

#### Proposed Perimeter (ANSI side) and SE Corner Re-Vegetation Plan (from Aquatic Wildlife Services)

The proposed re-vegetation plan is based on the goal of creating "Woodland Edge" and then "Woodland" over an extended period of time. The objectives for this re-vegetation plan include selecting the species and stocking density, which:

- Will thrive within the proposed buffer and slope areas (i.e. exposure to wind and sun).
- Will create an early successional tree community;
- Will develop into a woodland community comparable to the abutting woodland (ANSI);
- Will create valuable wildlife habitat.

The proposed re-vegetation plan will include the following species and quantities and sizes:  
Each 100 meter square area (10 meters by 10 meters) would contain the following

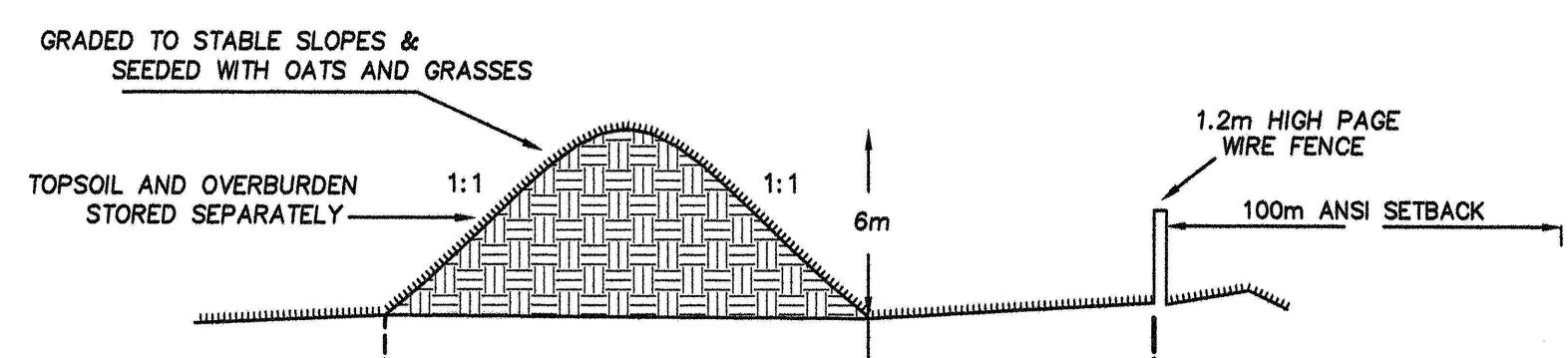
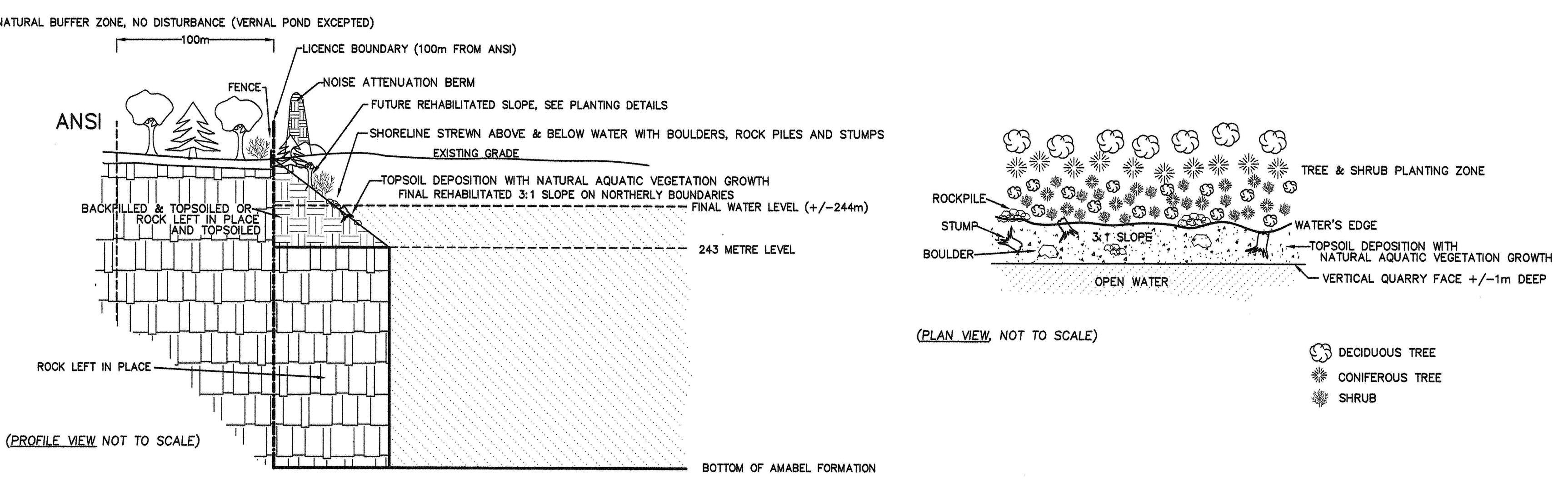
**Table 1**  
**Number of Trees and Shrubs Per 100 Square Meters**

Category	Size	Number
A Trees	40mm cal	1
B Trees	40mm cal	1
A Shrubs	30 cm	1
B Shrubs	30 cm	1
Total		4

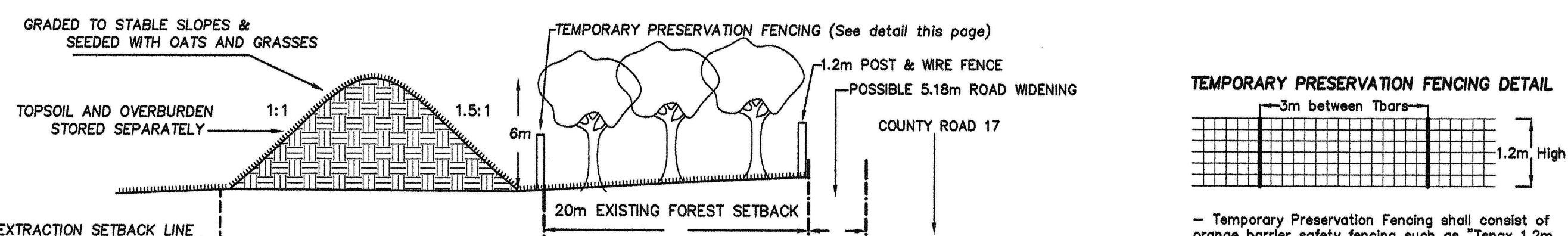
This proposed re-vegetation shoreline plan would result in 380 (0.95 Ha. area) trees and shrubs to be planted within this transitional habitat zone, to have semi-open canopy and scattered structures. The aquatic plants are to naturally regenerate along the submerged slope.

#### Proposed Woody Species For Buffer and Slope Re-vegetation Areas

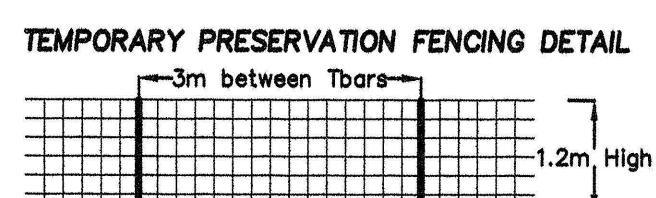
Category	Trees	
	Common Name	Scientific Name
A	White Pine	<i>Pinus strobus</i>
	Eastern White Cedar	<i>Thuja occidentalis</i>
B	Trembling Aspen	<i>Populus tremuloides</i>
	Large-toothed Poplar	<i>Populus grandidentata</i>
	White Birch	<i>Betula papyrifera</i>
	Sugar Maple	<i>Acer saccharum</i>
	Black Cherry	<i>Prunus serotina</i>
A	Shrubs	
	Pincherry	<i>Prunus pensylvanica</i>
B	Chokecherry	<i>Prunus virginiana</i>
	Dogwood Family	<i>Cornus racemosa</i>
	Elderberry Family	<i>Sambucus canadensis</i>
	Staghorn Sumac	<i>Nannyberry</i>
		<i>Viburnum lentago</i>



**TYPICAL BERM DETAIL (ANSI SIDE)**  
(NOT TO SCALE)



**TYPICAL BERM DETAIL (ROAD 17 SIDE)**  
(NOT TO SCALE)



- Temporary Preservation Fencing shall consist of orange barrier safety fencing such as "Tenex 1.2m High Orange Barrier Guardian Safety Fence".

**HAROLD SUTHERLAND CONSTRUCTION LTD.**  
R.R. #2, KEMBLE, ONTARIO, N0H1S0

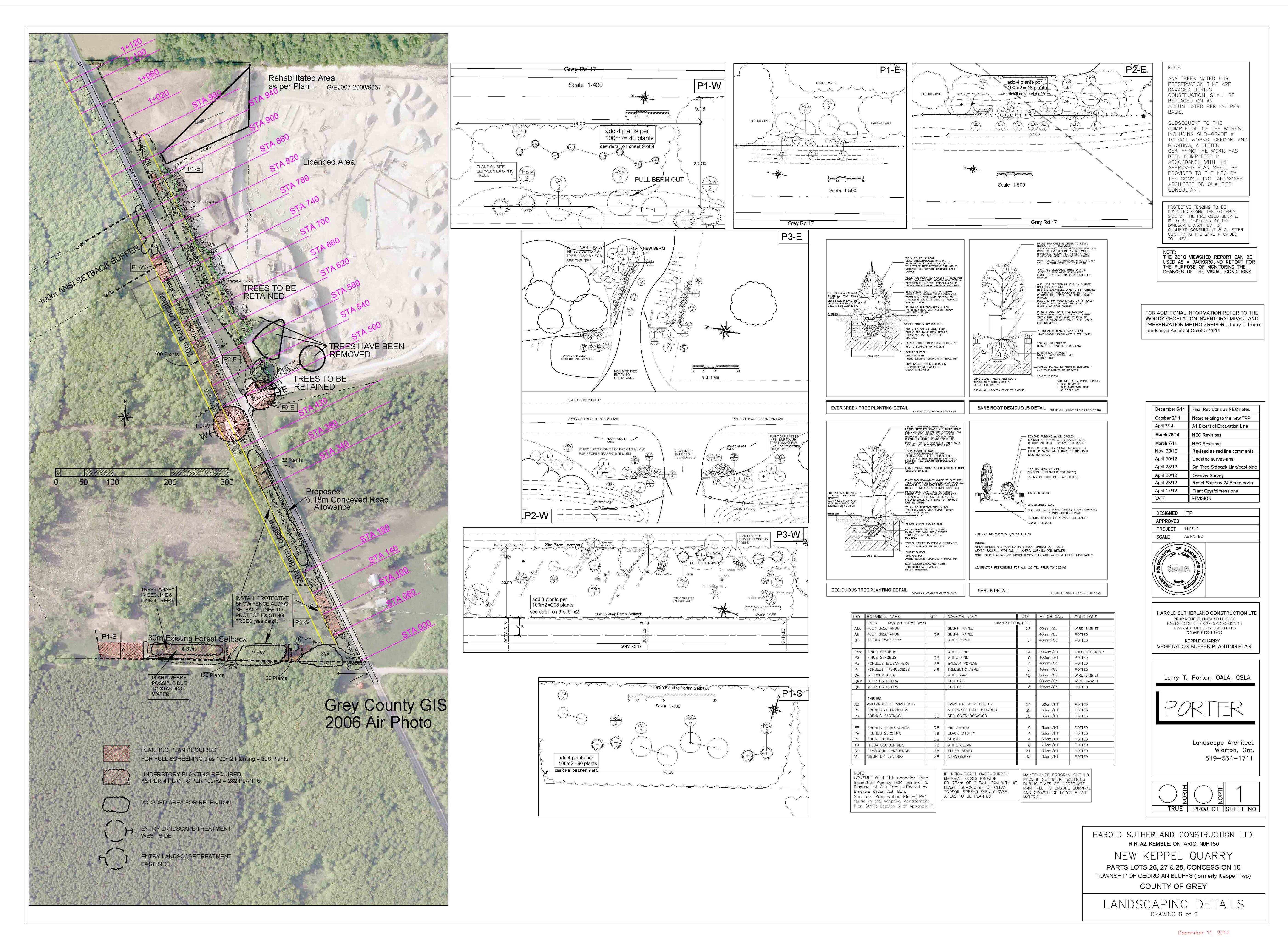
#### NEW KEPPEL QUARRY

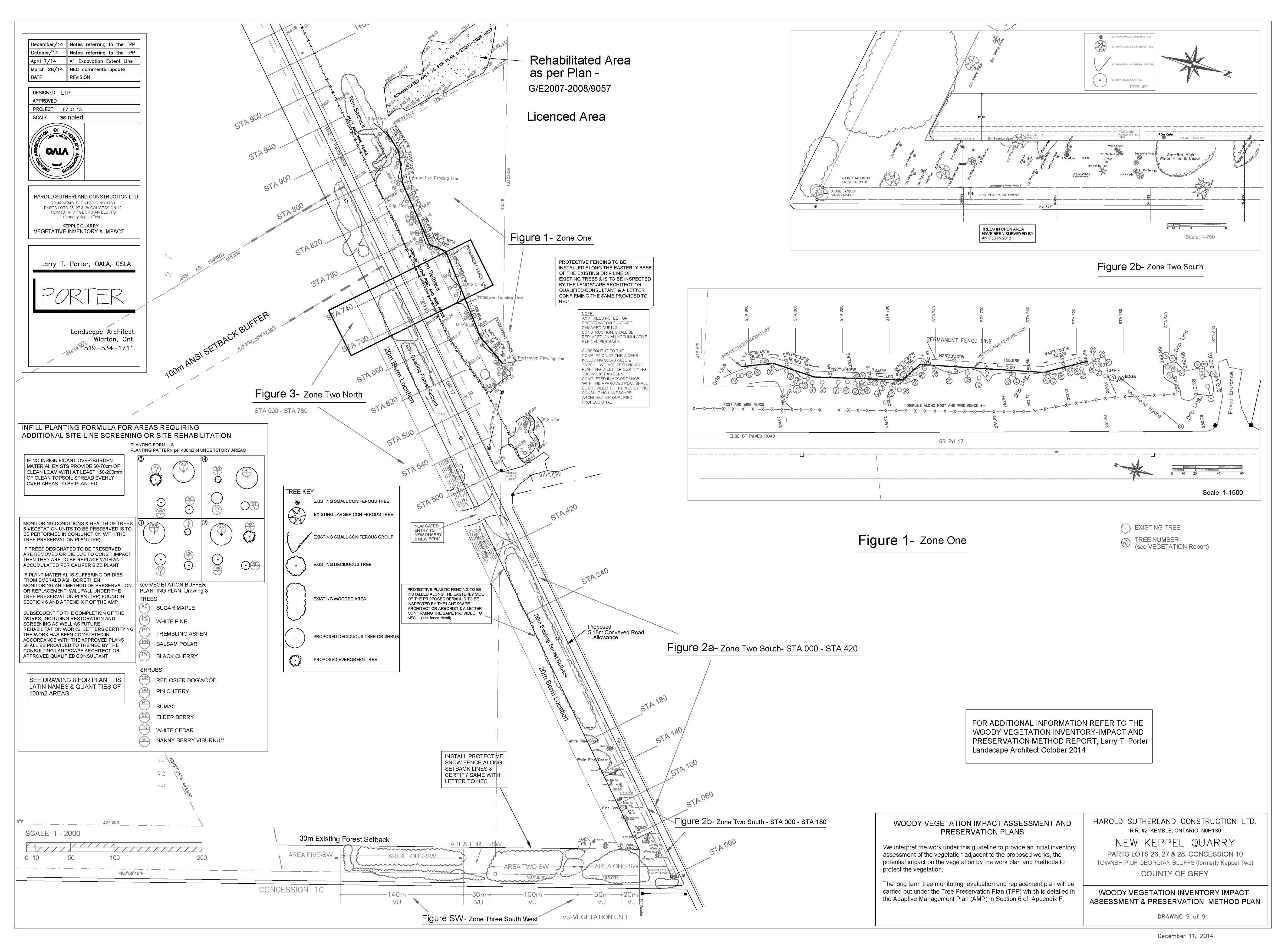
PARTS LOTS 26, 27 & 28, CONCESSION 10  
TOWNSHIP OF GEORGIAN BLUFFS (formerly Keppel Twp)  
COUNTY OF GREY

#### CROSS-SECTIONS & DETAILS

DRAWING 7 of 9

No.	AMENDMENT







## APPENDIX B

### PERMITS



**PERMIT TO TAKE WATER**  
Ground Water  
**NUMBER 4028-8RCKTY**

*Pursuant to Section 34 of the Ontario Water Resources Act, R.S.O. 1990 this Permit To Take Water is hereby issued to:*

Harold Sutherland Construction Ltd.  
323545 East Linton Rd  
Kemble, Ontario, N0H 1S0  
Canada

*For the water Keppel Sump Pond*

*taking from:*

*Located at: Lot 28, Concession 10  
Georgian Bluffs, County of Grey*

*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, 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.
- (d) "District Office" means the Owen Sound District Office.
- (e) "Permit" means this Permit to Take Water No. 4028-8RCKTY including its Schedules, if any, issued in accordance with Section 34 of the OWRA.
- (f) "Permit Holder" means Harold Sutherland Construction Ltd..
- (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 October 5, 2011 and signed by Jennifer Sutherland, 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 **March 31, 2022**. 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	Keppel Sump Pond	Pond Online	Pits and Quarries	Dewatering	3,000	12	2,160,000	365	17 500510 4942695
					Total Taking:	2,160,000			

#### **4. Monitoring**

- 4.1 The Permit Holder shall maintain a record of all water takings. This record shall include the dates and times of water takings, and the total measured amounts of water pumped per day for each day that water is taken under the authorization of this Permit. The Permit Holder shall keep all required records up to date 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 total amounts of water pumped shall be measured using a flow meter. Continuous care shall be taken to properly maintain and calibrate the flow meter.
- 4.2 The Permit Holder shall measure and record static water levels in Observation Wells 3, 4, 7, 14, 28, 30, & 53 on a monthly basis.
- 4.3 The Permit Holder shall submit to the Director, an operational report which presents the monitoring data required by Conditions 4.1 and 4.2 of this Permit. The report shall be submitted to the Director by March 31, 2017, and include the monitoring data from the period beginning April 1, 2012, and ending December 31, 2016. The report shall provide a discussion of the operations within the existing quarry under Aggregate Resources Act Licence Number 4882, including the status of extractions and planned rehabilitation activities. The Director shall consider the information to determine any amendments to the Permit including the expiry date or the expiry of the permit.
- 4.4 Any application submitted to the Ministry for renewal or amendment of this Permit shall be accompanied by all records required by Condition 4.2 of this Permit.

#### **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 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, the Environmental Review Tribunal and the Environmental Commissioner, **Environmental Bill of Rights**, R.S.O. 1993, Chapter 28, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Environmental Commissioner will place notice of your appeal on the Environmental Registry. Section 101 of the Ontario Water Resources Act, as amended provides that the Notice requiring a 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) 314-4506*

*AND  
The Environmental Commissioner  
1075 Bay Street  
6th Floor, Suite 605  
Toronto, Ontario M5S 2W5*

*AND  
The Director, Section 34  
Ministry of the Environment  
733 Exeter Rd  
London ON N6E 1L3  
Fax: (519)873-5020*

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

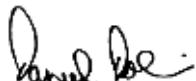
*by telephone at (416) 314-4600*

*by fax at (416) 314-4506*

*by e-mail at [www.ert.gov.on.ca](http://www.ert.gov.on.ca)*

*This instrument is subject to Section 38 of the **Environmental Bill of Rights** that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek to appeal for 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry, you can determine when the leave to appeal period ends.*

Dated at London this 15th day of March, 2012.



Dan Dobrin  
Director, Section 34  
*Ontario Water Resources Act , R.S.O. 1990*

**Schedule A**

This Schedule "A" forms part of Permit To Take Water 4028-8RCKTY, dated March 15, 2012.

**AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL**

NUMBER 3515-8M4PWM

Issue Date: March 15, 2012

Harold Sutherland Construction Ltd.  
R.R. 2  
Georgian Bluffs, Ontario  
N0H 1S0

Site Location: Harold Sutherland's - Keppel Quarry  
Lot 28, Concession 10  
Township of Georgian Bluffs, County of Grey

*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:*

modifications to the existing sewage works for the collection, transmission, treatment and disposal of stormwater and groundwater associated with the Harold Sutherland's - Keppel Quarry, in the Township of Georgian Bluffs, County of Grey, discharging to the Tributary of Park Head Creek, southern branch, consisting of the following:

relocation of the existing 250 mm diameter discharge forcemain to the new location: from the existing dewatering pump located in the south-west corner of the quarry to the entrance to the Harold Sutherland's - Keppel Quarry on County Road 17, across County Road 17 in a 500 mm diameter culvert and on Private Land (Harold Sutherland Construction Ltd. Land) for approx. 250 m south parallel to the western side of County Road 17, discharging via rip-rap to the Tributary of Park Head Creek, southern branch;

all in accordance with the application dated August 8, 2011 and received on August 9, 2011, final plans, the revised plans submitted September 1 and 2, 2011 and specifications and the revised plan and specifications submitted January 26, 2012, all prepared by Genivar Inc.

**EXISTING WORKS**

the establishment of sewage works for the collection, transmission, treatment and disposal of wastewater associated with a Dolostone Bedrock quarry consisting of the following:

- four (4) settling ponds in series, located at the quarry floor, with the following approximate dimensions;

Pond #1: 20 metres by 20 metres by 1.5 metres deep  
Pond #2: 25 metres by 30 metres by 1.5 metres deep  
Pond #3: 35 metres by 20 metres by 1.5 metres deep  
Sump Pond : 35 metres by 45 metres by 3 metres deep and  
one discharge sump pond, 35 metres by 45 metres by 3 metres deep  
remaining in the same location as in 2004;

- one (1) 0.6 metre by 0.6 metre seepage trench constructed along the bottom of the quarry face for draining quarry water to the settling ponds;
- one (1) pumping system with approximate capacity of 3000 litres per minute;
- all other controls, electrical equipment, instrumentation, piping, valves and appurtenances for the proper operation of the aforementioned sewage works;

all in accordance with the following documents:

1. Application for the of plans and specifications for the construction of Works for the collection, transmission, treatment and discharge of industrial wastewater prepared by Henderson, Paddon and Associates on behalf of Harold Sutherland Construction Ltd. including an application form signed by Harold Sutherland, dated July 11, 1989.
2. Engineering report dated September, 1986 and a supplemental Engineering Report dated February 1989, as well as an Impact Assessment of Proposed Sutherland Quarry on Surface Water and Groundwater dated October 1986 and an addendum to this report dated February 1989; all of which were prepared by Henderson, Paddon & Associates Limited.
3. Verbal information from B. Henderson, dated August 4, 1989.
4. Application for Approval of Industrial Sewage Works dated May 2, 2001 and signed by David Greene, Quality Control Coordinator/Health and Safety Representative, Harold Sutherland Construction Ltd. and all supporting information.
5. Application for Approval of Industrial Sewage Works dated June 15 and signed by Jennifer Sutherland, Vice President Finance and Administration, Harold Sutherland Construction Ltd. and all supporting information.

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

- (1) "Approval" means this Environmental Compliance Approval and any Schedules to it, including the application and supporting documentation.
- (2) "Director" means any Ministry employee appointed by the Minister pursuant to Section 5 of the *Ontario Water Resources Act* ;

- (3) "District Manager" means the District Manager of the Owen Sound Office of the Ministry;
- (4) "Environmental Appeal Board" means the Environmental Review Tribunal established pursuant to the Environmental Review Tribunal Act;
- (5) "grab sample" is defined in Section 3.1.1 of the Ministry publication, "Protocol For the Sampling and Analysis of Industrial/Municipal Waste Water" dated August, 1994, and as amended;
- (6) "mg/L" means milligrams per litre;
- (7) "Ministry" means the Ontario Ministry of the Environment;
- (8) "Owner" means Harold Sutherland Construction Ltd., and includes its future successors and assignees;
- (9) "quarry" means land or land under water from which consolidated aggregate is being or has been excavated, and that has not been rehabilitated, but does not mean land or land under water excavated for a building or other work on the excavation site or in relation to which an order has been made;
- (10) "works" means the facility approved by the within Approval as described in its preamble, in the Owner's application and in supporting information submitted by the Owner and to the extent approved by this Approval; and
- (11) the following symbols are abbreviations for the frequencies indicated:

"W" means weekly or once in every 7 days with at least three days between successive samples, and

"M" means monthly or once in each month with at least two weeks between successive samples.

*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 CONDITION**

- 1.1 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, the application for approval of the works and the submitted supporting documents and plans and specifications as listed in this Approval.

1.2 Where there is a conflict between a provision of any submitted document 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 listed submitted documents, the document bearing the most recent date shall prevail.

## **2. OPERATION AND MAINTENANCE**

- 2.1 The Owner shall ensure that 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 check all of the sumps and discharge pumps on a monthly basis and keep a log or record of the inspections at the quarry.
- 2.2 The Owner shall carry out on a regular basis, specific maintenance requirements associated with the settling pond and sump pump.
- 2.3 The Owner shall use best efforts to immediately identify and cleanup all losses of oil and fuel which can drain to the sump and the settling pond.
- 2.4 The Owner shall, upon identification of a loss of oil and fuel take immediate action to prevent the further occurrence of such loss.
- 2.5 In furtherance of, but without limiting the generality of, the obligation imposed by subsection (1), the Owner shall ensure that equipment and material for the containment, cleanup and disposal of oil and fuel and materials contaminated with oil or fuel are kept on hand and in good repair for immediate use in the event of:
- (a) loss of oil or fuel during refuelling or equipment maintenance
  - (b) a spill within the meaning of Part X of the *Environmental Protection Act* ; or
  - (c) the identification of an abnormal amount of oil or fuel in the sump.

## **3. OPERATIONS MANUAL**

- 3.1 In furtherance of, but without limiting the generality of the obligation imposed by Condition No. 2, the Owner shall prepare an operations manual within 90 days of the issuance of this Approval.
- 3.2 The Owner shall ensure that the manual includes:
- (a) a spill contingency plan in the event of loss of oil or fuel at the quarry;
  - (b) operating procedures for routine operation of the works;
  - (c) inspection programs, including frequency of inspection, for the works and the

- methods or tests employed to detect when maintenance is necessary;
- (d) repair and maintenance programs, including the frequency of repair and maintenance, for the works;
- 3.3 The Owner shall keep a log book or record of completed maintenance and inspections and an up to date operations manual at the location of the works, for so long as it is in operation, and shall make both available for inspection and copying by the Ministry employees upon request.

#### **4. EFFLUENT LIMITS**

- 4.1 The Owner shall design, construct and operate the works such that the concentrations of the materials named in the table below as effluent parameters are not exceeded in the effluent from the settling pond, calculated in accordance with subsection 2.

<b>EFFLUENT PARAMETERS</b>	<b>MONTHLY AVERAGE CONCENTRATION</b>
Oil and Grease	15 mg/L
Total Suspended Solids	15 mg/L
Un-Ionized Ammonia	0.02 mg/L

- 4.2 For the purposes of determining compliance with and enforcing subsection (1), exceedance of a monthly average concentration is deemed to have occurred when the arithmetic mean concentration of all samples taken in a calendar month, analysed for a parameter named in subsection (1) is greater than the corresponding monthly average concentration set in subsection (1).

#### **5. EFFLUENT - VISUAL OBSERVATIONS**

Notwithstanding any other Condition in this Approval, the Owner shall ensure that the effluent is essentially free of floating and settleable solids and does not contain oil or any other substance in amounts sufficient to create a visible film or sheen or foam on the receiving waters.

#### **6. SAMPLES AND MEASUREMENTS**

The Owner shall ensure that samples and measurements taken for the purposes of this Approval are taken at a time and in a location characteristic of the quality of the effluent stream or receiving water body, as the case may be, over the time period being monitored.

#### **7. EFFLUENT QUALITY MONITORING**

- 7.1 The effluent from the forcemain to the tributary of Park Head Creek shall be sampled in accordance with the measurement frequency and sample type specified for each parameter named below, unless otherwise required in writing by this Approval or by the District Manager.

EFFLUENT PARAMETERS	MEASUREMENT FREQUENCY	SAMPLE TYPE
Oil and Grease	M	Grab
Total Suspended Solids	M	Grab
Un-Ionized Ammonia	M	Grab

- 7.2 The Owner shall carry out the following effluent monitoring programme immediately after a spill as defined under Condition No. 2, Subsection (5)(b) or;

In the event of an exceedance of one of the limits set out in Condition No. 4, subsection (1) until it is demonstrated to the District Manager that the discharge complies with the said limits.

EFFLUENT PARAMETERS	MEASUREMENT FREQUENCY	SAMPLE TYPE
Oil and Grease	W	Grab
Total Suspended Solids	W	Grab
Un-Ionized Ammonia	W	Grab

- 7.3 The methods and protocols for sampling, analysis, and recording shall conform, in order of precedence, to the methods and protocols specified in the following publications:

Ministry of the Environment, "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater" (dated August, 1994), as amended from time to time by more recently published editions; and,

"Standard Methods for the Examination of Water and Wastewater" (19th edition, dated 1995), as amended from time to time by more recently published editions.

## **8. REPORTING EMERGENCIES**

As related to the approved works, the Owner shall ensure that, upon the occurrence of any spill, oil and grease, fuel or any other polluting substance into the environment, such occurrence be immediately reported to the District Manager, or his/her

designate, during normal working hours, or otherwise the Spills Action Centre for the Ministry (Telephone No. 1-800-268-6060). In addition, within 10 working days of the occurrence, the Owner shall 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.

## **9. RECORD KEEPING**

The Owner shall maintain a log-book at the site at all times, which shall be made available for inspection and copying by Ministry personnel upon request. The log-book shall contain the following:

- (a) Results of visual inspections as per Condition No. 5; and,
- (b) Effluent monitoring results as per Condition No. 7.

## **10. ANNUAL PERFORMANCE REPORTING**

The owner shall prepare and submit a performance report to the District Manager on an annual basis, and the submission shall be made no later than 90 working days following the end of each calendar year. The first such report shall cover the period from the commencement of operation of the works until the end of the first calendar year in which the works is operated. The reports shall contain, but shall not be limited to, the following information in a format acceptable to the District Manager:

- (a) a summary and comprehensive interpretation of all monitoring data and analytical data collected relative to the works during the reporting period and a comparison to the effluent quality criteria described in Condition No. 4;
- (b) a summary of any effluent quality assurance or control measures undertaken in the reporting period;
- (c) a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming a part of the works;
- (d) a description of any operating problems encountered and corrective actions taken during the reporting period;
- (e) a summary of any proposed alteration, extension or replacement in the process or operation of the works to be completed over the next reporting period which may require approval under the *Ontario Water Resources Act* ;
- (f) an evaluation of the calibration and maintenance procedures conducted on all monitoring equipment;

- (g) an evaluation of the need for modifications to the works to improve performance and reliability and to minimize upsets.

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

1. Condition No.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 No. 2 is included to ensure that the works will be operated and maintained in a manner enabling compliance with the terms and conditions of this Approval, such that the environment is protected and deterioration, loss, injury or damage to any person or property is minimised and/or prevented.
3. Condition No. 3 is included 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 bench mark for Ministry staff when reviewing the operation of the works.
4. Condition No. 4 is imposed to establish enforceable effluent quality limits which the Owner is obligated to strive to achieve on an ongoing basis. It is also imposed to establish appropriate actions to be taken to minimize environmental impact in the event the limits are exceeded.
5. Condition Nos. 5, 6, 7, 8, 9, 10 & 11 are related to sampling, monitoring, reporting and record keeping. They have been imposed to require the Owner to demonstrate on a continual basis that, the performance of the approved works is at a level consistent with the design for the achievement of the effluent limits and objectives specified in the Approval, and does not cause any impairment to the receiving watercourse; and, that all pertinent information is available for evaluation of the settling pond performance.

**Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 4616-6EFKEJ issued on July 20, 2005.**

*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.

*Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.*

*The Notice should also include:*

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

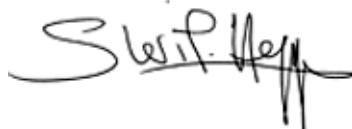
AND

The Director appointed for the purposes of  
Part II.1 of the Environmental Protection Act  
Ministry of the Environment  
2 St. Clair Avenue West, Floor 12A  
Toronto, Ontario  
M4V 1L5

\* 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) 314-4506 or [www.ert.gov.on.ca](http://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 15th day of March, 2012



---

Sherif Hegazy, P.Eng.  
Director  
appointed for the purposes of Part II.1 of the  
*Environmental Protection Act*

KC/

c: District Manager, MOE Owen Sound District Office  
Ross Slaughter, P.Eng., Genivar Inc.  
Rick Winters, Operations Manager, Township of Georgian Bluffs

Niagara Escarpment Commission

P.O. Box 308, 99 King Street East  
Thornbury, ON N0H 2P0  
Tel: 519-599-3340  
Fax: 519-599-6326  
[www.escarpment.org](http://www.escarpment.org)

Commission de l'escarpement du Niagara

p.o.b. 308, 99, rue King est  
Thornbury, ON N0H 2P0  
No de tel. 519-599-3340  
Télécopieur 519-599-6326  
[www.escarpment.org](http://www.escarpment.org)



Ontario's Niagara Escarpment  
A World Biosphere Reserve

March 9, 2012

Harold Sutherland Construction Ltd.  
323545 East Linton Rd W  
Kemble, Ontario N0H 1S0

Dear Mr. Sutherland,

**Re: Development Permit # 6468/G/E/2011-2012/9072  
Lot 27 & 28, Concession 10  
Township of Georgian Bluffs (Keppel), Grey County**

---

Enclosed please find your **Development Permit**. A copy of your Development Permit application is attached to the Permit. The information contained in this copy of the application constitutes the information (construction details, site plan, etc.) which was approved by the Commission and the Niagara Escarpment Hearing Officer upon appeal. Your development must proceed in accordance with this information, and with the **Conditions of the Permit**.

Also please note that changes or alterations to the approved construction details or the site plans are not permitted (see Conditions 1 and 4). Contact us immediately if changes are required.

If you have any questions, please contact me at 519-599-3740.

Yours truly,

Rick Watt  
Planner

c Township of Georgian Bluffs  
Drysdale Aggregate Consulting  
GSCA  
Grey County Transportation Services Dept.  
MOE – Bill Armstrong, Ian Mitchell  
MNR – Dave Munro  
David White



# NIAGARA ESCARPMENT DEVELOPMENT PERMIT

# 6468/G/E/2011-2012/9072



FILE NUMBER: G/E/2011-2012/9072

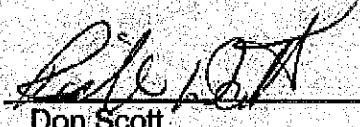
APPLICANT: Harold Sutherland Construction Ltd.  
AGENT: Drysdale Aggregate Consulting - Don Drysdale  
OWNER: same as applicant  
  
LOCATION: Lot 27 & 28, Concession 10  
Township of Georgian Bluffs (Keppel), Grey County

## DESCRIPTION of PROPOSED DEVELOPMENT:

To undertake the following:

- dewater the floor of the existing Keppel Quarry (a new Permit to Take Water is also required from the Ministry of the Environment); (i.e., maximum 3000 litres/min; maximum daily pumping of 12 hours; maximum volume per day of 2,160,000 litres; maximum annual number of pumping days of 365).
- remove/discontinue use of the existing water discharge forcemain pipe for the quarry from adjacent private lands.
- reroute the forcemain through the quarry to the quarry entrance and install a new buried 250 mm diameter forcemain from the quarry entrance within a new culvert under Grey Road 17.
- continue a buried forcemain southwards on the applicant's lands on the west side of County Road 17 for a distance of approximately 250 m, to a discharge outlet area on the west side of Grey Road 17.

Pursuant to the authority to issue Development Permits under Section 24 of the *Niagara Escarpment Planning and Development Act, R.S.O. 1990, Chapter N.2*, delegated by the Minister of Natural Resources under Section 25 of the Act, the Niagara Escarpment Commission hereby issues this **DEVELOPMENT PERMIT** for the proposed development described above, **subject to the attached Conditions**.

SIGNED:   
Don Scott  
Chair  
Niagara Escarpment Commission

DATE: March 9, 2012

This Development Permit is **transferable** provided the new Permit holder develops strictly in accordance with the conditions of the Development Permit.

## DEVELOPMENT PERMIT CONDITIONS

6468/G/E/2011-2012/9072

1. Non-fulfillment or breach of anyone of the conditions shall render the Development Permit void.
2. A site inspection(s) to the property may be undertaken by the Niagara Escarpment Commission to ensure that the development complies with the conditions of the Development Permit. Persons may accompany the Commission representatives on the site inspection(s) who possess expert or special knowledge related to the conditions of the Development Permit.
3. No Building Permit or other license, certificate, permit or similar permission relating to development shall be issued or be considered to be in force unless the Development Permit is in effect.
4. Development shall take place only in accordance with the Site Plan and Development Permit Application as approved, and in accordance with the terms and conditions of the Ministry of the Environment Permit to Take Water, and Certificate of Approval for effluent discharge to be issued under Condition 5.
5. Development shall not commence and water taking shall not occur prior to the issuance by the Ministry of the Environment of a Permit to Take Water and Certificate of Approval for Discharge that is in accordance with the Development Permit issued. A copy of the Permit to Take Water and Certificate of Approval shall be filed with the Niagara Escarpment Commission.
6. Water taking and effluent discharge under this Development Permit shall be permitted for a period of no more than ten (10) years from the date of issuance of the Permit to Take Water and Certificate of Approval referred to in Condition 5, and shall cease when the taking of water and effluent discharge to facilitate extraction within the existing quarry under Aggregate Resources Act Licence Number 4882 is no longer required, recognizing that progressive rehabilitation may be ongoing during extraction. A further Development Permit will be required for any water taking and effluent discharge associated with final rehabilitation after extraction has ceased and/or for after uses.
7. The Development Permit shall expire concurrently with the date of expiry of the Permit to Take Water which shall be no later than ten (10) years from date of issuance, or sooner in accordance with Condition 6.
8. Any amendments or replacements of the Permit to Take Water or Certificate of Approval shall require a further Development Permit.
9. This Development Permit shall apply to the works and related activities: i) within the existing quarry, ii) in the County Road 17 road allowance, and iii) in the area shown as "Infiltration Area" on the site plans approved as part of this Development Permit. The Infiltration Area is shown on the enclosed Fig. 1.
10. No grading of the existing contours in the Infiltration Area is permitted.

**DEVELOPMENT PERMIT CONDITIONS continued**  
**6468/G/E/2011-2012/9072**

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11. No trees or vegetation other than dead or diseased trees and vegetation shall be cut or removed from the Infiltration Area.
12. Appropriate erosion and sediment controls shall be implemented, as may be required, to ensure no material run-off during construction and operation of the forcemain.
13. Effluent discharge shall occur in the Infiltration Area.
14. As there is no defined water course south of Con Rd X, quarry effluent discharge rates will be managed to prevent surface effluent outflow over Con Rd X.
15. Effluent discharge monitoring and reporting shall be in accordance with the Certificate of Approval. The Operator will continue to undertake routine Oil and Grease, Total Suspended Solids and Un-ionized Ammonia analysis of effluent discharge water at monthly intervals in accordance with the Certificate of Approval. Industrial Sewage Works pH and Temperature will be field observed at the time of sampling.
16. Expanded parameter water quality monitoring at Observation Well OW10s, OW10d, OW11s and OW11d, at the end of the pipe for effluent discharge and at all domestic wells within 600 m of the existing quarry or the Infiltration Area shall be undertaken on or about July 31, Aug 31 and Sept 30 of each year. Group parameters to be analyzed for include:
  - a. nutrients (phosphorous, nitrogen)
  - b. hardness, alkalinity, pH, conductivity
  - c. nitrate, nitrite
  - d. chlorides and other anions
  - e. major cations (magnesium, calcium, manganese)
  - f. sulphur
  - g. metals scan (i.e., zinc, copper, nickel, cadmium, arsenic, etc)The above analyses are also to include Total Dissolved Carbon and Organic Nitrogen.

17. In addition to the above, effluent discharge is to be sampled on or about July 31, Aug 31 and Sept 30 of each year and analyzed for:
  - a. total petroleum hydrocarbons (TPH)
  - b. BTEX (benzene, toluene, ethylene, xylene)
  - c. total PAH (Polycyclic Aromatic Hydrocarbons)
18. Chain of Custody sampling and laboratory QA/QC (Quality Assurance / Quality Control) procedures are to be documented with each sample event. pH and Temperature are to be observed at the time of sampling.
19. The laboratory undertaking the sample analysis will be accredited by the Standards Council of Canada and the Canadian Association of Environmental Laboratories (CAEL).
20. All Water Quality Analysis will be reported in Annual Performance Reports as required in the Certificate of Approval.

**DEVELOPMENT PERMIT CONDITIONS continued**  
**6468/G/E/2011-2012/9072**

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21. All Water Quality Results will be released to the Citizens' Liaison Committee (CLC) (see Condition 24) within 30 days of sampling events. Annual Performance Reports will be released within 30 days of the reporting year-end.
22. Any recycled asphalt will be stored in the north east corner of the existing quarry, protected from contact with any surface water.
23. A Citizens' Liaison Committee shall be formed consisting of representatives of Harold Sutherland Construction Ltd., neighbouring property owners including Garnet and Isabel Cramp, Gillian and Les Highfield, and Grey Sauble Conservation Authority, the Saugeen Ojibway Nation, the Métis Nation of Ontario, and the Township of Georgian Bluffs and County of Grey. Effluent discharge monitoring results shall be provided to the CLC as well as a Ministry of the Environment contact. This committee will meet on or about Feb 15 of each year or more frequently if required to review quarry operational and compliance issues. This review will include the adequacy of the water quality analytical parameters and sampling frequency as appropriate based on the number of Ontario Drinking Water Standards (2006) exceedances and other factors. For any new application to NEC, MOE or MNR, prior notice will be given to members of the CLC.
24. This Development Permit relates to the existing quarry under Aggregate Resources Act Licence Number 4882 on lands identified as Lot 28, Concession 10, Township of Georgian Bluffs only. (Note: Dewatering associated with the proposed expansion of the existing quarry shall be dealt with under Development Permit Application G/E/2007-2008/9099).
25. The filtration pond cannot impede the remaining extraction within the existing quarry.
26. The asphalt plant and the recycled asphalt pavement (RAP) material will be removed from the existing quarry by December 31, 2014.

## NIAGARA ESCARPMENT COMMISSION

## NIAGARA ESCARPMENT DEVELOPMENT PERMIT APPLICATION - NEC4

(Revised June 12, 2002)

THE NIAGARA ESCARPMENT PLANNING AND DEVELOPMENT ACT, RSO, 1990, AS AMENDED

<p>NIAGARA ESCARPMENT COMMISSION 232 GUELPH STREET GEORGETOWN, ONTARIO L7G 4B1</p> <p>Phone: 905-877-5191 Fax: 905-873-7452 Website: <a href="http://www.escarpment.ca">http://www.escarpment.ca</a></p> <p>Serving the areas of: Dufferin County Region of Halton Region of Peel Region of Niagara City of Hamilton</p>	<p>NIAGARA ESCARPMENT COMMISSION 99 KING STREET EAST, BOX 308 THORNBURY, ONTARIO N0H 2P0</p> <p>Phone: 519-599-3340 Fax: 519-599-6326 Website: <a href="http://www.escarpment.org">http://www.escarpment.org</a></p> <p>Serving the areas of: Bruce County Grey County Simcoe County</p>
<b>RECEIVED</b> <b>JUL 29 2011</b> <b>NIAGARA ESCARPMENT COMMISSION</b>	

Please ensure that the information you provide in this application is complete and accurate as this is the information that is reviewed by the Commission and if approved, all development must occur in accordance with this information.

Please contact your local Commission office if you would like assistance in completing this application.

**1. APPLICANT**

Name: HAROLD SUTHERLAND CONSTRUCTION LTD.  
 Address: 323545 East Linton Road W  
Kemble, Ontario Postal Code: N0H 1S0  
 Phone: (519) 376-5698 Fax: (519) 371-6121 E-mail: [jennifer@hsc-ltd.com](mailto:jennifer@hsc-ltd.com)

**2. AGENT (if any)**

Name: DRYSDALE AGGREGATE CONSULTING  
 Address: 720 THIRD AVENUE EAST, OWEN SOUND, ONTARIO Postal Code: N4K 2K3  
 Phone: (519) 376-6600 Fax: (519) 376-7300 E-mail: [dondrysdale@rogers.com](mailto:dondrysdale@rogers.com)

**3. OWNER (if different from applicant)**

Name: same as above (applicant)  
 Address: \_\_\_\_\_ Postal Code: \_\_\_\_\_  
 Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ E-mail: \_\_\_\_\_

Note: All correspondence will be sent to the Agent where an Agent is designated.

**4. PROPERTY LOCATION**

County/Region - GREY Municipality - GEORGIAN BLUFFS (former Municipality) - KEPPEL TWP.

27+

Lot PART 28 Concession 10 Lot \_\_\_\_\_ Plan \_\_\_\_\_

Civic Addressing # \_\_\_\_\_ Street Address \_\_\_\_\_  
(Fire/emergency#)**5. LOT INFORMATION NOT APPLICABLE**

Lot Size _____	Proposed Lot Size _____ (If applicable)
Frontage _____	Frontage _____
Depth _____	Depth _____

**6. SERVICING**

Road Frontage:	<input checked="" type="checkbox"/> Municipal	<input type="checkbox"/> Private	<input type="checkbox"/> Right-of-Way	<input checked="" type="checkbox"/> Year-round	<input type="checkbox"/> Summer
Water Supply:	<input type="checkbox"/> Municipal	<input type="checkbox"/> Communal	<input checked="" type="checkbox"/> Private Well	<input type="checkbox"/> Other _____	
Sewage System:	<input type="checkbox"/> Municipal	<input type="checkbox"/> Communal	<input checked="" type="checkbox"/> Private Septic	<input type="checkbox"/> Other _____	

**7. LAND USE**

	Existing (describe)	Proposed (describe)
Residential	<input type="checkbox"/> _____	<input type="checkbox"/> _____
Agricultural	<input type="checkbox"/> _____	<input type="checkbox"/> _____
Commercial	<input type="checkbox"/> _____	<input type="checkbox"/> _____
Industrial	<input checked="" type="checkbox"/> LICENCED QUARRY	X redirection of 250mm forcemain for dewatering existing licenced quarry
Institutional	<input type="checkbox"/> _____	<input type="checkbox"/> _____
Other	<input checked="" type="checkbox"/> MINERAL RESOURCE EXTRACTION	<input checked="" type="checkbox"/> Rural - NEC

**8. EASEMENTS, COVENANTS, AGREEMENTS, ETC.**

Please describe the type and terms of any easements, covenants, agreements or other restrictions registered on or affecting the title of the property: \_\_\_\_\_

N/A

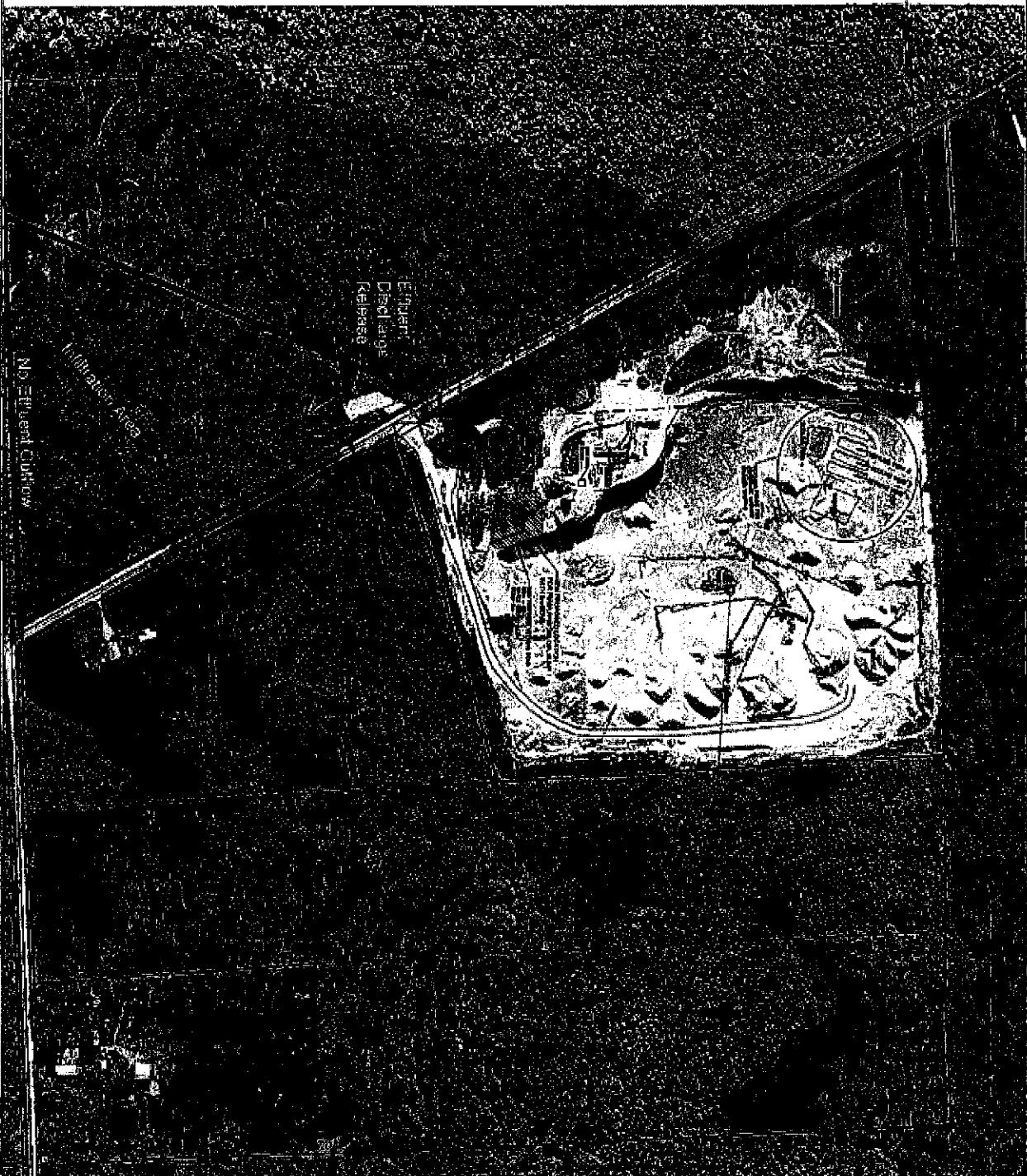
**9. DATE OF PURCHASE**

Date of purchase by current owner: 1985

**NOTE**DEPENDING ON THE NATURE OF THE PROPOSED DEVELOPMENT AND/OR THE CHARACTERISTICS OF THE PROPERTY,  
SUPPORTING INFORMATION SUCH AS LANDSCAPING PLANS, EROSION CONTROL PLANS, GRADING PLANS, OR AN  
ENVIRONMENTAL IMPACT ASSESSMENT MAY BE REQUIRED.

NEW

# FIGURE 1 - SITE PLAN



COURT MAP SOURCE:  
BASE MAP DATA ORIGINATED BY THE  
CITY OF BRUCE SPRINGS OF 2006

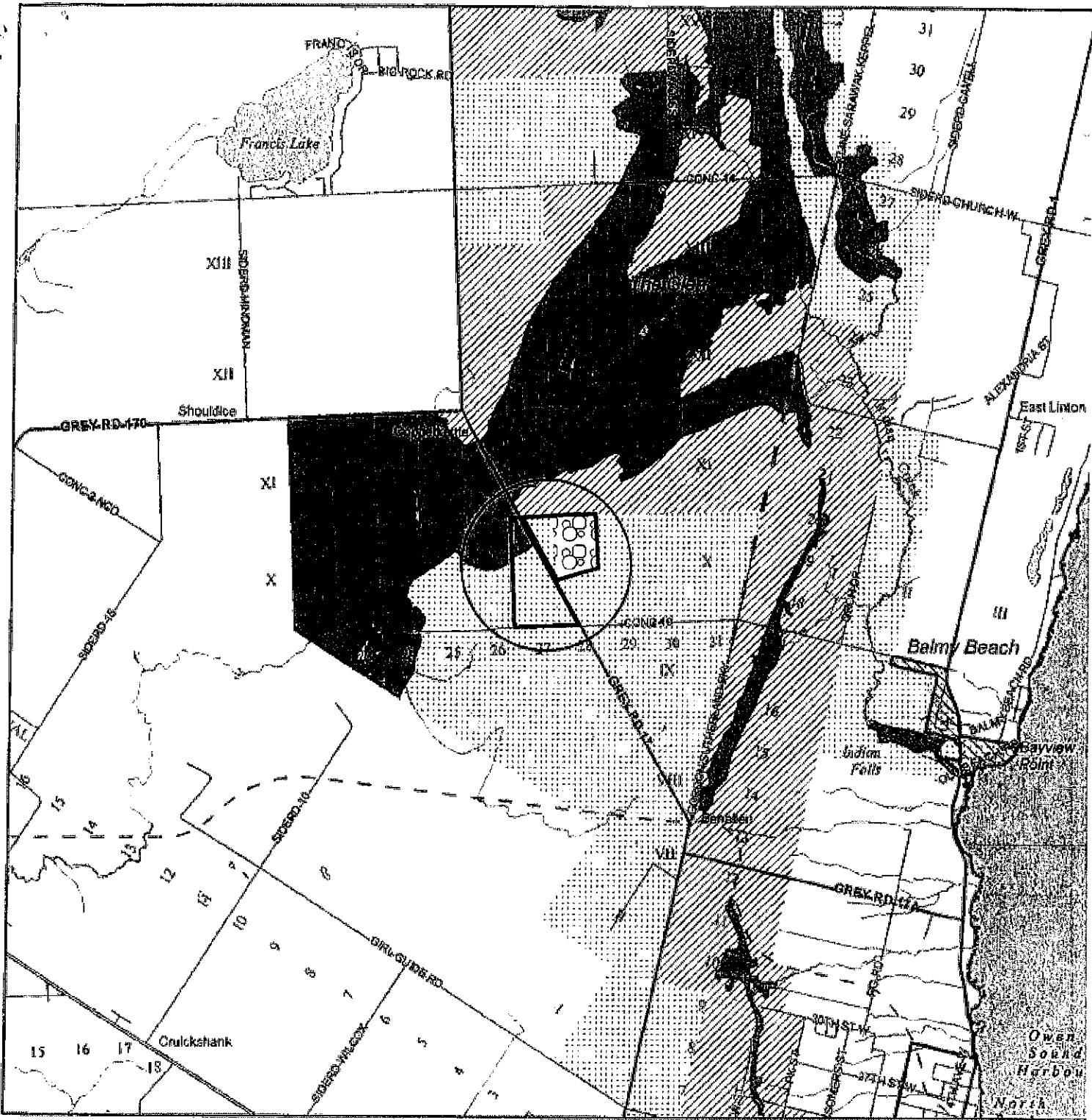
MAP NUMBER	NAME, NUMBER AND DATE FILED
MAP SCALE	PLAT SCALE
MAP SCALE	PLAT SCALE
MAP NUMBER	NUMBER / ISSUE
MAP NUMBER	NUMBER / ISSUE

GENIVAR

EASTING, NEW TERRA CONCRETE FIRM  
AND FIRM LOCATING PIPE  
PROPOSED FIRM LOCATION FOR GRIND AND  
SETTING BOND - KEPPEL QUARRY  
MARSH & SOUTHERLAND QUARRY LTD.

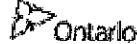
M. S. S. — 12000  
S. S. S. — 10000  
DRAFTING NO. 1111010000000000  
DRAWING NO. 1111010000000000

N



**MAP 1**  
**NIAGARA ESCARPMENT PLAN**  
**FILE NO. G/E/2011-2012/9072**  
**HAROLD SUTHERLAND**  
**APPLICANT: CONSTRUCTION**

NOTE: The Niagara Escarpment Plan Designation boundaries shown on this map are approximate and subject to confirmation through Site Inspection and the application of the 'Interpretation of Boundaries' section of the Niagara Escarpment Plan.  
Printed on Jan 19, 2008 name:



© 2011 Queen's Printer for Ontario

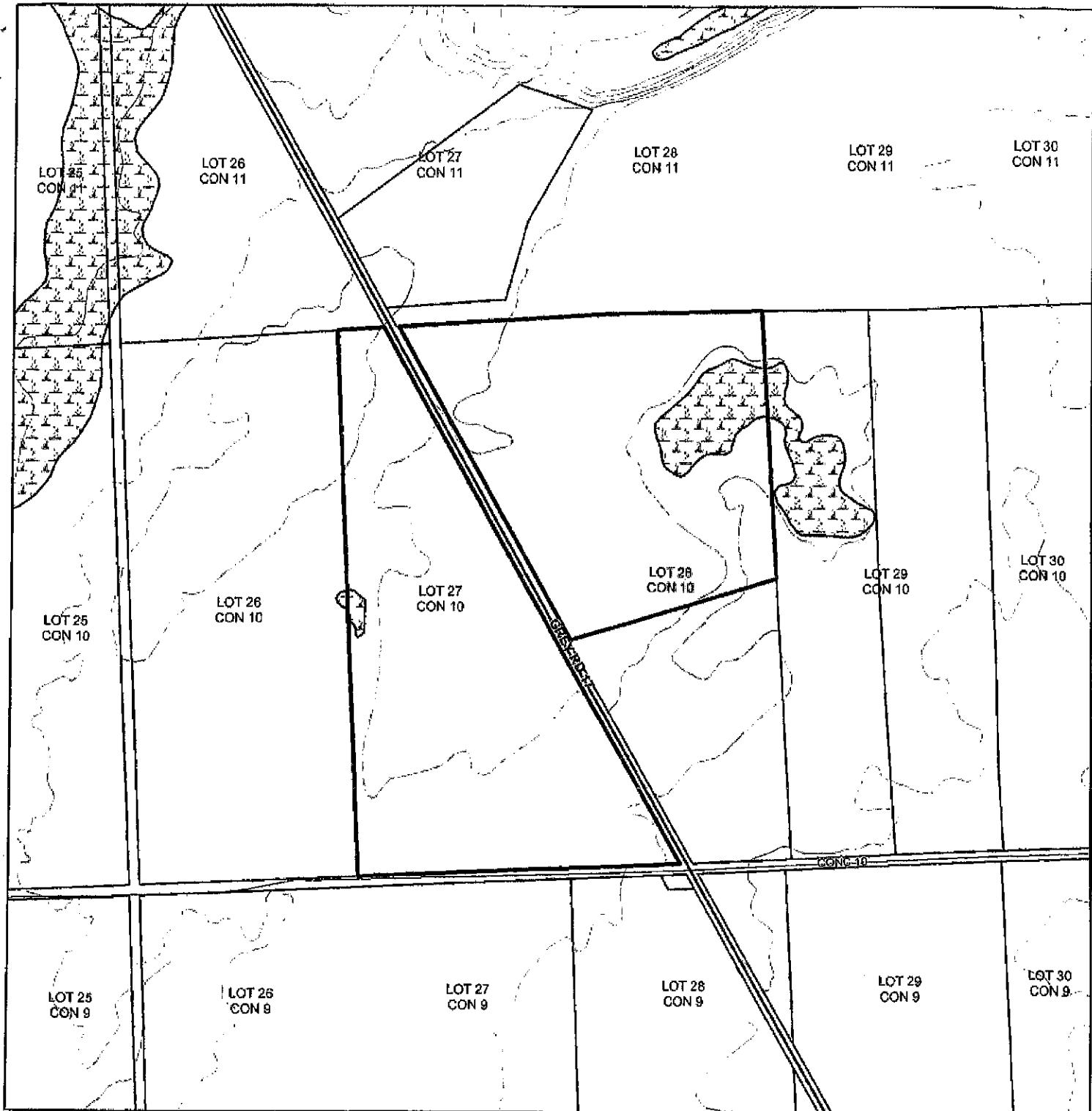
- LEGEND**
- |                                  |   |
|----------------------------------|---|
| Subject Property                 | Minor Urban Centre                      |
| <b>Plan Designations</b>         | Minor Urban Centre (Boundary Undefined) |
| Escarpment Natural Area          | Public Land (in Parks)                  |
| Escarpment Protection Area       | and Open Space System                   |
| Escarpment Rural Area            | Special Policy Areas                    |
| Mineral Resource Extraction Area |   |
| Escarpment Recreation Area       |   |
| Urban Area                       |   |

Approximate Scale 1:50,000



0 500 1000 1500 2000 2500  
Metres





## MAP 2 LOT CONFIGURATION

FILE NO. G/E/2011-2012/9072

HAROLD SUTHERLAND  
APPLICANT: CONSTRUCTION

### LEGEND

- Subject Property
- Contour (5 metre intervals)

Approximate Scale 1:10000



0 100 200 300 400 500  
Metres





## APPENDIX C

# WATER RESOURCES MONITORING PROGRAM



## APPENDIX C1

### PHOTO LOG

**MAY 19 2016**



**Photograph No. 1 – Active quarry face in Area 1A after blast on May-19-16.**



**Photograph No. 2 – Active quarry face in Area 1A (close up) on May-19-16.**

**JUNE 14 2016**



**Photograph No. 3 – Active quarry face in Area 1A after blast on Jun-14-16.**



**Photograph No. 4 – Active quarry face in Area 1A after blast on Jun-14-16.**



**Photograph No. 5 – Active quarry face in Area 1A (close up) on Jun-14-16.**

JULY 21 2016



**Photograph No. 6 – Active face in Area 1A after blast on Jul-21-16.**



**Photograph No. 7 – Active face in Area 1A after blast on Jul-21-16.**

**AUGUST 18 2016**



**Photograph No. 8 – Active face in Area 1A after blast on Aug-18-16.**

**SEPTEMBER 22, 2016**

**Photo Missing**

OCTOBER 14 2016



Photograph No. 9 – Active face in Area 1A after blast on Oct-14-16.

NOVEMBER 10 2016



Photograph No. 10 – Active face in Area 1A after blast on Nov-10-16.

**DECEMBER 8 2016**



**Photograph No. 11 – Active face in Area 1A after blast on Dec-8-16.**



## APPENDIX C2

### GROUNDWATER MONITOR DETAILS

**Borehole Number: OW72s**

Project: 33862-100

Drill Date: 5/20/2016

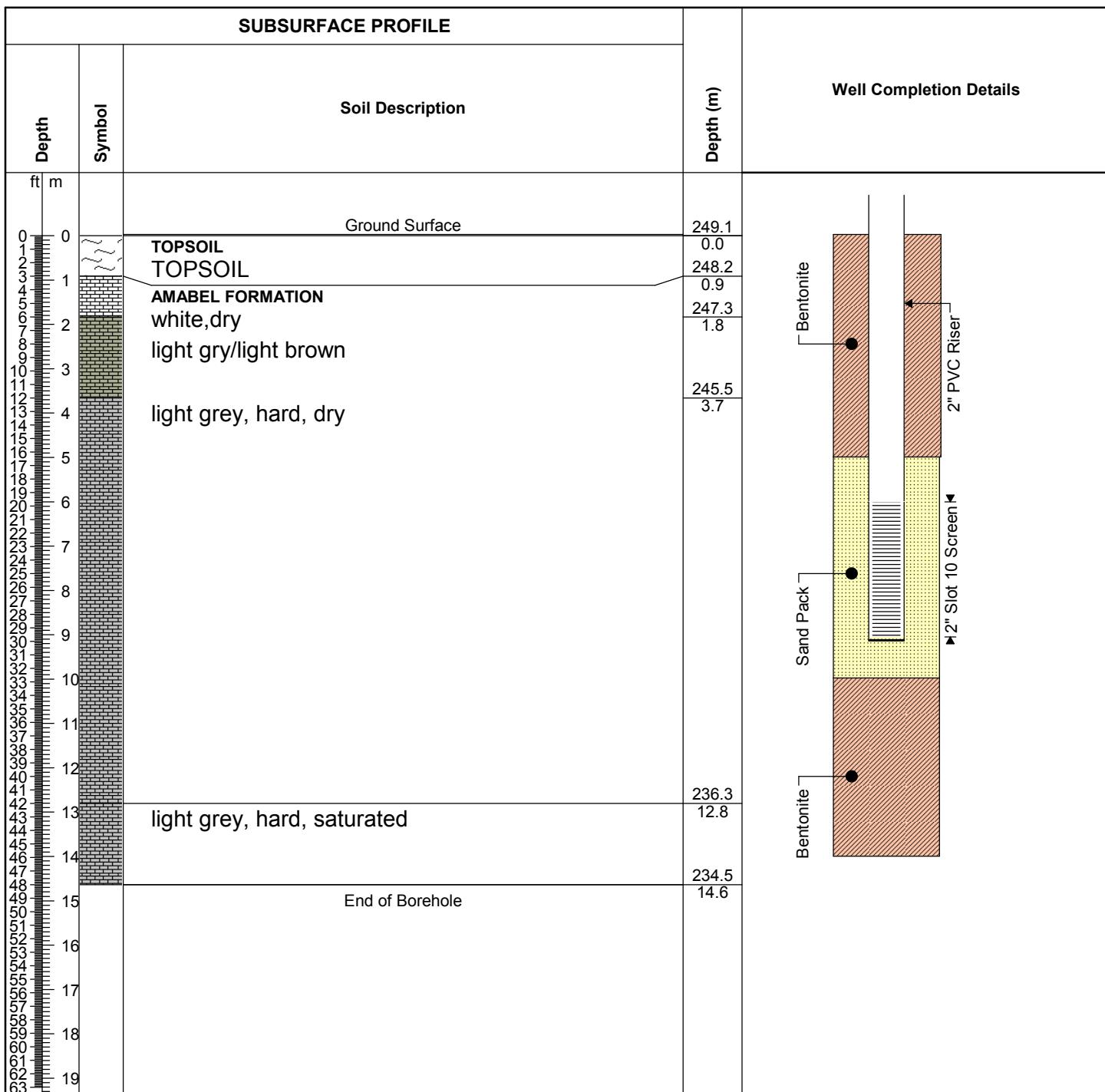
Project No: 33862-100

Drilling Contractor:

Client: Harold Sutherland Construction

Drill Method: Air Track

Location: Owen Sound



Notes:

Sheet: 1 of 1



Field Technician: TFC

Drafted by: TFC

Reviewed by: JBF

**Table C-2.1 : Monitoring Station Details**

Location	Northing	Easting	Stick-up (m)	Depth (mBGS)	Ground Elevation (mAMSL)	Reference Elevation (pipe-top) (mAMSL)	Revised Reference Elevation (pipe-top) (mAMSL)	Water Level Reference Point	Tip Separation (m)
OW3	4942599	500834	2.06	18.43	250.07	252.13	-	T/PVC Pipe	-
OW4	4942370	500575	0.59	21.48	250.81	251.40	-	T/PVC Pipe	-
OW7s	4942285	500449	0.74	8.20	250.95	251.68	-	T/PVC Pipe	14.92
OW7d	4942285	500449	0.57	22.95	250.94	251.51	-	T/PVC Pipe	
OW8s	4942237	499664	0.74	8.62	246.99	247.72	-	T/PVC Pipe	13.97
OW8d	4942237	499664	0.62	22.47	246.99	247.60	-	T/PVC Pipe	
OW9s	4941874	499719	0.79	8.18	246.30	247.08	-	T/PVC Pipe	13.07
OW9d	4941874	499719	0.53	21.00	246.30	246.83	-	T/PVC Pipe	
OW10s	4941907	500462	0.29	8.57	248.29	248.58	-	T/PVC Pipe	12.62
OW10d	4941907	500462	0.24	21.15	248.30	248.54	-	T/PVC Pipe	
OW11s	destroyed	destroyed	0.56	9.01	249.07	249.63	-	T/PVC Pipe	13.70
OW11d	destroyed	destroyed	0.51	22.64	249.06	249.56	-	T/PVC Pipe	
OW12s	4942532	499697	0.52	8.20	248.62	249.13	-	T/PVC Pipe	11.46
OW12d	4942532	499697	0.38	19.51	248.60	248.98	-	T/PVC Pipe	
OW13s	4942868	499924	0.75	8.61	249.30	250.05	-	T/PVC Pipe	11.99
OW13d	4942868	499924	0.57	20.42	249.31	249.87	-	T/PVC Pipe	
OW14s	4942695	500210	0.49	9.12	250.32	250.81	-	T/PVC Pipe	12.27
OW14d	4942695	500210	0.41	21.31	250.33	250.73	-	T/PVC Pipe	
OW15s	4942087	499757	0.53	7.61	248.59	249.12	-	T/PVC Pipe	13.01
OW15d	4942087	499757	0.40	20.50	248.61	249.00	-	T/PVC Pipe	
OW16s	destroyed	destroyed	0.05	8.76	250.55	250.58	-	T/PVC Pipe	13.46
OW16d	destroyed	destroyed	-0.12	22.10	250.55	250.46	-	T/PVC Pipe	
OW24	4942344	499242	0.29	17.90	240.39	240.68	<sup>1</sup> 241.81	T/PVC Pipe	-
OW25s	4942539	499530	0.65	7.80	243.48	244.13	-	T/PVC Pipe	-
OW25d	4942539	499530	0.46	17.90	243.49	243.95	-	T/PVC Pipe	10.28
OW26	4942006	499426	0.84	17.10	243.61	244.45	-	T/PVC Pipe	
OW27s	4941847	499276	0.53	10.20	244.41	244.94	-	T/PVC Pipe	11.57
OW27d	4941847	499276	0.50	21.75	244.41	244.91	-	T/PVC Pipe	
OW28s	4942888	500172	1.05	10.58	251.22	252.27	-	T/PVC Pipe	6.75
OW28d	4942888	500172	0.65	16.96	251.25	251.90	-	T/PVC Pipe	
OW29s	4942035	500592	1.10	9.10	249.03	250.13	-	T/PVC Pipe	11.59
OW29d	4942035	500592	1.12	20.75	249.07	250.19	-	T/PVC Pipe	
OW30s	4942380	500471	1.15	8.50	250.44	251.59	-	T/PVC Pipe	12.50
OW30d	4942380	500471	0.85	20.73	250.47	251.32	-	T/PVC Pipe	
OW31s	4942875	500104	0.63	8.40	249.79	250.42	-	T/PVC Pipe	12.63
OW31d	4942875	500104	1.10	21.50	249.79	250.89	-	T/PVC Pipe	
OW32s	4942916	500134	0.73	9.90	249.52	250.25	-	T/PVC Pipe	11.59
OW32d	4942916	500134	0.93	21.70	249.53	250.46	-	T/PVC Pipe	
OW33s	4943045	500068	0.65	8.55	248.65	249.30	-	T/PVC Pipe	8.84
OW33d	4943045	500068	0.80	17.55	248.66	249.46	-	T/PVC Pipe	
OW34	4942687	500390	0.85	18.35	248.95	249.80	-	T/PVC Pipe	-
OW35	4942688	500354	0.46	18.04	249.63	250.09	-	T/PVC Pipe	-
OW36	4942688	500324	1.15	18.05	250.05	251.20	-	T/PVC Pipe	-
OW37	4942902	500398	1.14	18.89	251.61	252.75	-	T/PVC Pipe	-
OW38	4942896	500302	1.08	18.47	249.15	250.23	-	T/PVC Pipe	-
OW39	4942349	500431	0.50	17.90	250.85	251.35	-	T/PVC Pipe	-
OW40	destroyed	destroyed	0.21	16.82	250.64	250.85	-	T/PVC Pipe	-
OW41s	4942657	500028	0.56	10.14	250.04	250.60	-	T/PVC Pipe	9.45
OW41d	4942657	500028	0.74	20.11	250.38	251.12	-	T/PVC Pipe	
OW42s	4942282	500143	0.21	10.53	249.56	249.76	-	T/PVC Pipe	9.01
OW42d	4942282	500143	0.47	19.58	249.34	249.81	-	T/PVC Pipe	
OW43s	4942125	500247	0.89	10.26	250.69	251.58	-	T/PVC Pipe	10.27
OW43d	4942125	500247	1.00	20.85	250.90	251.90	-	T/PVC Pipe	
OW44s	4941721	500381	1.20	10.20	248.10	249.30	-	T/PVC Pipe	10.75
OW44d	4941721	500381	1.33	20.87	247.89	249.22	-	T/PVC Pipe	
OW45	4941475	500328	1.10	9.66	246.51	247.61	-	T/PVC Pipe	-
OW46k	4941724	500082	1.18	7.20	247.50	248.68	-	T/PVC Pipe	-
OW46s	4941724	500082	1.14	9.91	247.54	248.68	-	T/PVC Pipe	10.42
OW46d	4941724	500082	1.30	20.54	247.58	248.88	-	T/PVC Pipe	
OW47s	4941620	499998	1.25	9.51	247.47	248.72	-	T/PVC Pipe	11.15
OW47d	4941620	499998	1.48	20.85	247.43	248.91	-	T/PVC Pipe	
OW48	4941481	499943	1.19	9.66	247.10	248.29	-	T/PVC Pipe	-
OW49	4943008	500452	1.28	20.26	252.10	253.38	-	T/PVC Pipe	-
OW50	4943089	500496	1.21	19.82	252.29	253.50	-	T/PVC Pipe	-
OW51	4943194	500504	0.80	20.67	251.00	251.80	-	T/PVC Pipe	-
OW52	4943251	500523	0.73	20.55	252.00	252.73	-	T/PVC Pipe	-
OW53	4942551	501021	1.07	18.46	250.24	251.31	-	T/PVC Pipe	-
MP54(in)	4942707	499549	1.27 *	2.13	239.53	240.80	-	T/PVC Pipe	-
MP54(out)	4942707	499549	1.27 *	2.13	239.53	240.80	-	T/PVC Pipe	-
MP55(in)	4942185	498593	1.02 *	2.13	239.53	240.55	-	T/PVC Pipe	-
MP55(out)	4942185	498593	1.02 *	2.13	239.53	240.55	-	T/PVC Pipe	-
MP56(in)	4942459	499297	1.3 *	1.80	239.52	240.82	-	T/PVC Pipe	-
MP56(out)	4942459	4992							

**Table C-2.1 : Monitoring Station Details**

Location	Northing	Easting	Stick-up (m)	Depth (mBGS)	Ground Elevation (mAMSL)	Reference Elevation (pipe-top) (mAMSL)	Revised Reference Elevation (pipe-top) (mAMSL)	Water Level Reference Point	Tip Separation (m)
OW58d	4942661	499512	1.00	15.19	239.78	240.78	-	T/PVC Pipe	9.12
OW59s	4942548	499401	0.89	6.07	239.79	240.68	-	T/PVC Pipe	6.01
OW59d	4942548	499401	0.78	12.19	240.01	240.79	-	T/PVC Pipe	
OW60s	4942416	499264	0.78	6.40	239.99	240.77	-	T/PVC Pipe	7.22
OW60d	4942416	499264	0.77	13.41	239.79	240.56	-	T/PVC Pipe	
OW62k	4942027	499951	0.79	6.10	245.59	246.38	-	T/PVC Pipe	4.82
OW62s	4942027	499951	0.40	10.80	245.47	245.87	-	T/PVC Pipe	6.84
OW62d	4942027	499951	0.50	17.50	245.33	245.83	-	T/PVC Pipe	
OW63s	499951	4942272	1.33	11.23	246.18	248.09	-	T/PVC Pipe	8.23
OW63d	499951	4942272	1.31	19.46	246.19	247.52	-	T/PVC Pipe	
OW64s	499832	4942258	0.98	14.00	248.95	250.03	-	T/PVC Pipe	3.20
OW64d	499832	4942258	1.20	17.20	248.95	250.19	-	T/PVC Pipe	
OW65s	500064	4942424	1.73	11.43	249.00	250.73	-	T/PVC Pipe	9.57
OW65d	500064	4942424	1.42	21.00	249.00	250.42	-	T/PVC Pipe	
OW71k	4941845	499757	0.70	7.20	245.26	245.96	-	T/PVC Pipe	3.17
OW71s	4941845	499757	0.78	10.36	245.25	246.02	-	T/PVC Pipe	7.64
OW71d	4941845	499757	0.85	17.98	245.23	246.08	-	T/PVC Pipe	
OW72s	4941907	500164	1.15	9.10	249.12	250.27	-	T/PVC Pipe	-
TP16	4942350	499256	1.10	1.75	240.75	241.85	-	T/ABS Pipe	-
TP17	4942399	499265	1.21	1.83	240.43	241.64	-	T/ABS Pipe	-
TP18	4942561	499515	1.24	5.20	243.32	244.56	-	T/ABS Pipe	-
TP19	4942570	499463	1.20	1.31	240.08	241.28	-	T/ABS Pipe	-
SG1 (plate)	4943465	500217	-	-	-	242.69	-	B/Plate	-
SG1 (pvc)	4943465	500217	1.21	1.21	-	-	-	T/PVC	-
Ritchie	Discontinued	Discontinued	-	-	-	-	-	T/breeth tube	-
Cramp	4941974	500710	-	23.00	250.57	251.46	-	T/case	-
S.Ruthven	4941936	501100	-	19.00	255.00	255.00	-	T/floor	-
Sutherland	-	-	-	-	251.00	-	-	T/case	-
Jenks	-	-	-	-	255.00	-	-	T/case	-
Thompson	-	-	-	-	255.00	-	-	T/case	-
Porter	-	-	-	-	253.00	-	-	T/case	-
S8	4942621	499475	-	1.69	240.74	240.74	-	-	-
S13	4941746	499749	-	1.39	243.53	243.53	-	-	-

**Notes:**
<sup>1</sup> Stick up changed on 8-Jul-09 (1.13 m was added)

\* denotes that the stick-up was measured above the wetland bed

mbgs = metres below ground surface

mBTOC = metres below top of case

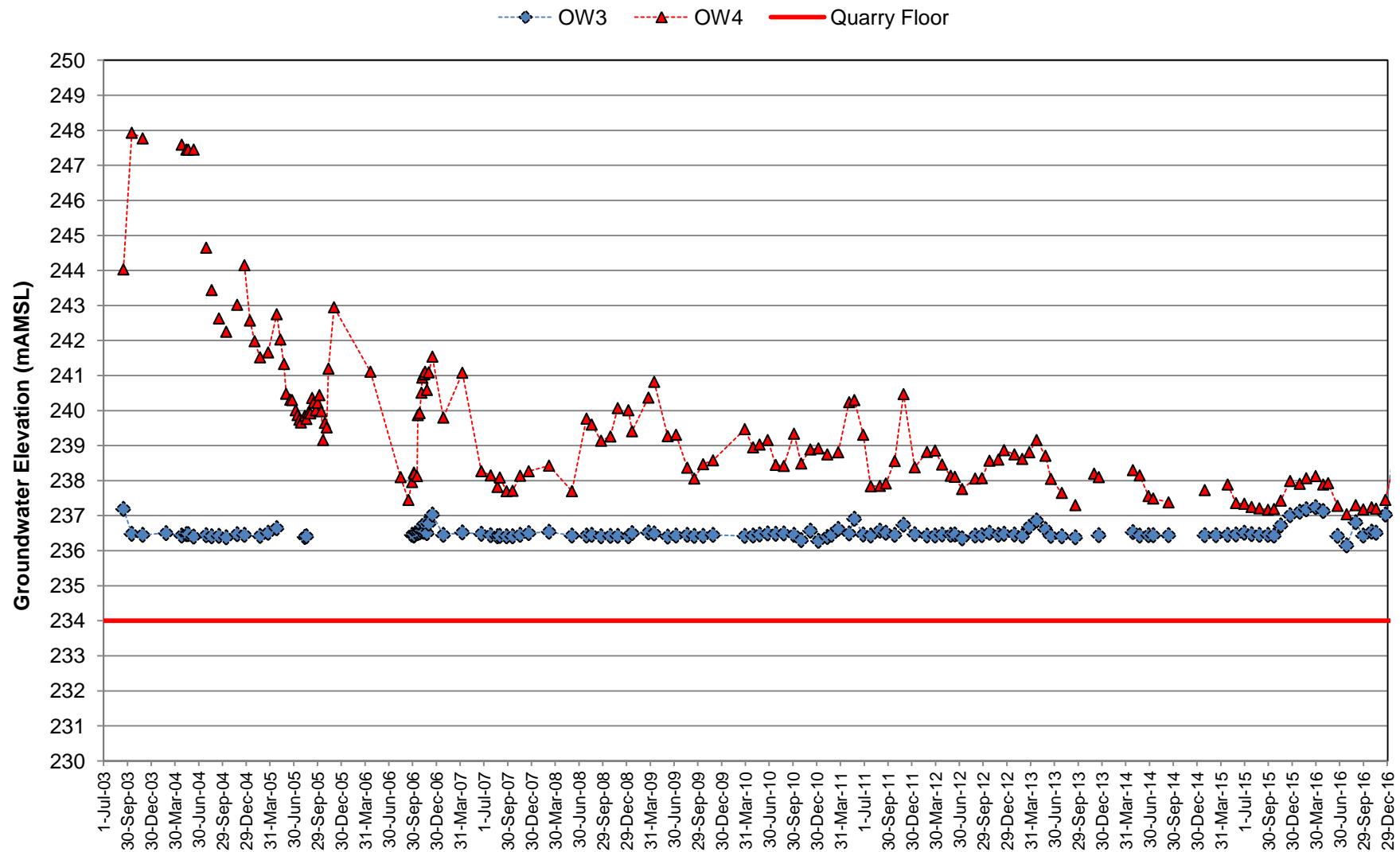
"- denotes no data available



## APPENDIX C3

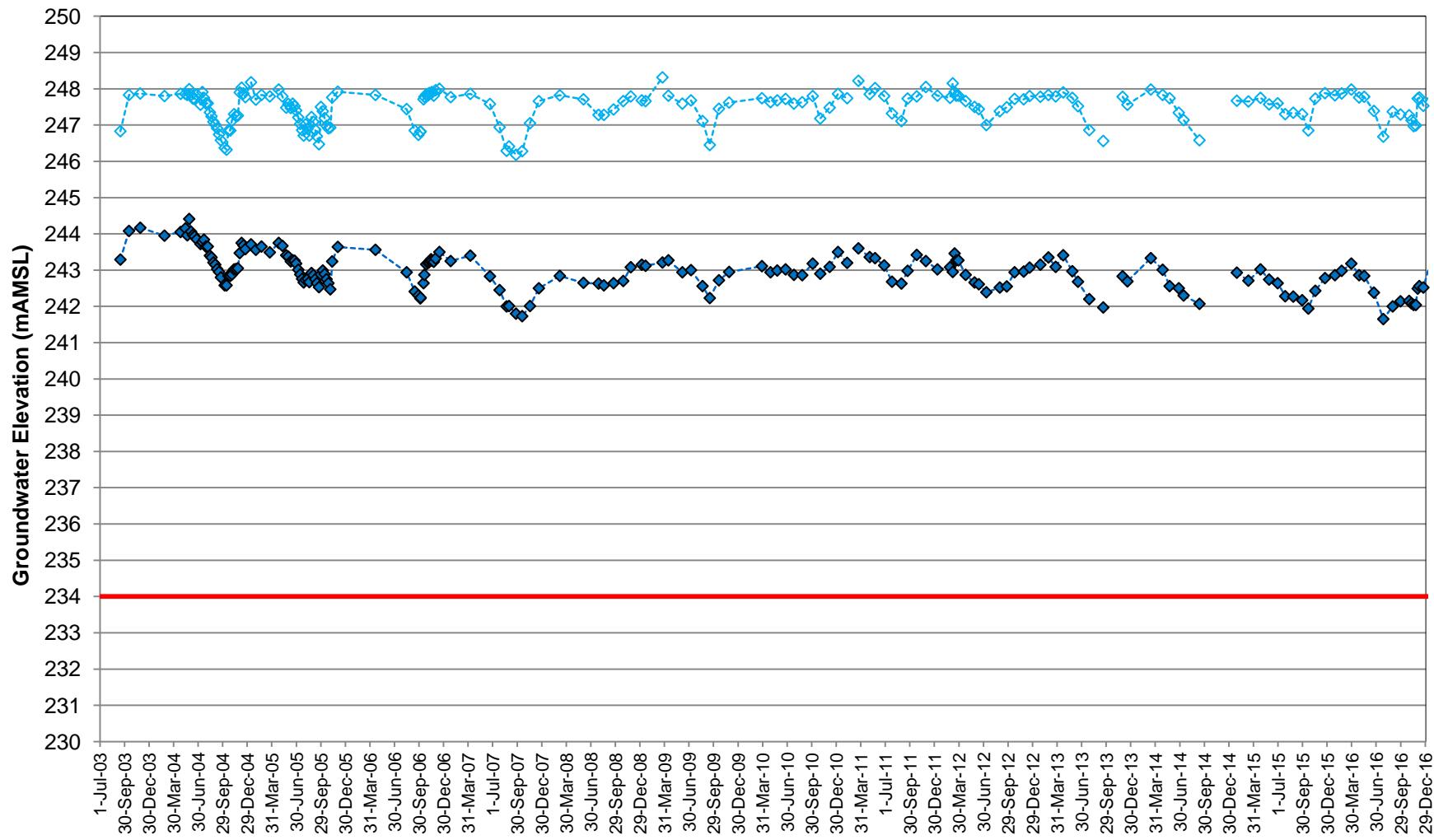
### **GROUNDWATER LEVELS AND ELEVATIONS AND HYDROGRAPHS**

