2009 ANNUAL REPORT

RED ROCK WASTE DISPOSAL SITE
(A412307)

TOWNSHIP OF KILLALOE, HAGARTY AND RICHARDS
COUNTY OF RENFREW, ONTARIO

Prepared for

THE CORPORATION OF THE TOWNSHIP OF KILLALOE, HAGARTY AND RICHARDS

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EXECUTIVE SUMMARY

This report has been prepared to document the results of the 2009 environmental monitoring program for the Township of Killaloe, Hagarty and Richards Red Rock waste disposal site, located on Part Lot 11, Concession 7, within the geographic Township of Richards, in the amalgamated Township of Killaloe, Hagarty and Richards. The site is located approximately 24 kilometres north of the Village of Killaloe, accessed by Beechnut Lake Road, extending north from County Road 58.

The Red Rock waste disposal site operates in accordance with Provisional Certificate of Approval A412307, for the transfer of municipal solid waste generated within the Township of Killaloe, Hagarty and Richards. The site consists of 1.0 hectare of approved landfilling area, within 1.7 hectares of licensed site area property under Ontario Ministry of Natural Resources Land Use Permit 1675-1006299.

The groundwater configuration in the shallow overburden unit at the site is to the south and southeast. Average horizontal gradients in the vicinity of the waste mound, and the southeast of the waste mound were calculated in May 2009 to be 0.012 and 0.014 in magnitude, respectively at the Red Rock waste disposal site.

In 2009, groundwater quality immediately downgradient from the site at the current Ontario Ministry of Natural Resources Land Use Permit boundary continues to exhibit impacts from landfill-derived leachate. Exceedances of the Ontario Drinking Water Standards were observed for alkalinity (low), dissolved organic carbon, field-tested pH (low), and iron at select wells.

Groundwater quality at the downgradient contaminant attenuation zone boundary is interpreted to be in compliance with the Reasonable Use Concept and conformance with the Ontario Ministry of Environment Guideline B-7 in 2009. The noted exceedances of the Reasonable Use Concept at monitoring well MW06-7, including lab and field-tested pH (low), are interpreted to be resultant of naturally-occurring conditions at the site. The elevated nitrate concentration observed in August 2009 is interpreted to be anomalous, as similarly elevated nitrate concentrations are not evident at monitoring wells located adjacent to the waste mound, and specifically not observed at monitoring well BH04-5 which is considered to be most representative of leachate-quality at the site. Likewise, the Reasonable Use Concept exceedance of iron at monitoring well MW06-8 in August 2009 was not evident at upgradient monitor BH04-6, located immediately adjacent to the waste mound, and is therefore interpreted to be naturally-occurring in the vicinity of County Road 58. Further monitoring of iron concentrations at MW06-8 is required to determine the source of the elevated parameter; however, since iron has not historically been observed to exceed the Reasonable Use Concept at MW06-8, it is interpreted to be anomalous. Based on the aforementioned

interpretations of groundwater quality at the downgradient contaminant attenuation zone boundary, the Red Rock site is considered to be in compliance with the Reasonable Use Concept and in conformance with Guideline B-7.

Based on Township records, approximately 1,338 vehicles visited the Red Rock site in 2009, with approximately 3,478 bags of residential waste received during the period January to December 2009 for transfer to the Township's Killaloe site for disposal. Additionally, based on Township records 1,061 bags of containers (tin/aluminum/plastic/glass), and 416 bags of fibres were received at the Red Rock site in 2009 and transferred to the Township's Killaloe site for pickup by Beaumen Waste Management/Recycling.

Recycling tonnage records provided by the Beaumen Waste Management and Township records indicate that a total of approximately 202.0 tonnes of recyclable material was received at the Killaloe waste disposal site in 2009. Recyclable quantities contributing to this total included approximately 65.0 tonnes of containers (tin/aluminum/plastic/glass), 73.9 tonnes of fibres, and 63.1 tonnes of old corrugated cardboard. Recycling tonnages noted above for the Killaloe waste disposal site include quantities of recycling received and transported to the Beaumen Waste Management Systems Ltd. In Renfrew, Ontario from the Township's Round Lake and Red Rock sites, and the Township's curbside service in the Village of Killaloe in 2009.

The Township anticipates completing the contaminant attenuation zone land acquisition process with the Ministry of Natural Resources in 2010.

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1.0 INTRODUCTION

1.1 SITE INFORMATION

The Red Rock waste disposal site is currently operating as a mobile domestic waste and recyclable transfer station under Provisional Certificate of Approval (PC of A) A412307, as amended December 5, 2007 (Appendix A), and services the residents of the Township of Killaloe, Hagarty, and Richards. The Red Rock site is located approximately three (3) kilometres (km) north of Bonnechere Provincial Park on Part Lot 11, Concession VII, in the geographic Township of Richards, in the amalgamated Township of Killaloe, Hagarty and Richards (Township), in Renfrew County. The site is accessed from Beechnut Lake Road (Figure 1), and is situated on Crown Land which is leased to the Township by the Ontario Ministry of Natural Resources (MNR) under Land Use Permit (LUP) 1675-1006299 (Appendix B).

Waste and recyclables collected at the Red Rock site are transferred to the Township's Killaloe waste disposal site for final disposal and processing.

1.2 BACKGROUND

The Red Rock waste disposal site had received domestic waste for landfilling from within the geographic Township of Richards since 1979; however, in March 2004, the Ontario Ministry of the Environment (MOE) issued a Provincial Officer Order (P142086) indicating that landfilling practices at the time were not consistent with the PC of A for the site. As a result of the Provincial Officer Order, and as instructed in correspondence from the MOE dated March 30, 2004, the Township ceased landfilling operations at the site, and established a mobile municipal solid waste and recycling transfer station at the Red Rock site.

The Township received MOE Technical Support Section (TSS) groundwater review comments dated August 24, 2007 confirming that the proposed area downgradient of the Red Rock site (south), is interpreted to be sufficient for a contaminant attenuation zone (CAZ) at the site (Figure 2). As such, and in accordance with Condition 40 of the amended PC of A (Appendix A), the Township resumed negotiations with the MNR in correspondence dated January 10, 2008 to acquire the 3.5 hectares (ha) for the landfilling area, operational buffer, and CAZ at the site (Greenview, 2009). The MNR provided a response dated January 21, 2008, indicating the subject lands (Figure 2) were suitable and would be released under a purchase agreement to the Township (Greenview, 2009). The proposed CAZ lands were surveyed, and a Crown Land Reference Plan was prepared and submitted in September 2008 to the MNR Pembroke office to initiate the formal process of land transfer from the Crown to the Township.

The process progressed in 2009, with the MNR approving the Crown Land Reference Plan and providing the Township with a purchase agreement to complete for the purchase of the approved CAZ lands. On December 17, 2009, on behalf of the Township, Greenview Environmental Management Limited (Greenview) submitted a letter to the MOE which documented the current status of the CAZ acquisition process for the Red Rock site, in order to satisfy Condition 40 of the PC of A (Appendix C). The Township anticipates completing the CAZ land acquisition process for the site in 2010.

Greenview was retained by the Township to complete the 2009 environmental monitoring and reporting program at the Red Rock waste disposal site.

1.3 PURPOSE AND SCOPE

The purpose of this report is to provide an overview of the annual environmental monitoring, environmental compliance, and operations at the Red Rock waste disposal site, per Condition 43 of the site PC of A, including the following:

- Groundwater quality assessment and Reasonable Use Concept (RUC; MOE Guideline B-7) compliance (Section 4.1).
- Site operational overview and capacity assessment (Section 4.2).
- Conclusions and recommendations for future monitoring programs at the site (Section 5.0).

2.0 SITE DESCRIPTION

The following sections present a summary of the physical characteristics for the Red Rock waste disposal site.

2.1 TOPOGRAPHY AND DRAINAGE

The Red Rock waste disposal site is located on a relatively flat, sandy plain area, surrounded by forested Crown lands, and situated approximately 1.5 km northeast of Round Lake. There are no surface water courses in the immediate vicinity of the waste mound, however approximately 100 metres (m) north of the Red Rock site is a pond, which represents the only sizable surface water body in the immediate area. A small creek discharges from the eastern end of the pond, which flows southeast and under County Road 58. Approximately 325 metres (m) southeast of County Road 58, the small tributary converges with another small creek originating from Jacks Lake. Following convergence, the creek flows to the southwest, eventually discharging into Round Lake.

Further to MOE TSS groundwater comments dated August 24, 2007 (Greenview, 2008), one (1) seasonal residence is located within 500 m of the landfill; however, it is located upgradient of the interpreted direction of groundwater flow and is not considered to be impacted by landfill-related activities (Figure 2).

2.2 HYDROGEOLOGICAL CONDITIONS

Overburden at the Red Rock waste disposal site was investigated and characterized by the installation of five (5) monitoring wells around the perimeter of the site and one (1) monitoring well directly in the waste mound, in August 2004 (SGS, 2005; Figure 2). The monitoring wells were installed in fine-grained, brown to grey sand, to depths ranging from 6.1 to 8.2 m below ground surface (bgs). Groundwater elevations ranged from 4.49 to 7.16 m bgs during the initial groundwater sampling event in August 2004, following the monitoring well installations (SGS, 2005; Appendix D).

As part of the 2006 environmental work program at the site, two (2) additional monitoring wells were installed at the Crown land boundary, slightly upgradient (north) of the County Road 58 right-of-way (Greenview, 2007; Figure 2). Overburden in this area is similar to that in the vicinity of the site with a shallow layer of dark organic soil overlaying layers of brown to grey fine to medium sand, and localized pockets of light brown medium to coarse sand, and sub-angular to sub-rounded gravels (monitoring well MW06-7). Available borehole logs for monitoring wells, including MW06-7 and MW06-8, are provided in Appendix D.

Historically, the direction of groundwater flow within the shallow overburden unit at the Red Rock site is to the south and southeast (Figure 2).

2.3 OPERATIONAL SETTING

The Red Rock waste disposal site currently consists of an approved waste disposal area of 1.0 ha within a total property area of 1.7 ha (Appendix A; Figure 3). The site is presently situated on Crown land, under lease from the MNR under LUP 1675-1006299, which expires on March 31, 2011 (Appendix B); however, the Township is in the final stages of land acquisition from the Crown. Adjacent to the eastern boundary of the Red Rock site is a former Ontario Ministry of Transportation (MTO) Works Yard.

The Township installed two (2) additional monitoring wells at the Red Rock site in 2006 per MOE recommendations (February 23, 2006; Greenview, 2007). As part of the 2008 environmental monitoring program at the site, and further to the MOE TSS groundwater review memorandum dated August 24, 2007, in which the lands proposed for CAZ (Figure 2) were deemed to be sufficient, the Township initiated negotiations with the MNR to acquire the lands for the landfilling area, operational buffer, and CAZ purposes downgradient of the site (Greenview, 2008). The MNR provided a response dated January 21, 2008, indicating the subject lands (Figure 2) were suitable and would be released under a purchase agreement to the Township (Greenview, 2008). The land area proposed for the CAZ was surveyed by an OLS in 2008 (W. Simpson), and a Crown Land Reference Plan was prepared and submitted in September 2008 to the MNR Pembroke office to initiate the formal process of land transfer from the Crown to the Township. The process progressed in 2009, with the MNR approving the Crown Land Reference Plan and providing the Township with a purchase agreement to complete for the purchase of the approved CAZ lands. On December 17, 2009, on behalf of the Township, Greenview Environmental Management Limited (Greenview) submitted a letter to the MOE which documented the current status of the CAZ acquisition process for the Red Rock site, in order to satisfy Condition 40 of the PC of A (Appendix C). The Township anticipates completing the CAZ land acquisition process for the site in 2010.

The site currently operates as a mobile domestic waste and recycling transfer station, and has been closed to landfilling operations since 2004. As part of waste transfer operations at the site, the Township maintains a site attendant's office, and during operational hours, a mobile compactor truck and recycling depot (Figure 3). Domestic waste and blue box recyclables received at the site are deposited in the mobile compactor truck and recycling totes for transfer, disposal, and marketing at the Killaloe waste disposal site, as applicable to the waste type.

Bulk recyclables such as scrap metal, white goods, tires, etc., as well as brush and clean wood are not accepted at the Red Rock site; these materials are directed to the Killaloe waste disposal site for disposal

and management. Old corrugated cardboard (OCC) from the entire Township is directed to the Killaloe site for management.

3.0 2009 ENVIRONMENTAL MONITORING PROGRAM

The following sections present a methodology of the environmental monitoring conducted at the Red Rock waste disposal site in 2009.

3.1 GROUNDWATER MONITORING

As part of the 2009 environmental monitoring program, groundwater monitoring and sampling was completed at the Red Rock site by Greenview on May 6, 2009 and August 10, 2009 from the network of existing groundwater monitoring wells (Table 1). All eight (8) monitoring wells were sampled as part of the 2009 environmental monitoring program, and groundwater elevations were measured at each monitoring well using an electronic water level tape prior to sampling. Based on the groundwater elevation a well purge volume equivalent to approximately three (3) borehole volumes was calculated in-situ using a standard conversion factor relevant to the respective well diameter.

Groundwater samples were collected from each monitoring well using dedicated polyethylene tubing and inertial lift foot-valves, and were analyzed for the parameter suite listed in Table 1. Samples were collected into appropriate sample bottles as provided by an accredited laboratory and the designated sample bottle for metal parameters was field-filtered using a dedicated High Capacity 45 micron filter to reduce the potential for turbidity-induced bias in the analytical results for the metal parameters.

Volatile organic compounds (VOC) were not sampled as part of the 2009 groundwater monitoring program at the site; the next scheduled sampling event for VOCs at the Red Rock site is in 2011 (Table 1).

A duplicate groundwater sample for Quality Assurance and Quality Control (QA/QC) purposes was obtained from monitoring well BH04-1 during both the May 6, 2009 and August 10, 2009 sampling events.

Field measurements of pH, dissolved oxygen (DO), conductivity, and temperature were recorded at each respective groundwater well immediately following the collection of the groundwater samples. Field sampling records completed during the 2009 monitoring program are included in Appendix E. The groundwater samples were recorded on a laboratory Chain of Custody Form, and the samples were placed in coolers packed with contained ice for preservation during transport to the analytical laboratory.

The results of the 2009 groundwater monitoring program are presented in Section 4.1.

3.2 SURFACE WATER MONITORING

As documented in the *2006 Annual Report* (Greenview, 2007), and further to MOE TSS surface water review comments dated October 20, 2005, a surface water monitoring program was established at the Red Rock site as part of the 2006 environmental monitoring program (Greenview, 2007).

Based on the results of the 2006 surface water monitoring program at the site, which were presented in the *2006 Annual Report* (Greenview, 2007), it was determined that the Red Rock waste disposal site was not having an impact on adjacent surface water systems at/near the site. As such, and in accordance with MOE TSS surface water review comments on the *2006 Annual Report* (Greenview, 2007) dated November 28, 2007, in which the results of the 2006 surface water program were confirmed, the surface water monitoring program was discontinued at the site in 2007 (Greenview, 2008). The amendments to the environmental monitoring program at the site, including the discontinuation of the surface water monitoring program, were detailed in correspondence to the MOE Environmental Assessment and Approvals Branch (EAAB) dated May 8, 2007 (Greenview, 2008), and were approved in an amendment to the PC of A (A412307) dated December 5, 2007 (Appendix A).

3.3 ANALYTICAL LABORATORY ACCREDITATION

Collected groundwater samples were submitted for analysis to the SGS Environmental Laboratory located in Lakefield, Ontario. The SGS Environmental Analytical Laboratory is accredited by the Standards Council of Canada (SCC) and the Canadian Association for Environmental Analytical Laboratories (CAEAL), for specific environmental testing procedures listed in the scope of accreditation. The SGS Environmental Analytical Laboratory is licensed by the MOE to perform analysis on Drinking Water in Ontario in accordance with the *Safe Drinking Water Act*.

3.4 LANDFILL GAS MONITORING

Landfill gas monitoring is not part of the current environmental monitoring program for the site. The waste mound at the Red Rock site is covered with porous soil materials allowing natural gas flux to the atmosphere. Overburden geology at and adjacent to the site is characterized by shallow, sandy materials, which, coupled with the extended distance to the nearest residence, provide a minimal risk of landfill gases impinging off-site receivers.

3.5 OPERATIONAL MONITORING

Operational monitoring at the Red Rock site is minimal given that the site operates as a mobile municipal solid waste and recycling transfer station only, with received domestic waste and recyclables transported to

the Township's Killaloe site for final disposal and/or processing. Due to the Red Rock site's operations, a topographic survey of the waste mound was not required in 2009.

Daily waste records for the Red Rock site are completed as part of regular site operations to monitor vehicular traffic, and recycling depot operations. The Township submits annual waste diversion reports in accordance with the Waste Diversion Ontario (WDO) Municipal Datacall, inclusive of the Red Rock site, to WDO.

The results of the 2009 operational monitoring are presented in Section 4.2.

4.0 ENVIRONMENTAL MONITORING RESULTS

The following sections present a summary of the environmental monitoring results obtained during the Red Rock waste disposal site 2009 environmental monitoring program.

4.1 GROUNDWATER QUALITY ASSESSMENT

The results of the 2009 groundwater monitoring program conducted at the site are presented as follows.

