Environmental Summary Report
Canadian Pacific Railway Company Intermodal Yard
Regina, Saskatchewan

File No.: R4914 18 October 2012

CONFIDENTIAL

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THE SCOPE OF THE REPORT AND THIRD PARTY RELIANCE.

Executive Summary

This report presents the results of the Phase II Environmental Site Assessments (ESA) conducted by Clifton Associates Ltd. at the Regina, Saskatchewan, CP Intermodal Yard (Site). The Phase II ESA was completed to delineate the potential hydrocarbon impacts on the Site.

The subject property consists of the CP Intermodal Yard. The CP Intermodal Yard consists of a main office building, side tracks, fuelling area and several intermodal containers. Refer to Drawing No. R4914-1 for a Site location plan and Drawing No. R4914-2 for a bore hole location plan that identifies the layout of the Site.

Historic Phase II ESAs conducted by others identified two potentially impacted areas in or near the CP Intermodal Yard. They are the former underground fuel tank area and the historical diesel spill in the maintenance area, adjacent to the south. Hydrocarbon impacts above the referenced criteria were identified in the area of the former underground fuel tank and pump facilities. These impacts were not originally delineated horizontally or vertically. The scope of this investigation was to determine if the impacts are present on the subject site. During the investigation, elevated soil vapours and visual evidence of hydrocarbon impacts were observed at the periphery of the Site.

On 17 November 2009, Clifton Associates Ltd. personnel were on site to collect soil samples from Bore Hole BH114 (BH114) and BH116 to BH121. On 26 March 2012, Clifton Associates Ltd. personnel were on Site to collect soil samples from BH201 to BH210. Bore hole locations were selected to delineate hydrocarbon impacts identified in historic investigations, and to assess the conditions of the above ground diesel tanks currently within CP Intermodal Yard. Monitoring wells were installed in every bore hole, except BH118 to BH121. Water was obtained from BH114, BH116, BH201 to BH203 and BH208, while the remaining wells were dry. All soil and groundwater samples submitted for analysis were below Saskatchewan Ministry of Environment Risk Based Corrective Actions for Petroleum Hydrocarbon Impacted Sites, March 2009 (RBCA 2009) Tier 2B Criteria.

Elevated vapour levels were observed in BH207 and BH208 on the southern edge of the property boundary. On 11 June 2012, Clifton Associates Ltd. personnel returned to Site to collect soil samples from BH301 to BH306. Bore hole locations were selected to delineate

hydrocarbon impacts identified in previous investigations. All soil samples were below RBCA 2009 Tier 2B Criteria.

Vapour monitoring wells were installed in BH302 to BH306, in an attempt to obtain vapour samples from the area of interest. On 28 June 2012, Clifton Associates Ltd. personnel returned to the Site to monitor the vapour wells. Due to the high water table in the area, groundwater was present in all vapour wells, resulting in the well screens to be fully submerged; therefore, the vapour monitoring program was not representative with respect to the results from the drilling program. The results are not usable and are not included in the report

Petroleum hydrocarbon concentrations were observed in sand fill on the southern property boundary. Hydrocarbon vapours were observed in the soil encountered during drilling in this Phase II ESA; however, the bore holes drilled along the south boundary (BH114, BH207, BH208 and BH302 to BH306) indicate values below RBCA 2009 Tier 2B criteria. Previously identified impacts observed in the maintenance yard and the former underground fuel tanks appear to be delineated based on Tier 2B criteria. Bore Holes BH114, BH207, BH208 and BH302 to BH306 were not drilled exactly on the property line; therefore, there is a chance for limited impact between the actual property boundary and the bore holes.

Use of the report is subject to the “Limitations” which is included at Section 7.0 of this report. The reader’s attention is specifically drawn to these conditions as it is considered essential that they be followed for the proper use and interpretation of this report.

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1.0 Introduction

1.1 Background

This report presents the results of the Phase II Environmental Site Assessment (ESA) conducted by Clifton Associates Ltd. at the Regina, Saskatchewan, Canadian Pacific Railway Company (CP) Intermodal Yard. The Phase II ESA was completed to provide information to determine the extent of hydrocarbon impacts on the Site.

1.2 Scope

The scope of the work was to complete bore holes on Site to determine the extent of previously identified hydrocarbon impacts.

1.3 Authorization

Authorization to proceed with the work was received in an agreement between Mr. Ahmed Ezzat of CP, Mr. Geoff Brown of City of Regina and Clifton Associates Ltd. dated 09 March 2012 and from a signed contract between the City of Regina and Clifton Associates Ltd. on 08 March 2012.

2.0 Site Description

2.1 Subject Property

The subject property consists of the CP Intermodal Yard. The CP Intermodal Yard consists of a main office building, side tracks, fuelling area and several intermodal containers. Refer to Drawing No. R4914-1 for a Site location plan and Drawing No. R4914-2 for a bore hole location plan that identifies the layout of the Site.

2.2 Surrounding Areas

The subject property is surrounded by a variety of roadways and properties.

- Land use to the North – Dewdney Avenue followed by commercial businesses.
- Land use to the South – CP maintenance yard and mainline followed by Casino Regina further southeast and Canada Post further southwest.

- Land use to the West – A commercial office building and an associated parking lot.
- Land use to the East – Broad Street underpass and CP rail overpass and associated rail facilities.

2.3 Geologic and Hydrogeologic Setting

Based on two bore holes drilled to approximately 30 m on the Site for a geotechnical investigation, the Site consists of approximately 1.5 m to 2.0 m of fill over approximately 11 m of highly plastic lacustrine clay. This clay overlies approximately 5 m of Upper Floral Till belonging to the Saskatoon Group. Interglacial sediments consisting of sand, silt, clay and till lie beneath the Saskatoon group till to the maximum depth of exploration of 30 m. Sands encountered in the interglacial sediments may be part of or hydraulically connected to the Regina Aquifer.

2.4 Land Use and Regulatory Framework Assessment Criteria

2.4.1 Regulatory Setting

Saskatchewan Ministry of Environment Risk Based Corrective Actions for Petroleum Hydrocarbon Impacted Sites, March 2009 (RBCA 2009) has been referenced. RBCA 2009 allows for a tiered selection of criteria based on risk. If certain exposure pathways can be eliminated, then the applicable criteria may be less stringent.

2.4.2 Land Use

The subject property is used for commercial purposes, as are the surrounding properties.

2.4.3 Grain Size Designation

Differing soil quality guidelines are used depending on the fine or coarse grained soil. A grain size test was performed on the clay till during the previous Phase II ESA. The test indicated that the soil was fine grained.

For the purposes of this Assessment, fine grained criteria can be used.

2.4.4 Human Exposure Pathways

Commercial land use criteria apply to the Site. Potential human exposure pathways include vapour inhalation, dermal contact, ingestion and groundwater. Applicability of each exposure pathway is described below. Granular fill and asphalt cover most of the Site.

Soil Ingestion

The soil ingestion pathway would be considered applicable since the Site is not fully paved; therefore, the soil is accessible, and future development could place soil at or near the surface.

Dermal Contact

The dermal contact pathway would be considered applicable since the Site is not fully paved and the soil is accessible, and future development could place soil at or near the surface.

Vapour Inhalation

The vapour inhalation pathway would not be considered applicable due to the lack of slab on grade buildings on the Site; however, this pathway could be applicable in the future depending on proposed development.

Protection of Groundwater

The protection of groundwater pathway is not applicable to this Site as the potentially impacted zone is separated from any aquifer by a least 5 m of unfractured fine grained material.

2.4.5 Ecological Exposure Pathways

Ecological Soil Contact

The ecological soil contact pathway would be considered applicable since the Site is not paved and the soil is accessible, and future development could place soil at or near the surface.

2.4.6 Freshwater Aquatic Life

The freshwater aquatic life pathway is not applicable at the Site. No surface water bodies are within 500 m of the Site.

2.4.7 Assessment Criteria Chosen

For the purpose of this Assessment, Tier 2B Commercial Land Use (fine grained soils) RBCA 2009 reference criteria will be used for hydrocarbon impacts. The groundwater pathway is not applicable; therefore, the Potable Groundwater criteria do not apply.

2.5 Site Assessments

Three Site Assessments were completed by Clifton Associates Ltd. on the Site. The details from the assessments are included in this Summary Report. A list of the assessments is listed below:

- Phase II Environmental Site Investigation, CP Intermodal and Maintenance Yard, Clifton Associates Ltd., November 2009.
- Phase II ESA, CP Intermodal Yard, Clifton Associates Ltd., March 2012.
- Vapour Well Installation and Sampling, Clifton Associates Ltd., June 2012.

3.0 Field Program

3.1 Soils Investigations

On 17 November 2009, Clifton Associates Ltd. personnel were on site to collect soil samples from Bore Hole BH114 (BH114) and BH116 to BH122. On 26 March 2012, Clifton Associates Ltd. personnel were on Site to collect soil samples from BH201 to BH210. On 11 June 2012, Clifton Associates Ltd. personnel returned to the Site to collect soil samples from BH301 to BH306. The sampling locations are included in Drawing No. R4914-2. Probe Drilling Company Ltd. of Regina was contracted to complete the bore hole drilling.

Bore Holes BH114, BH116 to BH121, BH201 to BH210 and BH301 were drilled to a depth of 6.1 m. Monitoring wells were installed in BH114, BH116, BH117, BH201 to BH210, while BH118 to BH121 and BH301 were backfilled with bentonite. Bore Holes BH302 to BH306 were drilled to a depth of 1.5 m and vapour sampling wells were installed.

Bore hole logs indicating surficial soil conditions on Site are attached to this report. Bore hole locations were selected to delineate hydrocarbon impacts identified in historic investigations.

Soil samples were obtained from each bore hole. Composite samples were recovered from approximately every 0.76 m throughout the entire depth of each bore hole and sealed in a plastic bag. After the samples had been warmed to approximately 20°C, the available headspace was sampled for combustible hydrocarbon vapour concentrations using an RKI Eagle II gas monitor calibrated to hexane and with the methane response eliminated. Samples filled to minimal headspace were collected from each sample location into 125 mL glass jars supplied by the laboratory and fitted with Teflon-lined lids. Selected samples detailed in Table 1 were submitted for hydrocarbon parameters. In addition to hydrocarbon parameters, samples from the vicinity of the maintenance yard were submitted for metals parameters. The results of soil analysis for metals are included in Table 2. Soil samples were selected and submitted to ALS Laboratory Group in Saskatoon for analysis.

Monitoring wells were installed in BH114, BH116, BH117 and BH201 to BH210. Monitoring wells were constructed of 50 mm diameter polyvinyl chloride (PVC) pipe with threaded joints. Each well was comprised of 0.010 inch (0.25 mm) horizontal slotted pipe (screen). The well screen length was approximately 3 m in all wells. Each well was completed with solid PVC pipe to grade. A 50 mm diameter slip cap was placed on the bottom of the well and a threaded cap was placed on the top of the monitoring well. Vapour canister wells were installed in BH302 to BH306. The soil vapour monitoring wells were constructed of 25 mm diameter polyvinyl chloride (PVC) pipe attached to a 150 mm diameter 0.010 inch (0.25 mm) horizontal slotted pipe. The well canister length was approximately 450 mm in all wells. A 150 mm diameter slip cap was placed on the bottom of the well and a 25 mm diameter slip cap was placed on the top of the vapour monitoring well. A brass ball valve was attached to each of the top slip caps. The annulus was backfilled with sand from the bottom of the screen to approximately 0.3 m above the top of the screen. Bentonite pellets were placed around the annulus of the solid section of pipe to within approximately 0.5 m of ground surface and were activated. A flush mount well protector case was installed on each of the monitoring wells. The monitoring wells were surveyed in reference to a fixed City of Regina benchmark in metres above sea level.

Refer to the bore hole logs for further information including groundwater monitor well completion details.

3.2 Groundwater Investigation

On 30 November 2009, monitoring wells BH114, BH116 and BH117 were monitored and sampled for hydrocarbon parameters BTEX and PH Fractions F1 and F2 and metals. On 10 April 2012, monitoring wells BH201 to BH210 were monitored for hydrocarbon parameters BTEX and PH Fractions F1 and F2. Combustible hydrocarbon vapour concentrations were measured in each of the wells using an RKI Eagle II gas monitor calibrated to hexane with methane elimination. The depth to groundwater and the presence of liquid phase hydrocarbons (LPH) in each monitor well was measured using a Solinst Interface Probe. Monitoring wells were purged dry or a minimum of three well volumes prior to groundwater sampling. Groundwater samples were collected with a dedicated polyethylene bailer. Water samples for BTEX and PHC Fraction F1 analysis were placed in 3 x 40 mL amber glass vials preserved with sodium bisulphate as a microbial inhibitor. Water samples for F2 analyses were placed in 2 x 250 mL amber glass bottles. Water samples for dissolved metals were field filtered and placed in a 250 mL plastic bottle, the sample was preserved with nitric acid as a microbial inhibitor.

3.3 Vapour Investigation

On 28 June 2012, Clifton Associates Ltd. personnel returned to the Site to sample the vapour concentrations of monitoring wells BH302 to BH306. The wells were purged prior to sampling. Combustible hydrocarbon vapour concentrations were measured in each of the wells using an RKI Eagle II gas monitor calibrated to hexane with methane elimination. Groundwater was detected in each of the vapour wells. The depth to groundwater and the presence of liquid phase hydrocarbons (LPH) in each monitor well was measured using a Solinst Interface Probe. The vapour was sampled by connecting a SUMMA canister to the brass ball valve. Each SUMMA canister was paired with a 15 minute cantrollor. The vapours were sampled for hydrocarbon parameters BTEX and PH Fractions F1 and F2.

4.0 Results and Discussion

4.1 Soil

Soil observed during drilling activities consisted of 0.3 m to 2.0 m of granular fill overlying highly plastic clay to the maximum depth of investigation. Bore Hole BH116 encountered what appears to be backfill from former underground tanks, and BH301 had clay fill to a depth of 3.4 m, potentially indicating the location of the former underground fuel tank. Bore Holes BH207 to BH210, and BH302 to BH305 had an asphalt cap. Bore hole logs are attached to this report. Bore Hole BH203 encountered what appears to be backfill from a catch basin on the northwest corner of the Site.

Hydrocarbon vapours in the samples ranged from 10 ppm to 1,000 ppm. Hydrocarbon impacts were identified in several bore holes. Seven bore holes were drilled in the vicinity of the historical diesel spill to further classify the impacts in this area. All bore holes drilled by Clifton Associates Ltd. within the CP Intermodal Yard indicated hydrocarbon concentrations below allowable criteria. All other impacts were below reference criteria. Soil hydrocarbon analytical results are included in Table 1.

Metals samples were taken from shallow BH118 and BH120. These samples were taken from the top of the clay when it was encountered. Soil metals analytical results are included in Table 2.

4.2 Groundwater

Groundwater in the monitoring wells ranged in depth from 1.32 m to 5.94 m. Bore Holes BH117, BH204, BH206 and BH209 were dry, while BH205, BH207 and BH210 did not have a sufficient water volume to obtain samples. Groundwater samples from BH114, BH116, BH201 to BH203 and BH208 were analyzed for BTEX and PHC Fractions F1 and F2, and BH114 and BH116 were sampled for metals. The well standpipe vapours in BH208 were greater than 10,000 ppm. All groundwater samples were below RBCA 2009 Tier I Potable Groundwater criteria; however, the hydrocarbon parameters were compared with the criteria for reference purposes only since the potable and freshwater aquatic life pathways do not apply.

A summary of groundwater monitoring data is presented in Table 3 and a summary of groundwater analysis results is presented in Tables 4 and 5 for hydrocarbons and metals, respectively.

4.3 Vapour

The well standpipe hydrocarbon vapour concentrations ranged from 95 ppm to 130 ppm. Groundwater in the monitoring wells ranged in depth from 0.48 m to 0.93 m, which resulted in the well screen being entirely submerged. The groundwater in the vapour canisters may have inhibited the vapour sampling. Due to the elevation of the water table at the location of the vapour monitoring wells, the vapour monitoring program was not representative of *in situ* conditions. The results are not usable; therefore, are not included in the report. A summary of well monitoring data is presented in Table 2.

5.0 Summary

Clifton Associates Ltd. completed a Phase II Environmental Site Assessment at the CP Intermodal Yard. The initial drilling conducted by Clifton Associates Ltd. in November 2009 (BH114, BH116 to BH121) identified two potentially impacted areas.