### Hydrograph C-3.1: Groundwater Elevations - OW3 & OW4

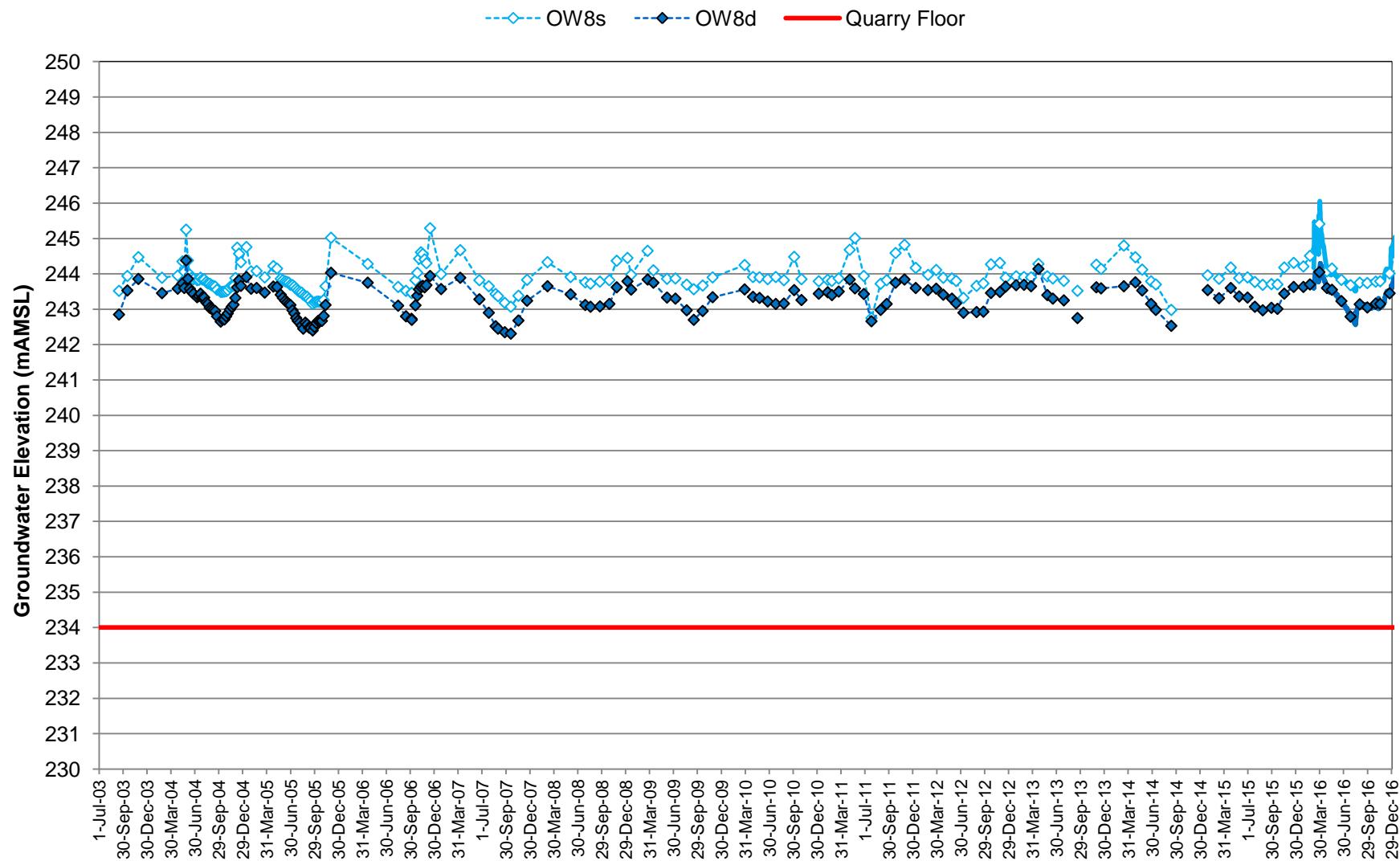


### Hydrograph C-3.2: Groundwater Elevations - OW7

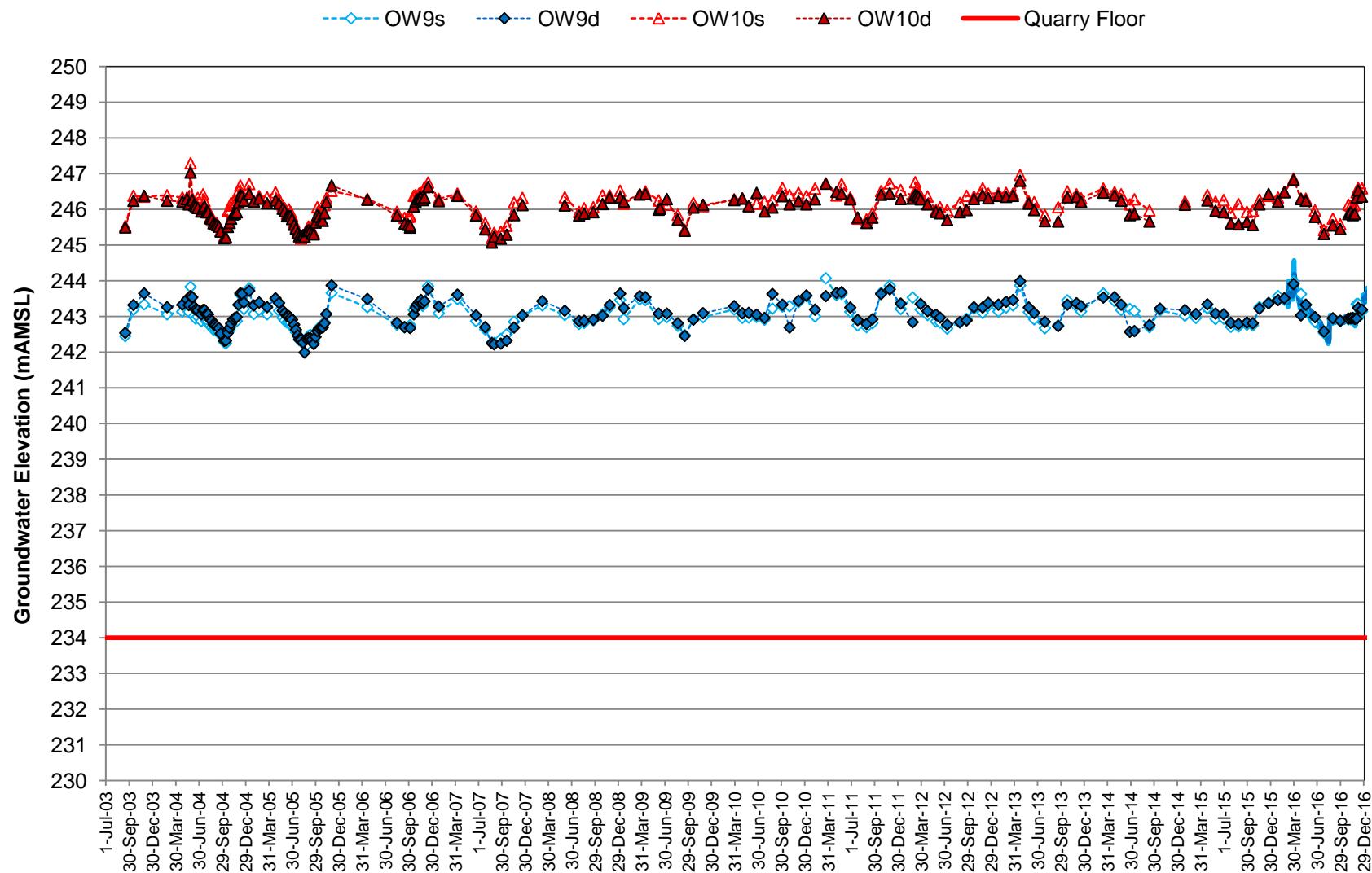
--- OW7s - - OW7d — Quarry Floor



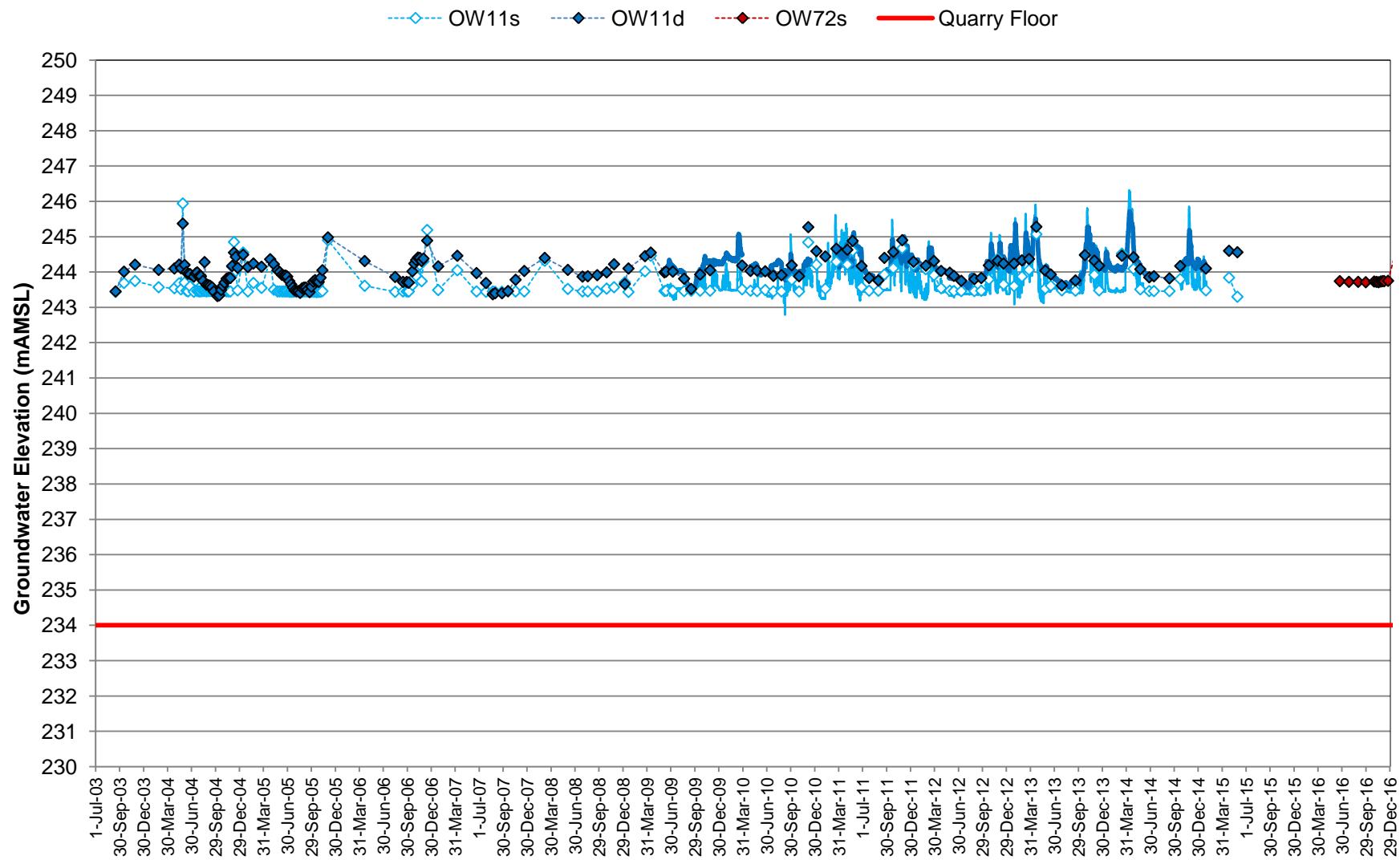
### Hydrograph C-3.3: Groundwater Elevations - OW8



### Hydrograph C-3.4: Groundwater Elevations - OW9 & OW10

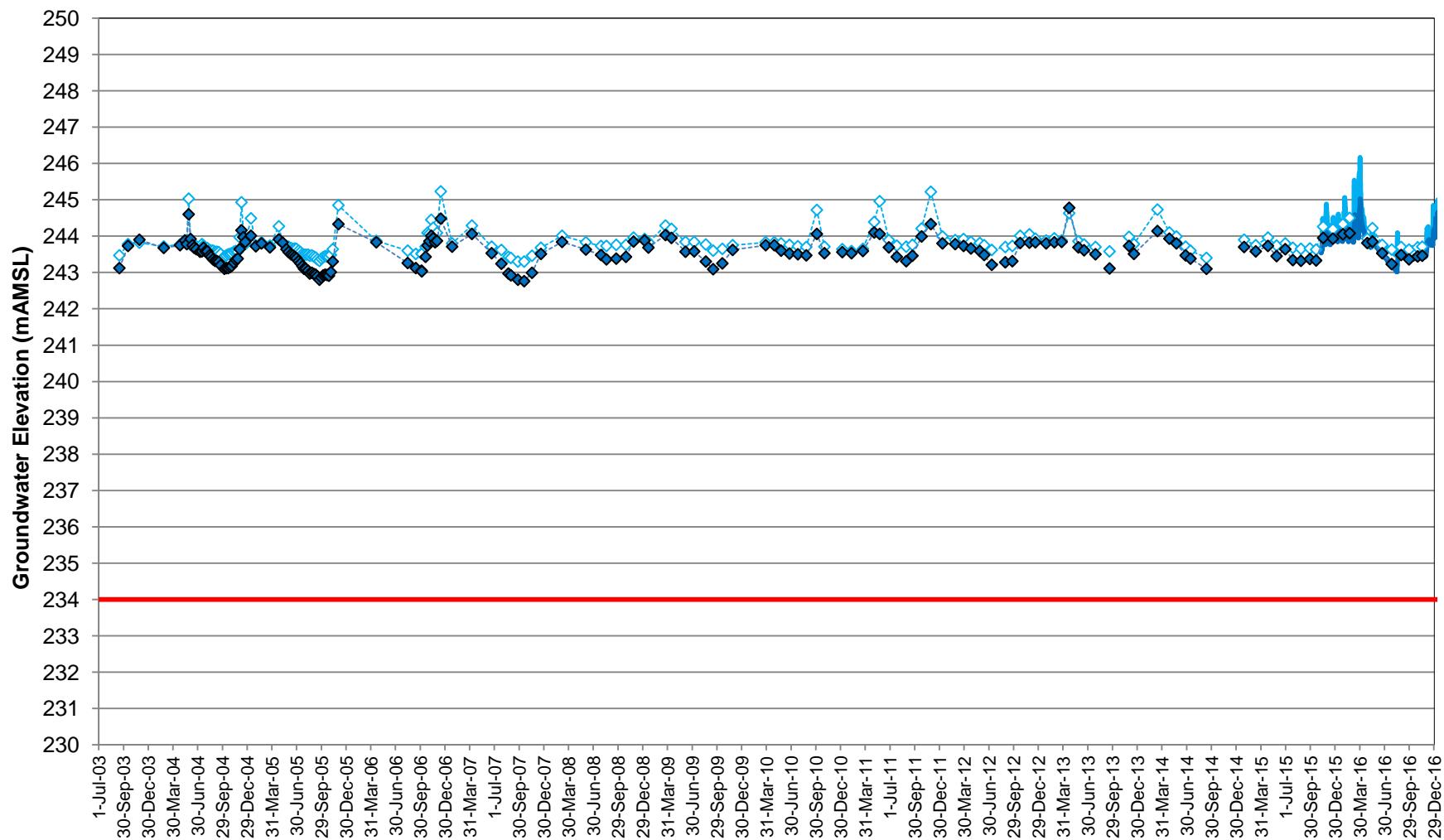


### Hydrograph C-3.5: Groundwater Elevations - OW11 and OW72s

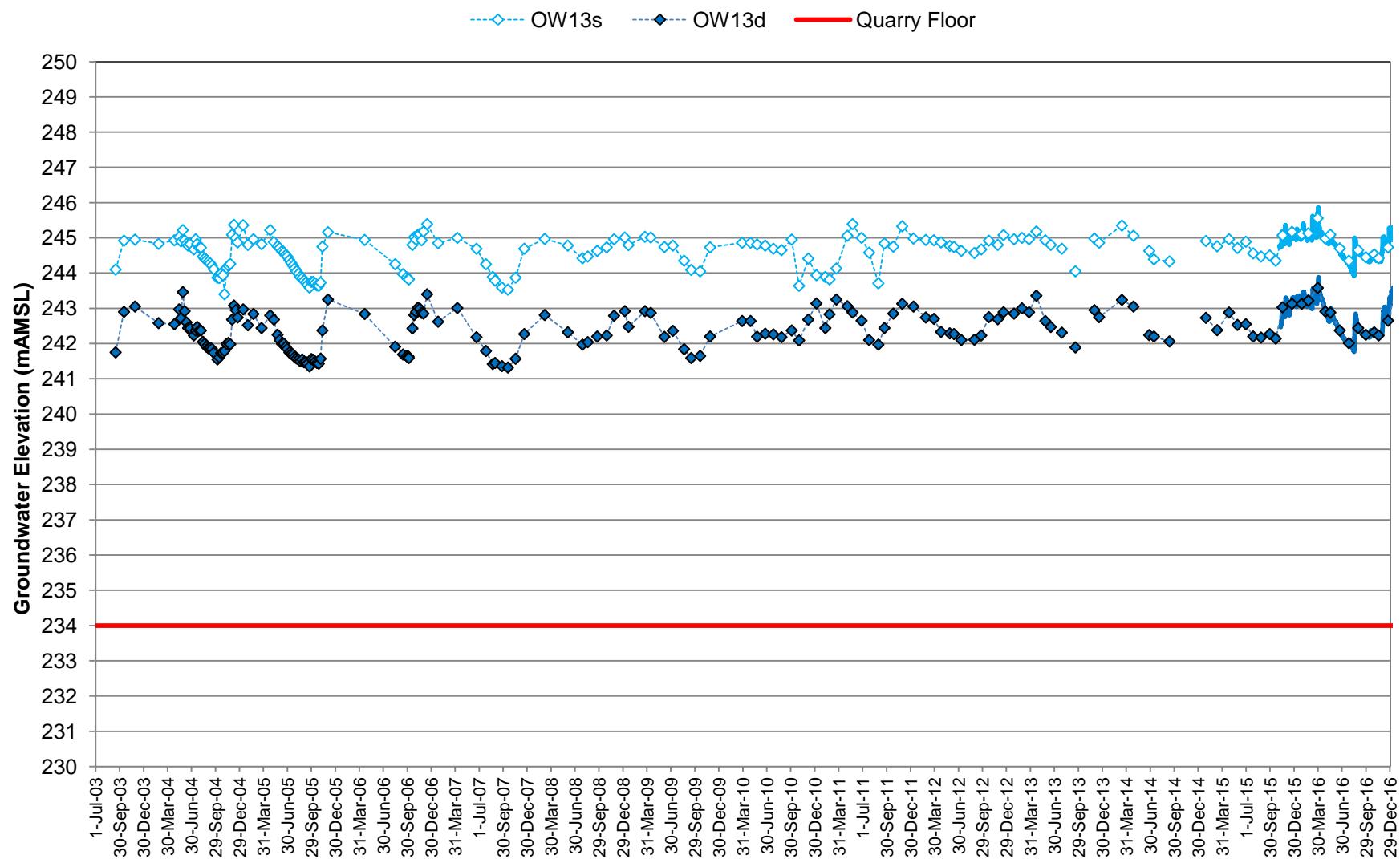


### Hydrograph C-3.6: Groundwater Elevations - OW12

--- OW12s    --- OW12d    — Quarry Floor

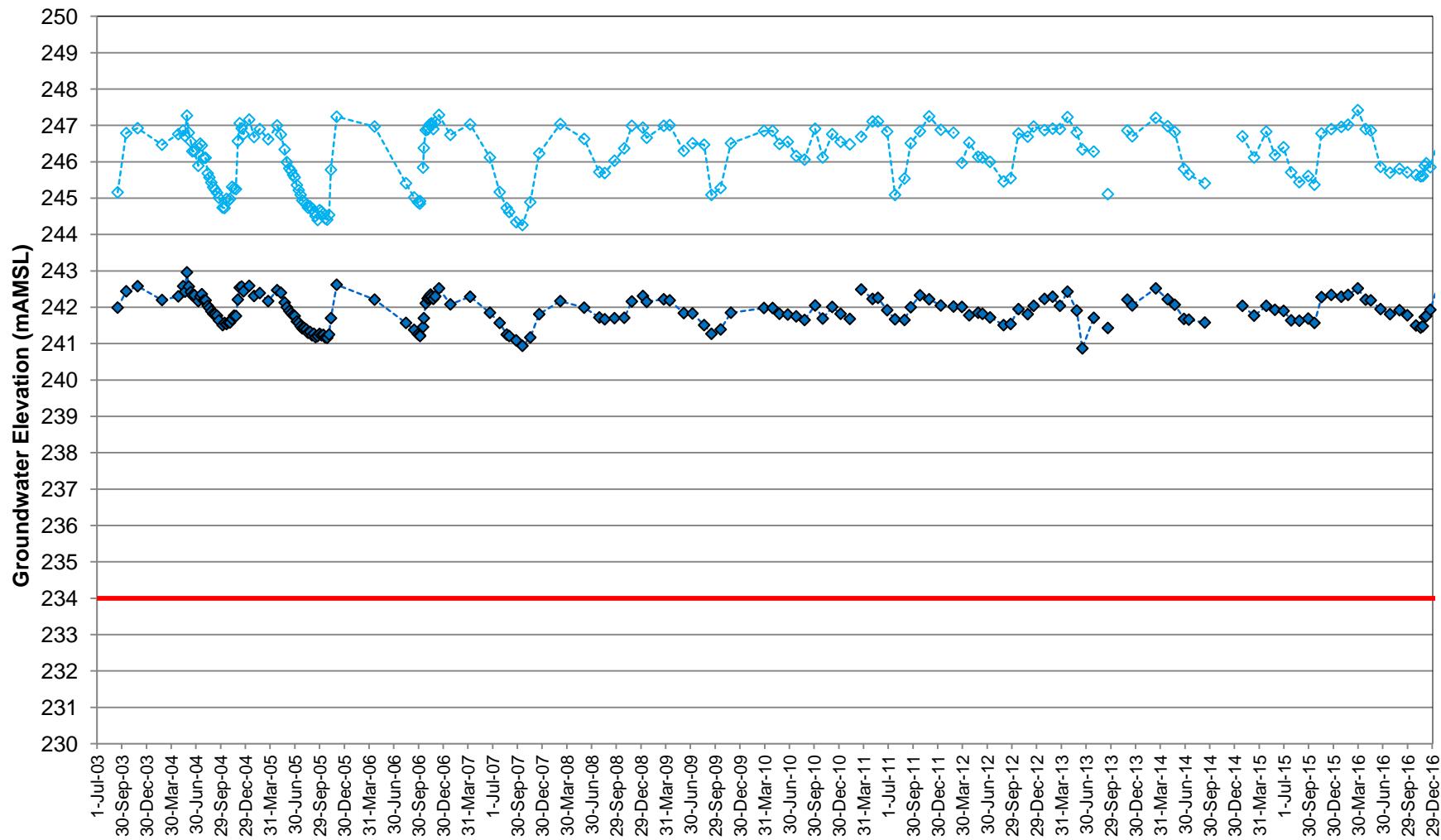


### Hydrograph C-3.7: Groundwater Elevations - OW13



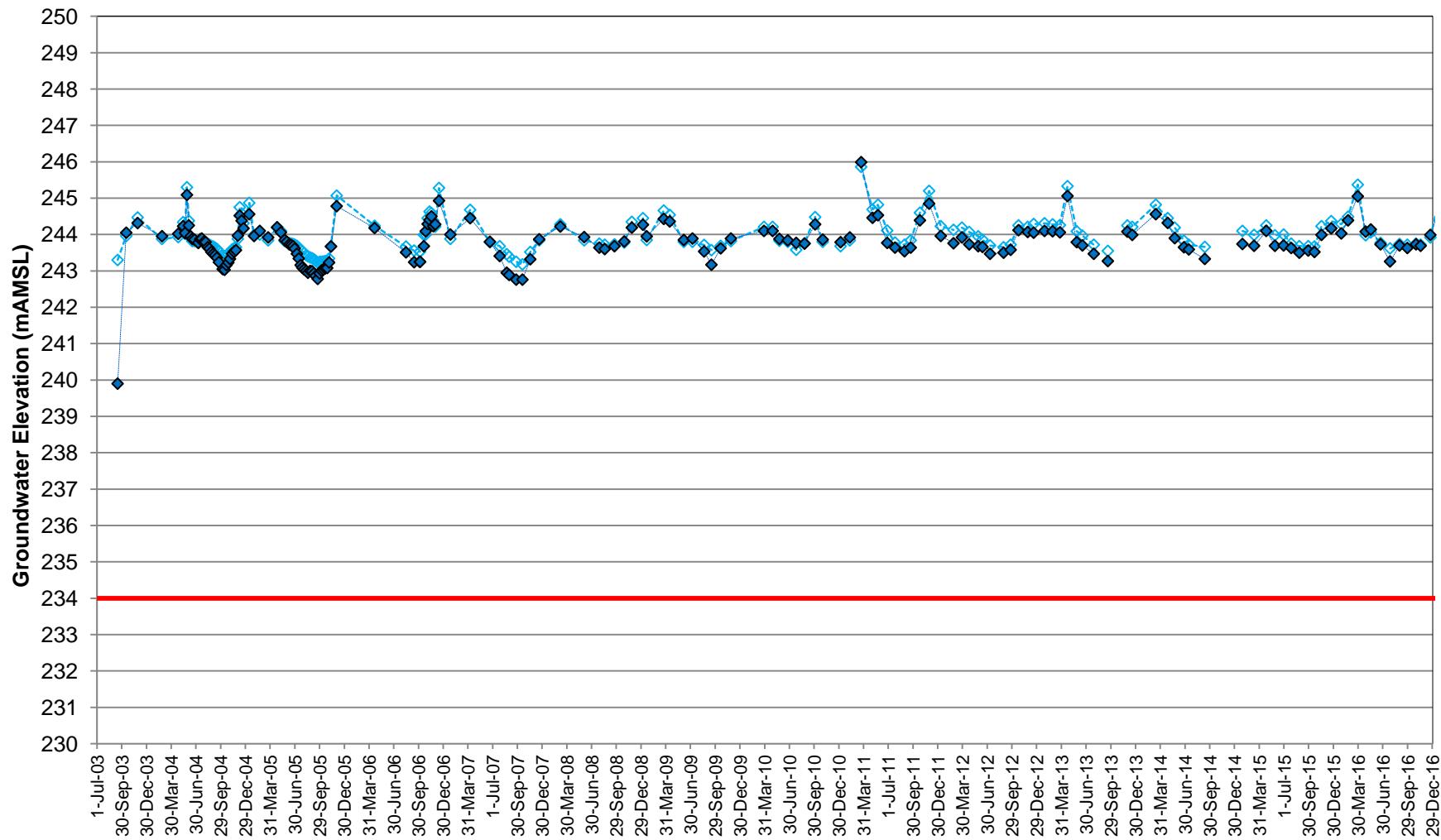
### Hydrograph C-3.8: Groundwater Elevations - OW14

--- OW14s - - OW14d — Quarry Floor



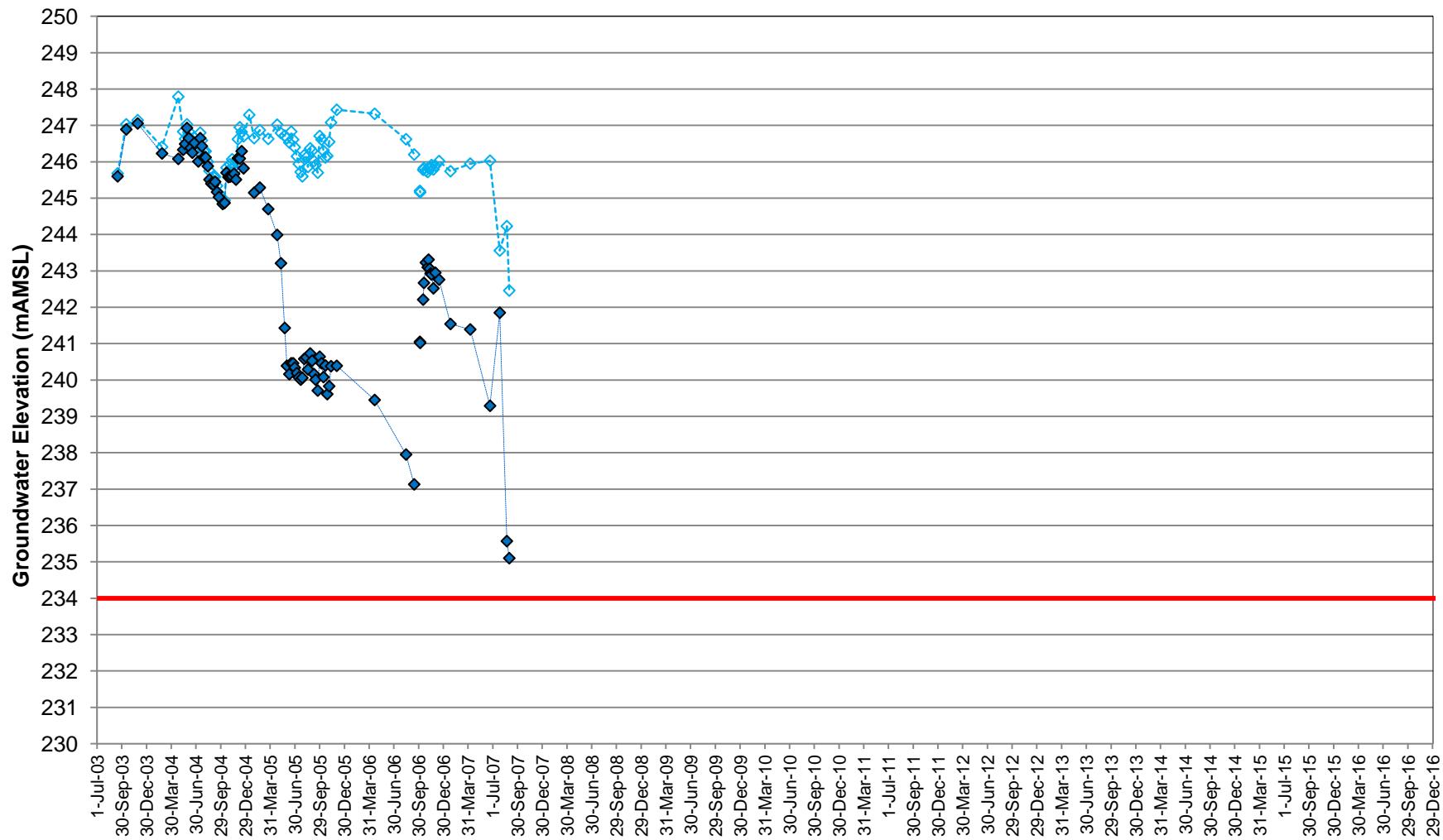
### Hydrograph C-3.9: Groundwater Elevations - OW15

--- OW15s    - OW15d    — Quarry Floor

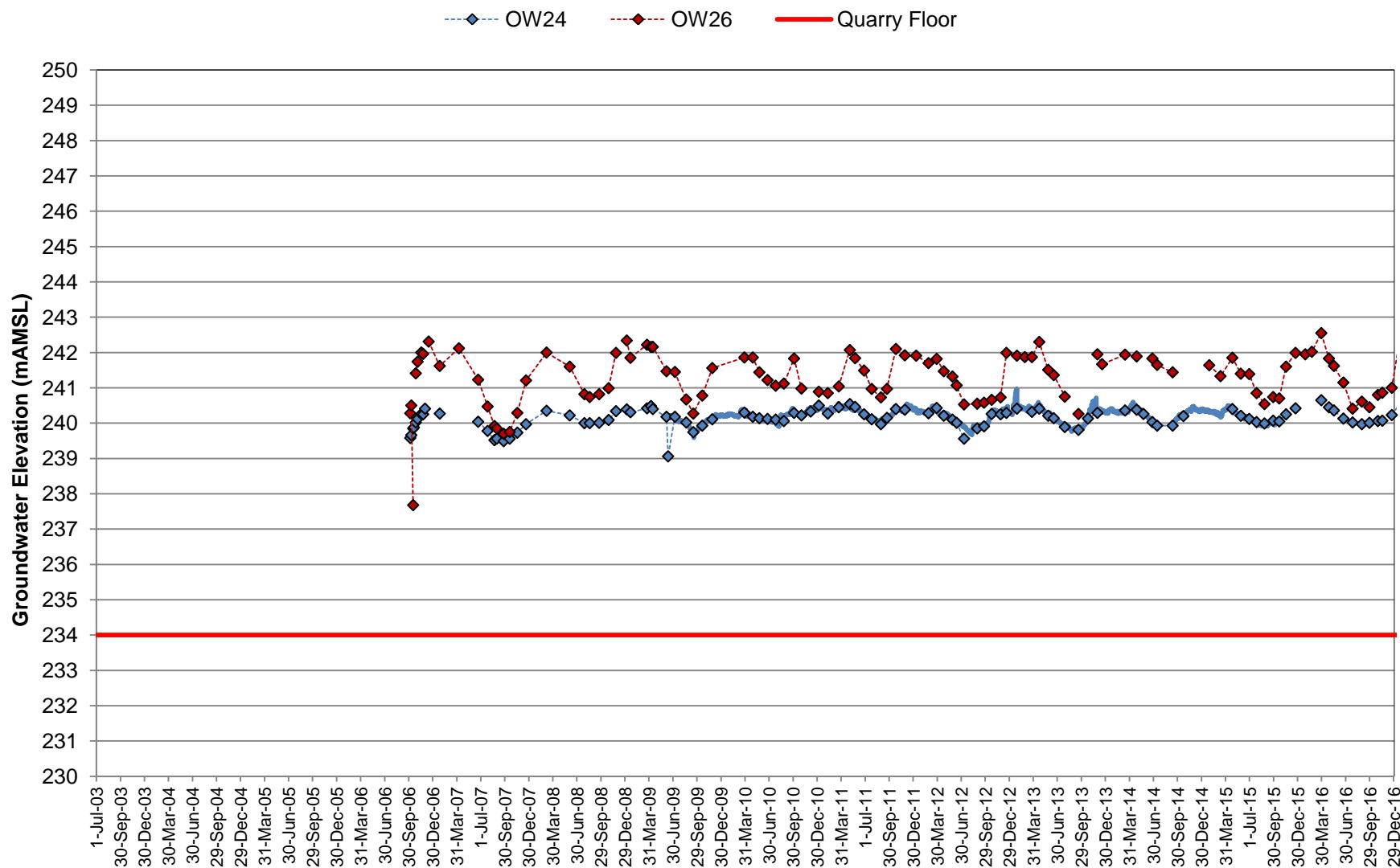


### Hydrograph C-3.10: Groundwater Elevations - OW16

--- OW16s    ◆ OW16d    — Quarry Floor

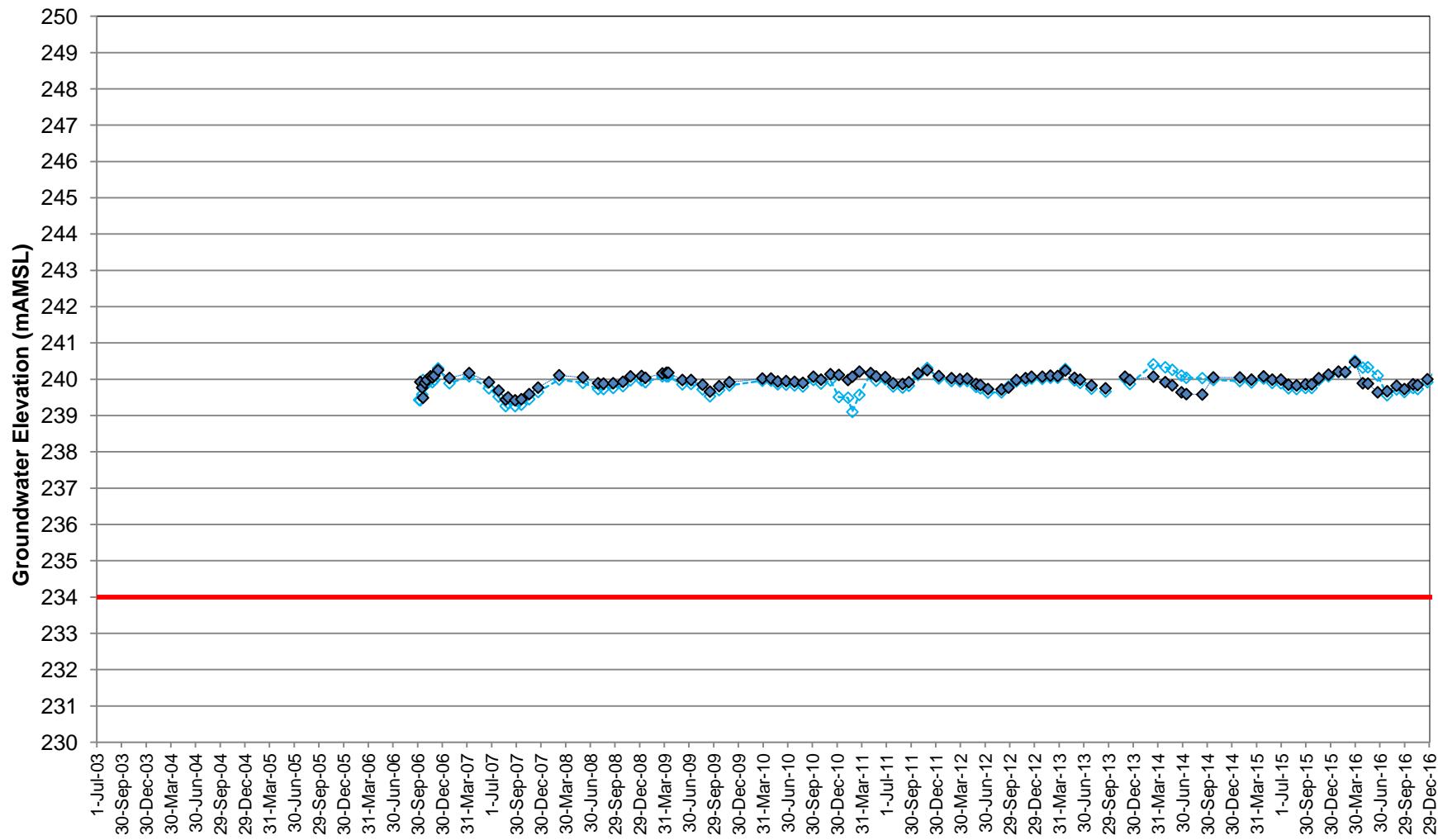


### Hydrograph C-3.11: Groundwater Elevations - OW24 & OW26



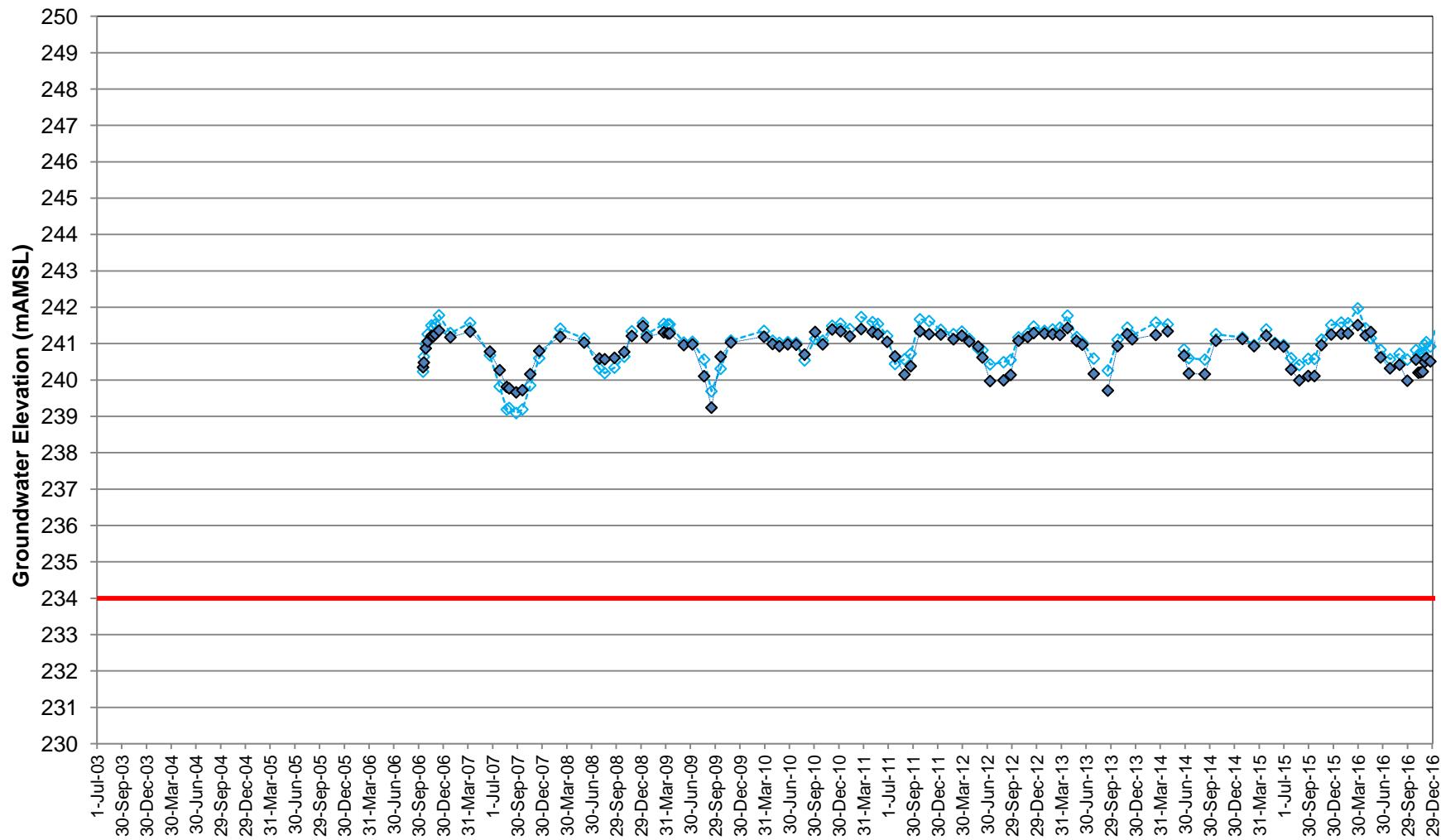
### Hydrograph C-3.12: Groundwater Elevations - OW25

--- OW25s    --- OW25d    — Quarry Floor



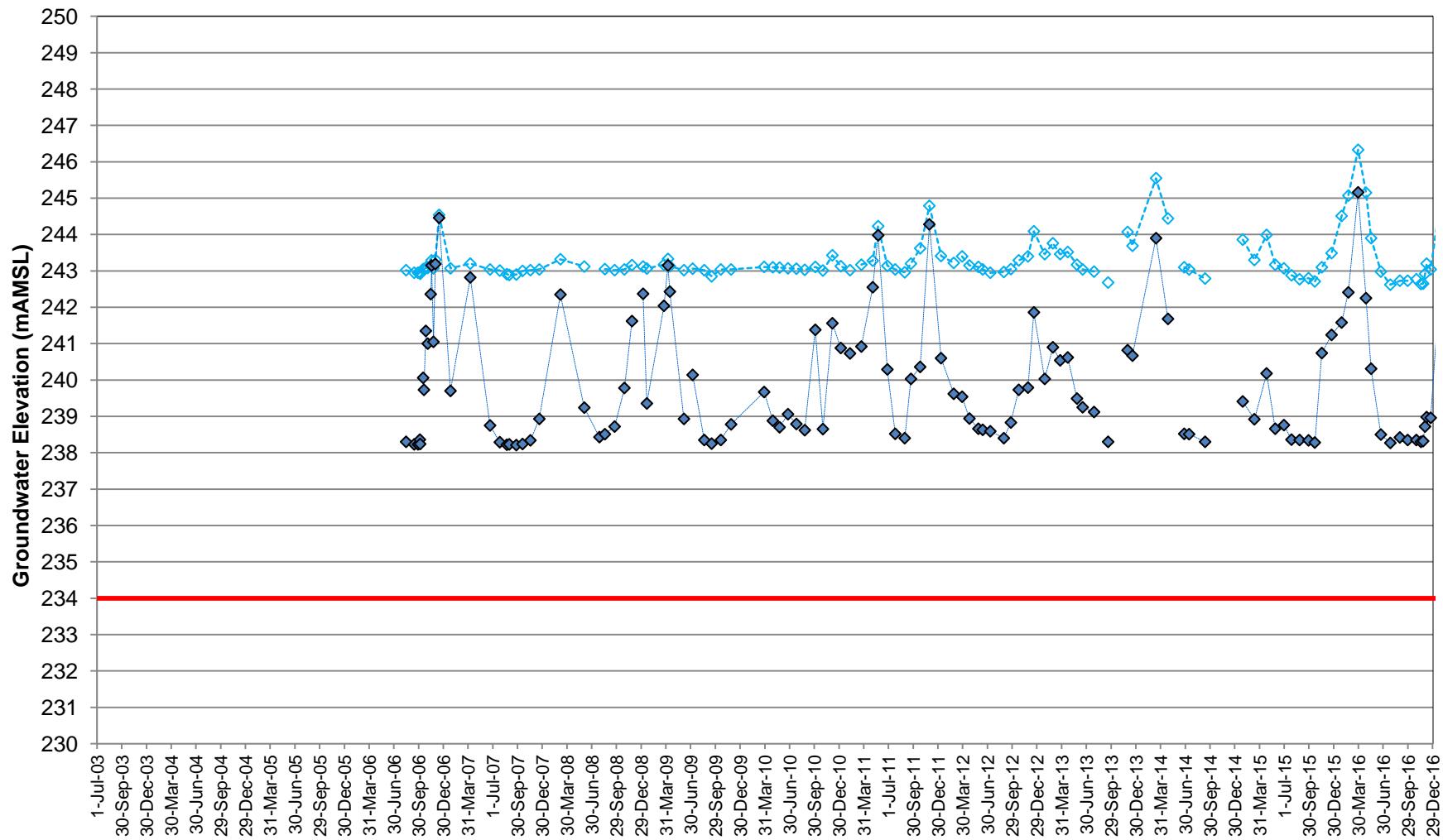
### Hydrograph C-3.13: Groundwater Elevations - OW27

--- OW27s    ◆ OW27d    — Quarry Floor



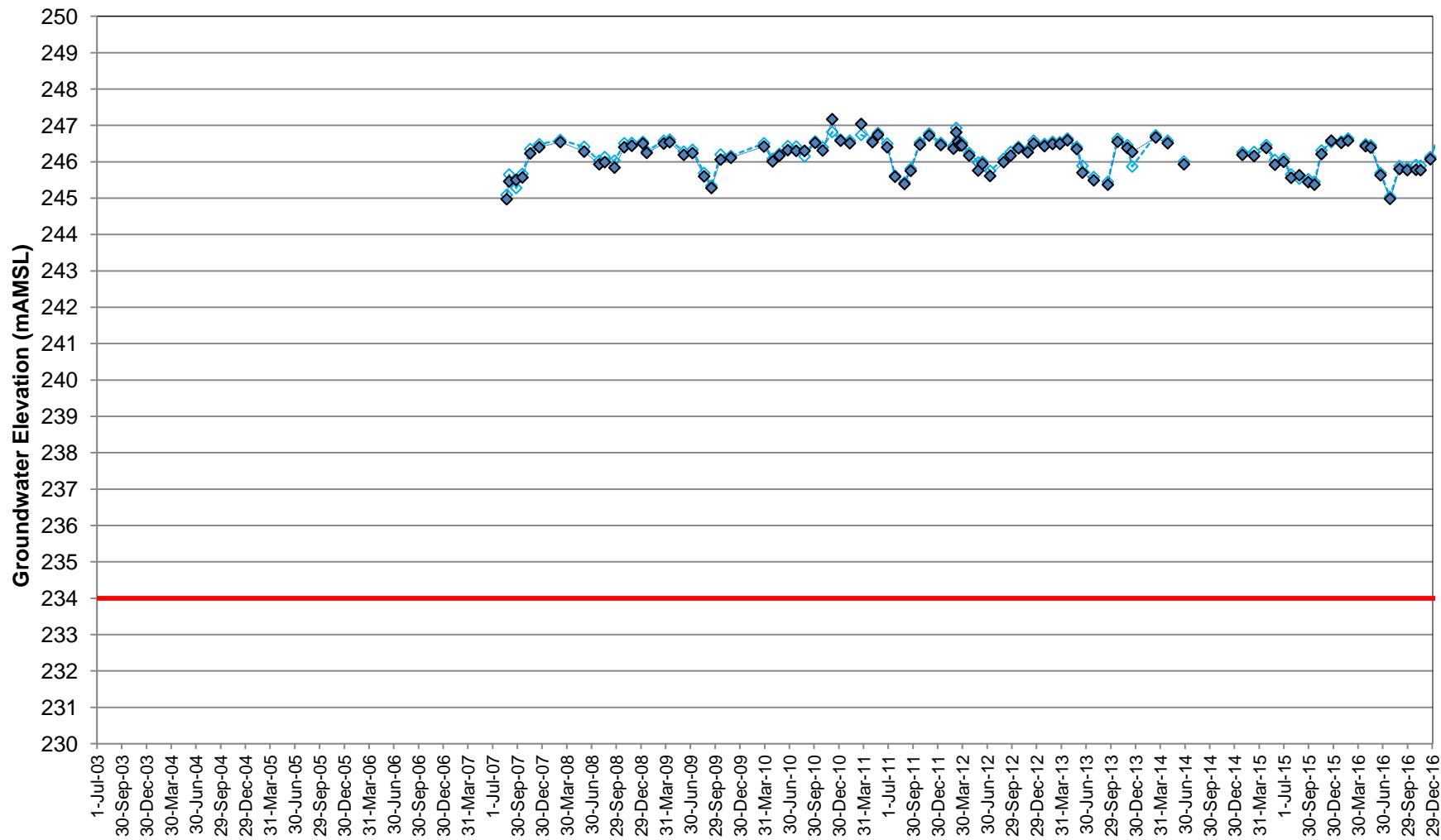
### Hydrograph C-3.14: Groundwater Elevations - OW28

--- OW28s    ● OW28d    — Quarry Floor



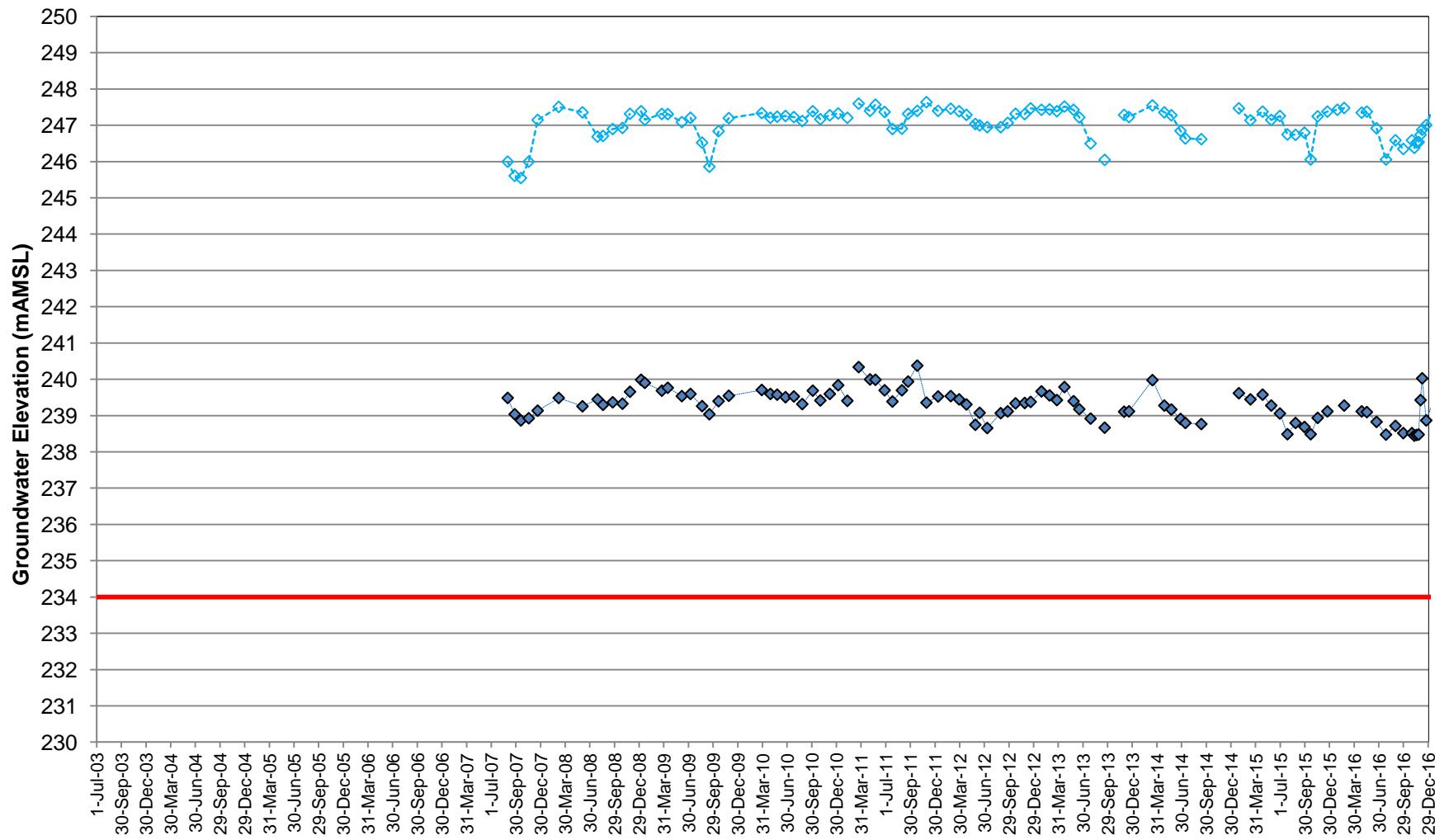
### Hydrograph C-3.15: Groundwater Elevations - OW29

--- OW29s    ● OW29d    — Quarry Floor



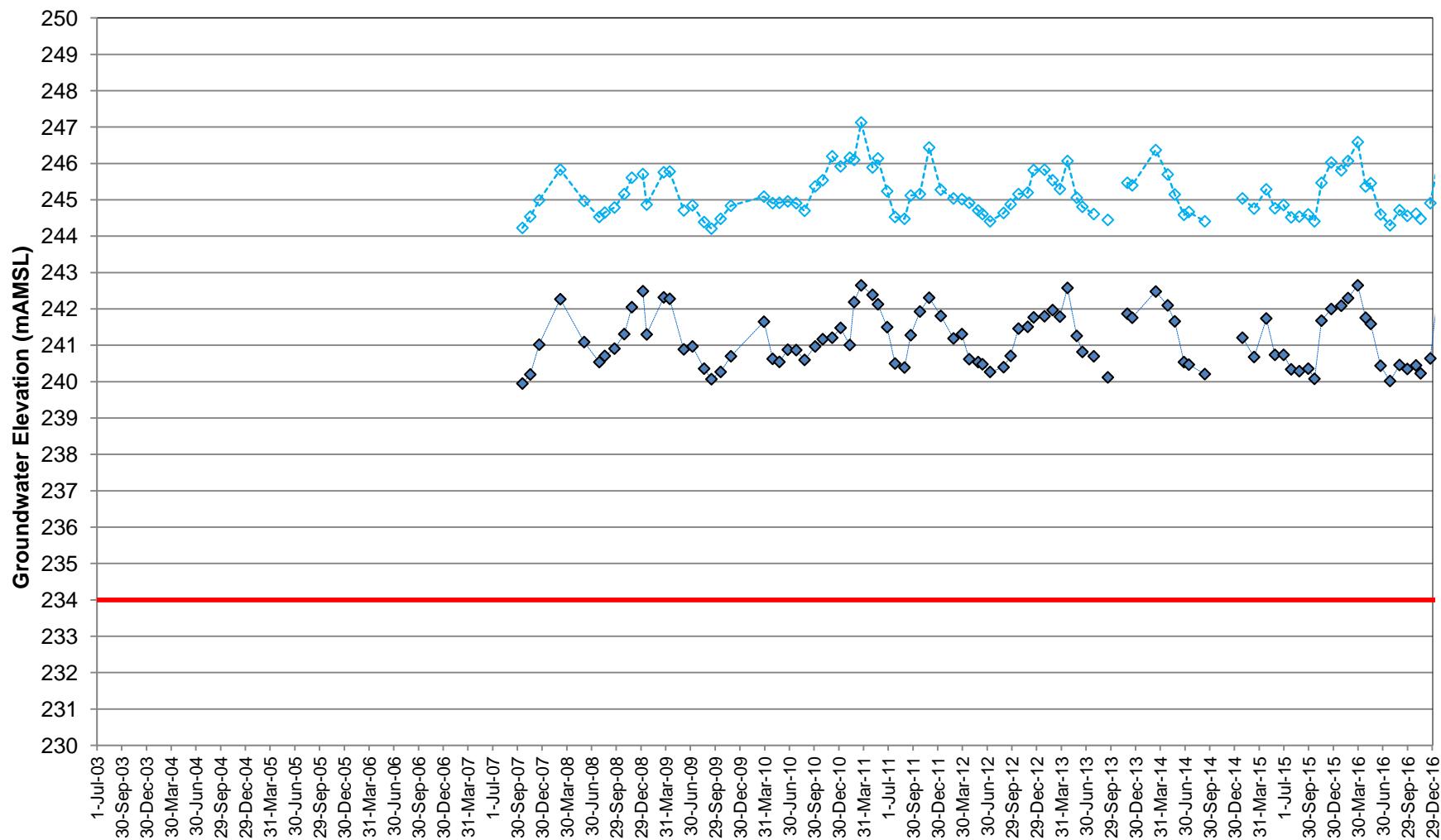
### Hydrograph C-3.16: Groundwater Elevations - OW30

--- OW30s    --- OW30d    — Quarry Floor



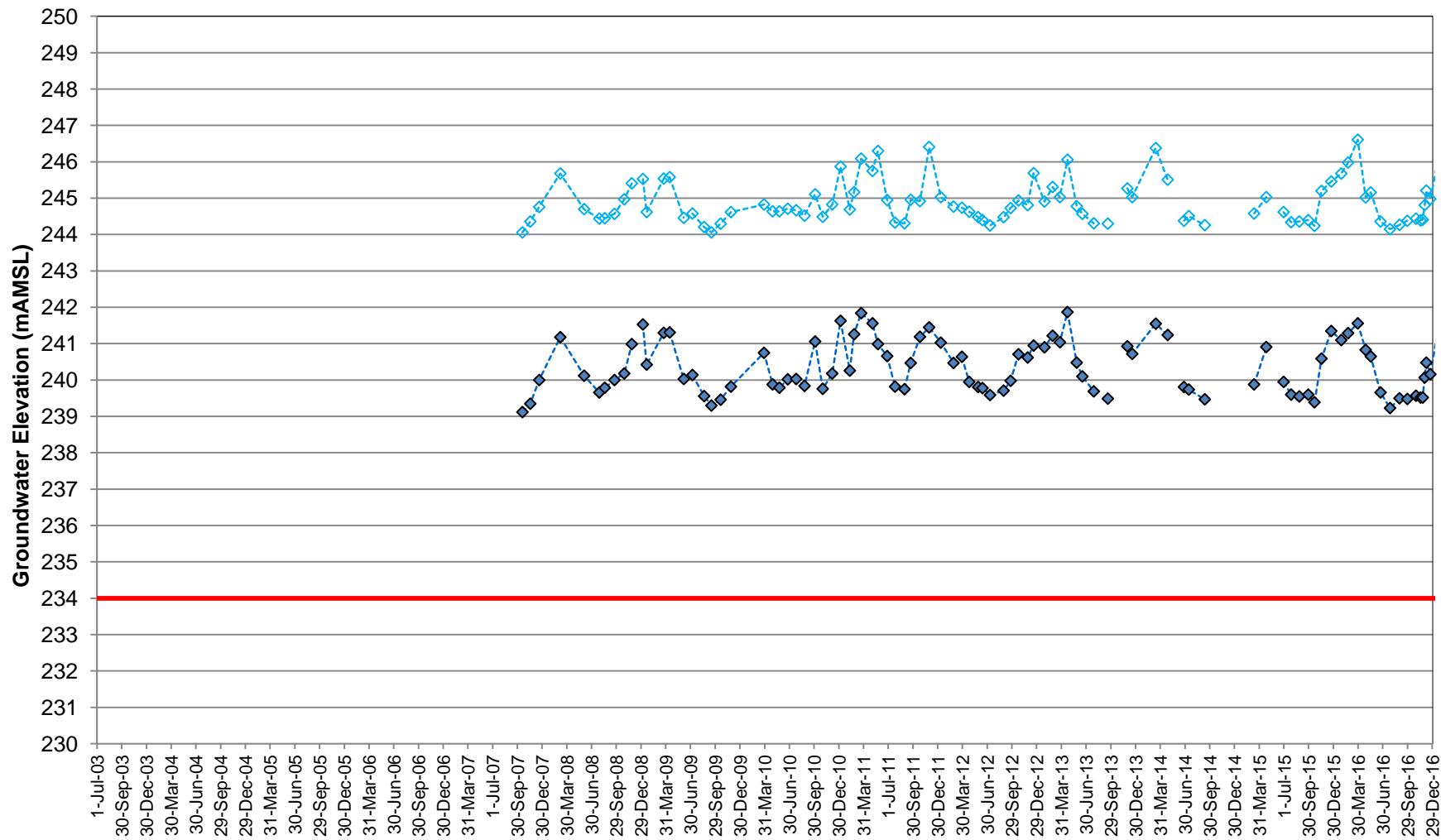
### Hydrograph C-3.17: Groundwater Elevations - OW31

--- OW31s    - OW31d    — Quarry Floor



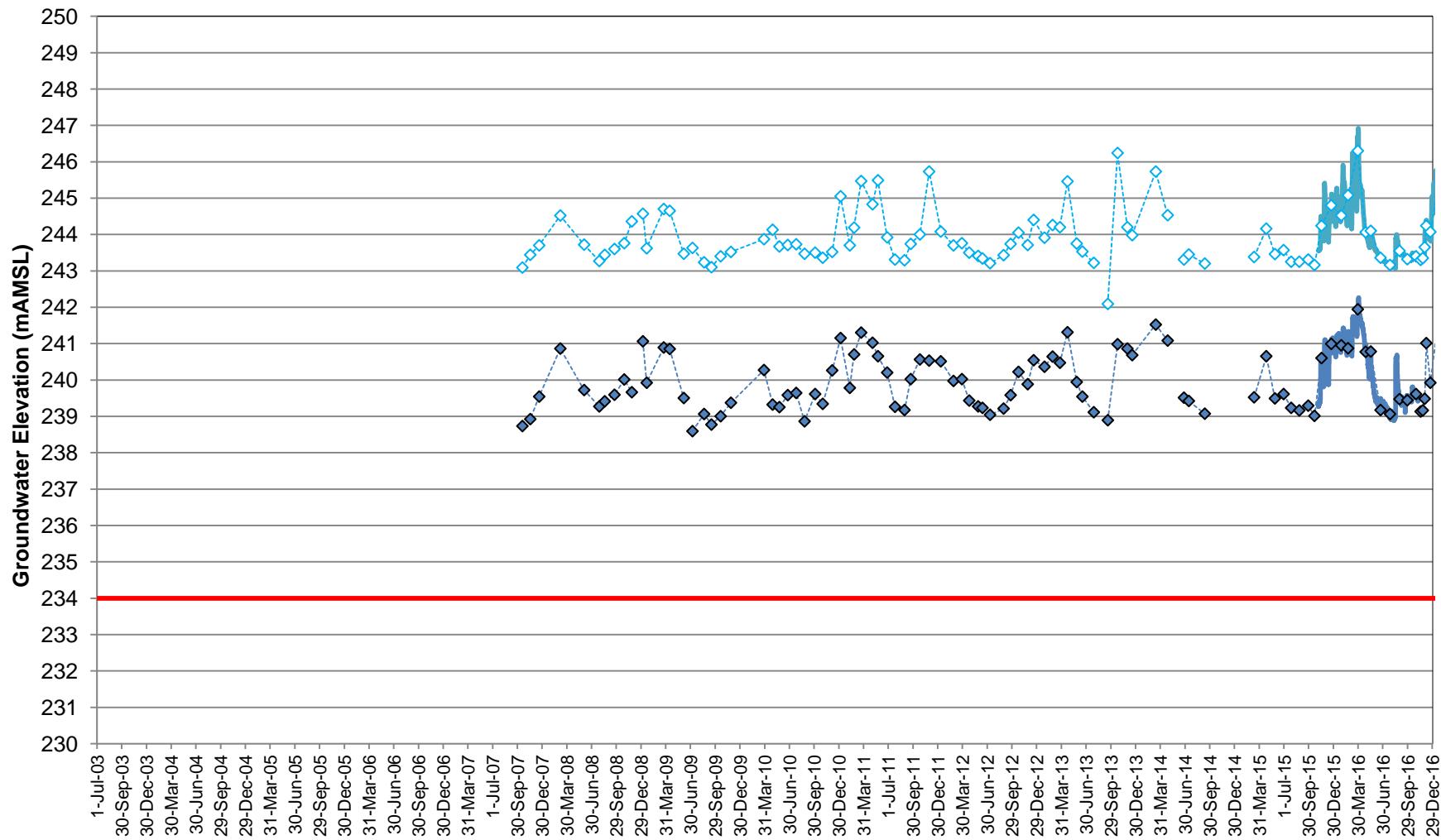
### Hydrograph C-3.18: Groundwater Elevations - OW32

--- OW32s - OW32d — Quarry Floor

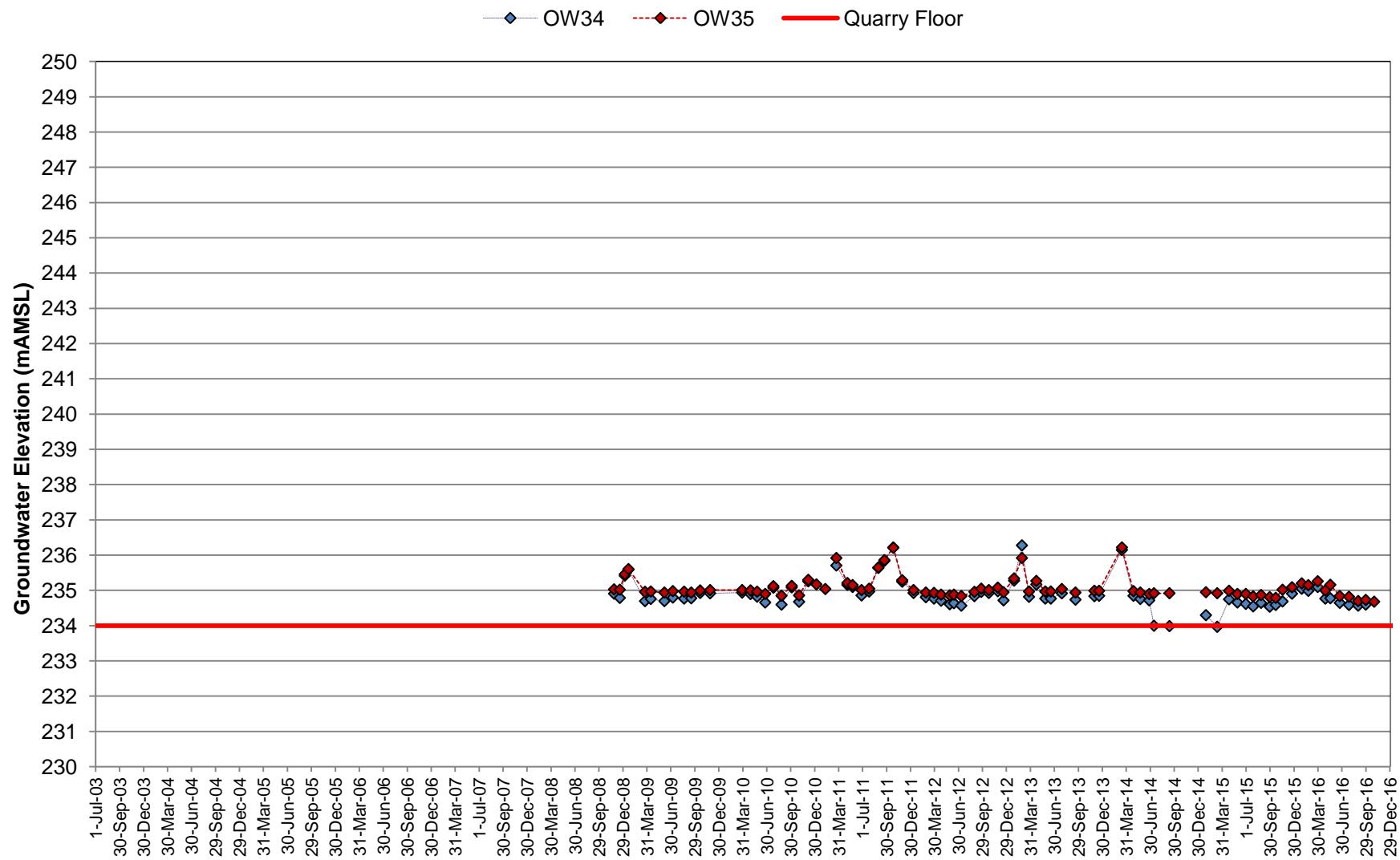


### Hydrograph C-3.19: Groundwater Elevations - OW33

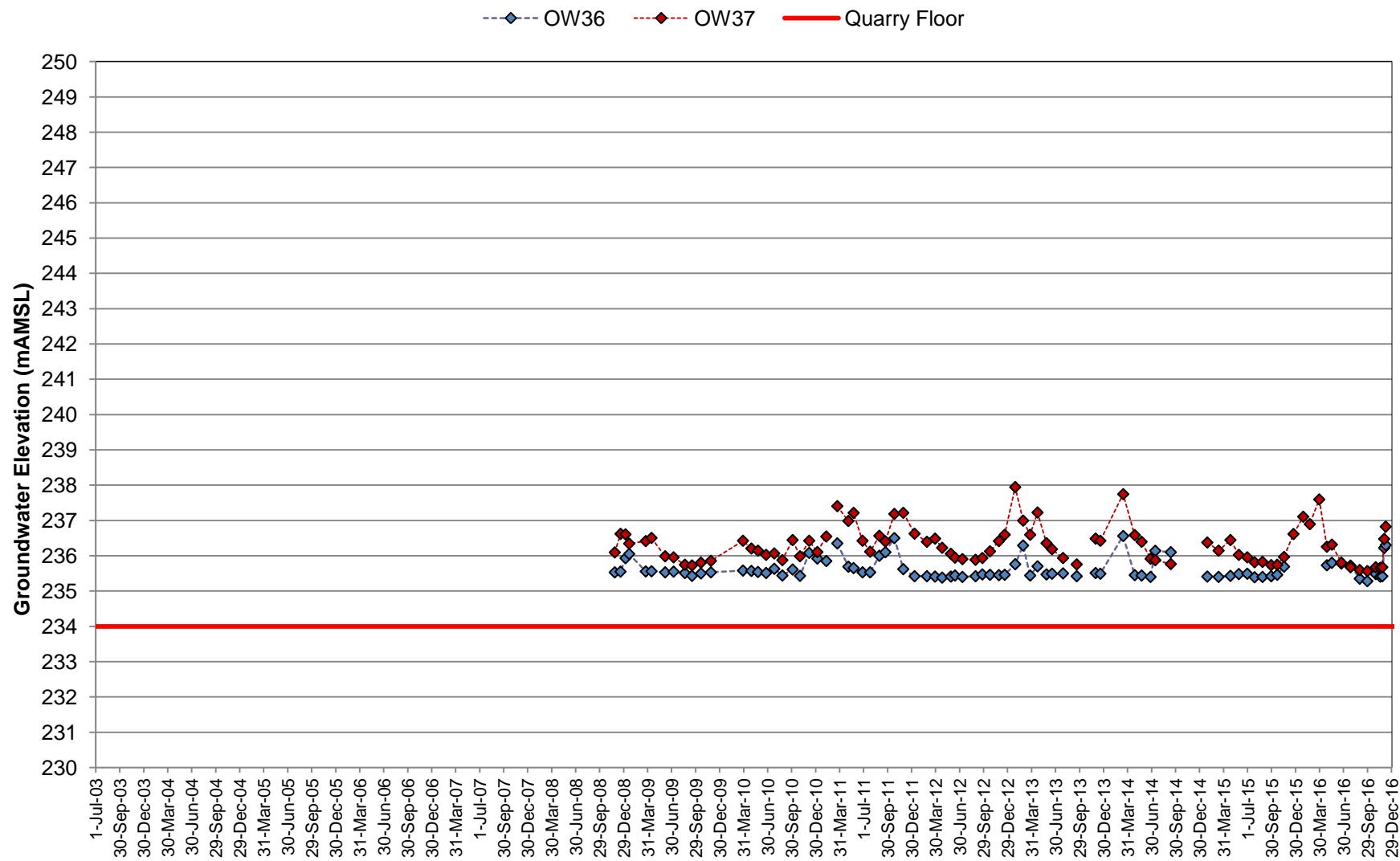
--- OW33s    --- OW33d    — Quarry Floor



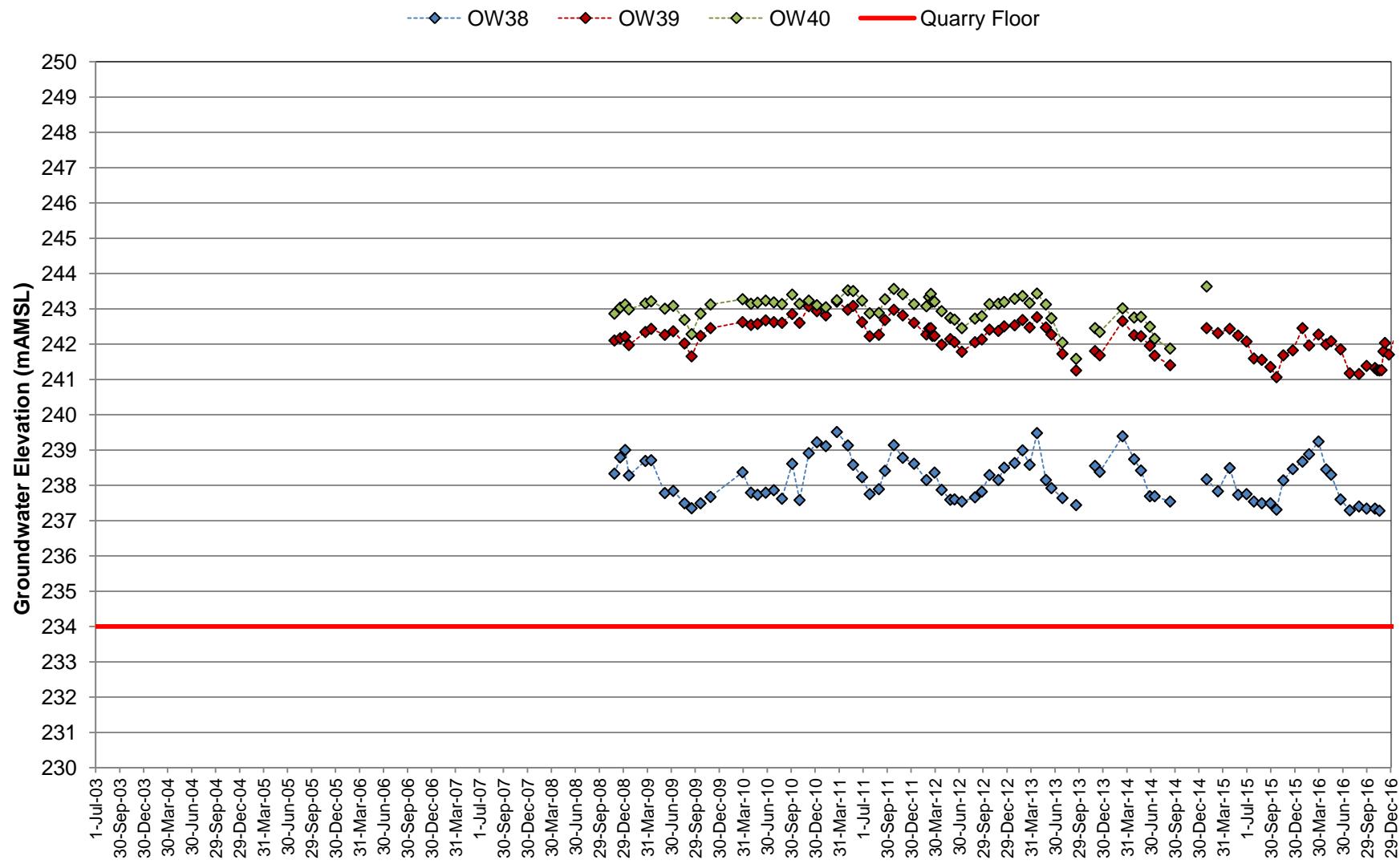
### Hydrograph C-3.20: Groundwater Elevations - OW34 & OW35



### Hydrograph C-3.21: Groundwater Elevations - OW36 & OW37

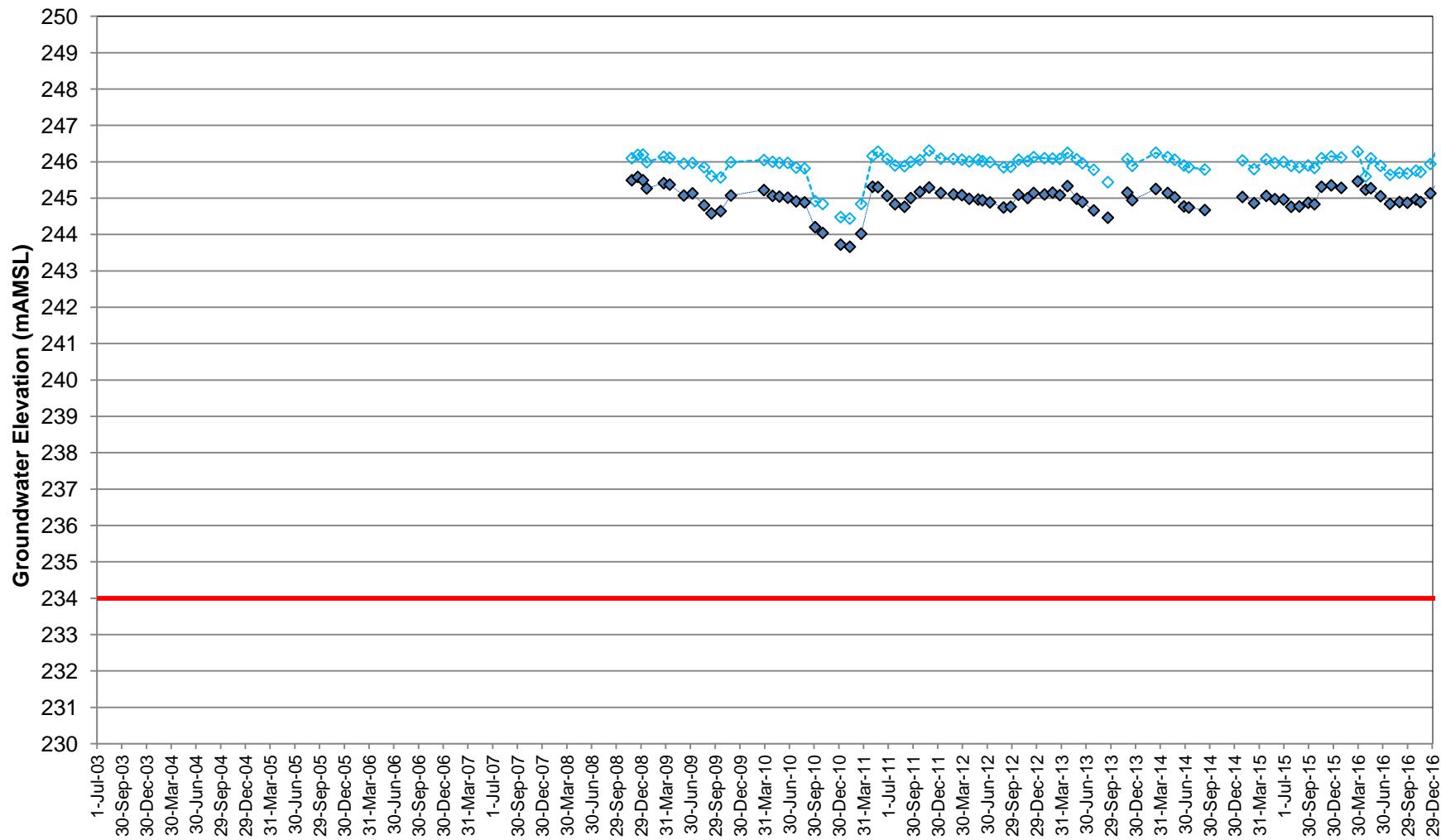


### Hydrograph C-3.22: Groundwater Elevations - OW38, OW39 & OW40



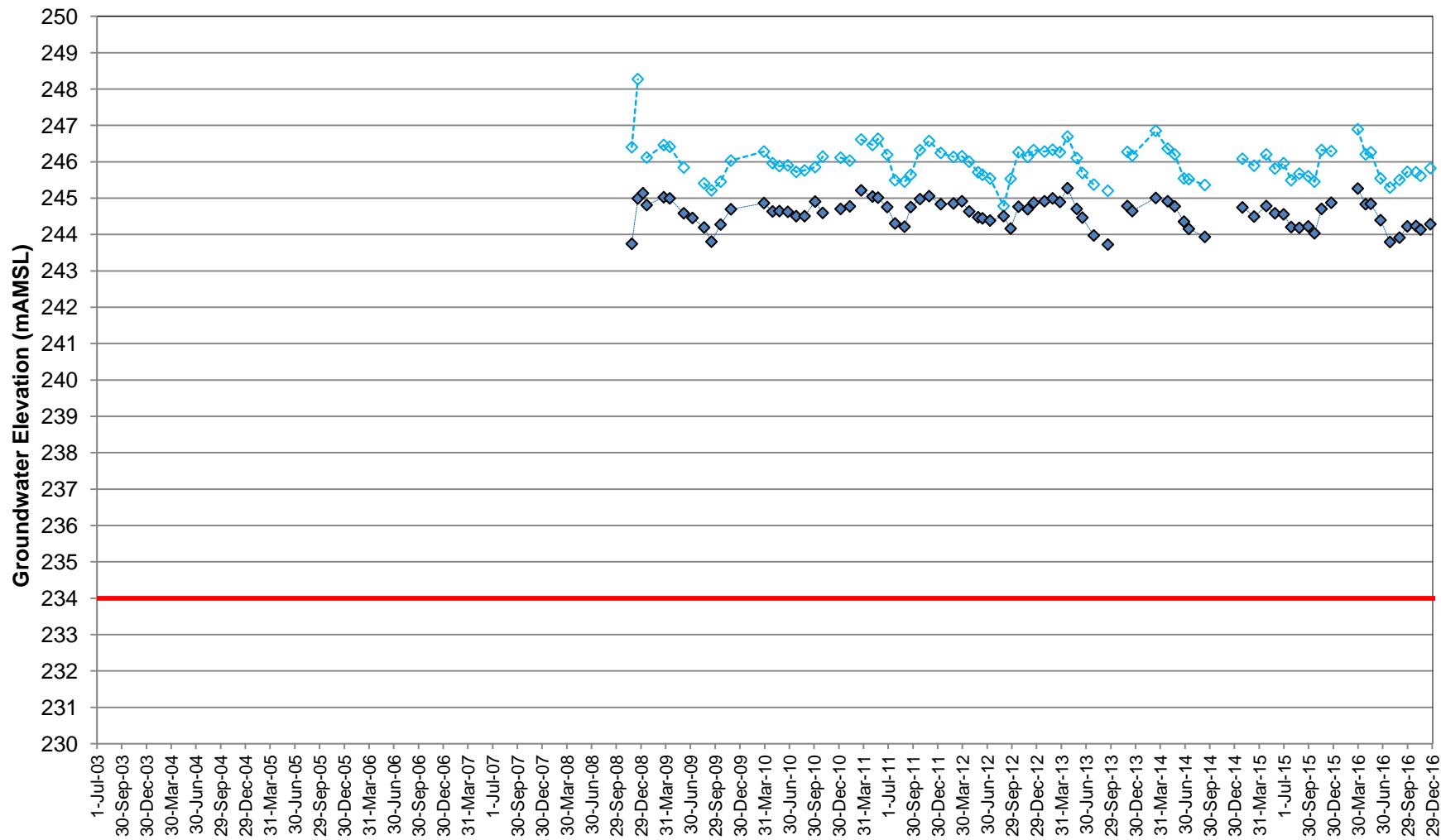
### Hydrograph C-3.23: Groundwater Elevations - OW41