4.1.1 GROUNDWATER CONFIGURATION

Historically, the groundwater configuration at the site has been interpreted to flow towards the south and southeast, in the general direction of Round Lake (Figure 2). The direction of groundwater flow within the shallow overburden unit at the Red Rock site with the inclusion of 2009 groundwater elevations is consistent with historical interpretations, and is interpreted to be toward the south and southeast. Groundwater elevation data obtained during the 2009 groundwater monitoring program at the site is provided in Table 2. Average horizontal gradients in the vicinity of the waste mound, and southeast of the waste mound were calculated in May 2009 to be 0.012 and 0.014 in magnitude, respectively.

4.1.2 GROUNDWATER QUALITY

The results of the 2009 groundwater monitoring program are presented in Table 3 and the accredited laboratory Certificates of Analysis (SGS) are attached in Appendix F. Analytical data obtained from respective groundwater wells have been compared to the Ontario Drinking Water Standards (ODWS; MOE, 2003), background water quality at the site, and MOE Guideline B-7 and the RUC (MOE, 1994a).

Background water quality at the Red Rock site has historically been interpreted from sampling at monitoring wells BH04-1 and BH04-3, as these wells are located upgradient of the waste mound (Figure 2). The water quality results from the background wells correspond with historical results (Table 3); however, some trends are apparent: monitoring well BH04-1 displayed decreasing trends for the parameters calcium, conductivity, and total dissolved solids (TDS), whereas monitoring well BH04-3 was interpreted to have a decreasing trend with respect to TDS. Consistent with historical results, monitoring well BH04-1 was observed to exceed ODWS for alkalinity (low) and lab-tested pH (low) in May and August 2009 (Table 3; Greenview, 2009). Similarly, monitoring well BH04-3 exceeded ODWS for alkalinity (low), and lab-tested pH (low) in May and August 2009, and for field-tested pH (low) in May 2009 (Table 3). Groundwater quality at monitoring wells BH04-1 and BH04-3 remains representative of background water quality in the area of the site.

Monitoring well BH04-2 is located within the waste mound, and has historically been used to determine the leachate quality at the Red Rock site; however, groundwater quality results in 2009 suggests that downgradient monitoring well BH04-5 is most impacted from landfill-leachate (Figure 2). When compared with background water quality, the majority of parameter concentrations remain elevated above background levels (Table 3). During both the May and August 2009 sampling events, concentrations of iron exceed ODWS, though iron has consistently exceeded ODWS limits since August 2004 (Table 3; Greenview, 2009). Similar to historical reports, monitoring well BH04-2 was observed to have decreasing trends for alkalinity and ammonia (Table 3). Monitoring well BH04-2 continues to present characteristics indicative of landfill-related activities in 2009.

Groundwater quality immediately downgradient of the waste disposal site is characterized by monitoring wells BH04-4, BH04-5, and BH04-6, which are all located at the current MNR LUP boundary downgradient of the site (Figure 2).

Groundwater monitoring well BH04-4 is located along the eastern MNR LUP boundary, near the southeastern corner of the approved waste disposal area (Figure 2). Consistent with historical interpretations, the majority of parameter concentrations remain elevated above background levels at monitoring well BH04-4 (Greenview, 2009; Table 3). Monitoring well BH04-4 was observed to exceed ODWS for field-tested pH (low) in May and August 2009; however, lab-tested pH values were noted to be within the acceptable ODWS range for the same sampling period (Table 3). Similar to historical reports, increasing trends were observed for alkalinity and sodium in 2009 at monitoring well BH04-4 (Table 3). Monitoring well BH04-4 continues to exhibit slight landfill-related impacts with the inclusion of 2009 water quality.

Monitoring well BH04-5 is located approximately 10 m south and downgradient of the approved waste disposal area at the Red Rock site, and adjacent to the southern MNR LUP boundary (Figure 2). Consistent with historical results, monitoring well BH04-5 exhibits the majority of parameter concentrations elevated above background levels, with some parameters observed to be higher in concentration than at monitoring well BH04-2, which is located directly within the waste mound (Table 3). In May and August 2009, monitoring well BH04-5 exhibited ODWS exceedances of dissolved organic carbon (DOC) and iron, which is consistent with historical results (Table 3; Greenview, 2009). Similar to historical results, decreasing trends were observed at monitoring well BH04-5 for alkalinity, ammonia, barium, boron, calcium, chloride, DOC, and TDS following the inclusion of 2009 data (Table 3). Monitoring well BH04-5 continues to exhibit water quality that appears to be most impacted from landfill-derived leachate at the site, following inclusion of 2009 results.

Groundwater monitor BH04-6 is located on the southern boundary of the current MNR LUP, approximately 75 m west of monitoring well BH04-5 (Figure 2). In 2009, the majority of parameter concentrations at monitoring well BH04-6 were elevated above background concentrations, similar to historical results (Greenview, 2009; Table 3). With the exception of alkalinity (low) in May and August 2009, there were no ODWS exceedances at BH04-6 in 2009 (Table 3). Decreasing trends at monitoring well BH04-6 were noted for alkalinity and nitrate following the inclusion of 2009 data (Table 3). Groundwater quality may be slightly impacted by leachate at monitoring well BH04-6; however, the majority of parameter concentrations are significantly decreased in magnitude from values found at monitoring well BH04-5.

Monitoring wells MW06-7 and MW06-8 are located at the southern CAZ boundary, approximately 70 m south of the current MNR LUP boundary, and approximately 20 m north of County Road 58 (Figure 2). Monitoring well MW06-7 is situated near the south-eastern corner of the CAZ, whereas MW06-8 is positioned near the mid-point of the southern extent of the CAZ. Many of the parameter concentrations were observed to be slightly elevated above background groundwater quality at both monitoring wells; however, parameter concentrations are significantly decreased in magnitude from water quality data obtained from monitoring wells closer to the waste mound, indicating that successful attenuation downgradient of the waste mound is occurring (Table 3). In many cases, concentrations observed at MW06-7 and MW06-8 are comparable to background groundwater quality at the site.

For the 2009 environmental monitoring program, monitoring well MW06-7 was observed to have ODWS exceedances for alkalinity (low) and lab-tested pH (low) for both the May and August 2009 sampling events, and for field-tested pH (low) in May 2009 (Table 3). Similarly, monitoring well MW06-8 was noted to exceed ODWS for alkalinity (low) in May and August 2009, and for iron in August 2009 (Table 3). Following the inclusion of 2009 data, decreasing trends were observed for alkalinity, chemical oxygen demand (COD), and sulphate at monitoring well MW06-7. Monitoring well MW06-8 was noted to have decreasing trends for calcium, chloride, sodium and TDS with the addition of 2009 data. The proximity of monitoring wells MW06-7 and MW06-8 to County Road 58 (less than 25 m) and the impacts related to winter road maintenance are interpreted as the primary source for current and historically elevated TDS at the southern CAZ boundary. Ultimately, the majority of parameter concentrations at MW06-7 and MW09-8 are decreased in magnitude from monitoring wells in close proximity to the site, indicating that attenuation downgradient of the waste mound is occurring.

The blind duplicate samples collected at BH04-1 during both the May and August sampling events were similar to the identified sample indicating that the results of the 2009 groundwater monitoring program can be interpreted with confidence.

4.1.3 REASONABLE USE CONCEPT ASSESSMENT

In an effort to assess potential leachate impacts migrating beyond the CAZ boundary, the MOE's RUC was used as an assessment tool to monitor downgradient impacts from the waste disposal site. Downgradient impacts are typically assessed using the MOE RUC at monitoring wells located at, or in close proximity to, the downgradient CAZ boundary. The downgradient monitoring wells located near the CAZ boundary were compared to trigger concentrations for specific parameters as determined by leachate quality at the site using the MOE's RUC for groundwater (MOE *Procedure B-7-1*, 1994a).

The MOE *Procedure B-7-1: Determination of Contaminant Limits and Attenuation Zones* iterates that in accordance with the appropriate criteria for particular uses, a change in groundwater quality on an adjacent property as a result of landfilling activities will only be accepted by the MOE as follows:

> *The quality cannot be degraded by an amount in excess of 50% of the difference between background and the Ontario Drinking Water Standards for non-health related parameters and in excess of 25% of the difference between background and the Ontario Drinking Water Standards for health related parameters. Background is considered to be the quality of the groundwater prior to any man made contamination.*
>
> *MOE Procedure B-7-1*

The RUC assessment was conducted using the concepts and procedures outlined in MOE *Procedure B-7-1* (MOE, 1994a), specifically using the median value of individual background parameter concentrations from monitoring wells BH04-1 and BH04-3, to characterize natural groundwater quality at the site. Groundwater monitoring wells MW06-7 and MW06-8 were used to monitor downgradient water quality south of the Red Rock site on the north side of County Road 58, for assessing site compliance with the MOE RUC at the CAZ boundary (Figure 2).

All parameters tested as part of the established annual monitoring program were used as groundwater triggers, and a respective RUC criteria value was calculated for each parameter at the Red Rock waste disposal site. The trigger concentrations used to assess RUC compliance for the groundwater regime at the site is based on the MOE RUC for each of the respective parameters.

The RUC values for individual parameters should be generated each year based on analytical results obtained from the groundwater monitoring program. If RUC exceedances are noted, then action will be undertaken as appropriate and necessary in accordance with a defined groundwater contingency plan for the site. In cases where a groundwater contingency plan is not defined, a meeting with representatives of

the district MOE office should be held to develop an appropriate contingency plan, as necessary and appropriate for the particular site.

As previously noted, the Township is in the final stages of acquiring the MOE approved CAZ lands from the Crown, and based on the historical groundwater monitoring results, the CAZ area is deemed to be sufficient for leachate attenuation at the site. Therefore, RUC should be applied to monitoring wells MW06-7 and MW06-8, as they are located at the southern extent of the downgradient CAZ boundary.

Monitoring well MW06-7 was observed to exceed RUC for lab-tested pH (low) in May and August 2009, for field-tested pH (low) in May 2009, and for nitrate in August 2009 (Table 3). Since lab-tested pH (low) was noted to be below the RUC limits at both background monitoring wells (BH04-1; BH04-3), the exceedances of RUC for lab-tested pH (low) at MW06-7 in 2009 are interpreted to be the result of naturally-occurring conditions at the site (Table 3). Similarly, field-tested pH (low) was observed to exceed the RUC at background groundwater monitoring well BH04-3, and therefore the exceedance of RUC at MW06-7 for field-tested pH (low) is interpreted to be the result of naturally-occurring conditions (Table 3). The exceedance of RUC for nitrate in August 2009 at MW06-7 is interpreted to be anomalous, as the concentration of nitrate at MW06-7 is significantly elevated above concentrations observed near the waste mound, and specifically to monitoring well BH04-5 which is interpreted to be most impacted by landfill-leachate (Table 3). Therefore, the Red Rock site is interpreted to be in compliance with RUC and conformance with MOE Guideline B-7 at monitoring well MW06-7 located at the downgradient CAZ boundary in 2009.

Monitoring well MW06-8 was noted to exceed RUC for iron in August 2009 (Table 3); however, the iron concentrations observed at upgradient monitoring well BH04-6 were observed to be reduced in concentration than at MW06-8 (Table 3). Additionally, iron has not historically been elevated at monitoring well MW06-8 since sampling was initiated in 2006 (Table 3). Therefore, the elevated iron concentration in August 2009 is considered to be naturally-occurring and the Red Rock site is interpreted to be in compliance with RUC and conformance with MOE Guideline B-7 at monitoring well MW06-8 located at the downgradient CAZ boundary in 2009; however, future monitoring of iron concentrations is required at the CAZ boundary to ensure that the elevated iron concentration observed in August 2009 are the result of naturally-occurring conditions adjacent to County Road 58, and not to landfill-related activities.

Based on the results of the 2009 environmental monitoring program, the RUC is being met at the downgradient CAZ boundary, and as such the Red Rock site is interpreted to be in conformance with MOE Guideline B-7.

4.2 OPERATIONS SUMMARY

A summary of 2009 waste management operations at the Red Rock waste disposal site is presented below.

4.2.1 SITE OPERATIONS

The site currently operates as a mobile domestic waste and recyclable transfer station, servicing the residents within the geographic boundaries of the Township of Killaloe, Hagarty, and Richards (PC of A A412307). The site has been closed to landfilling operations since 2004.

A sign is posted at the entrance to the waste disposal site that provides hours of operation, permitted users, applicable Township waste management by-laws, and emergency contact numbers.

Hours of operation at the Red Rock site, are as follows:

Operational Hours	
Thursday	12:30 p.m. – 4:00 p.m.
Sunday	12:30 p.m. – 4:00 p.m

The majority of the Red Rock waste disposal site is well screened with surrounding trees and thick vegetation. A lockable gate is present at the site entrance, controlling access to the waste mound and facilities on-site, while a page wire fence exists around the perimeter of the site (Figure 3).

The access roads at the site entrance and within the Red Rock site have sufficient width to allow for unimpeded winter travel and access for emergency and snow removal equipment. The site access road was observed to be in serviceable condition during the routine site inspections conducted by Greenview during various site visits throughout 2009.

4.2.2 WASTE DISPOSAL / TRANSFER SUMMARY

The Red Rock waste disposal site is currently closed to active landfilling operations; however, the site operates as a mobile solid waste and recycling transfer station, with all domestic waste and recyclables transferred to the Township's Killaloe site for final disposal/market.

The Red Rock site is currently approved in accordance with PC of A A412307 (Appendix A) to receive up to a maximum of 16 cubic metres (m^3) of non-hazardous municipal waste in a mobile compactor vehicle, and for segregation of regular blue-box recyclables into a maximum of eighteen (18) 360 litre (L) bins on a mobile-trailer unit. Bulk recyclables such as scrap metal, white goods, tires, etc., as well as brush and

clean wood are not accepted at the Red Rock site, and are directed to the Killaloe waste disposal site for management. OCC is also directed to the Killaloe site for management.

Based on Township records, approximately 1,338 vehicles visited the Red Rock site in 2009, with approximately 3,478 bags of residential waste received during the period January to December 2009 for transfer to the Township's Killaloe site for disposal. Additionally, based on Township records 1,061 bags of containers (tin/aluminum/plastic/glass), and 416 bags of fibres were received at the Red Rock site in 2009 and transferred to the Township's Killaloe site for pickup by Beaumen Waste Management/Recycling.

Recycling tonnage records provided by the Beaumen Waste Management and Township records indicate that a total of approximately 202.0 tonnes of recyclable material was received at the Killaloe waste disposal site in 2009. Recyclable quantities contributing to this total included approximately 65.0 tonnes of containers (tin/aluminum/plastic/glass), 73.9 tonnes of fibres, and 63.1 tonnes of OCC. Recycling tonnages noted above for the Killaloe waste disposal site include quantities of recycling received and transported to the Beaumen Waste Management Systems Ltd. In Renfrew, Ontario from the Township's Round Lake and Red Rock sites in 2009, and the Township's curbside collection within the Village of Killaloe.

4.2.3 SITE INSPECTIONS AND MAINTENANCE

Site inspections of the waste disposal area and property at the Red Rock site were conducted by Greenview on May 6, 2009 and August 10, 2009 during the May and August 2009 sampling events. The Township also conducted periodic investigations to verify the compliance status of the site.

The site inspections included a cursory investigation of housekeeping/litter control aspects, monitoring well maintenance requirements in accordance with O. Reg. 903 (Wells), and a general site overview for MOE regulations and protocol compliance contraventions. There were no compliance action items requiring immediate action on the part of the Township observed during the routine site inspections completed in 2009.

4.2.4 COMPLAINTS

Based on Township records, two (2) complaints were received in 2009 with respect to waste management operations within the Township in 2009. Complaints received were regarding bag tags – their use and payment for them, respectively. The Township clarified the specific use of tags, and is reviewing its policies and procedures in this regard.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the 2009 environmental monitoring program completed for the Red Rock waste disposal site, the following conclusions are provided:

- The groundwater configuration at the site is similar to historical results with the direction of groundwater flow in the shallow overburden unit being to the south and southeast. Average horizontal gradients in the vicinity of the waste mound, and the southeast of the waste mound were calculated in May 2009 to be 0.012 and 0.014, respectively at the Red Rock waste disposal site.

- Groundwater quality immediately downgradient from the site at the current MNR LUP boundary at monitoring wells BH04-4, BH04-5, and BH04-6 continue to exhibit impacts from landfill-derived leachate in 2009. Monitoring well BH04-5 exhibits water quality parameter concentrations interpreted to be most affected by landfill-leachate, and monitoring wells BH04-4 and BH04-6 were observed to have parameter concentrations decreased in magnitude in comparison with monitoring well BH04-5. Groundwater quality at the southern CAZ boundary, which is assessed with monitoring wells MW06-7 and MW06-8, appears to be slightly impacted from landfill-derived leachate in 2009; however, the majority of concentrations were observed to be decreased in magnitude from those at monitoring wells in close proximity to the waste mound, indicating that attenuation downgradient of the waste mound is occurring. In many cases, concentrations observed at MW06-7 and MW06-8 are comparable to background groundwater quality at the site.