Ten bore holes (BH201 to BH210) were drilled on 26 March 2012 with monitoring wells installed in all bore holes. None of the soil samples submitted for analysis exceeded RBCA 2009 Tier 2B Criteria. Water was obtained from BH201 to BH203 and BH208, while the remaining wells were dry. The groundwater pathway has been eliminated.

The round of drilling conducted by Clifton Associates Ltd. in March 2012 did not encounter soil that exceeded RBCA 2009 criteria; however, high soil vapour levels were observed in BH207 and BH208 on the south edge of the Site near the CP Maintenance Yard.

Six bore holes (BH301 to BH306) were drilled on 11 June 2012 with vapour monitoring wells installed in BH302 to BH306. All soil samples from BH310 to BH306 were below RBCA 2009 Tier 2B Criteria. Water was unexpectedly present in BH302 to BH306; therefore, the vapour samples were unusable.

6.0 Conclusions

Petroleum hydrocarbons were observed in sand fill on the southern property boundary. Hydrocarbon vapours were observed in the soil encountered during drilling in this Phase II ESA; however, the bore holes drilled along the south boundary (BH114, BH207, BH208 and BH302 to BH306) indicate values below RBCA 2009 Tier 2B criteria. Bore holes were not drilled exactly on the property line; therefore, there is a chance for limited impact between the actual property boundary and the bore holes.

7.0 Limitations

This report was prepared by Clifton Associates Ltd. for City of Regina and Canadian Pacific Railway Company. The material in it reflects Clifton Associates Ltd. best judgment available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Clifton Associates Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

This report has been prepared in accordance with generally accepted engineering practice common to the local area. No other warranty, expressed or implied is made. Site information was obtained from the sources listed in the report and from interviews with individuals. Clifton Associates Ltd. accepts no responsibility for any deficiencies or inaccuracies in the information provided in this report that are the direct result of intentional or unintentional misrepresentations, errors or omissions of the persons interviewed or information reviewed.

Our conclusions regarding the Site are based on observations of existing Site conditions, our interpretations of available Site history and the information obtained from the referenced subsurface exploration. Conclusions regarding the condition of the Site will not represent a warranty that all areas within the Site are of the same quality as may be inferred from observable Site conditions and readily available Site history. The scope executed for this project is not an audit for regulatory compliance or a detailed condition survey for the presence of asbestos, lead paint, PCB's, radon or other naturally occurring materials.

The soil samples and associated laboratory testing indicate subsurface, groundwater and chemical conditions only at the specific locations and times investigated, only to the depth penetrated and only for the soil chemical properties tested. The subsurface conditions may vary between the bore holes and with time. The subsurface interpretation provided is a

professional opinion of conditions and not a certification of the Site conditions. The nature and extent of subsurface variation may not become evident until excavation or further investigation. If variations or other latent conditions become evident, Clifton Associates Ltd. should be notified immediately so that we may re-evaluate our conclusions and recommendations. Although subsurface conditions have been explored, we have not evaluated the Site with respect to conditions pertinent to geotechnical and foundation characteristics.

No environmental site assessment or remediation can wholly eliminate uncertainty regarding environmental conditions in connection with a property. This investigation is intended to reduce, but not eliminate the uncertainty regarding environmental conditions. The work was based in part upon the environmental quality guidelines and regulations in effect when the work was conducted. Future regulatory changes may require re-assessment of the findings of this investigation.

Clifton Associates Ltd.

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engineering science technology

Symbols and Terms

Soil Descriptive Terms

A soil description for geotechnical applications includes a description of the following properties:

- texture
- color, oxidation
- consistency and condition
- primary and secondary structure

Texture

The soil texture refers to the size, size distribution and shape of the individual soil particles which comprise the soil. The Unified Soil Classification System (ASTM D2487-00) is a quantitative method of describing the soil texture. The basis of this system is presented overleaf. The following terms are commonly used to describe the soil texture.

Particle Size (ASTM D2487-00)

Boulder	300 mm plus
Cobble	75 - 300 mm
Gravel	4.75 - 75 mm
Coarse	19 - 75 mm
Fine	4.75 - 19 mm
Sand	0.075 - 4.75 mm
Coarse	2 - 4.75 mm
Medium	0.425 - 2 mm
Fine	0.075 - 0.425 mm
Silt and Clay	Smaller than 0.075 mm

Relative Proportions (CFEM, 3rd Ed., 1992)

Trace	1 - 10 %
Some	10 - 20 %
Gravelly, sandy, silty, clayey, etc.	20 - 35 %
And	>35 %
Gravel, Sand, Silt, Clay	>35 % and main fraction

Gradation

Well Graded	Having a wide range of grain sizes and substantial amount of all intermediate sizes.
Uniform or Poorly Graded	Possessing particles of predominantly one size.
Gap Graded	Possessing particles of two distinct sizes.

Particle Shape

Angular	Sharp edges and relatively plane sides with unpolished surfaces.
Subangular	Similar to 'angular' but have rounded edges.
Subrounded	Well-rounded corners and edges, nearly plane sides.
Rounded	No edges and smoothly curved sides.

Also may be flat, elongated or both.

The term "TILL" may be used as a textural term to describe a soil which has been deposited by glaciers and contains an unsorted, wide range of particle sizes.

Color And Oxidation

The soil color at its natural moisture content is described by common colors and, quantitatively, in terms of the Munsell color notation; (eg. 5Y 3/1). The notation combines three variables, hue, value and chroma to describe the soil color. The hue indicates its relation to red, yellow, green, blue and purple. The value indicates its lightness. The chroma indicates its strength of departure from a neutral of the same lightness.

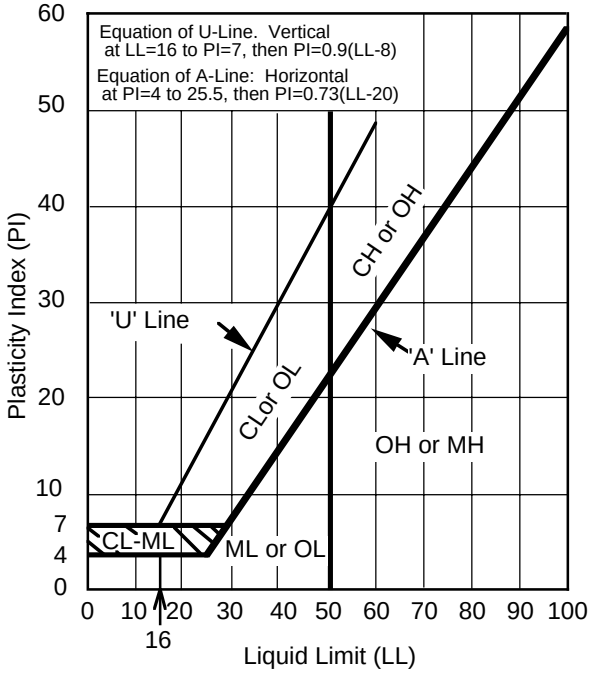
Departure of the soil color from a neutral color indicates the soil has been oxidized. Oxidation of a soil occurs in a oxygen rich environment where most commonly metallic iron, oxidizes and turns a neutral colored soil 'rusty' or reddish brown. Oxidized manganese gives a purplish tinge to the soil. Oxidation may occur throughout the entire soil mass or on fracture/joint/fissure surfaces.

Classification of Soils for Engineering Purposes

ASTM Designation D 2487-00 (Unified Soil Classification System)

Major divisions			Group Symbols	Typical names	Classification criteria			
Coarse-grained soils: More than 50% retained on No. 200 sieve* (>0.075 mm)	Gravels: More than 50% of coarse fraction retained on No. 4 sieve(≥4.75 mm)	Clean gravels <5% fines	GW	Well-graded gravel	If ≥ 15% sand add "with sand" to group name	Classification on basis of percentage of fines: Less than 5% pass No. 200 sieve.....GW, GP, SW, SP; More than 12% pass No. 200 sieve.....GM, GC, SM, SC; 5 to 12% pass No. 200 sieve.....Borderline classifications requiring use of dual symbols	$C_u = \frac{D_{60}}{D_{10}} \geq 4$; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	
			GP	Poorly graded gravel			Not meeting either C_u or C_c criteria for GW	
		Gravels with fines >12% fines	GM	Silty gravel			Atterberg limits below "A" line or PI less than 4	Atterberg limits plotting in hatched area are borderline classifications requiring use of dual symbols
			GC	Clayey gravel			Atterberg limits on or above "A" line and PI > 7	If fines are organic add "with orgnic fines" to group name
	Sands: 50% or more of coarse fraction passes No. 4 sieve(<4.75 mm)	Clean sands <5% fines	SW	Well-graded sand	If ≥ 15% gravel add "with gravel to group name		$C_u = \frac{D_{60}}{D_{10}} \geq 6$; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	
			SP	Poorly graded sand			Not meeting either C_u or C_c criteria for SW	
		Sands with fines >12% fines	SM	Silty sand			Atterberg limits below "A" line or PI less than 4	Atterberg limits plotting in hatched area are borderline classifications requiring use of dual symbols
			SC	Clayey sand			Atterberg limits on or above "A" line and PI > 7	If fines are organic add "with orgnic fines" to group name
Fine-grained soils: 50% or more passes No. 200 sieve* (≤0.075 mm)	Silts and Clays: Liquid limit <50%	Inorganic	ML	Silt	If 15 to 29% coarse-grained, add "with sand" or "with gravel" as appropriate If > 30% coarse-grained , add "sandy" or "gravelly" as appropriate Class as organic when oven dried liquid limit is < 75% of undried liquid limit			
			CL	Lean Clay -low plasticity				
		Organic	OL	Organic clay or silt (Clay plots above 'A' Line)				
	Silts and Clays: Liquid limit ≥50%	Inorganic	MH	Elastic silt				
			CH	Fat Clay -high plasticity				
		Organic	OH	Organic clay or silt (Clay plots above 'A' Line)				
	Highly organic soils		PT	Peat, muck and other highly organic soils				

Plasticity Chart



*Based on the material passing the 3 in.(75 mm) sieve, if field samples contain cobbles or boulders, add "with cobbles or boulders" to group name

Consistency And Condition

The consistency of a cohesive soil is a qualitative description of its resistance to deformation and can be correlated with the undrained shear strength of the soil. The condition of a coarse grained soil qualitatively describes the soil compactness and can be correlated with the standard penetration resistance (ASTM D1586-99).

Consistency Of Cohesive Soil (CFEM, 3rd Edit., 1992)

Consistency	Undrained Shear Strength (kPa) (CFEM, 3rd Edt., 1992)	Field Identification (ASTM D 2488-00)
Very Soft	<12	Thumb will penetrate soil more than 25 mm.
Soft	12-25	Thumb will penetrate soil about 25 mm.
Firm	25-50	Thumb will indent soil about 6 mm.
Stiff	50-100	Thumb will indent, but penetrate only with great effort (CFEM).
Very Stiff	100-200	Readily indented by thumbnail (CFEM).
Hard	>200	Thumb will not indent soil but readily indented with thumbnail.
Very Hard	N/A	Thumbnail will not indent soil.

Condition Of Coarse Grained Soil (CFEM, 3rd Edt., 1992)

Compactness Condition	SPT N - Index (Blows/300mm)
Very Loose	0 - 4
Loose	4 - 10
Compact	10 - 30
Dense	30 - 50
Very Dense	over 50

Moisture Conditions (ASTM D2488-00)

Description	Criteria
Dry	Absence of moisture, dusty, dry to touch
Moist	Damp but no visible water
Wet	Visible, free water, usually soil is below water table

Structure

The soil structure is the manner in which the individual soil particles are assembled to form the soil mass. The primary soil structure is the arrangement of soil particles as originally deposited. The secondary soil structure refers to any rearrangement of the soil such as deformation and cracking which has taken place since deposition.

Primary Soil Structure (Depositional)

A. Geometry

Stratum	-	A single sedimentary 'layer', greater than 10 mm in thickness, visibly separable from other strata by a discrete change in lithology and/or sharp physical break.
Homogeneous	-	Same color and appearance throughout.
Stratified	-	Consisting of a sequence of layers which are generally of contrasting texture or color.
Laminated	-	Stratified with layer thicknesses between 2 mm and 10 mm.
Thinly laminated	-	Stratified with layer thickness less than 2 mm.
Bedded	-	Stratified with layer thicknesses greater than 10 mm.
Very Thinly Bedded (Flaggy)	-	Stratified with layer thicknesses between 10 and 50 mm.
Thinly Bedded (Slabby)	-	Stratified with layer thicknesses between 50 and 600 mm.
Thickly Bedded (Blocky)	-	Stratified with layer thicknesses between 600 and 1200 mm.
Thick-Bedded (Massive)	-	Stratified with layer thicknesses greater than 1200 mm.
Lensed	-	Inclusions of small pockets of different soils, such as small lenses of sand material throughout a mass of clay.

B. Bedding Structures

Cross-bedding	-	Internal 'bedding' inclined to the general bedding plane.
Ripple-bedding	-	Internal 'wavy bedding'.
Graded-bedding	-	Internal gradation of grain size from coarse at base to finer at top of bed.
Horizontal bedded	-	Internal bedding is parallel and flat lying

Secondary Soil Structure (Post-Depositional)

A. Accretionary Structures

Includes nodules, concretions, crystal aggregates, veinlets, color banding and

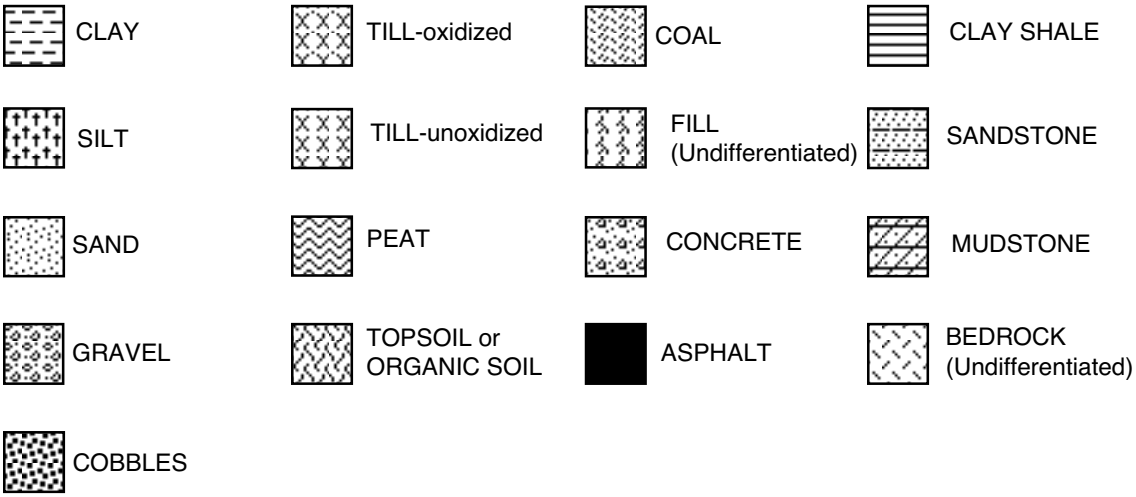
Cementation	-	Chemically precipitated material, commonly calcite ($CaCO_3$), binds the grains of soil, usually sandstone. Described as weak, moderate, strong (ASTM D2488-00).
Salt Crystals	-	Groundwater flowing through the soil/rock often precipitates visible amounts of salts. Calcite ($CaCO_3$), glauber salts ($Na_2Ca(SO_4)_2$), and gypsum ($CaSO_4*2H_2O$) are common.

B. Fracture Structures

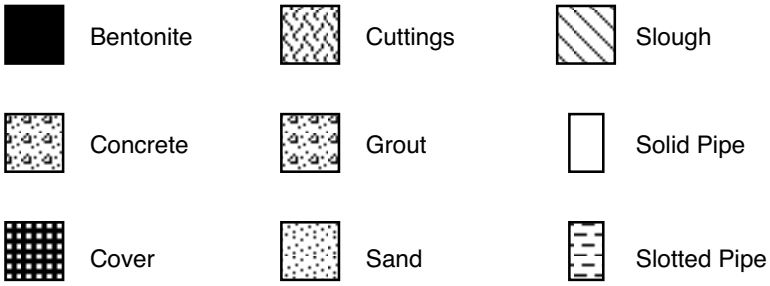
Fracture	-	A break or discontinuity in the soil or rock mass caused by stress exceeding the materials strength.
Joint	-	A fracture along which no displacement has occurred.
Fissure	-	A gapped fracture, which may open and close seasonally. Usually an extensive network of closely spaced fractures, giving the soil a 'nuggetty' structure.
Slickensides	-	Fractures in a clay that are slick and glossy in appearance, caused by shear movements.
Brecciated	-	Contains randomly oriented angular fragments in a finer mass, usually associated with shear displacements in soils.
Fault	-	A fracture or fracture zone along which there has been displacement.
Blocky	-	A cohesive soil that can be broken down into small angular lumps which resist further breakdown.

