

2014 ANNUAL MONITORING AND MAINTENANCE REPORT

Ross Island Sand & Gravel Company
Portland, Oregon



Prepared for:

Oregon Department of Environmental Quality

Revised December 2014



December 22, 2014

Oregon Department of Environmental Quality
Northwest Region
2020 SW Fourth Ave., Suite 400
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Attn: Jennifer Sutter

Annual Monitoring and Maintenance Report

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Ross Island Sand & Gravel is pleased to present the revised Annual Monitoring and Maintenance Report for the period of July 1, 2013 to June 30, 2014 for the RISG facility on Hartack Island in Portland, OR. Monitoring and maintenance of the remedial action areas at the site were done as stated in the Consent Order (DEQ No. LQVC-NWR-11-01). Attachment B of the Consent Order included the Long Term Maintenance and Monitoring Contingency Plan. RISG performed the third year of monitoring and maintenance and determined the engineering controls are in place and secured for the long run.

We appreciate your help in this project. Please contact us if you have any questions.

Sincerely,

Ross Island Sand & Gravel Co.

A handwritten signature in blue ink, appearing to read "Gregory Murphy".

Gregory Murphy, PE
Principal Engineer

Table of Contents	Page
1.0 INTRODUCTION	1
2.0 BACKGROUND	1
2.1 Site Location and Description	1
2.2 Site History	1
2.3 Previous Investigations and Studies	2
3.0 PURPOSE AND OBJECTIVES	4
4.0 REMEDIAL ACTION AREAS	4
5.0 LONG-TERM MONITORING AND MAINTENANCE	5
5.1 General	5
5.2 Upland	5
5.2.1 Remedial Action Area B	6
5.2.2 Remedial Action Areas A2-1 and A2-3	6
5.2.3 Remedial Action Area A2-2	8
5.3 Lagoon	8
5.3.1 Sediment Cap Thickness	8
5.3.2 Slope Stability	9
5.3.3 Area E – pH Monitoring	10
6.0 DECOMMISSIONING OF MONITORING WELLS	11
7.0 SUMMARY	12
REFERENCES	13
TABLES	
Table 1	pH Summary
Table 2	pH Background
Table 3	pH Comparison
Table 4	Slope Summary
FIGURES	
Figure 1	Vicinity Map
Figure 2	Overview Site Plan
Figure 3	2001-2014 Sediment Cap Analysis
Figure 4	2013-2014 Sediment Cap Analysis
Figure 5	Cross Section Locations
Figure 6	Cross Section A-A'
Figure 7	Cross Section B-B'
Figure 8	Cross Section C-C'
Figure 9	Cross Section D-D'
Figure 10	Cross Section E-E'
Figure 11	pH Sampling
Figure 12	2013-2014 Zone 1 pH Sampling Comparison
Figure 13	2013-2014 Background pH Sampling Locations
Figure 14	2014 Slope Analysis
Figure 15	Drainage Plan Area A2-3
Figure 16	2013-2014 Loss Analysis
APPENDICES	
Appendix A	Monitoring Forms and Data Sheets
Appendix B	Project Site Photographs
Appendix C	Oregon Water Resources Department Correspondence

Appendix D Oregon Water Resources Department Correspondence

ABBREVIATIONS

BMP – Best Management Practice
CAD – Confined Aquatic Disposal
DEQ – Department of Environmental Quality
DSL – Department of State Lands
FS – Feasibility Studies
H:V – Horizontal to Vertical
LTMMCP – Long Term Maintenance and Monitoring Contingency Plan
NOAA – National Oceanic and Atmospheric Association
OWRD – Oregon Water Resources Department
PAH – Polynuclear Aromatic Hydrocarbon
PCB – Polychlorinated Biphenyl
RI/RA – Remedial Investigation/ Risk Assessment
RID – Ross Island Datum
RISG – Ross Island Sand and Gravel
ROD – Record of Decision
TBT- Tributyltin

1.0 Introduction

Ross Island Sand & Gravel Co. (RISG) has concluded its annual maintenance and monitoring of the remedial action areas as defined in the Long Term Maintenance Monitoring and Contingency Plan (LTMMCP) (GeoDesign, 2011b) for the RISG Plant and Lagoon at Ross and Hardtack Islands. This report summarizes data collected from upland monitoring of the remedial action areas on scheduled dates and after major rain events; an updated bathymetric survey to check the slopes and status of sediment caps; and pH testing in the four historically elevated pH zones.

Figure 1 shows the site relative to surrounding features. Figure 2 is an overview of the project site.

2.0 Background

2.1 Site Location and Description

The remedial action areas are located at River Mile 15 on the Willamette River in Portland, OR. The main river channel flows along the west side of Ross Island, while Holgate Slough flows along the east side of Hardtack Island.

The remedial action area is split into two distinct physical areas, upland and lagoon. The upland areas consist of the RISG plant operation and fill area. The plant operation contains an aggregate processing plant, office, shop, storage buildings, and aggregate stockpiles. The fill area contains vegetation consisting of grass, cottonwood trees, and shrubs, bordered by the shoreline. The lagoon was formed in the 1920's when a dike was built between the southern points of Hardtack and Ross Islands. The gauge height of the lagoon varies during the year from -1.0 feet to +15.0 feet RID.

2.2 Site History

RISG supplies the Portland metro area with aggregate used for concrete, asphalt, road base and fill. Mining and processing of aggregates in the Ross Island Lagoon began in the 1920's and concluded in 2001. RISG currently imports raw aggregate by barge from a mine in Klickitat County, WA and will continue processing that aggregate on Hardtack Island for the foreseeable future.

In 1979, a Conditional Use Permit was issued by the City of Portland, establishing the need for RISG to replace the upland and in-water material that had been previously mined. For the next 20 years, RISG imported fill material per the guidelines of the Conditional Use Permit. Fill material has been accepted from various sources, and available documentation shows it predominantly originated from:

- Non-commercial grade materials from on-site aggregate processing
- Material from various other local maintenance dredging projects
- Material from US Army Corps of Engineers Bonneville Locks project

With a modern scientific understanding of the river, and the surrounding habitat and facilities, the 1979 Reclamation Plan was updated in 2002. The new strategies in the updated plan (Landau, 2002a) determined the need to use clean fill to achieve the reclamation goals and to accelerate the creation of a diverse habitat. The updated plan estimated that placement of an additional 4 to 4.6 million cubic yards of clean fill material over a ten-year period would achieve the habitat creation goals described in the 2002 plan. Fill placed on site, both upland and in-water, from 1979 to 2002 under the old plan, is documented in the Remedial Investigation/Risk Assessment (RI/RA) report (Landau, 2002b).

Under the 2002 Reclamation Plan, over 4.6 million cubic yards of clean fill has been placed in the reclamation and remedial action areas as noted in Annual Monitoring Reports (GeoDesign, 2005a, 2005b, 2006b, 2007a, 2008, 2009, 2010b, 2011a; Ross Island, 2012, 2013) submitted to the Department of State Lands (DSL) in accordance with the DSL Removal Fill Permit No. 26.

RISG will continue the placement of additional clean fill until the objectives in the 2002 Reclamation Plan have been achieved. Fill volumes and sources will be documented in the DSL Annual Monitoring Reports.

2.3 Previous Investigations and Studies

Since 1998 several investigations have been conducted at the site and the results are documented in the RI/RA report (Landau, 2002b) and the Feasibility Study (FS) (GeoDesign, 2005c), which are on file at the DEQ's Northwest Regional office. The pertinent investigations were:

- 1998 investigation of the breached CAD cell
- 1999 baseline characterization investigation of "clear zones" in the lagoon and upland areas
- 1999 Turbidity study of the Willamette River and Ross Island Lagoon
- 1999 and 2000 biological assessment of lagoon and upland areas
- 1999 and 2000 Investigation of dredged Port of Portland material in CAD cells
- 1999 and 2001 Phase 1 and Phase 2 RI/RAs

These investigations assessed:

- The CAD cells' effectiveness in containing contaminants from the aquatic environment
- Contaminants present in fill material and surface sediment in the southern region of the lagoon, particularly near the breached CAD Cell No. 5
- Contamination of the upland areas

These investigations reported the presence of following contaminants on site:

- Metals
- PAHs
- PCBs
- Pesticides
- Petroleum hydrocarbons
- TBTs

Recognized probable sources of the contamination are the Port of Portland shipyards at Swan Island and Terminal 4, naturally occurring contaminants in sediment placed on site, and on-site operations and maintenance of RISG processing facility. Elevated pH levels were observed in the southern portion of the Lagoon, believed to result from historical disposal of concrete truck cleanout residues.

In August 2005, GeoDesign executed a FS (GeoDesign, 2005c) for the site. This study recognized areas requiring remedial action and evaluated different remedial action options to mitigate contaminants. The identified remedial action areas were divided into five upland areas and three in-water areas. The upland areas are identified as A1, A2 (divided into three sub-areas), and C. The three in-water areas are identified as D, E, and F. In addition, DEQ's Record of Decision (ROD) (DEQ, 2005) established the requirements for remedial action founded on the results of past investigations and the Feasibility Studies. Figure 2 shows the locations of each remedial action area. Section 4.0 defines the designated remedies for each area.

The last of the design reports and addendums for the upland remedial areas (GeoDesign, 2007b, 2007d) and in-water remedial areas (GeoDesign, 2007c, 2007e, and 2007f) were completed, submitted, and approved by the DEQ in 2007. Upland remedial action was completed in 2007, except for Sub-Area A2-2 as described in the Construction Completion Report for Remedial Action Areas A1, A2, and C (GeoDesign, 2007g). The remedial action for Sub-Area A2-2 began in fall 2007 and concluded in early 2008. In-water remedial action has been ongoing since the 2002 Reclamation Plan was implemented, and the sediment cap was largely completed in December 2009. In-water fill in Areas D, E, and F continued in 2010, and completion of the in-water remedial action areas, as well as Sub-Area A2-2, are recorded in the Construction Completion Report for Remedial Action Areas A2-2, D, E, and F (GeoDesign, 2010a) and Addendum Nos. 1 and 2 (GeoDesign, 2010c and 2010d).

3.0 Purpose and Objectives

The purpose of this report is to document the past year's monitoring and maintenance activities for each remedial action area.

In monitoring, we achieve the objective of making sure the remedial actions are functioning and remain effective in achieving our remedial action goals and to provide maintenance as needed. If maintenance is required, it will be performed in the identified area to restore the effective remedial action. Monitoring requirements will undergo a periodic review as required.

4.0 Remedial Action Areas

The following table describes the remedial action areas, the contamination in each area, and the remedies that are monitored and maintained. Locations for each remedial action area are shown on Figure 2.

Area	Contaminants	Action Required
A1	Arsenic and zinc on surface	Excavated soil and contained in Area B, covered with clean fill.
A2-1	PAHs along access road	Drainage berms and erosion BMPs to prevent erosion
A2-2	PAHs along dike between settling pond and lagoon	Slope stabilization with ecology blocks and clean fill to prevent erosion
A2-3	PAHs along gravel road	BMPs to control erosion into lagoon
B	Former settling pond with TBT soil from CAD cell #5 breach and arsenic and zinc soil from Area A1	Capped with 3 feet of clean fill
C	Groundwater containing benzo(a)pyrene, manganese, and elevated pH	Monitoring confirmed no unacceptable risk
D	TBT, PCBs, and PAHs from CAD cell #5 breach	Capped with 3 feet of clean fill
E	Elevated pH in southern lagoon	Capped with 3 feet of clean fill
F	CAD cell Nos. 1 through 5	Capped and stabilized slopes adjacent to CAD cells.

Monitoring is not required for Remedial Action Areas A1 and C.

5.0 Long-Term Monitoring and Maintenance

5.1 General

From July 1, 2013 to June 30, 2014, RISG performed and completed the monitoring and maintenance of remedial action areas as defined in the LTMMCP. The upland monitoring areas and requirements are:

- Annual monitoring of BMPs in Sub-Areas A2-1 and A2-3
- Annual monitoring of stabilized slopes in Sub-Area A2-2
- Annual monitoring of capped Area B

In addition to annual monitoring, Sub-Areas A2-1, A2-2, and A2-3 require monitoring after a rain event of 0.5 inch or greater in a 24-hour period.

In-water monitoring areas have the following requirements:

- Annual bathymetric surveys to evaluate slope stability and cap thickness in Areas D, E, and F
- Annual pH monitoring in Zones 1 through 4 in Area E

Finally, the LTMMCP requires additional monitoring after any of the following significant events:

- A flood of 18 gauge feet or greater on Ross Island Datum (RID) (NOAA, 2011a) that covers any upland area will require assessment once water subsides
- A flood of 24 gauge feet or greater on RID (NOAA, 2011b) will require assessment of in-water and upland remedial action areas once water subsides
- Rainfall great than 3.4 inches in a 24 hour period (COP, 2008) will require monitoring of BMPs and stabilized slopes
- A seismic event of 6.0 or greater on the Richter scale will require assessment of sediment caps, soil caps, and slopes adjacent to lagoon and CAD cells.

None of these significant events occurred during this period.

The following sections document monitoring that has occurred during this reporting period.

5.2 Upland

Monitoring of the upland remedial action areas was conducted in general accordance with the LTMMCP. The reporting is described below, with monitoring forms included in Appendix A, and site photograph in Appendix B.

5.2.1 Remedial Action Area B

Remedial Action Area B is the site of a former settling pond that is now capped with clean fill material. RISG performed the annual monitoring event on June 24, 2014. The soil cap was inspected for displacement of cap material. The soil cap was in great condition with no signs of settling, holes, animal intrusions, or ponding. The vegetation on the soil cap was inspected for signs of dead spots and stress. Vegetation appeared to be in good shape with one slight exception during the annual monitoring event. There are signs of animal (deer) activity that has created a pathway across the top of this area. Based on the inspection, the soil cap did not require any maintenance or contingency measures at this time.

5.2.2 Remedial Action Areas A2-1 and A2-3

Remedial Action Area A2-1 is a sloped access way that contains drainage berms and trenches to mitigate surface runoff. Drainage berms direct runoff into bio filter bags to the west and towards an existing area of vegetation to the east. This area is covered with crushed stone to reduce surface runoff. Remedial Action Area A2-3 is a gravel covered sloped roadway that includes a runoff trench and a drainage area to detain soil entrained surface runoff. Erosion control methods for A2-3 are shown on Figure 15.

The annual monitoring event for Remedial Action Area Sub-Area A2-1 was conducted by RISG on June 24, 2014. The monitoring included field observation for evidence of rills, ruts, sediment accumulation, sloughing, or damage to improved areas, as well as the condition of bio filter bags, vegetation, and ecology blocks. The monitoring event indicated that the observed BMPs and improved areas were in very good condition and therefore no maintenance or contingency measures were deemed necessary at this time.

On June 24, 2014, RISG conducted the annual monitoring of Remedial Action Area A2-3. Inspection of the gravel roadway and filter trench indicated the BMP's were helping to reduce and/or prevent erosion. A berm runs along the lagoon side of the road, ensuring that rain runoff is directed to the opposite side of the road, towards a drainage ditch that is inundated with plant growth.

Response to review comment number 1 from DEQ letter dated November 13, 2014.

On November 21, 2014, supplementary maintenance was performed in Area A2-3. The berm along the lagoon side of the road was improved and vegetation in the drainage ditch was removed. To ensure that stormwater runoff is directed to the drainage ditch side of the road (away from the lagoon), the concrete blocks were removed and a continuous 3-foot high sand berm was constructed in place of the blocks. Additionally, the vegetation was removed from the drainage ditch. to exposed the ditch along the north side of the gravel covered sloped roadway. The drainage ditch ends at a horizontal containment area that detains surface runoff from the sloped roadway. Photos of Remedial Action Area A2-3 during a rain event demonstrating the effectiveness of runoff controls are in Appendix B.

Additional action is not required based on these visual observation.

The LTMMCP requires monitoring of these areas following a rain event of 0.5 inches or greater within a 24 hour period. RISG utilizes the rain gauge at the Multnomah County Building at 501 SE Hawthorne Blvd. Portland, Oregon, located 1.8 miles north of Ross Island (<http://or.water.usgs.gov/non-usgs/bes>). During the period July 1, 2013 to June 30, 2014, rainfall exceeded 0.5 inches 18 times. Rain gauge monitoring data is included in Appendix A, and photographs are in Appendix B. RISG performed the required monitoring and the documentation shows the BMPs have been achieving their primary objectives with the listed exceptions.

On September 5, 2013, a rain event occurred with 0.51 inch of precipitation in 24 hours. Although there was no monitoring for this date, the next day a rain event occurred with 0.75 inch of rain in 24 hours. RISG completed monitoring for the September 6, 2013 rain event and did not observe sediment runoff during this inspection. Based on the September 6, 2013 data, the two consecutive rain events have been adequately documented and the BMPs performed as designed.

A rain event occurred on September 28, 2013 and September 29, 2013. Precipitation totals for each day were 1.61 inches, and 1.10 inches, respectively. These two events occurred on Saturday and Sunday. Therefore, RISG did not have staff on site to complete the monitoring. On Monday, September 30, 2013, monitoring was conducted and there was no evidence of sediment runoff from the prior rain events.

On January 11, 2014, a rainfall event of 0.95 inch was recorded. On February 15, 2014, an event of 0.86 inch was recorded. March 8, 2014 had an event of 0.5 inch. Since each of these events happened on a Saturday, there was no staff at the facility to complete the monitoring the following day. Monitoring was performed on the following Mondays, January 13, February 17, and March 10 respectively. No signs of erosion were observed for any of these monitoring events.

On March 28, 2014, a rainfall event of 1.79 inches occurred. Because the end of this event occurred late Friday, RISG staff was not present to complete monitoring over the weekend. Monitoring was conducted on Monday, March 31, and no signs of erosion or sediment runoff were observed.

Maintenance of Remedial Action Area Sub-Area A2-1 incorporated intermittent contouring of the existing crushed stone surface. Routine Maintenance of Remedial Action Area Sub-Area A2-3 included placement of additional gravel on the roadway to prevent rutting and periodic reshaping of the roadway after activities in this area.

5.2.3 Remedial Action Area A2-2

Monitoring of Remedial Action Area A2-2 occurred annually and following a rain event of 0.5 inch or greater in a 24 hour period. Examinations are made for signs of erosion such as sloughing and minor rills. On October 1, 2013, river levels were low enough to see any exposed ecology blocks that are used to stabilize the slope (see photographs in Appendix B). Additional photos of Area A2-2 were taken from a boat at low river levels on August 11, 2014. Photographs from this location have been included in previous reports and were not taken during the October low water event. These low water photographs show that the blocks are not visible and remain buried at the toe of slope. Monitoring documents show the blocks are submerged most of the year, thus making it impossible to observe the blocks after rain events. Site observations indicate that the slope remains stable with no obvious signs of erosion or instability.

Based on the visual observation, no routine maintenance was necessary during this period.