- RUC exceedances were noted at MW06-7 for lab-tested pH (low) in May and August 2009, for field-tested pH (low) in May 2009, and for nitrate in August 2009. Since low pH values are observed at background groundwater monitoring wells at the site, for both field-tested and lab-tested pH values, the observed low pH values at MW06-7 are interpreted to be naturally-occurring at the site (Table 3). The exceedance of RUC for nitrate in August 2009 at MW06-7 is interpreted to be anomalous, as the concentration of nitrate at MW06-7 is significantly elevated above concentrations observed near the waste mound, and specifically to monitoring well BH04-5 which is interpreted to be most impacted by landfill-leachate (Table 3). The Red Rock site is interpreted to be in compliance with RUC and conformance with MOE Guideline B-7 at monitoring well MW06-7 at the downgradient CAZ boundary in 2009.

- Monitoring well MW06-8 was noted to exceed RUC for iron in August 2009 (Table 3); however, the iron concentrations observed at upgradient monitoring well BH04-6 were observed to be reduced in concentration than at MW06-8 (Table 3). Additionally, iron has not historically been elevated at

monitoring well MW06-8 since sampling was initiated in 2006 (Table 3). Therefore, the elevated concentration of iron is considered to be naturally-occurring, and the Red Rock site is interpreted to be in compliance with RUC and conformance with MOE Guideline B-7 at monitoring well MW06-8 at the downgradient CAZ boundary. Additional monitoring in future reports is required to confirm that the elevated iron concentration in August 2009 is the result of naturally-occurring conditions adjacent to County Road 58 and not to landfill-related activities.

- Based on Township records, approximately 1,338 vehicles visited the Red Rock site in 2009, with approximately 3,478 bags of residential waste received during the period January to December 2009 for transfer to the Township's Killaloe site for disposal. Additionally, based on Township records 27 bags of mixed glass (clear and coloured), 1,061 bags of containers (tin/aluminum/plastic), and 416 bags of fibres were received at the Red Rock site in 2009 and transferred to the Township's Killaloe site for pickup by Beaumen Waste Management/Recycling.

- Recycling tonnage records provided by the Beaumen Waste Management and Township records indicate that a total of approximately 202.0 tonnes of recyclable material was received at the Killaloe waste disposal site in 2009. Recyclable quantities contributing to this total included approximately 65.0 tonnes of containers (tin/aluminum/plastic/glass), 73.9 tonnes of fibres, and 63.1 tonnes of OCC. Recycling tonnages noted above for the Killaloe waste disposal site include quantities of recycling received and transported to the Beaumen Waste Management Systems Ltd. In Renfrew, Ontario from the Township's Round Lake and Red Rock sites in 2009, and the Township's curbside service in the Village of Killaloe.

The following recommendations are provided to the Township for consideration as part of the 2010 work program for the Red Rock waste disposal site:

- The 2009 groundwater monitoring program for the site should include sampling events in the spring and summer of all monitoring wells using the parameter suite provided in Table 1, to continue to monitor the groundwater regime at the site.

- With consideration of the interpreted conformance with MOE Guideline B-7 at monitoring wells MW06-7 and MW06-8 at the downgradient CAZ boundary (Figure 2), the Township should proceed with finalizing the acquisition of the proposed CAZ from the MNR in 2010, in accordance with Condition 40 of the PC of A (A412307).

6.0 CLOSING

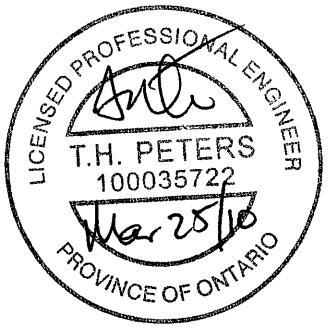
Greenview has prepared this *2009 Annual Report* in accordance with Condition 43 of the PC of A A412307 and MOE guidelines to document the results of the 2009 environmental monitoring program for the Red Rock waste disposal site.

This report is governed by the attached statement of service conditions and limitations (Appendix G).

All respectfully submitted by,

GREENVIEW ENVIRONMENTAL MANAGEMENT LIMITED

Dan Hagan, B.Sc. (Geology)
Project Technologist



Tyler H. Peters, P.Eng.
Project Manager

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7.0 REFERENCES

Greenview Environmental Management Limited, 2007. *2006 Annual Report, Red Rock Waste Disposal Site (A412307).* March 27, 2007.

Greenview Environmental Management Limited, 2008. *2007 Annual Report, Red Rock Waste Disposal Site (A412307).* March 26, 2008.

Greenview Environmental Management Limited, 2009. *2008 Annual Report, Red Rock Waste Disposal Site (A412307).* March 20, 2009.

Ontario Ministry of the Environment, 1994a. *MOE Procedure B-7-1: Determination of Contaminant Limits and Attenuation Zones.* 1994.

Ontario Ministry of the Environment, 1994b. *Water Management: Policies, Guidelines, Provincial Water Quality Objectives of the Ministry of Environment and Energy.* July, 1994.

Ontario Ministry of the Environment, 2003. *Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines*. June, 2003.

SGS Lakefield Research Ltd., 2004. *Design and Operations Plan, Municipal Solid Waste Transfer Station, Red Rock Waste Disposal Site.* June 23, 2004.

SGS Lakefield Research Ltd., 2005. *Investigative Report, Red Rock Waste Disposal Site.* January 21, 2005.

SGS Lakefield Research Ltd., 2006. *2005 Annual Report, Red Rock Waste Disposal Site.* March 24, 2006.

TABLES

Greenview
ENVIRONMENTAL MANAGEMENT

Table 1
Red Rock Waste Disposal Site
2009 Groundwater Monitoring Program

Location	Frequency	Parameters
Groundwater BH04-1, BH04-2, BH04-3, BH04-4, BH04-5, BH04-6, MW06-7, MW06-8 1 QA/QC	Twice (Spring and Summer) Field Measurements (pH, Conductivity, Temperature)	Alkalinity, ammonia, barium, boron, calcium, chloride, conductivity, iron, magnesium, nitrate, pH, sodium, TDS, sulphate, COD, DOC
BH04-2	Twice (Spring and Summer) VOC's Next in 2011	BOD, TSS EPA 624 VOC's

Greenview
ENVIRONMENTAL MANAGEMENT

Table 3
Groundwater Quality
Red Rock Waste Disposal Site

Parameter	RUC [1]	ODWS [2]	BH04-1												BH04-2											
			11-Aug-04	19-Oct-04	11-May-05	10-Aug-05	8-May-06	14-Aug-06	30-Apr-07	9-Aug-07	20-May-08	21-Aug-08	6-May-09	10-Aug-09	11-Aug-04	19-Oct-04	11-May-05	10-Aug-05	8-May-06	14-Aug-06	30-Apr-07	9-Aug-07	20-May-08	21-Aug-08	6-May-09	10-Aug-09
Alkalinity (as $CaCO_3$)	255	30 - 500	26	22	12	15	12	13	8	7	8	6	10	8	203	243	127	170	123	161	136	116	122	116	111	131
Ammonia, Total (N)	N/L	N/L	< 0.1	< 0.1	< 0.1	< 0.1	0.07	0.6	< 0.1	< 0.1	1.5	0.2	< 0.1	0.2	4.6	6.9	4.1	3.4	3.6	4.6	5.5	4.1	4.1	2.7	2.0	2.0
Barium	0.26	1.0	0.007	0.008	0.008	0.008	0.014	0.011	0.015	0.010	0.009	0.007	0.00712	0.00715	0.18	0.232	0.153	0.136	0.122	0.206	0.172	0.126	0.164	0.118	0.116	0.133
Boron	1.3	5.0	< 0.01	< 0.01	< 0.01	< 0.01	< 0.003	0.01	0.004	< 0.002	0.004	0.004	0.0033	0.0039	0.23	0.34	0.07	0.21	0.07	0.24	0.12	0.16	0.10	0.17	0.118	0.146
Biological Oxygen Demand	N/L	N/L	—	—	—	—	—	—	—	—	—	—	—	—	5	< 1	4	< 1	—	—	1	3	4	< 2	< 4	< 4
Calcium	N/L	N/L	7	4.37	4.69	5.08	6.71	6.03	6.92	3.81	3.98	2.97	3.16	2.68	61.0	65.0	40.6	50.4	37.3	52.5	42.5	32.5	39.9	36.4	37.5	50.8
Chloride	126.4	250	2.8	7.3	6.1	5.8	12	11	17	7.9	5.7	2.8	5.0	4.3	33	24	15	21	20	12	6	6	7	23	11	12
Chemical Oxygen Demand	N/L	N/L	8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	8	42	24	13	22	16	19	11	13	17	11	11	23
Conductivity (µS/cm) [3]	N/L	N/L	66	66	53	71	67	62	59	46	42	37	54	39	495	382	287	467	298	366	303	238	298	275	287	317
Dissolved Organic Carbon	3.0	5	< 1	< 1	< 1	< 1	1.0	0.8	1.2	< 1	< 1	2.0	1.1	< 1.0	8.2	8.6	3.3	6.4	3.8	5.8	2.5	2.5	3.3	4.0	3.6	4.3
Iron	0.2	0.3	< 0.02	< 0.02	< 0.02	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.02	0.06	41.7	37.7	29.4	38.2	26.2	13.5	14.3	19.6	23.4	23.6	25.2	36.0
Magnesium	N/L	N/L	1.5	1.34	1.67	1.61	1.94	1.88	2.13	1.30	1.30	0.98	0.910	0.778	11.4	10.8	7.41	10.30	7.56	10.20	6.57	6.04	6.07	5.97	5.43	7.39
Nitrate	2.5	10	0.66	0.68	1.2	0.63	0.73	0.44	< 0.05	0.12	< 0.05	< 0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.06	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrite	0.3	1	—	—	—	—	< 0.06	< 0.06	—	—	—	—	—	—	—	—	—	—	< 0.06	< 0.06	—	—	—	—	—	—
Nitrate + Nitrite (as Nitrogen)	2.7	10	—	—	—	—	—	0.44	—	—	—	—	—	—	—	—	—	—	—	0.06	—	—	—	—	—	—
pH (units)	6.5 - 8.5	6.5 - 8.5	—	—	—	—	6.56	6.93	6.82	6.48	6.15	6.57	6.45	6.47	—	—	—	—	6.97	7.43	7.59	7.62	6.88	6.93	6.90	7.02
pH (units) [3]	6.5 - 8.5	6.5 - 8.5	6.38	6.71	6.5	6.79	6.80	6.95	6.98	7.69	7.67	7.84	6.76	6.83	6.25	6.57	6.9	6.28	6.80	6.54	6.41	6.60	6.75	6.57	6.66	6.85
Sodium	102.2	200	5.32	6.02	6.31	7.30	8.14	6.48	9.94	6.66	6.07	6.93	6.50	6.34	15.7	17.3	16.5	14.5	10.6	16.6	11.0	11.7	11.5	10.3	8.13	9.74
Sulphate	253.7	500	8.2	7.4	7.1	8.8	8.5	7.3	9.4	9.5	13	11	9.2	9.1	17	18	22	14	20	13	20	16	35	11	34	22
Total Dissolved Solids	274	500	63	60	69	77	83	77	< 30	46	49	46	< 30	< 30	317	314	231	266	237	240	196	160	189	191	209	186
Total Suspended Solids	N/L	N/L	—	—	—	—	—	—	—	—	—	—	—	—	25	21	912	536	—	—	30	1820	470	2710	509	1350

Notes:
1. Reasonable Use Concept (RUC) criteria.
2. Ontario Drinking Water Standards (ODWS).
3. Result from field analysis.

Results expressed in mg/L unless otherwise noted.
Bold and shaded values exceed ODWS.
Bold and italic values exceed RUC limits.
N/L indicates No Limit.
"—" parameter not analyzed.

Greenview
ENVIRONMENTAL MANAGEMENT

Table 3
Groundwater Quality
Red Rock Waste Disposal Site

Parameter	RUC [1]	ODWS [2]	BH04-5											BH04-6										
			11-Aug-04	19-Oct-04	11-May-05	10-Aug-05	8-May-06	14-Aug-06	30-Apr-07	9-Aug-07	20-May-08	21-Aug-08	6-May-09	10-Aug-09	11-Aug-04	19-Oct-04	11-May-05	10-Aug-05	8-May-06	14-Aug-06	30-Apr-07	9-Aug-07	20-May-08	21-Aug-08	6-May-09	10-Aug-09
Alkalinity (as $CaCO_3$)	255	30 - 500	341	363	370	409	404	402	382	361	351	356	275	310	23	26	31	40	35	27	22	17	27	4	25	19
Ammonia, Total (N)	N/L	N/L	0.2	19.5	21.5	18.9	17.1	19.8	27.4	17.9	15.9	8.6	10.5	10.2	0.1	0.1	0.1	< 0.1	0.07	3.2	0.2	< 0.1	0.4	< 0.1	< 0.1	< 0.1
Barium	0.28	1.0	0.370	0.270	0.249	0.334	0.274	0.354	0.466	0.278	0.280	0.267	0.200	0.217	0.012	0.019	0.061	0.025	0.036	0.014	0.013	0.012	0.025	0.015	0.0293	0.0174
Boron	1.3	5.0	0.65	0.45	0.24	0.42	0.30	0.44	0.57	0.28	0.23	0.25	0.214	0.257	0.01	0.01	0.55	0.12	0.56	0.04	0.01	0.003	0.23	0.02	0.206	0.016
Biological Oxygen Demand	N/L	N/L	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Calcium	N/L	N/L	127	84.1	83.7	117.0	86.0	103.0	116.0	74.9	72.0	75.3	53.0	60.6	11.1	12.5	35.9	16.7	26.1	10.0	8.8	8.6	25.1	9.3	10.4	12.1
Chloride	126.4	250	40	22	22	20	45	31	33	33	29	20	18	9	17	18	18	20	14	10	9.9	15	14	17	20	28
Chemical Oxygen Demand	N/L	N/L	60	34	33	57	41	52	57	26	26	35	29	32	< 8	< 8	9	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8
Conductivity (µS/cm) [3]	N/L	N/L	995	497	628	104	705	637	881	660	622	604	563	540	113	80	203	168	197	76	71	64	133	79	182	106
Dissolved Organic Carbon	3.0	5	21.5	10.3	7.8	18.5	8.5	16.1	16.9	7.2	6.0	12.7	6.7	6.8	< 1	< 1	3.2	2	3.0	0.9	< 1	< 1	1.4	6.5	1.5	< 1.0
Iron	0.2	0.3	46.8	22.3	34.9	64.5	36.6	40.2	43.1	29.8	40.7	47.4	34.4	42.8	0.04	0.04	0.03	< 0.02	< 0.01	0.03	0.02	0.03	0.03	0.02	0.13	0.12
Magnesium	N/L	N/L	32.3	17.1	15.1	22.2	22.8	26.0	27.7	16.5	14.9	19.2	13.6	15.6	2.84	2.75	6.22	3.67	5.88	2.66	2.36	2.45	3.95	2.64	4.58	3.60
Nitrate	2.6	10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.18	< 0.05	< 0.05	0.05	< 0.05	< 0.05	0.59	0.69	2.47	2.60	3.42	0.94	0.76	0.79	1.75	0.68	1.67	0.84
Nitrite	0.3	1	—	—	—	—	< 0.06	< 0.06	—	—	—	—	—	—	—	—	—	—	—	< 0.06	< 0.06	—	—	—	—	—
Nitrate + Nitrite (as Nitrogen)	2.7	10	—	—	—	—	—	< 0.06	—	—	—	—	—	—	—	—	—	—	—	0.94	—	—	—	—	—	—
pH (units)	6.5 - 8.5	6.5 - 8.5	—	—	—	—	7.14	7.50	7.87	7.66	8.20	7.11	7.03	7.07	—	—	—	—	7.00	7.21	7.30	7.02	6.49	6.72	6.53	6.86
pH (units) [3]	6.5 - 8.5	6.5 - 8.5	6.51	6.8	7.2	6.35	6.61	6.87	6.23	6.70	6.96	6.51	6.68	6.53	6.66	6.46	6.3	6.03	6.58	6.98	6.52	6.85	6.71	6.98	6.57	6.57
Sodium	102.2	200	42.8	33.5	26.4	31.8	26.6	29.0	34.6	26.6	21.2	23.9	22.6	22.5	6.56	6.61	21.20	12.00	13.90	9.15	9.18	10.10	14.80	9.73	15.4	8.3
Sulphate	263.7	500	6.6	12	13	14	10	9.5	12	14	17	13	19	19	10	11	87	15	51	10	9.6	6.8	35.0	8.2	39	7
Total Dissolved Solids	274	500	686	397	411	686	486	684	800	371	386	417	329	351	117	111	223	148	209	89	31	74	106	86	134	120
Total Suspended Solids	N/L	N/L	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Notes:
1. Reasonable Use Concept (RUC) criteria.
2. Ontario Drinking Water Standards (ODWS).
3. Result from field analysis.

Results expressed in mg/L unless otherwise noted.
Bold and shaded values exceed ODWS.
Bold and italic values exceed RUC limits.
N/L indicates No Limit.
"—" parameter not analyzed.