--- OW41s    - OW41d    — Quarry Floor



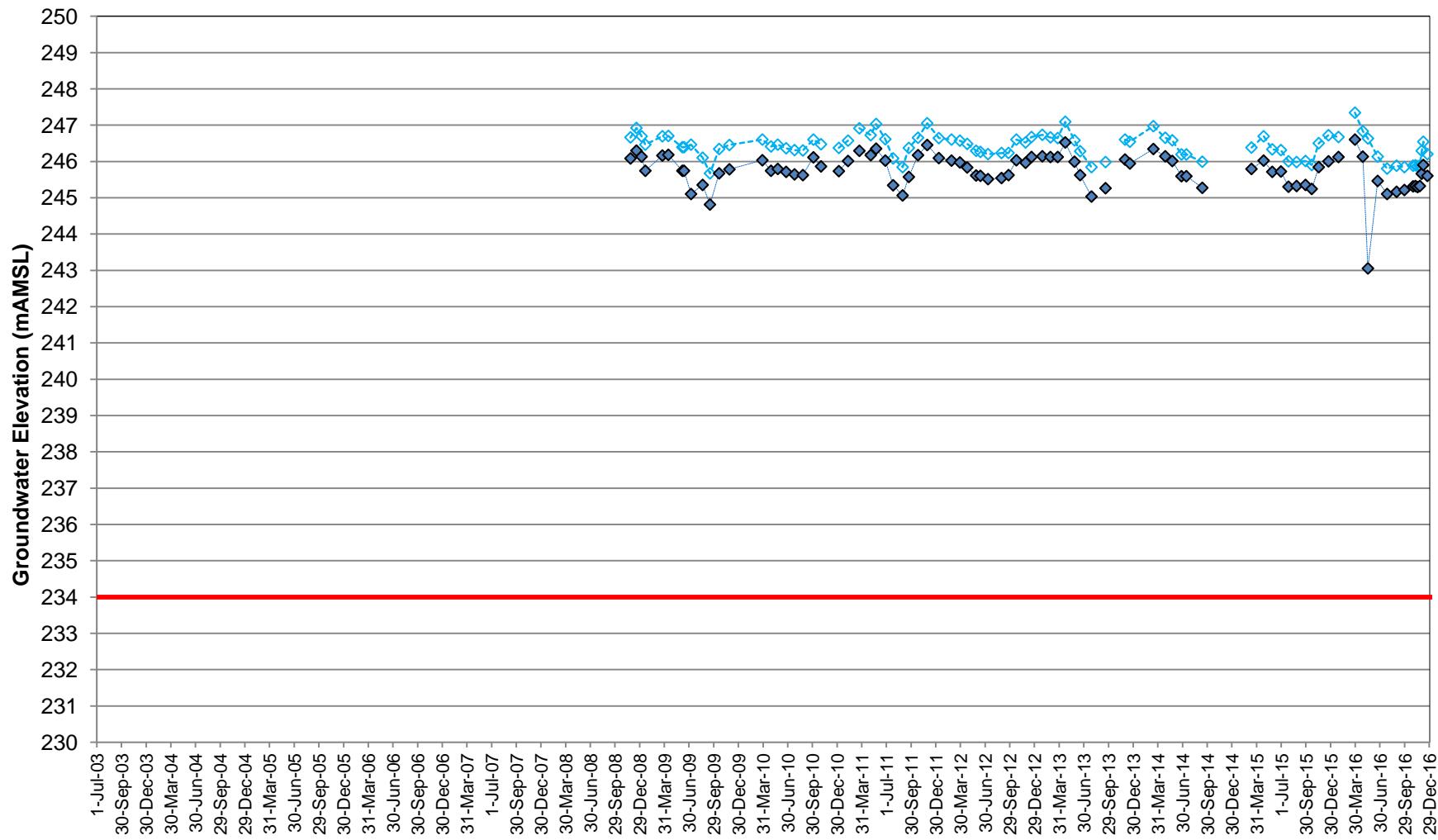
### Hydrograph C-3.24: Groundwater Elevations - OW42

--- OW42s    ● OW42d    — Quarry Floor



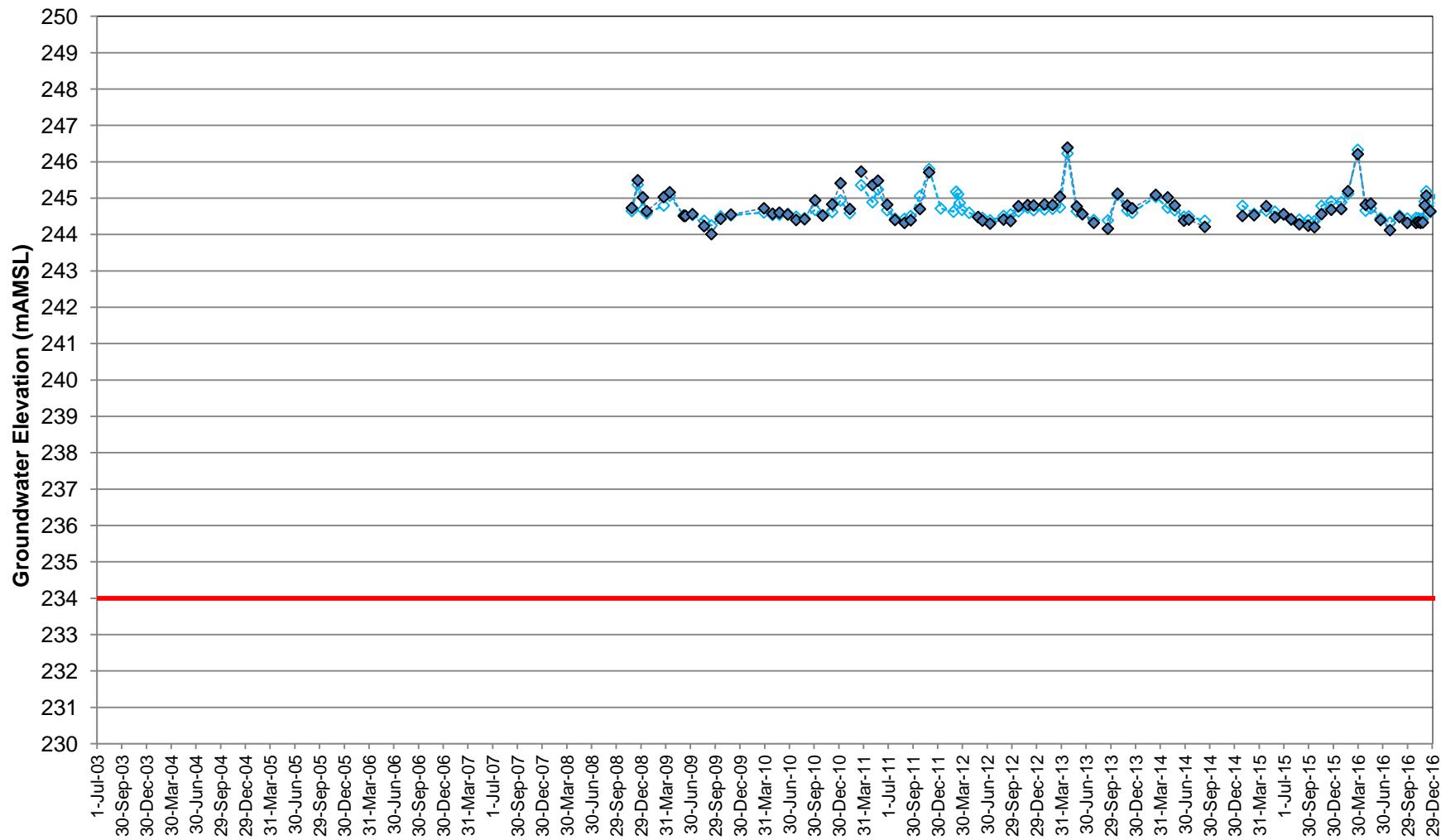
### Hydrograph C-3.25: Groundwater Elevations - OW43

--- OW43s    ● OW43d    — Quarry Floor

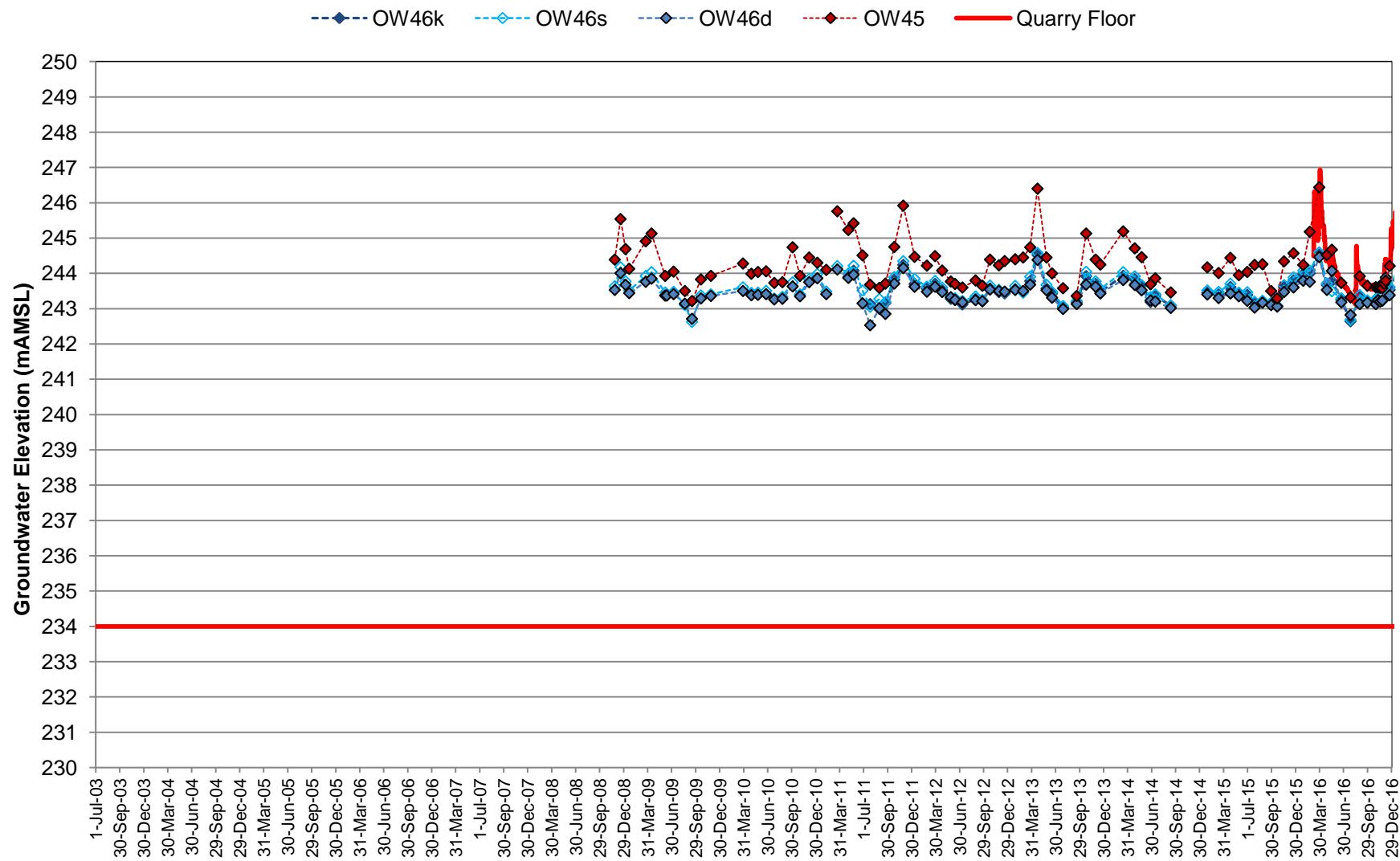


### Hydrograph C-3.26: Groundwater Elevations - OW44

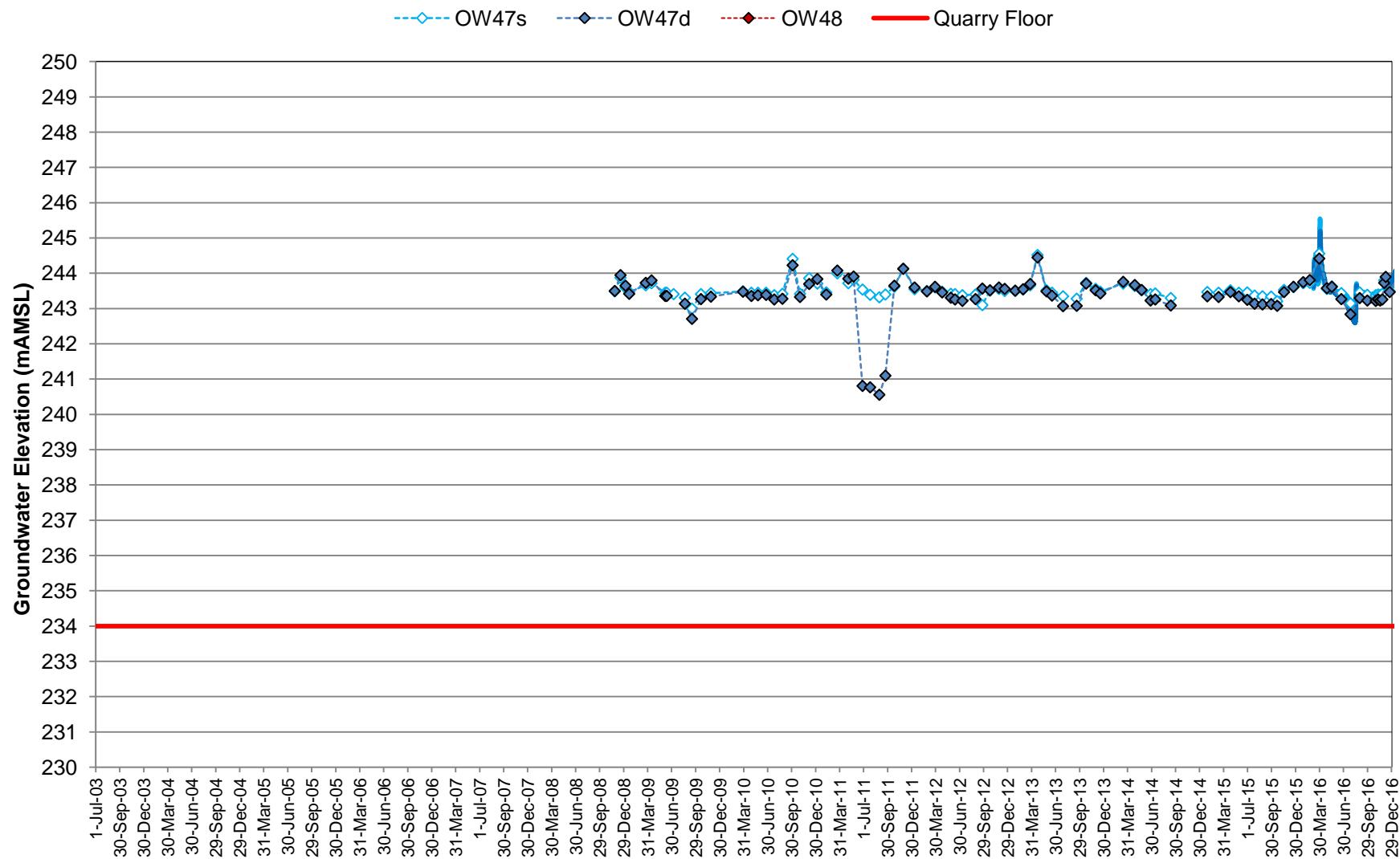
--- OW44s ----- OW44d — Quarry Floor



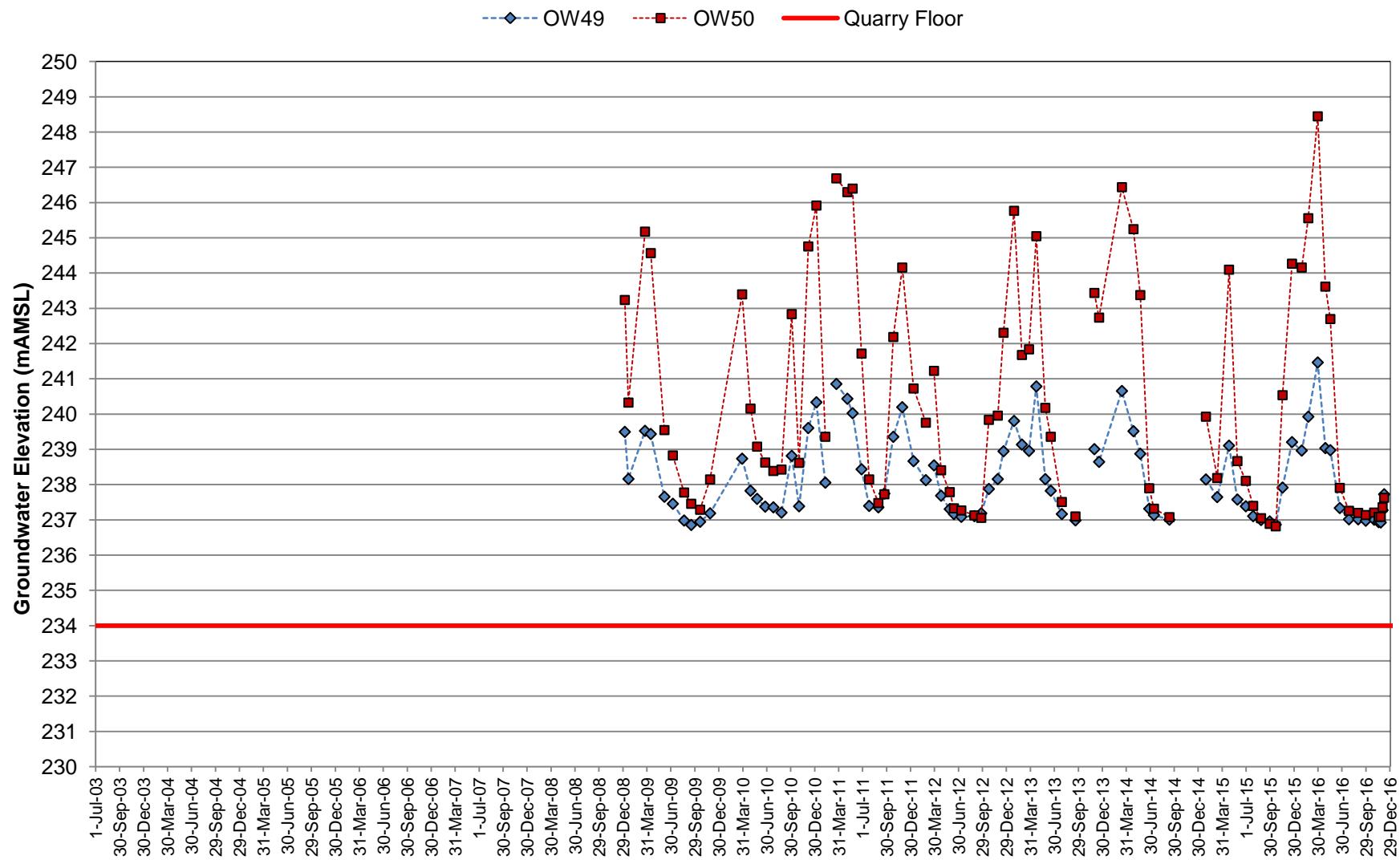
### Hydrograph C-3.27: Groundwater Elevations - OW45 & OW46



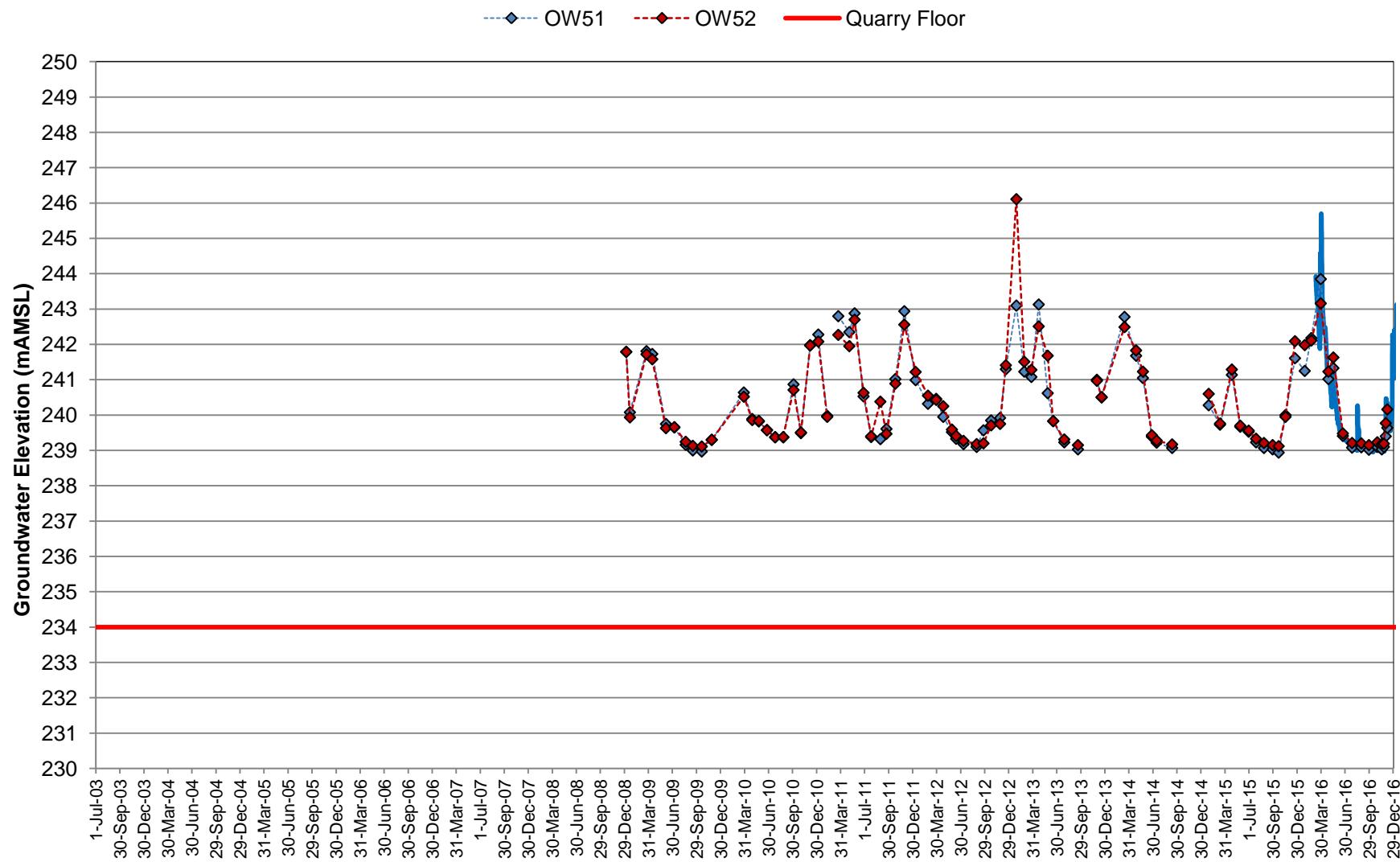
### Hydrograph C-3.28: Groundwater Elevations - OW47 & OW48



### Hydrograph C-3.29: Groundwater Elevations - OW49 & OW50

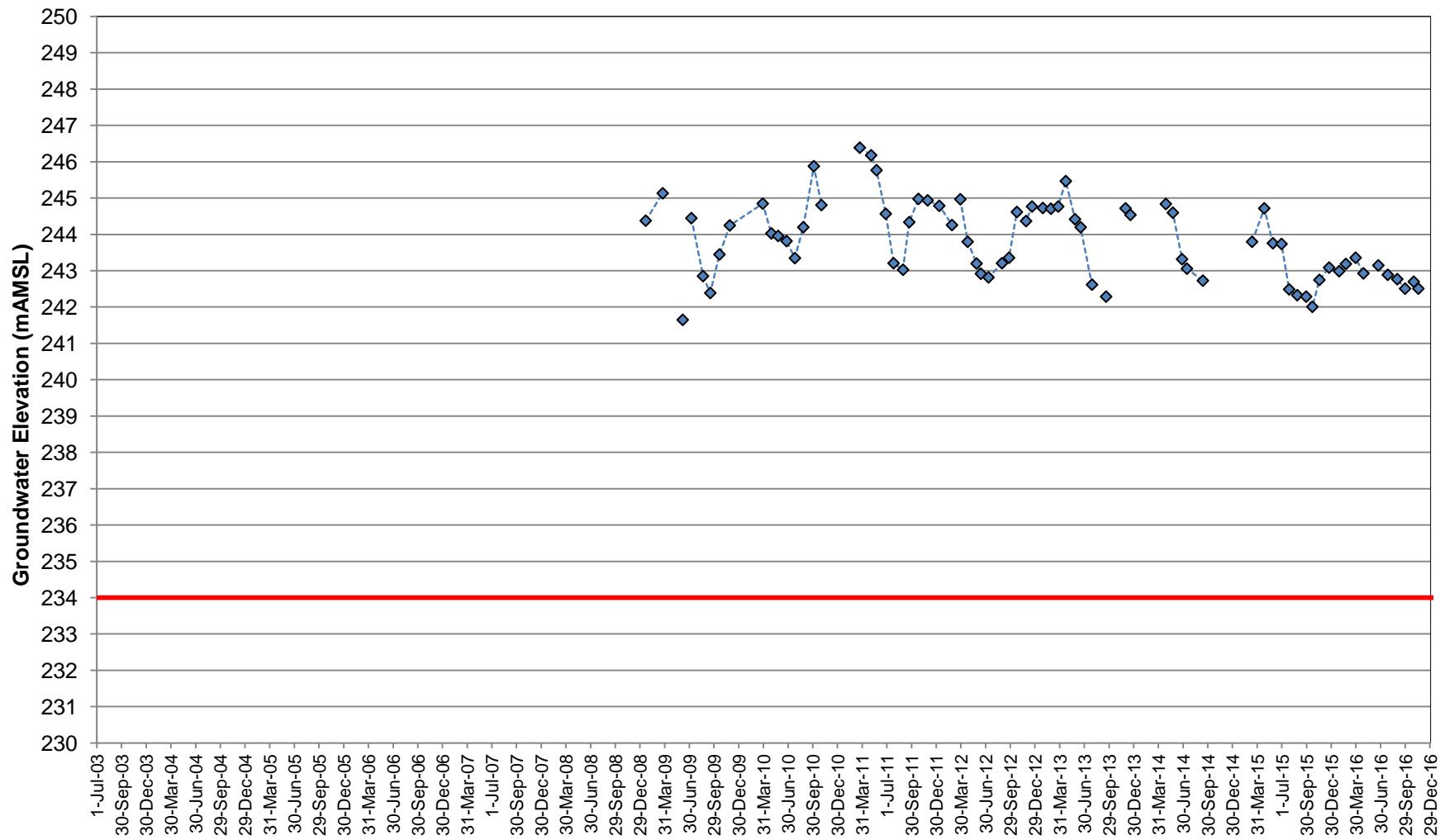


### Hydrograph C-3.30: Groundwater Elevations - OW51 & OW52

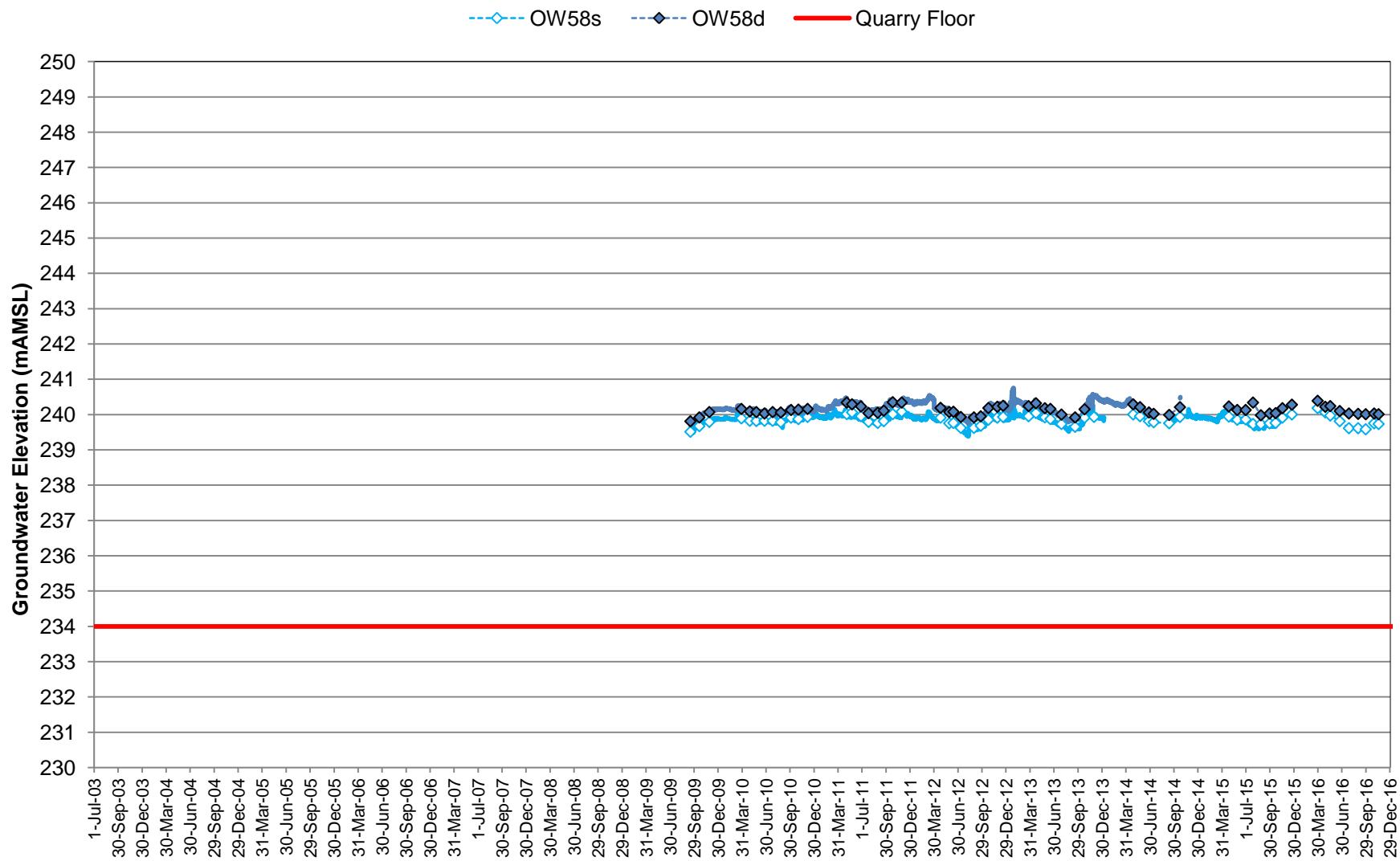


### Hydrograph C-3.31: Groundwater Elevations - OW53

--- OW53      — Quarry Floor

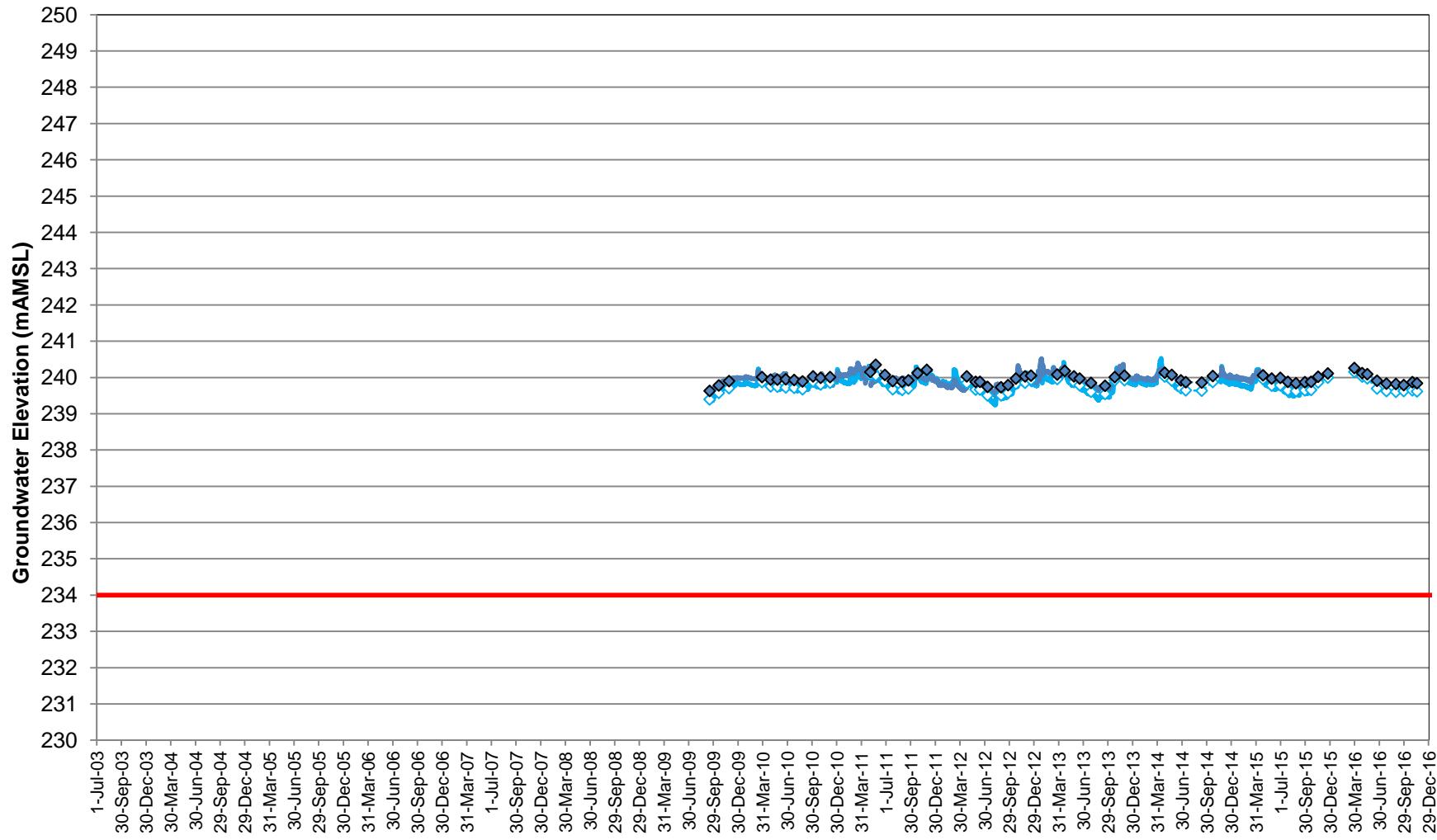


### Hydrograph C-3.32: Groundwater Elevations - OW58



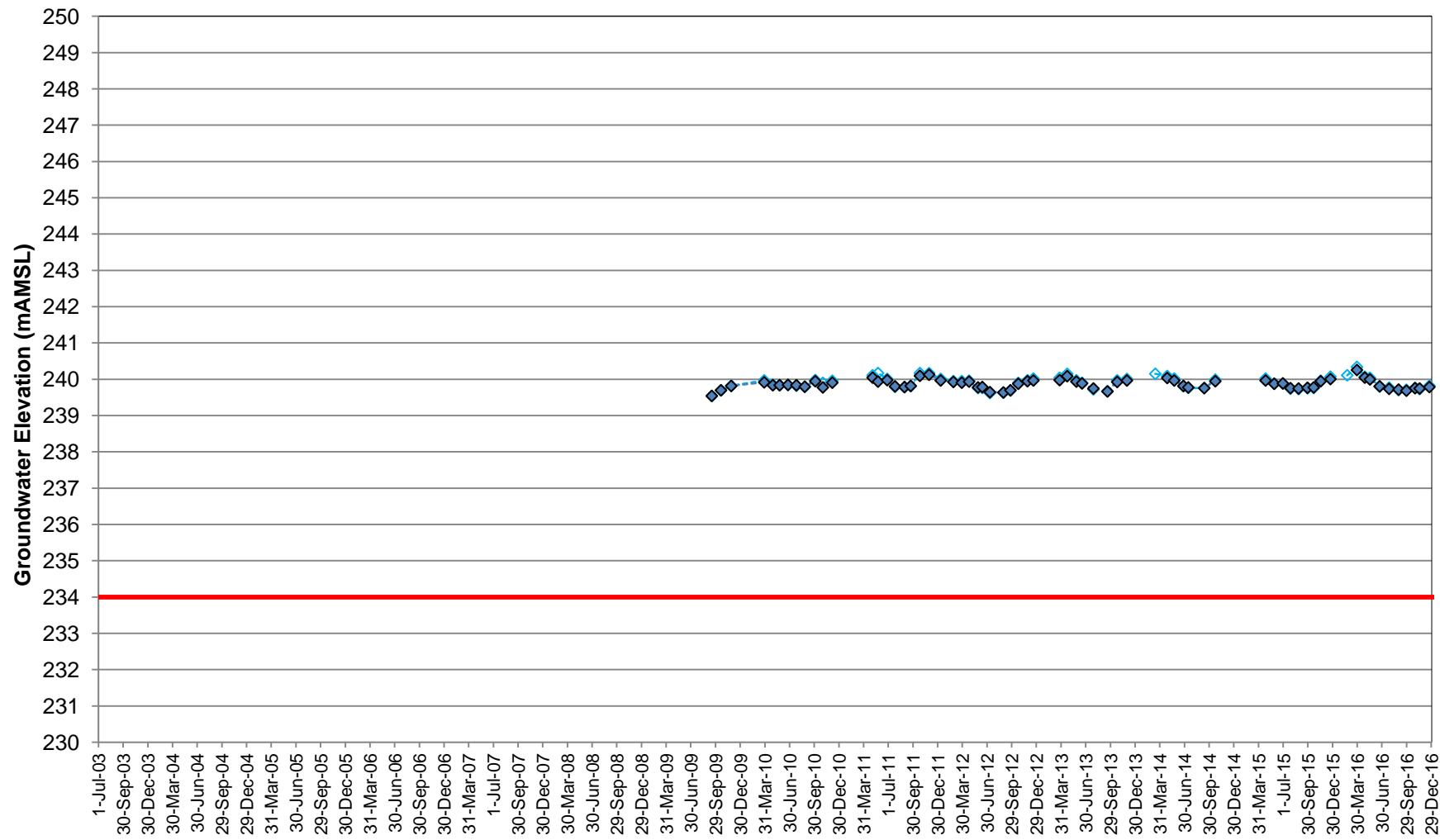
### Hydrograph C-3.33: Groundwater Elevations - OW59

--- OW59s    -·- OW59d    — Quarry Floor



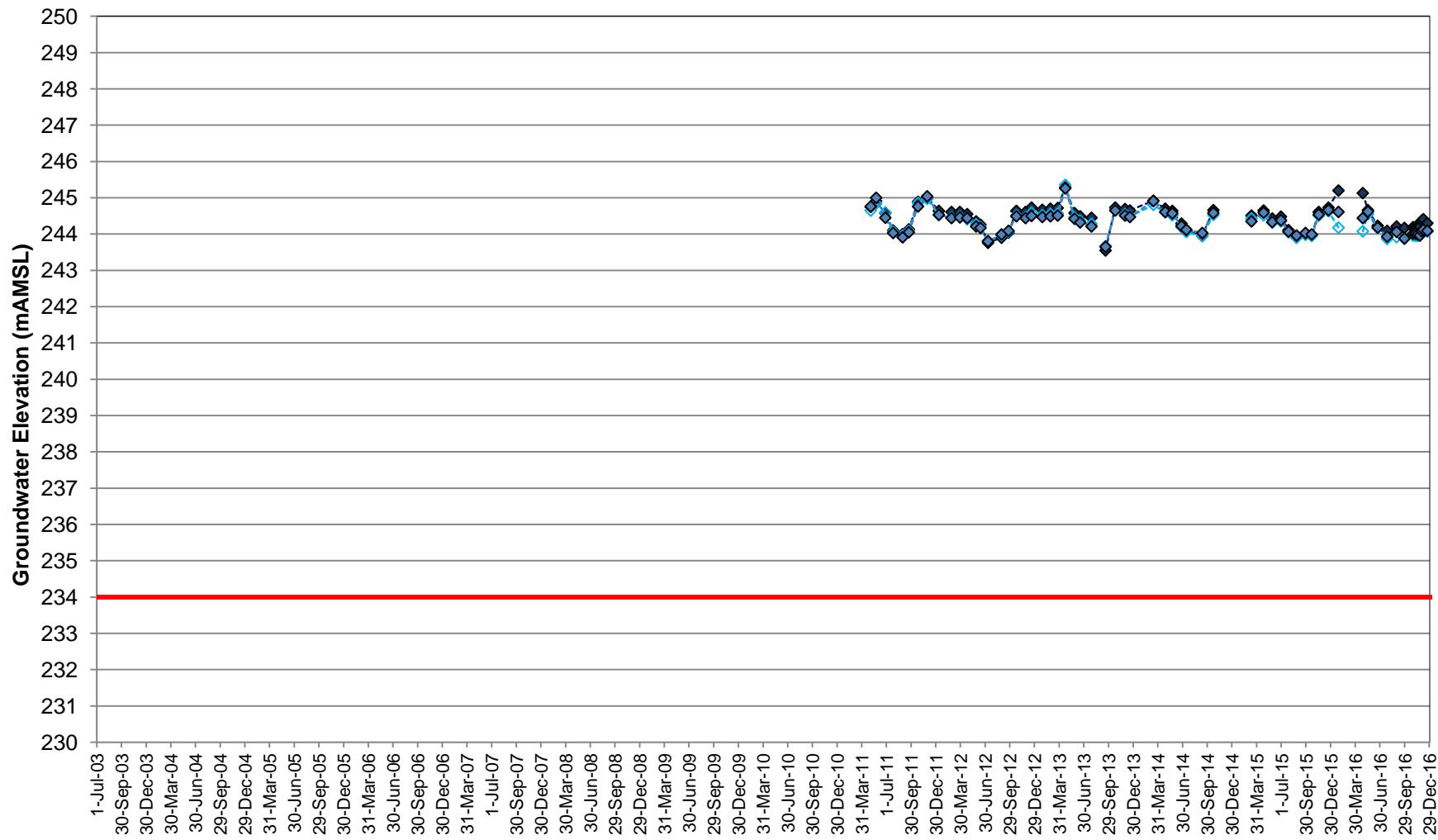
### Hydrograph C-3.34: Groundwater Elevations - OW60

--- OW60s ----- OW60d — Quarry Floor



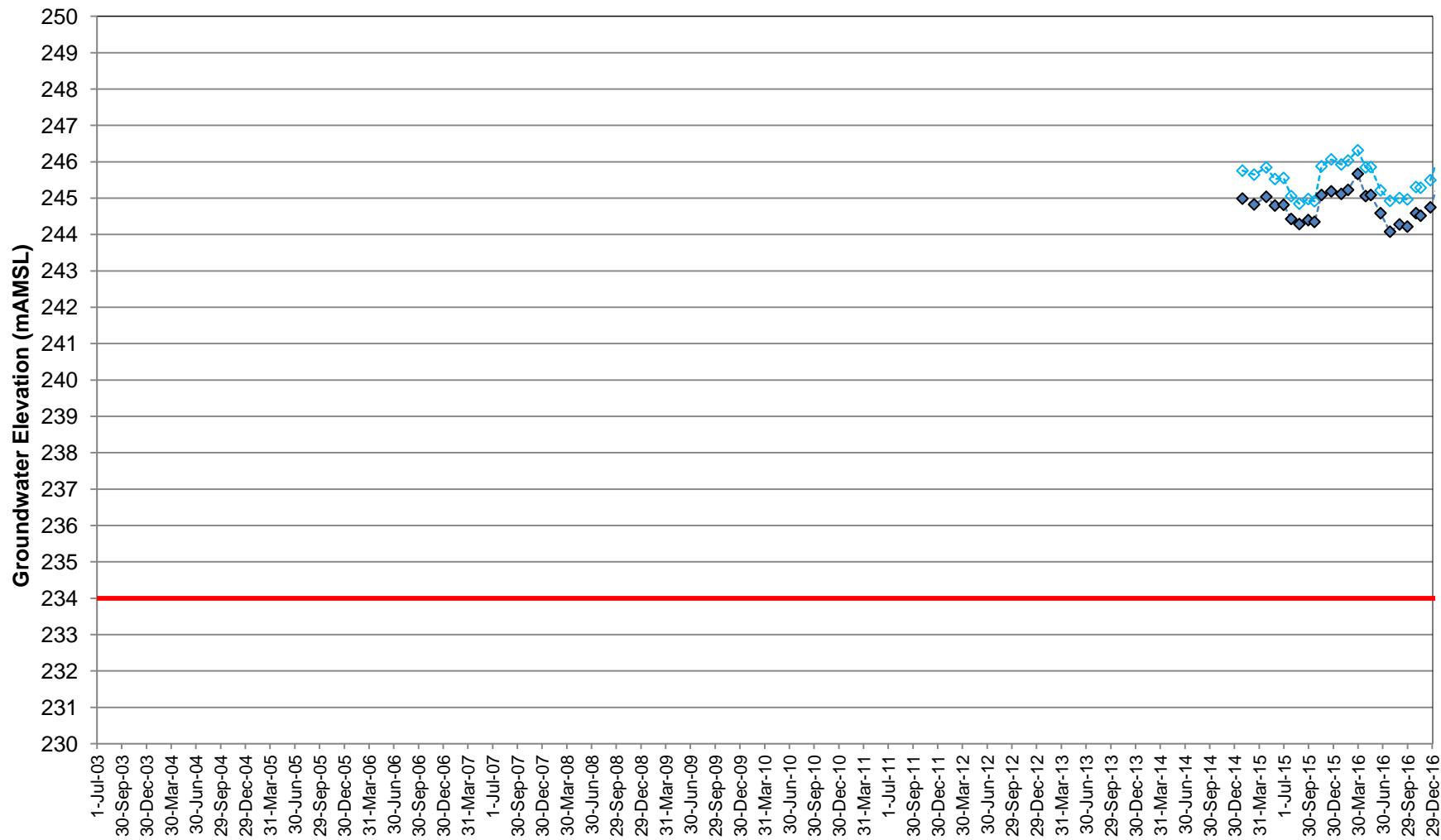
### Hydrograph C-3.35: Groundwater Elevations - OW62

---♦--- OW62k    ---◇--- OW62s    ---◆--- OW62d    ——— Quarry Floor



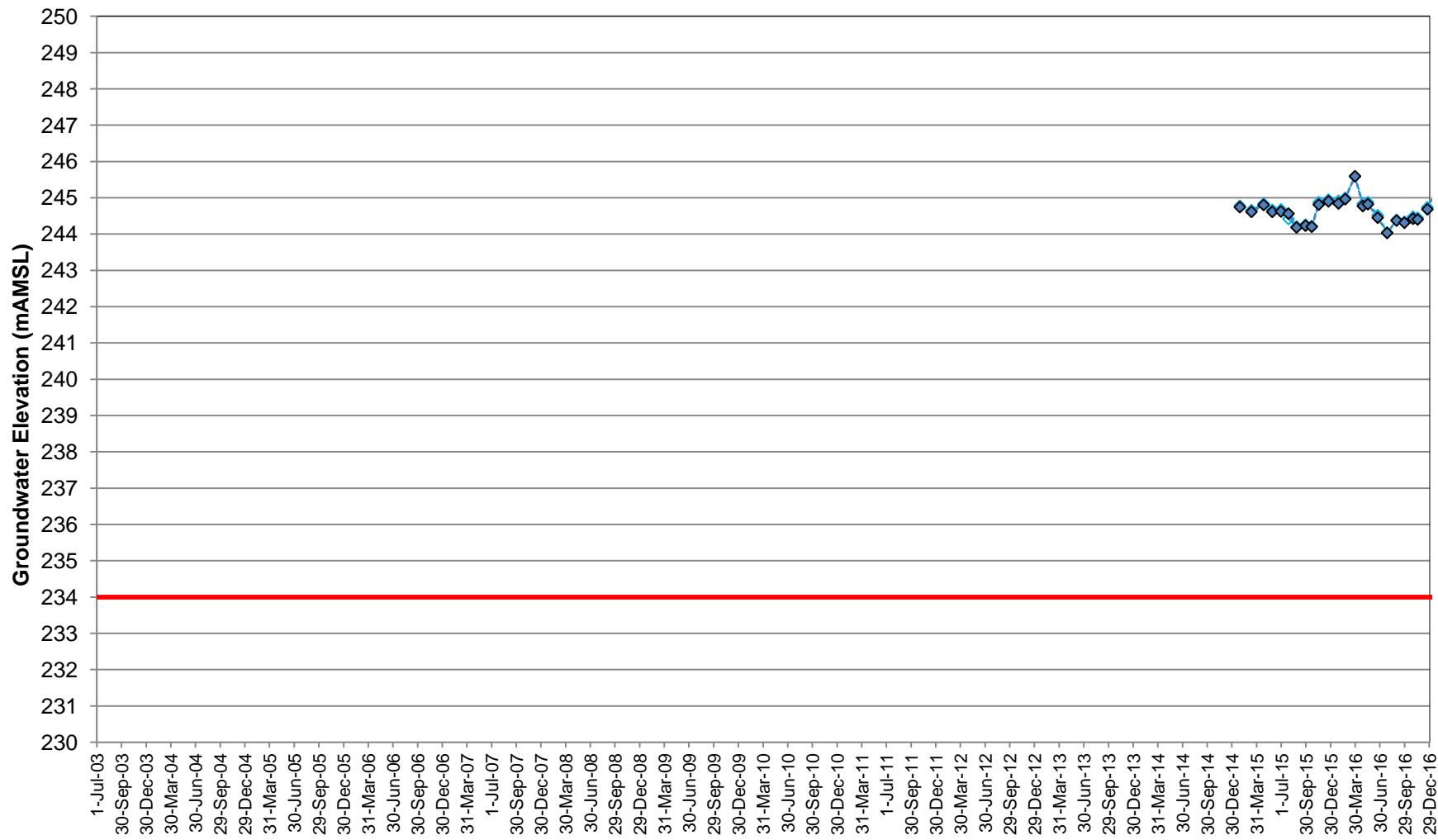
### Hydrograph C-3.36: Groundwater Elevations - OW63

----- OW63s ----- OW63d — Quarry Floor



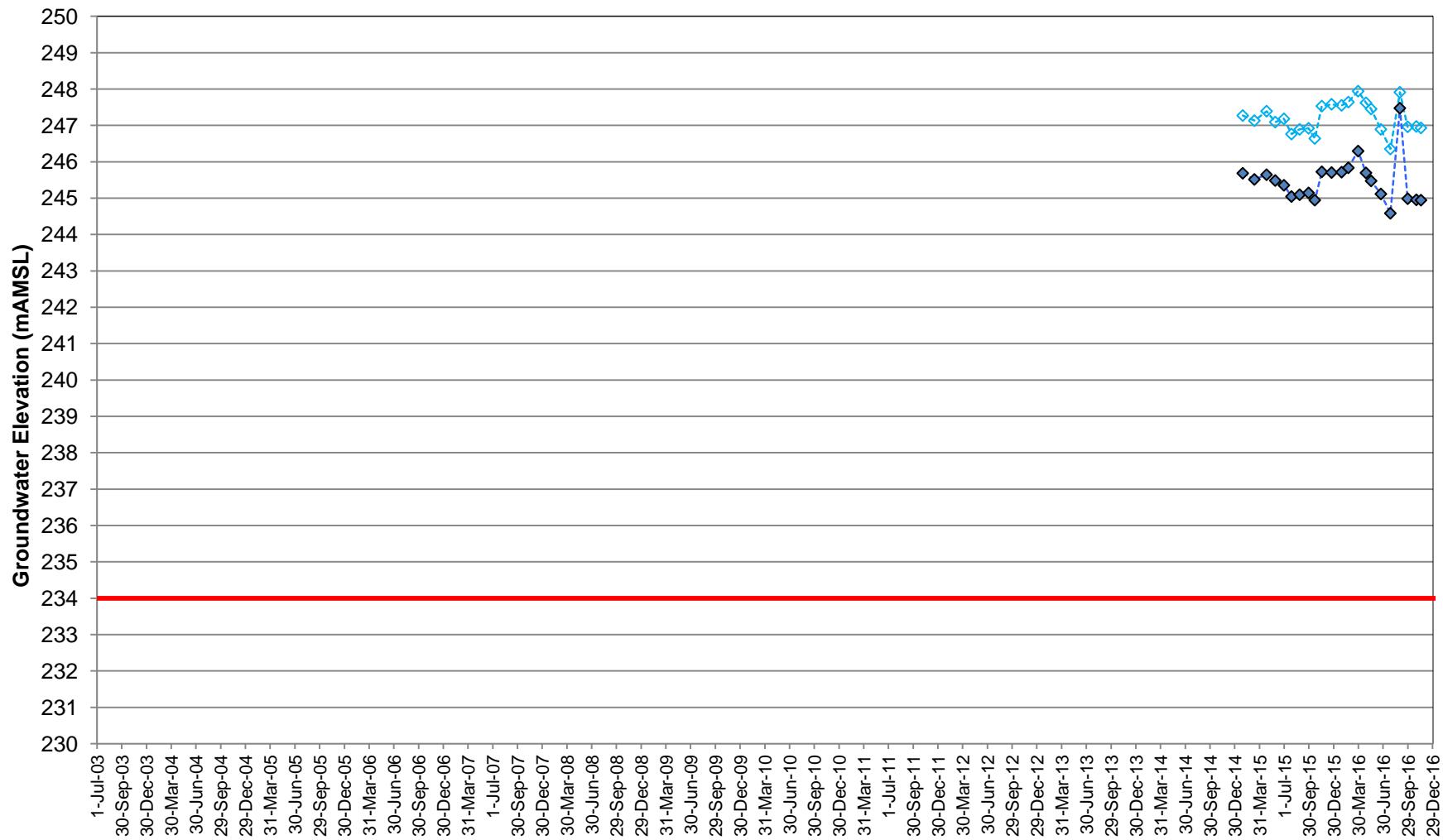
### Hydrograph C-3.37: Groundwater Elevations - OW64

--- OW64s ----- OW64d — Quarry Floor



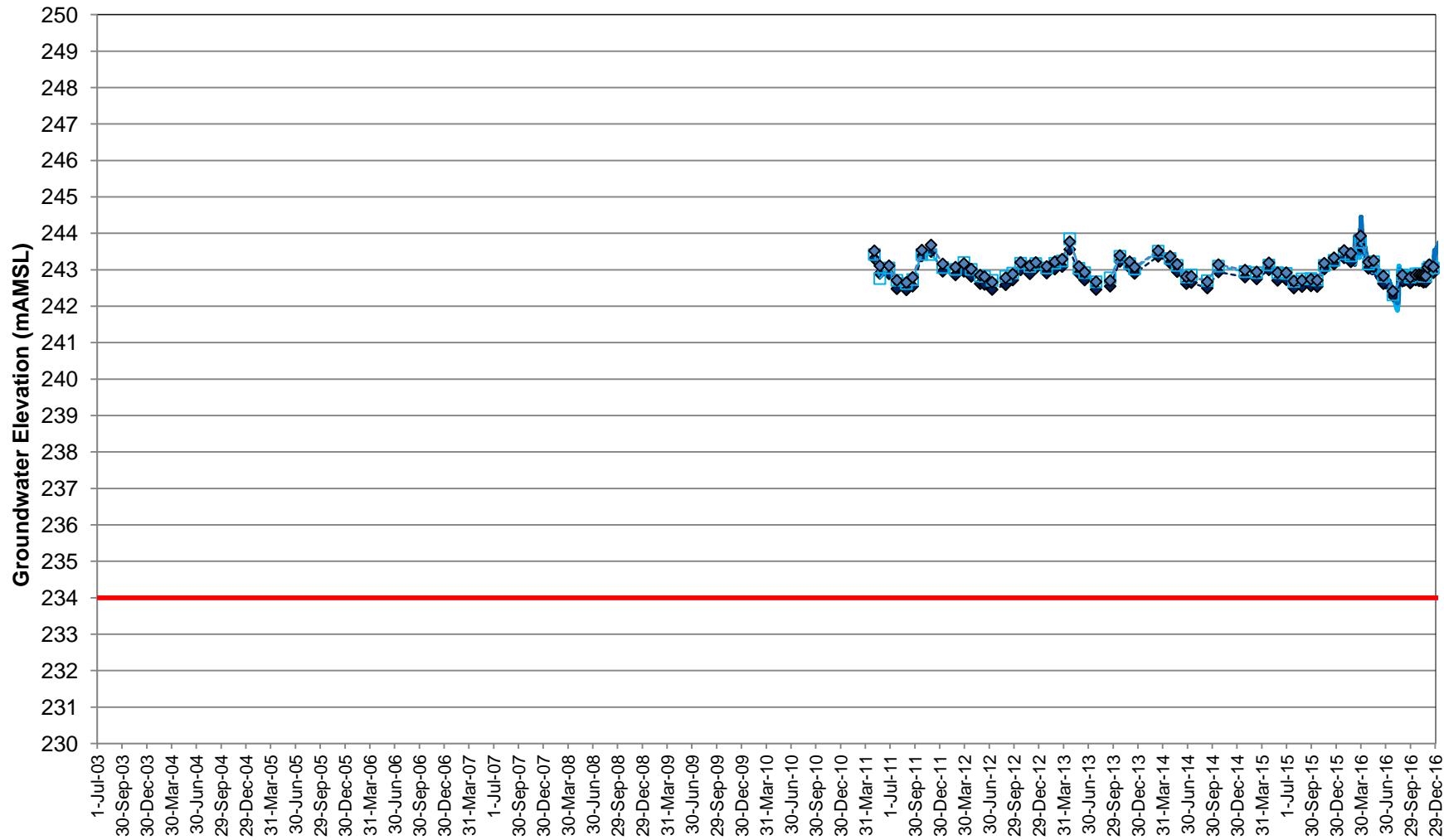
### Hydrograph C-3.38: Groundwater Elevations - OW65

--- OW65s ----- OW65d — Quarry Floor



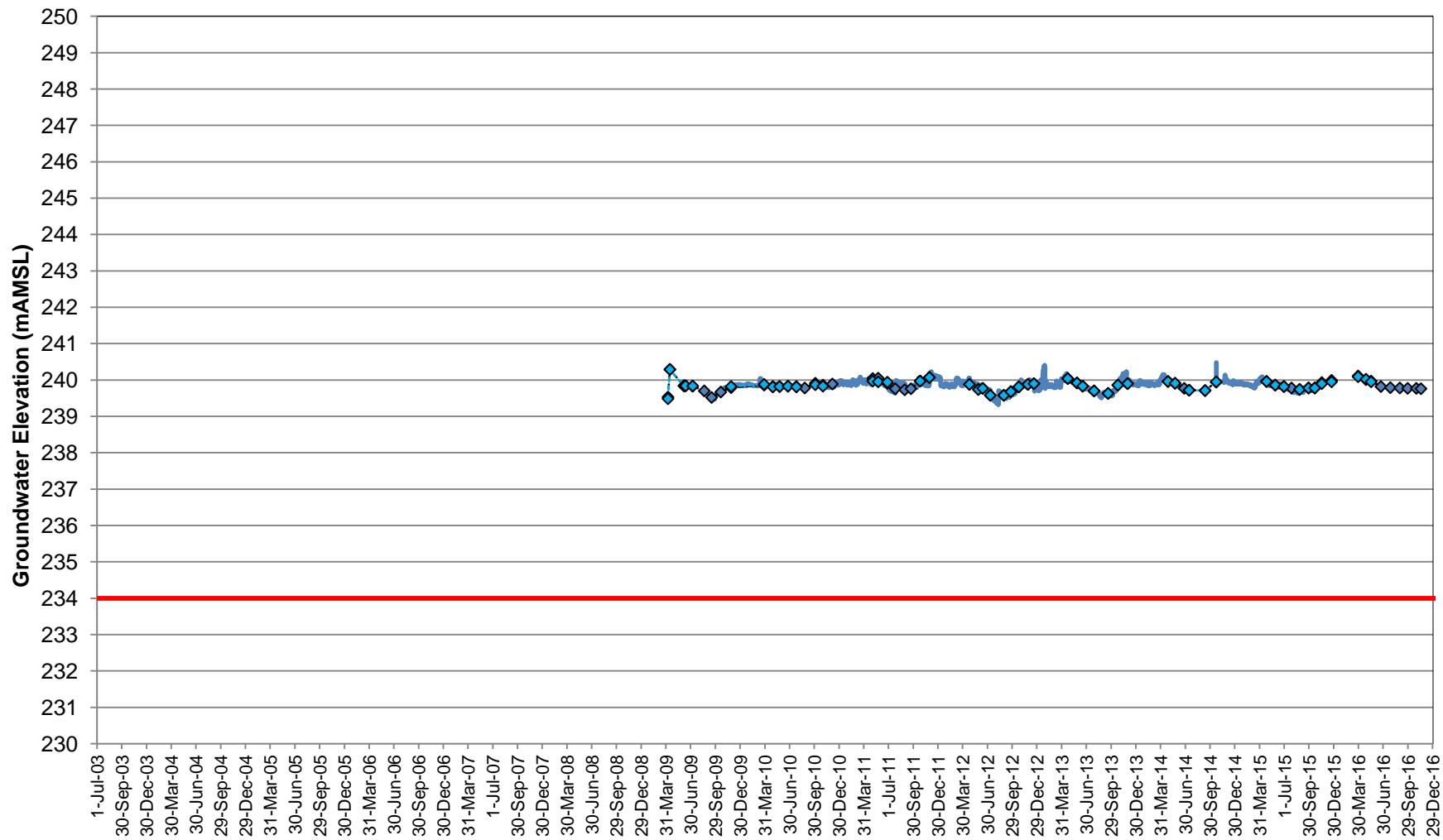
### Hydrograph C-3.39: Groundwater Elevations - OW71

---♦--- OW71k    ---□--- OW71s    ---◆--- OW71d    — Quarry Floor

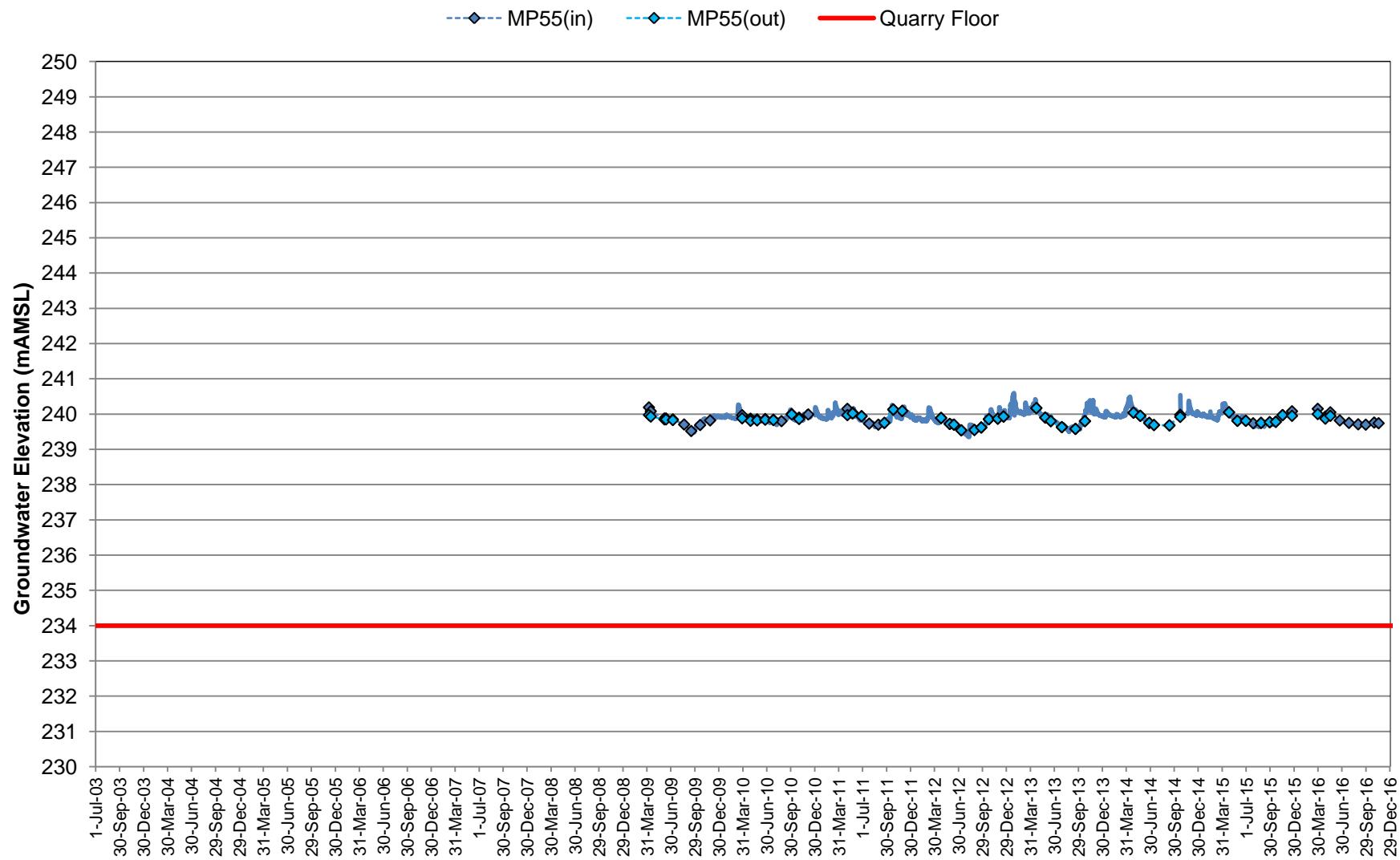


### Hydrograph C-3.40: Groundwater Elevations - MP54

---♦--- MP54(in)    -♦-- MP54(out)    — Quarry Floor

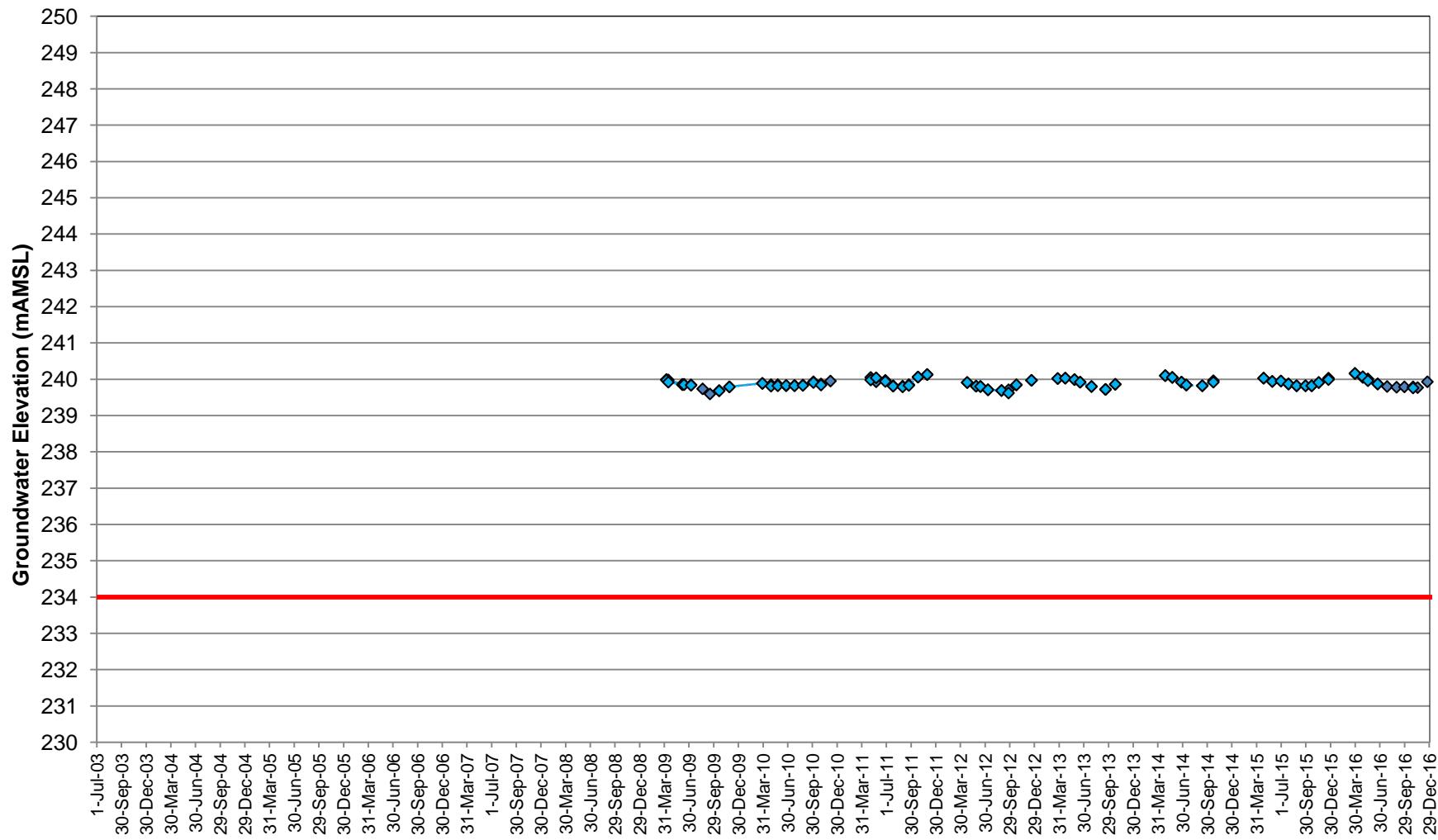


### Hydrograph C-3.41: Groundwater Elevations - MP55

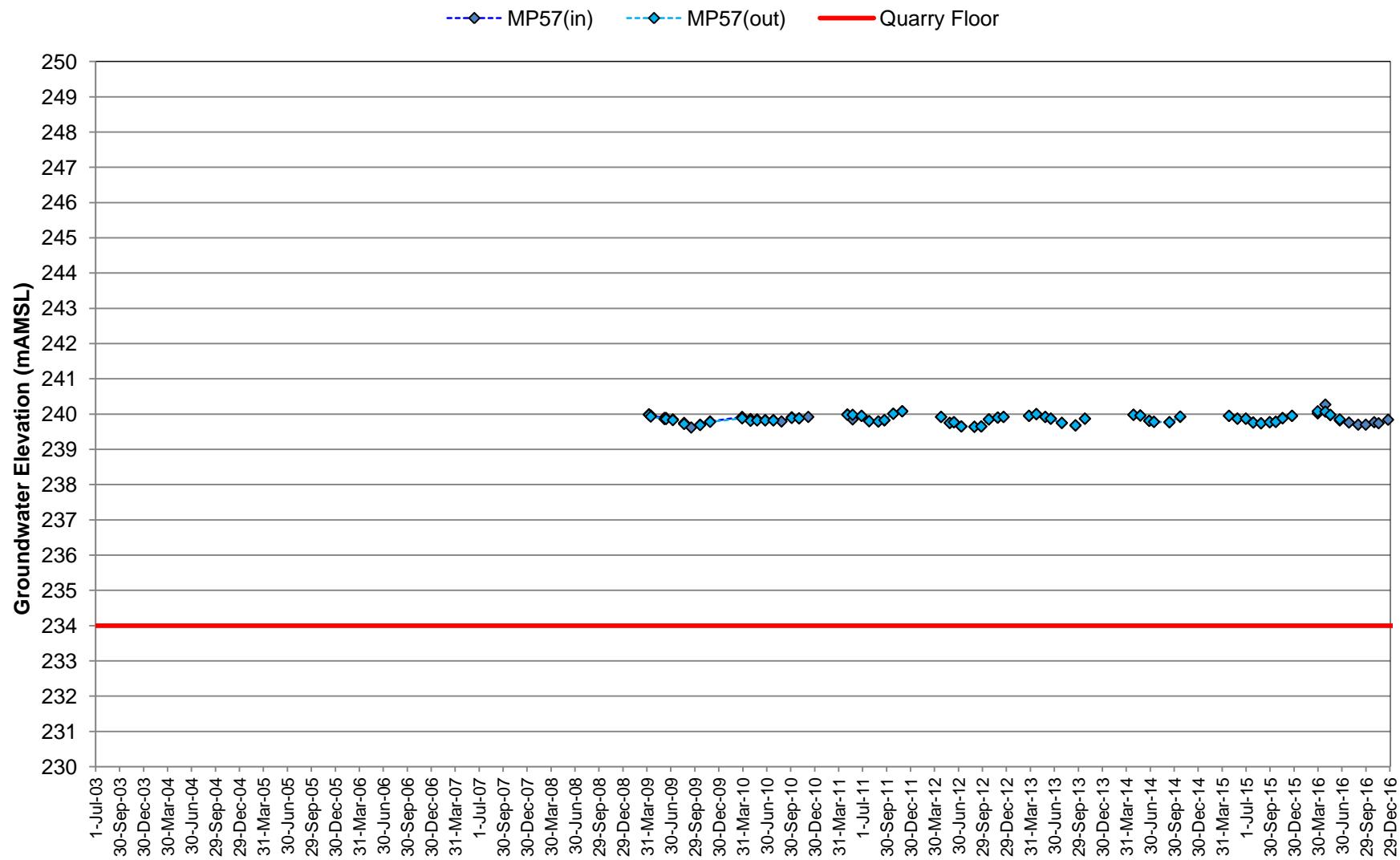


### Hydrograph C-3.42: Groundwater Elevations - MP56

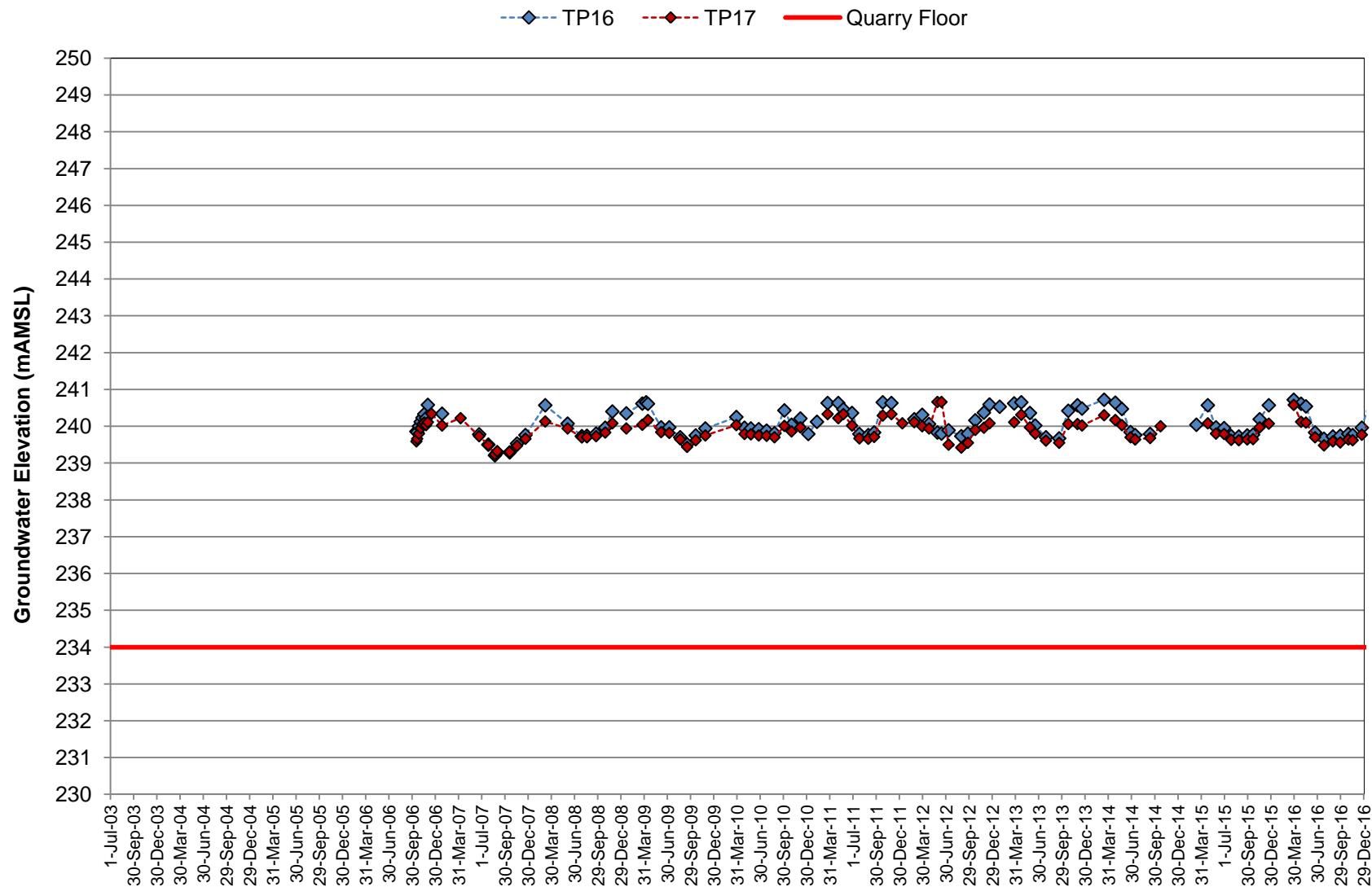
---♦--- MP56(in)    ---♦--- MP56(out)    — Quarry Floor



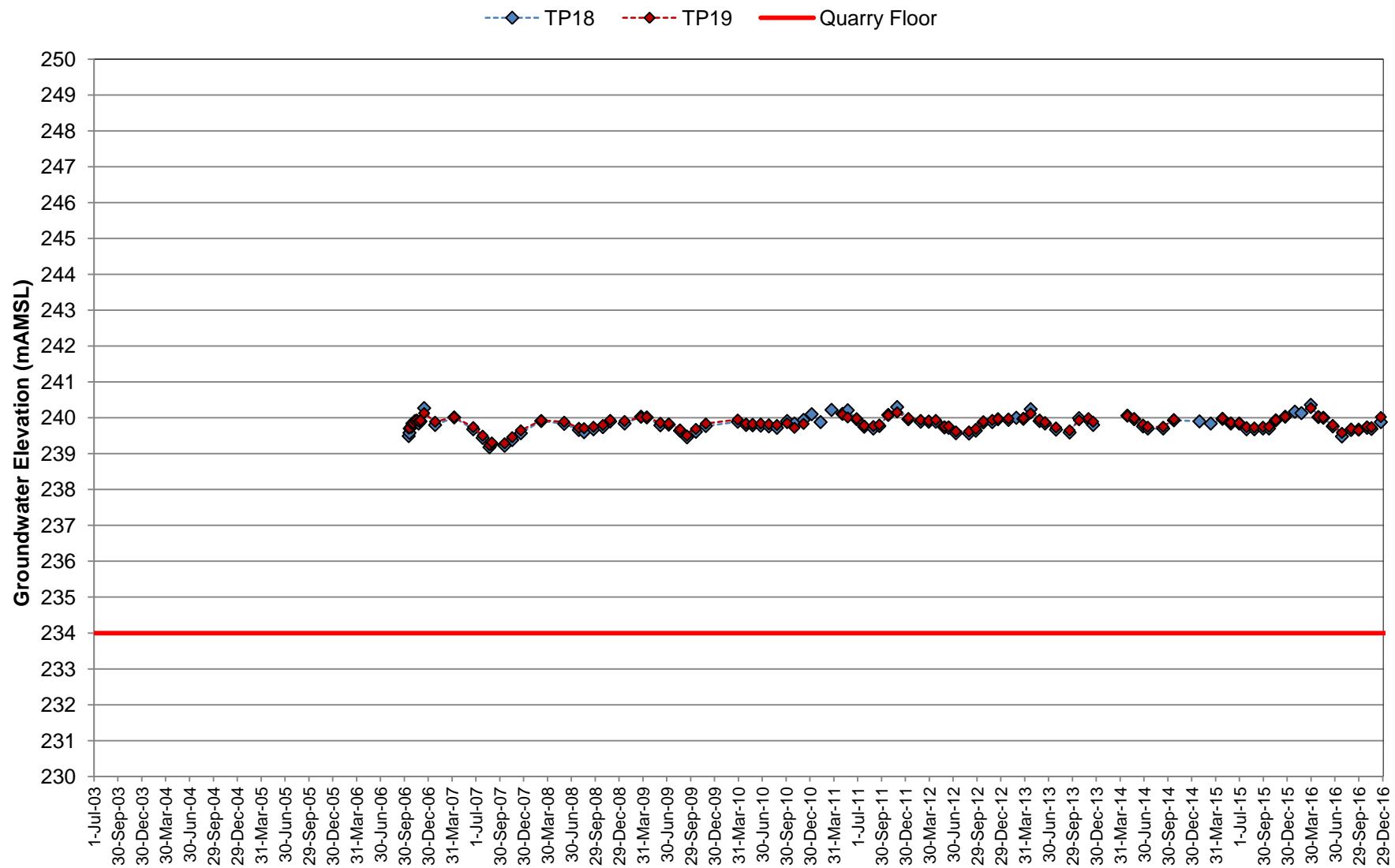
### Hydrograph C-3.43: Groundwater Elevations - MP57



