Appendix 5.1.3.2A
Soils, Terrain, and Surficial Geology 2013 Baseline Report

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Appendix 5.1.3.2A

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Blackwater Gold Project

September 2013 / AMEC VE52277

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Blackwater Gold Project

Soils, Terrain, and Surficial Geology
2013 Baseline Report

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ACRONYMS

Abbreviation and Units of Measure	Definition
%	percent
ALR	Agricultural Land Reserve
AMEC	AMEC Environment & Infrastructure
ATV	All-terrain vehicle
BC	British Columbia
BC *CSR*	British Columbia *Contaminated Site Regulations*
BC DOA	British Columbia Department of Agriculture
BC *EAA*	British Columbia *Environmental Assessment Act*
BC EAO	British Columbia Environmental Assessment Office
BC MOE	British Columbia Ministry of Environment
BC MOF	British Columbia Ministry of Forests
BCSIS	British Columbia Soil Information System
$CaCl_2$	calcium chloride
$CaCO_3$	calcium carbonate
CCME	Canadian Council of Ministers of the Environment
CEQG	Canadian Environmental Quality Guidelines
cm	centimetre
dAIR	Draft Application Information Requirements
DEM	Digital Elevation Model
dS/m	deciSiemens per metre
FSR	Forest Service Road
GIS	Geographic Information System
GPS	Global Positioning System
ha	hectare
HCl	hydrochloric acid
LFH	litter, fibric, humic (organic layers developed primarily from leaves, twigs, and woody materials, with a minor component of mosses)
LiDAR	Light Detection and Ranging
LSA	Local Study Area
m	metre
masl	metres above sea level
mg/kg	milligrams per kilogram
mm	millimetre

Abbreviation and Units of Measure	Definition
NAD	North American Datum
NR	Not Rated
Ob	blankets
Ov	veneers
PEM	Predictive Ecosystem Mapping
Project (the)	Proposed Blackwater Gold Project
RIC	Resource Inventory Committee
ROW	right-of-way
RSA	Regional Study Area
SIL	Survey Intensity Level
SMU	Soil Map Unit
TEM	Terrestrial Ecosystem Mapping
UTM	Universal Transverse Mercator

EXECUTIVE SUMMARY

This section presents a description of baseline conditions for the soil, terrain, and surficial geology discipline of the proposed Blackwater Gold Project (the Project). The discussion includes descriptions, interpretations, and maps for the Project's Regional Study Areas (RSA) and Local Study Areas (LSA) for the Project mine site, transmission line, access road, and water pipeline.

The baseline information was compiled using the results of field sampling programs conducted by AMEC Environment and Infrastructure (AMEC), literature reviews, interpretation of Light Detection and Ranging (LiDAR), Digital Elevation Model (DEM) data, and aerial photography, and existing mapping information. This baseline compilation and review incorporated the applicable methods for interpretation of terrain and soil resources, including mapping conventions for terrain in British Columbia (BC).

In support of this baseline report, AMEC conducted four field programs from July 2011 to July 2013, including three Terrestrial Ecosystem Mapping (TEM) programs, and one soil- and terrain-specific field program. During the soil- and terrain-specific program, a total of 212 locations were inspected throughout the mine site and water pipeline RSAs and LSAs. The distribution of the soil inspections focused on the proposed Project footprint and pre-typed soil and terrain polygons within the RSA and LSA. An additional 425 locations were assessed as part of the TEM program, which sampled variable landscapes throughout the mine site, water pipeline, transmission line, and access road LSAs.

Morainal parent materials are the most commonly mapped sediments within the Project study areas. This material is variable in thickness, ranging from a few centimetres (cm) to over 6 metres (m), as determined from onsite investigations. Glaciofluvial sediments are identified throughout the Project study areas. Minor areas of colluvial, fluvial, glaciolacustrine, eolian and organic parent materials are also identified.

Deserters, Twain, and Barrett soil associations derived from the local morainal parent materials occupy the majority of the Project. The Alix soil association, derived from glaciofluvial deposits, is common throughout all Project study areas, occurring in valley bottom locations. Minor inclusions of soil associations derived from other parent materials are interspersed throughout the Project study areas.

The dominant rating in terms of reclamation suitability throughout the Project study areas is *Fair*. This rating applies to soils derived from both morainal and glaciofluvial sediments. *Good* reclamation suitability ratings apply to soils derived from glaciolacustrine deposits, as well as low-elevation morainal parent materials. A reclamation suitability rating of *Poor* only applies to high-elevation morainal soils where coarse textures, high coarse fragment content, and soil pH are the limiting factors. *Unsuitable* ratings applies to eskers where coarse fragment content is excessive and to disturbed exploration areas where admixing has occurred. Organic soils, accounting for a very small percentage of the land base, are

not assigned a suitability rating, but should be salvaged to the extent possible for use as a soil amendment.

Laboratory testing was conducted on samples collected from both field programs for trace metals and other soil chemical and physical properties. Results indicated that baseline soil metal levels showed elevated levels of arsenic in two of eight sample locations (three soil horizons). These exceedances for arsenic apply only to the Canadian Council of Ministers of the Environment (CCME) guidelines (CCME, 2007), but not the BC *Contaminated Sites Regulations* (BC *CSR*) (Government of BC, 1996) guidelines.

Terrain stability ratings indicate that the majority of the Project study areas are rated as stable in terms of slope stability and accelerated erosion. Potentially unstable or unstable slopes occur locally in each of the study areas. Evidence of previous, localized landslide events were observed within the mine site RSA and LSA.

1.0 INTRODUCTION

This report presents the baseline conditions for the soils, terrain, and surficial geology resources of the proposed Blackwater Gold Project (the Project). The baseline discussion provides detailed descriptions and mapping of soils, terrain, and surficial geology. The baseline conditions are presented for each of the Project components including the Regional Study Area (RSA) and Local Study Areas (LSAs) for the proposed mine site, water pipeline, airstrip, transmission line (including two re-route options), and access roads. The results of recent field sampling programs conducted within the Project study area are presented. This baseline report also describes the reclamation suitability of the identified soil types, and the terrain stability of the local parent materials.

1.1 Scope of Work

This section presents the baseline conditions for the soils, terrain, and surficial geology resources in compliance with conditions set out in the draft Application Information Requirements (dAIR) and British Columbia Environmental Assessment Office (BC EAO) application process guidelines. Conventions used in the assessment of the proposed Project are defined in the British Columbia *Environmental Assessment Act* (BC *EAA*) and other guidelines, including conventions described by the British Columbia Ministry of Forestry (BC MOF) and Resource Inventory Committee (RIC).

1.2 Objectives

The objective of the baseline report is the characterization of the soils, terrain, and surficial geology of the Project area. Baseline information is collected and presented to support the analysis of potential Project effects and inform reclamation planning for the Project. To meet these objectives, information is presented for both physical and chemical analyses to determine the baseline terrain and soil units, the reclamation suitability of the soils, and the stability of the terrain within the Project study areas.

2.0 METHODS

2.1 Information Sources

A comprehensive review of the existing biophysical information was conducted for familiarization with previous interpretations of the area. Existing information consists of two adjacent detailed soil survey reports (British Columbia Department of Agriculture (BC DOA, 1974) and British Columbia Ministry of Environment (BC MOE) (Dawson, 1989)), which include descriptions of the surficial geology and physiography of the area, terrain, and surficial geology maps (Geological Survey of Canada, 2004), and available Geographic Information System (GIS) raster and vector data. Terrain mapping was conducted following the provincial mapping conventions outlined in Howes and Kenk (1997) and RIC (1996).

Terrain mapping included the identification of parent material type, topographic form, and geomorphic processes. Soil moisture conditions were also mapped based on the *Field Manual for Describing Terrestrial Ecosystems* (BC MOF and BC MOE, 1998). Terrain polygons were then assigned terrain stability ratings based on the provincial *Mapping and Assessing Terrain Stability Guidebook* (BC MOF, 1999). Information from previously published large-scale maps (1:125,000) was used as a guide when mapping the terrain features associated with the Project, including the transmission line and proposed access route. These secondary sources were supplemented by site-specific information gathered during the field survey, and through interpretation of aerial photographs and satellite imagery.

Map development for the soil resources was based on assigning soil associations to the delineated terrain polygons. Soil associations were derived from *Soils of the Nechako – Francois Lake Area* soil survey (BC DOA, 1974) and *Soils of the Prince George – McLeod Lake Area* (Dawson, 1989). Soil associations based on soil orders, drainage, and physiographic regions were identified and presented in 1:125,000-scale maps. The provincial soil survey provides coverage along most of the proposed transmission line and access route study areas, but does not extend into the mine site RSA. Soil associations presented in the survey reports were applied to the soil types found in the Project study areas. Based on the limited number of field inspections completed for the survey reports, it is expected that minor variations of the physical and chemical properties to the described soil associations will exist.

2.2 Methods for Data Collection and Data Analysis

Soil classification and mapping were carried out in accordance with principles and methods outlined by the *Field Manual for Describing Terrestrial Ecosystems* (BC MOF and BC MOE, 1998). As well, additional soil mapping conventions were derived from the Expert Committee on Soil Survey (1983, 1987). A review of existing information was conducted, principally that in *Soils of the Nechako – Francois Lake Area* soil survey (BC DOA, 1974) and *Soils of the Prince George – McLeod Lake Area* (Dawson, 1989). Field surveys, site inspections, and soil sampling took place as part of the Terrestrial Ecosystem Mapping (TEM) fieldwork in July 2011, July 2012, and July 2013. An additional soil and terrain field program was conducted in July 2012.

Terrain is generally considered as the landform component of the landscape, and landforms are considered as having the attributes of parent genetic material and form (Soil Classification Working Group, 1998). Terrain mapping also includes attributes such as relief, elevation, drainage, and material-modifying processes. Although soils are characterized to a depth of 1.0 metre (m) for mapping purposes (or 1.6 m in the case of organic soils), information about materials below these depths is included in terrain descriptions. To confirm underlying parent materials, regional mapping and site-specific information from soil inspections, interpretation of Light Detection and Ranging (LiDAR) Digital Elevation Model (DEM) data, aerial photography, and satellite imagery, and review of published sources were applied to the interpretation of terrain conditions.