Greenview
ENVIRONMENTAL MANAGEMENT

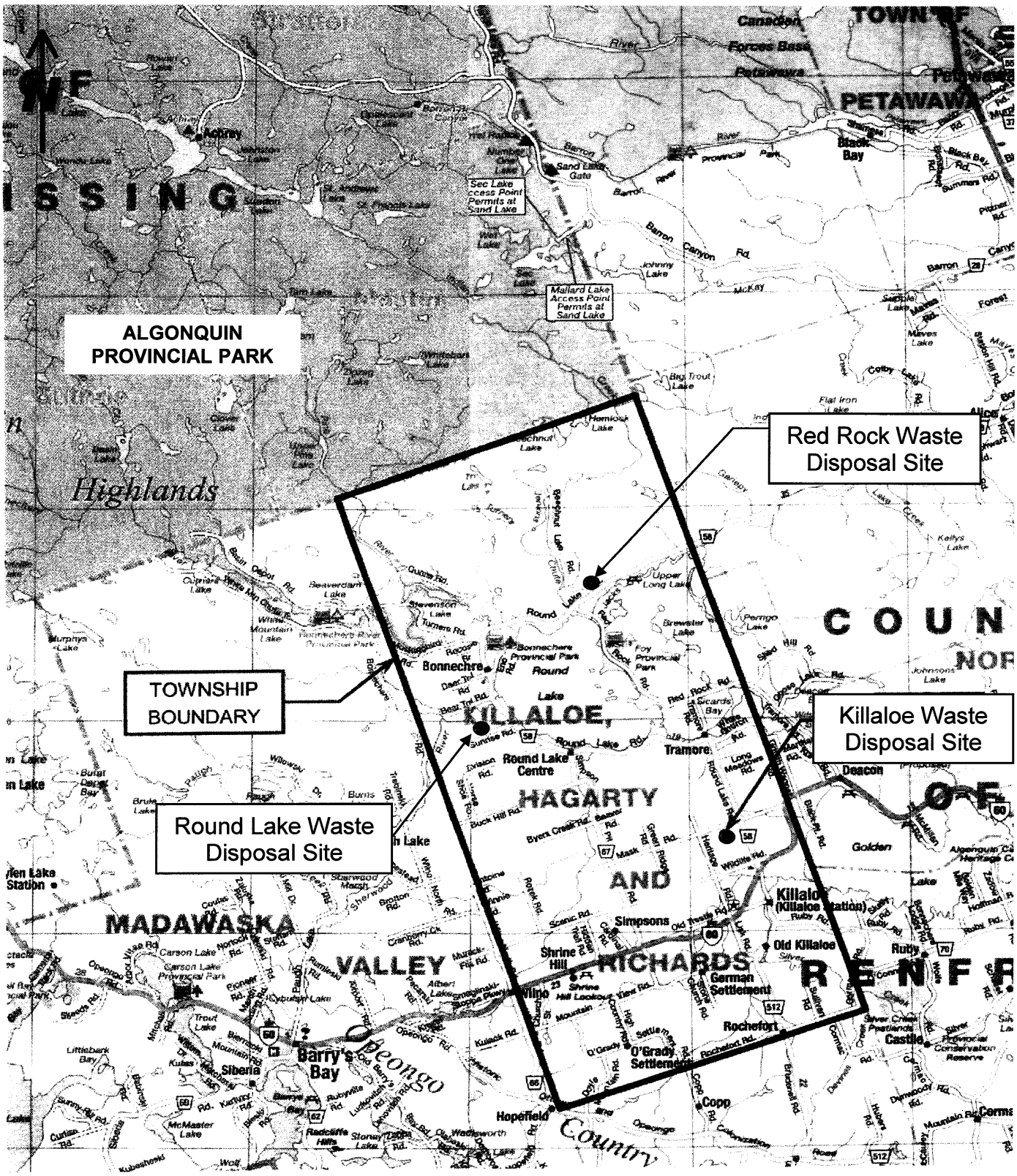
Table 3
Groundwater Quality
Red Rock Disposal Site

Parameter	ODWS [1]	BH2	
		8-May-06	14-Aug-06
Benzene	0.005	< 0.001	< 0.001
Bromodichloromethane	N/L	< 0.001	< 0.001
Bromoform	N/L	< 0.001	< 0.001
Bromomethane	N/L	< 0.005	< 0.005
Carbon Tetrachloride	0.005	< 0.005	< 0.005
Monochlorobenzene	0.08	< 0.005	< 0.005
Chloroethane	N/L	< 0.005	< 0.005
Chloroform	N/L	< 0.001	< 0.001
Chloromethane	N/L	< 0.005	< 0.005
Dibromochloromethane	N/L	< 0.001	< 0.001
Dichloromethane (Methylene Chloride)	N/L	< 0.005	< 0.005
1,2-Dichlorobenzene	0.2	< 0.001	< 0.001
1,3-Dichlorobenzene	N/L	< 0.001	< 0.001
1,4-Dichlorobenzene	0.005	< 0.001	< 0.001
1,1-Dichloroethane	N/L	< 0.005	< 0.005
1,2-Dichloroethane	0.005	< 0.005	< 0.005
1,1-Dichloroethylene (vinylidene chloride)	0.014	< 0.005	< 0.005
1,2-Dichloropropane	N/L	< 0.005	< 0.005
trans-1,2-Dichloroethene	N/L	< 0.005	< 0.005
cis-1,3-Dichloropropene	N/L	< 0.005	< 0.005
trans-1,3-Dichloropropene	N/L	< 0.005	< 0.005
Ethylbenzene	0.0024	< 0.001	< 0.001
1,2-Dibromoethane (Ethylene dibromide)	N/L	< 0.005	< 0.005
Styrene	N/L	< 0.005	< 0.005
1,1,2,2-Tetrachloroethane	N/L	< 0.005	< 0.005
Tetrachloroethylene (Perchloroethylene)	N/L	< 0.005	< 0.005
Toluene	0.024	< 0.001	< 0.001
Trichloroethene (Trichloroethylene)	0.05	< 0.005	< 0.005
Trichlorofluoromethane	N/L	< 0.002	< 0.002
1,1,1-Trichloroethane	N/L	< 0.005	< 0.005
1,1,2-Trichloroethane	N/L	< 0.005	< 0.005
Vinyl Chloride	0.002	< 0.002	< 0.002
Xylene	0.3	< 0.001	< 0.001
o-Xylene	N/L	< 0.001	< 0.001
m-Xylene & p-Xylene	N/L	< 0.001	< 0.001

Notes:
1. Ontario Drinking Water Standards (ODWS).

All results are expressed in mg/L unless otherwise stated.
Shaded areas indicate values that exceed O.D.W.S. maximum acceptable concentrations.
N/L indicates No Limit specified.
"-" means parameter not analyzed.

FIGURES



Greenview ENVIRONMENTAL MANAGEMENT	CREATED BY: PMC	CLIENT: TOWNSHIP OF KILLALOE, HAGARTY AND RICHARDS	PROJECT NO.: 107.09.004
	CHECKED BY: THP		
	DATE: MARCH 2010	SITE/TITLE: REGIONAL LOCATION PLAN	FIGURE: 1
	SCALE: NTS		

Greenview Environmental Management Limited
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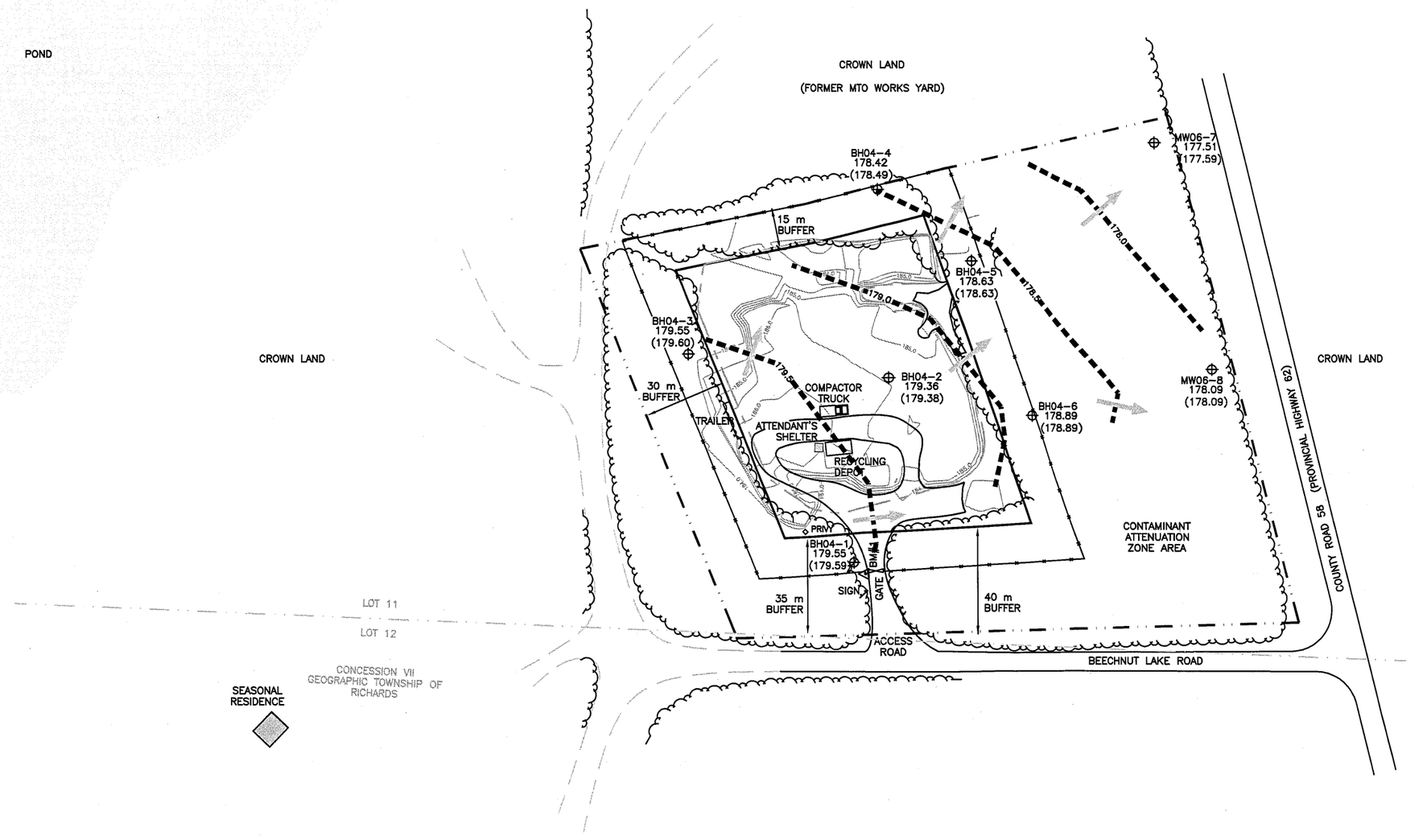
fax: (613) 332-1767
email: solutions@greenview-environmental.ca

LEGEND

- FENCE / CURRENT MNR LUP BOUNDARY (1.7 HA)
- APPROVED WASTE DISPOSAL AREA
- EXISTING LIMIT OF WASTE
- CONTAMINANT ATTENUATION ZONE (3.5 HA)
- 185.0 — TOPOGRAPHIC CONTOUR LINE
- ON-SITE ROAD
- APPROXIMATE ROAD LOCATION
- LOT LINE
- APPROXIMATE TREE LINE
- BH04-1 — DEEP GROUNDWATER MONITORING WELL
- 179.50 — EQUIPOTENTIAL CONTOURS (MAY 6, 2009)
- 179.55 (179.59) — GROUNDWATER ELEVATIONS AUGUST 10, 2009 (MAY 6, 2009)
- GROUNDWATER FLOW DIRECTION
- BM#1 — BENCHMARK



NOTES

1. BENCHMARKS
   BM#1
   NAIL AND WASHERS ON EAST FACE OF NORTH GATE POST AT ENTRANCE OF SITE.
   ELEVATION = 184.10m

   SITE BENCHMARKS BASED ON AN ASSUMED ELEVATION. TO CONVERT TO GEODETIC BENCHMARK, ADD 225.783.

2. POND LOCATION APPROXIMATE ONLY.

3. BASE SURVEY DATA PROVIDED BY SGS LAKEFIELD RESEARCH LIMITED AND Jp2g CONSULTANTS INC.

4. LOT LINE AND LIMITS OF CONTAMINANT ATTENUATION ZONE BASED ON CROWN LAND REFERENCE PLAN, W. SIMPSON, OLS, 2008.

GRAPHIC SCALE
(IN METERS)
10 0 5 10 20 30 40 50
1:1750

No.	DATE	BY	REVISIONS

Greenview ENVIRONMENTAL MANAGEMENT
Greenview Environmental Management Limited
69 Cleak Avenue, PO Box 100
Bancroft, Ontario K0L 1C0
tel: 613-332-0057
fax: 613-332-1767
email: solutions@greenview-environmental.ca

DRAWN BY:	CHECKED BY:
HLB	THP
DESIGNED BY:	**APPROVED BY:**
	THP
SCALE:	**DATE:**
1:1750	MARCH 2010

CLIENT: TOWNSHIP OF KILLALOE, HAGARTY AND RICHARDS

PROJECT: RED ROCK WASTE DISPOSAL SITE

PROJECT No: 107.09.004

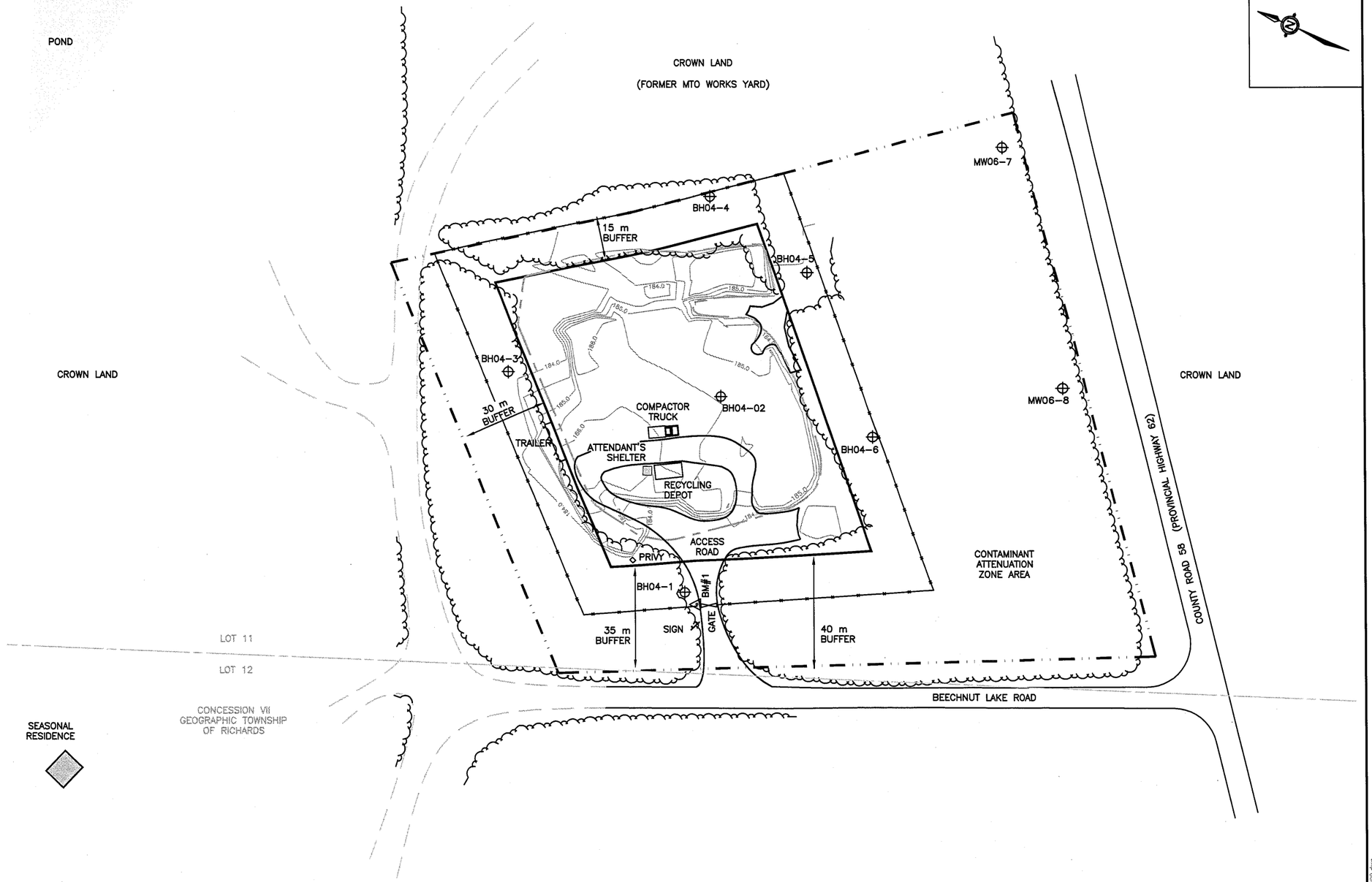
FIGURE: ENVIRONMENTAL MONITORING LOCATION PLAN

FIGURE: 2

G:\AutoCAD\107 ANR\004 Red Rock\dwg\KMR Red Rock EMP - Nov09.dwg

LEGEND

- FENCE / CURRENT MNR LUP BOUNDARY (1.7 HA)
- APPROVED WASTE DISPOSAL AREA
- EXISTING LIMIT OF WASTE
- CONTAMINANT ATTENUATION ZONE (3.5 HA)
- 185.0 TOPOGRAPHIC CONTOUR LINE
- ON-SITE ROAD
- APPROXIMATE ROAD LOCATION
- LOT LINE
- APPROXIMATE TREE LINE
- BH04-1 DEEP GROUNDWATER MONITORING WELL
- BM#1 BENCHMARK



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GRAPHIC SCALE (IN METERS)
10 0 5 10 20 30 40 50
1:1500

No.	DATE	BY	REVISIONS

Greenview ENVIRONMENTAL MANAGEMENT
Greenview Environmental Management Limited
69 Cleak Avenue, PO Box 100
Bancroft, Ontario K0L 1C0
tel: 613-332-0057
fax: 613-332-1767
email: solutions@greenview-environmental.ca

DRAWN BY:	CHECKED BY:
HLB	THP
DESIGNED BY:	APPROVED BY:
	THP
SCALE:	DATE:
1:1500	MARCH 2010

CLIENT: TOWNSHIP OF KILLALOE, HAGARTY AND RICHARDS

PROJECT: RED ROCK WASTE DISPOSAL SITE

PROJECT No: 107.09.004

FIGURE: EXISTING SITE CONDITIONS PLAN

FIGURE: 3

G:\AutoCAD\107 RRR\DSH Red Rock\Dwg\RRR Red Rock ESSP - Oct09.dwg

APPENDIX A

Provisional Certificate of Approval A412307

Ontario

Ministry of the Environment | Ministère de l'Environnement

AMENDMENT TO PROVISIONAL CERTIFICATE OF APPROVAL
WASTE DISPOSAL SITE
NUMBER A412307
Notice No. 1
Issue Date: December 5, 2007

The Corporation of the Township of Killaloe, Hagarty and Richards
PO Box 39
Killaloe, Ontario
K0J 2A0

Site Location: Red Rock Waste Disposal Site
Lot 11, Concession 7, Richards
Killaloe, Hagarty and Richards Township, County of Renfrew

You are hereby notified that I have amended Provisional Certificate of Approval No. A412307 issued on October 22, 2004 for a 1.0 hectare Landfill as well as a Transfer Station, within a 1.7 hectare Site , as follows:

Condition 26 is revoked.