5.3 Lagoon

The success of the lagoon remedial action elements depends on the limitation and prevention of aquatic receptor contact with contaminated sediments. This has been achieved with the construction of a 3-foot-thick sediment cap and stabilization of the slopes adjacent to the CAD cells.

Annual monitoring for Remedial Action Areas D, E, and F are below.

5.3.1 Sediment Cap Thickness

According to the LTMMCP, annual monitoring will utilize bathymetric surveys to evaluate the sediment cap thickness. The annual survey data will be compared to the 2001 bathymetric survey and the 2013 survey data.

On July 12, 2014, Northwest Hydro Inc., completed the annual bathymetric survey. A comparison in elevation changes between 2001 and 2014 was conducted (see Figure 3). The analysis indicates a gain in elevation within the remedial action area of greater than 3 feet, with one minor exception. Figure 3 shows an area southwest of Remedial Action Area Sub-Area A2-2 that indicates less than 3 feet of fill. The elevation in this area is likely inaccurate due to vessels anchored in that local area that interfered with the collection of survey data along the perimeter of the survey area.

Figure 4 presents the bathymetric comparisons between the 2014 and 2013 surveys. A gain of 0 to 2 feet across the majority of the remedial action area is shown. An Elevation gain of greater than 2 feet is illustrated southwest of Remedial Action Area Sub-Area A2-2, along the northern boundary of the remedial action area, and the eastern toe of the buttressing slope for CAD Cell #5. Approximately 15,000 cubic yards of material was placed at the eastern toe of the buttressing slope for CAD Cell #5 (see Cross Section E-E'). This accounted for the largest elevation gains within the remedial action area.

Response to review comment number 2 from DEQ letter dated November 13, 2014.

Scattered spots of loss of 0.5 feet or less and less frequent areas of loss of 0.5 or greater are the result of settlement due to the ebb and flow of the tides in the lagoon, thus changing the underwater landscape. Figure 16 presents areas of loss greater than 2 feet between the 2013 and 2014 surveys. The maximum area (1,825 sq. ft.) and loss in elevation (8.8 feet) occurs near the northern boundary of the remedial action area. However, at this location, the thickness of the sediment cap is 34 feet and this area is located approximately 300 feet north from the nearest CAD Cell (see Cross Section B-B'). Additional fill was placed in this location on November 21, 2014.

Upon closer inspection of the data, it appears this elevation loss may be attributed to how modeling software interprets and compares the historical and current bathymetric data. Additionally, fill placement activities in this area may have caused surficial sloughing.

Figure 3 presents a surface comparison of the 2014 survey to the 2001 pre-remedial action survey. Figure 3 indicates that the 3 foot thick sediment cap is intact at the locations in question and does not require maintenance at this time. The sediment cap continues to meet the remedial action objectives, therefore maintenance or contingency measures are not warranted at this time

5.3.2 Slope Stability

Topographic cross-sections created from the 2014 bathymetric survey are shown in Figure 6 through 10. Figure 10 illustrates an increase in elevation at the toe of the buttressing slope adjacent to CAD cell 5. This increase in elevation further stabilizes the slope and reduces the possibility of erosion and the risk of slope failure. Slopes in the vicinity of CAD cells vary from 2H:1V to Zero Slope.

Response to review comment number 3 from DEQ letter dated November 13, 2014.

Figure 14 illustrates slopes greater than 3H:1V. Table 4 is an evaluation of changes in slopes greater than 3H:1V over the past three years. The 2014 bathymetric survey indicates that there is approximately 63,700 square feet of slope greater than 2H:1V, and 132,600 square feet of slope less than 2H:1V but greater than 3H:1V. Approximately 15,000 cubic yards of material was placed at the eastern toe of the buttressing slope for CAD Cell #5 (see Cross Section E-E' and Figure 4). This ongoing (active) fill area accounts for the largest elevation gains within the remedial action area and an increase in slopes greater than 3H:1V as compared to the 2013 slope analysis. RISG request that this temporary increase in steep slopes be permitted to accomplish the goals and objective of the 2002 Reclamation Plan.

The remedial action areas and reclamation areas overlap over a wide area in the southern portion of the lagoon. Additional fill is required to satisfy the objectives for both projects. Current fill activities have temporarily increased the areas of slopes steeper than 3H:1V. However, continued placement of clean fill at this location will provide base filling and buttressing to ensure slope

stability and to further base elevations for the ultimate creation of shallow water habitat, riparian and emergent wetlands that are required under the 2002 Reclamation Plan

The fill material (concrete rubble) was placed in this location. Due to the nature of this material, concrete rubble is better suited to provide a stable toe or buttress that will hold unconsolidated fill material. When unconsolidated fill material is available, it will be placed upslope of the concrete rubble toe, thus reducing the overall gradient of the slopes west of this buttress that are greater than 3H:1V. Other areas within the remedial action area with steep gradients have successfully utilized similar practices with concrete rubble and unconsolidated fill material to reduce steep slopes.

When removing the 2014 active fill area from the 2014 analysis there is a slight decrease in the total area of steep slopes as compared to the 2013 analysis. It is acknowledged that final slopes will be no steeper than 3H:1V and will be achieved along with ongoing reclamation activities. Additional monitoring is not needed at this time, and annual slope monitoring will continue per the LTMMCP. Events that would have required additional monitoring, such as a 6.0 earthquake or 24.0 feet datum flood, did not occur during the reporting period.

5.3.3 Area E – pH monitoring

Ross Island Sand & Gravel, in cooperation with Paul Garvin of Farallon Consulting, completed the third annual monitoring in the designated areas with historically elevated pH. Monitoring occurred on April 23, 2014 in Zones 1 through 4 as required in the LTMMCP. The pH monitoring locations relative to the project site are shown in Figures 11 through 13 and summarized as follows.

In Zone 1, seven sediment samples were collected, five using a Ponar grab sampler, and two using sample pits. The sample pits were established due to rocks and cobbles underneath the surface preventing the Henry Probe from getting below the water line. The sample pits were dug to depths of 8" and 12" below the surface, which allowed the water to pool so that pH could be measured. The sample pits resulted in pH readings of 6.93 and 7.39. The Ponar grab sampler had pH readings ranging from 6.76 to 7.69. Several pH readings just below the water surface above the Ponar sampling site had pH readings from 6.89 to 7.61.

In Zone 2, two sediment samples were collected using a Ponar grab sampler, and three sample pits were excavated upland in Zone 2 due to the rocky nature beneath the surface making it impossible to use the Henry probe. The sample pits resulted in pH readings ranging from 7.39 to 7.50. The sample pits were dug to depths of 6" below the surface. The Ponar samples resulted in pH readings ranging from 7.10 to 7.24. The pH of the water surface above the Ponar sample locations were 7.25 and 7.18 respectively.

All of Zone 3 is upland and above the water line, therefore no pH data was collected.

In Zone 4, five sediment samples were collected using a Ponar grab sampler, resulting in pH readings ranging from 6.93 to 7.22. Water surface pH above the sample locations ranged from 7.14 to 7.44.

During the monitoring event, surface water pH measurements were obtained from the northern lagoon area and lagoon entrance, with pH readings ranging from 7.60 to 7.70. Additional surface water pH testing for background conditions outside the lagoon area were also conducted. The pH measurements in Holgate Slough and the main Willamette River channel varied from 7.46 to 7.55.

Response to review comment number 4 from DEQ letter dated November 13, 2014.

In 2013, Zone 1 was the only area with elevated pH readings above the 8.5 threshold. The slightly elevated readings were along the western edge of Zone 1 with a high reading of 8.67. This year's monitoring along the western edge of Zone 1 resulted in pH readings ranging from 6.76 to 7.25. The 2014 annual monitoring indicates that no pH readings were above the 8.5 threshold limit. As indicated in the DEQ letter dated September 26, 2014 pH monitoring need not occur next year, but will be conducted in 2019 to confirm that the sediment cap is adequately mitigating pH.

The results of the pH monitoring event are summarized in Tables 1 and 2. Table 3 is a historic pH comparison chart that summarizes the highest and lowest pH readings for that year compared to the 8.5 threshold limit. Sample locations relative to the project site are illustrated in Figures 11, 12, and 13.

No additional fill was placed in any of the four historically elevated pH zones. However, scattered changes in elevation within these areas are the result of settlement (loss) and natural sedimentation occurring in the lagoon, consisting primarily of silts and clays (gain) thus making minor changes to the topography.

6.0 Decommissioning of Monitoring Well

Response to review comment number 5 from DEQ letter dated November 13, 2014.

Ross Island Sand & Gravel Co., in cooperation with Cascade Drilling L.P., will remove all of the groundwater monitoring wells on Ross and Hardtack Islands. The decommissioning of the wells will begin in mid-December 2014. This project will be complete before the end of January 2015.

Craig Ware, Principal Hydrogeologist for Farallon Consulting LLC has agreed to provide technical consulting for this well decommissioning project as needed.

The Oregon Water Resources Department (ORWD) Special Standards approval letter is in Appendix C.

7.0 Summary

Ross Island Sand & Gravel has completed its annual monitoring and maintenance report as required by DEQ Consent Order No. LQVC-NWR-11-01. Monitoring for this third reporting year has shown remedial action areas meeting their goals and corrected previous concerns that had arisen from prior reports.

This year's annual monitoring indicates that no pH readings were above the 8.5 threshold limit. Monitoring in Zone 1 through Zone 4 indicates that pH levels have decreased from last year's Ponar sample results. Overall pH monitoring results indicate that RISG is successfully continuing work to achieve the goal of reducing pH in designated areas with historically elevated pH levels. Buttressing slopes within the remedial action areas are stable and the 3-foot sediment cap is being maintained.

RISG will continue to monitor and provide maintenance in accordance with the LTMMCP. The next annual report will be submitted in August 2015. If significant events trigger maintenance requirements for additional actions in the coming year, or if problems are encountered, RISG will notify DEQ to coordinate response. RISG will notify DEQ a minimum of two weeks prior to next year's annual monitoring event so that they can provide oversight as feasible.

We appreciate your continued support on this project. Please call if you have questions concerning this plan.

Respectfully,

Ross Island Sand & Gravel Co.



Gregory M. Murphy, P.E.
Principal Engineer



Craig D. Jacobs
Operations Manager

References

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Ross Island, 2013. *2013 Annual Monitoring Report; Ross Island Sand & Gravel; Portland, OR, Feb. 14, 2014.*

USGS, <http://or.water.usgs.gov>, *City of Portland HYDRA Rainfall Network, Multnomah Rain Gage, 501 SE. Hawthorne Blvd.*

USGS, <http://nwis.waterdata.usgs.gov>, *14211720 Willamette River at Portland, OR, Morrison Bridge Gauge.*

Tables

Table 1
Ross Island Sand and Gravel Co.
pH Summary Table
April 2014

Zone	Sample Identification	Date	Time	Sampling Method	Location		Sample Depth (feet)	Stage Feet (USGS)	Depth Below Surface (feet)	Sample Gauge Elevation (feet)	pH	Water Surface Above Sample Spot pH
					State Plane							
					Northing	Easting						
1	101	23-Apr	0900	Ponar	669702	7648198	12.0	7.47	0-0.5	-4.53	7.25	7.24
1	102	23-Apr	0911	Ponar	669715	7648231	10.2	7.46	0-0.5	-2.74	6.76	6.94
1	103	23-Apr	0917	Ponar	669677	7648215	8.9	7.45	0-0.5	-1.45	7.05	6.91
1	104	23-Apr	0926	Ponar	669633	7648296	12.2	7.44	0-0.5	-4.76	7.69	7.61
1	105	23-Apr	0939	Ponar	669595	7648209	15.7	7.42	0-0.5	-8.28	7.20	6.89
1	106	23-Apr	1010	Test Pit	669586	7648314	-	7.4	0.7	6.70	7.39	-
1	107	23-Apr	1013	Test Pit	669610	7648336	-	7.37	1	6.37	6.93	-
2	201	23-Apr	1029	Ponar	669180	7647800	9.7	7.34	0-0.5	-2.36	7.10	7.18
2	202	23-Apr	1035	Ponar	669170	7647659	5.5	7.32	0-0.5	1.82	7.24	7.25
2	203	23-Apr	1049	Test Pit	669124	7647648	-	7.3	0.5	6.80	7.50	-
2	204	23-Apr	1054	Test Pit	669116	7647743	-	7.29	0.5	6.79	7.49	-
2	205	23-Apr	1058	Test Pit	669118	7647696	-	7.29	0.5	6.79	7.39	-
4	401	23-Apr	1112	Ponar	670772	7646705	29.9	7.25	0-0.5	-22.65	7.22	7.44
4	402	23-Apr	1122	Ponar	670783	7646554	28.8	7.23	0-0.5	-21.57	7.16	7.24
4	403	23-Apr	1128	Ponar	670576	7646503	15.2	7.22	0-0.5	-7.98	6.93	7.14
4	404	23-Apr	1137	Ponar	670621	7646893	21.0	7.21	0-0.5	-13.79	7.11	7.22
4	405	23-Apr	1142	Ponar	670711	7646634	27.0	7.21	0-0.5	-19.79	7.18	7.19

Table 2
Ross Island Sand and Gravel Co.
 pH Background
 April 2014

Location	Sample Identification	Date	Time	Location		Depth Below Surface (ft.)	pH Water Surface	pH 8' Below Water Surface
				State Plane				
				Northing	Easting			
N. Lagoon	A-1	23-Apr	1150	671949	7647258	107	7.60	7.66
Lagoon Entrance	A-2	23-Apr	1154	672278	7648627	37	7.70	7.66
S. Holgate Slough	A-3	23-Apr	1202	668810	7649132	17	7.53	7.54
S. of Island	A-4	23-Apr	1213	666315	7646577	19	7.46	7.49
Willamette Channel	A-5	23-Apr	1219	669533	7645857	46	7.44	7.29
Willamette Channel	A-6	23-Apr	1226	673404	7646370	62	7.55	7.50
N. Holgate Slough	A-7	23-Apr	1236	673613	7647950	28	7.52	7.51

Table 3
Ross Island Sand and Gravel Co.
 pH comparison Chart

Historic pH Range

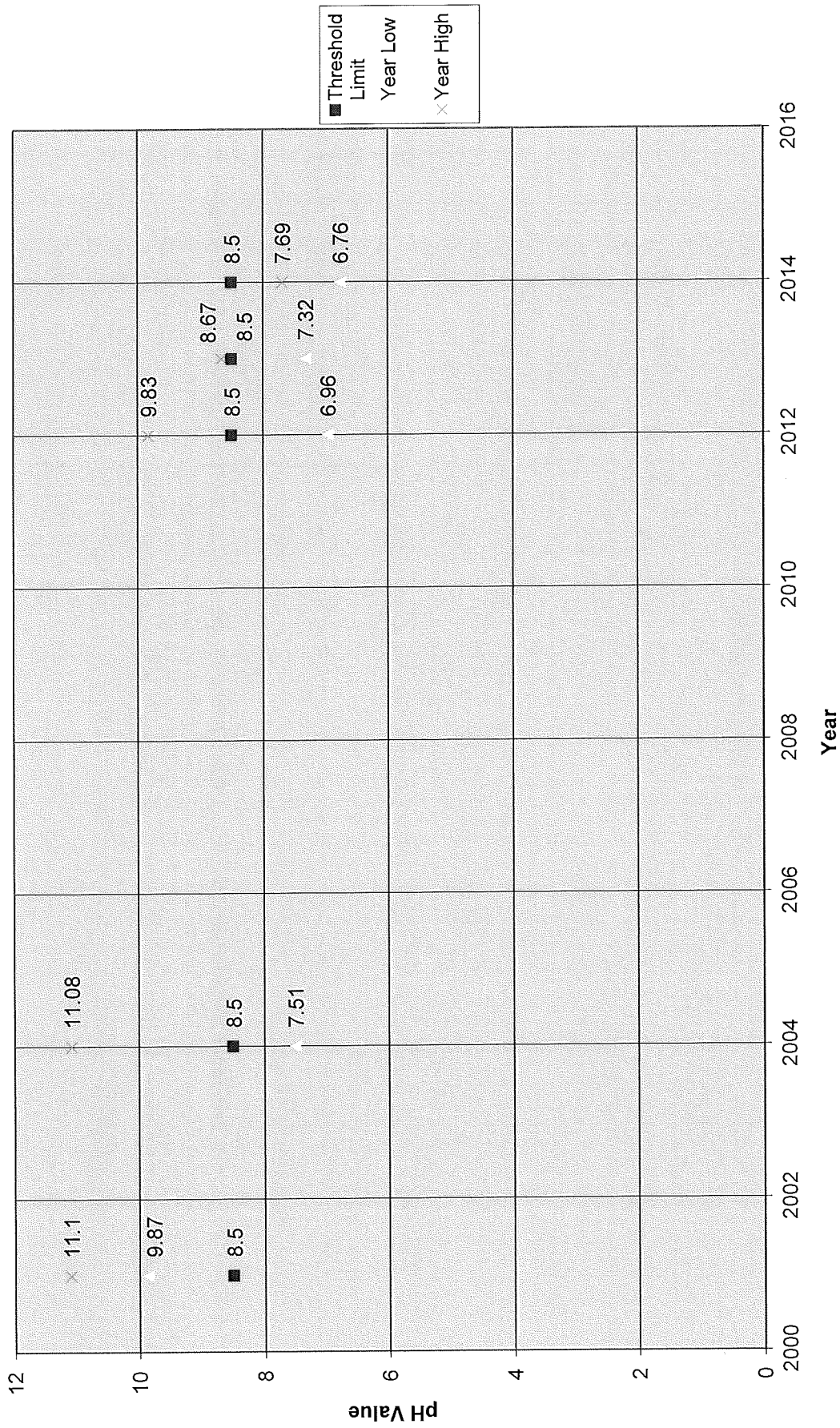


Table 4
Ross Island Sand and Gravel Co.
Slope Summary Table
 Slopes steeper than 3H:1V

Year	Steeper than 2H:1V (sq. ft)	Between 2H:1V and 3H:1V (sq. ft)	Total area exceeding slope goal (sq. ft)
2012	20,000	150,000	170,000
2013	47,520	181,074	228,594
2014	63,700	132,600	196,300
Less Active Fill Area	-17,000	-6,500	-23,500
2014 Adjusted	46,700	126,100	172,800

Figures

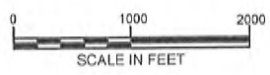


Imagery Date: 8/15/2012
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 Ross Island Sand & Gravel Co.

FIGURE 1
 Ross Island Location

Prepared by Ross Island Sand & Gravel Co.
 Portland, Oregon
 Date: August 2014








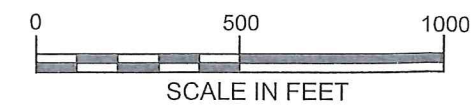


Imagery Date: 8/15/2012
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LEGEND

REMEDIAL ACTION AREAS

- | | | | |
|---|--------|---|-----------|
|  | AREA A |  | AREA D/E |
|  | AREA B |  | CAD CELLS |
|  | AREA C | | |



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Ross Island Sand & Gravel Co.