2.2.1 Field Surveys

Four field surveys were conducted over a three-year period to collect the soil and terrain data to assist in the mapping of the Project study areas. These surveys included three TEM field surveys, and one soil- and terrain-specific field survey. Inspection points completed in 2011 were pre-selected to verify Predictive Ecosystem Mapping (PEM) polygons in the mine site RSA as part of the first TEM field survey. The subsequent TEM field survey in 2012 focused on collecting data from the proposed transmission line and access route corridors, as well as filling in data gaps within the mine site LSA. The soil- and terrain-specific field survey completed in 2012 focused on collecting data from the mine site LSA to meet the detailed Survey Intensity Level (SIL) required for this portion of the Project.

The 2012 survey points were pre-selected to either verify the preliminary interpretations or confirm landscape conditions within a polygon that had not previously been inspected. The final TEM program was completed in 2013 to fill in the gaps in data coverage for two re-route options (Mills Ranch and Stellako options) of the transmission line in addition to an expanded mine site LSA. The Project mine site and linear features were accessed by foot, all-terrain vehicle (ATV), helicopter, and truck along the extensive network of existing forestry and exploration roads. A number of sites utilized road cuts and deep sump excavations to identify soil and surficial properties below the 1.0 m soil profile. Sites were selected to ensure that undisturbed soil profiles were examined.

Based on the *Standards for Terrestrial Ecosystem Mapping in British Columbia* (RIC, 1998), three different SILs are required to support the Project application. **Figure 2.2-1** presents an overview of the Project boundaries used for the soils and terrain assessment. The mine site footprint requires the highest SIL, due to the high degree of disturbance expected in the area. The mine site LSA requires a lower sampling intensity, based on the degree of disturbance expected in this area. For these areas, sample intensities were based on a specific number of inspection points per hectare (ha) of land. For the remaining features of the Project study areas, including the mine site RSA, a percentage of polygons were sampled based on the existing polygon data. A lower SIL was used in the mine site RSA and linear features where mostly indirect Project effects are anticipated.

DRAFT

320000 360000 400000 440000

6000000 5960000 5920000 5880000

François Lake
Endako
Stellako
Fraser Lake
Nadleh Whuten
Fort Fraser
Engen
Nechako River
Vanderhoof
Weneez
Sinkut River
Saik'uz
Nulki
Nulki Lake
Mapes
Stuart River Park
Stuart River
Cheslatta Carrier
Danskin
Skin Tyee
Uncha Mountains Red Hills Park
Francois Lake Park
Francois Lake Protected Area
Uncha Lake
Takysie Creek
Binta Lake
Nithi River
Smith Creek
Tachick Lake
Stoney Creek
Tahultzu Lake
Nechako River
Grevet Creek
Hallett Lake
Targe Creek
Knapp Creek
Cheslatta River
Cheslatta
Bird Creek
Corkscrew
Sinkut River
Khai
Cluculz Lake
Cluculz Creek
Meridian Road (Vanderhoof) Ecological Reserve
Nechako Canyon Protected Area
Kluskus FSR
Lucas Lake
Lucas Creek
Knewstubb Lake
Big Bend Creek
Finger Lake
Tatuk Lake
Finger Tatuk Park
Chilako River Ecological Reserve
Chilako River
Natalkuz Lake (Nechako Reservoir)
Tetachuck River
Entiako River
Chedakuz Creek
Taluk Creek
Batnuni Lake
Euchiniko River
Nataniko Creek
Euchiniko
Kluskus-Ootsa FSR
Proposed Mine Access Road
Proposed Water Pipeline Route
Kluskus-Blue FSR
Exploration Road
Tatelkuz Lake
Top Lake
Kluskoil Lake Park
Nazko
Entiako Park
Entiako Lake
Tweedsmuir Park
Johnny Lake
Fawnie Creek
Moose Lake
Kuyakuz Lake
Euchiniko Lakes
West Road (Blackwater)
Kluskus
Tsacha Lake
Kushya
Baezaeko
Nazko

N

Scale: 1:500,000
0 5 10 20
Kilometres

Legend

- Populated Place
- Highway
- Kluskus FSR
- Kluskus Blue FSR
- Kluskus Ootsa FSR
- Exploration Road
- Existing Transmission Line
- Stream
- Waterbody
- Parks & Protected Areas
- Proposed Mine Access Road
- Proposed Transmission Line
- Proposed Water Pipeline Route
- Proposed Mine Site

Terrain, Soils, and Vegetation

- Regional Study Area
- Local Study Area

Reference
BC Government GeoBC Data Distribution

CLIENT: newgold

PROJECT: Blackwater Gold Project

Project Overview

DATE:	ANALYST:	**Figure** 2.2-1
February, 2013	WR	
JOB No: VE52095	QA/QC: LR	PDF FILE: 06-100-001_v15_terr_SA.pdf
GIS FILE: 06-100-001_v15.mxd		amec
PROJECTION: UTM Zone 10	DATUM: NAD83	

Y:\GIS\Projects\VE\VE52095 Richfield Blackwater\Mapping\06 vegetation\Baseline\06-100-001 v15.mxd

The required SIL for each Project component is as follows:

- The Project mine site footprint requires a SIL1, or 76% to 100% of the identified polygons sampled. This equates to approximately 15 to 19 ha per inspection, when mapping at a scale of 1:20,000.
- The LSA requires a SIL2, or 51% to 75% of identified polygons sampled. This equates to approximately 20 ha to 29 ha per inspection at the same mapping scale; and
- The RSA for all features require a reconnaissance level survey, with 0% to 4% of identified polygons having an inspection point, or 300 ha to 1,500 ha per inspection. This includes Agricultural Land Reserve (ALR) areas. For these areas, soil inspection locations are required based on the discretion of the qualified soil scientist based on the homogeneity of the study area (G.Bednard pers.comm.).

Soil inspections for mineral soils were conducted by hand-digging small pits to a depth of up to 50 centimetres (cm), followed by hand-augering to a depth of approximately 1.0 m, or to bedrock contact. Organic soils were examined by extraction of samples with a soil auger, with use of extensions to a maximum depth of 2.2 m or lithic contact. Where lithic contact or duric layers occurred within the profile, the depth was noted and the profile was described to that depth. Locations of sampling sites (using Universal Transverse Mercator (UTM) coordinates) were determined with a handheld Global Positioning System (GPS) unit set to North American Datum (NAD) 83.

Soil profile characteristics described in the field included horizon thickness and sequence, colour, texture, structure, consistence, calcareousness (qualitative hydrochloric acid (HCl) testing for carbonates), salinity (presence of salt crystals), coarse fragments, and mottles. The presence of water seepage was also noted. Soil descriptions and classification systems applied were those of the Soil Classification Working Group (1998) and the Expert Committee on Soil Survey (1983). Site landscape data recorded during field inspections included site and local slope class, surface expression, slope position, surface stoniness, drainage regime, and depth to water table. Parent material, land use, and surface-modifying processes were also identified at each field inspection location. This terrain-related information was used to verify the terrain mapping and to develop the surficial geology model specific to the Project. **Appendix 1** presents the complete soil data.

2.2.2 Interpretation of Aerial Photographs

The interpretation of the Project used aerial photography, based on orthophotography collected in 2011, and LiDAR data collected in 2009. These data sources also covered the entire water pipeline corridor, airstrip, and portions of the transmission line and access road. Within the mine site LSA, a 1 m gridded LiDAR DEM hillshade was used as the primary interpretation method, supplemented by aerial photography. This imaging method applies a fixed sun angle to the elevation model, creating a three-dimensional image of the area. This approach supports more precise polygon delineation, by aiding precise placement of line-

work along slope breaks. Recent scientific publications have utilized this approach to delineate and identify subtle topographic features otherwise masked by the overlying vegetation (Demchuk et al., 2005). Both the LiDAR dataset and the orthophotography were applied to this baseline assessment to effectively capture the baseline terrain conditions at an approximate scale of 1:10,000.

The majority of the RSA surrounding the mine site was also covered by the detailed LiDAR hillshade imagery. Where available, the RSA was mapped at the same scale as the LSA using this detailed information. For the linear features and in the southern- and westernmost portions of the mine site portion of the RSA, only satellite imagery was available. These areas were mapped at a scale similar to the mine site LSA and the remainder of the RSA; however, the precision of the delineation is considered to be lower.

Detailed LiDAR hillshade DEM and orthophotos were available for the airstrip LSA and entire length of the water pipeline, extending from the mine site portion of the RSA to Tatelkuz Lake. Polygon delineations for this facility are consistent with the same scale identified in the mine site LSA.

Mapping and interpretation of the transmission line corridors (including both re-route options) used a combination of information sources to cover its entire length. The southern portion of the line nearest to the mine site and a small portion near the convergence of the transmission line and access road were mapped using the same LiDAR and orthophoto approach as the mine site LSA. The remainder of the line was mapped using additional sources of information, including aerial photos and satellite imagery as well as previously-published PEM data, to help identify surficial materials, where available. Previously published large-scale bedrock geology (Diakow et al., 1995) and surficial geology maps (Plouffe et al., 2004) were also used to help delineate the landscape.

For the access road, multiple data sources were again used for the delineation and interpretation of soils and terrain polygons. For the majority of the access road, orthophotos and LiDAR datasets were utilized to delineate polygons. Mapping of the majority of the southern half of the access road used existing PEM polygons and information as the basis for soils and terrain polygons. The northern half of the access road used LiDAR data for polygon delineation, as well as digital information extracted from the *Soils of the Nechako – Francois Lake Area* soil survey (BC DOA, 1974). Soil and terrain polygons from the original hard copy soil survey map were digitized and clipped to access road portion of the RSA boundary. As a final check, the polygons over the entire length of the access road were then overlain on satellite imagery to capture any features that may not have been delineated in the original line work. This included features such as small water bodies, wetlands, and existing disturbance areas.

2.2.3 Baseline Soil and Terrain Map Development

For development of the surficial geology map, polygons were assigned deciled proportions of specific terrain and parent material categories. Terrain classification focused on the identification of parent materials, topographic forms, and drainage characteristics. As well, parent materials considered to be thin (e.g., some morainal and glaciofluvial accumulations) were assigned underlying parent material attributes. Area calculations provided in subsequent sections of this report are derived from the total decile area that a particular unit occupies. This takes into account both dominant and sub-dominant components of the terrain map unit.

