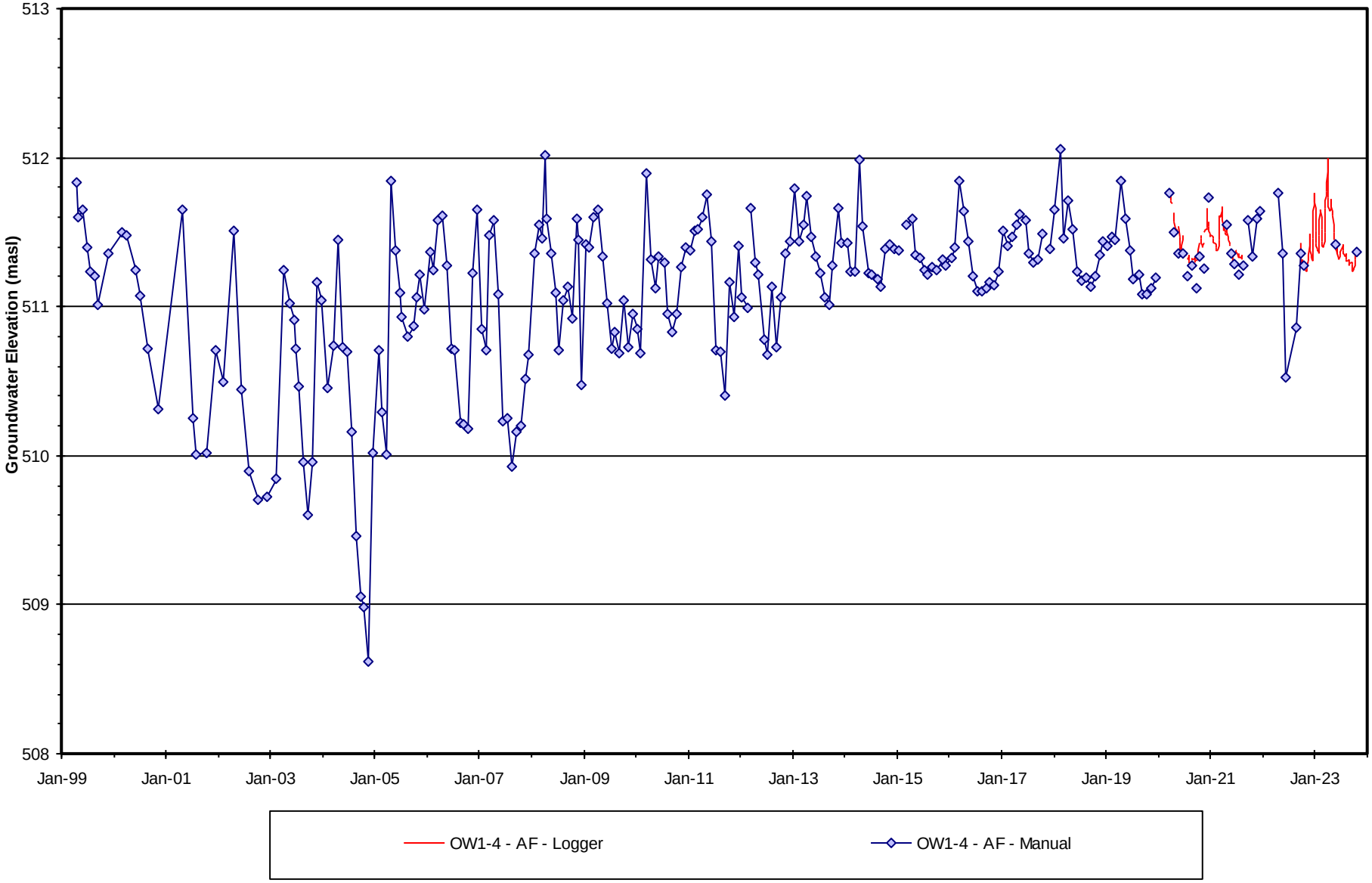


Figure B-60 Groundwater Hydrograph

OW3-1

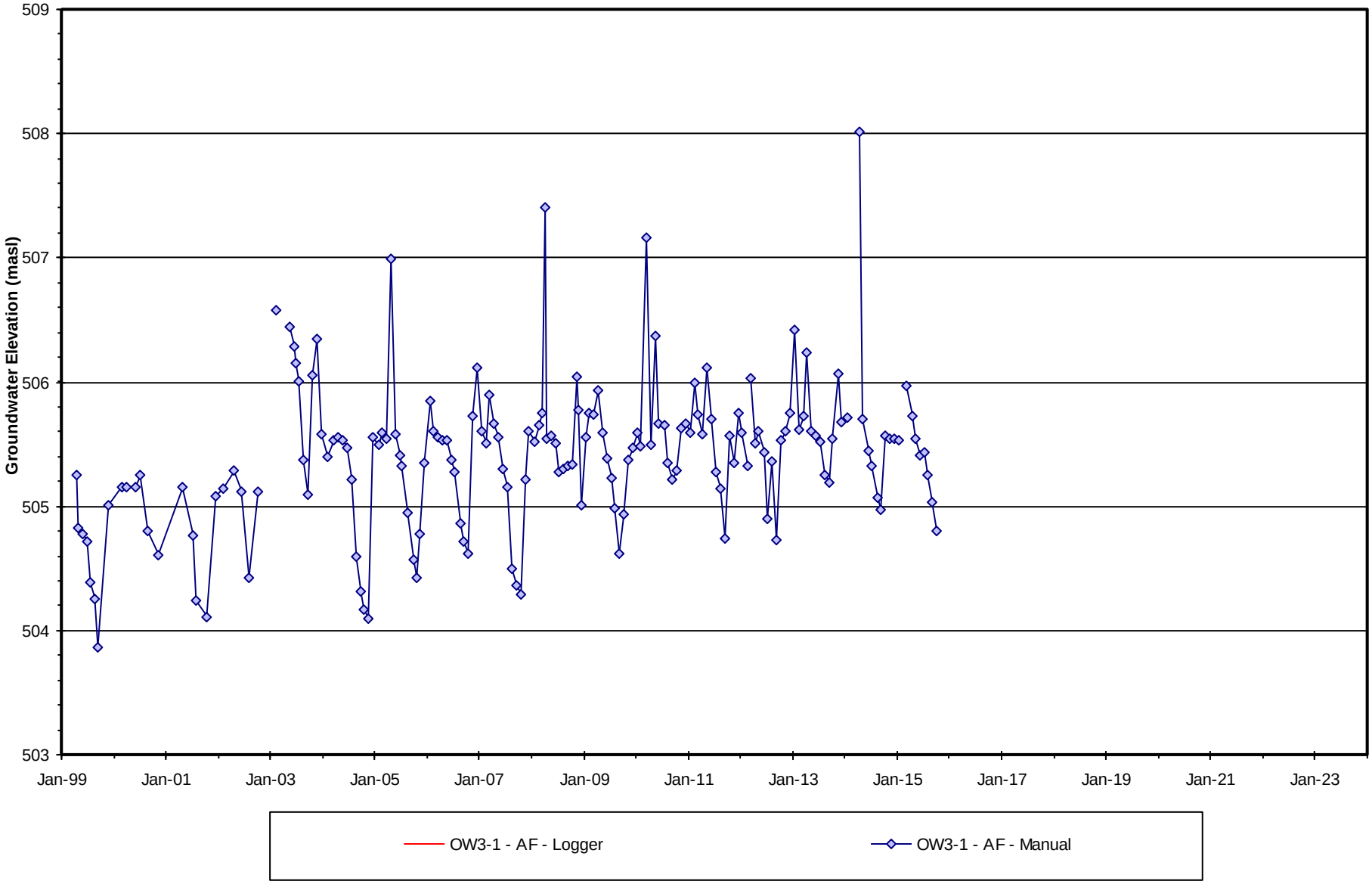


Figure B-61 Groundwater Hydrograph

OW5-2

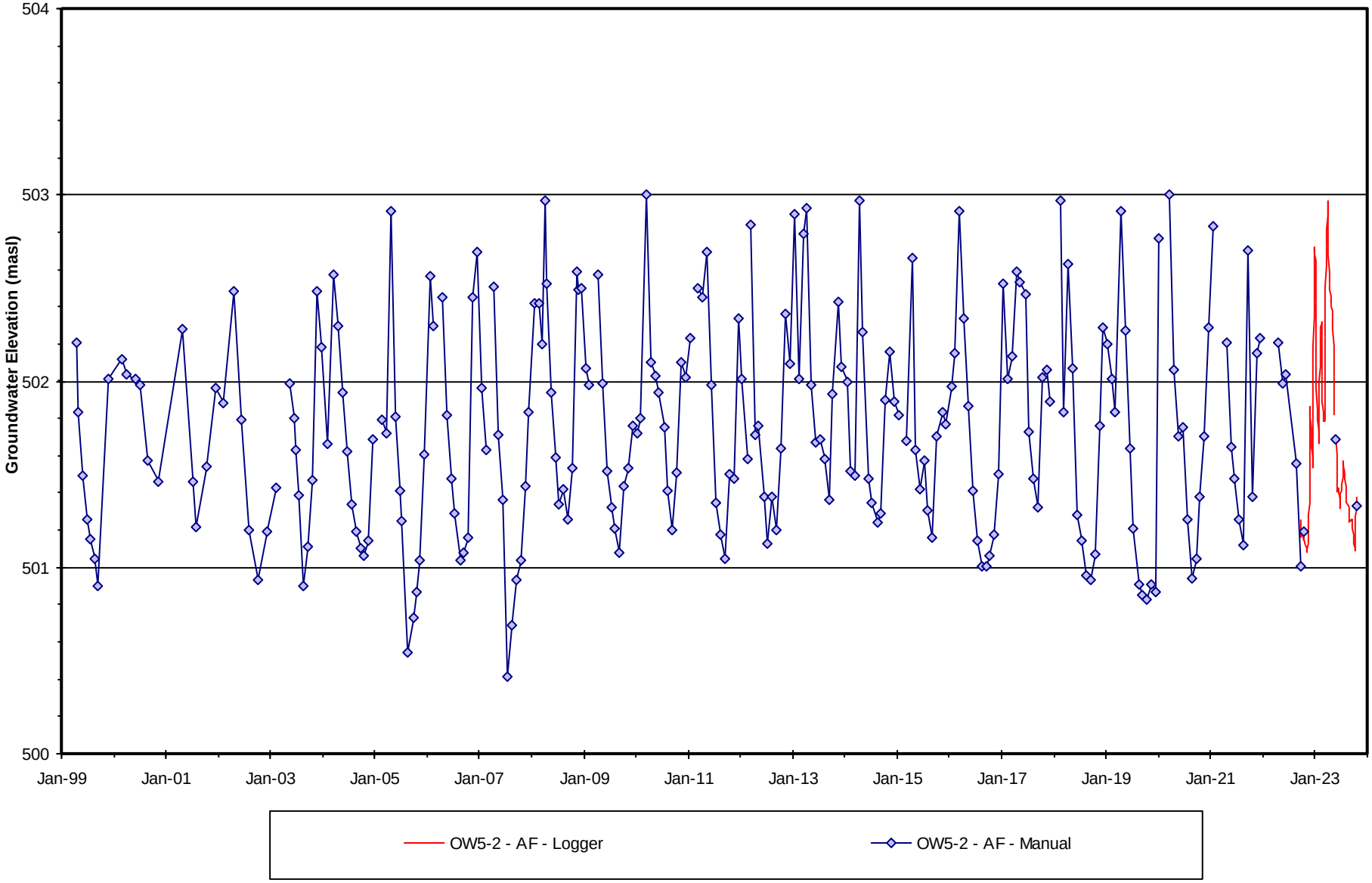


Figure B-62 Groundwater Hydrograph

OW6-3

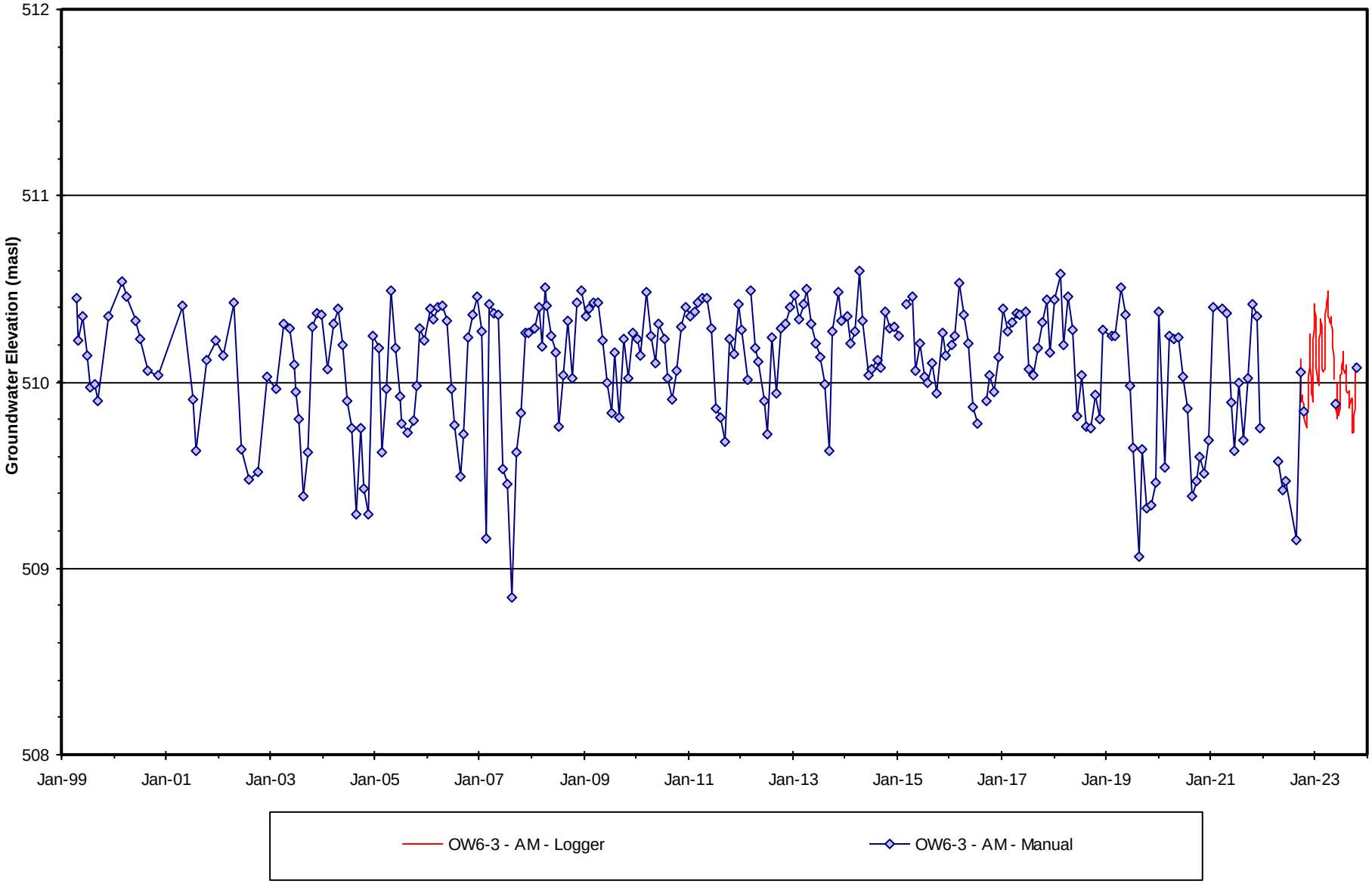


Figure B-63 Groundwater / Surface Water Hydrograph

DP1 - Rob Roy Swamp 6 Southeast Portion

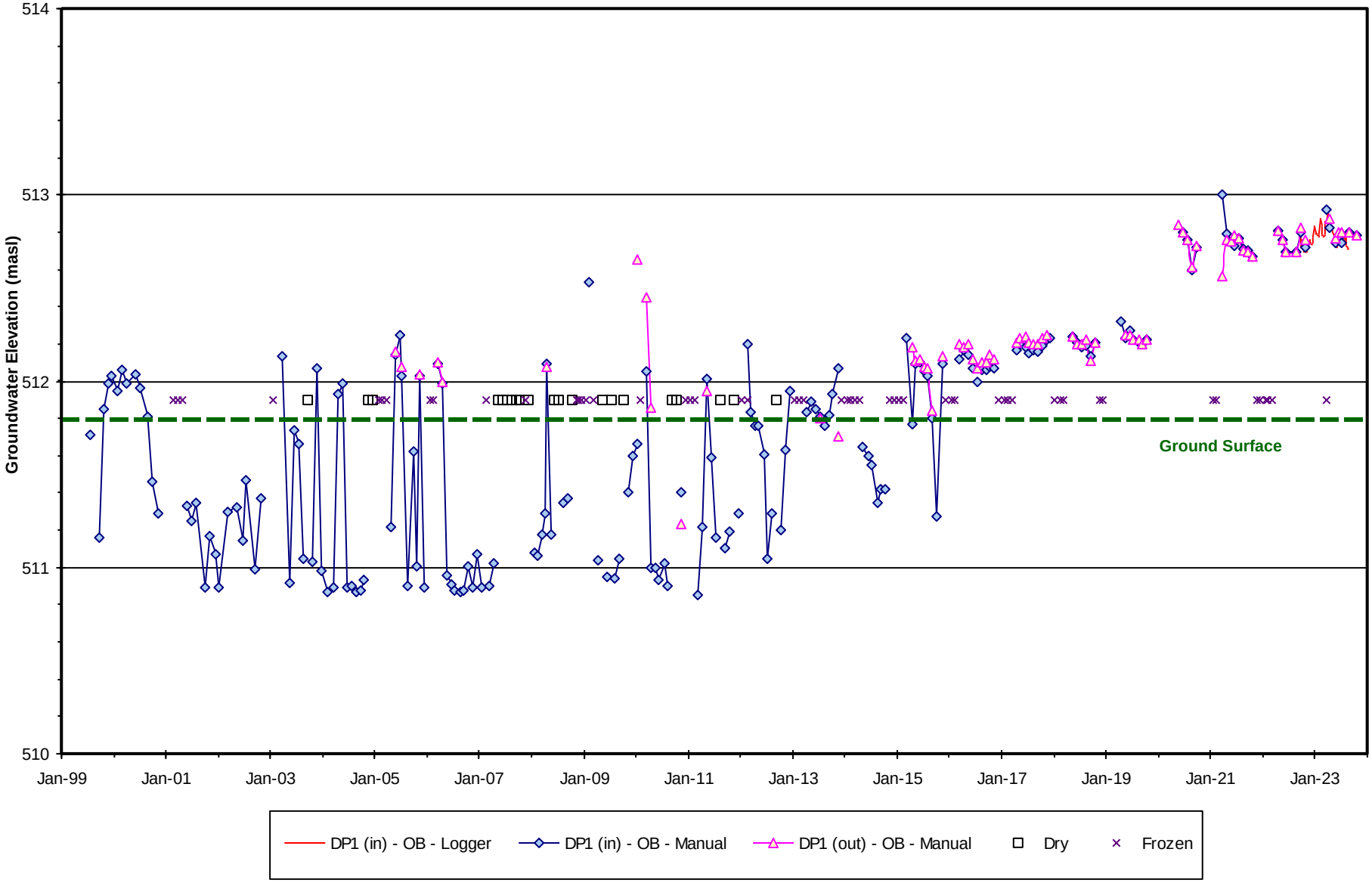


Figure B-64 Groundwater / Surface Water Hydrograph

DP2 - Rob Roy Swamp 6 Northeast Portion

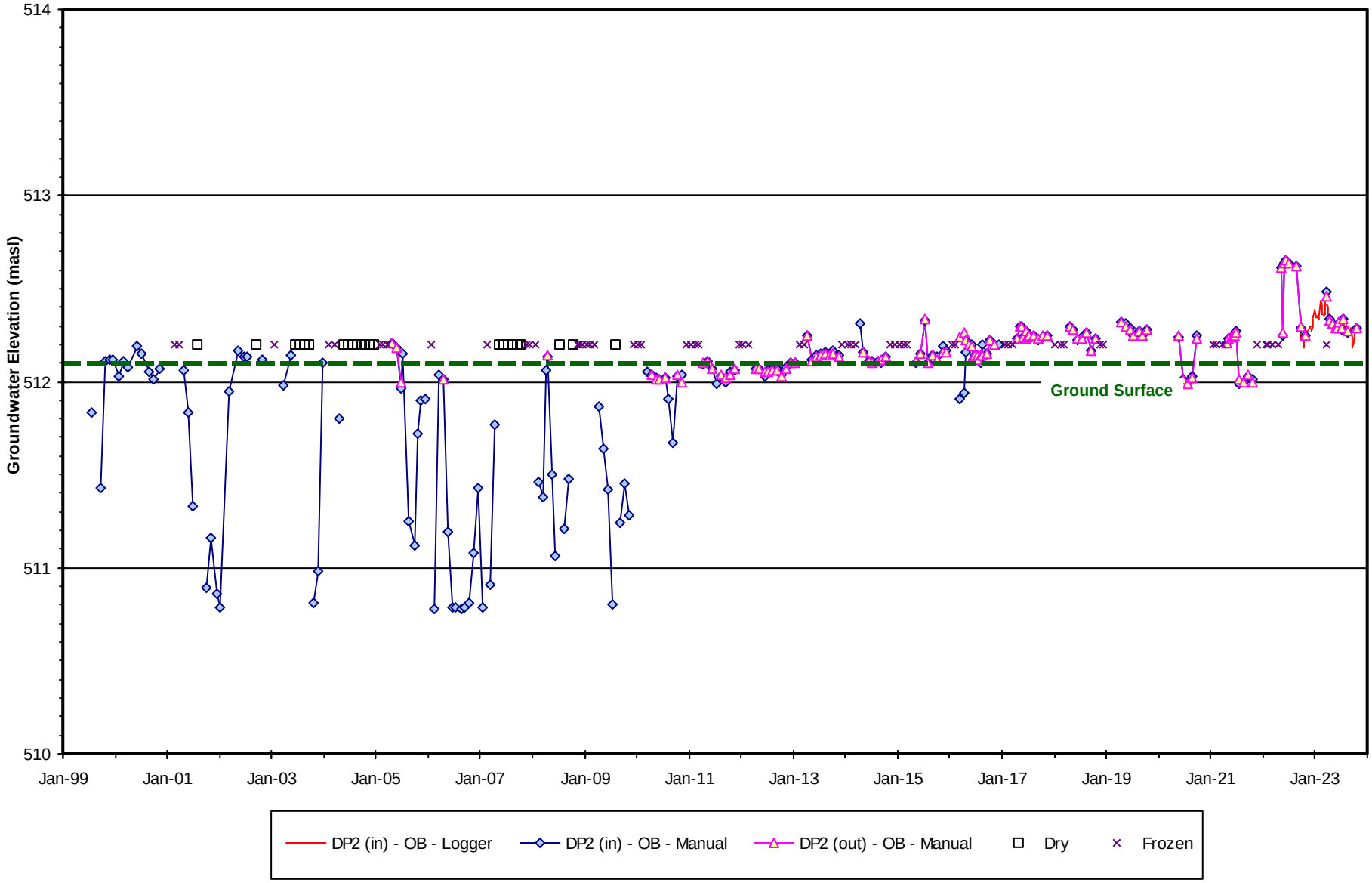


Figure B-65 Groundwater / Surface Water Hydrograph

DP3 - Carmarthen Lake Farms Wetland

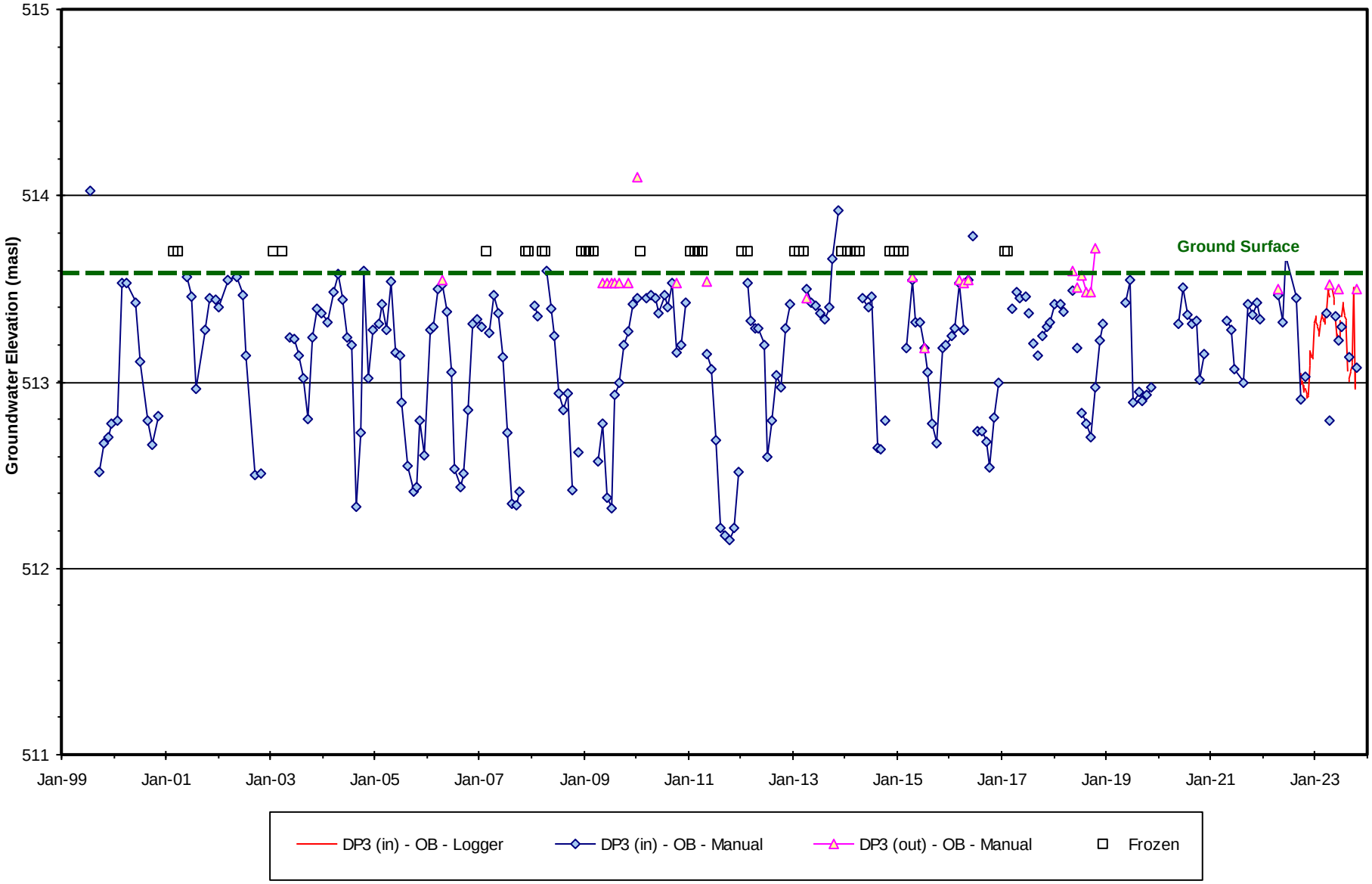


Figure B-66 Groundwater / Surface Water Hydrograph

DP4 - Rob Roy Swamp 6 West of Clearview Townline

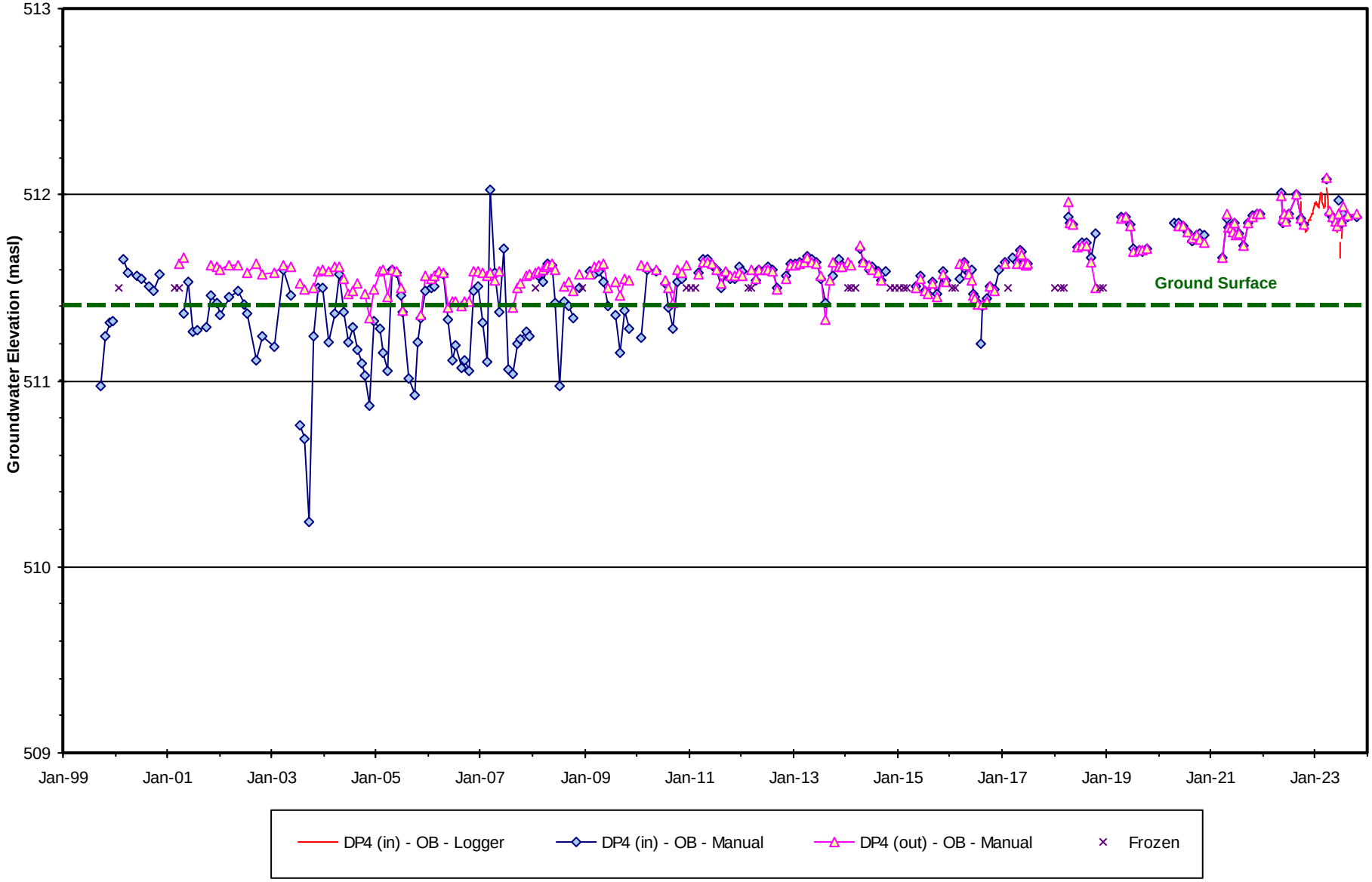


Figure B-67 Groundwater / Surface Water Hydrograph

DP5 - Rob Roy Swamp 2 Vernal Pool

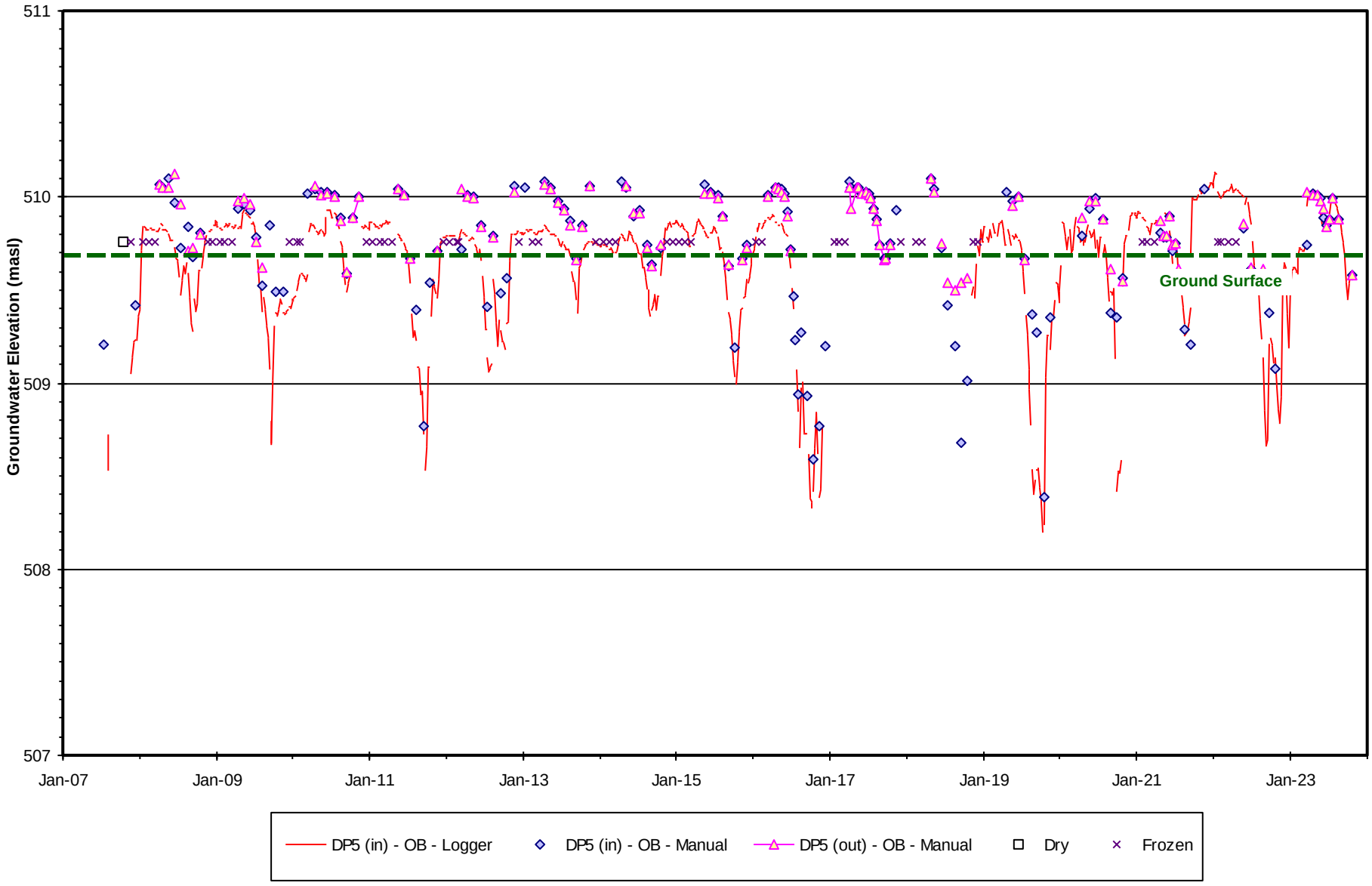


Figure B-68 Groundwater / Surface Water Hydrograph

DP6 - ANSI Wetland A Vernal Pool

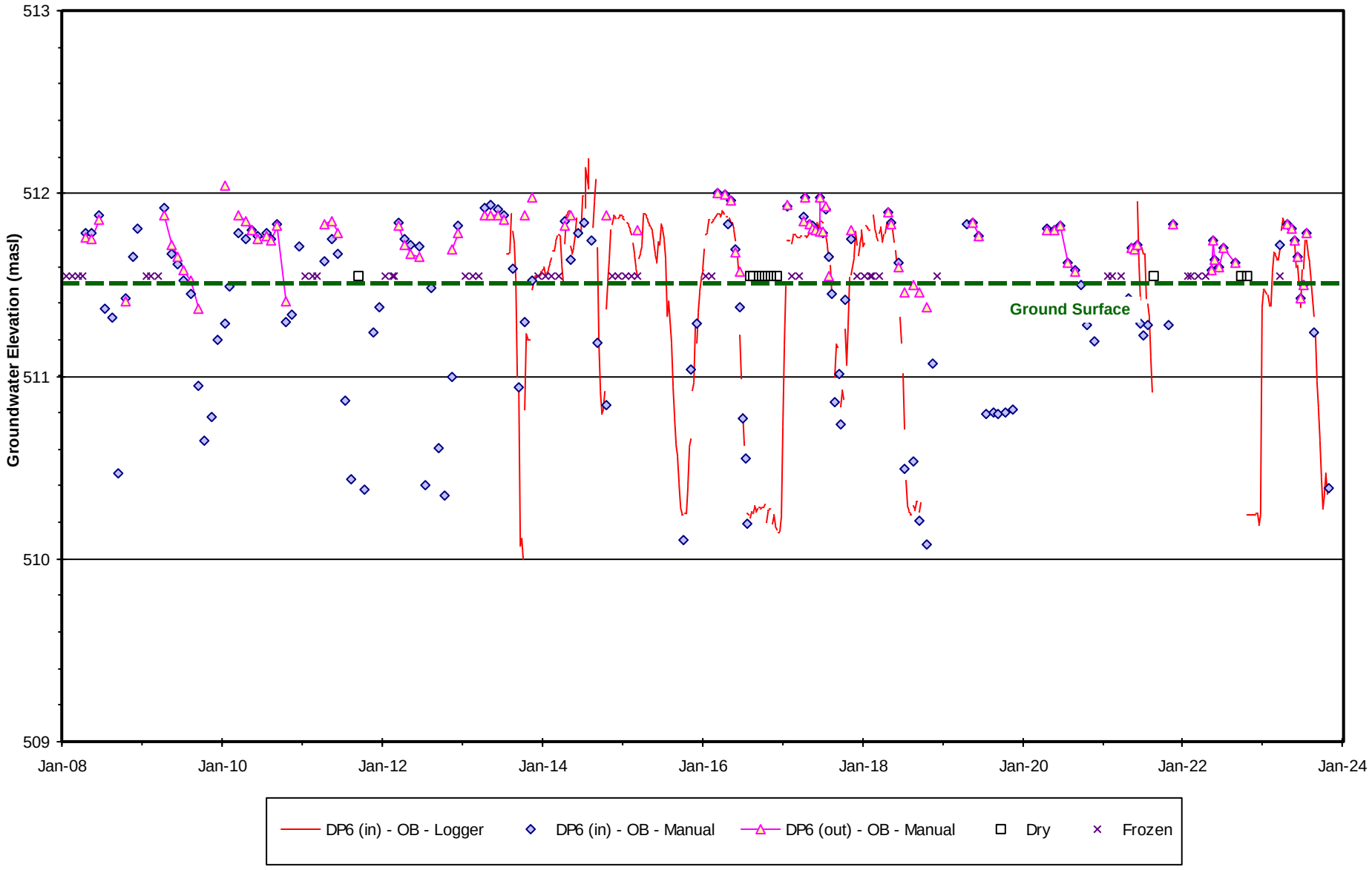


Figure B-69 Groundwater / Surface Water Hydrograph

DP7 - Rob Roy Swamp 2 Vernal Pool

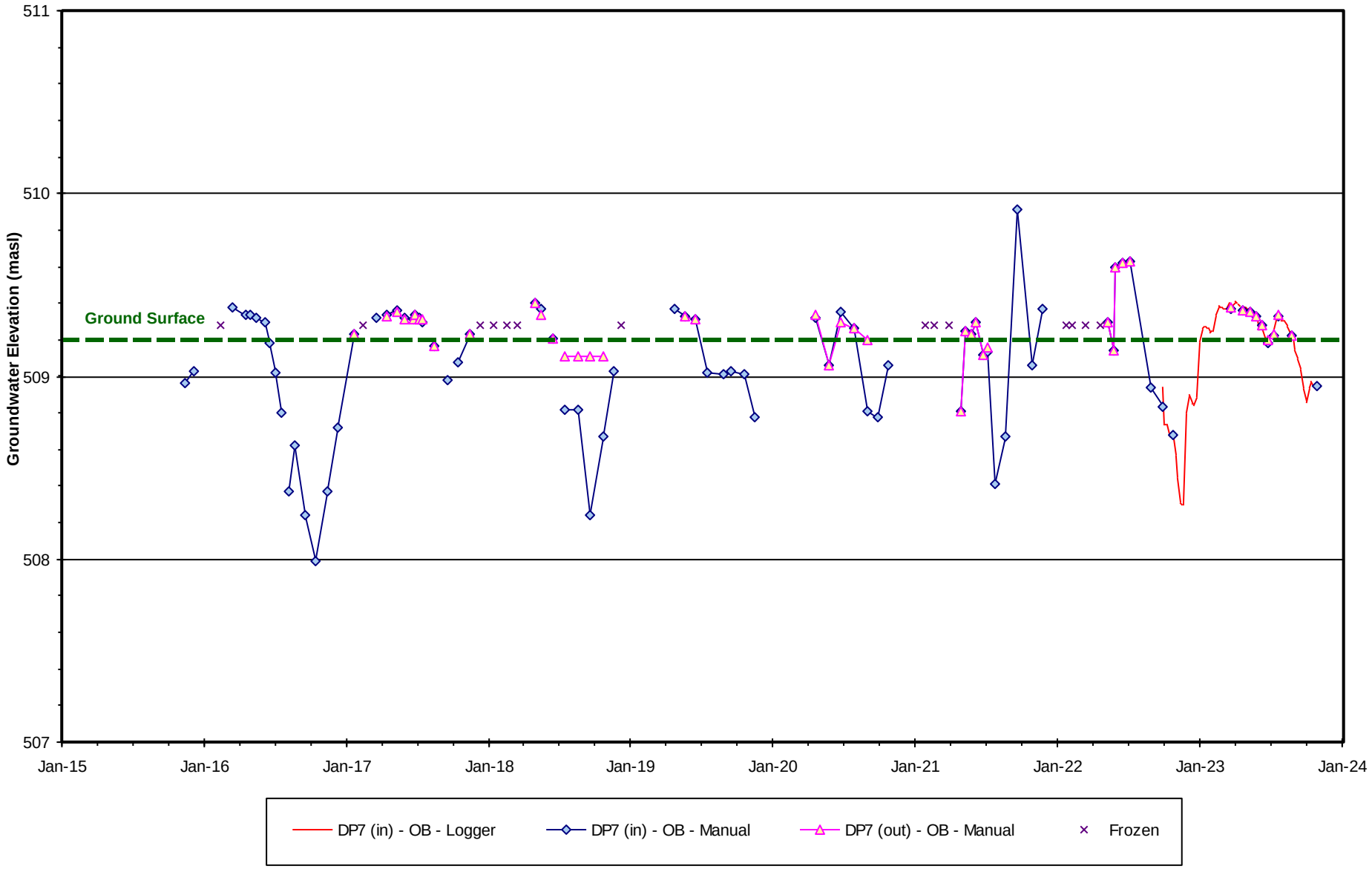


Figure B-70 Groundwater / Surface Water Hydrograph

DP8 - Rob Roy Swamp 6 Northwest Portion

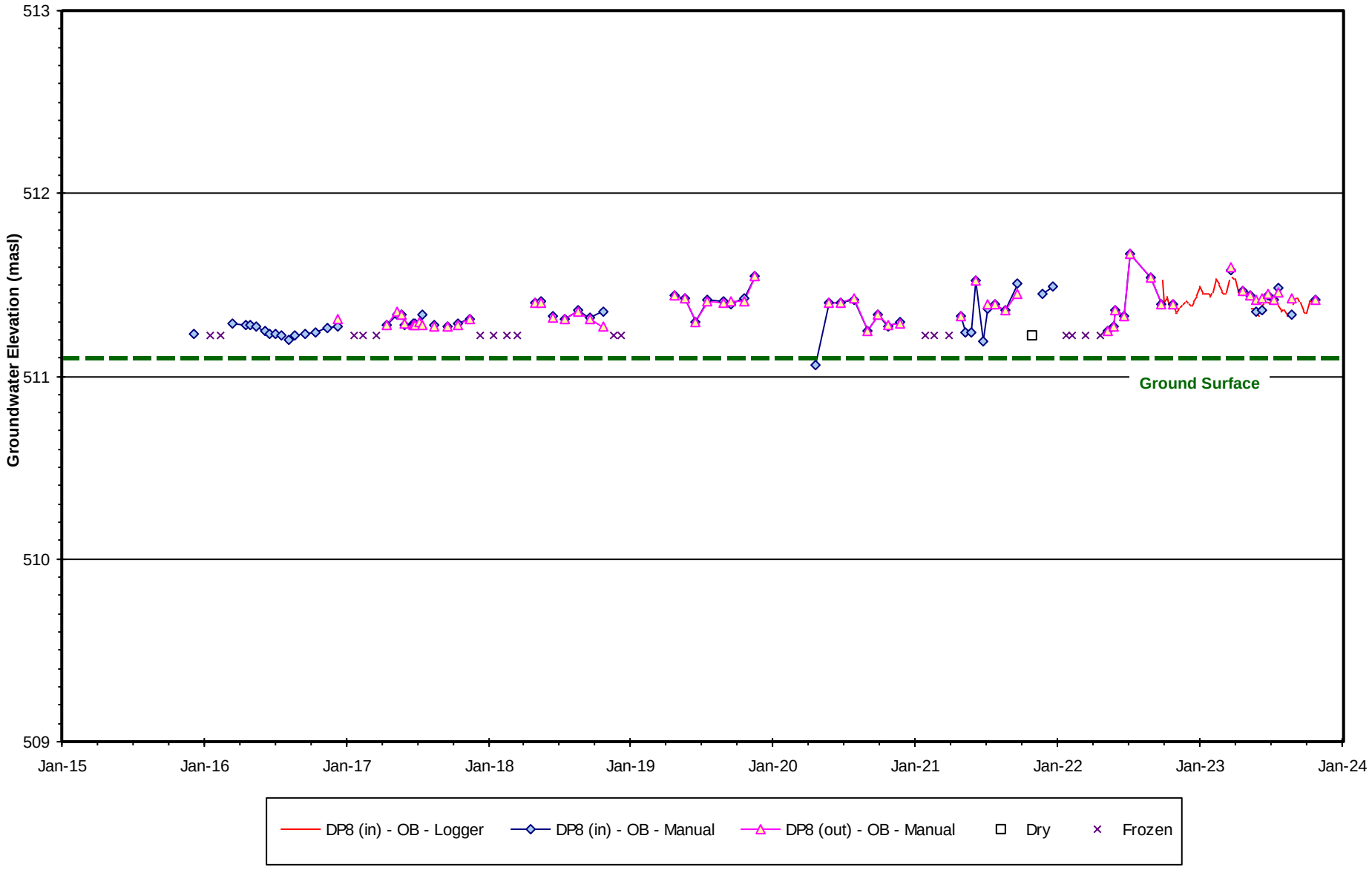


Figure B-71 Groundwater / Surface Water Hydrograph

DP9 - ANSI Wetland B North Portion



Figure B-72 Groundwater / Surface Water Hydrograph

Bridson DP - ANSI Wetland B South Portion

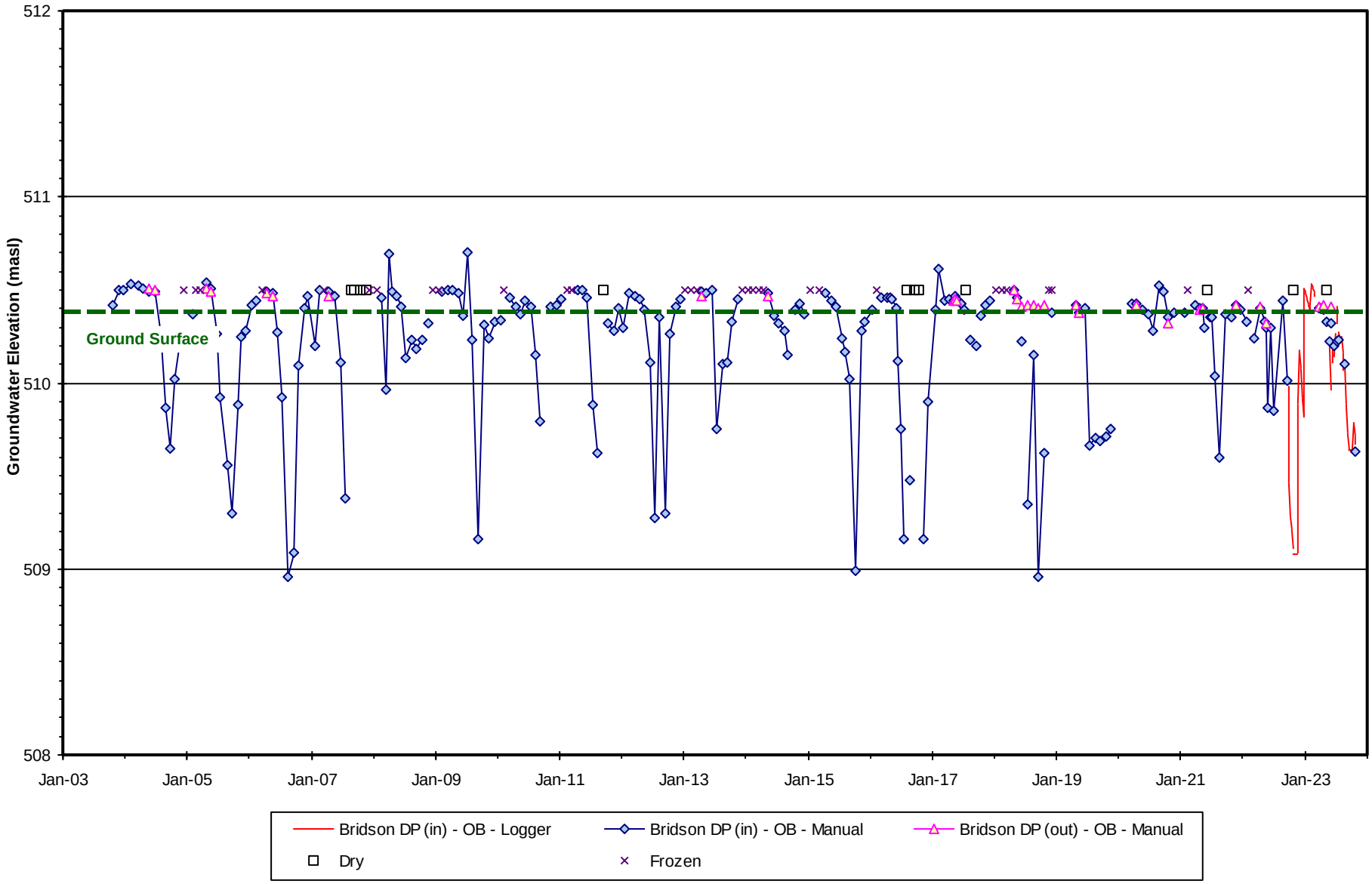
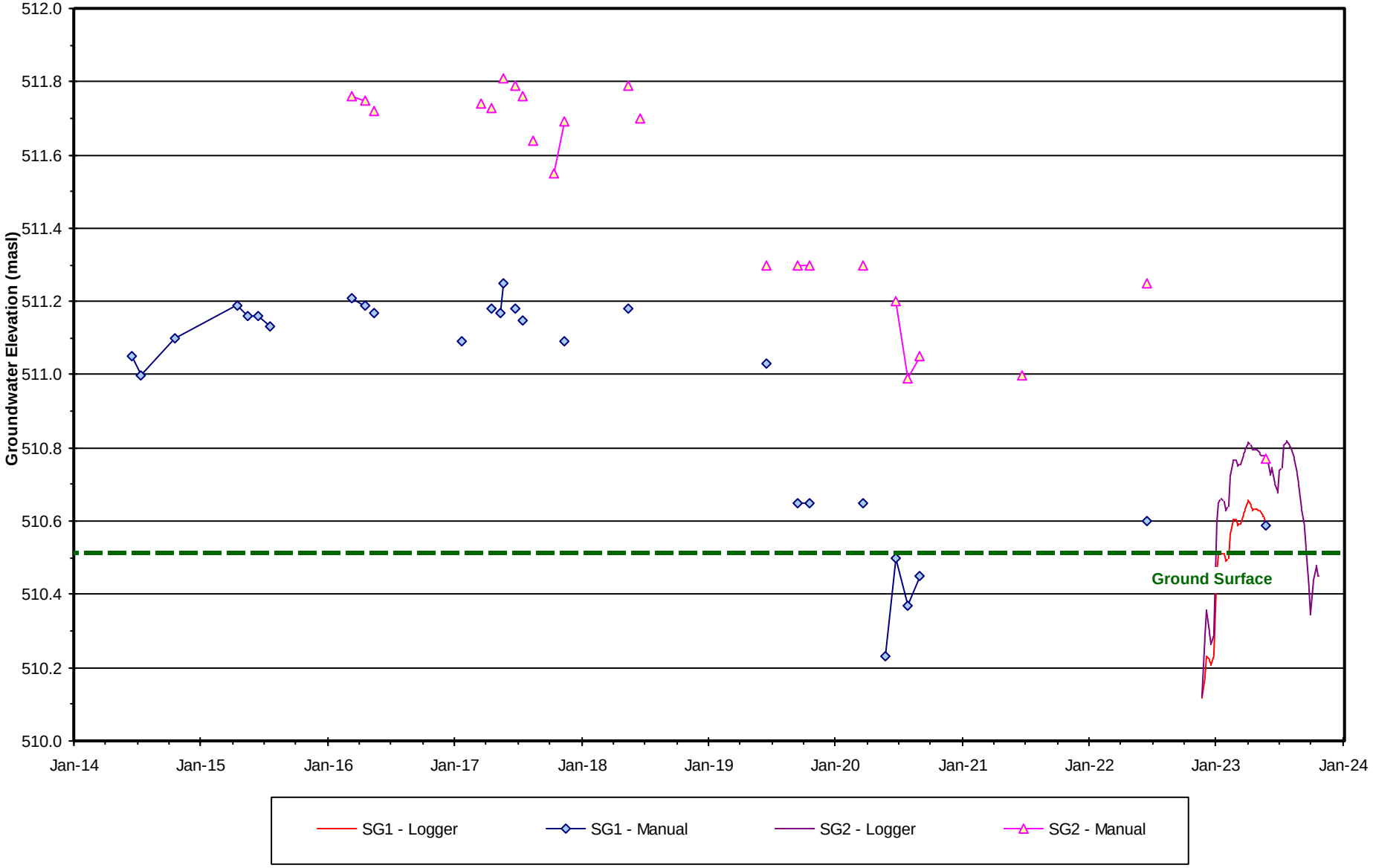


Figure B-73 Groundwater / Surface Water Hydrograph

Staff Gauges at Nest BH03-7 - Rob Roy Swamp 2



Appendix B Table Notation for Groundwater Elevation Data

Notation	*Description*		
mg/L	milligrams per Litre • values in mg/L unless otherwise noted	Colour	provided in True Colour Units (TCU)
		Turbidity	provided in Nephelometric Turbidity Units (NTU)
pH	provided in Scientific Units	T S S	Total Suspended Solids
E C	Electrical Conductivity provided in microSiemens per centimetre	T D S	Total Dissolved Solids
		T K N	Total Kjehldahl Nitrogen
T	Temperature provided in degrees Celsius	T P	Total Phosphorus
		Total Coliforms	provided in colony forming units (cfu) per 100 mL (cfu / 100 mL)
µg/L	micrograms per Litre	E.Coli	
VOC results	provided in ug/L	Heterotropic Plate Count	provided in cfu / mL
FORMATION NOTATION			
OB	Overburden	AF	Amabel / Fossil Hill
AM	Amabel Formation	CH	Cabot Head Formation
FH	Fossil Hill Formation	MT	Manitoulin Formation
ODWQS	Ontario Drinking Water Quality Standards (June 2003 and updates)		
MAC	Maximum Acceptable Concentration	*AO*	Aesthetic objective
IMAC	Interim Maximum Acceptable Concentration	*OG*	Operational Guideline
nc	no OWDQS criteria		
	shading indicates an exceedance of the ODWQS criteria		
a	**heterotrophic plate count**: Results are not an indicator of water safety and, as such, should not be used as an indicator of potential adverse human health effects. However, sudden increases above normal baseline levels can indicated a change in raw water quality or indicate a problem with drinking water treatment.		
mASL	metres above sea level • elevation data in mASL unless otherwise noted		
TOP	Top of Pipe • refer to Monitor Construction Details (Table A-1, Appendix A) for information on elevation data		
(1)	Well dry		
(2)	Well frozen and / or snow covered		
(3)	Well inaccessible		
(4)	Moist ground noted around drivepoint		
(5)	Anomalous data		
(6)	No data due to overgrowth (NDOGN). Total coliforms and / or E. coli not detected		
blank	water level data not available		
< value	parameter not detected above associated laboratory reported detection limit		

Table B-1 Groundwater Elevations - Main Quarry Monitoring Wells

Well Name	MW6	BH98-8	BH98-9	BH98-12	PW99-1
Flow System	AM	AF	AF	AF	AF
Date TOP	534.9	517.3	526.4	527.2	514.0
18-May-95	520.2				
25-May-95	520.0				
22-May-96	520.7				
8-Jul-96	519.8				
6-Sep-96	519.1				
23-Dec-96	520.8				
26-Feb-97	522.2				
8-May-97	520.8				
26-Aug-97	519.2				
19-Dec-97	520.0				
27-Feb-98	519.8				
8-Apr-98	522.3				
10-May-98	519.0				
29-Dec-98	519.4				
24-Feb-99	520.7		519.9	511.2	
28-Apr-99	520.4		520.4	511.1	
26-May-99	519.7		519.5	510.1	
29-Jun-99	519.0		518.8	509.0	
26-Jul-99	518.9	511.7	518.4	508.2	511.9
17-Aug-99	518.7	511.6	518.2	507.6	511.5
27-Sep-99	518.3	511.3	517.5	507.0	511.4
25-Oct-99	518.3	511.4	517.6	507.0	511.2
21-Nov-99	519.2	511.5	519.0	508.3	511.6
21-Dec-99	520.1	511.9	519.1	508.4	511.7
25-Jan-00	520.3	511.2	520.3	510.3	511.0
29-Feb-00	520.3	511.7	520.6	510.4	511.8
31-Mar-00	520.3	511.1	520.3	511.2	511.2
2-Jun-00	520.8	510.0	520.8	513.1	510.1
7-Jul-00	520.8	509.4	520.3	511.3	509.5
27-Aug-00	519.7	509.0	519.0	509.9	509.1
28-Sep-00	519.6	508.9	519.3	510.1	509.0
3-Nov-00	519.1	507.8	518.7	509.0	507.9
22-Feb-01	521.0	508.1	(2)	512.1	508.2
22-Mar-01	520.2	506.6	(2)	511.1	506.7
26-Apr-01	521.4	509.6	521.3	513.4	509.7
31-May-01	519.6	506.3	519.3	510.6	506.4
28-Jun-01	519.1	507.2	518.7	509.9	507.3
1-Aug-01	518.6	506.9	518.0	508.9	507.0
4-Oct-01	518.1	505.7	517.3	508.4	505.8
1-Nov-01	519.4	507.6	519.3	510.2	507.7
14-Dec-01	520.1	506.8	519.7	510.9	506.9

Table B-1 Groundwater Elevations - Main Quarry Monitoring Wells

Well Name	MW6	BH98-8	BH98-9	BH98-12	PW99-1
Flow System	AM	AF	AF	AF	AF
Date TOP	534.9	517.3	526.4	527.2	514.0
10-Jan-02	519.5	506.0	519.2	510.8	506.1
14-Mar-02	521.4	508.6	520.8	512.2	508.7
16-May-02	519.9	508.5	519.6	511.8	508.6
20-Jun-02	519.0	508.1	518.6	510.6	508.3
11-Jul-02	518.1	507.6	520.6	509.7	507.8
13-Sep-02	515.6	505.8	516.0	508.0	505.9
1-Nov-02	513.1	508.8	514.6	507.2	508.9
16-Jan-03	510.9	507.2	(2)	507.0	507.3
28-Mar-03	512.7	510.5	516.6	513.3	510.6
15-May-03	513.3	508.1	516.0	511.1	508.2
23-Jun-03	511.9	509.0	514.7	510.4	508.1
22-Jul-03	510.7		513.2	509.8	508.0
20-Aug-03	509.8	507.9	512.2	508.8	508.0
25-Sep-03	509.1	507.3	511.7	507.7	507.4
22-Oct-03	508.7	507.3	511.4	508.7	507.4
25-Nov-03	508.9	508.6	512.4	510.7	508.7
22-Dec-03	510.2	508.6	513.6	511.0	508.7
9-Feb-04	511.0	506.7	513.6	510.6	506.8
16-Mar-04	510.6	507.6	(2)	512.0	507.7
20-Apr-04	514.4	509.4	517.8	512.9	509.5
18-May-04	512.4	508.4	515.5	511.4	508.5
22-Jun-04	511.2	506.8	514.3	510.9	506.9
28-Jul-04	508.9	506.9	511.7	509.6	507.0
25-Aug-04	508.2	506.5	511.0	508.3	506.6
22-Sep-04	507.8	506.1	510.5	507.4	505.9
19-Oct-04	507.4	507.4	510.2	506.8	507.5
16-Nov-04	507.1	506.3	509.8	506.6	506.4
16-Dec-04	506.8	509.5	509.6	506.7	509.6
31-Jan-05	508.5	508.1	512.0	510.7	508.3
24-Feb-05	508.5	507.4	511.8	510.0	507.5
22-Mar-05	508.1	506.9	511.4	509.4	507.0
20-Apr-05	511.6	511.9	516.6	515.0	512.0
25-May-05	512.4	511.6	516.3	510.8	511.7
29-Jun-05	509.9	511.5	513.6	508.5	511.6
13-Jul-05	509.3	511.4	512.9	506.8	511.5
23-Aug-05	508.2	510.6	511.7	504.1	510.7
26-Sep-05	507.7	510.9	511.2	502.7	511.0
26-Oct-05	507.5	510.9	510.9	501.9	511.0
16-Nov-05	507.4	511.3	510.9	501.5	511.4
14-Dec-05	507.1	510.5	510.5	501.4	510.7
20-Jan-06	507.2	510.8	511.1	501.8	510.9

Table B-1 Groundwater Elevations - Main Quarry Monitoring Wells

Well Name	MW6	BH98-8	BH98-9	BH98-12	PW99-1
Flow System	AM	AF	AF	AF	AF
Date TOP	534.9	517.3	526.4	527.2	514.0
14-Feb-06	508.8	510.5	513.0	502.1	510.6
19-Mar-06	511.9	511.8	516.3	505.2	511.9
17-Apr-06	512.9	511.7	517.6	504.5	511.8
19-May-06	511.3	510.0	515.5	502.0	510.1
19-Jun-06	509.5	508.8	513.3	500.7	508.9
10-Jul-06	508.6	509.3	512.3	500.5	509.4
21-Aug-06	507.6	509.1	510.9	500.4	509.2
18-Sep-06	507.1	509.0	510.3	500.4	509.1
17-Oct-06	506.8	509.2	509.9	500.4	509.3
20-Nov-06	507.1	509.8	511.1	500.5	510.0
15-Dec-06	508.4	510.2	512.8	500.8	510.3
22-Jan-07	509.3	509.2	513.3	500.9	509.3
19-Feb-07	508.8	508.5	512.4	500.7	(2)
18-Mar-07	508.4	509.8	512.2	501.0	509.9
17-Apr-07	511.9	510.8	516.2	501.1	510.9
17-May-07	510.2	509.4	514.0		509.5
21-Jun-07	508.6	507.8	512.3	502.2	507.9
17-Jul-07	508.0	508.4	511.4	502.1	508.5
21-Aug-07	507.4	508.6	510.5	501.9	508.7
16-Sep-07	506.9	508.9	510.0	502.1	509.0
14-Oct-07	506.6	508.9	509.6	502.0	509.0
18-Nov-07	506.4	508.8	509.4	502.1	508.9
13-Dec-07	506.4	508.8	509.5	502.0	508.8
20-Jan-08	510.1	511.3	(2)	502.6	511.2
17-Feb-08	510.2	510.6	514.3	502.5	510.7
16-Mar-08	510.3	510.4	514.5	502.4	510.8
6-Apr-08	511.6	510.6	515.8	502.3	511.7
20-Apr-08	514.1	511.8	518.8	502.8	512.0
18-May-08	511.9	510.5	516.3	502.5	510.6
15-Jun-08	509.9	509.8	514.3	502.3	509.9
13-Jul-08	509.3	510.0	513.6	502.0	510.1
17-Aug-08	508.1	510.2	512.2	502.0	510.2
14-Sep-08		509.9	512.1	502.1	510.0
19-Oct-08	507.9	509.7	511.6	502.0	509.8
16-Nov-08		510.1			510.2
23-Nov-08	508.6		513.4	502.3	
14-Dec-08	509.3	510.3	513.9	502.5	510.6
18-Jan-09		510.7	514.2	502.3	(2)
8-Feb-09	510.6	510.6	514.3	502.6	510.9
15-Mar-09	510.7	510.5	514.4	502.6	510.6
12-Apr-09	512.3	510.9	516.1	502.6	511.0

Table B-1 Groundwater Elevations - Main Quarry Monitoring Wells

Well Name	MW6	BH98-8	BH98-9	BH98-12	PW99-1
Flow System	AM	AF	AF	AF	AF
Date TOP	534.9	517.3	526.4	527.2	514.0
17-May-09	511.9	510.5	516.1	502.4	510.5
14-Jun-09	511.2	509.8	514.2	502.2	509.9
12-Jul-09	510.8	509.4	513.1	502.0	509.5
9-Aug-09	509.8	509.5	512.1	502.2	508.6
13-Sep-09	507.4	509.6	510.5	501.9	508.7
11-Oct-09	508.1	509.9	510.9	502.1	508.9
15-Nov-09	509.4	510.2	510.7	501.9	509.0
13-Dec-09	510.2	510.2	510.9	502.0	509.1
17-Jan-10	510.4	510.1	511.0	501.5	508.8
7-Feb-10	510.9	510.2	511.3	502.2	509.3
14-Mar-10	511.4	510.6		502.6	510.0
18-Apr-10	510.9	511.0	515.0	502.6	511.1
16-May-10	509.3	510.7	513.9	502.2	511.0
8-Jun-10					
13-Jun-10	508.5	510.6	513.1	501.2	510.9
21-Jul-10	508.4	510.9	512.9	501.0	511.2
16-Aug-10	508.5	510.8	512.8	500.9	511.1
12-Sep-10	508.4	511.0	512.1	501.9	511.3
26-Sep-10					
17-Oct-10	507.8	510.3	511.4	501.8	510.4
14-Nov-10	508.0	510.4	511.3	501.9	510.5
19-Dec-10	(2)	(2)	511.5	502.3	510.9
16-Jan-11		(2)	512.4	502.3	511.1
20-Feb-11		510.8	512.4	502.3	510.9
13-Mar-11	510.7	510.9	512.5	502.4	511.0
17-Apr-11	512.9	511.4	517.7	503.0	511.0
15-May-11	513.0	511.8	518.0	502.6	512.0
13-Jun-11	512.0	511.2	516.2	502.4	510.7
17-Jul-11	511.8	510.3	515.9	502.3	509.5
14-Aug-11	511.4	509.8	515.1	501.9	510.0
18-Sep-11	511.3	509.7	515.0	501.3	510.0
16-Oct-11	507.2	509.5	513.9	502.0	509.7
20-Nov-11	508.1	510.3	514.1	501.7	510.4
18-Dec-11	508.6	510.4	514.2	502.1	510.5
15-Jan-12	508.8	510.5	514.3	502.2	510.6
19-Feb-12	508.7	510.0	514.0	502.2	510.2
26-Feb-12				502.0	
18-Mar-12		512.5	515.6		511.0
15-Apr-12	507.5	514.1	516.8	502.3	507.8
13-May-12	509.7	514.0	516.5	502.2	507.6
17-Jun-12	509.1	513.9	516.4	502.0	507.5

Table B-1 Groundwater Elevations - Main Quarry Monitoring Wells

Well Name	MW6	BH98-8	BH98-9	BH98-12	PW99-1
Flow System	AM	AF	AF	AF	AF
Date TOP	534.9	517.3	526.4	527.2	514.0
15-Jul-12	509.0	513.7	516.1	502.0	507.3
12-Aug-12	507.6	513.6	516.6	502.3	507.9
16-Sep-12	507.4	510.2	511.0	501.9	510.3
7-Oct-12				501.9	
14-Oct-12	507.8	510.0	511.0	501.8	510.3
18-Nov-12	508.5	510.4	512.1	502.3	511.0
16-Dec-12	508.9	510.5	512.4	502.2	511.1
13-Jan-13	509.9	511.7	513.7	503.1	511.5
17-Feb-13	510.3	512.0	514.1	503.0	511.6
17-Mar-13	509.9	511.9	513.9	503.0	511.6
31-Mar-13				503.3	
14-Apr-13	510.0	512.3	514.0	502.6	511.7
12-May-13	512.0	513.3	516.3	502.4	511.1
2-Jun-13				502.3	
16-Jun-13	511.8	513.2	516.1	501.1	510.7
14-Jul-13	511.5	512.8	516.1	502.3	510.6
18-Aug-13	508.9	511.7	516.0	501.9	510.8
15-Sep-13	508.9	511.6	515.9	501.9	510.6
13-Oct-13	508.8	511.0	515.9	502.0	510.7
17-Nov-13	508.3	511.4	516.1	502.0	510.8
16-Dec-13	508.4	511.3	516.0	502.0	510.7
19-Jan-14	508.5	511.5	516.1	502.0	510.6
16-Feb-14	508.5	511.6	(2)	502.1	510.4
17-Mar-14	508.6	511.7	(2)	502.0	510.5
13-Apr-14	510.6	513.5	(2)	503.0	511.3
11-May-14	509.1	511.5	517.2	502.5	510.2
15-Jun-14		511.0	516.1	502.1	509.7
13-Jul-14	509.1	510.6	515.0	502.0	509.5
17-Aug-14	509.2	509.6	514.9	502.0	507.3
7-Sep-14	509.6	511.1	515.0	502.0	511.2
12-Sep-14				502.0	
19-Oct-14	509.7	509.6	515.0	502.0	511.3
16-Nov-14	507.7	511.0	512.0	502.0	511.5
14-Dec-14	507.7	511.0	512.0	501.9	511.4
18-Jan-15	507.8	511.4	512.1	501.9	510.7
15-Feb-15					
15-Mar-15	507.9	511.6	511.7	502.3	511.7
19-Apr-15	511.6	511.9	514.7	502.6	512.0
17-May-15	509.4	511.7	513.7	502.2	511.8
14-Jun-15	509.8	511.8	512.3	502.2	511.9
19-Jul-15	507.6	511.7	512.3	502.1	511.8

Table B-1 Groundwater Elevations - Main Quarry Monitoring Wells

Well Name	MW6	BH98-8	BH98-9	BH98-12	PW99-1
Flow System	AM	AF	AF	AF	AF
Date TOP	534.9	517.3	526.4	527.2	514.0
9-Aug-15	507.2	511.6	511.6	502.2	511.7
6-Sep-15	507.1	511.5	511.0	501.9	511.6
11-Oct-15	507.0	511.2	510.4	501.9	511.3
15-Nov-15	506.6	511.6	510.2	502.0	511.7
6-Dec-15	506.4	511.6	510.1	501.9	511.7
17-Jan-16	506.4	511.6	510.5	502.0	511.7
14-Feb-16	507.2	511.5	511.6	502.1	511.7
13-Mar-16	509.6	512.0	515.5	502.8	512.1
17-Apr-16	511.6	511.9	517.3	502.7	512.0
1-May-16					
15-May-16	509.6	511.8	514.6	502.3	511.9
5-Jun-16					
19-Jun-16	508.1	511.6	512.5	502.1	511.7
3-Jul-16					
17-Jul-16	507.2	511.5	511.2	501.9	511.6
24-Jul-16				501.9	
7-Aug-16					
21-Aug-16	506.5	511.5	510.2	501.9	511.7
18-Sep-16	506.2	511.6	509.8	501.9	511.7
16-Oct-16	506.0	511.5	509.6	501.9	511.7
13-Nov-16	505.8	511.5	509.4	501.8	511.6
27-Nov-16				501.9	
11-Dec-16	505.7	511.5	509.3	501.8	511.6
15-Jan-17	505.8	511.8	510.1	502.2	511.9
12-Feb-17	506.5	511.6	511.0	502.1	511.7
19-Mar-17	509.1	511.7	514.4	502.4	511.8
9-Apr-17				502.7	
16-Apr-17	509.9	511.9	515.6	502.6	512.0
11-May-17	511.6	511.9	517.2	502.7	512.0
21-May-17				502.6	
13-Jun-17				502.3	
25-Jun-17	509.5	511.9	515.1	502.4	512.0
19-Jul-17	509.5	511.9	515.1	502.4	512.0
3-Aug-17				503.2	
17-Aug-17	508.2	511.7	513.2	502.1	511.8
29-Aug-17					
17-Sep-17	507.4	511.7	511.4	502.1	511.8
26-Sep-17				502.0	
15-Oct-17	506.9	511.7	510.9	502.1	511.8
14-Nov-17	506.8	511.6	511.0	502.1	511.7
11-Dec-17	507.6	511.6	512.1	502.2	511.7

Table B-1 Groundwater Elevations - Main Quarry Monitoring Wells

Well Name	MW6	BH98-8	BH98-9	BH98-12	PW99-1
Flow System	AM	AF	AF	AF	AF
Date TOP	534.9	517.3	526.4	527.2	514.0
14-Jan-18	507.7	511.8	512.2	502.4	511.9
11-Feb-18				502.2	
18-Feb-18	508.6	512.5	513.2	502.8	512.6
18-Mar-18	509.6	511.7	514.7	502.4	511.8
15-Apr-18	508.6	511.9	513.6	502.5	512.0
17-May-18	510.4	511.9	515.7	502.6	512.0
18-Jun-18	508.8	511.7	513.4	502.2	511.8
17-Jul-18	507.9	511.6	512.1	502.0	511.7
22-Aug-18	507.0	511.6	510.9	502.1	511.7
18-Sep-18	506.8	511.6	510.5	501.9	511.7
23-Oct-18	506.2	511.5	509.8	501.9	511.6
19-Nov-18	506.0	511.5	510.0	502.1	(2)
10-Dec-18		511.7		502.1	(2)
17-Jan-19	507.4	511.7	512.2	502.2	510.8
14-Feb-19	508.3	511.8	513.1	(2)	511.9
11-Mar-19	508.1	511.6	513.0	502.5	511.7
26-Apr-19	510.7	512.2	516.7	502.9	512.3
22-May-19	510.2	511.9	516.1	502.5	512.0
19-Jun-19	509.4	511.8	514.4	502.3	511.8
19-Jul-19	508.2	511.7	512.5	502.0	511.8
27-Aug-19	507.3	511.8	511.2	502.0	511.8
16-Sep-19	508.1	511.7	512.4	502.0	511.8
21-Oct-19	507.7	511.7	511.5	502.0	511.8
18-Nov-19	507.9	511.8	511.6	502.0	511.8
17-Dec-19	508.5	511.8	512.5	502.0	511.9
14-Jan-20	509.8	511.9	513.7	502.3	511.9
18-Feb-20	(2)	(2)	(2)	(2)	508.4
24-Mar-20	505.9	512.0	514.4		512.2
22-Apr-20	510.2		515.6		
27-May-20				502.3	511.9
26-Jun-20	509.4	511.9	513.8	502.2	
28-Jul-20	508.0	(5)	514.9	502.1	511.9
31-Aug-20	508.3	(5)	511.5	(5)	511.7
28-Sep-20	506.9	510.9	509.5	501.5	
27-Oct-20		(5)	(5)	501.7	511.6
24-Nov-20		512.6	510.9	501.9	511.7
21-Dec-20		512.4	512.3	502.0	511.5
29-Jan-21	(2)	512.2	513.7	502.1	511.3
19-Feb-21	(2)	(2)	(2)	503.1	(2)
31-Mar-21	(3)	512.2	(5)	503.4	512.3
29-Apr-21	508.8	511.4	(5)	500.7	512.5

Table B-1 Groundwater Elevations - Main Quarry Monitoring Wells

Well Name	MW6	BH98-8	BH98-9	BH98-12	PW99-1
Flow System	AM	AF	AF	AF	AF
Date TOP	**534.9**	**517.3**	**526.4**	**527.2**	**514.0**
28-May-21	508.8	510.9	509.8	502.1	512.3
25-Jun-21	(5)	511.2	510.8	501.4	512.1
26-Jul-21	507.6	511.7	511.6	500.9	511.8
24-Aug-21	507.1	511.6	511.0	501.9	511.8
22-Sep-21	506.8	(3)	511.7	501.2	511.6
29-Oct-21	507.0	(3)	511.7	501.7	511.4
24-Nov-21	508.9	512.1	511.3	502.2	511.3
23-Dec-21	509.5	512.3	512.4	502.3	511.3
26-Jan-22	(2)	511.2	(2)	501.2	510.2
10-Feb-22	507.9	510.7	(2)	500.3	509.4
16-Mar-22	509.0	(2)	(2)	501.3	(2)
22-Apr-22	510.2	511.0	510.0	502.5	512.3
26-May-22	509.8	511.1	510.4	502.5	512.3
20-Jun-22	510.2	511.0	510.5	(5)	512.4
31-Aug-22	506.9	511.7	511.2	501.9	511.9
28-Sep-22		511.8		502.0	512.0
29-Sep-22	506.7		510.3		
26-Oct-22			510.1		
28-Oct-22	506.4	511.7		501.8	511.8
21-Nov-22			509.8		
27-Mar-23	507.2				
30-May-23	509.4		514.3		
31-May-23		512.0		502.2	512.1
31-Oct-23		511.9			512.0
1-Nov-23	506.8		510.5	501.9	

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	BH02-1	BH02-2	BH02-3	BH02-4	BH02-5	BH02-5 (mid)	BH02-5 (shallow)	BH02-6	BH03-7-I	BH03-7-II	BH03-7-III
Flow System	AF	AF	AF	AF	AF	AM	OB	AF	AM	OB	AF
Date TOP	523.3	523.2	530.6	530.7	513.9	514.2	514.2	530.3	511.0	511.0	511.7
28-Mar-03		521.1	526.3	526.4	511.1			521.8			
2-May-03	514.5	517.8	(1)	521.9	510.6			519.5	510.3	510.1	
16-May-03	514.3	517.3	521.2	521.0	510.4			519.1	510.2	510.0	
25-Jun-03	515.0	517.1	(1)	520.4	509.1			518.6	510.0	509.9	
22-Jul-03	514.7	516.8	(1)	519.6	509.7			517.8	510.7	510.7	
20-Aug-03	513.2	516.3	(1)	518.8	509.1			517.3	509.2	509.4	
25-Sep-03	511.6	515.8	(1)	518.2	508.7			516.8	508.7	508.9	
22-Oct-03	512.8	515.5	(1)	517.9	509.2			516.9	509.2	509.6	
25-Nov-03	514.4	518.0	522.9	522.6	510.5			519.6	510.2	510.0	
22-Dec-03	514.5	518.0	522.5	522.2	510.5			519.1	510.2	510.0	
9-Feb-04	514.2	517.3	521.0	520.8	510.2			518.4	(2)	509.9	
16-Mar-04	514.8	518.2	523.1	522.9	510.7			519.8	(2)	510.1	
20-Apr-04	515.3	518.5	523.5	523.4	511.0			520.5	510.5	510.1	
18-May-04	515.8	517.6	522.0	521.7	510.5			520.7	510.2	510.0	
22-Jun-04	514.3	517.3	521.3	521.1	510.2			518.6	510.2	510.1	
28-Jul-04	513.6	516.7	(1)	519.4	509.8			517.6	509.7	509.8	
25-Aug-04	512.5	516.2	(1)	517.8	508.9			517.1	509.1	509.2	
22-Sep-04	512.5	515.8	(1)	518.2	508.8			516.6	508.8	509.0	
19-Oct-04	512.2	515.5	(1)	517.9	508.5			516.3	508.5	508.8	
16-Nov-04	512.1	515.2	(1)	517.6	508.6			516.0	508.6	509.0	
16-Dec-04	512.0	515.1	(1)	517.5	509.1			515.9	509.1	509.5	
31-Jan-05	514.4	517.5	521.7	521.4	510.4			518.5	(2)	510.0	
24-Feb-05	514.1	517.3	520.8	520.5	510.2			518.0	509.8	510.0	
22-Mar-05	(2)	517.2	520.6	520.4	510.2			(2)	509.9	510.0	
20-Apr-05	517.7	521.5	526.3	526.1	511.5			522.0	510.8	510.2	
25-May-05	514.3	517.5	521.9	521.7	510.4			519.0	510.2	510.0	
29-Jun-05	513.6	517.0	520.0	519.8	510.0			517.9	509.9	509.9	
13-Jul-05	513.3	516.8	520.3	519.4	509.6			517.5	509.5	509.6	
23-Aug-05	512.2	516.0	(1)	518.4	508.9			516.6	508.9	509.0	
26-Sep-05	511.6	515.6	(1)	517.9	508.4			516.0	508.4	508.5	
26-Oct-05	511.3	515.2	(1)	517.6	508.2			515.7	508.3	508.5	
16-Nov-05	511.2	515.0	(1)	517.4	508.3			515.6	508.4	509.3	
14-Dec-05	510.6	515.1	(1)	517.7	509.0			515.9	509.1	509.4	
20-Jan-06	510.7	517.7	521.8	523.1	510.1			517.8	510.0	509.9	
14-Feb-06	(2)	517.8	522.2	521.9	510.4			517.8	510.2	510.0	
19-Mar-06	515.4	519.4	524.3	524.3	511.0			520.4	(2)	510.1	
17-Apr-06	515.4	518.6	523.6	523.4	511.1			520.7	510.1	510.1	
19-May-06	513.4	517.3	521.5	521.3	510.4			518.8	510.2	510.0	
19-Jun-06	511.5	516.9	(1)	519.7	510.0			517.8	509.9	509.9	
10-Jul-06	510.6	516.5	(1)	519.0	509.5			517.2	509.5	509.5	

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	BH02-1	BH02-2	BH02-3	BH02-4	BH02-5	BH02-5 (mid)	BH02-5 (shallow)	BH02-6	BH03-7-I	BH03-7-II	BH03-7-III
Flow System	AF	AF	AF	AF	AF	AM	OB	AF	AM	OB	AF
Date TOP	523.3	523.2	530.6	530.7	513.9	514.2	514.2	530.3	511.0	511.0	511.7
22-Aug-06	509.8	515.7	(1)	518.1	508.7			516.1	508.7	508.7	
18-Sep-06	509.3	515.4	(1)	517.7	508.4			515.7	508.4	508.5	
17-Oct-06	508.8	515.1	(1)	517.4	508.5			515.5	508.5	509.0	
20-Nov-06	509.2	517.7	522.2	523.3	510.3			518.8	510.2	510.0	
15-Dec-06	511.7	518.7	523.4	523.7	510.7			520.3	510.4	510.1	
28-Dec-06											
5-Jan-07											
12-Jan-07											
19-Jan-07											
22-Jan-07	512.1	517.5	521.6	521.4	510.4			518.6	510.2	510.0	
26-Jan-07											
2-Feb-07											
9-Feb-07											
16-Feb-07											
19-Feb-07	(2)	516.6	520.3	520.1	510.2			517.7	510.0	510.0	
22-Feb-07											
2-Mar-07											
9-Mar-07											
16-Mar-07											
18-Mar-07	512.1	518.8	523.7	523.3	510.7			519.9	(2)	510.1	
19-Mar-07											
5-Apr-07											
13-Apr-07											
15-Apr-07	513.1	518.3	523.0	522.8	510.8			520.1	510.2	510.1	
17-Apr-07											
20-Apr-07											
27-Apr-07											
4-May-07											
11-May-07											
17-May-07	512.2	517.2	521.0	520.7	510.3			518.4	510.2	510.0	
18-May-07											
25-May-07											
1-Jun-07											
8-Jun-07											
14-Jun-07											
21-Jun-07	510.0	516.8	(1)	519.5	509.8			517.6	509.8	509.8	
29-Jun-07											
6-Jul-07											
17-Jul-07	508.8	516.3	(1)	518.7	509.3			516.8	509.2	509.3	
20-Jul-07											

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	BH02-1	BH02-2	BH02-3	BH02-4	BH02-5	BH02-5 (mid)	BH02-5 (shallow)	BH02-6	BH03-7-I	BH03-7-II	BH03-7-III
Flow System	AF	AF	AF	AF	AF	AM	OB	AF	AM	OB	AF
Date TOP	523.3	523.2	530.6	530.7	513.9	514.2	514.2	530.3	511.0	511.0	511.7
27-Jul-07											
3-Aug-07											
10-Aug-07											
17-Aug-07											
21-Aug-07	508.0	515.6	(1)	518.0	508.6			515.8	508.6	508.5	
30-Aug-07											
7-Sep-07											
12-Sep-07	507.6			517.6						508.5	
14-Sep-07											
18-Sep-07	507.5	515.2	(1)	517.5	508.3			515.6	508.3	508.4	
28-Sep-07											
14-Oct-07	507.1	514.9	(1)	517.2	508.1			515.1	508.2	508.3	
2-Nov-07											
9-Nov-07											
16-Nov-07											
18-Nov-07	506.7	514.8	(1)	517.1	508.5			514.8	508.6	508.3	
22-Nov-07											
2-Dec-07											
9-Dec-07	506.5	514.7	(1)	517.2	509.0			514.7	509.1	509.5	
13-Dec-07											
28-Dec-07											
4-Jan-08											
11-Jan-08											
18-Jan-08											
20-Jan-08	513.9	518.5	523.2	523.0	510.7			519.8	(2)	510.1	
24-Jan-08											
4-Feb-08											
8-Feb-08											
15-Feb-08											
21-Feb-08	512.6	518.3	522.2	522.0	510.5			518.7	(2)	510.1	
29-Feb-08											
7-Mar-08											
14-Mar-08											
19-Mar-08	512.5	518.0	522.0	521.9	510.3			519.8	(2)	510.0	
28-Mar-08											
4-Apr-08											
7-Apr-08	513.8	522.0	526.4	526.3	510.7			520.8	510.4	510.2	
11-Apr-08											
18-Apr-08											
20-Apr-08	515.6	519.3	524.5	524.4	511.2			522.2	510.7	510.2	

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	BH02-1	BH02-2	BH02-3	BH02-4	BH02-5	BH02-5 (mid)	BH02-5 (shallow)	BH02-6	BH03-7-I	BH03-7-II	BH03-7-III
Flow System	AF	AF	AF	AF	AF	AM	OB	AF	AM	OB	AF
Date TOP	523.3	523.2	530.6	530.7	513.9	514.2	514.2	530.3	511.0	511.0	511.7
21-Apr-08											
3-May-08											
8-May-08											
20-May-08	513.1	517.4	521.8	520.8	510.5			519.1	510.2	510.0	
25-May-08											
6-Jun-08											
13-Jun-08											
16-Jun-08	511.0	517.0	(1)	519.9	509.8			517.8	510.0	509.9	
20-Jun-08											
27-Jun-08											
4-Jul-08											
11-Jul-08											
14-Jul-08	509.2	516.8	521.5	519.6	509.6			516.9	509.8	509.8	
25-Jul-08											
1-Aug-08											
3-Aug-08											
15-Aug-08											
18-Aug-08	508.1	516.2	(1)	518.7	509.9			517.3	509.9	509.8	
4-Sep-08	507.6	516.0		518.4				516.9			
5-Sep-08											
12-Sep-08											
14-Sep-08	507.5	515.9	(1)	518.3	509.7			516.8	509.8	509.8	
15-Sep-08											
3-Oct-08											
10-Oct-08											
19-Oct-08	507.5	517.0	(1)	520.0	510.6			517.3	509.8	509.8	
20-Oct-08											
14-Nov-08											
16-Nov-08											
23-Nov-08	508.6		(1)	523.1	510.9			520.1	510.0	509.9	
30-Nov-08											
7-Dec-08											
14-Dec-08		516.3	524.5	523.4	511.3			520.5	510.3	510.3	
28-Dec-08											
4-Jan-09											
18-Jan-09	516.5	515.9	522.6	522.4	510.2			519.4	(2)	(2)	
8-Feb-09	516.4		520.8	520.7	510.5			518.1	510.2	510.2	
15-Feb-09											
1-Mar-09											
15-Mar-09	514.3	516.6	524.5	524.3	511.0			520.8	510.6	510.1	

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	BH02-1	BH02-2	BH02-3	BH02-4	BH02-5	BH02-5 (mid)	BH02-5 (shallow)	BH02-6	BH03-7-I	BH03-7-II	BH03-7-III
Flow System	AF	AF	AF	AF	AF	AM	OB	AF	AM	OB	AF
Date TOP	523.3	523.2	530.6	530.7	513.9	514.2	514.2	530.3	511.0	511.0	511.7
26-Mar-09											
29-Mar-09											
12-Apr-09	513.8	517.2	524.7	524.7	511.1			520.8	510.7	510.7	
26-Apr-09											
3-May-09											
10-May-09											
17-May-09	513.0	517.3	525.0	524.9	511.3			521.1	510.6	510.7	
24-May-09											
7-Jun-09											
14-Jun-09	510.9	517.1	520.5	520.3	510.1			518.0	510.0	510.1	
21-Jun-09											
28-Jun-09											
12-Jul-09	509.1	516.8	(1)	519.1	509.5			517.2	509.7	509.8	
19-Jul-09											
9-Aug-09	507.5	516.6	520.0	519.0	509.3			516.3	509.7	509.7	
16-Aug-09											
23-Aug-09											
13-Sep-09	506.6	515.3	(1)	517.6	508.9			515.4	508.8	509.0	
20-Sep-09											
11-Oct-09	506.4	515.0	520.2	517.4	509.1			515.6	509.2	509.5	
15-Nov-09	506.1	515.2	520.3	517.5	509.2			515.2	509.4	509.7	
29-Nov-09	506.0			518.2						509.6	
13-Dec-09	506.0	515.3	(1)	519.1	509.7			515.9	509.7	509.8	
17-Jan-10	506.0	516.6	(1)	519.3	509.8			516.4	509.8	509.8	
7-Feb-10	506.1	517.0	520.4	520.1	509.9			516.8	509.8	509.9	
14-Mar-10	509.3	519.2	521.5	520.4	510.9			520.7	510.6	510.5	
18-Apr-10	513.4	518.1	522.3	522.0	510.7			520.1	510.1	510.4	
16-May-10	511.3	517.7	521.7	521.4	510.9			519.8	510.1	510.4	
8-Jun-10	510.8			520.8					510.1	510.4	
13-Jun-10	510.6	516.9	520.3	521.0	509.6			518.9	510.0	510.3	
21-Jul-10	509.9	517.0	520.4	520.3	510.3			518.4	510.0	510.3	
16-Aug-10	509.1	516.9	520.2	520.0	509.6			517.8	510.0	510.2	
12-Sep-10	507.5		(1)	518.8	509.5			516.8	509.4	509.6	
26-Sep-10	507.0			518.5						509.7	
17-Oct-10	506.8	516.8	520.2	519.5	509.9			517.0	509.8	509.8	
14-Nov-10	506.8	516.9		519.5	510.1			518.6	509.9	509.9	
19-Dec-10	507.4	517.0	521.5	521.2	510.4			518.5	510.2	510.0	
16-Jan-11		517.3	522.2	521.0	510.6			519.3	(2)	(2)	
20-Feb-11	507.2	517.2	522.3	522.1	510.5			518.8	(2)	(2)	
13-Mar-11	506.9	517.9	522.5	522.2	510.6			519.4	510.0	510.1	

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	BH02-1	BH02-2	BH02-3	BH02-4	BH02-5	BH02-5 (mid)	BH02-5 (shallow)	BH02-6	BH03-7-I	BH03-7-II	BH03-7-III
Flow System	AF	AF	AF	AF	AF	AM	OB	AF	AM	OB	AF
Date TOP	523.3	523.2	530.6	530.7	513.9	514.2	514.2	530.3	511.0	511.0	511.7
17-Apr-11	514.3	518.2	523.4	523.2	511.1			520.7	510.6	510.1	
15-May-11	513.4	518.3	523.5	523.5	511.0			521.3	510.6	510.1	
13-Jun-11	512.5	517.0	522.1	521.9	510.5			519.5	510.6	510.0	
3-Jul-11	510.6										
17-Jul-11	509.7	516.9	(1)	520.2	509.8			517.8	509.7	509.7	
14-Aug-11	507.7		(1)	518.7	509.4			517.7	509.6	509.6	
18-Sep-11	507.3	516.7	(1)	516.1	507.3			517.5	507.5	507.5	
17-Oct-11	507.1	515.9	(1)	516.0	507.1			515.0	507.7	507.7	
20-Nov-11	505.9	515.8	(1)	518.6	509.7			516.0	509.7	509.8	
18-Dec-11	505.9	516.0	522.1	521.8	509.8			515.6	510.3	510.0	
15-Jan-12	506.2	516.0	521.7	520.9	510.8			518.4	510.2	510.0	
19-Feb-12	505.2	516.0	521.4	521.2	510.3			518.4	510.2	510.0	
26-Feb-12	509.7			520.5						510.0	
18-Mar-12	511.8	519.9	525.1	524.7	511.3			521.4	510.8	510.2	
15-Apr-12	512.7	518.0	521.4	521.3	510.3			518.7	510.0	510.1	
13-May-12	510.0	517.5	520.4	520.1	510.2			518.3	510.0	510.1	
17-Jun-12	508.1	517.3	(1)	519.0	509.1			517.3	509.8	509.8	
1-Jul-12	507.2			515.8						509.5	
15-Jul-12	506.7	516.5	(1)	518.1	509.3			516.4	509.4	509.4	
12-Aug-12	507.8	517.5	(1)	518.1	509.8			516.3	509.9	509.9	
16-Sep-12	505.8	515.8	(1)	518.4	509.3			516.2	509.3	509.5	
9-Oct-12	505.7			518.3						509.4	
14-Oct-12	506.3	515.7	(1)	518.2	509.3			516.1	509.5	509.4	
18-Nov-12	509.4	516.3	522.9	523.1	510.8			520.4	510.0	510.6	
16-Dec-12	510.2	517.7	523.8	523.9	511.0			519.2	510.2	510.7	
13-Jan-13	511.2	519.7	524.5	524.0	511.3			520.9	510.6	510.1	
17-Feb-13	510.7	518.9	524.6	524.1	511.1			521.6	510.6	510.1	
17-Mar-13	510.8	518.9	524.6	524.0	511.0			521.6	510.6	510.0	
31-Mar-13	510.8			521.5						510.1	
14-Apr-13	513.2	519.3	524.8	522.1	511.2			521.3	510.7	510.1	
12-May-13	513.5	517.6	522.2	522.1	511.0			519.5	510.0	510.3	
2-Jun-13	511.4			521.7						510.1	
16-Jun-13	510.8	517.4	525.6	521.2	510.7			518.8	510.0	510.0	
14-Jul-13	509.1	516.9	522.3	520.4	510.6			518.2	509.8	508.9	
18-Aug-13	507.4	516.8	522.2	520.4	510.5			517.2	509.8	509.8	
15-Sep-13	506.7	516.7	522.1	518.2	510.4			516.4	509.7	509.8	
13-Oct-13	506.9	516.5	520.2	520.6	510.2			518.1	510.1	510.0	
17-Nov-13	507.3	518.0	520.3	520.9	510.2			518.3	510.3	510.2	
15-Dec-13	507.1	517.8	520.3	520.8	510.2			518.3	510.4	510.3	
19-Jan-14	507.2	517.8	520.2	520.8	510.2			518.4	(2)	(2)	

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	BH02-1	BH02-2	BH02-3	BH02-4	BH02-5	BH02-5 (mid)	BH02-5 (shallow)	BH02-6	BH03-7-I	BH03-7-II	BH03-7-III
Flow System	AF	AF	AF	AF	AF	AM	OB	AF	AM	OB	AF
Date TOP	523.3	523.2	530.6	530.7	513.9	514.2	514.2	530.3	511.0	511.0	511.7
16-Feb-14	507.4	517.9	520.3	522.1	510.3			518.5	(2)	(2)	
17-Mar-14	507.4	517.9	520.4	522.0	510.4			518.5	(2)	(2)	
13-Apr-14	515.9	522.2	527.4	526.7	512.0			522.6	510.6	510.6	
11-May-14	513.2	516.9	522.6	521.9	510.4			519.7	510.3	510.3	
15-Jun-14	509.8	516.8	(1)	520.0	509.8			517.6	509.9	510.0	
13-Jul-14	510.0	516.7	520.1	519.9	509.7			517.0	510.0	510.0	
17-Aug-14	506.1	516.2	(1)	517.5	509.6			515.5	509.5	509.7	
7-Sep-14	505.5	515.0	(1)	517.2	509.5			515.2	509.5	509.6	
12-Sep-14	505.5			517.2						509.7	
19-Sep-14											
19-Oct-14	505.3	515.3	(1)	518.0	509.5			514.8	510.2	510.2	
2-Nov-14	505.5										
16-Nov-14	506.3	516.5	521.7	520.9	510.5			518.1	510.0	510.3	
14-Dec-14	506.4	516.5	521.8	521.0	510.6			518.1	510.3	510.4	
18-Jan-15	508.7	516.7	521.3	521.1	510.4			517.8	(2)	(2)	
15-Feb-15											
15-Mar-15	507.0	516.2	(1)	518.5	510.0	510.2	510.1	516.0	510.0	509.8	
19-Apr-15	513.8	518.4	522.2	521.8	511.0	511.1		520.2	510.1	510.6	511.0
17-May-15	510.2	517.0	(1)	520.0	510.3	510.4	510.3	517.7	510.0	510.1	510.6
14-Jun-15	508.1	517.1	(1)	519.0	510.2	510.3		516.5	510.0	510.1	
19-Jul-15	507.3	517.1	520.4	520.2	510.8	510.4		517.4	510.0	510.1	
9-Aug-15	506.4	516.9	(1)	519.0	509.9	510.0		516.2	509.8	509.9	
6-Sep-15	505.7	515.8	(1)	518.0	509.5	509.6	509.5	515.2	509.5	509.5	509.9
11-Oct-15	505.1	514.8	(1)	517.1	509.0	509.2	509.1	512.8	509.1	509.0	509.5
15-Nov-15	504.9	514.6	(1)	516.9	509.5	509.7	509.5	511.3	509.7	509.6	510.0
9-Dec-15	504.7	515.8	(1)	517.7	509.8	510.0	509.9	510.5	509.8	509.8	510.2
17-Jan-16	505.4	517.2	520.5	520.1	510.3	510.4	510.4	509.6	510.1	510.0	510.6
14-Feb-16	507.6	517.5	520.9	520.6	510.4	510.6	510.5	509.7	510.2	510.1	510.6
13-Mar-16	514.8	520.2	523.4	523.3	511.5	511.6	511.7	516.0	510.9	510.2	511.4
17-Apr-16	514.0	518.6	523.1	523.0	511.0	511.2	511.2	514.5	510.6	510.3	510.8
1-May-16											
15-May-16	511.5	517.1	520.5	520.3	510.2	510.8	510.6	512.6	510.2	510.1	510.7
5-Jun-16											
19-Jun-16	508.8	516.7	(1)	518.3	509.9	510.1	510.0	511.0	509.9	509.9	510.3
3-Jul-16											
17-Jul-16	506.7	515.3	(1)	516.8	509.4	509.6	509.5	509.8	509.4	509.4	509.8
24-Jul-16	506.3			516.6						509.2	
7-Aug-16											
21-Aug-16	505.2	514.5	(1)	516.0	508.9	509.1	509.0	509.2	508.9	509.1	509.4
18-Sep-16	504.7	514.2	(1)	515.5	508.6	508.8	508.7	508.9	508.6	508.8	509.1

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	BH02-1	BH02-2	BH02-3	BH02-4	BH02-5	BH02-5 (mid)	BH02-5 (shallow)	BH02-6	BH03-7-I	BH03-7-II	BH03-7-III
Flow System	AF	AF	AF	AF	AF	AM	OB	AF	AM	OB	AF
Date TOP	523.3	523.2	530.6	530.7	513.9	514.2	514.2	530.3	511.0	511.0	511.7
29-Sep-16	504.6			515.3						508.7	
16-Oct-16	504.4	513.8	(1)	514.9	508.4	508.5	508.5	508.6	508.4	508.5	508.9
13-Nov-16	504.2	513.5	(1)	514.4	508.4	508.6	508.5	508.3	508.4	508.8	508.9
27-Nov-16	504.1			514.2						509.3	
11-Dec-16	504.0	513.3	(1)	514.1	508.8	508.9	508.8	508.1	508.8	509.3	509.3
15-Jan-17	504.0	517.2	(1)	518.9	510.4	510.5	510.4	510.1	510.2	510.0	510.6
12-Feb-17	505.2	517.1	(1)	517.4	510.3	510.5	510.4	509.8	510.2	510.0	510.6
19-Mar-17	511.9	517.5	(1)	519.6	510.6	510.8	510.8	510.3	510.1	510.1	510.8
9-Apr-17	512.7			523.4						510.2	
16-Apr-17	512.8	518.3	521.2	521.0	511.0	511.1	511.2	511.8	510.5	510.1	510.9
11-May-17	513.3	517.8	521.4	521.2	510.7	511.0	511.1	513.6	510.4	510.1	510.9
21-May-17	513.0			520.7						510.1	
13-Jun-17	511.1	518.6									
25-Jun-17	510.5	517.4	(1)	518.8	510.7	510.9	510.9	513.2	510.4	510.1	510.8
19-Jul-17	510.5	517.4	(1)	518.8	510.7	510.5	510.4	513.2	510.4	510.1	510.6
3-Aug-17	509.0			516.3						510.3	
17-Aug-17	508.0	514.9	(1)	515.4	509.9	510.0	510.0	511.3	509.9	509.9	510.3
29-Aug-17	507.2			514.5						509.8	
17-Sep-17	506.3	513.5	(1)	513.6	509.6	509.8	509.7	510.1	509.6	509.7	510.0
26-Sep-17										509.6	
15-Oct-17	505.3	513.2	(1)	512.8	509.9	510.0	509.9	509.1	509.9	509.9	510.3
14-Nov-17	505.2	514.8	(1)	512.9	510.2	510.3	510.2	513.2	510.1	510.0	510.5
11-Dec-17	507.6	515.9	(1)	513.5	510.3	510.4	510.4	509.8	510.1	510.0	510.6
14-Jan-18	509.1	518.1	(1)	514.2	510.8	511.0	510.9	510.4	(2)	(2)	(2)
11-Feb-18	509.8			514.1						(2)	
18-Feb-18	510.2	519.4	520.3	516.5	510.7	510.9	510.8	(5)	510.6	510.2	511.0
18-Mar-18	511.4	516.9		514.5	510.5	510.6	510.6	512.2			510.7
15-Apr-18											
18-Apr-18	511.0	517.2		514.1	510.7	510.8	510.8	517.2			
17-May-18	512.5	517.0	520.4	515.4	510.7	511.0	510.8	513.0	510.4	510.1	510.8
18-Jun-18	509.6	514.3	520.3	512.6	510.0	510.2	510.1	511.8	509.9	509.9	510.4
17-Jul-18	507.3	513.0	520.2	511.7	509.5	509.6	509.5	511.0	509.3	509.4	509.8
22-Aug-18	505.9	512.2	520.3	511.6	508.9	509.0	509.0	509.4	509.0	509.5	509.4
18-Sep-18	504.7	511.8	520.3	510.2	508.6	508.8	508.7	508.9	508.8	508.8	509.1
23-Oct-18	504.1	511.2	520.3	509.6	508.6	508.7	508.8	508.1	508.6	508.9	509.0
19-Nov-18	504.0	512.7	520.3	509.6	509.7	509.8	509.7	507.9	509.7	509.8	510.1
10-Dec-18	504.6	516.3		510.9	510.2	510.4	510.2		510.0	510.0	510.5
17-Jan-19	507.8	516.9		512.0	510.4	510.6	510.6	509.4	510.2	510.0	510.6
14-Feb-19	509.6	516.8	(2)	511.8	(2)	510.5	510.5	512.4	(2)	(2)	510.6
11-Mar-19	511.1	517.9		(5)	510.6	511.2	511.0	510.8	(2)	510.1	510.6

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	BH02-1	BH02-2	BH02-3	BH02-4	BH02-5	BH02-5 (mid)	BH02-5 (shallow)	BH02-6	BH03-7-I	BH03-7-II	BH03-7-III
Flow System	AF	AF	AF	AF	AF	AM	OB	AF	AM	OB	AF
Date TOP	523.3	523.2	530.6	530.7	513.9	514.2	514.2	530.3	511.0	511.0	511.7
26-Apr-19	514.3	519.3		514.8	511.1	511.5	511.2	513.7	510.4	510.1	511.1
22-May-19	512.2	517.0		514.0	510.5	510.8	510.8	514.0	510.4	510.1	510.8
19-Jun-19	509.6	515.3			510.1	510.4	510.4	513.4	510.1	510.0	510.5
19-Jul-19	507.8	512.7			509.7	509.8	509.7	511.9	509.6	509.6	510.0
27-Aug-19	505.7	511.0			509.3	509.1	509.0	512.0	508.9	509.0	509.5
16-Sep-19	505.8	511.0			509.2	509.1	509.0	511.9	508.6	508.5	509.2
21-Oct-19	503.9	510.1			508.3	508.3	508.3	511.9	508.4	508.4	509.1
18-Nov-19	504.0	510.1			508.3	508.4	508.3	512.0	508.4	508.4	509.1
17-Dec-19	504.3	510.2			508.4	508.8	508.7	511.9	509.8	509.8	510.3
14-Jan-20	507.1	517.1			510.7	510.9	510.7	512.8	(5)	509.6	(5)
18-Feb-20	(2)	(2)			(2)	(2)	(2)	(2)	(2)	510.0	(2)
24-Mar-20	512.3	517.5			511.1	511.2	511.3	511.1			
22-Apr-20	512.1	516.8			510.7	511.0	511.0	512.8	510.3	510.1	510.8
27-May-20	508.6	515.3			510.3	510.4	510.3		510.2	510.0	510.1
26-Jun-20	508.6	516.7			510.2	510.5	510.4	512.3	509.8	510.2	510.6
28-Jul-20					510.2	510.3	510.6	511.1	509.9	509.9	510.4
31-Aug-20		512.0			509.8	510.0	510.0	510.5	509.2	509.2	509.8
28-Sep-20					510.1	510.1	510.4	509.1	509.5	509.3	510.2
27-Oct-20		511.1			509.6	510.0	510.1	509.1	509.7	509.7	510.1
24-Nov-20		510.8			510.0	509.4	510.1	509.1	509.9	509.9	510.4
21-Dec-20		514.8			510.2	511.0	510.2	510.9	509.6	509.6	510.2
29-Jan-21		517.1			510.7	510.9	510.7	512.8	(5)	509.6	(5)
19-Feb-21		516.9			510.8	510.9	510.9	510.4	(2)	(2)	(2)
31-Mar-21		516.8			510.8	511.0	511.0	513.3		509.8	
29-Apr-21		516.9			510.8	510.8	511.0	512.5	510.3	510.0	510.7
28-May-21		511.3			510.1	510.3	510.2	512.5	510.2	509.9	510.6
25-Jun-21		510.0			510.7	510.0	509.7	511.6	509.7	509.8	510.3
26-Jul-21		507.4			509.5	509.6	509.5	510.3	509.5	509.6	510.0
24-Aug-21		507.1			509.6	509.5	509.4	509.4	509.1	509.3	(5)
22-Sep-21		506.9			509.2	509.4	509.4	511.0	509.6	509.5	509.9
29-Oct-21		511.1			509.9	510.0	509.9	509.1	509.7	509.7	510.1
24-Nov-21		513.9			510.5	510.7	510.6	510.5	510.3	510.1	510.7
23-Dec-21		514.2			510.6	510.8	510.5	510.6	510.3	510.0	510.7
26-Jan-22		513.4			510.0	510.3	510.1	509.4	510.0	509.0	509.6
10-Feb-22		512.8			509.6	509.8	509.6	508.4	509.1	508.5	509.0
16-Mar-22		(2)			(2)	(2)	(2)	(2)	(2)	(2)	(2)
22-Apr-22		510.7			510.6	510.7	510.6	514.3	510.2	510.1	510.6
26-May-22		510.1			510.4	510.3	510.5	513.2	510.2	510.0	510.6
20-Jun-22											
22-Jun-22		510.2			510.5	(5)	510.6	513.3	510.3	510.0	510.7

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	BH02-1	BH02-2	BH02-3	BH02-4	BH02-5	BH02-5 (mid)	BH02-5 (shallow)	BH02-6	BH03-7-I	BH03-7-II	BH03-7-III
Flow System	AF	AF	AF	AF	AF	AM	OB	AF	AM	OB	AF
Date TOP	523.3	523.2	530.6	530.7	513.9	514.2	514.2	530.3	511.0	511.0	511.7
30-Aug-22		506.8			509.4	509.5	(5)	511.3			
31-Aug-22									509.8	509.6	510.1
27-Sep-22											
28-Sep-22		508.6			508.6	508.7	508.7	509.0			
29-Sep-22									508.8	509.5	509.2
26-Oct-22									508.6	509.0	509.0
28-Oct-22		505.5			508.5	508.6	508.5	508.5			
23-Nov-22									508.5		508.9
29-May-23									510.4	510.0	510.6
30-May-23		510.6			510.2	510.3	510.3	512.7			
12-Jul-23									509.9		
30-Oct-23											
31-Oct-23									509.4	509.7	509.8
1-Nov-23		510.4			509.3	509.4	509.4	509.3			

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	BH03-8	BH03-9	TW04-1	TW04-2	TW04-3	BH08-1	BH08-2	BH08-3	NW1	NW2	NW3
Flow System	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF
Date TOP	520.8	518.9	517.5	518.1	518.6	512.3	512.0	513.4	526.2	532.0	515.1
28-Mar-03											
2-May-03	514.9	515.9									
16-May-03	514.6	515.8									
25-Jun-03	514.4	515.8									
22-Jul-03		515.8									
20-Aug-03	513.9	515.8									
25-Sep-03	513.6	515.7									
22-Oct-03	513.7	515.8									
25-Nov-03	514.4	515.9									
22-Dec-03	514.8	515.8									
9-Feb-04	514.7	515.8									
16-Mar-04	515.2	515.9									
20-Apr-04	515.9	515.9									
18-May-04	515.1	515.8									
22-Jun-04	514.7	515.8									
28-Jul-04	514.2	515.7									
25-Aug-04	513.9	515.7									
22-Sep-04	513.7	515.7									
19-Oct-04	513.5	515.7									
16-Nov-04	(2)	(2)	515.7	515.7	515.7						
16-Dec-04	513.3	(2)	516.0	515.9	515.8						
31-Jan-05	514.6	(2)	515.9	515.9	515.8						
24-Feb-05	514.7	(2)	515.9	515.9	515.8						
22-Mar-05	514.5	(2)	516.9	516.7	516.2						
20-Apr-05	(2)	(2)	516.1	515.9	515.8						
25-May-05	515.0	515.8	515.9	515.8	515.8						
29-Jun-05	514.3	515.8	515.8	515.8	515.8						
13-Jul-05	514.2	515.7	515.8	515.7	516.7						
23-Aug-05	513.8	515.7	515.7	515.7	515.7						
26-Sep-05	513.6	515.7	515.7	515.7	515.7						
26-Oct-05	513.4	515.7	515.8	515.8	515.7						
16-Nov-05	513.3	515.7	515.7	515.8	515.7						
14-Dec-05	513.3	515.7	516.1	516.0	515.9						
20-Jan-06	514.1	515.8	516.1	515.9	515.8						
14-Feb-06	514.6	(2)	(2)	(2)	(2)						
19-Mar-06	515.5	(2)	516.5	516.2	516.0						
17-Apr-06	516.0	516.0	516.0	515.8	515.8						
19-May-06	514.9	515.8	515.8	515.8	515.8						
19-Jun-06	514.4	515.8	515.8	515.8	515.7						
10-Jul-06	514.1	515.7	515.7	515.7	515.7						

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	BH03-8	BH03-9	TW04-1	TW04-2	TW04-3	BH08-1	BH08-2	BH08-3	NW1	NW2	NW3
Flow System	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF
Date TOP	520.8	518.9	517.5	518.1	518.6	512.3	512.0	513.4	526.2	532.0	515.1
22-Aug-06	513.7	515.7	515.7	515.7	515.7						
18-Sep-06	513.6	515.7	515.7	515.7	515.7						
17-Oct-06	513.5	515.7	516.1	516.0	515.9						
20-Nov-06	514.2	515.9	516.3	516.1	516.0						
15-Dec-06	514.9	515.9	516.1	515.9	515.8						
28-Dec-06		515.8	516.1	515.9	515.8						
5-Jan-07		515.8	516.1	515.9	515.8						
12-Jan-07		515.8	516.1	515.9	515.8						
19-Jan-07		515.8	516.0	515.9	515.8						
22-Jan-07	514.9	515.8	516.0	515.8	515.8						
26-Jan-07		515.3	516.0	515.8	515.8						
2-Feb-07		515.8	515.9	515.8	515.7						
9-Feb-07		515.7	515.9	515.8	515.7						
16-Feb-07		515.7	515.9	515.8	515.8						
19-Feb-07	514.5	515.8	515.9	515.8	515.7						
22-Feb-07		515.7		515.8	515.7						
2-Mar-07		515.7		515.8	515.7						
9-Mar-07		515.7		515.8	515.7						
16-Mar-07		516.0	516.3	516.1	516.0						
18-Mar-07	515.1										
19-Mar-07		515.9	516.3	515.9	515.9						
5-Apr-07		516.0	516.7	516.3	516.1						
13-Apr-07		515.9	516.3	516.0	515.9						
15-Apr-07	515.6										
17-Apr-07		515.9	516.3	516.0	515.9						
20-Apr-07		515.0	516.2	515.9	515.8						
27-Apr-07		515.8	516.2	515.9	515.8						
4-May-07		515.8	516.0	515.8	515.8						
11-May-07		515.8	516.0	515.8	515.8						
17-May-07	514.7										
18-May-07		515.8	516.0	515.8	515.8						
25-May-07		515.8	515.9	515.8	515.8						
1-Jun-07		515.7	515.9	515.8	515.8						
8-Jun-07		515.8	515.9	515.8	515.8						
14-Jun-07		515.7	515.9	515.8	515.7						
21-Jun-07	514.3	515.7	515.8	515.8	515.7						
29-Jun-07		515.7	515.8	515.7	515.7						
6-Jul-07		515.7	515.8	515.7	515.7						
17-Jul-07	514.0	515.7	515.8	515.7	515.7						
20-Jul-07		515.7	515.8	515.7	515.7						

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	BH03-8	BH03-9	TW04-1	TW04-2	TW04-3	BH08-1	BH08-2	BH08-3	NW1	NW2	NW3
Flow System	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF
Date TOP	520.8	518.9	517.5	518.1	518.6	512.3	512.0	513.4	526.2	532.0	515.1
27-Jul-07		515.7	515.7	515.7	515.7						
3-Aug-07		515.7	515.7	515.7	515.7						
10-Aug-07		515.7	515.7	515.7	515.7						
17-Aug-07		515.7	515.7	515.7	515.7						
21-Aug-07	513.7	515.7	515.7	515.7	515.7						
30-Aug-07		515.7	515.7	515.7	515.7						
7-Sep-07		515.7	515.7	515.7	515.7						
12-Sep-07	513.6										
14-Sep-07		515.7	515.7	515.7	515.7						
18-Sep-07	513.5	515.7	515.6	515.7	515.7						
28-Sep-07		515.7	515.7	515.7	515.7						
14-Oct-07	513.3										
2-Nov-07		515.6	515.6	515.6	515.6						
9-Nov-07		515.7	515.6	515.7	515.7						
16-Nov-07		515.7	515.6	515.7	515.7						
18-Nov-07	513.2										
22-Nov-07		515.7	515.7	515.7	515.7						
2-Dec-07		515.7	515.7	515.7	515.7						
9-Dec-07	513.4										
13-Dec-07		515.7	515.7	515.7	516.3						
28-Dec-07		515.7	515.9	515.8	515.8						
4-Jan-08		515.7	515.8	515.8	515.7						
11-Jan-08		516.4	517.0	516.8	516.4						
18-Jan-08		516.0	516.5	516.2	516.0						
20-Jan-08	514.9										
24-Jan-08		515.7	516.3	516.8	515.4						
4-Feb-08		515.8	516.1	515.9	515.8						
8-Feb-08		516.1	516.1	515.9	515.5						
15-Feb-08		515.8	516.0	515.8	515.8						
21-Feb-08	514.9	515.5	516.1	515.8	515.8						
29-Feb-08		515.8	516.1	515.9	515.8						
7-Mar-08		515.8	516.2	515.9	515.8						
14-Mar-08		515.9	516.2	516.0	515.9						
19-Mar-08	515.0	515.8	516.0	515.7	515.8						
28-Mar-08			516.0	515.8	515.8						
4-Apr-08		516.2	516.8	516.6	516.3						
7-Apr-08	515.7										
11-Apr-08		516.3	517.0	516.7	516.4						
18-Apr-08		516.1	516.8	516.4	516.2						
20-Apr-08	516.1										

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	BH03-8	BH03-9	TW04-1	TW04-2	TW04-3	BH08-1	BH08-2	BH08-3	NW1	NW2	NW3
Flow System	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF
Date TOP	520.8	518.9	517.5	518.1	518.6	512.3	512.0	513.4	526.2	532.0	515.1
21-Apr-08		516.0	516.6	516.2	516.1						
3-May-08		515.8	516.2	515.9	515.8						
8-May-08		515.8	516.2	515.9	515.9						
20-May-08	515.1	515.8	516.1	515.9	515.8						
25-May-08		515.8	516.0	515.8	515.8						
6-Jun-08		515.8	515.9	515.8	515.8						
13-Jun-08		515.8	515.9	515.8	515.8						
16-Jun-08	514.5	515.9	515.9	515.7	515.7						
20-Jun-08		515.7	515.9	515.8	515.7						
27-Jun-08		515.7	515.8	515.8	515.7						
4-Jul-08		515.7	515.8	515.8	515.7						
11-Jul-08		515.7	515.8	515.8	515.7						
14-Jul-08	514.2	515.7	515.8	515.8	515.7						
25-Jul-08		515.7	515.8	515.7	515.7						
1-Aug-08		515.9	515.8	515.8	515.7						
3-Aug-08		515.8	515.9	515.8	515.8						
15-Aug-08		515.7	515.9	515.8	515.7						
18-Aug-08	514.3	515.7	515.9	515.8	515.7						
4-Sep-08	514.2										
5-Sep-08		515.7	515.8	515.8	515.7						
12-Sep-08		515.7	515.8	515.8	515.7						
14-Sep-08	514.1										
15-Sep-08		515.7	515.8	515.8	515.7						
3-Oct-08		515.8	515.9	515.9	515.8						
10-Oct-08		515.8	515.9	515.8	515.8						
19-Oct-08	514.4										
20-Oct-08		515.8	515.9	515.8	515.8						
14-Nov-08		515.9	516.9	516.0	515.9						
16-Nov-08		515.9	516.1	516.0	515.9						
23-Nov-08	515.3	515.8	515.9	515.8	515.8						
30-Nov-08		515.8	516.1	516.0	(2)						
7-Dec-08		515.5	516.1	515.9	515.8						
14-Dec-08	514.1		(2)	515.8	(2)						
28-Dec-08											
4-Jan-09		515.9	516.4	516.1	516.3						
18-Jan-09	(2)	515.3	516.1	515.9	515.9	508.9	508.9	509.4			
8-Feb-09	514.6	515.9	516.0	515.8	515.7	508.1	508.0	508.5			
15-Feb-09		515.9	516.4	516.1	515.9						
1-Mar-09		515.9	516.2	516.0	515.9						
15-Mar-09	515.9	516.0	516.5	516.1	515.9	509.2	509.3	509.8			

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	BH03-8	BH03-9	TW04-1	TW04-2	TW04-3	BH08-1	BH08-2	BH08-3	NW1	NW2	NW3
Flow System	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF
Date TOP	520.8	518.9	517.5	518.1	518.6	512.3	512.0	513.4	526.2	532.0	515.1
26-Mar-09		516.0	516.5	516.1	516.0						
29-Mar-09		515.9	516.3	516.0	515.9						
12-Apr-09	515.7					510.4	510.4	510.6			
26-Apr-09		515.9	516.4	516.1	516.0						
3-May-09		515.9	516.4	515.9	515.9						
10-May-09		515.8	516.2	515.9	515.8						
17-May-09	515.2	515.8	516.1	515.9	515.8	509.7	509.6	510.0			
24-May-09		515.8	516.1	515.8	515.8						
7-Jun-09		515.7	515.9	515.8	515.8						
14-Jun-09	514.4	515.7	515.9	515.8	515.8	508.4	508.4	508.6			
21-Jun-09		515.7	515.9	515.8	515.7						
28-Jun-09		515.7	515.9	515.8	515.7						
12-Jul-09	514.2	515.7	515.8	515.8	515.7	507.3	507.1	507.3			
19-Jul-09		515.7	515.8	515.8	515.7						
9-Aug-09	513.9	515.7	515.6	515.8	515.7	506.4	506.2	506.6			
16-Aug-09		515.7	515.8	515.8	515.7						
23-Aug-09		515.7	515.7	515.7	515.7						
13-Sep-09	513.7	515.7	515.7	515.7	515.7	505.9	505.6	506.0			
20-Sep-09		515.8	515.8	515.7	515.7						
11-Oct-09	513.5	515.7	515.8	515.8	515.7	506.4	506.0	506.6			
15-Nov-09	513.5	515.7	515.7	515.7	515.7	507.1	506.8	507.2			
29-Nov-09	514.0										
13-Dec-09	513.8	515.9	516.0	515.7	515.8	507.6	507.5	507.7			
17-Jan-10	514.1	515.7	515.8	515.6	515.8	507.8	507.6	507.7			
7-Feb-10	514.3	515.8	515.9	515.8	515.7	507.7	507.6	507.8			
14-Mar-10	514.8	516.2	516.5	516.3	516.1	509.6	509.5	509.4			
18-Apr-10	515.6	515.9	516.2	515.9	516.0	510.1	510.0	510.3			
16-May-10	515.2	515.9	516.1	515.9	516.1						
8-Jun-10	515.0					509.0					
13-Jun-10	515.3	515.8	516.1	515.9	515.6	508.8	508.7	508.9			
21-Jul-10	514.6	515.8	516.0	515.8	515.2	508.3	508.1	508.4			
16-Aug-10	514.3	515.8	515.9	515.8	515.7	507.4	507.3	507.5			
12-Sep-10	514.1	515.7	515.8	515.8	515.7	506.5	506.3	506.6			
26-Sep-10	513.9					506.4					
17-Oct-10	514.0	515.8	515.9	515.7	515.7	507.0	506.7	507.3			
14-Nov-10	514.6	515.8	515.9	515.8	515.8	508.4	508.3	508.5			
19-Dec-10	514.9	515.9	516.0	515.9	515.9	508.8	508.7	508.9			
16-Jan-11	515.4	516.1	516.1	515.9	516.0	509.3	509.2	509.4			
20-Feb-11	515.1	516.0	516.1	515.9	516.0	508.8	508.8	508.9			
13-Mar-11	515.3	516.1	516.2	516.0	516.0	509.1	509.1	509.2			

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	BH03-8	BH03-9	TW04-1	TW04-2	TW04-3	BH08-1	BH08-2	BH08-3	NW1	NW2	NW3
Flow System	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF
Date TOP	520.8	518.9	517.5	518.1	518.6	512.3	512.0	513.4	526.2	532.0	515.1
17-Apr-11	515.9	515.9	516.5	516.1	516.0	510.7	510.7	511.0			
15-May-11	515.8	516.0	516.6	516.1	516.1	510.4	510.3	510.5			
13-Jun-11	515.0					509.5	509.4	509.7			
3-Jul-11	514.5					508.1					
17-Jul-11	514.4	515.7	515.8	515.7	515.7	507.5	507.4	507.6			
14-Aug-11	514.1		515.8	515.7	515.7	506.5	506.3	506.6			
18-Sep-11	513.8	515.6	515.9	515.8	515.7	505.8	505.5	506.9			
17-Oct-11	513.6	515.6	515.7	515.5	515.6	506.2	505.8	506.8			
20-Nov-11	513.8	515.7	515.8	515.7	515.7	507.3	507.1	507.4			
18-Dec-11	514.8	515.7	515.8	515.8	515.7	509.1	509.0	509.2			
15-Jan-12	514.9	515.8	515.9	515.8	515.8	508.6	508.6	508.9			
19-Feb-12	514.6	515.8	516.0	515.8	515.7	508.3	508.2	508.4			
26-Feb-12	514.6					508.2					
18-Mar-12	515.8	516.0	516.7	517.3	516.0	510.8	510.6	511.1			
15-Apr-12	514.9	516.1	516.0	515.8	515.7	509.4	509.4	509.6			
13-May-12	514.7	515.6	515.9	515.8	515.8	508.5	508.4	508.6			
17-Jun-12	514.3	515.6	515.8	515.7	515.6	507.3	507.2	507.4			
1-Jul-12	514.1					506.6					
15-Jul-12	514.0	515.5	515.8	515.7	515.5	506.3	506.1	506.4			
12-Aug-12	513.9	515.9	515.9	515.7	515.4	507.1	507.2	507.2			
16-Sep-12	514.1	515.7	515.8	515.7	515.7	506.4	506.8	506.5			
9-Oct-12	514.1					506.4					
14-Oct-12	514.1	515.6	516.0	515.8	515.8	506.7	506.5	506.9			
18-Nov-12	515.1	515.8	516.4	516.2	515.8	509.4	509.3	509.5			
16-Dec-12	515.0	515.8	516.0	516.3	515.8	509.0	508.9	509.1			
13-Jan-13	515.1	516.2	516.4	516.2	516.2	509.6	509.6	509.5			
17-Feb-13	515.3	516.3	516.5	516.3	516.3	509.4	509.3	509.6			
17-Mar-13	515.3	516.2	516.5	516.3	516.2	509.3	509.3	509.4			
31-Mar-13	515.0					509.0					
14-Apr-13	515.9	516.0	516.6	516.2	516.0	510.2	510.1	510.4			
12-May-13	515.4	516.3	516.5	516.1	516.0	509.7	509.6	509.9			
2-Jun-13	514.8					509.1					
16-Jun-13	514.8	516.0	516.0	515.8	515.7	508.8	508.7	508.9			
14-Jul-13	514.4	515.7	516.0	515.8	515.7	508.0	508.0	508.1			
18-Aug-13	514.2	515.6	515.9	515.7	515.6	507.1	507.0	507.2			
15-Sep-13	513.9	515.4	515.8	515.8	515.3	506.5	506.3	506.6			
13-Oct-13	514.6	515.4	515.8	515.8	515.3	508.1	508.0	508.2			
17-Nov-13	515.3	515.7	516.0	515.9	515.4	509.1	509.0	509.2			
15-Dec-13	515.1	515.5	515.9	515.8	515.4	509.0	508.9	509.1			
19-Jan-14	514.8	515.5	516.0	515.8	515.3	508.4	508.3	508.5			

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	BH03-8	BH03-9	TW04-1	TW04-2	TW04-3	BH08-1	BH08-2	BH08-3	NW1	NW2	NW3
Flow System	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF
Date TOP	520.8	518.9	517.5	518.1	518.6	512.3	512.0	513.4	526.2	532.0	515.1
16-Feb-14	514.5	515.6	516.0	515.8	515.4	507.7	507.5	507.8			
17-Mar-14	514.3	515.6	515.0	515.7	515.4	507.4	507.2	507.5			
13-Apr-14	516.0	(5)	516.2	517.7	516.5	511.3	511.2	511.7			
11-May-14	515.8	515.5	516.1	515.7	515.3	510.1	510.0	510.4			
15-Jun-14	514.6	515.6	515.5	515.7	515.6	508.1	508.0	508.2			
13-Jul-14	514.3	515.7	515.8	515.7	515.4	507.2	507.0	507.3			
17-Aug-14	514.0	515.7	515.7	515.7	515.6	506.6	506.3	506.7			
7-Sep-14	513.8	515.7	515.5	515.7	515.6	506.3	506.0	506.4			
12-Sep-14	514.0					506.7					
19-Sep-14	514.1										
19-Oct-14	514.4	515.8	515.7	515.7	515.6	507.4	507.3	507.5			
2-Nov-14											
16-Nov-14	515.1	515.8	516.0	515.9	515.5	508.8	508.8	508.9			
14-Dec-14	514.9	515.8	515.9	515.8	515.7	509.0	508.9	509.1			
18-Jan-15	(2)	515.9	515.9	515.8	515.7	(2)	(2)	(2)			
15-Feb-15											
15-Mar-15	514.4	515.8	515.8	515.8	515.7	507.5	507.2	507.6			
19-Apr-15	515.8	515.8	516.2	515.9	515.8	510.2	510.2	510.5			512.1
17-May-15	514.8	515.7	515.9	515.8	515.7	508.8	508.7	509.0			511.9
14-Jun-15		515.7	515.8	515.8	515.7	507.9	507.7	508.0			
19-Jul-15		515.7	515.8	515.8	515.7	507.8	507.7	507.9			
9-Aug-15		515.7	515.8	515.7	515.7	506.9	506.7	507.0			
6-Sep-15		515.6	515.7	515.7	515.7	506.2	506.0	506.3	513.3	505.0	510.0
11-Oct-15	513.8	515.5	515.1	515.5	515.5	505.6	505.4	505.7	512.5		509.5
15-Nov-15	513.7	515.7	515.7	515.7	515.7	505.3	505.9	507.3	512.0		509.6
9-Dec-15	513.7	515.7	515.7	515.7	515.7	507.3	507.1	507.4	511.8	504.3	510.6
17-Jan-16	514.5	515.7	515.8	515.8	515.7	508.1	508.0	508.2	512.2	505.1	511.7
14-Feb-16	515.0	515.7	515.9	515.8	515.7	508.9	508.6	508.7	513.1	507.1	512.2
13-Mar-16	516.0	515.9	516.3	516.0	515.9	510.9	511.0	512.2	516.4	513.0	514.4
17-Apr-16	516.0	515.8	516.2	515.9	515.8	510.3	510.3	510.6	516.7	514.3	513.6
1-May-16											
15-May-16	514.8	515.8	515.9	515.8	515.8	509.2	509.1	509.3	514.3	509.9	512.1
5-Jun-16											
19-Jun-16	514.4	515.7	515.7	515.7	515.7	507.5	507.4	507.6	512.3	506.8	511.2
3-Jul-16											
17-Jul-16	514.0	515.5	515.5	515.5	515.5	506.3	506.1	506.4	511.2	505.3	510.2
24-Jul-16	514.0					506.1			510.9	505.0	509.9
7-Aug-16											
21-Aug-16	513.7	515.2	515.2	515.2	515.2	505.5	505.3	505.7	510.0	504.6	509.3
18-Sep-16	513.5	515.0	515.0	515.0	515.0	505.2	505.0	505.4	509.1	504.2	509.0

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	BH03-8	BH03-9	TW04-1	TW04-2	TW04-3	BH08-1	BH08-2	BH08-3	NW1	NW2	NW3
Flow System	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF
Date TOP	520.8	518.9	517.5	518.1	518.6	512.3	512.0	513.4	526.2	532.0	515.1
29-Sep-16	513.4								508.9		508.9
16-Oct-16	513.3	514.8	514.9	514.9	514.8	505.1	504.8	505.2	508.5	504.1	508.8
13-Nov-16	513.3	514.7	514.7	514.8	514.7	505.0	504.7	505.2	507.9	503.9	508.6
27-Nov-16	513.2					505.0			507.5	503.8	508.6
11-Dec-16	513.1	514.9	514.8	514.9	514.8	505.5	505.1	505.7	507.1	503.7	508.7
15-Jan-17	513.8	515.8	516.0	515.9	515.8	508.1	508.0	508.2	507.5	504.6	511.3
12-Feb-17	514.4	515.8	515.9	515.8	515.8	508.3	508.2	508.3	506.8	503.5	511.7
19-Mar-17	515.2	515.8	516.1	515.9	515.8	509.7	509.6	509.9	509.5	508.7	512.4
9-Apr-17	515.5					510.2			517.0	509.3	513.1
16-Apr-17	515.6	515.8	516.2	515.9	515.8	510.0	509.9	510.2	510.5	509.9	512.8
11-May-17	515.9	515.8	516.2	515.9	515.8	510.2	510.1	510.5	509.9	512.5	513.5
21-May-17	515.4					509.8				510.9	512.6
13-Jun-17										508.5	
25-Jun-17	515.1	515.8	516.1	515.9	515.8	509.1	509.0	509.2	504.9	508.5	514.3
19-Jul-17	515.1	515.8	516.1	515.9	515.8	508.3	508.2	508.4	504.0	506.8	511.7
3-Aug-17	514.4					507.6				505.5	511.2
17-Aug-17	514.2	515.7	515.8	515.7	515.7	507.1	507.0	507.2	503.3	504.8	510.7
29-Aug-17	514.1					506.7				504.3	510.3
17-Sep-17	513.9	515.7	515.7	515.7	515.7	506.5	506.2	506.6	502.6	503.9	509.8
26-Sep-17						506.4				503.8	509.8
15-Oct-17	514.0	515.8	515.8	515.8	515.8	507.2	506.9	507.3		508.9	510.0
14-Nov-17	514.6	515.8	515.9	515.8	515.8	506.8	507.6	507.8	502.3	503.8	511.1
11-Dec-17	514.9	515.8	515.9	515.8	515.8	508.4	508.3	508.5	502.3	504.4	511.8
14-Jan-18	514.2	515.8	516.0	515.9	515.8	508.9	508.9	509.0	502.4	505.3	512.4
11-Feb-18	514.8					508.6			502.6	505.0	511.8
18-Feb-18	515.4	516.1	516.4	516.5	516.2	510.1	510.1	510.3	511.4	505.6	512.6
18-Mar-18	515.0	515.8	516.0	515.8	515.8	509.4	509.3	509.6	502.6	506.3	512.0
15-Apr-18		515.8	516.1	515.9	515.9						
18-Apr-18	515.2					509.3	509.3	509.4	503.0	505.7	512.4
17-May-18	515.5	515.8	516.1	515.9	515.9	509.7	509.6	509.9	502.9	507.2	512.2
18-Jun-18	514.5	515.7	515.8	515.8	515.7	507.9	507.8	508.0	502.7	503.9	511.1
17-Jul-18	514.1	515.4	515.4	515.4	515.4	506.6	506.5	506.8	502.3		510.0
22-Aug-18	513.7	515.2	515.2	515.2	515.2	505.7	505.5	505.8	502.0		508.9
18-Sep-18	513.6	514.3	514.7	514.7	514.7	505.4	505.1	505.5	502.0		508.6
23-Oct-18	513.3	514.5	514.5	514.6	514.5	505.1	504.8	505.2	501.7		509.0
19-Nov-18	513.7	515.7	515.6	515.7	515.7	507.0	506.7	507.2	501.6		510.0
10-Dec-18	514.2	515.7	515.8	515.8	515.7	507.9	507.7	507.9	501.6		511.5
17-Jan-19	514.8	515.8	515.9	515.8	515.8	508.6	508.6	508.7	501.7		512.0
14-Feb-19	515.0	515.7	515.9	515.9	515.7	509.9	508.3				511.7
11-Mar-19	514.6	515.8	516.1	515.9	515.8	509.3	509.2	509.4	501.9		512.5

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	BH03-8	BH03-9	TW04-1	TW04-2	TW04-3	BH08-1	BH08-2	BH08-3	NW1	NW2	NW3
Flow System	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF
Date TOP	520.8	518.9	517.5	518.1	518.6	512.3	512.0	513.4	526.2	532.0	515.1
26-Apr-19	516.2	515.8	516.3	515.9	515.8	510.8	510.7	511.1			513.2
22-May-19	515.4	515.8	515.8	515.8	515.8	509.6	509.6	509.8	502.3		512.1
19-Jun-19	514.6	515.7	515.8	515.7	515.7	508.5	508.4	508.5	502.1		511.3
19-Jul-19	514.3	515.5	515.5	515.5	515.5	506.9	506.8	507.0	501.8		510.0
27-Aug-19	514.3	514.8	514.7	514.7	514.8	505.7	505.5	505.8	501.5		508.9
16-Sep-19	514.3	514.5	514.4	514.4	514.4	505.6	505.5	506.0	501.6		508.7
21-Oct-19	514.2	514.2	514.2	514.3	514.2	505.6	505.5	505.6	501.7		507.8
18-Nov-19	514.3	514.2	514.3	514.4	514.3	505.6	505.5	505.6	501.7		509.9
17-Dec-19	513.7	515.8	515.6	514.7	515.7	507.3	505.3	505.6	501.7		510.6
14-Jan-20	513.8	515.8	516.1	516.6	(5)	(5)	508.8	508.9	502.9		511.6
18-Feb-20	(5)	(2)	(2)	515.7	(2)	506.2	507.6	509.2			(2)
24-Mar-20	515.4	515.8	515.8	515.9	515.9	509.6	509.7	509.9	502.2		512.9
22-Apr-20	515.2	515.8	516.0	515.8	515.8	509.8	509.6	509.8	502.0		512.0
27-May-20		515.7	515.9	515.6	515.7	507.4	508.3	509.5	501.8		510.9
26-Jun-20	514.5	(5)	514.4	515.8	515.8	507.7	507.2	507.4			510.7
28-Jul-20	514.6	515.8	514.5	515.8	515.8	507.7	507.3	507.5	(5)		(5)
31-Aug-20	514.8	515.3	514.4	515.1	515.4	506.5	506.3	506.6	(5)		(5)
28-Sep-20	513.7	515.6	515.6	515.6	515.6	506.8	507.0	507.5	500.9		(5)
27-Oct-20	513.8	515.7	515.7	515.7	515.7	507.0	506.7	507.1	501.4		510.5
24-Nov-20	513.5	515.1	515.2	515.1	515.1	506.9	506.3	506.6	501.3		510.2
21-Dec-20	513.7	515.1	515.4	515.5	515.9	508.8	508.7	508.9	502.0		510.9
29-Jan-21	513.8	515.0	516.1	516.6	(5)	(5)	508.8	508.9	502.9		511.6
19-Feb-21	513.9	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)		(2)
31-Mar-21	513.9	515.8	516.3	515.9	515.8	509.3	508.2	509.3	504.2		512.5
29-Apr-21	514.1	515.8	516.3	515.9	515.9	509.8	509.7	509.9	501.8		512.4
28-May-21	513.8	515.7	515.9	516.1	515.7	507.9	507.8	508.0	501.1		510.3
25-Jun-21	513.8	515.7	515.8	515.7	515.7	506.4	506.3	506.6	503.0		509.8
26-Jul-21	513.8	515.7	515.8	515.7	515.7	505.4	506.1	506.6	505.0		508.4
24-Aug-21	513.6	515.6	515.8	515.7	515.8	506.0	505.6	506.0	507.0		509.9
22-Sep-21	513.8	515.9	516.3	515.9	515.9	508.5	511.4	508.5	507.0		510.1
29-Oct-21	513.8	515.7	516.3	515.9	515.9	507.0	506.7	507.1	501.4		510.5
24-Nov-21	514.8	515.8	516.2	515.9	515.9	508.4	508.3	508.5	502.6		510.5
23-Dec-21	514.8	515.9	516.2	515.9	515.8	508.4	508.2	508.4	503.2		510.5
26-Jan-22	(2)	(2)	(2)	(2)	(2)	507.5	507.4	507.6	(2)		
10-Feb-22	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)		
16-Mar-22	514.7	515.2	515.8	515.2	515.2	508.4	507.2	510.0	502.2		
22-Apr-22	515.2	515.8	516.3	515.9	515.9	509.2	507.9	510.6	502.6		
26-May-22	513.9	515.8	516.0	516.0	515.6	506.7	505.9	509.4			
20-Jun-22	515.2	516.0									
22-Jun-22			516.4	516.0	516.0	509.2	508.0	510.6	(5)		

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	BH03-8	BH03-9	TW04-1	TW04-2	TW04-3	BH08-1	BH08-2	BH08-3	NW1	NW2	NW3
Flow System	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF
Date TOP	**520.8**	**518.9**	**517.5**	**518.1**	**518.6**	**512.3**	**512.0**	**513.4**	**526.2**	**532.0**	**515.1**
30-Aug-22	513.7	515.8	516.1	516.0	515.8				(5)		
31-Aug-22						507.5	508.6	508.7			
27-Sep-22		515.8	515.9	515.8	515.8						
28-Sep-22						504.6	504.4	504.7	501.4		
29-Sep-22	513.4										
26-Oct-22	513.4	515.8	515.9	515.8	515.8						
28-Oct-22						504.5	504.2	504.6	501.3		
23-Nov-22											
29-May-23	514.6	515.8	516.1	515.9	515.8						
30-May-23						507.9	507.8	508.0	501.8		
12-Jul-23											
30-Oct-23		515.8	515.9	515.8	515.8						
31-Oct-23											
1-Nov-23	513.5					504.9	504.6	505.1	501.4		

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	NW4	NW5	NW6	NW7	NW8	NW9	NW10-DP	NW10-I Shallow	NW10-II Deep
Flow System	AF	AF	AF	AF	AF	AF	OB	AM	AF
Date TOP	529.9	521.7	522.0	523.9	531.9	521.5	511.2	510.3	510.5
28-Mar-03									
2-May-03									
16-May-03									
25-Jun-03									
22-Jul-03									
20-Aug-03									
25-Sep-03									
22-Oct-03									
25-Nov-03									
22-Dec-03									
9-Feb-04									
16-Mar-04									
20-Apr-04									
18-May-04									
22-Jun-04									
28-Jul-04									
25-Aug-04									
22-Sep-04									
19-Oct-04									
16-Nov-04									
16-Dec-04									
31-Jan-05									
24-Feb-05									
22-Mar-05									
20-Apr-05									
25-May-05									
29-Jun-05									
13-Jul-05									
23-Aug-05									
26-Sep-05									
26-Oct-05									
16-Nov-05									
14-Dec-05									
20-Jan-06									
14-Feb-06									
19-Mar-06									
17-Apr-06									
19-May-06									
19-Jun-06									
10-Jul-06									

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	NW4	NW5	NW6	NW7	NW8	NW9	NW10-DP	NW10-I Shallow	NW10-II Deep
Flow System	AF	AF	AF	AF	AF	AF	OB	AM	AF
Date TOP	529.9	521.7	522.0	523.9	531.9	521.5	511.2	510.3	510.5
22-Aug-06									
18-Sep-06									
17-Oct-06									
20-Nov-06									
15-Dec-06									
28-Dec-06									
5-Jan-07									
12-Jan-07									
19-Jan-07									
22-Jan-07									
26-Jan-07									
2-Feb-07									
9-Feb-07									
16-Feb-07									
19-Feb-07									
22-Feb-07									
2-Mar-07									
9-Mar-07									
16-Mar-07									
18-Mar-07									
19-Mar-07									
5-Apr-07									
13-Apr-07									
15-Apr-07									
17-Apr-07									
20-Apr-07									
27-Apr-07									
4-May-07									
11-May-07									
17-May-07									
18-May-07									
25-May-07									
1-Jun-07									
8-Jun-07									
14-Jun-07									
21-Jun-07									
29-Jun-07									
6-Jul-07									
17-Jul-07									
20-Jul-07									

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	NW4	NW5	NW6	NW7	NW8	NW9	NW10-DP	NW10-I Shallow	NW10-II Deep
Flow System	AF	AF	AF	AF	AF	AF	OB	AM	AF
Date TOP	529.9	521.7	522.0	523.9	531.9	521.5	511.2	510.3	510.5
27-Jul-07									
3-Aug-07									
10-Aug-07									
17-Aug-07									
21-Aug-07									
30-Aug-07									
7-Sep-07									
12-Sep-07									
14-Sep-07									
18-Sep-07									
28-Sep-07									
14-Oct-07									
2-Nov-07									
9-Nov-07									
16-Nov-07									
18-Nov-07									
22-Nov-07									
2-Dec-07									
9-Dec-07									
13-Dec-07									
28-Dec-07									
4-Jan-08									
11-Jan-08									
18-Jan-08									
20-Jan-08									
24-Jan-08									
4-Feb-08									
8-Feb-08									
15-Feb-08									
21-Feb-08									
29-Feb-08									
7-Mar-08									
14-Mar-08									
19-Mar-08									
28-Mar-08									
4-Apr-08									
7-Apr-08									
11-Apr-08									
18-Apr-08									
20-Apr-08									

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	NW4	NW5	NW6	NW7	NW8	NW9	NW10-DP	NW10-I Shallow	NW10-II Deep
Flow System	AF	AF	AF	AF	AF	AF	OB	AM	AF
Date TOP	529.9	521.7	522.0	523.9	531.9	521.5	511.2	510.3	510.5
21-Apr-08									
3-May-08									
8-May-08									
20-May-08									
25-May-08									
6-Jun-08									
13-Jun-08									
16-Jun-08									
20-Jun-08									
27-Jun-08									
4-Jul-08									
11-Jul-08									
14-Jul-08									
25-Jul-08									
1-Aug-08									
3-Aug-08									
15-Aug-08									
18-Aug-08									
4-Sep-08									
5-Sep-08									
12-Sep-08									
14-Sep-08									
15-Sep-08									
3-Oct-08									
10-Oct-08									
19-Oct-08									
20-Oct-08									
14-Nov-08									
16-Nov-08									
23-Nov-08									
30-Nov-08									
7-Dec-08									
14-Dec-08									
28-Dec-08									
4-Jan-09									
18-Jan-09									
8-Feb-09									
15-Feb-09									
1-Mar-09									
15-Mar-09									

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	NW4	NW5	NW6	NW7	NW8	NW9	NW10-DP	NW10-I Shallow	NW10-II Deep
Flow System	AF	AF	AF	AF	AF	AF	OB	AM	AF
Date TOP	529.9	521.7	522.0	523.9	531.9	521.5	511.2	510.3	510.5
26-Mar-09									
29-Mar-09									
12-Apr-09									
26-Apr-09									
3-May-09									
10-May-09									
17-May-09									
24-May-09									
7-Jun-09									
14-Jun-09									
21-Jun-09									
28-Jun-09									
12-Jul-09									
19-Jul-09									
9-Aug-09									
16-Aug-09									
23-Aug-09									
13-Sep-09									
20-Sep-09									
11-Oct-09									
15-Nov-09									
29-Nov-09									
13-Dec-09									
17-Jan-10									
7-Feb-10									
14-Mar-10									
18-Apr-10									
16-May-10									
8-Jun-10									
13-Jun-10									
21-Jul-10									
16-Aug-10									
12-Sep-10									
26-Sep-10									
17-Oct-10									
14-Nov-10									
19-Dec-10									
16-Jan-11									
20-Feb-11									
13-Mar-11									

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	NW4	NW5	NW6	NW7	NW8	NW9	NW10-DP	NW10-I Shallow	NW10-II Deep
Flow System	AF	AF	AF	AF	AF	AF	OB	AM	AF
Date TOP	529.9	521.7	522.0	523.9	531.9	521.5	511.2	510.3	510.5
17-Apr-11									
15-May-11									
13-Jun-11									
3-Jul-11									
17-Jul-11									
14-Aug-11									
18-Sep-11									
17-Oct-11									
20-Nov-11									
18-Dec-11									
15-Jan-12									
19-Feb-12									
26-Feb-12									
18-Mar-12									
15-Apr-12									
13-May-12									
17-Jun-12									
1-Jul-12									
15-Jul-12									
12-Aug-12									
16-Sep-12									
9-Oct-12									
14-Oct-12									
18-Nov-12									
16-Dec-12									
13-Jan-13									
17-Feb-13									
17-Mar-13									
31-Mar-13									
14-Apr-13									
12-May-13									
2-Jun-13									
16-Jun-13									
14-Jul-13									
18-Aug-13									
15-Sep-13									
13-Oct-13									
17-Nov-13									
15-Dec-13									
19-Jan-14									

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	NW4	NW5	NW6	NW7	NW8	NW9	NW10-DP	NW10-I Shallow	NW10-II Deep
Flow System	AF	AF	AF	AF	AF	AF	OB	AM	AF
Date TOP	529.9	521.7	522.0	523.9	531.9	521.5	511.2	510.3	510.5
16-Feb-14									
17-Mar-14									
13-Apr-14									
11-May-14									
15-Jun-14									
13-Jul-14									
17-Aug-14									
7-Sep-14									
12-Sep-14									
19-Sep-14									
19-Oct-14									
2-Nov-14	520.3	516.1	515.4		527.9	516.5			
16-Nov-14									
14-Dec-14									
18-Jan-15									
15-Feb-15									
15-Mar-15									
19-Apr-15						517.2			
17-May-15						516.4			
14-Jun-15									
19-Jul-15									
9-Aug-15									
6-Sep-15	518.9	516.1	514.3	517.6	527.5	515.9	509.0	508.8	508.9
11-Oct-15	518.2	515.3	513.8	516.7	527.2	515.7	509.0	508.2	508.3
15-Nov-15	517.4	515.1	513.9	515.5	527.0	516.0	509.1	508.9	509.1
9-Dec-15	517.6	515.3	514.5	515.4	527.1	516.0	509.1	508.9	509.1
17-Jan-16	519.1	516.3	515.5	515.7	527.7	516.3	509.2	509.3	509.5
14-Feb-16	519.4	517.2	515.6	515.6	527.8	516.5	509.4	509.4	509.5
13-Mar-16	522.7	519.1	519.3	517.7	528.1	517.4	509.5	509.6	509.6
17-Apr-16	520.9	520.2	517.7	516.4	528.0	517.0	509.4	509.4	509.6
1-May-16									
15-May-16	519.1	518.1	515.9	515.8	527.8	516.4	509.3	509.3	509.5
5-Jun-16									
19-Jun-16	517.8	(5)	514.6	515.4	527.6	516.0	509.1	508.8	508.9
3-Jul-16									
17-Jul-16	516.6	515.5	513.9	515.3	527.1	515.7	509.1	508.5	508.6
24-Jul-16	516.4	515.3	513.8	515.3	527.0	515.6	509.0	508.3	508.4
7-Aug-16									
21-Aug-16	515.7	514.8	513.5	515.2	526.6	515.4	509.0	508.0	508.2
18-Sep-16	515.1	514.5	513.2	515.1	526.3	515.2	509.0	507.7	507.9

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	NW4	NW5	NW6	NW7	NW8	NW9	NW10-DP	NW10-I Shallow	NW10-II Deep
Flow System	AF	AF	AF	AF	AF	AF	OB	AM	AF
Date TOP	529.9	521.7	522.0	523.9	531.9	521.5	511.2	510.3	510.5
29-Sep-16									
16-Oct-16	514.6	514.3	513.0	515.0	526.2	515.1	509.0	507.6	507.7
13-Nov-16	514.1	514.1	512.9	515.0	526.0	515.0	509.1	507.7	507.8
27-Nov-16	513.9	514.0	512.8	514.9	526.0	515.1	509.1	507.9	508.0
11-Dec-16	513.8	514.0	513.0	514.9	525.9	515.0	509.1	508.1	508.3
15-Jan-17	522.3	514.8	516.4	516.1	527.7	516.4	509.1	509.1	509.3
12-Feb-17	521.0	515.5	515.3	515.5	527.7	516.3	509.4	509.4	509.5
19-Mar-17	518.2	516.9	516.1	515.6	527.9	516.7	509.4	509.4	509.5
9-Apr-17	523.7	517.5	518.5	517.1	528.2	517.4	509.5	509.5	509.7
16-Apr-17	519.0	517.6	517.5	515.8	527.9	517.0	509.4	509.4	509.6
11-May-17	519.0	518.6	517.0	515.7	527.9	516.8	509.4	509.4	509.6
21-May-17	518.6	518.5	516.0	515.7	527.9	516.7	509.5	509.5	509.6
13-Jun-17	516.9						509.4	509.5	509.6
25-Jun-17	517.9	517.3	516.8	516.0	527.9	516.7	509.3	509.5	509.6
19-Jul-17	516.6	516.6	515.1	515.4	527.8	516.3	509.2	509.2	509.4
3-Aug-17	515.6	516.0	514.6	515.3	527.7	516.1	509.1	508.9	509.0
17-Aug-17	514.9	515.3	514.2	515.3	527.5	516.0	509.1	509.1	509.2
29-Aug-17	514.4	514.7	513.7		527.4	515.9	509.1	508.8	508.9
17-Sep-17	513.8	514.3	513.6	515.1	527.3	515.9	509.1	508.9	509.0
26-Sep-17	513.6	514.1	513.4	515.1	527.2	515.8		508.7	508.9
15-Oct-17	513.6	514.0	514.1	515.4	527.6	516.2	509.2	509.2	509.4
14-Nov-17	516.0	514.0	514.7	515.6	527.8	516.3	509.2	509.2	509.4
11-Dec-17	514.7	514.3	514.6	515.4	527.8	516.2	509.3	509.3	509.5
14-Jan-18	516.8	514.4	516.3	515.9	527.8	516.7	509.4	509.4	509.6
11-Feb-18	515.4	514.7	514.9	(5)	527.8	(5)	509.3	509.3	509.4
18-Feb-18	524.0	514.7	516.1	516.6	528.2	517.2	509.5	509.5	509.7
18-Mar-18	515.6	515.3	515.2	515.5	527.8	516.4	509.3	509.3	509.4
15-Apr-18									
18-Apr-18	517.8	514.9	516.2	516.1	527.9	516.7	509.4	509.5	509.6
17-May-18	516.8	516.0	516.1	515.7	527.9	516.7	509.3	509.4	509.5
18-Jun-18	514.1	514.7	514.3	515.3	527.7	515.9	509.1	508.8	508.9
17-Jul-18	513.1	513.8	513.3	515.2	527.3	515.5	509.0	508.5	508.6
22-Aug-18	512.8	513.3	512.8	514.9	526.6	515.3	509.0	508.1	508.2
18-Sep-18	512.5	513.1	512.6	514.7	526.1	514.8	509.0	507.8	507.9
23-Oct-18	512.2	512.8	512.3	514.4	525.8	514.7	509.1	507.9	508.0
19-Nov-18	512.5	512.8	513.2	514.2	527.0	515.8	509.8	508.9	508.4
10-Dec-18	513.2	512.9	514.7	515.5	527.7	516.0	509.1	509.1	509.2
17-Jan-19	515.0	513.5	514.9	515.5	527.8	516.1	508.4	509.4	509.5
14-Feb-19	514.9	513.6	514.5	515.3	527.7	516.1	509.3	509.4	509.5
11-Mar-19	518.0	513.7	516.1	515.9	527.9	516.6	509.3	509.4	509.5

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	NW4	NW5	NW6	NW7	NW8	NW9	NW10-DP	NW10-I Shallow	NW10-II Deep
Flow System	AF	AF	AF	AF	AF	AF	OB	AM	AF
Date TOP	529.9	521.7	522.0	523.9	531.9	521.5	511.2	510.3	510.5
26-Apr-19	520.9	515.2	519.1	516.8	528.0	516.9	509.4	509.5	509.6
22-May-19	513.1	515.2	515.9	515.7	527.9	516.5	509.3	509.4	509.5
19-Jun-19	514.7	514.7	514.8	515.4	527.8	516.0	509.1	509.2	509.2
19-Jul-19		513.6	513.6	(5)	527.6	515.5	509.0	508.7	508.6
27-Aug-19		512.6	512.5	(5)	526.5	514.7	509.1	508.1	
16-Sep-19		512.7	512.4	(5)	(5)	514.4	508.8	507.9	(5)
21-Oct-19		512.6	512.4	(5)	525.7	513.6	508.9	507.9	(5)
18-Nov-19		512.6	512.5	(5)	525.7	513.7	508.9	508.0	(5)
17-Dec-19		(5)	512.6		527.5	515.6	(5)	508.9	(5)
14-Jan-20		512.1	512.5	(5)	527.4	515.4	(5)	508.9	509.1
18-Feb-20		511.9	513.6	(2)	(2)	515.9	509.1	(2)	(2)
24-Mar-20		512.5	516.0	515.9	528.0	516.7	509.4	509.5	509.6
22-Apr-20		513.3	515.8		527.9	516.4	509.4	509.4	509.5
27-May-20		512.6	515.4	515.0	527.7	516.2	509.2	509.3	509.5
26-Jun-20		512.7	514.3	515.7	(5)	516.6	(5)	509.4	509.5
28-Jul-20		512.7	514.2	515.6	(5)	516.2	(5)	509.4	509.5
31-Aug-20		512.8	514.0	515.6	(5)	516.0	(5)	509.3	509.5
28-Sep-20		511.6	511.6	515.3	527.0	516.0	(5)	508.6	508.7
27-Oct-20		511.1	512.7	515.3	527.1	516.0	(5)	508.9	509.0
24-Nov-20		511.2	513.4	515.8	527.6	515.8	509.0	508.9	509.1
21-Dec-20		511.0	513.0	517.5	527.5	515.7		508.9	509.1
29-Jan-21		510.8	512.2	(5)	527.4	515.4	(2)	508.8	509.0
19-Feb-21		(2)	514.9	(2)	(2)	(2)	(2)	509.2	509.3
31-Mar-21		511.1	515.3	(5)	528.1	(5)	509.4	509.5	509.6
29-Apr-21		511.5	515.7	(5)	527.9	516.9	509.4	509.5	509.6
28-May-21		510.9	513.6	515.3	527.7	516.3	509.0	508.9	509.1
25-Jun-21		510.6	512.4	514.5	527.4	516.2	508.9	508.8	508.9
26-Jul-21		510.3	511.6	513.8	527.2	516.4	508.8		
24-Aug-21		512.7	511.3	514.2	527.0	516.2	509.0	508.3	508.5
22-Sep-21		510.8	513.5	515.3	527.8	517.0	509.6	509.1	508.2
29-Oct-21		511.1	512.7	515.3	527.1	516.0	510.0	508.9	509.0
24-Nov-21		510.2	514.1	515.6	527.8	516.8	509.3	509.4	509.5
23-Dec-21		510.1	514.1	515.6	527.8	517.0	509.3	509.4	509.5
26-Jan-22		510.6	513.5	(5)	(2)	(2)	(2)	(2)	(2)
10-Feb-22		(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
16-Mar-22		(2)		515.3	527.3	516.4	509.0	509.1	(5)
22-Apr-22		511.2	514.5	515.6	527.8	517.0	509.1	509.2	509.5
26-May-22		509.9	514.4	515.3	527.6	516.4	509.0	509.1	509.4
20-Jun-22							509.0	509.2	509.5
22-Jun-22		510.2	514.5	515.3	528.0	517.0			

Table B-2 Groundwater Elevations - Extension Quarry Monitoring Wells

Well Name	NW4	NW5	NW6	NW7	NW8	NW9	NW10-DP	NW10-I Shallow	NW10-II Deep
Flow System	AF	AF	AF	AF	AF	AF	OB	AM	AF
Date TOP	**529.9**	**521.7**	**522.0**	**523.9**	**531.9**	**521.5**	**511.2**	**510.3**	**510.5**
30-Aug-22		510.0	513.6	515.2	527.7	516.3			
31-Aug-22							508.9	509.0	508.4
27-Sep-22					526.8	516.4			
28-Sep-22		508.7	510.6	513.9					
29-Sep-22							509.0	508.1	508.2
26-Oct-22					526.7	516.4	509.0	507.8	508.0
28-Oct-22		508.5	510.4	513.6					
23-Nov-22									
29-May-23					527.8	516.7	509.1	509.0	509.1
30-May-23		509.1	511.8	515.3					
12-Jul-23									
30-Oct-23					527.0	516.4			
31-Oct-23							509.1	508.7	508.9
1-Nov-23		507.9	509.7	513.8					

Table B-3 Groundwater Elevations - Extension Quarry Injection Wells

Well Name	IW1	IW1a	IW2	IW3	IW4
Flow System	AF	AF	AF	AF	AF
Date TOP	512.1	512.0	509.2	519.1	511.0
2-Nov-14	505.2	505.1	508.1	505.7	496.0
16-Nov-14					
14-Dec-14					
18-Jan-15					
15-Feb-15					
15-Mar-15					
19-Apr-15					
17-May-15					
14-Jun-15					
19-Jul-15					
9-Aug-15					
6-Sep-15	502.2	502.1	506.1	502.6	495.4
11-Oct-15	501.3	501.2	505.5	502.8	495.1
15-Nov-15	501.7	501.6	506.4	501.7	494.9
9-Dec-15	502.8	502.7	507.4	502.8	495.3
17-Jan-16	505.2	505.1	508.0	504.9	496.0
14-Feb-16	506.8	506.7	508.3	506.6	496.8
13-Mar-16	510.5	510.4	508.9	511.5	499.2
17-Apr-16	510.1	510.0	508.7	508.9	498.6
1-May-16					
15-May-16	508.0	507.9	508.4	506.0	497.0
5-Jun-16					
19-Jun-16	504.5	504.4	508.3	504.4	496.6
3-Jul-16					
17-Jul-16	502.3	502.2	506.2	502.9	495.8
24-Jul-16	502.0		506.0	502.6	495.9
7-Aug-16					
21-Aug-16	501.4	501.3	505.4	502.0	495.4
18-Sep-16	502.0	500.9	505.1	501.8	495.2
29-Sep-16					
16-Oct-16	500.8	500.8	504.9	501.4	495.0
13-Nov-16	500.7	500.6	504.9	501.5	495.1
27-Nov-16	500.6		505.0	501.4	495.0
11-Dec-16	500.5	500.5	505.6	502.0	495.1
15-Jan-17	504.4	504.3	508.2	505.7	496.6
12-Feb-17	505.4	505.3	508.1	506.2	497.3
19-Mar-17	508.8	508.7	508.7	507.5	496.7
9-Apr-17	510.0		508.9	510.0	498.3
16-Apr-17	509.5	509.4	508.6	509.2	498.3
11-May-17	510.1	510.0	508.6	509.6	498.8
21-May-17	509.4		508.6	507.7	497.8

Table B-3 Groundwater Elevations - Extension Quarry Injection Wells

Well Name	IW1	IW1a	IW2	IW3	IW4
Flow System	AF	AF	AF	AF	AF
Date TOP	512.1	512.0	509.2	519.1	511.0
25-Jun-17	508.3	508.2	508.4	507.5	497.5
19-Jul-17	506.3	506.2	507.9	505.9	496.9
3-Aug-17	504.7		507.4	504.7	496.5
17-Aug-17	503.6	503.5	507.0	503.8	496.2
29-Aug-17	502.8			503.1	496.0
17-Sep-17	502.0	501.9	506.5	502.6	495.7
26-Sep-17	502.0			502.5	495.6
15-Oct-17	502.0	502.0	507.4	503.2	495.7
14-Nov-17	503.6	503.5	507.9	504.5	496.2
11-Dec-17	506.3	506.0	508.1	505.1	498.2
14-Jan-18	508.4	508.4	508.5	508.0	497.5
11-Feb-18	506.9		508.2	506.2	496.8
18-Feb-18	510.0	509.9	508.8	510.5	498.6
18-Mar-18	508.5	508.4	508.5	506.7	497.1
15-Apr-18	508.8	508.6	508.7	507.9	497.4
17-May-18	509.2	509.1	508.5	507.5	497.7
18-Jun-18	505.7	505.6	507.6	505.5	496.7
17-Jul-18	503.1	503.0	506.5	502.9	496.0
22-Aug-18	501.9	501.9	505.5	501.6	495.2
18-Sep-18	501.0	501.0	505.3	501.2	495.1
25-Oct-18	500.7	500.6	505.0	500.9	494.9
19-Nov-18	501.9	501.8	507.4	502.5	495.4
10-Dec-18	504.4	504.3	508.0		495.4
17-Jan-19	506.9	506.8	508.2	506.4	496.8
14-Feb-19	506.7	506.7	508.3	507.6	497.3
11-Mar-19	508.6	508.3	508.5	507.5	497.3
26-Apr-19	510.7	510.6	508.9	510.5	499.8
22-May-19	509.1	509.0	508.4	507.6	498.6
19-Jun-19	506.7	506.6	508.0	505.5	496.9
19-Jul-19	503.6	503.6	(5)	506.6	496.3
27-Aug-19	501.6	501.5	(5)	502.0	495.4
16-Sep-19	501.1	501.1	(5)		
21-Oct-19	501.3	501.3	(5)	501.7	494.8
18-Nov-19	501.3	501.2	(5)	501.7	494.8
17-Dec-19	501.9	501.7	(5)		495.6
14-Jan-20	507.2	507.1	(5)	501.8	495.8
18-Feb-20	(2)	(2)	(2)	(2)	(2)
24-Mar-20	509.3	509.3	508.7	509.5	498.2
22-Apr-20	509.1	509.0	508.3		
27-May-20	506.0	505.4	508.1	504.8	495.8
26-Jun-20	504.1	504.0	507.3	506.1	496.5

Table B-3 Groundwater Elevations - Extension Quarry Injection Wells

Well Name Flow System	IW1 AF	IW1a AF	IW2 AF	IW3 AF	IW4 AF
Date TOP	**512.1**	**512.0**	**509.2**	**519.1**	**511.0**
28-Jul-20	503.9	503.9	507.4	504.2	496.2
31-Aug-20	502.5	502.4	506.4	505.1	497.2
28-Sep-20	502.5	502.5	506.4	504.9	497.0
27-Oct-20	501.7	501.6	507.0	502.5	495.3
24-Nov-20	501.9	501.8	506.8	504.6	495.9
21-Dec-20	507.5	507.4	508.4	505.0	496.1
29-Jan-21	507.2	507.1	(2)	505.4	496.5
19-Feb-21	(2)	(2)	(2)	(2)	(2)
31-Mar-21	508.4	508.4	508.6	506.4	497.4
29-Apr-21	509.3	509.0	508.7	506.5	497.4
28-May-21	505.7	505.6	507.7	505.5	496.8
25-Jun-21	503.0	502.9	506.3	503.3	496.0
26-Jul-21	500.9	500.8	506.4	(5)	(5)
24-Aug-21	501.3	501.8	505.8	501.7	495.2
22-Sep-21	506.3	506.3	508.4		
29-Oct-21	501.7	501.6	507.0	503.4	494.3
24-Nov-21	505.8	505.8	508.2	506.0	496.7
23-Dec-21	506.0	505.8	508.4	506.1	497.1
26-Jan-22	504.5	504.4	507.6	(2)	(2)
10-Feb-22	(2)	(2)	(2)	(2)	(2)
16-Mar-22	507.6	506.8	508.5	(2)	(2)
22-Apr-22	508.3	507.2	508.5	505.9	497.3
26-May-22	504.5	504.4	507.3	505.5	496.8
20-Jun-22	508.4	507.3	508.6	506.0	497.0
31-Aug-22	505.3	505.2	507.2	505.6	496.3
28-Sep-22	500.5	500.4	504.5		
29-Sep-22				500.9	494.9
27-Oct-22				500.7	494.8
28-Oct-22	500.3	500.3	504.4		
29-May-23				505.6	497.0
30-May-23	506.0	505.9	507.8		
30-Oct-23				501.3	495.1
1-Nov-23	500.8	500.7	505.0		

Table B-4 Groundwater Elevations - Domestic Wells

Well Name	RW1	RW2	RW3	RW4	RW5	RW6	RW7	RW8	RW9	RW12	RW13
Flow System	AM	AM	AM	AF	MT	OB	OB	OB	AM	OB	OB
Date TOP	508.8	505.2	519.0	510.5	478.6	451.0	453.0	431.0	524.0	425.8	425.8
16-May-03											
26-Jun-03			512.5			444.7			517.8		
24-Jul-03			511.9		459.9	444.5			517.3		
21-Aug-03	502.2		511.4		459.6	444.2	446.2	428.6	517.1		
25-Sep-03	501.5		510.7		459.0	443.9	445.9	428.4	516.7		
22-Oct-03	502.9	485.1	510.8	508.8	459.6	443.9	445.9	428.1	516.9		
25-Nov-03	506.0	485.7	512.1	509.8	460.4	444.9	446.8	(2)	519.3		
22-Dec-03	505.7	485.9	512.5	509.7	460.8	445.0	447.0	(2)	518.8		
9-Feb-04	(2)	486.7	(2)	509.3	(2)	(2)	(2)	(2)	517.8		
16-Mar-04	506.0	485.9	(2)	509.8	(2)	(2)	447.3	430.2	519.5		
21-Apr-04	506.3	486.1	513.8	510.0	461.1	445.7	447.6	430.3	519.7		
18-May-04	505.3	486.0	513.2	507.9	461.0	445.1	447.1	429.9	518.5		
22-Jun-04	504.1	485.9	512.7	508.9	460.7	444.9	447.0	429.5	517.9		
28-Jul-04	503.1	485.3	511.9	508.5	460.3	444.5	446.5	428.7	517.3		
25-Aug-04	502.1	485.0	511.3	508.0	459.7	444.3	446.3	428.6	517.0		
24-Sep-04	501.1	484.9	510.9	507.6	459.6	444.1	446.2	428.4	516.7		
19-Oct-04	501.3	485.0	510.5	507.4	459.5	444.0	446.0	428.1	516.5		
16-Nov-04	501.3	485.0	510.4	507.8	458.7	443.8	446.0	427.9	516.4		
16-Dec-04	502.4	485.2	510.6	508.7	(2)	(2)	(2)	(2)	516.4		
31-Jan-05	505.0	485.4	512.2	509.6	(2)	(2)	446.9	(2)	518.4		
24-Feb-05	504.9	485.6	512.0	509.5	(2)	(2)	447.0	(2)	517.9		
22-Mar-05	504.5	485.7	512.0	509.5	(2)	(2)	446.6	(2)	517.8		
20-Apr-05	506.9	486.1	513.8	510.3	461.1	446.1	448.2	430.7	521.8		
25-May-05	505.1	486.0	513.2	509.4	461.0	445.1	446.8	429.9	518.2		
29-Jun-05	503.6	486.2	512.2	508.8	460.5	444.6	446.7	429.1	517.6		
13-Jul-05	502.9	486.6	511.9	507.2	459.0	444.5	446.5	428.9	517.4		
23-Aug-05	501.8	485.8	511.0	507.5	459.5	444.2	446.2	428.6	516.9		
26-Sep-05	501.9	485.0	510.4	507.1	459.5	443.9	445.9	428.2	516.6		
26-Oct-05	500.5	484.9	510.2	507.1	459.2	443.8	445.8	427.9	516.4		
16-Nov-05	501.8	485.2	510.1	507.6	459.3	443.7	445.7	427.8	516.3		
14-Dec-05	501.7	484.5	510.3	508.3		443.7	445.7	(2)	516.9		
20-Jan-06	505.8	485.7	510.6	509.8		444.5	446.5	(2)	518.8		
14-Feb-06	505.0	486.4	512.1	509.6		444.8	446.8	(2)	518.7		
19-Mar-06	506.2	486.0	513.3	509.9		445.6	447.7	(2)	520.4		
17-Apr-06	505.7	486.0	514.0	510.0	461.0	445.6	447.6	430.5	520.1		
19-May-06	504.8	485.9	513.0	509.4	460.8	444.9	446.9	429.7	517.7		
19-Jun-06	503.1	485.6	512.2	507.0	460.4	444.5	446.5	429.1	517.5		
10-Jul-06	502.1	485.3	511.7	507.4	460.0	444.4	446.4	428.7	517.2		
23-Aug-06	501.2	485.0	510.8	506.9	459.6	444.0	446.0	428.5	516.7		
18-Sep-06	501.0	485.0	510.4	507.2	459.4	443.8	445.8	428.2	516.5		
17-Oct-06	501.5	485.4	510.3	508.0	459.4	443.8	445.8	428.1	516.5		

Table B-4 Groundwater Elevations - Domestic Wells

Well Name	RW1	RW2	RW3	RW4	RW5	RW6	RW7	RW8	RW9	RW12	RW13
Flow System	AM	AM	AM	AF	MT	OB	OB	OB	AM	OB	OB
Date TOP	508.8	505.2	519.0	510.5	478.6	451.0	453.0	431.0	524.0	425.8	425.8
22-Nov-06	505.4	485.6	511.6	509.0	460.3	444.6	446.6	429.2	518.7		
15-Dec-06	506.3	486.1	512.4	510.0	460.7	445.0	447.0	429.7	519.6		
22-Jan-07	504.4	485.8	512.5	509.4	460.1	(2)	446.8	(2)	518.2		
19-Feb-07	503.2	487.0	512.1	509.1	(2)	(2)	(2)	(2)	517.6		
18-Mar-07	505.9	485.7	512.4	509.8	(2)	(2)	447.1	(2)	519.6		
15-Apr-07	506.0	485.9	513.5	509.9	461.0	445.5	447.3	430.1	519.5		
17-May-07	504.4	485.8	512.8	509.3	460.5	444.8	446.8	429.5	517.8		
17-Jun-07	502.5	485.5	511.9	508.5	460.4	444.5	446.5	428.9	517.3		
15-Jul-07	501.7	485.2	511.4	507.9	460.0	444.3	446.2	428.6	517.0		
19-Aug-07	501.0	485.0	510.7	507.2	459.6	444.0	446.0	428.4	516.6		
10-Sep-07	500.8										
16-Sep-07	500.8	485.0	510.3	506.2	459.4	443.8	445.8	428.4	516.4		
14-Oct-07	500.7	485.1	510.0	506.3	459.3	443.6	445.6	427.9	516.2		
18-Nov-07	501.3	485.2	510.1		459.6	(2)	445.6	427.8	516.3		
9-Dec-07	(2)	485.5	510.3	(2)	(2)	(2)	445.7	(2)	516.9		
20-Jan-08		486.7	513.0	(2)	(2)	(2)	447.5	(2)	519.6		
17-Feb-08	(2)	485.7	512.7	509.8	(2)	(2)	447.1	(2)	518.8		
16-Mar-08	(2)	485.8	512.7	(2)	(2)	(2)	446.9	(2)	518.7		
6-Apr-08	502.2	486.0	513.6	510.3	(2)	446.2	448.2	430.6	521.5		
20-Apr-08	506.3	486.1	514.4	509.9	461.2	445.9	449.0	430.6	520.6	424.0	424.0
18-May-08	505.1	486.0	513.3	509.5	461.0	445.1	447.1	430.0	518.3	423.2	423.2
15-Jun-08	503.6	486.7	512.5	508.1	459.9	444.7	446.7	429.3	517.6	424.4	424.3
13-Jul-08	502.1	485.8	511.9	508.4	460.4	444.5	446.4	428.7	517.2	423.9	423.8
17-Aug-08	502.2	485.2	511.7	508.2	460.2	444.3	446.3	428.8	517.5	424.0	423.9
31-Aug-08											
14-Sep-08	502.9	485.1	511.4	508.7	459.3	444.2	446.1	428.7	517.2	422.8	422.7
19-Oct-08	502.8	485.3	511.7	508.9	460.3	444.5	446.4	428.9	517.6	424.5	424.5
23-Nov-08	(2)	485.6	512.7	(2)	(2)	(2)	447.0	(2)	519.4	(2)	(2)
14-Dec-08	(2)	(2)	511.6	(2)	(2)	(2)	447.3	(2)	(2)	(2)	(2)
18-Jan-09	505.5	485.9	513.1	(2)	(2)	(2)	447.2		(2)	(2)	(2)
8-Feb-09	(2)	485.8	512.6	509.6	(2)	(2)	446.8		(2)	(2)	(2)
15-Mar-09	506.4	486.6	513.5	510.0	460.9	445.6	447.7	430.4	519.5	424.1	424.1
12-Apr-09	506.4	486.1	513.7	509.4	460.4	445.5	447.5	430.4	519.7	425.0	424.9
17-May-09	505.1	486.2	513.3	509.2	461.2	445.2	447.2	430.1	518.6	424.6	424.4
14-Jun-09	503.3	485.9	512.5	507.8	460.3	444.8	446.7	429.3	517.6	423.0	423.0
12-Jul-09	502.0	485.5	511.9	508.4	460.3	444.5	446.5	428.8	517.3	423.9	423.9
9-Aug-09	502.1	485.3	511.4	507.9	460.1	444.4	446.3	428.7	517.1	423.7	423.6
13-Sep-09	501.0	485.1	510.9	507.4	459.8	444.2	446.1	428.5	516.3	422.6	422.4
11-Oct-09	501.9	485.3	510.7	508.4	459.8	444.1	446.1	428.3	516.1	423.1	423.0
15-Nov-09	502.1	485.3	510.8	508.7	460.2	444.3	446.2	428.4	517.2	422.6	422.6
29-Nov-09		487.1									

Table B-4 Groundwater Elevations - Domestic Wells

Well Name	RW1	RW2	RW3	RW4	RW5	RW6	RW7	RW8	RW9	RW12	RW13
Flow System	AM	AM	AM	AF	MT	OB	OB	OB	AM	OB	OB
Date TOP	508.8	505.2	519.0	510.5	478.6	451.0	453.0	431.0	524.0	425.8	425.8
13-Dec-09	503.1	486.4	511.0	509.1	(2)	(2)	446.3	(2)	517.5	(2)	(2)
12-Jan-10	503.5	486.9									
17-Jan-10		486.3	511.2	509.0	(2)		446.4		517.4		
7-Feb-10	503.4	486.9	511.4	509.2	(2)		446.5		517.5		
14-Mar-10	506.1	485.7	512.0	510.3	460.5	445.4	447.4	429.5	520.3	424.6	424.5
18-Apr-10	505.9	486.0	513.3	509.9	461.0	445.3	447.2	430.2	519.1	423.1	423.1
16-May-10	506.6	486.2	513.0	509.1	460.9	445.4	447.5	430.2	519.0	424.1	424.0
8-Jun-10	506.8	485.6									
13-Jun-10	505.8	485.5	513.1	509.7	460.9	444.8	446.7	430.1	518.6	423.7	423.7
21-Jul-10	504.8	485.5	512.6	509.3	460.6	444.7	446.6	429.5	518.0	423.9	
16-Aug-10	503.1	485.3	512.1	508.7	460.6	444.5	446.5	429.0	517.5	423.0	423.0
12-Sep-10	501.8	485.9	511.5	508.2	460.2	444.3	446.3	428.7	517.3	422.8	422.8
26-Sep-10	503.4										
17-Oct-10		485.1	511.6	508.0	460.3	444.4	446.3	428.7	517.5	424.6	424.6
14-Nov-10	505.1	485.3	512.1	509.7	460.7	444.7	446.7	429.4	518.5	423.9	423.8
19-Dec-10	505.2	485.5	512.6	(2)	(2)	(2)	446.8	(2)	518.2	(2)	(2)
16-Jan-11	505.6	485.6	512.9	(2)	(2)	(2)	447.1	(2)	(2)	(2)	(2)
20-Feb-11	505.9	486.9	(2)	(2)	(2)	(2)	447.0	(2)	(2)	(2)	(2)
13-Mar-11	(2)	485.6	512.7	509.8	(2)	(2)	447.0	(2)		(2)	(2)
17-Apr-11	506.9	485.8	514.0	510.0	461.0	445.5	447.5	430.5	520.3		423.4
15-May-11	507.2	485.9	513.7	509.7	461.0	445.7	447.6	430.5	520.0		424.3
13-Jun-11	505.4	485.8	513.0	509.4	461.2	445.2	447.1	429.9	518.6		423.3
3-Jul-11		485.5									
17-Jul-11	503.1	485.3	511.9	508.3	460.1	444.6	446.6	428.8	517.5		423.4
14-Aug-11	502.1	485.0	511.3	507.7	459.8	444.4	446.3	428.7	517.1		423.0
18-Sep-11	501.7	484.8	510.7	507.1	459.7	444.2	446.1	428.4	516.3		
17-Oct-11	502.2	485.0	510.6	508.3	459.8	444.1	446.0	428.2	516.8	423.0	
20-Nov-11	502.7	485.1	511.1	508.9	460.3	444.4	446.3	428.7	517.2	423.8	
18-Dec-11	502.9	485.4	512.3	509.0	460.7	445.0	446.9	429.6	519.1		
15-Jan-12	(2)	485.4	512.5		(2)	(2)	446.9				
19-Feb-12	(2)	485.4	512.2		(2)	(2)	446.8				
26-Feb-12	(2)	487.0									
18-Mar-12	505.9	484.6	514.0	510.2	460.5	445.9	447.9	430.6	521.2	425.1	425.1
15-Apr-12	504.6	485.7	512.9	509.4	460.9	445.0	446.9	429.6	518.2	424.4	424.3
13-May-12	504.8	485.6	512.5	509.3	460.8	444.7	446.6	429.4	518.1	424.6	424.6
17-Jun-12	504.1	485.2	511.9	507.9	460.6	444.5	446.4	428.9	517.5	423.0	423.0
1-Jul-12	502.3	485.0									
15-Jul-12	502.1	486.6	511.3	507.4	460.3	444.3	446.2	428.7	517.1	423.6	423.6
12-Aug-12	504.1	486.6	511.1	507.6	460.3	444.4	446.3	428.6	517.4	424.1	424.1
16-Sep-12		485.0	510.9	506.1	460.3	444.3	446.2	428.7	517.1	423.6	423.5
7-Oct-12		487.3									

Table B-4 Groundwater Elevations - Domestic Wells

Well Name	RW1	RW2	RW3	RW4	RW5	RW6	RW7	RW8	RW9	RW12	RW13
Flow System	AM	AM	AM	AF	MT	OB	OB	OB	AM	OB	OB
Date TOP	508.8	505.2	519.0	510.5	478.6	451.0	453.0	431.0	524.0	425.8	425.8
14-Oct-12	502.6	485.0	510.8	507.5	460.3	444.2	446.1	428.6	517.3	423.8	423.8
18-Nov-12	506.0	485.5	512.7	509.8	460.9	445.1	447.1	429.8	519.7	424.5	424.5
16-Dec-12	506.0	486.7	512.6	509.7	461.0	444.9	446.9	429.6	518.7	424.4	424.4
13-Jan-13	507.5	485.6	512.9	510.0	461.0	445.3	447.3	(2)	519.8	424.8	424.8
17-Feb-13	505.6	486.0	513.0	509.6	461.3	445.0	447.0	429.7	518.7	(2)	(2)
17-Mar-13	505.4	485.8	512.8	509.9	460.2	445.2	447.3	(2)	519.4	(2)	(2)
31-Mar-13	505.2	485.7									
14-Apr-13	507.4	485.9	513.5	510.0	461.4	445.7	447.7	430.4	520.9	424.8	424.8
12-May-13	505.6	485.9	513.3	509.6	461.4	445.2	447.2	429.9	518.7	423.6	423.6
16-Jun-13	505.0	485.6	512.7	508.7	461.1	444.9	446.9	429.6	518.3	423.7	423.7
14-Jul-13	503.9	485.5	512.2	509.0	460.7	444.7	446.6	429.0	518.1	424.1	424.0
18-Aug-13	502.5	485.2	511.7	508.5	460.5	444.5	446.4	428.8	517.5	424.0	424.0
15-Sep-13	502.3	485.1	511.3	508.2	460.2	444.3	446.3	428.6	517.4	422.9	422.8
13-Oct-13	504.3	486.2	511.9	509.4	460.3	444.7	446.7	428.8	518.3	423.8	423.7
17-Nov-13	505.7	487.1	512.7	509.8	461.0	445.0	447.0	429.5	519.0	423.9	423.9
16-Dec-13	505.7	485.8	512.7	509.6	460.7	444.9	447.0	(2)	518.6	423.5	(2)
19-Jan-14	(2)	485.9	512.3	509.4	(2)	(2)	446.7	(2)	518.1	(2)	(2)
16-Feb-14	(2)	485.3	(2)	508.9	(2)	(2)	(2)	(2)	517.5	(2)	(2)
17-Mar-14	(2)	485.2	(2)	508.3	(2)	(2)	(2)	(2)	517.3	(2)	(2)
13-Apr-14	507.8	486.3	514.0	510.4	461.1	446.5	448.6	430.8	521.4	424.5	(2)
11-May-14	506.6	487.4	513.6	509.9	460.4	445.5	447.5	430.2	519.4	424.1	424.1
15-Jun-14	503.3	485.6	512.4	508.8	460.8	444.8	446.7	429.2	517.5	422.9	422.9
13-Jul-14	503.2	487.1	511.9	508.5	460.5	444.5	446.5	428.8	517.3	423.8	423.8
17-Aug-14	502.8	486.8	511.4	508.1	460.3	444.3	446.3	428.6	516.3	423.1	423.1
7-Sep-14	502.5	486.2	511.1	508.0	460.3	444.3	446.2	428.5	516.8	423.2	423.1
12-Sep-14		485.2									
19-Sep-14	503.3										
19-Oct-14	502.9	486.3	511.1	508.9	460.6	444.4	446.4	428.5	517.2	423.4	423.3
2-Nov-14	504.7	485.3			460.8						
16-Nov-14	505.6	485.5	512.0	509.7	461.0		446.9				
14-Dec-14	505.3	485.6	512.5	509.6	461.1		446.9				
18-Jan-15		485.7	512.6				446.9				
15-Feb-15		485.4	512.0								
15-Mar-15		485.4	511.7				446.5				
19-Apr-15	506.7	485.8	513.6	509.7	461.1	445.4	447.4	430.3		424.0	423.9
17-May-15	504.7	486.4	512.7	509.1	459.1	444.9	446.8	429.6		423.7	423.7
14-Jun-15	503.5	485.4	512.2	508.5	460.4	444.5	446.5	429.0		423.7	423.6
19-Jul-15	503.6	485.5	512.2	508.9	460.7	444.5	446.5	429.1			
9-Aug-15	502.6	485.3	511.6	508.4	460.3	444.4	446.3	428.8			
6-Sep-15	502.4	485.2	511.2	507.7	458.5	444.0	446.1	428.7			
11-Oct-15	501.9	487.2	510.6	507.5	458.4	443.8	445.8	428.3		423.0	423.0

Table B-4 Groundwater Elevations - Domestic Wells

Well Name	RW1	RW2	RW3	RW4	RW5	RW6	RW7	RW8	RW9	RW12	RW13
Flow System	AM	AM	AM	AF	MT	OB	OB	OB	AM	OB	OB
Date TOP	508.8	505.2	519.0	510.5	478.6	451.0	453.0	431.0	524.0	425.8	425.8
15-Nov-15	501.8	487.3	510.7	508.4	459.6	443.8	446.8	428.1		422.9	422.8
6-Dec-15	502.5	487.1	510.9	508.2	460.0	443.9	445.9	428.2		423.4	423.3
17-Jan-16	504.2	487.8	511.7	509.5	460.6	444.5	446.5	(2)		(2)	424.7
14-Feb-16	(2)	487.1	512.2	509.6	460.9	444.9	446.9	(2)		(2)	(2)
13-Mar-16	505.6	488.1	513.8	510.2	461.3	446.0	447.9	430.6		425.1	425.1
17-Apr-16	506.5	486.1	513.8	509.7	461.3	445.7	447.7	430.3		424.8	424.8
15-May-16	506.2	486.7	513.0	509.2	460.9	445.1	447.0	430.0		423.7	423.7
19-Jun-16	502.3	487.3	512.1	508.7	460.2	444.7	446.6	429.0		422.8	422.8
17-Jul-16	502.0	487.1	511.4	508.0	459.6	444.4	446.4	428.7		422.6	422.6
24-Jul-16	502.1	487.3									
21-Aug-16	502.2	485.1	510.3	506.8	459.8	444.1	446.1	428.5		422.9	422.9
18-Sep-16	500.7	485.0	510.4	507.3	459.5	444.0	446.0	428.2		422.9	422.9
29-Sep-16											
16-Oct-16	501.4	486.0	510.2	507.3	459.5	443.8	445.8	428.0		422.9	422.9
13-Nov-16	500.2	485.1	510.2	507.8	459.4	443.8	445.8	427.9		422.9	422.9
27-Nov-16	501.5	486.1									
11-Dec-16	501.5	485.7	510.3	508.4	459.7	443.7	445.7	(2)		(2)	(2)
15-Jan-17	(2)	485.4	511.1	509.7	460.4	444.4	446.4	(2)		(2)	(2)
12-Feb-17	504.6	486.6	511.8	509.6	459.7	(2)	(2)	(2)		(2)	(2)
19-Mar-17	(2)	485.8	513.1	509.8	460.9	445.2	447.2	(2)		(2)	(2)
9-Apr-17	507.2	485.9									
16-Apr-17	506.5	485.9	513.6	509.9	461.1	445.5	447.5	430.4		425.0	425.0
11-May-17		485.9	513.9	509.9	459.7	445.8	447.8	430.4		424.2	424.1
21-May-17	506.7										
25-Jun-17			513.2	509.6	461.1	445.0	447.0	430.0		424.0	424.0
19-Jul-17			512.7	507.8	460.6	444.8	446.8	429.5		423.4	423.3
3-Aug-17											
17-Aug-17	505.7		512.0	(5)	460.5	444.5	446.5	428.7		422.8	422.8
29-Aug-17											
17-Sep-17			511.6	508.7	459.4	444.4	446.4	428.8		422.7	422.7
26-Sep-17											
15-Oct-17			511.5	509.0	460.1	444.3	446.3	428.7		422.8	422.8
14-Nov-17	(2)		511.9	509.1	460.2	444.5	446.5			423.5	423.5
11-Dec-17	(2)		512.3	509.5	460.8	444.8	446.8	(2)		(2)	(2)
14-Jan-18	506.3	486.6	512.6	509.9	460.9	445.2	447.1	(2)		(2)	(2)
11-Feb-18	504.9										
18-Feb-18	507.5	486.6	513.5	510.2	461.1	445.8	447.8	430.5		(2)	(2)
18-Mar-18	505.4		513.0	509.5	461.1	445.0	447.0	429.7		(2)	(2)
15-Apr-18			512.9	509.9	459.8	445.2	447.2	430.0			
17-May-18	506.1		513.5	509.6	461.3	445.4	447.3	430.1		424.1	424.1
18-Jun-18	503.4		512.4	508.5	460.8	444.8	446.7	429.2		422.8	422.8

Table B-4 Groundwater Elevations - Domestic Wells

Well Name	RW1	RW2	RW3	RW4	RW5	RW6	RW7	RW8	RW9	RW12	RW13
Flow System	AM	AM	AM	AF	MT	OB	OB	OB	AM	OB	OB
Date TOP	508.8	505.2	519.0	510.5	478.6	451.0	453.0	431.0	524.0	425.8	425.8
17-Jul-18	502.3		511.6	508.0	459.3	444.5	446.4	428.6		422.5	422.4
22-Aug-18	500.6		511.0		459.9	444.1	446.2	428.5		423.2	423.2
18-Sep-18	501.1		510.6	507.4	458.5	444.1	446.1	428.2		423.2	423.2
23-Oct-18	501.0		510.4	507.0	459.6	444.0	445.9	428.0		423.5	423.5
19-Nov-18	502.5		511.0	509.0	460.3	444.1	446.2	428.4		424.6	424.6
10-Dec-18	503.8		511.7		460.6	444.8	446.7	428.9		423.6	423.6
17-Jan-19	(2)		512.4		460.4	(2)	446.5	(2)		(2)	(2)
14-Feb-19	505.2		512.7		461.1	(2)	447.1	(2)		423.5	(2)
11-Mar-19	503.5		512.4		461.0	(2)	446.7	(2)		(2)	(2)
26-Apr-19	506.5		514.2		460.6	445.9	447.9	430.5		424.3	424.3
22-May-19	505.5	487.0	513.3		461.1	445.2	447.2	429.9		423.5	423.6
19-Jun-19	503.3	485.7	512.7		461.1		446.8	429.4		423.9	423.8
19-Jul-19	502.3	487.3	511.9		460.5		446.5	428.7		423.4	423.3
27-Aug-19	501.2	485.0	510.3		459.9		446.3	428.3		423.0	423.0
16-Sep-19	501.2	485.1	510.7		458.7		445.8	428.3		423.3	423.3
21-Oct-19	501.2	487.9	510.4		459.4						
18-Nov-19	501.2	485.0	510.5		459.6		445.9	428.0		422.6	422.7
17-Dec-19	(2)	485.0	510.5		459.5		445.9	428.0		422.7	422.6
14-Jan-20	506.1	485.4	510.0		462.8		447.1	429.5		424.6	424.6
18-Feb-20		485.5						(5)			423.7
24-Mar-20	506.6						447.5	430.1		424.6	424.6
22-Apr-20	(5)	487.7			460.9		447.3	(5)		423.9	423.9
27-May-20	(5)		512.7		459.8		447.7	429.7		424.0	424.0
26-Jun-20	503.4	488.2	512.6		460.2	445.1	446.5	429.2		423.9	423.9
28-Jul-20	502.8	486.3	512.1		459.6	445.1	446.1	427.9		423.6	423.6
31-Aug-20	502.5	485.6	511.8		460.3	444.9	445.2	429.0		423.5	423.4
29-Sep-20	501.4	485.0	511.2		460.3	444.8	445.5	428.6		423.3	423.5
22-Oct-20	503.1	488.1	512.7		460.4	444.7	446.6	429.7		424.7	424.7
24-Nov-20	504.4		511.8		460.7	444.8	446.4	429.3		424.7	424.7
21-Dec-20	504.6				460.9		447.0	429.9		424.5	424.5
29-Jan-21	505.6		(2)		462.8		447.1	429.5		424.5	424.5
19-Feb-21	506.0	(2)	(2)		462.0		(2)	(2)		(2)	(2)
31-Mar-21	506.6	485.5	(3)		461.0					424.7	424.7
29-Apr-21	502.5	485.8	(3)		460.5		447.0	429.5		424.4	424.4
28-May-21	502.3	485.5	(3)		460.5	444.0	446.8	429.4		423.0	423.0
25-Jun-21	(3)	(5)	(3)		461.6	(5)	446.5	429.3		423.2	423.1
26-Jul-21	504.2	487.6	511.4		460.5		446.3	(3)		424.0	424.1
24-Aug-21	504.4	487.3	(3)		460.0		446.8	(3)		424.3	424.3
22-Sep-21	504.5	487.0	511.0		460.0		446.3	(3)		423.6	423.6
29-Oct-21	504.0	486.0	511.0		459.6		446.7	(3)		423.7	423.7
24-Nov-21	503.9	485.5	(3)				446.9	(3)		423.7	423.7

Table B-4 Groundwater Elevations - Domestic Wells

Well Name	RW1	RW2	RW3	RW4	RW5	RW6	RW7	RW8	RW9	RW12	RW13
Flow System	AM	AM	AM	AF	MT	OB	OB	OB	AM	OB	OB
Date TOP	508.8	505.2	519.0	510.5	478.6	451.0	453.0	431.0	524.0	425.8	425.8
23-Dec-21	503.9	486.8	(3)				446.9	(3)		423.6	423.6
26-Jan-22	504.2	(3)	(3)				(2)	(2)		423.8	423.8
10-Feb-22	504.0	(3)	(3)				(2)	(2)		423.3	423.3
16-Mar-22	504.7		513.0				446.7	(3)		424.0	424.1
22-Apr-22	505.5	486.0	513.3				447.1	(3)		423.3	423.3
26-May-22	502.3	485.7	(3)				446.8	(3)		423.0	423.0
20-Jun-22	505.5	(3)	512.0				448.1	(3)			
22-Jun-22											
13-Aug-22						444.7					
31-Aug-22	500.5	(3)	510.8		459.9		446.2	428.8		422.9	422.9
28-Sep-22											
29-Sep-22	500.8	485.0	510.6		459.7	(3)	445.9	428.2			
26-Oct-22											
27-Oct-22			510.5		459.7		445.8	428.0		422.7	422.7
28-Oct-22	500.0	484.9									
22-Nov-22										422.5	422.5
23-Nov-22					457.7						
24-Apr-23											
15-May-23											
29-May-23			512.8								
30-May-23	503.0	485.6			461.1		446.9	429.5		423.1	423.1
14-Jun-23											
27-Jun-23											
12-Jul-23											
25-Jul-23											
30-Aug-23											
30-Oct-23			511.2								
31-Oct-23								428.5			
1-Nov-23	500.6	484.9			460.3		446.2			423.0	422.9

Table B-4 Groundwater Elevations - Domestic Wells

Well Name	RW16	RW17	RW18	RW19
Flow System	AM		OB	AM
Date TOP	513.3	514.7	513.8	523.8
16-May-03			512.8	
26-Jun-03			512.7	
24-Jul-03	509.0		512.6	
21-Aug-03	508.2		512.2	
25-Sep-03	507.6		511.9	
22-Oct-03	508.8		512.4	
25-Nov-03	510.1		(2)	
22-Dec-03	510.4		512.8	
9-Feb-04	(2)		(2)	
16-Mar-04	(2)		(2)	
21-Apr-04	511.6		512.9	
18-May-04	510.6		512.7	
22-Jun-04	510.2		512.7	
28-Jul-04	509.2		512.5	
25-Aug-04	508.2		512.1	
24-Sep-04	507.6		511.8	
19-Oct-04	507.2		511.5	
16-Nov-04	507.4		511.7	
16-Dec-04	(2)		(2)	
31-Jan-05	(2)		(2)	
24-Feb-05	(2)		(2)	
22-Mar-05	(2)		(2)	
20-Apr-05	511.6		512.9	
25-May-05	510.7		512.6	
29-Jun-05	509.6		512.6	
13-Jul-05	508.9		512.6	
23-Aug-05	507.4		512.1	
26-Sep-05	506.8		511.3	
26-Oct-05	506.6		511.3	
16-Nov-05	506.9		511.9	
14-Dec-05	507.5		(2)	
20-Jan-06	509.0		(2)	
14-Feb-06	509.5		(2)	
19-Mar-06	511.3		(2)	
17-Apr-06	511.6		512.8	
19-May-06	510.1		512.6	
19-Jun-06	508.5		512.5	
10-Jul-06			512.5	
23-Aug-06	506.4		511.3	
18-Sep-06	506.2		511.2	
17-Oct-06	506.2		511.5	

Table B-4 Groundwater Elevations - Domestic Wells

Well Name	RW16	RW17	RW18	RW19
Flow System	AM		OB	AM
Date TOP	513.3	514.7	513.8	523.8
22-Nov-06	509.1		512.6	
15-Dec-06	509.9		512.7	
22-Jan-07	(2)		(2)	
19-Feb-07	(2)		(2)	
18-Mar-07	(2)		(2)	
15-Apr-07	511.1		512.7	
17-May-07	509.6		512.5	
17-Jun-07	507.9		512.4	
15-Jul-07	506.8			
19-Aug-07	506.0		510.9	
10-Sep-07				
16-Sep-07	505.8			
14-Oct-07	505.6			
18-Nov-07	506.1			
9-Dec-07	(2)			
20-Jan-08	(2)			
17-Feb-08	(2)	511.2		
16-Mar-08	(2)	511.2		
6-Apr-08	(2)	511.6	512.9	
20-Apr-08	511.6	511.5	512.9	
18-May-08	510.2	511.1	512.8	
15-Jun-08	508.8	510.9	512.4	
13-Jul-08	507.5	510.7	512.3	
17-Aug-08	507.4	510.8	512.1	
31-Aug-08			511.7	
14-Sep-08	506.5	510.8	511.9	
19-Oct-08	507.8	510.8	512.5	518.8
23-Nov-08	(2)	(2)	513.0	(2)
14-Dec-08	(2)	510.2	(2)	(2)
18-Jan-09	(2)	(2)	(2)	(2)
8-Feb-09	509.4	511.1	(2)	(2)
15-Mar-09	510.7	511.3	513.4	(2)
12-Apr-09	510.8	511.3	512.7	515.1
17-May-09	510.0	511.1	512.8	514.6
14-Jun-09	508.6	510.9	512.4	
12-Jul-09	507.3	510.7	512.2	511.2
9-Aug-09	506.5	510.5	512.4	510.3
13-Sep-09	506.0	509.8	512.8	507.5
11-Oct-09	506.5	510.4	513.0	508.9
15-Nov-09	507.1	510.5	513.1	508.3
29-Nov-09	507.1			

Table B-4 Groundwater Elevations - Domestic Wells

Well Name	RW16	RW17	RW18	RW19
Flow System	AM		OB	AM
Date TOP	513.3	514.7	513.8	523.8
13-Dec-09	507.6	(2)	513.0	509.6
12-Jan-10	507.5			
17-Jan-10	508.3	510.8	(2)	509.3
7-Feb-10		510.8	(2)	508.8
14-Mar-10	509.6	511.6	512.9	508.9
18-Apr-10	510.4	511.2	513.0	509.6
16-May-10	509.6	511.1	512.6	
8-Jun-10	508.9			
13-Jun-10	508.9	511.2	512.2	512.2
21-Jul-10	508.4	511.1	512.3	511.7
16-Aug-10	507.5	510.8	512.2	509.0
12-Sep-10	506.6	510.6	512.4	509.0
26-Sep-10	506.5			
17-Oct-10	507.0	510.8	512.8	508.8
14-Nov-10	508.5	511.1	512.8	508.6
19-Dec-10		(2)	512.4	508.8
16-Jan-11		(2)	(2)	509.5
20-Feb-11	508.9	511.2	(2)	508.3
13-Mar-11	509.2	511.2	(2)	509.2
17-Apr-11	511.2	511.4	(2)	509.8
15-May-11	510.6	511.5	512.9	509.2
13-Jun-11	509.7	511.1	512.5	507.9
3-Jul-11	508.2			
17-Jul-11	507.6	510.6	511.8	507.8
14-Aug-11	507.2	510.3	511.9	508.2
18-Sep-11	506.5	509.7	511.8	509.0
17-Oct-11	506.9	510.3	511.8	508.2
20-Nov-11	508.0	510.7	511.9	508.6
18-Dec-11	509.8	511.2	512.4	508.9
15-Jan-12	509.6	511.1		
19-Feb-12	509.3	510.8	512.5	509.2
26-Feb-12	508.2			
18-Mar-12	511.2	511.5	512.9	510.7
15-Apr-12	509.6	511.1	512.3	507.8
13-May-12	508.6	511.0	512.3	508.8
17-Jun-12	507.4	510.8	512.2	508.5
1-Jul-12	506.6			
15-Jul-12	506.4	510.3	511.9	508.3
12-Aug-12	507.1	510.9	512.3	509.0
16-Sep-12	506.5	510.4	510.9	507.8
7-Oct-12	506.3			

Table B-4 Groundwater Elevations - Domestic Wells

Well Name	RW16	RW17	RW18	RW19
Flow System	AM		OB	AM
Date TOP	513.3	514.7	513.8	523.8
14-Oct-12	506.8	510.6	510.9	509.2
18-Nov-12	509.6	511.2	512.8	510.0
16-Dec-12	509.1	511.2	513.1	509.0
13-Jan-13	509.6	511.5	513.1	510.0
17-Feb-13	509.3	511.2	(2)	508.2
17-Mar-13	509.5	511.2	(2)	508.7
31-Mar-13	509.1			
14-Apr-13	510.5	511.4	512.9	509.3
12-May-13	510.0	511.2	512.7	508.5
16-Jun-13	508.9	511.0	512.5	508.8
14-Jul-13	508.1	510.9	512.0	508.9
18-Aug-13	507.1	510.7	512.0	508.6
15-Sep-13	506.5	510.6	512.2	509.6
13-Oct-13	508.2	511.2	512.3	509.6
17-Nov-13	509.2	511.3	512.5	508.8
16-Dec-13	509.1	511.2	(2)	508.8
19-Jan-14	508.5	511.1	(2)	509.5
16-Feb-14	507.7	510.9	(2)	509.6
17-Mar-14	507.4	510.9	(2)	509.4
13-Apr-14	511.9	512.2	(2)	512.2
11-May-14	510.5	511.3	512.6	509.4
15-Jun-14	508.2	510.9	511.9	509.3
13-Jul-14	507.2	510.8	512.0	509.3
17-Aug-14	506.6	510.6	511.9	509.2
7-Sep-14	506.3	510.5	511.9	509.2
12-Sep-14	506.8			
19-Sep-14				
19-Oct-14	507.5	510.8	512.9	509.2
2-Nov-14	508.2			507.7
16-Nov-14	508.9	511.2	512.9	509.2
14-Dec-14	509.1	511.1	512.8	509.2
18-Jan-15				
15-Feb-15				
15-Mar-15				507.9
19-Apr-15	510.6	511.4	512.9	513.1
17-May-15	509.0	511.0	512.6	509.8
14-Jun-15	507.9	511.0	512.3	508.5
19-Jul-15	507.9	510.9	512.1	508.0
9-Aug-15	507.0	510.8	511.6	507.2
6-Sep-15	506.2	510.5	511.0	506.5
11-Oct-15	505.6	509.9	(1)	506.0

Table B-4 Groundwater Elevations - Domestic Wells

Well Name	RW16	RW17	RW18	RW19
Flow System	AM		OB	AM
Date TOP	513.3	514.7	513.8	523.8
15-Nov-15	506.3	510.6	510.8	506.4
6-Dec-15	507.3	510.8	511.0	506.4
17-Jan-16	(2)	511.0	(2)	507.5
14-Feb-16	508.7	511.1	(2)	508.9
13-Mar-16	512.5	511.7	513.0	514.9
17-Apr-16	510.7	511.3	512.9	514.4
15-May-16	509.4	511.1	512.6	511.0
19-Jun-16	507.6	510.7	512.2	508.8
17-Jul-16	506.3	510.3	511.2	507.1
24-Jul-16	506.1			
21-Aug-16	505.6	509.7	(1)	506.0
18-Sep-16	505.3	509.4	(1)	505.6
29-Sep-16	505.2			
16-Oct-16	505.1	509.2	(1)	505.3
13-Nov-16	505.1	509.3	(1)	505.2
27-Nov-16	505.1			
11-Dec-16	506.0	509.8	(2)	505.2
15-Jan-17	508.1	510.9	(2)	507.8
12-Feb-17	508.3	510.9	(2)	507.4
19-Mar-17	509.9	511.2	(2)	510.7
9-Apr-17	510.4			
16-Apr-17	510.3	511.3	512.7	512.0
11-May-17	510.6	511.3	512.7	512.8
21-May-17	510.1			
25-Jun-17	509.2	511.4	512.6	510.9
19-Jul-17	508.4	511.0	512.5	509.6
3-Aug-17	507.7			
17-Aug-17	507.2	510.8	511.7	507.9
29-Aug-17	506.8			
17-Sep-17	506.5	510.6	511.0	506.8
26-Sep-17	506.5			
15-Oct-17	507.2	510.8	511.3	506.7
14-Nov-17	507.8	511.0	511.5	507.0
11-Dec-17	512.5	(2)	(2)	510.3
14-Jan-18	509.0	511.3	(2)	509.4
11-Feb-18	508.7			
18-Feb-18	510.4		(2)	509.9
18-Mar-18	509.6	511.1	(2)	509.9
15-Apr-18	509.5	511.4		510.5
17-May-18	510.6	511.2	512.5	510.8
18-Jun-18	508.0	510.8	511.9	508.5

Table B-4 Groundwater Elevations - Domestic Wells

Well Name	RW16	RW17	RW18	RW19
Flow System	AM		OB	AM
Date TOP	513.3	514.7	513.8	523.8
17-Jul-18	506.7	510.3	510.9	506.8
22-Aug-18	505.7	511.7	511.3	504.7
18-Sep-18	505.4	509.5	511.3	504.2
23-Oct-18	505.1	509.5	510.9	504.9
19-Nov-18	507.0	510.7	(2)	505.7
10-Dec-18	507.0	511.0	(2)	506.8
17-Jan-19	508.7	511.1	(2)	508.7
14-Feb-19	508.7	511.2	(2)	(2)
11-Mar-19	509.4	511.0	(2)	510.8
26-Apr-19	511.3	511.4	512.7	514.1
22-May-19	511.3	511.2	512.7	509.6
19-Jun-19	508.7	510.9	512.1	508.0
19-Jul-19	506.9	510.3	510.9	506.5
27-Aug-19	505.8	509.9	511.0	505.2
16-Sep-19	505.5	509.3	511.0	505.0
21-Oct-19				
18-Nov-19	505.5	510.0	511.0	504.1
17-Dec-19	507.2	510.8	(2)	(2)
14-Jan-20	508.9	510.8	(5)	
18-Feb-20	511.3	509.4		
24-Mar-20	510.0	511.4		
22-Apr-20	509.9	511.2	512.5	509.4
27-May-20	508.4	511.0	511.7	507.8
26-Jun-20	508.4	510.8	511.7	507.5
28-Jul-20	506.4	510.8	510.8	
31-Aug-20	506.6	510.2	511.0	
29-Sep-20	506.4	509.9	510.8	
22-Oct-20	506.7	511.9	510.7	
24-Nov-20	509.4	509.8	510.8	
21-Dec-20	509.0	510.2		
29-Jan-21	509.2	510.8	(2)	
19-Feb-21	(2)	(2)	(2)	
31-Mar-21	509.4		(2)	
29-Apr-21	510.0	509.9	512.4	
28-May-21	509.7	510.0	512.0	
25-Jun-21	509.6	510.1	511.8	
26-Jul-21	506.4	510.5	508.6	
24-Aug-21	505.9	510.0	508.9	
22-Sep-21	508.4	510.5	509.5	
29-Oct-21	508.7	510.7	510.7	
24-Nov-21	508.5	511.2	511.5	

Table B-4 Groundwater Elevations - Domestic Wells

Well Name	RW16	RW17	RW18	RW19
Flow System	AM		OB	AM
Date TOP	513.3	514.7	513.8	523.8
23-Dec-21	508.5	511.4	511.2	
26-Jan-22	507.6	(3)		
10-Feb-22	(2)	(3)		
16-Mar-22	508.6	510.2		
22-Apr-22	509.3	510.5		
26-May-22	507.3	(3)		
20-Jun-22				
22-Jun-22	509.3			
13-Aug-22				
31-Aug-22	507.2	(3)		
28-Sep-22	504.6			
29-Sep-22		509.7		
26-Oct-22		509.4		
27-Oct-22				
28-Oct-22	504.5			
22-Nov-22				
23-Nov-22				
24-Apr-23	509.8			
15-May-23	508.9			
29-May-23		510.9		
30-May-23	508.0			
14-Jun-23	507.3			
27-Jun-23	506.7			
12-Jul-23	507.1			
25-Jul-23	509.8			
30-Aug-23	506.4			
30-Oct-23		510.5		
31-Oct-23				
1-Nov-23	505.0			

Table B-5 Groundwater Elevations - Carmarthen Lake Farms Wells

Well Name	CLF1	CLF2	CLF3	CLF4	CLF5
Flow System	AF	AF	AM	AM	AM
Date TOP	521.1	519.2	517.6	510.0	509.2
8-Jun-96	511.8		507.5	507.5	507.5
6-Sep-96	511.7	511.7	507.2	507.2	507.3
23-Dec-96	512.0	512.1	508.3	508.1	507.9
26-Feb-97	512.1	512.1	(2)	509.1	508.4
8-May-97	512.0	512.0	508.3	509.1	508.1
26-Aug-97	511.9	511.9	507.5	508.6	507.5
19-Dec-97	511.9	511.9	507.8	509.0	507.7
27-Feb-98	(2)	514.8	(2)	509.0	(2)
8-Apr-98		510.2	509.5	509.1	508.7
10-May-98	511.6	511.6	507.3	507.3	507.3
29-Dec-98	(2)	(2)	(2)	508.7	(2)
24-Feb-99	(2)	(2)	(2)	508.8	(2)
28-Apr-99	511.8	510.6	507.7	508.6	506.9
26-May-99	512.0	510.1	507.5	508.4	507.5
29-Jun-99		510.3	507.4	507.4	507.4
26-Jul-99			507.3	507.3	507.4
17-Aug-99	510.3	511.4	507.2	507.3	507.6
27-Sep-99	511.8	511.2	507.1	507.2	507.3
25-Oct-99	510.8	511.0	507.2	507.2	507.3
21-Nov-99	511.1	511.3	507.4	507.4	507.4
21-Dec-99	511.2	511.4	507.5	507.7	507.5
25-Jan-00	(2)	(2)	507.8	508.6	507.6
29-Feb-00	(2)	(2)	509.5	509.0	508.6
31-Mar-00	(2)	(2)	507.9	509.0	507.8
2-Jun-00	511.0	511.1	508.0	508.7	507.8
7-Jul-00	510.7	510.8	507.8	508.8	507.7
27-Aug-00	510.6	510.6	507.4	508.4	507.4
28-Sep-00	510.9	510.9	507.6	508.7	507.5
3-Nov-00	511.0	511.0	507.7	508.8	507.6
22-Feb-01	(2)	(2)	(2)	(2)	(2)
22-Mar-01	(2)	(2)	(2)	(2)	(2)
2-May-01	510.5		508.3	508.7	
7-Jun-01			507.5	508.6	507.5
12-Jul-01	509.1		507.3	507.5	506.9
1-Aug-01	509.7		507.3	507.3	507.3
4-Oct-01	509.8	509.7	507.3	507.4	507.3
1-Nov-01	510.5	510.8	508.2	509.0	507.9
14-Dec-01	510.4	510.5	508.0	508.9	507.8
10-Jan-02	510.3	510.4	507.8	509.0	507.6
14-Mar-02	(2)	(2)	(2)	509.0	(2)
16-May-02	510.7	510.8	508.0	509.2	507.8

Table B-5 Groundwater Elevations - Carmarthen Lake Farms Wells

Well Name	CLF1	CLF2	CLF3	CLF4	CLF5
Flow System	AF	AF	AM	AM	AM
Date TOP	521.1	519.2	517.6	510.0	509.2
20-Jun-02	509.9	510.5	507.7	508.7	507.6
11-Jul-02	506.5	509.5	507.8	507.7	507.5
13-Sep-02	508.9	509.6	507.1	507.2	507.3
1-Nov-02	510.9	510.3	507.0	507.1	507.2
16-Jan-03	(2)	(2)	507.3	508.5	(2)
11-Apr-03	510.8	511.1	(2)	509.2	(2)
15-May-03	510.5	513.7	507.8	508.9	507.6
24-Jun-03	510.4	510.6	507.5	508.4	507.4
22-Jul-03	510.1	510.2	507.4	507.3	507.4
20-Aug-03	509.8	509.9	507.3	507.3	507.4
25-Sep-03	509.3	509.6	507.2	507.2	506.8
22-Oct-03	509.3	508.3	507.3	508.7	507.4
25-Nov-03	510.4	509.6	508.3	508.9	508.0
11-Dec-03	510.4	510.2	(2)	(2)	(2)
22-Dec-03	510.6	510.7	508.3	509.0	
9-Feb-04	509.5	509.5	(2)	508.8	(2)
16-Mar-04	510.3	510.5	508.4	509.0	508.0
2-Apr-04	512.0	512.4	(2)	(2)	(2)
20-Apr-04	510.8	511.1	508.9	509.0	508.2
18-May-04	510.2	510.4	507.9	508.9	507.7
22-Jun-04	509.6	510.0	507.6	508.8	507.6
28-Jul-04	509.4	509.7	507.4	508.4	507.4
25-Aug-04	509.2	509.5	507.0	507.3	507.3
22-Sep-04	509.5	509.6	507.2	507.2	507.3
19-Oct-04	509.4	509.5	507.1	507.2	507.2
16-Nov-04	508.2	508.3	507.2	507.2	507.3
16-Dec-04	(2)	509.2	507.3	508.7	507.4
31-Jan-05	(2)	509.2	507.8	508.7	(2)
24-Feb-05	(2)	508.8	507.6	508.9	507.5
22-Mar-05	508.8	508.5	(2)	508.8	(2)
20-Apr-05	511.4	511.9	510.1	509.2	508.8
25-May-05	510.6	510.9	507.9	508.7	507.7
29-Jun-05	510.1	510.5	507.5	508.4	506.3
13-Jul-05	510.3	510.4	507.4	507.5	507.4
23-Aug-05	510.2	510.3	507.3	507.3	507.3
26-Sep-05	510.2	510.3	507.2	507.2	507.3
26-Oct-05	510.4	510.4	507.2	507.2	507.3
16-Nov-05	510.6	510.6	507.2	507.2	507.3
14-Dec-05	(2)	510.3	507.4	508.5	507.4
20-Jan-06	510.5	510.6	508.1	509.0	507.9
12-Feb-06	510.4	510.6	507.9	508.9	507.8