FIGURE 2
Ross Island Overview

Prepared by: Ross Island Sand & Gravel Co.
Portland, Oregon
Date: August 2014



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LEGEND:

- INDICATES GREATER THAN 3 FEET OF FILL PLACED BETWEEN 2001 AND 2014
- INDICATES BETWEEN 0 AND 3 FEET OF FILL PLACED BETWEEN 2001 AND 2014
- INDICATES BETWEEN 0 AND 0.5 FEET OF MATERIAL LOSS BETWEEN 2001 AND 2014
- INDICATES GREATER THAN 0.5 FEET OF MATERIAL LOSS BETWEEN 2001 AND 2014

NOTES:

1. THIS SUBSURFACE PROFILE IS GENERALIZED FROM DRAWINGS PROVIDED BY LANDAU ASSOCIATES, INC. AND GEODESOGN, INC.. SURVEY DATA FROM MINISTER-GLAESER SURVEYING, INC., (3D)I, LLC, AND NORTHWEST HYDRO, INC.
2. ELEVATIONS ARE IN ROSS ISLAND DATUM.

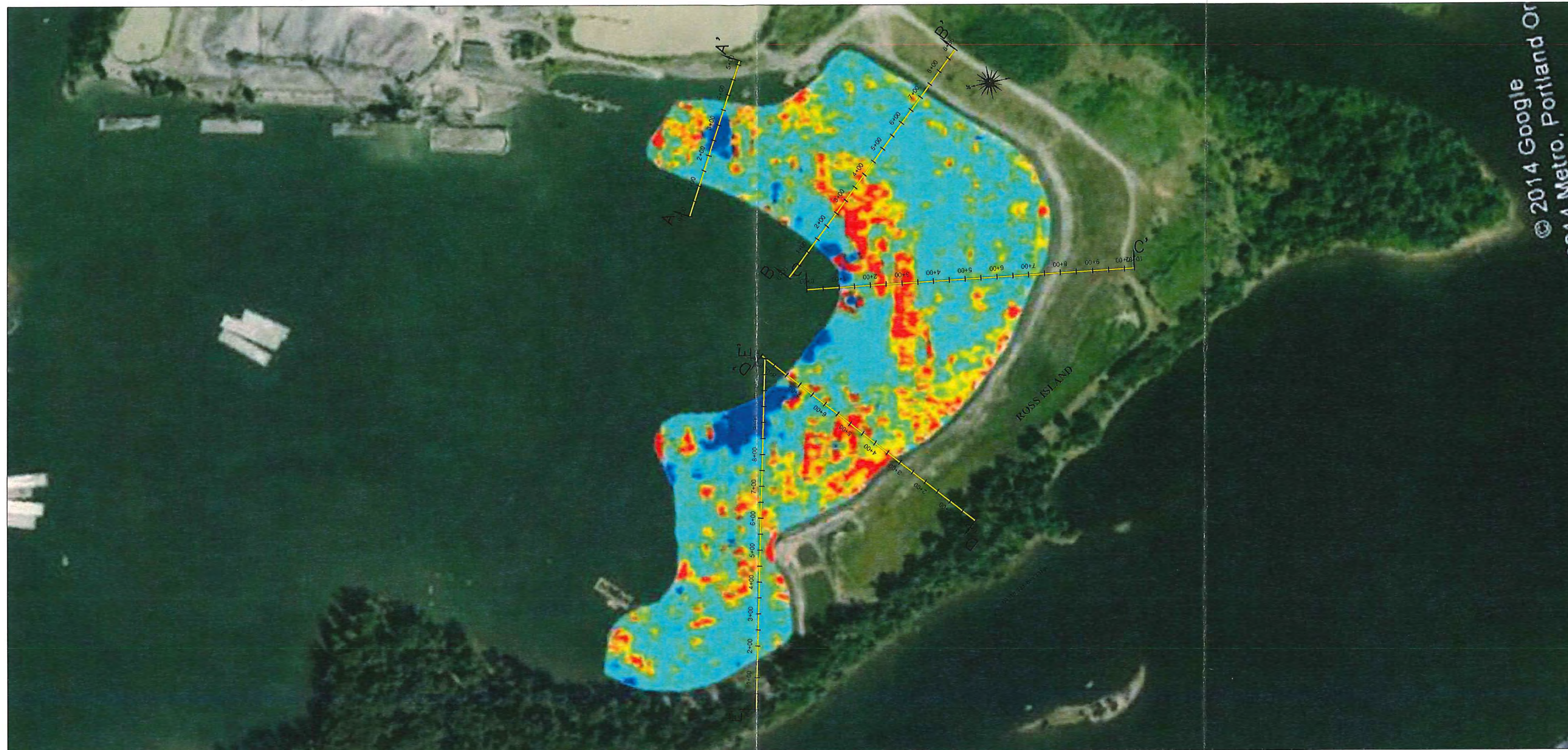
2014 Annual Monitoring and Maintenance Report

Ross Island Sand & Gravel Co.

FIGURE 3
2014 vs. 2001 Surface Comparison

Prepared By: Ross Island Sand & Gravel Co.
Portland, Oregon

Date: July 2014



LEGEND:

- INDICATES GREATER THAN 2 FEET OF FILL PLACED BETWEEN 2013 AND 2014
- INDICATES BETWEEN 0 AND 2 FEET OF FILL PLACED BETWEEN 2013 AND 2014
- INDICATES BETWEEN 0 AND 0.5 FEET OF MATERIAL LOSS BETWEEN 2013 AND 2014
- INDICATES GREATER THAN 0.5 FEET OF MATERIAL LOSS BETWEEN 2013 AND 2014

NOTES:

1. THIS SUBSURFACE PROFILE IS GENERALIZED FROM DRAWINGS PROVIDED BY LANDAU ASSOCIATES, INC. AND GEODESOGN, INC.. SURVEY DATA FROM MINISTER-GLAESER SURVEYING, INC., (3D)I, LLC, AND NORTHWEST HYDRO, INC.
2. ELEVATIONS ARE IN ROSS ISLAND DATUM.

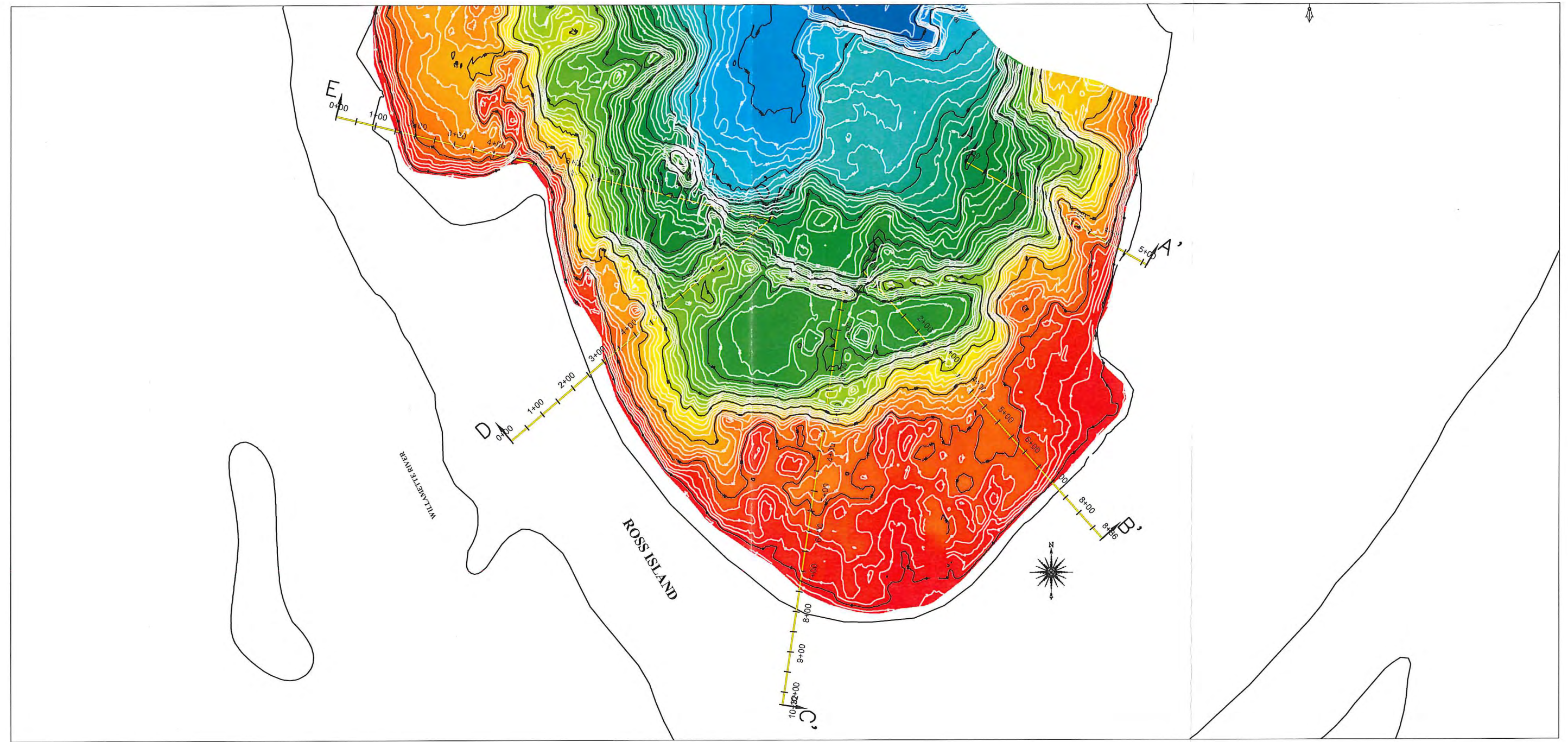
2014 Annual Monitoring and Maintenance Report

Ross Island Sand & Gravel Co.

FIGURE 4
2014 vs. 2013 Surface Comparison

Prepared By: Ross Island Sand & Gravel Co.
Portland, Oregon

Date: July 2014



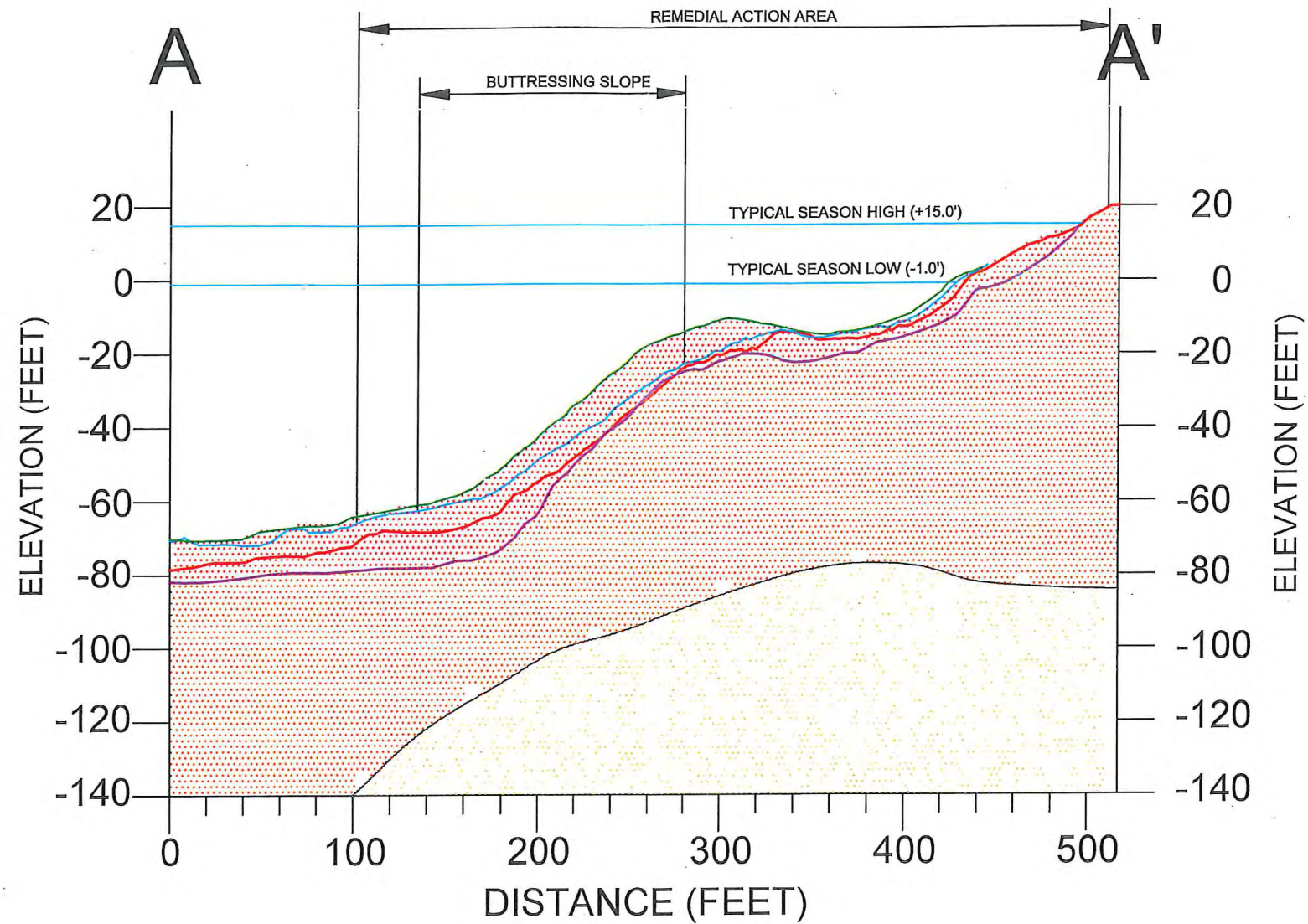
NOTES:

1. THIS SUBSURFACE PROFILE IS GENERALIZED FROM DRAWINGS PROVIDED BY LANDAU ASSOCIATES, INC. AND GEODESOGN, INC.. SURVEY DATA FROM MINISTER-GLAESER SURVEYING, INC., (3D)I, LLC, AND NORTHWEST HYDRO, INC.
2. ELEVATIONS ARE IN ROSS ISLAND DATUM.









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 Ross Island Sand & Gravel Co.

FIGURE 5
2014 Cross Section Locations

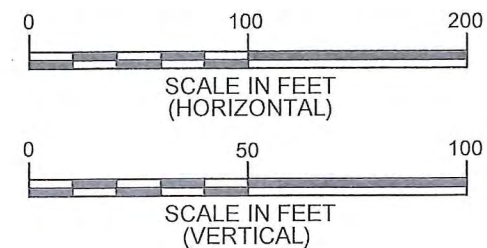
Prepared By: Ross Island Sand & Gravel Co.
 Portland, Oregon
 Date: July 2014



LEGEND

-  CONCEPTUAL RECLAMATION FILL
-  REMEDIAL / RECLAMATION FILL
-  FINE SAND WITH SILT (FILL)
-  ALLUVIUM
-  JUNE 2014 SURFACE
-  MAY 2013 SURFACE
-  DECEMBER 2009 SURFACE
-  NOVEMBER 2001 SURFACE

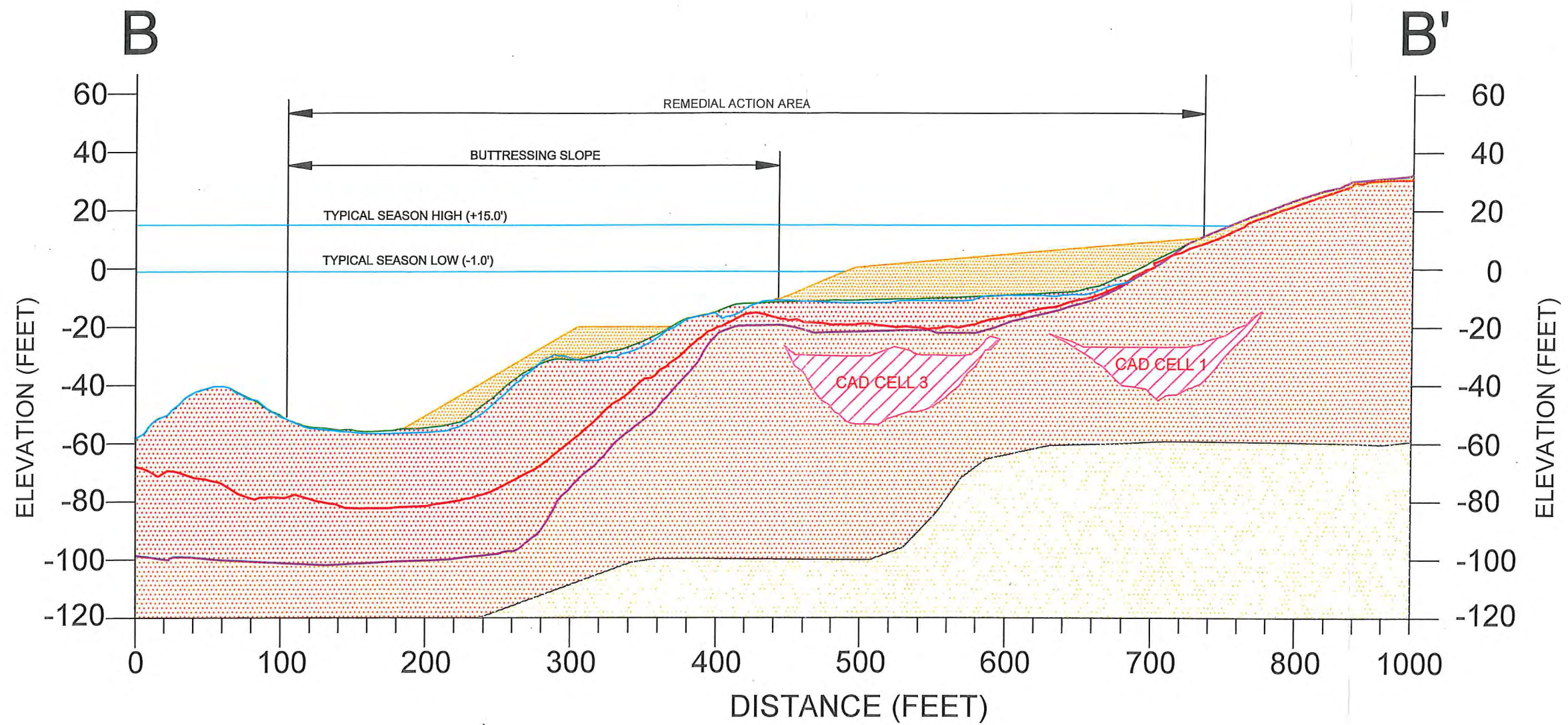
SUBSURFACE PROFILE DERIVED FROM DRAWINGS BY LANDAU ASSOCIATES, INC. AND GEODESIGN, INC. SURVEY DATA FROM MINISTER-GLAESER SURVEYING, INC., 3DI, LLC, AND NORTHWEST HYDRO, INC. ELEVATIONS ARE IN ROSS ISLAND DATUM.