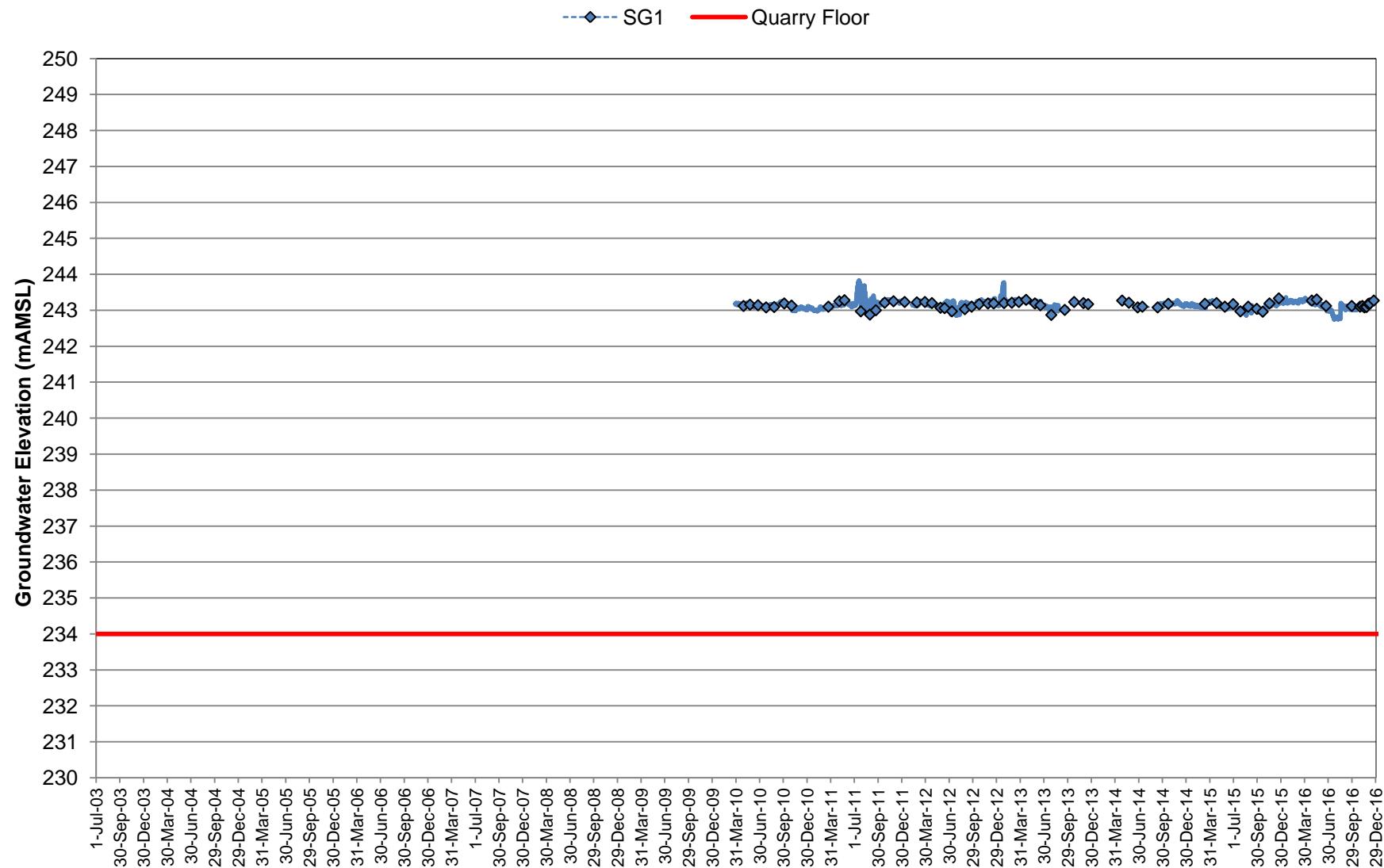
### Hydrograph C-3.44: Groundwater Elevations - TP16 and TP17



### Hydrograph C-3.45: Groundwater Elevations - TP18 and TP19

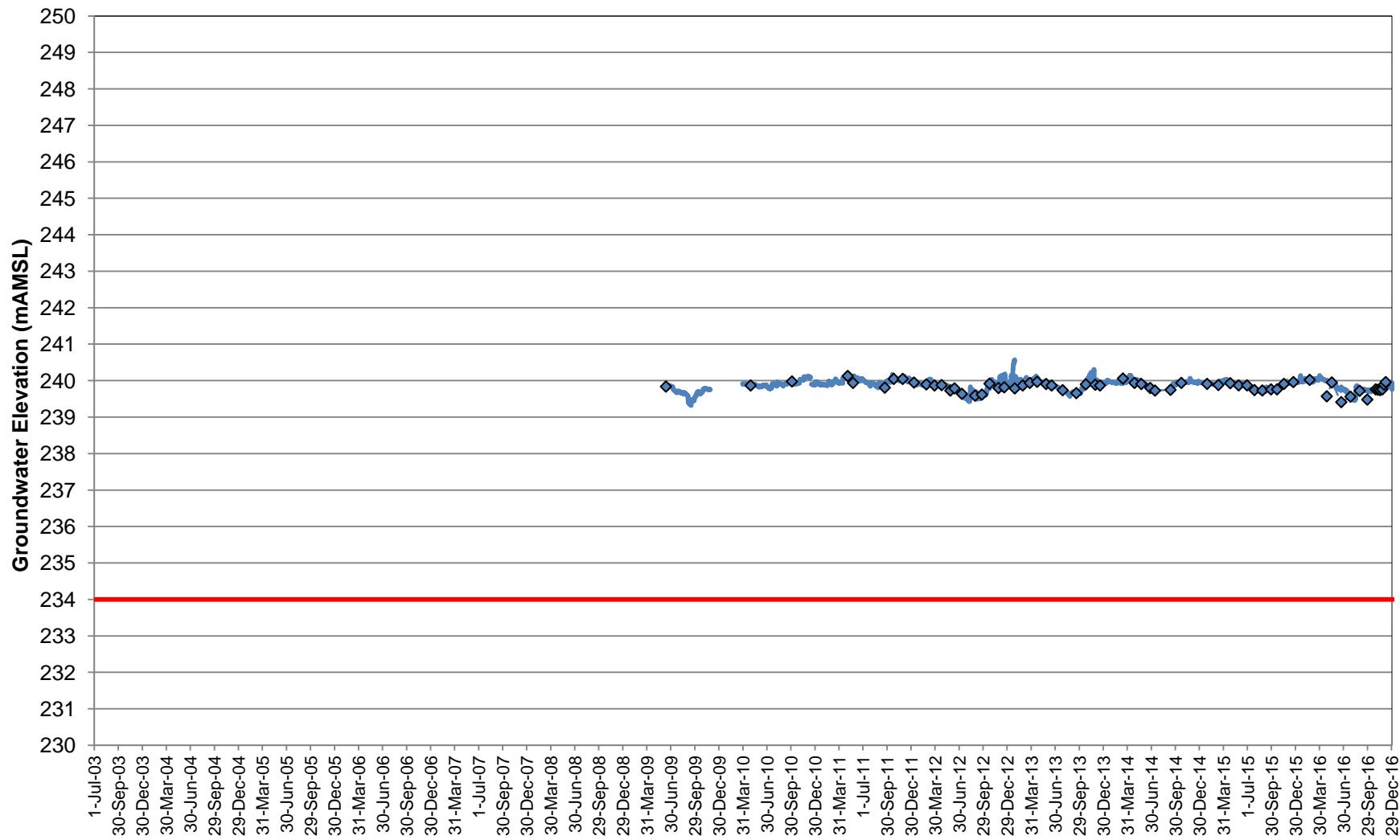


### Hydrograph C-3.46: Groundwater Elevations - SG1

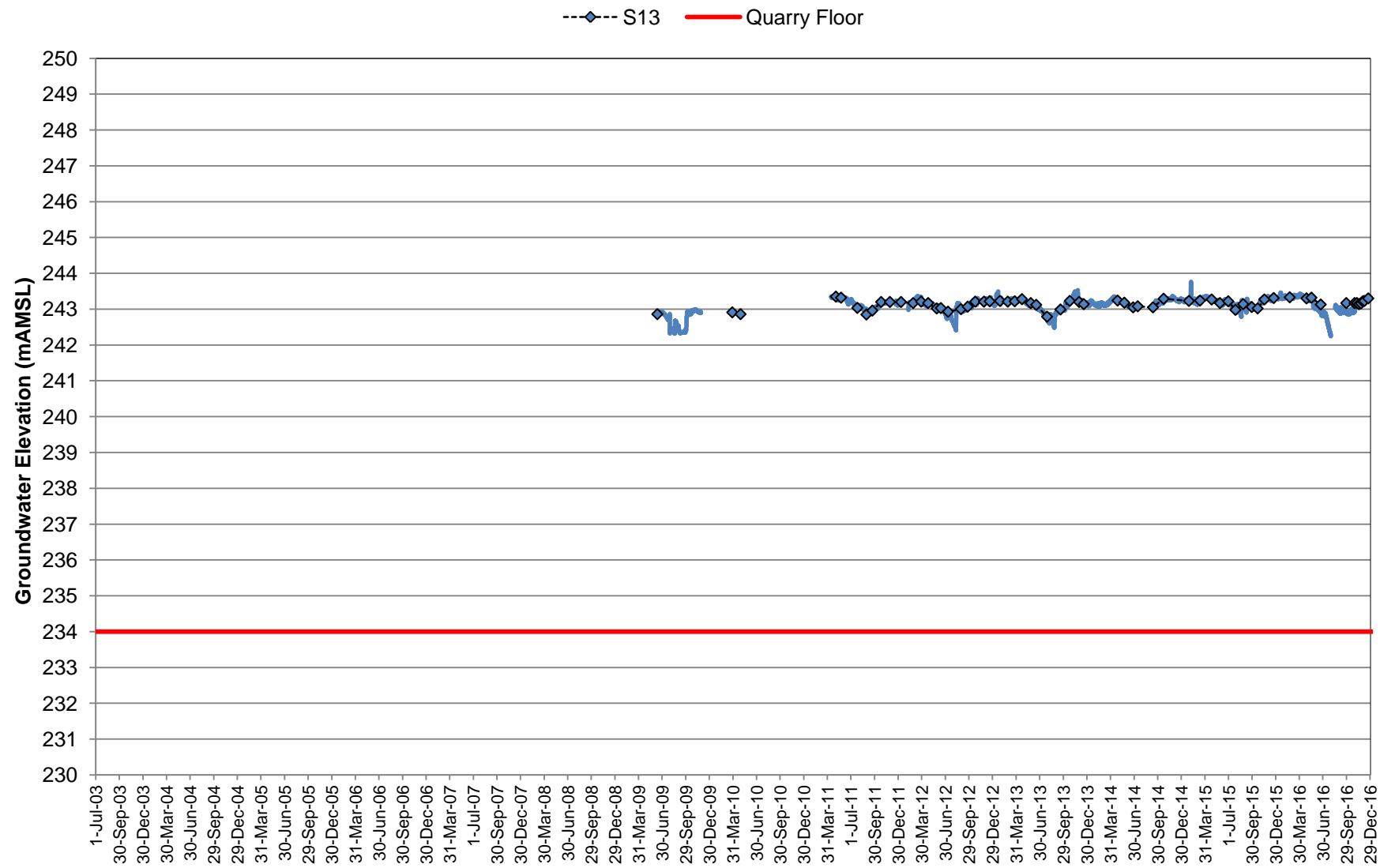


### Hydrograph C-3.47: Groundwater Elevations - S8

---♦--- S8 — Quarry Floor



### Hydrograph C-3.48: Groundwater Elevations - S13



### Hydrograph C-3.49: Groundwater Elevations - Ephemeral Pond SG2

—♦— SG1

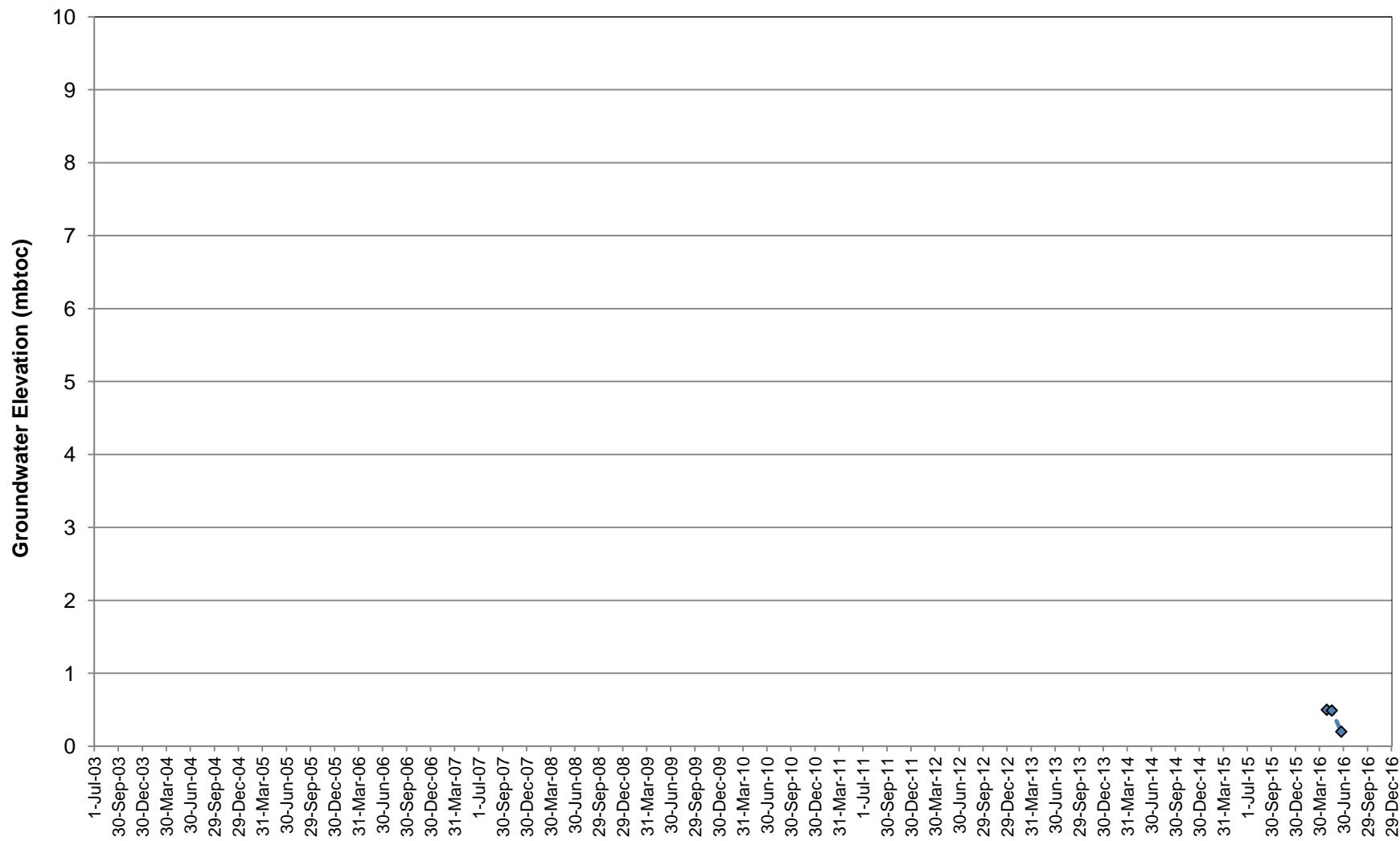


Table C-3.1 : Historical Groundwater Levels (2003-2015)

Location	OW3	OW4	OW7s	OW7d	OW8s	OW8d	OW9s	OW9d	OW10s
15-Sep-03	14.94	7.37	4.85	8.22	4.20	4.75	4.63	4.29	3.05
17-Oct-03	15.65	3.47	3.85	7.43	3.78	4.07	3.89	3.51	2.20
28-Nov-03	15.68	3.63	3.81	7.34	3.25	3.74	3.74	3.18	2.22
26-Feb-04	15.63	-	3.88	7.56	3.83	4.15	4.02	3.57	2.19
26-Apr-04	15.70	3.81	3.82	7.46	3.77	4.02	3.94	3.50	2.25
14-May-04	15.66	3.95	3.82	7.36	3.37	3.87	3.80	3.35	2.25
21-May-04	15.66	3.95	3.85	7.55	3.66	4.00	3.95	3.51	2.30
28-May-04	-	-	3.69	7.10	2.47	3.22	3.25	3.26	1.29
4-Jun-04	-	-	3.85	7.45	3.34	3.74	3.77	3.29	2.27
11-Jun-04	15.73	3.95	3.95	7.54	3.74	4.02	4.07	3.56	2.37
17-Jun-04	-	-	3.96	7.58	3.84	4.10	4.14	3.64	2.40
25-Jun-04	-	-	3.84	7.66	3.87	4.16	4.09	3.66	2.26
9-Jul-04	-	-	4.12	7.79	3.90	4.26	4.21	3.77	2.56
16-Jul-04	-	-	3.77	7.74	3.89	4.23	4.02	3.65	2.16
22-Jul-04	-	-	3.93	7.67	3.83	4.16	4.11	3.65	2.35
29-Jul-04	15.69	6.75	4.08	7.86	3.88	4.27	4.22	3.77	2.61
5-Aug-04	-	-	4.08	7.86	3.88	4.27	4.22	3.77	2.61
13-Aug-04	-	-	4.33	8.11	3.95	4.41	4.34	3.91	2.79
19-Aug-04	15.72	7.96	4.44	8.16	3.99	4.45	4.38	3.95	2.79
26-Aug-04	-	-	4.59	8.30	4.00	4.56	4.45	4.05	2.91
2-Sep-04	-	-	4.67	8.36	4.04	4.59	4.44	4.07	2.95
9-Sep-04	-	-	4.77	8.48	4.06	4.62	4.47	4.11	2.98
16-Sep-04	15.71	8.77	4.94	8.56	4.08	4.65	4.52	4.16	3.06
23-Sep-04	-	-	5.10	8.71	4.17	4.80	4.60	4.31	3.17
7-Oct-04	-	-	5.31	8.93	4.23	4.95	4.80	4.51	3.34
14-Oct-04	15.75	9.15	5.36	8.93	4.23	4.89	4.83	4.51	3.37
21-Oct-04	-	-	4.83	8.67	4.22	4.89	4.53	4.29	2.62
28-Oct-04	-	-	4.83	8.67	4.21	4.80	4.47	4.15	2.62
3-Nov-04	-	-	4.56	8.63	4.18	4.72	4.33	4.03	2.40
11-Nov-04	-	-	4.38	8.49	4.10	4.61	4.24	3.91	2.38
18-Nov-04	-	-	4.43	8.48	4.06	4.53	4.23	3.87	2.43
25-Nov-04	15.66	8.38	4.42	8.46	4.06	4.47	4.21	3.85	2.32
2-Dec-04	-	-	3.78	8.04	3.84	4.28	3.76	3.50	2.07
9-Dec-04	-	-	3.65	7.76	2.98	3.98	3.47	3.18	1.91
16-Dec-04	-	-	3.81	7.83	3.15	3.78	3.69	3.20	2.14
23-Dec-04	15.68	7.25	3.91	7.93	3.39	3.94	3.87	3.44	2.30
13-Jan-05	-	8.83	3.50	7.80	2.96	3.69	3.29	3.11	1.87
31-Jan-05	-	9.42	3.98	7.95	3.65	4.02	4.01	3.52	2.36
21-Feb-05	15.71	9.88	3.85	7.86	3.64	4.00	3.89	3.44	2.21
24-Mar-05	15.62	9.74	3.89	8.02	3.82	4.13	4.02	3.57	2.24
26-Apr-05	15.49	8.65	3.70	7.76	3.50	3.96	3.61	3.32	2.10
10-May-05	-	9.37	3.89	7.84	3.57	3.97	3.92	3.45	2.30
24-May-05	-	10.07	4.20	8.10	3.86	4.19	4.12	3.67	2.47
1-Jun-05	-	10.92	4.10	8.14	3.90	4.28	4.19	3.74	2.55
10-Jun-05	-	-	4.21	8.27	3.93	4.36	4.25	3.82	2.70
17-Jun-05	-	11.09	4.09	8.24	3.95	4.41	4.25	3.82	2.58
24-Jun-05	-	11.10	4.16	8.25	3.97	4.45	4.27	3.87	2.65
30-Jun-05	-	-	4.28	8.33	4.03	4.48	4.34	3.92	2.76
8-Jul-05	-	11.39	4.47	8.50	4.04	4.63	4.43	4.06	2.94
15-Jul-05	-	11.53	4.65	8.63	4.08	4.72	4.52	4.20	3.08
22-Jul-05	-	11.66	4.82	8.75	4.14	4.85	4.63	4.36	3.23
28-Jul-05	-	11.74	4.97	8.85	4.19	4.93	4.74	4.47	3.34
4-Aug-05	-	-	4.66	8.78	4.23	4.98	4.73	4.48	3.40
12-Aug-05	15.74	11.55	4.78	8.75	4.25	5.06	4.80	4.56	3.34
18-Aug-05	15.72	11.64	4.97	8.84	4.31	5.15	4.88	4.84	3.36
26-Aug-05	-	11.46	4.46	8.59	4.35	4.98	4.88	4.46	3.17
2-Sep-05	-	11.48	4.59	8.65	4.37	5.03	4.63	4.44	3.06
9-Sep-05	-	11.04	4.81	8.76	4.43	5.12	4.60	4.44	3.07
15-Sep-05	-	11.17	4.99	8.87	4.49	5.13	4.65	4.48	3.14
23-Sep-05	-	11.39	5.21	8.98	4.57	5.20	4.77	4.60	3.24
30-Sep-05	-	11.18	4.18	8.63	4.53	5.10	4.54	4.40	2.88
7-Oct-05	-	10.96	4.30	8.52	4.51	4.99	4.47	4.24	2.52
14-Oct-05	-	11.42	4.49	8.62	4.50	4.93	4.39	4.17	2.60
21-Oct-05	-	12.24	4.70	8.76	4.51	4.94	4.36	4.15	2.68
28-Oct-05	-	11.75	4.77	8.87	4.53	4.93	4.34	4.14	2.66
4-Nov-05	-	11.88	4.75	9.04	4.46	4.79	4.24	4.02	2.46
11-Nov-05	-	10.20	3.92	8.27	4.07	4.48	4.02	3.76	2.27
2-Dec-05	-	8.45	3.76	7.87	2.70	3.57	3.42	2.96	2.06
21-Apr-06	-	10.29	3.85	7.95	3.44	3.85	3.82	3.34	2.29
15-Aug-06	-	13.30	4.24	8.57	4.09	4.50	4.31	4.01	2.65
14-Sep-06	-	13.95	4.83	9.10	4.20	4.80	4.38	4.13	2.82
28-Sep-06	15.68	13.44	4.95	9.21	-	-	-	-	2.79
5-Oct-06	15.70	13.17	4.86	9.29	4.26	4.87	4.33	4.15	2.78
6-Oct-06	15.68	13.20	4.86	9.27	4.26	4.90	4.33	4.15	2.76
10-Oct-06	-	-	-	-	-	-	-	-	-
17-Oct-06	15.63	13.27	3.97	8.87	-	-	-	-	-
20-Oct-06	15.63	11.53	3.90	8.64	3.90	4.49	3.90	3.77	2.20
27-Oct-06	15.61	11.47	3.84	8.35	3.69	4.22	3.80	3.59	2.18
3-Nov-06	15.57	10.89	3.86	8.31	3.29	4.04	3.76	3.49	2.20
6-Nov-06	15.43</								

Table C-3.1 : Historical Groundwater Levels (2003-2015)

Location	OW3	OW4	OW7s	OW7d	OW8s	OW8d	OW9s	OW9d	OW10s
10-Nov-06	15.59	10.37	3.80	8.25	3.11	3.97	3.67	3.42	2.14
14-Nov-06	15.59	10.36	3.81	8.21	-	-	-	-	2.14
17-Nov-06	15.36	10.29	3.77	8.25	3.16	3.94	3.62	3.37	2.13
24-Nov-06	15.63	10.81	3.87	8.28	3.31	3.98	3.78	3.45	2.22
1-Dec-06	15.36	10.31	3.72	8.19	3.42	3.92	3.66	3.40	1.96
15-Dec-06	15.10	9.86	3.68	8.01	2.43	3.66	3.23	3.07	1.83
26-Jan-07	15.68	11.60	3.91	8.26	3.73	4.03	3.99	3.55	2.29
9-Apr-07	15.61	10.32	3.82	8.11	3.05	3.71	3.59	3.22	2.14
21-Jun-07	15.65	13.13	4.10	8.68	3.90	4.32	4.21	3.80	2.64
27-Jul-07	15.69	13.25	4.74	9.06	4.07	4.70	4.44	4.13	2.97
22-Aug-07	15.72	13.58	5.39	9.51	4.29	5.08	4.81	4.58	3.39
31-Aug-07	15.71	13.31	5.27	9.50	4.35	5.15	4.82	4.61	3.24
26-Sep-07	15.72	13.70	5.50	9.71	4.54	5.25	4.71	4.59	3.21
19-Oct-07	15.72	13.69	5.40	9.78	4.65	5.29	4.58	4.51	3.04
17-Nov-07	15.68	13.26	4.63	9.50	4.34	4.92	4.23	4.14	2.39
20-Dec-07	15.63	13.13	4.02	9.01	3.89	4.36	4.05	3.80	2.26
7-Mar-08	15.59	12.97	3.86	8.67	3.39	3.95	3.77	3.40	-
3-Jun-08	15.70	13.70	3.97	8.86	3.81	4.18	4.04	3.67	2.24
29-Jul-08	15.70	11.63	4.40	8.88	3.96	4.48	4.29	3.96	2.65
18-Aug-08	15.68	11.80	4.40	8.93	4.00	4.53	4.26	3.95	2.55
23-Sep-08	15.72	12.26	4.25	8.87	3.94	4.52	4.19	3.92	2.52
29-Oct-08	15.71	12.14	4.02	8.81	3.90	4.45	4.02	3.81	2.19
26-Nov-08	15.71	11.33	3.89	8.43	3.35	3.98	3.82	3.51	2.19
18-Dec-08	-	-	-	-	-	-	-	-	-
6-Jan-09	15.72	11.39	4.00	8.36	3.27	3.81	3.62	3.19	2.06
20-Jan-09	15.63	11.99	4.02	8.39	3.75	4.05	4.16	3.60	2.42
24-Mar-09	15.61	11.03	3.37	8.30	3.07	3.76	3.60	3.26	2.16
8-Apr-09	-	-	-	-	-	-	-	-	-
15-Apr-09	15.64	10.58	3.87	8.24	3.62	3.85	3.62	3.29	2.08
6-Jun-09	15.73	12.13	4.09	8.57	3.86	4.27	4.15	3.75	2.33
12-Jun-09	-	-	-	-	-	-	-	-	2.48
8-Jul-09	15.70	12.09	4.00	8.51	3.85	4.30	4.10	3.75	2.45
20-Aug-09	15.68	13.03	4.57	8.95	4.03	4.63	4.34	4.02	2.73
16-Sep-09	15.71	13.34	5.23	9.28	4.16	4.90	4.60	4.38	3.15
20-Oct-09	15.71	12.93	4.23	8.79	4.05	4.65	4.16	3.92	2.40
27-Nov-09	15.68	12.82	4.06	8.56	3.82	4.26	4.10	3.74	2.49
29-Mar-10	15.71	11.93	3.94	8.40	3.47	4.04	3.88	3.54	2.30
30-Apr-10	15.70	12.45	4.05	8.57	3.81	4.25	4.12	3.74	2.27
25-May-10	15.67	12.37	4.00	8.52	3.82	4.28	4.11	3.73	2.49
25-Jun-10	15.64	12.24	3.96	8.49	3.87	4.38	4.09	3.78	2.42
26-Jul-10	15.65	12.95	4.09	8.64	3.81	4.45	4.17	3.87	2.37
26-Aug-10	15.64	12.98	4.05	8.65	3.90	4.44	3.86	3.20	2.32
4-Oct-10	15.68	12.06	3.88	8.33	3.24	4.06	3.80	3.50	1.98
1-Nov-10	15.83	12.91	4.50	8.61	3.87	4.34	3.79	4.14	2.18
6-Dec-10	15.56	12.51	4.20	8.42	-	-	3.68	3.39	2.12
6-Jan-11	15.85	12.48	3.82	8.01	3.93	4.16	3.51	3.24	2.21
9-Feb-11	15.74	12.65	3.94	8.31	3.89	4.12	4.08	3.64	2.00
25-Feb-11	15.68	-	-	-	3.92	4.20	-	-	-
23-Mar-11	15.51	12.59	3.46	7.91	3.85	4.10	3.01	3.26	1.85
4-May-11	15.64	11.16	3.83	8.15	3.04	3.76	3.48	3.17	2.19
24-May-11	15.22	11.10	3.66	8.18	2.71	4.01	3.45	3.15	1.87
27-Jun-11	15.67	12.09	3.88	8.38	3.78	4.17	3.95	3.58	2.25
26-Jul-11	15.70	13.56	4.36	8.83	4.97	4.94	4.33	3.93	2.84
30-Aug-11	15.56	13.55	4.57	8.88	4.00	4.62	4.38	4.04	2.86
22-Sep-11	15.62	13.48	3.95	8.53	3.90	4.45	4.27	3.91	2.69
26-Oct-11	15.68	12.84	3.89	8.09	3.13	3.85	3.42	3.20	2.07
29-Nov-11	15.39	10.93	3.63	8.26	2.90	3.76	3.22	3.07	1.85
11-Jan-12	15.66	13.02	3.87	8.49	3.55	4.00	3.87	3.47	2.04
27-Feb-12	15.70	12.58	3.93	8.43	3.75	4.06	3.55	3.99	2.20
8-Mar-12	-	-	3.53	8.56	-	-	-	-	1.82
15-Mar-12	-	-	3.77	8.05	-	-	-	-	2.01
21-Mar-12	-	-	3.87	8.24	-	-	-	-	2.14
29-Mar-12	15.70	12.54	3.87	8.24	3.61	4.02	3.89	3.48	2.20
25-Apr-12	15.67	12.94	4.02	8.64	3.83	4.19	4.04	3.68	2.22
28-May-12	15.68	13.26	4.18	8.85	3.85	4.30	4.22	3.78	2.60
13-Jun-12	15.67	13.29	4.24	8.90	3.92	4.43	4.25	3.86	2.52
11-Jul-12	15.78	13.64	4.68	9.12	4.40	4.70	4.42	4.06	2.60
30-Aug-12	15.70	13.34	4.30	8.99	4.06	4.68	4.25	3.99	2.40
25-Sep-12	15.69	13.33	4.19	8.96	3.99	4.67	4.15	3.94	2.20
24-Oct-12	15.62	12.83	3.96	8.57	3.45	4.14	3.86	3.57	2.22
27-Nov-12	15.68	12.80	3.97	8.55	3.41	4.11	3.98	3.58	1.99
19-Dec-12	15.65	12.53	3.88	8.44	3.83	3.96	3.78	3.45	2.14
28-Jan-13	15.67	12.65	3.90	8.36	3.79	3.92	3.94	3.50	2.13
27-Feb-13	15.71	12.78	3.85	8.16	3.81	3.91	3.83	3.42	2.12
26-Mar-13	15.45	12.59	3.89	8.42	3.82	3.95	3.77	3.37	2.14
23-Apr-13	15.27	12.24	3.78	8.10	3.44	3.46	3.21	2.84	1.62
27-May-13	15.52	12.69	3.93	8.54	3.79	4.20</			

Table C-3.1 : Historical Groundwater Levels (2003-2015)



Location	OW3	OW4	OW7s	OW7d	OW8s	OW8d	OW9s	OW9d	OW10s
19-Sep-13	15.75	14.10	5.12	9.54	4.20	4.85	4.33	4.10	2.52
25-Oct-13	-	-	-	-	-	-	3.63	3.50	2.08
30-Nov-13	-	13.20	3.90	8.68	3.46	3.98	3.79	3.46	2.16
18-Dec-13	15.69	13.30	4.12	8.82	3.58	4.01	3.94	3.54	2.27
15-Mar-14	-	++	3.70	8.18	2.92	3.95	3.44	3.30	2.00
28-Apr-14	15.60	13.10	3.85	8.50	3.25	3.84	3.65	3.29	2.10
24-May-14	15.70	13.25	3.94	8.95	3.60	4.07	3.90	3.50	2.16
27-Jun-14	15.69	13.84	4.34	9.01	3.93	4.45	3.87	4.26	2.44
15-Jul-14	15.69	13.91	4.54	9.21	4.02	4.62	3.93	4.24	2.30
12-Sep-14	15.69	14.02	5.10	9.44	4.74	5.07	4.38	4.07	2.61
23-Oct-14	-	-	-	-	-	-	3.91	3.61	-
29-Jan-15	15.69	13.67	4.01	8.58	3.76	4.06	4.06	3.65	2.36
13-Mar-15	15.69	++	4.03	8.80	3.86	4.29	4.12	3.76	++
27-Apr-15	15.68	13.51	3.93	8.49	3.54	4.00	3.85	3.49	2.18
29-May-15	15.67	14.04	4.11	8.77	3.84	4.24	4.15	3.75	2.37
30-Jun-15	15.62	14.06	4.08	8.87	3.82	4.27	4.14	3.77	2.32
28-Jul-15	15.66	14.15	4.38	9.23	3.95	4.53	4.37	4.01	2.68
27-Aug-15	15.68	14.19	4.34	9.24	4.03	4.63	4.36	4.04	2.43
29-Sep-15	15.68	14.23	4.38	9.34	4.01	4.56	4.31	4.00	2.65
22-Oct-15	15.70	14.21	4.83	9.57	4.02	4.59	4.33	4.02	2.62
17-Nov-15	15.41	13.97	3.95	9.08	3.54	4.16	3.82	3.61	2.31
23-Dec-15	15.12	13.41	3.80	8.73	3.41	3.97	3.70	3.46	2.20

**Notes:**

\*\*\* = dry

++ = frozen

- = not measured

Table C-3.1 : Historical Groundwater Levels (2003-2015)

Location	OW10d	OW11s	OW11d	OW12s	OW12d	OW13s	OW13d	OW14s	OW14d
15-Sep-03	3.05	6.19	6.11	5.66	5.86	5.95	8.12	5.65	8.74
17-Oct-03	2.30	5.94	5.55	5.35	5.25	5.13	6.97	4.02	8.29
28-Nov-03	2.16	5.88	5.35	5.31	5.08	5.10	6.82	3.89	8.15
26-Feb-04	2.30	6.06	5.50	5.42	5.31	5.22	7.29	4.34	8.53
26-Apr-04	2.32	6.09	5.46	5.36	5.23	5.12	7.32	4.05	8.43
14-May-04	2.25	5.95	5.35	5.25	5.10	5.03	6.90	3.95	8.15
21-May-04	2.40	6.12	5.45	5.33	5.20	5.15	7.15	4.10	8.30
28-May-04	1.51	3.69	4.19	4.10	4.38	4.83	6.41	3.54	7.77
4-Jun-04	2.28	5.93	5.36	5.37	5.06	5.12	6.95	4.01	8.16
11-Jun-04	2.42	6.16	5.56	5.40	5.23	5.22	7.27	4.25	8.31
17-Jun-04	2.45	6.18	5.61	5.44	5.30	5.27	7.43	4.52	8.40
25-Jun-04	2.50	6.04	5.62	5.41	5.34	5.23	7.44	4.52	8.40
9-Jul-04	2.60	6.19	5.69	5.46	5.41	5.38	7.64	4.92	8.56
16-Jul-04	2.52	5.88	5.60	5.35	5.40	5.09	7.50	4.31	8.44
22-Jul-04	2.45	6.17	5.57	5.39	5.30	5.22	7.40	4.36	8.37
29-Jul-04	2.62	6.18	5.68	5.46	5.40	5.33	7.50	4.70	8.54
5-Aug-04	2.62	6.18	5.68	5.46	5.40	5.33	7.50	4.70	8.54
13-Aug-04	2.79	6.17	5.81	5.51	5.51	5.58	7.82	5.13	8.69
19-Aug-04	2.81	6.17	5.28	5.53	5.55	5.64	7.88	5.24	8.75
26-Aug-04	2.93	6.18	5.92	5.53	5.62	5.68	7.96	5.38	8.84
2-Sep-04	2.96	6.17	5.93	5.56	5.66	5.73	8.00	5.51	8.91
9-Sep-04	2.98	6.17	5.95	5.56	5.67	5.77	7.99	5.58	8.92
16-Sep-04	3.02	6.17	5.99	5.57	5.69	5.84	8.02	5.66	8.96
23-Sep-04	3.16	6.18	6.11	5.62	5.78	5.94	8.13	5.80	9.09
7-Oct-04	3.35	6.18	6.24	5.69	5.88	6.18	8.32	6.07	9.22
14-Oct-04	3.33	6.18	6.22	5.66	5.86	6.19	8.26	6.08	9.16
21-Oct-04	3.03	6.18	6.07	5.63	5.86	6.06	8.14	5.83	9.19
28-Oct-04	2.92	6.18	5.95	5.62	5.83	6.11	8.13	5.88	9.15
3-Nov-04	2.80	6.16	5.86	5.60	5.80	6.65	8.08	5.83	9.15
11-Nov-04	2.68	6.18	5.75	5.56	5.71	5.90	7.88	5.50	9.06
18-Nov-04	2.66	6.18	5.73	5.54	5.63	5.84	7.85	5.54	8.96
25-Nov-04	2.62	6.18	5.73	5.56	5.60	5.79	7.89	5.56	8.97
2-Dec-04	2.35	5.48	5.39	5.16	5.34	4.96	7.19	4.24	8.52
9-Dec-04	2.14	4.78	5.01	4.20	4.82	4.68	6.79	3.75	8.19
16-Dec-04	2.17	5.60	5.13	5.13	5.01	5.06	6.92	3.89	8.16
23-Dec-04	2.30	6.15	5.44	5.35	5.14	5.18	7.13	4.05	8.29
13-Jan-05	2.11	5.08	5.07	4.64	4.97	4.69	6.90	3.65	8.14
31-Jan-05	2.32	6.18	5.42	5.39	5.26	5.25	7.35	4.13	8.42
21-Feb-05	2.24	5.94	5.32	5.30	5.18	5.09	7.03	3.91	8.34
24-Mar-05	2.37	6.08	5.41	5.39	5.29	5.23	7.43	4.19	8.56
26-Apr-05	2.29	5.27	5.20	4.86	5.07	4.83	7.07	3.81	8.26
10-May-05	2.38	6.13	5.34	5.32	5.16	5.17	7.19	4.06	8.33
24-May-05	2.52	6.18	5.51	5.40	5.34	5.29	7.62	4.47	8.60
1-Jun-05	2.59	6.18	5.56	5.42	5.42	5.34	7.77	4.82	8.73
10-Jun-05	2.73	6.18	5.64	5.46	5.48	5.43	7.88	4.99	8.83
17-Jun-05	2.72	6.18	5.66	5.48	5.51	5.47	7.87	5.06	8.89
24-Jun-05	2.73	6.18	5.66	5.47	5.55	5.54	7.96	5.17	8.95
30-Jun-05	2.81	6.18	5.69	5.48	5.59	5.58	8.02	5.24	8.97
8-Jul-05	2.97	6.19	5.82	5.53	5.67	5.68	8.12	5.45	9.12
15-Jul-05	3.08	6.19	5.91	5.57	5.73	5.76	8.16	5.59	9.16
22-Jul-05	3.20	6.19	6.00	5.62	5.81	5.84	8.18	5.72	9.25
28-Jul-05	3.29	6.18	6.08	5.64	5.88	5.92	8.25	5.87	9.31
4-Aug-05	3.31	6.19	6.10	5.64	5.88	6.00	8.29	5.91	9.30
12-Aug-05	3.26	6.19	6.10	5.64	5.93	6.07	8.32	5.98	9.34
18-Aug-05	3.31	6.18	6.15	5.67	6.01	6.16	8.37	6.07	9.43
26-Aug-05	3.15	6.19	6.02	5.66	5.99	6.19	8.32	6.04	9.41
2-Sep-05	3.12	6.18	6.00	5.69	6.02	6.26	8.40	6.10	9.50
9-Sep-05	3.14	6.18	6.00	5.72	6.04	6.32	8.39	6.19	9.46
15-Sep-05	3.22	6.18	6.06	5.77	6.09	6.38	8.44	6.30	9.55
23-Sep-05	3.24	6.18	6.13	5.81	6.18	6.46	8.52	6.41	9.52
30-Sep-05	2.91	6.19	5.98	5.75	6.12	6.30	8.31	6.14	9.46
7-Oct-05	2.70	6.19	5.83	5.71	6.06	6.30	8.33	6.18	9.50
14-Oct-05	2.74	6.19	5.79	5.68	6.04	6.34	8.38	6.24	9.49
21-Oct-05	2.84	6.20	5.82	5.69	6.05	6.40	8.42	6.37	9.56
28-Oct-05	2.86	6.19	5.84	5.70	6.07	6.41	8.44	6.40	9.57
4-Nov-05	2.65	6.19	5.72	5.65	5.97	6.32	8.30	6.27	9.48
11-Nov-05	2.34	6.17	5.51	5.49	5.68	5.30	7.50	5.03	9.03
2-Dec-05	1.87	4.73	4.58	4.28	4.65	4.89	6.62	3.57	8.11
21-Apr-06	2.27	6.02	5.25	5.26	5.15	5.11	7.03	3.84	8.52
15-Aug-06	2.71	6.19	5.70	5.53	5.72	5.80	7.96	5.40	9.16
14-Sep-06	2.94	6.18	5.84	5.62	5.86	6.08	8.18	5.79	9.35
28-Sep-06	2.97	6.18	5.84	-	-	6.17	8.23	5.92	9.47
5-Oct-06	3.05	6.18	5.86	5.61	5.93	6.21	8.24	5.96	9.50
6-Oct-06	3.00	6.18	5.86	5.62	5.95	6.23	8.28	5.89	9.52
10-Oct-06	-	-	-	-	-	-	-	-	-
17-Oct-06	-	-	-	-	-	-	-	4.97	9.27
20-Oct-06	2.46	6.00							

Table C-3.1 : Historical Groundwater Levels (2003-2015)

Location	OW10d	OW11s	OW11d	OW12s	OW12d	OW13s	OW13d	OW14s	OW14d
10-Nov-06	2.24	5.47	5.15	4.68	4.97	4.96	6.85	3.79	8.42
14-Nov-06	2.19	-	-	-	-	-	-	3.79	8.38
17-Nov-06	2.22	5.43	5.16	4.90	5.04	4.94	6.88	3.75	8.44
24-Nov-06	2.28	5.89	5.25	5.27	5.15	5.12	7.00	3.91	8.50
1-Dec-06	2.21	5.33	5.18	5.04	5.11	4.87	7.02	3.72	8.43
15-Dec-06	1.91	4.44	4.67	3.90	4.50	4.66	6.47	3.52	8.21
26-Jan-07	2.31	6.14	5.40	5.33	5.27	5.20	7.25	4.07	8.65
9-Apr-07	2.16	5.58	5.10	4.84	4.92	5.05	6.86	3.78	8.44
21-Jun-07	2.71	6.18	5.59	5.42	5.45	5.36	7.69	4.69	8.88
27-Jul-07	3.10	6.19	5.87	5.51	5.74	5.80	8.08	5.64	9.16
22-Aug-07	3.47	6.18	6.19	5.70	6.01	6.16	8.45	6.08	9.48
31-Aug-07	3.31	6.19	6.16	5.73	6.06	6.26	8.42	6.19	9.52
26-Sep-07	3.36	6.19	6.16	5.83	6.18	6.46	8.51	6.47	9.64
19-Oct-07	3.25	6.18	6.10	5.83	6.22	6.52	8.55	6.55	9.79
17-Nov-07	2.70	6.18	5.78	5.67	5.99	6.18	8.30	5.92	9.56
20-Dec-07	2.42	6.18	5.53	5.45	5.47	5.36	7.60	4.58	8.92
7-Mar-08	-	5.31	5.16	5.12	5.14	5.08	7.06	3.77	8.56
3-Jun-08	2.43	6.11	5.50	5.30	5.35	5.27	7.55	4.18	8.74
29-Jul-08	2.71	6.18	5.69	5.40	5.50	5.63	7.90	5.09	9.01
18-Aug-08	2.66	6.18	5.68	5.40	5.62	5.58	7.83	5.12	9.06
23-Sep-08	2.62	6.18	5.65	5.37	5.60	5.42	7.67	4.78	9.03
29-Oct-08	2.39	6.10	5.57	5.37	5.55	5.32	7.64	4.44	9.02
26-Nov-08	2.21	6.06	5.34	5.17	5.13	5.09	7.08	3.82	8.57
18-Dec-08	-	-	-	-	-	-	-	-	-
6-Jan-09	2.21	5.92	5.90	5.21	5.10	5.04	6.95	3.87	8.42
20-Jan-09	2.32	6.20	5.46	5.30	5.30	5.26	7.40	4.15	8.58
24-Mar-09	2.12	5.61	5.11	4.84	4.95	5.02	6.95	3.82	8.51
8-Apr-09	-	-	-	-	-	-	-	-	-
15-Apr-09	2.11	5.17	5.01	4.93	5.03	5.04	7.00	3.80	8.54
6-Jun-09	2.55	6.17	5.57	5.29	5.41	5.31	7.68	4.51	8.89
12-Jun-09	2.52	6.16	5.55	-	-	-	-	-	-
8-Jul-09	2.25	6.16	5.55	5.29	5.40	5.27	7.51	4.30	8.90
20-Aug-09	2.83	6.17	5.75	5.36	5.68	5.70	8.03	4.34	9.22
16-Sep-09	3.14	6.16	6.04	5.53	5.89	5.96	8.28	5.72	9.46
20-Oct-09	2.49	6.16	5.63	5.48	5.73	6.00	8.22	5.53	9.34
27-Nov-09	2.41	6.16	5.51	5.38	5.36	5.32	7.67	4.30	8.88
29-Mar-10	2.28	6.12	5.38	5.30	5.23	5.19	7.23	3.96	8.75
30-Apr-10	2.24	6.16	5.53	5.30	5.23	5.19	7.23	3.96	8.75
25-May-10	2.45	6.17	5.52	5.33	5.38	5.24	7.68	4.32	8.91
25-Jun-10	2.08	6.14	5.54	5.37	5.46	5.27	7.59	4.26	8.93
26-Jul-10	2.60	6.18	5.67	5.41	5.48	5.36	7.61	4.65	8.98
26-Aug-10	2.49	6.18	5.65	5.43	5.51	5.40	7.69	4.75	9.08
4-Oct-10	2.17	5.85	5.37	4.41	4.92	5.10	7.50	3.90	8.68
1-Nov-10	2.40	6.18	5.68	5.42	5.45	6.41	7.78	4.69	9.04
6-Dec-10	2.31	4.79	4.29	-	-	5.64	7.19	4.05	8.72
6-Jan-11	2.40	5.42	4.97	5.49	5.42	6.11	6.73	4.26	8.91
9-Feb-11	2.26	6.10	5.12	5.54	5.45	6.16	7.43	4.33	9.05
25-Feb-11	-	-	-	-	-	6.23	7.04	-	-
23-Mar-11	1.82	5.34	4.90	5.48	5.39	5.92	6.62	4.12	8.24
4-May-11	2.05	5.42	4.93	4.74	4.88	4.99	6.81	3.70	8.50
24-May-11	2.10	5.03	4.68	4.17	4.92	4.66	6.99	3.70	8.47
27-Jun-11	2.26	6.06	5.39	5.24	5.29	5.05	7.22	3.98	8.81
26-Jul-11	2.77	6.16	5.73	5.39	5.55	5.47	7.77	5.72	9.06
30-Aug-11	2.92	6.16	5.80	5.42	5.67	6.34	7.90	5.27	9.08
22-Sep-11	2.77	5.70	5.16	5.37	5.52	5.21	7.43	4.30	8.73
26-Oct-11	2.13	5.52	4.99	4.92	4.99	5.30	7.02	3.97	8.40
29-Nov-11	2.09	4.96	4.66	3.91	4.65	4.72	6.74	3.56	8.51
11-Jan-12	2.25	5.43	5.27	5.14	5.18	5.07	6.82	3.93	8.68
27-Feb-12	2.24	5.55	5.38	5.24	5.20	5.11	7.13	4.01	8.71
8-Mar-12	2.13	-	-	-	-	-	-	-	-
15-Mar-12	2.15	-	-	-	-	-	-	-	-
21-Mar-12	2.19	-	-	-	-	-	-	-	-
29-Mar-12	2.26	5.72	5.25	5.21	5.25	5.12	7.17	4.84	8.72
25-Apr-12	2.40	6.09	5.53	5.29	5.32	5.18	7.54	4.28	8.95
28-May-12	2.61	6.16	5.58	5.32	5.39	5.28	7.58	4.67	8.88
13-Jun-12	2.65	6.17	5.67	5.38	5.50	5.31	7.60	4.69	8.91
11-Jul-12	2.84	6.17	5.81	5.51	5.77	5.42	7.77	4.81	9.01
30-Aug-12	2.62	6.17	5.76	5.43	5.70	5.48	7.76	5.35	9.22
25-Sep-12	2.56	6.16	5.73	5.40	5.67	5.38	7.64	5.26	9.19
24-Oct-12	2.25	5.84	5.37	5.12	5.17	5.13	7.12	4.03	8.78
27-Nov-12	2.15	5.26	5.24	5.08	5.16	5.25	7.18	4.12	8.92
19-Dec-12	2.23	5.98	5.32	5.20	5.15	4.97	6.98	3.84	8.69
28-Jan-13	2.16	6.03	5.32	5.25	5.18	5.09	7.02	3.94	8.50
27-Feb-13	2.19	5.76	5.23	5.19	5.15	5.05	6.87	3.90	8.44
26-Mar-13	2.16	5.57	5.19	5.25	5.14	5.09	6.98	3.91	8.69
23-Apr-13	1.74	4.56	4.28	4.50	4.20	4.87	6.51	3.58	8.30
27-May-13	2.38	6.10	5.52	5.27	5.29	5.12	7.23	4.00	8.82
17-Jun-13	2.56	6.02	5.63	5.36	5.37	5.25	7.40	4.47	9.86
29-Jul-13	2.87</td								

Table C-3.1 : Historical Groundwater Levels (2003-2015)



Location	OW10d	OW11s	OW11d	OW12s	OW12d	OW13s	OW13d	OW14s	OW14d
19-Sep-13	2.88	6.16	5.80	5.55	5.87	6.00	7.98	5.70	9.30
25-Oct-13	2.20	5.14	5.08	-	-	-	-	-	-
30-Nov-13	2.19	5.71	5.24	5.15	5.25	5.07	6.92	3.95	8.52
18-Dec-13	2.33	6.15	5.38	5.35	5.47	5.19	7.12	4.11	8.68
15-Mar-14	2.07	5.11	5.10	4.40	4.84	4.70	6.63	3.60	8.21
28-Apr-14	2.15	5.54	5.14	5.03	5.05	4.99	6.82	3.83	8.51
24-May-14	2.30	6.12	5.48	5.14	5.18	-	-	3.99	8.66
27-Jun-14	2.70	6.17	5.71	5.42	5.51	5.42	7.63	5.00	9.05
15-Jul-14	2.67	6.17	5.68	5.53	5.60	5.66	7.67	5.16	9.07
12-Sep-14	2.88	6.17	5.74	5.73	5.88	5.72	7.81	5.40	9.15
23-Oct-14	-	5.83	5.39	-	-	-	-	-	-
29-Jan-15	2.41	6.15	5.46	5.23	5.28	5.14	7.14	4.11	8.69
13-Mar-15	++	-	-	5.38	5.40	5.29	7.49	4.69	8.96
27-Apr-15	2.29	5.79	4.96	5.17	5.25	5.09	6.99	3.98	8.69
29-May-15	2.58	6.33	5.00	5.39	5.53	5.34	7.34	4.63	8.80
30-Jun-15	2.62	-	-	5.33	5.34	5.16	7.32	4.41	8.83
28-Jul-15	2.93	-	-	5.45	5.64	5.49	7.67	5.10	9.09
27-Aug-15	2.96	-	-	5.48	5.66	5.58	7.70	5.37	9.10
29-Sep-15	2.89	-	-	5.47	5.61	5.55	7.60	5.20	9.04
22-Oct-15	2.98	-	-	5.50	5.65	5.70	7.73	5.44	9.16
17-Nov-15	2.40	-	-	4.87	5.03	4.98	6.84	4.03	8.45
23-Dec-15	2.11	-	-	4.94	5.05	4.88	6.74	3.91	8.39

**Notes:**

\*\*\* = dry

++ = frozen

- = not measured

Table C-3.1 : Historical Groundwater Levels (2003-2015)

Location	OW15s	OW15d	OW16s	OW16d	OW24	OW25s	OW25d	OW26	OW27s
15-Sep-03	5.82	9.10	4.90	4.86	-	-	-	-	-
17-Oct-03	5.16	4.95	3.55	3.57	-	-	-	-	-
28-Nov-03	4.65	4.69	3.44	3.41	-	-	-	-	-
26-Feb-04	5.24	5.05	4.17	4.23	-	-	-	-	-
26-Apr-04	5.19	4.98	2.79	4.38	-	-	-	-	-
14-May-04	4.78	4.77	3.75	4.13	-	-	-	-	-
21-May-04	5.10	4.96	3.95	3.97	-	-	-	-	-
28-May-04	3.82	3.91	3.55	3.53	-	-	-	-	-
4-Jun-04	4.74	4.75	3.75	3.81	-	-	-	-	-
11-Jun-04	5.22	5.05	3.95	4.08	-	-	-	-	-
17-Jun-04	5.30	5.12	4.00	4.21	-	-	-	-	-
25-Jun-04	5.30	5.14	3.92	3.94	-	-	-	-	-
9-Jul-04	5.35	5.23	4.30	4.45	-	-	-	-	-
16-Jul-04	5.29	5.13	3.78	3.81	-	-	-	-	-
22-Jul-04	5.27	5.11	3.99	4.03	-	-	-	-	-
29-Jul-04	5.33	5.21	4.29	4.34	-	-	-	-	-
5-Aug-04	5.33	5.21	4.29	4.34	-	-	-	-	-
13-Aug-04	5.37	5.35	4.58	4.58	-	-	-	-	-
19-Aug-04	5.40	5.39	4.83	4.95	-	-	-	-	-
26-Aug-04	5.43	5.48	5.04	5.06	-	-	-	-	-
2-Sep-04	5.45	5.53	4.99	5.09	-	-	-	-	-
9-Sep-04	5.48	5.57	4.99	5.01	-	-	-	-	-
16-Sep-04	5.52	5.64	5.24	5.29	-	-	-	-	-
23-Sep-04	5.58	5.76	5.45	5.43	-	-	-	-	-
7-Oct-04	5.70	5.95	5.67	5.62	-	-	-	-	-
14-Oct-04	5.71	5.97	5.64	5.59	-	-	-	-	-
21-Oct-04	5.69	5.84	4.74	4.76	-	-	-	-	-
28-Oct-04	5.68	5.77	4.83	4.88	-	-	-	-	-
3-Nov-04	5.61	5.67	4.65	4.87	-	-	-	-	-
11-Nov-04	5.53	5.53	4.51	4.86	-	-	-	-	-
18-Nov-04	5.50	5.47	4.72	4.79	-	-	-	-	-
25-Nov-04	5.47	5.43	4.81	4.95	-	-	-	-	-
2-Dec-04	5.24	5.03	3.96	4.36	-	-	-	-	-
9-Dec-04	4.37	4.48	3.63	4.37	-	-	-	-	-
16-Dec-04	4.54	4.62	3.76	4.17	-	-	-	-	-
23-Dec-04	4.81	4.83	3.88	4.64	-	-	-	-	-
13-Jan-05	4.25	4.44	3.29	-	-	-	-	-	-
31-Jan-05	5.13	5.04	3.93	5.31	-	-	-	-	-
21-Feb-05	5.12	4.90	3.71	5.17	-	-	-	-	-
24-Mar-05	5.28	5.08	3.95	5.76	-	-	-	-	-
26-Apr-05	4.93	4.80	3.56	6.47	-	-	-	-	-
10-May-05	5.02	4.94	3.79	7.25	-	-	-	-	-
24-May-05	5.30	5.15	3.86	9.03	-	-	-	-	-
1-Jun-05	5.33	5.20	3.93	10.07	-	-	-	-	-
10-Jun-05	5.35	5.27	4.05	10.30	-	-	-	-	-
17-Jun-05	5.37	5.29	3.75	10.00	-	-	-	-	-
24-Jun-05	5.38	5.32	3.97	10.00	-	-	-	-	-
30-Jun-05	5.40	5.39	4.18	10.12	-	-	-	-	-
8-Jul-05	5.43	5.53	4.43	10.27	-	-	-	-	-
15-Jul-05	5.48	5.66	4.64	10.39	-	-	-	-	-
22-Jul-05	5.54	5.84	4.86	10.45	-	-	-	-	-
28-Jul-05	5.58	5.91	4.98	10.40	-	-	-	-	-
4-Aug-05	5.63	5.96	4.40	9.88	-	-	-	-	-
12-Aug-05	5.69	6.00	4.46	9.84	-	-	-	-	-
18-Aug-05	5.72	6.05	4.72	10.17	-	-	-	-	-
26-Aug-05	5.75	6.00	4.21	9.73	-	-	-	-	-
2-Sep-05	5.77	6.01	4.28	9.93	-	-	-	-	-
9-Sep-05	5.80	6.07	4.56	10.30	-	-	-	-	-
15-Sep-05	5.84	6.14	4.67	10.45	-	-	-	-	-
23-Sep-05	5.89	6.22	4.88	10.75	-	-	-	-	-
30-Sep-05	5.87	6.07	3.87	9.82	-	-	-	-	-
7-Oct-05	5.87	5.99	3.97	10.00	-	-	-	-	-
14-Oct-05	5.86	5.96	4.28	10.38	-	-	-	-	-
21-Oct-05	5.85	5.93	4.46	10.06	-	-	-	-	-
28-Oct-05	5.86	5.92	4.42	10.85	-	-	-	-	-
4-Nov-05	5.78	5.77	4.03	10.63	-	-	-	-	-
11-Nov-05	5.44	5.33	3.50	10.08	-	-	-	-	-
2-Dec-05	4.05	4.22	3.15	10.07	-	-	-	-	-
21-Apr-06	4.88	4.82	3.26	11.01	-	-	-	-	-
15-Aug-06	5.45	5.49	3.96	12.51	-	-	-	-	-
14-Sep-06	5.56	5.76	4.38	13.33	-	-	-	-	-
28-Sep-06	-	-	-	-	-	-	-	-	-
5-Oct-06	5.59	5.75	5.38	9.41	-	-	-	-	-
6-Oct-06	5.59	5.75	5.42	9.44	1.10	4.70	-	4.17	-
10-Oct-06	-	-	-	-	1.02	4.71	4.03	3.95	-
17-Oct-06	-	-	4.80	8.25	0.83	4.55	4.18	6.77	4.71
20-Oct-06	5.13	5.32	4.75	7.79	0.80	4.15	4.46	-	4.30
27-Oct-06	5.12	4.91	4.82	7.23	0.66	4.31	4.05	3.04	3.95
3-Nov-06	4.67	4.71	4.86	7.36	0.56	4.25	3.97	2.71	3.68
6-Nov-06	-	-	4.75	7.15	-	-	-	-	-

Table C-3.1 : Historical Groundwater Levels (2003-2015)

Location	OW15s	OW15d	OW16s	OW16d	OW24	OW25s	OW25d	OW26	OW27s
10-Nov-06	4.49	4.60	4.76	7.40	-	-	-	-	-
14-Nov-06	-	-	4.74	7.53	-	-	-	-	-
17-Nov-06	4.53	4.50	4.67	7.56	0.42	4.14	3.87	2.45	3.44
24-Nov-06	4.74	4.77	4.79	7.94	0.43	4.21	3.90	2.49	3.52
1-Dec-06	4.90	4.72	4.69	7.51	0.27	4.15	3.85	-	3.41
15-Dec-06	3.84	4.07	4.56	7.70	Submerged	3.83	3.70	2.14	3.16
26-Jan-07	5.24	5.00	4.84	8.92	0.41	4.24	3.92	2.83	3.65
9-Apr-07	4.44	4.55	4.63	9.07	Submerged	4.05	3.78	2.33	3.37
21-Jun-07	5.33	5.20	4.55	11.17	0.64	4.38	4.03	3.22	4.26
27-Jul-07	5.44	5.59	7.02	8.61	0.90	4.61	4.26	3.98	5.12
22-Aug-07	5.66	6.05	6.35	14.89	1.16	4.87	4.51	4.53	5.75
31-Aug-07	5.73	6.11	8.12	15.36	1.12	4.79	4.45	4.60	5.71
26-Sep-07	5.87	6.24	-	-	1.19	4.87	4.53	4.75	5.85
19-Oct-07	5.94	6.24	-	-	1.12	4.83	4.50	4.70	5.75
17-Nov-07	5.60	5.68	-	-	0.95	4.68	4.36	4.16	5.09
20-Dec-07	5.28	5.13	-	-	0.71	4.48	4.18	3.24	4.34
7-Mar-08	4.84	4.78	-	-	0.33	4.14	3.84	2.45	3.53
3-Jun-08	5.28	5.07	-	-	0.46	4.23	3.90	2.85	3.80
29-Jul-08	5.37	5.36	-	-	0.68	4.40	4.06	3.63	4.62
18-Aug-08	5.40	5.40	-	-	0.68	4.40	4.07	3.71	4.75
23-Sep-08	5.39	5.32	-	-	0.67	4.37	4.06	3.63	4.60
29-Oct-08	5.34	5.19	-	-	0.59	4.32	4.02	3.46	4.30
26-Nov-08	4.77	4.81	-	-	0.34	4.16	3.87	2.46	3.60
18-Dec-08	-	-	-	-	-	-	-	-	-
6-Jan-09	4.67	4.73	-	-	0.29	4.16	3.86	2.11	3.37
20-Jan-09	5.27	5.05	-	-	0.37	4.21	3.91	2.60	3.69
24-Mar-09	4.46	4.57	-	-	0.26	4.05	3.79	2.23	3.40
8-Apr-09	-	-	-	-	0.20	4.05	3.77	2.29	3.41
15-Apr-09	4.58	4.64	-	-	0.28	4.05	3.77	2.29	3.41
6-Jun-09	5.32	5.15	-	-	0.50	4.27	3.97	2.98	3.91
12-Jun-09	-	-	-	-	1.62	-	-	-	-
8-Jul-09	5.32	5.11	-	-	1.63	4.26	3.97	3.00	3.89
20-Aug-09	5.41	5.47	-	-	1.79	4.41	4.10	3.78	4.38
16-Sep-09	5.55	5.83	-	-	2.07	4.60	4.29	4.18	5.25
20-Oct-09	5.43	5.38	-	-	1.88	4.43	4.14	3.67	4.63
27-Nov-09	5.30	5.11	-	-	1.70	4.30	4.03	2.89	3.86
29-Mar-10	4.91	4.90	-	-	1.51	4.17	3.93	2.59	3.59
30-Apr-10	4.91	4.90	-	-	1.63	4.17	3.93	2.59	3.86
25-May-10	5.29	5.12	-	-	1.67	4.27	4.01	3.01	3.92
25-Jun-10	5.32	5.16	-	-	1.69	4.28	4.00	3.23	3.90
26-Jul-10	5.54	5.23	-	-	1.71	4.30	4.02	3.39	3.92
26-Aug-10	5.36	5.25	-	-	1.75	4.33	4.05	3.33	4.40
4-Oct-10	4.64	4.72	-	-	1.52	4.15	3.88	2.62	3.81
1-Nov-10	5.32	5.14	-	-	1.59	4.25	3.96	3.47	3.86
6-Dec-10	-	-	-	-	1.48	4.16	3.81	-	3.45
6-Jan-11	5.44	5.21	-	-	1.31	4.62	3.83	3.56	3.39
9-Feb-11	5.28	5.08	-	-	1.54	4.64	3.97	3.60	3.54
25-Feb-11	-	-	-	-	-	5.03	3.88	-	-
23-Mar-11	3.26	3.01	-	-	1.36	4.56	3.74	3.41	3.21
4-May-11	4.43	4.54	-	-	1.27	3.97	3.78	2.38	3.35
24-May-11	4.30	4.47	-	-	1.35	4.17	3.87	2.61	3.40
27-Jun-11	5.01	5.23	-	-	1.56	4.13	3.89	2.96	3.73
26-Jul-11	5.34	5.36	-	-	1.70	4.33	4.06	3.48	4.50
30-Aug-11	5.40	5.46	-	-	1.84	4.36	4.08	3.72	4.37
22-Sep-11	5.28	5.36	-	-	1.66	4.31	4.03	3.48	4.22
26-Oct-11	4.52	4.61	-	-	1.41	4.01	3.79	2.35	3.27
29-Nov-11	3.92	4.15	-	-	1.43	3.82	3.70	2.53	3.32
11-Jan-12	4.89	5.04	-	-	++	4.11	3.86	2.54	3.56
27-Feb-12	4.99	5.24	-	-	1.53	4.18	3.92	2.75	3.68
8-Mar-12	-	-	-	-	-	-	-	-	-
15-Mar-12	-	-	-	-	-	-	-	-	-
21-Mar-12	-	-	-	-	-	-	-	-	-
29-Mar-12	4.93	5.08	-	-	1.38	4.19	3.95	2.63	3.61
25-Apr-12	5.05	5.27	-	-	1.60	4.18	3.93	2.98	3.81
28-May-12	5.17	5.32	-	-	1.71	4.34	4.08	3.13	4.08
13-Jun-12	5.26	5.34	-	-	1.80	4.38	4.11	3.38	4.12
11-Jul-12	5.42	5.53	-	-	2.25	4.50	4.22	3.92	4.51
30-Aug-12	5.47	5.50	-	-	1.96	4.49	4.23	3.90	4.45
25-Sep-12	5.40	5.42	-	-	1.90	4.33	4.18	3.87	4.39
24-Oct-12	4.87	4.88	-	-	1.55	4.19	3.97	3.79	3.77
27-Nov-12	4.91	4.93	-	-	1.56	4.17	3.92	3.72	3.66
19-Dec-12	4.83	4.95	-	-	1.52	4.11	3.88	2.46	3.47
28-Jan-13	4.81	4.90	-	-	1.40	4.12	3.88	2.54	3.59
27-Feb-13	4.84	4.91	-	-	++	4.09	3.85	2.58	3.55
26-Mar-13	4.86	4.94	-	-	1.49	4.09	3.86	2.58	3.50
23-Apr-13	3.79	3.94	-	-	1.40	3.85	3.71	2.15	3.17
27-May-13	5.03	5.21	-	-	1.60	4.16	3.91	2.94	3.76
17-Jun-13	5.15	5.30	-	-	1.67	4.23	3.96	3.09	3.91
29-Jul-13	5.40	5.53	-	-	1.92	4.39	4.12	3.70	4.35
31-Aug-13	-	-	-	-	-	-	-	-	-

Table C-3.1 : Historical Groundwater Levels (2003-2015)



Location	OW15s	OW15d	OW16s	OW16d	OW24	OW25s	OW25d	OW26	OW27s
19-Sep-13	5.57	5.73	-	-	2.00	4.47	4.20	4.19	4.68
25-Oct-13	-	-	-	-	1.68	-	-	-	3.83
30-Nov-13	4.87	4.92	-	-	1.52	4.11	3.88	2.50	3.50
18-Dec-13	4.91	5.01	-	-	++	4.26	3.97	2.78	3.72
15-Mar-14	4.30	4.44	-	-	1.45	3.72	3.88	2.51	3.36
28-Apr-14	4.67	4.68	-	-	1.43	3.80	4.03	2.56	3.41
24-May-14	4.93	5.10	-	-	1.55	3.87	4.12	-	-
27-Jun-14	5.29	5.35	-	-	1.78	4.03	4.31	2.62	4.10
15-Jul-14	5.40	5.41	-	-	1.88	4.09	4.36	2.80	4.34
12-Sep-14	5.46	5.67	-	-	1.88	4.10	4.37	3.01	4.38
23-Oct-14	-	-	-	-	1.61	4.15	3.90	-	3.68
29-Jan-15	5.02	5.26	-	-	-	4.18	3.90	2.81	3.77
13-Mar-15	5.13	5.31	-	-	++	4.22	3.96	3.12	3.98
27-Apr-15	4.87	4.90	-	-	1.41	4.11	3.87	2.60	3.55
29-May-15	5.14	5.31	-	-	1.60	4.23	3.96	3.05	3.92
30-Jun-15	5.12	5.30	-	-	1.69	4.24	3.96	3.06	3.98
28-Jul-15	5.37	5.37	-	-	1.78	4.38	4.10	3.60	4.34
27-Aug-15	5.44	5.50	-	-	1.82	4.40	4.12	3.91	4.53
29-Sep-15	5.44	5.44	-	-	1.74	4.37	4.09	3.71	4.36
22-Oct-15	5.45	5.48	-	-	1.76	4.37	4.09	3.75	4.36
17-Nov-15	4.89	5.01	-	-	1.56	4.15	3.92	2.85	3.83
23-Dec-15	4.75	4.83	-	-	1.39	4.05	3.82	2.46	3.43

**Notes:**

\*\*\* = dry

++ = frozen

- = not measured

Table C-3.1 : Historical Groundwater Levels (2003-2015)

Location	OW27d	OW28s	OW28d	OW29s	OW29d	OW30s	OW30d	OW31s	OW31d
15-Sep-03	-	-	-	-	-	-	-	-	-
17-Oct-03	-	-	-	-	-	-	-	-	-
28-Nov-03	-	-	-	-	-	-	-	-	-
26-Feb-04	-	-	-	-	-	-	-	-	-
26-Apr-04	-	-	-	-	-	-	-	-	-
14-May-04	-	-	-	-	-	-	-	-	-
21-May-04	-	-	-	-	-	-	-	-	-
28-May-04	-	-	-	-	-	-	-	-	-
4-Jun-04	-	-	-	-	-	-	-	-	-
11-Jun-04	-	-	-	-	-	-	-	-	-
17-Jun-04	-	-	-	-	-	-	-	-	-
25-Jun-04	-	-	-	-	-	-	-	-	-
9-Jul-04	-	-	-	-	-	-	-	-	-
16-Jul-04	-	-	-	-	-	-	-	-	-
22-Jul-04	-	-	-	-	-	-	-	-	-
29-Jul-04	-	-	-	-	-	-	-	-	-
5-Aug-04	-	-	-	-	-	-	-	-	-
13-Aug-04	-	-	-	-	-	-	-	-	-
19-Aug-04	-	-	-	-	-	-	-	-	-
26-Aug-04	-	-	-	-	-	-	-	-	-
2-Sep-04	-	-	-	-	-	-	-	-	-
9-Sep-04	-	-	-	-	-	-	-	-	-
16-Sep-04	-	-	-	-	-	-	-	-	-
23-Sep-04	-	-	-	-	-	-	-	-	-
7-Oct-04	-	-	-	-	-	-	-	-	-
14-Oct-04	-	-	-	-	-	-	-	-	-
21-Oct-04	-	-	-	-	-	-	-	-	-
28-Oct-04	-	-	-	-	-	-	-	-	-
3-Nov-04	-	-	-	-	-	-	-	-	-
11-Nov-04	-	-	-	-	-	-	-	-	-
18-Nov-04	-	-	-	-	-	-	-	-	-
25-Nov-04	-	-	-	-	-	-	-	-	-
2-Dec-04	-	-	-	-	-	-	-	-	-
9-Dec-04	-	-	-	-	-	-	-	-	-
16-Dec-04	-	-	-	-	-	-	-	-	-
23-Dec-04	-	-	-	-	-	-	-	-	-
13-Jan-05	-	-	-	-	-	-	-	-	-
31-Jan-05	-	-	-	-	-	-	-	-	-
21-Feb-05	-	-	-	-	-	-	-	-	-
24-Mar-05	-	-	-	-	-	-	-	-	-
26-Apr-05	-	-	-	-	-	-	-	-	-
10-May-05	-	-	-	-	-	-	-	-	-
24-May-05	-	-	-	-	-	-	-	-	-
1-Jun-05	-	-	-	-	-	-	-	-	-
10-Jun-05	-	-	-	-	-	-	-	-	-
17-Jun-05	-	-	-	-	-	-	-	-	-
24-Jun-05	-	-	-	-	-	-	-	-	-
30-Jun-05	-	-	-	-	-	-	-	-	-
8-Jul-05	-	-	-	-	-	-	-	-	-
15-Jul-05	-	-	-	-	-	-	-	-	-
22-Jul-05	-	-	-	-	-	-	-	-	-
28-Jul-05	-	-	-	-	-	-	-	-	-
4-Aug-05	-	-	-	-	-	-	-	-	-
12-Aug-05	-	-	-	-	-	-	-	-	-
18-Aug-05	-	-	-	-	-	-	-	-	-
26-Aug-05	-	-	-	-	-	-	-	-	-
2-Sep-05	-	-	-	-	-	-	-	-	-
9-Sep-05	-	-	-	-	-	-	-	-	-
15-Sep-05	-	-	-	-	-	-	-	-	-
23-Sep-05	-	-	-	-	-	-	-	-	-
30-Sep-05	-	-	-	-	-	-	-	-	-
7-Oct-05	-	-	-	-	-	-	-	-	-
14-Oct-05	-	-	-	-	-	-	-	-	-
21-Oct-05	-	-	-	-	-	-	-	-	-
28-Oct-05	-	-	-	-	-	-	-	-	-
4-Nov-05	-	-	-	-	-	-	-	-	-
11-Nov-05	-	-	-	-	-	-	-	-	-
2-Dec-05	-	-	-	-	-	-	-	-	-
21-Apr-06	-	-	-	-	-	-	-	-	-
15-Aug-06	-	9.25	13.60	-	-	-	-	-	-
14-Sep-06	-	9.32	13.67	-	-	-	-	-	-
28-Sep-06	-	9.32	13.67	-	-	-	-	-	-
5-Oct-06	-	9.32	13.54	-	-	-	-	-	-
6-Oct-06	-	9.35	13.66	-	-	-	-	-	-
10-Oct-06	-	-	-	-	-	-	-	-	-
17-Oct-06	4.56	9.22	11.84	-	-	-	-	-	-
20-Oct-06	4.43	9.23	12.17	-	-	-	-	-	-
27-Oct-06	4.04	9.18	10.55	-	-	-	-	-	-
3-Nov-06	3.85	9.19	10.90	-	-	-	-	-	-
6-Nov-06	-	-	-	-	-	-	-	-	-

Table C-3.1 : Historical Groundwater Levels (2003-2015)

Location	OW27d	OW28s	OW28d	OW29s	OW29d	OW30s	OW30d	OW31s	OW31d
10-Nov-06	-	-	-	-	-	-	-	-	-
14-Nov-06	-	9.13	9.54	-	-	-	-	-	-
17-Nov-06	3.70	8.98	8.75	-	-	-	-	-	-
24-Nov-06	3.71	9.20	10.85	-	-	-	-	-	-
1-Dec-06	3.65	8.96	8.71	-	-	-	-	-	-
15-Dec-06	3.55	7.73	7.44	-	-	-	-	-	-
26-Jan-07	3.74	9.20	12.20	-	-	-	-	-	-
9-Apr-07	3.58	9.07	9.08	-	-	-	-	-	-
21-Jun-07	4.13	9.23	13.15	-	-	-	-	-	-
27-Jul-07	4.64	9.26	13.61	-	-	-	-	-	-
22-Aug-07	5.10	9.36	13.68	5.04	5.22	-	-	-	-
31-Aug-07	5.14	9.38	13.67	4.48	4.73	5.59	11.83	-	-
26-Sep-07	5.25	9.37	13.69	4.85	4.69	5.98	12.28	-	-
19-Oct-07	5.19	9.27	13.66	4.46	4.62	6.04	12.45	6.19	10.94
17-Nov-07	4.75	9.25	13.56	3.78	3.96	5.59	12.39	5.88	10.69
20-Dec-07	4.11	9.23	12.97	3.65	3.79	4.44	12.18	5.43	9.87
7-Mar-08	3.72	8.95	9.55	3.53	3.65	4.08	11.83	4.59	8.62
3-Jun-08	3.88	9.15	12.66	3.72	3.91	4.23	12.06	5.45	9.80
29-Jul-08	4.32	-	13.47	4.10	4.26	4.90	11.87	5.89	10.35
18-Aug-08	4.34	9.22	13.39	4.00	4.20	4.88	12.02	5.77	10.18
23-Sep-08	4.30	9.25	13.18	4.10	4.35	4.69	11.95	5.63	9.98
29-Oct-08	4.14	9.23	12.12	3.62	3.79	4.66	11.99	5.26	9.58
26-Nov-08	3.70	9.11	10.28	3.61	3.75	4.27	11.66	4.81	8.84
18-Dec-08	-	-	-	-	-	-	-	-	-
6-Jan-09	3.43	9.15	9.53	3.58	3.69	4.20	11.33	4.71	8.40
20-Jan-09	3.74	9.21	12.55	3.84	3.95	4.44	11.42	5.55	9.59
24-Mar-09	3.60	9.10	9.86	3.56	3.69	4.28	11.63	4.66	8.57
8-Apr-09	3.63	8.94	8.75	-	-	-	-	-	-
15-Apr-09	3.63	9.14	9.47	3.52	3.65	4.28	11.55	4.64	8.61
6-Jun-09	3.95	9.25	12.97	3.85	4.00	4.50	11.78	5.71	10.00
12-Jun-09	-	-	-	-	-	-	-	-	-
8-Jul-09	3.93	9.21	11.76	3.80	3.95	4.38	11.72	5.57	9.92
20-Aug-09	4.81	9.25	13.55	4.44	4.59	5.07	12.06	6.03	10.53
16-Sep-09	5.67	9.42	13.65	4.79	4.91	5.73	12.28	6.21	10.82
20-Oct-09	4.27	9.23	13.55	3.93	4.13	4.75	11.92	5.94	10.62
27-Nov-09	3.88	9.23	13.12	3.97	4.08	4.39	11.77	5.58	10.19
29-Mar-10	3.72	9.16	12.23	3.62	3.77	4.25	11.61	5.33	9.24
30-Apr-10	3.92	9.17	13.02	4.05	4.18	4.38	11.72	5.51	10.26
25-May-10	3.98	9.18	13.20	3.91	4.02	4.35	11.74	5.50	10.35
25-Jun-10	3.93	9.20	12.84	3.70	3.87	4.33	11.81	5.46	10.01
26-Jul-10	3.94	9.21	13.11	3.71	3.89	4.36	11.79	5.51	10.02
26-Aug-10	4.21	9.24	13.28	3.98	3.89	4.47	12.00	5.72	10.29
4-Oct-10	3.59	9.16	10.52	3.57	3.67	4.20	11.63	5.05	9.92
1-Nov-10	3.93	9.26	13.25	3.73	3.88	4.42	11.90	4.88	9.72
6-Dec-10	3.52	8.84	10.34	3.31	3.02	4.31	11.72	4.22	9.68
6-Jan-11	3.57	9.14	11.02	3.52	3.61	4.26	11.48	4.50	9.41
9-Feb-11	3.71	9.25	11.17	3.55	3.68	4.38	11.91	4.26	9.88
25-Feb-11	-	-	-	-	-	-	-	4.32	8.70
23-Mar-11	3.51	9.10	10.98	3.39	3.15	3.99	10.98	3.29	8.24
4-May-11	3.59	8.99	9.35	3.54	3.65	4.19	11.32	4.53	8.50
24-May-11	3.65	8.04	7.92	3.34	3.45	4.02	11.33	4.28	8.76
27-Jun-11	3.86	9.13	11.61	3.63	3.79	4.22	11.62	5.18	9.39
26-Jul-11	4.26	9.23	13.38	4.51	4.60	4.69	11.93	5.89	10.39
30-Aug-11	4.76	9.31	13.50	4.70	4.80	4.68	11.62	5.94	10.50
22-Sep-11	4.53	9.07	11.87	4.32	4.44	4.27	11.38	5.30	9.61
26-Oct-11	3.57	8.65	11.54	3.60	3.72	4.19	10.94	5.26	8.96
29-Nov-11	3.65	7.48	7.62	3.35	3.47	3.95	11.96	3.98	8.58
11-Jan-12	3.66	8.86	11.30	3.61	3.73	4.19	11.79	5.14	9.08
27-Feb-12	3.79	9.05	12.28	3.69	3.83	4.13	11.78	5.38	9.70
8-Mar-12	-	-	-	3.20	3.38	-	-	-	-
15-Mar-12	-	-	-	3.52	3.64	-	-	-	-
21-Mar-12	-	-	-	3.61	3.74	-	-	-	-
29-Mar-12	3.69	8.87	12.36	3.61	3.74	4.20	11.87	5.40	9.58
25-Apr-12	3.85	9.12	12.96	3.89	4.02	4.30	12.01	5.50	10.27
28-May-12	3.99	9.16	13.24	4.15	4.43	4.55	12.57	5.71	10.35
13-Jun-12	4.29	9.23	13.27	4.13	4.25	4.59	12.24	5.81	10.41
11-Jul-12	4.94	9.32	13.31	4.38	4.58	4.64	12.66	6.01	10.62
30-Aug-12	4.92	9.30	13.50	4.05	4.20	4.64	12.25	5.78	10.49
25-Sep-12	4.77	9.22	13.07	3.86	4.02	4.52	12.20	5.54	10.18
24-Oct-12	3.83	8.98	12.17	3.72	3.82	4.27	11.98	5.26	9.43
27-Nov-12	3.73	8.87	12.11	3.81	3.93	4.28	11.97	5.22	9.38
19-Dec-12	3.62	8.18	10.04	3.55	3.69	4.12	11.94	4.60	9.12
28-Jan-13	3.63	8.81	11.87	3.64	3.76	4.16	11.65	4.59	9.09
27-Feb-13	3.65	8.51	11.00	3.58	3.70	4.15	11.76	4.88	8.92
26-Mar-13	3.67	8.81	11.36	3.59	3.70	4.20	11.89	5.12	9.10
23-Apr-13	3.48	8.75	11.28	3.49	3.60	4.07	11.53	4.35	8.31
27-May-13	3.84	9.10	12.41	3.72	3.84	4.16	11.92	5.36	9.63
17-Jun-13	3.94	9.23	12.65	4.24	4.49	4.37	12.14	5.61	10.07
29-Jul-13	4.74	9.29	12.78	4.55	4.70	5.09	12.40	5.81	10.19
31-Aug-13	-	-	-						

Table C-3.1 : Historical Groundwater Levels (2003-2015)



Location	OW27d	OW28s	OW28d	OW29s	OW29d	OW30s	OW30d	OW31s	OW31d
19-Sep-13	5.20	9.59	13.60	4.68	4.82	5.54	12.65	5.97	10.77
25-Oct-13	3.98	-	-	3.50	3.64	-	-	-	-
30-Nov-13	3.65	8.20	11.08	3.67	3.81	4.30	12.21	4.95	9.02
18-Dec-13	3.79	8.58	11.23	4.26	3.92	4.36	12.20	5.02	9.13
15-Mar-14	3.67	6.72	8.00	3.40	3.52	4.04	11.34	4.05	8.41
28-Apr-14	3.57	7.83	10.22	3.55	3.68	4.23	12.04	4.72	8.79
24-May-14	-	-	-	-	-	4.31	12.15	5.27	9.23
27-Jun-14	4.24	9.17	13.38	4.12	4.26	4.74	12.41	5.83	10.35
15-Jul-14	4.73	9.23	13.39	4.03	4.18	4.95	12.52	5.75	10.42
12-Sep-14	4.75	9.48	13.60	-	-	4.97	12.55	6.01	10.68
23-Oct-14	3.83	-	-	-	-	-	-	-	-
29-Jan-15	3.78	8.41	12.49	3.87	4.00	4.12	11.70	5.38	9.68
13-Mar-15	3.98	8.97	12.98	3.86	4.03	4.45	11.87	5.66	10.21
27-Apr-15	3.69	8.28	11.72	3.67	3.81	4.21	11.74	5.13	9.15
29-May-15	3.92	9.10	13.24	4.08	4.27	4.44	12.04	5.65	10.15
30-Jun-15	3.99	9.20	13.14	4.05	4.19	4.33	12.26	5.56	10.15
28-Jul-15	4.62	9.39	13.54	4.48	4.63	4.84	12.83	5.90	10.55
27-Aug-15	4.92	9.50	13.55	4.59	4.56	4.85	12.52	5.88	10.60
29-Sep-15	4.80	9.47	13.56	4.61	4.75	4.79	12.63	5.82	10.53
22-Oct-15	4.80	9.56	13.62	4.68	4.82	5.53	12.83	6.01	10.81
17-Nov-15	3.95	9.17	11.16	3.82	3.98	4.34	12.38	4.95	9.21
23-Dec-15	3.66	8.78	10.66	3.59	3.61	4.21	12.20	4.39	8.89

**Notes:**

\*\*\* = dry

++ = frozen

- = not measured

Table C-3.1 : Historical Groundwater Levels (2003-2015)