Table B-5 Groundwater Elevations - Carmarthen Lake Farms Wells

Well Name	CLF1	CLF2	CLF3	CLF4	CLF5
Flow System	AF	AF	AM	AM	AM
Date TOP	521.1	519.2	517.6	510.0	509.2
19-Mar-06	511.2	511.3	509.0	509.0	508.3
16-Apr-06	511.0	511.1	509.2	509.0	508.5
14-May-06	510.3	510.5	507.8	508.9	507.3
18-Jun-06	509.6	509.8	507.4	507.7	506.6
9-Jul-06	509.8	509.7	507.3	507.3	506.3
20-Aug-06	509.5	509.6	507.2	507.2	506.3
17-Sep-06	509.4	509.6	507.1	507.1	507.2
15-Oct-06	509.3	509.2	507.2	507.2	507.3
19-Nov-06	510.4	510.5	508.1	508.9	507.8
10-Dec-06	510.6	510.7	510.4	509.1	508.0
21-Jan-07	511.9	(2)	507.8	508.9	507.6
18-Feb-07	(2)	(2)	507.5	508.7	507.5
18-Mar-07	510.3	510.6	508.7	509.1	508.0
15-Apr-07	511.3	510.7	508.5	509.1	508.0
17-May-07	509.9	509.9	507.6	509.0	507.6
21-Jun-07	509.1	509.1	507.4	508.2	507.4
17-Jul-07	509.2	508.4	507.3	507.3	507.3
21-Aug-07	509.2	509.3	507.1	507.2	507.2
18-Sep-07	509.6	509.7	507.0	507.1	507.2
22-Oct-07	509.6	509.7	507.0	507.0	507.2
23-Nov-07	509.7	509.8	507.3	507.5	507.3
13-Dec-07	509.6	509.8	(2)	508.8	(2)
24-Jan-08	509.7	509.8	507.3	508.8	507.9
21-Feb-08	509.5	509.6	507.5	509.1	508.3
18-Mar-08	510.5	510.7	(2)	509.0	(2)
7-Apr-08	511.6	511.8	(2)	509.4	508.8
21-Apr-08	510.5	511.2	509.5	509.1	508.5
20-May-08	510.6	510.8	507.9	508.9	508.3
16-Jun-08	510.3	510.3	507.4	508.7	507.8
14-Jul-08	509.5	509.8	505.0	507.7	507.0
18-Aug-08	509.5	510.5	507.1	508.4	507.8
15-Sep-08	508.9	510.3	507.5	508.4	507.7
20-Oct-08	509.8	509.4	507.4		507.8
23-Nov-08	510.4	510.2	507.6	508.7	508.3
14-Dec-08	512.7	511.5	507.6	509.4	(2)
18-Jan-09	511.9	510.8	507.0	509.0	(2)
8-Feb-09	510.0	508.4	507.2	509.1	(2)
15-Mar-09	510.8	510.9	507.3	509.2	
12-Apr-09	510.8	510.5	507.3	509.2	
17-May-09	510.5	510.5	508.0	508.8	507.7
14-Jun-09	510.4	510.3	507.9	508.8	507.5

Table B-5 Groundwater Elevations - Carmarthen Lake Farms Wells

Well Name	CLF1	CLF2	CLF3	CLF4	CLF5
Flow System	AF	AF	AM	AM	AM
Date TOP	521.1	519.2	517.6	510.0	509.2
12-Jul-09	509.7	508.8	507.4	507.4	506.7
9-Aug-09	509.8	509.0	507.1	507.3	506.5
13-Sep-09	509.8	509.9	507.2	507.3	506.5
11-Oct-09	510.2	510.3	507.4	508.8	507.9
15-Nov-09	509.8	510.0	507.4	508.7	507.9
13-Dec-09	509.9	510.2	507.5	509.1	508.3
17-Jan-10	509.9	510.1	507.5	509.1	508.2
7-Feb-10	510.0	510.1	507.7	509.1	508.3
14-Mar-10	511.4	511.4	509.0	509.5	508.6
18-Apr-10		510.8	508.3	509.0	507.9
16-May-10	510.6	510.9	507.9	508.9	507.7
8-Jun-10					
13-Jun-10	511.0	510.8	507.6	508.9	507.8
21-Jul-10	510.5	510.7	507.4	509.0	508.0
16-Aug-10	510.2	510.3	507.5	508.9	507.7
12-Sep-10	510.2	510.3	507.2	507.3	507.4
17-Oct-10	510.3	510.3	507.5	508.5	507.4
14-Nov-10	510.3	510.5	507.5	508.6	507.6
19-Dec-10	510.4	510.7	508.2	509.1	508.0
16-Jan-11	510.6	510.6	508.2	509.3	508.2
20-Feb-11	510.5	510.4	508.1	509.1	508.2
13-Mar-11	510.7	510.7		509.2	508.3
17-Apr-11	511.0	511.1	509.0	509.2	508.2
15-May-11	511.2	511.3	508.6	509.2	508.2
13-Jun-11	510.9	511.0	508.2	508.9	507.8
17-Jul-11	509.9	510.1	507.4	507.5	506.6
14-Aug-11	509.4	509.4	507.3	508.1	506.2
18-Sep-11	509.1	509.3	507.2	508.0	506.1
17-Oct-11	508.6	508.8	507.3	507.8	506.5
20-Nov-11	510.2	509.2	507.3	508.6	507.3
18-Dec-11	510.3	509.3	507.4	508.8	507.5
15-Jan-12	510.4	509.5	507.6	509.0	507.8
19-Feb-12	510.5	509.6	(2)	508.9	508.0
26-Feb-12					
18-Mar-12	512.1	511.3	509.7	509.0	508.0
15-Apr-12	510.6	510.7	507.8	508.9	507.9
13-May-12	510.4	510.5	507.7	508.8	507.8
17-Jun-12	510.0	510.1	507.4	508.5	507.5
15-Jul-12	509.8	510.0	507.3	508.5	507.5
12-Aug-12	510.5	510.9	507.5	508.5	507.5
16-Sep-12	510.0	510.1	507.3	507.3	507.3

Table B-5 Groundwater Elevations - Carmarthen Lake Farms Wells

Well Name	CLF1	CLF2	CLF3	CLF4	CLF5
Flow System	AF	AF	AM	AM	AM
Date TOP	521.1	519.2	517.6	510.0	509.2
14-Oct-12	510.2	510.7	507.5	507.8	507.8
18-Nov-12	510.4	511.1	508.1	508.4	508.6
16-Dec-12	510.7	510.8	507.6	508.7	508.3
13-Jan-13	511.0	511.1	508.3	509.2	508.6
17-Feb-13	511.3	511.2	508.3	509.3	508.6
17-Mar-13	511.0	510.8	508.2	509.0	508.4
14-Apr-13	511.3	510.0	509.0	509.2	508.5
12-May-13	510.5	508.9	508.1	508.9	508.2
16-Jun-13		510.9	507.9	508.8	508.1
14-Jul-13		510.9	507.6	508.6	507.9
18-Aug-13		510.4	507.4	508.2	507.6
15-Sep-13		510.4	507.4	508.3	507.6
13-Oct-13		509.9	507.5	508.6	508.0
17-Nov-13		510.2	507.7	509.5	508.7
16-Dec-13		510.2	507.6	509.5	508.7
19-Jan-14		510.2	507.5	509.4	508.6
16-Feb-14		510.3	507.6	509.5	508.7
17-Mar-14		510.7	(2)	509.4	508.6
13-Apr-14		510.7	(2)	509.3	508.5
11-May-14		510.6	508.5	508.9	508.1
18-Jun-14		510.6	507.6	507.6	506.8
13-Jul-14		510.7	507.3	508.3	507.6
17-Aug-14		510.7	507.3	508.5	507.7
7-Sep-14		510.6	507.2	507.4	507.4
19-Oct-14		510.8	507.5	509.4	508.5
16-Nov-14		511.1	508.1	509.0	508.2
14-Dec-14		511.0		509.1	508.3
18-Jan-15		511.0	508.9	509.1	508.3
15-Feb-15		(2)	(2)	(2)	(2)
15-Mar-15		(2)	(2)	509.2	(2)
19-Apr-15		510.8	509.0	509.3	508.4
17-May-15		510.9	507.7	508.6	507.6
14-Jun-15		510.8	507.5	508.8	507.5
19-Jul-15		510.8	507.5	508.4	507.5
9-Aug-15		510.8	507.4	507.4	507.2
6-Sep-15		510.6	507.3	507.3	507.0
11-Oct-15		510.6	507.2	507.3	507.3
15-Nov-15		510.8	507.4	508.6	507.4
6-Dec-15		510.7	507.5	508.6	507.5
17-Jan-16		510.5	507.8	508.9	507.6
14-Feb-16		510.8	507.9	508.9	507.7

Table B-5 Groundwater Elevations - Carmarthen Lake Farms Wells

Well Name	CLF1	CLF2	CLF3	CLF4	CLF5
Flow System	AF	AF	AM	AM	AM
Date TOP	521.1	519.2	517.6	510.0	509.2
13-Mar-16		511.3	509.6	509.3	508.6
17-Apr-16		510.9	508.9	509.0	508.3
15-May-16		510.9	507.8	508.9	507.7
19-Jun-16		510.6	507.5	507.5	507.4
17-Jul-16		510.7	507.3	507.4	507.4
21-Aug-16		510.7	507.2	507.3	507.3
18-Sep-16		510.7	507.2	507.3	507.3
16-Oct-16		510.7	507.2	507.2	507.3
13-Nov-16		510.6	507.2	507.3	507.3
11-Dec-16		(2)	507.3	507.3	(2)
15-Jan-17		510.8	508.1	509.2	507.9
12-Feb-17		510.9	(2)	(2)	(2)
19-Mar-17		510.7	508.1	508.8	507.9
16-Apr-17		511.1	508.9	509.1	508.2
19-May-17		511.1	508.7	509.0	508.0
25-Jun-17		511.2	508.3	509.1	508.0
19-Jul-17		510.9	507.9	508.9	507.7
17-Aug-17		510.8	507.6	508.8	507.6
17-Sep-17		509.5	507.5	508.4	507.4
15-Oct-17		511.0	507.5	509.0	507.5
14-Nov-17		511.0	507.8	509.3	507.7
11-Dec-17		510.9	507.8	509.1	507.6
14-Jan-18		511.2	508.7	509.1	508.2
11-Feb-18		511.6	508.3	509.5	508.2
18-Feb-18		510.3	507.9	508.9	507.8
18-Mar-18		510.3	507.9	508.9	507.8
15-Apr-18		511.6	508.2	509.2	508.0
17-May-18		511.6	508.4	509.1	508.0
18-Jun-18			507.5	507.8	507.5
17-Jul-18		511.1	507.4	507.3	507.4
22-Aug-18		511.5	507.3	507.3	507.3
18-Sep-18		511.4	507.3	507.3	507.3
23-Oct-18		511.4	507.3	507.3	507.0
19-Nov-18			507.5	508.9	507.5
10-Dec-18		511.6	508.0	509.0	507.8
17-Jan-19		(2)	507.0	508.9	507.8
14-Feb-19		511.6	508.3	508.9	508.0
11-Mar-19		(2)	(2)	508.9	(2)
26-Apr-19		512.3	510.0	509.1	508.4
22-May-19			508.3	509.0	508.0
19-Jun-19			507.7	508.7	507.6

Table B-5 Groundwater Elevations - Carmarthen Lake Farms Wells

Well Name	CLF1	CLF2	CLF3	CLF4	CLF5
Flow System	AF	AF	AM	AM	AM
Date TOP	521.1	519.2	517.6	510.0	509.2
19-Jul-19		510.5	507.4	507.5	507.4
27-Aug-19		511.2	506.9	507.4	507.4
16-Sep-19		511.4	507.2	507.2	507.3
21-Oct-19		511.3	507.2	507.2	507.3
18-Nov-19		511.5	507.4	507.5	507.4
17-Dec-19		510.2	507.8	508.9	507.7
14-Jan-20		510.3	508.1	508.9	507.7
18-Feb-20				508.9	
24-Mar-20		512.0		509.1	508.5
22-Apr-20			508.1	509.0	507.8
27-May-20			507.5	508.8	507.5
26-Jun-20			508.4	508.8	507.6
28-Jul-20			507.4	508.4	507.4
31-Aug-20					
28-Sep-20			507.3	507.3	507.3
27-Oct-20			507.0	508.6	507.3
24-Nov-20			507.4	508.8	507.4
21-Dec-20				509.0	
29-Jan-21			(2)	(2)	(2)
19-Feb-21			(2)	(2)	(2)
31-Mar-21			509.1	509.2	508.6
29-Apr-21			508.0	509.2	507.8
28-May-21			507.6	508.5	507.5
25-Jun-21			507.3	507.4	507.4
26-Jul-21			507.3	508.5	507.4
24-Aug-21			507.4	508.1	507.2
22-Sep-21			508.6	509.1	508.2
29-Oct-21			507.3	508.6	507.3
24-Nov-21			507.9	509.1	507.8
23-Dec-21			507.9	509.1	507.8
26-Jan-22			(2)	(2)	(2)
10-Feb-22			(2)	(2)	(2)
16-Mar-22			509.0	509.1	(2)
22-Apr-22			508.2	509.2	507.9
26-May-22			507.6	508.7	507.6
20-Jun-22			508.2	509.2	508.0
31-Aug-22			507.3	507.3	507.3
27-Sep-22			507.3	507.3	507.4
28-Oct-22			507.3	507.3	507.4
29-May-23			(5)	508.6	507.7
1-Nov-23			507.4	507.3	507.4

Table B-6 Groundwater Elevations - Offsite Monitoring Wells

Well Name	101-B	102-C	103-D	104-A	OW1-4	OW3-1	OW5-2	OW6-3
Flow System	AM	AM	AM	AM	AF	AF	AF	AM
Date TOP	503.0	511.4	513.4	517.7	514.4	508.8	504.2	511.1
17-Apr-99	500.9	510.3	512.0	513.6	511.8	505.3	502.2	510.4
28-Apr-99	500.5	509.9	512.0	513.1	511.6	504.8	501.8	510.2
26-May-99	500.3	510.2	512.0	512.5	511.7	504.8	501.5	510.4
29-Jun-99	500.1	509.9	511.7	511.9	511.4	504.7	501.3	510.1
26-Jul-99	500.0	509.7	511.4	511.4	511.2	504.4	501.1	510.0
17-Aug-99	499.9	509.7	511.4	511.2	511.2	504.3	501.0	510.0
17-Sep-99	499.7	509.5	511.2	510.8	511.0	503.9	500.9	509.9
21-Nov-99	500.7	510.2	511.6	511.0	511.4	505.0	502.0	510.4
29-Feb-00	500.9	510.3	511.9	511.7	511.5	505.2	502.1	510.5
31-Mar-00	500.8	510.3	511.8	513.3	511.5	505.1	502.0	510.5
2-Jun-00	500.8	510.2	511.8	513.7	511.3	505.1	502.0	510.3
7-Jul-00	500.8	510.0	511.6	513.4	511.1	505.3	502.0	510.2
29-Aug-00	500.4	509.9	510.9	512.0	510.7	504.8	501.6	510.1
9-Nov-00	500.3	509.9	510.5	511.2	510.3	504.6	501.5	510.0
26-Apr-01	501.1	510.2	512.0	514.3	511.7	505.1	502.3	510.4
5-Jul-01	500.3	509.8	510.3	511.7	510.3	504.8	501.5	509.9
1-Aug-01	500.1	509.5	510.1	511.0	510.0	504.2	501.2	509.6
11-Oct-01	500.2	510.0	510.0	510.1	510.0	504.1	501.5	510.1
14-Dec-01	500.8	510.1	510.9	512.5	510.7	505.1	502.0	510.2
7-Feb-02	500.7	510.0	510.7	512.6	510.5	505.1	501.9	510.1
18-Apr-02	501.3	510.3	512.0	513.0	511.5	505.3	502.5	510.4
13-Jun-02	500.6	509.7	511.0	511.6	510.4	505.1	501.8	509.6
8-Aug-02	500.0	509.3	510.0	510.2	509.9	504.4	501.2	509.5
11-Oct-02	499.8	509.4	509.8	509.8	509.7	505.1	500.9	509.5
9-Dec-02	500.0	509.9	(2)	509.8	509.7	(2)	501.2	510.0
14-Feb-03	(2)	509.8	(2)	513.6	509.9	506.6	501.4	510.0
9-Apr-03	501.3	510.1	(2)	513.3	511.3	(2)	(2)	510.3
15-May-03	500.7	510.1	(2)	512.9	511.0	506.5	502.0	510.3
17-Jun-03	500.7	509.8			510.9	506.3	501.8	510.1
25-Jun-03	500.5	509.7	510.9	512.7	510.7	506.1	501.6	509.9
22-Jul-03	500.3	509.7	510.5	511.9	510.5	506.0	501.4	509.8
20-Aug-03	500.0	509.4	510.0	511.1	510.0	505.4	500.9	509.4
25-Sep-03	499.9	509.5	509.6	510.4	509.6	505.1	501.1	509.6
22-Oct-03	500.2	510.2	510.0	510.0	510.0	506.0	501.5	510.3
25-Nov-03	501.2	510.3	511.6	511.9	511.2	506.4	502.5	510.4
22-Dec-03	501.0	510.2	511.6	512.9	511.0	505.6	502.2	510.4
9-Feb-04	500.5	510.0	(2)	512.9	510.5	505.4	501.7	510.1
16-Mar-04	501.4	510.2	511.5	513.6	510.7	505.5	502.6	510.3
20-Apr-04	501.1	510.2	512.0	514.3	511.5	505.6	502.3	510.4
18-May-04	500.8	510.0	511.4	513.7	510.7	505.5	501.9	510.2
22-Jun-04	500.5	509.8	510.8	513.2	510.7	505.5	501.6	509.9

Table B-6 Groundwater Elevations - Offsite Monitoring Wells

Well Name	101-B	102-C	103-D	104-A	OW1-4	OW3-1	OW5-2	OW6-3
Flow System	AM	AM	AM	AM	AF	AF	AF	AM
Date TOP	503.0	511.4	513.4	517.7	514.4	508.8	504.2	511.1
28-Jul-04	500.2	509.6	510.3	511.9	510.2	505.2	501.3	509.8
25-Aug-04	500.0	509.2	509.6	511.0	509.5	504.6	501.2	509.3
22-Sep-04	499.9	509.2	509.2	510.3	509.1	504.3	501.1	509.8
19-Oct-04	499.9	509.3	509.0	509.8	509.0	504.2	501.1	509.4
16-Nov-04	500.0	509.3	508.6	509.6	508.6	504.1	501.1	509.3
16-Dec-04	500.4	510.1	(2)	509.5	510.0	505.6	501.7	510.3
31-Jan-05	501.0	510.0	511.2	512.4	510.7	505.5	(2)	510.2
24-Feb-05	500.7	510.0	510.6	512.3	510.3	505.6	501.8	509.6
22-Mar-05	500.6	509.9	510.3	512.1	510.0	505.5	501.7	510.0
20-Apr-05	502.2	510.3	512.0	515.0	511.8	507.0	502.9	510.5
25-May-05	500.7	509.9	512.0	513.9	511.4	505.6	501.8	510.2
29-Jun-05	500.3	509.7	511.7	512.7	511.1	505.4	501.4	509.9
13-Jul-05	500.2	509.5	511.5	512.3	510.9	505.3	501.3	509.8
23-Aug-05	499.9	509.4	511.1	511.3	510.8	505.0	500.5	509.7
26-Sep-05	499.7	509.5	511.1	510.8	510.9	504.6	500.7	509.8
26-Oct-05	499.8	509.7	511.1	510.4	511.1	504.4	500.9	510.0
16-Nov-05	499.9	510.2	511.3	510.2	511.2	504.8	501.0	510.3
14-Dec-05	500.4	510.1	511.2	510.3	511.0	505.4	501.6	510.2
20-Jan-06	501.4	510.3	511.9	512.3	511.4	505.9	502.6	510.4
14-Feb-06	501.1	510.2	(2)	512.8	511.3	505.6	502.3	510.3
19-Mar-06	501.6	510.2	512.0	514.3	511.6	505.5	(2)	510.4
17-Apr-06	501.2	510.2	512.0	514.3	511.6	505.5	502.4	510.4
19-May-06	500.6	510.2	512.0	513.6	511.3	505.5	501.8	510.3
19-Jun-06	500.4	509.8	511.2	512.6	510.7	505.4	501.5	510.0
10-Jul-06	500.2	509.6	511.0	511.9	510.7	505.3	501.3	509.8
21-Aug-06	499.9	509.4	510.4	510.8	510.2	504.9	501.0	509.5
18-Sep-06	499.9	509.6	510.4	510.4	510.2	504.7	501.1	509.7
17-Oct-06	500.0	510.2	510.3	510.0	510.2	504.6	501.2	510.2
20-Nov-06	501.2	510.2	511.8	511.8	511.2	505.7	502.4	510.4
15-Dec-06	501.5	510.4	512.0	514.0	511.7	506.1	502.7	510.5
22-Jan-07	500.8	510.1	511.7	513.1	510.9	505.6	502.0	510.3
19-Feb-07	(2)	510.0	511.2	512.3	510.7	505.5	501.6	509.2
18-Mar-07	501.9	510.2	512.0	513.3	511.5	505.9	(2)	510.4
15-Apr-07	501.3	510.3	512.0	514.3	511.6	505.7	502.5	510.4
17-May-07	500.6	510.3	511.7	513.2	511.1	505.5	501.7	510.4
21-Jun-07	500.3	509.5	510.6	512.1	510.2	505.3	501.4	509.5
17-Jul-07	500.0	509.3	510.5	511.4	510.3	505.1	500.4	509.4
21-Aug-07	499.7	508.7	510.2	510.6	509.9	504.5	500.7	508.8
18-Sep-07	499.8	509.5	510.3	510.2	510.2	504.4	500.9	509.6
19-Oct-07	499.9	509.7	510.3	509.9	510.2	504.3	501.0	509.8
22-Nov-07	500.1	510.2	510.7	509.9	510.5	505.2	501.4	510.3

Table B-6 Groundwater Elevations - Offsite Monitoring Wells

Well Name	101-B	102-C	103-D	104-A	OW1-4	OW3-1	OW5-2	OW6-3
Flow System	AM	AM	AM	AM	AF	AF	AF	AM
Date TOP	503.0	511.4	513.4	517.7	514.4	508.8	504.2	511.1
13-Dec-07	500.6	510.1	511.0	510.2	510.7	505.6	501.8	510.3
24-Jan-08	501.2	510.1	512.0	513.6	511.4	505.5	502.4	510.3
21-Feb-08	501.3	510.3	512.0	513.7	511.6	505.6	502.4	510.4
19-Mar-08	(2)	510.3	512.0	513.6	511.5	505.8	502.2	510.2
7-Apr-08	502.4	510.4	512.0	515.1	512.0	507.4	503.0	510.5
21-Apr-08	501.4	510.2	512.0	514.8	511.6	505.5	502.5	510.4
20-May-08	500.7	510.0	512.0	513.9	511.4	505.6	501.9	510.3
16-Jun-08	500.5	509.9	511.7	(3)	511.1	505.5	501.6	510.2
14-Jul-08	500.3	509.6	511.1	(3)	510.7	505.3	501.3	509.8
18-Aug-08	500.3	509.8	511.5	511.5	511.0	505.3	501.4	510.0
15-Sep-08	500.1	510.3	511.2	511.1	511.1	505.3	501.3	510.3
20-Oct-08	500.5	509.8	511.3	511.0	510.9	505.3	501.5	510.0
16-Nov-08	501.4	510.3	511.8	(3)	511.6	506.0	502.6	510.4
23-Nov-08	(2)	510.3	(2)	(3)	511.5	505.8	502.5	(2)
14-Dec-08	501.5	510.0	511.7	513.1	510.5	505.0	502.5	510.5
18-Jan-09	500.9	510.1	512.0	514.0	511.4	505.6	502.1	510.4
8-Feb-09	500.8	510.3	512.0	513.4	511.4	505.8	502.0	510.4
15-Mar-09	501.7	510.3	512.0	514.7	511.6	505.7	(2)	510.4
12-Apr-09	501.4	510.3	512.0	514.6	511.7	505.9	502.6	510.4
17-May-09	500.8	509.9	512.0	513.8	511.3	505.6	502.0	510.2
14-Jun-09	500.4	509.8	511.7	512.9	511.0	505.4	501.5	510.0
12-Jul-09	500.2	509.6	511.2	512.1	510.7	505.2	501.3	509.8
9-Aug-09	500.1	510.0	511.1	511.5	510.8	505.0	501.2	510.2
13-Sep-09	500.0	509.6	510.9	510.8	510.7	504.6	501.1	509.8
11-Oct-09	500.2	510.1	511.3	510.8	511.0	504.9	501.4	510.2
15-Nov-09	500.5	509.8	511.0	510.6	510.7	505.4	501.5	510.0
13-Dec-09	500.6	510.1	511.3	510.8	511.0	505.5	501.8	510.3
17-Jan-10	500.6	510.2	511.3	511.2	510.9	505.6	501.7	510.2
7-Feb-10	500.7	510.0	511.3	511.7	510.7	505.5	501.8	510.1
14-Mar-10	502.4	510.3	512.0	514.6	511.9	507.2	503.0	510.5
18-Apr-10	500.9	510.0	511.9	513.5	511.3	505.5	502.1	510.3
16-May-10	501.0	509.9	511.9	513.4	511.1	506.4	502.0	510.1
13-Jun-10	500.7	510.1	511.9	512.9	511.3	505.7	501.9	510.3
21-Jul-10	500.6	510.0	511.9	512.5	511.3	505.6	501.8	510.2
16-Aug-10	500.4	509.8	511.5	512.1	511.0	505.4	501.4	510.0
12-Sep-10	500.2	509.7	511.2	511.5	510.8	505.2	501.2	509.9
17-Oct-10	500.5	509.9	511.3	511.4	511.0	505.3	501.5	510.1
14-Nov-10	500.9	510.1	511.8	512.0	511.3	505.6	502.1	510.3
19-Dec-10	500.8	510.2	512.0	512.9	511.4	505.7	502.0	510.4
16-Jan-11	501.0	510.2	512.0	513.6	511.4	505.6	502.2	510.4
22-Feb-11	501.5	510.2	512.0	513.4	511.5	506.0	(2)	510.4

Table B-6 Groundwater Elevations - Offsite Monitoring Wells

Well Name	101-B	102-C	103-D	104-A	OW1-4	OW3-1	OW5-2	OW6-3
Flow System	AM	AM	AM	AM	AF	AF	AF	AM
Date TOP	503.0	511.4	513.4	517.7	514.4	508.8	504.2	511.1
13-Mar-11	501.3	510.3	512.0	513.8	511.5	505.7	502.5	510.4
17-Apr-11	501.2	510.3	512.0	514.3	511.6	505.6	502.4	510.4
15-May-11	501.4	510.3	512.0	514.4	511.8	506.1	502.7	510.4
13-Jun-11	500.8	510.0	512.0	513.8	511.4	505.7	502.0	510.3
17-Jul-11	500.3	509.6	511.4	512.7	510.7	505.3	501.4	509.9
14-Aug-11	500.1	509.6	511.0	511.9	510.7	505.1	501.2	509.8
18-Sep-11	500.0	509.5	510.6	511.0	510.4	504.7	501.0	509.7
17-Oct-11	500.4	510.2	511.0	510.8	511.2	505.6	501.5	510.2
20-Nov-11	500.4	510.0	511.2	510.8	510.9	505.4	501.5	510.1
18-Dec-11	501.1	510.3	512.0	512.3	511.4	505.8	502.3	510.4
15-Jan-12	500.8	510.1	511.8	512.5	511.1	505.6	502.0	510.3
19-Feb-12	500.7	509.8	511.6	512.7	511.0	505.3	501.6	510.0
26-Feb-12								
18-Mar-12	501.8	510.3	512.0	514.5	511.7	506.0	502.8	510.5
15-Apr-12	500.6	509.9	512.0	513.5	511.3	505.5	501.7	510.2
13-May-12	500.7	509.9	511.8	513.0	511.2	505.6	501.8	510.1
17-Jun-12	500.3	509.7	511.3	512.1	510.8	505.4	501.4	509.9
15-Jul-12	500.4	509.5	510.9	511.4	510.7	504.9	501.1	509.7
12-Aug-12	500.1	510.1	511.3	510.9	511.1	505.4	501.4	510.2
16-Sep-12	500.1	509.8	510.9	510.6	510.7	504.7	501.2	509.9
14-Oct-12	500.4	510.2	511.3	510.9	511.1	505.5	501.6	510.3
18-Nov-12	501.1	510.1	511.9	512.7	511.4	505.6	502.4	510.3
16-Dec-12	500.8	510.3	512.0	513.0	511.4	505.8	502.1	510.4
13-Jan-13	502.2	510.3	512.0	514.4	511.8	506.4	502.9	510.5
17-Feb-13	500.8	510.1	512.0	513.8	511.4	505.6	502.0	510.3
17-Mar-13	501.5	510.2	512.0	512.8	511.6	505.7	502.8	510.4
14-Apr-13	502.1	510.4	512.0	513.8	511.7	506.2	502.9	510.5
12-May-13	500.8	510.1	512.0	513.9	511.5	505.6	502.0	510.3
16-Jun-13	500.7	510.0	512.0	513.4	511.3	505.6	501.7	510.2
14-Jul-13	500.6	509.9	511.8	512.7	511.2	505.5	501.7	510.1
18-Aug-13	500.3	509.8	511.5	512.0	511.1	505.3	501.6	510.0
15-Sep-13	500.3	509.6	511.3	511.4	511.0	505.2	501.4	509.6
13-Oct-13	500.8	510.1	511.8	512.1	511.3	505.5	501.9	510.3
17-Nov-13	501.0	510.4	512.0	513.5	511.7	506.1	502.4	510.5
16-Dec-13	500.9	510.1	512.0	513.7	511.4	505.7	502.1	510.3
19-Jan-14	500.9	510.2	512.0	513.4	511.4	505.7	502.0	510.4
16-Feb-14	(2)	510.0	511.8	512.5	511.2	(2)	501.5	510.2
16-Mar-14	(2)	510.1	511.7	512.1	511.2	(2)	501.5	510.3
13-Apr-14	502.4	510.4	512.0	515.1	512.0	508.0	503.0	510.6
11-May-14	501.1	510.1	512.0	514.2	511.5	505.7	502.3	510.3
15-Jun-14	500.4	509.8	511.8	513.1	511.2	505.5	501.5	510.0

Table B-6 Groundwater Elevations - Offsite Monitoring Wells

Well Name	101-B	102-C	103-D	104-A	OW1-4	OW3-1	OW5-2	OW6-3
Flow System	AM	AM	AM	AM	AF	AF	AF	AM
Date TOP	503.0	511.4	513.4	517.7	514.4	508.8	504.2	511.1
13-Jul-14	500.3	509.8	511.7	512.2	511.2	505.3	501.4	510.1
17-Aug-14	500.1	510.0	511.5	511.5	511.2	505.1	501.2	510.1
7-Sep-14	500.1	509.9	511.3	511.1	511.1	505.0	501.3	510.1
19-Oct-14	500.7	510.3	511.8	511.1	511.4	505.6	501.9	510.4
16-Nov-14	501.0	510.1	512.0	512.2	511.4	505.5	502.2	510.3
14-Dec-14	500.7	510.1	511.9	512.8	511.4	505.5	501.9	510.3
18-Jan-15	500.6	510.0	511.9	513.3	511.4	505.5	501.8	510.3
15-Feb-15								
15-Mar-15	500.5	510.3	512.0	512.6	511.6	506.0	501.7	510.4
19-Apr-15	501.4	510.3	512.0	514.1	511.6	505.7	502.7	510.5
17-May-15	500.6	509.8	511.9	513.0	511.4	505.5	501.6	510.1
14-Jun-15	500.3	510.1	511.7	512.3	511.3	505.4	501.4	510.2
19-Jul-15	500.5	509.8	511.7	512.3	511.3	505.4	501.6	510.0
9-Aug-15	500.2	509.7	511.6	511.7	511.2	505.3	501.3	510.0
6-Sep-15	500.1	509.8	511.4	511.3	511.3	505.0	501.2	510.1
11-Oct-15	500.0	509.7	511.3	511.0	511.3	504.8	501.7	509.9
15-Nov-15	500.8	510.1	511.6	510.7	511.3	(3)	501.8	510.3
6-Dec-15	500.7	510.0	511.6	510.8	511.3		501.8	510.1
17-Jan-16	500.8	510.0	511.8	511.9	511.3		502.0	510.2
14-Feb-16	501.0	510.1	512.0	512.8	511.4		502.1	510.3
13-Mar-16	502.1	510.4	512.0	515.0	511.8		502.9	510.5
17-Apr-16	501.6	510.5	512.0	514.7	511.6		502.3	510.4
15-May-16	500.7	510.0	512.0	513.7	511.4		501.9	510.2
19-Jun-16	500.4	509.6	511.7	512.6	511.2		501.4	509.9
17-Jul-16	500.1	509.5	511.4	511.8	511.1		501.1	509.8
21-Aug-16	499.9		511.3	511.1	511.1		501.0	
18-Sep-16	499.9	509.7	511.3	510.8	511.1		501.0	509.9
16-Oct-16	500.0	509.9	511.2	510.6	511.2		501.1	510.0
13-Nov-16	500.0	509.8	511.2	510.4	511.1		501.2	509.9
11-Dec-16	500.4	510.0	511.4	510.3	511.2		501.5	510.1
15-Jan-17	501.3	510.3	512.0	512.0	511.5		502.5	510.4
12-Feb-17	500.8	510.0	512.0	512.5	511.4		502.0	510.3
19-Mar-17	500.9	510.1	512.0	513.8	511.5		502.1	510.3
16-Apr-17	501.4	510.2	512.0	514.3	511.6		502.6	510.4
11-May-17	501.4	510.1	512.0	514.7	511.6		502.5	510.4
25-Jun-17	501.3	510.1	512.0	514.0	511.6		502.5	510.4
19-Jul-17	501.6	509.8	512.0	513.2	511.4		501.7	510.1
17-Aug-17	500.4	509.9	511.8	512.4	511.3		501.5	510.0
17-Sep-17	500.3	510.0	511.7	511.8	511.3		501.3	510.2
15-Oct-17	500.9	510.2	511.9		511.5		502.0	510.3
14-Nov-17	500.8	510.3	512.0				502.1	510.4

Table B-6 Groundwater Elevations - Offsite Monitoring Wells

Well Name	101-B	102-C	103-D	104-A	OW1-4	OW3-1	OW5-2	OW6-3
Flow System	AM	AM	AM	AM	AF	AF	AF	AM
Date TOP	503.0	511.4	513.4	517.7	514.4	508.8	504.2	511.1
11-Dec-17	501.8	509.7	511.9	513.0	511.4		501.9	510.2
14-Jan-18	(2)	510.3	512.0	513.5	511.7		(2)	510.4
18-Feb-18	502.4	510.4	512.1	514.8	512.1		503.0	510.6
18-Mar-18	500.7	510.0	512.0	513.6	511.5		501.8	510.2
15-Apr-18	501.5	510.3	512.0	514.0	511.7		502.6	510.5
17-May-18	500.9	510.1	512.0	513.8	511.5		502.1	510.3
18-Jun-18	500.4	509.6	512.2	512.9	511.2		501.3	509.8
17-Jul-18	500.1	509.5	511.6	512.1	511.2		501.1	510.0
22-Aug-18	499.9	509.6		511.4	511.2		501.0	509.8
18-Sep-18	499.9	509.6	511.3	511.0	511.1		500.9	509.8
23-Oct-18	500.0	509.7	511.3	510.6	511.2		501.1	509.9
19-Nov-18	500.6	510.5	511.7	511.0	511.4		501.8	509.8
10-Dec-18	501.2	510.1	511.9	512.0	511.4		502.3	510.3
17-Jan-19	501.0	510.0	511.9	513.0	511.4		502.2	(5)
14-Feb-19	500.9	510.1	512.0	513.1	511.5		502.0	510.3
11-Mar-19	501.7	510.1	511.9	512.9	511.5		501.8	510.3
26-Apr-19	502.1	510.3	512.0	514.9	511.8		502.9	510.5
22-May-19	501.1	510.2	511.9	514.1	511.6		502.3	510.4
19-Jun-19	500.6	509.8	511.9	513.4	511.4		501.6	510.0
19-Jul-19	500.2	509.4	511.7	512.5	511.2		501.2	509.6
27-Aug-19	499.9	509.6	511.4	511.7	511.2		500.9	509.1
16-Sep-19	499.8	509.4	511.3	511.1	511.1		500.9	509.6
21-Oct-19	499.9	509.4	511.4	511.7	511.1		500.8	509.3
18-Nov-19	499.9	509.6	511.4	511.7	511.1		500.9	509.3
17-Dec-19	500.0	509.6	511.4	511.8	511.2		500.9	509.5
14-Jan-20	501.7	510.3	512.0	512.8	(5)		502.8	510.4
18-Feb-20	500.6	(5)	(2)	512.5	(2)		(2)	509.5
24-Mar-20	502.0	510.3	512.2	515.4	511.8		503.0	510.3
22-Apr-20	500.9	510.0	512.0	513.8	511.5		502.1	510.2
27-May-20	500.5	509.9	511.9	513.1	511.4		501.7	510.2
26-Jun-20	500.6	509.9	511.8	512.8	511.4		501.8	510.0
28-Jul-20	500.3	509.7	511.6	512.1	511.2		501.3	509.9
31-Aug-20	499.9	509.4	511.5	511.5	511.3		500.9	509.4
28-Sep-20	500.0	509.8	511.4	510.9	511.1		501.0	509.5
27-Oct-20	500.2	509.9	511.8	510.9	511.3		501.4	509.6
24-Nov-20	500.6	509.9	511.6	511.3	511.3		501.7	509.5
21-Dec-20	501.0	510.0	511.9	512.6	511.7		502.3	509.7
29-Jan-21	501.2	510.1	512.2	513.0	(5)		502.8	510.4
19-Feb-21		(2)			(2)			
31-Mar-21	501.8	510.2	511.9	513.9	(5)		(2)	510.4
29-Apr-21	500.4	510.2	511.4	514.0	511.6		502.2	510.4

Table B-6 Groundwater Elevations - Offsite Monitoring Wells

Well Name	101-B	102-C	103-D	104-A	OW1-4	OW3-1	OW5-2	OW6-3
Flow System	AM	AM	AM	AM	AF	AF	AF	AM
Date TOP	**503.0**	**511.4**	**513.4**	**517.7**	**514.4**	**508.8**	**504.2**	**511.1**
28-May-21	500.6	509.6	511.9	513.1	511.4		501.6	509.9
25-Jun-21	500.1	509.4	511.7	511.8	511.3		501.5	509.6
26-Jul-21	499.9	509.8	511.5	511.6	511.2		501.3	510.0
24-Aug-21	500.0	509.5	511.6	515.7	511.3		501.1	509.7
22-Sep-21	501.6	510.1	512.0	512.1	511.6		502.7	510.0
29-Oct-21	500.2	510.3	511.8	510.9	511.3		501.4	510.4
24-Nov-21	501.0	510.3	512.0	513.1	511.6		502.1	510.4
23-Dec-21	500.5	509.9	511.8	512.6	511.6		502.2	509.8
26-Jan-22	(2)	(5)	(5)	515.2	(5)		(2)	(2)
10-Feb-22	(2)	(2)	(2)	(2)	(2)		(2)	(2)
16-Mar-22	(2)	(2)	(2)	(2)	(2)		(2)	(2)
22-Apr-22	500.7	510.0	512.1	514.0	511.8		502.2	509.6
26-May-22	500.6	509.9	511.9	513.8	511.4		502.0	509.4
22-Jun-22	500.7	510.0	512.0	513.8	510.5		502.0	509.5
30-Aug-22	500.5	509.8	511.4	513.6	510.9		501.6	509.1
27-Sep-22	500.0	509.8	511.5	510.9	511.4		501.0	510.0
26-Oct-22	500.1	509.7	511.4	510.7	511.3		501.2	509.8
29-May-23	500.6	509.8	512.0	513.4	511.4		501.7	509.9
30-Oct-23	500.3	509.9	511.6	510.9	511.4		501.3	510.1

Table B-7 Groundwater / Surface Water Elevations - Drivepoints

Drivepoint Name	DP1		DP2		DP3		DP4		DP5		DP6	
	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)
Flow System	OB		OB		OB		OB		OB		OB	
Date TOP	513.1		512.9		514.7		512.1		510.5		512.2	
26-Jul-99	511.7		511.8		514.0							
17-Aug-99												
27-Sep-99	511.2		511.4		512.5		511.0					
25-Oct-99	511.8		512.1		512.7		511.2					
21-Nov-99	512.0		512.1		512.7		511.3					
21-Dec-99	512.0		512.1		512.8		511.3					
25-Jan-00	511.9		512.0		512.8		(2)					
29-Feb-00	512.1		512.1		513.5		511.6					
31-Mar-00	512.0		512.1		513.5		511.6					
2-Jun-00	512.0		512.2		513.4		511.6					
7-Jul-00	512.0		512.2		513.1		511.5					
27-Aug-00	511.8		512.0		512.8		511.5					
28-Sep-00	511.5		512.0		512.7		511.5					
3-Nov-00	511.3		512.1		512.8		511.6					
22-Feb-01	(2)		(2)		(2)		(2)					
22-Mar-01	(2)		(2)		(2)		(2)	511.6				
26-Apr-01	(2)		512.1				511.4	511.7				
31-May-01	511.3		511.8		513.6		511.5					
28-Jun-01	511.3		511.3		513.5		511.3					
1-Aug-01	511.3		(1)		513.0		511.3					
4-Oct-01	510.9		510.9		513.3		511.3					
1-Nov-01	511.2		511.2		513.5		511.5	511.6				
14-Dec-01	511.1		510.9		513.4		511.4	511.6				
10-Jan-02	510.9		510.8		513.4		511.3	511.6				
14-Mar-02	511.3		512.0		513.6		511.4	511.6				
16-May-02	511.3		512.2		513.6		511.5	511.6				
20-Jun-02	511.1		512.1		513.5		511.4					
11-Jul-02	511.5		512.1		513.1		511.4	511.6				
13-Sep-02	511.0		(1)		512.5		511.1	511.6				
1-Nov-02	511.4		512.1		512.5		511.2	511.6				
16-Jan-03	(2)		(2)		(2)		511.2	511.6				
28-Mar-03	512.1		512.0		(2)		511.6	511.6				
15-May-03	510.9		512.1		513.2		511.5	511.6				
23-Jun-03	511.7		(1)		513.2		(3)					
22-Jul-03	511.7		(1)		513.1		510.8	511.5				
20-Aug-03	511.0		(1)		513.0		510.7	511.5				
25-Sep-03	(1)		(1)		512.8		510.2					
22-Oct-03	511.0		510.8		513.2		511.2	511.5				
25-Nov-03	512.1		511.0		513.4		511.5	511.6				
22-Dec-03	511.0		512.1		513.4		511.5	511.6				

Table B-7 Groundwater / Surface Water Elevations - Drivepoints

Drivepoint Name	DP1		DP2		DP3		DP4		DP5		DP6	
	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)
Flow System	OB		OB		OB		OB		OB		OB	
Date TOP	513.1		512.9		514.7		512.1		510.5		512.2	
9-Feb-04	510.9		(2)		513.3		511.2	511.6				
16-Mar-04	510.9		(2)		513.5		511.4	511.6				
20-Apr-04	511.9		511.8		513.6		511.6	511.6				
18-May-04	512.0		(1)		513.4		511.4	511.5				
22-Jun-04	510.9		(1)		513.2		511.2	511.5				
28-Jul-04	510.9		(1)		513.2		511.3	511.5				
25-Aug-04	510.9		(1)		512.3		511.2	511.5				
22-Sep-04	510.9		(1)		512.7		511.1					
19-Oct-04	510.9	(1)	(1)	(1)	513.6	(1)	511.0	511.5				
16-Nov-04	(1)	(1)	(1)	(1)	513.0	(1)	510.9	511.3				
16-Dec-04	(1)		(1)		513.3		511.3	511.5				
13-Jan-05		(2)										
31-Jan-05	(2)		(2)	(2)	513.3	(2)	511.3	511.6				
24-Feb-05	(2)	(2)	(2)	(2)	513.4	(2)	511.1	511.6				
22-Mar-05	(2)	(2)	(2)	(2)	513.3	(2)	511.0	511.4				
20-Apr-05	511.2	(2)	512.2	512.2	513.5	(2)	511.6	511.6				
25-May-05	512.1	512.2	512.2	512.2	513.2	(4)	511.6	511.6				
29-Jun-05	512.3	(1)	512.0	512.0	513.1	(1)	511.5	511.5				
13-Jul-05	512.0	512.1	512.2	(1)	512.9	(1)	511.4	511.4				
23-Aug-05	510.9	(1)	511.3	(1)	512.6	(1)	511.0	(1)				
26-Sep-05	511.6	(1)	511.1	(1)	512.4	(1)	510.9	(1)				
26-Oct-05	511.0		511.7		512.4		511.2					
16-Nov-05	512.0	512.0	511.9	(1)	512.8	(1)	511.3	511.3				
14-Dec-05	510.9	(2)	511.9	(2)	512.6	(2)	511.5	511.6				
20-Jan-06	(2)	(2)	(2)	(2)	513.3	(2)	511.5	511.5				
14-Feb-06	(2)	(2)	510.8	(2)	513.3	(2)	511.5	511.6				
19-Mar-06	512.1	512.1	512.0	(2)	513.5	(2)	511.6	511.6				
17-Apr-06	512.0	512.0	512.0	512.0	513.5	513.6	511.6	511.6				
19-May-06	511.0	(4)	511.2	(4)	513.4	(4)	511.3	511.4				
19-Jun-06	510.9	(1)	510.8	(4)	513.1	(1)	511.1	511.4				
10-Jul-06	510.9	(4)	510.8	(4)	512.5	(4)	511.2	511.4				
21-Aug-06	510.9	(1)	510.8	(1)	512.4	(1)	511.1	511.4				
18-Sep-06	510.9	(1)	510.8	(1)	512.5	(1)	511.1	511.4				
17-Oct-06	511.0		510.8		512.9		511.0	511.4				
20-Nov-06	510.9		511.1		513.3		511.5	511.6				
15-Dec-06	511.1		511.4		513.3		511.5	511.6				
22-Jan-07	510.9		510.8		513.3		511.3	511.6				
19-Feb-07	(2)	(2)	(2)	(2)	(2)	(2)	511.1	511.6				
18-Mar-07	510.9	(2)	510.9	(2)	513.3	(2)	512.0	511.6				
17-Apr-07	511.0	(4)	511.8	(4)	513.5	(2)	511.6	511.5				

Table B-7 Groundwater / Surface Water Elevations - Drivepoints

Drivepoint Name	DP1		DP2		DP3		DP4		DP5		DP6	
	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)
Flow System	OB		OB		OB		OB		OB		OB	
Date TOP	513.1		512.9		514.7		512.1		510.5		512.2	
17-May-07	(1)	(4)	(1)	(1)	513.4	(4)	511.4	511.6				
21-Jun-07	(1)	(1)	(1)	(1)	513.1	(1)	511.7	(4)				
17-Jul-07	(1)	(1)	(1)	(1)	512.7	(1)	511.1	(1)	509.2		(3)	
21-Aug-07	(1)	(1)	(1)	(1)	512.4	(1)	511.0	511.4	(3)	(1)	(3)	(1)
16-Sep-07	(1)	(1)	(1)	(1)	512.3	(1)	511.2	511.5	(3)	(1)	(1)	(1)
14-Oct-07	(1)	(1)	(1)	(1)	512.4	(1)	511.2	511.5	(1)	(1)	(1)	(1)
18-Nov-07	(2)	(2)	(2)	(2)	(2)	(2)	511.3	511.6	(2)	(2)	(1)	(2)
13-Dec-07	(1)	(2)	(2)	(2)	(2)	(2)	511.2	511.6	509.4	(2)	(2)	(2)
20-Jan-08	511.1	(2)	(2)	(2)	513.4	(2)	(2)	511.6	(2)	(2)	(2)	(2)
17-Feb-08	511.1	(2)	511.5	(2)	513.4	(2)	511.6	511.6	(2)	(2)	(2)	(2)
16-Mar-08	511.2	(2)	511.4	(2)	(2)		511.5	511.6	(2)	(2)	(2)	(2)
6-Apr-08	511.3	(2)	512.1	(2)	(2)	(2)	511.6	511.6	510.1	510.1	(2)	(2)
20-Apr-08	512.1	512.1	512.1	512.1	513.6	(2)	511.6	511.6	510.0	510.0	511.8	511.8
18-May-08	511.2	(1)	511.5	(1)	513.4	(1)	511.6	511.6	510.1	510.0	511.8	511.8
15-Jun-08	(1)	(1)	511.1	(4)	513.3	(1)	511.4	511.6	510.0	510.1	511.9	511.9
13-Jul-08	(1)	(1)	(1)	(1)	512.9	(1)	511.0	(4)	509.7	510.0	511.4	(1)
17-Aug-08	511.3	(1)	511.2	(1)	512.9	(1)	511.4	511.5	509.8	509.7	511.3	(4)
14-Sep-08	511.4	(1)	511.5	(1)	512.9	(1)	511.4	511.5	509.7	509.7	510.5	(1)
19-Oct-08	(1)	(1)	(1)	(1)	512.4	(1)	511.3	511.5	509.8	509.8	511.4	511.4
16-Nov-08	(2)	(2)	(2)	(2)	(3)		(3)					
23-Nov-08	(2)		(2)	(2)	512.6	(2)	511.5	511.6	(2)	(2)	511.7	
14-Dec-08	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	511.8	
18-Jan-09	(2)	(2)	(2)	(2)	(2)	(2)	(3)		(2)	(2)	(2)	(2)
8-Feb-09	512.5	(2)	(2)	(2)	(2)		511.6	511.6	(2)	(2)	(2)	
15-Mar-09	(2)	(2)	(2)	(2)	(2)	(2)	511.6	511.6	(2)	(2)	(2)	(2)
12-Apr-09	511.0	(2)	511.9	(2)	512.6	(2)	511.6	511.6	509.9	510.0	511.9	511.9
17-May-09	(1)	(1)	511.6	(1)	512.8	513.5	511.5	511.6	510.0	510.0	511.7	511.7
14-Jun-09	510.9	(1)	511.4	(1)	512.4	513.5	511.4	511.5	509.9	510.0	511.6	511.7
12-Jul-09	(1)	(1)	510.8	(1)	512.3	513.5	(3)		509.8	509.8	511.5	511.6
9-Aug-09	510.9	(1)	(1)	(1)	512.9	513.5	511.3	511.5	509.5	509.6	511.5	511.5
13-Sep-09	511.0	(1)	511.2	(4)	513.0	513.5	511.1	511.5	509.8	(4)	511.0	511.4
11-Oct-09	(1)	(1)	511.5	(4)	513.2	(1)	511.4	511.5	509.5	(4)	510.7	(1)
15-Nov-09	511.4	(1)	511.3	(4)	513.3	513.5	511.3	511.5	509.5	(4)	510.8	(1)
13-Dec-09	511.6	(2)	(2)	(2)	513.4	(2)	(3)		(2)	(2)	511.2	(2)
17-Jan-10	511.7	512.6	(2)	(2)	513.5	514.1	(3)		(2)	(2)	511.3	512.0
7-Feb-10	(2)	(2)	(2)	(2)	(2)	(2)	511.2	511.6	(2)	(2)	511.5	(2)
14-Mar-10	512.0	512.5	512.0	(2)	513.5	(2)	511.6	511.6	510.0	(2)	511.8	511.9
18-Apr-10	511.0	511.9	512.0	512.0	513.5	(1)	(3)		510.0	510.1	511.8	511.9
16-May-10	511.0	(1)	512.0	512.0	513.5	(1)	511.6	511.6	510.0	510.0	511.8	511.8
13-Jun-10	510.9	(1)	512.0	512.0	513.4	(1)	(3)		510.0	510.0	511.8	511.8

Table B-7 Groundwater / Surface Water Elevations - Drivepoints

Drivepoint Name	DP1		DP2		DP3		DP4		DP5		DP6	
	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)
Flow System	OB		OB		OB		OB		OB		OB	
Date TOP	513.1		512.9		514.7		512.1		510.5		512.2	
21-Jul-10	511.0	(1)	512.0	512.0	513.5	(1)	511.5	511.5	510.0	510.0	511.8	511.8
16-Aug-10	510.9	(1)	511.9	(4)	513.4	(1)	511.4	511.5	509.9	509.9	511.8	511.7
12-Sep-10	(1)	(1)	511.7	(1)	513.5	(1)	511.3	511.4	509.6	509.6	511.8	511.8
17-Oct-10	(1)	(1)	512.0	512.0	513.2	513.5	511.5	511.6	509.9	509.9	511.3	511.4
14-Nov-10	511.4	511.2	512.0	512.0	513.2	(1)	511.5	511.6	510.0	510.0	511.3	(1)
19-Dec-10	(2)	(2)	(2)	(2)	513.4	(2)	(2)	511.6	(2)	(2)	511.7	(2)
16-Jan-11	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
20-Feb-11	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
13-Mar-11	510.8	(2)	(2)	(2)	(2)	(2)	511.6	511.6	(2)	(2)	(2)	(2)
17-Apr-11	511.2	(1)	512.1	512.1	(2)	(1)	511.6	511.6	(2)	(2)	511.6	511.8
15-May-11	512.0	511.9	512.1	512.1	513.2	513.5	511.6	511.6	510.0	510.0	511.8	511.9
13-Jun-11	511.6	(1)	512.1	512.1	513.1	(1)	511.6	511.6	510.0	510.0	511.7	511.8
17-Jul-11	511.2	(1)	512.0	(1)	512.7	(1)	511.6	511.6	509.7	509.7	510.9	(1)
14-Aug-11	(1)	(1)	512.0	512.0	512.2	(1)	511.5	511.5	509.4	(4)	510.4	(1)
18-Sep-11	511.1	(1)	512.0	512.0	512.2	(1)	511.6	511.6	508.8	(4)	(1)	(1)
16-Oct-11	511.2	(1)	512.0	512.0	512.2	(1)	511.5	511.6	509.5	(4)	510.4	(1)
20-Nov-11	(1)	(1)	512.1	512.1	512.2	(1)	511.5	511.6	509.7	509.7	511.2	(1)
18-Dec-11	511.3	(2)	(2)	(2)	512.5	(2)	511.6	511.6	(2)	(2)	511.4	(2)
15-Jan-12	(2)	(2)	(2)	(2)	(2)	(2)	511.6	511.6	(2)	(2)	(2)	(2)
19-Feb-12	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
26-Feb-12	512.2	(4)	(3)		513.5	(1)			(2)		(2)	
18-Mar-12	511.8	(1)	(3)		513.3	(1)	(2)	511.6	509.7	510.0	511.8	511.8
15-Apr-12	511.8	(1)	512.1	512.1	513.3	(1)	511.5	511.5	510.0	510.0	511.8	511.7
13-May-12	511.8	(1)	512.1	512.1	513.3	(1)	511.6	511.6	510.0	510.0	511.7	511.7
17-Jun-12	511.6	(1)	512.0	512.0	513.2	(1)	511.6	511.6	509.8	509.8	511.7	511.7
15-Jul-12	511.0	(1)	512.1	512.0	512.6	(1)	511.6	511.6	509.4	(1)	510.4	(1)
12-Aug-12	511.3	(1)	512.1	512.1	512.8	(1)	511.6	511.6	509.8	509.8	511.5	(1)
16-Sep-12	(1)	(1)	512.1	512.1	513.0	(4)	511.5	511.5	509.5	(4)	510.6	(4)
14-Oct-12	511.2	(1)	512.0	512.0	513.0	(1)			509.6	(4)	510.4	(1)
18-Nov-12	511.6	(1)	512.1	512.1	513.3	(1)	511.6	511.5	510.1	510.0	511.0	511.7
16-Dec-12	511.9	(1)	512.1	512.1	513.4	(1)	511.6	511.6	(2)	(2)	511.8	511.8
13-Jan-13	(2)	(2)	512.1	512.1	(2)	(2)	511.6	511.6	510.0	(2)	(2)	(2)
17-Feb-13	(2)	(2)	(2)	(2)	(2)	(2)	511.6	511.6	(2)	(2)	(2)	(2)
17-Mar-13	(2)	(2)	(2)	(2)	(2)	(2)	511.6	511.6	(2)	(2)	(2)	(2)
14-Apr-13	511.8	(1)	512.3	512.3	513.5	513.5	511.7	511.7	510.1	510.1	511.9	511.9
12-May-13	511.9	(1)	512.1	512.1	513.4	(1)	511.6	511.6	510.0	510.0	511.9	511.9
16-Jun-13	511.8	(1)	512.1	512.1	513.4	(1)	511.6	511.6	510.0	510.0	511.9	511.9
14-Jul-13	511.8	511.8	512.2	512.1	513.4	(1)	511.5	511.6	509.9	509.9	511.9	511.9
18-Aug-13	511.8	(1)	512.2	512.2	513.3	(1)	511.4	511.3	509.9	509.8	511.6	(1)
15-Sep-13	511.8	(1)	512.2	512.1	513.4	(1)		511.5	509.7	509.7	510.9	(1)

Table B-7 Groundwater / Surface Water Elevations - Drivepoints

Drivepoint Name	DP1		DP2		DP3		DP4		DP5		DP6	
	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)
Flow System	OB		OB		OB		OB		OB		OB	
Date TOP	513.1		512.9		514.7		512.1		510.5		512.2	
13-Oct-13	511.9	(1)	512.2	512.2	513.7	(1)	511.6	511.6	509.8	509.8	511.3	511.9
17-Nov-13	512.1	511.7	512.1	512.1	513.9	(1)	511.6	511.6	510.1	510.1	511.5	512.0
16-Dec-13	(2)	(2)	(2)	(2)	(2)	(2)	511.6	511.6	(2)	(2)	(2)	(2)
19-Jan-14	(2)	(2)	(2)	(2)	(2)	(2)	(2)	511.6	(2)	(2)	(2)	(2)
16-Feb-14	(2)	(2)	(2)	(2)	(2)	(2)	(2)	511.6	(2)	(2)	(2)	(2)
17-Mar-14	(2)	(2)	(2)	(2)	(2)	(2)	(2)		(2)	(2)	(2)	(2)
13-Apr-14	(2)	(2)	512.3	(2)	(2)	(2)	511.7	511.7	510.1	(2)	511.9	511.8
11-May-14	511.6	(1)	512.2	512.2	513.5	(1)	511.6	511.6	510.0	510.1	511.6	511.9
15-Jun-14	511.6	(1)	512.1	512.1	513.4	(1)	511.6	511.6	509.9	509.9	511.8	(1)
13-Jul-14	511.5	(1)	512.1	512.1	513.5	(1)	511.6	511.6	509.9	509.9	511.8	(1)
17-Aug-14	511.3	(1)	512.1	512.1	512.7	(1)	511.6	511.6	509.7	509.7	511.7	(1)
7-Sep-14	511.4	(1)	512.1	512.1	512.6	(1)	511.5	511.5	509.6	509.6	511.6	(1)
12-Sep-14				512.1					509.7	509.6	510.7	(1)
19-Oct-14	511.4	(1)	512.1	512.1	512.8	(1)	511.6		509.7	509.7	510.8	511.9
16-Nov-14	(2)	(2)	(2)	(2)	(2)	(2)	(2)		(2)	(2)	(2)	(2)
14-Dec-14	(2)	(2)	(2)	(2)	(2)	(2)	(2)		(2)	(2)	(2)	(2)
18-Jan-15	(2)	(2)	(2)	(2)	(2)	(2)	(2)		(2)	(2)	(2)	(2)
15-Feb-15	(2)	(2)	(2)	(2)	(2)	(2)	(2)		(2)	(2)	(2)	(2)
15-Mar-15	512.2	(2)	(2)	(2)	513.2	(2)	(2)		(2)	(2)	(2)	511.8
19-Apr-15	511.8	512.2	(3)	(3)	513.6	513.6			(3)	(3)	(3)	(3)
17-May-15	512.1	512.1	512.1	512.1	513.3	(1)	511.5	511.5	510.1	510.0	(3)	(3)
14-Jun-15	512.1	512.1	512.2	512.2	513.3	(1)	511.6	511.5	510.0	510.0	(3)	(3)
19-Jul-15	512.0	512.1	512.3	512.3	513.2	513.2	511.5	511.5	510.0	510.0	(3)	(3)
9-Aug-15	512.0	512.1	512.1	512.1	513.1	(1)	511.5	511.5	509.9	509.9	(3)	(3)
6-Sep-15	511.8	511.8	512.1	512.1	512.8	(1)	511.5	511.5	509.6	509.6	(3)	(3)
11-Oct-15	511.3	(1)	512.1	512.1	512.7	(1)	511.5	511.4	509.2	(1)	510.1	(1)
15-Nov-15	512.1	512.1	512.2	512.2	513.2	(1)	511.6	511.6	509.7	509.7	511.0	(1)
6-Dec-15	(2)	(2)	512.2	512.2	513.2	(1)	511.5	511.5	509.7	509.7	511.3	(1)
17-Jan-16	(2)	(2)	(2)	(2)	513.3	(2)	(2)		(2)	(2)	(2)	(2)
14-Feb-16	(2)	(2)	(2)	(2)	513.3	(2)	(2)		(2)	(2)	(2)	(2)
13-Mar-16	512.1	512.2	511.9	512.2	513.5	513.6	511.5	511.6	510.0	510.0	512.0	512.0
17-Apr-16	512.2	512.2	511.9	512.3	513.3	513.5	511.6	511.6	510.0	510.0	512.0	512.0
1-May-16			512.2	512.2			511.6	511.6	510.0	510.0	511.8	
15-May-16	512.1	512.2	512.2	512.2	513.6	513.6	511.6	511.6	510.0	510.0	512.0	512.0
5-Jun-16			512.2	512.2			511.6	511.5	510.0	510.0	511.7	511.7
19-Jun-16	512.1	512.1	512.1	512.1	513.8	(1)	511.5	511.5	509.9	509.9	511.4	511.6
3-Jul-16			512.1	512.1			511.4	511.4	509.7	509.7	510.8	(1)
17-Jul-16	512.0	512.1	512.1	512.1	512.7	(1)	511.4	511.4	509.5	(1)	510.6	(1)
24-Jul-16				512.1					509.2	(1)	510.2	(1)
7-Aug-16			512.1	512.1			511.2		508.9	(1)	(1)	(1)

Table B-7 Groundwater / Surface Water Elevations - Drivepoints

Drivepoint Name	DP1		DP2		DP3		DP4		DP5		DP6	
	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)
Flow System	OB		OB		OB		OB		OB		OB	
Date TOP	513.1		512.9		514.7		512.1		510.5		512.2	
21-Aug-16	512.1	512.1	512.2	512.1	512.7	(1)	511.4	511.4	509.3	(1)	(1)	(1)
18-Sep-16	512.1	512.1	512.2	512.2	512.7	(1)	511.4	511.4	508.9	(1)	(1)	(1)
16-Oct-16	512.1	512.1	512.2	512.2	512.5	(1)	511.5	511.5	508.6	(1)	(1)	(1)
13-Nov-16	512.1	512.1	512.2	512.2	512.8	(1)	511.5	511.5	508.8	(1)	(1)	(1)
11-Dec-16	(2)	(2)	512.2	(2)	513.0	(2)	511.6		509.2	(1)	(1)	(1)
23-Jan-17	(2)	(2)	(2)	(2)	(2)	(2)	511.6	511.6	(2)	(2)	511.9	511.9
12-Feb-17	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
19-Mar-17	(2)	(2)	(2)	(2)	513.4	(2)	511.7	(2)	(2)	(2)	(2)	(2)
9-Apr-17									510.1	510.0	511.9	511.9
16-Apr-17	512.2	512.2	512.2	512.2	513.5		511.6	511.6	510.0	509.9	512.0	512.0
10-May-17			512.3	512.3			511.7	511.7	510.0	510.0	511.8	511.8
14-May-17	512.2	512.2			513.5							
21-May-17			512.3	512.3			511.7	511.7	510.0	510.0	511.8	511.8
23-May-17							511.7	511.7	510.0	510.0	511.8	511.8
25-May-17			512.3	512.3			511.7	511.7	510.0	510.0	511.8	511.8
1-Jun-17			512.2	512.2			511.6	511.6	510.0	510.0	511.8	511.8
22-Jun-17			512.2	512.2			511.6	511.6	510.0	510.0	511.8	511.8
26-Jun-17	512.2	512.2	512.3	512.3	513.5	(1)	511.6	511.6	510.0	510.0	512.0	512.0
7-Jul-17			512.2	512.2			511.6	511.6	510.0	510.0	511.8	511.8
17-Jul-17	512.1	512.2	512.3	512.3	513.4	(1)			510.0	510.0	511.9	511.9
3-Aug-17									509.9	509.9	511.7	511.6
17-Aug-17	512.2	512.2	512.3	512.3	513.2	(1)			509.9	509.9	511.5	(1)
29-Aug-17									509.7	509.7	510.9	(1)
18-Sep-17	512.2	512.2	512.2	512.2	513.1	(1)			509.7	509.7	511.0	(1)
26-Sep-17									509.7	509.7	510.7	(1)
15-Oct-17	512.2	512.2	512.2	512.3	513.3	(1)			509.8	509.7	511.4	(1)
14-Nov-17	512.2	512.3	512.3	512.3	513.3	(1)			509.9	(2)	511.8	511.8
11-Dec-17	512.2	(2)	(3)	(3)	513.3	(1)			(2)	(2)	(2)	(2)
14-Jan-18	(2)	(2)	(2)	(2)	513.4	(2)	(2)	(2)	501.1	(2)	(2)	(2)
11-Feb-18										(2)	(2)	(2)
18-Feb-18	(2)	(2)	(2)	(2)	513.4	(2)	(2)	(2)	(2)	(2)	(2)	(2)
18-Mar-18	(2)	(2)	(2)	(2)	513.4	(2)	(2)	(2)	(2)	(2)	(2)	(2)
15-Apr-18							511.9	512.0				
1-May-18			512.3	512.3			511.8	511.8	510.1	510.1	511.9	511.9
17-May-18	512.2	512.2	512.3	512.3	513.5	513.6	511.8	511.8	510.0	510.0	511.8	511.8
1-Jun-18												
18-Jun-18	512.2	512.2	512.2	512.2	513.2	513.5	511.7	511.7	509.7	509.7	511.6	511.6
1-Jul-18												
17-Jul-18	512.2	512.2	512.2	512.2	512.8	513.6	511.7	511.7	509.4	509.5	510.5	511.5
22-Aug-18	512.2	512.2	512.3	512.3	512.8	513.5	511.7	511.7	509.2	509.5	510.5	511.5

Table B-7 Groundwater / Surface Water Elevations - Drivepoints

Drivepoint Name	DP1		DP2		DP3		DP4		DP5		DP6	
	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)
Flow System	OB		OB		OB		OB		OB		OB	
Date TOP	513.1		512.9		514.7		512.1		510.5		512.2	
18-Sep-18	512.1	512.1	512.2	512.2	512.7	513.5	511.7	511.6	508.7	509.5	510.2	511.5
23-Oct-18	512.2	512.2	512.2	512.2	513.0	513.7	511.8	511.5	509.0	509.6	510.1	511.4
19-Nov-18	(2)	(2)	(2)	(2)	513.2	(2)	(2)	(2)	(2)		511.1	
10-Dec-18	(2)	(2)	(2)	(2)	513.3	(2)	(2)	(2)	(2)		(2)	(2)
17-Jan-19												
14-Feb-19												
11-Mar-19												
26-Apr-19	512.3		512.3	512.3			511.9	511.9	510.0		511.8	
22-May-19	512.2	512.3	512.3	512.3	513.4		511.9	511.9	510.0	509.9	511.8	511.8
19-Jun-19	512.3	512.3	512.3	512.3	513.6		511.8	511.8	510.0	510.0	511.8	511.8
19-Jul-19	512.2	512.2	512.3	512.3	512.9		511.7	511.7	509.7	509.7	510.8	
27-Aug-19	512.2	512.2	512.3	512.3	513.0		511.7	511.7	509.4		510.8	
16-Sep-19	512.2	512.2	512.3	512.3	512.9		511.7	511.7	509.3		510.8	
21-Oct-19	512.2	512.2	512.3	512.3	512.9		511.7	511.7	508.4		510.8	
18-Nov-19					513.0		(5)	(5)	509.3		510.8	
17-Dec-19												
14-Jan-20												
18-Feb-20												
24-Mar-20							(5)	(5)				
22-Apr-20							511.8	(5)	509.8	509.9	511.8	511.8
27-May-20		512.8	512.2	512.3	513.3		511.8	511.8	509.9	510.0	511.8	511.8
26-Jun-20	512.8	512.8	512.0	512.0	513.5		511.8	511.8	510.0	510.0	511.8	511.8
28-Jul-20	512.8	512.8	512.0	512.0	513.4		511.8	511.8	509.9	509.9	511.6	511.6
31-Aug-20	512.6	512.6	512.0	512.0	513.3		511.8	511.8	509.4	509.6	511.6	511.6
28-Sep-20	512.7	512.7	512.3	512.2	513.3		511.8	511.8	509.3		511.5	
27-Oct-20					513.0		511.8	511.8	509.6	509.5	511.3	
24-Nov-20					513.2		511.8	511.7			511.2	
21-Dec-20												
29-Jan-21	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
19-Feb-21	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
31-Mar-21	513.0	512.6	(2)	(2)			511.7	511.7	(2)	(2)	(2)	(2)
29-Apr-21	512.8	512.8	512.2	512.2	513.3	(1)	511.9	511.9	509.8	509.9	511.4	(1)
13-May-21			512.2	512.2			511.8	511.8	509.8	509.8	511.7	511.7
28-May-21	512.8	512.8	512.2	512.2	513.3	(1)	511.8	511.8	509.8	509.8	511.7	511.7
9-Jun-21			512.3	512.3			511.8	511.8	509.9	509.9	511.7	511.7
25-Jun-21	512.7	512.8	512.3	512.3	513.1	(1)	511.8	511.8	509.7	509.7	511.3	(1)
8-Jul-21			512.3	512.3			511.8	511.8	509.8	509.8	511.2	(1)
26-Jul-21	512.8	512.8	512.0	512.0	(5)	(1)	511.8	511.8	509.6	509.6	511.3	(1)
24-Aug-21	512.7	512.7	512.0	512.0	513.0	(1)	511.7	511.7	509.3	(1)	(1)	(1)
22-Sep-21	512.7	512.7	512.0	512.0	513.4	(1)	511.8	511.8	509.2	(1)	(5)	(1)

Table B-7 Groundwater / Surface Water Elevations - Drivepoints

Drivepoint Name	DP1		DP2		DP3		DP4		DP5		DP6	
	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)
Flow System	OB		OB		OB		OB		OB		OB	
Date TOP	513.1		512.9		514.7		512.1		510.5		512.2	
29-Oct-21	512.7	512.7	512.0	512.0	513.4	(1)	511.9	511.9	509.6	509.5	511.3	(1)
24-Nov-21	(2)	(2)	(2)	(2)	513.4	(1)	511.9	511.9	510.0	(2)	511.8	511.8
23-Dec-21	(2)	(2)	(3)	(3)	513.3	(1)	511.9	511.9	(3)	(3)	(3)	(3)
26-Jan-22	(2)	(2)	(3)	(3)	(2)	(2)	(2)	(2)	(3)	(3)	(3)	(3)
10-Feb-22	(2)	(2)	(3)	(3)	(2)	(2)	(2)	(2)	(3)	(3)	(3)	(3)
16-Mar-22	(2)	(2)	(3)	(3)	(2)	(2)	(2)	(2)	(3)	(3)	(2)	(2)
22-Apr-22	512.8	512.8	(3)	(3)	513.5	513.5	(3)	(3)	(3)	(3)	(3)	(3)
13-May-22			512.6	512.6			512.0	512.0	509.5	509.6	511.6	511.6
26-May-22	512.8	512.8	512.3	512.3	513.3	(1)	511.8	511.9	509.8	509.9	511.7	511.7
2-Jun-22			512.6	512.6			511.9	511.9	509.6	509.6	511.6	511.6
20-Jun-22	512.7	512.7	512.7	512.7	513.7	(1)			509.5	509.5	511.6	511.6
22-Jun-22							511.9	511.9				
7-Jul-22			512.6	512.6			511.9	511.9	509.6	509.6	511.7	511.7
30-Aug-22					513.5	(1)	512.0	512.0			511.6	511.6
31-Aug-22	512.7	512.7	512.6	512.6					509.6	509.6		
27-Sep-22							511.9	511.9				
28-Sep-22	512.8	512.8			512.9	(1)					(1)	(1)
29-Sep-22			512.3	512.3					509.4	(1)		
26-Oct-22							511.8	511.8	509.1	(1)		
28-Oct-22	512.7	512.8	512.2	512.2	513.0	(1)					(1)	(1)
23-Nov-22												
27-Mar-23	(2)	(2)	(2)	512.5	513.4	(1)	512.1	512.1	509.7	510.0	(2)	(2)
24-Apr-23	512.8	512.9	512.3	512.3	512.8	513.5	511.9	511.9	510.0	510.0	511.8	511.8
15-May-23			512.3	512.3			511.9	511.9	510.0	510.0	511.8	511.8
29-May-23									510.0	510.0		
30-May-23			512.3	512.3	513.4	(1)	511.9	511.9			511.7	511.7
31-May-23	512.7	512.8										
14-Jun-23			512.3	512.3			511.9	511.8	509.9	509.9	511.7	511.7
27-Jun-23	512.8	512.8	512.3	512.3	513.2	513.5	512.0	511.9	509.8	509.8	511.4	511.4
12-Jul-23	512.7	512.8	512.3	512.3	513.3	(1)	511.9	511.9	509.9	509.9	511.5	511.5
24-Jul-23			512.3	512.3			511.9	511.9	510.0	510.0	511.8	511.8
28-Aug-23							511.9	511.9	509.9	509.9	511.2	(1)
29-Aug-23			512.3	512.3								
30-Aug-23	512.8	512.8			513.1	(1)						
30-Oct-23			512.3	512.3			511.9	511.9				
31-Oct-23	512.8	512.8			513.1	513.5			509.6	509.6		
1-Nov-23											510.4	(1)

Table B-7 Groundwater / Surface Water Elevations - Drivepoints

Drivepoint Name	DP7		DP8		DP9		Bridson DP		SG1	SG2
	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)		
Flow System	OB		OB		OB		OB		OB	OB
Date TOP	509.9		511.9		508.9		511.3		511.0	511.5
26-Jul-99										
17-Aug-99										
27-Sep-99										
25-Oct-99										
21-Nov-99										
21-Dec-99										
25-Jan-00										
29-Feb-00										
31-Mar-00										
2-Jun-00										
7-Jul-00										
27-Aug-00										
28-Sep-00										
3-Nov-00										
22-Feb-01										
22-Mar-01										
26-Apr-01										
31-May-01										
28-Jun-01										
1-Aug-01										
4-Oct-01										
1-Nov-01										
14-Dec-01										
10-Jan-02										
14-Mar-02										
16-May-02										
20-Jun-02										
11-Jul-02										
13-Sep-02										
1-Nov-02										
16-Jan-03										
28-Mar-03										
15-May-03										
23-Jun-03										
22-Jul-03										
20-Aug-03										
25-Sep-03										
22-Oct-03							510.4			
25-Nov-03							510.5			
22-Dec-03							510.5			

Table B-7 Groundwater / Surface Water Elevations - Drivepoints

Drivepoint Name	DP7		DP8		DP9		Bridson DP		SG1	SG2
	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)		
Flow System	OB		OB		OB		OB		OB	OB
Date TOP	509.9		511.9		508.9		511.3		511.0	511.5
9-Feb-04							510.5			
16-Mar-04							510.5			
20-Apr-04							510.5			
18-May-04							510.5	510.5		
22-Jun-04							510.5	510.5		
28-Jul-04							510.3			
25-Aug-04							509.9			
22-Sep-04							509.6			
19-Oct-04							510.0			
16-Nov-04							510.2			
16-Dec-04							(2)			
13-Jan-05										
31-Jan-05							510.4			
24-Feb-05							(2)			
22-Mar-05							(2)			
20-Apr-05							510.5	510.5		
25-May-05							510.5	510.5		
29-Jun-05							510.3			
13-Jul-05							509.9			
23-Aug-05							509.6			
26-Sep-05							509.3			
26-Oct-05							509.9			
16-Nov-05							510.3			
14-Dec-05							510.3			
20-Jan-06							510.4			
14-Feb-06							510.4			
19-Mar-06							(2)			
17-Apr-06							510.5	510.5		
19-May-06							510.5	510.5		
19-Jun-06							510.3			
10-Jul-06							509.9			
21-Aug-06							509.0			
18-Sep-06							509.1			
17-Oct-06							510.1			
20-Nov-06							510.4			
15-Dec-06							510.5			
22-Jan-07							510.2			
19-Feb-07							510.5			
18-Mar-07							(2)			
17-Apr-07							510.5	510.5		

Table B-7 Groundwater / Surface Water Elevations - Drivepoints

Drivepoint Name	DP7		DP8		DP9		Bridson DP		SG1	SG2
	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)		
Flow System	OB		OB		OB		OB		OB	OB
Date TOP	509.9		511.9		508.9		511.3		511.0	511.5
17-May-07							510.5			
21-Jun-07							510.1			
17-Jul-07							509.4	(1)		
21-Aug-07							(1)	(1)		
16-Sep-07							(1)			
14-Oct-07							(1)			
18-Nov-07							(1)	(1)		
13-Dec-07							(2)			
20-Jan-08							(2)			
17-Feb-08							510.5	(2)		
16-Mar-08							510.0			
6-Apr-08							510.7			
20-Apr-08							510.5			
18-May-08							510.5			
15-Jun-08							510.4			
13-Jul-08							510.1			
17-Aug-08							510.2			
14-Sep-08							510.2			
19-Oct-08							510.2			
16-Nov-08							(3)			
23-Nov-08							510.3			
14-Dec-08							(2)			
18-Jan-09							(2)			
8-Feb-09							510.5			
15-Mar-09							510.5			
12-Apr-09							510.5			
17-May-09							510.5			
14-Jun-09							510.4			
12-Jul-09							510.7			
9-Aug-09							510.2			
13-Sep-09							509.2			
11-Oct-09							510.3			
15-Nov-09							510.2			
13-Dec-09							510.3			
17-Jan-10							510.3			
7-Feb-10							(2)			
14-Mar-10							510.5			
18-Apr-10							510.4			
16-May-10							510.4			
13-Jun-10							510.4			

Table B-7 Groundwater / Surface Water Elevations - Drivepoints

Drivepoint Name	DP7		DP8		DP9		Bridson DP		SG1	SG2
	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)		
Flow System	OB		OB		OB		OB		OB	OB
Date TOP	509.9		511.9		508.9		511.3		511.0	511.5
21-Jul-10							510.4			
16-Aug-10							510.1			
12-Sep-10							509.8			
17-Oct-10							(3)			
14-Nov-10							510.4			
19-Dec-10							510.4			
16-Jan-11							510.4			
20-Feb-11							(2)			
13-Mar-11							(2)			
17-Apr-11							510.5			
15-May-11							510.5			
13-Jun-11							510.5			
17-Jul-11							509.9			
14-Aug-11							509.6			
18-Sep-11							(1)			
16-Oct-11							510.3			
20-Nov-11							510.3			
18-Dec-11							510.4			
15-Jan-12							510.3			
19-Feb-12							510.5			
26-Feb-12										
18-Mar-12							510.5			
15-Apr-12							510.4	(4)		
13-May-12							510.4			
17-Jun-12							510.1			
15-Jul-12							509.3			
12-Aug-12							510.3			
16-Sep-12							509.3			
14-Oct-12							510.3			
18-Nov-12							510.4			
16-Dec-12							510.4			
13-Jan-13							(2)			
17-Feb-13							(2)			
17-Mar-13							(2)			
14-Apr-13							510.5	510.5		
12-May-13							510.5			
16-Jun-13							510.5			
14-Jul-13							509.8			
18-Aug-13							510.1			
15-Sep-13							510.1			

Table B-7 Groundwater / Surface Water Elevations - Drivepoints

Drivepoint Name	DP7		DP8		DP9		Bridson DP		SG1	SG2
	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)		
Flow System	OB		OB		OB		OB		OB	OB
Date TOP	509.9		511.9		508.9		511.3		511.0	511.5
13-Oct-13							510.3			
17-Nov-13							510.4			
16-Dec-13							(2)			
19-Jan-14							(2)		(2)	
16-Feb-14							(2)		(2)	
17-Mar-14							(2)		(2)	
13-Apr-14							(2)		(2)	
11-May-14							510.5	510.5	(1)	
15-Jun-14							510.4		511.1	
13-Jul-14							510.3		511.0	
17-Aug-14							510.3		(1)	
7-Sep-14							510.1		(3)	
12-Sep-14							(3)		(1)	
19-Oct-14							510.4		511.1	
16-Nov-14							510.4		(2)	
14-Dec-14							510.4		(2)	
18-Jan-15							(2)		(2)	
15-Feb-15							(3)		(3)	
15-Mar-15							(2)		(2)	
19-Apr-15							510.5		511.2	
17-May-15							510.4		511.2	
14-Jun-15							510.4		511.2	
19-Jul-15							510.2		511.1	
9-Aug-15							510.2		(1)	
6-Sep-15	(3)		(3)		(3)		510.0		(1)	
11-Oct-15	(3)		(3)		(3)		509.0		(1)	
15-Nov-15	509.0		(3)		507.7		510.3		(1)	(1)
6-Dec-15	509.0		511.2		507.7		510.3		(2)	(2)
17-Jan-16	(2)		(2)		(2)		510.4		(2)	(2)
14-Feb-16	(2)		(2)		(2)		(2)		(2)	(2)
13-Mar-16	509.4		511.3		507.8		510.5		511.2	511.8
17-Apr-16	509.3		511.3		507.8		510.5		511.2	511.8
1-May-16	509.3		511.3		507.8		510.5			
15-May-16	509.3		511.3		507.8		510.4		511.2	511.7
5-Jun-16	509.3		511.3		507.8		510.4	(1)		
19-Jun-16	509.2		511.2		507.6		510.1		(1)	(1)
3-Jul-16	509.0		511.2		507.4		509.8	(1)		
17-Jul-16	508.8		511.2		507.1		509.2		(1)	(1)
24-Jul-16										
7-Aug-16	508.4		511.2		506.6		(1)			

Table B-7 Groundwater / Surface Water Elevations - Drivepoints

Drivepoint Name	DP7		DP8		DP9		Bridson DP		SG1	SG2
	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)		
Flow System	OB		OB		OB		OB		OB	OB
Date TOP	509.9		511.9		508.9		511.3		511.0	511.5
21-Aug-16	508.6		511.2		507.2		509.5		(1)	(1)
18-Sep-16	508.2		511.2		506.7		(1)		(1)	(1)
16-Oct-16	508.0		511.2		(1)		(1)		(1)	(1)
13-Nov-16	508.4		511.3		506.9		509.2		(1)	(1)
11-Dec-16	508.7	(1)	511.3	511.3	(1)	(1)	509.9		(1)	(1)
23-Jan-17	509.2	509.2	(2)	(2)	507.7	507.7	510.4		511.1	(2)
12-Feb-17	(2)	(2)	(2)	(2)	(2)	(2)	510.6	(2)	(2)	(2)
19-Mar-17	509.3	(2)	(2)	(2)	(2)	(2)	510.4	(2)	(2)	511.7
9-Apr-17										
16-Apr-17	509.3	509.3	511.3	511.3	507.8	507.8	510.4		511.2	511.7
10-May-17	509.4	509.4	511.3	511.4	507.8	507.8	510.4	510.4		
14-May-17									511.2	
21-May-17			511.3	511.3	507.8	507.8	510.5	510.4	511.3	511.8
23-May-17										
25-May-17			511.3	511.3	507.8	507.8	510.5	510.4		
1-Jun-17	509.3	509.3	511.3	511.3	507.8	507.8	510.4	510.4		
22-Jun-17	509.3	509.3	511.3	511.3	507.8	507.8	510.4	(1)		
26-Jun-17	509.3	509.3	511.3	511.3	507.8	507.8	510.4		511.2	511.8
7-Jul-17	509.3	509.3	511.3	511.3	507.8	507.8	510.4	(1)		
17-Jul-17	509.3	509.3	511.3	511.3	507.8	507.7	(1)	(1)	511.2	511.8
3-Aug-17										
17-Aug-17	509.2	509.2	511.3	511.3	507.7	507.7	510.2	(1)	(1)	511.6
29-Aug-17										
18-Sep-17	509.0	(1)	511.3	511.3	507.7	507.7	510.2	(1)	(1)	
26-Sep-17										
15-Oct-17	509.1	(1)	511.3	511.3	507.7	507.7	510.4	(1)	(1)	511.6
14-Nov-17	509.2	509.2	511.3	511.3	507.8	507.8	510.4		511.1	511.7
11-Dec-17	(2)	(2)	(2)	(2)	(2)	(2)	510.4	(1)	(2)	(2)
14-Jan-18	(2)	(2)	(2)	(2)	(2)	(2)	(2)		(2)	(2)
11-Feb-18										
18-Feb-18	(2)	(2)	(2)	(2)	(2)	(2)	(2)		(2)	(2)
18-Mar-18	(2)	(2)	(2)	(2)	(2)	(2)	(2)		(2)	(2)
15-Apr-18										
1-May-18	509.4	509.4	511.4	511.4	507.8	507.8	510.5	510.5		
17-May-18	509.4	509.3	511.4	511.4	507.8	507.8	510.5	510.4	511.2	511.8
1-Jun-18										
18-Jun-18	509.2	509.2	511.3	511.3	507.7	507.8	510.2	510.4	(1)	511.7
1-Jul-18										
17-Jul-18	508.8	509.1	511.3	511.3	507.7	507.8	509.4	510.4	(1)	(1)
22-Aug-18	508.8	509.1	511.4	511.4	507.5	507.8	510.1	510.4	(1)	(1)

Table B-7 Groundwater / Surface Water Elevations - Drivepoints

Drivepoint Name	DP7		DP8		DP9		Bridson DP		SG1	SG2
	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)		
Flow System	OB		OB		OB		OB		OB	OB
Date TOP	509.9		511.9		508.9		511.3		511.0	511.5
18-Sep-18	508.2	509.1	511.3	511.3	506.6	507.7	509.0	510.4	(1)	(1)
23-Oct-18	508.7	509.1	511.4	511.3	507.2	507.8	509.6	510.4	(1)	(1)
19-Nov-18	509.0		(2)	(2)	507.7	507.7	(2)	(2)	(2)	(2)
10-Dec-18	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
17-Jan-19										
14-Feb-19										
11-Mar-19										
26-Apr-19	509.4		511.4	511.4	507.8	507.8	510.4	510.4		
22-May-19	509.3	509.3	511.4	511.4	507.8	507.7	510.4	510.4		
19-Jun-19	509.3	509.3	511.3	511.3	507.7		510.4		511.0	511.3
19-Jul-19	509.0		511.4	511.4	507.5		509.7			
27-Aug-19	509.0		511.4	511.4	506.8		509.7			
16-Sep-19	509.0		511.4	511.4	506.8		509.7		510.7	511.3
21-Oct-19	509.0		511.4	511.4	506.7		509.7		510.7	511.3
18-Nov-19	508.8		511.6	511.6	506.8		509.8			
17-Dec-19										
14-Jan-20										
18-Feb-20										
24-Mar-20					507.8		510.4		510.7	511.3
22-Apr-20	509.3	509.3	511.1	(5)			510.4	510.4		
27-May-20	509.1	509.1	511.4	511.4	507.7	507.7	510.4		510.2	
26-Jun-20	509.4	509.3	511.4	511.4	507.7		510.4		510.5	511.2
28-Jul-20	509.3	509.3	511.4	511.4	507.8		510.3		510.4	511.0
31-Aug-20	508.8	509.2	511.3	511.3	507.8		510.5		510.5	511.0
28-Sep-20	508.8		511.3	511.3	507.6		510.5			
27-Oct-20	509.1		511.3	511.3	507.5		510.3	510.3		
24-Nov-20			511.3	511.3	507.6		510.4			
21-Dec-20										
29-Jan-21	(2)	(2)	(2)	(2)	507.8	(2)	510.4	(2)	(2)	(2)
19-Feb-21	(2)	(2)	(2)	(2)	507.8	(2)	(2)	(2)	(2)	(2)
31-Mar-21	(2)	(2)	(2)		(2)	(2)	510.4	(1)	(2)	(2)
29-Apr-21	508.8	508.8	511.3	511.3	508.1	508.1	510.4	510.4		
13-May-21	509.3	509.3	511.2	(1)	508.2	(1)	510.4	510.4		
28-May-21	509.2	509.2	511.2	(1)	508.2	(1)	510.3	(1)		
9-Jun-21	509.3	509.3	511.5	511.5	(1)	(1)	(1)	(1)		
25-Jun-21	509.1	509.1	511.2	(1)	(1)	(1)	510.3	(1)	(1)	511.0
8-Jul-21	509.1	509.2	511.4	511.4	507.7	(1)	510.3	(1)		
26-Jul-21	508.4	(1)	511.4	511.4	507.6	(1)	510.0	(1)	(1)	(1)
24-Aug-21	508.7	(1)	511.4	511.4	507.6	(1)	509.6	(1)	(1)	(1)
22-Sep-21	509.9	(1)	511.5	511.5	508.9	(1)	510.4	(1)	(1)	(1)

Table B-7 Groundwater / Surface Water Elevations - Drivepoints

Drivepoint Name	DP7		DP8		DP9		Bridson DP		SG1	SG2
	(in)	(out)	(in)	(out)	(in)	(out)	(in)	(out)		
Flow System	OB		OB		OB		OB		OB	OB
Date TOP	509.9		511.9		508.9		511.3		511.0	511.5
29-Oct-21	509.1	(1)	(1)	(1)	507.9	(1)	510.3	(1)	(1)	(1)
24-Nov-21	509.4	(2)	511.5	(2)	507.8	507.8	510.4	510.4		
23-Dec-21	(3)	(3)	511.5	(2)	507.7	507.7	510.4	(1)		
26-Jan-22	(3)	(3)	(2)	(2)	507.6	(2)	510.3	(2)	(2)	(2)
10-Feb-22	(3)	(3)	(2)	(2)	(2)	(2)	(2)	(2)	(3)	(3)
16-Mar-22	(3)	(3)	(2)	(2)	(2)	(2)	510.2	(2)	(2)	(2)
22-Apr-22	(3)	(3)	(3)	(3)	508.2	508.2	510.4	510.4	(3)	(3)
13-May-22	509.3	509.3	511.3	511.3	(5)	(5)	510.3	(1)		
26-May-22	509.1	509.1	511.3	511.3	508.1	508.1	510.3	510.3		
2-Jun-22	509.6	509.6	511.4	511.4	508.2	508.2	509.9	(1)		
20-Jun-22	509.6	509.6			508.1	508.1	510.3	(1)	510.6	511.3
22-Jun-22			511.3	511.3						
7-Jul-22	509.6	509.6	511.7	511.7	508.5	508.5	509.8	(1)		
30-Aug-22			511.5	511.5	508.1	508.1	510.4	(1)		
31-Aug-22	508.9	(1)								
27-Sep-22			511.4	511.4						
28-Sep-22					507.4	(1)	510.0	(1)		
29-Sep-22	508.8	(1)							(1)	(1)
26-Oct-22	508.7	(1)	511.4	511.4					(1)	(1)
28-Oct-22					(1)	(1)	(1)	(1)		
23-Nov-22									(1)	(1)
27-Mar-23	509.4	509.4	511.6	511.6	507.7	507.8	510.4	510.4		
24-Apr-23	509.4	509.4	511.5	511.5	507.8	507.8	510.4	510.4		
15-May-23	509.4	509.4	511.4	511.4	507.8	507.7	510.3	(1)		
29-May-23	509.3	509.3							510.6	510.8
30-May-23			511.4	511.4	507.7	(1)	510.2	(1)		
31-May-23										
14-Jun-23	509.3	509.3	511.4	511.4	507.7	507.7	510.3	510.4		
27-Jun-23	509.2	509.2	511.4	511.5	507.7	507.7	510.2	(1)		
12-Jul-23	509.2	509.2	511.4	511.4	507.7	(1)	510.2	(1)		
24-Jul-23	509.3	509.3	511.5	511.5	507.8	507.7	510.2	(1)		
28-Aug-23	509.2	509.2	511.3	511.4	507.6	(1)				
29-Aug-23										
30-Aug-23							510.1	(1)		
30-Oct-23			511.4	511.4						
31-Oct-23	508.9	(1)							(1)	(1)
1-Nov-23					507.1	(1)	509.6	(1)		

Table B-8 Surface Water Temperature - Drivepoints

Date	DP1	DP2	DP3	DP4	DP5	DP6	DP7	DP8	DP9	Bridson DP
16-Nov-16	7.4	7.7	(1)	5.6	(1)	(1)	(1)	4.7	(1)	(1)
11-Dec-16	1.1	(2)	(1)	0.2	(1)	(1)	(1)	0.1	(1)	(1)
23-Jan-17	(2)	(2)	(2)	0.5	0.7			(2)	0.0	(2)
12-Feb-17	(2)	(2)	(2)	(2)	(2)		(2)	(2)	(2)	(2)
19-Mar-17	(2)	(2)	(2)	(2)	(2)		(2)	(2)	(2)	(2)
16-Apr-17	10.5	8.7	(1)	4.1	7.1	5.8	6.1	4.7	10.2	16.2
10-May-17		9.4		9.9	11.0	8.2	8.5	8.5	6.0	6.4
19-May-17	14.9		(1)							
25-May-17		12.1		12.2	12.6	10.1	12.9	12.2	12.0	14.1
1-Jun-17		11.8		12.1	14.1	11.4	13.6	11.4	12.2	11.5
22-Jun-17		15.1		14.9	15.2	15.0	15.1	14.9	15.1	15.4
26-Jun-17	21.7	12.9	(1)	12.1	13.6	13.8	13.9	12.0	14.8	
7-Jul-17		18.2		18.6	18.5	18.3	18.6	17.8	18.5	(1)
19-Jul-17	19.6	17.8	(1)	17.4	17.9	17.7	18.7	17.3	18.8	(1)
17-Aug-17	18.3	17.6	(1)		17.7	(1)	16.9	17.2	(1)	
18-Sep-17	20.5	22.4	(1)	17.9	18.7	(1)	(1)	18.1	(1)	(1)
15-Oct-17	8.1	11.9	(1)		9.8	(1)	(1)	10.0		(1)
14-Nov-17	0.7	1.8	(1)		2.2	1.0	1.3	1.6	2.5	(1)
11-Dec-17	(2)		(1)		(2)	(2)	(2)	(2)	(2)	
14-Jan-18	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
11-Feb-18					(2)	(2)				
18-Feb-18	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
18-Mar-18	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
15-Apr-18	(2)	(2)	(2)		(2)	(2)	(2)	(2)	(2)	(2)
17-May-18	17.7	13.0	12.3	14.4	15.9	12.3	12.7	13.4	16.4	16.0
18-Jun-18		19.6		20.6	20.3	20.6	20.5	19.5		
17-Jul-18		19.5		20.2				20.1	16.4	
22-Aug-18		16.6		19.4				18.8		
18-Sep-18	18.3	17.8								
23-Oct-18										
19-Nov-18										
10-Dec-18										
17-Jan-19										
14-Feb-19										
11-Mar-19										
26-Apr-19										
22-May-19	10.6	9.7		9.6	11.4	10.4	10.4	8.7	8.3	8.4
19-Jun-19	17.0	14.5		15.3	14.0	14.3	14.3	14.2		
19-Jul-19	20.9	19.6			18.6			18.9		

Table B-8 Surface Water Temperature - Drivepoints

Date	DP1	DP2	DP3	DP4	DP5	DP6	DP7	DP8	DP9	Bridson DP
27-Aug-19	18.4	17.1	(1)	18.2	(1)	(1)	(1)	19.4	(1)	(1)
16-Sep-19	17.8	17.5		18.9			18.8			
21-Oct-19	12.9	12.8		11.9				13.5		
18-Nov-19				0.1				0.1		
17-Dec-19										
14-Jan-20										
18-Feb-20										
24-Mar-20										
22-Apr-20										
27-May-20										
26-Jun-20										
28-Jul-20	26.0	22.5	(1)	19.6	20.3	18.5	20.6	20.6	19.9	(1)
31-Aug-20	18.8	17.5	(1)	18.6	18.0	17.0	18.2	18.3	(1)	(1)
28-Sep-20										
27-Oct-20										
24-Nov-20										
21-Dec-20										
29-Jan-21										
19-Feb-21	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
31-Mar-21		(2)		7.0		(2)	(2)			(1)
29-Apr-21	10.6	10.2	(1)	11.7	6.7	(1)	7.2	8.3	8.8	11.9
13-May-21		15.9		15.6	13.3	18.0	13.5	(1)	(1)	(1)
28-May-21	16.1	15.8	(1)	18.7	13.5	18.2	13.7	(1)	(1)	(1)
9-Jun-21		15.6		19.6	20.9	(1)	21.6	26.2	(1)	(1)
25-Jun-21	25.5	22.9	(1)	23.6	18.6	(1)	20.4	(1)	(1)	(1)
8-Jul-21		15.2		15.9	13.2	(1)	12.5	14.8	(1)	(1)
26-Jul-21	25.3	22.1	(1)	18.1	21.7	(1)	(1)	21.1	(1)	(1)
24-Aug-21	25.8	22.3	(1)	18.0	(1)	(1)	(1)	23.0	(1)	(1)
22-Sep-21	22.1	20.9	(1)	18.2	(1)	(1)	(1)	20.6	(1)	(1)
29-Oct-21	17.9	16.7	(1)		17.0	(1)	(1)	(1)	(1)	(1)
24-Nov-21	(2)	(2)	(1)	0.0	(2)	1.3	(2)	(2)	1.1	0.4
23-Dec-21	(2)		(1)	0.0				(2)	0.0	(1)
26-Jan-22	(2)	3.0	(2)	(2)	3.0	3.0	3.0	(2)	(2)	(2)
10-Feb-22	(2)	3.0	(2)	(2)	3.0	3.0	3.0	(2)	(2)	(2)
16-Mar-22	(2)		(2)	(2)	3.0	(2)	3.0	(2)	(2)	(2)
22-Apr-22	0.1		1.2						2.3	3.4
13-May-22		25.7		21.0	15.7	17.8	16.2	20.8	17.1	(1)
26-May-22	14.2	13.9	(1)	15.1	14.5	14.5	15.6	13.2	14.8	14.8
2-Jun-22		19.2		18.2	11.8	13.5	12.1	15.3	14.6	(1)

Table B-8 Surface Water Temperature - Drivepoints

Date	DP1	DP2	DP3	DP4	DP5	DP6	DP7	DP8	DP9	Bridson DP
20-Jun-22		23.1			14.5	14.3	16.8		16.4	(1)
22-Jun-22				20.1				15.7		
7-Jul-22		23.4		21.2	15.2	16.5	15.8	19.3	17.5	(1)
30-Aug-22				17.2		17.8		16.8	18.1	(1)
31-Aug-22	18.4	17.0			17.9		(1)			
27-Sep-22				15.5				15.2		
28-Sep-22						(1)			(1)	(1)
29-Sep-22		15.3			(1)		(1)			
26-Oct-22				10.2	(1)		(1)	10.6		
28-Oct-22		8.7				(1)			(1)	(1)
27-Mar-23		0.2		0.3	0.5	0.5	0.4	0.7	2.4	0.8
24-Apr-23		7.2		4.7	6.7	5.6	7.2	7.4	4.7	4.8
15-May-23		17.1		14.1	14.6	10.1	15.5	14.1	9.6	(1)
30-May-23		18.0		16.2		15.6		16.0	18.1	(1)
29-May-23					17.5		18.2			
14-Jun-23		19.3		16.0	13.3	14.3	12.8	16.8	14.1	(1)
27-Jun-23		21.2		20.5	19.2	18.2	18.0	20.8	17.2	(1)
12-Jul-23		22.1		20.8	18.3	17.8	18.1		(1)	(1)
24-Jul-23		23.0		22.4	20.4	18.4	19.0	25.4	16.2	(1)
29-Aug-23		15.1								
28-Aug-23				17.9	15.4	(1)	16.9	19.8	(1)	
30-Aug-23										(1)
30-Oct-23		6.6		6.6				6.2		
31-Oct-23					1.6		(1)			
1-Nov-23						(1)			(1)	(1)

Table B-9 Domestic Well Laboratory Chemical Results

Surface Water Station	Date	General Parameters							Major Ions							Nutrients and Organic Indicators				
		pH (SU)	EC (µS/cm)	TSS	TDS	Hardness	Colour (TCU)	Turbidity (NTU)	Alkalinity	Chloride Cl	Sulphate SO_4	Calcium Ca	Magnesium Mg	Sodium Na	Potassium K	Nitrate NO_3	Nitrite NO_2	Ammonia NH_3	TKN	TP P
	ODWQS	6.5 - 8.5 OG	nc	nc	500 AO	80 - 100 OG	5 AO	5 AO	30 - 500 OG	250 AO	500 AO	nc	nc	200 AO	nc	10 MAC	1 MAC	nc	nc	nc
RW1	24-Oct-16	7.91	595	3	354	<1	<2		276	17	7	0.07	0.02	159	<0.1	1.1	<0.1	0.01	<0.1	<0.01
	2-May-17	8.05	487	<3	266	<1			240	6.4	6	0.17	0.08	107	0.1	0.6	<0.1	<0.01	0.2	<0.01
	9-May-18	8.04	460	<2	256	247	7.1	0.94	239	4.65	1.79	68.1	18.6	3.71	0.957	0.471	<0.01	0.156	<0.15	<0.05
	6-Jun-19			<10		250	<2		260	5.9	4.7	70	17	14	0.82	0.34	<0.01	<0.05	<0.1	<0.004
	20-May-20	7.80	500	<10	265	260	<2	0.2	260	6.8	5.1	14	3.5	110	0.36	0.39	<0.01	<0.05	0.13	<0.02
	27-May-21			<10		290	<2		270	5.5	5.1	81	21			0.27	<0.01	<0.05	<0.1	<0.004
	2-Jun-22	7.38	1,117	<10		290	<2		280	5.2	4.7	83	21	3.8	0.85	0.34	<0.01	<0.05	<0.1	<0.004
	31-May-23			<10		280	<2		270	3.9	4.9	84	20	3.9	0.95	0.34	<0.01	<0.05	0.11	0.007
RW2	24-Oct-16	7.88	1,260	11	674	348	7		302	204	12	103	22.4	144	0.6	1.6	<0.1	0.04	0.3	0.01
	2-May-17	7.95	760	<3	391	255			247	81.5	6	73.8	17.1	60.6	0.3	0.8	<0.1	<0.01	0.2	0.01
	9-May-18	8.03	1,110	<2	630	321	<2	0.46	284	204	8.26	91.7	22.4	116	0.671	0.769	<0.01	0.026	<0.15	0.0051
	6-Jun-19			<10		320	<2		280	180	9.9	95	22	130	0.87	0.69	<0.01	0.14	<0.1	0.008
	20-May-20	7.76	1,200	<10	635	310	<2	0.2	290	190	11	93	22	130	0.72	0.74	<0.01	<0.05	0.15	<0.02
	26-May-21			<10		300	3		310	130	8.9	90	22			0.1	<0.01	<0.05	<0.1	0.018
	2-Jun-22	7.75	288	<10		340	<2		320	150	9.9	95	24	100	0.68	0.9	<0.01	<0.05	<0.1	0.013
	31-May-23			<10		340	<2		320	160	10	100	25	110	0.88	0.9	<0.01	<0.05	<0.1	0.015

Table B-9 Domestic Well Laboratory Chemical Results

Surface Water Station	Date	*Metals*																		
		Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Fluoride	Iron	Lead	Manganese	Molybdenum	Nickel	Selenium	Silicon	Silver
		Al	Sb	As	Ba	Be	B	Cd	Cr	Co	Cu	F	Fe	Pb	Mn	Mo	Ni	Se	Si	Ag
	ODWQS	0.1 OG	0.006 IMAC	0.025 IMAC	1 MAC	nc	5 IMAC	0.005 MAC	0.05 MAC	nc	1 AO	1.5 MAC	0.3 AO	0.01 MAC	0.05 AO	nc	nc	0.01 MAC	nc	nc
RW1	24-Oct-16	<0.01	0.0002	0.0123	<0.001	<0.002		<0.00002	0.002	<0.0001	0.147	0.1	<0.005	0.00077	<0.001	<0.0001	<0.01	<0.001		<0.00002
	2-May-17	<0.01	<0.0001	0.0007	<0.001	<0.002		<0.000014	<0.001	0.0001	0.0263	<0.1	<0.005	0.00017	<0.001	<0.0001	<0.01	<0.001		<0.00002
	9-May-18	0.0142	<0.0001	0.0005	0.0138	<0.0001	<0.01	<0.000005	<0.0005	<0.0001	0.0155	0.036	<0.01	0.00032	<0.0005	<0.00005	<0.0005	0.00006	2.23	<0.00005
	6-Jun-19	0.0082	<0.0005	<0.001	0.013	<0.0005	<0.01	<0.0001	<0.005	<0.0005	0.031	<0.1	<0.1	<0.0005	<0.002	<0.0005	<0.001	<0.002		<0.0001
	20-May-20	0.014	<0.0005	<0.001	0.0028	<0.0005	0.015	<0.0001	<0.005	<0.0005	0.087	<0.1	<0.1	0.00069	0.0027	<0.0005	<0.001	<0.002		<0.0001
	27-May-21	<0.005	<0.0005	<0.001	0.015	<0.0004	<0.01	<0.00009	<0.005	<0.0005	0.0077	<0.1	<0.1	<0.0005	<0.002	<0.0005	<0.001	<0.002		<0.00009
	2-Jun-22	0.0091	<0.0005	<0.001	0.016	<0.0004	<0.01	<0.00009	<0.005	<0.0005	0.028	<0.1	<0.1	0.00063	<0.002	<0.0005	<0.001	<0.002		<0.00009
	31-May-23	0.042	<0.0005	<0.001	0.015	<0.0004	<0.01	<0.00009	<0.005	<0.0005	0.021	<0.1	<0.1	<0.0005	<0.002	<0.0005	<0.001	<0.002		<0.00009
RW2	24-Oct-16	0.03	0.0001	0.0003	0.015	<0.002		<0.00002	<0.002	0.0001	0.011	0.1	0.009	0.00015	<0.001	<0.0001	<0.01	<0.001		<0.00002
	2-May-17	0.04	<0.0001	0.0005	0.008	<0.002		<0.000014	0.003	<0.0001	0.0076	<0.1	0.073	0.00026	<0.001	0.0001	<0.01	<0.001		<0.00002
	9-May-18	0.0064	<0.0001	0.0001	0.0129	<0.0001	0.019	<0.000005	0.00062	<0.0001	0.0151	0.065	0.013	0.00023	<0.0005	0.000077	0.00064	0.000087	2.4	<0.00005
	6-Jun-19	0.023	<0.0005	<0.001	0.012	<0.0005	0.036	<0.0001	<0.005	<0.0005	0.014	<0.1	<0.1	<0.0005	<0.002	<0.0005	<0.001	<0.002		<0.0001
	20-May-20	0.011	<0.0005	<0.001	0.014	<0.0005	0.032	<0.0001	<0.005	<0.0005	0.03	<0.1	<0.1	0.002	<0.002	<0.0005	<0.001	<0.002		<0.0001
	26-May-21	0.014	<0.0005	<0.001	0.011	<0.0004	0.028	<0.00009	<0.005	<0.0005	0.025	<0.1	<0.1	0.00076	<0.002	<0.0005	<0.001	<0.002		<0.00009
	2-Jun-22	0.01	<0.0005	<0.001	0.012	<0.0004	0.023	<0.00009	<0.005	<0.0005	0.0086	<0.1	<0.1	<0.0005	<0.002	<0.0005	<0.001	<0.002		<0.00009
	31-May-23	0.01	<0.0005	<0.001	0.013	<0.0004	0.03	<0.00009	<0.005	<0.0005	0.0053	<0.1	<0.1	<0.0005	<0.002	<0.0005	<0.001	<0.002		<0.00009

Table B-9 Domestic Well Laboratory Chemical Results

Surface Water Station	Date	Metals								BTEX & Hydrocarbons (µg/L)								
		Strontium Sr	Thallium Tl	Titanium Ti	Tungsten W	Uranium U	Vanadium V	Zinc Zn	Zirconium Zr	Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-Xylene	F1 (C6-C10)	F2 (C10-C16)	F3 (C16-C34)	F4 (C34-C50)
	ODWQS	nc	nc	nc	nc	0.02 MAC	nc	5 AO	nc	1 MAC	24 AO	1.6 AO	20 AO	20 AO	nc	nc	nc	nc
RW1	24-Oct-16	<0.001	<0.00005	<0.005	<0.01	0.00011	<0.005	<0.005	<0.003	<0.5	<0.5	<0.5	<1	<0.5	<50	<50	<400	<400
	2-May-17	<0.001	<0.00005	<0.005	<0.01	0.0001	<0.005	<0.005	<0.003	<0.5	<0.5	<0.5	<1	<0.5	<50	<50	<400	<400
	9-May-18	0.0802	<0.00001	0.00047	<0.0001	0.000125	<0.0005	0.0201	<0.0003	<0.5	<0.5	<0.5	<0.4	<0.3	<25	<100	<250	<250
	6-Jun-19	0.081	<0.00005	<0.005	<0.001	0.00013	<0.0005	0.033	<0.001	<0.2	<0.2	<0.2	<0.4	<0.2	<25	<100	<200	<200
	20-May-20	0.015	<0.00005	<0.005	<0.001	0.00011	<0.0005	0.045	<0.001	<0.2	<0.2	<0.2	<0.4	<0.2	<25	<100	<200	<200
	27-May-21	0.099	<0.00005	<0.005	<0.001	0.00013	<0.0005	<0.005	<0.001	<0.2	<0.2	<0.2	<0.4	<0.2	<25	<100	<200	<200
	2-Jun-22	0.096	<0.00005	<0.005	<0.001	0.00013	<0.0005	0.015	<0.001	<0.2	<0.2	<0.2	<0.4	<0.2	<25	<100	<200	<200
	31-May-23	0.089	<0.00005	<0.005	<0.001	0.00013	<0.0005	0.0071	<0.001	<0.2	<0.2	<0.2	<0.4	<0.2	<25	<100	<200	<200
RW2	24-Oct-16	0.275	<0.00005	<0.005	<0.01	0.00016	<0.005	<0.005	<0.003	<0.5	<0.5	<0.5	<1	<0.5	<50	<50	<400	<400
	2-May-17	0.159	<0.00005	<0.005	<0.01	0.00013	<0.005	0.007	<0.003	<0.5	<0.5	<0.5	<1	<0.5	<50	<50	<400	<400
	9-May-18	0.213	<0.00001	<0.0003	<0.0001	0.000124	<0.0005	0.0156	<0.0003	<0.5	<0.5	<0.5	<0.4	<0.3	<25	<100	<250	<250
	6-Jun-19	0.23	<0.00005	<0.005	<0.001	0.00013	<0.0005	0.012	<0.001	<0.2	<0.2	<0.2	<0.4	<0.2	<25	<100	<200	<200
	20-May-20	0.21	<0.00005	<0.005	<0.001	0.00013	<0.0005	0.048	<0.001	<0.2	<0.2	<0.2	<0.4	<0.2	<25	<100	<200	<200
	26-May-21	0.24	<0.00005	<0.005	<0.001	0.00011	<0.0005	0.16	<0.001	<0.2	<0.2	<0.2	<0.4	<0.2	<25	<100	<200	<200
	2-Jun-22	0.23	<0.00005	<0.005	<0.001	0.00014	<0.0005	<0.005	<0.001	<0.2	<0.2	<0.2	<0.4	<0.2	<25	<100	<200	<200
	31-May-23	0.25	<0.00005	<0.005	<0.001	0.00013	<0.0005	<0.005	<0.001	<0.2	<0.2	<0.2	<0.4	<0.2	<25	<100	<200	<200

Table B-10 Domestic Well Laboratory Microbiological Results

Surface Water Station	Date		Microbiological		
			Total Coliforms (cfu/100mL)	E.Coli (cfu/100mL)	Heterotrophic Plate Count (cfu/mL)
		ODWQS	0 MAC	0 MAC	a OG
RW1	24-Oct-16		<2	0	130
	2-May-17		0	0	200
	9-May-18		0	0	1
	6-Jun-19		0	0	5
	20-May-20		3	0	6
	27-May-21		0	0	180
	2-Jun-22		0	0	710
	31-May-23		5	0	0
RW2	24-Oct-16		12	0	290
	2-May-17		40	0	30
	16-May-17		6	0	130
	9-May-18		2	0	2
	6-Jun-19		91	0	39
	20-May-20		15	3	6
	26-May-21		(6)	(6)	>5700
	23-Jun-21	Inside	0	0	510
	23-Jun-21	Outside	5	2	2500
	2-Jun-22		6	4	8
	31-May-23	Inside	0	0	7
	31-May-23	Outside	180	15	280

APPENDIX C

Surface Water Data

Figure C-1 Surface Water Temperature and Flow

SW1 - Rob Roy Swamp 6 Quarry Discharge

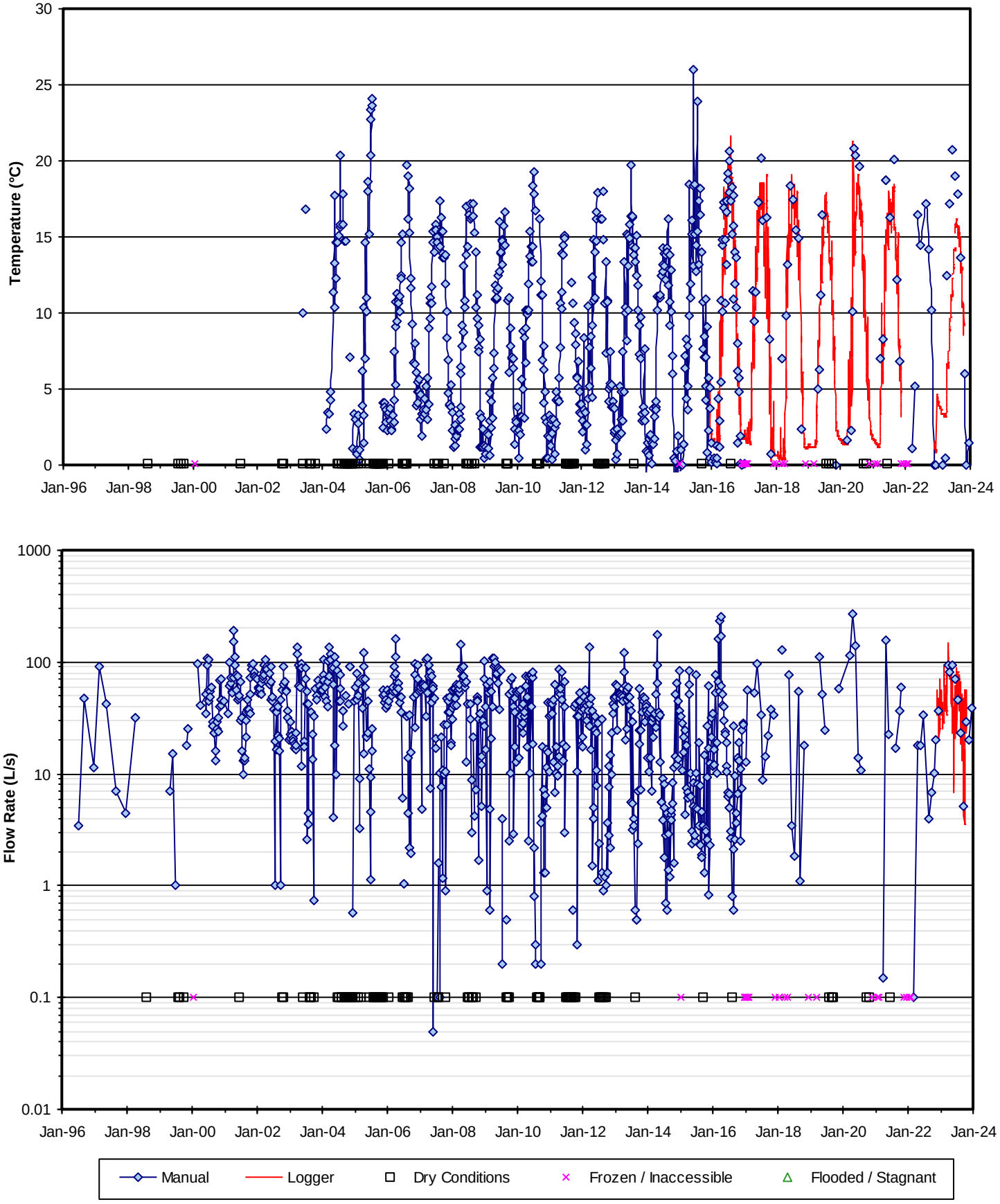


Figure C-2 Surface Water Temperature and Flow

SW2 - Rob Roy Swamp 6 Culvert south of County Rd 91

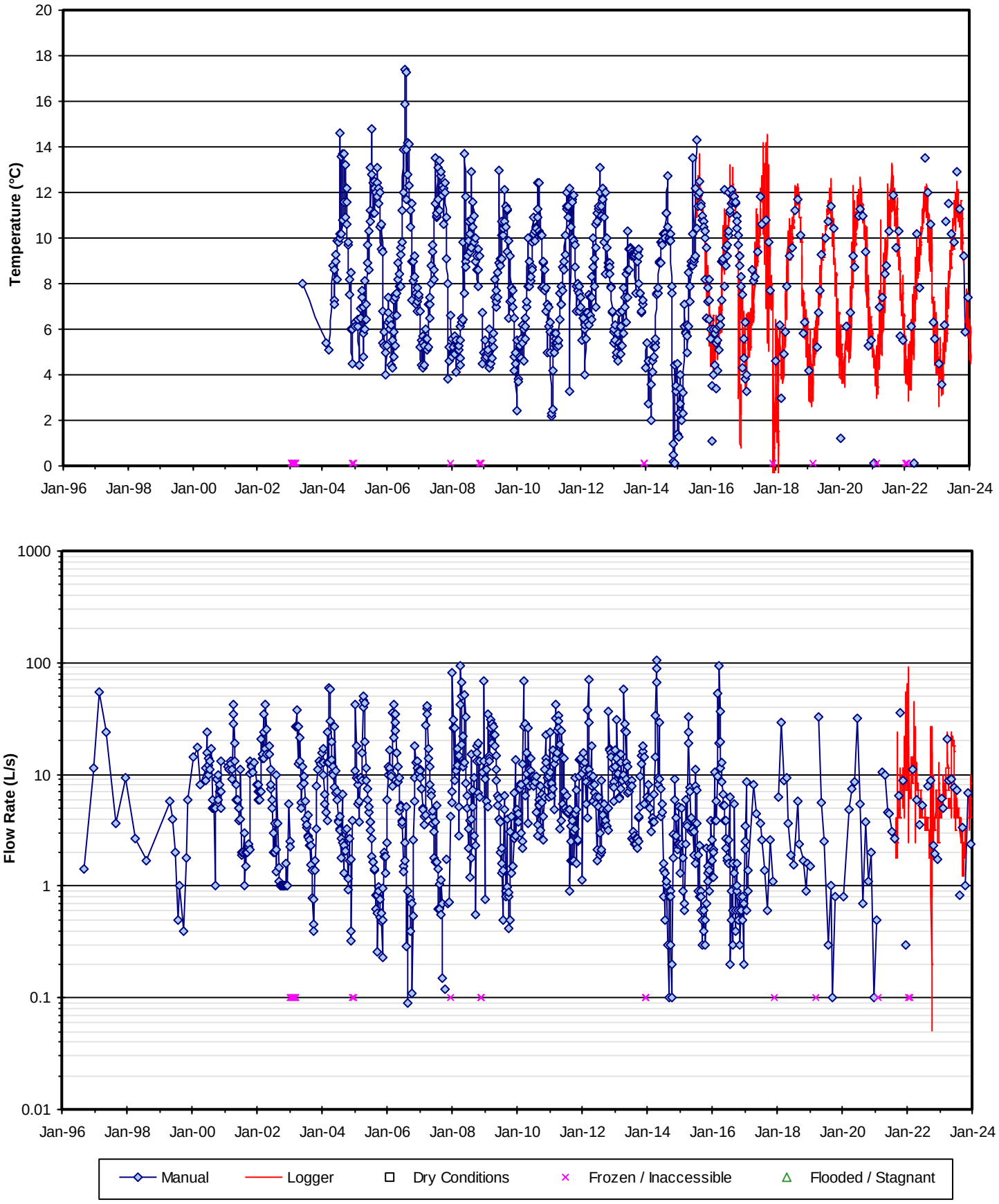


Figure C-3 Surface Water Temperature and Flow

SW0-2 - Rob Roy Swamp 6 Northwest Outlet

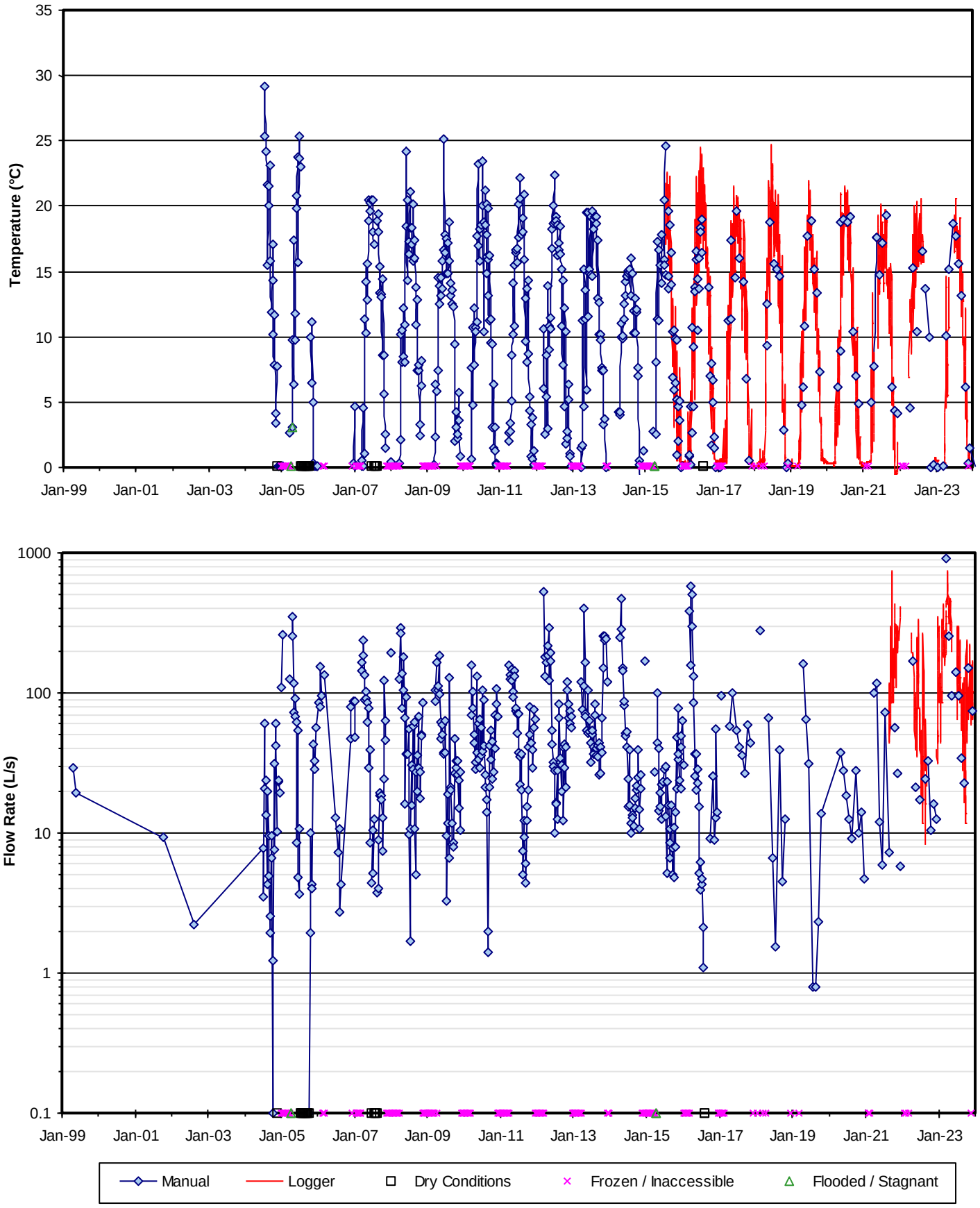


Figure C-4 Surface Water Temperature and Flow

QFSW2 - Main Quarry Sump 1 Discharge

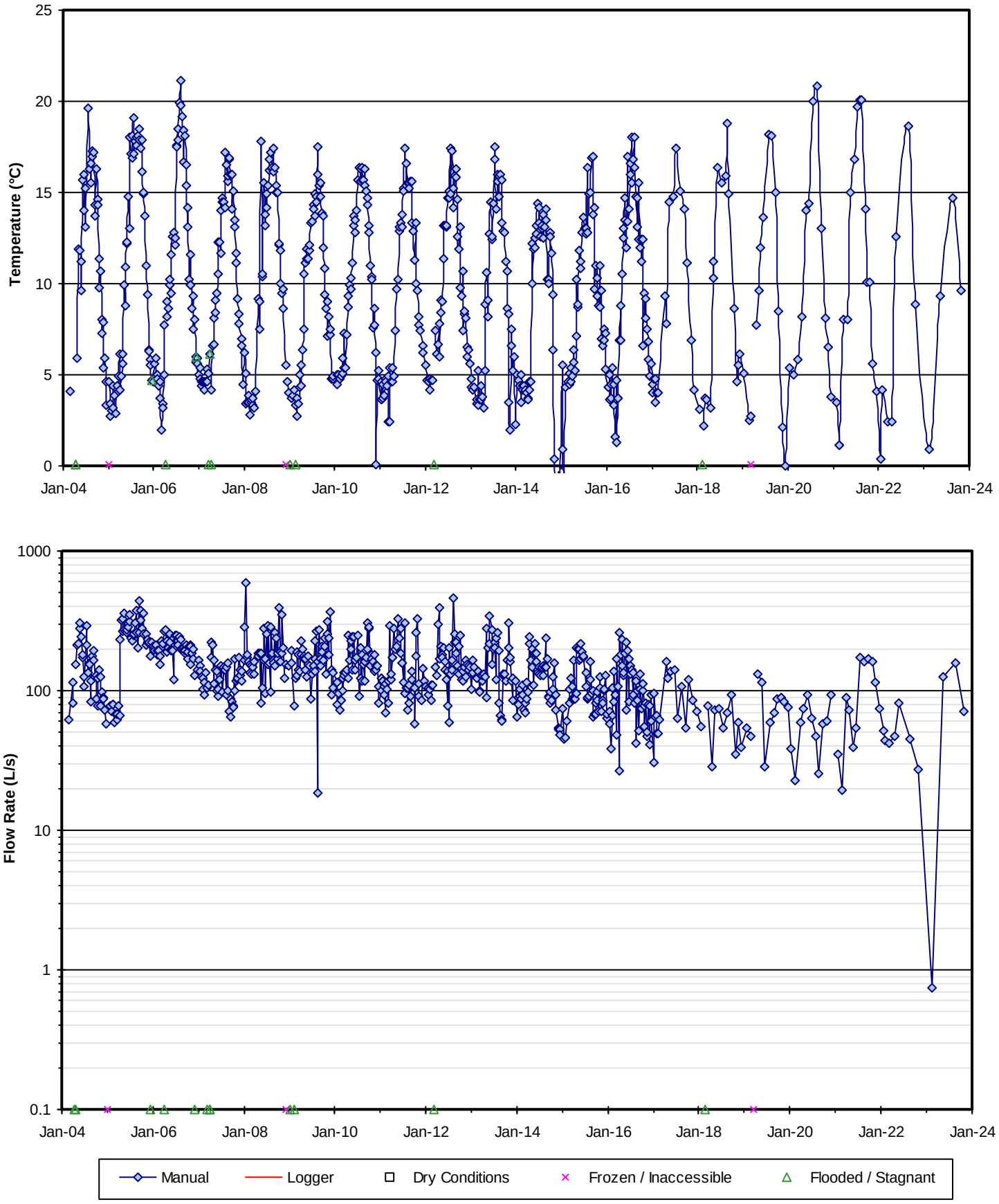


Figure C-5 Surface Water Temperature and Flow

SW3 - Rob Roy Swamp 2 West Outlet

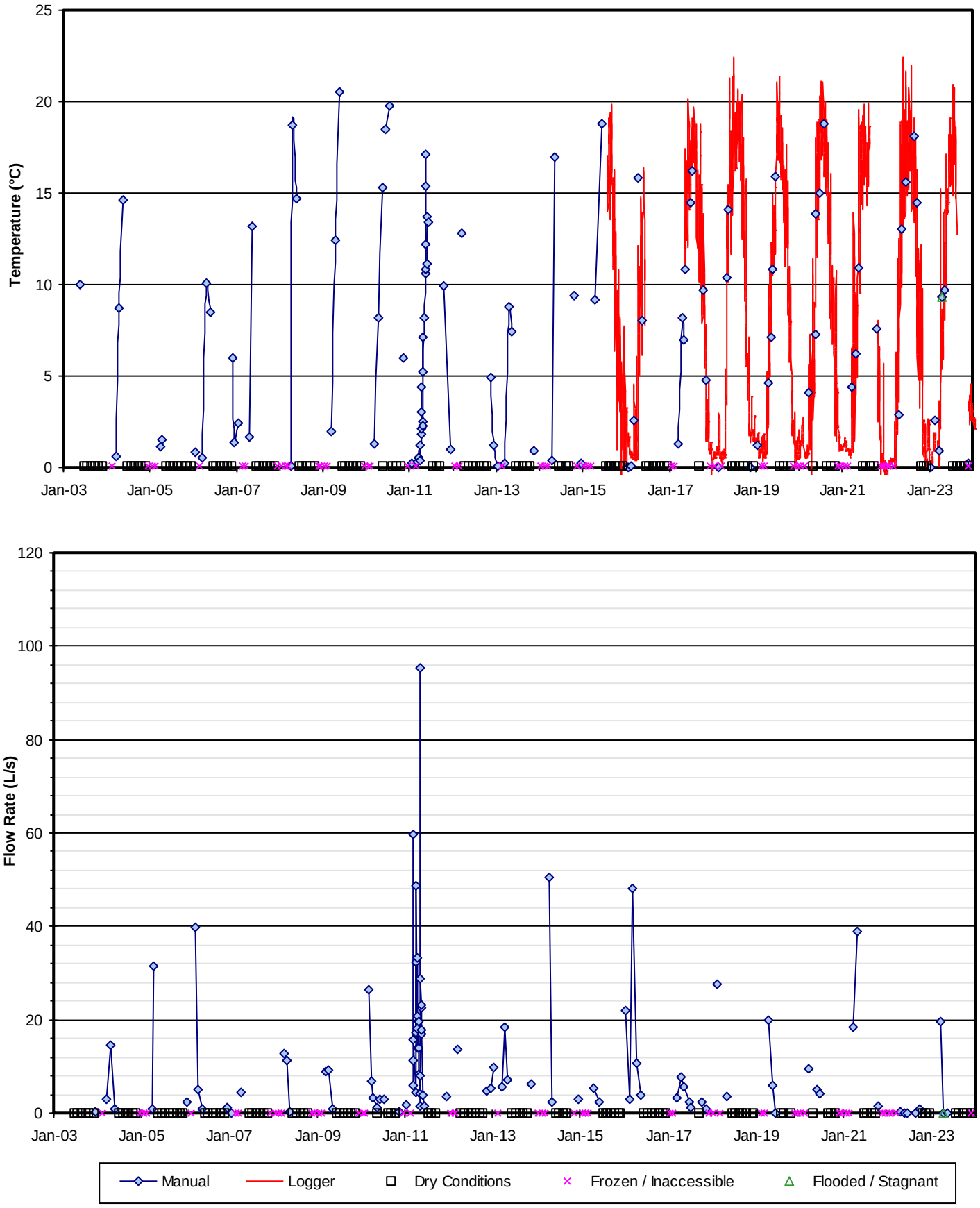


Figure C-6 Surface Water Temperature and Flow

SW3A - Rob Roy Swamp 1 Culvert Under County Road 31

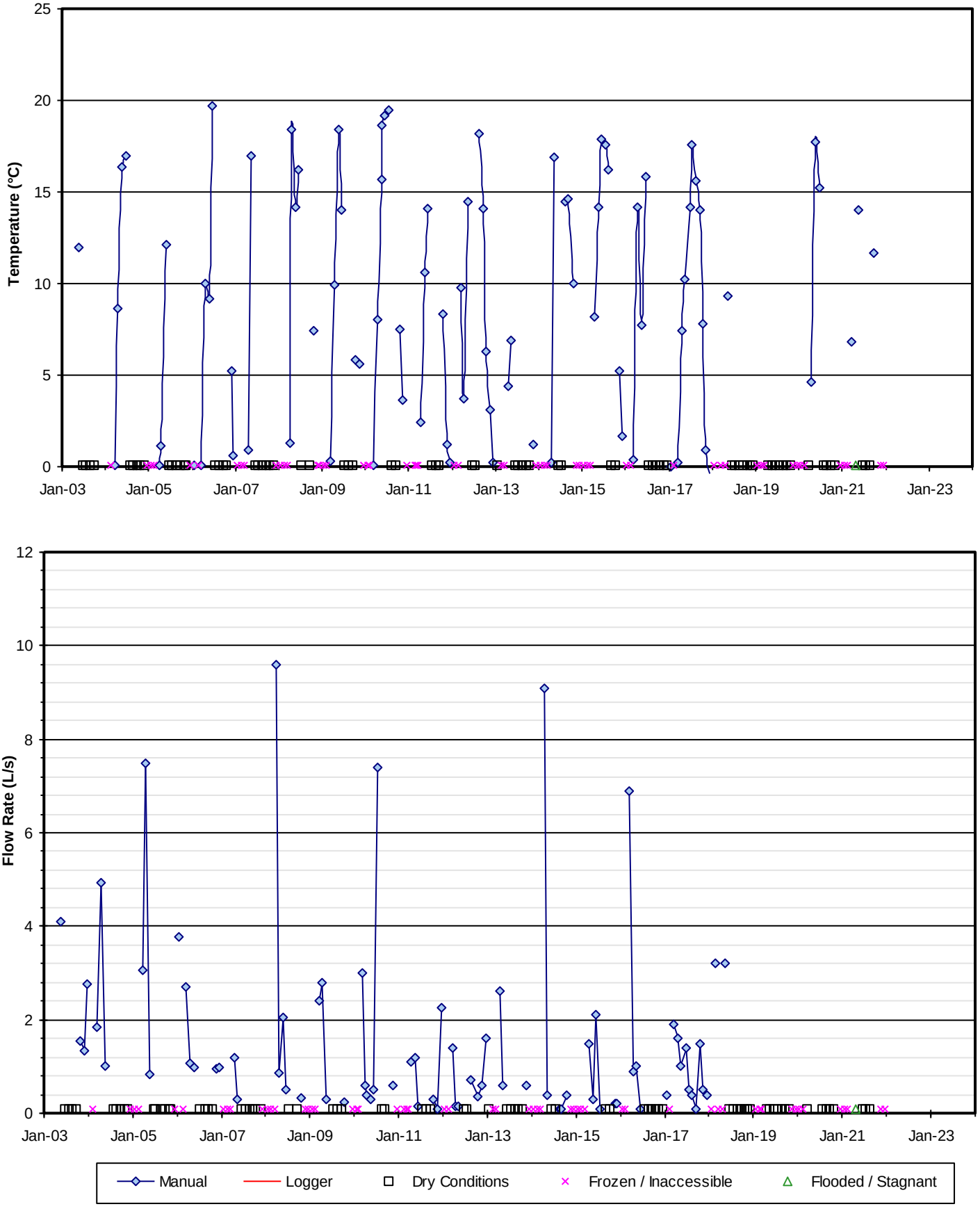


Figure C-7 Surface Water Temperature and Flow

SW4 - Rob Roy Swamp 6 Inlet at Southwest

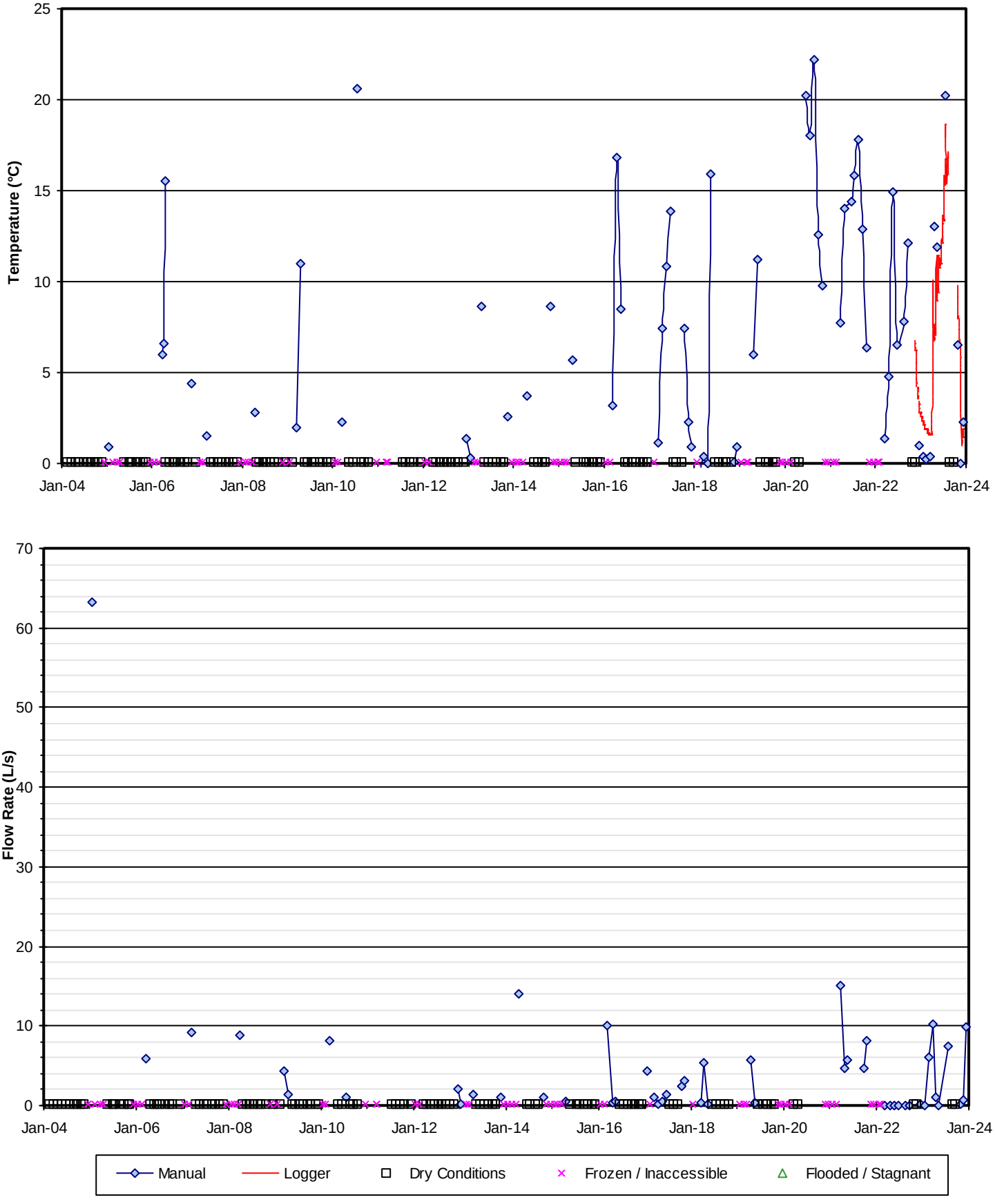


Figure C-8 Surface Water Temperature and Flow

SW5 - Beaver River / Rob Roy Swamp 7 Along 10th Concession

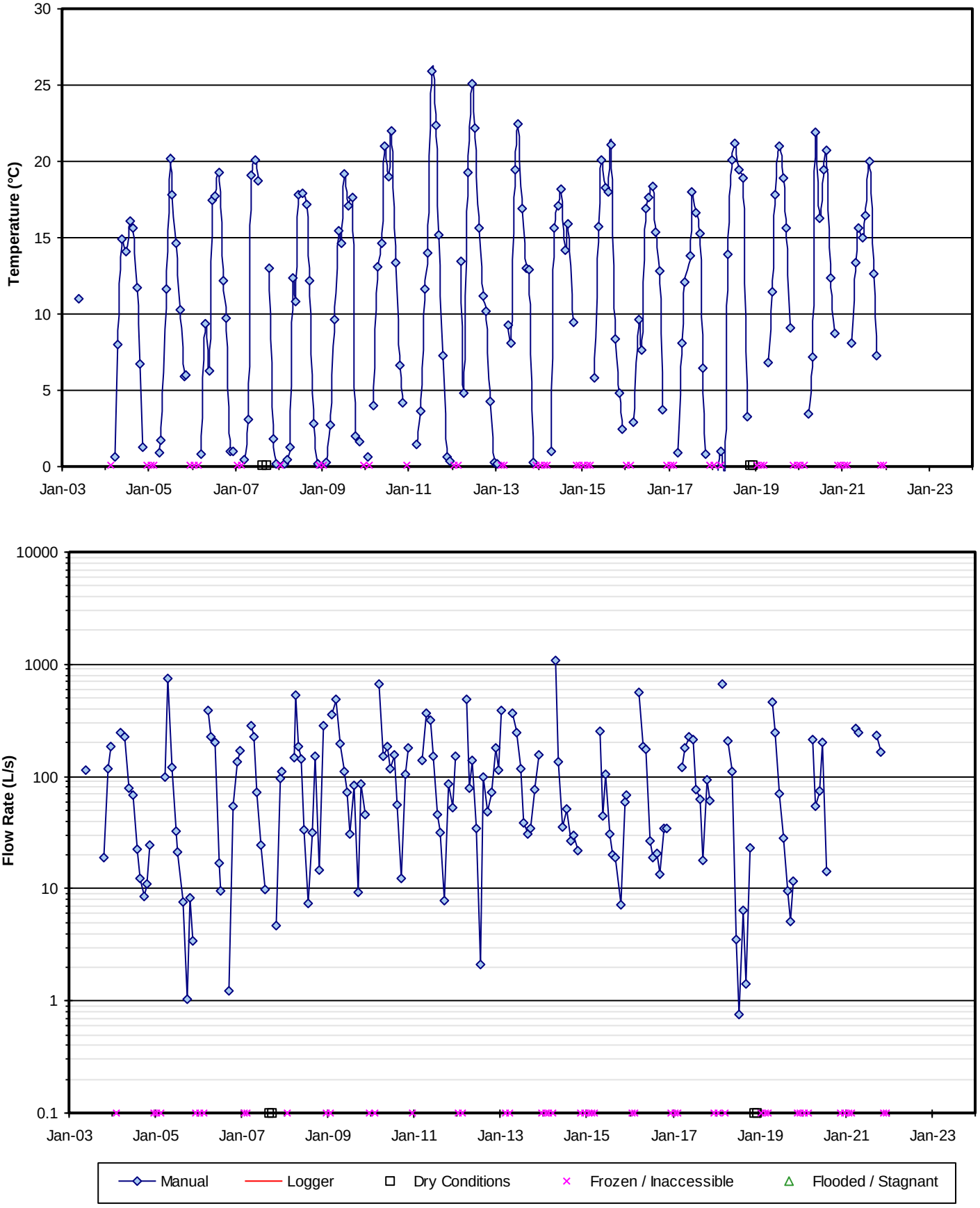


Figure C-9 Surface Water Temperature and Flow

SW6 - Beaver River / Rob Roy Swamp 7 Downstream of SW5

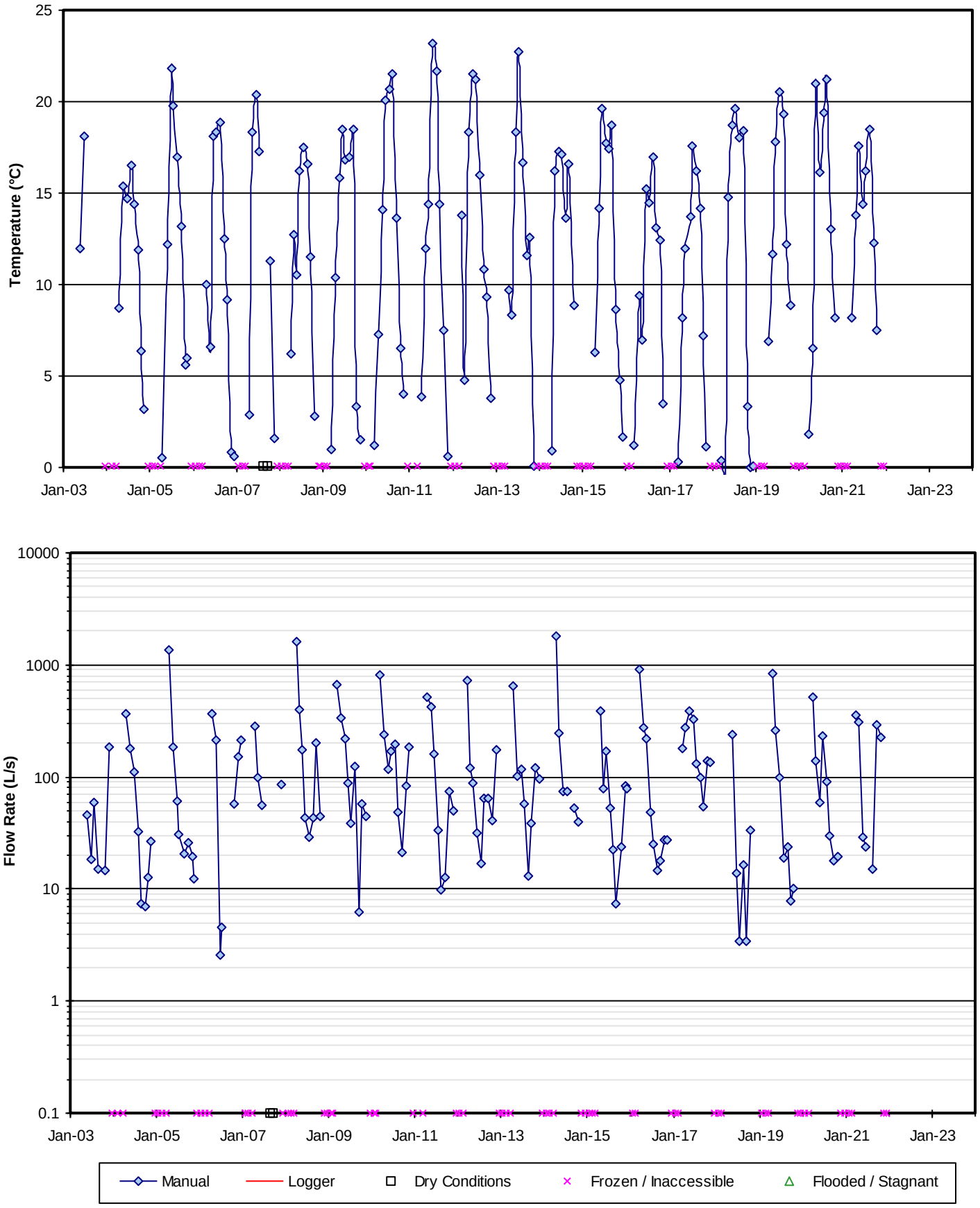


Figure C-10 Surface Water Temperature and Flow

SW6A - Beaver River Downstream of SW6 at Sideroad 30

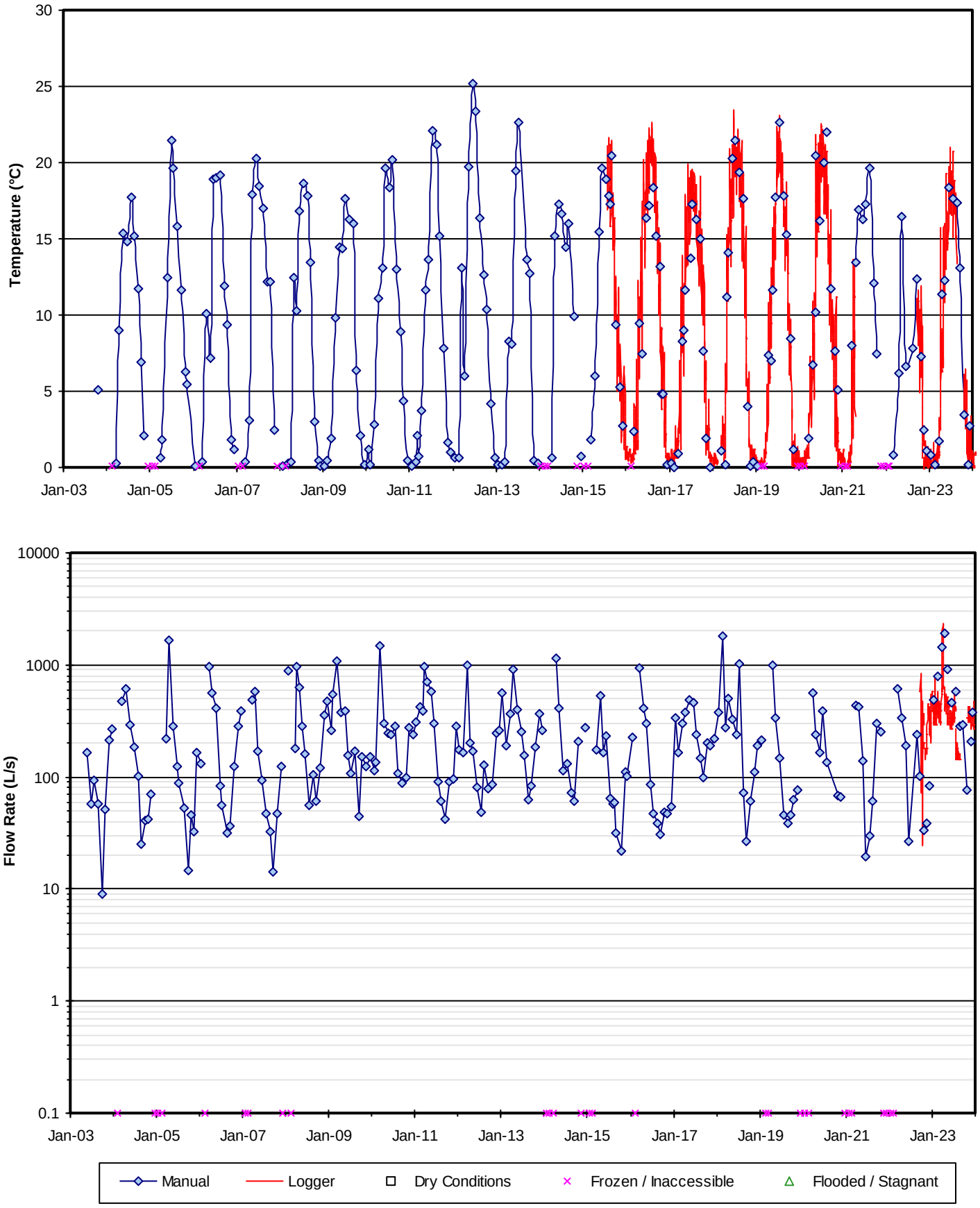


Figure C-11 Surface Water Temperature and Flow

SW7 - Millar Pond Outlet

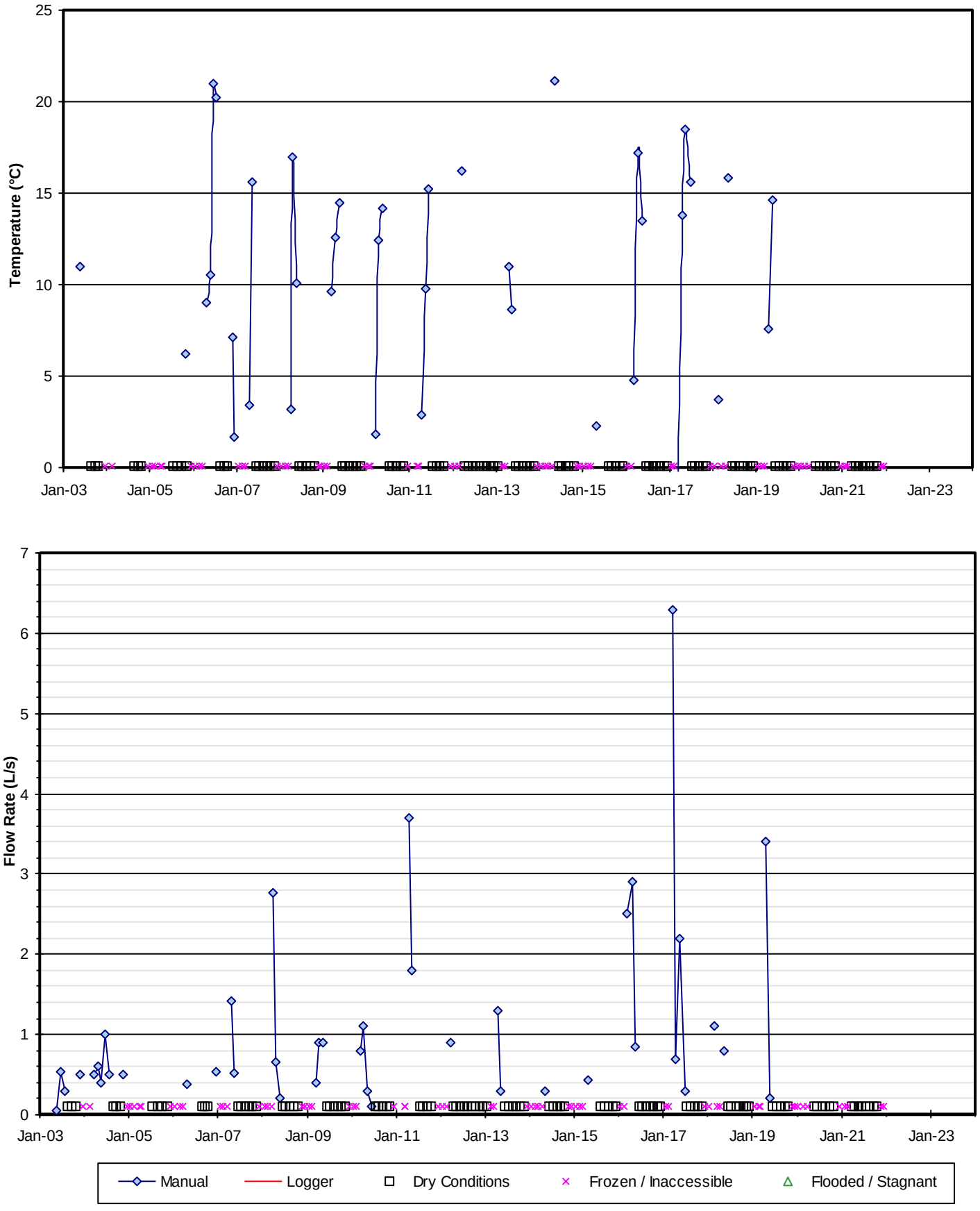


Figure C-12 Surface Water Temperature and Flow

SW8 - Bridson Pond Outlet

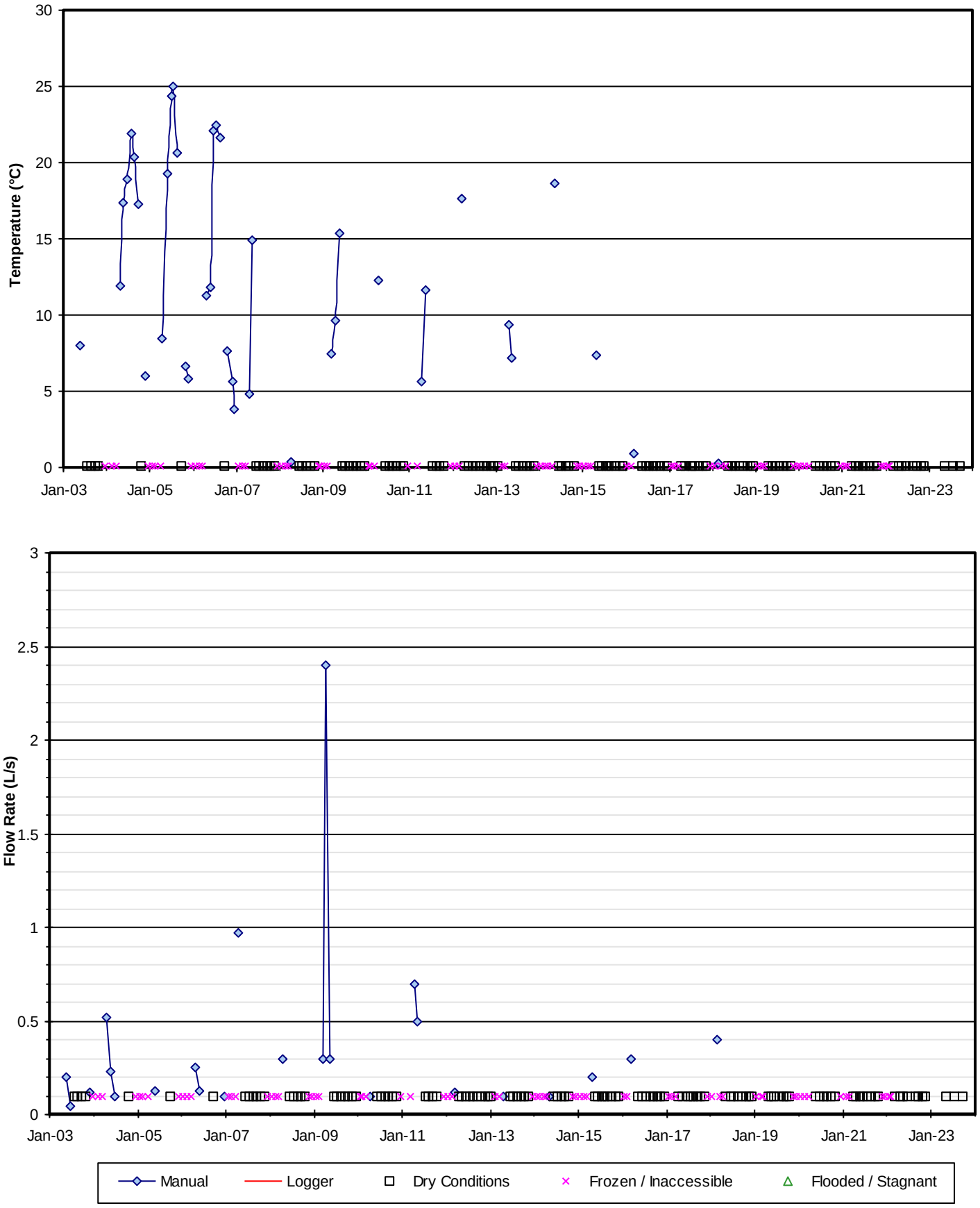


Figure C-13 Surface Water Temperature and Flow

SW9 - Inlet to Sinkhole on Bridson Property

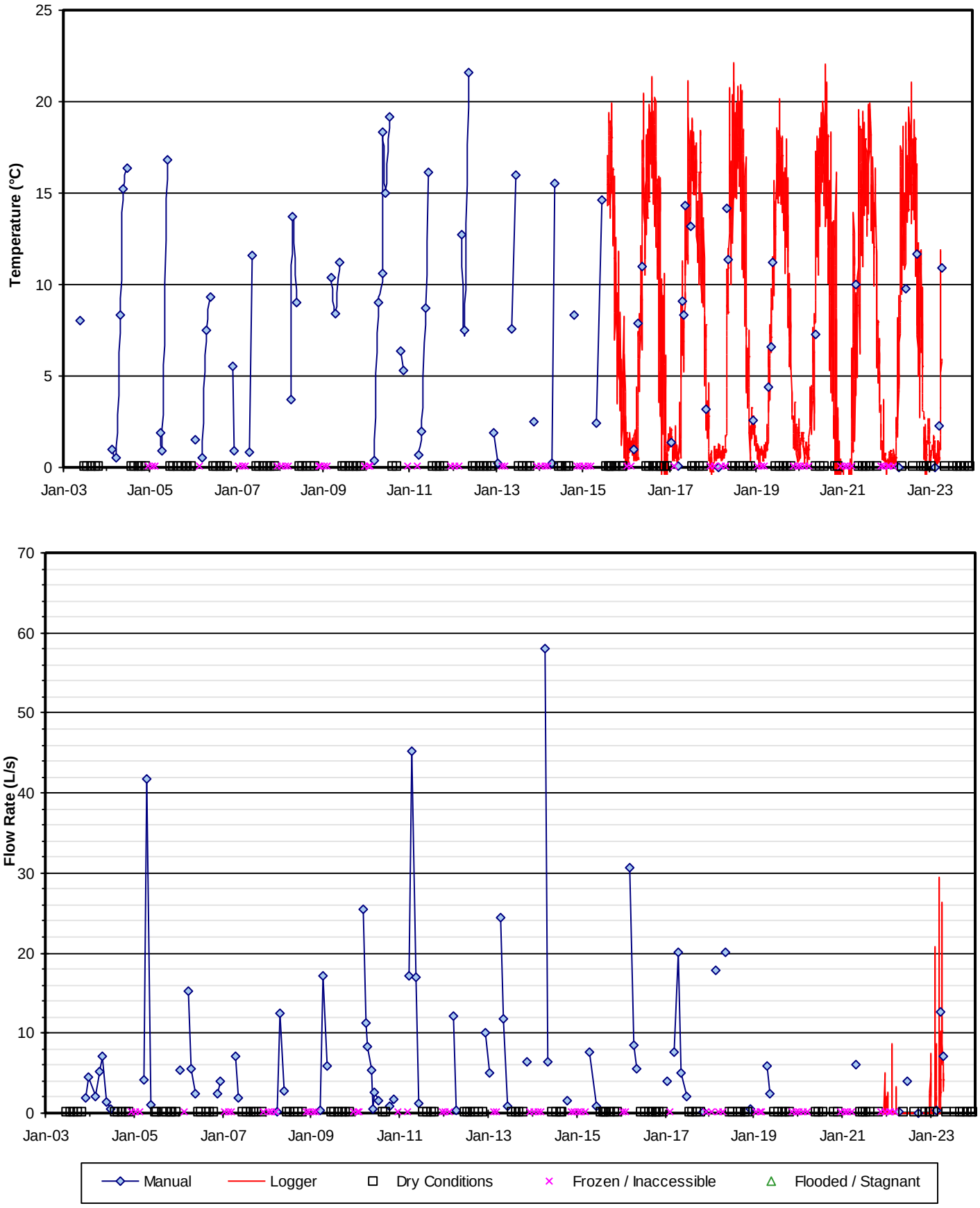


Figure C-14 Surface Water Temperature and Flow

SW10 - Escarpment Seep on Franks Property

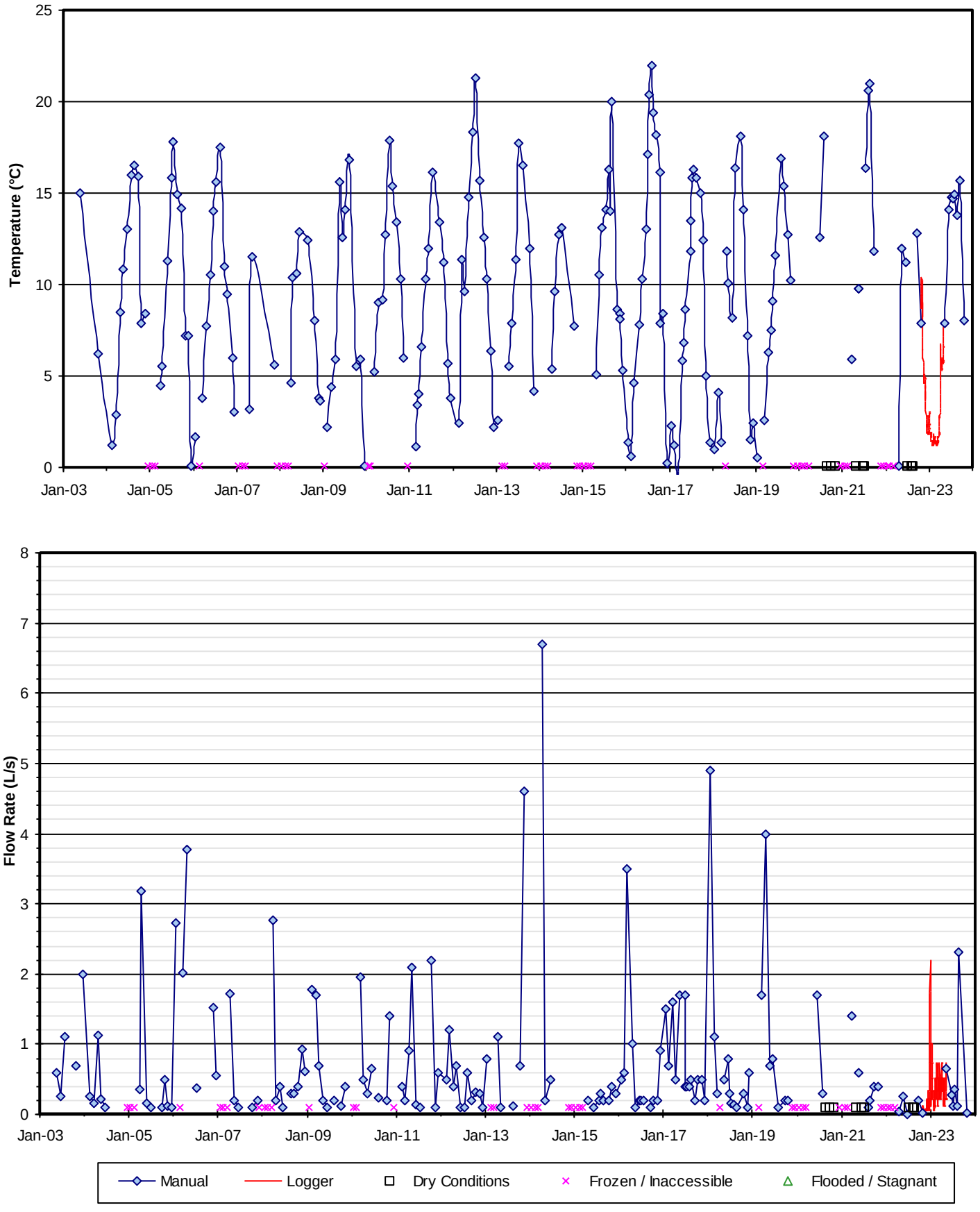


Figure C-15 Surface Water Temperature and Flow

SW11 - Culmination of Escarpment Seeps SW11A-D on Franks Property

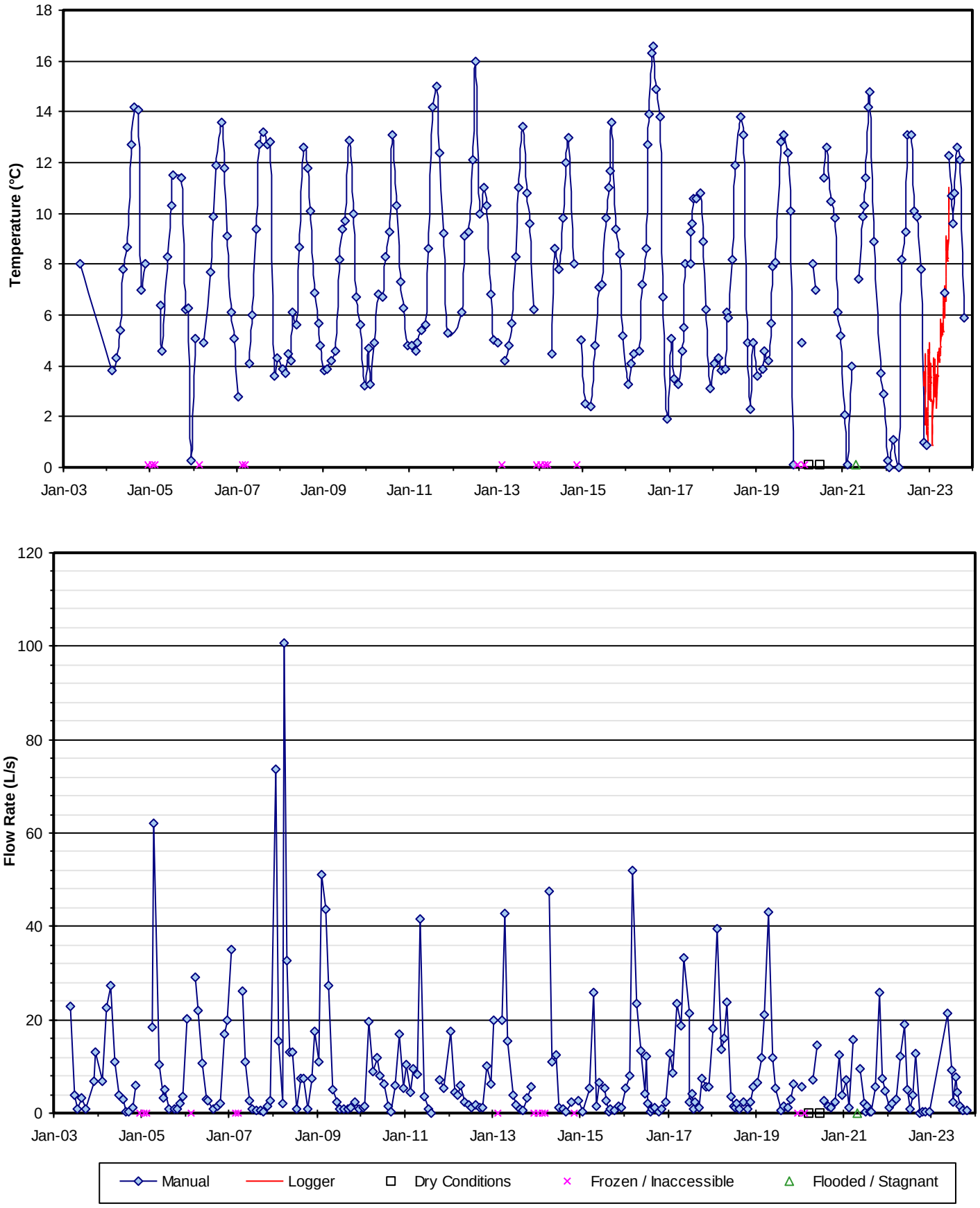


Figure C-16 Surface Water Temperature and Flow

SW11A - Escarpment Seep on Franks Property

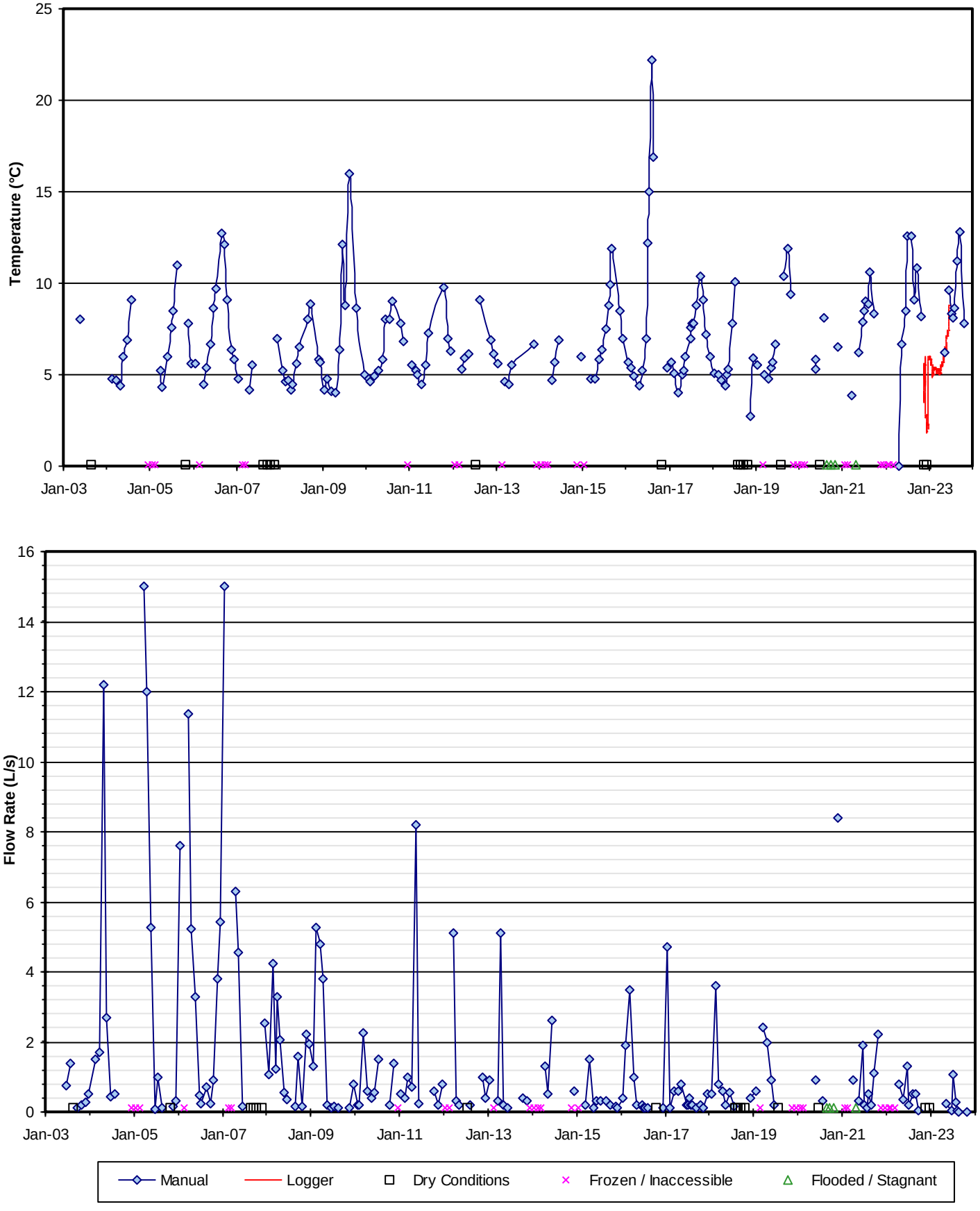


Figure C-17 Surface Water Temperature and Flow

SW11B - Escarpment Seep on Franks Property

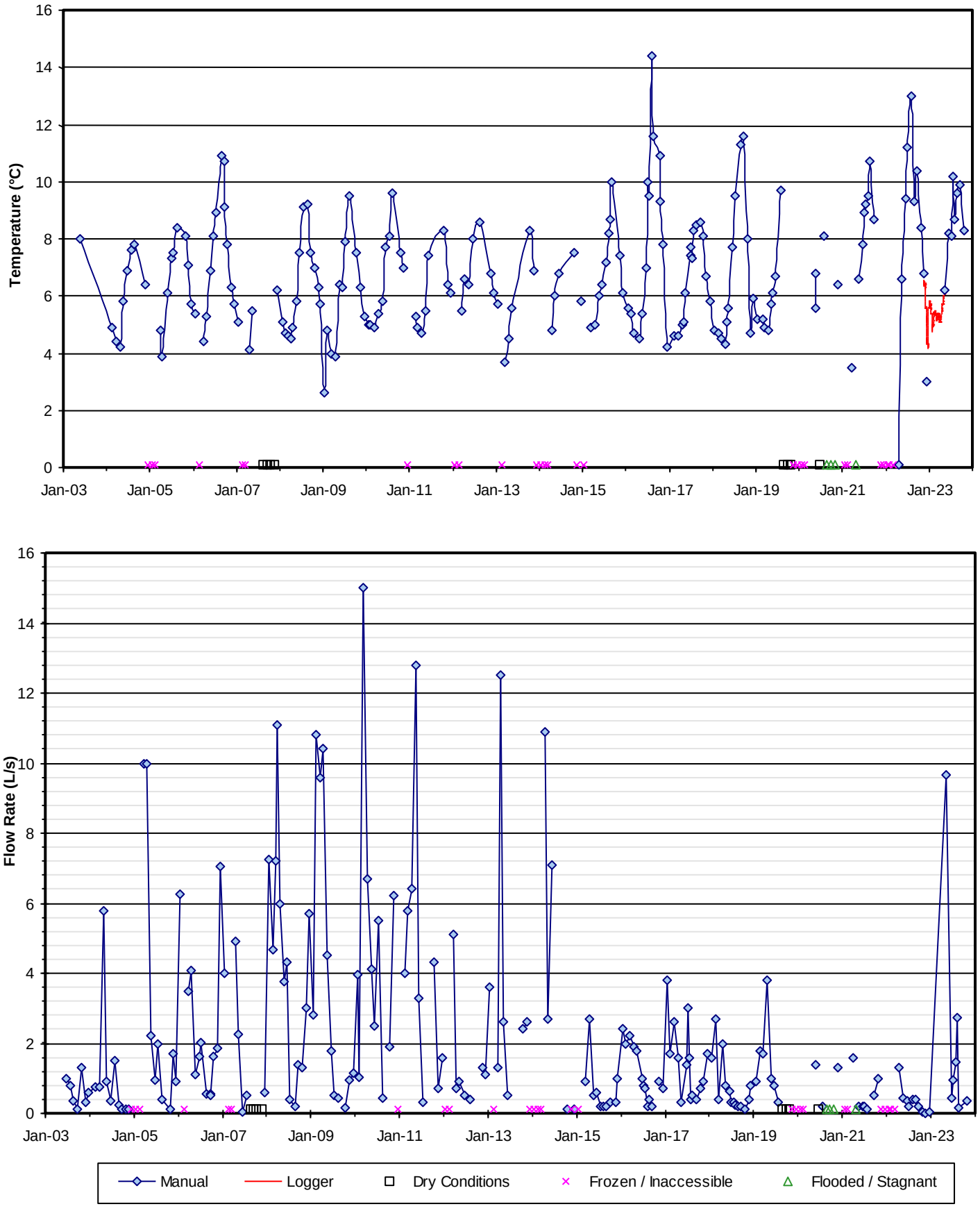


Figure C-18 Surface Water Temperature and Flow

SW11C - Escarpment Seep on Franks Property

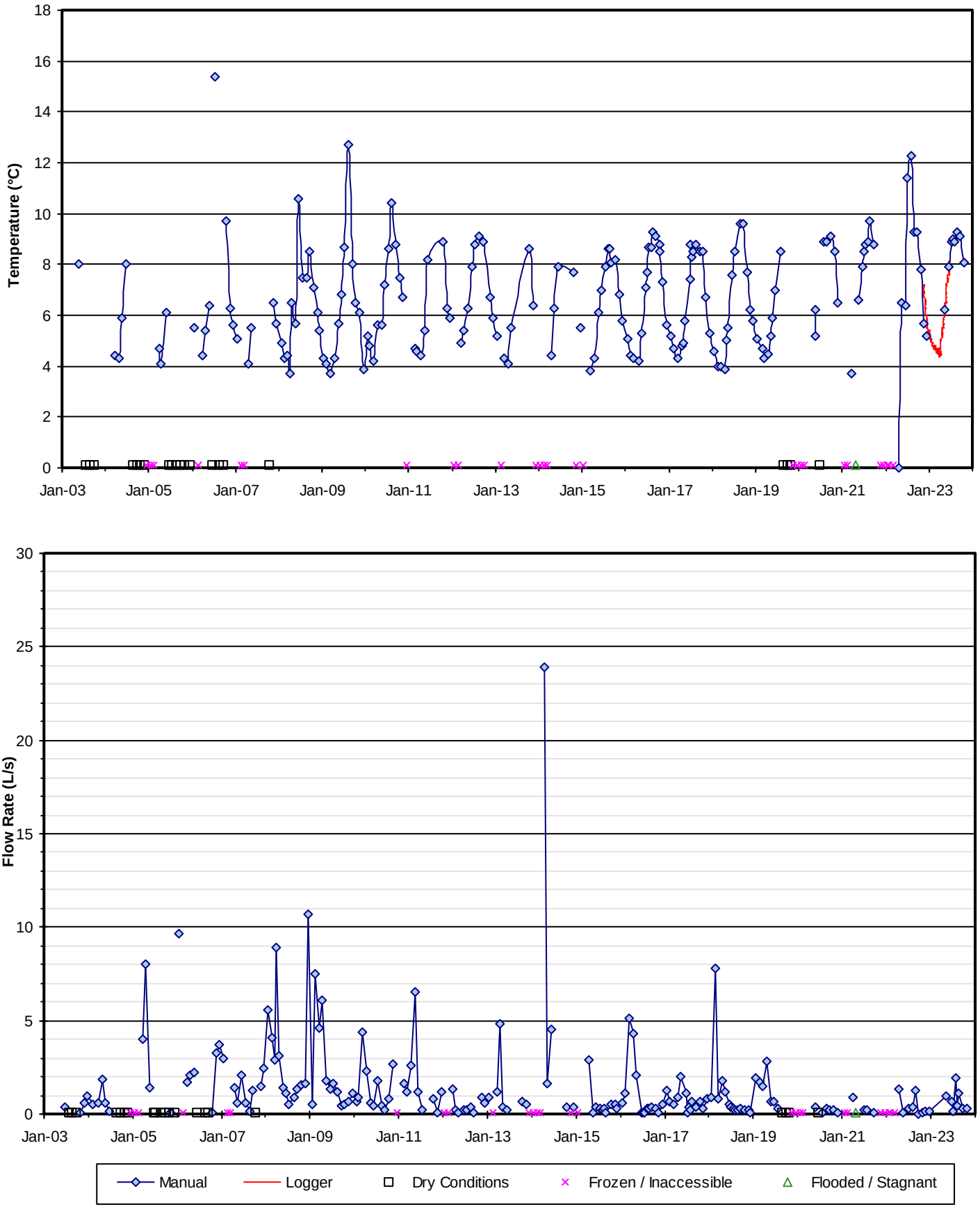


Figure C-19 Surface Water Temperature and Flow

SW11D - Escarpment Seep on Franks Property

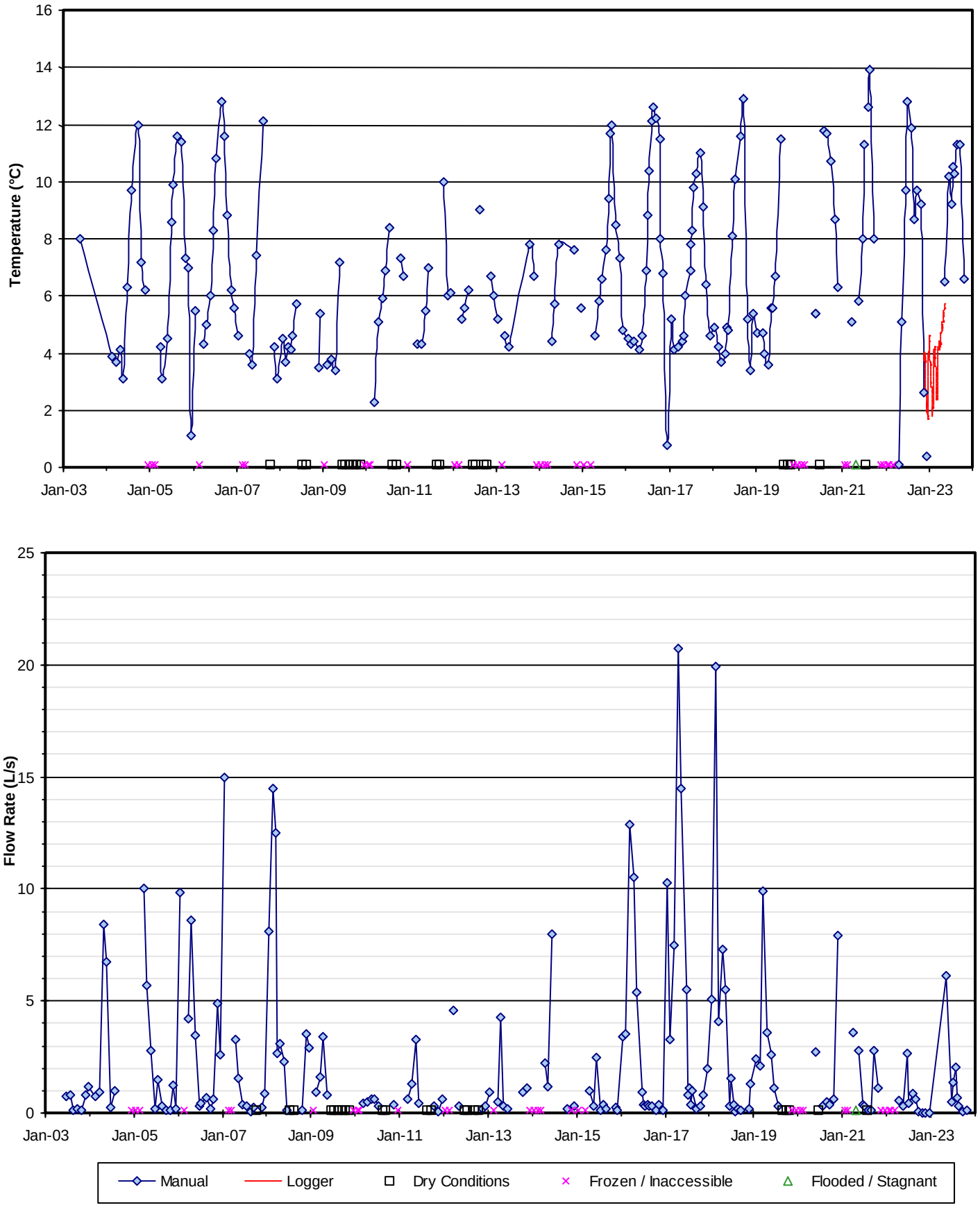


Figure C-20 Surface Water Temperature and Flow

SW11E - Downstream of SW11 on Franks Property

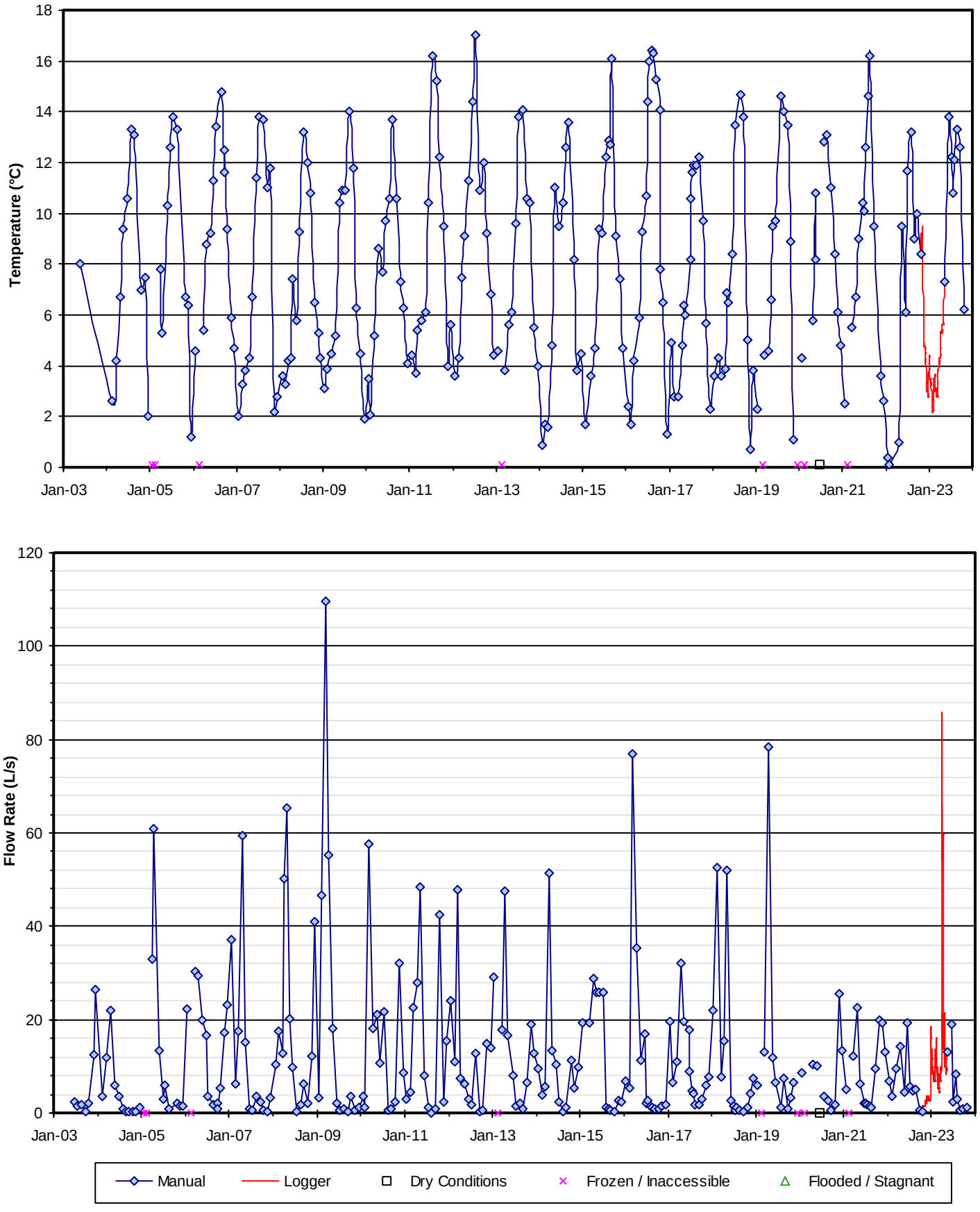


Figure C-21 Surface Water Temperature and Flow

SW12 - Culvert Upstream of Franks Pond

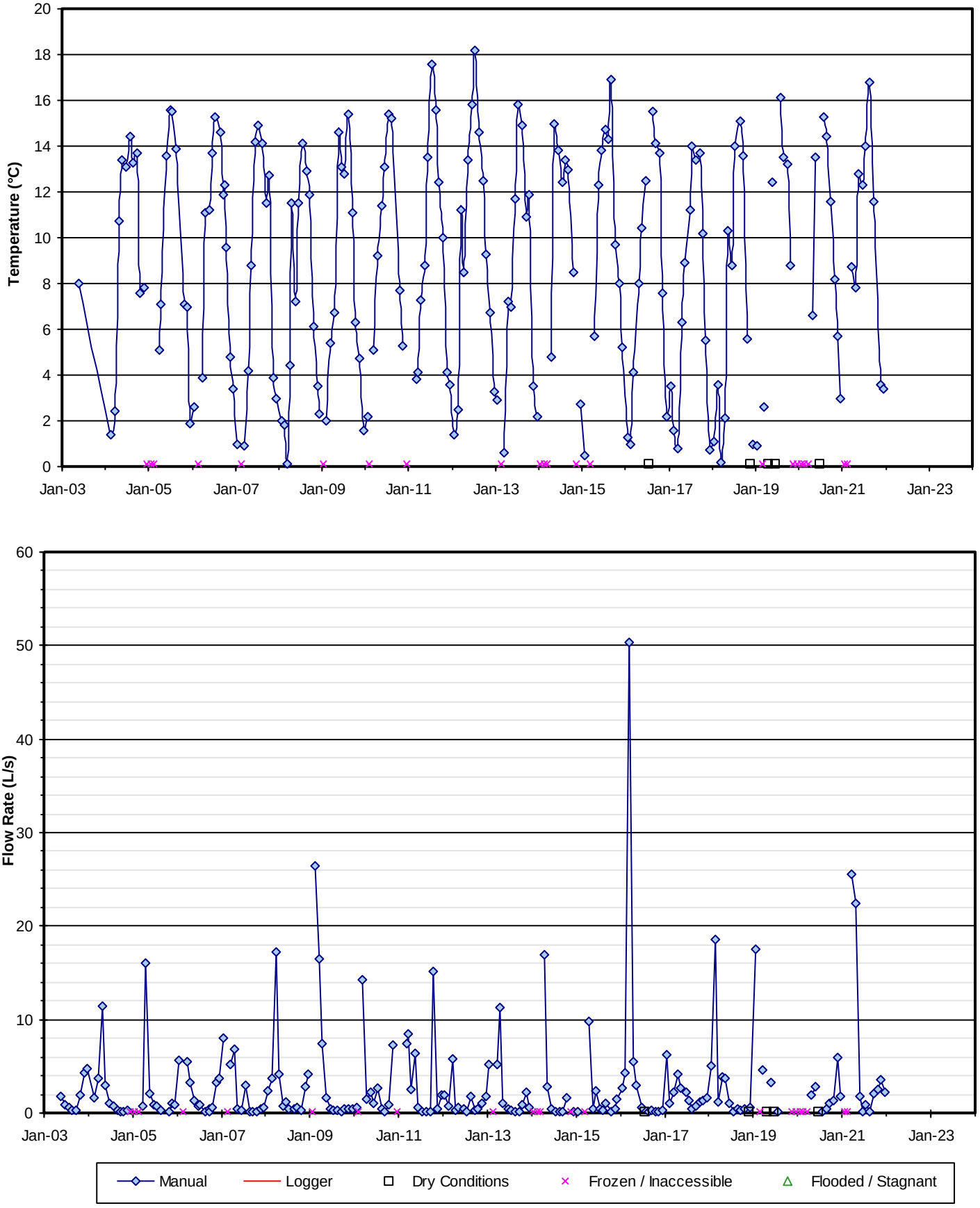


Figure C-22 Surface Water Temperature and Flow

SW12A - Upstream of SW12 on Franks Property

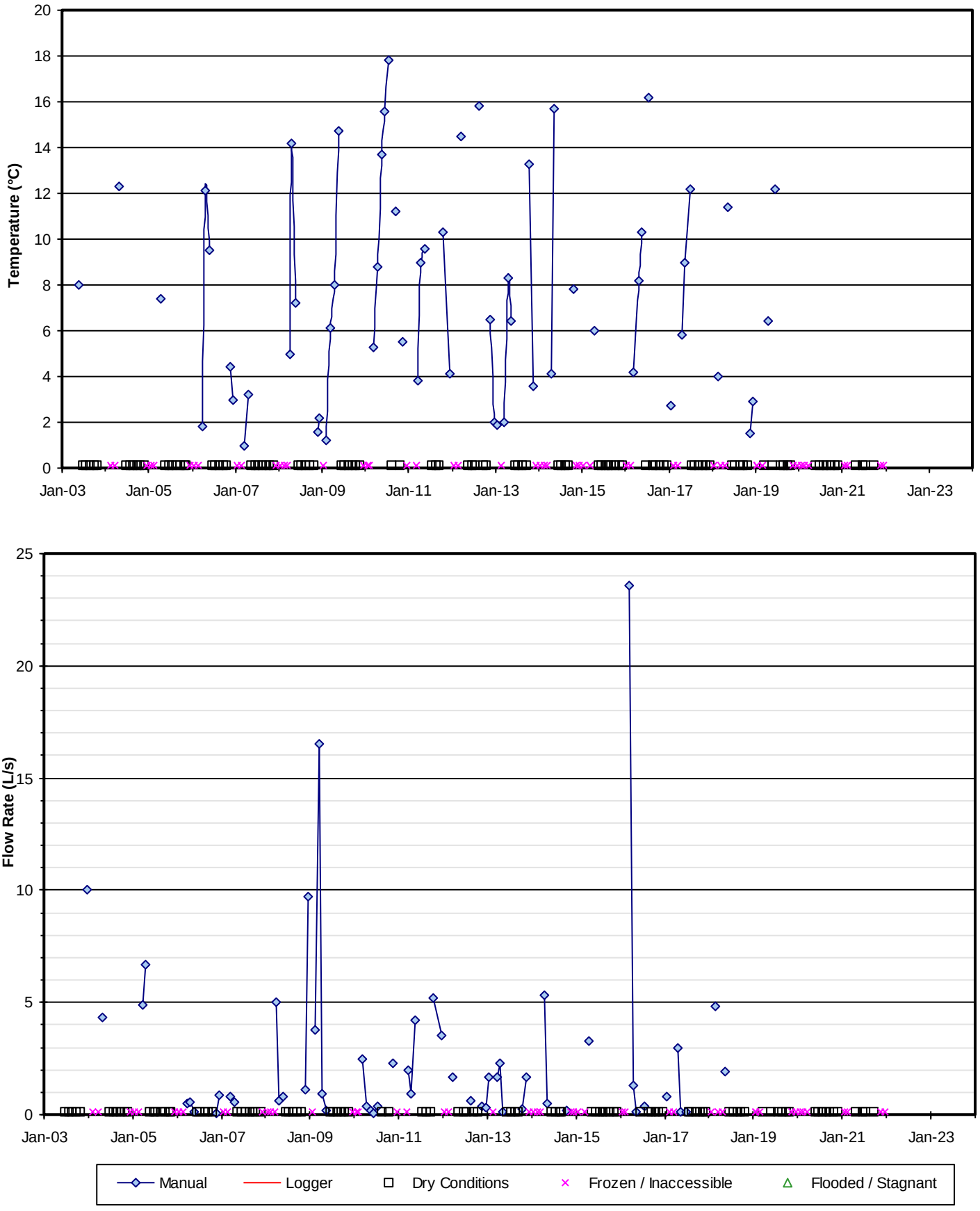


Figure C-23 Surface Water Temperature and Flow

SW13 - Franks Pond Outlet

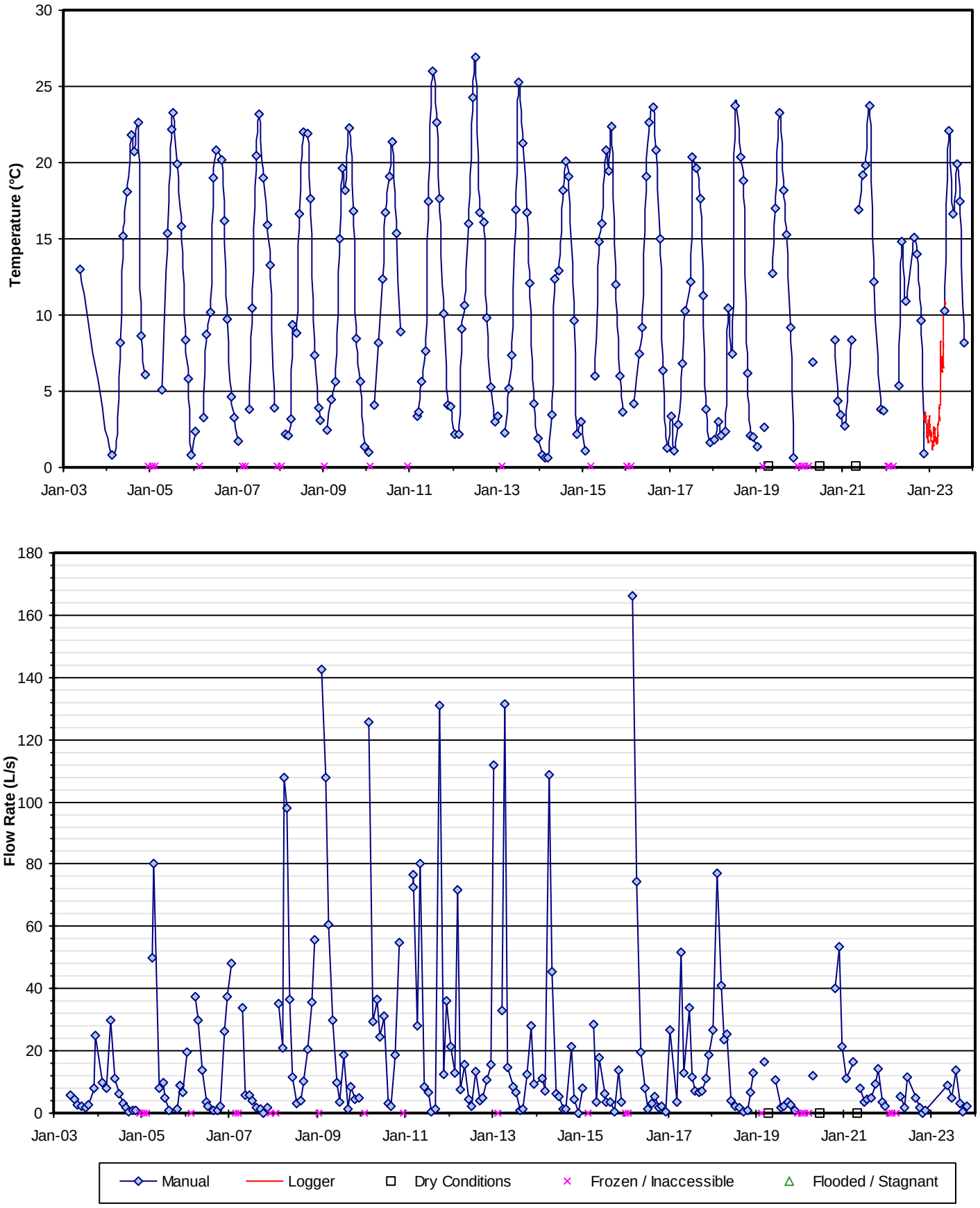
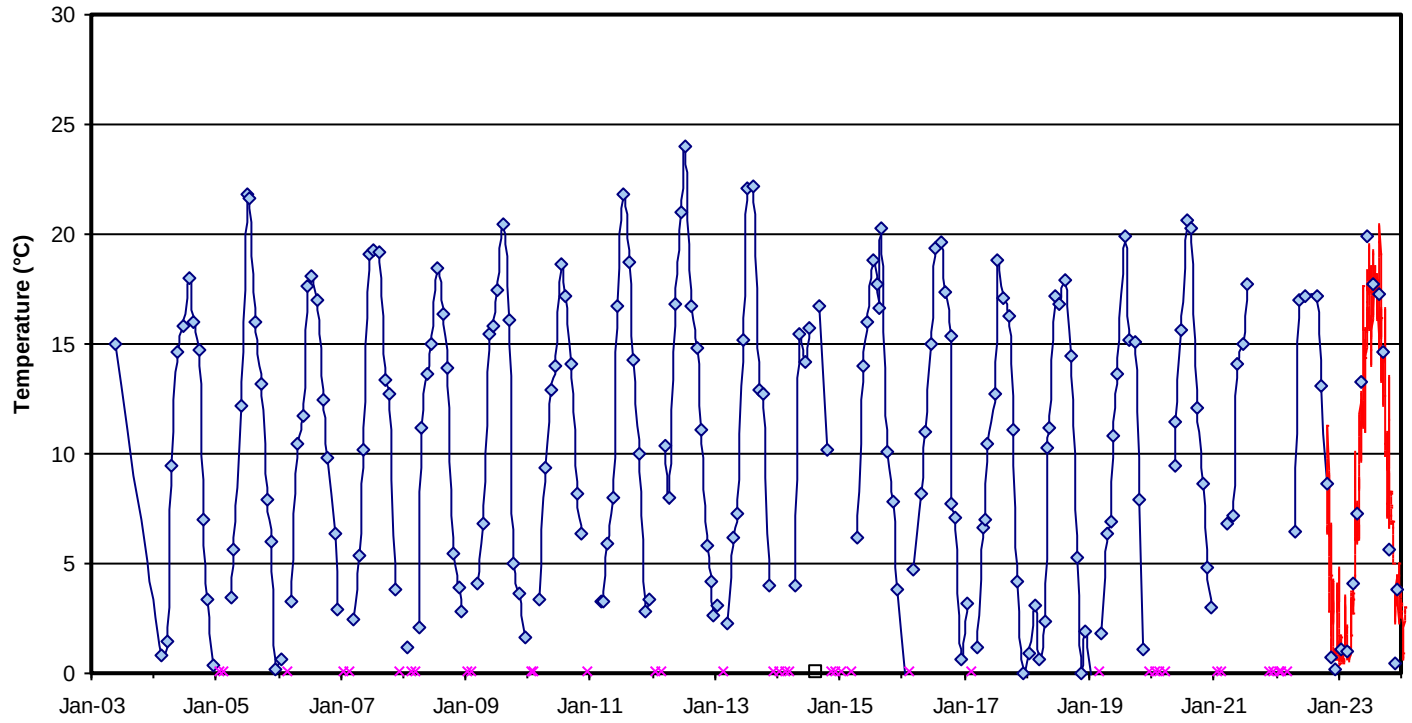


Figure C-24 Surface Water Temperature and Flow

SW14 - Batteaux Creek Downstream of Franks Pond



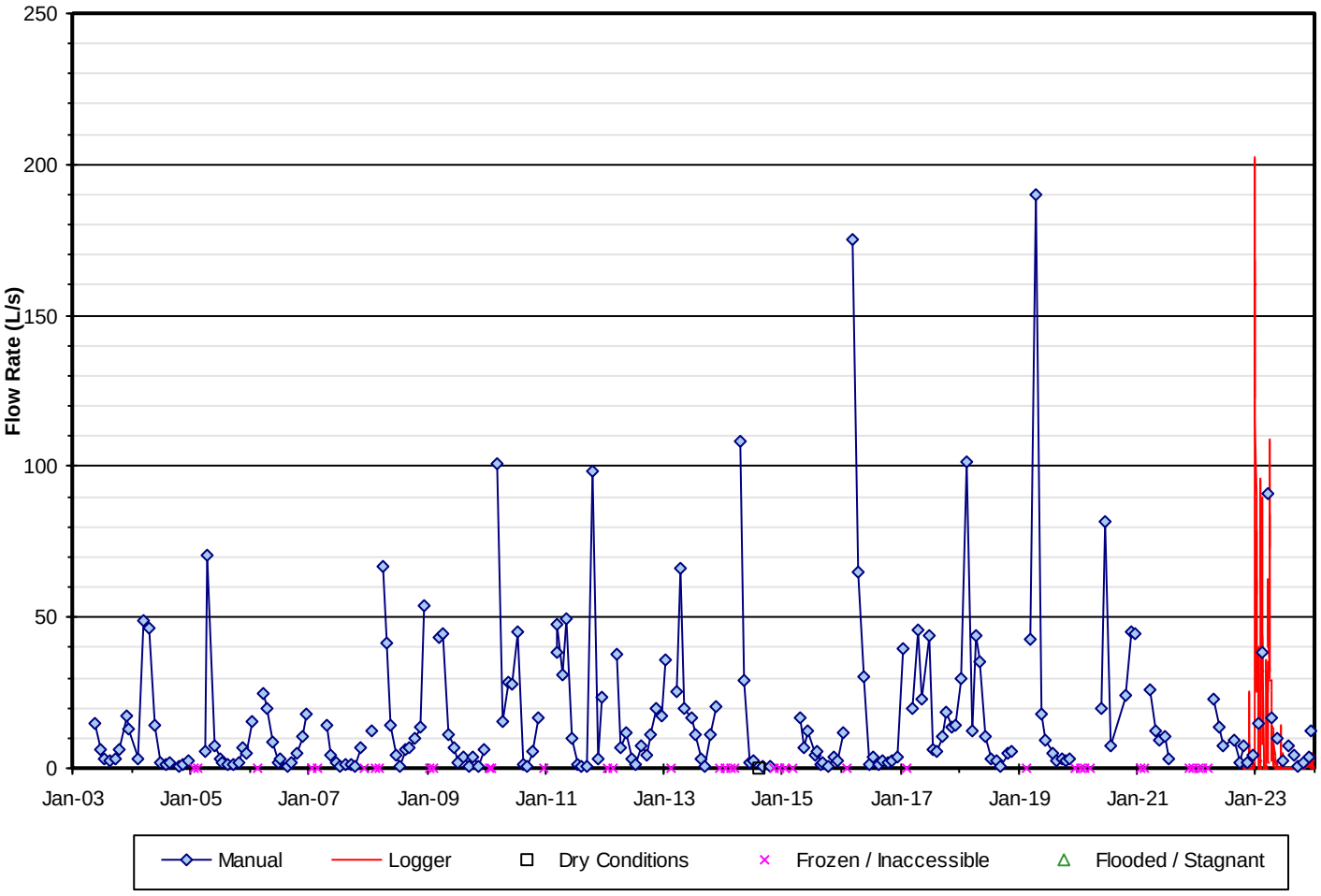
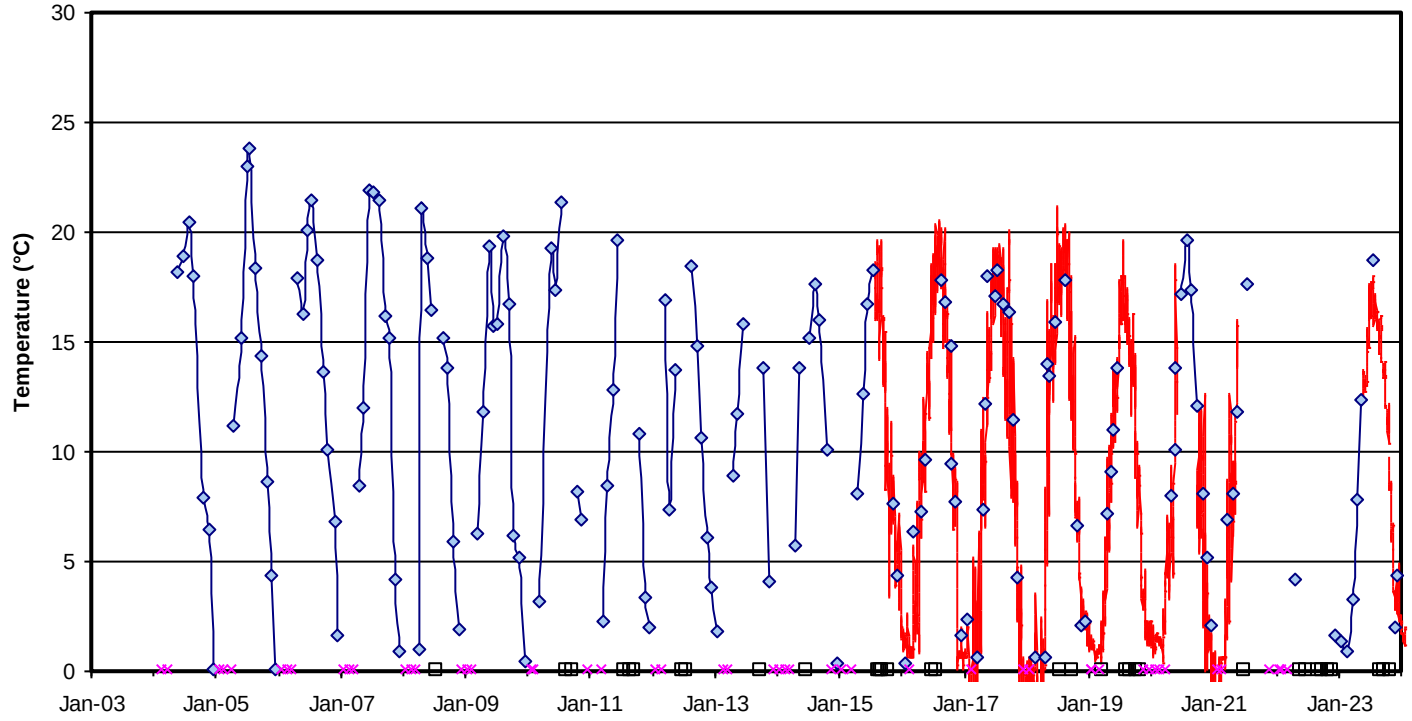