Symbols Used on Bore Hole Logs

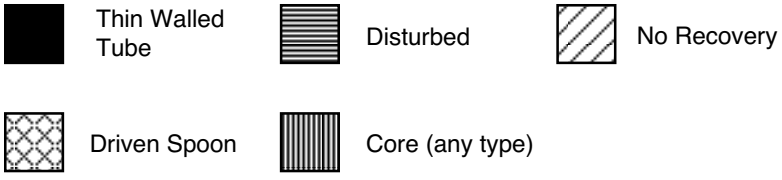
Lithology Type



Borehole Completion and Backfill Materials



Soil Sample Type



Groundwater Symbols

▼ Piezometric elevation as determined by a piezometer installation

▽ Water levels measured in borings at the time and under the conditions noted

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Tables

Table 1
Summary of Soil Laboratory Analyses - Hydrocarbons

Sample Location	Sample Date	Sample Number	Sample Depth (m)	Sample Container Headspace Vapour Concentration* (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethylbenzene mg/kg (ppm)	Xylenes mg/kg (ppm)	Fraction 1 C_6 - C_{10} mg/kg** (ppm)	Fraction 2 C_{10} - C_{16} mg/kg (ppm)	Fraction 3 C_{16} - C_{34} mg/kg (ppm)	Fraction 4 C_{34} - C_{50+} mg/kg (ppm)	Lead mg/kg
BH114	17-Nov-09	AL96	3.05	25	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	<5.0
BH116	17-Nov-09	AL75	3.81	25	0.0161	<0.050	0.02	<0.1	<10	92	194	52	<5.0
BH116	17-Nov-09	AL78	6.1	75	0.612	<0.050	0.245	<0.1	21	<30	55	<50	13.6
BH117	17-Nov-09	AL102	1.52	45	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	<5.0
BH118	17-Nov-09	AL129	3.81	20	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	<5.0
BH119	17-Nov-09	AL112	3.05	40	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	<5.0
BH120	17-Nov-09	AL87	3.81	20	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	NA
BH121	17-Nov-09	AL121	3.81	30	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	<5.0
BH201	26-Mar-12	RC4	2.3 - 3.0	100	<0.0050	<0.050	<0.010	<0.1	<10	<30	70	<50	NA
BH201	26-Mar-12	RC7	4.6 - 5.3	80	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	NA
BH202	26-Mar-12	RC18	0.8 - 1.5	215	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	NA
BH202	26-Mar-12	RC20	2.3 - 3.0	190	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	NA
BH202	26-Mar-12	RC23	4.6 - 5.3	170	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	NA
BH203	26-Mar-12	RC10	0.8 - 1.5	160	<0.0050	<0.050	<0.010	<0.1	<10	<30	101	67	NA
BH203	26-Mar-12	RC11	1.5 - 2.3	85	<0.0050	<0.050	<0.010	<0.1	<10	<30	50	<50	NA
BH203	26-Mar-12	RC16	5.3 - 6.1	120	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	NA
BH204	26-Mar-12	RC28	2.3 - 3.0	160	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	NA
BH204	26-Mar-12	RC32	5.3 - 6.1	195	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	NA
Saskatchewan Ministry of Environment - Risk Based Corrective Actions for Petroleum Hydrocarbon Impacted Sites - March 2009.													
Tier 2B - Fine-grained Soils - Commercial - Vapour Inhalation					2.8	-	-	-	-	-	-	-	
Tier 2B - Fine-grained Soils - Commercial - Ecological Soil Contact					-	330	430	230	320	260	2,500	6,500	

Notes:

* Soil sample container headspace vapour concentration measured with an RKI Eagle II vapour analyzer, calibrated to hexane with methane exclusion. 1% LEL = 110 ppm.

** F1 less BTEX.

Bold and **underline** indicate exceedance of referenced criteria.

Testing was conducted by ALS Laboratory Group.

Table 1 - Cont'd
Summary of Soil Laboratory Analyses - Hydrocarbons

Sample Location	Sample Date	Sample Number	Sample Depth (m)	Sample Container Headspace Vapour Concentration* (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethylbenzene mg/kg (ppm)	Xylenes mg/kg (ppm)	Fraction 1 C_6 - C_{10} mg/kg** (ppm)	Fraction 2 C_{10} - C_{16} mg/kg (ppm)	Fraction 3 C_{16} - C_{34} mg/kg (ppm)	Fraction 4 C_{34} - C_{50+} mg/kg (ppm)	Lead mg/kg
BH205	26-Mar-12	RC37	3.0 - 3.7	250	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	NA
BH205	26-Mar-12	RC38	3.7 - 4.3	220	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	NA
BH205	26-Mar-12	RC40	5.3 - 6.1	180	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	NA
BH206	26-Mar-12	RC42	0.8 - 1.5	210	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	NA
BH206	26-Mar-12	RC45	3.0 - 3.7	220	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	NA
BH206	26-Mar-12	RC48	5.3 - 6.1	150	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	NA
BH207	26-Mar-12	RC50	0.8 - 1.5	420	<0.0050	<0.050	<0.010	<0.1	<10	<30	71	<50	NA
BH207	26-Mar-12	RC53	3.0 - 3.7	240	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	NA
BH207	26-Mar-12	RC55	4.6 - 5.3	110	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	NA
BH208	26-Mar-12	RC58	0.8 - 1.5	600	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	NA
BH208	26-Mar-12	RC61	3.0 - 3.7	250	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	NA
BH208	26-Mar-12	RC64	5.3 - 6.1	140	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	NA
BH209	26-Mar-12	RC73	0.3 - 0.8	250	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	NA
BH209	26-Mar-12	RC75	1.5 - 2.3	200	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	NA
BH209	26-Mar-12	RC80	5.3 - 6.1	120	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	NA
BH210	26-Mar-12	RC67	1.5 - 2.3	170	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	NA
BH210	26-Mar-12	RC70	3.8 - 4.6	240	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	NA
BH210	26-Mar-12	RC72	5.3 - 6.1	200	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	NA
Saskatchewan Ministry of Environment - Risk Based Corrective Actions for Petroleum Hydrocarbon Impacted Sites - March 2009.													
Tier 2B - Fine-grained Soils - Commercial - Vapour Inhalation					2.8	-	-	-	-	-	-	-	
Tier 2B - Fine-grained Soils - Commercial - Ecological Soil Contact					-	330	430	230	320	260	2,500	6,500	

Notes:

* Soil sample container headspace vapour concentration measured with an RKI Eagle II vapour analyzer, calibrated to hexane with methane exclusion. 1% LEL = 110 ppm.

** F1 less BTEX.

Bold and **underline** indicate exceedance of referenced criteria.

Testing was conducted by ALS Laboratory Group.

Table 1 - Cont'd
Summary of Soil Laboratory Analyses - Hydrocarbons

Sample Location	Sample Date	Sample Number	Sample Depth (m)	Sample Container Headspace Vapour Concentration* (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethylbenzene mg/kg (ppm)	Xylenes mg/kg (ppm)	Fraction 1 C_6 - C_{10} mg/kg** (ppm)	Fraction 2 C_{10} - C_{16} mg/kg (ppm)	Fraction 3 C_{16} - C_{34} mg/kg (ppm)	Fraction 4 C_{34} - C_{50+} mg/kg (ppm)	Lead mg/kg
BH301	11-Jun-12	RC304	2.3 - 3.0	150	<0.0050	<0.050	<0.010	<0.1	<10	<30	213	132	NA
BH301	11-Jun-12	RC305	3.0 - 3.8	340	<0.0050	<0.050	<0.010	<0.1	<10	<30	<50	<50	NA
BH302	11-Jun-12	RC309	0.3 - 0.8	600	0.0099	<0.050	<0.010	<0.1	<10	<30	116	<50	NA
BH303	11-Jun-12	RC311	0.3 - 0.8	790	0.0165	0.071	0.014	0.12	<10	<30	234	93	NA
BH304	11-Jun-12	RC313	0.3 - 0.8	740	0.0162	0.059	0.021	<0.1	<10	<30	111	<50	NA
BH305	11-Jun-12	RC316	0.8 - 1.5	1,000	<0.050	<0.050	<0.010	<0.1	<10	<30	101	67	NA
BH306	11-Jun-12	RC318	0.8 - 1.5	350	0.0064	<0.050	<0.010	<0.1	<10	<30	50	<50	NA
Saskatchewan Ministry of Environment - Risk Based Corrective Actions for Petroleum Hydrocarbon Impacted Sites - March 2009.													
Tier 2B - Fine-grained Soils - Commercial - Vapour Inhalation					2.8	-	-	-	-	-	-	-	
Tier 2B - Fine-grained Soils - Commercial - Ecological Soil Contact					-	330	430	230	320	260	2,500	6,500	

Notes:

* Soil sample container headspace vapour concentration measured with an RKI Eagle II vapour analyzer, calibrated to hexane with methane exclusion. 1% LEL = 110 ppm.

** F1 less BTEX.

Bold and **underline** indicate exceedance of referenced criteria.

Testing was conducted by ALS Laboratory Group.

Table 2
Summary of Soil Laboratory Analyses - Metals

Analyte	Units	Criteria *	BH120 17-Nov-09 AL87	BH118 17-Nov-09 AL127
Antimony	mg/kg	40	0.41	0.5
Arsenic	mg/kg	12	8.36	8.11
Barium	mg/kg	2000	419	237
Beryllium	mg/kg	8	<1.0	<1.0
Cadmium	mg/kg	22	<0.50	<0.50
Chromium	mg/kg	87	37.4	30.9
Cobalt	mg/kg	300	13.6	13.9
Copper	mg/kg	91	29.3	30.5
Lead	mg/kg	260	IP	14.8
Mercury	mg/kg	24	<0.050	<0.050
Molybdenum	mg/kg	40	<1.0	1.6
Nickel	mg/kg	50	37.1	37.6
Selenium	mg/kg	2.9	<0.50	0.56
Silver	mg/kg	40	<1.0	<1.0
Thalium	mg/kg	1	<0.50	<0.50
Tin	mg/kg	300	<5.0	<5.0
Uranium	mg/kg	33	<2.0	<2.0
Vanadium	mg/kg	130	74.8	53.3
Zinc	mg/kg	360	77	71

Notes:
Bold and **underline** indicate exceedance of referenced criteria.
Testing was conducted by ALS Laboratory Group.
* Federal CCME Canadian Environmental Quality Guidelines - December 2008 Surf. Soil (fine) Commercial Land Use.

Table 3
Summary of Well Monitoring

Monitor Well	Date (dd-mmm-yy)	Top of Pipe Elevation* (m)	Apparent LPH Thickness (mm)	Depth to Water (m)	Water Elevation** (m)	Standpipe Vapour Concentration *** (ppm)	Comments
BH114	30-Nov-09	578.19	0	2.22	575.97	100	Purged H20 and sampled water.
BH116	30-Nov-09	578.10	0	1.32	576.78	95	Purged H20 and sampled water.
BH117	30-Nov-09	578.10	0	Dry	n/a	75	Dry well, could not obtain water sample.
BH201	10-Apr-12	578.13	0	5.34	572.79	300	Purged H20 and sampled water.
BH202	10-Apr-12	577.92	0	3.08	574.85	150	Purged H20 and sampled water.
BH203	10-Apr-12	577.89	0	1.97	575.93	80	Purged H20 and sampled water.
BH204	10-Apr-12	578.16	0	Dry	n/a	105	Dry well, could not obtain water sample.
BH205	10-Apr-12	577.99	0	5.94	572.01	165	Not enough water to obtain sample.
BH206	10-Apr-12	578.05	0	Dry	n/a	180	Dry well, could not obtain water sample.
BH207	10-Apr-12	577.98	0	5.91	572.07	7,250	Not enough water to obtain sample.
BH208	10-Apr-12	578.06	0	5.74	572.32	>10,000	Purged H20 and sampled water.
BH209	10-Apr-12	578.08	0	Dry	n/a	270	Dry well, could not obtain water sample.
BH210	10-Apr-12	578.10	0	5.89	572.21	350	Not enough water to obtain sample.
BH302	28-Jun-12	578.10	0	0.75	577.35	95	Purged well and sampled vapour.
BH303	28-Jun-12	578.01	0	0.73	577.28	110	Purged well and sampled vapour.
BH304	28-Jun-12	578.03	0	0.60	577.43	130	Purged well and sampled vapour.
BH305	28-Jun-12	578.06	0	0.48	577.58	120	Purged well and sampled vapour.
BH306	28-Jun-12	577.95	0	0.93	577.02	110	Purged well and sampled vapour.

Notes:
* Bore Holes surveyed using City of Regina Benchmark #78
** Water elevation corrected for presence of LPH with assumed specific gravity of 0.8.
*** Standpipe combustible vapour concentrations measured in monitoring well standpipes with an RKI Eagle II vapour analyzer calibrated to hexane with methane exclusion.
1% LEL = 110 ppm.

Table 4
Summary of Groundwater Laboratory Analyses - Hydrocarbons

Monitor Well	Date (dd-mmm-yy)	Well Standpipe Combustible Vapour Concentration* (ppm)	Benzene mg/L (ppm)	Toluene mg/L (ppm)	Ethylbenzene mg/L (ppm)	Xylenes mg/L (ppm)	PHC Fraction F1 - BTEX (C6-C10) mg/L (ppm)	PHC Fraction F2 (C10-C16) mg/L (ppm)
BH114	30-Nov-09	100	<0.00050	<0.00050	<0.00050	<0.00050	<0.1	<0.05
BH116	30-Nov-09	95	0.16	0.00432	0.0124	0.0028	0.33	0.81
BH201	11-Apr-12	300	<0.00050	0.00126	0.00132	0.0023	<0.1	<0.05
BH202	11-Apr-12	150	<0.00050	<0.00050	0.00079	0.0021	<0.1	<0.05
BH203	11-Apr-12	80	<0.00050	<0.00050	<0.00050	<0.00050	<0.1	<0.05
BH208	11-Apr-12	>10,000	<0.00050	0.00121	0.00134	0.0068	<0.1	<0.05
Saskatchewan Ministry of Environment - Risk Based Corrective Actions for Petroleum Hydrocarbon Impacted Sites - September 2009.								
Groundwater Pathway Eliminated			NG	NG	NG	NG	NG	NG

Notes:
RBCA 2009 used for reference only. Groundwater pathway has been eliminated.
* Well standpipe headspace combustible hydrocarbon vapour concentration measured with an RKI Eagle II vapour analyzer, calibrated to hexane with methane exclusion.
Bold and **underline** indicate exceedance of the referenced criteria.
Laboratory analyses conducted by ALS Laboratory Group.
1% LEL = 110 ppm.

Table 5
Summary of Groundwater Laboratory Analyses - Metals

Analyte	Units	BH114 30-Nov-09	BH116 30-Nov-09
Aluminum	mg/L	0.034	0.0691
Antimony	mg/L	<0.0016	<0.0020
Arsenic	mg/L	0.0024	<0.00020
Barium	mg/L	0.116	0.308
Beryllium	mg/L	<0.0020	<0.00020
Bismuth	mg/L	<0.00020	411
Boron	mg/L	0.523	<0.0080
Cadmium	mg/L	0.00058	0.0243
Calcium	mg/L	345	0.0059
Chromium	mg/L	<0.0080	8.05
Cobalt	mg/L	0.00874	<0.00040
Copper	mg/L	0.0082	294
Iron	mg/L	0.04	8.15
Lead	mg/L	<0.00040	0.00676
Magnesium	mg/L	139	0.0681
Maganese	mg/L	1.65	17
Molybdenum	mg/L	0.00202	0.003
Nickel	mg/L	0.0514	<0.00040
Potassium	mg/L	11.9	308
Selenium	mg/L	0.0047	2.55
Silver	mg/L	<0.00040	<0.00020
Sodium	mg/L	255	<0.00080
Strontium	mg/L	2.08	0.0031
Thalium	mg/L	<0.00020	0.0364
Tin	mg/L	<0.00080	<0.0020
Titanium	mg/L	0.0029	0.0323
Uranium	mg/L	0.043	<2.0
Vanadium	mg/L	<0.0020	16.9
Zinc	mg/L	0.0232	38

Notes:
Bold and **underline** indicate exceedance of referenced criteria.
Testing was conducted by ALS Laboratory Group.
The Groundwater pathway was eliminated. No criteria apply.