Location	OW32s	OW32d	OW33s	OW33d	OW34	OW35	OW36	OW37	OW38
15-Sep-03	-	-	-	-	-	-	-	-	-
17-Oct-03	-	-	-	-	-	-	-	-	-
28-Nov-03	-	-	-	-	-	-	-	-	-
26-Feb-04	-	-	-	-	-	-	-	-	-
26-Apr-04	-	-	-	-	-	-	-	-	-
14-May-04	-	-	-	-	-	-	-	-	-
21-May-04	-	-	-	-	-	-	-	-	-
28-May-04	-	-	-	-	-	-	-	-	-
4-Jun-04	-	-	-	-	-	-	-	-	-
11-Jun-04	-	-	-	-	-	-	-	-	-
17-Jun-04	-	-	-	-	-	-	-	-	-
25-Jun-04	-	-	-	-	-	-	-	-	-
9-Jul-04	-	-	-	-	-	-	-	-	-
16-Jul-04	-	-	-	-	-	-	-	-	-
22-Jul-04	-	-	-	-	-	-	-	-	-
29-Jul-04	-	-	-	-	-	-	-	-	-
5-Aug-04	-	-	-	-	-	-	-	-	-
13-Aug-04	-	-	-	-	-	-	-	-	-
19-Aug-04	-	-	-	-	-	-	-	-	-
26-Aug-04	-	-	-	-	-	-	-	-	-
2-Sep-04	-	-	-	-	-	-	-	-	-
9-Sep-04	-	-	-	-	-	-	-	-	-
16-Sep-04	-	-	-	-	-	-	-	-	-
23-Sep-04	-	-	-	-	-	-	-	-	-
7-Oct-04	-	-	-	-	-	-	-	-	-
14-Oct-04	-	-	-	-	-	-	-	-	-
21-Oct-04	-	-	-	-	-	-	-	-	-
28-Oct-04	-	-	-	-	-	-	-	-	-
3-Nov-04	-	-	-	-	-	-	-	-	-
11-Nov-04	-	-	-	-	-	-	-	-	-
18-Nov-04	-	-	-	-	-	-	-	-	-
25-Nov-04	-	-	-	-	-	-	-	-	-
2-Dec-04	-	-	-	-	-	-	-	-	-
9-Dec-04	-	-	-	-	-	-	-	-	-
16-Dec-04	-	-	-	-	-	-	-	-	-
23-Dec-04	-	-	-	-	-	-	-	-	-
13-Jan-05	-	-	-	-	-	-	-	-	-
31-Jan-05	-	-	-	-	-	-	-	-	-
21-Feb-05	-	-	-	-	-	-	-	-	-
24-Mar-05	-	-	-	-	-	-	-	-	-
26-Apr-05	-	-	-	-	-	-	-	-	-
10-May-05	-	-	-	-	-	-	-	-	-
24-May-05	-	-	-	-	-	-	-	-	-
1-Jun-05	-	-	-	-	-	-	-	-	-
10-Jun-05	-	-	-	-	-	-	-	-	-
17-Jun-05	-	-	-	-	-	-	-	-	-
24-Jun-05	-	-	-	-	-	-	-	-	-
30-Jun-05	-	-	-	-	-	-	-	-	-
8-Jul-05	-	-	-	-	-	-	-	-	-
15-Jul-05	-	-	-	-	-	-	-	-	-
22-Jul-05	-	-	-	-	-	-	-	-	-
28-Jul-05	-	-	-	-	-	-	-	-	-
4-Aug-05	-	-	-	-	-	-	-	-	-
12-Aug-05	-	-	-	-	-	-	-	-	-
18-Aug-05	-	-	-	-	-	-	-	-	-
26-Aug-05	-	-	-	-	-	-	-	-	-
2-Sep-05	-	-	-	-	-	-	-	-	-
9-Sep-05	-	-	-	-	-	-	-	-	-
15-Sep-05	-	-	-	-	-	-	-	-	-
23-Sep-05	-	-	-	-	-	-	-	-	-
30-Sep-05	-	-	-	-	-	-	-	-	-
7-Oct-05	-	-	-	-	-	-	-	-	-
14-Oct-05	-	-	-	-	-	-	-	-	-
21-Oct-05	-	-	-	-	-	-	-	-	-
28-Oct-05	-	-	-	-	-	-	-	-	-
4-Nov-05	-	-	-	-	-	-	-	-	-
11-Nov-05	-	-	-	-	-	-	-	-	-
2-Dec-05	-	-	-	-	-	-	-	-	-
21-Apr-06	-	-	-	-	-	-	-	-	-
15-Aug-06	-	-	-	-	-	-	-	-	-
14-Sep-06	-	-	-	-	-	-	-	-	-
28-Sep-06	-	-	-	-	-	-	-	-	-
5-Oct-06	-	-	-	-	-	-	-	-	-
6-Oct-06	-	-	-	-	-	-	-	-	-
10-Oct-06	-	-	-	-	-	-	-	-	-
17-Oct-06	-	-	-	-	-	-	-	-	-
20-Oct-06	-	-	-	-	-	-	-	-	-
27-Oct-06	-	-	-	-	-	-	-	-	-
3-Nov-06	-	-	-	-	-	-	-	-	-
6-Nov-06	-	-	-	-	-	-	-	-	-

Table C-3.1 : Historical Groundwater Levels (2003-2015)

Location	OW32s	OW32d	OW33s	OW33d	OW34	OW35	OW36	OW37	OW38
10-Nov-06	-	-	-	-	-	-	-	-	-
14-Nov-06	-	-	-	-	-	-	-	-	-
17-Nov-06	-	-	-	-	-	-	-	-	-
24-Nov-06	-	-	-	-	-	-	-	-	-
1-Dec-06	-	-	-	-	-	-	-	-	-
15-Dec-06	-	-	-	-	-	-	-	-	-
26-Jan-07	-	-	-	-	-	-	-	-	-
9-Apr-07	-	-	-	-	-	-	-	-	-
21-Jun-07	-	-	-	-	-	-	-	-	-
27-Jul-07	-	-	-	-	-	-	-	-	-
22-Aug-07	-	-	-	-	-	-	-	-	-
31-Aug-07	-	-	-	-	-	-	-	-	-
26-Sep-07	-	-	-	-	-	-	-	-	-
19-Oct-07	6.19	11.34	6.21	10.73	-	-	-	-	-
17-Nov-07	5.89	11.11	5.86	10.54	-	-	-	-	-
20-Dec-07	5.49	10.46	5.60	9.92	-	-	-	-	-
7-Mar-08	4.57	9.28	4.78	8.60	-	-	-	-	-
3-Jun-08	5.55	10.34	5.58	9.74	-	-	-	-	-
29-Jul-08	5.81	10.80	6.03	10.19	-	-	-	-	-
18-Aug-08	5.80	10.67	5.86	10.05	-	-	-	-	-
23-Sep-08	5.68	10.46	5.70	9.87	-	-	-	-	-
29-Oct-08	5.28	10.28	5.54	9.45	-	-	-	-	-
26-Nov-08	4.84	9.47	4.94	9.80	14.89	15.06	15.67	16.65	11.90
18-Dec-08	-	-	-	-	15.01	15.07	15.65	16.13	11.44
6-Jan-09	4.72	8.93	4.73	8.40	14.38	14.63	15.27	16.14	11.23
20-Jan-09	5.63	10.04	5.68	9.54	14.21	14.49	15.15	16.40	11.95
24-Mar-09	4.71	9.16	4.60	8.57	15.10	15.13	15.65	16.33	11.54
8-Apr-09	-	-	-	-	-	-	-	-	-
15-Apr-09	4.67	9.15	4.65	8.61	15.04	15.12	15.64	16.24	11.52
6-Jun-09	5.79	10.43	5.83	9.96	15.10	15.15	15.67	16.76	12.45
12-Jun-09	-	-	-	-	-	-	-	-	-
8-Jul-09	5.67	10.32	5.67	10.87	15.00	15.11	15.65	16.79	12.39
20-Aug-09	6.04	10.90	6.07	10.40	15.03	15.13	15.69	17.00	12.74
16-Sep-09	6.19	11.16	6.20	10.69	15.02	15.15	15.77	17.02	12.88
20-Oct-09	5.95	11.00	5.90	10.46	14.87	15.09	15.70	16.94	12.74
27-Nov-09	5.63	10.64	5.78	10.09	14.88	15.08	15.67	16.89	12.56
29-Mar-10	5.42	9.71	5.43	9.19	14.86	15.08	15.62	16.32	11.86
30-Apr-10	5.61	10.58	5.17	10.14	14.90	15.09	15.63	16.54	12.44
25-May-10	5.61	10.67	5.63	10.21	14.98	15.13	15.66	16.60	12.50
25-Jun-10	5.54	10.44	5.59	9.88	15.14	15.19	15.69	16.72	12.44
26-Jul-10	5.58	10.43	5.57	9.82	14.72	14.97	15.57	16.68	12.37
26-Aug-10	5.73	10.62	5.83	10.60	15.20	15.24	15.76	16.87	12.61
4-Oct-10	5.14	9.40	5.80	9.85	14.71	14.96	15.59	16.30	11.62
1-Nov-10	5.76	10.70	5.94	10.12	15.12	15.23	15.77	16.76	12.65
6-Dec-10	5.42	10.28	5.78	9.20	14.54	14.79	15.12	16.32	11.32
6-Jan-11	4.38	8.83	4.25	8.31	-	14.92	15.28	16.64	11.01
9-Feb-11	5.56	10.20	5.60	9.68	-	15.05	15.35	16.20	11.12
25-Feb-11	5.08	9.20	5.11	8.76	-	-	-	-	-
23-Mar-11	4.16	8.62	3.83	8.16	14.09	14.17	14.85	15.34	10.72
4-May-11	4.50	8.90	4.47	8.44	14.64	14.88	15.51	15.76	11.10
24-May-11	3.95	9.47	3.81	8.81	14.70	14.94	15.55	15.53	11.65
27-Jun-11	5.30	9.80	5.38	9.26	14.94	15.08	15.67	16.32	12.00
26-Jul-11	5.92	10.64	5.99	10.20	14.83	15.04	15.67	16.63	12.48
30-Aug-11	5.94	10.71	6.01	10.29	14.16	14.44	15.20	16.18	12.34
22-Sep-11	5.29	9.99	5.56	9.44	13.96	14.23	15.10	16.34	11.82
26-Oct-11	5.33	9.27	5.30	8.90	13.58	13.88	14.70	15.56	11.09
29-Nov-11	3.84	9.01	3.57	8.93	14.55	14.80	15.58	15.53	11.45
11-Jan-12	5.22	9.43	5.22	8.95	14.87	15.08	15.78	16.12	11.62
27-Feb-12	5.48	9.99	5.60	9.49	14.99	15.15	15.78	16.35	12.08
8-Mar-12	-	-	-	-	-	-	-	-	-
15-Mar-12	-	-	-	-	-	-	-	-	-
21-Mar-12	-	-	-	-	-	-	-	-	-
29-Mar-12	5.51	9.82	5.54	9.44	15.03	15.16	15.79	16.26	11.87
25-Apr-12	5.62	10.51	5.80	10.03	15.09	15.21	15.82	16.52	12.36
28-May-12	5.77	10.65	5.89	10.19	15.19	15.23	15.79	16.69	12.64
13-Jun-12	5.85	10.68	5.96	10.23	15.16	15.21	15.76	16.80	12.63
11-Jul-12	6.00	10.87	6.09	10.42	15.23	15.25	15.80	16.84	12.69
30-Aug-12	5.77	10.75	5.87	10.25	14.96	15.13	15.78	16.86	12.57
25-Sep-12	5.52	10.48	5.56	9.88	14.84	15.04	15.73	16.81	12.41
24-Oct-12	5.31	9.75	5.25	9.24	14.87	15.08	15.74	16.62	11.94
27-Nov-12	5.44	9.84	5.59	9.58	14.82	15.01	15.75	16.33	12.08
19-Dec-12	4.56	9.51	4.90	8.92	15.08	15.14	15.74	16.15	11.73
28-Jan-13	5.34	9.56	5.39	9.10	14.52	14.75	15.44	14.80	11.60
27-Feb-13	4.94	9.24	5.04	8.82	13.52	14.17	14.91	15.75	11.24
26-Mar-13	5.22	9.42	5.10	8.99	14.98	15.12	15.76	16.15	11.65
23-Apr-13	4.19	8.59	3.84	8.15	14.63	14.82	15.50	15.52	10.75
27-May-13	5.47	9.98	5.55	9.52	15.03	15.12	15.73	16.39	12.08
17-Jun-13	5.68	10.36	5.77	9.92	15.03	15.12	15.71	16.56	12.31
29-Jul-13	5.94	10.77	6.08	10.35	14.88	15.05	15.70	16.81	12.59
31-Aug-13	-	-	-	-	-	-	-	-	-

Table C-3.1 : Historical Groundwater Levels (2003-2015)



Location	OW32s	OW32d	OW33s	OW33d	OW34	OW35	OW36	OW37	OW38
19-Sep-13	5.95	10.97	7.21	10.57	15.06	15.15	15.78	16.99	12.79
25-Oct-13	-	-	3.06	8.48	-	-	-	-	-
30-Nov-13	4.98	5.85	5.10	8.60	14.96	15.10	15.69	16.26	11.68
18-Dec-13	5.22	9.74	5.32	8.78	14.95	15.10	15.71	16.32	11.85
15-Mar-14	3.87	8.91	3.57	7.94	13.65	13.87	14.64	15.00	10.84
28-Apr-14	4.74	9.22	4.77	8.38	14.95	15.11	15.75	16.16	11.49
24-May-14	-	-	-	-	15.04	15.15	15.76	16.35	11.81
27-Jun-14	5.87	10.65	5.99	9.95	15.08	15.19	15.80	16.83	12.54
15-Jul-14	5.74	10.72	5.85	10.04	15.80	15.17	15.06	16.87	12.54
12-Sep-14	5.99	10.99	6.10	10.39	15.81	15.17	15.10	16.98	12.69
23-Oct-14	-	-	-	-	-	-	-	-	-
29-Jan-15	-	-	-	-	15.50	15.14	15.79	16.37	12.06
13-Mar-15	5.67	10.58	5.92	9.94	15.83	15.17	15.80	16.60	12.40
27-Apr-15	5.22	9.55	5.14	8.81	15.05	15.10	15.77	16.30	11.74
29-May-15	-	-	5.84	9.97	15.14	15.19	15.72	16.72	12.50
30-Jun-15	5.63	10.51	5.73	9.85	15.18	15.19	15.71	16.79	12.48
28-Jul-15	5.91	10.86	6.05	10.23	15.25	15.26	15.81	16.93	12.69
27-Aug-15	5.89	10.91	6.05	10.30	15.15	15.22	15.80	16.92	12.74
29-Sep-15	5.85	10.86	5.99	10.17	15.26	15.28	15.78	17.01	12.74
22-Oct-15	6.01	11.07	6.14	10.45	15.21	15.30	15.74	17.00	12.92
17-Nov-15	5.05	9.87	5.06	8.86	15.11	15.07	15.51	16.78	12.09
23-Dec-15	4.79	9.11	4.50	8.47	14.89	15.00	N/A	16.13	11.77

**Notes:**

\*\*\* = dry

++ = frozen

- = not measured

Table C-3.1 : Historical Groundwater Levels (2003-2015)

Location	OW39	OW40	OW41s	OW41d	OW42s	OW42d	OW43s	OW43d	OW44s
15-Sep-03	-	-	-	-	-	-	-	-	-
17-Oct-03	-	-	-	-	-	-	-	-	-
28-Nov-03	-	-	-	-	-	-	-	-	-
26-Feb-04	-	-	-	-	-	-	-	-	-
26-Apr-04	-	-	-	-	-	-	-	-	-
14-May-04	-	-	-	-	-	-	-	-	-
21-May-04	-	-	-	-	-	-	-	-	-
28-May-04	-	-	-	-	-	-	-	-	-
4-Jun-04	-	-	-	-	-	-	-	-	-
11-Jun-04	-	-	-	-	-	-	-	-	-
17-Jun-04	-	-	-	-	-	-	-	-	-
25-Jun-04	-	-	-	-	-	-	-	-	-
9-Jul-04	-	-	-	-	-	-	-	-	-
16-Jul-04	-	-	-	-	-	-	-	-	-
22-Jul-04	-	-	-	-	-	-	-	-	-
29-Jul-04	-	-	-	-	-	-	-	-	-
5-Aug-04	-	-	-	-	-	-	-	-	-
13-Aug-04	-	-	-	-	-	-	-	-	-
19-Aug-04	-	-	-	-	-	-	-	-	-
26-Aug-04	-	-	-	-	-	-	-	-	-
2-Sep-04	-	-	-	-	-	-	-	-	-
9-Sep-04	-	-	-	-	-	-	-	-	-
16-Sep-04	-	-	-	-	-	-	-	-	-
23-Sep-04	-	-	-	-	-	-	-	-	-
7-Oct-04	-	-	-	-	-	-	-	-	-
14-Oct-04	-	-	-	-	-	-	-	-	-
21-Oct-04	-	-	-	-	-	-	-	-	-
28-Oct-04	-	-	-	-	-	-	-	-	-
3-Nov-04	-	-	-	-	-	-	-	-	-
11-Nov-04	-	-	-	-	-	-	-	-	-
18-Nov-04	-	-	-	-	-	-	-	-	-
25-Nov-04	-	-	-	-	-	-	-	-	-
2-Dec-04	-	-	-	-	-	-	-	-	-
9-Dec-04	-	-	-	-	-	-	-	-	-
16-Dec-04	-	-	-	-	-	-	-	-	-
23-Dec-04	-	-	-	-	-	-	-	-	-
13-Jan-05	-	-	-	-	-	-	-	-	-
31-Jan-05	-	-	-	-	-	-	-	-	-
21-Feb-05	-	-	-	-	-	-	-	-	-
24-Mar-05	-	-	-	-	-	-	-	-	-
26-Apr-05	-	-	-	-	-	-	-	-	-
10-May-05	-	-	-	-	-	-	-	-	-
24-May-05	-	-	-	-	-	-	-	-	-
1-Jun-05	-	-	-	-	-	-	-	-	-
10-Jun-05	-	-	-	-	-	-	-	-	-
17-Jun-05	-	-	-	-	-	-	-	-	-
24-Jun-05	-	-	-	-	-	-	-	-	-
30-Jun-05	-	-	-	-	-	-	-	-	-
8-Jul-05	-	-	-	-	-	-	-	-	-
15-Jul-05	-	-	-	-	-	-	-	-	-
22-Jul-05	-	-	-	-	-	-	-	-	-
28-Jul-05	-	-	-	-	-	-	-	-	-
4-Aug-05	-	-	-	-	-	-	-	-	-
12-Aug-05	-	-	-	-	-	-	-	-	-
18-Aug-05	-	-	-	-	-	-	-	-	-
26-Aug-05	-	-	-	-	-	-	-	-	-
2-Sep-05	-	-	-	-	-	-	-	-	-
9-Sep-05	-	-	-	-	-	-	-	-	-
15-Sep-05	-	-	-	-	-	-	-	-	-
23-Sep-05	-	-	-	-	-	-	-	-	-
30-Sep-05	-	-	-	-	-	-	-	-	-
7-Oct-05	-	-	-	-	-	-	-	-	-
14-Oct-05	-	-	-	-	-	-	-	-	-
21-Oct-05	-	-	-	-	-	-	-	-	-
28-Oct-05	-	-	-	-	-	-	-	-	-
4-Nov-05	-	-	-	-	-	-	-	-	-
11-Nov-05	-	-	-	-	-	-	-	-	-
2-Dec-05	-	-	-	-	-	-	-	-	-
21-Apr-06	-	-	-	-	-	-	-	-	-
15-Aug-06	-	-	-	-	-	-	-	-	-
14-Sep-06	-	-	-	-	-	-	-	-	-
28-Sep-06	-	-	-	-	-	-	-	-	-
5-Oct-06	-	-	-	-	-	-	-	-	-
6-Oct-06	-	-	-	-	-	-	-	-	-
10-Oct-06	-	-	-	-	-	-	-	-	-
17-Oct-06	-	-	-	-	-	-	-	-	-
20-Oct-06	-	-	-	-	-	-	-	-	-
27-Oct-06	-	-	-	-	-	-	-	-	-
3-Nov-06	-	-	-	-	-	-	-	-	-
6-Nov-06	-	-	-	-	-	-	-	-	-

Table C-3.1 : Historical Groundwater Levels (2003-2015)

Location	OW39	OW40	OW41s	OW41d	OW42s	OW42d	OW43s	OW43d	OW44s
10-Nov-06	-	-	-	-	-	-	-	-	-
14-Nov-06	-	-	-	-	-	-	-	-	-
17-Nov-06	-	-	-	-	-	-	-	-	-
24-Nov-06	-	-	-	-	-	-	-	-	-
1-Dec-06	-	-	-	-	-	-	-	-	-
15-Dec-06	-	-	-	-	-	-	-	-	-
26-Jan-07	-	-	-	-	-	-	-	-	-
9-Apr-07	-	-	-	-	-	-	-	-	-
21-Jun-07	-	-	-	-	-	-	-	-	-
27-Jul-07	-	-	-	-	-	-	-	-	-
22-Aug-07	-	-	-	-	-	-	-	-	-
31-Aug-07	-	-	-	-	-	-	-	-	-
26-Sep-07	-	-	-	-	-	-	-	-	-
19-Oct-07	-	-	-	-	-	-	-	-	-
17-Nov-07	-	-	-	-	-	-	-	-	-
20-Dec-07	-	-	-	-	-	-	-	-	-
7-Mar-08	-	-	-	-	-	-	-	-	-
3-Jun-08	-	-	-	-	-	-	-	-	-
29-Jul-08	-	-	-	-	-	-	-	-	-
18-Aug-08	-	-	-	-	-	-	-	-	-
23-Sep-08	-	-	-	-	-	-	-	-	-
29-Oct-08	-	-	-	-	-	-	-	-	-
26-Nov-08	9.25	7.99	4.50	5.63	3.36	6.06	4.92	5.82	4.65
18-Dec-08	9.19	7.82	4.41	5.54	1.49	4.82	4.66	5.61	3.93
6-Jan-09	9.14	7.73	4.40	5.63	-	4.67	4.89	5.77	4.61
20-Jan-09	9.38	7.87	4.61	5.86	3.65	5.00	5.12	6.16	4.72
24-Mar-09	9.01	7.70	4.46	5.71	3.30	4.78	4.89	5.74	4.50
8-Apr-09	-	-	-	-	-	-	-	-	-
15-Apr-09	8.92	7.64	4.49	5.75	3.35	4.81	4.88	5.72	4.23
6-Jun-09	9.09	7.85	4.65	6.05	3.92	5.22	5.19	6.16	4.77
12-Jun-09	-	-	-	-	-	-	5.19	6.16	4.78
8-Jul-09	8.99	7.77	4.63	5.99	-	5.35	5.12	6.80	4.76
20-Aug-09	9.34	8.17	4.75	6.32	4.36	5.61	5.48	6.55	4.92
16-Sep-09	9.70	8.57	4.99	6.54	4.55	6.00	5.91	7.09	5.05
20-Oct-09	9.12	7.99	5.03	6.48	4.31	5.53	5.24	6.23	4.80
27-Nov-09	8.90	7.73	4.61	6.05	3.73	5.11	5.13	6.12	4.77
29-Mar-10	8.73	7.58	4.55	5.90	3.48	4.94	4.98	5.87	4.69
30-Apr-10	8.81	7.71	4.60	6.06	3.80	5.17	5.17	6.16	4.76
25-May-10	8.78	7.68	4.63	6.08	3.88	5.16	5.12	6.11	4.75
25-Jun-10	8.68	7.62	4.63	6.11	3.86	5.18	5.22	6.19	4.73
26-Jul-10	8.73	7.67	4.76	6.21	4.04	5.30	5.27	6.26	4.81
26-Aug-10	8.75	7.72	4.78	6.24	4.00	5.30	5.28	6.28	4.85
4-Oct-10	8.50	7.45	5.68	6.92	3.91	4.90	4.98	5.79	4.62
1-Nov-10	8.75	7.71	5.76	7.08	3.62	5.21	5.11	6.04	4.77
6-Dec-10	8.28	7.62	-	-	-	-	-	-	4.68
6-Jan-11	8.42	7.75	6.12	7.40	3.65	5.10	5.21	6.17	4.36
9-Feb-11	8.54	7.81	6.16	7.46	3.73	5.03	5.01	5.89	4.71
25-Feb-11	-	-	-	-	-	-	-	-	-
23-Mar-11	8.15	7.61	5.76	7.10	3.15	4.59	4.67	5.61	3.94
4-May-11	8.38	7.33	4.44	5.81	3.30	4.76	4.86	5.73	4.41
24-May-11	8.27	7.35	4.32	5.82	3.13	4.79	4.55	5.55	4.06
27-Jun-11	8.73	7.62	4.52	6.06	3.57	5.05	4.97	5.88	4.63
26-Jul-11	9.13	7.98	4.70	6.29	4.27	5.50	5.50	6.56	4.86
30-Aug-11	9.09	7.97	4.72	6.36	4.31	5.59	5.74	6.84	4.87
22-Sep-11	8.67	7.58	4.60	6.12	4.12	5.05	5.21	6.33	4.79
26-Oct-11	8.38	7.29	4.55	5.95	3.44	4.83	4.93	5.73	4.24
29-Nov-11	8.54	7.44	4.29	5.83	3.19	4.75	4.53	5.45	3.50
11-Jan-12	8.75	7.72	4.51	5.98	3.52	4.97	4.94	5.81	4.58
27-Feb-12	9.08	7.78	4.52	6.02	3.63	4.95	4.98	5.88	4.67
8-Mar-12	8.91	7.52	-	-	-	-	-	-	4.12
15-Mar-12	8.90	7.43	-	-	-	-	-	-	4.19
21-Mar-12	9.12	7.65	-	-	-	-	-	-	4.43
29-Mar-12	9.12	7.65	4.54	6.04	3.61	4.89	5.01	5.93	4.62
25-Apr-12	9.37	7.92	4.59	6.14	3.76	5.17	5.10	6.07	4.70
28-May-12	9.21	8.11	4.54	6.16	4.05	5.33	5.29	6.29	4.82
13-Jun-12	9.30	8.16	4.58	6.18	4.12	5.36	5.32	6.30	4.84
11-Jul-12	9.57	8.40	4.61	6.24	4.22	5.42	5.38	6.39	4.91
30-Aug-12	9.30	8.13	4.75	6.38	4.98	5.30	5.35	6.36	4.79
25-Sep-12	9.22	8.06	4.74	6.36	4.23	5.64	5.35	6.28	4.75
24-Oct-12	8.94	7.72	4.54	6.03	3.50	5.04	4.98	5.87	4.66
27-Nov-12	8.98	7.71	4.58	6.12	3.63	5.11	5.06	5.94	4.56
19-Dec-12	8.85	7.66	4.47	5.98	3.44	4.93	4.91	5.78	4.63
28-Jan-13	8.82	7.57	4.50	6.02	3.48	4.89	4.85	5.76	4.61
27-Feb-13	8.67	7.49	4.51	5.97	3.43	4.81	4.92	5.78	4.59
26-Mar-13	8.88	7.69	4.52	6.04	3.50	4.91	4.94	5.78	4.55
23-Apr-13	8.59	7.42	4.35	5.79	3.07	4.53	4.49	5.38	3.07
27-May-13	8.88	7.73	4.53	6.14	3.66	5.10	5.00	5.91	4.66
17-Jun-13	9.08	8.12	4.64	6.23	4.07	5.34	5.30	6.28	4.74
29-Jul-13	9.63	8.81	4.82	6.46	4.39	5.83	5.74	6.87	4.90
31-Aug-13	-	-	-	-	-	-	-	-	-

Table C-3.1 : Historical Groundwater Levels (2003-2015)



Location	OW39	OW40	OW41s	OW41d	OW42s	OW42d	OW43s	OW43d	OW44s
19-Sep-13	10.10	9.27	5.16	6.66	4.56	6.08	5.60	6.64	4.91
25-Oct-13	-	-	-	-	-	-	-	-	4.21
30-Nov-13	9.55	8.40	4.52	5.97	3.49	5.02	4.98	5.85	4.64
18-Dec-13	9.67	8.51	4.71	6.18	3.59	5.16	5.04	5.96	4.70
15-Mar-14	8.70	7.84	4.35	5.87	2.91	4.80	4.61	5.56	4.26
28-Apr-14	9.10	8.10	4.47	5.98	3.40	4.89	4.93	5.76	4.56
24-May-14	9.13	8.08	4.54	6.10	3.56	5.03	5.00	5.89	4.63
27-Jun-14	9.40	8.36	4.70	6.35	4.22	5.45	5.39	6.31	4.81
15-Jul-14	9.68	8.70	4.75	6.38	4.24	5.65	5.39	6.31	4.80
12-Sep-14	9.95	8.98	4.81	6.45	4.40	5.87	5.59	6.63	4.92
23-Oct-14	-	-	-	-	-	-	-	-	-
29-Jan-15	8.90	7.22	4.56	6.09	3.68	5.06	-	-	4.51
13-Mar-15	9.04	-	4.80	6.26	3.87	5.31	5.20	6.11	4.73
27-Apr-15	8.92	-	4.53	6.06	3.56	5.02	4.89	5.88	4.64
29-May-15	9.11	-	4.64	6.15	3.95	5.22	5.25	6.19	4.67
30-Jun-15	9.28	-	4.60	6.16	3.80	5.25	5.27	6.18	4.75
28-Jul-15	9.76	-	4.71	6.36	4.27	5.60	5.58	6.60	4.89
27-Aug-15	9.80	-	4.75	6.35	4.09	5.62	5.60	6.58	4.89
29-Sep-15	10.00	-	4.70	6.25	4.16	5.58	5.57	6.55	4.91
22-Oct-15	10.29	-	4.77	6.29	4.31	5.77	5.68	6.66	4.93
17-Nov-15	9.67	-	4.50	5.81	3.44	5.10	5.08	6.06	4.51
23-Dec-15	9.53	-	4.45	5.77	3.47	4.93	4.86	5.90	4.39

**Notes:**

\*\*\* = dry

++ = frozen

- = not measured

Table C-3.1 : Historical Groundwater Levels (2003-2015)

Location	OW44d	OW45	OW46k	OW46s	OW46d	OW47s	OW47d	OW48	OW49
15-Sep-03	-	-	-	-	-	-	-	-	-
17-Oct-03	-	-	-	-	-	-	-	-	-
28-Nov-03	-	-	-	-	-	-	-	-	-
26-Feb-04	-	-	-	-	-	-	-	-	-
26-Apr-04	-	-	-	-	-	-	-	-	-
14-May-04	-	-	-	-	-	-	-	-	-
21-May-04	-	-	-	-	-	-	-	-	-
28-May-04	-	-	-	-	-	-	-	-	-
4-Jun-04	-	-	-	-	-	-	-	-	-
11-Jun-04	-	-	-	-	-	-	-	-	-
17-Jun-04	-	-	-	-	-	-	-	-	-
25-Jun-04	-	-	-	-	-	-	-	-	-
9-Jul-04	-	-	-	-	-	-	-	-	-
16-Jul-04	-	-	-	-	-	-	-	-	-
22-Jul-04	-	-	-	-	-	-	-	-	-
29-Jul-04	-	-	-	-	-	-	-	-	-
5-Aug-04	-	-	-	-	-	-	-	-	-
13-Aug-04	-	-	-	-	-	-	-	-	-
19-Aug-04	-	-	-	-	-	-	-	-	-
26-Aug-04	-	-	-	-	-	-	-	-	-
2-Sep-04	-	-	-	-	-	-	-	-	-
9-Sep-04	-	-	-	-	-	-	-	-	-
16-Sep-04	-	-	-	-	-	-	-	-	-
23-Sep-04	-	-	-	-	-	-	-	-	-
7-Oct-04	-	-	-	-	-	-	-	-	-
14-Oct-04	-	-	-	-	-	-	-	-	-
21-Oct-04	-	-	-	-	-	-	-	-	-
28-Oct-04	-	-	-	-	-	-	-	-	-
3-Nov-04	-	-	-	-	-	-	-	-	-
11-Nov-04	-	-	-	-	-	-	-	-	-
18-Nov-04	-	-	-	-	-	-	-	-	-
25-Nov-04	-	-	-	-	-	-	-	-	-
2-Dec-04	-	-	-	-	-	-	-	-	-
9-Dec-04	-	-	-	-	-	-	-	-	-
16-Dec-04	-	-	-	-	-	-	-	-	-
23-Dec-04	-	-	-	-	-	-	-	-	-
13-Jan-05	-	-	-	-	-	-	-	-	-
31-Jan-05	-	-	-	-	-	-	-	-	-
21-Feb-05	-	-	-	-	-	-	-	-	-
24-Mar-05	-	-	-	-	-	-	-	-	-
26-Apr-05	-	-	-	-	-	-	-	-	-
10-May-05	-	-	-	-	-	-	-	-	-
24-May-05	-	-	-	-	-	-	-	-	-
1-Jun-05	-	-	-	-	-	-	-	-	-
10-Jun-05	-	-	-	-	-	-	-	-	-
17-Jun-05	-	-	-	-	-	-	-	-	-
24-Jun-05	-	-	-	-	-	-	-	-	-
30-Jun-05	-	-	-	-	-	-	-	-	-
8-Jul-05	-	-	-	-	-	-	-	-	-
15-Jul-05	-	-	-	-	-	-	-	-	-
22-Jul-05	-	-	-	-	-	-	-	-	-
28-Jul-05	-	-	-	-	-	-	-	-	-
4-Aug-05	-	-	-	-	-	-	-	-	-
12-Aug-05	-	-	-	-	-	-	-	-	-
18-Aug-05	-	-	-	-	-	-	-	-	-
26-Aug-05	-	-	-	-	-	-	-	-	-
2-Sep-05	-	-	-	-	-	-	-	-	-
9-Sep-05	-	-	-	-	-	-	-	-	-
15-Sep-05	-	-	-	-	-	-	-	-	-
23-Sep-05	-	-	-	-	-	-	-	-	-
30-Sep-05	-	-	-	-	-	-	-	-	-
7-Oct-05	-	-	-	-	-	-	-	-	-
14-Oct-05	-	-	-	-	-	-	-	-	-
21-Oct-05	-	-	-	-	-	-	-	-	-
28-Oct-05	-	-	-	-	-	-	-	-	-
4-Nov-05	-	-	-	-	-	-	-	-	-
11-Nov-05	-	-	-	-	-	-	-	-	-
2-Dec-05	-	-	-	-	-	-	-	-	-
21-Apr-06	-	-	-	-	-	-	-	-	-
15-Aug-06	-	-	-	-	-	-	-	-	-
14-Sep-06	-	-	-	-	-	-	-	-	-
28-Sep-06	-	-	-	-	-	-	-	-	-
5-Oct-06	-	-	-	-	-	-	-	-	-
6-Oct-06	-	-	-	-	-	-	-	-	-
10-Oct-06	-	-	-	-	-	-	-	-	-
17-Oct-06	-	-	-	-	-	-	-	-	-
20-Oct-06	-	-	-	-	-	-	-	-	-
27-Oct-06	-	-	-	-	-	-	-	-	-
3-Nov-06	-	-	-	-	-	-	-	-	-
6-Nov-06	-	-	-	-	-	-	-	-	-

Table C-3.1 : Historical Groundwater Levels (2003-2015)

Location	OW44d	OW45	OW46k	OW46s	OW46d	OW47s	OW47d	OW48	OW49
10-Nov-06	-	-	-	-	-	-	-	-	-
14-Nov-06	-	-	-	-	-	-	-	-	-
17-Nov-06	-	-	-	-	-	-	-	-	-
24-Nov-06	-	-	-	-	-	-	-	-	-
1-Dec-06	-	-	-	-	-	-	-	-	-
15-Dec-06	-	-	-	-	-	-	-	-	-
26-Jan-07	-	-	-	-	-	-	-	-	-
9-Apr-07	-	-	-	-	-	-	-	-	-
21-Jun-07	-	-	-	-	-	-	-	-	-
27-Jul-07	-	-	-	-	-	-	-	-	-
22-Aug-07	-	-	-	-	-	-	-	-	-
31-Aug-07	-	-	-	-	-	-	-	-	-
26-Sep-07	-	-	-	-	-	-	-	-	-
19-Oct-07	-	-	-	-	-	-	-	-	-
17-Nov-07	-	-	-	-	-	-	-	-	-
20-Dec-07	-	-	-	-	-	-	-	-	-
7-Mar-08	-	-	-	-	-	-	-	-	-
3-Jun-08	-	-	-	-	-	-	-	-	-
29-Jul-08	-	-	-	-	-	-	-	-	-
18-Aug-08	-	-	-	-	-	-	-	-	-
23-Sep-08	-	-	-	-	-	-	-	-	-
29-Oct-08	-	-	-	-	-	-	-	-	-
26-Nov-08	4.49	3.22	-	5.04	5.35	5.23	5.41	5.34	-
18-Dec-08	3.73	2.07	-	4.50	4.88	4.85	4.96	4.52	-
6-Jan-09	4.20	2.92	-	4.90	5.21	5.13	5.26	5.12	13.88
20-Jan-09	4.58	3.48	-	5.16	5.44	5.25	5.49	5.40	15.22
24-Mar-09	4.19	2.70	-	4.75	5.12	5.06	5.18	5.03	13.85
8-Apr-09	-	-	-	-	-	-	-	-	-
15-Apr-09	4.06	2.48	-	4.64	5.03	5.00	5.11	4.85	13.94
6-Jun-09	4.71	3.68	-	5.22	5.51	5.27	5.55	5.46	15.72
12-Jun-09	4.71	-	-	5.26	5.51	5.27	5.55	-	-
8-Jul-09	4.66	3.56	-	5.20	5.47	5.31	-	5.47	15.92
20-Aug-09	4.99	4.11	-	5.57	5.74	5.41	5.77	5.52	16.40
16-Sep-09	5.21	4.40	-	6.05	6.17	5.72	6.20	5.62	16.52
20-Oct-09	4.79	3.78	-	5.30	5.59	5.31	5.64	5.47	16.43
27-Nov-09	4.67	3.68	-	5.27	5.52	5.28	5.57	5.45	16.19
29-Mar-10	4.50	3.33	-	5.07	5.38	5.23	5.43	5.36	14.64
30-Apr-10	4.65	3.62	-	5.23	5.50	5.27	5.55	5.44	15.55
25-May-10	4.62	3.57	-	5.22	5.49	5.27	5.53	5.43	15.78
25-Jun-10	4.67	3.55	-	5.17	5.47	5.27	5.52	5.43	16.00
26-Jul-10	4.82	3.88	-	5.39	5.62	5.34	5.65	5.53	16.02
26-Aug-10	4.80	3.86	-	5.34	5.60	5.30	5.63	5.50	16.17
4-Oct-10	4.28	2.87	-	4.93	5.25	4.31	4.68	5.11	14.56
1-Nov-10	4.70	3.68	-	5.27	5.53	5.30	5.58	5.46	15.99
6-Dec-10	4.39	3.16	-	4.84	5.13	4.86	5.21	5.27	13.77
6-Jan-11	3.81	3.31	-	4.69	5.02	5.01	5.07	4.68	13.04
9-Feb-11	4.52	3.51	-	5.19	5.47	5.26	5.51	5.41	15.32
25-Feb-11	-	-	-	-	-	-	-	-	-
23-Mar-11	3.49	1.85	-	4.47	4.77	4.72	4.83	4.37	12.52
4-May-11	3.86	2.38	4.79	4.68	5.01	5.00	5.06	4.68	12.94
24-May-11	3.74	2.19	4.61	4.46	4.92	4.90	5.00	5.15	13.35
27-Jun-11	4.40	3.10	-	5.16	5.73	5.18	8.10	5.28	14.94
26-Jul-11	4.82	3.93	5.55	5.62	6.35	5.33	8.14	5.48	15.98
30-Aug-11	4.90	4.02	5.69	5.40	5.87	5.40	8.35	5.50	16.02
22-Sep-11	4.83	3.90	5.52	5.49	6.03	5.32	7.81	5.48	15.63
26-Oct-11	4.52	2.86	4.86	4.78	5.17	5.10	5.26	5.09	14.02
29-Nov-11	3.51	1.69	4.44	4.33	4.73	4.59	4.78	4.22	13.18
11-Jan-12	++	3.14	4.98	4.83	5.26	5.17	5.31	5.27	14.71
27-Feb-12	++	3.39	5.11	5.05	5.40	5.22	5.42	5.38	15.25
8-Mar-12	-	-	-	-	-	-	-	-	-
15-Mar-12	-	-	-	-	-	-	-	-	-
21-Mar-12	-	-	-	-	-	-	-	-	-
29-Mar-12	-	3.12	4.98	4.89	5.26	5.12	5.29	5.27	14.83
25-Apr-12	-	3.53	5.16	5.08	5.41	5.24	5.45	5.41	15.69
28-May-12	4.74	3.84	5.40	5.35	5.56	5.30	5.60	5.50	16.07
13-Jun-12	4.84	3.91	5.44	5.38	5.63	5.31	5.65	5.54	16.21
11-Jul-12	4.92	4.01	5.56	5.46	5.70	5.34	5.69	5.61	16.29
30-Aug-12	4.81	3.81	5.41	5.33	5.64	5.32	5.64	5.53	16.27
25-Sep-12	4.85	3.96	5.47	5.43	5.67	5.62	5.34	5.50	16.19
24-Oct-12	4.44	3.22	5.11	5.02	5.34	5.21	5.39	5.36	15.50
27-Nov-12	4.41	3.38	5.21	5.14	5.38	5.16	5.31	5.33	15.22
19-Dec-12	4.42	3.26	5.25	5.21	5.40	5.22	5.35	5.38	14.43
28-Jan-13	4.39	3.21	5.13	5.03	5.35	5.22	5.40	5.42	13.57
27-Feb-13	4.41	3.16	5.21	5.22	5.38	5.18	5.36	5.35	14.24
26-Mar-13	4.18	2.87	4.90	4.77	5.20	5.06	5.21	5.08	14.42
23-Apr-13	2.83	1.21	4.16	4.10	4.50	4.20	4.46	3.90	12.59
27-May-13	4.45	3.16	5.11	5.00	5.36	5.20	5.42	5.30	15.22
17-Jun-13	4.66	3.61	5.25	5.20	5.57	5.27	5.54	5.45	15.55
29-Jul-13	4.90	4.03	5.64	5.60	5.89	5.37	5.84	5.53	16.21
31-Aug-13	-	-	-	-	-	-	-	-	-

Table C-3.1 : Historical Groundwater Levels (2003-2015)



Location	OW44d	OW45	OW46k	OW46s	OW46d	OW47s	OW47d	OW48	OW49
19-Sep-13	5.06	4.25	5.49	5.46	5.75	5.44	5.83	5.57	16.39
25-Oct-13	4.10	2.48	4.76	4.63	5.20	4.99	5.20	4.85	-
30-Nov-13	4.42	3.22	4.98	4.90	5.26	5.16	5.39	5.35	14.37
18-Dec-13	4.50	3.36	5.20	5.12	5.45	5.24	5.48	5.44	14.73
15-Mar-14	4.13	2.42	4.75	4.64	5.07	5.01	5.15	4.96	12.72
28-Apr-14	4.20	2.90	4.85	4.76	5.21	5.08	5.24	5.10	13.86
24-May-14	4.42	3.15	5.02	5.01	5.36	5.20	5.38	5.33	14.50
27-Jun-14	4.84	3.92	5.49	5.35	5.65	5.31	5.68	5.50	16.06
15-Jul-14	4.81	3.75	5.32	5.27	5.68	5.29	5.65	5.50	16.24
12-Sep-14	5.01	4.15	5.59	5.58	5.86	5.42	5.82	5.57	16.37
23-Oct-14	-	-	-	-	-	-	-	-	-
29-Jan-15	4.71	3.44	5.23	5.16	5.48	5.25	5.56	5.43	15.23
13-Mar-15	4.69	3.60	5.28	5.20	5.58	5.27	5.58	5.45	15.73
27-Apr-15	4.44	3.17	5.07	4.97	5.45	5.20	5.44	5.36	14.27
29-May-15	4.75	3.66	5.26	5.22	5.53	5.27	5.56	5.47	15.80
30-Jun-15	4.66	3.57	5.29	5.21	5.66	5.26	5.66	5.46	15.99
28-Jul-15	4.80	3.37	5.52	5.48	5.85	5.35	5.77	5.53	16.27
27-Aug-15	4.94	3.35	5.49	5.45	5.71	5.37	5.79	5.57	16.38
29-Sep-15	4.98	4.11	5.53	5.51	5.78	5.38	5.78	5.52	16.42
22-Oct-15	5.02	4.32	5.62	5.59	5.82	5.51	5.83	5.57	16.51
17-Nov-15	4.66	3.27	5.06	5.01	5.41	5.19	5.44	5.31	15.46
23-Dec-15	4.54	3.04	4.88	4.79	5.28	5.11	5.29	5.25	14.17

**Notes:**

\*\*\* = dry

++ = frozen

- = not measured

Table C-3.1 : Historical Groundwater Levels (2003-2015)

Location	OW50	OW51	OW52	OW53	MP54(in)	MP54(out)	MP55(in)	MP55(out)	MP56(in)
15-Sep-03	-	-	-	-	-	-	-	-	-
17-Oct-03	-	-	-	-	-	-	-	-	-
28-Nov-03	-	-	-	-	-	-	-	-	-
26-Feb-04	-	-	-	-	-	-	-	-	-
26-Apr-04	-	-	-	-	-	-	-	-	-
14-May-04	-	-	-	-	-	-	-	-	-
21-May-04	-	-	-	-	-	-	-	-	-
28-May-04	-	-	-	-	-	-	-	-	-
4-Jun-04	-	-	-	-	-	-	-	-	-
11-Jun-04	-	-	-	-	-	-	-	-	-
17-Jun-04	-	-	-	-	-	-	-	-	-
25-Jun-04	-	-	-	-	-	-	-	-	-
9-Jul-04	-	-	-	-	-	-	-	-	-
16-Jul-04	-	-	-	-	-	-	-	-	-
22-Jul-04	-	-	-	-	-	-	-	-	-
29-Jul-04	-	-	-	-	-	-	-	-	-
5-Aug-04	-	-	-	-	-	-	-	-	-
13-Aug-04	-	-	-	-	-	-	-	-	-
19-Aug-04	-	-	-	-	-	-	-	-	-
26-Aug-04	-	-	-	-	-	-	-	-	-
2-Sep-04	-	-	-	-	-	-	-	-	-
9-Sep-04	-	-	-	-	-	-	-	-	-
16-Sep-04	-	-	-	-	-	-	-	-	-
23-Sep-04	-	-	-	-	-	-	-	-	-
7-Oct-04	-	-	-	-	-	-	-	-	-
14-Oct-04	-	-	-	-	-	-	-	-	-
21-Oct-04	-	-	-	-	-	-	-	-	-
28-Oct-04	-	-	-	-	-	-	-	-	-
3-Nov-04	-	-	-	-	-	-	-	-	-
11-Nov-04	-	-	-	-	-	-	-	-	-
18-Nov-04	-	-	-	-	-	-	-	-	-
25-Nov-04	-	-	-	-	-	-	-	-	-
2-Dec-04	-	-	-	-	-	-	-	-	-
9-Dec-04	-	-	-	-	-	-	-	-	-
16-Dec-04	-	-	-	-	-	-	-	-	-
23-Dec-04	-	-	-	-	-	-	-	-	-
13-Jan-05	-	-	-	-	-	-	-	-	-
31-Jan-05	-	-	-	-	-	-	-	-	-
21-Feb-05	-	-	-	-	-	-	-	-	-
24-Mar-05	-	-	-	-	-	-	-	-	-
26-Apr-05	-	-	-	-	-	-	-	-	-
10-May-05	-	-	-	-	-	-	-	-	-
24-May-05	-	-	-	-	-	-	-	-	-
1-Jun-05	-	-	-	-	-	-	-	-	-
10-Jun-05	-	-	-	-	-	-	-	-	-
17-Jun-05	-	-	-	-	-	-	-	-	-
24-Jun-05	-	-	-	-	-	-	-	-	-
30-Jun-05	-	-	-	-	-	-	-	-	-
8-Jul-05	-	-	-	-	-	-	-	-	-
15-Jul-05	-	-	-	-	-	-	-	-	-
22-Jul-05	-	-	-	-	-	-	-	-	-
28-Jul-05	-	-	-	-	-	-	-	-	-
4-Aug-05	-	-	-	-	-	-	-	-	-
12-Aug-05	-	-	-	-	-	-	-	-	-
18-Aug-05	-	-	-	-	-	-	-	-	-
26-Aug-05	-	-	-	-	-	-	-	-	-
2-Sep-05	-	-	-	-	-	-	-	-	-
9-Sep-05	-	-	-	-	-	-	-	-	-
15-Sep-05	-	-	-	-	-	-	-	-	-
23-Sep-05	-	-	-	-	-	-	-	-	-
30-Sep-05	-	-	-	-	-	-	-	-	-
7-Oct-05	-	-	-	-	-	-	-	-	-
14-Oct-05	-	-	-	-	-	-	-	-	-
21-Oct-05	-	-	-	-	-	-	-	-	-
28-Oct-05	-	-	-	-	-	-	-	-	-
4-Nov-05	-	-	-	-	-	-	-	-	-
11-Nov-05	-	-	-	-	-	-	-	-	-
2-Dec-05	-	-	-	-	-	-	-	-	-
21-Apr-06	-	-	-	-	-	-	-	-	-
15-Aug-06	-	-	-	-	-	-	-	-	-
14-Sep-06	-	-	-	-	-	-	-	-	-
28-Sep-06	-	-	-	-	-	-	-	-	-
5-Oct-06	-	-	-	-	-	-	-	-	-
6-Oct-06	-	-	-	-	-	-	-	-	-
10-Oct-06	-	-	-	-	-	-	-	-	-
17-Oct-06	-	-	-	-	-	-	-	-	-
20-Oct-06	-	-	-	-	-	-	-	-	-
27-Oct-06	-	-	-	-	-	-	-	-	-
3-Nov-06	-	-	-	-	-	-	-	-	-
6-Nov-06	-	-	-	-	-	-	-	-	-

Table C-3.1 : Historical Groundwater Levels (2003-2015)

Location	OW50	OW51	OW52	OW53	MP54(in)	MP54(out)	MP55(in)	MP55(out)	MP56(in)
10-Nov-06	-	-	-	-	-	-	-	-	-
14-Nov-06	-	-	-	-	-	-	-	-	-
17-Nov-06	-	-	-	-	-	-	-	-	-
24-Nov-06	-	-	-	-	-	-	-	-	-
1-Dec-06	-	-	-	-	-	-	-	-	-
15-Dec-06	-	-	-	-	-	-	-	-	-
26-Jan-07	-	-	-	-	-	-	-	-	-
9-Apr-07	-	-	-	-	-	-	-	-	-
21-Jun-07	-	-	-	-	-	-	-	-	-
27-Jul-07	-	-	-	-	-	-	-	-	-
22-Aug-07	-	-	-	-	-	-	-	-	-
31-Aug-07	-	-	-	-	-	-	-	-	-
26-Sep-07	-	-	-	-	-	-	-	-	-
19-Oct-07	-	-	-	-	-	-	-	-	-
17-Nov-07	-	-	-	-	-	-	-	-	-
20-Dec-07	-	-	-	-	-	-	-	-	-
7-Mar-08	-	-	-	-	-	-	-	-	-
3-Jun-08	-	-	-	-	-	-	-	-	-
29-Jul-08	-	-	-	-	-	-	-	-	-
18-Aug-08	-	-	-	-	-	-	-	-	-
23-Sep-08	-	-	-	-	-	-	-	-	-
29-Oct-08	-	-	-	-	-	-	-	-	-
26-Nov-08	-	-	-	-	-	-	-	-	-
18-Dec-08	-	-	-	-	-	-	-	-	-
6-Jan-09	10.26	10.01	10.94	-	-	-	-	-	-
20-Jan-09	13.17	11.72	12.80	6.93	-	-	-	-	-
24-Mar-09	8.32	9.99	11.01	6.18	-	-	-	-	-
8-Apr-09	-	-	-	-	1.27	1.32	0.36	0.58	0.83
15-Apr-09	8.93	10.07	11.15	-	0.51	0.51	0.47	0.62	0.84
6-Jun-09	13.95	12.05	13.10	9.66	0.96	0.96	0.68	0.70	0.96
12-Jun-09	-	-	-	-	0.96	0.96	0.68	0.70	0.96
8-Jul-09	14.67	12.15	13.07	6.86	0.97	0.97	0.70	0.72	0.98
20-Aug-09	15.72	12.64	13.49	8.46	1.10	**	0.85	**	1.09
16-Sep-09	16.04	12.80	13.60	8.92	1.28	**	1.03	**	1.23
20-Oct-09	16.21	12.83	13.62	7.86	1.13	**	0.86	**	1.13
27-Nov-09	15.35	12.50	13.43	7.06	1.01	0.98	0.73	**	1.03
29-Mar-10	10.10	11.16	12.21	6.46	0.94	0.92	0.58	0.67	0.94
30-Apr-10	13.34	11.91	12.87	7.28	0.98	0.99	0.68	0.74	0.97
25-May-10	14.42	11.98	12.90	7.35	0.98	0.98	0.70	0.73	0.97
25-Jun-10	14.87	12.22	13.16	7.49	0.97	0.97	0.69	0.71	1.00
26-Jul-10	15.11	12.42	13.36	7.96	0.98	0.99	0.71	0.72	0.99
26-Aug-10	15.07	12.43	13.35	7.11	1.02	**	0.75	**	0.98
4-Oct-10	10.66	10.93	12.02	5.43	0.89	0.93	0.55	0.56	0.89
1-Nov-10	14.88	12.31	13.22	6.50	0.94	0.97	0.65	0.69	0.95
6-Dec-10	8.74	9.82	10.76	-	0.91	++	0.56	++	0.87
6-Jan-11	7.58	9.52	10.65	-	++	++	++	++	++
9-Feb-11	14.14	11.82	12.78	-	++	++	++	++	++
25-Feb-11	-	-	-	-	-	-	-	-	-
23-Mar-11	6.81	9.00	10.46	4.92	++	++	++	++	++
4-May-11	7.20	9.45	10.78	5.13	0.76	0.83	0.40	0.58	0.77
24-May-11	7.10	8.92	10.03	5.54	0.75	0.85	0.51	0.53	0.89
27-Jun-11	11.78	11.27	12.10	6.74	0.89	0.86	0.61	0.61	0.85
26-Jul-11	15.35	12.42	13.33	8.10	1.04	**	0.82	**	1.00
30-Aug-11	16.02	12.48	12.35	8.28	1.07	**	0.85	**	1.01
22-Sep-11	15.77	12.19	13.26	6.97	1.04	**	0.80	0.80	0.97
26-Oct-11	11.31	10.78	11.84	6.33	0.83	0.83	0.42	0.42	0.76
29-Nov-11	9.34	8.86	10.17	6.37	0.73	0.73	0.46	0.46	0.69
11-Jan-12	12.77	10.81	11.51	6.52	++	++	++	++	++
27-Feb-12	13.74	11.48	12.18	7.05	++	++	++	++	++
8-Mar-12	-	-	-	-	-	-	-	-	-
15-Mar-12	-	-	-	-	-	-	-	-	-
21-Mar-12	-	-	-	-	-	-	-	-	-
29-Mar-12	12.27	11.34	12.30	6.34	++	++	++	++	++
25-Apr-12	15.09	11.85	12.48	7.51	0.92	0.92	0.66	0.66	0.91
28-May-12	15.71	12.28	13.14	8.11	1.06	1.06	0.83	0.83	1.01
13-Jun-12	16.17	12.47	13.32	8.39	1.03	1.03	0.85	0.85	1.02
11-Jul-12	16.23	12.62	13.46	8.49	1.22	1.22	1.01	1.01	1.11
30-Aug-12	16.37	12.70	13.55	8.10	1.22	1.22	1.00	1.00	1.13
25-Sep-12	16.44	12.23	13.53	7.95	1.12	1.12	0.93	0.93	1.11
24-Oct-12	13.66	11.95	13.02	6.69	0.99	0.99	0.70	0.70	0.98
27-Nov-12	13.54	11.88	12.98	6.94	0.92	0.92	0.68	0.68	++
19-Dec-12	11.19	10.50	11.32	6.54	0.90	0.90	0.62	0.62	0.85
28-Jan-13	7.73	8.70	6.62	6.58	++	++	++	++	++
27-Feb-13	11.82	10.57	11.22	6.60	++	++	++	++	++
26-Mar-13	11.66	10.72	11.45	6.54	++	++	++	++	0.80
23-Apr-13	8.45	8.67	10.22	5.84	0.76	0.76	0.38	0.38	0.79
27-May-13	13.32	11.18	11.05	6.89	0.88	0.88	0.65	0.65	0.83
17-Jun-13	14.14	11.97	12.90	7.11	0.97	0.97	0.75	0.75	0.90
29-Jul-13	15.99	12.57	13.42	8.69	1.10	1.10	0.92	0.92	1.02
31-Aug-13	-	-	-	-	-	-	-	-	-

Table C-3.1 : Historical Groundwater Levels (2003-2015)



Location	OW50	OW51	OW52	OW53	MP54(in)	MP54(out)	MP55(in)	MP55(out)	MP56(in)
19-Sep-13	16.40	12.77	13.58	9.02	1.17	1.17	0.97	0.97	1.10
25-Oct-13	-	-	-	-	0.94	0.94	0.75	0.75	0.96
30-Nov-13	10.06	10.80	11.76	6.59	0.90	0.90	++	++	++
18-Dec-13	10.76	11.30	12.22	6.77	++	++	++	++	++
15-Mar-14	7.06	9.02	10.24	-	++	++	++	++	++
28-Apr-14	8.25	10.12	10.90	6.47	0.84	0.84	0.51	0.51	0.72
24-May-14	10.12	10.75	11.50	6.71	0.89	0.89	0.60	0.60	0.77
27-Jun-14	15.60	12.41	13.30	7.99	1.03	-	0.80	0.80	0.90
15-Jul-14	16.18	12.58	13.45	8.25	1.08	1.08	0.86	0.86	0.98
12-Sep-14	16.42	12.73	13.56	8.58	1.09	1.09	0.87	0.87	1.00
23-Oct-14	-	-	-	-	0.86	0.85	0.57	0.63	0.86
29-Jan-15	13.57	11.52	12.13	-	++	++	++	++	++
13-Mar-15	15.31	12.07	12.97	7.51	++	++	++	++	++
27-Apr-15	9.40	10.66	11.44	6.59	0.84	0.84	0.50	0.50	0.79
29-May-15	14.83	12.13	13.03	7.55	0.94	0.94	0.74	0.74	0.88
30-Jun-15	15.39	12.27	13.17	7.57	0.98	0.98	0.74	0.74	0.87
28-Jul-15	16.10	12.57	13.40	8.82	1.02	**	0.81	**	0.95
27-Aug-15	16.45	12.73	13.52	8.98	1.06	1.06	0.80	0.80	1.00
29-Sep-15	16.61	12.77	13.58	9.02	1.02	1.02	0.78	0.78	1.00
22-Oct-15	16.68	12.86	13.61	9.30	1.02	1.02	0.77	0.77	1.00
17-Nov-15	12.96	11.80	12.78	8.56	0.87	0.90	0.58	0.58	0.91
23-Dec-15	9.23	10.19	10.64	8.22	0.81	0.85	0.47	0.60	0.79

**Notes:**

\*\*\* = dry

++ = frozen

- = not measured

Table C-3.1 : Historical Groundwater Levels (2003-2015)

Location	MP56(out)	MP57(in)	MP57(out)	OW58s	OW58d	OW59s	OW59d	OW60s	OW60d
15-Sep-03	-	-	-	-	-	-	-	-	-
17-Oct-03	-	-	-	-	-	-	-	-	-
28-Nov-03	-	-	-	-	-	-	-	-	-
26-Feb-04	-	-	-	-	-	-	-	-	-
26-Apr-04	-	-	-	-	-	-	-	-	-
14-May-04	-	-	-	-	-	-	-	-	-
21-May-04	-	-	-	-	-	-	-	-	-
28-May-04	-	-	-	-	-	-	-	-	-
4-Jun-04	-	-	-	-	-	-	-	-	-
11-Jun-04	-	-	-	-	-	-	-	-	-
17-Jun-04	-	-	-	-	-	-	-	-	-
25-Jun-04	-	-	-	-	-	-	-	-	-
9-Jul-04	-	-	-	-	-	-	-	-	-
16-Jul-04	-	-	-	-	-	-	-	-	-
22-Jul-04	-	-	-	-	-	-	-	-	-
29-Jul-04	-	-	-	-	-	-	-	-	-
5-Aug-04	-	-	-	-	-	-	-	-	-
13-Aug-04	-	-	-	-	-	-	-	-	-
19-Aug-04	-	-	-	-	-	-	-	-	-
26-Aug-04	-	-	-	-	-	-	-	-	-
2-Sep-04	-	-	-	-	-	-	-	-	-
9-Sep-04	-	-	-	-	-	-	-	-	-
16-Sep-04	-	-	-	-	-	-	-	-	-
23-Sep-04	-	-	-	-	-	-	-	-	-
7-Oct-04	-	-	-	-	-	-	-	-	-
14-Oct-04	-	-	-	-	-	-	-	-	-
21-Oct-04	-	-	-	-	-	-	-	-	-
28-Oct-04	-	-	-	-	-	-	-	-	-
3-Nov-04	-	-	-	-	-	-	-	-	-
11-Nov-04	-	-	-	-	-	-	-	-	-
18-Nov-04	-	-	-	-	-	-	-	-	-
25-Nov-04	-	-	-	-	-	-	-	-	-
2-Dec-04	-	-	-	-	-	-	-	-	-
9-Dec-04	-	-	-	-	-	-	-	-	-
16-Dec-04	-	-	-	-	-	-	-	-	-
23-Dec-04	-	-	-	-	-	-	-	-	-
13-Jan-05	-	-	-	-	-	-	-	-	-
31-Jan-05	-	-	-	-	-	-	-	-	-
21-Feb-05	-	-	-	-	-	-	-	-	-
24-Mar-05	-	-	-	-	-	-	-	-	-
26-Apr-05	-	-	-	-	-	-	-	-	-
10-May-05	-	-	-	-	-	-	-	-	-
24-May-05	-	-	-	-	-	-	-	-	-
1-Jun-05	-	-	-	-	-	-	-	-	-
10-Jun-05	-	-	-	-	-	-	-	-	-
17-Jun-05	-	-	-	-	-	-	-	-	-
24-Jun-05	-	-	-	-	-	-	-	-	-
30-Jun-05	-	-	-	-	-	-	-	-	-
8-Jul-05	-	-	-	-	-	-	-	-	-
15-Jul-05	-	-	-	-	-	-	-	-	-
22-Jul-05	-	-	-	-	-	-	-	-	-
28-Jul-05	-	-	-	-	-	-	-	-	-
4-Aug-05	-	-	-	-	-	-	-	-	-
12-Aug-05	-	-	-	-	-	-	-	-	-
18-Aug-05	-	-	-	-	-	-	-	-	-
26-Aug-05	-	-	-	-	-	-	-	-	-
2-Sep-05	-	-	-	-	-	-	-	-	-
9-Sep-05	-	-	-	-	-	-	-	-	-
15-Sep-05	-	-	-	-	-	-	-	-	-
23-Sep-05	-	-	-	-	-	-	-	-	-
30-Sep-05	-	-	-	-	-	-	-	-	-
7-Oct-05	-	-	-	-	-	-	-	-	-
14-Oct-05	-	-	-	-	-	-	-	-	-
21-Oct-05	-	-	-	-	-	-	-	-	-
28-Oct-05	-	-	-	-	-	-	-	-	-
4-Nov-05	-	-	-	-	-	-	-	-	-
11-Nov-05	-	-	-	-	-	-	-	-	-
2-Dec-05	-	-	-	-	-	-	-	-	-
21-Apr-06	-	-	-	-	-	-	-	-	-
15-Aug-06	-	-	-	-	-	-	-	-	-
14-Sep-06	-	-	-	-	-	-	-	-	-
28-Sep-06	-	-	-	-	-	-	-	-	-
5-Oct-06	-	-	-	-	-	-	-	-	-
6-Oct-06	-	-	-	-	-	-	-	-	-
10-Oct-06	-	-	-	-	-	-	-	-	-
17-Oct-06	-	-	-	-	-	-	-	-	-
20-Oct-06	-	-	-	-	-	-	-	-	-
27-Oct-06	-	-	-	-	-	-	-	-	-
3-Nov-06	-	-	-	-	-	-	-	-	-
6-Nov-06	-	-	-	-	-	-	-	-	-

Table C-3.1 : Historical Groundwater Levels (2003-2015)

Location	MP56(out)	MP57(in)	MP57(out)	OW58s	OW58d	OW59s	OW59d	OW60s	OW60d
10-Nov-06	-	-	-	-	-	-	-	-	-
14-Nov-06	-	-	-	-	-	-	-	-	-
17-Nov-06	-	-	-	-	-	-	-	-	-
24-Nov-06	-	-	-	-	-	-	-	-	-
1-Dec-06	-	-	-	-	-	-	-	-	-
15-Dec-06	-	-	-	-	-	-	-	-	-
26-Jan-07	-	-	-	-	-	-	-	-	-
9-Apr-07	-	-	-	-	-	-	-	-	-
21-Jun-07	-	-	-	-	-	-	-	-	-
27-Jul-07	-	-	-	-	-	-	-	-	-
22-Aug-07	-	-	-	-	-	-	-	-	-
31-Aug-07	-	-	-	-	-	-	-	-	-
26-Sep-07	-	-	-	-	-	-	-	-	-
19-Oct-07	-	-	-	-	-	-	-	-	-
17-Nov-07	-	-	-	-	-	-	-	-	-
20-Dec-07	-	-	-	-	-	-	-	-	-
7-Mar-08	-	-	-	-	-	-	-	-	-
3-Jun-08	-	-	-	-	-	-	-	-	-
29-Jul-08	-	-	-	-	-	-	-	-	-
18-Aug-08	-	-	-	-	-	-	-	-	-
23-Sep-08	-	-	-	-	-	-	-	-	-
29-Oct-08	-	-	-	-	-	-	-	-	-
26-Nov-08	-	-	-	-	-	-	-	-	-
18-Dec-08	-	-	-	-	-	-	-	-	-
6-Jan-09	-	-	-	-	-	-	-	-	-
20-Jan-09	-	-	-	-	-	-	-	-	-
24-Mar-09	-	-	-	-	-	-	-	-	-
8-Apr-09	0.85	0.90	0.91	-	-	-	-	-	-
15-Apr-09	0.90	0.93	0.96	-	-	-	-	-	-
6-Jun-09	0.97	1.00	1.03	-	-	-	-	-	-
12-Jun-09	0.97	1.00	1.03	-	-	-	-	-	-
8-Jul-09	0.99	1.04	1.06	-	-	-	-	-	-
20-Aug-09	**	1.14	1.17	-	-	-	-	-	-
16-Sep-09	**	1.27	**	1.22	0.97	1.28	1.16	1.23	1.02
20-Oct-09	1.14	1.19	1.20	1.06	0.86	1.10	1.01	1.08	0.86
27-Nov-09	1.03	1.10	1.11	0.94	0.71	0.97	0.89	0.95	0.74
29-Mar-10	0.94	0.97	1.01	0.84	0.62	0.80	0.78	0.80	0.64
30-Apr-10	1.01	1.03	1.08	0.91	0.69	0.92	0.85	0.92	0.72
25-May-10	1.00	1.04	1.07	0.92	0.71	0.93	0.85	0.93	0.72
25-Jun-10	0.99	1.06	1.07	0.91	0.75	0.95	0.84	0.93	0.71
26-Jul-10	1.00	1.06	1.07	0.91	0.71	0.96	0.86	0.95	0.72
26-Aug-10	0.99	1.10	**	0.95	0.72	1.00	0.90	0.98	0.76
4-Oct-10	0.91	0.98	1.00	0.82	0.65	0.79	0.76	0.79	0.61
1-Nov-10	0.98	1.01	1.01	0.86	0.64	0.87	0.80	0.87	0.78
6-Dec-10	++	0.97	++	0.80	0.62	0.82	0.78	0.81	0.65
6-Jan-11	++	++	++	++	++	++	++	++	++
9-Feb-11	++	++	++	++	++	++	++	++	++
25-Feb-11	-	-	-	-	-	-	-	-	-
23-Mar-11	++	++	++	++	++	++	++	0.48 (++)	0.46 (++)
4-May-11	0.84	0.90	0.91	0.72	0.44	0.60	0.64	0.66	0.51
24-May-11	0.78	1.04	0.91	0.67	0.49	0.62	0.44	0.60	0.62
27-Jun-11	0.88	0.94	0.94	0.78	0.55	0.77	0.72	0.76	0.58
26-Jul-11	1.01	1.09	1.09	0.94	0.74	1.00	0.89	0.98	0.75
30-Aug-11	1.03	1.10	1.10	0.97	0.73	1.02	0.91	0.99	0.77
22-Sep-11	0.99	1.07	1.06	0.92	0.67	0.98	0.87	0.96	0.74
26-Oct-11	0.76	0.88	0.88	0.72	0.43	0.53	0.67	0.60	0.46
29-Nov-11	0.69	0.81	0.81	0.65	0.44	0.50	0.58	0.60	0.43
11-Jan-12	++	++	++	++	++	++	++	0.76	0.59
27-Feb-12	++	++	++	++	++	++	++	0.82	0.63
8-Mar-12	-	-	-	-	-	-	-	-	-
15-Mar-12	-	-	-	-	-	-	-	-	-
21-Mar-12	-	-	-	-	-	-	-	-	-
29-Mar-12	++	++	++	++	++	++	++	0.82	0.65
25-Apr-12	0.91	0.97	0.97	0.82	0.59	0.83	0.76	0.81	0.62
28-May-12	1.01	1.14	1.14	0.98	0.71	1.01	0.91	1.01	0.78
13-Jun-12	1.02	1.12	1.12	0.97	0.70	1.01	0.91	1.01	0.77
11-Jul-12	1.11	1.24	1.24	1.11	0.85	1.17	1.05	1.15	0.91
30-Aug-12	1.13	1.25	1.25	1.11	0.86	1.17	1.06	1.14	0.92
25-Sep-12	1.20	1.24	1.24	1.05	0.83	1.10	1.00	1.08	0.86
24-Oct-12	0.98	1.04	1.04	0.88	0.60	0.85	0.82	0.87	0.68
27-Nov-12	++	0.99	0.99	0.82	0.56	0.82	0.76	0.80	0.61
19-Dec-12	0.85	0.97	0.97	0.80	0.53	0.74	0.74	0.75	0.59
28-Jan-13	++	++	++	++	++	++	++	++	++
27-Feb-13	++	++	++	++	++	++	++	++	++
26-Mar-13	0.80	0.94	0.94	0.78	0.54	0.72	0.71	0.73	0.58
23-Apr-13	0.79	0.89	0.89	0.69	0.46	0.50	0.61	0.62	0.47
27-May-13	0.83	0.97	0.97	0.81	0.60	0.80	0.76	0.80	0.62
17-Jun-13	0.90	1.02	1.02	0.86	0.62	0.89	0.82	0.87	0.67
29-Jul-13	1.02	1.14	1.14	1.00	0.78	1.07	0.94	1.05	0.81
31-Aug-13	-	-	-	-	-	-	-	-	-

Table C-3.1 : Historical Groundwater Levels (2003-2015)



Location	MP56(out)	MP57(in)	MP57(out)	OW58s	OW58d	OW59s	OW59d	OW60s	OW60d
19-Sep-13	1.10	1.21	1.21	1.08	0.86	1.13	1.02	1.10	0.89
25-Oct-13	0.96	1.02	1.02	0.82	0.63	0.75	0.78	0.80	0.63
30-Nov-13	++	++	++	0.80	++	0.75	0.74	0.76	0.59
18-Dec-13	++	++	++	++	++	++	++	++	++
15-Mar-14	++	++	++	++	++	++	++	0.62	++
28-Apr-14	0.72	0.91	0.91	0.73	0.49	0.65	0.66	0.68	0.52
24-May-14	0.77	0.93	0.93	0.78	0.57	0.76	0.72	0.75	0.59
27-Jun-14	0.90	1.08	1.08	0.92	0.72	0.97	0.87	0.96	0.74
15-Jul-14	0.98	1.11	1.11	0.95	0.76	1.03	0.92	1.01	0.78
12-Sep-14	1.00	1.12	1.12	0.98	0.79	1.04	0.93	1.01	0.80
23-Oct-14	0.90	0.97	0.96	0.80	0.57	0.80	0.75	0.78	0.61
29-Jan-15	++	++	++	++	++	++	++	++	++
13-Mar-15	++	++	++	++	++	++	++	++	++
27-Apr-15	0.79	0.94	0.94	0.79	0.55	0.72	0.73	0.75	0.59
29-May-15	0.88	1.02	1.02	0.88	0.65	0.90	0.82	0.89	0.68
30-Jun-15	0.87	1.02	1.02	0.87	0.65	0.89	0.80	0.89	0.67
28-Jul-15	0.95	1.13	1.13	1.00	0.44	1.03	0.91	1.03	0.80
27-Aug-15	1.00	1.15	1.15	1.00	0.80	1.05	0.95	1.04	0.81
29-Sep-15	1.00	1.12	1.12	0.98	0.75	1.03	0.92	1.02	0.79
22-Oct-15	1.00	1.11	1.11	0.97	0.74	1.02	0.91	1.01	0.78
17-Nov-15	0.91	1.00	1.01	0.82	0.60	0.81	0.77	0.81	0.61
23-Dec-15	0.83	0.94	0.94	0.73	0.50	0.68	0.68	0.70	0.55

**Notes:**

\*\*\* = dry

++ = frozen

- = not measured

Table C-3.1 : Historical Groundwater Levels (2003-2015)

Location	OW62k	OW62s	OW62d	OW63s	OW63d	OW64s	OW64d	OW65s	OW65d
15-Sep-03	-	-	-	-	-	-	-	-	-
17-Oct-03	-	-	-	-	-	-	-	-	-
28-Nov-03	-	-	-	-	-	-	-	-	-
26-Feb-04	-	-	-	-	-	-	-	-	-
26-Apr-04	-	-	-	-	-	-	-	-	-
14-May-04	-	-	-	-	-	-	-	-	-
21-May-04	-	-	-	-	-	-	-	-	-
28-May-04	-	-	-	-	-	-	-	-	-
4-Jun-04	-	-	-	-	-	-	-	-	-
11-Jun-04	-	-	-	-	-	-	-	-	-
17-Jun-04	-	-	-	-	-	-	-	-	-
25-Jun-04	-	-	-	-	-	-	-	-	-
9-Jul-04	-	-	-	-	-	-	-	-	-
16-Jul-04	-	-	-	-	-	-	-	-	-
22-Jul-04	-	-	-	-	-	-	-	-	-
29-Jul-04	-	-	-	-	-	-	-	-	-
5-Aug-04	-	-	-	-	-	-	-	-	-
13-Aug-04	-	-	-	-	-	-	-	-	-
19-Aug-04	-	-	-	-	-	-	-	-	-
26-Aug-04	-	-	-	-	-	-	-	-	-
2-Sep-04	-	-	-	-	-	-	-	-	-
9-Sep-04	-	-	-	-	-	-	-	-	-
16-Sep-04	-	-	-	-	-	-	-	-	-
23-Sep-04	-	-	-	-	-	-	-	-	-
7-Oct-04	-	-	-	-	-	-	-	-	-
14-Oct-04	-	-	-	-	-	-	-	-	-
21-Oct-04	-	-	-	-	-	-	-	-	-
28-Oct-04	-	-	-	-	-	-	-	-	-
3-Nov-04	-	-	-	-	-	-	-	-	-
11-Nov-04	-	-	-	-	-	-	-	-	-
18-Nov-04	-	-	-	-	-	-	-	-	-
25-Nov-04	-	-	-	-	-	-	-	-	-
2-Dec-04	-	-	-	-	-	-	-	-	-
9-Dec-04	-	-	-	-	-	-	-	-	-
16-Dec-04	-	-	-	-	-	-	-	-	-
23-Dec-04	-	-	-	-	-	-	-	-	-
13-Jan-05	-	-	-	-	-	-	-	-	-
31-Jan-05	-	-	-	-	-	-	-	-	-
21-Feb-05	-	-	-	-	-	-	-	-	-
24-Mar-05	-	-	-	-	-	-	-	-	-
26-Apr-05	-	-	-	-	-	-	-	-	-
10-May-05	-	-	-	-	-	-	-	-	-
24-May-05	-	-	-	-	-	-	-	-	-
1-Jun-05	-	-	-	-	-	-	-	-	-
10-Jun-05	-	-	-	-	-	-	-	-	-
17-Jun-05	-	-	-	-	-	-	-	-	-
24-Jun-05	-	-	-	-	-	-	-	-	-
30-Jun-05	-	-	-	-	-	-	-	-	-
8-Jul-05	-	-	-	-	-	-	-	-	-
15-Jul-05	-	-	-	-	-	-	-	-	-
22-Jul-05	-	-	-	-	-	-	-	-	-
28-Jul-05	-	-	-	-	-	-	-	-	-
4-Aug-05	-	-	-	-	-	-	-	-	-
12-Aug-05	-	-	-	-	-	-	-	-	-
18-Aug-05	-	-	-	-	-	-	-	-	-
26-Aug-05	-	-	-	-	-	-	-	-	-
2-Sep-05	-	-	-	-	-	-	-	-	-
9-Sep-05	-	-	-	-	-	-	-	-	-
15-Sep-05	-	-	-	-	-	-	-	-	-
23-Sep-05	-	-	-	-	-	-	-	-	-
30-Sep-05	-	-	-	-	-	-	-	-	-
7-Oct-05	-	-	-	-	-	-	-	-	-
14-Oct-05	-	-	-	-	-	-	-	-	-
21-Oct-05	-	-	-	-	-	-	-	-	-
28-Oct-05	-	-	-	-	-	-	-	-	-
4-Nov-05	-	-	-	-	-	-	-	-	-
11-Nov-05	-	-	-	-	-	-	-	-	-
2-Dec-05	-	-	-	-	-	-	-	-	-
21-Apr-06	-	-	-	-	-	-	-	-	-
15-Aug-06	-	-	-	-	-	-	-	-	-
14-Sep-06	-	-	-	-	-	-	-	-	-
28-Sep-06	-	-	-	-	-	-	-	-	-
5-Oct-06	-	-	-	-	-	-	-	-	-
6-Oct-06	-	-	-	-	-	-	-	-	-
10-Oct-06	-	-	-	-	-	-	-	-	-
17-Oct-06	-	-	-	-	-	-	-	-	-
20-Oct-06	-	-	-	-	-	-	-	-	-
27-Oct-06	-	-	-	-	-	-	-	-	-
3-Nov-06	-	-	-	-	-	-	-	-	-
6-Nov-06	-	-	-	-	-	-	-	-	-

Table C-3.1 : Historical Groundwater Levels (2003-2015)

Location	OW62k	OW62s	OW62d	OW63s	OW63d	OW64s	OW64d	OW65s	OW65d
10-Nov-06	-	-	-	-	-	-	-	-	-
14-Nov-06	-	-	-	-	-	-	-	-	-
17-Nov-06	-	-	-	-	-	-	-	-	-
24-Nov-06	-	-	-	-	-	-	-	-	-
1-Dec-06	-	-	-	-	-	-	-	-	-
15-Dec-06	-	-	-	-	-	-	-	-	-
26-Jan-07	-	-	-	-	-	-	-	-	-
9-Apr-07	-	-	-	-	-	-	-	-	-
21-Jun-07	-	-	-	-	-	-	-	-	-
27-Jul-07	-	-	-	-	-	-	-	-	-
22-Aug-07	-	-	-	-	-	-	-	-	-
31-Aug-07	-	-	-	-	-	-	-	-	-
26-Sep-07	-	-	-	-	-	-	-	-	-
19-Oct-07	-	-	-	-	-	-	-	-	-
17-Nov-07	-	-	-	-	-	-	-	-	-
20-Dec-07	-	-	-	-	-	-	-	-	-
7-Mar-08	-	-	-	-	-	-	-	-	-
3-Jun-08	-	-	-	-	-	-	-	-	-
29-Jul-08	-	-	-	-	-	-	-	-	-
18-Aug-08	-	-	-	-	-	-	-	-	-
23-Sep-08	-	-	-	-	-	-	-	-	-
29-Oct-08	-	-	-	-	-	-	-	-	-
26-Nov-08	-	-	-	-	-	-	-	-	-
18-Dec-08	-	-	-	-	-	-	-	-	-
6-Jan-09	-	-	-	-	-	-	-	-	-
20-Jan-09	-	-	-	-	-	-	-	-	-
24-Mar-09	-	-	-	-	-	-	-	-	-
8-Apr-09	-	-	-	-	-	-	-	-	-
15-Apr-09	-	-	-	-	-	-	-	-	-
6-Jun-09	-	-	-	-	-	-	-	-	-
12-Jun-09	-	-	-	-	-	-	-	-	-
8-Jul-09	-	-	-	-	-	-	-	-	-
20-Aug-09	-	-	-	-	-	-	-	-	-
16-Sep-09	-	-	-	-	-	-	-	-	-
20-Oct-09	-	-	-	-	-	-	-	-	-
27-Nov-09	-	-	-	-	-	-	-	-	-
29-Mar-10	-	-	-	-	-	-	-	-	-
30-Apr-10	-	-	-	-	-	-	-	-	-
25-May-10	-	-	-	-	-	-	-	-	-
25-Jun-10	-	-	-	-	-	-	-	-	-
26-Jul-10	-	-	-	-	-	-	-	-	-
26-Aug-10	-	-	-	-	-	-	-	-	-
4-Oct-10	-	-	-	-	-	-	-	-	-
1-Nov-10	-	-	-	-	-	-	-	-	-
6-Dec-10	-	-	-	-	-	-	-	-	-
6-Jan-11	-	-	-	-	-	-	-	-	-
9-Feb-11	-	-	-	-	-	-	-	-	-
25-Feb-11	-	-	-	-	-	-	-	-	-
23-Mar-11	-	-	-	-	-	-	-	-	-
4-May-11	1.63	1.22	1.07	-	-	-	-	-	-
24-May-11	1.47	1.03	0.83	-	-	-	-	-	-
27-Jun-11	1.80	1.27	1.38	-	-	-	-	-	-
26-Jul-11	2.28	1.80	1.80	-	-	-	-	-	-
30-Aug-11	2.38	1.91	1.92	-	-	-	-	-	-
22-Sep-11	2.25	1.78	1.78	-	-	-	-	-	-
26-Oct-11	1.49	1.01	1.07	-	-	-	-	-	-
29-Nov-11	1.37	0.90	0.79	-	-	-	-	-	-
11-Jan-12	1.74	1.34	1.30	-	-	-	-	-	-
27-Feb-12	1.77	1.41	1.39	-	-	-	-	-	-
8-Mar-12	-	-	-	-	-	-	-	-	-
15-Mar-12	-	-	-	-	-	-	-	-	-
21-Mar-12	-	-	-	-	-	-	-	-	-
29-Mar-12	1.77	1.39	1.37	-	-	-	-	-	-
25-Apr-12	1.83	1.46	1.39	-	-	-	-	-	-
28-May-12	2.03	1.60	1.62	-	-	-	-	-	-
13-Jun-12	2.12	1.67	1.66	-	-	-	-	-	-
11-Jul-12	2.62	2.05	2.03	-	-	-	-	-	-
30-Aug-12	2.48	1.90	1.84	-	-	-	-	-	-
25-Sep-12	2.34	1.80	1.74	-	-	-	-	-	-
24-Oct-12	1.74	1.35	1.34	-	-	-	-	-	-
27-Nov-12	1.77	1.41	1.39	-	-	-	-	-	-
19-Dec-12	1.65	1.28	1.33	-	-	-	-	-	-
28-Jan-13	1.71	1.35	1.36	-	-	-	-	-	-
27-Feb-13	1.68	1.31	1.34	-	-	-	-	-	-
26-Mar-13	1.66	1.30	1.32	-	-	-	-	-	-
23-Apr-13	1.09	0.51	0.57	-	-	-	-	-	-
27-May-13	1.80	1.41	1.41	-	-	-	-	-	-
17-Jun-13	1.89	1.50	1.51	-	-	-	-	-	-
29-Jul-13	1.93	1.59	1.62	-	-	-	-	-	-
31-Aug-13	-	-	-	-	-	-	-	-	-