Figure C-25 Surface Water Temperature and Flow

SW15 - Batteaux Creek Downstream of Franks Pond



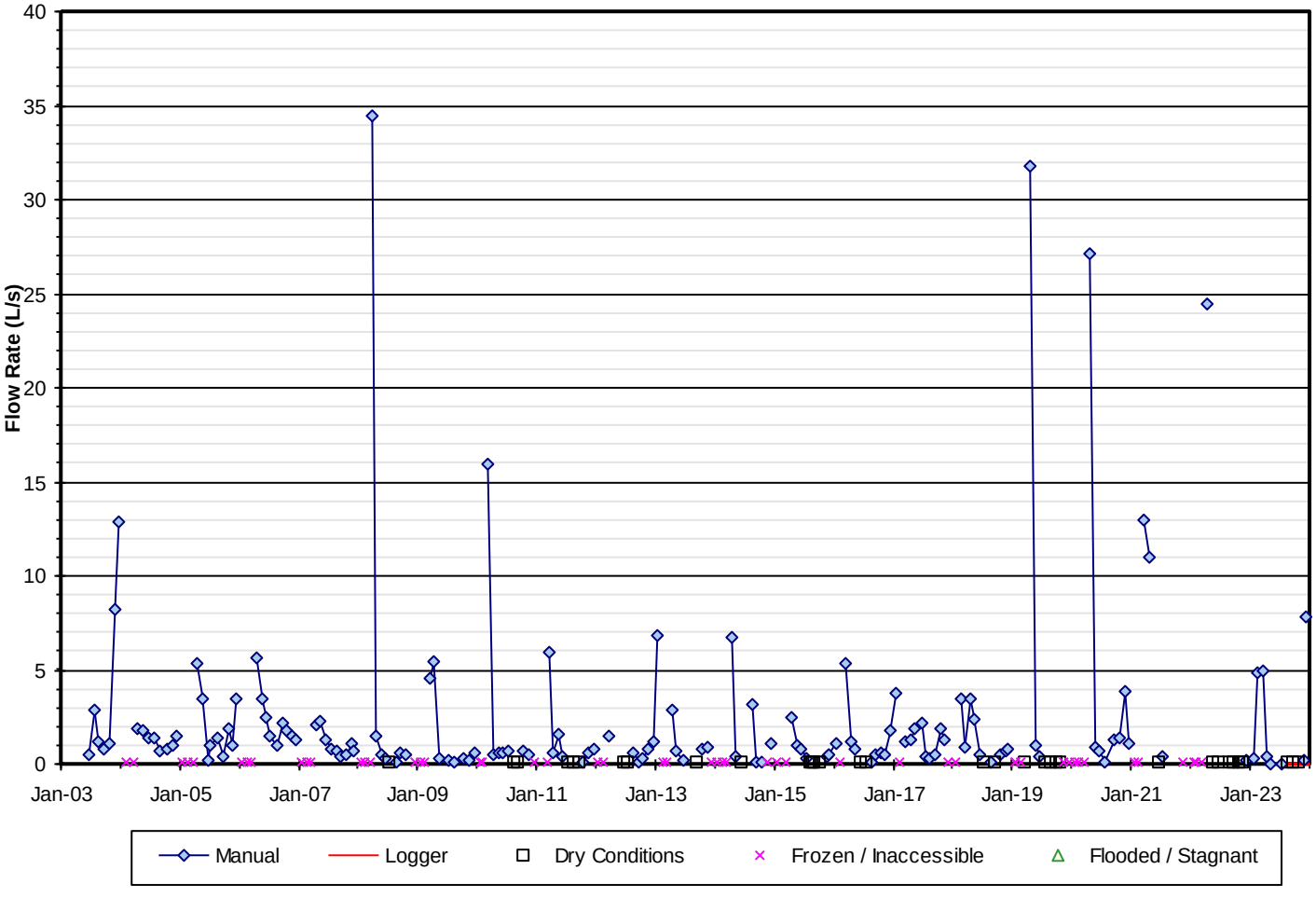


Figure C-26 Surface Water Temperature and Flow

SW16 - Pretty River Escarpment Seep

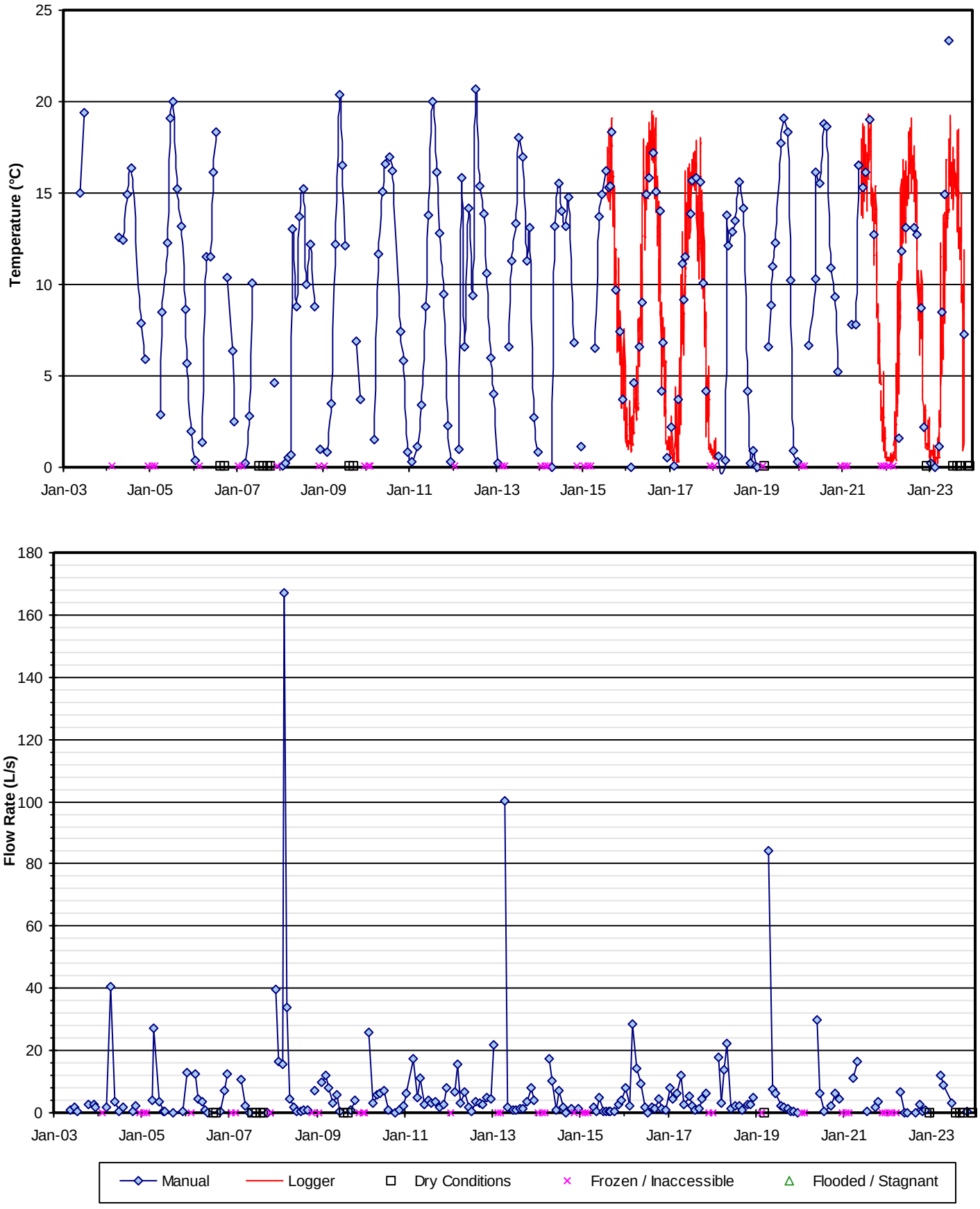


Figure C-27 Surface Water Temperature and Flow

SW17 - Sestito Pond Outlet

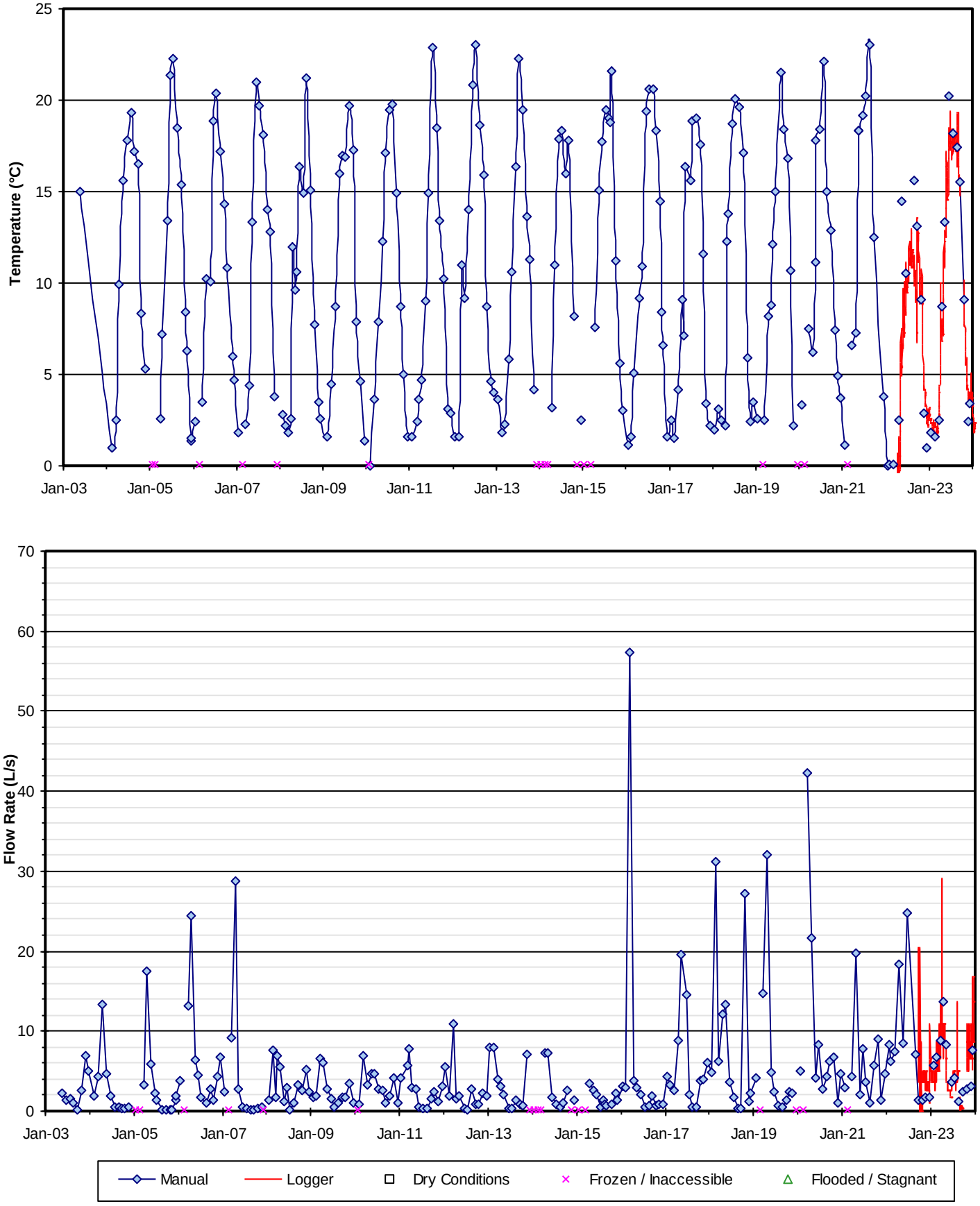


Figure C-28 Surface Water Temperature and Flow

SW17A - Downstream of SW17

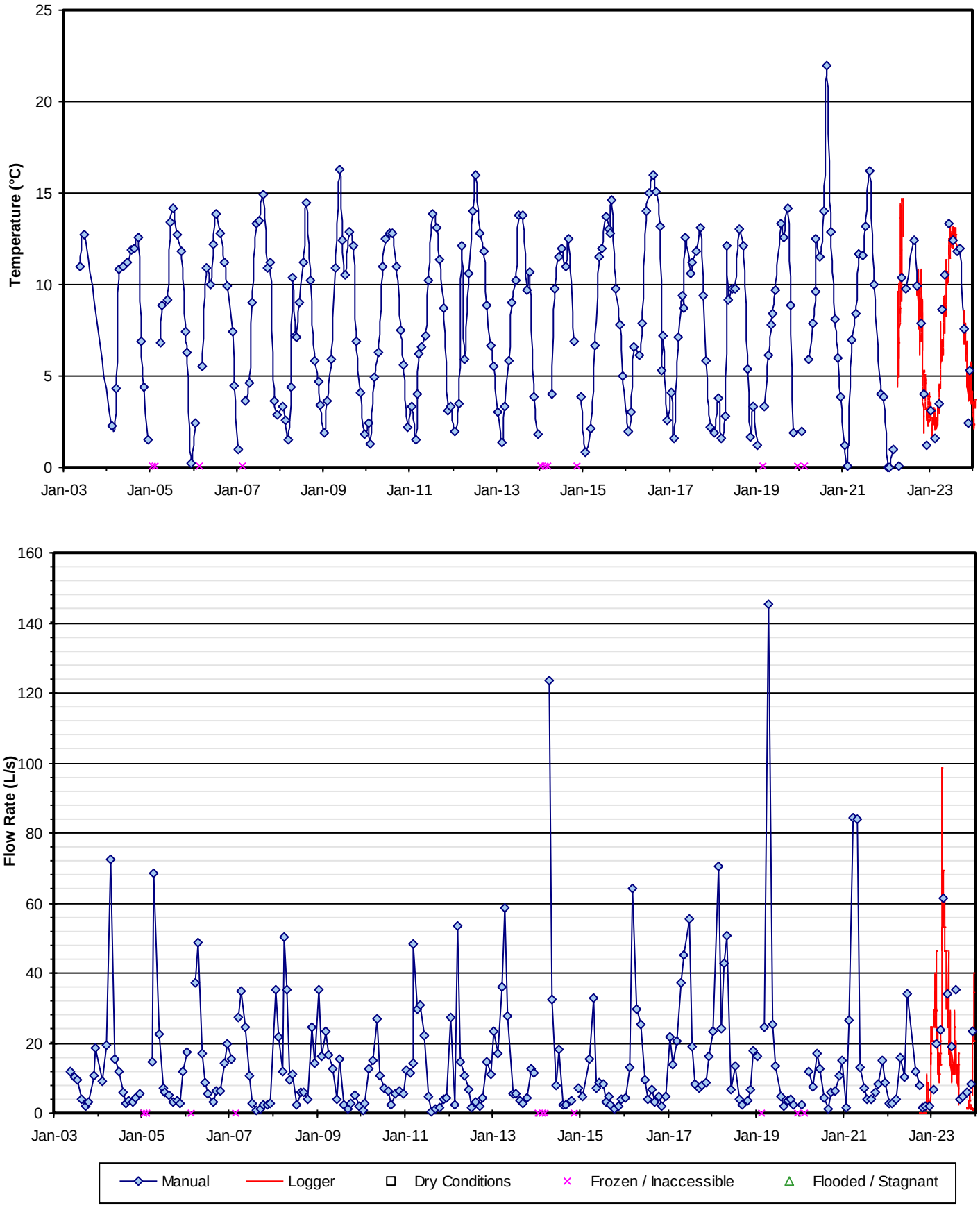
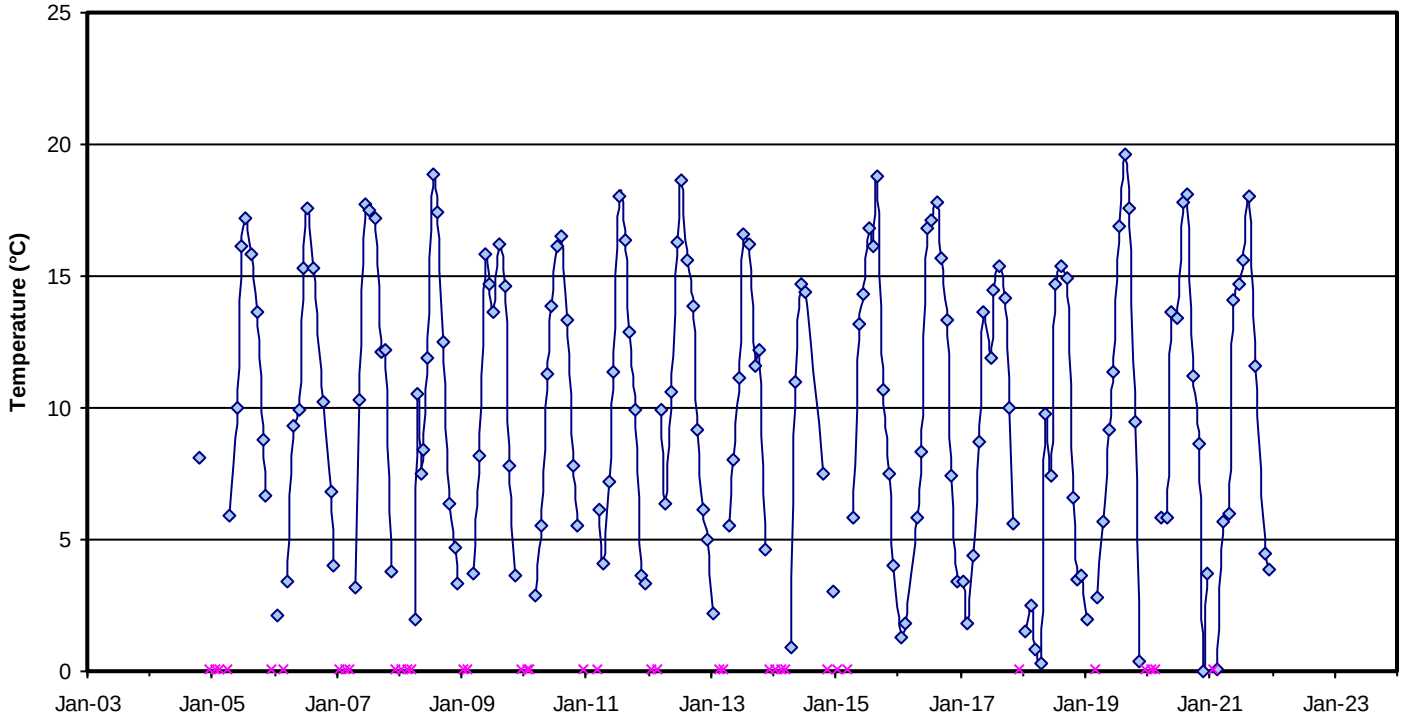


Figure C-29 Surface Water Temperature and Flow

SW17B - Upstream of SW17



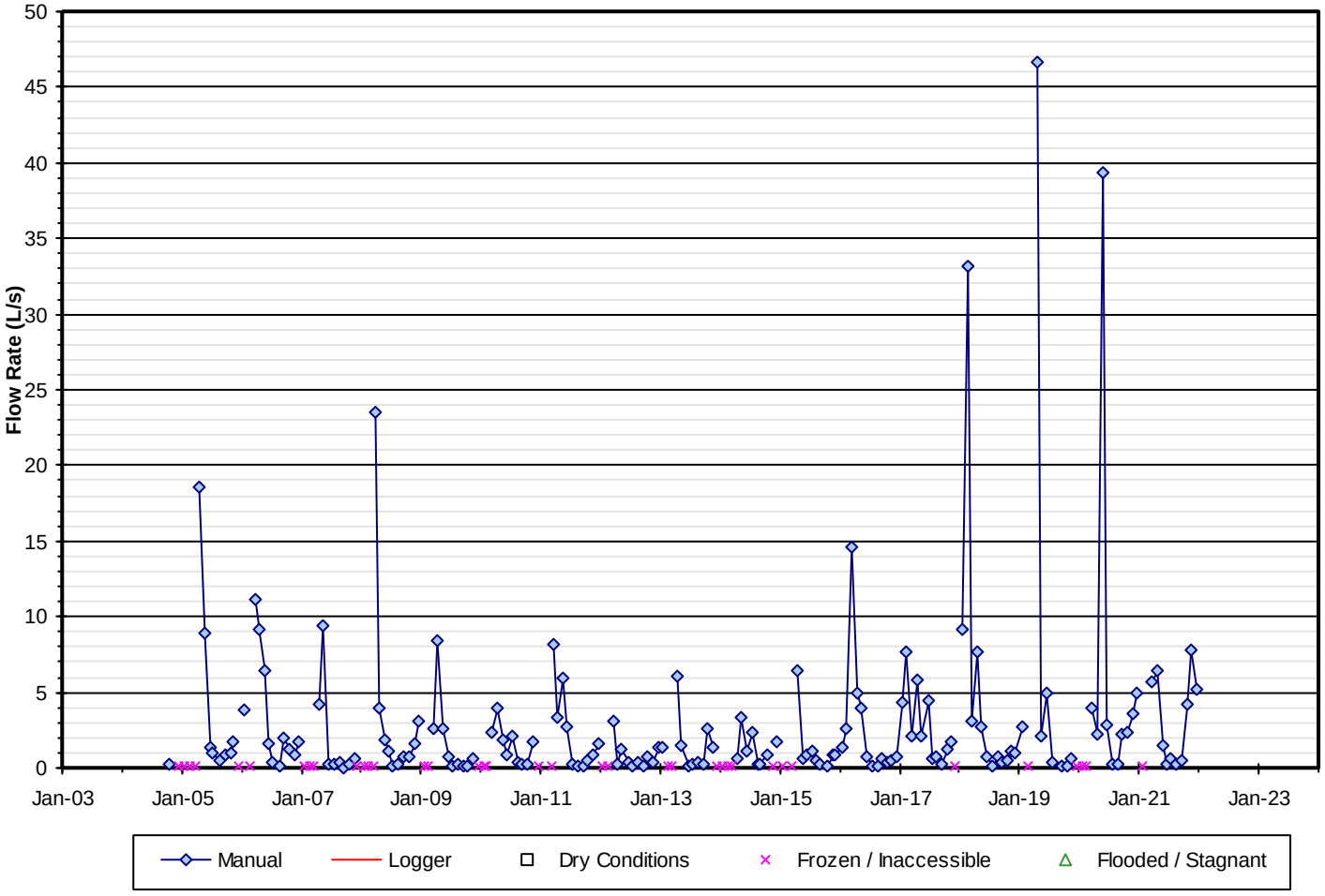


Figure C-30 Surface Water Temperature and Flow

SW18 - Pretty River at Concession 10

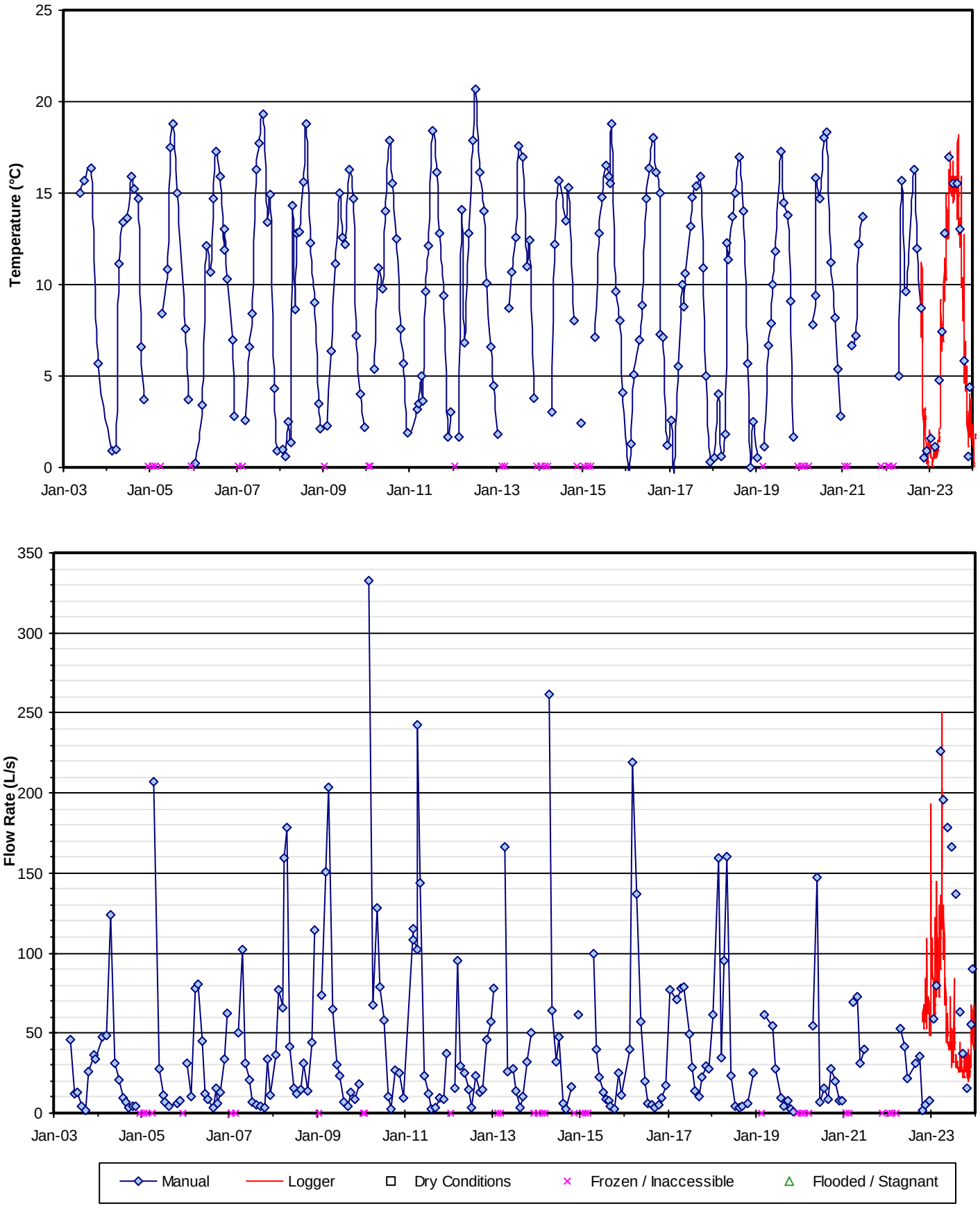


Figure C-31 Surface Water Temperature and Flow

SW19 - Batteaux Creek at County Road 124

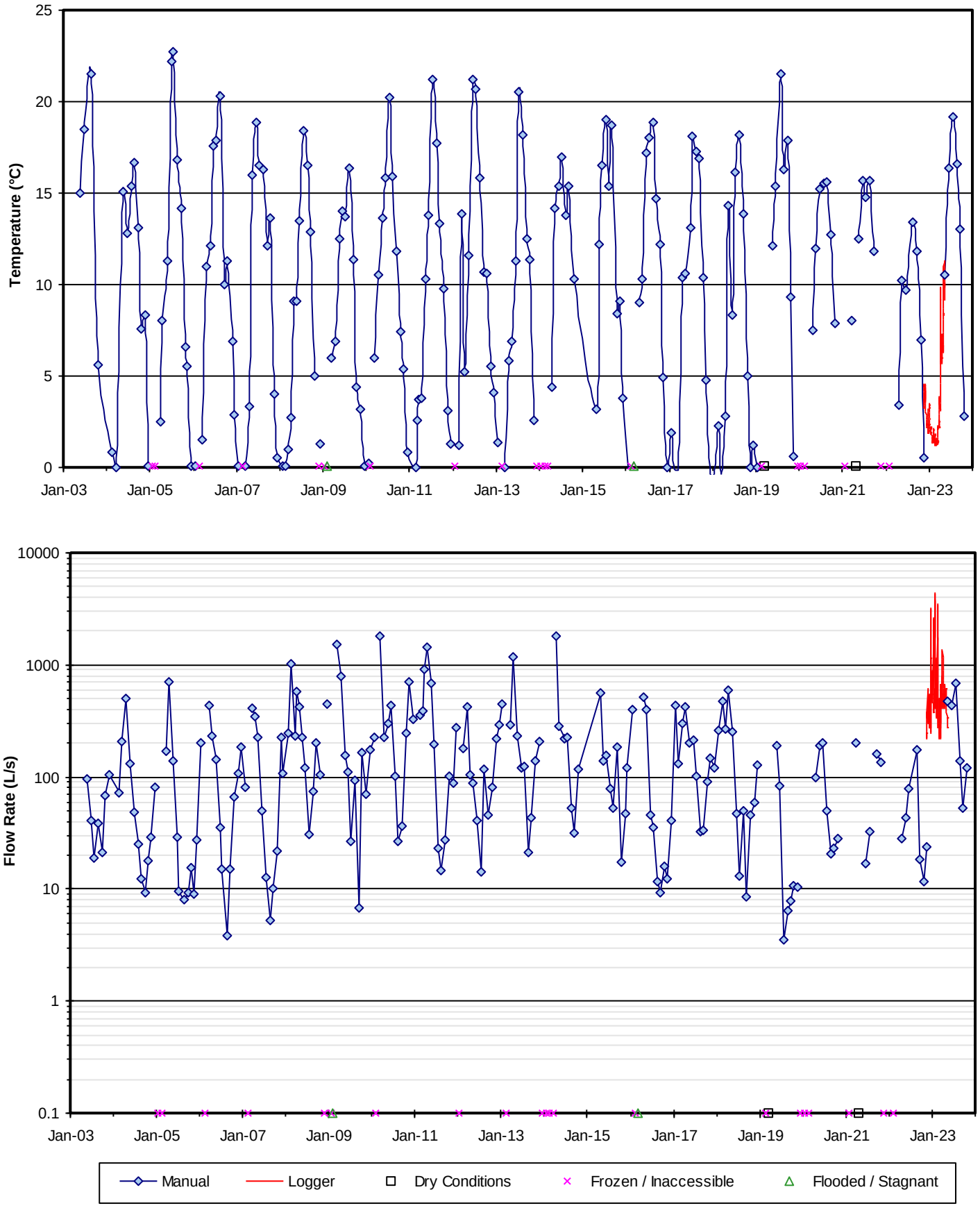


Figure C-32 Surface Water Temperature and Flow

SW20 - Escarpment Seep to Pretty River

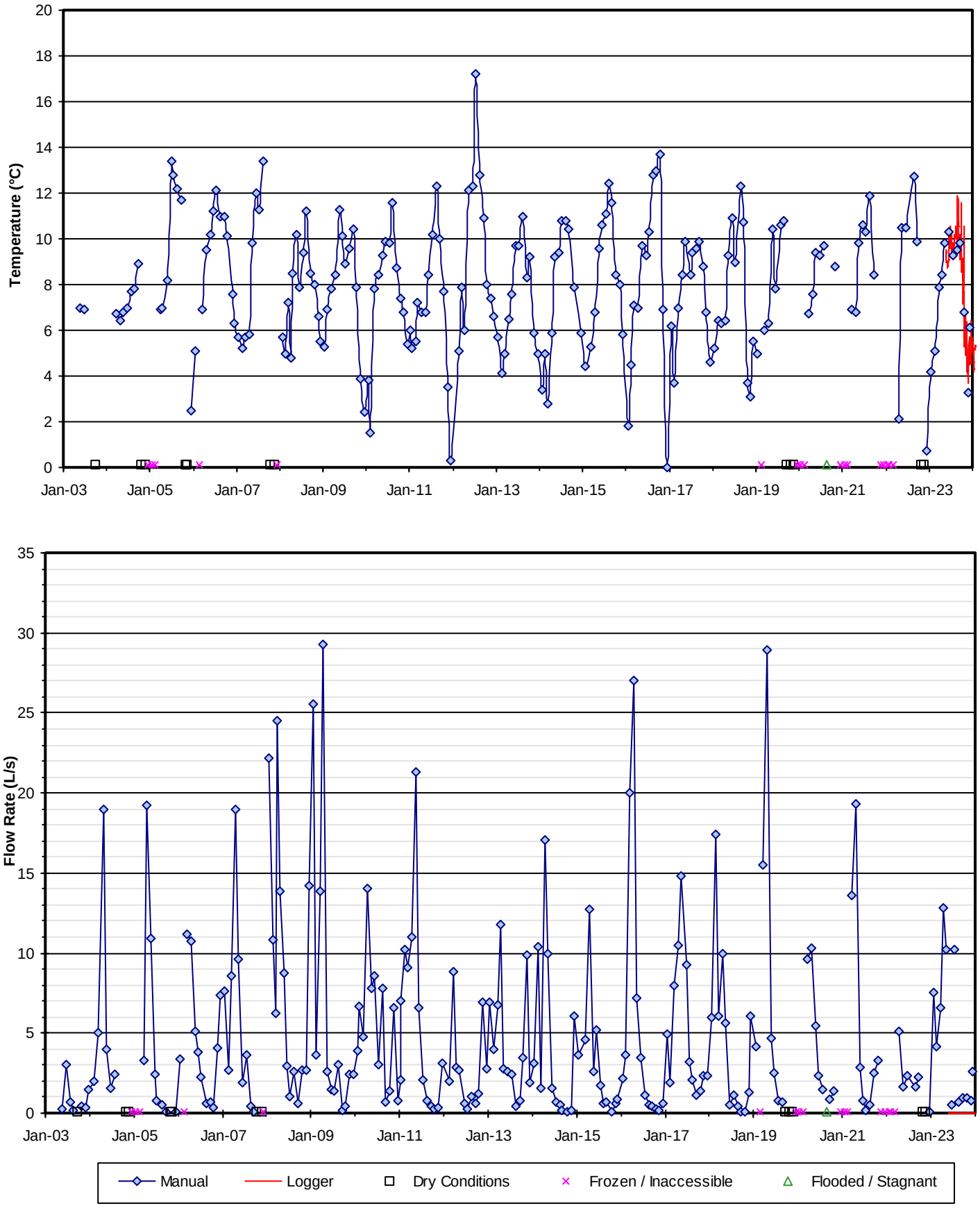


Figure C-33 Surface Water Temperature and Flow

SW21 - Franks Pond Outlet

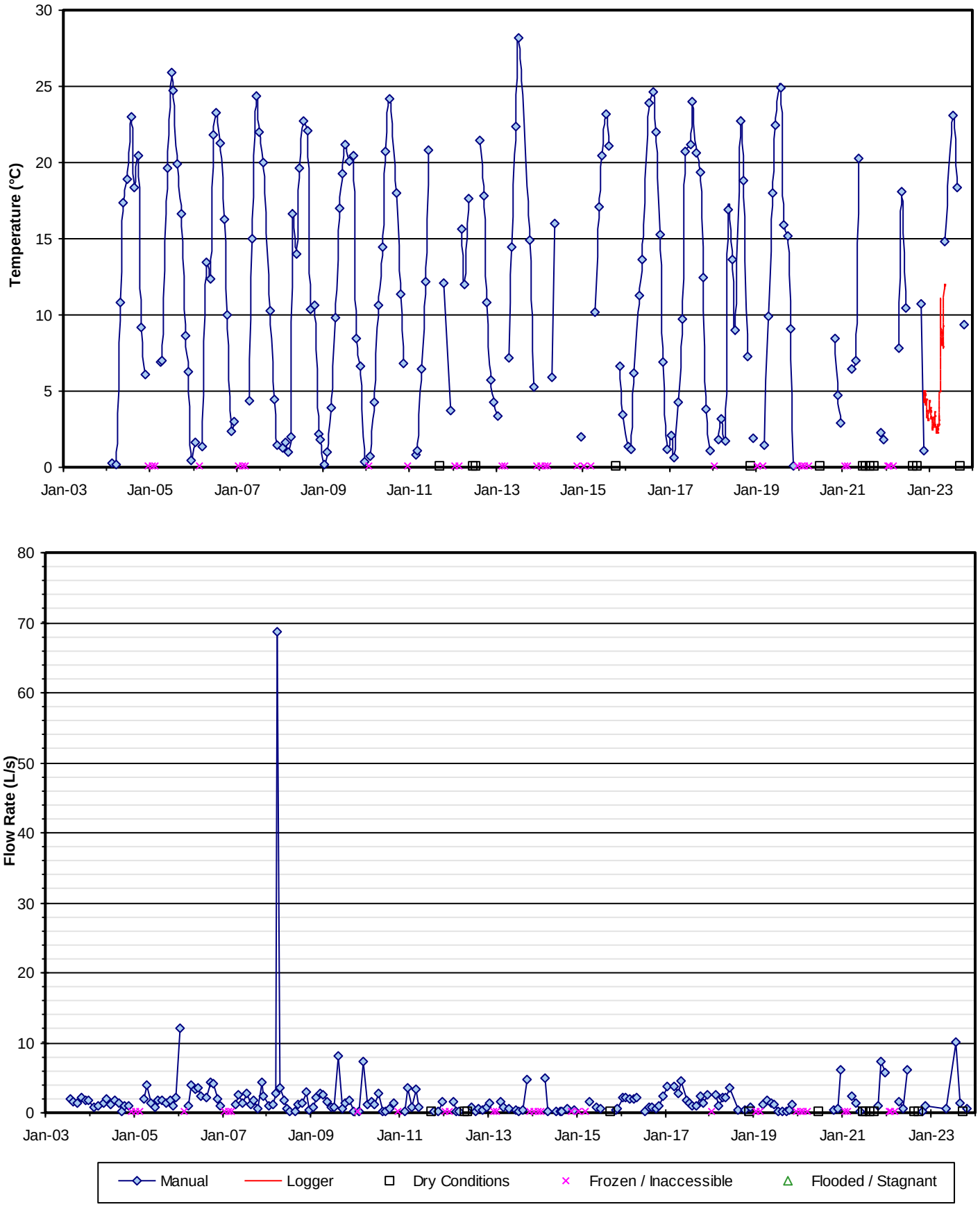


Figure C-34 Surface Water Temperature and Flow

SW21A - Franks Pond Inlet

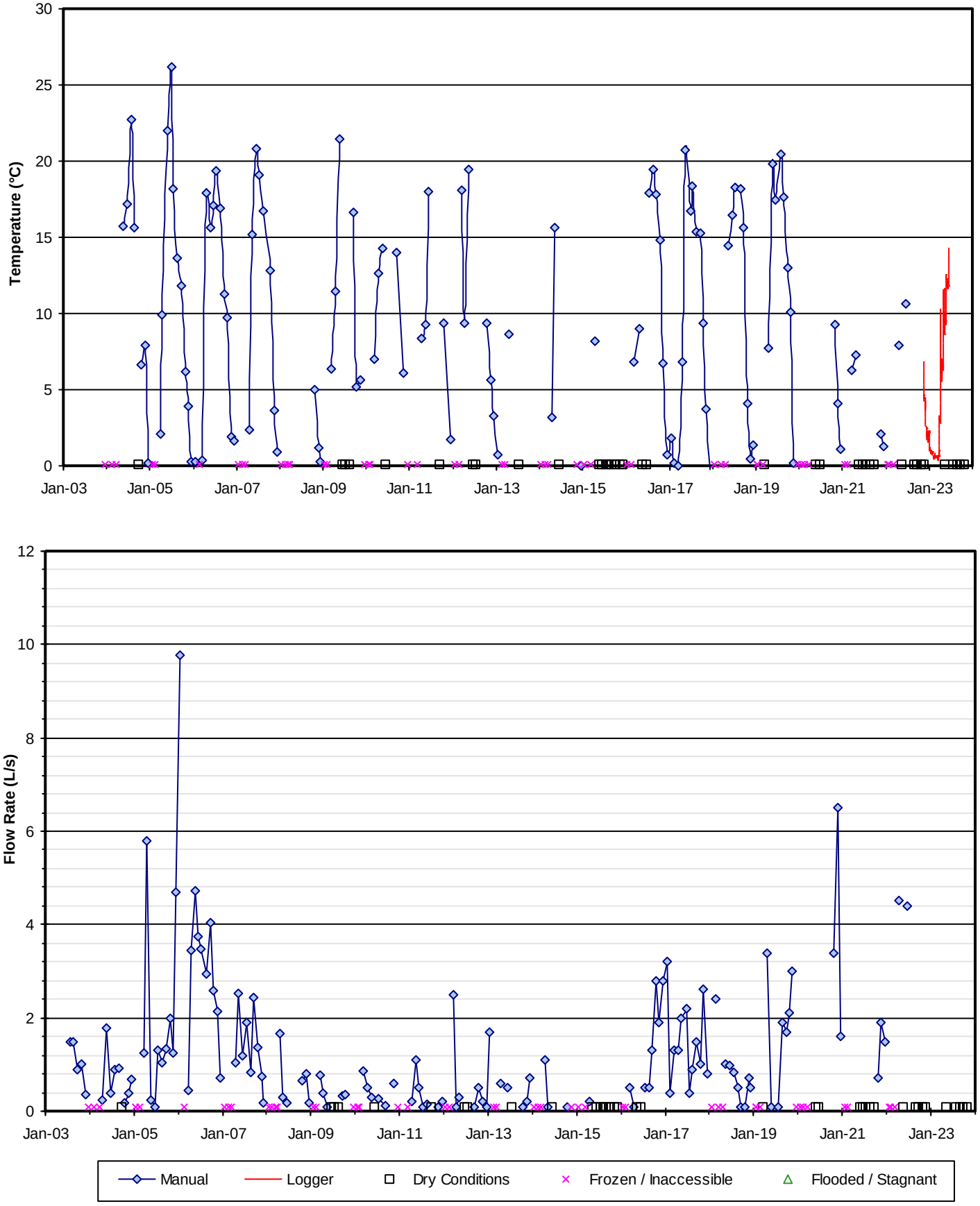


Figure C-35 Surface Water Temperature and Flow

SW21B - Upstream of Franks Pond Inlet

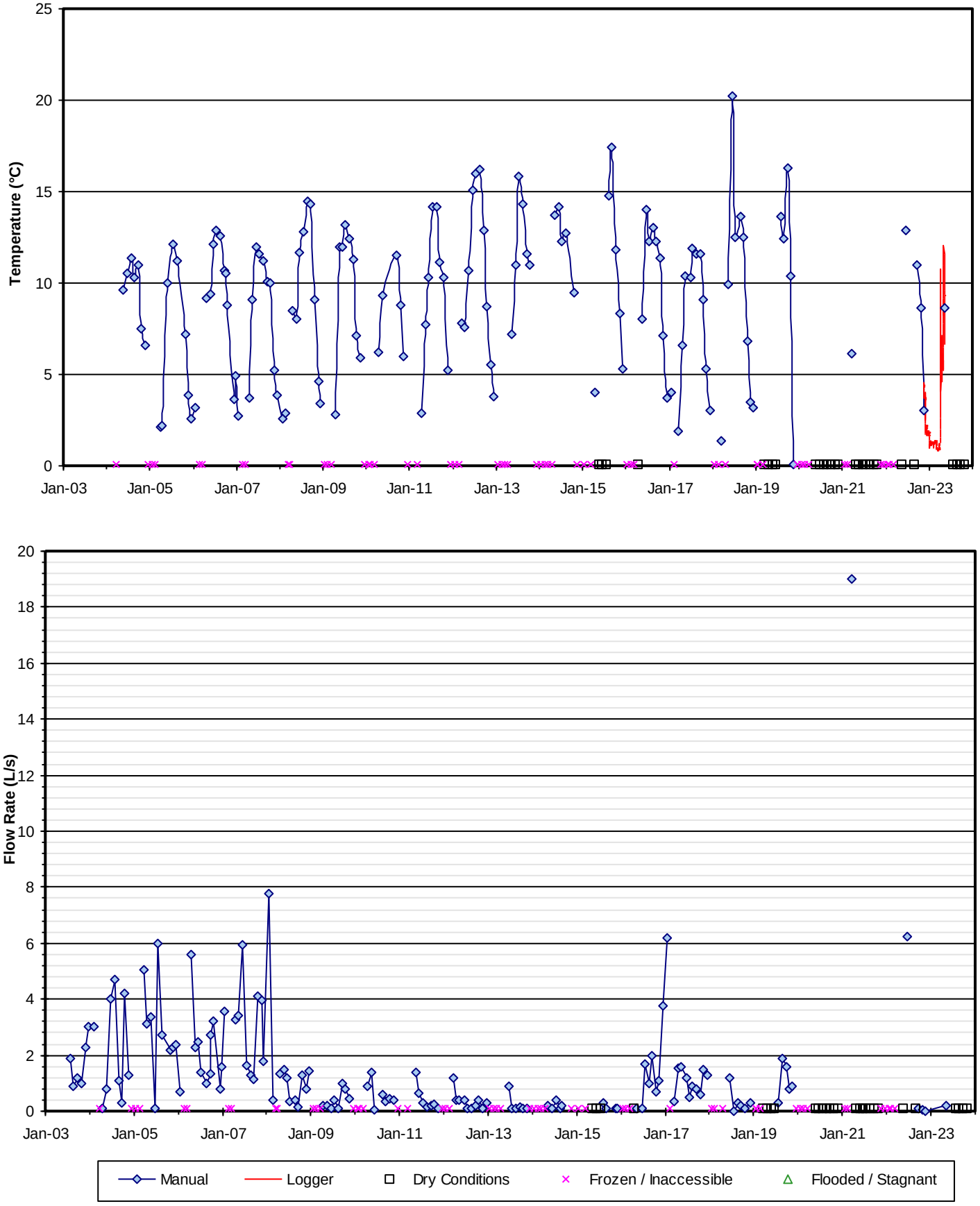


Figure C-36 Surface Water Temperature and Flow

SW21C - Upstream of SW21B

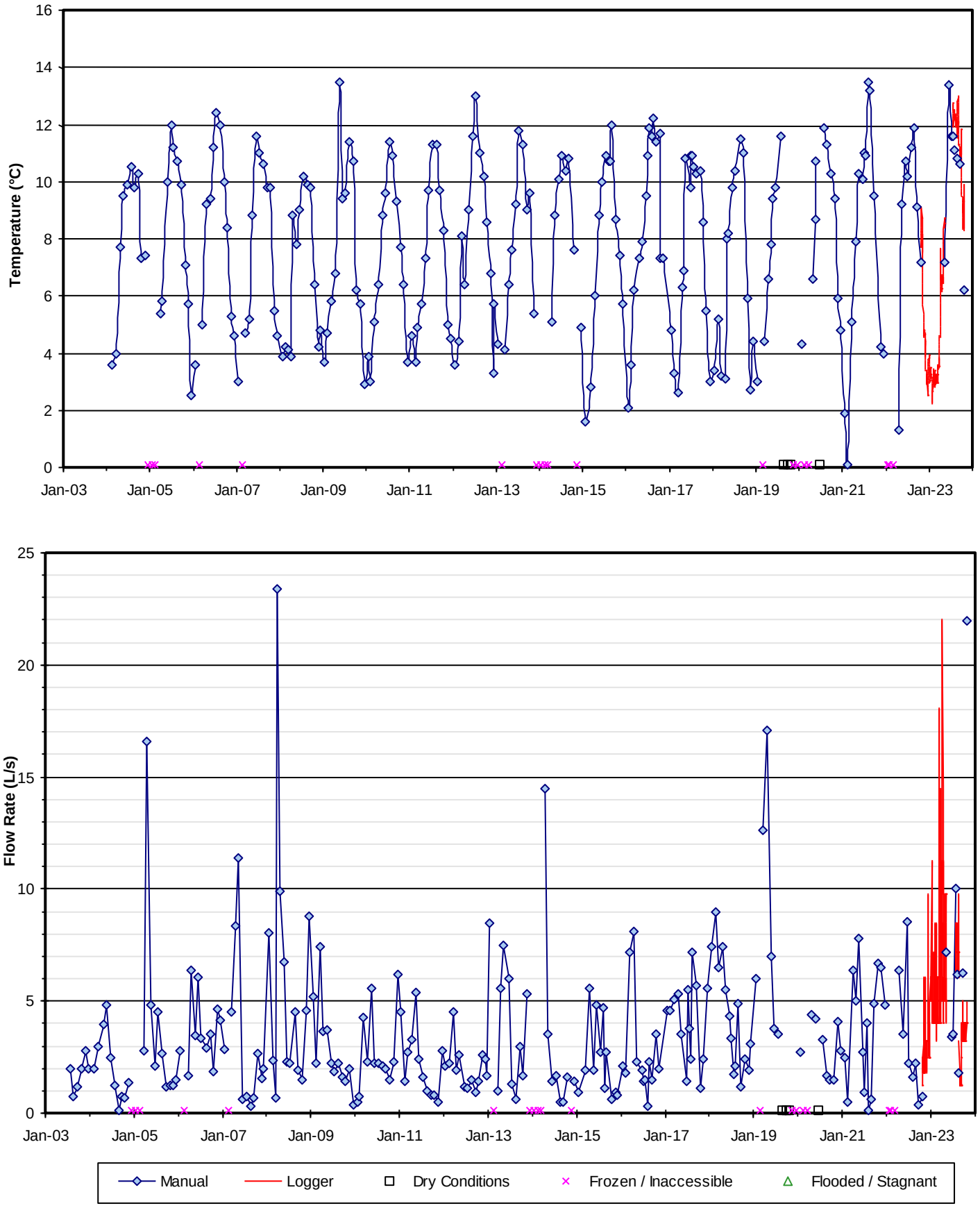


Figure C-37 Surface Water Temperature and Flow

SW21D - Escarpment Seep Upstream of Franks Pond

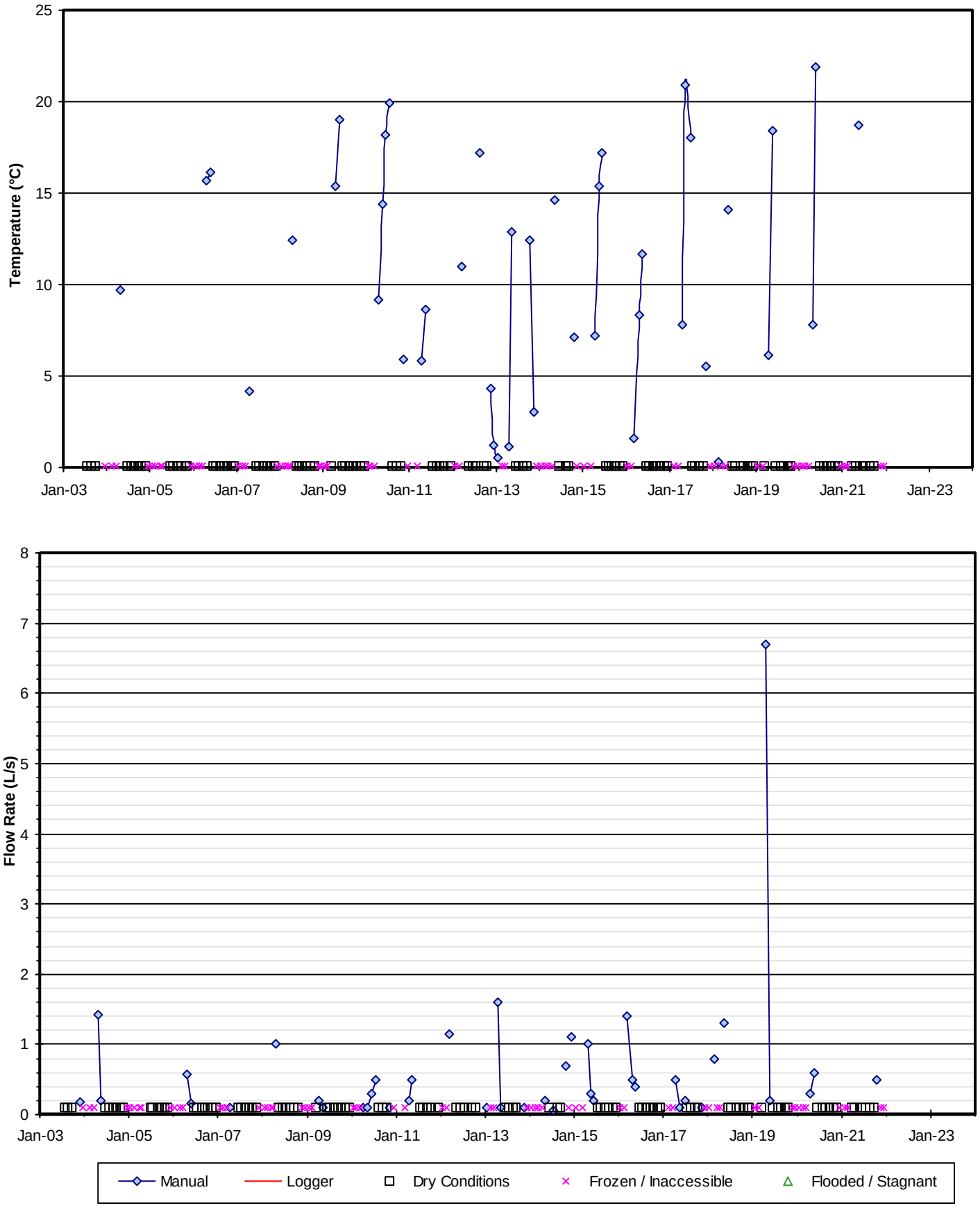


Figure C-38 Surface Water Temperature and Flow

SW22 - Escarpment Seep on Sampson Property to Batteaux Creek

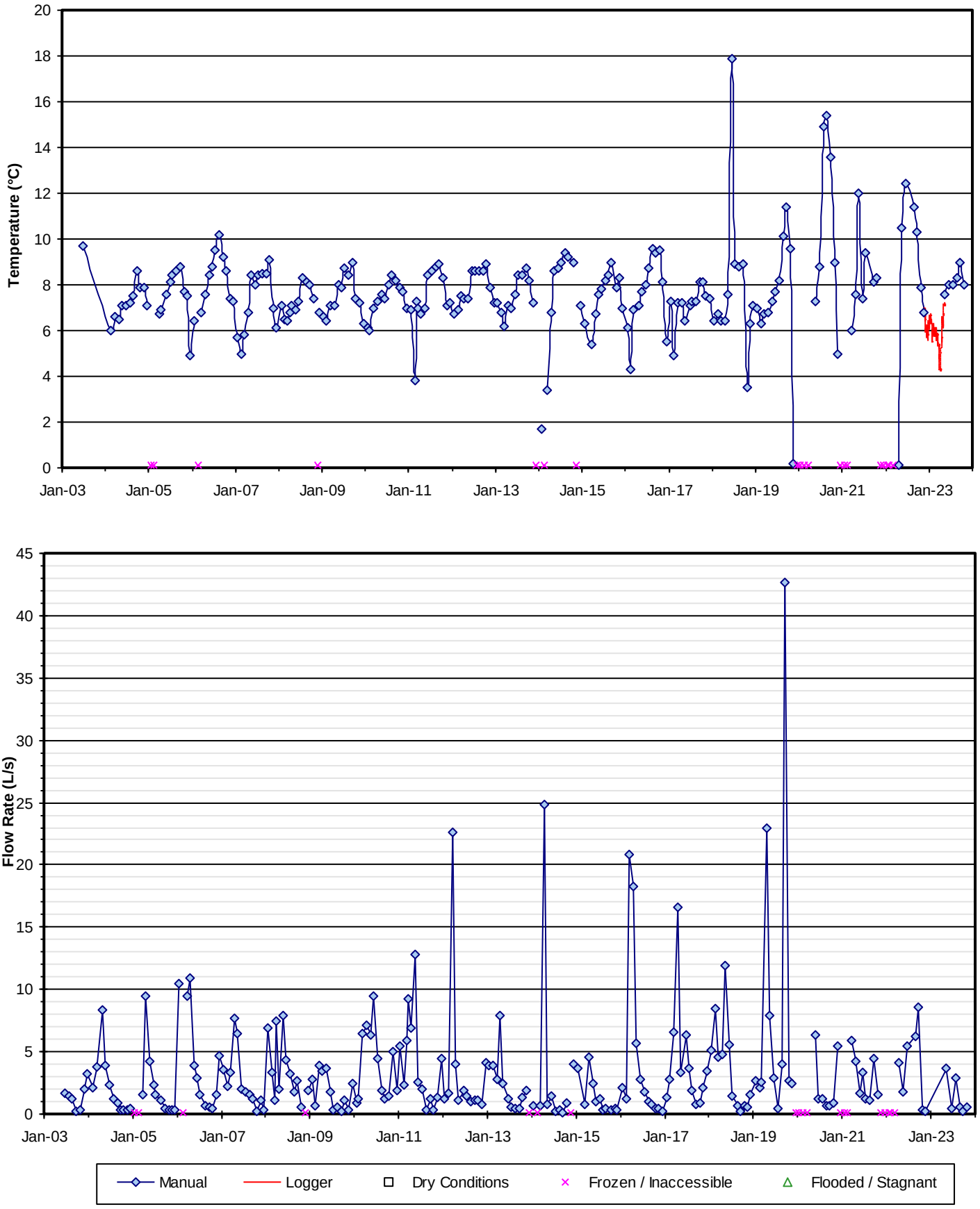


Figure C-39 Surface Water Temperature and Flow

SW22A - Escarpment Seep on Sampson Property to Batteaux Creek

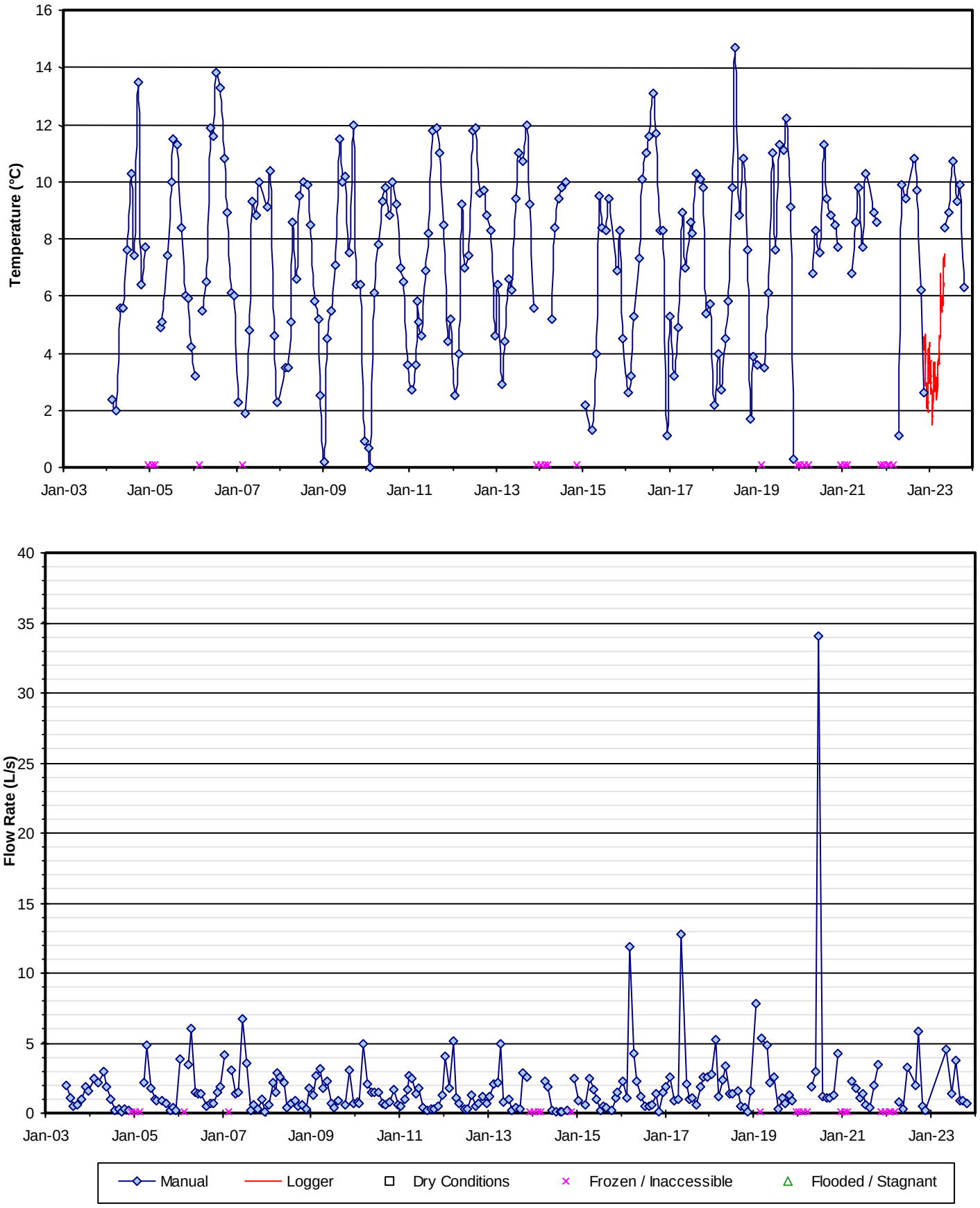
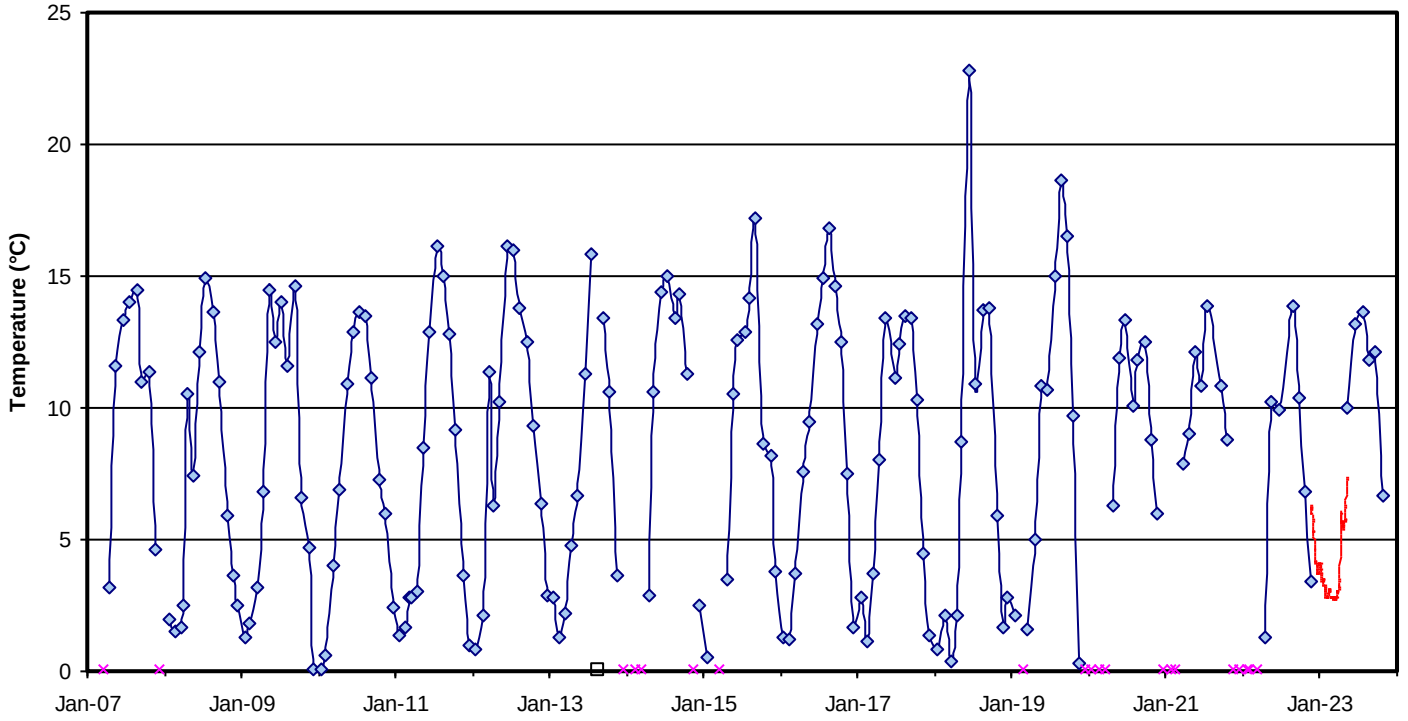


Figure C-40 Surface Water Temperature and Flow

SW22C - Escarpment Seep on Sampson Property to Batteaux Creek



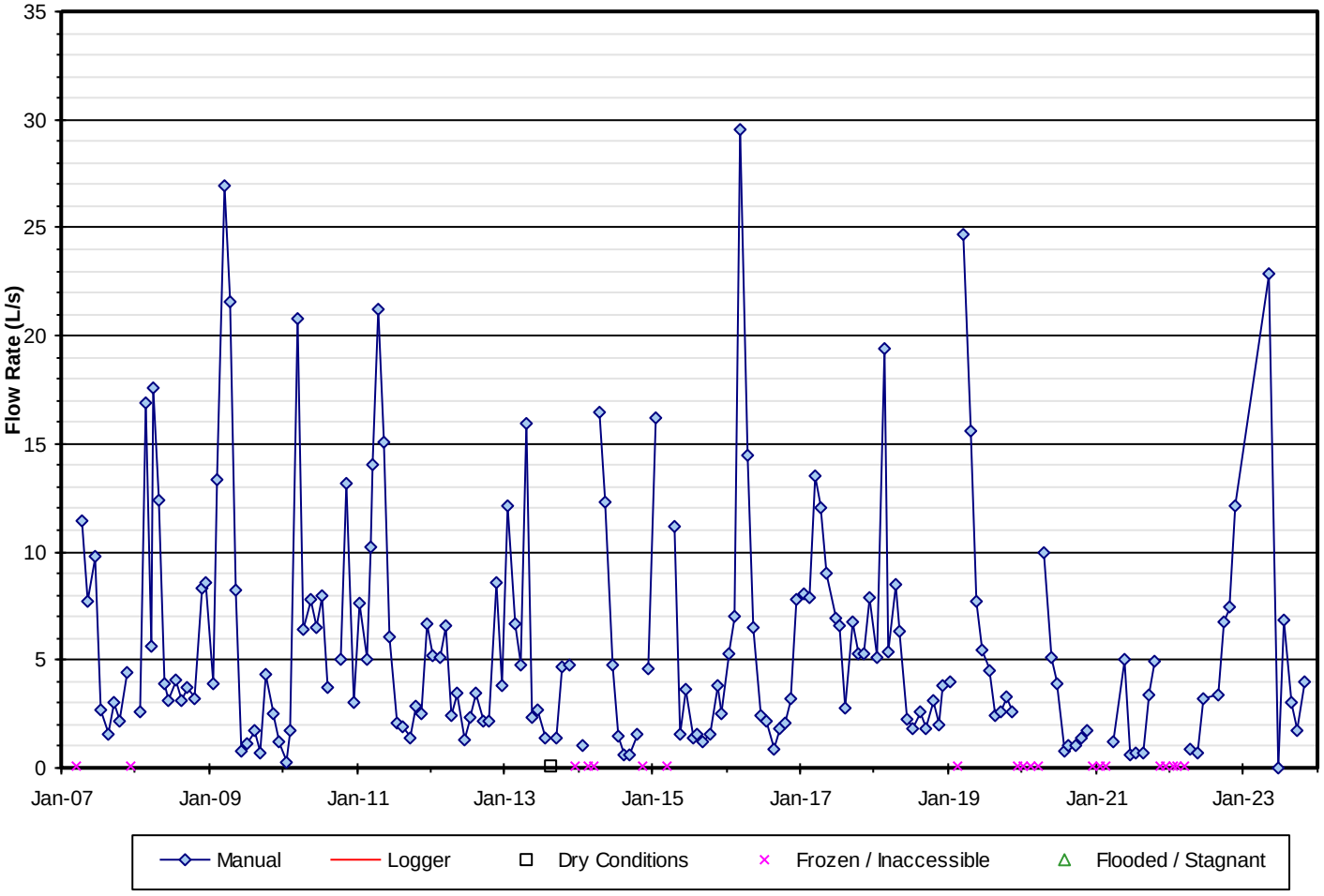


Figure C-41 Surface Water Temperature and Flow

SW24 - Sestito Pond Inlet from Franks Property

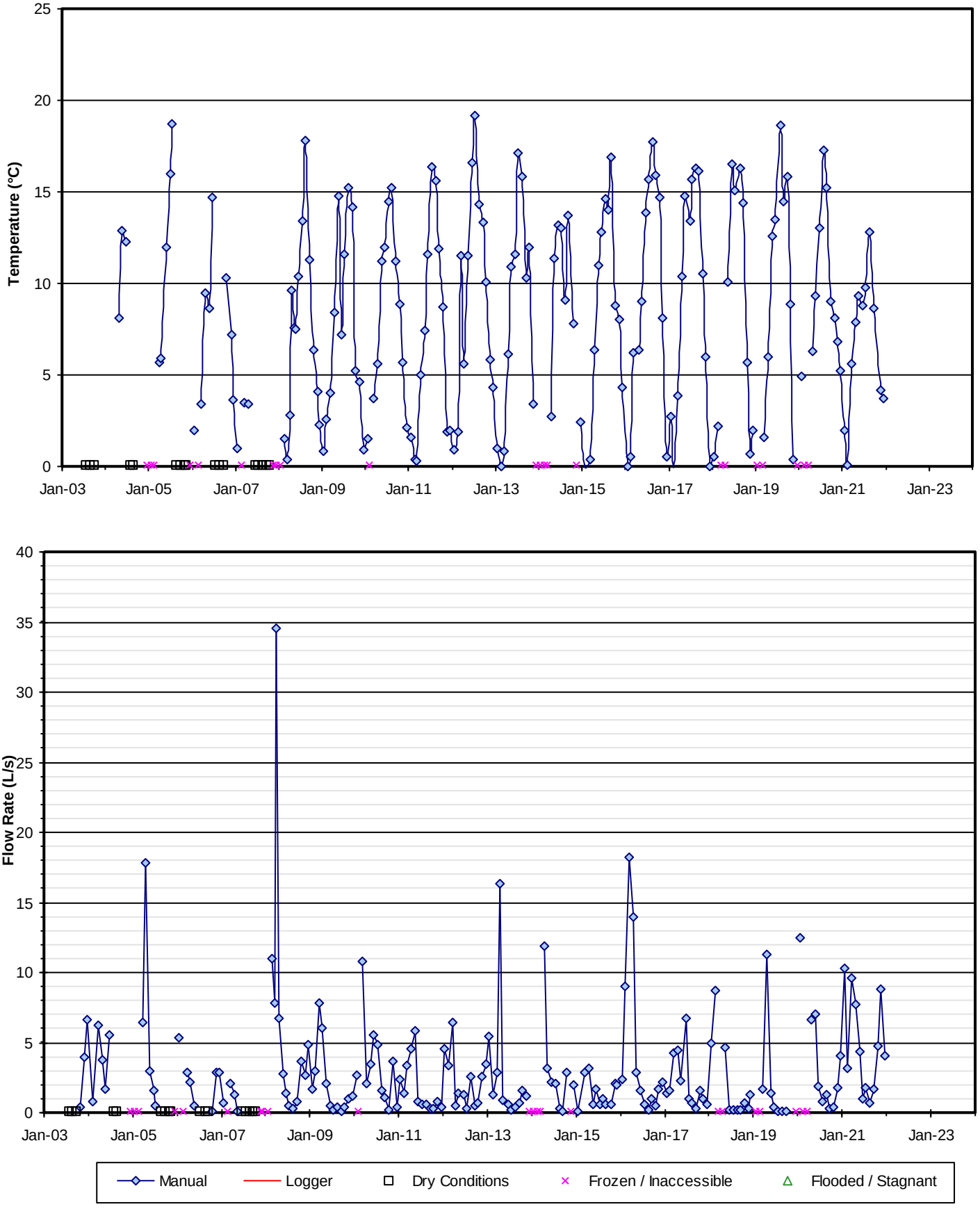


Figure C-42 Surface Water Temperature and Flow

SW24A - Escarpment Seep on Sestito Property

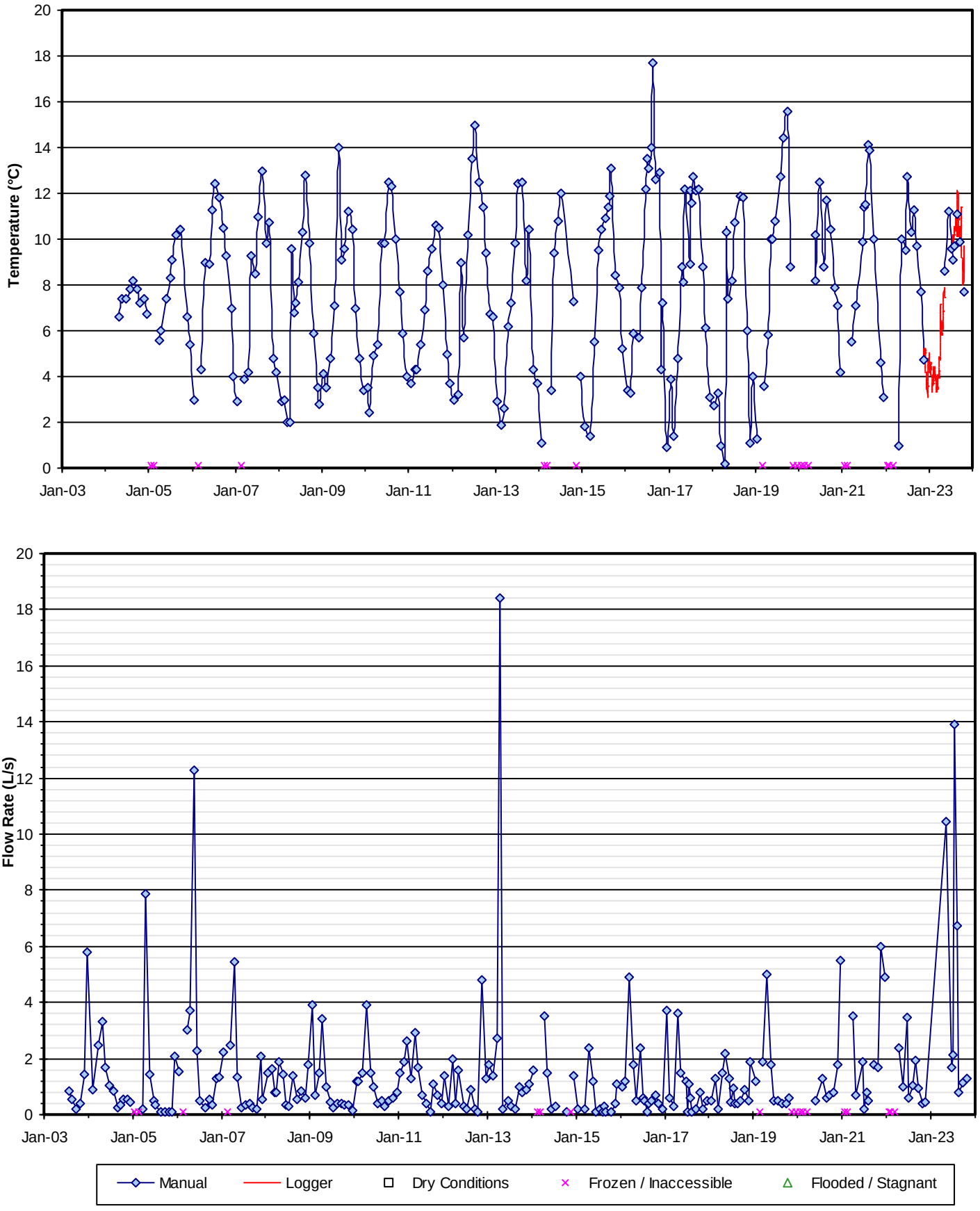


Figure C-43 Surface Water Temperature and Flow

SW24B - Escarpment Seep Inlet to Sestito Pond

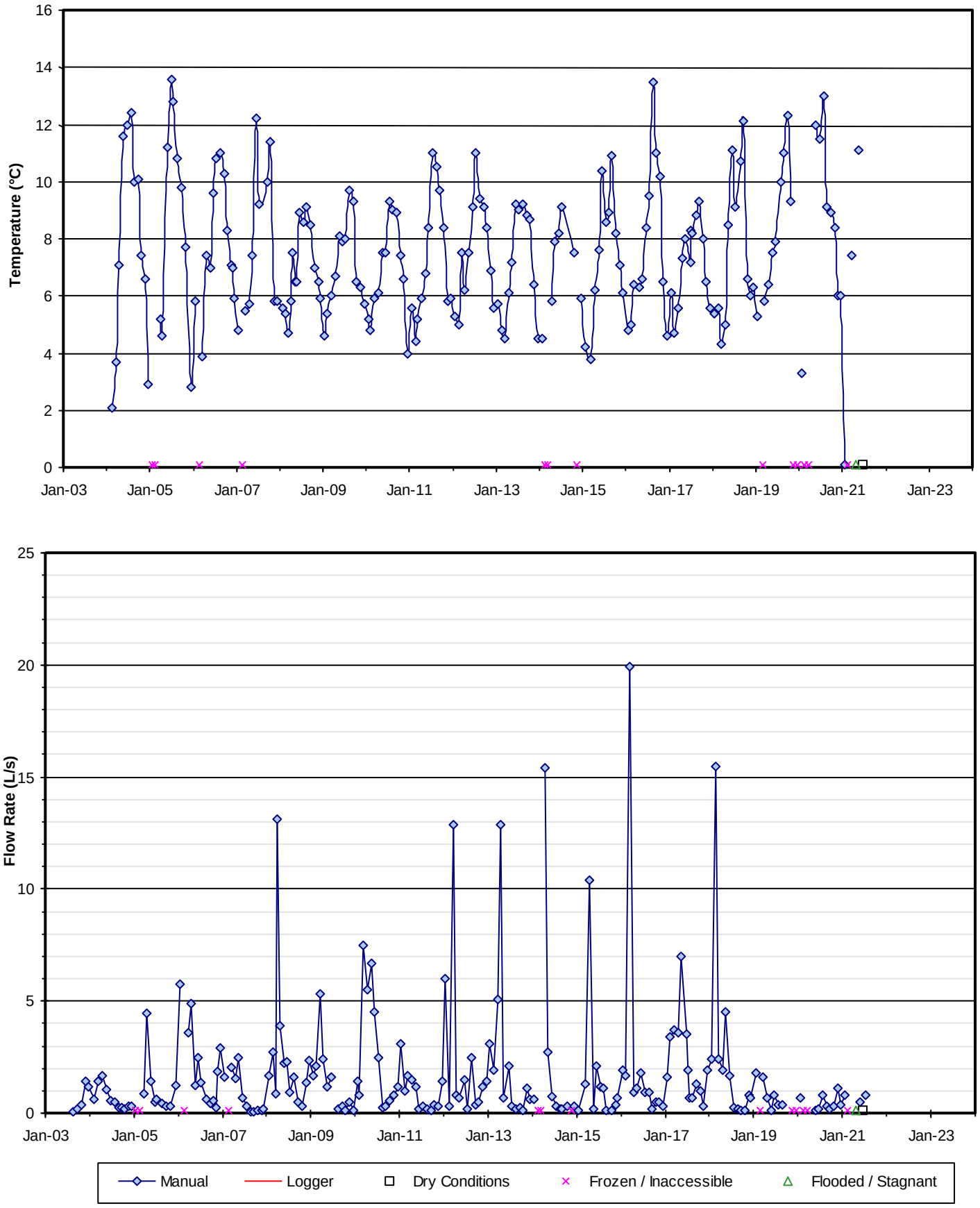


Figure C-44 Surface Water Temperature and Flow

SW24C - Upstream of Sestito Pond Inlet

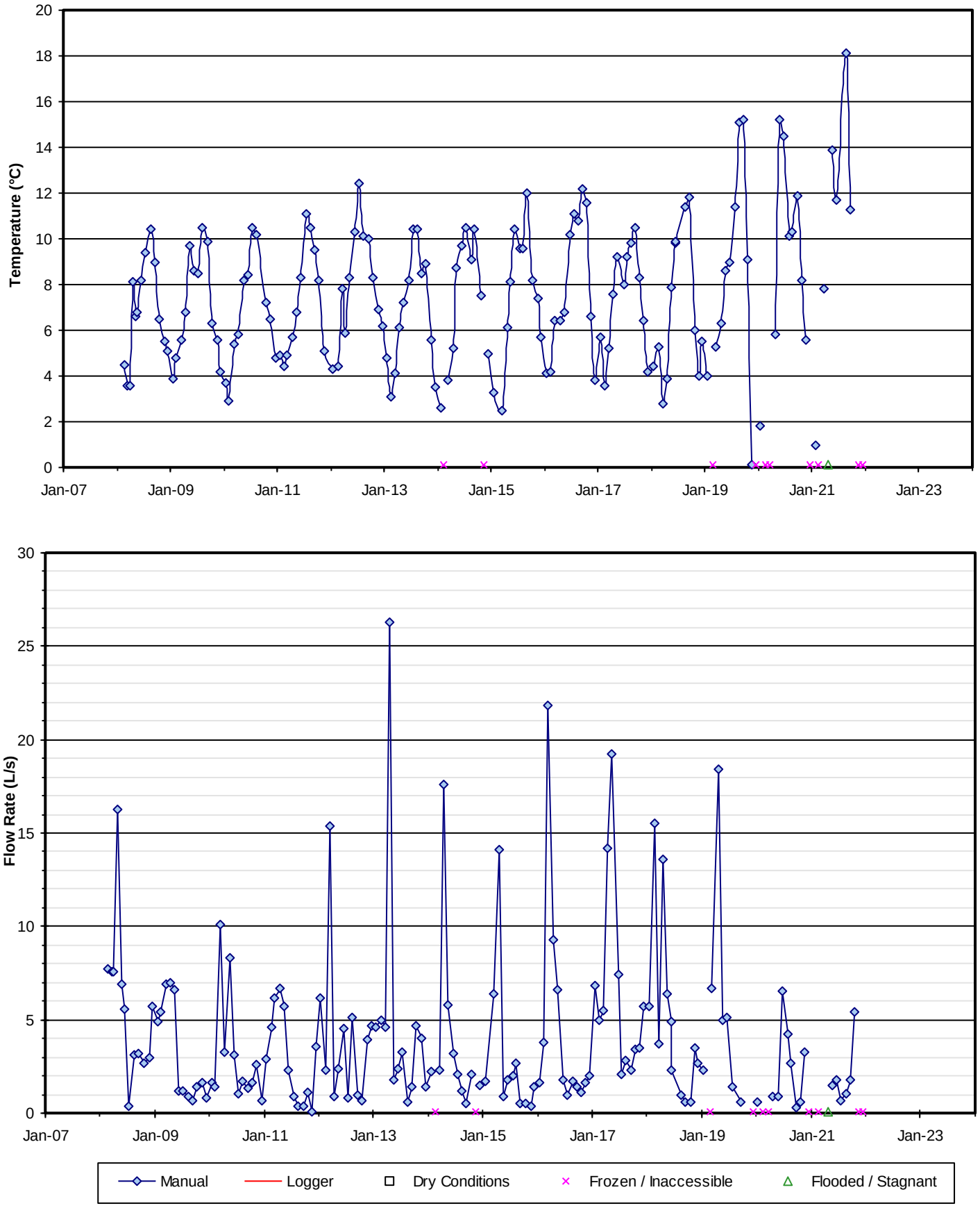


Figure C-45 Surface Water Temperature and Flow

SW77 - Escarpment Seep to Pretty River

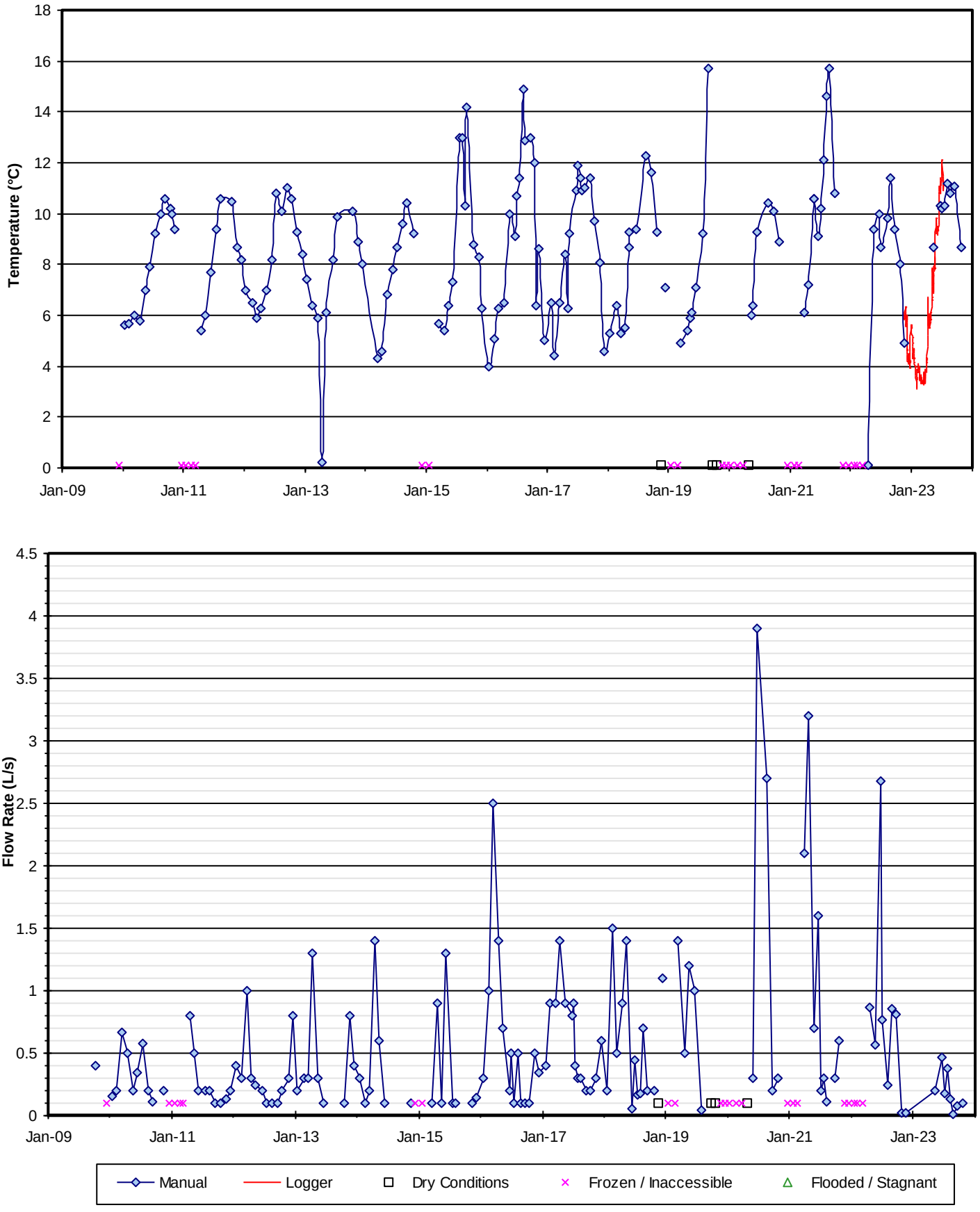


Figure C-46 Surface Water Temperature and Flow

SW3C - Rob Roy Swamp 3 Pond Outflow

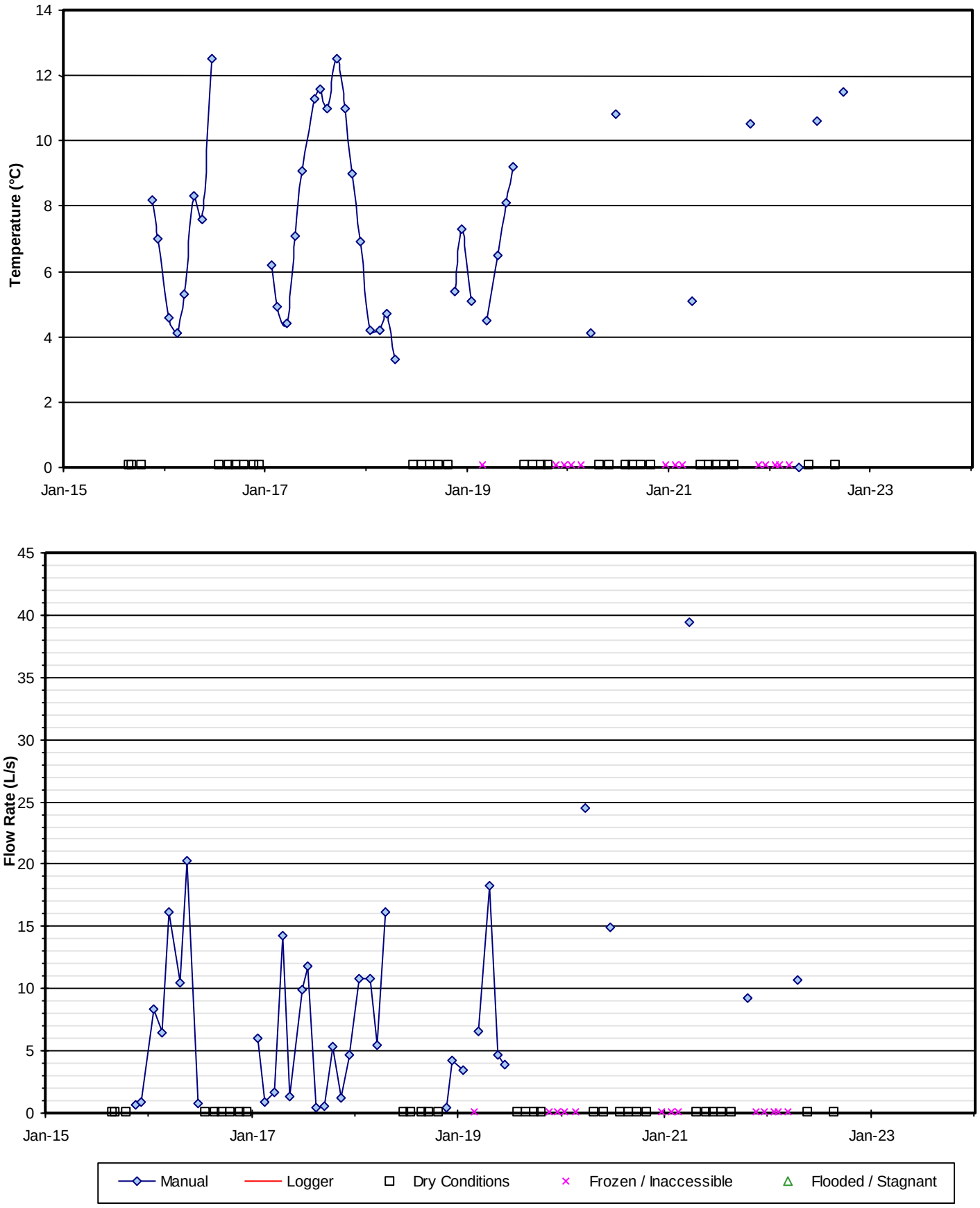


Figure C-47 Surface Water Temperature and Flow

SW3B - Rob Roy Swamp 3 Karst Sinkpoint Channel

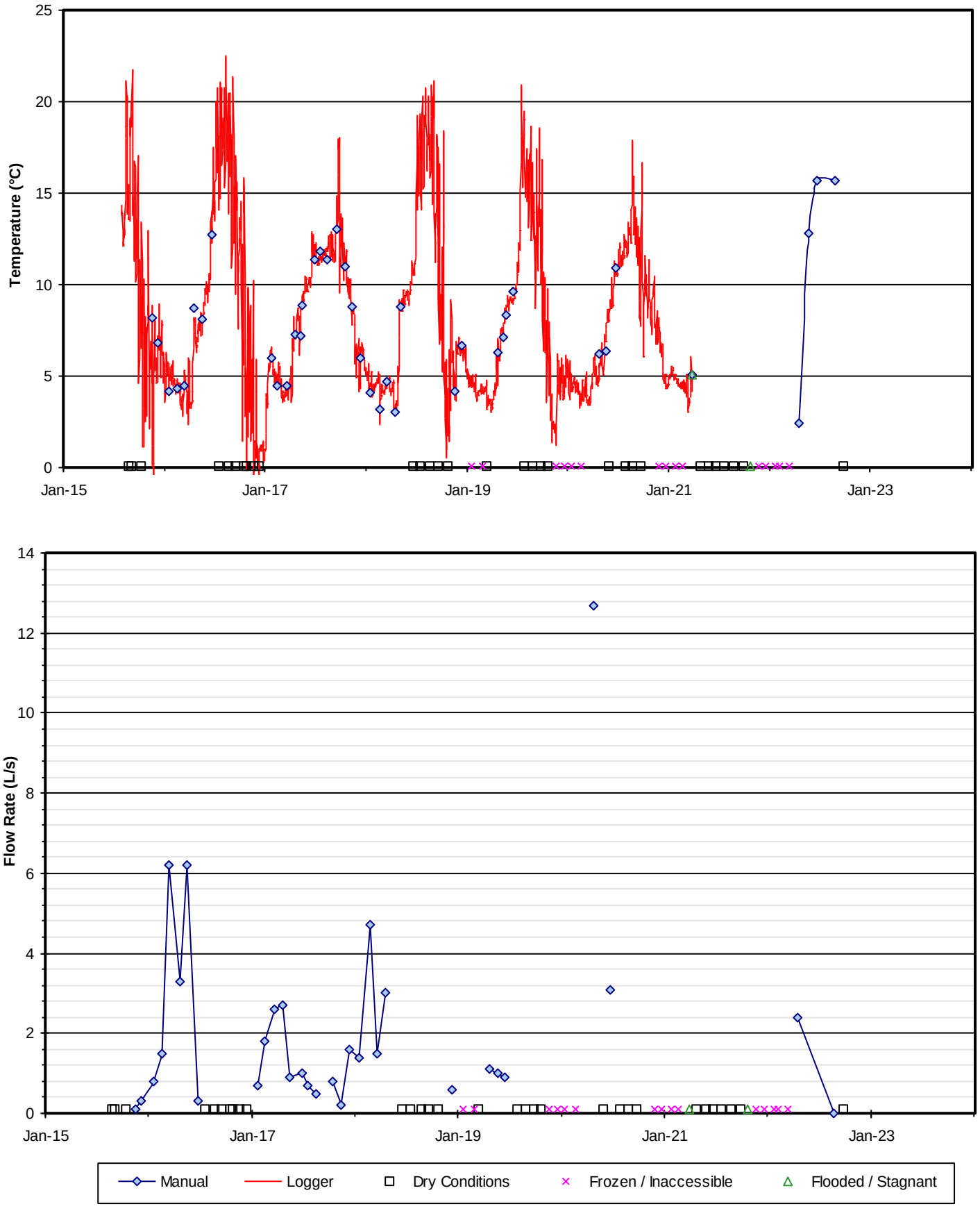


Figure C-48 Surface Water Temperature and Flow

Pretty River Control

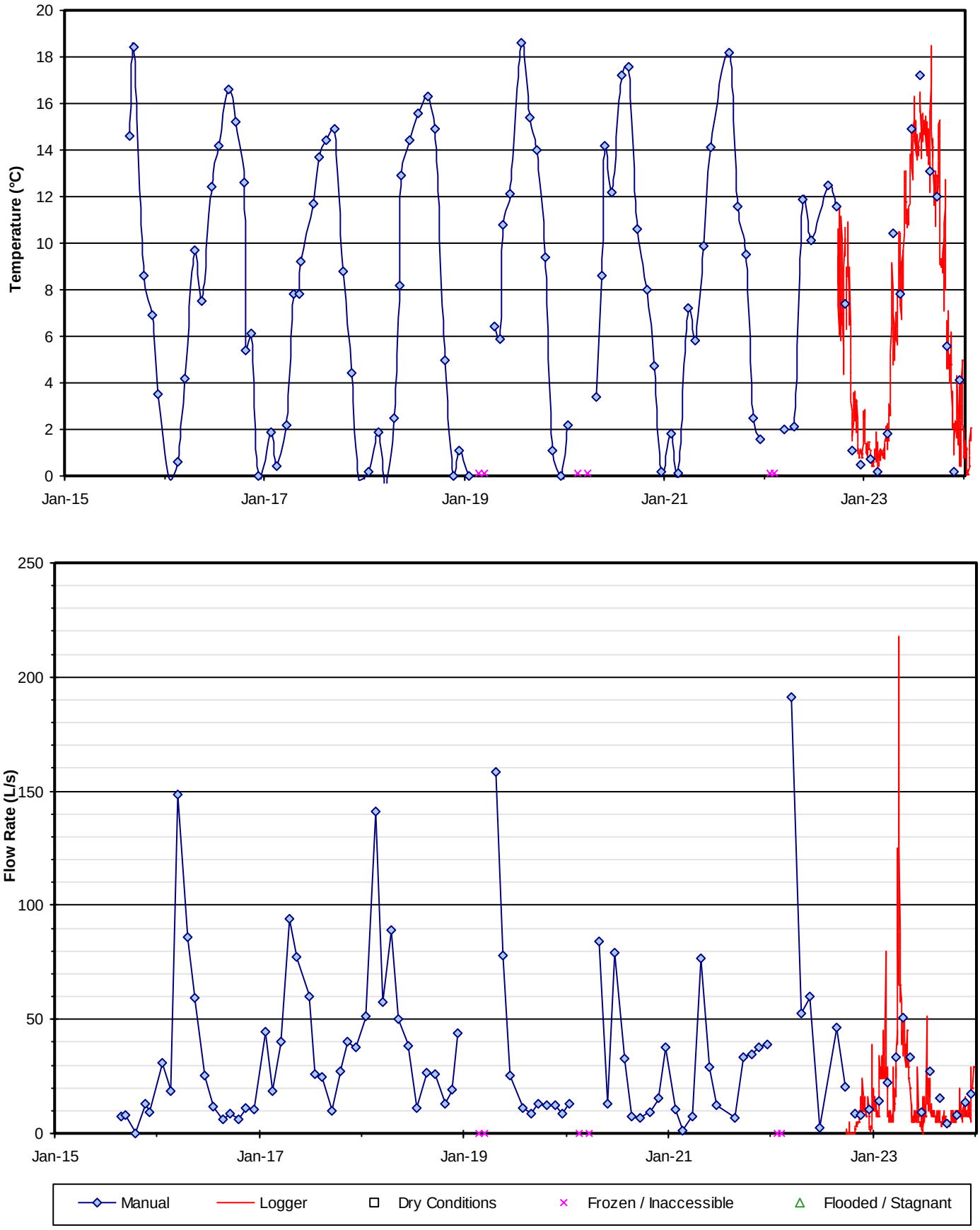
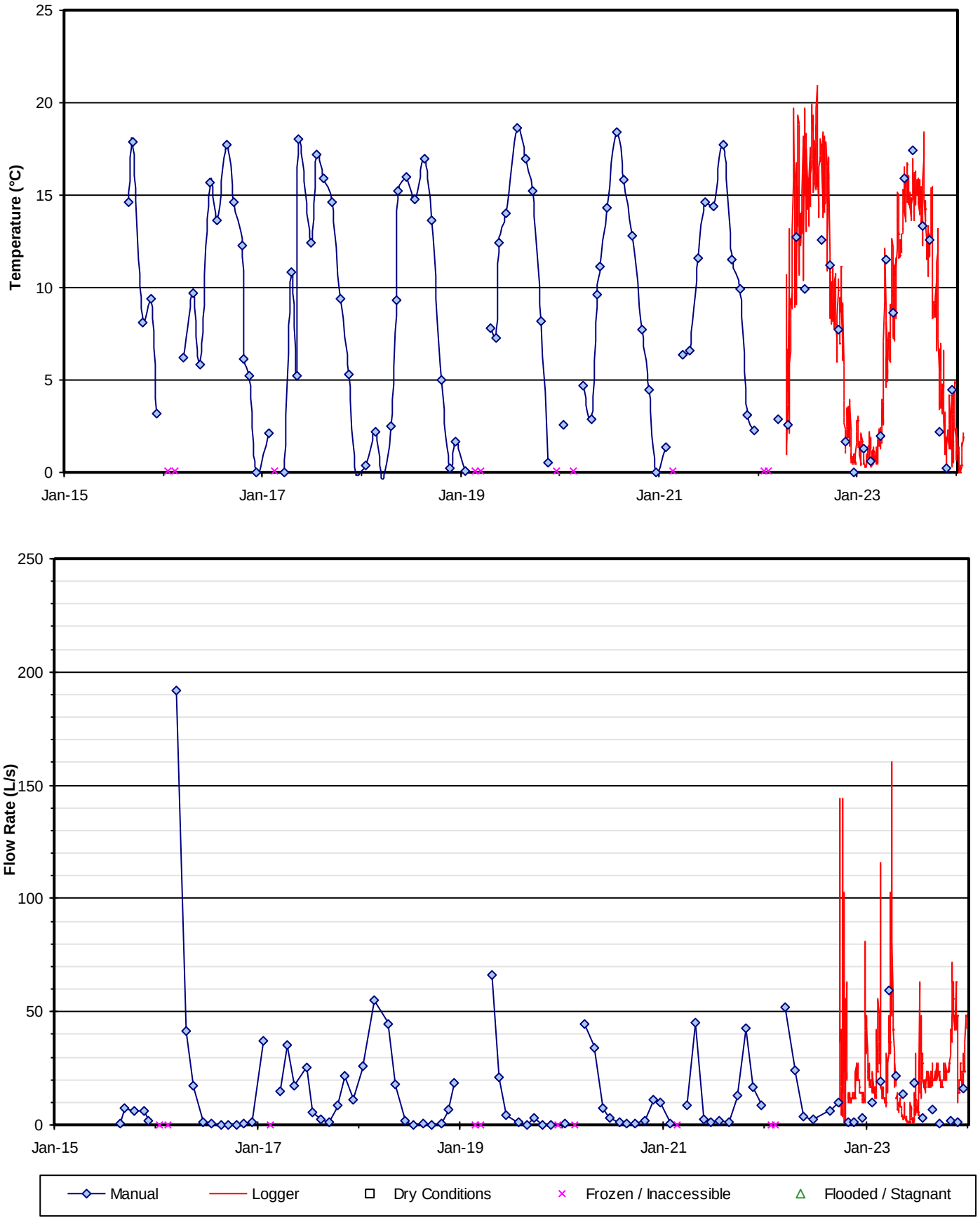


Figure C-49 Surface Water Temperature and Flow

Batteaux Creek Control



Appendix C Table Notation for Surface Water Chemical Results

Notation	Description		
mg/L	milligrams per Litre • values in mg/L unless otherwise noted	Colour	provided in True Colour Units (TCU)
		Turbidity	provided in Nephelometric Turbidity Units (NTU)
pH	provided in Scientific Units	T D S	Total Dissolved Solids
E C	Electrical Conductivity provided in microSiemens per centimetre	T S S	Total Suspended Solids
		T K N	Total Kjeldahl Nitrogren
T	Temperature provided in degrees Celsius	T P	Total Phosphorus
		Total Coliforms	provided in colony forming units (cfu) per 100 mL (cfu / 100 mL)
D O	Dissolved Oxygen	E.Coli	
Flow Rate	provided in L/s	Heterotropic Plate Count	provided in cfu / mL
µg/L	micrograms per Litre		
VOC Results	provided in ug/L		
QA / QC			
RDL	laboratory reported detection limit		
RPD	relative percent difference, provided in %		
	bold and shading indicates RPD greater than 20% or >2 RDL		
PWQO	Provincial Water Quality Objectives (MECP, 1994 and updates)		
i	interim PWQO		
nc	no PWQO criteria		
	shading indicates an exceedance of the PWQO criteria		

a **dissolved oxygen** is temperature dependent:

value should not be less than the range of 4 mg/L (0 °C) to 7 mg/L (25 °C) for warm water biota

b **turbidity** suspended matter should not be added to surface water in concentrations that will

change the natural Secchi disc reading by more than 10%

c **alkalinity** should not decrease by more than 25% of the natural concentration:

calculated on an event specific basis from background station SW1 when sampled

d **un-ionized ammonia** value calculated value using the fraction (*f*) of NH_3 from: $f = 1 \div (10^{pKa-pH} + 1)$

where: pKa = 0.09018 + 2729.92 ÷ T

T = ambient water temperature in Kelvin (K)

K = °C + 273.16

Field pH and temperature values and laboratory total ammonia results are used in the equation

e **total phosphorus** does not have a firm objective:

excessive plant growth in rivers and streams should be eliminated at a concenctration below 0.03 mg/L

f **oil & grease** should not be present in concentrations that:

can be detected as a visible film, sheen or discolouration on the surface

can be detected by odour

can cause tainting of edible aquatic organisms

can form deposits on shorelines and bottom sediments that are detectable by sight or odour, or are deleterious to resident aquatic organisms

Appendix C Table Notation for Surface Water Chemical Results

Notation	*Description*
(1)	Station dry / stagnant
(2)	Station frozen and / or snow covered
(3)	Station inaccessible
(4)	Flow measured <0.1 L/s
(5)	Station flooded
(6)	Anomalous data
(7)	No Data: Overgrown with Target (NDOGT)
blank	data not available
< value	parameter not detected above associated laboratory reported detection limit

Table C-1 Surface Water Flow Summary - Main Quarry Stations

Date	SW1	SW2	SW0-2	QFSW2
8-Jul-96	3.4			
6-Sep-96	47.0	1.4		
23-Dec-96	11.3	11.3		
26-Feb-97	91.2	55.2		
8-May-97	42.1	24.0		
26-Aug-97	7.0	3.6		
19-Dec-97	4.5	9.4		
27-Feb-98				
8-Apr-98	32.2	2.7		
10-Aug-98	(1)	1.7		
29-Dec-98				
24-Feb-99				
28-Apr-99	7.1	5.8	29.1	
26-May-99	15.0	4.0	19.5	
29-Jun-99	1.0	2.0		
26-Jul-99	(1)	0.5		
17-Aug-99	(1)	1.0		
27-Sep-99	(1)	0.4		
25-Oct-99	18.0	1.8		
21-Nov-99	25.0	6.0		
21-Dec-99				
25-Jan-00	(2)	14.3		
29-Feb-00	98.0	17.4		
31-Mar-00	41.0	8.0		
2-Jun-00	51.6	11.5		
8-Jun-00	35.0	8.9		
15-Jun-00	107.0	23.6		
22-Jun-00	93.6	15.8		
29-Jun-00	106.0	14.0		
7-Jul-00	57.0	12.0		
13-Jul-00	45.0	10.0		
20-Jul-00	54.0	13.0		
27-Jul-00	49.0	11.0		
3-Aug-00	58.8	17.0		
17-Aug-00	27.0	6.0		
24-Aug-00	29.0	5.0		
29-Aug-00	27.0	5.0		
7-Sep-00	23.0	5.0		
14-Sep-00	23.0	5.0		
21-Sep-00	13.0	1.0		
28-Sep-00	16.0	5.0		
5-Oct-00	25.0	9.0		
12-Oct-00	29.0	9.0		

Table C-1 Surface Water Flow Summary - Main Quarry Stations

Date	SW1	SW2	SW0-2	QFSW2
19-Oct-00	32.0	10.0		
26-Oct-00	24.0	6.0		
2-Nov-00	68.0	7.0		
9-Nov-00	40.0	8.0		
16-Nov-00	71.0	7.0		
18-Nov-00	46.1			
24-Nov-00	41.0	5.0		
30-Nov-00	45.7	13.2		
21-Dec-00	45.0			
16-Feb-01	35.0	11.9		
22-Feb-01	62.0	11.0		
1-Mar-01	99.0	11.1		
8-Mar-01	64.0	13.2		
15-Mar-01	72.0	12.5		
22-Mar-01	54.0	11.0		
29-Mar-01	53.0	9.0		
6-Apr-01	72.0	28.7		
12-Apr-01	152.0	35.0		
19-Apr-01	191.0	42.0		
26-Apr-01	110.0	19.0		
2-May-01	94.0	13.0		
10-May-01	76.0	8.0		
17-May-01	56.0	6.0		
24-May-01	74.0	6.0		
31-May-01	45.5	6.0		
7-Jun-01	47.0	5.0		
12-Jun-01	49.8	5.0		
21-Jun-01	(1)	3.9		
28-Jun-01	66.0	4.0		
5-Jul-01	30.0	11.0		
12-Jul-01	32.0	1.9		
19-Jul-01	16.0	2.0		
26-Jul-01	10.0	2.0		
30-Jul-01	13.0	2.0		
9-Aug-01	13.0	3.0		
16-Aug-01	14.0	1.0		
23-Aug-01	21.2	2.0		
30-Aug-01	35.3	1.5		
6-Sep-01	30.0	2.0		
13-Sep-01	46.0	2.0		
20-Sep-01	38.0	2.0		
27-Sep-01	35.8	2.2		
4-Oct-01	38.1	2.4		

Table C-1 Surface Water Flow Summary - Main Quarry Stations

Date	SW1	SW2	SW0-2	QFSW2
11-Oct-01	34.4	2.2	9.2	
18-Oct-01	51.7	10.2		
24-Oct-01	73.0	13.0		
1-Nov-01	93.0	12.0		
6-Nov-01	85.9	11.7		
15-Nov-01	97.6	10.4		
29-Nov-01	81.4	12.8		
6-Dec-01	73.9			
12-Dec-01	72.6			
4-Jan-02	70.0	8.0		
10-Jan-02	60.0	6.0		
16-Jan-02	57.5	7.0		
24-Jan-02	53.0	8.0		
31-Jan-02	55.0	6.0		
7-Feb-02	58.5	7.0		
14-Feb-02	51.0	7.0		
21-Feb-02	64.0	21.0		
28-Feb-02	71.5	14.0		
7-Mar-02	74.0	15.0		
14-Mar-02	94.5	35.0		
21-Mar-02	80.5	24.0		
28-Mar-02	78.0	14.0		
4-Apr-02	86.5	17.0		
12-Apr-02	104.0	42.0		
18-Apr-02	92.5	25.0		
25-Apr-02	86.0	15.0		
16-May-02	79.0	18.0		
23-May-02	62.5	15.0		
30-May-02	67.0	11.0		
6-Jun-02	46.0	7.5		
13-Jun-02	90.0	8.0		
20-Jun-02	45.0	5.0		
28-Jun-02	48.5	6.0		
4-Jul-02	(4)	2.0		
11-Jul-02	38.0	3.0		
18-Jul-02	1.0	2.0		
25-Jul-02	19.5	3.6		
1-Aug-02	36.6	2.1		
8-Aug-02	16.5	1.3	2.2	
15-Aug-02	36.1	10.0		
23-Aug-02	40.3			
30-Aug-02	21.7	3.7		
6-Sep-02	16.0	1.5		

Table C-1 Surface Water Flow Summary - Main Quarry Stations

Date	SW1	SW2	SW0-2	QFSW2
13-Sep-02	20.7	1.1		
19-Sep-02	1.0	1.0		
26-Sep-02	46.6	1.0		
3-Oct-02	56.4	1.0		
11-Oct-02	(1)	1.0		
17-Oct-02	(1)	1.0		
25-Oct-02	92.0	1.0		
1-Nov-02	62.2	1.0		
8-Nov-02	(4)	1.0		
15-Nov-02	66.2	1.0		
22-Nov-02	56.1	1.0		
28-Nov-02	54.0	1.6		
6-Dec-02	36.6	1.0		
12-Dec-02	31.4	1.0		
20-Dec-02	20.2	5.5		
3-Jan-03	29.5	2.5		
10-Jan-03	20.8	2.3		
16-Jan-03	22.8	(2)		
24-Jan-03	24.2	(2)		
31-Jan-03	22.0	(2)		
7-Feb-03	20.7	(2)		
14-Feb-03	19.6	(2)		
21-Feb-03	17.1	(2)		
28-Feb-03	18.5	(2)		
7-Mar-03	16.4	(2)		
14-Mar-03	17.8	(2)		
21-Mar-03	23.0	26.7		
28-Mar-03	134.9	38.3		
4-Apr-03	119.5	26.7		
9-Apr-03	61.0	12.6		
17-Apr-03	94.6	27.0		
25-Apr-03	60.4	13.2		
2-May-03	88.9	21.1		
9-May-03	96.7	7.9		
15-May-03	87.7	5.7		
22-May-03	11.9	5.0		
29-May-03	(1)	11.8		
9-Jun-03	19.3	8.3		
13-Jun-03	17.3	9.6		
23-Jun-03	89.6	5.8		
4-Jul-03	69.8	4.0		
11-Jul-03	54.2	3.4		
18-Jul-03	42.7	3.6		

Table C-1 Surface Water Flow Summary - Main Quarry Stations

Date	SW1	SW2	SW0-2	QFSW2
22-Jul-03	2.6	3.6		
24-Jul-03	4.5	2.8		
31-Jul-03	42.6	2.8		
8-Aug-03	3.6	4.3		
15-Aug-03	(1)	2.3		
20-Aug-03	(1)	2.6		
27-Aug-03	35.2	1.6		
5-Sep-03	(1)	2.3		
11-Sep-03	22.9	1.4		
18-Sep-03	13.5	0.8		
25-Sep-03	0.7	0.5		
2-Oct-03	33.1	0.8		
9-Oct-03	(1)	0.4		
17-Oct-03	58.3	1.7		
23-Oct-03	(4)	1.4		
31-Oct-03	49.5	3.2		
7-Nov-03	46.6	8.0		
17-Nov-03	67.8	11.1		
28-Nov-03	60.4	13.3		
19-Dec-03	55.8	12.5		
31-Dec-03	55.8	15.7		
12-Jan-04	106.1	16.8		
16-Jan-04	76.9	13.0		
20-Jan-04	68.8	9.8		
30-Jan-04	58.9	6.6		
6-Feb-04	49.2	5.4		
12-Feb-04	44.4	4.6		
24-Feb-04				62.3
27-Feb-04	39.9	3.9		
4-Mar-04	66.1	12.8		
12-Mar-04	101.7	24.2		
19-Mar-04	73.9	12.8		
26-Mar-04	136.1	58.8		114.7
2-Apr-04	117.1	58.1		82.2
8-Apr-04	104.8	30.1		(5)
16-Apr-04	86.7	19.9		(5)
23-Apr-04	91.3	13.5		153.2
30-Apr-04	62.4	10.5		210.2
7-May-04	88.9	11.9		
14-May-04	4.1	9.8		217.0
20-May-04	18.2	7.6		278.6
28-May-04	112.8	26.6		308.7
4-Jun-04	95.6	10.6		242.3

Table C-1 Surface Water Flow Summary - Main Quarry Stations

Date	SW1	SW2	SW0-2	QFSW2
11-Jun-04	9.8	6.9		172.2
17-Jun-04	84.6	6.9		179.5
23-Jun-04				125.1
24-Jun-04	(1)	5.9		
1-Jul-04	44.7	3.8	7.7	108.3
9-Jul-04	(1)	3.7	3.5	
16-Jul-04	58.3	4.2	60.8	293.0
22-Jul-04	45.3	3.3	20.6	213.8
29-Jul-04	76.7	3.2	24.0	133.5
6-Aug-04	(1)	1.8	13.3	159.1
12-Aug-04	(1)	2.7	4.3	155.5
19-Aug-04	26.8			
20-Aug-04	36.5	6.6	19.8	84.2
26-Aug-04	36.5	2.4	9.5	116.9
3-Sep-04	(1)	1.3	4.9	176.6
9-Sep-04		2.3	1.9	163.4
17-Sep-04	49.6	3.2	2.6	194.3
23-Sep-04	(1)			
26-Sep-04	(1)	2.1	9.5	126.7
1-Oct-04	(1)	(4)	6.6	128.9
7-Oct-04	(1)	(4)	0.1	86.9
14-Oct-04	(1)	3.2	1.2	77.1
20-Oct-04	(1)	0.9	31.3	122.7
24-Oct-04	42.4			
28-Oct-04	(1)	1.2	7.7	141.1
4-Nov-04	90.0	2.7	60.0	124.2
7-Nov-04	90.0			
11-Nov-04	(1)	1.7	42.4	78.0
19-Nov-04	(1)	1.8	10.2	97.6
25-Nov-04	(1)	0.4	(1)	88.8
2-Dec-04	(1)	0.3	23.3	87.8
9-Dec-04	(1)	3.9	23.8	71.9
17-Dec-04	0.6	(2)	19.2	57.6
29-Dec-04	44.1	(2)	(2)	(2)
5-Jan-05	59.4	10.7	108.9	
13-Jan-05	(1)	41.9	258.5	
20-Jan-05	79.2	18.1	(2)	
28-Jan-05	45.5	9.3	(2)	78.0
3-Feb-05	50.6	8.1	(2)	71.3
10-Feb-05	(1)	5.5	(2)	80.4
16-Feb-05	64.0	9.0	(2)	80.2
24-Feb-05	9.0	3.8	(2)	
3-Mar-05	3.3	5.7	(2)	59.5

Table C-1 Surface Water Flow Summary - Main Quarry Stations

Date	SW1	SW2	SW0-2	QFSW2
10-Mar-05	(1)	9.4	(2)	67.6
17-Mar-05	(4)	9.4	(2)	62.6
24-Mar-05	38.5	8.9	(2)	68.5
30-Mar-05	71.4	15.6	124.3	77.0
7-Apr-05	15.2	46.6	(5)	65.7
15-Apr-05	121.8	49.9	(5)	233.4
21-Apr-05	90.8	39.8	253.6	319.3
28-Apr-05	70.3			
29-Apr-05		43.1	348.6	323.8
6-May-05	60.1	19.4	116.2	268.9
13-May-05	21.7	11.3	73.4	272.0
20-May-05	21.2	8.7	68.5	356.3
27-May-05	44.4	7.4	90.8	268.7
3-Jun-05	23.5	5.8	62.2	258.3
10-Jun-05	(1)	4.6	8.5	273.4
17-Jun-05	11.0	5.1	53.8	283.9
24-Jun-05	1.1	3.7	4.9	313.2
30-Jun-05	9.3	3.8	3.6	346.8
7-Jul-05	4.6	3.1	10.6	244.5
15-Jul-05	25.0	2.7	(1)	238.6
21-Jul-05	16.2	1.8	(1)	226.1
28-Jul-05	(1)	1.7	(1)	251.2
2-Aug-05	(1)	1.7	(1)	256.0
12-Aug-05	(1)	1.4	(1)	309.1
19-Aug-05	(1)	1.4	(1)	373.3
24-Aug-05	(1)	0.6	(1)	263.0
1-Sep-05	(1)	0.8	(1)	201.0
9-Sep-05	(1)	0.8	(1)	436.8
16-Sep-05	(1)	0.6	(1)	258.7
23-Sep-05	(1)	0.3	(1)	317.2
30-Sep-05	(1)	1.0	(1)	371.9
7-Oct-05	(1)	0.9	(1)	280.3
14-Oct-05	(1)	0.8	0.1	357.7
21-Oct-05	(1)	0.5	1.9	256.0
28-Oct-05	(1)	0.6	10.1	
4-Nov-05	(1)	0.5	4.4	254.8
11-Nov-05	(1)	0.2	4.1	210.7
18-Nov-05	57.0	1.0	42.9	222.3
25-Nov-05	49.5	0.5		231.2
2-Dec-05	51.5	2.0	32.7	221.8
9-Dec-05	44.1	1.9	28.5	175.0
16-Dec-05	45.8	1.8		(5)
22-Dec-05	39.0	1.3	56.6	220.0

Table C-1 Surface Water Flow Summary - Main Quarry Stations

Date	SW1	SW2	SW0-2	QFSW2
30-Dec-05	55.4	2.5		
6-Jan-06	40.7	5.9		207.8
13-Jan-06	(1)	10.0		202.1
20-Jan-06	44.7	11.6	85.5	194.5
27-Jan-06	53.1	11.0	78.8	210.5
3-Feb-06	53.5	16.7	154.3	179.6
10-Feb-06	52.8	11.4	94.6	194.5
20-Feb-06	51.9	10.2	(2)	191.9
24-Feb-06	50.4	9.7	(2)	153.2
3-Mar-06	55.3	7.9	(2)	177.4
10-Mar-06	58.7	35.6	134.3	229.0
17-Mar-06	92.4	41.8		
20-Mar-06				208.2
24-Mar-06	74.4	21.4		215.0
31-Mar-06	79.7	24.7		266.8
7-Apr-06	162.9	35.1		(5)
10-Apr-06	111.0	29.3		
13-Apr-06	55.1	35.1		274.4
21-Apr-06	59.8	15.5		190.8
26-Apr-06	60.2	15.4		225.8
5-May-06	64.1	11.9		202.0
12-May-06	57.7	8.7		253.8
19-May-06	48.5	9.3		219.6
25-May-06	43.0	4.7		197.5
2-Jun-06	35.4	5.3		192.3
9-Jun-06	48.5	5.1		194.4
16-Jun-06	6.1	3.9		
19-Jun-06				120.1
23-Jun-06		3.6	12.9	236.8
30-Jun-06	(1)	3.7		251.6
7-Jul-06		1.5		225.1
10-Jul-06	1.0			
14-Jul-06	(1)	1.3		249.6
21-Jul-06	(1)	1.7		226.0
28-Jul-06	(1)	2.5	7.2	214.4
4-Aug-06	32.8	5.1	10.8	245.0
11-Aug-06	(1)	0.3	2.7	232.7
18-Aug-06	(1)	0.9	4.4	197.2
25-Aug-06	4.4	(4)		197.9
1-Sep-06	13.8	(4)		204.3
8-Sep-06	2.2	(4)		192.7
15-Sep-06	33.8	(4)		185.7
21-Sep-06	2.0	0.4		191.6

Table C-1 Surface Water Flow Summary - Main Quarry Stations

Date	SW1	SW2	SW0-2	QFSW2
28-Sep-06	15.6	0.8		212.0
6-Oct-06		0.7		170.4
13-Oct-06		0.1		189.7
20-Oct-06	48.2	0.5		209.0
26-Oct-06		2.6		213.1
28-Oct-06				205.9
3-Nov-06	95.4	5.7		153.9
10-Nov-06	77.8	9.4		186.3
17-Nov-06	26.4	17.8		167.8
24-Nov-06	51.5	12.7	47.2	196.5
4-Dec-06	92.9	13.1	80.3	(5)
8-Dec-06	70.2	11.5	(2)	128.8
14-Dec-06				
21-Dec-06				
28-Dec-06	54.9	10.2	86.8	141.1
5-Jan-07	60.1	11.1	88.1	164.8
12-Jan-07	56.1	10.8	48.2	150.0
19-Jan-07	58.8	9.3	(2)	136.9
26-Jan-07	4.9	7.4	(2)	125.7
2-Feb-07	63.4	7.4	(2)	122.2
9-Feb-07	63.6	5.1	(2)	102.9
16-Feb-07	60.0	4.8	(2)	94.3
22-Feb-07	58.4	3.5	(2)	114.8
2-Mar-07	60.8	4.2	(2)	134.7
9-Mar-07	32.4	4.3	(2)	105.4
16-Mar-07	105.0	27.6	166.4	(5)
23-Mar-07	53.6	38.8	143.4	109.8
30-Mar-07	106.9	41.1	184.9	(5)
5-Apr-07	108.9	35.0	238.5	(5)
13-Apr-07	74.5	16.8	133.9	223.9
20-Apr-07	95.2	14.0	88.6	172.0
28-Apr-07	7.4	11.6	92.0	214.0
4-May-07	80.5	8.1	102.0	111.5
11-May-07	43.3	7.0	84.6	165.5
18-May-07	74.8	6.4	61.4	141.8
25-May-07	61.2	4.2	77.7	138.9
1-Jun-07	(4)	4.8	29.0	100.5
8-Jun-07	58.1	3.6	39.3	90.4
14-Jun-07	47.9	3.1	8.6	103.2
22-Jun-07	(1)	1.8	(1)	121.0
29-Jun-07	17.0	1.6	4.5	147.4
6-Jul-07	20.5	3.8	10.5	150.0
13-Jul-07	(1)	5.2	5.2	97.0

Table C-1 Surface Water Flow Summary - Main Quarry Stations

Date	SW1	SW2	SW0-2	QFSW2
20-Jul-07	0.1	1.7	12.7	140.9
27-Jul-07	1.6	1.4	(1)	148.6
3-Aug-07	(1)	0.6	(1)	141.8
10-Aug-07	0.1	0.6	(1)	93.0
17-Aug-07	10.1	0.6	(1)	147.7
24-Aug-07	(4)	1.1	3.8	157.2
30-Aug-07	7.6	0.6	4.0	100.3
7-Sep-07	21.1	1.1	8.9	71.6
14-Sep-07	1.2	0.7	18.6	65.4
21-Sep-07	10.7	0.2	19.2	86.9
28-Sep-07	9.8	(4)	18.7	84.1
5-Oct-07	27.4	(4)	17.5	78.3
12-Oct-07	(1)	0.1	12.9	76.4
19-Oct-07	10.4	(4)	7.4	169.1
26-Oct-07	0.9	(4)	24.5	99.0
2-Nov-07	27.2	(4)	123.3	118.2
9-Nov-07	47.1	1.8	62.7	118.9
16-Nov-07	45.3	(4)	45.6	122.8
23-Nov-07	35.6	0.7	(2)	172.8
30-Nov-07	36.1		(2)	139.6
7-Dec-07	48.9	0.7	(2)	128.2
14-Dec-07	19.3	4.2		117.3
20-Dec-07	18.2	(2)	(2)	138.3
28-Dec-07	56.5	5.7	(2)	
4-Jan-08	31.1	7.0	(2)	165.0
11-Jan-08	38.4	81.9	194.5	284.3
18-Jan-08	41.5	30.9	(2)	593.7
25-Jan-08	57.3	26.2	(2)	172.2
1-Feb-08	57.6	8.9	(2)	180.9
8-Feb-08	48.0	25.8	(2)	160.4
15-Feb-08	41.5	11.0	(2)	135.9
22-Feb-08	63.4	10.8	(2)	153.8
29-Feb-08	55.9	16.8	(2)	131.6
7-Mar-08	61.3	12.0	(2)	151.7
14-Mar-08	53.1	14.8	(2)	146.3
20-Mar-08	58.5	2.8	(2)	161.9
28-Mar-08	63.5	5.1	(2)	132.9
4-Apr-08	86.5	41.8	125.8	
11-Apr-08	145.7	93.3	295.2	
15-Apr-08	91.8	50.0		
18-Apr-08	88.1	66.2	265.7	
25-Apr-08	74.1	18.5	77.7	183.3
2-May-08	92.0	22.0	138.4	177.6

Table C-1 Surface Water Flow Summary - Main Quarry Stations

Date	SW1	SW2	SW0-2	QFSW2
8-May-08	74.4	12.8	103.9	184.5
15-May-08	75.6	11.6	181.9	82.1
23-May-08	59.5	12.6	66.7	184.1
30-May-08	64.9	51.1	16.1	104.3
6-Jun-08	67.2	32.6	93.8	165.4
13-Jun-08	12.7	8.3	36.7	277.3
20-Jun-08	(1)	6.5	36.5	169.0
27-Jun-08	42.5	5.0	55.4	95.0
4-Jul-08	(1)	2.2	9.8	256.1
11-Jul-08	(1)	3.3	1.7	153.7
18-Jul-08	30.7	3.9	10.8	291.4
25-Jul-08	41.7	1.2	30.6	156.9
1-Aug-08	3.0	1.8	15.9	97.2
8-Aug-08	(1)	15.3	57.4	287.6
15-Aug-08	8.9	4.0	28.8	184.1
22-Aug-08	(1)	7.1	61.5	166.6
28-Aug-08	21.2	5.1	10.8	159.1
5-Sep-08		9.3	5.1	259.7
12-Sep-08	4.2	2.9	27.5	149.3
19-Sep-08	(1)	2.3	35.9	236.1
26-Sep-08	7.2	0.6	19.6	168.1
3-Oct-08	48.2	13.3	67.2	185.5
10-Oct-08	46.5	17.9	29.5	396.5
17-Oct-08	45.2	15.5	27.1	188.4
24-Oct-08	1.7	18.9	17.7	162.3
31-Oct-08	30.7	6.9	51.0	184.8
2-Nov-08				
7-Nov-08	34.8	6.2	48.8	347.1
9-Nov-08				
13-Nov-08	34.8			
14-Nov-08		13.2	85.5	204.8
16-Nov-08				
21-Nov-08	12.0	(2)	(2)	
23-Nov-08				
28-Nov-08	14.2	(2)	(2)	121.8
30-Nov-08	5.1	(2)	(2)	(2)
7-Dec-08	30.4	10.6	(2)	154.9
12-Dec-08				
19-Dec-08	26.8		(2)	
23-Dec-08	70.1	13.1	(2)	151.5
29-Dec-08	103.2	69.3	(2)	
9-Jan-09	40.2	0.8	(2)	(5)
16-Jan-09	16.5	9.2	(2)	193.2

Table C-1 Surface Water Flow Summary - Main Quarry Stations

Date	SW1	SW2	SW0-2	QFSW2
23-Jan-09	0.9	11.0	(2)	156.6
30-Jan-09	63.4	5.8	(2)	
6-Feb-09	(4)	5.1	(2)	77.5
13-Feb-09	53.7	35.0	(2)	(5)
20-Feb-09	67.1	14.6	(2)	121.7
27-Feb-09	4.8	13.8	(2)	128.6
6-Mar-09	0.6	13.0	(2)	189.6
13-Mar-09	21.0	31.2	(2)	179.6
20-Mar-09	55.3	26.3	88.0	142.3
27-Mar-09	40.5	19.2	104.3	139.1
3-Apr-09	109.6	28.3	166.7	226.5
9-Apr-09	92.3	26.6	(2)	182.0
17-Apr-09	109.7	22.4	104.1	196.0
24-Apr-09	94.2	18.0	112.2	178.5
1-May-09	98.4	22.6	185.3	168.4
8-May-09	77.9	14.6	98.2	142.2
15-May-09	76.1	11.2	62.2	167.5
22-May-09	79.0	8.8	46.9	126.9
29-May-09	87.5	6.4	59.5	177.8
5-Jun-09	65.3	5.3	50.1	152.6
12-Jun-09	38.2	6.0	37.5	151.8
19-Jun-09	86.8	4.0	36.3	86.4
26-Jun-09	83.2	3.7	37.8	
2-Jul-09	(4)	2.0	63.4	131.2
10-Jul-09	4.0	1.3	9.6	141.6
17-Jul-09	0.2	2.2	3.3	150.1
24-Jul-09	(4)	1.6	19.0	229.0
26-Jul-09				137.3
31-Jul-09	(4)	0.5	11.8	167.8
7-Aug-09		1.4	6.7	268.3
14-Aug-09		6.4	129.9	18.7
21-Aug-09		4.8	21.0	161.5
28-Aug-09	0.5	0.9	20.1	271.0
4-Sep-09	(1)	0.8	11.8	151.4
11-Sep-09	(1)	4.0	8.4	168.1
18-Sep-09	(1)	1.0	8.6	209.0
25-Sep-09	(1)	0.8	8.0	188.8
2-Oct-09	2.5	0.9	26.8	166.0
9-Oct-09	51.3	0.4	47.3	238.6
16-Oct-09	10.3	0.5	29.0	207.6
23-Oct-09	69.3	3.1	33.0	130.1
30-Oct-09	73.5	4.2	32.8	257.2
6-Nov-09	54.4	1.3	25.9	311.6

Table C-1 Surface Water Flow Summary - Main Quarry Stations

Date	SW1	SW2	SW0-2	QFSW2
13-Nov-09	39.7	1.5	15.2	181.5
20-Nov-09	2.9	1.5	24.0	236.7
27-Nov-09	17.4	2.7	10.5	370.2
4-Dec-09	35.2	6.9	27.1	141.8
11-Dec-09	47.4	2.7	(2)	94.1
18-Dec-09	12.9	13.4	(2)	104.6
22-Dec-09	54.8	2.8	(2)	135.1
28-Dec-09	52.6	4.7	(2)	
8-Jan-10	52.8	4.9	(2)	
15-Jan-10	55.2	4.5	(2)	114.4
22-Jan-10	13.8	3.7	(2)	80.2
29-Jan-10	32.7	8.2	(2)	
5-Feb-10	55.5	7.5	(2)	95.8
12-Feb-10	40.3	8.2	(2)	71.9
19-Feb-10	26.8	3.0	(2)	86.0
1-Mar-10	28.0	2.5	(2)	122.6
5-Mar-10	42.4	2.2	(2)	100.8
12-Mar-10	23.1	12.5	(2)	133.5
19-Mar-10	32.5	68.9	156.8	129.2
26-Mar-10	35.3	26.9	69.3	135.6
2-Apr-10	75.2	28.2	102.1	
9-Apr-10	61.2	6.5	78.0	140.5
16-Apr-10	48.0	10.1	50.0	123.5
23-Apr-10	48.6	8.6	43.6	248.1
30-Apr-10	17.6	15.8	31.7	163.3
7-May-10	75.2	3.6	28.3	199.4
14-May-10	2.5	26.3	132.0	229.0
21-May-10	77.8	7.9	37.7	244.7
28-May-10	10.3	11.1	33.5	139.4
4-Jun-10	76.5	13.9	59.9	244.2
11-Jun-10	39.4	10.8	64.5	141.1
18-Jun-10	18.6	9.4	29.4	163.6
25-Jun-10	72.8	8.3	56.7	171.2
1-Jul-10	80.3	9.7	36.0	
9-Jul-10	0.8	9.6	105.5	250.5
15-Jul-10	2.2	7.8	38.8	92.0
23-Jul-10	0.3	9.3	89.6	123.7
30-Jul-10	0.2	8.5	41.6	202.1
6-Aug-10	(4)	9.7	26.0	118.3
13-Aug-10	(1)	4.6	21.1	182.7
20-Aug-10	(1)	2.8	17.1	153.8
27-Aug-10	(1)	3.5	14.0	117.2
30-Aug-10				

Table C-1 Surface Water Flow Summary - Main Quarry Stations

Date	SW1	SW2	SW0-2	QFSW2
1-Sep-10				
3-Sep-10	(1)	5.9	1.4	162.1
7-Sep-10				
10-Sep-10	(1)	5.4	2.0	172.0
17-Sep-10	(1)	5.3	21.3	302.9
24-Sep-10	0.2	3.2	41.7	199.9
1-Oct-10	3.6	7.8	53.5	276.6
8-Oct-10	17.6	6.6	33.5	285.1
15-Oct-10	4.2	5.6	45.2	151.5
22-Oct-10	7.2	2.6	24.2	182.7
29-Oct-10	1.3	4.2	27.1	169.8
5-Nov-10	1.3	6.2	68.8	162.8
12-Nov-10	6.4	11.1	40.3	182.8
19-Nov-10	11.5	22.6	83.3	139.1
26-Nov-10	16.6	13.8	106.6	150.7
3-Dec-10	5.0	12.7	68.3	140.0
9-Dec-10	15.5	9.3	(2)	151.7
17-Dec-10	43.8	8.1	(2)	106.0
23-Dec-10	10.4	6.3	(2)	81.3
30-Dec-10	32.7	9.7	(2)	
7-Jan-11	34.0	23.6	(2)	99.3
14-Jan-11	43.7	10.5	(2)	123.9
21-Jan-11	42.0	8.1	(2)	118.4
28-Jan-11	42.4	8.3	(2)	93.9
4-Feb-11	34.8	6.4	(2)	107.8
11-Feb-11	46.6	7.4	(2)	69.4
18-Feb-11	12.6	16.5	(2)	112.5
25-Feb-11	63.1	12.5	(2)	102.1
4-Mar-11	6.8	4.8	(2)	117.7
11-Mar-11	17.4	13.9	(2)	82.0
18-Mar-11	10.3	42.0	(2)	293.8
22-Mar-11		31.4		
25-Mar-11	9.7	24.3	(2)	120.5
1-Apr-11	11.7	15.8	158.7	132.1
8-Apr-11	14.2	34.0	134.2	171.4
15-Apr-11	53.3	30.0	124.6	172.6
21-Apr-11	86.0	26.3	148.1	278.8
29-Apr-11	51.0	18.7	123.7	
6-May-11	57.9	3.3	103.2	200.2
13-May-11	45.5	3.9	94.0	206.2
20-May-11	81.7	24.4	144.1	328.9
27-May-11	18.7	14.2	132.7	
3-Jun-11	13.1	5.5	74.4	239.5

Table C-1 Surface Water Flow Summary - Main Quarry Stations

Date	SW1	SW2	SW0-2	QFSW2
10-Jun-11	39.9	14.0	77.5	279.7
17-Jun-11	66.3	7.0	70.3	184.7
24-Jun-11	3.0	4.9	52.2	158.6
30-Jun-11	17.7	5.0	71.2	158.6
8-Jul-11	(1)	5.0	37.6	113.5
14-Jul-11	(1)	6.4	34.7	304.6
22-Jul-11	(1)	4.7	22.4	95.4
29-Jul-11	(1)	4.4	36.9	105.2
5-Aug-11	(1)	4.6	20.3	105.3
12-Aug-11	(1)	4.9	7.5	73.5
19-Aug-11	(1)	0.9	5.1	110.6
26-Aug-11	(1)	3.4	12.3	81.0
2-Sep-11	(1)	2.5	9.3	91.3
9-Sep-11	(1)	1.7	6.0	136.2
16-Sep-11	0.6	1.7	4.4	119.2
23-Sep-11	(1)	3.9	12.2	
30-Sep-11	(1)	3.1	15.5	105.0
6-Oct-11	40.2	1.7	20.5	57.7
14-Oct-11	(1)	3.3	41.2	177.6
20-Oct-11		9.4		
21-Oct-11	42.0	4.4	79.3	258.3
28-Oct-11	10.6	4.9	50.4	326.5
4-Nov-11	32.6	1.6	43.8	111.2
11-Nov-11	0.3	7.3	43.6	91.8
18-Nov-11	32.5	2.5	39.6	
25-Nov-11	45.1	2.6	28.9	85.6
2-Dec-11	45.3	9.7	56.9	
9-Dec-11	52.9	13.4	75.7	142.7
16-Dec-11	18.0	13.7	65.5	116.8
23-Dec-11	36.8	14.0	(2)	
30-Dec-11	21.1	10.1	(2)	
6-Jan-12	17.7	1.1	(2)	107.0
13-Jan-12	48.7		(2)	
20-Jan-12	41.0	15.5	(2)	105.4
27-Jan-12	37.3	12.1	(2)	92.7
3-Feb-12	56.7	12.7	(2)	103.4
10-Feb-12	42.1	11.2	(2)	85.4
17-Feb-12	30.1	5.5	(2)	109.6
24-Feb-12	41.2	8.5	(2)	
1-Mar-12	46.5	4.1	(2)	109.4
9-Mar-12	36.7	37.8	(2)	(5)
16-Mar-12	136.7	70.3	529.8	
23-Mar-12	26.7	29.0	131.3	146.3

Table C-1 Surface Water Flow Summary - Main Quarry Stations

Date	SW1	SW2	SW0-2	QFSW2
30-Mar-12	42.1	11.1	180.4	128.7
6-Apr-12	47.5	9.8		
13-Apr-12	16.6	8.0	163.8	296.9
20-Apr-12	37.0	18.2	185.5	388.5
27-Apr-12	1.5	7.9	218.5	167.7
4-May-12	5.0	9.5	290.7	208.7
11-May-12	4.0	5.8	121.9	181.5
18-May-12	32.7	8.1	191.8	173.5
25-May-12	24.8	6.8	170.1	204.3
1-Jun-12	7.9	6.3	54.5	162.0
8-Jun-12	23.2	6.2	43.3	141.0
15-Jun-12	10.8	5.4	31.7	119.0
22-Jun-12	28.5	1.7	29.9	77.4
28-Jun-12	1.1	2.1	27.7	136.6
6-Jul-12	2.4	5.1	10.1	59.0
13-Jul-12	(1)	6.3	16.4	201.6
20-Jul-12	(1)	3.0	16.3	130.7
27-Jul-12	(1)	1.9	27.6	141.7
3-Aug-12	(1)	2.0	12.5	165.2
10-Aug-12	1.3	2.1	67.0	457.5
17-Aug-12	30.8	8.7	82.8	254.4
24-Aug-12	(1)	4.9	31.7	222.2
31-Aug-12	0.9	4.3	34.6	222.1
7-Sep-12	(1)	3.5	19.6	183.1
14-Sep-12	1.2	5.5	30.7	149.1
21-Sep-12	(1)	3.5	41.2	130.8
28-Sep-12	1.0	3.9	12.4	206.1
5-Oct-12	3.6	3.4	29.0	246.5
12-Oct-12	1.3	4.9	43.0	121.2
19-Oct-12	7.7	5.0	21.4	145.2
26-Oct-12	2.8	3.2	40.8	117.4
2-Nov-12	11.7	36.3	120.0	136.3
9-Nov-12	14.7	16.8	103.7	146.8
16-Nov-12	2.2	16.5	83.3	127.0
23-Nov-12	23.4	15.7	66.9	165.1
30-Nov-12	9.9	14.5	60.8	152.7
7-Dec-12	35.0	11.3	73.7	149.6
14-Dec-12	42.7	7.8	56.8	140.0
21-Dec-12	39.9	8.5	67.5	148.6
28-Dec-12	49.3	7.7	(2)	
4-Jan-13	47.8	5.8	(2)	102.5
11-Jan-13	62.4	11.8	(2)	163.8
17-Jan-13	48.4	16.7	(2)	133.4

Table C-1 Surface Water Flow Summary - Main Quarry Stations

Date	SW1	SW2	SW0-2	QFSW2
25-Jan-13	24.7	14.0	(2)	146.0
1-Feb-13	60.8	31.3	(2)	
8-Feb-13	53.7	9.9	(2)	
15-Feb-13	52.0	10.2	(2)	123.5
22-Feb-13	52.0	6.2	(2)	138.1
1-Mar-13	47.9	6.1	(2)	138.5
8-Mar-13	49.8	7.5	(2)	99.0
15-Mar-13	50.7	15.2	(2)	96.8
22-Mar-13	50.4	12.7	(2)	129.5
28-Mar-13	48.9	9.2	118.7	116.7
5-Apr-13	45.1	8.8	76.7	129.5
12-Apr-13	81.9	9.8	113.2	131.1
19-Apr-13	123.1	57.8	405.3	
26-Apr-13	61.3	24.5	164.6	125.5
3-May-13	19.9	28.2	71.0	279.3
9-May-13	46.7	12.8	67.6	88.7
16-May-13	25.0	9.0	53.9	204.5
24-May-13	55.7	23.6	104.5	216.8
31-May-13	58.7	6.8	51.2	341.3
7-Jun-13	49.2	11.7	53.4	
14-Jun-13	48.7	7.1	63.7	274.0
21-Jun-13	41.2	8.4	43.8	155.1
27-Jun-13	5.6	7.7	32.0	197.3
5-Jul-13	37.1	8.2	49.9	222.3
12-Jul-13	5.5	8.8	53.7	203.8
19-Jul-13	3.2	7.9	36.4	119.8
25-Jul-13	29.0	2.7	41.2	236.8
2-Aug-13	4.0	2.6	84.2	259.9
8-Aug-13	3.4	3.1	69.5	193.1
16-Aug-13	0.6	2.8	40.4	81.2
23-Aug-13	(1)	2.4	35.5	65.6
30-Aug-13	0.5	2.7	35.4	62.3
6-Sep-13	0.5	2.4	42.2	59.9
13-Sep-13	7.0	2.2	44.3	129.4
20-Sep-13	2.4	2.7	25.8	131.3
27-Sep-13	18.7	2.5	26.7	131.3
4-Oct-13	24.8	4.1	41.3	
11-Oct-13	58.1	4.2	37.6	116.7
18-Oct-13	7.3	5.2	67.0	165.6
25-Oct-13	24.9	9.5	150.6	204.3
31-Oct-13	35.5	12.5	257.4	302.3
8-Nov-13	48.0	14.9	255.1	159.6
14-Nov-13	49.0	16.1	240.1	171.2

Table C-1 Surface Water Flow Summary - Main Quarry Stations

Date	SW1	SW2	SW0-2	QFSW2
22-Nov-13	44.5	17.8	244.9	116.8
29-Nov-13	47.8	5.5		85.4
6-Dec-13	29.2	14.2	119.7	121.6
13-Dec-13	42.7	(2)	(2)	
19-Dec-13	39.5	(2)	(2)	118.4
27-Dec-13	36.8	(2)	(2)	
3-Jan-14	34.5			65.3
10-Jan-14	13.8	6.3		88.7
17-Jan-14	10.5	8.1		80.4
24-Jan-14	35.9			102.6
31-Jan-14	37.8	5.0		92.1
7-Feb-14	14.1	6.1		86.6
14-Feb-14	7.1	3.1		110.8
21-Feb-14	29.2			92.8
28-Feb-14				73.4
7-Mar-14	21.1	4.1		69.3
14-Mar-14	31.9	3.7		82.2
21-Mar-14	33.8	3.8		88.0
28-Mar-14	34.4	6.6		114.5
4-Apr-14	26.2	14.4		98.1
11-Apr-14	52.3	33.6		215.1
17-Apr-14	177.9	104.1	247.6	244.9
25-Apr-14	65.4	88.3	469.4	166.7
1-May-14	93.7	67.1	288.6	147.4
9-May-14	35.8	9.4	151.0	197.1
16-May-14	31.4	8.2	142.7	110.8
23-May-14	12.8	28.8	82.1	214.9
30-May-14	33.3	9.0	86.4	185.2
6-Jun-14	5.6	7.5	51.7	186.0
13-Jun-14	5.6	4.2	49.6	161.0
20-Jun-14	9.1	5.5	52.9	135.7
27-Jun-14	3.9		40.7	132.9
28-Jun-14		4.6		
4-Jul-14	1.8	1.4	24.5	149.0
11-Jul-14	8.2	0.8	15.4	127.1
18-Jul-14	5.0	1.6	39.5	145.0
25-Jul-14	2.8	0.5	15.9	147.8
1-Aug-14	0.7	1.3	11.8	149.3
8-Aug-14	0.6	1.0	10.1	128.5
15-Aug-14	4.4	1.1	13.3	148.0
22-Aug-14	2.9	0.3	12.8	237.3
29-Aug-14	1.4		11.2	147.8
5-Sep-14	4.0	0.1		167.3

Table C-1 Surface Water Flow Summary - Main Quarry Stations

Date	SW1	SW2	SW0-2	QFSW2
12-Sep-14	1.2	0.8	15.1	91.5
19-Sep-14	4.3	0.9	17.7	88.9
26-Sep-14	3.9	0.8	20.4	98.5
3-Oct-14	4.7	0.3	21.9	81.3
10-Oct-14	8.4	0.1	25.1	85.1
16-Oct-14	5.4	0.2	39.1	102.0
24-Oct-14	1.6	2.9	10.8	124.2
31-Oct-14	11.5	1.8	14.8	156.0
7-Nov-14	51.6	6.0	20.8	92.8
14-Nov-14	14.4	9.2	26.2	71.9
20-Nov-14				
28-Nov-14	65.3	2.8	(2)	54.0
5-Dec-14	12.0	4.1	(2)	52.8
12-Dec-14	13.7	2.1	(2)	53.0
19-Dec-14	45.3	2.4	(2)	48.4
26-Dec-14	84.6	5.2	169.2	
2-Jan-15	36.4	2.4	(2)	
8-Jan-15	(2)	2.3	(2)	73.9
14-Jan-15	33.0	1.3	(2)	45.2
22-Jan-15			(2)	
23-Jan-15	28.4	2.4		45.9
30-Jan-15	10.8	5.0	(2)	
6-Feb-15	15.8	1.8	(2)	60.5
12-Feb-15	21.2	0.9	(2)	
27-Feb-15	24.5	0.6	(2)	82.1
6-Mar-15	4.3	0.7	(2)	103.1
13-Mar-15	7.5	2.4	(2)	124.0
20-Mar-15	17.8	5.9	(2)	87.8
26-Mar-15	6.8	3.6	(2)	107.4
2-Apr-15	6.1	3.4	27.0	87.8
10-Apr-15	83.3	32.3	(5)	164.0
17-Apr-15	63.3	23.6	(5)	86.9
23-Apr-15	51.0	18.8	99.4	96.6
1-May-15	10.3	7.7	44.2	204.6
8-May-15	6.3	7.0	40.0	200.0
15-May-15	2.4	3.1	14.5	199.6
21-May-15	3.1	4.1	15.3	164.2
28-May-15	8.3	3.2	19.3	219.4
4-Jun-15	5.1	3.3	12.6	167.4
12-Jun-15	2.5	1.9	22.3	191.5
18-Jun-15	2.8	3.1	23.3	172.2
26-Jun-15	10.3	1.6		178.8
1-Jul-15	77.9	11.0		

Table C-1 Surface Water Flow Summary - Main Quarry Stations

Date	SW1	SW2	SW0-2	QFSW2
10-Jul-15	5.0	7.9	28.3	106.2
17-Jul-15	8.0	7.3	30.0	135.9
22-Jul-15	4.9	3.6	13.1	86.7
30-Jul-15	3.4	0.9	5.2	89.9
5-Aug-15	19.2	1.9	23.0	92.2
13-Aug-15	7.8	2.3	15.6	120.2
21-Aug-15	2.3	0.8	10.8	159.7
28-Aug-15	1.9	0.9	8.5	95.3
3-Sep-15	4.6	0.6	6.6	99.5
10-Sep-15	1.8	0.8	15.6	65.1
18-Sep-15	(1)	0.3	5.0	68.5
25-Sep-15	3.4	0.5	7.8	68.0
2-Oct-15	14.8	0.4	4.8	81.3
9-Oct-15	1.3	0.6	11.0	97.8
16-Oct-15	3.3	0.5	8.0	84.9
23-Oct-15	3.1	0.3	14.1	70.6
30-Oct-15	27.0	0.7	48.6	124.2
5-Nov-15	2.6	2.2	20.7	103.7
10-Nov-15	9.4			
13-Nov-15	61.5	1.5	78.0	70.3
19-Nov-15	17.1	1.1	33.3	86.0
26-Nov-15	0.8	1.3	36.6	81.6
4-Dec-15	2.3	0.9	24.0	100.5
10-Dec-15	12.3	1.4	20.9	102.9
17-Dec-15	21.2	2.2	41.5	127.2
23-Dec-15	32.0	3.9	49.7	63.7
30-Dec-15	34.4	1.7	63.5	67.5
8-Jan-16	11.8	2.6	30.4	
14-Jan-16	12.1	2.1	(2)	70.8
22-Jan-16	12.1	2.0	(2)	58.2
29-Jan-16	16.7	1.2	(2)	38.0
5-Feb-16	77.1	10.4	(2)	65.6
11-Feb-16	53.4	3.9	(2)	104.1
18-Feb-16	19.2	5.7	(2)	83.6
25-Feb-16	10.2	3.9	(2)	136.2
4-Mar-16	66.8	9.7	(2)	93.6
10-Mar-16	160.7	53.4	388.1	48.6
18-Mar-16	54.8	19.2	156.6	169.1
28-Mar-16	233.3	93.3	576.7	107.1
1-Apr-16	253.8	36.9	509.4	26.7
7-Apr-16	168.5	19.7	301.6	258.2
15-Apr-16	61.9	11.5	130.6	180.8
22-Apr-16	50.9	12.8	84.3	149.7

Table C-1 Surface Water Flow Summary - Main Quarry Stations

Date	SW1	SW2	SW0-2	QFSW2
29-Apr-16	41.6	8.6	36.6	230.6
6-May-16	40.3	6.7	25.4	129.0
13-May-16	30.2	5.3	36.6	135.4
20-May-16	23.6	5.3	20.2	183.7
27-May-16	22.7	3.9	22.6	224.5
2-Jun-16	18.8	3.9	28.5	73.1
10-Jun-16	11.7	2.7	15.4	194.2
17-Jun-16	10.4	2.2	5.2	82.9
24-Jun-16	6.3	1.7	3.9	169.4
28-Jun-16	6.9	1.8	6.2	132.0
5-Jul-16	5.0			
8-Jul-16	5.0	1.6	4.3	151.9
15-Jul-16	6.6	2.6	4.7	139.7
22-Jul-16	2.7	6.2	2.1	94.1
29-Jul-16	3.1	0.2	1.1	134.5
5-Aug-16	0.8	0.5	(1)	81.5
12-Aug-16	(1)	0.9	(1)	117.1
19-Aug-16	26.9	0.6		42.0
26-Aug-16	2.1	0.3		85.8
2-Sep-16	0.6	1.6		99.0
9-Sep-16	9.6	1.3		51.3
16-Sep-16	2.6	5.5		131.4
21-Sep-16	3.6	0.4		103.4
30-Sep-16	4.4	0.6		73.7
7-Oct-16	6.7	1.6	9.0	99.0
13-Oct-16	13.7	0.9		112.2
19-Oct-16	13.9	1.0		77.8
24-Oct-16				
27-Oct-16	13.1	0.5	25.6	55.3
3-Nov-16	19.1	0.6	25.2	80.8
11-Nov-16	11.2	0.8		46.6
18-Nov-16	2.5	0.3	8.9	51.0
24-Nov-16	7.5	0.6	12.8	79.6
2-Dec-16	24.5	0.6	55.0	40.9
7-Dec-16	28.6	0.5		78.7
16-Dec-16	27.4	0.8	14.1	94.3
22-Dec-16	(2)	0.2	(2)	60.4
30-Dec-16	(2)	0.7	(2)	
6-Jan-17	(2)	3.4	(2)	30.5
13-Jan-17	(2)	2.1	(2)	94.8
20-Jan-17	12.8	2.5	(2)	65.4
26-Jan-17	55.9	8.5	94.6	65.7
3-Feb-17	(2)	0.6	(2)	49.5

Table C-1 Surface Water Flow Summary - Main Quarry Stations

Date	SW1	SW2	SW0-2	QFSW2
10-Feb-17	(2)	0.9	(2)	49.0
17-Feb-17	(2)	1.4	(2)	61.7
19-Apr-17	53.7	8.0	58.5	160.6
3-May-17				122.8
9-May-17				
10-May-17				
16-May-17	95.5	4.4	99.4	136.2
28-Jun-17	34.0	3.6	53.6	141.7
18-Jul-17	8.9	2.6	40.7	63.7
15-Aug-17	14.4	1.4	36.2	107.8
18-Sep-17	21.8	0.6	26.8	53.8
17-Oct-17			58.6	
18-Oct-17	37.3	2.6		118.8
14-Nov-17			44.5	
15-Nov-17	33.2	1.1		84.9
13-Dec-17	(2)	(2)	(2)	
14-Dec-17				71.1
17-Jan-18	(2)	6.3	(2)	55.1
18-Feb-18			280.5	(5)
22-Feb-18	128.6	29.3		
23-Feb-18				
6-Mar-18				
18-Mar-18			(2)	
20-Mar-18	(2)	8.8		77.9
18-Apr-18	(2)	9.3	(2)	28.3
8-May-18				
9-May-18				
14-May-18		3.6		73.1
15-May-18	76.2		66.7	
18-Jun-18	3.4	1.9	6.6	73.6
19-Jul-18	1.8	1.5	1.5	53.7
23-Aug-18	54.2	5.8	39.2	69.4
5-Sep-18				
19-Sep-18	1.1	2.4	4.5	93.8
24-Oct-18	18.1	1.7	12.5	35.3
21-Nov-18		0.9		59.1
6-Dec-18				
12-Dec-18	(2)	1.6	(2)	39.4
18-Jan-19		1.5		54.3
26-Feb-19				47.0
8-Mar-19				
15-Mar-19	(2)	(2)	(2)	(2)
24-Apr-19	110.3	32.7	162.7	132.4

Table C-1 Surface Water Flow Summary - Main Quarry Stations

Date	SW1	SW2	SW0-2	QFSW2
14-May-19				
17-May-19				
23-May-19	51.7	5.6	64.7	113.5
18-Jun-19	24.4	2.5	31.3	28.6
29-Jul-19	(1)	0.3	0.8	59.8
29-Aug-19	(1)	1.0	0.8	69.0
4-Sep-19				
26-Sep-19	(1)	0.1	2.3	86.4
23-Oct-19		0.8	13.8	89.0
22-Nov-19	57.9			82.6
19-Dec-19				
20-Dec-19				76.8
15-Jan-20		0.8		38.2
20-Feb-20				22.8
2-Mar-20				
26-Mar-20	114.2	4.9		58.9
27-Apr-20	268.3	7.5	37.9	74.4
19-May-20				
29-May-20	141.7	8.5	27.8	93.1
11-Jun-20				
23-Jun-20	14.0	31.9	18.5	64.1
30-Jul-20	10.7	5.5	12.7	47.0
25-Aug-20		0.7	9.1	25.4
27-Aug-20				
25-Sep-20	(1)	3.7	28.1	57.7
30-Oct-20	(1)	1.1	10.0	60.9
25-Nov-20				
26-Nov-20	(2)	2.0	14.2	94.4
23-Dec-20		0.1	4.7	(4)
27-Jan-21	(2)	0.5	(2)	35.0
22-Feb-21	(2)	(2)	(2)	19.4
23-Feb-21				
29-Mar-21	0.2	10.5	98.9	89.5
27-Apr-21	156.2	9.8	118.5	72.8
26-May-21				
27-May-21	22.6	4.6	12.1	39.0
22-Jun-21	(1)	4.5	5.9	53.8
22-Jul-21	(4)	3.1	73.1	172.7
11-Aug-21				
25-Aug-21	17.1	2.7	7.3	161.0
28-Sep-21	36.6	6.4		168.0
7-Oct-21				
26-Oct-21	59.0	35.9	57.2	162.4

Table C-1 Surface Water Flow Summary - Main Quarry Stations

Date	SW1	SW2	SW0-2	QFSW2
23-Nov-21	(2)	8.8	26.5	115.6
21-Dec-21	(2)	0.3	5.8	75.0
24-Jan-22	(2)	(2)	(2)	51.2
8-Feb-22	(2)	(2)	(2)	43.7
28-Feb-22				
16-Mar-22	0.1	11.0	(2)	42.3
21-Apr-22	18.0	5.9	167.8	47.5
4-May-22				
24-May-22	18.1		21.2	81.6
26-May-22		3.5		
24-Jun-22	33.7			
25-Jun-22		5.3	17.1	
26-Aug-22		7.8	24.3	
29-Aug-22	4.0			
31-Aug-22				44.8
27-Sep-22	6.8	8.7	32.5	
26-Oct-22	10.3	2.3	10.5	
28-Oct-22				27.1
21-Nov-22	20.1	2.0	16.3	
20-Dec-22	36.5	1.7	12.5	
24-Jan-23	(2)	6.1	(2)	
22-Feb-23		4.9	(2)	
23-Feb-23				0.7
27-Mar-23	94.2	20.8	912.0	
21-Apr-23	81.0	8.8	251.8	
15-May-23	93.6	9.0	95.1	
17-May-23				124.6
26-Jun-23	71.3	7.6	140.1	
25-Jul-23	46.1	7.3	96.6	
28-Aug-23	22.9	0.8	34.5	
30-Aug-23				158.7
25-Sep-23	5.1	3.3	22.5	
30-Oct-23	29.6	1.0	150.3	
31-Oct-23				70.4
29-Nov-23	20.1	6.8	(2)	
18-Dec-23	39.2	2.4	73.9	

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW3	SW4	SW6A	SW8	SW9	SW10	SW11	SW11A	SW11B	SW11C	SW11D
22-May-03		(1)	164.4	0.2		0.6	23.0	(6)	(6)	(6)	(6)
23-Jun-03	(1)	(1)	58.3	(4)	(1)	0.25	3.8	0.75	1.0	0.4	0.75
26-Jun-03											
22-Jul-03	(1)	(1)	92.5	(1)	(1)	1.1	0.8	1.4	0.8	(1)	0.8
20-Aug-03	(1)	(1)	57.6	(1)	(1)	(4)	3.2	(1)	0.35	(1)	0.1
25-Sep-03	(1)	(1)	9.0	(1)	(1)	(4)	0.98	0.1	0.1	(1)	0.2
22-Oct-03	(1)	(1)	50.8	(1)	(1)	0.7		0.2	1.3	0.1	0.1
23-Oct-03											
28-Nov-03	(1)	(1)	214.9	0.12	1.95	(4)	6.94	0.27	0.3	0.56	0.82
19-Dec-03	0.15	(1)	266.5	(2)	4.52	2.0	13.09	0.5	0.6	1.0	1.2
10-Feb-04	(2)	(1)	(2)	(2)						0.5	
11-Feb-04						0.25					
12-Feb-04											
13-Feb-04					2.08		6.74	1.5	0.75		0.75
16-Mar-04			473.4								
17-Mar-04											
18-Mar-04	2.84	(1)		(2)	5.24	0.15	22.44	1.72	0.75	0.59	0.92
19-Apr-04	14.42	(1)	606.6								
20-Apr-04				0.52	7.04	1.13					
21-Apr-04							27.35	12.21	5.77	1.83	8.41
19-May-04	0.83	(1)	291.5	0.23	1.41	0.21	11.08	2.7	0.9	0.61	6.72
24-Jun-04	(1)	(1)	185.9	0.1	0.58	0.1	3.98	0.44	0.34	0.13	0.22
29-Jul-04	(1)	(1)	100.5		(1)	(4)	2.99	0.5	1.5	(4)	1.0
23-Aug-04	(1)	(1)			(1)			(4)		(1)	(4)
26-Aug-04			24.9			(4)	0.2		0.25		
21-Sep-04	(1)	(1)			(1)	(4)		(4)	0.1	(1)	
22-Sep-04			41.3				0.21				(4)
23-Sep-04											
20-Oct-04											(4)
21-Oct-04	(1)	(1)	41.5	(1)	(1)	(4)	1.07	(4)	0.1	(1)	
16-Nov-04			69.8								
17-Nov-04	(1)	(1)			(1)	(4)		(4)		(1)	
18-Nov-04							5.91		0.1		(4)
15-Dec-04	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
16-Dec-04											
13-Jan-05		63.18									
16-Jan-05	(2)		(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
13-Feb-05	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
27-Mar-05		(2)		(2)							
28-Mar-05			220.0								
29-Mar-05					4.21	0.36	18.37	15.0	10.0	4.0	10.0
30-Mar-05	0.76										
10-Apr-05		(2)									

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW3	SW4	SW6A	SW8	SW9	SW10	SW11	SW11A	SW11B	SW11C	SW11D
11-Apr-05	31.38		1671.0		41.7	3.18	62.1	12.0	10.0	8.0	5.7
22-May-05	(1)	(1)									
24-May-05			286.6								
26-May-05				0.13	1.07	0.16	10.35	5.28	2.2	1.43	2.8
26-Jun-05	(1)	(1)			(1)					(1)	
27-Jun-05											
28-Jun-05			123.0								
29-Jun-05						0.1	3.2	(4)	0.94		0.2
10-Jul-05	(1)	(1)			(1)					(1)	
11-Jul-05			87.5								
12-Jul-05						(4)	5.0	1.0	2.0		1.5
21-Aug-05	(1)	(1)			(1)		0.88			(1)	
22-Aug-05			53.2			(4)					
23-Aug-05								0.1	0.4		0.3
25-Sep-05	(1)	(1)		(1)	(1)	0.1		(4)		(1)	0.1
27-Sep-05			14.7								
28-Sep-05							0.9				
23-Oct-05	(1)	(1)			(1)			(1)		(1)	
24-Oct-05			46.0								
25-Oct-05						0.5	0.84		0.1		0.1
13-Nov-05	(1)	(1)			(1)					0.1	
14-Nov-05			32.8								
15-Nov-05											
16-Nov-05						0.12	2.19	0.15	1.7		1.21
11-Dec-05	(1)	(2)	166.9	(2)	(1)					(1)	
12-Dec-05											
13-Dec-05						0.1	3.5	0.3	0.9		0.2
14-Dec-05											
16-Dec-05											
15-Jan-06		(2)		(2)							
16-Jan-06	2.35		133.0								
17-Jan-06						2.72					
18-Jan-06					5.45		20.17	7.62	6.25	9.65	9.81
19-Feb-06	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
19-Mar-06		5.95		(2)							
20-Mar-06	39.72		966.1								
21-Mar-06											
22-Mar-06					15.3	2.01					
24-Mar-06							29.22	11.37	3.48	1.71	4.23
31-Mar-06											
7-Apr-06											
13-Apr-06											
16-Apr-06		(1)					22.11				

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW3	SW4	SW6A	SW8	SW9	SW10	SW11	SW11A	SW11B	SW11C	SW11D
18-Apr-06	5.16		569.4								
19-Apr-06				0.25	5.6	3.78		5.24	4.07	2.06	8.61
21-May-06		(1)									
23-May-06	0.8		407.6								
24-May-06				0.13	2.42	(4)	10.74	3.29	1.11	2.21	3.44
18-Jun-06	(1)	(1)			(1)					(1)	
20-Jun-06											
21-Jun-06			83.4				3.04	0.47	1.64		0.33
23-Jun-06						(4)					
9-Jul-06	(1)	(1)			(1)						
10-Jul-06											
11-Jul-06			55.6								
12-Jul-06						0.39	2.62	0.25	2.02	(4)	0.43
20-Aug-06	(1)	(1)			(1)					(1)	
21-Aug-06											
22-Aug-06			32.0								
23-Aug-06						(4)					
24-Aug-06							1.02	0.7	0.54		0.71
17-Sep-06	(1)	(1)		(1)	(1)					(1)	
20-Sep-06			36.4								
21-Sep-06						(4)	1.52	0.25	0.56		0.17
25-Sep-06									0.5		
27-Sep-06											
28-Sep-06											
15-Oct-06	(1)	(1)			(1)						
17-Oct-06											
18-Oct-06			124.8								
19-Oct-06						(4)	2.21	0.91	1.61	0.1	0.59
17-Nov-06											
19-Nov-06	(1)										
23-Nov-06							16.83	3.81	1.88	3.25	4.87
24-Nov-06			286.8								
27-Nov-06					2.43	1.52					
17-Dec-06	1.25	(1)	382.9	(4)	3.91	0.55	19.8	5.44	7.03	3.69	2.62
23-Dec-06											
21-Jan-07	0.11	(2)	(2)	(2)	(2)	(2)	35.0	15.0	4.0	3.0	15.0
18-Feb-07	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
18-Mar-07	(2)	9.12	492.0	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
15-Apr-07	4.33										
16-Apr-07		(1)	574.2	0.97	7.17	1.71					
17-Apr-07							26.15	6.29	4.91	1.39	3.31
13-May-07		(1)	170.1	(4)	1.99	0.2	11.09	4.55	2.27	0.62	1.55
15-May-07											

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW3	SW4	SW6A	SW8	SW9	SW10	SW11	SW11A	SW11B	SW11C	SW11D
17-Jun-07	(1)	(1)	92.8	(1)	(1)	0.1	2.81	0.14	(4)	2.09	0.4
18-Jun-07											
15-Jul-07	(1)	(1)	47.5	(1)	(1)	(4)	1.0	(4)	0.5	0.61	0.3
18-Jul-07											
19-Aug-07	(1)	(1)	32.1	(1)	(1)	(4)	0.56	(1)	(1)	0.16	(4)
22-Aug-07											
16-Sep-07	(1)	(1)		(1)	(1)	(4)		(1)	(1)	1.25	0.24
17-Sep-07							0.5				
18-Sep-07			14.2								
14-Oct-07	(1)	(1)		(1)	(1)	0.1		(1)	(1)	(1)	(1)
18-Oct-07			47.0				0.4				
19-Oct-07											
18-Nov-07	(1)	(1)		(1)	(1)			(1)	(1)		
19-Nov-07							1.4			1.45	0.23
21-Nov-07			123.9			0.2					
9-Dec-07	(2)	(2)	(2)	(2)	(2)	(2)					
10-Dec-07											
11-Dec-07							2.8	2.53	0.6	2.45	0.89
12-Dec-07											
20-Jan-08	(2)	(2)		(2)	(2)	(2)					
21-Jan-08			883.4								
22-Jan-08							73.6	1.08	7.25	5.6	8.1
17-Feb-08	(2)	(2)	(2)	(2)	(2)	(2)					
19-Feb-08											
20-Feb-08							15.3	4.25	4.66	4.1	14.45
16-Mar-08	(2)	(2)		(2)	(2)	(2)					
17-Mar-08							2.1	1.22	7.2	2.9	12.5
18-Mar-08			178.8								
19-Mar-08											
30-Mar-08	12.87	8.79		(4)	0.1	2.77					
1-Apr-08											
2-Apr-08			964.1				100.8	3.29	11.1	8.9	2.65
4-Apr-08											
7-Apr-08											
20-Apr-08		(1)		0.3							
21-Apr-08											
23-Apr-08	11.14				12.5	0.2	32.6	2.04	6.0	3.1	3.09
24-Apr-08			624.1								
6-May-08											
18-May-08		(1)		(4)							
20-May-08						0.4					
21-May-08	0.43		283.7		2.8						
22-May-08							13.1	0.54	3.76	1.4	2.27

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW3	SW4	SW6A	SW8	SW9	SW10	SW11	SW11A	SW11B	SW11C	SW11D
15-Jun-08	(1)	(1)		(1)	(1)						0.15
17-Jun-08			158.4				13.1	0.34	4.33	1.1	
18-Jun-08						0.1					
13-Jul-08	(1)	(1)		(1)	(1)	(4)		(4)			(1)
15-Jul-08			56.2				0.8		0.4	0.5	
16-Jul-08											
17-Aug-08	(1)	(1)		(1)	(1)						(1)
18-Aug-08											
19-Aug-08			105.1			0.3	7.3	0.16	0.2	0.9	
12-Sep-08			60.7								
14-Sep-08	(1)	(1)		(1)	(1)	0.3					(4)
16-Sep-08							7.5	1.6	1.4	1.35	
17-Sep-08											
19-Oct-08	(1)	(1)		(1)	(1)			0.16			0.1
20-Oct-08											
21-Oct-08						0.4					
22-Oct-08			119.3				0.8		1.3	1.57	
23-Nov-08	(2)	(2)	357.9	(2)	(2)	0.92	7.5	2.22	3.02	1.6	3.52
14-Dec-08	(2)	(1)	474.6	(2)	(2)	0.61	17.43	1.94	5.7	10.73	2.9
18-Jan-09	(2)	(2)	261.7	(2)	(2)	(2)	11.0	1.3	2.8	0.54	(2)
8-Feb-09	(2)	(1)	545.2	(2)	(2)	1.77	51.1	5.25	10.8	7.5	0.9
15-Mar-09	8.8	4.4	1095.0	0.3	0.41	1.7	43.8	4.8	9.6	4.6	1.6
12-Apr-09	9.1	1.3	382.7	2.4	17.2	0.7	27.3	3.8	10.4	6.1	3.42
17-May-09	0.8	(1)	393.6	0.3	5.9	0.2	5.1	0.2	4.5	1.8	0.8
14-Jun-09	(1)	(1)	155.8	(1)	(1)	0.1	2.3	0.1	1.8	1.3	(1)
12-Jul-09	(1)	(1)	106.6	(1)	(1)	(4)	0.8	0.16	0.5	1.6	(1)
9-Aug-09	(1)	(1)	169.3	(1)	(1)	0.2	0.8	0.12	0.45	1.2	(1)
13-Sep-09	(1)	(1)	44.4	(1)	(1)	(4)	0.8	(4)	(4)	0.46	(1)
11-Oct-09	(1)	(1)	150.7	(1)	(1)	0.12	1.1	(4)	0.17	0.51	(1)
15-Nov-09	(1)	(1)	123.9	(1)	(1)	0.4	2.4	0.1	0.95	0.7	(1)
13-Dec-09	(2)	(1)	151.0	(1)	(2)	(4)	0.9	0.8	1.14	1.12	(2)
17-Jan-10	(2)	(2)	113.0	(2)	(2)	(2)	1.2	0.2	3.95	0.65	(2)
7-Feb-10	(2)	(2)	134.9	(2)	(2)	(2)	1.35	0.18	1.03	0.9	(2)
14-Mar-10	26.4	8.1	1499.6	(2)	25.4	1.95	19.5	2.25	15.0	4.36	0.45
4-Apr-10	6.7				11.2						
11-Apr-10	3.4	(1)	303.4	0.1	8.3	0.5	9.0	0.6	6.7	2.3	0.5
16-May-10	1.3	(1)	247.0		5.4	0.3	12.0	0.4	4.1	0.6	0.6
23-May-10	(1)				0.6						
13-Jun-10	3.0	(1)	240.0	(1)	2.6	0.65	8.0	0.55	2.5	0.45	0.63
18-Jul-10	3.1		287.1	(1)	1.6	(4)	6.2	1.5	5.5	1.8	0.3
19-Jul-10		1.05									
15-Aug-10	(1)	(1)	106.9	(1)	(1)	0.24	1.34	(4)	0.42	0.45	(1)
12-Sep-10	(1)	(1)	89.1	(1)	(1)	(4)	0.24	(4)	(4)	0.25	(1)

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW3	SW4	SW6A	SW8	SW9	SW10	SW11	SW11A	SW11B	SW11C	SW11D
17-Oct-10	(1)	(1)	99.5	(1)	0.8	0.2	6.0	0.2	1.9	0.8	(4)
21-Oct-10											
14-Nov-10	0.3	(1)	276.6	(1)	1.7	1.4	16.9	1.4	6.2	2.7	0.4
19-Dec-10	(2)	(2)	241.2	(2)	(2)	(2)	5.34	(2)	(2)	(2)	(2)
15-Jan-11											
16-Jan-11	1.7		305.3				10.3	0.5			
20-Feb-11	(2)		418.7			0.4	4.6	0.4	4.0	1.6	
13-Mar-11	6.0	(2)	387.8	(2)	(2)	0.2	9.5	1.0	5.8	1.2	0.6
17-Mar-11	11.2										
18-Mar-11	59.8										
20-Mar-11	15.8	(2)	962.9		17.1						
22-Mar-11											
1-Apr-11	4.4										
5-Apr-11	32.4										
8-Apr-11	17.1										
12-Apr-11	48.7										
15-Apr-11	18.0										
17-Apr-11	14.0	(1)	699.4	0.7	45.3	0.9	8.2	0.7	6.4	2.6	1.3
18-Apr-11											
20-Apr-11	33.3										
21-Apr-11	20.9										
26-Apr-11	14.0										
29-Apr-11	19.5										
3-May-11	8.4										
6-May-11	4.2										
10-May-11	1.5										
13-May-11	8.1			0.5							
15-May-11	95.3	(1)	577.0		16.9	2.1	41.7	8.2	12.8	6.5	3.3
16-May-11	28.8										
18-May-11	22.5										
19-May-11	23.1										
20-May-11	16.8										
27-May-11	17.8										
3-Jun-11	3.8										
12-Jun-11		(1)	296.3	(4)	1.2	0.14	3.6	0.22	3.3	1.2	0.45
13-Jun-11	1.5										
17-Jul-11	(1)	(1)	89.5	(1)	(1)	0.1	0.9	(4)	0.3	0.2	(4)
14-Aug-11	(1)	(1)	61.5	(1)	(1)	(4)	0.12	(4)	(4)	(4)	(1)
18-Sep-11	(1)	(1)	42.5	(1)	(1)	(4)	(4)	(4)	(4)	(4)	(1)
16-Oct-11		(1)	90.1	(1)	(1)	2.2	7.0	0.6	4.3	0.8	0.3
20-Nov-11			96.9			0.1	5.2	0.2	0.7	0.1	(4)
18-Dec-11	3.7	(1)	284.5	(2)	(2)	0.6		0.8	1.6	1.2	0.6
19-Dec-11											

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW3	SW4	SW6A	SW8	SW9	SW10	SW11	SW11A	SW11B	SW11C	SW11D
20-Dec-11											
15-Jan-12	(2)	(2)	174.6	(2)	(2)		17.6	(2)	(2)	(2)	(2)
19-Feb-12	(2)	(2)	164.9	(2)	(2)	0.5	4.4	(2)	(2)	(2)	(2)
18-Mar-12	13.7	(1)	981.3	0.12	12.2	1.2	3.8	5.1	5.1	1.3	4.6
20-Mar-12											
15-Apr-12	(1)	(1)	200.0	(1)	0.3	0.4	5.8	0.3	0.7	0.2	(4)
13-May-12	(1)	(1)	168.9	(1)	(4)	0.7	2.5	0.2	0.9	0.1	0.3
17-Jun-12	(1)	(1)	81.0	(1)	(1)	0.1	1.9	(4)	0.5	0.2	(1)
15-Jul-12	(1)	(1)		(1)	(1)	0.1		(1)	(4)		(1)
16-Jul-12			48.1				1.1			0.2	
12-Aug-12	(1)	(1)		(1)	(1)	0.6		0.2	0.4		
14-Aug-12							1.7			0.4	(4)
15-Aug-12			126.6								
16-Sep-12	(1)	(1)		(1)	(1)	0.2		(4)	(4)	0.1	(1)
18-Sep-12							1.3				
19-Sep-12			79.3								
14-Oct-12	(1)	(1)		(1)	(1)	0.32	1.1	(4)	(4)	(4)	(1)
17-Oct-12											
18-Oct-12			85.1								
18-Nov-12	4.7	(1)		(1)	(1)	0.3	10.1	1.0	1.3	0.9	0.2
20-Nov-12			245.1								
21-Nov-12											
12-Dec-12											
16-Dec-12	5.2	2.1		(1)	10.1	0.1	6.1	0.4	1.1	0.6	0.3
18-Dec-12											
20-Dec-12			257.4								
13-Jan-13		0.2		(1)	5.1	0.8	19.8	0.9	3.6	0.9	0.9
15-Jan-13	9.8		557.6								
16-Jan-13											
17-Feb-13	(2)	(2)		(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
20-Feb-13			190.7								
17-Mar-13		(2)		(2)	(2)	(2)					
19-Mar-13	5.5						19.8	0.3	1.3	1.2	0.5
20-Mar-13			363.6								
14-Apr-13											
15-Apr-13	18.3	1.3									
16-Apr-13			901.3		24.4						
17-Apr-13				0.1		1.1	42.8	5.1	12.5	4.8	4.3
12-May-13		(1)									0.3
13-May-13	7.2			(4)	11.8						
14-May-13			394.8			0.1	15.3	0.2	2.6	0.4	
16-Jun-13	(1)	(1)		(1)				0.1	0.5	0.2	0.2
18-Jun-13			252.6		0.8						

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW3	SW4	SW6A	SW8	SW9	SW10	SW11	SW11A	SW11B	SW11C	SW11D
19-Jun-13						(4)	4.0				
14-Jul-13	(1)	(1)		(1)	(1)			(4)	(4)	(4)	(4)
16-Jul-13						(4)	1.7				
17-Jul-13			157.3								
18-Aug-13	(1)	(1)	63.0	(1)	(1)			(4)	(4)	(4)	(4)
20-Aug-13											
21-Aug-13						0.11	1.0				
15-Sep-13	(1)	(1)		(1)	(1)	(4)		(4)	(4)	(4)	(4)
18-Sep-13			84.1				0.5				
19-Sep-13											
13-Oct-13	(1)	(1)		(1)	(1)			0.4			
16-Oct-13			183.8			0.7	3.2		2.4	0.7	0.9
17-Oct-13											
17-Nov-13				(1)							
19-Nov-13	6.2	1.0			6.4						
20-Nov-13			369.5			4.6	5.5	0.3	2.6	0.5	1.1
15-Dec-13		(2)		(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
17-Dec-13			262.4								
18-Dec-13											
19-Jan-14	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
21-Jan-14											
22-Jan-14											
16-Feb-14	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
19-Feb-14											
20-Feb-14											
16-Mar-14	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
18-Mar-14											
19-Mar-14											
13-Apr-14				(2)							
15-Apr-14	50.5	14.0			58.0						
16-Apr-14			1147.5								
17-Apr-14						6.7	47.5	1.3	10.9	23.9	2.2
11-May-14		(4)									
12-May-14	2.4			0.1	6.4						
13-May-14			413.9			0.2	10.9	0.5	2.7	1.6	1.2
15-Jun-14	(1)	(1)		(1)	(1)						
17-Jun-14			113.2								
18-Jun-14						0.5	12.5	2.6	7.1	4.5	8.0
13-Jul-14	(1)	(1)		(1)	(1)			(4)	(4)	(4)	(4)
14-Jul-14											
15-Jul-14			131.8			(4)					
16-Jul-14							1.1				
17-Aug-14	(1)	(1)		(1)	(1)	(1)		(4)	(4)	(4)	(4)

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW3	SW4	SW6A	SW8	SW9	SW10	SW11	SW11A	SW11B	SW11C	SW11D
18-Aug-14											
19-Aug-14			72.4				1.0				
7-Sep-14	(1)	(1)		(1)	(1)	(4)		(4)	(4)	(4)	(4)
8-Sep-14											
9-Sep-14			61.0				0.3				
19-Oct-14				(1)				(4)			
20-Oct-14											
21-Oct-14											
22-Oct-14	(1)	1.1	208.0								
23-Oct-14					1.5	(4)	2.3		0.1	0.4	0.2
16-Nov-14	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
19-Nov-14											
14-Dec-14		(2)		(2)	(2)	(2)					
16-Dec-14			277.6				2.8	0.6	0.1	0.4	0.3
17-Dec-14	3.0										
18-Jan-15	(2)	(2)	(2)	(2)	(2)	(2)		(2)	(2)	(2)	(2)
20-Jan-15							0.3				
21-Jan-15											
15-Feb-15	(2)	(2)	(2)	(2)	(2)	(2)					
15-Mar-15	(2)	(2)		(2)	(2)	(2)					(2)
18-Mar-15			172.4				5.3	0.2	0.9	(4)	
19-Mar-15											
21-Apr-15											
22-Apr-15	5.4	0.6	535.0				25.7	1.5	2.7	2.9	1.0
23-Apr-15				0.2	7.7	0.2					
17-May-15	(1)	(1)		(1)	(1)						
19-May-15			163.3			(4)	1.5	0.1	0.5	0.1	0.3
20-May-15											
14-Jun-15		(1)		(1)							
15-Jun-15	2.3					0.1	6.6	0.3	0.6	0.4	2.5
16-Jun-15			233.4		0.8						
19-Jul-15	(1)	(1)		(1)	(1)						
21-Jul-15											
22-Jul-15			64.2			0.2	5.3	0.3	0.2	0.3	0.1
9-Aug-15	(1)	(1)		(1)	(1)						
11-Aug-15						0.3	2.7	(4)	0.2	0.2	0.4
12-Aug-15			57.4								
23-Aug-15	(1)				(1)						
25-Aug-15			59.4			0.2	0.4	(4)	(4)	0.3	(4)
6-Sep-15	(1)	(1)		(1)	(1)						
8-Sep-15			31.3			(4)	0.8	0.3	0.2	0.1	0.2
9-Sep-15											
11-Oct-15	(1)	(1)		(1)	(1)			0.2	0.3		

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW3	SW4	SW6A	SW8	SW9	SW10	SW11	SW11A	SW11B	SW11C	SW11D
15-Oct-15			21.7				0.6			0.5	(4)
16-Oct-15						0.2					
8-Nov-15											
10-Nov-15						0.4					
15-Nov-15	(1)	(1)		(1)	(1)						
18-Nov-15			110.6			(4)	1.6	0.15	0.3	0.5	0.24
19-Nov-15											
6-Dec-15	(1)	(1)		(1)	(1)						
8-Dec-15			101.1								
9-Dec-15						0.3	1.1	0.1	1.0	0.3	0.1
17-Jan-16		(2)		(2)	(2)						
19-Jan-16	22.0		227.6				5.2	0.4	2.4	0.6	3.4
20-Jan-16						0.5					
14-Feb-16		(2)	(2)	(2)	(2)						
17-Feb-16	3.0						8.1	1.9	2.0	1.1	3.5
18-Feb-16						0.6					
13-Mar-16											
15-Mar-16	48.1	10.1	951.7	0.3	30.7	3.5	51.9	3.5	2.2	5.1	12.9
17-Apr-16				(4)							
20-Apr-16	10.6	0.4			8.5						
21-Apr-16			409.5			1.0	23.4	1.0	1.9	4.3	10.5
15-May-16				(1)							
17-May-16	4.0	0.6	302.8		5.5						
18-May-16						0.1	13.3	0.2	1.8	2.1	5.4
19-Jun-16	(1)	(1)		(1)	(1)						
22-Jun-16			86.7								
23-Jun-16						0.2	4.3	0.2	1.0	0.1	0.9
3-Jul-16											
5-Jul-16						0.2	12.2	0.1	0.8	0.1	0.4
17-Jul-16	(1)	(1)		(1)	(1)						
20-Jul-16			47.8								
21-Jul-16						0.2	2.1	0.1	0.7	0.1	0.3
7-Aug-16											
9-Aug-16						(4)	0.4	0.1	0.2	0.3	0.4
21-Aug-16	(1)	(1)		(1)	(1)						
24-Aug-16			38.2			(4)	0.8	(4)	0.4	0.3	0.3
25-Aug-16											
18-Sep-16	(1)	(1)		(1)	(1)			(4)	0.2		
19-Sep-16			30.9			0.1	1.1			0.4	0.3
16-Oct-16	(1)	(1)		(1)	(1)			(4)			
17-Oct-16			48.9								
18-Oct-16						0.2	0.4		(4)	0.3	0.1
24-Oct-16	(1)										

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW3	SW4	SW6A	SW8	SW9	SW10	SW11	SW11A	SW11B	SW11C	SW11D
25-Oct-16					(1)			(1)			
15-Nov-16			46.9			0.2					0.4
16-Nov-16							0.9		0.9	0.1	
18-Nov-16	(1)	(1)		(1)	(1)			(4)			
12-Dec-16	(1)	(1)	54.4	(1)	(1)	0.9	2.49	0.1	0.7	0.5	0.1
12-Jan-17											
22-Jan-17	(2)			(2)					3.8		
24-Jan-17		4.4	340.4								
25-Jan-17					4.03	1.5	12.88	4.7		1.25	10.3
15-Feb-17	(2)	(2)	163.3	(2)	(2)						
16-Feb-17											
17-Feb-17						0.7	8.52	0.1	1.7	0.7	3.3
19-Mar-17				(2)							
21-Mar-17	3.2	1.0	298.7								
22-Mar-17					7.7	1.6	23.42	0.6	2.6	0.5	7.5
16-Apr-17				(1)							
19-Apr-17	7.7	0.2	380.1		20.1	0.5	18.78	0.6	1.6	0.9	20.7
8-May-17											
9-May-17											
14-May-17				(1)							
16-May-17	5.5	0.6	487.2		5.0	1.7	33.4	0.8	0.3	2.0	14.5
28-Jun-17	2.5	1.4	457.4	(1)	2.1	1.7	21.5	0.2	1.4	1.1	5.5
7-Jul-17						0.4	2.4	0.2	3.0	0.1	0.8
18-Jul-17	1.1	(1)	236.7	(1)	(1)						
19-Jul-17						0.4	4.2	0.4	1.6	0.4	1.1
20-Jul-17											
27-Jul-17											
2-Aug-17						0.4	0.9	0.2	0.4	0.2	0.4
13-Aug-17	(1)	(1)		(1)	(1)						
15-Aug-17			148.7						0.5		
16-Aug-17						0.5	2.5	0.2		0.7	1.0
17-Sep-17	(1)	(1)		(1)	(1)						
18-Sep-17			100.2			0.2	1.31	0.1	0.4	0.4	0.2
19-Sep-17											
17-Oct-17	2.3	2.5	204.0	(1)	(1)						
18-Oct-17						0.5	7.4	0.2	0.7	0.7	0.3
14-Nov-17	0.9	3.1	190.9	(1)							
15-Nov-17					0.2	0.5	5.5	0.1	0.9	0.3	0.8
12-Dec-17	(2)			(2)	(2)						
14-Dec-17			219.0			0.2	5.71	0.5	1.7	0.8	2.0
17-Jan-18	(2)	(2)	381.9	(2)	(2)						
18-Jan-18						4.9	18.2	0.5	1.6	0.9	5.1
18-Feb-18											

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW3	SW4	SW6A	SW8	SW9	SW10	SW11	SW11A	SW11B	SW11C	SW11D
22-Feb-18	27.5	(6)	1793.4								
23-Feb-18						1.1	39.5	3.6	2.7	7.8	19.9
24-Feb-18				0.4	17.9						
18-Mar-18	(2)			(2)	(2)						
20-Mar-18		0.4	276.6								
21-Mar-18						0.3	13.7	0.8	0.4	0.8	4.1
18-Apr-18		5.4	502.4	(2)	(2)	(2)					
19-Apr-18							16.0	0.6	2.0	1.8	7.3
8-May-18											
9-May-18											
13-May-18				(1)							
14-May-18	3.6		324.8		20.1						
15-May-18		0.2				0.5	23.8	0.2	0.8	1.2	5.5
18-Jun-18			238.2			0.8	3.54	0.56	0.64	0.51	0.31
19-Jun-18	(1)				(1)						
20-Jun-18		(1)		(1)							
4-Jul-18						0.29	1.41		0.33	0.37	1.56
18-Jul-18	(1)				(1)						
19-Jul-18		(1)	1008.8	(1)		0.16	1.1	0.15	0.33	0.32	0.39
3-Aug-18						0.13	2.13	(1)	0.22	0.22	(4)
23-Aug-18	(1)	(1)	72.9	(1)	(1)						
24-Aug-18						0.1	1.0	(1)	0.2	0.2	0.2
19-Sep-18	(1)	(1)	26.9	(1)	(1)						
20-Sep-18							2.3	(1)	0.2	0.3	0.1
24-Oct-18	(1)	(1)	60.5	(1)	(1)						
25-Oct-18						0.3	0.9	(1)	0.1	0.2	
21-Nov-18			111.1	(1)	(1)						
22-Nov-18						0.1	2.3		0.4	0.2	0.2
12-Dec-18	(1)		187.9	(1)	0.5						
13-Dec-18						0.6	5.6	0.4	0.8	0.1	1.3
18-Jan-19		(2)	211.4	(2)	(2)						
19-Jan-19							6.4	0.6	0.9	1.9	2.4
26-Feb-19	(2)	(2)	(2)	(2)	(2)						
28-Feb-19						(2)	11.8	(2)	1.8	1.7	2.1
15-Mar-19	(2)	(2)	(2)	(2)	(2)						
19-Mar-19						1.7	21.1	2.4	1.7	1.5	9.9
24-Apr-19	19.8	5.7	985.0	(1)	5.9						
25-Apr-19						4.0	43.1	2.0	3.8	2.8	3.6
14-May-19											
16-May-19											
23-May-19	5.8	0.4	337.1	(1)	2.4						
27-May-19						0.7	12.0	0.9	1.0	0.7	2.6
18-Jun-19	0.1	(1)	149.3	(1)	(1)						

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW3	SW4	SW6A	SW8	SW9	SW10	SW11	SW11A	SW11B	SW11C	SW11D
21-Jun-19						0.8	5.3	0.2	0.8	0.7	1.1
29-Jul-19	(1)	(1)	45.2	(1)	(1)						
30-Jul-19						0.1	0.7	(1)	0.3	0.3	0.3
29-Aug-19	(1)	(1)	38.2	(1)	(1)						
30-Aug-19							1.4		(1)	(1)	(1)
26-Sep-19		(1)	46.2	(1)	(1)						
27-Sep-19						0.2	1.3		(1)	(1)	(1)
22-Oct-19						0.2	2.9		(1)	(1)	(1)
23-Oct-19	(1)	(1)	62.7	(1)	(1)						
21-Nov-19						(2)	6.2	(2)	(2)	(2)	(2)
22-Nov-19	(2)	(2)	75.5	(2)	(2)						
20-Dec-19	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
15-Jan-20	(2)	(2)	(2)	(2)	(2)						
24-Jan-20						(2)	5.7	(2)	(2)	(2)	(2)
20-Feb-20	(2)	(2)	(2)	(2)	(2)						
21-Feb-20						(2)	(2)	(2)	(2)	(2)	(2)
25-Mar-20						(2)	(1)	(1)	(1)	(1)	(1)
26-Mar-20	9.6	(1)	563.3	(2)	(2)						
27-Apr-20	(1)	(1)	237.6								
28-Apr-20							7.1				
19-May-20											
20-May-20											
28-May-20							14.7	0.9	1.4	0.4	2.7
29-May-20	5.0	(1)	166.9	(1)	(1)						
23-Jun-20	4.3	(1)	393.6	(1)	(1)						
24-Jun-20						1.7	(1)	(1)	(1)	(1)	(1)
30-Jul-20	(1)	(1)	134.5	(1)	(1)						
31-Jul-20						0.3	2.8	0.3	0.2	0.1	0.3
25-Aug-20	(1)	(1)		(1)							
26-Aug-20						(1)	1.5			0.3	0.5
25-Sep-20	(1)	(1)		(1)							
26-Sep-20						(1)	1.3			0.2	0.4
29-Oct-20						(1)	2.5			0.2	0.6
30-Oct-20	(1)	(1)	68.8	(1)	(1)						
26-Nov-20	(2)	(2)	66.5	(2)	(1)						
27-Nov-20						(2)	12.6	8.4	1.3	0.1	7.9
22-Dec-20						(2)	3.9	(2)	(2)	(2)	(2)
23-Dec-20	(2)	(2)	(2)	(2)	(2)						
27-Jan-21	(2)	(2)	(2)	(2)	(2)						
28-Jan-21						(2)	7.2	(2)	(2)	(2)	(2)
22-Feb-21	(2)	(2)	(2)	(2)	(2)						
23-Feb-21						(2)	1.2	(2)	(2)	(2)	(2)
29-Mar-21	18.5	15.0	436.3	(1)	(2)						

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW3	SW4	SW6A	SW8	SW9	SW10	SW11	SW11A	SW11B	SW11C	SW11D
30-Mar-21						1.4	15.7	0.9	1.6	0.9	3.6
27-Apr-21	38.8	4.6	418.5	(1)	6.1						
28-Apr-21						(1)	(4)	(4)	(4)	(4)	(4)
26-May-21						0.6	9.4	0.3	0.2	(4)	2.8
27-May-21	(4)	5.8	140.1	(1)	(1)						
22-Jun-21	(1)	(4)	19.7	(1)	(1)						
23-Jun-21						(1)	2.1	1.9	0.2	(4)	0.4
10-Jul-21						(1)	0.4	0.2	0.2	0.2	0.3
22-Jul-21	(1)	(4)	29.7	(1)	(1)						
23-Jul-21						(4)	1.6	0.1	0.1	0.2	(1)
11-Aug-21						0.1	0.4	0.5	(4)	(4)	0.1
25-Aug-21	(1)	(4)	61.6	(1)	(1)						
26-Aug-21						0.2	0.3	0.2	(4)	(4)	0.1
27-Sep-21						0.4	5.6	1.1	0.5	0.1	2.8
28-Sep-21	(1)	4.6	304.1	(1)							
26-Oct-21	1.5	8.2	250.1	(1)	(1)						
27-Oct-21						0.4	25.8	2.2	1.0	(4)	1.1
22-Nov-21						(2)	7.5	(2)	(2)	(2)	(2)
23-Nov-21	(2)	(2)	(2)	(2)	(2)						
21-Dec-21	(2)	(2)	(2)	(2)	(2)						
22-Dec-21						(2)	4.9	(2)	(2)	(2)	(2)
24-Jan-22	(2)	(2)	(2)	(2)	(2)	(2)	1.21	(2)	(2)	(2)	(2)
8-Feb-22	(2)	(2)	(2)	(2)	(2)	(2)	2.07	(2)	(2)	(2)	(2)
16-Mar-22	(2)	(1)	616.0		(2)	(2)	3.04	(2)	(2)	(2)	(2)
21-Apr-22	0.28	(1)	333.3		0.25	(4)	12.23	0.78	1.3	1.33	0.55
24-May-22		(1)		(1)		0.25					
25-May-22			192.6		(1)		19.13	0.36	0.42	0.1	0.31
26-May-22	(1)										
22-Jun-22				(1)	4.01						
24-Jun-22	(1)					(1)	5.1	1.3	0.37		2.68
25-Jun-22		(1)	27.0								
8-Jul-22						(1)	0.89	0.18	0.21	0.33	0.45
11-Aug-22						(1)	3.72	0.51	0.38	0.37	0.88
26-Aug-22		(1)	242.5	(1)	(1)	(1)					
29-Aug-22	(1)						12.64	0.53	0.41	1.23	0.61
30-Aug-22											
27-Sep-22	0.83	(1)	100.9	(1)	(4)	0.19					
29-Sep-22							(4)	(4)	0.2	(4)	(4)
26-Oct-22	(1)	(1)									
27-Oct-22						(4)	0.33	(1)	(4)	(4)	(4)
28-Oct-22			33.8	(1)	(1)						
21-Nov-22	(1)	(1)									
22-Nov-22							0.4	(1)	(4)	0.11	(4)

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW3	SW4	SW6A	SW8	SW9	SW10	SW11	SW11A	SW11B	SW11C	SW11D
23-Nov-22			38.4	(1)	(1)						
20-Dec-22		0.25	82.4								
21-Dec-22	(1)				(1)		0.39	(1)	(4)	0.17	(4)
24-Jan-23	(1)	(4)	486.0		(1)						
22-Feb-23		6.0	801.5		0.29						
27-Mar-23	19.56	10.21	1452.6		12.63						
28-Mar-23											
21-Apr-23	(4)	1.1	1924.0		7.17						
15-May-23											
16-May-23	(4)	(4)	915.3	(1)	(1)						
17-May-23						0.66	21.51	0.26	9.68	0.97	6.13
26-Jun-23	(1)	(1)	466.4				9.35	(4)	0.42	0.63	0.5
27-Jun-23				(1)	(1)	0.27					
11-Jul-23						0.11	2.42	1.07	0.94	0.16	1.36
25-Jul-23	(1)	7.46	582.3	(1)	(1)	0.36					
26-Jul-23							7.62	0.28	1.48	1.92	2.05
14-Aug-23						0.11	4.39	(4)	2.74	0.43	0.68
28-Aug-23	(1)	(1)									
29-Aug-23			287.1				1.35	(4)	0.16	1.13	0.28
30-Aug-23					(1)	2.31					
31-Aug-23											
25-Sep-23	(1)	(1)	288.9	(1)	(1)		0.46			0.31	(4)
26-Sep-23											
30-Oct-23	(1)	0.18									
31-Oct-23						(4)	0.67	(4)	0.34	0.28	0.12
1-Nov-23			77.4		(1)						
29-Nov-23	(2)	0.69	207.9		(1)						
18-Dec-23	(1)	9.82	376.0		(1)						

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW11E	SW13	SW14	SW15	SW16	SW17	SW17A	SW18	SW19	SW20	SW21
22-May-03	(6)	6.0	15.0		1.0	2.2	12.0	46.0	95.6	0.3	
23-Jun-03	2.5	4.67	6.2	0.45	1.6	1.47	10.4	11.8	40.5	3.0	
26-Jun-03											
22-Jul-03	1.4	2.8	2.8	2.9	0.33	1.62	9.48	13.3	19.1	0.72	1.9
20-Aug-03	1.9	2.2	2.2	1.2	(4)	0.97	4.06	4.0	38.3	0.2	1.6
25-Sep-03	0.4	1.9	3.0	0.84	(4)	0.11	1.89	1.6	21.3	(1)	1.4
22-Oct-03	2.2	2.7	6.2	1.1	2.5	2.6	3.3	25.8		0.4	2.1
23-Oct-03									68.3		
28-Nov-03	12.54	7.98	17.06	8.18	2.5	6.89	10.6	36.7	104.2	0.33	1.83
19-Dec-03	26.52	25.0	12.77	12.87	2.0	5.03	18.46	33.7		1.5	1.7
10-Feb-04			3.03	(2)	(2)	1.92	9.16	47.9		2.0	
11-Feb-04											0.87
12-Feb-04									71.6		
13-Feb-04	3.5	10.0									
16-Mar-04			48.95					48.7	209.3	5.0	
17-Mar-04						4.33	19.44				1.0
18-Mar-04	11.87	8.0		(2)	2.0						
19-Apr-04			46.25	1.88	40.36	13.26	72.36	123.6	507.9		
20-Apr-04											
21-Apr-04	21.99	30.0								18.93	1.42
19-May-04	5.85	11.22	14.17	1.78	3.35	4.61	15.41	31.3	133.2	3.98	2.05
24-Jun-04	3.42	6.41	1.79	1.42	0.6	1.9	11.98	20.5	48.2	1.54	1.1
29-Jul-04	0.77	3.31	1.05	1.42	1.87	0.51	5.86	9.2	25.1	2.46	1.84
23-Aug-04					(4)						
26-Aug-04	0.26	1.6	1.6	0.69		0.48	2.91	7.2	12.5	(4)	1.35
21-Sep-04	0.2			(4)	(4)						
22-Sep-04		0.58	(4)			0.4	3.51	3.8	9.3	(4)	0.15
23-Sep-04											
20-Oct-04	0.18	0.95	0.76	0.78	0.3	0.42	3.19	4.0	17.7		0.98
21-Oct-04										(1)	
16-Nov-04			1.3				4.26	4.6			
17-Nov-04				0.95	2.26	0.45				(1)	
18-Nov-04	0.35	1.1							28.8		0.98
15-Dec-04		(2)			(2)			(2)		(2)	(2)
16-Dec-04	1.05		2.53	1.52			5.42		82.1		
13-Jan-05											
16-Jan-05	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
13-Feb-05	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
27-Mar-05		50.0		(2)				(2)			
28-Mar-05											
29-Mar-05	33.0		5.48		4.13	3.23	14.69		171.4	3.26	2.0
30-Mar-05											
10-Apr-05											

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW11E	SW13	SW14	SW15	SW16	SW17	SW17A	SW18	SW19	SW20	SW21
11-Apr-05	61.0	80.0	70.68	5.3	26.96	17.5	68.57	207.2	700.0	19.25	3.9
22-May-05											
24-May-05	13.4		7.4	3.48	3.62	5.96	22.56	27.7	140.0	10.94	
26-May-05		8.19									1.32
26-Jun-05											
27-Jun-05	2.95				0.44	2.29	7.22	11.5			
28-Jun-05			2.94	0.24					29.0	2.42	0.82
29-Jun-05		9.97									
10-Jul-05											
11-Jul-05			2.13	1.03	0.49	1.39	6.07	6.6	9.6	0.75	
12-Jul-05	6.0	5.0									1.8
21-Aug-05											
22-Aug-05			1.12	1.43		0.2	5.19	4.4	8.1	0.5	
23-Aug-05	1.0	1.08									1.74
25-Sep-05											
27-Sep-05			1.29	0.44	0.1	0.19	3.1		9.3	0.1	
28-Sep-05											1.43
23-Oct-05										(1)	
24-Oct-05			1.69	1.92		0.24	3.58	5.9			
25-Oct-05	2.0	1.5							15.5		1.79
13-Nov-05										(1)	
14-Nov-05						0.25	2.9		9.1		
15-Nov-05				0.98				7.9			0.99
16-Nov-05	1.41	8.83	6.66								
11-Dec-05								(2)			
12-Dec-05			5.07	3.44	0.62	1.36	11.71		27.6	0.1	
13-Dec-05	1.4	6.49									2.26
14-Dec-05											
16-Dec-05						1.93					
15-Jan-06				(2)							
16-Jan-06									201.8		
17-Jan-06			15.6		13.02	3.74	17.32	31.6		3.35	12.11
18-Jan-06	22.4	19.58									
19-Feb-06	(2)	(2)	(2)	(2)	(2)	(2)	(2)	10.0	(2)	(2)	(2)
19-Mar-06				(2)							
20-Mar-06			25.05					78.2	429.2	11.2	
21-Mar-06						13.21					
22-Mar-06					12.37		37.2				0.99
24-Mar-06	30.37	37.33									
31-Mar-06											
7-Apr-06											
13-Apr-06											
16-Apr-06											

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW11E	SW13	SW14	SW15	SW16	SW17	SW17A	SW18	SW19	SW20	SW21
18-Apr-06			19.51	5.65	4.63	24.48	48.75	80.7	229.9	10.74	
19-Apr-06	29.38	30.0									4.05
21-May-06											
23-May-06				3.51	3.35	6.43	17.12	44.8	144.9	5.09	3.36
24-May-06	19.91	13.81	8.81								
18-Jun-06											
20-Jun-06				2.49	0.92	4.42	8.58	11.9	35.5	3.79	3.61
21-Jun-06	16.69	3.4									
23-Jun-06			1.6								
9-Jul-06											
10-Jul-06									15.2		
11-Jul-06			2.98	1.48	0.1	1.68	5.57	8.3		2.23	2.47
12-Jul-06	3.67	2.4									
20-Aug-06					(1)						
21-Aug-06											
22-Aug-06									3.8		
23-Aug-06			0.38	1.01		1.03	3.25	3.5		0.6	2.14
24-Aug-06	1.91	0.81									
17-Sep-06					(1)						
20-Sep-06			1.88	2.22		2.85	6.32	15.9		0.67	4.26
21-Sep-06	1.94	0.9							15.0		
25-Sep-06	0.88										
27-Sep-06								6.3			
28-Sep-06											
15-Oct-06											
17-Oct-06											
18-Oct-06									66.7	0.32	
19-Oct-06	5.21	2.15	4.95	1.75	0.56	1.4	6.53	12.9			4.19
17-Nov-06											
19-Nov-06											
23-Nov-06	17.15	26.49									1.98
24-Nov-06											
27-Nov-06			10.59	1.46	7.13	4.36	14.07	33.5	107.5	4.03	
17-Dec-06	23.24	37.41	17.79	1.31	12.29	6.74	19.86	62.5	183.8	7.38	0.96
23-Dec-06											
21-Jan-07	37.0	48.0	(2)	(2)	(2)	2.44	15.46	(2)	79.9	7.66	(2)
18-Feb-07	6.17	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	2.72	(2)
18-Mar-07	17.51	(2)		(2)		9.21	27.36	50.5	408.9	8.62	(2)
15-Apr-07											
16-Apr-07					10.53	28.74	34.66		346.6	18.97	1.23
17-Apr-07	59.27	33.78	14.3	2.12				102.5			
13-May-07	15.27	5.64	4.11	2.24	2.38	2.82	24.56	30.9	228.3	9.58	2.56
15-May-07											

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW11E	SW13	SW14	SW15	SW16	SW17	SW17A	SW18	SW19	SW20	SW21
17-Jun-07	0.9	5.6	1.74	1.33	(4)	0.56	10.5	21.0	49.5	1.88	1.48
18-Jun-07											
15-Jul-07	0.73	3.91	0.51	0.82	(1)	0.31	2.89	7.1	12.8	3.61	2.77
18-Jul-07											
19-Aug-07	3.53	1.65	1.08	0.71	(1)	0.13	0.93	5.4	5.3	0.43	1.11
22-Aug-07											
16-Sep-07					(1)					0.1	1.71
17-Sep-07	2.28	1.48	1.3	0.44		0.25	1.18	4.3	10.2		
18-Sep-07											
14-Oct-07					(1)					(1)	
18-Oct-07	0.6	0.18	0.31			0.36	2.25				0.67
19-Oct-07				0.45				3.3	21.7		
18-Nov-07										(1)	
19-Nov-07	0.33	1.58			0.1	0.58	2.21				
21-Nov-07			6.93	1.13				33.5	228.5		4.32
9-Dec-07		(2)	(2)		(2)	(2)				(2)	2.45
10-Dec-07				0.69			2.6				
11-Dec-07	3.15										
12-Dec-07								11.3	106.9		
20-Jan-08		(2)		(2)							
21-Jan-08			12.63		39.5	1.43	35.13	36.1		22.15	1.08
22-Jan-08	10.42								243.1		
17-Feb-08			(2)	(2)							
19-Feb-08					16.7	7.58	21.79	77.1		10.83	1.16
20-Feb-08	17.41	35.3							1019.2		
16-Mar-08			(2)	(2)							
17-Mar-08	12.75	20.88			15.6	1.76	11.69	66.0		6.22	2.71
18-Mar-08											
19-Mar-08									229.2		
30-Mar-08											
1-Apr-08				34.49	167.27	7.01	50.1			24.49	68.81
2-Apr-08	50.16	107.8	67.11					159.6	580.3		
4-Apr-08											
7-Apr-08											
20-Apr-08											
21-Apr-08			41.38	1.49							
23-Apr-08	65.41	98.04			34.01	5.5	35.2	178.3		13.86	3.49
24-Apr-08									427.1		
6-May-08											
18-May-08											
20-May-08			14.44	0.45						8.71	
21-May-08					4.54	1.28	9.58	41.5	226.4		1.82
22-May-08	20.16	36.53									

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW11E	SW13	SW14	SW15	SW16	SW17	SW17A	SW18	SW19	SW20	SW21
15-Jun-08											
17-Jun-08	9.82	11.54				2.86	10.97			2.96	0.5
18-Jun-08			4.03	0.3	1.92			15.6	120.1		
13-Jul-08				(1)							
15-Jul-08	0.2	3.3	0.6		0.4	0.2	2.4	11.7	31.0	1.05	0.1
16-Jul-08											
17-Aug-08											
18-Aug-08					0.55	1.1	5.9	14.6		2.6	
19-Aug-08	1.8	3.98	6.1	0.1					74.8		0.19
12-Sep-08											
14-Sep-08											
16-Sep-08	6.3	10.24				3.22	5.9		202.7	0.59	1.15
17-Sep-08			7.0	0.6	0.85			31.6			
19-Oct-08											
20-Oct-08					0.72			13.6		2.72	
21-Oct-08						2.67	4.12				1.38
22-Oct-08	2.2	20.4	10.2	0.52					104.9		
23-Nov-08	12.2	35.6	13.35		(2)	5.12	24.5	44.3	(2)	2.7	2.99
14-Dec-08	41.0	55.75	54.0	(2)	6.96	2.39	14.43	114.8	446.9	14.23	0.49
18-Jan-09	3.4	(2)	(2)	(2)	(2)	1.8	35.4	(2)	(2)	25.6	0.75
8-Feb-09	46.5	142.7	(2)	(2)	9.65	1.88	16.4	73.7	(5)	3.6	2.2
15-Mar-09	109.7	107.6	43.4	4.6	12.1	6.6	23.2	150.6	1522.2	13.9	2.8
12-Apr-09	55.2	60.7	44.7	5.4	8.1	6.1	16.6	203.8	794.0	29.3	2.5
17-May-09	18.1	29.9	11.2	0.3	3.2	2.7	12.5	65.3	157.1	2.6	1.6
14-Jun-09	2.1	9.8	7.1	(4)	5.7	1.6	3.9	30.0	109.4	1.5	0.7
12-Jul-09	0.7	3.4	1.9	0.15	0.55	0.54	15.3	23.5	26.4	1.4	0.83
9-Aug-09	0.98	18.8	3.8	(4)	(1)	1.0	2.5	7.0	93.3	3.0	8.1
13-Sep-09	0.18	1.3	0.54	(4)	(1)	1.8	1.05	4.6	6.7	0.2	0.6
11-Oct-09	3.5	8.3	3.6	0.3	1.0	1.7	2.6	13.0	164.4	0.4	1.4
15-Nov-09	0.69	4.6	0.86	0.16	4.2	3.5	5.2	8.8	71.2	2.4	1.85
13-Dec-09	1.22	4.91	6.2	0.64	(2)	1.1	1.8	18.1	174.8	2.4	0.21
17-Jan-10	3.6		(2)	(2)	(2)	(2)	0.6	(2)	227.8	3.9	(2)
7-Feb-10	1.09	(2)	(2)	(2)	(2)	0.89	2.6	(2)	(2)	6.7	0.2
14-Mar-10	57.5	125.8	100.6	15.9	26.0	6.92	12.8	332.6	1785.5	4.75	7.25
4-Apr-10											
11-Apr-10	18.2	29.6	15.7	0.5	2.9	3.3	15.1	67.6	227.1	14.0	1.2
16-May-10	21.0	36.4	28.6	0.6	5.7	4.6	26.8	128.1	299.3	7.8	1.6
23-May-10											
13-Jun-10	10.6	24.3	27.6	0.6	6.3	4.6	10.5	78.5	441.1	8.6	1.1
18-Jul-10	21.8	31.4	45.0	0.7	7.3	2.7	7.3	58.4	101.7	3.0	2.8
19-Jul-10											
15-Aug-10	0.6	3.0	1.33	(1)	0.7	2.6	6.4	10.3	26.4	7.76	0.2
12-Sep-10	0.8	2.1	0.77	(1)	(1)	1.12	2.34	2.4	36.0	0.7	0.2

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW11E	SW13	SW14	SW15	SW16	SW17	SW17A	SW18	SW19	SW20	SW21
17-Oct-10	2.3	18.5	5.6	0.7	0.2	1.9	5.4	26.6	249.1	1.4	0.5
21-Oct-10											
14-Nov-10	32.1	54.9	16.6	0.5	1.0	4.1	6.2	25.2	705.7	6.6	1.4
19-Dec-10	8.7	(2)	(2)	(2)	2.4	1.1	5.5	9.3	328.4	0.8	(2)
15-Jan-11										2.1	
16-Jan-11	3.0				6.1	4.1	12.3			7.0	
20-Feb-11	4.6						11.6		361.0	10.2	0.1
13-Mar-11	22.5	72.6	38.2	(2)	17.4	5.7	14.1	115.1	385.2	9.1	3.6
17-Mar-11											
18-Mar-11											
20-Mar-11		76.8	47.8	5.9		7.8	48.3	108.6	901.9		
22-Mar-11											
1-Apr-11											
5-Apr-11											
8-Apr-11											
12-Apr-11											
15-Apr-11											
17-Apr-11	28.0	28.2	31.1	0.6	4.9	2.9	29.9	102.3	1452.8	11.0	0.8
18-Apr-11											
20-Apr-11								243.0			
21-Apr-11											
26-Apr-11											
29-Apr-11											
3-May-11											
6-May-11											
10-May-11											
13-May-11											
15-May-11	48.3	80.4	49.5	1.6	11.1	2.7	30.7	144.0	686.4	21.3	3.3
16-May-11											
18-May-11											
19-May-11											
20-May-11											
27-May-11											
3-Jun-11											
12-Jun-11	8.1	8.6	10.0	0.4	2.7	0.5	22.1	23.8	198.1	6.6	0.8
13-Jun-11											
17-Jul-11	1.1	6.6	1.1	(1)	4.0	0.3	4.7	12.0	23.4	2.1	(4)
14-Aug-11	0.1	0.6	0.6	(1)	3.0	0.3	0.5	3.0	14.5	0.8	(4)
18-Sep-11	1.0	1.3	0.5	(1)	3.7	1.5	1.2	3.1	27.5	0.4	(1)
16-Oct-11	42.5	131.0	98.4	0.13	1.75	2.36	1.52	9.3	101.6	0.25	0.17
20-Nov-11	2.5	12.5	3.1	0.6	2.8	1.2	4.1	8.6	87.3	0.37	0.2
18-Dec-11	15.5	36.0	23.3	0.82		3.1	4.5	37.4	277.9	3.1	1.5
19-Dec-11					7.8						

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW11E	SW13	SW14	SW15	SW16	SW17	SW17A	SW18	SW19	SW20	SW21
20-Dec-11											
15-Jan-12	24.1	21.3	(2)	(2)	(2)	5.6	27.5	(2)	(2)		(2)
19-Feb-12	11.1	12.8	(2)	(2)	6.5	1.9	2.4	15.5	178.0	2.0	(2)
18-Mar-12	47.7	71.8	37.9	1.5	15.7	11.0		95.4	426.3	8.8	1.6
20-Mar-12							53.6				
15-Apr-12	7.4	7.7	6.5	(4)	3.0	1.6	14.7	29.5	105.0	2.85	0.1
13-May-12	6.3	15.4	11.6	(4)	6.9	1.9	10.7	25.3	87.1	2.7	0.13
17-Jun-12	3.1	4.3	2.8	(1)	1.8	0.3	6.9	15.0	40.7	0.6	(1)
15-Jul-12				(1)							(1)
16-Jul-12	1.8	2.4	1.2		0.5	0.2	1.7	3.8	14.4	0.3	
12-Aug-12											
14-Aug-12	12.9	13.2	7.7	0.6	3.5	2.8	3.1	23.2		1.0	0.7
15-Aug-12									117.3		
16-Sep-12											
18-Sep-12	0.4	3.8	4.3	0.1	3.0	0.9	2.0	13.1		0.6	0.2
19-Sep-12									46.3		
14-Oct-12	0.5										
17-Oct-12			11.08	0.33	2.8	0.9	4.5	14.6		1.2	0.6
18-Oct-12		4.9							82.0		
18-Nov-12	14.9										
20-Nov-12		10.9	19.6	0.8	5.1	2.3	14.5	46.3		6.9	0.4
21-Nov-12									219.4		
12-Dec-12											
16-Dec-12	13.9						11.0				
18-Dec-12			17.5	1.2	4.5	1.9		57.6	291.9	2.8	0.8
20-Dec-12		15.4									
13-Jan-13	29.1										
15-Jan-13				6.8					447.7	6.9	1.3
16-Jan-13		111.9	35.7		21.8	8.0	23.4	78.1			
17-Feb-13	(2)	(2)	(2)	(2)	(2)			(2)	(2)		(2)
20-Feb-13						8.0	17.0			4.0	
17-Mar-13				(2)	(2)			(2)			(2)
19-Mar-13	17.9	32.8	25.1						288.0	6.8	
20-Mar-13						4.0	36.1				
14-Apr-13											
15-Apr-13											
16-Apr-13				2.9	100.4	3.1	58.7	166.7	1180.9	11.8	1.6
17-Apr-13	47.4	131.3	66.5								
12-May-13											
13-May-13				0.7	1.6	2.0	27.6	25.6		2.8	0.7
14-May-13	16.6	14.8	19.9						234.5		
16-Jun-13											
18-Jun-13										2.6	

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW11E	SW13	SW14	SW15	SW16	SW17	SW17A	SW18	SW19	SW20	SW21
19-Jun-13	7.9	8.4	17.0	0.2	1.0	0.4	5.4	28.0	120.0		0.5
14-Jul-13				(4)							
16-Jul-13	1.4	6.9	10.9		0.9	0.3	5.7	14.1		2.4	(4)
17-Jul-13									124.4		
18-Aug-13				(4)							0.3
20-Aug-13									21.3		
21-Aug-13	2.0	0.9	3.4		1.4	1.3	3.4	3.3		0.4	
15-Sep-13				(1)							0.1
18-Sep-13	0.9	1.2	0.9		1.3	0.9	2.64	10.7	43.1	0.8	
19-Sep-13											
13-Oct-13											
16-Oct-13	6.5	12.4	10.9	0.8	3.4	0.7	4.3	32.2		3.5	0.4
17-Oct-13									137.6		
17-Nov-13											
19-Nov-13				0.9	7.9	7.1	12.8	50.5		9.9	4.7
20-Nov-13	19.0	28.1	20.3						207.1		
15-Dec-13			(2)	(2)		(2)		(2)	(2)		(2)
17-Dec-13										1.9	
18-Dec-13	12.9	9.2			3.8		11.3				
19-Jan-14			(2)	(2)	(2)	(2)	(2)	(2)	(2)		(2)
21-Jan-14	9.5									3.1	
22-Jan-14											
16-Feb-14			(2)	(2)	(2)	(2)	(2)	(2)	(2)		(2)
19-Feb-14	3.9	11.1									
20-Feb-14										10.4	
16-Mar-14			(2)	(2)	(2)	(2)	(2)	(2)	(2)		(2)
18-Mar-14										1.6	
19-Mar-14	5.5	7.1									
13-Apr-14											
15-Apr-14										17.1	
16-Apr-14				6.7	17.2	7.2	123.5	261.7	1825.7		4.9
17-Apr-14	51.4	108.5	108.6								
11-May-14											
12-May-14						7.3				10.0	
13-May-14	13.5	45.5	29.3	0.4	10.3		32.5	64.3	284.6		0.2
15-Jun-14				(1)							(4)
17-Jun-14					0.9	1.7	8.0			1.6	
18-Jun-14	10.5	6.4	2.1					31.7	222.2		
13-Jul-14											0.13
14-Jul-14										0.7	
15-Jul-14			2.6	(4)	7.1	0.9	18.3	47.4	225.6		
16-Jul-14	2.3	5.2									
17-Aug-14			(1)								0.2