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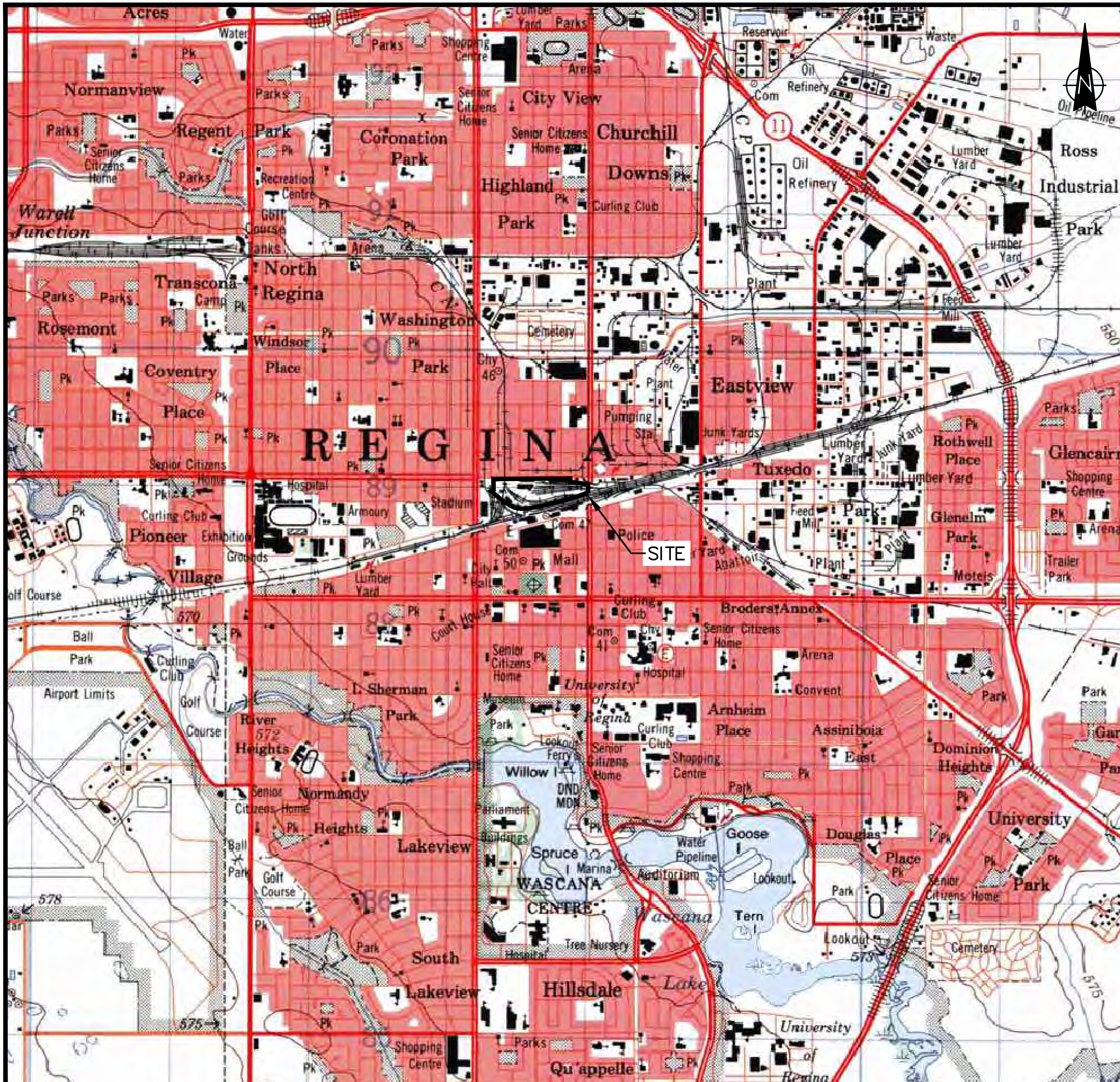
Drawings



LEGEND:

DRAWING REVISIONS

NO.	DD/MM/YY	DESCRIPTION	BY

Clifton Associates Ltd.
engineering science technology

CLIENT
CITY OF REGINA

PROJECT TITLE
PHASE II ESA
CP INTERMODAL YARD
REGINA, SASKATCHEWAN

DRAWING TITLE
SITE LOCATION PLAN

PROJECT NO.		FILE NO.
R4914		R4914
DATE 20/04/12	SCALE NTS	DWG. NO. R4914–1
DRAWN TAK	CHECKED RNC	

LEGEND:

- RAILWAY LAND
- INTERMODAL YARD
- BORE HOLE
- MONITORING WELL
- VAPOUR WELL

NOTES:

1. ISC 2009 AIR PHOTO.

DRAWING REVISIONS			
NO.	DD/MM/YY	DESCRIPTION	BY

Clifton Associates Ltd.
engineering science technology

CLIENT
CITY OF REGINA

PROJECT TITLE
PHASE II ESA
CP INTERMODAL YARD
REGINA, SASKATCHEWAN

DRAWING TITLE
BORE HOLE
LOCATION PLAN

PROJECT NO.		FILE NO.
R4914		R4914
DATE 15/03/12	SCALE 1:2500	DWG. NO. R4914-2
DRAWN JCS/TAK	CHECKED TT	

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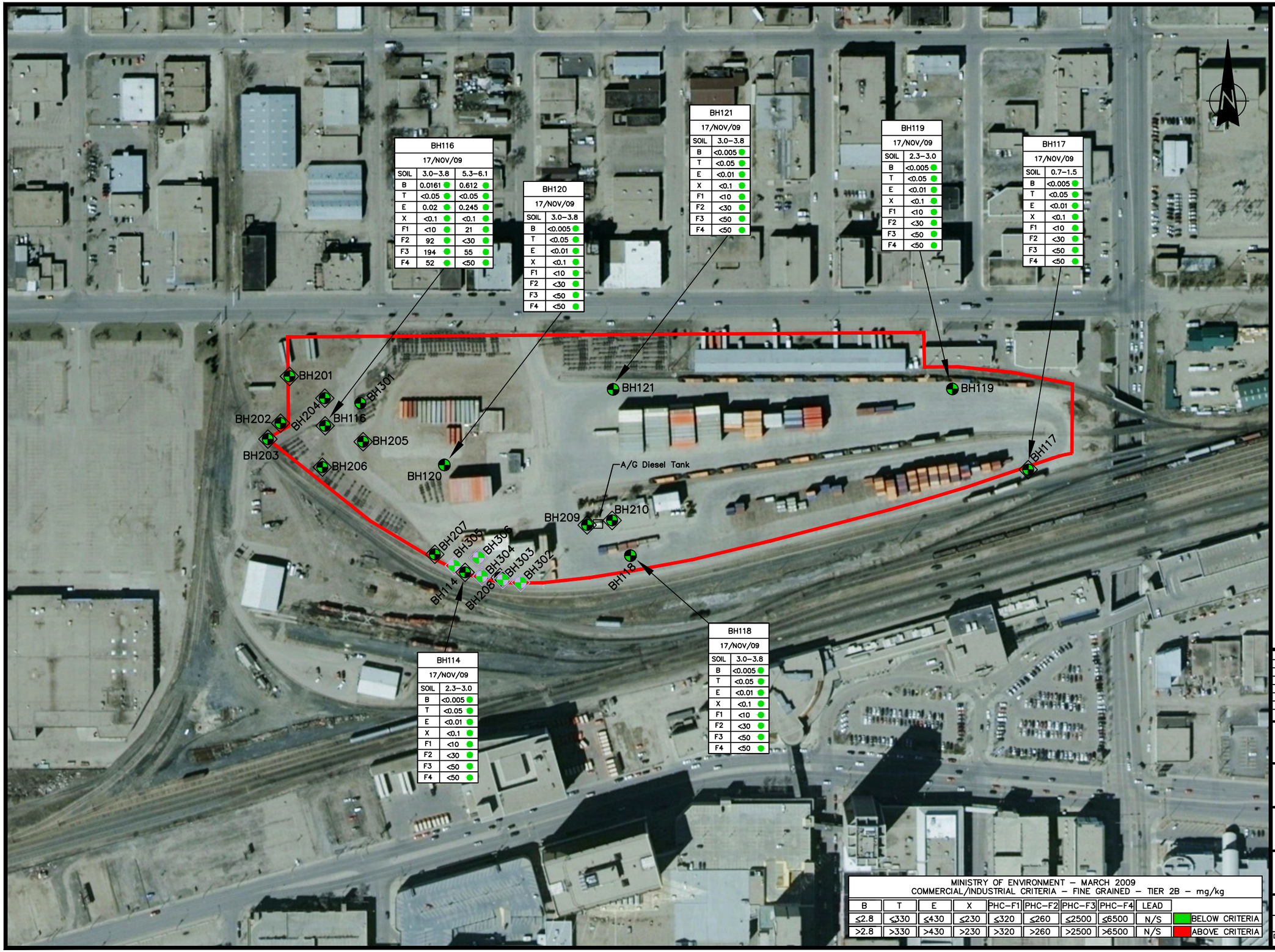

LEGEND:

INTERMODAL YARD

BORE HOLE

MONITORING WELL

VAPOUR WELL

EXCEEDANCES IN TIER 2B CRITERIA

BTEX

F_1 TO F_4 and/or LEAD

NOTES:

1. ISC 2009 AIR PHOTO.

MINISTRY OF ENVIRONMENT – MARCH 2009
COMMERCIAL/INDUSTRIAL CRITERIA – FINE GRAINED – TIER 2B – mg/kg

B	T	E	X	PHC–F1	PHC–F2	PHC–F3	PHC–F4	LEAD	
≤2.8	≤330	≤430	≤230	≤320	≤260	≤2500	≤6500	N/S	BELOW CRITERIA
>2.8	>330	>430	>230	>320	>260	>2500	>6500	N/S	ABOVE CRITERIA

DRAWING REVISIONS

NO.	DD/MM/YY	DESCRIPTION	BY

Clifton Associates Ltd.
engineering science technology

CLIENT
CITY OF REGINA

PROJECT TITLE
PHASE II ESA
CP INTERMODAL YARD
REGINA, SASKATCHEWAN

DRAWING TITLE
SOIL ANALYTICAL
RESULTS mg/kg (100's)

PROJECT NO.	FILE NO.
R4914	R4914
DATE 15/03/12	SCALE 1:2500
DRAWN TAK	CHECKED RNC
DWG. NO.	R4914–3

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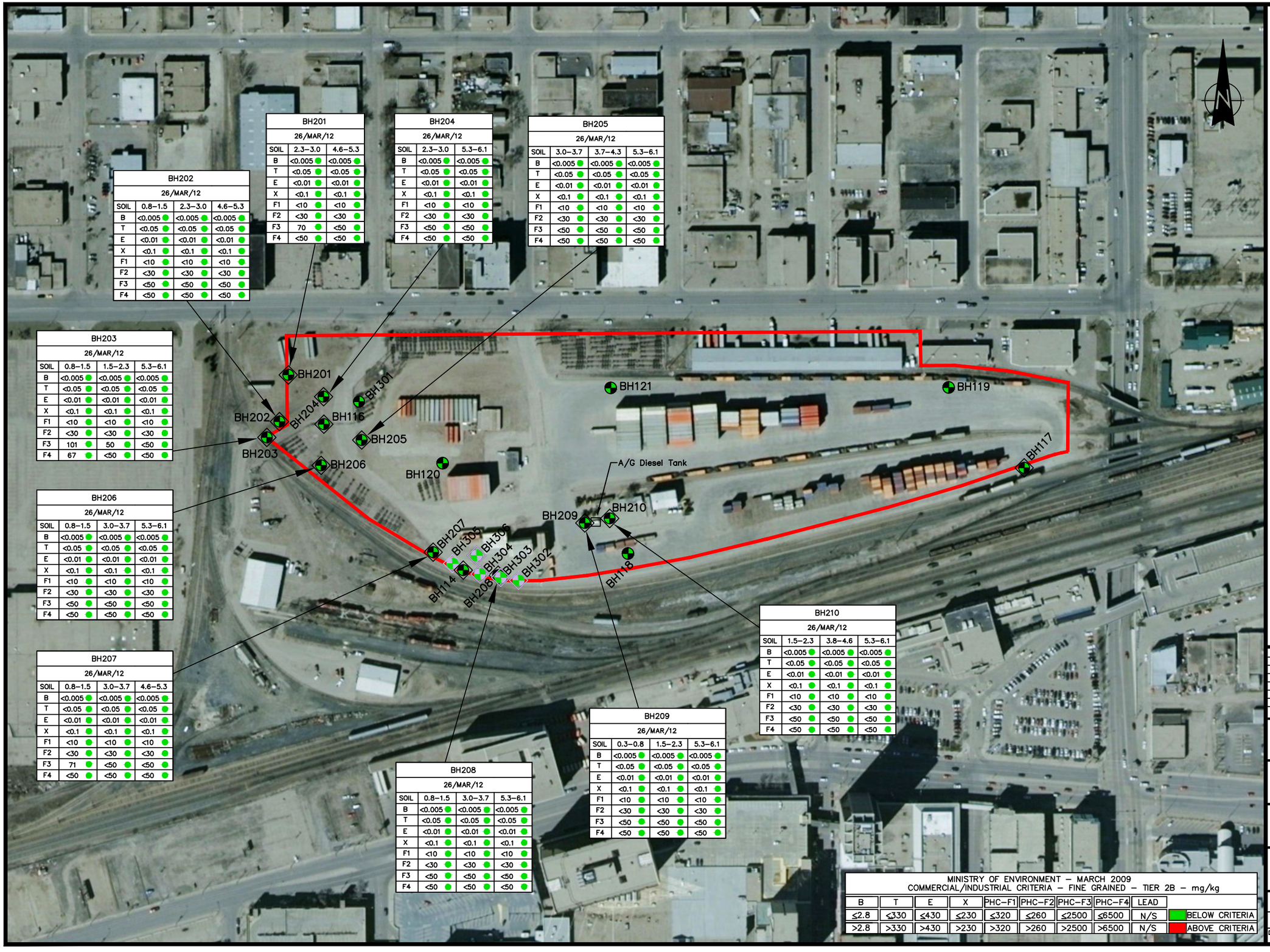

BH201

26/MAR/12

SOIL	2.3–3.0	4.6–5.3
B	<0.005	<0.005
T	<0.05	<0.05
E	<0.01	<0.01
X	<0.1	<0.1
F1	<10	<10
F2	<30	<30
F3	70	<50
F4	<50	<50

BH202

26/MAR/12

SOIL	0.8–1.5	2.3–3.0	4.6–5.3
B	<0.005	<0.005	<0.005
T	<0.05	<0.05	<0.05
E	<0.01	<0.01	<0.01
X	<0.1	<0.1	<0.1
F1	<10	<10	<10
F2	<30	<30	<30
F3	<50	<50	<50
F4	<50	<50	<50

BH203

26/MAR/12

SOIL	0.8–1.5	1.5–2.3	5.3–6.1
B	<0.005	<0.005	<0.005
T	<0.05	<0.05	<0.05
E	<0.01	<0.01	<0.01
X	<0.1	<0.1	<0.1
F1	<10	<10	<10
F2	<30	<30	<30
F3	101	50	<50
F4	67	<50	<50

BH204

26/MAR/12

SOIL	2.3–3.0	5.3–6.1
B	<0.005	<0.005
T	<0.05	<0.05
E	<0.01	<0.01
X	<0.1	<0.1
F1	<10	<10
F2	<30	<30
F3	<50	<50
F4	<50	<50

BH205

26/MAR/12

SOIL	3.0–3.7	3.7–4.3	5.3–6.1
B	<0.005	<0.005	<0.005
T	<0.05	<0.05	<0.05
E	<0.01	<0.01	<0.01
X	<0.1	<0.1	<0.1
F1	<10	<10	<10
F2	<30	<30	<30
F3	<50	<50	<50
F4	<50	<50	<50

BH206

26/MAR/12

SOIL	0.8–1.5	3.0–3.7	5.3–6.1
B	<0.005	<0.005	<0.005
T	<0.05	<0.05	<0.05
E	<0.01	<0.01	<0.01
X	<0.1	<0.1	<0.1
F1	<10	<10	<10
F2	<30	<30	<30
F3	<50	<50	<50
F4	<50	<50	<50