Based on the landform and surficial geology map developed for the mine site and linear features, a soil map was developed by assigning a soil association to each decile of the polygon on the terrain map. This method of attributing soil associations provides a direct correlation between textural and drainage characteristics of the parent material and the soil association. The combination of soil associations within each delineated terrain polygon is termed a Soil Map Unit (SMU), which is a “defined and named repetitive grouping of soil bodies occurring together in an individual and characteristic pattern over the soil landscape” (Gregorich et al., 2001). A SMU may consist of a single soil type, but more commonly consists of a dominant soil type (association or variant) and inclusions of other soil types (associations or variants).

The description of map units is based on proportions of different soil types within specific landscape types. At large mapping scales, it is generally the goal of mapping to subdivide the landscape into units consisting of one main soil type. This could not be consistently achieved for the LSA, due to high variability in soil types and the presence or absence of colluvial materials. It was therefore necessary to develop SMUs consisting of complexes in which one soil type (association or variant) is generally dominant, and is associated with one or two differing soil types accounting for significant proportions of the unit, and commonly with some minor inclusions of additional soil types. In this context, the term “significant” is defined as a soil type occupying 10% to 40% of a map unit.

Once delineation and attribution of all soil and terrain polygons was completed, a seamless file was created to standardize the information between all forms of base data and to edge-match the multiple polygon files used to create the base map. This included terrain and drainage conventions, as well as assignment of Soil Associations to terrain units based on the *Soils of the Nechako – Francois Lake Area* (BC DOA, 1974) soil polygons and report.

2.2.4 Soil Suitability for Reclamation

Reclamation suitability of soils was evaluated to support salvage and reclamation planning for the Project. Construction activities will involve the removal and salvage of topsoil for use in subsequent reclamation activities, according to procedures outlined in the Project Closure and

Reclamation Plan (**Section 2.2)**. The salvage of topsoils will consist of a mixture of the organic (litter, fibric, humic (LFH)), A horizons, where present, and a limited depth of B horizon.

The suitability of soils for reclamation purposes was derived by application of the criteria outlined by the Alberta Soils Advisory Committee (1987) for the eastern slopes region. This assessment scheme was deemed suitable for application to the Project because of the comparable mountainous ecosystems. Individual soil associations and their variants within the LSA were rated according to the specific soil survey information collected. The reclamation suitability criteria require consideration of several soil chemical properties (pH, electrical conductivity, sodicity, and saturation percentage) and physical properties (texture, moist consistency, and volumetric stone content), are summarized in **Table 2.2-1** for root zone material.

Table 2.2-1: Criteria for Evaluating Reclamation Suitability of Root Zone Material in the Eastern Slopes Region

Soil Property	Good	Fair	Poor	Unsuitable
pH	*4.5 – 6.5	4.0 – *4.5 or 6.5 – 7.5	3.5 – 4.0 or 7.5 – 9.0	<3.5 and >9.0
Salinity (EC) dS/m	<2	2 – 4	4 – 8	>8
Sodicity (SAR)	<4	4 – 8	8 – 12	>12
Saturation (%)	30 – 60	20 – 30 or 60 – 80	15 – 20 or 80 – 100	<15 or >100
Texture	L, SiCL, SCL, SL fSL	CL, SiL, vfSL, SC, SiC	LS, S, Si, C, HC	Consolidated bedrock
Moist Consistency	Very friable, friable	Loose, firm	Very firm	Extremely firm
% Coarse Fragments (>2 mm)	<30	30 – 50	50 – 70	>70
$CaCO_3$ Equivalent (%)	<2	2 – 20	20 – 70	>70

Source: Adapted from Alberta Soils Advisory Committee (1987)
*Value adapted from Ryan et al. (1986)

Note: C = clay; $CaCO_3$ = calcium carbonate; CL=clay loam; dS/m = deciSiemens per metre; EC = electric conductivity; fSL = fine sandy loam; HC = heavy clay; L = loam; S = sand; SAR = sodium absorption ratio; SC = sandy clay; SCL = sandy clay loam; Si = silt; SiC = silty clay; SiCL = silty clay loam; SiL = silt loam; SL = sandy loam; vfSL = very fine sandy loam.

Soil associations of the Project study areas were rated for reclamation suitability as *Good*, *Fair*, *Poor*, or *Unsuitable*. Soils are given a rating based on the most limiting condition of the profile. Due to the acidic nature of some forest soils, a different criterion was used in the determination of reclamation suitability based on soil reaction. Work in acid deposition studies (Ryan et al., 1986) has indicated that a pH as low as 4.5 is not as detrimental to plant regeneration in comparison to more neutral soils of the eastern slopes on which the reclamation suitability guidelines were based. As such, the *Good* rating has been adjusted for this baseline report.

The soil quality criterion does not include organic soils; therefore, the rating *Organic* was used to designate these soils. Organic soils are considered to be materials suitable for use in topsoil replacement during reclamation when mixed with mineral materials. Both surficial and subsurface peat materials are suitable for this purpose. Anthropogenically disturbed areas and open water bodies were assigned a rating of *Not Rated* (NR).

The reclamation suitability of individual SMUs for the Project was based on the suitability rating of the dominant soil association for each unit, when the dominant association represents at least 60% of soils in that unit. Where soil associations represent 40% to 60% of a map unit, map unit ratings were assigned a complex of the ratings for the dominant and significant associations.

Reclamation suitability is generally based on site-specific soil data collected during the field survey. Where chemical and physical data were not collected during the field survey, a generalized profile was rated based on information contained in descriptions in the associated soil survey (BC DOA, 1974) or provincial soils data.

2.2.5 Sampling and Laboratory Analysis

Soil samples for laboratory analyses were collected at a number of soil inspection points to verify the field identification of soil associations and to provide data for land use interpretations. Litter and A/B horizon (if present) samples were collected from eight sites for baseline metals analysis. These sites were also sampled for percent saturation, salinity (EC), sodicity (SAR), texture, and pH baseline information. Samples were air dried, crushed, and passed through a 2 millimetre (mm) sieve. Determinations consisted of:

- Particle size distribution (soil texture);
- pH (1:2 calcium chloride ($CaCl_2$));
- Total metals (BC MOE); and
- Pyrophosphate-extractable iron and aluminum.

Total metals analysis was conducted on surface organic and A/B horizons for a total of eight inspection sites (i.e., LFH or Ah/Bm horizons). Each sample was analyzed for 18 trace elements. Total metal concentrations were compared to Canadian Council of Ministers of the Environment (CCME) Canadian Environmental Quality Guidelines (CEQG) for Residential/Parkland areas (CCME, 2007), which are the most stringent of all criteria for metals. Pyrophosphate-extractable iron and aluminum were analyzed in B horizons from four sites within the mine footprint to aid in classification of podzolic soils. **Annex 2** contains the results of the trace element analysis for each sample, as well as the average content and range of contents for each element.

Baseline total metals analysis was only completed on samples taken from within the mine site RSA and LSA, to capture the area that will be directly or indirectly affected by the construction and operation of the mine. All linear features (i.e., transmission line, access

road, and water pipeline) are not expected to receive high degrees of soil or surficial geology disturbance that may potentially alter baseline conditions, including total metals.

2.2.6 Terrain Stability Ratings

Terrain stability ratings were assigned to each terrain polygon using aerial photographs, satellite imagery, and LiDAR interpretation based on the criteria outlined in *Mapping and Assessing Terrain Stability Guidebook* (BC MOF, 1999). This classification system is based on the parent material type, drainage conditions, slope gradient, and presence of geomorphic processes. A five-class terrain stability rating system, with ratings ranging from I to V (lowest to highest), was used for the Project. In general, the potential for terrain stability issues increases with slope gradient, increased moisture content, and the presence of existing instability features. **Table 2.2-2** presents the criteria for rating terrain stability.

Table 2.2-2: Criteria for Evaluating Terrain Stability

Terrain Stability Class	Interpretation	Likelihood of Landslide Initiation
I	No significant stability issues exist.	Negligible
II	Minor surface slumping is expected along road cuts, especially for one or two years following construction.	Very low
III	Minor stability issues may develop.	Low
	Minor surface slumping is expected along road cuts, especially for one or two years following construction.	
IV	Expected to contain moderate likelihood of developing post-construction stability issues.	Moderate
	Wet season construction will increase the likelihood of potential instability.	
	Existing (relict) instability issues noted within the polygon.	
V	Expected to contain high likelihood of developing post-construction stability issues.	High
	Wet season construction will increase the likelihood of potential instability.	
	Existing (active) instability issues noted within the polygon.	

Source: BC MOF, 1999

2.2.7 Derivation of Spatial Statistics Using GIS

Spatial statistics for the study areas were generated using digital map files and ArcMAP® GIS software. Digital maps were produced based on the interpretation of aerial photography. A database was populated with terrain and soil attributes and spatially linked to the digital map files. Using GIS techniques, area calculations of terrain and SMU distribution was completed. Figures representing surficial geology, soil association, and terrain stability were derived from the digital map files.

3.0 RESULTS/DISCUSSION

3.1 Baseline Terrain and Soil Conditions

3.1.1 Description of Terrain Units

The surficial sediments in the Project study areas consist of Quaternary and Holocene deposits. Morainal, glaciofluvial, and glaciolacustrine deposits are Quaternary in age, with deposition associated with the last glacial period. Holocene sediments include materials deposited since the end of glaciation to the present, and include fluvial, colluvial, eolian, and organic (peat) deposits. The western portion of the mine site LSA and RSA and localized areas along both the transmission line and access road consist of bedrock-controlled topography capped with moraine (till), localized glaciofluvial, and colluvium. Localized areas of bedrock outcroppings are also identified near the flanks and peak of Mount Davidson. The lower slopes of Mount Davidson transition to deeper, sediment-controlled topography, consisting of undulating moraine and hummocky to slightly undulating glaciofluvial deposits. Colluvium is identified throughout the Project study areas as thin veneers overlying bedrock or till, or as erosion along fluvial and gully sidewalls, creating a complex landscape of colluviated and unaltered parent materials. Glaciolacustrine materials are found along the transmission line and access road on level topography in glacial laking basins. Localized eolian materials were identified through baseline mapping along the transmission line and access road. These wind-derived deposits are considered very thin, discontinuous veneers overlying the secondary parent material (glaciolacustrine). Parent materials identified in the Project study areas are described below.