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW11E	SW13	SW14	SW15	SW16	SW17	SW17A	SW18	SW19	SW20	SW21
18-Aug-14										0.5	
19-Aug-14	0.2	1.2		3.2	1.6	0.6	2.2	6.1	52.9		
7-Sep-14											0.1
8-Sep-14										0.2	
9-Sep-14	1.1	1.5	0.6	0.1	0.2	1.0	2.3	2.3	31.5		
19-Oct-14											0.5
20-Oct-14											
21-Oct-14									117.1		
22-Oct-14				0.1							
23-Oct-14	11.2	21.2	0.8		1.2	2.6	3.7	16.3		0.1	
16-Nov-14			(2)	(2)	(2)	(2)	(2)	(2)		0.2	(2)
19-Nov-14	5.4	4.5									
14-Dec-14			(2)								
16-Dec-14	9.7	0.1		1.1	1.3	1.4	7.0			6.1	0.4
17-Dec-14								61.1			
18-Jan-15			(2)	(2)	(2)	(2)		(2)			(2)
20-Jan-15	19.2	7.9					4.9			3.6	
21-Jan-15											
15-Feb-15					(2)			(2)			
15-Mar-15		(2)	(2)	(2)	(2)	(2)		(2)			(2)
18-Mar-15	19.2						15.6			4.6	
19-Mar-15											
21-Apr-15										12.7	
22-Apr-15	28.9	28.7	16.4	2.5	2.0	3.5	32.8	99.4			1.5
23-Apr-15									556.5		
17-May-15											
19-May-15	25.9	3.4	6.8	1.0	0.6	2.6	7.1	40.0		2.6	(4)
20-May-15									138.8		
14-Jun-15											
15-Jun-15			12.6	0.8	5.0	2.0	8.9	22.4	155.5	5.2	0.8
16-Jun-15	25.9	17.9									
19-Jul-15											
21-Jul-15	25.9			0.3	0.5	0.6	8.5	13.3	78.0	1.7	0.5
22-Jul-15		6.1	4.3								
9-Aug-15				(1)							
11-Aug-15	1.2	3.4	5.3		0.3	1.4	3.3	8.4		0.6	(4)
12-Aug-15									52.4		
23-Aug-15				(1)							
25-Aug-15	0.9		1.3		0.3	0.8	4.8	8.2			
6-Sep-15				(1)							(4)
8-Sep-15	0.7	3.5	1.9		0.4	0.7	2.2	4.4		0.7	
9-Sep-15									185.0		
11-Oct-15				(1)							(1)

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW11E	SW13	SW14	SW15	SW16	SW17	SW17A	SW18	SW19	SW20	SW21
15-Oct-15	0.3	0.6	0.4		0.3	0.9	1.2	2.5		0.1	
16-Oct-15									17.4		
8-Nov-15											
10-Nov-15											
15-Nov-15											
18-Nov-15	2.7	13.9	3.85	0.4	2.5	2.2	1.8	25.5		0.59	0.37
19-Nov-15									47.6		
6-Dec-15											
8-Dec-15					4.1	1.4	3.8	11.3	120.6	0.9	0.6
9-Dec-15	2.3	3.6	2.5	0.5							
17-Jan-16		(2)									
19-Jan-16					7.8	3.1	4.2		395.1	2.2	2.2
20-Jan-16	6.9		11.5	1.1							
14-Feb-16		(2)	(2)	(2)					(2)		
17-Feb-16	5.2				2.3	2.9	13.0	39.5		3.6	2.1
18-Feb-16											
13-Mar-16									(5)		
15-Mar-16	77.0	166.1	175.4	5.3	28.5	57.3	64.3	218.8		20.0	1.9
17-Apr-16											
20-Apr-16										27.0	
21-Apr-16	35.4	74.6	64.7	1.2	14.1	3.8	29.6	136.8	514.8		2.0
15-May-16											
17-May-16									394.9	7.2	
18-May-16	11.2	19.5	30.3	0.8	9.3	2.9	25.3	57.2			2.2
19-Jun-16				(1)							(4)
22-Jun-16					1.9	2.0	9.6	19.5	46.0	3.5	
23-Jun-16	17.0	7.9	1.2								
3-Jul-16											
5-Jul-16	2.0										
17-Jul-16				(1)							
20-Jul-16					0.2	0.6	4.0	5.9	35.8	1.1	
21-Jul-16	2.7	1.3	3.5								0.1
7-Aug-16											
9-Aug-16	1.5										
21-Aug-16											
24-Aug-16	1.2	2.9	1.5	0.1	1.8	0.7	6.6	5.2		0.5	0.7
25-Aug-16									11.7		
18-Sep-16											
19-Sep-16	1.0	5.4	2.3	0.5	1.4	1.9	3.2	3.6	9.4	0.4	0.7
16-Oct-16											
17-Oct-16									15.8	0.3	
18-Oct-16	1.0	1.8	1.9	0.6	4.5	0.7	4.9	5.5			0.6
24-Oct-16											

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW11E	SW13	SW14	SW15	SW16	SW17	SW17A	SW18	SW19	SW20	SW21
25-Oct-16											
15-Nov-16				0.5	1.2	0.8	1.8	9.3	12.5	0.2	
16-Nov-16	1.6	2.1	2.3								1.0
18-Nov-16											
12-Dec-16	1.9	0.3	3.7	1.8	0.8	0.8	4.8	17.4	41.2	0.6	2.4
12-Jan-17											
22-Jan-17											
24-Jan-17				3.8	7.9	4.4	21.6		440.5	4.9	
25-Jan-17	19.5	26.9	39.6					76.8			3.7
15-Feb-17			(2)	(2)							
16-Feb-17					4.4	3.3	13.8			1.9	
17-Feb-17	6.5								131.1		
19-Mar-17											
21-Mar-17				1.2	6.3	2.6	20.6	70.7		8.0	
22-Mar-17	10.9	3.6	19.6						300.9		3.8
16-Apr-17											
19-Apr-17	32.0	51.6	46.1	1.3	12.2	8.8	37.1	77.7	420.3	10.5	2.8
8-May-17											
9-May-17											
14-May-17											
16-May-17	19.5	13.0	23.1	1.9	2.5	19.6	45.0	79.0	200.4	14.8	4.5
28-Jun-17	17.9	34.0	43.9	2.2	5.2	14.5	55.3	49.4	210.8	9.3	1.7
7-Jul-17	8.9										
18-Jul-17										3.2	
19-Jul-17	4.9	11.6	6.1	0.4	2.2	2.1	19.1	28.5	100.5		1.4
20-Jul-17											
27-Jul-17											
2-Aug-17	4.3										
13-Aug-17											
15-Aug-17					0.8	0.6	8.4	13.8		2.1	
16-Aug-17	1.8	7.2	5.8	0.3					32.1		1.0
17-Sep-17	1.8								33.1	1.1	
18-Sep-17		6.7	10.7	0.5	1.5	0.6	7.0	10.5			
19-Sep-17											0.9
17-Oct-17					4.4	3.8	7.9	22.6		1.4	
18-Oct-17	3.1	7.3	18.4	1.9					90.9		2.3
14-Nov-17					6.3	4.0	8.7	29.3	147.1	2.3	
15-Nov-17	6.0	11.2	13.8	1.3							1.4
12-Dec-17				(2)	(2)						
14-Dec-17	7.8	18.7	14.5			6.0	16.3	27.8	119.4	2.3	2.5
17-Jan-18				(2)	(2)				263.6	6.0	(2)
18-Jan-18	21.9	26.7	29.4			4.9	23.4	61.3			
18-Feb-18											

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW11E	SW13	SW14	SW15	SW16	SW17	SW17A	SW18	SW19	SW20	SW21
22-Feb-18											
23-Feb-18	52.6	76.9	101.6	3.5						17.4	2.6
24-Feb-18					17.8	31.2	70.5	159.0	468.9		
18-Mar-18											
20-Mar-18									267.7	6.1	
21-Mar-18	7.7	41.0	12.4	0.9	2.9	6.3	24.0	34.6			1.0
18-Apr-18									598.0	10.0	
19-Apr-18	15.3	23.4	43.8	3.5	13.6	12.1	42.8	95.1			2.2
8-May-18											
9-May-18											
13-May-18											
14-May-18									251.5	5.6	
15-May-18	51.9	25.3	35.2	2.4	22.1	13.4	50.7	160.6			2.2
18-Jun-18	2.67	4.16	10.43	0.47	1.32	3.6	6.84	23.8	47.1	0.49	3.48
19-Jun-18											
20-Jun-18											
4-Jul-18	1.39										
18-Jul-18				(1)							
19-Jul-18	0.69	2.2	2.98		2.27	1.77	13.58	4.5	13.2	1.11	
3-Aug-18	1.11										
23-Aug-18			2.5	0.1	2.1	0.4	3.8	3.8	49.5		
24-Aug-18	0.7	2.0								0.4	0.3
19-Sep-18			0.6	(1)	0.8	0.4	2.4	4.7	8.6	0.1	
20-Sep-18	0.3	0.4									
24-Oct-18									45.7		
25-Oct-18	1.3	1.0	4.8	0.5	2.5	27.2	3.4	6.1		0.1	0.4
21-Nov-18									60.0		
22-Nov-18	4.2	6.7	5.6	0.7	2.5	1.2	6.6			1.3	(1)
12-Dec-18		13.0									
13-Dec-18	7.5			0.8	5.1	2.2	17.7	25.3	127.0	6.1	0.8
18-Jan-19				(2)							(2)
19-Jan-19	5.9			(2)		4.1	16.3			4.2	(2)
26-Feb-19									(2)	(2)	
28-Feb-19	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)			(2)
15-Mar-19		16.5							(1)		
19-Mar-19	13.0		42.5	(1)	(1)	14.8	24.6	61.9		15.5	1.2
24-Apr-19											
25-Apr-19	78.3	(1)	189.8	31.8	84.1	32.1	145.4			28.9	1.8
14-May-19											
16-May-19											
23-May-19											
27-May-19	12.0		18.1	1.0	7.4	4.8	25.2	54.9	188.8	4.7	1.4
18-Jun-19		10.5									

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW11E	SW13	SW14	SW15	SW16	SW17	SW17A	SW18	SW19	SW20	SW21
21-Jun-19	6.5		9.3	0.4	6.3	2.4	13.6	27.5	82.2	2.5	1.1
29-Jul-19		1.8									
30-Jul-19	1.3		4.7	(1)	2.1	0.7	4.9	9.9	3.5	0.8	0.2
29-Aug-19		2.2									
30-Aug-19	7.5		2.3	(1)	1.6	0.5	2.1	4.3	6.5	0.7	0.2
26-Sep-19		3.6								(1)	
27-Sep-19	1.0		3.0	(1)	1.5	1.4	3.4	8.1	7.9		0.2
22-Oct-19	3.3		2.7	(1)	0.3	2.4	3.9	2.4	10.6		0.3
23-Oct-19		2.6								(1)	
21-Nov-19	6.6		3.1	(2)	0.3	2.2	2.4	0.9	10.4	(1)	1.1
22-Nov-19		0.7									
20-Dec-19	(2)	(2)	(2)	(2)	0.1	(2)	(2)	(2)	(2)	(2)	(2)
15-Jan-20									(2)	(2)	
24-Jan-20	8.5	(2)	(2)	(2)	(2)	5.1	2.4	(2)			(2)
20-Feb-20									(2)	(2)	
21-Feb-20	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)			(2)
25-Mar-20	(1)	(2)	(2)	(2)	(1)	42.3	11.8	(2)		9.6	(2)
26-Mar-20									(1)		
27-Apr-20		12.0									
28-Apr-20	10.4			27.1		21.7	7.4	54.5	98.9	10.3	
19-May-20											
20-May-20											
28-May-20	10.1	(1)	19.5	0.9	29.9	4.1	17.0	147.3	191.1	5.5	(1)
29-May-20											
23-Jun-20											
24-Jun-20	(1)	(1)	81.6	0.7	6.4	8.3	12.7	7.0	201.1	2.3	(1)
30-Jul-20											
31-Jul-20	3.5	(1)	7.2	0.1	0.4	2.7	4.4	15.6	50.4	1.5	
25-Aug-20											
26-Aug-20	2.7				(1)	4.4	1.1	8.4	20.6		
25-Sep-20										0.9	
26-Sep-20	0.7			1.3	2.3	6.3	5.9	27.6	23.2		
29-Oct-20	1.7		24.3	1.4	6.1	6.8	6.3	20.1	28.2	1.4	0.3
30-Oct-20		40.3									
26-Nov-20		53.6								(2)	
27-Nov-20	25.5		45.4	3.9	4.3	1.1	10.7	7.6			0.5
22-Dec-20	13.4		44.8	1.1	(2)	4.7	15.0	7.8			6.1
23-Dec-20		21.4								(2)	
27-Jan-21		11.2	(2)	(2)	(2)	3.0	1.6	(2)	(2)	(2)	(2)
28-Jan-21	5.1										
22-Feb-21			(2)	(2)	(2)	(2)	26.7	(2)		(2)	(2)
23-Feb-21	(2)										
29-Mar-21		16.5	26.1	13.0	11.1	4.4	84.3	69.5	204.0	13.6	2.4

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW11E	SW13	SW14	SW15	SW16	SW17	SW17A	SW18	SW19	SW20	SW21
30-Mar-21	12.1										
27-Apr-21		(1)	12.3	11.0	16.6	19.7	83.9	72.6	(1)	19.3	1.4
28-Apr-21	22.6										
26-May-21	6.1										
27-May-21		8.2	9.4	(4)	(4)	2.0	13.0	31.5	(4)	2.9	0.2
22-Jun-21		3.4	10.6	(1)	(4)	7.8	7.2	40.1	17.1	0.8	(1)
23-Jun-21	2.1										
10-Jul-21	2.0										
22-Jul-21		4.5	3.4	0.4	0.6	3.6	3.8		32.2	0.2	(1)
23-Jul-21	1.7										
11-Aug-21	1.4										
25-Aug-21		4.8			(4)	1.1	3.8		(4)	0.5	(1)
26-Aug-21	1.3										
27-Sep-21	9.5										
28-Sep-21		9.5			1.9	5.67	5.78		162.1	2.5	(1)
26-Oct-21		14.2			3.5	9.0	8.4		136.0	3.3	1.0
27-Oct-21	19.8										
22-Nov-21	19.4										
23-Nov-21		3.7	(2)	(2)	(2)	1.3	15.1	(2)	(2)	(2)	7.3
21-Dec-21		2.2	(2)		(2)	4.6	8.8			(2)	5.7
22-Dec-21	13.2										
24-Jan-22	6.76	(2)	(2)	(2)	(2)	8.4	2.94	(2)	3.0	(2)	(2)
8-Feb-22	3.67	(2)	(2)	(2)	(2)	6.24	2.63	(2)	(2)	(2)	(2)
16-Mar-22	9.42	(2)	(2)	(2)	(2)	7.42	4.13	(2)		(2)	(2)
21-Apr-22	14.28	5.15	22.99	24.49	6.49	18.39	15.9	53.0	28.1	5.1	1.68
24-May-22		1.91							43.8	1.65	0.55
25-May-22	4.49			(1)	(1)	8.47					
26-May-22			13.37				10.41	41.9			
22-Jun-22											
24-Jun-22	19.2	11.73	7.73	(1)	(1)	24.73	34.16	21.6		2.38	
25-Jun-22									78.4		6.07
8-Jul-22	5.57										
11-Aug-22	4.63										
26-Aug-22									175.8		(1)
29-Aug-22	4.91	4.76	9.56	(1)	(1)	7.05	11.99	30.9		1.65	
30-Aug-22											
27-Sep-22			1.84	(1)	2.71			35.9	18.5	2.21	
29-Sep-22	0.6	1.79				1.32	7.8				(1)
26-Oct-22											
27-Oct-22	0.43	(4)	7.53	(1)	0.35	1.35	1.42	1.6		(1)	0.18
28-Oct-22									11.7		
21-Nov-22										(1)	
22-Nov-22		1.1	2.16	(1)				4.8	24.1		1.06

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW11E	SW13	SW14	SW15	SW16	SW17	SW17A	SW18	SW19	SW20	SW21
23-Nov-22					0.67	1.74	2.05				
20-Dec-22			4.1	0.22				7.7			
21-Dec-22					(1)	1.74	1.94			(4)	
24-Jan-23			15.03	0.25	(2)	5.76	6.7	59.2		7.53	
22-Feb-23			38.09	4.89		6.71	19.83	79.5		4.19	
27-Mar-23			91.05	4.94				226.0		6.57	
28-Mar-23					12.18	8.9	23.88				
21-Apr-23			16.96	0.37	8.76	13.67	61.21	195.6		12.82	
15-May-23				(4)							
16-May-23			10.1			8.26	34.19	178.8		10.25	
17-May-23	13.21	8.81							479.0		0.55
26-Jun-23	18.98	5.04	2.36	(1)	3.06	3.6	19.06	166.2		0.52	(1)
27-Jun-23									436.3		
11-Jul-23	2.42										
25-Jul-23			7.67	(4)	(1)	4.21	35.39	137.2	679.5	10.21	
26-Jul-23	8.27	13.99									10.11
14-Aug-23	2.97										
28-Aug-23											
29-Aug-23	0.6	2.97	4.4	(1)	(1)	1.21	4.09	63.4	139.1	0.7	
30-Aug-23											
31-Aug-23											1.48
25-Sep-23	0.9	0.66	0.75	(1)	(1)	2.45	4.92	37.0		0.94	(1)
26-Sep-23									52.1		
30-Oct-23					0.47	2.78	6.13			0.94	
31-Oct-23	1.27	2.42		(1)				15.8			0.53
1-Nov-23									121.6		
29-Nov-23			3.85	0.24	(1)	3.06	8.5	55.6		0.77	
18-Dec-23			12.57	7.77	(1)	7.64	23.23	90.4		2.6	

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW21A	SW21B	SW21C	SW22	SW22A	SW22C	SW24A	SW77	PR Control	BC Control
22-May-03										
23-Jun-03					2.0					
26-Jun-03				1.62						
22-Jul-03	1.5	1.9	2.0	1.5	1.1		0.82			
20-Aug-03	1.5	0.89	0.75	1.2	0.5		0.55			
25-Sep-03	0.9	1.2	1.2	0.24	0.6		0.2			
22-Oct-03	1.0	1.0	2.0	0.28	1.0		0.4			
23-Oct-03										
28-Nov-03	0.37	2.28	2.76	2.05	1.85		1.43			
19-Dec-03	(2)	3.01	2.0	3.21	1.62		5.81			
10-Feb-04	(2)	3.0					0.9			
11-Feb-04			2.0	2.07	2.5					
12-Feb-04										
13-Feb-04										
16-Mar-04										
17-Mar-04			3.0	3.76	2.2					
18-Mar-04	(2)	(2)					2.5			
19-Apr-04	0.25	0.1								
20-Apr-04										
21-Apr-04			3.97	8.37	2.96		3.32			
19-May-04	1.79	0.77	4.81	3.92	1.88		1.68			
24-Jun-04	0.4	4.03	2.5	2.35	0.97		1.05			
29-Jul-04	0.9	4.71	1.24	1.25	0.23		0.85			
23-Aug-04										
26-Aug-04	0.91	1.09	0.1	0.92	0.33		0.23			
21-Sep-04	(1)									
22-Sep-04			0.72	0.36	0.1		0.33			
23-Sep-04		0.3								
20-Oct-04	0.16	4.21	0.67	0.34	0.28		0.52			
21-Oct-04										
16-Nov-04										
17-Nov-04				0.33	0.21		0.52			
18-Nov-04	0.38	1.3	1.39							
15-Dec-04		(2)	(2)		(2)					
16-Dec-04	0.69			0.4			0.45			
13-Jan-05										
16-Jan-05	(2)	(2)	(2)	(2)	(2)		(2)			
13-Feb-05	(2)	(2)	(2)	(2)	(2)		(2)			
27-Mar-05										
28-Mar-05										
29-Mar-05	1.24	5.07	2.78	1.59	2.17		0.2			
30-Mar-05										
10-Apr-05										

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW21A	SW21B	SW21C	SW22	SW22A	SW22C	SW24A	SW77	PR Control	BC Control
11-Apr-05	5.8	3.12	16.59	9.47	4.85		7.87			
22-May-05										
24-May-05										
26-May-05	0.24	3.39	4.8	4.19	1.77		1.42			
26-Jun-05		0.1								
27-Jun-05										
28-Jun-05	(4)		2.12	2.34	1.0		0.49			
29-Jun-05										
10-Jul-05										
11-Jul-05				1.56	0.9		0.35			
12-Jul-05	1.32	6.0	4.5							
21-Aug-05										
22-Aug-05				1.06	0.85		0.12			
23-Aug-05	1.03	2.74	2.63							
25-Sep-05										
27-Sep-05				0.39	0.68					
28-Sep-05	1.34		1.19				0.1			
23-Oct-05							0.1			
24-Oct-05										
25-Oct-05	1.98	2.2	1.24	0.29	0.17					
13-Nov-05										
14-Nov-05										
15-Nov-05	1.24	2.29	1.25	0.33	0.4		0.1			
16-Nov-05										
11-Dec-05										
12-Dec-05							2.08			
13-Dec-05	4.7	2.39	1.5							
14-Dec-05				0.34	0.18					
16-Dec-05										
15-Jan-06										
16-Jan-06										
17-Jan-06	9.78	0.69	2.76				1.52			
18-Jan-06				10.44	3.82					
19-Feb-06	(2)	(2)	(2)	(2)	(2)		(2)			
19-Mar-06		(2)								
20-Mar-06										
21-Mar-06				9.44	3.48					
22-Mar-06	0.46		1.69				3.0			
24-Mar-06										
31-Mar-06										
7-Apr-06										
13-Apr-06										
16-Apr-06										

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW21A	SW21B	SW21C	SW22	SW22A	SW22C	SW24A	SW77	PR Control	BC Control
18-Apr-06							3.72			
19-Apr-06	3.44	5.57	6.38	10.91	6.04					
21-May-06										
23-May-06	4.71	2.27	3.47	3.91	1.48					
24-May-06							12.29			
18-Jun-06										
20-Jun-06	3.75	2.47	6.05	2.85	1.38		2.26			
21-Jun-06										
23-Jun-06										
9-Jul-06										
10-Jul-06										
11-Jul-06	3.48	1.38	3.34	1.56	1.39		0.51			
12-Jul-06										
20-Aug-06										
21-Aug-06										
22-Aug-06										
23-Aug-06	2.95	0.97	2.89	0.64	0.46		0.27			
24-Aug-06										
17-Sep-06										
20-Sep-06	4.04	1.34	3.5	0.53	0.73		0.56			
21-Sep-06										
25-Sep-06										
27-Sep-06										
28-Sep-06		2.73								
15-Oct-06										
17-Oct-06										
18-Oct-06										
19-Oct-06	2.57	3.23	1.87	0.49	0.66		0.33			
17-Nov-06										
19-Nov-06										
23-Nov-06	2.14		4.64	1.55	1.51					
24-Nov-06										
27-Nov-06							1.27			
17-Dec-06	0.71	0.79	4.15	4.65	1.86		1.34			
23-Dec-06		1.56								
21-Jan-07	(2)	3.58	2.85	3.56	4.15		2.21			
18-Feb-07	(2)	(2)	(2)	2.18	(2)		(2)			
18-Mar-07	(2)	(2)	4.53	3.38	3.11	(2)	2.46			
15-Apr-07										
16-Apr-07	1.04	3.29	8.34							
17-Apr-07				7.67	1.41	11.47	5.47			
13-May-07	2.52	3.4	11.39	6.46	1.53		1.35			
15-May-07						7.74				

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW21A	SW21B	SW21C	SW22	SW22A	SW22C	SW24A	SW77	PR Control	BC Control
17-Jun-07	1.18	5.96	0.6	2.01	6.77		0.23			
18-Jun-07						9.78				
15-Jul-07	1.89	1.64	0.74	1.77	3.61		0.35			
18-Jul-07						2.68				
19-Aug-07	0.83	1.31	0.32	1.53	0.23		0.38			
22-Aug-07						1.55				
16-Sep-07	2.44									
17-Sep-07		1.15	0.65	1.2	0.58	3.03	0.27			
18-Sep-07										
14-Oct-07										
18-Oct-07	1.38	4.13	2.65	0.23	0.33	2.18	0.22			
19-Oct-07										
18-Nov-07										
19-Nov-07							2.07			
21-Nov-07	0.75	3.96	1.57	1.07	1.02	4.41				
9-Dec-07	0.17	1.77	1.98			(2)				
10-Dec-07							0.55			
11-Dec-07				0.37	(4)					
12-Dec-07										
20-Jan-08	(2)				0.55					
21-Jan-08		7.76	8.04				1.47			
22-Jan-08				6.95		2.6				
17-Feb-08	(2)									
19-Feb-08		0.41	2.33				1.64			
20-Feb-08				3.33	2.16	16.9				
16-Mar-08	(2)	(2)								
17-Mar-08			0.7				0.79			
18-Mar-08				1.16	1.47	5.64				
19-Mar-08										
30-Mar-08	(2)	(2)								
1-Apr-08			23.4							
2-Apr-08				7.42	2.89	17.62	0.79			
4-Apr-08										
7-Apr-08										
20-Apr-08	1.66									
21-Apr-08										
23-Apr-08		1.35	9.92	2.0	2.53	12.4	1.87			
24-Apr-08										
6-May-08										
18-May-08	0.3									
20-May-08										
21-May-08		1.49	6.72	7.91	2.17	3.9	1.43			
22-May-08										

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW21A	SW21B	SW21C	SW22	SW22A	SW22C	SW24A	SW77	PR Control	BC Control
15-Jun-08	0.18									
17-Jun-08		1.2	2.26	4.33	0.39	3.1	0.37			
18-Jun-08										
13-Jul-08	(4)									
15-Jul-08		0.37	2.21				0.3			
16-Jul-08				3.24	0.7	4.1				
17-Aug-08	(4)									
18-Aug-08							1.4			
19-Aug-08		0.4	4.5	1.79	0.9	3.1				
12-Sep-08										
14-Sep-08	(4)									
16-Sep-08		0.16	1.9	2.7	0.51	3.75	0.53			
17-Sep-08										
19-Oct-08										
20-Oct-08										
21-Oct-08	0.65	1.27	1.5				0.83			
22-Oct-08				0.59	0.63	3.17				
23-Nov-08	0.8	0.79	4.58	(2)	0.25	8.33	0.6			
14-Dec-08	0.17	1.42	8.76	1.9	1.76	8.58	1.8			
18-Jan-09	(2)	(2)	5.21	2.8	1.25	3.88	3.9			
8-Feb-09	(2)	(2)	2.2	0.66	2.7	13.3	0.7			
15-Mar-09	0.78	(2)	7.4	3.9	3.2	26.9	1.5			
12-Apr-09	0.4	0.2	3.65	3.4	1.8	21.6	3.4			
17-May-09	0.1	0.2	3.7	3.7	2.3	8.2	1.0			
14-Jun-09	(1)	0.1	2.2	1.8	0.7	0.8	0.43			
12-Jul-09	(1)	0.41	1.83	0.36	0.36	1.1	0.26			
9-Aug-09	(1)	0.1	2.2	0.54	0.9	1.7	0.4			
13-Sep-09	0.33	0.99	1.6	0.27	(4)	0.72	0.4			
11-Oct-09	0.35	0.78	1.4	1.1	0.63	4.3	0.37	0.4		
15-Nov-09	(4)	0.43	2.0	0.3	3.1	2.5	0.33	(4)		
13-Dec-09	(2)	(2)	0.4	2.4	0.74	1.2	0.14	(2)		
17-Jan-10	(2)	(2)	0.5	0.9	0.78	0.3	1.2	0.16		
7-Feb-10	(2)	(2)	0.74	1.2	0.65	1.7	1.2	0.2		
14-Mar-10	0.86	(2)	4.3	6.5	5.0	20.8	1.5	0.67		
4-Apr-10										
11-Apr-10	0.5	0.9	2.3	7.1	2.1	6.4	3.9	0.5		
16-May-10	0.3	1.4	5.6	6.4	1.5	7.8	1.5	0.2		
23-May-10										
13-Jun-10	(1)	(4)	2.2	9.5	1.5	6.5	1.0	0.34		
18-Jul-10	0.26	(4)	2.2	4.4	1.5	8.0	0.4	0.58		
19-Jul-10										
15-Aug-10	(1)	0.6	2.1	1.9	0.73	3.7	0.5	0.2		
12-Sep-10	0.13	0.36	1.95	1.2	0.58	(4)	0.31	0.11		

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW21A	SW21B	SW21C	SW22	SW22A	SW22C	SW24A	SW77	PR Control	BC Control
17-Oct-10	(4)	0.45	1.5	1.5	0.75	5.0	0.5	(4)		
21-Oct-10										
14-Nov-10	0.6	0.4	2.3	5.0	1.7	13.2	0.6	0.2		
19-Dec-10	(2)	(2)	6.2	1.9	0.6	3.0	0.8	(2)		
15-Jan-11										
16-Jan-11			4.5	5.5	0.5	7.6	1.5	(2)		
20-Feb-11			1.4	2.3	1.0	5.0	1.9	(2)		
13-Mar-11	(2)	(2)	2.7	5.9	1.7	10.2	2.6	(2)		
17-Mar-11										
18-Mar-11										
20-Mar-11				9.3	2.7	14.0				
22-Mar-11										
1-Apr-11										
5-Apr-11										
8-Apr-11										
12-Apr-11										
15-Apr-11										
17-Apr-11	0.2	(4)	3.3	6.9	2.5	21.2	1.3	0.8		
18-Apr-11										
20-Apr-11										
21-Apr-11										
26-Apr-11										
29-Apr-11										
3-May-11										
6-May-11										
10-May-11										
13-May-11										
15-May-11	1.1	1.4	5.4	12.8	1.4	15.1	2.9	0.5		
16-May-11										
18-May-11										
19-May-11										
20-May-11										
27-May-11										
3-Jun-11										
12-Jun-11	0.5	0.65	2.4	2.6	1.8	6.1	1.7	0.2		
13-Jun-11										
17-Jul-11	0.1	0.3	1.6	2.0	0.4	2.1	0.7	0.2		
14-Aug-11	0.15	0.16	1.0	0.3	0.2	1.9	0.4	0.2		
18-Sep-11	(1)	0.2	0.8	1.2	0.3	1.4	0.1	0.1		
16-Oct-11	(4)	0.24	0.8	0.3	0.3	2.9	1.1	0.1		
20-Nov-11	(4)	0.11	0.5	1.3	0.5	2.5	0.7	0.13		
18-Dec-11	0.21	(2)		4.4	1.3	6.7	0.4	0.2		
19-Dec-11										

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW21A	SW21B	SW21C	SW22	SW22A	SW22C	SW24A	SW77	PR Control	BC Control
20-Dec-11			2.8							
15-Jan-12	(2)	(2)	2.1	1.2	4.1	5.2	1.4	0.4		
19-Feb-12	(2)	(2)	2.2	1.7	1.8	5.1	0.3	0.3		
18-Mar-12	2.5	1.2	4.5	22.6	5.1	6.6	2.0	1.0		
20-Mar-12										
15-Apr-12	0.1	0.4	1.9	4.0	1.1	2.4	0.4	0.3		
13-May-12	0.3	0.4	2.6	1.1	0.7	3.5	1.6	0.24		
17-Jun-12	(1)	0.4	1.2	1.9	0.3	1.3	0.3	0.2		
15-Jul-12	(1)									
16-Jul-12		0.1	1.1	1.4	0.3	2.3	0.2	0.1		
12-Aug-12	(4)									
14-Aug-12		0.1	1.5				0.9	0.1		
15-Aug-12				1.0	1.3	3.5				
16-Sep-12	0.1									
18-Sep-12		0.2	0.9	1.1	0.5	2.2	0.2	0.1		
19-Sep-12										
14-Oct-12										
17-Oct-12	0.5	0.4	1.4				0.1	0.2		
18-Oct-12				1.1	0.7	2.2				
18-Nov-12										
20-Nov-12	0.2	0.1	2.6				4.8	0.3		
21-Nov-12				0.8	1.2	8.6				
12-Dec-12			2.4							
16-Dec-12										
18-Dec-12	0.1	0.3	1.7				1.3	0.8		
20-Dec-12				4.1	0.7	3.8				
13-Jan-13		(2)								
15-Jan-13	1.7							0.2		
16-Jan-13			8.5	3.9	1.2	12.1	1.8			
17-Feb-13	(2)	(2)	(2)							
20-Feb-13				3.9	2.1	6.68	1.4	0.3		
17-Mar-13	(2)	(2)								
19-Mar-13								0.3		
20-Mar-13			1.0	2.8	2.2	4.8	2.7			
14-Apr-13		(2)								
15-Apr-13										
16-Apr-13	0.6		5.6				18.4	1.3		
17-Apr-13				7.9	5.0	15.9				
12-May-13	(4)									
13-May-13		(4)	7.5				0.2	0.3		
14-May-13				2.4	0.8	2.3				
16-Jun-13	0.5									
18-Jun-13								0.1		

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW21A	SW21B	SW21C	SW22	SW22A	SW22C	SW24A	SW77	PR Control	BC Control
19-Jun-13		0.9	6.0	1.2	1.0	2.7	0.5			
14-Jul-13	(1)									
16-Jul-13		0.1	1.3				0.3	(4)		
17-Jul-13				0.6	0.2	1.4				
18-Aug-13	(4)					(1)		(4)		
20-Aug-13		0.11								
21-Aug-13			0.6	0.5	0.4		0.2			
15-Sep-13	(4)							(4)		
18-Sep-13		0.13	3.0				0.97			
19-Sep-13				0.44	0.3	1.4				
13-Oct-13	0.1									
16-Oct-13		0.1	1.7				0.8	0.1		
17-Oct-13				1.3	2.9	4.7				
17-Nov-13	0.2	0.1								
19-Nov-13			5.3				0.9	0.8		
20-Nov-13				1.9	2.6	4.8				
15-Dec-13	0.7	(2)	(2)	(2)	(2)	(2)				
17-Dec-13								0.4		
18-Dec-13							1.1			
19-Jan-14	(2)	(2)	(2)		(2)			0.3		
21-Jan-14							1.6			
22-Jan-14				0.7		1.0				
16-Feb-14	(2)	(2)	(2)	(2)	(2)	(2)	(2)	0.1		
19-Feb-14										
20-Feb-14										
16-Mar-14	(2)	(2)	(2)		(2)	(2)	(2)			
18-Mar-14								0.2		
19-Mar-14				0.7						
13-Apr-14		(2)								
15-Apr-14								1.4		
16-Apr-14	1.1		14.5				3.5			
17-Apr-14				24.8	2.3	16.5				
11-May-14										
12-May-14								0.6		
13-May-14	0.1	0.2	3.5	0.8	1.9	12.3	1.5			
15-Jun-14	(1)									
17-Jun-14		0.1	1.4	1.5	0.2	4.8	0.2	0.1		
18-Jun-14										
13-Jul-14	(4)									
14-Jul-14								(4)		
15-Jul-14		0.4	1.7	0.25	0.14	1.5	0.3			
16-Jul-14										
17-Aug-14	(4)						(4)			

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW21A	SW21B	SW21C	SW22	SW22A	SW22C	SW24A	SW77	PR Control	BC Control
18-Aug-14								(4)		
19-Aug-14		0.1	0.5	0.3	0.14	0.6				
7-Sep-14	(1)	0.2			0.1		(4)			
8-Sep-14								(4)		
9-Sep-14			0.5	0.1		0.6				
19-Oct-14	0.1				0.2					
20-Oct-14				0.9		1.6				
21-Oct-14										
22-Oct-14		(4)	1.6							
23-Oct-14							0.1	(4)		
16-Nov-14	(2)	(2)	(2)	(2)	(2)	(2)	(2)	0.1		
19-Nov-14										
14-Dec-14		(4)			2.5			(2)		
16-Dec-14	(4)		1.4				1.4			
17-Dec-14				4.0		4.6				
18-Jan-15	(2)	(2)						(2)		
20-Jan-15			0.9				0.2			
21-Jan-15				3.7	0.9	16.2				
15-Feb-15										
15-Mar-15	(2)	(2)				(2)				
18-Mar-15			1.9				0.2	0.1		
19-Mar-15				0.8	0.6					
21-Apr-15								0.9		
22-Apr-15	0.2	(4)	5.6				2.4			
23-Apr-15				4.6	2.5	11.2				
17-May-15	(1)	(1)								
19-May-15			1.9				1.2	0.1		
20-May-15				2.5	1.7	1.6				
14-Jun-15	(1)	(1)								
15-Jun-15			4.8	1.0	1.0	3.6	0.1	1.3		
16-Jun-15										
19-Jul-15	(1)	(1)								
21-Jul-15			2.7				0.2	0.1		
22-Jul-15				1.2	0.2	1.4				
9-Aug-15	(1)									
11-Aug-15		0.3	4.7				0.1	0.1		
12-Aug-15				0.3	0.5	1.6				
23-Aug-15										
25-Aug-15			1.1				0.3	(4)	7.4	0.4
6-Sep-15	(1)				0.4					
8-Sep-15		0.1	2.7				0.1	(4)		
9-Sep-15				0.5		1.2			8.3	7.5
11-Oct-15	(1)									

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW21A	SW21B	SW21C	SW22	SW22A	SW22C	SW24A	SW77	PR Control	BC Control
15-Oct-15		(4)	0.6				0.1	(4)	0.2	
16-Oct-15				0.3	0.2	1.6				6.0
8-Nov-15										
10-Nov-15										
15-Nov-15	(1)									
18-Nov-15		0.1	0.9				0.4	0.1	13.3	
19-Nov-15				0.4	1.1	3.8				6.4
6-Dec-15	(1)									
8-Dec-15		0.1	0.8	0.3	1.5	2.5	1.1	0.14	9.2	1.75
9-Dec-15										
17-Jan-16	(2)	(2)								(2)
19-Jan-16			2.1				1.0	0.3	30.8	
20-Jan-16				2.1	2.3	5.3				
14-Feb-16	(2)	(2)								(2)
17-Feb-16			1.8				1.2	1.0	18.7	
18-Feb-16				1.2	1.1	7.0				
13-Mar-16		(2)								
15-Mar-16	0.5		7.2	20.8	11.9	29.5	4.9	2.5	148.4	192.0
17-Apr-16		(1)								
20-Apr-16								1.4	86.0	
21-Apr-16	0.1		8.1	18.3	4.3	14.5	1.8			41.5
15-May-16	(1)									
17-May-16								0.7	59.4	17.3
18-May-16		0.1	2.3	5.7	2.3	6.5	0.5			
19-Jun-16	(1)									
22-Jun-16				2.8	1.2	2.4	2.4	0.2	25.5	1.4
23-Jun-16		0.11	1.9							
3-Jul-16										
5-Jul-16			1.4				0.6	0.5		
17-Jul-16										
20-Jul-16							0.5	0.1	11.5	0.4
21-Jul-16	0.5	1.7	1.5	1.8	0.5	2.2				
7-Aug-16										
9-Aug-16			0.3				0.1	0.5		
21-Aug-16										
24-Aug-16	0.5	1.0	2.3				0.4	0.1	6.3	
25-Aug-16				1.0	0.5	0.9				0.2
18-Sep-16										
19-Sep-16	1.3	2.0	1.5	0.8	0.6	1.8	0.5	0.1	8.5	0.3
16-Oct-16										
17-Oct-16				0.5	1.4			0.1	6.1	0.2
18-Oct-16	2.8	0.7	3.5			2.1	0.7			
24-Oct-16										

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW21A	SW21B	SW21C	SW22	SW22A	SW22C	SW24A	SW77	PR Control	BC Control
25-Oct-16										
15-Nov-16				0.5	0.1	3.2	0.4	0.5	11.1	0.4
16-Nov-16	1.9	1.1	2.0							
18-Nov-16										
12-Dec-16	2.8	3.78		0.2	1.5	7.8	0.2	0.34	10.54	1.2
12-Jan-17					1.9					
22-Jan-17										
24-Jan-17							3.7	0.4	44.6	37.3
25-Jan-17	3.2	6.2	4.6	1.3		8.1				
15-Feb-17		(2)								(2)
16-Feb-17				2.8	2.6	7.9	0.6	0.9	18.3	
17-Feb-17	0.4		4.6							
19-Mar-17										
21-Mar-17				6.6	0.9	13.5	0.3	0.9	40.3	
22-Mar-17	1.3	0.33	5.1							14.6
16-Apr-17										
19-Apr-17	1.3	1.55	5.3	16.6	1.0	12.0	3.6	1.4	93.82	35.1
8-May-17										
9-May-17										
14-May-17										
16-May-17	2.0	1.6	3.5	3.3	12.8	9.0	1.5	0.9	77.2	17.1
28-Jun-17	2.2	1.2	1.4	6.4	2.1	6.9	1.2	0.8	60.3	25.1
7-Jul-17			5.5				0.1	0.9		
18-Jul-17								0.4	25.9	
19-Jul-17	0.4	0.5	3.8				1.1			5.3
20-Jul-17				3.7	1.0	6.6				
27-Jul-17										
2-Aug-17			2.4				0.6	0.3		
13-Aug-17										
15-Aug-17							0.1	0.3	24.8	
16-Aug-17	0.9	0.9	7.2	1.9	1.1	2.8				2.3
17-Sep-17							0.2	0.2	9.9	1.1
18-Sep-17										
19-Sep-17	1.5	0.8	5.7	0.8	0.6	6.8				
17-Oct-17				0.9	1.9	5.3	0.8	0.2	27.3	
18-Oct-17	1.0	0.6	1.1							8.8
14-Nov-17							0.2	0.3	40.1	21.4
15-Nov-17	2.6	1.5	2.4	2.1	2.6	5.3				
12-Dec-17										
14-Dec-17	0.8	1.3	5.6	3.4	2.6	7.9	0.5	0.6	37.5	11.2
17-Jan-18	(2)	(2)		5.1	2.8	5.1		0.2	51.3	
18-Jan-18			7.4				0.5			25.8
18-Feb-18		(2)								

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW21A	SW21B	SW21C	SW22	SW22A	SW22C	SW24A	SW77	PR Control	BC Control
22-Feb-18									140.9	
23-Feb-18	2.4		9.0	8.5	5.2	19.4		1.5		
24-Feb-18							1.3			55.0
18-Mar-18	(2)									
20-Mar-18				4.6	1.2	5.4		0.5	57.5	
21-Mar-18			6.5				0.2			
18-Apr-18	(2)	(2)		4.8	2.4	8.5	1.5	0.9	89.2	44.4
19-Apr-18			7.4							
8-May-18										
9-May-18										
13-May-18										
14-May-18						6.3		1.4	50.4	18.0
15-May-18	1.0	(4)	5.5	11.9	3.4		2.2			
18-Jun-18	0.98	1.2	4.33	5.59	1.36	2.29	1.29	(4)	38.2	1.66
19-Jun-18										
20-Jun-18										
4-Jul-18			3.33				0.45	0.44		
18-Jul-18				1.45	1.34	1.83				
19-Jul-18	0.82	(4)	1.73				0.96	0.17	11.19	0.23
3-Aug-18			2.1				0.38	0.18		
23-Aug-18				0.7	1.6	2.6		0.7	26.5	0.8
24-Aug-18	0.5	0.3	4.9				0.4			
19-Sep-18					0.5	1.8		0.2	25.9	0.2
20-Sep-18	0.1	0.2	1.2	0.2			0.5			
24-Oct-18				0.7	0.4	3.1		0.2	13.0	0.7
25-Oct-18	0.1	0.1	2.4				0.9			
21-Nov-18				0.6	0.1	2.0		(1)	19.2	6.7
22-Nov-18	0.7		1.9				0.5			
12-Dec-18				1.6	1.6			1.1	43.8	18.7
13-Dec-18	0.5	0.3	3.1			3.8	1.9			
18-Jan-19	(2)	(2)		2.7	7.8			(2)		
19-Jan-19	(2)	(2)	6.0			4.0	1.2			
26-Feb-19				2.1	(2)	(2)		(2)	(2)	(2)
28-Feb-19	(2)	(2)	(2)				(2)			
15-Mar-19				2.6	5.3			1.4	(2)	(2)
19-Mar-19	(1)	(1)	12.6			24.7	1.9			
24-Apr-19				22.9	4.9			0.5	158.2	66.5
25-Apr-19	3.4	(1)	17.1			15.6	5.0			
14-May-19										
16-May-19										
23-May-19				7.9	2.2			1.2	77.8	21.0
27-May-19	0.1	(1)	7.0			7.7	1.8			
18-Jun-19				2.9	2.6			1.0	25.2	4.4

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW21A	SW21B	SW21C	SW22	SW22A	SW22C	SW24A	SW77	PR Control	BC Control
21-Jun-19		(1)	3.8			5.5	0.5			
29-Jul-19				0.5	0.3			(4)	10.9	1.1
30-Jul-19	0.1	0.3	3.5			4.5	0.5			
29-Aug-19				4.0	1.1				8.7	0.2
30-Aug-19	1.9	1.9	(1)			2.4	0.4			
26-Sep-19				42.7	0.7			(1)	13.0	3.1
27-Sep-19	1.7	1.6	(1)			2.6	0.4			
22-Oct-19	2.1	0.8	(1)			3.3	0.6			
23-Oct-19				2.7	1.3			(1)	12.6	0.2
21-Nov-19	3.0	0.9	(2)			2.6	(2)			
22-Nov-19				2.4	0.9			(2)	12.2	0.1
20-Dec-19	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	8.7	(2)
15-Jan-20				(2)	(2)	(2)		(2)	12.7	0.5
24-Jan-20	(2)	(2)	2.7				(2)			
20-Feb-20				(2)	(2)	(2)		(2)	(2)	(2)
21-Feb-20	(2)	(2)	(2)				(2)			
25-Mar-20	(2)	(2)	(2)				(2)			
26-Mar-20				(2)	(2)	(2)		(2)	(2)	44.8
27-Apr-20					1.9			(1)	84.0	34.3
28-Apr-20			4.4			10.0				
19-May-20										
20-May-20										
28-May-20	(1)	(1)	4.2			5.1	0.5			
29-May-20				6.4	3.0			0.3	13.3	7.4
23-Jun-20				1.2	34.1			3.9	79.1	3.1
24-Jun-20	(1)	(1)	(1)			3.9				
30-Jul-20				1.2	1.2				32.8	1.1
31-Jul-20		(1)	3.3			0.8	1.3			
25-Aug-20				0.7	1.1			2.7	7.3	0.5
26-Aug-20		(1)	1.7			1.0	0.6			
25-Sep-20				0.7	1.1			0.2	6.7	0.6
26-Sep-20		(1)	1.5			1.0	0.7			
29-Oct-20	3.4	(1)	1.5			1.4	0.8			
30-Oct-20				0.9	1.3			0.3	9.0	2.1
26-Nov-20				5.5	4.3			(2)	15.2	11.4
27-Nov-20	6.5	(1)	4.1			1.7	1.8			
22-Dec-20	1.6	(2)	2.8	(2)	(2)	(2)	5.5	(2)		
23-Dec-20									37.9	9.9
27-Jan-21	(2)	(2)		(2)	(2)	(2)			10.6	0.4
28-Jan-21			2.5				(2)	(2)		
22-Feb-21	(2)	(2)		(2)	(2)	(2)			1.3	(2)
23-Feb-21			0.5				(2)	(2)		
29-Mar-21	(4)	19.0		5.9	2.3	1.2			7.7	8.9

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW21A	SW21B	SW21C	SW22	SW22A	SW22C	SW24A	SW77	PR Control	BC Control
30-Mar-21			6.4				3.5	2.1		
27-Apr-21	(4)	(1)		4.2	1.8				76.8	45.4
28-Apr-21			5.0				0.7	3.2		
26-May-21			7.8					0.7		
27-May-21	(1)	(1)		1.7	1.1	5.0			29.0	2.5
22-Jun-21	(1)	(1)		3.3	1.4	0.6			12.5	1.4
23-Jun-21			2.7				1.9	1.6		
10-Jul-21			0.9				0.2	0.2		
22-Jul-21	(1)	(1)		1.2	0.6	0.7				1.8
23-Jul-21			4.0				0.8	0.3		
11-Aug-21			0.1				0.5	0.11		
25-Aug-21	(1)	(1)		1.1	0.4	0.7			6.7	1.4
26-Aug-21			0.6				(4)	(4)		
27-Sep-21			4.9				1.8	0.3		
28-Sep-21	(1)	(1)		4.5	2.0	3.4			33.5	13.2
26-Oct-21	0.7	(1)		1.6	3.5	4.9			34.6	42.4
27-Oct-21			6.7				1.7	0.6		
22-Nov-21			6.5				6.0	(2)		
23-Nov-21	1.9	(2)		(2)	(2)	(2)			37.5	16.4
21-Dec-21	1.5	(2)		(2)	(2)	(2)			38.9	8.7
22-Dec-21			4.8				4.9	(2)		
24-Jan-22	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
8-Feb-22	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
16-Mar-22	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	191.06	51.84
21-Apr-22	4.52		6.39	4.1	0.75	0.87	2.36	0.87	52.41	24.4
24-May-22	(1)	(1)		1.81	0.29	0.66			60.08	3.96
25-May-22			3.53				1.0	0.57		
26-May-22										
22-Jun-22										
24-Jun-22			8.56	5.42	3.27	3.2	3.47	2.68		
25-Jun-22	4.41	6.26							2.56	2.21
8-Jul-22			2.24				0.57	0.77		
11-Aug-22			1.62				1.06	0.24		
26-Aug-22									46.12	6.19
29-Aug-22	(1)	(1)	2.25				1.93	0.86		
30-Aug-22				6.27	1.98	3.41				
27-Sep-22				8.62		6.72	0.92	0.81	20.22	9.74
29-Sep-22	(1)	(4)	0.4		5.81					
26-Oct-22										
27-Oct-22	(1)	(4)	0.75				0.41	(4)		
28-Oct-22				0.36	0.5	7.43			8.56	1.18
21-Nov-22								(4)		
22-Nov-22	(1)	(4)							8.1	1.34

Table C-2 Surface Water Flow Summary - Extension Quarry Stations

Date	SW21A	SW21B	SW21C	SW22	SW22A	SW22C	SW24A	SW77	PR Control	BC Control
23-Nov-22				0.21	0.19	12.12	0.45			
20-Dec-22									10.28	
21-Dec-22										3.04
24-Jan-23									14.02	9.71
22-Feb-23									22.24	19.29
27-Mar-23										
28-Mar-23									33.24	59.2
21-Apr-23									50.94	21.83
15-May-23										
16-May-23				3.71	4.54	22.9	10.44	0.2		
17-May-23	(1)		7.19						33.7	13.76
26-Jun-23	(1)	(1)	3.41				1.67	0.47		
27-Jun-23				0.41	1.36	(4)			9.32	18.47
11-Jul-23			3.55				2.15	0.18		
25-Jul-23							13.91	0.38		
26-Jul-23	(1)	(1)	10.05	2.86	3.81	6.8			27.38	3.19
14-Aug-23			6.18				6.73	0.13		
28-Aug-23										
29-Aug-23		(1)	1.79				0.77	(4)		
30-Aug-23				0.54	0.88	3.03			15.37	7.08
31-Aug-23	(1)									
25-Sep-23	(1)	(1)	6.25				1.12	(4)		
26-Sep-23				0.24	0.9	1.77			4.27	0.38
30-Oct-23							1.28	0.1		
31-Oct-23	(1)	(1)	21.95	0.58	0.65	3.94			8.03	
1-Nov-23										1.67
29-Nov-23									13.54	1.21
18-Dec-23									17.48	16.08

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW1	22-May-03			10.0	
	29-May-03 (1)				
	23-Jun-03			16.8	
	15-Aug-03 (1)				
	20-Aug-03 (1)				
	5-Sep-03 (1)				
	9-Oct-03 (1)				
	12-Feb-04		436	2.4	
	4-Mar-04		652	3.5	
	19-Mar-04		629	3.5	10.6
	2-Apr-04	7.8	281	4.8	
	8-Apr-04	7.7	286	4.3	
	7-May-04	8.1	521	11.4	
	14-May-04	7.9	609	17.7	
	20-May-04	8.0	592	13.3	
	28-May-04	7.9	497	10.4	11.0
	4-Jun-04	7.8	555	12.3	
	11-Jun-04	7.8	630	14.6	
	17-Jun-04	7.7	666	14.6	
	24-Jun-04 (1)				
	1-Jul-04	7.9	717	15.1	8.7
	9-Jul-04 (1)				
	16-Jul-04	7.8	644	15.7	9.2
	22-Jul-04	7.9		20.4	8.5
	29-Jul-04	7.7	647	15.8	
	6-Aug-04 (1)				
	12-Aug-04 (1)				
	19-Aug-04	7.7	731	15.8	
	26-Aug-04	7.8	713	17.8	
	3-Sep-04 (1)				
	9-Sep-04	8.1	705	14.7	7.9
	17-Sep-04	7.7	764	14.7	7.7
	23-Sep-04 (1)				
	26-Sep-04 (1)				
	1-Oct-04 (1)				
	7-Oct-04 (1)				
	14-Oct-04 (1)				
	20-Oct-04 (1)				
	28-Oct-04 (1)				
	7-Nov-04	7.8	604	7.1	11.4
	11-Nov-04 (1)				
	19-Nov-04 (1)				
	25-Nov-04 (1)				
	2-Dec-04 (1)				
	9-Dec-04 (1)				
	17-Dec-04	7.8	472	1.1	
	29-Dec-04	7.6	600	3.4	
	5-Jan-05	7.7	467	3.0	12.7
	13-Jan-05 (1)				
	20-Jan-05	7.5	409	1.0	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW1	28-Jan-05	7.5	422	0.7	
(cont'd)	3-Feb-05	7.5	450	2.7	
	10-Feb-05 (1)				
	16-Feb-05	7.8	454	3.3	12.3
	24-Feb-05	8.0	440	1.1	
	3-Mar-05	7.6	415	0.4	12.9
	10-Mar-05 (1)				
	24-Mar-05	7.4	448	3.9	12.4
	30-Mar-05	7.7	470	6.2	
	7-Apr-05	7.5	356	3.3	12.1
	15-Apr-05	6.9	330	1.5	9.1
	21-Apr-05	7.5	451	10.4	11.1
	28-Apr-05	7.5	398	7.0	
	6-May-05	7.7	610	14.6	
	13-May-05	8.2	514	11.0	
	20-May-05	7.2	522	10.1	7.8
	27-May-05	7.7	653	18.6	
	3-Jun-05	7.3	662	18.0	7.5
	10-Jun-05 (1)				
	17-Jun-05	7.2	601	15.2	7.7
	24-Jun-05	7.7	776	22.7	
	30-Jun-05	7.5	835	23.4	7.6
	7-Jul-05	6.6	731	20.4	
	15-Jul-05	7.1	1,148	23.6	6.4
	21-Jul-05	7.6	1,524	24.1	
	28-Jul-05 (1)				
	2-Aug-05 (1)				
	12-Aug-05 (1)				
	19-Aug-05 (1)				
	24-Aug-05 (1)				
	1-Sep-05 (1)				
	9-Sep-05 (1)				
	16-Sep-05 (1)				
	23-Sep-05 (1)				
	30-Sep-05 (1)				
	7-Oct-05 (1)				
	14-Oct-05 (1)				
	21-Oct-05 (1)				
	28-Oct-05 (1)				
	4-Nov-05 (1)				
	11-Nov-05 (1)				
	18-Nov-05	8.5	943	4.1	
	25-Nov-05	8.3	524	2.5	12.0
	2-Dec-05	8.9	545	4.1	10.9
	9-Dec-05	9.4	538	3.8	11.0
	16-Dec-05	8.3	602	3.6	11.8
	22-Dec-05	8.2	592	2.8	12.8
	6-Jan-06	8.4	929	2.3	
	13-Jan-06 (1)				
	20-Jan-06	7.5	507	3.3	11.8

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW1	27-Jan-06	6.9	547	3.5	13.3
(cont'd)	3-Feb-06	8.2	503	3.7	
	10-Feb-06	8.3	495	2.9	13.4
	20-Feb-06	8.3	493	2.4	
	24-Feb-06	8.2	485	2.3	
	3-Mar-06	8.1	534	2.7	
	10-Mar-06	8.1	483	3.3	13.1
	17-Mar-06	8.2	471	2.8	12.9
	24-Mar-06	8.2	440	4.3	
	31-Mar-06	8.2	601	7.5	
	7-Apr-06	8.1	596	5.3	
	10-Apr-06	8.1	591	9.1	
	13-Apr-06	8.2	594	10.7	
	21-Apr-06	8.3	602	11.3	
	26-Apr-06	8.6	627	9.5	
	5-May-06	8.2	655	10.8	
	12-May-06	8.5	735	10.6	
	19-May-06	8.0	705	10.1	
	25-May-06	7.8	732	11.1	
	2-Jun-06	7.8	754	12.5	
	9-Jun-06	7.9	604	12.3	
	16-Jun-06	8.0	805	14.6	
	23-Jun-06	8.0	794	15.2	
	30-Jun-06 (1)				
	14-Jul-06 (1)				
	21-Jul-06 (1)				
	28-Jul-06 (1)				
	4-Aug-06	7.8	736	19.7	
	11-Aug-06 (1)				
	18-Aug-06 (1)				
	25-Aug-06	7.5	896	16.2	
	1-Sep-06	7.6	871	19.0	
	8-Sep-06	7.7	877	18.2	
	15-Sep-06	7.4	897	15.3	
	21-Sep-06	7.5	895	12.3	
	28-Sep-06	7.5	924	11.6	
	20-Oct-06	7.6	908	9.3	
	3-Nov-06	7.7	898	6.7	10.9
	10-Nov-06	7.8	874	8.0	
	17-Nov-06	7.8	867	6.7	10.7
	24-Nov-06	7.9	867	6.1	10.8
	4-Dec-06	7.7	853	3.9	11.9
	8-Dec-06	7.7	841	4.1	12.7
	14-Dec-06	7.8	886	5.5	
	21-Dec-06	7.9	852	4.8	12.0
	28-Dec-06	7.9	862	4.8	11.9
	5-Jan-07	7.9	853	5.6	10.7
	12-Jan-07	7.8	783	4.6	10.7
	19-Jan-07	8.1	791	3.0	12.2
	26-Jan-07	8.2	797	1.9	13.0

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW1	2-Feb-07	8.0	768	3.4	11.7
(cont'd)	9-Feb-07	8.1	707	3.5	12.2
	16-Feb-07	8.1	808	3.2	11.9
	22-Feb-07	8.0	805	3.6	11.2
	2-Mar-07	8.1	800	3.4	12.0
	9-Mar-07	8.0	668	4.4	12.4
	16-Mar-07	7.9	709	3.6	12.0
	23-Mar-07	7.9	719	5.2	11.6
	30-Mar-07	8.0	669	5.7	12.4
	5-Apr-07	7.6	328	3.1	
	13-Apr-07	8.1	652	4.0	13.1
	20-Apr-07	8.2	613	9.0	
	28-Apr-07	8.1	598	9.6	10.9
	4-May-07	8.2	582	11.0	
	11-May-07	8.0	677	10.7	
	18-May-07	8.1	667	10.6	11.1
	25-May-07	7.9	645	11.7	10.6
	1-Jun-07	8.0	676	14.6	7.3
	8-Jun-07	8.1	757	15.4	9.4
	14-Jun-07	8.2	768	14.0	9.2
	22-Jun-07 (1)				
	29-Jun-07	8.0	706	15.9	8.2
	6-Jul-07	7.9	745	15.5	9.4
	13-Jul-07 (1)				
	20-Jul-07	7.6	751	15.0	9.0
	27-Jul-07	7.5	694	14.6	7.6
	3-Aug-07 (1)				
	17-Aug-07	7.5	797	14.4	7.3
	24-Aug-07	7.9	810	17.4	6.2
	30-Aug-07	7.9	813	15.4	7.5
	7-Sep-07	7.5	822	16.3	7.6
	14-Sep-07	7.5	782	13.9	7.3
	21-Sep-07	7.8	793	15.4	8.1
	28-Sep-07	8.5	820	13.6	8.2
	5-Oct-07	7.5	884	13.6	8.1
	12-Oct-07 (1)				
	19-Oct-07	7.7	803	13.9	7.7
	26-Oct-07	7.2	801	11.9	7.6
	2-Nov-07	7.6	836	10.1	8.7
	9-Nov-07	7.5	819	8.4	9.0
	16-Nov-07	7.4	862	6.9	9.7
	23-Nov-07	7.9	863	4.7	10.0
	7-Dec-07	7.9	784	3.9	10.9
	14-Dec-07	7.8	781	4.0	10.9
	20-Dec-07	7.7	769	3.8	10.8
	28-Dec-07	6.8		5.3	7.7
	4-Jan-08	7.0	832	2.3	11.4
	11-Jan-08	7.3	719	3.5	10.3
	18-Jan-08	6.9	684	1.2	12.4
	25-Jan-08	8.0	689	1.2	12.6

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW1	1-Feb-08	7.2	706	1.3	12.2
(cont'd)	8-Feb-08	6.9	735	2.6	12.1
	15-Feb-08	6.6	728	1.7	12.5
	22-Feb-08	6.9	731	2.0	
	29-Feb-08	7.0	738	1.9	
	7-Mar-08	7.0	721	2.3	13.2
	14-Mar-08	6.6	713	2.4	
	20-Mar-08	7.6	711	2.4	13.4
	28-Mar-08	7.3	592	3.4	
	4-Apr-08	7.1	629	3.9	12.5
	11-Apr-08	7.2	496	3.0	11.5
	15-Apr-08	7.1	563	6.5	
	18-Apr-08	6.8	374	6.0	
	25-Apr-08	7.7	581	9.2	8.8
	2-May-08	6.7	607	7.8	8.8
	8-May-08	7.1	651	8.7	11.4
	15-May-08	7.7	663	13.1	10.4
	23-May-08	7.5	610	10.4	9.4
	30-May-08	7.1	723	10.8	8.1
	6-Jun-08	7.1	748	17.0	6.8
	13-Jun-08	6.7	693	13.9	6.5
	20-Jun-08 (1)				
	27-Jun-08	7.1	815	14.4	7.9
	4-Jul-08 (1)				
	11-Jul-08 (1)				
	18-Jul-08	7.2	857	16.5	5.4
	25-Jul-08	7.5	891	16.2	5.1
	1-Aug-08	7.5	845	17.2	4.9
	8-Aug-08 (1)				
	15-Aug-08	6.8	949	16.3	5.2
	22-Aug-08 (1)				
	28-Aug-08	7.6		16.4	6.2
	5-Sep-08	7.8	864	17.2	6.2
	12-Sep-08	7.8	869	15.3	4.9
	19-Sep-08 (1)				
	26-Sep-08	7.6	870	14.0	5.1
	3-Oct-08	7.5	863	10.4	6.7
	10-Oct-08	7.2	864	11.2	7.0
	17-Oct-08	7.2	800	9.6	5.6
	24-Oct-08	7.8	804	7.7	5.9
	31-Oct-08	7.8	815	7.5	5.4
	2-Nov-08	6.7	478	9.2	7.0
	9-Nov-08	7.8	678	8.3	7.1
	16-Nov-08	7.4	828	1.2	10.7
	23-Nov-08		647	3.4	7.5
	30-Nov-08		487	1.2	12.0
	7-Dec-08		738	3.1	9.1
	19-Dec-08	7.4	639	1.2	8.7
	23-Dec-08	8.1	649	2.5	9.5
	29-Dec-08	8.3	549	0.5	12.2

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW1	9-Jan-09		616	1.3	9.7
(cont'd)	16-Jan-09	8.1	684	0.7	10.0
	23-Jan-09	8.1	657	1.3	7.4
	30-Jan-09	8.1	663	2.1	8.8
	13-Feb-09	8.2	578	1.1	7.6
	20-Feb-09	8.3	606	2.0	
	27-Feb-09	8.1	570	2.9	
	6-Mar-09		556	4.7	12.1
	13-Mar-09	8.5	557	0.6	
	20-Mar-09	8.4	540	2.5	
	27-Mar-09	7.4	624	4.2	
	3-Apr-09	7.7	588	5.7	
	9-Apr-09	7.8	535	3.1	
	17-Apr-09	8.3	590	6.4	
	24-Apr-09	8.2	585	7.4	
	1-May-09	8.5	435	10.9	10.8
	8-May-09	7.9	564	11.8	9.4
	15-May-09	8.1	483	11.5	10.5
	22-May-09	8.1	511	10.9	9.0
	29-May-09	7.4	621	11.0	9.9
	5-Jun-09	7.9	582	11.6	10.1
	12-Jun-09	8.0	556	12.5	9.5
	19-Jun-09	7.7	1,277	12.7	9.8
	26-Jun-09	8.3	707	16.0	10.0
	2-Jul-09	7.6	621	13.9	8.8
	10-Jul-09		1,179	14.0	8.5
	17-Jul-09	8.9	713	13.2	8.0
	24-Jul-09	7.9	738	14.8	9.4
	31-Jul-09	7.6	760	14.7	6.8
	7-Aug-09	7.7	776	14.4	6.5
	14-Aug-09	8.3	729	15.7	7.8
	21-Aug-09	8.4	820	16.6	4.6
	28-Aug-09	8.4	746	14.5	8.3
	4-Sep-09 (1)				
	11-Sep-09 (1)				
	18-Sep-09 (1)				
	25-Sep-09 (1)				
	2-Oct-09	8.1	858	10.8	
	9-Oct-09	6.4	881	11.0	10.6
	16-Oct-09	7.8	861	6.1	11.5
	23-Oct-09	6.7	776	7.8	11.1
	30-Oct-09	7.5	795	9.0	10.5
	6-Nov-09	6.4	793	7.1	
	13-Nov-09	7.3	860	7.1	
	20-Nov-09	7.3	731	7.0	11.9
	27-Nov-09	7.6	747	6.4	11.5
	11-Dec-09	7.7	632	1.4	11.9
	18-Dec-09	7.4	765	2.4	12.3
	22-Dec-09	7.9	734	3.0	13.6
	28-Dec-09	7.6	793	2.8	11.5

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW1	8-Jan-10	7.8	694	2.2	12.1
(cont'd)	15-Jan-10	7.7	744	3.8	10.8
	22-Jan-10	8.1	768	2.3	12.2
	29-Jan-10	7.8	781	0.5	12.2
	5-Feb-10	6.5	494	3.1	11.6
	12-Feb-10	7.0	486	3.2	11.6
	19-Feb-10	8.2	586	2.0	11.8
	1-Mar-10	7.3	647	3.2	11.8
	5-Mar-10	7.4	631	5.6	11.4
	12-Mar-10	7.3	707	5.0	12.2
	19-Mar-10	7.5	667	8.8	12.5
	26-Mar-10	7.1	565	3.1	12.6
	2-Apr-10	6.9	569	8.4	12.0
	9-Apr-10	7.4	659	6.7	12.8
	16-Apr-10	8.0	500	10.2	11.2
	23-Apr-10	8.0	471	9.0	11.5
	30-Apr-10	7.9	464	9.9	10.7
	7-May-10	8.0	456	10.2	11.4
	14-May-10	7.8	389	10.2	9.1
	21-May-10	7.9	513	11.9	10.0
	28-May-10	7.9	503	15.4	8.8
	4-Jun-10	7.8	549	13.7	6.5
	11-Jun-10	7.9	476	13.4	6.7
	18-Jun-10	7.9	587	14.4	11.2
	25-Jun-10	7.9	560	14.4	9.4
	1-Jul-10	7.8	508	13.4	8.7
	9-Jul-10	7.6	545	18.4	8.3
	15-Jul-10	7.8	689	19.3	7.7
	23-Jul-10	7.1	606	17.8	8.4
	30-Jul-10	7.8	530	16.7	8.3
	13-Aug-10 (1)				
	20-Aug-10 (1)				
	27-Aug-10 (1)				
	3-Sep-10 (1)				
	10-Sep-10 (1)				
	17-Sep-10 (1)				
	24-Sep-10	7.9		16.2	7.2
	1-Oct-10	7.7	611	12.1	7.1
	8-Oct-10	7.7	599	11.2	7.6
	15-Oct-10	7.6	569	11.2	7.6
	22-Oct-10	7.8	566	6.9	9.4
	29-Oct-10	7.8	490	7.8	9.1
	5-Nov-10	7.9	453	4.1	9.4
	12-Nov-10	7.8	588	6.3	9.6
	19-Nov-10	8.0	474	4.8	11.4
	26-Nov-10	7.9	428	3.1	11.4
	3-Dec-10	7.8	428	2.8	10.2
	9-Dec-10	7.8	352	0.5	15.4
	17-Dec-10	7.6	335	0.5	12.0
	23-Dec-10	8.1	380	1.9	11.1

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW1	30-Dec-10	7.9	431	3.3	10.9
(cont'd)	7-Jan-11	7.8	369	1.8	12.1
	14-Jan-11	7.8	356	2.7	11.8
	21-Jan-11	7.7	355	1.3	11.0
	28-Jan-11	8.0	392	3.1	11.2
	4-Feb-11	7.9	335	0.4	11.6
	11-Feb-11	7.7	411	2.1	11.5
	18-Feb-11	7.7	379	3.0	12.3
	25-Feb-11	7.8	388	3.0	12.1
	4-Mar-11	7.7	371	2.5	12.3
	11-Mar-11	7.7	304	0.7	12.6
	18-Mar-11	7.8	266	2.7	15.1
	25-Mar-11	7.9	398	4.8	13.2
	1-Apr-11	7.8	359	4.3	12.0
	8-Apr-11	7.6	359	4.2	12.4
	15-Apr-11	7.7	288	4.4	10.4
	21-Apr-11	8.1	366	4.2	12.3
	29-Apr-11	7.2	372	5.7	
	6-May-11	8.2	318	7.7	10.4
	13-May-11	8.0	485	10.6	11.9
	20-May-11	8.0	399	11.5	10.1
	27-May-11	8.0	387	10.3	8.4
	3-Jun-11	7.9	459	13.9	8.0
	10-Jun-11	7.8	534	14.5	8.5
	17-Jun-11	7.9	483	13.8	9.6
	24-Jun-11	7.8	571	15.1	7.2
	30-Jun-11	7.7	507	14.9	10.0
	8-Jul-11 (1)				
	14-Jul-11 (1)				
	22-Jul-11 (1)				
	29-Jul-11 (1)				
	5-Aug-11 (1)				
	12-Aug-11 (1)				
	19-Aug-11 (1)				
	26-Aug-11 (1)				
	2-Sep-11 (1)				
	9-Sep-11 (1)				
	16-Sep-11	8.1	529	12.0	8.3
	23-Sep-11 (1)				
	30-Sep-11 (1)				
	6-Oct-11	8.0	692	10.6	9.0
	14-Oct-11 (1)				
	21-Oct-11	8.0	593	9.4	9.6
	28-Oct-11	8.3	492	8.6	9.9
	4-Nov-11	8.1	518	7.9	10.1
	11-Nov-11	7.6	558	5.9	4.8
	18-Nov-11	7.5	547	5.7	11.0
	25-Nov-11	7.5	557	6.8	9.6
	2-Dec-11	8.1	484	5.1	11.6
	9-Dec-11	7.4	424	4.8	9.8

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW1	16-Dec-11	7.6	396	4.0	12.8
(cont'd)	23-Dec-11	7.5	369	3.5	4.8
	30-Dec-11	9.2	355	3.5	11.3
	6-Jan-12	7.5	432	4.0	13.7
	13-Jan-12	8.1	344	2.9	
	20-Jan-12	8.0	344	2.2	10.5
	27-Jan-12	8.1	309	8.4	12.8
	3-Feb-12	7.9	274	3.6	11.2
	10-Feb-12	7.9	308	2.6	13.7
	17-Feb-12	7.7	370	3.5	14.0
	24-Feb-12	8.1	320	1.0	14.2
	1-Mar-12	7.8	359	2.6	
	9-Mar-12	8.0	212	1.4	12.9
	16-Mar-12	7.5	300	4.4	10.9
	23-Mar-12	7.6		10.5	6.3
	30-Mar-12	8.0	369	5.2	12.4
	6-Apr-12	8.3	420	7.7	6.1
	13-Apr-12	8.0	408	6.4	9.0
	20-Apr-12	8.0	452	8.5	7.9
	27-Apr-12	8.4	350	4.5	12.4
	4-May-12	8.0	482	12.4	6.9
	11-May-12	7.8	285	9.2	9.5
	18-May-12	7.9	492	10.8	7.5
	25-May-12	7.3	570	14.8	6.7
	1-Jun-12	7.8	5	11.0	6.1
	8-Jun-12	8.2	547	14.0	7.8
	15-Jun-12	8.0	633	14.7	5.9
	22-Jun-12	7.9	664	16.2	6.4
	28-Jun-12	8.1	660	16.6	6.4
	6-Jul-12	8.0	769	17.9	5.6
	13-Jul-12 (1)				
	20-Jul-12 (1)				
	27-Jul-12 (1)				
	3-Aug-12 (1)				
	10-Aug-12	8.1	542	16.2	5.8
	17-Aug-12	8.2	520	16.3	5.7
	24-Aug-12 (1)				
	31-Aug-12	7.6	749	18.0	6.7
	7-Sep-12 (1)				
	14-Sep-12	7.4	661	14.8	5.5
	21-Sep-12 (1)				
	28-Sep-12	6.8	723	10.6	8.3
	5-Oct-12	7.3	808	13.5	8.6
	12-Oct-12	7.8	638	7.4	10.0
	19-Oct-12	8.5	613	10.8	7.2
	26-Oct-12	7.0	615	10.7	9.2
	2-Nov-12	5.8	567	4.2	6.6
	9-Nov-12	6.3	444	5.0	9.8
	16-Nov-12	7.2	541	5.4	9.1
	23-Nov-12	7.6	511	7.5	7.5

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW1	30-Nov-12	8.7	515	5.3	5.0
(cont'd)	7-Dec-12	7.6	536	5.3	6.6
	14-Dec-12	8.3	462	3.8	9.1
	21-Dec-12	7.6	494	4.2	10.2
	28-Dec-12	7.5	434	3.8	12.1
	4-Jan-13	7.6	5	2.1	9.9
	11-Jan-13	7.7	547	3.7	9.1
	17-Jan-13	7.7	463	2.3	10.6
	25-Jan-13	7.7	458	1.6	4.5
	1-Feb-13	7.9	308	0.4	11.7
	8-Feb-13	7.6	322	0.7	13.4
	15-Feb-13	7.6	653	2.4	12.2
	22-Feb-13	7.3	335	2.0	8.6
	1-Mar-13	7.6	484	1.9	9.8
	8-Mar-13	7.9	381	5.2	12.1
	15-Mar-13			2.0	
	22-Mar-13	7.8	405	2.1	12.5
	28-Mar-13	7.9	370	4.8	11.5
	5-Apr-13	7.9	358	3.0	6.5
	12-Apr-13	7.4	382	2.9	3.8
	19-Apr-13	7.5	219	7.5	6.7
	26-Apr-13	7.6	288	4.8	9.3
	3-May-13	7.6	389	13.4	8.3
	9-May-13	7.8	439	10.4	9.5
	16-May-13	7.9	408	10.0	7.3
	24-May-13	7.7	439	8.2	8.2
	31-May-13	7.9	490	15.2	8.4
	7-Jun-13		411	10.2	6.5
	14-Jun-13	7.9	497	15.1	6.4
	21-Jun-13	7.9	530	13.1	7.7
	27-Jun-13	7.9	486	15.8	8.2
	5-Jul-13	7.7	584	14.9	7.8
	12-Jul-13	7.7	621	16.4	5.2
	19-Jul-13	7.7	621	19.7	5.2
	25-Jul-13	7.6	570	14.4	7.9
	2-Aug-13	8.1	587	16.3	9.0
	8-Aug-13	7.5	538	16.4	8.4
	16-Aug-13	7.9	621	13.8	4.9
	23-Aug-13 (1)				
	30-Aug-13	7.9	613	14.3	4.8
	6-Sep-13	7.8	598	13.4	5.0
	13-Sep-13	8.4	530	12.5	8.1
	20-Sep-13	8.3	556	15.1	4.1
	27-Sep-13	7.9	491	11.8	6.9
	4-Oct-13	7.8	483	10.2	5.9
	11-Oct-13	7.6	458	9.2	3.9
	18-Oct-13	7.5	426	9.2	4.0
	25-Oct-13	7.6	438	7.3	4.3
	31-Oct-13	7.6	421	9.7	4.3
	8-Nov-13	7.4	403	7.0	4.5

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW1	14-Nov-13	7.4	415	2.9	4.1
(cont'd)	22-Nov-13	7.4	405	3.5	4.1
	29-Nov-13	8.4	393	3.9	7.5
	6-Dec-13	7.8	340	3.0	5.4
	13-Dec-13	8.3	256	7.6	4.6
	19-Dec-13	8.8	386	3.5	6.3
	27-Dec-13	8.6	382	2.9	5.2
	3-Jan-14	8.5	360	0.9	3.2
	10-Jan-14	7.5	360	(1)	4.1
	17-Jan-14	8.1	356	1.5	4.3
	24-Jan-14	7.5	369	0.8	11.4
	31-Jan-14	7.1	398	1.7	4.0
	7-Feb-14	7.1	382	0.6	3.9
	14-Feb-14	7.4	254	1.9	4.4
	21-Feb-14	7.1	399	2.0	9.1
	7-Mar-14	7.4	389	0.1	7.8
	14-Mar-14	6.5	408	1.5	11.9
	21-Mar-14	7.3	408	1.4	3.8
	28-Mar-14	7.4	421	3.7	11.5
	4-Apr-14	7.8	403	3.2	11.2
	11-Apr-14	7.8	297	1.7	9.7
	17-Apr-14	7.7	485	3.8	9.0
	25-Apr-14	7.6	480	3.6	7.0
	1-May-14	7.5	473	4.2	5.8
	9-May-14	7.8	425	11.1	10.4
	16-May-14	7.2	328	10.2	10.3
	23-May-14	7.2	382	11.0	10.1
	30-May-14	7.3	375	11.0	10.0
	6-Jun-14	7.2	392	11.0	8.0
	13-Jun-14	7.2	402	11.2	8.1
	20-Jun-14	7.2	412	12.5	8.1
	27-Jun-14	7.2	423	12.5	8.1
	4-Jul-14	7.5	481	12.7	7.4
	11-Jul-14	7.3	424	14.3	6.9
	18-Jul-14	8.4	598	13.2	
	25-Jul-14	8.7	603	13.1	
	1-Aug-14	8.5	485	13.9	6.2
	8-Aug-14	8.5	460	13.8	6.2
	15-Aug-14	8.5	423	12.2	6.2
	22-Aug-14	8.8	693	14.3	
	29-Aug-14	8.7	682	14.0	
	5-Sep-14	8.9	717	16.3	
	12-Sep-14	7.5	645	11.8	6.9
	19-Sep-14	7.9	422	9.2	6.1
	26-Sep-14	7.9	429	10.7	6.4
	3-Oct-14	7.7	473	13.8	6.0
	10-Oct-14	7.5	470	10.1	6.3
	16-Oct-14	7.9	666	12.8	6.3
	24-Oct-14	8.0	571	7.2	6.5
	31-Oct-14	7.9	423	6.0	6.0

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW1	7-Nov-14	7.3	456	0.5	6.9
(cont'd)	14-Nov-14	7.3	446	(2)	6.6
	20-Nov-14	7.2	420	(3)	6.2
	28-Nov-14	7.3	423	(1)	7.0
	5-Dec-14	7.3	425	0.3	4.3
	12-Dec-14	7.2	467	0.9	6.9
	19-Dec-14	7.2	453	(1)	6.9
	26-Dec-14	7.3	413	1.9	6.3
	2-Jan-15	7.2	418	(1)	7.0
	8-Jan-15 (2)				
	14-Jan-15	7.2	428	(0)	6.3
	23-Jan-15	7.1	420	(0)	6.3
	30-Jan-15	8.1	283	(0)	11.9
	6-Feb-15	8.1	570	1.0	12.5
	12-Feb-15	7.9	545	0.0	11.9
	27-Feb-15	8.0	577	1.5	(6)
	6-Mar-15	8.1	576	1.4	12.6
	13-Mar-15	8.1	569	6.4	11.9
	20-Mar-15	8.0	364	7.2	11.9
	26-Mar-15	8.1	331	4.4	12.3
	2-Apr-15	7.9	369	8.3	10.8
	10-Apr-15	7.8	260	5.2	9.5
	17-Apr-15	8.4	353	7.8	
	23-Apr-15	8.1	369	3.6	14.2
	1-May-15	7.7	482	9.8	7.5
	8-May-15	9.1	555	18.5	
	15-May-15	7.6	437	11.9	7.7
	21-May-15	7.7	432	11.0	9.4
	28-May-15	7.7	519	16.1	7.3
	4-Jun-15	7.6	519	15.2	7.3
	12-Jun-15	7.5	551	13.1	5.1
	18-Jun-15	7.5	517	18.4	5.7
	26-Jun-15	8.1	617	26.0	
	1-Jul-15	7.8	463	15.2	
	10-Jul-15	7.7	595	18.5	
	17-Jul-15	8.1	558	12.7	
	22-Jul-15	7.8	665	14.5	
	30-Jul-15	8.1	749	23.9	
	5-Aug-15	7.4	564	15.4	6.0
	13-Aug-15	7.6	647	13.2	5.7
	21-Aug-15	7.3	608	17.4	4.7
	28-Aug-15	8.2	598		
	3-Sep-15	7.6	741	16.5	5.9
	10-Sep-15	7.6	705	18.2	5.6
	18-Sep-15 (1)				
	25-Sep-15	7.6	640	14.0	7.6
	2-Oct-15	7.5	522	7.6	8.2
	9-Oct-15	7.3	558	10.7	6.2
	16-Oct-15	7.7	514	8.5	8.6
	23-Oct-15	7.6	523	7.1	9.4

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW1	30-Oct-15	7.5	480	7.1	10.8
(cont'd)	5-Nov-15	7.8	572	10.9	7.6
	10-Nov-15	7.5	468	4.3	9.3
	13-Nov-15	7.3	432	5.2	6.7
	19-Nov-15	7.7	586	9.1	13.0
	26-Nov-15	7.3	443	0.8	11.1
	4-Dec-15	7.6	482	2.3	15.9
	10-Dec-15	7.6	538	5.7	12.8
	17-Dec-15	7.8	420	3.7	11.5
	23-Dec-15	7.6	445	5.1	13.9
	30-Dec-15	7.4	391	0.5	10.4
	8-Jan-16	7.4	410	1.5	11.9
	14-Jan-16	7.2	383	0.2	10.8
	22-Jan-16	7.3	431	(0)	9.8
	29-Jan-16	7.2	401	(0)	8.8
	5-Feb-16	7.4	392	0.5	11.5
	11-Feb-16	7.3	416	(0)	8.7
	18-Feb-16	7.3	407	0.2	11.0
	25-Feb-16	7.5	255	(0)	6.4
	4-Mar-16	7.1	376	0.1	9.1
	10-Mar-16	7.3	244	0.5	9.4
	18-Mar-16	7.7	299	1.3	10.6
	28-Mar-16	7.3	189	4.4	9.4
	7-Apr-16	7.3	254	1.2	10.1
	15-Apr-16	7.4	265	2.9	11.9
	22-Apr-16	7.9	434	10.8	6.7
	29-Apr-16	8.0	380	5.5	10.8
	6-May-16	8.0	460	10.1	7.0
	13-May-16	7.7	598	14.5	
	20-May-16	7.8	616	14.8	9.0
	27-May-16	7.5	602	17.3	2.7
	2-Jun-16	7.5	593	16.9	2.3
	10-Jun-16	7.6	696	10.6	4.6
	17-Jun-16	7.5	655	14.8	3.9
	24-Jun-16	7.4	521	13.2	4.1
	28-Jun-16	7.5	667	16.6	3.8
	5-Jul-16	7.6	665	17.4	6.6
	8-Jul-16	7.6	648	19.2	4.3
	15-Jul-16	7.6	623	18.7	4.1
	22-Jul-16	7.4	820	20.0	3.7
	29-Jul-16	7.6	744	17.9	4.2
	5-Aug-16	7.5	747	20.6	2.4
	12-Aug-16 (1)				
	19-Aug-16	7.6	595	17.4	2.7
	26-Aug-16	7.4	781	18.3	2.7
	2-Sep-16	7.1	653	15.3	3.8
	9-Sep-16	7.4	619	17.7	3.0
	16-Sep-16	7.7	618	10.9	5.6
	21-Sep-16	7.1	635	15.7	5.8
	30-Sep-16	7.4	620	11.9	4.8

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW1	7-Oct-16	7.4	657	14.0	5.5
(cont'd)	13-Oct-16	7.0	506	10.4	6.1
	19-Oct-16	7.6	676	13.6	9.0
	24-Oct-16	7.3	544	6.2	10.0
	27-Oct-16	7.2	418	1.5	10.4
	3-Nov-16	7.7	556	8.0	8.3
	11-Nov-16	7.3	450	4.8	10.2
	18-Nov-16	7.3	789	5.7	8.0
	24-Nov-16	7.2	412	0.1	10.8
	2-Dec-16	7.9	373	1.9	7.9
	7-Dec-16	7.6	364	0.1	7.9
	16-Dec-16	7.5	518	(0)	8.7
	22-Dec-16 (2)				
	30-Dec-16 (2)				
	6-Jan-17 (2)				
	13-Jan-17 (2)				
	20-Jan-17	7.4	405	0.1	8.1
	26-Jan-17	7.5	400	(1)	6.7
	3-Feb-17 (2)				
	10-Feb-17 (2)				
	17-Feb-17 (2)				
	19-Apr-17	7.4	457	11.5	12.8
	9-May-17	8.3	352	9.5	14.1
	16-May-17	7.9	636	11.4	7.9
	28-Jun-17	7.6	620	17.3	3.2
	18-Jul-17	7.4	737	20.2	2.5
	15-Aug-17	7.8	557	16.1	1.2
	18-Sep-17	6.6	735	16.3	2.2
	18-Oct-17	7.7	525	8.3	4.3
	15-Nov-17	7.7	447	0.7	10.4
	13-Dec-17 (2)				
	17-Jan-18 (2)				
	22-Feb-18	7.3	220	(0)	8.7
	20-Mar-18 (2)	7.6	361	7.0	10.7
	18-Apr-18 (2)	7.9	518	(1)	4.8
	8-May-18	7.4	533	9.8	3.7
	15-May-18	7.5	570	13.2	4.9
	18-Jun-18	7.3	660	18.4	2.3
	19-Jul-18	7.2	735	17.5	1.8
	23-Aug-18	7.4	606	15.5	1.9
	19-Sep-18	7.5		14.9	4.0
	24-Oct-18	7.5	694	2.4	7.5
	12-Dec-18 (2)				
	15-Mar-19 (2)				
	24-Apr-19	7.6	390	5.0	6.5
	14-May-19	7.7	447	6.3	8.9
	23-May-19	7.5	507	11.2	3.1
	18-Jun-19	7.4	569	16.5	2.5
	29-Jul-19 (1)				
	29-Aug-19 (1)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW1	26-Sep-19	(1)				
(cont'd)	22-Nov-19		7.4	91	0.0	5.7
	26-Mar-20		7.5	565	1.6	7.5
	27-Apr-20		7.7	609	2.3	13.1
	19-May-20		7.9	620	10.1	6.4
	29-May-20		7.8	583	20.8	2.0
	23-Jun-20		7.3	654	20.4	0.8
	30-Jul-20		7.3	734	19.6	1.0
	25-Aug-20	(3)				
	25-Sep-20	(1)				
	30-Oct-20	(1)				
	26-Nov-20	(2)				
	27-Jan-21	(2)				
	22-Feb-21	(2)				
	29-Mar-21		7.5	477	7.0	8.1
	27-Apr-21		7.5	512	8.3	7.1
	26-May-21		7.2	763	18.7	1.3
	27-May-21		7.2	763	18.7	1.3
	22-Jun-21	(1)				
	22-Jul-21		7.3	776	16.3	1.8
	25-Aug-21		7.1	854	20.1	0.9
	28-Sep-21		7.5	684	12.2	2.9
	26-Oct-21		7.4	631	6.8	5.5
	23-Nov-21	(2)				
	21-Dec-21	(2)				
	24-Jan-22	(2)				
	8-Feb-22	(2)				
	16-Mar-22		8.3	603	1.1	8.8
	21-Apr-22		8.0	892	5.2	6.7
	4-May-22				(6)	7.1
	24-May-22		7.1	731	16.5	2.4
	24-Jun-22		7.1	710	14.5	11.0
	29-Aug-22		6.7	815	17.2	11.8
	27-Sep-22		7.1	987	14.2	12.0
	26-Oct-22		7.5	733	10.2	2.3
	21-Nov-22		7.9	641	0.0	3.7
	20-Dec-22		7.6	437	0.0	1.4
	24-Jan-23	(2)	7.3	755	(0)	3.5
	22-Feb-23		7.3	726	0.0	7.2
	27-Mar-23		8.9	560	0.5	7.4
	21-Apr-23		7.6	518	12.5	8.5
	15-May-23		7.5	596	17.2	5.3
	26-Jun-23		7.5	780	20.7	9.4
	25-Jul-23		7.3	585	19.0	1.2
	28-Aug-23		7.6	764	17.8	2.0
	25-Sep-23		7.3	784	13.6	1.8
	30-Oct-23		8.3	596	6.0	7.6
	29-Nov-23		7.1	965	0.0	5.6
	18-Dec-23		7.2	859	1.5	8.4
SW2	22-May-03				8.0	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW2	12-Feb-04		394	5.4	11.6
(cont'd)	19-Mar-04		571	5.1	9.3
	7-May-04	7.5	406	8.8	
	14-May-04	7.6	419	8.6	
	20-May-04	7.6	409	7.3	
	28-May-04	7.5	358	7.1	
	4-Jun-04	7.5	393	9.0	
	11-Jun-04	7.6	425	9.3	
	17-Jun-04	7.4	410	8.2	
	24-Jun-04	7.7	442	9.9	11.2
	1-Jul-04	7.6	439	9.8	10.5
	16-Jul-04	7.5	458	10.0	10.2
	22-Jul-04	7.6		14.6	8.5
	29-Jul-04	7.6	422	10.3	
	6-Aug-04	7.8	491	13.6	10.1
	12-Aug-04	7.6	445	10.2	
	19-Aug-04	7.5	463	10.8	10.8
	26-Aug-04		478	13.7	
	3-Sep-04	7.6	426	13.7	7.7
	9-Sep-04	8.0	460	11.7	9.2
	17-Sep-04	7.4	450	10.9	8.1
	23-Sep-04	7.4	481	13.2	6.8
	1-Oct-04	7.4	469	11.6	7.3
	7-Oct-04	7.3	468	12.2	7.2
	14-Oct-04	7.4	446	10.6	8.0
	20-Oct-04	7.4	447	9.7	7.4
	28-Oct-04	7.3	509	9.8	6.9
	4-Nov-04	7.5	390	7.5	10.0
	11-Nov-04	7.3	435	8.2	7.8
	19-Nov-04	7.2	460	8.5	7.6
	25-Nov-04	7.3	454	6.0	7.7
	2-Dec-04	7.3	419	4.5	10.1
	9-Dec-04	7.6	427	6.0	10.8
	17-Dec-04 (2)				
	29-Dec-04 (2)				
	5-Jan-05	7.4	404	6.3	11.5
	13-Jan-05	7.2	375	6.1	11.5
	10-Feb-05	7.4	411	6.1	
	16-Feb-05	7.8	406	6.4	12.2
	24-Feb-05	8.0	398	4.4	
	3-Mar-05	7.6	392	4.4	
	10-Mar-05	7.5	430	6.9	12.0
	17-Mar-05	7.5	404	6.5	12.4
	24-Mar-05	7.5	449	7.4	11.8
	30-Mar-05	7.6	521	7.7	11.9
	7-Apr-05	7.3	406	4.8	12.3
	15-Apr-05	7.1	341	5.8	12.5
	21-Apr-05	7.0	323	7.0	11.7
	29-Apr-05	7.3	329	6.0	12.1
	6-May-05	6.8	506	8.1	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW2	13-May-05	8.6	377	6.4	12.1
(cont'd)	20-May-05	7.7	392	7.1	12.1
	27-May-05	6.6	420	8.9	
	3-Jun-05	6.9	443	9.7	
	10-Jun-05	7.1	449	10.3	
	17-Jun-05	6.8	472	8.6	10.9
	24-Jun-05	7.1	511	13.1	
	30-Jun-05	7.0	487	11.2	
	7-Jul-05	5.0	454	10.7	9.9
	15-Jul-05	6.9	674	12.8	9.7
	21-Jul-05	6.3	959	14.8	9.3
	28-Jul-05	7.3	874	11.1	9.4
	2-Aug-05	8.8	511	12.4	9.4
	12-Aug-05	7.7	798	12.5	
	19-Aug-05	7.6	488	12.2	9.5
	24-Aug-05	7.4	480	11.1	9.3
	1-Sep-05		475	12.0	8.9
	9-Sep-05	6.7	473	11.8	8.0
	16-Sep-05	7.3	555	13.1	
	23-Sep-05	7.5	505	12.4	7.5
	30-Sep-05	7.5	520	12.2	7.9
	7-Oct-05	7.6	657	11.5	
	14-Oct-05	7.6	535	12.0	7.9
	21-Oct-05	8.4	510	10.5	8.4
	28-Oct-05	7.5	541	9.5	8.4
	4-Nov-05	7.5	552	10.6	7.9
	11-Nov-05	7.6	549	9.5	7.3
	18-Nov-05	7.6	777	5.4	
	25-Nov-05	7.5	506	6.8	7.2
	2-Dec-05	8.6	467	5.9	10.0
	9-Dec-05	8.7	447	5.3	10.0
	16-Dec-05	7.8	484	5.0	10.9
	22-Dec-05	8.0	469	4.0	11.6
	6-Jan-06	7.8	426	5.3	
	13-Jan-06	7.7	443	7.4	10.9
	20-Jan-06	7.5	428	6.7	11.4
	27-Jan-06	6.9	441	6.3	12.0
	3-Feb-06	7.7	421	6.4	11.6
	10-Feb-06	7.9	419	6.1	
	20-Feb-06	8.8	422	6.2	
	24-Feb-06	7.9	397	4.4	
	3-Mar-06	8.3	410	4.3	
	10-Mar-06	6.9	419	5.5	11.6
	17-Mar-06	7.4	364	4.8	12.2
	24-Mar-06	7.9	378	5.9	
	31-Mar-06	7.7	517	7.3	
	7-Apr-06	7.7	461	5.3	
	10-Apr-06	7.8	460	7.5	
	13-Apr-06	7.7	439	7.4	
	21-Apr-06	7.8	466	7.6	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW2	26-Apr-06	8.4	493	6.6	
(cont'd)	5-May-06	7.8	507	8.2	
	12-May-06	8.1	605	8.9	
	19-May-06	7.6	572	8.4	
	25-May-06	7.8	594	7.9	
	2-Jun-06	8.0	591	7.9	
	9-Jun-06	7.8	480	9.3	
	16-Jun-06	7.7	570	9.6	
	23-Jun-06	7.6	613	9.8	
	30-Jun-06	8.7	623	11.2	
	7-Jul-06	8.2	554	13.9	
	14-Jul-06	7.8	546	12.0	
	21-Jul-06	7.8	563	15.9	
	28-Jul-06	7.7	598	17.4	
	4-Aug-06	7.9	551	17.3	
	11-Aug-06	8.2	526	11.7	
	18-Aug-06	7.3	549	13.9	
	25-Aug-06	7.3	542	12.8	
	1-Sep-06	7.2	542	14.2	
	8-Sep-06	7.4	563	14.1	
	15-Sep-06	7.1	575	12.3	
	21-Sep-06	7.4	595	11.2	
	28-Sep-06	7.2	617	10.5	
	6-Oct-06	7.3	634	11.5	
	13-Oct-06	7.1	643	7.3	
	20-Oct-06	7.3	668	9.0	
	26-Oct-06	7.7	711	9.0	
	3-Nov-06	7.6	634	8.1	11.0
	10-Nov-06	7.3	588	9.2	
	17-Nov-06	7.5	595	8.3	10.4
	24-Nov-06	7.7	582	7.6	11.6
	4-Dec-06	7.6	588	7.1	11.9
	8-Dec-06	7.4	588	6.8	12.1
	14-Dec-06	7.5	602	7.8	
	21-Dec-06	7.6	604	7.2	11.9
	28-Dec-06	7.6	619	7.4	11.5
	5-Jan-07	7.6	620	7.5	11.0
	12-Jan-07	7.6	587	6.8	11.1
	19-Jan-07	7.8	580	5.2	12.1
	26-Jan-07	8.1	584	4.4	11.1
	2-Feb-07	8.0	559	5.5	
	9-Feb-07	8.0	510	5.7	
	16-Feb-07	8.0	576	4.3	12.6
	22-Feb-07	8.1	575	5.4	11.8
	2-Mar-07	8.7	568	5.3	
	9-Mar-07	8.0	479	4.4	12.7
	16-Mar-07	7.0	521	6.0	11.9
	23-Mar-07	7.6	532	5.6	
	30-Mar-07	7.7	492	5.6	12.6
	5-Apr-07	7.1	520	5.1	12.5

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW2	13-Apr-07	7.8	549	5.2	
(cont'd)	20-Apr-07	7.8	493	7.1	
	28-Apr-07	8.0	517	6.5	
	4-May-07	7.6	470	7.1	
	11-May-07	7.6	549	7.4	
	18-May-07	8.2	555	8.0	
	25-May-07	7.9	510	8.8	
	1-Jun-07	7.9	524	9.5	
	8-Jun-07	7.6	603	9.7	10.7
	14-Jun-07	7.6	597	8.6	11.0
	22-Jun-07	7.6	554	8.2	10.6
	29-Jun-07	8.4	547	13.5	9.4
	6-Jul-07	8.0	584	11.5	10.3
	13-Jul-07	8.9	575	10.9	9.6
	20-Jul-07	8.4	629	11.0	10.4
	27-Jul-07	7.4	530	11.1	9.3
	3-Aug-07	7.6	562	13.1	8.3
	10-Aug-07	7.3	556	11.7	8.9
	17-Aug-07	7.3	615	11.2	8.5
	24-Aug-07	7.9	598	13.4	7.8
	30-Aug-07	7.7	624	12.7	7.4
	7-Sep-07	7.4	629	12.9	6.4
	14-Sep-07	7.2	630	11.9	7.6
	21-Sep-07	8.4	619	12.1	7.4
	28-Sep-07	8.5	615	12.3	6.4
	5-Oct-07	7.1	671	12.2	2.5
	12-Oct-07	7.1	687	10.6	7.4
	19-Oct-07	7.7	669	12.4	6.2
	26-Oct-07	7.7	670	12.0	6.4
	2-Nov-07	7.3	732	10.9	5.8
	9-Nov-07	7.3	752	9.1	7.0
	16-Nov-07	7.1	852	8.0	7.7
	23-Nov-07	8.2	781	3.8	10.5
	30-Nov-07 (3)				
	7-Dec-07	8.2	640	5.2	11.1
	14-Dec-07	8.0	646	4.6	11.6
	20-Dec-07 (2)				
	28-Dec-07	6.4		6.6	9.7
	4-Jan-08	7.0	612	4.8	12.5
	11-Jan-08	7.1	418	5.6	12.0
	18-Jan-08	7.1	525	5.0	12.2
	25-Jan-08	7.7	517	5.2	11.9
	1-Feb-08	7.3	533	5.0	11.7
	8-Feb-08	6.8	563	5.7	11.9
	15-Feb-08	7.3	564	4.9	
	22-Feb-08	7.2	535	5.5	
	29-Feb-08	7.0	511	4.1	
	7-Mar-08	6.8	454	5.3	
	14-Mar-08	6.0	552	5.1	
	20-Mar-08	7.7	578	5.1	11.9

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW2	28-Mar-08	7.3	485	5.3	
(cont'd)	4-Apr-08	6.9	476	4.7	12.5
	11-Apr-08	6.9	412	4.4	12.9
	15-Apr-08	7.7	427	5.5	12.2
	18-Apr-08	6.5	434	6.1	10.1
	25-Apr-08	8.3	463	6.5	11.1
	2-May-08	7.3	560	6.3	11.4
	8-May-08	6.7	544	6.4	
	15-May-08	7.4	551	9.8	10.5
	23-May-08	8.0	497	7.6	9.4
	30-May-08	6.7	700	13.7	7.3
	6-Jun-08	6.7	611	11.9	7.6
	13-Jun-08	6.2	518	9.0	9.2
	20-Jun-08	8.2	540	8.7	8.6
	27-Jun-08	6.7	587	9.3	8.1
	4-Jul-08	7.4	609	9.2	7.5
	11-Jul-08	6.9	565	9.9	8.9
	18-Jul-08	7.2	593	10.7	6.8
	25-Jul-08	7.9	628	9.4	7.1
	1-Aug-08	7.8	580	10.2	7.0
	8-Aug-08	7.3	599	10.8	6.2
	15-Aug-08	7.1	657	9.6	7.0
	22-Aug-08	6.1	651	12.9	5.2
	28-Aug-08	6.9		10.5	8.8
	5-Sep-08	7.5	570	11.6	7.8
	12-Sep-08	7.6	575	11.0	6.2
	19-Sep-08	7.9	401	9.8	5.6
	26-Sep-08	7.5	585	10.0	5.8
	3-Oct-08	7.2	604	9.0	8.6
	10-Oct-08	7.3	598	9.2	8.7
	17-Oct-08	7.4	536	8.7	6.0
	24-Oct-08	7.7	549	7.9	6.2
	31-Oct-08	8.4	520	8.6	7.1
	7-Nov-08	6.6	526	9.5	9.2
	14-Nov-08	7.3	475	9.2	9.0
	21-Nov-08 (2)				
	28-Nov-08 (2)				
	30-Nov-08 (2)				
	12-Dec-08	8.7	548	6.7	9.4
	23-Dec-08	7.8	475	4.5	7.9
	29-Dec-08	7.6	449	5.1	9.9
	16-Jan-09	7.8	542	4.7	9.7
	23-Jan-09	7.8	530	5.5	8.9
	30-Jan-09	8.0	526	4.9	9.1
	6-Feb-09		477	4.8	9.6
	13-Feb-09	7.8	444	5.0	6.2
	20-Feb-09	8.0	476	5.1	
	27-Feb-09	7.9	515	4.5	
	6-Mar-09		503	6.0	
	13-Mar-09	7.9	441	4.3	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW2	20-Mar-09	7.8	442	4.5	
(cont'd)	27-Mar-09		544		
	3-Apr-09	7.4	493	5.5	
	9-Apr-09	7.6	458	4.7	
	17-Apr-09	7.8	513	5.2	
	24-Apr-09	7.7	507	5.8	
	1-May-09	7.3	396	8.2	11.6
	8-May-09	7.4	509	7.4	
	15-May-09	7.7	440	7.7	11.5
	22-May-09	8.1	344	7.0	11.6
	29-May-09	7.7	556	7.3	
	5-Jun-09	7.0	496	7.5	11.9
	12-Jun-09	8.2	564	8.5	11.6
	19-Jun-09	7.5	1,022	8.9	11.7
	26-Jun-09	7.6	565	13.0	10.0
	2-Jul-09	7.6	490	8.8	11.3
	10-Jul-09			9.1	11.6
	17-Jul-09	9.4	544	9.1	10.2
	24-Jul-09	8.1	551	10.7	9.9
	31-Jul-09	7.7	545	10.1	10.8
	7-Aug-09	8.0	597	10.1	8.5
	14-Aug-09	9.0	554	10.4	10.4
	21-Aug-09	8.2	621	12.1	9.6
	28-Aug-09	8.5	559	10.7	9.2
	4-Sep-09	8.3	580	10.5	9.0
	11-Sep-09	8.8	538	11.4	9.0
	18-Sep-09	8.1	611	11.2	8.1
	25-Sep-09	7.4	542	11.3	9.3
	2-Oct-09	8.8	676	9.4	
	9-Oct-09	7.8	659	9.9	11.0
	16-Oct-09	8.1	636	6.5	12.2
	23-Oct-09	8.0	587	7.3	10.9
	30-Oct-09	7.9	595	9.2	11.5
	6-Nov-09	7.2	623	7.3	
	13-Nov-09	7.7	634	7.8	
	20-Nov-09	7.7	544	7.7	
	27-Nov-09	7.8	523	7.0	
	4-Dec-09	7.5	524	6.5	11.7
	11-Dec-09	7.9	483	4.8	
	18-Dec-09	7.9	561	4.2	12.1
	22-Dec-09	8.7	557	4.5	
	28-Dec-09	7.6	585	5.0	
	8-Jan-10	8.5	512	2.4	12.1
	15-Jan-10	8.8	487	5.5	12.7
	22-Jan-10	8.3	548	3.8	12.7
	29-Jan-10	8.2	581	3.7	12.7
	5-Feb-10	6.4	553	5.2	12.6
	12-Feb-10	6.6	562	5.3	12.6
	19-Feb-10	7.6	504	4.9	11.3
	1-Mar-10	8.2	377	4.7	12.4

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW2	5-Mar-10	7.4	522	5.6	11.7
(cont'd)	12-Mar-10	7.9	659	6.2	12.1
	19-Mar-10	7.6	464	5.4	12.8
	26-Mar-10	7.5	423	4.6	12.6
	2-Apr-10	7.0	440	6.0	
	9-Apr-10	7.2	543	5.6	12.2
	16-Apr-10	7.6	370	6.5	12.4
	23-Apr-10	7.7	344	6.1	12.7
	30-Apr-10	7.6	346	7.0	12.1
	7-May-10	7.7	348	7.2	
	14-May-10	7.7	345	10.0	11.4
	21-May-10	7.6	357	7.9	11.8
	28-May-10	7.6	339	9.0	11.8
	4-Jun-10	7.7	395	7.9	7.8
	11-Jun-10	7.6	337	8.1	8.3
	18-Jun-10	7.6	407	8.3	13.8
	25-Jun-10	7.7	391	8.7	11.5
	1-Jul-10	7.7	362	8.6	11.4
	9-Jul-10	7.7	441	9.8	10.8
	15-Jul-10	7.6	434	10.9	10.4
	23-Jul-10	7.6	449	10.2	13.5
	30-Jul-10	7.6	366	9.9	10.5
	6-Aug-10	7.7	423	10.3	
	13-Aug-10	7.6	436	10.5	7.8
	20-Aug-10	7.5	435	10.4	9.5
	27-Aug-10	7.5	306	10.9	9.6
	3-Sep-10	7.7	452	12.4	9.3
	10-Sep-10	7.6	367	11.3	9.8
	17-Sep-10	7.6	385	10.3	9.5
	24-Sep-10	7.6		12.4	9.1
	1-Oct-10	7.6	443	10.2	9.9
	8-Oct-10	7.4	446	10.1	9.1
	15-Oct-10	7.4	436	10.1	9.2
	22-Oct-10	7.6	429	7.8	10.3
	29-Oct-10	7.5	376	8.9	9.3
	5-Nov-10	7.6	477	7.9	10.3
	12-Nov-10	7.5	484	9.1	10.5
	19-Nov-10	7.7	385	8.6	10.9
	26-Nov-10	7.5	377	7.7	10.8
	3-Dec-10	7.5	399	7.8	10.1
	9-Dec-10	7.5	337	6.8	10.8
	17-Dec-10	7.7	406	7.1	11.3
	23-Dec-10	8.0	339	5.0	11.0
	30-Dec-10	7.9	385	7.0	10.5
	7-Jan-11	7.7	307	6.1	12.2
	14-Jan-11	7.5	321	6.3	11.5
	21-Jan-11	7.6	318	5.0	10.4
	28-Jan-11	7.8	333	5.9	11.3
	4-Feb-11	7.8	290	2.3	10.4
	11-Feb-11	7.8	310	2.3	10.6

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW2	18-Feb-11	7.8	329	2.5	11.3
(cont'd)	25-Feb-11	7.6	316	4.2	12.3
	4-Mar-11	7.5	332	5.9	12.1
	11-Mar-11	7.5	341	5.0	12.5
	18-Mar-11	7.6	298	5.6	
	22-Mar-11	7.7	356	5.3	10.8
	25-Mar-11	7.7	342	5.8	12.3
	1-Apr-11	7.4	327	5.4	12.4
	8-Apr-11	7.4	320	5.2	12.8
	15-Apr-11	7.4	249	5.4	10.8
	21-Apr-11	7.8	338	5.3	10.6
	29-Apr-11		328	5.5	13.2
	6-May-11	8.0	265	6.4	11.6
	13-May-11	8.0	274	7.6	11.8
	20-May-11	7.6	298	7.1	12.0
	27-May-11		299	7.1	12.1
	3-Jun-11	7.6	309	7.9	13.6
	10-Jun-11	8.4	362	7.7	11.3
	17-Jun-11	6.7	321	8.7	11.3
	24-Jun-11	7.6	386	8.7	12.4
	30-Jun-11	7.6	289	9.0	11.9
	8-Jul-11	7.5	400	10.1	12.0
	14-Jul-11	6.3	403	9.3	10.8
	22-Jul-11	7.8	415	11.3	13.0
	29-Jul-11	6.7	385	11.4	10.2
	5-Aug-11	6.9	416	12.0	10.5
	12-Aug-11	7.9	435	10.9	9.1
	19-Aug-11	8.0	246	11.4	8.6
	26-Aug-11	7.7	388	12.2	8.2
	2-Sep-11	7.8	398	3.3	8.7
	9-Sep-11	7.7	421	11.7	7.8
	16-Sep-11	7.6	374	10.5	7.8
	23-Sep-11	7.9	396	11.7	5.9
	30-Sep-11	8.0	416	11.6	9.6
	6-Oct-11	7.8	490	10.0	8.7
	14-Oct-11	7.8	402	11.9	7.9
	21-Oct-11	7.8	461	9.9	9.5
	28-Oct-11	9.8	433	9.7	9.6
	4-Nov-11	7.8	365	8.7	9.8
	11-Nov-11	7.6	409	7.9	4.5
	18-Nov-11	8.3	401	6.8	10.8
	25-Nov-11	7.8	410	7.7	9.8
	2-Dec-11	8.2	373	8.0	12.1
	9-Dec-11	7.6	309	7.9	9.3
	16-Dec-11	7.4	327	7.6	11.9
	23-Dec-11	8.2	299	6.8	5.1
	30-Dec-11	8.4	280	7.0	11.1
	6-Jan-12	7.4	357	7.4	12.4
	20-Jan-12	8.0	293	5.5	10.1
	27-Jan-12	8.1	265	6.5	11.9

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW2	3-Feb-12	7.8	233	6.5	11.3
(cont'd)	10-Feb-12	8.1	292	6.0	11.6
	17-Feb-12	7.7	320	6.2	13.3
	24-Feb-12	8.3	273	4.0	12.4
	1-Mar-12	8.0	323	5.6	
	9-Mar-12	7.8	283	6.7	11.3
	16-Mar-12	7.8	283	6.7	11.3
	23-Mar-12	7.3	268	6.3	12.4
	30-Mar-12	8.4	328	6.2	12.8
	6-Apr-12	8.6	363	7.5	5.6
	13-Apr-12	8.0	358	6.6	10.5
	20-Apr-12	8.1	367	7.4	9.1
	27-Apr-12	7.9	349	6.4	12.4
	4-May-12	7.9	416	8.3	9.0
	11-May-12	7.6	232	7.4	12.0
	18-May-12	7.7	356	8.7	10.0
	25-May-12	6.5	383	10.0	8.6
	1-Jun-12	7.6	334	7.9	8.3
	8-Jun-12	8.1	354	9.1	9.5
	15-Jun-12	7.6	346	9.6	8.0
	22-Jun-12	7.9	486	7.0	9.1
	28-Jun-12	7.8	547	10.6	6.8
	6-Jul-12	7.7	345	11.1	6.2
	13-Jul-12	8.3	409	10.7	6.1
	20-Jul-12	7.9	440	11.3	6.9
	27-Jul-12	7.8	465	11.4	6.5
	3-Aug-12	7.5	460	12.0	7.4
	10-Aug-12	7.7	480	13.1	7.5
	17-Aug-12	7.9	414	11.0	6.6
	24-Aug-12	7.9	430	11.4	9.6
	31-Aug-12	7.3	468	12.2	6.7
	7-Sep-12	6.9	456	11.7	6.7
	14-Sep-12	7.0	466	11.7	8.5
	21-Sep-12	7.1	486	10.9	8.8
	28-Sep-12	6.6	497	9.8	9.3
	5-Oct-12	7.1	535	12.0	7.7
	12-Oct-12	8.3	487	8.4	9.8
	19-Oct-12	8.4	5	9.6	9.9
	26-Oct-12	7.4	460	10.0	10.2
	2-Nov-12	6.5	410	8.7	6.9
	9-Nov-12	8.2	378	8.9	9.8
	16-Nov-12	8.3	403	8.9	10.1
	23-Nov-12	7.6	388	8.7	7.1
	30-Nov-12	7.5	363	8.4	6.0
	7-Dec-12	7.4	452	7.9	6.8
	14-Dec-12	7.7	384	7.8	10.6
	21-Dec-12	7.3	424	6.7	11.7
	28-Dec-12	7.4	381	6.8	11.4
	4-Jan-13	7.6	422	5.9	10.1
	11-Jan-13	7.5	623	5.4	9.9

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW2	17-Jan-13	7.7	400	6.0	10.4
(cont'd)	25-Jan-13	7.7	416	6.2	4.0
	1-Feb-13	7.9	298	5.5	12.0
	8-Feb-13	7.6	314	4.9	13.1
	15-Feb-13	7.5	509	5.0	11.7
	22-Feb-13	7.5	331	4.6	9.4
	1-Mar-13	7.7	413	5.8	9.0
	8-Mar-13	7.7	362	6.7	11.8
	15-Mar-13		342	5.4	9.5
	22-Mar-13	7.6	411	4.9	12.5
	28-Mar-13	7.7	340	6.1	11.8
	5-Apr-13	7.7	389	5.3	10.0
	12-Apr-13	7.7	373	5.3	10.0
	19-Apr-13	7.3	311	6.8	5.9
	26-Apr-13	7.4	309	5.8	10.1
	3-May-13	7.9	312	7.8	9.9
	9-May-13	7.6	358	7.0	
	16-May-13	7.6	342	7.4	11.3
	24-May-13	7.7	393	6.3	10.4
	31-May-13	7.7	364	8.4	8.5
	7-Jun-13		330	7.5	9.5
	14-Jun-13	7.7	393	10.3	8.5
	21-Jun-13	7.9	409	8.6	12.6
	27-Jun-13	7.9	423	8.6	11.1
	5-Jul-13	7.6	427	9.5	10.7
	12-Jul-13	7.5	447	9.6	10.6
	19-Jul-13	7.5	456	9.5	10.0
	25-Jul-13	7.5	451	9.4	8.5
	2-Aug-13	7.5	502	9.3	9.1
	8-Aug-13	7.6	508	9.2	8.6
	16-Aug-13	7.7	512	9.3	8.3
	23-Aug-13	7.6	523	9.2	8.3
	30-Aug-13	7.6	546	9.3	8.1
	6-Sep-13	7.5	523	9.2	8.0
	13-Sep-13	7.5	506	7.6	8.1
	20-Sep-13	7.6	523	9.3	8.1
	27-Sep-13	7.6	523	9.4	7.9
	4-Oct-13	7.5	521	9.0	7.6
	11-Oct-13	7.6	530	9.5	8.0
	18-Oct-13	7.5	525	9.2	7.0
	25-Oct-13	7.4	521	8.0	3.9
	31-Oct-13	7.3	516	7.6	3.8
	8-Nov-13	7.2	510	7.6	5.3
	14-Nov-13	7.2	503	6.7	5.1
	22-Nov-13	7.1	510	6.8	4.9
	29-Nov-13	8.3	389	7.1	2.5
	6-Dec-13	7.6	396	7.3	3.7
	13-Dec-13 (2)				
	19-Dec-13 (2)				
	27-Dec-13 (2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW2	3-Jan-14				
(cont'd)	10-Jan-14	8.2	350	4.3	4.1
	17-Jan-14	7.8	276	5.4	7.1
	31-Jan-14	7.1	380	2.7	4.3
	7-Feb-14	7.0	394	4.6	3.3
	21-Feb-14				
	28-Feb-14				
	7-Mar-14	7.3	370	2.0	7.0
	14-Mar-14	6.3	402	3.6	9.3
	21-Mar-14	7.3	276	4.1	5.4
	28-Mar-14	6.8	591	4.6	11.6
	4-Apr-14	7.6	387	4.8	10.8
	11-Apr-14	7.5	429	5.2	11.5
	17-Apr-14	7.6	533	5.4	9.9
	25-Apr-14	7.5	530	5.3	9.9
	1-May-14	7.5	486	5.6	10.0
	9-May-14	7.2	473	7.6	6.9
	16-May-14	7.2	456	7.5	6.2
	23-May-14	7.2	463	7.6	6.3
	30-May-14	7.6	450	7.8	6.8
	6-Jun-14	7.2	461	9.0	6.2
	13-Jun-14	7.2	460	8.9	6.4
	20-Jun-14	7.2	456	8.9	7.0
	28-Jun-14	7.1	450	9.8	7.6
	4-Jul-14	7.1	448	9.8	7.8
	11-Jul-14	7.1	426	9.9	7.9
	18-Jul-14	8.4	535	9.7	
	25-Jul-14	8.7	532	10.2	
	1-Aug-14	8.6	478	10.2	7.9
	8-Aug-14	8.5	463	10.2	7.6
	15-Aug-14	8.2	456	10.0	7.5
	22-Aug-14	8.7	598	11.1	
	29-Aug-14	8.5	608	11.1	
	5-Sep-14	8.8	635	12.7	
	12-Sep-14	8.1	625	10.5	6.2
	19-Sep-14	8.0	420	10.0	6.2
	26-Sep-14	8.1	427	10.0	6.9
	3-Oct-14	7.6	463	9.9	4.9
	10-Oct-14	7.5	460	10.2	5.6
	16-Oct-14	7.5	456	9.9	5.9
	24-Oct-14	7.6	416	7.9	6.9
	31-Oct-14	7.4	423	7.6	6.0
	7-Nov-14	7.2	428	0.5	4.0
	14-Nov-14	7.3	431	1.0	4.2
	20-Nov-14	7.2	420	0.2	4.1
	28-Nov-14	7.2	416	0.1	5.3
	5-Dec-14	7.3	425	4.4	7.0
	12-Dec-14	7.2	431	3.3	6.9
	19-Dec-14	7.2	425	3.5	6.2
	26-Dec-14	7.2	469	4.5	7.9

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW2	2-Jan-15	7.2	432	1.4	7.9
(cont'd)	8-Jan-15	7.3	432	1.3	6.9
	14-Jan-15	7.2	416	2.3	7.1
	23-Jan-15	7.2	402	3.4	7.1
	30-Jan-15	8.0	503	2.7	12.5
	6-Feb-15	7.9	513	4.0	11.7
	12-Feb-15	7.6	508	2.0	11.5
	27-Feb-15	7.8	379	3.2	13.0
	6-Mar-15	7.7	509	2.3	11.9
	13-Mar-15	7.7	361	6.1	10.3
	20-Mar-15	7.8	431	7.1	10.1
	26-Mar-15	7.9	409	5.9	10.8
	2-Apr-15	7.8	406	5.8	11.4
	10-Apr-15	7.6	270	6.2	11.5
	17-Apr-15	8.5	299	5.7	
	23-Apr-15	7.8	386	5.0	13.9
	1-May-15	7.6	257	6.1	12.8
	8-May-15	8.9	400	8.5	
	15-May-15	7.7	358	7.9	12.6
	21-May-15	7.8	355	7.2	14.4
	28-May-15	7.7	390	9.0	11.5
	4-Jun-15	7.8	389	8.8	11.3
	12-Jun-15	7.6	440	8.8	9.5
	18-Jun-15	7.7	494	10.2	9.4
	26-Jun-15	7.5	495	13.5	
	1-Jul-15	7.6	420	9.0	
	10-Jul-15	7.7	409	9.1	
	17-Jul-15	7.9	401	9.2	
	22-Jul-15	7.5	478	12.2	
	30-Jul-15	7.9	463	14.3	
	5-Aug-15	7.6	492	10.4	9.0
	13-Aug-15	8.0	497	11.4	9.1
	21-Aug-15	7.6	431	11.9	8.8
	28-Aug-15	8.4	444		
	3-Sep-15	8.1	487	12.0	11.6
	10-Sep-15	7.5	513	12.5	9.4
	18-Sep-15	7.5	484	11.5	9.7
	25-Sep-15	7.5	487	11.4	9.0
	2-Oct-15	7.1	461	10.8	8.0
	9-Oct-15	7.1	457	11.0	7.0
	16-Oct-15	7.5	454	10.7	7.8
	23-Oct-15	7.3	467	10.5	8.0
	30-Oct-15	7.1	556	10.0	7.7
	5-Nov-15	7.9	518	10.3	7.5
	13-Nov-15	7.3	230	8.2	8.0
	19-Nov-15	7.4	563	9.6	10.5
	26-Nov-15	7.2	523	6.5	12.5
	4-Dec-15	7.3	460	7.2	12.2
	10-Dec-15	7.1	526	7.8	9.9
	17-Dec-15	7.6	460	7.3	10.9

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW2	23-Dec-15	7.5	470	8.2	11.3
(cont'd)	30-Dec-15	7.5	439	6.5	12.1
	8-Jan-16	7.3	427	6.0	12.3
	14-Jan-16	7.2	360	5.6	12.2
	22-Jan-16	7.5	443	1.1	13.0
	29-Jan-16	7.3	430	3.5	12.1
	5-Feb-16	7.2	458	6.0	12.0
	11-Feb-16	7.4	438	4.0	12.9
	18-Feb-16	7.7	474	5.8	13.0
	25-Feb-16	7.6	450	4.5	12.4
	4-Mar-16	7.1	430	3.4	12.7
	10-Mar-16	7.2	243	6.0	12.4
	18-Mar-16	7.5	379	5.5	13.1
	28-Mar-16	6.9	229	4.2	11.8
	1-Apr-16	7.2	234	5.5	11.5
	7-Apr-16	7.2	313	5.1	10.9
	15-Apr-16	7.2	314	6.1	11.9
	22-Apr-16	7.8	344	6.5	12.1
	29-Apr-16	7.9	397	6.2	13.6
	6-May-16	7.9	397	7.3	11.9
	13-May-16	7.8	546	9.0	
	20-May-16 (3)	7.8	546	9.0	
	27-May-16	7.8	423	9.0	10.1
	2-Jun-16	7.8	427	9.1	9.6
	10-Jun-16	7.7	587	7.9	10.5
	17-Jun-16	7.6	486	12.1	9.1
	24-Jun-16	7.5	445	8.8	9.3
	28-Jun-16	7.6	460	9.6	14.0
	8-Jul-16	7.5	491	9.3	12.0
	15-Jul-16	7.7	405	9.7	9.7
	22-Jul-16	7.4	475	10.1	9.5
	29-Jul-16	7.4	453	10.3	9.2
	5-Aug-16	7.9	209	12.0	9.9
	12-Aug-16	7.6	489	11.1	9.0
	19-Aug-16	7.6	486	11.2	7.9
	26-Aug-16	7.6	468	11.5	8.5
	2-Sep-16	7.1	126	12.1	4.0
	9-Sep-16	7.6	444	11.8	8.0
	16-Sep-16	7.6	436	11.6	8.5
	21-Sep-16	7.3	346	11.9	9.5
	30-Sep-16	7.5	437	11.8	8.2
	7-Oct-16	7.5	439	11.9	8.9
	13-Oct-16	7.5	400	11.5	9.5
	19-Oct-16	7.7	486	11.6	11.8
	24-Oct-16	7.4	496	11.0	8.6
	27-Oct-16	7.8	433	10.4	8.3
	3-Nov-16	7.6	595	10.7	10.4
	11-Nov-16	6.1	421	9.7	11.2
	18-Nov-16	7.6	616	10.1	9.3
	24-Nov-16	7.6	448	9.2	9.7

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW2	2-Dec-16	7.7	540	9.2	5.9
(cont'd)	7-Dec-16	7.7	520	8.8	6.2
	16-Dec-16	7.6	719	8.3	10.5
	22-Dec-16	7.2	7	7.9	10.9
	30-Dec-16	7.1	600	7.5	10.4
	6-Jan-17	7.6	256	4.3	11.7
	13-Jan-17	7.5	498	5.6	11.6
	20-Jan-17	7.8	520	4.7	12.6
	26-Jan-17	7.8	544	6.3	11.8
	3-Feb-17	7.9	460	3.8	12.5
	10-Feb-17	7.8	424	4.0	13.5
	17-Feb-17	7.9	510	3.3	12.8
	19-Apr-17	7.0	461	8.6	15.2
	9-May-17	8.1	328	8.1	14.9
	16-May-17	7.9	612	8.3	11.6
	28-Jun-17	7.6	456	9.4	10.1
	18-Jul-17	7.7	496	11.8	12.3
	15-Aug-17	8.2	403	10.6	9.7
	18-Sep-17	6.5	513	10.8	8.9
	18-Oct-17	7.7	509	9.8	9.1
	15-Nov-17	7.6	498	7.7	8.9
	13-Dec-17 (2)				
	17-Jan-18	7.7	410	4.6	10.5
	22-Feb-18	7.6	350	6.2	10.7
	20-Mar-18	7.6	418	3.1	15.7
	18-Apr-18	8.1	695	4.9	12.1
	8-May-18	7.3	633	5.9	10.3
	14-May-18	7.5	633	7.9	10.6
	18-Jun-18	7.5	649	9.2	9.2
	19-Jul-18	7.3	643	9.6	9.2
	23-Aug-18	7.4	704	11.2	7.8
	19-Sep-18	7.5	622	11.7	8.4
	24-Oct-18	7.6	655	10.1	8.4
	21-Nov-18	7.4		5.8	9.5
	12-Dec-18	7.8	696	6.3	10.2
	18-Jan-19	7.7	662	4.2	11.3
	26-Feb-19				
	15-Mar-19 (2)				
	24-Apr-19	7.7	538	5.2	11.0
	14-May-19	7.8	554	6.7	11.2
	23-May-19	7.7	538	7.7	10.1
	18-Jun-19	7.7	583	9.3	9.8
	29-Jul-19	7.5	585	10.0	8.9
	29-Aug-19	7.5	1,120	10.7	8.7
	26-Sep-19	7.1	565	11.4	8.2
	23-Oct-19	8.0	600	10.4	8.0
	22-Nov-19				
	20-Dec-19				
	15-Jan-20	8.0	456	1.2	7.6
	20-Feb-20				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW2	26-Mar-20	7.6	601	6.1	11.4
(cont'd)	27-Apr-20	7.7	457	6.7	10.7
	19-May-20	8.0	(6)		
	29-May-20	8.4	588	9.2	9.8
	23-Jun-20	7.7	610	8.7	9.3
	30-Jul-20	7.9	712	11.0	8.2
	25-Aug-20	7.2	631	11.3	8.3
	25-Sep-20	7.8	530	11.0	9.6
	30-Oct-20	7.8	510	9.4	7.1
	26-Nov-20	7.8	545	5.3	12.1
	23-Dec-20	7.5	675	5.5	8.6
	27-Jan-21	8.0	358	0.1	7.6
	22-Feb-21 (2)				
	29-Mar-21	7.6	547	7.0	13.3
	27-Apr-21	7.6	538	7.4	13.0
	27-May-21	7.4	640	8.4	13.7
	22-Jun-21	7.6	672	8.8	9.5
	22-Jul-21	7.8	742	10.3	8.9
	25-Aug-21	7.3	738	11.9	10.5
	28-Sep-21	7.3	714	9.6	
	26-Oct-21	7.4	659	10.3	9.4
	23-Nov-21	7.3	451	5.7	(6)
	21-Dec-21	7.6	498	5.5	8.1
	24-Jan-22 (2)				
	8-Feb-22 (2)				
	16-Mar-22	8.4	589	6.1	12.9
	21-Apr-22	8.0	546	0.1	10.5
	26-May-22	7.5	692	10.2	9.4
	25-Jun-22	7.4	687	7.8	6.7
	26-Aug-22	7.5	702	13.5	6.1
	27-Sep-22	7.4	759	12.0	4.7
	26-Oct-22	7.7	612	10.6	8.0
	21-Nov-22	8.0	600	6.3	8.9
	20-Dec-22	7.8	461	5.6	8.3
	24-Jan-23	7.2	744	4.5	11.8
	22-Feb-23	7.5	740	3.6	12.7
	27-Mar-23	8.7	749	6.2	10.7
	21-Apr-23	6.3	608	10.7	11.8
	15-May-23	7.5	631	11.5	10.0
	26-Jun-23	7.8	748	10.2	6.8
	25-Jul-23	7.5	622	9.8	8.9
	28-Aug-23	7.5	618	12.9	7.6
	25-Sep-23	7.5	670	11.3	8.6
	30-Oct-23	8.2	566	9.2	12.7
	29-Nov-23	7.1	796	5.9	10.5
	18-Dec-23	7.3	776	7.4	10.0
SW0-2	16-Jul-04	7.7	769	25.4	5.7
	22-Jul-04	8.0		29.2	7.2
	29-Jul-04	7.9	768	24.2	
	6-Aug-04	8.2	774	21.6	8.1

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW0-2	12-Aug-04	8.1	683	15.5	
(cont'd)	20-Aug-04	8.0	801	20.0	6.0
	26-Aug-04	8.0	785	21.5	
	3-Sep-04	7.9	742	23.1	6.0
	9-Sep-04	8.3	716	15.8	7.9
	17-Sep-04	7.7	691	11.9	7.9
	1-Oct-04	8.0	825	17.1	8.8
	7-Oct-04	7.9	755	14.3	7.0
	14-Oct-04	7.8	709	10.2	7.9
	20-Oct-04	7.8	636	7.8	11.9
	28-Oct-04	8.0	803	11.7	9.3
	4-Nov-04	7.8	493	4.1	13.0
	11-Nov-04	7.8	528	3.4	
	19-Nov-04	7.9	624	7.7	
	25-Nov-04 (1)				
	2-Dec-04	7.4	436	0.1	11.3
	9-Dec-04	7.6	402	0.1	12.1
	17-Dec-04	7.3	441	0.1	10.3
	29-Dec-04 (2)				
	5-Jan-05	7.3	388	0.1	10.7
	13-Jan-05	7.2	197	0.1	
	20-Jan-05 (2)				
	28-Jan-05 (2)				
	3-Feb-05 (2)				
	10-Feb-05 (2)				
	16-Feb-05 (2)				
	24-Feb-05 (2)				
	3-Mar-05 (2)				
	10-Mar-05 (2)				
	17-Mar-05 (2)				
	24-Mar-05 (2)				
	30-Mar-05	7.8	373	2.6	
	7-Apr-05 (5)				
	15-Apr-05 (5)	7.1	307	3.1	11.8
	21-Apr-05	7.6	370	9.8	
	29-Apr-05	7.5	323	6.4	
	6-May-05	7.7	560	17.4	
	13-May-05	8.4	494	11.8	
	20-May-05	7.2	478	9.8	9.3
	27-May-05	7.7	679	20.8	8.4
	3-Jun-05	7.6	670	19.8	9.1
	10-Jun-05	8.0	764	23.8	6.0
	17-Jun-05	7.2	535	15.7	6.7
	24-Jun-05	8.0	770	25.4	
	30-Jun-05	7.9	808	23.7	
	7-Jul-05	6.8	803	23.0	5.0
	15-Jul-05 (1)				
	21-Jul-05 (1)				
	28-Jul-05 (1)				
	2-Aug-05 (1)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW0-2 (cont'd)	12-Aug-05 (1)				
	19-Aug-05 (1)				
	24-Aug-05 (1)				
	1-Sep-05 (1)				
	9-Sep-05 (1)				
	16-Sep-05 (1)				
	23-Sep-05 (1)				
	30-Sep-05 (1)				
	7-Oct-05 (1)				
	21-Oct-05	8.1	630	10.0	11.0
	28-Oct-05	7.9	564	6.5	12.3
	4-Nov-05	7.7	654	11.1	9.4
	11-Nov-05	7.8	515	5.0	12.3
	18-Nov-05	7.1	850	0.3	
	2-Dec-05	8.5	437	0.1	11.3
	9-Dec-05	8.9	476	0.1	8.1
	16-Dec-05	7.8	490	0.1	9.1
	22-Dec-05	7.6	481	0.1	6.7
	20-Feb-06 (2)				
	24-Feb-06 (2)				
	3-Mar-06 (2)				
	8-Dec-06 (2)				
	28-Dec-06	7.8	842	0.3	13.3
	5-Jan-07	7.9	770	4.7	12.1
	12-Jan-07	7.8	740	0.1	
	19-Jan-07 (2)				
	26-Jan-07 (2)				
	2-Feb-07 (2)				
	9-Feb-07 (2)				
	16-Feb-07 (2)				
	22-Feb-07 (2)				
	2-Mar-07 (2)				
	9-Mar-07 (2)				
	16-Mar-07	7.8	526	0.1	7.3
	23-Mar-07	7.6	490	0.5	10.6
	30-Mar-07	7.9	596	4.6	12.1
	5-Apr-07	7.2	372	0.1	12.0
	13-Apr-07	8.0	561	1.1	13.7
	20-Apr-07	8.1	572	11.5	
	28-Apr-07	8.3	550	10.3	10.3
	4-May-07	8.2	576	14.2	10.3
	11-May-07	8.0	644	15.6	8.6
	18-May-07	8.0	612	12.9	9.8
	25-May-07	7.7	644	18.9	7.1
	1-Jun-07	7.7	670	20.5	5.6
	8-Jun-07	7.6	743	20.3	5.4
	14-Jun-07	7.6	761	19.6	5.7
	22-Jun-07 (1)				
	29-Jun-07	8.0	743	20.5	6.4
	6-Jul-07	8.0	743	20.5	6.4

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW0-2	13-Jul-07	8.2	785	18.0	8.2
(cont'd)	20-Jul-07	7.4	756	17.1	8.1
	27-Jul-07 (1)				
	3-Aug-07 (1)				
	10-Aug-07 (1)				
	17-Aug-07 (1)				
	24-Aug-07	7.8	913	18.9	6.5
	30-Aug-07	7.8	872	18.0	7.1
	7-Sep-07	7.4	860	19.4	6.5
	14-Sep-07	7.4	740	13.4	7.9
	21-Sep-07	8.1	793	15.4	8.2
	28-Sep-07	8.4	817	13.3	7.9
	5-Oct-07	7.4	876	13.0	8.1
	12-Oct-07	7.2	713	8.6	8.5
	19-Oct-07	7.7	779	14.4	7.5
	26-Oct-07	7.3	757	8.6	10.8
	2-Nov-07	7.5	819	5.7	10.9
	9-Nov-07	7.4	776	2.5	12.0
	16-Nov-07	7.3	790	1.5	13.0
	23-Nov-07 (2)				
	30-Nov-07 (2)				
	7-Dec-07 (2)				
	14-Dec-07 (3)				
	20-Dec-07 (2)				
	28-Dec-07 (2)				
	4-Jan-08 (2)				
	11-Jan-08	7.1	478	0.4	10.7
	18-Jan-08 (2)				
	25-Jan-08 (2)				
	1-Feb-08 (2)				
	8-Feb-08 (2)				
	15-Feb-08 (2)				
	22-Feb-08 (2)				
	29-Feb-08 (2)				
	7-Mar-08 (2)				
	14-Mar-08 (2)				
	20-Mar-08 (2)				
	28-Mar-08 (2)				
	4-Apr-08	7.2	485	0.3	
	11-Apr-08	7.0	431	2.1	11.8
	15-Apr-08 (3)				
	18-Apr-08	6.8	494	10.2	8.5
	25-Apr-08	7.8	552	10.5	7.1
	2-May-08	7.0	617	8.1	9.4
	8-May-08	6.7	584	8.5	9.9
	15-May-08	7.5	683	12.2	8.1
	23-May-08	7.8	557	10.9	7.8
	30-May-08	6.3	566	8.1	10.5
	6-Jun-08	7.0	627	24.2	5.4
	13-Jun-08	7.0	655	18.5	5.1

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW0-2 (cont'd)	20-Jun-08	7.8	723	14.3	5.7
	27-Jun-08	6.7	815	20.5	4.6
	4-Jul-08	6.8	778	16.3	6.5
	11-Jul-08	6.9	773	17.3	5.2
	18-Jul-08	7.4	879	21.1	3.9
	25-Jul-08	7.3	707	18.4	4.3
	1-Aug-08	7.2	701	18.3	3.9
	8-Aug-08	7.4	549	17.1	4.2
	15-Aug-08	6.4	732	15.8	4.0
	22-Aug-08	7.3	740	20.2	4.7
	28-Aug-08	7.3		16.0	6.1
	5-Sep-08	7.6	874	17.5	5.6
	12-Sep-08	7.6	851	13.8	5.4
	19-Sep-08	7.9	568	10.9	6.0
	26-Sep-08	7.4	854	12.8	5.7
	3-Oct-08	7.3	665	7.4	7.7
	10-Oct-08	6.8	791	7.4	8.5
	17-Oct-08	6.5	748	7.9	5.9
	24-Oct-08	7.6	670	3.3	6.8
	31-Oct-08	8.1	720	2.5	9.1
	7-Nov-08	9.9	451	8.2	5.7
	14-Nov-08	8.8	609	6.3	8.1
	21-Nov-08 (2)				
	28-Nov-08 (2)				
	30-Nov-08 (2)				
	7-Dec-08 (2)				
	19-Dec-08 (2)				
	23-Dec-08 (2)				
	29-Dec-08 (2)				
	9-Jan-09 (2)				
	16-Jan-09 (2)				
	23-Jan-09 (2)				
	30-Jan-09 (2)				
	6-Feb-09 (2)				
	13-Feb-09 (2)				
	20-Feb-09 (2)				
	27-Feb-09 (2)				
	6-Mar-09 (2)				
	13-Mar-09 (2)				
	20-Mar-09	8.4	526	0.2	11.2
	27-Mar-09	7.1	566	2.3	
	3-Apr-09	7.5	498	6.4	10.3
	9-Apr-09 (2)				
	17-Apr-09	7.8	529	5.8	11.8
	24-Apr-09	8.0	530	7.4	11.7
	1-May-09	7.8	378	14.5	8.5
	8-May-09	7.5	555	13.9	6.8
	15-May-09	7.9	470	12.5	10.2
	22-May-09	7.7	517	14.5	3.3
	29-May-09	7.7	559	13.1	6.7

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW0-2	5-Jun-09	7.5	546	13.7	3.5
(cont'd)	12-Jun-09	7.8	623	15.8	7.2
	19-Jun-09	7.2	1,214	16.6	7.5
	26-Jun-09	7.7	687	25.1	5.6
	2-Jul-09	7.5	584	16.4	6.2
	10-Jul-09			17.8	6.2
	17-Jul-09	8.8	740	14.8	6.1
	24-Jul-09	7.7	732	17.5	6.2
	31-Jul-09	7.5	742	17.2	5.8
	7-Aug-09	7.6	782	14.9	5.0
	14-Aug-09	8.9	707	15.8	8.5
	21-Aug-09	8.0	788	18.8	5.6
	28-Aug-09	8.3	734	14.1	8.1
	4-Sep-09	8.4	654	13.1	9.2
	11-Sep-09	8.0	752	13.6	7.8
	18-Sep-09	7.7	826	12.5	7.5
	25-Sep-09	7.8	678	12.3	8.2
	9-Oct-09	7.5	764	9.4	10.4
	16-Oct-09	7.9	774	2.0	12.2
	23-Oct-09			4.2	7.9
	30-Oct-09	7.9	735	3.1	9.1
	6-Nov-09	7.3	711	2.2	12.4
	13-Nov-09	7.5	786	2.5	7.5
	20-Nov-09	7.2	350	5.7	10.9
	27-Nov-09		682	3.6	11.6
	4-Dec-09	7.2	605	0.8	13.0
	11-Dec-09 (2)				
	18-Dec-09 (2)				
	22-Dec-09 (2)				
	28-Dec-09 (2)				
	8-Jan-10 (2)				
	15-Jan-10 (2)				
	22-Jan-10 (2)				
	29-Jan-10 (2)				
	5-Feb-10 (2)				
	12-Feb-10 (2)				
	19-Feb-10 (2)				
	1-Mar-10 (2)				
	5-Mar-10 (2)				
	12-Mar-10 (2)				
	19-Mar-10	7.5	464	7.6	9.4
	26-Mar-10	7.2	535	0.6	11.2
	2-Apr-10	6.6	451	10.7	9.2
	9-Apr-10	7.3	582	4.8	12.4
	16-Apr-10	7.6	494	12.2	8.5
	23-Apr-10	7.8	443	7.9	9.5
	30-Apr-10	7.7	458	10.7	8.4
	7-May-10	7.8	396	10.4	9.1
	14-May-10	7.8	346	11.1	10.8
	21-May-10	7.8	578	17.7	7.1

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW0-2 (cont'd)	28-May-10	7.7	607	23.2	5.5
	4-Jun-10	7.7	427	17.0	5.3
	11-Jun-10	7.8	471	15.8	5.7
	18-Jun-10	7.2	604	18.2	8.8
	25-Jun-10	7.7	585	18.6	7.6
	9-Jul-10	7.2	532	20.0	4.7
	15-Jul-10	7.8	722	23.4	2.4
	23-Jul-10	7.6	573	10.4	7.3
	30-Jul-10	7.8	552	18.8	7.1
	6-Aug-10	7.7	636	18.6	8.6
	13-Aug-10	7.7	703	21.2	4.3
	20-Aug-10	7.6	651	16.1	6.5
	27-Aug-10	7.5	407	14.8	6.2
	30-Aug-10	7.6	632	17.8	4.6
	1-Sep-10	7.7	706	20.2	4.1
	3-Sep-10	7.7	720	19.8	3.9
	7-Sep-10	7.6	521	15.9	5.2
	10-Sep-10	7.8	510	13.1	6.8
	17-Sep-10	7.6	475	11.2	7.4
	24-Sep-10	7.8		16.2	6.1
	1-Oct-10	7.6	523	11.3	7.0
	8-Oct-10	7.6	563	9.5	8.2
	15-Oct-10	7.6	561	9.4	8.3
	22-Oct-10	7.7	441	3.1	10.3
	29-Oct-10	7.6	416	6.4	5.1
	5-Nov-10	7.8	413	1.5	11.2
	12-Nov-10	7.8	469	3.1	10.7
	19-Nov-10	8.1	357	1.3	12.3
	26-Nov-10	7.8	345	0.3	11.8
	3-Dec-10	7.8	334	0.2	10.3
	9-Dec-10 (2)				
	17-Dec-10 (2)				
	23-Dec-10 (2)				
	30-Dec-10 (2)				
	7-Jan-11 (2)				
	14-Jan-11 (2)				
	21-Jan-11 (2)				
	28-Jan-11 (2)				
	4-Feb-11 (2)				
	11-Feb-11 (2)				
	18-Feb-11 (2)				
	25-Feb-11 (2)				
	4-Mar-11 (2)				
	11-Mar-11 (2)				
	18-Mar-11 (2)				
	22-Mar-11 (3)				
	25-Mar-11 (2)				
	1-Apr-11	7.3	301	2.0	11.2
	8-Apr-11	7.4	299	2.7	9.2
	15-Apr-11	7.7	252	3.4	11.7

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW0-2	21-Apr-11	8.0	287	2.8	13.1
(cont'd)	29-Apr-11		309	5.1	12.2
	6-May-11	8.1	307	8.6	9.3
	13-May-11	8.2	347	10.3	9.3
	20-May-11	7.9	349	14.1	8.6
	27-May-11	8.1	320	10.9	9.0
	3-Jun-11	7.8	448	15.5	9.9
	10-Jun-11	7.9	482	16.5	9.4
	17-Jun-11	7.8	514	16.7	8.1
	24-Jun-11	7.9	538	16.8	6.8
	30-Jun-11	7.8	505	15.7	10.3
	8-Jul-11	8.0	652	20.1	8.2
	14-Jul-11	7.8	633	17.6	6.9
	22-Jul-11	7.7	707	22.2	8.1
	29-Jul-11	7.7	567	20.6	5.6
	12-Aug-11	8.0	689	17.8	6.0
	19-Aug-11	8.0	478	18.0	5.9
	26-Aug-11	8.0	741	19.1	6.1
	2-Sep-11	7.8	398	20.9	8.7
	9-Sep-11	8.0	640	15.9	6.2
	16-Sep-11	7.7	475	9.7	8.3
	23-Sep-11	7.7	557	12.9	5.4
	30-Sep-11	8.2	552	13.7	8.3
	6-Oct-11	8.2	453	8.1	5.9
	14-Oct-11	7.8	486	14.3	6.3
	21-Oct-11	7.8	401	8.7	9.6
	28-Oct-11	8.6	475	5.4	11.2
	4-Nov-11	8.0	435	4.3	11.2
	11-Nov-11	7.6	498	3.3	5.3
	18-Nov-11	7.6	445	0.8	12.6
	25-Nov-11	7.9	449	3.8	8.4
	2-Dec-11	7.9	346	0.6	14.6
	9-Dec-11	7.3	327	0.2	11.4
	16-Dec-11	7.5	280	1.3	14.0
	23-Dec-11 (2)				
	30-Dec-11 (2)				
	6-Jan-12 (2)				
	13-Jan-12 (2)				
	20-Jan-12 (2)				
	27-Jan-12 (2)				
	3-Feb-12 (2)				
	10-Feb-12 (2)				
	17-Feb-12 (2)				
	24-Feb-12 (2)				
	1-Mar-12 (2)				
	9-Mar-12 (2)				
	16-Mar-12	7.5	250	6.0	11.6
	23-Mar-12	7.5		10.6	7.6
	30-Mar-12	7.8	290	2.5	8.1
	6-Apr-12 (3)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW0-2	13-Apr-12	8.0	340	5.4	10.9
(cont'd)	20-Apr-12	7.9	401	8.6	4.4
	27-Apr-12	8.0	288	3.0	12.3
	4-May-12	7.8	452	13.9	3.6
	11-May-12	7.8	298	9.0	10.6
	18-May-12	8.0	489	10.8	8.5
	25-May-12	7.5	501	11.5	9.0
	1-Jun-12	8.2	467	10.6	8.5
	8-Jun-12	8.1	558	16.8	7.9
	15-Jun-12	8.1	562	18.2	7.9
	22-Jun-12	8.0	726	20.0	7.4
	28-Jun-12	8.2	648	18.7	6.3
	6-Jul-12	8.0	853	22.4	5.3
	13-Jul-12	8.1	683	18.8	5.6
	20-Jul-12	7.9	781	19.2	4.9
	27-Jul-12	7.9	691	18.9	5.9
	3-Aug-12	7.9	720	18.6	4.0
	10-Aug-12	7.8	524	16.2	6.0
	17-Aug-12	7.9	461	17.3	5.3
	24-Aug-12	8.2	667	16.7	8.6
	31-Aug-12	7.7	757	18.5	7.2
	7-Sep-12	8.2	716	16.3	4.2
	14-Sep-12	7.0	593	15.2	1.9
	21-Sep-12	8.0	534	10.8	8.7
	28-Sep-12	6.5	648	7.8	9.8
	5-Oct-12	7.1	736	14.3	7.2
	12-Oct-12	8.0	574	4.7	11.3
	19-Oct-12	8.4	724	12.2	4.4
	26-Oct-12	7.3	615	10.4	4.7
	2-Nov-12	6.3	386	1.8	6.9
	9-Nov-12	7.6	363	2.2	11.2
	16-Nov-12	8.1	438	2.8	8.0
	23-Nov-12	7.7	443	6.4	7.4
	30-Nov-12	7.6	433	5.2	7.3
	7-Dec-12	7.5	386	1.1	8.9
	14-Dec-12	7.7	365	0.8	12.3
	21-Dec-12	7.4	404	0.1	12.2
	28-Dec-12 (2)				
	4-Jan-13 (2)				
	11-Jan-13 (2)				
	17-Jan-13 (2)				
	25-Jan-13 (2)				
	1-Feb-13 (2)				
	8-Feb-13 (2)				
	15-Feb-13 (2)				
	22-Feb-13 (2)				
	1-Mar-13 (2)				
	8-Mar-13 (2)				
	15-Mar-13 (2)				
	22-Mar-13 (2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW0-2	28-Mar-13	7.9	303	1.5	9.8
(cont'd)	5-Apr-13	8.0	250	0.0	6.9
	12-Apr-13	8.2	230	1.7	7.0
	19-Apr-13	7.6	277	11.2	8.7
	26-Apr-13	7.8	262	4.7	6.1
	3-May-13	7.8	293	15.2	10.5
	9-May-13	7.8	475	13.6	7.5
	16-May-13	7.8	410	11.3	8.2
	24-May-13	7.7	322	5.9	8.4
	31-May-13	7.7	509	19.5	8.5
	7-Jun-13		351	11.6	6.2
	14-Jun-13	7.9	517	19.5	5.4
	21-Jun-13	7.8	539	14.9	8.1
	27-Jun-13	7.9	536	15.2	8.1
	5-Jul-13	7.7	621	19.2	6.3
	12-Jul-13	7.6	582	14.7	7.0
	19-Jul-13	7.8	556	19.6	5.6
	25-Jul-13	7.7	523	14.6	8.9
	2-Aug-13	8.1	576	18.2	8.6
	8-Aug-13	8.1	565	19.0	8.5
	16-Aug-13	8.0	560	19.2	8.4
	23-Aug-13	8.1	562	19.2	8.5
	30-Aug-13	8.2	548	19.2	8.3
	6-Sep-13	8.1	530	18.7	8.1
	13-Sep-13	8.2	530	12.9	8.6
	20-Sep-13	8.2	556	17.4	8.1
	27-Sep-13	7.8	550	12.6	8.2
	4-Oct-13	7.6	545	10.2	8.2
	11-Oct-13	7.5	540	10.2	8.0
	18-Oct-13	7.5	539	9.8	9.0
	25-Oct-13	7.6	423	7.6	3.9
	31-Oct-13	7.5	406	7.4	3.9
	8-Nov-13	7.3	398	7.4	3.8
	14-Nov-13	7.4	350	3.3	3.0
	22-Nov-13	7.3	360	3.7	3.2
	29-Nov-13				
	6-Dec-13	7.6	258	(0)	7.3
	13-Dec-13 (2)				
	19-Dec-13 (2)				
	27-Dec-13 (2)				
	3-Jan-14				
	10-Jan-14				
	17-Jan-14				
	24-Jan-14				
	31-Jan-14				
	7-Feb-14				
	14-Feb-14				
	21-Feb-14				
	28-Feb-14				
	7-Mar-14				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW0-2	14-Mar-14				
(cont'd)	21-Mar-14				
	28-Mar-14				
	4-Apr-14				
	11-Apr-14				
	17-Apr-14	7.8	491	4.2	8.0
	25-Apr-14	7.8	486	4.0	8.2
	1-May-14	7.6	480	4.3	8.2
	9-May-14	7.6	421	11.0	4.3
	16-May-14	7.1	450	10.0	8.2
	23-May-14	7.1	432	9.9	8.7
	30-May-14	7.1	423	10.1	8.8
	6-Jun-14	7.1	430	11.3	8.6
	13-Jun-14	7.2	432	12.5	8.5
	20-Jun-14	7.2	442	13.2	8.5
	27-Jun-14	7.2	421	14.2	7.9
	4-Jul-14	7.1	406	14.6	7.8
	11-Jul-14	7.1	413	14.6	7.8
	18-Jul-14	8.4	600	15.1	
	25-Jul-14	8.7	608	14.9	
	1-Aug-14	8.6	565	15.0	4.9
	8-Aug-14	8.5	562	15.3	4.9
	15-Aug-14	8.5	486	13.2	5.2
	22-Aug-14	8.6	639	16.1	7.5
	29-Aug-14	8.6	659	14.9	
	5-Sep-14 (3)				
	12-Sep-14	7.8	623	12.0	6.2
	19-Sep-14	7.9	449	10.3	4.9
	26-Sep-14	7.9	440	10.3	5.0
	3-Oct-14	7.7	425	12.9	4.7
	10-Oct-14	7.6	420	11.9	4.5
	16-Oct-14	7.5	430	12.1	4.0
	24-Oct-14	7.6	489	7.6	6.9
	31-Oct-14	7.6	423	7.0	6.0
	7-Nov-14	7.3	431	0.5	7.0
	14-Nov-14	7.2	428	0.2	6.8
	20-Nov-14	7.3	432	(1)	6.2
	28-Nov-14 (2)				
	5-Dec-14 (2)				
	12-Dec-14 (2)				
	19-Dec-14 (2)				
	26-Dec-14	7.2	418	1.3	7.0
	2-Jan-15 (2)				
	8-Jan-15 (2)				
	14-Jan-15 (2)				
	22-Jan-15 (2)				
	30-Jan-15 (2)				
	6-Feb-15 (2)				
	12-Feb-15 (2)				
	27-Feb-15 (2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW0-2	6-Mar-15	(2)				
(cont'd)	13-Mar-15	(2)				
	20-Mar-15	(2)				
	26-Mar-15	(2)				
	2-Apr-15		7.6	281	2.8	9.8
	10-Apr-15	(5)				
	17-Apr-15	(5)				
	23-Apr-15		8.0	343	2.5	13.2
	1-May-15		8.0	447	8.1	9.1
	8-May-15		9.2	523	17.3	
	15-May-15		7.8	413	11.4	9.2
	21-May-15		8.0	420	11.2	11.4
	28-May-15		7.9	506	16.7	8.7
	4-Jun-15		8.1	507	15.5	9.5
	12-Jun-15		7.7	523	14.1	7.3
	18-Jun-15		7.8	579	17.8	6.9
	26-Jun-15	(3)				
	1-Jul-15	(3)				
	10-Jul-15		7.9	545	15.9	
	17-Jul-15		8.0	541	15.5	
	22-Jul-15		7.8	683	20.5	7.7
	30-Jul-15		8.1	743	24.6	
	5-Aug-15		7.6	541	14.7	6.1
	13-Aug-15		7.9	611		
	21-Aug-15		8.0	543	13.7	7.2
	28-Aug-15		8.1	565	14.6	7.8
	3-Sep-15		8.0	710	19.6	7.6
	10-Sep-15		7.7	621	18.6	7.1
	18-Sep-15		7.7	654	16.4	8.3
	25-Sep-15		7.6	583	14.0	9.6
	2-Oct-15		7.6	501	6.9	10.6
	9-Oct-15		7.7	530	10.4	8.5
	16-Oct-15		7.8	483	10.5	10.5
	23-Oct-15		7.6	464	5.9	10.8
	30-Oct-15		7.5	424	6.5	10.0
	5-Nov-15		7.5	445	9.9	6.3
	13-Nov-15		7.3	358	5.2	8.1
	19-Nov-15		7.7	535	9.8	12.1
	26-Nov-15		7.3	362	1.0	15.3
	4-Dec-15		7.5	390	2.0	15.5
	10-Dec-15		7.4	465	4.7	11.4
	17-Dec-15		7.7	370	3.6	11.3
	23-Dec-15		7.4	378	5.1	10.9
	30-Dec-15		7.4	321	(0)	11.4
	8-Jan-16		7.2	355	0.1	12.1
	14-Jan-16	(2)				
	22-Jan-16	(2)				
	29-Jan-16	(2)				
	5-Feb-16	(2)				
	11-Feb-16	(2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW0-2 (cont'd)	18-Feb-16	(2)				
	25-Feb-16	(2)				
	4-Mar-16	(2)				
	10-Mar-16		6.9	210	(0)	10.4
	18-Mar-16		7.4	289	0.9	10.8
	28-Mar-16		6.6	132	1.0	11.5
	1-Apr-16		7.3	170	4.7	9.6
	7-Apr-16		7.4	219	0.2	12.5
	15-Apr-16		7.0	256	2.7	12.9
	22-Apr-16		7.9	426	10.7	8.6
	29-Apr-16		7.4	352	4.7	11.2
	6-May-16		7.9	424	9.2	8.5
	13-May-16		8.1	566	13.8	
	20-May-16		8.0	570	13.5	8.7
	27-May-16		7.8	543	16.5	6.4
	2-Jun-16		7.9	544	15.9	6.5
	10-Jun-16		7.9	629	10.5	9.1
	17-Jun-16		7.9	581	14.4	8.0
	24-Jun-16		7.9	573	13.7	8.8
	28-Jun-16		8.0	609	16.0	10.7
	8-Jul-16		8.0	661	18.3	8.0
	15-Jul-16		7.9	562	18.0	6.9
	22-Jul-16		7.6	636	19.0	5.4
	29-Jul-16		7.8	606	16.4	5.9
	5-Aug-16	(1)				
	12-Aug-16	(1)				
	19-Aug-16	(3)				
	26-Aug-16	(3)				
	2-Sep-16	(3)				
	9-Sep-16	(3)				
	16-Sep-16	(3)				
	21-Sep-16	(3)				
	30-Sep-16	(3)				
	7-Oct-16		7.9	576	13.9	9.1
	13-Oct-16	(3)				
	19-Oct-16	(3)				
	24-Oct-16		7.5	529	7.0	11.0
	27-Oct-16		8.0	396	1.7	12.0
	3-Nov-16		7.6	504	8.1	10.8
	11-Nov-16	(3)	7.8	409	5.0	12.2
	18-Nov-16		7.8	695	6.7	11.3
	24-Nov-16		7.4	369	1.5	11.8
	2-Dec-16		7.5	340	2.3	7.2
	7-Dec-16	(3)				
	16-Dec-16		7.7	334	(0)	4.5
	22-Dec-16	(2)				
	30-Dec-16	(2)				
	6-Jan-17	(2)				
	13-Jan-17	(2)				
	20-Jan-17	(2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW0-2	26-Jan-17	7.5	362	(0)	10.1
(cont'd)	3-Feb-17 (2)				
	10-Feb-17 (2)				
	17-Feb-17 (2)				
	19-Apr-17	7.2	423	11.2	11.5
	10-May-17	8.3	353	11.4	12.8
	16-May-17	8.2	483	17.4	7.8
	28-Jun-17	7.6	535	14.5	7.4
	18-Jul-17	6.1	666	19.6	9.2
	15-Aug-17	8.3	505	16.0	7.0
	18-Sep-17	7.7	649	14.2	7.7
	17-Oct-17	7.8	443	6.8	9.7
	14-Nov-17	7.7	413	0.5	12.8
	13-Dec-17 (2)				
	17-Jan-18 (2)				
	22-Feb-18	7.5	235	(0)	8.7
	18-Mar-18 (2)				
	20-Mar-18	7.5	358	(0)	11.4
	18-Apr-18 (2)				
	8-May-18	7.5	527	9.3	5.1
	15-May-18	7.6	555	12.5	5.2
	18-Jun-18	7.7	641	18.8	6.3
	19-Jul-18	7.7	712	15.6	6.3
	23-Aug-18	7.6	628	15.2	4.5
	19-Sep-18	7.6	734	14.6	6.1
	24-Oct-18	7.5	641	2.9	10.0
	21-Nov-18	7.6	674	0.0	9.1
	12-Dec-18 (2)	8.1	637	0.3	9.9
	18-Jan-19				
	26-Feb-19				
	15-Mar-19 (2)				
	24-Apr-19	7.6	421	4.8	6.3
	14-May-19	7.7	381	6.1	8.9
	23-May-19	7.6	497	10.8	4.0
	18-Jun-19	7.5	542	17.7	5.0
	29-Jul-19	7.8	637	18.9	6.9
	29-Aug-19	7.7	1,332	15.2	6.4
	26-Sep-19	7.2	685	13.4	5.1
	23-Oct-19	7.4	743	7.3	7.3
	22-Nov-19				
	20-Dec-19				
	15-Jan-20				
	20-Feb-20				
	26-Mar-20				
	27-Apr-20	7.7	511	6.2	8.1
	19-May-20	7.9	570	8.9	6.7
	29-May-20	8.1	569	18.8	3.3
	23-Jun-20	7.7	616	19.0	4.2
	30-Jul-20	7.4	728	18.8	3.0
	25-Aug-20	7.3	709	19.2	4.7

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW0-2	25-Sep-20	7.8	530	10.4	5.3
(cont'd)	30-Oct-20	7.3	654	7.0	7.0
	26-Nov-20	7.4	662	4.9	11.8
	27-Jan-21 (2)				
	22-Feb-21 (2)				
	29-Mar-21	7.3	533	5.0	7.5
	27-Apr-21	7.4	556	7.7	6.9
	26-May-21	7.4	699	17.6	5.2
	27-May-21	7.4	699	17.6	5.2
	22-Jun-21	7.6	712	14.7	6.6
	22-Jul-21	7.4	697	17.2	3.1
	25-Aug-21	7.1	830	19.3	2.3
	28-Sep-21 (3)				
	26-Oct-21	7.4	633	6.2	8.5
	23-Nov-21	7.5	649	4.4	8.6
	21-Dec-21	7.5	635	4.1	8.7
	24-Jan-22 (2)				
	8-Feb-22 (2)				
	16-Mar-22 (2)				
	21-Apr-22	7.7	647	4.6	11.7
	24-May-22	7.6	726	15.3	7.0
	25-Jun-22	7.2	854	10.4	13.1
	26-Aug-22	7.6	875	16.5	12.0
	27-Sep-22	7.3	724	13.7	11.9
	26-Oct-22	7.7	651	10.0	5.2
	21-Nov-22	7.9	522	0.0	5.9
	20-Dec-22	7.5	414	0.2	6.7
	24-Jan-23 (2)	6.7	722	0.0	6.2
	22-Feb-23 (2)				
	27-Mar-23	8.4	569	0.1	6.5
	21-Apr-23	6.2	534	10.1	8.1
	15-May-23	7.6	647	15.2	7.0
	26-Jun-23	7.7	779	18.7	7.8
	25-Jul-23	7.7	620	17.7	17.7
	28-Aug-23	6.8	658	15.6	4.8
	25-Sep-23	7.4	709	13.1	3.7
	30-Oct-23	8.2	527	6.2	6.7
	29-Nov-23 (2)	7.0	866	0.3	5.7
	18-Dec-23	7.3	756	1.5	10.1
QFSW2	24-Feb-04	7.8	482	4.1	10.8
	8-Apr-04 (5)				
	16-Apr-04 (5)				
	23-Apr-04	7.8	374	5.9	
	30-Apr-04	8.1	640	11.9	
	7-May-04 (3)				
	14-May-04	7.8	538	11.8	
	20-May-04	7.9	559	11.2	
	28-May-04	7.9	477	9.7	
	4-Jun-04	7.8	590	15.7	
	11-Jun-04	7.8	652	16.0	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
QFSW2 (cont'd)	17-Jun-04	7.7	649	14.0	
	23-Jun-04	7.9	701	15.2	
	1-Jul-04	7.7	662	13.1	
	9-Jul-04 (3)				
	22-Jul-04	7.8		19.6	
	29-Jul-04	7.6	659	16.3	
	6-Aug-04	7.8	708	16.6	
	12-Aug-04	7.8	712	15.5	
	19-Aug-04	7.7	757	17.3	
	26-Aug-04	7.7	712	17.0	
	3-Sep-04	7.8	679	17.2	
	9-Sep-04	8.0	713	14.3	
	17-Sep-04	7.7	732	13.7	
	23-Sep-04	7.6	803	16.3	
	1-Oct-04	7.6	783	14.6	
	7-Oct-04	7.8	774	14.3	
	14-Oct-04	7.6	712	11.4	
	20-Oct-04	7.7	692	9.8	
	28-Oct-04	7.7	809	10.7	
	4-Nov-04	7.6	595	8.0	
	11-Nov-04	7.7	611	7.3	
	19-Nov-04	7.6	641	7.9	10.7
	25-Nov-04	7.6	624	5.4	10.5
	2-Dec-04	7.6	564	5.9	10.8
	9-Dec-04	7.5	477	4.6	10.6
	17-Dec-04	7.6	814	3.3	
	29-Dec-04 (2)				
	5-Jan-05	7.5	492	4.6	11.0
	13-Jan-05	7.3	373	3.4	11.3
	20-Jan-05	7.1	430	2.7	11.0
	28-Jan-05	7.3	447	3.0	10.3
	3-Feb-05	7.3	452	3.2	10.6
	10-Feb-05	7.1	477	4.4	10.3
	16-Feb-05	7.6	467	3.9	10.8
	3-Mar-05	7.2	469	2.9	10.8
	10-Mar-05	7.4	500	4.5	10.7
	17-Mar-05	7.2	457	4.1	10.3
	24-Mar-05	7.2	477	4.9	10.3
	30-Mar-05	7.5	477	6.1	10.4
	7-Apr-05	7.4	376	4.2	10.5
	15-Apr-05	6.9	410	4.9	10.5
	21-Apr-05	7.1	417	5.6	9.2
	29-Apr-05	7.2	414	6.1	10.4
	6-May-05	7.0	634	9.9	
	13-May-05	7.9	509	8.8	10.0
	20-May-05	7.6	530	10.9	9.6
	27-May-05	7.3	570	12.2	9.1
	3-Jun-05	6.7	585	12.3	8.5
	10-Jun-05	7.3	626	14.9	8.4
	17-Jun-05	7.2	610	13.0	7.7

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
QFSW2	24-Jun-05	7.6	701	18.0	9.4
(cont'd)	30-Jun-05	7.2	690	17.1	
	7-Jul-05	6.6	852	16.9	8.0
	15-Jul-05	6.5	977	18.1	7.6
	21-Jul-05	8.1	1,361	19.1	7.1
	28-Jul-05	6.9	1,270	17.1	7.3
	2-Aug-05	8.1	802	17.8	5.7
	12-Aug-05	7.0	1,176	17.6	9.5
	19-Aug-05	7.5	729	18.0	
	24-Aug-05	7.7	734	18.1	8.8
	1-Sep-05		712	17.9	8.7
	9-Sep-05	6.9	722	18.5	9.0
	16-Sep-05	7.3	739	17.4	
	23-Sep-05	7.8	718	17.9	9.0
	30-Sep-05	8.0	701	16.1	9.1
	7-Oct-05	8.6	815	14.9	
	14-Oct-05	8.2	695	15.0	9.0
	21-Oct-05	8.4	689	13.7	
	4-Nov-05	8.2	708	11.0	
	11-Nov-05	8.4	681	9.4	10.6
	18-Nov-05	8.6	943	6.4	
	25-Nov-05	8.4	592	6.3	10.0
	2-Dec-05	9.2	583	5.8	10.3
	9-Dec-05	9.1	583	5.5	9.8
	16-Dec-05 (5)	8.2	620	4.7	9.4
	22-Dec-05	8.2	635	4.6	10.7
	6-Jan-06	8.1	592	5.7	10.7
	13-Jan-06	7.0	553	5.9	10.4
	20-Jan-06	7.2	524	4.9	10.3
	27-Jan-06	7.5	582	5.0	10.8
	3-Feb-06	7.7	526	4.8	10.9
	10-Feb-06	8.1	530	4.4	11.1
	20-Feb-06	8.6	539	4.6	
	24-Feb-06	8.0	519	3.7	
	3-Mar-06	7.9	523	2.0	
	10-Mar-06	8.1	447	3.4	12.6
	20-Mar-06	8.3	703	3.2	
	24-Mar-06	8.1	463	5.0	
	31-Mar-06	8.0	617	7.7	
	7-Apr-06 (5)				
	13-Apr-06	8.0	623	8.2	
	21-Apr-06	8.1	634	9.0	
	26-Apr-06	8.2	693	8.6	
	5-May-06	8.0	662	9.9	
	12-May-06	8.6	724	10.2	
	19-May-06	7.4	854	9.5	
	25-May-06	7.9	756	11.6	
	2-Jun-06	7.8	741	12.6	
	9-Jun-06	7.9	609	12.8	
	19-Jun-06	7.8	654	12.1	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
QFSW2	23-Jun-06	7.9	672	12.5	
(cont'd)	30-Jun-06	8.5	787	17.6	
	7-Jul-06	8.3	765	17.5	
	14-Jul-06	7.8	779	18.5	
	21-Jul-06	8.0	781	17.9	
	28-Jul-06	7.8	815	19.9	
	4-Aug-06	7.9	599	21.1	
	11-Aug-06	7.7	783	19.8	
	18-Aug-06	7.9	870	19.2	
	25-Aug-06	7.4	917	16.7	
	1-Sep-06	7.5	902	18.4	
	8-Sep-06	7.5	888	18.1	
	15-Sep-06	7.5	895	16.5	
	21-Sep-06	7.7	885	15.4	
	28-Sep-06	7.5	933	13.1	
	6-Oct-06	7.7	889	14.2	
	13-Oct-06	7.6	907	10.2	
	20-Oct-06	7.7	911	9.9	
	26-Oct-06	7.8	931	9.9	
	28-Oct-06	7.9	705	11.6	10.7
	3-Nov-06	8.6	903	8.6	10.7
	10-Nov-06	7.9	872	9.3	
	17-Nov-06	7.8	829	7.5	10.4
	24-Nov-06	8.4	865	8.0	11.0
	4-Dec-06 (5)	7.6	853	6.0	10.4
	8-Dec-06	7.2	840	5.7	11.2
	14-Dec-06	7.7	889	5.9	12.3
	21-Dec-06	7.9	859	5.6	11.4
	28-Dec-06	7.7	876	5.0	11.3
	5-Jan-07	7.5	873	5.4	10.7
	12-Jan-07	7.3	795	4.8	11.5
	19-Jan-07	7.6	790	4.4	11.2
	26-Jan-07	8.1	796	4.6	10.3
	2-Feb-07	7.8	779	4.6	10.4
	9-Feb-07	7.7	723	4.6	9.9
	16-Feb-07	7.6	816	4.2	10.0
	22-Feb-07	8.1	816	4.6	9.4
	2-Mar-07	8.1	824	4.6	10.2
	9-Mar-07	7.3	673	5.3	9.6
	16-Mar-07 (5)				
	23-Mar-07	7.5	749	5.1	9.9
	30-Mar-07 (5)	7.7	671	6.1	10.7
	5-Apr-07 (5)				
	13-Apr-07	7.7	657	4.2	12.0
	20-Apr-07	7.7	630	6.6	11.1
	28-Apr-07	8.1	690	6.7	9.1
	4-May-07	7.9	635	8.1	8.9
	11-May-07	7.9	767	8.4	8.1
	18-May-07	8.2	674	9.1	8.2
	25-May-07	7.8	663	9.5	8.4

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
QFSW2 (cont'd)	1-Jun-07	7.7	703	10.5	7.7
	8-Jun-07	7.8	738	12.3	7.2
	14-Jun-07	8.0	753	12.3	7.4
	22-Jun-07	7.9	693	11.7	8.9
	29-Jun-07	8.1	697	14.1	8.5
	6-Jul-07	8.1	729	14.7	8.5
	13-Jul-07	8.2	746	14.5	8.2
	20-Jul-07	7.8	749	14.5	8.0
	27-Jul-07	7.6	683	14.2	8.1
	3-Aug-07	7.7	794	17.2	8.2
	10-Aug-07	7.6	728	16.5	8.0
	17-Aug-07	7.6	784	15.6	7.9
	24-Aug-07	7.9	803	15.9	7.5
	30-Aug-07	7.9	793	16.8	7.9
	7-Sep-07	7.7	803	16.9	8.2
	14-Sep-07	7.6	760	16.0	7.9
	21-Sep-07	7.8	770	16.1	8.6
	28-Sep-07	8.3	821	14.1	8.2
	5-Oct-07	7.5	865	15.1	8.6
	12-Oct-07	7.4	784	13.1	7.7
	19-Oct-07	8.1	598	13.5	7.6
	26-Oct-07	7.2	789	11.7	8.4
	2-Nov-07	7.4	813	11.1	9.4
	9-Nov-07	7.2	797	9.2	8.2
	16-Nov-07	7.4	838	8.3	7.8
	23-Nov-07	8.0	840	7.9	8.9
	7-Dec-07	7.8	758	7.0	8.3
	14-Dec-07	7.3	763	6.6	7.9
	20-Dec-07	7.3	786	4.5	
	28-Dec-07 (3)				
	4-Jan-08	7.2	807	6.2	9.1
	11-Jan-08	7.5	676	5.1	11.3
	18-Jan-08	7.2	651	3.4	12.2
	25-Jan-08	7.7	667	3.5	12.4
	1-Feb-08	7.4	703	3.5	12.0
	8-Feb-08	7.2	713	3.9	11.6
	15-Feb-08	7.2	650	2.9	12.0
	22-Feb-08	7.4	752	3.5	
	29-Feb-08	7.4	723	3.6	
	7-Mar-08	7.4	737	3.3	
	14-Mar-08	7.1	725	3.7	
	20-Mar-08	7.7	732	3.2	12.8
	28-Mar-08	7.4	608	4.1	
	4-Apr-08 (3)				
	11-Apr-08 (3)				
	15-Apr-08 (3)				
	18-Apr-08 (3)				
	25-Apr-08	7.9	559	9.3	8.9
	2-May-08	6.9	530	7.5	8.2
	8-May-08	7.3	638	9.0	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
QFSW2 (cont'd)	15-May-08	7.6	648	17.9	8.6
	23-May-08	7.7	576	10.4	8.4
	30-May-08	7.3	698	10.5	8.1
	6-Jun-08	7.3	798	15.5	6.6
	13-Jun-08	7.7	686	13.8	6.5
	20-Jun-08	7.7	726	13.2	6.4
	27-Jun-08	7.1	781	14.9	6.8
	4-Jul-08	7.1	783	14.2	
	11-Jul-08	7.0	763	15.4	7.1
	18-Jul-08	7.7	826	16.2	5.2
	25-Jul-08	7.0	843	16.8	5.8
	1-Aug-08	6.9	827	17.2	5.6
	8-Aug-08	7.4	814	16.3	4.8
	15-Aug-08	7.3	936	16.4	5.5
	22-Aug-08	7.5	937	17.4	4.7
	28-Aug-08	7.4		16.1	6.5
	5-Sep-08	7.8	852	16.4	6.3
	12-Sep-08	7.9	864	15.5	5.6
	19-Sep-08	8.0	882	15.0	
	26-Sep-08	7.5	859	15.0	5.7
	3-Oct-08	7.7	835	12.1	6.7
	10-Oct-08	7.2	850	12.2	7.6
	17-Oct-08		785	11.8	5.3
	24-Oct-08	7.9	820	10.0	5.4
	31-Oct-08	7.7	814	9.5	5.8
	7-Nov-08	7.5	467	9.7	8.3
	14-Nov-08		584	8.6	8.8
	21-Nov-08 (3)				
	28-Nov-08		412	5.5	7.1
	30-Nov-08 (2)				
	12-Dec-08	6.4	759	4.6	8.8
	19-Dec-08 (3)				
	23-Dec-08	8.0	654	4.0	8.1
	29-Dec-08 (3)				
	9-Jan-09 (5)				
	16-Jan-09		656	3.7	9.7
	23-Jan-09	8.0	666	3.9	8.3
	30-Jan-09 (3)				
	6-Feb-09		611	4.2	8.8
	13-Feb-09 (5)				
	20-Feb-09	8.1	610	3.3	13.3
	27-Feb-09	8.1	599	2.7	13.5
	6-Mar-09		519	3.7	12.6
	13-Mar-09	8.4	552	3.4	
	20-Mar-09	8.3	554	4.3	
	27-Mar-09	7.4	640	5.0	
	3-Apr-09	7.5	583	5.5	
	9-Apr-09	7.8	530	4.4	
	17-Apr-09	8.3	596	6.4	
	24-Apr-09	8.1	589	7.5	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
QFSW2	1-May-09	8.2	431	10.5	10.5
(cont'd)	8-May-09	7.5	575	11.1	10.0
	15-May-09	8.1	480	11.9	10.5
	22-May-09	8.1	497	11.4	9.5
	29-May-09	8.0	627	11.4	
	5-Jun-09	7.1	569	11.8	10.3
	12-Jun-09	8.3	575	12.1	9.6
	19-Jun-09	7.6	1,229	13.3	9.7
	2-Jul-09	7.6	609	13.4	9.3
	10-Jul-09			14.3	9.6
	17-Jul-09	9.1	693	14.1	9.1
	24-Jul-09	7.9	714	13.7	8.8
	26-Jul-09	7.9	692	14.9	9.2
	31-Jul-09	8.0	739	14.8	8.9
	7-Aug-09	7.9	760	14.5	7.6
	14-Aug-09	8.3	675	17.5	6.1
	21-Aug-09	9.0	801	16.0	8.6
	28-Aug-09	8.4	738	15.4	8.8
	4-Sep-09	8.9	763	15.5	8.6
	11-Sep-09	8.3	737	14.8	8.8
	18-Sep-09	7.7	829	13.9	6.9
	25-Sep-09	7.7	731	13.7	9.9
	2-Oct-09	8.4	851	12.0	9.7
	9-Oct-09	7.7	894	10.8	11.2
	16-Oct-09	8.2	846	9.4	
	23-Oct-09	7.6	767	8.6	10.9
	30-Oct-09	7.7	804	9.0	
	6-Nov-09	6.5	808	7.1	
	13-Nov-09	7.4	858	8.2	
	20-Nov-09	7.4	737	7.2	12.1
	27-Nov-09	7.5	739	7.5	11.0
	4-Dec-09	7.6	707	4.8	12.9
	11-Dec-09	7.6	662	4.8	11.0
	18-Dec-09	7.6	758	4.8	11.2
	22-Dec-09	7.6	757	4.9	11.5
	28-Dec-09 (3)				
	8-Jan-10 (3)				
	15-Jan-10	7.6	741	5.0	10.6
	22-Jan-10	7.5	756	4.5	10.6
	29-Jan-10 (3)				
	5-Feb-10	7.0	742	5.0	8.4
	12-Feb-10	7.0	736	4.8	9.4
	19-Feb-10	7.9	738	4.9	10.3
	1-Mar-10	7.3	649	5.1	10.5
	5-Mar-10	7.4	542	5.9	9.2
	12-Mar-10	7.2	721	5.4	9.6
	19-Mar-10	7.6	622	7.3	10.8
	26-Mar-10	7.2	566	5.4	10.6
	2-Apr-10 (3)				
	9-Apr-10	7.5	666	7.2	11.9

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
QFSW2 (cont'd)	16-Apr-10	8.0	484	9.3	10.1
	23-Apr-10	7.0	471	8.7	11.2
	30-Apr-10	7.9	463	9.9	10.5
	7-May-10	7.9	448	9.7	10.1
	14-May-10	7.9	454	10.3	10.0
	21-May-10	7.8	498	11.1	9.4
	28-May-10	7.8	484	13.7	9.2
	4-Jun-10	7.8	541	13.2	6.2
	11-Jun-10	7.8	465	12.8	6.1
	18-Jun-10	7.7	565	13.5	11.3
	25-Jun-10	7.8	543	14.0	9.2
	1-Jul-10 (3)				
	9-Jul-10	7.7	541	15.7	8.8
	15-Jul-10	7.7	627	16.4	8.0
	23-Jul-10	7.6	614	15.6	9.1
	30-Jul-10	7.7	529	16.3	7.5
	6-Aug-10	7.6	606	15.7	10.8
	13-Aug-10	7.6	640	16.4	8.5
	20-Aug-10	7.6	654	15.7	6.7
	27-Aug-10	7.3	606	15.4	6.4
	3-Sep-10	7.7	674	16.3	7.7
	10-Sep-10	7.7	555	15.1	8.9
	17-Sep-10	7.7	563	14.3	8.0
	24-Sep-10	7.7		14.7	7.5
	1-Oct-10	7.7	631	13.2	7.5
	8-Oct-10	7.8	636	12.8	8.7
	15-Oct-10	7.6	596	11.0	8.3
	22-Oct-10	7.7	625	10.4	8.4
	29-Oct-10	7.8	523	10.2	7.5
	5-Nov-10	7.6	599	7.6	8.2
	12-Nov-10	7.6	630	8.6	8.4
	19-Nov-10	8.0	516	7.7	9.4
	26-Nov-10	7.6	469	6.2	10.1
	3-Dec-10	7.7	485	0.1	8.8
	9-Dec-10	7.6	413	4.7	13.0
	17-Dec-10	8.1	485	5.2	10.8
	23-Dec-10	8.1	414	4.8	8.3
	30-Dec-10 (3)				
	7-Jan-11	7.8	404	3.6	12.5
	14-Jan-11	7.7	380	4.6	10.2
	21-Jan-11	8.1	378	3.7	9.3
	28-Jan-11	7.7	372	4.5	8.7
	4-Feb-11	7.7	372	3.9	8.8
	11-Feb-11	8.0	443	4.8	9.1
	18-Feb-11	8.3	429	4.6	10.1
	25-Feb-11	7.4	404	4.4	12.7
	4-Mar-11	7.5	400	4.9	10.9
	11-Mar-11	7.6	362	2.4	11.6
	18-Mar-11	8.2	209	2.4	
	22-Mar-11 (3)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
QFSW2	25-Mar-11	8.4	402	5.4	12.0
(cont'd)	1-Apr-11	7.2	362	4.6	10.7
	8-Apr-11	7.9	376	4.6	9.7
	15-Apr-11	8.1	321	5.4	12.0
	21-Apr-11	8.1	373	4.9	12.1
	29-Apr-11				
	6-May-11	8.4	314	7.4	10.9
	13-May-11	8.2	474	9.7	12.6
	20-May-11	7.9	395	10.2	11.0
	27-May-11				
	3-Jun-11	7.9	432	12.9	9.1
	10-Jun-11	7.7	501	13.1	7.8
	17-Jun-11	6.6	481	13.3	7.9
	24-Jun-11	7.8	527	13.1	7.3
	30-Jun-11	7.5	486	13.8	9.2
	8-Jul-11	7.7	589	15.2	7.4
	14-Jul-11	8.0	593	15.1	7.3
	22-Jul-11	7.7	629	17.4	9.5
	29-Jul-11	7.9	542	15.4	6.3
	5-Aug-11	7.7	613	16.6	8.5
	12-Aug-11	7.9	644	15.5	6.8
	19-Aug-11	8.0	458	15.5	6.8
	26-Aug-11	7.8	661	15.2	7.2
	2-Sep-11	7.4	552	15.6	7.4
	9-Sep-11	8.3	632	15.6	7.2
	16-Sep-11	8.5	557	13.3	6.7
	23-Sep-11 (3)				
	30-Sep-11	8.2	618	12.9	8.0
	6-Oct-11	7.9	694	11.3	8.0
	14-Oct-11	7.7	580	13.3	8.6
	21-Oct-11	8.1	643	10.0	9.4
	28-Oct-11	7.7	594	9.6	8.2
	4-Nov-11	8.1	520	8.2	9.8
	11-Nov-11	8.0	591	7.7	4.0
	18-Nov-11 (3)				
	25-Nov-11	8.7	554	7.4	7.8
	2-Dec-11 (3)				
	9-Dec-11	8.1	438	6.6	7.4
	16-Dec-11	7.3	422	6.2	10.9
	23-Dec-11 (3)				
	30-Dec-11 (3)				
	6-Jan-12	7.3	448	5.5	10.7
	13-Jan-12				
	20-Jan-12	8.4	368	4.7	8.0
	27-Jan-12	9.0	315	4.6	11.7
	3-Feb-12	8.2	284	4.8	9.2
	10-Feb-12	8.5	360	4.2	10.6
	17-Feb-12	8.6	372	4.7	11.4
	24-Feb-12 (3)				
	1-Mar-12	8.9	216	4.7	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
QFSW2 (cont'd)	9-Mar-12 (5)				
	16-Mar-12				
	23-Mar-12	7.6		7.4	8.6
	30-Mar-12	9.0	379	6.1	9.8
	6-Apr-12 (3)				
	13-Apr-12	8.5	409	6.7	10.1
	20-Apr-12	8.8	445	7.8	6.8
	27-Apr-12	8.7	345	6.0	9.0
	4-May-12	8.1	515	8.4	6.8
	11-May-12	7.7	315	9.1	9.4
	18-May-12	7.6	449	9.1	6.1
	25-May-12	6.4	512	11.4	5.5
	1-Jun-12	7.8	581	13.2	7.3
	8-Jun-12	8.3	545	13.2	7.8
	15-Jun-12	7.7	587	13.1	5.4
	22-Jun-12	7.7	580	13.2	7.4
	28-Jun-12	8.0	640	14.7	6.1
	6-Jul-12	7.8	688	15.1	5.5
	13-Jul-12	8.3	627	14.7	4.4
	20-Jul-12	8.1	739	17.4	6.8
	27-Jul-12	7.9	686	14.9	5.3
	3-Aug-12	7.8	741	17.3	7.9
	10-Aug-12	8.3	375	15.2	7.3
	17-Aug-12	8.8	450	14.2	5.3
	24-Aug-12	7.7	660	15.9	8.2
	31-Aug-12	7.3	723	16.3	6.9
	7-Sep-12	7.7	722	15.8	6.0
	14-Sep-12	7.0	715	14.6	7.4
	21-Sep-12	7.5	671	12.6	6.7
	28-Sep-12	7.6	722	11.9	7.6
	5-Oct-12	8.1	769	13.1	8.5
	12-Oct-12	8.5	666	9.8	6.8
	19-Oct-12	8.6	672	9.3	6.8
	26-Oct-12	7.6	710	10.7	10.6
	2-Nov-12	8.3	632	7.4	6.4
	9-Nov-12	8.7	408	8.3	9.5
	16-Nov-12	8.1	569	8.5	9.2
	23-Nov-12	8.0	515	8.1	6.0
	30-Nov-12	8.7	408	6.0	4.3
	7-Dec-12	8.1	542	6.5	6.8
	14-Dec-12	8.1	463	6.4	9.8
	21-Dec-12	7.7	516	5.6	10.9
	28-Dec-12 (3)				
	4-Jan-13	7.7	509	4.8	8.6
	11-Jan-13	7.7	450	4.3	8.7
	17-Jan-13	7.8	489	4.2	10.2
	25-Jan-13	7.9	492	4.3	6.9
	1-Feb-13 (3)				
	8-Feb-13 (3)				
	15-Feb-13	7.7	648	3.5	9.8

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
QFSW2 (cont'd)	22-Feb-13	7.5	372	3.6	7.3
	1-Mar-13	7.6	486	3.3	8.5
	8-Mar-13	7.5	387	5.2	10.1
	15-Mar-13		374	3.6	8.6
	22-Mar-13	7.7	431	3.6	10.4
	28-Mar-13	7.5	370	4.4	9.4
	5-Apr-13	7.7	375	3.8	11.3
	12-Apr-13	7.7	382	3.3	12.4
	19-Apr-13				
	26-Apr-13	7.6	343	5.2	10.1
	3-May-13	7.6	350	8.9	9.0
	9-May-13	7.8	449	10.6	10.1
	16-May-13	8.0	410	9.1	10.3
	24-May-13	7.7	439	8.2	8.2
	31-May-13	7.8	466	12.7	8.0
	7-Jun-13 (3)				
	14-Jun-13	7.9	509	14.5	6.5
	21-Jun-13	8.0	528	12.4	11.3
	27-Jun-13	8.1	532	12.6	10.9
	5-Jul-13	7.7	588	14.4	7.9
	12-Jul-13	7.7	538	17.5	5.0
	19-Jul-13	7.8	525	16.9	7.7
	25-Jul-13	7.5	565	14.1	9.0
	2-Aug-13	8.1	596	15.6	9.2
	8-Aug-13	8.1	548	16.0	8.2
	16-Aug-13	8.2	646	14.8	8.9
	23-Aug-13	8.0	573	15.9	6.7
	30-Aug-13	7.9	570	16.0	6.0
	6-Sep-13	7.8	560	15.7	6.6
	13-Sep-13	7.7	541	13.3	8.5
	20-Sep-13	7.9	529	12.9	8.1
	27-Sep-13	7.8	520	12.8	8.1
	4-Oct-13 (3)				
	11-Oct-13	7.6	502	11.3	7.6
	18-Oct-13	7.5	500	10.7	5.7
	25-Oct-13	7.5	423	8.6	3.9
	31-Oct-13	7.3	406	8.3	3.8
	8-Nov-13	7.2	400	3.5	5.0
	14-Nov-13	7.2	420	2.1	4.9
	22-Nov-13	7.9	449	7.5	4.0
	29-Nov-13	8.4	427	6.6	10.7
	6-Dec-13	8.0	404	5.2	8.1
	13-Dec-13 (3)				
	19-Dec-13	8.2	414	6.0	5.1
	27-Dec-13 (3)				
	3-Jan-14	7.8	530	2.3	3.3
	10-Jan-14	8.4	404	5.0	4.6
	17-Jan-14	8.5	394	4.7	10.5
	31-Jan-14	7.3	436	4.5	8.5
	7-Feb-14	7.8	426	3.5	3.9

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
QFSW2	14-Feb-14	7.2	447	5.0	6.0
(cont'd)	21-Feb-14	7.3	435	4.4	8.3
	28-Feb-14	7.3	437	4.2	8.5
	7-Mar-14	7.3	439	4.4	8.5
	14-Mar-14	6.4	443	4.1	7.0
	21-Mar-14	7.2	449	4.2	4.9
	28-Mar-14	7.6	389	4.0	9.9
	4-Apr-14	6.9	416	3.7	9.0
	11-Apr-14	7.6	363	3.6	10.4
	17-Apr-14	8.0	631	4.6	11.0
	25-Apr-14	7.9	603	4.3	10.3
	1-May-14	7.8	580	4.7	9.2
	9-May-14	7.6	418	12.2	5.6
	16-May-14	7.1	450	10.0	8.2
	23-May-14	7.5	382	11.9	6.2
	30-May-14	7.2	375	12.0	6.1
	6-Jun-14	7.3	391	12.5	7.6
	13-Jun-14	7.2	398	12.7	7.5
	20-Jun-14	7.9	416	13.2	8.1
	27-Jun-14	7.2	420	14.4	8.2
	4-Jul-14	8.0	492	13.3	8.7
	11-Jul-14	7.9	482	14.3	7.2
	18-Jul-14	8.4	575	12.6	
	25-Jul-14	8.8	615	13.1	
	1-Aug-14	8.6	575	13.2	6.8
	8-Aug-14	8.5	523	13.8	6.6
	15-Aug-14	8.3	520	12.5	7.3
	22-Aug-14	8.9	662	13.1	
	29-Aug-14	9.0	663	13.5	
	5-Sep-14	9.0	672	14.1	
	12-Sep-14	8.0	639	10.2	5.8
	19-Sep-14	8.0	423	10.2	6.2
	26-Sep-14	8.0	418	10.1	6.2
	3-Oct-14	7.5	431	12.8	6.8
	10-Oct-14	7.6	419	12.6	7.0
	16-Oct-14	8.2	656	11.7	7.4
	24-Oct-14	8.5	427	9.4	6.3
	31-Oct-14	8.4	420	6.4	6.3
	7-Nov-14	7.3	447	0.4	8.0
	14-Nov-14	7.4	423	(1)	6.7
	20-Nov-14	7.3	416	(1)	6.7
	28-Nov-14	7.3	413	(1)	5.2
	5-Dec-14	7.2	418	(0)	6.9
	12-Dec-14	7.2	412	(0)	6.6
	19-Dec-14	7.2	427	(1)	6.1
	26-Dec-14				
	2-Jan-15 (3)				
	8-Jan-15	7.2	470	5.5	8.5
	14-Jan-15	7.4	446	0.9	7.3
	23-Jan-15	7.2	420	(0)	7.9

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
QFSW2	30-Jan-15 (3)				
(cont'd)	6-Feb-15	7.8	570	4.3	8.6
	12-Feb-15 (3)				
	27-Feb-15	7.8	577	4.6	8.2
	6-Mar-15	7.6	576	4.5	8.7
	13-Mar-15	7.6	569	5.1	8.2
	20-Mar-15	7.6	349	5.5	8.4
	26-Mar-15	7.7	337	4.6	8.9
	2-Apr-15	7.7	341	4.9	9.0
	10-Apr-15	7.9	288	6.4	9.9
	17-Apr-15	9.2	372	5.7	12.6
	23-Apr-15	7.9	419	5.2	10.2
	1-May-15	7.6	466	7.1	10.2
	8-May-15	9.2	472	10.2	
	15-May-15	7.8	414	8.7	9.3
	21-May-15	7.8	420	8.9	10.6
	28-May-15	7.8	485	11.8	8.8
	4-Jun-15	7.7	478	11.2	8.7
	12-Jun-15	7.6	535	10.8	7.0
	18-Jun-15	7.8	548	12.8	7.1
	26-Jun-15	7.7	495	13.6	
	1-Jul-15 (3)				
	10-Jul-15	7.9	557	13.0	
	17-Jul-15	7.9	557	13.0	
	22-Jul-15	8.1	558	12.7	
	30-Jul-15	8.0	665	16.4	
	5-Aug-15	7.6	586	12.8	6.8
	13-Aug-15	7.7	703	14.9	6.9
	21-Aug-15	8.2	635	15.0	
	28-Aug-15	8.2	605		
	3-Sep-15	7.6	700	16.9	7.7
	10-Sep-15	7.8	682	17.0	7.9
	18-Sep-15	7.6	626	13.8	7.6
	25-Sep-15	7.7	632	14.3	9.1
	2-Oct-15	7.3	544	9.7	7.2
	9-Oct-15	7.4	561	11.0	7.8
	16-Oct-15	7.8	549	10.3	8.5
	23-Oct-15	7.5	558	9.3	8.2
	30-Oct-15	7.5	576	8.8	8.7
	5-Nov-15	7.9	596	11.0	7.5
	13-Nov-15	7.5	549	8.7	5.2
	19-Nov-15	7.8	648	9.6	11.9
	26-Nov-15	7.6	558	7.0	10.3
	4-Dec-15	7.4	564	6.6	10.4
	10-Dec-15	7.4	574	7.5	8.3
	17-Dec-15	7.7	492	6.9	7.4
	23-Dec-15	7.6	499	7.3	7.3
	30-Dec-15	7.4	466	5.3	8.4
	14-Jan-16	7.1	441	4.3	8.4
	22-Jan-16	7.9	504	5.0	7.9

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
QFSW2	29-Jan-16	7.5	472	3.6	9.0
(cont'd)	5-Feb-16	7.5	466	4.5	9.0
	11-Feb-16	7.6	466	3.7	9.2
	18-Feb-16	7.5	484	5.4	8.8
	25-Feb-16	7.1	442	3.3	9.2
	4-Mar-16	7.6	448	4.5	9.0
	10-Mar-16	7.0	276	1.6	11.8
	18-Mar-16	7.7	388	4.7	10.8
	28-Mar-16	7.5	99	1.3	12.7
	1-Apr-16	7.3	237	3.7	10.4
	7-Apr-16	7.1	271	3.7	10.7
	15-Apr-16	7.5	340	6.9	10.3
	22-Apr-16	8.0	449	8.8	10.2
	29-Apr-16	8.3	439	6.9	11.1
	6-May-16	8.1	528	10.5	9.3
	13-May-16	7.8	632	12.5	
	20-May-16	8.2	650	13.0	8.8
	27-May-16	8.1	581	14.7	7.7
	2-Jun-16	8.0	531	13.5	6.5
	10-Jun-16	8.1	733	12.1	8.6
	17-Jun-16	8.0	695	17.0	8.6
	24-Jun-16	7.9	561	13.4	7.9
	28-Jun-16	8.1	626	14.1	11.1
	8-Jul-16	8.1	587	16.7	9.8
	15-Jul-16	8.2	582	16.0	7.7
	22-Jul-16	7.8	769	18.0	8.0
	29-Jul-16	8.1	691	15.5	8.4
	5-Aug-16	8.3	674	16.8	8.0
	12-Aug-16	8.1	832	18.0	8.0
	19-Aug-16	7.9	661	16.4	7.0
	26-Aug-16	7.9	676	14.8	7.6
	2-Sep-16	7.5	586	13.1	7.3
	9-Sep-16	7.9	587	14.7	7.5
	16-Sep-16	8.1	612	12.4	8.3
	21-Sep-16	8.0	623	15.5	10.1
	30-Sep-16	8.3	604	12.0	9.7
	7-Oct-16	7.4	621	12.5	7.0
	13-Oct-16	8.0	532	11.2	9.5
	19-Oct-16	7.5	645	12.4	9.8
	27-Oct-16	8.0	492	6.6	7.2
	3-Nov-16	7.8	592	9.5	7.3
	11-Nov-16	6.1	496	8.1	9.0
	18-Nov-16	7.7	751	9.2	7.2
	24-Nov-16	7.3	516	7.5	8.4
	2-Dec-16	7.8	468	6.8	4.9
	7-Dec-16	7.9	453	5.8	5.9
	16-Dec-16	7.5	768	4.9	9.2
	22-Dec-16	7.7	750	5.6	8.8
	30-Dec-16 (3)				
	6-Jan-17	7.7	412	4.5	9.4

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
QFSW2 (cont'd)	13-Jan-17	7.8	439	4.0	9.7
	20-Jan-17	7.8	470	4.8	8.7
	26-Jan-17	7.8	494	4.8	8.8
	3-Feb-17	7.8	440	3.5	8.6
	10-Feb-17	7.8	413	4.0	7.8
	17-Feb-17	7.7	492	4.0	8.9
	19-Apr-17	6.9	449	9.3	11.2
	3-May-17	7.1	374	7.8	9.6
	16-May-17	8.2	548	14.5	8.4
	28-Jun-17	7.9	625	14.8	6.8
	18-Jul-17	8.0	705	17.4	7.9
	15-Aug-17	8.3	557	15.1	6.4
	18-Sep-17	6.4	679	14.1	5.7
	18-Oct-17	7.9	626	11.1	7.3
	15-Nov-17	7.8	550	6.9	9.1
	14-Dec-17	7.9	495	4.3	3.3
	17-Jan-18	7.4	445	3.1	8.6
	18-Feb-18 (5)				
	23-Feb-18	7.9	334	2.3	8.0
	6-Mar-18	7.6	562	3.7	
	20-Mar-18	7.5	406	3.6	12.1
	18-Apr-18	7.8	624	3.2	15.7
	9-May-18	7.9	564	11.2	8.2
	14-May-18	7.7	597	10.3	7.9
	18-Jun-18	7.8	654	16.4	6.4
	19-Jul-18	7.6	683	15.5	5.1
	23-Aug-18	7.7	674	15.9	5.2
	5-Sep-18	8.0	700	18.8	6.8
	19-Sep-18	7.5	737	14.9	3.8
	24-Oct-18	7.8	714	8.6	5.4
	21-Nov-18	7.6	699	4.6	7.3
	6-Dec-18	7.6	687	5.5	8.2
	12-Dec-18	7.8	697	6.1	7.5
	18-Jan-19	7.6	422	5.1	7.2
	26-Feb-19	7.8	608	2.5	9.9
	8-Mar-19	7.8	670	2.7	8.7
	15-Mar-19 (2)				
	24-Apr-19	7.9	484	7.7	8.5
	17-May-19	8.0	496	9.6	8.3
	23-May-19	8.1	525	12.0	8.4
	18-Jun-19	7.8	607	13.6	7.3
	29-Jul-19	7.8	671	18.2	6.3
	29-Aug-19	8.0	578	18.1	6.6
	4-Sep-19				
	26-Sep-19	7.4	700	15.0	6.3
	23-Oct-19	7.5	698	8.5	6.3
	22-Nov-19	7.6	583	2.1	7.0
	19-Dec-19				
	20-Dec-19	7.6	423	0.1	7.2
	15-Jan-20	7.7	703	5.4	7.6

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
QFSW2	20-Feb-20	7.6	716	5.0	8.0
(cont'd)	2-Mar-20				
	26-Mar-20	7.6	628	5.8	8.6
	27-Apr-20	7.3	556	8.2	8.3
	29-May-20	8.3	645	14.0	6.0
	11-Jun-20				
	23-Jun-20	8.6	574	14.4	8.1
	30-Jul-20	8.0	716	20.0	5.5
	25-Aug-20	8.2	779	20.8	7.1
	27-Aug-20	8.2	779		7.1
	25-Sep-20	8.1	660	13.0	8.6
	30-Oct-20	7.4	670	8.1	7.4
	25-Nov-20	7.9	821		7.1
	26-Nov-20	7.7	807	6.5	7.1
	23-Dec-20	7.7	821	3.8	7.1
	27-Jan-21	7.6	690	3.5	8.2
	22-Feb-21	7.3	385	1.1	12.1
	23-Feb-21	7.3	385	1.1	12.1
	29-Mar-21	8.2	598	8.0	8.1
	27-Apr-21	7.7	526	8.0	8.1
	27-May-21	7.8	776	15.0	8.5
	22-Jun-21	7.8	663	16.8	6.8
	22-Jul-21	8.2	859	19.7	8.4
	11-Aug-21	8.2	754	20.1	8.6
	25-Aug-21	8.2	754	20.1	8.6
	28-Sep-21	7.7	800	14.1	7.8
	7-Oct-21	7.7	816	10.1	8.7
	26-Oct-21	7.7	816	10.1	8.7
	23-Nov-21	7.8	810	5.6	8.6
	21-Dec-21	7.9	809	4.1	8.1
	24-Jan-22	8.0	752	0.4	8.0
	8-Feb-22	7.5	812	4.2	8.7
	28-Feb-22				11.0
	16-Mar-22	7.9	625	2.4	9.1
	21-Apr-22	7.6	594	2.4	12.5
	24-May-22	7.2	465	12.6	11.0
	31-Aug-22	7.4	671	18.6	6.4
	28-Oct-22	7.6	754	8.9	6.4
	23-Feb-23	7.5	945	0.9	9.8
	17-May-23	7.8	703	9.3	6.9
	30-Aug-23	7.6	616	14.7	4.5
	31-Oct-23	8.1	715	9.6	7.9
SW3	22-May-03			10.0	
	23-Jun-03 (1)				
	22-Jul-03 (1)				
	20-Aug-03 (1)				
	25-Sep-03 (1)				
	22-Oct-03 (1)				
	28-Nov-03 (1)				
	10-Feb-04 (2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO		6.5 - 8.5	nc	nc	*a*
SW3	18-Mar-04			340	0.6	4.4
(cont'd)	19-Apr-04		7.4	239	8.7	10.3
	19-May-04		7.5	378	14.6	5.3
	24-Jun-04	(1)				
	29-Jul-04	(1)				
	23-Aug-04	(1)				
	21-Sep-04	(1)				
	21-Oct-04	(1)				
	17-Nov-04	(1)				
	15-Dec-04	(2)				
	16-Jan-05	(2)				
	13-Feb-05	(2)				
	30-Mar-05		7.0	236	1.1	7.5
	11-Apr-05		6.1	154	1.5	7.5
	22-May-05	(1)				
	26-Jun-05	(1)				
	10-Jul-05	(1)				
	21-Aug-05	(1)				
	25-Sep-05	(1)				
	23-Oct-05	(1)				
	13-Nov-05	(1)				
	11-Dec-05	(1)				
	16-Jan-06		7.8	602	0.8	6.3
	19-Feb-06	(2)				
	20-Mar-06		7.8	209	0.5	
	18-Apr-06		7.7	339	10.1	
	23-May-06		7.5	426	8.5	
	18-Jun-06	(1)				
	9-Jul-06	(1)				
	20-Aug-06	(1)				
	17-Sep-06	(1)				
	15-Oct-06	(1)				
	19-Nov-06	(1)				
	27-Nov-06		7.6	737	6.1	7.6
	17-Dec-06		7.5	353	1.4	
	21-Jan-07		7.6	452	2.5	6.5
	18-Feb-07	(2)				
	18-Mar-07	(2)				
	15-Apr-07		8.1	351	1.7	10.8
	13-May-07		8.0	849	13.2	7.0
	17-Jun-07	(1)				
	15-Jul-07	(1)				
	19-Aug-07	(1)				
	16-Sep-07	(1)				
	14-Oct-07	(1)				
	18-Nov-07	(1)				
	9-Dec-07	(2)				
	20-Jan-08	(2)				
	17-Feb-08	(2)				
	16-Mar-08	(2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW3	4-Apr-08	7.7	275	0.1	8.2
(cont'd)	23-Apr-08	7.8	329	18.7	5.8
	21-May-08	6.9	365	14.7	4.9
	15-Jun-08 (1)				
	13-Jul-08 (1)				
	17-Aug-08 (1)				
	14-Sep-08 (1)				
	19-Oct-08 (1)				
	23-Nov-08 (2)				
	14-Dec-08 (2)				
	18-Jan-09 (2)				
	8-Feb-09 (2)				
	15-Mar-09	7.7	295	2.0	10.4
	12-Apr-09	7.3	354	12.5	10.6
	17-May-09	7.7	351	20.5	4.5
	14-Jun-09 (1)				
	12-Jul-09 (1)				
	9-Aug-09 (1)				
	13-Sep-09 (1)				
	11-Oct-09 (1)				
	15-Nov-09 (1)				
	13-Dec-09 (2)				
	17-Jan-10 (2)				
	7-Feb-10 (2)				
	14-Mar-10	7.7	265	1.3	9.9
	11-Apr-10	7.8	373	8.2	11.3
	16-May-10	7.6	219	15.3	5.4
	23-May-10 (1)				
	13-Jun-10	7.5	334	18.5	6.2
	18-Jul-10	7.4	308	19.8	5.9
	15-Aug-10 (1)				
	12-Sep-10 (1)				
	17-Oct-10 (1)				
	14-Nov-10	7.3	365	6.0	10.6
	19-Dec-10 (2)				
	16-Jan-11	8.8	218	0.2	7.6
	20-Feb-11 (2)				
	13-Mar-11	8.1	209	0.3	7.1
	17-Mar-11	8.0	141	0.5	5.9
	22-Mar-11	7.9	204	0.5	8.2
	1-Apr-11	7.4	197	1.2	7.3
	5-Apr-11	8.0	166	0.4	12.3
	8-Apr-11	7.9	185	1.8	9.3
	12-Apr-11	6.3	164	4.4	10.8
	15-Apr-11	7.8	140	3.0	10.1
	18-Apr-11	7.8	200	2.1	11.7
	20-Apr-11	8.0	182	2.5	8.8
	21-Apr-11	8.1	185	2.3	12.5
	26-Apr-11	6.6	232	7.1	9.6
	29-Apr-11	7.6	225	5.2	11.2

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW3	6-May-11	8.2	213	8.2	7.3
(cont'd)	15-May-11	8.4	252	10.7	9.3
	16-May-11	7.2	209	10.8	9.8
	18-May-11	8.2	228	12.2	7.0
	19-May-11	8.4	264	17.1	10.3
	20-May-11	7.8	256	15.5	6.7
	27-May-11		242	11.1	7.6
	3-Jun-11	7.6	304	13.7	5.9
	13-Jun-11	7.0	316	13.4	5.1
	17-Jul-11 (1)				
	14-Aug-11 (1)				
	18-Sep-11 (1)				
	16-Oct-11	7.4	296	9.9	8.0
	20-Nov-11				
	18-Dec-11	8.2	146	1.0	9.0
	15-Jan-12 (2)				
	19-Feb-12 (2)				
	18-Mar-12	7.5	215	12.8	5.9
	15-Apr-12 (1)				
	13-May-12 (1)				
	17-Jun-12 (1)				
	15-Jul-12 (1)				
	12-Aug-12 (1)				
	16-Sep-12 (1)				
	14-Oct-12 (1)				
	18-Nov-12	7.4	227	4.9	6.3
	16-Dec-12	7.4	215	1.2	10.8
	15-Jan-13	7.6	218	0.1	5.4
	17-Feb-13 (2)				
	19-Mar-13	7.7	185	0.2	6.7
	15-Apr-13	7.5	236	8.9	6.8
	13-May-13	7.6	257	7.4	7.0
	16-Jun-13 (1)				
	14-Jul-13 (1)				
	18-Aug-13 (1)				
	15-Sep-13 (1)				
	13-Oct-13 (1)				
	19-Nov-13	8.0	218	0.9	3.2
	15-Dec-13				
	19-Jan-14 (2)				
	16-Feb-14 (2)				
	16-Mar-14 (2)				
	15-Apr-14	7.6	161	0.4	7.0
	12-May-14	7.1	350	17.0	4.6
	15-Jun-14 (1)				
	13-Jul-14 (1)				
	17-Aug-14 (1)				
	7-Sep-14 (1)				
	22-Oct-14 (1)	7.2	418	9.4	4.9
	16-Nov-14 (2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW3	17-Dec-14	8.9	262	0.2	
(cont'd)	18-Jan-15 (2)				
	15-Feb-15 (2)				
	15-Mar-15 (2)				
	22-Apr-15	7.8	229	9.2	7.5
	17-May-15 (1)				
	15-Jun-15	7.6	342	18.8	1.7
	19-Jul-15 (1)				
	9-Aug-15 (1)				
	23-Aug-15 (1)				
	6-Sep-15 (1)				
	11-Oct-15 (1)				
	8-Nov-15				
	15-Nov-15 (1)				
	6-Dec-15 (1)				
	19-Jan-16	7.1	219	0.0	11.0
	17-Feb-16	7.1	243	0.1	9.8
	15-Mar-16	7.4	173	2.6	10.6
	20-Apr-16	7.6	299	15.8	7.4
	17-May-16	7.8	319	8.0	8.4
	19-Jun-16 (1)				
	3-Jul-16				
	17-Jul-16 (1)				
	7-Aug-16				
	21-Aug-16 (1)				
	18-Sep-16 (1)				
	16-Oct-16 (1)				
	24-Oct-16 (1)				
	18-Nov-16 (1)				
	12-Dec-16 (1)				
	22-Jan-17 (2)				
	15-Feb-17 (2)				
	21-Mar-17		280	1.3	5.8
	19-Apr-17	7.5	263	8.2	8.0
	9-May-17	7.9	188	7.0	10.8
	16-May-17	7.9	415	10.8	3.5
	28-Jun-17	7.7	344	14.5	4.7
	7-Jul-17				
	18-Jul-17	5.6	446	16.2	
	27-Jul-17				
	13-Aug-17 (1)				
	17-Sep-17 (1)				
	17-Oct-17	7.7	458	9.7	7.3
	14-Nov-17	7.9	489	4.8	14.7
	12-Dec-17 (2)				
	17-Jan-18 (2)				
	22-Feb-18	7.3	160	0.0	6.2
	18-Mar-18 (2)				
	18-Apr-18	7.7	370	(0)	5.8
	8-May-18	7.5	407	10.4	6.2

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW3	14-May-18		7.4	675	14.1	6.2
(cont'd)	19-Jun-18	(1)				
	18-Jul-18	(1)				
	23-Aug-18	(1)				
	19-Sep-18	(1)				
	24-Oct-18	(1)				
	21-Nov-18		7.7	713	0.0	9.0
	12-Dec-18	(1)				
	18-Jan-19		7.5	402	1.2	8.6
	26-Feb-19	(2)				
	15-Mar-19	(2)				
	24-Apr-19		7.5	282	4.6	6.6
	14-May-19		7.7	325	7.1	7.5
	23-May-19		7.6	350	10.8	5.4
	18-Jun-19		7.5	435	15.9	5.0
	29-Jul-19	(1)				
	29-Aug-19	(1)				
	23-Oct-19	(1)				
	22-Nov-19	(2)				
	20-Dec-19	(2)				
	15-Jan-20	(2)				
	20-Feb-20	(2)				
	26-Mar-20		7.4	322	4.1	8.2
	27-Apr-20	(1)				
	19-May-20		7.9	390	7.3	6.3
	29-May-20		8.0	352	13.9	5.0
	23-Jun-20		7.7	334	15.0	4.5
	30-Jul-20	(1)	8.5	624	18.8	6.8
	25-Aug-20	(1)				
	25-Sep-20	(1)				
	30-Oct-20	(1)				
	26-Nov-20	(2)				
	23-Dec-20	(2)				
	27-Jan-21	(2)				
	22-Feb-21	(2)				
	29-Mar-21		7.5	239	4.4	8.6
	27-Apr-21		7.6	320	6.2	8.8
	27-May-21		7.8	699	10.9	7.4
	22-Jun-21	(1)				
	22-Jul-21	(1)				
	25-Aug-21	(1)				
	28-Sep-21	(1)				
	26-Oct-21		7.4	377	7.6	6.9
	23-Nov-21	(2)				
	21-Dec-21	(2)				
	24-Jan-22	(2)				
	8-Feb-22	(2)				
	16-Mar-22	(2)				
	21-Apr-22		7.2	321	2.9	8.7
	26-May-22	(1)	7.2	802	13.0	4.1