BH207

26/MAR/12

SOIL	0.8–1.5	3.0–3.7	4.6–5.3
B	<0.005	<0.005	<0.005
T	<0.05	<0.05	<0.05
E	<0.01	<0.01	<0.01
X	<0.1	<0.1	<0.1
F1	<10	<10	<10
F2	<30	<30	<30
F3	71	<50	<50
F4	<50	<50	<50

BH208

26/MAR/12

SOIL	0.8–1.5	3.0–3.7	5.3–6.1
B	<0.005	<0.005	<0.005
T	<0.05	<0.05	<0.05
E	<0.01	<0.01	<0.01
X	<0.1	<0.1	<0.1
F1	<10	<10	<10
F2	<30	<30	<30
F3	<50	<50	<50
F4	<50	<50	<50

BH209

26/MAR/12

SOIL	0.3–0.8	1.5–2.3	5.3–6.1
B	<0.005	<0.005	<0.005
T	<0.05	<0.05	<0.05
E	<0.01	<0.01	<0.01
X	<0.1	<0.1	<0.1
F1	<10	<10	<10
F2	<30	<30	<30
F3	<50	<50	<50
F4	<50	<50	<50

BH210

26/MAR/12

SOIL	1.5–2.3	3.8–4.6	5.3–6.1
B	<0.005	<0.005	<0.005
T	<0.05	<0.05	<0.05
E	<0.01	<0.01	<0.01
X	<0.1	<0.1	<0.1
F1	<10	<10	<10
F2	<30	<30	<30
F3	<50	<50	<50
F4	<50	<50	<50

MINISTRY OF ENVIRONMENT – MARCH 2009
COMMERCIAL/INDUSTRIAL CRITERIA – FINE GRAINED – TIER 2B – mg/kg

B	T	E	X	PHC–F1	PHC–F2	PHC–F3	PHC–F4	LEAD	
≤2.8	≤330	≤430	≤230	≤320	≤260	≤2500	≤6500	N/S	BELOW CRITERIA
>2.8	>330	>430	>230	>320	>260	>2500	>6500	N/S	ABOVE CRITERIA

LEGEND:

INTERMODAL YARD

BORE HOLE

MONITORING WELL

VAPOUR WELL

EXCEEDANCES IN TIER 1 CRITERIA
BTEX
F_1 TO F_4 and/or LEAD

NOTES:

1. ISC 2009 AIR PHOTO.

DRAWING REVISIONS

NO.	DD/MM/YY	DESCRIPTION	BY

Clifton Associates Ltd.
engineering science technology

CLIENT
CITY OF REGINA

PROJECT TITLE
PHASE II ESA
CP INTERMODAL YARD
REGINA, SASKATCHEWAN

DRAWING TITLE
SOIL ANALYTICAL
RESULTS mg/kg (200's)

PROJECT NO.	FILE NO.
R4914	R4914
DATE: 15/03/12	SCALE: 1:2500
DRAWN: TAK	CHECKED: RNC
DWG. NO.	R4914–4

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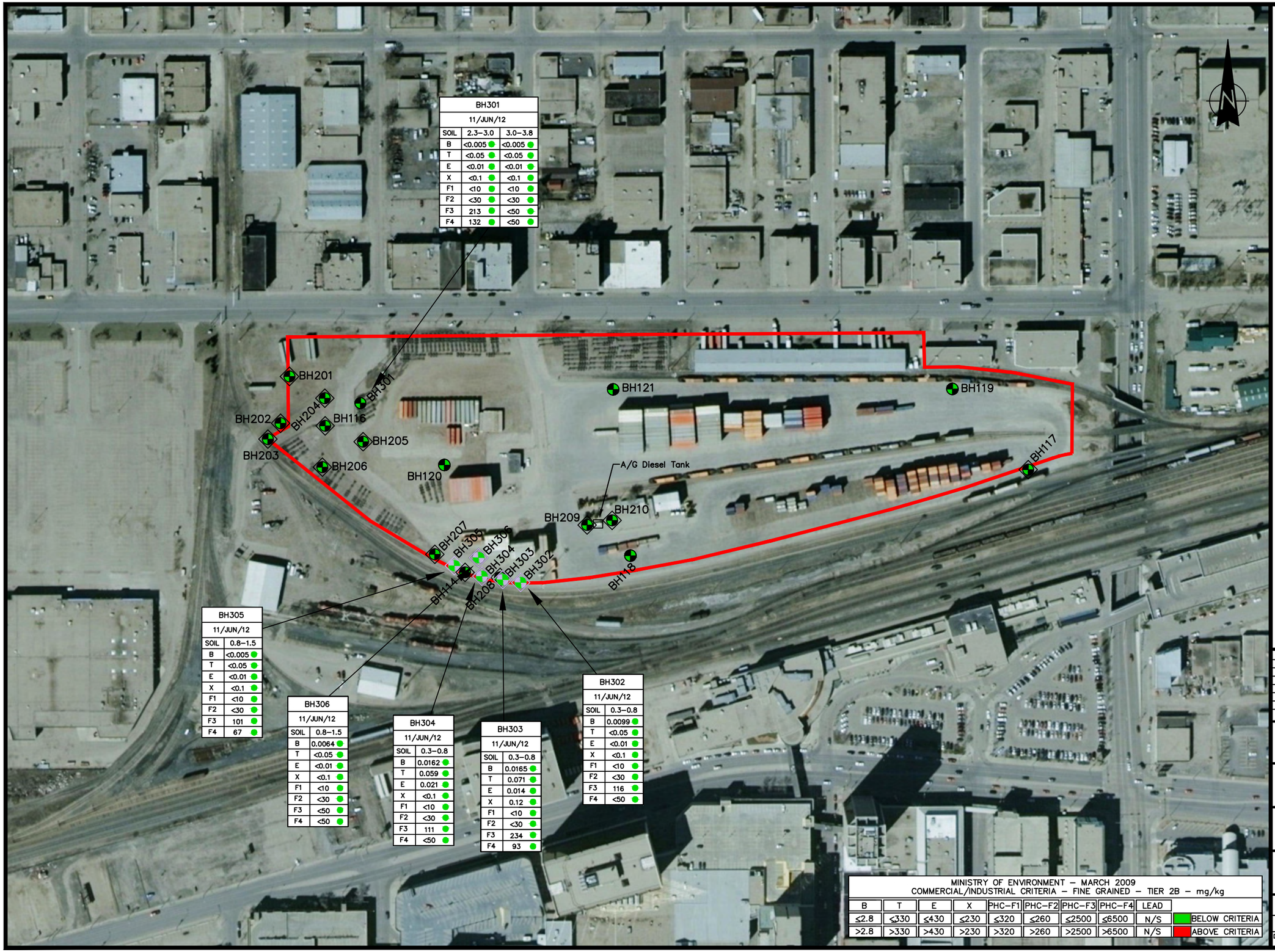

LEGEND:

INTERMODAL YARD

BORE HOLE

MONITORING WELL

VAPOUR WELL

EXCEEDANCES IN TIER 1 CRITERIA

BTEX

F_1 TO F_4 and/or LEAD

NOTES:

1. ISC 2009 AIR PHOTO.
2. GROUNDWATER PATHWAY ELIMINATED.

DRAWING REVISIONS

NO.	DD/MM/YY	DESCRIPTION	BY

Clifton Associates Ltd.
engineering science technology

CLIENT
CITY OF REGINA

PROJECT TITLE
PHASE II ESA
CP INTERMODAL YARD
REGINA, SASKATCHEWAN

DRAWING TITLE
SOIL ANALYTICAL
RESULTS mg/kg (300's)

PROJECT NO.	FILE NO.
R4914	R4914
DATE 15/03/12	SCALE 1:2500
DRAWN TAK	CHECKED RNC
DWG. NO.	R4914–5

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LEGEND:

INTERMODAL YARD

BORE HOLE

MONITORING WELL

VAPOUR WELL

EXCEEDANCES IN TIER 1 CRITERIA

BTEX

F_1 TO F_4 and/or LEAD

NOTES:

1. ISC 2009 AIR PHOTO.
2. GROUNDWATER PATHWAY ELIMINATED.

DRAWING REVISIONS			
NO.	DD/MM/YY	DESCRIPTION	BY

Clifton Associates Ltd.
engineering science technology

CLIENT
CITY OF REGINA

PROJECT TITLE
PHASE II ESA
CP INTERMODAL YARD
REGINA, SASKATCHEWAN

DRAWING TITLE
GROUNDWATER ANALYTICAL RESULTS mg/kg

PROJECT NO.		FILE NO.
R4914		R4914
DATE 15/03/12	SCALE 1:2500	DWG. NO. R4914-6
DRAWN TAK	CHECKED RNC	

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Bore Hole Logs

Env BH m elev CAL v03.idf

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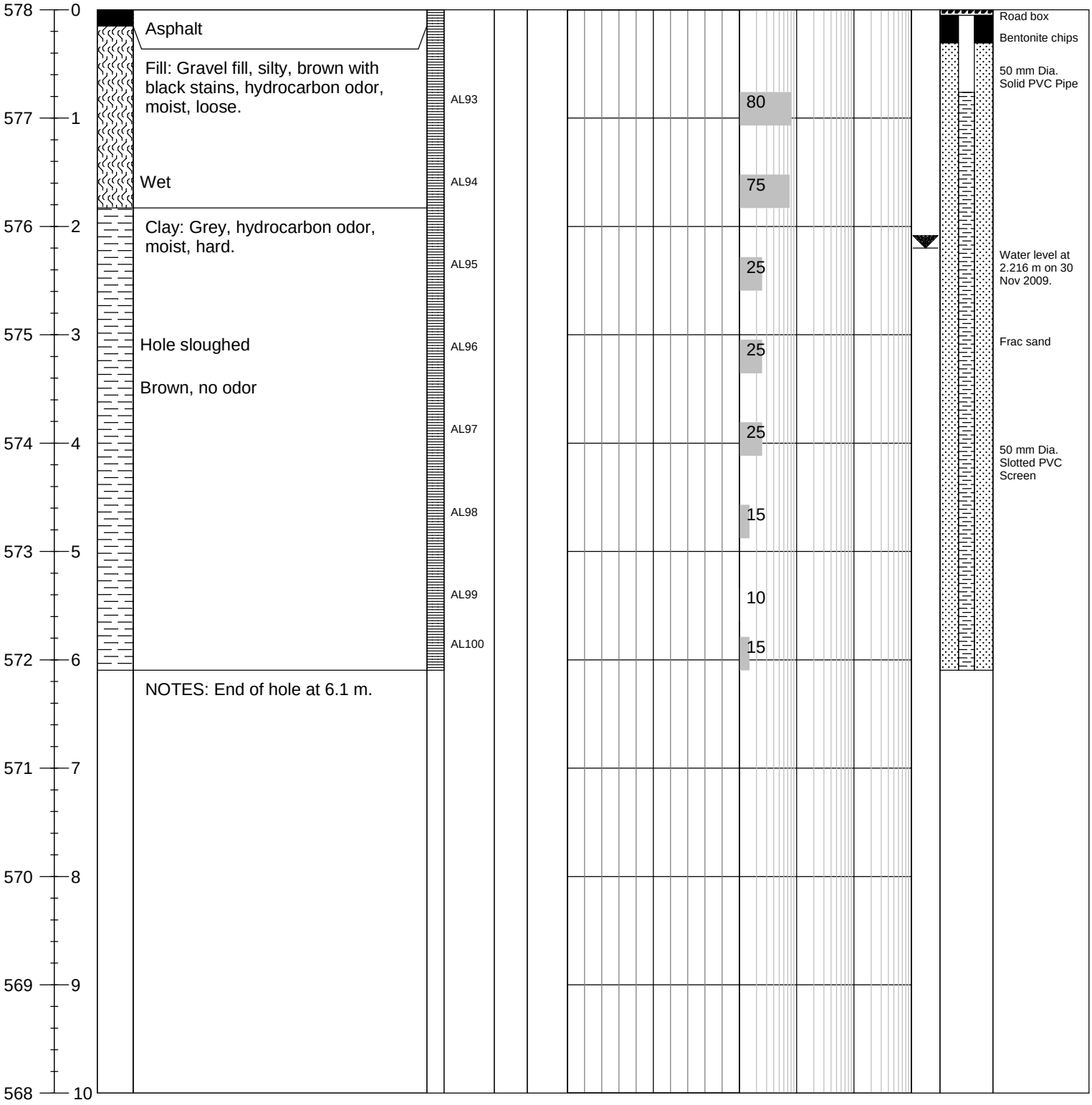
BORE HOLE LOG

Bore Hole: BH114
Page: 1 of 1

Client:	Crown Investment Corporation	Northing:	5589124.238	Date:	17 November 2009
Project:	Multi-Use Facility Feasibility	Easting:	527480.099	Equipment:	BRAT
Location:	CPR - Regina, Sask	Ground Elev.:	578.298	Method:	Solid Stem Auger
Project No.:	R4397.1	Top Casing Elev.:	578.187	Logged by:	ADL/RC



Env BH m elev CAL v03.idf

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BORE HOLE LOG

Bore Hole: BH116
Page: 1 of 1

Client:	Crown Investment Corporation	Northing:	5589225.234	Date:	17 November 2009
Project:	Multi-Use Facility Feasibility	Easting:	527383.967	Equipment:	BRAT
Location:	CPR - Regina, Sask	Ground Elev.:	578.104	Method:	Solid Stem Auger
Project No.:	R4397.1	Top Casing Elev.:	578.099	Logged by:	ADL/RC

Elev (m) / Depth (m)	Symbol	Soil Description	Sample Type	Sample No.	SPT 'N'	USC	Moisture Content (percent): Plastic Limit ▲ / Natural Moisture ● / Liquid Limit ◆ (0 – 50 – 100)	Headspace Vapour ppm (10 – 100 – 1000 – 10000)	Monitor Well Construction Detail
578 / 0		Fill: Gravel							Road box; Bentonite chips; 50 mm Dia. Solid PVC Pipe
		Clay: Brown, moist, soft to firm		AL71				10	
577 / 1				AL72				10	Water level at 1.316 m on 30 Nov 2009.
576 / 2		Trace sand, firm		AL73				25	Frac sand
575 / 3				AL74				20	50 mm Dia. Slotted PVC Screen
		SAND: Gravely sand lens, grey/brown, hydrocarbon odor, wet, loose.		AL75				20	
574 / 4				AL76				20	
573 / 5		Brown clay, moist, stiff		AL77				50	
572 / 6				AL78				75	
		NOTES: End of hole at 6.1 m.							
571 / 7									
570 / 8									
569 / 9									
568 / 10									

Env BH m elev CAL v03.idf

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BORE HOLE LOG

Bore Hole: BH117
Page: 1 of 1

Client:	Crown Investment Corporation	Northing:	5589193.996	Date:	17 November 2009
Project:	Multi-Use Facility Feasibility	Easting:	527867.866	Equipment:	BRAT
Location:	CPR - Regina, Sask	Ground Elev.:	578.195	Method:	Solid Stem Auger
Project No.:	R4397.1	Top Casing Elev.:	578.095	Logged by:	ADL/RC

Elev (m)	Depth (m)	Symbol	Soil Description	Sample Type	Sample No.	SPT 'N'	USC	Moisture Content (percent) Plastic Limit ▲ Natural Moisture ● Liquid Limit ◆ 0 50 100	Headspace Vapour ppm 10 100 1000 10000	Monitor Well Construction Detail
578	0		Asphalt							Road box
			Concrete							Bentonite chips
577	1		Fill: Gravel, black/grey, debris, organics, moist.		AL101				50	50 mm Dia. Solid PVC Pipe
			Clay: Grey, moist, hard.		AL102				45	
576	2		Brown							Frac sand
			Stiff		AL103				20	
575	3				AL104				25	50 mm Dia. Slotted PVC Screen
					AL105				5	
574	4									
					AL106				15	
573	5		Firm							
					AL107				20	
572	6				AL108				20	Dry well @ 6.027 m on 30 Nov 2009.
			NOTES: End of hole at 6.1 m.							
571	7									
570	8									
569	9									
568	10									

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BORE HOLE LOG

Bore Hole: **BH118**
Page: 1 of 1

Client:	Crown Investment Corporation	Northing:	5589135.477	Date:	17 November 2009
Project:	Multi-Use Facility Feasibility	Easting:	527593.997	Equipment:	BRAT
Location:	CPR - Regina, Sask	Ground Elev.:	578.146	Method:	Solid Stem Auger
Project No.:	R4397.1	Top Casing Elev.:	N/A	Logged by:	ADL/RC

Elev (m)	Depth (m)	Symbol	Soil Description	Sample Type	Sample No.	SPT 'N'	USC	Moisture Content (percent) Plastic Limit ▲ / Natural Moisture ● / Liquid Limit ◆ (0 – 50 – 100)	Headspace Vapour ppm (10 – 100 – 1000 – 10000)	Monitor Well Construction Detail
578	0		Asphalt							
			Concrete							
577	1		Fill: Gravel.		AL125				10	
			Fill: Clayey, grey, some black organics, very damp, hard.		AL126				10	
576	2		Clay: Brown, moist, stiff.		AL127				10	
575	3				AL128				10	Bore hole backfilled with cuttings.
					AL129				20	
574	4				AL130				10	
573	5				AL131				5	
572	6		NOTES: End of hole at 6.1 m.		AL132				5	
571	7									
570	8									
569	9									
568	10									

Geotech BH m CAL v07.tdf

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BORE HOLE LOG

Bore Hole: BH119
Page: 1 of 1

Client:	Crown Investment Corporation	Northing:	0	Date Drilled:	17 November 2009
Project:	Multi-Use Facility Feasibility	Easting:	0	Drill:	BRAT
Location:	CPR - Regina, Sask	Ground Elev.:	577	Drilling Method:	Solid Stem Auger
Project No.:	R4397.1	Top Casing Elev.:	N/A	Logged by:	ADL/RC

Depth (m)	Symbol	Soil Description	Sample Type	Sample No.	SPT 'N'	USC	% Sulphate	Moisture Content (percent): Plastic Limit / Natural Moisture / Liquid Limit (0 – 50 – 100)	Dry Density - kg/m3 (1800 – 2200); Shear Strength - kPa: Unconf. / Pocket Pen. / Lab Vane (100 – 200 – 300 – 400)	Piezometer Construction Detail
0		Asphalt								
		Fill: Gravel, brown, dry to damp, loose.		AL109						
1		Clay: Grey/brown, very damp to moist, hard		AL110						
		Brown, moist		AL111						
2										
				AL112						
3										
				AL113						
4										
				AL114						
5		Very stiff								
				AL115						
6				AL116						
		NOTES: End of hole at 6.1 m.								
7										
8										
9										
10										

Bore hole backfilled with cuttings.