The following conditions and Schedule "B" are added to the Certificate:

Site Operations - Landfill

26. The *Site* capacity is **35,000 cubic meters** including waste, daily cover and intermediate cover materials. The remaining capacity of the site is **7550 cubic meters.**

Compliance Limits

27. The *Site* shall be operated in such a way as to ensure compliance with the Reasonable Use Guideline B-7 for the protection of the groundwater at the *Site.*

Groundwater Monitoring

28. The *Owner* shall monitor ground water in accordance with Items 3 and 4 in Schedule "A".

29. A licensed Professional Geoscientist or Engineer possessing appropriate hydrogeological training and experience shall execute or directly supervise the groundwater monitoring and reporting program.

Groundwater Wells and Monitors

30. The *Owner* shall ensure that all groundwater monitoring wells which form part of the monitoring program are properly capped, locked and protected from damage.

31. Where landfilling is to proceed around monitoring wells, suitable extensions shall be added to the wells and the wells shall be properly re-secured.

32. Any groundwater monitoring wells included in the on-going monitoring program that are damaged shall be assessed, repaired, replaced or decommissioned by the *Owner*, as required.

    (a) The *Owner* shall repair or replace any monitoring well which is destroyed or in any way made to be inoperable for sampling such that no more than one regular sampling event is missed.

    (b) All monitoring wells which are no longer required as part of the groundwater monitoring program, and have been approved by the *District Manager* for abandonment, shall be decommissioned by the *Owner*, as required, in accordance with *O.Reg. 903*, that will prevent contamination through the abandoned well. A report on the decommissioning of the well shall be included in the Annual Report for the period during which the well was decommissioned.

Trigger Mechanisms and Contingency Plans

33. Trigger mechanisms and contingency plans for groundwater quality monitoring for the purpose of initiating investigative activities into the potential cause of increased contaminant concentrations at the property boundary shall be as in Items 3 and 4 of Schedule "A".

34. In the event of three (3) confirmed exceedence of a site-specific trigger level relating to leachate mounding or groundwater impacts due to leachate at the site's *property limit*, the *Owner* shall immediately notify the *District Manager*, and an investigation into the cause and the need for implementation of remedial or contingency actions shall be carried out by the *Owner* in accordance with the approved trigger mechanisms and associated contingency plans.

35. If monitoring results, investigative activities and/or trigger mechanisms indicate the need to implement contingency measures, the *Owner* shall ensure that the following steps are taken:
    (a) The *Owner* shall notify the *District Manager*, in writing of the need to implement contingency measures, no later than 30 days after confirmation of the exceedences;
    (b) Detailed plans, specifications and descriptions for the design, operation and maintenance of the contingency measures shall be prepared and submitted by the Owner to the *District Manager* for approval; and
    (c) The contingency measures shall be implemented by the Owner upon approval by the *District Manager*.

36. The *Owner* shall ensure that any proposed changes to the site-specific trigger levels for leachate impa to the groundwater, shall be approved in advance by the *Director* via an amendment to this *Certificate*.

Changes to Monitoring Plan

37. The Owner may make request to changes to the monitoring program to the District Manager in accordance with the recommendations of the Annual Report as described in Condition 43.

38. Within fourteen (14) days of receiving the written correspondence from the District Office confirming that the District Office is in agreement with the proposed changes to the environmental monitoring program identified in the Annual Report, the Owner shall forward a letter identifying the proposed changes and a copy of the correspondences from the District Manager and all other correspondences and responses related to the Annual Report, to the Director requesting the Certificate be amended to approve the proposed changes to the environmental monitoring plan.

39. In the event any other changes to the environmental monitoring program are proposed outside of the recommendation of the annual report, the Owner shall follow current ministry procedures for seeking approval for amending the Certificate of Approval.

Contaminant Attenuation Zone/Buffer

40. Within two (2) years from the date of this Certificate, the Owner shall complete acquiring the ground water easement to the proposed contaminant attenuation zone and buffer lands.

Certificate of Requirement/Registration on Title

41. Pursuant to Section 197 of the EPA, neither the Owner nor any person having an interest in the Site, shall deal with the Site in any way without first giving a copy of this Certificate to each person acquiring an interest in the Site as a result of the dealing.

Additional Buffer/Contaminant Attenuation Zone

42. The Municipality shall:

(a) within sixty (60) calendar days of the date of the purchase or the easement agreement being signed with the property owner(s) of the land required for the Additional Buffer and the Contaminant Attenuation Zone, submit to the Director for the Director's signature two (2) copies of a completed Certificate of Requirement containing a registerable description of the land required for the Additional Buffer and the Contaminant Attenuation Zone, in accordance with the form included in Schedule "B";

(b) within ten (10) calendar days of receiving the Certificate of Requirement signed by the Director, the Certificate of Requirement is registered in the appropriate Land Registry Office on title to the property containing the Additional Buffer and the Contaminant

Attenuation Zone and submit to the Director immediately following registration the duplicate registered copy;

(c) within ten (10) calendar days of receiving the Certificate of Requirement signed by the Director, submit a copy of the Certificate of Requirement to the District Manager.

Annual Report

43. A written report on the development, operation and monitoring of the *Site,* shall be completed annually (the "Annual Report"). The Annual Report shall be submitted to the *District Manager,* by April 30 th of the year following the period being reported upon.

Closure Plan

44. At least 2 years prior to the anticipated date of closure of this *Site,* the *Owner* shall submit to the *Director* for approval, with copies to the *District Manager,* a detailed *Site* closure plan pertaining to the termination of landfilling operations at this *Site,* post-closure inspection, maintenance and monitoring, and end use.

45. The *Site* shall be closed in accordance with the closure plan as approved by the *Director.*

Following items are added to Schedule "A":

3. Investigative Report, Red Rock Disposal Site, prepared for the Corporation of the Township of Killaloe-Hagarty-Richards, prepared by SGS Lakefield Research Limited, dated January 21, 2005.

4. Letter from Mrs. Lorna Hudder, CAO/Clerk Treasurer to Ranjani Munasinghe, Ministry of the Environment, dated June 21, 2006 accompanying the report entitled "Response to MOE Groundwater and Surface Water Comments" prepared by Greenview Environmental Management dated June 29, 2006.

5. Report entitled "2006 Annual Report, Red Rock Waste Disposal Site" dated March 2007, prepared by Greenview Environmental Management.

6. Letter dated May 8, 2007, From Tyler H. Peters, Greenview Environmental Management Limited to Ranjani Munasinghe, Ministry of the Environment.

Schedule "B"

CERTIFICATE OF REQUIREMENT

s. 197(2)
Environmental Protection Act

This is to certify that pursuant to a(n) [INSERT ORDER OR DECISION TYPE] [INSERT ORDER OR DECISION NUMBER OR IDENTIFIER] issued by [INSERT NAME OF ISSUING PERSON, POSITION] dated [INSERT DATE] with respect to [INSERT DESCRIPTION, SUCH AS CONTAMINATION, WASTE DISPOSAL SITE, ETC.] on the [INSERT REGISTRABLE DESCRIPTION OF THE PROPERTY]. The following person(s):

[INSERT PERSON(S) NAMED IN INSTRUMENT]

and any other persons having an interest in the [INSERT REGISTRABLE DESCRIPTION OF THE PROPERTY] are required, before dealing with the property in any way, to give a copy of the [INSERT ORDER OR DECISION TYPE] including any amendments that may be made thereto, to every person who will acquire an interest in the property as a result of the dealing.

Under subsection 197(3) of the Environmental Protection Act, this requirement applies to each person who, subsequent to the registration of this certificate, acquires an interest in the real property.

The reasons for this amendment to the Certificate of Approval are as follows:

1. The reason for this amendment is to approve the ground water monitoring plans, trigger mechanisms and contingency plans proposed by the Owner.

2. The reason for Condition 26 is to specify the approved amount of waste that may be accepted for disposal at the *Site*, based on the *Owner* 's application and supporting documentation.

3. Condition 27 is included to provide the groundwater limits to prevent water pollution at the *Site*.

4. Conditions 28 and 29 are included to require the Owner to demonstrate that the *Site* is performing as designed and the impacts on the natural environment are acceptable. Regular monitoring allows for the analysis of trends over time and ensures that there is an early warning of potential problems so that any necessary remedial/contingency action can be taken.

5. Conditions 30, 31 and 32 are included to ensure the integrity of the groundwater monitoring network so that accurate monitoring results are achieved and the natural environment is protected.

6. Condition 33, 34, 35 and 36 are added to ensure the *Owner* has a plan with an organized set of procedures for identifying and responding to potential issues relating to groundwater contamination near or at the *Site's* compliance point.

7. The reason for the Conditions 37, 38 and 39 is to streamline the approval of changes to the monitoring plans.

8. Condition 40 is included to require the Owner to obtain property rights to a land that is required for a buffer that would extend 30 metres in all directions from the actual waste location and for a Contaminant Attenuation Zone that is necessary for attenuation of contamination resulting from the operation of the Site.

9. Conditions 41 and 42 are included, pursuant to subsection 197(1) of the *EPA,* to provide that any persons having an interest in the Site or lands required for the Buffer and the Contaminant Attenuation Zone, are aware that the land has been approved and used for the purposes of waste disposal or attenuation of contamination resulting from the operation of a waste disposal site.

10. The reasons for Condition 43 are to ensure that regular review of site development, operations and monitoring data is documented and any possible improvements to site design, operations or monitoring programs are identified. An annual report is an important tool used in reviewing site activities and for determining the effectiveness of site design.

11. The reasons for Conditions 44 and 45 are to ensure that final closure of the *Site* is completed in an aesthetically pleasing manner, in accordance with Ministry standards, and to ensure the long-term protection of the health and safety of the public and the environment.

This Notice shall constitute part of the approval issued under Provisional Certificate of Approval No. A412307 dated October 22, 2004

In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990, Chapter E-19, as amended, you may by written notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act, provides that the Notice requiring the hearing shall state:

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

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the waste disposal site is located;

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal

The Director
Section 39, *Environmental Protection Act*

2300 Yonge St., Suite 1700
P.O. Box 2382
Toronto, Ontario
M4P 1E4

AND

Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

* **Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

The above noted waste disposal site is approved under Section 39 of the Environmental Protection Act.

DATED AT TORONTO this 5th day of December, 2007

THIS NOTICE WAS MAILED
ON Dec 07 2007
R. S.
(Signed)

Tesfaye Gebrezghi, P.Eng.
Director
Section 39, *Environmental Protection Act*

RM/
c: District Manager, MOE Ottawa
Tyler H. Peters, B.Sc., Greenview Environmental Management

Ontario

Ministry of the Environment | Ministère de l'Environnement

AMENDED PROVISIONAL CERTIFICATE OF APPROVAL
WASTE DISPOSAL SITE
NUMBER A412307

The Corporation of the Township of Killaloe, Hagarty and Richards
PO Box 39
Killaloe, Ontario
K0J 2A0

Site Location: Red Rock Waste Disposal Site
Part Lot 11, Concession 7
in the geographic Township of Richards
within the Townsip of Killaloe, Hagarty and Richards, Renfrew County

You have applied in accordance with Section 27 of the Environmental Protection Act for approval of:

the use and operation of Waste Disposal Site consisting of a 1.0 hectare Landfill as well as a Transfer Station, within a 1.7 hectare Site.

For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:

(a) **"Act"** means the *Environmental Protection Act*, R.S.O. 1990, C.E-19, as amended;

(b) **"Certificate"** means this Provisional Certificate of Approval;

(c) **"Competent"** means knowledgeable and able to carry out any necessary duties, in the following through instruction and practice;
   i. relevant waste management legislation, regulations and guidelines;
   ii. major environmental concerns pertaining to the waste to be handled;
   iii. emergency response procedures for the waste to be handled;
   iv. use and operation of any equipment to be used;
   v. emergency response procedures and alerting;
   vi. Owner specific written procedures for the control of conditions that may cause an adverse effect; and
   vii. requirements of this Certificate;

(d) **"Director"** means Director, Environmental Assessment and Approvals Branch, Ontario Ministry of the Environment;

(e) **"District Manager"** means District Manager, Ottawa District Office, Ontario Ministry of the Environment;

(f) **"Limit of Fill"** means the area in which waste is approved for final disposal according to this Certificate;

(g) **"Ministry" and "MOE"** means the Ontario Ministry of the Environment;

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

(i) **"Ontario Regulation 347"** means Ontario Regulation 347 - R.R.O. 1990, General - Waste Management, as amended from time to time, made under the Act;

(j) **"Owner"** means the Township of Killaloe-Hagarty-Richards and any person(s) contracted by the Township of Killaloe-Hagarty-Richards to manage operations on the Site on behalf of the Owner;

(h) **"PWQO"** means the Provincial Water Quality Objectives included in the July 1994 publication entitled *Water Management Policies, Guidelines, Provincial Water Quality Objectives*, as amended from time to time;

(k) **"RUP"** means the Reasonable Use Policy (Guideline B-7) of the Ministry of the Environment;

(l) "Site" means the property located at Part Lot 11, Concession 7, geographic Township of Richards, within the Township of Killaloe-Hagarty-Richards, Renfrew County leased from the Ministry of Natural Resources under Land Use Permit LUP1675-1006161.

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

TERMS AND CONDITIONS

General

1. This Provisional Certificate of Approval supersedes and replaces Provisional Certificate Number A412307 issued April 2, 1981.

2. Except as otherwise provided by these Conditions, the Site shall be designed, developed, used, maintained and operated, and all facilities, equipment and fixtures shall be built and or installed in accordance with the Application for a Certificate of Approval for a Waste Disposal Site dated June 24, 2004, and supporting documentation, and plans and specifications listed in Schedule "A".

3. The requirements specified in this Certificate are requirements under the Act. Issuance of this Certificate in no way abrogates the Owner's legal obligations to take all reasonable steps to avoid violating other applicable provisions of this legislation and other legislation and regulations.

4. The requirements of this Certificate are severable. If any requirements of this Certificate, or the application of any requirement of this Certificate to any circumstance, is held invalid, the application of such requirement to other circumstances and the remainder of this Certificate shall not be affected in any way.

5. The Owner must ensure compliance with all terms and conditions of this Certificate. Any non-compliance constitutes a violation of the Act and is grounds for enforcement.

6. (a) The Owner shall, forthwith upon request of the Director, District Manager, or Provincial Officer (as defined in the Act), furnish any information requested by such persons with respect to compliance with this Certificate, including but not limited to, any records required to be kept under this Certificate; and

(b) In the event the Owner provides the Ministry with information, records, documentation or notification in accordance with this Certificate (for the purposes of this condition referred to as "Information"),
   (i) the receipt of Information by the Ministry;
   (ii) the acceptance by the Ministry of the Information's completeness or accuracy; or
   (iii) the failure of the Ministry to prosecute the Owner, or to require the Owner to take any action, under this Certificate or any statute or regulation in relation to the Information;

shall not be construed as an approval, excuse or justification by the Ministry of any act or omission of the Owner relating to the Information, amounting to non-compliance with this Certificate or any statute or regulation.

7. The Owner shall allow Ministry personnel, or a Ministry authorized representative(s), upon presentation of credentials, to;
   (a) carry out any and all inspections authorized by Section 156, 157 or 158 of the Act, Section 15, 16 or 17 of the OWRA, or Section 19 or 20 of the Pesticides Act, R.S.O. 1990, as amended from time to time, of any place to which this Certificate relates; and,
   (b) without restricting the generality of the foregoing, to:
      (i) enter upon the premises where records required by the conditions of this Certificate are kept;
      (ii) have access to and copy, at reasonable times, any records required by the conditions of this Certificate;
      (iii) inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations required by the conditions of this Certificate; and
      (iv) sample and monitor at reasonable times for the purposes of assuring compliance with the conditions of this Certificate.