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW3 (cont'd)	24-Jun-22	(1)	7.5	864	15.6	2.5
	29-Aug-22	(1)	7.6	1,006	18.1	1.6
	27-Sep-22		7.7	953	14.5	4.1
	26-Oct-22	(1)				
	21-Nov-22	(1)				
	21-Dec-22	(1)				
	24-Jan-23	(1)	7.3	1,822	0.0	3.5
	22-Feb-23		7.4	393	2.6	8.3
	27-Mar-23		8.8	365	0.9	6.0
	21-Apr-23		6.5	333	9.3	6.0
	16-May-23		7.2	734	9.7	4.0
	26-Jun-23	(1)				
	25-Jul-23	(1)				
	28-Aug-23	(1)				
	25-Sep-23	(1)				
	30-Oct-23	(1)				
	29-Nov-23	(2)	7.8	1,537	0.2	11.2
	18-Dec-23	(1)				
SW4	22-May-03	(1)				
	23-Jun-03	(1)				
	22-Jul-03	(1)				
	20-Aug-03	(1)				
	25-Sep-03	(1)				
	22-Oct-03	(1)				
	28-Nov-03	(1)				
	19-Dec-03	(1)				
	10-Feb-04	(1)				
	18-Mar-04	(1)				
	19-Apr-04	(1)				
	19-May-04	(1)				
	24-Jun-04	(1)				
	29-Jul-04	(1)				
	23-Aug-04	(1)				
	21-Sep-04	(1)				
	21-Oct-04	(1)				
	17-Nov-04	(1)				
	15-Dec-04	(2)				
	13-Jan-05		7.2	125	0.9	13.6
	13-Feb-05	(2)				
	27-Mar-05	(2)				
	10-Apr-05	(2)				
	22-May-05	(1)				
	26-Jun-05	(1)				
	10-Jul-05	(1)				
	21-Aug-05	(1)				
	25-Sep-05	(1)				
	23-Oct-05	(1)				
	13-Nov-05	(1)				
	11-Dec-05	(2)				
	15-Jan-06	(2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW4	19-Feb-06	(2)				
(cont'd)	31-Mar-06		7.2	360	6.0	
	7-Apr-06		7.9	463	6.6	
	13-Apr-06		8.6	538	15.5	
	16-Apr-06	(1)				
	21-May-06	(1)				
	18-Jun-06	(1)				
	9-Jul-06	(1)				
	20-Aug-06	(1)				
	17-Sep-06	(1)				
	15-Oct-06	(1)				
	17-Nov-06		7.4	509	4.4	9.3
	17-Dec-06	(1)				
	21-Jan-07	(2)				
	18-Feb-07	(2)				
	18-Mar-07		8.0	338	1.5	11.4
	16-Apr-07	(1)				
	13-May-07	(1)				
	17-Jun-07	(1)				
	15-Jul-07	(1)				
	19-Aug-07	(1)				
	16-Sep-07	(1)				
	14-Oct-07	(1)				
	18-Nov-07	(1)				
	9-Dec-07	(2)				
	20-Jan-08	(2)				
	17-Feb-08	(2)				
	16-Mar-08	(2)				
	7-Apr-08		7.5	316	2.8	8.8
	20-Apr-08	(1)				
	18-May-08	(1)				
	15-Jun-08	(1)				
	13-Jul-08	(1)				
	17-Aug-08	(1)				
	14-Sep-08	(1)				
	19-Oct-08	(1)				
	23-Nov-08	(2)				
	14-Dec-08	(1)				
	18-Jan-09	(2)				
	8-Feb-09	(1)				
	15-Mar-09		7.6	356	2.0	6.0
	12-Apr-09		8.1	558	11.0	
	17-May-09	(1)				
	14-Jun-09	(1)				
	12-Jul-09	(1)				
	9-Aug-09	(1)				
	13-Sep-09	(1)				
	11-Oct-09	(1)				
	15-Nov-09	(1)				
	13-Dec-09	(1)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW4	17-Jan-10	(2)				
(cont'd)	7-Feb-10	(2)				
	14-Mar-10		8.0	383	2.3	8.4
	4-Apr-10					
	11-Apr-10	(1)				
	16-May-10	(1)				
	23-May-10					
	13-Jun-10	(1)				
	19-Jul-10		7.3	303	20.6	5.0
	15-Aug-10	(1)				
	12-Sep-10	(1)				
	17-Oct-10	(1)				
	14-Nov-10	(1)				
	19-Dec-10	(2)				
	16-Jan-11					
	20-Feb-11					
	13-Mar-11	(2)				
	17-Mar-11					
	18-Mar-11					
	20-Mar-11	(2)				
	1-Apr-11					
	5-Apr-11					
	8-Apr-11					
	12-Apr-11					
	15-Apr-11					
	17-Apr-11	(1)				
	20-Apr-11					
	21-Apr-11					
	26-Apr-11					
	29-Apr-11					
	3-May-11					
	6-May-11					
	10-May-11					
	13-May-11					
	15-May-11	(1)				
	16-May-11					
	18-May-11					
	19-May-11					
	20-May-11					
	27-May-11					
	3-Jun-11					
	12-Jun-11	(1)				
	17-Jul-11	(1)				
	14-Aug-11	(1)				
	18-Sep-11	(1)				
	16-Oct-11	(1)				
	20-Nov-11					
	18-Dec-11	(1)				
	15-Jan-12	(2)				
	19-Feb-12	(2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW4 (cont'd)	18-Mar-12	(1)				
	15-Apr-12	(1)				
	13-May-12	(1)				
	17-Jun-12	(1)				
	15-Jul-12	(1)				
	12-Aug-12	(1)				
	16-Sep-12	(1)				
	14-Oct-12	(1)				
	18-Nov-12	(1)				
	16-Dec-12		6.9	308	1.4	5.7
	13-Jan-13		7.4	370	0.3	4.3
	17-Feb-13	(2)				
	17-Mar-13	(2)				
	15-Apr-13		7.5	349	8.6	6.0
	12-May-13	(1)				
	16-Jun-13	(1)				
	14-Jul-13	(1)				
	18-Aug-13	(1)				
	15-Sep-13	(1)				
	13-Oct-13	(1)				
	19-Nov-13		8.0	338	2.6	1.4
	15-Dec-13	(2)				
	19-Jan-14	(2)				
	16-Feb-14	(2)				
	16-Mar-14	(2)				
	15-Apr-14		7.5	161	3.7	2.7
	15-Jun-14	(1)				
	13-Jul-14	(1)				
	17-Aug-14	(1)				
	7-Sep-14	(1)				
	22-Oct-14		7.5	421	8.6	7.0
	16-Nov-14	(2)				
	14-Dec-14	(2)				
	18-Jan-15	(2)				
	15-Feb-15	(2)				
	15-Mar-15	(2)				
	22-Apr-15		7.5	565	5.7	1.7
	17-May-15	(1)				
	14-Jun-15	(1)				
	19-Jul-15	(1)				
	9-Aug-15	(1)				
	23-Aug-15					
	6-Sep-15	(1)				
	11-Oct-15	(1)				
	8-Nov-15					
	15-Nov-15	(1)				
	6-Dec-15	(1)				
	17-Jan-16	(2)				
	14-Feb-16	(2)				
	15-Mar-16		7.1	327	3.2	4.4

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO		6.5 - 8.5	nc	nc	*a*
SW4	20-Apr-16		7.9	467	16.8	8.5
(cont'd)	17-May-16		7.7	472	8.5	3.9
	19-Jun-16	(1)				
	3-Jul-16					
	17-Jul-16	(1)				
	7-Aug-16					
	21-Aug-16	(1)				
	18-Sep-16	(1)				
	16-Oct-16	(1)				
	18-Nov-16	(1)				
	12-Dec-16	(1)				
	24-Jan-17		7.2	327	(0)	3.0
	15-Feb-17	(2)				
	21-Mar-17		7.5	356	1.1	6.9
	19-Apr-17		7.4	401	7.4	8.6
	16-May-17		7.9	523	10.8	13.7
	28-Jun-17		7.0	425	13.9	2.6
	7-Jul-17					
	18-Jul-17	(1)				
	27-Jul-17					
	13-Aug-17	(1)				
	17-Sep-17	(1)				
	17-Oct-17		7.2	335	7.4	6.7
	14-Nov-17		7.3	441	2.3	12.3
	14-Dec-17		7.2	510	0.9	7.1
	17-Jan-18	(2)				
	22-Feb-18		7.1	196	(0)	1.0
	20-Mar-18		7.4	404	0.4	9.0
	18-Apr-18		7.4	639	(0)	2.2
	15-May-18		7.8	711	15.9	6.9
	20-Jun-18	(1)				
	19-Jul-18	(1)				
	23-Aug-18	(1)				
	19-Sep-18	(1)				
	24-Oct-18	(1)				
	21-Nov-18		7.5	698	0.1	6.7
	12-Dec-18		7.5	673	0.9	4.4
	18-Jan-19	(2)				
	26-Feb-19	(2)				
	15-Mar-19	(2)				
	24-Apr-19		7.5	657	6.0	0.9
	23-May-19		7.7	665	11.2	2.3
	18-Jun-19	(1)				
	29-Jul-19	(1)				
	29-Aug-19	(1)				
	26-Sep-19	(1)				
	23-Oct-19	(1)				
	22-Nov-19	(2)				
	20-Dec-19	(2)				
	15-Jan-20	(2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW4	20-Feb-20	(2)				
(cont'd)	26-Mar-20	(1)				
	27-Apr-20	(1)				
	29-May-20	(1)				
	23-Jun-20	(1)	7.7	684	20.2	0.7
	30-Jul-20	(1)	7.4	665	18.0	0.9
	25-Aug-20	(1)	6.9	591	22.2	1.9
	25-Sep-20	(1)	7.0	585	12.6	2.9
	30-Oct-20	(1)	7.0	563	9.8	2.1
	26-Nov-20	(2)				
	23-Dec-20	(2)				
	27-Jan-21	(2)				
	22-Feb-21	(2)				
	29-Mar-21		7.6	622	7.7	0.9
	27-Apr-21		7.5	593	14.0	5.2
	22-Jun-21		7.1	649	14.4	1.5
	22-Jul-21		7.3	712	15.8	2.2
	25-Aug-21		6.7	712	17.8	1.5
	28-Sep-21		7.3	498	12.9	1.8
	26-Oct-21		7.3	477	6.4	4.0
	23-Nov-21	(2)				
	21-Dec-21	(2)				
	24-Jan-22	(2)				
	8-Feb-22	(2)				
	16-Mar-22	(1)	8.2	597	1.4	4.8
	21-Apr-22	(1)	7.9	136	4.8	1.2
	24-May-22	(1)	7.9	887	14.9	1.0
	25-Jun-22	(1)	7.6	987	6.5	2.0
	26-Aug-22	(1)	7.9	1,102	7.8	1.0
	27-Sep-22	(1)	7.1	481	12.1	2.7
	26-Oct-22	(1)				
	21-Nov-22	(1)				
	20-Dec-22		7.6	358	1.0	2.7
	24-Jan-23		7.1	638	0.4	2.6
	22-Feb-23		7.1	534	0.2	2.4
	27-Mar-23		8.6	565	0.4	1.4
	21-Apr-23		8.2	459	13.0	15.0
	16-May-23		7.8	780	11.9	7.1
	26-Jun-23	(1)				
	25-Jul-23		7.6	499	20.2	1.3
	28-Aug-23	(1)				
	25-Sep-23	(1)				
	30-Oct-23		7.2	477	6.5	3.9
	29-Nov-23		7.5	689	0.0	10.9
	18-Dec-23		7.2	654	2.3	13.0
SW6A	22-Oct-03		6.6	461	5.1	
	10-Feb-04	(2)				
	16-Mar-04		6.1	435	0.3	10.2
	19-Apr-04		7.6	303	9.0	11.5
	19-May-04		7.7	432	15.4	7.8

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW6A	24-Jun-04	7.7	433	14.8	7.2
(cont'd)	29-Jul-04	7.7	867	17.7	6.4
	26-Aug-04	7.8	432	15.2	
	22-Sep-04	7.7	417	11.7	8.0
	21-Oct-04	7.7	356	6.9	9.3
	16-Nov-04	7.6	339	2.1	12.0
	15-Dec-04 (2)				
	16-Jan-05 (2)				
	13-Feb-05 (2)				
	28-Mar-05	7.4	303	0.6	12.4
	11-Apr-05	6.4	196	1.8	10.9
	24-May-05	7.3	407	12.5	8.4
	28-Jun-05	7.7	528	21.5	6.4
	11-Jul-05	6.1	503	19.6	5.8
	22-Aug-05	6.9	460	15.8	6.8
	27-Sep-05	7.3	382	11.7	7.6
	24-Oct-05	8.1	448	6.3	10.8
	14-Nov-05	7.8	356	5.5	11.0
	16-Jan-06	7.1	285	0.1	10.8
	19-Feb-06 (2)				
	20-Mar-06	8.3	276	0.4	11.0
	18-Apr-06	7.9	414	10.1	9.1
	23-May-06	8.5	493	7.2	10.1
	21-Jun-06	7.8	460	18.9	
	11-Jul-06	7.9	463	19.0	
	22-Aug-06	7.6	501	19.2	
	20-Sep-06	7.6	469	11.9	
	18-Oct-06	7.5	443	9.4	
	24-Nov-06	7.9	521	1.8	13.4
	17-Dec-06	7.8	521	1.2	14.1
	21-Jan-07 (2)				
	18-Feb-07 (2)				
	18-Mar-07	7.8	511	0.4	9.6
	16-Apr-07	8.1	460	3.1	11.5
	13-May-07	8.2	483	17.9	8.3
	17-Jun-07	8.1	535	20.3	5.5
	15-Jul-07	7.8	508	18.5	6.8
	19-Aug-07	8.0	523	17.0	7.9
	18-Sep-07	7.9	476	12.2	8.4
	18-Oct-07	7.8	489	12.2	8.0
	21-Nov-07	7.8	556	2.5	10.9
	9-Dec-07 (2)				
	21-Jan-08	6.5	460	0.1	2.7
	17-Feb-08 (2)				
	18-Mar-08	7.6	506	0.3	11.9
	2-Apr-08	7.5	369	0.4	9.6
	24-Apr-08	7.6	452	12.5	6.1
	21-May-08	7.7	439	10.3	8.4
	17-Jun-08	7.7	348	16.8	6.3
	15-Jul-08	7.3	525	18.6	5.8

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW6A	19-Aug-08	7.8	556	17.8	4.1
(cont'd)	12-Sep-08	7.8	515	13.5	5.2
	22-Oct-08	7.5	466	3.1	8.1
	23-Nov-08	7.6	540	0.5	7.3
	14-Dec-08	6.8	436	0.1	4.9
	18-Jan-09	7.5	529	0.1	6.7
	8-Feb-09		412	0.5	7.0
	15-Mar-09	8.0	339	1.9	13.1
	12-Apr-09	8.8	447	9.8	10.6
	17-May-09	7.9	402	14.5	7.5
	14-Jun-09	8.5	947	14.4	8.6
	12-Jul-09	8.2	474	17.6	9.1
	9-Aug-09	8.2	484	16.3	7.5
	13-Sep-09	6.9	492	16.0	9.1
	11-Oct-09	8.1	530	6.4	12.0
	15-Nov-09	7.4	495	2.1	
	13-Dec-09	7.5	553	0.2	13.5
	17-Jan-10	8.0	549	1.2	12.5
	7-Feb-10	7.4	548	0.2	12.8
	14-Mar-10	7.5	364	2.8	10.9
	4-Apr-10				
	11-Apr-10	8.0	494	11.1	12.2
	16-May-10	8.0	362	13.1	8.8
	23-May-10				
	13-Jun-10	8.0	426	19.6	10.6
	18-Jul-10	7.8	400	18.4	9.3
	15-Aug-10	8.1	481	20.2	7.9
	12-Sep-10	8.2	433	13.0	9.9
	17-Oct-10	8.1	377	8.9	10.4
	14-Nov-10	8.0	253	4.5	10.0
	19-Dec-10	8.0	260	0.5	11.3
	16-Jan-11	7.9	273	0.1	9.6
	20-Feb-11	7.9	275	0.4	6.7
	13-Mar-11	7.9	269	2.1	8.8
	17-Mar-11				
	18-Mar-11				
	20-Mar-11	7.8	251	0.7	10.2
	1-Apr-11				
	5-Apr-11				
	8-Apr-11				
	12-Apr-11				
	15-Apr-11				
	17-Apr-11	8.0	248	3.7	10.0
	20-Apr-11				
	21-Apr-11				
	26-Apr-11				
	29-Apr-11				
	3-May-11				
	6-May-11				
	10-May-11				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW6A	13-May-11				
(cont'd)	15-May-11	7.8	287	11.6	8.4
	16-May-11				
	18-May-11				
	19-May-11				
	20-May-11				
	27-May-11				
	3-Jun-11				
	12-Jun-11	7.9	345	13.6	8.4
	17-Jul-11	8.4	491	22.1	8.1
	14-Aug-11	8.2	309	21.2	7.7
	18-Sep-11	8.6	380	15.2	9.3
	16-Oct-11	7.8	347	7.8	11.3
	20-Nov-11	8.4	229	1.6	13.2
	18-Dec-11	8.4	248	1.0	14.6
	15-Jan-12	8.0	237	0.6	11.9
	19-Feb-12	8.5	253	0.6	13.4
	18-Mar-12	7.6	297	13.1	7.2
	15-Apr-12	8.6	321	6.0	13.8
	13-May-12	8.1	444	19.7	8.3
	17-Jun-12	8.4	558	25.2	12.8
	16-Jul-12	8.4	522	23.4	7.3
	15-Aug-12	8.3	417	16.4	6.0
	19-Sep-12	7.9	407	12.6	9.3
	18-Oct-12	8.6	347	10.4	8.5
	20-Nov-12	7.6	321	4.2	8.8
	20-Dec-12	7.3	609	0.6	12.4
	15-Jan-13	7.5	264	0.2	9.2
	20-Feb-13	7.9	266	0.2	12.7
	20-Mar-13	7.7	246	0.4	13.3
	16-Apr-13	8.0	268	8.3	8.5
	14-May-13	7.9	300	8.1	9.9
	18-Jun-13	7.9	430	19.5	6.2
	17-Jul-13	7.7	453	22.6	7.2
	18-Sep-13	8.2	385	13.6	10.6
	16-Oct-13	8.5	354	12.7	5.0
	20-Nov-13	7.8	259	0.5	7.2
	17-Dec-13	8.7	269	0.3	7.2
	19-Jan-14 (2)				
	16-Feb-14 (2)				
	16-Mar-14 (2)				
	16-Apr-14	7.9	201	0.6	11.5
	13-May-14	7.8	366	15.2	8.0
	17-Jun-14	8.0	425	17.3	8.3
	15-Jul-14	7.6	440	16.6	10.6
	19-Aug-14	8.5	445	14.5	7.1
	9-Sep-14	8.6	474	16.0	4.8
	22-Oct-14	7.2	463	9.9	5.9
	16-Nov-14 (2)				
	16-Dec-14	8.2	323	0.7	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW6A	18-Jan-15 (2)				
(cont'd)	15-Feb-15 (2)				
	18-Mar-15	7.8	238	1.8	11.1
	22-Apr-15	7.8	322	6.0	10.9
	19-May-15	8.1	377	15.5	10.8
	16-Jun-15	7.8	434	19.6	6.9
	22-Jul-15	8.0	476	18.9	8.3
	12-Aug-15	8.0	454	17.8	
	25-Aug-15	8.2	398	17.3	6.3
	8-Sep-15	7.8	473	20.5	8.0
	15-Oct-15	7.7	346	9.4	9.6
	8-Nov-15				
	18-Nov-15	7.2	349	5.3	11.3
	8-Dec-15	8.0	339	2.7	17.2
	19-Jan-16	7.3		(0)	11.1
	14-Feb-16 (2)				
	15-Mar-16	7.5	226	2.4	11.7
	21-Apr-16	7.8	352	9.5	8.9
	17-May-16	8.1	347	7.5	10.7
	22-Jun-16	8.2	445	16.4	7.6
	3-Jul-16				
	20-Jul-16	8.3	450	17.2	8.1
	7-Aug-16				
	24-Aug-16	8.2	430	18.4	7.6
	19-Sep-16	7.7	508	15.2	8.2
	17-Oct-16	8.0	404	13.2	8.3
	25-Oct-16	7.9	363	4.8	12.9
	15-Nov-16	7.5	360	4.8	12.7
	12-Dec-16	7.4	502	0.2	14.4
	24-Jan-17	7.5	281	0.3	11.5
	15-Feb-17	7.8	312	0.0	14.2
	21-Mar-17	7.8	311	0.9	12.4
	19-Apr-17	7.6	334	8.3	11.4
	8-May-17	8.0	243	9.0	12.5
	16-May-17	8.0	494	11.6	9.9
	28-Jun-17	7.7	389	13.7	8.2
	7-Jul-17				
	18-Jul-17	7.5	447	17.3	9.2
	27-Jul-17				
	15-Aug-17	8.5	359	16.3	8.5
	18-Sep-17	7.9	447	15.1	8.5
	17-Oct-17	7.7	276	7.6	10.1
	14-Nov-17	7.6	325	1.9	14.1
	14-Dec-17	7.5	305	(0)	16.8
	17-Jan-18	7.4	283	(0)	6.9
	22-Feb-18	7.7	164	(0)	8.9
	20-Mar-18	7.9	313	1.1	15.4
	18-Apr-18	7.8	418	0.2	9.8
	8-May-18	7.8	464	11.2	7.6
	14-May-18	7.9	479	14.1	8.3

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW6A	18-Jun-18	8.2	493	20.3	8.1
(cont'd)	19-Jul-18	8.2	484	21.5	7.7
	23-Aug-18	8.1	467	19.4	7.2
	19-Sep-18	7.7	487	17.6	2.8
	24-Oct-18	8.3	523	4.0	12.2
	21-Nov-18	7.8		0.1	12.3
	12-Dec-18	7.7		0.4	11.6
	18-Jan-19	7.7	517	0.1	10.8
	26-Feb-19 (2)				
	15-Mar-19 (2)				
	24-Apr-19	7.9	366	7.4	9.4
	14-May-19	7.9	381	7.0	8.9
	23-May-19	8.0	413	11.6	8.4
	18-Jun-19	8.1	436	17.7	9.0
	29-Jul-19	8.1	432	22.6	7.2
	29-Aug-19	8.1	401	17.8	8.8
	26-Sep-19	7.8	411	15.3	7.5
	23-Oct-19	7.9	422	8.5	7.8
	22-Nov-19	7.9	382	1.2	7.8
	20-Dec-19 (2)				
	15-Jan-20 (2)				
	20-Feb-20 (2)				
	26-Mar-20	7.6	398	1.9	10.4
	27-Apr-20	8.0	407	6.7	10.3
	19-May-20	8.1	460	10.2	9.5
	29-May-20	8.5	458	20.5	6.8
	23-Jun-20	7.9	358	16.2	5.6
	30-Jul-20	8.3	507	20.0	7.6
	25-Aug-20	8.1	447	22.0	7.5
	25-Sep-20	7.3	520	11.7	5.8
	30-Oct-20	7.5	321	7.6	8.0
	26-Nov-20	7.6	538	5.1	11.4
	23-Dec-20 (2)				
	27-Jan-21 (2)				
	22-Feb-21 (2)				
	29-Mar-21	8.0	426	8.0	7.1
	27-Apr-21	7.4	437	13.5	8.9
	27-May-21	8.1	492	16.9	8.7
	22-Jun-21	8.2	468	16.3	8.8
	22-Jul-21	8.0	482	17.3	8.2
	25-Aug-21	7.5	598	19.6	7.9
	28-Sep-21	7.7	469	12.1	7.5
	26-Oct-21	7.6	458	7.5	9.6
	23-Nov-21 (2)				
	21-Dec-21 (2)				
	24-Jan-22 (2)				
	8-Feb-22 (2)				
	16-Mar-22	7.9	406	0.8	10.2
	21-Apr-22	8.0	647	6.2	9.5
	25-May-22	8.1	501	16.5	9.4

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW6A	25-Jun-22	7.6	555	6.6	7.0
(cont'd)	26-Aug-22	7.9	654	7.8	7.1
	27-Sep-22	7.7	429	12.4	8.5
	28-Oct-22	7.9	422	7.3	9.6
	23-Nov-22	8.6	386	2.5	11.2
	20-Dec-22	8.4	291	1.1	10.9
	24-Jan-23	7.8	512	0.8	13.2
	22-Feb-23	7.5	536	0.2	12.6
	27-Mar-23	9.0	448	1.7	11.3
	21-Apr-23	7.1	444	11.4	9.8
	16-May-23	7.9	492	12.3	8.9
	26-Jun-23	8.0	193	18.4	9.6
	25-Jul-23	8.0	461	17.6	7.7
	29-Aug-23	7.9	463	17.4	8.6
	25-Sep-23	8.1	534	13.1	8.5
	1-Nov-23	8.2	341	3.5	13.8
	29-Nov-23	7.6	601	0.2	12.1
	18-Dec-23	7.0	568	2.7	11.0
SW8	22-May-03			8.0	
	22-Jul-03 (1)				
	20-Aug-03 (1)				
	25-Sep-03 (1)				
	22-Oct-03 (1)				
	19-Dec-03 (2)				
	10-Feb-04 (2)				
	18-Mar-04 (2)				
	20-Apr-04	7.8	441	11.9	
	19-May-04	7.7	591	17.4	
	24-Jun-04	7.6	617	18.9	
	29-Jul-04	7.7	491	21.9	
	26-Aug-04	7.9	441	20.5	
	23-Sep-04	8.1	403	17.3	
	21-Oct-04 (1)				
	18-Nov-04	8.5	273	6.0	
	15-Dec-04 (2)				
	16-Jan-05 (2)				
	13-Feb-05 (2)				
	27-Mar-05 (2)				
	11-Apr-05	7.0	513	8.5	
	26-May-05	7.8	549	19.3	
	29-Jun-05	7.9	637	24.4	
	12-Jul-05	7.7	589	25.0	
	22-Aug-05	8.7	449	20.6	8.2
	25-Sep-05 (1)				
	25-Oct-05	7.8	434	6.7	3.6
	16-Nov-05	7.7	305	5.8	11.1
	11-Dec-05 (2)				
	15-Jan-06 (2)				
	19-Feb-06 (2)				
	19-Mar-06 (2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW8	19-Apr-06	7.8	538	11.3	
(cont'd)	24-May-06	7.8	560	11.8	
	20-Jun-06	7.8	470	22.1	
	12-Jul-06	7.8	355	22.5	
	21-Aug-06	7.3	381	21.6	
	17-Sep-06 (1)				
	17-Oct-06	8.2	282	7.6	
	27-Nov-06	8.4	301	5.6	11.8
	17-Dec-06	7.7	405	3.8	9.5
	21-Jan-07 (2)				
	18-Feb-07 (2)				
	18-Mar-07 (2)				
	16-Apr-07	7.9	572	4.8	
	13-May-07	8.1	509	14.9	
	17-Jun-07 (1)				
	15-Jul-07 (1)				
	19-Aug-07 (1)				
	16-Sep-07 (1)				
	14-Oct-07 (1)				
	18-Nov-07 (1)				
	9-Dec-07 (2)				
	20-Jan-08 (2)				
	17-Feb-08 (2)				
	16-Mar-08 (2)				
	4-Apr-08	7.2	496	0.4	10.8
	15-Jun-08 (1)				
	13-Jul-08 (1)				
	17-Aug-08 (1)				
	14-Sep-08 (1)				
	19-Oct-08 (1)				
	23-Nov-08 (2)				
	14-Dec-08 (2)				
	18-Jan-09 (2)				
	8-Feb-09 (2)				
	15-Mar-09	7.7	295	7.5	
	12-Apr-09	8.1	515	9.6	
	17-May-09	7.7	423	15.4	
	14-Jun-09 (1)				
	12-Jul-09 (1)				
	9-Aug-09 (1)				
	13-Sep-09 (1)				
	11-Oct-09 (1)				
	15-Nov-09 (1)				
	13-Dec-09 (1)				
	17-Jan-10 (2)				
	7-Feb-10 (2)				
	14-Mar-10 (2)				
	4-Apr-10				
	11-Apr-10	7.7	507	12.3	12.5
	13-Jun-10 (1)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW8	18-Jul-10	(1)				
(cont'd)	15-Aug-10	(1)				
	12-Sep-10	(1)				
	17-Oct-10	(1)				
	14-Nov-10	(1)				
	19-Dec-10	(2)				
	16-Jan-11					
	20-Feb-11					
	13-Mar-11	(2)				
	17-Mar-11					
	18-Mar-11					
	20-Mar-11					
	1-Apr-11					
	5-Apr-11					
	8-Apr-11					
	12-Apr-11					
	15-Apr-11					
	17-Apr-11		7.9	338	5.6	13.7
	20-Apr-11					
	21-Apr-11					
	26-Apr-11					
	29-Apr-11					
	3-May-11					
	6-May-11					
	10-May-11					
	15-May-11		7.6	297	11.6	12.0
	16-May-11					
	18-May-11					
	19-May-11					
	20-May-11					
	27-May-11					
	3-Jun-11					
	17-Jul-11	(1)				
	14-Aug-11	(1)				
	18-Sep-11	(1)				
	16-Oct-11	(1)				
	20-Nov-11					
	18-Dec-11	(2)				
	15-Jan-12	(2)				
	19-Feb-12	(2)				
	20-Mar-12		7.7	384	17.6	8.4
	15-Apr-12	(1)				
	13-May-12	(1)				
	17-Jun-12	(1)				
	15-Jul-12	(1)				
	12-Aug-12	(1)				
	16-Sep-12	(1)				
	14-Oct-12	(1)				
	18-Nov-12	(1)				
	16-Dec-12	(1)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW8 (cont'd)	13-Jan-13	(1)				
	17-Feb-13	(2)				
	17-Mar-13	(2)				
	17-Apr-13		7.7	386	9.4	10.9
	13-May-13		7.6	246	7.2	10.1
	16-Jun-13	(1)				
	14-Jul-13	(1)				
	18-Aug-13	(1)				
	15-Sep-13	(1)				
	13-Oct-13	(1)				
	17-Nov-13	(1)				
	15-Dec-13	(2)				
	19-Jan-14	(2)				
	16-Feb-14	(2)				
	16-Mar-14	(2)				
	13-Apr-14	(2)				
	12-May-14		7.1	391	18.6	3.4
	15-Jun-14	(1)				
	13-Jul-14	(1)				
	17-Aug-14	(1)				
	7-Sep-14	(1)				
	19-Oct-14	(1)				
	16-Nov-14	(2)				
	14-Dec-14	(2)				
	18-Jan-15	(2)				
	15-Feb-15	(2)				
	15-Mar-15	(2)				
	23-Apr-15		7.8	150	7.4	11.9
	17-May-15	(1)				
	14-Jun-15	(1)				
	19-Jul-15	(1)				
	9-Aug-15	(1)				
	23-Aug-15					
	6-Sep-15	(1)				
	11-Oct-15	(1)				
	8-Nov-15					
	15-Nov-15	(1)				
	6-Dec-15	(1)				
	17-Jan-16	(2)				
	14-Feb-16	(2)				
	15-Mar-16		6.8	135	0.9	7.3
	15-May-16	(1)				
	19-Jun-16	(1)				
	3-Jul-16					
	17-Jul-16	(1)				
	7-Aug-16					
	21-Aug-16	(1)				
	18-Sep-16	(1)				
	16-Oct-16	(1)				
	18-Nov-16	(1)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW8	12-Dec-16	(1)				
(cont'd)	22-Jan-17	(2)				
	15-Feb-17	(2)				
	19-Mar-17	(2)				
	16-Apr-17	(1)				
	14-May-17	(1)				
	28-Jun-17	(1)				
	7-Jul-17					
	18-Jul-17	(1)				
	27-Jul-17					
	13-Aug-17	(1)				
	17-Sep-17	(1)				
	17-Oct-17	(1)				
	14-Nov-17	(1)				
	12-Dec-17	(2)				
	17-Jan-18	(2)				
	24-Feb-18		7.9	158	0.3	8.6
	18-Mar-18	(2)				
	18-Apr-18	(2)				
	13-May-18	(1)				
	20-Jun-18	(1)				
	19-Jul-18	(1)				
	23-Aug-18	(1)				
	19-Sep-18	(1)				
	24-Oct-18	(1)				
	21-Nov-18	(1)				
	12-Dec-18	(1)				
	18-Jan-19	(2)				
	26-Feb-19	(2)				
	15-Mar-19	(2)				
	24-Apr-19	(1)				
	23-May-19	(1)				
	18-Jun-19	(1)				
	29-Jul-19	(1)				
	29-Aug-19	(1)				
	26-Sep-19	(1)				
	23-Oct-19	(1)				
	22-Nov-19	(2)				
	20-Dec-19	(2)				
	15-Jan-20	(2)				
	20-Feb-20	(2)				
	26-Mar-20	(2)				
	27-Apr-20					
	29-May-20	(1)				
	23-Jun-20	(1)				
	30-Jul-20	(1)				
	25-Aug-20	(1)				
	25-Sep-20	(1)				
	30-Oct-20	(1)				
	26-Nov-20	(2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW8	23-Dec-20	(2)				
(cont'd)	27-Jan-21	(2)				
	22-Feb-21	(2)				
	29-Mar-21	(1)				
	27-Apr-21	(1)				
	27-May-21	(1)				
	22-Jun-21	(1)				
	22-Jul-21	(1)				
	25-Aug-21	(1)				
	28-Sep-21	(1)				
	26-Oct-21	(1)				
	23-Nov-21	(2)				
	21-Dec-21	(2)				
	24-Jan-22	(2)				
	8-Feb-22	(2)				
	16-Mar-22	(1)				
	21-Apr-22	(1)				
	24-May-22	(1)				
	22-Jun-22	(1)				
	26-Aug-22	(1)				
	27-Sep-22	(1)				
	28-Oct-22	(1)				
	23-Nov-22	(1)				
	16-May-23	(1)				
	27-Jun-23	(1)				
	25-Jul-23	(1)				
	30-Aug-23					
	25-Sep-23	(1)				
	1-Nov-23					
SW9	22-May-03				8.0	
	23-Jun-03	(1)				
	22-Jul-03	(1)				
	20-Aug-03	(1)				
	25-Sep-03	(1)				
	22-Oct-03	(1)				
	13-Feb-04			314	1.0	9.3
	18-Mar-04			393	0.5	7.1
	20-Apr-04		7.6	259	8.3	10.8
	19-May-04		7.6	416	15.3	7.4
	24-Jun-04		7.7	483	16.4	8.3
	29-Jul-04	(1)				
	23-Aug-04	(1)				
	21-Sep-04	(1)				
	21-Oct-04	(1)				
	17-Nov-04	(1)				
	15-Dec-04	(2)				
	16-Jan-05	(2)				
	13-Feb-05	(2)				
	29-Mar-05		7.5	279	1.9	10.5
	11-Apr-05		6.7	179	0.9	11.5

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW9	26-May-05		7.7	415	16.9	7.4
(cont'd)	26-Jun-05	(1)				
	10-Jul-05	(1)				
	21-Aug-05	(1)				
	25-Sep-05	(1)				
	23-Oct-05	(1)				
	13-Nov-05	(1)				
	11-Dec-05	(1)				
	18-Jan-06		7.4	231	1.5	10.3
	19-Feb-06	(2)				
	22-Mar-06		8.0	219	0.5	13.4
	19-Apr-06		7.8	360	7.5	
	24-May-06		7.9	420	9.3	
	18-Jun-06	(1)				
	9-Jul-06	(1)				
	20-Aug-06	(1)				
	17-Sep-06	(1)				
	15-Oct-06	(1)				
	27-Nov-06		7.7	424	5.5	8.4
	17-Dec-06		7.6	423	0.9	10.9
	21-Jan-07	(2)				
	18-Feb-07	(2)				
	18-Mar-07	(2)				
	16-Apr-07		8.0	386	0.8	11.3
	13-May-07		8.2	415	11.7	9.4
	17-Jun-07	(1)				
	15-Jul-07	(1)				
	19-Aug-07	(1)				
	16-Sep-07	(1)				
	14-Oct-07	(1)				
	18-Nov-07	(1)				
	9-Dec-07	(2)				
	20-Jan-08	(2)				
	17-Feb-08	(2)				
	16-Mar-08	(2)				
	4-Apr-08		7.4	353	3.7	7.1
	23-Apr-08		7.8	361	13.7	
	21-May-08		7.7	372	9.0	9.4
	15-Jun-08	(1)				
	13-Jul-08	(1)				
	17-Aug-08	(1)				
	14-Sep-08	(1)				
	19-Oct-08	(1)				
	23-Nov-08	(2)				
	14-Dec-08	(2)				
	18-Jan-09	(2)				
	8-Feb-09	(2)				
	15-Mar-09		7.7	342	10.4	5.4
	12-Apr-09		7.9	393	8.4	11.1
	17-May-09		7.4	340	11.2	8.4

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW9	14-Jun-09	(1)				
(cont'd)	12-Jul-09	(1)				
	9-Aug-09	(1)				
	13-Sep-09	(1)				
	11-Oct-09	(1)				
	15-Nov-09	(1)				
	13-Dec-09	(2)				
	17-Jan-10	(2)				
	7-Feb-10	(2)				
	14-Mar-10		7.3	323	0.5	12.9
	11-Apr-10		8.2	367	9.0	13.1
	16-May-10		7.7	274	10.6	8.6
	23-May-10		7.3	346	18.3	7.8
	13-Jun-10		7.7	333	15.0	10.4
	18-Jul-10		7.9	4	19.2	11.1
	15-Aug-10	(1)				
	12-Sep-10	(1)				
	17-Oct-10		8.0	286	6.4	10.1
	14-Nov-10		7.8	244	5.3	9.6
	19-Dec-10	(2)				
	16-Jan-11					
	20-Feb-11					
	13-Mar-11	(2)				
	17-Mar-11					
	18-Mar-11					
	20-Mar-11		7.9	200	0.7	10.9
	1-Apr-11					
	5-Apr-11					
	8-Apr-11					
	12-Apr-11					
	15-Apr-11					
	17-Apr-11		8.2	217	2.1	10.5
	20-Apr-11					
	21-Apr-11					
	26-Apr-11					
	29-Apr-11					
	3-May-11					
	6-May-11					
	10-May-11					
	13-May-11					
	15-May-11		7.6	220	8.7	9.8
	16-May-11					
	18-May-11					
	19-May-11					
	20-May-11					
	27-May-11					
	3-Jun-11					
	12-Jun-11		7.7	315	16.1	7.9
	17-Jul-11	(1)				
	14-Aug-11	(1)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW9	18-Sep-11	(1)				
(cont'd)	16-Oct-11	(1)				
	20-Nov-11					
	18-Dec-11	(2)				
	15-Jan-12	(2)				
	19-Feb-12	(2)				
	18-Mar-12		7.7	231	12.7	8.2
	15-Apr-12		8.5	278	7.5	10.3
	13-May-12		8.2	320	21.6	7.4
	17-Jun-12	(1)				
	15-Jul-12	(1)				
	12-Aug-12	(1)				
	16-Sep-12	(1)				
	14-Oct-12	(1)				
	18-Nov-12	(1)				
	16-Dec-12		7.1	348	1.9	8.1
	13-Jan-13		7.7	222	0.2	9.0
	17-Feb-13	(2)				
	17-Mar-13	(2)				
	16-Apr-13		8.3	167		9.1
	13-May-13		7.2	231	7.6	11.0
	18-Jun-13		7.9	343	16.0	5.7
	14-Jul-13	(1)				
	18-Aug-13	(1)				
	15-Sep-13	(1)				
	13-Oct-13	(1)				
	19-Nov-13		8.3	235	2.5	1.9
	15-Dec-13	(2)				
	19-Jan-14	(2)				
	16-Feb-14	(2)				
	16-Mar-14	(2)				
	15-Apr-14		7.7	149	0.2	11.2
	12-May-14		7.7	306	15.5	4.1
	15-Jun-14	(1)				
	13-Jul-14	(1)				
	17-Aug-14	(1)				
	7-Sep-14	(1)				
	23-Oct-14			345	8.3	11.0
	16-Nov-14	(2)				
	14-Dec-14	(2)				
	18-Jan-15	(2)				
	15-Feb-15	(2)				
	15-Mar-15	(2)				
	23-Apr-15		7.8	206	2.4	11.8
	17-May-15	(1)				
	16-Jun-15		7.8	372	14.6	6.7
	19-Jul-15	(1)				
	9-Aug-15	(1)				
	23-Aug-15	(1)				
	6-Sep-15	(1)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW9 (cont'd)	11-Oct-15	(1)				
	8-Nov-15					
	15-Nov-15	(1)				
	6-Dec-15	(1)				
	17-Jan-16	(2)				
	14-Feb-16	(2)				
	15-Mar-16		6.9	167	1.0	11.9
	20-Apr-16		7.5	246	7.9	8.5
	17-May-16		7.9	318	11.0	8.7
	19-Jun-16	(1)				
	3-Jul-16					
	17-Jul-16	(1)				
	7-Aug-16					
	21-Aug-16	(1)				
	18-Sep-16	(1)				
	16-Oct-16	(1)				
	25-Oct-16	(1)				
	18-Nov-16	(1)				
	12-Dec-16	(1)				
	25-Jan-17		7.9	218	1.4	10.7
	15-Feb-17	(2)				
	22-Mar-17		7.6	530	0.1	7.7
	19-Apr-17		7.1	254	9.1	9.6
	8-May-17		8.2	189	8.3	12.2
	16-May-17		8.0	310	14.3	7.0
	28-Jun-17		7.8	356	13.2	7.4
	7-Jul-17					
	18-Jul-17	(1)				
	27-Jul-17					
	13-Aug-17	(1)				
	17-Sep-17	(1)				
	17-Oct-17	(1)				
	15-Nov-17		7.9	285	3.2	7.7
	12-Dec-17	(2)				
	17-Jan-18	(2)				
	24-Feb-18		7.8	185	(0)	13.6
	18-Mar-18	(2)				
	18-Apr-18	(2)				
	8-May-18		7.8	364	14.2	8.6
	14-May-18		7.6	349	11.4	6.8
	19-Jun-18	(1)				
	18-Jul-18	(1)				
	23-Aug-18	(1)				
	19-Sep-18	(1)				
	24-Oct-18	(1)				
	21-Nov-18	(1)				
	12-Dec-18		7.7	376	2.6	7.6
	18-Jan-19	(2)				
	26-Feb-19	(2)				
	15-Mar-19	(2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW9	24-Apr-19		7.8	285	4.4	9.9
(cont'd)	14-May-19		7.8	297	6.6	8.7
	23-May-19		7.7	344	11.2	6.9
	18-Jun-19	(1)				
	29-Jul-19	(1)				
	29-Aug-19	(1)				
	26-Sep-19	(1)				
	23-Oct-19	(1)				
	22-Nov-19	(2)				
	20-Dec-19	(2)				
	15-Jan-20	(2)				
	20-Feb-20	(2)				
	26-Mar-20	(2)				
	27-Apr-20					
	19-May-20		7.9	390	7.3	10.5
	29-May-20	(1)				
	23-Jun-20	(1)				
	30-Jul-20	(1)				
	30-Oct-20	(1)				
	26-Nov-20	(1)				
	23-Dec-20	(2)				
	27-Jan-21	(2)				
	22-Feb-21	(2)				
	29-Mar-21	(2)				
	27-Apr-21		7.3	331	10.0	8.8
	27-May-21	(1)				
	22-Jun-21	(1)				
	22-Jul-21	(1)				
	25-Aug-21	(1)				
	28-Sep-21	(3)				
	26-Oct-21	(1)				
	23-Nov-21	(2)				
	21-Dec-21	(2)				
	24-Jan-22	(2)				
	8-Feb-22	(2)				
	16-Mar-22	(2)				
	21-Apr-22		7.4	594	0.0	12.4
	25-May-22	(1)				
	22-Jun-22		7.5	610	9.8	7.0
	26-Aug-22	(1)				
	27-Sep-22		7.5	436	11.7	10.3
	28-Oct-22	(1)				
	23-Nov-22	(1)				
	21-Dec-22	(1)				
	24-Jan-23	(1)				
	22-Feb-23		7.6	336	0.0	10.5
	27-Mar-23		8.8	328	2.3	10.4
	21-Apr-23		6.2	316	10.9	7.5
	16-May-23	(1)				
	27-Jun-23	(1)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW9 (cont'd)	25-Jul-23 (1)				
	30-Aug-23 (1)				
	25-Sep-23 (1)				
	1-Nov-23 (1)				
	29-Nov-23 (1)				
	18-Dec-23 (1)				
SW10	22-May-03			15.0	
	22-Oct-03	7.5	523	6.2	
	11-Feb-04		306	1.2	
	18-Mar-04		448	2.9	7.7
	20-Apr-04	8.0	261	8.5	
	19-May-04	8.0	386	10.8	
	24-Jun-04	8.0	434	13.0	
	29-Jul-04	8.0	452	16.0	8.9
	26-Aug-04	8.1	477	16.5	
	21-Sep-04	8.2	486	15.9	8.2
	21-Oct-04	7.7	367	7.9	6.8
	17-Nov-04	7.7	384	8.5	9.2
	15-Dec-04 (2)				
	16-Jan-05 (2)				
	13-Feb-05 (2)				
	29-Mar-05	7.8	314	4.5	
	11-Apr-05	7.3	229	5.5	
	26-May-05	6.8	386	11.3	10.2
	29-Jun-05	7.9	503	15.9	9.7
	12-Jul-05	7.8	528	17.8	6.8
	22-Aug-05	8.9	394	14.9	8.6
	25-Sep-05	7.9	443	14.2	8.7
	25-Oct-05	7.9	471	7.3	10.4
	16-Nov-05	8.3	349	7.2	10.0
	13-Dec-05	7.5	248	0.1	6.1
	17-Jan-06	6.8	242	1.7	12.9
	19-Feb-06 (2)				
	22-Mar-06	8.4	266	3.8	
	19-Apr-06	8.2	361	7.7	
	24-May-06	8.0	457	10.5	
	23-Jun-06	7.9	497	14.0	
	12-Jul-06	8.1	464	15.6	
	23-Aug-06	7.9	512	17.5	
	21-Sep-06	7.9	461	11.0	
	19-Oct-06	7.5	457	9.5	
	27-Nov-06	8.5	488	6.0	
	17-Dec-06	8.2	493	3.0	
	21-Jan-07 (2)				
	18-Feb-07 (2)				
	18-Mar-07 (2)				
	16-Apr-07	8.2	420	3.2	
	13-May-07	8.4	440	11.5	
	21-Nov-07	8.0	431	5.6	
	9-Dec-07 (2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW10	20-Jan-08 (2)				
(cont'd)	17-Feb-08 (2)				
	16-Mar-08 (2)				
	4-Apr-08	7.4	376	4.6	
	23-Apr-08	8.0	347	10.4	
	20-May-08	7.2	408	10.6	
	18-Jun-08	8.0	451	12.9	
	19-Aug-08	7.8	559	12.4	
	21-Oct-08	7.7	442	8.0	
	23-Nov-08	7.7	471	3.8	
	14-Dec-08	7.1	378	3.6	
	18-Jan-09 (2)				
	8-Feb-09		329	2.2	9.7
	15-Mar-09	8.1	333	4.4	
	12-Apr-09	9.0	406	5.9	
	17-May-09	8.2	382	15.6	8.1
	14-Jun-09	8.3	900	12.6	9.4
	12-Jul-09	9.6	506	14.1	7.7
	9-Aug-09	8.2	485	16.8	8.5
	11-Oct-09	7.9	474	5.5	11.5
	15-Nov-09	7.7	409	5.9	10.6
	13-Dec-09	7.8	458	0.1	12.7
	17-Jan-10 (2)				
	7-Feb-10 (2)				
	14-Mar-10	7.8	435	5.2	14.7
	4-Apr-10				
	11-Apr-10	8.1	443	9.1	
	16-May-10	8.2	312	9.2	10.6
	23-May-10				
	13-Jun-10	8.1	357	12.7	12.5
	18-Jul-10	8.1	330	17.9	11.4
	15-Aug-10	8.3	318	15.4	9.3
	12-Sep-10	8.2	415	13.4	8.6
	17-Oct-10	7.9	352	10.3	8.4
	14-Nov-10	8.0	251	6.0	10.3
	19-Dec-10 (2)				
	16-Jan-11				
	20-Feb-11	8.3	248	1.1	11.6
	13-Mar-11	8.4	247	3.4	13.4
	17-Mar-11				
	18-Mar-11				
	22-Mar-11	8.4	306	4.0	13.0
	1-Apr-11				
	5-Apr-11				
	8-Apr-11				
	12-Apr-11				
	15-Apr-11				
	17-Apr-11	8.3	277	6.6	13.2
	20-Apr-11				
	21-Apr-11				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW10 (cont'd)	26-Apr-11				
	29-Apr-11				
	3-May-11				
	6-May-11				
	10-May-11				
	13-May-11				
	15-May-11	8.6	301	10.3	12.0
	16-May-11				
	18-May-11				
	19-May-11				
	20-May-11				
	27-May-11				
	3-Jun-11				
	12-Jun-11	8.2	298	12.0	9.2
	17-Jul-11	8.4	498	16.1	10.8
	18-Sep-11	8.6	296	13.4	8.4
	16-Oct-11	7.8	302	11.2	9.4
	20-Nov-11	8.7	290	5.7	11.0
	18-Dec-11	8.4	250	3.8	12.3
	15-Jan-12				
	19-Feb-12	7.9	231	2.5	12.1
	18-Mar-12	7.9	253	11.4	7.5
	15-Apr-12	8.5	316	9.6	9.7
	13-May-12	7.9	356	14.9	7.1
	17-Jun-12	8.4	388	18.3	6.3
	15-Jul-12	8.4	479	21.3	6.3
	12-Aug-12	8.4	464	15.7	6.6
	16-Sep-12	7.7	367	12.6	9.0
	14-Oct-12	8.9	269	10.3	7.0
	18-Nov-12	7.8	329	6.4	8.4
	16-Dec-12	8.0	609	2.2	
	13-Jan-13	8.2	256	2.6	11.0
	17-Feb-13 (2)				
	17-Mar-13 (2)				
	17-Apr-13	7.9	239	5.5	12.2
	14-May-13	8.1	283	7.9	6.9
	19-Jun-13	8.4	340	11.4	10.9
	16-Jul-13	8.2	426	17.7	7.9
	21-Aug-13	8.4	426	16.5	10.4
	16-Oct-13	8.5	360	12.0	6.0
	20-Nov-13	8.5	204	4.2	3.0
	15-Dec-13 (2)				
	19-Jan-14 (2)				
	16-Feb-14 (2)				
	16-Mar-14 (2)				
	17-Apr-14	8.1	412	5.4	10.7
	13-May-14	7.2	322	9.6	10.6
	18-Jun-14	8.3	362	12.7	10.5
	15-Jul-14	7.8	416	13.1	8.7
	17-Aug-14 (1)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW10	23-Oct-14	7.9	390	7.7	6.0
(cont'd)	16-Nov-14 (2)				
	14-Dec-14 (2)				
	18-Jan-15 (2)				
	15-Feb-15 (2)				
	15-Mar-15 (2)				
	23-Apr-15	8.3	303	5.1	13.8
	19-May-15	8.4	315	10.5	13.6
	15-Jun-15	8.0	388	13.1	9.7
	22-Jul-15	8.2	428	14.1	8.1
	11-Aug-15	8.3	446	16.3	8.6
	25-Aug-15			14.0	
	8-Sep-15	8.0	445	20.0	5.6
	16-Oct-15	8.3	142	8.6	7.5
	10-Nov-15	7.0	309	8.4	6.6
	18-Nov-15	7.9	344	8.1	11.3
	9-Dec-15	7.9	331	5.3	12.7
	20-Jan-16	7.8	286	1.4	11.0
	18-Feb-16	7.6	281	0.6	14.4
	15-Mar-16	7.6	269	4.6	13.0
	21-Apr-16	7.8	299	7.8	13.4
	18-May-16	8.5	222	10.3	11.2
	23-Jun-16	8.4	389	13.0	9.5
	5-Jul-16	8.2	322	17.1	11.7
	21-Jul-16	8.3	275	20.4	4.9
	9-Aug-16	8.3	538	22.0	5.1
	24-Aug-16	8.4	404	19.4	5.7
	19-Sep-16	8.3	506	18.3	6.4
	18-Oct-16	8.2	415	16.1	8.9
	24-Oct-16	8.0	331	7.9	9.8
	15-Nov-16	7.9	323	8.4	7.5
	12-Dec-16	7.6	395	0.2	13.3
	25-Jan-17	8.1	278	2.3	12.1
	17-Feb-17	8.3	309	1.2	15.7
	22-Mar-17	8.1	343	(0)	14.4
	19-Apr-17	8.3	216	5.8	14.5
	8-May-17	8.0	206	6.8	12.7
	16-May-17	8.3	312	8.6	10.4
	28-Jun-17	8.3	389	11.8	9.4
	7-Jul-17	8.2	386	13.5	8.5
	19-Jul-17	8.2	313	15.8	9.6
	2-Aug-17	8.4	366	16.3	9.1
	16-Aug-17	8.5	440	15.8	7.8
	18-Sep-17	8.1	3	15.0	7.8
	18-Oct-17	8.2	361	12.5	5.5
	15-Nov-17	8.4	337	5.0	10.7
	14-Dec-17	8.4	283	1.4	12.6
	18-Jan-18	8.0	273	1.0	10.1
	23-Feb-18	8.2	238	4.1	11.8
	21-Mar-18	8.3	260	1.4	11.5

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW10	18-Apr-18 (2)				
(cont'd)	9-May-18	8.2	424	11.8	10.3
	15-May-18	8.1	433	10.1	10.4
	18-Jun-18	8.2	474	8.2	9.1
	19-Jul-18	8.3	478	16.4	8.8
	24-Aug-18	8.3	479	18.1	8.1
	20-Sep-18	8.2	443	14.1	9.4
	25-Oct-18	8.1	468	7.2	9.0
	22-Nov-18	8.2	731	1.5	11.9
	13-Dec-18	8.3	468	2.4	12.4
	19-Jan-19	7.9	515	0.5	12.9
	28-Feb-19 (2)				
	19-Mar-19	8.3	415	2.6	12.8
	25-Apr-19	8.0	337	6.3	10.6
	16-May-19	8.2	379	7.5	11.1
	27-May-19	8.2	382	9.1	10.4
	21-Jun-19	8.0	423	11.6	9.5
	30-Jul-19	8.3	451	16.9	8.3
	30-Aug-19	8.3	388	15.4	9.0
	27-Sep-19	8.2	397	12.7	9.5
	22-Oct-19	8.1	379	10.2	9.0
	21-Nov-19 (2)				
	20-Dec-19 (2)				
	24-Jan-20 (2)				
	21-Feb-20 (2)				
	25-Mar-20 (2)				
	28-Apr-20				
	20-May-20				
	28-May-20 (3)				
	24-Jun-20	8.4	376	12.6	9.2
	31-Jul-20	8.6	233	18.1	8.3
	26-Aug-20 (1)				
	26-Sep-20 (1)				
	29-Oct-20 (1)				
	27-Nov-20 (2)				
	22-Dec-20 (2)				
	28-Jan-21 (2)				
	23-Feb-21 (2)				
	30-Mar-21	8.1	362	5.9	12.0
	28-Apr-21 (1)				
	26-May-21	7.8	450	9.8	10.1
	27-May-21	7.8	450	9.8	10.1
	23-Jun-21 (1)				
	10-Jul-21 (1)				
	23-Jul-21	8.5	489	16.4	9.4
	11-Aug-21			20.6	
	26-Aug-21	8.2	481	21.0	8.1
	27-Sep-21	8.1	480	11.8	10.3
	27-Oct-21 (3)				
	22-Nov-21 (2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW10	22-Dec-21	(2)				
(cont'd)	24-Jan-22	(2)				
	8-Feb-22	(2)				
	16-Mar-22	(2)				
	21-Apr-22		8.2	1,007	0.1	6.5
	24-May-22		8.1	479	12.0	9.7
	24-Jun-22	(1)	7.8	1,006	11.2	11.1
	8-Jul-22	(1)				
	11-Aug-22	(1)				
	26-Aug-22	(1)				
	27-Sep-22				12.8	
	27-Oct-22				7.9	
	17-May-23		8.0	428	7.9	10.7
	27-Jun-23				14.1	
	11-Jul-23				14.8	
	25-Jul-23				14.7	
	14-Aug-23		7.8	392	14.9	13.6
	30-Aug-23		7.8	392	13.8	13.6
	25-Sep-23				15.7	
	31-Oct-23				8.0	
SW11	22-May-03				8.0	
	22-Oct-03					
	13-Feb-04			309	3.8	
	18-Mar-04			410	4.3	
	21-Apr-04		8.0	213	5.4	
	19-May-04		8.0	317	7.8	
	24-Jun-04		8.0	357	8.7	
	29-Jul-04		8.1	404	12.7	
	26-Aug-04		8.2	389	14.2	
	22-Sep-04		8.2	391	14.1	10.1
	21-Oct-04		7.9	323	7.0	11.2
	18-Nov-04		7.9	370	8.0	10.8
	15-Dec-04	(2)				
	16-Jan-05	(2)				
	13-Feb-05	(2)				
	29-Mar-05		7.8	305	6.4	
	11-Apr-05		6.8	207	4.6	
	26-May-05		7.4	311	8.3	
	29-Jun-05		7.9	368	10.3	
	12-Jul-05		7.7	371	11.5	10.8
	28-Sep-05		7.9	443	11.4	8.7
	25-Oct-05		8.0	393	6.2	10.9
	16-Nov-05		7.8	268	6.3	11.2
	13-Dec-05		8.2	299	0.3	13.4
	18-Jan-06		7.2	260	5.1	12.7
	19-Feb-06	(2)				
	24-Mar-06		8.3	250	4.9	
	24-May-06		8.1	418	7.7	
	21-Jun-06		8.1	426	9.9	
	12-Jul-06		8.1	364	11.9	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW11	24-Aug-06	7.9	428	13.6	
(cont'd)	21-Sep-06	8.3	404	11.8	
	19-Oct-06	7.9	433	9.1	
	23-Nov-06	7.9	425	6.1	
	17-Dec-06	8.0	436	5.1	
	21-Jan-07	8.3	438	2.8	
	18-Feb-07 (2)				
	18-Mar-07 (2)				
	17-Apr-07	8.2	382	4.1	
	13-May-07	8.2	400	6.0	
	17-Jun-07	8.4	428	9.5	
	15-Jul-07	8.1	454	12.7	
	19-Aug-07	8.0	449	13.3	9.4
	17-Sep-07	8.3	426	12.7	8.8
	18-Oct-07	8.0	422	12.8	8.5
	19-Nov-07	7.8	464	3.6	11.4
	11-Dec-07	7.9	440	4.3	11.8
	22-Jan-08	7.8	361	3.9	12.7
	20-Feb-08	8.0	378	3.7	
	17-Mar-08	7.8	400	4.5	
	2-Apr-08	7.8	312	4.3	
	23-Apr-08	7.7	300	6.1	10.9
	22-May-08	7.4	374	5.6	11.2
	17-Jun-08	7.8	434	8.7	11.0
	15-Jul-08	7.3	465	12.6	8.6
	19-Aug-08	7.4	526	11.8	6.3
	16-Sep-08	8.1	477	10.1	8.2
	22-Oct-08	7.9	428	6.9	6.8
	23-Nov-08	8.0	428	5.7	8.7
	14-Dec-08	8.4	336	4.8	8.8
	18-Jan-09	8.1	317	3.9	9.0
	8-Feb-09		344	3.9	8.0
	15-Mar-09	8.3	308	4.2	
	12-Apr-09	8.0	352	4.6	
	17-May-09	8.4	317	8.2	
	14-Jun-09	7.8	809	9.4	
	12-Jul-09	8.6	446	9.7	11.5
	9-Aug-09	8.6	444	12.9	10.0
	13-Sep-09	7.6	413	10.0	
	11-Oct-09	8.2	487	6.7	11.5
	15-Nov-09	8.3	341	5.6	12.2
	13-Dec-09	7.7	454	3.3	12.3
	17-Jan-10	8.0	388	4.7	12.6
	7-Feb-10	7.8	431	3.3	12.0
	14-Mar-10	7.4	349	4.9	13.1
	4-Apr-10				
	11-Apr-10	8.0	373	6.8	
	16-May-10	8.0	254	6.7	12.3
	23-May-10				
	13-Jun-10	8.0	276	8.3	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW11	18-Jul-10	8.0	324	9.3	15.2
(cont'd)	15-Aug-10	8.2	332	13.1	10.6
	12-Sep-10	8.3	352	10.3	10.6
	17-Oct-10	7.9	317	7.3	11.3
	14-Nov-10	7.9	241	6.3	10.6
	19-Dec-10	8.4	182	4.8	11.4
	16-Jan-11	8.3	251	4.8	12.6
	20-Feb-11	8.1	251	4.6	11.8
	13-Mar-11	8.2	242	4.9	13.5
	17-Mar-11				
	18-Mar-11				
	20-Mar-11				
	1-Apr-11				
	5-Apr-11				
	8-Apr-11				
	12-Apr-11				
	15-Apr-11				
	17-Apr-11	8.1	227	5.4	12.7
	20-Apr-11				
	21-Apr-11				
	26-Apr-11				
	29-Apr-11				
	3-May-11				
	6-May-11				
	10-May-11				
	13-May-11				
	15-May-11	7.8	209	5.6	13.5
	16-May-11				
	18-May-11				
	19-May-11				
	20-May-11				
	27-May-11				
	3-Jun-11				
	12-Jun-11	8.2	152	8.6	11.1
	17-Jul-11	8.3	280	14.2	9.7
	14-Aug-11	8.6	260	15.0	9.9
	18-Sep-11	8.9	279	12.4	10.2
	16-Oct-11	7.7	279	9.2	11.9
	20-Nov-11	7.9	288	5.3	12.0
	18-Mar-12	8.0	194	6.1	9.3
	15-Apr-12	8.7	279	9.1	12.4
	13-May-12	8.0	279	9.3	11.5
	17-Jun-12	8.2	333	12.1	13.5
	16-Jul-12	8.2	375	16.0	7.1
	14-Aug-12	7.8	495	10.0	7.4
	18-Sep-12	7.7	335	11.0	9.9
	14-Oct-12	6.7	184	10.3	7.8
	18-Nov-12	7.8	280	6.8	9.2
	16-Dec-12	7.7	568	5.0	10.3
	13-Jan-13	8.1	279	4.9	11.2

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW11	17-Feb-13 (2)				
(cont'd)	19-Mar-13	8.3	203	4.2	9.1
	17-Apr-13	7.9	198	4.8	10.2
	14-May-13	8.0	237	5.7	10.7
	19-Jun-13	8.1	281	8.3	12.7
	16-Jul-13	8.1	338	11.0	11.4
	21-Aug-13	8.4	313	13.4	9.9
	18-Sep-13	8.0	328	10.8	11.3
	16-Oct-13	8.2	312	9.6	5.8
	20-Nov-13	7.5	273	6.2	3.8
	15-Dec-13 (2)				
	19-Jan-14 (2)				
	16-Feb-14 (2)				
	16-Mar-14 (2)				
	17-Apr-14	8.1	215	4.5	11.0
	13-May-14	6.6	256	8.6	12.4
	18-Jun-14	8.0	281	7.8	10.5
	16-Jul-14	7.9	244	9.8	8.6
	19-Aug-14	8.8	388	12.0	10.5
	9-Sep-14	9.0	398	13.0	4.1
	23-Oct-14	8.0	391	8.0	5.0
	16-Nov-14 (2)				
	16-Dec-14	8.5	315	5.0	
	20-Jan-15		293	2.5	0.1
	15-Feb-15 (3)				
	18-Mar-15	8.3	179	2.5	13.4
	22-Apr-15	8.0	259	4.8	13.7
	19-May-15	8.3	253	7.1	
	15-Jun-15	8.2	305	7.2	11.7
	22-Jul-15	7.9	321	9.8	
	11-Aug-15	8.3	352	11.0	11.4
	25-Aug-15	8.3	317	11.7	9.5
	8-Sep-15	8.0	362	13.6	9.0
	15-Oct-15	8.3	311	9.4	9.9
	8-Nov-15				
	18-Nov-15	8.0	367	8.4	11.5
	9-Dec-15	7.7	315	5.2	13.3
	19-Jan-16	7.9	247	3.3	14.5
	17-Feb-16	7.7	276	4.1	14.0
	15-Mar-16	7.8	201	4.5	13.6
	21-Apr-16	8.0	227	4.6	14.8
	18-May-16	8.2	294	7.2	13.2
	23-Jun-16	8.4	304	8.7	11.8
	5-Jul-16	8.4	298	12.7	15.7
	21-Jul-16	8.2	365	13.9	10.3
	9-Aug-16	8.5	336	16.3	11.4
	24-Aug-16	8.4	215	16.6	10.0
	19-Sep-16	8.4	366	14.9	9.8
	18-Oct-16	8.3	367	13.8	11.6
	16-Nov-16	7.9	253	6.7	9.6

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW11	12-Dec-16	8.7	467	1.9	14.8
(cont'd)	25-Jan-17	8.1	265	5.1	12.0
	17-Feb-17	8.2	290	3.5	14.6
	22-Mar-17	8.3	279	3.3	12.9
	19-Apr-17	7.3	231	4.6	15.6
	8-May-17	8.0	179	5.5	14.7
	16-May-17	7.8	262	8.0	13.2
	28-Jun-17	7.9	300	8.0	12.4
	7-Jul-17	7.4	301	9.3	13.7
	19-Jul-17	8.1	336	9.7	11.9
	2-Aug-17	8.1	323	10.6	10.9
	16-Aug-17	8.2	348	10.6	11.2
	18-Sep-17	8.1	340	10.8	10.7
	18-Oct-17	8.2	361	8.9	11.1
	15-Nov-17	8.3	335	6.2	7.1
	14-Dec-17	8.5	284	3.1	11.1
	18-Jan-18	7.9	264	4.1	8.7
	23-Feb-18	8.1	225	4.3	8.9
	21-Mar-18	8.3	268	3.9	13.0
	19-Apr-18	8.2	243	3.9	10.1
	9-May-18	8.0	360	6.1	12.2
	15-May-18	8.0	358	5.9	11.9
	18-Jun-18	8.2	431	8.2	10.9
	19-Jul-18		245	11.9	10.1
	24-Aug-18	8.4	435	13.8	9.8
	20-Sep-18	8.5	439	13.1	9.7
	25-Oct-18	8.2	430	4.9	11.0
	22-Nov-18	8.3		2.3	12.9
	13-Dec-18	8.3	412	4.9	12.2
	19-Jan-19	8.2	396	3.6	12.8
	28-Feb-19	8.4	341	3.9	12.8
	19-Mar-19	8.2	350	4.6	12.4
	25-Apr-19	8.1	267	4.2	11.9
	16-May-19	8.2	321	5.7	12.5
	27-May-19	8.3	353	7.9	12.0
	21-Jun-19	8.3	384	8.1	11.4
	30-Jul-19	8.3	392	12.8	9.8
	30-Aug-19	8.4	374	13.1	9.8
	27-Sep-19	8.5	358	12.4	9.1
	22-Oct-19	8.3	352	10.1	9.5
	21-Nov-19	7.9	378	0.1	9.8
	20-Dec-19 (2)				
	24-Jan-20	8.2	366	4.9	12.2
	21-Feb-20 (2)				
	25-Mar-20 (1)				
	28-Apr-20	8.3	340	8.0	11.3
	20-May-20				
	28-May-20	8.8	359	7.0	11.4
	24-Jun-20 (1)				
	31-Jul-20	8.6	417	11.4	10.3

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW11	26-Aug-20	8.3	391	12.6	10.1
(cont'd)	26-Sep-20	8.2	390	10.5	
	29-Oct-20	8.1	347	9.8	9.0
	27-Nov-20	8.0	416	6.1	11.8
	22-Dec-20	8.1	410	5.2	12.3
	28-Jan-21	8.0	425	2.1	13.0
	23-Feb-21	7.9	403	0.1	12.6
	30-Mar-21	8.2	366	4.0	10.1
	28-Apr-21 (1)				
	26-May-21	8.1	403	7.4	11.7
	23-Jun-21	8.1	385	9.9	10.8
	10-Jul-21	8.0	420	10.3	10.3
	23-Jul-21	8.2	448	11.4	10.6
	11-Aug-21			14.2	
	26-Aug-21	8.0	453	14.8	9.8
	27-Sep-21	7.9	453	8.9	11.4
	27-Oct-21 (3)				
	22-Nov-21	7.8	462	3.7	12.3
	22-Dec-21	8.0	443	2.9	12.1
	24-Jan-22	7.9	406	0.3	10.5
	8-Feb-22	7.9	673	0.0	11.4
	16-Mar-22	7.8	425	1.1	9.1
	21-Apr-22	8.2	452	0.1	12.0
	25-May-22	8.3	399	8.2	11.9
	24-Jun-22			9.3	
	8-Jul-22			13.1	
	11-Aug-22			13.1	
	29-Aug-22			10.1	
	29-Sep-22			9.9	
	27-Oct-22			7.8	
	22-Nov-22			1.0	
	21-Dec-22			0.9	
	17-May-23	8.3	373	6.9	11.6
	26-Jun-23			12.3	
	11-Jul-23			10.7	
	26-Jul-23			9.6	
	14-Aug-23			10.8	
	29-Aug-23			12.6	
	25-Sep-23			12.1	
	31-Oct-23			5.9	
SW11A	22-May-03			8.0	
	20-Aug-03 (1)				
	13-Feb-04		325	4.8	
	18-Mar-04		436	4.7	
	21-Apr-04	7.8	223	4.4	
	19-May-04	7.8	308	6.0	
	24-Jun-04	7.6	345	6.9	
	29-Jul-04	7.5	383	9.1	
	15-Dec-04 (2)				
	16-Jan-05 (2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW11A	13-Feb-05 (2)				
(cont'd)	29-Mar-05	7.8	308	5.2	
	11-Apr-05	7.0	208	4.3	
	26-May-05	7.4	291	6.0	
	29-Jun-05	8.2	347	7.6	
	12-Jul-05	7.8	352	8.5	
	23-Aug-05	7.4	373	11.0	11.0
	23-Oct-05 (1)				
	16-Nov-05	8.2	306	7.8	11.4
	13-Dec-05	8.3	365	5.6	11.3
	18-Jan-06	7.3	230	5.7	12.5
	19-Feb-06 (2)				
	24-Mar-06	8.2	249	4.5	
	19-Apr-06	8.0	337	5.4	
	24-May-06	7.9	427	6.7	
	21-Jun-06	7.6	430	8.6	
	12-Jul-06	7.6	396	9.7	
	24-Aug-06	7.2	429	12.7	
	21-Sep-06	7.7	419	12.1	
	19-Oct-06	7.5	470	9.1	
	23-Nov-06	7.9	423	6.4	
	17-Dec-06	7.7	406	5.8	
	21-Jan-07	7.9	442	4.8	
	18-Feb-07 (2)				
	18-Mar-07 (2)				
	17-Apr-07	8.2	384	4.2	
	13-May-07	8.0	414	5.5	
	19-Aug-07 (1)				
	16-Sep-07 (1)				
	14-Oct-07 (1)				
	18-Nov-07 (1)				
	11-Dec-07	7.9	459	7.0	11.4
	22-Jan-08	7.8	290	5.2	
	20-Feb-08	8.1	380	4.6	
	17-Mar-08	7.8	409	4.7	
	2-Apr-08	7.7	310	4.2	12.9
	23-Apr-08	7.8	330	4.5	12.7
	22-May-08	8.1	381	5.6	10.5
	17-Jun-08	8.0	444	6.5	8.7
	19-Aug-08	7.7	542	8.0	8.3
	16-Sep-08	8.0	492	8.9	8.2
	23-Nov-08	8.2	427	5.8	
	14-Dec-08	8.1	337	5.7	8.2
	18-Jan-09	8.3	399	4.2	9.4
	8-Feb-09		348	4.8	8.9
	15-Mar-09	8.1	310	4.1	
	12-Apr-09	8.1	355	4.0	
	17-May-09	8.1	321	6.4	
	14-Jun-09	7.9	796	12.1	
	12-Jul-09	8.4	418	8.8	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW11A	9-Aug-09	7.9	432	16.0	
(cont'd)	11-Oct-09	7.6	512	8.6	
	13-Dec-09	7.7	473	5.1	12.3
	17-Jan-10	8.0	439	4.8	11.7
	7-Feb-10	7.7	433	4.6	12.1
	14-Mar-10	7.6	357	4.9	13.3
	4-Apr-10				
	11-Apr-10	7.9	201	5.2	12.0
	16-May-10	7.8	201	5.8	12.0
	23-May-10				
	13-Jun-10	7.8	319	8.0	15.3
	18-Jul-10	7.8	319	8.0	15.3
	15-Aug-10	7.9	308	9.0	10.3
	17-Oct-10	7.9	343	7.8	11.6
	14-Nov-10	7.8	241	6.8	10.1
	19-Dec-10 (2)				
	16-Jan-11	8.2	182	5.5	11.9
	20-Feb-11	8.2	201	5.2	12.4
	13-Mar-11	8.4	247	5.1	13.6
	17-Mar-11				
	18-Mar-11				
	20-Mar-11				
	1-Apr-11				
	5-Apr-11				
	8-Apr-11				
	12-Apr-11				
	15-Apr-11				
	17-Apr-11	8.0	229	4.5	13.1
	20-Apr-11				
	21-Apr-11				
	26-Apr-11				
	29-Apr-11				
	3-May-11				
	6-May-11				
	10-May-11				
	13-May-11				
	15-May-11	8.1	209	5.5	13.2
	16-May-11				
	18-May-11				
	19-May-11				
	20-May-11				
	27-May-11				
	3-Jun-11				
	12-Jun-11	8.0	248	7.3	12.5
	16-Oct-11	7.6	270	9.8	11.7
	20-Nov-11	7.7	238	7.0	11.1
	18-Dec-11	8.1	226	6.3	13.3
	15-Jan-12 (2)				
	19-Feb-12 (2)				
	18-Mar-12	7.9	192	5.3	10.1

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW11A	15-Apr-12	8.8	259	5.9	15.9
(cont'd)	13-May-12	8.0	257	6.1	17.2
	15-Jul-12 (1)				
	12-Aug-12	7.8	415	9.1	7.4
	18-Nov-12	7.5	147	6.9	9.2
	16-Dec-12	7.6	589	6.1	10.0
	13-Jan-13	7.9	292	5.6	10.8
	17-Feb-13 (2)				
	19-Mar-13	8.2	199	4.6	9.5
	17-Apr-13	8.0	191	4.5	10.4
	14-May-13	8.0	289	5.5	10.6
	20-Nov-13	7.8	281	6.7	3.7
	15-Dec-13 (2)				
	19-Jan-14 (2)				
	16-Feb-14 (2)				
	16-Mar-14 (2)				
	17-Apr-14	8.1	207	4.7	10.9
	13-May-14	7.1	240	5.7	10.1
	18-Jun-14	8.1	284	6.9	10.6
	16-Nov-14 (2)				
	16-Dec-14	8.4	331	6.0	
	18-Jan-15 (2)				
	15-Feb-15 (3)				
	18-Mar-15	8.1	242	4.8	13.1
	22-Apr-15	7.8	266	4.8	13.9
	19-May-15	8.1	254	5.8	
	15-Jun-15	7.9	308	6.4	11.5
	22-Jul-15	7.8	310	7.5	
	11-Aug-15	8.0	344	8.8	11.7
	25-Aug-15			9.9	
	8-Sep-15	7.8	347	11.9	9.7
	8-Nov-15				
	18-Nov-15	7.8	348	8.5	13.4
	9-Dec-15	7.5	351	7.0	12.3
	19-Jan-16	7.7	268	5.7	13.3
	17-Feb-16	7.7	292	5.4	13.1
	15-Mar-16	7.5	201	4.9	13.3
	21-Apr-16	8.0	230	4.4	14.3
	18-May-16	8.0	283	5.2	13.0
	23-Jun-16	8.0	296	7.0	12.3
	5-Jul-16	8.6	299	12.3	13.5
	21-Jul-16	7.8	375	15.0	6.6
	9-Aug-16	8.1	468	22.2	6.3
	24-Aug-16	7.9	354	16.9	3.3
	25-Oct-16 (1)				
	12-Dec-16	8.5	447	5.4	11.4
	25-Jan-17	8.0	280	5.7	11.6
	17-Feb-17	8.2	306	5.1	13.0
	22-Mar-17	8.1	290	4.0	12.2
	19-Apr-17	7.2	224	5.0	14.5

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW11A	8-May-17	7.8	166	5.2	15.0
(cont'd)	16-May-17	7.9	247	6.0	12.8
	28-Jun-17	7.8	300	7.0	12.2
	7-Jul-17	7.4	292	7.6	11.9
	19-Jul-17	8.0	326	7.8	12.1
	2-Aug-17	7.7	306	7.8	11.5
	16-Aug-17	7.8	336	8.8	11.4
	18-Sep-17	7.8	347	10.4	10.5
	18-Oct-17	7.9	373	9.1	11.5
	15-Nov-17	8.1	351	7.2	6.6
	14-Dec-17	8.3	318	6.0	7.6
	18-Jan-18	7.8	275	5.1	8.4
	23-Feb-18	8.0	166	5.0	6.9
	21-Mar-18	8.1	276	4.7	13.7
	19-Apr-18	8.0	249	4.5	9.0
	9-May-18	7.8	372	5.0	12.0
	15-May-18	7.7	386	5.3	11.7
	18-Jun-18	7.8	438	7.8	11.7
	19-Jul-18	7.8	298	10.1	10.2
	3-Aug-18 (1)				
	24-Aug-18 (1)				
	20-Sep-18 (1)				
	25-Oct-18 (1)				
	22-Nov-18	8.3		2.7	12.5
	13-Dec-18	8.2	414	5.9	11.7
	19-Jan-19	8.0	397	5.5	12.1
	28-Feb-19 (2)				
	19-Mar-19	8.1	349	5.0	12.1
	25-Apr-19	7.9	304	4.8	11.8
	16-May-19	7.9	326	5.4	12.2
	27-May-19	7.9	361	5.7	11.9
	21-Jun-19	8.0	384	6.7	11.6
	30-Jul-19 (1)				
	30-Aug-19	7.8	386	10.4	10.5
	27-Sep-19	7.7	388	11.9	11.2
	22-Oct-19	8.0	391	9.4	10.2
	21-Nov-19 (2)				
	20-Dec-19 (2)				
	24-Jan-20 (2)				
	21-Feb-20 (2)				
	25-Mar-20 (1)				
	28-Apr-20				
	20-May-20	8.1	390	5.3	12.1
	28-May-20	8.6	370	5.8	11.7
	24-Jun-20 (1)				
	31-Jul-20	8.1	416	8.1	11.5
	26-Aug-20 (1)				
	26-Sep-20 (1)				
	29-Oct-20 (1)				
	27-Nov-20	7.9	303	6.5	11.8

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW11A	22-Dec-20	(2)				
(cont'd)	28-Jan-21	(2)				
	23-Feb-21	(2)				
	30-Mar-21		8.5	354	3.9	10.5
	28-Apr-21	(1)				
	26-May-21		7.9	406	6.2	12.0
	23-Jun-21		7.7	433	7.9	6.3
	10-Jul-21		7.8	448	8.5	11.3
	23-Jul-21		7.6	464	9.0	11.1
	11-Aug-21				8.9	
	26-Aug-21		7.5	241	10.6	10.6
	27-Sep-21		7.5	463	8.3	11.3
	27-Oct-21	(3)				
	22-Nov-21	(2)				
	22-Dec-21	(2)				
	24-Jan-22	(2)				
	8-Feb-22	(2)				
	16-Mar-22	(2)				
	21-Apr-22		7.3	564	0.0	11.1
	25-May-22		7.8	438	6.7	12.1
	24-Jun-22				8.5	
	8-Jul-22				12.6	
	11-Aug-22				12.6	
	29-Aug-22				9.1	
	29-Sep-22				10.8	
	27-Oct-22	(1)			8.2	
	22-Nov-22	(1)				
	21-Dec-22	(1)				
	17-May-23		7.8	386	6.2	11.5
	26-Jun-23				9.6	
	11-Jul-23				8.3	
	26-Jul-23				8.1	
	14-Aug-23				8.6	
	29-Aug-23				11.2	
	25-Sep-23				12.8	
	31-Oct-23				7.8	
SW11B	22-May-03				8.0	
	13-Feb-04			325	4.9	12.3
	18-Mar-04			431	4.4	8.9
	21-Apr-04		7.8	221	4.2	
	19-May-04		7.7	305	5.8	
	24-Jun-04		7.5	347	6.9	
	29-Jul-04		7.4	367	7.6	
	26-Aug-04		7.6	332	7.8	
	18-Nov-04		7.6	370	6.4	
	15-Dec-04	(2)				
	16-Jan-05	(2)				
	13-Feb-05	(2)				
	29-Mar-05		7.7	301	4.8	
	11-Apr-05		7.0	208	3.9	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW11B	26-May-05	7.2	302	6.1	
(cont'd)	29-Jun-05	7.9	162	7.3	
	12-Jul-05	7.8	253	7.5	
	23-Aug-05	7.5	331	8.5	
	25-Oct-05	8.1	439	8.1	
	16-Nov-05	7.9	328	7.1	12.0
	13-Dec-05	8.3	378	5.7	11.5
	18-Jan-06	7.7	260	5.4	12.4
	19-Feb-06 (2)				
	24-Mar-06	8.2	247	4.4	
	19-Apr-06	8.0	336	5.3	
	24-May-06	7.8	422	6.9	
	21-Jun-06	7.5	450	8.1	
	12-Jul-06	7.6	400	8.9	
	24-Aug-06	7.3	430	10.9	
	21-Sep-06	7.7	451	10.7	
	25-Sep-06	7.6	341	9.1	10.8
	19-Oct-06	7.6	488	7.8	
	23-Nov-06	7.8	254	6.3	11.8
	17-Dec-06	7.7	440	5.7	
	21-Jan-07	8.0	438	5.1	
	18-Feb-07 (2)				
	18-Mar-07 (2)				
	17-Apr-07	8.1	384	4.1	13.1
	13-May-07	7.9	336	5.5	12.6
	19-Aug-07 (1)				
	16-Sep-07 (1)				
	14-Oct-07 (1)				
	18-Nov-07 (1)				
	11-Dec-07	8.0	335	6.2	11.3
	22-Jan-08	7.8	365	5.1	12.5
	20-Feb-08	8.2		4.7	
	17-Mar-08	7.8	408	4.6	
	2-Apr-08	7.7	309	4.5	
	23-Apr-08	7.9	331	4.9	11.8
	22-May-08	7.8	382	5.8	
	17-Jun-08	7.8	442	7.5	11.8
	15-Jul-08	7.5	479	9.1	9.0
	19-Aug-08	7.3	544	9.2	7.0
	16-Sep-08	7.8	490	7.5	9.2
	22-Oct-08	7.8	439	7.0	7.3
	23-Nov-08		427	6.3	8.2
	14-Dec-08	8.1	338	5.7	8.3
	18-Jan-09	8.3	410	2.6	8.6
	8-Feb-09		351	4.8	8.0
	15-Mar-09	8.4	304	4.1	
	12-Apr-09	7.6	346	3.9	
	17-May-09	8.2	324	6.4	
	14-Jun-09	8.4	846	6.3	
	12-Jul-09	8.4	402	7.9	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW11B	9-Aug-09	8.9	454	9.5	
(cont'd)	11-Oct-09	8.0	512	7.5	
	15-Nov-09	7.7	431	6.3	
	13-Dec-09	7.8	462	5.3	12.1
	17-Jan-10	8.0	435	5.0	12.0
	7-Feb-10	7.5	428	5.0	11.9
	14-Mar-10	7.5	355	4.9	13.3
	4-Apr-10				
	11-Apr-10	7.8	386	5.4	
	16-May-10	7.8	246	5.8	12.1
	23-May-10				
	13-Jun-10	7.9	231	7.7	15.5
	18-Jul-10	7.7	322	8.1	15.4
	15-Aug-10		330	9.6	11.6
	17-Oct-10	7.9	337	7.5	11.2
	14-Nov-10	7.8	226	7.0	10.5
	19-Dec-10 (2)				
	16-Jan-11				
	20-Feb-11	8.1	260	5.3	11.3
	13-Mar-11	8.2	199	4.9	13.2
	17-Mar-11				
	18-Mar-11				
	20-Mar-11				
	1-Apr-11				
	5-Apr-11				
	8-Apr-11				
	12-Apr-11				
	15-Apr-11				
	17-Apr-11	8.0	221	4.7	12.9
	20-Apr-11				
	21-Apr-11				
	26-Apr-11				
	29-Apr-11				
	3-May-11				
	6-May-11				
	10-May-11				
	13-May-11				
	15-May-11	7.9	210	5.5	13.1
	16-May-11				
	18-May-11				
	19-May-11				
	20-May-11				
	27-May-11				
	3-Jun-11				
	12-Jun-11	7.9	250	7.4	11.4
	16-Oct-11	7.5	315	8.3	12.3
	20-Nov-11	8.0	302	6.4	11.1
	18-Dec-11	8.7	226	6.1	13.2
	15-Jan-12 (2)				
	19-Feb-12 (2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW11B	18-Mar-12	7.9	198	5.5	8.4
(cont'd)	15-Apr-12	8.6	265	6.6	15.2
	13-May-12	7.7	262	6.4	13.1
	17-Jun-12	8.0	300	8.0	12.9
	12-Aug-12	7.6	491	8.6	7.3
	18-Nov-12	7.5	228	6.8	9.1
	16-Dec-12	7.6	533	6.1	9.7
	13-Jan-13	7.9	292	5.7	11.3
	17-Feb-13 (2)				
	19-Mar-13	8.2	190	3.7	9.9
	17-Apr-13	7.8	196	4.5	10.1
	14-May-13	7.8	238	5.6	10.1
	16-Oct-13	8.1	304	8.3	6.1
	20-Nov-13	7.9	283	6.9	3.8
	15-Dec-13 (2)				
	19-Jan-14 (2)				
	16-Feb-14 (2)				
	16-Mar-14 (2)				
	17-Apr-14	8.0	216	4.8	10.2
	13-May-14	7.5	244	6.0	10.7
	18-Jun-14	7.9	288	6.8	10.2
	23-Oct-14	7.9	395	7.5	4.2
	16-Nov-14 (2)				
	16-Dec-14	8.5	327	5.8	
	18-Jan-15 (2)				
	15-Feb-15 (3)				
	18-Mar-15	8.3	243	4.9	12.2
	22-Apr-15	7.8	267	5.0	13.8
	19-May-15	8.1	257	6.0	
	15-Jun-15	7.8	308	6.4	11.2
	22-Jul-15	7.7	309	7.3	
	11-Aug-15	7.8	337	8.3	11.8
	25-Aug-15			8.7	
	8-Sep-15	7.6	312	10.0	9.8
	8-Nov-15				
	18-Nov-15	7.8	362	7.4	13.3
	9-Dec-15	7.6	324	6.1	13.1
	19-Jan-16	7.9	269	5.6	13.7
	17-Feb-16	7.8	292	5.4	13.2
	15-Mar-16	7.6	202	4.7	13.6
	21-Apr-16	7.9	225	4.5	14.0
	18-May-16	8.0	281	5.4	13.1
	23-Jun-16	7.9	298	7.0	12.2
	5-Jul-16	8.3	294	10.0	14.5
	21-Jul-16	7.7	375	9.5	11.7
	9-Aug-16	8.1	371	14.4	11.6
	24-Aug-16	7.9	340	11.6	11.2
	18-Oct-16	8.1	347	10.9	13.6
	24-Oct-16	7.6	328	9.3	11.0
	16-Nov-16	7.8	331	7.8	9.2

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW11B	12-Dec-16	8.4	466	4.2	12.4
(cont'd)	17-Feb-17	8.1	300	4.6	13.9
	22-Mar-17	8.4	289	4.6	12.6
	19-Apr-17	7.1	142	5.1	14.3
	8-May-17	7.7	164	5.1	15.0
	16-May-17	7.9	221	6.1	12.8
	28-Jun-17	7.7	300	7.4	12.0
	7-Jul-17	7.7	281	7.7	12.5
	19-Jul-17	7.9	325	7.3	12.2
	2-Aug-17	7.7	252	8.3	11.5
	15-Aug-17	7.6	266	8.5	11.5
	18-Sep-17	7.7	315	8.6	11.4
	18-Oct-17	7.9	264	8.1	11.6
	15-Nov-17	8.1	346	6.7	7.0
	14-Dec-17	8.4	314	5.8	7.6
	18-Jan-18	7.9	272	4.8	8.6
	23-Feb-18	8.0	219	4.7	6.8
	21-Mar-18	8.2	275	4.5	12.1
	19-Apr-18	8.0	238	4.3	9.1
	9-May-18	7.8	372	5.1	11.9
	15-May-18	7.8	387	5.6	11.7
	18-Jun-18	7.7	440	7.7	11.2
	19-Jul-18	7.7	432	9.5	10.5
	24-Aug-18	7.8	438	11.3	9.6
	20-Sep-18	7.8	438	11.6	9.5
	25-Oct-18	8.2	421	8.0	10.2
	22-Nov-18	8.4		4.7	11.8
	13-Dec-18	8.3	414	5.9	11.8
	19-Jan-19	8.1	397	5.2	12.1
	28-Feb-19	8.2	392	5.2	12.3
	19-Mar-19	8.1	348	4.9	12.1
	25-Apr-19	7.9	302	4.8	11.7
	16-May-19	7.9	322	5.7	12.3
	27-May-19	7.9	354	6.1	11.8
	21-Jun-19	7.8	391	6.7	11.5
	30-Jul-19	7.9	397	9.7	10.2
	30-Aug-19 (1)				
	27-Sep-19 (1)				
	22-Oct-19 (1)				
	21-Nov-19 (2)				
	20-Dec-19 (2)				
	24-Jan-20 (2)				
	21-Feb-20 (2)				
	25-Mar-20 (1)				
	28-Apr-20				
	20-May-20	8.0	390	5.6	11.9
	28-May-20	8.5	341	6.8	11.4
	24-Jun-20 (1)				
	31-Jul-20	8.1	271	8.1	11.1
	26-Aug-20 (1)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW11B	26-Sep-20	(1)				
(cont'd)	29-Oct-20	(1)				
	27-Nov-20		7.9	418	6.4	12.0
	22-Dec-20	(2)				
	28-Jan-21	(2)				
	23-Feb-21	(2)				
	30-Mar-21		8.1	345	3.5	10.4
	28-Apr-21	(1)				
	26-May-21		7.9	408	6.6	12.1
	23-Jun-21		7.6	405	7.8	11.3
	10-Jul-21		7.8	277	8.9	11.1
	23-Jul-21		7.6	456	9.2	5.3
	11-Aug-21				9.5	
	26-Aug-21		7.1	469	10.7	5.5
	27-Sep-21		7.5	461	8.7	10.7
	27-Oct-21	(3)				
	22-Nov-21	(2)				
	22-Dec-21	(2)				
	24-Jan-22	(2)				
	8-Feb-22	(2)				
	16-Mar-22	(2)				
	21-Apr-22		7.8	523	0.1	11.5
	25-May-22		7.6	436	6.6	11.8
	24-Jun-22				9.4	
	8-Jul-22				11.2	
	11-Aug-22				13.0	
	29-Aug-22				9.3	
	29-Sep-22				10.4	
	27-Oct-22				8.4	
	22-Nov-22				6.8	
	21-Dec-22				3.0	
	17-May-23		8.0	387	6.2	11.7
	26-Jun-23				8.2	
	11-Jul-23				8.1	
	26-Jul-23				10.2	
	14-Aug-23				8.7	
	29-Aug-23				9.6	
	25-Sep-23				9.9	
	31-Oct-23				8.3	
SW11C	22-May-03				8.0	
	22-Jul-03	(1)				
	20-Aug-03	(1)				
	25-Sep-03	(1)				
	18-Mar-04			431	4.4	9.0
	21-Apr-04		7.8	221	4.3	
	19-May-04		7.6	307	5.9	
	24-Jun-04		7.8	354	8.0	
	23-Aug-04	(1)				
	21-Sep-04	(1)				
	21-Oct-04	(1)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW11C	17-Nov-04	(1)				
(cont'd)	15-Dec-04	(2)				
	16-Jan-05	(2)				
	13-Feb-05	(2)				
	29-Mar-05		7.6	301	4.7	12.9
	11-Apr-05		7.1	203	4.1	
	26-May-05		7.2	300	6.1	
	26-Jun-05	(1)				
	10-Jul-05	(1)				
	21-Aug-05	(1)				
	25-Sep-05	(1)				
	23-Oct-05	(1)				
	11-Dec-05	(1)				
	18-Jan-06		7.3	267	5.5	12.3
	19-Feb-06	(2)				
	24-Mar-06		8.1	245	4.4	
	19-Apr-06		8.0	330	5.4	
	24-May-06		7.9	421	6.4	
	18-Jun-06	(1)				
	12-Jul-06		7.4	448	15.4	
	20-Aug-06	(1)				
	17-Sep-06	(1)				
	19-Oct-06		7.5	428	9.7	
	23-Nov-06		7.7	431	6.3	11.8
	17-Dec-06		7.6	440	5.6	
	21-Jan-07		8.0	443	5.1	12.4
	18-Feb-07	(2)				
	18-Mar-07	(2)				
	17-Apr-07		8.0	384	4.1	12.8
	13-May-07		8.0	403	5.5	12.7
	14-Oct-07	(1)				
	19-Nov-07		7.8	487	6.5	10.8
	11-Dec-07		7.8	461	5.7	11.7
	22-Jan-08		7.7	359	4.9	12.4
	20-Feb-08		8.0	381	4.3	
	17-Mar-08			404	4.4	
	2-Apr-08		7.7	311	3.7	13.1
	23-Apr-08		7.7	325	6.5	10.4
	22-May-08		7.6	381	5.7	11.1
	17-Jun-08		7.8	440	10.6	8.9
	15-Jul-08		7.2	462	7.5	10.1
	19-Aug-08		7.5	535	7.5	7.8
	16-Sep-08		7.8	486	8.5	9.2
	22-Oct-08		7.9	439	7.1	7.3
	23-Nov-08			357	6.1	8.2
	14-Dec-08		8.1	337	5.4	8.9
	18-Jan-09		8.3	240	4.3	9.9
	8-Feb-09			341	4.1	8.2
	15-Mar-09		8.3	205	3.7	
	12-Apr-09		8.0	356	4.3	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW11C	17-May-09	8.1	308	5.7	12.5
(cont'd)	14-Jun-09	8.1	828	6.8	
	12-Jul-09	8.8	448	8.7	
	9-Aug-09	8.6	458	12.7	
	13-Sep-09	7.1	426	8.0	
	11-Oct-09	8.1	363	6.5	12.3
	15-Nov-09	8.1	424	6.1	
	13-Dec-09	7.6	430	3.9	11.7
	17-Jan-10	8.0	447	5.2	12.1
	7-Feb-10	7.8	436	4.8	12.1
	14-Mar-10	7.5	355	4.2	13.6
	4-Apr-10				
	11-Apr-10	7.8	377	5.6	
	16-May-10	7.9	247	5.6	12.2
	23-May-10				
	13-Jun-10	7.8	274	7.2	15.4
	18-Jul-10	7.7	321	8.6	15.2
	15-Aug-10	7.8	300	10.4	11.0
	12-Sep-10	8.1	314	8.8	11.4
	17-Oct-10	7.8	335	7.5	11.5
	14-Nov-10	7.7	256	6.7	10.5
	19-Dec-10 (2)				
	16-Jan-11				
	20-Feb-11	8.1	195	4.7	12.7
	13-Mar-11	8.1	243	4.6	13.4
	17-Mar-11				
	18-Mar-11				
	20-Mar-11				
	1-Apr-11				
	5-Apr-11				
	8-Apr-11				
	12-Apr-11				
	15-Apr-11				
	17-Apr-11	7.9	220	4.4	13.1
	20-Apr-11				
	21-Apr-11				
	26-Apr-11				
	29-Apr-11				
	3-May-11				
	6-May-11				
	10-May-11				
	13-May-11				
	15-May-11	7.9	212	5.5	13.3
	16-May-11				
	18-May-11				
	19-May-11				
	20-May-11				
	27-May-11				
	3-Jun-11				
	12-Jun-11	7.8	227	8.2	11.3

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW11C	16-Oct-11	7.5	320	8.9	11.6
(cont'd)	20-Nov-11	8.1	288	6.3	11.3
	18-Dec-11	8.7	222	5.9	13.4
	15-Jan-12 (2)				
	19-Feb-12 (2)				
	18-Mar-12	7.9	194	4.9	7.1
	15-Apr-12	8.6	251	5.4	15.8
	13-May-12	7.7	213	6.3	13.1
	17-Jun-12	7.8	220	7.9	12.7
	16-Jul-12	7.9	318	8.8	7.5
	14-Aug-12	7.6	420	9.1	7.3
	16-Sep-12	7.5	321	8.9	10.5
	18-Nov-12	7.5	280	6.7	9.1
	16-Dec-12	7.5	586	5.9	9.9
	13-Jan-13	7.9	285	5.2	11.2
	17-Feb-13 (2)				
	19-Mar-13	8.1	206	4.3	10.0
	17-Apr-13	7.8	196	4.1	10.1
	14-May-13	8.0	236	5.5	10.0
	16-Oct-13	7.8	307	8.6	5.8
	20-Nov-13	7.4	280	6.4	3.7
	15-Dec-13 (2)				
	19-Jan-14 (2)				
	16-Feb-14 (2)				
	16-Mar-14 (2)				
	17-Apr-14	7.8	423	4.4	10.3
	13-May-14	7.5	235	6.3	10.8
	18-Jun-14	8.1	277	7.9	10.0
	23-Oct-14	7.9	357	7.7	4.3
	16-Nov-14 (2)				
	16-Dec-14	8.4	324	5.5	
	18-Jan-15 (2)				
	15-Feb-15 (3)				
	18-Mar-15	8.2	231	3.9	12.1
	22-Apr-15	7.8	260	4.3	13.7
	19-May-15	7.9	256	6.1	
	15-Jun-15	7.7	312	7.0	11.1
	22-Jul-15	7.5	245	7.9	
	11-Aug-15	7.7	341	8.6	11.5
	25-Aug-15	8.2	304	8.6	10.0
	8-Sep-15	7.6	329	8.1	11.0
	15-Oct-15	7.8	295	8.3	11.1
	8-Nov-15				
	18-Nov-15	7.7	363	6.8	12.5
	9-Dec-15	7.5	339	5.9	13.1
	19-Jan-16	7.9	264	5.1	13.6
	17-Feb-16	7.8	282	4.4	12.8
	15-Mar-16	7.6	204	4.3	13.4
	21-Apr-16	8.0	227	4.2	14.5
	18-May-16	8.0	283	5.3	10.0

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW11C	23-Jun-16	7.8	294	7.1	12.3
(cont'd)	5-Jul-16	7.8	307	7.7	18.0
	21-Jul-16	7.6	321	8.7	11.4
	9-Aug-16	7.8	471	8.7	14.3
	24-Aug-16	7.7	308	9.3	11.8
	19-Sep-16	7.6	329	9.1	11.5
	18-Oct-16	7.7	297	8.8	14.7
	24-Oct-16	7.8	336	8.5	11.0
	16-Nov-16	7.7	319	7.3	11.0
	12-Dec-16	8.2	471	5.6	13.3
	25-Jan-17	7.9	218	5.2	11.7
	17-Feb-17	8.1	304	4.7	13.5
	22-Mar-17	8.0	287	4.3	12.7
	19-Apr-17	7.0	237	4.9	14.3
	8-May-17	7.8	175	4.9	14.8
	16-May-17	7.9	248	5.8	12.7
	28-Jun-17	7.8	298	7.4	11.9
	7-Jul-17	7.5	294	8.8	13.1
	19-Jul-17	7.9	231	8.3	11.3
	2-Aug-17	7.7	314	8.5	11.3
	16-Aug-17	7.5	341	8.8	10.5
	18-Sep-17	7.6	344	8.5	11.5
	18-Oct-17	7.7	367	8.5	11.0
	15-Nov-17	8.1	341	6.7	7.0
	14-Dec-17	8.2	310	5.3	8.1
	18-Jan-18	7.8	269	4.6	9.0
	23-Feb-18	8.0	207	4.0	7.1
	21-Mar-18	8.1	238	4.0	12.4
	19-Apr-18	7.9	245	3.9	9.6
	9-May-18	7.8	371	5.0	12.0
	15-May-18	7.7	386	5.5	11.7
	18-Jun-18	7.6	444	7.6	11.1
	19-Jul-18	7.6	438	8.5	11.0
	24-Aug-18	7.6	451	9.6	10.7
	20-Sep-18	7.6	451	9.6	10.5
	25-Oct-18	8.1	454	7.7	11.3
	22-Nov-18	8.2		6.2	12.4
	13-Dec-18	8.2	418	5.8	11.9
	19-Jan-19	8.0	391	5.1	12.3
	28-Feb-19	8.2	385	4.7	12.4
	19-Mar-19	8.0	350	4.3	12.3
	25-Apr-19	7.9	216	4.5	11.8
	16-May-19	7.3	325	5.2	12.2
	27-May-19	7.8	360	5.9	11.8
	21-Jun-19	7.8	393	7.0	11.4
	30-Jul-19	8.0	404	8.5	10.7
	30-Aug-19 (1)				
	27-Sep-19 (1)				
	22-Oct-19 (1)				
	21-Nov-19 (2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW11C	20-Dec-19	(2)				
(cont'd)	24-Jan-20	(2)				
	21-Feb-20	(2)				
	25-Mar-20	(1)				
	28-Apr-20					
	20-May-20		8.0	390	5.2	12.3
	28-May-20		8.4	371	6.2	11.4
	24-Jun-20	(1)				
	31-Jul-20		7.8	428	8.9	10.6
	26-Aug-20		7.3	380	8.9	10.4
	26-Sep-20		8.1	400	9.1	
	29-Oct-20		8.2	354	8.5	7.5
	27-Nov-20		7.8	430	6.5	11.8
	22-Dec-20	(2)				
	28-Jan-21	(2)				
	23-Feb-21	(2)				
	30-Mar-21		8.1	387	3.7	10.6
	28-Apr-21	(1)				
	26-May-21		7.8	413	6.6	11.9
	23-Jun-21		7.7	225	7.9	11.3
	10-Jul-21		7.7	266	8.5	11.2
	23-Jul-21		7.7	464	8.8	11.1
	11-Aug-21				8.9	
	26-Aug-21		7.1	458	9.7	11.0
	27-Sep-21		7.5	462	8.8	11.0
	27-Oct-21	(3)				
	22-Nov-21	(2)				
	22-Dec-21	(2)				
	24-Jan-22	(2)				
	8-Feb-22	(2)				
	16-Mar-22	(2)				
	21-Apr-22		8.0	256	0.0	11.3
	25-May-22		7.7	438	6.5	11.9
	24-Jun-22				6.4	
	8-Jul-22				11.4	
	11-Aug-22				12.3	
	29-Aug-22				9.3	
	29-Sep-22				9.3	
	27-Oct-22				7.8	
	22-Nov-22				5.7	
	21-Dec-22				5.2	
	17-May-23		7.9	382	6.2	11.6
	26-Jun-23				7.9	
	11-Jul-23				8.9	
	26-Jul-23				9.0	
	14-Aug-23				8.9	
	29-Aug-23				9.3	
	25-Sep-23				9.1	
	31-Oct-23				8.1	
SW11D	22-May-03				8.0	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW11D	13-Feb-04		311	3.9	11.9
(cont'd)	18-Mar-04		421	3.7	9.5
	21-Apr-04	7.9	212	4.1	
	19-May-04	8.2	240	3.1	
	24-Jun-04	7.8	326	6.3	
	29-Jul-04	8.0	327	9.7	
	22-Sep-04	7.9	354	12.0	9.4
	20-Oct-04	7.9	302	7.2	10.8
	18-Nov-04	7.9	302	6.2	11.2
	15-Dec-04 (2)				
	16-Jan-05 (2)				
	13-Feb-05 (2)				
	29-Mar-05	7.7	294	4.2	
	11-Apr-05	7.2	211	3.1	
	26-May-05	7.2	271	4.5	
	29-Jun-05	7.9	309	8.6	
	12-Jul-05	7.5	319	9.9	9.4
	23-Aug-05	7.7	341	11.6	9.1
	25-Sep-05	7.6	342	11.4	7.6
	25-Oct-05	8.0	393	7.3	10.9
	16-Nov-05	7.8	297	7.0	11.0
	13-Dec-05	7.5	264	1.1	11.6
	18-Jan-06	7.0	266	5.5	12.6
	19-Feb-06 (2)				
	24-Mar-06	8.1	245	4.3	
	19-Apr-06	8.1	329	5.0	
	24-May-06	7.9	415	6.0	
	21-Jun-06	8.0	379	8.3	
	12-Jul-06	8.2	362	10.8	
	24-Aug-06	7.8	412	12.8	
	21-Sep-06	7.9	396	11.6	
	19-Oct-06	8.1	393	8.8	
	23-Nov-06	7.8	425	6.2	11.8
	17-Dec-06	7.8	440	5.6	
	21-Jan-07	8.1	434	4.6	12.9
	18-Feb-07 (2)				
	18-Mar-07 (2)				
	17-Apr-07	8.1	385	4.0	
	13-May-07	8.1	379	3.6	
	17-Jun-07	8.5	325	7.4	11.9
	19-Aug-07	8.0	423	12.1	9.1
	14-Oct-07 (1)				
	19-Nov-07	7.9	457	4.2	10.8
	11-Dec-07	7.9	378	3.1	11.9
	22-Jan-08	7.7	367	4.5	12.5
	20-Feb-08	8.0	383	3.7	
	17-Mar-08	7.7	402	4.2	
	2-Apr-08	7.7	315	4.1	
	23-Apr-08	7.8	326	4.7	10.9
	22-May-08	7.5	381	5.7	10.2

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW11D	13-Jul-08	(1)				
(cont'd)	17-Aug-08	(1)				
	23-Nov-08		8.1	411	3.5	7.7
	14-Dec-08		8.1	337	5.4	
	18-Jan-09	(2)				
	8-Feb-09			324	3.6	8.2
	15-Mar-09		8.0	310	3.8	
	12-Apr-09		7.7	350	3.4	
	17-May-09		8.2	320	7.2	
	14-Jun-09	(1)				
	12-Jul-09	(1)				
	9-Aug-09	(1)				
	13-Sep-09	(1)				
	11-Oct-09	(1)				
	15-Nov-09	(1)				
	13-Dec-09	(2)				
	17-Jan-10	(2)				
	7-Feb-10	(2)				
	14-Mar-10		7.5	346	2.3	13.4
	4-Apr-10					
	11-Apr-10		7.8	385	5.1	
	16-May-10		7.8	252	5.9	11.7
	23-May-10					
	13-Jun-10		7.9	270	6.9	13.2
	18-Jul-10		7.7	321	8.4	15.2
	15-Aug-10	(1)				
	12-Sep-10	(1)				
	17-Oct-10		8.7	352	7.3	8.0
	14-Nov-10		7.8	258	6.7	9.8
	19-Dec-10	(2)				
	16-Jan-11					
	20-Feb-11					
	13-Mar-11		8.0	240	4.3	12.9
	17-Mar-11					
	18-Mar-11					
	20-Mar-11					
	1-Apr-11					
	5-Apr-11					
	8-Apr-11					
	12-Apr-11					
	15-Apr-11					
	17-Apr-11		7.9	221	4.3	12.7
	20-Apr-11					
	21-Apr-11					
	26-Apr-11					
	29-Apr-11					
	3-May-11					
	6-May-11					
	10-May-11					
	13-May-11					

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW11D	15-May-11	7.8	126	5.5	13.5
(cont'd)	16-May-11				
	18-May-11				
	19-May-11				
	20-May-11				
	27-May-11				
	3-Jun-11				
	12-Jun-11	8.0	239	7.0	11.9
	14-Aug-11 (1)				
	18-Sep-11 (1)				
	16-Oct-11	7.4	341	10.0	10.8
	20-Nov-11	8.0	293	6.0	11.9
	18-Dec-11	8.6	229	6.1	13.0
	15-Jan-12 (2)				
	19-Feb-12 (2)				
	18-Mar-12	7.8	192	5.2	9.8
	15-Apr-12	8.6	222	5.6	15.9
	13-May-12	7.8	256	6.2	11.8
	17-Jun-12 (1)				
	15-Jul-12 (1)				
	14-Aug-12	7.5	498	9.0	7.7
	16-Sep-12 (1)				
	14-Oct-12 (1)				
	18-Nov-12	7.5	283	6.7	9.1
	16-Dec-12	7.5	589	6.0	9.8
	13-Jan-13	7.8	283	5.2	10.9
	17-Feb-13 (2)				
	19-Mar-13	8.1	208	4.6	9.8
	17-Apr-13	7.8	194	4.2	9.9
	16-Oct-13	7.8	300	7.8	6.0
	20-Nov-13	7.4	280	6.7	3.7
	15-Dec-13 (2)				
	19-Jan-14 (2)				
	16-Feb-14 (2)				
	16-Mar-14 (2)				
	17-Apr-14	7.7	423	4.4	10.2
	13-May-14	7.5	245	5.7	10.0
	18-Jun-14	7.9	273	7.8	10.7
	23-Oct-14	7.9	393	7.6	4.3
	16-Nov-14 (2)				
	16-Dec-14	8.4	326	5.6	
	18-Jan-15 (2)				
	15-Feb-15 (3)				
	15-Mar-15 (2)				
	22-Apr-15	7.7	243	4.6	13.3
	19-May-15	8.1	249	5.8	
	15-Jun-15	7.5	310	6.6	11.1
	22-Jul-15	7.9	271	7.7	
	11-Aug-15	8.0	309	9.4	11.1
	25-Aug-15			11.7	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW11D	8-Sep-15	7.8	306	12.0	9.3
(cont'd)	15-Oct-15	8.1	283	8.5	10.7
	8-Nov-15				
	18-Nov-15	7.8	327	7.3	12.5
	9-Dec-15	7.7	297	4.8	13.1
	19-Jan-16	7.9	248	4.5	13.8
	17-Feb-16	7.8	277	4.3	13.4
	15-Mar-16	7.7	203	4.4	13.4
	21-Apr-16	8.0	224	4.1	14.1
	18-May-16	8.1	272	4.6	13.1
	23-Jun-16	8.3	266	6.9	11.6
	5-Jul-16	8.1	281	8.8	16.9
	21-Jul-16	7.7	321	10.5	10.2
	9-Aug-16	8.4	351	12.1	12.9
	24-Aug-16	8.1	194	12.6	9.2
	19-Sep-16	8.1	331	12.2	11.5
	18-Oct-16	8.0	302	11.5	12.6
	24-Oct-16	8.0	222	8.0	11.3
	15-Nov-16	8.0	292	6.8	10.6
	12-Dec-16	8.3	448	0.8	13.4
	25-Jan-17	7.9	276	5.3	11.6
	17-Feb-17	8.1	296	4.1	13.5
	22-Mar-17	8.0	265	4.2	12.7
	19-Apr-17	7.1	232	4.4	14.6
	8-May-17	7.9	153	4.6	14.9
	16-May-17	8.0	243	6.0	12.8
	28-Jun-17	7.9	289	6.9	12.3
	7-Jul-17	7.4	294	7.8	12.1
	19-Jul-17	8.2	314	8.3	11.7
	2-Aug-17	8.0	292	9.8	10.6
	16-Aug-17	7.8	328	10.3	10.2
	18-Sep-17	7.8	325	11.0	9.1
	18-Oct-17	8.0	334	9.1	10.8
	15-Nov-17	8.1	332	6.4	7.2
	14-Dec-17	8.3	289	4.6	8.5
	18-Jan-18	7.7	271	4.9	9.0
	23-Feb-18	8.1	210	4.2	10.2
	21-Mar-18	8.1	268	3.7	11.3
	19-Apr-18	8.0	243	4.0	10.1
	9-May-18	7.9	363	4.9	12.1
	15-May-18	7.9	373	4.8	11.9
	18-Jun-18	8.1	410	8.1	10.8
	19-Jul-18	7.6	384	10.1	4.0
	24-Aug-18	8.1	406	11.6	9.5
	20-Sep-18	7.7	395	12.9	3.0
	25-Oct-18	7.9	403	5.2	10.9
	22-Nov-18	8.1		3.4	11.8
	13-Dec-18	8.2	413	5.4	11.8
	19-Jan-19	8.0	397	4.7	12.2
	28-Feb-19	8.2	393	4.7	12.2

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW11D	19-Mar-19	8.1	350	4.0	12.1
(cont'd)	25-Apr-19	8.1	278	3.6	12.1
	16-May-19	7.9	360	5.6	11.9
	27-May-19	7.9	360	5.6	11.9
	21-Jun-19	8.0	391	6.7	11.4
	30-Jul-19	8.2	387	11.5	6.4
	30-Aug-19 (1)				
	27-Sep-19 (1)				
	22-Oct-19 (1)				
	21-Nov-19 (2)				
	20-Dec-19 (2)				
	24-Jan-20 (2)				
	21-Feb-20 (2)				
	25-Mar-20 (1)				
	28-Apr-20				
	20-May-20	8.1	380	5.4	12.1
	28-May-20	8.6	359	5.4	11.7
	24-Jun-20 (1)				
	31-Jul-20	7.9	405	11.8	10.5
	26-Aug-20	8.1	415	11.7	9.8
	26-Sep-20	8.1	380	10.7	
	29-Oct-20	7.6	374	8.7	7.1
	27-Nov-20	7.8	421	6.3	11.9
	22-Dec-20 (2)				
	28-Jan-21 (2)				
	23-Feb-21 (2)				
	30-Mar-21	8.2	349	5.1	10.8
	28-Apr-21 (1)				
	26-May-21	8.2	366	5.8	12.2
	23-Jun-21	8.0	334	8.0	9.7
	10-Jul-21	8.2	399	11.3	10.9
	23-Jul-21 (1)				
	11-Aug-21			12.6	
	26-Aug-21	7.7	419	13.9	0.5
	27-Sep-21	7.6	460	8.0	11.3
	27-Oct-21 (3)				
	22-Nov-21 (2)				
	22-Dec-21 (2)				
	24-Jan-22 (2)				
	8-Feb-22 (2)				
	16-Mar-22 (2)				
	21-Apr-22	8.0	1,018	0.1	12.0
	25-May-22	8.2	399	5.1	12.5
	24-Jun-22			9.7	
	8-Jul-22			12.8	
	11-Aug-22			11.9	
	29-Aug-22			8.7	
	29-Sep-22			9.7	
	27-Oct-22			9.2	
	22-Nov-22			2.6	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW11D	21-Dec-22			0.4	
(cont'd)	17-May-23	7.9	384	6.5	11.1
	26-Jun-23			10.2	
	11-Jul-23			9.2	
	26-Jul-23			10.5	
	14-Aug-23			10.3	
	29-Aug-23			11.3	
	25-Sep-23			11.3	
	31-Oct-23			6.6	
SW11E	22-May-03			8.0	
	13-Feb-04		294	2.6	12.9
	18-Mar-04		421	4.2	9.3
	21-Apr-04	8.2	210	6.7	
	19-May-04	8.3	325	9.4	
	24-Jun-04	8.3	368	10.6	
	29-Jul-04	8.2	399	13.3	
	26-Aug-04	8.2	354	13.1	
	20-Oct-04	8.1	318	7.0	
	18-Nov-04	8.1	358	7.5	
	16-Dec-04	8.2	294	2.0	
	16-Jan-05 (2)				
	13-Feb-05 (2)				
	29-Mar-05	8.1	308	7.8	
	11-Apr-05	7.2	212	5.3	
	24-May-05	7.7	329	10.3	
	27-Jun-05	8.0	385	12.6	
	12-Jul-05	7.7	387	13.8	9.6
	23-Aug-05	7.9	371	13.3	10.0
	25-Oct-05	8.1	403	6.7	
	16-Nov-05	8.1	275	6.5	11.6
	13-Dec-05	8.1	324	1.2	12.4
	18-Jan-06	7.0	251	4.6	
	19-Feb-06 (2)				
	24-Mar-06	8.3	246	5.4	
	19-Apr-06	8.5	319	8.8	
	24-May-06	8.3	399	9.2	
	21-Jun-06	8.3	419	11.3	
	12-Jul-06	8.2	356	13.4	
	24-Aug-06	8.1	412	14.8	
	21-Sep-06	8.2	397	11.6	
	25-Sep-06	7.9	270	12.5	9.7
	19-Oct-06	8.2	425	9.4	
	23-Nov-06	8.2	421	5.9	
	17-Dec-06	8.2	433	4.7	
	21-Jan-07	8.5	433	2.0	
	18-Feb-07	8.5	448	3.3	
	18-Mar-07	8.4	381	3.8	
	17-Apr-07	8.4	377	4.3	
	13-May-07	8.3	395	6.7	
	17-Jun-07	8.4	449	11.4	10.6

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW11E	15-Jul-07	8.1	436	13.8	9.5
(cont'd)	19-Aug-07	8.0	418	13.7	9.2
	17-Sep-07	8.0	405	11.0	
	18-Oct-07	8.0	408	11.8	9.2
	19-Nov-07	7.9	455	2.2	12.4
	11-Dec-07	8.0	433	2.9	12.5
	22-Jan-08	7.9	358	3.6	13.3
	20-Feb-08	8.1	377	3.3	
	17-Mar-08	8.1	398	4.2	13.3
	2-Apr-08	7.8	313	4.3	
	23-Apr-08	7.9	304	7.4	
	22-May-08	7.3	359	5.8	
	17-Jun-08	7.9	425	9.3	9.3
	15-Jul-08	7.3	454	13.2	7.3
	19-Aug-08	7.7	512	12.0	
	16-Sep-08	8.2	468	10.8	9.0
	22-Oct-08	8.0	419	6.5	7.9
	23-Nov-08	8.1	421	5.3	9.0
	14-Dec-08	8.5	330	4.3	9.4
	18-Jan-09	8.1	412	3.1	4.6
	8-Feb-09		339	3.9	7.9
	15-Mar-09	8.6	298	4.5	
	12-Apr-09	8.2	331	5.2	
	17-May-09	8.3	328	10.4	10.5
	14-Jun-09	8.2	764	10.9	
	12-Jul-09	8.7	431	10.9	11.0
	9-Aug-09	8.7	433	14.0	9.3
	13-Sep-09	7.6	403	11.8	10.4
	11-Oct-09	8.3	474	6.3	12.0
	15-Nov-09	8.3	412	4.5	
	13-Dec-09	8.1	450	1.9	12.4
	17-Jan-10	8.2	427	3.5	12.9
	7-Feb-10	7.7	428	2.1	12.3
	14-Mar-10	7.9	344	5.2	13.0
	4-Apr-10				
	11-Apr-10	8.1	365	8.6	
	16-May-10	8.3	258	7.7	11.7
	23-May-10				
	13-Jun-10	8.4	284	9.7	14.6
	18-Jul-10	8.3	330	10.6	14.5
	15-Aug-10	8.4	248	13.7	10.0
	12-Sep-10	8.4	340	10.6	10.7
	17-Oct-10	8.2	312	7.3	11.8
	14-Nov-10	8.4	235	6.3	10.8
	19-Dec-10	8.5	237	4.1	10.5
	16-Jan-11	8.2	243	4.4	12.6
	20-Feb-11	8.3	240	3.7	12.5
	13-Mar-11	8.3	242	5.4	13.3
	17-Mar-11				
	18-Mar-11				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW11E	20-Mar-11				
(cont'd)	1-Apr-11				
	5-Apr-11				
	8-Apr-11				
	12-Apr-11				
	15-Apr-11				
	17-Apr-11	8.1	230	5.8	12.6
	20-Apr-11				
	21-Apr-11				
	26-Apr-11				
	29-Apr-11				
	3-May-11				
	6-May-11				
	10-May-11				
	13-May-11				
	15-May-11	8.0	211	6.1	13.1
	16-May-11				
	18-May-11				
	19-May-11				
	20-May-11				
	27-May-11				
	3-Jun-11				
	12-Jun-11	8.3	263	10.5	10.0
	17-Jul-11	8.4	230	16.2	10.5
	14-Aug-11	8.4	256	15.3	8.1
	18-Sep-11	8.5	268	12.3	8.5
	16-Oct-11	7.9	280	9.5	11.9
	20-Nov-11	8.0	222	4.0	12.7
	18-Dec-11	8.6	214	5.6	13.5
	15-Jan-12	8.4	185	3.6	11.5
	19-Feb-12	8.2	179	4.3	12.7
	18-Mar-12	8.4	202	7.5	10.0
	15-Apr-12	8.9	277	9.1	12.6
	13-May-12	8.3	288	11.3	10.2
	17-Jun-12	8.2	348	14.4	13.8
	16-Jul-12	8.5	381	17.1	6.6
	14-Aug-12	8.4	302	10.9	7.3
	18-Sep-12	7.8	334	12.0	9.5
	14-Oct-12	8.3	298	9.2	8.5
	18-Nov-12	8.1	279	6.8	9.1
	16-Dec-12	7.9	552	4.4	10.5
	13-Jan-13	8.2	279	4.6	11.5
	17-Feb-13 (2)				
	19-Mar-13	8.3	200	3.9	10.2
	17-Apr-13	8.1	201	5.6	10.1
	14-May-13	8.2	236	6.1	8.7
	19-Jun-13	8.3	277	9.7	12.9
	16-Jul-13	8.3	346	13.8	9.8
	21-Aug-13	8.3	344	14.1	9.4
	18-Sep-13	8.2	312	10.6	10.3

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW11E	16-Oct-13	8.6	314	10.4	5.7
(cont'd)	20-Nov-13	7.9	260	5.5	3.6
	18-Dec-13	8.1	217	4.0	7.5
	21-Jan-14	7.7	296	0.9	3.9
	19-Feb-14	7.0	268	1.7	3.6
	19-Mar-14	7.6	268	1.6	5.3
	17-Apr-14	8.0	219	4.8	10.7
	13-May-14	6.8	268	11.0	10.5
	18-Jun-14	8.6	291	9.5	10.7
	16-Jul-14	8.9	348	10.4	8.3
	19-Aug-14	8.8	380	12.6	8.1
	9-Sep-14	8.8	386	13.6	4.2
	23-Oct-14	8.1	387	8.2	5.0
	19-Nov-14	7.5	307	3.8	6.9
	16-Dec-14	8.6	304	4.5	
	20-Jan-15	7.9	275	1.7	1.9
	15-Feb-15 (3)				
	18-Mar-15	8.5	227	3.6	13.6
	22-Apr-15	8.2	257	4.7	14.3
	19-May-15	8.6	261	9.4	
	16-Jun-15	8.4	315	9.2	10.8
	21-Jul-15	8.3	333	12.3	
	11-Aug-15	8.3	357	12.9	11.0
	25-Aug-15	8.7	307	12.7	9.3
	8-Sep-15	7.9	363	16.1	8.1
	15-Oct-15	8.2	296	9.1	10.4
	8-Nov-15				
	18-Nov-15	8.2	345	7.4	13.2
	9-Dec-15	8.0	315	4.7	13.9
	20-Jan-16	7.9	214	2.4	14.3
	17-Feb-16	8.0	255	1.7	14.5
	15-Mar-16	7.7	190	4.2	13.8
	21-Apr-16	8.0	232	5.9	14.6
	18-May-16	8.6	305	9.3	12.0
	23-Jun-16	8.5	314	10.7	11.4
	5-Jul-16	8.5	328	14.4	14.6
	21-Jul-16	8.4	368	16.0	9.3
	9-Aug-16	8.5	416	16.4	11.4
	24-Aug-16	8.5	361	16.3	10.0
	19-Sep-16	8.1	44	15.3	8.4
	18-Oct-16	8.2	357	14.1	12.6
	24-Oct-16	7.9	311	7.8	12.5
	16-Nov-16	8.2	301	6.5	11.4
	12-Dec-16	8.1	454	1.3	15.7
	25-Jan-17	8.3	272	4.9	12.1
	17-Feb-17	8.5	282	2.9	15.7
	22-Mar-17	8.5	260	2.8	12.9
	19-Apr-17	7.7	221	4.8	14.4
	9-May-17	8.5	190	6.4	15.5
	16-May-17	8.1	247	6.0	12.5

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW11E	28-Jun-17	8.2	299	8.2	12.1
(cont'd)	7-Jul-17	8.0	306	10.6	10.5
	19-Jul-17	8.3	350	11.7	11.2
	2-Aug-17	8.4	327	11.9	10.5
	16-Aug-17	8.4	261	11.9	10.7
	17-Sep-17	8.2	341	12.2	9.7
	18-Oct-17	8.5	359	9.7	8.1
	15-Nov-17	8.6	325	5.7	11.2
	14-Dec-17	8.5	276	2.3	11.8
	18-Jan-18	8.2	257	3.6	8.0
	23-Feb-18	8.4	218	4.3	13.5
	21-Mar-18	8.4	262	3.6	11.9
	19-Apr-18	8.4	233	3.9	9.6
	9-May-18	8.3	357	6.9	11.8
	15-May-18	8.3	352	6.5	11.6
	18-Jun-18	8.4	423	8.4	10.2
	19-Jul-18	8.3	422	13.5	9.5
	24-Aug-18	8.4	427	14.7	9.3
	20-Sep-18	8.4	420	13.8	9.2
	25-Oct-18	8.4	417	5.0	11.8
	22-Nov-18	8.4		0.7	13.5
	13-Dec-18	8.5	409	3.8	12.7
	19-Jan-19	8.3	393	2.3	13.5
	28-Feb-19 (2)				
	19-Mar-19	8.4	348	4.4	12.4
	25-Apr-19	8.2	269	4.6	11.8
	16-May-19	8.5	315	6.6	12.0
	27-May-19	8.5	347	9.5	11.1
	21-Jun-19	8.5	377	9.7	10.8
	30-Jul-19	8.4	378	14.6	9.2
	30-Aug-19	8.3	364	14.0	9.2
	27-Sep-19	8.1	359	13.5	9.5
	22-Oct-19	8.3	392	8.9	7.9
	21-Nov-19	8.3	382	1.1	8.0
	20-Dec-19 (2)				
	24-Jan-20	8.4	363	4.3	12.5
	21-Feb-20 (2)				
	25-Mar-20 (1)				
	28-Apr-20	8.5	310	5.8	12.2
	20-May-20	8.3	380	10.8	10.8
	28-May-20	9.0	351	8.2	11.1
	24-Jun-20 (1)				
	31-Jul-20	8.8	410	12.8	9.8
	26-Aug-20	8.4	379	13.1	9.7
	26-Sep-20	8.2	380	11.0	
	29-Oct-20	8.1	386	8.4	7.5
	27-Nov-20	8.4	405	6.1	12.1
	22-Dec-20	8.3	407	4.8	12.8
	28-Jan-21	8.2	401	2.5	13.0
	23-Feb-21 (2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW11E	30-Mar-21	8.3	375	5.5	11.0
(cont'd)	28-Apr-21	8.3	348	6.7	11.4
	26-May-21	8.3	397	9.0	11.0
	23-Jun-21	8.3	415	10.4	10.6
	10-Jul-21			10.1	
	23-Jul-21	8.4	437	12.6	8.9
	11-Aug-21			14.6	
	26-Aug-21	8.2	394	16.2	9.3
	27-Sep-21	8.3	448	9.5	11.2
	27-Oct-21 (3)				
	22-Nov-21	8.1	463	3.6	11.7
	22-Dec-21	8.3	459	2.6	11.7
	24-Jan-22	8.2	445	0.4	10.5
	8-Feb-22	7.3	544	0.1	12.0
	16-Mar-22	7.7	513		10.3
	21-Apr-22	8.1	404	1.0	11.8
	25-May-22	8.4	412	9.5	11.4
	24-Jun-22			6.1	
	8-Jul-22			11.7	
	11-Aug-22			13.2	
	29-Aug-22			9.0	
	29-Sep-22			10.0	
	27-Oct-22			8.4	
	17-May-23	8.4	369	7.3	11.4
	26-Jun-23			13.8	
	11-Jul-23			12.2	
	26-Jul-23			10.8	
	14-Aug-23			12.1	
	29-Aug-23			13.3	
	25-Sep-23			12.6	
	31-Oct-23			6.2	
SW13	22-May-03			13.0	
	13-Feb-04		287	0.8	12.8
	21-Apr-04	8.3	259	8.2	
	19-May-04	8.3	390	15.2	
	24-Jun-04	8.4	413	18.1	
	29-Jul-04	8.2	434	21.8	
	26-Aug-04	8.2	394	20.7	8.1
	22-Sep-04	8.2	392	22.6	8.0
	20-Oct-04	8.0	288	8.6	11.5
	18-Nov-04	8.0	282	6.1	
	15-Dec-04 (2)				
	16-Jan-05 (2)				
	13-Feb-05 (2)				
	11-Apr-05	7.3	243	5.1	
	26-May-05	8.1	373	15.4	
	29-Jun-05	8.1	491	22.2	
	12-Jul-05	7.8	474	23.3	7.9
	23-Aug-05	7.6	430	19.9	6.8
	28-Sep-05	7.9	362	15.8	7.4

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW13	25-Oct-05	8.9	382	8.4	11.6
(cont'd)	16-Nov-05	8.2	267	5.8	
	13-Dec-05	8.0	455	0.8	
	18-Jan-06	7.7	270	2.4	
	19-Feb-06 (2)				
	24-Mar-06	8.4	255	3.3	
	19-Apr-06	8.4	342	8.7	
	24-May-06	8.3	420	10.2	
	21-Jun-06	8.3	424	19.0	
	12-Jul-06	8.4	350	20.8	
	24-Aug-06	7.9	382	20.2	
	21-Sep-06	8.1	358	16.2	
	19-Oct-06	8.2	370	9.7	
	23-Nov-06	8.1	445	4.6	
	17-Dec-06	8.2	489	3.3	
	21-Jan-07	8.4	475	1.7	
	18-Feb-07 (2)				
	18-Mar-07 (2)				
	17-Apr-07	8.5	427	3.8	
	13-May-07	8.4	404	10.5	11.1
	17-Jun-07	8.4	442	20.5	9.0
	15-Jul-07	8.1	434	23.3	7.3
	19-Aug-07	7.9	428	19.0	6.4
	17-Sep-07	7.9	379	15.9	7.2
	18-Oct-07	7.9	373	13.3	8.1
	19-Nov-07	8.1	400	3.9	12.6
	9-Dec-07 (2)				
	20-Jan-08 (2)				
	20-Feb-08	8.1	420	2.2	
	17-Mar-08	8.0	423	2.1	
	2-Apr-08	7.9	372	3.2	
	23-Apr-08	7.9	320	9.4	10.5
	22-May-08	7.8	377	8.8	11.1
	17-Jun-08	7.9	403	16.6	8.4
	15-Jul-08	7.5	425	22.0	5.8
	19-Aug-08	8.0	501	21.9	4.4
	16-Sep-08	8.4	418	17.6	6.4
	22-Oct-08	8.0	437	7.4	7.1
	23-Nov-08	8.5	462	3.9	9.0
	14-Dec-08	8.4	369	3.1	9.5
	18-Jan-09 (2)				
	8-Feb-09		385	2.5	8.2
	15-Mar-09	8.6	362	4.5	
	12-Apr-09	8.0	403	5.6	
	17-May-09	8.5	338	15.0	10.1
	14-Jun-09	7.9	803	19.6	
	12-Jul-09	8.2	420	18.2	9.5
	9-Aug-09	8.0	341	22.3	8.2
	13-Sep-09	7.7	374	16.8	8.6
	11-Oct-09	8.4	441	8.5	11.1

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW13	15-Nov-09	8.5	429	5.6	
(cont'd)	13-Dec-09	7.7	477	1.4	12.7
	17-Jan-10	8.1	463	1.0	12.2
	7-Feb-10 (2)				
	14-Mar-10	7.9	410	4.1	13.5
	4-Apr-10				
	11-Apr-10	8.0	395	8.2	
	16-May-10	8.4	317	12.4	10.4
	23-May-10				
	13-Jun-10	8.4	356	16.7	12.9
	18-Jul-10	8.2	395	19.1	11.7
	15-Aug-10	8.4	403	21.5	7.9
	12-Sep-10	8.3	391	15.4	8.0
	17-Oct-10	8.1	338	8.9	10.5
	19-Dec-10 (2)				
	16-Jan-11				
	20-Feb-11				
	13-Mar-11	8.4	260	3.4	13.9
	17-Mar-11				
	18-Mar-11				
	20-Mar-11	8.3	277	3.6	13.4
	1-Apr-11				
	5-Apr-11				
	8-Apr-11				
	12-Apr-11				
	15-Apr-11				
	17-Apr-11	8.4	240	5.6	12.5
	20-Apr-11				
	21-Apr-11				
	26-Apr-11				
	29-Apr-11				
	3-May-11				
	6-May-11				
	10-May-11				
	13-May-11				
	15-May-11	8.4	248	7.6	12.9
	16-May-11				
	18-May-11				
	19-May-11				
	20-May-11				
	27-May-11				
	3-Jun-11				
	12-Jun-11	8.6	305	17.5	8.7
	17-Jul-11	8.5	423	26.0	8.9
	14-Aug-11	8.5	286	22.6	6.4
	18-Sep-11	8.7	200	17.6	7.1
	16-Oct-11	7.8	274	10.1	11.3
	20-Nov-11	8.1	285	4.1	11.9
	18-Dec-11	8.9	244	4.0	14.5
	15-Jan-12	8.5	207	2.2	12.0

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW13	19-Feb-12	8.2	222	2.2	13.2
(cont'd)	18-Mar-12	8.3	233	9.1	9.2
	15-Apr-12	8.8	285	10.6	12.5
	13-May-12	8.4	331	16.0	10.9
	17-Jun-12	8.6	424	24.3	11.9
	16-Jul-12	8.6	406	26.9	6.3
	14-Aug-12	8.5	337	16.7	7.0
	18-Sep-12	7.9	364	16.1	8.6
	18-Oct-12	8.4	287	9.8	8.9
	20-Nov-12	8.0	297	5.3	9.7
	20-Dec-12	7.8	591	3.1	10.6
	16-Jan-13	8.1	259	3.4	11.6
	17-Feb-13 (2)				
	19-Mar-13	8.3	215	2.3	10.6
	17-Apr-13	8.0	189	5.2	10.2
	14-May-13	8.2	254	7.4	7.9
	19-Jun-13	8.4	355	16.9	9.5
	16-Jul-13	8.3	369	25.3	6.4
	21-Aug-13	8.4	401	21.3	7.2
	18-Sep-13	8.2	335	16.7	9.5
	16-Oct-13	8.6	347	12.1	5.5
	20-Nov-13	8.6	276	4.2	3.9
	18-Dec-13	7.9	255	1.9	8.0
	21-Jan-14	7.5	220	0.8	4.7
	19-Feb-14	7.8	242	0.6	3.7
	19-Mar-14	7.3	232	0.6	8.4
	17-Apr-14	8.2	236	3.5	8.7
	13-May-14	7.5	277	12.4	11.6
	18-Jun-14	7.5	219	12.9	11.0
	16-Jul-14	7.8	400	18.2	8.8
	19-Aug-14	8.8	424	20.1	6.9
	9-Sep-14	8.8	418	19.1	11.9
	23-Oct-14	8.1	415	9.6	9.0
	19-Nov-14	7.4	314	2.3	6.3
	16-Dec-14	8.6	314	3.0	
	20-Jan-15	7.8	194	1.1	2.1
	15-Feb-15 (3)				
	15-Mar-15 (2)				
	22-Apr-15	8.3	292	6.0	13.1
	19-May-15	8.1	317	14.8	12.2
	16-Jun-15	8.2	359	16.0	8.3
	22-Jul-15	8.6	403	20.8	
	11-Aug-15	8.1	396	19.5	7.1
	23-Aug-15				
	8-Sep-15	7.9	396	22.4	6.1
	15-Oct-15	8.1	297	12.1	8.5
	8-Nov-15				
	18-Nov-15	8.1	309	6.0	13.3
	9-Dec-15	8.8	305	3.6	12.3
	17-Jan-16 (2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW13	14-Feb-16 (2)				
(cont'd)	15-Mar-16	7.7	238	4.2	13.6
	21-Apr-16	8.0	266	7.5	13.8
	18-May-16	8.6	318	9.2	11.9
	23-Jun-16	8.3	396	19.1	6.6
	3-Jul-16				
	21-Jul-16	7.6	453	22.6	2.2
	7-Aug-16				
	24-Aug-16	8.3	372	23.6	8.2
	19-Sep-16	8.2	384	20.8	6.9
	18-Oct-16	8.3	318	15.1	10.4
	16-Nov-16	8.3	270	6.4	11.4
	12-Dec-16	8.1	433	1.3	11.6
	25-Jan-17	8.2	299	3.4	12.4
	17-Feb-17	8.4	284	1.1	14.9
	22-Mar-17	8.4	295	2.8	11.6
	19-Apr-17	7.8	279	6.9	13.6
	16-May-17	8.5	252	10.3	10.7
	28-Jun-17	8.5	362	12.2	11.1
	7-Jul-17				
	19-Jul-17	8.6	436	20.4	9.1
	27-Jul-17				
	16-Aug-17	8.3	388	19.6	8.6
	18-Sep-17	8.2	333	17.6	9.1
	18-Oct-17	8.2	345	11.3	9.0
	15-Nov-17	8.5	324	3.8	14.0
	14-Dec-17	8.4	286	1.6	13.9
	18-Jan-18	8.0	275	1.8	10.2
	23-Feb-18	8.3	225	3.0	15.3
	21-Mar-18	8.4	268	2.1	12.2
	19-Apr-18	8.4	259	2.4	12.5
	15-May-18	8.3	394	10.5	11.1
	18-Jun-18	8.3	429	7.5	8.2
	19-Jul-18	8.3	417	23.7	7.3
	24-Aug-18	8.3	368	20.4	8.2
	20-Sep-18	8.4	344	18.8	8.8
	25-Oct-18	8.6	361	6.2	11.8
	22-Nov-18	8.4	453	2.1	12.6
	12-Dec-18	8.4	470	2.0	13.0
	18-Jan-19	8.2	444	1.4	13.7
	28-Feb-19 (2)				
	15-Mar-19	8.3	405	2.6	12.9
	25-Apr-19 (1)				
	23-May-19	8.5	371	12.7	10.9
	18-Jun-19	8.5	373	17.0	10.1
	29-Jul-19	8.3	377	23.3	7.2
	29-Aug-19	8.2	487	18.2	7.2
	26-Sep-19	8.3	479	15.3	7.4
	23-Oct-19	8.0	473	9.2	7.3
	22-Nov-19	8.2	402	0.6	7.6

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW13	20-Dec-19	(2)				
(cont'd)	24-Jan-20	(2)				
	21-Feb-20	(2)				
	25-Mar-20	(2)				
	27-Apr-20		8.7	329	6.9	12.6
	28-May-20	(1)				
	24-Jun-20	(1)				
	31-Jul-20	(1)				
	26-Aug-20	(3)				
	26-Sep-20	(3)				
	30-Oct-20		8.0	461	8.4	7.3
	26-Nov-20		8.0	483	4.4	11.2
	23-Dec-20		8.3	455	3.5	13.0
	27-Jan-21		8.2	468	2.7	13.0
	22-Feb-21	(3)				
	29-Mar-21		8.1	421	8.4	12.6
	27-Apr-21	(1)				
	27-May-21		8.1	419	16.9	9.5
	22-Jun-21		8.1	433	19.2	8.2
	22-Jul-21		8.3	430	19.8	8.7
	25-Aug-21		8.1	8	23.7	(6)
	28-Sep-21		8.4	487	12.2	10.8
	26-Oct-21	(3)				
	23-Nov-21		8.2	502	3.8	11.6
	21-Dec-21		8.5	494	3.7	11.5
	24-Jan-22	(2)				
	8-Feb-22	(2)				
	16-Mar-22	(2)				
	21-Apr-22		8.2	516	5.4	9.3
	24-May-22		8.4	413	14.8	10.8
	24-Jun-22				10.9	
	29-Aug-22				15.1	
	29-Sep-22				14.0	
	27-Oct-22				9.6	
	22-Nov-22				0.9	
	17-May-23				10.3	
	26-Jun-23				22.1	
	26-Jul-23				16.6	
	29-Aug-23				19.9	
	25-Sep-23				17.5	
	31-Oct-23				8.2	
SW14	22-May-03				15.0	
	10-Feb-04			292	0.8	11.0
	16-Mar-04		8.0	435	1.5	11.9
	19-Apr-04		8.4	253	9.5	
	19-May-04		8.3	385	14.6	
	24-Jun-04		8.3	385	15.8	9.3
	29-Jul-04		8.0	389	18.0	7.7
	26-Aug-04		7.9	370	16.0	
	22-Sep-04		7.7	355	14.7	8.1

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW14	20-Oct-04	7.5	313	7.0	10.3
(cont'd)	16-Nov-04	7.5	294	3.4	12.0
	16-Dec-04	7.8	235	0.4	
	16-Jan-05 (2)				
	13-Feb-05 (2)				
	29-Mar-05	8.0	301	3.5	
	11-Apr-05	7.1	249	5.6	
	24-May-05	7.7	352	12.2	10.5
	28-Jun-05	8.4	488	21.8	
	11-Jul-05	7.2	471	21.6	
	22-Aug-05	7.8	383	16.0	8.2
	27-Sep-05	7.6	355	13.2	9.0
	24-Oct-05	7.6	580	7.9	9.6
	16-Nov-05	7.6	301	6.0	11.7
	12-Dec-05	8.3	255	0.2	3.0
	17-Jan-06	7.8	243	0.6	
	19-Feb-06 (2)				
	20-Mar-06	8.3	278	3.3	
	18-Apr-06	6.4	345	10.5	
	24-May-06	8.4	423	11.7	
	23-Jun-06	7.8	362	17.6	
	11-Jul-06	8.5	356	18.1	
	23-Aug-06	7.6	414	17.0	
	20-Sep-06	7.4	539	12.5	
	19-Oct-06	7.7	421	9.8	
	27-Nov-06	8.2	451	6.4	12.4
	17-Dec-06	8.1	505	2.9	
	21-Jan-07 (2)				
	18-Feb-07 (2)				
	18-Mar-07	8.3	429	2.5	
	17-Apr-07	8.5	425	5.4	
	13-May-07	8.0	409	10.2	11.1
	17-Jun-07	8.3	451	19.1	8.1
	15-Jul-07	8.3	447	19.3	7.2
	19-Aug-07	8.1	416	19.2	6.5
	17-Sep-07	7.8	402	13.4	8.1
	18-Oct-07	7.7	488	12.7	6.4
	21-Nov-07	7.8	475	3.8	10.8
	9-Dec-07 (2)				
	21-Jan-08	7.3	385	1.2	
	17-Feb-08 (2)				
	16-Mar-08 (2)				
	2-Apr-08	7.8	336	2.1	
	21-Apr-08	7.5	325	11.2	9.8
	20-May-08	7.4	379	13.6	9.5
	18-Jun-08	8.1	379	15.0	7.4
	15-Jul-08	7.6	442	18.5	5.5
	19-Aug-08	7.7	513	16.4	4.6
	17-Sep-08	8.6	444	13.9	6.1
	22-Oct-08	8.0	444	5.5	8.7

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW14	23-Nov-08		472	3.9	8.8
(cont'd)	14-Dec-08	7.3	374	2.8	8.1
	18-Jan-09 (2)				
	8-Feb-09 (2)				
	15-Mar-09	8.6	386	4.1	
	12-Apr-09	8.4	346	6.8	
	17-May-09	8.3	342	15.5	10.0
	14-Jun-09	8.6	822	15.8	8.9
	12-Jul-09	9.2	366	17.5	8.8
	9-Aug-09	8.7	384	20.5	9.0
	13-Sep-09	6.5	387	16.1	9.2
	11-Oct-09	7.7	471	5.1	11.5
	15-Nov-09	7.3	446	3.6	
	13-Dec-09	7.5	489	1.6	11.9
	17-Jan-10 (2)				
	7-Feb-10 (2)				
	14-Mar-10	8.0	339	3.5	13.5
	4-Apr-10				
	11-Apr-10	8.3	400	9.4	11.5
	16-May-10	8.4	323	12.9	10.4
	23-May-10				
	13-Jun-10	8.3	317	14.0	13.0
	18-Jul-10	8.2	364	18.6	11.9
	15-Aug-10	8.3	387	17.2	8.9
	12-Sep-10	8.2	368	14.1	9.2
	17-Oct-10	8.0	348	8.2	11.0
	14-Nov-10	8.3	288	6.4	12.4
	19-Dec-10 (2)				
	16-Jan-11				
	20-Feb-11				
	13-Mar-11	8.1	241	3.3	11.5
	17-Mar-11				
	18-Mar-11				
	20-Mar-11	8.3	275	3.3	13.0
	1-Apr-11				
	5-Apr-11				
	8-Apr-11				
	12-Apr-11				
	15-Apr-11				
	17-Apr-11	8.4	247	5.9	12.2
	20-Apr-11				
	21-Apr-11				
	26-Apr-11				
	29-Apr-11				
	3-May-11				
	6-May-11				
	10-May-11				
	13-May-11				
	15-May-11	8.2	248	8.0	12.8
	16-May-11				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW14	18-May-11				
(cont'd)	19-May-11				
	20-May-11				
	27-May-11				
	3-Jun-11				
	12-Jun-11	8.4	314	16.7	9.8
	17-Jul-11	8.3	393	21.8	8.6
	14-Aug-11	8.6	264	18.7	8.4
	18-Sep-11	8.8	265	14.3	9.5
	16-Oct-11	7.7	251	10.0	12.7
	20-Nov-11	8.0	284	2.8	12.9
	18-Dec-11	9.2	241	3.4	13.6
	15-Jan-12 (2)				
	19-Feb-12 (2)				
	18-Mar-12	8.3	247	10.4	8.5
	15-Apr-12	8.9	275	8.0	12.9
	13-May-12	8.4	327	16.8	9.2
	17-Jun-12	8.4	400	21.0	13.0
	16-Jul-12	8.5	378	24.0	6.8
	14-Aug-12	8.6	447	16.7	7.0
	18-Sep-12	7.8	354	14.8	8.4
	17-Oct-12	7.2	320	11.1	7.7
	20-Nov-12	8.1	304	5.8	10.7
	18-Dec-12	7.7	623	4.2	9.7
	20-Dec-12	7.9	585	2.6	11.4
	16-Jan-13	8.3	295	3.1	11.5
	17-Feb-13 (2)				
	19-Mar-13	8.3	218	2.3	10.5
	17-Apr-13	8.3	241	6.2	10.4
	14-May-13	8.2	247	7.3	8.9
	19-Jun-13	8.4	315	15.2	10.1
	16-Jul-13	8.3	424	22.1	7.6
	21-Aug-13	8.3	419	22.2	7.4
	18-Sep-13	8.3	323	12.9	10.2
	16-Oct-13	8.9	360	12.7	5.4
	20-Nov-13	8.2	277	4.0	3.9
	15-Dec-13 (2)				
	19-Jan-14 (2)				
	16-Feb-14 (2)				
	16-Mar-14 (2)				
	17-Apr-14	8.2	447	4.0	10.3
	13-May-14	7.0	318	15.5	10.3
	18-Jun-14	7.5	232	14.2	8.9
	15-Jul-14	8.9	391	15.7	6.9
	17-Aug-14 (1)				
	9-Sep-14	8.7	427	16.7	4.3
	23-Oct-14	8.7	421	10.2	4.2
	16-Nov-14 (2)				
	14-Dec-14 (2)				
	18-Jan-15 (2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW14	15-Feb-15 (3)				
(cont'd)	15-Mar-15 (2)				
	22-Apr-15	8.3	297	6.2	13.2
	19-May-15	8.5	286	14.0	
	15-Jun-15	8.2	351	16.0	8.7
	22-Jul-15	8.5	391	18.8	
	11-Aug-15	8.2	398	17.7	8.6
	25-Aug-15	8.2	338	16.6	7.0
	8-Sep-15	7.9	403	20.3	6.1
	15-Oct-15	7.9	310	10.1	9.7
	8-Nov-15				
	18-Nov-15	7.9	346	7.8	12.7
	9-Dec-15	7.8	269	3.8	13.6
	20-Jan-16	7.7	268	(0)	15.0
	14-Feb-16 (2)				
	15-Mar-16	8.3	236	4.7	14.1
	21-Apr-16	7.7	275	8.2	13.4
	18-May-16	8.6	340	11.0	11.3
	23-Jun-16	8.4	367	15.0	9.7
	3-Jul-16				
	21-Jul-16	7.8	397	19.4	8.6
	7-Aug-16				
	24-Aug-16	5.1	376	19.7	7.5
	19-Sep-16	8.0	447	17.4	8.2
	18-Oct-16	7.8	405	15.4	11.1
	24-Oct-16	7.5	464	7.7	10.1
	16-Nov-16	7.8	315	7.1	10.4
	12-Dec-16	8.2	465	0.6	16.1
	25-Jan-17	8.2	300	3.2	13.0
	15-Feb-17 (2)				
	22-Mar-17	8.5	292	1.2	14.0
	19-Apr-17	7.8	272	6.6	14.4
	9-May-17	8.3	223	7.0	15.1
	16-May-17	8.0	303	10.5	11.4
	28-Jun-17	8.3	375	12.7	10.5
	7-Jul-17				
	19-Jul-17	8.2	430	18.8	8.9
	27-Jul-17				
	16-Aug-17	8.2	368	17.1	8.4
	18-Sep-17	7.9	366	16.3	8.1
	18-Oct-17	8.2	354	11.1	8.9
	15-Nov-17	8.3	341	4.2	12.6
	14-Dec-17	8.4	281	(0)	
	18-Jan-18	7.8	271	0.9	10.0
	23-Feb-18	8.3	234	3.1	8.3
	21-Mar-18	8.3	260	0.6	14.6
	19-Apr-18	8.4	263	2.5	11.7
	8-May-18	8.4	390	10.3	11.0
	15-May-18	8.2	398	11.2	10.1
	18-Jun-18	8.3	438	17.2	8.7

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW14	19-Jul-18	8.2	431	16.8	8.4
(cont'd)	23-Aug-18	8.1	422	17.9	8.1
	19-Sep-18	8.0	396	14.5	8.4
	25-Oct-18	7.9	436	5.3	11.0
	22-Nov-18	8.1	423	0.0	13.5
	13-Dec-18	8.4	475	1.9	13.3
	19-Jan-19	8.1	432	(0)	14.3
	28-Feb-19 (2)				
	19-Mar-19	8.4	411	1.8	13.1
	25-Apr-19	8.2	263	6.4	11.2
	14-May-19	8.5	339	6.9	11.7
	27-May-19	8.5	373	10.8	10.7
	21-Jun-19	8.4	393	13.6	9.6
	30-Jul-19	8.2	407	19.9	7.5
	30-Aug-19	8.0	365	15.2	8.1
	27-Sep-19	7.8	392	15.1	8.2
	22-Oct-19	7.9	359	7.9	8.1
	21-Nov-19	7.6	349	1.1	7.5
	20-Dec-19 (2)				
	24-Jan-20 (2)				
	21-Feb-20 (2)				
	25-Mar-20 (2)				
	28-Apr-20				
	20-May-20	8.2	400	9.5	10.8
	28-May-20	9.0	394	11.5	10.3
	24-Jun-20	8.6	342	15.6	9.1
	31-Jul-20	8.6	435	20.6	7.7
	26-Aug-20	8.1	409	20.3	7.3
	26-Sep-20	8.0	420	12.1	10.1
	29-Oct-20	7.6	326	8.6	8.0
	27-Nov-20	8.3	450	4.8	11.6
	22-Dec-20	8.3	465	3.0	13.2
	27-Jan-21 (2)				
	22-Feb-21 (2)				
	29-Mar-21	8.1	381	6.8	9.1
	27-Apr-21	8.2	376	7.2	8.1
	27-May-21	8.2	342	14.1	10.3
	22-Jun-21	8.1	445	15.0	9.4
	22-Jul-21	8.2	447	17.7	8.7
	25-Aug-21 (3)				
	28-Sep-21 (3)				
	26-Oct-21 (3)				
	23-Nov-21 (2)				
	21-Dec-21 (2)				
	24-Jan-22 (2)				
	8-Feb-22 (2)				
	16-Mar-22 (2)				
	21-Apr-22	8.0	422	6.5	9.0
	26-May-22	8.2	414	17.0	9.5
	24-Jun-22	8.1	605	17.2	10.3

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW14	29-Aug-22	8.2	541	17.2	10.3
(cont'd)	27-Sep-22	7.2	385	13.1	9.3
	27-Oct-22	7.7	317	8.6	9.0
	22-Nov-22	8.5	282	0.7	12.4
	20-Dec-22	8.5	225	0.2	11.2
	24-Jan-23	8.2	426	1.1	14.0
	22-Feb-23	8.0	445	1.0	14.4
	27-Mar-23	9.0	411	4.1	12.5
	21-Apr-23	8.8	358	7.3	11.4
	16-May-23	8.4	400	13.3	9.9
	26-Jun-23	8.1	333	19.9	8.9
	25-Jul-23	8.5	398	17.7	9.0
	29-Aug-23	7.9	382	17.3	8.8
	25-Sep-23	8.4	404	14.6	9.5
	31-Oct-23	8.2	309	5.6	10.6
	29-Nov-23	8.0	497	0.5	13.4
	18-Dec-23	7.8	492	3.8	11.9
SW15	10-Feb-04 (2)				
	18-Mar-04 (2)				
	19-May-04	8.2	421	18.2	9.1
	24-Jun-04	8.1	412	18.9	8.3
	29-Jul-04	8.0	398	20.5	7.5
	26-Aug-04	8.1	402	18.0	9.0
	20-Oct-04	8.0	316	7.9	11.7
	17-Nov-04	7.9	330	6.5	12.0
	16-Dec-04	7.9	134	0.1	
	16-Jan-05 (2)				
	13-Feb-05 (2)				
	27-Mar-05 (2)				
	11-Apr-05	7.5	340	11.2	
	24-May-05	7.7	389	15.2	
	28-Jun-05	8.3	484	23.0	
	11-Jul-05	7.2	471	23.8	
	22-Aug-05	8.7	383	18.4	
	27-Sep-05	7.6	348	14.4	
	24-Oct-05	7.9	400	8.6	
	15-Nov-05	7.9	285	4.5	
	12-Dec-05	8.3	243	0.1	
	15-Jan-06 (2)				
	19-Feb-06 (2)				
	19-Mar-06 (2)				
	18-Apr-06	8.4	388	17.9	
	23-May-06	8.1	420	16.3	
	20-Jun-06	8.0	399	20.1	
	11-Jul-06	8.0	376	21.5	
	23-Aug-06	7.8	378	18.7	
	20-Sep-06	7.9	345	13.6	
	19-Oct-06	7.8	390	10.1	
	27-Nov-06	8.0	490	6.8	11.9
	17-Dec-06	8.0	556	1.6	

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW15	21-Jan-07	(2)				
(cont'd)	18-Feb-07	(2)				
	18-Mar-07	(2)				
	17-Apr-07		8.5	441	8.5	
	13-May-07		8.1	388	12.0	10.5
	17-Jun-07		8.2	422	21.9	7.0
	15-Jul-07		8.1	419	21.8	7.2
	19-Aug-07		8.0	390	21.5	6.6
	17-Sep-07		8.0	330	16.2	8.3
	19-Oct-07		8.2	371	15.2	7.7
	21-Nov-07		7.9	446	4.2	
	10-Dec-07		7.7	428	0.9	11.3
	20-Jan-08	(2)				
	17-Feb-08	(2)				
	16-Mar-08	(2)				
	1-Apr-08		7.4	218	1.0	14.0
	21-Apr-08		7.7	406	21.1	6.8
	20-May-08		7.6	394	18.8	6.6
	18-Jun-08		8.2	830	16.5	6.9
	13-Jul-08	(1)				
	19-Aug-08		7.9	404	15.2	4.8
	17-Sep-08		8.4	471	13.9	6.2
	22-Oct-08		7.7	429	5.9	8.0
	23-Nov-08		7.6	518	1.9	8.7
	14-Dec-08	(2)				
	18-Jan-09	(2)				
	8-Feb-09	(2)				
	15-Mar-09		8.2	384	6.3	
	12-Apr-09		8.4	373	11.8	
	17-May-09		8.0	373	19.4	8.2
	14-Jun-09		8.4	826	15.7	9.6
	12-Jul-09		8.8	486	15.9	9.3
	9-Aug-09		8.0	400	19.8	8.2
	13-Sep-09		6.5	319	16.7	
	11-Oct-09		7.5	419	6.2	11.6
	15-Nov-09		7.4	407	5.2	
	13-Dec-09		7.5	508	0.5	12.2
	17-Jan-10	(2)				
	7-Feb-10	(2)				
	14-Mar-10		7.7	274	3.3	13.0
	4-Apr-10					
	16-May-10		8.2	408	19.3	8.5
	23-May-10					
	13-Jun-10		8.0	340	17.4	10.6
	18-Jul-10		8.0	443	21.4	10.8
	15-Aug-10	(1)				
	12-Sep-10	(1)				
	17-Oct-10		7.9	360	8.2	10.5
	14-Nov-10		8.1	303	6.9	11.7
	19-Dec-10	(2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW15	16-Jan-11				
(cont'd)	20-Feb-11				
	13-Mar-11 (2)				
	17-Mar-11				
	18-Mar-11				
	20-Mar-11	8.0	245	2.3	11.9
	1-Apr-11				
	5-Apr-11				
	8-Apr-11				
	12-Apr-11				
	15-Apr-11				
	17-Apr-11	8.1	321	8.5	10.9
	20-Apr-11				
	21-Apr-11				
	26-Apr-11				
	29-Apr-11				
	3-May-11				
	6-May-11				
	10-May-11				
	13-May-11				
	15-May-11	8.0	321	12.8	12.8
	16-May-11				
	18-May-11				
	19-May-11				
	20-May-11				
	27-May-11				
	3-Jun-11				
	12-Jun-11	8.2	345	19.6	8.1
	17-Jul-11 (1)				
	14-Aug-11 (1)				
	18-Sep-11 (1)				
	16-Oct-11	7.8	368	10.8	9.0
	20-Nov-11	8.0	297	3.4	12.0
	18-Dec-11	8.5	209	2.0	11.4
	15-Jan-12 (2)				
	19-Feb-12 (2)				
	18-Mar-12	8.0	369	16.9	7.8
	15-Apr-12	8.4	338	7.4	11.5
	13-May-12	8.0	383	13.7	9.4
	17-Jun-12 (1)				
	15-Jul-12 (1)				
	14-Aug-12	8.1	489	18.5	5.7
	18-Sep-12	7.7	426	14.8	7.4
	17-Oct-12	7.3	315	10.6	6.9
	20-Nov-12	7.7	350	6.1	8.6
	18-Dec-12	7.3	720	3.8	8.9
	15-Jan-13	7.7	642	1.8	10.9
	17-Feb-13 (2)				
	17-Mar-13 (2)				
	16-Apr-13	8.0	292	8.9	9.5

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW15	13-May-13	8.0	367	11.7	5.7
(cont'd)	19-Jun-13	8.1	400	15.8	8.6
	15-Sep-13 (1)				
	16-Oct-13	8.6	377	13.8	4.8
	19-Nov-13	8.3	334	4.1	2.0
	15-Dec-13 (2)				
	19-Jan-14 (2)				
	16-Feb-14 (2)				
	16-Mar-14 (2)				
	16-Apr-14	8.0	307	5.7	10.8
	13-May-14	7.7	398	13.8	10.0
	15-Jun-14 (1)				
	15-Jul-14	8.8	472	15.2	
	19-Aug-14	8.7	289	17.6	5.1
	9-Sep-14	8.6	560	16.0	4.5
	22-Oct-14	7.3	416	10.1	6.9
	16-Nov-14 (2)				
	16-Dec-14	8.3	253	0.4	
	18-Jan-15 (2)				
	15-Feb-15 (3)				
	15-Mar-15 (2)				
	22-Apr-15	7.9	409	8.1	12.0
	19-May-15	8.2	404	12.6	
	15-Jun-15	7.8	515	16.7	7.8
	21-Jul-15	8.2	475	18.3	
	9-Aug-15 (1)				
	23-Aug-15 (1)				
	6-Sep-15 (1)				
	11-Oct-15 (1)				
	8-Nov-15				
	18-Nov-15	8.0	372	7.6	10.8
	9-Dec-15	7.6	341	4.5	12.3
	20-Jan-16	7.6	317	0.4	14.0
	14-Feb-16 (2)				
	15-Mar-16	7.9	321	6.4	12.4
	21-Apr-16	7.9	345	7.3	10.6
	18-May-16	8.1	421	9.6	9.2
	19-Jun-16 (1)				
	3-Jul-16				
	17-Jul-16 (1)				
	7-Aug-16				
	24-Aug-16	8.4	469	17.8	9.3
	19-Sep-16	7.9	395	16.9	7.2
	18-Oct-16	8.1	356	14.8	11.5
	24-Oct-16	7.7	323	9.5	9.8
	15-Nov-16	7.1	309	7.7	10.6
	12-Dec-16	7.5	481	1.6	15.8
	24-Jan-17	8.0	307	2.4	12.2
	15-Feb-17 (2)				
	21-Mar-17	7.7	333	0.6	13.0

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW15	19-Apr-17	6.2	348	7.4	12.3
(cont'd)	9-May-17	8.4	320	12.2	11.5
	16-May-17	8.6	429	18.0	7.2
	28-Jun-17	8.2	429	17.1	7.8
	7-Jul-17				
	19-Jul-17	8.2	456	18.3	7.2
	27-Jul-17				
	16-Aug-17	8.0	386	16.7	7.4
	18-Sep-17	8.0	384	16.5	6.7
	18-Oct-17	8.1	357	11.5	9.3
	15-Nov-17	8.1	348	4.3	8.2
	12-Dec-17 (2)				
	17-Jan-18 (2)				
	23-Feb-18	7.9	254	0.7	9.9
	21-Mar-18	8.1	300	(0)	13.7
	19-Apr-18	8.1	281	0.6	12.6
	8-May-18	8.0	504	14.0	9.2
	15-May-18	7.9	477	13.5	8.7
	18-Jun-18	8.2	526	15.9	9.3
	18-Jul-18 (1)				
	23-Aug-18	8.1	487	17.8	8.5
	19-Sep-18 (1)				
	25-Oct-18	8.1	471	6.6	10.7
	22-Nov-18	8.2	736	2.1	13.2
	13-Dec-18	8.0	530	2.3	11.7
	18-Jan-19 (2)				
	19-Jan-19 (2)				
	28-Feb-19 (2)				
	19-Mar-19 (1)				
	25-Apr-19	8.0	253	7.2	10.3
	14-May-19	8.1	433	9.1	10.0
	27-May-19	8.0	464	11.0	9.5
	21-Jun-19	8.0	504	13.8	9.1
	30-Jul-19 (1)				
	30-Aug-19 (1)				
	27-Sep-19 (1)				
	22-Oct-19 (1)				
	21-Nov-19 (2)				
	20-Dec-19 (2)				
	24-Jan-20 (2)				
	21-Feb-20 (2)				
	25-Mar-20 (2)				
	28-Apr-20	8.5	340	8.0	11.3
	20-May-20	8.1	500	10.1	10.1
	28-May-20	8.6	491	13.8	8.8
	24-Jun-20	8.2	493	17.2	8.0
	31-Jul-20	8.3	554	19.6	7.9
	26-Aug-20	8.0	543	17.4	8.7
	26-Sep-20	7.9	430	12.1	9.6
	29-Oct-20	7.5	338	8.1	7.6

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW15	27-Nov-20	8.1	529	5.2	11.6
(cont'd)	22-Dec-20	8.0	529	2.1	12.9
	27-Jan-21 (2)				
	22-Feb-21 (2)				
	29-Mar-21	8.0	436	6.9	8.6
	27-Apr-21	8.4	358	8.1	10.5
	27-May-21	8.0	553	11.8	10.5
	22-Jun-21 (1)				
	22-Jul-21	8.1	592	17.6	9.0
	25-Aug-21 (3)				
	28-Sep-21 (3)				
	26-Oct-21 (3)				
	23-Nov-21 (2)				
	21-Dec-21 (3)				
	24-Jan-22 (2)				
	8-Feb-22 (2)				
	16-Mar-22 (2)				
	21-Apr-22	7.5	594	4.2	9.1
	25-May-22 (1)				
	24-Jun-22 (1)				
	29-Aug-22 (1)				
	27-Sep-22 (1)				
	27-Oct-22 (1)				
	22-Nov-22 (1)				
	20-Dec-22	8.3	270	1.6	10.5
	24-Jan-23	7.8	496	1.4	13.0
	22-Feb-23	7.7	509	0.9	13.1
	27-Mar-23	8.9	396	3.3	11.0
	21-Apr-23	7.9	468	7.8	10.3
	15-May-23	8.0	517	12.4	9.7
	26-Jun-23 (1)				
	25-Jul-23	8.1	477	18.7	8.1
	29-Aug-23 (1)				
	25-Sep-23 (1)				
	31-Oct-23 (1)				
	29-Nov-23	7.7	559	2.0	12.2
	18-Dec-23	7.7	588	4.4	10.9
SW16	22-May-03			15.0	
	23-Jun-03			19.4	
	10-Feb-04 (2)				
	19-Apr-04	8.0	251	12.6	
	19-May-04	7.6	372	12.4	7.7
	24-Jun-04	7.3	423	14.9	3.5
	29-Jul-04	7.3	481	16.4	5.1
	20-Oct-04	7.4	386	7.9	8.2
	17-Nov-04	7.2	337	5.9	8.6
	15-Dec-04 (2)				
	16-Jan-05 (2)				
	13-Feb-05 (2)				
	29-Mar-05	7.6	344	2.9	11.9

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW16	11-Apr-05	7.5	232	8.5	
(cont'd)	24-May-05	7.5	359	12.3	8.9
	27-Jun-05	7.6	488	19.1	7.8
	11-Jul-05	6.8	524	20.0	5.7
	22-Aug-05	8.3	492	15.2	7.2
	27-Sep-05	7.5	563	13.2	7.0
	24-Oct-05	8.9	1,065	8.6	8.4
	14-Nov-05	8.2	527	5.7	10.7
	12-Dec-05	8.0	303	2.0	9.1
	17-Jan-06	6.4	180	0.4	13.4
	19-Feb-06 (2)				
	22-Mar-06	8.4	227	1.4	
	18-Apr-06	8.0	334	11.5	
	23-May-06	7.8	417	11.5	
	20-Jun-06	7.4	529	16.1	
	11-Jul-06	7.5	577	18.3	
	20-Aug-06 (1)				
	17-Sep-06 (1)				
	19-Oct-06	7.6	277	10.4	
	27-Nov-06	7.6	440	6.4	8.2
	17-Dec-06	7.7	451	2.5	12.4
	21-Jan-07 (2)				
	18-Feb-07 (2)				
	18-Mar-07	8.1	409	0.2	13.6
	16-Apr-07	8.3	397	2.8	12.4
	13-May-07	8.0	432	10.1	7.0
	15-Jul-07 (1)				
	19-Aug-07 (1)				
	16-Sep-07 (1)				
	14-Oct-07 (1)				
	19-Nov-07	7.8	576	4.6	8.4
	9-Dec-07 (2)				
	21-Jan-08	7.4	355	0.1	6.0
	19-Feb-08	7.7	115	0.2	10.7
	17-Mar-08	6.6	433	0.5	14.3
	1-Apr-08	7.3	207	0.7	
	23-Apr-08	8.0	324	13.0	
	21-May-08	7.7	394	8.9	6.4
	18-Jun-08	7.6	466	13.7	4.4
	15-Jul-08	7.1	537	15.2	4.0
	18-Aug-08	7.5	590	10.1	3.0
	17-Sep-08	8.3	497	12.2	5.6
	20-Oct-08	7.2	445	8.8	6.5
	23-Nov-08 (2)				
	14-Dec-08	7.8	349	1.1	8.7
	18-Jan-09 (2)				
	8-Feb-09	8.4	385	0.8	10.6
	15-Mar-09	8.5	343	3.5	
	12-Apr-09	8.8	346	12.2	
	17-May-09	8.1	352	20.4	7.1

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW16	14-Jun-09	7.7	865	16.5	6.6
(cont'd)	12-Jul-09	8.2	484	12.1	7.8
	9-Aug-09 (1)				
	13-Sep-09 (1)				
	11-Oct-09	7.2	478	6.9	11.0
	15-Nov-09	7.4	424	3.7	
	13-Dec-09 (2)				
	17-Jan-10 (2)				
	7-Feb-10 (2)				
	14-Mar-10	8.0	357	1.5	13.7
	4-Apr-10				
	11-Apr-10	7.7	406	11.7	11.1
	16-May-10	8.2	339	15.1	9.0
	23-May-10				
	13-Jun-10	8.0	371	16.6	9.7
	18-Jul-10	8.0	366	17.0	10.4
	15-Aug-10	7.6	421	16.2	4.9
	12-Sep-10 (1)				
	17-Oct-10	7.7	328	7.4	7.9
	14-Nov-10	7.8	269	5.8	10.1
	19-Dec-10	8.1	151	0.8	11.9
	16-Jan-11	8.2	225	0.3	11.7
	20-Feb-11				
	13-Mar-11	8.1	185	1.1	11.8
	17-Mar-11				
	18-Mar-11				
	20-Mar-11				
	1-Apr-11				
	5-Apr-11				
	8-Apr-11				
	12-Apr-11				
	15-Apr-11				
	17-Apr-11	8.1	240	3.4	14.2
	20-Apr-11				
	21-Apr-11				
	26-Apr-11				
	29-Apr-11				
	3-May-11				
	6-May-11				
	10-May-11				
	13-May-11				
	15-May-11	8.0	240	8.8	12.5
	16-May-11				
	18-May-11				
	19-May-11				
	20-May-11				
	27-May-11				
	3-Jun-11				
	12-Jun-11	8.0	298	13.8	8.3
	17-Jul-11	8.2	423	20.0	8.3

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW16	14-Aug-11	8.2	296	16.1	5.6
(cont'd)	18-Sep-11	8.3	302	12.8	6.2
	16-Oct-11	7.7	193	9.5	7.3
	20-Nov-11	8.0	273	2.3	11.8
	19-Dec-11	7.5	134	0.3	11.5
	15-Jan-12 (2)				
	19-Feb-12	7.9	204	1.0	13.2
	18-Mar-12	8.1	168	15.8	8.2
	15-Apr-12	8.3	285	6.6	10.4
	13-May-12	8.2	333	14.2	7.7
	17-Jun-12	8.2	443	9.4	8.9
	16-Jul-12	8.4	401	20.7	1.8
	14-Aug-12	8.2	320	15.4	6.1
	18-Sep-12	7.4	380	13.9	6.7
	17-Oct-12	6.7	321	10.6	6.7
	20-Nov-12	7.7	293	6.0	7.6
	18-Dec-12	7.2		4.0	8.0
	16-Jan-13	7.8	207	0.2	10.7
	17-Feb-13 (2)				
	17-Mar-13 (2)				
	16-Apr-13	8.1	227	6.6	10.0
	13-May-13	8.2	266	11.3	5.6
	19-Jun-13	7.9	301	13.3	7.3
	16-Jul-13	8.1	440	18.0	4.9
	21-Aug-13	8.5	400	17.0	1.1
	18-Sep-13	8.9	344	11.3	8.4
	16-Oct-13	8.8	368	13.1	5.0
	19-Nov-13	8.0	263	2.7	2.5
	18-Dec-13	8.1	241	0.8	5.6
	19-Jan-14 (2)				
	16-Feb-14 (2)				
	16-Mar-14 (2)				
	16-Apr-14	7.9	131	(0)	12.6
	13-May-14	8.0	302	13.2	10.1
	17-Jun-14	7.5	400	15.5	8.0
	15-Jul-14	8.8	259	14.0	4.4
	19-Aug-14	8.3	428	13.2	7.5
	9-Sep-14	8.4	474	14.8	4.5
	23-Oct-14	8.0	369	6.8	6.9
	16-Nov-14 (2)				
	16-Dec-14	8.6	250	1.1	
	18-Jan-15 (2)				
	15-Feb-15 (2)				
	15-Mar-15 (2)				
	22-Apr-15	8.2	281	6.5	12.2
	19-May-15	7.8	322	13.7	13.2
	15-Jun-15	7.7	381	14.9	6.4
	21-Jul-15	7.9	419	16.3	
	11-Aug-15	7.6	428	15.3	5.8
	25-Aug-15	8.2	368	15.5	5.2

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW16	8-Sep-15	7.5	469	18.3	3.9
(cont'd)	15-Oct-15	7.4	344	9.7	6.4
	8-Nov-15				
	18-Nov-15	7.5	352	7.4	9.9
	8-Dec-15	7.7	312	3.7	16.5
	19-Jan-16	7.6	234	(0)	13.2
	17-Feb-16	7.6	162	0.0	13.4
	15-Mar-16	7.9	220	4.6	13.1
	21-Apr-16	8.0	263	6.7	11.8
	18-May-16	8.2	345	9.0	8.4
	22-Jun-16	7.7	413	14.9	4.8
	3-Jul-16				
	20-Jul-16	7.9	481	15.8	4.3
	7-Aug-16				
	24-Aug-16	7.8	483	17.2	2.8
	19-Sep-16	7.4	452	15.1	2.9
	18-Oct-16	7.5	434	14.0	5.6
	25-Oct-16	7.5	283	4.2	9.9
	15-Nov-16	7.6	337	6.8	6.6
	12-Dec-16	7.3	412	0.5	10.8
	24-Jan-17	8.2	260	2.2	12.2
	16-Feb-17	8.0	272	0.1	14.2
	21-Mar-17	8.3	285	3.7	11.5
	19-Apr-17	7.8	305	11.1	11.1
	9-May-17	8.3	283	9.2	11.8
	16-May-17	8.0	392	11.5	6.6
	28-Jun-17	8.0	398	13.9	8.8
	7-Jul-17				
	19-Jul-17	7.9	454	15.7	4.6
	27-Jul-17				
	15-Aug-17	8.5	356	15.8	5.2
	18-Sep-17	7.9	425	15.6	4.9
	17-Oct-17	8.0	365	10.1	8.1
	14-Nov-17	8.2	299	4.2	8.3
	12-Dec-17 (2)				
	17-Jan-18 (2)				
	24-Feb-18	8.0	199	0.6	15.6
	21-Mar-18	7.7	262	(0)	14.8
	19-Apr-18	7.6	230	0.4	13.3
	8-May-18	8.1	388	13.8	8.8
	15-May-18	7.9	334	12.1	8.6
	18-Jun-18	7.6	485	12.9	4.8
	19-Jul-18	7.5	483	13.5	5.4
	23-Aug-18	7.6	465	15.6	5.3
	19-Sep-18	7.6	468	14.2	5.2
	25-Oct-18	7.6	461	4.2	10.9
	22-Nov-18	7.8	437	0.2	11.8
	13-Dec-18	8.1		0.9	12.0
	19-Jan-19	7.9	447	0.0	12.1
	28-Feb-19 (2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW16	19-Mar-19	(1)				
(cont'd)	25-Apr-19		8.2	210	6.6	10.8
	14-May-19		8.4	319	8.9	10.7
	27-May-19		8.0	370	11.0	8.8
	21-Jun-19		7.8	413	12.3	6.8
	30-Jul-19		7.6	422	17.7	4.2
	30-Aug-19		7.7	442	19.1	5.6
	27-Sep-19		7.5	389	18.3	6.8
	22-Oct-19		7.6	398	10.2	5.9
	21-Nov-19		8.0	401	0.9	8.3
	20-Dec-19		8.1	416	0.3	8.8
	24-Jan-20	(2)				
	21-Feb-20	(2)				
	25-Mar-20	(1)	7.9	348	6.7	11.8
	28-Apr-20					
	20-May-20		8.1	420	10.3	9.3
	28-May-20		8.5	263	16.1	7.8
	24-Jun-20		8.1	376	15.5	7.4
	31-Jul-20		7.8	480	18.8	4.6
	26-Aug-20	(1)	7.4	459	18.6	3.8
	26-Sep-20		7.8	360	10.9	4.4
	29-Oct-20		7.3	378	9.3	6.3
	27-Nov-20		8.1	450	5.2	11.1
	22-Dec-20	(2)				
	27-Jan-21	(2)				
	22-Feb-21	(2)				
	29-Mar-21		8.3	362	7.8	11.4
	27-Apr-21		8.3	342	7.8	12.3
	26-May-21		7.5	471	16.5	6.3
	27-May-21		7.5	471	16.5	6.3
	22-Jun-21		7.5	501	15.3	5.8
	22-Jul-21		7.8	478	16.1	6.1
	25-Aug-21		7.2	518	19.0	3.9
	28-Sep-21		7.9	488	12.7	8.4
	26-Oct-21	(3)				
	23-Nov-21	(2)				
	21-Dec-21	(2)				
	24-Jan-22	(2)				
	8-Feb-22	(2)				
	16-Mar-22	(2)				
	21-Apr-22		7.4	359	1.6	9.2
	25-May-22	(1)	7.6	471	11.8	8.3
	24-Jun-22	(1)	7.2	557	13.1	9.9
	29-Aug-22	(1)	7.5	503	13.1	10.0
	27-Sep-22		7.6	568	12.7	7.5
	27-Oct-22		7.6	371	8.7	4.1
	23-Nov-22		7.9	307	2.2	6.7
	21-Dec-22	(1)				
	24-Jan-23	(2)	7.9	249	0.2	12.7
	22-Feb-23		8.1	152	0.0	12.8

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW16	28-Mar-23	8.9	383	1.1	11.6
(cont'd)	21-Apr-23	7.7	375	8.5	10.2
	16-May-23	8.0	405	14.9	8.0
	26-Jun-23	8.3	326	23.3	5.3
	25-Jul-23 (1)				
	29-Aug-23 (1)				
	25-Sep-23 (1)				
	30-Oct-23	8.2	337	7.3	2.2
	29-Nov-23 (1)				
	18-Dec-23 (1)				
SW17	22-May-03			15.0	
	10-Feb-04		315	1.0	11.6
	17-Mar-04		432	2.5	10.3
	19-Apr-04	8.2	276	9.9	
	19-May-04	8.2	386	15.6	
	24-Jun-04	8.1	430	17.8	8.2
	29-Jul-04	7.9	436	19.3	7.4
	26-Aug-04	7.9	435	17.2	
	22-Sep-04	7.9	417	16.5	8.7
	20-Oct-04	7.9	336	8.3	11.3
	17-Nov-04	7.8	320	5.3	
	16-Jan-05 (2)				
	13-Feb-05 (2)				
	29-Mar-05	7.8	297	2.7	
	11-Apr-05	7.5	284	7.2	
	24-May-05	7.7	350	13.4	9.6
	27-Jun-05	7.5	452	21.4	8.5
	11-Jul-05	6.8	477	22.3	6.6
	22-Aug-05	8.4	431	18.5	7.8
	27-Sep-05	7.4	409	15.4	8.5
	24-Oct-05	7.9	475	8.4	11.6
	14-Nov-05	7.8	353	6.3	11.2
	12-Dec-05	8.5	324	1.4	12.3
	16-Dec-05	8.0	264	1.5	
	17-Jan-06	7.0	275	2.4	13.6
	19-Feb-06 (2)				
	21-Mar-06	8.5	348	3.5	
	18-Apr-06	8.4	341	10.2	
	23-May-06	8.1	419	10.1	
	20-Jun-06	7.8	387	18.9	
	11-Jul-06	7.8	369	20.4	
	23-Aug-06	7.3	409	17.2	
	20-Sep-06	7.4	414	14.3	
	19-Oct-06	7.3	413	10.8	
	27-Nov-06	8.1	470	6.0	
	17-Dec-06	7.9	512	4.7	
	21-Jan-07	7.7	504	1.8	13.6
	18-Feb-07 (2)				
	18-Mar-07	8.3	431	2.3	
	16-Apr-07	8.4	411	4.4	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW17	13-May-07	8.3	405	13.3	10.1
(cont'd)	17-Jun-07	8.1	472	21.1	7.0
	15-Jul-07	7.8	499	19.7	6.9
	19-Aug-07	7.8	520	18.1	6.4
	17-Sep-07	7.7	397	14.0	8.1
	18-Oct-07	7.8	400	12.8	8.3
	19-Nov-07	7.9	515	3.8	11.7
	9-Dec-07 (2)				
	21-Jan-08	7.5	423	2.8	12.7
	19-Feb-08	7.9	431	2.2	
	17-Mar-08	6.9	462	1.8	
	1-Apr-08	7.7	301	2.6	
	23-Apr-08	7.8	362	12.0	8.5
	6-May-08	6.7	411	9.6	10.6
	21-May-08	7.3	374	10.6	9.3
	17-Jun-08	7.6	406	16.4	6.9
	15-Jul-08	6.9	563	14.9	7.0
	18-Aug-08	7.3	456	21.2	4.1
	16-Sep-08	8.0	419	15.1	7.1
	21-Oct-08	7.9	424	7.7	8.6
	23-Nov-08	7.8	486	3.5	9.8
	14-Dec-08	7.6	365	2.6	7.6
	18-Jan-09	8.5			
	8-Feb-09	8.5	430	1.6	9.9
	15-Mar-09	8.8	379	4.5	
	12-Apr-09	8.4	407	8.7	
	17-May-09	8.2	349	16.0	9.2
	14-Jun-09	7.7	802	17.0	8.5
	12-Jul-09	8.0	437	16.9	8.1
	9-Aug-09	5.7	424	19.7	6.9
	13-Sep-09	8.4	411	17.3	8.3
	11-Oct-09	7.2	457	7.9	
	15-Nov-09	7.4	439	4.6	
	13-Dec-09	7.7	443	1.4	12.9
	17-Jan-10 (2)				
	7-Feb-10	7.8	425	0.0	11.5
	14-Mar-10	7.9	424	3.6	13.7
	4-Apr-10				
	11-Apr-10	8.0	415	7.9	
	16-May-10	8.2	313	12.3	10.1
	23-May-10				
	13-Jun-10	8.1	359	17.1	11.2
	18-Jul-10	8.1	404	19.5	11.0
	15-Aug-10	8.1	421	19.8	7.7
	12-Sep-10	7.9	381	14.9	8.4
	17-Oct-10	7.9	320	8.7	10.3
	14-Nov-10	8.2	274	5.1	12.9
	19-Dec-10	8.4	244	1.7	11.8
	16-Jan-11	8.0	255	1.6	12.7
	20-Feb-11				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW17	13-Mar-11	8.3	253	2.4	12.8
(cont'd)	17-Mar-11				
	18-Mar-11				
	20-Mar-11	8.3	291	3.6	12.4
	1-Apr-11				
	5-Apr-11				
	8-Apr-11				
	12-Apr-11				
	15-Apr-11				
	17-Apr-11	8.3	264	4.7	13.7
	20-Apr-11				
	21-Apr-11				
	26-Apr-11				
	29-Apr-11				
	3-May-11				
	6-May-11				
	10-May-11				
	13-May-11				
	15-May-11	7.6	241	9.0	12.0
	16-May-11				
	18-May-11				
	19-May-11				
	20-May-11				
	27-May-11				
	3-Jun-11				
	12-Jun-11	8.1	303	14.9	4.4
	17-Jul-11	7.8	415	22.9	8.1
	14-Aug-11	8.2	285	18.5	7.3
	18-Sep-11	8.1	261	13.4	8.3
	16-Oct-11	8.0	300	10.2	9.8
	20-Nov-11	7.6	271	3.1	13.2
	18-Dec-11	8.2	218	2.9	12.6
	15-Jan-12	8.3	201	1.6	13.4
	19-Feb-12	8.1	226	1.6	13.7
	18-Mar-12	8.2	276	11.0	10.5
	15-Apr-12	8.5	301	9.2	10.3
	13-May-12	8.0	322	14.0	9.2
	17-Jun-12	8.1	419	20.8	12.6
	16-Jul-12	8.1	450	23.0	5.5
	14-Aug-12	8.0	279	18.6	7.0
	18-Sep-12	7.3	336	15.9	7.2
	17-Oct-12	6.7	264	8.7	7.6
	20-Nov-12	7.9	299	4.6	9.3
	18-Dec-12	7.4	634	4.0	11.1
	16-Jan-13	7.8	326	3.6	10.2
	20-Feb-13	7.9	258	1.8	14.6
	20-Mar-13	8.0	251	2.3	6.0
	16-Apr-13	7.9	259	5.8	9.7
	13-May-13	8.2	232	10.6	8.9
	19-Jun-13	8.2	344	16.4	8.1

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW17	16-Jul-13	8.0	416	22.3	5.9
(cont'd)	21-Aug-13	8.2	378	19.5	6.0
	18-Sep-13	8.0	322	13.6	8.9
	16-Oct-13	8.3	365	11.3	5.7
	19-Nov-13	8.2	293	4.2	2.6
	15-Dec-13 (2)				
	19-Jan-14 (2)				
	16-Feb-14 (2)				
	16-Mar-14 (2)				
	16-Apr-14	8.1	274	3.2	10.4
	12-May-14	8.0	346	11.0	10.0
	17-Jun-14	8.1	366	17.9	10.6
	15-Jul-14	8.7	398	18.3	4.3
	19-Aug-14	8.4	412	16.0	5.7
	9-Sep-14	8.5	430	17.8	2.1
	23-Oct-14	8.6	381	8.2	8.3
	16-Nov-14 (2)				
	16-Dec-14	8.2	317	2.5	
	18-Jan-15 (2)				
	15-Feb-15 (3)				
	15-Mar-15 (2)				
	22-Apr-15	8.1	328	7.6	12.2
	19-May-15	8.3	404	15.1	
	15-Jun-15	8.0	387	17.7	7.5
	21-Jul-15	8.4	403	19.5	
	11-Aug-15	8.1	416	19.0	7.9
	25-Aug-15	8.1	373	18.8	7.0
	8-Sep-15	7.8	436	21.6	5.6
	15-Oct-15	7.9	321	11.2	9.4
	8-Nov-15				
	18-Nov-15	8.0	330	5.6	11.5
	8-Dec-15	8.2	313	3.0	21.2
	19-Jan-16	8.1	270	1.1	15.8
	17-Feb-16	8.0	301	1.6	14.9
	15-Mar-16	8.0	273	5.1	13.6
	21-Apr-16	7.9	298	9.2	11.9
	18-May-16	8.4	339	10.9	11.3
	22-Jun-16	8.2	393	19.4	8.1
	3-Jul-16				
	20-Jul-16	8.4	420	20.6	7.7
	7-Aug-16				
	24-Aug-16	8.2	389	20.6	7.8
	19-Sep-16	7.9	382	18.3	7.7
	18-Oct-16	7.6	337	14.5	12.5
	25-Oct-16	7.9	309	8.4	11.5
	15-Nov-16	7.9	464	6.6	11.5
	12-Dec-16	8.0	398	1.6	13.8
	24-Jan-17	8.0	295	2.5	13.7
	16-Feb-17	8.1	311	1.5	15.3
	21-Mar-17	8.4	333	4.2	12.1

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW17	19-Apr-17	7.9	306	9.1	13.3
(cont'd)	9-May-17	8.3	234	7.1	14.1
	16-May-17	8.8	367	16.4	9.6
	28-Jun-17	8.2	377	15.6	9.2
	7-Jul-17				
	19-Jul-17	7.9	428	18.9	7.8
	27-Jul-17				
	15-Aug-17	8.6	340	19.0	7.3
	18-Sep-17	8.1	378	17.6	7.8
	17-Oct-17	8.1	355	11.6	9.9
	14-Nov-17	8.3	325	3.4	9.4
	14-Dec-17	8.0	327	2.2	14.6
	18-Jan-18	7.8	304	2.0	9.4
	24-Feb-18	8.0	264	3.1	13.1
	21-Mar-18	8.2	286	2.5	14.8
	19-Apr-18	8.0	264	2.2	12.3
	8-May-18	8.3	413	12.3	10.3
	15-May-18	8.2	411	13.8	9.2
	18-Jun-18	8.1	435	18.7	7.4
	19-Jul-18	8.0	445	20.1	7.0
	23-Aug-18	8.0	429	19.6	7.4
	19-Sep-18	7.8	444	17.1	7.1
	25-Oct-18	8.0	442	5.9	10.8
	22-Nov-18	7.9		2.4	11.9
	13-Dec-18	8.0	497	3.5	11.6
	19-Jan-19	8.0	490	2.6	12.3
	28-Feb-19 (2)				
	19-Mar-19	8.3	432	2.5	12.7
	25-Apr-19	8.4	353	8.2	10.7
	14-May-19	8.4	362	8.8	10.8
	27-May-19	8.3	373	12.1	9.7
	21-Jun-19	8.1	407	15.0	8.2
	30-Jul-19	7.8	423	21.5	6.6
	30-Aug-19	7.9	405	18.4	7.0
	27-Sep-19	8.0	405	16.8	5.6
	22-Oct-19	8.0	413	10.7	5.9
	21-Nov-19	7.7	438	2.2	6.3
	20-Dec-19 (2)				
	24-Jan-20	8.2	446	3.3	12.5
	21-Feb-20 (2)				
	25-Mar-20	8.3	407	7.5	11.5
	28-Apr-20	8.5	368	6.2	12.0
	20-May-20	8.2	450	11.1	10.3
	28-May-20	8.6	375	17.8	8.3
	24-Jun-20	8.4	368	18.4	7.8
	31-Jul-20	8.4	432	22.1	6.9
	26-Aug-20	8.3	398	15.0	9.6
	26-Sep-20	8.2	370	12.9	10.1
	29-Oct-20	8.0	402	7.4	5.9
	27-Nov-20	8.0	500	4.9	11.5

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW17	22-Dec-20	7.9	505	3.7	11.9
(cont'd)	27-Jan-21	7.7	458	1.1	12.8
	22-Feb-21 (2)				
	29-Mar-21	8.0	371	6.6	11.8
	27-Apr-21	8.2	367	7.3	12.5
	26-May-21	8.2	428	18.3	8.4
	27-May-21	8.2	428	18.3	8.4
	22-Jun-21	8.2	447	19.2	7.9
	22-Jul-21	8.1	435	20.2	7.9
	25-Aug-21	7.1	441	23.0	7.1
	28-Sep-21	7.9	449	12.5	9.8
	26-Oct-21 (3)				
	23-Nov-21	7.7	477		11.1
	21-Dec-21	7.8	469	3.8	12.2
	24-Jan-22	7.6	447	0.0	11.1
	8-Feb-22	7.9	581	0.1	10.4
	16-Mar-22	7.6	564	0.1	10.9
	21-Apr-22	8.1	479	2.5	11.6
	25-May-22	8.1	444	14.5	9.4
	24-Jun-22	7.9	549	10.5	10.2
	29-Aug-22	8.2	541	15.6	10.3
	29-Sep-22	8.2	374	13.1	9.7
	27-Oct-22	8.3	328	9.1	8.9
	23-Nov-22	8.4	315	2.9	10.4
	21-Dec-22	8.5	223	1.0	12.5
	24-Jan-23	8.1	532	1.8	13.4
	22-Feb-23	7.5	463	1.6	13.8
	28-Mar-23	8.9	436	2.5	12.7
	21-Apr-23	7.6	386	8.7	10.6
	16-May-23	8.2	412	13.3	9.4
	26-Jun-23	7.9	361	20.2	8.7
	25-Jul-23	8.1	387	18.2	8.0
	29-Aug-23	7.9	386	17.4	7.2
	25-Sep-23	8.1	381	15.5	8.2
	30-Oct-23	8.3	315	9.1	10.5
	29-Nov-23	7.9	465	2.4	12.4
	18-Dec-23	7.9	499	3.4	11.8
SW17A	22-May-03			11.0	
	23-Jun-03			12.7	
	10-Feb-04		295	2.3	11.3
	17-Mar-04		434	4.3	9.6
	19-Apr-04	8.2	266	10.8	
	19-May-04	8.2	341	11.0	
	24-Jun-04	8.2	338	11.2	
	29-Jul-04	8.1	332	11.9	10.7
	26-Aug-04	8.2	341	12.1	
	22-Sep-04	8.1	353	12.6	
	20-Oct-04	8.1	318	6.9	
	16-Nov-04	8.0	310	4.4	
	16-Dec-04	8.1	272	1.5	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW17A	16-Jan-05 (2)				
(cont'd)	13-Feb-05 (2)				
	29-Mar-05	8.0	315	6.8	
	11-Apr-05	7.6	275	8.9	
	24-May-05	7.7	324	9.2	
	27-Jun-05	7.7	382	13.5	
	11-Jul-05	6.8	381	14.2	10.1
	22-Aug-05	8.6	360	12.7	
	27-Sep-05	7.7	350	11.8	10.7
	24-Oct-05	7.8	427	7.4	
	14-Nov-05	8.6	323	6.3	12.4
	12-Dec-05	8.6	295	0.2	13.6
	17-Jan-06	7.7	267	2.4	13.2
	19-Feb-06 (2)				
	22-Mar-06	8.7	264	5.5	
	18-Apr-06	8.4	365	10.9	
	23-May-06	8.3	424	10.0	
	20-Jun-06	8.3	422	12.2	
	11-Jul-06	8.3	409	13.9	
	23-Aug-06	8.1	419	12.8	
	20-Sep-06	8.1	391	11.2	
	19-Oct-06	8.1	432	9.9	
	27-Nov-06	8.2	450	7.4	11.9
	17-Dec-06	8.1	496	4.5	
	21-Jan-07	7.9	473	1.0	
	18-Feb-07 (2)				
	18-Mar-07	8.3	430	3.6	
	16-Apr-07	8.4	404	4.6	
	13-May-07	8.3	408	9.0	
	17-Jun-07	8.3	452	13.3	10.4
	15-Jul-07	8.1	451	13.5	9.8
	19-Aug-07	8.3	422	14.9	9.1
	17-Sep-07	8.0	418	10.9	10.0
	18-Oct-07	8.0	432	11.2	9.6
	19-Nov-07	8.1	473	3.6	
	10-Dec-07	8.1	429	2.9	12.9
	21-Jan-08	7.6	395	3.3	
	19-Feb-08	7.9	434	2.6	
	17-Mar-08	6.6	450	1.5	
	1-Apr-08	7.6	355	4.4	
	23-Apr-08	7.9	324	10.4	8.3
	6-May-08	6.8	407	7.2	
	21-May-08	7.3	386	7.1	10.6
	17-Jun-08	7.7	425	9.0	9.4
	15-Jul-08	7.0	454	11.2	8.4
	18-Aug-08	7.4	488	14.5	5.2
	16-Sep-08	8.2	331	10.2	8.4
	21-Oct-08	7.7	423	5.8	8.2
	23-Nov-08	7.8	458	4.7	9.6
	14-Dec-08	7.7	398	3.4	8.5

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW17A	18-Jan-09	8.6	445	1.9	11.3
(cont'd)	8-Feb-09	8.8	417	3.7	9.8
	15-Mar-09	8.8	366	5.9	
	12-Apr-09	8.4	396	10.9	
	17-May-09	8.3	338	16.3	
	14-Jun-09	7.7	808	12.4	
	12-Jul-09	8.4	441	10.5	
	9-Aug-09	6.1	443	12.9	10.3
	13-Sep-09	8.6	401	12.1	
	11-Oct-09	7.5	460	6.9	
	15-Nov-09	7.3	414	4.1	
	13-Dec-09	7.8	443	1.9	
	17-Jan-10	8.2	449	2.4	14.0
	7-Feb-10	8.3	459	1.3	11.3
	14-Mar-10	8.0	434	4.9	13.2
	4-Apr-10				
	11-Apr-10	8.0	405	6.3	
	16-May-10	8.3	320	11.0	10.9
	23-May-10				
	13-Jun-10	8.3	333	12.5	13.8
	18-Jul-10	8.2	351	12.8	12.0
	15-Aug-10	8.3	348	12.8	10.6
	12-Sep-10	8.2	333	11.0	10.5
	17-Oct-10	8.1	314	7.5	11.8
	14-Nov-10	8.3	276	5.6	9.1
	19-Dec-10	8.2	248	2.2	12.8
	16-Jan-11	8.4	263	3.3	12.7
	20-Feb-11	8.1	254	1.5	12.2
	13-Mar-11	8.2	262	4.0	11.9
	17-Mar-11				
	18-Mar-11				
	20-Mar-11	8.2	302	6.2	12.1
	1-Apr-11				
	5-Apr-11				
	8-Apr-11				
	12-Apr-11				
	15-Apr-11				
	17-Apr-11	8.4	255	6.6	12.4
	20-Apr-11				
	21-Apr-11				
	26-Apr-11				
	29-Apr-11				
	3-May-11				
	6-May-11				
	10-May-11				
	13-May-11				
	15-May-11	7.5	233	7.2	13.0
	16-May-11				
	18-May-11				
	19-May-11				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW17A	20-May-11				
(cont'd)	27-May-11				
	3-Jun-11				
	12-Jun-11	8.3	271	10.2	8.2
	17-Jul-11	8.0	250	13.9	8.4
	14-Aug-11	8.5	245	13.1	10.3
	18-Sep-11	8.1	276	11.4	10.3
	16-Oct-11	8.2	320	8.7	10.7
	20-Nov-11	7.5	278	3.1	14.1
	18-Dec-11	8.4	226	3.3	11.5
	15-Jan-12	8.5	216	2.0	13.7
	19-Feb-12	8.1	240	3.5	13.8
	20-Mar-12	8.3	258	12.1	10.0
	15-Apr-12	8.6	280	5.9	12.0
	13-May-12	8.3	311	10.6	11.5
	17-Jun-12	8.3	358	14.0	10.8
	16-Jul-12	8.7	381	16.0	7.3
	14-Aug-12	8.0	304	12.8	7.8
	18-Sep-12	7.2	340	11.8	9.8
	17-Oct-12	6.7	303	8.9	8.1
	20-Nov-12	7.9	317	6.7	9.4
	16-Dec-12	7.6	664	5.5	10.7
	16-Jan-13	8.1	318	3.0	11.9
	20-Feb-13	8.1	245	1.4	15.7
	20-Mar-13	8.2	246	3.3	6.6
	16-Apr-13	7.9	259	5.8	9.7
	13-May-13	8.4	277	9.0	6.4
	19-Jun-13	8.2	276	10.2	11.6
	16-Jul-13	8.0	360	13.8	9.5
	21-Aug-13	8.2	345	13.8	9.7
	18-Sep-13	7.9	314	9.7	11.9
	16-Oct-13	8.5	330	10.7	6.7
	19-Nov-13	7.9	298	3.9	2.4
	18-Dec-13	8.4	257	1.8	4.3
	19-Jan-14 (2)				
	16-Feb-14 (2)				
	16-Mar-14 (2)				
	16-Apr-14	8.0	237	4.0	10.5
	13-May-14	8.2	285	9.8	10.3
	17-Jun-14	8.3	312	11.5	13.3
	15-Jul-14	8.8	324	12.0	7.0
	19-Aug-14	8.5	358	11.0	8.5
	9-Sep-14	8.5	375	12.5	4.4
	23-Oct-14	8.0	375	6.9	8.1
	16-Nov-14 (2)				
	16-Dec-14	8.6	334	3.9	
	20-Jan-15	7.7	171	0.8	0.1
	15-Feb-15 (3)				
	18-Mar-15	8.3	229	2.1	13.5
	22-Apr-15	8.2	302	6.7	12.7

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW17A	19-May-15	8.4	304	11.5	
(cont'd)	15-Jun-15	8.1	365	12.0	9.8
	21-Jul-15	8.1	356	13.7	
	11-Aug-15	8.2	372	13.0	10.2
	25-Aug-15	8.2	323	12.8	10.5
	8-Sep-15	8.0	370	14.6	8.7
	15-Oct-15	8.1	320	9.8	10.7
	8-Nov-15				
	18-Nov-15	8.1	365	7.8	12.8
	8-Dec-15	8.2	339	5.0	20.5
	19-Jan-16	8.1	272	2.0	15.4
	17-Feb-16	8.0	292	3.0	14.1
	15-Mar-16	8.1	282	6.6	12.8
	21-Apr-16	8.1	264	6.1	13.3
	18-May-16	8.4	334	7.9	12.7
	22-Jun-16	8.4	367	14.0	10.8
	3-Jul-16				
	20-Jul-16	8.5	368	15.1	10.6
	7-Aug-16				
	24-Aug-16	8.5	376	16.0	10.6
	19-Sep-16	8.2	384	15.1	9.8
	18-Oct-16	7.8	335	13.2	13.5
	25-Oct-16	8.0	294	5.3	13.3
	15-Nov-16	8.2	326	7.2	12.5
	12-Dec-16	7.9	422	2.6	13.9
	24-Jan-17	8.3	320	4.1	13.0
	16-Feb-17	8.3	310	1.6	15.5
	21-Mar-17	8.4	353	7.1	11.7
	19-Apr-17	8.0	311	9.4	13.2
	9-May-17	8.4	238	8.7	13.5
	16-May-17	8.8	332	12.6	10.8
	28-Jun-17	8.3	350	10.6	11.6
	7-Jul-17				
	19-Jul-17	8.1	363	11.2	11.4
	27-Jul-17				
	15-Aug-17	8.8	287	11.8	11.8
	18-Sep-17	8.2	368	13.1	10.9
	17-Oct-17	8.3	357	9.4	11.3
	14-Nov-17	8.3	349	5.8	8.7
	14-Dec-17	8.1	315	2.2	14.8
	18-Jan-18	7.9	299	1.9	10.0
	24-Feb-18	8.1	269	3.8	13.0
	21-Mar-18	8.2	212	1.6	14.8
	19-Apr-18	8.2	277	2.8	12.4
	8-May-18	8.4	393	12.1	10.3
	15-May-18	8.2	413	9.2	10.8
	18-Jun-18	8.3	453	9.8	10.7
	19-Jul-18	8.2	449	9.8	10.5
	23-Aug-18	8.4	452	13.0	10.1
	19-Sep-18	8.3	448	12.1	10.0

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW17A	25-Oct-18	8.3	474	5.4	11.9
(cont'd)	22-Nov-18	8.2	486	1.7	13.4
	13-Dec-18	8.3	484	3.3	12.7
	19-Jan-19	8.3	476	1.2	13.6
	28-Feb-19 (2)				
	19-Mar-19	8.5	433	3.3	12.8
	25-Apr-19	8.4	313	6.1	11.5
	14-May-19	8.5	371	7.8	11.3
	27-May-19	8.5	384	8.4	11.2
	21-Jun-19	8.4	411	9.7	11.0
	30-Jul-19	8.2	412	13.3	9.7
	30-Aug-19	8.3	385	12.6	10.0
	27-Sep-19	8.2	442	14.2	8.9
	22-Oct-19	8.1	432	8.9	9.3
	21-Nov-19	8.1	397	1.9	7.1
	20-Dec-19 (2)				
	24-Jan-20	8.1	431	2.0	13.0
	21-Feb-20 (2)				
	25-Mar-20	8.2	417	5.9	11.9
	28-Apr-20	8.4	355	7.9	11.0
	20-May-20	8.3	440	9.6	11.1
	28-May-20	9.0	375	12.5	9.8
	24-Jun-20	8.6	421	11.5	10.2
	31-Jul-20	8.7	434	14.0	9.7
	26-Aug-20	8.1	405	22.0	6.9
	26-Sep-20	8.2	410	12.9	7.7
	29-Oct-20	7.8	417	8.1	8.2
	27-Nov-20	8.4	489	6.0	12.0
	22-Dec-20	12.8	492	3.9	8.3
	27-Jan-21	8.0	434	1.2	11.1
	22-Feb-21	7.6	405	0.1	11.9
	29-Mar-21	8.3	350	7.0	12.1
	27-Apr-21	8.4	359	8.4	11.8
	26-May-21	8.3	437	11.7	10.7
	27-May-21	8.3	437	11.7	10.7
	22-Jun-21	8.0	449	11.6	10.7
	22-Jul-21	8.4	457	13.2	10.4
	25-Aug-21	8.0	458	16.2	9.7
	28-Sep-21	8.1	489	10.0	11.2
	26-Oct-21 (3)				
	23-Nov-21	8.1	469	4.0	10.5
	21-Dec-21	8.2	453	3.9	11.9
	24-Jan-22	8.1	425	0.0	10.5
	8-Feb-22	7.6	345	0.1	10.1
	16-Mar-22	7.6	531	1.0	10.3
	21-Apr-22	7.8	542	0.1	9.0
	26-May-22	8.3	453	10.4	11.2
	24-Jun-22	7.8	487	9.8	10.6
	29-Aug-22	8.2	467	12.4	10.6
	29-Sep-22	8.4	433	9.9	11.3

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW17A	27-Oct-22	8.4	357	7.9	10.0
(cont'd)	23-Nov-22	8.7	340	4.0	10.7
	21-Dec-22	8.8	243	1.2	12.7
	24-Jan-23	8.2	435	3.1	13.3
	22-Feb-23	7.7	467	1.6	14.1
	28-Mar-23	9.0	448	3.5	12.5
	21-Apr-23	7.6	381	8.6	10.9
	16-May-23	8.3	409	10.5	10.4
	26-Jun-23	8.3	361	13.3	9.6
	25-Jul-23	8.4	409	12.4	10.0
	29-Aug-23	7.8	344	11.8	10.2
	25-Sep-23	8.5	424	12.0	10.1
	30-Oct-23	8.2	343	7.6	11.4
	29-Nov-23	7.9	511	2.4	12.8
	18-Dec-23	8.1	512	5.3	11.6
SW18	22-May-03			15.0	
	23-Jun-03			15.7	
	20-Aug-03			16.4	
	22-Oct-03	7.2	485	5.7	
	10-Feb-04		289	0.9	
	16-Mar-04	8.0	399	1.0	12.9
	19-Apr-04	8.3	272	11.1	
	19-May-04	8.2	365	13.4	
	24-Jun-04	8.2	335	13.6	
	29-Jul-04	8.2	355	15.9	
	26-Aug-04	8.2	341	15.2	
	22-Sep-04	8.2	350	14.7	10.1
	20-Oct-04	8.1	321	6.7	
	16-Nov-04	8.0	312	3.7	
	15-Dec-04 (2)				
	16-Jan-05 (2)				
	13-Feb-05 (2)				
	27-Mar-05 (2)				
	11-Apr-05	7.6	272	8.4	
	24-May-05	7.5	339	10.8	
	27-Jun-05	8.0	413	17.5	
	11-Jul-05	7.1	401	18.8	8.8
	22-Aug-05	8.7	344	15.0	9.6
	24-Oct-05	8.0	482	7.6	
	15-Nov-05	8.0	290	3.7	12.9
	11-Dec-05 (2)				
	17-Jan-06	7.7	234	0.2	
	20-Mar-06	8.1	275	3.4	
	18-Apr-06	8.5	346	12.1	
	23-May-06	8.3	427	10.7	
	20-Jun-06	7.9	417	14.7	
	11-Jul-06	8.3	391	17.3	
	23-Aug-06	8.1	376	15.9	
	20-Sep-06	8.1	370	11.9	
	27-Sep-06	7.7	374	13.0	10.1

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW18	19-Oct-06	8.3	463	10.3	
(cont'd)	27-Nov-06	8.2	461	7.0	11.9
	17-Dec-06	8.2	487	2.8	
	21-Jan-07 (2)				
	18-Feb-07 (2)				
	18-Mar-07	8.3	421	2.6	
	17-Apr-07	8.5	403	6.6	
	13-May-07	8.2	413	8.4	
	17-Jun-07	8.3	439	16.3	9.4
	15-Jul-07	8.2	426	17.7	8.8
	19-Aug-07	8.2	394	19.3	8.0
	17-Sep-07	8.0	404	13.4	9.3
	19-Oct-07	8.3	437	14.9	7.1
	21-Nov-07	8.6	478	4.3	12.3
	12-Dec-07	8.0	435	0.9	14.1
	21-Jan-08	7.4	406	1.1	
	19-Feb-08	7.8	411	0.6	
	17-Mar-08	8.0	430	2.5	
	2-Apr-08	7.7	356	1.4	
	23-Apr-08	7.8	334	14.3	8.8
	6-May-08	7.4	415	8.6	11.2
	21-May-08	7.6	387	12.8	9.2
	18-Jun-08	8.0	325	12.9	8.4
	15-Jul-08	7.5	447	15.6	6.7
	18-Aug-08	7.8	492	18.8	4.5
	17-Sep-08	8.5	484	12.3	6.7
	20-Oct-08	7.8	440	9.0	7.7
	23-Nov-08	8.6	483	3.5	9.8
	14-Dec-08	7.0	379	2.1	8.2
	18-Jan-09 (2)				
	8-Feb-09		339	2.3	9.4
	15-Mar-09	8.7	353	6.4	
	12-Apr-09	8.5	356	11.1	
	17-May-09	8.5	345	15.0	10.3
	14-Jun-09	7.9	814	12.6	
	12-Jul-09	8.5	437	12.2	
	9-Aug-09	9.3	420	16.3	9.4
	13-Sep-09	8.0	385	14.7	10.3
	11-Oct-09	7.3	492	7.2	
	15-Nov-09	7.4	433	4.0	
	13-Dec-09	7.9	490	2.2	12.4
	17-Jan-10 (2)				
	7-Feb-10 (2)				
	14-Mar-10	8.2	322	5.4	12.6
	4-Apr-10				
	11-Apr-10	7.8	419	10.9	12.7
	16-May-10	8.4	311	9.8	11.2
	23-May-10				
	13-Jun-10	8.3	347	14.0	12.9
	18-Jul-10	8.2	406	17.9	12.1

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW18	15-Aug-10	8.3	370	15.5	10.2
(cont'd)	12-Sep-10	8.3	362	12.5	10.2
	17-Oct-10	8.2	340	7.6	12.1
	14-Nov-10	8.3	279	5.7	13.1
	19-Dec-10	8.3	249	1.9	14.1
	16-Jan-11				
	20-Feb-11				
	13-Mar-11	8.2	227	3.2	12.5
	17-Mar-11				
	18-Mar-11				
	20-Mar-11	8.2	279	3.5	13.0
	1-Apr-11				
	5-Apr-11				
	8-Apr-11				
	12-Apr-11				
	15-Apr-11				
	17-Apr-11	8.2	253	5.0	11.7
	20-Apr-11	8.2	197	3.6	10.7
	21-Apr-11				
	26-Apr-11				
	29-Apr-11				
	3-May-11				
	6-May-11				
	10-May-11				
	13-May-11				
	15-May-11	8.2	257	9.6	13.2
	16-May-11				
	18-May-11				
	19-May-11				
	20-May-11				
	27-May-11				
	3-Jun-11				
	12-Jun-11	8.4	284	12.1	11.7
	17-Jul-11	8.4	337	18.4	8.2
	14-Aug-11	8.4	251	16.1	9.5
	18-Sep-11	8.5	290	12.8	10.1
	16-Oct-11	8.2	330	9.4	9.8
	20-Nov-11	7.7	266	1.7	15.0
	18-Dec-11	8.4	210	3.0	13.3
	15-Jan-12 (2)				
	19-Feb-12	7.7	221	1.7	13.4
	18-Mar-12	8.3	284	14.1	9.9
	15-Apr-12	8.5	234	6.8	12.0
	13-May-12	8.3	325	12.8	10.7
	17-Jun-12	8.3	376	17.9	8.2
	16-Jul-12	8.4	400	20.7	6.9
	14-Aug-12	8.3	442	16.1	7.6
	18-Sep-12	7.7	356	14.0	9.2
	17-Oct-12	6.9	328	10.1	8.2
	20-Nov-12	7.8	315	6.6	9.6

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW18	18-Dec-12	7.6	635	4.5	10.9
(cont'd)	16-Jan-13	8.2	301	1.8	10.9
	17-Feb-13 (2)				
	17-Mar-13 (2)				
	16-Apr-13	8.3	263	8.7	10.0
	13-May-13	8.4	290	10.7	9.2
	19-Jun-13	8.3	324	12.6	10.9
	16-Jul-13	8.2	383	17.6	8.5
	21-Aug-13	8.2	365	17.0	8.7
	18-Sep-13	8.4	321	11.0	11.2
	16-Oct-13	8.5	336	12.5	5.8
	19-Nov-13	8.6	293	3.8	2.8
	15-Dec-13 (2)				
	19-Jan-14 (2)				
	16-Feb-14 (2)				
	16-Mar-14 (2)				
	16-Apr-14	8.3	249	3.0	10.5
	13-May-14	8.0	309	12.2	11.0
	18-Jun-14	8.2	338	15.7	10.2
	15-Jul-14	7.8	325		7.9
	19-Aug-14	8.7	387	13.5	7.0
	9-Sep-14	8.8	412	15.3	4.2
	23-Oct-14	8.3	416	8.0	6.9
	16-Nov-14 (2)				
	17-Dec-14	8.9	295	2.4	
	18-Jan-15 (2)				
	15-Feb-15 (2)				
	15-Mar-15 (2)				
	22-Apr-15	8.2	320	7.1	13.0
	19-May-15	8.5	314	12.8	
	15-Jun-15	8.2	405	14.8	9.4
	21-Jul-15	8.4	379	16.5	
	11-Aug-15	8.2	393	15.9	8.7
	25-Aug-15	8.7	330	15.5	7.6
	8-Sep-15	8.0	383	18.9	7.2
	15-Oct-15	8.2	315	9.7	10.3
	8-Nov-15				
	18-Nov-15	8.2	373	8.0	13.0
	8-Dec-15	8.3	331	4.1	22.5
	19-Jan-16	8.1	266	(0)	9.0
	17-Feb-16	8.2	289	1.3	15.0
	15-Mar-16	8.2	264	5.1	13.7
	21-Apr-16	8.2	276	7.0	13.2
	18-May-16	8.6	344	8.9	12.0
	22-Jun-16	8.5	364	14.7	10.3
	3-Jul-16				
	20-Jul-16	8.6	373	16.4	9.7
	7-Aug-16				
	24-Aug-16	8.6	373	18.0	8.9
	19-Sep-16	8.3	391	16.1	7.9

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW18	18-Oct-16	8.4	411	15.1	12.7
(cont'd)	24-Oct-16	7.9	341	7.3	11.5
	15-Nov-16	8.2	339	7.1	11.7
	12-Dec-16	8.2	439	1.2	14.9
	25-Jan-17	8.3	288	2.6	14.0
	16-Feb-17	8.3	154	(0)	16.1
	21-Mar-17	8.4	330	5.5	12.3
	19-Apr-17	8.1	316	10.0	13.1
	9-May-17	8.5	248	8.8	13.3
	16-May-17	8.4	441	10.6	9.9
	28-Jun-17	8.2	385	13.2	10.7
	7-Jul-17				
	19-Jul-17	8.3	404	14.8	10.3
	27-Jul-17				
	15-Aug-17	8.9	321	15.4	10.6
	18-Sep-17	8.3	394	15.9	9.7
	17-Oct-17	8.3	404	10.9	10.6
	14-Nov-17	8.4	351	5.1	8.8
	14-Dec-17	8.1	282	0.3	8.9
	18-Jan-18	7.9	284	0.5	10.8
	24-Feb-18	8.4	274	4.0	14.0
	21-Mar-18	8.3	272	0.6	14.4
	19-Apr-18	8.3	230	1.8	12.9
	8-May-18	8.4	406	12.3	10.3
	15-May-18	8.3	394	11.4	10.2
	18-Jun-18	8.4	449	13.7	9.8
	19-Jul-18	8.3	424	15.0	9.5
	23-Aug-18	8.4	448	17.0	9.3
	19-Sep-18	8.4	430	14.0	9.5
	25-Oct-18	8.4	465	5.7	11.8
	22-Nov-18	8.2	103	0.0	14.9
	13-Dec-18	8.4	470	2.5	13.2
	19-Jan-19	8.1	408	0.5	13.6
	28-Feb-19 (2)				
	19-Mar-19	8.4	425	1.1	13.6
	25-Apr-19	8.3	262	6.7	11.3
	14-May-19	8.5	361	7.9	11.4
	27-May-19	8.5	383	10.0	10.9
	21-Jun-19	8.5	415	11.8	10.4
	30-Jul-19	8.4	420	17.3	8.8
	30-Aug-19	8.3	369	14.5	9.5
	27-Sep-19	8.2	367	13.8	10.4
	22-Oct-19	8.2	386	9.1	9.9
	21-Nov-19	8.3	405	1.7	8.6
	20-Dec-19 (2)				
	24-Jan-20 (2)				
	21-Feb-20 (2)				
	25-Mar-20 (2)				
	28-Apr-20	8.5	360	7.8	11.6
	20-May-20	8.3	440	9.4	11.1

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW18	28-May-20	8.9	312	15.8	9.3
(cont'd)	24-Jun-20	8.6	414	14.7	9.4
	31-Jul-20	8.7	432	18.0	8.8
	26-Aug-20	8.5	389	18.3	8.7
	26-Sep-20	8.1	410	11.2	9.0
	29-Oct-20	8.0	364	8.2	8.6
	27-Nov-20	7.9	496	5.4	11.2
	22-Dec-20	8.3	484	2.8	13.5
	27-Jan-21 (2)				
	22-Feb-21 (2)				
	29-Mar-21	8.2	324	6.7	8.6
	27-Apr-21	8.4	358	7.2	11.6
	27-May-21	8.0	432	12.2	10.7
	22-Jun-21	8.3	441	13.7	10.2
	22-Jul-21 (3)				
	25-Aug-21 (3)				
	28-Sep-21 (3)				
	26-Oct-21 (3)				
	23-Nov-21 (2)				
	21-Dec-21 (3)				
	24-Jan-22 (2)				
	8-Feb-22 (2)				
	16-Mar-22 (2)				
	21-Apr-22	8.3	438	5.0	9.7
	26-May-22	8.2	446	15.7	9.9
	24-Jun-22	8.0	549	9.6	10.6
	29-Aug-22			16.3	
	27-Sep-22		455	12.0	11.6
	27-Oct-22	7.8	369	8.7	7.9
	22-Nov-22	8.2	316	0.5	11.4
	20-Dec-22	8.8	242	0.9	9.6
	24-Jan-23	8.2	427	1.6	14.1
	22-Feb-23	8.0	456	1.1	14.4
	27-Mar-23	8.4	407	4.8	11.3
	21-Apr-23	8.4	348	7.4	11.3
	16-May-23			12.8	
	26-Jun-23	8.3	347	17.0	9.4
	25-Jul-23	8.3	413	15.5	9.3
	29-Aug-23	7.9	397	15.5	4.0
	25-Sep-23	8.5	417	13.0	9.8
	31-Oct-23	8.3	339	5.8	12.3
	29-Nov-23	8.0	513	0.6	13.4
	18-Dec-23	8.1	518	4.4	11.9
SW19	22-May-03			15.0	
	23-Jun-03			18.5	
	20-Aug-03			21.5	
	23-Oct-03	7.4	531	5.6	
	19-Dec-03				
	12-Feb-04		318	0.8	13.0
	16-Mar-04	8.1	434	0.0	13.4