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FIGURE 6
 Cross Section A - A'

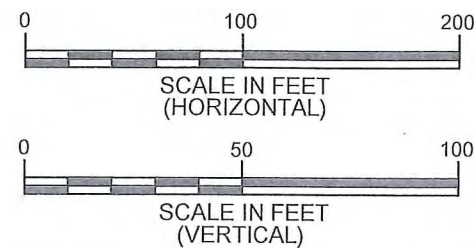
Prepared by: Ross Island Sand & Gravel Co.
 Portland, Oregon
 Date: August 2014



LEGEND

-  CONCEPTUAL RECLAMATION FILL
-  REMEDIAL / RECLAMATION FILL
-  FINE SAND WITH SILT (FILL)
-  ALLUVIUM
-  JUNE 2014 SURFACE
-  MAY 2013 SURFACE
-  DECEMBER 2009 SURFACE
-  NOVEMBER 2001 SURFACE

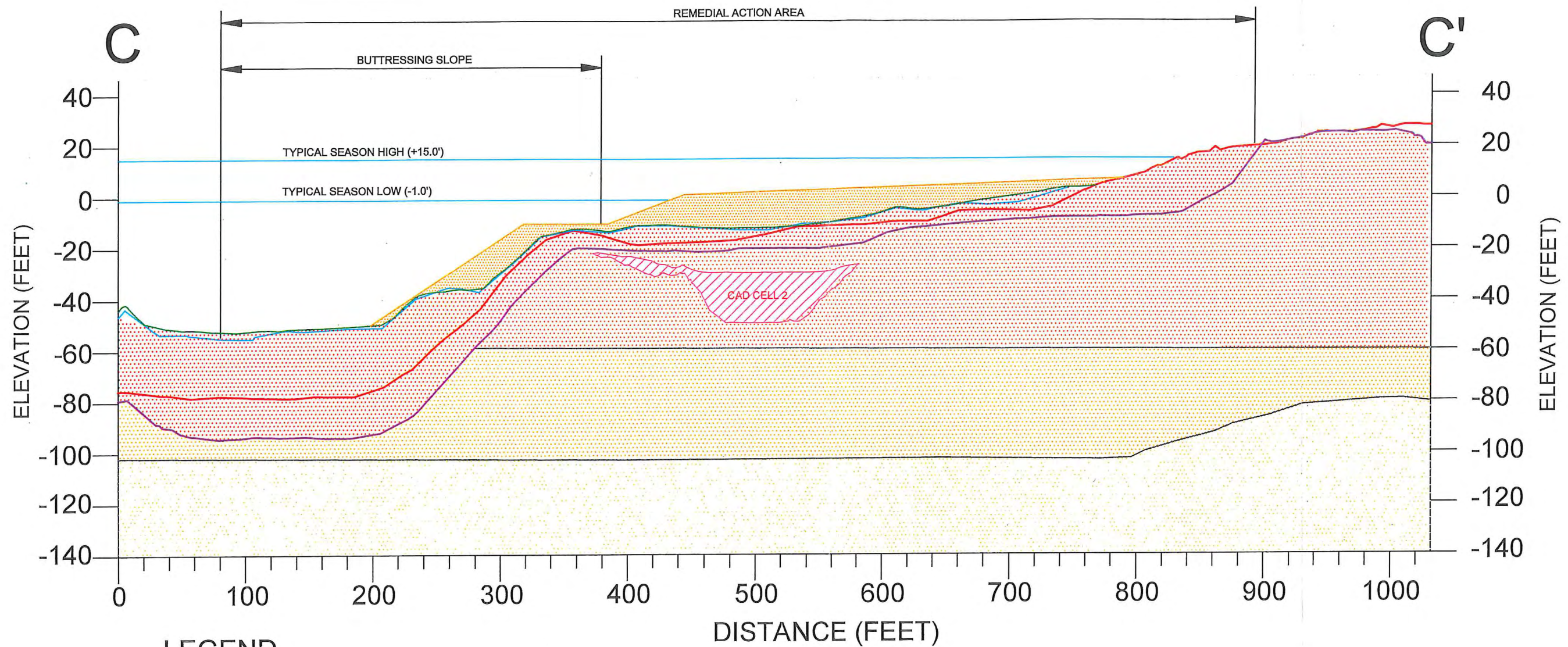
SUBSURFACE PROFILE DERIVED FROM DRAWINGS BY LANDAU ASSOCIATES, INC. AND GEODESIGN, INC. SURVEY DATA FROM MINISTER-GLAESER SURVEYING, INC., 3DI, LLC, AND NORTHWEST HYDRO, INC. ELEVATIONS ARE IN ROSS ISLAND DATUM.



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FIGURE 7
 Cross Section B - B'

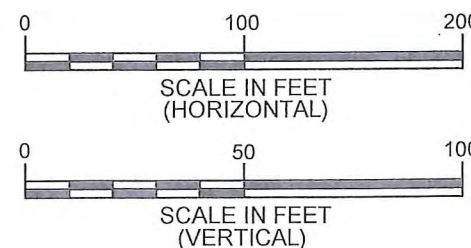
Prepared by: Ross Island Sand & Gravel Co.
 Portland, Oregon
 Date: August 2014



LEGEND

- CONCEPTUAL RECLAMATION FILL
- REMEDIAL / RECLAMATION FILL
- FINE SAND WITH SILT (FILL)
- SILT
- ALLUVIUM
- JUNE 2014 SURFACE
- MAY 2013 SURFACE
- DECEMBER 2009 SURFACE
- NOVEMBER 2001 SURFACE

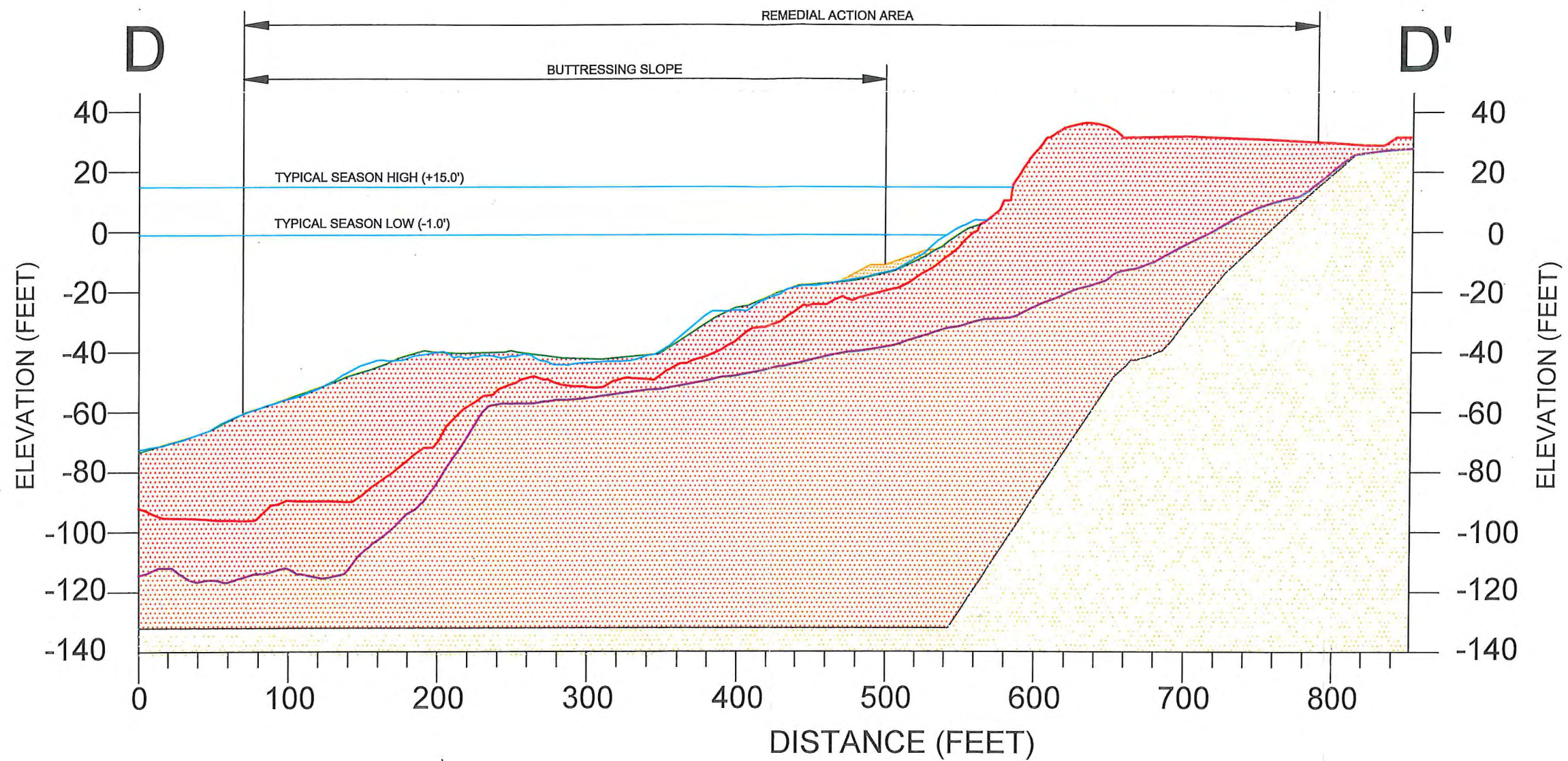
SUBSURFACE PROFILE DERIVED FROM DRAWINGS BY LANDAU ASSOCIATES, INC. AND GEODESIGN, INC. SURVEY DATA FROM MINISTER-GLAESER SURVEYING, INC., 3DI, LLC, AND NORTHWEST HYDRO, INC. ELEVATIONS ARE IN ROSS ISLAND DATUM.











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FIGURE 8
Cross Section C-C'

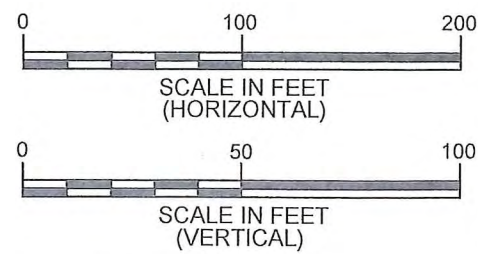
Prepared by: Ross Island Sand & Gravel Co.
Portland, Oregon
Date: August 2014



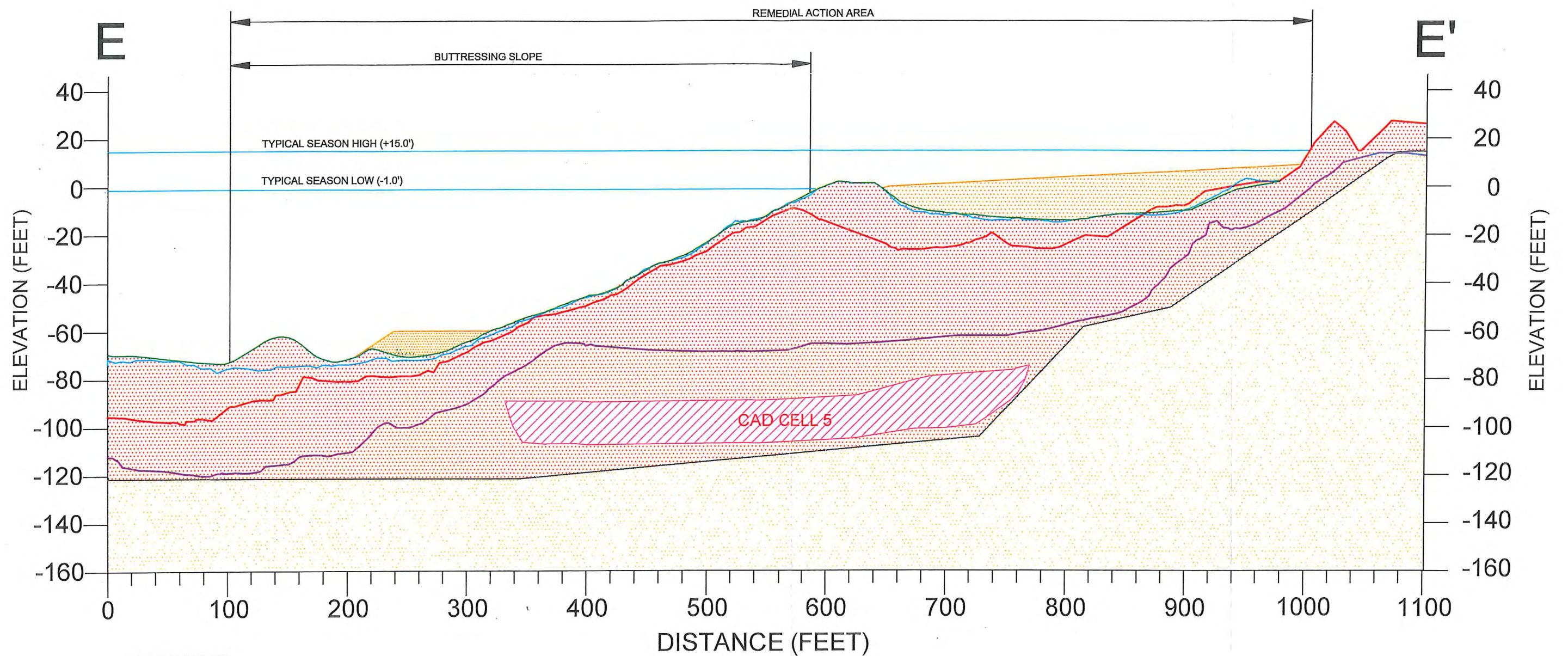
LEGEND

-  CONCEPTUAL RECLAMATION FILL
-  REMEDIAL / RECLAMATION FILL
-  FINE SAND WITH SILT (FILL)
-  ALLUVIUM
-  JUNE 2014 SURFACE
-  MAY 2013 SURFACE
-  DECEMBER 2009 SURFACE
-  NOVEMBER 2001 SURFACE

SUBSURFACE PROFILE DERIVED FROM DRAWINGS BY LANDAU ASSOCIATES, INC. AND GEODESIGN, INC. SURVEY DATA FROM MINISTER-GLAESER SURVEYING, INC., 3DI, LLC, AND NORTHWEST HYDRO, INC. ELEVATIONS ARE IN ROSS ISLAND DATUM.



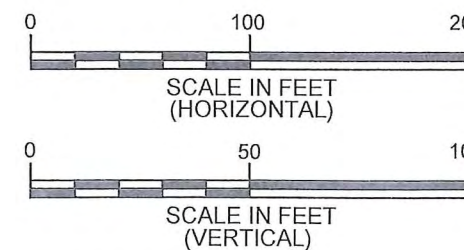
<p>2014 Annual Monitoring & Maintenance Report Ross Island Sand & Gravel Co.</p>	
<p>FIGURE 9 Cross Section D - D'</p>	
<p>Prepared by: Ross Island Sand & Gravel Co. Portland, Oregon</p>	<p>9 15</p>
<p>Date: August 2014</p>	



LEGEND

- CONCEPTUAL RECLAMATION FILL
- REMEDIAL / RECLAMATION FILL
- FINE SAND WITH SILT (FILL)
- ALLUVIUM
- JUNE 2014 SURFACE
- MAY 2013 SURFACE
- DECEMBER 2009 SURFACE
- NOVEMBER 2001 SURFACE

SUBSURFACE PROFILE DERIVED FROM DRAWINGS BY LANDAU ASSOCIATES, INC. AND GEODESIGN, INC. SURVEY DATA FROM MINISTER-GLAESER SURVEYING, INC., 3DI, LLC, AND NORTHWEST HYDRO, INC. ELEVATIONS ARE IN ROSS ISLAND DATUM.



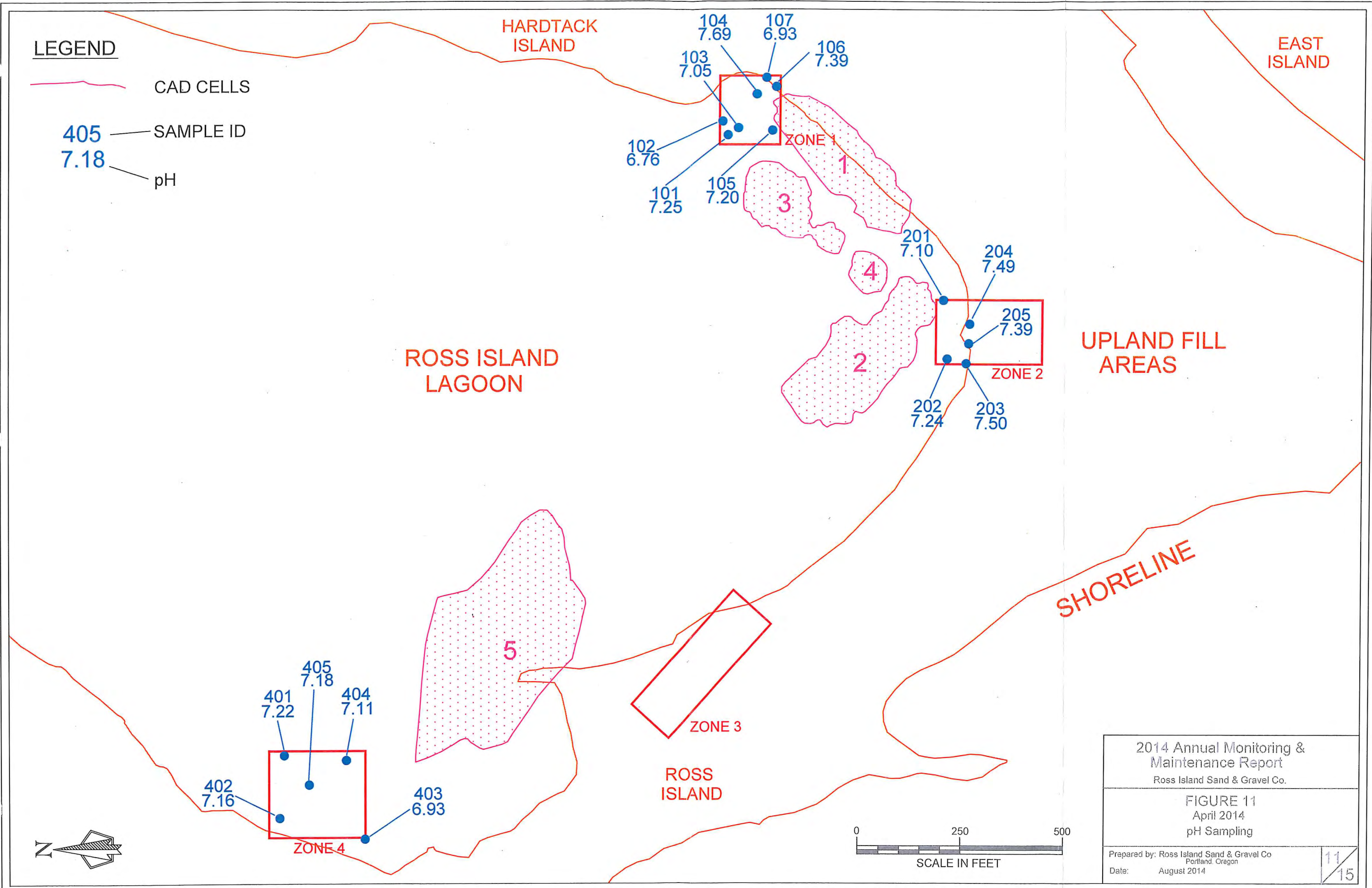
2014 Annual Monitoring & Maintenance Report
 Ross Island Sand & Gravel Co.