3.1.1.1 Colluvial Materials (C units)

Colluvial sediments are developed by the re-deposition of existing sediments due to gravitational processes. These sediments occur on moderate to steep slopes and a variety of variable-depth parent materials. When derived from morainal or glaciofluvial parent materials, colluvial sediments contain similar properties to the original parent material, with minor textural differences noted. It is also common for colluvial deposits to occur in association with unmodified parent materials. When derived directly from local bedrock sources, colluvial deposits have high coarse fragment contents, and commonly form broad fans or cones, depending on the local slope gradient. Over-steepened valley sides along modern streams also contain localized colluvial sediments.

3.1.1.2 Fluvial Materials (F units)

This terrain unit is associated with alluvial deposition along modern stream floodplains. This unit describes floodplain areas of level to terraced topography occurring along numerous streams dissecting the Project study areas. In some locations, areas of woody swamps with shallow peat deposits occur adjacent to modern rivers. Textural characteristics are

commonly inter-bedded sediments of poorly- to strongly-sorted sand and silt with high coarse fragment content. These deposits typically contain limited pedogenesis owing to age and the active nature of the environment.

3.1.1.3 Glaciofluvial Outwash (GF units)

Glaciofluvial materials consist of sorted sands and gravels deposited by streams flowing from glacial ice. Glaciofluvial sediments are dominated by sand, with variable coarse fragment contents. Typically, glaciofluvial sediments are stratified with depth, recording differing depositional conditions throughout time, as were noted on several deep sump onsite excavations. Ice-contact deposits generally contain sand with higher coarse fragment content and undulating to hummocky topography. Outwash plains are also associated with deltaic formations in a lacustrine environment. Glaciofluvial deposits are currently being used as a source of aggregate for construction purposes.

3.1.1.4 Morainal (M units)

Morainal sediments are defined as an accumulation of heterogeneous, rubbly material, including angular to sub-rounded blocks of boulders, stones, gravels and sand, silt, and clay that have been transported and deposited by a glacier or ice sheet (Gregorich et al., 2001). The morainal material in the Project area is characterized as a non-stratified mixture, predominantly of moderately fine to moderately coarse textured material. Thinner veneers of till associated with higher elevations are usually coarser in texture, with higher amounts of coarse fragments (BC DOA, 1974). Textures of material vary greatly throughout the till deposits, ranging from clay to loamy sand. The depth of this deposit is variable. Localized bedrock outcrops occur at higher elevations, and control the depth of the till in areas of relatively high relief. Steep to moderate slopes often contain a mixture of both morainal and colluvial material on bedrock control slopes. Morainal deposits are commonly less than 1 m thick in areas of bedrock control. In areas of sediment-controlled topography, deposits are generally much deeper (BC DOA, 1974).

3.1.1.5 Organic Materials (O units)

Organic accumulations are generally found in topographic depressions, within former shallow pond basins, along the margins of active watercourses, and within areas where shallow seepage is forced to the surface. Bogs are ombrotrophic, wet, nutrient-poor (oligotrophic), and usually strongly-acidic peatlands. Bog peat is most commonly formed from sphagnum mosses under closed drainage and conditions of low oxygen saturation. Organic depths can occur in two different thickness classes based on the potential for different soil associations. These classes include veneers (Ov), which contain less than 1 m of organic accumulation, and blankets (Ob), which contain between 1 m to 2 m of organic accumulation.

3.1.1.6 Glaciolacustrine Materials (GL)

Glaciolacustrine deposits are often found in low lying areas once inhabited by lakes formed from glacial meltwater. These glacial lake basins mapped within the Project study vary in texture, ranging from fine textured clay to medium textured silt deposits. Low coarse fragment content and varving are distinguishing characteristics of glaciolacustrine deposits due to the low energy depositional environments. Typical surface expression for glaciolacustrine areas are level to slightly undulating.

3.1.1.7 Eolian (E)

Eolian materials are commonly fine textured sediments deposited by wind. Morphologically expressed as very thin veneers and dune formations, these deposits are commonly associated with wind-swept glaciolacustrine materials within the Project study area. Within the Project study areas, eolian deposits are not common with only localized distribution. These deposits are associated with the Knewstubb glaciolacustrine soil association.

3.1.1.8 Bedrock (R)

Bedrock outcrops occur throughout the Project area and occur more frequently at higher elevations where surficial deposits are generally thinner. These areas often contain complexes that include native bedrock, surficial morainal deposits, and colluvial material (often colluviated surficial deposits and occasionally colluviated bedrock materials). Provincial geology maps indicate that the majority of Mount Davidson comprises Cretaceous basalt, andesite, and related tuffs and breccias (Tipper, 1963).

3.1.2 Soil Associations Descriptions

The designation of soil associations for the Project is based on two adjacent soil survey reports on the study area, namely *Soils of the Nechako – Francois Lake Area Soil Survey* (BC DOA, 1974) and *Soils of the Prince George – McLeod Lake Area* (Dawson, 1989). A soil association is a sequence of soils of about the same age, derived from similar parent material and occurring under similar climatic conditions, but having different characteristics due to variations in relief and drainage. In the soil survey reports, soils were initially stratified based on landform and parent material characteristics. Combined with soil profile development, they formed the basic framework of the soil associations.

The Project study area, including the proposed transmission line and access road, covers multiple landscape features, including: the Nechako Plateau, which extends to an elevation of approximately 760 metres above sea level (masl); the Nechako Range, which consists of predominantly Miocene and Upper Cretaceous igneous volcanic rock; and the Fraser Lake Basin, which has irregular boundaries and borders the Nechako Plateau (BC DOA, 1974). This region is divided into the Engelmann Spruce – Subalpine Fir (ESSF) and Sub-Boreal Spruce (SBS) biogeoclimatic (BGC) zones, based primarily on climatic and elevation

differences. Parent materials and associated bedrock lithology further refine the soil associations, with soil taxonomic classification as the final level of association distinction. The soil associations represent groups of soils that have similar properties and have developed in similar environments. Soil profiles are categorized according to *The Canadian System of Soil Classification* (Soil Classification Working Group, 1998). This hierarchical system has five taxonomic levels: order, great group, subgroup, family, and series. A brief description of the soil orders and great groups mapped in each RSA and LSA is presented in **Table 3.1-1**.

Table 3.1-1: Soil Orders and Great Groups in the Project Study Area

Order[1]	Great Group	Distinguishing Characteristics
Brunisolic Sufficient development to exclude from the Regosolic order, but lacking degrees or kinds of development specified for other orders.	Dystric Brunisol / Eutric Brunisol	Ah<10 cm, pH<5.5 / Ah<10 cm, pH>5.5
Luvisolic Soils that have eluvial (Ae) horizons, and illuvial (Bt) horizons in which silicate clay is the main accumulation product.	Gray Luvisol	Leached elluviated horizon (Ae) overlying a clay-enriched illuviated horizon (Bt).
Organic Composed dominantly of organic materials; most are water-saturated for prolonged periods.	Mesisol / Fibrisol	Dominantly mesic (moderate degradation of organic material). / Dominantly fibric (little degradation of organic material).
Podzolic B horizon accumulation of aluminum and iron with a reddish-brown colour overlying a sharp boundary, with progressively more yellow colour with depth.	Humo-Ferric Podzol	Bf, or thin Bhf plus Bf at least 10 cm thick, with 0.5% to 5% organic carbon and 0.6% aluminum and iron.
Gleysolic Associated with periods of water inundation of the soil. Expressed as mottling or reduced gleying features in the soil.	Gleysol	Evidence of strong mottling (oxidation) or gleyed (reduced) features within the upper 50 cm of the soil profile combined with reduced colors in the soil matrix.
Regosolic Development too weak to meet requirements of any other order.	Regosol	Ah<10 cm, Bm absent or <5 cm.

Source: [1]Soil Classification Working Group, 1998

3.1.3 Description of Soil Units

Provincial soil associations are defined in the adjacent soils survey reports. Localized conditions may exist that differ slightly due to variations in parent materials or local climatic conditions. Based on site-specific information collected in the Project study areas, the following soil associations are associated with the Project.

3.1.3.1 Soil Associations

Alix (AIX)

Alix soils are developed in gravelly glaciofluvial deposits occurring on a range of landforms such as outwash plains, terraces, deltas, and valley trains. The soil parent materials are well sorted and very coarse textured, with high amounts of coarse fragments. They are variable in thickness, and often overlay morainal deposits. The elevation range of this association is between 670 masl and 1,070 masl. The Alix association is rapidly drained, and its typical soil subgroup is Orthic Dystric Brunisol.

Barrett (BRT)

The Barrett soils consists of medium to moderately fine- to moderately coarse-textured soils developed on thick morainal deposits up to 100 m in thickness. This basal till is very compacted and has moderate amounts of coarse fragments. These soils are characterized by undulating to rolling topography, and can have drumlin features. The elevation range of this association is between 760 masl and 1,070 masl. The normal soil subgroup classification of these soils is Orthic Gray Luvisol. Gleyed and gleysolic variants are common due to climatically or edaphically wetter locations.

Berman (BRM)

Berman soils are developed from moderately fine, silty glaciolacustrine deposits in the Vanderhoof area lake basins that formed during ice retreat from the last glaciation. These well-drained soils occur on level to gently undulating and rolling topography, and occur between elevations of 670 masl and 760 masl. The typical soil subgroup in the Berman association is Orthic Gray Luvisol; however, gleyed and gleysolic variants are common in climatically or edaphically wetter locations.

Chief (CIF)

Chief soils are very poorly drained organic soils that have developed in minerotrophic areas within a variety of surficial deposits, including morainal, glaciofluvial, and glaciolacustrine. These soils are composed of sedges, reeds, and other hydrophytic vegetation associated with fen systems, and exhibit variable degrees of decomposition and variable depth. Chief soils often connect with drainage channels and open water bodies, and may contain little to no forest vegetation. Typical soil classification of the Chief soil association is Typic Fibrisols and Mesisols; however, shallower accumulations are also common.

Deserters (DES)

Deserters soils are derived from thick morainal deposits that are moderately fine to coarse textured (based on variations in the morainal parent material) with moderate amounts of coarse fragments. Deserters soils are found in association with both Barrett and Twain soils, and are found in between the two in terms of elevation. The elevation range for the Deserters Association is between 900 masl and 1,220 masl. These soils are characterized by a wide array of topographic landforms; however, rolling and drumlinized topography is most common. These soils differ from Barrett soils in that the main soil subgroup for the Deserters Association is Brunisolic Gray Luvisol, which occurs with minor inclusions of Orthic Gray Luvisols and Humo-Ferric Podzols. The soils are well drained, but gleyed and gleysolic variants are common in climatically or edaphically wetter locations.