Table C-3.1 : Historical Groundwater Levels (2003-2015)



Location	OW62k	OW62s	OW62d	OW63s	OW63d	OW64s	OW64d	OW65s	OW65d
19-Sep-13	2.83	2.20	2.18	-	-	-	-	-	-
25-Oct-13	1.65	1.21	1.18	-	-	-	-	-	-
30-Nov-13	1.69	1.32	1.32	-	-	-	-	-	-
18-Dec-13	1.73	1.38	1.36	-	-	-	-	-	-
15-Mar-14	1.46	1.06	0.92	-	-	-	-	-	-
28-Apr-14	1.68	1.27	1.22	-	-	-	-	-	-
24-May-14	1.74	1.35	1.26	-	-	-	-	-	-
27-Jun-14	2.09	1.67	1.61	-	-	-	-	-	-
15-Jul-14	2.28	1.81	1.71	-	-	-	-	-	-
12-Sep-14	2.43	1.92	1.80	-	-	-	-	-	-
23-Oct-14	1.72	1.34	1.25	-	-	-	-	-	-
29-Jan-15	-	-	-	2.33	2.53	5.25	5.45	3.46	4.73
13-Mar-15	1.87	1.44	1.48	2.44	2.69	5.37	5.58	3.60	4.90
27-Apr-15	1.73	1.35	1.24	2.24	2.48	5.19	5.39	3.34	4.77
29-May-15	1.95	1.55	1.50	2.56	2.72	5.36	5.58	3.64	4.93
30-Jun-15	1.90	1.52	1.45	2.53	2.70	5.35	5.57	3.55	5.06
28-Jul-15	2.27	1.82	1.76	3.03	3.09	5.61	5.63	3.97	5.37
27-Aug-15	2.45	1.97	1.87	3.24	3.23	5.82	6.01	3.84	5.32
29-Sep-15	2.36	1.89	1.80	3.11	3.12	5.77	5.96	3.81	5.27
22-Oct-15	2.41	1.92	1.84	3.17	3.17	5.81	5.99	4.09	5.47
17-Nov-15	1.77	1.36	1.29	2.21	2.43	5.15	5.38	3.20	4.69
23-Dec-15	1.65	1.24	1.17	2.02	2.33	5.08	5.29	3.15	4.71

**Notes:**

\*\*\* = dry

++ = frozen

- = not measured

Table C-3.1 : Historical Groundwater Levels (2003-2015)

Location	OW71k	OW71s	OW71d	TP16	TP17	TP18	TP19	SG1 (plate)	S8
15-Sep-03	-	-	-	-	-	-	-	-	-
17-Oct-03	-	-	-	-	-	-	-	-	-
28-Nov-03	-	-	-	-	-	-	-	-	-
26-Feb-04	-	-	-	-	-	-	-	-	-
26-Apr-04	-	-	-	-	-	-	-	-	-
14-May-04	-	-	-	-	-	-	-	-	-
21-May-04	-	-	-	-	-	-	-	-	-
28-May-04	-	-	-	-	-	-	-	-	-
4-Jun-04	-	-	-	-	-	-	-	-	-
11-Jun-04	-	-	-	-	-	-	-	-	-
17-Jun-04	-	-	-	-	-	-	-	-	-
25-Jun-04	-	-	-	-	-	-	-	-	-
9-Jul-04	-	-	-	-	-	-	-	-	-
16-Jul-04	-	-	-	-	-	-	-	-	-
22-Jul-04	-	-	-	-	-	-	-	-	-
29-Jul-04	-	-	-	-	-	-	-	-	-
5-Aug-04	-	-	-	-	-	-	-	-	-
13-Aug-04	-	-	-	-	-	-	-	-	-
19-Aug-04	-	-	-	-	-	-	-	-	-
26-Aug-04	-	-	-	-	-	-	-	-	-
2-Sep-04	-	-	-	-	-	-	-	-	-
9-Sep-04	-	-	-	-	-	-	-	-	-
16-Sep-04	-	-	-	-	-	-	-	-	-
23-Sep-04	-	-	-	-	-	-	-	-	-
7-Oct-04	-	-	-	-	-	-	-	-	-
14-Oct-04	-	-	-	-	-	-	-	-	-
21-Oct-04	-	-	-	-	-	-	-	-	-
28-Oct-04	-	-	-	-	-	-	-	-	-
3-Nov-04	-	-	-	-	-	-	-	-	-
11-Nov-04	-	-	-	-	-	-	-	-	-
18-Nov-04	-	-	-	-	-	-	-	-	-
25-Nov-04	-	-	-	-	-	-	-	-	-
2-Dec-04	-	-	-	-	-	-	-	-	-
9-Dec-04	-	-	-	-	-	-	-	-	-
16-Dec-04	-	-	-	-	-	-	-	-	-
23-Dec-04	-	-	-	-	-	-	-	-	-
13-Jan-05	-	-	-	-	-	-	-	-	-
31-Jan-05	-	-	-	-	-	-	-	-	-
21-Feb-05	-	-	-	-	-	-	-	-	-
24-Mar-05	-	-	-	-	-	-	-	-	-
26-Apr-05	-	-	-	-	-	-	-	-	-
10-May-05	-	-	-	-	-	-	-	-	-
24-May-05	-	-	-	-	-	-	-	-	-
1-Jun-05	-	-	-	-	-	-	-	-	-
10-Jun-05	-	-	-	-	-	-	-	-	-
17-Jun-05	-	-	-	-	-	-	-	-	-
24-Jun-05	-	-	-	-	-	-	-	-	-
30-Jun-05	-	-	-	-	-	-	-	-	-
8-Jul-05	-	-	-	-	-	-	-	-	-
15-Jul-05	-	-	-	-	-	-	-	-	-
22-Jul-05	-	-	-	-	-	-	-	-	-
28-Jul-05	-	-	-	-	-	-	-	-	-
4-Aug-05	-	-	-	-	-	-	-	-	-
12-Aug-05	-	-	-	-	-	-	-	-	-
18-Aug-05	-	-	-	-	-	-	-	-	-
26-Aug-05	-	-	-	-	-	-	-	-	-
2-Sep-05	-	-	-	-	-	-	-	-	-
9-Sep-05	-	-	-	-	-	-	-	-	-
15-Sep-05	-	-	-	-	-	-	-	-	-
23-Sep-05	-	-	-	-	-	-	-	-	-
30-Sep-05	-	-	-	-	-	-	-	-	-
7-Oct-05	-	-	-	-	-	-	-	-	-
14-Oct-05	-	-	-	-	-	-	-	-	-
21-Oct-05	-	-	-	-	-	-	-	-	-
28-Oct-05	-	-	-	-	-	-	-	-	-
4-Nov-05	-	-	-	-	-	-	-	-	-
11-Nov-05	-	-	-	-	-	-	-	-	-
2-Dec-05	-	-	-	-	-	-	-	-	-
21-Apr-06	-	-	-	-	-	-	-	-	-
15-Aug-06	-	-	-	-	-	-	-	-	-
14-Sep-06	-	-	-	-	-	-	-	-	-
28-Sep-06	-	-	-	-	-	-	-	-	-
5-Oct-06	-	-	-	-	-	-	-	-	-
6-Oct-06	-	-	-	-	-	-	-	-	-
10-Oct-06	-	-	-	-	-	-	-	-	-
17-Oct-06	-	-	-	1.99	2.05	5.07	1.58	-	-
20-Oct-06	-	-	-	2.01	1.98	4.98	1.57	-	-
27-Oct-06	-	-	-	1.85	1.84	4.81	1.44	-	-
3-Nov-06	-	-	-	1.73	1.69	4.75	1.43	-	-
6-Nov-06	-	-	-	-	-	-	-	-	-

Table C-3.1 : Historical Groundwater Levels (2003-2015)

Location	OW71k	OW71s	OW71d	TP16	TP17	TP18	TP19	SG1 (plate)	S8
10-Nov-06	-	-	-	1.62	1.58	4.65	1.37	-	-
14-Nov-06	-	-	-	-	-	-	-	-	-
17-Nov-06	-	-	-	1.52	1.54	4.64	1.34	-	-
24-Nov-06	-	-	-	1.63	1.61	4.72	1.38	-	-
1-Dec-06	-	-	-	1.27	1.53	4.66	1.35	-	-
15-Dec-06	-	-	-	Submerged	1.30	4.29	1.15	-	-
26-Jan-07	-	-	-	1.51	1.62	4.76	1.39	-	-
9-Apr-07	-	-	-	Submerged	1.42	4.55	1.26	-	-
21-Jun-07	-	-	-	2.07	1.91	4.88	1.54	0.37	-
27-Jul-07	-	-	-	2.35	2.15	5.12	1.78	-	-
22-Aug-07	-	-	-	2.64	2.40	5.38	2.04	-	-
31-Aug-07	-	-	-	2.56	2.32	5.29	1.97	-	-
26-Sep-07	-	-	-	-	-	-	-	-	-
19-Oct-07	-	-	-	2.56	2.34	5.34	1.99	-	-
17-Nov-07	-	-	-	2.32	2.17	5.18	1.82	0.35	-
20-Dec-07	-	-	-	2.09	1.98	4.99	1.63	0.43	-
7-Mar-08	-	-	-	1.28	1.51	4.65	1.35	0.60	-
3-Jun-08	-	-	-	1.78	1.70	4.73	1.39	-	-
29-Jul-08	-	-	-	2.12	1.94	4.90	1.56	-	-
18-Aug-08	-	-	-	2.11	1.94	4.96	1.57	-	-
23-Sep-08	-	-	-	2.05	1.91	4.88	1.53	-	-
29-Oct-08	-	-	-	1.89	1.81	4.82	1.48	-	-
26-Nov-08	-	-	-	1.45	1.56	4.66	1.34	-	-
18-Dec-08	-	-	-	-	-	-	-	-	-
6-Jan-09	-	-	-	-	-	-	-	-	-
20-Jan-09	-	-	-	1.50	1.70	4.72	1.37	0.45	-
24-Mar-09	-	-	-	1.24	1.60	4.53	1.27	0.54	-
8-Apr-09	-	-	-	1.20	-	-	-	-	-
15-Apr-09	-	-	-	1.24	1.47	4.55	1.26	-	-
6-Jun-09	-	-	-	1.88	1.80	4.77	1.42	0.41	-
12-Jun-09	-	-	-	-	-	-	-	0.41	0.90
8-Jul-09	-	-	-	1.88	1.82	4.75	1.44	0.45	-
20-Aug-09	-	-	-	2.15	2.00	4.92	1.61	0.27	-
16-Sep-09	-	-	-	2.34	2.20	5.11	1.78	-	-
20-Oct-09	-	-	-	2.10	2.02	4.95	1.59	0.39	-
27-Nov-09	-	-	-	1.91	1.89	4.79	1.44	0.41	-
29-Mar-10	-	-	-	1.60	1.61	4.67	1.33	0.48	-
30-Apr-10	-	-	-	1.89	1.85	4.76	1.44	0.42	0.87
25-May-10	-	-	-	1.91	1.86	4.77	1.45	0.43	-
25-Jun-10	-	-	-	1.93	1.89	4.78	1.44	0.45	-
26-Jul-10	-	-	-	1.97	1.90	4.80	1.46	0.39	-
26-Aug-10	-	-	-	2.04	1.94	4.84	1.48	0.40	-
4-Oct-10	-	-	-	1.42	1.63	4.65	1.43	0.50	0.76
1-Nov-10	-	-	-	1.81	1.78	4.72	1.56	0.44	-
6-Dec-10	-	-	-	1.64	1.67	4.62	1.45	-	-
6-Jan-11	-	-	-	2.06	++	4.46	++	++	++
9-Feb-11	-	-	-	1.73	-	4.68	++	++	++
25-Feb-11	-	-	-	-	-	-	-	-	-
23-Mar-11	-	-	-	1.22	1.31	4.34	++	0.41	-
4-May-11	2.65	2.60	2.56	1.22	1.42	4.45	1.19	0.57	0.61
24-May-11	3.06	3.26	2.97	1.39	1.31	4.35	1.27	0.59	0.80
27-Jun-11	3.07	2.97	2.97	1.49	1.62	4.60	1.30	-	-
26-Jul-11	3.48	3.31	3.37	2.06	1.97	4.81	1.50	0.28	-
30-Aug-11	3.51	3.40	3.43	2.09	1.98	4.86	1.51	0.29	-
22-Sep-11	3.41	3.29	3.29	2.02	1.93	4.79	1.47	0.30	0.93
26-Oct-11	2.58	2.60	2.54	1.20	1.35	4.48	1.21	0.52	0.69
29-Nov-11	2.46	2.60	2.40	1.22	1.31	4.26	1.13	0.55	0.69
11-Jan-12	3.00	2.96	2.92	++	1.56	4.60	1.29	0.55	0.79
27-Feb-12	3.10	3.01	3.01	1.66	1.53	4.67	1.34	0.53	0.84
8-Mar-12	-	-	-	-	-	-	-	-	-
15-Mar-12	-	-	-	-	-	-	-	-	-
21-Mar-12	-	-	-	-	-	-	-	-	-
29-Mar-12	3.00	2.82	2.91	1.54	1.64	4.67	1.36	0.55	0.87
25-Apr-12	3.14	3.01	3.06	1.79	1.70	4.67	1.34	0.53	0.86
28-May-12	3.34	3.19	3.23	2.02	0.98	4.83	1.52	0.39	1.01
13-Jun-12	3.36	3.20	3.27	2.05	0.98	4.84	1.52	0.38	0.95
11-Jul-12	3.50	3.31	3.42	1.96	2.14	4.99	1.66	0.30	1.10
30-Aug-12	3.37	3.20	3.30	2.12	2.22	5.00	1.66	0.35	1.15
25-Sep-12	3.24	3.11	3.20	2.05	2.09	4.92	1.59	0.38	1.12
24-Oct-12	2.96	2.84	2.88	1.69	1.74	4.69	1.38	0.48	0.82
27-Nov-12	3.07	2.93	2.97	1.48	1.68	4.68	1.34	0.49	0.94
19-Dec-12	2.91	2.85	2.88	1.26	1.56	4.60	1.31	0.50	0.92
28-Jan-13	3.05	2.97	2.99	1.32	++	4.62	1.30	0.49	0.95
27-Feb-13	2.94	2.84	2.86	++	++	4.56	++	0.52	0.87
26-Mar-13	2.87	2.78	2.79	1.23	1.53	4.59	1.29	0.54	0.80
23-Apr-13	2.40	2.17	2.31	1.20	1.33	4.32	1.16	0.60	0.77
27-May-13	3.06	2.98	2.99	1.49	1.67	4.65	1.33	0.49	0.83
17-Jun-13	3.24	3.10	3.15	1.83	1.84	4.72	1.40	0.45	0.87
29-Jul-13	3.50	3.35	3.41	2.15	2.03	4.89	1.55	0.18	1.00
31-Aug-13	-	-	-	-	-	-	-	-	-

Table C-3.1 : Historical Groundwater Levels (2003-2015)

Location	OW71k	OW71s	OW71d	TP16	TP17	TP18	TP19	SG1 (plate)	S8
19-Sep-13	3.41	3.24	3.38	2.18	2.09	4.97	1.63	0.33	1.08
25-Oct-13	2.73	2.65	2.69	1.43	1.58	4.57	1.35	0.53	0.84
30-Nov-13	2.90	2.85	2.86	1.28	1.58	4.61	1.29	0.51	0.85
18-Dec-13	3.06	3.00	3.01	1.37	1.62	4.76	1.39	0.50	0.87
15-Mar-14	2.59	2.51	2.56	1.13	1.34	++	++	++	0.68
28-Apr-14	2.77	2.71	2.71	1.21	1.47	4.50	1.23	0.57	0.80
24-May-14	3.01	2.90	2.93	1.38	1.61	4.60	1.29	0.50	0.83
27-Jun-14	3.34	3.22	3.27	2.01	1.94	4.80	1.47	0.39	0.94
15-Jul-14	3.31	3.16	3.26	2.09	2.00	4.86	1.53	0.51	1.01
12-Sep-14	3.46	3.32	3.41	2.06	1.96	4.86	1.53	0.39	0.99
23-Oct-14	3.02	2.92	2.94	-	1.64	4.63	1.32	0.50	0.80
29-Jan-15	3.16	3.07	3.09	++	++	4.66	++	0.45	1.17
13-Mar-15	3.21	3.10	3.14	1.81	++	4.72	++	0.48	1.20
27-Apr-15	2.96	2.89	2.89	1.28	1.56	4.59	1.29	0.52	1.15
29-May-15	3.25	3.10	3.16	1.88	1.84	4.72	1.41	0.43	1.21
30-Jun-15	3.23	3.12	3.16	1.90	1.85	4.72	1.42	0.47	1.21
28-Jul-15	3.46	3.34	3.39	2.12	2.01	4.88	1.54	0.28	1.34
27-Aug-15	3.42	3.27	3.37	2.13	2.02	4.88	1.55	0.39	1.35
29-Sep-15	3.40	3.26	3.34	2.10	2.00	4.86	1.53	0.32	1.32
22-Oct-15	3.42	3.30	3.37	2.08	1.99	4.86	1.53	0.30	1.32
17-Nov-15	2.94	2.90	2.90	1.66	1.67	4.63	1.34	0.49	1.17
23-Dec-15	2.80	2.76	2.75	1.28	1.57	4.53	1.25	0.71	1.12

**Notes:**

\*\*\* = dry

++ = frozen

- = not measured

**Table C-3.1 : Historical Groundwater Levels (2003-2015)**

Location	S13
15-Sep-03	-
17-Oct-03	-
28-Nov-03	-
26-Feb-04	-
26-Apr-04	-
14-May-04	-
21-May-04	-
28-May-04	-
4-Jun-04	-
11-Jun-04	-
17-Jun-04	-
25-Jun-04	-
9-Jul-04	-
16-Jul-04	-
22-Jul-04	-
29-Jul-04	-
5-Aug-04	-
13-Aug-04	-
19-Aug-04	-
26-Aug-04	-
2-Sep-04	-
9-Sep-04	-
16-Sep-04	-
23-Sep-04	-
7-Oct-04	-
14-Oct-04	-
21-Oct-04	-
28-Oct-04	-
3-Nov-04	-
11-Nov-04	-
18-Nov-04	-
25-Nov-04	-
2-Dec-04	-
9-Dec-04	-
16-Dec-04	-
23-Dec-04	-
13-Jan-05	-
31-Jan-05	-
21-Feb-05	-
24-Mar-05	-
26-Apr-05	-
10-May-05	-
24-May-05	-
1-Jun-05	-
10-Jun-05	-
17-Jun-05	-
24-Jun-05	-
30-Jun-05	-
8-Jul-05	-
15-Jul-05	-
22-Jul-05	-
28-Jul-05	-
4-Aug-05	-
12-Aug-05	-
18-Aug-05	-
26-Aug-05	-
2-Sep-05	-
9-Sep-05	-
15-Sep-05	-
23-Sep-05	-
30-Sep-05	-
7-Oct-05	-
14-Oct-05	-
21-Oct-05	-
28-Oct-05	-
4-Nov-05	-
11-Nov-05	-
2-Dec-05	-
21-Apr-06	-
15-Aug-06	-
14-Sep-06	-
28-Sep-06	-
5-Oct-06	-
6-Oct-06	-
10-Oct-06	-
17-Oct-06	-
20-Oct-06	-
27-Oct-06	-
3-Nov-06	-
6-Nov-06	-

**Table C-3.1 : Historical Groundwater Levels (2003-2015)**

<b>Location</b>	<b>S13</b>
10-Nov-06	-
14-Nov-06	-
17-Nov-06	-
24-Nov-06	-
1-Dec-06	-
15-Dec-06	-
26-Jan-07	-
9-Apr-07	-
21-Jun-07	-
27-Jul-07	-
22-Aug-07	-
31-Aug-07	-
26-Sep-07	-
19-Oct-07	-
17-Nov-07	-
20-Dec-07	-
7-Mar-08	-
3-Jun-08	-
29-Jul-08	-
18-Aug-08	-
23-Sep-08	-
29-Oct-08	-
26-Nov-08	-
18-Dec-08	-
6-Jan-09	-
20-Jan-09	-
24-Mar-09	-
8-Apr-09	-
15-Apr-09	-
6-Jun-09	-
12-Jun-09	0.67
8-Jul-09	-
20-Aug-09	-
16-Sep-09	-
20-Oct-09	-
27-Nov-09	-
29-Mar-10	0.62
30-Apr-10	0.67
25-May-10	-
25-Jun-10	-
26-Jul-10	-
26-Aug-10	-
4-Oct-10	-
1-Nov-10	-
6-Dec-10	-
6-Jan-11	++
9-Feb-11	++
25-Feb-11	-
23-Mar-11	-
4-May-11	0.18
24-May-11	0.21
27-Jun-11	-
26-Jul-11	0.50
30-Aug-11	0.68
22-Sep-11	0.57
26-Oct-11	0.33
29-Nov-11	0.33
11-Jan-12	0.33
27-Feb-12	0.36
8-Mar-12	-
15-Mar-12	-
21-Mar-12	-
29-Mar-12	0.32
25-Apr-12	0.36
28-May-12	0.51
13-Jun-12	0.50
11-Jul-12	0.60
30-Aug-12	0.53
25-Sep-12	0.46
24-Oct-12	0.32
27-Nov-12	0.32
19-Dec-12	0.31
28-Jan-13	0.30
27-Feb-13	0.32
26-Mar-13	0.31
23-Apr-13	0.25
27-May-13	0.36
17-Jun-13	0.41
29-Jul-13	0.74
31-Aug-13	-

**Table C-3.1 : Historical Groundwater Levels (2003-2015)**

Location	S13
19-Sep-13	0.54
25-Oct-13	0.30
30-Nov-13	0.33
18-Dec-13	0.39
15-Mar-14	-
28-Apr-14	0.29
24-May-14	0.35
27-Jun-14	0.48
15-Jul-14	0.45
12-Sep-14	0.48
23-Oct-14	0.24
29-Jan-15	0.30
13-Mar-15	0.29
27-Apr-15	0.26
29-May-15	0.36
30-Jun-15	0.31
28-Jul-15	0.55
27-Aug-15	0.39
29-Sep-15	0.47
22-Oct-15	0.51
17-Nov-15	0.26
23-Dec-15	0.22

**Notes:**

\*\*\* = dry

++ = frozen

- = not measured

Table C-3.2 : Historical Groundwater Elevations (2003-2015)

Monitoring Location	OW3	OW4	OW7s	OW7d	OW8s	OW8d	OW9s	OW9d	OW10s	OW10d	OW11s
Ref. Elevation	252.13	251.4	251.68	251.51	247.72	247.60	247.08	246.83	248.58	248.54	249.63
15-Sep-03	237.19	244.03	246.83	243.29	243.52	242.85	242.45	242.54	245.53	245.50	243.44
17-Oct-03	236.48	247.93	247.83	244.08	243.94	243.53	243.19	243.32	246.38	246.24	243.69
28-Nov-03	236.45	247.77	247.87	244.17	244.47	243.86	243.34	243.65	246.36	246.38	243.75
26-Feb-04	236.50	-	247.80	243.95	243.89	243.46	243.06	243.26	246.40	246.24	243.57
26-Apr-04	236.43	247.59	247.86	244.05	243.95	243.58	243.14	243.33	246.33	246.22	243.54
14-May-04	236.47	247.45	247.86	244.15	244.35	243.73	243.28	243.48	246.33	246.29	243.68
21-May-04	236.47	247.45	247.83	243.96	244.06	243.60	243.13	243.32	246.28	246.14	243.51
28-May-04	-	-	247.99	244.41	245.25	244.38	243.83	243.57	247.29	247.03	245.94
4-Jun-04	-	-	247.83	244.06	244.38	243.86	243.31	243.54	246.31	246.26	243.70
11-Jun-04	236.40	247.45	247.73	243.97	243.98	243.58	243.01	243.27	246.21	246.12	243.47
17-Jun-04	-	-	247.72	243.93	243.88	243.50	242.94	243.19	246.18	246.09	243.45
25-Jun-04	-	-	247.84	243.85	243.85	243.44	242.99	243.17	246.32	246.04	243.59
9-Jul-04	-	-	247.56	243.72	243.82	243.34	242.87	243.06	246.02	245.94	243.44
16-Jul-04	-	-	247.91	243.77	243.83	243.37	243.06	243.18	246.42	246.02	243.75
22-Jul-04	-	-	247.75	243.84	243.89	243.44	242.97	243.18	246.23	246.09	243.46
29-Jul-04	236.44	244.65	247.60	243.65	243.84	243.33	242.86	243.06	245.97	245.92	243.45
5-Aug-04	-	-	247.60	243.65	243.84	243.33	242.86	243.06	245.97	245.92	243.45
13-Aug-04	-	-	247.35	243.40	243.77	243.19	242.74	242.92	245.79	245.75	243.46
19-Aug-04	236.41	243.44	247.24	243.35	243.73	243.15	242.70	242.88	245.79	245.73	243.46
26-Aug-04	-	-	247.09	243.21	243.72	243.04	242.63	242.78	245.67	245.61	243.45
2-Sep-04	-	-	247.01	243.15	243.68	243.01	242.64	242.76	245.63	245.58	243.46
9-Sep-04	-	-	246.91	243.03	243.66	242.98	242.61	242.72	245.60	245.56	243.46
16-Sep-04	236.42	242.63	246.74	242.95	243.64	242.95	242.56	242.67	245.52	245.52	243.46
23-Sep-04	-	-	246.58	242.80	243.55	242.80	242.48	242.52	245.41	245.38	243.45
7-Oct-04	-	-	246.37	242.58	243.49	242.65	242.28	242.32	245.24	245.19	243.45
14-Oct-04	236.38	242.25	246.32	242.58	243.49	242.71	242.25	242.32	245.21	245.21	243.45
21-Oct-04	-	-	246.85	242.84	243.50	242.71	242.55	242.54	245.96	245.51	243.45
28-Oct-04	-	-	246.85	242.84	243.51	242.80	242.61	242.68	245.96	245.62	243.45
3-Nov-04	-	-	247.12	242.88	243.54	242.88	242.75	242.80	246.18	245.74	243.47
11-Nov-04	-	-	247.30	243.02	243.62	242.99	242.84	242.92	246.20	245.86	243.45
18-Nov-04	-	-	247.25	243.03	243.66	243.07	242.85	242.96	246.15	245.88	243.45
25-Nov-04	236.47	243.02	247.26	243.05	243.66	243.13	242.87	242.98	246.26	245.92	243.45
2-Dec-04	-	-	247.90	243.47	243.88	243.32	243.32	243.33	246.51	246.19	244.15
9-Dec-04	-	-	248.03	243.75	244.74	243.62	243.61	243.65	246.67	246.40	244.85
16-Dec-04	-	-	247.87	243.68	244.57	243.82	243.39	243.63	246.44	246.37	244.03
23-Dec-04	236.45	244.15	247.77	243.58	244.33	243.66	243.21	243.39	246.28	246.24	243.48
13-Jan-05	-	242.57	248.18	243.71	244.76	243.91	243.79	243.72	246.71	246.43	244.55
31-Jan-05	-	241.98	247.70	243.56	244.07	243.58	243.07	243.31	246.22	246.22	243.45
21-Feb-05	236.42	241.52	247.83	243.65	244.08	243.60	243.19	243.39	246.37	246.30	243.69
24-Mar-05	236.51	241.66	247.79	243.49	243.90	243.47	243.06	243.26	246.34	246.17	243.55
26-Apr-05	236.64	242.75	247.98	243.75	244.22	243.64	243.47	243.51	246.48	246.25	244.36
10-May-05	-	242.03	247.79	243.67	244.15	243.63	243.16	243.38	246.28	246.16	243.50
24-May-05	-	241.33	247.48	243.41	243.86	243.41	242.96	243.16	246.11	246.02	243.45
1-Jun-05	-	240.48	247.58	243.37	243.82	243.32	242.89	243.09	246.03	245.95	243.45
10-Jun-05	-	-	247.47	243.24	243.79	243.24	242.83	243.01	245.88	245.81	243.45
17-Jun-05	-	240.31	247.59	243.27	243.77	243.19	242.83	243.01	246.00	245.82	243.45
24-Jun-05	-	240.30	247.52	243.26	243.75	243.15	242.81	242.96	245.93	245.81	243.45
30-Jun-05	-	-	247.40	243.18	243.69	243.12	242.74	242.91	245.82	245.73	243.45
8-Jul-05	-	240.01	247.21	243.01	243.68	242.97	242.65	242.77	245.64	245.57	243.44
15-Jul-05	-	239.87	247.03	242.88	243.64	242.88	242.56	242.63	245.50	245.46	243.44
22-Jul-05	-	239.74	246.86	242.76	243.58	242.75	242.45	242.47	245.35	245.34	243.44
28-Jul-05	-	239.66	246.71	242.66	243.53	242.67	242.34	242.36	245.24	245.25	243.45
4-Aug-05	-	-	247.02	242.73	243.49	242.62	242.35	242.35	245.18	245.23	243.44
12-Aug-05	236.39	239.85	246.90	242.76	243.47	242.54	242.28	242.27	245.24	245.28	243

Table C-3.2 : Historical Groundwater Elevations (2003-2015)

Monitoring Location	OW3	OW4	OW7s	OW7d	OW8s	OW8d	OW9s	OW9d	OW10s	OW10d	OW11s
Ref. Elevation	252.13	251.4	251.68	251.51	247.72	247.60	247.08	246.83	248.58	248.54	249.63
20-Oct-06	236.50	239.87	247.78	242.87	243.82	243.11	243.18	243.06	246.38	246.08	243.63
27-Oct-06	236.52	239.93	247.84	243.16	244.03	243.38	243.28	243.24	246.40	246.22	243.84
3-Nov-06	236.56	240.51	247.82	243.20	244.43	243.56	243.32	243.34	246.38	246.28	243.89
6-Nov-06	236.70	240.94	247.88	243.22	-	-	-	-	-	-	-
10-Nov-06	236.54	241.03	247.88	243.26	244.61	243.63	243.41	243.41	246.44	246.30	244.16
14-Nov-06	236.54	241.04	247.87	243.30	-	-	-	-	246.44	246.35	-
17-Nov-06	236.77	241.11	247.91	243.26	244.56	243.66	243.46	243.46	246.45	246.32	244.20
24-Nov-06	236.50	240.59	247.81	243.23	244.41	243.62	243.30	243.38	246.36	246.26	243.74
1-Dec-06	236.77	241.09	247.96	243.32	244.30	243.68	243.42	243.43	246.62	246.33	244.30
15-Dec-06	237.03	241.54	248.00	243.50	245.29	243.94	243.85	243.76	246.75	246.63	245.19
26-Jan-07	236.45	239.80	247.77	243.25	243.99	243.57	243.09	243.28	246.29	246.23	243.49
9-Apr-07	236.52	241.08	247.86	243.40	244.67	243.89	243.49	243.61	246.44	246.38	244.05
21-Jun-07	236.48	238.27	247.58	242.83	243.82	243.28	242.87	243.03	245.94	245.83	243.45
27-Jul-07	236.44	238.15	246.94	242.45	243.65	242.90	242.64	242.70	245.61	245.44	243.44
22-Aug-07	236.41	237.82	246.29	242.00	243.43	242.52	242.27	242.25	245.19	245.07	243.45
31-Aug-07	236.42	238.09	246.41	242.01	243.37	242.45	242.26	242.22	245.34	245.23	243.44
26-Sep-07	236.41	237.70	246.18	241.80	243.18	242.35	242.37	242.24	245.37	245.18	243.44
19-Oct-07	236.41	237.71	246.28	241.73	243.07	242.31	242.50	242.32	245.54	245.29	243.45
17-Nov-07	236.45	238.14	247.05	242.01	243.38	242.68	242.85	242.69	246.19	245.84	243.45
20-Dec-07	236.50	238.27	247.66	242.50	243.83	243.24	243.03	243.03	246.32	246.12	243.45
7-Mar-08	236.54	238.43	247.82	242.84	244.33	243.65	243.31	243.43	-	-	244.32
3-Jun-08	236.43	237.70	247.71	242.65	243.91	243.42	243.04	243.16	246.34	246.11	243.52
29-Jul-08	236.43	239.77	247.28	242.63	243.76	243.12	242.79	242.87	245.93	245.83	243.45
18-Aug-08	236.45	239.60	247.28	242.58	243.72	243.07	242.82	242.88	246.03	245.88	243.45
23-Sep-08	236.41	239.14	247.43	242.64	243.78	243.08	242.89	242.91	246.06	245.92	243.45
29-Oct-08	236.42	239.26	247.66	242.70	243.82	243.15	243.06	243.02	246.39	246.15	243.53
26-Nov-08	236.42	240.07	247.79	243.08	244.37	243.62	243.26	243.32	246.39	246.33	243.57
18-Dec-08	-	-	-	-	-	-	-	-	-	-	-
6-Jan-09	236.41	240.01	247.68	243.15	244.45	243.79	243.46	243.64	246.52	246.33	243.71
20-Jan-09	236.50	239.41	247.66	243.12	243.98	243.56	242.93	243.23	246.16	246.22	243.44
24-Mar-09	236.52	240.37	248.32	243.21	244.65	243.84	243.48	243.57	246.42	246.42	244.02
8-Apr-09	-	-	-	-	-	-	-	-	-	-	-
15-Apr-09	236.49	240.82	247.81	243.27	244.10	243.75	243.46	243.54	246.50	246.43	244.46
6-Jun-09	236.40	239.27	247.59	242.94	243.86	243.33	242.93	243.08	246.25	245.99	243.46
12-Jun-09	-	-	-	-	-	-	-	-	246.10	246.02	243.47
8-Jul-09	236.43	239.31	247.68	243.00	243.87	243.30	242.98	243.08	246.13	246.29	243.47
20-Aug-09	236.45	238.37	247.11	242.56	243.70	242.97	242.74	242.81	245.85	245.71	243.46
16-Sep-09	236.42	238.06	246.45	242.23	243.57	242.70	242.48	242.46	245.43	245.40	243.47
20-Oct-09	236.42	238.47	247.45	242.72	243.67	242.95	242.92	242.91	246.18	246.05	243.47
27-Nov-09	236.45	238.58	247.62	242.95	243.90	243.34	242.98	243.09	246.09	246.13	243.47
29-Mar-10	236.42	239.47	247.74	243.11	244.25	243.56	243.20	243.29	246.28	246.26	243.51
30-Apr-10	236.43	238.95	247.63	242.94	243.91	243.35	242.96	243.09	246.31	246.30	243.47
25-May-10	236.46	239.03	247.68	242.99	243.90	243.32	242.97	243.10	246.09	246.09	243.46
25-Jun-10	236.49	239.16	247.72	243.02	243.85	243.22	242.99	243.05	246.16	246.46	243.49
26-Jul-10	236.48	238.45	247.59	242.87	243.91	243.15	242.91	242.96	246.21	245.94	243.45
26-Aug-10	236.49	238.42	247.63	242.86	243.82	243.16	243.22	243.63	246.26	246.05	243.45
4-Oct-10	236.45	239.34	247.80	243.18	244.48	243.54	243.28	243.33	246.60	246.37	243.78
1-Nov-10	236.30	238.49	247.18	242.90	243.85	243.26	243.29	242.69	246.40	246.14	243.45
6-Dec-10	236.57	238.89	247.48	243.09	-	-	243.40	243.44	246.46	246.23	244.84
6-Jan-11	236.28	238.92	247.86	243.50	243.79	243.44	243.57	243.59	246.37	246.14	244.21
9-Feb-11	236.39	238.75	247.74	243.20	243.83	243.48	243.00	243.19	246.58	246.28	243.53
25-Feb-11	236.45	-	-	-	243.80	243.40	-	-	-	-	-
23-Mar-11	236.62	238.81	248.22	243.60	243.87	243.50	244.07	243.57	246.73	246.72	244.29
4-May-11	236.49	240.24	247.85	243.36	244.68	243.84	243.60	243.66	246.39	246.49	244.21
24-May-11	236.91	240.30	248.02	243.33	245.01	243.59	2				

Table C-3.2 : Historical Groundwater Elevations (2003-2015)



Monitoring Location	OW3	OW4	OW7s	OW7d	OW8s	OW8d	OW9s	OW9d	OW10s	OW10d	OW11s
Ref. Elevation	252.13	251.4	251.68	251.51	247.72	247.60	247.08	246.83	248.58	248.54	249.63
27-Feb-13	236.42	238.62	247.83	243.35	243.91	243.69	243.25	243.41	246.46	246.35	243.87
26-Mar-13	236.68	238.81	247.79	243.09	243.90	243.65	243.31	243.46	246.44	246.38	244.06
23-Apr-13	236.86	239.16	247.90	243.41	244.28	244.14	243.87	243.99	246.96	246.80	245.07
27-May-13	236.61	238.71	247.75	242.97	243.93	243.40	243.12	243.25	246.22	246.16	243.53
17-Jun-13	236.42	238.05	247.52	242.68	243.87	243.30	242.92	243.10	246.20	245.98	243.61
29-Jul-13	236.41	237.65	246.86	242.20	243.80	243.25	242.67	242.85	245.84	245.67	243.48
31-Aug-13	-	-	-	-	-	-	-	-	-	-	-
19-Sep-13	236.38	237.30	246.56	241.97	243.52	242.75	242.75	242.73	246.06	245.66	243.47
25-Oct-13	-	-	-	-	-	-	243.45	243.33	246.50	246.34	244.49
30-Nov-13	-	238.20	247.78	242.83	244.26	243.62	243.29	243.37	246.42	246.35	243.92
18-Dec-13	236.44	238.10	247.56	242.69	244.14	243.59	243.14	243.29	246.31	246.21	243.48
15-Mar-14	-	++	247.98	243.33	244.80	243.65	243.64	243.53	246.58	246.47	244.52
28-Apr-14	236.53	238.30	247.83	243.01	244.47	243.76	243.43	243.54	246.48	246.39	244.09
24-May-14	236.43	238.15	247.74	242.56	244.12	243.53	243.18	243.33	246.42	246.24	243.51
27-Jun-14	236.44	237.56	247.34	242.50	243.79	243.15	243.21	242.57	246.14	245.84	243.46
15-Jul-14	236.44	237.49	247.14	242.30	243.70	242.98	243.15	242.59	246.28	245.87	243.46
12-Sep-14	236.44	237.38	246.58	242.07	242.98	242.53	242.70	242.76	245.97	245.66	243.46
23-Oct-14	-	-	-	-	-	-	243.17	243.22	-	-	243.80
29-Jan-15	236.44	237.73	247.67	242.93	243.96	243.54	243.02	243.18	246.22	246.13	243.48
13-Mar-15	236.44	++	247.65	242.71	243.86	243.31	242.96	243.07	++	++	-
27-Apr-15	236.45	237.89	247.75	243.02	244.18	243.60	243.23	243.34	246.40	246.25	243.84
29-May-15	236.46	237.36	247.57	242.74	243.88	243.36	242.93	243.08	246.21	245.96	243.30
30-Jun-15	236.51	237.34	247.60	242.64	243.90	243.33	242.94	243.06	246.26	245.92	-
28-Jul-15	236.47	237.25	247.30	242.28	243.77	243.07	242.71	242.82	245.90	245.61	-
27-Aug-15	236.45	237.21	247.34	242.27	243.69	242.97	242.72	242.79	246.15	245.58	-
29-Sep-15	236.45	237.17	247.30	242.17	243.71	243.04	242.77	242.83	245.93	245.65	-
22-Oct-15	236.43	237.19	246.85	241.94	243.70	243.01	242.75	242.81	245.96	245.56	-
17-Nov-15	236.72	237.43	247.73	242.43	244.18	243.44	243.26	243.22	246.27	246.14	-
23-Dec-15	237.01	237.99	247.88	242.78	244.31	243.63	243.38	243.37	246.38	246.43	-

**Notes:**

\*\*\* = dry

++ = frozen

- = not measured

Table C-3.2 : Historical Groundwater Elevations (2003-2015)

Monitoring Location	OW11d	OW12s	OW12d	OW13s	OW13d	OW14s	OW14d	OW15s	OW15d	OW16s	OW16d
Ref. Elevation	249.56	249.13	248.98	250.05	249.87	250.81	250.73	249.12	249.00	250.58	250.46
15-Sep-03	243.45	243.47	243.12	244.10	241.75	245.16	241.99	243.30	239.90	245.68	245.60
17-Oct-03	244.01	243.78	243.73	244.92	242.90	246.79	242.44	243.96	244.05	247.03	246.89
28-Nov-03	244.21	243.82	243.90	244.95	243.05	246.93	242.58	244.47	244.32	247.14	247.05
26-Feb-04	244.06	243.72	243.68	244.83	242.58	246.47	242.20	243.88	243.96	246.41	246.23
26-Apr-04	244.10	243.77	243.75	244.93	242.55	246.76	242.30	243.93	244.02	247.79	246.08
14-May-04	244.21	243.88	243.88	245.02	242.97	246.86	242.58	244.34	244.23	246.83	246.33
21-May-04	244.11	243.80	243.78	244.90	242.72	246.71	242.43	244.02	244.04	246.63	246.49
28-May-04	245.37	245.03	244.60	245.22	243.46	247.27	242.96	245.30	245.09	247.03	246.93
4-Jun-04	244.20	243.76	243.92	244.93	242.92	246.80	242.57	244.38	244.25	246.83	246.65
11-Jun-04	244.00	243.73	243.75	244.83	242.60	246.56	242.42	243.90	243.95	246.63	246.38
17-Jun-04	243.95	243.69	243.68	244.78	242.44	246.29	242.33	243.82	243.88	246.58	246.25
25-Jun-04	243.94	243.72	243.64	244.82	242.43	246.29	242.33	243.82	243.86	246.66	246.52
9-Jul-04	243.87	243.67	243.57	244.67	242.23	245.89	242.17	243.77	243.77	246.28	246.01
16-Jul-04	243.96	243.78	243.58	244.96	242.37	246.50	242.29	243.83	243.87	246.80	246.65
22-Jul-04	243.99	243.74	243.68	244.83	242.47	246.45	242.36	243.85	243.89	246.59	246.43
29-Jul-04	243.88	243.67	243.58	244.72	242.37	246.11	242.19	243.79	243.79	246.29	246.12
5-Aug-04	243.88	243.67	243.58	244.72	242.37	246.11	242.19	243.79	243.79	246.29	246.12
13-Aug-04	243.75	243.62	243.47	244.47	242.05	245.68	242.04	243.75	243.65	246.00	245.88
19-Aug-04	244.28	243.60	243.43	244.41	241.99	245.57	241.98	243.72	243.61	245.75	245.51
26-Aug-04	243.64	243.60	243.36	244.37	241.91	245.43	241.89	243.69	243.52	245.54	245.40
2-Sep-04	243.63	243.57	243.32	244.32	241.87	245.30	241.82	243.67	243.47	245.59	245.37
9-Sep-04	243.61	243.57	243.31	244.28	241.88	245.23	241.81	243.64	243.43	245.59	245.45
16-Sep-04	243.57	243.56	243.29	244.21	241.85	245.15	241.77	243.60	243.36	245.34	245.17
23-Sep-04	243.45	243.51	243.20	244.11	241.74	245.01	241.64	243.54	243.24	245.13	245.03
7-Oct-04	243.32	243.44	243.10	243.87	241.55	244.74	241.51	243.42	243.05	244.91	244.84
14-Oct-04	243.34	243.47	243.12	243.86	241.61	244.73	241.57	243.41	243.03	244.94	244.87
21-Oct-04	243.49	243.50	243.12	243.99	241.73	244.98	241.54	243.43	243.16	245.84	245.70
28-Oct-04	243.61	243.51	243.15	243.94	241.74	244.93	241.58	243.44	243.23	245.75	245.58
3-Nov-04	243.70	243.53	243.18	243.40	241.79	244.98	241.58	243.51	243.33	245.93	245.59
11-Nov-04	243.81	243.57	243.27	244.15	241.99	245.31	241.67	243.59	243.47	246.07	245.60
18-Nov-04	243.83	243.59	243.35	244.21	242.02	245.27	241.77	243.62	243.53	245.86	245.67
25-Nov-04	243.83	243.57	243.38	244.26	241.98	245.25	241.76	243.65	243.57	245.77	245.51
2-Dec-04	244.17	243.97	243.64	245.09	242.68	246.57	242.21	243.88	243.97	246.62	246.10
9-Dec-04	244.55	244.93	244.16	245.37	243.08	247.06	242.54	244.75	244.52	246.95	246.09
16-Dec-04	244.43	244.00	243.97	244.99	242.95	246.92	242.57	244.58	244.38	246.82	246.29
23-Dec-04	244.12	243.78	243.84	244.87	242.74	246.76	242.44	244.31	244.17	246.70	245.82
13-Jan-05	244.49	244.49	244.01	245.36	242.97	247.16	242.59	244.87	244.56	247.29	-
31-Jan-05	244.14	243.74	243.72	244.80	242.52	246.68	242.31	243.99	243.96	246.65	245.15
21-Feb-05	244.24	243.83	243.80	244.96	242.84	246.90	242.39	244.00	244.10	246.87	245.29
24-Mar-05	244.15	243.74	243.69	244.82	242.44	246.62	242.17	243.84	243.92	246.63	244.70
26-Apr-05	244.36	244.27	243.91	245.22	242.80	247.00	242.47	244.19	244.20	247.02	243.99
10-May-05	244.22	243.81	243.82	244.88	242.68	246.75	242.40	244.10	244.06	246.79	243.21
24-May-05	244.05	243.73	243.64	244.76	242.25	246.34	242.13	243.82	243.85	246.72	241.43
1-Jun-05	244.00	243.71	243.56	244.71	242.10	245.99	242.00	243.79	243.80	246.65	240.39
10-Jun-05	243.92	243.67	243.50	244.62	241.99	245.82	241.90	243.77	243.73	246.53	240.16
17-Jun-05	243.90	243.65	243.47	244.58	242.00	245.75	241.84	243.75	243.71	246.83	240.46
24-Jun-05	243.90	243.66	243.43	244.51	241.91	245.64	241.78	243.74	243.68	246.61	240.46
30-Jun-05	243.87	243.65	243.39	244.47	241.85	245.57	241.76	243.72	243.61	246.40	240.34
8-Jul-05	243.74	243.60	243.31	244.37	241.75	245.36	241.61	243.69	243.47	246.15	240.19
15-Jul-05	243.65	243.56	243.25	244.29	241.71	245.22	241.57	243.64	243.34	245.94	240.07
22-Jul-05	243.56	243.51	243.17	244.21	241.69	245.09	241.48	243.58	243.16	245.72	240.01
28-Jul-05</											

Table C-3.2 : Historical Groundwater Elevations (2003-2015)

Monitoring Location	OW11d	OW12s	OW12d	OW13s	OW13d	OW14s	OW14d	OW15s	OW15d	OW16s	OW16d
Ref. Elevation	249.56	249.13	248.98	250.05	249.87	250.81	250.73	249.12	249.00	250.58	250.46
20-Oct-06	244.02	243.71	243.43	244.80	242.43	246.38	241.70	243.99	243.68	245.83	242.67
27-Oct-06	244.24	244.09	243.74	245.02	242.81	246.87	242.11	244.00	244.09	245.76	243.23
3-Nov-06	244.34	244.06	243.86	244.95	242.90	246.89	242.24	244.45	244.29	245.72	243.10
6-Nov-06	-	-	-	-	-	246.94	242.26	-	-	245.83	243.31
10-Nov-06	244.41	244.45	244.01	245.09	243.02	247.02	242.31	244.63	244.40	245.82	243.06
14-Nov-06	-	-	-	-	-	247.02	242.35	-	-	245.84	242.93
17-Nov-06	244.40	244.23	243.94	245.11	242.99	247.06	242.29	244.59	244.50	245.91	242.90
24-Nov-06	244.31	243.86	243.83	244.93	242.87	246.90	242.23	244.38	244.23	245.79	242.52
1-Dec-06	244.38	244.09	243.87	245.18	242.85	247.09	242.30	244.22	244.28	245.89	242.95
15-Dec-06	244.89	245.23	244.48	245.39	243.40	247.29	242.52	245.28	244.93	246.02	242.76
26-Jan-07	244.16	243.80	243.71	244.85	242.62	246.74	242.08	243.88	244.00	245.74	241.54
9-Apr-07	244.46	244.29	244.06	245.00	243.01	247.03	242.29	244.68	244.45	245.95	241.39
21-Jun-07	243.97	243.71	243.53	244.69	242.18	246.12	241.85	243.79	243.80	246.03	239.29
27-Jul-07	243.69	243.62	243.24	244.25	241.79	245.17	241.57	243.68	243.41	243.56	241.85
22-Aug-07	243.37	243.43	242.97	243.89	241.42	244.73	241.25	243.46	242.95	244.23	235.57
31-Aug-07	243.40	243.40	242.92	243.79	241.45	244.62	241.21	243.39	242.89	242.46	235.10
26-Sep-07	243.40	243.30	242.80	243.59	241.36	244.34	241.09	243.25	242.76	-	-
19-Oct-07	243.46	243.30	242.76	243.53	241.32	244.26	240.94	243.18	242.76	-	-
17-Nov-07	243.78	243.46	242.99	243.87	241.57	244.89	241.17	243.52	243.32	-	-
20-Dec-07	244.03	243.68	243.51	244.69	242.27	246.23	241.81	243.84	243.87	-	-
7-Mar-08	244.40	244.01	243.84	244.97	242.81	247.04	242.17	244.28	244.22	-	-
3-Jun-08	244.06	243.83	243.63	244.78	242.32	246.63	241.99	243.84	243.93	-	-
29-Jul-08	243.87	243.73	243.48	244.42	241.97	245.72	241.72	243.75	243.64	-	-
18-Aug-08	243.88	243.73	243.36	244.47	242.04	245.69	241.67	243.72	243.60	-	-
23-Sep-08	243.91	243.76	243.38	244.63	242.20	246.03	241.70	243.73	243.68	-	-
29-Oct-08	243.99	243.76	243.43	244.73	242.23	246.37	241.71	243.78	243.81	-	-
26-Nov-08	244.22	243.96	243.85	244.96	242.79	246.99	242.16	244.35	244.19	-	-
18-Dec-08	-	-	-	-	-	-	-	-	-	-	-
6-Jan-09	243.66	243.92	243.88	245.01	242.92	246.94	242.31	244.45	244.27	-	-
20-Jan-09	244.10	243.83	243.69	244.80	242.48	246.66	242.15	243.85	243.95	-	-
24-Mar-09	244.45	244.29	244.03	245.03	242.92	246.99	242.22	244.66	244.43	-	-
8-Apr-09	-	-	-	-	-	-	-	-	-	-	-
15-Apr-09	244.55	244.20	243.95	245.01	242.87	247.01	242.19	244.54	244.36	-	-
6-Jun-09	243.99	243.84	243.57	244.74	242.19	246.30	241.84	243.80	243.85	-	-
12-Jun-09	244.01	-	-	-	-	-	-	-	-	-	-
8-Jul-09	244.01	243.84	243.58	244.78	242.36	246.51	241.83	243.80	243.89	-	-
20-Aug-09	243.81	243.77	243.30	244.35	241.84	246.47	241.51	243.72	243.54	-	-
16-Sep-09	243.52	243.60	243.09	244.09	241.59	245.09	241.27	243.57	243.17	-	-
20-Oct-09	243.93	243.65	243.25	244.05	241.65	245.28	241.39	243.69	243.62	-	-
27-Nov-09	244.05	243.75	243.62	244.73	242.20	246.51	241.85	243.82	243.89	-	-
29-Mar-10	244.19	243.83	243.75	244.86	242.64	246.85	241.98	244.21	244.10	-	-
30-Apr-10	244.03	243.83	243.75	244.86	242.64	246.85	241.98	244.21	244.10	-	-
25-May-10	244.04	243.80	243.60	244.81	242.20	246.49	241.82	243.83	243.88	-	-
25-Jun-10	244.02	243.76	243.52	244.78	242.28	246.55	241.80	243.80	243.84	-	-
26-Jul-10	243.89	243.72	243.50	244.69	242.26	246.16	241.75	243.58	243.77	-	-
26-Aug-10	243.91	243.70	243.47	244.65	242.18	246.06	241.65	243.76	243.75	-	-
4-Oct-10	244.19	244.72	244.06	244.95	242.37	246.91	242.05	244.48	244.28	-	-
1-Nov-10	243.88	243.71	243.53	243.64	242.09	246.12	241.69	243.80	243.86	-	-
6-Dec-10	245.27	-	-	244.41	242.68	246.76	242.01	-	-	-	-
6-Jan-11	244.59	243.64	243.56	243.94	243.14	246.55	241.82	243.68	243.79	-	-
9-Feb-11	244.44	243.59	243.53	243.89	242.44	246.48	241.68	243.84	243.92	-	-
25-Feb-11	-	-	-	243.82	242.83	-	-	-	-	-	-
23-Mar-11	244.66	243.65	243.59	244.13	243.25	246.69	242.49	245.86	245.99	-	-
4-May-11	244.63	244.39	244.10	245.06	243.06	247.11	242.23	244.69	244.46	-	-
24-May-11	244.88	244.96	244.06	245.39	242.88	247.11	242.26	244.82	244.53	-	-
27-Jun-11	244.17	243.89	243.69	245.00	242.65	246.83	241.92	244.11	243.77	-	-
26-Jul-11	243.83	243.74	243.43	244.58	242.10	245.09	241.67	243.78	243.64	-	-
30-Aug-11	243.76	243.71	243.31	243.71	241.97	245.54	241.65	243.72	243.54	-	-

Table C-3.2 : Historical Groundwater Elevations (2003-2015)



Monitoring Location	OW11d	OW12s	OW12d	OW13s	OW13d	OW14s	OW14d	OW15s	OW15d	OW16s	OW16d
Ref. Elevation	249.56	249.13	248.98	250.05	249.87	250.81	250.73	249.12	249.00	250.58	250.46
27-Feb-13	244.33	243.94	243.83	245.00	243.00	246.91	242.29	244.28	244.09	-	-
26-Mar-13	244.37	243.88	243.84	244.96	242.89	246.90	242.04	244.26	244.06	-	-
23-Apr-13	245.28	244.63	244.78	245.18	243.36	247.23	242.43	245.33	245.06	-	-
27-May-13	244.04	243.86	243.69	244.93	242.64	246.81	241.91	244.09	243.79	-	-
17-Jun-13	243.93	243.77	243.61	244.80	242.47	246.34	240.87	243.97	243.70	-	-
29-Jul-13	243.62	243.70	243.50	244.69	242.31	246.28	241.71	243.72	243.47	-	-
31-Aug-13	-	-	-	-	-	-	-	-	-	-	-
19-Sep-13	243.76	243.58	243.11	244.05	241.89	245.11	241.43	243.55	243.27	-	-
25-Oct-13	244.48	-	-	-	-	-	-	-	-	-	-
30-Nov-13	244.32	243.98	243.73	244.98	242.95	246.86	242.21	244.25	244.08	-	-
18-Dec-13	244.18	243.78	243.51	244.86	242.75	246.70	242.05	244.21	243.99	-	-
15-Mar-14	244.46	244.73	244.14	245.35	243.24	247.21	242.52	244.82	244.56	-	-
28-Apr-14	244.42	244.10	243.93	245.06	243.05	246.98	242.22	244.45	244.32	-	-
24-May-14	244.08	243.99	243.80	-	-	246.82	242.07	244.19	243.90	-	-
27-Jun-14	243.85	243.71	243.47	244.63	242.24	245.81	241.68	243.83	243.65	-	-
15-Jul-14	243.88	243.60	243.38	244.39	242.20	245.65	241.66	243.72	243.59	-	-
12-Sep-14	243.82	243.40	243.10	244.33	242.06	245.41	241.58	243.66	243.33	-	-
23-Oct-14	244.17	-	-	-	-	-	-	-	-	-	-
29-Jan-15	244.10	243.90	243.70	244.91	242.73	246.70	242.04	244.10	243.74	-	-
13-Mar-15	-	243.75	243.58	244.76	242.38	246.12	241.77	243.99	243.69	-	-
27-Apr-15	244.60	243.96	243.73	244.96	242.88	246.83	242.04	244.25	244.10	-	-
29-May-15	244.56	243.74	243.45	244.71	242.53	246.18	241.93	243.98	243.69	-	-
30-Jun-15	-	243.80	243.64	244.89	242.55	246.40	241.90	244.00	243.70	-	-
28-Jul-15	-	243.68	243.34	244.56	242.20	245.71	241.64	243.75	243.63	-	-
27-Aug-15	-	243.65	243.32	244.47	242.17	245.44	241.63	243.68	243.50	-	-
29-Sep-15	-	243.66	243.37	244.50	242.27	245.61	241.69	243.68	243.56	-	-
22-Oct-15	-	243.63	243.33	244.35	242.14	245.37	241.57	243.67	243.52	-	-
17-Nov-15	-	244.26	243.95	245.07	243.03	246.78	242.28	244.23	243.99	-	-
23-Dec-15	-	244.19	243.93	245.17	243.13	246.90	242.34	244.37	244.17	-	-

**Notes:**

\*\*\* = dry

++ = frozen

- = not measured

Table C-3.2 : Historical Groundwater Elevations (2003-2015)

Monitoring Location	OW24	OW25s	OW25d	OW26	OW27s	OW27d	OW28s	OW28d	OW29s	OW29d	OW30s
Ref. Elevation	240.68	244.13	243.95	244.45	244.94	244.91	252.27	251.90	250.13	250.19	251.59
	241.81										
15-Sep-03	-	-	-	-	-	-	-	-	-	-	-
17-Oct-03	-	-	-	-	-	-	-	-	-	-	-
28-Nov-03	-	-	-	-	-	-	-	-	-	-	-
26-Feb-04	-	-	-	-	-	-	-	-	-	-	-
26-Apr-04	-	-	-	-	-	-	-	-	-	-	-
14-May-04	-	-	-	-	-	-	-	-	-	-	-
21-May-04	-	-	-	-	-	-	-	-	-	-	-
28-May-04	-	-	-	-	-	-	-	-	-	-	-
4-Jun-04	-	-	-	-	-	-	-	-	-	-	-
11-Jun-04	-	-	-	-	-	-	-	-	-	-	-
17-Jun-04	-	-	-	-	-	-	-	-	-	-	-
25-Jun-04	-	-	-	-	-	-	-	-	-	-	-
9-Jul-04	-	-	-	-	-	-	-	-	-	-	-
16-Jul-04	-	-	-	-	-	-	-	-	-	-	-
22-Jul-04	-	-	-	-	-	-	-	-	-	-	-
29-Jul-04	-	-	-	-	-	-	-	-	-	-	-
5-Aug-04	-	-	-	-	-	-	-	-	-	-	-
13-Aug-04	-	-	-	-	-	-	-	-	-	-	-
19-Aug-04	-	-	-	-	-	-	-	-	-	-	-
26-Aug-04	-	-	-	-	-	-	-	-	-	-	-
2-Sep-04	-	-	-	-	-	-	-	-	-	-	-
9-Sep-04	-	-	-	-	-	-	-	-	-	-	-
16-Sep-04	-	-	-	-	-	-	-	-	-	-	-
23-Sep-04	-	-	-	-	-	-	-	-	-	-	-
7-Oct-04	-	-	-	-	-	-	-	-	-	-	-
14-Oct-04	-	-	-	-	-	-	-	-	-	-	-
21-Oct-04	-	-	-	-	-	-	-	-	-	-	-
28-Oct-04	-	-	-	-	-	-	-	-	-	-	-
3-Nov-04	-	-	-	-	-	-	-	-	-	-	-
11-Nov-04	-	-	-	-	-	-	-	-	-	-	-
18-Nov-04	-	-	-	-	-	-	-	-	-	-	-
25-Nov-04	-	-	-	-	-	-	-	-	-	-	-
2-Dec-04	-	-	-	-	-	-	-	-	-	-	-
9-Dec-04	-	-	-	-	-	-	-	-	-	-	-
16-Dec-04	-	-	-	-	-	-	-	-	-	-	-
23-Dec-04	-	-	-	-	-	-	-	-	-	-	-
13-Jan-05	-	-	-	-	-	-	-	-	-	-	-
31-Jan-05	-	-	-	-	-	-	-	-	-	-	-
21-Feb-05	-	-	-	-	-	-	-	-	-	-	-
24-Mar-05	-	-	-	-	-	-	-	-	-	-	-
26-Apr-05	-	-	-	-	-	-	-	-	-	-	-
10-May-05	-	-	-	-	-	-	-	-	-	-	-
24-May-05	-	-	-	-	-	-	-	-	-	-	-
1-Jun-05	-	-	-	-	-	-	-	-	-	-	-
10-Jun-05	-	-	-	-	-	-	-	-	-	-	-
17-Jun-05	-	-	-	-	-	-	-	-	-	-	-
24-Jun-05	-	-	-	-	-	-	-	-	-	-	-
30-Jun-05	-	-	-	-	-	-	-	-	-	-	-
8-Jul-05	-	-	-	-	-	-	-	-	-	-	-
15-Jul-05	-	-	-	-	-	-	-	-	-	-	-
22-Jul-05	-	-	-	-	-	-	-	-	-	-	-
28-Jul-05	-	-	-	-	-	-	-	-	-	-	-
4-Aug-05	-	-	-	-	-	-	-	-	-	-	-
12-Aug-05	-	-	-	-	-	-	-	-	-	-	-
18-Aug-05	-	-	-	-	-	-	-	-	-	-	-
26-Aug-05	-	-	-	-	-	-	-	-	-	-	-
2-Sep-05	-	-	-	-	-	-	-	-	-	-	-
9-Sep-05	-	-	-	-	-	-	-	-	-	-	-
15-Sep-05	-	-	-	-	-	-	-	-	-	-	-
23-Sep-05	-	-	-	-	-	-	-	-	-	-	-
30-Sep-05	-	-	-	-	-	-	-	-	-	-	-
7-Oct-05	-	-	-	-	-	-	-	-	-	-	-
14-Oct-05	-	-	-	-	-	-	-	-	-	-	-
21-Oct-05	-	-	-	-	-	-	-	-	-	-	-
28-Oct-05	-	-	-	-	-	-	-	-	-	-	-
4-Nov-05	-	-	-	-	-	-	-	-	-	-	-
11-Nov-05	-	-	-	-	-	-	-	-	-	-	-
2-Dec-05	-	-	-	-	-	-	-	-	-	-	-
21-Apr-06	-	-	-	-	-	-	-	-	-	-	-
15-Aug-06	-	-	-	-	-	-	243.02	238.30	-	-	-
14-Sep-06	-	-	-	-	-	-	242.95	238.23	-	-	-
28-Sep-06	-	-	-	-	-	-	242.95	238.23	-	-	-
5-Oct-06	-	-	-	-	-	-	242.95	238.36	-	-	-
6-Oct-06	239.58	239.43	-	240.28	-	-	242.92	238.24	-	-	-
10-Oct-06	239.66	239.42	239.93	240.50	-	-	-	-	-	-	-
17-Oct-06	239.85	239.58	239.77	237.68	240.23	240.35	243.05	240.06	-	-	-

Table C-3.2 : Historical Groundwater Elevations (2003-2015)



Monitoring Location	OW24	OW25s	OW25d	OW26	OW27s	OW27d	OW28s	OW28d	OW29s	OW29d	OW30s
Ref. Elevation	240.68	244.13	243.95	244.45	244.94	244.91	252.27	251.90	250.13	250.19	251.59
20-Oct-06	239.88	239.98	239.49	-	240.64	240.48	243.04	239.73	-	-	-
27-Oct-06	240.02	239.82	239.90	241.41	240.99	240.87	243.09	241.35	-	-	-
3-Nov-06	240.12	239.88	239.98	241.74	241.26	241.06	243.08	241.00	-	-	-
6-Nov-06	-	-	-	-	-	-	-	-	-	-	-
10-Nov-06	-	-	-	-	-	-	-	-	-	-	-
14-Nov-06	-	-	-	-	-	-	243.14	242.36	-	-	-
17-Nov-06	240.26	239.99	240.08	242.00	241.50	241.21	243.29	243.15	-	-	-
24-Nov-06	240.25	239.92	240.05	241.96	241.42	241.20	243.07	241.05	-	-	-
1-Dec-06	240.41	239.98	240.10	-	241.53	241.26	243.31	243.19	-	-	-
15-Dec-06	Submerged	240.30	240.25	242.31	241.78	241.36	244.54	244.46	-	-	-
26-Jan-07	240.27	239.89	240.04	241.62	241.29	241.18	243.07	239.70	-	-	-
9-Apr-07	Submerged	240.08	240.17	242.12	241.57	241.33	243.20	242.82	-	-	-
21-Jun-07	240.04	239.75	239.92	241.23	240.68	240.78	243.04	238.75	-	-	-
27-Jul-07	239.78	239.52	239.69	240.47	239.82	240.27	243.01	238.29	-	-	-
22-Aug-07	239.52	239.26	239.44	239.92	239.19	239.81	242.91	238.22	245.09	244.97	-
31-Aug-07	239.56	239.34	239.50	239.85	239.23	239.77	242.89	238.23	245.65	245.46	246.00
26-Sep-07	239.49	239.26	239.42	239.70	239.09	239.66	242.90	238.21	245.28	245.50	245.61
19-Oct-07	239.56	239.30	239.45	239.75	239.19	239.72	243.00	238.24	245.67	245.57	245.55
17-Nov-07	239.73	239.45	239.59	240.29	239.85	240.16	243.02	238.34	246.35	246.23	246.00
20-Dec-07	239.97	239.65	239.77	241.21	240.60	240.80	243.04	238.93	246.48	246.40	247.15
7-Mar-08	240.35	239.99	240.11	242.00	241.41	241.19	243.32	242.35	246.60	246.54	247.51
3-Jun-08	240.22	239.90	240.05	241.60	241.14	241.03	243.12	239.24	246.41	246.28	247.36
29-Jul-08	240.00	239.73	239.89	240.82	240.32	240.59	-	238.43	246.03	245.93	246.69
18-Aug-08	240.00	239.73	239.88	240.74	240.19	240.57	243.05	238.51	246.13	245.99	246.71
23-Sep-08	240.01	239.76	239.89	240.82	240.34	240.61	243.02	238.72	246.03	245.84	246.90
29-Oct-08	240.09	239.81	239.93	240.99	240.64	240.77	243.04	239.78	246.51	246.40	246.93
26-Nov-08	240.34	239.97	240.08	241.99	241.34	241.21	243.16	241.62	246.52	246.44	247.32
18-Dec-08	-	-	-	-	-	-	-	-	-	-	-
6-Jan-09	240.39	239.97	240.09	242.34	241.57	241.49	243.12	242.37	246.55	246.50	247.39
20-Jan-09	240.31	239.92	240.04	241.85	241.26	241.18	243.07	239.36	246.30	246.25	247.15
24-Mar-09	240.42	240.08	240.16	242.22	241.54	241.31	243.17	242.04	246.58	246.50	247.31
8-Apr-09	240.49	240.08	240.18	242.16	241.53	241.28	243.33	243.15	-	-	-
15-Apr-09	240.40	240.08	240.18	242.16	241.53	241.28	243.13	242.43	246.61	246.54	247.31
6-Jun-09	240.18	239.86	239.98	241.47	241.03	240.96	243.02	238.93	246.28	246.19	247.09
12-Jun-09	239.06	-	-	-	-	-	-	-	-	-	-
8-Jul-09	240.18	239.87	239.98	241.45	241.05	240.98	243.06	240.14	246.33	246.24	247.21
20-Aug-09	240.02	239.72	239.85	240.67	240.56	240.11	243.02	238.35	245.69	245.60	246.52
16-Sep-09	239.75	239.53	239.66	240.27	239.69	239.24	242.85	238.25	245.34	245.28	245.86
20-Oct-09	239.93	239.70	239.81	240.78	240.31	240.64	243.04	238.35	246.20	246.06	246.84
27-Nov-09	240.11	239.83	239.92	241.56	241.09	241.03	243.04	238.78	246.16	246.11	247.20
29-Mar-10	240.30	239.96	240.02	241.86	241.35	241.19	243.11	239.67	246.51	246.42	247.34
30-Apr-10	240.18	239.96	240.02	241.86	241.08	240.99	243.10	238.88	246.08	246.01	247.21
25-May-10	240.14	239.86	239.94	241.44	241.02	240.93	243.09	238.70	246.22	246.17	247.24
25-Jun-10	240.12	239.85	239.95	241.22	241.04	240.98	243.07	239.06	246.43	246.32	247.26
26-Jul-10	240.10	239.83	239.93	241.06	241.02	240.97	243.06	238.79	246.42	246.30	247.23
26-Aug-10	240.06	239.80	239.90	241.12	240.54	240.70	243.03	238.62	246.15	246.30	247.12
4-Oct-10	240.29	239.98	240.07	241.83	241.13	241.32	243.11	241.38	246.56	246.52	247.39
1-Nov-10	240.22	239.88	239.99	240.98	241.08	240.98	243.01	238.65	246.40	246.31	247.17
6-Dec-10	240.33	239.97	240.14	-	241.49	241.39	243.43	241.56	246.82	247.17	247.28
6-Jan-11	240.50	239.51	240.12	240.89	241.55	241.34	243.13	240.88	246.61	246.58	247.33
9-Feb-11	240.27	239.49	239.98	240.85	241.40	241.20	243.02	240.73	246.58	246.51	247.21
25-Feb-11	-	239.10	240.07	-	-	-	-	-	-	-	-
23-Mar-11	240.45	239.57	240.21	241.04	241.73	241.40	243.17	240.92	246.74	247.04	247.60
4-May-11	240.54	240.16	240.17	242.07	241.59	241.32	243.28	242.55	246.59	246.54	247.40
24-May-11	240.46	239.96	240.08	241.84	241.54	241.26	244.23	243.98	246.79	246.74	247.57
27-Jun-11	240.25	240.00	240.06	241.49	241.21	241.05	243.14	240.29	246.50	246.40	247.37
26-Jul-11	240.11	239.80	239.89	240.97	240.44	240.65	243.04	238.52	245.62		

Table C-3.2 : Historical Groundwater Elevations (2003-2015)



Monitoring Location	OW24	OW25s	OW25d	OW26	OW27s	OW27d	OW28s	OW28d	OW29s	OW29d	OW30s
Ref. Elevation	240.68	244.13	243.95	244.45	244.94	244.91	252.27	251.90	250.13	250.19	251.59
27-Feb-13	++	240.04	240.10	241.87	241.39	241.26	243.76	240.90	246.55	246.49	247.44
26-Mar-13	240.32	240.04	240.09	241.87	241.44	241.24	243.46	240.54	246.54	246.49	247.39
23-Apr-13	240.41	240.28	240.24	242.30	241.77	241.43	243.52	240.62	246.64	246.59	247.52
27-May-13	240.21	239.97	240.04	241.51	241.18	241.07	243.17	239.49	246.41	246.35	247.43
17-Jun-13	240.14	239.90	239.99	241.36	241.03	240.97	243.04	239.25	245.89	245.70	247.22
29-Jul-13	239.89	239.74	239.83	240.75	240.59	240.17	242.98	239.12	245.58	245.49	246.50
31-Aug-13	-	-	-	-	-	-	-	-	-	-	-
19-Sep-13	239.81	239.66	239.75	240.26	240.26	239.71	242.68	238.30	245.45	245.37	246.05
25-Oct-13	240.13	-	-	-	241.11	240.93	-	-	246.63	246.55	-
30-Nov-13	240.29	240.02	240.07	241.95	241.44	241.26	244.07	240.82	246.46	246.38	247.29
18-Dec-13	++	239.87	239.98	241.67	241.22	241.12	243.69	240.67	245.87	246.27	247.23
15-Mar-14	240.36	240.41	240.07	241.94	241.58	241.24	245.55	243.90	246.73	246.67	247.55
28-Apr-14	240.38	240.33	239.92	241.89	241.53	241.34	244.44	241.68	246.58	246.51	247.36
24-May-14	240.26	240.26	239.83	-	-	-	-	-	-	-	247.28
27-Jun-14	240.03	240.10	239.64	241.83	240.84	240.67	243.10	238.52	246.01	245.93	246.85
15-Jul-14	239.93	240.04	239.59	241.65	240.60	240.18	243.04	238.51	246.10	246.01	246.64
12-Sep-14	239.93	240.03	239.58	241.44	240.56	240.16	242.79	238.30	-	-	246.62
23-Oct-14	240.20	239.98	240.05	-	241.26	241.08	-	-	-	-	-
29-Jan-15	-	239.95	240.05	241.64	241.17	241.13	243.86	239.41	246.26	246.19	247.47
13-Mar-15	++	239.91	239.99	241.33	240.96	240.93	243.30	238.92	246.27	246.16	247.14
27-Apr-15	240.40	240.02	240.08	241.85	241.39	241.22	243.99	240.18	246.46	246.38	247.38
29-May-15	240.21	239.90	239.99	241.40	241.02	240.99	243.17	238.66	246.05	245.92	247.15
30-Jun-15	240.12	239.89	239.99	241.39	240.96	240.92	243.07	238.76	246.08	246.00	247.26
28-Jul-15	240.03	239.75	239.85	240.85	240.60	240.29	242.88	238.36	245.65	245.56	246.75
27-Aug-15	239.99	239.73	239.83	240.54	240.41	239.99	242.77	238.35	245.54	245.63	246.74
29-Sep-15	240.07	239.76	239.86	240.74	240.58	240.11	242.80	238.34	245.52	245.44	246.80
22-Oct-15	240.05	239.76	239.86	240.70	240.58	240.11	242.71	238.28	245.45	245.37	246.06
17-Nov-15	240.25	239.98	240.03	241.60	241.11	240.96	243.10	240.74	246.31	246.21	247.25
23-Dec-15	240.42	240.08	240.13	241.99	241.51	241.25	243.49	241.24	246.54	246.58	247.38

**Notes:**

\*\*\* = dry

++ = frozen

- = not measured

Table C-3.2 : Historical Groundwater Elevations (2003-2015)

Monitoring Location	OW30d	OW31s	OW31d	OW32s	OW32d	OW33s	OW33d	OW34	OW35	OW36	OW37
Ref. Elevation	251.32	250.42	250.89	250.25	250.46	249.30	249.46	249.80	250.09	251.20	252.75
15-Sep-03	-	-	-	-	-	-	-	-	-	-	-
17-Oct-03	-	-	-	-	-	-	-	-	-	-	-
28-Nov-03	-	-	-	-	-	-	-	-	-	-	-
26-Feb-04	-	-	-	-	-	-	-	-	-	-	-
26-Apr-04	-	-	-	-	-	-	-	-	-	-	-
14-May-04	-	-	-	-	-	-	-	-	-	-	-
21-May-04	-	-	-	-	-	-	-	-	-	-	-
28-May-04	-	-	-	-	-	-	-	-	-	-	-
4-Jun-04	-	-	-	-	-	-	-	-	-	-	-
11-Jun-04	-	-	-	-	-	-	-	-	-	-	-
17-Jun-04	-	-	-	-	-	-	-	-	-	-	-
25-Jun-04	-	-	-	-	-	-	-	-	-	-	-
9-Jul-04	-	-	-	-	-	-	-	-	-	-	-
16-Jul-04	-	-	-	-	-	-	-	-	-	-	-
22-Jul-04	-	-	-	-	-	-	-	-	-	-	-
29-Jul-04	-	-	-	-	-	-	-	-	-	-	-
5-Aug-04	-	-	-	-	-	-	-	-	-	-	-
13-Aug-04	-	-	-	-	-	-	-	-	-	-	-
19-Aug-04	-	-	-	-	-	-	-	-	-	-	-
26-Aug-04	-	-	-	-	-	-	-	-	-	-	-
2-Sep-04	-	-	-	-	-	-	-	-	-	-	-
9-Sep-04	-	-	-	-	-	-	-	-	-	-	-
16-Sep-04	-	-	-	-	-	-	-	-	-	-	-
23-Sep-04	-	-	-	-	-	-	-	-	-	-	-
7-Oct-04	-	-	-	-	-	-	-	-	-	-	-
14-Oct-04	-	-	-	-	-	-	-	-	-	-	-
21-Oct-04	-	-	-	-	-	-	-	-	-	-	-
28-Oct-04	-	-	-	-	-	-	-	-	-	-	-
3-Nov-04	-	-	-	-	-	-	-	-	-	-	-
11-Nov-04	-	-	-	-	-	-	-	-	-	-	-
18-Nov-04	-	-	-	-	-	-	-	-	-	-	-
25-Nov-04	-	-	-	-	-	-	-	-	-	-	-
2-Dec-04	-	-	-	-	-	-	-	-	-	-	-
9-Dec-04	-	-	-	-	-	-	-	-	-	-	-
16-Dec-04	-	-	-	-	-	-	-	-	-	-	-
23-Dec-04	-	-	-	-	-	-	-	-	-	-	-
13-Jan-05	-	-	-	-	-	-	-	-	-	-	-
31-Jan-05	-	-	-	-	-	-	-	-	-	-	-
21-Feb-05	-	-	-	-	-	-	-	-	-	-	-
24-Mar-05	-	-	-	-	-	-	-	-	-	-	-
26-Apr-05	-	-	-	-	-	-	-	-	-	-	-
10-May-05	-	-	-	-	-	-	-	-	-	-	-
24-May-05	-	-	-	-	-	-	-	-	-	-	-
1-Jun-05	-	-	-	-	-	-	-	-	-	-	-
10-Jun-05	-	-	-	-	-	-	-	-	-	-	-
17-Jun-05	-	-	-	-	-	-	-	-	-	-	-
24-Jun-05	-	-	-	-	-	-	-	-	-	-	-
30-Jun-05	-	-	-	-	-	-	-	-	-	-	-
8-Jul-05	-	-	-	-	-	-	-	-	-	-	-
15-Jul-05	-	-	-	-	-	-	-	-	-	-	-
22-Jul-05	-	-	-	-	-	-	-	-	-	-	-
28-Jul-05	-	-	-	-	-	-	-	-	-	-	-
4-Aug-05	-	-	-	-	-	-	-	-	-	-	-
12-Aug-05	-	-	-	-	-	-	-	-	-	-	-
18-Aug-05	-	-	-	-	-	-	-	-	-	-	-
26-Aug-05	-	-	-	-	-	-	-	-	-	-	-
2-Sep-05	-	-	-	-	-	-	-	-	-	-	-
9-Sep-05	-	-	-	-	-	-	-	-	-	-	-
15-Sep-05	-	-	-	-	-	-	-	-	-	-	-
23-Sep-05	-	-	-	-	-	-	-	-	-	-	-
30-Sep-05	-	-	-	-	-	-	-	-	-	-	-
7-Oct-05	-	-	-	-	-	-	-	-	-	-	-
14-Oct-05	-	-	-	-	-	-	-	-	-	-	-
21-Oct-05	-	-	-	-	-	-	-	-	-	-	-
28-Oct-05	-	-	-	-	-	-	-	-	-	-	-
4-Nov-05	-	-	-	-	-	-	-	-	-	-	-
11-Nov-05	-	-	-	-	-	-	-	-	-	-	-
2-Dec-05	-	-	-	-	-	-	-	-	-	-	-
21-Apr-06	-	-	-	-	-	-	-	-	-	-	-
15-Aug-06	-	-	-	-	-	-	-	-	-	-	-
14-Sep-06	-	-	-	-	-	-	-	-	-	-	-
28-Sep-06	-	-	-	-	-	-	-	-	-	-	-
5-Oct-06	-	-	-	-	-	-	-	-	-	-	-
6-Oct-06	-	-	-	-	-	-	-	-	-	-	-
10-Oct-06	-	-	-	-	-	-	-	-	-	-	-
17-Oct-06	-	-	-	-	-	-	-	-	-	-	-

**Table C-3.2 : Historical Groundwater Elevations (2003-2015)**



Table C-3.2 : Historical Groundwater Elevations (2003-2015)



Monitoring Location	OW30d	OW31s	OW31d	OW32s	OW32d	OW33s	OW33d	OW34	OW35	OW36	OW37
Ref. Elevation	251.32	250.42	250.89	250.25	250.46	249.30	249.46	249.80	250.09	251.20	252.75
27-Feb-13	239.56	245.54	241.97	245.31	241.22	244.26	240.64	236.28	235.92	236.29	237.00
26-Mar-13	239.43	245.30	241.79	245.03	241.04	244.20	240.47	234.82	234.97	235.44	236.60
23-Apr-13	239.79	246.07	242.58	246.06	241.87	245.46	241.31	235.17	235.27	235.70	237.23
27-May-13	239.40	245.06	241.26	244.78	240.48	243.75	239.94	234.77	234.97	235.47	236.36
17-Jun-13	239.18	244.81	240.82	244.57	240.10	243.53	239.54	234.77	234.97	235.49	236.19
29-Jul-13	238.92	244.61	240.70	244.31	239.69	243.22	239.11	234.92	235.04	235.50	235.94
31-Aug-13	-	-	-	-	-	-	-	-	-	-	-
19-Sep-13	238.67	244.45	240.12	244.30	239.49	242.09	238.89	234.74	234.94	235.42	235.76
25-Oct-13	-	-	-	-	-	246.24	240.98	-	-	-	-
30-Nov-13	239.11	245.47	241.87	245.27	244.61	244.20	240.86	234.84	234.99	235.51	236.49
18-Dec-13	239.12	245.40	241.76	245.03	240.72	243.98	240.68	234.85	234.99	235.49	236.43
15-Mar-14	239.98	246.37	242.48	246.38	241.55	245.73	241.52	236.15	236.22	236.56	237.75
28-Apr-14	239.28	245.70	242.10	245.51	241.24	244.53	241.08	234.85	234.98	235.45	236.59
24-May-14	239.17	245.15	241.66	-	-	-	-	234.76	234.94	235.44	236.40
27-Jun-14	238.91	244.59	240.54	244.38	239.81	243.31	239.51	234.72	234.90	235.40	235.92
15-Jul-14	238.80	244.67	240.47	244.51	239.74	243.45	239.42	234.00	234.92	236.14	235.88
12-Sep-14	238.77	244.41	240.21	244.26	239.47	243.20	239.07	233.99	234.92	236.10	235.77
23-Oct-14	-	-	-	-	-	-	-	-	-	-	-
29-Jan-15	239.62	245.04	241.21	-	-	-	-	234.30	234.95	235.41	236.38
13-Mar-15	239.45	244.76	240.68	244.58	239.88	243.38	239.52	233.97	234.92	235.40	236.15
27-Apr-15	239.58	245.29	241.74	245.03	240.91	244.16	240.65	234.75	234.99	235.43	236.45
29-May-15	239.28	244.77	240.74	-	-	243.46	239.49	234.66	234.90	235.48	236.03
30-Jun-15	239.06	244.86	240.74	244.62	239.95	243.57	239.61	234.62	234.90	235.49	235.96
28-Jul-15	238.49	244.52	240.34	244.34	239.60	243.25	239.23	234.55	234.83	235.39	235.82
27-Aug-15	238.80	244.54	240.29	244.36	239.55	243.25	239.16	234.65	234.87	235.40	235.83
29-Sep-15	238.69	244.60	240.36	244.40	239.60	243.31	239.29	234.54	234.81	235.42	235.74
22-Oct-15	238.49	244.41	240.08	244.24	239.39	243.16	239.01	234.59	234.79	235.46	235.75
17-Nov-15	238.94	245.47	241.68	245.20	240.59	244.24	240.60	234.69	235.02	235.69	235.97
23-Dec-15	239.12	246.03	242.00	245.46	241.35	244.80	240.99	234.91	235.09	N/A	236.62

**Notes:**

\*\*\* = dry

++ = frozen

- = not measured

Table C-3.2 : Historical Groundwater Elevations (2003-2015)