8. Where there is a conflict between a provision of any document referred to in Schedule "A", and the conditions of this Certificate, the conditions in this Certificate shall take precedence. Where there is a conflict between the documents listed in Schedule "A", the document bearing the most recent date shall prevail.

9. Any information relating to this Certificate and contained in Ministry files may be made available to the public in accordance with the provisions of the *Freedom of Information and Protection of Privacy Act*, R.S.O. 1990, C. F-31.

10. All records and monitoring data required by the conditions of this Certificate must be kept on the Owner's premises for a minimum period of five (5) years from the date of their creation.

Notification

11. The Owner shall ensure that all communications/correspondence made pursuant to this Provisional Certificate of Approval reference Certificate No. A412307.

12. The Owner shall notify the Director in writing of any of the following changes, within thirty (30) days of the change occurring:
    (a) change of Owner's name or address;
    (b) change of ownership of the Site;
    (c) change of partners where the Owner is or at any time becomes a partnership, and a copy of the most recent declaration filed under the *Business Names Act*, 1991 shall be included in the notification to the Director; and
    (d) any change of name of the corporation where the Owner is or at any time becomes a corporation, and a copy of the most current "Initial Notice or Notice of Change" (form 1 or 2 of O. Regulation 182, Chapter C-39, R.R.O. 1990, as amended from time to time), filed under the *Corporations Information Act* shall be included in the notification to the Director.

13. In the event of any change in ownership of the Site, the Owner shall notify in writing the succeeding owner of the existence of this Provisional Certificate of Approval, and a copy of such notice shall be forwarded to the Director.

Site Operations - Transfer Station

14. The Transfer Station shall be designed and operated in accordance with Item 2 of Schedule "A", or as amended in writing by the District Manager.

15. The Transfer Station shall only be used for the receiving and transferring of solid, non-hazardous, waste generated within the geographic boundaries of the Township of Killaloe-Hagarty-Richards. The Site is prohibited from accepting the following:
    (a) liquid, non-hazardous waste;
    (b) liquid, hazardous waste;
    (c) biomedical waste;

(d) PCB wastes;
(e) explosive waste;
(f) scrap metal;
(g) white goods;
(h) tires;
(i) brush, yard waste and wood waste.

16. (a) The Owner shall set operational hours which provides an adequate level of service. The hours of operation shall be any day of the week, during daylight hours.

(b) Hours of operation may be changed by the Owner at any time, provided that the hours are correctly posted at the Site gate and that suitable public notice is given of any change.

17. The Owner shall erect a sign at the entrance to this Site stating the name of the Owner of the Site, the hours of operation of the Transfer Station, waste acceptance procedure and a phone number to contact in the event of an emergency or complaint. The sign shall state which wastes are not accepted at the Site and shall direct persons with these wastes to the nearest appropriate facility.

18. (a) The Owner shall ensure that a Competent attendant(s) is/are on duty at all times when the Site is open to ensure proper supervision of all activities; and

(b) The entrance gate to the Site shall be locked during non-operating hours to prevent unauthorized entry.

19. The Owner shall ensure that waste is handled in the following manner:
(a) solid, non-hazardous mixed waste shall be collected in a mobilr compactor vehicle to a maximum of 16 m^3;
(b) recyclable waste shall be segregated into a maximum of eighteen (18) 360 L clearly labelled bins. The lids of the bins shall be kept closed, except when waste is being deposited, to prevent the occurrence of litter;
(c) all litter in the waste transfer area shall be picked up as necessary to maintain a clean and orderly Site; and
(d) all waste and recyclable material shall be transferred from the Site at the end of each operating day.

20. The Owner shall ensure that each day on which the Site is open to accept waste for transfer, the Site is inspected. Any deficiencies noted during the inspection shall be promptly remediated.

21. The Owner shall maintain records on transfer activities including:
(a) date of record;
(b) quantities of waste transferred from the Site; and
(c) any accidents, injuries, spills, leaks, other upsets or complaints received.

22. Burning of any wastes or materials is prohibited.

23. In the event the waste cannot be transferred from the Site, the Owner shall cease accepting waste and shall ensure the total amount of waste on Site does not exceed the maximum quantities approved under Condition 19.

24. (a) If any incoming waste load is known to, or is discovered to, contain unacceptable waste, that load shall not be accepted at the Site; and

(b) If any unacceptable waste is discovered on-site, that waste shall be removed from the Site at the end of the operating day. Any unacceptable waste removed from the Site shall be disposed in accordance with the Act and Ontario Regulation 347.

Site Operations - Landfill

25. The Owner shall refrain from further landfilling of waste on the Site, and shall apply intermediate interim cover to all cells where waste has been deposited. No further landfilling shall take place at this Site without the Director's approval.

26. By January 31, 2005, the Owner shall submit to the Director, for the Director's approval, an assessment of the surface and groundwater quality of the Site and a plan for the long-term monitoring of the Site to ensure compliance with PWQO and RUP.

SCHEDULE "A"

This Schedule "A" forms part of Certificate of Approval No. A412307.

1. Application for a Provisional Certificate of Approval for a Waste Disposal Site signed by Mrs. Lorna Hudder, CAO/Clerk Treasurer, dated June 24, 2004.

2. Design and Operations Plan, Municipal Solid Waste Transfer Station, Red Rock Disposal Site, prepared for the Corporation of the Township of Killaloe-Hagarty-Richards, prepared by SGS Lakefield Research Limited, dated June 23, 2004.

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

The reason for Condition 1 is to clarify that the previously issued Certificate of Approval No. A412307 issued on April 2, 1981 is no longer in effect and has been replaced and superseded by the Terms and Conditions stated in this Certificate.

The reason for Conditions 2, 14 and 21 is to ensure that this Site is operated in accordance with the application submitted by the Owner, and not in a manner which the Director has not been asked to consider.

The reason for Conditions 3, 4, 5, 8, 9, 10, 11, 12 and 13 is to clarify the legal responsibilities and obligations imposed by this Certificate.

The reason for Conditions 6 and 7 is to ensure that appropriate Ministry staff have ready access to the Site in order to confirm that the Site is being operated according to this Certificate. The condition is supplementary to the powers afforded a Provincial Officer pursuant to the Act, the OWRA, and the Pesticides Act, as amended.

The reason for Conditions 15 and 17 is to ensure that the types and quantities of waste received at the Site are in accordance with that approved under this Certificate.

The reason for Conditions 16, 22 and 23 is to ensure that the site is operated in a manner which does not result in a nuisance or a hazard to the health and safety of the environment or people.

The reason for Condition 18 is to ensure the Site is only operated in the presence of trained personnel and to minimize the risk of unauthorized entry.

The reason for Condition 19 is to ensure that waste storage is done in a manner and duration which does not result in a nuisance or a hazard to the health and safety of the environment or people.

The reason for Condition 20 is to ensure that deficiencies in fencing, road access etc are promptly identified and remediated.

The reason for Condition 24(a) is to ensure that only waste approved under this Certificate are received at the Site.

The reason for Condition 24(b) is to promptly remove unapproved waste from the Site to an alternate location that is approved to store such waste, until such time as the waste can be disposed in accordance with the Act and Ontario Regulation 347.

This Provisional Certificate of Approval revokes and replaces Certificate(s) of Approval No. A412307 issued on April 2, 1981

In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990, Chapter E-19, as amended, you may by written notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act, provides that the Notice requiring the hearing shall state:

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

The Notice should also include:

3. **The name of the appellant;**
4. **The address of the appellant;**
5. **The Certificate of Approval number;**

6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the waste disposal site is located;

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
2300 Yonge St., 12th Floor
P.O. Box 2382
Toronto, Ontario
M4P 1E4

AND

The Director
Section 39, *Environmental Protection Act*
Ministry of Environment and Energy
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

* Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca

The above noted waste disposal site is approved under Section 39 of the Environmental Protection Act.

DATED AT TORONTO this 22nd day of October, 2004

THIS CERTIFICATE WAS MAILED
ON Oct 27, 2004
9c
(Signed)

Ian Parrott, P.Eng.
Director
Section 39, *Environmental Protection Act*

VP/
c: District Manager, MOE Ottawa
Tyler Peters, SGS Lakefield Research Limited ✓

APPENDIX B

MNR Land Use Permit LUP 1675-1006299

Ministry of Natural Resources
Ontario

Land Use Permit
Public Lands Act

File: RICH-11-7

Permit No.: LUP1675-1006299

Use shaded areas for corrections.

Name of Applicant/Permittee (insert Corporate Name if Applicant is "Limited" or "Incorporated")	Area Code	Telephone No.
Killaloe, Hagarty and Richards Twp.		

As Trustee for:

Postal Address of Applicant/Permittee: 1 John St. Box 39

City, Town or Village	Prov./State	Country	Postal Code
Killaloe	Ontario	Canada	K0J 2A0

Location of Land

Lot	Concession/Block No.	Geographic Township	Municipality
11	7	RICHARDS	KILLALOE, HAGARTY AND RICHARDS TP

U.T.M. Grid	Geographic Location	Area in ha.
Zone 00 E 000000 N 0000000	RENFREW COUNTY	6.00

As per sketch and description which is attached to the original permit for this site and forms part of this permit. A copy of this sketch and description is on file at the District Office and available for inspection by the applicant at any time during normal business hours.

Land Required for the Purpose of	GST I.D. Number
LAND FILL AREAS	R124668666

Fee(s) and Period of Land Use

Amount Due	Annual Fee (subject to adjustment)	Permit Effective Date	Permit Termination Date
$321.00	$300.00 + $21.00 (GST)	Apr 1, 2006	Mar 31, 2011

Note: Terms and Conditions applicable to all Land Use Permits are on the reverse side of this form.

Terms and Conditions applicable to this permit

This permit issued for a five year term subject to payment of the annual fee as determined by the Ministry of Natural Resources.

See attached Appendix "A".

Purpose
Waste Disposal Site

Sub-Purpose
Landfill

Applicant's certification

I certify that the information given herein is true and complete, and that I have read, fully understand, and agree to comply with all of the terms and conditions set out in this permit and that I am of the age of majority. I agree that this is the complete agreement between the parties hereto.

Signature of Applicant (Incl. Corporation Official)	Date Signed
[signature]	MAR. 6/06

Corporation Use Only

I have authority to bind the herein-named Corporation

Initials and Surname of Corporation Official (Please Print)	Signature of Corporation Official	Position
L HUDDER	[signature]	CAO/CLERK-TREASURER

Ministry Approval

Under authority of the Regulations under the Public Lands Act, this Land Use Permit is hereby issued to the above applicant, subject to all terms and conditions contained herein and no other, and these shall be the exclusive terms and conditions applicable to the use of this land.

Signature of MNR Official	Date Signed	Cash Register Validation or Receipt No.	Amount Paid

Personal information on this form is collected under authority of the Public Lands Act and will be used for the administration of that Act. Questions about this information should be directed to the local MNR Office, whose address and telephone number appear in the Ontario Government Telephone Directory.

1820(95-03)

Return all parts of this form to the District/Area Office for authorization.

Terms and Conditions

It is agreed by the parties hereto that:

1. This Land Use Permit gives the permittee only the right to use the described site for the purpose specified in this permit and does not convey any right, title or interest in the land or in any trees standing, growing or being on the permit area, or in any minerals, sand, gravel or similar materials, in, on, or under the land. Use of any such materials, unless authorized herein, must have separate written approval from the MNR Official. Without limiting the generality of the foregoing, this agreement is a Land Use Permit and is not a Grant, Licence of Occupation, or Lease of Land.

2. (i) A permittee is an occupier under the Trespass to Property Act and the Occupier's Liability Act and shall take such care as in all circumstances of the case is reasonable to see that persons entering on the premises, and the property brought on the premises by these persons, are reasonably safe while on the premises;
   (ii) Any posting of signs or notices pursuant to the Trespass to Property Act and the Occupier's Liability Act, on the land use permit area, shall be subject to prior approval of the issuing officer;
   (iii) The permittee agrees to remove all signs or notices on termination of the permit, or at the direction of the issuing officer.

3. Any building, structure, or works, erected or to be erected on the site, or any alteration, renovation, enlargement or reconstruction of improvements, including any land improvements or alterations whatsoever, must be approved by a MNR official and any other applicable agencies or authorities. The application to the MNR Official for approval must contain a written description of the work and the permittee's evaluation of the cost of work.

4. The permittee will maintain the site in a clean, sanitary and fire-safe condition in accordance with any applicable Acts or municipal by-laws, and dispose of all garbage in an approved waste disposal site.

5. Access to the site, and quality of that access, is strictly the responsibility of the permittee. A work permit must be obtained from the MNR Official prior to the construction of any road or other access facilities. The Crown reserves the right to enter and inspect the site and the right of access for Crown purposes.

6. If the term of this Land Use Permit is longer than one year, the permittee will pay the prescribed annual fee, which is subject to change, at the beginning of each year of the term. The MNR Official may terminate this permit if the fee is not paid by the due date.

7. The permittee will pay any municipal or other taxes that may be levied against the property, in the manner prescribed by the taxing authority.

8. The permittee covenants to indemnify and forever save and keep harmless the Crown, its officer, servants and agents from and against any and all claims, demands, suits, actions, damages, loss, cost or expenses arising out of any injury to persons including death, or loss or damage to property of others which may be or be alleged to be caused by or suffered as a result of or in any manner associated with the exercise of any right or privilege granted to the permittee by this Land Use permit.

9. This Land Use Permit shall not be assigned or transferred, mortgaged or pledged.

10. This permit will automatically terminate, and all rights of the permittee will expire, on the stated termination date, or on the death or bankruptcy of the permittee, or on the winding up or dissolution of the permittee's affairs. This condition cannot be waived by the Crown and, if further use of the land is desired, an application for a new Land Use Permit must be submitted.

11. The MNR Official may refuse to issue a new permit, or may, upon sixty (60) days written notice or such further period of time as the MNR Official prescribes, revoke or cancels an existing permit when:
   (i) the permittee has violated any condition or provision of this permit;
   (ii) the hereby authorized land use comes into conflict with a new or revised land zoning plan; or
   (iii) it is, in the opinion of the MNR Official or the Crown, considered to be in the public interest so to do.
   It is, hereby agreed that any decision, made by the MNR Official or the Crown pursuant to this condition, is final.

12. Upon expiry, cancellation, revocation or other termination of this Land Use Permit:
   (i) Unless an MNR Official orders otherwise, all improvements, property or other assets remaining on the site automatically become the property of the Crown and the Crown has no obligation whatsoever to pay compensation therefor;
   (ii) The permittee will at the MNR Official's request, remove the improvements, property or other assets from the site, and leave the site in a clean and safe condition, restored as much as possible to it's original state except where the requirement to restore has been waived in writing by the MNR Official;
   (iii) Where the permittee fails to remove the improvements, property or other assets from the site and/or fails to restore the site to a clean and safe condition, within a reasonable time, the permittee will pay to the Ministry any costs incurred by the Ministry in, disposing of or destroying the said improvements, property or other assets pursuant to subject 24(5) of the Public Lands Act, and/or restoring the site to a clean and safe condition.

13. The permittee acknowledges and confirms that:
   (i) upon termination of this permit, the decision to issue a new permit is at the sole discretion of the MNR Official, and the permittee has no right to, nor reasonable expectation for, the issuance of a new permit based on prior use of the land;
   (ii) the successive issuance of any permit or permits for the use of the land described herein will not create any future rights or interests whatsoever in the land;
   (iii) should any improvements whatsoever be made to or on the land, this will not confer upon the permittee any right to use the land other than within the terms of this permit, nor will it give the permittee any right to an expectation of future permits;
   (iv) no additional terms and conditions to this permit, if inserted on the face hereof, shall alter, vary, qualify, or diminish the terms and conditions set out on this page;
   (v) there are no other representations, warranties or conditions between the Crown and the permittee, for the use of this land.

APPENDIX A

SOLID WASTE DISPOSAL SITE

- Fireguards must be maintained around the perimeter of the garbage disposal area.
- Dump must be maintained to Ministry of the Environment standards.
- The municipality will be responsible for the cost of any fire damage resulting from the operation of the waste disposal site.
- The area surrounding the waste disposal site must be kept cleared of flammable debris for a distance of at least thirty meters and such further distance as may be ordered by an officer.
- Please provide a copy of Ministry of Environment & Energy Certificate of Approval.

APPENDIX C

Correspondence

Greenview
ENVIRONMENTAL MANAGEMENT

December 17, 2009

Ontario Ministry of the Environment
Environmental Assessment and Approvals Branch
2 St. Clair Avenue, 12th Floor
Toronto, Ontario
M4V 1L5

Attention: Director

Re: Contaminant Attenuation Zone Acquisition
Red Rock Waste Disposal Site (A412307)
Township of Killaloe, Hagarty and Richards, County of Renfrew
Greenview File: 107.09.004

Dear Director:

On behalf of the Corporation of the Township of Killaloe, Hagarty and Richards (Township), Greenview Environmental Management Limited (Greenview) has prepared this document to satisfy Condition 40 of the Provisional Certificate of Approval (PC of A; December 5, 2007) for acquisition of the contaminant attenuation zone (CAZ) for the Township's Red Rock waste disposal site (A412307).