Knewstubb (KNE)

Knewstubb soils have developed on medium-textured glaciolacustrine deposits that commonly overlay sandy outwash and esker material. Topography for these soils is variable, ranging from moderately rolling to strongly sloping. The elevation range for these soils is 760 masl to 975 masl. Knewstubb soils are well drained, with fine sandy loam to silt loam being the most common texture. Typical soil subgroups for the Knewstubb association include both Orthic Dystric Brunisols and Eutric Brunisols, with the pH of the B horizon being the distinguishing factor between these two. These soils are limited in area and predominantly occur along the proposed transmission line and access road where they intersect the Knewstubb Lake basin. Knewstubb soils were originally identified in the adjacent soil survey to the area east of Knewstubb Lake (BC DOA, 1974). Field reconnaissance and air photo interpretation suggests that the soils of the Knewstubb association contain areas with very thin and discontinuous eolian veneers present over the underlying glaciolacustrine deposits. These wind-blown deposits are the re-distribution of the glaciolacustrine materials and are not considered a separate soil association.

Moxley (MXY)

Moxley soils are very poorly drained organic soils that have developed in ombrotrophic areas, and are found within multiple surficial material deposits. Moxley soils are comprised mostly of sphagnum and other mosses and vegetation associated with poor nutrient regimes, including a forest cover of mainly black spruce and lodgepole pine. These soils are characterized by level to gently undulating topography, and are found in depressional areas not connected to groundwater flow. Depths of these soils can vary from less than 1 m to over 5 m. Typical soil subgroups for the Moxley association include Mesic Fibrisols and Typic Mesisols, with shallower Terric subgroups being common.

Nechako (NHK)

Nechako soils are variable-textured soils that have developed on valley bottoms and terraces within post-glacial fluvial environments. These soils are characterized by undulating to moderately sloping topography, and range between 640 masl and 760 masl. Typically, a finer textured cap less than 1 m thick overlies coarser textured deposits, allowing for well-drained soils. Orthic Gray Luvisols are the most common soil found within this association, with gleyed and gleysolic variants common in climatically or edaphically wetter locations.

Nithi (NIT)

Nithi soils are derived from sandy Holocene deposits along fluvial channels, often expressed as river terraces and outwash plains in wide river valleys. These rapidly drained soils are very coarse-textured, often with a thin cap of finer-textured material and low coarse fragment content. These soils are characterized by level to gently undulating and rolling topography, and they occur at elevations ranging from 670 masl to 760 masl. Typical soil subgroups expressed in the Nithi Association include Eluviated Dystric Brunisol and Eluviated Eutric Brunisol, as well as inclusions of Orthic Gray Luvisol. Gleyed and gleysolic variants are common in climatically or edaphically wetter locations.

Ormond (ORM)

Ormond soils consist of coarse-textured soils developed on thin colluvial material overlying bedrock. These soils are well- to rapidly-drained, with common textures ranging from sandy loam to loamy sand, with moderate to high levels of coarse fragments. These soils are mapped at elevations ranging from 670 masl to 1,070 masl, and can be found in complexes with the Twain soil association. These soils are characterized by moderately to steeply sloping topography. Typical soil subgroups vary depending on both topography and aspect, with Orthic Dystric Brunisols and Lithic Regosols being the most common.

Pinkut (PKH)

Pinkut soils are derived from colluvial sediments overlying glacial till on moderately to very steep slopes. These moderately fine-to coarse-textured soils are similar in nature to the original till material, and are usually shallow soils found in complexes with morainal material. These soils range between 760 masl and 1,070 masl in areas of higher relief. This association contains two common soil subgroups, Eutric and Dystric Brunisols, with the pH of the B horizon being the distinguishing factor.

Twain (TWA)

Twain soils are described as well-drained soils developed at higher elevations on medium to moderately fine-textured morainal deposits, with moderate to high amounts of coarse

fragments. Local conditions suggest that coarser-textured soils are more common within the Project area. The Twain association is similar to the Deserters and Barrett soil associations, but occurs at higher elevations, ranging from 1,070 masl to 1,370 masl. They are characterized by higher relief topography, but can vary between steeply sloping to gently rolling. Twain soils are mostly thin, bedrock-controlled soils, and are often found in complexes with colluviated soils in areas of high relief. Typical soil subgroups for the Twain association include Orthic Humo-Ferric Podzol, but Orthic and Eluviated Dystric Brunisols, and Brunisolic Gray Luvisols commonly occur. Gleyed and gleysolic variants are common in climatically or edaphically wetter locations.

Vanderhoof (VAN)

Vanderhoof soils are well-drained, fine-textured soils that have developed on glaciolacustrine clay sediments deposited in the Vanderhoof Lake basin during the last glaciation. These deposits vary in thickness, ranging from 1 m to 80 m, with very little to no coarse fragment content. These soils are characterized by level to gently undulating topography, and occur between 670 masl and 760 masl. Common textures for these soils include silty clay loam to silty clay, and the most common subgroup is Orthic Gray Luvisol. Gleyed variants and gleysolic soils in this soil association are common, due to the finer texture of the material and their presence in low-lying areas.

Table 3.1-2 presents a summary of the soil associations identified within the Project study area, including the mine site and all linear features.

Table 3.1-2: Summary of Soil Associations in the Project Study Area

Soil Association	Dominant Order	Subgroups	Parent Material
Alix	Brunisol	Orthic Dystric Brunisol	Glaciofluvial
Barrett	Luvisol	Orthic Gray Luvisol Gleyed Orthic Gray Luvisol Brunisolic Gray Luvisol	Morainal (Basal Till)
Berman	Luvisol	Orthic Gray Luvisol Gleyed Orthic Gray Luvisol Gleysols	Glaciolacustrine
Chief	Mesisol	Typic Mesisol Terric Mesisol	Organics (FNPT)
Deserters	Luvisol	Brunisolic Gray Luvisol Gleyed Brunisolic Gray Luvisol Orthic Gray Luvisol	Morainal (Basal Till)
Knewstubb	Brunisol	Orthic Dystric Brunisol Orthic Eutric Brunisol	Glaciolacustrine
Moxley	Mesisol	Typic Mesisol Terric Mesisol	Organics (SPPT)

Table continues…

Soil Association	Dominant Order	Subgroups	Parent Material
Nechako	Luvisol	Orthic Gray Luvisol Gleyed Gray Luvisol	Fluvial
Nithi	Brunisol	Orthic Dystric Brunisol Orthic Eutric Brunisol	Fluvial
Ormond	Brunisol	Orthic Dystric Brunisol Lithic Regosol	Colluvium/Bedrock
Pinkut	Brunisol	Orthic Eutric Brunisol Orthic Dystric Brunisol	Colluvium/till
Twain	Podzol	Orthic Humo-Ferric Podzol Brunisolic Gray Luvisol Gleyed Orthic Humo-Ferric Podzol	Morainal (Basal Till)
Vanderhoof	Luvisol	Orthic Gray Luvisol Gleyed Orthic Gray Luvisol Gleysols	Glaciolacustrine
Non-Soil Units			
Disturbed Land	DL	-	Anthropogenically Modified Parent Materials
Exposed Bedrock	R	-	Local Bedrock Exposed In Situ
Water	LA	-	Open Water Bodies (Lakes, Ponds, Streams)

3.1.4 Reclamation Suitability of Soils

Each SMU was rated for reclamation suitability as *Good*, *Fair*, *Poor*, or *Unsuitable*. The system does not rate organic soils, so the rating category *Organic* was applied to these polygons. Disturbed land, water, and bedrock units were not assigned a reclamation suitability rating, and are identified as NR. This rating was applied to the upper lift or the depth of root zones of the representative soil profiles. Not all soil associations listed in the Project study areas were sampled for laboratory analysis. For these non-sampled associations, reclamation suitability ratings were based on data for the association provided in the British Columbia Soil Information System (BCSIS) (Agricultural and Agri-Food Canada, 2013). Results presenting the distribution of soils according to their reclamation suitability ratings are presented in **Sections 3.2** to **3.10**.

Table 3.1-3 outlines the reclamation suitability rating for each soil association identified within the Project study area, and the soil properties that determine the suitability rating.

Table 3.1-3: Reclamation Suitability Ratings for Soil Associations

Soil Inspection Site	Soil Association	Reclamation Suitability Rating	Main Limitations in the Rooting Zone
BW-221A	Alix	Fair	pH, Coarse Fragment Content
-	Barrett	Good	-
-	Berman	Fair	pH, $CaCO_3$ equivalent
-	Chief	Organic	Organic
BW-117A, BW-12A, SC2	Deserters	Fair	pH, Coarse Fragment Content
-	Knewstubb	Good	Texture
-	Moxley	Organic	Organic
-	Nechako	Fair	Texture, Consistency
-	Nithi	Good	-
-	Ormond	Fair	Coarse Fragment Content
-	Pinkut	Fair	Coarse Fragment Content
BW-35A, BW-24A, BW-20A	Twain	Poor	pH, Coarse Fragment Content
-	Vanderhoof	Good	-

Note: (-) indicates soil associations without site-specific data and derived from provincial data sources.

3.2 Project Regional Study Area

3.2.1 Introduction

The RSA is defined as one continuous boundary surrounding all the proposed features of the Project including the mine site, transmission line, and access road. The boundaries for the RSA are defined as 2,500 m from the mine footprint LSA, and approximately 400 m from the linear features LSA. The RSA is defined to capture all of the direct effects of the Project and the majority of the expected indirect effects. As it is expected that direct effects from the Project will not extend beyond 500 m of the proposed footprint (LSA), the RSA provides a suitable definition of regional terrestrial conditions and support the identification of potential indirect Project effects.