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BORE HOLE LOG

Bore Hole: **BH120**
Page: 1 of 1

Client:	Crown Investment Corporation	Northing:	5589198.291	Date:	17 November 2009
Project:	Multi-Use Facility Feasibility	Easting:	527466.305	Equipment:	BRAT
Location:	CPR - Regina, Sask	Ground Elev.:	578.092	Method:	Solid Stem Auger
Project No.:	R4397.1	Top Casing Elev.:	N/A	Logged by:	ADL/RC

Elev (m)	Depth (m)	Symbol	Soil Description	Sample Type	Sample No.	SPT 'N'	USC	Moisture Content (percent) Plastic Limit ▲ Natural Moisture ● Liquid Limit ◆ 0 50 100	Headspace Vapour ppm 10 100 1000 10000	Monitor Well Construction Detail
578	0		Fill: Gravel, sandy, fine, damp, loose.		AL85				25	
577	1		Fill: Grey, black organics, moist, very stiff to hard.		AL86				25	
576	2		Clay: Grey, moist, very stiff to hard.		AL87				20	
575	3		Brown		AL88				20	Bore hole backfilled with cuttings.
574	4		Some iron staining		AL89				30	
573	5				AL90				25	
572	6				AL91				20	
					AL92				15	
			NOTES: End of hole at 6.1 m.							
571	7									
570	8									
569	9									
568	10									

Env BH m elev CAL v03.idf

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BORE HOLE LOG

Bore Hole: BH121
Page: 1 of 1

Client:	Crown Investment Corporation	Northing:	5589250.028	Date:	17 November 2009
Project:	Multi-Use Facility Feasibility	Easting:	527582.475	Equipment:	BRAT
Location:	CPR - Regina, Sask	Ground Elev.:	578.249	Method:	Solid Stem Auger
Project No.:	R4397.1	Top Casing Elev.:	N/A	Logged by:	ADL/RC

Elev (m) / Depth (m)	Symbol	Soil Description	Sample Type	Sample No.	Sample SPT 'N'	USC	Moisture Content (percent) Plastic Limit ▲ / Natural Moisture ● / Liquid Limit ◆ (0 – 50 – 100)	Headspace Vapour ppm (10 – 100 – 1000 – 10000)	Monitor Well Construction Detail
578 / 0		Asphalt							
		Fill: Gravel, well graded, dry to damp, loose.		AL117				25	
577 / 1		Clay: Grey, very damp, hard.		AL118				20	
576 / 2				AL119				20	
575 / 3		Some black staining		AL120				20	Bore hole backfilled with cuttings.
		Brown, moist, very stiff		AL121				30	
574 / 4				AL122				25	
573 / 5		Stiff		AL123				10	
				AL124				10	
572 / 6		NOTES: End of hole at 6.1 m.							
571 / 7									
570 / 8									
569 / 9									
568 / 10									

Env BH m elev CAL v03.ldf

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BORE HOLE LOG

Bore Hole: 201
Page: 1 of 1

Client:	City of Regina	Northing:	5589257	Date:	26 March 2012
Project:	Phase II ESA	Easting:	527362	Equipment:	Brat
Location:	CP Intermodal Yard	Ground Elev.:	578.24	Method:	Solid Stem Auger
Project No.:	R4914	Top Casing Elev.:	578.13	Logged by:	RNC

Elev (m) / Depth (m)	Symbol	Soil Description	Sample Type	Sample No.	SPT 'N'	USC	Moisture Content (percent): Plastic Limit / Natural Moisture / Liquid Limit (0, 50, 100)	Headspace Vapour ppm (10, 100, 1000, 10000)	Monitor Well Construction Detail
578 / 0		FILL: Granular fill, sandy gravel, brown with grey, some rubble		RC1				10	Road Box
577 / 1		CLAY: Brown, frozen @ 1.2 m, moist, very stiff, high plastic		RC2				70	Bentonite Chips
576 / 2				RC3				80	50 mm Dia. Solid PVC Pipe
575 / 3				RC4				100	
574 / 4				RC5				50	Frac Sand
573 / 5				RC6				40	50 mm Dia. Slotted PVC Screen
572 / 6				RC7				80	Groundwater Level 10 April 2012
571 / 7		End of hole @ 6.1 m. Installed monitoring well.		RC8				60	
570 / 8									
569 / 9									
10									

Env BH m elev CAL v03.ldf

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BORE HOLE LOG

Bore Hole: 202
Page: 1 of 1

Client:	City of Regina	Northing:	5589229	Date:	26 March 2012
Project:	Phase II ESA	Easting:	527355	Equipment:	Brat
Location:	CP Intermodal Yard	Ground Elev.:	578.06	Method:	Solid Stem Auger
Project No.:	R4914	Top Casing Elev.:	577.92	Logged by:	RNC

Elev (m) / Depth (m)	Symbol	Soil Description	Sample Type	Sample No.	SPT 'N'	USC	Moisture Content (percent) Plastic Limit ▲ / Natural Moisture ● / Liquid Limit ◆ (0 – 50 – 100)	Headspace Vapour ppm (10 – 100 – 1000 – 10000)	Monitor Well Construction Detail
578 / 0		FILL: Granular fill, sandy gravel, trace clay, brown and grey, frozen, rubble		RC17				145	Road Box
577 / 1		CLAY: Brown, moist, very stiff, high plastic		RC18				215	Bentonite Chips
		@ 1.5 m, black staining							
576 / 2				RC19				140	50 mm Dia. Solid PVC Pipe
				RC20				190	
575 / 3									Groundwater Level 10 April 2012
				RC21				145	
574 / 4									Frac Sand
				RC22				120	
573 / 5				RC23				170	50 mm Dia. Slotted PVC Screen
		@ 5.3 m, silt lens							
				RC24				125	
572 / 6		End of hole @ 6.1 m. Installed monitoring well.							
571 / 7									
570 / 8									
569 / 9									
10									

Env BH m elev CAL v03.ldf

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BORE HOLE LOG

Bore Hole: 203
Page: 1 of 1

Client:	City of Regina	Northing:	5589213	Date:	26 March 2012
Project:	Phase II ESA	Easting:	527347	Equipment:	Brat
Location:	CP Intermodal Yard	Ground Elev.:	578.06	Method:	Solid Stem Auger
Project No.:	R4914	Top Casing Elev.:	577.89	Logged by:	RNC

Elev (m) / Depth (m)	Symbol	Soil Description	Sample Type	Sample No.	SPT 'N'	USC	Moisture Content (percent) Plastic Limit ▲ / Natural Moisture ● / Liquid Limit ◆ (0 – 50 – 100)	Headspace Vapour ppm (10 – 100 – 1000 – 10000)	Monitor Well Construction Detail
578 / 0		FILL: Granular fill, sandy, some clay, brown, frozen		RC9				90	Road Box
577 / 1		FILL: Clay fill, gravelly, sandy, brown and grey, moist, firm		RC10				160	Bentonite Chips
576 / 2		@ 1.8 m, gravel lens, wet		RC11				85	50 mm Dia. Solid PVC Pipe Groundwater Level 10 April 2012
575 / 3		CLAY: Brown, moist, very stiff, high plastic		RC12				60	
574 / 4				RC13				85	
573 / 5				RC14				105	Frac Sand
572 / 6				RC15				60	50 mm Dia. Slotted PVC Screen
571 / 7		End of hole @ 6.1 m. Installed monitoring well.		RC16				120	
570 / 8									
569 / 9									
10									

Env BH m elev CAL v03.ldf

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BORE HOLE LOG

Bore Hole: 204
Page: 1 of 1

Client:	City of Regina	Northing:	5589242	Date:	26 March 2012
Project:	Phase II ESA	Easting:	527387	Equipment:	Brat
Location:	CP Intermodal Yard	Ground Elev.:	578.23	Method:	Solid Stem Auger
Project No.:	R4914	Top Casing Elev.:	578.16	Logged by:	RNC

Elev (m) / Depth (m)	Symbol	Soil Description	Sample Type	Sample No.	SPT 'N'	USC	Moisture Content (percent): Plastic Limit ▲ / Natural Moisture ● / Liquid Limit ◆ (0 – 50 – 100)	Headspace Vapour ppm (10 – 100 – 1000 – 10000)	Monitor Well Construction Detail
578 / 0		FILL: Granular fill, sandy, brown, frozen, rubble		RC25				110	Road Box
577 / 1		CLAY: Brown, frozen		RC26				125	Bentonite Chips
576 / 2		@ 1.8 m, moist, very stiff, high plastic		RC27				150	50 mm Dia. Solid PVC Pipe
				RC28				160	
575 / 3				RC29				140	
574 / 4				RC30				130	Frac Sand
573 / 5				RC31				110	50 mm Dia. Slotted PVC Screen
572 / 6		End of hole @ 6.1 m. Installed monitoring well. Well dry on 10 April 2012.		RC32				195	
571 / 7									
570 / 8									
569 / 9									
10									

Env BH m elev CAL v03.fdf

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BORE HOLE LOG

Bore Hole: 205
Page: 1 of 1

Client:	City of Regina	Northing:	5589213	Date:	26 March 2012
Project:	Phase II ESA	Easting:	527413	Equipment:	Brat
Location:	CP Intermodal Yard	Ground Elev.:	578.09	Method:	Solid Stem Auger
Project No.:	R4914	Top Casing Elev.:	577.99	Logged by:	RNC

Elev (m) / Depth (m)	Symbol	Soil Description	Sample Type	Sample No.	SPT 'N'	USC	Moisture Content (percent): Plastic Limit / Natural Moisture / Liquid Limit (0 – 50 – 100)	Headspace Vapour ppm (10 – 100 – 1000 – 10000)	Monitor Well Construction Detail
578 / 0		FILL: Granular fill, sandy gravel, brown, frozen		RC33				185	Road Box
577 / 1		CLAY: Brown and grey, moist, very stiff, medium to high plastic		RC34				145	Bentonite Chips
576 / 2				RC35				135	50 mm Dia. Solid PVC Pipe
				RC36				200	
575 / 3		@ 3.4 m, brown, high plastic		RC37				250	
574 / 4				RC38				220	Frac Sand
573 / 5				RC39				200	50 mm Dia. Slotted PVC Screen
				RC40				180	
572 / 6		End of hole @ 6.1 m. Installed monitoring well. Could not obtain water sample.							Groundwater Level 10 April 2012
571 / 7									
570 / 8									
569 / 9									
/ 10									

Env BH m elev CAL v03.tdf

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BORE HOLE LOG

Bore Hole: 206
Page: 1 of 1

Client:	City of Regina	Northing:	5589199	Date:	26 March 2012
Project:	Phase II ESA	Easting:	527384	Equipment:	Brat
Location:	CP Intermodal Yard	Ground Elev.:	578.13	Method:	Solid Stem Auger
Project No.:	R4914	Top Casing Elev.:	578.05	Logged by:	RNC

Elev (m) / Depth (m)	Symbol	Soil Description	Sample Type	Sample No.	SPT 'N'	USC	Moisture Content (percent) Plastic Limit ▲ / Natural Moisture ● / Liquid Limit ◆ (0 – 50 – 100)	Headspace Vapour ppm (10 – 100 – 1000 – 10000)	Monitor Well Construction Detail
578 / 0		FILL: Granular fill, sandy, brown		RC41				240	Road Box
577 / 1		CLAY: Grey, moist, hard, high plastic		RC42				210	Bentonite Chips
576 / 2		@ 1.8 m, brown		RC43				195	50 mm Dia. Solid PVC Pipe
				RC44				195	
575 / 3				RC45				220	
574 / 4				RC46				185	Frac Sand
573 / 5				RC47				145	50 mm Dia. Slotted PVC Screen
572 / 6		End of hole @ 6.1 m. Installed monitoring well. Well dry on 10 April 2012.		RC48				150	
571 / 7									
570 / 8									
569 / 9									
10									

Env BH m elev CAL v03.tdf

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BORE HOLE LOG

Bore Hole: 207
Page: 1 of 1

Client:	City of Regina	Northing:	5589133	Date:	26 March 2012
Project:	Phase II ESA	Easting:	527458	Equipment:	Brat
Location:	CP Intermodal Yard	Ground Elev.:	578.09	Method:	Solid Stem Auger
Project No.:	R4914	Top Casing Elev.:	577.98	Logged by:	RNC

Elev (m) / Depth (m)	Symbol	Soil Description	Sample Type	Sample No.	SPT 'N'	USC	Moisture Content (percent): Plastic Limit ▲ / Natural Moisture ● / Liquid Limit ◆ (0 – 50 – 100)	Headspace Vapour ppm (10 – 100 – 1000 – 10000)	Monitor Well Construction Detail
578 / 0		FILL: Granular fill, sandy gravel, grey and black, moist		RC49				195	Road Box
577 / 1		FILL: Clay fill, grey, moist, hard, medium plastic		RC50				420	Bentonite Chips
576 / 2		CLAY: Brown, moist, very stiff, high plastic		RC51				130	50 mm Dia. Solid PVC Pipe
				RC52				190	
575 / 3				RC53				240	
574 / 4				RC54				220	Frac Sand
573 / 5				RC55				110	50 mm Dia. Slotted PVC Screen
				RC56				130	
572 / 6		End of hole @ 6.1 m. Installed monitoring well. Could not obtain water sample.							Groundwater Level 10 April 2012
571 / 7									
570 / 8									
569 / 9									
/ 10									

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BORE HOLE LOG

Bore Hole: 208
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Client:	City of Regina	Northing:	5589115	Date:	26 March 2012
Project:	Phase II ESA	Easting:	527506	Equipment:	Brat
Location:	CP Intermodal Yard	Ground Elev.:	578.15	Method:	Solid Stem Auger
Project No.:	R4914	Top Casing Elev.:	578.06	Logged by:	RNC

Elev (m) / Depth (m)	Symbol	Soil Description	Sample Type	Sample No.	SPT 'N'	USC	Moisture Content (percent): Plastic Limit ▲ / Natural Moisture ● / Liquid Limit ◆ (0 – 50 – 100)	Headspace Vapour ppm (10 – 100 – 1000 – 10000)	Monitor Well Construction Detail
578 / 0		ASPHALT							Road Box
		FILL: Granular fill, sandy, black, moist		RC57				270	
577 / 1		SAND: Sand and gravel, grey and brown, moist, loose		RC58				600	Bentonite Chips
576 / 2		CLAY: Grey, moist, very stiff, high plastic		RC59				190	50 mm Dia. Solid PVC Pipe
		@ 2.4 m, brown		RC60				165	
575 / 3				RC61				250	
574 / 4				RC62				190	Frac Sand
573 / 5				RC63				170	50 mm Dia. Slotted PVC Screen
				RC64				140	▼ Groundwater Level 10 April 2012
572 / 6		End of hole @ 6.1 m. Installed monitoring well.							
571 / 7									
570 / 8									
569 / 9									
10									