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW19	19-May-04	8.3	431	15.1	
(cont'd)	24-Jun-04	7.8	405	12.8	
	29-Jul-04	8.1	410	15.4	
	26-Aug-04	8.2	408	16.7	
	22-Sep-04	8.1	393	13.1	
	20-Oct-04	8.1	370	7.6	
	18-Nov-04	8.1	394	8.3	
	16-Dec-04	8.0	127	0.1	
	16-Jan-05 (2)				
	13-Feb-05 (2)				
	29-Mar-05	8.0	322	2.5	
	11-Apr-05	7.4	290	8.0	
	24-May-05	8.0	388	11.3	
	28-Jun-05	8.4	504	22.2	
	11-Jul-05	7.6	493	22.7	
	22-Aug-05	8.6	417	16.8	
	27-Sep-05	7.9	413	14.2	
	25-Oct-05	8.2	481	6.6	
	14-Nov-05	8.1	364	5.5	
	12-Dec-05	8.6	245	0.1	1.5
	16-Jan-06	8.2		0.1	1.6
	19-Feb-06 (2)				
	20-Mar-06	8.5	289	1.5	
	18-Apr-06	8.5	380	11.0	
	23-May-06	8.4	463	12.1	
	20-Jun-06	8.2	455	17.6	
	10-Jul-06	8.2	428	17.9	
	22-Aug-06	7.9	438	20.3	
	21-Sep-06	8.0	461	10.0	
	18-Oct-06	8.2	497	11.3	
	27-Nov-06	8.3	502	6.9	
	17-Dec-06	8.3	523	2.9	
	21-Jan-07	8.3	413	0.1	8.5
	18-Feb-07 (2)				
	18-Mar-07	8.3	461	0.1	
	16-Apr-07	8.4	452	3.3	
	13-May-07	8.6	444	16.0	9.9
	17-Jun-07	8.3	498	18.9	9.0
	15-Jul-07	8.0	488	16.5	9.6
	19-Aug-07	8.1	481	16.3	9.1
	17-Sep-07	8.1	503	12.1	9.5
	19-Oct-07	8.0	465	13.6	9.4
	21-Nov-07	8.0	552	4.0	12.1
	12-Dec-07	7.8	495	0.5	
	22-Jan-08	7.8	411	0.1	
	20-Feb-08	7.5	232	0.1	6.4
	19-Mar-08	7.8	484	1.0	
	2-Apr-08	7.7	365	2.7	
	24-Apr-08	7.2	383	9.1	9.1
	21-May-08	7.8	430	9.1	10.0

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW19	18-Jun-08	8.3	478	13.5	8.8
(cont'd)	15-Jul-08	7.6	505	18.4	6.8
	19-Aug-08	8.0	542	16.5	5.6
	16-Sep-08	8.5	490	12.9	7.4
	22-Oct-08	8.0	493	5.0	7.8
	23-Nov-08 (2)				
	14-Dec-08	6.9	402	1.3	8.3
	18-Jan-09 (2)				
	8-Feb-09 (5)				
	15-Mar-09	8.8	361	6.0	
	12-Apr-09	7.7	433	6.9	
	17-May-09	8.6	407	12.5	
	14-Jun-09	8.4	701	14.0	
	12-Jul-09	8.5	492	13.7	10.5
	9-Aug-09	8.3	478	16.4	9.3
	13-Sep-09	7.0	454	11.4	
	11-Oct-09	7.7	541	4.4	12.8
	15-Nov-09	7.7	483	3.2	
	13-Dec-09	7.7	560	0.1	13.1
	17-Jan-10	8.3	524	0.2	12.1
	7-Feb-10 (2)				
	14-Mar-10	7.9	412	6.0	12.8
	4-Apr-10				
	11-Apr-10	8.2	460	10.5	13.7
	16-May-10	8.5	370	13.6	10.3
	23-May-10				
	13-Jun-10	8.4	394	15.8	12.6
	18-Jul-10	8.4	455	20.2	11.5
	15-Aug-10	8.3	412	15.9	10.2
	12-Sep-10	8.3	369	11.9	10.6
	17-Oct-10	8.3	373	7.4	12.2
	14-Nov-10	8.3	308	5.4	13.4
	19-Dec-10	8.6	269	0.8	14.1
	16-Jan-11				
	20-Feb-11	8.2	271	(0)	10.8
	13-Mar-11	8.4	271	2.6	14.9
	17-Mar-11				
	18-Mar-11				
	20-Mar-11	8.4	304	3.7	13.5
	1-Apr-11				
	5-Apr-11				
	8-Apr-11				
	12-Apr-11				
	15-Apr-11				
	17-Apr-11	8.2	251	3.8	10.5
	20-Apr-11				
	21-Apr-11				
	26-Apr-11				
	29-Apr-11				
	3-May-11				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW19	6-May-11				
(cont'd)	10-May-11				
	13-May-11				
	15-May-11	8.6	301	10.3	12.0
	16-May-11				
	18-May-11				
	19-May-11				
	20-May-11				
	27-May-11				
	3-Jun-11				
	12-Jun-11	8.6	338	13.8	9.8
	17-Jul-11	8.4	422	21.2	10.4
	14-Aug-11	8.7	297	17.7	9.6
	18-Sep-11	8.8	324	13.3	11.3
	16-Oct-11	8.2	385	9.8	11.0
	20-Nov-11	8.2	313	3.1	13.7
	18-Dec-11	8.9	223	1.3	13.5
	15-Jan-12 (2)				
	19-Feb-12	8.2	240	1.2	12.4
	18-Mar-12	8.4	307	13.9	7.8
	15-Apr-12	9.0	303	5.2	15.5
	13-May-12	8.3	345	11.6	12.4
	17-Jun-12	8.4	445	21.2	6.8
	16-Jul-12	8.4	440	20.7	8.2
	15-Aug-12	8.6	440	15.8	7.0
	19-Sep-12	7.9	370	10.7	10.9
	18-Oct-12	8.3	359	10.6	8.9
	21-Nov-12	8.5	286	5.5	4.5
	18-Dec-12	7.8	678	4.1	9.8
	15-Jan-13	8.1	314	1.4	12.4
	17-Feb-13 (2)				
	19-Mar-13	8.2	219	(0)	12.8
	16-Apr-13	8.1	262	5.8	10.2
	14-May-13	8.3	294	6.9	9.5
	19-Jun-13	8.5	323	11.3	12.3
	17-Jul-13	8.2	420	20.5	8.8
	20-Aug-13	8.4	421	18.2	10.5
	18-Sep-13	8.4	421	12.5	10.5
	17-Oct-13	8.5	378	11.4	6.0
	20-Nov-13	8.0	305	2.6	4.1
	15-Dec-13 (2)				
	19-Jan-14 (2)				
	16-Feb-14 (2)				
	16-Mar-14 (2)				
	16-Apr-14	8.4	282	4.4	10.3
	13-May-14	8.6	354	14.2	10.3
	18-Jun-14	8.3	354	15.5	10.7
	15-Jul-14	7.8	410	17.0	8.5
	19-Aug-14	8.6	445	13.8	5.4
	9-Sep-14	8.5	459	15.4	5.0

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW19	21-Oct-14	8.3	451	10.3	6.0
(cont'd)	16-Nov-14 (3)				
	14-Dec-14 (3)				
	18-Jan-15 (3)				
	15-Feb-15 (3)				
	15-Mar-15 (3)				
	23-Apr-15	8.4	306	3.2	15.4
	20-May-15	8.4	334	12.2	14.0
	15-Jun-15	8.4	423	16.5	9.0
	21-Jul-15	8.4	470	19.0	
	12-Aug-15	8.3	412	15.4	10.1
	23-Aug-15				
	9-Sep-15	8.0	409	18.7	5.2
	16-Oct-15	8.1	343	8.4	11.9
	8-Nov-15				
	19-Nov-15	8.1	433	9.1	13.7
	8-Dec-15	8.3	356	3.8	23.1
	19-Jan-16	8.1	266	(0)	9.0
	14-Feb-16 (2)				
	13-Mar-16 (5)				
	21-Apr-16	8.4	13	9.0	(6)
	17-May-16	8.6	379	10.3	11.6
	22-Jun-16	8.5	413	17.3	9.8
	3-Jul-16				
	20-Jul-16	8.5	422	18.0	9.4
	7-Aug-16				
	25-Aug-16	8.3	434	18.9	11.1
	19-Sep-16	8.1	414	14.7	9.1
	17-Oct-16	7.7	457	12.2	10.6
	15-Nov-16	7.6	355	4.9	13.8
	12-Dec-16	7.7	311	0.1	16.9
	24-Jan-17	8.2	312	1.9	14.4
	17-Feb-17	8.3	314	(0)	16.1
	22-Mar-17	8.6	311	(0)	12.1
	19-Apr-17	7.8	344	10.4	12.7
	16-May-17	8.6	483	10.6	8.5
	28-Jun-17	8.4	415	13.1	10.7
	7-Jul-17				
	19-Jul-17	8.5	465	18.1	9.6
	27-Jul-17				
	16-Aug-17	8.5	445	17.3	9.5
	17-Sep-17	8.4	432	16.9	9.3
	18-Oct-17	8.5	408	10.4	8.0
	14-Nov-17	8.5	383	4.8	9.0
	14-Dec-17	8.1	213	(0)	15.8
	17-Jan-18		259	(0)	10.6
	24-Feb-18	8.5	271	2.3	15.2
	20-Mar-18	8.4	281	(0)	17.3
	18-Apr-18	8.7	492	2.8	10.2
	14-May-18	8.5	461	14.3	9.9

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW19	18-Jun-18	8.4	467	8.3	9.4
(cont'd)	19-Jul-18	8.3	475	16.1	9.5
	23-Aug-18	8.5	489	18.2	9.2
	19-Sep-18	8.3	483	13.9	9.8
	24-Oct-18	8.6	523	5.0	12.7
	21-Nov-18	8.2	527	0.0	14.3
	13-Dec-18	8.4		1.2	13.6
	19-Jan-19	8.2	427	0.0	16.2
	26-Feb-19 (2)				
	15-Mar-19 (1)				
	27-May-19	8.6	418	12.1	10.5
	21-Jun-19	8.5	443	15.4	9.8
	30-Jul-19	8.4	426	21.5	8.6
	30-Aug-19	7.8	939	16.3	8.3
	27-Sep-19	7.9	529	17.9	7.6
	22-Oct-19	7.7	492	9.3	7.9
	21-Nov-19	8.0	419	0.6	7.9
	20-Dec-19 (2)				
	15-Jan-20 (2)				
	20-Feb-20 (2)				
	26-Mar-20 (1)				
	28-Apr-20	8.6	390	7.5	11.9
	28-May-20	9.2	423	12.0	10.7
	24-Jun-20	8.8	426	15.2	9.7
	31-Jul-20	7.4	413	15.5	10.4
	26-Aug-20	8.1	441	15.6	9.5
	26-Sep-20	8.1	433	12.7	10.2
	29-Oct-20	7.3	480	7.9	7.6
	26-Nov-20 (3)				
	23-Dec-20 (3)				
	27-Jan-21 (2)				
	22-Feb-21 (3)				
	29-Mar-21	8.1	465	8.0	11.0
	27-Apr-21 (1)				
	27-May-21	8.4	482	12.5	12.5
	22-Jun-21	8.4	476	15.7	10.0
	22-Jul-21	8.3	512	14.8	10.2
	25-Aug-21	8.2	498	15.7	9.9
	28-Sep-21	8.2	532	11.8	10.9
	26-Oct-21 (3)				
	23-Nov-21 (2)				
	21-Dec-21 (3)				
	24-Jan-22 (3)				
	8-Feb-22 (2)				
	16-Mar-22 (3)				
	21-Apr-22	7.9	570	3.4	10.3
	24-May-22	7.2	560	10.2	11.7
	25-Jun-22			9.7	
	26-Aug-22			13.4	
	27-Sep-22			11.8	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW19	28-Oct-22			7.0	
(cont'd)	22-Nov-22			0.5	
	17-May-23			10.5	
	27-Jun-23			16.4	
	25-Jul-23			19.2	
	29-Aug-23			16.6	
	26-Sep-23			13.0	
	1-Nov-23			2.8	
SW20	22-May-03			7.0	
	23-Jun-03			6.9	
	25-Sep-03 (1)				
	16-Mar-04	7.6	485	6.7	7.5
	21-Apr-04	7.4	261	6.4	
	19-May-04	7.4	334	6.8	
	24-Jun-04	7.4	331	7.0	11.4
	29-Jul-04	7.1	328	7.7	11.8
	26-Aug-04	7.3	337	7.8	
	22-Sep-04	7.5	358	8.9	9.7
	21-Oct-04 (1)				
	17-Nov-04 (1)				
	15-Dec-04 (2)				
	16-Jan-05 (2)				
	13-Feb-05 (2)				
	29-Mar-05	7.7	345	6.9	11.9
	11-Apr-05	7.1	254	7.1	
	24-May-05	7.3	346	8.2	
	28-Jun-05	8.3	421	13.4	
	11-Jul-05	6.8	406	12.8	
	22-Aug-05	7.6	240	12.2	10.2
	27-Sep-05	7.5	367	11.7	9.7
	23-Oct-05 (1)				
	13-Nov-05 (1)				
	12-Dec-05	8.2	328	2.5	10.6
	17-Jan-06	6.4	303	5.1	11.8
	19-Feb-06 (2)				
	20-Mar-06	8.2	323	6.9	
	18-Apr-06	7.9	371	9.5	
	23-May-06	7.8	460	10.2	
	20-Jun-06	7.7	455	11.2	
	11-Jul-06	7.7	438	12.1	
	23-Aug-06	7.5	444	11.0	
	20-Sep-06	7.6	414	11.0	
	18-Oct-06	7.6	441	10.1	
	27-Nov-06	7.7	489	7.6	10.9
	17-Dec-06	7.7	521	6.3	12.4
	21-Jan-07	7.9	498	5.7	12.2
	18-Feb-07	8.1	490	5.2	12.2
	18-Mar-07	8.0	423	5.7	12.3
	16-Apr-07	8.0	435	5.8	12.5
	13-May-07	8.0	446	9.8	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW20	17-Jun-07	8.1	494	12.0	9.7
(cont'd)	15-Jul-07	7.9	463	11.3	9.7
	19-Aug-07	8.7	469	13.4	
	14-Oct-07 (1)				
	18-Nov-07 (1)				
	9-Dec-07 (2)				
	21-Jan-08	7.5	380	5.7	
	19-Feb-08	7.7	451	5.0	12.0
	17-Mar-08	7.5	476	7.2	
	1-Apr-08	7.6	345	4.8	
	23-Apr-08	7.8	370	8.5	10.6
	20-May-08	6.9	255	10.2	
	17-Jun-08	8.2	462	7.9	9.8
	15-Jul-08	6.9	491	9.4	7.7
	18-Aug-08	5.7	293	11.2	5.8
	16-Sep-08	7.7	508	8.5	8.4
	20-Oct-08	7.5	414	8.0	8.5
	23-Nov-08		513	6.6	8.1
	14-Dec-08	7.2	403	5.5	8.3
	18-Jan-09	7.9	457	5.3	9.5
	8-Feb-09		443	6.9	7.9
	15-Mar-09	8.1	379	7.8	
	12-Apr-09	8.0	430	8.4	
	17-May-09	7.7	375	11.3	
	14-Jun-09	7.3	885	10.1	
	12-Jul-09	8.2	478	8.9	10.4
	9-Aug-09	8.4	481	9.6	10.9
	13-Sep-09	9.1	426	10.4	
	11-Oct-09	6.3	492	7.9	
	15-Nov-09	7.2	426	3.9	
	13-Dec-09	7.4	456	2.4	12.1
	17-Jan-10	7.7		3.8	12.1
	7-Feb-10	7.8	479	1.5	12.6
	14-Mar-10	7.8	423	7.8	11.9
	4-Apr-10				
	11-Apr-10	7.7	447	8.4	12.8
	16-May-10	8.0	335	9.3	11.4
	23-May-10				
	13-Jun-10	7.8	347	9.9	14.1
	18-Jul-10	7.7	351	9.8	11.7
	15-Aug-10	8.1	349	11.7	9.6
	12-Sep-10	7.7	300	8.7	11.0
	17-Oct-10	7.6	295	7.4	10.4
	14-Nov-10	7.6	287	6.8	
	19-Dec-10	8.1	261	5.4	11.3
	15-Jan-11	7.8	262	6.0	11.4
	16-Jan-11	8.0	295	5.2	12.4
	20-Feb-11	7.9	284	5.5	12.0
	13-Mar-11	8.0	309	7.2	11.0
	17-Mar-11				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW20	18-Mar-11				
(cont'd)	20-Mar-11				
	1-Apr-11				
	5-Apr-11				
	8-Apr-11				
	12-Apr-11				
	15-Apr-11				
	17-Apr-11	8.0	282	6.8	12.0
	20-Apr-11				
	21-Apr-11				
	26-Apr-11				
	29-Apr-11				
	3-May-11				
	6-May-11				
	10-May-11				
	13-May-11				
	15-May-11	7.9	256	6.8	13.4
	16-May-11				
	18-May-11				
	19-May-11				
	20-May-11				
	27-May-11				
	3-Jun-11				
	12-Jun-11	7.7	240	8.4	7.8
	17-Jul-11	7.9	331	10.2	11.2
	14-Aug-11	8.0	256	12.3	11.6
	18-Sep-11	7.5	213	10.0	10.3
	16-Oct-11	8.0	324	7.7	11.4
	20-Nov-11	7.8	288	3.5	12.7
	18-Dec-11	6.8	261	0.3	10.9
	19-Feb-12	7.1	272	5.1	12.7
	18-Mar-12	7.7	251	7.9	10.8
	15-Apr-12	8.7	306	6.0	10.8
	13-May-12	7.8	360	12.1	9.2
	17-Jun-12	7.7	383	12.3	8.4
	16-Jul-12	7.9	425	17.2	5.8
	14-Aug-12	7.6	451	12.8	6.6
	18-Sep-12	6.8	355	10.9	10.6
	17-Oct-12	6.8	456	8.0	7.4
	20-Nov-12	7.8	339	7.4	8.7
	18-Dec-12	7.5	728	6.6	10.1
	15-Jan-13	7.7	352	5.7	11.4
	20-Feb-13	8.1	282	4.1	13.4
	19-Mar-13	7.9	241	5.0	9.7
	16-Apr-13	7.1	265	6.5	9.7
	13-May-13	7.5	271	7.6	10.9
	18-Jun-13	7.8	334	9.7	8.4
	16-Jul-13	7.9	357	9.7	10.0
	21-Aug-13	8.0	356	11.0	10.1
	18-Sep-13	8.5	317	8.3	12.4

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW20	16-Oct-13	8.7	337	9.2	7.0
(cont'd)	19-Nov-13	7.4	329	5.9	6.0
	17-Dec-13	7.8	316	5.0	4.0
	21-Jan-14	7.9	201	3.5	3.4
	20-Feb-14	7.7	314	5.0	7.8
	18-Mar-14	7.3	324	2.8	4.1
	15-Apr-14	7.7	267	5.9	11.9
	12-May-14	7.5	320	9.2	10.3
	17-Jun-14	8.1	336	9.4	11.5
	14-Jul-14	8.9	403	10.8	2.0
	18-Aug-14	8.4	192	10.9	6.6
	8-Sep-14	8.8	398	10.4	8.9
	23-Oct-14	7.9	410	7.9	4.6
	16-Dec-14	8.2	383	5.9	
	20-Jan-15	6.9	255	4.4	1.2
	15-Feb-15 (3)				
	18-Mar-15	8.3	195	5.3	12.1
	21-Apr-15	7.7	260	6.8	11.8
	19-May-15	8.0	321	9.6	15.6
	15-Jun-15	7.8	387	10.6	10.0
	21-Jul-15	8.0	376	11.1	
	11-Aug-15	8.0	404	12.4	10.3
	23-Aug-15				
	8-Sep-15	7.8	372	11.6	11.4
	15-Oct-15	7.4	323	8.4	7.1
	8-Nov-15				
	18-Nov-15	7.9	383	8.0	11.8
	8-Dec-15	8.0	370	5.8	16.3
	19-Jan-16	7.9	287	1.8	15.1
	17-Feb-16	7.7	344	4.5	13.6
	15-Mar-16	7.5	284	7.1	12.9
	20-Apr-16	7.4	300	7.0	12.9
	17-May-16	7.9	393	9.7	11.9
	22-Jun-16	7.9	357	9.3	11.1
	3-Jul-16				
	20-Jul-16	8.0	372	10.3	11.0
	7-Aug-16				
	24-Aug-16	8.3	379	12.8	11.1
	19-Sep-16	8.2	388	13.0	9.8
	17-Oct-16	7.5	353	13.7	5.9
	15-Nov-16	7.9	500	6.9	11.4
	12-Dec-16	7.8	442	0.0	15.5
	24-Jan-17	7.8	328	6.2	12.1
	16-Feb-17	8.1	357	3.7	13.5
	21-Mar-17	7.9	388	7.0	12.1
	19-Apr-17	7.6	344	8.4	14.2
	16-May-17	8.4	349	9.9	12.5
	28-Jun-17	7.7	309	8.4	11.5
	7-Jul-17				
	18-Jul-17	8.1	339	9.4	11.6

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW20	27-Jul-17				
(cont'd)	15-Aug-17	8.3	309	9.6	11.8
	17-Sep-17	7.8	379	9.9	10.3
	17-Oct-17	8.0	377	8.8	10.3
	14-Nov-17	8.0	391	6.8	8.0
	14-Dec-17	7.9	367	4.7	12.5
	17-Jan-18	7.9	341	5.2	7.8
	23-Feb-18	7.9	299	6.4	9.0
	20-Mar-18	8.0	356	6.3	13.4
	18-Apr-18	8.1	544	6.4	7.3
	14-May-18	7.7	478	9.3	11.6
	18-Jun-18	7.8	501	10.9	10.4
	19-Jul-18	7.7	500	9.0	10.1
	24-Aug-18	8.1	488	12.3	9.8
	19-Sep-18	8.2	477	10.7	9.9
	25-Oct-18	7.9	453	3.7	8.2
	22-Nov-18	8.1		3.1	12.1
	13-Dec-18	8.0		5.5	10.8
	19-Jan-19	7.8	500	5.0	11.4
	26-Feb-19 (2)				
	19-Mar-19	7.9	433	6.0	11.6
	25-Apr-19	7.4	373	6.3	10.4
	27-May-19	8.0	428	10.4	10.7
	21-Jun-19	7.7	457	7.8	10.2
	30-Jul-19	7.9	457	10.6	9.6
	30-Aug-19	8.1	904	10.8	10.0
	26-Sep-19 (1)				
	23-Oct-19 (1)				
	21-Nov-19 (1)				
	20-Dec-19 (2)				
	15-Jan-20 (2)				
	20-Feb-20 (2)				
	25-Mar-20	7.7	420	6.7	11.1
	28-Apr-20	7.8	385	7.6	11.1
	28-May-20	8.4	434	9.4	9.9
	24-Jun-20	8.1	409	9.3	10.2
	31-Jul-20	8.1	500	9.7	9.6
	25-Aug-20 (1)				
	29-Oct-20	7.3	392	8.8	7.5
	26-Nov-20 (2)				
	23-Dec-20 (2)				
	27-Jan-21 (2)				
	22-Feb-21 (2)				
	29-Mar-21	7.6	386	6.9	11.8
	27-Apr-21	7.6	399	6.8	10.6
	27-May-21	7.6	490	9.8	10.8
	22-Jun-21	8.1	446	10.6	10.9
	22-Jul-21	7.8	505	10.3	10.4
	25-Aug-21	7.7	447	11.9	9.9
	28-Sep-21	7.7	552	8.4	10.6

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW20	26-Oct-21	(3)				
(cont'd)	23-Nov-21	(2)				
	21-Dec-21	(2)				
	24-Jan-22	(2)				
	8-Feb-22	(2)				
	16-Mar-22	(2)				
	21-Apr-22		8.1	583	2.1	11.6
	24-May-22		7.8	519	10.5	10.8
	24-Jun-22		8.1	603	10.5	10.5
	29-Aug-22				12.7	
	27-Sep-22				9.9	
	27-Oct-22	(1)				
	21-Nov-22	(1)				
	21-Dec-22				0.7	
	24-Jan-23		7.9		4.2	
	22-Feb-23				5.1	
	27-Mar-23				7.9	
	21-Apr-23				8.4	
	16-May-23				9.8	
	26-Jun-23				10.3	
	25-Jul-23				9.3	
	29-Aug-23				9.5	
	25-Sep-23				9.8	
	30-Oct-23				6.8	
	29-Nov-23				3.3	
	18-Dec-23				6.1	
SW21	11-Feb-04		8.5	283	0.3	10.3
	17-Mar-04		7.5	286	0.2	8.1
	21-Apr-04		8.0	310	10.8	
	19-May-04		8.1	395	17.5	
	24-Jun-04		8.1	419	18.9	
	29-Jul-04		8.0	418	23.1	8.2
	26-Aug-04		7.9	411	18.4	
	22-Sep-04		7.6	417	20.5	8.7
	20-Oct-04		7.9	321	9.2	10.8
	18-Nov-04		8.0	317	6.1	
	15-Dec-04	(2)				
	16-Jan-05	(2)				
	13-Feb-05	(2)				
	29-Mar-05		7.7	345	6.9	11.9
	11-Apr-05		7.1	264	7.1	
	26-May-05		8.2	418	19.6	
	28-Jun-05		8.4	432	25.9	8.0
	12-Jul-05		7.9	471	24.7	6.9
	23-Aug-05		7.3	342	19.9	8.5
	28-Sep-05		7.7	344	16.6	8.9
	25-Oct-05		8.0	319	8.6	11.6
	15-Nov-05		8.0	298	6.3	11.9
	13-Dec-05		7.6	185	0.5	12.7
	17-Jan-06		6.8	245	1.6	12.7

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW21	19-Feb-06 (2)				
(cont'd)	22-Mar-06	8.0	247	1.4	
	19-Apr-06	8.2	388	13.5	
	23-May-06	8.1	405	12.4	
	20-Jun-06	8.1	399	21.8	
	11-Jul-06	8.1	373	23.3	
	23-Aug-06	7.9	375	21.3	
	20-Sep-06	8.0	350	16.3	
	19-Oct-06	8.0	368	10.0	
	23-Nov-06	8.3	457	2.4	13.6
	17-Dec-06	7.7	515	3.0	
	21-Jan-07 (2)				
	18-Feb-07 (2)				
	18-Mar-07 (2)				
	16-Apr-07	8.3	435	4.4	
	13-May-07	8.5	383	15.0	
	17-Jun-07	8.3	415	24.4	
	15-Jul-07	8.0	418	22.0	8.0
	19-Aug-07	8.0	385	20.1	8.6
	18-Oct-07	7.9	365	10.3	8.7
	21-Nov-07	8.2	418	4.5	11.7
	9-Dec-07	7.2	393	1.5	12.5
	21-Jan-08	7.5	390	1.3	
	19-Feb-08	7.7	425	1.6	12.7
	17-Mar-08	7.4	444	1.1	
	1-Apr-08	7.4	326	2.0	
	23-Apr-08	7.9	394	16.6	8.2
	21-May-08	7.9	357	14.0	9.3
	17-Jun-08	7.9	336	19.6	6.7
	15-Jul-08	7.4	309	22.7	5.7
	19-Aug-08	8.1	325	22.1	4.2
	16-Sep-08	8.7	272	10.5	6.5
	21-Oct-08	8.0	332	10.6	7.6
	23-Nov-08		462	2.2	9.6
	14-Dec-08	7.3	394	1.8	9.7
	18-Jan-09	7.9	460	0.2	12.6
	8-Feb-09	8.9	429	1.0	9.0
	15-Mar-09	8.1	375	3.9	
	12-Apr-09	8.5	433	9.8	
	17-May-09	8.2	311	17.0	
	14-Jun-09	7.9	621	19.3	
	12-Jul-09	7.8	362	21.2	7.5
	9-Aug-09	6.8	361	20.1	8.8
	13-Sep-09	8.0	389	20.5	9.0
	11-Oct-09	8.5	342	8.5	11.2
	15-Nov-09	7.4	369	6.6	
	13-Dec-09	7.5	463	0.4	12.3
	17-Jan-10 (2)				
	7-Feb-10	7.4	502	0.7	10.9
	14-Mar-10	7.4	305	4.3	11.5

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW21	4-Apr-10				
(cont'd)	11-Apr-10	7.9	459	10.6	14.1
	16-May-10	8.0	345	14.5	8.9
	23-May-10				
	13-Jun-10	8.0	394	20.7	10.1
	18-Jul-10	8.1	401	24.2	10.1
	12-Sep-10	8.2	362	18.0	7.5
	17-Oct-10	8.0	302	11.4	10.3
	14-Nov-10	8.1	281	6.8	12.6
	19-Dec-10 (2)				
	16-Jan-11				
	20-Feb-11	8.0	262	0.8	11.8
	13-Mar-11	8.1	233	1.1	10.9
	17-Mar-11				
	18-Mar-11				
	20-Mar-11				
	1-Apr-11				
	5-Apr-11				
	8-Apr-11				
	12-Apr-11				
	15-Apr-11				
	17-Apr-11	8.2	303	6.5	12.2
	20-Apr-11				
	21-Apr-11				
	26-Apr-11				
	29-Apr-11				
	3-May-11				
	6-May-11				
	10-May-11				
	13-May-11				
	15-May-11	8.0	283	12.2	12.1
	16-May-11				
	18-May-11				
	19-May-11				
	20-May-11				
	27-May-11				
	3-Jun-11				
	12-Jun-11	8.3	332	20.8	9.8
	18-Sep-11 (1)				
	16-Oct-11	8.2	230	12.1	9.3
	18-Dec-11	8.7	230	3.7	10.7
	15-Jan-12 (2)				
	19-Feb-12 (2)				
	18-Mar-12	8.0	304	15.6	9.2
	15-Apr-12	8.6	319	12.0	10.9
	13-May-12	8.2	347	17.6	8.8
	17-Jun-12 (1)				
	15-Jul-12 (1)				
	14-Aug-12	8.4	459	21.5	6.2
	18-Sep-12	7.9	322	17.8	7.4

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW21	17-Oct-12	7.0	254	10.8	8.2
(cont'd)	20-Nov-12	8.0	316	5.7	9.4
	18-Dec-12	7.2	680	4.3	9.0
	15-Jan-13	7.4	345	3.5	9.5
	17-Feb-13 (2)				
	17-Mar-13 (2)				
	16-Apr-13	7.8	299	7.2	9.9
	13-May-13	8.0	339	14.5	5.2
	19-Jun-13	8.2	409	22.5	7.2
	16-Jul-13	8.1	444	28.2	4.3
	16-Oct-13	8.7	331	14.9	4.8
	19-Nov-13	8.7	301	5.3	2.0
	15-Dec-13 (2)				
	19-Jan-14 (2)				
	16-Feb-14 (2)				
	16-Mar-14 (2)				
	16-Apr-14	7.7	194	5.9	10.6
	13-May-14	7.9	312	16.0	9.1
	16-Nov-14 (2)				
	16-Dec-14	9.4	313	2.0	
	18-Jan-15 (2)				
	15-Feb-15 (3)				
	15-Mar-15 (2)				
	22-Apr-15	8.0	406	10.2	11.6
	19-May-15	8.2	346	17.1	13.7
	15-Jun-15	8.0	393	20.5	7.4
	21-Jul-15	8.4	422	23.2	7.6
	11-Aug-15	7.6	396	21.1	6.9
	23-Aug-15				
	11-Oct-15 (1)				
	8-Nov-15				
	18-Nov-15	7.9	248	6.7	13.2
	8-Dec-15	7.4	289	3.5	13.9
	19-Jan-16	7.5	270	1.4	11.9
	17-Feb-16	7.2	3	1.2	11.3
	15-Mar-16	7.5	334	6.2	11.4
	21-Apr-16	7.9	345	11.3	11.5
	18-May-16	8.3	382	13.7	10.8
	3-Jul-16				
	21-Jul-16	8.3	288	23.9	8.5
	7-Aug-16				
	24-Aug-16	8.1	326	24.7	8.9
	19-Sep-16	8.2	330	22.0	8.0
	18-Oct-16	8.2	289	15.3	12.7
	16-Nov-16	7.9	264	6.9	11.3
	12-Dec-16	8.1	430	1.2	15.8
	25-Jan-17	7.5	315	2.1	10.7
	17-Feb-17	7.9	303	0.6	12.5
	22-Mar-17	8.1	350	4.3	12.1
	19-Apr-17	7.1	335	9.7	14.6

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW21	16-May-17	8.7	427	20.7	8.7
(cont'd)	28-Jun-17	8.2	429	21.2	9.4
	7-Jul-17				
	19-Jul-17	8.1	428	24.0	7.4
	27-Jul-17				
	16-Aug-17	8.1	351	20.6	8.8
	19-Sep-17	8.1	343	19.4	8.0
	18-Oct-17	8.0	341	12.5	9.0
	15-Nov-17	8.1	327	3.8	8.1
	14-Dec-17	8.2	294	1.1	10.4
	17-Jan-18 (2)				
	23-Feb-18	7.6	237	1.8	7.2
	21-Mar-18	7.9	328	3.2	10.6
	19-Apr-18	8.0	274	1.7	11.3
	15-May-18	8.1	458	16.9	9.5
	18-Jun-18	8.2	443	13.6	7.4
	19-Jul-18	8.0	430	9.0	5.8
	24-Aug-18	8.2	376	22.7	7.5
	20-Sep-18	8.0	365	18.8	5.9
	25-Oct-18	8.2	379	7.3	10.0
	22-Nov-18 (1)				
	13-Dec-18	7.7	497	1.9	10.1
	18-Jan-19 (2)				
	19-Jan-19 (2)				
	28-Feb-19 (2)				
	19-Mar-19	7.6	441	1.5	9.9
	25-Apr-19	8.0	409	9.9	10.7
	27-May-19	8.1	428	18.0	8.7
	21-Jun-19	8.2	408	22.5	8.0
	30-Jul-19	8.2	355	24.9	7.2
	30-Aug-19	8.0	411	15.9	7.2
	27-Sep-19	8.2	388	15.2	7.2
	22-Oct-19	8.0	329	9.1	7.5
	21-Nov-19	8.0	395	0.1	7.7
	20-Dec-19 (2)				
	24-Jan-20 (2)				
	21-Feb-20 (2)				
	25-Mar-20 (2)				
	28-Apr-20				
	28-May-20 (1)				
	24-Jun-20 (1)				
	31-Jul-20 (3)				
	26-Aug-20 (3)				
	26-Sep-20 (3)				
	29-Oct-20	7.8	311	8.5	7.6
	27-Nov-20	8.0	487	4.7	11.4
	22-Dec-20	7.6	503	2.9	10.9
	27-Jan-21 (2)				
	22-Feb-21 (2)				
	29-Mar-21	7.3	381	6.5	10.5

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW21	27-Apr-21		7.7	388	7.0	9.3
(cont'd)	27-May-21		7.9	470	20.3	6.3
	22-Jun-21	(1)				
	22-Jul-21	(1)				
	25-Aug-21	(1)				
	28-Sep-21	(1)				
	26-Oct-21	(3)				
	23-Nov-21		7.2	522	2.3	10.3
	21-Dec-21		7.6	526	1.8	10.2
	24-Jan-22	(2)				
	8-Feb-22	(2)				
	16-Mar-22	(2)				
	21-Apr-22		7.6	503	7.8	6.3
	24-May-22		8.0	493	18.1	7.2
	25-Jun-22		8.0	645	10.5	11.4
	26-Aug-22	(1)				
	29-Sep-22	(1)				
	27-Oct-22				10.7	
	22-Nov-22		8.2		1.1	
	17-May-23		8.0		14.8	
	26-Jun-23	(1)				
	26-Jul-23		7.9		23.1	
	31-Aug-23		8.2		18.4	
	25-Sep-23	(1)				
	31-Oct-23		8.2		9.4	
SW21A	19-Dec-03	(2)				
	10-Feb-04	(2)				
	18-Mar-04	(2)				
	19-May-04		8.0	378	15.7	
	24-Jun-04		8.1	384	17.2	
	29-Jul-04		8.0	416	22.7	8.2
	26-Aug-04		8.0	377	15.7	
	21-Sep-04	(1)				
	20-Oct-04		8.0	301	6.6	12.0
	18-Nov-04		7.9	332	7.9	11.2
	16-Dec-04		7.9	243	0.2	
	16-Jan-05	(2)				
	13-Feb-05	(2)				
	29-Mar-05		7.7	224	2.1	
	11-Apr-05		7.4	328	9.9	11.1
	26-May-05		8.2	429	22.0	8.8
	28-Jun-05		8.2	496	26.2	
	12-Jul-05		7.7	423	18.2	8.3
	23-Aug-05		7.4	363	13.6	10.1
	28-Sep-05		7.7	346	11.9	10.2
	25-Oct-05		7.9	392	6.2	
	15-Nov-05		8.0	280	3.9	12.5
	13-Dec-05		7.9	278	0.3	13.0
	17-Jan-06		6.4	219	0.3	13.8
	19-Feb-06	(2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW21A	22-Mar-06	8.2	255	0.4	
(cont'd)	19-Apr-06	8.3	358	17.9	
	23-May-06	8.3	403	15.6	
	20-Jun-06	8.4	405	17.1	
	11-Jul-06	8.1	390	19.4	
	23-Aug-06	7.9	390	16.9	
	20-Sep-06	8.1	362	11.3	
	19-Oct-06	8.0	396	9.7	
	23-Nov-06	8.2	430	1.9	
	17-Dec-06	8.0	497	1.6	
	21-Jan-07 (2)				
	18-Feb-07 (2)				
	18-Mar-07 (2)				
	16-Apr-07	8.3	420	2.4	13.6
	13-May-07	8.5	387	15.2	
	17-Jun-07	8.3	426	20.8	8.3
	15-Jul-07	8.0	419	19.1	8.7
	19-Aug-07	7.8	345	16.7	9.3
	18-Oct-07	7.9	396	12.8	9.0
	21-Nov-07	8.0	423	3.6	11.2
	9-Dec-07	7.9	395	0.9	13.0
	20-Jan-08 (2)				
	17-Feb-08 (2)				
	16-Mar-08 (2)				
	30-Mar-08 (2)				
	21-Oct-08	8.3	380	5.0	
	23-Nov-08		481	1.3	9.0
	14-Dec-08	7.6	379	0.3	9.2
	18-Jan-09 (2)				
	8-Feb-09 (2)				
	15-Mar-09	8.1	369	6.4	
	12-Apr-09	8.4	401	11.5	
	17-May-09	8.3	308	21.5	
	14-Jun-09 (1)				
	12-Jul-09 (1)				
	9-Aug-09 (1)				
	13-Sep-09	7.9	358	16.6	
	11-Oct-09	8.4	413	5.2	12.4
	15-Nov-09	7.6	334	5.6	
	13-Dec-09 (2)				
	17-Jan-10 (2)				
	7-Feb-10 (2)				
	14-Mar-10	7.4	284	7.0	11.1
	4-Apr-10				
	11-Apr-10	8.0	434	12.6	12.5
	16-May-10	8.1	356	14.3	9.8
	23-May-10				
	13-Jun-10 (1)				
	15-Aug-10 (1)				
	12-Sep-10	8.1	322	14.0	8.7

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW21A	14-Nov-10	8.1	268	6.1	12.0
(cont'd)	19-Dec-10 (2)				
	16-Jan-11				
	20-Feb-11				
	13-Mar-11 (2)				
	17-Mar-11				
	18-Mar-11				
	20-Mar-11				
	1-Apr-11				
	5-Apr-11				
	8-Apr-11				
	12-Apr-11				
	15-Apr-11				
	17-Apr-11	8.1	343	8.4	10.7
	20-Apr-11				
	21-Apr-11				
	26-Apr-11				
	29-Apr-11				
	3-May-11				
	6-May-11				
	10-May-11				
	13-May-11				
	15-May-11	8.0	267	9.3	12.3
	16-May-11				
	18-May-11				
	19-May-11				
	20-May-11				
	27-May-11				
	3-Jun-11				
	12-Jun-11	8.3	319	18.0	8.3
	18-Sep-11 (1)				
	16-Oct-11	8.0	304	9.4	9.0
	18-Dec-11	8.6	222	1.7	11.9
	15-Jan-12 (2)				
	19-Feb-12 (2)				
	18-Mar-12	7.9	351	18.1	7.9
	15-Apr-12	8.7	272	9.4	10.7
	13-May-12	8.0	368	19.5	7.3
	17-Jun-12 (1)				
	15-Jul-12 (1)				
	17-Oct-12	7.0	296	9.4	8.0
	20-Nov-12	7.9	323	5.6	8.9
	18-Dec-12	7.2	617	3.3	8.8
	15-Jan-13	7.8	306	0.7	11.0
	17-Feb-13 (2)				
	17-Mar-13 (2)				
	16-Apr-13	7.9	227	8.6	8.7
	14-Jul-13 (1)				
	19-Jan-14 (2)				
	16-Feb-14 (2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW21A	16-Mar-14	(2)				
(cont'd)	16-Apr-14		7.2	187	3.2	10.5
	13-May-14		7.9	366	15.6	8.1
	15-Jun-14	(1)				
	7-Sep-14	(1)				
	16-Nov-14	(2)				
	16-Dec-14		9.7	283	0.0	
	18-Jan-15	(2)				
	15-Feb-15	(3)				
	15-Mar-15	(2)				
	22-Apr-15		7.8	381	8.2	10.1
	17-May-15	(1)				
	14-Jun-15	(1)				
	19-Jul-15	(1)				
	9-Aug-15	(1)				
	23-Aug-15					
	6-Sep-15	(1)				
	11-Oct-15	(1)				
	8-Nov-15					
	15-Nov-15	(1)				
	6-Dec-15	(1)				
	17-Jan-16	(2)				
	14-Feb-16	(2)				
	15-Mar-16		7.7	296	6.8	10.7
	21-Apr-16		7.9	370	9.0	8.5
	15-May-16	(1)				
	19-Jun-16	(1)				
	3-Jul-16					
	21-Jul-16		7.8	401	17.9	7.0
	7-Aug-16					
	24-Aug-16		7.9	362	19.5	6.7
	19-Sep-16		8.0	381	17.8	7.0
	18-Oct-16		8.0	380	14.8	10.6
	16-Nov-16		7.9	301	6.7	10.3
	12-Dec-16		8.3	465	0.7	14.5
	25-Jan-17		7.8	298	1.8	11.5
	17-Feb-17		7.8	271	0.2	13.7
	22-Mar-17		8.0	383	(0)	11.3
	19-Apr-17		6.7	326	6.8	11.8
	16-May-17		8.7	404	20.7	6.9
	28-Jun-17		7.8	401	16.7	7.3
	7-Jul-17					
	19-Jul-17		7.7	408	18.4	6.9
	27-Jul-17					
	16-Aug-17		7.9	290	15.4	7.6
	19-Sep-17		7.9	374	15.3	7.7
	18-Oct-17		8.1	333	9.4	10.4
	15-Nov-17		8.2	307	3.7	8.4
	14-Dec-17		8.3	265	(0)	11.1
	17-Jan-18	(2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		PWQO	pH (SU)	EC (µS/cm)	T (°C)	DO
			6.5 - 8.5	nc	nc	*a*
SW21A	23-Feb-18		7.9	261	(0)	7.9
(cont'd)	18-Mar-18	(2)				
	18-Apr-18	(2)				
	15-May-18		8.0	432	14.5	7.6
	18-Jun-18		8.1	429	16.5	7.9
	19-Jul-18		8.1	408	18.3	7.5
	24-Aug-18		8.1	400	18.2	7.9
	20-Sep-18		8.1	396	15.6	7.3
	25-Oct-18		8.1	429	4.1	0.8
	22-Nov-18		8.2		0.5	12.7
	13-Dec-18		7.9	484	1.4	11.5
	18-Jan-19	(2)				
	19-Jan-19	(2)				
	28-Feb-19	(2)				
	19-Mar-19	(1)				
	25-Apr-19		8.0	278	7.7	10.1
	27-May-19		8.0	430	19.8	5.7
	21-Jun-19		7.9	363	17.5	(6)
	30-Jul-19		8.1		20.5	6.6
	30-Aug-19		8.1	397	17.6	8.1
	27-Sep-19		8.6	415	13.0	8.0
	22-Oct-19		8.3	402	10.1	8.8
	21-Nov-19		8.4	445	0.2	8.3
	20-Dec-19	(2)				
	24-Jan-20	(2)				
	21-Feb-20	(2)				
	25-Mar-20	(2)				
	28-Apr-20					
	28-May-20	(1)				
	24-Jun-20	(1)				
	31-Jul-20	(3)				
	26-Aug-20	(3)				
	26-Sep-20	(3)				
	29-Oct-20		8.3	399	9.3	9.0
	27-Nov-20		8.0	471	4.1	11.9
	22-Dec-20		7.8	474	1.1	12.3
	27-Jan-21	(2)				
	22-Feb-21	(2)				
	29-Mar-21		7.3	392	6.3	10.7
	27-Apr-21		7.7	403	7.3	8.9
	27-May-21	(1)				
	22-Jun-21	(1)				
	22-Jul-21	(1)				
	25-Aug-21	(1)				
	28-Sep-21	(1)				
	26-Oct-21	(3)				
	23-Nov-21		7.9	463	2.1	11.9
	21-Dec-21		7.9	451	1.3	12.0
	24-Jan-22	(2)				
	8-Feb-22	(2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW21A	16-Mar-22	(2)				
(cont'd)	21-Apr-22		7.9	521	7.9	7.4
	24-May-22	(1)				
	25-Jun-22		7.5	552	10.6	11.0
	29-Aug-22	(1)				
	29-Sep-22	(1)				
	27-Oct-22	(1)				
	22-Nov-22	(1)				
	17-May-23	(1)				
	26-Jun-23	(1)				
	26-Jul-23	(1)				
	31-Aug-23	(1)				
	25-Sep-23	(1)				
	31-Oct-23	(1)				
SW21B	18-Mar-04	(2)				
	19-May-04		8.2	318	9.6	
	24-Jun-04		8.2	330	10.5	
	29-Jul-04		8.1	284	11.4	
	26-Aug-04		8.1	322	10.3	
	23-Sep-04		8.1	335	11.0	
	20-Oct-04		8.1	307	7.5	11.9
	18-Nov-04		8.0	309	6.6	11.8
	15-Dec-04	(2)				
	16-Jan-05	(2)				
	13-Feb-05	(2)				
	29-Mar-05		7.7	224	2.1	
	11-Apr-05		7.0	231	2.3	13.6
	26-May-05		7.6	322	10.0	
	12-Jul-05		7.6	343	12.1	10.4
	23-Aug-05		7.6	341	11.2	
	25-Oct-05		8.2	399	7.2	
	15-Nov-05		8.0	280	3.9	12.5
	13-Dec-05		8.3	296	2.6	12.6
	17-Jan-06		7.0	244	3.2	12.9
	19-Feb-06	(2)				
	19-Mar-06	(2)				
	19-Apr-06		8.3	340	9.2	
	23-May-06		8.3	395	9.4	
	20-Jun-06		8.2	401	12.1	
	11-Jul-06		8.2	385	12.9	
	23-Aug-06		8.0	400	12.6	
	20-Sep-06		8.0	393	10.7	
	28-Sep-06		7.8	330	10.5	10.9
	19-Oct-06		8.0	399	8.8	
	17-Dec-06		8.2	432	3.7	
	23-Dec-06		8.4	417	4.9	
	21-Jan-07		8.1	419	2.7	
	18-Feb-07	(2)				
	18-Mar-07	(2)				
	16-Apr-07		8.4	396	3.7	13.0

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW21B	13-May-07	8.4	384	9.1	
(cont'd)	17-Jun-07	8.3	430	12.0	10.6
	15-Jul-07	8.2	430	11.6	10.5
	19-Aug-07	7.9	422	11.3	10.0
	17-Sep-07	8.0	401	10.1	10.4
	18-Oct-07	7.9	404	10.0	9.2
	21-Nov-07	8.0	425	5.2	10.9
	9-Dec-07	8.1	392	3.9	11.8
	21-Jan-08	7.8	378	2.6	12.4
	19-Feb-08	8.1	399	2.9	
	16-Mar-08 (2)				
	30-Mar-08 (2)				
	23-Apr-08	7.9	343	8.5	10.0
	21-May-08	7.9	365	8.0	9.8
	17-Jun-08	7.9	401	11.7	8.6
	15-Jul-08	7.5	432	12.8	
	19-Aug-08	8.1	466	14.5	5.3
	16-Sep-08	8.4	419	14.3	6.4
	21-Oct-08	7.9	309	9.1	8.8
	23-Nov-08		427	4.7	8.4
	14-Dec-08	7.4	350	3.4	8.2
	18-Jan-09 (2)				
	8-Feb-09 (2)				
	15-Mar-09 (2)				
	12-Apr-09	8.7	375	2.9	
	17-May-09	8.3	331	12.0	10.1
	14-Jun-09	7.4	773	12.0	10.5
	12-Jul-09	8.5	417	13.2	9.6
	9-Aug-09	8.3	435	12.4	
	13-Sep-09	7.7	387	11.3	
	11-Oct-09	8.6	429	7.1	
	15-Nov-09	7.6	362	5.9	
	13-Dec-09 (2)				
	17-Jan-10 (2)				
	7-Feb-10 (2)				
	14-Mar-10 (2)				
	4-Apr-10				
	11-Apr-10	8.2	402	6.2	
	16-May-10	8.2	284	9.3	10.6
	23-May-10				
	12-Sep-10	8.2	340	11.5	10.3
	17-Oct-10	8.0	294	8.8	10.9
	14-Nov-10	8.3	254	6.1	12.1
	19-Dec-10 (2)				
	16-Jan-11				
	20-Feb-11				
	13-Mar-11 (2)				
	17-Mar-11				
	18-Mar-11				
	20-Mar-11				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW21B	1-Apr-11				
(cont'd)	5-Apr-11				
	8-Apr-11				
	12-Apr-11				
	15-Apr-11				
	17-Apr-11	8.3	186	2.9	15.8
	20-Apr-11				
	21-Apr-11				
	26-Apr-11				
	29-Apr-11				
	3-May-11				
	6-May-11				
	10-May-11				
	13-May-11				
	15-May-11	8.1	240	7.7	12.8
	16-May-11				
	18-May-11				
	19-May-11				
	20-May-11				
	27-May-11				
	3-Jun-11				
	12-Jun-11	8.4	257	10.3	12.3
	17-Jul-11	8.3	328	14.2	10.9
	14-Aug-11	8.5	245	14.2	10.1
	18-Sep-11	8.6	272	11.1	10.0
	16-Oct-11	8.0	314	10.3	10.5
	20-Nov-11	8.1	270	5.2	13.5
	18-Dec-11 (2)				
	15-Jan-12 (2)				
	19-Feb-12 (2)				
	18-Mar-12	8.1	251	7.8	11.7
	15-Apr-12	8.7	281	7.6	10.1
	13-May-12	8.2	294	10.7	10.1
	17-Jun-12	8.4	290	15.1	7.4
	16-Jul-12	8.3	363	16.0	7.1
	14-Aug-12	8.4	478	16.2	6.9
	18-Sep-12	7.9	342	12.9	9.4
	17-Oct-12	7.0	280	8.7	9.0
	20-Nov-12	7.8	284	5.5	9.2
	18-Dec-12	7.6	560	3.8	9.4
	13-Jan-13 (2)				
	17-Feb-13 (2)				
	17-Mar-13 (2)				
	14-Apr-13 (2)				
	13-May-13	8.2	259	7.2	6.0
	19-Jun-13	8.7	299	11.1	11.6
	16-Jul-13	8.2	360	15.8	9.0
	20-Aug-13	8.3	332	14.3	9.5
	18-Sep-13	8.0	310	11.6	11.1
	16-Oct-13	8.6	304	11.0	5.5

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW21B	15-Dec-13	(2)				
(cont'd)	19-Jan-14	(2)				
	16-Feb-14	(2)				
	16-Mar-14	(2)				
	13-Apr-14	(2)				
	13-May-14		8.2	144	13.7	10.6
	17-Jun-14		8.2	322	14.2	10.0
	15-Jul-14		11.9	260	12.3	10.9
	19-Aug-14		8.8	372	12.7	5.8
	22-Oct-14		8.3	376	9.5	6.9
	16-Nov-14	(2)				
	18-Jan-15	(2)				
	15-Feb-15	(3)				
	15-Mar-15	(2)				
	22-Apr-15		7.9	263	4.0	11.0
	17-May-15	(1)				
	14-Jun-15	(1)				
	19-Jul-15	(1)				
	11-Aug-15		8.0	361	14.8	8.6
	23-Aug-15					
	8-Sep-15		7.8	380	17.4	7.0
	15-Oct-15		8.0	320	11.8	9.4
	8-Nov-15					
	18-Nov-15		7.7	334	8.3	11.2
	8-Dec-15		7.5	310	5.3	12.0
	17-Jan-16	(2)				
	14-Feb-16	(2)				
	13-Mar-16	(2)				
	17-Apr-16	(1)				
	18-May-16		8.3	324	8.0	11.4
	23-Jun-16		8.2	347	14.0	9.6
	3-Jul-16					
	21-Jul-16		8.5	345	12.3	11.2
	7-Aug-16					
	24-Aug-16		8.3	342	13.0	10.9
	19-Sep-16		8.3	341	12.3	10.9
	18-Oct-16		8.2	341	11.4	13.6
	16-Nov-16		8.1	307	7.1	11.3
	12-Dec-16		8.7	446	3.7	15.2
	25-Jan-17		8.3	298	4.0	12.3
	15-Feb-17	(2)				
	22-Mar-17		8.3	296	1.9	12.5
	19-Apr-17		7.4	280	6.6	13.9
	16-May-17		8.4	304	10.4	10.7
	28-Jun-17		8.3	322	10.3	11.4
	7-Jul-17					
	19-Jul-17		8.2	345	11.9	11.1
	27-Jul-17					
	16-Aug-17		8.2	310	11.6	10.9
	19-Sep-17		8.1	341	11.6	10.6

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW21B	18-Oct-17		8.3	323	9.1	11.2
(cont'd)	15-Nov-17		8.4	309	5.3	7.6
	14-Dec-17		8.5	283	3.0	9.4
	17-Jan-18	(2)				
	18-Feb-18	(2)				
	21-Mar-18		8.4	241	1.4	13.8
	18-Apr-18	(2)				
	15-May-18		8.1	386	9.9	11.0
	18-Jun-18		8.3	431	20.2	10.3
	19-Jul-18		8.2	427	12.5	10.2
	24-Aug-18		8.4	431	13.6	10.0
	20-Sep-18		8.3	428	12.5	10.0
	25-Oct-18		8.4	430	6.8	11.4
	22-Nov-18		8.4	435	3.5	12.6
	13-Dec-18		8.4	428	3.2	12.5
	18-Jan-19	(2)				
	19-Jan-19	(2)				
	28-Feb-19	(2)				
	19-Mar-19	(1)				
	25-Apr-19	(1)				
	27-May-19	(1)				
	21-Jun-19	(1)				
	30-Jul-19		8.3	388	13.6	9.7
	30-Aug-19		8.3	370	12.4	10.0
	27-Sep-19		8.2	412	16.3	8.5
	22-Oct-19		8.3	418	10.4	8.9
	21-Nov-19		8.1	406	0.1	8.5
	20-Dec-19	(2)				
	24-Jan-20	(2)				
	21-Feb-20	(2)				
	25-Mar-20	(2)				
	28-Apr-20					
	28-May-20	(1)				
	24-Jun-20	(1)				
	31-Jul-20	(1)				
	26-Aug-20	(1)				
	26-Sep-20	(1)				
	29-Oct-20	(1)				
	27-Nov-20	(1)				
	22-Dec-20	(2)				
	27-Jan-21	(2)				
	22-Feb-21	(2)				
	29-Mar-21		7.8	364	6.1	10.3
	27-Apr-21	(1)				
	27-May-21	(1)				
	22-Jun-21	(1)				
	22-Jul-21	(1)				
	25-Aug-21	(1)				
	28-Sep-21	(1)				
	26-Oct-21	(1)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW21B	23-Nov-21	(2)				
(cont'd)	21-Dec-21	(2)				
	24-Jan-22	(2)				
	8-Feb-22	(2)				
	16-Mar-22	(2)				
	24-May-22	(1)				
	25-Jun-22		8.1	598	12.9	11.2
	29-Aug-22	(1)				
	29-Sep-22				11.0	
	27-Oct-22				8.6	
	22-Nov-22		8.2		3.0	
	17-May-23		8.2		8.6	
	26-Jun-23	(1)				
	26-Jul-23	(1)				
	29-Aug-23	(1)				
	25-Sep-23	(1)				
	31-Oct-23	(1)				
SW21C	11-Feb-04		8.2	291	3.7	8.5
	17-Mar-04			409	4.0	9.4
	21-Apr-04		8.2	246	7.7	
	19-May-04		8.2	316	9.5	
	24-Jun-04		8.2	320	9.9	
	29-Jul-04		8.1	312	10.5	
	26-Aug-04		8.2	318	9.8	
	22-Sep-04		8.0	329	10.3	10.8
	20-Oct-04		8.1	305	7.3	11.9
	18-Nov-04		8.0	317	7.4	11.6
	15-Dec-04	(2)				
	16-Jan-05	(2)				
	13-Feb-05	(2)				
	29-Mar-05		8.1	281	5.4	
	11-Apr-05		7.4	251	5.8	
	26-May-05		8.0	240	10.0	
	28-Jun-05		8.3	327	12.0	
	12-Jul-05		7.6	345	11.2	10.8
	23-Aug-05		7.8	335	10.7	
	28-Sep-05		8.0	326	9.9	11.0
	25-Oct-05		8.2	397	7.1	
	15-Nov-05		8.3	272	5.7	12.3
	13-Dec-05		8.7	295	2.5	12.2
	17-Jan-06		7.4	246	3.6	13.0
	19-Feb-06	(2)				
	22-Mar-06		8.6	262	5.0	
	19-Apr-06		8.4	339	9.2	
	23-May-06		8.3	397	9.4	
	20-Jun-06		8.3	399	11.2	
	11-Jul-06		8.3	389	12.4	
	23-Aug-06		8.1	400	12.0	
	20-Sep-06		8.2	394	10.0	
	19-Oct-06		8.1	396	8.4	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW21C	23-Nov-06	8.5	313	5.3	12.7
(cont'd)	17-Dec-06	8.2	427	4.6	
	21-Jan-07	8.5	420	3.0	
	18-Feb-07 (2)				
	18-Mar-07	8.3	377	4.7	
	16-Apr-07	8.4	396	5.2	
	13-May-07	8.4	383	8.9	
	17-Jun-07	8.4	428	11.6	
	15-Jul-07	8.1	431	11.0	
	19-Aug-07	7.9	425	10.6	10.4
	17-Sep-07	8.2	401	9.8	10.9
	18-Oct-07	8.0	404	9.9	9.6
	21-Nov-07	8.1	430	5.5	11.0
	9-Dec-07	8.1	394	4.6	11.8
	21-Jan-08	7.8	381	3.9	12.4
	19-Feb-08	8.0	400	4.2	
	17-Mar-08	7.7	409	4.1	
	1-Apr-08	7.7	314	3.9	
	23-Apr-08	8.0	343	8.8	10.4
	21-May-08	7.8	356	7.8	10.3
	17-Jun-08	7.8	400	9.0	
	15-Jul-08	7.3	430	10.2	9.6
	19-Aug-08	7.9	463	9.9	6.4
	16-Sep-08	8.5	428	9.8	8.0
	21-Oct-08	8.2	369	6.4	7.7
	23-Nov-08	8.5	427	4.2	8.2
	14-Dec-08	7.2	350	4.8	7.0
	18-Jan-09	8.6	402	3.7	10.3
	8-Feb-09		333	4.7	8.6
	15-Mar-09	8.6	265	5.8	
	12-Apr-09	8.6	383	6.9	
	17-May-09	8.2	325	13.5	
	14-Jun-09	7.4	764	9.4	
	12-Jul-09	8.2	409	9.6	
	9-Aug-09	8.1	410	11.4	10.4
	13-Sep-09	7.6	379	10.7	10.6
	11-Oct-09	8.2	431	6.2	
	15-Nov-09	7.7	375	5.7	
	13-Dec-09	7.9	420	2.9	12.3
	17-Jan-10	8.5	397	3.9	12.1
	7-Feb-10	8.0	408	3.0	12.3
	14-Mar-10	7.8	393	5.1	12.1
	4-Apr-10				
	11-Apr-10	7.9	403	6.4	
	16-May-10	8.3	274	8.8	11.3
	23-May-10				
	13-Jun-10	8.3	280	9.6	11.9
	18-Jul-10	8.2	299	11.4	14.1
	15-Aug-10	8.4	282	10.9	11.0
	12-Sep-10	8.3	229	9.3	10.9

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW21C	17-Oct-10	8.1	286	7.7	10.7
(cont'd)	14-Nov-10	8.1	256	6.4	11.8
	19-Dec-10	8.3	223	3.7	12.8
	16-Jan-11	8.6	165	4.6	11.9
	20-Feb-11	8.1	240	3.7	12.1
	13-Mar-11	8.3	239	4.9	11.3
	17-Mar-11				
	18-Mar-11				
	20-Mar-11				
	1-Apr-11				
	5-Apr-11				
	8-Apr-11				
	12-Apr-11				
	15-Apr-11				
	17-Apr-11	8.3	266	5.7	12.3
	20-Apr-11				
	21-Apr-11				
	26-Apr-11				
	29-Apr-11				
	3-May-11				
	6-May-11				
	10-May-11				
	13-May-11				
	15-May-11	7.9	238	7.3	12.3
	16-May-11				
	18-May-11				
	19-May-11				
	20-May-11				
	27-May-11				
	3-Jun-11				
	12-Jun-11	8.3	255	9.7	12.4
	17-Jul-11	8.2	295	11.3	9.0
	14-Aug-11	8.6	218	11.3	10.4
	18-Sep-11	8.5	261	9.7	10.4
	16-Oct-11	8.1	288	8.3	10.2
	20-Nov-11	7.7	183	5.0	12.4
	20-Dec-11	8.3	199	4.5	11.6
	15-Jan-12	8.4	212	3.7	11.8
	19-Feb-12	8.0	213	4.4	12.8
	18-Mar-12	8.0	213	8.1	12.8
	15-Apr-12	8.8	268	6.4	12.0
	13-May-12	8.2	265	9.0	7.5
	17-Jun-12	8.3	322	11.6	11.8
	16-Jul-12	8.3	333	13.0	7.3
	14-Aug-12	8.1	456	11.0	7.6
	18-Sep-12	7.5	311	10.2	10.2
	17-Oct-12	6.7	217	8.6	8.2
	20-Nov-12	7.8	293	6.8	9.2
	12-Dec-12		442	3.3	14.7
	18-Dec-12	7.7	609	5.7	9.5

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW21C	16-Jan-13	7.9	300	4.3	10.8
(cont'd)	17-Feb-13 (2)				
	20-Mar-13	8.4	238	4.1	7.7
	16-Apr-13	8.1	238	6.4	9.9
	13-May-13	8.1	260	7.6	6.7
	19-Jun-13	8.1	273	9.3	11.6
	16-Jul-13	8.1	324	11.8	10.1
	21-Aug-13	8.2	305	11.3	10.4
	18-Sep-13	7.9	291	9.0	12.0
	16-Oct-13	8.4	294	9.6	6.6
	19-Nov-13	8.5	270	5.4	2.5
	15-Dec-13 (2)				
	19-Jan-14 (2)				
	16-Feb-14 (2)				
	16-Mar-14 (2)				
	16-Apr-14	8.2	263	5.1	10.6
	13-May-14	8.1	265	8.8	10.5
	17-Jun-14	8.3	298	10.1	12.0
	15-Jul-14	7.7	330	10.9	8.7
	19-Aug-14	8.6	353	10.4	8.3
	9-Sep-14	8.8	356	10.8	4.3
	22-Oct-14	8.2	353	7.6	6.8
	16-Nov-14 (2)				
	16-Dec-14	9.3	313	4.9	
	20-Jan-15	7.7	143	1.6	1.2
	15-Feb-15 (3)				
	18-Mar-15	8.4	214	2.8	13.8
	22-Apr-15	8.0	304	6.0	14.5
	19-May-15	8.3	267	8.8	
	15-Jun-15	8.1	325	10.0	10.4
	21-Jul-15	8.1	323	10.9	
	11-Aug-15	8.3	339	10.7	10.6
	25-Aug-15	8.3	297	10.7	10.9
	8-Sep-15	7.4	337	12.1	10.6
	15-Oct-15	8.1	297	8.7	10.0
	8-Nov-15				
	18-Nov-15	8.1	332	7.5	11.1
	8-Dec-15	7.9	316	5.7	12.9
	19-Jan-16	8.2	249	2.1	13.8
	17-Feb-16	8.0	288	3.6	13.7
	15-Mar-16	7.9	275	6.2	12.4
	21-Apr-16	8.1	283	7.3	13.4
	18-May-16	8.5	328	7.9	12.3
	23-Jun-16	8.5	316	9.5	11.6
	5-Jul-16	8.4	324	10.9	16.6
	21-Jul-16	8.5	342	11.9	10.5
	9-Aug-16	8.4	426	11.6	13.1
	24-Aug-16	8.4	336	12.2	11.1
	19-Sep-16	8.4	334	11.4	10.9
	18-Oct-16	8.3	340	11.7	13.6

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW21C	24-Oct-16	7.6	311	7.3	13.1
(cont'd)	16-Nov-16	8.2	308	7.3	10.7
	25-Jan-17	8.3	296	4.8	11.7
	17-Feb-17	8.3	307	3.3	14.5
	22-Mar-17	8.5	304	2.6	12.2
	19-Apr-17	7.4	270	6.3	13.2
	8-May-17	8.2	224	6.9	14.2
	16-May-17	8.5	197	10.8	10.8
	28-Jun-17	8.3	318	9.8	11.5
	7-Jul-17	8.2	288	10.9	11.6
	19-Jul-17	8.2	336	10.9	11.1
	2-Aug-17	8.0	311	10.5	12.0
	16-Aug-17	8.3	330	10.3	11.1
	19-Sep-17	8.2	326	10.4	11.0
	18-Oct-17	8.3	320	8.6	11.4
	15-Nov-17	8.4	311	5.5	12.9
	14-Dec-17	8.4	281	3.0	12.2
	18-Jan-18	8.0	269	3.4	9.2
	23-Feb-18	8.4	259	5.2	6.7
	21-Mar-18	8.3	270	3.2	12.5
	19-Apr-18	8.4	247	3.1	11.1
	9-May-18	8.3	403	8.0	11.2
	15-May-18	8.2	398	8.2	10.8
	18-Jun-18	8.3	432	9.8	10.5
	19-Jul-18	8.2	429	10.4	10.5
	24-Aug-18	8.4	433	11.5	10.4
	20-Sep-18	8.4	431	11.0	10.2
	25-Oct-18	8.4	434	5.9	11.5
	22-Nov-18	8.5		2.7	12.8
	13-Dec-18	8.5	423	4.4	12.2
	19-Jan-19	8.3	419	3.0	12.8
	28-Feb-19 (2)				
	19-Mar-19	8.4	377	4.4	12.2
	25-Apr-19	8.3	318	6.6	11.0
	16-May-19	8.4	358	7.8	11.5
	27-May-19	8.4	373	9.4	10.9
	21-Jun-19	8.4	382	9.8	10.7
	30-Jul-19	8.4	392	11.6	10.0
	30-Aug-19 (1)				
	27-Sep-19 (1)				
	22-Oct-19 (1)				
	21-Nov-19 (2)				
	20-Dec-19 (2)				
	24-Jan-20	8.4	392	4.3	12.2
	21-Feb-20 (2)				
	25-Mar-20 (2)				
	28-Apr-20	8.5	344	6.6	11.7
	20-May-20	8.3	410	8.7	11.2
	28-May-20	10.0	376	10.7	10.4
	24-Jun-20 (1)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW21C	31-Jul-20	8.7	407	11.9	10.1
(cont'd)	26-Aug-20	8.3	380	11.3	10.4
	26-Sep-20	8.2	380	10.3	
	29-Oct-20	7.1	401	9.4	8.1
	27-Nov-20	8.2	415	5.9	11.9
	22-Dec-20	8.3	417	4.8	12.4
	28-Jan-21	8.2	395	1.9	10.4
	23-Feb-21	7.9	360	0.1	10.2
	30-Mar-21	8.3	366	5.1	9.9
	28-Apr-21	7.6	466	7.9	7.9
	26-May-21	8.1	402	10.3	10.9
	23-Jun-21	8.2	420	10.1	10.9
	10-Jul-21	8.3	420	11.0	10.6
	23-Jul-21	8.3	419	10.9	10.8
	11-Aug-21			13.5	
	26-Aug-21	8.3	439	13.2	10.4
	27-Sep-21	8.2	445	9.5	11.2
	27-Oct-21 (3)				
	22-Nov-21	8.1	397	4.2	10.2
	22-Dec-21	8.2	402	4.0	10.4
	24-Jan-22 (2)				
	8-Feb-22 (2)				
	16-Mar-22 (2)				
	21-Apr-22	8.5	506	1.3	12.7
	25-May-22	8.3	424	9.2	11.4
	24-Jun-22	8.0	479	10.7	11.5
	8-Jul-22			10.2	
	11-Aug-22			11.2	
	29-Aug-22			11.9	
	29-Sep-22			9.1	
	27-Oct-22			7.2	
	17-May-23	8.4	390	7.2	11.3
	26-Jun-23	8.0		13.4	
	11-Jul-23	8.6		11.6	
	26-Jul-23	8.5		11.6	
	14-Aug-23	8.1		11.1	
	29-Aug-23	7.8		10.8	
	25-Sep-23	8.4		10.6	
	31-Oct-23	8.4		6.2	
SW22	26-Jun-03			9.7	
	11-Feb-04	7.9	382	6.0	9.8
	17-Mar-04		566	6.7	9.2
	21-Apr-04	7.4	301	6.5	
	19-May-04	7.3	374	7.1	
	24-Jun-04	7.3	386	7.1	
	29-Jul-04	7.2	354	7.2	
	26-Aug-04	7.3	362	7.5	
	22-Sep-04	7.7	376	8.6	
	20-Oct-04	7.2	373	7.9	10.8
	17-Nov-04	7.7	383	7.9	11.2

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW22	16-Dec-04	7.4	369	7.1	12.1
(cont'd)	16-Jan-05 (2)				
	13-Feb-05 (2)				
	29-Mar-05	7.5	369	6.7	
	11-Apr-05	6.8	329	6.9	
	26-May-05	6.8	383	7.6	
	28-Jun-05	8.2	396	8.1	
	11-Jul-05	7.3	390	8.4	11.8
	22-Aug-05	9.0	380	8.6	
	27-Sep-05	7.7	373	8.8	11.6
	25-Oct-05	8.0	479	7.7	
	15-Nov-05	7.9	367	7.5	11.7
	14-Dec-05	8.1	372	4.9	12.0
	18-Jan-06	8.0	338	6.4	12.1
	19-Feb-06 (2)				
	21-Mar-06	8.0	380	6.8	11.9
	19-Apr-06	7.8	416	7.6	
	23-May-06	7.9	478	8.4	
	20-Jun-06	7.7	467	8.8	
	11-Jul-06	8.1	457	9.5	
	23-Aug-06	7.9	467	10.2	
	20-Sep-06	8.0	455	9.2	
	19-Oct-06	8.0	462	8.6	
	23-Nov-06	7.9	483	7.4	11.8
	17-Dec-06	7.6	515	7.3	
	21-Jan-07	7.9	495	5.7	12.2
	18-Feb-07	8.1	490	5.0	
	18-Mar-07	7.7	480	5.8	
	17-Apr-07	8.0	471	6.8	12.0
	13-May-07	8.1	426	8.4	
	17-Jun-07	8.0	505	8.1	
	15-Jul-07	7.9	506	8.4	11.3
	19-Aug-07	7.9	500	8.5	11.2
	17-Sep-07	7.9	465	8.5	10.1
	18-Oct-07	8.0	465	9.1	10.0
	21-Nov-07	7.9	503	7.0	
	11-Dec-07	8.0	435	6.1	11.3
	22-Jan-08	7.7	463	7.1	
	20-Feb-08	7.9	484	6.5	
	18-Mar-08	7.9	488	6.4	
	2-Apr-08	7.8	450	6.8	11.3
	23-Apr-08	8.0	393	7.1	10.9
	21-May-08	7.4	430	6.9	9.2
	17-Jun-08	8.1	466	7.3	10.6
	16-Jul-08	7.7	490	8.3	9.4
	19-Aug-08	7.7	533	8.1	7.0
	16-Sep-08	7.8	476	8.0	6.7
	22-Oct-08	7.9	438	7.4	6.7
	23-Nov-08 (2)				
	14-Dec-08	7.4	402	6.9	7.1

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW22	18-Jan-09	8.0	468	6.6	7.2
(cont'd)	8-Feb-09		427	6.4	7.9
	15-Mar-09	8.1	410	7.1	
	12-Apr-09	8.2	429	7.1	
	17-May-09	7.9	376	8.0	11.8
	14-Jun-09	8.2	890	7.9	
	12-Jul-09	7.6	474	8.7	
	9-Aug-09	8.8	491	8.4	
	13-Sep-09	7.7	451	9.0	
	11-Oct-09	8.6	501	7.5	
	15-Nov-09	7.9	428	7.2	
	13-Dec-09	7.9	475	6.3	11.8
	17-Jan-10	8.3	462	6.1	12.3
	7-Feb-10	7.7	468	6.0	12.3
	14-Mar-10	7.6	465	7.1	12.1
	4-Apr-10				
	11-Apr-10	8.2	455	7.3	
	16-May-10	7.9	283	7.6	11.8
	23-May-10				
	13-Jun-10	7.8	300	7.4	15.2
	18-Jul-10	8.0	317	8.0	15.2
	15-Aug-10	8.2	325	8.4	12.6
	12-Sep-10	8.2	350	8.2	11.4
	17-Oct-10	7.8	346	7.9	11.3
	14-Nov-10	7.9	263	7.7	10.1
	19-Dec-10	8.1	290	7.1	10.7
	16-Jan-11	8.0	304	6.9	11.6
	20-Feb-11	7.8	298	3.8	8.6
	13-Mar-11	8.2	205	7.3	12.2
	17-Mar-11				
	18-Mar-11				
	20-Mar-11	7.9	166	7.0	11.5
	1-Apr-11				
	5-Apr-11				
	8-Apr-11				
	12-Apr-11				
	15-Apr-11				
	17-Apr-11	8.1	310	6.7	8.5
	20-Apr-11				
	21-Apr-11				
	26-Apr-11				
	29-Apr-11				
	3-May-11				
	6-May-11				
	10-May-11				
	13-May-11				
	15-May-11	7.1	283	7.1	12.4
	16-May-11				
	18-May-11				
	19-May-11				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW22	20-May-11				
(cont'd)	27-May-11				
	3-Jun-11				
	12-Jun-11	8.0	267	8.4	12.7
	17-Jul-11	8.0	242	8.6	14.0
	14-Aug-11	8.7	225	8.8	11.2
	18-Sep-11	8.8	292	8.9	11.8
	16-Oct-11	8.0	341	8.3	11.4
	20-Nov-11	8.4	329	7.1	10.1
	18-Dec-11	8.5	262	7.2	10.3
	15-Jan-12	8.3	262	6.7	9.8
	19-Feb-12	8.2	280	6.9	11.4
	18-Mar-12	7.7	251	7.5	9.2
	15-Apr-12	8.7	314	7.4	13.1
	13-May-12	8.2	401	7.4	13.5
	17-Jun-12	7.8	344	8.6	7.8
	16-Jul-12	8.3	346	8.6	7.9
	15-Aug-12	8.2	420	8.7	6.9
	18-Sep-12	7.7	340	8.6	10.8
	18-Oct-12	8.2	313	8.9	8.7
	21-Nov-12	7.7	291	7.9	4.0
	20-Dec-12	7.5	716	7.2	10.4
	16-Jan-13	7.9	365	7.2	10.6
	20-Feb-13	8.0	301	6.8	12.1
	20-Mar-13	7.8	300	6.2	13.0
	17-Apr-13	7.6	310	7.1	9.9
	14-May-13	7.7	295	7.0	10.0
	19-Jun-13	8.1	310	7.6	12.4
	17-Jul-13	7.9	309	8.4	8.9
	21-Aug-13	8.0	338	8.4	11.8
	19-Sep-13	8.0	331	8.7	6.8
	17-Oct-13	8.3	313	8.2	6.3
	20-Nov-13	8.4	331	7.3	2.8
	15-Dec-13 (2)				
	22-Jan-14	7.6	220	1.7	3.9
	16-Feb-14 (2)				
	19-Mar-14	7.7	256	3.4	6.5
	17-Apr-14	7.9	345	6.8	10.3
	13-May-14	7.2	322	8.6	10.5
	17-Jun-14	7.7	300	8.7	12.3
	15-Jul-14	8.8	387	9.0	4.0
	19-Aug-14	8.6	380	9.4	10.4
	9-Sep-14	9.0	386	9.2	4.2
	20-Oct-14	8.8	380	9.0	4.9
	16-Nov-14 (2)				
	17-Dec-14	8.4	377	7.1	
	21-Jan-15	7.8	367	6.3	1.4
	15-Feb-15 (3)				
	19-Mar-15	7.9	268	5.4	11.0
	23-Apr-15	7.7	358	6.7	13.5

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW22	20-May-15	7.9	293	7.6	15.0
(cont'd)	15-Jun-15	7.9	348	7.8	10.9
	22-Jul-15	7.8	296	8.2	11.4
	12-Aug-15	8.1	357	8.4	11.6
	23-Aug-15				
	9-Sep-15	7.8	352	9.1	8.9
	16-Oct-15	7.8	330	7.9	11.2
	8-Nov-15				
	19-Nov-15	7.6	387	8.3	13.2
	8-Dec-15	7.9	371	7.0	12.4
	20-Jan-16	7.8	350	6.1	11.7
	18-Feb-16	7.7	332	4.3	12.6
	15-Mar-16	7.5	339	6.9	12.1
	21-Apr-16	7.6	324	7.1	13.4
	18-May-16	8.0	373	7.7	11.8
	22-Jun-16	7.9	343	8.0	12.3
	3-Jul-16				
	21-Jul-16	8.0	365	8.7	12.7
	7-Aug-16				
	25-Aug-16	8.1	358	9.6	12.4
	19-Sep-16	8.1	515	9.4	8.9
	17-Oct-16	8.0	420	9.5	10.3
	15-Nov-16	8.1	361	8.1	11.4
	12-Dec-16	8.4	503	5.5	14.1
	25-Jan-17	7.6	381	7.3	10.0
	16-Feb-17	8.1	361	4.9	13.2
	21-Mar-17	8.1	384	7.2	11.1
	19-Apr-17	7.1	333	7.2	12.9
	16-May-17	8.3	444	6.4	12.6
	28-Jun-17	7.8	340	7.1	12.4
	7-Jul-17				
	20-Jul-17	8.1	344	7.3	11.8
	27-Jul-17				
	16-Aug-17	7.7	350	7.3	11.0
	19-Sep-17	7.8	356	8.1	11.6
	17-Oct-17	8.1	358	8.1	11.1
	15-Nov-17	8.0	372	7.5	11.7
	14-Dec-17	7.4	371	7.4	12.3
	17-Jan-18	7.7	342	6.5	10.9
	23-Feb-18	7.8	330	6.7	8.4
	20-Mar-18	7.7	341	6.4	15.0
	18-Apr-18	8.1	541	6.4	10.7
	15-May-18	7.6	473	7.6	11.2
	18-Jun-18	7.7	487	17.9	11.2
	18-Jul-18	7.7	495	8.9	10.9
	23-Aug-18	8.0	503	8.8	10.7
	20-Sep-18	8.0	501	8.9	10.8
	24-Oct-18	8.3	711	3.5	12.0
	21-Nov-18	8.1		6.3	11.0
	12-Dec-18	8.1	501	7.1	11.5

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW22	18-Jan-19	7.7	490	7.0	11.3
(cont'd)	26-Feb-19	7.9	484	6.3	11.6
	15-Mar-19	7.8	473	6.7	11.3
	24-Apr-19	7.7	420	6.8	11.5
	23-May-19	7.7	416	7.3	11.2
	18-Jun-19	7.8	444	7.7	11.3
	29-Jul-19	7.9	472	8.2	11.0
	29-Aug-19	7.9	511	10.1	10.2
	26-Sep-19	8.2	534	11.4	10.2
	23-Oct-19	8.1	454	9.6	10.2
	22-Nov-19	7.7	399	0.2	10.2
	20-Dec-19 (2)				
	15-Jan-20 (2)				
	20-Feb-20 (2)				
	26-Mar-20 (2)				
	27-Apr-20				
	29-May-20	8.2	445	7.3	11.2
	23-Jun-20	8.6	639	8.8	10.6
	30-Jul-20	8.7	646	14.9	9.2
	25-Aug-20	8.1	588	15.4	9.1
	25-Sep-20	8.0	590	13.6	10.2
	30-Oct-20	8.0	444	9.0	10.3
	26-Nov-20	8.1	565	5.0	11.6
	22-Dec-20 (2)				
	27-Jan-21 (2)				
	22-Feb-21 (2)				
	29-Mar-21	8.1	423	6.0	11.0
	27-Apr-21	7.3	427	7.6	11.8
	27-May-21	7.2	405	12.0	11.6
	22-Jun-21	7.7	489	7.4	11.3
	22-Jul-21	8.0	497	9.4	11.3
	25-Aug-21	7.8	452		11.4
	28-Sep-21	7.5	495	8.1	11.3
	26-Oct-21	7.4	493	8.3	11.1
	23-Nov-21 (2)				
	21-Dec-21 (2)				
	24-Jan-22 (2)				
	8-Feb-22 (2)				
	16-Mar-22 (2)				
	21-Apr-22	7.1	568	0.1	10.6
	24-May-22	8.0	422	10.5	9.1
	24-Jun-22	7.7	648	12.5	11.0
	30-Aug-22			11.4	
	27-Sep-22			10.3	
	28-Oct-22			7.9	
	23-Nov-22			6.8	
	16-May-23			7.6	
	27-Jun-23			8.0	
	26-Jul-23			8.0	
	30-Aug-23			8.3	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW22	26-Sep-23			9.0	
(cont'd)	31-Oct-23			8.0	
SW22A	11-Feb-04	8.7	453	2.4	10.8
	17-Mar-04	8.7	618	2.0	10.1
	21-Apr-04	7.9	393	5.6	
	19-May-04	7.8	496	5.6	
	24-Jun-04	8.2	548	7.6	
	29-Jul-04	8.1	607	10.3	
	26-Aug-04	8.1	586	7.4	
	22-Sep-04	8.1	690	13.5	10.4
	20-Oct-04	7.9	582	6.5	11.8
	17-Nov-04	7.9	642	7.7	10.9
	15-Dec-04 (2)				
	16-Jan-05 (2)				
	13-Feb-05 (2)				
	29-Mar-05	8.1	676	4.9	
	11-Apr-05	7.4	389	5.1	
	26-May-05	7.1	390	7.5	
	28-Jun-05	8.4	629	10.0	
	11-Jul-05	7.3	655	11.5	10.7
	22-Aug-05	9.0	640	11.3	
	27-Sep-05	7.8	597	8.5	
	25-Oct-05	8.7	750	6.1	
	15-Nov-05	7.8	506	5.9	11.7
	14-Dec-05	8.3	646	4.2	12.6
	18-Jan-06	7.4	469	3.2	
	19-Feb-06 (2)				
	21-Mar-06	8.3	545	5.5	
	19-Apr-06	8.1	581	6.5	
	23-May-06	8.3	724	11.9	
	20-Jun-06	8.2	695	11.6	
	11-Jul-06	8.4	700	13.8	
	23-Aug-06	8.2	733	13.3	
	20-Sep-06	8.3	732	10.8	
	19-Oct-06	8.2	751	8.9	
	23-Nov-06	8.4	680	6.1	12.4
	17-Dec-06	8.2	713	6.0	
	21-Jan-07	8.4	689	2.3	
	18-Feb-07 (2)				
	18-Mar-07	8.4	703	1.9	
	17-Apr-07	8.4	649	4.8	
	13-May-07	8.4	614	9.3	
	17-Jun-07	8.2	615	8.8	
	15-Jul-07	8.0	402	10.0	10.8
	17-Sep-07	8.2	697	9.1	10.6
	18-Oct-07	8.6		10.4	
	21-Nov-07	7.9	779	4.6	11.1
	11-Dec-07	8.1	372	2.3	13.1
	20-Feb-08	8.1	654	3.5	
	18-Mar-08	7.9	688	3.5	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW22A	2-Apr-08	7.7	526	5.1	12.5
(cont'd)	23-Apr-08	7.7	523	8.6	10.2
	21-May-08	7.7	576	6.6	10.8
	17-Jun-08	8.1	656	9.5	
	16-Jul-08	7.7	709	10.0	
	19-Aug-08	7.8	816	9.9	
	16-Sep-08	7.7	724	8.5	
	22-Oct-08	7.9	606	5.8	
	23-Nov-08	8.1	625	5.3	
	14-Dec-08	7.3	503	2.5	
	18-Jan-09	8.5	631	0.2	12.8
	8-Feb-09		525	4.5	9.0
	15-Mar-09	8.6	520	5.5	
	12-Apr-09	8.2	429	7.1	
	17-May-09	8.5	494	11.5	
	14-Jun-09	8.3	1,259	10.0	
	12-Jul-09	8.3	593	10.3	
	9-Aug-09	7.5	725	7.5	
	13-Sep-09	8.1	605	12.0	
	11-Oct-09	8.3	719	6.4	12.1
	15-Nov-09	7.7	569	6.4	12.4
	13-Dec-09	7.9	507	0.9	11.8
	17-Jan-10	8.4	518	0.7	11.4
	7-Feb-10	7.6	586	0.0	11.6
	14-Mar-10	7.4	575	6.1	12.6
	4-Apr-10				
	11-Apr-10	8.1	607	7.8	
	16-May-10	8.3	396	9.3	11.8
	23-May-10				
	13-Jun-10	8.3	439	9.8	14.6
	18-Jul-10	8.3	438	8.8	15.2
	15-Aug-10	8.3	368	10.0	10.5
	12-Sep-10	8.4	467	9.3	11.1
	17-Oct-10	8.1	424	7.0	11.4
	14-Nov-10	8.2	262	6.5	10.1
	19-Dec-10	8.3	363	3.6	11.5
	16-Jan-11	8.3	354	2.7	12.7
	20-Feb-11	8.0	383	3.6	10.6
	13-Mar-11	8.4	314	5.8	13.1
	17-Mar-11				
	18-Mar-11				
	20-Mar-11	7.6	407	5.1	12.0
	1-Apr-11				
	5-Apr-11				
	8-Apr-11				
	12-Apr-11				
	15-Apr-11				
	17-Apr-11	8.3	347	4.6	9.1
	20-Apr-11				
	21-Apr-11				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW22A	26-Apr-11				
(cont'd)	29-Apr-11				
	3-May-11				
	6-May-11				
	10-May-11				
	13-May-11				
	15-May-11	7.6	273	6.9	12.7
	16-May-11				
	18-May-11				
	19-May-11				
	20-May-11				
	27-May-11				
	3-Jun-11				
	12-Jun-11	8.4	375	8.2	12.5
	17-Jul-11	8.4	484	11.8	13.3
	14-Aug-11	8.7	338	11.9	10.0
	18-Sep-11	8.6	392	11.0	10.6
	16-Oct-11	8.1	483	8.5	10.9
	20-Nov-11	8.3	396	4.4	11.6
	18-Dec-11	8.6	302	5.2	11.0
	15-Jan-12	8.6	325	2.5	11.2
	19-Feb-12	8.3	329	4.0	12.1
	18-Mar-12	8.2	358	9.2	8.2
	15-Apr-12	8.7	407	7.0	12.9
	13-May-12	7.8	308	7.4	13.3
	17-Jun-12	8.4	506	11.8	7.1
	16-Jul-12	8.5	508	11.9	7.5
	15-Aug-12	8.4	486	9.6	6.8
	18-Sep-12	7.8	491	9.7	10.2
	18-Oct-12	8.4	379	8.8	8.2
	21-Nov-12	7.9	350	8.3	4.1
	20-Dec-12	7.8	889	4.6	11.1
	16-Jan-13	8.1	383	6.4	10.8
	20-Feb-13	8.3	203	2.9	14.0
	20-Mar-13	8.2	375	4.4	7.3
	17-Apr-13	7.9	335	6.6	10.5
	14-May-13	8.0	375	6.2	9.2
	19-Jun-13	8.2	443	9.4	11.0
	17-Jul-13	8.2	469	11.0	8.6
	21-Aug-13	8.2	467	10.7	11.6
	19-Sep-13	8.2	506	12.0	6.5
	17-Oct-13	8.6	422	9.2	6.2
	20-Nov-13	8.3	429	5.6	2.0
	15-Dec-13 (2)				
	19-Jan-14 (2)				
	16-Feb-14 (2)				
	16-Mar-14 (2)				
	17-Apr-14	8.0	489	5.2	11.3
	13-May-14	7.3	322	8.4	10.4
	17-Jun-14	8.4	410	9.4	10.4

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW22A	15-Jul-14	8.7	540	9.8	6.9
(cont'd)	19-Aug-14	8.7	542	10.0	11.0
	16-Nov-14 (2)				
	21-Jan-15	8.0	446	2.2	1.3
	15-Feb-15 (3)				
	19-Mar-15	7.7	369	1.3	14.8
	23-Apr-15	8.1	443	4.1	13.7
	20-May-15	8.5	411	9.5	14.6
	15-Jun-15	8.3	484	8.4	11.3
	22-Jul-15	8.3	484	8.3	11.8
	12-Aug-15	8.3	509	9.4	11.0
	23-Aug-15				
	16-Oct-15	8.0	418	6.9	11.6
	8-Nov-15				
	19-Nov-15	7.8	553	8.3	13.2
	8-Dec-15	8.1	476	4.5	12.7
	20-Jan-16	8.1	391	2.7	13.5
	18-Feb-16	7.9	441	3.2	14.1
	15-Mar-16	7.8	348	5.3	12.8
	21-Apr-16	7.9	407	7.3	13.7
	18-May-16	8.6	517	10.1	12.0
	22-Jun-16	8.5	496	11.0	11.3
	3-Jul-16				
	21-Jul-16	8.4	513	11.6	11.4
	7-Aug-16				
	25-Aug-16	8.5	525	13.1	11.0
	19-Sep-16	8.3	690	11.7	8.2
	17-Oct-16	8.2	508	8.3	11.0
	15-Nov-16	8.1	496	8.3	10.9
	12-Dec-16	8.0	730	1.1	14.6
	12-Jan-17	8.1	495	5.3	11.7
	16-Feb-17	8.4	436	3.2	14.6
	21-Mar-17	8.2	488	4.9	12.1
	19-Apr-17	7.8	492	8.9	13.1
	16-May-17	8.1	3	7.0	11.7
	28-Jun-17	8.2	471	8.6	12.1
	7-Jul-17				
	20-Jul-17	8.4	517	8.3	12.0
	27-Jul-17				
	16-Aug-17	8.3	506	10.3	11.3
	19-Sep-17	8.2	557	10.1	10.8
	17-Oct-17	8.3	529	9.8	10.5
	15-Nov-17	8.3	465	5.4	13.6
	14-Dec-17	7.8	465	5.7	13.5
	17-Jan-18	7.9	421	2.2	13.2
	23-Feb-18	8.2	361	4.0	10.4
	20-Mar-18	8.2	420	2.7	17.7
	18-Apr-18	8.6	655	4.5	12.2
	15-May-18	7.9	611	5.8	11.6
	18-Jun-18	8.1	693	9.8	11.0

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW22A	18-Jul-18	8.2	652	14.7	9.3
(cont'd)	23-Aug-18	8.3	677	8.8	10.5
	19-Sep-18	8.3	704	10.8	10.3
	24-Oct-18	8.2	496	7.6	11.2
	21-Nov-18	8.4	484	1.7	12.9
	12-Dec-18	8.4	657	3.9	12.7
	18-Jan-19	8.2	672	3.6	12.6
	26-Feb-19 (2)				
	15-Mar-19	8.3	584	3.5	12.5
	24-Apr-19	8.3	483	6.1	12.0
	23-May-19	8.4	570	11.0	10.6
	18-Jun-19	8.4	612	7.6	11.3
	29-Jul-19	8.3	632	11.3	10.1
	29-Aug-19	8.3	554	11.1	10.7
	26-Sep-19	8.0	479	12.2	10.1
	23-Oct-19	8.0	502	9.1	10.3
	22-Nov-19	8.1	407	0.3	9.5
	20-Dec-19 (2)				
	15-Jan-20 (2)				
	20-Feb-20 (2)				
	26-Mar-20 (2)				
	27-Apr-20	8.4	569	6.8	11.7
	29-May-20	8.9	355	8.3	11.0
	23-Jun-20	7.9	452	7.5	10.8
	30-Jul-20	8.1	466	11.3	10.4
	25-Aug-20	7.6	439	9.4	10.7
	25-Sep-20	7.5	425	8.8	10.9
	30-Oct-20	7.9	476	8.5	10.6
	26-Nov-20	7.6	484	7.7	10.9
	22-Dec-20 (2)				
	27-Jan-21 (2)				
	22-Feb-21 (2)				
	29-Mar-21	8.2	362	6.8	6.5
	27-Apr-21	7.7	557	8.6	11.8
	27-May-21	7.6	466	9.8	10.5
	22-Jun-21	8.3	654	7.7	11.4
	22-Jul-21	8.4	627	10.3	10.9
	25-Aug-21	8.2	619		10.1
	28-Sep-21	8.1	680	8.9	11.4
	26-Oct-21	8.0	646	8.6	11.2
	23-Nov-21 (2)				
	21-Dec-21 (2)				
	24-Jan-22 (2)				
	8-Feb-22 (2)				
	16-Mar-22 (2)				
	21-Apr-22	8.1	594	1.1	11.1
	24-May-22	7.8	586	9.9	9.8
	24-Jun-22			9.5	
	30-Aug-22			10.8	
	29-Sep-22			9.7	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW22A	28-Oct-22			6.2	
(cont'd)	23-Nov-22			2.6	
	16-May-23			8.4	
	27-Jun-23			8.9	
	26-Jul-23			10.7	
	30-Aug-23			9.3	
	26-Sep-23			9.9	
	31-Oct-23			6.3	
SW22C	18-Mar-07 (2)				
	17-Apr-07	8.4	547	3.2	13.3
	15-May-07	8.3	548	11.6	10.3
	18-Jun-07	8.5	697	13.3	
	18-Jul-07	8.0	681	14.0	9.9
	22-Aug-07	8.0	704	14.5	9.5
	17-Sep-07	8.0	651	11.0	9.9
	18-Oct-07	8.2	629	11.4	9.3
	21-Nov-07	7.8	625	4.6	10.9
	9-Dec-07 (2)				
	22-Jan-08	7.7	574	2.0	
	20-Feb-08	8.1	531	1.5	
	18-Mar-08	7.8	598	1.7	
	2-Apr-08	7.5	440	2.5	13.0
	23-Apr-08	7.8	461	10.5	8.7
	21-May-08	7.5	518	7.4	10.6
	17-Jun-08	8.0	583	12.1	8.6
	16-Jul-08	7.7	529	14.9	
	19-Aug-08	7.6	746	13.7	
	16-Sep-08	7.7	654	11.0	
	22-Oct-08	7.8	497	5.9	
	23-Nov-08	7.8	571	3.6	
	14-Dec-08	6.9	448	2.5	
	18-Jan-09	8.1	554	1.3	12.5
	8-Feb-09		419	1.8	9.3
	15-Mar-09	8.1	419	3.3	
	12-Apr-09	8.5	471	6.8	
	17-May-09	8.4	462	14.5	
	14-Jun-09	8.4	1,141	12.5	
	12-Jul-09	8.0	652	14.0	10.4
	9-Aug-09	8.4	634	11.6	9.7
	13-Sep-09	8.2	617	14.6	
	11-Oct-09	8.3	610	6.6	12.0
	15-Nov-09	7.7	533	4.7	
	13-Dec-09	8.1	354	0.1	12.5
	17-Jan-10	8.2	315	0.1	15.9
	7-Feb-10	8.3	426	0.7	11.5
	14-Mar-10	7.5	468	4.0	13.5
	4-Apr-10				
	11-Apr-10	8.1	545	6.9	
	16-May-10	8.2	406	10.9	10.4
	23-May-10				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW22C	13-Jun-10	8.2	450	12.9	12.6
(cont'd)	18-Jul-10	8.1	470	13.6	13.0
	15-Aug-10	8.3	486	13.5	9.7
	12-Sep-10	8.4	478	11.1	10.2
	17-Oct-10	7.8	8	7.3	10.6
	14-Nov-10	8.2	271	6.0	9.4
	19-Dec-10	8.4	300	2.4	11.9
	16-Jan-11	8.2	270	1.4	12.3
	20-Feb-11	8.0	315	1.7	10.1
	13-Mar-11	8.3	279	2.8	13.8
	17-Mar-11				
	18-Mar-11				
	20-Mar-11	7.2	340	2.8	12.8
	1-Apr-11				
	5-Apr-11				
	8-Apr-11				
	12-Apr-11				
	15-Apr-11				
	17-Apr-11	8.5	266	3.0	12.1
	20-Apr-11				
	21-Apr-11				
	26-Apr-11				
	29-Apr-11				
	3-May-11				
	6-May-11				
	10-May-11				
	13-May-11				
	15-May-11	7.3	280	8.5	11.8
	16-May-11				
	18-May-11				
	19-May-11				
	20-May-11				
	27-May-11				
	3-Jun-11				
	12-Jun-11	8.3	375	12.9	10.5
	17-Jul-11	8.4	498	16.1	10.8
	14-Aug-11	8.8	333	15.1	9.5
	18-Sep-11	8.8	403	12.8	6.8
	16-Oct-11	7.9	413	9.2	9.6
	20-Nov-11	8.2	332	3.6	11.7
	18-Dec-11	8.4	241	1.0	12.6
	15-Jan-12	8.6	262	0.8	11.9
	19-Feb-12	8.0	182	2.1	12.9
	18-Mar-12	7.8	318	11.4	7.4
	15-Apr-12	8.6	347	6.3	13.4
	13-May-12	8.1	394	10.2	11.9
	17-Jun-12	8.3	526	16.1	7.1
	16-Jul-12	8.8	530	16.1	7.6
	15-Aug-12	8.6	492	13.9	6.3
	18-Sep-12	7.8	468	12.5	8.3

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW22C (cont'd)	18-Oct-12	8.7	392	9.3	9.0
	21-Nov-12	8.1	325	6.4	4.2
	20-Dec-12	7.6	735	2.9	11.4
	16-Jan-13	8.0	344	2.8	11.1
	20-Feb-13	8.2	249	1.3	14.1
	20-Mar-13	8.1	308	2.2	8.9
	17-Apr-13	7.9	284	4.8	9.6
	14-May-13	8.0	319	6.7	8.7
	19-Jun-13	8.4	436	11.3	10.9
	17-Jul-13	8.2	483	15.8	8.8
	18-Aug-13 (1)				
	19-Sep-13	8.3	484	13.4	3.8
	17-Oct-13	9.2	419	10.6	6.0
	20-Nov-13	8.6	351	3.6	2.2
	15-Dec-13 (2)				
	22-Jan-14	7.1	236	(0)	3.5
	16-Feb-14 (2)				
	16-Mar-14 (2)				
	17-Apr-14	7.4	324	2.9	11.7
	13-May-14	7.2	316	10.6	10.4
	17-Jun-14	8.0	440	14.5	9.2
	15-Jul-14	8.6	509	15.0	6.9
	19-Aug-14	8.7	363	13.4	9.7
	9-Sep-14	8.6	584	14.3	5.0
	20-Oct-14	8.3	542	11.3	4.9
	16-Nov-14 (2)				
	17-Dec-14	8.4	350	2.5	
	21-Jan-15	7.3	346	0.5	0.3
	15-Feb-15 (3)				
	15-Mar-15 (2)				
	23-Apr-15	8.2	363	3.5	14.3
	20-May-15	8.3	386	10.5	13.9
	15-Jun-15	8.0	487	12.6	9.7
	22-Jul-15	8.1	524	12.9	10.3
	12-Aug-15	8.1	528	14.2	9.3
	23-Aug-15				
	9-Sep-15	7.8	506	17.2	4.8
	16-Oct-15	8.0	417	8.6	10.2
	8-Nov-15				
	19-Nov-15	7.7	451	8.3	12.6
	8-Dec-15	7.9	413	3.8	12.5
	20-Jan-16	8.0	352	1.3	13.8
	18-Feb-16	7.8	364	1.2	14.4
	15-Mar-16	7.7	278	3.7	13.1
	21-Apr-16	7.8	368	7.6	12.8
	18-May-16	8.4	456	9.5	11.0
	22-Jun-16	8.4	494	13.3	10.7
	3-Jul-16				
	21-Jul-16	8.1	534	14.9	10.5
	7-Aug-16				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW22C	25-Aug-16	8.5	552	16.8	10.8
(cont'd)	19-Sep-16	8.2	644	14.6	8.0
	18-Oct-16	7.9	619	12.5	9.0
	15-Nov-16	8.0	427	7.5	11.2
	12-Dec-16	8.1	584	1.7	15.0
	25-Jan-17	8.2	397	2.8	12.5
	16-Feb-17	8.1	206	1.1	14.7
	21-Mar-17	8.4	391	3.7	12.2
	19-Apr-17	7.6	402	8.0	13.0
	16-May-17	8.1	456	13.4	9.0
	28-Jun-17	8.2	476	11.1	10.2
	7-Jul-17				
	20-Jul-17	8.3	527	12.4	10.3
	27-Jul-17				
	16-Aug-17	8.3	432	13.5	9.9
	19-Sep-17	8.2	519	13.4	8.7
	17-Oct-17	8.3	497	10.3	9.8
	15-Nov-17	8.2	414	4.5	12.9
	14-Dec-17	7.8	361	1.4	15.6
	17-Jan-18	7.8	342	0.8	14.5
	23-Feb-18	8.0	295	2.1	11.1
	20-Mar-18	8.1	279	0.4	18.5
	18-Apr-18	8.5	529	2.1	12.9
	14-May-18	8.1	539	8.7	10.6
	18-Jun-18	8.2	632	22.8	9.9
	18-Jul-18	8.2	674	10.9	10.0
	23-Aug-18	8.2	626	13.7	9.2
	19-Sep-18	8.3	658	13.8	9.4
	24-Oct-18	8.2	589	5.9	11.2
	21-Nov-18	8.2	616	1.7	12.7
	13-Dec-18	8.2	616	2.8	12.6
	19-Jan-19	8.1	626	2.1	12.9
	26-Feb-19 (2)				
	19-Mar-19	8.0	465	1.6	12.5
	25-Apr-19	8.2	475	5.0	11.6
	27-May-19	8.2	501	10.8	10.0
	21-Jun-19	8.3	550	10.7	10.3
	30-Jul-19	8.2	600	15.0	9.2
	30-Aug-19	8.3	499	18.6	10.0
	27-Sep-19	8.3	498	16.5	10.1
	22-Oct-19	8.1	495	9.7	10.1
	21-Nov-19	8.3	422	0.3	9.4
	20-Dec-19 (2)				
	15-Jan-20 (2)				
	20-Feb-20 (2)				
	26-Mar-20 (2)				
	28-Apr-20	8.3	487	6.3	11.5
	28-May-20	8.8	535	11.9	9.8
	24-Jun-20	8.5	599	13.3	9.2
	31-Jul-20	8.7	678	10.1	10.3

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW22C	26-Aug-20	8.0	625	11.8	10.0
(cont'd)	26-Sep-20	8.0	600	12.5	11.1
	29-Oct-20	8.0	475	8.8	10.5
	27-Nov-20	8.1	280	6.0	11.7
	22-Dec-20 (2)				
	27-Jan-21 (2)				
	22-Feb-21 (2)				
	29-Mar-21	8.3	504	7.9	11.0
	27-Apr-21	7.7	489	9.0	11.0
	27-May-21	7.3	416	12.1	10.3
	22-Jun-21	8.3	300	10.8	10.4
	22-Jul-21	8.4	660	13.9	9.8
	25-Aug-21	8.2	650		10.1
	28-Sep-21	8.2	612	10.8	10.8
	26-Oct-21	7.9	599	8.8	10.6
	23-Nov-21 (2)				
	21-Dec-21 (2)				
	24-Jan-22 (2)				
	8-Feb-22 (2)				
	16-Mar-22 (2)				
	21-Apr-22	7.6	484	1.3	11.4
	24-May-22	7.5	562	10.2	10.0
	24-Jun-22			9.9	
	30-Aug-22			13.9	
	27-Sep-22			10.4	
	28-Oct-22			6.8	
	23-Nov-22			3.4	
	16-May-23			10.0	
	27-Jun-23			13.2	
	26-Jul-23			13.6	
	30-Aug-23			11.8	
	26-Sep-23			12.1	
	31-Oct-23			6.7	
SW24A	21-Apr-04	7.5	274	6.6	
	19-May-04	8.0	357	7.4	
	24-Jun-04	7.5	396	7.4	
	29-Jul-04	7.6	416	7.8	
	26-Aug-04	7.5	432	8.2	
	22-Sep-04	7.6	455	7.8	
	20-Oct-04	7.7	432	7.2	11.7
	17-Nov-04	7.7	440	7.4	11.1
	16-Dec-04	7.7	382	6.7	
	16-Jan-05 (2)				
	13-Feb-05 (2)				
	29-Mar-05	7.8	369	5.6	12.6
	11-Apr-05	7.4	298	6.0	
	26-May-05	7.7	345	7.4	12.1
	28-Jun-05	8.2	404	8.3	
	11-Jul-05	6.9	427	9.1	
	22-Aug-05	8.3	397	10.2	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW24A	28-Sep-05	7.7	480	10.4	10.9
(cont'd)	15-Nov-05	7.9	419	6.6	
	12-Dec-05	8.3	405	5.4	11.2
	17-Jan-06	7.9	305	3.0	13.4
	19-Feb-06 (2)				
	22-Mar-06	8.5	284	4.3	
	18-Apr-06	8.3	351	9.0	
	24-May-06	8.3	447	8.9	
	20-Jun-06	8.2	492	11.3	
	11-Jul-06	8.3	468	12.4	
	23-Aug-06	8.0	492	11.8	
	20-Sep-06	7.9	475	10.5	
	19-Oct-06	8.0	508	9.3	
	27-Nov-06	8.1	518	7.0	12.2
	17-Dec-06	8.1	515	4.0	
	21-Jan-07	8.2	520	2.9	
	18-Feb-07 (2)				
	18-Mar-07	8.3	459	3.9	
	17-Apr-07	8.4	417	4.2	
	13-May-07	8.3	441	9.3	11.2
	17-Jun-07	8.1	522	8.5	11.5
	15-Jul-07	8.0	507	11.0	9.9
	19-Aug-07	8.1	519	13.0	
	17-Sep-07	7.9	506	9.8	9.7
	18-Oct-07	7.8	525	10.7	9.0
	19-Nov-07	7.9	572	4.8	11.6
	10-Dec-07	8.0	505	4.2	12.6
	21-Jan-08	7.6	390	2.9	
	19-Feb-08	7.9	453	3.0	
	17-Mar-08	7.1	466	2.0	
	2-Apr-08	7.1	466	2.0	
	23-Apr-08	8.0	351	9.6	
	6-May-08	7.1	421	6.8	
	21-May-08	7.6	403	7.2	10.5
	17-Jun-08	7.9	479	8.1	9.8
	15-Jul-08	7.0	511	10.3	8.5
	18-Aug-08	7.4	574	12.8	5.5
	16-Sep-08	8.1	542	9.8	8.2
	21-Oct-08	7.9	480	5.9	7.9
	23-Nov-08	7.5	461	3.5	8.3
	14-Dec-08	7.2	426	2.8	8.0
	18-Jan-09	8.3	252	4.1	9.5
	8-Feb-09	8.9	452	3.5	10.2
	15-Mar-09	8.4	395	4.8	
	12-Apr-09	8.4	413	7.1	
	17-May-09	7.8	378	14.0	
	14-Jun-09	7.6	911	9.1	
	12-Jul-09	8.5	502	9.6	
	9-Aug-09	6.8	362	11.2	10.3
	13-Sep-09	7.8	472	10.4	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW24A	11-Oct-09	8.4	554	7.0	
(cont'd)	15-Nov-09	7.3	488	4.8	
	13-Dec-09	7.7	545	3.4	
	17-Jan-10	8.7	508	3.5	11.0
	7-Feb-10	7.7	368	2.4	12.6
	14-Mar-10	8.0	460	4.9	12.9
	4-Apr-10				
	11-Apr-10	7.8	430	5.4	
	16-May-10	8.2	318	9.8	10.6
	23-May-10				
	13-Jun-10	8.2	334	9.8	12.6
	18-Jul-10	8.2	399	12.5	12.7
	15-Aug-10	8.3	336	12.3	9.8
	12-Sep-10	8.2	403	10.1	10.5
	17-Oct-10	8.0	290	7.7	11.0
	14-Nov-10	8.3	303	5.9	12.4
	19-Dec-10	8.2	201	4.0	11.8
	16-Jan-11	8.3	292	3.7	12.9
	20-Feb-11	8.0	277	4.3	12.4
	13-Mar-11	8.1	272	4.3	11.5
	17-Mar-11				
	18-Mar-11				
	20-Mar-11				
	1-Apr-11				
	5-Apr-11				
	8-Apr-11				
	12-Apr-11				
	15-Apr-11				
	17-Apr-11	8.2	280	5.4	12.9
	20-Apr-11				
	21-Apr-11				
	26-Apr-11				
	29-Apr-11				
	3-May-11				
	6-May-11				
	10-May-11				
	13-May-11				
	15-May-11	7.7	180	6.9	12.3
	16-May-11				
	18-May-11				
	19-May-11				
	20-May-11				
	27-May-11				
	3-Jun-11				
	12-Jun-11	8.1	290	8.6	6.7
	17-Jul-11	7.8	356	9.6	9.4
	14-Aug-11	8.5	278	10.6	10.7
	18-Sep-11	8.1	333	10.5	9.3
	16-Oct-11	7.9	356	8.0	11.0
	20-Nov-11	7.5	348	5.0	12.3

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW24A	18-Dec-11	8.3	139	3.7	12.0
(cont'd)	15-Jan-12	8.4	238	3.1	12.5
	19-Feb-12	8.0	261	3.2	14.1
	18-Mar-12	8.1	264	9.1	10.9
	15-Apr-12	8.5	303	5.7	10.0
	13-May-12	8.1	309	10.2	10.5
	17-Jun-12	8.3	410	13.5	12.9
	16-Jul-12	8.4	427	15.0	6.8
	14-Aug-12	8.1	454	12.5	7.4
	18-Sep-12	7.3	398	11.4	9.6
	17-Oct-12	7.4	354	9.4	7.9
	20-Nov-12	7.8	348	6.7	9.1
	18-Dec-12	7.5	743	6.6	9.5
	16-Jan-13	8.0	317	2.9	11.5
	20-Feb-13	8.0	247	1.9	14.6
	20-Mar-13	8.1	254	2.6	7.0
	16-Apr-13	8.1	248	6.2	10.0
	13-May-13	8.1	239	7.2	10.1
	19-Jun-13	8.3	339	9.8	11.4
	16-Jul-13	8.1	406	12.4	9.8
	21-Aug-13	8.2	406	12.5	9.7
	18-Sep-13	7.8	370	8.3	12.0
	16-Oct-13	8.4	379	10.4	6.5
	19-Nov-13	8.1	324	4.3	2.5
	18-Dec-13	8.6	321	3.7	4.2
	21-Jan-14	7.6	2	1.1	3.3
	16-Feb-14 (2)				
	16-Mar-14 (2)				
	16-Apr-14	8.2	279	3.4	10.4
	13-May-14	8.3	246	9.4	10.4
	17-Jun-14	8.4	359	10.8	10.0
	15-Jul-14	7.8	366	12.0	4.7
	23-Oct-14	8.2	428	7.3	4.3
	16-Nov-14 (2)				
	16-Dec-14	8.7	370	4.0	
	20-Jan-15	7.9	344	1.8	1.4
	15-Feb-15 (3)				
	18-Mar-15	8.4	252	1.5	13.2
	22-Apr-15	8.1	308	5.5	12.8
	19-May-15	8.4	314	9.5	
	15-Jun-15	8.1	373	10.4	9.3
	21-Jul-15	7.5	382	10.9	
	11-Aug-15	8.2	414	11.4	10.0
	25-Aug-15	8.2	366	11.9	10.2
	8-Sep-15	7.8	416	13.1	9.5
	15-Oct-15	8.0	277	8.4	11.0
	8-Nov-15				
	18-Nov-15	8.0	421	7.9	10.3
	8-Dec-15	8.1	389	5.2	19.4
	19-Jan-16	8.1	322	3.4	14.6

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW24A	17-Feb-16	8.0	339	3.3	14.3
(cont'd)	15-Mar-16	7.9	276	5.9	12.6
	21-Apr-16	8.1	268	5.7	13.6
	18-May-16	8.4	304	7.9	12.4
	22-Jun-16	8.3	394	12.2	10.6
	5-Jul-16	8.4	401	13.5	14.7
	20-Jul-16	7.8	385	13.1	9.7
	9-Aug-16	8.3	246	14.0	10.9
	24-Aug-16	8.6	382	17.7	9.9
	19-Sep-16	8.1	545	12.7	
	18-Oct-16	7.8	445	12.9	12.3
	25-Oct-16	7.9	336	4.3	13.8
	15-Nov-16	8.1	382	7.2	11.5
	12-Dec-16	7.9	481	0.9	13.9
	24-Jan-17	8.2	319	3.9	13.2
	16-Feb-17	8.3	323	1.4	15.2
	21-Mar-17	8.4	343	4.8	12.4
	19-Apr-17	8.2	286	8.8	15.7
	9-May-17	8.5	239	8.1	13.4
	16-May-17	8.8	344	12.2	10.5
	28-Jun-17	8.3	351	8.9	11.7
	7-Jul-17	8.1	382	12.1	11.1
	19-Jul-17	8.4	422	11.6	10.4
	2-Aug-17	8.4	401	12.7	10.0
	15-Aug-17	8.7	347	12.1	10.5
	17-Sep-17	8.2	428	12.2	10.2
	17-Oct-17	8.2	399	8.9	10.5
	14-Nov-17	8.3	394	6.1	8.0
	14-Dec-17	8.3	360	3.1	13.4
	18-Jan-18	7.9	299	2.7	9.3
	24-Feb-18	8.2	280	3.3	13.9
	21-Mar-18	8.2	293	1.1	14.4
	18-Apr-18	8.2	255	0.2	11.9
	8-May-18	8.2	423	10.3	10.5
	15-May-18	7.9	457	7.4	11.1
	18-Jun-18	8.2	504	8.2	10.1
	19-Jul-18	8.2	516	10.7	10.2
	24-Aug-18	8.3	529	11.9	9.9
	20-Sep-18	8.2	526	11.8	9.3
	25-Oct-18	8.2	539	6.0	11.4
	22-Nov-18	8.3		1.1	12.4
	13-Dec-18	8.2	516	4.0	12.1
	19-Jan-19	8.2	479	1.3	13.1
	28-Feb-19 (2)				
	19-Mar-19	8.3	439	3.6	12.4
	25-Apr-19	8.2	333	5.8	11.3
	16-May-19	8.2	409	10.0	10.7
	27-May-19	8.3	409	10.0	10.7
	21-Jun-19	8.3	448	10.8	10.1
	30-Jul-19	8.2	468	12.7	9.5

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW24A	30-Aug-19	8.2	425	14.4	9.7
(cont'd)	27-Sep-19	8.0	451	15.6	8.9
	22-Oct-19	8.1	395	8.8	8.2
	21-Nov-19 (2)				
	20-Dec-19 (2)				
	24-Jan-20 (2)				
	21-Feb-20 (2)				
	25-Mar-20 (2)				
	28-Apr-20				
	20-May-20	8.2	460	10.2	10.5
	28-May-20	8.6	401	8.2	11.0
	24-Jun-20	8.3	408	12.5	9.9
	31-Jul-20	8.3	497	8.8	10.6
	26-Aug-20	8.1	470	11.7	9.8
	26-Sep-20	8.1	470	10.4	
	29-Oct-20	7.9	363	7.9	9.9
	27-Nov-20	8.0	549	7.1	11.4
	22-Dec-20	8.1	524	4.2	12.4
	28-Jan-21 (2)				
	23-Feb-21 (2)				
	30-Mar-21	8.3	387	5.5	10.5
	28-Apr-21	7.8	410	7.1	11.9
	26-May-21 (3)				
	23-Jun-21	8.0	518	9.9	10.7
	10-Jul-21	8.1	489	11.4	10.4
	23-Jul-21	11.5	525	11.5	10.5
	11-Aug-21			14.1	
	26-Aug-21	8.2	537	13.9	9.9
	27-Sep-21	8.1	531	10.0	11.0
	27-Oct-21 (3)				
	22-Nov-21	7.9	463	4.7	11.9
	22-Dec-21	8.0	514	3.1	12.0
	24-Jan-22 (2)				
	8-Feb-22 (2)				
	16-Mar-22 (2)				
	21-Apr-22	7.6	505	1.0	5.3
	25-May-22	8.2	476	10.0	11.0
	24-Jun-22			9.5	
	8-Jul-22			12.7	0.6
	11-Aug-22			10.3	
	29-Aug-22			11.3	
	27-Sep-22			9.7	
	27-Oct-22			7.7	
	23-Nov-22			4.7	
	16-May-23	8.1	450	8.6	10.8
	26-Jun-23			11.2	
	11-Jul-23			9.6	
	25-Jul-23			9.1	
	14-Aug-23			9.7	
	29-Aug-23			11.1	

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW24A	25-Sep-23			9.9	
(cont'd)	30-Oct-23			7.7	
SW77	13-Dec-09 (2)				
	17-Jan-10	8.2	164	5.6	11.3
	7-Feb-10	8.4	449	5.7	12.6
	14-Mar-10		383	6.0	12.5
	4-Apr-10				
	11-Apr-10	7.5	407	5.9	12.9
	16-May-10	7.6	264	7.0	10.5
	23-May-10				
	13-Jun-10	7.5	286	7.9	12.7
	18-Jul-10	7.3	298	9.2	12.7
	15-Aug-10	7.6	326	10.0	8.6
	12-Sep-10	7.7	261	10.6	11.1
	17-Oct-10	7.0	327	10.2	8.6
	21-Oct-10	6.9	354	10.0	8.7
	14-Nov-10	7.5	294	9.4	13.7
	19-Dec-10 (2)				
	16-Jan-11 (2)				
	20-Feb-11 (2)				
	13-Mar-11 (2)				
	17-Mar-11				
	18-Mar-11				
	20-Mar-11				
	1-Apr-11				
	5-Apr-11				
	8-Apr-11				
	12-Apr-11				
	15-Apr-11				
	17-Apr-11	8.1	253	5.4	12.0
	20-Apr-11				
	21-Apr-11				
	26-Apr-11				
	29-Apr-11				
	3-May-11				
	6-May-11				
	10-May-11				
	13-May-11				
	15-May-11	7.7	219	6.0	12.8
	16-May-11				
	18-May-11				
	19-May-11				
	20-May-11				
	27-May-11				
	3-Jun-11				
	12-Jun-11	7.5	253	7.7	5.8
	17-Jul-11	7.3	306	9.4	10.1
	14-Aug-11	8.7	240	10.6	10.9
	16-Oct-11	8.0	353	10.5	9.1
	20-Nov-11	8.3	321	8.7	10.1

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW77	18-Dec-11	8.6	225	8.2	9.2
(cont'd)	15-Jan-12	8.2	242	7.0	10.3
	19-Feb-12	7.1	244	6.5	12.5
	18-Mar-12	7.5	214	5.9	13.3
	15-Apr-12	8.8	287	6.3	12.5
	13-May-12	7.5	281	7.0	9.5
	17-Jun-12	7.6	274	8.3	6.6
	16-Jul-12	7.8	346	10.8	6.1
	14-Aug-12	7.7	225	10.1	9.0
	18-Sep-12	6.6	348	11.0	8.2
	17-Oct-12	7.9	318	10.6	7.5
	20-Nov-12	8.0	343	9.3	8.5
	18-Dec-12	7.7	713	8.4	9.2
	15-Jan-13	7.9	306	7.4	10.3
	20-Feb-13	7.8	234	6.4	10.1
	19-Mar-13	8.1	214	5.9	12.2
	16-Apr-13	6.9	194	0.2	10.0
	13-May-13	7.4	265	6.1	11.0
	18-Jun-13	7.9	296	8.2	8.7
	16-Jul-13	8.2	333	9.9	9.9
	16-Oct-13	9.9	336	10.1	6.3
	19-Nov-13	7.3	338	8.9	6.3
	17-Dec-13	8.1	269	8.0	6.9
	18-Mar-14	6.8	280	4.3	6.0
	15-Apr-14	7.8	191	4.6	10.2
	12-May-14	7.8	252	6.8	3.3
	17-Jun-14	7.8	306	7.8	11.2
	14-Jul-14	8.9	341	8.7	1.9
	18-Aug-14	8.5	341	9.6	4.3
	8-Sep-14	8.5	378	10.4	9.9
	23-Oct-14	8.1	435	9.3	8.5
	14-Dec-14 (2)				
	18-Jan-15 (2)				
	15-Feb-15 (3)				
	18-Mar-15	7.6	253	5.7	10.6
	21-Apr-15	7.5	202	5.4	11.9
	19-May-15	7.9	268	6.4	14.5
	15-Jun-15	7.6	329	7.3	9.6
	21-Jul-15	8.0	358	13.0	
	11-Aug-15	7.9	342	13.0	9.4
	25-Aug-15	7.7	325	10.3	11.4
	8-Sep-15	7.8	372	14.2	9.6
	15-Oct-15	7.8	304	8.8	9.9
	8-Nov-15				
	18-Nov-15	7.8	360	8.3	10.0
	8-Dec-15	7.9	344	6.3	14.6
	19-Jan-16	7.9	259	4.1	13.4
	17-Feb-16	7.9	321	5.1	12.3
	15-Mar-16	7.7	237	6.3	13.0
	20-Apr-16	7.3	291	6.5	12.6

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
SW77	17-May-16	8.0	353	10.0	11.9
(cont'd)	22-Jun-16	7.9	336	9.1	10.9
	5-Jul-16	8.0	267	10.7	16.3
	20-Jul-16	8.3	355	11.4	10.3
	9-Aug-16	8.1	345	14.9	11.8
	24-Aug-16	8.2	356	12.9	11.0
	19-Sep-16	8.2	374	13.1	9.4
	17-Oct-16	7.9	340	12.1	8.9
	25-Oct-16	7.8	295	6.4	12.7
	15-Nov-16	7.4	480	8.7	9.7
	12-Dec-16	8.0	431	5.0	12.1
	24-Jan-17	7.6	267	6.5	12.0
	16-Feb-17	8.1	331	4.4	13.6
	21-Mar-17	8.0	349	6.5	12.1
	19-Apr-17	7.7	309	8.4	14.4
	9-May-17	7.8	223	6.3	14.1
	16-May-17	8.1	323	9.2	11.3
	28-Jun-17	7.7	362	10.9	11.1
	7-Jul-17	8.0	334	11.9	11.5
	18-Jul-17	8.0	363	11.5	10.5
	2-Aug-17	8.2	255	10.9	10.1
	15-Aug-17	8.5	294	11.0	10.8
	17-Sep-17	7.8	356	11.4	10.3
	17-Oct-17	8.0	269	9.7	10.6
	14-Nov-17	8.0	377	8.1	7.8
	14-Dec-17	8.1	334	4.6	13.2
	17-Jan-18	8.0	311	5.3	7.9
	23-Feb-18	7.9	299	6.4	9.0
	20-Mar-18	8.1	315	5.3	14.0
	18-Apr-18	8.2	457	5.5	7.4
	8-May-18	7.7	427	8.7	11.0
	14-May-18	7.8	440	9.3	10.8
	18-Jun-18	7.7	466	9.4	9.8
	23-Aug-18	7.4	481	12.3	10.3
	19-Sep-18	7.4	402	11.6	6.3
	24-Oct-18	7.7	456	9.3	7.0
	21-Nov-18 (1)				
	12-Dec-18	8.0	483	7.1	10.3
	18-Jan-19 (2)				
	26-Feb-19 (2)				
	15-Mar-19	7.9	392	4.9	11.3
	24-Apr-19	7.2	366	5.4	10.3
	14-May-19	7.5	381	5.9	9.7
	23-May-19	7.5	397	6.1	9.2
	18-Jun-19	7.4	416	7.1	8.8
	29-Jul-19	7.5	412	9.2	9.0
	29-Aug-19	8.3		15.7	8.8
	26-Sep-19 (1)				
	23-Oct-19 (1)				
	22-Nov-19 (2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station			pH (SU)	EC (µS/cm)	T (°C)	DO
		PWQO	6.5 - 8.5	nc	nc	*a*
SW77	20-Dec-19	(2)				
(cont'd)	15-Jan-20	(2)				
	20-Feb-20	(2)				
	26-Mar-20	(2)				
	27-Apr-20	(1)				
	19-May-20		7.9	460	6.0	8.8
	29-May-20		8.0	404	6.4	9.6
	23-Jun-20		8.0	463	9.3	10.0
	30-Jul-20	(3)				
	25-Aug-20		7.8	455	10.4	9.7
	25-Sep-20		8.1	310	10.1	9.9
	30-Oct-20		7.3	384	8.9	8.7
	26-Nov-20	(2)				
	22-Dec-20	(2)				
	28-Jan-21	(2)				
	23-Feb-21	(2)				
	30-Mar-21		7.7	361	6.1	12.1
	28-Apr-21		7.5	388	7.2	11.6
	26-May-21		7.9	429	10.6	11.0
	27-May-21		7.9	429	10.6	11.0
	23-Jun-21		7.9	501	9.1	10.4
	10-Jul-21				10.2	
	23-Jul-21		8.4	446	12.1	10.6
	11-Aug-21				14.6	
	26-Aug-21		8.1	443	15.7	9.7
	27-Sep-21		8.1	501	10.8	10.8
	27-Oct-21	(3)				
	22-Nov-21	(2)				
	22-Dec-21	(2)				
	24-Jan-22	(2)				
	8-Feb-22	(2)				
	16-Mar-22	(2)				
	21-Apr-22		8.0	440	0.1	10.6
	25-May-22		8.1	444	9.4	11.4
	24-Jun-22				10.0	
	8-Jul-22				8.7	
	11-Aug-22				9.8	
	29-Aug-22				11.4	
	27-Sep-22				9.4	
	27-Oct-22				8.0	
	21-Nov-22				4.9	
	16-May-23		7.8		8.7	10.9
	26-Jun-23				10.3	
	11-Jul-23				10.2	
	25-Jul-23				10.3	
	14-Aug-23				11.2	
	29-Aug-23				10.8	
	25-Sep-23				11.1	
	30-Oct-23				8.7	
PR Control	25-Aug-15		8.4	307	14.6	8.0

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
PR Control (cont'd)	9-Sep-15	8.3	365	18.4	9.4
	15-Oct-15	8.0	291	8.6	11.3
	8-Nov-15				
	18-Nov-15	8.0	335	6.9	11.3
	8-Dec-15	8.3	305	3.5	15.7
	19-Jan-16	7.7	239	(0)	16.1
	17-Feb-16	8.2	276	0.6	15.8
	15-Mar-16	8.3	256	4.2	13.8
	20-Apr-16	7.7	310	9.7	12.2
	17-May-16	8.6	328	7.5	12.5
	22-Jun-16	8.5	330	12.5	11.1
	3-Jul-16				
	20-Jul-16	8.5	344	14.2	10.2
	7-Aug-16				
	24-Aug-16	8.4	252	16.6	11.5
	19-Sep-16	8.4	440	15.2	9.7
	17-Oct-16	8.1	340	12.6	9.6
	25-Oct-16	7.9	287	5.4	15.1
	15-Nov-16	8.2	468	6.1	12.9
	12-Dec-16	7.6	405	0.0	13.4
	24-Jan-17	8.2	268	1.9	14.3
	16-Feb-17	8.4	284	0.4	16.4
	21-Mar-17	8.4	303	2.2	13.8
	19-Apr-17	7.7	305	7.8	14.1
	8-May-17	8.4	246	7.8	14.0
	16-May-17	8.4	456	9.2	8.5
	28-Jun-17	8.3	358	11.7	11.1
	7-Jul-17				
	18-Jul-17	6.4	368	13.7	11.3
	27-Jul-17				
	15-Aug-17	8.8	297	14.4	11.0
	17-Sep-17	8.2	366	14.9	10.3
	17-Oct-17	8.3	338	8.8	11.5
	14-Nov-17	8.2	320	4.4	11.3
	14-Dec-17	7.9	277	(0)	19.5
	17-Jan-18	8.1	269	0.2	12.6
	22-Feb-18	8.4	243	1.9	12.8
	20-Mar-18	8.5	247	(0)	18.8
	18-Apr-18	8.6	430	2.5	10.7
	8-May-18	8.4	428	8.2	11.3
	14-May-18	8.5	418	12.9	10.1
	18-Jun-18	8.4	424	14.4	9.8
	19-Jul-18	8.4	417	15.6	9.4
	23-Aug-18	8.5	426	16.3	9.2
	19-Sep-18	8.5	422	14.9	9.5
	24-Oct-18	8.4	449	5.0	12.3
	21-Nov-18	8.3	456	0.0	13.9
	12-Dec-18	8.3	456	1.1	13.4
	18-Jan-19	8.3	454	0.1	14.0
	26-Feb-19 (2)				

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
PR Control (cont'd)	15-Mar-19 (2)				
	24-Apr-19	8.5	375	6.4	11.9
	14-May-19	8.5	364	5.9	12.0
	23-May-19	8.6	381	10.8	10.6
	18-Jun-19	8.4	396	12.1	10.2
	29-Jul-19	8.4	383	18.6	8.8
	29-Aug-19	8.0	384	15.4	7.7
	26-Sep-19	8.2	421	14.0	9.6
	23-Oct-19	8.0	377	9.4	8.3
	22-Nov-19	7.6	320	1.1	8.9
	20-Dec-19	7.9	329	0.0	8.7
	15-Jan-20	7.9	394	2.2	11.6
	20-Feb-20 (2)				
	26-Mar-20 (2)				
	27-Apr-20	8.5	433	3.4	12.6
	19-May-20			8.6	11.4
	29-May-20	9.0	393	14.2	9.7
	23-Jun-20	8.7	380	12.2	10.0
	30-Jul-20	8.7	400	17.2	9.0
	25-Aug-20	8.4	373	17.6	8.9
	25-Sep-20	8.3	385	10.6	9.1
	30-Oct-20	7.8	364	8.0	8.1
	26-Nov-20	7.8	465	4.7	11.8
	23-Dec-20	8.3	486	0.2	14.3
	27-Jan-21	7.6	400	1.8	10.7
	22-Feb-21	7.4	385	0.1	10.5
	29-Mar-21	8.3	400	7.2	9.6
	27-Apr-21	8.5	417	5.8	13.6
	27-May-21	8.3	422	9.9	12.7
	22-Jun-21	8.0	486	14.1	10.2
	22-Jul-21 (3)				
	25-Aug-21	8.0	433	18.2	9.2
	28-Sep-21	8.3	461	11.6	10.8
	26-Oct-21	8.1	467	9.5	11.2
	23-Nov-21	8.1	451	2.5	11.5
	21-Dec-21	8.2	471	1.6	11.7
	24-Jan-22 (2)				
	8-Feb-22 (2)				
	16-Mar-22	7.9	416	2.0	13.7
	21-Apr-22	8.1	368	2.1	10.0
	24-May-22	8.3	434	11.9	10.5
	25-Jun-22	7.8	413	10.1	11.5
	26-Aug-22	8.2	450	12.5	10.3
	27-Sep-22	8.4	394	11.6	10.6
	28-Oct-22	8.0	207	7.4	7.5
	22-Nov-22	8.6	299	1.1	12.0
	20-Dec-22	8.8	169	0.5	9.2
	24-Jan-23	8.2	418	0.7	14.4
	22-Feb-23	8.0	448	0.2	14.7
	28-Mar-23	9.1	414	1.8	13.3

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
PR Control (cont'd)	21-Apr-23	7.6	388	10.4	10.4
	17-May-23	8.4	410	7.8	11.3
	27-Jun-23	8.5	447	14.9	9.2
	26-Jul-23	8.4	382	17.2	8.7
	30-Aug-23	7.7	348	13.1	9.6
	26-Sep-23	8.4	398	12.0	10.0
	31-Oct-23	8.0	318	5.6	10.0
	29-Nov-23	8.1	493	0.2	13.6
	18-Dec-23	8.1	496	4.1	11.9
BC Control	25-Aug-15	8.3	436	14.6	7.9
	9-Sep-15	8.0	400	17.9	5.9
	16-Oct-15	7.8	436	8.1	9.1
	8-Nov-15				
	19-Nov-15	8.0	405	9.4	11.7
	8-Dec-15	7.9	348	3.2	18.0
	17-Jan-16 (2)				
	14-Feb-16 (2)				
	15-Mar-16	8.1	259	6.2	13.4
	21-Apr-16	8.5	316	9.7	12.2
	17-May-16	8.5	334	5.8	12.6
	22-Jun-16	8.4	465	15.7	8.5
	3-Jul-16				
	20-Jul-16	7.9	457	13.6	9.1
	7-Aug-16				
	25-Aug-16	8.3	577	17.7	7.3
	19-Sep-16	8.1	275	14.6	8.3
	17-Oct-16	7.9	648	12.3	8.4
	25-Oct-16	7.7	480	6.1	13.5
	15-Nov-16	8.0	439	5.2	11.1
	12-Dec-16	7.6	318	(0)	14.5
	24-Jan-17	8.2	287	2.1	13.6
	15-Feb-17 (2)				
	22-Mar-17	8.9	475	0.0	6.0
	19-Apr-17	7.5	345	10.8	12.4
	9-May-17	8.4	243	5.2	15.6
	16-May-17	8.6	320	18.0	7.9
	28-Jun-17	8.4	415	12.4	10.8
	7-Jul-17				
	19-Jul-17	8.5	485	17.2	8.6
	27-Jul-17				
	16-Aug-17	8.4	457	15.9	8.0
	17-Sep-17	7.1	477	14.6	8.6
	18-Oct-17	8.3	404	9.4	10.4
	14-Nov-17	8.3	375	5.3	10.3
	14-Dec-17	8.0	203	(0)	18.8
	18-Jan-18	8.1	286	0.4	11.5
	24-Feb-18	8.3	271	2.2	14.8
	20-Mar-18	8.5	269	(0)	17.3
	18-Apr-18	8.6	462	2.5	10.4
	8-May-18	8.3	455	9.3	11.0

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
BC Control (cont'd)	14-May-18	8.4	469	15.2	9.5
	18-Jun-18	8.4	539	16.0	9.3
	19-Jul-18	8.2	633	14.8	9.6
	23-Aug-18	8.3	596	17.0	9.0
	19-Sep-18	8.2	675	13.6	9.0
	24-Oct-18	8.3	597	5.0	11.9
	21-Nov-18	8.2		0.2	13.9
	12-Dec-18	8.3	473	1.7	13.3
	18-Jan-19	7.9	383	0.1	14.9
	26-Feb-19 (2)				
	15-Mar-19 (2)				
	24-Apr-19	8.4	370	7.8	11.5
	14-May-19	8.5	366	7.3	11.6
	23-May-19	8.5	413	12.4	10.3
	18-Jun-19	8.5	457	14.0	9.7
	29-Jul-19	8.3	575	18.6	10.0
	29-Aug-19	8.3	499	17.0	8.0
	26-Sep-19	8.3	522	15.2	7.8
	23-Oct-19	7.5	438	8.2	10.3
	22-Nov-19	7.7	384	0.5	9.3
	20-Dec-19 (2)				
	15-Jan-20	7.9	377	2.6	9.4
	20-Feb-20 (2)				
	26-Mar-20	8.2	403	4.7	12.3
	27-Apr-20	8.4	442	2.9	13.1
	19-May-20			9.6	11.2
	29-May-20	9.1	443	11.1	10.6
	23-Jun-20	8.7	441	14.3	9.6
	30-Jul-20	8.6	535	18.4	8.4
	25-Aug-20	8.1	525	15.8	9.4
	25-Sep-20	8.1	530	12.8	10.2
	30-Oct-20	7.3	427	7.7	9.6
	26-Nov-20	7.6	470	4.5	12.2
	23-Dec-20	8.2	471	0.0	14.6
	27-Jan-21	7.9	388	1.4	9.4
	22-Feb-21 (2)				
	29-Mar-21	8.1	459	6.4	10.2
	27-Apr-21	8.5	422	6.6	12.5
	27-May-21	8.5	509	11.6	10.8
	22-Jun-21	8.4	564	14.6	10.5
	22-Jul-21	8.1	536	14.4	9.6
	25-Aug-21	8.1	562	17.7	9.3
	28-Sep-21	8.5	532	11.5	10.8
	26-Oct-21	8.2	528	9.9	11.2
	23-Nov-21	8.2	522	3.1	11.1
	21-Dec-21	8.5	516	2.3	11.5
	24-Jan-22 (2)				
	8-Feb-22 (2)				
	16-Mar-22	8.1	421	2.9	13.4
	21-Apr-22	8.1	494	2.6	9.1

Table C-3 Surface Water Field Chemical Results

Surface Water Station		pH (SU)	EC (µS/cm)	T (°C)	DO
	PWQO	6.5 - 8.5	nc	nc	*a*
BC Control (cont'd)	24-May-22	8.3	441	12.7	10.1
	25-Jun-22	8.1	435	9.9	11.7
	26-Aug-22	8.3	465	12.6	10.1
	27-Sep-22	8.0	406	11.2	11.5
	28-Oct-22	7.9	431	7.7	7.2
	22-Nov-22	8.4	376	1.7	10.1
	21-Dec-22	8.7	260	0.0	12.0
	24-Jan-23	8.2	468	1.3	14.2
	22-Feb-23	8.0	485	0.6	14.6
	28-Mar-23	9.0	446	2.0	13.3
	21-Apr-23	7.2	422	11.5	10.2
	17-May-23	8.3	482	8.6	11.2
	27-Jun-23	8.6	470	15.9	9.1
	26-Jul-23	8.3	470	17.4	8.9
	30-Aug-23	7.7	408	13.3	8.7
	26-Sep-23	8.4	516	12.6	9.9
	1-Nov-23	8.0	314	2.2	6.9
	29-Nov-23	8.1	573	0.2	13.5
	18-Dec-23	8.1	548	4.5	12.0

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	General Parameters							Major Ions							Nutrients and Organic Indicators						
		pH (SU)	EC (µS/cm)	T S S	T D S	Hardness	Colour (TCU)	Turbidity (NTU)	Alkalinity	Chloride Cl	Sulphate SO_4	Calcium Ca	Magnesium Mg	Sodium Na	Potassium K	Nitrate NO_3	Nitrite NO_2	Ammonia NH_3	Un-ionized Ammonia	T K N	T P P	Phenols
	PWQO	6.5 - 8.5	nc	nc	nc	nc	nc	*b*	*c*	nc	nc	nc	nc	nc	nc	nc	nc	nc	0.02 *d*	nc	0.03 *i e*	0.001
SUMP 1	23-Mar-16															1	<0.1			0.16	0.01	
	25-May-16	8.25	700	21	363	324	5		235	76.1	7	64	40	23.2	2.5	2	<0.1	0.09	0.001	0.3	0.01	
	10-Aug-16	7.92	925	8	442	364	5		236	139	6	64.6	49.4	33.2	3.8	0.8	<0.1	0.09	0.017	0.3	0.01	
	18-Oct-16	7.95	825	12	349	359	25	11.8	120	117	6	71	44.2	29.4	2.8	1	<0.1	0.62	0.013	0.8	0.02	<0.001
	1-Feb-17	7.7	734	24	338	285	<2	6	227	75.4	8	55.6	35.5	18.4	1.7	1.5	<0.1	0.1	0.004	0.2	<0.01	
	5-Apr-17	8.17	603	<3	309	271	10	6	208	59.3	7	56.8	31.5	19.9	1.6	1.8	<0.1	0.02	<0.001	0.2	0.02	
	17-Jul-17	7.99	801	<3	357	302	6	5	211	92	6	57	38.8	26.6	2.8	1.7	<0.1	0.03	0.001	0.3	0.01	
	4-Oct-17	8.16	809	<3	382	327	<2	5	202	115	6	53.4	47.1	30.9	3.6	1	<0.1	0.06	0.001	0.2	<0.01	
	6-Mar-18	8.08	605	<2	328	272	5.56	0.77	229	53.7	5.56	55.1	29.3	18.1	1.61	1.04	<0.01	0.098	<0.001	<0.15	0.0586	
	9-May-18	8.21	555	<2	291	259	2.5	1.24	217	47.6	5.24	53.7	28.8	17.1	1.62	1.16	<0.01	0.048	<0.001	<0.15	0.0031	
	5-Sep-18	8.06	710	<10	385	300	3	0.5	210	100	6.1	50	40	27	2.8	0.68	<0.01	<0.05	<0.001	0.1	<0.02	<0.001
	6-Dec-18	8.01	690	<10	355	330	3	1.4	230	82	6.8	59	37	22	2.1	1.32	<0.01	0.13	0.001	0.16	<0.02	<0.001
	9-Mar-19	7.84	650	<10	315	290	2	0.6	250	58	6.5	60	34	19	1.7	1.08	<0.01	<0.05	<0.001	0.12	<0.02	
	10-May-19	8.22	550	<10	310	260	<2	1.3	200	43	5.3	56	31	17	1.5	1.27	<0.01	<0.05	<0.001	0.12	<0.02	<0.001
	4-Sep-19	8		<10	465	320	4	1.2	210	120	5.9	59	46	30	3.3	0.77	<0.01	0.099		0.29	<0.004	0.043
	19-Dec-19	7.88		<10	455	350	3	1.4	220	120	7.3	63	45	29	2.9	1.49	<0.01	0.081		0.16	<0.02	<0.001
	2-Mar-20	7.96	690	<10	375	280	<2	0.8	240	79	7.4	63	39	23	2.2	1.33	<0.01	0.27		0.13	<0.02	<0.001
	11-Jun-20	7.98	690	<10	420	310	<2	2.1	220	82	7	60	39	25	2.3	1.49	<0.01	0.13		0.19	<0.02	<0.001
	27-Aug-20	8.06	830	<10	585	330	3	0.9	180	130	6.9	47	51	36	4.8	1.04	0.017	0.12		0.28	<0.004	<0.001
	25-Nov-20			<3	423	366	4	2.7	198	134	8	65.8	49.1	31.3	3.4	2.3	<0.1	0.14		0.3	<0.01	<0.002
	23-Feb-21	7.99	740	<10	350	330	<2	1.3	250	85	7.7	66	40	24	2.3	1.52	<0.01	0.059		0.14	<0.004	<0.001
	27-May-21	8.04	800	<10	420	350	<2	0.5	230	120	8.1	59	46	30	3.1	1.22	<0.01	<0.05	<0.002	<0.1	0.005	<0.001
	11-Aug-21	8.14	790	<10	525	310	5	1.3	190	140	7.4	49	50	34	4.3	0.96	0.019	0.1	0.004	0.34	<0.004	<0.001
	7-Oct-21	8.01	820	<10	435	350	4	1.1	200	130	6.7	59	48	33	4.4	1.4	0.02	0.14	0.003	0.2	0.005	<0.001
	20-Jan-22	8.01	800	<10	405	340		1.3	260	95	7.7			26	2.9	1.5	<0.01	0.082	0.001		<0.004	<0.001
	28-Feb-22	8.02	660	<10	340	300	<2	0.5	230	72	6.1	61	34	24	2.2	2.64	<0.01	0.11	0.002	0.15	<0.004	<0.001
	24-Mar-22	8.22	570	61	270	250		52	200	61	6.3			19	1.9	1.72	<0.01	0.094	0.001		0.009	<0.001
	28-Apr-22	7.95	770	<10	450	260	<2	0.2	200	110	25			52	2.3	<0.1	<0.01	<0.05	<0.001		0.006	<0.001
	26-May-22	10.6	860	<10	475	330		0.6	240	120	8.5	62	50	31	3.9	1.69	0.023	0.19	0.003	0.3	<0.004	<0.001
	2-Jun-22	8.07	870	<10	460	350		1.6	240	130	9			31	4.4	1.81	0.036	0.18	0.003		<0.004	<0.001
	28-Jul-22	8.14	1000	<10	620	370		1.1	210	170	8.1			40	5.7	2.08	0.044	0.16	0.009		<0.004	<0.001
	31-Aug-22	11.3	960	<10	530	400	5	1.2	210	170	8.8	62	61	41	5.9	1.92	0.02	0.16	0.002	0.37	0.011	<0.001

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	Total Metals																
		Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Fluoride	Iron	Lead	Manganese	Molybdenum	Nickel	Selenium
		Al	Sb	As	Ba	Be	B	Cd	Cr	Co	Cu	F	Fe	Pb	Mn	Mo	Ni	Se
	PWQO	0.075 *i*	0.02 *i*	0.1 *i*	nc	1.1	0.2	0.0005 *i*	0.0089	0.0009	0.005 *i*	nc	0.3	0.005 *i*	nc	0.04	0.025	0.1
SUMP 1	23-Mar-16		<0.0001	0.0013	0.013		0.084	<0.00002	<0.002			0.2		0.00033				0.002
	25-May-16	0.14	<0.0001	0.0014	0.011	<0.002	0.029	<0.00002	<0.002	0.0002	<0.002	0.2	0.139	0.00021	0.015	0.0004	<0.01	0.004
	10-Aug-16	0.06	0.0003	0.0017	0.013	<0.002	0.049	<0.00002	<0.002	0.0003	<0.002	0.2	0.026	0.0001	0.035	0.0008	<0.01	0.005
	18-Oct-16	0.04	0.0001	0.0026	0.015	<0.002	0.037	<0.00002	<0.002	0.0003	<0.002	0.3	0.046	0.00004	0.141	0.0006	<0.01	0.006
	1-Feb-17	0.03	<0.0001	0.0006	0.001	<0.002	0.017	<0.00002	<0.002	0.0001	<0.002	0.2	0.027	0.00008	0.011	0.0004	<0.01	0.001
	5-Apr-17	0.07	<0.0001	0.0006	0.013	<0.002	0.018	<0.00002	<0.002	<0.0001	0.005	0.2	0.052	<0.00002	0.005	0.0004	<0.01	<0.001
	17-Jul-17	0.06	0.0001	0.0009	0.034	<0.002	0.052	<0.000014	<0.002	0.0002	0.004	0.2	0.105	0.00005	0.018	0.0005	<0.01	<0.001
	4-Oct-17	0.03	<0.0001	0.0011	0.014	<0.002	0.052	<0.000014	<0.002	<0.0001	0.003	0.3	0.044	0.00004	0.051	<0.01	<0.01	<0.001
	6-Mar-18	0.012	<0.0001	0.00025	0.00994	<0.0001	0.018	<0.00001	<0.0005	<0.0001	<0.001	0.185	<0.05	<0.0001	0.0178	0.000341	<0.0005	<0.00005
	9-May-18	0.027	<0.0001	0.00027	0.0098	<0.0001	0.02	<0.00001	<0.0005	<0.0001	<0.001	0.18	<0.05	<0.0001	0.00403	0.000314	<0.0005	0.000062
	5-Sep-18	0.01	<0.0005	<0.001	0.012	<0.0005	0.044	<0.0001	<0.005	<0.0005	0.0012	0.27	<0.1	<0.0005	0.097	0.00058	<0.001	<0.002
	6-Dec-18	0.023	<0.0005	<0.001	0.011	<0.0005	0.031	<0.0001	<0.005	<0.0005	<0.001	0.23	<0.1	<0.0005	<0.12	<0.0005	0.0017	<0.002
	9-Mar-19	0.012	<0.0005	<0.001	0.012	<0.0005	0.02	<0.0001	<0.005	<0.0005	0.0014	0.22	<0.1	<0.0005	0.073	<0.0005	<0.001	<0.002
	10-May-19	0.027	<0.0005	<0.001	0.0095	<0.0005	0.019	<0.0001	<0.005	<0.0005	0.001	0.18	<0.1	<0.0005	0.011	<0.0005	<0.001	<0.002
	4-Sep-19	0.01	<0.0005	<0.001	0.015	<0.0005	0.046	<0.0001	<0.005	<0.0005	0.0018	0.24	<0.1	<0.5	0.089	0.00064	<0.001	<0.002
	19-Dec-19	0.019	<0.0005	<0.001	0.014	<0.0005	0.036	<0.0001	<0.005	<0.0005	<0.001	0.25	<0.1	<0.5	0.1	0.00052	<0.001	<0.002
	2-Mar-20	0.01	<0.0005	<0.001	0.014	<0.0005	0.026	<0.0001	<0.005	<0.0005	<0.001	0.25	<0.1	<0.5	0.085	<0.0005	<0.001	<0.002
	11-Jun-20	0.036	<0.0005	<0.001	0.014	<0.0005	0.032	<0.0001	<0.005	<0.0005	<0.001	0.22	<0.1	<0.5	0.044	<0.0005	<0.001	<0.002
	27-Aug-20	0.022	<0.0005	<0.001	0.012	<0.0004	0.066	<0.09	<0.005	<0.0005	<0.0009	0.21	<0.1	<0.5	0.073	0.00067	<0.001	<0.002
	25-Nov-20	0.05	0.1	0.0006	0.017	<0.002	0.049	<0.015	<0.002	<0.005	0.0004	0.1	0.058	0.1	0.107	<0.01	<0.01	<0.001
	23-Feb-21	<0.0049	<0.0005	<0.001	0.015	<0.0004	0.028	<0.00009	<0.005	<0.0005	0.0012	0.25	<0.1	<0.0005	0.097	<0.0005	<0.001	<0.002
	27-May-21	0.0082	<0.0005	<0.001	0.014	<0.0004	0.04	<0.00009	<0.005	<0.0005	<0.0009	0.2	<0.1	<0.0005	0.05	<0.0005	<0.001	<0.002
	11-Aug-21	0.02	<0.0005	0.0011	0.012	<0.0004	0.06	<0.00009	<0.005	<0.0005	<0.0009	0.26	<0.1	<0.0005	0.044	0.00059	<0.001	<0.002
	7-Oct-21	0.019	<0.0005	<0.001	0.015	<0.0004	0.056	<0.00009	<0.005	<0.0005	<0.0009	0.24	<0.1	<0.0005	0.057	0.00066	<0.001	<0.002
	20-Jan-22						0.035	<0.00009	<0.005	<0.0005	<0.0009		<0.1	<0.0005			0.0014	
	28-Feb-22	0.0083	<0.0005	<0.001	0.011	<0.0004	0.023	<0.00009	<0.005	<0.0005	<0.0009	0.19	<0.1	<0.0005	0.0024	<0.0005	<0.001	<0.002
	24-Mar-22						0.02	<0.00009	<0.005	<0.0005	<0.0009		0.14	0.00054			<0.001	
	28-Apr-22						0.019	<0.00009	<0.005	<0.005	<0.0005		0.32	<0.0005			<0.0005	
	26-May-22	0.011	<0.0005	<0.001	0.014	<0.0004	0.053	<0.00009	<0.005	<0.0005	<0.0009	0.22	<0.1	<0.0005	0.046	0.00062	<0.001	<0.002
	2-Jun-22						0.053	<0.00009	<0.005	<0.0005	0.0018		<0.1	<0.0005			<0.001	
	28-Jul-22						0.074	<0.00009	<0.005	<0.0005	<0.0009		0.13	<0.0005			<0.001	
	31-Aug-22	0.022	<0.0005	0.0015	0.017	<0.0004	0.077	<0.00009	<0.005	<0.0005	<0.0009	0.24	0.18	<0.0005	0.048	0.00077	<0.001	<0.002

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	Total Metals										Oil & Grease		
		Silicon	Silver	Strontium	Thallium	Titanium	Tungsten	Uranium	Vanadium	Zinc	Zirconium	Animal / Vegetable	Mineral	Total
		Si	Ag	Sr	Tl	Ti	W	U	V	Zn	Zr			
	PWQO	nc	0.0001	nc	0.0003	nc	0.03 *i*	0.005 *i*	0.006 *i*	0.03	0.004 *i*	*f*	*f*	*f*
SUMP 1	23-Mar-16							0.00017						
	25-May-16		<0.00002	0.356	<0.00005	<0.005	0.02	0.00016	<0.005	<0.005	<0.003			
	10-Aug-16		<0.00002	0.555	<0.00005	<0.005	0.05	0.00018	<0.005	<0.005	<0.003			
	18-Oct-16	2.15	<0.00002	0.395	<0.00005	<0.005	<0.01	0.00017	<0.005	<0.005	<0.003	<1	<1	<1
	1-Feb-17		<0.00002	0.249	<0.00005	<0.005	<0.01	0.00014	<0.005	<0.005	<0.003			
	5-Apr-17		<0.00002	0.222	<0.00005	<0.005	<0.01	0.00016	<0.005	<0.005	<0.003			
	17-Jul-17		<0.00002	0.396	<0.00005	<0.005	<0.01	0.00013	<0.005	0.16	<0.003			
	4-Oct-17		<0.00002	0.407	<0.00005	<0.005	<0.01	0.00011	<0.005	0.007	<0.003			
	6-Mar-18	55.1	<0.00005	0.222	0.000015	<0.0003	<0.0001	0.000123	<0.0005	0.0031	<0.0003			
	9-May-18	1.42	<0.00005	0.208	0.000012	0.00071	<0.0001	0.000119	<0.0005	<0.003	<0.0003			
	5-Sep-18		<0.0001	0.31	<0.00005	<0.005	<0.001	0.00011	<0.0005	<0.0005	<0.001			
	6-Dec-18		<0.0001	0.28	<0.00005	<0.005	<0.001	0.00011	<0.0005	<0.0005	<0.001			
	9-Mar-19	0.0551	<0.0001	0.24	<0.00005	<0.005	<0.001	0.00014	<0.0005	<0.005	<0.001			<0.5
	10-May-19		<0.0001	0.2	<0.00005	<0.005	<0.001	0.00012	<0.0005	<0.005	<0.001			3.7
	4-Sep-19		<0.0001	0.33	<0.00005	<0.005	<0.001	0.00012	<0.0005	<0.005	<0.001			<0.5
	19-Dec-19		<0.0001	0.37	<0.00005	<0.005	<0.001	0.00011	<0.0005	<0.005	<0.001			0.8
	2-Mar-20		<0.0001	0.3	<0.00005	<0.005	<0.001	0.00012	<0.0005	<0.005	<0.001	<0.5	<0.5	<0.5
	11-Jun-20	1.5	<0.1	0.28	<0.05	<0.005	<0.001	0.13	<0.0005	<0.005	<0.001	<0.5	<0.5	<0.5
	27-Aug-20	1.7	<0.09	0.37	<0.05	<0.005	<0.001	<0.1	<0.0005	<0.005	<0.001	<0.5	<0.5	<0.5
	25-Nov-20	0.0017	<0.1	0.433	<0.05	<0.005	<0.01	0.1	<0.005	0.006	<0.003	<1	<1	<1
	23-Feb-21	2	<0.00009	0.31	<0.00005	<0.005	<0.001	0.00016	<0.0005	<0.005	<0.001	<0.5	<0.5	<0.5
	27-May-21	1.5	<0.00009	0.37	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001	<0.5	<0.5	<0.5
	11-Aug-21	1.4	<0.00009	0.39	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001	<0.5	<0.5	<0.5
	7-Oct-21	1.5	<0.00009	0.49	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001	<0.5	<0.5	<0.5
	20-Jan-22	2	<0.00009							<0.005		<0.5	<0.5	<0.5
	28-Feb-22	1.5	<0.00009	0.3	<0.00005	<0.005	<0.001	0.0001	<0.0005	<0.005	<0.001	<0.5	<0.5	<0.5
	24-Mar-22	1.4	<0.00009							<0.005		<0.5	<0.5	<0.5
	28-Apr-22	8.4	<0.00009							0.0063		<0.5	<0.5	<0.5
	26-May-22	1.5	<0.00009	0.45	0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001	<0.5	<0.5	<0.5
	2-Jun-22	1.4	<0.00009							<0.005		<0.5	<0.5	<0.5
	28-Jul-22	1.3	<0.00009							<0.005		<0.5	<0.5	<0.5
	31-Aug-22	1.6	<0.00009	0.57	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001	<0.5	<0.5	<0.5

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	BTEX & Hydrocarbons (µg/L)									
		Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-Xylene	Total Xylenes	F1 (C6-C10)	F2 (C10-C16)	F3 (C16-C34)	F4 (C34-C50)
	PWQO	100 *i*	0.8 *i*	8 *i*	2 *i*	40 *i*	nc	nc	nc	nc	nc
SUMP 1	23-Mar-16										
	25-May-16	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	10-Aug-16	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	18-Oct-16	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	1-Feb-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	5-Apr-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	17-Jul-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	4-Oct-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	6-Mar-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	9-May-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	5-Sep-18	<0.2	0.22	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	6-Dec-18	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	9-Mar-19	<25	<0.2	<0.2	<0.2	<0.4	<0.4	<25	<100	<200	<200
	10-May-19	<25	<0.2	<0.2	<0.2	<0.4	<0.4	<25	<100	<200	<200
	4-Sep-19	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	19-Dec-19	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	2-Mar-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	11-Jun-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	27-Aug-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	25-Nov-20							<25	<50	<400	<400
	23-Feb-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	27-May-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	11-Aug-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	7-Oct-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	20-Jan-22										
	28-Feb-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	24-Mar-22										
	28-Apr-22										
	26-May-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	2-Jun-22										
	28-Jul-22										
	31-Aug-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	General Parameters							Major Ions							Nutrients and Organic Indicators							
		pH (SU)	EC (µS/cm)	T S S	T D S	Hardness	Colour (TCU)	Turbidity (NTU)	Alkalinity	Chloride Cl	Sulphate SO_4	Calcium Ca	Magnesium Mg	Sodium Na	Potassium K	Nitrate NO_3	Nitrite NO_2	Ammonia NH_3	Un-ionized Ammonia	T K N	T P P	Phenols
	PWQO	6.5 - 8.5	nc	nc	nc	nc	nc	*b*	*c*	nc	nc	nc	nc	nc	nc	nc	nc	nc	0.02 *d*	nc	0.03 *i e*	0.001
SUMP 1	15-Sep-22	8.02	980	<10	555	430		0.8	220	160	8.1			43	5.8	1.44	0.028	0.099	0.001		<0.004	<0.001
(cont'd)	28-Oct-22	7.98	960	<10	495	400	4	1	230	160	8.9	64	59	38	5.1	1.99	0.013	0.13	0.001	<0.1	0.005	<0.001
	23-Nov-22	7.98	720	<10	335	310		1.2	260	73	9.1			15	1.9	1.36	<0.01	0.079	0.001		0.006	<0.001
	21-Dec-22	7.99	910	<10	400	360		3.1	250	130	7.7			32	3.6	1.52	<0.01	0.16	0.001		0.004	<0.001
	25-Jan-23	7.86	580	<10	255	320		0.4	270	20	7.8			2.7	0.7	1.28	<0.01	<0.05	<0.001		0.005	<0.001
	23-Feb-23	7.88	530	<10	250	280	3	0.3	260	14	7.7	64	31	3.5	0.87	1.14	<0.01	<0.05	<0.001	0.22	<0.004	<0.001
	27-Mar-23	7.81	540	<10	265	270		0.9	220	32	7.1			9.8	1.5	1.56	<0.01	<0.05	<0.003		<0.004	<0.001
	24-Apr-23	8.19	630	21	265	280		1.9	210	64	7.1			22	2.5	1.45	<0.01	0.078	<0.001		<0.004	<0.001
	17-May-23	8.09	750	<10	380	330	3	0.6	240	92	8.4	61	41	29	2.9	1.2	0.011	<0.05	<0.001	0.14	0.004	<0.001
	28-Jun-23	8.18	820	<10	625	340		0.5	200	110	8.9			32	4	1.1	<0.01	0.063	0.002		<0.004	<0.001
	26-Jul-23	8.19	780	48	405	330		3.2	190	120	8.9			30	3.9	1.22	0.015	0.075	0.005		0.015	<0.001
	10-Aug-23			<10																		
	30-Aug-23	7.89	860	12	505	390	3	4.6	200	130	8.9	57	55	36	4.7	1.26	0.019	0.095	<0.001	0.27	<0.004	<0.001
	25-Sep-23	7.99	860	<10	425	380		1.6	220	130	8.1			32	4	1.21	<0.01	0.089	0.001		0.022	<0.001
	31-Oct-23	7.93	950	<10	480	390	3	1	210	150	8	62	53	36	4.4	1.5	<0.01	0.1	0.002	<0.1	<0.004	<0.001
	29-Nov-23	8.01	950	<10	440	420		0.8	230	150	8.4			36	4.7	1.6	<0.01	0.12	<0.001		<0.004	<0.001
	18-Dec-23	8.1	880	12	460	360		3.1	230	110	7.2			29	3.4	2.02	<0.01	0.11	0.001		0.008	<0.001
SUMP 2	23-Mar-16	7.94	594	2	292	252	8		208	52.2	6	53	29.1	18	1.4	1.5	<0.1	0.03	<0.001	0.1	0.01	
	25-May-16	8.36	711	21	373	339	5		235	80.7	7	64.8	43	24.1	2.8	2	<0.1	0.08	0.004	0.2	0.01	
	10-Aug-16	8.09	947	31	469	384	4		231	159	7	64	54.5	37.1	4.5	0.8	<0.1	0.09	0.013	0.4	0.03	
	18-Oct-16	7.82	833	20	354	377	42		120	120	5	73.2	47.3	31.6	3.1	0.2	<0.1	0.14	0.005	0.3	0.02	
	1-Feb-17	7.79	734	<2	340	285	5		217	82.1	7	55.1	35.9	23.4	1.7	1	<0.1	0.02	0.001	0.2	<0.01	
	5-Apr-17	8.25	540	5	269	222	8		194	45.6	6	49.5	24	18.7	1.1	1.5	<0.1	0.03	0.001	0.2	0.02	
	17-Jul-17	7.98	794	<3	357	297	3	3	203	94.1	6	52.3	40.4	31.6	3	1.8	<0.1	0.05	0.002	0.2	0.01	
	4-Oct-17	8.25	815	<3	393	327	6	5	207	124	5	48.8	49.8	32.5	4.1	0.9	<0.1	0.03	0.001	0.2	<0.01	
	6-Mar-18	8.22	471	<2	244	214	4.3	1.95	185	32.9	3.7	49.2	21.8	12.4	1.14	0.933	<0.01	0.149	0.001	0.16	<0.003	
	9-May-18	8.31	503	<2	268	234	<2	2.27	200	39.2	4.46	50.9	25.8	16.1	1.38	1.19	<0.01	0.135	0.004	<0.15	0.0041	
	5-Sep-18			<10		270	<2		170	110	5.1	35	41	29	3.3	0.51	<0.01	<0.05	<0.003	0.16	<0.02	
	6-Dec-18			<10		300	9		230	72	5.5	56	34	22	2	1	<0.01	0.085	<0.001	0.13	<0.02	
	9-Mar-19 (2)																					
	17-May-19			<10		230	<2		190	38	4.8	47	28	13	1.5	0.86	0.011	<0.05	<0.002	<0.1	0.006	
	4-Sep-19			<10		310	<2		190	130	5.8	45	49	35	4	1.34	0.011	<0.05		0.22	<0.004	

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	Total Metals																
		Aluminum Al	Antimony Sb	Arsenic As	Barium Ba	Beryllium Be	Boron B	Cadmium Cd	Chromium Cr	Cobalt Co	Copper Cu	Fluoride F	Iron Fe	Lead Pb	Manganese Mn	Molybdenum Mo	Nickel Ni	Selenium Se
	PWQO	0.075 *i*	0.02 *i*	0.1 *i*	nc	1.1	0.2	0.0005 *i*	0.0089	0.0009	0.005 *i*	nc	0.3	0.005 *i*	nc	0.04	0.025	0.1
SUMP 1	15-Sep-22						0.077	<0.00009	<0.005	<0.0005	0.0014		0.18	<0.0005			<0.001	
(cont'd)	28-Oct-22	0.013	<0.0005	0.0017	0.016	<0.0004	0.065	<0.00009	<0.005	<0.0005	<0.0009	0.24	0.2	<0.0005	0.067	0.0009	<0.001	<0.002
	23-Nov-22						0.027	<0.00009	<0.005	<0.0005	<0.0009		0.11	<0.0005			<0.001	
	21-Dec-22						0.05	<0.00009	<0.005	0.00053	0.0019		0.43	<0.0005			0.0019	
	25-Jan-23						0.01	<0.00009	<0.005	<0.0005	<0.0009		<0.1	<0.0005			<0.001	
	23-Feb-23	0.0067	<0.0005	<0.001	0.0067	<0.0004	0.013	<0.00009	<0.005	<0.0005	<0.0009	0.12	<0.1	<0.0005	0.0034	<0.0005	<0.001	<0.002
	27-Mar-23						0.016	<0.00009	<0.005	<0.0005	<0.0009		<0.1	<0.0005			<0.001	
	24-Apr-23						0.027	<0.00009	<0.005	<0.0005	<0.0009		<0.1	<0.0005			<0.001	
	17-May-23	0.012	<0.0005	<0.001	0.015	<0.0004	0.033	<0.00009	<0.005	<0.0005	<0.0009	0.26	<0.1	<0.0005	0.045	0.00058	<0.001	<0.002
	28-Jun-23						0.056	<0.00009	<0.005	<0.0005	<0.0009		<0.1	<0.0005			<0.001	
	26-Jul-23						0.056	<0.00009	<0.005	<0.0005	0.0015		0.43	0.0012			<0.001	
	10-Aug-23																	
	30-Aug-23	0.05	<0.0005	0.001	0.016	<0.0004	0.063	<0.00009	<0.005	<0.0005	<0.0009	0.26	<0.1	<0.0005	0.065	0.00069	<0.001	<0.002
	25-Sep-23						0.059	<0.00009	<0.005	<0.0005	<0.0009		<0.1	<0.0005			<0.001	
	31-Oct-23	0.0084	<0.0005	0.0012	0.016	<0.0004	0.067	<0.00009	<0.005	<0.0005	<0.0009	0.3	0.12	<0.0005	0.088	0.00066	<0.001	<0.002
	29-Nov-23						0.059	<0.00009	<0.005	<0.0005	<0.0009		0.11	<0.0005			<0.001	
	18-Dec-23						0.047	<0.00009	<0.005	<0.0005	0.00098		0.23	<0.0005			<0.001	
SUMP 2	23-Mar-16	0.02	<0.0001	0.0013	0.009	<0.002	0.015	<0.00002	<0.002	<0.0001	<0.002	0.3	0.013	0.00004	0.003	0.0004	<0.01	0.002
	25-May-16	0.14	<0.0001	0.0015	0.011	<0.002	0.033	<0.00002	<0.002	0.0002	<0.002	0.2	0.122	0.0002	0.017	0.0004	<0.01	0.004
	10-Aug-16	0.06	0.0003	0.002	0.016	<0.002	0.058	<0.00002	<0.002	0.0003	<0.002	0.2	0.035	0.00012	0.01	0.0008	<0.01	0.006
	18-Oct-16	0.11	<0.0001	0.0032	0.018	<0.002	0.039	<0.00002	<0.002	0.0002	<0.002	0.3	0.264	0.00009	0.091	0.0007	<0.01	0.007
	1-Feb-17	0.03	0.0001	0.0006	0.011	<0.002	0.014	<0.00002	<0.002	0.0001	<0.002	0.2	0.014	0.00009	0.005	0.0005	<0.01	0.001
	5-Apr-17	0.07	<0.0001	0.0005	0.011	<0.002	0.033	<0.00002	<0.002	<0.0001	<0.002	0.3	0.063	<0.00002	0.004	0.0003	<0.01	0.001
	17-Jul-17	0.04	0.0002	0.0008	0.014	<0.002	0.052	<0.000014	<0.002	0.0001	<0.002	0.2	0.014	0.00003	0.001	0.0005	<0.01	<0.001
	4-Oct-17	0.05	<0.0001	0.0013	0.012	<0.002	0.059	<0.000014	<0.002	0.0001	<0.002	0.2	0.048	0.00007	0.013	<0.01	<0.01	0.001
	6-Mar-18	0.077	<0.0001	0.00021	0.00803	<0.0001	0.011	<0.000005	<0.0005	<0.0001	0.00047	0.108	0.039	<0.00005	0.00255	0.000223	<0.0005	<0.00005
	9-May-18	0.063	<0.0001	0.00024	0.00869	<0.0001	0.016	<0.00001	<0.0005	<0.0001	<0.001	0.132	<0.05	<0.0001	0.00346	0.000244	<0.0005	<0.00005
	5-Sep-18	0.015	<0.0005	<0.001	0.0086	<0.0005	0.049	<0.0001	<0.005	<0.0005	0.0011	0.19	<0.1	<0.0005	0.0032	0.00054	<0.001	<0.002
	6-Dec-18	0.051	<0.0005	<0.001	0.0096	<0.0005	0.028	<0.0001	<0.005	<0.0005	0.002	0.19	<0.1	<0.0005	0.002	<0.0005	<0.001	<0.002
	9-Mar-19 (2)																	
	17-May-19	0.028	<0.0005	<0.001	0.0085	<0.0005	0.018	<0.0001	<0.005	<0.0005	<0.001	0.11	<0.1	<0.5	0.0044	<0.0005	<0.001	<0.002
	4-Sep-19	0.0094	<0.0005	<0.001	0.013	<0.0005	0.055	<0.0001	<0.005	<0.0005	<0.001	0.18	<0.1	<0.5	<0.002	0.024	<0.001	<0.002

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	Total Metals										Oil & Grease		
		Silicon	Silver	Strontium	Thallium	Titanium	Tungsten	Uranium	Vanadium	Zinc	Zirconium	Animal / Vegetable	Mineral	Total
		Si	Ag	Sr	Tl	Ti	W	U	V	Zn	Zr			
	PWQO	nc	0.0001	nc	0.0003	nc	0.03 *i*	0.005 *i*	0.006 *i*	0.03	0.004 *i*	*f*	*f*	*f*
SUMP 1	15-Sep-22	1.7	<0.00009							<0.005		<0.5	<0.5	<0.5
(cont'd)	28-Oct-22	1.7	<0.00009	0.56	<0.00005	0.0053	<0.001	0.0001	<0.0005	<0.005	<0.001	0.7	<0.5	0.7
	23-Nov-22	1.8	<0.00009							<0.005		<0.5	<0.5	<0.5
	21-Dec-22	2	<0.00009							0.006		<0.5	<0.5	<0.5
	25-Jan-23	1.7	<0.00009							<0.005		0.9	<0.5	0.9
	23-Feb-23	1.8	<0.00009	0.11	<0.00005	<0.005	<0.001	0.00011	<0.0005	<0.005	<0.001	1.2	<0.5	1.2
	27-Mar-23	1.5	<0.00009							<0.005		<0.5	<0.5	<0.5
	24-Apr-23	1.4	<0.00009							<0.005		<0.5	<0.5	<0.5
	17-May-23	1.4	<0.00009	0.35	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001	<0.5	<0.5	<0.5
	28-Jun-23	1.2	<0.00009							<0.005		<0.5	0.5	0.7
	26-Jul-23	1.6	<0.00009							<0.005		<0.5	<0.5	<0.5
	10-Aug-23													
	30-Aug-23	1.5	<0.00009	0.47	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001	<0.5	<0.5	<0.5
	25-Sep-23	1.7	<0.00009							<0.005		<0.5	<0.5	<0.5
	31-Oct-23	1.6	<0.00009	0.52	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001	<0.5	<0.5	<0.5
	29-Nov-23	1.8	<0.00009							<0.005		<0.5	<0.5	<0.5
	18-Dec-23	1.6	<0.00009							<0.005		<0.5	<0.5	<0.5
SUMP 2	23-Mar-16		<0.00002	0.197	<0.00005	<0.005	0.04	0.00017	<0.005	<0.005	<0.003			
	25-May-16		<0.00002	0.404	<0.00005	<0.005	0.02	0.00014	<0.005	<0.005	<0.003			
	10-Aug-16		<0.00002	0.688	<0.000005	<0.005	0.04	0.00017	<0.005	<0.005	<0.003			
	18-Oct-16		<0.00002	0.446	<0.00005	<0.005	<0.01	0.00018	<0.005	<0.005	<0.003			
	1-Feb-17		<0.00002	0.234	<0.00005	<0.005	<0.01	0.00016	<0.005	<0.005	<0.003			
	5-Apr-17		<0.00002	0.147	<0.00005	<0.005	0.21	0.00014	0.005	<0.005	<0.003			
	17-Jul-17		<0.00002	0.414	<0.00005	<0.005	<0.01	0.00012	<0.005	<0.005	<0.003			
	4-Oct-17		<0.00002	0.465	<0.00005	<0.005	<0.01	0.00009	<0.005	<0.005	<0.003			
	6-Mar-18		<0.00005	0.137	<0.00001	<0.0025	<0.0001	0.000091	<0.0005	<0.001	<0.0003			
	9-May-18	1.1	<0.00005	0.169	0.00001	0.00149	<0.0001	0.000114	<0.0005	<0.003	<0.0003			
	5-Sep-18		<0.0001	0.29	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	6-Dec-18		<0.0001	0.25	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	9-Mar-19 (2)													
	17-May-19		<0.0001	0.21	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	4-Sep-19		<0.0001	0.29	<0.00005	0.0069	<0.001	<0.0001	<0.0005	<0.005	<0.001			

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	BTEX & Hydrocarbons (µg/L)									
		Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-Xylene	Total Xylenes	F1 (C6-C10)	F2 (C10-C16)	F3 (C16-C34)	F4 (C34-C50)
	PWQO	100 *i*	0.8 *i*	8 *i*	2 *i*	40 *i*	nc	nc	nc	nc	nc
SUMP 1 (cont'd)	15-Sep-22										
	28-Oct-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	23-Nov-22										
	21-Dec-22										
	25-Jan-23										
	23-Feb-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	27-Mar-23										
	24-Apr-23										
	17-May-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	28-Jun-23										
	26-Jul-23										
	10-Aug-23										
	30-Aug-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	25-Sep-23										
	31-Oct-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	29-Nov-23										
	18-Dec-23										
SUMP 2	23-Mar-16	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	25-May-16	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	10-Aug-16	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	18-Oct-16	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	1-Feb-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	5-Apr-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	17-Jul-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	4-Oct-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	6-Mar-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	9-May-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	5-Sep-18	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	6-Dec-18	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	9-Mar-19 (2)										
	17-May-19	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	4-Sep-19	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	General Parameters							Major Ions							Nutrients and Organic Indicators						
		pH (SU)	EC (µS/cm)	T S S	T D S	Hardness	Colour (TCU)	Turbidity (NTU)	Alkalinity	Chloride Cl	Sulphate SO_4	Calcium Ca	Magnesium Mg	Sodium Na	Potassium K	Nitrate NO_3	Nitrite NO_2	Ammonia NH_3	Un-ionized Ammonia	T K N	T P P	Phenols
	PWQO	6.5 - 8.5	nc	nc	nc	nc	nc	*b*	*c*	nc	nc	nc	nc	nc	nc	nc	nc	nc	0.02 *d*	nc	0.03 *i e*	0.001
SUMP 2	19-Dec-19																					
(cont'd)	2-Mar-20 (2)																					
	30-Jun-20			10		230	<2		130		4.8	31	44	28	4.3	0.81	0.034	0.075		0.34	0.025	
	27-Aug-20			<10		350	<2		150	160	6.5	35	60			0.5	0.028	<0.05		0.29	0.006	
	25-Nov-20			<3	456	388	5	2.9	180	173	7	59	58.6	37	5.5	1.7	<0.1	0.1		0.4	<0.01	
	23-Feb-21 (2)																					
	27-May-21			<10		330	2		170	170	7.3	35	60			0.56	0.034	<0.05		0.32	0.01	
	11-Aug-21			<10		310	5		160	150	7.6	39	54			0.6	0.028	0.17		0.37	<0.004	
	7-Oct-21			<10		320	5		180	140	6.5	50	49			1.22	0.035	0.067		0.21	0.006	
	28-Feb-22	8.14		18		380	3		240	130	8.6	73	61	49	4.6	2.67	<0.01	0.087	0.001	0.16	<0.004	
	26-May-22	8.27	942	<10		350	<2		200	160	8.4	46	64	37	6.5	2.1	0.055	0.24	0.014	0.35		
	31-Aug-22			<10		410	2		180	230	9	47	73	48	8.1	2.02	0.044	0.083	0.001	0.33	0.006	
	28-Oct-22			<10		400	2		210	210	8.8	57	74	49	7.6	2.22	0.028	0.19	0.003	<0.1	0.005	
	23-Feb-23			<10		280	<2		230	71	7.3	65	36	23	2.4	2.75	<0.01	0.23	0.001	0.42	<0.004	
	17-May-23			<10		330	<2		220	92	8.1	56	38	31	3.1	1.46	0.022	<0.05	<0.001	0.13	<0.004	
	30-Aug-23			<10		420	<2		170	180	9	46	62	46	6.4	1.51	0.029	<0.05	<0.001	0.33	<0.004	
	31-Oct-23			<10		400	3		180	170	8.6	54	61	43	5.9	2.46	<0.01	<0.05	<0.001	0.1	<0.004	
SW1	24-Oct-16	8.08	809	8	396	322	31		236	116	6	60.7	41.4	26.8	2.5	0.2	<0.1	0.02	<0.001	0.3	0.02	
	9-May-17	8.18	528	<3	260	237	13		171	50.3	4	49.3	27.7	18.2	1.6	1.3	<0.1	0.01	<0.001	1.1	0.02	
	8-May-18	7.97	525	<2	298	243	15.2	0.31	211	46.1	4.1	50.5	27.3	17.7	1.89	0.262	<0.01	0.035	<0.001	<0.15	0.099	
	14-May-19			<10	396	230	16		190	41	<1	49	27	19	1.6	<0.01	0.37	<0.05	<0.001	0.22	<0.02	
	19-May-20			<10	395	200	24	0.3	240	70	<1	47	31	21	2.1	0.26	<0.01	<0.05	<0.001	0.23	0.026	
	26-May-21			<10	419.65	320	42		250	110	<1	62	41			<0.1	<0.01	<0.05	<0.001	0.35	0.038	
	4-May-22	8.12	750	<10		310	<0.05		230	110	<1	60	43	28	2.4	<0.1	<0.01	0.19		0.24	0.014	
	15-May-23			<10		270	31		210	81	5.4	53	35	25	2.6	<0.1	<0.01	<0.05	<0.001	0.25	0.004	
SW2	24-Oct-16	8.08	643	7	325	269	<2		259	42.8	7	64.1	26.4	22.9	0.8	1.1	<0.1	0.03	<0.001	0.2	0.01	
	9-May-17	8.12	529	<3	266	231	3		219	29.8	4	59	20.3	19.8	0.6	0.4	<0.1	<0.01	<0.001	0.2	0.01	
	8-May-18	8.01	617	<2	346	283	2.2	0.19	269	45.7	4.24	66.9	25.8	27.2	0.934	0.453	<0.01	0.048	<0.001	<0.15	0.039	
	14-May-19			<10		280	2		250	44	5.2	69	25	29	0.86	0.35	<0.1	<0.05	<0.001	<0.1	0.007	
	19-May-20			<10	750	260	<2	430	240	76	6.5	66	23	41	0.76	0.44	<0.1	<0.05		<0.1	<0.2	
	27-May-21			<10	352	310	10		280	40	5.4	76	29			0.53	<0.01	<0.05	<0.001	<0.1	0.006	

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	Total Metals																
		Aluminum Al	Antimony Sb	Arsenic As	Barium Ba	Beryllium Be	Boron B	Cadmium Cd	Chromium Cr	Cobalt Co	Copper Cu	Fluoride F	Iron Fe	Lead Pb	Manganese Mn	Molybdenum Mo	Nickel Ni	Selenium Se
	PWQO	0.075 *i*	0.02 *i*	0.1 *i*	nc	1.1	0.2	0.0005 *i*	0.0089	0.0009	0.005 *i*	nc	0.3	0.005 *i*	nc	0.04	0.025	0.1
SUMP 2	19-Dec-19																	
(cont'd)	2-Mar-20 (2)																	
	30-Jun-20	0.027		<0.001	0.006	<0.0004	0.057	<0.09	<0.005	<0.0005	<0.0009	0.14	<0.1	0.5	0.0047	0.0005	0.001	<0.002
	27-Aug-20	0.018	<0.0005	<0.001	0.0062	<0.0004	0.081	<0.09	<0.005	<0.0005	<0.0009	0.16	<0.1	<0.5	0.0057	0.00065	<0.001	<0.002
	25-Nov-20	0.04	0.3	0.0007	0.01	<0.002	0.071	<0.015	<0.002	<0.005	0.0005	<0.1	0.054	0.11	0.015	<0.01	<0.01	<0.001
	23-Feb-21 (2)																	
	27-May-21	0.016	<0.0005	<0.001	0.0066	<0.0004	0.073	<0.00009	<0.005	<0.0005	0.0019	0.11	<0.1	<0.0005	0.0079	0.00066	<0.001	<0.002
	11-Aug-21	0.029	<0.0005	<0.001	0.006	<0.0004	0.07	<0.00009	<0.005	<0.0005	<0.0009	0.16	<0.1	<0.0005	0.0064	0.00056	<0.001	<0.002
	7-Oct-21	0.034	<0.0005	<0.001	0.011	<0.0004	0.064	<0.00009	<0.005	<0.0005	<0.0009	0.18	<0.1	<0.0005	0.0068	0.00061	<0.001	<0.002
	28-Feb-22	0.0091	<0.0005	<0.001	0.021	<0.0004	0.048	<0.00009	<0.005	<0.0005	<0.0009	0.24	<0.1	<0.0005	0.045	0.00054	<0.001	<0.002
	26-May-22	0.033	<0.0005	<0.001	0.01	<0.0004	0.082	<0.00009	<0.005	<0.0005	<0.0009	0.2	<0.1	<0.0005	0.0037	0.00084	<0.001	<0.002
	31-Aug-22	0.039	<0.0005	<0.001	0.0094	<0.0004	0.11	<0.00009	<0.005	<0.0005	<0.0009	0.2	<0.1	<0.0005	0.0036	0.00099	<0.001	<0.002
	28-Oct-22	0.024	<0.0005	0.0012	0.013	<0.0004	0.096	<0.00009	<0.005	<0.0005	<0.0009	0.18	<0.1	<0.0005	0.0034	0.0011	<0.001	<0.002
	23-Feb-23	0.022	<0.0005	<0.001	0.01	<0.0004	0.03	<0.00009	<0.005	<0.0005	<0.0009	0.2	<0.1	<0.0005	0.0054	<0.0005	<0.001	<0.002
	17-May-23	0.017	<0.0005	<0.001	0.012	<0.0004	0.036	<0.00009	<0.005	<0.0005	<0.0009	0.19	<0.1	<0.0005	0.0023	0.00053	<0.001	<0.002
	30-Aug-23	0.05	<0.0005	<0.001	0.012	<0.0004	0.087	<0.00009	<0.005	<0.0005	<0.0009	0.21	<0.1	<0.0005	0.0034	0.00075	<0.001	<0.002
	31-Oct-23	0.0098	<0.0005	<0.001	0.013	<0.0004	0.08	<0.00009	<0.005	<0.0005	<0.0009	0.24	<0.1	<0.0005	<0.002	0.00068	<0.001	<0.002
SW1	24-Oct-16	0.03	<0.0001	0.0004	0.011	<0.002	0.016	<0.00002	0.002	0.0002	<0.002	0.3	0.101	0.00006	0.019	0.0005	<0.01	0.006
	9-May-17	0.03	0.0001	0.0003	0.009	<0.002	0.014	<0.000014	<0.002	0.0002	<0.002	<0.1	0.024	<0.00002	0.001	0.0004	<0.01	<0.001
	8-May-18	<0.01	<0.0001	0.00028	0.0097	<0.0001	0.023	<0.00001	<0.0005	<0.0001	<0.001	0.175	<0.05	<0.0001	0.00407	0.000336	<0.0005	<0.00005
	14-May-19	0.023	<0.0005	<0.001	0.008	<0.0005	0.017	<0.0001	<0.005	<0.0005	<0.001	0.18	<0.1	<0.0005	0.0032	<0.0005	<0.001	<0.002
	19-May-20	<0.005	<0.0005	<0.001	0.0094	<0.0005	0.026	<0.0001	<0.005	<0.0005	<0.001	0.17	<0.1	<0.0005	<0.002	<0.0005	<0.001	<0.002
	26-May-21	<0.0049	<0.0005	0.0012	0.014	<0.0004	0.05	<0.00009	<0.005	<0.0005	<0.0009	0.21	0.34	<0.0005	0.38	<0.0005	<0.001	<0.002
	4-May-22	0.0053	<0.0005	<0.001	0.011	<0.0004	0.046	<0.00009	<0.005	<0.0005	<0.0009	0.21	<0.1	<0.0005	0.017	<0.0005	<0.001	<0.002
	15-May-23	0.007	<0.0005	<0.001	0.0095	<0.0004	0.042	<0.00009	<0.005	<0.0005	<0.0009	0.24	<0.1	<0.0005	0.013	<0.0005	<0.001	<0.002
SW2	24-Oct-16	0.03	<0.0001	0.0003	0.007	<0.002	0.009	<0.00002	<0.002	0.0001	<0.002	0.1	0.102	0.00011	0.018	0.0001	<0.01	<0.001
	9-May-17	0.03	<0.0001	0.0001	0.007	<0.002	<0.005	<0.000014	<0.002	<0.0001	<0.002	<0.1	0.012	<0.00002	0.004	<0.0001	<0.01	<0.001
	8-May-18	<0.01	<0.0001	0.00012	0.00797	<0.0001	<0.01	<0.00001	<0.0005	<0.0001	<0.001	0.043	<0.05	<0.0001	0.0087	0.000075	<0.0005	0.000062
	14-May-19	0.021	<0.0005	<0.001	0.0082	<0.0005	<0.01	<0.0001	<0.005	<0.0005	<0.001	<0.1	<0.1	<0.0005	0.0081	<0.0005	<0.001	<0.002
	19-May-20	0.022	<0.0005	<0.001	0.0082	<0.0005	<0.01	<0.0001	<0.005	<0.0005	<0.001	<0.1	<0.1	<0.0005	0.0059	<0.0005	<0.001	<0.002
	27-May-21	0.014	<0.0005	<0.001	0.0084	<0.0004	<0.01	<0.00009	<0.005	<0.0005	<0.0009	<0.1	<0.1	<0.0005	0.0094	<0.0005	<0.001	<0.002

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	Total Metals										Oil & Grease		
		Silicon	Silver	Strontium	Thallium	Titanium	Tungsten	Uranium	Vanadium	Zinc	Zirconium	Animal / Vegetable	Mineral	Total
		Si	Ag	Sr	Tl	Ti	W	U	V	Zn	Zr			
	PWQO	nc	0.0001	nc	0.0003	nc	0.03 *i*	0.005 *i*	0.006 *i*	0.03	0.004 *i*	*f*	*f*	*f*
SUMP 2 (cont'd)	19-Dec-19													
	2-Mar-20 (2)													
	30-Jun-20		<0.09		<0.05	<0.005	<0.001	<0.1	<0.0005	<0.005	<0.001			
	27-Aug-20		<0.09	0.38	0.052	<0.005	<0.001	<0.1	<0.0005	<0.005	<0.001			
	25-Nov-20		<0.1	0.643	<0.05	<0.005	<0.01	0.06	<0.005	0.008	<0.003			
	23-Feb-21 (2)													
	27-May-21		<0.00009	0.42	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	11-Aug-21		<0.00009	0.41	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	7-Oct-21		<0.00009	0.54	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	28-Feb-22		<0.00009	0.58	<0.00005	<0.005	<0.001	0.00011	<0.0005	<0.005	0.0017			
	26-May-22		<0.00009	0.69	0.000056	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	31-Aug-22		<0.00009	0.72	0.000064	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	28-Oct-22		<0.00009	0.82	<0.00005	0.0054	<0.001	<0.0001	<0.0005	0.0054	<0.001			
	23-Feb-23		<0.00009	0.31	<0.00005	<0.005	<0.001	0.00011	<0.0005	<0.005	<0.001			
	17-May-23		<0.00009	0.38	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	30-Aug-23		<0.00009	0.62	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	31-Oct-23		<0.00009	0.67	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
SW1	24-Oct-16		<0.00002	0.32	<0.00005	<0.005	0.02	0.00009	<0.005	0.012	<0.003			
	9-May-17		<0.00002	0.229	<0.00005	<0.005	<0.01	0.00011	<0.005	0.005	0.004			
	8-May-18		<0.00005	0.21	0.000017	<0.0003	<0.0001	0.000086	<0.0005	<0.003	<0.0003			
	14-May-19		<0.0001	0.18	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	19-May-20		<0.0001	0.25	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	26-May-21		<0.00009	0.36	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	4-May-22		<0.00009	0.38	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	15-May-23		<0.00009	0.31	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
SW2	24-Oct-16		<0.00002	0.076	<0.00005	<0.005	<0.01	0.00009	<0.005	<0.005	<0.003			
	9-May-17		<0.00002	0.052	<0.00005	<0.005	<0.01	0.00009	<0.005	<0.005	0.006			
	8-May-18		<0.00005	0.0658	<0.00001	<0.0003	<0.0001	0.000082	<0.0005	<0.003	<0.0003			
	14-May-19		<0.0001	0.061	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	19-May-20		<0.0001	0.065	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	27-May-21		<0.00009	0.09	<0.00005	<0.005	<0.001	0.00011	<0.0005	<0.005	<0.001			

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	BTEX & Hydrocarbons (µg/L)									
		Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-Xylene	Total Xylenes	F1 (C6-C10)	F2 (C10-C16)	F3 (C16-C34)	F4 (C34-C50)
	PWQO	100 *i*	0.8 *i*	8 *i*	2 *i*	40 *i*	nc	nc	nc	nc	nc
SUMP 2	19-Dec-19										
(cont'd)	2-Mar-20 (2)										
	30-Jun-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	27-Aug-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	25-Nov-20							<25	<50	<400	<400
	23-Feb-21 (2)										
	27-May-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	11-Aug-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	7-Oct-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	28-Feb-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	26-May-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	31-Aug-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	28-Oct-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	23-Feb-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	17-May-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	30-Aug-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	31-Oct-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
SW1	24-Oct-16	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	9-May-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	8-May-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	14-May-19	<0.2	<0.2	<0.2	<0.2	<0.4	<0.4	<25	<100	<200	<200
	19-May-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	26-May-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	4-May-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	15-May-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
SW2	24-Oct-16	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	9-May-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	8-May-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	14-May-19	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	19-May-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	27-May-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	General Parameters							Major Ions								Nutrients and Organic Indicators						
		pH (SU)	EC (µS/cm)	T S S	T D S	Hardness	Colour (TCU)	Turbidity (NTU)	Alkalinity	Chloride Cl	Sulphate SO_4	Calcium Ca	Magnesium Mg	Sodium Na	Potassium K	Nitrate NO_3	Nitrite NO_2	Ammonia NH_3	Un-ionized Ammonia	T K N	T P P	Phenols
	PWQO	6.5 - 8.5	nc	nc	nc	nc	nc	*b*	*c*	nc	nc	nc	nc	nc	nc	nc	nc	nc	0.02 *d*	nc	0.03 *i e*	0.001
SW2	26-May-22	7.5	692	<10		310	3		290	49	5.8	78	31	23	0.82	0.77	<0.01	<0.05	<0.001	0.11	0.015	
(cont'd)	15-May-23			<10		320	2		270	59	5.3	75	30	27	0.94	0.8	<0.01	<0.05	<0.001	<0.1	0.006	
SW0-2	24-Oct-16	8.16	762	<3	373	302	49		239	95.8	10	62.2	35.6	22.7	2.4	<0.1	<0.1	0.03	<0.001	1.5	0.02	
	10-May-17	8.15	527	<3	271	256	38		188	45.7	4	57	27.5	20	2.5	0.3	<0.1	<0.01	<0.001	1.6	0.03	
	8-May-18	8	515	<2	302	246	36.8	0.41	211	44.7	3.22	54.1	26.2	17.6	2.89	0.037	<0.01	0.085	<0.001	0.26	0.526	
	14-May-19			<10		220	47		180	36	<1	49	23	16	4.5	<0.1	<0.01	<0.05	<0.001	0.44	0.054	
	19-May-20			<10	325	200	44	0.3	230	49	<1	49	23	17	2.8	<0.1	<0.01	<0.5	<0.007	<0.1	0.034	
	26-May-21			<10	384.45	310	50		250	87	<1	68	36			<0.1	<0.01	<0.05	<0.001	0.39	0.1	
	24-May-22	7.56	726	<10		300	41		240	92	<1	66	36	26	1.4	<0.1	<0.01	<0.05	<0.001	0.26	0.045	
	15-May-23			<10		320	41		230	89	3.7	61	34	23	2.4	<0.1	<0.01	<0.05	<0.001	0.26	0.034	
QFSW2	6-Mar-18	8.05	607	<2	337	270	4.3		230	54.3	5.19	55.1	29.6	17.9	1.59	0.93	<0.01	0.133	0.001	0.19	<0.003	
	9-May-18	8.24	554	<2	299	256	3.1	1.36	220	48.7	4.72	55.2	28.4	18.1	1.58	1.05	<0.01	0.084	0.001	0.16	<0.003	
	5-Sep-18			<10		290	3		200	110	5	45	42	28	3	0.38	<0.01	<0.05	<0.002	0.23	<0.02	
	6-Dec-18			<10		330	5		230	87	6.1	59	38	25	2.2	1.15	<0.01	0.12	0.001	0.24	<0.02	
	8-Mar-19	8.05	607	<2	337	270	4.3		230	54.3	5.19	55.1	29.6	17.9	1.59	0.93	<0.01	0.133	0.001	0.19	<0.003	
	17-May-19			<10		260	<2		210	44	5.5	53	30	18	1.5	1.04	<0.01	<0.05	<0.001	<0.01	0.005	
	4-Sep-19			<10		320	5		210	120	5	55	46	31	3.2	0.42	<0.01	0.13		0.25	<0.004	
	19-Dec-19			<10		350	3		230	120	7.3	63	44	29	2.9	1.47	<0.01	0.09		0.21	<0.02	
	2-Mar-20			<10		270	<2		230	84	6.5	59	37	23	2.1	1.07	<0.01	0.094		0.55	<0.02	
	11-Jun-20			15		300	<2		220	87	6.8	60	42	29	2.4	1.54	<0.01	0.11		0.21	<0.02	
	27-Aug-20			<10		330	<2		160	150	7.2	38	56			1.45	0.026	<0.05		0.34	0.005	
	25-Nov-20			18	426	382	5	18.7	201	134	7	68.7	51.1	32	3.5	2	<0.1	0.2		0.4	<0.01	
	23-Feb-21			<10	211.75	400	<2		220	170	17	75	55			5.01	<0.01	<0.05	<0.001	0.26	<0.004	
	27-May-21			<10	426.8	330	2		220	130	7	56	49			0.6	0.01	<0.05	<0.001	0.16	0.004	
	11-Aug-21			<10	414.7	310	8		190	140	7.3	50	51			0.97	0.021	0.12	0.007	0.33	<0.004	
	7-Oct-21			<10	448.8	330	7		190	130	7	56	50			1.22	0.022	0.12	0.001	0.21	0.005	
	28-Feb-22	8.09		<10		340	4		250	83	6	67	42	28	2.6	1.49	<0.01	0.13		0.21	<0.004	
	24-May-22	7.23	465	<11		320	3		230	130	7.8	58	49	33	4.1	1.77	0.02	0.22	0.001	0.3		
	31-Aug-22			<10		390	6		220	170	7.3	56	61	40	5.8	1.58	0.026	0.15	0.001	0.41	0.005	
	28-Oct-22			<10		390	8		230	170	7.3	62	62	41	5.4	1.42	0.017	0.17	0.001	0.14	<0.004	
	23-Feb-23			24		380	3		190	180	12	63	59	47	4.8	5.56	<0.01	<0.05	<0.001	<0.2	<0.004	
	17-May-23			<10		320	3		240	90	7.8	61	41	30	2.7	1.01	<0.01	<0.05	<0.001	0.16	<0.004	

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	Total Metals																
		Aluminum Al	Antimony Sb	Arsenic As	Barium Ba	Beryllium Be	Boron B	Cadmium Cd	Chromium Cr	Cobalt Co	Copper Cu	Fluoride F	Iron Fe	Lead Pb	Manganese Mn	Molybdenum Mo	Nickel Ni	Selenium Se
	PWQO	0.075 *i*	0.02 *i*	0.1 *i*	nc	1.1	0.2	0.0005 *i*	0.0089	0.0009	0.005 *i*	nc	0.3	0.005 *i*	nc	0.04	0.025	0.1
SW2	26-May-22	0.019	<0.0005	<0.001	0.0094	<0.0004	0.012	<0.00009	<0.005	<0.0005	<0.0009	<0.1	<0.1	<0.0005	0.032	<0.0005	<0.001	<0.002
(cont'd)	15-May-23	0.042	<0.0005	<0.001	0.01	<0.0004	0.01	<0.00009	<0.005	<0.0005	<0.0009	<0.1	0.16	<0.0005	0.055	<0.0005	<0.001	<0.002
SW0-2	24-Oct-16	0.03	<0.0001	0.0014	0.011	<0.002	0.017	<0.00002	<0.002	0.0002	<0.002	0.2	0.097	0.00004	0.019	0.0003	<0.01	0.004
	10-May-17	0.04	<0.0001	0.0005	0.008	<0.002	0.01	<0.000014	<0.002	<0.0001	<0.002	<0.1	0.061	0.00002	0.005	0.0003	<0.01	<0.001
	8-May-18	0.011	<0.0001	0.00032	0.0102	<0.0001	0.02	<0.00001	<0.0005	<0.0001	<0.001	0.133	0.089	<0.0001	0.0393	0.000234	0.00056	0.000059
	14-May-19	0.0085	<0.0005	<0.001	0.0085	<0.0005	0.014	<0.0001	<0.005	<0.0005	<0.001	0.11	<0.1	<0.0005	0.0079	<0.0005	<0.001	<0.002
	19-May-20	0.017	<0.0005	<0.001	0.0094	<0.0005	0.019	<0.0001	<0.005	<0.0005	<0.001	<0.1	<0.1	<0.0005	0.036	<0.0005	<0.001	<0.002
	26-May-21	0.021	<0.0005	<0.001	0.015	<0.0004	0.03	<0.00009	<0.005	<0.0005	<0.0009	0.18	0.22	<0.0005	0.12	<0.0005	<0.001	<0.002
	24-May-22	0.017	<0.0005	<0.001	0.012	<0.0004	0.026	<0.00009	<0.005	<0.0005	<0.0009	0.18	0.17	<0.0005	0.053	<0.0005	<0.001	<0.002
	15-May-23	0.0072	<0.0005	<0.001	0.012	<0.0004	0.025	<0.00009	<0.005	<0.0005	<0.0009	0.22	<0.1	0.0019	0.032	<0.0005	<0.001	<0.002
QFSW2	6-Mar-18	0.01	<0.0001	0.00024	0.0101	<0.0001	0.018	<0.00001	<0.0005	<0.0001	<0.001	0.182	<0.05	<0.0001	0.0192	0.000311	<0.0005	<0.00005
	9-May-18	0.027	<0.0001	0.00027	0.00936	<0.0001	0.02	<0.00001	<0.0005	<0.0001	<0.001	0.172	<0.05	<0.0001	0.00419	0.000326	<0.0005	<0.00005
	5-Sep-18	0.011	<0.0005	<0.001	0.011	<0.0005	0.044	<0.0001	<0.005	<0.0005	<0.001	0.23	<0.1	<0.0005	0.094	0.00061	<0.001	<0.002
	6-Dec-18	0.02	<0.0005	<0.001	0.013	<0.0005	0.031	<0.0001	<0.005	<0.0005	<0.001	0.24	<0.1	<0.0005	0.14	0.00052	0.0011	<0.002
	8-Mar-19	0.01	<0.0001	0.00024	0.0101	<0.0001	0.018	<0.00001	<0.0005	<0.0001	<0.001	0.182	<0.05	<0.0001	0.0192	0.000311	<0.0005	<0.00005
	17-May-19	0.014	<0.0005	<0.001	0.01	<0.0005	0.019	<0.0001	<0.005	<0.0005	<0.001	0.17	<0.1	<0.5	0.014	<0.0005	<0.001	<0.002
	4-Sep-19	0.0074	<0.0005	<0.001	0.014	<0.0005	0.046	<0.0001	<0.005	<0.0005	<0.001	0.23	<0.1	<0.5	0.13	0.00069	<0.001	<0.002
	19-Dec-19	0.02	<0.0005	<0.001	0.014	<0.0005	0.037	<0.0001	<0.005	<0.0005	<0.001	0.21	<0.1	<0.5	0.1	<0.0005	<0.001	<0.002
	2-Mar-20	0.0064	<0.0005	<0.001	0.013	<0.0005	0.022	<0.0001	<0.005	<0.0005	<0.001	0.21	<0.1	<0.5	0.097	<0.0005	<0.001	<0.002
	11-Jun-20	0.037	<0.0005	<0.001	0.015	<0.0005	0.032	<0.0001	<0.005	<0.0005	<0.001	0.27	<0.1	<0.5	0.056	0.00056	<0.001	<0.002
	27-Aug-20	0.033	<0.0005	<0.001	0.0082	<0.0004	0.079	<0.09	<0.005	<0.0005	<0.0009	0.17	<0.1	<0.5	0.0048	0.00064	<0.001	<0.002
	25-Nov-20	0.06	0.3	0.0006	0.018	<0.002	0.05	<0.015	<0.002	<0.005	0.0005	<0.1	0.134	0.21	0.146	<0.01	<0.01	<0.001
	23-Feb-21	0.0091	<0.0005	<0.001	0.021	<0.0004	0.048	<0.00009	<0.005	<0.0005	<0.0009	0.32	<0.1	<0.0005	0.0036	0.00072	<0.001	<0.002
	27-May-21	0.014	<0.0005	<0.001	0.014	<0.0004	0.048	<0.00009	<0.005	<0.0005	<0.0009	0.17	<0.1	<0.0005	0.064	0.00055	<0.001	<0.002
	11-Aug-21	0.018	<0.0005	0.0011	0.012	<0.0004	0.061	<0.00009	<0.005	<0.0005	<0.0009	0.21	<0.1	<0.0005	0.053	0.00066	<0.001	<0.002
	7-Oct-21	0.027	<0.0005	<0.001	0.014	<0.0004	0.059	<0.00009	<0.005	<0.0005	<0.0009	0.19	<0.1	<0.0005	0.052	0.00055	<0.001	<0.002
	28-Feb-22	0.0065	<0.0005	<0.001	0.016	<0.0004	0.029	<0.00009	<0.005	<0.0005	<0.0009	0.25	0.11	<0.0005	0.083	<0.0005	<0.001	<0.002
	24-May-22	0.0099	<0.0005	<0.001	0.016	<0.0004	0.053	<0.00009	<0.005	<0.0005	<0.0009	0.22	<0.1	<0.0005	0.055	0.00053	<0.001	<0.002
	31-Aug-22	0.017	<0.0005	0.0019	0.016	<0.0004	0.078	<0.00009	<0.005	<0.0005	<0.0009	0.24	0.25	<0.0005	0.079	0.00082	<0.001	<0.002
	28-Oct-22	0.013	<0.0005	0.0022	0.016	<0.0004	0.069	<0.00009	<0.005	<0.0005	<0.0009	0.22	0.24	<0.0005	0.094	0.0008	<0.001	<0.002
	23-Feb-23	0.015	<0.0005	<0.001	0.02	<0.0004	0.058	<0.00009	<0.005	<0.0005	<0.0009	0.29	<0.1	<0.0005	0.017	0.00066	<0.001	<0.002
	17-May-23	0.014	<0.0005	<0.001	0.014	<0.0004	0.033	<0.00009	<0.005	<0.0005	<0.0009	0.23	<0.1	<0.0005	0.055	0.00054	<0.001	<0.002

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	Total Metals										Oil & Grease		
		Silicon Si	Silver Ag	Strontium Sr	Thallium Tl	Titanium Ti	Tungsten W	Uranium U	Vanadium V	Zinc Zn	Zirconium Zr	Animal / Vegetable	Mineral	Total
	PWQO	nc	0.0001	nc	0.0003	nc	0.03 *i*	0.005 *i*	0.006 *i*	0.03	0.004 *i*	*f*	*f*	*f*
SW2	26-May-22		<0.00009	0.11	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
(cont'd)	15-May-23		<0.00009	0.11	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
SW0-2	24-Oct-16		<0.00002	0.228	<0.00005	<0.005	0.01	0.00011	<0.005	<0.005	<0.003			
	10-May-17		<0.00002	0.178	<0.00005	<0.005	<0.01	0.0001	<0.005	0.005	0.006			
	8-May-18		<0.00005	0.181	<0.00001	<0.0003	<0.0001	0.000075	<0.0005	<0.003	<0.0003			
	14-May-19		<0.0001	0.12	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	19-May-20		<0.0001	0.16	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	26-May-21		<0.00009	0.28	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	24-May-22		<0.00009	0.27	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	15-May-23		<0.00009	0.22	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
QFSW2	6-Mar-18		<0.00005	0.218	0.000016	0.00036	<0.0001	0.000127	<0.0005	0.0043	<0.0003			
	9-May-18		<0.00005	0.213	0.000014	0.00049	<0.0001	0.00013	<0.0005	<0.003	<0.0003			
	5-Sep-18		<0.0001	0.31	<0.00005	<0.0005	<0.001	0.00011	<0.0005	<0.005	<0.001			
	6-Dec-18		<0.0001	0.29	<0.00005	<0.0005	<0.001	0.00012	<0.0005	<0.005	<0.001			
	8-Mar-19		<0.00005	0.218	0.000016	0.00036	<0.0001	0.000127	<0.0005	0.0043	<0.0003			
	17-May-19		<0.0001	0.21	<0.00005	<0.005	<0.001	0.00012	<0.0005	<0.005	<0.001			
	4-Sep-19		<0.0001	0.31	0.000064	<0.005	<0.001	0.00011	<0.0005	<0.005	<0.001			
	19-Dec-19		<0.0001	0.37	<0.00005	<0.005	<0.001	0.00011	<0.0005	<0.005	<0.001			
	2-Mar-20		<0.0001	0.28	<0.00005	<0.005	<0.001	0.00011	<0.0005	<0.005	<0.001			
	11-Jun-20		<0.0001	0.3	<0.00005	<0.005	<0.001	0.00013	<0.0005	0.006	<0.001			
	27-Aug-20		<0.09	0.37	<0.05	<0.005	<0.001	<0.1	<0.0005	<0.005	<0.001			
	25-Nov-20		<0.1	0.451	<0.05	<0.005	<0.01	0.1	<0.005	0.005	<0.003			
	23-Feb-21		<0.00009	0.61	<0.00005	<0.005	<0.001	0.00015	<0.0005	<0.005	<0.001			
	27-May-21		<0.00009	0.36	0.000052	<0.005	<0.001	0.00013	<0.0005	<0.005	<0.001			
	11-Aug-21		<0.00009	0.4	0.000051	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	7-Oct-21		<0.00009	0.5	0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	28-Feb-22		<0.00009	0.33	<0.00005	<0.005	<0.001	0.00011	<0.0005	<0.005	<0.001			
	24-May-22		<0.00009	0.45	0.000051	<0.005	<0.001	0.00011	<0.0005	<0.005	<0.001			
	31-Aug-22		<0.00009	0.55	0.000054	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	28-Oct-22		<0.00009	0.58	<0.00005	0.0052	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	23-Feb-23		<0.00009	0.53	<0.00005	<0.005	<0.001	0.00011	<0.0005	<0.005	<0.001			
	17-May-23		<0.00009	0.35	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	BTEX & Hydrocarbons (µg/L)									
		Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-Xylene	Total Xylenes	F1 (C6-C10)	F2 (C10-C16)	F3 (C16-C34)	F4 (C34-C50)
	PWQO	100 *i*	0.8 *i*	8 *i*	2 *i*	40 *i*	nc	nc	nc	nc	nc
SW2 (cont'd)	26-May-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	15-May-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
SW0-2	24-Oct-16	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	10-May-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	8-May-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	14-May-19	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	19-May-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	26-May-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	24-May-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	15-May-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
QFSW2	6-Mar-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	9-May-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	5-Sep-18	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	6-Dec-18	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	8-Mar-19	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	17-May-19	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	4-Sep-19	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	19-Dec-19	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	2-Mar-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	11-Jun-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	27-Aug-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	25-Nov-20							<25	<50	<400	<400
	23-Feb-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	27-May-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	11-Aug-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	7-Oct-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	28-Feb-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	24-May-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	31-Aug-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	28-Oct-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	23-Feb-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	17-May-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	General Parameters							Major Ions							Nutrients and Organic Indicators						
		pH (SU)	EC (µS/cm)	T S S	T D S	Hardness	Colour (TCU)	Turbidity (NTU)	Alkalinity	Chloride Cl	Sulphate SO_4	Calcium Ca	Magnesium Mg	Sodium Na	Potassium K	Nitrate NO_3	Nitrite NO_2	Ammonia NH_3	Un-ionized Ammonia	T K N	T P P	Phenols
	PWQO	6.5 - 8.5	nc	nc	nc	nc	nc	*b*	*c*	nc	nc	nc	nc	nc	nc	nc	nc	nc	0.02 *d*	nc	0.03 *i e*	0.001
QFSW2	30-Aug-23			1500		330	<2		160	120	6.8	470	280	33	5	1.39	0.018	0.075	0.001	0.73	0.12	
(cont'd)	31-Oct-23			<10		410	6		220	150	6.4	61	55	37	4.4	1.32	<0.01	0.12	0.003	0.17	<0.004	
SW3	24-Oct-16 (1)																					
	9-May-17	7.86	315	<3	165	176	27		166	0.9	2	47.6	13.8	0.9	0.2	<0.1	<0.1	<0.01	<0.001	0.3	0.01	
	8-May-18	8.01	381	<2	240	229	33.3	0.57	212	1.74	1.08	61.1	17.5	1.05	0.456	<0.02	<0.01	0.053	<0.001	0.2	0.0082	
	14-May-19			<10		210	36		190	2.2	<1	55	16	1.2	0.44	<0.1	<0.01	<0.05	<0.001	0.26	0.019	
	19-May-20			<10	260	210	19	0.9	200	2.1	<1	52	16	1.4	0.5	<0.1	<0.01	<0.05	<0.001	0.33	<0.02	
	27-May-21			180	384.45	310	<2		300	56	<1	89	26			<0.1	<0.01	0.19	0.002	0.72	0.22	
	26-May-22	7.23	802	<10		300	8		310	73	1.1	84	24	49	0.51	<0.1	0.012	0.18	0.001	0.37	0.027	
	16-May-23			<10		250	11		240	4.3	2	61	19	3.4	<0.2	<0.1	<0.01	<0.05	<0.001	0.17	0.006	
SW6A	25-Oct-16	8.33	558	10	294	295	26		240	29.6	8	68.1	30.4	10	1.4	0.3	<0.1	0.02	<0.001	0.5	0.02	
	8-May-17	8.28	387	<3	198	205	31		181	10.5	3	49.5	19.8	5.8	0.9	0.2	<0.1	0.03	0.001	0.3	<0.01	
	8-May-18	8.14	454	2.9	262	244	26.2	0.82	237	14.4	2.4	61.8	22.1	6.06	1.57	0.126	<0.01	<0.02	<0.001	0.2	0.0075	
	14-May-19			<10		240	26		210	13	<1	56	21	5.5	1.2	0.11	<0.01	0.05	0.001	0.28	0.008	
	19-May-20			<10	270	220	28	0.3	220	16	<1	52	19	5.2	1	0.11	<0.01	<0.05	<0.001	<0.1	<0.02	
	27-May-21			<10	270.6	320	3		260	14	<1	66	28			<0.1	<0.01	<0.05	<0.002	0.37	0.016	
	25-May-22	8.07	501	<10		250	20		250	21	1.1	62	27	7	0.77	0.13	<0.01	<0.05	<0.002	0.23	0.012	
	16-May-23			<10		240	23		260	20	4.2	65	27	7	1.2	<0.1	0.01	<0.05	<0.001	0.36	0.008	
SW9	25-Oct-16 (1)																					
	8-May-17	8.21	308	3	159	169	26		159	<0.5	2	44.4	14.1	0.8	0.7	0.2	<0.1	<0.01	<0.001	2.3	<0.01	
	8-May-18	8.16	342	3.1	198	200	25.3	0.9	192	1.09	1.69	55.6	15.3	0.86	1.52	<0.02	<0.01	0.039	0.001	<0.15	0.0089	
	14-May-19			<10		200	25		180	<1	<1	51	16	0.76	0.87	<0.1	<0.01	0.05	<0.001	0.25	0.009	
	19-May-20			<10	230	200	22	0.4	200	1.3	<1	54	15	0.9	1.5	0.1	<0.01	<0.05	<0.001	0.25	<0.02	
	27-May-21 (1)																					
	25-May-22 (1)																					
SW10	24-Oct-16	8.09	495	1110	380	566	38		242	5.1	7	174	31.6	3.4	1	1.4	0.3	0.22	0.003	24.8	3.16	
	8-May-17	8.32	365	32	189	195	6		183	0.9	2	55	13.9	1.2	0.4	1.2	<0.1	<0.01	<0.001	0.3	0.03	
	9-May-18	8.34	393	<2	235	231	3.3	0.43	223	2.55	3.63	66	15.5	1.82	0.456	2.72	<0.01	0.135	0.004	0.25	0.0134	
	16-May-19			<10		240	4		210	3.3	4.3	69	15	1.8	0.46	2.29	<0.01	<0.05	<0.001	0.11	0.019	
	20-May-20	8.16	440	<10	235	230	5	0.2	220	4.7	4.9	70	17	2.5	0.49	1.93	<0.01	<0.05		0.27	<0.02	
	27-May-21			24	247.61	250	93		250	3.9	5.5	75	19			1.39	<0.01	0.11	0.001	0.33	0.06	