FIGURE 10
 Cross Section E - E'

Prepared by: Ross Island Sand & Gravel Co.
 Portland, Oregon
 Date: August 2014

LEGEND

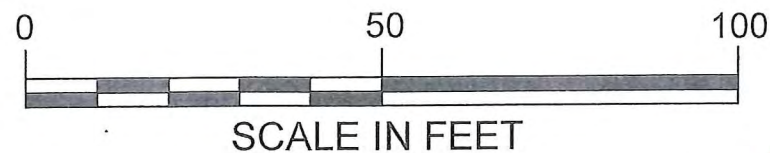
- CAD CELLS
- 405 — SAMPLE ID
- 7.18 — pH



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Ross Island Sand & Gravel Co.

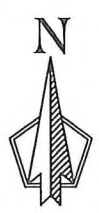
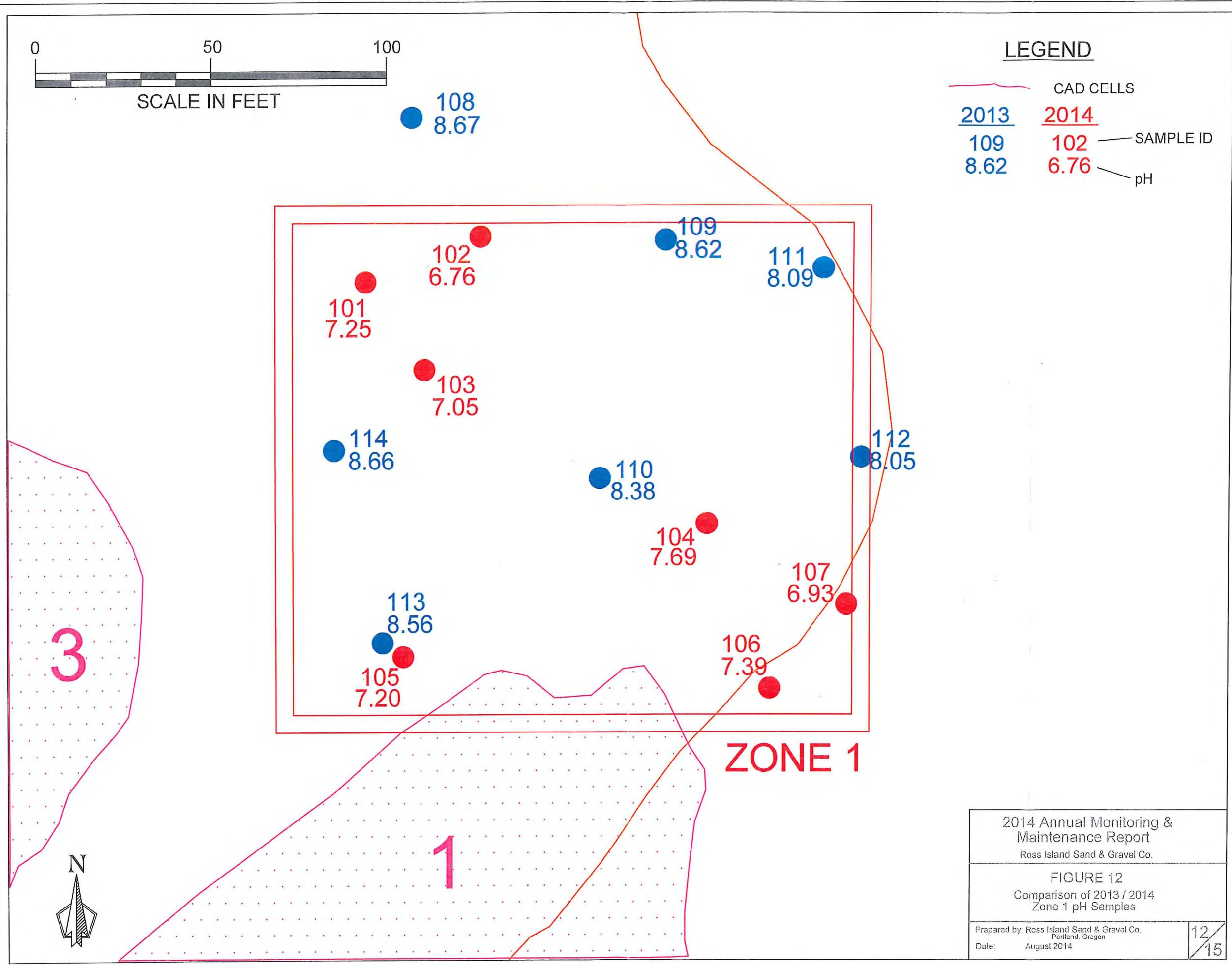
FIGURE 11
April 2014
pH Sampling

Prepared by: Ross Island Sand & Gravel Co
Portland, Oregon
Date: August 2014

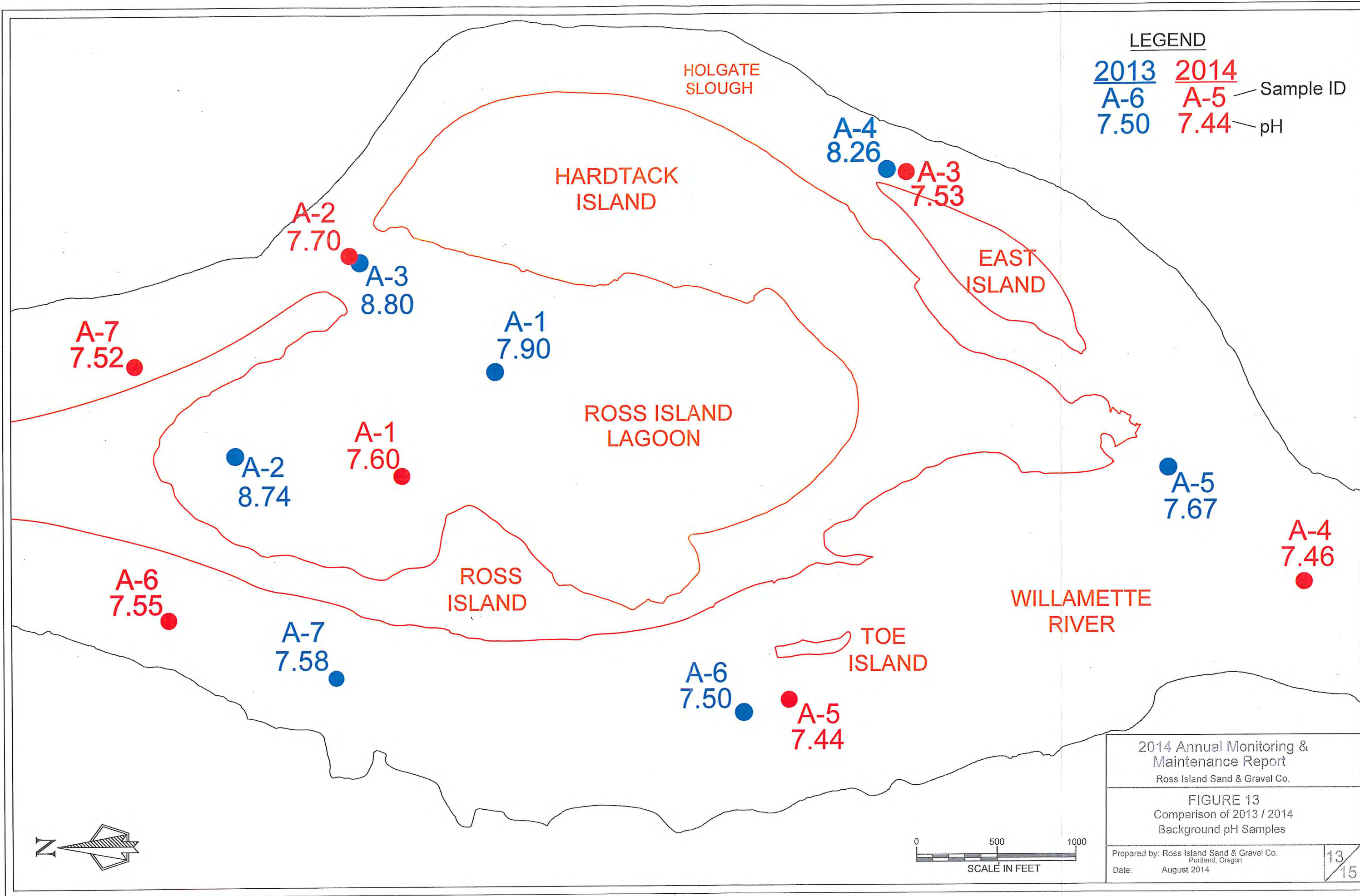


LEGEND

CAD CELLS		
<u>2013</u>	<u>2014</u>	
109	102	SAMPLE ID
8.62	6.76	pH



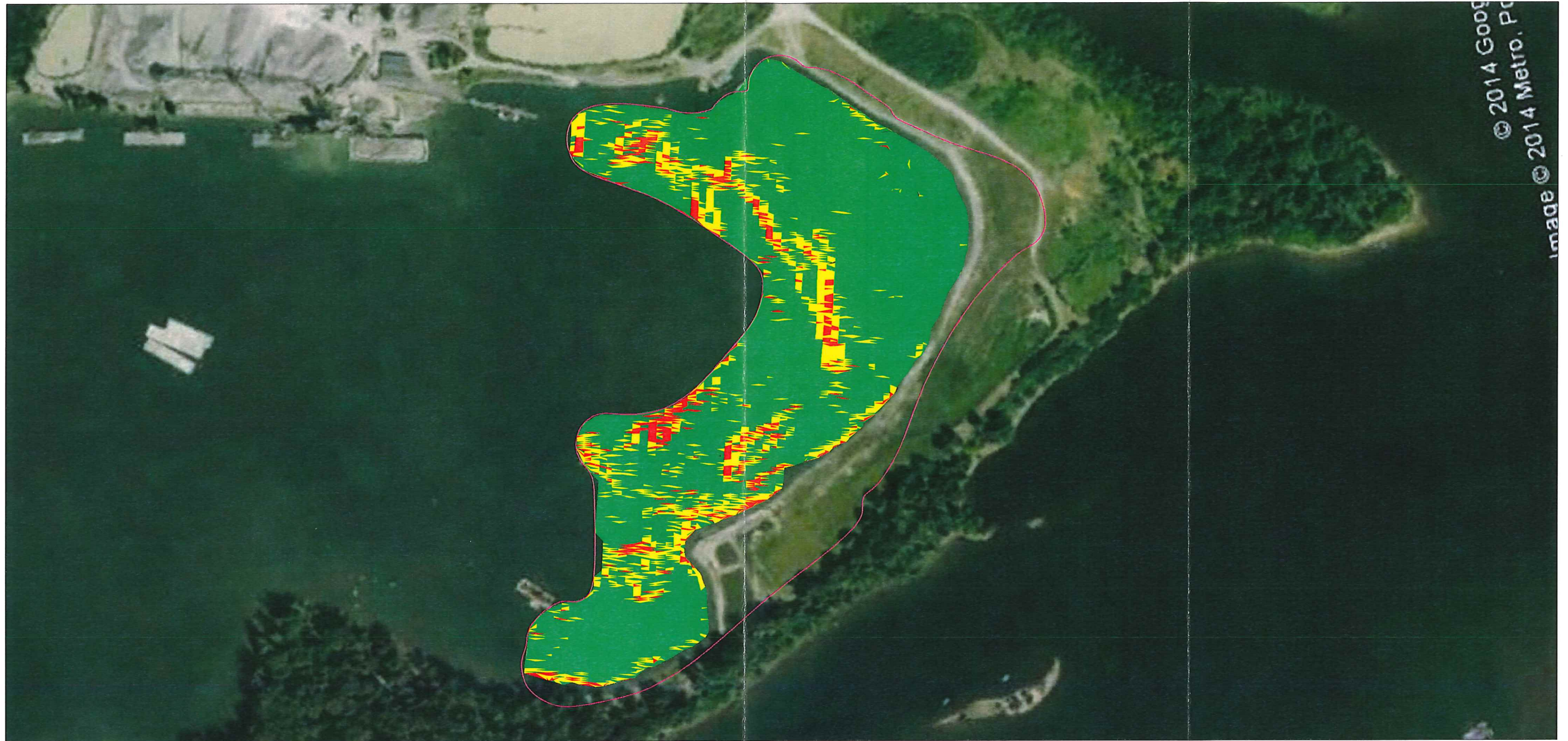
2014 Annual Monitoring & Maintenance Report Ross Island Sand & Gravel Co.	
FIGURE 12 Comparison of 2013 / 2014 Zone 1 pH Samples	
Prepared by: Ross Island Sand & Gravel Co. Portland, Oregon	12/15
Date: August 2014	



2014 Annual Monitoring & Maintenance Report
 Ross Island Sand & Gravel Co.

FIGURE 13
 Comparison of 2013 / 2014
 Background pH Samples

Prepared by: Ross Island Sand & Gravel Co.
 Portland, Oregon
 Date: August 2014



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LEGEND:

- INDICATES SLOPES FLATTER THAN 3H:1V
- INDICATES SLOPES BETWEEN 3H:1V TO 2H:1V
- INDICATES SLOPES STEEPER THAN 2H:1V
- INDICATES REMEDIATION AREA BOUNDARY

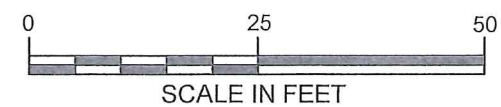
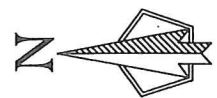
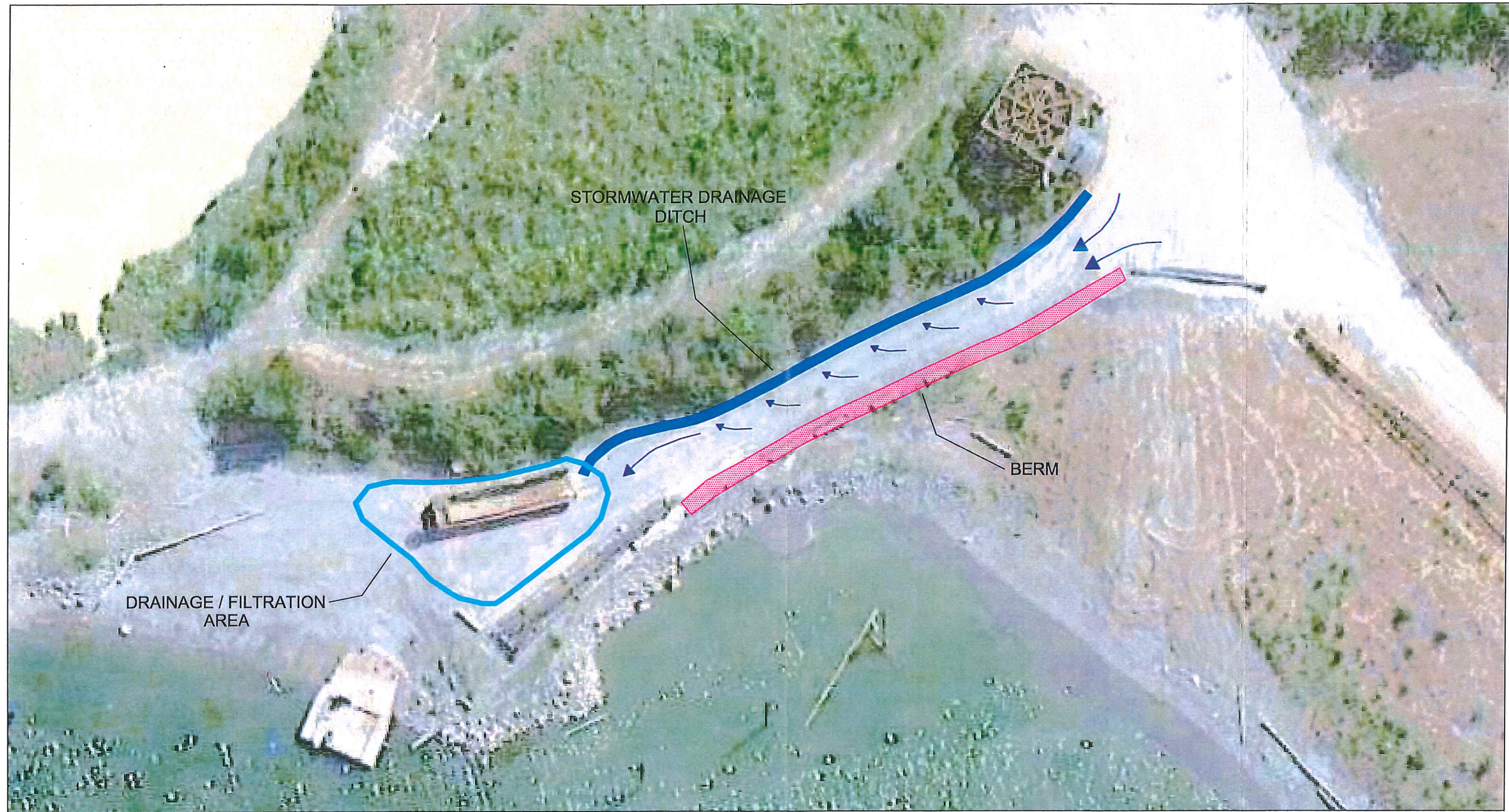
NOTES:

1. THIS SUBSURFACE PROFILE IS GENERALIZED FROM DRAWINGS PROVIDED BY LANDAU ASSOCIATES, INC. AND GEODESOGN, INC.. SURVEY DATA FROM MINISTER-GLAESER SURVEYING, INC., (3D)I, LLC, AND NORTHWEST HYDRO, INC.
2. ELEVATIONS ARE IN ROSS ISLAND DATUM.

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 Ross Island Sand & Gravel Co.