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BORE HOLE LOG

Bore Hole: 209
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Client:	City of Regina	Northing:	5589156	Date:	26 March 2012
Project:	Phase II ESA	Easting:	527562	Equipment:	Brat
Location:	CP Intermodal Yard	Ground Elev.:	578.18	Method:	Solid Stem Auger
Project No.:	R4914	Top Casing Elev.:	578.08	Logged by:	RNC

Elev (m) / Depth (m)	Symbol	Soil Description	Sample Type	Sample No.	SPT 'N'	USC	Moisture Content (percent): Plastic Limit ▲ / Natural Moisture ● / Liquid Limit ◆ (0 – 50 – 100)	Headspace Vapour ppm (10 – 100 – 1000 – 10000)	Monitor Well Construction Detail
578 / 0		ASPHALT							Road Box
		FILL: Granular fill, sandy, brown, frozen		RC73				250	
577 / 1		CLAY: Grey, frozen		RC74				110	Bentonite Chips
		@ 1.8 m, brown, moist, very stiff, high plastic		RC75				200	50 mm Dia. Solid PVC Pipe
576 / 2				RC76				150	
575 / 3				RC77				140	
									Frac Sand
574 / 4				RC78				130	
									50 mm Dia. Slotted PVC Screen
573 / 5				RC79				140	
				RC80				120	
572 / 6		End of hole @ 6.1 m. Installed monitoring well. Well dry on 10 April 2012.							
571 / 7									
570 / 8									
569 / 9									
10									

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BORE HOLE LOG

Bore Hole: 210
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Client:	City of Regina	Northing:	5589159	Date:	26 March 2012
Project:	Phase II ESA	Easting:	527586	Equipment:	Brat
Location:	CP Intermodal Yard	Ground Elev.:	578.21	Method:	Solid Stem Auger
Project No.:	R4914	Top Casing Elev.:	578.10	Logged by:	RNC

Elev (m) / Depth (m)	Symbol	Soil Description	Sample Type	Sample No.	SPT 'N'	USC	Moisture Content (percent): Plastic Limit ▲ / Natural Moisture ● / Liquid Limit ◆ (0 – 50 – 100)	Headspace Vapour ppm (10 – 100 – 1000 – 10000)	Monitor Well Construction Detail
578 / 0		ASPHALT							Road Box
		FILL: Granular fill, sandy gravel, black, moist		RC65				155	
577 / 1				RC66				160	Bentonite Chips
		FILL: Clay fill, gravelly, grey and black, moist, hard		RC67				170	50 mm Dia. Solid PVC Pipe
576 / 2									
		CLAY: Brown, moist, very stiff, high plastic		RC68				135	
575 / 3				RC69				150	
									Frac Sand
574 / 4				RC70				240	
									50 mm Dia. Slotted PVC Screen
573 / 5				RC71				220	
				RC72				200	
572 / 6		End of hole @ 6.1 m. Installed monitoring well. Could not obtain water sample.							Groundwater Level 10 April 2012
571 / 7									
570 / 8									
569 / 9									
10									

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BORE HOLE LOG

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Client:	City of Regina	Northing:	5589239	Date Drilled:	11 June 2012
Project:	Phase II ESA	Easting:	527411	Drill:	Brat
Location:	CP Intermodal Yard	Ground Elev.:	578.375	Drilling Method:	Solid Stem Auger
Project No.:	R4914	Top Casing Elev.:		Logged by:	RNC

Depth (m)	Symbol	Soil Description	Sample Type	Sample No.	SPT 'N'	USC	Moisture Content (percent): Plastic Limit ▲ / Natural Moisture ● / Liquid Limit ◆ (0 – 50 – 100)	Headspace Vapour ppm (10 – 100 – 1000 – 10000)	Monitor Well Construction Detail
0		FILL: Granular, brown, moist, loose		RC301				180	
		@ 0.6 m, hard packed							
-1		FILL: Clay, brown, moist, stiff, high plastic		RC302				145	
-2				RC303				125	
		@ 2.7 m, black		RC304				150	
-3									Bentonite Chips
		CLAY: Brown, moist, very stiff, high plastic, oxidized		RC305				340	
-4				RC306				220	
-5				RC307				190	
-6				RC308				170	
		End of hole @ 6.1 m. Bore hole backfilled with bentonite.							
-7									
-8									
-9									
-10									

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BORE HOLE LOG

Bore Hole: 302
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Client:	City of Regina	Northing:	5589115	Date Drilled:	11 June 2012
Project:	Phase II ESA	Easting:	527520	Drill:	Brat
Location:	CP Intermodal Yard	Ground Elev.:	578.194	Drilling Method:	Solid Stem Auger
Project No.:	R4914	Top Casing Elev.:	578.099	Logged by:	RNC

Depth (m)	Symbol	Soil Description	Sample Type	Sample No.	SPT 'N'	USC	Moisture Content (percent) Plastic Limit ▲ / Natural Moisture ● / Liquid Limit ◆ (0 – 50 – 100)	Headspace Vapour ppm (10 – 100 – 1000 – 10000)	Monitor Well Construction Detail
0		ASPHALT							Road Box
		FILL: Granular, sandy, black, moist, loose, hydrocarbon odour		RC309				600	Bentonite Chips
-1		@ 0.9 m, brown							Frac Sand 25 mm Dia. Solid PVC Pipe
		@ 1.2 m, wet		RC310				490	Groundwater Level 28 June 2012
		FILL: Clay, grey, moist, stiff, high plastic							150 mm Dia. Slotted PVC Screen
-2		End of hole @ 1.8 m. Vapour canister installed to 1.4 m with flush mount protector.							Frac Sand
-3									
-4									
-5									
-6									
-7									
-8									
-9									
-10									

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BORE HOLE LOG

Bore Hole: 303
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Client:	City of Regina	Northing:	5589117	Date Drilled:	11 June 2012
Project:	Phase II ESA	Easting:	527508	Drill:	Brat
Location:	CP Intermodal Yard	Ground Elev.:	578.137	Drilling Method:	Solid Stem Auger
Project No.:	R4914	Top Casing Elev.:	578.007	Logged by:	RNC

Depth (m)	Symbol	Soil Description	Sample Type	Sample No.	SPT 'N'	USC	Moisture Content (percent) Plastic Limit ▲ / Natural Moisture ● / Liquid Limit ◆ (0 – 50 – 100)	Headspace Vapour ppm (10 – 100 – 1000 – 10000)	Monitor Well Construction Detail
0		ASPHALT							Road Box Bentonite Chips
		FILL: Granular, sandy, black, moist, loose, hydrocarbon odour		RC311				790	Frac Sand
-1		FILL: Clay, grey, moist, stiff, high plastic		RC312				380	25 mm Dia. Solid PVC Pipe Groundwater Level 28 June 2012
-2		End of hole @ 1.5 m. Vapour canister installed with flush mount protector.							150 mm Dia. Slotted PVC Screen
-3									
-4									
-5									
-6									
-7									
-8									
-9									
-10									

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BORE HOLE LOG

Bore Hole: 304
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Client:	City of Regina	Northing:	5589120	Date Drilled:	11 June 2012
Project:	Phase II ESA	Easting:	527494	Drill:	Brat
Location:	CP Intermodal Yard	Ground Elev.:	578.144	Drilling Method:	Solid Stem Auger
Project No.:	R4914	Top Casing Elev.:	578.030	Logged by:	RNC

Depth (m)	Symbol	Soil Description	Sample Type	Sample No.	SPT 'N'	USC	Moisture Content percent: Plastic Limit ▲ / Natural Moisture ● / Liquid Limit ◆ (0 – 50 – 100)	Headspace Vapour ppm (10 – 100 – 1000 – 10000)	Monitor Well Construction Detail
0		ASPHALT							Road Box Bentonite Chips
		FILL: Granular, sandy, black, moist, loose, hydrocarbon odour		RC313				740	Frac Sand Groundwater Level 28 June 2012 25 mm Dia. Solid PVC Pipe
-1		FILL: Clay, grey, moist, firm, high plastic		RC314				510	150 mm Dia. Slotted PVC Screen
-2		End of hole @ 1.5 m. Vapour canister installed with flush mount protector.							
-3									
-4									
-5									
-6									
-7									
-8									
-9									
-10									

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BORE HOLE LOG

Bore Hole: 305
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Client:	City of Regina	Northing:	5589127	Date Drilled:	11 June 2012
Project:	Phase II ESA	Easting:	527475	Drill:	Brat
Location:	CP Intermodal Yard	Ground Elev.:	578.174	Drilling Method:	Solid Stem Auger
Project No.:	R4914	Top Casing Elev.:	578.060	Logged by:	RNC

Depth (m)	Symbol	Soil Description	Sample Type	Sample No.	SPT 'N'	USC	Moisture Content percent (Plastic Limit ▲, Natural Moisture ●, Liquid Limit ◆) 0 50 100	Headspace Vapour ppm 10 100 1000 10000	Monitor Well Construction Detail
0		ASPHALT							Road Box
		FILL: Granular, sandy, black, moist, loose, hydrocarbon odour		RC315				500	Bentonite Chips
-1		FILL: Clay, grey, moist, firm, high plastic		RC316				1000	Frac Sand
		End of hole @ 1.5 m. Vapour canister installed with flush mount protector.							Groundwater Level 28 June 2012
-2									25 mm Dia. Solid PVC Pipe
-3									150 mm Dia. Slotted PVC Screen
-4									
-5									
-6									
-7									
-8									
-9									
-10									

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BORE HOLE LOG

Bore Hole: 306
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Client:	City of Regina	Northing:	5589133	Date Drilled:	11 June 2012
Project:	Phase II ESA	Easting:	527491	Drill:	Brat
Location:	CP Intermodal Yard	Ground Elev.:	578.035	Drilling Method:	Solid Stem Auger
Project No.:	R4914	Top Casing Elev.:	577.945	Logged by:	RNC

Depth (m)	Symbol	Soil Description	Sample Type	Sample No.	SPT 'N'	USC	Moisture Content percent (Plastic Limit ▲ / Natural Moisture ● / Liquid Limit ◆) 0 – 50 – 100	Headspace Vapour ppm 10 – 100 – 1000 – 10000	Monitor Well Construction Detail
0		FILL: Granular, brown, damp, hard packed		RC317				340	Road Box Bentonite Chips Frac Sand
-1		FILL: Clay, grey, moist, stiff, high plastic @ 0.9 m, brown @ 1.2 m, gravel lens, grey, wet		RC318				350	25 mm Dia. Solid PVC Pipe Groundwater Level 28 June 2012 150 mm Dia. Slotted PVC Screen
-2		End of hole @ 1.5 m. Vapour canister installed with flush mount protector.							
-3									
-4									
-5									
-6									
-7									
-8									
-9									
-10									

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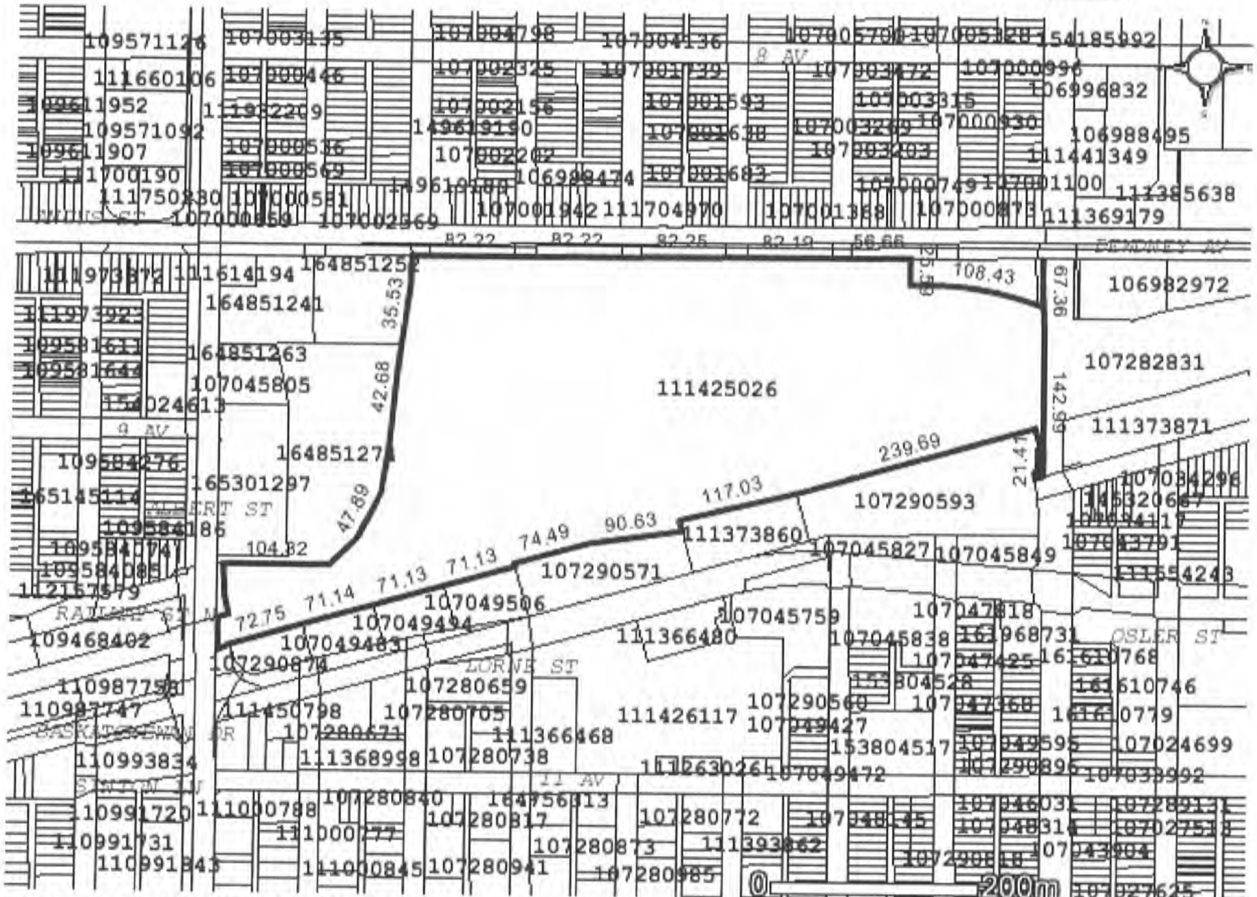
Appendix A

Information Services Corporation of Saskatchewan

Surface Parcel Number: 111425026
LLD: NW 19-17-19-2Plan 16074 Ext 0
Parcel Class Code: Railway
Area: 16.274 hectares (40.21 acres)
Request Date: 9-Apr-2012 2:23:08 o'clock PM CST



DISCLAIMER: THIS IS NOT A PLAN OF SURVEY. It is a consolidation of plans to assist in identifying the location, size and shape of a parcel in relation to other parcels. Parcel boundaries and area may have been adjusted to fit with adjacent parcels. To determine actual boundaries, dimensions, or area of any parcel, refer to the plan, or consult a surveyor.