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	Total Metals																
		Aluminum Al	Antimony Sb	Arsenic As	Barium Ba	Beryllium Be	Boron B	Cadmium Cd	Chromium Cr	Cobalt Co	Copper Cu	Fluoride F	Iron Fe	Lead Pb	Manganese Mn	Molybdenum Mo	Nickel Ni	Selenium Se
	PWQO	0.075 *i*	0.02 *i*	0.1 *i*	nc	1.1	0.2	0.0005 *i*	0.0089	0.0009	0.005 *i*	nc	0.3	0.005 *i*	nc	0.04	0.025	0.1
QFSW2	30-Aug-23	2.9	<0.0005	0.0034	0.027	<0.0004	0.071	<0.00009	<0.005	0.002	0.0079	0.25	5.6	0.0083	0.49	0.00078	0.0047	<0.002
(cont'd)	31-Oct-23	0.01	<0.0005	0.0016	0.016	<0.0004	0.067	<0.00009	<0.005	<0.0005	<0.0009	0.29	0.15	<0.0005	0.11	0.00064	<0.001	<0.002
SW3	24-Oct-16 (1)																	
	9-May-17	0.05	<0.0001	<0.0001	0.009	<0.002	<0.005	<0.000014	<0.002	<0.0001	<0.002	<0.1	0.086	<0.00002	0.011	<0.0001	<0.01	<0.001
	8-May-18	0.03	<0.0001	0.00028	0.0117	<0.0001	<0.01	<0.00001	<0.0005	<0.0001	<0.001	0.029	0.055	<0.0001	0.0219	0.000051	<0.0005	0.000068
	14-May-19	0.026	<0.0005	<0.001	0.01	<0.0005	<0.01	<0.0001	<0.005	<0.0005	<0.001	<0.1	<0.1	<0.0005	0.011	<0.0005	<0.001	<0.002
	19-May-20	0.03	<0.0005	<0.001	0.0094	<0.0005	<0.01	<0.0001	<0.005	<0.0005	<0.001	0.15	<0.1	<0.0005	0.0094	<0.0005	<0.001	<0.002
	27-May-21	1.1	<0.0005	0.0014	0.028	<0.0004	<0.01	0.00011	<0.005	0.0015	0.0034	<0.1	2.5	0.0019	3.1	0.00051	0.002	<0.002
	26-May-22	0.1	<0.0005	<0.001	0.022	<0.0004	0.011	<0.00009	<0.005	<0.0005	<0.0009	<0.1	0.5	<0.0005	0.82	<0.0005	<0.001	<0.002
	16-May-23	0.014	<0.0005	<0.001	0.01	<0.0004	<0.01	<0.00009	<0.005	<0.0005	<0.0009	<0.1	<0.1	<0.0005	0.081	<0.0005	<0.001	<0.002
SW6A	25-Oct-16	0.04	0.0002	0.0005	0.014	<0.002	0.007	<0.00002	<0.002	0.0002	<0.002	0.2	0.104	0.00017	0.081	<0.0001	<0.01	0.002
	8-May-17	0.03	<0.0001	0.0002	0.01	<0.002	0.012	<0.000014	<0.002	<0.0001	<0.002	<0.1	0.085	<0.00002	0.007	0.0001	<0.01	<0.001
	8-May-18	0.014	<0.0001	0.00022	0.0133	<0.0001	0.011	<0.00001	<0.0005	<0.0001	<0.001	0.05	0.068	<0.0001	0.0269	0.000106	<0.0005	<0.00005
	14-May-19	0.01	<0.0005	<0.001	0.011	<0.0005	<0.01	<0.0001	<0.005	<0.0005	<0.001	<0.1	<0.1	<0.0005	0.012	<0.0005	<0.001	<0.002
	19-May-20	0.02	<0.0005	<0.001	0.01	<0.0005	<0.01	<0.0001	<0.005	<0.0005	<0.001	<0.1	<0.1	<0.0005	0.031	<0.0005	<0.001	<0.002
	27-May-21	0.017	<0.0005	<0.001	0.015	<0.0004	<0.01	<0.00009	<0.005	<0.0005	<0.0009	<0.1	0.16	<0.0005	0.044	<0.0005	<0.001	<0.002
	25-May-22	0.015	<0.0005	<0.001	0.012	<0.0004	<0.01	<0.00009	<0.005	<0.0005	<0.0009	<0.1	<0.1	<0.0005	0.027	<0.0005	<0.001	<0.002
	16-May-23	0.011	<0.0005	<0.001	0.011	<0.0004	<0.01	<0.00009	<0.005	<0.0005	<0.0009	<0.1	<0.1	<0.0005	0.025	<0.0005	<0.001	<0.002
SW9	25-Oct-16 (1)																	
	8-May-17	0.03	<0.0001	0.0001	0.01	<0.002	0.01	<0.000014	<0.002	<0.0001	<0.002	<0.1	0.058	0.00003	0.001	<0.0001	<0.01	<0.001
	8-May-18	0.024	<0.0001	0.0002	0.0144	<0.0001	<0.01	<0.00001	<0.0005	<0.0001	<0.001	0.035	<0.05	<0.0001	0.00211	0.000104	<0.0005	0.000061
	14-May-19	0.029	<0.0005	<0.001	0.011	<0.0005	<0.01	<0.0001	<0.005	<0.0005	<0.001	<0.1	<0.1	<0.0005	<0.002	<0.0005	<0.001	<0.002
	19-May-20	0.038	<0.0005	<0.001	0.013	<0.0005	<0.01	<0.0001	<0.005	<0.0005	<0.001	<0.1	<0.1	<0.0005	0.0025	<0.0005	<0.001	<0.002
	27-May-21 (1)																	
	25-May-22 (1)																	
SW10	24-Oct-16	3.02	<0.0001	0.0015	0.065	<0.002	0.022	0.00068	0.003	0.0034	0.016	<0.1	3.53	0.0175	0.697	<0.0001	<0.01	<0.001
	8-May-17	0.11	<0.0001	0.0002	0.007	<0.002	0.008	<0.000014	0.002	<0.0001	<0.002	<0.1	0.181	0.00032	0.008	<0.0001	<0.01	<0.001
	9-May-18	0.028	<0.0001	0.00013	0.00821	<0.0001	<0.01	<0.00001	<0.0005	<0.0001	<0.001	0.04	<0.05	<0.0001	0.00168	<0.00005	<0.0005	<0.00005
	16-May-19	0.052	<0.0005	<0.001	0.0086	<0.0005	<0.01	<0.0001	<0.005	<0.0005	<0.001	<0.1	<0.1	<0.0005	0.0028	<0.0005	<0.001	<0.002
	20-May-20	0.019	<0.0005	<0.001	0.0083	<0.0005	<0.01	<0.0001	<0.005	<0.0005	0.0026	<0.1	<0.1	<0.0005	<0.002	<0.0005	<0.001	<0.002
	27-May-21	0.14	<0.0005	<0.001	0.01	<0.0004	<0.01	<0.00009	<0.005	<0.0005	<0.0009	<0.1	0.21	<0.0005	0.0089	<0.0005	<0.001	<0.002

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	Total Metals										Oil & Grease		
		Silicon	Silver	Strontium	Thallium	Titanium	Tungsten	Uranium	Vanadium	Zinc	Zirconium	Animal / Vegetable	Mineral	Total
		Si	Ag	Sr	Tl	Ti	W	U	V	Zn	Zr			
	PWQO	nc	0.0001	nc	0.0003	nc	0.03 *i*	0.005 *i*	0.006 *i*	0.03	0.004 *i*	*f*	*f*	*f*
QFSW2	30-Aug-23		<0.00009	0.56	0.000089	0.059	<0.001	0.00019	0.0046	0.047	<0.001			
(cont'd)	31-Oct-23		<0.00009	0.51	0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
SW3	24-Oct-16 (1)													
	9-May-17		<0.00002	0.043	<0.00005	<0.005	<0.01	0.00014	<0.005	<0.005	0.005			
	8-May-18		<0.00005	0.0628	<0.00001	0.00069	<0.0001	0.000176	<0.0005	<0.003	<0.0003			
	14-May-19		<0.0001	0.051	<0.00005	<0.005	<0.001	0.00013	<0.0005	<0.005	<0.001			
	19-May-20		<0.0001	0.047	<0.00005	<0.005	<0.001	0.00017	<0.0005	<0.005	<0.001			
	27-May-21		<0.00009	0.098	<0.00005	0.028	<0.001	0.00024	0.0034	0.02	<0.001			
	26-May-22		<0.00009	0.1	<0.00005	0.0058	<0.001	0.00023	0.00063	<0.005	<0.001			
	16-May-23		<0.00009	0.053	<0.00005	<0.005	<0.001	0.00017	<0.0005	<0.005	<0.001			
SW6A	25-Oct-16		<0.00002	0.1	<0.00005	<0.005	<0.01	0.00012	<0.005	<0.005	<0.003			
	8-May-17		<0.00002		<0.00005	<0.005	<0.01	0.0001	<0.005	0.006	<0.003			
	8-May-18		<0.00005	0.0846	<0.00001	<0.0003	<0.0001	0.000103	<0.0005	<0.003	<0.0003			
	14-May-19		<0.0001	0.068	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	19-May-20		<0.0001	0.065	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	27-May-21		<0.00009	0.081	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	25-May-22		<0.00009	0.085	<0.00005	<0.005	<0.001	0.00011	<0.0005	<0.005	<0.001			
	16-May-23		<0.00009	0.086	<0.00005	<0.005	<0.001	0.00011	<0.0005	<0.005	<0.001			
SW9	25-Oct-16 (1)													
	8-May-17		<0.00002		<0.00005	<0.005	<0.01	0.00015	<0.005	<0.005	<0.003			
	8-May-18		<0.00005	0.066	<0.00001	0.0008	<0.0001	0.000216	<0.0005	<0.003	<0.0003			
	14-May-19		<0.0001	0.052	<0.00005	<0.005	<0.001	0.00018	<0.0005	<0.005	<0.001			
	19-May-20		<0.0001	0.061	<0.00005	<0.005	<0.001	0.00021	<0.0005	<0.005	<0.001			
	27-May-21 (1)													
	25-May-22 (1)													
SW10	24-Oct-16		<0.00002	0.165	0.00006	0.012	0.02	0.00017	0.005	0.049	<0.003			
	8-May-17		<0.00002		<0.00005	<0.005	<0.01	0.00007	<0.005	<0.005	<0.003			
	9-May-18		<0.00005	0.086	<0.00001	0.00075	<0.0001	0.000085	<0.0005	<0.003	<0.0003			
	16-May-19		<0.0001	0.079	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	20-May-20		<0.0001	0.079	<0.00005	0.0052	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	27-May-21		<0.00009	0.095	<0.00005	0.0074	<0.001	<0.0001	0.0005	<0.005	<0.001			

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	BTEX & Hydrocarbons (µg/L)									
		Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-Xylene	Total Xylenes	F1 (C6-C10)	F2 (C10-C16)	F3 (C16-C34)	F4 (C34-C50)
	PWQO	100 *i*	0.8 *i*	8 *i*	2 *i*	40 *i*	nc	nc	nc	nc	nc
QFSW2	30-Aug-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
(cont'd)	31-Oct-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
SW3	24-Oct-16 (1)										
	9-May-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	8-May-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	14-May-19	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	19-May-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	27-May-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	26-May-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	16-May-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
SW6A	25-Oct-16	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	8-May-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	8-May-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	14-May-19	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	19-May-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	27-May-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	25-May-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	16-May-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
SW9	25-Oct-16 (1)										
	8-May-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	8-May-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	14-May-19	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	19-May-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	27-May-21 (1)										
	25-May-22 (1)										
SW10	24-Oct-16	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	8-May-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	9-May-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	16-May-19	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	20-May-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	27-May-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	General Parameters							Major Ions							Nutrients and Organic Indicators						
		pH (SU)	EC (µS/cm)	T S S	T D S	Hardness	Colour (TCU)	Turbidity (NTU)	Alkalinity	Chloride Cl	Sulphate SO_4	Calcium Ca	Magnesium Mg	Sodium Na	Potassium K	Nitrate NO_3	Nitrite NO_2	Ammonia NH_3	Un-ionized Ammonia	T K N	T P P	Phenols
	PWQO	6.5 - 8.5	nc	nc	nc	nc	nc	*b*	*c*	nc	nc	nc	nc	nc	nc	nc	nc	nc	0.02 *d*	nc	0.03 *i e*	0.001
SW10	24-May-22	8.12	479.3	450		340	5		260	3.9	4.6	90	21	2.3	1	0.99	<0.01	0.14	0.004	0.14	0.88	
(cont'd)	17-May-23			<10		260	4		250	1	4.3	71	18	1.7	0.4	1.65	<0.01	<0.05	<0.001	<0.1	0.01	
SW11	16-Nov-16	7.95	484	195	245	255	13		236	2.4	7	69.8	19.7	1.9	0.7	0.3	<0.1	<0.01	<0.001	0.3	0.02	
	8-May-17	8.28	315	<3	165	175	9		164	<0.5	3	47.2	13.8	0.9	0.7	0.3	<0.1	<0.01	<0.001	1.6	0.01	
	9-May-18	8.31	341	<2	196	200	7.3	0.68	201	1.03	2.49	55.3	15.4	0.88	0.866	0.266	<0.01	0.025	<0.001	<0.15	0.0104	
	16-May-19			<10		200	7		200	1.5	1	57	15	0.94	0.87	0.24	<0.01	<0.05	<0.001	0.11	0.11	
	20-May-20	8.21	380	<10	195	200	7	0.5	200	1.3	2	55	16	1	0.85	0.37	<0.01	<0.05		0.17	<0.02	
	26-May-21			<10	221.82	230	5		230	1.6	4.5	64	17			0.25	<0.01	<0.05	<0.001	<0.1	0.012	
	25-May-22	8.25	399	<10		220	5		230	1.6	2.2	64	18	0.93	0.65	0.29	<0.01	0.082	0.002	<0.1	0.02	
	17-May-23			<10		230	5		220	<1	3.8	57	17	0.91	0.62	0.25	<0.01	<0.05	<0.001	0.13	0.01	
SW11A	25-Oct-16 (1)																					
	8-May-17	8.26	310	<3	161	169	8		161	0.6	2	45.4	13.5	0.9	0.7	0.3	<0.1	<0.01	<0.001	1.4	0.01	
	9-May-18	8.28	349	2.3	200	209	5.4	0.85	210	1.12	2.4	55.1	15.7	0.92	0.925	0.222	<0.01	0.045	<0.001	<0.15	0.0053	
	16-May-19			<10		200	5		190	1.4	<1	56	15	0.88	0.89	0.21	<0.01	<0.05	<0.001	0.15	0.006	
	20-May-20			<10	205	210	4	0.2	210	1.9	3.2	58	18	1.1	0.88	0.28	<0.01	<0.05	<0.001	0.15	<0.02	
	26-May-21			<10	223.3	230	4		230	1.9	3.1	64	18			0.21	<0.01	<0.05	<0.001	<0.1	0.006	
	25-May-22	7.84	438	190		230	3		240	1.1	2.8	72	21	1.1	1	0.21	<0.01	<0.05	<0.001	<0.1	0.088	
	17-May-23			<10		230	4		230	<1	3.8	63	18	0.88	0.66	0.2	<0.01	<0.05	<0.001	<0.1	<0.004	
SW11B	24-Oct-16	8.41	439	100	268	248	7		230	2.2	7	67.8	19.2	1.6	0.8	0.2	0.2	0.02	<0.001	0.4	0.08	
	8-May-17	8.27	318	<3	159	165	8		160	<0.5	2	44.1	13.3	0.9	0.7	0.3	<0.1	<0.01	<0.001	2.2	<0.01	
	9-May-18	8.26	349	<2	210	198	5.4	0.42	195	1.11	2.39	56.2				0.217	<0.01	0.053	<0.001	<0.15	0.0046	
	16-May-19			<10		200	6		200	1.1	<1	57	15	0.95	0.91	0.2	<0.01	<0.05	<0.001	0.15	0.006	
	20-May-20			18	165	210	5	0.2	210	1.7	3.1	57	18	1.1	0.93	0.27	<0.01	<0.05	<0.001	0.13	<0.02	
	26-May-21			49	224.4	230	4		240	2.4	3.1	72	20			0.22	<0.01	<0.05	<0.001	<0.1	0.094	
	25-May-22	7.62	435.6	110		230	2		240	1.5	3.2	66	20	1	0.71	0.25	<0.01	<0.05	<0.001	<0.1	0.12	
	17-May-23			<10		250	4		220	<1	3.6	61	18	0.9	0.62	0.21	<0.01	<0.05	<0.001	<0.1	0.005	
SW11C	24-Oct-16	8.24	466	16	243	246	<2		239	2.4	7	65.9	19.8	1.9	0.5	0.4	0.2	0.02	<0.001	0.2	0.03	
	8-May-17	8.31	317	<3	164	164	2		317	170	<0.1	45.6	13.5	0.9	0.7	<0.1	0.3	<0.01	<0.001	1.1	<0.01	
	9-May-18	8.23	350	<2	210	200	5.5	0.36	200	1.11	2.43	54.1	15.7	0.9	0.896	0.231	<0.01	0.072	0.001	<0.15	0.0057	
	16-May-19			<10		200	5		190	1.3	<1	56	15	0.92	0.87	0.21	<0.01	<0.05	<0.001	0.16	0.005	
	20-May-20			<10	210	210	4	0.4	210	1.8	3.5	57	17	1	0.89	0.29	<0.01	0.056	0.001	0.14	<0.02	
	26-May-21			<10	226.99	230	4		240	2.1	3.3	65	18			0.22	<0.01	<0.05	<0.001	<0.1	0.007	

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	Total Metals																
		Aluminum Al	Antimony Sb	Arsenic As	Barium Ba	Beryllium Be	Boron B	Cadmium Cd	Chromium Cr	Cobalt Co	Copper Cu	Fluoride F	Iron Fe	Lead Pb	Manganese Mn	Molybdenum Mo	Nickel Ni	Selenium Se
	PWQO	0.075 *i*	0.02 *i*	0.1 *i*	nc	1.1	0.2	0.0005 *i*	0.0089	0.0009	0.005 *i*	nc	0.3	0.005 *i*	nc	0.04	0.025	0.1
SW10	24-May-22	4.2	<0.0005	0.0022	0.033	<0.0004	0.011	0.00018	0.0059	0.0024	0.0085	<0.1	6.6	0.012	0.27	<0.0005	0.0052	<0.002
(cont'd)	17-May-23	0.023	<0.0005	<0.001	0.0081	<0.0004	<0.01	<0.00009	<0.005	<0.0005	<0.0009	<0.1	<0.1	<0.0005	<0.002	<0.0005	<0.001	<0.002
SW11	16-Nov-16	0.16	<0.0001	0.0001	0.012	<0.002	<0.005	0.00009	0.099	0.0009	0.002	<0.1	0.863	0.00022	0.036	0.0083	0.1	<0.001
	8-May-17	0.03	<0.0001	0.0001	0.007	<0.002	0.008	<0.000014	<0.002	<0.0001	<0.002	<0.1	0.051	<0.00002	0.001	<0.0001	<0.01	<0.001
	9-May-18	0.021	<0.0001	0.00015	0.00864	<0.0001	<0.01	<0.00001	<0.0005	<0.0001	<0.001	0.034	<0.05	<0.0001	0.00071	0.000066	<0.0005	<0.00005
	16-May-19	0.082	<0.0005	<0.001	0.009	<0.0005	<0.01	<0.0001	<0.005	<0.0005	<0.001	<0.1	<0.1	<0.0005	0.0028	<0.0005	<0.001	<0.002
	20-May-20	0.086	<0.0005	<0.001	0.0085	<0.0005	0.01	<0.0001	<0.005	<0.0005	<0.001	<0.1	<0.1	<0.0005	0.0046	<0.0005	<0.001	<0.002
	26-May-21	0.035	<0.0005	<0.001	0.0093	<0.0004	<0.01	<0.00009	<0.005	<0.0005	<0.0009	<0.1	<0.1	<0.0005	<0.002	<0.0005	<0.001	<0.002
	25-May-22	0.036	<0.0005	<0.001	0.0089	<0.0004	<0.01	<0.00009	<0.005	<0.0005	<0.0009	<0.1	<0.1	<0.0005	<0.002	<0.0005	<0.001	<0.002
	17-May-23	0.037	<0.0005	<0.001	0.008	<0.0004	0.011	<0.00009	<0.005	<0.0005	<0.0009	<0.1	<0.1	<0.0005	0.003	<0.0005	<0.001	<0.002
SW11A	25-Oct-16 (1)																	
	8-May-17	0.02	<0.0001	0.0001	0.008	<0.002	0.008	<0.000014	<0.002	<0.0001	<0.002	<0.1	0.031	<0.00002	<0.001	<0.0001	<0.01	<0.001
	9-May-18	0.027	<0.0001	0.00014	0.00918	<0.0001	<0.01	<0.00001	<0.0005	<0.0001	<0.001	0.034	<0.05	<0.0001	0.00069	0.000066	<0.0005	0.000063
	16-May-19	0.019	<0.0005	<0.001	0.092	<0.0005	<0.01	<0.001	<0.005	<0.0005	<0.001	<0.1	<0.1	<0.0005	<0.002	<0.0005	<0.1	<0.002
	20-May-20	0.057	<0.0005	<0.001	0.0094	<0.0005	<0.01	<0.0001	<0.005	<0.0005	<0.001	<0.1	<0.1	<0.0005	0.0032	<0.0005	<0.001	<0.002
	26-May-21	0.0094	<0.0005	<0.001	0.0091	<0.0004	<0.01	<0.00009	<0.005	<0.0005	<0.0009	<0.1	<0.1	<0.0005	<0.002	<0.0005	<0.001	<0.002
	25-May-22	0.91	<0.0005	<0.001	0.015	<0.0004	<0.01	<0.00009	<0.005	0.00083	0.004	<0.1	1.3	0.00089	0.053	<0.0005	0.0015	<0.002
	17-May-23	0.011	<0.0005	<0.001	0.0089	<0.0004	<0.01	<0.00009	<0.005	<0.0005	<0.0009	<0.1	<0.1	<0.0005	<0.002	<0.0005	<0.001	<0.002
SW11B	24-Oct-16	0.2	<0.0001	0.0003	0.013	<0.002	0.007	0.0001	<0.002	0.0032	0.009	<0.1	0.759	0.00335	0.489	<0.0001	<0.01	<0.001
	8-May-17	0.03	<0.0001	0.0001	0.007	<0.002	0.008	<0.000014	<0.002	<0.0001	<0.002	<0.1	0.05	<0.00002	0.002	<0.0001	<0.01	<0.001
	9-May-18	0.014	<0.0001	0.00011	0.00914	<0.0001	<0.01	<0.00001	<0.0005	<0.0001	<0.001	0.033	<0.05	<0.0001	<0.0005	0.000066	<0.0005	0.00007
	16-May-19	0.000021	<0.0005	<0.001	0.0094	<0.0005	<0.01	<0.0001	<0.005	<0.0005	<0.001	<0.1	<0.01	<0.0005	<0.002	<0.0005	<0.001	<0.002
	20-May-20	0.16	<0.0005	<0.001	0.01	<0.0005	<0.01	<0.0001	<0.005	<0.0005	0.0012	<0.1	0.23	<0.0005	0.016	<0.0005	<0.001	<0.002
	26-May-21	0.96	<0.0005	<0.001	0.015	<0.0004	<0.01	<0.00009	<0.005	0.0011	0.0043	<0.1	1.4	0.00092	0.086	<0.0005	0.0014	<0.002
	25-May-22	0.14	<0.0005	<0.001	0.01	<0.0004	<0.01	<0.00009	<0.005	<0.0005	0.00091	<0.1	0.21	<0.0005	0.015	<0.0005	<0.001	<0.002
	17-May-23	0.041	<0.0005	<0.001	0.0088	<0.0004	<0.01	<0.00009	<0.005	<0.0005	0.0011	<0.1	<0.1	<0.0005	0.0028	<0.0005	<0.001	<0.002
SW11C	24-Oct-16	0.06	<0.0001	0.0002	0.01	<0.002	0.005	<0.00002	<0.002	0.0002	<0.002	<0.1	0.037	0.00011	0.009	0.0001	<0.01	<0.001
	8-May-17	0.02	<0.0001	0.0001	0.007	<0.002	0.007	<0.000014	<0.002	<0.0001	<0.002	<0.5	0.033	<0.00002	<0.001	<0.0001	<0.01	<0.001
	9-May-18	<0.01	<0.0001	0.00012	0.009	<0.0001	<0.01	<0.00001	<0.0005	<0.0001	<0.001	0.035	<0.05	<0.0001	<0.0005	0.000075	<0.0005	0.000078
	16-May-19	0.000011	<0.0005	<0.001	0.0092	<0.0005	<0.01	<0.0001	<0.005	<0.0005	<0.001	<0.1	<0.01	<0.0005	<0.002	<0.0005	<0.001	<0.002
	20-May-20	0.13	<0.0005	<0.001	0.011	<0.0005	<0.01	<0.0001	<0.005	<0.0005	0.0014	<0.1	0.14	0.0017	0.045	<0.0005	<0.001	<0.002
	26-May-21	0.016	<0.0005	<0.001	0.0098	<0.0004	<0.01	<0.00009	<0.005	<0.0005	<0.0009	<0.1	<0.1	<0.0005	<0.002	<0.0005	<0.001	<0.002

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	Total Metals										Oil & Grease		
		Silicon	Silver	Strontium	Thallium	Titanium	Tungsten	Uranium	Vanadium	Zinc	Zirconium	Animal / Vegetable	Mineral	Total
		Si	Ag	Sr	Tl	Ti	W	U	V	Zn	Zr			
	PWQO	nc	0.0001	nc	0.0003	nc	0.03 *i*	0.005 *i*	0.006 *i*	0.03	0.004 *i*	*f*	*f*	*f*
SW10	24-May-22		<0.00009	0.11	0.00012	0.1	<0.001	0.00021	0.0068	0.023	<0.001			
(cont'd)	17-May-23		<0.00009	0.086	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
SW11	16-Nov-16		<0.00002	0.092	<0.00005	<0.005	<0.01	0.00012	<0.005	<0.005	<0.003			
	8-May-17		<0.00002		<0.00005	<0.005	<0.01	0.00011	<0.005	<0.005	<0.003			
	9-May-18		<0.00005	0.0623	<0.00001	0.00061	<0.0001	0.000129	<0.0005	<0.003	<0.0003			
	16-May-19		<0.0001	0.058	<0.00005	<0.005	<0.001	0.00011	<0.0005	<0.005	<0.001			
	20-May-20		<0.0001	0.055	<0.00005	<0.005	<0.001	0.00012	<0.0005	<0.005	<0.001			
	26-May-21		<0.00009	0.07	<0.00005	<0.005	<0.001	0.00012	<0.0005	<0.005	<0.001			
	25-May-22		<0.00009	0.068	<0.00005	<0.005	<0.001	0.00012	<0.0005	<0.005	<0.001			
	17-May-23		<0.00009	0.063	<0.00005	<0.005	<0.001	0.00012	<0.0005	<0.005	<0.001			
SW11A	25-Oct-16 (1)													
	8-May-17		<0.00002		<0.00005	<0.005	<0.01	0.0001	<0.005	<0.005	<0.003			
	9-May-18		<0.00005	0.0594	<0.00001	0.00048	<0.0001	0.000137	<0.0005	<0.003	<0.0003			
	16-May-19		<0.0001	0.055	<0.00005	<0.005	<0.001	0.00011	<0.0005	<0.005	<0.001			
	20-May-20		<0.0001	0.057	<0.00005	<0.005	<0.001	0.00014	<0.0005	<0.005	<0.001			
	26-May-21		<0.00009	0.066	<0.00005	<0.005	<0.001	0.00013	<0.0005	<0.005	<0.001			
	25-May-22		<0.00009	0.074	<0.00005	0.021	<0.001	0.00016	0.0018	0.0054	<0.001			
	17-May-23		<0.00009	0.062	<0.00005	<0.005	<0.001	0.00011	<0.0005	<0.005	<0.001			
SW11B	24-Oct-16		<0.00002	0.102	<0.00005	0.007	<0.01	0.00025	<0.005	0.008	<0.003			
	8-May-17		<0.00002		<0.00005	<0.005	<0.01	0.0001	<0.005	<0.005	<0.003			
	9-May-18		<0.00005	0.0626	<0.00001	0.00045	<0.0001	0.000136	<0.0005	<0.003	<0.0003			
	16-May-19		<0.0001	0.058	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	20-May-20		<0.0001	0.058	<0.00005	0.0062	<0.001	0.00013	0.00057	<0.005	<0.001			
	26-May-21		<0.00009	0.075	<0.00005	0.032	<0.001	0.00018	0.0022	<0.005	<0.001			
	25-May-22		<0.00009	0.069	<0.00005	0.0055	<0.001	0.00013	<0.0005	<0.005	<0.001			
	17-May-23		<0.00009	0.062	<0.00005	<0.005	<0.001	0.00011	<0.0005	<0.005	<0.001			
SW11C	24-Oct-16		<0.00002	0.087	<0.00005	<0.005	<0.01	0.00016	<0.005	<0.005	<0.003			
	8-May-17		<0.00002		<0.00005	<0.005	<0.01	0.00011	<0.005	<0.005	<0.003			
	9-May-18		<0.00005	0.0627	<0.00001	<0.0003	<0.0001	0.000137	<0.0005	<0.003	<0.0003			
	16-May-19		<0.0001	0.057	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	20-May-20		<0.0001	0.057	<0.00005	0.0054	<0.001	0.00013	<0.0005	<0.005	<0.001			
	26-May-21		<0.00009	0.069	<0.00005	<0.005	<0.001	0.00013	<0.0005	<0.005	<0.001			

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	BTEX & Hydrocarbons (µg/L)									
		Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-Xylene	Total Xylenes	F1 (C6-C10)	F2 (C10-C16)	F3 (C16-C34)	F4 (C34-C50)
	PWQO	100 *i*	0.8 *i*	8 *i*	2 *i*	40 *i*	nc	nc	nc	nc	nc
SW10 (cont'd)	24-May-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	17-May-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
SW11	16-Nov-16	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	8-May-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	9-May-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	16-May-19	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	20-May-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	26-May-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	25-May-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	17-May-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
SW11A	25-Oct-16 (1)										
	8-May-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	9-May-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	16-May-19	<0.2	<0.2	<0.2	<0.4	<0.02	<0.4	<25	<100	<200	<200
	20-May-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	26-May-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	25-May-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	17-May-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
SW11B	24-Oct-16	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	8-May-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	9-May-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	16-May-19	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	20-May-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	26-May-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	25-May-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	17-May-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
SW11C	24-Oct-16	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	8-May-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	9-May-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	16-May-19	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	20-May-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	26-May-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	General Parameters							Major Ions							Nutrients and Organic Indicators						
		pH (SU)	EC (µS/cm)	T S S	T D S	Hardness	Colour (TCU)	Turbidity (NTU)	Alkalinity	Chloride Cl	Sulphate SO_4	Calcium Ca	Magnesium Mg	Sodium Na	Potassium K	Nitrate NO_3	Nitrite NO_2	Ammonia NH_3	Un-ionized Ammonia	T K N	T P P	Phenols
	PWQO	6.5 - 8.5	nc	nc	nc	nc	nc	*b*	*c*	nc	nc	nc	nc	nc	nc	nc	nc	nc	0.02 *d*	nc	0.03 *i e*	0.001
SW11C	25-May-22	7.69	438.4	<10		230	3		240	1.6	3.2	64	19	1	0.7	0.25	<0.01	<0.05	<0.001	<0.1	0.009	
(cont'd)	17-May-23			<10		240	4		220	<1	3.6	60	19	0.93	0.69	0.25	<0.01	<0.05	<0.001	<0.1	<0.004	
SW11D	24-Oct-16	8.35	435	38	233	242	4		226	1.2	7	66.3	18.6	1	0.5	0.4	0.2	0.01	<0.001	1	0.12	
	8-May-17	8.28	317	3	160	161	9		162	0.8	2	43.3	12.9	0.9	0.7	0.4	<0.1	<0.01	<0.001	0.7	0.03	
	9-May-18	8.28	317	2.3	215	198	6.1	0.79	194	0.97	2.55	53.1	15.1	0.885	0.871	0.364	<0.01	0.1	0.001	<0.15	0.0103	
	16-May-19			<10		200	6		190	1.5	<1	55	15	0.86	0.85	0.25	<0.01	<0.05	<0.001	0.13	0.006	
	20-May-20			<10	190	200	6	0.3	200	1.5	1.1	56	16	0.94	0.8	0.47	<0.01	<0.05	<0.001	0.16	0.022	
	26-May-21			<10	201.3	220	8		220	1.7	<1	64	16			0.41	<0.01	<0.05	<0.001	<0.1	0.042	
	25-May-22	8.15	398.5	10		200	6		210	1.1	1.4	61	16	0.75	0.55	0.66	<0.01	<0.05	<0.001	<0.1	0.034	
	17-May-23			<10		240	5		220	<1	3.8	61	17	0.91	0.62	0.34	<0.01	<0.05	<0.001	<0.1	0.009	
SW11E	24-Oct-16	8.41	439	100	239	248	7		230	2.2	7	67.8	19.2	1.6	0.8	0.2	0.2	0.02	<0.001	0.4	0.08	
	9-May-17	8.26	323	5	176	190	8		171	<0.5	3	52.4	14.3	0.8	0.8	0.4	<0.1	<0.01	<0.001	0.2	0.02	
	9-May-18	8.39	336	3.2	214	194	8.1	2.21	196	1.04	2.52	54.2	14.8	0.881	0.885	0.26	<0.01	<0.02	<0.001	<0.15	0.012	
	16-May-19			<10		200	8		190	1.2	<1	57	15	0.95	0.91	0.23	<0.01	<0.05	<0.002	0.24	0.012	
	20-May-20			10	185	200	7	0.6	200	1.4	1.6	59	17	1	1	0.29	<0.01	<0.05	<0.002	0.21	<0.02	
	26-May-21			25	218.3	220	5		230	1.8	6.4	64	18			0.25	<0.01	<0.05	<0.002	<0.1	0.043	
	25-May-22	8.43	412.3	180		220	5		230	1.2	2	75	20	1.1	1.4	0.26	<0.01	0.1	0.005	0.16	0.069	
	17-May-23			20		240	6		220	<1	4.1	58	17	0.84	0.67	0.22	<0.01	<0.05	<0.002	<0.1	0.02	
SW14	24-Oct-16	8.22	460	14	231	219	12		220	10.2	8	55.6	19.4	4.4	1	<0.1	<0.1	0.03	<0.001	0.3	0.01	
	9-May-17	8.21	458	11	247	253	7		246	1.2	3	74.5	16.3	1.4	0.9	0.4	<0.1	<0.01	<0.001	0.3	0.03	
	8-May-18	8.38	366	3.9	230	200	8.2	3.06	193	8.54	3.89	56.6	15.4	5.87	1.12	0.51	<0.01	0.027	0.001	<0.15	0.0115	
	14-May-19			<10		210	8		190	9	4	61	16	5.9	1.1	0.41	<0.01	0.05	0.002	0.13	0.016	
	20-May-20			11	205	210	7	1.2	210	6.4	5.2	58	17	3.5	1	0.39	<0.01	<0.05	<0.001	0.2	<0.02	
	27-May-21			<10	188.05	340	2		230	6.6	5	63	20			0.25	<0.01	<0.05	<0.002	0.19	0.01	
	26-May-22	8.22	413.9	<10		220	7		220	5.4	4.4	59	19	3.4	0.94	0.19	<0.01	<0.05	<0.003	0.15	0.019	
	16-May-23			<10		230	7		220	9.9	5.8	60	18	7	0.99	0.19	<0.01	<0.05	<0.003	0.14	0.008	
SW15	24-Oct-16	8.27	437	<3	224	220	7		226	3	5	58.2	18.3	1.7	0.8	0.3	0.2	0.04	<0.001	0.2	0.01	
	9-May-17	8.27	365	14.7	206	220	7		183	5.8	3	60.4	16.8	5.2	0.9	0.8	<0.1	<0.01	<0.001	0.2	0.03	
	8-May-18	8.28	491	3.8	290	288	6.6	2.19	262	2.06	2.96	84.6	17.4	1.65	1.43	0.412	<0.01	<0.02	<0.001	<0.15	0.0178	
	14-May-19			15		280	5		260	3	3.9	85	18	1.9	2.1	0.43	<0.01	<0.05	<0.001	0.2	0.036	
	20-May-20			<10	295	270	5	0.7	280	5	5.6	82	18	2.1	1.7	0.64	<0.01	<0.05	<0.001	0.29	<0.02	
	27-May-21			<10	304.15	280	20		320	3.5	3.1	92	21			0.16	<0.01	<0.05	<0.001	0.19	0.013	

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	Total Metals																
		Aluminum Al	Antimony Sb	Arsenic As	Barium Ba	Beryllium Be	Boron B	Cadmium Cd	Chromium Cr	Cobalt Co	Copper Cu	Fluoride F	Iron Fe	Lead Pb	Manganese Mn	Molybdenum Mo	Nickel Ni	Selenium Se
	PWQO	0.075 *i*	0.02 *i*	0.1 *i*	nc	1.1	0.2	0.0005 *i*	0.0089	0.0009	0.005 *i*	nc	0.3	0.005 *i*	nc	0.04	0.025	0.1
SW11C	25-May-22	0.027	<0.0005	<0.001	0.0095	<0.0004	<0.01	<0.00009	<0.005	<0.0005	<0.0009	<0.1	<0.1	<0.0005	<0.002	<0.0005	<0.001	<0.002
(cont'd)	17-May-23	0.073	<0.0005	<0.001	0.01	<0.0004	<0.01	<0.00009	<0.005	<0.0005	<0.0009	<0.1	0.11	<0.0005	0.0076	<0.0005	<0.001	<0.002
SW11D	24-Oct-16	0.22	<0.0001	0.0005	0.01	<0.002	0.009	0.00004	<0.002	0.0004	0.002	<0.1	0.232	0.0015	0.051	<0.0001	<0.01	<0.001
	8-May-17	0.03	<0.0001	0.0001	0.007	<0.002	0.007	<0.000014	0.003	<0.0001	0.002	<0.1	0.054	<0.00002	0.002	<0.0001	<0.01	<0.001
	9-May-18	0.021	<0.0001	0.00014	0.00866	<0.0001	<0.01	<0.00001	<0.0005	<0.0001	<0.001	0.037	<0.05	<0.0001	0.00072	0.000071	<0.0005	0.000059
	16-May-19	0.016	<0.0005	<0.001	0.0097	<0.0005	<0.01	<0.0001	<0.005	<0.0005	0.0013	<0.1	<0.1	<0.0005	<0.002	<0.0005	0.0022	<0.002
	20-May-20	0.058	<0.0005	<0.001	0.0086	<0.0005	0.01	<0.0001	<0.005	<0.0005	<0.001	<0.1	<0.1	<0.0005	0.0025	<0.0005	<0.001	<0.002
	26-May-21	0.049	<0.0005	<0.001	0.0072	<0.0004	<0.01	<0.00009	<0.005	<0.0005	<0.0009	<0.1	<0.1	<0.0005	<0.002	<0.0005	<0.001	<0.002
	25-May-22	0.11	<0.0005	<0.001	0.0075	<0.0004	<0.01	<0.00009	<0.005	<0.0005	<0.0009	<0.1	0.12	<0.0005	0.0045	<0.0005	<0.001	<0.002
	17-May-23	0.038	<0.0005	<0.001	0.0078	<0.0004	<0.01	<0.00009	<0.005	<0.0005	0.0011	<0.1	<0.1	<0.0005	<0.002	<0.0005	<0.001	<0.002
SW11E	24-Oct-16	0.2	<0.0001	0.0003	0.013	<0.002	0.007	0.00004	<0.002	0.0004	0.003	<0.1	0.239	0.00086	0.092	<0.0001	<0.01	<0.001
	9-May-17	0.07	<0.0001	<0.0001	0.008	<0.002	<0.005	<0.000014	<0.002	<0.0001	0.002	<0.1	0.066	<0.00002	0.004	<0.0001	<0.01	<0.001
	9-May-18	0.068	<0.0001	0.00017	0.00914	<0.0001	<0.01	<0.00001	<0.0005	<0.0001	<0.001	0.035	0.068	<0.0001	0.00418	0.000078	<0.0005	0.000074
	16-May-19	0.066	<0.0005	<0.001	0.0094	<0.0005	<0.01	<0.0001	<0.005	<0.0005	<0.001	<0.1	<0.1	<0.0005	0.0034	<0.0005	<0.001	<0.002
	20-May-20	0.31	<0.0005	<0.001	0.011	<0.0005	0.012	<0.0001	<0.005	<0.0005	<0.001	<0.1	0.34	<0.0005	0.019	<0.0005	<0.001	<0.002
	26-May-21	0.32	<0.0005	<0.001	0.011	<0.0004	<0.01	<0.00009	<0.005	<0.0005	<0.0009	<0.1	0.33	<0.0005	0.017	<0.0005	<0.001	<0.002
	25-May-22	2.5	<0.0005	<0.001	0.02	<0.0004	<0.01	<0.00009	<0.005	0.0017	0.0057	<0.1	3	0.002	0.15	<0.0005	0.0037	<0.002
	17-May-23	0.16	<0.0005	<0.001	0.0088	<0.0004	<0.01	<0.00009	<0.005	<0.0005	<0.0009	<0.1	0.22	<0.0005	0.014	<0.0005	<0.001	<0.002
SW14	24-Oct-16	0.04	<0.0001	0.0005	0.012	<0.002	0.042	<0.00002	<0.002	0.0001	<0.002	<0.1	0.212	0.00004	0.112	<0.0001	<0.01	<0.001
	9-May-17	0.22	<0.0001	<0.0001	0.016	<0.002	0.011	<0.000014	<0.002	<0.0001	<0.002	<0.1	0.251	0.00015	0.032	0.0003	<0.01	<0.001
	8-May-18	0.124	<0.0001	0.00025	0.0105	<0.0001	0.017	<0.00001	<0.0005	<0.0001	<0.001	0.038	0.142	<0.0001	0.0231	0.000124	<0.0005	0.000066
	14-May-19	0.21	<0.0005	<0.001	0.011	<0.0005	0.017	<0.0001	<0.005	<0.0005	<0.001	<0.1	0.21	<0.0005	0.02	<0.0005	<0.001	<0.002
	20-May-20	0.1	<0.0005	<0.001	0.01	<0.0005	0.024	<0.0001	<0.005	<0.0005	<0.001	<0.1	0.14	<0.0005	0.029	<0.0005	<0.001	<0.002
	27-May-21	0.057	<0.0005	<0.001	0.012	<0.0004	0.025	<0.00009	<0.005	<0.0005	<0.0009	<0.1	0.15	<0.0005	0.046	<0.0005	<0.001	<0.002
	26-May-22	0.1	<0.0005	<0.001	0.01	<0.0004	0.026	<0.00009	<0.005	<0.0005	<0.0009	<0.1	0.19	<0.0005	0.041	<0.0005	<0.001	<0.002
	16-May-23	0.055	<0.0005	<0.001	0.01	<0.0004	0.02	<0.00009	<0.005	<0.0005	<0.0009	<0.1	<0.1	<0.0005	0.019	<0.0005	<0.001	<0.002
SW15	24-Oct-16	0.03	<0.0001	0.0003	0.016	<0.002	0.016	<0.00002	<0.002	0.0001	<0.002	0.1	0.028	<0.00002	0.066	0.0001	<0.01	<0.001
	9-May-17	0.09	<0.0001	<0.0001	0.009	<0.002	0.008	<0.000014	<0.002	<0.0001	<0.002	<0.1	0.104	0.00005	0.013	0.0001	<0.01	<0.001
	8-May-18	0.082	<0.0001	0.00025	0.0216	<0.0001	0.02	<0.00001	<0.0005	<0.0001	<0.001	0.043	0.096	<0.0001	0.0488	0.000121	<0.0005	0.000059
	14-May-19	0.4	<0.0005	<0.001	0.022	<0.0005	0.017	<0.0001	<0.005	<0.0005	0.0011	<0.1	0.48	<0.0005	0.046	<0.0005	<0.001	<0.002
	20-May-20	0.095	<0.0005	<0.001	0.023	<0.0005	0.027	<0.0001	<0.005	<0.0005	<0.001	<0.1	<0.1	<0.0005	0.011	<0.0005	<0.001	<0.002
	27-May-21	0.019	<0.0005	<0.001	0.026	<0.0004	0.019	<0.00009	<0.005	<0.0005	<0.0009	<0.1	<0.1	<0.0005	0.47	<0.0005	<0.001	<0.002

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	Total Metals										Oil & Grease		
		Silicon	Silver	Strontium	Thallium	Titanium	Tungsten	Uranium	Vanadium	Zinc	Zirconium	Animal / Vegetable	Mineral	Total
		Si	Ag	Sr	Tl	Ti	W	U	V	Zn	Zr			
	PWQO	nc	0.0001	nc	0.0003	nc	0.03 *i*	0.005 *i*	0.006 *i*	0.03	0.004 *i*	*f*	*f*	*f*
SW11C	25-May-22		<0.00009	0.069	<0.00005	<0.005	<0.001	0.00014	<0.0005	<0.005	<0.001			
(cont'd)	17-May-23		<0.00009	0.061	<0.00005	<0.005	<0.001	0.00012	<0.0005	<0.005	<0.001			
SW11D	24-Oct-16		<0.00002	0.086	<0.00005	<0.005	0.01	0.00012	<0.005	<0.005	<0.003			
	8-May-17		<0.00002		<0.00005	<0.005	<0.01	0.00011	<0.005	<0.005	<0.003			
	9-May-18		<0.00005	0.0626	<0.00001	0.00061	<0.0001	0.000127	<0.0005	<0.003	<0.0003			
	16-May-19		<0.0001	0.054	<0.00005	<0.005	<0.001	0.0001	<0.0005	<0.005	<0.001			
	20-May-20		<0.0001	0.057	<0.00005	<0.005	<0.001	0.00012	<0.0005	<0.005	<0.001			
	26-May-21		<0.00009	0.073	<0.00005	<0.005	<0.001	0.00011	<0.0005	<0.005	<0.001			
	25-May-22		<0.00009	0.068	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	17-May-23		<0.00009	0.066	<0.00005	<0.005	<0.001	0.0001	0.00087	<0.005	<0.001			
SW11E	24-Oct-16		<0.00002	0.089	<0.00005	<0.005	0.01	0.00017	<0.005	<0.005	<0.003			
	9-May-17		<0.00002	0.057	<0.00005	<0.005	<0.01	0.00013	<0.005	<0.005	0.005			
	9-May-18		<0.00005	0.063	<0.00001	0.00131	<0.0001	0.000138	<0.0005	<0.003	<0.0003			
	16-May-19		<0.0001	0.06	<0.00005	<0.005	<0.001	0.00011	<0.0005	<0.005	<0.001			
	20-May-20		<0.0001	0.062	<0.00005	0.0072	<0.001	0.00015	0.00074	<0.005	<0.001			
	26-May-21		<0.00009	0.071	<0.00005	0.0072	<0.001	0.00018	0.00071	<0.005	<0.001			
	25-May-22		<0.00009	0.081	<0.00005	0.035	<0.001	0.00033	0.0037	0.011	0.0016			
	17-May-23		<0.00009	0.058	<0.00005	<0.005	<0.001	0.00013	<0.0005	<0.005	<0.001			
SW14	24-Oct-16		<0.00002	0.178	<0.00005	<0.005	0.01	0.0003	<0.005	<0.005	<0.003			
	9-May-17		<0.00002	0.146	<0.00005	0.005	<0.01	0.00045	<0.005	<0.005	0.007			
	8-May-18		<0.00005	0.0951	<0.00001	0.00289	<0.0001	0.000262	<0.0005	<0.003	<0.0003			
	14-May-19		<0.0001	0.081	<0.00005	0.01	<0.001	0.00022	0.00076	<0.005	<0.001			
	20-May-20		<0.0001	0.091	<0.00005	<0.005	<0.001	0.00025	<0.0005	<0.005	<0.001			
	27-May-21		<0.00009	0.12	<0.00005	<0.005	<0.001	0.00027	0.00059	<0.005	<0.001			
	26-May-22		<0.00009	0.11	<0.00005	<0.005	<0.001	0.00028	0.00068	0.0092	<0.001			
	16-May-23		<0.00009	0.093	<0.00005	<0.005	<0.001	0.00027	<0.0005	0.0056	<0.001			
SW15	24-Oct-16		<0.00002	0.145	<0.00005	<0.005	0.01	0.00032	<0.005	<0.005	<0.003			
	9-May-17		<0.00002	0.084	<0.00005	<0.005	<0.01	0.00025	<0.005	<0.005	0.005			
	8-May-18		<0.00005	0.186	<0.00001	0.00268	<0.0001	0.000422	<0.0005	<0.003	<0.0003			
	14-May-19		<0.0001	0.16	<0.00005	0.015	<0.001	0.00045	0.00013	<0.0005	<0.0001			
	20-May-20		<0.0001	0.17	<0.00005	<0.005	<0.001	0.0005	0.00063	<0.005	0.0038			
	27-May-21		<0.00009	0.2	<0.00005	<0.005	<0.001	0.00052	<0.0005	<0.005	<0.001			

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	BTEX & Hydrocarbons (µg/L)									
		Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-Xylene	Total Xylenes	F1 (C6-C10)	F2 (C10-C16)	F3 (C16-C34)	F4 (C34-C50)
	PWQO	100 *i*	0.8 *i*	8 *i*	2 *i*	40 *i*	nc	nc	nc	nc	nc
SW11C	25-May-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
(cont'd)	17-May-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
SW11D	24-Oct-16	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	8-May-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	9-May-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	16-May-19	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	20-May-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	26-May-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	25-May-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	17-May-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
SW11E	24-Oct-16	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	9-May-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	9-May-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	16-May-19	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	20-May-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	26-May-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	25-May-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	17-May-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
SW14	24-Oct-16	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	9-May-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	8-May-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	14-May-19	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	20-May-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	27-May-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	26-May-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	16-May-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
SW15	24-Oct-16	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	9-May-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	8-May-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	14-May-19	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	20-May-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	27-May-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	General Parameters							Major Ions							Nutrients and Organic Indicators						
		pH (SU)	EC (µS/cm)	T S S	T D S	Hardness	Colour (TCU)	Turbidity (NTU)	Alkalinity	Chloride Cl	Sulphate SO_4	Calcium Ca	Magnesium Mg	Sodium Na	Potassium K	Nitrate NO_3	Nitrite NO_2	Ammonia NH_3	Un-ionized Ammonia	T K N	T P P	Phenols
	PWQO	6.5 - 8.5	nc	nc	nc	nc	nc	*b*	*c*	nc	nc	nc	nc	nc	nc	nc	nc	nc	0.02 *d*	nc	0.03 *i e*	0.001
SW15	25-May-22 (1)																					
(cont'd)	16-May-23			<10		330	6		300	5.3	5.9	96	20	1.9	1.4	0.94	<0.01	<0.05		<0.1	0.01	
SW16	25-Oct-16	8.15	461	20	260	277	11		235	4.3	6	73.4	22.7	1.6	2	0.1	<0.1	0.01	<0.001	0.4	0.12	
	9-May-17	8.21	378	5	199	207	10		193	1.6	4	57.6	15.4	1.3	0.4	0.5	<0.1	<0.01	<0.001	0.2	0.02	
	8-May-18	8.27	363	<2	227	211	9.5	1.69	211	2.52	4.03	57.2	15.9	1.42	0.705	0.386	<0.01	0.046	0.001	<0.15	0.0118	
	14-May-19			<10		220	11		180	2.4	1.5	56	15	1.3	0.66	0.3	<0.01	<0.05	<0.002	0.14	0.023	
	20-May-20			<10	205	220	9	0.7	220	3	3.6	63	17	1.6	0.63	0.22	<0.01	<0.05	<0.001	<0.1	<0.02	
	26-May-21			19	259.05	260	11		270	1.5	<1	74	21			<0.1	<0.01	<0.05	<0.001	0.14	0.056	
	25-May-22	7.6	471.4	10		250	8		260	1.4	1.3	71	21	1.5	0.4	<0.1	<0.01	<0.05	<0.001	0.14	0.023	
	16-May-23			60		240	7		240	2.5	4.5	71	19	1.9	1.3	<0.1	<0.01	<0.05	<0.001	0.14	0.058	
SW17	25-Oct-16	8.29	428	8	228	234	6		196	11.4	10	56.5	22.5	7.7	1.2	0.2	<0.1	<0.01	<0.001	0.4	0.02	
	9-May-17	8.26	399	5	211	215	5		199	3.4	6	60	15.7	2.6	0.5	0.7	<0.1	<0.01	<0.001	0.2	0.01	
	8-May-18	8.34	389	<2	217	219	3.2	0.86	219	5.81	7.12	60.5	17	4.07	0.757	0.436	<0.01	<0.02	<0.001	<0.15	0.0114	
	14-May-19			<10		220	3		200	7.1	7.5	59	16	4.3	0.67	0.26	<0.01	0.05	0.002	0.13	0.008	
	20-May-20			10	210	230	4	0.2	240	3.7	5.9	74	16	2.2	0.58	0.16	<0.01	<0.05	<0.001	<0.1	<0.02	
	26-May-21			<10	235.4	230	7		230	8.2	8.6	63	19			0.19	<0.01	<0.05	<0.003	0.12	0.017	
	25-May-22	8.1	444.4	17		220	5		230	7.1	7.2	62	19	4.4	0.76	0.23	<0.01	<0.05	<0.002	0.13	0.021	
	16-May-23			<10		250	4		230	5.2	7.4	66	20	4.4	0.67	0.2	<0.01	<0.05	<0.002	0.1	0.007	
SW17A	25-Oct-16	8.41	443	8	244	263	5		229	2.9	7	71.1	20.8	1.6	1.1	0.6	<0.1	0.01	<0.001	0.2	0.01	
	9-May-17	8.38	377	7	203	210	4		195	1.7	3	60.7	14.2	1	0.7	1	<0.1	<0.01	<0.001	0.2	0.01	
	8-May-18	8.39	370	7.6	230	214	3.4	2.56	216	3.2	3.9	62.6	14.9	1.77	0.916	0.828	<0.01	0.064	0.003	<0.15	0.009	
	14-May-19			<10		240	<2		220	3.6	4.1	68	17	1.3	0.85	0.75	3.6	<0.05	<0.002	<0.1	<0.02	
	20-May-20			11	220	240	2	0.3	240	3.6	5.4	72	19	1.5	0.91	0.72	<0.01	<0.05	<0.002	0.16	<0.02	
	26-May-21			<10	240.19	240	4		240	3.5	5	71	19			0.6	<0.01	<0.05	<0.002	<0.1	0.013	
	26-May-22	8.29	453.4	28		250	4		250	11	10	78	19	6.6	0.8	0.29	<0.01	<0.05	<0.002	<0.1	0.043	
	16-May-23			<10		270	3		240	3.8	4.4	71	19	1.4	0.9	0.53	<0.01	<0.05	<0.002	<0.1	<0.004	
SW18	24-Oct-16	8.42	494	4	261	257	10		253	4.4	10	68.6	20.8	2.8	0.8	0.2	0.2	0.04	0.001	0.2	<0.01	
	9-May-17	8.39	395	5	219	240	5		206	1.4	4	69.5	16	1.4	0.7	0.6	<0.1	<0.01	<0.001	0.2	0.01	
	8-May-18	8.41	379	7.1	229	222	8.2	3.39	231	2.5	4.06	63.7	15.8	1.58	0.835	0.564	<0.01	0.065	0.003	<0.15	0.0081	
	14-May-19			<10		230	3		220	3.1	4.9	63	16	1.5	0.69	0.35	<0.01	<0.05	<0.002	0.13	<0.02	
	20-May-20			<10	225	230	3	0.4	230	3.4	6.3	69	17	2	0.69	0.33	<0.01	<0.05	<0.002	0.15	<0.02	
	27-May-21			13	237.6	250	3		240	3.8	5.1	72	21			0.3	<0.01	<0.05	<0.001	0.11	0.007	

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	Total Metals																
		Aluminum Al	Antimony Sb	Arsenic As	Barium Ba	Beryllium Be	Boron B	Cadmium Cd	Chromium Cr	Cobalt Co	Copper Cu	Fluoride F	Iron Fe	Lead Pb	Manganese Mn	Molybdenum Mo	Nickel Ni	Selenium Se
	PWQO	0.075 *i*	0.02 *i*	0.1 *i*	nc	1.1	0.2	0.0005 *i*	0.0089	0.0009	0.005 *i*	nc	0.3	0.005 *i*	nc	0.04	0.025	0.1
SW15	25-May-22 (1)																	
(cont'd)	16-May-23	0.036	<0.0005	<0.001	0.029	<0.0004	0.022	<0.00009	<0.005	<0.0005	0.0011	<0.1	<0.1	<0.0005	0.016	<0.0005	<0.001	<0.002
SW16	25-Oct-16	0.06	<0.0001	0.0033	0.026	<0.002	0.043	<0.00002	<0.002	0.0005	<0.002	0.2	7.37	0.00015	1.45	<0.0001	<0.01	<0.001
	9-May-17	0.08	<0.0001	<0.0001	0.007	<0.002	0.012	<0.000014	<0.002	<0.0001	<0.002	<0.1	0.142	0.00004	0.021	0.0001	<0.01	<0.001
	8-May-18	0.053	<0.0001	0.00028	0.00778	<0.0001	0.022	<0.00001	<0.0005	<0.0001	<0.001	0.047	0.078	<0.0001	0.0227	0.000095	<0.0005	0.000052
	14-May-19	0.15	<0.0005	<0.001	0.0069	<0.0005	0.018	<0.0001	<0.005	<0.0005	<0.001	<0.1	0.16	0.0057	0.024	0.0057	<0.001	<0.002
	20-May-20	0.052	<0.0005	<0.001	0.0078	<0.0005	0.03	<0.0001	<0.005	<0.0005	<0.001	<0.1	0.16	<0.0005	0.056	<0.0005	<0.001	<0.002
	26-May-21	0.42	<0.0005	<0.001	0.014	<0.0004	0.036	<0.00009	<0.005	<0.0005	0.0013	<0.1	1.3	<0.0005	0.39	<0.0005	<0.001	<0.002
	25-May-22	0.11	<0.0005	<0.001	0.0095	<0.0004	0.028	<0.00009	<0.005	<0.0005	<0.0009	<0.1	0.48	<0.0005	0.2	<0.0005	<0.001	<0.002
	16-May-23	2.8	<0.0005	0.0012	0.023	<0.0004	0.027	<0.00009	<0.005	0.0015	0.0058	<0.1	3.5	0.0016	0.21	<0.0005	0.0034	<0.002
SW17	25-Oct-16	0.05	<0.0001	0.0005	0.01	<0.002	0.057	<0.00002	0.01	0.0002	<0.002	0.2	0.29	0.00015	0.077	0.0013	<0.01	<0.001
	9-May-17	0.04	<0.0001	<0.0001	0.008	<0.002	0.01	<0.000014	0.005	<0.0001	<0.002	<0.1	0.046	<0.00002	0.006	0.0001	<0.01	<0.001
	8-May-18	0.036	<0.0001	0.00021	0.00992	<0.0001	0.024	<0.00001	<0.0005	<0.0001	<0.001	0.046	<0.05	<0.0001	0.00871	0.000146	<0.0005	0.000054
	14-May-19	0.041	<0.0005	<0.001	0.009	<0.0005	0.024	<0.0001	<0.005	<0.0005	<0.001	<0.1	<0.1	<0.0005	0.015	<0.0005	<0.001	<0.002
	20-May-20	0.092	<0.0005	<0.001	0.012	<0.0005	0.031	<0.0001	<0.005	<0.0005	<0.001	<0.1	0.25	<0.0005	0.043	<0.0005	<0.001	<0.002
	26-May-21	0.15	<0.0005	<0.001	0.012	<0.0004	0.033	<0.00009	<0.005	<0.0005	0.00091	<0.1	0.2	<0.0005	0.037	<0.0005	<0.001	<0.002
	25-May-22	0.23	<0.0005	<0.001	0.011	<0.0004	0.029	<0.00009	<0.005	<0.0005	0.0014	<0.1	0.32	<0.0005	0.049	<0.0005	<0.001	<0.002
	16-May-23	0.085	<0.0005	<0.001	0.01	<0.0004	0.027	<0.00009	<0.005	<0.0005	<0.0009	<0.1	0.1	<0.0005	0.016	<0.0005	<0.001	<0.002
SW17A	25-Oct-16	0.05	<0.0001	0.0002	0.01	<0.002	0.01	<0.00002	<0.002	0.0002	<0.002	<0.1	0.152	0.00011	0.055	0.0001	<0.01	<0.001
	9-May-17	0.06	<0.0001	<0.0001	0.009	<0.002	<0.005	<0.000014	<0.002	<0.0001	<0.002	<0.1	0.085	0.00023	0.01	0.0005	<0.01	<0.001
	8-May-18	0.052	<0.0001	0.00016	0.01	<0.0001	0.011	<0.00001	<0.0005	<0.0001	<0.001	0.039	0.074	0.00011	0.00973	0.000087	<0.0005	<0.00005
	14-May-19	0.033	<0.0005	<0.001	0.00092	<0.0005	<0.01	<0.0001	<0.005	<0.0005	<0.001	<0.1	<0.1	<0.0005	<0.0054	<0.0005	<0.001	<0.002
	20-May-20	0.076	<0.0005	<0.001	0.011	<0.0005	0.013	<0.0001	<0.005	<0.0005	<0.001	<0.1	<0.1	<0.0005	0.012	<0.0005	<0.001	<0.002
	26-May-21	0.08	<0.0005	<0.001	0.011	<0.0004	<0.01	<0.00009	<0.005	<0.0005	<0.0009	<0.1	0.13	<0.0005	0.015	<0.0005	<0.001	<0.002
	26-May-22	0.21	<0.0005	<0.001	0.015	<0.0004	0.049	<0.00009	<0.005	<0.0005	0.0018	<0.1	0.31	<0.0005	0.027	<0.0005	<0.001	<0.002
	16-May-23	0.053	<0.0005	<0.001	0.011	<0.0004	<0.01	<0.00009	<0.005	<0.0005	<0.0009	<0.1	<0.1	<0.0005	0.0098	<0.0005	<0.001	<0.002
SW18	24-Oct-16	0.03	<0.0001	0.0002	0.012	<0.002	0.026	<0.00002	<0.002	0.0001	<0.002	0.1	0.014	<0.00002	0.004	<0.0001	<0.01	<0.001
	9-May-17	0.07	<0.0001	<0.0001	0.011	<0.002	0.005	<0.000014	<0.002	<0.0001	<0.002	<0.1	0.086	0.00006	0.018	<0.0001	<0.01	<0.001
	8-May-18	0.135	<0.0001	0.0002	0.0119	<0.0001	0.014	<0.00001	<0.0005	<0.0001	<0.001	0.042	0.203	0.00017	0.038	0.000093	0.00053	0.000053
	14-May-19	0.063	<0.0005	<0.001	0.01	<0.0005	0.014	<0.0001	<0.005	<0.0005	<0.001	<0.1	<0.1	<0.0005	0.016	<0.0005	<0.001	<0.002
	20-May-20	0.057	<0.0005	<0.001	0.013	<0.0005	0.025	<0.0001	<0.005	<0.0005	<0.001	<0.1	<0.1	<0.0005	0.023	<0.0005	<0.001	<0.002
	27-May-21	0.046	<0.0005	<0.001	0.012	<0.0004	0.017	<0.00009	<0.005	<0.0005	<0.0009	<0.1	0.11	<0.0005	0.036	<0.0005	<0.001	<0.002

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	Total Metals										Oil & Grease		
		Silicon	Silver	Strontium	Thallium	Titanium	Tungsten	Uranium	Vanadium	Zinc	Zirconium	Animal / Vegetable	Mineral	Total
		Si	Ag	Sr	Tl	Ti	W	U	V	Zn	Zr			
	PWQO	nc	0.0001	nc	0.0003	nc	0.03 *i*	0.005 *i*	0.006 *i*	0.03	0.004 *i*	*f*	*f*	*f*
SW15	25-May-22 (1)													
(cont'd)	16-May-23		<0.00009	0.2	<0.00005	<0.005	<0.001	0.00058	0.0006	0.036	<0.001			
SW16	25-Oct-16		<0.00002	0.221	<0.00005	<0.005	<0.01	0.00026	<0.005	0.011	<0.003			
	9-May-17		<0.00002	0.103	<0.00005	<0.005	<0.01	0.00035	<0.005	<0.005	0.006			
	8-May-18		<0.00005	0.113	<0.00001	0.00136	<0.0001	0.000266	<0.0005	<0.003	<0.0003			
	14-May-19		<0.0001	0.1	<0.00005	<0.005	<0.001	0.00025	0.00061	<0.005	<0.001			
	20-May-20		<0.0001	0.11	<0.00005	<0.005	<0.001	0.00029	<0.0005	<0.005	<0.001			
	26-May-21		<0.00009	0.17	<0.00005	0.011	<0.001	0.0003	0.00088	<0.005	<0.001			
	25-May-22		<0.00009	0.16	<0.00005	<0.005	<0.001	0.00028	<0.0005	<0.005	<0.001			
	16-May-23		<0.00009	0.14	<0.00005	0.046	<0.001	0.0004	0.0045	0.009	<0.001			
SW17	25-Oct-16		<0.00002	0.508	<0.00005	<0.005	0.01	0.00018	<0.005	<0.005	<0.003			
	9-May-17		<0.00002	0.276	<0.00005	<0.005	<0.01	0.00023	<0.005	0.007	0.007			
	8-May-18		<0.00005	0.378	<0.00001	0.00072	<0.0001	0.000217	<0.0005	<0.003	<0.0003			
	14-May-19		<0.0001	0.38	<0.00005	<0.005	<0.001	0.00021	<0.0005	<0.005	<0.001			
	20-May-20		<0.0001	0.24	<0.00005	0.0053	<0.001	0.00032	<0.0005	<0.005	<0.001			
	26-May-21		<0.00009	0.46	<0.00005	0.005	<0.001	0.00023	0.00051	<0.005	<0.001			
	25-May-22		<0.00009	0.41	<0.00005	0.0058	<0.001	0.00019	0.00073	<0.005	<0.001			
	16-May-23		<0.00009	0.39	<0.00005	<0.005	<0.001	0.0002	0.00052	<0.005	<0.001			
SW17A	25-Oct-16		<0.00002	0.118	<0.0005	<0.005	<0.01	0.00015	<0.005	<0.005	<0.003			
	9-May-17		<0.00002	0.071	<0.00005	<0.005	0.02	0.00014	<0.005	<0.005	0.007			
	8-May-18		<0.00005	0.137	<0.00001	0.00187	<0.0001	0.000152	<0.0005	<0.003	<0.0003			
	14-May-19		<0.0001	0.082	<0.00005	<0.0005	<0.001	0.00014	<0.0005	<0.005	<0.001			
	20-May-20		<0.0001	0.086	<0.00005	0.00056	<0.001	0.00016	0.00051	<0.005	<0.001			
	26-May-21		<0.00009	0.095	<0.00005	<0.005	<0.001	0.00016	<0.0005	<0.005	<0.001			
	26-May-22		<0.00009	0.65	<0.00005	0.0061	<0.001	0.00023	0.00062	<0.005	<0.001			
	16-May-23		<0.00009	0.09	<0.00005	<0.005	<0.001	0.00016	<0.0005	<0.005	<0.001			
SW18	24-Oct-16		<0.00002	0.244	<0.00005	<0.005	0.02	0.00026	<0.005	<0.005	<0.003			
	9-May-17		<0.00002	0.134	<0.00005	<0.005	<0.01	0.00023	<0.005	0.007	0.006			
	8-May-18		<0.00005	0.142	<0.00001	0.00343	<0.0001	0.000191	<0.0005	<0.003	<0.0003			
	14-May-19		<0.0001	0.14	<0.00005	<0.005	<0.001	0.00022	<0.0005	<0.005	<0.001			
	20-May-20		<0.0001	0.16	<0.00005	<0.005	<0.001	0.00024	<0.0005	<0.005	<0.001			
	27-May-21		<0.00009	0.18	<0.00005	<0.005	<0.001	0.00016	<0.0005	<0.005	<0.001			

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	BTEX & Hydrocarbons (µg/L)									
		Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-Xylene	Total Xylenes	F1 (C6-C10)	F2 (C10-C16)	F3 (C16-C34)	F4 (C34-C50)
	PWQO	100 *i*	0.8 *i*	8 *i*	2 *i*	40 *i*	nc	nc	nc	nc	nc
SW15	25-May-22 (1)										
(cont'd)	16-May-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
SW16	25-Oct-16	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	9-May-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	8-May-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	14-May-19	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	20-May-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	26-May-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	25-May-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	16-May-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
SW17	25-Oct-16	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	9-May-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	8-May-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	14-May-19	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	20-May-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	26-May-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	25-May-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	16-May-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
SW17A	25-Oct-16	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	9-May-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	8-May-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	14-May-19	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	20-May-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	26-May-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	26-May-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	16-May-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
SW18	24-Oct-16	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	9-May-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	8-May-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	14-May-19	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	20-May-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	27-May-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	General Parameters							Major Ions							Nutrients and Organic Indicators						
		pH (SU)	EC (µS/cm)	T S S	T D S	Hardness	Colour (TCU)	Turbidity (NTU)	Alkalinity	Chloride Cl	Sulphate SO_4	Calcium Ca	Magnesium Mg	Sodium Na	Potassium K	Nitrate NO_3	Nitrite NO_2	Ammonia NH_3	Un-ionized Ammonia	T K N	T P P	Phenols
	PWQO	6.5 - 8.5	nc	nc	nc	nc	nc	*b*	*c*	nc	nc	nc	nc	nc	nc	nc	nc	nc	0.02 *d*	nc	0.03 *i e*	0.001
SW18	26-May-22	8.15	445.8	<10		230	5		230	2.8	4.7	68	19	2	0.69	0.25	<0.01	<0.05	<0.002	<0.1	0.007	
(cont'd)	16-May-23			<10		270	4		230	2	5	72	19	1.9	0.71	0.25	<0.01	<0.05		0.12	0.007	
SW21C	24-Oct-16	8.42	445	12	233	236	3		225	2.2	6	57.9	22.3	0.9	0.3	1.8	0.2	0.01	<0.001	0.2	<0.01	
	8-May-17	8.37	379	12	198	202	5		189	1.5	4	55.9	15.2	0.9	0.3	1.6	<0.1	<0.01	<0.001	2	0.02	
	9-May-18	8.39	376	6.9	234	221	9.7	2.01	211	2.31	3.85	61.3	17.3	0.89	0.376	1.86	<0.01	<0.02	<0.001	<0.15	0.0134	
	16-May-19			<10		230	2		210	2	4.1	61	17	0.91	0.36	1.26	<0.01	<0.05	<0.002	0.13	0.007	
	20-May-20			<10	220	220	2	0.3	220	1.6	4.7	60	19	0.85	0.39	1.09	<0.01	<0.05	<0.001	0.16	<0.02	
	26-May-21			10	221.1	230	4		230	2.2	4.1	68	20			0.61	<0.01	<0.05	<0.001	<0.1	0.08	
	25-May-22	8.3	423.5	<10		220	<2		230	1.3	3.9	62	21	0.78	0.33	0.46	<0.01	<0.05	<0.002	0.14	0.15	
	17-May-23			<10		260	<2		230	<1	3	64	20	0.76	0.33	0.33	<0.01	<0.05	<0.002	<0.1	0.006	
SW24A	25-Oct-16	8.35	533	46	294	290	13		234	17.5	19	79.8	22	11.6	1.5	0.3	<0.1	<0.01	<0.001	0.3	0.03	
	9-May-17	8.3	388	5	208	223	5		194	1.5	4	61.9	16.7	0.8	0.3	1.4	<0.1	<0.01	<0.001	0.2	0.01	
	8-May-18	8.34	398	35.8	232	223	15.4	13.2	233	5.18	6.33	67.3	15.4	3.89	0.71	0.264	<0.01	<0.02	<0.001	<0.15	0.0085	
	16-May-19			<10		230	3		220	6.7	7.7	70	15	4	0.68	0.25	<0.01	<0.05	<0.002	<0.1	0.008	
	20-May-20			<10	220	230	4	0.5	230	10	10	70	16	5.9	0.79	0.3	<0.01	0.061	0.002	0.15	0.02	
	26-May-21			14		260	6		260	11	11	79	18			0.24	<0.01	<0.05		<0.1	0.025	
	25-May-22	8.18	476.4	<10		230	3		240	3.2	4.9	69	20	1.4	0.78	0.53	<0.01	<0.05	<0.001	0.21	0.01	
	16-May-23			<10		290	3		250	11	9.9	73	19	7.3	0.85	0.32	<0.01	<0.05	<0.001	<0.1	0.007	
SW77	25-Oct-16	8.32	460	184	285	345	<2		233	2.2	7	108	18.1	1.3	0.6	1.5	<0.1	0.01	<0.001	5.4	0.81	
	9-May-17	8.16	398	38	207	209	3		195	2.8	3	62.2	12.9	1	<0.1	1.9	<0.1	<0.01	<0.001	0.2	0.02	
	8-May-18	8.23	400	<2	248	226	<2	0.26	230	3.85	2.99	72.5	13.3	1.26	0.207	2.34	<0.01	0.024	<0.001	<0.15	0.0045	
	14-May-19			<10		240	<2		220	3.6	3.6	69	13	1.1	<0.2	1.44	<0.01	<0.05	<0.001	<0.1	<0.02	
	19-May-20			<10	315	230	<2	<0.1	230	1.7	3.7	70	14	1.2	0.29	0.95	<0.01	<0.05	<0.001	<0.1	<0.02	
	27-May-21			180	235.95	260	<2		240	1.7	4.2	78	14			0.7	<0.01	<0.05	<0.001	0.11	0.053	
	25-May-22	8.12	444.3	<10		240	<2		250	1.2	3.6	78	15	1.2	0.28	0.52	<0.01	<0.05	<0.001	<0.1	0.013	
	16-May-23			<10		250	<2		240	<1	3.5	75	14	1.3	0.26	0.46	<0.01	<0.05	<0.001	<0.1	<0.004	
PR Control	25-Oct-16	8.4	456	<3	245	261	10		225	4.1	11	65.5	23.6	3	1.3	0.3	<0.1	<0.01	<0.001	1	0.01	
	8-May-17	8.46	408	10	216	226	8		208	1.7	5	61.5	17.5	1.7	0.7	0.5	<0.1	<0.01	<0.001	2	0.02	
	8-May-18	8.43	398	5.7	245	233	9.7	3.58	250	2.47	6.98	64.5	18.6		0.869	0.447	<0.01	0.101	0.004	<0.15	0.0071	
	14-May-19			<10		250	8		210	2.9	7.6	60	17	1.5	0.77	<0.01	0.36	<0.05	<0.002	0.11	0.009	
	19-May-20	8.31	430	18	285	220	4	0.9	220	3	7.6	62	17	1.8	0.99	0.39	<0.01	<0.05		0.12	<0.02	
	27-May-21			<10	232.1	240	<2		230	3.9	8.5	64	21			0.41	<0.01	<0.05	<0.002	0.18	0.008	

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	Total Metals																
		Aluminum Al	Antimony Sb	Arsenic As	Barium Ba	Beryllium Be	Boron B	Cadmium Cd	Chromium Cr	Cobalt Co	Copper Cu	Fluoride F	Iron Fe	Lead Pb	Manganese Mn	Molybdenum Mo	Nickel Ni	Selenium Se
	PWQO	0.075 *i*	0.02 *i*	0.1 *i*	nc	1.1	0.2	0.0005 *i*	0.0089	0.0009	0.005 *i*	nc	0.3	0.005 *i*	nc	0.04	0.025	0.1
SW18	26-May-22	0.057	<0.0005	<0.001	0.013	<0.0004	0.021	<0.00009	<0.005	<0.0005	<0.0009	<0.1	0.13	<0.0005	0.031	<0.0005	<0.001	<0.002
(cont'd)	16-May-23	0.092	<0.0005	<0.001	0.012	<0.0004	0.016	<0.00009	<0.005	<0.0005	<0.0009	<0.1	0.12	<0.0005	0.022	<0.0005	<0.001	<0.002
SW21C	24-Oct-16	0.03	<0.0001	0.0001	0.005	<0.002	<0.005	<0.00002	<0.002	<0.0001	<0.002	<0.1	0.021	0.00006	0.002	<0.0001	<0.01	<0.001
	8-May-17	0.07	<0.0001	0.0002	0.005	<0.002	0.005	<0.000014	<0.002	<0.0001	<0.002	<0.1	0.096	0.00015	0.004	<0.0001	<0.01	<0.001
	9-May-18	0.082	<0.0001	0.00018	0.00557	<0.0001	<0.01	<0.00001	<0.0005	<0.0001	<0.001	0.034	0.076	0.00013	0.00279	<0.00005	<0.0005	<0.00005
	16-May-19	0.032	<0.0005	<0.001	0.0052	<0.0005	<0.01	<0.0001	<0.005	<0.0005	<0.001	<0.1	<0.1	<0.0005	<0.002	<0.0005	<0.001	<0.002
	20-May-20	0.072	<0.0005	<0.001	0.0052	<0.0005	0.01	<0.0001	<0.005	<0.0005	<0.001	<0.1	<0.1	<0.0005	0.0039	<0.0005	<0.001	<0.002
	26-May-21	0.68	<0.0005	<0.001	0.0093	<0.0004	<0.01	<0.00009	<0.005	<0.0005	0.0013	<0.1	0.77	0.0012	0.037	<0.0005	<0.001	<0.002
	25-May-22	0.1	<0.0005	<0.001	0.0057	<0.0004	<0.01	<0.00009	<0.005	<0.0005	<0.0009	<0.1	0.12	<0.0005	0.0066	<0.0005	<0.001	<0.002
	17-May-23	0.053	<0.0005	<0.001	0.0056	<0.0004	<0.01	<0.00009	<0.005	<0.0005	<0.0009	<0.1	<0.1	0.0018	0.003	<0.0005	<0.001	<0.002
SW24A	25-Oct-16	0.07	<0.0001	0.0002	0.015	<0.002	0.079	<0.00002	<0.002	0.0003	<0.002	0.2	0.123	0.00022	0.052	0.0001	<0.01	<0.001
	9-May-17	0.08	<0.0001	<0.0001	0.006	<0.002	<0.005	<0.000014	<0.002	<0.0001	<0.002	<0.1	0.089	0.00012	0.012	<0.0001	<0.01	<0.001
	8-May-18	0.173	<0.0001	0.00022	0.0123	<0.0001	0.025	<0.00001	<0.0005	0.00012	0.0014	0.05	0.226	0.0002	0.0155	0.000143	<0.0005	0.000059
	16-May-19	0.067	<0.0005	<0.001	0.012	<0.0005	0.024	<0.0001	<0.005	<0.0005	<0.001	<0.1	<0.1	<0.0005	0.0052	<0.0005	<0.001	<0.002
	20-May-20	0.1	<0.0005	<0.001	0.014	<0.0005	0.049	<0.0001	<0.005	<0.0005	0.0021	<0.1	0.14	<0.0005	0.0091	<0.0005	<0.001	<0.002
	26-May-21	0.21	<0.0005	<0.001	0.016	<0.0004	0.046	<0.00009	<0.005	<0.0005	0.0017	<0.1	0.29	<0.0005	0.028	<0.0005	<0.001	<0.002
	25-May-22	0.054	<0.0005	<0.001	0.011	<0.0004	<0.01	<0.00009	<0.005	<0.0005	<0.0009	<0.1	<0.1	<0.0005	0.011	<0.0005	<0.001	<0.002
	16-May-23	0.041	<0.0005	<0.001	0.012	<0.0004	0.036	<0.00009	<0.005	<0.0005	0.0012	<0.1	<0.1	<0.0005	0.0071	<0.0005	<0.001	<0.002
SW77	25-Oct-16	0.92	<0.0001	0.0005	0.026	<0.002	0.006	0.00008	<0.002	0.001	0.005	<0.1	1.33	0.00289	0.381	<0.0001	<0.01	<0.001
	9-May-17	0.07	<0.0001	<0.0001	0.006	<0.002	<0.005	<0.000014	<0.002	<0.0001	<0.002	<0.1	0.051	0.00006	0.005	<0.0001	<0.01	<0.001
	8-May-18	<0.01	<0.0001	<0.0001	0.00706	<0.0001	<0.01	<0.00001	0.00077	<0.0001	<0.001	0.035	<0.05	<0.0001	0.00106	<0.00005	<0.0005	<0.00005
	14-May-19	0.017	<0.0005	<0.001	0.0064	<0.0005	<0.01	<0.0001	<0.005	<0.0005	<0.001	<0.1	<0.1	<0.0005	<0.002	<0.0005	<0.001	<0.002
	19-May-20	0.036	<0.0005	<0.001	0.0074	<0.0005	<0.01	<0.0001	<0.005	<0.0005	<0.001	<0.1	<0.1	<0.0005	0.0025	<0.0005	<0.001	<0.002
	27-May-21	0.042	<0.0005	<0.001	0.0079	<0.0004	<0.01	<0.00009	<0.005	<0.0005	<0.0009	<0.1	<0.1	<0.0005	0.0045	<0.0005	<0.001	<0.002
	25-May-22	0.096	<0.0005	<0.001	0.0084	<0.0004	<0.01	<0.00009	<0.005	<0.0005	<0.0009	<0.1	0.13	<0.0005	0.0068	<0.0005	<0.001	<0.002
	16-May-23	0.0095	<0.0005	<0.001	0.0074	<0.0004	<0.01	<0.00009	<0.005	<0.0005	<0.0009	<0.1	<0.1	<0.0005	<0.002	<0.0005	<0.001	<0.002
PR Control	25-Oct-16	0.02	0.0002	0.0001	0.022	<0.002	0.025	<0.00002	<0.002	0.0002	<0.002	<0.1	<0.005	<0.00002	0.008	<0.0001	<0.01	<0.001
	8-May-17	0.08	<0.0001	0.0001	0.019	<0.002	0.02	<0.000014	0.004	<0.0001	<0.002	<0.1	0.161	0.00006	0.012	0.0001	<0.01	<0.001
	8-May-18	0.091	<0.0001	0.00019	0.0183	<0.0001	<0.021	<0.00001	0.00061	<0.0001	<0.001	0.04	0.102	<0.0001	0.00746	0.000158	<0.0005	<0.00005
	14-May-19	0.11	<0.0005	<0.001	0.017	<0.0005	0.017	<0.0001	<0.005	<0.0005	<0.001	<0.1	0.1	<0.0005	0.0056	<0.0005	<0.001	<0.002
	19-May-20	0.21	<0.0005	<0.001	0.022	<0.0005	0.02	<0.0001	<0.005	<0.0005	0.0012	<0.1	0.26	<0.0005	0.021	<0.0005	<0.001	<0.002
	27-May-21	0.059	<0.0005	<0.001	0.019	<0.0004	0.023	<0.00009	<0.005	<0.0005	<0.0009	<0.1	<0.1	<0.0005	0.0098	<0.0005	<0.001	<0.002

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	Total Metals										Oil & Grease		
		Silicon	Silver	Strontium	Thallium	Titanium	Tungsten	Uranium	Vanadium	Zinc	Zirconium	Animal / Vegetable	Mineral	Total
		Si	Ag	Sr	Tl	Ti	W	U	V	Zn	Zr			
	PWQO	nc	0.0001	nc	0.0003	nc	0.03 *i*	0.005 *i*	0.006 *i*	0.03	0.004 *i*	*f*	*f*	*f*
SW18	26-May-22		<0.00009	0.18	<0.00005	<0.005	<0.001	0.0002	<0.0005	<0.005	<0.001			
(cont'd)	16-May-23		<0.00009	0.17	<0.00005	<0.005	<0.001	0.00021	<0.0005	<0.005	<0.001			
SW21C	24-Oct-16		<0.00002	0.063	<0.00005	<0.005	<0.01	0.00007	<0.005	<0.005	<0.003			
	8-May-17		<0.00002		<0.00005	<0.005	<0.01	0.00006	<0.005	<0.005	<0.003			
	9-May-18		<0.00005	0.067	<0.00001	<0.002	<0.0001	0.000059	<0.0005	<0.003	<0.0003			
	16-May-19		<0.0001	0.06	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	20-May-20		<0.0001	0.06	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	26-May-21		<0.00009	0.067	<0.00005	0.017	<0.001	<0.0001	0.0011	<0.005	<0.001			
	25-May-22		<0.00009	0.064	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	17-May-23		<0.00009	0.064	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
SW24A	25-Oct-16		<0.00002	0.872	<0.00005	<0.005	0.01	0.00026	<0.005	<0.005	0.003			
	9-May-17		<0.00002	0.064	<0.00005	<0.005	<0.01	0.0001	<0.005	<0.005	0.008			
	8-May-18		<0.00005	0.456	<0.00001	0.00357	<0.0001	0.000195	<0.0005	<0.003	<0.0003			
	16-May-19		<0.0001	0.44	<0.00005	<0.005	<0.001	0.00018	<0.0005	<0.005	<0.001			
	20-May-20		<0.0001	0.53	<0.00005	<0.005	<0.001	0.00021	<0.0005	<0.005	<0.001			
	26-May-21		<0.00009	0.65	<0.00005	0.0073	<0.001	0.00024	<0.0005	<0.005	<0.001			
	25-May-22		<0.00009	0.092	<0.00005	<0.005	<0.001	0.00014	<0.0005	<0.005	<0.001			
	16-May-23		<0.00009	0.66	<0.00005	<0.005	<0.001	0.00023	<0.0005	<0.005	<0.001			
SW77	25-Oct-16		<0.00002	0.147	<0.00005	0.009	<0.01	0.00015	<0.005	0.01	<0.003			
	9-May-17		<0.00002	0.077	<0.00005	<0.005	<0.01	0.00008	<0.005	<0.005	0.006			
	8-May-18		<0.00005	0.0994	<0.00001	0.00036	<0.0001	0.000085	<0.0005	<0.003	<0.0003			
	14-May-19		<0.0001	0.091	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	19-May-20		<0.0001	0.094	<0.00005	<0.005	<0.001	0.0001	<0.0005	<0.005	<0.001			
	27-May-21		<0.00009	0.1	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	25-May-22		<0.00009	0.1	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
	16-May-23		<0.00009	0.093	<0.00005	<0.005	<0.001	<0.0001	<0.0005	<0.005	<0.001			
PR Control	25-Oct-16		<0.00002	0.19	<0.00005	<0.005	<0.01	0.00024	<0.005	<0.005	<0.003			
	8-May-17		<0.00002		<0.00005	<0.005	<0.01	0.00027	<0.005	<0.005	<0.003			
	8-May-18		<0.00005	0.135	<0.00001	0.00207	<0.0001	0.000241	<0.0005	<0.003	<0.0003			
	14-May-19		<0.0001	0.12	<0.00005	<0.005	<0.001	0.00022	0.00054	<0.005	<0.001			
	19-May-20		<0.0001	0.14	<0.00005	0.0076	<0.001	0.00026	0.00063	<0.005	<0.001			
	27-May-21		<0.00009	0.16	<0.00005	<0.005	<0.001	0.00023	<0.0005	<0.005	<0.001			

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	BTEX & Hydrocarbons (µg/L)									
		Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-Xylene	Total Xylenes	F1 (C6-C10)	F2 (C10-C16)	F3 (C16-C34)	F4 (C34-C50)
	PWQO	100 *i*	0.8 *i*	8 *i*	2 *i*	40 *i*	nc	nc	nc	nc	nc
SW18 (cont'd)	26-May-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	16-May-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
SW21C	24-Oct-16	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	8-May-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	9-May-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	16-May-19	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	20-May-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	26-May-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	25-May-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	17-May-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
SW24A	25-Oct-16	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	9-May-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	8-May-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	16-May-19								<100	<200	<200
	20-May-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	26-May-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	25-May-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	16-May-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
SW77	25-Oct-16	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	9-May-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	8-May-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	14-May-19	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	19-May-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	27-May-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	25-May-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	16-May-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
PR Control	25-Oct-16	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	8-May-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	8-May-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	14-May-19	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	19-May-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	27-May-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	General Parameters							Major Ions							Nutrients and Organic Indicators						
		pH (SU)	EC (µS/cm)	T S S	T D S	Hardness	Colour (TCU)	Turbidity (NTU)	Alkalinity	Chloride Cl	Sulphate SO_4	Calcium Ca	Magnesium Mg	Sodium Na	Potassium K	Nitrate NO_3	Nitrite NO_2	Ammonia NH_3	Un-ionized Ammonia	T K N	T P P	Phenols
	PWQO	6.5 - 8.5	nc	nc	nc	nc	nc	*b*	*c*	nc	nc	nc	nc	nc	nc	nc	nc	nc	0.02 *d*	nc	0.03 *i e*	0.001
PR Control	24-May-22	8.25	434.4	10		240	5		230	3.7	8.1	62	21	2.2	0.98	0.45	<0.01	<0.05	<0.002	<0.1	0.009	
(cont'd)	17-May-23			<10		260	5		240	2.4	7.5	65	20	2	0.89	0.34	<0.01	<0.05	<0.002	<0.1	0.004	
BC Control	25-Oct-16	8.26	714	<3	406	362	20		228	57.1	61	105	24.2	15.4	3.5	0.5	<0.1	<0.01	<0.001	0.2	0.02	
	9-May-17	8.32	429	9	231	237	13		199	8.3	6	70.1	15	4	0.8	1.6	<0.1	<0.01	<0.001	9	0.02	
	8-May-18	8.36	446	6.7	269	247	15.6	4.4	240	11.3	6.31	70.6	15.7	5.08	1.14	0.83	<0.01	0.033	0.001	<0.15	0.011	
	14-May-19			<10		220	15		200	12	<1	62	14	5.4	0.84	0.48	<0.01	<0.05	<0.002	0.25	0.014	
	19-May-20	8.27	450	13	315	210	17	1.7	210	14	1.9	63	14	6.2	0.9	0.51	<0.01	<0.05		0.2	<0.02	
	27-May-21			<10	279.95	280	7		260	16	8.7	81	19			0.84	<0.01	<0.05	<0.003	0.23	0.012	
	24-May-22	8.27	440.6	10		290	8		260	17	14	84	19	6.3	1.2	0.91	<0.01	<0.05	<0.002	<0.1	0.017	
	17-May-23			10		300	11		250	19	10	76	18	7.8	0.93	0.49	<0.01	<0.05	<0.002	0.17	0.007	

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	*Total Metals*																
		Aluminum **Al**	Antimony **Sb**	Arsenic **As**	Barium **Ba**	Beryllium **Be**	Boron **B**	Cadmium **Cd**	Chromium **Cr**	Cobalt **Co**	Copper **Cu**	Fluoride **F**	Iron **Fe**	Lead **Pb**	Manganese **Mn**	Molybdenum **Mo**	Nickel **Ni**	Selenium **Se**
	PWQO	**0.075** ***i***	**0.02** ***i***	**0.1** ***i***	nc	**1.1**	**0.2**	**0.0005** ***i***	**0.0089**	**0.0009**	**0.005** ***i***	nc	**0.3**	**0.005** ***i***	nc	**0.04**	**0.025**	**0.1**
PR Control	24-May-22	0.12	<0.0005	<0.001	0.02	<0.0004	0.023	<0.00009	<0.005	<0.0005	<0.0009	<0.1	0.14	<0.0005	0.016	<0.0005	<0.001	<0.002
(cont'd)	17-May-23	0.062	<0.0005	<0.001	0.023	<0.0004	0.021	<0.00009	<0.005	<0.0005	<0.0009	<0.1	<0.1	<0.0005	0.0096	<0.0005	<0.001	<0.002
BC Control	25-Oct-16	0.04	<0.0001	0.0014	0.051	<0.002	0.231	<0.00002	<0.002	0.0003	<0.002	0.2	0.023	<0.00002	0.044	0.0001	<0.01	0.006
	9-May-17	0.09	<0.0001	<0.0001	0.02	<0.002	0.01	<0.000014	<0.002	<0.0001	<0.002	<0.1	0.091	0.00003	0.009	0.0001	<0.01	<0.001
	8-May-18	0.154	<0.0001	0.00024	0.0217	<0.0001	0.026	<0.00001	<0.0005	0.0001	<0.001	0.046	0.18	<0.0001	0.0136	0.000125	<0.0005	<0.00005
	14-May-19	0.11	<0.0005	<0.001	0.018	<0.0005	0.017	<0.0001	<0.005	<0.0005	<0.001	<0.1	220	<0.0005	0.013	<0.0005	<0.001	<0.002
	19-May-20	0.16	<0.0005	<0.001	0.02	<0.0005	0.023	<0.0001	<0.005	<0.0005	0.001	<0.1	0.16	<0.0005	0.01	<0.0005	<0.001	<0.002
	27-May-21	0.095	<0.0005	<0.001	0.029	<0.0004	0.043	<0.00009	<0.005	<0.0005	<0.0009	<0.1	0.1	<0.0005	0.014	<0.0005	<0.001	<0.002
	24-May-22	0.16	<0.0005	<0.001	0.031	<0.0004	0.06	<0.00009	<0.005	<0.0005	0.0009	<0.1	0.18	<0.0005	0.026	<0.0005	<0.001	<0.002
	17-May-23	0.1	<0.0005	<0.001	0.025	<0.0004	0.035	<0.00009	<0.005	<0.0005	<0.0009	<0.1	0.12	<0.0005	0.015	<0.0005	<0.001	<0.002

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	Total Metals										Oil & Grease		
		Silicon Si	Silver Ag	Strontium Sr	Thallium Tl	Titanium Ti	Tungsten W	Uranium U	Vanadium V	Zinc Zn	Zirconium Zr	Animal / Vegetable	Mineral	Total
	PWQO	nc	0.0001	nc	0.0003	nc	0.03 *i*	0.005 *i*	0.006 *i*	0.03	0.004 *i*	*f*	*f*	*f*
PR Control (cont'd)	24-May-22		<0.00009	0.15	<0.00005	<0.005	<0.001	0.00024	0.00058	<0.005	<0.001			
	17-May-23		<0.00009	0.15	<0.00005	<0.005	<0.001	0.00029	<0.0005	<0.005	<0.001			
BC Control	25-Oct-16		<0.00002	0.913	<0.00005	<0.005	<0.01	0.00038	<0.005	<0.005	<0.003			
	9-May-17		<0.00002	0.156	<0.00005	<0.005	<0.01	0.00024	<0.005	0.005	0.009			
	8-May-18		<0.00005	0.19	<0.00001	0.00345	<0.0001	0.000227	<0.0005	<0.003	<0.0003			
	14-May-19		<0.0001	0.14	<0.00005	<0.005	<0.001	0.00018	<0.0005	<0.005	<0.001			
	19-May-20		<0.0001	0.16	<0.00005	0.022	<0.001	0.00022	0.00052	<0.005	<0.001			
	27-May-21		<0.00009	0.32	<0.00005	<0.005	<0.001	0.00031	0.0006	<0.005	<0.001			
	24-May-22		<0.00009	0.35	<0.00005	0.0057	<0.001	0.00037	0.00061	<0.005	<0.001			
	17-May-23		<0.00009	0.25	<0.00005	<0.005	<0.001	0.00027	0.00053	<0.005	<0.001			

Table C-4 Surface Water Laboratory Chemical Results

Surface Water Station	Date	BTEX & Hydrocarbons (µg/L)									
		Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-Xylene	Total Xylenes	F1 (C6-C10)	F2 (C10-C16)	F3 (C16-C34)	F4 (C34-C50)
	PWQO	100 *i*	0.8 *i*	8 *i*	2 *i*	40 *i*	nc	nc	nc	nc	nc
PR Control (cont'd)	24-May-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	17-May-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
BC Control	25-Oct-16	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	9-May-17	<0.5	<0.5	<0.5	<1	<0.5	<1.1	<50	<50	<400	<400
	8-May-18	<0.5	<0.5	<0.5	<0.4	<0.3	<0.5	<25	<100	<250	<250
	14-May-19	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	19-May-20	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	27-May-21	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	24-May-22	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200
	17-May-23	<0.2	<0.2	<0.2	<0.4	<0.2	<0.4	<25	<100	<200	<200

Table C-5 Surface Water Laboratory Microbiological Results

Surface Water Station	Date	*Microbiological*		
		Total Coliforms (cfu/100mL)	E.Coli (cfu/100mL)	Heterotrophic Plate Count (cfu/mL)
	PWQO	nc	100	nc
SUMP 1	23-Mar-16	330	131	610
	25-May-16	26	13	>2000
	10-Aug-16	16	5	>2000
	18-Oct-16	(7)	(7)	>2000
	1-Feb-17	(7)	(7)	>2000
	5-Apr-17	<10	0	16
	17-Jul-17	>200	61	>2000
	4-Oct-17	(7)	(7)	>2000
	6-Mar-18	34	0	13
	9-May-18	21	1	81
	5-Sep-18	69	53	470
	6-Dec-18	18	4	33
	9-Mar-19	7	9	7
	10-May-19	41	9	20
	4-Sep-19	49	22	180
	19-Dec-19	20	10	120
	2-Mar-20	66	27	34
	11-Jun-20	22	13	970
	27-Aug-20	(7)	(7)	>5700
	25-Nov-20	84	<2	410
	23-Feb-21	68	16	14
	27-May-21	16	9	200
	11-Aug-21	(7)	(7)	930
	7-Oct-21	140	51	740
	28-Feb-22	6	0	130
	26-May-22	130	3	170
	31-Aug-22	170	110	610
	28-Oct-22	33	2	1600
	23-Feb-23	43	0	560
	17-May-23	29	2	170
	30-Aug-23	(7)	(7)	2300
	31-Oct-23	280	3	790
Sump 2	23-Mar-16	16	0	1360
	25-May-16	50	21	>2000
	10-Aug-16	102	15	>2000
	18-Oct-16	(7)	(7)	>2000
	1-Feb-17	4	0	50
	5-Apr-17	<10	0	60
	17-Jul-17	>200	50	>200
	4-Oct-17	(7)	(7)	>2000
	6-Mar-18	6	1	14
	9-May-18	9	117	55
	5-Sep-18	95	53	150
	6-Dec-18	13	2	46
	17-May-19	4	2	8
	4-Sep-19	(7)	(7)	160
	30-Jun-20	120	20	220

Table C-5 Surface Water Laboratory Microbiological Results

Surface Water Station	Date	*Microbiological*		
		Total Coliforms (cfu/100mL)	E.Coli (cfu/100mL)	Heterotrophic Plate Count (cfu/mL)
	PWQO	nc	100	nc
Sump 2 (cont'd)	27-Aug-20	600	600	5500
	25-Nov-20	18	<2	530
	27-May-21	140	130	470
	11-Aug-21	47	20	880
	7-Oct-21	75	49	580
	28-Feb-22	8	2	9
	26-May-22	(7)	(7)	340
	31-Aug-22	150	98	530
	28-Oct-22	83	23	1900
	23-Feb-23	11	0	79
	17-May-23	31	6	150
	30-Aug-23	(7)	(7)	970
	31-Oct-23	79	1	910
QFSW2	6-Mar-18	34	0	9
	9-May-18	32	5	72
	5-Sep-18	53	14	270
	6-Dec-18	9	2	5
	8-Mar-19	1	1	3
	17-May-19	6	0	2
	4-Sep-19	31	13	130
	19-Dec-19	24	13	60
	2-Mar-20	22	16	11
	11-Jun-20	12	3	900
	27-Aug-20	(7)	(7)	>5700
	25-Nov-20	46	<2	370
	23-Feb-21	52	0	0
	27-May-21	0	0	300
	11-Aug-21	140	86	1100
	7-Oct-21	190	100	970
	28-Feb-22	14	1	27
	24-May-22	79	9	100
	31-Aug-22	130	68	440
	28-Oct-22	39	6	1300
	23-Feb-23	0	0	7
	17-May-23	23	1	220
	30-Aug-23	(7)	(7)	1400
	31-Oct-23	420	6	570
SW10	24-Oct-16	>2000	108	>2000
	8-May-17	60	1	270
	9-May-18	160	14	63
	20-May-20	(7)	(7)	140
	24-May-22	(7)	(7)	570
	17-May-23	(7)	(7)	360
SW11A	8-May-17	52	4	200
	9-May-18	3	0	3
	16-May-19	0	7	4
	20-May-20	6	0	0

Table C-5 Surface Water Laboratory Microbiological Results

Surface Water Station	Date	*Microbiological*		
		Total Coliforms (cfu/100mL)	E.Coli (cfu/100mL)	Heterotrophic Plate Count (cfu/mL)
	PWQO	nc	100	nc
SW11A (cont'd)	26-May-21	4	0	6
	25-May-22	(7)	(7)	500
	17-May-23	2	0	0
SW11B	24-Oct-16	230	9	>2000
	8-May-17	68	0	40
	9-May-18	3	2	1
	16-May-19	93	0	36
	20-May-20	7	0	0
	26-May-21	0	0	39
	25-May-22	48	0	310
	17-May-23	16	0	17
SW11C	24-Oct-16	230	4	500
	8-May-17	74	1	40
	9-May-18	5	0	4
	16-May-19	7	0	4
	20-May-20	52	12	1
	26-May-21	0	0	31
	25-May-22	8	0	17
	17-May-23	11	0	22
SW11D	24-Oct-16	390	81	>2000
	8-May-17	28	0	10
	9-May-18	6	0	5
	16-May-19	3	0	4
	20-May-20	80	20	0
	26-May-21	0	0	16
	25-May-22	47	0	19
	17-May-23	19	0	17
SW11E	24-Oct-16	230	9	>2000
	9-May-17	60	0	160
	9-May-18	41	0	30
	20-May-20	88	42	1
	26-May-21	0	0	160
	25-May-22	(7)	(7)	140
	17-May-23	120	0	350
SW21C	24-Oct-16	160	1	460
	8-May-17	46	11	110
	9-May-18	140	0	70
	16-May-19	19	0	6
	20-May-20	72	27	19
	26-May-21	300	300	290
	25-May-22	(7)	(7)	270
	17-May-23	150	15	74

Table C-6 2023 Surface Water Duplicate Analysis

February 23, 2023				
Parameter	**RDL**	***Original*** **QFSW2**	***Duplicate*** **DUP**	**RPD**
T S S	10	24	< 10	<2 RDL
Hardness	1	380	280	**30**
Colour	2	3	3	<2 RDL
Alkalinity	1	190	260	**31**
Chloride	2	180	14	**171**
Sulphate	1	12	8.1	**39**
Calcium	0.2	63	66	5
Magnesium	0.05	59	32	**59**
Sodium	0.1	47	3.5	**172**
Potassium	0.2	4.8	0.88	**>2 RDL**
Nitrate	0.1	5.56	1.15	**131**
Nitrite	0.01	< 0.01	< 0.01	<2 RDL
Ammonia	0.05	< 0.05	< 0.05	<2 RDL
T K N	0.2	< 0.2	0.28	<2 RDL
T P	0.004	< 0.004	< 0.004	<2 RDL
Aluminum	0.0049	0.015	0.0061	<2 RDL
Antimony	0.0005	< 0.0005	< 0.0005	<2 RDL
Arsenic	0.001	< 0.001	< 0.001	<2 RDL
Barium	0.002	0.02	0.007	**>2 RDL**
Beryllium	0.0004	< 0.0004	< 0.0004	<2 RDL
Boron	0.01	0.058	0.012	**>2 RDL**
Cadmium	0.00009	< 0.00009	< 0.00009	<2 RDL
Chromium	0.005	< 0.005	< 0.005	<2 RDL
Cobalt	0.0005	< 0.0005	< 0.0005	<2 RDL
Copper	0.0009	< 0.0009	< 0.0009	<2 RDL
Fluoride	0.1	0.29	0.11	<2 RDL
Iron	0.1	< 0.1	< 0.1	<2 RDL
Lead	0.0005	< 0.0005	< 0.0005	<2 RDL
Manganese	0.002	0.017	0.0035	**>2 RDL**
Molybdenum	0.0005	0.00066	< 0.0005	<2 RDL
Nickel	0.001	< 0.001	< 0.001	<2 RDL
Selenium	0.002	< 0.002	< 0.002	<2 RDL
Silver	0.00009	< 0.00009	< 0.00009	<2 RDL
Strontium	0.001	0.53	0.11	**131**
Thallium	0.00005	< 0.00005	< 0.00005	<2 RDL
Titanium	0.005	< 0.005	< 0.005	<2 RDL
Tungsten	0.001	< 0.001	< 0.001	<2 RDL
Uranium	0.0001	0.00011	0.00011	<2 RDL
Vanadium	0.0005	< 0.0005	< 0.0005	<2 RDL
Zinc	0.005	< 0.005	< 0.005	<2 RDL
Zirconium	0.001	< 0.001	< 0.001	<2 RDL

Table C-6 2023 Surface Water Duplicate Analysis

May 16, 2023				
Parameter	**RDL**	***Original*** **SW17**	***Duplicate*** **DUP 1**	**RPD**
T S S	10	< 10	< 10	<2 RDL
Hardness	1	250	250	<1
Colour	2	4	4	<2 RDL
Alkalinity	1	230	230	<1
Chloride	1	5.2	5.2	<1
Sulphate	1	7.4	7.4	<1
Calcium	0.2	66	64	3
Magnesium	0.05	20	19	5
Sodium	0.1	4.4	4.3	2
Potassium	0.2	0.67	0.68	<2 RDL
Nitrate	0.1	0.2	0.2	<2 RDL
Nitrite	0.01	< 0.01	< 0.01	<2 RDL
Ammonia	0.05	< 0.05	< 0.05	<2 RDL
T K N	0.1	0.1	0.13	<2 RDL
T P	0.004	0.007	0.005	<2 RDL
Aluminum	0.0049	0.085	0.074	14
Antimony	0.0005	< 0.0005	< 0.0005	<2 RDL
Arsenic	0.001	< 0.001	< 0.001	<2 RDL
Barium	0.002	0.01	0.01	<2 RDL
Beryllium	0.0004	< 0.0004	< 0.0004	<2 RDL
Boron	0.01	0.027	0.026	<2 RDL
Cadmium	0.00009	< 0.00009	< 0.00009	<2 RDL
Chromium	0.005	< 0.005	< 0.005	<2 RDL
Cobalt	0.0005	< 0.0005	< 0.0005	<2 RDL
Copper	0.0009	< 0.0009	< 0.0009	<2 RDL
Fluoride	0.1	< 0.1	< 0.1	<2 RDL
Iron	0.1	0.1	0.11	<2 RDL
Lead	0.0005	< 0.0005	< 0.0005	<2 RDL
Manganese	0.002	0.016	0.016	<1
Molybdenum	0.0005	< 0.0005	< 0.0005	<2 RDL
Nickel	0.001	< 0.001	< 0.001	<2 RDL
Selenium	0.002	< 0.002	< 0.002	<2 RDL
Silver	0.00009	< 0.00009	< 0.00009	<2 RDL
Strontium	0.001	0.39	0.4	3
Thallium	0.00005	< 0.00005	< 0.00005	<2 RDL
Titanium	0.005	< 0.005	< 0.005	<2 RDL
Tungsten	0.001	< 0.001	< 0.001	<2 RDL
Uranium	0.0001	0.0002	0.00022	<2 RDL
Vanadium	0.0005	0.00052	< 0.0005	<2 RDL
Zinc	0.005	< 0.005	< 0.005	<2 RDL
Zirconium	0.001	< 0.001	< 0.001	<2 RDL

Table C-6 2023 Surface Water Duplicate Analysis

May 17, 2023				
Parameter	**RDL**	***Original*** **SUMP 2**	***Duplicate*** **DUP**	**RPD**
T S S	10	< 10	< 10	<2 RDL
Hardness	1	330	320	3
Colour	2	< 2	< 2	<2 RDL
Alkalinity	1	220	220	<1
Chloride	1	92	93	1
Sulphate	1	8.1	7.9	2
Calcium	0.2	56	57	2
Magnesium	0.05	38	39	3
Sodium	0.1	31	30	3
Potassium	0.2	3.1	3	3
Nitrate	0.1	1.46	1.43	2
Nitrite	0.01	0.022	0.016	<2 RDL
Ammonia	0.05	< 0.05	< 0.05	<2 RDL
T K N	0.1	0.13	0.14	<2 RDL
T P	0.004	< 0.004	< 0.004	<2 RDL
Aluminum	0.0049	0.017	0.019	<2 RDL
Antimony	0.0005	< 0.0005	< 0.0005	<2 RDL
Arsenic	0.001	< 0.001	< 0.001	<2 RDL
Barium	0.002	0.012	0.011	9
Beryllium	0.0004	< 0.0004	< 0.0004	<2 RDL
Boron	0.01	0.036	0.036	<2 RDL
Cadmium	0.00009	< 0.00009	< 0.00009	<2 RDL
Chromium	0.005	< 0.005	< 0.005	<2 RDL
Cobalt	0.0005	< 0.0005	< 0.0005	<2 RDL
Copper	0.0009	< 0.0009	< 0.0009	<2 RDL
Fluoride	0.1	0.19	0.18	<2 RDL
Iron	0.1	< 0.1	< 0.1	<2 RDL
Lead	0.0005	< 0.0005	< 0.0005	<2 RDL
Manganese	0.002	0.0023	0.0024	<2 RDL
Molybdenum	0.0005	0.00053	0.00056	<2 RDL
Nickel	0.001	< 0.001	< 0.001	<2 RDL
Selenium	0.002	< 0.002	< 0.002	<2 RDL
Silver	0.00009	< 0.00009	< 0.00009	<2 RDL
Strontium	0.001	0.38	0.38	<1
Thallium	0.00005	< 0.00005	< 0.00005	<2 RDL
Titanium	0.005	< 0.005	< 0.005	<2 RDL
Tungsten	0.001	< 0.001	< 0.001	<2 RDL
Uranium	0.0001	< 0.0001	< 0.0001	<2 RDL
Vanadium	0.0005	< 0.0005	< 0.0005	<2 RDL
Zinc	0.005	< 0.005	< 0.005	<2 RDL
Zirconium	0.001	< 0.001	< 0.001	<2 RDL

Table C-6 2023 Surface Water Duplicate Analysis

May 17, 2023				
Parameter	**RDL**	***Original*** **BC CONTROL**	***Duplicate*** **DUP 2**	**RPD**
T S S	10	10	< 10	<2 RDL
Hardness	1	300	280	7
Colour	2	11	12	9
Alkalinity	1	250	250	<1
Chloride	1	19	19	<1
Sulphate	1	10	10	<1
Calcium	0.2	76	80	5
Magnesium	0.05	18	18	<1
Sodium	0.1	7.8	7.8	<1
Potassium	0.2	0.93	0.93	<2 RDL
Nitrate	0.1	0.49	0.52	<2 RDL
Nitrite	0.01	< 0.01	< 0.01	<2 RDL
Ammonia	0.05	< 0.05	< 0.05	<2 RDL
T K N	0.1	0.17	0.16	<2 RDL
T P	0.004	0.007	0.006	<2 RDL
Aluminum	0.0049	0.1	0.09	11
Antimony	0.0005	< 0.0005	< 0.0005	<2 RDL
Arsenic	0.001	< 0.001	< 0.001	<2 RDL
Barium	0.002	0.025	0.024	4
Beryllium	0.0004	< 0.0004	< 0.0004	<2 RDL
Boron	0.01	0.035	0.036	<2 RDL
Cadmium	0.00009	< 0.00009	< 0.00009	<2 RDL
Chromium	0.005	< 0.005	< 0.005	<2 RDL
Cobalt	0.0005	< 0.0005	< 0.0005	<2 RDL
Copper	0.0009	< 0.0009	< 0.0009	<2 RDL
Fluoride	0.1	< 0.1	< 0.1	<2 RDL
Iron	0.1	0.12	0.11	<2 RDL
Lead	0.0005	< 0.0005	< 0.0005	<2 RDL
Manganese	0.002	0.015	0.015	<1
Molybdenum	0.0005	< 0.0005	< 0.0005	<2 RDL
Nickel	0.001	< 0.001	< 0.001	<2 RDL
Selenium	0.002	< 0.002	< 0.002	<2 RDL
Silver	0.00009	< 0.00009	< 0.00009	<2 RDL
Strontium	0.001	0.25	0.25	<1
Thallium	0.00005	< 0.00005	< 0.00005	<2 RDL
Titanium	0.005	< 0.005	< 0.005	<2 RDL
Tungsten	0.001	< 0.001	< 0.001	<2 RDL
Uranium	0.0001	0.00027	0.00027	<2 RDL
Vanadium	0.0005	0.00053	< 0.0005	<2 RDL
Zinc	0.005	< 0.005	< 0.005	<2 RDL
Zirconium	0.001	< 0.001	< 0.001	<2 RDL

Table C-6 2023 Surface Water Duplicate Analysis

August 30, 2023				
Parameter	**RDL**	***Original*** **Sump 2**	***Duplicate***	**RPD**
T S S	10	< 10	< 10	<2 RDL
Hardness	1	420	390	7
Colour	2	< 2	< 2	<2 RDL
Alkalinity	1	170	170	<1
Chloride	1	180	180	<1
Sulphate	1	9	9.4	4
Calcium	0.2	46	45	2
Magnesium	0.05	62	66	6
Sodium	0.1	46	46	<1
Potassium	0.2	6.4	6.7	5
Nitrate	0.1	1.51	1.51	<1
Nitrite	0.01	0.029	0.03	<2 RDL
Ammonia	0.05	< 0.05	< 0.05	<2 RDL
T K N	0.1	0.33	0.39	<2 RDL
T P	0.004	< 0.004	< 0.004	<2 RDL
Aluminum	0.0049	0.05	0.044	13
Antimony	0.0005	< 0.0005	< 0.0005	<2 RDL
Arsenic	0.001	< 0.001	< 0.001	<2 RDL
Barium	0.002	0.012	0.012	<1
Beryllium	0.0004	< 0.0004	< 0.0004	<2 RDL
Boron	0.01	0.087	0.09	3
Cadmium	0.00009	< 0.00009	< 0.00009	<2 RDL
Chromium	0.005	< 0.005	< 0.005	<2 RDL
Cobalt	0.0005	< 0.0005	< 0.0005	<2 RDL
Copper	0.0009	< 0.0009	< 0.0009	<2 RDL
Fluoride	0.1	0.21	0.21	<2 RDL
Iron	0.1	< 0.1	< 0.1	<2 RDL
Lead	0.0005	< 0.0005	< 0.0005	<2 RDL
Manganese	0.002	0.0034	0.0037	<2 RDL
Molybdenum	0.0005	0.00075	0.00078	<2 RDL
Nickel	0.001	< 0.001	< 0.001	<2 RDL
Selenium	0.002	< 0.002	< 0.002	<2 RDL
Silver	0.00009	< 0.00009	< 0.00009	<2 RDL
Strontium	0.001	0.62	0.62	<1
Thallium	0.00005	< 0.00005	< 0.00005	<2 RDL
Titanium	0.005	< 0.005	< 0.005	<2 RDL
Tungsten	0.001	< 0.001	< 0.001	<2 RDL
Uranium	0.0001	< 0.0001	< 0.0001	<2 RDL
Vanadium	0.0005	< 0.0005	< 0.0005	<2 RDL
Zinc	0.005	< 0.005	< 0.005	<2 RDL
Zirconium	0.001	< 0.001	< 0.001	<2 RDL

Table C-6 2023 Surface Water Duplicate Analysis

October 31, 2023				
Parameter	**RDL**	***Original*** **QFSW2**	***Duplicate*** **DUP**	**RPD**
T S S	10	< 10	< 10	<2 RDL
Hardness	1	410	410	<1
Colour	2	6	4	<2 RDL
Alkalinity	1	220	220	<1
Chloride	1	150	150	<1
Sulphate	1	6.4	6.7	5
Calcium	0.2	61	62	2
Magnesium	0.05	55	57	4
Sodium	0.1	37	37	<1
Potassium	0.2	4.4	4.5	2
Nitrate	0.1	1.32	1.32	<1
Nitrite	0.01	< 0.01	< 0.01	<2 RDL
Ammonia	0.05	0.12	0.11	<2 RDL
T K N	0.1	0.17	0.14	<2 RDL
T P	0.004	< 0.004	< 0.004	<2 RDL
Aluminum	0.0049	0.01	0.0085	<2 RDL
Antimony	0.0005	< 0.0005	< 0.0005	<2 RDL
Arsenic	0.001	0.0016	0.0016	<2 RDL
Barium	0.002	0.016	0.018	12
Beryllium	0.0004	< 0.0004	< 0.0004	<2 RDL
Boron	0.01	0.067	0.066	2
Cadmium	0.00009	< 0.00009	< 0.00009	<2 RDL
Chromium	0.005	< 0.005	< 0.005	<2 RDL
Cobalt	0.0005	< 0.0005	< 0.0005	<2 RDL
Copper	0.0009	< 0.0009	< 0.0009	<2 RDL
Fluoride	0.1	0.29	0.29	<2 RDL
Iron	0.1	0.15	0.15	<2 RDL
Lead	0.0005	< 0.0005	< 0.0005	<2 RDL
Manganese	0.002	0.11	0.11	<1
Molybdenum	0.0005	0.00064	0.00069	<2 RDL
Nickel	0.001	< 0.001	< 0.001	<2 RDL
Selenium	0.002	< 0.002	< 0.002	<2 RDL
Silver	0.00009	< 0.00009	< 0.00009	<2 RDL
Strontium	0.001	0.51	0.51	<1
Thallium	0.00005	0.00005	0.00005	<2 RDL
Titanium	0.005	< 0.005	< 0.005	<2 RDL
Tungsten	0.001	< 0.001	< 0.001	<2 RDL
Uranium	0.0001	< 0.0001	< 0.0001	<2 RDL
Vanadium	0.0005	< 0.0005	< 0.0005	<2 RDL
Zinc	0.005	< 0.005	< 0.005	<2 RDL
Zirconium	0.001	< 0.001	< 0.001	<2 RDL

APPENDIX D

Climate Data

Figure D-1 Monthly Net Surplus

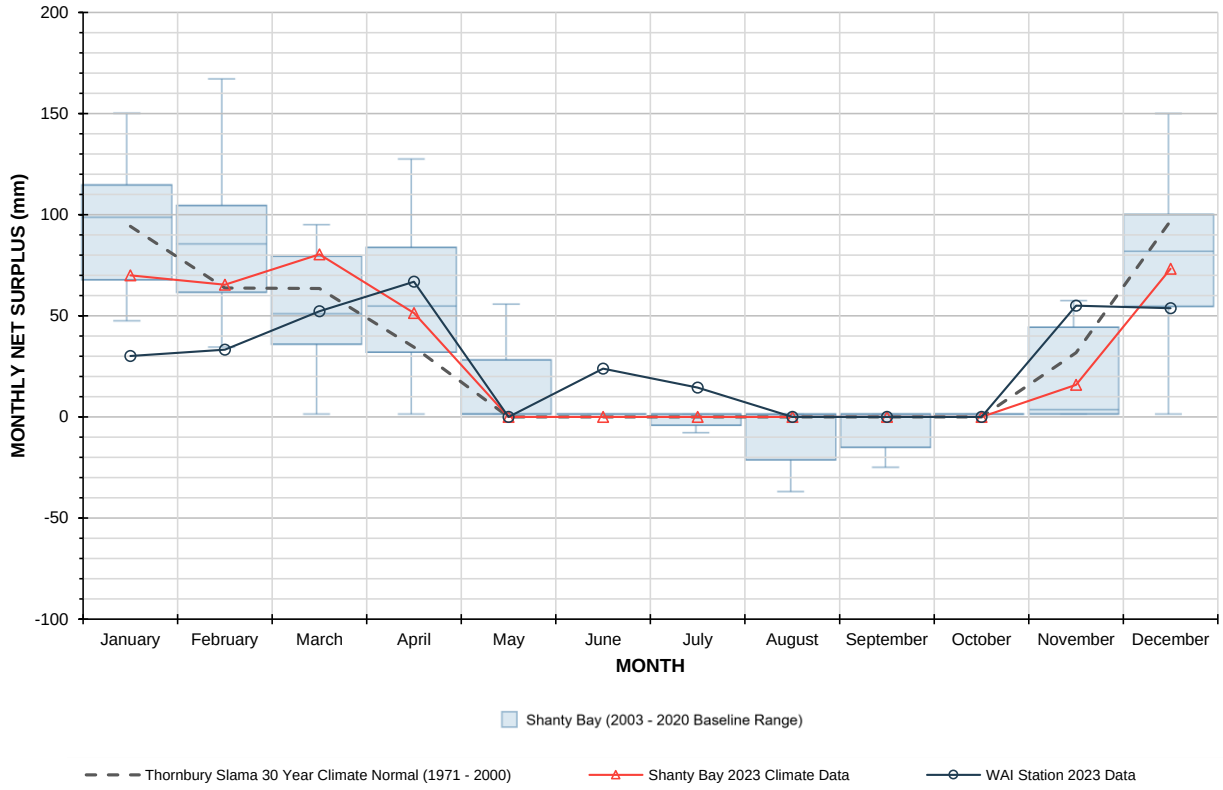


Figure D-2 Monthly Average Temperature

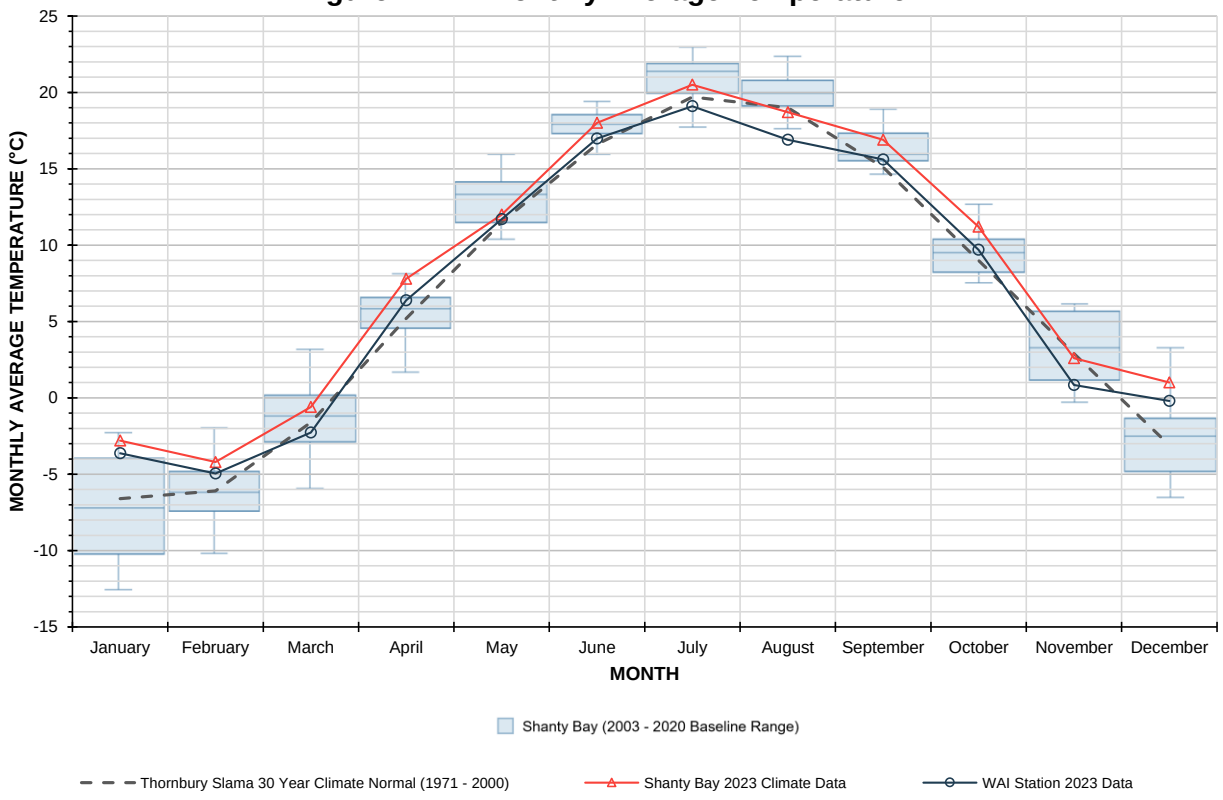


Figure D-3 Mad River Discharge (02ED015)

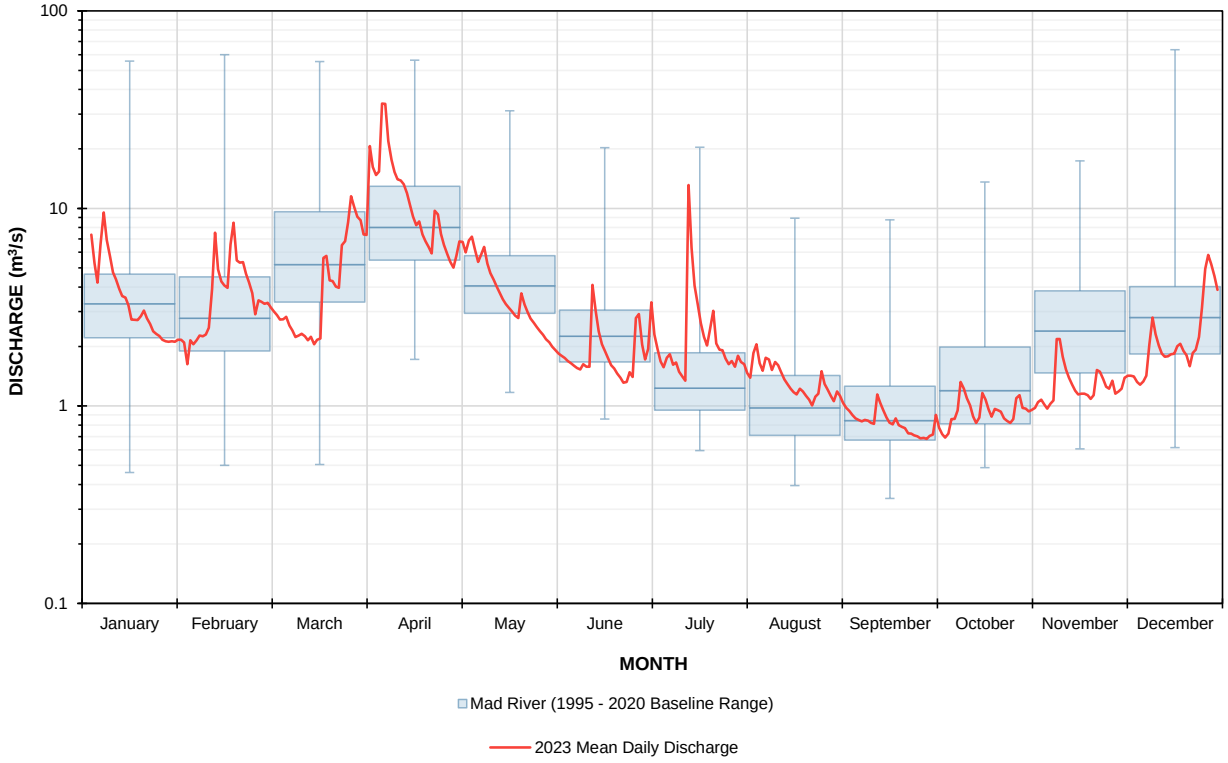


Figure D-4 Pretty River Discharge (02ED031)

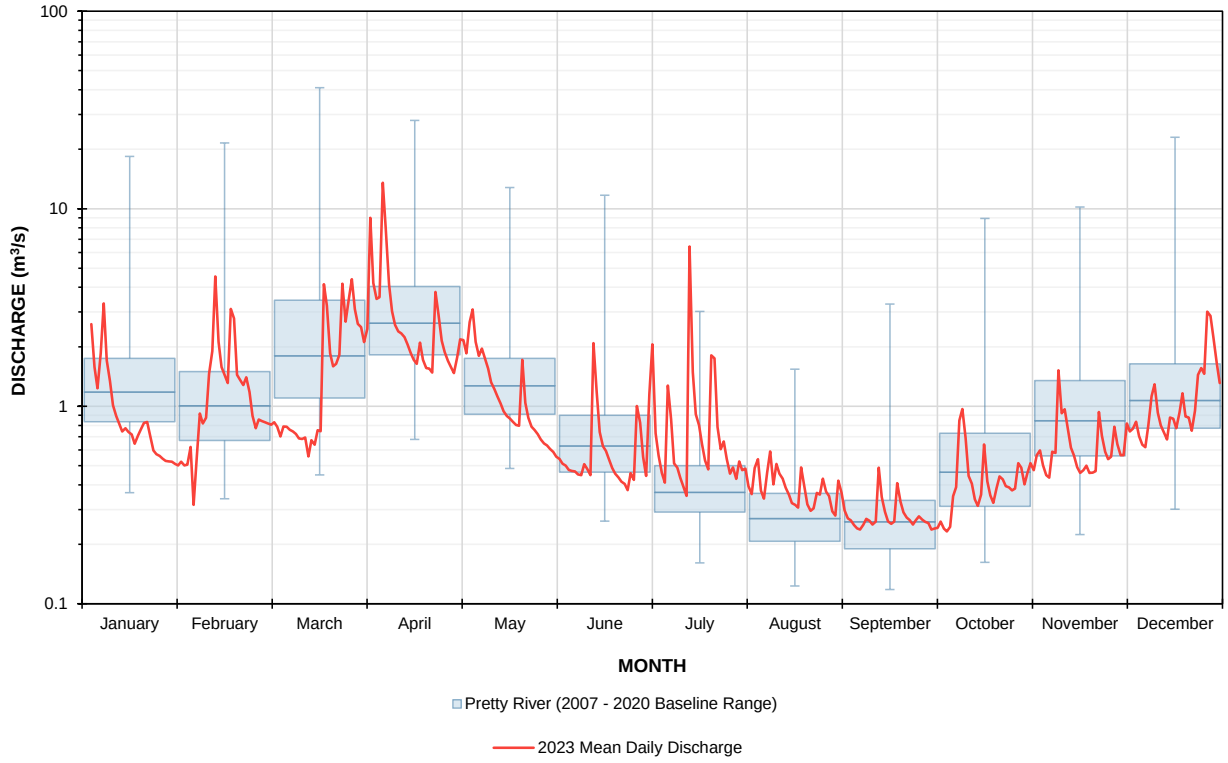


Table D-1: 30 Year Climate Normal (1971 - 2000)

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-6.6	0.0	0.0	0.8	0.0	94.2	150.0	94.2	0.0
February	-6.1	0.0	0.0	0.8	0.0	63.8	150.0	63.8	0.0
March	-1.6	0.0	0.0	1.0	0.0	63.5	150.0	63.5	0.0
April	5.2	1.1	24.9	1.1	27.9	62.4	150.0	34.5	0.0
May	11.5	3.5	56.8	1.3	72.1	70.6	148.5	0.0	0.0
June	16.6	6.1	83.1	1.3	106.4	75.7	117.8	0.0	0.0
July	19.7	7.9	99.3	1.3	129.0	80.9	69.7	0.0	0.0
August	19.0	7.5	95.6	1.2	114.7	85.8	40.7	0.0	0.0
September	15.1	5.3	75.3	1.0	78.3	94.0	56.4	0.0	0.0
October	9.0	2.4	44.0	1.0	41.8	81.0	95.5	0.0	0.0
November	2.9	0.4	13.6	0.8	11.0	97.2	150.0	31.7	0.0
December	-3.1	0.0	0.0	0.8	0.0	97.0	150.0	97.0	0.0
Total	**6.8**	**34.3**			**581.4**	**966.1**		**384.7**	**0.0**
				Net Water Surplus		**384.7**	**mm**		

Notes:

- calculations based on Thornthwaite Mather Method
- °C calculated mean of daily temperatures for the month, in degrees Celcius
- I denotes Heat Index
- E denotes Evapotranspiration
- WHC denotes Water Holding Capacity
- A value of 150 mm was used for the water holding capacity of the soils
- Climate normal data from Thornbury Slama Climatological Station located at 44°34'N 80°29'W/O, 213 masl

Table D-2a: 2003 Water Budget

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-11.2	0.0	0.0	0.8	0.0	128.2	150.0	128.2	0.0
February	-10.5	0.0	0.0	0.8	0.0	111.6	150.0	111.6	0.0
March	-2.9	0.0	0.0	1.0	0.0	76.6	150.0	76.6	0.0
April	3.5	0.6	16.1	1.1	18.0	51.2	150.0	33.2	0.0
May	11.4	3.5	55.6	1.3	70.7	73.0	150.0	2.3	0.0
June	17.3	6.5	86.2	1.3	110.4	45.4	85.0	0.0	0.0
July	19.8	8.0	99.4	1.3	129.2	61.0	16.8	0.0	0.0
August	20.6	8.5	103.6	1.2	124.3	68.8	0.0	0.0	38.7
September	15.8	5.7	78.4	1.0	81.5	65.2	0.0	0.0	16.3
October	7.8	2.0	37.3	1.0	35.5	111.0	75.5	0.0	0.0
November	3.4	0.6	15.6	0.8	12.6	131.0	150.0	43.9	0.0
December	-2.6	0.0	0.0	0.8	0.0	97.4	150.0	97.4	0.0
Total	**6.0**	**35.2**			**582.2**	**1020.4**		**493.2**	**55.0**
					Net Water Surplus	**438.2**	**mm**		

Table D-3a: 2004 Water Budget

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-12.9	0.0	0.0	0.8	0.0	149.6	150.0	149.6	0.0
February	-6.4	0.0	0.0	0.8	0.0	56.6	150.0	56.6	0.0
March	-0.2	0.0	0.0	1.0	0.0	94.2	150.0	94.2	0.0
April	5.5	1.2	26.6	1.1	29.8	43.0	150.0	13.2	0.0
May	11.5	3.5	57.0	1.3	72.4	148.6	150.0	76.2	0.0
June	16.0	5.8	80.2	1.3	102.6	44.0	91.4	0.0	0.0
July	19.2	7.6	96.8	1.3	125.8	124.8	90.3	0.0	0.0
August	17.6	6.7	88.5	1.2	106.2	48.0	32.2	0.0	0.0
September	16.7	6.2	83.8	1.0	87.2	37.4	0.0	0.0	17.6
October	9.3	2.6	45.8	1.0	43.5	61.6	18.1	0.0	0.0
November	3.1	0.5	14.7	0.8	11.9	81.8	88.0	0.0	0.0
December	-5.7	0.0	0.0	0.8	0.0	115.6	150.0	53.6	0.0
Total	**6.1**	**34.0**			**579.5**	**1005.2**		**443.3**	**17.6**
					Net Water Surplus	**425.7**	**mm**		

Notes:
- calculations based on Thornthwaite Mather Method
- °C calculated mean of daily temperatures for the month, in degrees Celcius
- I denotes Heat Index
- E denotes Evapotranspiration
- WHC denotes Water Holding Capacity
- A value of 150 mm was used for the water holding capacity of the soils
- Temperature and precipitation data from the Shanty Bay Climatological Station located at 44°24'N 79°37.8'W/O, 250 masl

Table D-4a: 2005 Water Budget

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-9.6	0.0	0.0	0.8	0.0	59.2	150.0	59.2	0.0
February	-6.6	0.0	0.0	0.8	0.0	61.8	150.0	61.8	0.0
March	-4.1	0.0	0.0	1.0	0.0	39.4	150.0	39.4	0.0
April	6.3	1.4	26.3	1.1	29.4	121.0	150.0	91.6	0.0
May	10.5	3.1	47.0	1.3	59.7	26.8	117.1	0.0	0.0
June	20.5	8.4	100.8	1.3	129.0	142.4	130.5	0.0	0.0
July	21.6	9.1	107.0	1.3	139.0	50.4	41.8	0.0	0.0
August	20.7	8.5	101.9	1.2	122.3	65.2	0.0	0.0	15.2
September	17.9	6.9	86.3	1.0	89.8	78.6	0.0	0.0	11.2
October	10.6	3.1	47.5	1.0	45.2	44.0	0.0	0.0	1.2
November	3.8	0.7	14.8	0.8	12.0	118.2	106.2	0.0	0.0
December	-4.7	0.0	0.0	0.8	0.0	114.6	150.0	70.8	0.0
Total	**7.2**	**41.2**			**626.4**	**921.6**		**322.8**	**27.6**
					Net Water Surplus	**295.2**	**mm**		

Table D-5a: 2006 Water Budget

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-2.5	0.0	0.0	0.8	0.0	78.2	150.0	78.2	0.0
February	-7.0	0.0	0.0	0.8	0.0	166.6	150.0	166.6	0.0
March	-1.5	0.0	0.0	1.0	0.0	61.0	150.0	61.0	0.0
April	7.0	1.7	31.4	1.1	35.1	85.0	150.0	49.9	0.0
May	13.3	4.4	63.4	1.3	80.5	52.2	121.7	0.0	0.0
June	18.3	7.1	89.9	1.3	115.1	85.8	92.4	0.0	0.0
July	21.9	9.3	109.5	1.3	142.4	143.8	93.8	0.0	0.0
August	19.6	7.9	97.0	1.2	116.4	22.2	0.0	0.0	0.4
September	14.6	5.0	70.2	1.0	73.0	100.2	27.2	0.0	0.0
October	8.1	2.1	36.8	1.0	35.0	132.4	124.6	0.0	0.0
November	4.6	0.9	19.8	0.8	16.0	97.8	150.0	56.4	0.0
December	0.5	0.0	1.7	0.8	1.4	88.8	150.0	87.4	0.0
Total	**8.1**	**38.3**			**614.9**	**1114.0**		**499.5**	**0.4**
					Net Water Surplus	**499.1**	**mm**		

Notes:
- calculations based on Thornthwaite Mather Method
- °C calculated mean of daily temperatures for the month, in degrees Celcius
- I denotes Heat Index
- E denotes Evapotranspiration
- WHC denotes Water Holding Capacity
- A value of 150 mm was used for the water holding capacity of the soils
- Temperature and precipitation data from the Shanty Bay Climatological Station located at 44°24'N 79°37.8'W/O, 250 masl

Table D-6a: 2007 Water Budget

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-5.8	0.0	0.0	0.8	0.0	75.7	150.0	75.7	0.0
February	-9.5	0.0	0.0	0.8	0.0	103.3	150.0	103.3	0.0
March	-1.3	0.0	0.0	1.0	0.0	35.2	150.0	35.2	0.0
April	6.5	1.5	27.5	1.1	30.8	91.4	150.0	60.6	0.0
May	13.4	4.4	62.4	1.3	79.3	48.1	118.8	0.0	0.0
June	18.7	7.3	91.0	1.3	116.5	13.9	16.3	0.0	0.0
July	20.0	8.1	98.2	1.3	127.6	79.7	0.0	0.0	31.7
August	21.1	8.8	104.3	1.2	125.2	48.5	0.0	0.0	76.7
September	17.0	6.3	81.7	1.0	85.0	58.4	0.0	0.0	26.6
October	12.6	4.0	58.2	1.0	55.3	101.9	46.6	0.0	0.0
November	1.4	0.1	4.8	0.8	3.9	89.9	132.6	0.0	0.0
December	-4.1	0.0	0.0	0.8	0.0	166.9	150.0	149.5	0.0
Total	**7.5**	**40.7**			**623.6**	**912.9**		**424.2**	**134.9**
					Net Water Surplus	**289.3**	**mm**		

Table D-7a: 2008 Water Budget

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-4.3	0.0	0.0	0.8	0.0	98.6	150.0	98.6	0.0
February	-7.1	0.0	0.0	0.8	0.0	135.3	150.0	135.3	0.0
March	-4.3	0.0	0.0	1.0	0.0	87.5	150.0	87.5	0.0
April	-8.6	0.0	0.0	1.1	0.0	33.3	150.0	33.3	0.0
May	10.3	3.0	51.2	1.3	65.0	99.3	150.0	34.3	0.0
June	18.6	7.3	93.9	1.3	120.2	73.0	102.8	0.0	0.0
July	20.5	8.4	103.7	1.3	134.8	95.3	63.3	0.0	0.0
August	18.4	7.2	92.8	1.2	111.4	67.5	19.4	0.0	0.0
September	15.7	5.6	78.9	1.0	82.0	105.0	42.4	0.0	0.0
October	8.1	2.1	40.0	1.0	38.0	39.5	43.9	0.0	0.0
November	0.9	0.1	4.2	0.8	3.4	146.0	150.0	36.5	0.0
December	-4.9	0.0	0.0	0.8	0.0	112.1	150.0	112.1	0.0
Total	**5.3**	**33.6**			**554.8**	**1092.4**		**537.6**	**0.0**
					Net Water Surplus	**537.6**	**mm**		

Notes:
- calculations based on Thornthwaite Mather Method
- °C calculated mean of daily temperatures for the month, in degrees Celcius
- I denotes Heat Index
- E denotes Evapotranspiration
- WHC denotes Water Holding Capacity
- A value of 150 mm was used for the water holding capacity of the soils
- Temperature and precipitation data from the Shanty Bay Climatological Station located at 44°24'N 79°37.8'W/O, 250 masl

Table D-8a: 2009 Water Budget

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-10.7	0.0	0.0	0.8	0.0	113.2	150.0	113.2	0.0
February	-5.9	0.0	0.0	0.8	0.0	105.0	150.0	105.0	0.0
March	-0.7	0.0	0.0	1.0	0.0	50.7	150.0	50.7	0.0
April	6.4	1.5	31.1	1.1	34.8	146.1	150.0	111.3	0.0
May	12.3	3.9	61.1	1.3	77.6	78.7	150.0	1.1	0.0
June	15.9	5.7	79.6	1.3	101.9	81.6	129.7	0.0	0.0
July	17.7	6.7	89.0	1.3	115.7	104.9	118.9	0.0	0.0
August	19.4	7.7	97.8	1.2	117.4	58.7	60.3	0.0	0.0
September	15.5	5.5	77.6	1.0	80.7	42.1	21.7	0.0	0.0
October	7.4	1.8	36.1	1.0	34.3	80.1	67.5	0.0	0.0
November	5.5	1.2	26.6	0.8	21.5	30.0	75.9	0.0	0.0
December	-4.0	0.0	0.0	0.8	0.0	72.9	148.8	0.0	0.0
Total	**6.6**	**34.1**			**583.8**	**964.0**		**381.3**	**0.0**
					Net Water Surplus	**381.3**	**mm**		

Table D-9a: 2010 Water Budget

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-7.2	0.0	0.0	0.8	0.0	46.3	150.0	46.3	0.0
February	-5.9	0.0	0.0	0.8	0.0	41.1	150.0	41.1	0.0
March	3.0	0.5	11.1	1.0	11.4	30.5	150.0	19.1	0.0
April	9.6	2.7	42.1	1.1	47.2	27.3	130.1	0.0	0.0
May	14.9	5.2	69.7	1.3	88.6	102.4	143.9	0.0	0.0
June	17.6	6.7	84.4	1.3	108.1	169.9	150.0	55.8	0.0
July	21.8	9.2	107.9	1.3	140.3	97.8	107.5	0.0	0.0
August	21.1	8.8	103.9	1.2	124.7	63.2	46.0	0.0	0.0
September	15.7	5.6	74.1	1.0	77.0	118.9	87.9	0.0	0.0
October	9.3	2.6	40.6	1.0	38.6	64.1	113.4	0.0	0.0
November	3.1	0.5	11.5	0.8	9.3	48.1	150.0	2.1	0.0
December	-5.6	0.0	0.0	0.8	0.0	103.4	150.0	103.4	0.0
Total	**8.1**	**41.7**			**645.2**	**913.0**		**267.8**	**0.0**
					Net Water Surplus	**267.8**	**mm**		

Notes:
- calculations based on Thornthwaite Mather Method
- °C calculated mean of daily temperatures for the month, in degrees Celcius
- I denotes Heat Index
- E denotes Evapotranspiration
- WHC denotes Water Holding Capacity
- A value of 150 mm was used for the water holding capacity of the soils
- Temperature and precipitation data from the Shanty Bay Climatological Station located at 44°24'N 79°37.8'W/O, 250 masl

Table D-10a: 2011 Water Budget

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-9.0	0.0	0.0	0.8	0.0	107.6	150.0	107.6	0.0
February	-6.5	0.0	0.0	0.8	0.0	61.8	150.0	61.8	0.0
March	-2.5	0.0	0.0	1.0	0.0	84.5	150.0	84.5	0.0
April	5.9	1.3	24.6	1.1	27.6	90.2	150.0	62.6	0.0
May	13.6	4.5	63.4	1.3	80.5	70.7	140.2	0.0	0.0
June	17.7	6.7	85.5	1.3	109.4	57.8	88.6	0.0	0.0
July	22.5	9.7	112.2	1.3	145.8	92.7	35.4	0.0	0.0
August	20.3	8.3	99.8	1.2	119.8	71.9	0.0	0.0	12.5
September	16.5	6.1	78.9	1.0	82.1	74.5	0.0	0.0	7.6
October	10.1	2.9	45.3	1.0	43.0	118.5	75.5	0.0	0.0
November	5.8	1.3	24.2	0.8	19.6	96.3	150.0	2.2	0.0
December	-0.7	0.0	0.0	0.8	0.0	62.9	150.0	62.9	0.0
Total	**7.8**	**40.8**			**627.8**	**989.4**		**381.6**	**20.1**
					Net Water Surplus	**361.6**	**mm**		

Table D-11a: 2012 Water Budget

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-3.9	0.0	0.0	0.8	0.0	66.9	150.0	66.9	0.0
February	-2.4	0.0	0.0	0.8	0.0	81.1	150.0	81.1	0.0
March	6.4	1.5	26.2	1.0	26.9	24.9	148.0	0.0	0.0
April	5.9	1.3	23.9	1.1	26.7	46.8	150.0	18.1	0.0
May	15.2	5.4	71.1	1.3	90.3	39.6	99.3	0.0	0.0
June	19.4	7.7	94.2	1.3	120.6	78.4	57.1	0.0	0.0
July	22.5	9.7	111.8	1.3	145.3	83.7	0.0	0.0	4.5
August	20.3	8.3	99.3	1.2	119.1	95.0	0.0	0.0	24.1
September	15.3	5.4	71.6	1.0	74.5	138.0	63.5	0.0	0.0
October	9.5	2.6	41.3	1.0	39.3	127.5	150.0	1.7	0.0
November	2.3	0.3	8.0	0.8	6.5	49.5	150.0	43.0	0.0
December	-0.8	0.0	0.0	0.8	0.0	73.6	150.0	73.6	0.0
Total	**9.1**	**42.2**			**649.1**	**905.0**		**284.4**	**28.6**
					Net Water Surplus	**255.9**	**mm**		

Notes:
- calculations based on Thornthwaite Mather Method
- °C calculated mean of daily temperatures for the month, in degrees Celcius
- I denotes Heat Index
- E denotes Evapotranspiration
- WHC denotes Water Holding Capacity
- A value of 150 mm was used for the water holding capacity of the soils
- Temperature and precipitation data from the Shanty Bay Climatological Station located at 44°24'N 79°37.8'W/O, 250 masl

Table D-12a: 2013 Water Budget

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-4.9	0.0	0.0	0.8	0.0	107.0	150.0	107.0	0.0
February	-6.6	0.0	0.0	0.8	0.0	101.8	150.0	101.8	0.0
March	-1.3	0.0	0.0	1.0	0.0	33.1	150.0	33.1	0.0
April	5.1	1.0	22.8	1.1	25.5	113.1	150.0	87.6	0.0
May	13.8	4.6	66.7	1.3	84.7	109.2	150.0	24.5	0.0
June	17.8	6.8	87.8	1.3	112.4	29.8	67.4	0.0	0.0
July	21.2	8.9	106.1	1.3	137.9	110.9	40.3	0.0	0.0
August	19.2	7.6	95.3	1.2	114.4	103.3	29.3	0.0	0.0
September	15.0	5.3	73.0	1.0	75.9	79.1	32.4	0.0	0.0
October	10.2	2.9	48.1	1.0	45.7	120.3	107.0	0.0	0.0
November	0.8	0.1	3.1	0.8	2.5	63.1	150.0	17.6	0.0
December	-6.4	0.0	0.0	0.8	0.0	93.2	150.0	93.2	0.0
Total	**7.0**	**37.2**			**599.2**	**1063.9**		**464.7**	**0.0**
				Net Water Surplus	**464.7**	**mm**			

Table D-13a: 2014 Water Budget

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-10.5	0.0	0.0	0.8	0.0	97.1	150.0	97.1	0.0
February	-9.5	0.0	0.0	0.8	0.0	72.1	150.0	72.1	0.0
March	-6.2	0.0	0.0	1.0	0.0	49.0	150.0	49.0	0.0
April	4.6	0.9	21.2	1.1	23.7	81.1	150.0	57.4	0.0
May	13.2	4.3	64.6	1.3	82.1	42.3	110.2	0.0	0.0
June	18.3	7.1	91.3	1.3	116.8	134.8	128.2	0.0	0.0
July	18.9	7.4	94.4	1.3	122.8	73.6	79.1	0.0	0.0
August	18.8	7.4	93.9	1.2	112.7	104.3	70.7	0.0	0.0
September	15.8	5.7	78.1	1.0	81.3	99.9	89.3	0.0	0.0
October	9.8	2.8	47.2	1.0	44.8	75.2	119.7	0.0	0.0
November	1.0	0.1	4.2	0.8	3.4	77.6	150.0	43.9	0.0
December	-1.8	0.0	0.0	0.8	0.0	74.5	150.0	74.5	0.0
Total	**6.0**	**35.7**			**587.6**	**981.5**		**393.9**	**0.0**
				Net Water Surplus	**393.9**	**mm**			

Notes:
- calculations based on Thornthwaite Mather Method
- °C calculated mean of daily temperatures for the month, in degrees Celcius
- I denotes Heat Index
- E denotes Evapotranspiration
- WHC denotes Water Holding Capacity
- A value of 150 mm was used for the water holding capacity of the soils
- Temperature and precipitation data from the Shanty Bay Climatological Station located at 44°24'N 79°37.8'W/O, 250 masl

Table D-14a: 2015 Water Budget

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-10.7	0.0	0.0	0.8	0.0	61.5	150.0	61.5	0.0
February	-14.9	0.0	0.0	0.8	0.0	52.9	150.0	52.9	0.0
March	-3.5	0.0	0.0	1.0	0.0	23.9	150.0	23.9	0.0
April	6.2	1.4	25.9	1.1	29.0	61.1	150.0	32.1	0.0
May	15.3	5.4	72.3	1.3	91.9	38.3	96.4	0.0	0.0
June	17.2	6.5	82.6	1.3	105.8	153.5	144.2	0.0	0.0
July	20.2	8.2	99.2	1.3	128.9	37.0	52.2	0.0	0.0
August	19.5	7.8	95.3	1.2	114.3	106.4	44.3	0.0	0.0
September	18.9	7.4	92.0	1.0	95.6	67.2	15.8	0.0	0.0
October	9.0	2.4	39.6	1.0	37.6	84.0	62.2	0.0	0.0
November	6.0	1.3	25.0	0.8	20.2	60.8	102.8	0.0	0.0
December	3.1	0.5	11.8	0.8	9.2	39.7	133.3	0.0	0.0
Total	**7.2**	**41.0**			**632.6**	**786.3**		**170.4**	**0.0**
					Net Water Surplus	**170.4**	**mm**		

Table D-15a: 2016 Water Budget

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-5.7	0.0	0.0	0.8	0.0	116.0	150.0	116.0	0.0
February	-5.0	0.0	0.0	0.8	0.0	50.0	150.0	50.0	0.0
March	0.5	0.0	1.4	1.0	1.4	156.0	150.0	154.6	0.0
April	3.8	0.7	14.4	1.1	16.1	65.0	150.0	48.9	0.0
May	13.5	4.5	62.1	1.3	78.8	51.0	122.2	0.0	0.0
June	18.0	6.9	86.4	1.3	110.7	39.0	50.5	0.0	0.0
July	21.9	9.3	108.4	1.3	140.9	54.0	0.0	0.0	36.3
August	22.4	9.6	111.2	1.2	133.5	118.0	0.0	0.0	15.5
September	17.6	6.7	84.2	1.0	87.6	38.0	0.0	0.0	49.6
October	10.8	3.2	48.0	1.0	45.6	79.0	33.4	0.0	0.0
November	5.6	1.2	22.5	0.8	18.2	52.0	67.2	0.0	0.0
December	-2.7	0.0	0.0	0.8	0.0	124.0	150.0	41.2	0.0
Total	**8.4**	**42.1**			**632.8**	**942.0**		**410.6**	**101.4**
					Net Water Surplus	**309.2**	**mm**		

Notes:
- calculations based on Thornthwaite Mather Method
- °C calculated mean of daily temperatures for the month, in degrees Celcius
- I denotes Heat Index
- E denotes Evapotranspiration
- WHC denotes Water Holding Capacity
- A value of 150 mm was used for the water holding capacity of the soils
- Temperature and precipitation data from the Shanty Bay Climatological Station located at 44°24'N 79°37.8'W/O, 250 masl

Table D-16a: 2017 Water Budget

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-3.7	0.0	0.0	0.8	0.0	131.0	133.3	131.0	0.0
February	-2.2	0.0	0.0	0.8	0.0	101.0	150.0	84.3	0.0
March	-0.3	0.0	0.0	1.0	0.0	75.0	150.0	75.0	0.0
April	8.0	2.0	36.4	1.1	40.7	122.0	150.0	81.3	0.0
May	11.6	3.6	54.6	1.3	69.4	124.0	150.0	54.6	0.0
June	17.4	6.6	85.2	1.3	109.0	120.0	150.0	11.0	0.0
July	20.0	8.1	99.2	1.3	129.0	65.0	86.0	0.0	0.0
August	18.8	7.4	92.7	1.2	111.2	74.0	48.8	0.0	0.0
September	17.2	6.5	84.1	1.0	87.5	57.0	18.3	0.0	0.0
October	12.2	3.8	57.7	1.0	54.8	77.0	40.5	0.0	0.0
November	2.0	0.3	8.0	0.8	6.5	81.0	115.0	0.0	0.0
December	-6.8	0.0	0.0	0.8	0.0	88.0	150.0	53.0	0.0
Total	**7.9**	**38.2**			**608.1**	**1115.0**		**490.2**	**0.0**
					Net Water Surplus	**490.2**	**mm**		

Table D-17a: 2018 Water Budget

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-7.8	0.0	0.0	0.8	0.0	79.4	150.0	79.4	0.0
February	-3.6	0.0	0.0	0.8	0.0	97.0	150.0	97.0	0.0
March	-1.9	0.0	0.0	1.0	0.0	46.8	150.0	46.8	0.0
April	1.5	0.2	5.4	1.1	6.0	132.8	150.0	126.8	0.0
May	15.9	5.7	76.1	1.3	96.6	68.2	121.6	0.0	0.0
June	18.1	7.0	88.0	1.3	112.6	43.8	52.7	0.0	0.0
July	21.9	9.3	109.0	1.3	141.7	64.2	0.0	0.0	24.8
August	21.7	9.2	107.9	1.2	129.4	107.0	0.0	0.0	22.4
September	17.6	6.7	85.3	1.0	88.7	20.8	0.0	0.0	67.9
October	8.0	2.0	35.2	1.0	33.4	130.1	96.7	0.0	0.0
November	0.1	0.0	0.3	0.8	0.2	102.8	150.0	49.3	0.0
December	-2.3	0.0	0.0	0.8	0.0	97.8	150.0	97.8	0.0
Total	**7.4**	**40.1**			**608.8**	**990.7**		**497.0**	**115.1**
					Net Water Surplus	**381.9**	**mm**		

Notes:
- calculations based on Thornthwaite Mather Method
- °C calculated mean of daily temperatures for the month, in degrees Celcius
- I denotes Heat Index
- E denotes Evapotranspiration
- WHC denotes Water Holding Capacity
- A value of 150 mm was used for the water holding capacity of the soils
- Temperature and precipitation data from the Shanty Bay Climatological Station located at 44°24'N 79°37.8'W/O, 250 masl

Table D-18a: 2019 Water Budget

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-9.0	0.0	0.0	0.8	0.0	66.2	150.0	66.2	0.0
February	-6.1	0.0	0.0	0.8	0.0	88.2	150.0	88.2	0.0
March	-3.0	0.0	0.0	1.0	0.0	63.2	150.0	63.2	0.0
April	4.8	0.9	22.1	1.1	24.8	100.0	150.0	75.2	0.0
May	10.9	3.2	52.7	1.3	66.9	86.6	150.0	19.7	0.0
June	16.5	6.1	81.7	1.3	104.6	75.0	120.4	0.0	0.0
July	22.0	9.4	110.9	1.3	144.1	49.6	25.9	0.0	0.0
August	19.3	7.7	96.5	1.2	115.8	54.0	0.0	0.0	36.0
September	16.0	5.8	79.1	1.0	82.3	75.4	0.0	0.0	6.9
October	9.6	2.7	46.1	1.0	43.8	137.0	93.2	0.0	0.0
November	-0.5	0.0	0.0	0.8	0.0	46.0	139.2	0.0	0.0
December	-2.8	0.0	0.0	0.8	0.0	107.6	150.0	96.8	0.0
Total	**6.5**	**35.8**			**582.3**	**948.8**		**409.3**	**42.8**
					Net Water Surplus	**366.5**	**mm**		

Table D-19a: 2020 Water Budget

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-3.8	0.0	0.0	0.8	0.0	108.4	150.0	108.4	0.0
February	-5.1	0.0	0.0	0.8	0.0	80.2	150.0	80.2	0.0
March	1.5	0.2	5.6	1.0	5.8	48.0	150.0	42.2	0.0
April	4.7	0.9	19.9	1.1	22.3	48.8	150.0	26.5	0.0
May	11.4	3.5	53.1	1.3	67.4	109.4	150.0	42.0	0.0
June	18.5	7.2	90.7	1.3	116.1	56.0	89.9	0.0	0.0
July	23.0	10.0	115.4	1.3	150.0	50.8	0.0	0.0	9.3
August	20.4	8.4	101.1	1.2	121.3	219.6	98.3	0.0	0.0
September	15.4	5.5	74.0	1.0	77.0	66.4	87.7	0.0	0.0
October	8.3	2.1	37.3	1.0	35.5	61.6	113.9	0.0	0.0
November	5.9	1.3	25.6	0.8	20.7	69.0	150.0	12.1	0.0
December	-2.0	0.0	0.0	0.8	0.0	106.6	150.0	106.6	0.0
Total	**8.2**	**39.0**			**616.0**	**1024.8**		**418.1**	**9.3**
					Net Water Surplus	**408.8**	**mm**		

Notes:
- calculations based on Thornthwaite Mather Method
- °C calculated mean of daily temperatures for the month, in degrees Celcius
- I denotes Heat Index
- E denotes Evapotranspiration
- WHC denotes Water Holding Capacity
- A value of 150 mm was used for the water holding capacity of the soils
- Temperature and precipitation data from the Shanty Bay Climatological Station located at 44°24'N 79°37.8'W/O, 250 masl

Table D-20a: 2021 Water Budget

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-4.8	0.0	0.0	0.8	0.0	49.8	150.0	49.8	0.0
February	-7.0	0.0	0.0	0.8	0.0	40.6	150.0	40.6	0.0
March	1.5	0.2	4.9	1.0	5.0	35.2	150.0	30.2	0.0
April	7.1	1.7	30.0	1.1	33.6	62.8	150.0	29.2	0.0
May	12.4	3.9	56.6	1.3	71.9	27.8	105.9	0.0	0.0
June	20.1	8.2	98.5	1.3	126.0	108.6	88.5	0.0	0.0
July	19.6	7.9	95.4	1.3	124.0	204.0	150.0	18.4	0.0
August	21.9	9.3	108.3	1.2	129.9	21.2	41.3	0.0	0.0
September	16.2	5.9	76.7	1.0	79.8	152.6	114.1	0.0	0.0
October	13.1	4.3	60.0	1.0	57.0	66.0	123.1	0.0	0.0
November	2.7	0.4	9.7	0.8	7.8	74.6	150.0	39.9	0.0
December	-0.2	0.0	0.0	0.8	0.0	83.8	150.0	83.8	0.0
Total	**8.5**	**41.7**			**635.1**	**927.0**		**291.9**	**0.0**
					Net Water Surplus	**291.9**	**mm**		

Table D-21a: 2022 Water Budget

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-11.0	0.0	0.0	0.8	0.0	59.6	150.0	59.6	0.0
February	-7.3	0.0	0.0	0.8	0.0	72.2	150.0	72.2	0.0
March	-0.8	0.0	0.0	1.0	0.0	59.8	150.0	59.8	0.0
April	5.4	1.1	23.4	1.1	26.3	58.4	150.0	32.1	0.0
May	14.4	4.9	69.0	1.3	87.6	42.8	105.2	0.0	0.0
June	17.7	6.7	86.6	1.3	110.8	94.8	89.1	0.0	0.0
July	19.9	8.1	98.5	1.3	128.0	57.8	18.9	0.0	0.0
August	20.5	8.4	101.8	1.2	122.1	118.8	15.6	0.0	0.0
September	16.2	5.9	78.5	1.0	81.7	64.4	0.0	0.0	1.7
October	9.4	2.6	43.1	1.0	41.0	50.8	9.8	0.0	0.0
November	4.4	0.8	18.7	0.8	15.2	86.6	81.3	0.0	0.0
December	-1.5	0.0	0.0	0.8	0.0	81.2	150.0	12.5	0.0
Total	**7.3**	**38.6**			**612.7**	**847.2**		**236.2**	**1.7**
					Net Water Surplus	**234.5**	**mm**		

Notes:
- calculations based on Thornthwaite Mather Method
- °C calculated mean of daily temperatures for the month, in degrees Celcius
- I denotes Heat Index
- E denotes Evapotranspiration
- WHC denotes Water Holding Capacity
- A value of 150 mm was used for the water holding capacity of the soils
- Temperature and precipitation data from the Shanty Bay Climatological Station located at 44°24'N 79°37.8'W/O, 250 masl

Table D-22a: 2023 Water Budget

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-2.8	0.0	0.0	0.8	0.0	70.0	150.0	70.0	0.0
February	-4.2	0.0	0.0	0.8	0.0	65.4	150.0	65.4	0.0
March	-0.6	0.0	0.0	1.0	0.0	80.4	150.0	80.4	0.0
April	7.8	2.0	35.2	1.1	39.4	90.8	150.0	51.4	0.0
May	12.0	3.8	56.5	1.3	71.8	48.6	126.8	0.0	0.0
June	18.0	6.9	88.2	1.3	113.0	123.4	137.3	0.0	0.0
July	20.5	8.4	101.8	1.3	132.4	137.4	142.3	0.0	0.0
August	18.7	7.3	92.0	1.2	110.4	76.2	108.1	0.0	0.0
September	16.9	6.3	82.3	1.0	85.6	15.6	38.1	0.0	0.0
October	11.2	3.4	52.4	1.0	49.8	122.5	110.8	0.0	0.0
November	2.6	0.4	10.5	0.8	8.5	63.6	150.0	15.9	0.0
December	1.0	0.1	3.7	0.8	2.9	76.1	150.0	73.2	0.0
Total	**8.4**	**38.5**			**613.7**	**970.0**		**356.3**	**0.0**
				Net Water Surplus		**356.3**	**mm**		

Notes:

- calculations based on Thornthwaite Mather Method
- °C calculated mean of daily temperatures for the month, in degrees Celcius
- I denotes Heat Index
- E denotes Evapotranspiration
- WHC denotes Water Holding Capacity
- A value of 150 mm was used for the water holding capacity of the soils
- Temperature and precipitation data from the Shanty Bay Climatological Station located at 44°24'N 79°37.8'W/O, 250 masl

Table D-15b: 2016 Water Budget

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-5.7	0.0	0.0	0.8	0.0	62.0	150.0	62.0	0.0
February	-6.2	0.0	0.0	0.8	0.0	67.0	150.0	67.0	0.0
March	-0.6	0.0	0.0	1.0	0.0	170.0	150.0	170.0	0.0
April	4.5	0.9	20.3	1.1	22.7	24.0	150.0	1.3	0.0
May	12.2	3.8	58.9	1.3	74.8	40.0	115.2	0.0	0.0
June	16.5	6.1	81.4	1.3	104.1	42.0	53.0	0.0	0.0
July	19.9	8.1	99.4	1.3	129.2	28.0	0.0	0.0	48.2
August	20.7	8.5	103.7	1.2	124.4	28.0	0.0	0.0	96.4
September	16.1	5.8	79.2	1.0	82.4	8.0	0.0	0.0	74.4
October	9.0	2.4	42.6	1.0	40.4	7.0	0.0	0.0	33.4
November	4.4	0.8	19.8	0.8	16.0	54.0	38.0	0.0	0.0
December	-4.9	0.0	0.0	0.8	0.0	25.0	63.0	0.0	0.0
Total	**7.2**	**36.5**			**594.2**	**555.0**		**300.3**	**252.4**
					Net Water Surplus	**47.9**	**mm**		

Table D-16b: 2017 Water Budget

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-5.0	0.0	0.0	0.8	0.0	86.0	63.0	86.0	0.0
February	-3.3	0.0	0.0	0.8	0.0	44.0	107.0	0.0	0.0
March	-3.4	0.0	0.0	1.0	0.0	55.0	150.0	12.0	0.0
April	6.1	1.4	31.0	1.1	34.7	134.0	150.0	99.3	0.0
May	9.9	2.8	50.4	1.3	64.0	132.0	150.0	68.0	0.0
June	16.0	5.8	81.4	1.3	104.2	131.0	150.0	26.8	0.0
July	18.2	7.0	92.7	1.3	120.5	58.0	87.5	0.0	0.0
August	16.7	6.2	85.0	1.2	102.0	66.0	51.5	0.0	0.0
September	15.8	5.7	80.4	1.0	83.6	88.0	55.9	0.0	0.0
October	10.5	3.1	53.4	1.0	50.7	90.0	95.1	0.0	0.0
November	0.0	0.0	0.1	0.8	0.0	89.0	150.0	34.1	0.0
December	-7.9	0.0	0.0	0.8	0.0	46.0	150.0	46.0	0.0
Total	**6.1**	**31.9**			**559.8**	**1019.0**		**372.2**	**0.0**
					Net Water Surplus	**372.2**	**mm**		

Notes:
- calculations based on Thornthwaite Mather Method
- °C calculated mean of daily temperatures for the month, in degrees Celcius
- I denotes Heat Index
- E denotes Evapotranspiration
- WHC denotes Water Holding Capacity
- A value of 150 mm was used for the water holding capacity of the soils
- Temperature and precipitation data from the WAI station located at the main quarry, elevation approx. 520 masl

Table D-17b: 2018 Water Budget

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-8.4	0.0	0.0	0.8	0.0	59.5	150.0	59.5	0.0
February	-5.1	0.0	0.0	0.8	0.0	62.8	150.0	62.8	0.0
March	-4.3	0.0	0.0	1.0	0.0	22.5	150.0	22.5	0.0
April	-0.5	0.0	0.0	1.1	0.0	103.7	150.0	103.7	0.0
May	14.9	5.2	74.2	1.3	94.2	76.2	132.0	0.0	0.0
June	16.7	6.2	83.5	1.3	106.9	43.6	68.7	0.0	0.0
July	20.3	8.3	102.3	1.3	133.0	44.9	0.0	0.0	19.4
August	19.9	8.1	100.2	1.2	120.3	84.2	0.0	0.0	36.1
September	15.5	5.5	77.3	1.0	80.4	22.4	0.0	0.0	58.0
October	5.9	1.3	28.3	1.0	26.9	104.6	77.7	0.0	0.0
November	-2.0	0.0	0.0	0.8	0.0	66.4	144.1	0.0	0.0
December	-3.5	0.0	0.0	0.8	0.0	65.4	150.0	59.5	0.0
Total	**5.8**	**34.5**			**561.6**	**756.2**		**308.0**	**113.4**
					Net Water Surplus	**194.6**	**mm**		

Table D-18b: 2019 Water Budget

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-10.4	0.0	0.0	0.8	0.0	38.4	150.0	38.4	0.0
February	-8.3	0.0	0.0	0.8	0.0	16.0	150.0	16.0	0.0
March	-5.6	0.0	0.0	1.0	0.0	33.0	150.0	33.0	0.0
April	2.7	0.4	14.3	1.1	16.0	127.9	150.0	111.9	0.0
May	9.4	2.6	48.7	1.3	61.9	96.1	150.0	34.2	0.0
June	15.5	5.5	79.7	1.3	102.0	53.9	101.9	0.0	0.0
July	20.4	8.4	104.4	1.3	135.7	24.0	0.0	0.0	9.8
August	17.8	6.8	91.3	1.2	109.5	17.2	0.0	0.0	92.3
September	14.6	5.0	75.1	1.0	78.1	73.7	0.0	0.0	4.4
October	7.8	2.0	40.6	1.0	38.5	89.1	50.6	0.0	0.0
November	-2.4	0.0	0.0	0.8	0.0	62.8	113.4	0.0	0.0
December	-3.9	0.0	0.0	0.8	0.0	28.1	141.5	0.0	0.0
Total	**4.8**	**30.7**			**541.8**	**660.2**		**233.5**	**106.6**
					Net Water Surplus	**127.0**	**mm**		

Notes:
- calculations based on Thornthwaite Mather Method
- °C calculated mean of daily temperatures for the month, in degrees Celcius
- I denotes Heat Index
- E denotes Evapotranspiration
- WHC denotes Water Holding Capacity
- A value of 150 mm was used for the water holding capacity of the soils
- Temperature and precipitation data from the WAI station located at the main quarry, elevation approx. 520 masl

Table D-19b: 2020 Water Budget

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-4.8	0.0	0.0	0.8	0.0	50.7	150.0	50.7	0.0
February	-6.6	0.0	0.0	0.8	0.0	34.1	150.0	34.1	0.0
March	-0.4	0.0	0.0	1.0	0.0	82.2	150.0	82.2	0.0
April	2.6	0.4	15.5	1.1	17.3	36.1	150.0	18.8	0.0
May	9.7	2.7	53.0	1.3	67.3	78.5	150.0	11.2	0.0
June	17.7	6.7	92.7	1.3	118.7	84.9	116.2	0.0	0.0
July	21.1	8.8	109.0	1.3	141.8	99.9	74.4	0.0	0.0
August *	18.7	7.3	97.5	1.2	117.0	47.7	5.1	0.0	0.0
September *	0.0	0.0	0.1	1.0	0.1	0.0	5.0	0.0	0.0
October *	5.4	1.1	30.6	1.0	29.1	61.3	37.2	0.0	0.0
November *	1.3	0.1	8.3	0.8	6.7	7.2	37.7	0.0	0.0
December *	-3.5	0.0	0.0	0.8	0.0	6.7	44.4	0.0	0.0
Total	**5.1**	**27.2**			**498.0**	**589.3**		**197.0**	**0.0**
					Net Water Surplus	**197.0**	**mm**		

Table D-20b: 2021 Water Budget

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-5.7	0.0	0.0	0.8	0.0	2.0	150.0	2.0	0.0
February	-8.4	0.0	0.0	0.8	0.0	20.7	150.0	20.7	0.0
March	0.1	0.0	0.7	1.0	0.8	41.1	150.0	40.3	0.0
April	5.4	1.1	27.5	1.1	30.7	51.7	150.0	21.0	0.0
May	11.3	3.4	57.6	1.3	73.2	30.8	107.6	0.0	0.0
June	19.4	7.7	98.7	1.3	126.4	78.3	59.5	0.0	0.0
July	14.2	4.9	72.4	1.3	94.1	134.9	100.3	0.0	0.0
August	18.2	7.0	92.4	1.2	110.9	60.5	49.9	0.0	0.0
September	14.2	4.8	72.1	1.0	75.0	192.4	150.0	17.3	0.0
October	10.3	3.0	52.3	1.0	49.7	82.1	150.0	32.4	0.0
November	-1.8	0.0	0.0	0.8	0.0	47.9	150.0	47.9	0.0
December	-1.8	0.0	0.0	0.8	0.0	65.9	150.0	65.9	0.0
Total	**6.3**	**32.0**			**560.8**	**808.3**		**247.5**	**0.0**
					Net Water Surplus	**247.5**	**mm**		

Notes:
- calculations based on Thornthwaite Mather Method
- °C calculated mean of daily temperatures for the month, in degrees Celcius
- I denotes Heat Index
- E denotes Evapotranspiration
- WHC denotes Water Holding Capacity
- A value of 150 mm was used for the water holding capacity of the soils
- Temperature and precipitation data from the WAI station located at the main quarry, elevation approx. 520 masl
- * 2020 data not available from Aug 21 to Oct 8 and Nov 4 to Dec 17

Table D-21b: 2022 Water Budget

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-10.8	0.0	0.0	0.8	0.0	1.5	150.0	1.5	0.0
February	-7.6	0.0	0.0	0.8	0.0	38.9	150.0	38.9	0.0
March	-2.0	0.0	0.0	1.0	0.0	50.2	150.0	50.2	0.0
April	3.7	0.6	17.5	1.1	19.6	46.8	150.0	27.2	0.0
May	14.2	4.8	70.3	1.3	89.3	38.0	98.7	0.0	0.0
June	16.7	6.2	83.6	1.3	107.0	83.2	75.0	0.0	0.0
July	19.0	7.5	95.3	1.3	123.9	40.3	0.0	0.0	8.7
August	19.2	7.6	96.3	1.2	115.6	79.2	0.0	0.0	36.4
September	14.8	5.2	73.6	1.0	76.5	77.9	1.4	0.0	0.0
October	8.8	2.3	42.5	1.0	40.4	37.5	0.0	0.0	1.5
November	3.2	0.5	14.9	0.8	12.1	47.4	35.3	0.0	0.0
December	-3.2	0.0	0.0	0.8	0.0	36.5	71.8	0.0	0.0
Total	**6.3**	**34.8**			**584.3**	**577.4**		**117.8**	**46.6**
					Net Water Surplus	**71.3**	**mm**		

Table D-22b: 2023 Water Budget

Month	Mean Temperature °C	I	E mm	Daylight Factor	E Adj. mm	Total Precipitation mm	WHC mm	Surplus mm	Deficit mm
January	-3.6	0.0	0.0	0.8	0.0	30.1	150.0	30.1	0.0
February	-5.0	0.0	0.0	0.8	0.0	33.3	150.0	33.3	0.0
March	-2.3	0.0	0.0	1.0	0.0	52.2	150.0	52.2	0.0
April	6.4	1.4	31.3	1.1	35.0	101.9	150.0	66.9	0.0
May	11.7	3.6	58.3	1.3	74.1	50.3	126.2	0.0	0.0
June	17.0	6.3	85.5	1.3	109.4	157.1	150.0	23.9	0.0
July	19.1	7.6	96.4	1.3	125.3	139.9	150.0	14.6	0.0
August	16.9	6.3	85.0	1.2	102.0	99.0	147.0	0.0	0.0
September	15.6	5.6	78.4	1.0	81.5	34.0	99.5	0.0	0.0
October	9.7	2.7	48.1	1.0	45.7	76.0	129.8	0.0	0.0
November	0.8	0.1	3.9	0.8	3.1	78.4	150.0	55.0	0.0
December	-0.2	0.0	0.0	0.8	0.0	53.7	150.0	53.7	0.0
Total	**7.2**	**33.6**			**576.3**	**905.9**		**329.6**	**0.0**
					Net Water Surplus	**329.6**	**mm**		

Notes:
- calculations based on Thornthwaite Mather Method
- °C calculated mean of daily temperatures for the month, in degrees Celcius
- I denotes Heat Index
- E denotes Evapotranspiration
- WHC denotes Water Holding Capacity
- A value of 150 mm was used for the water holding capacity of the soils
- Temperature and precipitation data from the WAI station located at the main quarry, elevation approx. 520 masl

APPENDIX E

MECP Water Well Records

Table E-1 MECP WWIS Report

MECP WWR No.	ADDRESS	COMMENTS	EASTING	NORTHING	ACCURACY	Date Completed	Contractor	COUNTY	TWP	Final Status	1st Use	2nd Use	Drilling Method
2501831	794330 Grey Rd 31 (Carmarthen Lks Farms)		559209	4913098	100 m - 300 m	8-Sep-67	Mighton's Well Drilling Ltd	GREY	OSPREY	Water Supply	Livestock		Cable Tool
2501832	794330 Grey Rd 31		559214	4913273	100 m - 300 m	4-Jan-66	Allan Loucks	GREY	OSPREY	Water Supply	Livestock	Domestic	Cable Tool
2504777	469739 Grey Rd 31		557866	4915708	30 m - 100 m	1-Oct-74	Dawson M Sewell	GREY	OSPREY	Water Supply	Domestic		Cable Tool
2507572	794330 Grey Rd 31		558964	4913273	100 m - 300 m	23-Nov-81	Mighton's Well Drilling Ltd	GREY	OSPREY	Test Hole			Cable Tool
2512533	794330 Grey Rd 31 (Carmarthen Lks Farms)		558683	4913250	Lot centroid	6-Jun-94	Mighton's Well Drilling Ltd	GREY	OSPREY	Water Supply	Domestic	Livestock	Rotary (Air)
2513638	469812 Grey Rd 31	Possibly DW2 in Osprey program	558465	4915756		21-Oct-98	Neumann Well Drilling Ltd	GREY	OSPREY	Water Supply	Domestic		Air Percussion
2515755	(no address)		558180	4916095	Lot centroid	22-Oct-03	Highland Water Well Drilling Inc.	GREY	OSPREY	Water Supply	Domestic		Rotary (Air)
7162177	469712 Grey Rd 31		557662	4915668	on WWR	26-Apr-11	Jim Clarke Well Drilling Ltd	GREY	OSPREY	Water Supply	Domestic		Cable Tool
7195976	449724 10th Conc		558324	4913657		28-Jan-13	Neumann Well Drilling Ltd	GREY	OSPREY	Water Supply	Domestic		Rotary (Convent.)
5702581	1226 Conc 10 S	Dry on completion	561508	4914300	unknown UTM	22-Nov-50	Wright Well Water Supply	SIMCOE	NOTTAWASAGA	Abandoned-Supply			Cable Tool

Table E-1 MECP WWIS Report

MECP WWR No.	ADDRESS	COMMENTS	Screen Depth (m BGS)				Water Depth (m)		Pumping Test Data					Formation Depth (m BGS)					
			Top	Bottom	Type	Dia (in)	Depth	TYPE	Static WL (m)	Final WL (m)	Duration	Rate (GPM)	Recommended Rate (GPM)	Layer	Top	Bottom	Description		
2501831	794330 Grey Rd 31		9.8	18.3	OPEN HOLE	6	12.2	FRESH	8.8	9.4	1 : 00	30	30	1	0.0	7.6		CLAY	STONES
	(Carmarthen Lks Farms)						18.0	FRESH						2	7.6	8.2		CLAY	
														3	8.2	9.8	WHITE	SHALE	
														4	9.8	17.4	WHITE	LIMESTONE	
														5	17.4	18.3	BROWN	LIMESTONE	
2501832	794330 Grey Rd 31		11.9	16.8	OPEN HOLE	5	15.2	FRESH	7.6	10.7	5 : 00	10	8	1	0.0	7.0		CLAY	GRAVEL
														2	7.0	11.6		ROCK	
														3	11.6	16.8		LIMESTONE	
2504777	469739 Grey Rd 31		6.7	27.4	OPEN HOLE	6	7.6	FRESH	8.5	25.0	3 : 00	6	5	1	0.0	2.1	BROWN	CLAY	STONES
							25.6	FRESH						2	2.1	27.4	WHITE	LIMESTONE	
2507572	794330 Grey Rd 31													1	0.0	0.3		TOPSOIL	
														2	0.3	8.5	WHITE	SHALE	HARD
2512533	794330 Grey Rd 31		7.3	30.5	PLASTIC	5	22.9	FRESH	9.8	24.4	1 : 30	10	10	1	8.5	0.3	BROWN	TOPSOIL	
	(Carmarthen Lks Farms)						30.5	Not stated						2	0.3	6.4	BROWN	CLAY	STONES STONEY
														3	6.4	7.3	BROWN	CLAY	SHALE
														4	7.3	30.5	WHITE	LIMESTONE	SHALE HARD
2513638	469812 Grey Rd 31	Possibly DW2 in	6.4	25.0	OPEN HOLE	6	12.2	FRESH	9.4	18.3	1 : 30	11	10	1	0.0	1.2	BROWN	CLAY	STONES
		Osprey program					24.4	Not stated						2	1.2	25.0		LIMESTONE	
2515755	(no address)				OPEN HOLE	6	38.1	FRESH	59.4		1 : 30	3	3	1	0.0	0.3		TOPSOIL	
							64.0	FRESH						2	0.3	17.4	BROWN	CLAY	SANDY GRAVEL
							70.1	FRESH						3	17.4	33.5	GREY	LIMESTONE	HARD
														4	33.5	53.0	BLUE	SHALE	SHALE LAYERED
														5	53.0	60.4	GREY	LIMESTONE	
														6	60.4	67.7	BROWN	LIMESTONE	
														7	67.7	68.6	BLUE	SHALE	
														8	68.6	72.5	RED	SHALE	
7162177	469712 Grey Rd 31		7.8	24.4	OPEN HOLE	6.25	12.2	FRESH	3.8	11.7	4 : 00	4	4	1	0.0	0.6		TOPSOIL	
							19.8	FRESH						2	0.6	24.4	BROWN	LIMESTONE	
7195976	449724 10th Conc		7.0	31.1	OPEN HOLE	6	19.8	FRESH	10.1	19.6	1 : 00	106	10	1	0.0	0.3		TOPSOIL	
							26.5							2	0.3	3.4		CLAY	STONES GRAVEL
														3	3.4	31.1		LIMESTONE	
5702581	1226 Conc 10 S	Dry on completion		22.6	STEEL	4								1	0.0	13.1	RED	CLAY	
														2	13.1	15.5		MEDIUM SAND	CLAY
														3	15.5	16.2		SHALE	
														4	16.2	22.6		CLAY	MEDIUM SAND

Table E-1 MECP WWIS Report

MECP WWR No.	ADDRESS	COMMENTS	EASTING	NORTHING	ACCURACY	Date Completed	Contractor	COUNTY	TWP	Final Status	1st Use	2nd Use	Drilling Method
5702618	794363 Osprey-Clearview Townline (Carmarthen Lks Farms)		559371	4913260	100 m - 300 m	14-Jul-66	Mighton's Well Drilling Ltd	SIMCOE	NOTTAWASAGA	Water Supply	Domestic		Cable Tool
5702619	794363 Osprey-Clearview Townline (Carmarthen Lks Farms)		559447	4913295	100 m - 300 m	14-Jul-66	Mighton's Well Drilling Ltd	SIMCOE	NOTTAWASAGA	Water Supply	Domestic		Cable Tool
5702620	Main Quarry		560208	4915067	100 m - 300 m	17-Apr-67	Mighton's Well Drilling Ltd	SIMCOE	NOTTAWASAGA	Water Supply	Domestic		Cable Tool
5702621	794519 Osprey-Clearview Townline		559101	4914881	unknown UTM	6-Sep-51	C. Bartley	SIMCOE	NOTTAWASAGA	Water Supply	Livestock	Domestic	Cable Tool
5702622	8525 26 / 27 Sideroad	(incorrect coordinates)	559650	4916175	unknown UTM	15-Apr-57	C. Bartley	SIMCOE	NOTTAWASAGA	Water Supply	Livestock	Domestic	Cable Tool
5702623	8525 26 / 27 Sideroad		559650	4916099	100 m - 300 m	2-Oct-62	Abercrombie & Jackson	SIMCOE	NOTTAWASAGA	Water Supply	Livestock	Domestic	Cable Tool
5705515	794565 Osprey-Clearview Townline	RW17	559034	4915453	30 m - 100 m	6-Feb-68	Dawson Sewell	SIMCOE	NOTTAWASAGA	Water Supply	Domestic		Cable Tool
5706021	Main Quarry		560114	4915023	30 m - 100 m	14-Aug-68	Dawson Sewell	SIMCOE	NOTTAWASAGA	Water Supply	Commerical		Cable Tool
5706924	794363 Osprey-Clearview Townline (Carmarthen Lks Farms)		559314	4913783	30 m - 100 m	12-Jan-70	Mighton's Well Drilling Ltd	SIMCOE	NOTTAWASAGA	Water Supply	Livestock		Cable Tool
5707531	794363 Osprey-Clearview Townline (Carmarthen Lks Farms)		559414	4913813	30 m - 100 m	16-Oct-70	Mighton's Well Drilling Ltd	SIMCOE	NOTTAWASAGA	Water Supply	Livestock	Domestic	Cable Tool

Table E-1 MECP WWIS Report

MECP WWR No.	ADDRESS	COMMENTS	Screen Depth (m BGS)				Water Depth (m)		Pumping Test Data					Formation Depth (m BGS)					
			Top	Bottom	Type	Dia (in)	Depth	TYPE	Static WL (m)	Final WL (m)	Duration	Rate (GPM)	Recommended Rate (GPM)	Layer	Top	Bottom	Description		
5702618	794363 Osprey-Clearview Townline (Carmarthen Lks Farms)		9.8	15.2	OPEN HOLE	4	12.2	FRESH	3.7	4.0	20 : 00	5	10	1	0.0	0.3	TOPSOIL		
														2	0.3	3.7	CLAY	GRAVEL	MEDIUM SAND
														3	3.7	7.6	HARDPAN		
														4	7.6	9.8	WHITE SHALE		
														5	9.8	12.2	WHITE LIMESTONE		
														6	12.2	15.2	BROWN LIMESTONE		
5702619	794363 Osprey-Clearview Townline (Carmarthen Lks Farms)		7.3	19.8	OPEN HOLE	6	9.1	FRESH	0.6	4.9	4 : 00	15	15	1	0.0	0.3	TOPSOIL		
														2	0.3	3.0	CLAY	GRAVEL	
														3	3.0	7.3	WHITE SHALE		
														4	7.3	9.1	WHITE LIMESTONE		
														5	9.1	14.6	BROWN LIMESTONE		
														6	14.6	19.8	WHITE LIMESTONE		
5702620	Main Quarry		3.7	24.4	OPEN HOLE	4	10.7	FRESH	7.3	15.2	2 : 00	9	5	1	0.0	0.3	TOPSOIL		
							15.2	FRESH						2	0.3	3.0	CLAY	STONES	
							19.8	FRESH						3	3.0	3.7	GREY SHALE		
							24.4	FRESH						4	3.7	24.4	WHITE LIMESTONE		
5702621	794519 Osprey-Clearview Townline		15.2	25.6	OPEN HOLE	4	25.6	FRESH	6.7	7.6	1 : 00	8		1	0.0	15.2	PREV. DRILLED		
														2	15.2	25.6	LIMESTONE		
5702622	8525 26 / 27 Sideroad	(incorrect coordinates)		11.6	STEEL	4	11.6	FRESH	1.2	2.4	1 : 00	4		1	0.0	0.6	BLACK TOPSOIL		
														2	0.6	8.5	YELLOW CLAY	STONES	
														3	8.5	11.6	GRAVEL	MEDIUM SAND	
5702623	8525 26 / 27 Sideroad		15.8	24.4	OPEN HOLE	6	22.9	FRESH	1.8	18.3	4 : 00	3	3	1	0.0	15.8	PREV. DRILLED		
														2	15.8	24.4	WHITE LIMESTONE		
5705515	794565 Osprey-Clearview Townline	RW17	1.8	7.6	OPEN HOLE	4	3.7	FRESH	2.7	3.7	3 : 00	12	10	1	0.0	0.3	TOPSOIL		
														2	0.3	1.5	TOPSOIL	MEDIUM SAND	
														3	1.5	7.6	BROWN LIMESTONE		
5706021	Main Quarry		6.4	24.7	OPEN HOLE	4	14.0	FRESH	12.8	22.3	3 : 00	6	5	1	0.0	24.7	LIMESTONE		
5706924	794363 Osprey-Clearview Townline (Carmarthen Lks Farms)		9.4	15.8	OPEN HOLE	6	10.7	FRESH	4.9	6.1	1 : 00	27	20	1	0.0	3.0	BROWN CLAY	STONES	
							13.7	FRESH						2	3.0	9.4	BROWN SHALE		
							15.8	FRESH						3	9.4	15.8	WHITE LIMESTONE		
5707531	794363 Osprey-Clearview Townline (Carmarthen Lks Farms)		6.7	36.6	OPEN HOLE	6	13.7	FRESH	6.1	33.5	2 : 00	7	7	1	0.0	1.5	BROWN CLAY	STONES	
														2	1.5	6.4	WHITE SHALE		
														3	6.4	8.5	WHITE LIMESTONE		
														4	8.5	14.0	BROWN LIMESTONE		
														5	14.0	25.9	WHITE LIMESTONE		
														6	25.9	32.0	BROWN LIMESTONE		
														7	32.0	36.3	WHITE LIMESTONE		
														8	36.3	36.6	BLUE SHALE		

Table E-1 MECP WWIS Report

MECP WWR No.	ADDRESS	COMMENTS	EASTING	NORTHING	ACCURACY	Date Completed	Contractor	COUNTY	TWP	Final Status	1st Use	2nd Use	Drilling Method
5707820	794363 Osprey-Clearview Townline (Carmarthen Lks Farms)		559264	4913773	30 m - 100 m	10-Feb-71	Mighton's Well Drilling Ltd	SIMCOE	NOTTAWASAGA	Water Supply	Domestic		Cable Tool
5709666	794363 Osprey-Clearview Townline (Carmarthen Lks Farms)		559364	4913873	30 m - 100 m	29-Mar-73	Mighton's Well Drilling Ltd	SIMCOE	NOTTAWASAGA	Water Supply	Livestock	Domestic	Rotary (Air)
5709668	794363 Osprey-Clearview Townline (Carmarthen Lks Farms)		559284	4913973	30 m - 100 m	29-Mar-73	Mighton's Well Drilling Ltd	SIMCOE	NOTTAWASAGA	Water Supply	Livestock		Rotary (Air)
5709669	794363 Osprey-Clearview Townline (Carmarthen Lks Farms)		559284	4913853	30 m - 100 m	29-Mar-73	Mighton's Well Drilling Ltd	SIMCOE	NOTTAWASAGA	Water Supply	Livestock	Domestic	Rotary (Air)
5711417	8592 26 / 27 Sideroad	RW3	559221	4916180	30 m - 100 m	1-Oct-74	Dawson M Sewell	SIMCOE	NOTTAWASAGA	Water Supply	Domestic		Cable Tool
5713359	9686 Cty Rd 91		560914	4915473	100 m - 300 m	9-Aug-76	Dawson M Sewell	SIMCOE	NOTTAWASAGA	Water Supply	Domestic		Cable Tool
5715252	1152 Conc 10 N	(incorrect coordinates)	560314	4916123	100 m - 300 m	16-Jun-78	Dawson M Sewell	SIMCOE	NOTTAWASAGA	Water Supply	Domestic		Cable Tool
5717017	1182 Conc 10 S		561464	4914623	100 m - 300 m	17-Oct-80	Dawson M Sewell	SIMCOE	NOTTAWASAGA	Water Supply	Livestock	Domestic	Cable Tool

Table E-1 MECP WWIS Report

MECP WWR No.	ADDRESS	COMMENTS	Screen Depth (m BGS)				Water Depth (m)		Pumping Test Data					Formation Depth (m BGS)					
			Top	Bottom	Type	Dia (in)	Depth	TYPE	Static WL (m)	Final WL (m)	Duration	Rate (GPM)	Recommended Rate (GPM)	Layer	Top	Bottom	Description		
5707820	794363 Osprey-Clearview Townline (Carmarthen Lks Farms)		6.1	35.4	OPEN HOLE	6	30.5	FRESH	6.1	6.7	12 : 00	12	20	1	0.0	0.3	BROWN	TOPSOIL	
														2	0.3	2.1	BROWN	CLAY	STONES
														3	2.1	6.1	WHITE	LIMESTONE	SHALE
														4	6.1	35.4	WHITE	LIMESTONE	
5709666	794363 Osprey-Clearview Townline (Carmarthen Lks Farms)			6.7	STEEL	6	15.2	FRESH	4.3	30.5	1 : 30	18	18	1	0.0	2.4	BROWN	CLAY	
							25.9	FRESH						2	2.4	3.0	WHITE	LIMESTONE	
							28.7	FRESH						3	3.0	6.1	WHITE	SHALE	
							39.6	FRESH						4	6.1	25.9	WHITE	LIMESTONE	
							48.8	FRESH						5	25.9	27.7	BROWN	LIMESTONE	
														6	27.7	31.1	BLUE	LIMESTONE	
														7	31.1	42.1	GREY	LIMESTONE	
														8	42.1	43.6	BLUE	SHALE	
														9	43.6	45.4	RED	SHALE	
														10	45.4	49.4	GREY	SHALE	
5709668	794363 Osprey-Clearview Townline (Carmarthen Lks Farms)			4.6	STEEL	6	12.2	FRESH	7.3	38.1	1 : 00	15	15	1	0.0	3.0	BROWN	CLAY	STONES
							13.7	FRESH						2	3.0	4.3	WHITE	SHALE	
							39.6	FRESH						3	4.3	39.6	WHITE	LIMESTONE	
							41.1	FRESH						4	39.6	41.1	BROWN	LIMESTONE	
														5	41.1	48.8	RED	SHALE	
5709669	794363 Osprey-Clearview Townline (Carmarthen Lks Farms)			4.6	STEEL	6	13.7	FRESH	9.1	30.5	1 : 00	10	10	1	0.0	3.0	BROWN	CLAY	STONES
														2	3.0	4.6	WHITE	SHALE	
														3	4.6	42.7	WHITE	LIMESTONE	ROCK
5711417	8592 26 / 27 Sideroad	RW3	14.9	17.1	OPEN HOLE	5	15.2	FRESH	9.4	10.7	4 : 00	9	8	1	0.0	0.3	BLACK	TOPSOIL	
														2	0.3	1.5	BROWN	CLAY	
														3	1.5	10.4	RED	CLAY	STONES
														4	10.4	14.6	RED	CLAY	
														5	14.6	17.1	BROWN	LIMESTONE	
5713359	9686 Cty Rd 91		7.0	16.8	OPEN HOLE	6	8.8	FRESH	6.1	12.2	4 : 00	4	4	1	0.0	0.3	BLACK	TOPSOIL	
							14.6	FRESH						2	0.3	0.9	BROWN	CLAY	GRAVEL
														3	0.9	4.9	BROWN	LIMESTONE	FRACTURED LAYERED
														4	4.9	16.8	WHITE	LIMESTONE	
5715252	1152 Conc 10 N	(incorrect coordinates)	6.4	16.2	OPEN HOLE	5	6.7	FRESH	1.5	9.1	2 : 00	10	10	1	0.0	0.3	BLACK	TOPSOIL	
							14.3	FRESH						2	0.3	1.8	BROWN	CLAY	TILL
														3	1.8	16.2	WHITE	LIMESTONE	
5717017	1182 Conc 10 S		28.0	36.6	OPEN HOLE	6	33.5	FRESH	12.2	33.5	3 : 00	4	4	1	0.0	7.6	BROWN	CLAY	GRAVEL STONES
														2	7.6	14.0	GREY	CLAY	
														3	14.0	26.2	BROWN	SAND	CLAY
														4	26.2	27.4	RED	CLAY	
														5	27.4	36.6	RED	SHALE	

Table E-1 MECP WWIS Report

MECP WWR No.	ADDRESS	COMMENTS	EASTING	NORTHING	ACCURACY	Date Completed	Contractor	COUNTY	TWP	Final Status	1st Use	2nd Use	Drilling Method
5718124	9611 Cty Rd 91	RW5	561414	4915373	100 m - 300 m	3-Aug-82	Dawson M Sewell	SIMCOE	NOTTAWASAGA	Water Supply	Domestic		Cable Tool
5719561	1174 Conc 10 S	RW11	561764	4914673	100 m - 300 m	4-Jan-85	Mighton's Well Drilling Ltd	SIMCOE	NOTTAWASAGA	Water Supply	Domestic		Rotary (Air)
5722826	8463 26 / 27 Sideroad		559536	4915882	Lot centroid	18-Jan-88	GSPrimo Design Inc.	SIMCOE	NOTTAWASAGA	Water Supply	Domestic		Cable Tool
5725345	794363 Osprey-Clearview Townline (Carmarthen Lks Farms)		559397	4913297	OBM	29-Aug-89	Mighton's Well Drilling Ltd	SIMCOE	NOTTAWASAGA	Water Supply	Domestic		Rotary (Air)
5727227	1182 Conc 10 S		561142	4914475	Lot centroid	6-Sep-90	Mighton's Well Drilling Ltd	SIMCOE	NOTTAWASAGA	Water Supply	Domestic		Rotary (Air)
5727704	Main Quarry	(incorrect coordinates)	559740	4914679	Lot centroid	16-Jan-91	Mighton's Well Drilling Ltd	SIMCOE	NOTTAWASAGA	Water Supply	Domestic		Cable Tool
5733354	1218 Conc 10 N	(incorrect coordinates)	561397	4916620	OBM	17-Apr-98	Jim Clarke Well Drilling Ltd	SIMCOE	NOTTAWASAGA	Water Supply	Domestic		Cable Tool
5733789	8525 26 / 27 Sideroad	RW4	559619	4916172	OBM	21-Oct-98	Neumann Well Drilling Ltd	SIMCOE	NOTTAWASAGA	Water Supply	Domestic		Rotary (Air)
5733887	1100 Conc 10 S		561048	4915081	Lot centroid	21-Dec-98	Neumann Well Drilling Ltd	SIMCOE	NOTTAWASAGA	Water Supply	Domestic		Rotary (Air)

Table E-1 MECP WWIS Report

MECP WWR No.	ADDRESS	COMMENTS	Screen Depth (m BGS)				Water Depth (m)		Pumping Test Data					Formation Depth (m BGS)						
			Top	Bottom	Type	Dia (in)	Depth	TYPE	Static WL (m)	Final WL (m)	Duration	Rate (GPM)	Recommended Rate (GPM)	Layer	Top	Bottom	Description			
5718124	9611 Cty Rd 91	RW5		21.0	STEEL	6	28.3	FRESH	17.7	32.0	4 : 00	4	3	1	0.0	14.0	BROWN	LIMESTONE	FRACTURED	
														2	14.0	17.7	BLUE	CLAY		
														3	17.7	25.6	RED	SHALE		
														4	25.6	35.1	RED	SHALE	LAYERED	
5719561	1174 Conc 10 S	RW11		48.8	STEEL	6	53.3	FRESH	24.4	42.7	1 : 00	5	5	1	0.0	0.3	BROWN	TOPSOIL		
														2	0.3	15.2	BROWN	CLAY	STONES	
														3	15.2	30.5	GREY	CLAY	SHALE	LAYERED
														4	30.5	42.7	BROWN	SHALE	FRACTURED	
														5	42.7	54.9	BROWN	SHALE	HARD	
5722826	8463 26 / 27 Sideroad		28.3	38.1	OPEN HOLE	6	33.5	FRESH	6.1	30.5	2 : 20	12	5	1	0.0	0.6	BLACK	TOPSOIL		
														2	0.6	7.6	BROWN	HARDPAN	STONES	
														3	7.6	28.3	BROWN	SAND		
														4	28.3	36.0	BROWN	ROCK		
														5	36.0	38.1	GREY	ROCK		
5725345	794363 Osprey-Clearview			5.5	STEEL	6	5.5	GAS	7.9	30.5	1 : 00	12	10	1	0.0	2.7	BROWN	CLAY	STONES	
	Townline						31.4	Not stated						2	2.7	4.0	WHITE	LIMESTONE		
	(Carmarthen Lks Farms)													3	4.0	32.0	WHITE	LIMESTONE	HARD	
														4	32.0	36.6	RED	SHALE	HARD	SOFT
5727227	1182 Conc 10 S			10.7	STEEL	6	10.7	GAS	6.1	6.4	1 : 00	10	10	1	0.0	0.3	BROWN	TOPSOIL		
														2	0.3	3.0	BROWN	CLAY	STONES	STONEY
														3	3.0	10.7	BROWN	STONES	GRAVEL	
														4	10.7	11.9	BROWN	SAND	GRAVEL	WATER-BEARING
5727704	Main Quarry	(incorrect coordinates)		23.5	STEEL	6	23.5	Not stated	1.8	20.4	4 : 00	8	7	1	0.0	3.7	BROWN	CLAY	STONES	STONEY
							24.7	Not stated						2	3.7	13.7	GREY	CLAY	GRAVEL	LAYERED
														3	13.7	15.2	GREY	CLAY	SAND	
														4	15.2	23.5	GREY	CLAY	SAND	SANDY
														5	23.5	24.7	BROWN	SAND	WATER-BEARING	
5733354	1218 Conc 10 N	(incorrect coordinates)	6.1	23.2	OPEN HOLE	6	9.8	FRESH	4.6	12.2	15 : 00	4	5	1	0.0	5.5	BROWN	CLAY	STONES	
							21.3	FRESH						2	5.5	23.2	RED	SHALE	LAYERED	
5733789	8525 26 / 27 Sideroad	RW4	8.5	55.5	OPEN HOLE	6	15.2	FRESH	2.1	54.9		2	2	1	0.0	0.3		TOPSOIL		
														2	0.3	1.8	BROWN	CLAY	STONES	
														3	1.8	25.3		LIMESTONE		
														4	25.3	42.7	BLUE	SHALE		
														5	42.7	53.3	BLUE-GREY	ROCK		
														6	53.3	55.5	GREY	SHALE		
5733887	1100 Conc 10 S		6.4	34.7	OPEN HOLE	6	19.8	FRESH	20.4	24.4	1 : 30	3	3	1	0.0	0.3		TOPSOIL		
							21.6	Not stated						2	0.3	1.5		CLAY	STONES	
														3	1.5	16.2		LIMESTONE		
														4	16.2	34.7	GREY	SHALE		

Table E-1 MECP WWIS Report

MECP WWR No.	ADDRESS	COMMENTS	EASTING	NORTHING	ACCURACY	Date Completed	Contractor	COUNTY	TWP	Final Status	1st Use	2nd Use	Drilling Method
5734282	Main Quarry	(incorrect coordinates)	559740	4914679	Lot centroid	19-Jul-99	Highland Water Well Drilling Inc.	SIMCOE	NOTTAWASAGA	Test Hole	Not Used		Rotary (Air)
5739069	Extension Quarry	TW04-2	559086	4914929	on WWR	13-Sep-04	Highland Water Well Drilling Inc.	SIMCOE	NOTTAWASAGA	Observation Wells	Not Used		Rotary (Air)
5739070	Extension Quarry	TW04-1	559095	4914922	on WWR	13-Sep-04	Highland Water Well Drilling Inc.	SIMCOE	NOTTAWASAGA	Observation Wells	Not Used		Rotary (Air)
5739071	Extension Quarry	TW04-3	559096	4914907	on WWR	13-Sep-04	Highland Water Well Drilling Inc.	SIMCOE	NOTTAWASAGA	Observation Wells	Not Used		Rotary (Air)
7053293	Main Quarry	Office Well	560158	4915086	on WWR	10-Dec-07	Neumann Well Drilling Ltd	SIMCOE	NOTTAWASAGA	Water Supply	Commerical		Air Percussion
7118792	9774 Cty Rd 91	BH08-1 - BH08-3	560490	4915411	on WWR	2-Feb-09	Lantech Drilling Services Inc.	SIMCOE	NOTTAWASAGA	Test Hole	Monitoring and Test Hole		Diamond
7118865	Extension Quarry	Well Decom	560211	4915345	on WWR	2-Feb-09	Neumann Well Drilling Ltd	SIMCOE	NOTTAWASAGA				
7118866	Extension Quarry	RW19	560221	4915355	on WWR	2-Feb-09	Neumann Well Drilling Ltd	SIMCOE	NOTTAWASAGA	Water Supply	Domestic		Rotary (Convent.)
7144586	9774 Cty Rd 91	RW16 casing ext.	560479	4915393	on WWR	12-May-10	Allan Wright Water Wells Inc.	SIMCOE	NOTTAWASAGA	Water Supply	Domestic		Other Method
7160031	1218 Conc 10 N		560980	4916394	From GIS	7-Mar-11	Durham Well Drilling	SIMCOE	NOTTAWASAGA	Water Supply	Domestic		Rotary (Convent.)

Table E-1 MECP WWIS Report

MECP WWR No.	ADDRESS	COMMENTS	Screen Depth (m BGS)				Water Depth (m)		Pumping Test Data					Formation Depth (m BGS)						
			Top	Bottom	Type	Dia (in)	Depth	TYPE	Static WL (m)	Final WL (m)	Duration	Rate (GPM)	Recommended Rate (GPM)	Layer	Top	Bottom	Description			
5734282	Main Quarry	(incorrect coordinates)	9.4	32.9		6	10.7	FRESH	1.5		1 : 00	35	35	1	0.0	0.3		TOPSOIL		
							29.0	FRESH						2	0.3	4.3	BROWN	CLAY	SANDY	GRAVEL
														3	4.3	9.4	BROWN	LIMESTONE	FRACTURED	
														4	9.4	29.0	BROWN	LIMESTONE		
														5	29.0	31.4	GREY	LIMESTONE		
														6	31.4	32.9	BROWN	LIMESTONE		
5739069	Extension Quarry	TW04-2	3.0	34.1	OPEN HOLE	6	15.2	FRESH	1.8					1	0.0	0.3		TOPSOIL		
							22.6	FRESH						2	0.3	1.2	BROWN	CLAY	GRAVEL	
														3	1.2	21.3	WHITE	LIMESTONE		
														4	21.3	31.7	GREY	LIMESTONE		
														5	31.7	33.5	BROWN	LIMESTONE		
														6	33.5	34.1	BLUE	SHALE	LIMESTONE	
5739070	Extension Quarry	TW04-1	2.7	37.5	OPEN HOLE	6	4.9	FRESH	2.3					1	0.0	0.3		TOPSOIL		
							15.8	FRESH						2	0.3	1.2	BROWN	CLAY	GRAVEL	
							33.5	FRESH						3	1.2	4.6	GREY	LIMESTONE		
														4	4.6	4.9	BROWN		SOFT	
														5	4.9	36.9	GREY	LIMESTONE		
														6	36.9	37.5	BLUE	SHALE		
5739071	Extension Quarry	TW04-3	7.0	34.1	OPEN HOLE	6	15.2	FRESH	13.4					1	0.0	0.3		TOPSOIL		
							21.6	FRESH						2	0.3	1.5	BROWN	CLAY	GRAVEL	
														3	1.5	21.3	WHITE	LIMESTONE		
														4	21.3	25.3	WHITE	LIMESTONE	CLAY	LAYERED
														5	25.3	33.8	YELLOW	LIMESTONE		
														6	33.8	34.1	GREY	SHALE	LIMESTONE	
7053293	Main Quarry	Office Well		8.2	STEEL	6.25	26.5	FRESH	18.9	19.5	48 : 00	10	10	1	0.0	0.9		TOPSOIL	CLAY	STONES
							29.0							2	0.9	37.2		LIMESTONE		
							32.6													
7118792	9774 Cty Rd 91	BH08-1 - BH08-3		2.4	STEEL	4								1	0.0	0.6	BROWN	TOPSOIL		
														2	0.6	2.1	GREY	SAND	SILT	TILL
														3	2.1	24.4	GREY	LIMESTONE	ROCK	
														4	24.4	27.4	GREY	SHALE	ROCK	
7118865	Extension Quarry	Well Decom							12.2											
7118866	Extension Quarry	RW19	9.1	36.3	OPEN HOLE	6	27.4		11.0		5 : 00	2	2	1	0.0	0.3		TOPSOIL		
							29.0							2	0.3	2.1	BROWN	CLAY		
														3	2.1	5.5		CLAY	GRAVEL	STONES
														4	5.5	7.3		LIMESTONE	CLAY	
														5	7.3	36.3		LIMESTONE		
7144586	9774 Cty Rd 91	RW16 casing ext.			STEEL	14								1	0.0					
7160031	1218 Conc 10 N			15.8	STEEL	6	61.0	FRESH	50.3	54.9	2 : 15	0.5	0.5	1	0.0	13.7	RED	CLAY		HARD
							85.3	FRESH						2	13.7	85.3	BROWN	SHALE	LIMESTONE	HARD

Table E-1 MECP WWIS Report

MECP WWR No.	ADDRESS	COMMENTS	EASTING	NORTHING	ACCURACY	Date Completed	Contractor	COUNTY	TWP	Final Status	1st Use	2nd Use	Drilling Method
7176122	Main Quarry	5706021 Decommission	560259	4915107	on WWR	1-Feb-12	Neumann Well Drilling Ltd	SIMCOE	NOTTAWASAGA				
7228066	Main Quarry	MW2 Decommission	559753	4914395	on WWR	23-Sep-14	Neumann Well Drilling Ltd	SIMCOE	NOTTAWASAGA				
7231995	Extension Quarry	NW1	560057	4915129	on WWR	19-Nov-14	Keith Lang Water Well Drilling Inc.	SIMCOE	NOTTAWASAGA	Observation Wells	Monitoring		Rotary (Convent.)
7231996	Extension Quarry	NW9 (incorrect coordinates)	559034	4915972	on WWR	19-Nov-14	Keith Lang Water Well Drilling Inc.	SIMCOE	NOTTAWASAGA		Monitoring		Rotary (Convent.)
7231997	Extension Quarry	NW8	559233	4915012	on WWR	19-Nov-14	Keith Lang Water Well Drilling Inc.	SIMCOE	NOTTAWASAGA	Observation Wells	Monitoring		Rotary (Convent.)
7231998	Extension Quarry	NW2	560108	4915314	on WWR	19-Nov-14	Keith Lang Water Well Drilling Inc.	SIMCOE	NOTTAWASAGA	Observation Wells	Monitoring		Rotary (Convent.)
7231999	Extension Quarry	NW3	560218	4915466	on WWR	19-Nov-14	Keith Lang Water Well Drilling Inc.	SIMCOE	NOTTAWASAGA	Observation Wells	Monitoring		Rotary (Convent.)
7232000	Extension Quarry	IW2	560519	4915489	on WWR	19-Nov-14	Keith Lang Water Well Drilling Inc.	SIMCOE	NOTTAWASAGA	Water Supply	Monitoring		Rotary (Convent.)
7232001	Extension Quarry	IW1a	560550	4915270	on WWR	19-Nov-14	Keith Lang Water Well Drilling Inc.	SIMCOE	NOTTAWASAGA	Recharge Well	Monitoring		Rotary (Convent.)
7232002	Extension Quarry	IW1	560553	4915272	on WWR	19-Nov-14	Keith Lang Water Well Drilling Inc.	SIMCOE	NOTTAWASAGA	Recharge Well	Monitoring		Rotary (Convent.)
7232003	Extension Quarry	NW10-Shallow	558932	4915587	on WWR	19-Nov-14	Keith Lang Water Well Drilling Inc.	SIMCOE	NOTTAWASAGA	Observation Wells	Monitoring		Rotary (Convent.)
7232004	Extension Quarry	NW10-Deep	558932	4915588	on WWR	19-Nov-14	Keith Lang Water Well Drilling Inc.	SIMCOE	NOTTAWASAGA	Observation Wells	Monitoring		Rotary (Convent.)

Table E-1 MECP WWIS Report

MECP WWR No.	ADDRESS	COMMENTS	Screen Depth (m BGS)				Water Depth (m)		Pumping Test Data					Formation Depth (m BGS)						
			Top	Bottom	Type	Dia (in)	Depth	TYPE	Static WL (m)	Final WL (m)	Duration	Rate (GPM)	Recommended Rate (GPM)	Layer	Top	Bottom	Description			
7176122	Main Quarry	5706021 Decommission																		
7228066	Main Quarry	MW2 Decommission																		
7231995	Extension Quarry	NW1	1.8	42.7	OPEN HOLE	5.5								1	0.0	0.9	BROWN	SILT	CLAY	STONES
														2	0.9	17.7	BROWN	LIMESTONE	FRACTURED	
														3	17.7	40.8	GREY	LIMESTONE		
														4	40.8	42.7	GREY	SHALE		
7231996	Extension Quarry	NW9	8.2	41.8	OPEN HOLE	5.5								1	0.0	7.3	BROWN	CLAY	STONES	SILTY
		(incorrect coordinates)												2	7.3	20.4	BROWN	LIMESTONE		
														3	20.4	40.2	GREY	LIMESTONE		
														4	40.2	41.8	GREY	SHALE		
7231997	Extension Quarry	NW8	4.6	43.0	OPEN HOLE	5.5								1	0.0	3.7	BROWN	CLAY	STONES	SILTY
														2	3.7	19.8	BROWN	LIMESTONE		
														3	19.8	40.8	GREY	LIMESTONE		
														4	40.8	43.0	GREY	SHALE		
7231998	Extension Quarry	NW2	4.3	53.3	OPEN HOLE	5.5								1	0.0	3.7	BROWN	SILT	CLAY	STONES
														2	3.7	23.2	BROWN	LIMESTONE		
														3	23.2	51.2	GREY	LIMESTONE		
														4	51.2	53.3	GREY	SHALE		
7231999	Extension Quarry	NW3	4.6	30.5	OPEN HOLE	5.5								1	0.0	2.4	BROWN	SILT	CLAY	STONES
														2	2.4	14.0	BROWN	LIMESTONE		
														3	14.0	29.0	GREY	LIMESTONE		
														4	29.0	30.5	GREY	SHALE		
7232000	Extension Quarry	IW2	4.6	24.4	OPEN HOLE	5.5								1	0.0	1.2	BROWN	SILT	CLAY	STONES
														2	1.2	12.2	BROWN	LIMESTONE		
														3	12.2	22.9	GREY	LIMESTONE		
														4	22.9	24.4	GREY	SHALE		
7232001	Extension Quarry	IW1a	4.6	27.4	OPEN HOLE	6								1	0.0	1.5	BROWN	SILT	CLAY	STONES
														2	1.5	13.7	BROWN	LIMESTONE		
														3	13.7	25.9	GREY	LIMESTONE		
														4	25.9	27.4	GREY	SHALE		
7232002	Extension Quarry	IW1	4.6	27.4	OPEN HOLE	5.5								1	0.0	1.5	BROWN	SILT	CLAY	STONES
														2	1.5	14.0	BROWN	LIMESTONE		
														3	14.0	25.9	GREY	LIMESTONE		
														4	25.9	27.4	GREY	SHALE		
7232003	Extension Quarry	NW10-Shallow		1.8	PLASTIC	2								1	0.0	0.9	BROWN	SILT	CLAY	STONES
														2	0.9	3.0	BROWN	LIMESTONE		
7232004	Extension Quarry	NW10-Deep	1.8	30.5	OPEN HOLE	5.5								1	0.0	0.9	BROWN	SILT	CLAY	STONES
														2	0.9	16.5	BROWN	LIMESTONE		
														3	16.5	28.7	GREY	LIMESTONE		
														4	28.7	30.5	GREY	SHALE		

Table E-1 MECP WWIS Report

MECP WWR No.	ADDRESS	COMMENTS	EASTING	NORTHING	ACCURACY	Date Completed	Contractor	COUNTY	TWP	Final Status	1st Use	2nd Use	Drilling Method
7232007	Extension Quarry	IW4 (incorrect coordinates)	560023	4915216	on WWR	19-Nov-14	Keith Lang Water Well Drilling Inc.	SIMCOE	NOTTAWASAGA	Observation Wells	Monitoring		Rotary (Convent.)
7232008	Extension Quarry	IW3	560217	4915926	on WWR	19-Nov-14	Keith Lang Water Well Drilling Inc.	SIMCOE	NOTTAWASAGA	Recharge Well	Monitoring		Rotary (Convent.)
7232009	Extension Quarry	NW4	559676	4915230	on WWR	19-Nov-14	Keith Lang Water Well Drilling Inc.	SIMCOE	NOTTAWASAGA	Observation Wells	Monitoring		Rotary (Convent.)
7232010	Extension Quarry	NW5	559642	4915405	on WWR	19-Nov-14	Keith Lang Water Well Drilling Inc.	SIMCOE	NOTTAWASAGA	Observation Wells	Monitoring		Rotary (Convent.)
7232011	Extension Quarry	NW7	559472	4915177	on WWR	19-Nov-14	Keith Lang Water Well Drilling Inc.	SIMCOE	NOTTAWASAGA	Observation Wells	Monitoring		Rotary (Convent.)
7248287	Main Quarry	Shop Well	560227	4914912	on WWR	16-Sep-15	Neumann Well Drilling Ltd	SIMCOE	NOTTAWASAGA	Water Supply	Commerical		Rotary (Convent.)