FIGURE 14
 2014 Slope Analysis

Prepared By: Ross Island Sand & Gravel Co.
 Portland, Oregon
 Date: July 2014



2014 Annual Monitoring &
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Ross Island Sand & Gravel Co.

FIGURE 15
Drainage Plan
Sub-Area A2-3

Prepared by: Ross Island Sand & Gravel Co.
Portland, Oregon
Date: August 2014



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LEGEND:

- INDICATES AREAS OF LOSS GREATER THAN 6 FEET BETWEEN 2013 AND 2014 BATHYMETRY
- INDICATES AREAS OF LOSS BETWEEN 4 FEET AND 6 FEET BETWEEN 2013 AND 2014 BATHYMETRY
- INDICATES AREAS OF LOSS BETWEEN 2 FEET AND 4 FEET BETWEEN 2013 AND 2014 BATHYMETRY
- INDICATES REMEDIATION AREA BOUNDARY

NOTES:

1. THIS SUBSURFACE PROFILE IS GENERALIZED FROM DRAWINGS PROVIDED BY LANDAU ASSOCIATES, INC. AND GEODESOGN, INC.. SURVEY DATA FROM MINISTER-GLAESER SURVEYING, INC., (3D)I, LLC, AND NORTHWEST HYDRO, INC.
2. ELEVATIONS ARE IN ROSS ISLAND DATUM.

2014 Annual Monitoring and Maintenance Report

Ross Island Sand & Gravel Co.

FIGURE 16
2014 vs. 2013 Loss Analysis

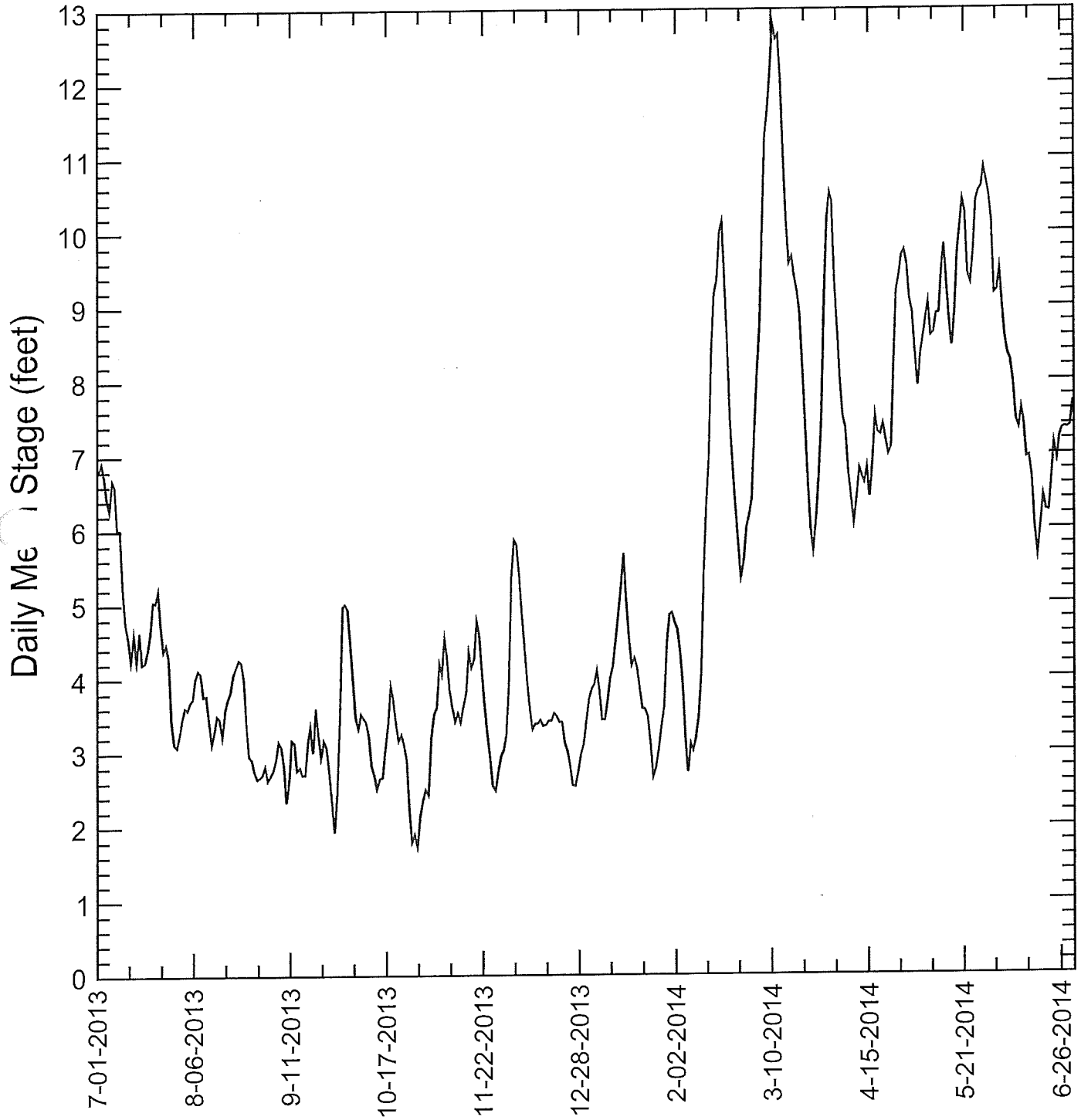
Prepared By: Ross Island Sand & Gravel Co.
Portland, Oregon

Date: July 2014

Appendix A

Willamette River at Portland, OR (14211720)

Data from U.S. Geological Survey



Multnomah Rain Gage - 501 SE. Hawthorne Blvd.

PROVISIONAL, UNCORRECTED RAW DATA FROM THE CITY OF PORTLAND HYDRA NETWORK.

Data are the number of tips of the rain gage bucket.

Each tip is 0.01 inches of rainfall.

[-, missing data]

Dates and times are PACIFIC STANDARD TIME.

Date	Daily Hourly data -->																								
	Total	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
30-JUN-2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29-JUN-2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28-JUN-2014	12	0	0	0	0	0	0	0	0	0	0	1	3	8	0	0	0	0	0	0	0	0	0	0	0
27-JUN-2014	34	9	3	3	3	0	1	0	0	0	13	2	0	0	0	0	0	0	0	0	0	0	0	0	0
26-JUN-2014	27	0	0	0	6	0	3	0	1	0	1	0	1	0	5	3	0	0	0	0	0	0	0	0	7
25-JUN-2014	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
24-JUN-2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23-JUN-2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22-JUN-2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21-JUN-2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20-JUN-2014	13	0	1	5	4	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19-JUN-2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18-JUN-2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17-JUN-2014	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16-JUN-2014	64	0	0	0	0	0	0	0	1	0	1	3	30	2	2	12	13	0	0	0	0	0	0	0	0
15-JUN-2014	27	0	0	0	0	0	0	0	0	0	0	3	0	0	16	1	7	0	0	0	0	0	0	0	0
14-JUN-2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13-JUN-2014	4	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-JUN-2014	4	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	1
11-JUN-2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-JUN-2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09-JUN-2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08-JUN-2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07-JUN-2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06-JUN-2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05-JUN-2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04-JUN-2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03-JUN-2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02-JUN-2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01-JUN-2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31-MAY-2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30-MAY-2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29-MAY-2014	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
28-MAY-2014	39	0	0	0	0	23	10	0	2	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	1

UPLAND MONITORING AND MAINTENANCE FORM
Remedial Action Sub-Areas A2-1, A2-2, and A2-3

Date and Time: June 17th, 2014 10:30 AM Weather: Cloudy, 1 sprinkles

Name: Tony W. Signature: _____

Other Parties Present During Monitoring Event: n/a

Date DEQ notified: n/a

Reason for Monitoring Event: Routine 0.5 inch of rain in 24 hours / Significant Event
 Describe significant event (e.g., 3.4 inches of rain in 24 hours, Flood stage of 1.8 feet RID, Flood stage of 24 feet, RID, Seismic event 6.0 or greater): 0.64" Rainfall 24 hrs (6-16-14)

This form documents field observations of the remedial actions. Areas of concern and sample locations, if collected, are identified on the attached site maps. Photo-documentation of each remedial action area is also attached.

REMEDIAL ACTION SUB-AREAS A2-1 and A2-3 - EROSION CONTROL BMPs

Remedial Action Sub-Area	BMP	Describe Condition of BMP	Maintenance/Action Needed
A2-1	Drainage Berms	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Biofilter Bags	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Gravel	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ditches	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Vegetation	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ecology Block	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
A2-3	Gravel	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Filter Trench	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Do any observations warrant urgent attention?

YES

NO

If yes, describe:

Are contingency measures necessary?

YES

NO

If yes, describe:

REMEDIAL ACTION SUB-AREA A2-2

General condition of slope

Very good condition (visual inspection)

Are there signs of erosion on the slope (e.g., sloughing, rivelets, or rills)?

YES

NO

If yes, provide description:

Are the ecology blocks intact and aligned?

YES

NO

If no, provide description:

I assume they are. Current is high and covering blocks.
(Not visible)

Are there signs of erosion adjacent to the ecology blocks?

YES

NO

If yes, provide description:

Do any observations warrant urgent attention?

YES

NO

If yes, describe:

Are contingency measures necessary?

YES

NO

If yes, describe:

UPLAND MONITORING AND MAINTENANCE FORM
Remedial Action Sub-Areas A2-1, A2-2, and A2-3

Date and Time: 12:45 May 19, 14 Weather: Partial Cloudy / Sunny
 Name: Tony Signature _____

Other Parties Present During Monitoring Event: _____

Date DEQ notified: _____

Reason for Monitoring Event: Routine 0.5 inch of rain in 24 hours / Significant Event
 Describe significant event (e.g., 3.4 inches of rain in 24 hours, Flood stage of 18 feet RID, Flood stage of 24 feet, RID, Seismic event 6.0 or greater):
0.84" Rainfall 5-18-14

This form documents field observations of the remedial actions. Areas of concern and sample locations, if collected, are identified on the attached site maps. Photo-documentation of each remedial action area is also attached.

REMEDIAL ACTION SUB-AREAS A2-1 and A2-3 - EROSION CONTROL BMPS

Remedial Action Sub-Area	BMP	Describe Condition of BMP	Maintenance/Action Needed
A2-1	Drainage Berms	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Biofilter Bags	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Gravel	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ditches	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Vegetation	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ecology Block	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
A2-3	Gravel	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Filter Trench	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Do any observations warrant urgent attention?

YES NO

If yes, describe: _____

Are contingency measures necessary?

YES NO

If yes, describe: _____

REMEDIAL ACTION SUB-AREA A2-2

General condition of slope Very good Condition

Are there signs of erosion on the slope (e.g., sloughing, rivelets, or rills)?

YES NO

If yes, provide description: _____

Are the ecology blocks intact and aligned?

YES NO

If no, provide description: _____

Due to high water, blocks are not in use. (Underwater)
Assume blocks are intact

Are there signs of erosion adjacent to the ecology blocks?

YES NO

If yes, provide description: _____

Do any observations warrant urgent attention?

YES NO

If yes, describe: _____

Are contingency measures necessary?

YES NO

If yes, describe: _____

UPLAND MONITORING AND MAINTENANCE FORM
Remedial Action Sub-Areas A2-1, A2-2, and A2-3

Date and Time: 12:15 P.m. April 8, 2014 Weather: Partial Cloudy

Name: Tony Signature: _____

Other Parties Present During Monitoring Event: N/A

Date DEQ notified: _____

Reason for Monitoring Event: Routine/0.5 inch of rain in 24 hours/Significant Event
 Describe significant event (e.g., 3.4 inches of rain in 24 hours, Flood stage of 18 feet RID, Flood stage of 24 feet, RID, Seismic event 6.0 or greater):
0.52" Rainfall 4-17-14

This form documents field observations of the remedial actions. Areas of concern and sample locations, if collected, are identified on the attached site maps. Photo-documentation of each remedial action area is also attached.

REMEDIAL ACTION SUB-AREAS A2-1 and A2-3 - EROSION CONTROL BMPS

Remedial Action Sub-Area	BMP	Describe Condition of BMP	Maintenance/Action Needed
A2-1	Drainage Berms	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Biofilter Bags	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Gravel	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ditches	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Vegetation	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ecology Block	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
A2-3	Gravel	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Filter Trench	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Do any observations warrant urgent attention?

YES

NO

If yes, describe: _____

Are contingency measures necessary?

YES

NO

If yes, describe: _____

REMEDIAL ACTION SUB-AREA A2-2

General condition of slope _____

Very good condition

Are there signs of erosion on the slope (e.g., sloughing, rivelets, or rills)?

YES

NO

If yes, provide description: _____

Are the ecology blocks intact and aligned?

YES

NO

If no, provide description: _____

Due to high water, blocks are not in view. Assume they are intact

Are there signs of erosion adjacent to the ecology blocks?

YES

NO

If yes, provide description: _____

Do any observations warrant urgent attention?

YES

NO

If yes, describe: _____

Are contingency measures necessary?

YES

NO

If yes, describe: _____

tide level: 10'

UPLAND MONITORING AND MAINTENANCE FORM
Remedial Action Sub-Areas A2-1, A2-2, and A2-3

Date and Time: 3-31-14 13:30 Weather: Partial Cloudy

Name: Tony Signature _____

Other Parties Present During Monitoring Event: n/a

Date DEQ notified: n/a

Reason for Monitoring Event: Routine 0.5 inch of rain in 24 hours/Significant Event
Describe significant event (e.g., 3.4 inches of rain in 24 hours, Flood stage of 18 feet RID, Flood stage of 24 feet, RID, Seismic event 6.0 or greater):

1.79" Rain on 3-28-14

This form documents field observations of the remedial actions. Areas of concern and sample locations, if collected, are identified on the attached site maps. Photo-documentation of each remedial action area is also attached.

REMEDIAL ACTION SUB-AREAS A2-1 and A2-3 - EROSION CONTROL BMPS

Remedial Action Sub-Area	BMP	Describe Condition of BMP	Maintenance/Action Needed
A2-1	Drainage Berms	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Biofilter Bags	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Gravel	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ditches	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Vegetation	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ecology Block	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
A2-3	Gravel	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Filter Trench	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Do any observations warrant urgent attention?

YES NO

If yes, describe:

Are contingency measures necessary?

YES NO

If yes, describe:

REMEDIAL ACTION SUB-AREA A2-2

General condition of slope

Very Condition

Are there signs of erosion on the slope (e.g., sloughing, rivelets, or rills)?

YES NO

If yes, provide description:

Are the ecology blocks intact and aligned?

YES NO

If no, provide description:

Assume they are - No visual of blocks due to high water.

Are there signs of erosion adjacent to the ecology blocks?

YES NO

If yes, provide description:

Do any observations warrant urgent attention?

YES NO

If yes, describe:

Are contingency measures necessary?

YES NO

If yes, describe:

Tide Level
40.5'

UPLAND MONITORING AND MAINTENANCE FORM
Remedial Action Sub-Areas A2-1, A2-2, and A2-3

Date and Time: 09:00 3/17/14 Weather: Partial cloudy

Name: Tony W. Signature _____

Other Parties Present During Monitoring Event: _____

Date DEQ notified: _____

Reason for Monitoring Event: Routine 0.5 inch of rain in 24 hours/Significant Event
Describe significant event (e.g., 3.4 inches of rain in 24 hours, Flood stage of 1.8 feet RID, Flood stage of 2.4 feet, RID, Seismic event 6.0 or greater):

0.80" Rain 3-16-14

This form documents field observations of the remedial actions. Areas of concern and sample locations, if collected, are identified on the attached site maps. Photo-documentation of each remedial action area is also attached.

REMEDIAL ACTION SUB-AREAS A2-1 and A2-3 - EROSION CONTROL BMPS

Remedial Action Sub-Area	BMP	Describe Condition of BMP	Maintenance/Action Needed
A2-1	Drainage Berms	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Biofilter Bags	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Gravel	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ditches	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Vegetation	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ecology Block	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
A2-3	Gravel	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Filter Trench	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Do any observations warrant urgent attention?

YES

NO

If yes, describe:

Are contingency measures necessary?

YES

NO

If yes, describe:

REMEDIAL ACTION SUB-AREA A2-2

General condition of slope

Very good Condition

Are there signs of erosion on the slope (e.g., sloughing, rivelets, or rills)?

YES

NO

If yes, provide description:

Are the ecology blocks intact and aligned?

YES

NO

If no, provide description:

Assuming they are blocks are under water due to high tide.

Are there signs of erosion adjacent to the ecology blocks?

YES

NO

If yes, provide description:

Do any observations warrant urgent attention?

YES

NO

If yes, describe:

Are contingency measures necessary?

YES

NO

If yes, describe:

Tide Level is @ 14'0

UPLAND MONITORING AND MAINTENANCE FORM
Remedial Action Sub-Areas A2-1, A2-2, and A2-3

Date and Time: 3-10-14, 13:00 Weather: blowing

Name: Tony Signature _____

Other Parties Present During Monitoring Event: _____

Date DEQ notified: _____

Reason for Monitoring Event: Routine 0.5 inch of rain in 24 hours/Significant Event
Describe significant event (e.g., 3.4 inches of rain in 24 hours, Flood stage of 1.8 feet RID, Flood stage of 2.4 feet, RID, Seismic event 6.0 or greater):
Rainfall (3-8-14) 0.50"

This form documents field observations of the remedial actions. Areas of concern and sample locations, if collected, are identified on the attached site maps. Photo-documentation of each remedial action area is also attached.

REMEDIAL ACTION SUB-AREAS A2-1 and A2-3 - EROSION CONTROL BMPS

Remedial Action Sub-Area	BMP	Describe Condition of BMP	Maintenance/Action Needed
A2-1	Drainage Berms	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Biofilter Bags	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Gravel	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ditches	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Vegetation	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ecology Block	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
A2-3	Gravel	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Filter Trench	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

A2-3 Partial area is under water due to high water
* photos show this

Do any observations warrant urgent attention?

YES NO

If yes, describe:

Are contingency measures necessary?

YES NO

If yes, describe:

REMEDIAL ACTION SUB-AREA A2-2

General condition of slope Very good

Are there signs of erosion on the slope (e.g., sloughing, rivelets, or rills)?

YES NO

If yes, provide description:

Are the ecology blocks intact and aligned?

YES NO

If no, provide description:

blocks are not visible. High water has blocks under water.

Are there signs of erosion adjacent to the ecology blocks?

YES NO

If yes, provide description:

Do any observations warrant urgent attention?

YES NO

If yes, describe:

Are contingency measures necessary?

YES NO

If yes, describe:

UPLAND MONITORING AND MAINTENANCE FORM
Remedial Action Sub-Areas A2-1, A2-2, and A2-3

Date and Time: 3-6-14 2:00 P.M. Weather: Raining / windy

Name: Tody W. Signature _____

Other Parties Present During Monitoring Event: _____

Date DEQ notified: _____

Reason for Monitoring Event: Routine 0.5 inch of rain in 24 hours / Significant Event

Describe significant event (e.g., 3.4 inches of rain in 24 hours, Flood stage of 18 feet RID, Flood stage of 24 feet, RID, Seismic event 6.0 or greater):

Rampan 3-5-14 24 hrs - 1.11"

This form documents field observations of the remedial actions. Areas of concern and sample locations, if collected, are identified on the attached site maps. Photo-documentation of each remedial action area is also attached.