3.2.2 Terrain Units in the RSA

In general, the terrain and landscape of the RSA is characterized as a complex landscape comprised of bedrock-controlled and sediment-controlled slopes, ranging from gently undulating to moderately steep and very steep in the western portion of the RSA, to sediment-controlled rolling and undulating slopes in the eastern portion. Thin, moderately fine to coarse textured morainal and colluvial deposits are identified overlying bedrock on the peak and flanks of Mount Davidson. Thicker morainal deposits occur in lower elevations, along with widespread glaciofluvial outwash plains, active fluvial channels, broad glaciolacustral plains and organic accumulations. Within the RSA, morainal parent material dominates, occupying approximately 54% of the area (**Table 3.2-1**). Glaciofluvial deposits are concentrated in an area of outwash adjacent to Davidson Creek, but occur as smaller

polygons throughout the RSA. The glaciofluvial material accounts for approximately 18% of the RSA, occurring as both level plains and terraces, to hummocky and ridged upland topography including multiple esker features. Glaciolacustrine sediments occur through the central and eastern portions of the RSA and are localized to former glacial lake basins (Vanderhoof Lake basin) as well as other smaller basins including those associated with Tatelkus and Knewstubb Lakes. These sediments account for 8% of the RSA and are associated with eolian deposits (1% of RSA) near Knewstubb Lake. Colluvial materials account for 5% of the RSA, and occur on very steep to moderately steep slopes often occurring as complexes associated with other surficial materials, and bedrock outcrops at higher elevations. Other areas of colluvial material are identified in association with incised channels from either fluvial or glaciofluvial processes. Fluvial areas occupying valley bottoms and terraces account for 3% of the area. Organic deposits account for 8%, and occur throughout the RSA. Bedrock outcrops account for approximately 1% of the RSA, and occur predominantly in the western portion of the RSA for both the Nechako Range and Mount Davidson at higher elevations and within areas of high relief, often in complexes with colluvial and morainal materials. Anthropogenic areas or existing disturbances account for 1% of the RSA, including the existing access roads, borrow areas, and site and mine exploration areas. Open water bodies account for 1% of the total area.

Table 3.2-1: Baseline Terrain Distribution in the Project RSA

Terrain Unit	Description	Total Area of RSA (ha)[1]	Percent of RSA (%)
M	Undifferentiated Till	16,516.8	53.9
FG	Glaciofluvial sediments	5,366.5	17.5
O	Organic accumulations (bog and fen)	2,532.1	8.3
LG	Glaciolacustrine	2,401.9	7.8
C	Colluvium (gravity-modified slopes)	1,543.7	5.0
F	Alluvium (inactive fluvial sediments)	909.5	3.0
E	Eolian	424.2	1.4
A	Anthropogenic	241.1	0.8
D	In-situ weathered bedrock	82.4	0.3
U	Undifferentiated material	3.7	<0.1
R	Bedrock outcrops	221.6	0.7
LA	Water	405.1	1.3
Total		**30,648.6**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type.

3.2.3 Soil Units in the RSA

Within the RSA, soil associations related to morainal parent material are dominant. This includes the high elevation bedrock-controlled Twain association, mid-elevation Deserters, and lower elevation sediment-controlled Barrett soil associations, which occupy 13%, 36%, and 5% of the RSA, respectively. The Alix soil association, associated with glaciofluvial parent materials, is the second most abundant soil association within the RSA at 18%. The

soil associations developing on glaciolacustrine sediments; including Berman, Vanderhoof, and Knewstubb, account for 9% of the RSA largely contained within the access road and transmission line corridors. Colluvial Ormond and Pinkut soil associations account for 5% of the RSA. These colluviated soil associations are localized to steepened fluvial channel banks and areas of bedrock exposures. Organic soils (Chief and Moxley) account for 8% of the RSA, while soils derived from fluvial sediments (Nechako and Nithi) account for 3%. Bedrock outcrops account for less than 1%, and occur more commonly within the western portion of the RSA near the mine site as well as where the linear features cross the Nechako Range, where rugged slopes are more common. Existing disturbed areas account for 1% of the RSA, and are localized to access roads borrow areas, and exploration areas within the mine site. The map showing the spatial distribution of soil associations within the mine site RSA is included in **Annex 4**. **Table 3.2-2** presents the extent of soil associations throughout the Project RSA.

Table 3.2-2: Soil Associations in the Project RSA

Soil Association Code	Soil Association Name	Total Area of RSA (ha)[1]	Percent of RSA (%)
DES	Deserters	11,133.5	36.4
AIX	Alix	5,370.2	17.5
TWA	Twain	3,939.0	12.9
CIF	Chief	2,246.1	7.3
BRM	Berman	1,776.7	5.8
BRT	Barrett	1,521.2	4.9
ORM	Ormond	1,464.6	4.8
NIT	Nithi	715.3	2.3
VAN	Vanderhoof	538.6	1.8
KNE	Knewstubb	510.7	1.6
MXY	Moxley	291.5	1.0
NHK	Nechako	194.2	0.6
PIK	Pinkut	79.2	0.3
R	Bedrock outcrops	221.6	0.7
DL	Disturbed land	241.1	0.8
LA	Water	405.1	1.3
Total		**30,648.6**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type.

3.2.4 Reclamation Suitability of Soils within the Mine Site RSA

The most common rating for reclamation suitability within the RSA is *Fair* (66%), owing to the high percentage of Deserters and Alix soil associations with low pH values and higher coarse fragment content. Those soil associations rated as *Poor* account for 14% of the total RSA. *Good* ratings account for 9% of the RSA. *Unsuitable* ratings account for 1% of the RSA and are directly associated with esker ridges. This material is not suitable for reclamation due to the high coarse fragment content. *Organic* ratings apply to 8% of the

RSA, while *NR* ratings account for 3%. **Table 3.2-3** presents the distribution of reclamation suitability ratings identified in the RSA.

The soils in the Project study areas contain high levels of acidity, with background pH values of approximately four. Reclamation suitability ratings were adjusted to reflect the natural state of these soils and the high tolerance of acidity by the natural vegetation in the area.

Table 3.2-3: Summary of Reclamation Suitability Ratings of the Project RSA

Root Zone	Total Area of RSA (ha)[1]	Percent of RSA (%)
Good	1,800.2	5.9
Good (Fair)	620.9	2.0
Good (Organic)	401.6	1.3
Fair	15,132.7	49.4
Fair (Good)	2,378.8	7.8
Fair (Poor)	589.2	1.9
Fair (Organic)	1,709.0	5.6
Fair (NR)	445.2	1.5
Poor	2,411.1	7.9
Poor (Good)	46.8	0.2
Poor (Fair)	1,331.8	4.3
Poor (Organic)	96.9	0.3
Poor (NR)	335.8	1.1
Unsuitable	264.3	0.9
Unsuitable (Organic)	5.8	<0.1
Organic	1,481.2	4.8
Organic (Good)	74.7	0.2
Organic (Fair)	765.8	2.5
Organic (Poor)	5.0	<0.1
Organic (NR)	13.7	<0.1
NR	636.3	2.1
NR (Fair)	49.2	0.2
NR (Poor)	48.3	0.2
NR (Organic)	4.3	<0.1
Total	**30,648.6**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type. NR = Not Rated.

3.2.5 Terrain Stability Assessment of the RSA

As part of the baseline assessment, terrain stability conditions of the local parent materials were assessed. Based on the delineation of terrain polygons through interpretation of LiDAR imagery, aerial photography, and satellite imagery, terrain stability ratings were applied based on the interpreted parent material, slope gradient, moisture conditions, and geomorphic processes (**Annex 6**). Generally, the majority of the RSA is rated as stable; however, the western portion of the RSA is situated in an area of hummocky to very steep

terrain with common bedrock outcrops. This area is expected to be prone to shallow mass movements of the surficial material. The deep fluvial channels that dissect the RSA are generally over-steepened, resulting in a high potential for accelerated erosion and instability.

Within the western and central portions of the RSA, bedrock-controlled slopes are common. This landscape is generally prone to small-scale, shallow gravitational movement within the surficial material. Localized areas of seepage and soil creep processes result in elevated terrain stability ratings (Class II and III); however, the overall rating of stable still applies. This rating is based on the potential for surface erosion to occur following disturbance.

Table 3.2-4: Terrain Stability Ratings of the Project RSA

Terrain Stability Class Rating	Terrain Stability Descriptor	Total Area of RSA (ha)[1]	Percent of RSA (%)
I	Stable	6,952.9	22.7
II	Stable	18,322.0	59.8
III	Stable	3,181.7	10.4
IV	Potentially Unstable	1,438.0	4.7
V	Unstable	122.0	0.4
NR	NR	632.0	2.1
Total		**30,648.6**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type. NR = Not Rated.

3.2.6 Summary of Terrain and Soil Baseline Conditions for the RSA

The baseline surficial geology of the RSA is dominated by both bedrock- and sediment-controlled, moderately fine to coarse textured morainal deposits, accounting for 54% of the area. Approximately 18% of the RSA is classified as glaciofluvial sediments, with another 8% consisting of glaciolacustrine deposits. Approximately 3% of the RSA is composed of fluvial deposits. These deposits are interspersed throughout the RSA, concentrated around the Davidson Creek drainage system. Bedrock-controlled slopes and relatively shallow surficial deposits occupy the western portion of the RSA near the mine site, where the landscape is dominated by hummocky to mountainous terrain, with steeper slope gradients identified. Colluvial deposits are more common in this area and account for 5%, with bedrock outcrops identified in less than 1% of the RSA. Approximately 8% of the RSA is comprised of organic accumulations.

The mine site RSA is dominated by mineral soils, mostly of the Brunisolic, Luvisolic, and Podzolic soil orders. Deserters, Alix, and Twain are the dominant soil associations. The Chief and Moxley organic soil associations occupy approximately 8% of the RSA. The transitions from a colluvial parent material to morainal or glaciofluvial-derived SMUs commonly occur over short distances and with little change in relief. As such, SMUs may contain a combination of contrasting soil conditions. Open water bodies account for less than 1% in the RSA and are associated with organic soils.

When identifying the dominant reclamation suitability rating, the *Fair* rating is the most dominant rating within the RSA at 66%. This corresponds to the high percentage of Deserters, Alix, and Berman soil associations mapped within the RSA. *Poor* ratings account for 14% of the RSA associated with the Twain soil association, and *Good* ratings account for 9% of the RSA. *Unsuitable* ratings account for 1% of the RSA defined as mostly esker material. *Organic* ratings apply to 8% of the RSA, while *NR* ratings account for 3%.

Terrain stability within the RSA is generally rated as stable: Class I, II, and III stability ratings are identified for 93% of the RSA. Potentially unstable Class IV slopes occupy 5% of the RSA, while unstable Class V slopes associated with steep slopes and over-steepened fluvial channels account for less than 1% of the RSA.

3.3 Mine Site Study Area

3.3.1 Introduction

The proposed mine site is located on the northeastern slopes of Mount Davidson in central British Columbia south of Vanderhoof. Access to the mine site follows the Kluskus Forestry Service Road (FSR). The mine site LSA is a 500 m buffer surrounding all proposed facilities at the mine site including the open pit and all ancillary mine components.