Currently, the CAZ acquisition process is nearing completion. The Township is awaiting a Patent description of the Ontario Ministry of Natural Resources (MNR) approved and final Crown Land Reference Plan in accordance with the CAZ approved by the Ontario Ministry of the Environment (MOE). Once the Patent description is completed by the MNR, the Plan will be registered with the Land Registry Office, after which the Township is considered the owner.

As such, and with consideration of the Township's due diligence regarding CAZ acquisition for the Red Rock site, Greenview is submitting this letter, on behalf of the Township, to satisfy Condition 40 of the PC of A.

Final documentation regarding CAZ ownership will follow in early 2010. Additionally, CAZ acquisition documentation is expected to be included in the 2009 Annual Monitoring Report for the site.

If you have any questions regarding this application, please do not hesitate to contact the undersigned at (613) 332-0057.

69 Clark Avenue, PO Box 100, Bancroft, Ontario, K0L 1C0 tel: (613) 332-0057 fax: (613) 332-1767 solutions@greenview-environmental.ca

Respectfully yours,

GREENVIEW ENVIRONMENTAL MANAGEMENT LIMITED

Heather Merritt, CEPIT
Project Technologist

c.c. *Ms. Lorna Hudder, CMO, CAO/Clerk-Treasurer, Township of Killaloe, Hagarty and Richards*
Mr. Lance Larkin, MOE Ottawa District Office

G:\PROJECTS\2009 PROJECTS\107.09 Killaloe Hagarty and Richards\004 Red Rock WDS\COR\CAZ\PC of A CAZ Acquisition - Dec09 Final.doc

APPENDIX D

Borehole Logs

Project No: 10781-003

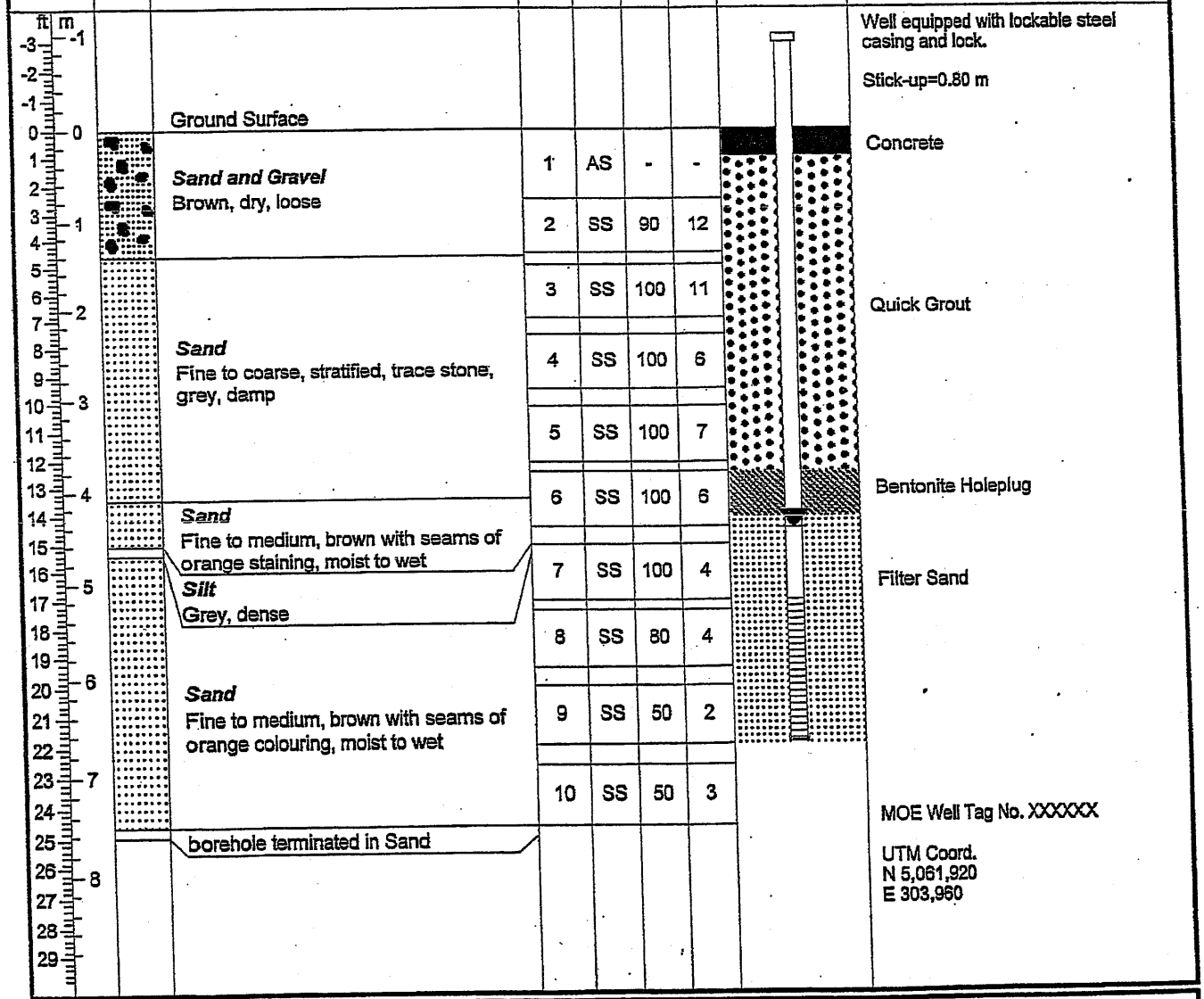
Log of Borehole: BH04-1

Project: Red Rock WTS

Client: Township of Killaloe-Haggarty-Richards

Location: See Site Plan

Logged By: D. Bucholtz



Drill Method: Hollow Stem Auger (CME 75)

Drill Date: August 5, 2004

Input by: D.Bucholtz

Checked by: R. Focht

Sheet: 1 of 1

SGS

Project No: 10781-003

Log of Borehole: BH04-2

Project: Red Rock WTS

Client: Township of Killaloe-Haggarty-Richards

Location: See Site Plan

Logged By: D. Bucholtz

Depth (ft / m)	Strata Plot	Description	Number	Type	% Recovery	SPT (n)	Well Installation	Remarks
0 / 0		Ground Surface					Well equipped with lockable steel casing and lock. Stick-up=0.85 m	
0 – 3 / 0 – 1		***Sand and Gravel*** Brown, dry, loose	1	AS	-	-	Concrete	
			2	SS	100	6		
3 – 6 / 1 – 2		***Fill*** Mixed waste (plastic, wood, textile, glass) with sand, damp to moist	3	SS	50	3	Quick Grout	
			4	SS	10	2		
6 – 10 / 2 – 3			5	SS	50	2		
10 – 13 / 3 – 4		***Silt*** Dark grey, damp	6	SS	75	13		
13 – 20 / 4 – 6		***Sand*** Fine to coarse, stratified, brown to grey, moist to wet	7	SS	50	13		
			8	SS	100	13	Bentonite Holeplug	
20 – 25 / 6 – 8		***Silty Sand*** Grey, wet	9	SS	75	8		
			10	SS	90	6	Filter Sand	
25 – 26 / 8		***Sand*** Medium, grey, wet	11	SS	100	4	MOE Well Tag No. XXXXXX	
26 / 8		borehole terminated in Sand					UTM Coord. N 5,061,925 E 304,025	

Drill Method: Hollow Stem Auger (CME 75)

Drill Date: August 5, 2004

Input by: D.Bucholtz

Checked by: R. Focht

Sheet: 1 of 1

SGS

Project No: 10781-003

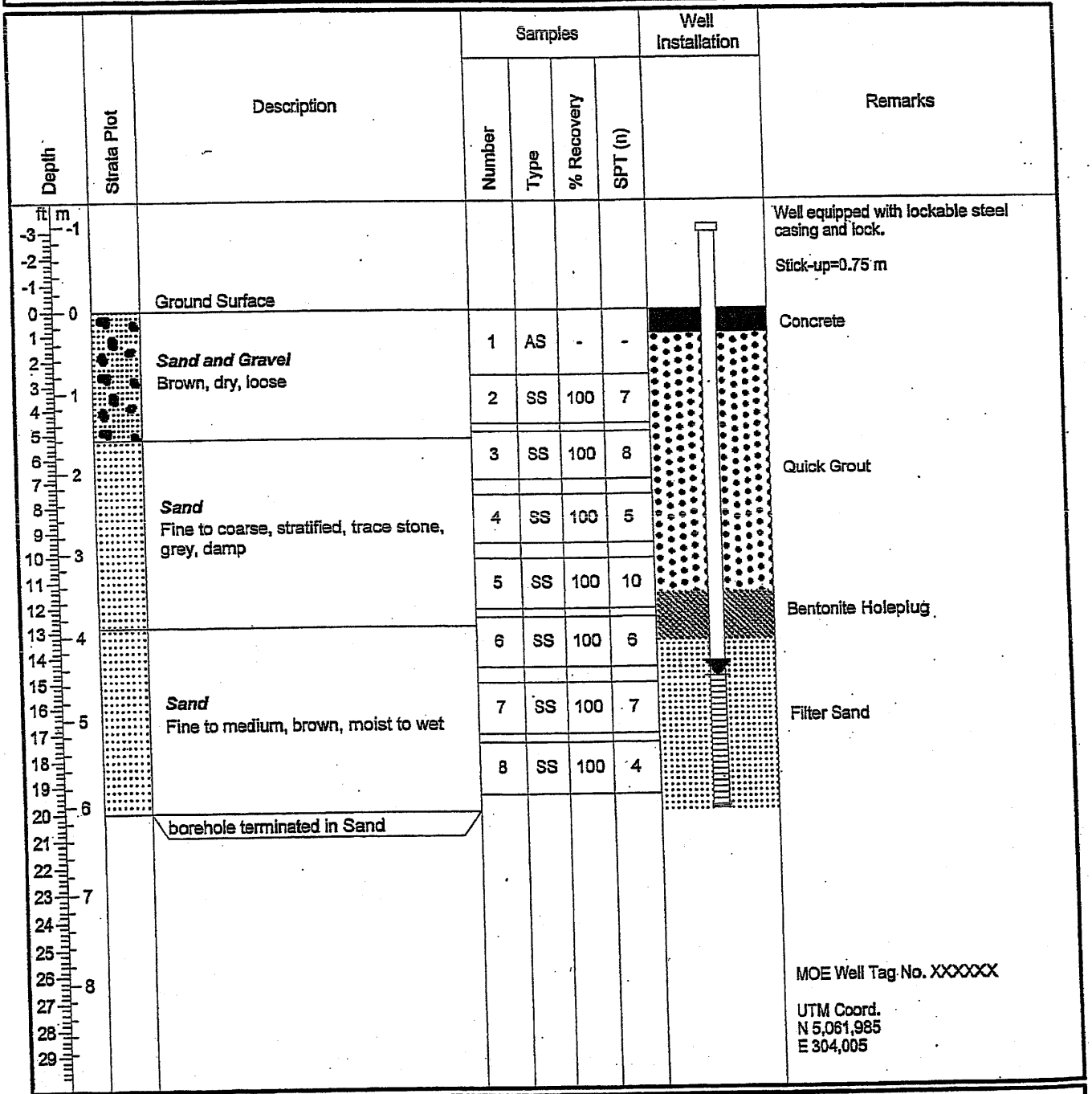
Log of Borehole: BH04-3

Project: Red Rock WTS

Client: Township of Killaloe-Haggarty-Richards

Location: See Site Plan

Logged By: D. Bucholtz



Drill Method: Hollow Stem Auger (CME 75)

Drill Date: August 5, 2004

Input by: D.Bucholtz

Checked by: R. Focht

Sheet: 1 of 1

SGS

Project No: 10781-003

Log of Borehole: BH04-4

Project: Red Rock WTS

Client: Township of Killaloe-Haggarty-Richards

Location: See Site Plan

Logged By: D. Bucholtz

Depth (ft / m)	Strata Plot	Description	Samples: Number	Type	% Recovery	SPT (n)	Well Installation	Remarks
0 / 0		Ground Surface						Well equipped with lockable steel casing and lock. Stick-up=0.71 m
0–3 / 0–1		***Sand*** Fine to coarse, stratified, trace stone, grey, damp	1	AS	-	-		Concrete
			2	SS	90	6		
3–7 / 1–2			3	SS	100	7		Quick Grout
7–13 / 2–4		***Sand*** Fine to medium, brown, stratified, moist to wet	4	SS	100	5		
			5	SS	100	5		
			6	SS	100	8		Bentonite Holeplug
13–20 / 4–6			7	SS	100	10		
			8	SS	100	8		
20–23 / 6–7		***Sand*** Fine, grey, wet	9	SS	100	6		Filter Sand
			10	SS	100	2		
25 / 8		borehole terminated in Sand						MOE Well Tag No. A008437
								UTM Coord. N 5,061,960 E 304,090

Drill Method: Hollow Stem Auger (CME 75)

Drill Date: August 6, 2004

Input by: D.Bucholtz

Checked by: R. Focht

Sheet: 1 of 1

SGS

Project No: 10781-003

Log of Borehole: BH04-5

Project: Red Rock WTS

Client: Township of Killaloe-Haggarty-Richards

Location: See Site Plan

Logged By: D. Bucholtz

Depth (ft / m)	Strata Plot	Description	Samples: Number	Type	% Recovery	SPT (n)	Well Installation	Remarks
ft: -3 to 0; m: -1 to 0		Ground Surface						Well equipped with lockable steel casing and lock. Stick-up=0.77 m
0 to 3 / 0 to 1		***Sand and Gravel*** Brown, dry, loose	1	AS	-	-		Concrete
			2	SS	100	3		
3 to 16 / 1 to 5		***Sand*** Fine to medium, stratified, grey, damp	3	SS	100	6		Quick Grout
			4	SS	100	4		
			5	SS	100	10		Bentonite Holeplug
			6	SS	100	11		
			7	SS	100	2		Filter Sand
16 to 19 / 5 to 6		***Silt*** Grey, wet	8	SS	100	5		
19 to 20 / 6		***Sand*** Fine, grey, wet						
		borehole terminated in sand						
20 to 29 / 6 to 8								MOE Well Tag No. XXXXXX UTM Coord. N 5,061,905 E 304,070

Drill Method: Hollow Stem Auger (CME 75)

Drill Date: August 6, 2004

Input by: D.Bucholtz

Checked by: R. Focht

Sheet: 1 of 1

SGS

Project No: 10781-003

Log of Borehole: BH04-6

Project: Red Rock WTS

Client: Township of Killaloe-Haggarty-Richards

Location: See Site Plan

Logged By: D. Bucholtz

Depth (ft / m)	Strata Plot	Description	Samples: Number	Type	% Recovery	SPT (n)	Well Installation	Remarks
		Ground Surface						Well equipped with lockable steel casing and lock. Stick-up=0.53 m
0 / 0		***Sand and Gravel*** Brown, dry, loose	1	AS	-	-		Concrete
			2	SS	100	8		
4 / 1		***Sand*** Fine to medium, stratified, grey, damp	3	SS	100	11		
			4	SS	100	8		Quick Grout
			5	SS	100	9		
12 / 4		***Sand*** Medium to coarse, brown, stratified, damp to wet	6	SS	85	11		
			7	SS	100	11		Bentonite Holeplug
18 / 6		***Sand*** Fine, grey, wet Orange colouring at 6.4 to 6.5 m	8	SS	100	4		
			9	SS	100	6		Filter Sand
22 / 7		***Silt*** Grey, wet borehole terminated in silt						
26 / 8								MOE Well Tag No. XXXXXX UTM Coord. N 5,061,865 E 304,040

Drill Method: Hollow Stem Auger (CME 75)

Drill Date: August 6, 2004

Input by: D.Bucholtz

Checked by: R. Focht

Sheet: 1 of 1

SGS

Greenview
ENVIRONMENTAL MANAGEMENT

Greenview Environmental Management Limited
69 Cleak Avenue, P.O. Box 100
Bancroft, Ontario K0L 1C0
t: (613) 332-0057
f: (613) 332-1757
e: solutions@greenview-environmental.ca

Log of Monitoring Well: MW06-7

Project No.: 107.06.004

Project: Red Rock Waste Disposal Site

Client: Township of Killaloe Hagarty Richards

Location: See Site Plan

Depth (ft / m)	Symbol	Description	No.	Type	% R	SPT N-Value (0 15 30 45 60)	Well Completion Details	Comments
		Ground Surface						Stick-up = 0.73
1 / 0		**Topsoil** Dark brown, organic topsoil, moist, loosely compacted.	1	AS	100			Concrete
3 / 1		**Fine to Medium Sand** Grey-brown, fine to medium sand, moist, loosely compacted.	2	SS	80			Bentonite Chips
5		**Medium Sand** Red-brown, medium sand, moist, loosely compacted.	3	SS	75			
7		**Medium to Coarse Sand** Light brown, medium to coarse sand, moist, loosely compacted with sub-angular to sub-rounded granitic gravel.	4	SS	70			
9 / 3			5	SS	70			Bentonite Grout
11		**Fine to Medium Sand** Grey-brown to grey, fine to medium sand, moist, loosely compact.	6	SS	85			
13			7	SS	75			
15 / 5		**Fine Silty Sand** Grey, fine sand with some silt, saturated at 18 feet, loosely compacted. Thin layers of brown, medium sand (< 1 cm) at 23 feet.	8	SS	70			Bentonite Chips
17			9	SS	70			Silica sand and native sand mixture
19			10	SS	80			
21								Well Screen = 1.52 m x 0.05 m
23 / 7								
25		End of Borehole						
27								

Drilled By: Lantech Drilling Ltd.