REMEDIAL ACTION SUB-AREAS A2-1 and A2-3 - EROSION CONTROL BMPS

Remedial Action Sub-Area	BMP	Describe Condition of BMP	Maintenance/Action Needed
A2-1	Drainage Berms	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Biofilter Bags	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Gravel	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ditches	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Vegetation	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ecology Block	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
A2-3	Gravel	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Filter Trench	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Do any observations warrant urgent attention?

YES

NO

If yes, describe:

Are contingency measures necessary?

YES

NO

If yes, describe:

REMEDIAL ACTION SUB-AREA A2-2

General condition of slope

Very good

Are there signs of erosion on the slope (e.g., sloughing, rivelets, or rills)?

YES

NO

If yes, provide description:

Are the ecology blocks intact and aligned?

YES

NO

If no, provide description:

High water is covering the blocks. Assuming the blocks are intact.

Are there signs of erosion adjacent to the ecology blocks?

YES

NO

If yes, provide description:

Do any observations warrant urgent attention?

YES

NO

If yes, describe:

Are contingency measures necessary?

YES

NO

If yes, describe:

UPLAND MONITORING AND MAINTENANCE FORM
Remedial Action Sub-Areas A2-1, A2-2, and A2-3

Date and Time: March 3rd 2014 10:15^{AM} Weather: Cloudy, warm Drizzle

Name: Tony W. Signature _____

Other Parties Present During Monitoring Event: N/A

Date DEQ notified: N/A

Reason for Monitoring Event: Routine (0.5 inch of rain in 24 hours) / Significant Event
 Describe significant event (e.g., 3.4 inches of rain in 24 hours, Flood stage of 1.8 feet RID, Flood stage of 24 feet, RID, Seismic event 6.0 or greater):

0.59" Rainfall 24 hrs.

This form documents field observations of the remedial actions. Areas of concern and sample locations, if collected, are identified on the attached site maps. Photo-documentation of each remedial action area is also attached.

REMEDIATION ACTION SUB-AREAS A2-1 and A2-3 - EROSION CONTROL BMPS

Remedial Action Sub-Area	BMP	Describe Condition of BMP	Maintenance/Action Needed
A2-1	Drainage Berms	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Biofilter Bags	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Gravel	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ditches	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Vegetation	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ecology Block	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
A2-3	Gravel	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Filter Trench	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Do any observations warrant urgent attention?

YES

NO

If yes, describe:

Are contingency measures necessary?

YES

NO

If yes, describe:

REMEDIAL ACTION SUB-AREA A2-2

General condition of slope

Visual inspection Very good Condition

Are there signs of erosion on the slope (e.g., sloughing, rivelets, or rills)?

YES

NO

If yes, provide description:

Are the ecology blocks intact and aligned?

YES

NO

If no, provide description:

Assuming they are. Cannot see blocks Due to high water covering blocks

Are there signs of erosion adjacent to the ecology blocks?

YES

NO

If yes, provide description:

Do any observations warrant urgent attention?

YES

NO

If yes, describe:

Are contingency measures necessary?

YES

NO

If yes, describe:

UPLAND MONITORING AND MAINTENANCE FORM
Remedial Action Sub-Areas A2-1, A2-2, and A2-3

Date and Time: 2-19-14 10:30 Am.

Weather: Sunny / cool temps
Water is ~~low~~ high

Name: Tony W.

Signature _____

Other Parties Present During Monitoring Event: _____

Date DEQ notified: _____

Reason for Monitoring Event: Routine 0.5 inch of rain in 24 hours / Significant Event
 Describe significant event (e.g., 3.4 inches of rain in 24 hours, Flood stage of 18 feet RID, Flood stage of 24 feet, RID, Seismic event 6.0 or greater):
Rain fall on 2-18-14 0-60"

This form documents field observations of the remedial actions. Areas of concern and sample locations, if collected, are identified on the attached site maps. Photo-documentation of each remedial action area is also attached.

REMEDIAL ACTION SUB-AREAS A2-1 and A2-3 - EROSION CONTROL BMPS

Remedial Action Sub-Area	BMP	Describe Condition of BMP	Maintenance/Action Needed
A2-1	Drainage Berms	Very Good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Biofilter Bags	Very Good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Gravel	Very Good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ditches	Very Good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Vegetation	Very Good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ecology Block	Very Good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
A2-3	Gravel	Very Good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Filter Trench	Very Good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Do any observations warrant urgent attention? YES NO
If yes, describe: The ~~slight~~ slight maintenance done on 2-18-14
is holding up very well, excellent shape.

Are contingency measures necessary? YES NO
If yes, describe: N/A

REMEDIAL ACTION SUB-AREA A2-2

General condition of slope Very Good Visual inspection

Are there signs of erosion on the slope (e.g., sloughing, rivelets, or rills)? YES NO
If yes, provide description:

Are the ecology blocks intact and aligned? YES NO
If no, provide description:
Due to high water, the blocks are not visible. Assuming
blocks are intact.

Are there signs of erosion adjacent to the ecology blocks? YES NO
If yes, provide description:

Do any observations warrant urgent attention? YES NO
If yes, describe:

Are contingency measures necessary? YES NO
If yes, describe:

UPLAND MONITORING AND MAINTENANCE FORM
Remedial Action Sub-Areas A2-1, A2-2, and A2-3

Date and Time: 2-18-14 Weather: Raining, Strong winds

Name: Tony Wecker Signature: _____

Other Parties Present During Monitoring Event: _____

Date DEQ notified: _____

Reason for Monitoring Event: Routine 0.5 inch of rain in 24 hours / Significant Event
 Describe significant event (e.g., 3.4 inches of rain in 24 hours, Flood stage of 1.8 feet RID, Flood stage of 24 feet, RID, Seismic event 6.0 or greater): Rainfall Amount 0.79"
2-17-14

This form documents field observations of the remedial actions. Areas of concern and sample locations, if collected, are identified on the attached site maps. Photo-documentation of each remedial action area is also attached.

REMEDIAL ACTION SUB-AREAS A2-1 and A2-3 - EROSION CONTROL BMPS

Remedial Action Sub-Area	BMP	Describe Condition of BMP	Maintenance/Action Needed
A2-1	Drainage Berms	Very Good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Biofilter Bags	Very Good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Gravel	Very Good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ditches	Very Good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Vegetation	Very Good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ecology Block	Very Good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
A2-3	Gravel	Very Good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Filter Trench	Very Good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Do any observations warrant urgent attention? YES NO
If yes, describe: maintenance scheduled for today was done in the
minor areas around blocks (birms). A few loads of sand
was applied & smoothed to stop minor rain runoff from reaching water

Are contingency measures necessary? YES NO
If yes, describe: N/A

REMEDIAL ACTION SUB-AREA A2-2

General condition of slope Very Good Visual inspection

Are there signs of erosion on the slope (e.g., sloughing, rivelets, or rills)? YES NO
If yes, provide description:

Are the ecology blocks intact and aligned? YES NO
If no, provide description: High water is covering blocks No visual of blocks. Assuming
blocks are intact

Are there signs of erosion adjacent to the ecology blocks? YES NO
If yes, provide description:

Do any observations warrant urgent attention? YES NO
If yes, describe:

Are contingency measures necessary? YES NO
If yes, describe:

UPLAND MONITORING AND MAINTENANCE FORM
Remedial Action Sub-Areas A2-1, A2-2, and A2-3

Date and Time: 2-17-14 Weather: Cloudy windy

Name: Tony W. Signature _____

Other Parties Present During Monitoring Event: _____

Date DEQ notified: _____

Reason for Monitoring Event: Routine 0.5 inch of rain in 24 hours/Significant Event
 Describe significant event (e.g., 3.4 inches of rain in 24 hours, Flood stage of 1.8 feet RID, Flood stage of 24 feet, RID, Seismic event 6.0 or greater): 0.86" Rainfall on Feb 15th, 2014

This form documents field observations of the remedial actions. Areas of concern and sample locations, if collected, are identified on the attached site maps. Photo-documentation of each remedial action area is also attached.

REMEDIAL ACTION SUB-AREAS A2-1 and A2-3 - EROSION CONTROL BMPS

Remedial Action Sub-Area	BMP	Describe Condition of BMP	Maintenance/Action Needed
A2-1	Drainage Berms	Very Good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Biofilter Bags	Very Good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Gravel	Very Good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ditches	Very Good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Vegetation	Very Good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ecology Block	Very Good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
A2-3	Gravel	Very Good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Filter Trench	Very Good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Do any observations warrant urgent attention?

YES NO

If yes, describe: Some Light maintenance Needs to be done along the blocks / berm Area. This maintenance is scheduled for 2-18-14.

Are contingency measures necessary?

YES NO

If yes, describe: _____

REMEDIAL ACTION SUB-AREA A2-2

General condition of slope

Excellent Condition

Are there signs of erosion on the slope (e.g., sloughing, rivelets, or rills)?

YES NO

If yes, provide description: _____

Are the ecology blocks intact and aligned?

YES NO

If no, provide description: _____

Assuming they are. High tide is covering blocks underwater

Are there signs of erosion adjacent to the ecology blocks?

YES NO

If yes, provide description: _____

Do any observations warrant urgent attention?

YES NO

If yes, describe: _____

Are contingency measures necessary?

YES NO

If yes, describe: _____

UPLAND MONITORING AND MAINTENANCE FORM
Remedial Action Sub-Areas A2-1, A2-2, and A2-3

Date and Time: 1-13-14 9:00 a.m. Weather: Partial Cloudy

Name: Tony Signature _____

Other Parties Present During Monitoring Event: _____

Date DEQ notified: N/A

Reason for Monitoring Event: Routine/0.5 inch of rain in 24 hours/Significant Event
 Describe significant event (e.g., 3.4 inches of rain in 24 hours, Flood stage of 1.8 feet RID, Flood stage of 24 feet, RID, Seismic event 6.0 or greater):
1-11-14 0.95"

This form documents field observations of the remedial actions. Areas of concern and sample locations, if collected, are identified on the attached site maps. Photo-documentation of each remedial action area is also attached.

RÉMEDIAL ACTION SUB-AREAS A2-1 and A2-3 - EROSION CONTROL BMPS

Remedial Action Sub-Area	BMP	Describe Condition of BMP	Maintenance/Action Needed
A2-1	Drainage Berms	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Biofilter Bags	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Gravel	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ditches	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Vegetation	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ecology Block	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
A2-3	Gravel	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Filter Trench	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Do any observations warrant urgent attention?

YES

NO

If yes, describe:

N/a

Are contingency measures necessary?

YES

NO

If yes, describe:

N/a

REMEDIAL ACTION SUB-AREA A2-2

General condition of slope

Very good Condition, Visual

inspection

Are there signs of erosion on the slope (e.g., sloughing, rivelets, or rills)?

YES

NO

If yes, provide description:

N/a

Are the ecology blocks intact and aligned?

YES

NO

If no, provide description:

Assuming they are. tide is High + cannot see Visual
see blocks.

Are there signs of erosion adjacent to the ecology blocks?

YES

NO

If yes, provide description:

N/a

Do any observations warrant urgent attention?

YES

NO

If yes, describe:

N/a

Are contingency measures necessary?

YES

NO

If yes, describe:

N/a

UPLAND MONITORING AND MAINTENANCE FORM
Remedial Action Sub-Areas A2-1, A2-2, and A2-3

Date and Time: Jan 8th, 2014 09:00 Weather: Cloudy, misting

Name: Tony W. Signature _____

Other Parties Present During Monitoring Event: na

Date DEQ notified: na

Reason for Monitoring Event: Routine 0.5 inch of rain in 24 hours / Significant Event
 Describe significant event (e.g., 3.4 inches of rain in 24 hours, Flood stage of 18 feet RID, Flood stage of 24 feet RID, Seismic event 6.0 or greater):
Rainfall 0.54 (1-7-14)

This form documents field observations of the remedial actions. Areas of concern and sample locations, if collected, are identified on the attached site maps. Photo-documentation of each remedial action area is also attached.

REMEDIAL ACTION SUB-AREAS A2-1 and A2-3 - EROSION CONTROL BMPS

Remedial Action Sub-Area	BMP	Describe Condition of BMP	Maintenance/Action Needed
A2-1	Drainage Berms	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Biofilter Bags	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Gravel	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ditches	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Vegetation	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ecology Block	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
A2-3	Gravel	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Filter Trench	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Do any observations warrant urgent attention? YES NO

If yes, describe: N/a

Are contingency measures necessary? YES NO

If yes, describe: N/a

REMEDIAL ACTION SUB-AREA A2-2

General condition of slope Very good Visual inspection

Are there signs of erosion on the slope (e.g., sloughing, rivelets, or rills)? YES NO

If yes, provide description: N/a

Are the ecology blocks intact and aligned? YES NO

If no, provide description: Assume they are, Tide is High enough to cover blocks.

Are there signs of erosion adjacent to the ecology blocks? YES NO

If yes, provide description: N/a

Do any observations warrant urgent attention? YES NO

If yes, describe: N/a

Are contingency measures necessary? YES NO

If yes, describe: N/a

UPLAND MONITORING AND MAINTENANCE FORM
Remedial Action Sub-Areas A2-1, A2-2, and A2-3

Date and Time: 12-2-13 Weather: Cloudy, Cool

Name: _____ Signature _____

Other Parties Present During Monitoring Event: N/A

Date DEQ notified: N/A

Reason for Monitoring Event: Routine / 0.5 inch of rain in 24 hours / Significant Event
 Describe significant event (e.g., 3.4 inches of rain in 24 hours, Flood stage of 18 feet RID, Flood stage of 24 feet, RID, Seismic event 6.0 or greater):
Rainfall event (12-1-13) 0.78" Rain

This form documents field observations of the remedial actions. Areas of concern and sample locations, if collected, are identified on the attached site maps. Photo-documentation of each remedial action area is also attached.

REMEDIAL ACTION SUB-AREAS A2-1 and A2-3 - EROSION CONTROL BMPS

Remedial Action Sub-Area	BMP	Describe Condition of BMP	Maintenance/Action Needed
A2-1	Drainage Berms	EXcellent	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Biofilter Bags	EXcellent	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Gravel	EXcellent	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ditches	EXcellent	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Vegetation	EXcellent	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ecology Block	EXcellent	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
A2-3	Gravel	EXcellent	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Filter Trench	EXcellent	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Do any observations warrant urgent attention?

YES NO

If yes, describe:

Are contingency measures necessary?

YES NO

If yes, describe:

REMEDIAL ACTION SUB-AREA A2-2

General condition of slope

Very good condition

Are there signs of erosion on the slope (e.g., sloughing, rivelets, or rills)?

YES NO

If yes, provide description:

Are the ecology blocks intact and aligned?

YES NO

If no, provide description:

Assuming they are. Due to high water the blocks are not visible

Are there signs of erosion adjacent to the ecology blocks?

YES NO

If yes, provide description:

Do any observations warrant urgent attention?

YES NO

If yes, describe:

Are contingency measures necessary?

YES NO

If yes, describe:

UPLAND MONITORING AND MAINTENANCE FORM
Remedial Action Sub-Areas A2-1, A2-2, and A2-3

Date and Time: 9-30-13 09:00 Am. Weather: Raining/Windy

Name: Tony W. Signature _____

Other Parties Present During Monitoring Event: N/A

Date DEQ notified: N/A

Reason for Monitoring Event: Routine 0.5 inch of rain in 24 hours / Significant Event
 Describe significant event (e.g., 3.4 inches of rain in 24 hours, Flood stage of 18 feet RID, Flood stage of 24 feet, RID, Seismic event 6.0 or greater): 2 days Report Rain event (9-28-13) 1.61" (9-29-13) 1.10"

This form documents field observations of the remedial actions. Areas of concern and sample locations, if collected, are identified on the attached site maps. Photo-documentation of each remedial action area is also attached.

REMEDIAL ACTION SUB-AREAS A2-1 and A2-3 - EROSION CONTROL BMPS

Remedial Action Sub-Area	BMP	Describe Condition of BMP	Maintenance/Action Needed
A2-1	Drainage Berms	Excellent	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Biofilter Bags	Excellent	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Gravel	Excellent	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ditches	Excellent	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Vegetation	Excellent	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ecology Block	Excellent	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
A2-3	Gravel	Excellent	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Filter Trench	Excellent	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Do any observations warrant urgent attention?

YES NO

If yes, describe: N/A

Are contingency measures necessary?

YES NO

If yes, describe: N/A

REMEDIAL ACTION SUB-AREA A2-2

General condition of slope

Excellent Visual inspection

Are there signs of erosion on the slope (e.g., sloughing, rivelets, or rills)?

YES NO

If yes, provide description: N/A

Are the ecology blocks intact and aligned?

YES NO

If no, provide description: I assume they are. The blocks are hidden due to high water. Not visually seen

Are there signs of erosion adjacent to the ecology blocks?

YES NO

If yes, provide description: N/A

Do any observations warrant urgent attention?

YES NO

If yes, describe: N/A

Are contingency measures necessary?

YES NO

If yes, describe: N/A

This Report covers
the 5th + 6th Sept.

UPLAND MONITORING AND MAINTENANCE FORM
Remedial Action Sub-Areas A2-1, A2-2, and A2-3

Date and Time: Sept 6th, 2013 13:00 Weather: Partial Cloudy

Name: Toody Signature: _____

Other Parties Present During Monitoring Event: na

Date DEQ notified: na

Reason for Monitoring Event: Routine / 0.5 inch of rain in 24 hours / Significant Event
Describe significant event (e.g., 3.4 inches of rain in 24 hours, Flood stage of 18 feet RID, Flood stage of 24 feet, RID, Seismic event 6.0 or greater): 0.51" of Rain on the 5th + 0.75" Rain on the 6th

This form documents field observations of the remedial actions. Areas of concern and sample locations, if collected, are identified on the attached site maps. Photo-documentation of each remedial action area is also attached.

REMEDIAL ACTION SUB-AREAS A2-1 and A2-3 - EROSION CONTROL BMPS

Remedial Action Sub-Area	BMP	Describe Condition of BMP	Maintenance/Action Needed
A2-1	Drainage Berms	Excellent	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Biofilter Bags	Excellent	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Gravel	Excellent	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ditches	Excellent	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Vegetation	Excellent	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ecology Block	Excellent	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
A2-3	Gravel	Excellent	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Filter Trench	Excellent	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Do any observations warrant urgent attention?

YES NO

If yes, describe: _____

Are contingency measures necessary?

YES NO

If yes, describe: _____

REMEDIAL ACTION SUB-AREA A2-2

General condition of slope

Very good Condition

Are there signs of erosion on the slope (e.g., sloughing, rivelets, or rills)?