3.3.2 Terrain Units of the Mine Site LSA

Overall, the LSA is primarily comprised of morainal deposits (55%) (both bedrock- and sediment-controlled) (**Table 3.3-1**). The eastern portion of the LSA occurs mostly on lower relief topography, including sediment-controlled, medium to moderately fine to coarse textured morainal deposits, and localized glaciofluvial deposits (21%); fluvial deposits are also identified. One major fluvial channel is present in the LSA (Davidson Creek), characterized by steeper slopes and colluvium in the western portion of the LSA, and terraces and outwash plains in the eastern portion.

The morainal material ranges from less than 1 m to greater than 6 m in depth (based on depth of observed excavations during field survey). Colluviated till, which shares similar properties with in situ morainal deposits, is common on steeper slopes. Localized areas of bedrock outcrops occur in the western portion of the LSA. These areas are associated with the steeper slopes, and may contain veneers of morainal or colluvial deposits. In general, seepage and gully development is limited to those areas where bedrock approaches the surface.

Colluvial deposits account for 11% of the LSA, primarily on steep slopes associated with over-steepened fluvial channels or areas with higher relief and bedrock outcrops. Complexes containing both unaltered parent materials (i.e., glaciofluvial) along with colluviated material occur throughout these areas.

Table 3.3-1: Baseline Terrain Distribution in the Mine Site LSA

Terrain Unit	Description	Total Area of LSA (ha)[1]	Percent of LSA (%)
M	Undifferentiated Till	3,351.2	54.7
FG	Glaciofluvial sediments	1,259.3	20.6
C	Colluvium (gravity-modified slopes)	641.5	10.5
F	Alluvium (inactive fluvial sediments)	413.6	6.8
O	Organic accumulations (bog and fen)	261.7	4.3
R	Bedrock outcrops	46.1	0.8
A	Anthropogenic	136.6	2.2
LA	Water	12.8	0.2
Total		**6,122.8**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type.

Fluvial sediments occur in valley bottom and terrace positions and occupy approximately 7% of the LSA. Organic accumulations and bedrock outcrops have a limited extent in the LSA, occupying 4% and less than 1%, respectively. These organic accumulations are localized deposits, generally occurring in valley bottom positions and depressional sites.

The figure presenting the distribution of terrain units within the mine site LSA is included in **Annex 3**. The figure is colour-coded based on the dominant surficial parent material.

3.3.3 Distribution of Soil Units in the Mine Site LSA

In general, the LSA is composed of well- to imperfectly-drained Podzols, Brunisols, and Luvisols occurring on medium to moderately coarse-textured parent materials. In areas of wetter edaphic conditions, gleyed and gleysolic variants of these soil types are observed. The Twain soil association (Orthic Humo-Ferric Podzol on morainal deposits) is the most common association identified within the LSA, at 38%. Deserters and Barrett are also found on the same type of morainal deposits, but occur at lower elevations and from complexes with different associations. Deserters soils are found at mid-elevations, while the Barrett association are found at lower elevations.

Alix soil associations are the second most prevalent, at 21% of the LSA. The Alix association is defined as Brunisols occurring on glaciofluvial parent materials. This association is found in conjunction with the Nithi association, which occurs on more recent fluvial deposits. The Nithi association accounts for 7% of the LSA, and is localized to areas adjacent to Davidson Creek.

For colluvial soil associations, Ormond and Pinkut combined account for 11% of the LSA. The Ormond soil association is associated with thin, bedrock-controlled parent materials, and is mapped on high elevation, steep slopes, often mapped in association with Twain association and/or bedrock outcrops. The Pinkut association is derived from morainal materials and shares many of the characteristics of other soil associations occurring on the same parent materials.

Soils of the organic Chief and Moxley associations account for 4% of the LSA, and are found in low-lying and depressional areas. The Chief association is associated with fen environments that are higher in nutrients and involve ground water movement, while the Moxley association is found in rain-fed bog soils with lower nutrient regimes.

Variants of the modal soil sub-group identified as the dominant soil type for the soil association should be considered inclusions in soil polygons dependent on local microsite and edaphic conditions. In lower and wetter conditions, gleyed variants can be expected, indicated by the presence of mottling and gleying. These soils are transitional to the organic soils in the wettest depressions. The distribution of soil associations in the mine site LSA is presented in **Table 3.3-2**.

The baseline soil map of the LSA is presented in **Annex 4**. Colours on the baseline soil map indicate the dominant soil association of the polygon. All map units with the same dominant soil series or variant are displayed as the same colour.

Table 3.3-2: Soil Associations in the Mine Site LSA

Soil Association Code	Soil Association Name	Total Area of LSA (ha)[1]	Percent of LSA (%)
TWA	Twain	2,325.1	38.0
AIX	Alix	1,259.3	20.6
DES	Deserters	1,002.7	14.1
ORM	Ormond	583.1	9.5
NIT	Nithi	413.6	6.8
CIF	Chief	214.3	3.5
PIK	Pinkut	58.4	1.0
MXY	Moxley	47.5	0.8
BRT	Barrett	23.4	0.4
R	Bedrock outcrops	46.1	0.8
DL	Disturbed land	136.6	2.2
LA	Water	12.8	0.2
Total		**6,122.8**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type

3.3.4 Reclamation Suitability of Soils within the Mine Site LSA

The suitability of the soil located in the LSA for reclamation purposes is predominantly rated as *Fair* (46%). This rating is determined by the pH of the soil, prevalence of coarse-textured sediment, and coarse fragment content within the root zone, occurring in the Ormond, Alix, and Deserters soil associations. Associations with *Poor* ratings (Twain soil association) account for 41% of the LSA. The coarser-textured sediments and higher coarse fragment content of these soil associations are also commonly associated with low pH levels and low moisture holding capacity, which further contributes to their *Poor* reclamation suitability rating.

Barrett and Nithi associations are rated as *Good* for reclamation suitability, with no soil limitations. This association is generally finer in texture, with lower coarse fragment content in the upper horizons; however, they are not abundant within the LSA, accounting for approximately 8% of the LSA. Soils from existing disturbance were *NR*, and account for approximately 1% of the LSA. **Table 3.3-3** presents the distribution of reclamation suitability ratings identified in the LSA.

Where the dominant class represents 40% to 60% of the unit, the dominant suitability rating is given and the significant rating(s) are shown in brackets (e.g., *Fair* (*Organic*)). **Appendix5** presents the figure showing the dominant reclamation suitability rating for soil associations within the mine site LSA.

Table 3.3-3: Summary of Reclamation Suitability Ratings in the Mine Site LSA

Root Zone	Total Area of LSA (ha)[1]	Percent of LSA (%)
Good	141.8	2.3
Good (Fair)	101.7	1.7
Good (Organic)	220.4	3.6
Fair	1,889.5	30.9
Fair (Good)	98.6	1.6
Fair (Poor)	466.1	7.6
Fair (Organic)	315.0	5.1
Fair (NR)	36.6	0.6
Poor	1,028.4	16.8
Poor (Fair)	895.3	14.6
Poor (Organic)	432.4	7.1
Poor (NR)	124.8	2.0
Unsuitable	190.3	3.1
Organic (Fair)	56.2	0.9
Organic	87.4	1.4
NR	15.2	0.2
NR (Poor)	23.2	0.4
Total	**6,122.8**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type. NR = Not Rated.

3.3.5 Total Metals Analysis

A total of 18 samples from eight inspection locations were analyzed for baseline soil metal elements. The litter and organic layers were used for this analysis, as they are the topmost soil layer, and potentially affected by deposition of metals. They are also the source for the introduction of the elements into the food chain. Samples from both the A and B horizons were analyzed to determine assumed natural soil concentrations. The samples were dried and sieved through a 2 mm sieve to achieve homogeneity. Values were then compared to the CCME (2007) and BC *Contaminated Sites Regulation* (BC *CSR*) (Government of BC, 1996) guidelines for samples that may exceed levels of contamination.

The results of the trace metal analysis indicated that two sites had elevated arsenic levels higher in concentration than the guideline concentrations for soil identified in the CEQG for Residential/Parkland and Industrial areas (CCME, 2007). These guidelines indicate that 12 milligrams per kilogram (mg/kg) is the threshold for arsenic concentration in soil. Concentrations from three soil samples at two inspection locations, BW-20A and BW-221A, showed background concentrations of 14 mg/kg of arsenic in the A horizon and 45 mg/kg of arsenic in the A horizon, respectively. Results are presented in **Table 3.3-4**. Site BW-20A is classified as on Orthic Humic Gleysol occurring on morainal material. This site is subhydric indicating moisture is close to the surface and seepage is present within the area. Site BW-221A was located near the existing access road and Davidson Creek. The soil at this location site is classified as a Rego Humic Gleysol occurring on fluvial deposits adjacent to Davidson Creek.

Table 3.3-4: Total Elemental Analysis of Soils Sampled within the Mine Site LSA

Element	Criteria	BC *CSR*[1] Urban Park	BC *CSR* Industrial	CCME[1] Guideline Residential/Parkland	CCME Industrial	Range from 2012 Analysis	No. of Sample Locations from 2012 Exceeding Guidelines (n=20)[2]	Soil Inspection Location
Antimony	mg/kg	20	40	20	40	<0.5	0	-
Arsenic[3]	mg/kg	50	100	**12**	**12**	**0.5 to 45.0**	**3**	**BW-20A, BW- 221A**
Barium	mg/kg	1,000	1,500	500	2,000	16 to 131	0	-
Beryllium	mg/kg	4	8	4	8	<0.1 to 1.4	0	-
Cadmium	mg/kg	70	500	10	22	<0.1 to 2.0	0	-
Chromium	mg/kg	300	700	64	87	< 0.5 to 19.1	0	-
Cobalt	mg/kg	50	300	50	300	< 0.5 to 9.6	0	-
Copper	mg/kg	150	250	63	91	1.6 to 16.1	0	-
Lead	mg/kg	1,000	2,000	140	600	4.8 to 20.5	0	-
Mercury	mg/kg	100	150	6.6	50	<0.5	0	-
Molybdenum	mg/kg	10	40	10	40	<0.5 to 3.1	0	-
Nickel	mg/kg	100	500	50	50	0.6 to 11.9	0	-
Selenium	mg/kg	3	10	1	2.9	<0.5	0	-
Silver	mg/kg	20	40	20	40	<0.1 to 0.7	0	-
Thallium	mg/kg	-	-	1	1	<0.5	0	-
Tin	mg/kg	50	300	50	300	<0.5 to 11.8	0	-
Vanadium	mg/kg	200	-	130	130	0.9 to 72.4	0	-
Zinc	mg/kg	450	600	200	360	5.6 to 114	0	-

Notes: [1] BC *CSR* = British Columbia *Contaminated Sites Regulation*; CCME = Canadian Council of Ministers of the Environment
[2] Number of locations (n=) refers to the number of inspection locations from which samples were taken for metal analysis
[3] Bold indicates values which exceed CCME Residential/Parkland guidelines

3.3.6 Terrain Stability Assessment of the Mine Site LSA

Based on the terrain stability mapping presented in **Table 3.3-5**, approximately 84% of the LSA is rated as stable (Class I and II). Those polygons with a Class III rating are considered stable; however, stability issues may develop if surface or drainage conditions are considerably altered. Class III terrain stability units occupy 9% of the LSA. Potentially unstable and unstable terrain accounts for 5% of the LSA. Unstable terrain, which currently contains active instability, occupies less than 1% of the LSA, and is generally located along over-steepened river banks where the slope is actively being undercut by fluvial action, or very steep slopes where previous stability issues were identified. The summary of terrain stability ratings for the LSA is included in **Annex 6**.