Table E-1 MECP WWIS Report

MECP WWR No.	ADDRESS	COMMENTS	Screen Depth (m BGS)				Water Depth (m)		Pumping Test Data					Formation Depth (m BGS)						
			Top	Bottom	Type	Dia (in)	Depth	TYPE	Static WL (m)	Final WL (m)	Duration	Rate (GPM)	Recommended Rate (GPM)	Layer	Top	Bottom	Description			
7232007	Extension Quarry	IW4	10.4	27.4	OPEN HOLE	6.5								1	0.0	7.6	BROWN	SILT	CLAY	STONES
		(incorrect coordinates)												2	7.6	13.1	BROWN	LIMESTONE		
														3	13.1	25.0	GREY	LIMESTONE		
														4	25.0	27.4	GREY	SHALE		
7232008	Extension Quarry	IW3	3.7	33.5	OPEN HOLE	5.5								1	0.0	1.2	BROWN	SILT	CLAY	STONES
														2	1.2	17.7	BROWN	LIMESTONE		
														3	17.7	31.7	GREY	LIMESTONE		
														4	31.7	33.5	GREY	SHALE		
7232009	Extension Quarry	NW4	3.7	48.8	OPEN HOLE	5.5								1	0.0	2.4	BROWN	CLAY	STONES	SILT
														2	2.4	21.6	BROWN	LIMESTONE		
														3	21.6	46.9	GREY	LIMESTONE		
														4	46.9	48.8	GREY	SHALE		
7232010	Extension Quarry	NW5	10.7	39.6	OPEN HOLE	5.5								1	0.0	10.1	BROWN	SILT	CLAY	STONES
														2	10.1	19.8	BROWN	LIMESTONE		
														3	19.8	37.8	GREY	LIMESTONE		
														4	37.8	39.6	GREY	SHALE		
7232011	Extension Quarry	NW7	6.7	42.1	OPEN HOLE	5.5								1	0.0	5.8	BROWN	SILT	CLAY	STONES
														2	5.8	19.8	BROWN	LIMESTONE		
														3	19.8	40.2	GREY	LIMESTONE		
														4	40.2	42.1	GREY	SHALE		
7248287	Main Quarry	Shop Well	5.9	20.4	OPEN HOLE	6.125	9.4	Untested	0.9	13.7	1 : 00	3	3	1	0.0	0.9		LIMESTONE	FILL	
							10.1							2	0.9	20.1		LIMESTONE		
							13.4							3	20.1	20.4	BLUE	SHALE		

Table E-2 Parcel Address Summary

Address	Historical Reference	Water Supply Type	Comments
Municipality of Grey Highlands, Grey County			
1. 469712 Grey Road 31			
2. 469724 Grey Road 31			
3. 469738 Grey Road 31			DW2 *(monitored as part of Osprey Quarry program)*
4. 469812 Grey Road 31	Kijowski	Drilled well	DW4 *(monitored as part of Osprey Quarry program)*
5. 794602 Grey Road 31			
6. 794592 Grey Road 31			
7. 794518 Grey Road 31	Kekanovic	Drilled well	St. Marys Cement Osprey Quarry licence; RW9 *(no longer monitored)*
8. 794492 Grey Road 31			WAI owned lands
9. 794330 Grey Road 31			
10. 449718 10th Concession	Scott	Drilled well	
11. 449724 10th Concession			DW5 *(monitored as part of Osprey Quarry program)*
12. 449759 10th Concession			
13. 449787 10th Concession	Kenwell	Drilled well	
Clearview Township, Simcoe County			
1. 8317 26 / 27 Sideroad	Sestito	Spring / cistern	Spring discharge piped to water barrel; SW24A
2. 8318 26 / 27 Sideroad			
3. 8396 26 / 27 Sideroad			Nottawasaga Lookout Provincial Park lands
4. 8462 26 / 27 Sideroad	Cowan	Spring	RW10 *(no longer monitored)*
5. 8463 26 / 27 Sideroad			WAI owned lands
6. 8525 26 / 27 Sideroad	Young	Drilled well	RW4 *(no longer monitored)*
7. 8563 26 / 27 Sideroad			
8. 8592 26 / 27 Sideroad	Urbaniak	Drilled well	RW3
9. 794565 Osprey-Clearview Townline	Silligman		WAI owned lands; RW17
10. 794533 Osprey-Clearview Townline	McDonald		Duntroon Extension Quarry lands
11. 794519 Osprey-Clearview Townline			WAI owned lands
12. 794363 Osprey-Clearview Townline		Drilled wells	Carmarthen Lakes Farms lands; five drilled wells designated CLF1 - CLF5 *(CLF1 and CLF2 no longer monitored)*

Table E-2 Parcel Address Summary

Address	Historical Reference	Water Supply Type	Comments
Clearview Township, Simcoe County (continued)			
13. 9611 County Road 91	Swinton	Drilled well	RW5
14. 9667 County Road 91			
15. 9686 County Road 91			
16. 9730 County Road 91	Dempsey	Drilled well	RW1
17. 9749 County Road 91	Fabrizio	Drilled well	RW2
18. 9771 County Road 91			WAI owned lands
19. 9774 County Road 91	Bridson	Drilled well	WAI owned lands; RW16
20. 9828 County Road 91	Millar	Drilled / dug wells	Duntroon Extension Quarry lands; RW18 and RW19 *(no longer monitored)*
21. 9845 County Road 91			WAI owned lands; RW15 *(no longer monitored)*
22. 9861 County Road 91			Duntroon Main Quarry lands; Office well *(no longer monitored)*
23. 1026 Concession 10 North	Franks	Spring / cistern	Three concrete dug well tiles collect water and distribute to cistern; SW11
24. 1152 Concession 10 North	Franks	Spring / cistern	Spring discharge directed to cistern by intake pipe; SW21C
25. 1218 Concession 10 North			
26. 1284 Concession 10 North			
27. 1100 Concession 10 South	Sampson	Dug well	Dug well constructed in 1800's with stone well crib and corrugated sheet metal lid; RW6 *(no longer monitored)*
28. 1122 Concession 10 South	Skippen	Drilled well	RW7
29. 1174 Concession 10 South	Headon	Dug well	RW11 *(no longer monitored)*
30. 1182 Concession 10 South			
31. 1226 Concession 10 South			Duntroon Highlands Golf lands
32. 1286 Concession 10 South			
33. 1352 Concession 10 South			

APPENDIX F

Hydraulic Conductivity Testing Data

Figure F-1

TEST HOLE 1

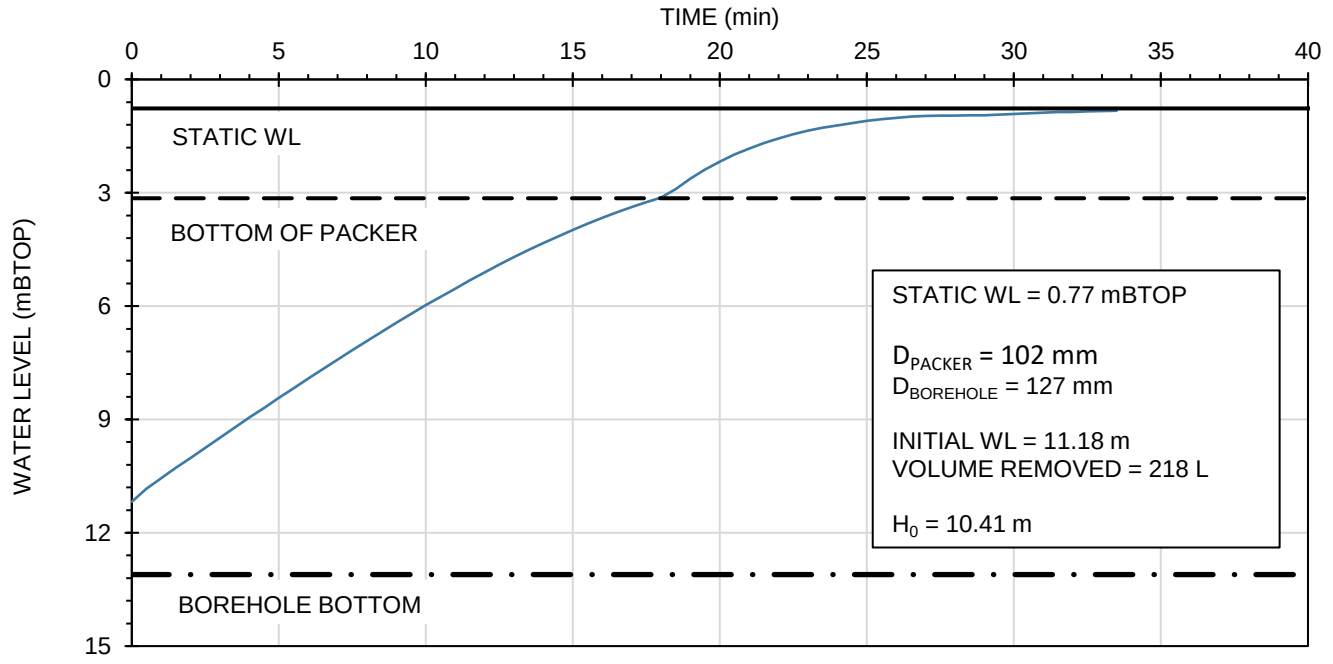
Rising Head Slug Test Analysis

Hvorslev Method

Proposed Duntroon Quarry Deepening

Date: August 22, 2024

Performed by:
Country Water Systems



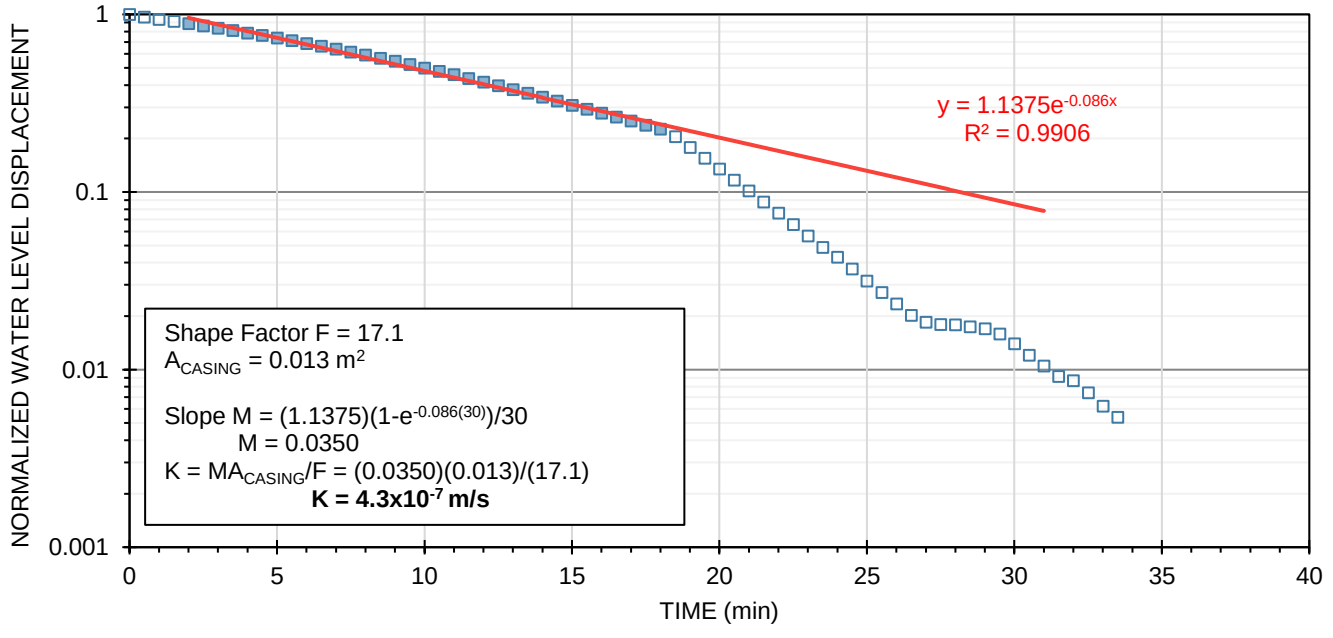


Figure F-2

TEST HOLE 3

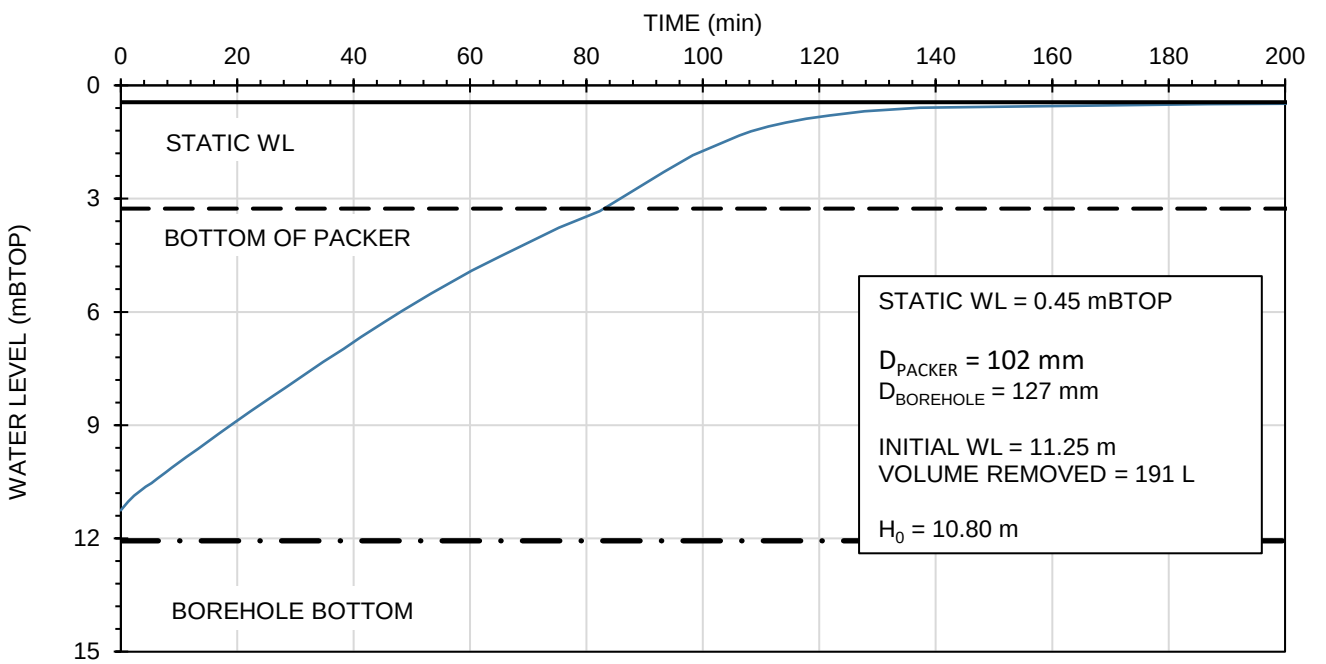
Rising Head Slug Test Analysis

Hvorslev Method

Proposed Duntroon Quarry Deepening

Date: August 23, 2024

Performed by:
Country Water Systems



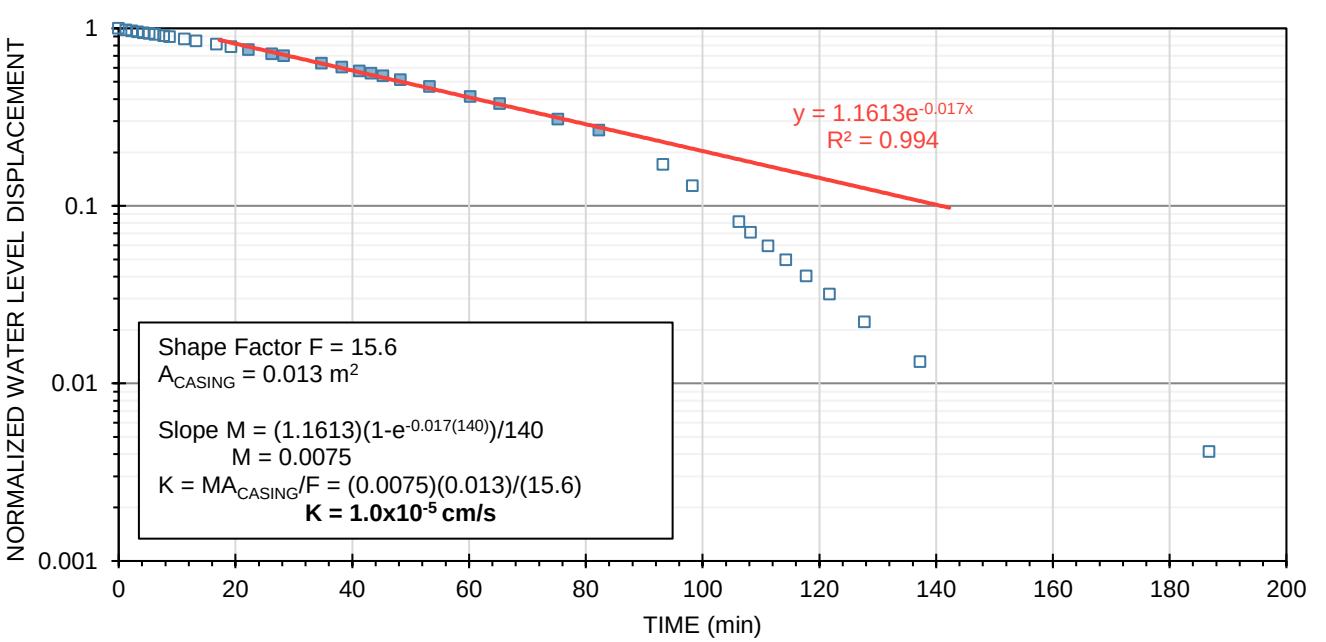


Figure F-3

TEST HOLE 4

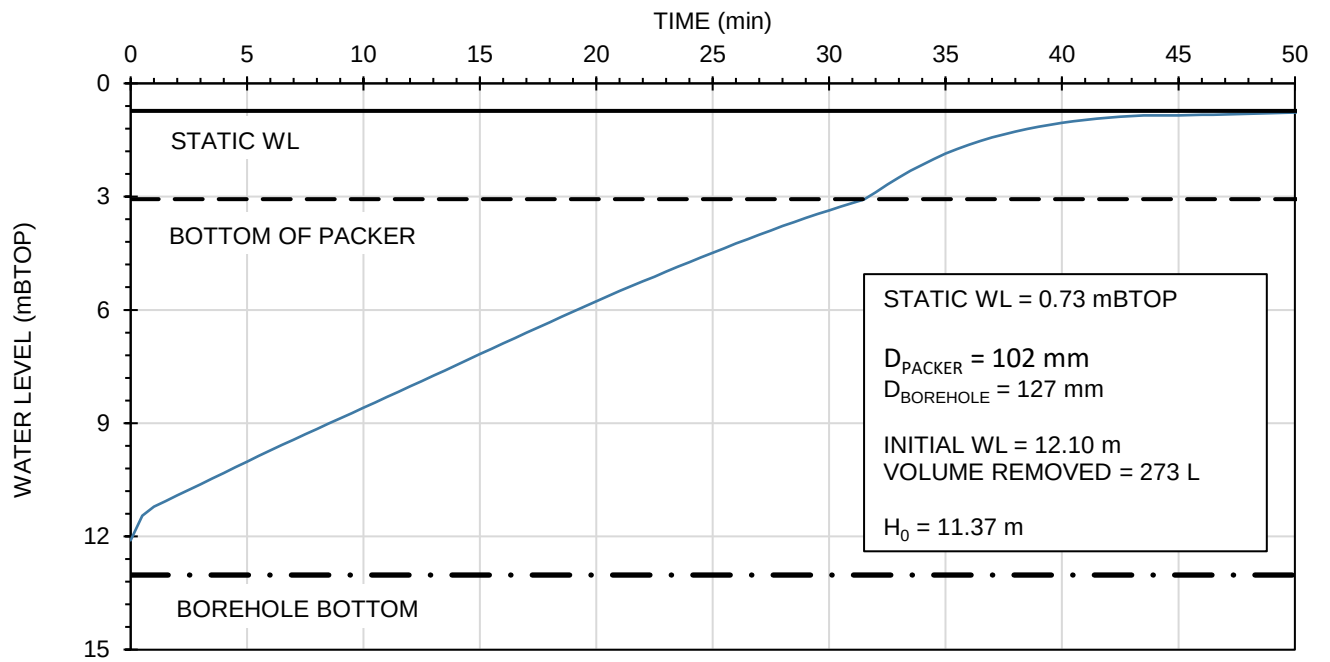
Rising Head Slug Test Analysis

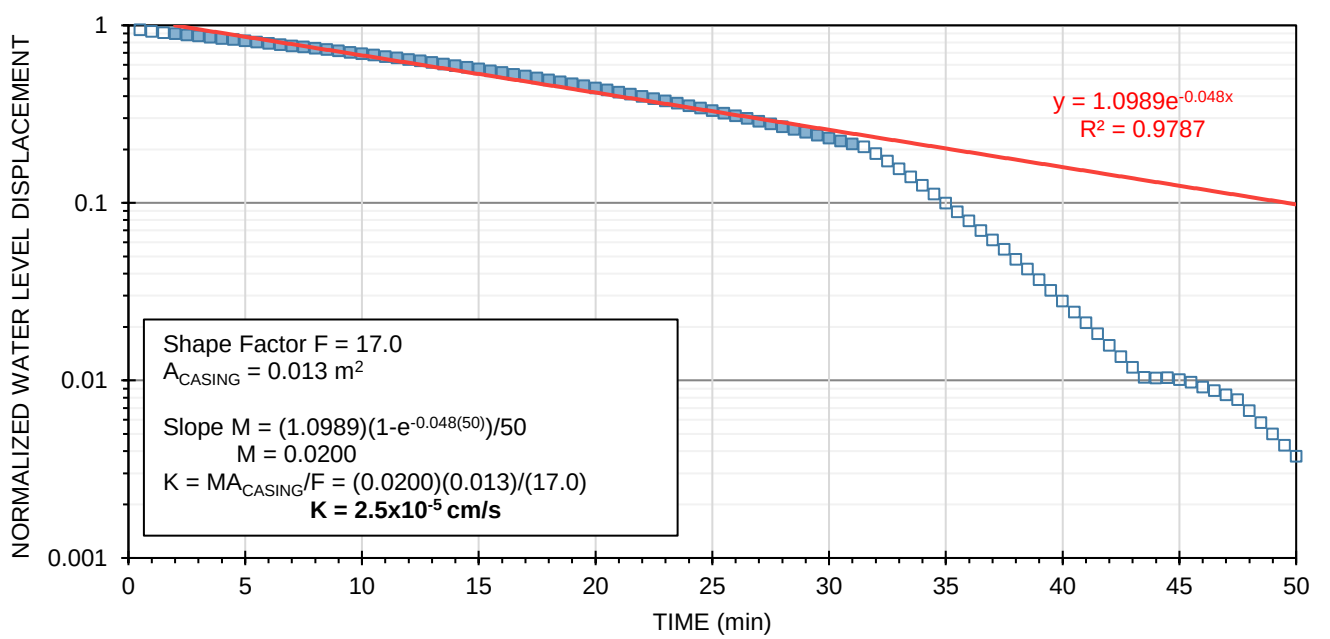
Hvorslev Method

Proposed Duntroon Quarry Deepening

Date: August 23, 2024

Performed by:
Country Water Systems





APPENDIX G

Numerical Groundwater Flow Model Documentation

Study Limitations

MODFLOW-USG was used to simulate steady-state groundwater flow conditions under various phases of quarry development and rehabilitated conditions. Transient effects, such as daily or seasonal fluctuations in aquifer potentials, storage, and changes in precipitation and evapotranspiration were outside of the scope of this study. The steady-state model provides a reasonable representation of groundwater conditions and allows for the simulation of changes to these groundwater conditions as a result of the proposed quarry deepening. This model and its predictions can be updated if desired as more information becomes available, to incorporate additional subsurface observations, and to test and re-evaluate the model predictions.

Services performed by WSP Canada Inc. were conducted in a manner consistent with a level of care and skill ordinarily exercised by members of the environmental engineering and consulting profession. This report presents the results of data compilation and computer simulations of a complex geologic setting. Due to the nature of subsurface investigations which explore a relatively large volume of material with a small number of boreholes, data gaps are likely to be present in the information obtained by and supplied to WSP Canada Inc. Models constructed from these data are limited by the quality and completeness of the information available at the time the work was performed. Computer models represent a deliberate simplification of the actual geologic conditions. This report does not exhaustively cover an investigation of all possible environmental conditions or circumstances that may exist in the study area. It should be recognized that the passage of time affects the information provided in this report.

Environmental conditions and the amount of data available can change. Discussions relating to the baseline conditions are based upon information that existed at the time the conclusions were formulated.

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G.1 INTRODUCTION

This report summarizes the numerical groundwater modeling activities undertaken as part of the Level 1 and 2 Water Study report prepared to meet the study requirements for the proposed Duntroon Quarry deepening. The purpose of the groundwater modeling is to predict the potential effects of the quarry deepening during the operational phase and final rehabilitation to a lake on the local groundwater users and surface water features.

The calibrated baseline model incorporates an extensive data set consisting of borehole stratigraphy, hydraulic testing results, groundwater elevations, and surface water flows that has been collected since 2003 and data collection is on-going as part of the AMP monitoring program. Climatic data from local Environment Canada (EC) stations and the Site climate station operated by WAI were used to estimate recharge to the groundwater system from infiltration of water surplus (precipitation less evapotranspiration).

A steady-state baseline model was previously calibrated for this study, as outlined in the AMP 5-Year Comprehensive Review Report (WSP, 2021), referred to as the Comprehensive Review Report from this point forward. The baseline model attributes are summarized in this report. This model was then adapted to simulate impacts during operating conditions for approved Phases 2A, 2B, 3A, 3B and 4 of the Extension Quarry, as well as for approved final rehabilitation conditions.

Proposed deepening of the Main and Extension quarries was simulated in two additional future scenarios, and final rehabilitation conditions were simulated to assess long-term impacts from the final quarry lakes.

It is noted that dewatering effects of the Osprey Quarry were incorporated into all of the model simulations to assess cumulative impacts on the local study area. Since the rate of extraction is not known for the neighbouring quarry, conservative assumptions regarding the active quarry face were made to provide worst case estimates of impacts.

G.1.1 Model Objectives

The primary objectives of the numerical groundwater modeling are as follows.

- Modify the existing calibrated model to simulate impacts from the approved operational phases and rehabilitation of the Extension Quarry to assess the maximum radius of influence, the contribution of groundwater inflows to the quarry and any changes to the water balance during these phases.
- Complete further simulations to assess impacts of the proposed quarry deepening both during operational and rehabilitation conditions.
- Include the Osprey Quarry in the model scenarios to assess the cumulative impacts of combined operations.

G.1.2 Previous Investigations

The history of the numerical groundwater model development is outlined in the Comprehensive Review Report. In summary, the initial numerical groundwater model was created in 2005 as part of the Level 2 Hydrogeological Study requirements for the ARA Licence application for the Extension Quarry. The model was later refined in 2007 as a result of comments provided by regulators. In 2020, the original model was re-created to utilize MODFLOW-USG improvements and was recalibrated using additional data from monitoring wells installed in 2014.

G.2 CONCEPTUAL MODEL

The first step in constructing a numerical groundwater model is to create a “conceptual model” that describes in general terms the hydrogeologic conditions and water budget of the natural system to be simulated and other physical elements of the undertaking to be considered. Some components of the conceptual model include:

- A decision on the areal extent to be studied;
- Identification of the geologic framework and hydrogeologic properties of the subsurface;
- Derivation of hydrostratigraphic units (aquifers and aquitards) in the subsurface;
- An understanding of the regional movement of groundwater, including groundwater elevations and trends as well as hydraulic gradients;
- Identification of hydrologic features, such as watershed divides, groundwater seeps and springs and watercourses; and
- A basic understanding of water budget components that include recharge and discharge conditions and controls.

The conceptual understanding is used to make decisions regarding the construction of the numerical model to provide adequately representative simulations. The initial decision relates to the extent of the overall model domain and the scale to be used in representing the hydrogeologic systems in both the horizontal and vertical dimensions.

In formulating the conceptual model there are three key steps (Anderson and Woessner, 1992):

- Defining hydrostratigraphic units;
- Defining the groundwater and surface water system; and
- Analyzing elements of the water budget.

The conceptual model and the subsequent construction of the computer model involve some simplification and categorization of the data to represent the groundwater system in sufficient detail to provide reasonably representative results. Ultimately, model accuracy depends on the ability of the conceptual model to approximate observed conditions. Calibration statistics show how well the numerical model simulates these observed conditions.

The conceptual model for the Site is based on the topography, physiography, geology, hydrogeology and water budget outlined in **Section 2** of the Level 1 and 2 Water Study report.

G.3 SIMULATION CODE SELECTION

The numerical simulation code selected for this study was MODFLOW-USG (**U**n-**S**tructured **G**rid) developed in part by the United States Geological Survey (USGS) (Panday, S., et al, 2013). Like previous versions of MODFLOW (USGS 1988-2005), MODFLOW-USG is a modular numerical groundwater flow simulator capable of representing the complex three-dimensional multi-layer systems for steady-state conditions in the bedrock aquifer within the study area using the finite-difference method. However, MODFLOW-USG allows for more robust grid refinement in areas of increased interest. The MODFLOW family of software is the most widely used groundwater modeling code in the world and has been extensively tested and applied in the research and consulting communities. The MODFLOW-USG code is public domain and freely distributed. For this study, version 2.3.0 of the MODFLOW-USG code (released in March 2024) was used.

Model input datasets include the physical geometry of the system, boundary conditions (no-flow, recharge or discharge) and aquifer properties (hydraulic conductivity). Groundwater flow can be modeled for many different types of sources or sinks, including lakes, rivers, drains, recharge from infiltration of precipitation, and pumping wells, among others. The code is flexible when modeling aquifer properties, allowing heterogeneity and anisotropy in three dimensions.

The flow system being modeled is split up into layers comprised of many smaller blocks referred to as nodes (or cells for previous versions of MODFLOW) based on the conceptual hydrogeological understanding of the model domain. The MODFLOW-USG code solves the groundwater flow mass balance equation for each node using the model input parameters. The general mass balance equation can be expressed as:

Sum of Boundary Inflows	+	Sum of Internal Sources of Water	=	Sum of Boundary Outflows	+	Sum of Internal Sinks of Water

The mass balance equation for an unconfined aquifer with recharge, discharge and leakage (Bear, 1979) can be written as:

$$\frac{\partial}{\partial x}\left[(h-b)\left(K_{xx}\frac{\partial}{\partial x}\right)\right]+\frac{\partial}{\partial y}\left[(h-b)\left(K_{yy}\frac{\partial}{\partial y}\right)\right]+\frac{K'}{B'}(H_0-h)+N-W=0$$

Where:
- K_{xx} = hydraulic conductivity in the x direction;
- K_{yy} = hydraulic conductivity in the y direction;
- h = hydraulic head;
- b = elevation of the unit bottom;
- K' = vertical hydraulic conductivity of an underlying confining unit;
- B' = thickness of the confining unit;
- H_0 = head in the aquifer underlying the confining unit;
- N = a general source term representing groundwater recharge; and
- W = a general sink term representing groundwater discharge.

Similar equations can be written for each aquifer in a layered sequence of aquifers / aquitards. When an aquifer is confined, the saturated thickness (h-b) is replaced with the total aquifer thickness.

MODFLOW-USG computes a mass balance for each time step specified by the model input, as well as cumulative flow volumes for each type of source / sink included in the model.

The solution to the mass balance equation is obtained by iteratively solving the system of equations for each model node. Initial conditions for the hydraulic head in each node are specified in the model input. A calculation procedure is used to adjust the initial head estimates and produce a new estimate of the heads which are closer to the solution of the system of equations. The procedure is repeated until the maximum head change in a model node between successive iterations falls below a closure criterion which is user specified. MODFLOW-USG provides two solver modules to obtain the model solution. For this study, the χMD solver was used with a closure criterion of 0.001 m.

MODFLOW-USG is accompanied by a utility program called ZONBUDUSG, a water budget calculator which sums the flow volumes from the various groundwater sources / sinks over a zone of interest. The program was modified from the earlier ZoneBudget version 3.01 (Harbaugh, 1990) to work with un-structured grid models. ZONBUDUSG was used in this study to calculate the water balance components of the study area, as well as predicting the discharge volume due to proposed quarry extension dewatering.

The model construction and calibration process was completed using Groundwater Vistas version 9.04 (Environmental Simulations Inc., 2024). Groundwater Vistas is a pre- and post-processor that is capable of creating MODFLOW-USG input files as well as reading output files in a user-friendly graphical user interface. Groundwater Vistas is also capable of importing model input datasets created by third-party software, including ArcGIS (ESRI, 2019). Both of these software programs were used to interactively prepare, edit and manage the information needed for model development.

G.3.1 Equivalent Porous Media Approach

Numerical modeling of groundwater flow through saturated porous media typically simulates water movement through a continuous fully-saturated medium such as sand and gravel with assigned distributions of porosity and hydraulic conductivity. Within fractured bedrock, the groundwater movement is typically greater within the fractures than within the surrounding matrix. Assuming sufficient fracture density and hydraulic connectivity among fractures, the fractured rock can be simulated as an “equivalent porous media” using a model constructed to simulate flow through porous media with appropriate hydraulic properties. On a small scale, actual groundwater movement and simulated groundwater movement can be different. With simulations at a larger scale, the equivalent porous media approach provides a reasonable representation of groundwater flow patterns that is accepted by industry.

G.4 MODEL CONSTRUCTION AND CALIBRATION

The groundwater model construction consisted of the following four phases:

- Spatial domain and grid discretization;
- Input of model layers;
- Boundary condition implementation; and
- Selection and input of hydraulic properties.

The following sub-sections describe each stage of the groundwater model construction.

G.4.1 Spatial Domain and Grid Discretization

The model domain was set to encompass approximately 4,191 hectares (ha), with the proposed pit extension footprint located in the approximate centre of the domain, as shown in **Figure G-1**. The dimensions of the model are 6,350 metres (m) on the north and south sides, and 6,600 m on the east and west sides. The lower left corner of the model is located at UTM coordinates 556,100 E and 4,911,000 N (NAD83 Zone 17N). Groundwater Vistas was set to remove inactive model cells from the MODFLOW-USG input files to reduce the model numerical burden.

Quadtree grid refinement was used at the Site and for other features of interest as shown in **Figure G-1**. Quadtree grid refinement is compatible with MODFLOW-USG and is implemented in Groundwater Vistas. For a quadtree-refined grid, parent grid cells are divided into smaller cells by powers of 2 (i.e., 2x where x is the order of the desired refinement). The grid is then “smoothed” around the refined cells, such that no cell is refined by more than a factor of 2 compared to any adjacent cell. The quadtree approach provides numerical stability and reduces the number of unnecessary grid cells that are typically present in more traditional grid refinement methods.

Initially, a uniform grid of 132 rows by 127 columns was set up, resulting in grid spacing of 50 m in the x- and y-directions. Fourth order refinement (i.e., 8x8 sub-divided cells) was used for the model cells at the Site, resulting in a local grid spacing of 6.25 m square as shown in **Figure G-1A**.

G.4.2 Model Layers

Five (5) hydrostratigraphic layers were established in the model, representing the stratigraphy outlined in **Section 2.4** of the Level 1 and 2 Water Study report, as summarized in **Table G.4.1** below.

Table G.4.1: Model Layer Thicknesses

Model Layer	Description	Layer Thickness (m)	Layer Type
1	Upper Amabel Formation	3.0 – 28	Upstream Water Table (Type 4)
2		3.0 – 8.0	
3	Lower Amabel Formation	typically 7.0	
4		typically 7.0	
5	Fossil Hill Formation	4.0 – 9.0	

The ground surface elevation (top of layer 1) was previously defined using the 1:10,000 scale Ontario Base Map (OBM) published by the Ministry of Natural Resources and Forestry (MNRF). The bottom surface of the model (bottom of layer 5) represents the Cabot Head shale contact. The stratigraphic surfaces were interpolated using Site borehole data and a regional dip was applied across the model domain. It is noted that overburden was not included in the model since it was interpreted to have a negligible influence on recharge to the groundwater system.

The upper and lower portions of the Amabel Formation dolostone bedrock were divided into two (2) layers for the model simulations and are represented as layers 1 through 4. The thickness of layer 1 is variable across the active model domain, ranging from a minimum of 3.0 m with a typical bottom elevation at 512 masl. Layer 2 also has a minimum thickness of 3.0 m but is typically 8.0 m thick. Layers 3 and 4 are typically about 7.0 m thick across the model domain.

Layer 5 of the model represents the Fossil Hill Formation dolostone extending across the entire model domain, ranging in thickness between 4.0 m and 9.0 m, below which is an inferred lower no-flow boundary.

All of the layers were set as type 4 upstream water table (i.e., the conductivity of the model cells is computed using the upstream weighting method included in MODFLOW-USG).

A 3-dimensional oblique view of the model domain showing the model layers and hydraulic conductivity zones is provided in **Figure G-2**.

G.4.3 Boundary Conditions

The boundary conditions assigned to the model are shown in **Figure G-3**, while local boundary conditions in close proximity to the Site are shown in **Figure G-3A**. In Groundwater Vistas, boundary types may be grouped together into “reaches” to represent different features of interest and to make it easier to calibrate the model.

The active model domain consists of the Amabel aquifer above the Escarpment; all model cells to the north and east of the Escarpment brow are set as no-flow boundaries (inactive).

G.4.3.1 Rivers

River boundaries are capable of simulating both discharge from and recharge to the groundwater system (i.e., groundwater sinks or sources) depending on the specified stage elevation of the boundary. Each river boundary requires three parameters which must be specified in the MODFLOW-USG input file: stage elevation, bottom elevation and conductance. The stage elevation determines the gradient between the boundary condition and the adjacent model cell. The bottom elevation dictates which model layer the boundary condition is placed in. Finally, the conductance of the river boundary governs the rate of flux to or from the groundwater system. River conductance is an aggregate of several parameters including stream width, bed thickness and bed vertical hydraulic conductivity of the streambed the river boundary represents.

River boundary cells were used to represent Edward Lake, the Main Quarry Storage Reservoir and Settling Ponds and the Extension Quarry wetland mitigation recharge features. The 894 river boundaries used in the model are summarized in **Table G.4.2** below.

Table G.4.2: River Boundary Parameter Values

Reach	Description	No. of Cells	Layer	Stage Elevation (masl)	Bottom Elevation (masl)	Conductance (m^2/day)
0	Edward Lake	99	2	507	503	216,000
1	Storage Reservoir	377	1	513	512	0.215
2	Settling Pond 1	176	2	511	510	0.215
3	Settling Ponds 2 and 3	831	2	509	508	0.215
4	ANSI Wetland B Mitigation Recharge	124	1	GS	GS – 0.5	500
5	ANSI Wetland A Mitigation Recharge	80	1	GS	GS – 0.5	2
6	Rob Roy Swamp 2 Mitigation Recharge	6	1	GS	GS – 0.5	17

Note: GS – denotes ground surface elevation

The Edward Lake river boundary was developed during previous studies.

The remaining river boundary reaches 1 through 6 were incorporated into the revised model as part of the Comprehensive Review Report. It is noted that the Storage Reservoir and Settling Ponds did not exist at the time of the previous studies, and it is inferred that the presence of these ponds has mitigated historical drawdown impacts from the Main Quarry to the west and south. The relatively low conductance value for these features is based on the assumed conductivity of the wash operation fines used to construct the ponds, simulated as $1x10^{-9}$ m/s.

The ANSI wetland A and B and Rob Roy Swamp 2 mitigation recharge was simulated in the Phase 2A and 2B models for the Comprehensive Review Report. Initial conductance values of 500 m^2/day were adopted and revised lower during the calibration process to match simulated recharge to the target recharge volumes as described in Appendix F of the AMP. For the current study, simulation of these mitigation recharge features has been deactivated to provide a conservative “worst-case” impact assessment.

G.4.3.2 General Head Boundaries

Similar to river boundaries, general head boundaries are capable of simulating both discharge from and recharge to the groundwater system (i.e., groundwater sinks or sources). However, flow into or out of the model domain is dependent on the groundwater elevation in the adjacent model cell within the active model domain and the specified elevation of the apparent recharge boundary outside of the model domain. Each general head boundary requires two parameters which must be specified in the MODFLOW-USG input file: recharge boundary elevation and conductance. As noted above, the recharge boundary elevation determines the gradient between the apparent recharge boundary outside of the active model domain and the adjacent model cell. The conductance of the general head boundary governs the rate of flux to or from the groundwater system and is related to the hydraulic conductivity of the hydrostratigraphic layer.

General head boundaries were used along the northern and western model domain extent to simulate lateral groundwater flow to / from areas truncated by the model domain. The 69 general head boundaries used in the model are summarized in **Table G.4.3** below.

Table G.4.3: General Head Boundary Parameter Values

Reach	Description	No. of Cells	Layer	Stage Elevation (masl)	Conductance (m^2/day)
0	Western Model Boundary	50	1 – 5	505.0	20
1	Northern Model Boundary	19	1 – 5	503.0	20

G.4.3.3 Drains

Drain boundaries are only capable of simulating discharge from the groundwater system (i.e., groundwater sinks). Each drain boundary requires two parameters which must be specified in the MODFLOW-USG input file: stage elevation and conductance. As noted above, the stage elevation determines the gradient between the boundary condition and the adjacent model cell. Finally, the conductance of the drain boundary serves the same purpose as that of river boundaries.

Drain boundary cells were used to represent the watercourse, wetland features and quarry dewatering operations in the model domain. The 20,521 drain boundaries used in the model are summarized in **Table G.4.4** below.

Table G.4.4: Drain Boundary Parameter Values

Reach	Description	No. of Cells	Layer	Stage Elevation (masl)	Conductance (m^2/day)
0	Escarpment seeps / springs	925	5	485	12,500
1		473	4	491	12,500
2		254	4	492	12,500
3	Duntroon Quarry dewatering sumps	15,543	3	500	500
4	Carmarthen Lakes Farms wetland	158	1	514	3,125
5	Rob Roy Swamp 6	*(reclassified to Reach 14 in updated model)*			
6	Rob Roy Swamp 1				
7	Rob Roy Swamp 2				
8	ANSI Wetland A	209	1	512.5	195.3

Reach	Description	No. of Cells	Layer	Stage Elevation (masl)	Conductance (m^2/day)
9	ANSI Wetland B	33	1 / 2	511.5	781.25 – 3,125
10	ANSI Wetland B	8	1	510.4	3,125 – 12,500
11	Mad River tributary	44	1 / 2	507 – 500	5.0 – 81.25
12	Mad River tributary	93	1 / 2 / 3	503 – 500	1.25 – 117.5
13	Beaver River tributary	41	2 / 3	503 – 500	1.25 – 66.25
14	Beaver River tributary upstream of SW6A	659	1 / 2	498 – 511	1.25 – 12,500
15	Beaver River tributary	*(reclassified to Reach 14 in updated model)*			
16	Pretty River tributary upstream of SW18	86	5	485	12,500
17	Batteaux Creek tributary upstream of SW14 / SW15	34	5	485	12,500
18	Batteaux Creek tributary upstream of SW22 / SW22A	59	5	485	12,500
19	Osprey Quarry dewatering sump	1,902	3	502	500

Note: GS – denotes ground surface elevation

Drain reaches 0 through 4 were previously developed as part of the historical studies.

A significant number of reclassifications to the model drains were completed as part of the Comprehensive Review Report. Selected drain boundaries from original reach 0 were reclassified as reaches 14, 16, 17 and 18 to facilitate calibration to flows observed for the Pretty River, Batteaux Creek and Beaver River tributaries. Drain reaches were also reclassified to simulate the ANSI wetlands and the Mad and Beaver River tributaries. Conductance values vary due to the size of the model grid nodes (i.e., smaller node areas result in lower conductance values). Finally, additional drain boundaries were added to reach 3 to simulate the dewatering sumps within the Extension Quarry and reach 19 was added to simulated dewatering sumps within St. Mary's Osprey Quarry.

G.4.3.4 Recharge

Recharge boundaries were used in the uppermost active model cell to represent infiltration to the groundwater system. It is noted that for this study, infiltration to the groundwater system is defined as total precipitation less evapotranspiration and runoff to surface water features. In the model, the recharge boundaries were applied to the uppermost active cell in the vertical column (i.e., NRCHOP = 3).

Five (5) zones were used to define areas of similar physiography. The recharge zones are shown in **Figure G-4**, and the calibrated baseline model parameter values are summarized in **Table G.4.5** below.

Table G.4.5: Recharge Zone Parameter Values

Zone	Description	Recharge	
		mm/year	m/day
1	Hilly Topography	157	$4.3x10^{-4}$
2	Escarpment	276	$7.6x10^{-4}$
3	Low-Lying Area	315	$8.6x10^{-4}$
4	Karst Area	395	$1.1x10^{-3}$
5	Quarry Excavation	216	$5.9x10^{-4}$
6	Main Quarry Sedimentation Ponds	0	0

Recharge zones 1 through 4 were developed during previous studies.

The recharge value for the quarry excavation areas (i.e., zone 5) was revised as part of the Comprehensive Review Report. The 30-Year Climate Normal at the Thornbury Slama climatological station (**Table D-1**, **Appendix D**) indicates an average annual precipitation of 966 mm/year. Assuming an annual evaporation rate of 750 mm (Hydrogeological Atlas of Canada, 1978, Plate 17, Mean Annual Lake Evaporation), this yields a recharge of 216 mm/year. The revised recharge value is lower than the recharge value of 395 mm/year used in previous studies. An additional recharge zone was added to simulate no recharge to the areas of the sedimentation ponds (i.e., zone 6) to limit flooding in the model domain.

G.4.4 Hydraulic Properties

Zones were used to represent hydraulic conductivity and vertical anisotropy for the various hydrostratigraphic units present within the model domain. The calibrated model values for each of the fifteen (15) zones used in the model are summarized below in **Table G.4.6** below. The zone extents in model layers 1 through 5 are shown on **Figures G-5 to G-9**.

Table G.4.6: Hydraulic Conductivity Zone Parameter Values

Zone	Description	Layer(s)	Horizontal Hydraulic Conductivity (K_H) (m/day) (m/second)	Vertical Anisotropy (K_Z / K_H) (Unitless)
1	Upper Amabel Formation	1 / 2	17 ($2.0x10^{-5}$)	0.1
2	Lower Amabel Formation	3 / 4	$4.7x10^{-2}$ ($5.4x10^{-7}$)	0.1
3	Fossil Hill Formation	5	$6.8x10^{-2}$ ($7.9x10^{-7}$)	0.1

Zone	Description	Layer(s)	Horizontal Hydraulic Conductivity (K_H) (m/day) (m/second)	Vertical Anisotropy (K_Z / K_H) (Unitless)
4	Escarpment	5	0.24 ($2.8x10^{-6}$)	0.1
5	Extension Quarry / Osprey Quarry local zone	1 / 2	0.30 ($3.5x10^{-6}$)	0.1
6	Quarry excavation	1 – 3	10,000 (0.12)	1.0
7	Osprey Quarry OW5 local zone	1 – 5	29 ($3.4x10^{-4}$)	0.1
8	North Extension Quarry local zone	1 – 5	258 ($3.0x10^{-3}$)	0.1
9	Extension Quarry local zones	1 – 5	$1.8x10^{-3}$ ($2.0x10^{-8}$)	0.1
10	RW9 local zone	1 – 4	0.73 ($8.4x10^{-6}$)	0.1
11	Escarpment divide	1 – 5	$5.4x10^{-2}$ ($6.3x10^{-7}$)	0.1
12	98-13 local zone	1 – 5	$3.5x10^{-3}$ ($4.0x10^{-8}$)	0.1
13	Carmarthen Lakes Farms supply wells local zone	1 – 4	27 ($3.1x10^{-4}$)	0.1
14	RW1 local zone	1 – 5	1.3 ($1.5x10^{-5}$)	0.1
15	Sedimentation and Settling Pond fines	1 – 3	$8.6x10^{-5}$ ($1.0x10^{-9}$)	1.0

Zone extents and vertical anisotropy values for zones 1 through 14 were developed during previous studies. Zone 15 was added as part of the Comprehensive Review Report calibration to simulate the Sedimentation and Settling Ponds within the Main Quarry, representing the wash operation fines that were backfilled in that area. Calibrated horizontal hydraulic conductivity values were adjusted during the Comprehensive Review Report to improve the model fit to the observation data.

G.4.5 Model Calibration

Details of the model calibration are provided in the Comprehensive Review Report. In summary, the numerical model is a deliberate simplification of a complex natural system and has been calibrated to achieve a best fit with the available data. The calibrated model represents a reasonable balance between over- and under-prediction of simulated groundwater elevations and a random distribution of error. The parameters that are most sensitive to the model calibration are physically realistic values based on the available data. Parameters which are relatively insensitive and cannot be inferred through the model calibration process have been assigned values which are physically realistic and within the ranges of published data. As such, the calibrated model can be used to simulate the predicted effects of future quarry extraction with a high degree of confidence in the results.

G.5 EXISTING QUARRY MODEL

G.5.1 Operating Conditions

The calibrated baseline model for 2020 conditions was used as a basis for simulation of the approved extraction phasing for the Extension Quarry. Minor modifications to how the quarry extraction areas were completed, as it was noted during the course of the extraction phase simulation that the use of high-conductivity zone 6 (refer to **Table G.4.6** above) lead to numerical instability and difficulty with model convergence. Instead, no flow zones were used to simulate the extraction footprint above the quarry floor drain boundaries, and perimeter boundary conditions were added to simulate quarry face seepage. This minor modification improved model convergence and had no impact on the baseline model calibration to water level or flux targets. The extraction phases were simulated by extending the no flow boundaries, perimeter drains, and floor drains to each phase.

G.5.1.1 Predicted Radius of Influence

The predicted radius of influence for each of the approved Extension Quarry extraction phases is shown on **Figures G-10A to G-14A**. It is noted that the maximum radius of influence was observed in the Lower Amabel Formation (model layer 4); as such, this radius is depicted on the figures. For these simulations, only the progression of extraction in the Extension Quarry was simulated to analyze impacts without the combined effects of the Osprey Quarry extraction. Cumulative impacts from these two quarries are discussed below.

A drawdown of up to 1 m relative to baseline water levels progressively expands outward from the extraction area as the Extension Quarry extraction phasing progresses. More significant drawdown of 5 m to 10 m are constrained to WAI-owned properties and the Osprey Quarry licence area to the west of the Extension Quarry. Predicted drawdown for each quarry phase is summarized in **Table G.5.1**.

Table G.5.1: Summary of Predicted Drawdown

Description	Location	Predicted Drawdown (m)				
		Phase 2A	Phase 2B	Phase 3A	Phase 3B	Phase 4
Wetlands	Rob Roy Swamp 1	<1	<1	1 – 2	1 – 2	1 – 2
	Rob Roy Swamp 2	<1	5 – 10	5 – 10	5 – 10	5 – 10
	Rob Roy Swamp 3	<1	1 – 5	1 – 5	1 – 5	1 – 5
	Rob Roy Swamp 5	<1	1 – 3	1 – 3	1 – 3	1 – 3
	Rob Roy Swamp 6	<1	1 – 4	1 – 4	1 – 4	1 – 4
	ANSI Wetland A	1	5	5	5	5
	ANSI Wetland B	1 – 5	5	5	5	5
Main Quarry Monitoring Wells	BH98-9	<1	<1	3.0	3.0	3.6
	BH98-12	1.4	1.4	1.4	1.4	1.5
	MW6	<1	<1	<1	<1	<1
	RW16	3.3	3.4	3.4	3.4	3.4

Description	Location	Predicted Drawdown (m)				
		Phase 2A	Phase 2B	Phase 3A	Phase 3B	Phase 4
Extension Quarry Monitoring Wells	BH02-5	<1	10.6	10.6	10.6	10.6
	BH03-7	<1	9.9	10.0	10.0	10.0
	NW10	<1	8.9	9.1	9.1	9.1
Residential Wells	RW1	1.6	1.7	1.7	1.7	1.7
	RW3	<1	2.2	2.2	2.2	2.2
Osprey Quarry Monitoring Wells	OW4	<1	<1	10.3	10.3	10.3
	OW6	<1	<1	2.2	2.2	2.2

G.5.1.2 Predicted Impacts to Groundwater Discharge

Predicted impacts to the groundwater discharge at the simulated escarpment seeps and springs, as well as quarry dewatering discharge are summarized in **Table G.5.2**. It is noted that the maximum dewatering rate for the Extension Quarry was previously reported as 1,710 m^3/day (JHL, 2007).

Table G.5.2: Summary of Predicted Groundwater Discharge

Description	Drain Boundary Reach No.	Baseline Observed Flux (m^3/day)	Simulated Flux (m^3/day)					
			Baseline Model	Phase 2A	Phase 2B	Phase 3A	Phase 3B	Phase 4
Pretty River trib. (Station SW18)	16	847	540	529 *(-2%)*	517 *(-4%)*	517 *(-4%)*	517 *(-4%)*	517 *(-4%)*
Batteaux Creek trib. (Station SW14/15)	17	285	252	238 *(-6%)*	237 *(-6%)*	237 *(-6%)*	237 *(-6%)*	237 *(-6%)*
Batteaux Creek trib. (Station SW22/22A)	18	104	214	208 *(-3%)*	208 *(-3%)*	208 *(-3%)*	208 *(-3%)*	208 *(-3%)*
Beaver River trib. (Station SW6)	14	3,102	3,640	3,268 *(-10%)*	2,549 *(-30%)*	2,515 *(-31%)*	2,515 *(-31%)*	2,513 *(-31%)*
Duntroon Quarry Dewatering Discharge	3 / 20 / 21	3,104 *		2,263	3,228	3,367	3,358	3,361

*Notes: * Baseline observed flux values for Duntroon Quarry dewatering discharge are based on Water Taking Reporting System (WTRS) data for 2023. Commencing in 2023, an improved flow measurement system was implemented at Duntroon Quarry and therefore, the data was not available for calibration of the 2020 baseline model.*
Values in red italics are percentage decrease in comparison to the baseline model simulated fluxes.

G.5.1.3 Cumulative Effects of Osprey Quarry

The quarry phase models above only included excavation of the Osprey Quarry to the 2020 footprint observed on aerial photography, to an inferred floor elevation of 502 masl. To incorporate the cumulative effects of dewatering at Osprey Quarry, the phase models were adapted to include estimated extraction footprints during each phase of the Duntroon Quarry development. The Osprey Quarry Operation Site Plan indicates that the quarry will be

developed in two phases – Phase 1 within the western portion of the extraction area and Phase 2 within the eastern portion of the extraction area. Precise Phase boundaries are not provided on the Site Plan; therefore, these phase areas were interpreted for the model simulations. Each phase is to be completed in three benches at elevations 514 masl, 502 masl and 490 masl. Assumptions for the quarry phase model simulations are provided in **Table G.5.3**. Simulation of the extraction at Osprey Quarry was completed in a similar manner to Duntroon Quarry, as described in **Section G.5.1** above.

Table G.5.3: Quarry Phase Model Assumptions

Duntroon Quarry Phase Model	Osprey Quarry Phase Assumptions
Phase 2A	Partial Phase 1 to depth of 490 masl
Phase 2B	
Phase 3A	Full Phase 1 to depth of 490 masl
Phase 3B	
Phase 4	Full Phase 1 and 2 to depth of 490 masl

The predicted radius of influence for each of the approved Extension Quarry extraction phases including cumulative effects of Osprey Quarry dewatering is shown on **Figures G-10B to G-14B**. Similar to the simulation of Duntroon Quarry only, more significant drawdown of 5 m to 10 m below baseline conditions is constrained to WAI-owned properties and the Osprey Quarry licence area. Cumulative predicted drawdown for each quarry phase is summarized in **Table G.5.4**. Predicted drawdown for the simulation of Duntroon Quarry by itself is provided for comparison.

Table G.5.4: Summary of Cumulative Predicted Drawdown

Description	Location	Predicted Drawdown *(Cumulative Drawdown shown in red italics)* (m)				
		Phase 2A	**Phase 2B**	**Phase 3A**	**Phase 3B**	**Phase 4**
Wetlands	**Rob Roy Swamp 1**	<1 *<1*	1 – 2 *1 – 2*	1 – 2 *1 – 2*	1 – 2 *1 – 2*	1 – 2 *2 – 4*
	Rob Roy Swamp 2	<1 *<1*	5 – 10 *5 – 10*	5 – 10 *5 – 10*	5 – 10 *5 – 10*	5 – 10 *5 – 12*
	Rob Roy Swamp 3	<1 *<1*	1 – 5 *1 – 5*	1 – 5 *1 – 5*	1 – 5 *1 – 5*	1 – 5 *5*
	Rob Roy Swamp 5	<1 *<1*	<1 *<1*	1 – 3 *5 – 7*	1 – 3 *5 – 7*	1 – 3 *14 – 15*
	Rob Roy Swamp 6	<1 *<1*	<1 *<1*	1 – 4 *1 – 4*	1 – 4 *1 – 4*	1 – 4 *1 – 4*
	ANSI Wetland A	1 *1*	5 *5*	5 *5*	5 *5*	5 *5*
	ANSI Wetland B	1 – 5 *1 – 5*	5 *5*	5 *5*	5 *5*	5 *5*

Description	Location	Predicted Drawdown *(Cumulative Drawdown shown in red italics)* (m)				
		Phase 2A	Phase 2B	Phase 3A	Phase 3B	Phase 4
Main Quarry Monitoring Wells	BH98-9	<1 *<1*	<1 *<1*	3.0 *3.1*	3.0 *3.1*	3.6 *4.1*
	BH98-12	1.4 *1.4*	1.4 *1.4*	1.4 *1.4*	1.4 *1.4*	1.5 *1.5*
	MW6	<1 *<1*	<1 *<1*	<1 *<1*	<1 *<1*	<1 *<1*
Extension Quarry Monitoring Wells	RW16	3.3 *3.3*	3.4 *3.4*	3.4 *3.4*	3.4 *3.4*	3.4 *3.4*
	BH02-5	<1 *<1*	10.6 *10.6*	10.6 *10.6*	10.6 *10.6*	10.6 *10.7*
	BH03-7	<1 *<1*	9.9 *9.9*	10.0 *10.0*	10.0 *10.0*	10.0 *10.3*
	NW10	<1 *<1*	8.9 *8.9*	9.1 *9.1*	9.1 *9.1*	9.1 *9.7*
Residential Wells	RW1	1.6 *1.6*	1.7 *1.7*	1.7 *1.7*	1.7 *1.7*	1.7 *1.7*
	RW3	<1 *<1*	2.2 *2.2*	2.2 *2.3*	2.2 *2.3*	2.2 *2.5*
Osprey Quarry Monitoring Wells	OW4	<1 *<1*	<1 *<1*	10.3 *10.4*	10.3 *10.4*	10.3 *22.5*
	OW6	<1 *<1*	<1 *<1*	2.2 *2.1*	2.2 *2.1*	2.2 *13.4*

Note: Shaded cells indicate cumulative drawdown exceeds simulated drawdown from Duntroon Quarry alone.

As shown above, cumulative impacts are observed only at the wetland features in close proximity to Osprey Quarry, with no predicted cumulative effects at the ANSI wetlands northeast of the Extension Quarry. Similarly, increased drawdown due to cumulative effects is only predicted for wells generally to the west of Duntroon Quarry. It is noted that the operation of the Osprey Quarry wash ponds is inferred to somewhat buffer the dewatering impacts in a localized area, resulting in lower predicted drawdown at well nest OW6.

Cumulative predicted impacts to the groundwater discharge at the simulated escarpment seeps and springs, as well as quarry dewatering discharge are summarized in **Table G.5.5**.

Table G.5.5: Summary of Predicted Groundwater Discharge Considering Cumulative Impacts

Description	Drain Boundary Reach No.	Baseline Observed Flux (m^3/day)	Simulated Flux *(Cumulative conditions flux shown in red italics)* (m^3/day)					
			Baseline Model	Phase 2A	Phase 2B	Phase 3A	Phase 3B	Phase 4
Pretty River trib. (Station SW18)	**16**	847	540	529 *(528)*	517 *(517)*	517 *(517)*	517 *(517)*	517 *(517)*
Batteaux Creek trib. (Station SW14/15)	**17**	285	252	238 *(238)*	237 *(237)*	237 *(237)*	237 *(237)*	237 *(237)*
Batteaux Creek trib. (Station SW22/22A)	**18**	104	214	208 *(208)*	208 *(208)*	208 *(208)*	208 *(208)*	208 *(207)*
Beaver River trib. (Station SW6)	**14**	3,102	3,640	3,268 *(3,174)*	2,549 *(2,469)*	2,515 *(2,401)*	2,515 *(2,401)*	2,513 *(2,253)*
Duntroon Quarry Dewatering Discharge	**3 / 20 / 21**	3,104 *		2,263 *(2,272)*	3,228 *(3,234)*	3,367 *(3,303)*	3,358 *(3,294)*	3,361 *(2,646)*
Osprey Quarry Dewatering Discharge	**19 / 22**	2,192 *		*(1,067)*	*(1,052)*	*(1,375)*	*(1,375)*	*(2,696)*

*Notes: * Baseline observed flux values for Duntroon and Osprey Quarry dewatering discharge are based on Water Taking Reporting System (WTRS) data for 2023.*
Shaded cells indicate cumulative effects flux is lower than simulated flux from the Duntroon Quarry alone.

As shown above, only minor cumulative impacts are observed at the escarpment seep and springs east of the Duntroon Quarry. Cumulative impacts from Osprey Quarry dewatering result in a further reduction of groundwater discharge as baseflow to the Beaver River tributaries. During the later phases of extraction, dewatering at Osprey Quarry also reduces the dewatering discharge at Duntroon Quarry.

G.5.2 Rehabilitated Conditions

To simulate rehabilitated conditions, the Duntroon Quarry Phase 4 model was modified by removing the quarry drains and no flow zones to simulate the final lakes in both the Extension and Main Quarry. High-conductivity zone 6 was used to simulate the average long-term lake stage elevations.

The predicted long-term average stage elevation could potentially rise to approximately 514.0 masl in the Main Quarry lake and 511.5 masl in the Extension Quarry lake. Outlet control structures as specified on the Rehabilitation Site Plans indicate that final lake elevations will lower than these “potential” elevations, to be governed by the use of these structures. The long term lake stage elevations for the Main and Extension Quarry lakes were previously reported 512.0 masl and 511.9 masl, respectively (JHL, 2007). Since it is now proposed that the tunnel under County Road 91 is not sealed, the Main Quarry final lake elevation will equilibrate to that of the lower Extension Quarry lake elevation.

Localized reconfiguring of the water table around the perimeter of the quarry lakes will result in small areas of future drawdown greater than 1 m below baseline conditions. These areas of drawdown are shown on **Figure G-15A**. Although a portion of ANSI Wetland B is situated within an area of future drawdown, it is noted that the final quarry lake will discharge seasonally to this feature via an outlet control structure.

Once the final lake stages have reached steady-state conditions, groundwater discharge to the escarpment seeps and springs and to the Beaver River tributaries increases to marginally greater than baseline conditions (since dewatering of both the Main and Extension Quarries will be discontinued), as summarized in **Table G.5.6**.

Table G.5.6: Summary of Predicted Groundwater Discharge at Final Rehabilitation

Description	Drain Boundary Reach No.	Baseline Observed Flux (m^3/day)	Simulated Flux (m^3/day)	
			Baseline Model	Final Lakes Model
Pretty River trib. (Station SW18)	**16**	847	540	541
Batteaux Creek trib. (Station SW14/15)	**17**	285	252	253
Batteaux Creek trib. (Station SW22/22A)	**18**	104	214	224
Beaver River trib. (Station SW6)	**14**	3,102	3,640	5,051

G.5.2.1 Cumulative Effects of Osprey Quarry

The rehabilitated conditions model was modified to include the Osprey Quarry final lake to simulate cumulative effects. The Osprey Quarry excavation was simulated in a similar manner to Duntroon Quarry, with the quarry drains removed and the use of high-conductivity zone 6 to allow accumulation of water equilibrating to the average long-term lake stage elevation. It is noted that for the final rehabilitation model, the Osprey Quarry wash ponds were removed from the model, such that the final quarry lake encompasses the entire licenced extraction area.

The predicted long-term average stage elevation could potentially rise to approximately 511.4 masl in the Extension Quarry lake and 510.7 masl in the Osprey Quarry lake. The presence of the Osprey Quarry lake has a minimal effect on the Duntroon Quarry lake stage elevations. Similar to Duntroon Quarry, the Osprey Quarry lake stage elevation will be controlled by an outlet structure allowing seasonal discharge north to the Rob Roy Swamp 3, as per the Rehabilitation Site Plan.

The small areas subject to future drawdown greater than 1 m below baseline conditions are shown on **Figure G-15B**. The presence of the Osprey Quarry lake appears to have minimal effect on the predicted future drawdown near ANSI Wetland B.

Finally, the presence of the Osprey Quarry lake does not have a significant influence on the predicted long-term groundwater discharge to the escarpment seeps and springs east of the Extension Quarry, as summarized in **Table G.5.7** below. However, groundwater discharge as baseflow to the Beaver River tributaries marginally increases when cumulative effects from all of the quarry lakes are considered.

Table G.5.7: Summary of Predicted Groundwater Discharge at Final Rehabilitation

Description	Drain Boundary Reach No.	Baseline Observed Flux (m^3/day)	Simulated Flux (m^3/day)	
			Baseline Model	Final Lakes Model
Pretty River trib. (Station SW18)	**16**	847	540	541 *(540)*
Batteaux Creek trib. (Station SW14/15)	**17**	285	252	253 *(253)*
Batteaux Creek trib. (Station SW22/22A)	**18**	104	214	224 *(225)*
Beaver River trib. (Station SW6)	**14**	3,102	3,640	5,051 *(5,117)*

Notes: Cumulative conditions flux shown in red italics.
Shaded cells indicate cumulative effects flux exceeds simulated flux from the Duntroon Quarry alone.

G.6 PROPOSED QUARRY DEEPENING MODEL

G.6.1 Operating Conditions

The Phase 4 model described in **Section G.5.1** was used as a basis for simulation of the proposed quarry deepening for both the Main and Extension Quarries. It was assumed that the proposed deepening would proceed under two phases: Phase 5 representing deepening of the Extension Quarry and Phase 6 representing deepening of the Main Quarry. For both phases, it was assumed that excavation would proceed to the inferred elevation of the Fossil Hill Formation contact, which varies from approximately 490 masl in the east to 485 masl in the west (refer to Level 1 and 2 Water Study report **Section 2.3**). Drains were used to simulate dewatering of the quarry floor, with elevations varied according to the interpolated elevation of the Fossil Hill Formation contact. For the Main Quarry, it was assumed that existing rehabilitation slopes and the sedimentation ponds along the western portion of the quarry would be removed to facilitate quarry deepening during Phase 6.

G.6.1.1 Predicted Radius of Influence

The predicted radius of influence for the proposed quarry deepening Phases 5 and 6 is shown on **Figures G-16A and G-17A**. For these simulations, only the progression of extraction was simulated for Duntroon Quarry to analyze impacts without the combined effects of the Osprey Quarry extraction. Cumulative impact from these two quarries are discussed below.

Similar to the existing quarry models in **Section G.5**, the proposed quarry deepening during Phase 5 results in a drawdown of up to 1 m relative to baseline water levels is present around the Extension quarry, with more significant drawdown of 5 m to 15 m constrained to WAI-owned properties and the Osprey Quarry licence area. In the case of Phase 6 quarry deepening, water levels around the Main Quarry (which are under the influence of the existing excavation during the baseline period) will be subject to additional drawdown due to the lowered sump elevation. A portion of the properties to the south and east of the Main Quarry are predicted to experience between 1 m to 5 m of additional drawdown. A comparison of predicted drawdown for approved Phase 4 and proposed Phases 5 and 6 is provided in **Table G.6.1**.

Table G.6.1: Summary of Predicted Drawdown During Proposed Quarry Deepening

Description	Location	Predicted Drawdown (m)		
		Phase 4	Phase 5	Phase 6
Wetlands	Rob Roy Swamp 1	1 – 2	1 – 2	1 – 2
	Rob Roy Swamp 2	5 – 10	5 – 15	5 – 15
	Rob Roy Swamp 3	1 – 5	1 – 15	1 – 15
	Rob Roy Swamp 5	1 – 3	1 – 4	2 – 4
	Rob Roy Swamp 6	1 – 4	1 – 4	1 – 5
	ANSI Wetland A	5	5 – 7	5 – 7
	ANSI Wetland B	5	5 – 10	5 – 10
Main Quarry	BH98-9	3.6	4.8	10.0
	BH98-12	1.5	3.4	10.8

Description	Location	Predicted Drawdown (m)		
		Phase 4	Phase 5	Phase 6
Monitoring Wells	MW6	<1	<1	10.5
Extension Quarry Monitoring Wells	RW16	3.4	5.5	5.8
	BH02-5	10.6	23.6	23.6
	BH03-7	10.0	21.3	21.3
	NW10	9.1	19.1	19.2
Residential Wells	RW1	1.7	2.7	2.9
	RW3	2.2	2.3	2.3
Osprey Quarry Monitoring Wells	OW4	10.3	14.3	14.5
	OW6	2.2	2.9	3.3

Note: Shaded cells indicate drawdown from proposed quarry deepening exceeds drawdown from approved Phase 4 extraction.

As shown in the table above, wetland features and monitoring wells within close proximity to the proposed deepening are predicted to experience an increase in drawdown over and above the predicted drawdown for approved Phase 4 extraction. Residential wells RW1 and RW3 are also predicted to experience a limited increase in drawdown.

G.6.1.2 Predicted Impacts to Groundwater Discharge

Predicted impacts to the groundwater discharge at the simulated escarpment seeps and springs, as well as quarry dewatering discharge for approved Phase 4 and proposed Phases 5 and 6 are summarized in **Table G.6.2**.

As shown in the table below, the escarpment seeps and springs to the east of the Extension Quarry are predicted to experience a decrease in groundwater discharge relative to the predicted groundwater discharge for approved Phase 4 extraction of less than 10% below baseline conditions at maximum quarry depth. This decrease in groundwater discharge would likely not be distinguishable from natural variability in the seepage discharge. Groundwater discharge to the Beaver River tributaries is also predicted to decrease due to the proposed quarry deepening; however, it is noted that dewatering discharge is directed to this feature and more than compensates for the predicted decrease. Finally, the predicted quarry dewatering discharge is anticipated to increase to about 3,600 m^3/day (1.3 Mm^3/year) when Phase 6 is fully developed.

Table G.6.2: Summary of Predicted Groundwater Discharge During Proposed Quarry Deepening

Description	Drain Boundary Reach No.	Baseline Observed Flux (m^3/day)	Simulated Flux (m^3/day)			
			Baseline Model	Phase 4	Phase 5	Phase 6
Pretty River trib. (Station SW18)	**16**	847	540	517 *(-4%)*	515 *(-5%)*	515 *(-5%)*
Batteaux Creek trib. (Station SW14/15)	**17**	285	252	237 *(-6%)*	229 *(-9%)*	228 *(-9.5%)*
Batteaux Creek trib. (Station SW22/22A)	**18**	104	214	208 *(-3%)*	203 *(-5%)*	200 *(-6.5%)*
Beaver River trib. (Station SW6)	**14**	3,102	3,640	2,513 *(-31%)*	2,503 *(-31%)*	2,479 *(-32%)*
Duntroon Quarry Dewatering Discharge	**3 / 20 / 21**	3,104 *		3,361	3,437	3,558

*Notes: * Baseline observed flux values for Duntroon Quarry dewatering discharge are based on Water Taking Reporting System (WTRS) data for 2023. Commencing in 2023, an improved flow measurement system was implemented at Duntroon Quarry and therefore, the data was not available for calibration of the 2020 baseline model.*
Values in red italics are percentage decrease in comparison to the baseline model simulated fluxes.
Shaded cells indicate groundwater discharge during proposed quarry deepening is lower than simulated discharge during approved Phase 4 extraction.

G.6.1.3 Cumulative Effects of Osprey Quarry

To incorporate the cumulative effects of dewatering from both sites, the Phase 5 and 6 models were adapted to simulate the full Phase 1 and 2 extraction depths (490 masl) at Osprey Quarry.

The predicted radius of influence for proposed Phases 5 and 6 including the cumulative effects of Osprey Quarry dewatering is shown on **Figures G-16B and G-17B**. A comparison of the cumulative predicted drawdown for approved Phase 4 and proposed Phases 5 and 6 is provided in **Table G.6.3**.

As shown in the table below, wetland features and monitoring wells within close proximity to Osprey Quarry are predicted to experience an increase in drawdown due to cumulative effects during the proposed Phase 5 and 6 extraction. Residential well RW3 is also predicted to experience a limited increase in drawdown due to the cumulative effects.

Table G.6.3: Summary of Cumulative Predicted Drawdown During Proposed Quarry Deepening

Description	Location	Predicted Drawdown *(Cumulative Drawdown shown in red italics)* (m)		
		Phase 4	Phase 5	Phase 6
Wetlands	Rob Roy Swamp 1	1 – 2 *2 – 4*	1 – 2 *2 – 4*	1 – 2 *2 – 4*
	Rob Roy Swamp 2	5 – 10 *5 – 12*	5 – 15 *7 – 15*	5 – 15 *7 – 15*
	Rob Roy Swamp 3	1 – 5 *5*	1 – 15 *4 – 15*	1 – 15 *4 – 15*
	Rob Roy Swamp 5	1 – 3 *14 – 15*	1 – 4 *14 – 15*	1 – 5 *14 – 15*
	Rob Roy Swamp 6	1 – 4 *1 – 4*	1 – 4 *1 – 5*	1 – 5 *1 – 5*
	ANSI Wetland A	5 *5*	5 – 7 *5 – 7*	5 – 7 *5 – 7*
	ANSI Wetland B	5 *5*	5 – 10 *5 – 10*	5 – 10 *5 – 10*
Main Quarry Monitoring Wells	BH98-9	3.6 *4.1*	4.8 *5.1*	10.0 *10.2*
	BH98-12	1.5 *1.5*	3.4 *3.4*	10.8 *10.8*
	MW6	<1 *<1*	<1 *<1*	10.5 *10.5*
Extension Quarry Monitoring Wells	RW16	3.4 *3.4*	5.5 *5.5*	5.8 *5.8*
	BH02-5	10.6 *10.7*	23.6 *24.0*	23.6 *24.0*
	BH03-7	10.0 *10.3*	21.3 *22.3*	21.3 *22.3*
	NW10	9.1 *9.7*	19.1 *21.0*	19.2 *21.0*
Residential Wells	RW1	1.7 *1.7*	2.7 *2.7*	2.9 *2.9*
	RW3	2.2 *2.5*	2.3 *2.5*	2.3 *2.5*
Osprey Quarry Monitoring Wells	OW4	10.3 *22.5*	14.3 *24.6*	14.5 *24.6*
	OW6	2.2 *13.4*	2.9 *13.5*	3.3 *13.7*

Note: Shaded cells indicate cumulative drawdown exceeds simulated drawdown from Duntroon Quarry alone.

Cumulative predicted impacts to the groundwater discharge at the simulated escarpment seeps and springs, as well as quarry dewatering discharge during the approved Phase 4 and proposed Phases 5 and 6 are summarized in **Table G.6.4**.

Table G.6.4: Summary of Predicted Groundwater Discharge Considering Cumulative Impacts During Proposed Quarry Deepening

Description	Drain Boundary Reach No.	Baseline Observed Flux (m^3/day)	Simulated Flux *(Cumulative conditions flux shown in red italics)* (m^3/day)			
			Baseline Model	Phase 4	Phase 5	Phase 6
Pretty River trib. (Station SW18)	**16**	847	540	517 *(517)*	515 *(514)*	515 *(514)*
Batteaux Creek trib. (Station SW14/15)	**17**	285	252	237 *(237)*	229 *(229)*	228 *(228)*
Batteaux Creek trib. (Station SW22/22A)	**18**	104	214	208 *(207)*	203 *(203)*	200 *(200)*
Beaver River trib. (Station SW6)	**14**	3,102	3,640	2,513 *(2,253)*	2,503 *(2,250)*	2,479 *(2,237)*
Duntroon Quarry Dewatering Discharge	**3 / 20 / 21**	3,104 *		3,361 *(2,646)*	3,437 *(2,804)*	3,558 *(2,926)*
Osprey Quarry Dewatering Discharge	**19 / 22**	2,192 *		*(2,696)*	*(2,572)*	*(2,529)*

*Notes: * Baseline observed flux values for Duntroon and Osprey Quarry dewatering discharge are based on Water Taking Reporting System (WTRS) data for 2023.*
Shaded cells indicate cumulative effects flux is lower than simulated flux from the Duntroon Quarry alone.

As shown in the table above, only the Pretty River tributary escarpment seeps and springs are predicted to experience a marginal decrease in groundwater discharge when cumulative effects from Osprey Quarry are taken into account during proposed extraction Phases 5 and 6. Similar to Phase 4 predictions, groundwater discharge to the Beaver River tributaries is also predicted to decrease due to cumulative effects from Osprey Quarry; however, as noted previously, both the Duntroon Quarry and Osprey Quarry dewatering discharge is directed to this feature. Finally, the maximum predicted Duntroon Quarry dewatering discharge is approximately 2,900 m^3/day (1.1 Mm^3/year) when considering the combined effects of dewatering at Osprey Quarry. This value is somewhat lower than the predicted discharge when Duntroon Quarry is considered in isolation, as noted in **Section G.6.1.2**.

G.6.2 Rehabilitated Conditions

To simulate rehabilitated conditions, the Duntroon Quarry Phase 6 model was modified by removing the quarry drains and no flow zones to simulate the final lakes in both the Extension and Main Quarry. High-conductivity zone 6 was used to simulate the average long-term lake stage elevations.

The predicted long-term average stage elevation could potentially rise to 513.5 masl in the Main Quarry Lake and 511.5 masl in the Extension Quarry lake. As noted previously, since it is now proposed that the tunnel under County Road 91 is not sealed, the Main Quarry final lake elevation will equilibrate to that of the lower Extension Quarry lake elevation.

The small areas subject to future drawdown greater than 1 m below baseline conditions are shown on **Figure G-18A**. The proposed quarry deepening appears to have minimal effect on the predicted future drawdown near ANSI Wetland B for the existing approved quarry licence.

Finally, the proposed quarry deepening does not have an influence on the predicted long-term groundwater discharge to the escarpment seeps and springs east of the Extension Quarry, as summarized in **Table G.6.5** below. However, groundwater discharge as baseflow to the Beaver River tributaries marginally increases following final rehabilitation of the deepened quarry lakes.

Table G.6.5: Summary of Predicted Groundwater Discharge at Final Rehabilitation After Proposed Quarry Deepening

Description	Drain Boundary Reach No.	Baseline Observed Flux (m^3/day)	Simulated Flux (m^3/day)		
			Baseline Model	Final Lakes Model	Proposed Quarry Deepening Final Lakes Model
Pretty River trib. (Station SW18)	**16**	847	540	541	541
Batteaux Creek trib. (Station SW14/15)	**17**	285	252	253	253
Batteaux Creek trib. (Station SW22/22A)	**18**	104	214	224	224
Beaver River trib. (Station SW6)	**14**	3,102	3,640	5,051	5,117

Notes: Shaded cells indicate groundwater flux after final rehabilitation of proposed deepened quarry exceeds simulated flux after final rehabilitation of the existing approved Duntroon Quarry.

G.6.2.1 Cumulative Effects of Osprey Quarry

Similar to the existing quarry model, the rehabilitated conditions model for the proposed quarry deepening was modified to include the Osprey Quarry final lake to simulate cumulative effects, as described in **Section G.5.2.1**.

The predicted long-term average stage elevation could potentially rise to approximately 513.5 masl in the Main Quarry lake, 511.4 masl in the Extension Quarry lake and 510.7 masl in the Osprey Quarry lake. The presence of the Osprey Quarry lake has a minimal effect on the proposed deepened Duntroon Quarry lakes.

The small areas subject to future drawdown greater than 1 m below baseline conditions are shown on **Figure G-18B**. The presence of the Osprey Quarry lake appears to have minimal effect on the predicted future drawdown near ANSI Wetland B for the proposed quarry deepening.

Finally, the cumulative effects from the Osprey Quarry lake do not have a significant influence on the predicted long-term groundwater discharge to the escarpment seeps and springs for the proposed quarry deepening, as summarized in **Table G.6.6** below. However, groundwater discharge as baseflow to the Beaver River tributaries marginally increases when cumulative effects from all of the quarry lakes are considered.

Table G.6.6: Summary of Predicted Groundwater Discharge at Final Rehabilitation of Proposed Deepened Quarry Lakes

Description	Drain Boundary Reach No.	Baseline Observed Flux (m^3/day)	Simulated Flux (m^3/day)		
			Baseline Model	Final Lakes Model	Proposed Quarry Deepening Final Lakes Model
Pretty River trib. (Station SW18)	**16**	847	540	541 *(540)*	541 *(540)*
Batteaux Creek trib. (Station SW14/15)	**17**	285	252	253 *(253)*	253 *(253)*
Batteaux Creek trib. (Station SW22/22A)	**18**	104	214	224 *(225)*	224 *(224)*
Beaver River trib. (Station SW6)	**14**	3,102	3,640	5,051 *(5,117)*	5,117 *(5,184)*

Notes: Cumulative conditions flux shown in red italics.
Shaded cells indicate cumulative effects flux exceeds simulated flux from the Duntroon Quarry alone.

Signature Page

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Senior Project Engineer, Earth & Environment

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Figures

OSPREY HEIGHTS
EAGLE CRESCENT
NOTTAWASAGA LOOKOUT PROVINCIAL PARK
NOTTAWASAGA SIDEROAD 26 & 27
NORTH NOTTAWASAGA CONCESSION 10
ROB ROY SWAMP 1
GREY ROAD 31
ANSI WETLAND A
ANSI WETLAND B
ROB ROY SWAMP 3
ROB ROY SWAMP 2
ROB ROY SWAMP 4
TOWNSHIP ROAD 91
ROAD 67B
ROB ROY SWAMP 5
ROB ROY SWAMP 6
SOUTH NOTTAWASAGA CONCESSION 10
DUNTROON HIGHLANDS GOLF
NOTTAWASAGA SIDEROAD 21 & 22
ROB ROY SWAMP 7
CARMARTHEN LAKES FARMS WETLAND
10TH CONCESSION
OSPREY CLEARVIEW TOWNLINE
EDWARD LAKE
ROAD 63
8TH CONCESSION B
DEVIL'S GLEN PROVINCIAL PARK
COUNTY ROAD 124
EWING ROAD

LEGEND

- EXTENSION QUARRY LICENSED AREA
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WATERCOURSE
- INTERMITTENT WATERCOURSE
- WOODLOT
- MODEL GRID
- NO-FLOW BOUNDARY

N

0 500 1,000 m

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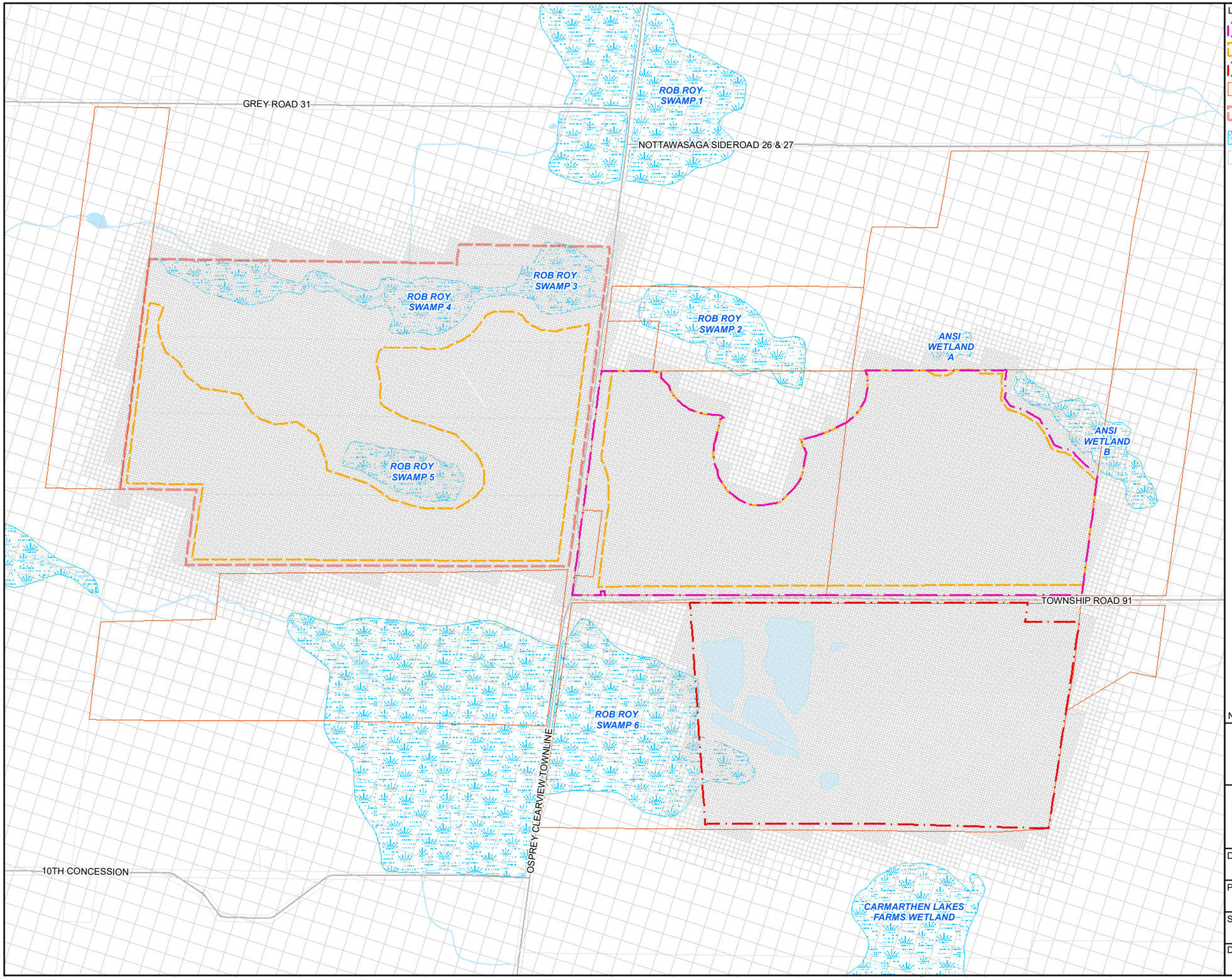
MODEL DOMAIN GRID

NUMERICAL GROUNDWATER MODEL REPORT
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE: OCTOBER 2025	
PROJECT: CA0033354.8741	
SCALE: 1 : 25,000	
DRAWN BY: JLD	FIGURE No: G-1

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LEGEND

- EXTENSION QUARRY LICENSED AREA
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- WETLAND
- MODEL GRID

0 200 400 m

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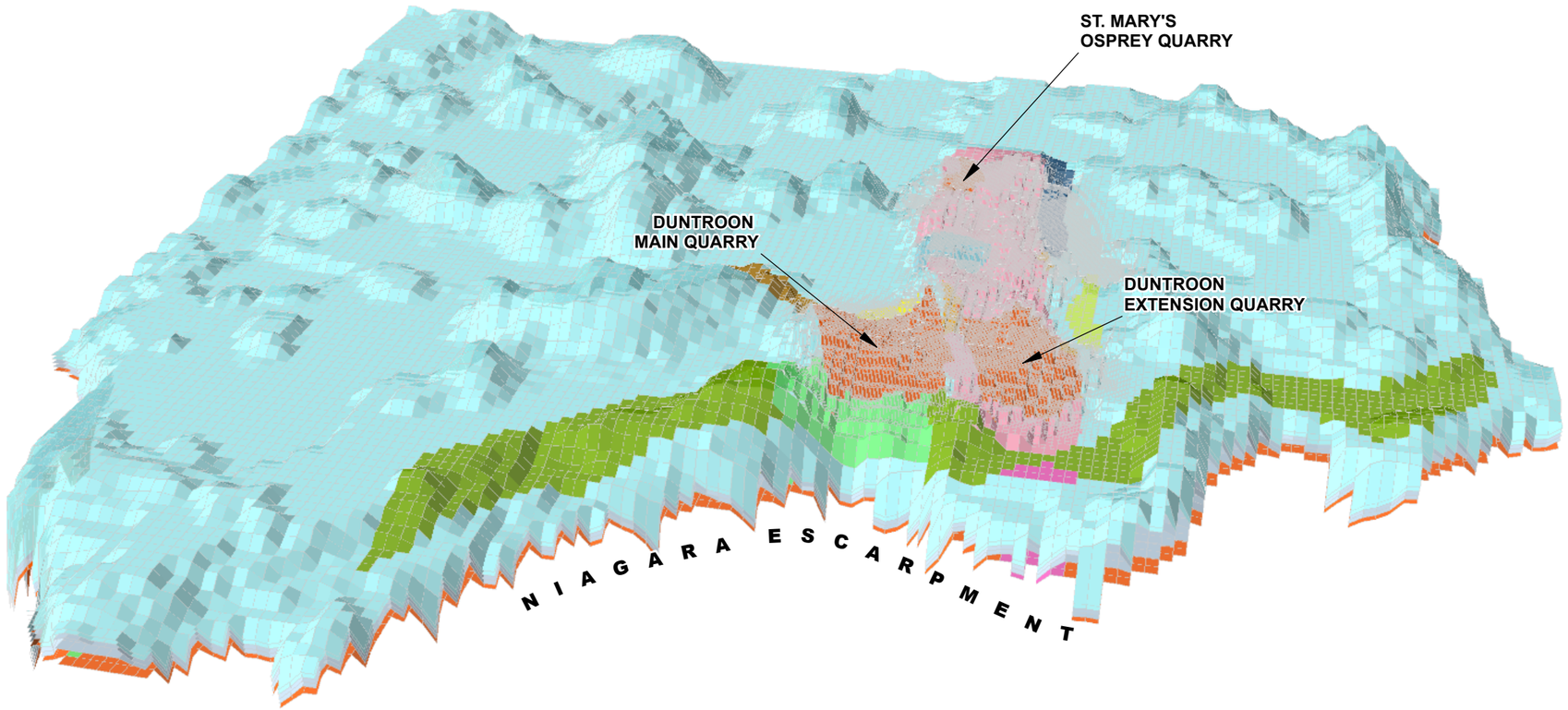
LOCAL MODEL GRID

NUMERICAL GROUNDWATER MODEL REPORT
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE: OCTOBER 2025	
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SCALE: 1 : 10,000	
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LEGEND

ACTIVE MODEL GRID

HYDRAULIC CONDUCTIVITY (ZONE / DESCRIPTION)

1 UPPER AMABEL FORMATION
2 LOWER AMABEL FORMATION
3 FOSSIL HILL FORMATION
4 ESCARPMENT
5 EXTENSION QUARRY / OSPREY QUARRY LOCAL ZONE
6 QUARRY EXCAVATION
7 OSPREY QUARRY OW5 LOCAL ZONE
8 NORTH EXTENSION QUARRY LOCAL ZONE
9 EXTENSION QUARRY LOCAL ZONES
10 RW9 LOCAL ZONE
11 ESCARPMENT DIVIDE
12 98-13 LOCAL ZONE
13 CARMARTHEN LAKES FARMS SUPPLY WELLS LOCAL ZONE
14 RW1 LOCAL ZONE
15 SEDIMENTATION AND SETTLING POND FINES

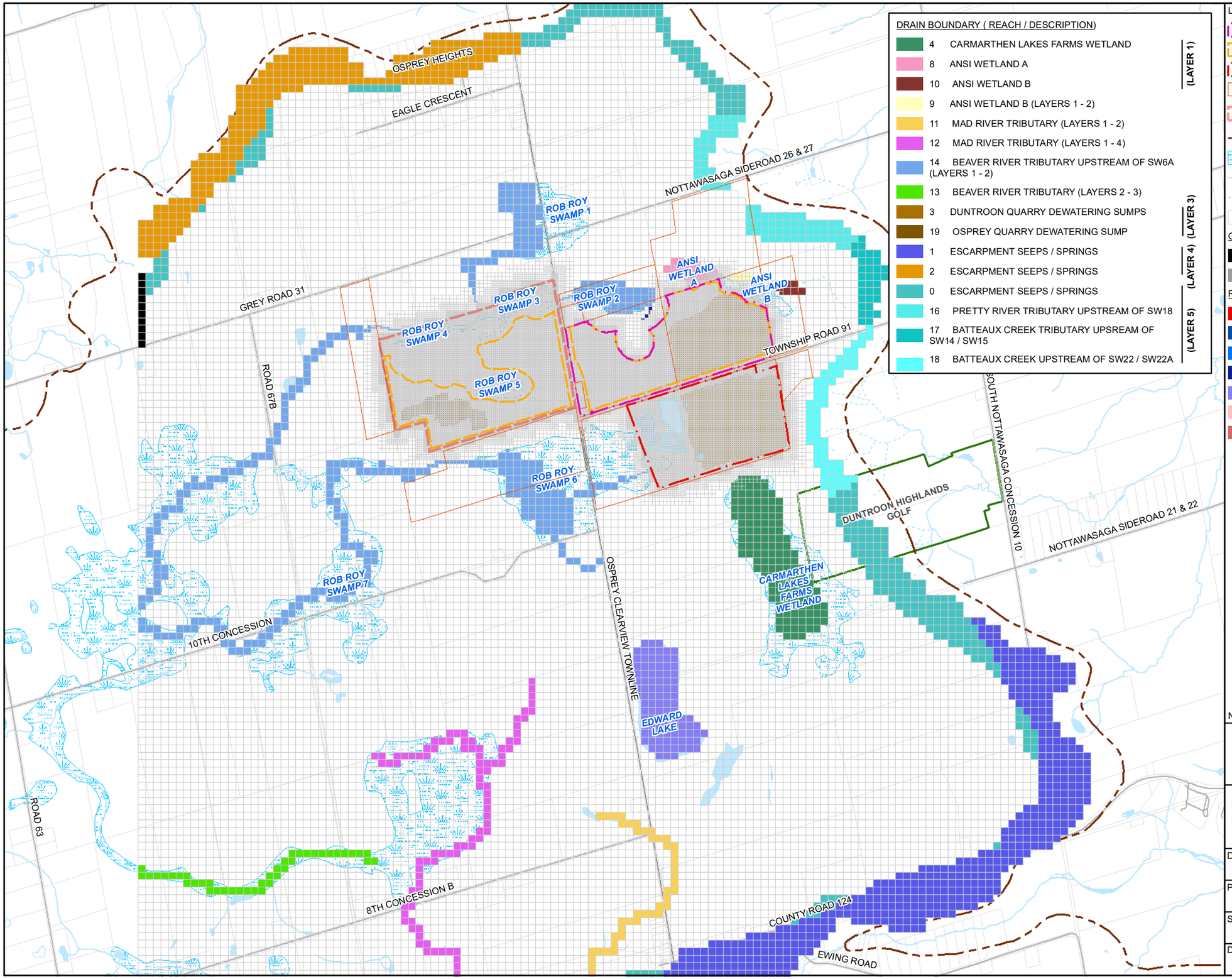
3-DIMENSIONAL VIEW OF MODEL LAYERS

NUMERICAL GROUNDWATER MODEL REPORT
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE: OCTOBER 2025	
PROJECT: CA0033354.8741	
SCALE: NOT TO SCALE	
DRAWN BY: JLD	FIGURE No: **G-2**

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DRAIN BOUNDARY (REACH / DESCRIPTION)

4	CARMARTHEN LAKES FARMS WETLAND	(LAYER 1)
8	ANSI WETLAND A	
10	ANSI WETLAND B	
9	ANSI WETLAND B (LAYERS 1 - 2)	
11	MAD RIVER TRIBUTARY (LAYERS 1 - 2)	
12	MAD RIVER TRIBUTARY (LAYERS 1 - 4)	
14	BEAVER RIVER TRIBUTARY UPSTREAM OF SW6A (LAYERS 1 - 2)	
13	BEAVER RIVER TRIBUTARY (LAYERS 2 - 3)	
3	DUNTROON QUARRY DEWATERING SUMPS	(LAYER 3)
19	OSPREY QUARRY DEWATERING SUMP	
1	ESCARPMENT SEEPS / SPRINGS	(LAYER 4)
2	ESCARPMENT SEEPS / SPRINGS	
0	ESCARPMENT SEEPS / SPRINGS	(LAYER 5)
16	PRETTY RIVER TRIBUTARY UPSTREAM OF SW18	
17	BATTEAUX CREEK TRIBUTARY UPSREAM OF SW14 / SW15	
18	BATTEAUX CREEK UPSTREAM OF SW22 / SW22A	

LEGEND

- EXTENSION QUARRY LICENSED AREA
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WATERCOURSE
- INTERMITTENT WATERCOURSE
- ACTIVE MODEL GRID

GENERAL HEAD BOUNDARY (REACH / DESCRIPTION)

0	WESTERN MODEL BOUNDARY (LAYERS 1 - 5)	
1	NORTHERN MODEL BOUNDARY (LAYERS 1 - 5)	

RIVER BOUNDARY (REACH / DESCRIPTION)

1	STORAGE RESERVOIR	(LAYER 1)
4	ANSI WETLAND B MITIGATION RECHARGE	
5	ANSI WETLAND A MITIGATION	
6	ROB ROY SWAMP 2 MITIGATION RECHARGE	
0	EDWARD LAKE	(LAYER 2)
2	SETTLING POND 1	
3	SETTLING PONDS 2 AND	

0 500 1,000 m

NAD 1983 UTM Zone 17N

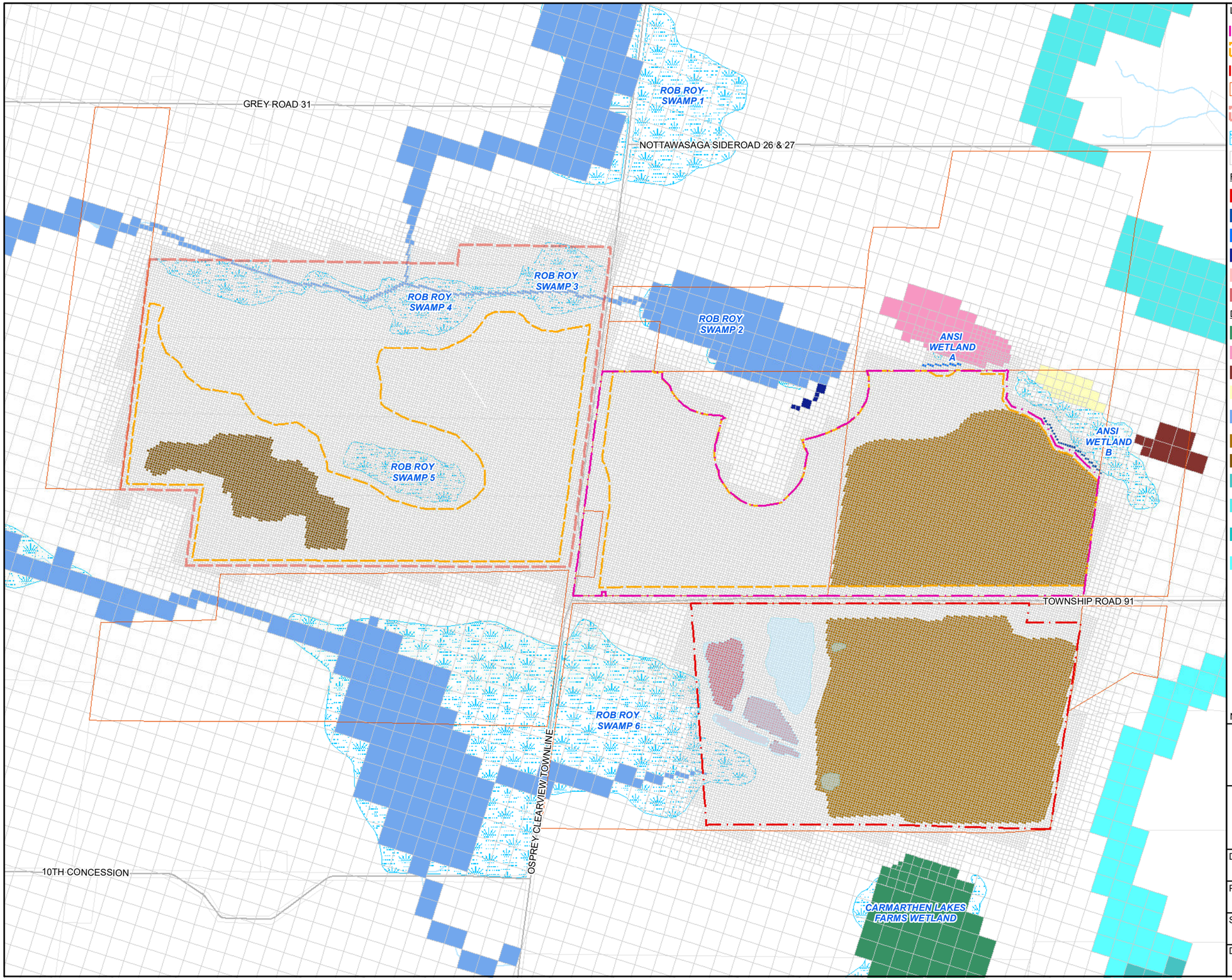
BOUNDARY CONDITIONS

NUMERICAL GROUNDWATER MODEL REPORT
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE:	OCTOBER 2025
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FIGURE No:	G-3

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LEGEND

- EXTENSION QUARRY LICENSED AREA
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- WETLAND
- ACTIVE MODEL GRID

RIVER BOUNDARY (REACH / DESCRIPTION)

- 1 STORAGE RESERVOIR
- 4 ANSI WETLAND B MITIGATION RECHARGE
- 5 ANSI WETLAND A MITIGATION RECHARGE
- 6 ROB ROY SWAMP 2 MITIGATION RECHARGE (LAYER 1)
- 2 SETTLING POND 1
- 3 SETTLING PONDS 2 AND 3 (LAYER 2)

DRAIN BOUNDARY (REACH / DESCRIPTION)

- 4 CARMARTHEN LAKES FARMS WETLAND
- 8 ANSI WETLAND A
- 10 ANSI WETLAND B (LAYER 1)
- 9 ANSI WETLAND B (LAYERS 1 - 2)
- 14 BEAVER RIVER TRIBUTARY UPSTREAM OF SW6A (LAYERS 1 - 2)
- 3 DUNTROON QUARRY DEWATERING SUMPS (LAYER 3)
- 19 OSPREY QUARRY DEWATERING SUMP
- 0 ESCARPMENT SEEPS / SPRINGS
- 16 PRETTY RIVER TRIBUTARY UPSTREAM OF SW18
- 17 BATTEAUX CREEK TRIBUTARY UPSREAM OF SW14 / SW15 (LAYER 5)
- 18 BATTEAUX CREEK UPSTREAM OF SW22 / SW22A

N

0 200 400 m

NAD 1983 UTM Zone 17N

LOCAL BOUNDARY CONDITIONS

NUMERICAL GROUNDWATER MODEL REPORT
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE: OCTOBER 2025	
PROJECT: CA0033354.8741	
SCALE: 1 : 10,000	
DRAWN BY: JLD	FIGURE No: **G-3A**

55 KING STREET, SUITE 600
ST. CATHARINES, ON L7R 3H5
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OSPREY HEIGHTS
EAGLE CRESCENT
NOTTAWASAGA SIDEROAD 26 & 27
NORTH NOTTAWASAGA CONCESSION 10
ROB ROY SWAMP 1
GREY ROAD 31
ANSI WETLAND A
ANSI WETLAND B
ROB ROY SWAMP 3
ROB ROY SWAMP 2
ROB ROY SWAMP 4
TOWNSHIP ROAD 91
ROAD 67B
ROB ROY SWAMP 5
SOUTH NOTTAWASAGA CONCESSION 10
DUNTROON HIGHLANDS GOLF
NOTTAWASAGA SIDEROAD 21 & 22
ROB ROY SWAMP 6
ROB ROY SWAMP 7
OSPREY CLEARVIEW TOWNLINE
CARMARTHEN LAKES FARMS WETLAND
10TH CONCESSION
EDWARD LAKE
ROAD 63
8TH CONCESSION B
COUNTY ROAD 124
EWING ROAD

LEGEND

- EXTENSION QUARRY LICENSED AREA
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WATERCOURSE
- INTERMITTENT WATERCOURSE
- ACTIVE MODEL GRID

RECHARGE (ZONE / DESCRIPTION)

- 1 HILLY TOPOGRAPHY
- 2 ESCARPMENT
- 3 LOW-LYING AREA
- 4 KARST AREA
- 5 QUARRY EXCAVATION
- 6 MAIN QUARRY SEDIMENTATION PONDS

N

0 500 1,000 m

NAD 1983 UTM Zone 17N

RECHARGE ZONES

NUMERICAL GROUNDWATER MODEL REPORT
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE: OCTOBER 2025	
PROJECT: CA0033354.8741	
SCALE: 1 : 25,000	
DRAWN BY: JLD	FIGURE No: G-4

55 KING STREET, SUITE 600
ST. CATHARINES, ON L7R 3H5
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OSPREY HEIGHTS
EAGLE CRESCENT
NOTTAWASAGA SIDEROAD 26 & 27
NORTH NOTTAWASAGA CONCESSION 10
GREY ROAD 31
ROB ROY SWAMP 1
ROB ROY SWAMP 3
ROB ROY SWAMP 2
ANSI WETLAND A
ANSI WETLAND B
ROB ROY SWAMP 4
ROB ROY SWAMP 5
ROB ROY SWAMP 6
TOWNSHIP ROAD 91
ROAD 67B
SOUTH NOTTAWASAGA CONCESSION 10
DUNTROON HIGHLANDS GOLF
NOTTAWASAGA SIDEROAD 21 & 22
ROB ROY SWAMP 7
CARMARTHEN LAKES FARMS WETLAND
10TH CONCESSION
OSPREY CLEARVIEW TOWNLINE
EDWARD LAKE
ROAD 63
8TH CONCESSION B
COUNTY ROAD 124
EWING ROAD

LEGEND

- EXTENSION QUARRY LICENSED AREA
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WATERCOURSE
- INTERMITTENT WATERCOURSE
- ACTIVE MODEL GRID

HYDRAULIC CONDUCTIVITY (ZONE / DESCRIPTION)

- 1 UPPER AMABEL FORMATION
- 5 EXTENSION QUARRY / OSPREY QUARRY LOCAL ZONE
- 6 QUARRY EXCAVATION
- 7 OSPREY QUARRY OW5 LOCAL ZONE
- 8 NORTH EXTENSION QUARRY LOCAL ZONE
- 9 EXTENSION QUARRY LOCAL ZONES
- 10 RW9 LOCAL ZONE
- 11 ESCARPMENT DIVIDE
- 12 98-13 LOCAL ZONE
- 13 CARMARTHEN LAKES FARMS SUPPLY WELLS LOCAL ZONE
- 14 RW1 LOCAL ZONE
- 15 SEDIMENTATION AND SETTLING POND FINES

N

0 500 1,000 m

NAD 1983 UTM Zone 17N

LAYER 1 HYDRAULIC CONDUCTIVITY ZONES

NUMERICAL GROUNDWATER MODEL REPORT
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE:	OCTOBER 2025
PROJECT:	CA0033354.8741
SCALE:	1 : 25,000
DRAWN BY:	JLD
FIGURE No:	G-5

55 KING STREET, SUITE 600
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OSPREY HEIGHTS
EAGLE CRESCENT
NOTTAWASAGA SIDEROAD 26 & 27
NORTH NOTTAWASAGA CONCESSION 10
GREY ROAD 31
ROB ROY SWAMP 1
ROB ROY SWAMP 3
ROB ROY SWAMP 2
ANSI WETLAND A
ANSI WETLAND B
ROB ROY SWAMP 4
ROB ROY SWAMP 5
ROB ROY SWAMP 6
TOWNSHIP ROAD 91
ROAD 67B
SOUTH NOTTAWASAGA CONCESSION 10
DUNTROON HIGHLANDS GOLF
NOTTAWASAGA SIDEROAD 21 & 22
ROB ROY SWAMP 7
CARMARTHEN LAKES FARMS WETLAND
10TH CONCESSION
OSPREY CLEARVIEW TOWNLINE
EDWARD LAKE
ROAD 63
8TH CONCESSION B
COUNTY ROAD 124
EWING ROAD

LEGEND

- EXTENSION QUARRY LICENSED AREA
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WATERCOURSE
- INTERMITTENT WATERCOURSE
- ACTIVE MODEL GRID

HYDRAULIC CONDUCTIVITY (ZONE / DESCRIPTION)

- 1 UPPER AMABEL FORMATION
- 5 EXTENSION QUARRY / OSPREY QUARRY LOCAL ZONE
- 6 QUARRY EXCAVATION
- 7 OSPREY QUARRY OW5 LOCAL ZONE
- 8 NORTH EXTENSION QUARRY LOCAL ZONE
- 9 EXTENSION QUARRY LOCAL ZONES
- 10 RW9 LOCAL ZONE
- 11 ESCARPMENT DIVIDE
- 12 98-13 LOCAL ZONE
- 13 CARMARTHEN LAKES FARMS SUPPLY WELLS LOCAL ZONE
- 14 RW1 LOCAL ZONE
- 15 SEDIMENTATION AND SETTLING POND FINES

N

0 500 1,000 m

NAD 1983 UTM Zone 17N

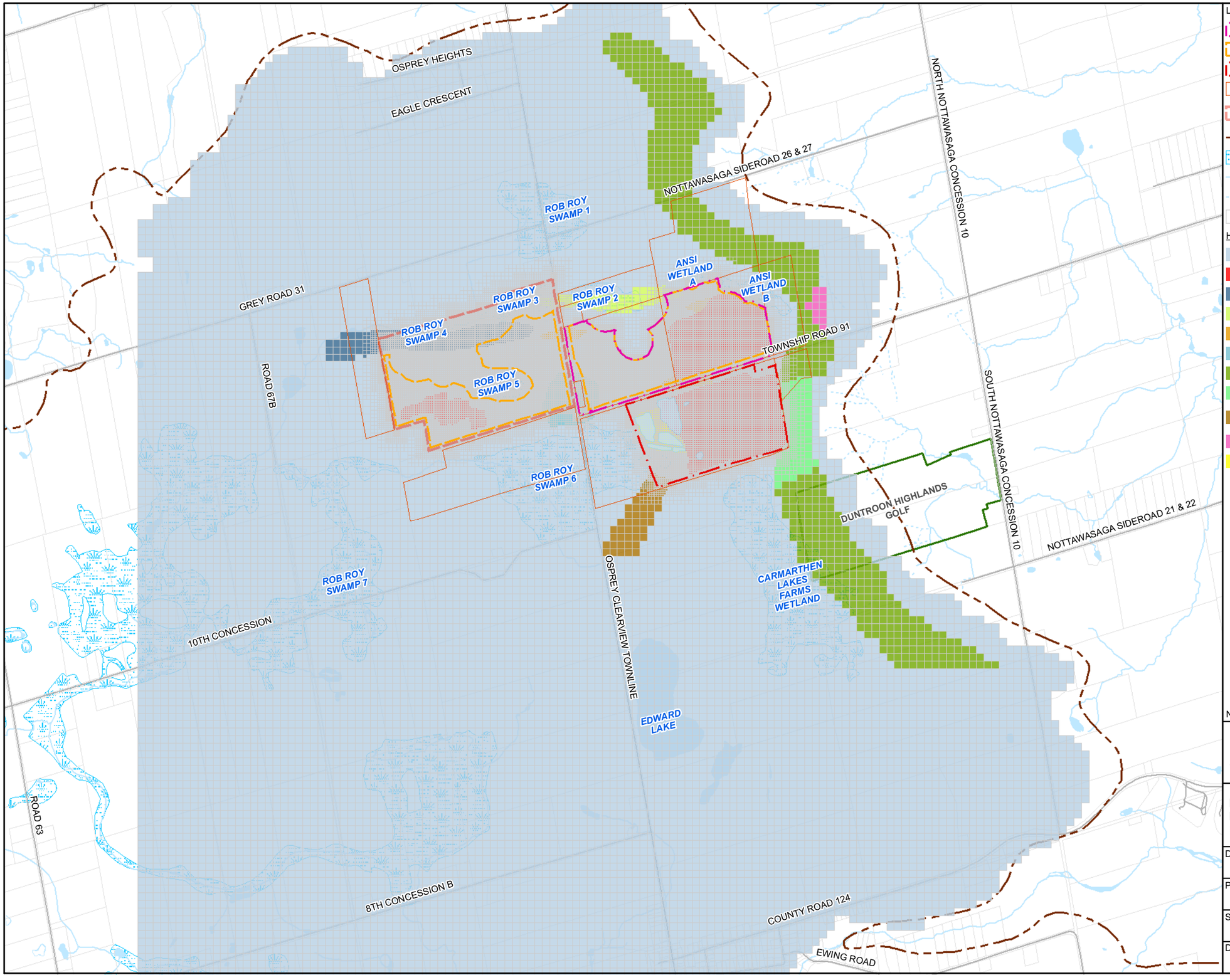
LAYER 2 HYDRAULIC CONDUCTIVITY ZONES

NUMERICAL GROUNDWATER MODEL REPORT
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE:	OCTOBER 2025
PROJECT:	CA0033354.8741
SCALE:	1 : 25,000
DRAWN BY:	JLD
FIGURE No:	G-6

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LEGEND

- EXTENSION QUARRY LICENSED AREA
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WATERCOURSE
- INTERMITTENT WATERCOURSE
- ACTIVE MODEL GRID

HYDRAULIC CONDUCTIVITY (ZONE / DESCRIPTION)

- 2 LOWER AMABEL FORMATION
- 6 QUARRY EXCAVATION
- 7 OSPREY QUARRY OW5 LOCAL ZONE
- 8 NORTH EXTENSION QUARRY LOCAL ZONE
- 9 EXTENSION QUARRY LOCAL ZONES
- 10 RW9 LOCAL ZONE
- 11 ESCARPMENT DIVIDE
- 12 98-13 LOCAL ZONE
- 13 CARMARTHEN LAKES FARMS SUPPLY WELLS LOCAL ZONE
- 14 RW1 LOCAL ZONE
- 15 SEDIMENTATION AND SETTLING POND FINES

N

0 500 1,000 m

NAD 1983 UTM Zone 17N

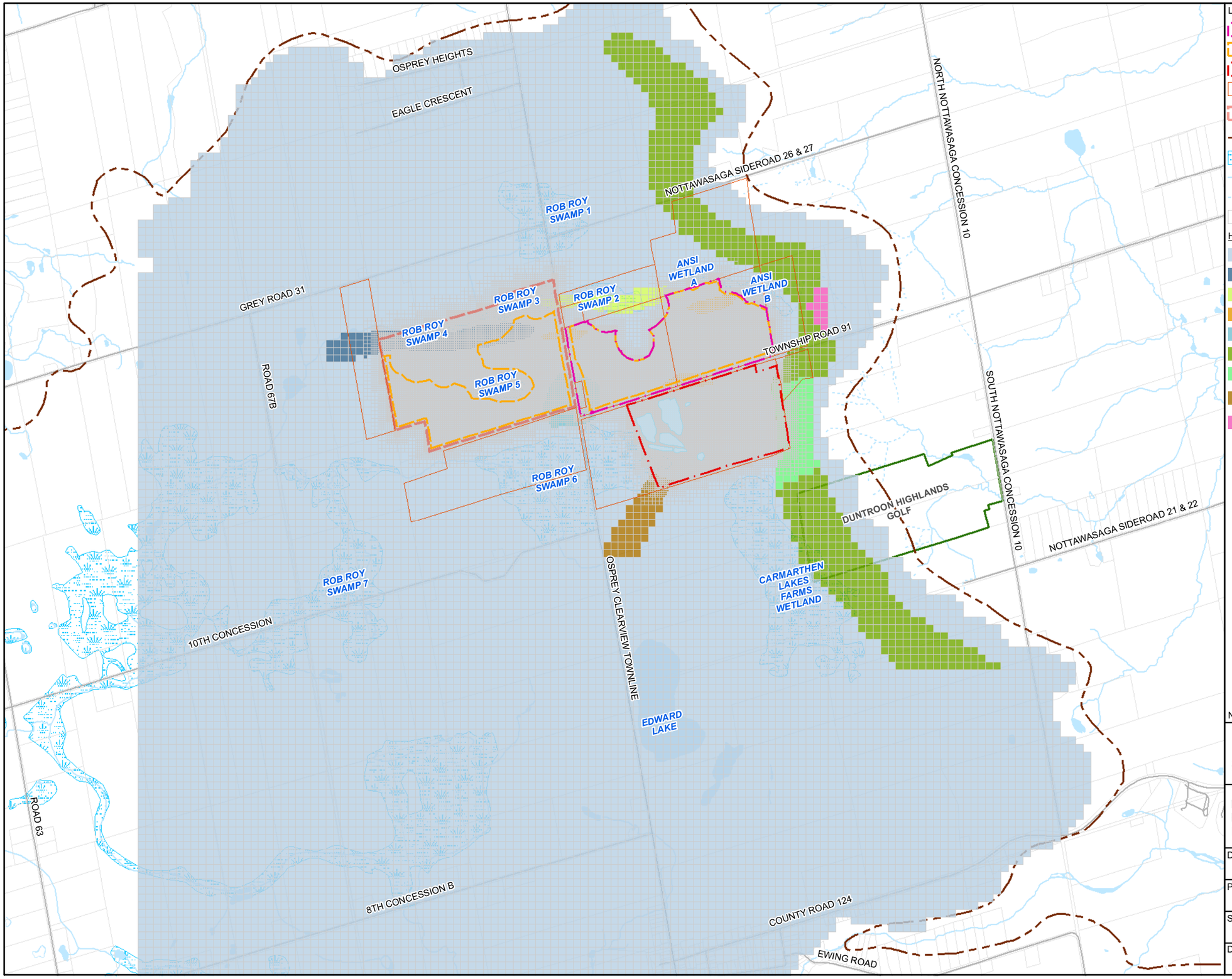
LAYER 3 HYDRAULIC CONDUCTIVITY ZONES

NUMERICAL GROUNDWATER MODEL REPORT
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE: OCTOBER 2025	
PROJECT: CA0033354.8741	
SCALE: 1 : 25,000	
DRAWN BY: JLD	FIGURE No: **G-7**

55 KING STREET, SUITE 600
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LEGEND

- EXTENSION QUARRY LICENSED AREA
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WATERCOURSE
- INTERMITTENT WATERCOURSE
- ACTIVE MODEL GRID

HYDRAULIC CONDUCTIVITY (ZONE / DESCRIPTION)

- 2 LOWER AMABEL FORMATION
- 7 OSPREY QUARRY OW5 LOCAL ZONE
- 8 NORTH EXTENSION QUARRY LOCAL ZONE
- 9 EXTENSION QUARRY LOCAL ZONES
- 10 RW9 LOCAL ZONE
- 11 ESCARPMENT DIVIDE
- 12 98-13 LOCAL ZONE
- 13 CARMARTHEN LAKES FARMS SUPPLY WELLS LOCAL ZONE
- 14 RW1 LOCAL ZONE

N

0 500 1,000 m

NAD 1983 UTM Zone 17N

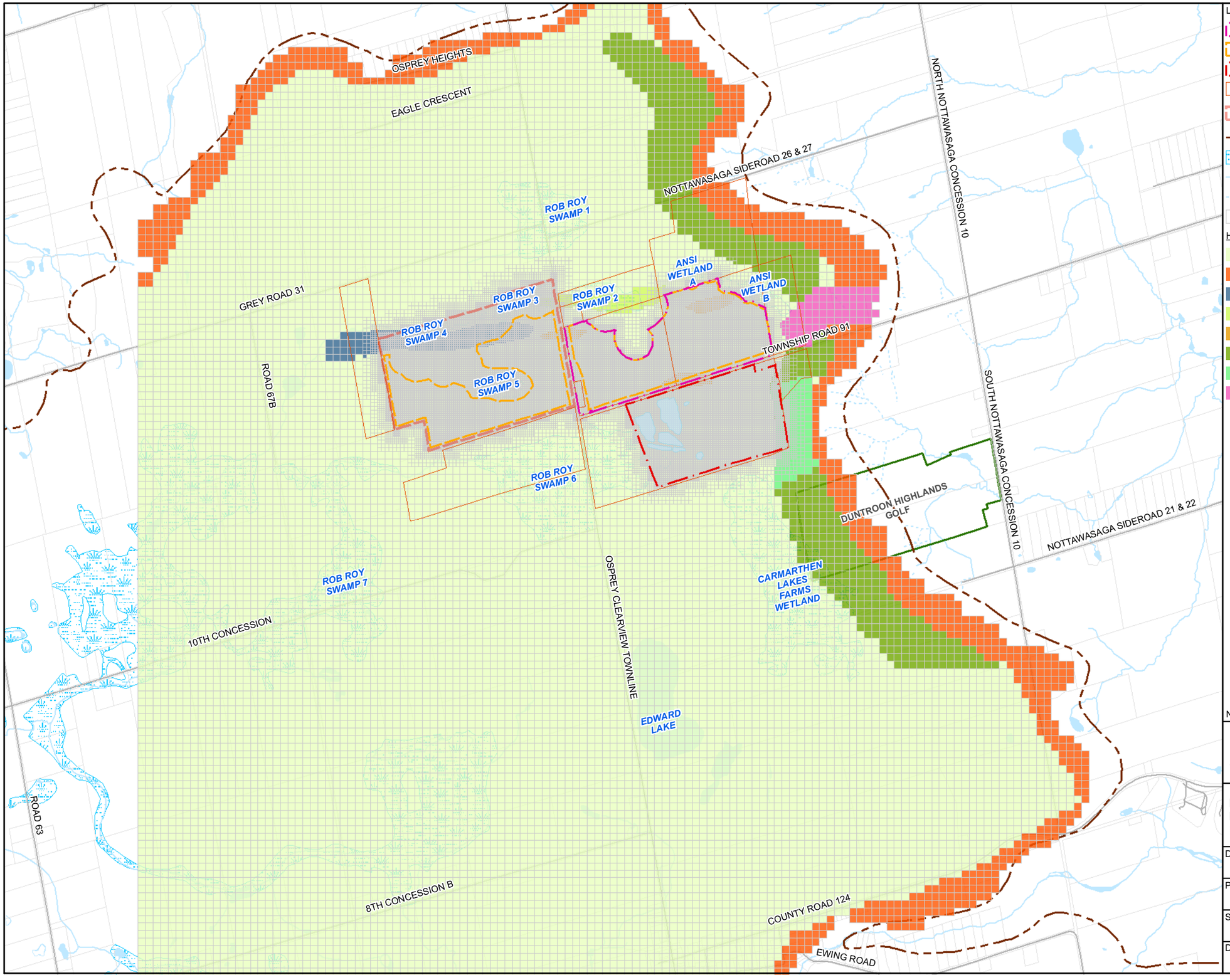
LAYER 4 HYDRAULIC CONDUCTIVITY ZONES

NUMERICAL GROUNDWATER MODEL REPORT
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE: OCTOBER 2025	
PROJECT: CA0033354.8741	
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DRAWN BY: JLD	FIGURE No: **G-8**

55 KING STREET, SUITE 600
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LEGEND

- EXTENSION QUARRY LICENSED AREA
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WATERCOURSE
- INTERMITTENT WATERCOURSE
- ACTIVE MODEL GRID

HYDRAULIC CONDUCTIVITY (ZONE / DESCRIPTION)

3	FOSSIL HILL FORMATION
4	ESCARPMENT
7	OSPREY QUARRY OW5 LOCAL ZONE
8	NORTH EXTENSION QUARRY LOCAL ZONE
9	EXTENSION QUARRY LOCAL ZONES
11	ESCARPMENT DIVIDE
12	98-13 LOCAL ZONE
14	RW1 LOCAL ZONE

N

0 500 1,000 m

NAD 1983 UTM Zone 17N

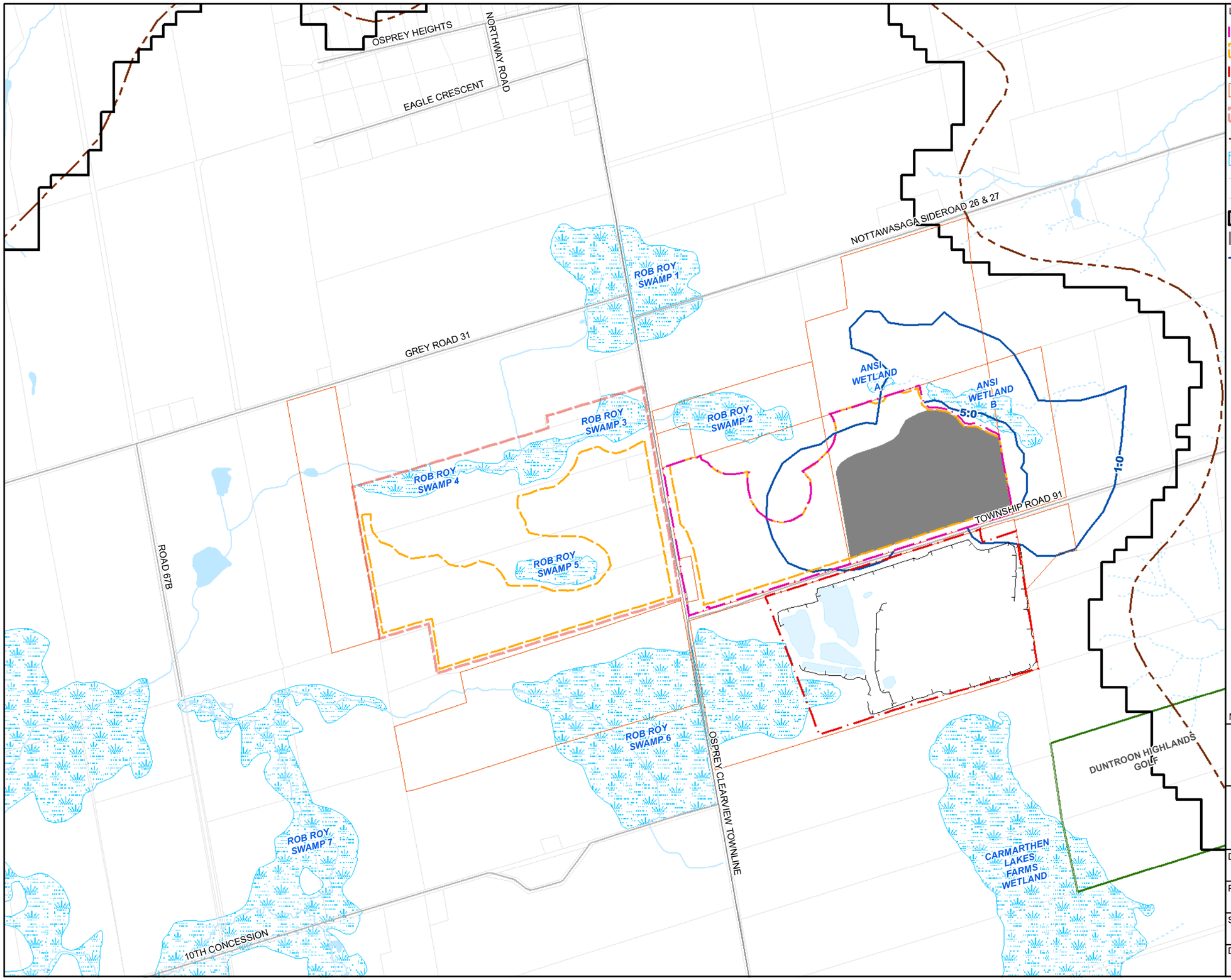
LAYER 5 HYDRAULIC CONDUCTIVITY ZONES

NUMERICAL GROUNDWATER MODEL REPORT
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE: OCTOBER 2025	
PROJECT: CA0033354.8741	
SCALE: 1 : 25,000	
DRAWN BY: JLD	FIGURE No: G-9

55 KING STREET, SUITE 600
ST. CATHARINES, ON L7R 3H5
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LEGEND

- EXTENSION QUARRY LICENSED
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WATERCOURSE
- INTERMITTENT WATERCOURSE
- ACTIVE MODEL DOMAIN
- AREA OF EXTRACTION
- PREDICTED DRAWDOWN CONTOURS (m)

N

0 300 600 m

NAD 1983 UTM Zone 17N

PREDICTED RADIUS OF INFLUENCE - PHASE 2A

NUMERICAL GROUNDWATER MODEL REPORT
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE:	OCTOBER 2025
PROJECT:	CA0033354.8741
SCALE:	1 : 15,000
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FIGURE No:	G-10A

55 KING STREET, SUITE 600
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OSPREY HEIGHTS
NORTHWAY ROAD
EAGLE CRESCENT
NOTTAWASAGA SIDEROAD 26 & 27
GREY ROAD 31
ROAD 67B
TOWNSHIP ROAD 91
10TH CONCESSION
OSPREY CLEARVIEW TOWNLINE
DUNTROON HIGHLANDS GOLF
ROB ROY SWAMP 1
ROB ROY SWAMP 2
ROB ROY SWAMP 3
ROB ROY SWAMP 4
ROB ROY SWAMP 5
ROB ROY SWAMP 6
ROB ROY SWAMP 7
ANSI WETLAND A
ANSI WETLAND B
CARMARTHEN LAKES FARMS WETLAND
1:0
5:0
10

LEGEND

- EXTENSION QUARRY LICENSED
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WATERCOURSE
- INTERMITTENT WATERCOURSE
- ACTIVE MODEL DOMAIN
- AREA OF EXTRACTION
- AREA OF EXTRACTION (DEPTH 490 masl)
- PREDICTED DRAWDOWN CONTOURS (m)

N

0 300 600 m

NAD 1983 UTM Zone 17N

PREDICTED RADIUS OF INFLUENCE - PHASE 2B CUMULATIVE EFFECTS

NUMERICAL GROUNDWATER MODEL REPORT
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE:	OCTOBER 2025
PROJECT:	CA0033354.8741
SCALE:	1 : 15,000
DRAWN BY:	JLD
FIGURE No:	G-11B

55 KING STREET, SUITE 600
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OSPREY HEIGHTS
NORTHWAY ROAD
EAGLE CRESCENT
NOTTAWASAGA SIDEROAD 26 & 27
GREY ROAD 31
ROAD 67B
TOWNSHIP ROAD 91
OSPREY CLEARVIEW TOWNLINE
10TH CONCESSION
DUNTROON HIGHLANDS GOLF
ROB ROY SWAMP 1
ROB ROY SWAMP 2
ROB ROY SWAMP 3
ROB ROY SWAMP 4
ROB ROY SWAMP 5
ROB ROY SWAMP 6
ROB ROY SWAMP 7
ANSI WETLAND A
ANSI WETLAND B
CARMARTHEN LAKES FARMS WETLAND
1:0
5:0
10

LEGEND

- EXTENSION QUARRY LICENSED
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WATERCOURSE
- INTERMITTENT WATERCOURSE
- ACTIVE MODEL DOMAIN
- AREA OF EXTRACTION
- PREDICTED DRAWDOWN CONTOURS (m)

N

0 300 600 m

NAD 1983 UTM Zone 17N

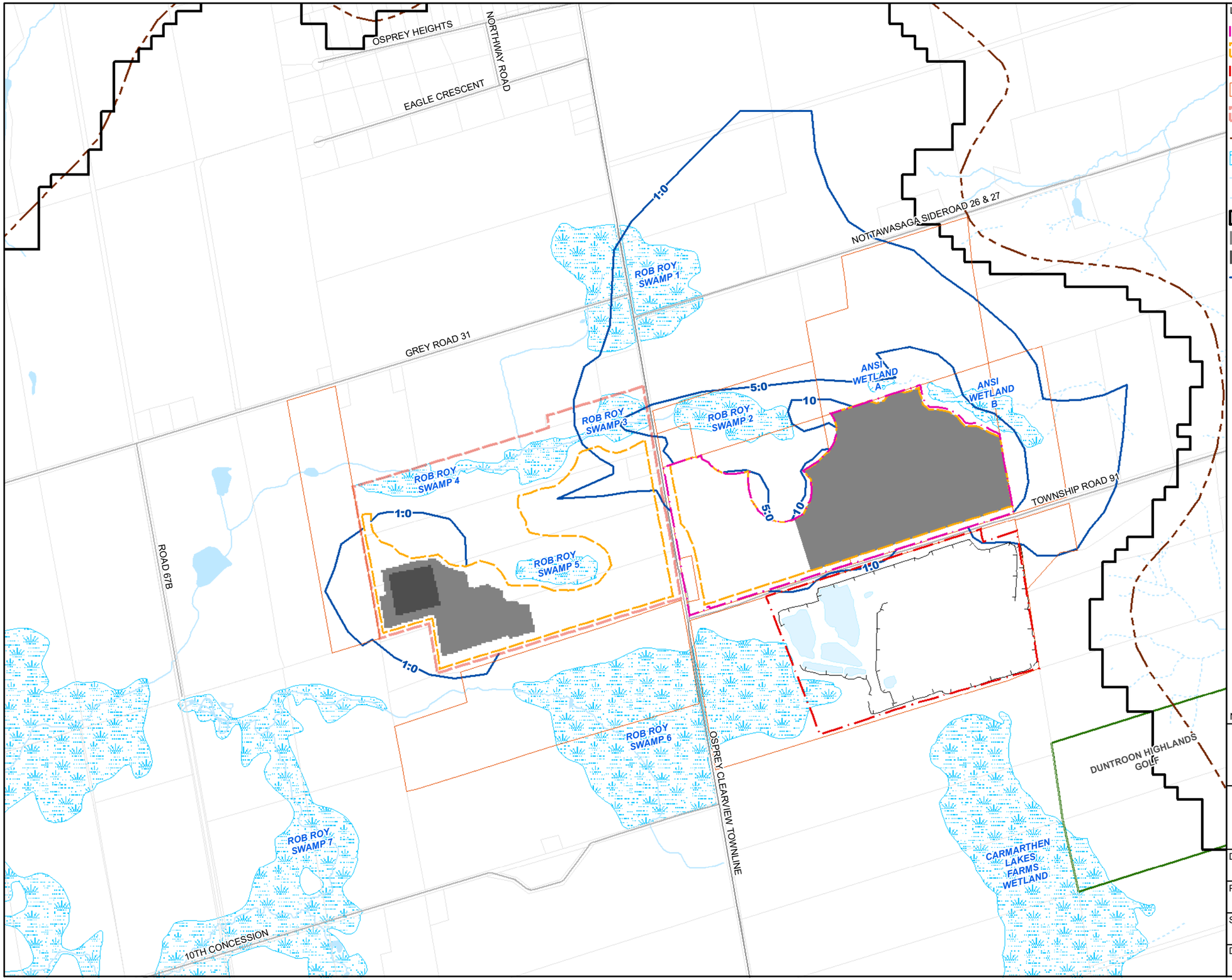
PREDICTED RADIUS OF INFLUENCE - PHASE 2B

NUMERICAL GROUNDWATER MODEL REPORT
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE:	OCTOBER 2025
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SCALE:	1 : 15,000
DRAWN BY:	JLD
FIGURE No:	G-11A

55 KING STREET, SUITE 600
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LEGEND

- EXTENSION QUARRY LICENSED
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WATERCOURSE
- INTERMITTENT WATERCOURSE
- ACTIVE MODEL DOMAIN
- AREA OF EXTRACTION
- AREA OF EXTRACTION (DEPTH 490 masl)
- PREDICTED DRAWDOWN CONTOURS (m)

N

0 300 600 m

NAD 1983 UTM Zone 17N

PREDICTED RADIUS OF INFLUENCE - PHASE 2B CUMULATIVE EFFECTS

NUMERICAL GROUNDWATER MODEL REPORT
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE:	OCTOBER 2025
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SCALE:	1 : 15,000
DRAWN BY:	JLD
FIGURE No:	G-11B

55 KING STREET, SUITE 600
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OSPREY HEIGHTS
NORTHWAY ROAD
EAGLE CRESCENT
NOTTAWASAGA SIDEROAD 26 & 27
GREY ROAD 31
ROAD 67B
TOWNSHIP ROAD 91
OSPREY CLEARVIEW TOWNLINE
10TH CONCESSION
ROB ROY SWAMP 1
ROB ROY SWAMP 2
ROB ROY SWAMP 3
ROB ROY SWAMP 4
ROB ROY SWAMP 5
ROB ROY SWAMP 6
ROB ROY SWAMP 7
ANSI WETLAND A
ANSI WETLAND B
CARMARTHEN LAKES FARMS WETLAND
DUNTROON HIGHLANDS GOLF
1:0
5:0
10
10
10

LEGEND

- EXTENSION QUARRY LICENSED AREA
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WATERCOURSE
- INTERMITTENT WATERCOURSE
- ACTIVE MODEL DOMAIN
- AREA OF EXTRACTION
- PREDICTED DRAWDOWN CONTOURS (m)

N

0 300 600 m

NAD 1983 UTM Zone 17N

PREDICTED RADIUS OF INFLUENCE - PHASE 3A

NUMERICAL GROUNDWATER MODEL REPORT
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE:	OCTOBER 2025
PROJECT:	CA0033354.8741
SCALE:	1 : 15,000
DRAWN BY:	JLD
FIGURE No:	G-12A

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OSPREY HEIGHTS
NORTHWAY ROAD
EAGLE CRESCENT
NOTTAWASAGA SIDEROAD 26 & 27
GREY ROAD 31
ROAD 67B
TOWNSHIP ROAD 91
OSPREY CLEARVIEW TOWNLINE
10TH CONCESSION
ROB ROY SWAMP 1
ROB ROY SWAMP 2
ROB ROY SWAMP 3
ROB ROY SWAMP 4
ROB ROY SWAMP 5
ROB ROY SWAMP 6
ROB ROY SWAMP 7
ANSI WETLAND A
ANSI WETLAND B
CARMARTHEN LAKES FARMS WETLAND
DUNTROON HIGHLANDS GOLF
5:0
10
1:0

LEGEND

- EXTENSION QUARRY LICENSED AREA
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WATERCOURSE
- INTERMITTENT WATERCOURSE
- ACTIVE MODEL DOMAIN
- AREA OF EXTRACTION
- AREA OF EXTRACTION (DEPTH 490 masl)
- PREDICTED DRAWDOWN CONTOURS (m)

N

0 300 600 m

NAD 1983 UTM Zone 17N

PREDICTED RADIUS OF INFLUENCE - PHASE 3B CUMULATIVE EFFECTS

NUMERICAL GROUNDWATER MODEL REPORT
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE:	OCTOBER 2025
PROJECT:	CA0033354.8741
SCALE:	1 : 15,000
DRAWN BY:	JLD
FIGURE No:	G-13B

55 KING STREET, SUITE 600
ST. CATHARINES, ON L7R 3H5
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OSPREY HEIGHTS
NORTHWAY ROAD
EAGLE CRESCENT
NOTTAWASAGA SIDEROAD 26 & 27
GREY ROAD 31
ROAD 67B
TOWNSHIP ROAD 91
10TH CONCESSION
OSPREY CLEARVIEW TOWNLINE
DUNTROON HIGHLANDS GOLF
ROB ROY SWAMP 1
ROB ROY SWAMP 2
ROB ROY SWAMP 3
ROB ROY SWAMP 4
ROB ROY SWAMP 5
ROB ROY SWAMP 6
ROB ROY SWAMP 7
ANSI WETLAND A
ANSI WETLAND B
CARMARTHEN LAKES FARMS WETLAND
1:0
5:0
10
10
10

LEGEND

- EXTENSION QUARRY LICENSED
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WATERCOURSE
- INTERMITTENT WATERCOURSE
- ACTIVE MODEL DOMAIN
- AREA OF EXTRACTION
- PREDICTED DRAWDOWN CONTOURS (m)

N

0 300 600 m

NAD 1983 UTM Zone 17N

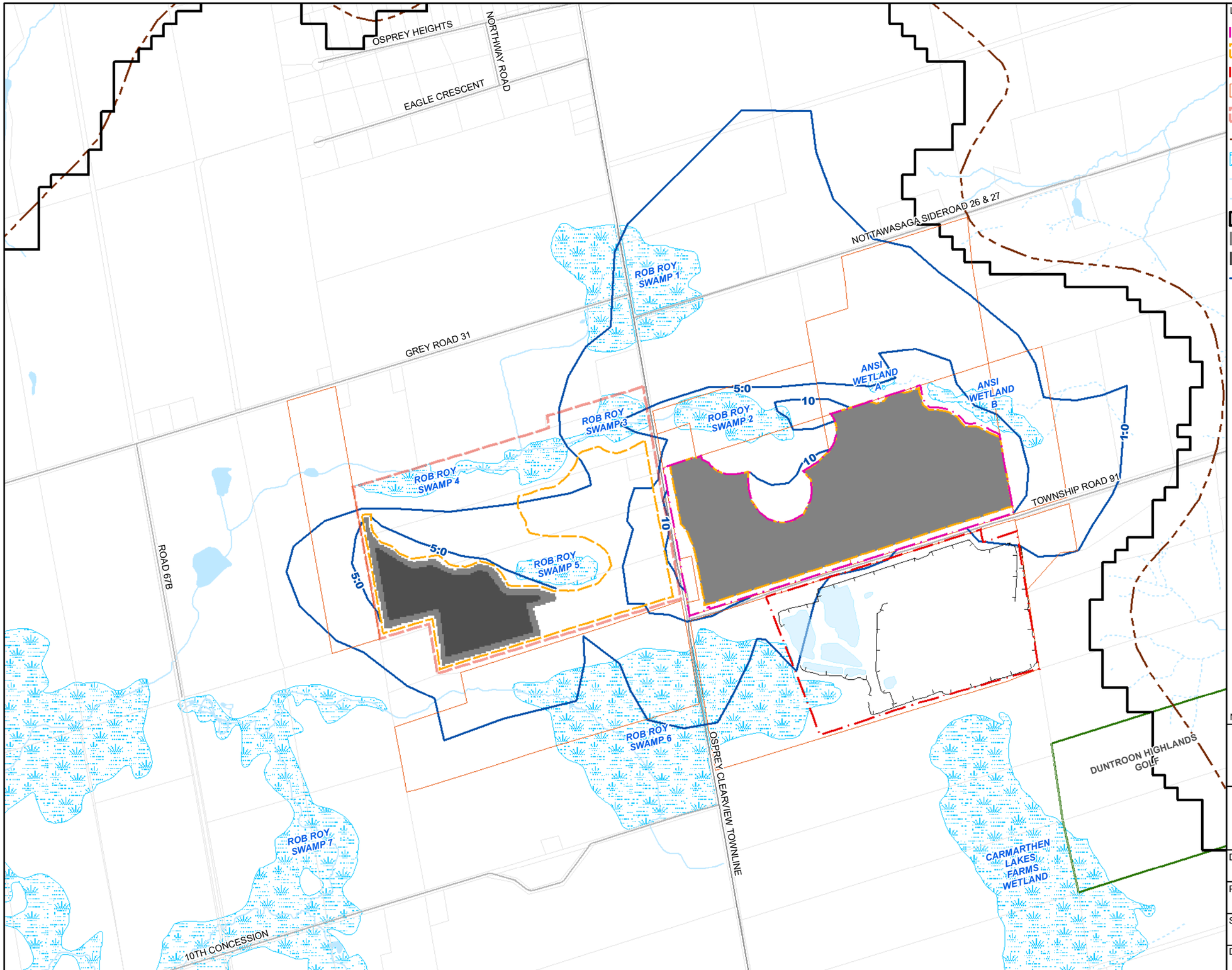
PREDICTED RADIUS OF INFLUENCE - PHASE 3A

NUMERICAL GROUNDWATER MODEL REPORT
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE: OCTOBER 2025	
PROJECT: CA0033354.8741	
SCALE: 1 : 15,000	
DRAWN BY: JLD	FIGURE No: **G-13A**

55 KING STREET, SUITE 600
ST. CATHARINES, ON L7R 3H5
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LEGEND

- EXTENSION QUARRY LICENSED AREA
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WATERCOURSE
- INTERMITTENT WATERCOURSE
- ACTIVE MODEL DOMAIN
- AREA OF EXTRACTION
- AREA OF EXTRACTION (DEPTH 490 masl)
- PREDICTED DRAWDOWN CONTOURS (m)

N

0 300 600 m

NAD 1983 UTM Zone 17N

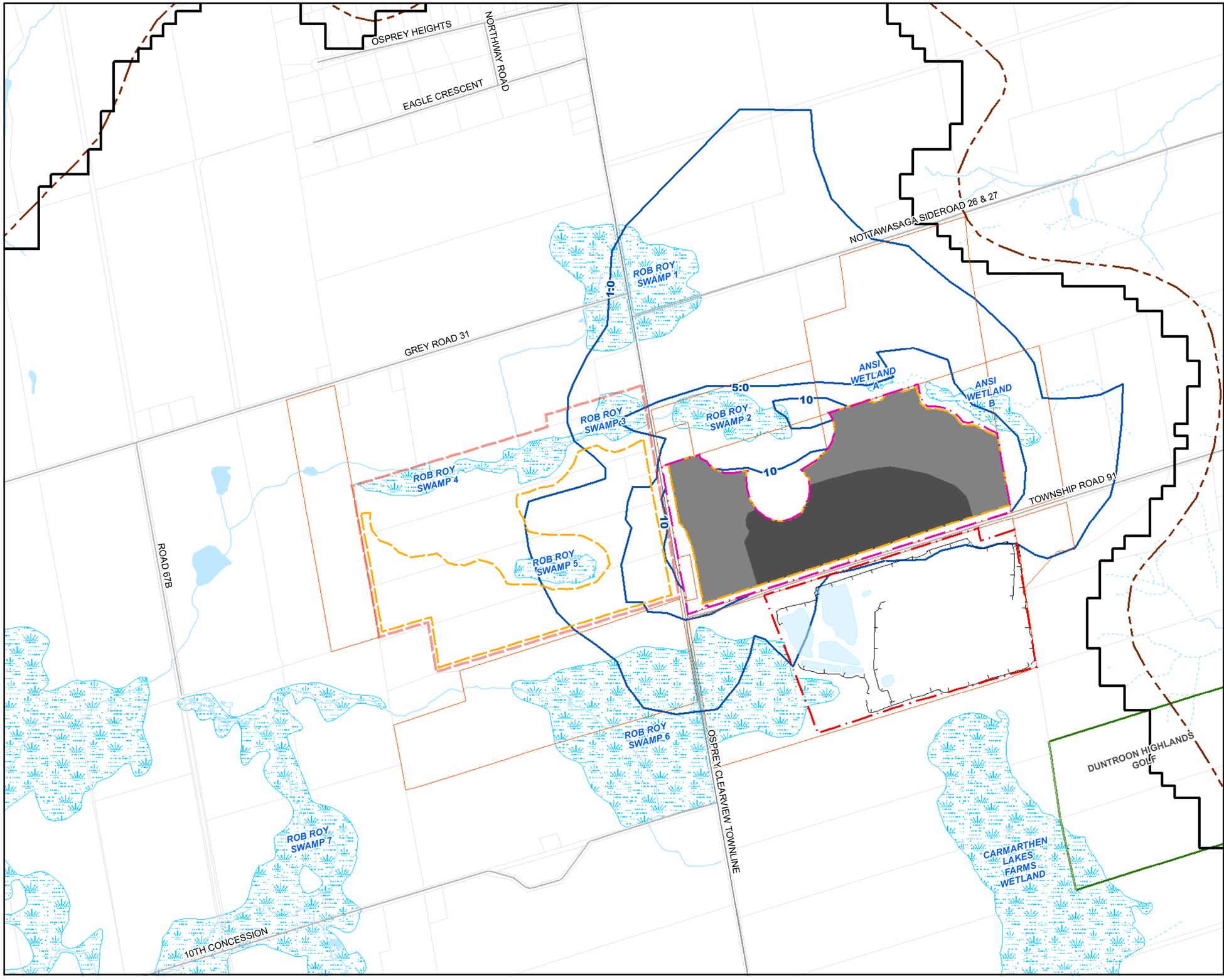
PREDICTED RADIUS OF INFLUENCE - PHASE 3B CUMULATIVE EFFECTS

NUMERICAL GROUNDWATER MODEL REPORT
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE:	OCTOBER 2025
PROJECT:	CA0033354.8741
SCALE:	1 : 15,000
DRAWN BY:	JLD
FIGURE No:	G-13B

55 KING STREET, SUITE 600
ST. CATHARINES, ON L7R 3H5
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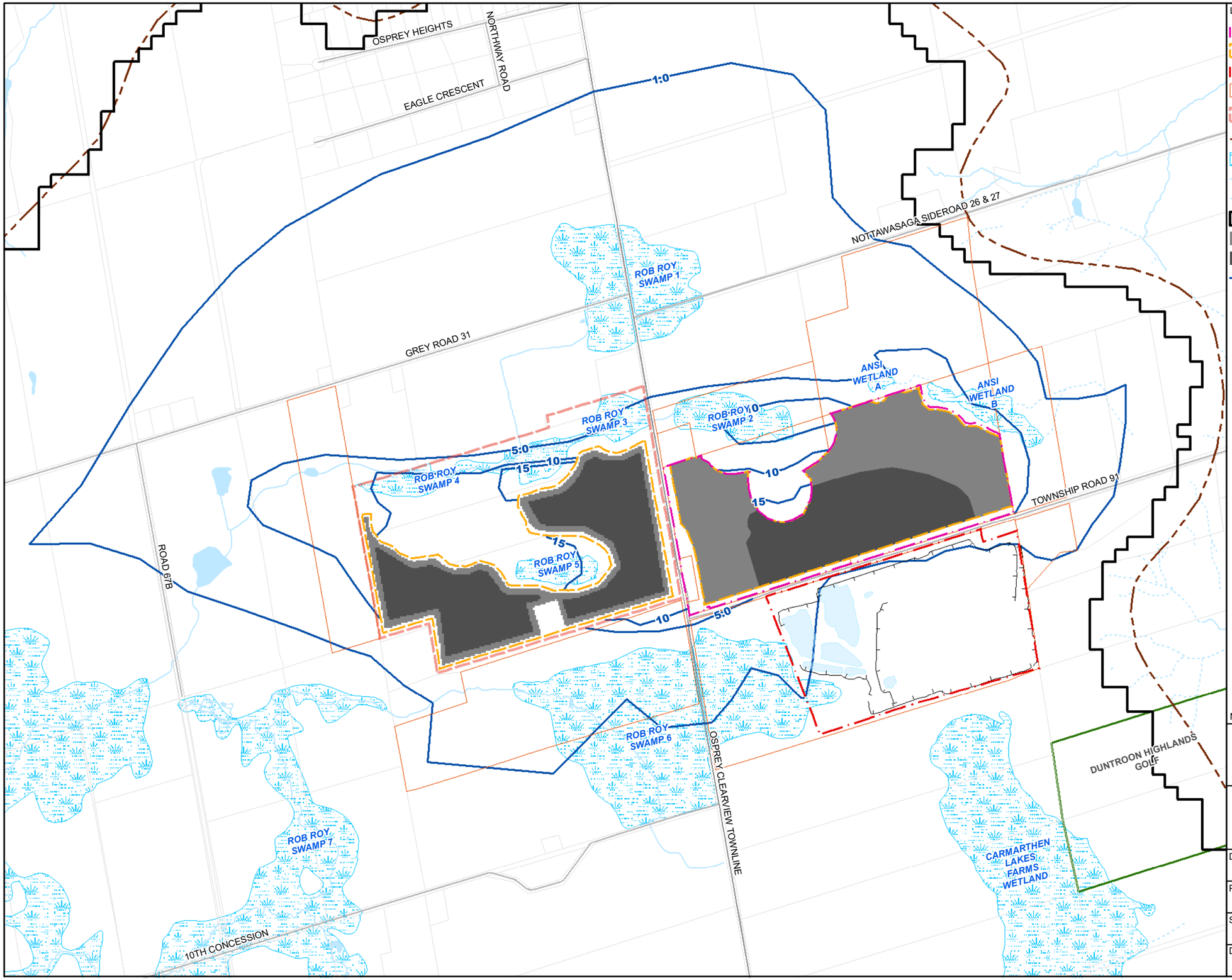
PREDICTED RADIUS OF INFLUENCE - PHASE 4

NUMERICAL GROUNDWATER MODEL REPORT
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE: OCTOBER 2025	
PROJECT: CA0033354.8741	
SCALE: 1 : 15,000	
DRAWN BY: JLD	FIGURE No: **G-14A**

55 KING STREET, SUITE 600
ST. CATHARINES, ON L7R 3H5
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LEGEND

- EXTENSION QUARRY LICENSED AREA
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WATERCOURSE
- INTERMITTENT WATERCOURSE
- ACTIVE MODEL DOMAIN
- AREA OF EXTRACTION
- AREA OF EXTRACTION (DEPTH 490 masl)
- PREDICTED DRAWDOWN CONTOURS (m)

N

0 300 600 m

NAD 1983 UTM Zone 17N

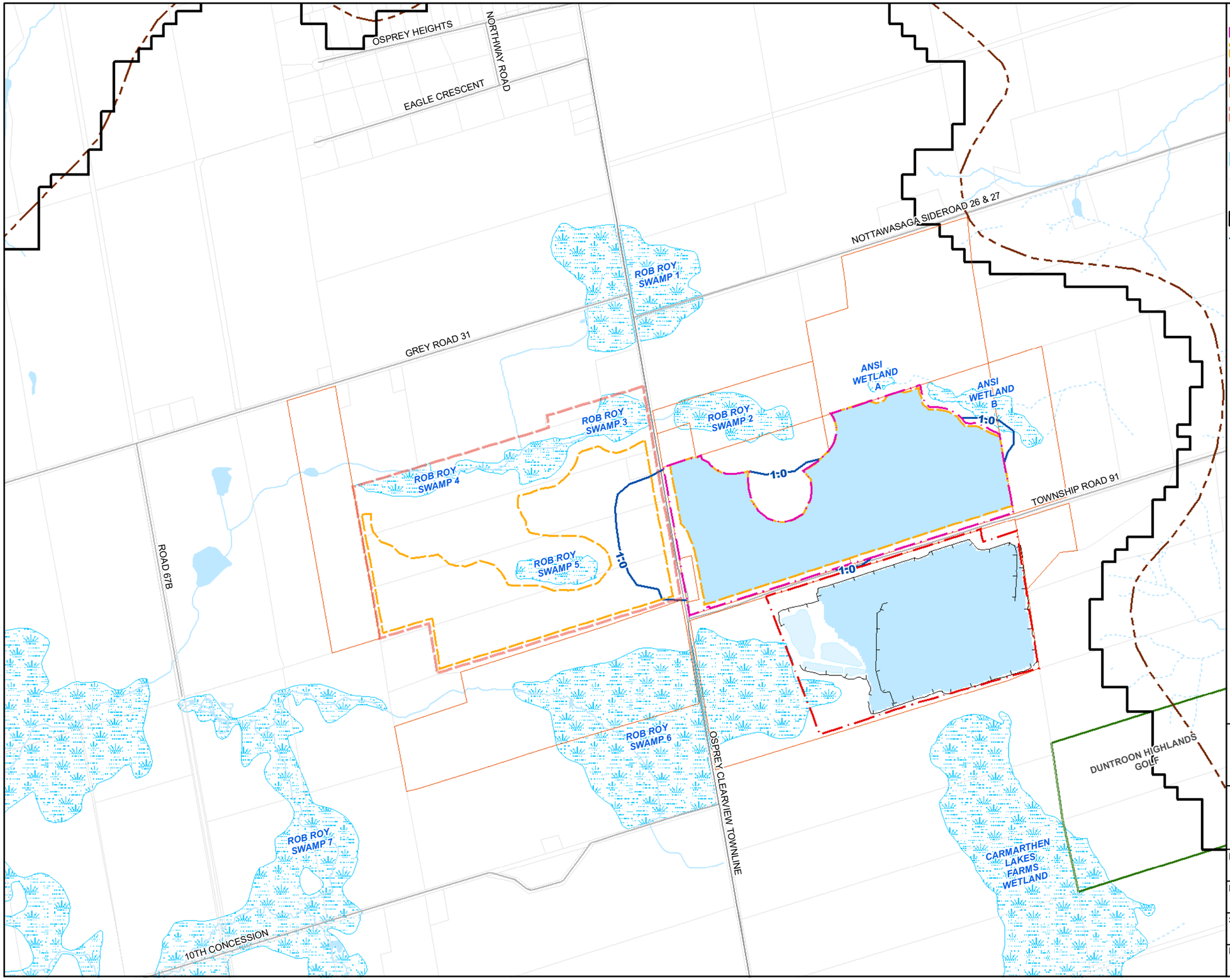
PREDICTED RADIUS OF INFLUENCE - PHASE 4 CUMULATIVE EFFECTS

NUMERICAL GROUNDWATER MODEL REPORT
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE:	OCTOBER 2025
PROJECT:	CA0033354.8741
SCALE:	1 : 15,000
DRAWN BY:	JLD
FIGURE No:	**G-14B**

55 KING STREET, SUITE 600
ST CATHARINES, ON L7R 3H5
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LEGEND

- EXTENSION QUARRY LICENSED
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WATERCOURSE
- INTERMITTENT WATERCOURSE
- ACTIVE MODEL DOMAIN
- PREDICTED DRAWDOWN CONTOURS (m)

0 300 600 m

NAD 1983 UTM Zone 17N

PREDICTED RADIUS OF INFLUENCE - FINAL LAKES

NUMERICAL GROUNDWATER MODEL REPORT
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE:	OCTOBER 2025
PROJECT:	CA0033354.8741
SCALE:	1 : 15,000
DRAWN BY:	JLD
FIGURE No:	G-15A

55 KING STREET, SUITE 600
ST. CATHARINES, ON L7R 3H5
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OSPREY HEIGHTS
NORTHWAY ROAD
EAGLE CRESCENT
NOTTAWASAGA SIDEROAD 26 & 27
GREY ROAD 31
ROAD 67B
OSPREY CLEARVIEW TOWNLINE
TOWNSHIP ROAD 91
10TH CONCESSION
ROB ROY SWAMP 1
ROB ROY SWAMP 2
ROB ROY SWAMP 3
ROB ROY SWAMP 4
ROB ROY SWAMP 5
ROB ROY SWAMP 6
ROB ROY SWAMP 7
ANSI WETLAND A
ANSI WETLAND B
CARMARTHEN LAKES FARMS WETLAND
DUNTROON HIGHLANDS GOLF
1:0
1:0
1:0
1:0

LEGEND

- EXTENSION QUARRY LICENSED
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WATERCOURSE
- INTERMITTENT WATERCOURSE
- ACTIVE MODEL DOMAIN
- PREDICTED DRAWDOWN CONTOURS (m)

N

0 300 600 m

NAD 1983 UTM Zone 17N

PREDICTED RADIUS OF INFLUENCE - FINAL LAKES CUMULATIVE EFFECTS

NUMERICAL GROUNDWATER MODEL REPORT
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE:	OCTOBER 2025
PROJECT:	CA0033354.8741
SCALE:	1 : 15,000
DRAWN BY:	JLD
FIGURE No:	G-15B

55 KING STREET, SUITE 600
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OSPREY HEIGHTS
NORTHWAY ROAD
EAGLE CRESCENT
NOTTAWASAGA SIDEROAD 26 & 27
GREY ROAD 31
ROAD 67B
TOWNSHIP ROAD 91
10TH CONCESSION
OSPREY CLEARVIEW TOWNLINE
ROB ROY SWAMP 1
ROB ROY SWAMP 2
ROB ROY SWAMP 3
ROB ROY SWAMP 4
ROB ROY SWAMP 5
ROB ROY SWAMP 6
ROB ROY SWAMP 7
ANSI WETLAND A
ANSI WETLAND B
CARMARTHEN LAKES FARMS WETLAND
DUNTROON HIGHLANDS GOLF
5.0
10
15
1.0

LEGEND

- EXTENSION QUARRY LICENSED AREA
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WATERCOURSE
- INTERMITTENT WATERCOURSE
- ACTIVE MODEL DOMAIN
- AREA OF EXTRACTION (TO FOSSIL HILL FORMATION DEPTH)
- PREDICTED DRAWDOWN CONTOURS (m)

N

0 300 600 m

NAD 1983 UTM Zone 17N

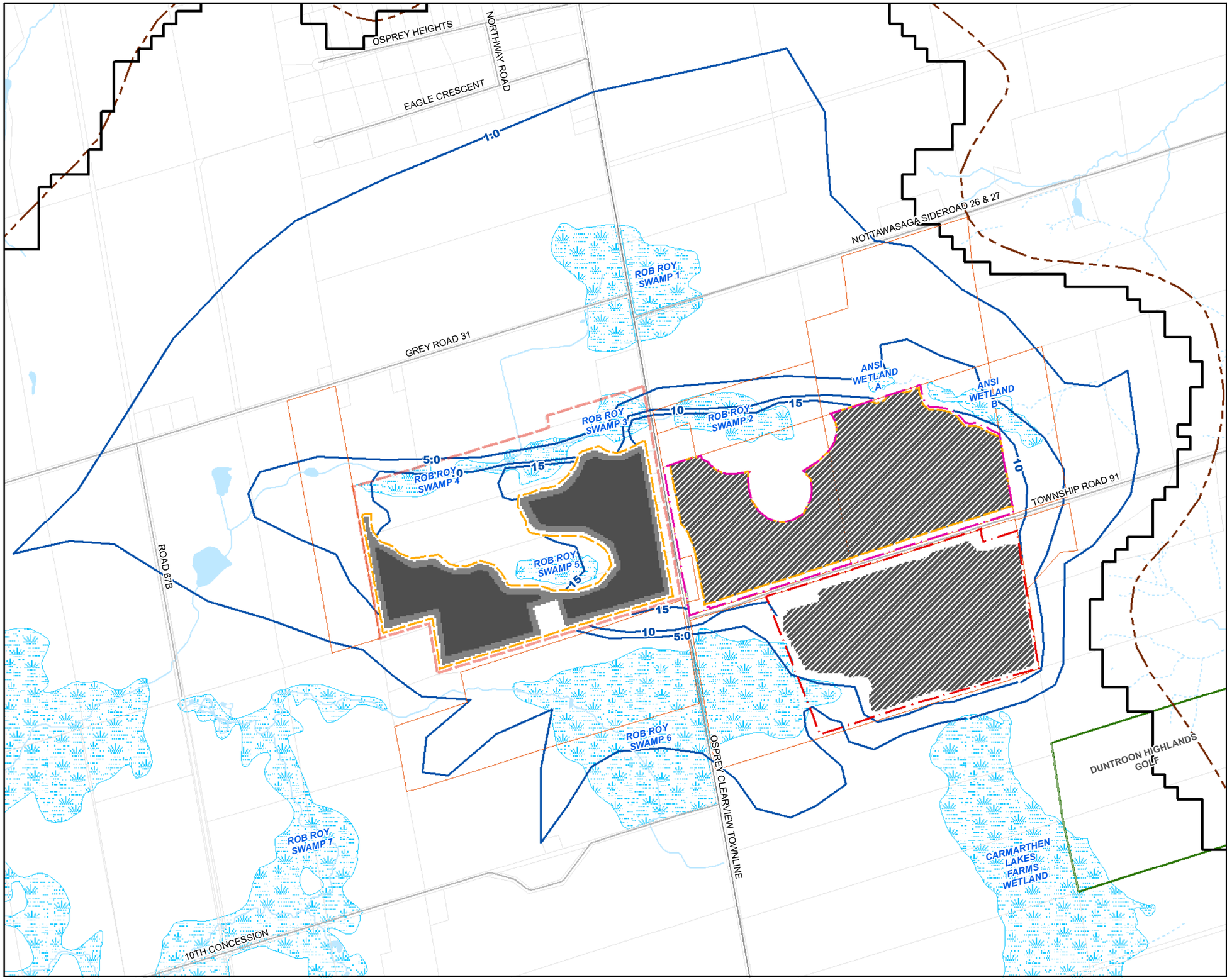
PREDICTED RADIUS OF INFLUENCE - PHASE 5

NUMERICAL GROUNDWATER MODEL REPORT
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE: OCTOBER 2025	
PROJECT: CA0033354.8741	
SCALE: 1 : 15,000	
DRAWN BY: JLD	FIGURE No: **G-16A**

55 KING STREET, SUITE 600
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LEGEND

- EXTENSION QUARRY LICENSED AREA
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WATERCOURSE
- INTERMITTENT WATERCOURSE
- ACTIVE MODEL DOMAIN
- AREA OF EXTRACTION
- AREA OF EXTRACTION (DEPTH 490 masl)
- AREA OF EXTRACTION (TO FOSSIL HILL FORMATION DEPTH)
- PREDICTED DRAWDOWN CONTOURS (m)

N

0 300 600 m

NAD 1983 UTM Zone 17N

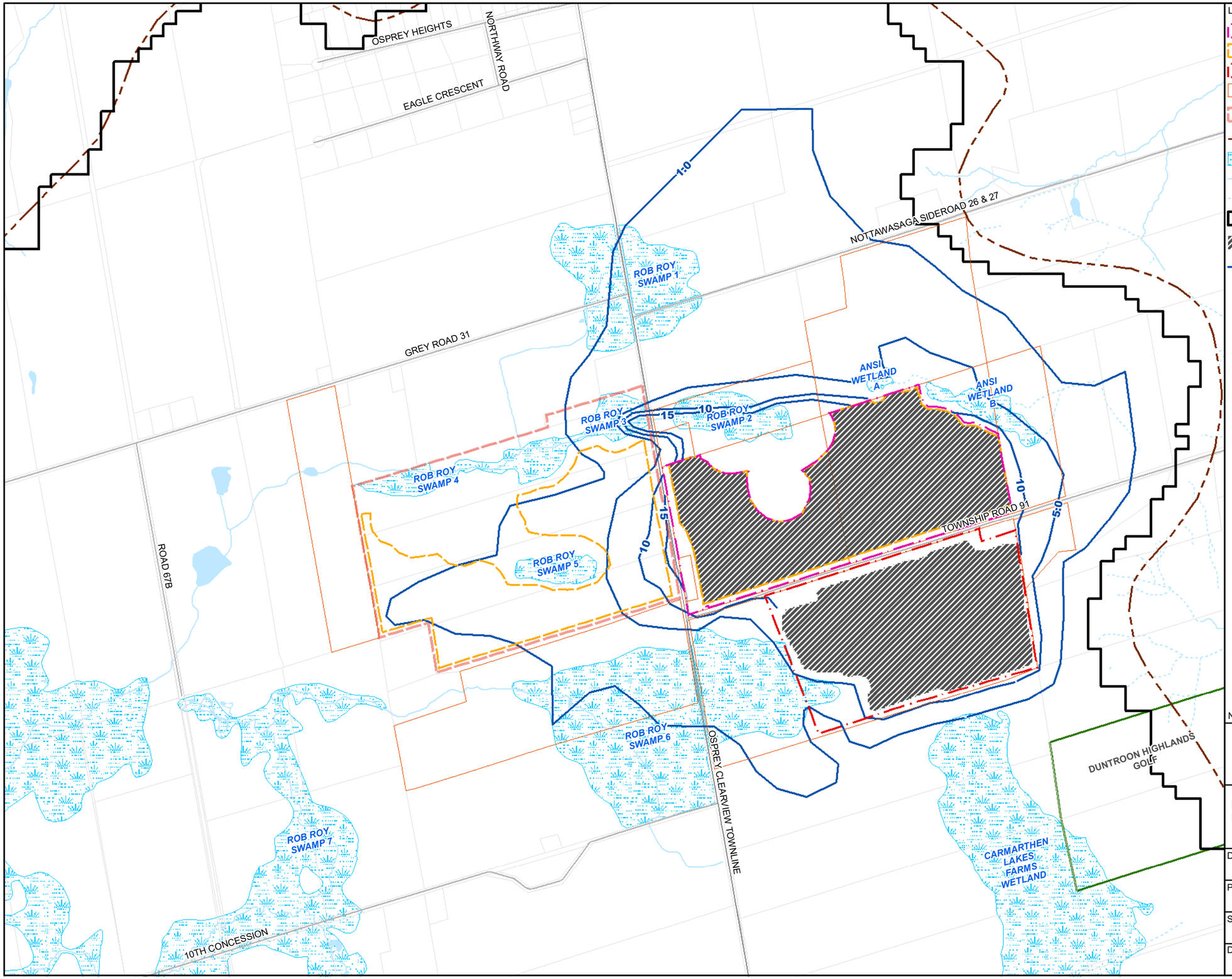
PREDICTED RADIUS OF INFLUENCE - PHASE 5 CUMULATIVE EFFECTS

NUMERICAL GROUNDWATER MODEL REPORT
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE:	OCTOBER 2025
PROJECT:	CA0033354.8741
SCALE:	1 : 15,000
DRAWN BY:	JLD
FIGURE No:	G-16B

55 KING STREET, SUITE 600
ST CATHARINES, ON L7R 3H5
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LEGEND

- EXTENSION QUARRY LICENSED AREA
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WATERCOURSE
- INTERMITTENT WATERCOURSE
- ACTIVE MODEL DOMAIN
- AREA OF EXTRACTION (TO FOSSIL HILL FORMATION DEPTH)
- PREDICTED DRAWDOWN CONTOURS (m)

N

0 300 600 m

NAD 1983 UTM Zone 17N

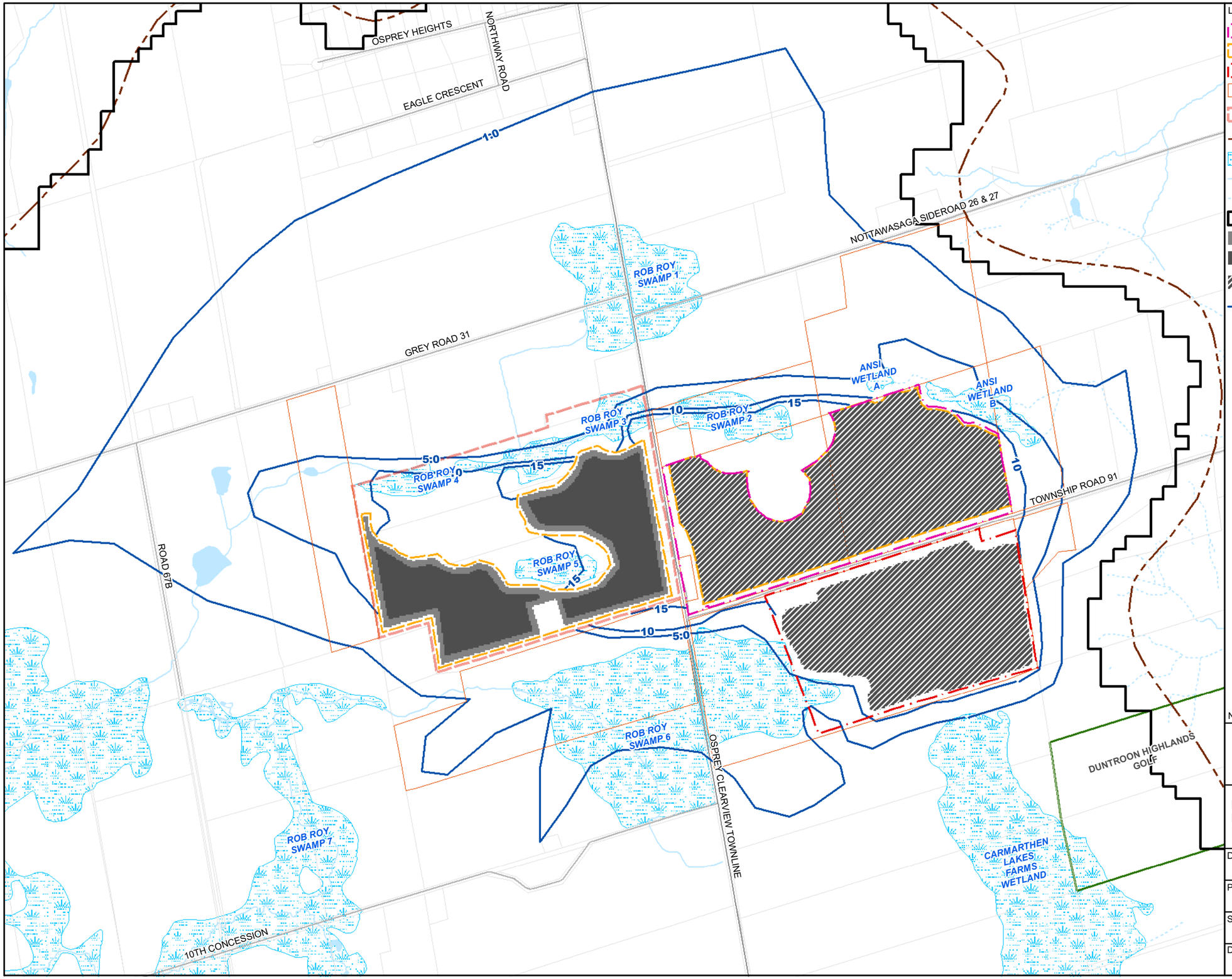
PREDICTED RADIUS OF INFLUENCE - PHASE 6

NUMERICAL GROUNDWATER MODEL REPORT
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE: OCTOBER 2025	
PROJECT: CA0033354.8741	
SCALE: 1 : 15,000	
DRAWN BY: JLD	FIGURE No: **G-17A**

55 KING STREET, SUITE 600
ST. CATHARINES, ON L7R 3H5
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LEGEND

- EXTENSION QUARRY LICENSED AREA
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED AREA
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WATERCOURSE
- INTERMITTENT WATERCOURSE
- ACTIVE MODEL DOMAIN
- AREA OF EXTRACTION
- AREA OF EXTRACTION (DEPTH 490 masl)
- AREA OF EXTRACTION (TO FOSSIL HILL FORMATION DEPTH)
- PREDICTED DRAWDOWN CONTOURS (m)

N

0 300 600 m

NAD 1983 UTM Zone 17N

PREDICTED RADIUS OF INFLUENCE - PHASE 6 CUMULATIVE EFFECTS

NUMERICAL GROUNDWATER MODEL REPORT
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE:	OCTOBER 2025
PROJECT:	CA0033354.8741
SCALE:	1 : 15,000
DRAWN BY:	JLD
FIGURE No:	**G-17B**

55 KING STREET, SUITE 600
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OSPREY HEIGHTS
NORTHWAY ROAD
EAGLE CRESCENT
NOTTAWASAGA SIDEROAD 26 & 27
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ROAD 67B
TOWNSHIP ROAD 91
OSPREY CLEARVIEW TOWNLINE
10TH CONCESSION
ROB ROY SWAMP 1
ROB ROY SWAMP 2
ROB ROY SWAMP 3
ROB ROY SWAMP 4
ROB ROY SWAMP 5
ROB ROY SWAMP 6
ROB ROY SWAMP 7
ANSI WETLAND A
ANSI WETLAND B
CARMARTHEN LAKES FARMS WETLAND
DUNTROON HIGHLANDS GOLF
1:0
1:0
1:0
1:0

LEGEND

- EXTENSION QUARRY LICENSED
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WATERCOURSE
- INTERMITTENT WATERCOURSE
- ACTIVE MODEL DOMAIN
- PREDICTED DRAWDOWN CONTOURS (m)

N

0 300 600 m

NAD 1983 UTM Zone 17N

PREDICTED RADIUS OF INFLUENCE - FINAL LAKES AFTER PROPOSED QUARRY DEEPENING

NUMERICAL GROUNDWATER MODEL REPORT
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE:	OCTOBER 2025
PROJECT:	CA0033354.8741
SCALE:	1 : 15,000
DRAWN BY:	JLD
FIGURE No:	G-18A

55 KING STREET, SUITE 600
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OSPREY HEIGHTS
NORTHWAY ROAD
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GREY ROAD 31
ROAD 67B
TOWNSHIP ROAD 91
OSPREY CLEARVIEW TOWNLINE
10TH CONCESSION
DUNTROON HIGHLANDS GOLF
ROB ROY SWAMP 1
ROB ROY SWAMP 2
ROB ROY SWAMP 3
ROB ROY SWAMP 4
ROB ROY SWAMP 5
ROB ROY SWAMP 6
ROB ROY SWAMP 7
ANSI WETLAND A
ANSI WETLAND B
CARMARTHEN LAKES FARMS WETLAND
1:0

LEGEND

- EXTENSION QUARRY LICENSED
- LIMIT OF EXTRACTION
- MAIN QUARRY LICENSED
- OTHER LANDS OWNED BY WAI
- OSPREY QUARRY LICENSED AREA (ST. MARY'S CEMENT)
- APPROX. NIAGARA ESCARPMENT
- WETLAND
- WATERCOURSE
- INTERMITTENT WATERCOURSE
- ACTIVE MODEL DOMAIN
- PREDICTED DRAWDOWN CONTOURS (m)

N

0 300 600 m

NAD 1983 UTM Zone 17N

PREDICTED RADIUS OF INFLUENCE - FINAL LAKES CUMULATIVE EFFECTS AFTER PROPOSED QUARRY DEEPENING

NUMERICAL GROUNDWATER MODEL REPORT
PROPOSED DUNTROON QUARRY DEEPENING
For Walker Aggregates Inc.

DATE:	OCTOBER 2025
PROJECT:	CA0033354.8741
SCALE:	1 : 15,000
DRAWN BY:	JLD
FIGURE No:	G-18B

55 KING STREET, SUITE 600
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APPENDIX H

Curriculum Vitae

KEVIN J. FITZPATRICK, P.Eng.

Senior Project Engineer, Environment

AREAS OF PRACTICE

Hydrogeology

Aggregate Resources

Geology & Geotechnical Engineering

Environmental Assessments & Remediation

Waste Management

PROFILE

Mr. Kevin Fitzpatrick, P. Eng. (Geological) is a Senior Project Engineer with more than 20 years of experience in geology, hydrogeology, geotechnical engineering, and water resources. His work experience encompasses project management, field investigations, analysis, interpretation, and peer review for numerous projects requiring his earth science expertise.

Mr. Fitzpatrick has developed his technical and project management expertise through his management of geological, hydrogeologic and geotechnical investigations related to groundwater quality and quantity compliance issues, aggregate resources, waste management, environmental remediation, dewatering, and civil construction. He has been a guest lecturer for geotechnical engineering course at Niagara College since 2012.

EDUCATION

B.A.Sc. Geological Engineering, University of Waterloo, ON	1993

PROFESSIONAL DEVELOPMENT

WHMIS	2013
Critical Thinking in Aquifer Test Interpretation, Christopher Neville, S.S. Papadopulos & Associates	2009
40-hour Health & Safety Training Course for Hazardous Waste Operations, OSHA, and update courses, Surface Miner Common Core Training	2005
Waterloo In-situ Groundwater Remediation Course, Toronto, ON	2000

PROFESSIONAL ASSOCIATIONS

Professional Engineers Ontario	1996
Ontario Stone, Sand and Gravel Association, Rehabilitation Committee	OSSGA
Aggregate Resource Prospecting and Evaluation Specialty, Ontario Ministry of Transportation, Registry Appraisal and Qualifications System	RAQS
Niagara College Programs Advisory Committee for Construction/ Civil Engineering Programs	2013

CAREER

Senior Project Engineer, Environment, WSP	2014 - Present
Senior Project Engineer, Environment, GENIVAR (now named WSP)	2009 - 2013
Project Engineer, Jagger Hims Limited (GENIVAR Acquisition)	1993 - 2009

PROFESSIONAL EXPERIENCE

Hydrogeology

- Assessments, Permit to Take Water Applications and Hydrogeologic Monitoring Reports (ongoing): Completed numerous studies as project manager in support of OWRA applications and Certificate of Approval for Discharge studies throughout Ontario, including in Lincoln, Waterford, Mosport, Thorold, Hamilton, Niagara Falls, Coboconk, Markham, Port Colborne, Port Dover, Wainfleet and Hagersville. The studies supported quarry applications, civil construction dewatering and industrial applications. Client: Various.
- Dewatering Assessment, Fort Erie, ON (2012): Hydrogeologic study for a pumping station within a productive, corrosive bedrock aquifer. Client: Region of Niagara.
- Hydrogeologic Assessment, Flamborough, ON (2011): Hydrogeologic assessment for a large food processing facility. Work included geotechnical design and wastewater compliance issues. Client: Earthfresh Foods Inc.
- Water Well Interference, Niagara-on-the-Lake, ON (2011): Completed a salt water intrusion contaminant assessment as part of a Ministry of Environment director's order. Design of a sulphate-resistant decommissioning program to prevent future cross-contamination. Client: Aviva Canada.
- Groundwater Interference Study, Dunnville, ON (2010): Intermittent issues at residential wells located adjacent to a dolostone and limestone quarry were evaluated for quality and quantity. The hydrogeology was complicated by the high transmissivities of the aquifer and the proximity of the Grand River and Lake Erie. Client: Dunnville Rock Products.
- Lookout Point Golf Club, Pelham, ON (2008-ongoing): Conducted a multi-year groundwater and surface water investigation that led to construction of a high capacity deep well in the Fonthill Kame for golf course irrigation. Other consultants had installed deep wells at the site; however, yields were very poor. High hydrogen sulphide concentrations and a cold-water fishery were also a concern. A thorough re-evaluation of the local hydrogeology was completed and detailed long-term pump tests were performed to satisfy Niagara Escarpment Commission and MOE concerns. Monitoring of the various system components was designed to improve data quality and lower operating costs. Client: Lookout Point Golf and Country Club.
- Groundwater Salt Impact Assessment, Lincoln, ON (ongoing): Hydrogeologic monitoring at a winter sand storage facility. The facility is located above the Niagara Escarpment on fractured bedrock upgradient of several groundwater springs. A best management plan was produced for the facility. Client: Town of Lincoln.
- Hydrogeologic Study, Port Colborne, ON (2009): Hydrogeologic study to support residential development plan. A developer needed to assess a productive shallow bedrock aquifer as part of a plan of subdivision. Client: Lester Shoaltz Limited.
- Hydrogeologic Monitoring, Caledonia, ON (2009): Hydrogeologic monitoring at a golf course in support of a Permit to Take Water. Electronic groundwater monitoring was installed to provide high quality data. Client: Numbered Ontario Company.
- Niagara Tunnel Project, Niagara Falls, ON (2008): Completed detailed core logging on deep groundwater monitors. Cores represented a complete section of Niagara Escarpment bedrock from the Guelph Formation to the Queenston Formation. Client: Strabag.
- Alternative Irrigation Sources, St. Catharines, ON (2007): Conducted hydrogeologic evaluation of a groundwater irrigation source for a golf course. The site was utilizing

a municipal supply for irrigation. Multiple low-yielding wells of poor quality complicated the assessment. Client: Urban & Environmental Management.

- Hydrogeologic Assessment, Massey, ON (2006): Hydrogeologic assessment of proposed Greenfield quarry. The site is a traprock escarpment and is located at a watershed divide. Impact assessments, a monitoring program and a closure plan were completed. Client: Pioneer Construction.

Aggregate Resources

- Completed detailed resource assessments, approvals and licensing for many major aggregate producers including Ontario Ministry of Transportation, CBM Canada, Dufferin Aggregates, Lafarge Canada, Walker Industries, Capital Materials Inc., Chefero Sand, Pioneer Construction, Waterford Sand and Gravel, Nelson Aggregates, Dimension Stone Ltd. and for several private clients.
- Conducted geologic studies in unconsolidated deposits. These sites include the Oak Ridges Moraine, Paris and Galt Moraines, and sites in Ayr, Caledon, Cambridge, London, Stratford, Brantford, North Dumfries, Orangeville, Norwood, Ommemee, and more than 60 sites in Northern Ontario.
- Conducted numerous detailed bedrock resource evaluations (dolostone, limestone, shale, granite, traprock) and licenses at sites throughout Ontario, including the Niagara Escarpment, Lake Erie shoreline, Guelph, Shelburne, Hamilton, Georgian Bay, Carden, Hudson Bay lowlands, Manitoulin Island, and Northern Ontario. Northern Ontario aggregate experience has included work within the Grenville, Southern and Superior Province locations.
- Proposed Shale Quarry Assessment, Brampton, ON (2010): Completed a resource assessment of a property zoned for a shale quarry in support of redevelopment. Client: Osmington Inc.
- Proposed Dolostone Quarry, Wainfleet, ON (2009): Peer review and witness statements at a proposed quarry for an Ontario municipal board hearing. Client: Sullivan Mahoney LLP.
- Clay Borrow Pit, Thorold, ON (2007): Completed aggregate wayside pit permit for clay borrow for 400-series highway embankments. Client: Hardrock Group.

Geology and Geotechnical Engineering

- Slope Stability Studies, Excavations and Retaining Wall Inspections (ongoing): Conducted over 60 studies in support of development approval for private clients, public agencies and consultants.
- Rock Mechanics Work (ongoing): Conducted rock wall stability assessments in Lincoln, Woodstock, Orillia, Ottawa, and Quebec for various clients in support of open excavations.
- Post-construction Investigations (ongoing): Conducted forensic examinations of failed structures and roadways related to subsurface conditions in Burlington, Niagara-on-the-Lake and Lake Simcoe for various private and professional clients.
- Foundation Inspections (ongoing): Inspections of footings for bridges, buildings, marine facilities and retaining walls for public, private and institutional clients.
- Road Construction Investigations (ongoing): Geotechnical studies completed in support of road reconstruction for municipal government agencies including project management for material inspections (concrete, asphalt and compaction testing).

- Septic System Investigations and Sewage Lagoon Assessments, various locations in Niagara Region (ongoing): Conducted geotechnical investigations for new municipal sewage lagoons, and investigations for large septic systems. Client: Niagara Region.
- Dewatering Investigation, Hamilton (2019): Dewatering investigation for earth retaining structure at a proposed waste water treatment plant. Client: Canada Centre for Inland Waters.
- Pipeline Work, Geotechnical Investigations for pipeline works across CN Rail/Welland Canal/Niagara Escarpment. (2018): Client: Walker Industries.
- Retaining Pond Design, North Dumfries ON (2017): Geotechnical work for liner installation. Client: Preston Sand and Gravel; Walker Industries
- Jerseyville Road Facility, Jerseyville, ON (2017): Water supply, geotechnical investigation and wastewater servicing peer review and project management. Client: The Green Organic Dutchman.
- Boat Ramp Investigation, Fort Erie, ON (2017): Below water geotechnical investigation within the Niagara River. Client: Niagara Parks Commission.
- Binbrook Dam Safety Review, Binbrook, ON (2016): Earth dam testing and inspection. Client: Niagara Peninsula Conservation Authority.
- East Rail Maintenance Yard, Whitby, ON (2016): Construction dewatering issues for a rail siding. Client: Bird/Kiewit Joint Venture.
- Glanbrook Landfill Collector System Evaluation, Hamilton, ON (2015): Subsurface geotechnical assessment of a failed sewer. CCTV work. Client: City of Hamilton.
- Hydrogeologic Study, Flamborough, ON (2011): Proposed Earthfresh potato processing facility hydrogeologic study. Client: Earthfresh.
- Facility Relocation and reservoir installation, Dunnville, ON (2011). Client: Intercounty Concrete.
- VivaNext, Highway 7, Markham, ON (2011): Permit to take Water for three concrete box culvert stream crossings. Client: Brennan Paving and Construction.
- Hotel Dieu Hospital, St. Catharines, ON (2004, 2010): Conducted a preliminary geotechnical investigation for a proposed general hospital on an existing site; and subsequently, geotechnical considerations for site after use. Client: Niagara Health System.
- Rail Siding Hopper, Niagara Falls, ON (2012): Conducted a geotechnical investigation for an unloading facility. Client: Redpath Sugar.
- Niagara Health System
  - Hotel Dieu Hospital, St. Catharines, ON (2004, 2010): Conducted a preliminary geotechnical investigation for a proposed general hospital on an existing site; and subsequently, geotechnical considerations for site after use. Clients: Niagara Health System and Mountainview Homes.
  - Port Colborne General Hospital (2006): Geotechnical investigation at the Port Colborne Hospital Site.
  - St. Catharines General Hospital (2005): Preliminary geotechnical investigation on a proposed greenfield general hospital site.
- Commercial Construction of an Automobile Dealership, St. Catharines, ON (2008): Geotechnical studies for construction of an automobile dealership on thick fill soils. Client: Confidential.

- Hamilton Public Housing, Stone Church Road, Burlington, ON (2005): Geotechnical Drilling Program at failed former public housing building. Client: Morrison Hershfield.
- Rolling Meadows Subdivision, St. Catharines, ON (2005): Geotechnical investigation and report at a large proposed subdivision. Client: Numbered Ontario Company.
- Arcelor Mittal, East Chicago Steel Works, Gary, IN, USA (2002): Slag granulation dewatering assessment. Provided expert testimony for a construction dewatering investigation around a sheet pile wall cofferdam. This work was in support of a dispute before the American Arbitration Association. Client: Lafarge Canada Inc.
- Caisson and Pile Inspections, St. Catharines/Thorold, ON (2002, 1999): Supervised and inspected caisson installations. Geotechnical investigation of a pile-supported outbuilding at a hospital. Clients: Walker Industries Holdings Limited; Polymax Construction.

Environmental Assessment and Remediation

- Environmental Reporting (ongoing): Numerous soil, groundwater and surface water environmental reports completed for private and public clients. Reviewed and authored numerous Phase I and Phase II Environmental Site Assessments.
- Former Public Works Yard, Lincoln, ON (ongoing): Design, operation and optimization of a pump and treat groundwater remediation system in a fractured bedrock environment. The system has operated successfully for over 15 years. Client: Town of Lincoln.
- Truck Marshalling Yard, Burlington, ON (2011): Conducted a hydrogeologic investigation at a DNALP-impacted site. Client: DML Environmental.
- Former Dry Cleaning Site, Hamilton, ON (2009): Conducted a DNAPL investigation in shallow fractured bedrock, complicated by the presence of shale. This work corrected a previous consultant's study. Client: Confidential.
- Reported PCB-impacted Automobile Dealership Property, St. Catharines, ON (2009): Groundwater assessment program at a commercial property as part of a dispute resolution. Client: Confidential.
- Pesticide-Impacted Farm Building, St. Catharines, ON (2008): Soil assessment and remediation due to pesticide and fuel oil impacts at a former farm. Client: Confidential.
- Commercial Property Assessment, Canarctic Drive, North York, ON (2005): Soil and groundwater assessment at a former manufacturing facility prior to purchase. Client: Confidential.
- Flint Road Phase II ESA, Downsview ON (2004): The absence of groundwater and soil contamination was confirmed prior to sale of a commercial property. Client: Torkin Manes Cohen Arbus LLP.
- Fuel-impacted Soil and Groundwater, Orwell Road, Mississauga, ON (2004): Conducted a soil remediation program at a leaky underground storage tank site. Work included installation of a dewatering and treatment system for soil excavation below the water table. Client: Confidential.
- Fuel Oil Tank at a Housing Complex, Dunnville, ON (2002): Underground storage tank soil and groundwater investigation. Construction activities uncovered a UST. The tank had leaked into soil and sewer utilities. Sampling was completed and remedial options presented. Client: Hydro Vac Inc.

- Vineland Quarry Asphalt Plant, Lincoln, ON (2002): Conducted an analysis of scrubber sediment for disposal options. Client: Rankin Construction.
- Former Plating Facility, Mississauga, Ontario (2001): Environmental Assessment and remediation of soil, groundwater and installation of a remedial pumping system at a chrome and copper plating facility. Client: Chambers of Canada.
- Former General Abrasives Site, Niagara Falls, ON (2001): Extensive soil and groundwater sampling and contaminant delineation program at a large (40 ha) former industrial facility. Client: R. Ste. Pierre Excavation.
- Effluent-impacted Water Course, Beamsville, ON (2000): Investigation of a complaint led to an MOE order being rescinded regarding a leaking surface water underground storage tank. Client: Desousa Wines.

Waste Management

- Involved in numerous hydrogeologic monitoring programs at private and public landfills throughout Southern Ontario, including Niagara, Hamilton, Region of Waterloo, Simcoe County, City of North Bay, Region of Halton and in Lambton County.
- Unlicensed Landfill, Grimsby, ON (2008-ongoing): Preliminary and ongoing monitoring of a 30,000 tonne unlicensed landfill within a former quarry. Work includes a hydrogeological evaluation of the site, waste delineation and impact analysis; calculations of contaminating lifespan of the waste and financial assurance. The project involves extensive liaison with the Ministry of Environment on behalf of the client. Client: Confidential.
- Park Road Landfill, Grimsby, ON (2009, 2011): Bedrock core logging for new open-hole groundwater monitors. Interpretation of downhole geophysical logs to further define bedrock stratigraphy and fractures/flow zones. Client: Niagara Region.
- Bridge Street Landfill, Fort Erie, ON (2004, 2007, 2010): Geotechnical studies in support of L.C.S. construction. Analysis of instability of waste slopes for regarding purposes. Bedrock core logging for groundwater monitors installed through the Onondaga Escarpment. Completed leachate seep analysis and review of remedial measures, and toe drain installation. Client: Niagara Region.
- Line 5 Landfill, Niagara-on-the-Lake, ON (1994, 2004): Conducted geotechnical evaluation of base of new landfill cell to support landfill operations. Hazardous material sampling and analysis of sealed drums left at landfill site. Client: Niagara Region, Town of Niagara-on-the-Lake.
- West Quarry Landfill, Leachate Management Program, Thorold, ON (1999, 2003): Field supervision of installation of large-diameter caisson wells for controlling leachate in waste. Consultations for construction of residential compost facility on waste. Client: Niagara Waste Systems Limited.
- Glanbrook Landfill Site, Artesian Conditions Assessment, Glanbrook, ON (2000): Conducted an evaluation of deep groundwater upwellings associated with a former gas well on the landfill site. Client: Regional Municipality of Hamilton Wentworth.
- Centre Street Landfill, Pelham, ON (1998): Landfill compliance monitoring reporting as part of the site's Certificate of Approval. This landfill is located above deep unsaturated sands. Client: Town of Pelham.

PUBLICATIONS AND PRESENTATIONS

Publications

- Fitzpatrick, K and Campbell, J. 2012. Lake Erie to Lake Ontario, Spills, Mills and Landfills and GW/GS Glacial Geology; International Association of Hydrogeologists, 39th IAH Congress, September 16-21, 2012, Niagara Falls, ON, unpublished technical tour book.

J. LEIGH DAVIS, M.A.Sc., P.Eng.

Lead Professional, Environmental Engineering

Areas of practice

Aggregate Resources

Groundwater Modelling

Groundwater Resources

Waste Management

PROFILE

Mr. Leigh Davis is a licensed Project Engineer with WSP, specializing in hydrogeology. His 17 years of experience in the environmental consulting industry include peer review, project management and engineering support for hydrogeological studies and compliance reporting, numerical groundwater flow and transport model construction and calibration, coordination and analysis of in-situ testing, GIS / CAD design and analysis and field sampling (including low-flow methods).

Leigh holds a Bachelor of Applied Science in Environmental Engineering, as well as a Master of Applied Science in Civil Engineering, covering topics including hydrology, hydrogeology, contaminant transport mechanisms, groundwater modelling and landfill design. Leigh's Master's thesis was *Investigation of Seismic Excitation as a Method for Flow Enhancement in Porous Media.* He has a working knowledge of relevant software including ArcGIS, Microsoft Office (including Access), USGS MODFLOW (including various pre/post processing software), AutoCAD and HELP 3.

EDUCATION

Master of Applied Science, Honours Civil Engineering, University of Waterloo	2008
Bachelor of Applied Science, Honours Environmental Engineering (Co-op), University of Waterloo	2006

PROFESSIONAL DEVELOPMENT

Advanced Python Programming for MODFLOW Modelers, Environmental Simulations Inc. (ESI)	2024
Introduction to Python Programming for MODFLOW Modelers, Environmental Simulations Inc. (ESI)	2022
MODFLOW Solvers, Speed, Convergence and Robustness, GSI Environmental	2018
Introduction to Fortran Programming for MODFLOW Modelers, Environmental Simulations Inc. (ESI)	2018
Calibration and Uncertainty Analysis for Environmental Models, S.S. Papadopulos & Associates Inc.	2017
8-Hour Health & Safety Refresher Training Course (HAZWOPER)	2015
Surface Miner Common Core Training	2013
Estimating Rates of Groundwater Recharge, International Association of Hydrogeologists (IAH)	2012
Reactive Transport Modelling with PHT3D, International Groundwater Modeling Centre (IGWMC)	2011
The New MODFLOW Course: Theory and Hands-On Applications, National Groundwater Association (NGWA)	2009
Critical Thinking in Aquifer Test Interpretation, S.S.Papadopulos & Associates Inc.	2009

24-Hour Occupational Health & Safety Training Course (HAZWOPER)	2009

PROFESSIONAL ASSOCIATIONS

Professional Engineers Ontario	PEO
Halton Region Environmental and Ecological Advisory Committee (Volunteer, 2011 – 2014)	EEAC

CAREER

Lead Professional, Environmental Engineering, WSP	2024 – Present
Project Engineer, Earth & Environment, WSP	2014 – 2024
Project Manager, Environment, GENIVAR (now named WSP)	2009 – 2013
Project Manager, Jagger Hims Limited (GENIVAR Acquisition)	2008 – 2009
Technical Project Assistant, Jagger Hims Limited	2005 – 2006
Engineer Assistant, St. Michael's Hospital, Toronto, ON	2004

PROFESSIONAL EXPERIENCE

Aggregate Resources

- Norfolk Quarry, Port Dover, ON (2022-ongoing): Level 2 Hydrogeological Study in support of Category 2 Class 'A' below water quarry extension of existing quarry. Field support, pumping test coordination and analysis, report and figure preparation and liaison with regulatory agencies. Client: MHBC Planning.
- Haliburton, ON (2019): Level 2 Hydrogeological Study in support of Category 2 Class 'A' below water quarry application. Pumping test analysis and hydrogeological conceptual model development. Client: Confidential.
- Law Quarry, Wainfleet, ON (2017-ongoing): Level 2 Hydrogeological Study in support of Category 2 Class 'A' below water quarry extension of existing quarry. Field support, pumping test coordination and analysis, report and figure preparation and liaison with regulatory agencies. Construction and calibration of a numerical groundwater flow model to predict impacts of quarry extension on local groundwater users and sensitive features. Client: Waterford Sand and Gravel Limited / MHBC Planning.
- Proposed Uppers Quarry, Thorold, ON (2016-ongoing): Level 2 Hydrogeological Study in support of a proposed Category 2 Class 'A' below water quarry at a greenfield site. Field support, pumping test coordination and analysis, report and figure preparation and liaison with regulatory agencies. Construction and calibration of a numerical groundwater flow model to predict impacts of quarry development on local groundwater users and sensitive features. Client: Walker Aggregates Inc. / MHBC Planning.
- Walker Aggregates Inc.
  - Walker Brothers Quarry, Niagara Falls, ON (2012-ongoing): Preparation of annual compliance monitoring report for an active quarry located adjacent to one active and two closed landfill sites. Data management and QA / QC using a

custom Access database. Monitoring data from all four sites are considered when characterizing and assessing the hydrogeologic setting.

  - Duntroon Quarry Expansion, Collingwood, ON (2019-ongoing): Hydrogeological study to meet the requirements of proposed quarry deepening. Preparation of Adaptive Management Plan (AMP) annual compliance monitoring report for an active quarry located adjacent to the Niagara Escarpment. Data management and QA / QC using a custom Access database.
  - Sutherland Quarry, Owen Sound, ON (2023-ongoing): Hydrogeological investigation to mitigate quarry drawdown impacts, including design and construction of a grout curtain wall.
  - Vineland Quarry, Interference Complaint Study, Vineland, ON (2011): Evaluation of sub-watershed hydrologic data and outflow characteristics of quarry pond to determine the cause of downstream channel erosion.
- Pioneer Construction Ltd.
  - City Pit, Sault Ste. Marie, ON (2016-2020): Level 2 Hydrogeological Study in support of Category 2 Class 'A' pit / quarry licence extension for below water table extraction. Data collation, report and figure preparation and liaison with regulatory agencies.
  - Palmer Pit, Sault Ste. Marie, ON (2015-2016): Level 2 Hydrogeological Study in support of Category 2 Class 'A' pit / quarry licence extension for below water table extraction. Field support, data collation, report and figure preparation and liaison with regulatory agencies.
- Erin Pit, Erin, ON (2015-2017): Level 1 Hydrogeological Study in support of pit licence extension for above water table extraction. Field support, pumping test coordination and analysis, data collation, report and figure preparation and liaison with regulatory agencies. Client: Halton Crushed Stone Inc. / MHBC Planning.
- Identify Potential New Sand and Gravel Pit, Haldimand and Norfolk Counties, ON (2015): GIS and ARIP mapping used to assess potential new sand and gravel pit locations. Client: Confidential.
- Jigs Hollow Pit, Waterloo, ON (2014-2020): Level 2 Hydrogeological Study in support of pit licence application. Field support, pumping test coordination and analysis, data collation, report and figure preparation and liaison with regulatory agencies. Client: Preston Sand and Gravel / IBI Group.
- Vinemount Quarry, Stoney Creek, ON (2013-2018): Level 2 Hydrogeological Study in support of Category 2 Class 'A' quarry licence extension. Field support, data collation, report and figure preparation and liaison with regulatory agencies. Client: Waterford Sand and Gravel Limited / IBI Group.
- Aggregate Resource Assessment, Windsor, ON (2012): Review of borehole information and local geology to quantify remaining high-quality aggregates at two quarries near Windsor. Client: Confidential.
- Aggregate Resource Assessment, Greater Toronto Area, ON (2008): Development of aggregate resource database and GIS figure preparation to determine high quality aggregate resources in the Greater Toronto Area. Client: Confidential.

Groundwater Modelling

- Various contaminated and landfill sites, ON (2020-ongoing): Development and use of a 2-D Domenico-Schwartz contaminant transport model to evaluate potential off-site impacts at various sites across Ontario.

- Proposed Pit, Puslinch, ON (2022-ongoing): Level 2 Hydrogeological Study to meet the requirements for a proposed Category 1 Class 'A' below water pit licence application at a greenfield site. Construction and calibration of a numerical groundwater flow model to predict impacts of proposed pit on local groundwater users and sensitive features, including groundwater temperature impacts. Client: Confidential.
- Fifteen Mile Stream Gold Project, NS (2022): Construct and calibrate a numerical groundwater flow model to assess potential impacts from a proposed open pit gold mine. Client: Atlantic Mining NS Corp.
- Essex-Windsor Regional Landfill Site, Windsor, ON (2022): Predictive modeling of annual leachate production using a 2-D Visual HELP model to simulate existing and future cell construction. Client: Essex-Windsor Solid Waste Authority.
- Duntroon Quarry, Collingwood, ON (2021): Review and re-calibration of the existing numerical groundwater model as part of the quarry's Adaptive Management Plan (AMP) 5-Year Comprehensive Review. Import and reconstruction of the model to utilize MODFLOW-USG capabilities. Client: Walker Aggregates Inc.
- Peer Review of Proposed Cumberland Quarry, County of Simcoe, ON (2018): Peer review of a Level 1 & Level 2 Hydrogeological Study report and numerical groundwater model in support of a Category 2 Class 'A' below water quarry application for a greenfield site. Client: Walker Aggregates Inc.
- Peer Review of Crane Mountain Landfill Groundwater Flow Model, NB (2018): Peer review of a numerical groundwater flow model used to predict landfill impacts on a drinking water aquifer in a complex bedrock setting. Client: Fundy Regional Service Commission, NB.
- Wellhead Protection Area Delineation, Pugwash, NS (2017): Construct and calibrate a numerical groundwater flow model to delineate the wellhead protection area for a municipal supply system. Client: Municipality of the County of Cumberland, NS.
- Hydrogeological Investigation / Numerical Groundwater Flow and Transport Modelling for Phosphate Mine, Kapuskasing, ON (2009-2014): Field work including drilling supervision, monitoring well installation, in-situ hydraulic conductivity tests / analysis and groundwater sampling (including low-flow sampling). Review of existing site data to construct and calibrate a groundwater flow model to be used for simulation of tailings pond leachate transport in the sub-surface in support of the mine closure plan. Hydrogeological report and figure preparation in support of a revised mine closure plan. Client: Agrium Inc.
- Groundwater Capacity Assessment, Omemee, ON (2014): Use of an existing regional numerical groundwater model to identify potential groundwater supply well locations within the community as part of a Class EA. Client: City of Kawartha Lakes.
- Detailed Water Budget Analysis, South Lake Scugog Watershed, Durham Region, ON (2011): Use of an existing regional numerical groundwater model to calculate the groundwater components of the water budget. Client: Kawartha Lakes Conservation Authority.
- Contaminant Transport Modelling for a Thermal In-Situ Heavy Oil Processing Facility, near Cold Lake, AB (2010): Review of site data to construct and calibrate a groundwater flow model to simulate chloride transport from a process water retention pond, and evaluate remediation alternatives. Client: Canadian Natural Resources Limited.

- Numerical Groundwater Modelling, Legault Subdivision Water Supply, St. Albert, ON (2010): Construct and calibrate a numerical groundwater flow model to predict the steady-state drawdown due to proposed subdivision private water supply wells, and assess the impact on nearby existing private wells. Client: The Thomson Rosemount Group, Inc.
- Wilmot Creek Watershed Tier 2 Water Budget Analysis, Durham Region, ON (2010): Calibration of an existing regional groundwater flow model within the watershed of interest to determine the water budget components. Client: Ganaraska Region Conservation Authority.
- Hydrogeologic Study, Township of Melancthon, ON (2009-2010): Calibration of numerical groundwater flow model for existing site conditions and quarry scenario assessment. Client: The Highland Companies.
- Contaminant Transport Modelling for a Former Oil Battery Site, Calmar, AB (2009): Review of site data to construct and calibrate a groundwater flow model to simulate chloride transport and fate in the sub-surface. Client: Canadian Natural Resources Limited / Wiebe Environmental Services.
- Thermal Plume Migration Analysis, Mill Creek Aggregate Pit, Guelph, ON (2009): Use a recalibrated groundwater flow model to determine heat transfer into groundwater system from proposed final pit lake configuration, as well as assess impact on nearby cold-water fish habitat. Client: Dufferin Aggregates.
- Groundwater Vulnerability Assessment, City of Kawartha Lakes, ON (2007-2009): Regional groundwater model development; capture zone modelling; GIS figure preparation; technical memo/report preparation to develop a groundwater threat inventory database for 15 municipal well systems. Client: The City of Kawartha Lakes / Trent Conservation Coalition.

Groundwater Resources

- Water Resources Monitoring Review and Strategy Development, Hamilton, ON (2021-2022): Comprehensive review of field data collection techniques, data management processes, existing monitoring network configuration and continuous improvement strategies for ongoing monitoring completed by the Source Protection Planning group in relation to the municipal supply wells. Client: City of Hamilton.
- Hydrogeological Study, St. Anns, ON (2019): Development of a hydrogeological conceptual model and water supply assessment for proposed site re-development. Client: Silverdale Gun Club / IBI Group.
- Open Space Design Development, Nova Scotia (2012-2014): Analysis of step test and pumping test data to estimate private supply well capacity as part of subdivision development applications at various sites throughout Nova Scotia. Client: Confidential.
- Earthfresh Potato Processing Facility, Hydrogeological Study, Flamborough, ON (2011): Design of drilling program and analysis of in-situ testing data. Client: Earthfresh Inc. / IBI Group.
- Viva Next H3 Project, Construction Dewatering PTTW Application, Markham, ON (2011): Hydrogeological analysis and report preparation for construction dewatering Permit to Take Water application. Client: Kiewit-EllisDon / The Miller Group.
- 3091 Appleby Line, Hydrogeological Study, Burlington, ON (2011): Design of drilling program, field groundwater sampling, data analysis, figure and report preparation for a hydrogeological study of a dense non-aqueous phase liquid (DNAPL) contaminated site. Client: 1345059 Ontario Ltd.

- Greenwich Street Sewage Pumping Station, Construction Dewatering PTTW Application, Brantford, ON (2011): Hydrogeological analysis and report preparation for construction dewatering Permit to Take Water application. Client: City of Brantford.
- Dominion Road Sewage Pumping Station, Construction Dewatering PTTW Application, Fort Erie, ON (2011): In-situ testing, hydrogeological analysis and report preparation for construction dewatering Permit to Take Water application. Client: R.V. Anderson & Associates / Niagara Region.
- Microbial Contaminant Control Plan, Halton Region, Peel Region, ON (2005, 2006): Threat inventory preparation; CAD figure preparation; field reconnaissance for development of microbial contaminant control plans for groundwater supply systems. Client: Regional Municipality of Halton, Peel Region.
- Garden City Municipal Golf Club, Evaluation of Alternative Irrigation Sources, St. Catharines, ON (2006): Report preparation, CAD figure preparation to assess the ability of a local pond to supply irrigation water requirements. Client: Urban & Environmental Management Inc.

Waste Management

- Proposed South Landfill Phase 2, Niagara Falls, ON (2024-ongoing): Hydrogeological study to meet the Terms of Reference for an Environmental Assessment (EA) for a proposed landfill extension, including borehole advancement, geophysics and hydraulic testing, groundwater elevation and quality monitoring and calibration of a numerical groundwater flow model.
- Region of Halton - various closed Landfill Sites, (2021-ongoing): Peer reviewer and engineering support for annual compliance monitoring reports for several closed landfill sites within the Queenston shale plain physiographic region of Southern Ontario.
- Regional Municipality of Niagara
  - Bridge Street and Quarry Road Landfill Sites and Quarry Road Constructed Wetland, Annual Monitoring Programs (2013, 2014 and 2018-ongoing): Peer reviewer, project manager and engineering support for annual compliance monitoring programs at landfills in complex fractured bedrock settings. Responsibilities include: manage field staff; liaise with client, subcontractors and laboratories; cost / budget control, collate, QA / QC, analyze and interpret technical data for leachate, groundwater, surface water and sediment samples. Evaluate and assess the condition of the monitoring well network at the Site, develop a work / cost program and implement maintenance and repair program. Performance evaluation of containment systems and perimeter leachate collection systems. Provide routine status updates to client and prepare annual report for submission to the MECP. Additional site-specific studies include:
    - Updated Water Well Survey (2020) to identify potential downgradient groundwater users used as input for a risk-management strategy.
    - Groundwater Monitoring Network Optimization (2020) to reduce redundancy in the groundwater monitoring program using statistical analyses and an evaluation of leachate indicator parameter trends.
    - Paleo-karst Investigation (2013) to characterize paleo-karst hydrogeology and geochemistry, including the use of low-flow groundwater sampling techniques.

  - Chloride Isotope (2011) and Tritium, Oxygen and Hydrogen Isotope (2010) sampling and statistical analyses to determine the source of elevated chloride concentrations.
- Line 5 Landfill, Niagara-on-the-Lake, ON (2013-ongoing): Project manager for annual compliance monitoring program at a closed landfill in an overburden setting. Management of field staff; liaisons with client and laboratories; cost / budget control, collation, QA / QC, analysis and interpretation of technical data for leachate, groundwater, and surface water samples; routine status updates to client; and preparation of annual compliance monitoring report. Preparation of a revised environmental monitoring program, which included assessment of site conceptual model, potential contaminant pathways and sensitive receptors. Additional site-specific studies include:
  - Revised Groundwater Trigger Mechanism Plan (2020) including a statistical analysis of background geochemistry to develop suitable trigger levels at property boundary wells.
  - Stormwater Management Pond Trigger Mechanism Plan (2015) including a statistical analysis of historical chemical results to determine appropriate trigger parameters and levels for operation of the stormwater management pond.
  - Revised Environmental Monitoring Program (2014) to reduce redundancy in the monitoring program and revise monitor screen intervals to more effectively evaluation the leachate collection system performance.
- Nitrate Isotope (2017) and Chloride Isotope (2014) Sampling and Assessment, Centre Street Landfill Site, Fonthill, ON (2017): Statistical analyses of isotope results to determine the source of elevated nitrate and chloride concentrations.
- Mountain Road In-situ Hydraulic Conductivity Tests, Niagara Falls, ON (2005): In-situ hydraulic conductivity tests; slug test analysis; report preparation.
- Landfill Monitoring Programs, Niagara Falls, Grimsby, Pelham, Niagara-on-the-Lake, Fort Erie, ON (2005-2014): Field sampling for groundwater and surface water as part of annual monitoring programs at Mountain Road, Park Road, Niagara Road 12, Line 5, Station Road, Centre Street, Quarry Road and Bridge Street Landfills.

- Region of Waterloo - Closed Woolwich Landfill Site, Woolwich, ON (2015-ongoing): Peer reviewer, project manager and engineering support for annual compliance monitoring and hydrogeological impact assessment at a small rural closed landfill situated in a thick silt, sand and gravel setting. A 1,1-dichloroethane (DCA) plume is present downgradient of the site, and an area wide study was completed to identify potential contributing sources to the 1,1-DCA plume. A hydrogeological conceptual model was developed for the site area and work program to delineate the plume was established.
- Walker Environmental Group - East, South, and West Landfill Sites, City of Niagara Falls, ON (2012-ongoing): Preparation of annual compliance monitoring reports for one operating and two closed landfill sites located within one continuous footprint. Data management and QA / QC using a custom Access database. An adjacent active quarry is also monitored and monitoring data from all four sites are considered when characterizing and assessing the hydrogeologic setting.

- Township of North Kawartha – various closed Landfill Sites (2022-2024): Peer reviewer for annual compliance monitoring reports for several closed landfill sites within the Precambrian shield bedrock setting of Central Ontario.
- County of Oxford
  - Landfill Monitoring Programs, Norwich, Salford, ON (2012-2014): Preparation of annual monitoring report data tables, figures and text at Holbrook (closed) and Oxford County (operational) landfills.
  - Well Network Assessment, Norwich, ON (2013): Completion of a well network assessment at Holbrook (closed) landfill to identify monitoring program deficiencies and recommend remedial measures.
- City of Brantford - Mohawk Street Landfill, Brantford, ON (2009-2018): Data collation, technical analysis, and reporting as part of the annual monitoring program. Field sampling for groundwater and surface water at a large operating landfill.
- Tembec Kapuskasing Operations - Private Landfill Monitoring Programs, Kapuskasing, ON (2012-2013): Preparation of annual monitoring report data tables, figures and text for two private landfill sites.
- Potential Landfill Constraint Mapping, Eastern Ontario (2006): Constraint mapping for potential landfill sites; GIS figure preparation. Client: Confidential.

Geotechnical Engineering

- OPG Pump Generating Station Dyke Monitoring Program, Niagara Falls, ON (2012-2013): Field and technical support for the abandonment of 111 pressure relief wells and piezometers and 4 additional tunnel well nests around the PGS Dyke, including 3 Waterloo System multi-level wells. Wells were located adjacent to the Niagara Escarpment and the Buried St. Davids Gorge. Additional work included rehabilitation of 48 wells; and preparation of documentation and figures. Client: Ontario Power Generation Inc.
- Sir Adam Beck Tunnel 3, Groundwater Monitoring Program, Niagara Falls, ON (2010-2013): Installation and operation of double-valve pumps (DVPs) for low-flow groundwater sampling to monitor the effect of dewatering for tunnel construction on local groundwater resources. Client: Strabag.
- Abitibi Thorold Mill, Cogeneration Plant, Geotechnical Drilling Program, Thorold, ON (2006): Drill rig supervision; borehole logging and soil sampling as part of a geotechnical investigation of soils for a planned co-generation plant. Client: Abitibi-Consolidated.
- Whirlpool Rapids Bridge Monitoring Program, Niagara Falls, ON (2005): Groundwater sampling and erosion monitoring at a contaminated site within the Niagara River Gorge. Client: Niagara Falls Bridge Commission.

Environmental Site Assessments and Site Remediation

- Designated Substance Survey, Brantford, ON (2013): Development of an Access database for survey results and automated reporting of asbestos material location and condition. Client: City of Brantford.



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