YES NO

If yes, provide description: _____

Are the ecology blocks intact and aligned?

YES NO

If no, provide description:

Cannot report Due to blocks being under water due to
tide level.

Are there signs of erosion adjacent to the ecology blocks?

YES NO

If yes, provide description: _____

Do any observations warrant urgent attention?

YES NO

If yes, describe: _____

Are contingency measures necessary?

YES NO

If yes, describe: _____

BATHYMETRY REVIEW FORM

Survey completed by: NW Hydro
Equipment used: _____

Review Date: 8/8/14
Reviewer(s) Craig Murphy, Ross Island
Signature: [Signature]

The lagoon bathymetry data has been reviewed. Lagoon bathymetric elevations have been summarized on the attached figure.

Lagoon Bathymetry

General Condition of Sediment Cap: The cap looks thick and intact, with no signs of cap loss. The sliver of 0-3 ft capping shown in Figure 3 is due primarily to shoreline ~~erosion~~ vessel activity, and the inability of the surveyor to get an accurate reading from vessel and piling interference. Figure 14 shows no steepness in the area that would cause alarm.

General Condition of slopes: Reviewing the cross sections in Figures 6-10, none of the slopes have lost elevation or gotten steeper when compared to the 2013 bathymetric survey.

Are there any signs of erosion or thinning of sediment cap? YES NO
If yes, provide description: _____

Are there any signs of slope failure? YES NO
If yes, provide description: _____

Do any observations warrant urgent attention? YES NO
If yes, provide description: _____

Are contingency measures necessary based on review? YES NO
If yes, provide description: _____

Maintenance performed since last reporting period: None

UPLAND MONITORING AND MAINTENANCE FORM
Remedial Action Sub-Areas A2-1, A2-2, and A2-3

Date and Time: June 24th, 2014 3:00 P.M. Weather: Partial cloudy
 Name: Tony Wecker Signature: [Signature]
 Other Parties Present During Monitoring Event: Craig Jacobs
 Date DEQ notified: N/A

Reason for Monitoring Event: Routine/0.5 inch of rain in 24 hours/Significant Event
 Describe significant event (e.g., 3.4 inches of rain in 24 hours, Flood stage of 18 feet RID, Flood stage of 24 feet, RID, Seismic event 6.0 or greater): 2014 Annual Inspection. In area A2-1, additional Crushed Stone was placed near the south end prior to our inspection. In area A2-3, additional Pit Run material was placed near the east end of the discharge area. Prior to our inspection

This form documents field observations of the remedial actions. Areas of concern and sample locations, if collected, are identified on the attached site maps. Photo-documentation of each remedial action area is also attached.

REMEDIAL ACTION SUB-AREAS A2-1 and A2-3 - EROSION CONTROL BMPS

Remedial Action Sub-Area	BMP	Describe Condition of BMP	Maintenance/Action Needed
A2-1	Drainage Berms	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Biofilter Bags	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Gravel	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ditches	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Vegetation	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ecology Block	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
A2-3	Gravel	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Filter Trench	Very good	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Do any observations warrant urgent attention?

YES

NO

If yes, describe:

Are contingency measures necessary?

YES

NO

If yes, describe:

REMEDIAL ACTION SUB-AREA A2-2

General condition of slope Visual inspection of slope seemed in very good shape

Are there signs of erosion on the slope (e.g., sloughing, rivelets, or rills)?

YES

NO

If yes, provide description: No signs of erosion

Are the ecology blocks intact and aligned?

YES

NO

If no, provide description: Visual inspection, I assume they are intact and aligned. blocks are submerged. The slope above this area is in good shape. Therefore blocks must be also.

Are there signs of erosion adjacent to the ecology blocks?

YES

NO

If yes, provide description: We cannot see the blocks due to high water

Do any observations warrant urgent attention?

YES

NO

If yes, describe:

Are contingency measures necessary?

YES

NO

If yes, describe:

UPLAND MONITORING AND MAINTENANCE FORM
Remedial Action Area B

Date and Time: June 24th, 2014 3:00 PM Weather: Partial cloudy

Name: Tony Wecker Signature: Tony Wecker

Other Parties Present During Monitoring Event: Craig Jacobs

Date DEQ notified: N/A

Reason for Monitoring Event: Routine/0.5 inch of rain in 24 hours/Significant Event
Describe significant event (e.g., 3.4 inches of rain in 24 hours, Flood stage of 18 feet RID, Flood stage of 24 feet, RID, Seismic event 6.0 or greater):
2014 Annual Inspection

This form documents field observations of the remedial actions. Areas of concern and sample locations, if collected, are identified on the attached site maps. Photo-documentation of each remedial action area is also attached.

Remedial Action Area B Soil Cap (Includes soil from Remedial Action Area A1)

General condition of soil cap: Visual inspection shows great
Condition of Soil Cap

Cracks, Settlement? YES NO
Location: N/A

Maintenance required? YES NO

Holes, Penetrations? YES NO
Location: N/A

Maintenance required? YES NO

Animal intrusion, burrowing? YES NO
Location: N/A

Maintenance required? YES NO

Erosion, rills? YES NO
Location: What we believe to be a Deer Trail (Path) across the top of this area.

Maintenance required? YES NO

Subsurface soil (>3 feet) exposed? YES NO
Location: N/A

Maintenance required? YES NO

Ponding? YES NO
Location: N/A

Maintenance required? YES NO

Dead/dying vegetation? YES NO
Location: N/A

Maintenance required? YES NO

Do any observations warrant urgent attention? YES NO
If yes, describe: N/A

Are contingency measures necessary? YES NO
If yes, describe: N/A

UPLAND MONITORING AND MAINTENANCE FORM
Remedial Action Sub-Areas A2-1, A2-2, and A2-3

Date and Time: 11-21-14 2:00 P.M.

Weather: Cloudy/dizzle

Name: Tony W.

Signature: *Tony W.*

Other Parties Present During Monitoring Event: n/a

Date DEQ notified: n/a

Reason for Monitoring Event: (Routine) 0.5 inch of rain in 24 hours/Significant Event
 Describe significant event (e.g., 3.4 inches of rain in 24 hours, Flood stage of 18 feet RID, Flood stage of 24 feet, RID, Seismic event 6.0 or greater):

maintenance

This form documents field observations of the remedial actions. Areas of concern and sample locations, if collected, are identified on the attached site maps. Photo-documentation of each remedial action area is also attached.

REMEDIAL ACTION SUB-AREAS A2-1 and A2-3 - EROSION CONTROL BMPS

Remedial Action Sub-Area	BMP	Describe Condition of BMP	Maintenance/Action Needed
A2-1	Drainage Berms		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Biofilter Bags		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Gravel		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ditches		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Vegetation		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Ecology Block		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
A2-3	Gravel	<u>maintenance</u>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
	Filter Trench	<u>maintenance</u>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Do any observations warrant urgent attention?

YES

NO

If yes, describe: _____

Are contingency measures necessary?

YES

NO

If yes, describe: _____

REMEDIAL ACTION SUB-AREA A2-~~2~~3

General condition of slope Maintenance Activities Per DEQ request

Are there signs of erosion on the slope (e.g., sloughing, rivelets, or rills)?

YES

NO

If yes, provide description: After maintenance activities were complete, with gravel being placed on roadway

Are the ecology blocks intact and aligned?

YES

NO

If no, provide description: Concrete blocks were removed due to gaps. Replaced with a gravel berm 3 feet in highth.

Are there signs of erosion adjacent to the ecology blocks?

YES

NO

If yes, provide description: _____

Do any observations warrant urgent attention?

YES

NO

If yes, describe: _____

Are contingency measures necessary?

YES

NO

If yes, describe: _____

* Vegetation in drainage ditch was removed. The drainage ditch is now visible *

Appendix B



REMEDIAL ACTION SUB-AREA A2-1. FACING NORTH



REMEDIAL ACTION SUB-AREA A2-1.ECOLOGY BLOCKS AND BIOFILTER BAGS FACING SOUTH



REMEDIAL ACTION SUB-AREA A2-2. FACING NORTH



REMEDIAL ACTION SUB-AREA A2-2. FACING SOUTHEAST



REMEDIAL ACTION SUB-AREA A2-3. FACING SOUTHEAST



REMEDIAL ACTION SUB-AREA A2-3, FACING NORTHWEST



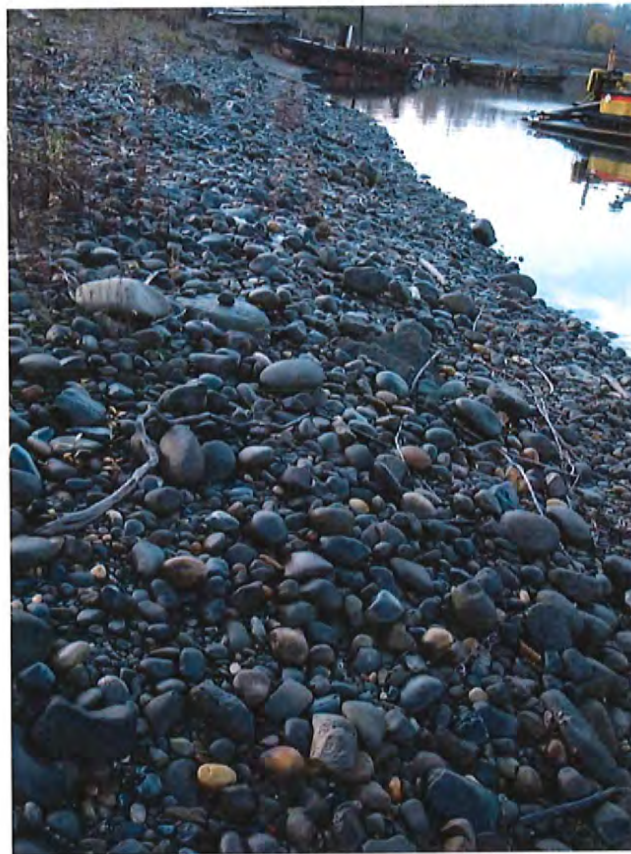
REMEDIAL ACTION SUB-AREA B. FACING SOUTHWEST



REMEDIAL ACTION SUB-AREA B. FACING NORTHWEST



REMEDIAL ACTION SUB-AREA A2-2. DURING LOW WATER, FACING NORTH



REMEDIAL ACTION SUB-AREA A2-2. DURING LOW WATER. FACING SOUTH



REMEDIAL ACTION SUB-AREA A2-2. DURING LOW WATER, FACING EAST



REMEDIAL ACTION SUB-AREA A2-2. DURING LOW WATER. FACING SOUTH



REMEDIAL ACTION SUB-AREA A2-3. DURING RAIN EVENT



REMEDIAL ACTION SUB-AREA A2-3, DURING RAIN EVENT



REMEDIAL ACTION SUB-AREA A2-3. DURING RAIN EVENT



REMEDIAL ACTION SUB-AREA A2-3, DURING RAIN EVENT



REMEDIAL ACTION SUB-AREA A2-3. DURING RAIN EVENT



REMEDIAL ACTION SUB-AREA A2-3, DURING RAIN EVENT

Appendix C



Oregon

John A. Kitzhaber, MD, Governor

Water Resources Department

North Mall Office Building
725 Summer St NE, Suite A
Salem, OR 97301
Phone (503) 986-0900
Fax (503) 986-0904
www.wrd.state.or.us

January 29, 2013

DARRYL METZGER #10423
CASCADE DRILLING INC
13600 SE AMBLER RD
CLACKAMAS OR 97015

FINAL ORDER

Dear Darryl:

The Special Standards Request Form you submitted for owner: Ross Island Sand & Gravel, Start Card numbers 1021989 (MW1A), 1021990 (MW1B), 1021991 (MW1C), 1021992 (MW2A), 1021993 (MW2B), 1021994 (MW2C), 1021995 (MW3A), 1021996 (MW3B), 1021997 (MW3C), 1021998 (MW4A), 1022000 (MW6A) and 1022001 (MW7A) is hereby approved for the following: You may abandon these monitoring wells utilizing the method described in OAR 690-240-0510(2). *If you are going to use bentonite grout to abandon the wells, then it may only be used to abandon the portion of the wells that is below the static water level. Above the static water level another approved sealing material must be used.* Your Special Standards Request Form is enclosed. All other standards must be adhered to.

The Well Construction Standards serve to protect ground water resources. By approving and issuing this special construction standard the Oregon Water Resources Department is not representing that a well constructed in accordance with this condition will maintain structural integrity or that it meets engineering standards. The well constructor/or landowner is responsible for ensuring that a well is constructed in a manner that protects ground water resources as required under Oregon Administrative Rules 690-200 through 690-240.

If you have any questions regarding this letter, I may be contacted at (503) 986-0851, or by e-mail at Kristopher.R.Byrd@wrd.state.or.us.

Sincerely,

Kristopher Byrd, Coordinator
Well Construction Program
Well Construction and Compliance Section

enclosure

cc: W Region Manager
File

This is a final order in other than a contested case. This order is subject to judicial review under ORS 183.484. Any petition for judicial review must be filed within the 60 day time period specified by ORS 183.484(2). Pursuant to ORS 536.075 and OAR 137-004-0080 you may either petition for judicial review or petition the Director for reconsideration of this order. A petition for reconsideration may be granted or denied by the director, and if no action is taken within 60 days following the date the petition was filed, the petition shall be deemed denied.



Oregon Water Resources Department
 725 Summer Street NE, Suite A
 Salem Oregon 97301-1266
 (503) 986-0900
 www.wrd.state.or.us

Special Standards Request Form

REQUEST FOR WRITTEN APPROVAL TO USE CONSTRUCTION METHODS NOT INCLUDED IN OREGON ADMINISTRATIVE RULES 690-200 THROUGH 690-240

Before the request can be considered, this form must be completed. Requests shall be submitted to the Well Construction Program Coordinator, Water Resources Department, 725 Summer Street NE, Suite A, Salem OR 97301-1266. Requests may also be considered by the appropriate Regional Manager.

Date of request: 1/7/2014 Oral approval date (if applicable): _____

Bonded Well Constructor (name, license #, and mailing address): _____

Darryl Metzger - #10423 - 13600 SE Ambler Road, Clackamas, OR 97015

(1) Location of Well: SE 1/4 NE 1/4 Tax lot 700 Section 15,
 Township 1 S, Range 1 E, MULTNOMAH County
 Address at well site: ON ROSS ISLAND

PORTLAND, OREGON 97282

(2) Start Card Number(s)(for work to be done): 1021989 - 1022002

(3) Name and Address of Land Owner: ROSS ISLAND SAND & GRAVEL
P.O. Box 82249 PORTLAND, OREGON 97282

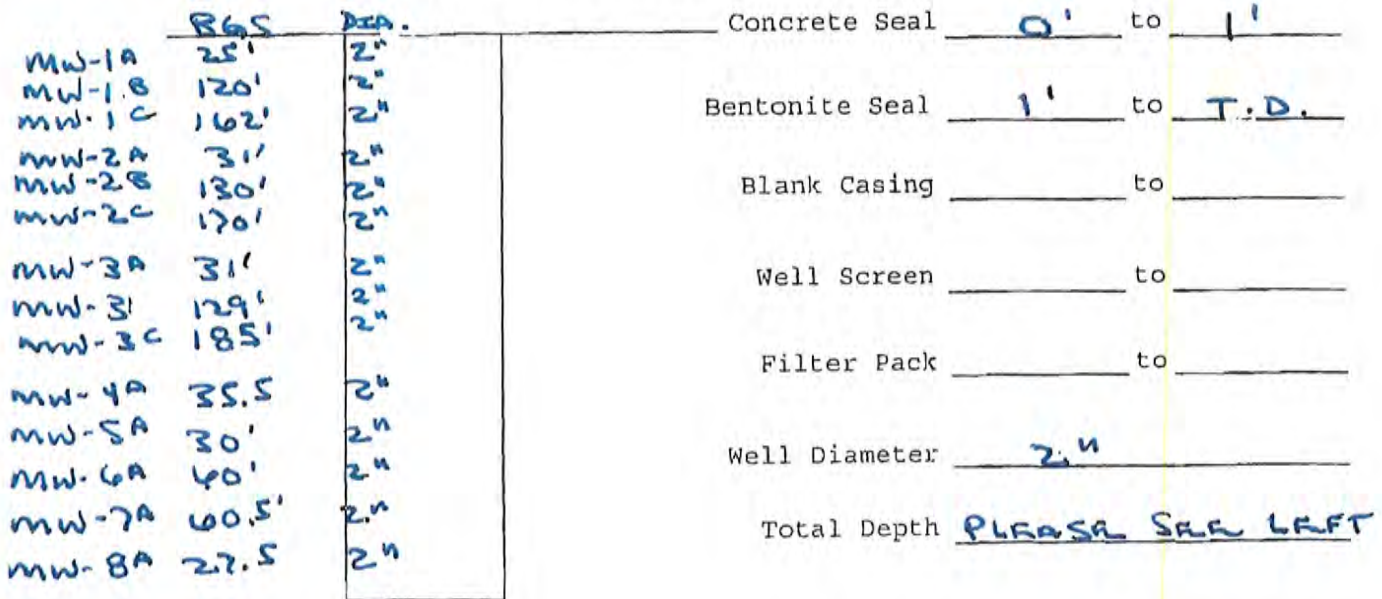
(4) Distance to the nearest septic tank, drainfield, closed sewage line (if water supply well)
unknown

(5) The unusual site conditions which necessitate this request: ONE CLIENT
WOULD LIKE TO DECOMMISSION ALL 14 WELLS
BY GROUT IN PLACE METHOD. G.W. DATA ATTACHED

(6) The proposed construction methods that the bonded well constructor believes will be adequate for this well: (attach additional pages if needed)
CASCADE WILL USE BENTONITE GROUT/CLAY'S
FROM T.D. TO 1' BGS. REMOVE THE WELL
MONUMENT AND PATCH THE SURFACE WITH
AT LEAST ONE FOOT OF CONCRETE.

8394

(7) Diagram showing the pertinent features of the proposed well design and construction:
(attach additional pages if needed)



PLEASE NOTE:

- (1) The Well Construction Standards serve to protect ground water resources. By approving and issuing this special construction standard the Oregon Water Resources Department is not representing that a well constructed in accordance with this condition will maintain structural integrity or that it meets engineering standards. The well constructor/or landowner is responsible for ensuring that a well is constructed in a manner that protects ground water resources as required under Oregon Administrative Rules 690-200 through 690-240.
- (2) If it should be determined at some future date that the well, due to its construction, is allowing ground water contamination, waste or loss of artesian pressure, the undersigned shall return to the site and rectify the problem.
- (3) If oral approval was granted, a written request must be submitted to the Department either within three (3) working days of the date of oral approval or prior to the completion of the associated well work. Failure to submit a written request as described above may void prior oral approval.

I have read and understand the above information. I further attest that the information provided is accurate to the best of my knowledge.

Bonded Constructor Signature: *[Signature]*