Related Information

Parcel	Land Description
112415431	Lot 9-Blk/Par 252 Plan OLD33 Ext 40
111972753	Lot 5-Blk/Par 237 Plan OLD33 Ext 24
109442190	Lot 26-Blk/Par 209 Plan OLD33 Ext 0
109612144	Lot 25-Blk/Par 209 Plan OLD33 Ext 0
109581611	Lot 16-Blk/Par 237 Plan OLD33 Ext 0
111973754	Lot 23-Blk/Par 237 Plan OLD33 Ext 20
112415330	Lot 29-Blk/Par 252 Plan OLD33 Ext 44
112157603	Lot 2-Blk/Par 252A Plan DP3536 Ext 1
111973372	Lot 1-Blk/Par 238 Plan OLD33 Ext 28
109584074	Lot 14-Blk/Par 251 Plan OLD33 Ext 0

109584029	Lot 19-Blk/Par 251 Plan OLD33 Ext 0
109584120	Lot 30-Blk/Par 251 Plan OLD33 Ext 0
165301297	(Parcel: A)Plan FA2797 Ext 1
107000581	Lot 24-Blk/Par 207 Plan OLD33 Ext 0
107000547	Lot 29-Blk/Par 207 Plan OLD33 Ext 0
107000569	Lot 27-Blk/Par 207 Plan OLD33 Ext 0
107000086	Lot 14-Blk/Par 206 Plan OLD33 Ext 0
164851252	(Parcel: E)Plan 102025606 Ext 0
107286981	Lot 25-Blk/Par 205 Plan OLD33 Ext 0
107280659	Lot 27-Blk/Par 282 Plan 00RA12095 Ext 0
107049506	Lot 4-Blk/Par C Plan 94R48860 Ext 0
107001953	Lot 18-Blk/Par 204 Plan OLD33 Ext 0
107001986	Lot 29-Blk/Par 204 Plan OLD33 Ext 0
111931871	Lot 21-Blk/Par 203 Plan OLD33 Ext 38
107290571	(Parcel: B)Plan FS249 Ext 0
107001425	Lot 24-Blk/Par 203 Plan OLD33 Ext 0
107003539	Lot 23-Blk/Par 202 Plan OLD33 Ext 0
107287083	Lot 24-Blk/Par 202 Plan OLD33 Ext 0
107001302	Lot 29-Blk/Par 202 Plan OLD33 Ext 0
107001313	Lot 28-Blk/Par 202 Plan OLD33 Ext 0
107047672	Lot 42-Blk/Par 286 Plan OLD33 Ext 0
107003382	Lot 25-Blk/Par 201 Plan OLD33 Ext 0
107047357	Lot 39-Blk/Par 287 Plan OLD33 Ext 0
111383311	Lot 37-Blk/Par 287 Plan OLD33 Ext 33
107000862	Lot 23-Blk/Par 200 Plan OLD33 Ext 0
107001100	Lot 26-Blk/Par 200 Plan OLD33 Ext 0
107049607	Lot 25-Blk/Par 287 Plan OLD33 Ext 0
107034061	Lot 2-Blk/Par 250 Plan OLD33 Ext 0
112414700	Lot 3-Blk/Par 250 Plan OLD33 Ext 17
107043791	Lot 27-Blk/Par 250 Plan OLD33 Ext 0
107273965	Lot 6-Blk/Par 288 Plan OLD33 Ext 0
107045973	Lot 9-Blk/Par 288 Plan OLD33 Ext 0
107045906	Lot 18-Blk/Par 288 Plan OLD33 Ext 0
107034117	Lot 7-Blk/Par 250 Plan OLD33 Ext 0
112416678	Lot 11-Blk/Par 250 Plan OLD33 Ext 1
109611862	Lot 19-Blk/Par 209 Plan OLD33 Ext 0
111972731	Lot 4-Blk/Par 237 Plan OLD33 Ext 22
109581802	Lot 37-Blk/Par 237 Plan OLD33 Ext 0
109444192	Lot 3-Blk/Par 252 Plan OLD33 Ext 0
109584502	Lot 7-Blk/Par 252 Plan OLD33 Ext 0
109584478	Lot 11-Blk/Par 252 Plan OLD33 Ext 0
109611839	Lot 22-Blk/Par 209 Plan OLD33 Ext 0
111972810	Lot 44-Blk/Par 237 Plan 101229230 Ext 38
109611895	Lot 28-Blk/Par 209 Plan OLD33 Ext 0
111973923	Lot 12-Blk/Par 237 Plan OLD33 Ext 18
109581644	Lot 19-Blk/Par 237 Plan OLD33 Ext 0
111973721	Lot 21-Blk/Par 237 Plan OLD33 Ext 8
112414586	Lot 42-Blk/Par 252 Plan OLD33 Ext 13
110992697	Lot 49-Blk/Par 313 Plan 99RA11005 Ext 0
111973417	Lot 3-Blk/Par 238 Plan OLD33 Ext 33
109584052	Lot 16-Blk/Par 251 Plan OLD33 Ext 0
111461981	Lot 39-Blk/Par 238 Plan OLD33 Ext 34

109581374	Lot 31-Blk/Par 238 Plan OLD33 Ext 0
109581363	Lot 30-Blk/Par 238 Plan OLD33 Ext 0
109581341	Lot 28-Blk/Par 238 Plan OLD33 Ext 0
109584254	Lot 5-Blk/Par 251 Plan OLD33 Ext 0
111973495	Lot 8-Blk/Par 238 Plan OLD33 Ext 39
111460766	Lot 11-Blk/Par 238 Plan OLD33 Ext 30
109584142	Lot 28-Blk/Par 251 Plan OLD33 Ext 0
109584164	Lot 25-Blk/Par 251 Plan OLD33 Ext 0
109584175	Lot 24-Blk/Par 251 Plan OLD33 Ext 0
107000648	Lot 18-Blk/Par 207 Plan OLD33 Ext 0
111934896	Lot 42-Blk/Par 207 Plan 101259413 Ext 16
111934605	Lot 20-Blk/Par 207 Plan OLD33 Ext 26
107280716	Lot 12-Blk/Par 280 Plan 00RA12095 Ext 0
107000604	Lot 22-Blk/Par 207 Plan OLD33 Ext 0
107280761	Lot 14-Blk/Par 280 Plan 00RA12095 Ext 0
107286992	Lot 21-Blk/Par 206 Plan OLD33 Ext 0
107002347	Lot 24-Blk/Par 206 Plan OLD33 Ext 0
164851274	(Parcel: B)Plan 85R22604 Ext 1
107000222	Lot 28-Blk/Par 206 Plan OLD33 Ext 0
107002279	Lot 22-Blk/Par 205 Plan OLD33 Ext 0
107286970	Lot 23-Blk/Par 205 Plan OLD33 Ext 0
107002202	Lot 29-Blk/Par 205 Plan OLD33 Ext 0
107001942	Lot 17-Blk/Par 204 Plan OLD33 Ext 0
106998474	Lot C-Blk/Par 204 Plan 98RA02313 Ext 0
107001559	Lot 14-Blk/Par 203 Plan OLD33 Ext 0
107001694	Lot 15-Blk/Par 203 Plan OLD33 Ext 0
107269498	Lot 40A-Blk/Par 203 Plan 99RA19575 Ext 0
107001357	Lot 16-Blk/Par 202 Plan OLD33 Ext 0
107003494	Lot 18-Blk/Par 202 Plan OLD33 Ext 0
107001335	Lot 15-Blk/Par 202 Plan OLD33 Ext 0
107003506	Lot 20-Blk/Par 202 Plan OLD33 Ext 0
107049438	Lot 25-Blk/Par 285 Plan OLD33 Ext 0
107047717	Lot 46-Blk/Par 286 Plan OLD33 Ext 0
107003405	Lot 23-Blk/Par 201 Plan OLD33 Ext 0
153804517	Lot D-Blk/Par 286 Plan 101850599 Ext 0
107000839	Lot 13-Blk/Par 200 Plan OLD33 Ext 0
107000840	Lot 14-Blk/Par 200 Plan OLD33 Ext 0
107047414	Lot 45-Blk/Par 287 Plan OLD33 Ext 0
107047403	Lot 44-Blk/Par 287 Plan OLD33 Ext 0
111383333	Lot 38-Blk/Par 287 Plan OLD33 Ext 34
164365498	(Parcel: L1)Plan 101973810 Ext 0
107290919	Lot 19-Blk/Par 287 Plan OLD33 Ext 0
107290908	Lot 24-Blk/Par 287 Plan OLD33 Ext 0
107049584	Lot 27-Blk/Par 287 Plan OLD33 Ext 0
161610780	Lot B-Blk/Par 288 Plan 101891695 Ext 0
161610757	(Parcel: L1)Plan 101891695 Ext 0
107045984	Lot 8-Blk/Par 288 Plan OLD33 Ext 0
111562826	Lot 41-Blk/Par 288 Plan 101160436 Ext 15
111369179	(Parcel: H)Plan 01RA00002 Ext 10
107034016	Lot 14-Blk/Par 250 Plan OLD33 Ext 0
107034049	Lot 16-Blk/Par 250 Plan OLD33 Ext 0
107036322	Lot 23-Blk/Par 288 Plan OLD33 Ext 0

107034320	Lot 4-Blk/Par 249 Plan OLD33 Ext 0
111554243	Lot B-Blk/Par 249 Plan 84R28086 Ext 3
106988484	Lot B1-Blk/Par 198A Plan 65R06514 Ext 0
107034342	Lot 6-Blk/Par 249 Plan OLD33 Ext 0
154006118	Lot C-Blk/Par 249 Plan 101860310 Ext 0
111385638	(Parcel: J)Plan 65R41377 Ext 5
111973585	Lot 40-Blk/Par 237 Plan OLD33 Ext 23
109581778	Lot 34-Blk/Par 237 Plan OLD33 Ext 0
109581767	Lot 33-Blk/Par 237 Plan OLD33 Ext 0
111973642	Lot 43-Blk/Par 237 Plan 101229128 Ext 22
109584423	Lot 16A-Blk/Par 252 Plan OLD33 Ext 0
111972775	Lot 6-Blk/Par 237 Plan OLD33 Ext 25
111973844	Lot 9-Blk/Par 237 Plan OLD33 Ext 27
109611907	Lot 29-Blk/Par 209 Plan OLD33 Ext 0
109442145	Lot 27-Blk/Par 209 Plan OLD33 Ext 0
111973709	Lot 20-Blk/Par 237 Plan OLD33 Ext 7
109584399	Lot 28-Blk/Par 252 Plan OLD33 Ext 0
111700190	Lot C-Blk/Par 208 Plan 70R05061 Ext 43
111462005	Lot 40-Blk/Par 238 Plan OLD33 Ext 35
109581385	Lot 32-Blk/Par 238 Plan OLD33 Ext 0
109581352	Lot 29-Blk/Par 238 Plan OLD33 Ext 0
109444136	Lot 2-Blk/Par 251 Plan OLD33 Ext 0
109584243	Lot 6-Blk/Par 251 Plan OLD33 Ext 0
109584210	Lot 10-Blk/Par 251 Plan OLD33 Ext 0
110987758	Lot 8-Blk/Par B Plan 94R41933 Ext 0
109581464	Lot 16-Blk/Par 238 Plan OLD33 Ext 0
154024613	Lot A-Blk/Par 238 Plan 101861579 Ext 0
109584287	Lot 34-Blk/Par 251 Plan OLD33 Ext 0
109584096	Lot 33-Blk/Par 251 Plan OLD33 Ext 0
109584186	Lot 23-Blk/Par 251 Plan OLD33 Ext 0
109444114	Lot A-Blk/Par 251 Plan OLD33 Ext 0
165301309	(Parcel: S2)Plan 102062157 Ext 0
107000671	Lot 16-Blk/Par 207 Plan OLD33 Ext 0
107000659	Lot 17-Blk/Par 207 Plan OLD33 Ext 0
111934582	Lot 45-Blk/Par 207 Plan 101259402 Ext 25
107000570	Lot 26-Blk/Par 207 Plan OLD33 Ext 0
164851241	(Parcel: D)Plan 102025606 Ext 0
106999925	Lot 19-Blk/Par 206 Plan OLD33 Ext 0
107280671	Lot 20-Blk/Par 281 Plan 00RA12095 Ext 0
107002358	Lot 23-Blk/Par 206 Plan OLD33 Ext 0
107002213	Lot 28-Blk/Par 205 Plan OLD33 Ext 0
107001997	Lot 16-Blk/Par 204 Plan OLD33 Ext 0
107001537	Lot 12-Blk/Par 203 Plan OLD33 Ext 0
107001414	Lot 23-Blk/Par 203 Plan OLD33 Ext 0
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107003416	Lot 21-Blk/Par 201 Plan OLD33 Ext 0
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107045827	(Parcel: B1)Plan 84R28086 Ext 0
107047504	Lot 50-Blk/Par 287 Plan OLD33 Ext 0
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107290638	Lot 10-Blk/Par 288 Plan OLD33 Ext 0
145320656	(Parcel: S2)Plan 101126012 Ext 0
106988507	Lot L-Blk/Par 198A Plan 73R19847 Ext 0
107034319	Lot 3-Blk/Par 249 Plan OLD33 Ext 0
111373882	(Parcel: U)Plan 00RA03249 Ext 1
111974058	Lot 41-Blk/Par 237 Plan 101229229 Ext 30
109611873	Lot 18-Blk/Par 209 Plan OLD33 Ext 0
109612009	Lot 13-Blk/Par 209 Plan OLD33 Ext 0
109581790	Lot 36-Blk/Par 237 Plan OLD33 Ext 0
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111973620	Lot 42-Blk/Par 237 Plan 101229083 Ext 21
109581701	Lot 27-Blk/Par 237 Plan OLD33 Ext 0
109584524	Lot 5-Blk/Par 252 Plan OLD33 Ext 0
112416612	Lot 51-Blk/Par 252 Plan 101203940 Ext 38
109584557	Lot 1-Blk/Par 252A Plan DP3536 Ext 0
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109611840	Lot 21-Blk/Par 209 Plan OLD33 Ext 0
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111973901	Lot 11-Blk/Par 237 Plan OLD33 Ext 17
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109584401	Lot 27-Blk/Par 252 Plan OLD33 Ext 0
109581431	Lot 37-Blk/Par 238 Plan OLD33 Ext 0
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109468402	Lot 3-Blk/Par A Plan 95R22044 Ext 0
109444103	Lot 27-Blk/Par 251 Plan OLD33 Ext 0
107000637	Lot 19-Blk/Par 207 Plan OLD33 Ext 0
111614194	(Parcel: 1)Plan EL7329 Ext 0
107280727	Lot 11-Blk/Par 280 Plan 00RA12095 Ext 0
111932209	Lot 41-Blk/Par 207 Plan 101259457 Ext 39
107000660	Lot 25-Blk/Par 207 Plan OLD33 Ext 0
107000233	Lot 27-Blk/Par 206 Plan OLD33 Ext 0
107000255	Lot 25A-Blk/Par 206 Plan OLD33 Ext 0
107280738	Lot 29-Blk/Par 282 Plan 00RA12095 Ext 0
107001672	Lot 28-Blk/Par 203 Plan OLD33 Ext 0
107001706	Lot 26-Blk/Par 203 Plan OLD33 Ext 0
107001717	Lot 25-Blk/Par 203 Plan OLD33 Ext 0
111426117	(Parcel: B1)Plan 01RA24328 Ext 0
107001324	Lot 27-Blk/Par 202 Plan OLD33 Ext 0
107049427	Lot 24-Blk/Par 285 Plan OLD33 Ext 0
107290863	Lot 26-Blk/Par 285 Plan OLD33 Ext 0
107049450	Lot 28-Blk/Par 285 Plan OLD33 Ext 0
107003450	Lot 16-Blk/Par 201 Plan OLD33 Ext 0

107047683	Lot 43-Blk/Par 286 Plan OLD33 Ext 0
153804528	Lot C-Blk/Par 286 Plan 101850599 Ext 0
112417095	Lot 60-Blk/Par 287 Plan 101225056 Ext 5
112415756	Lot 62-Blk/Par 287 Plan 101225247 Ext 78
107047313	Lot 35-Blk/Par 287 Plan OLD33 Ext 0
107047302	Lot 34-Blk/Par 287 Plan OLD33 Ext 0
111932029	Lot 42-Blk/Par 200 Plan 101193498 Ext 33
107286835	Lot 22-Blk/Par 200 Plan OLD33 Ext 0
161968731	Lot D-Blk/Par 287 Plan 101906063 Ext 0

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Appendix B

Photograph 1 – Bore Hole BH201 is located in the northwest corner of the Site, north of the previously identified gasoline impacts.

Photograph 2 – BH202 (foreground) and BH203 (background) are located in the northwest corner of the Site, southwest of the previously identified gasoline impacts.

Photograph 3 – BH204 is located in the northwest corner of the Site, north of the previously identified gasoline impacts. A concrete pad is further north.

Photograph 4 – BH205 is located inside the compound, west of the office.

Photograph 5 – BH206 is located adjacent to the track on the west edge of the Site.

Photograph 6 – BH207 is located on the southwest edge of the Site adjacent to the track. It is north of the previously identified diesel impacts.

Photograph 7 – BH208 is located on the south edge of the Site adjacent to the track. It is northeast of the previously identified diesel impacts.

Photograph 8 – BH209 was placed west of the above ground fuel tank.

Photograph 9 – BH210 was placed east of the above ground fuel tank.

Photograph 10 – Probe Drilling was contracted to conduct the drilling and well installation (drilling BH207).