Monitoring Location	OW38	OW39	OW40	OW41s	OW41d	OW42s	OW42d	OW43s	OW43d	OW44s	OW44d
Ref. Elevation	250.23	251.35	250.85	250.60	251.12	249.76	249.81	251.58	251.90	249.30	249.22
15-Sep-03	-	-	-	-	-	-	-	-	-	-	-
17-Oct-03	-	-	-	-	-	-	-	-	-	-	-
28-Nov-03	-	-	-	-	-	-	-	-	-	-	-
26-Feb-04	-	-	-	-	-	-	-	-	-	-	-
26-Apr-04	-	-	-	-	-	-	-	-	-	-	-
14-May-04	-	-	-	-	-	-	-	-	-	-	-
21-May-04	-	-	-	-	-	-	-	-	-	-	-
28-May-04	-	-	-	-	-	-	-	-	-	-	-
4-Jun-04	-	-	-	-	-	-	-	-	-	-	-
11-Jun-04	-	-	-	-	-	-	-	-	-	-	-
17-Jun-04	-	-	-	-	-	-	-	-	-	-	-
25-Jun-04	-	-	-	-	-	-	-	-	-	-	-
9-Jul-04	-	-	-	-	-	-	-	-	-	-	-
16-Jul-04	-	-	-	-	-	-	-	-	-	-	-
22-Jul-04	-	-	-	-	-	-	-	-	-	-	-
29-Jul-04	-	-	-	-	-	-	-	-	-	-	-
5-Aug-04	-	-	-	-	-	-	-	-	-	-	-
13-Aug-04	-	-	-	-	-	-	-	-	-	-	-
19-Aug-04	-	-	-	-	-	-	-	-	-	-	-
26-Aug-04	-	-	-	-	-	-	-	-	-	-	-
2-Sep-04	-	-	-	-	-	-	-	-	-	-	-
9-Sep-04	-	-	-	-	-	-	-	-	-	-	-
16-Sep-04	-	-	-	-	-	-	-	-	-	-	-
23-Sep-04	-	-	-	-	-	-	-	-	-	-	-
7-Oct-04	-	-	-	-	-	-	-	-	-	-	-
14-Oct-04	-	-	-	-	-	-	-	-	-	-	-
21-Oct-04	-	-	-	-	-	-	-	-	-	-	-
28-Oct-04	-	-	-	-	-	-	-	-	-	-	-
3-Nov-04	-	-	-	-	-	-	-	-	-	-	-
11-Nov-04	-	-	-	-	-	-	-	-	-	-	-
18-Nov-04	-	-	-	-	-	-	-	-	-	-	-
25-Nov-04	-	-	-	-	-	-	-	-	-	-	-
2-Dec-04	-	-	-	-	-	-	-	-	-	-	-
9-Dec-04	-	-	-	-	-	-	-	-	-	-	-
16-Dec-04	-	-	-	-	-	-	-	-	-	-	-
23-Dec-04	-	-	-	-	-	-	-	-	-	-	-
13-Jan-05	-	-	-	-	-	-	-	-	-	-	-
31-Jan-05	-	-	-	-	-	-	-	-	-	-	-
21-Feb-05	-	-	-	-	-	-	-	-	-	-	-
24-Mar-05	-	-	-	-	-	-	-	-	-	-	-
26-Apr-05	-	-	-	-	-	-	-	-	-	-	-
10-May-05	-	-	-	-	-	-	-	-	-	-	-
24-May-05	-	-	-	-	-	-	-	-	-	-	-
1-Jun-05	-	-	-	-	-	-	-	-	-	-	-
10-Jun-05	-	-	-	-	-	-	-	-	-	-	-
17-Jun-05	-	-	-	-	-	-	-	-	-	-	-
24-Jun-05	-	-	-	-	-	-	-	-	-	-	-
30-Jun-05	-	-	-	-	-	-	-	-	-	-	-
8-Jul-05	-	-	-	-	-	-	-	-	-	-	-
15-Jul-05	-	-	-	-	-	-	-	-	-	-	-
22-Jul-05	-	-	-	-	-	-	-	-	-	-	-
28-Jul-05	-	-	-	-	-	-	-	-	-	-	-
4-Aug-05	-	-	-	-	-	-	-	-	-	-	-
12-Aug-05	-	-	-	-	-	-	-	-	-	-	-
18-Aug-05	-	-	-	-	-	-	-	-	-	-	-
26-Aug-05	-	-	-	-	-	-	-	-	-	-	-
2-Sep-05	-	-	-	-	-	-	-	-	-	-	-
9-Sep-05	-	-	-	-	-	-	-	-	-	-	-
15-Sep-05	-	-	-	-	-	-	-	-	-	-	-
23-Sep-05	-	-	-	-	-	-	-	-	-	-	-
30-Sep-05	-	-	-	-	-	-	-	-	-	-	-
7-Oct-05	-	-	-	-	-	-	-	-	-	-	-
14-Oct-05	-	-	-	-	-	-	-	-	-	-	-
21-Oct-05	-	-	-	-	-	-	-	-	-	-	-
28-Oct-05	-	-	-	-	-	-	-	-	-	-	-
4-Nov-05	-	-	-	-	-	-	-	-	-	-	-
11-Nov-05	-	-	-	-	-	-	-	-	-	-	-
2-Dec-05	-	-	-	-	-	-	-	-	-	-	-
21-Apr-06	-	-	-	-	-	-	-	-	-	-	-
15-Aug-06	-	-	-	-	-	-	-	-	-	-	-
14-Sep-06	-	-	-	-	-	-	-	-	-	-	-
28-Sep-06	-	-	-	-	-	-	-	-	-	-	-
5-Oct-06	-	-	-	-	-	-	-	-	-	-	-
6-Oct-06	-	-	-	-	-	-	-	-	-	-	-
10-Oct-06	-	-	-	-	-	-	-	-	-	-	-
17-Oct-06	-	-	-	-	-	-	-	-	-	-	-

Table C-3.2 : Historical Groundwater Elevations (2003-2015)

Monitoring Location	OW38	OW39	OW40	OW41s	OW41d	OW42s	OW42d	OW43s	OW43d	OW44s	OW44d
Ref. Elevation	250.23	251.35	250.85	250.60	251.12	249.76	249.81	251.58	251.90	249.30	249.22
20-Oct-06	-	-	-	-	-	-	-	-	-	-	-
27-Oct-06	-	-	-	-	-	-	-	-	-	-	-
3-Nov-06	-	-	-	-	-	-	-	-	-	-	-
6-Nov-06	-	-	-	-	-	-	-	-	-	-	-
10-Nov-06	-	-	-	-	-	-	-	-	-	-	-
14-Nov-06	-	-	-	-	-	-	-	-	-	-	-
17-Nov-06	-	-	-	-	-	-	-	-	-	-	-
24-Nov-06	-	-	-	-	-	-	-	-	-	-	-
1-Dec-06	-	-	-	-	-	-	-	-	-	-	-
15-Dec-06	-	-	-	-	-	-	-	-	-	-	-
26-Jan-07	-	-	-	-	-	-	-	-	-	-	-
9-Apr-07	-	-	-	-	-	-	-	-	-	-	-
21-Jun-07	-	-	-	-	-	-	-	-	-	-	-
27-Jul-07	-	-	-	-	-	-	-	-	-	-	-
22-Aug-07	-	-	-	-	-	-	-	-	-	-	-
31-Aug-07	-	-	-	-	-	-	-	-	-	-	-
26-Sep-07	-	-	-	-	-	-	-	-	-	-	-
19-Oct-07	-	-	-	-	-	-	-	-	-	-	-
17-Nov-07	-	-	-	-	-	-	-	-	-	-	-
20-Dec-07	-	-	-	-	-	-	-	-	-	-	-
7-Mar-08	-	-	-	-	-	-	-	-	-	-	-
3-Jun-08	-	-	-	-	-	-	-	-	-	-	-
29-Jul-08	-	-	-	-	-	-	-	-	-	-	-
18-Aug-08	-	-	-	-	-	-	-	-	-	-	-
23-Sep-08	-	-	-	-	-	-	-	-	-	-	-
29-Oct-08	-	-	-	-	-	-	-	-	-	-	-
26-Nov-08	238.33	242.10	242.86	246.10	245.49	246.40	243.75	246.66	246.08	244.65	244.73
18-Dec-08	238.79	242.16	243.03	246.19	245.58	248.27	244.99	246.92	246.30	245.37	245.49
6-Jan-09	239.00	242.21	243.12	246.20	245.49	-	245.14	246.69	246.13	244.69	245.02
20-Jan-09	238.28	241.97	242.98	245.99	245.27	246.12	244.81	246.46	245.74	244.58	244.64
24-Mar-09	238.69	242.34	243.15	246.14	245.41	246.46	245.03	246.69	246.16	244.80	245.03
8-Apr-09	-	-	-	-	-	-	-	-	-	-	-
15-Apr-09	238.71	242.43	243.21	246.11	245.37	246.41	245.00	246.70	246.18	245.07	245.16
6-Jun-09	237.78	242.26	243.00	245.95	245.07	245.84	244.59	246.39	245.74	244.53	244.51
12-Jun-09	-	-	-	-	-	-	-	246.39	245.74	244.52	244.51
8-Jul-09	237.84	242.36	243.08	245.97	245.13	-	244.46	246.46	245.10	244.54	244.56
20-Aug-09	237.49	242.02	242.69	245.85	244.80	245.41	244.20	246.10	245.35	244.38	244.23
16-Sep-09	237.35	241.65	242.28	245.61	244.58	245.21	243.81	245.67	244.81	244.25	244.01
20-Oct-09	237.49	242.23	242.86	245.57	244.64	245.45	244.28	246.34	245.67	244.50	244.43
27-Nov-09	237.67	242.45	243.12	245.99	245.07	246.03	244.70	246.45	245.78	244.53	244.55
29-Mar-10	238.37	242.62	243.27	246.05	245.22	246.28	244.87	246.60	246.03	244.61	244.72
30-Apr-10	237.79	242.54	243.14	246.00	245.06	245.96	244.64	246.41	245.74	244.54	244.57
25-May-10	237.73	242.57	243.17	245.97	245.04	245.88	244.65	246.46	245.79	244.55	244.60
25-Jun-10	237.79	242.67	243.23	245.97	245.01	245.90	244.63	246.36	245.71	244.57	244.55
26-Jul-10	237.86	242.62	243.18	245.84	244.91	245.72	244.51	246.31	245.64	244.49	244.40
26-Aug-10	237.62	242.60	243.13	245.82	244.88	245.76	244.51	246.30	245.62	244.45	244.42
4-Oct-10	238.61	242.85	243.40	244.92	244.20	245.85	244.91	246.60	246.11	244.68	244.94
1-Nov-10	237.58	242.60	243.14	244.84	244.04	246.14	244.60	246.47	245.86	244.53	244.52
6-Dec-10	238.91	243.07	243.23	-	-	-	-	-	-	244.62	244.83
6-Jan-11	239.22	242.93	243.10	244.48	243.72	246.11	244.71	246.37	245.73	244.94	245.41
9-Feb-11	239.11	242.81	243.04	244.44	243.66	246.03	244.78	246.57	246.01	244.59	244.70
25-Feb-11	-	-	-	-	-	-	-	-	-	-	-
23-Mar-11	239.51	243.20	243.24	244.84	244.02	246.61	245.22	246.91	246.29	245.36	245.73
4-May-11	239.13	242.97	243.52	246.16	245.31	246.46	245.05	246.72	246.17	244.89	245.36
24-May-11	238.58	243.08	243.50	246.28	245.30	246.63	245.02	247.03	246.35	245.24	245.48
27-Jun-11	238.23	242.62	243.23	246.08	245.06	246.19	244.76	246.61	246.02	244.67	244.82
26-Jul-11	237.75	242.22	242.87	245.90	244.83	245.49	244.31	246.08	245.34	244.44	244.40
30-Aug-11	237.89	242.26	242.88	245.88	244.76	245.45	244.22	245.84	245.06	244.43	244.32
22-Sep-11	238.41	242.68	243.27	246.00	245.00	245.64	244.76	246.37	245.57	244.51	244.39
26-Oct-11	239.14	242.97	243.56	246.05	245.17	246.32	244.98	246.65	246.17	245.06	244.70
29-Nov-11	238.78	242.81	243.41	246.31	245.29	246.57	245.06	247.05	246.45	245.80	245.71
11-Jan-12	238.61	242.60	243.13	246.09	245.14	246.24	244.84	246.64	246.09	244.72	++
27-Feb-12	238.15	242.27	243.07	246.08	245.10	246.13	244.86	246.60	246.02	244.63	++
8-Mar-12	-	242.44	243.33	-	-	-	-	-	-	245.18	-
15-Mar-12	-	242.45	243.42	-	-	-	-	-	-	245.11	-
21-Mar-12	-	242.23	243.20	-	-	-	-	-	-	244.87	-
29-Mar-12	238.36	242.23	243.20	246.06	245.08	246.15	244.92	246.57	245.97	244.68	-
25-Apr-12	237.87	241.98	242.93	246.01	244.98	246.					

Table C-3.2 : Historical Groundwater Elevations (2003-2015)



Monitoring Location	OW38	OW39	OW40	OW41s	OW41d	OW42s	OW42d	OW43s	OW43d	OW44s	OW44d
Ref. Elevation	250.23	251.35	250.85	250.60	251.12	249.76	249.81	251.58	251.90	249.30	249.22
27-Feb-13	238.99	242.68	243.36	246.09	245.15	246.33	245.00	246.66	246.12	244.71	244.81
26-Mar-13	238.58	242.47	243.16	246.08	245.08	246.26	244.90	246.64	246.12	244.75	245.04
23-Apr-13	239.48	242.76	243.43	246.25	245.33	246.69	245.28	247.09	246.52	246.23	246.39
27-May-13	238.15	242.47	243.12	246.07	244.98	246.10	244.71	246.58	245.99	244.64	244.77
17-Jun-13	237.92	242.27	242.73	245.96	244.89	245.69	244.47	246.28	245.62	244.56	244.56
29-Jul-13	237.64	241.72	242.04	245.78	244.66	245.37	243.98	245.84	245.03	244.40	244.32
31-Aug-13	-	-	-	-	-	-	-	-	-	-	-
19-Sep-13	237.44	241.25	241.58	245.44	244.46	245.20	243.73	245.98	245.26	244.39	244.16
25-Oct-13	-	-	-	-	-	-	-	-	-	245.09	245.12
30-Nov-13	238.55	241.80	242.45	246.08	245.15	246.27	244.79	246.60	246.05	244.66	244.80
18-Dec-13	238.38	241.68	242.34	245.89	244.94	246.17	244.65	246.54	245.94	244.60	244.72
15-Mar-14	239.39	242.65	243.01	246.25	245.25	246.85	245.01	246.97	246.34	245.04	245.09
28-Apr-14	238.74	242.25	242.75	246.13	245.14	246.36	244.92	246.65	246.14	244.74	245.02
24-May-14	238.42	242.22	242.77	246.06	245.02	246.20	244.78	246.58	246.01	244.67	244.80
27-Jun-14	237.69	241.95	242.49	245.90	244.77	245.54	244.36	246.19	245.59	244.49	244.38
15-Jul-14	237.69	241.67	242.15	245.85	244.74	245.52	244.16	246.19	245.59	244.50	244.41
12-Sep-14	237.54	241.40	241.87	245.79	244.67	245.36	243.94	245.99	245.27	244.38	244.21
23-Oct-14	-	-	-	-	-	-	-	-	-	-	-
29-Jan-15	238.17	242.45	243.63	246.04	245.03	246.08	244.75	-	-	244.79	244.51
13-Mar-15	237.83	242.31	-	245.80	244.86	245.89	244.50	246.38	245.79	244.57	244.53
27-Apr-15	238.49	242.43	-	246.07	245.06	246.20	244.79	246.69	246.02	244.66	244.78
29-May-15	237.73	242.24	-	245.96	244.97	245.81	244.59	246.33	245.71	244.63	244.47
30-Jun-15	237.75	242.07	-	246.00	244.96	245.96	244.56	246.31	245.72	244.55	244.56
28-Jul-15	237.54	241.59	-	245.89	244.76	245.49	244.21	246.00	245.30	244.41	244.42
27-Aug-15	237.49	241.55	-	245.85	244.77	245.67	244.19	245.98	245.32	244.41	244.28
29-Sep-15	237.49	241.35	-	245.90	244.87	245.60	244.23	246.01	245.35	244.39	244.24
22-Oct-15	237.31	241.06	-	245.83	244.83	245.45	244.04	245.90	245.24	244.37	244.20
17-Nov-15	238.14	241.68	-	246.10	245.31	246.32	244.71	246.50	245.84	244.79	244.56
23-Dec-15	238.46	241.82	-	246.15	245.35	246.29	244.88	246.72	246.00	244.91	244.68

**Notes:**

\*\*\* = dry

++ = frozen

- = not measured

Table C-3.2 : Historical Groundwater Elevations (2003-2015)

Monitoring Location	OW45	OW46k	OW46s	OW46d	OW47s	OW47d	OW48	OW49	OW50	OW51	OW52
Ref. Elevation	247.61	248.68	248.68	248.88	248.72	248.91	248.29	253.38	253.50	251.80	252.73
15-Sep-03	-	-	-	-	-	-	-	-	-	-	-
17-Oct-03	-	-	-	-	-	-	-	-	-	-	-
28-Nov-03	-	-	-	-	-	-	-	-	-	-	-
26-Feb-04	-	-	-	-	-	-	-	-	-	-	-
26-Apr-04	-	-	-	-	-	-	-	-	-	-	-
14-May-04	-	-	-	-	-	-	-	-	-	-	-
21-May-04	-	-	-	-	-	-	-	-	-	-	-
28-May-04	-	-	-	-	-	-	-	-	-	-	-
4-Jun-04	-	-	-	-	-	-	-	-	-	-	-
11-Jun-04	-	-	-	-	-	-	-	-	-	-	-
17-Jun-04	-	-	-	-	-	-	-	-	-	-	-
25-Jun-04	-	-	-	-	-	-	-	-	-	-	-
9-Jul-04	-	-	-	-	-	-	-	-	-	-	-
16-Jul-04	-	-	-	-	-	-	-	-	-	-	-
22-Jul-04	-	-	-	-	-	-	-	-	-	-	-
29-Jul-04	-	-	-	-	-	-	-	-	-	-	-
5-Aug-04	-	-	-	-	-	-	-	-	-	-	-
13-Aug-04	-	-	-	-	-	-	-	-	-	-	-
19-Aug-04	-	-	-	-	-	-	-	-	-	-	-
26-Aug-04	-	-	-	-	-	-	-	-	-	-	-
2-Sep-04	-	-	-	-	-	-	-	-	-	-	-
9-Sep-04	-	-	-	-	-	-	-	-	-	-	-
16-Sep-04	-	-	-	-	-	-	-	-	-	-	-
23-Sep-04	-	-	-	-	-	-	-	-	-	-	-
7-Oct-04	-	-	-	-	-	-	-	-	-	-	-
14-Oct-04	-	-	-	-	-	-	-	-	-	-	-
21-Oct-04	-	-	-	-	-	-	-	-	-	-	-
28-Oct-04	-	-	-	-	-	-	-	-	-	-	-
3-Nov-04	-	-	-	-	-	-	-	-	-	-	-
11-Nov-04	-	-	-	-	-	-	-	-	-	-	-
18-Nov-04	-	-	-	-	-	-	-	-	-	-	-
25-Nov-04	-	-	-	-	-	-	-	-	-	-	-
2-Dec-04	-	-	-	-	-	-	-	-	-	-	-
9-Dec-04	-	-	-	-	-	-	-	-	-	-	-
16-Dec-04	-	-	-	-	-	-	-	-	-	-	-
23-Dec-04	-	-	-	-	-	-	-	-	-	-	-
13-Jan-05	-	-	-	-	-	-	-	-	-	-	-
31-Jan-05	-	-	-	-	-	-	-	-	-	-	-
21-Feb-05	-	-	-	-	-	-	-	-	-	-	-
24-Mar-05	-	-	-	-	-	-	-	-	-	-	-
26-Apr-05	-	-	-	-	-	-	-	-	-	-	-
10-May-05	-	-	-	-	-	-	-	-	-	-	-
24-May-05	-	-	-	-	-	-	-	-	-	-	-
1-Jun-05	-	-	-	-	-	-	-	-	-	-	-
10-Jun-05	-	-	-	-	-	-	-	-	-	-	-
17-Jun-05	-	-	-	-	-	-	-	-	-	-	-
24-Jun-05	-	-	-	-	-	-	-	-	-	-	-
30-Jun-05	-	-	-	-	-	-	-	-	-	-	-
8-Jul-05	-	-	-	-	-	-	-	-	-	-	-
15-Jul-05	-	-	-	-	-	-	-	-	-	-	-
22-Jul-05	-	-	-	-	-	-	-	-	-	-	-
28-Jul-05	-	-	-	-	-	-	-	-	-	-	-
4-Aug-05	-	-	-	-	-	-	-	-	-	-	-
12-Aug-05	-	-	-	-	-	-	-	-	-	-	-
18-Aug-05	-	-	-	-	-	-	-	-	-	-	-
26-Aug-05	-	-	-	-	-	-	-	-	-	-	-
2-Sep-05	-	-	-	-	-	-	-	-	-	-	-
9-Sep-05	-	-	-	-	-	-	-	-	-	-	-
15-Sep-05	-	-	-	-	-	-	-	-	-	-	-
23-Sep-05	-	-	-	-	-	-	-	-	-	-	-
30-Sep-05	-	-	-	-	-	-	-	-	-	-	-
7-Oct-05	-	-	-	-	-	-	-	-	-	-	-
14-Oct-05	-	-	-	-	-	-	-	-	-	-	-
21-Oct-05	-	-	-	-	-	-	-	-	-	-	-
28-Oct-05	-	-	-	-	-	-	-	-	-	-	-
4-Nov-05	-	-	-	-	-	-	-	-	-	-	-
11-Nov-05	-	-	-	-	-	-	-	-	-	-	-
2-Dec-05	-	-	-	-	-	-	-	-	-	-	-
21-Apr-06	-	-	-	-	-	-	-	-	-	-	-
15-Aug-06	-	-	-	-	-	-	-	-	-	-	-
14-Sep-06	-	-	-	-	-	-	-	-	-	-	-
28-Sep-06	-	-	-	-	-	-	-	-	-	-	-
5-Oct-06	-	-	-	-	-	-	-	-	-	-	-
6-Oct-06	-	-	-	-	-	-	-	-	-	-	-
10-Oct-06	-	-	-	-	-	-	-	-	-	-	-
17-Oct-06	-	-	-	-	-	-	-	-	-	-	-

Table C-3.2 : Historical Groundwater Elevations (2003-2015)

Monitoring Location	OW45	OW46k	OW46s	OW46d	OW47s	OW47d	OW48	OW49	OW50	OW51	OW52
Ref. Elevation	247.61	248.68	248.68	248.88	248.72	248.91	248.29	253.38	253.50	251.80	252.73
20-Oct-06	-	-	-	-	-	-	-	-	-	-	-
27-Oct-06	-	-	-	-	-	-	-	-	-	-	-
3-Nov-06	-	-	-	-	-	-	-	-	-	-	-
6-Nov-06	-	-	-	-	-	-	-	-	-	-	-
10-Nov-06	-	-	-	-	-	-	-	-	-	-	-
14-Nov-06	-	-	-	-	-	-	-	-	-	-	-
17-Nov-06	-	-	-	-	-	-	-	-	-	-	-
24-Nov-06	-	-	-	-	-	-	-	-	-	-	-
1-Dec-06	-	-	-	-	-	-	-	-	-	-	-
15-Dec-06	-	-	-	-	-	-	-	-	-	-	-
26-Jan-07	-	-	-	-	-	-	-	-	-	-	-
9-Apr-07	-	-	-	-	-	-	-	-	-	-	-
21-Jun-07	-	-	-	-	-	-	-	-	-	-	-
27-Jul-07	-	-	-	-	-	-	-	-	-	-	-
22-Aug-07	-	-	-	-	-	-	-	-	-	-	-
31-Aug-07	-	-	-	-	-	-	-	-	-	-	-
26-Sep-07	-	-	-	-	-	-	-	-	-	-	-
19-Oct-07	-	-	-	-	-	-	-	-	-	-	-
17-Nov-07	-	-	-	-	-	-	-	-	-	-	-
20-Dec-07	-	-	-	-	-	-	-	-	-	-	-
7-Mar-08	-	-	-	-	-	-	-	-	-	-	-
3-Jun-08	-	-	-	-	-	-	-	-	-	-	-
29-Jul-08	-	-	-	-	-	-	-	-	-	-	-
18-Aug-08	-	-	-	-	-	-	-	-	-	-	-
23-Sep-08	-	-	-	-	-	-	-	-	-	-	-
29-Oct-08	-	-	-	-	-	-	-	-	-	-	-
26-Nov-08	244.39	-	243.64	243.53	243.49	243.50	242.95	-	-	-	-
18-Dec-08	245.54	-	244.18	244.01	243.87	243.95	243.77	-	-	-	-
6-Jan-09	244.69	-	243.78	243.68	243.59	243.65	243.17	239.50	243.24	241.79	241.79
20-Jan-09	244.13	-	243.52	243.44	243.47	243.42	242.89	238.16	240.33	240.08	239.93
24-Mar-09	244.91	-	243.93	243.76	243.66	243.73	243.26	239.53	245.18	241.81	241.72
8-Apr-09	-	-	-	-	-	-	-	-	-	-	-
15-Apr-09	245.13	-	244.04	243.85	243.72	243.80	243.44	239.44	244.57	241.73	241.58
6-Jun-09	243.93	-	243.46	243.37	243.45	243.36	242.83	237.66	239.55	239.75	239.63
12-Jun-09	-	-	243.42	243.37	243.45	243.36	-	-	-	-	-
8-Jul-09	244.05	-	243.48	243.41	243.41	-	242.82	237.46	238.83	239.65	239.66
20-Aug-09	243.50	-	243.11	243.14	243.31	243.14	242.77	236.98	237.78	239.16	239.24
16-Sep-09	243.22	-	242.63	242.71	243.00	242.71	242.67	236.86	237.46	239.00	239.13
20-Oct-09	243.83	-	243.38	243.29	243.41	243.27	242.82	236.95	237.29	238.97	239.11
27-Nov-09	243.93	-	243.41	243.36	243.44	243.34	242.84	237.19	238.15	239.30	239.30
29-Mar-10	244.28	-	243.61	243.50	243.49	243.48	242.93	238.74	243.40	240.64	240.52
30-Apr-10	243.99	-	243.45	243.38	243.45	243.36	242.85	237.83	240.16	239.89	239.86
25-May-10	244.04	-	243.46	243.39	243.45	243.38	242.86	237.60	239.08	239.82	239.83
25-Jun-10	244.06	-	243.51	243.41	243.45	243.39	242.86	237.38	238.63	239.58	239.57
26-Jul-10	243.73	-	243.29	243.26	243.38	243.26	242.76	237.36	238.39	239.38	239.37
26-Aug-10	243.75	-	243.34	243.28	243.42	243.28	242.79	237.21	238.43	239.37	239.38
4-Oct-10	244.74	-	243.75	243.63	244.41	244.23	243.18	238.82	242.84	240.87	240.71
1-Nov-10	243.93	-	243.41	243.35	243.42	243.33	242.83	237.39	238.62	239.49	239.51
6-Dec-10	244.45	-	243.84	243.75	243.86	243.70	243.02	239.61	244.76	241.98	241.97
6-Jan-11	244.30	-	243.99	243.86	243.71	243.84	243.61	240.34	245.92	242.28	242.08
9-Feb-11	244.10	-	243.49	243.41	243.46	243.40	242.88	238.06	239.36	239.98	239.95
25-Feb-11	-	-	-	-	-	-	-	-	-	-	-
23-Mar-11	245.76	-	244.21	244.11	244.00	244.08	243.92	240.86	246.69	242.80	242.27
4-May-11	245.23	243.89	244.00	243.87	243.72	243.85	243.61	240.44	246.30	242.35	241.95
24-May-11	245.42	244.08	244.22	243.96	243.82	243.91	243.14	240.03	246.40	242.88	242.70
27-Jun-11	244.51	-	243.52	243.15	243.54	240.81	243.01	238.44	241.72	240.53	240.63
26-Jul-11	243.68	243.13	243.06	242.53	243.39	240.77	242.81	237.40	238.15	239.38	239.40
30-Aug-11	243.59	242.99	243.28	243.01	243.32	240.56	242.79	237.36	237.48	239.32	240.38
22-Sep-11	243.71	243.16	243.19	242.85	243.40	241.10	242.81	237.75	237.73	239.61	239.47
26-Oct-11	244.75	243.82	243.90	243.71	243.62	243.65	243.20	239.36	242.19	241.02	240.89
29-Nov-11	245.92	244.24	244.35	244.15	244.13	244.13	244.07	240.20	244.16	242.94	242.56
11-Jan-12	244.47	243.70	243.85	243.62	243.55	243.60	243.02	238.67	240.73	240.99	241.22
27-Feb-12	244.22	243.57	243.63	243.48	243.50	243.49	242.91	238.13	239.76	240.32	240.55
8-Mar-12	-	-	-	-	-	-	-	-	-	-	-
15-Mar-12	-	-	-	-	-	-	-	-	-	-	-
21-Mar-12	-	-	-	-	-	-	-	-	-	-	-
29-Mar-12	244.49	243.70	243.79	243.62	243.60	243.62	243.02	238.55	241.23	240.46	240.43
25-Apr-12	244.08	243.52	243.60	243.47	243.48	243.46	242.88	237.69	238.41	239.95	240.25
28-May-12	243.77	243.28	243.33	243.32	243.42	243.31	242.79	237.31	237.79	239.52	239.59

Table C-3.2 : Historical Groundwater Elevations (2003-2015)



Monitoring Location	OW45	OW46k	OW46s	OW46d	OW47s	OW47d	OW48	OW49	OW50	OW51	OW52
Ref. Elevation	247.61	248.68	248.68	248.88	248.72	248.91	248.29	253.38	253.50	251.80	252.73
27-Feb-13	244.45	243.47	243.46	243.50	243.54	243.55	242.94	239.14	241.68	241.23	241.51
26-Mar-13	244.74	243.78	243.91	243.68	243.66	243.70	243.21	238.96	241.84	241.08	241.28
23-Apr-13	246.40	244.52	244.58	244.38	244.52	244.45	244.39	240.79	245.05	243.13	242.51
27-May-13	244.45	243.57	243.68	243.52	243.52	243.49	242.99	238.16	240.18	240.62	241.68
17-Jun-13	244.00	243.43	243.48	243.31	243.45	243.37	242.84	237.83	239.36	239.83	239.83
29-Jul-13	243.58	243.04	243.08	242.99	243.35	243.07	242.76	237.17	237.51	239.23	239.31
31-Aug-13	-	-	-	-	-	-	-	-	-	-	-
19-Sep-13	243.36	243.19	243.22	243.13	243.28	243.08	242.72	236.99	237.10	239.03	239.15
25-Oct-13	245.13	243.92	244.05	243.68	243.73	243.71	243.44	-	-	-	-
30-Nov-13	244.39	243.70	243.78	243.62	243.56	243.52	242.94	239.01	243.44	241.00	240.97
18-Dec-13	244.25	243.48	243.56	243.43	243.48	243.43	242.85	238.65	242.74	240.50	240.51
15-Mar-14	245.19	243.93	244.04	243.81	243.71	243.76	243.33	240.66	246.44	242.78	242.49
28-Apr-14	244.71	243.83	243.92	243.67	243.64	243.67	243.19	239.52	245.25	241.68	241.83
24-May-14	244.46	243.66	243.67	243.52	243.52	243.53	242.96	238.88	243.38	241.05	241.23
27-Jun-14	243.69	243.19	243.33	243.23	243.41	243.23	242.79	237.32	237.90	239.39	239.43
15-Jul-14	243.86	243.36	243.41	243.20	243.43	243.26	242.79	237.14	237.32	239.22	239.28
12-Sep-14	243.46	243.09	243.10	243.02	243.30	243.09	242.72	237.01	237.08	239.07	239.17
23-Oct-14	-	-	-	-	-	-	-	-	-	-	-
29-Jan-15	244.17	243.45	243.52	243.40	243.47	243.35	242.86	238.15	239.93	240.28	240.60
13-Mar-15	244.01	243.40	243.48	243.30	243.45	243.33	242.84	237.65	238.19	239.73	239.76
27-Apr-15	244.44	243.61	243.71	243.43	243.52	243.47	242.93	239.11	244.10	241.14	241.29
29-May-15	243.95	243.42	243.46	243.35	243.45	243.35	242.82	237.58	238.67	239.67	239.70
30-Jun-15	244.04	243.39	243.47	243.22	243.46	243.25	242.83	237.39	238.11	239.53	239.56
28-Jul-15	244.24	243.16	243.20	243.03	243.37	243.14	242.76	237.11	237.40	239.23	239.33
27-Aug-15	244.26	243.19	243.23	243.17	243.35	243.12	242.72	237.00	237.05	239.07	239.21
29-Sep-15	243.50	243.15	243.17	243.10	243.34	243.13	242.77	236.96	236.89	239.03	239.15
22-Oct-15	243.29	243.06	243.09	243.06	243.21	243.08	242.72	236.87	236.82	238.94	239.12
17-Nov-15	244.34	243.62	243.67	243.47	243.53	243.47	242.98	237.92	240.54	240.00	239.95
23-Dec-15	244.57	243.80	243.89	243.60	243.61	243.62	243.04	239.21	244.27	241.61	242.09

**Notes:**

\*\*\* = dry

++ = frozen

- = not measured

Table C-3.2 : Historical Groundwater Elevations (2003-2015)



Monitoring Location	OW53	MP54(in)	MP54(out)	MP55(in)	MP55(out)	MP56(in)	MP56(out)	MP57(in)	MP57(out)	OW58s	OW58d
Ref. Elevation	251.31	240.80	240.80	240.55	240.55	240.82	240.82	240.89	240.89	240.73	240.78
15-Sep-03	-	-	-	-	-	-	-	-	-	-	-
17-Oct-03	-	-	-	-	-	-	-	-	-	-	-
28-Nov-03	-	-	-	-	-	-	-	-	-	-	-
26-Feb-04	-	-	-	-	-	-	-	-	-	-	-
26-Apr-04	-	-	-	-	-	-	-	-	-	-	-
14-May-04	-	-	-	-	-	-	-	-	-	-	-
21-May-04	-	-	-	-	-	-	-	-	-	-	-
28-May-04	-	-	-	-	-	-	-	-	-	-	-
4-Jun-04	-	-	-	-	-	-	-	-	-	-	-
11-Jun-04	-	-	-	-	-	-	-	-	-	-	-
17-Jun-04	-	-	-	-	-	-	-	-	-	-	-
25-Jun-04	-	-	-	-	-	-	-	-	-	-	-
9-Jul-04	-	-	-	-	-	-	-	-	-	-	-
16-Jul-04	-	-	-	-	-	-	-	-	-	-	-
22-Jul-04	-	-	-	-	-	-	-	-	-	-	-
29-Jul-04	-	-	-	-	-	-	-	-	-	-	-
5-Aug-04	-	-	-	-	-	-	-	-	-	-	-
13-Aug-04	-	-	-	-	-	-	-	-	-	-	-
19-Aug-04	-	-	-	-	-	-	-	-	-	-	-
26-Aug-04	-	-	-	-	-	-	-	-	-	-	-
2-Sep-04	-	-	-	-	-	-	-	-	-	-	-
9-Sep-04	-	-	-	-	-	-	-	-	-	-	-
16-Sep-04	-	-	-	-	-	-	-	-	-	-	-
23-Sep-04	-	-	-	-	-	-	-	-	-	-	-
7-Oct-04	-	-	-	-	-	-	-	-	-	-	-
14-Oct-04	-	-	-	-	-	-	-	-	-	-	-
21-Oct-04	-	-	-	-	-	-	-	-	-	-	-
28-Oct-04	-	-	-	-	-	-	-	-	-	-	-
3-Nov-04	-	-	-	-	-	-	-	-	-	-	-
11-Nov-04	-	-	-	-	-	-	-	-	-	-	-
18-Nov-04	-	-	-	-	-	-	-	-	-	-	-
25-Nov-04	-	-	-	-	-	-	-	-	-	-	-
2-Dec-04	-	-	-	-	-	-	-	-	-	-	-
9-Dec-04	-	-	-	-	-	-	-	-	-	-	-
16-Dec-04	-	-	-	-	-	-	-	-	-	-	-
23-Dec-04	-	-	-	-	-	-	-	-	-	-	-
13-Jan-05	-	-	-	-	-	-	-	-	-	-	-
31-Jan-05	-	-	-	-	-	-	-	-	-	-	-
21-Feb-05	-	-	-	-	-	-	-	-	-	-	-
24-Mar-05	-	-	-	-	-	-	-	-	-	-	-
26-Apr-05	-	-	-	-	-	-	-	-	-	-	-
10-May-05	-	-	-	-	-	-	-	-	-	-	-
24-May-05	-	-	-	-	-	-	-	-	-	-	-
1-Jun-05	-	-	-	-	-	-	-	-	-	-	-
10-Jun-05	-	-	-	-	-	-	-	-	-	-	-
17-Jun-05	-	-	-	-	-	-	-	-	-	-	-
24-Jun-05	-	-	-	-	-	-	-	-	-	-	-
30-Jun-05	-	-	-	-	-	-	-	-	-	-	-
8-Jul-05	-	-	-	-	-	-	-	-	-	-	-
15-Jul-05	-	-	-	-	-	-	-	-	-	-	-
22-Jul-05	-	-	-	-	-	-	-	-	-	-	-
28-Jul-05	-	-	-	-	-	-	-	-	-	-	-
4-Aug-05	-	-	-	-	-	-	-	-	-	-	-
12-Aug-05	-	-	-	-	-	-	-	-	-	-	-
18-Aug-05	-	-	-	-	-	-	-	-	-	-	-
26-Aug-05	-	-	-	-	-	-	-	-	-	-	-
2-Sep-05	-	-	-	-	-	-	-	-	-	-	-
9-Sep-05	-	-	-	-	-	-	-	-	-	-	-
15-Sep-05	-	-	-	-	-	-	-	-	-	-	-
23-Sep-05	-	-	-	-	-	-	-	-	-	-	-
30-Sep-05	-	-	-	-	-	-	-	-	-	-	-
7-Oct-05	-	-	-	-	-	-	-	-	-	-	-
14-Oct-05	-	-	-	-	-	-	-	-	-	-	-
21-Oct-05	-	-	-	-	-	-	-	-	-	-	-
28-Oct-05	-	-	-	-	-	-	-	-	-	-	-
4-Nov-05	-	-	-	-	-	-	-	-	-	-	-
11-Nov-05	-	-	-	-	-	-	-	-	-	-	-
2-Dec-05	-	-	-	-	-	-	-	-	-	-	-
21-Apr-06	-	-	-	-	-	-	-	-	-	-	-
15-Aug-06	-	-	-	-	-	-	-	-	-	-	-
14-Sep-06	-	-	-	-	-	-	-	-	-	-	-
28-Sep-06	-	-	-	-	-	-	-	-	-	-	-
5-Oct-06	-	-	-	-	-	-	-	-	-	-	-
6-Oct-06	-	-	-	-	-	-	-	-	-	-	-
10-Oct-06	-	-	-	-	-	-	-	-	-	-	-
17-Oct-06	-	-	-	-	-	-	-	-	-	-	-

Table C-3.2 : Historical Groundwater Elevations (2003-2015)

Monitoring Location	OW53	MP54(in)	MP54(out)	MP55(in)	MP55(out)	MP56(in)	MP56(out)	MP57(in)	MP57(out)	OW58s	OW58d
Ref. Elevation	251.31	240.80	240.80	240.55	240.55	240.82	240.82	240.89	240.89	240.73	240.78
20-Oct-06	-	-	-	-	-	-	-	-	-	-	-
27-Oct-06	-	-	-	-	-	-	-	-	-	-	-
3-Nov-06	-	-	-	-	-	-	-	-	-	-	-
6-Nov-06	-	-	-	-	-	-	-	-	-	-	-
10-Nov-06	-	-	-	-	-	-	-	-	-	-	-
14-Nov-06	-	-	-	-	-	-	-	-	-	-	-
17-Nov-06	-	-	-	-	-	-	-	-	-	-	-
24-Nov-06	-	-	-	-	-	-	-	-	-	-	-
1-Dec-06	-	-	-	-	-	-	-	-	-	-	-
15-Dec-06	-	-	-	-	-	-	-	-	-	-	-
26-Jan-07	-	-	-	-	-	-	-	-	-	-	-
9-Apr-07	-	-	-	-	-	-	-	-	-	-	-
21-Jun-07	-	-	-	-	-	-	-	-	-	-	-
27-Jul-07	-	-	-	-	-	-	-	-	-	-	-
22-Aug-07	-	-	-	-	-	-	-	-	-	-	-
31-Aug-07	-	-	-	-	-	-	-	-	-	-	-
26-Sep-07	-	-	-	-	-	-	-	-	-	-	-
19-Oct-07	-	-	-	-	-	-	-	-	-	-	-
17-Nov-07	-	-	-	-	-	-	-	-	-	-	-
20-Dec-07	-	-	-	-	-	-	-	-	-	-	-
7-Mar-08	-	-	-	-	-	-	-	-	-	-	-
3-Jun-08	-	-	-	-	-	-	-	-	-	-	-
29-Jul-08	-	-	-	-	-	-	-	-	-	-	-
18-Aug-08	-	-	-	-	-	-	-	-	-	-	-
23-Sep-08	-	-	-	-	-	-	-	-	-	-	-
29-Oct-08	-	-	-	-	-	-	-	-	-	-	-
26-Nov-08	-	-	-	-	-	-	-	-	-	-	-
18-Dec-08	-	-	-	-	-	-	-	-	-	-	-
6-Jan-09	-	-	-	-	-	-	-	-	-	-	-
20-Jan-09	244.38	-	-	-	-	-	-	-	-	-	-
24-Mar-09	245.13	-	-	-	-	-	-	-	-	-	-
8-Apr-09	-	239.53	239.49	240.19	239.98	240.00	239.98	240.00	239.98	-	-
15-Apr-09	-	240.29	240.29	240.08	239.93	239.98	239.92	239.96	239.93	-	-
6-Jun-09	241.65	239.84	239.84	239.88	239.85	239.86	239.85	239.89	239.86	-	-
12-Jun-09	-	239.84	239.84	239.88	239.85	239.86	239.85	239.89	239.86	-	-
8-Jul-09	244.45	239.83	239.84	239.85	239.83	239.85	239.84	239.85	239.83	-	-
20-Aug-09	242.85	239.70	**	239.71	**	239.74	**	239.75	239.72	-	-
16-Sep-09	242.39	239.52	**	239.52	**	239.60	**	239.62	**	239.51	239.81
20-Oct-09	243.45	239.67	**	239.69	**	239.69	239.68	239.70	239.69	239.67	239.92
27-Nov-09	244.25	239.79	239.82	239.82	**	239.79	239.79	239.79	239.78	239.79	240.07
29-Mar-10	244.85	239.86	239.88	239.97	239.88	239.89	239.89	239.92	239.88	239.89	240.16
30-Apr-10	244.03	239.82	239.81	239.87	239.81	239.85	239.81	239.86	239.81	239.82	240.09
25-May-10	243.96	239.82	239.82	239.85	239.82	239.85	239.82	239.85	239.82	239.82	240.07
25-Jun-10	243.82	239.83	239.83	239.86	239.84	239.82	239.83	239.83	239.82	239.82	240.03
26-Jul-10	243.35	239.82	239.81	239.84	239.83	239.83	239.82	239.83	239.82	239.82	240.07
26-Aug-10	244.20	239.78	**	239.80	**	239.84	239.83	239.79	**	239.78	240.06
4-Oct-10	245.88	239.91	239.87	240.00	239.99	239.93	239.91	239.91	239.89	239.91	240.13
1-Nov-10	244.81	239.86	239.83	239.90	239.86	239.87	239.84	239.88	239.88	239.87	240.14
6-Dec-10	-	239.89	++	239.99	++	239.95	++	239.92	++	239.93	240.16
6-Jan-11	-	++	++	++	++	++	++	++	++	++	++
9-Feb-11	-	++	++	++	++	++	++	++	++	++	++
25-Feb-11	-	-	-	-	-	-	-	-	-	-	-
23-Mar-11	246.39	++	++	++	++	++	++	++	++	++	++
4-May-11	246.18	240.04	239.97	240.15	239.97	240.05	239.98	239.99	239.98	240.01	240.34
24-May-11	245.77	240.05	239.95	240.04	240.02	239.93	240.04	239.85	239.98	240.06	240.29
27-Jun-11	244.57	239.91	239.94	239.94	239.94	239.97	239.94	239.95	239.95	239.95	240.23
26-Jul-11	243.21	239.76	**	239.73	**	239.82	239.81	239.80	239.80	239.79	240.04
30-Aug-11	243.03	239.73	**	239.70	**	239.81	239.79	239.79	239.79	239.76	240.05
22-Sep-11	244.34	239.76	**	239.75	239.75	239.85	239.83	239.82	239.83	239.81	240.11
26-Oct-11	244.98	239.97	239.97	240.13	240.13	240.06	240.06	240.01	240.01	240.01	240.35
29-Nov-11	244.94	240.07	240.07	240.09	240.09	240.13	240.13	240.08	240.08	240.08	240.34
11-Jan-12	244.79	++	++	++	++	++	++	++	++	++	++
27-Feb-12	244.26	++	++	++	++	++	++	++	++	++	++
8-Mar-12	-	-	-	-	-	-	-	-	-	-	-
15-Mar-12	-	-	-	-	-	-	-	-	-	-	-
21-Mar-12	-	-	-	-	-	-	-	-	-	-	-
29-Mar-12	244.97	++	++	++	++	++	++	++	++	++	++
25-Apr-12	243.80	239.88	239.88	239.89	239.89	239.91	239.91	239.92	239.92	239.91	240.19
28-May-12	243.20	239.74	239.74	239.72	239.72	239.81	239.81	239.75	239.75	239.75	240.07
13-Jun-12	242.92	239.77	239.77	239.70	239.70	239.80	239.80	239.77	239.77	239.76	240.08
11-Jul-12	242.82	239.58	239.58	239.54	239.54	239.71	239.71	239.65	239.65	239.62	239.93
30-Aug-12	243.21	239.58	239.58	239.55	239.55	239.69	239.69	239.64	239.64	239.62	239.92
25-Sep-12	243.36	239.68	239.68	239.62	239.62	239.71	239.62	239.65	239.6		

Table C-3.2 : Historical Groundwater Elevations (2003-2015)



Monitoring Location	OW53	MP54(in)	MP54(out)	MP55(in)	MP55(out)	MP56(in)	MP56(out)	MP57(in)	MP57(out)	OW58s	OW58d
Ref. Elevation	251.31	240.80	240.80	240.55	240.55	240.82	240.82	240.89	240.89	240.73	240.78
27-Feb-13	244.71	++	++	++	++	++	++	++	++	++	++
26-Mar-13	244.77	++	++	++	++	240.02	240.02	239.95	239.95	239.95	240.24
23-Apr-13	245.47	240.04	240.04	240.17	240.17	240.03	240.03	240.00	240.00	240.04	240.32
27-May-13	244.42	239.92	239.92	239.90	239.90	239.99	239.99	239.92	239.92	239.92	240.18
17-Jun-13	244.20	239.83	239.83	239.80	239.80	239.92	239.92	239.87	239.87	239.87	240.16
29-Jul-13	242.62	239.70	239.70	239.63	239.63	239.80	239.80	239.75	239.75	239.73	240.00
31-Aug-13	-	-	-	-	-	-	-	-	-	-	-
19-Sep-13	242.29	239.63	239.63	239.58	239.58	239.72	239.72	239.68	239.68	239.65	239.92
25-Oct-13	-	239.86	239.86	239.80	239.80	239.86	239.86	239.87	239.87	239.91	240.15
30-Nov-13	244.72	239.90	239.90	++	++	++	++	++	++	239.93	++
18-Dec-13	244.54	++	++	++	++	++	++	++	++	++	++
15-Mar-14	-	++	++	++	++	++	++	++	++	++	++
28-Apr-14	244.84	239.96	239.96	240.04	240.04	240.10	240.10	239.98	239.98	240.00	240.29
24-May-14	244.60	239.91	239.91	239.95	239.95	240.05	240.05	239.96	239.96	239.95	240.21
27-Jun-14	243.32	239.77	-	239.75	239.75	239.92	239.92	239.81	239.81	239.81	240.06
15-Jul-14	243.06	239.72	239.72	239.69	239.69	239.84	239.84	239.78	239.78	239.78	240.02
12-Sep-14	242.73	239.71	239.71	239.68	239.68	239.82	239.82	239.77	239.77	239.75	239.99
23-Oct-14	-	239.94	239.95	239.98	239.92	239.96	239.92	239.92	239.93	239.93	240.21
29-Jan-15	-	++	++	++	++	++	++	++	++	++	++
13-Mar-15	243.80	++	++	++	++	++	++	++	++	++	++
27-Apr-15	244.72	239.96	239.96	240.05	240.05	240.03	240.03	239.95	239.95	239.94	240.23
29-May-15	243.76	239.86	239.86	239.81	239.81	239.94	239.94	239.87	239.87	239.85	240.13
30-Jun-15	243.74	239.82	239.82	239.81	239.81	239.95	239.95	239.87	239.87	239.86	240.13
28-Jul-15	242.49	239.78	**	239.74	**	239.87	239.87	239.76	239.76	239.73	240.34
27-Aug-15	242.33	239.74	239.74	239.75	239.75	239.82	239.82	239.74	239.74	239.73	239.98
29-Sep-15	242.29	239.78	239.78	239.77	239.77	239.82	239.82	239.77	239.77	239.75	240.03
22-Oct-15	242.01	239.78	239.78	239.78	239.78	239.82	239.82	239.78	239.78	239.76	240.04
17-Nov-15	242.75	239.93	239.90	239.97	239.97	239.91	239.91	239.89	239.88	239.91	240.18
23-Dec-15	243.09	239.99	239.95	240.08	239.95	240.03	239.99	239.95	239.95	240.00	240.28

**Notes:**

\*\*\* = dry

++ = frozen

- = not measured

Table C-3.2 : Historical Groundwater Elevations (2003-2015)

Monitoring Location	OW59s	OW59d	OW60s	OW60d	OW62k	OW62s	OW62d	OW63s	OW63d	OW64s	OW64d
Ref. Elevation	240.68	240.79	240.77	240.56	246.38	245.87	245.83	248.09	247.52	250.03	250.19
15-Sep-03	-	-	-	-	-	-	-	-	-	-	-
17-Oct-03	-	-	-	-	-	-	-	-	-	-	-
28-Nov-03	-	-	-	-	-	-	-	-	-	-	-
26-Feb-04	-	-	-	-	-	-	-	-	-	-	-
26-Apr-04	-	-	-	-	-	-	-	-	-	-	-
14-May-04	-	-	-	-	-	-	-	-	-	-	-
21-May-04	-	-	-	-	-	-	-	-	-	-	-
28-May-04	-	-	-	-	-	-	-	-	-	-	-
4-Jun-04	-	-	-	-	-	-	-	-	-	-	-
11-Jun-04	-	-	-	-	-	-	-	-	-	-	-
17-Jun-04	-	-	-	-	-	-	-	-	-	-	-
25-Jun-04	-	-	-	-	-	-	-	-	-	-	-
9-Jul-04	-	-	-	-	-	-	-	-	-	-	-
16-Jul-04	-	-	-	-	-	-	-	-	-	-	-
22-Jul-04	-	-	-	-	-	-	-	-	-	-	-
29-Jul-04	-	-	-	-	-	-	-	-	-	-	-
5-Aug-04	-	-	-	-	-	-	-	-	-	-	-
13-Aug-04	-	-	-	-	-	-	-	-	-	-	-
19-Aug-04	-	-	-	-	-	-	-	-	-	-	-
26-Aug-04	-	-	-	-	-	-	-	-	-	-	-
2-Sep-04	-	-	-	-	-	-	-	-	-	-	-
9-Sep-04	-	-	-	-	-	-	-	-	-	-	-
16-Sep-04	-	-	-	-	-	-	-	-	-	-	-
23-Sep-04	-	-	-	-	-	-	-	-	-	-	-
7-Oct-04	-	-	-	-	-	-	-	-	-	-	-
14-Oct-04	-	-	-	-	-	-	-	-	-	-	-
21-Oct-04	-	-	-	-	-	-	-	-	-	-	-
28-Oct-04	-	-	-	-	-	-	-	-	-	-	-
3-Nov-04	-	-	-	-	-	-	-	-	-	-	-
11-Nov-04	-	-	-	-	-	-	-	-	-	-	-
18-Nov-04	-	-	-	-	-	-	-	-	-	-	-
25-Nov-04	-	-	-	-	-	-	-	-	-	-	-
2-Dec-04	-	-	-	-	-	-	-	-	-	-	-
9-Dec-04	-	-	-	-	-	-	-	-	-	-	-
16-Dec-04	-	-	-	-	-	-	-	-	-	-	-
23-Dec-04	-	-	-	-	-	-	-	-	-	-	-
13-Jan-05	-	-	-	-	-	-	-	-	-	-	-
31-Jan-05	-	-	-	-	-	-	-	-	-	-	-
21-Feb-05	-	-	-	-	-	-	-	-	-	-	-
24-Mar-05	-	-	-	-	-	-	-	-	-	-	-
26-Apr-05	-	-	-	-	-	-	-	-	-	-	-
10-May-05	-	-	-	-	-	-	-	-	-	-	-
24-May-05	-	-	-	-	-	-	-	-	-	-	-
1-Jun-05	-	-	-	-	-	-	-	-	-	-	-
10-Jun-05	-	-	-	-	-	-	-	-	-	-	-
17-Jun-05	-	-	-	-	-	-	-	-	-	-	-
24-Jun-05	-	-	-	-	-	-	-	-	-	-	-
30-Jun-05	-	-	-	-	-	-	-	-	-	-	-
8-Jul-05	-	-	-	-	-	-	-	-	-	-	-
15-Jul-05	-	-	-	-	-	-	-	-	-	-	-
22-Jul-05	-	-	-	-	-	-	-	-	-	-	-
28-Jul-05	-	-	-	-	-	-	-	-	-	-	-
4-Aug-05	-	-	-	-	-	-	-	-	-	-	-
12-Aug-05	-	-	-	-	-	-	-	-	-	-	-
18-Aug-05	-	-	-	-	-	-	-	-	-	-	-
26-Aug-05	-	-	-	-	-	-	-	-	-	-	-
2-Sep-05	-	-	-	-	-	-	-	-	-	-	-
9-Sep-05	-	-	-	-	-	-	-	-	-	-	-
15-Sep-05	-	-	-	-	-	-	-	-	-	-	-
23-Sep-05	-	-	-	-	-	-	-	-	-	-	-
30-Sep-05	-	-	-	-	-	-	-	-	-	-	-
7-Oct-05	-	-	-	-	-	-	-	-	-	-	-
14-Oct-05	-	-	-	-	-	-	-	-	-	-	-
21-Oct-05	-	-	-	-	-	-	-	-	-	-	-
28-Oct-05	-	-	-	-	-	-	-	-	-	-	-
4-Nov-05	-	-	-	-	-	-	-	-	-	-	-
11-Nov-05	-	-	-	-	-	-	-	-	-	-	-
2-Dec-05	-	-	-	-	-	-	-	-	-	-	-
21-Apr-06	-	-	-	-	-	-	-	-	-	-	-
15-Aug-06	-	-	-	-	-	-	-	-	-	-	-
14-Sep-06	-	-	-	-	-	-	-	-	-	-	-
28-Sep-06	-	-	-	-	-	-	-	-	-	-	-
5-Oct-06	-	-	-	-	-	-	-	-	-	-	-
6-Oct-06	-	-	-	-	-	-	-	-	-	-	-
10-Oct-06	-	-	-	-	-	-	-	-	-	-	-
17-Oct-06	-	-	-	-	-	-	-	-	-	-	-

Table C-3.2 : Historical Groundwater Elevations (2003-2015)

Monitoring Location	OW59s	OW59d	OW60s	OW60d	OW62k	OW62s	OW62d	OW63s	OW63d	OW64s	OW64d
Ref. Elevation	240.68	240.79	240.77	240.56	246.38	245.87	245.83	248.09	247.52	250.03	250.19
20-Oct-06	-	-	-	-	-	-	-	-	-	-	-
27-Oct-06	-	-	-	-	-	-	-	-	-	-	-
3-Nov-06	-	-	-	-	-	-	-	-	-	-	-
6-Nov-06	-	-	-	-	-	-	-	-	-	-	-
10-Nov-06	-	-	-	-	-	-	-	-	-	-	-
14-Nov-06	-	-	-	-	-	-	-	-	-	-	-
17-Nov-06	-	-	-	-	-	-	-	-	-	-	-
24-Nov-06	-	-	-	-	-	-	-	-	-	-	-
1-Dec-06	-	-	-	-	-	-	-	-	-	-	-
15-Dec-06	-	-	-	-	-	-	-	-	-	-	-
26-Jan-07	-	-	-	-	-	-	-	-	-	-	-
9-Apr-07	-	-	-	-	-	-	-	-	-	-	-
21-Jun-07	-	-	-	-	-	-	-	-	-	-	-
27-Jul-07	-	-	-	-	-	-	-	-	-	-	-
22-Aug-07	-	-	-	-	-	-	-	-	-	-	-
31-Aug-07	-	-	-	-	-	-	-	-	-	-	-
26-Sep-07	-	-	-	-	-	-	-	-	-	-	-
19-Oct-07	-	-	-	-	-	-	-	-	-	-	-
17-Nov-07	-	-	-	-	-	-	-	-	-	-	-
20-Dec-07	-	-	-	-	-	-	-	-	-	-	-
7-Mar-08	-	-	-	-	-	-	-	-	-	-	-
3-Jun-08	-	-	-	-	-	-	-	-	-	-	-
29-Jul-08	-	-	-	-	-	-	-	-	-	-	-
18-Aug-08	-	-	-	-	-	-	-	-	-	-	-
23-Sep-08	-	-	-	-	-	-	-	-	-	-	-
29-Oct-08	-	-	-	-	-	-	-	-	-	-	-
26-Nov-08	-	-	-	-	-	-	-	-	-	-	-
18-Dec-08	-	-	-	-	-	-	-	-	-	-	-
6-Jan-09	-	-	-	-	-	-	-	-	-	-	-
20-Jan-09	-	-	-	-	-	-	-	-	-	-	-
24-Mar-09	-	-	-	-	-	-	-	-	-	-	-
8-Apr-09	-	-	-	-	-	-	-	-	-	-	-
15-Apr-09	-	-	-	-	-	-	-	-	-	-	-
6-Jun-09	-	-	-	-	-	-	-	-	-	-	-
12-Jun-09	-	-	-	-	-	-	-	-	-	-	-
8-Jul-09	-	-	-	-	-	-	-	-	-	-	-
20-Aug-09	-	-	-	-	-	-	-	-	-	-	-
16-Sep-09	239.40	239.63	239.54	239.54	-	-	-	-	-	-	-
20-Oct-09	239.58	239.78	239.70	239.70	-	-	-	-	-	-	-
27-Nov-09	239.71	239.90	239.82	239.82	-	-	-	-	-	-	-
29-Mar-10	239.88	240.01	239.97	239.92	-	-	-	-	-	-	-
30-Apr-10	239.76	239.94	239.85	239.84	-	-	-	-	-	-	-
25-May-10	239.75	239.94	239.84	239.84	-	-	-	-	-	-	-
25-Jun-10	239.73	239.95	239.84	239.85	-	-	-	-	-	-	-
26-Jul-10	239.72	239.93	239.82	239.84	-	-	-	-	-	-	-
26-Aug-10	239.68	239.89	239.79	239.80	-	-	-	-	-	-	-
4-Oct-10	239.89	240.03	239.98	239.95	-	-	-	-	-	-	-
1-Nov-10	239.81	239.99	239.90	239.78	-	-	-	-	-	-	-
6-Dec-10	239.86	240.01	239.96	239.91	-	-	-	-	-	-	-
6-Jan-11	++	++	++	++	-	-	-	-	-	-	-
9-Feb-11	++	++	++	++	-	-	-	-	-	-	-
25-Feb-11	-	-	-	-	-	-	-	-	-	-	-
23-Mar-11	++	++	0.48 (++)	0.46 (++)	-	-	-	-	-	-	-
4-May-11	240.08	240.15	240.11	240.05	244.75	244.65	244.76	-	-	-	-
24-May-11	240.06	240.35	240.17	239.94	244.91	244.84	245.00	-	-	-	-
27-Jun-11	239.91	240.07	240.01	239.98	244.58	244.60	244.45	-	-	-	-
26-Jul-11	239.68	239.90	239.79	239.81	244.10	244.07	244.03	-	-	-	-
30-Aug-11	239.66	239.88	239.78	239.79	244.00	243.96	243.91	-	-	-	-
22-Sep-11	239.70	239.92	239.81	239.82	244.13	244.09	244.05	-	-	-	-
26-Oct-11	240.15	240.12	240.17	240.10	244.89	244.86	244.76	-	-	-	-
29-Nov-11	240.18	240.21	240.17	240.13	245.01	244.97	245.04	-	-	-	-
11-Jan-12	++	++	240.01	239.97	244.64	244.53	244.53	-	-	-	-
27-Feb-12	++	++	239.95	239.93	244.61	244.46	244.44	-	-	-	-
8-Mar-12	-	-	-	-	-	-	-	-	-	-	-
15-Mar-12	-	-	-	-	-	-	-	-	-	-	-
21-Mar-12	-	-	-	-	-	-	-	-	-	-	-
29-Mar-12	++	++	239.95	239.91	244.61	244.48	244.46	-	-	-	-
25-Apr-12	239.85	240.03	239.96	239.94	244.55	244.41	244.44	-	-	-	-
28-May-12	239.67	239.88	239.76	239.78	244.35	244.27	244.21	-	-	-	-
13-Jun-12	239.67	239.88	239.76	239.79	244.26	244.20	244.17	-	-	-	-
11-Jul-12	239.51	239.74	239.62	239.65	243.76	243.82	243.80	-	-	-	-
30-Aug-12	239.51	239.73	239.63	239.64	243.90	243.97	243.99	-	-	-	-
25-Sep-12	239.58	239.79	239.69	239.70	244.04	244.07	244.09	-	-	-	-
24-Oct-12	239.83	239.97	239.90	239.88	244.64	244.52	244.49	-	-	-	-
27-Nov-12	239.86	240.03	239.97	239.95	244.61	244.46	244.44	-	-	-	-
19-Dec-12	239.94	240.05	240.02	239.97	244.73	244.59	244.50	-	-	-	-
28-Jan-13	++	++	++	++	244.67	244.62	244.47	-	-	-	-

Table C-3.2 : Historical Groundwater Elevations (2003-2015)



Monitoring Location	OW59s	OW59d	OW60s	OW60d	OW62k	OW62s	OW62d	OW63s	OW63d	OW64s	OW64d
Ref. Elevation	240.68	240.79	240.77	240.56	246.38	245.87	245.83	248.09	247.52	250.03	250.19
27-Feb-13	++	++	++	++	244.70	244.56	244.49	-	-	-	-
26-Mar-13	239.96	240.08	240.04	239.98	244.72	244.57	244.51	-	-	-	-
23-Apr-13	240.18	240.18	240.15	240.09	245.29	245.36	245.26	-	-	-	-
27-May-13	239.88	240.03	239.97	239.94	244.58	244.46	244.42	-	-	-	-
17-Jun-13	239.79	239.97	239.90	239.89	244.49	244.37	244.32	-	-	-	-
29-Jul-13	239.61	239.85	239.72	239.75	244.45	244.28	244.21	-	-	-	-
31-Aug-13	-	-	-	-	-	-	-	-	-	-	-
19-Sep-13	239.55	239.77	239.67	239.67	243.55	243.67	243.65	-	-	-	-
25-Oct-13	239.93	240.01	239.97	239.93	244.73	244.66	244.65	-	-	-	-
30-Nov-13	239.93	240.05	240.01	239.97	244.69	244.55	244.51	-	-	-	-
18-Dec-13	++	++	++	++	244.65	244.49	244.47	-	-	-	-
15-Mar-14	++	++	240.15	++	244.92	244.81	244.91	-	-	-	-
28-Apr-14	240.03	240.13	240.09	240.04	244.70	244.60	244.61	-	-	-	-
24-May-14	239.92	240.07	240.02	239.97	244.64	244.52	244.57	-	-	-	-
27-Jun-14	239.71	239.92	239.81	239.82	244.29	244.20	244.22	-	-	-	-
15-Jul-14	239.65	239.87	239.76	239.78	244.10	244.06	244.12	-	-	-	-
12-Sep-14	239.64	239.86	239.76	239.76	243.95	243.95	244.03	-	-	-	-
23-Oct-14	239.88	240.04	239.99	239.95	244.66	244.53	244.58	-	-	-	-
29-Jan-15	++	++	++	++	-	-	-	245.76	244.99	244.78	244.74
13-Mar-15	++	++	++	++	244.51	244.43	244.35	245.65	244.83	244.66	244.61
27-Apr-15	239.96	240.06	240.02	239.97	244.65	244.52	244.59	245.85	245.04	244.84	244.80
29-May-15	239.78	239.97	239.88	239.88	244.43	244.32	244.33	245.53	244.80	244.67	244.61
30-Jun-15	239.79	239.99	239.88	239.89	244.48	244.35	244.38	245.56	244.82	244.68	244.62
28-Jul-15	239.65	239.88	239.74	239.76	244.11	244.05	244.07	245.06	244.43	244.42	244.56
27-Aug-15	239.63	239.84	239.73	239.75	243.93	243.90	243.96	244.85	244.29	244.21	244.18
29-Sep-15	239.65	239.87	239.75	239.77	244.02	243.98	244.03	244.98	244.40	244.26	244.23
22-Oct-15	239.66	239.88	239.76	239.78	243.97	243.95	243.99	244.92	244.35	244.22	244.20
17-Nov-15	239.87	240.02	239.96	239.95	244.61	244.51	244.54	245.88	245.09	244.88	244.81
23-Dec-15	240.00	240.11	240.07	240.01	244.73	244.63	244.66	246.07	245.19	244.95	244.90

**Notes:**

\*\*\* = dry

++ = frozen

- = not measured

Table C-3.2 : Historical Groundwater Elevations (2003-2015)



Monitoring Location	OW65s	OW65d	OW71k	OW71s	OW71d	TP16	TP17	TP18	TP19	SG1	S8
Ref. Elevation	250.73	250.42	245.96	246.02	246.08	241.85	241.64	244.56	241.28	242.69	240.74
15-Sep-03	-	-	-	-	-	-	-	-	-	-	-
17-Oct-03	-	-	-	-	-	-	-	-	-	-	-
28-Nov-03	-	-	-	-	-	-	-	-	-	-	-
26-Feb-04	-	-	-	-	-	-	-	-	-	-	-
26-Apr-04	-	-	-	-	-	-	-	-	-	-	-
14-May-04	-	-	-	-	-	-	-	-	-	-	-
21-May-04	-	-	-	-	-	-	-	-	-	-	-
28-May-04	-	-	-	-	-	-	-	-	-	-	-
4-Jun-04	-	-	-	-	-	-	-	-	-	-	-
11-Jun-04	-	-	-	-	-	-	-	-	-	-	-
17-Jun-04	-	-	-	-	-	-	-	-	-	-	-
25-Jun-04	-	-	-	-	-	-	-	-	-	-	-
9-Jul-04	-	-	-	-	-	-	-	-	-	-	-
16-Jul-04	-	-	-	-	-	-	-	-	-	-	-
22-Jul-04	-	-	-	-	-	-	-	-	-	-	-
29-Jul-04	-	-	-	-	-	-	-	-	-	-	-
5-Aug-04	-	-	-	-	-	-	-	-	-	-	-
13-Aug-04	-	-	-	-	-	-	-	-	-	-	-
19-Aug-04	-	-	-	-	-	-	-	-	-	-	-
26-Aug-04	-	-	-	-	-	-	-	-	-	-	-
2-Sep-04	-	-	-	-	-	-	-	-	-	-	-
9-Sep-04	-	-	-	-	-	-	-	-	-	-	-
16-Sep-04	-	-	-	-	-	-	-	-	-	-	-
23-Sep-04	-	-	-	-	-	-	-	-	-	-	-
7-Oct-04	-	-	-	-	-	-	-	-	-	-	-
14-Oct-04	-	-	-	-	-	-	-	-	-	-	-
21-Oct-04	-	-	-	-	-	-	-	-	-	-	-
28-Oct-04	-	-	-	-	-	-	-	-	-	-	-
3-Nov-04	-	-	-	-	-	-	-	-	-	-	-
11-Nov-04	-	-	-	-	-	-	-	-	-	-	-
18-Nov-04	-	-	-	-	-	-	-	-	-	-	-
25-Nov-04	-	-	-	-	-	-	-	-	-	-	-
2-Dec-04	-	-	-	-	-	-	-	-	-	-	-
9-Dec-04	-	-	-	-	-	-	-	-	-	-	-
16-Dec-04	-	-	-	-	-	-	-	-	-	-	-
23-Dec-04	-	-	-	-	-	-	-	-	-	-	-
13-Jan-05	-	-	-	-	-	-	-	-	-	-	-
31-Jan-05	-	-	-	-	-	-	-	-	-	-	-
21-Feb-05	-	-	-	-	-	-	-	-	-	-	-
24-Mar-05	-	-	-	-	-	-	-	-	-	-	-
26-Apr-05	-	-	-	-	-	-	-	-	-	-	-
10-May-05	-	-	-	-	-	-	-	-	-	-	-
24-May-05	-	-	-	-	-	-	-	-	-	-	-
1-Jun-05	-	-	-	-	-	-	-	-	-	-	-
10-Jun-05	-	-	-	-	-	-	-	-	-	-	-
17-Jun-05	-	-	-	-	-	-	-	-	-	-	-
24-Jun-05	-	-	-	-	-	-	-	-	-	-	-
30-Jun-05	-	-	-	-	-	-	-	-	-	-	-
8-Jul-05	-	-	-	-	-	-	-	-	-	-	-
15-Jul-05	-	-	-	-	-	-	-	-	-	-	-
22-Jul-05	-	-	-	-	-	-	-	-	-	-	-
28-Jul-05	-	-	-	-	-	-	-	-	-	-	-
4-Aug-05	-	-	-	-	-	-	-	-	-	-	-
12-Aug-05	-	-	-	-	-	-	-	-	-	-	-
18-Aug-05	-	-	-	-	-	-	-	-	-	-	-
26-Aug-05	-	-	-	-	-	-	-	-	-	-	-
2-Sep-05	-	-	-	-	-	-	-	-	-	-	-
9-Sep-05	-	-	-	-	-	-	-	-	-	-	-
15-Sep-05	-	-	-	-	-	-	-	-	-	-	-
23-Sep-05	-	-	-	-	-	-	-	-	-	-	-
30-Sep-05	-	-	-	-	-	-	-	-	-	-	-
7-Oct-05	-	-	-	-	-	-	-	-	-	-	-
14-Oct-05	-	-	-	-	-	-	-	-	-	-	-
21-Oct-05	-	-	-	-	-	-	-	-	-	-	-
28-Oct-05	-	-	-	-	-	-	-	-	-	-	-
4-Nov-05	-	-	-	-	-	-	-	-	-	-	-
11-Nov-05	-	-	-	-	-	-	-	-	-	-	-
2-Dec-05	-	-	-	-	-	-	-	-	-	-	-
21-Apr-06	-	-	-	-	-	-	-	-	-	-	-
15-Aug-06	-	-	-	-	-	-	-	-	-	-	-
14-Sep-06	-	-	-	-	-	-	-	-	-	-	-
28-Sep-06	-	-	-	-	-	-	-	-	-	-	-
5-Oct-06	-	-	-	-	-	-	-	-	-	-	-
6-Oct-06	-	-	-	-	-	-	-	-	-	-	-
10-Oct-06	-	-	-	-	-	-	-	-	-	-	-
17-Oct-06	-	-	-	-	-	239.86	239.59	239.49	239.70	-	-

Table C-3.2 : Historical Groundwater Elevations (2003-2015)



Monitoring Location	OW65s	OW65d	OW71k	OW71s	OW71d	TP16	TP17	TP18	TP19	SG1	S8
Ref. Elevation	250.73	250.42	245.96	246.02	246.08	241.85	241.64	244.56	241.28	242.69	240.74
20-Oct-06	-	-	-	-	-	239.84	239.66	239.58	239.71	-	-
27-Oct-06	-	-	-	-	-	240.00	239.80	239.75	239.84	-	-
3-Nov-06	-	-	-	-	-	240.12	239.95	239.81	239.85	-	-
6-Nov-06	-	-	-	-	-	-	-	-	-	-	-
10-Nov-06	-	-	-	-	-	240.23	240.06	239.91	239.91	-	-
14-Nov-06	-	-	-	-	-	-	-	-	-	-	-
17-Nov-06	-	-	-	-	-	240.33	240.10	239.92	239.94	-	-
24-Nov-06	-	-	-	-	-	240.22	240.03	239.84	239.90	-	-
1-Dec-06	-	-	-	-	-	240.58	240.11	239.90	239.93	-	-
15-Dec-06	-	-	-	-	-	Submerged	240.34	240.27	240.13	-	-
26-Jan-07	-	-	-	-	-	240.34	240.02	239.80	239.89	-	-
9-Apr-07	-	-	-	-	-	Submerged	240.22	240.01	240.02	-	-
21-Jun-07	-	-	-	-	-	239.78	239.73	239.68	239.74	243.06	-
27-Jul-07	-	-	-	-	-	239.50	239.49	239.44	239.50	-	-
22-Aug-07	-	-	-	-	-	239.21	239.24	239.18	239.24	-	-
31-Aug-07	-	-	-	-	-	239.29	239.32	239.27	239.31	-	-
26-Sep-07	-	-	-	-	-	-	-	-	-	-	-
19-Oct-07	-	-	-	-	-	239.29	239.30	239.22	239.29	-	-
17-Nov-07	-	-	-	-	-	239.53	239.47	239.38	239.46	243.04	-
20-Dec-07	-	-	-	-	-	239.76	239.66	239.57	239.65	243.12	-
7-Mar-08	-	-	-	-	-	240.57	240.13	239.91	239.93	243.29	-
3-Jun-08	-	-	-	-	-	240.07	239.94	239.83	239.89	-	-
29-Jul-08	-	-	-	-	-	239.73	239.70	239.66	239.72	-	-
18-Aug-08	-	-	-	-	-	239.74	239.70	239.60	239.71	-	-
23-Sep-08	-	-	-	-	-	239.80	239.73	239.68	239.75	-	-
29-Oct-08	-	-	-	-	-	239.96	239.83	239.74	239.80	-	-
26-Nov-08	-	-	-	-	-	240.40	240.08	239.90	239.94	-	-
18-Dec-08	-	-	-	-	-	-	-	-	-	-	-
6-Jan-09	-	-	-	-	-	-	-	-	-	-	-
20-Jan-09	-	-	-	-	-	240.35	239.94	239.84	239.91	243.14	-
24-Mar-09	-	-	-	-	-	240.62	240.04	240.03	240.01	243.23	-
8-Apr-09	-	-	-	-	-	240.65	-	-	-	-	-
15-Apr-09	-	-	-	-	-	240.61	240.17	240.01	240.02	-	-
6-Jun-09	-	-	-	-	-	239.97	239.84	239.79	239.86	243.10	-
12-Jun-09	-	-	-	-	-	-	-	-	-	243.10	239.84
8-Jul-09	-	-	-	-	-	239.97	239.82	239.81	239.84	243.14	-
20-Aug-09	-	-	-	-	-	239.70	239.65	239.64	239.68	242.96	-
16-Sep-09	-	-	-	-	-	239.51	239.44	239.46	239.51	-	-
20-Oct-09	-	-	-	-	-	239.75	239.62	239.61	239.69	243.08	-
27-Nov-09	-	-	-	-	-	239.94	239.75	239.77	239.84	243.10	-
29-Mar-10	-	-	-	-	-	240.25	240.03	239.89	239.95	243.17	-
30-Apr-10	-	-	-	-	-	239.96	239.79	239.80	239.84	243.11	239.87
25-May-10	-	-	-	-	-	239.94	239.78	239.79	239.83	243.12	-
25-Jun-10	-	-	-	-	-	239.92	239.75	239.78	239.84	243.14	-
26-Jul-10	-	-	-	-	-	239.88	239.74	239.76	239.82	243.08	-
26-Aug-10	-	-	-	-	-	239.81	239.70	239.72	239.80	243.09	-
4-Oct-10	-	-	-	-	-	240.43	240.01	239.91	239.85	243.19	239.98
1-Nov-10	-	-	-	-	-	240.04	239.86	239.84	239.72	243.13	-
6-Dec-10	-	-	-	-	-	240.21	239.97	239.94	239.83	-	-
6-Jan-11	-	-	-	-	-	239.79	++	240.10	++	++	++
9-Feb-11	-	-	-	-	-	240.12	-	239.88	++	++	++
25-Feb-11	-	-	-	-	-	-	-	-	-	-	-
23-Mar-11	-	-	-	-	-	240.63	240.33	240.22	++	243.10	-
4-May-11	-	-	243.31	243.42	243.52	240.63	240.22	240.11	240.09	243.26	240.13
24-May-11	-	-	242.90	242.76	243.11	240.46	240.33	240.21	240.01	243.28	239.94
27-Jun-11	-	-	242.89	243.05	243.11	240.36	240.02	239.96	239.98	-	-
26-Jul-11	-	-	242.48	242.71	242.71	239.79	239.67	239.75	239.78	242.97	-
30-Aug-11	-	-	242.45	242.62	242.65	239.76	239.66	239.70	239.77	242.98	-
22-Sep-11	-	-	242.55	242.73	242.79	239.83	239.71	239.77	239.81	242.99	239.81
26-Oct-11	-	-	243.38	243.42	243.54	240.65	240.29	240.08	240.07	243.21	240.05
29-Nov-11	-	-	243.50	243.42	243.68	240.63	240.33	240.30	240.15	243.24	240.05
11-Jan-12	-	-	242.96	243.06	243.16	++	240.08	239.96	239.99	243.24	239.95
27-Feb-12	-	-	242.86	243.01	243.07	240.19	240.11	239.89	239.94	243.22	239.90
8-Mar-12	-	-	-	-	-	-	-	-	-	-	-
15-Mar-12	-	-	-	-	-	-	-	-	-	-	-
21-Mar-12	-	-	-	-	-	-	-	-	-	-	-
29-Mar-12	-	-	242.96	243.20	243.17	240.31	240.00	239.89	239.92	243.24	239.87
25-Apr-12	-	-	242.82	243.01	243.02	240.06	239.94	239.89	239.94	243.22	239.88
28-May-12	-	-	242.62	242.83	242.85	239.83	240.66	239.73	239.76	243.08	239.73
13-Jun-12	-	-	242.60	242.82	242.81	239.80	240.66	239.72	239.76	243.07	239.79
11-Jul-12	-	-	242.46	242.71	242.66	239.89	239.50	239.57	239.62	242.99	239.64
30-Aug-12	-	-	242.59	242.82	242.78	239.73	239.42	239.56	239.62	243.04	239.59
25-Sep-12	-	-	242.72	242.91							

Table C-3.2 : Historical Groundwater Elevations (2003-2015)



Monitoring Location	OW65s	OW65d	OW71k	OW71s	OW71d	TP16	TP17	TP18	TP19	SG1	S8
Ref. Elevation	250.73	250.42	245.96	246.02	246.08	241.85	241.64	244.56	241.28	242.69	240.74
27-Feb-13	-	-	243.02	243.18	243.22	++	++	240.00	++	243.21	239.87
26-Mar-13	-	-	243.09	243.24	243.29	240.62	240.11	239.97	239.99	243.23	239.94
23-Apr-13	-	-	243.56	243.85	243.77	240.65	240.31	240.24	240.12	243.29	239.97
27-May-13	-	-	242.90	243.04	243.09	240.36	239.97	239.91	239.95	243.18	239.91
17-Jun-13	-	-	242.72	242.92	242.93	240.02	239.80	239.84	239.88	243.14	239.87
29-Jul-13	-	-	242.46	242.67	242.67	239.70	239.61	239.67	239.73	242.87	239.74
31-Aug-13	-	-	-	-	-	-	-	-	-	-	-
19-Sep-13	-	-	242.55	242.78	242.70	239.67	239.55	239.59	239.65	243.02	239.66
25-Oct-13	-	-	243.23	243.37	243.39	240.42	240.06	239.99	239.93	243.22	239.90
30-Nov-13	-	-	243.06	243.17	243.22	240.57	240.06	239.95	239.99	243.20	239.89
18-Dec-13	-	-	242.90	243.02	243.07	240.48	240.02	239.80	239.89	243.19	239.87
15-Mar-14	-	-	243.37	243.51	243.52	240.72	240.30	++	++	++	240.06
28-Apr-14	-	-	243.19	243.31	243.37	240.64	240.17	240.06	240.05	243.26	239.94
24-May-14	-	-	242.95	243.12	243.15	240.47	240.03	239.96	239.99	243.19	239.91
27-Jun-14	-	-	242.62	242.80	242.81	239.84	239.70	239.76	239.81	243.08	239.80
15-Jul-14	-	-	242.65	242.86	242.82	239.76	239.64	239.70	239.75	243.20	239.73
12-Sep-14	-	-	242.50	242.70	242.67	239.79	239.68	239.70	239.75	243.08	239.75
23-Oct-14	-	-	242.94	243.10	243.14	-	240.00	239.93	239.96	243.19	239.94
29-Jan-15	247.27	245.69	242.80	242.95	242.99	++	++	239.90	++	243.14	239.91
13-Mar-15	247.13	245.52	242.75	242.92	242.94	240.04	++	239.84	++	243.17	239.88
27-Apr-15	247.39	245.65	243.00	243.13	243.19	240.57	240.08	239.97	239.99	243.21	239.93
29-May-15	247.09	245.49	242.71	242.92	242.92	239.97	239.80	239.84	239.87	243.12	239.87
30-Jun-15	247.18	245.36	242.73	242.90	242.92	239.95	239.79	239.84	239.86	243.16	239.87
28-Jul-15	246.76	245.05	242.50	242.68	242.69	239.73	239.63	239.68	239.74	242.97	239.74
27-Aug-15	246.89	245.10	242.54	242.75	242.71	239.72	239.62	239.68	239.73	243.08	239.73
29-Sep-15	246.92	245.15	242.56	242.76	242.74	239.75	239.64	239.70	239.75	243.01	239.76
22-Oct-15	246.64	244.95	242.54	242.72	242.71	239.77	239.65	239.70	239.75	242.99	239.76
17-Nov-15	247.53	245.73	243.02	243.12	243.18	240.19	239.97	239.93	239.94	243.18	239.91
23-Dec-15	247.58	245.71	243.16	243.26	243.33	240.57	240.07	240.03	240.03	243.40	239.96

**Notes:**

\*\*\* = dry

++ = frozen

- = not measured

**Table C-3.2 : Historical Groundwater Elevations (2003-2015)**

<b>Monitoring Location</b>	S13
<b>Ref. Elevation</b>	243.53
15-Sep-03	-
17-Oct-03	-
28-Nov-03	-
26-Feb-04	-
26-Apr-04	-
14-May-04	-
21-May-04	-
28-May-04	-
4-Jun-04	-
11-Jun-04	-
17-Jun-04	-
25-Jun-04	-
9-Jul-04	-
16-Jul-04	-
22-Jul-04	-
29-Jul-04	-
5-Aug-04	-
13-Aug-04	-
19-Aug-04	-
26-Aug-04	-
2-Sep-04	-
9-Sep-04	-
16-Sep-04	-
23-Sep-04	-
7-Oct-04	-
14-Oct-04	-
21-Oct-04	-
28-Oct-04	-
3-Nov-04	-
11-Nov-04	-
18-Nov-04	-
25-Nov-04	-
2-Dec-04	-
9-Dec-04	-
16-Dec-04	-
23-Dec-04	-
13-Jan-05	-
31-Jan-05	-
21-Feb-05	-
24-Mar-05	-
26-Apr-05	-
10-May-05	-
24-May-05	-
1-Jun-05	-
10-Jun-05	-
17-Jun-05	-
24-Jun-05	-
30-Jun-05	-
8-Jul-05	-
15-Jul-05	-
22-Jul-05	-
28-Jul-05	-
4-Aug-05	-
12-Aug-05	-
18-Aug-05	-
26-Aug-05	-
2-Sep-05	-
9-Sep-05	-
15-Sep-05	-
23-Sep-05	-
30-Sep-05	-
7-Oct-05	-
14-Oct-05	-
21-Oct-05	-
28-Oct-05	-
4-Nov-05	-
11-Nov-05	-
2-Dec-05	-
21-Apr-06	-
15-Aug-06	-
14-Sep-06	-
28-Sep-06	-
5-Oct-06	-
6-Oct-06	-
10-Oct-06	-
17-Oct-06	-