Drill Method: Hollow Stem Augers

Drill Date: April 21, 2006

Logged By: S. Reynolds

Checked By: T. Peters

Sheet: 1 of 1

Greenview
ENVIRONMENTAL MANAGEMENT

Greenview Environmental Management Limited
69 Cleak Avenue, P.O. Box 100
Bancroft, Ontario K0L 1C0
t: (613) 332-0057
f: (613) 332-1767
e: solutions@greenview-environmental.ca

Log of Monitoring Well: MW06-8

Project No.: 107.06.004

Project: Red Rock Waste Disposal Site

Client: Township of Killaloe Hagarty Richards

Location: See Site Plan

Depth (ft / m)	Symbol	Description	No.	Type	% R	SPT N-Value (0 15 30 45 60)	Well Completion Details	Comments
0 / 0		Ground Surface						Stick-up = 0.72
1 / 0.3		**Topsoil** Dark brown, organic topsoil, moist, loosely compacted.	1	AS	100			Concrete
3 / 1		**Fine to Medium Sand** Light brown to brown, fine to medium sand, moist, loosely compacted.	2	SS	80			
5			3	SS	75			
7 / 2		**Fine Silty Sand** Grey, fine sand with some silt, moist, loosely compacted.	4	SS	80			
9 / 3		**Medium Sand** Light brown, medium sand, moist, loosely compacted.	5	SS	75			Bentonite Chips
11		**Fine to Medium Sand** Grey, fine to medium sand, moist, loosely compacted.	6	SS	75			
13 / 4		**Medium to Coarse Sand** Light brown turning to dark brown, medium to coarse sand, moist, loosely compacted.	7	SS	80			
15 / 5		**Fine to Medium Sand** Red-brown, fine to medium sand, moist, loosely compacted.	8	SS	80			Silica sand and native sand mixture.
17		**Fine to Medium Sand** Grey, fine to medium sand, loosely compacted and saturated at 16 feet.	9	SS	90			Well screen = 1.52 m x 0.05 m
19 / 6								
21								
23 / 7		End of Borehole						
25								

Drilled By: Lantech Drilling Ltd.

Drill Method: Hollow Stem Augers

Drill Date: April 21, 2006

Logged By: S. Reynolds

Checked By: T. Peters

Sheet: 1 of 1

APPENDIX E

Field Sampling Records

Greenview
ENVIRONMENTAL MANAGEMENT

FIELD SAMPLING RECORD - GROUND WATER

LOCATION: Red Rock Waste Disposal Site **DATE:** May 6, 2009 **SAMPLED BY:** D. Hagan, E. Drost

PROJECT NO.: 107.09.004 **WEATHER (SAMPLE DAY):** Sunny 18°C **WEATHER (PREVIOUS DAY):** Sunny, 18°C

Monitoring Location	Static Water Level	Borehole Depth (m)	Stick - Up (m)	Borehole Diameter (mm)	Purge Volumes (L)		Temperature (°C)	pH (units)	Conductivity (mS)	Dissolved Oxygen (mg/L)	Observations				Comments
					Needed	Obtained					Colour	Clarity	Odour	Sheen	
BH04-1	5.04	7.56	0.77	50.8	15	15	7.25	6.76	641	10.37	brown	opaque	none	none	GW QA/QC
BH04-2	6.98	9.09	0.82	50.8	13	13	9.33	6.66	286	6.59	white	opaque	none	none	Sandy
BH04-3	5.09	6.74	0.74	50.8	10	10	7.08	6.33	22	9.14	brown	opaque	none	none	Sandy
BH04-4	6.62	8.30	0.69	50.8	10	10	7.99	6.25	220	8.37	grey/brown	opaque	none	none	
BH04-5	5.78	6.82	0.76	50.8	6	6	8.99	6.68	483	6.40	yellow	opaque	sulfur	none	
BH04-6	5.44	7.53	0.45	50.8	13	13	10.54	6.57	165	13.01	brown	opaque	none	none	Sandy
MW06-7	6.19	7.26	0.76	50.8	6	6	8.70	6.07	23	13.50	brown	opaque	none	none	Very Sandy
MW06-8	5.48	7.23	0.70	50.8	11	11	7.13	6.55	57	10.93	brown	opaque	none	none	

Greenview
ENVIRONMENTAL MANAGEMENT

FIELD SAMPLING RECORD - GROUND WATER

LOCATION: Red Rock Waste Disposal Site **DATE:** August 10, 2009 **SAMPLED BY:** E. Drost, D. Hagan

PROJECT NO.: 107.09.004 **WEATHER (SAMPLE DAY):** Sunny, 23°C **WEATHER (PREVIOUS DAY):** Cloudy with Showers, 24°C

Monitoring Location	Static Water Level	Borehole Depth (m)	Stick - Up (m)	Borehole Diameter (mm)	Purge Volumes (L)		Temperature (°C)	pH (units)	Conductivity (mS)	Dissolved Oxygen (mg/L)	Observations				Comments
					Needed	Obtained					Colour	Clarity	Odour	Sheen	
BH04-1	5.08	7.55	0.77	50.8	15	15	8.14	6.83	39	10.25	brown	cloudy	none	none	QA/QC
BH04-2	7.00	9.14	0.82	50.8	13	13	10.09	6.85	317	4.31	grey	cloudy	sulphur	none	Sandy
BH04-3	5.14	6.87	0.74	50.8	10	11	8.06	8.02	25	12.01	brown	opaque	none	none	
BH04-4	6.65	8.24	0.69	50.8	10	10	8.52	6.40	249	6.49	brown	opaque	none	none	
BH04-5	5.78	6.84	0.76	50.8	6	7	10.60	6.53	540	7.45	black	opaque	sulphur/garbage	none	
BH04-6	5.44	7.51	0.45	50.8	12	13	8.32	6.57	106	11.91	brown	opaque	none	none	
MW06-7	6.27	7.12	0.76	50.8	5	5	9.24	6.88	34	13.62	brown	opaque	sulphur	none	
MW06-8	5.48	7.04	0.70	50.8	9	10	8.26	7.04	55	9.78	brown	opaque	none	none	

APPENDIX F

Laboratory Certificates of Analysis

SGS Lakefield Research Limited
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Friday, May 22, 2009

Greenview Environmental Management
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Date Rec. : 07 May 2009
LR Report: **CA11048-MAY09**
Reference: 107.09.004 Red Rock GW

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	7: BH04-1	8: BH04-2	9: BH04-3	10: BH04-4	11: BH04-5	12: BH04-6	13: MW06-7	14: MW06-8	15: GW QA/QC
Sample Date & Time			06-May-09	06-May-09	06-May-09	06-May-09	06-May-09	06-May-09	06-May-09	06-May-09	06-May-09
Temperature Upon Receipt [°C]	--	--	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
BOD [mg/L]	13-May-09	11:58	--	< 4	--	--	--	--	--	--	--
Tot. Suspended Solids [mg/L]	13-May-09	09:11	--	509	--	--	--	--	--	--	--
Alkalinity [mg/L as CaCO3]	12-May-09	15:25	10	111	7	104	275	25	6	9	9
pH [no unit]	12-May-09	15:25	6.48	6.90	6.31	6.92	7.03	6.53	6.29	6.61	6.75
Conductivity [uS/cm]	12-May-09	15:25	54	267	26	300	563	182	30	61	60
Solids (Total Dissolved) [mg/L]	13-May-09	07:40	< 30	209	< 30	209	329	134	134	< 30	43
COD [mg/L]	12-May-09	15:30	< 8	11	< 8	9	29	< 8	9	< 8	< 8
Ammonia+Ammonium (N) [mg/L]	14-May-09	15:24	< 0.1	2.0	< 0.1	< 0.1	10.5	< 0.1	0.7	< 0.1	< 0.1
Sulphate [mg/L]	21-May-09	11:53	9.2	34	5.3	58	19	38	9.4	12	9.2
Chloride [mg/L]	21-May-09	11:53	5.0	11	0.6	4.0	16	20	0.5	5.3	5.1
Nitrate (as nitrogen) [mg/L]	13-May-09	10:37	0.05	< 0.05	< 0.05	1.49	< 0.05	1.67	< 0.05	< 0.05	< 0.05
Dissolved Organic Carbon [mg/L]	12-May-09	14:07	1.1	3.6	1.3	2.8	5.7	1.5	1.0	< 1.0	< 1.0
Barium [mg/L]	13-May-09	09:34	0.00712	0.116	0.00837	0.0431	0.200	0.0293	0.00792	0.00296	0.00664
Boron [mg/L]	13-May-09	09:34	0.0033	0.118	0.0047	0.249	0.214	0.206	0.0111	0.0065	0.0048
Calcium [mg/L]	14-May-09	11:04	3.16	37.5	2.68	40.3	53.0	16.4	2.95	1.39	3.07
Iron [mg/L]	14-May-09	11:04	0.02	26.2	0.02	0.17	34.4	0.13	0.10	0.14	0.02
Magnesium [mg/L]	14-May-09	11:04	0.910	5.43	0.799	6.99	13.5	4.58	1.06	0.685	0.902
Sodium [mg/L]	14-May-09	11:04	6.50	8.13	1.25	15.9	22.6	15.4	1.85	10.7	6.45

OnLine LIMS

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LR Report : **CA11048-MAY09**

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Greenview Environmental Management

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Date Rec. : 12 August 2009
LR Report: **CA10022-AUG09**
Reference: 107.09.004 Red Rock GW

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	7: BH04-1	8: BH04-2	9: BH04-3	10: BH04-4	11: BH04-5	12: BH04-6	13: MW06-7	14: MW06-8	15: GW QA/QC
Sample Date & Time			10-Aug-09	10-Aug-09	10-Aug-09	10-Aug-09	10-Aug-09	10-Aug-09	10-Aug-09	10-Aug-09	10-Aug-09
Temperature Upon Receipt [°C]	—	—	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
BOD [mg/L]	19-Aug-09	08:07	—	< 4	—	—	—	—	—	—	—
Tot. Suspended Solids [mg/L]	17-Aug-09	14:44	—	1350	—	—	—	—	—	—	—
Alkalinity [mg/L as CaCO3]	18-Aug-09	09:09	9	131	7	132	310	15	6	10	10
pH [no unit]	18-Aug-09	09:09	6.47	7.02	6.32	6.96	7.07	6.86	6.18	6.72	6.67
Conductivity [uS/cm]	18-Aug-09	09:09	55	325	32	376	623	153	66	68	58
Solids (Total Dissolved) [mg/L]	18-Aug-09	12:35	< 30	186	< 30	226	351	120	57	237	43
COD [mg/L]	13-Aug-09	09:06	8	23	< 8	11	32	< 8	< 8	< 8	< 8
Ammonia+Ammonium (N) [mg/L]	17-Aug-09	12:45	0.2	2.0	< 0.1	0.2	10.2	< 0.1	< 0.1	0.1	< 0.1
Sulphate [mg/L]	19-Aug-09	09:43	9.1	22	5.2	37	19	6.6	9.0	12	9.0
Chloride [mg/L]	19-Aug-09	09:43	4.3	12	1.4	13	9.3	28	1.0	5.0	4.4
Nitrate (as nitrogen) [mg/L]	14-Aug-09	16:00	< 0.05	< 0.05	< 0.05	2.10	< 0.05	0.84	3.28	< 0.05	< 0.05
Dissolved Organic Carbon [mg/L]	13-Aug-09	14:22	< 1.0	4.3	< 1.0	2.4	5.5	< 1.0	1.1	1.3	< 1.0
Barium [mg/L]	17-Aug-09	15:57	0.00715	0.133	0.00786	0.04539	0.217	0.0174	0.0176	0.00728	0.00678
Boron [mg/L]	17-Aug-09	15:57	0.0039	0.146	0.0054	0.208	0.257	0.0157	0.0084	0.0055	0.0042
Calcium [mg/L]	17-Aug-09	13:07	2.58	50.8	2.85	48.2	60.6	12.1	4.82	1.68	2.60
Iron [mg/L]	17-Aug-09	13:07	0.06	35.1	0.04	0.08	42.8	0.12	0.16	0.34	0.05
Magnesium [mg/L]	17-Aug-09	13:07	0.778	7.39	0.859	7.67	15.5	3.60	1.72	0.672	0.780
Sodium [mg/L]	17-Aug-09	13:07	6.34	9.74	1.29	17.1	22.5	8.31	2.11	9.93	6.33

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LR Report : **CA10022-AUG09**

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APPENDIX G

Statement of Service Conditions and Limitations

Greenview
ENVIRONMENTAL MANAGEMENT

GREENVIEW ENVIRONMENTAL MANAGEMENT LIMITED - STATEMENT OF SERVICE CONDITIONS AND LIMITATIONS

Provision of Services and Payment

Upon documented acceptance of Greenview's proposed services, costs and associated terms by the client, Greenview may commence work on the proposed services directly. Upon retention of Greenview's services related to this project, the client agrees to remit payment for the services rendered for the specified period within (30) days of receipt as invoiced by Greenview on a typical monthly basis, unless otherwise arranged between the client and Greenview. In the event of non-payment by the client, Greenview reserves the right, without external influence or expense, to discontinue services and retain any documentation, data, reports, or other project information until such time as payment is received by Greenview.

Warranty, Limitations, and Reliance

Greenview relies on background and historical information from the client to determine the appropriate scope of services to meet the client's objectives, in accordance with applicable legislation, guidelines, industry practices, and accepted methodologies.

Greenview provides its services under the specific terms and conditions of a specific proposal (and where necessary formal contract), in accordance with the above requirements and the *Limitations Act 2002,* only.

The hypotheses, results, conclusions, and recommendations presented in documentation authored by Greenview are founded on the information provided by the client to Greenview in preparation for the work. Facts, conditions, and circumstances discovered by Greenview during the performance of the work requested by the client are assumed by Greenview to be part of preparatory information provided by the client as part of the proposal stage of the project. Greenview assumes that, until notified or discovered otherwise, that the information provided by, or obtained by Greenview from, the client is factual, accurate, and represents a true depiction of the circumstances that exist related to the time of the work.

Greenview relies on its clients to inform Greenview if there are changes to any related information to the work. Greenview does not review, analyze or attempt to verify the accuracy or completeness of the information or materials provided, or circumstances encountered, other than in accordance with applicable accepted industry practice. Greenview will not be responsible for matters arising from incomplete, incorrect or misleading information or from facts or circumstances that are not fully disclosed to or that are concealed from Greenview during the period that services, work, or documentation preparation was performed by Greenview.

Facts, conditions, information and circumstances may vary with time and locations and Greenview's work is based on a review of such matters as they existed at the particular time and location indicated in its documentation. No assurance is made by Greenview that the facts, conditions, information, circumstances or any underlying assumptions made by Greenview in connection with the work performed will not change after the work is completed and documentation is submitted. If any such changes occur or additional information is obtained, Greenview should be advised and requested to consider if the changes or additional information affect its findings or results.

When preparing documentation, Greenview considers applicable legislation, regulations, governmental guidelines and policies to the extent they are within its knowledge, but Greenview is not qualified to advise with respect to legal matters. The presentation of information regarding applicable legislation, regulations, governmental guidelines, and policies is for information only and is not intended to and should not be interpreted as constituting a legal opinion concerning the work completed or conditions outlined in a report. All legal matters should be reviewed and considered by an appropriately qualified legal practitioner.

Greenview's services, work and reports are provided solely for the exclusive use of the client which has retained the services of Greenview and to which its reports are addressed. Greenview is not responsible for the use of its services, work or reports by any other party, or for the reliance on, or for any decision which is made by any party using the services or work performed by or a report prepared by Greenview without Greenview's express written consent. Any party that uses, relies on, or makes a decision based on services or work performed by Greenview or a report prepared by Greenview without Greenview's express written consent, does so at its own risk. Except as set out herein, Greenview specifically disclaims any liability or responsibility to any third party for any loss, damage, expense, fine, penalty or other such thing which may arise or result from the use of, reliance on or decision based on any information, recommendation or other matter arising from the services, work or reports provided by Greenview.

Site Assessments

A site assessment is created using data and information collected during the investigation of a site and based on conditions encountered at the time and particular locations at which fieldwork is conducted. The information, sample results and data collected represent the conditions only at the specific times at which and at those specific locations from which the information, samples and data were obtained and the information, sample results and data may vary at other locations and times. To the extent that Greenview's work or report considers any locations or times other than those from which information, sample results and data were specifically received, the work or report is based on a reasonable extrapolation from such information, sample results and data but the actual conditions encountered may vary from those based on extrapolations.

Only conditions, and substances, at the site and locations chosen for study by the client are evaluated; no adjacent or other properties are evaluated unless specifically requested by the client. Any physical or other aspects of the site that were not chosen for study by the client, or any other matter not specifically addressed in a report prepared by Greenview, are beyond the scope of the work performed by Greenview and such matters have not been investigated or addressed.

Confidentiality

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For proposals specifically, the information contained therein is confidential, proprietary information, and shall not be reproduced or disclosed to any other party than to that of the addressee of the original proposal submission, without prior written permission of Greenview.