Table C-3.2 : Historical Groundwater Elevations (2003-2015)

<b>Monitoring Location</b>	S13
<b>Ref. Elevation</b>	243.53
<b>20-Oct-06</b>	-
<b>27-Oct-06</b>	-
<b>3-Nov-06</b>	-
<b>6-Nov-06</b>	-
<b>10-Nov-06</b>	-
<b>14-Nov-06</b>	-
<b>17-Nov-06</b>	-
<b>24-Nov-06</b>	-
<b>1-Dec-06</b>	-
<b>15-Dec-06</b>	-
<b>26-Jan-07</b>	-
<b>9-Apr-07</b>	-
<b>21-Jun-07</b>	-
<b>27-Jul-07</b>	-
<b>22-Aug-07</b>	-
<b>31-Aug-07</b>	-
<b>26-Sep-07</b>	-
<b>19-Oct-07</b>	-
<b>17-Nov-07</b>	-
<b>20-Dec-07</b>	-
<b>7-Mar-08</b>	-
<b>3-Jun-08</b>	-
<b>29-Jul-08</b>	-
<b>18-Aug-08</b>	-
<b>23-Sep-08</b>	-
<b>29-Oct-08</b>	-
<b>26-Nov-08</b>	-
<b>18-Dec-08</b>	-
<b>6-Jan-09</b>	-
<b>20-Jan-09</b>	-
<b>24-Mar-09</b>	-
<b>8-Apr-09</b>	-
<b>15-Apr-09</b>	-
<b>6-Jun-09</b>	-
<b>12-Jun-09</b>	242.86
<b>8-Jul-09</b>	-
<b>20-Aug-09</b>	-
<b>16-Sep-09</b>	-
<b>20-Oct-09</b>	-
<b>27-Nov-09</b>	-
<b>29-Mar-10</b>	242.91
<b>30-Apr-10</b>	242.86
<b>25-May-10</b>	-
<b>25-Jun-10</b>	-
<b>26-Jul-10</b>	-
<b>26-Aug-10</b>	-
<b>4-Oct-10</b>	-
<b>1-Nov-10</b>	-
<b>6-Dec-10</b>	-
<b>6-Jan-11</b>	++
<b>9-Feb-11</b>	++
<b>25-Feb-11</b>	-
<b>23-Mar-11</b>	-
<b>4-May-11</b>	243.35
<b>24-May-11</b>	243.32
<b>27-Jun-11</b>	-
<b>26-Jul-11</b>	243.04
<b>30-Aug-11</b>	242.85
<b>22-Sep-11</b>	242.96
<b>26-Oct-11</b>	243.20
<b>29-Nov-11</b>	243.20
<b>11-Jan-12</b>	243.20
<b>27-Feb-12</b>	243.17
<b>8-Mar-12</b>	-
<b>15-Mar-12</b>	-
<b>21-Mar-12</b>	-
<b>29-Mar-12</b>	243.21
<b>25-Apr-12</b>	243.17
<b>28-May-12</b>	243.02
<b>13-Jun-12</b>	243.03
<b>11-Jul-12</b>	242.93
<b>30-Aug-12</b>	243.00
<b>25-Sep-12</b>	243.07
<b>24-Oct-12</b>	243.21
<b>27-Nov-12</b>	243.21
<b>19-Dec-12</b>	243.22
<b>28-Jan-13</b>	243.23

**Table C-3.2 : Historical Groundwater Elevations (2003-2015)**

<b>Monitoring Location</b>	S13
<b>Ref. Elevation</b>	243.53
<b>27-Feb-13</b>	243.21
<b>26-Mar-13</b>	243.22
<b>23-Apr-13</b>	243.28
<b>27-May-13</b>	243.17
<b>17-Jun-13</b>	243.12
<b>29-Jul-13</b>	242.79
<b>31-Aug-13</b>	-
<b>19-Sep-13</b>	242.99
<b>25-Oct-13</b>	243.23
<b>30-Nov-13</b>	243.20
<b>18-Dec-13</b>	243.14
<b>15-Mar-14</b>	-
<b>28-Apr-14</b>	243.24
<b>24-May-14</b>	243.18
<b>27-Jun-14</b>	243.05
<b>15-Jul-14</b>	243.08
<b>12-Sep-14</b>	243.05
<b>23-Oct-14</b>	243.29
<b>29-Jan-15</b>	243.23
<b>13-Mar-15</b>	243.24
<b>27-Apr-15</b>	243.27
<b>29-May-15</b>	243.17
<b>30-Jun-15</b>	243.22
<b>28-Jul-15</b>	242.98
<b>27-Aug-15</b>	243.14
<b>29-Sep-15</b>	243.06
<b>22-Oct-15</b>	243.02
<b>17-Nov-15</b>	243.27
<b>23-Dec-15</b>	243.31

**Notes:**

\*\*\* = dry

++ = frozen

- = not measured



## APPENDIX C4

### GROUNDWATER VERTICAL HYDRAULIC GRADIENTS

Table C-4.1 : Historical Groundwater Gradients (2003-2015)

Location	OW7	OW8	OW9	OW10	OW11	OW12	OW13	OW14	OW15	OW16
15-Sep-03	-0.24	-0.05	0.01	0.00	0.00	-0.03	-0.20	-0.26	-0.26	-0.01
17-Oct-03	-0.25	-0.03	0.01	-0.01	0.02	0.00	-0.17	-0.35	0.01	-0.01
28-Nov-03	-0.25	-0.04	0.02	0.00	0.03	0.01	-0.16	-0.35	-0.01	-0.01
26-Feb-04	-0.26	-0.03	0.02	-0.01	0.04	0.00	-0.19	-0.35	0.01	-0.01
26-Apr-04	-0.26	-0.03	0.01	-0.01	0.04	0.00	-0.20	-0.36	0.01	-0.13
14-May-04	-0.25	-0.04	0.02	0.00	0.04	0.00	-0.17	-0.35	-0.01	-0.04
21-May-04	-0.26	-0.03	0.01	-0.01	0.04	0.00	-0.18	-0.35	0.00	-0.01
28-May-04	-0.24	-0.06	-0.02	-0.02	-0.04	-0.04	-0.15	-0.35	-0.02	-0.01
4-Jun-04	-0.25	-0.04	0.02	0.00	0.04	0.01	-0.17	-0.34	-0.01	-0.01
11-Jun-04	-0.25	-0.03	0.02	-0.01	0.04	0.00	-0.19	-0.34	0.00	-0.02
17-Jun-04	-0.25	-0.03	0.02	-0.01	0.04	0.00	-0.20	-0.32	0.00	-0.02
25-Jun-04	-0.27	-0.03	0.01	-0.02	0.03	-0.01	-0.20	-0.32	0.00	-0.01
9-Jul-04	-0.26	-0.03	0.01	-0.01	0.03	-0.01	-0.20	-0.30	0.00	-0.02
16-Jul-04	-0.28	-0.03	0.01	-0.03	0.02	-0.02	-0.22	-0.34	0.00	-0.01
22-Jul-04	-0.26	-0.03	0.02	-0.01	0.04	-0.01	-0.20	-0.33	0.00	-0.01
29-Jul-04	-0.26	-0.04	0.02	0.00	0.03	-0.01	-0.20	-0.32	0.00	-0.01
5-Aug-04	-0.26	-0.04	0.02	0.00	0.03	-0.01	-0.20	-0.32	0.00	-0.01
13-Aug-04	-0.26	-0.04	0.01	0.00	0.02	-0.01	-0.20	-0.30	-0.01	-0.01
19-Aug-04	-0.26	-0.04	0.01	0.00	0.06	-0.01	-0.20	-0.29	-0.01	-0.02
26-Aug-04	-0.26	-0.05	0.01	0.00	0.01	-0.02	-0.21	-0.29	-0.01	-0.01
2-Sep-04	-0.26	-0.05	0.01	0.00	0.01	-0.02	-0.20	-0.28	-0.02	-0.02
9-Sep-04	-0.26	-0.05	0.01	0.00	0.01	-0.02	-0.20	-0.28	-0.02	-0.01
16-Sep-04	-0.25	-0.05	0.01	0.00	0.01	-0.02	-0.20	-0.28	-0.02	-0.01
23-Sep-04	-0.25	-0.05	0.00	0.00	0.00	-0.03	-0.20	-0.27	-0.02	-0.01
7-Oct-04	-0.25	-0.06	0.00	0.00	-0.01	-0.03	-0.19	-0.26	-0.03	-0.01
14-Oct-04	-0.25	-0.06	0.01	0.00	-0.01	-0.03	-0.19	-0.26	-0.03	-0.01
21-Oct-04	-0.27	-0.06	0.00	-0.04	0.00	-0.03	-0.19	-0.28	-0.02	-0.01
28-Oct-04	-0.27	-0.05	0.01	-0.03	0.01	-0.03	-0.18	-0.27	-0.02	-0.01
3-Nov-04	-0.28	-0.05	0.00	-0.03	0.02	-0.03	-0.13	-0.28	-0.01	-0.03
11-Nov-04	-0.29	-0.05	0.01	-0.03	0.03	-0.03	-0.18	-0.30	-0.01	-0.03
18-Nov-04	-0.28	-0.04	0.01	-0.02	0.03	-0.02	-0.18	-0.29	-0.01	-0.01
25-Nov-04	-0.28	-0.04	0.01	-0.03	0.03	-0.02	-0.19	-0.28	-0.01	-0.02
2-Dec-04	-0.30	-0.04	0.00	-0.03	0.00	-0.03	-0.20	-0.36	0.01	-0.04
9-Dec-04	-0.29	-0.08	0.00	-0.02	-0.02	-0.07	-0.19	-0.37	-0.02	-0.06
16-Dec-04	-0.28	-0.05	0.02	-0.01	0.03	0.00	-0.17	-0.35	-0.02	-0.04
23-Dec-04	-0.28	-0.05	0.01	0.00	0.05	0.01	-0.18	-0.35	-0.01	-0.07
13-Jan-05	-0.30	-0.06	-0.01	-0.02	0.00	-0.04	-0.20	-0.37	-0.02	-
31-Jan-05	-0.28	-0.04	0.02	0.00	0.05	0.00	-0.19	-0.36	0.00	-0.11
21-Feb-05	-0.28	-0.03	0.02	-0.01	0.04	0.00	-0.18	-0.37	0.01	-0.12
24-Mar-05	-0.29	-0.03	0.02	-0.01	0.04	0.00	-0.20	-0.36	0.01	-0.14
26-Apr-05	-0.28	-0.04	0.00	-0.02	0.00	-0.03	-0.20	-0.37	0.00	-0.23
10-May-05	-0.28	-0.04	0.02	-0.01	0.05	0.00	-0.18	-0.35	0.00	-0.27
24-May-05	-0.27	-0.03	0.02	-0.01	0.04	-0.01	-0.21	-0.34	0.00	-0.39
1-Jun-05	-0.28	-0.04	0.02	-0.01	0.04	-0.01	-0.22	-0.33	0.00	-0.47
10-Jun-05	-0.28	-0.04	0.01	-0.01	0.03	-0.01	-0.22	-0.32	0.00	-0.47
17-Jun-05	-0.29	-0.04	0.01	-0.01	0.03	-0.02	-0.22	-0.32	0.00	-0.47
24-Jun-05	-0.29	-0.04	0.01	-0.01	0.03	-0.02	-0.22	-0.31	0.00	-0.46
30-Jun-05	-0.28	-0.04	0.01	-0.01	0.03	-0.02	-0.22	-0.31	-0.01	-0.45
8-Jul-05	-0.28	-0.05	0.01	-0.01	0.02	-0.03	-0.22	-0.31	-0.02	-0.44
15-Jul-05	-0.28	-0.05	0.01	0.00	0.02	-0.03	-0.22	-0.30	-0.02	-0.44
22-Jul-05	-0.27	-0.06	0.00	0.00	0.01	-0.03	-0.21	-0.29	-0.03	-0.42
28-Jul-05	-0.27	-0.06	0.00	0.00	0.00	-0.03	-0.21	-0.29	-0.03	-0.41
4-Aug-05	-0.29	-0.06	0.00	0.00	0.00	-0.03	-0.21	-0.28	-0.03	-0.42
12-Aug-05	-0.28	-0.07	0.00	0.00	0.00	-0.04	-0.20	-0.28	-0.03	-0.41
18-Aug-05	-0.27	-0.07	-0.02	0.00	0.00	-0.04	-0.20	-0.28	-0.03	-0.41
26-Aug-05	-0.29	-0.05	0.01	0.00	0.01	-0.04	-0.19	-0.28	-0.03	-0.42
2-Sep-05	-0.28	-0.06	0.00	-0.01	0.01	-0.04	-0.19	-0.28	-0.03	-0.43
9-Sep-05	-0.28	-0.06	-0.01	-0.01	0.01	-0.04	-0.19	-0.27	-0.03	-0.44
15-Sep-05	-0.27	-0.05	-0.01	-0.01	0.00	-0.04	-0.19	-0.27	-0.03	-0.44
23-Sep-05	-0.26	-0.05	-0.01	0.00	0.00	-0.05	-0.19	-0.26	-0.03	-0.45
30-Sep-05	-0.31	-0.05	-0.01	-0.01	0.01	-0.05	-0.18	-0.28	-0.02	-0.45
7-Oct-05	-0.29	-0.04	0.00	-0.02	0.02	-0.04	-0.18	-0.28	-0.02	-0.46
14-Oct-05	-0.29	-0.04	0.00	-0.01	0.02	-0.04	-0.19	-0.27	-0.02	-0.46
21-Oct-05	-0.28	-0.04	0.00	-0.02	0.02	-0.04	-0.18	-0.27	-0.02	-0.42
28-Oct-05	-0.29	-0.04	0.00	-0.02	0.02	-0.05	-0.18	-0.26	-0.01	-0.49
4-Nov-05	-0.30	-0.03	0.00	-0.02	0.03	-0.04	-0.18	-0.27	-0.01	-0.50
11-Nov-05	-0.30	-0.04	0.00	-0.01	0.04	-0.03	-0.20	-0.33	0.00	-0.50
2-Dec-05	-0.29	-0.07	0.02	0.01	0.01	-0.05	-0.16	-0.38	-0.02	-0.52
21-Apr-06	-0.29	-0.04	0.02	0.00	0.05	0.00	-0.18	-0.39	0.00	-0.58
15-Aug-06	-0.30</td									

Table C-4.1 : Historical Groundwater Gradients (2003-2015)

Location	OW7	OW8	OW9	OW10	OW11	OW12	OW13	OW14	OW15	OW16
6-Nov-06	-0.31	-	-	-	-	-	-	-0.38	-	-0.19
10-Nov-06	-0.31	-0.07	0.00	-0.01	0.02	-0.04	-0.17	-0.38	-0.02	-0.21
14-Nov-06	-0.31	-	-	-0.01	-	-	-	-0.38	-	-0.22
17-Nov-06	-0.31	-0.06	0.00	-0.01	0.01	-0.03	-0.18	-0.39	-0.01	-0.22
24-Nov-06	-0.31	-0.06	0.01	-0.01	0.04	0.00	-0.17	-0.38	-0.01	-0.24
1-Dec-06	-0.31	-0.04	0.00	-0.02	0.01	-0.02	-0.19	-0.39	0.00	-0.22
15-Dec-06	-0.30	-0.10	-0.01	-0.01	-0.02	-0.07	-0.17	-0.39	-0.03	-0.24
26-Jan-07	-0.30	-0.03	0.01	0.00	0.05	-0.01	-0.19	-0.38	0.01	-0.31
9-Apr-07	-0.30	-0.06	0.01	0.00	0.03	-0.02	-0.17	-0.39	-0.02	-0.34
21-Jun-07	-0.32	-0.04	0.01	-0.01	0.04	-0.02	-0.21	-0.35	0.00	-0.50
27-Jul-07	-0.30	-0.05	0.00	-0.01	0.02	-0.03	-0.21	-0.29	-0.02	-0.13
22-Aug-07	-0.29	-0.07	0.00	-0.01	-0.01	-0.04	-0.21	-0.28	-0.04	-0.64
31-Aug-07	-0.29	-0.07	0.00	-0.01	0.00	-0.04	-0.20	-0.28	-0.04	-0.55
26-Sep-07	-0.29	-0.06	-0.01	-0.02	0.00	-0.04	-0.19	-0.26	-0.04	-
19-Oct-07	-0.30	-0.05	-0.01	-0.02	0.00	-0.05	-0.18	-0.27	-0.03	-
17-Nov-07	-0.34	-0.05	-0.01	-0.03	0.02	-0.04	-0.19	-0.30	-0.02	-
20-Dec-07	-0.35	-0.04	0.00	-0.02	0.04	-0.01	-0.20	-0.36	0.00	-
7-Mar-08	-0.33	-0.05	0.01	-	0.01	-0.01	-0.18	-0.40	0.00	-
3-Jun-08	-0.34	-0.04	0.01	-0.02	0.04	-0.02	-0.21	-0.38	0.01	-
29-Jul-08	-0.31	-0.05	0.01	-0.01	0.03	-0.02	-0.20	-0.33	-0.01	-
18-Aug-08	-0.32	-0.05	0.00	-0.01	0.03	-0.03	-0.20	-0.33	-0.01	-
23-Sep-08	-0.32	-0.05	0.00	-0.01	0.03	-0.03	-0.20	-0.35	0.00	-
29-Oct-08	-0.33	-0.05	0.00	-0.02	0.03	-0.03	-0.21	-0.38	0.00	-
26-Nov-08	-0.32	-0.05	0.00	0.00	0.05	-0.01	-0.18	-0.39	-0.01	-
18-Dec-08	-	-	-	-	-	-	-	-	-	-
6-Jan-09	-0.30	-0.05	0.01	-0.02	0.00	0.00	-0.17	-0.38	-0.01	-
20-Jan-09	-0.30	-0.03	0.02	0.00	0.05	-0.01	-0.19	-0.37	0.01	-
24-Mar-09	-0.34	-0.06	0.01	0.00	0.03	-0.02	-0.18	-0.39	-0.02	-
8-Apr-09	-	-	-	-	-	-	-	-	-	-
15-Apr-09	-0.30	-0.03	0.01	-0.01	0.01	-0.02	-0.18	-0.39	-0.01	-
29-May-09	-0.31	-0.04	0.01	-0.02	0.04	-0.02	-0.21	-0.36	0.00	-
12-Jun-09	-	-	-	-0.01	0.04	-	-	-	-	-
8-Jul-09	-0.31	-0.04	0.01	0.01	0.04	-0.02	-0.20	-0.38	0.01	-
20-Aug-09	-0.30	-0.05	0.01	-0.01	0.03	-0.04	-0.21	-0.40	-0.01	-
16-Sep-09	-0.28	-0.06	0.00	0.00	0.00	-0.04	-0.21	-0.31	-0.03	-
20-Oct-09	-0.32	-0.05	0.00	-0.01	0.03	-0.03	-0.20	-0.32	-0.01	-
27-Nov-09	-0.31	-0.04	0.01	0.00	0.04	-0.01	-0.21	-0.38	0.01	-
29-Mar-10	-0.31	-0.05	0.01	0.00	0.05	-0.01	-0.19	-0.40	-0.01	-
30-Apr-10	-0.31	-0.04	0.01	0.00	0.04	-0.01	-0.19	-0.40	-0.01	-
25-May-10	-0.31	-0.04	0.01	0.00	0.04	-0.02	-0.22	-0.38	0.00	-
25-Jun-10	-0.32	-0.05	0.00	0.02	0.04	-0.02	-0.21	-0.39	0.00	-
26-Jul-10	-0.32	-0.05	0.00	-0.02	0.03	-0.02	-0.20	-0.36	0.01	-
26-Aug-10	-0.32	-0.05	0.03	-0.02	0.03	-0.02	-0.21	-0.36	0.00	-
4-Oct-10	-0.31	-0.07	0.00	-0.02	0.03	-0.06	-0.22	-0.40	-0.02	-
1-Nov-10	-0.29	-0.04	-0.05	-0.02	0.03	-0.02	-0.13	-0.36	0.00	-
6-Dec-10	-0.29	-	0.00	-0.02	0.03	-	-0.14	-0.39	-	-
6-Jan-11	-0.29	-0.03	0.00	-0.02	0.03	-0.01	-0.07	-0.39	0.01	-
9-Feb-11	-0.30	-0.03	0.01	-0.02	0.07	-0.01	-0.12	-0.39	0.01	-
25-Feb-11	-	-0.03	-	-	-	-	-0.08	-	-	-
23-Mar-11	-0.31	-0.03	-0.04	0.00	0.03	-0.01	-0.07	-0.34	0.01	-
4-May-11	-0.30	-0.06	0.00	0.01	0.03	-0.03	-0.17	-0.40	-0.02	-
24-May-11	-0.31	-0.10	0.00	-0.02	0.02	-0.08	-0.21	-0.40	-0.02	-
27-Jun-11	-0.31	-0.04	0.01	0.00	0.04	-0.02	-0.20	-0.40	-0.03	-
26-Jul-11	-0.31	-0.01	0.01	0.00	0.03	-0.03	-0.21	-0.28	-0.01	-
30-Aug-11	-0.30	-0.05	0.01	-0.01	0.02	-0.03	-0.15	-0.32	-0.01	-
22-Sep-11	-0.32	-0.05	0.01	-0.01	0.03	-0.03	-0.20	-0.37	-0.02	-
26-Oct-11	-0.29	-0.06	0.00	-0.01	0.03	-0.02	-0.16	-0.37	-0.02	-
29-Nov-11	-0.32	-0.07	-0.01	-0.02	0.02	-0.08	-0.18	-0.41	-0.03	-
11-Jan-12	-0.32	-0.04	0.01	-0.02	0.01	-0.02	-0.16	-0.39	-0.02	-
27-Feb-12	-0.31	-0.03	-0.05	-0.01	0.01	-0.01	-0.18	-0.39	-0.03	-
8-Mar-12	-0.35	-	-0.03	-0.03	-	-	-	-	-	-
15-Mar-12	-0.30	-	-0.01	-0.01	-	-	-	-	-	-
21-Mar-12	-0.30	-	-0.01	-0.01	-	-	-	-	-	-
29-Mar-12	-0.30	-0.04	0.01	-0.01	0.03	-0.02	-0.19	-0.32	-0.02	-
25-Apr-12	-0.32	-0.03	0.01	-0.02	0.04	-0.02	-0.21	-0.39	-0.03	-
28-May-12	-0.32	-0.04	0.01	0.00	0.04	-0.02	-0.21	-0.35	-0.02	-
13-Jun-12	-0.32	-0.05	0.01	-0.01	0.03	-0.02	-0.21	-0.35	-0.02	-
11-Jul-12	-0.31	-0.03	0.01	-0.02	0.02	-0.04	-0.21	-0.35	-0.02	-
30-Aug-12	-0.33	-0.05	0.00	-0.02	0.02	-0.04	-0.21	-0.32	-0.01	-
25-Sep-12	-0.33	-0.06	0.00	-0.03	0.03	-0.04	-0.20	-0.33	-0.01	-
24-Oct-12	-0.32	-0.06	0.00	-0.01	0.03	-0.02	-0.18	-0.39	-0.01	-
27-Nov-12	-0.32	-0.06	0.01	-0.02	0.00	-0.02	-0.18	-0.40	-0.01	-
19-Dec-12	-0.32	-0.02	0.01	-0.01	0.04	-0.01	-0.18	-0.40	-0.02	-
28-Jan-13	-0.31	-0.02	0.01	-0.01	0.05	-0.01	-0.18	-0.38	-0.02	-

Table C-4.1 : Historical Groundwater Gradients (2003-2015)



Location	OW7	OW8	OW9	OW10	OW11	OW12	OW13	OW14	OW15	OW16
29-Jul-13	-0.31	-0.04	0.01	-0.01	0.01	-0.02	-0.20	-0.37	-0.02	-
31-Aug-13	-	-	-	-	-	-	-	-	-	-
19-Sep-13	-0.31	-0.06	0.00	-0.03	0.02	-0.04	-0.18	-0.30	-0.02	-
25-Oct-13	-	-	-0.01	-0.01	0.00	-	-	-	-	-
30-Nov-13	-0.33	-0.05	0.01	-0.01	0.03	-0.02	-0.17	-0.38	-0.01	-
18-Dec-13	-0.33	-0.04	0.01	-0.01	0.05	-0.02	-0.18	-0.38	-0.02	-
15-Mar-14	-0.31	-0.08	-0.01	-0.01	0.00	-0.05	-0.18	-0.38	-0.02	-
28-Apr-14	-0.32	-0.05	0.01	-0.01	0.02	-0.01	-0.17	-0.39	-0.01	-
24-May-14	-0.35	-0.04	0.01	-0.01	0.04	-0.02	-	-0.39	-0.02	-
27-Jun-14	-0.32	-0.05	-0.05	-0.02	0.03	-0.02	-0.20	-0.34	-0.01	-
15-Jul-14	-0.32	-0.05	-0.04	-0.03	0.03	-0.02	-0.18	-0.33	-0.01	-
12-Sep-14	-0.30	-0.03	0.00	-0.02	0.03	-0.03	-0.19	-0.31	-0.03	-
23-Oct-14	-	-	0.00	-	0.03	-	-	-	-	-
29-Jan-15	-0.32	-0.03	0.01	-0.01	0.05	-0.02	-0.18	-0.38	-0.03	-
13-Mar-15	-0.33	-0.04	0.01	-	-	-0.01	-0.20	-0.35	-0.02	-
27-Apr-15	-0.32	-0.04	0.01	-0.01	0.06	-0.02	-0.17	-0.39	-0.01	-
29-May-15	-0.32	-0.04	0.01	-0.02	0.09	-0.03	-0.18	-0.35	-0.02	-
30-Jun-15	-0.33	-0.04	0.01	-0.03	-	-0.01	-0.20	-0.37	-0.02	-
28-Jul-15	-0.34	-0.05	0.01	-0.02	-	-0.03	-0.20	-0.33	-0.01	-
27-Aug-15	-0.34	-0.05	0.01	-0.05	-	-0.03	-0.19	-0.31	-0.01	-
29-Sep-15	-0.34	-0.05	0.00	-0.02	-	-0.03	-0.19	-0.32	-0.01	-
22-Oct-15	-0.33	-0.05	0.00	-0.03	-	-0.03	-0.18	-0.31	-0.01	-
17-Nov-15	-0.36	-0.05	0.00	-0.01	-	-0.03	-0.17	-0.37	-0.02	-
23-Dec-15	-0.34	-0.05	0.00	0.00	-	-0.02	-0.17	-0.37	-0.02	-

**Notes:**

++ = frozen

- = not measured

Table C-4.1 : Historical Groundwater Gradients (2003-2015)

Location	OW25	OW27	OW28	OW29	OW30	OW31	OW32	OW33	OW41	OW42
15-Sep-03	-	-	-	-	-	-	-	-	-	-
17-Oct-03	-	-	-	-	-	-	-	-	-	-
28-Nov-03	-	-	-	-	-	-	-	-	-	-
26-Feb-04	-	-	-	-	-	-	-	-	-	-
26-Apr-04	-	-	-	-	-	-	-	-	-	-
14-May-04	-	-	-	-	-	-	-	-	-	-
21-May-04	-	-	-	-	-	-	-	-	-	-
28-May-04	-	-	-	-	-	-	-	-	-	-
4-Jun-04	-	-	-	-	-	-	-	-	-	-
11-Jun-04	-	-	-	-	-	-	-	-	-	-
17-Jun-04	-	-	-	-	-	-	-	-	-	-
25-Jun-04	-	-	-	-	-	-	-	-	-	-
9-Jul-04	-	-	-	-	-	-	-	-	-	-
16-Jul-04	-	-	-	-	-	-	-	-	-	-
22-Jul-04	-	-	-	-	-	-	-	-	-	-
29-Jul-04	-	-	-	-	-	-	-	-	-	-
5-Aug-04	-	-	-	-	-	-	-	-	-	-
13-Aug-04	-	-	-	-	-	-	-	-	-	-
19-Aug-04	-	-	-	-	-	-	-	-	-	-
26-Aug-04	-	-	-	-	-	-	-	-	-	-
2-Sep-04	-	-	-	-	-	-	-	-	-	-
9-Sep-04	-	-	-	-	-	-	-	-	-	-
16-Sep-04	-	-	-	-	-	-	-	-	-	-
23-Sep-04	-	-	-	-	-	-	-	-	-	-
7-Oct-04	-	-	-	-	-	-	-	-	-	-
14-Oct-04	-	-	-	-	-	-	-	-	-	-
21-Oct-04	-	-	-	-	-	-	-	-	-	-
28-Oct-04	-	-	-	-	-	-	-	-	-	-
3-Nov-04	-	-	-	-	-	-	-	-	-	-
11-Nov-04	-	-	-	-	-	-	-	-	-	-
18-Nov-04	-	-	-	-	-	-	-	-	-	-
25-Nov-04	-	-	-	-	-	-	-	-	-	-
2-Dec-04	-	-	-	-	-	-	-	-	-	-
9-Dec-04	-	-	-	-	-	-	-	-	-	-
16-Dec-04	-	-	-	-	-	-	-	-	-	-
23-Dec-04	-	-	-	-	-	-	-	-	-	-
13-Jan-05	-	-	-	-	-	-	-	-	-	-
31-Jan-05	-	-	-	-	-	-	-	-	-	-
21-Feb-05	-	-	-	-	-	-	-	-	-	-
24-Mar-05	-	-	-	-	-	-	-	-	-	-
26-Apr-05	-	-	-	-	-	-	-	-	-	-
10-May-05	-	-	-	-	-	-	-	-	-	-
24-May-05	-	-	-	-	-	-	-	-	-	-
1-Jun-05	-	-	-	-	-	-	-	-	-	-
10-Jun-05	-	-	-	-	-	-	-	-	-	-
17-Jun-05	-	-	-	-	-	-	-	-	-	-
24-Jun-05	-	-	-	-	-	-	-	-	-	-
30-Jun-05	-	-	-	-	-	-	-	-	-	-
8-Jul-05	-	-	-	-	-	-	-	-	-	-
15-Jul-05	-	-	-	-	-	-	-	-	-	-
22-Jul-05	-	-	-	-	-	-	-	-	-	-
28-Jul-05	-	-	-	-	-	-	-	-	-	-
4-Aug-05	-	-	-	-	-	-	-	-	-	-
12-Aug-05	-	-	-	-	-	-	-	-	-	-
18-Aug-05	-	-	-	-	-	-	-	-	-	-
26-Aug-05	-	-	-	-	-	-	-	-	-	-
2-Sep-05	-	-	-	-	-	-	-	-	-	-
9-Sep-05	-	-	-	-	-	-	-	-	-	-
15-Sep-05	-	-	-	-	-	-	-	-	-	-
23-Sep-05	-	-	-	-	-	-	-	-	-	-
30-Sep-05	-	-	-	-	-	-	-	-	-	-
7-Oct-05	-	-	-	-	-	-	-	-	-	-
14-Oct-05	-	-	-	-	-	-	-	-	-	-
21-Oct-05	-	-	-	-	-	-	-	-	-	-
28-Oct-05	-	-	-	-	-	-	-	-	-	-
4-Nov-05	-	-	-	-	-	-	-	-	-	-
11-Nov-05	-	-	-	-	-	-	-	-	-	-
2-Dec-05	-	-	-	-	-	-	-	-	-	-
21-Apr-06	-	-	-	-	-	-	-	-	-	-
15-Aug-06	-	-	-0.70	-	-	-	-	-	-	-
14-Sep-06	-	-	-0.70	-	-	-	-	-	-	-
28-Sep-06	-	-	-0.70	-	-	-	-	-	-	-
5-Oct-06	-	-	-0.68	-	-	-	-	-	-	-
6-Oct-06	-	-	-0.69	-	-	-	-	-	-	-
10-Oct-06	0.05	-	-	-	-	-	-	-	-	-
17-Oct-06	0.02	0.01	-0.44	-	-	-	-	-	-	-
20-Oct-06	-0.05	-0.01	-0.49	-	-	-	-	-	-	-
27-Oct-06	0.01	-0.01	-0.26	-	-	-	-	-	-	-
3-Nov-06	0.01	-0.02	-0.31	-	-	-	-	-	-	-

Table C-4.1 : Historical Groundwater Gradients (2003-2015)

Location	OW25	OW27	OW28	OW29	OW30	OW31	OW32	OW33	OW41	OW42
6-Nov-06	-	-	-	-	-	-	-	-	-	-
10-Nov-06	-	-	-	-	-	-	-	-	-	-
14-Nov-06	-	-	-0.12	-	-	-	-	-	-	-
17-Nov-06	0.01	-0.03	-0.02	-	-	-	-	-	-	-
24-Nov-06	0.01	-0.02	-0.30	-	-	-	-	-	-	-
1-Dec-06	0.01	-0.02	-0.02	-	-	-	-	-	-	-
15-Dec-06	0.00	-0.04	-0.01	-	-	-	-	-	-	-
26-Jan-07	0.01	-0.01	-0.50	-	-	-	-	-	-	-
9-Apr-07	0.01	-0.02	-0.06	-	-	-	-	-	-	-
21-Jun-07	0.02	0.01	-0.64	-	-	-	-	-	-	-
27-Jul-07	0.02	0.04	-0.70	-	-	-	-	-	-	-
22-Aug-07	0.02	0.05	-0.69	-0.01	-	-	-	-	-	-
31-Aug-07	0.02	0.05	-0.69	-0.02	-0.52	-	-	-	-	-
26-Sep-07	0.02	0.05	-0.69	0.02	-0.53	-	-	-	-	-
19-Oct-07	0.01	0.05	-0.71	-0.01	-0.53	-0.34	-0.43	-0.49	-	-
17-Nov-07	0.01	0.03	-0.69	-0.01	-0.57	-0.34	-0.43	-0.51	-	-
20-Dec-07	0.01	0.02	-0.61	-0.01	-0.64	-0.31	-0.41	-0.47	-	-
7-Mar-08	0.01	-0.02	-0.14	-0.01	-0.64	-0.28	-0.39	-0.41	-	-
3-Jun-08	0.01	-0.01	-0.57	-0.01	-0.65	-0.31	-0.40	-0.45	-	-
29-Jul-08	0.02	0.02	-	-0.01	-0.58	-0.32	-0.41	-0.45	-	-
18-Aug-08	0.01	0.03	-0.67	-0.01	-0.59	-0.31	-0.40	-0.46	-	-
23-Sep-08	0.01	0.02	-0.64	-0.02	-0.60	-0.31	-0.39	-0.45	-	-
29-Oct-08	0.01	0.01	-0.48	-0.01	-0.61	-0.30	-0.41	-0.42	-	-
26-Nov-08	0.01	-0.01	-0.23	-0.01	-0.61	-0.28	-0.38	-0.53	-0.06	-0.29
18-Dec-08	-	-	-	-	-	-	-	-	-0.06	-0.36
6-Jan-09	0.01	-0.01	-0.11	0.00	-0.59	-0.25	-0.35	-0.40	-0.07	-
20-Jan-09	0.01	-0.01	-0.55	0.00	-0.58	-0.28	-0.36	-0.42	-0.08	-0.15
24-Mar-09	0.01	-0.02	-0.17	-0.01	-0.61	-0.27	-0.37	-0.43	-0.08	-0.16
8-Apr-09	0.01	-0.02	-0.03	-	-	-	-	-	-	-
15-Apr-09	0.01	-0.02	-0.10	-0.01	-0.60	-0.28	-0.37	-0.43	-0.08	-0.16
29-May-09	0.01	-0.01	-0.61	-0.01	-0.60	-0.30	-0.38	-0.45	-0.09	-0.14
12-Jun-09	-	-	-	-	-	-	-	-	-	-
8-Jul-09	0.01	-0.01	-0.43	-0.01	-0.61	-0.31	-0.38	-0.57	-0.09	-
20-Aug-09	0.01	-0.04	-0.69	-0.01	-0.58	-0.32	-0.40	-0.47	-0.11	-0.13
16-Sep-09	0.01	-0.04	-0.68	-0.01	-0.55	-0.33	-0.41	-0.49	-0.11	-0.16
20-Oct-09	0.01	0.03	-0.69	-0.01	-0.60	-0.33	-0.42	-0.50	-0.10	-0.13
27-Nov-09	0.01	0.00	-0.63	0.00	-0.61	-0.33	-0.41	-0.47	-0.10	-0.15
29-Mar-10	0.01	-0.01	-0.51	-0.01	-0.61	-0.27	-0.35	-0.41	-0.09	-0.16
30-Apr-10	0.01	-0.01	-0.63	-0.01	-0.61	-0.34	-0.41	-0.54	-0.10	-0.15
25-May-10	0.01	-0.01	-0.65	0.00	-0.61	-0.35	-0.42	-0.50	-0.10	-0.14
25-Jun-10	0.01	-0.01	-0.59	-0.01	-0.62	-0.32	-0.40	-0.47	-0.10	-0.14
26-Jul-10	0.01	0.00	-0.63	-0.01	-0.62	-0.32	-0.40	-0.46	-0.10	-0.14
26-Aug-10	0.01	0.01	-0.65	0.01	-0.62	-0.32	-0.40	-0.52	-0.10	-0.14
4-Oct-10	0.01	0.02	-0.26	0.00	-0.62	-0.35	-0.35	-0.44	-0.08	-0.11
1-Nov-10	0.01	-0.01	-0.65	-0.01	-0.62	-0.35	-0.41	-0.45	-0.08	-0.17
6-Dec-10	0.02	-0.01	-0.28	0.03	-0.61	-0.40	-0.40	-0.37	-	-
6-Jan-11	0.06	-0.02	-0.33	0.00	-0.60	-0.35	-0.37	-0.44	-0.08	-0.16
9-Feb-11	0.05	-0.02	-0.34	-0.01	-0.62	-0.41	-0.38	-0.44	-0.08	-0.14
25-Feb-11	0.09	-	-	-	-	-0.31	-0.34	-0.39	-	-
23-Mar-11	0.06	-0.03	-0.33	0.03	-0.58	-0.35	-0.37	-0.47	-0.09	-0.16
4-May-11	0.00	-0.02	-0.11	0.00	-0.59	-0.28	-0.36	-0.43	-0.09	-0.16
24-May-11	0.01	-0.02	-0.04	0.00	-0.61	-0.32	-0.46	-0.55	-0.10	-0.18
27-Jun-11	0.01	-0.01	-0.42	-0.01	-0.61	-0.30	-0.37	-0.42	-0.11	-0.16
26-Jul-11	0.01	0.02	-0.67	0.00	-0.60	-0.32	-0.39	-0.46	-0.11	-0.13
30-Aug-11	0.01	-0.04	-0.68	0.00	-0.58	-0.32	-0.39	-0.47	-0.12	-0.14
22-Sep-11	0.01	-0.03	-0.47	-0.01	-0.59	-0.30	-0.39	-0.42	-0.11	-0.10
26-Oct-11	0.00	-0.03	-0.48	-0.01	-0.56	-0.26	-0.32	-0.39	-0.09	-0.15
29-Nov-11	-0.01	-0.03	-0.08	-0.01	-0.66	-0.33	-0.43	-0.59	-0.11	-0.17
11-Jan-12	0.01	-0.01	-0.42	-0.01	-0.63	-0.27	-0.35	-0.40	-0.10	-0.16
27-Feb-12	0.01	-0.01	-0.53	-0.01	-0.63	-0.30	-0.37	-0.42	-0.10	-0.14
8-Mar-12	-	-	-	-0.01	-	-	-	-	-	-
15-Mar-12	-	-	-	-0.01	-	-	-	-	-	-
21-Mar-12	-	-	-	-0.01	-	-	-	-	-	-
29-Mar-12	0.01	-0.01	-0.57	-0.01	-0.64	-0.29	-0.35	-0.42	-0.10	-0.14
25-Apr-12	0.01	-0.01	-0.62	-0.01	-0.64	-0.34	-0.40	-0.46	-0.11	-0.15
28-May-12	0.01	0.01	-0.66	-0.02	-0.66	-0.33	-0.40	-0.47	-0.12	-0.14
13-Jun-12	0.01	-0.02	-0.65	-0.01	-0.63	-0.33	-0.40	-0.46	-0.11	-0.13
11-Jul-12	0.01	-0.04	-0.65	-0.01	-0.66	-0.33	-0.40	-0.47	-0.12	-0.13
30-Aug-12	0.01	-0.04	-0.68	-0.01	-0.63	-0.34	-0.41	-0.48	-0.12	-0.03
25-Sep-12	0.00	-0.04	-0.63	-0.01	-0.64	-0.33	-0.41	-0.47	-0.12	-0.15
24-Oct-12	0.00	-0.01	-0.53	0.00	-0.64	-0.29	-0.36	-0.43	-0.10	-0.17
27-Nov-12	0.01	-0.01	-0.53	-0.01	-0.64	-0.29	-0.36	-0.43	-0.11	-0.16
19-Dec-12	0.00	-0.02	-0.33	-0.01	-0.65	-0.32	-0.41	-0.44	-0.10	-0.16
28-Jan-13	0.01	-0.01	-0.51	-0.01	-0.62	-0.32	-0.35	-0.40	-0.11	-0.15
27-Feb-13	0.01	-0.01	-0.42	-0.01	-0.63	-0.28	-0.35	-0.41	-0.10	-0.15
26-Mar-13	0.00	-0.02	-0.43	0.00	-0.64	-0.28	-0.34	-0.42	-0.11	-0.15

Table C-4.1 : Historical Groundwater Gradients (2003-2015)



Location	OW25	OW27	OW28	OW29	OW30	OW31	OW32	OW33	OW41	OW42
29-Jul-13	0.01	-0.04	-0.57	-0.01	-0.61	-0.31	-0.40	-0.46	-0.12	-0.16
31-Aug-13	-	-	-	-	-	-	-	-	-	-
19-Sep-13	0.01	-0.05	-0.65	-0.01	-0.59	-0.34	-0.42	-0.36	-0.10	-0.16
25-Oct-13	-	-0.02	-	-0.01	-	-	-	-0.59	-	-
30-Nov-13	0.00	-0.02	-0.48	-0.01	-0.65	-0.29	-0.37	-0.38	-0.10	-0.17
18-Dec-13	0.01	-0.01	-0.45	0.03	-0.65	-0.29	-0.37	-0.37	-0.10	-0.17
15-Mar-14	-0.03	-0.03	-0.24	-0.01	-0.61	-0.31	-0.42	-0.48	-0.11	-0.21
28-Apr-14	-0.04	-0.02	-0.41	-0.01	-0.65	-0.29	-0.37	-0.39	-0.10	-0.16
24-May-14	-0.04	-	-	-	-0.65	-0.28	-	-	-0.11	-0.16
27-Jun-14	-0.04	-0.01	-0.68	-0.01	-0.64	-0.32	-0.39	-0.43	-0.12	-0.13
15-Jul-14	-0.04	-0.04	-0.67	-	-0.63	-0.33	-0.41	-0.46	-0.12	-0.15
12-Sep-14	-0.04	-0.03	-0.67	-	-0.63	-0.33	-0.41	-0.47	-0.12	-0.16
23-Oct-14	0.01	-0.02	-	-	-	-	-	-	-	-
29-Jan-15	0.01	0.00	-0.66	-0.01	-0.63	-0.30	-	-	-0.11	-0.15
13-Mar-15	0.01	0.00	-0.65	-0.01	-0.62	-0.32	-0.41	-0.44	-0.10	-0.16
27-Apr-15	0.01	-0.01	-0.56	-0.01	-0.62	-0.28	-0.36	-0.40	-0.11	-0.16
29-May-15	0.01	0.00	-0.67	-0.01	-0.63	-0.32	-	-0.45	-0.10	-0.14
30-Jun-15	0.01	0.00	-0.64	-0.01	-0.66	-0.33	-0.40	-0.45	-0.11	-0.16
28-Jul-15	0.01	-0.03	-0.67	-0.01	-0.66	-0.33	-0.41	-0.45	-0.12	-0.14
27-Aug-15	0.01	-0.04	-0.65	0.01	-0.64	-0.34	-0.42	-0.46	-0.11	-0.17
29-Sep-15	0.01	-0.04	-0.66	-0.01	-0.65	-0.34	-0.41	-0.45	-0.11	-0.15
22-Oct-15	0.01	-0.04	-0.66	-0.01	-0.61	-0.34	-0.42	-0.47	-0.11	-0.16
17-Nov-15	0.00	-0.01	-0.35	-0.01	-0.66	-0.30	-0.40	-0.41	-0.08	-0.18
23-Dec-15	0.00	-0.02	-0.33	0.00	-0.66	-0.32	-0.35	-0.43	-0.08	-0.16

**Notes:**

++ = frozen

- = not measured

Table C-4.1 : Historical Groundwater Gradients (2003-2015)

Location	OW43	OW44	OW46	OW47	MP54	MP55	MP56	MP57	OW58	OW59
15-Sep-03	-	-	-	-	-	-	-	-	-	-
17-Oct-03	-	-	-	-	-	-	-	-	-	-
28-Nov-03	-	-	-	-	-	-	-	-	-	-
26-Feb-04	-	-	-	-	-	-	-	-	-	-
26-Apr-04	-	-	-	-	-	-	-	-	-	-
14-May-04	-	-	-	-	-	-	-	-	-	-
21-May-04	-	-	-	-	-	-	-	-	-	-
28-May-04	-	-	-	-	-	-	-	-	-	-
4-Jun-04	-	-	-	-	-	-	-	-	-	-
11-Jun-04	-	-	-	-	-	-	-	-	-	-
17-Jun-04	-	-	-	-	-	-	-	-	-	-
25-Jun-04	-	-	-	-	-	-	-	-	-	-
9-Jul-04	-	-	-	-	-	-	-	-	-	-
16-Jul-04	-	-	-	-	-	-	-	-	-	-
22-Jul-04	-	-	-	-	-	-	-	-	-	-
29-Jul-04	-	-	-	-	-	-	-	-	-	-
5-Aug-04	-	-	-	-	-	-	-	-	-	-
13-Aug-04	-	-	-	-	-	-	-	-	-	-
19-Aug-04	-	-	-	-	-	-	-	-	-	-
26-Aug-04	-	-	-	-	-	-	-	-	-	-
2-Sep-04	-	-	-	-	-	-	-	-	-	-
9-Sep-04	-	-	-	-	-	-	-	-	-	-
16-Sep-04	-	-	-	-	-	-	-	-	-	-
23-Sep-04	-	-	-	-	-	-	-	-	-	-
7-Oct-04	-	-	-	-	-	-	-	-	-	-
14-Oct-04	-	-	-	-	-	-	-	-	-	-
21-Oct-04	-	-	-	-	-	-	-	-	-	-
28-Oct-04	-	-	-	-	-	-	-	-	-	-
3-Nov-04	-	-	-	-	-	-	-	-	-	-
11-Nov-04	-	-	-	-	-	-	-	-	-	-
18-Nov-04	-	-	-	-	-	-	-	-	-	-
25-Nov-04	-	-	-	-	-	-	-	-	-	-
2-Dec-04	-	-	-	-	-	-	-	-	-	-
9-Dec-04	-	-	-	-	-	-	-	-	-	-
16-Dec-04	-	-	-	-	-	-	-	-	-	-
23-Dec-04	-	-	-	-	-	-	-	-	-	-
13-Jan-05	-	-	-	-	-	-	-	-	-	-
31-Jan-05	-	-	-	-	-	-	-	-	-	-
21-Feb-05	-	-	-	-	-	-	-	-	-	-
24-Mar-05	-	-	-	-	-	-	-	-	-	-
26-Apr-05	-	-	-	-	-	-	-	-	-	-
10-May-05	-	-	-	-	-	-	-	-	-	-
24-May-05	-	-	-	-	-	-	-	-	-	-
1-Jun-05	-	-	-	-	-	-	-	-	-	-
10-Jun-05	-	-	-	-	-	-	-	-	-	-
17-Jun-05	-	-	-	-	-	-	-	-	-	-
24-Jun-05	-	-	-	-	-	-	-	-	-	-
30-Jun-05	-	-	-	-	-	-	-	-	-	-
8-Jul-05	-	-	-	-	-	-	-	-	-	-
15-Jul-05	-	-	-	-	-	-	-	-	-	-
22-Jul-05	-	-	-	-	-	-	-	-	-	-
28-Jul-05	-	-	-	-	-	-	-	-	-	-
4-Aug-05	-	-	-	-	-	-	-	-	-	-
12-Aug-05	-	-	-	-	-	-	-	-	-	-
18-Aug-05	-	-	-	-	-	-	-	-	-	-
26-Aug-05	-	-	-	-	-	-	-	-	-	-
2-Sep-05	-	-	-	-	-	-	-	-	-	-
9-Sep-05	-	-	-	-	-	-	-	-	-	-
15-Sep-05	-	-	-	-	-	-	-	-	-	-
23-Sep-05	-	-	-	-	-	-	-	-	-	-
30-Sep-05	-	-	-	-	-	-	-	-	-	-
7-Oct-05	-	-	-	-	-	-	-	-	-	-
14-Oct-05	-	-	-	-	-	-	-	-	-	-
21-Oct-05	-	-	-	-	-	-	-	-	-	-
28-Oct-05	-	-	-	-	-	-	-	-	-	-
4-Nov-05	-	-	-	-	-	-	-	-	-	-
11-Nov-05	-	-	-	-	-	-	-	-	-	-
2-Dec-05	-	-	-	-	-	-	-	-	-	-
21-Apr-06	-	-	-	-	-	-	-	-	-	-
15-Aug-06	-	-	-	-	-	-	-	-	-	-
14-Sep-06	-	-	-	-	-	-	-	-	-	-
28-Sep-06	-	-	-	-	-	-	-	-	-	-
5-Oct-06	-	-	-	-	-	-	-	-	-	-
6-Oct-06	-	-	-	-	-	-	-	-	-	-
10-Oct-06	-	-	-	-	-	-	-	-	-	-
17-Oct-06	-	-	-	-	-	-	-	-	-	-
20-Oct-06	-	-	-	-	-	-	-	-	-	-
27-Oct-06	-	-	-	-	-	-	-	-	-	-
3-Nov-06	-	-	-	-	-	-	-	-	-	-

Table C-4.1 : Historical Groundwater Gradients (2003-2015)

Location	OW43	OW44	OW46	OW47	MP54	MP55	MP56	MP57	OW58	OW59
6-Nov-06	-	-	-	-	-	-	-	-	-	-
10-Nov-06	-	-	-	-	-	-	-	-	-	-
14-Nov-06	-	-	-	-	-	-	-	-	-	-
17-Nov-06	-	-	-	-	-	-	-	-	-	-
24-Nov-06	-	-	-	-	-	-	-	-	-	-
1-Dec-06	-	-	-	-	-	-	-	-	-	-
15-Dec-06	-	-	-	-	-	-	-	-	-	-
26-Jan-07	-	-	-	-	-	-	-	-	-	-
9-Apr-07	-	-	-	-	-	-	-	-	-	-
21-Jun-07	-	-	-	-	-	-	-	-	-	-
27-Jul-07	-	-	-	-	-	-	-	-	-	-
22-Aug-07	-	-	-	-	-	-	-	-	-	-
31-Aug-07	-	-	-	-	-	-	-	-	-	-
26-Sep-07	-	-	-	-	-	-	-	-	-	-
19-Oct-07	-	-	-	-	-	-	-	-	-	-
17-Nov-07	-	-	-	-	-	-	-	-	-	-
20-Dec-07	-	-	-	-	-	-	-	-	-	-
7-Mar-08	-	-	-	-	-	-	-	-	-	-
3-Jun-08	-	-	-	-	-	-	-	-	-	-
29-Jul-08	-	-	-	-	-	-	-	-	-	-
18-Aug-08	-	-	-	-	-	-	-	-	-	-
23-Sep-08	-	-	-	-	-	-	-	-	-	-
29-Oct-08	-	-	-	-	-	-	-	-	-	-
26-Nov-08	-0.06	0.01	-0.01	0.00	-	-	-	-	-	-
18-Dec-08	-0.06	0.01	-0.02	0.01	-	-	-	-	-	-
6-Jan-09	-0.05	0.03	-0.01	0.01	-	-	-	-	-	-
20-Jan-09	-0.07	0.01	-0.01	-0.01	-	-	-	-	-	-
24-Mar-09	-0.05	0.02	-0.02	0.01	-	-	-	-	-	-
8-Apr-09	-	-	-	-	0.02	0.10	0.01	0.01	-	-
15-Apr-09	-0.05	0.01	-0.02	0.01	0.00	0.07	0.03	0.01	-	-
29-May-09	-0.06	0.00	-0.01	-0.01	0.00	0.01	0.01	0.01	-	-
12-Jun-09	-0.06	0.00	0.00	-0.01	0.00	0.01	0.01	0.01	-	-
8-Jul-09	-0.13	0.00	-0.01	-	0.00	0.01	0.01	0.01	-	-
20-Aug-09	-0.07	-0.01	0.00	-0.02	-	-	-	0.02	-	-
16-Sep-09	-0.08	-0.02	0.01	-0.03	-	-	-	-	0.03	0.04
20-Oct-09	-0.07	-0.01	-0.01	-0.01	-	-	0.01	0.01	0.03	0.03
27-Nov-09	-0.07	0.00	0.00	-0.01	-0.01	-	0.00	0.01	0.03	0.03
29-Mar-10	-0.06	0.01	-0.01	0.00	-0.01	0.04	0.00	0.02	0.03	0.02
30-Apr-10	-0.07	0.00	-0.01	-0.01	0.00	0.03	0.02	0.03	0.03	0.03
25-May-10	-0.07	0.00	-0.01	-0.01	0.00	0.01	0.02	0.02	0.03	0.03
25-Jun-10	-0.06	0.00	-0.01	-0.01	0.00	0.01	-0.01	0.01	0.02	0.04
26-Jul-10	-0.07	-0.01	0.00	-0.01	0.00	0.00	0.01	0.01	0.03	0.04
26-Aug-10	-0.07	0.00	-0.01	-0.01	-	-	0.01	-	0.03	0.04
4-Oct-10	-0.05	0.02	-0.01	-0.02	0.02	0.00	0.01	0.01	0.02	0.02
1-Nov-10	-0.06	0.00	-0.01	-0.01	0.01	0.02	0.02	0.00	0.03	0.03
6-Dec-10	-	0.02	-0.01	-0.01	-	-	-	-	0.02	0.03
6-Jan-11	-0.06	0.04	-0.01	0.01	-	-	-	-	-	-
9-Feb-11	-0.05	0.01	-0.01	-0.01	-	-	-	-	-	-
25-Feb-11	-	-	-	-	-	-	-	-	-	-
23-Mar-11	-0.06	0.03	-0.01	0.01	-	-	-	-	-	-
4-May-11	-0.05	0.04	-0.01	0.01	0.03	0.08	0.03	0.00	0.04	0.01
24-May-11	-0.07	0.02	-0.02	0.01	0.04	0.01	-0.05	-0.06	0.02	0.05
27-Jun-11	-0.06	0.01	-0.03	-0.24	-0.01	0.00	0.01	0.00	0.03	0.03
26-Jul-11	-0.07	0.00	-0.05	-0.24	-	-	0.01	0.00	0.03	0.04
30-Aug-11	-0.08	-0.01	-0.03	-0.25	-	-	0.01	0.00	0.03	0.04
22-Sep-11	-0.08	-0.01	-0.03	-0.21	-	0.00	0.01	-0.01	0.03	0.04
26-Oct-11	-0.05	-0.03	-0.02	0.00	0.00	0.00	0.00	0.00	0.04	0.00
29-Nov-11	-0.06	-0.01	-0.02	0.00	0.00	0.00	0.00	0.00	0.03	0.01
11-Jan-12	-0.05	-	-0.02	0.00	-	-	-	-	-	-
27-Feb-12	-0.06	-	-0.01	0.00	-	-	-	-	-	-
8-Mar-12	-	-	-	-	-	-	-	-	-	-
15-Mar-12	-	-	-	-	-	-	-	-	-	-
21-Mar-12	-	-	-	-	-	-	-	-	-	-
29-Mar-12	-0.06	-	-0.02	0.00	-	-	-	-	-	-
25-Apr-12	-0.06	-	-0.01	0.00	0.00	0.00	0.00	0.00	0.03	0.03
28-May-12	-0.07	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	0.03	0.04
13-Jun-12	-0.06	-0.01	0.00	-0.01	0.00	0.00	0.00	0.00	0.03	0.04
11-Jul-12	-0.07	-0.01	0.00	-0.01	0.00	0.00	0.00	0.00	0.03	0.04
30-Aug-12	-0.07	-0.01	-0.01	-0.01	0.00	0.00	0.00	0.00	0.03	0.04
25-Sep-12	-0.06	-0.02	0.00	0.04	0.00	0.00	0.05	0.00	0.03	0.04
24-Oct-12	-0.06	0.01	-0.01	0.00	0.00	0.00	0.00	0.00	0.04	0.02
27-Nov-12	-0.05	0.01	0.00	0.00	0.00	0.00	++	0.00	0.03	0.03
19-Dec-12	-0.05	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.02
28-Jan-13	-0.06	0.01	-0.01	0.00	-	-	-	-	-	-
27-Feb-13	-0.05	0.01	0.00	0.00	-	-	-	-	-	-
26-Mar-13	-0.05	0.03	-0.02	0.00	-	-	0.00	0.00	0.03	0.02
23-Apr-13	-0.06	0.02	-0.02	-0.01	0.00	0.00	0.00	0.00	0.03	0.00
27-May-13	-0.06	0.01	-0.01	0.00	0.00	0.00	0.00	0.00	0.03	0.03
17-Jun-13	-0.06	0.00	-0.02	-0.01	0.00	0.00	0.00	0.00	0.03	0.03

Table C-4.1 : Historical Groundwater Gradients (2003-2015)



Location	OW43	OW44	OW46	OW47	MP54	MP55	MP56	MP57	OW58	OW59
29-Jul-13	-0.08	-0.01	-0.01	-0.03	0.00	0.00	0.00	0.00	0.03	0.04
31-Aug-13	-	-	-	-	-	-	-	-	-	-
19-Sep-13	-0.07	-0.02	-0.01	-0.02	0.00	0.00	0.00	0.00	0.03	0.04
25-Oct-13	-	0.00	-0.03	0.00	0.00	0.00	0.00	0.00	0.03	0.01
30-Nov-13	-0.05	0.01	-0.01	0.00	0.00	-	-	-	-	0.02
18-Dec-13	-0.06	0.01	-0.01	0.00	-	-	-	-	-	-
15-Mar-14	-0.06	0.00	-0.02	0.00	-	-	-	-	-	-
28-Apr-14	-0.05	0.03	-0.02	0.00	0.00	0.00	0.00	0.00	0.03	0.02
24-May-14	-0.06	0.01	-0.01	0.00	0.00	0.00	0.00	0.00	0.03	0.03
27-Jun-14	-0.06	-0.01	-0.01	-0.02	-	0.00	0.00	0.00	0.03	0.04
15-Jul-14	-0.06	-0.01	-0.02	-0.02	0.00	0.00	0.00	0.00	0.03	0.04
12-Sep-14	-0.07	-0.02	-0.01	-0.02	0.00	0.00	0.00	0.00	0.03	0.04
23-Oct-14	-	-	-	-	0.00	0.03	0.02	0.00	0.03	0.03
29-Jan-15	-	-0.03	-0.01	-0.01	-	-	-	-	-	-
13-Mar-15	-0.06	0.00	-0.02	-0.01	-	-	-	-	-	-
27-Apr-15	-0.07	0.01	-0.03	0.00	0.00	0.00	0.00	0.00	0.03	0.02
29-May-15	-0.06	-0.01	-0.01	-0.01	0.00	0.00	0.00	0.00	0.03	0.03
30-Jun-15	-0.06	0.00	-0.02	-0.02	0.00	0.00	0.00	0.00	0.03	0.03
28-Jul-15	-0.07	0.00	-0.02	-0.02	-	-	0.00	0.00	0.07	0.04
27-Aug-15	-0.06	-0.01	-0.01	-0.02	0.00	0.00	0.00	0.00	0.03	0.04
29-Sep-15	-0.06	-0.01	-0.01	-0.02	0.00	0.00	0.00	0.00	0.03	0.04
22-Oct-15	-0.06	-0.02	0.00	-0.01	0.00	0.00	0.00	0.00	0.03	0.04
17-Nov-15	-0.06	-0.02	-0.02	-0.01	0.01	0.00	0.00	0.00	0.03	0.03
23-Dec-15	-0.07	-0.02	-0.03	0.00	0.02	0.06	0.02	0.00	0.03	0.02

**Notes:**

++ = frozen

- = not measured

Table C-4.1 : Historical Groundwater Gradients (2003-2015)

Location	OW60	OW62 S&K	OW62 S&D	OW63	OW64	OW65	OW71 S&K	OW71 S&D
15-Sep-03	-	-	-	-	-	-	-	-
17-Oct-03	-	-	-	-	-	-	-	-
28-Nov-03	-	-	-	-	-	-	-	-
26-Feb-04	-	-	-	-	-	-	-	-
26-Apr-04	-	-	-	-	-	-	-	-
14-May-04	-	-	-	-	-	-	-	-
21-May-04	-	-	-	-	-	-	-	-
28-May-04	-	-	-	-	-	-	-	-
4-Jun-04	-	-	-	-	-	-	-	-
11-Jun-04	-	-	-	-	-	-	-	-
17-Jun-04	-	-	-	-	-	-	-	-
25-Jun-04	-	-	-	-	-	-	-	-
9-Jul-04	-	-	-	-	-	-	-	-
16-Jul-04	-	-	-	-	-	-	-	-
22-Jul-04	-	-	-	-	-	-	-	-
29-Jul-04	-	-	-	-	-	-	-	-
5-Aug-04	-	-	-	-	-	-	-	-
13-Aug-04	-	-	-	-	-	-	-	-
19-Aug-04	-	-	-	-	-	-	-	-
26-Aug-04	-	-	-	-	-	-	-	-
2-Sep-04	-	-	-	-	-	-	-	-
9-Sep-04	-	-	-	-	-	-	-	-
16-Sep-04	-	-	-	-	-	-	-	-
23-Sep-04	-	-	-	-	-	-	-	-
7-Oct-04	-	-	-	-	-	-	-	-
14-Oct-04	-	-	-	-	-	-	-	-
21-Oct-04	-	-	-	-	-	-	-	-
28-Oct-04	-	-	-	-	-	-	-	-
3-Nov-04	-	-	-	-	-	-	-	-
11-Nov-04	-	-	-	-	-	-	-	-
18-Nov-04	-	-	-	-	-	-	-	-
25-Nov-04	-	-	-	-	-	-	-	-
2-Dec-04	-	-	-	-	-	-	-	-
9-Dec-04	-	-	-	-	-	-	-	-
16-Dec-04	-	-	-	-	-	-	-	-
23-Dec-04	-	-	-	-	-	-	-	-
13-Jan-05	-	-	-	-	-	-	-	-
31-Jan-05	-	-	-	-	-	-	-	-
21-Feb-05	-	-	-	-	-	-	-	-
24-Mar-05	-	-	-	-	-	-	-	-
26-Apr-05	-	-	-	-	-	-	-	-
10-May-05	-	-	-	-	-	-	-	-
24-May-05	-	-	-	-	-	-	-	-
1-Jun-05	-	-	-	-	-	-	-	-
10-Jun-05	-	-	-	-	-	-	-	-
17-Jun-05	-	-	-	-	-	-	-	-
24-Jun-05	-	-	-	-	-	-	-	-
30-Jun-05	-	-	-	-	-	-	-	-
8-Jul-05	-	-	-	-	-	-	-	-
15-Jul-05	-	-	-	-	-	-	-	-
22-Jul-05	-	-	-	-	-	-	-	-
28-Jul-05	-	-	-	-	-	-	-	-
4-Aug-05	-	-	-	-	-	-	-	-
12-Aug-05	-	-	-	-	-	-	-	-
18-Aug-05	-	-	-	-	-	-	-	-
26-Aug-05	-	-	-	-	-	-	-	-
2-Sep-05	-	-	-	-	-	-	-	-
9-Sep-05	-	-	-	-	-	-	-	-
15-Sep-05	-	-	-	-	-	-	-	-
23-Sep-05	-	-	-	-	-	-	-	-
30-Sep-05	-	-	-	-	-	-	-	-
7-Oct-05	-	-	-	-	-	-	-	-
14-Oct-05	-	-	-	-	-	-	-	-
21-Oct-05	-	-	-	-	-	-	-	-
28-Oct-05	-	-	-	-	-	-	-	-
4-Nov-05	-	-	-	-	-	-	-	-
11-Nov-05	-	-	-	-	-	-	-	-
2-Dec-05	-	-	-	-	-	-	-	-
21-Apr-06	-	-	-	-	-	-	-	-
15-Aug-06	-	-	-	-	-	-	-	-
14-Sep-06	-	-	-	-	-	-	-	-
28-Sep-06	-	-	-	-	-	-	-	-
5-Oct-06	-	-	-	-	-	-	-	-
6-Oct-06	-	-	-	-	-	-	-	-
10-Oct-06	-	-	-	-	-	-	-	-
17-Oct-06	-	-	-	-	-	-	-	-
20-Oct-06	-	-	-	-	-	-	-	-
27-Oct-06	-	-	-	-	-	-	-	-
3-Nov-06	-	-	-	-	-	-	-	-

Table C-4.1 : Historical Groundwater Gradients (2003-2015)

Location	OW60	OW62 S&K	OW62 S&D	OW63	OW64	OW65	OW71 S&K	OW71 S&D
6-Nov-06	-	-	-	-	-	-	-	-
10-Nov-06	-	-	-	-	-	-	-	-
14-Nov-06	-	-	-	-	-	-	-	-
17-Nov-06	-	-	-	-	-	-	-	-
24-Nov-06	-	-	-	-	-	-	-	-
1-Dec-06	-	-	-	-	-	-	-	-
15-Dec-06	-	-	-	-	-	-	-	-
26-Jan-07	-	-	-	-	-	-	-	-
9-Apr-07	-	-	-	-	-	-	-	-
21-Jun-07	-	-	-	-	-	-	-	-
27-Jul-07	-	-	-	-	-	-	-	-
22-Aug-07	-	-	-	-	-	-	-	-
31-Aug-07	-	-	-	-	-	-	-	-
26-Sep-07	-	-	-	-	-	-	-	-
19-Oct-07	-	-	-	-	-	-	-	-
17-Nov-07	-	-	-	-	-	-	-	-
20-Dec-07	-	-	-	-	-	-	-	-
7-Mar-08	-	-	-	-	-	-	-	-
3-Jun-08	-	-	-	-	-	-	-	-
29-Jul-08	-	-	-	-	-	-	-	-
18-Aug-08	-	-	-	-	-	-	-	-
23-Sep-08	-	-	-	-	-	-	-	-
29-Oct-08	-	-	-	-	-	-	-	-
26-Nov-08	-	-	-	-	-	-	-	-
18-Dec-08	-	-	-	-	-	-	-	-
6-Jan-09	-	-	-	-	-	-	-	-
20-Jan-09	-	-	-	-	-	-	-	-
24-Mar-09	-	-	-	-	-	-	-	-
8-Apr-09	-	-	-	-	-	-	-	-
15-Apr-09	-	-	-	-	-	-	-	-
29-May-09	-	-	-	-	-	-	-	-
12-Jun-09	-	-	-	-	-	-	-	-
8-Jul-09	-	-	-	-	-	-	-	-
20-Aug-09	-	-	-	-	-	-	-	-
16-Sep-09	0.00	-	-	-	-	-	-	-
20-Oct-09	0.00	-	-	-	-	-	-	-
27-Nov-09	0.00	-	-	-	-	-	-	-
29-Mar-10	-0.01	-	-	-	-	-	-	-
30-Apr-10	0.00	-	-	-	-	-	-	-
25-May-10	0.00	-	-	-	-	-	-	-
25-Jun-10	0.00	-	-	-	-	-	-	-
26-Jul-10	0.00	-	-	-	-	-	-	-
26-Aug-10	0.00	-	-	-	-	-	-	-
4-Oct-10	0.00	-	-	-	-	-	-	-
1-Nov-10	-0.02	-	-	-	-	-	-	-
6-Dec-10	-0.01	-	-	-	-	-	-	-
6-Jan-11	-	-	-	-	-	-	-	-
9-Feb-11	-	-	-	-	-	-	-	-
25-Feb-11	-	-	-	-	-	-	-	-
23-Mar-11	-	-	-	-	-	-	-	-
4-May-11	-0.01	0.02	0.02	-	-	-	-0.04	0.01
24-May-11	-0.03	0.01	0.02	-	-	-	0.04	0.05
27-Jun-11	0.00	0.00	-0.02	-	-	-	-0.05	0.01
26-Jul-11	0.00	0.01	-0.01	-	-	-	-0.07	0.00
30-Aug-11	0.00	0.01	-0.01	-	-	-	-0.05	0.00
22-Sep-11	0.00	0.01	-0.01	-	-	-	-0.06	0.01
26-Oct-11	-0.01	0.01	-0.01	-	-	-	-0.01	0.02
29-Nov-11	-0.01	0.01	0.01	-	-	-	0.02	0.03
11-Jan-12	-0.01	0.02	0.00	-	-	-	-0.03	0.01
27-Feb-12	0.00	0.03	0.00	-	-	-	-0.05	0.01
8-Mar-12	-	-	-	-	-	-	-	-
15-Mar-12	-	-	-	-	-	-	-	-
21-Mar-12	-	-	-	-	-	-	-	-
29-Mar-12	-0.01	0.03	0.00	-	-	-	-0.08	0.00
25-Apr-12	0.00	0.03	0.00	-	-	-	-0.06	0.00
28-May-12	0.00	0.02	-0.01	-	-	-	-0.07	0.00
13-Jun-12	0.00	0.01	0.00	-	-	-	-0.07	0.00
11-Jul-12	0.00	-0.01	0.00	-	-	-	-0.08	-0.01
30-Aug-12	0.00	-0.01	0.00	-	-	-	-0.07	-0.01
25-Sep-12	0.00	-0.01	0.00	-	-	-	-0.06	0.00
24-Oct-12	0.00	0.03	0.00	-	-	-	-0.06	0.00
27-Nov-12	0.00	0.03	0.00	-	-	-	-0.06	0.00
19-Dec-12	-0.01	0.03	-0.01	-	-	-	-0.04	0.00
28-Jan-13	-	0.03	-0.01	-	-	-	-0.04	0.01
27-Feb-13	-	0.03	-0.01	-	-	-	-0.05	0.01
26-Mar-13	-0.01	0.03	-0.01	-	-	-	-0.05	0.01
23-Apr-13	-0.01	-0.01	-0.01	-	-	-	-0.09	-0.01
27-May-13	0.00	0.03	-0.01	-	-	-	-0.04	0.01
17-Jun-13	0.00	0.03	-0.01	-	-	-	-0.06	0.00

**Table C-4.1 : Historical Groundwater Gradients (2003-2015)**

Location	OW60	OW62 S&K	OW62 S&D	OW63	OW64	OW65	OW71 S&K	OW71 S&D
29-Jul-13	0.00	0.04	-0.01	-	-	-	-0.07	0.00
31-Aug-13	-	-	-	-	-	-	-	-
19-Sep-13	0.00	-0.02	0.00	-	-	-	-0.07	-0.01
25-Oct-13	-0.01	0.01	0.00	-	-	-	-0.04	0.00
30-Nov-13	-0.01	0.03	-0.01	-	-	-	-0.04	0.01
18-Dec-13	-	0.03	0.00	-	-	-	-0.04	0.01
15-Mar-14	-	0.02	0.02	-	-	-	-0.04	0.00
28-Apr-14	-0.01	0.02	0.00	-	-	-	-0.04	0.01
24-May-14	-0.01	0.03	0.01	-	-	-	-0.05	0.00
27-Jun-14	0.00	0.02	0.00	-	-	-	-0.06	0.00
15-Jul-14	0.00	0.01	0.01	-	-	-	-0.07	-0.01
12-Sep-14	0.00	0.00	0.01	-	-	-	-0.06	0.00
23-Oct-14	-0.01	0.03	0.01	-	-	-	-0.05	0.01
29-Jan-15	-	-	-	-0.09	-0.01	-0.17	-0.05	0.01
13-Mar-15	-	0.02	-0.01	-0.10	-0.01	-0.17	-0.05	0.00
27-Apr-15	-0.01	0.03	0.01	-0.10	-0.01	-0.18	-0.04	0.01
29-May-15	0.00	0.02	0.00	-0.09	-0.02	-0.17	-0.07	0.00
30-Jun-15	0.00	0.03	0.00	-0.09	-0.02	-0.19	-0.05	0.00
28-Jul-15	0.00	0.01	0.00	-0.08	0.05	-0.18	-0.06	0.00
27-Aug-15	0.00	0.01	0.01	-0.07	-0.01	-0.19	-0.07	-0.01
29-Sep-15	0.00	0.01	0.01	-0.07	-0.01	-0.19	-0.06	0.00
22-Oct-15	0.00	0.00	0.01	-0.07	0.00	-0.18	-0.06	0.00
17-Nov-15	0.00	0.02	0.00	-0.10	-0.02	-0.19	-0.03	0.01
23-Dec-15	-0.01	0.02	0.00	-0.11	-0.01	-0.20	-0.03	0.01

**Notes:**

++ = frozen

- = not measured



## APPENDIX C5

### **FLOW OBSERVATIONS: SPRINGS, SINKHOLES AND SURFACE WATER CULVERTS**

**Appendix C-5: Historical Flow Data**

Date	Shouldice Wetland												Glen Management Area						
	s8	s9	s13	Dugout Pond outflow	Culvert 4	Culvert 5	Culvert 5a	Culvert 6	Culvert 6a	Culvert 7	Beaver Dam	Sinkhole	s1	s2	s3	Channel A	Channel B	D.U. Dam	
28-Sep-06	**	**	-	*	*	**	-	*	-	-	*	*	-	-	-	-	-	-	
26-Jan-07	flowing	flowing	-	-	-	-	-	-	-	-	flowing	flowing	-	-	-	-	-	-	
4-May-07	flowing	flowing	-	-	-	-	-	-	-	-	flowing	flowing	flowing	flowing	flowing	-	-	-	
22-Jun-07	-	-	-	flowing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
24-Aug-07	**	**	-	**	*	**	-	**	-	**	*	*	-	-	-	flowing	**	flowing	
12-Sep-07	**	**	-	*	*	**	**	*	-	**	*	*	-	-	-	flowing	**	flowing	
17-Nov-07	**	**	-	flowing	*	*	-	flowing	-	-	*	*	-	-	-	-	-	-	
3-Dec-07	**	**	-	flowing	flowing	*	*	flowing	-	-	flowing	flowing	-	-	-	-	-	-	
14-Dec-07	-	-	-	flowing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
20-Dec-07	**	**	-	-	flowing	*	-	flowing	-	flowing	flowing	flowing	-	-	-	-	-	-	
10-Jan-08	flowing	flowing	-	flowing	flowing	flowing	flowing	flowing	-	flowing	flowing	*	-	-	-	-	-	-	
6-Apr-08	flowing	flowing	-	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	*	flowing	flowing	flowing	flowing	-	-	
9-Jul-08	flowing	flowing	-	flowing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
22-Aug-08	-	-	-	flowing	flowing <sup>2</sup>	*	*	*	flowing	flowing	flowing	flowing	-	-	-	flowing	flowing	-	
30-Sep-08	-	-	-	flowing	-	-	-	-	-	-	flowing	flowing	-	-	-	-	-	-	
16-Mar-09	flowing	flowing	flowing	flowing	-	-	-	-	-	-	flowing	flowing	++	flowing	flowing	-	-	flowing	
24-Mar-09	flowing	-	-	flowing	-	-	-	-	-	-	flowing	flowing	++	flowing	-	-	-	flowing	
19-Jun-09	flowing	*	*	flowing	flowing <sup>1</sup>	*	flowing	flowing	*	*	flowing	flowing	flowing	flowing	flowing	*	flowing	*	flowing
8-Jul-09	*	*	*	flowing	flowing <sup>1</sup>	flowing	*	flowing	*	flowing	flowing	*	flowing	flowing	flowing	flowing	flowing	flowing	
20-Aug-09	*	*	*	*	flowing	flowing	*	flowing	-	*	flowing	**	*	flowing	flowing	flowing	**	flowing	
16-Sep-09	*	**	**	**	*	*	*	*	**	**	flowing	**	flowing	flowing	flowing	**	flowing	**	flowing
20-Oct-09	*	*	*	flowing	flowing	flowing	*	flowing	-	flowing	*	**	flowing	flowing	flowing	flowing	*	flowing	
27-Nov-09	*	-	*	flowing	*	flowing	-	flowing	flowing	flowing	flowing	*	flowing	flowing	flowing	flowing	**	flowing	
29-Mar-10	flowing	flowing	*	flowing	*	flowing	*	flowing	*	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	
30-Apr-10	flowing	*	*	flowing	*	flowing	*	flowing	*	flowing	flowing	flowing	flowing	flowing	flowing	flowing	**	flowing	
25-May-10	flowing	*	*	flowing	*	flowing	*	flowing	*	flowing	flowing	flowing	flowing	flowing	flowing	flowing	**	flowing	
25-Jun-10	*	*	*	*	flowing	flowing	*	flowing	*	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	
26-Jul-10	*	*	*	*	flowing	flowing	*	flowing	*	flowing	flowing	flowing	flowing	flowing	flowing	flowing	*	flowing	
26-Aug-10	*	*	*	*	flowing	flowing	*	flowing	*	flowing	flowing	*	flowing	flowing	flowing	flowing	*	flowing	
4-Oct-10	*	*	*	*	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	
1-Nov-10	*	*	*	*	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	
6-Dec-10	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	
6-Jan-11	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	
9-Feb-11	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	
4-May-11	flowing	*	*	*	*	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	-	flowing	
27-Jun-11	flowing	**	flowing	flowing	flowing	flowing	flowing	*	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	**	flowing	
26-Jul-11	*	**	-	flowing	**	flowing	*	flowing	flowing	flowing	flowing	**	flowing	flowing	flowing	flowing	**	flowing	
30-Aug-11	*	*	*	flowing	*	flowing	flowing	flowing	flowing	flowing	flowing	**	flowing	flowing	flowing	flowing	**	flowing	
22-Sep-11	*	*	*	flowing	*	flowing	flowing	*	flowing	*	flowing	**	flowing	flowing	flowing	flowing	flowing	flowing	
26-Oct-11	flowing	flowing	*	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	
29-Nov-11	flowing	flowing	*	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	
11-Jan-12	flowing	flowing	flowing	flowing	flowing	++	++	++	++	++	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	
27-Feb-12	flowing	flowing	flowing	flowing	flowing	++	++	++	++	++	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	
29-Mar-12	flowing	flowing	flowing	flowing	flowing	*	flowing	*	flowing	*	flowing	flowing	flowing	flowing	flowing	flowing	**	flowing	

**Appendix C-5: Historical Flow Data**

Date	Shouldice Wetland												Glen Management Area						
	s8	s9	s13	Dugout Pond outflow	Culvert 4	Culvert 5	Culvert 5a	Culvert 6	Culvert 6a	Culvert 7	Beaver Dam	Sinkhole	s1	s2	s3	Channel A	Channel B	D.U. Dam	
25-Apr-12	flowing	flowing	flowing	flowing	*	flowing	flowing	flowing	*	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	
29-May-12	*	*	*	flowing	*	flowing	flowing	flowing	*	flowing	flowing	**	flowing	flowing	flowing	flowing	**	flowing	
13-Jun-12	*	**	*	flowing	*	flowing	flowing	flowing	*	flowing	flowing	**	flowing	flowing	flowing	flowing	**	flowing	
24-Oct-12	flowing	flowing	*	-	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	-	-	-	-	-	-	
27-Nov-12	flowing	flowing	*	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	
19-Dec-12	flowing	flowing	*	flowing	++	++	++	++	++	++	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	
28-Jan-13	flowing	flowing	*	flowing	++	++	++	++	++	++	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	
26-Feb-13	flowing	flowing	*	flowing	++	++	++	++	++	++	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	
26-Mar-13	flowing	flowing	flowing	flowing	++	*	flowing	++	flowing	++	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	
23-Apr-13	flowing	flowing	flowing	flowing	*	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	
27-May-13	flowing	*	*	flowing	*	*	flowing	*	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	
17-Jun-13	flowing	*	*	*	*	*	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	*	flowing	
30-Jul-13	*	*	*	**	**	*	*	*	*	*	*	**	flowing	*	flowing	flowing	**	flowing	
13-Aug-13	-	-	-	-	-	-	-	-	-	-	flowing	**	**	flowing	flowing	flowing	**	flowing	
19-Sep-13	**	**	*	**	**	*	*	*	**	*	flowing	flowing	flowing	flowing	flowing	flowing	**	flowing	
25-Oct-13	flowing	flowing	*	flowing	flowing	flowing	flowing	flowing	flowing	flowing	-	-	-	-	-	-	-	-	
30-Nov-13	flowing	flowing	flowing	**	++	++	++	++	++	++	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	
15-Mar-14	flowing	-	-	-	++	++	++	++	++	++	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	
28-Apr-14	-	-	*	flowing	*	flowing	flowing	flowing	flowing	flowing	*	*	flowing	flowing	flowing	flowing	flowing	flowing	
24-May-14	flowing	flowing	*	flowing	*	flowing	flowing	flowing	flowing	flowing	*	flowing	flowing	flowing	flowing	-	flowing	flowing	
27-Jun-14	flowing	flowing	*	flowing	flowing	**	flowing	*	flowing	*	flowing	flowing	flowing	flowing	flowing	flowing	-	flowing	
15-Jul-14	*	*	flowing	*	-	-	-	-	-	-	flowing	*	flowing	flowing	flowing	flowing	**	flowing	
12-Sep-14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
23-Oct-14	-	-	flowing	-	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	-	-	-	-	-	-	
29-Jan-15	*	*	*	-	++	++	++	++	++	++	-	-	flowing	flowing	flowing	flowing	++	flowing	
13-Mar-15	flowing	flowing	flowing	-	++	++	++	++	++	++	flowing	flowing	flowing	flowing	flowing	flowing	++	flowing	
27-Apr-15	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	
29-May-15	flowing	flowing	*	*	flowing	*	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	flowing	**	flowing	
29-Jun-15	flowing	flowing	flowing	flowing	*	*	flowing	flowing	flowing	flowing	*	flowing	flowing	flowing	flowing	flowing	**	flowing	
28-Jul-15	*	**	*	**	**	*	*	*	**	*	flowing	*	flowing	flowing	flowing	flowing	**	flowing	
26-Aug-15	*	**	*	*	*	*	*	*	*	*	flowing	**	flowing	flowing	flowing	flowing	**	flowing	
28-Sep-15	*	**	*	*	flowing	*	*	*	*	*	flowing	**	flowing	flowing	flowing	flowing	**	flowing	
22-Oct-15	*	*	-	*	**	*	*	*	*	flowing	*	flowing	**	flowing	flowing	flowing	**	flowing	
17-Nov-15	flowing	flowing	-	*	**	flowing	flowing	flowing	flowing	flowing	flowing	**	flowing	flowing	flowing	**	flowing		
23-Dec-15	*	-	-	*	*	*	flowing	flowing	flowing	flowing	flowing	**	flowing	flowing	flowing	**	flowing		

**Notes:**

\* = no flow observed

\*\* = dry

++ = frozen

- = not measured

D.U. Dam = Ducks Unlimited Dam



## APPENDIX C6

### ELECTRICAL CONDUCTIVITY MEASUREMENTS