Table 3.3-5: Terrain Stability Ratings in the Mine Site LSA

Terrain Stability Class Rating	Terrain Stability Descriptor	Total Area of LSA (ha)[1]	Percent of LSA (%)
I	Stable	535.5	8.7
II	Stable	4,605.7	75.2
III	Stable	551.0	9.0
IV	Potentially Unstable	273.5	4.5
V	Unstable	7.8	0.1
NR	NR	149.3	2.4
Total		**6,122.8**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type. NR = Not Rated

3.3.7 Summary of Terrain and Soil Baseline Conditions for Mine Site LSA

The baseline surficial geology of the LSA is dominated by morainal and glaciofluvial sediments, accounting for 75% of the area. Colluvial materials account for 11%, and active and inactive fluvial material is 7% of the LSA. Steeply-incised channels running west to east through the LSA contain coarse-textured terraces and high relief slopes account for the majority of colluvial deposits for the LSA at 11%. Organic deposits account for minor areas in the LSA (4%), and are located in well-defined depressional areas.

The dominant soil associations in the LSA are Twain, Alix, Deserters, and Ormond. These soil associations account for 82% of the LSA. Brunisolic, Luvisolic and Podzolic are the modal soil orders associated with the soil associations. Minor areas of the Nithi soil association are found in association with fluvial channels and terraces, and account for 7% of the LSA. The LSA is occupied by approximately 4% of organic Chief and Moxley associations surrounding the local water bodies.

Reclamation suitability of the soils within the LSA is considered fair to poor. As a result of the low soil reaction (pH), coarse textures of the material, and high coarse fragment content morainal and glaciofluvial sediments are rated as fair. The soils in the LSA contain high levels

of acidity, with pH values of approximately 4. Reclamation suitability was adjusted to reflect the natural state of these soils and the tolerances of the natural vegetation of the area.

Terrain stability in the LSA is generally rated as stable, with Class I and II slopes occupying 84% of the LSA. Potentially unstable and unstable terrain combined occupies 5% of the LSA, and are commonly associated with over-steepened fluvial channels and high relief areas. This rating is based on the high slope gradients, loose nature of the parent material, and presence of existing instability.

3.4 Water Pipeline Study Area

3.4.1 Introduction

The water pipeline study area extends from the mine site east towards Tatelkuz Lake. The right-of-way (ROW) for the water pipeline is 20 m, while the LSA for the feature is 320 m (150 m on either side of the footprint, i.e. ROW).

3.4.2 Distribution of Terrain Units in the Water Pipeline LSA

Overall, the LSA is comprised mainly of sediment-controlled morainal deposits and glaciofluvial sediments (**Table 3.4-1**). These deposits account for 56% and 35% of the LSA, respectively. Organic accumulations account for 7% of the LSA and are interspersed throughout the study area, occurring in valley bottom positions and depressional sites. Defined areas of fluvial plains and terraces that occur throughout the study area account for 2% of the LSA.

The figure presenting the distribution of terrain units the proposed water pipeline LSA is included in **Annex 3**. This figure is colour-coded based on the dominant parent material.

Table 3.4-1: Baseline Terrain Distribution in the Water Pipeline LSA

Terrain Unit	Description	Total Area of LSA (ha)[1]	Percent of LSA (%)
M	Undifferentiated till	209.8	56.3
FG	Glaciofluvial sediments	131.7	35.4
O	Organic accumulations (bog and fen)	24.7	6.6
F	Alluvium (inactive fluvial sediments)	5.5	1.5
LA	Water	0.7	0.2
Total		**372.4**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type.

3.4.3 Distribution of Soil Units in the Water Pipeline LSA

Deserters is the most dominant soil association found in the LSA, accounting for 56% of the area (**Table 3.4-2**). Alix association, forming on coarse-textured glaciofluvial deposits, is the

second most abundant association identified within the water pipeline LSA, accounting for 35% of the area. Chief and Moxley associations account for 7% of the LSA, and the remaining area is comprised of fluvial Nithi association (2%) and open water bodies (<1%).

The figure presenting the distribution of soil units in the proposed water pipeline LSA is included in **Annex 3**. This figure is colour-coded based on the dominant soil association.

Table 3.4-2: Soil Associations in the Water Pipeline LSA

Soil Association Code	Soil Association Name	Total Area of LSA (ha)[1]	Percent of LSA (%)
DES	Deserters	209.8	56.3
AIX	Alix	131.7	35.4
CIF	Chief	15.6	4.2
MXY	Moxley	9.1	2.4
NIT	Nithi	5.5	1.5
LA	Water	0.7	0.2
Total		**372.4**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type.

3.4.4 Reclamation Suitability of Soils within the Water Pipeline LSA

The dominant rating for reclamation suitability within the water pipeline LSA is *Fair* (85%), owing to the high percentage of Alix and Deserters soil associations. The Nithi soil association, with reclamation suitability of *Good*, accounts for 2% of the LSA, and is confined to fluvial channels. Organic soils account for approximately 7% of the LSA. There are no soils with *Poor* suitability ratings identified in the LSA. **Table 3.4-3** presents the distribution for reclamation suitability ratings identified in the LSA.

Table 3.4-3: Reclamation Suitability Ratings in the Proposed Water Pipeline LSA

Root Zone	Total Area of LSA (ha)[1]	Percent of LSA (%)
Good	5.5	1.5
Fair	315.7	84.8
Fair (Organic)	29.2	7.8
Organic	13.5	3.6
Organic (Fair)	7.8	2.1
NR	0.7	0.2
Total	**372.4**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type.

The figure presenting the dominant reclamation suitability rating for soil associations within the water pipeline LSA is presented in **Annex 5**. Where the dominant class represents 40% to 60% of the unit, the dominant suitability rating is given and the significant rating(s) are shown in brackets (e.g., *Fair* (*Organic*)).

3.4.5 Terrain Stability Assessment of the Water Pipeline LSA

Based on the terrain stability mapping presented in **Table 3.4-4**, approximately 99% of the LSA is rated as stable (Class I and II). Those polygons with a Class III rating are considered stable; however, stability issues may develop if surface or drainage conditions are considerably altered. *NR* terrain stability units occupy less than 1% of the LSA.

The figure presenting the distribution of terrain stability units within the water pipeline LSA is included in **Annex 6**. This figure is colour-coded based on the terrain stability of the polygon.

Table 3.4-4: Terrain Stability Ratings in the Water Pipeline LSA

Terrain Stability Class Rating	Terrain Stability Descriptor	Total Area of LSA (ha)[1]	Percent of LSA (%)
I	Stable	28.9	7.8
II	Stable	342.8	92.1
III	Stable	-	-
IV	Potentially Unstable	-	-
V	Unstable	-	-
NR	NR	0.7	0.2
Total		**372.4**	**100.0**

Note: [1] Total area based on the map unit deciles of each different parent material type. NR = Not Rated.

3.4.6 Summary of Terrain and Soil Baseline Conditions in the Water Pipeline LSA

The baseline surficial geology of the LSA is dominated by sediment-controlled, moderately fine to moderately coarse-textured morainal deposits, accounting for 56% of the area. Approximately 35% of the LSA is classified as moderately coarse-textured glaciofluvial material. Fluvial deposits account for 2% of the LSA, and are associated with low-lying wetland areas, where organic accumulations account for 7% of the water pipeline LSA. The proposed water pipeline LSA is dominated by mineral soils, mostly of the Luvisolic and Brunisolic soil orders. Deserters and Alix are the dominant soil associations, with minor areas of Nithi fluvial association. The Chief and Moxley organic soil associations combined occupy approximately 7% of the LSA. Open waterbodies account for less than 1% of the LSA, and are associated with organic soils. When identifying the dominant reclamation suitability rating for a polygon, the *Fair* rating is the most dominant within the LSA at 93%. *Good* ratings account for 2% of the LSA, and no soils are rated as *Poor* or *Unsuitable* within the water pipeline LSA. Terrain stability within the LSA is generally rated as *Stable*: Class I, II, and III stability ratings are identified for 99% of the LSA. No potentially unstable Class IV or V slopes were identified in the LSA.

3.5 Airstrip Study Area

3.5.1 Introduction

The proposed airstrip study area including the access road is located north of the mine site near the Kluskus FSR on a glaciofluvial meltwater terrace. The access road extends south and east of the airstrip connecting with the proposed mine access road. The airstrip LSA is approximately 2.5 km in length and 400 m wide. The airstrip access road LSA is 200 m in width and is approximately 5 km in length.

3.5.2 Distribution of Terrain Units in the Airstrip LSA

Overall, the LSA is comprised mainly of glaciofluvial deposits and morainal sediments (**Table 3.5-1**). These deposits account for 44% and 36% of the LSA, respectively. Organic accumulations account for 7% of the LSA and are interspersed throughout the study area, occurring in valley bottom positions and depressional sites. Surrounding the airstrip, potentially unstable slopes exist on the colluvium and glaciofluvial slopes between the terrace and the fluvial system north of the airstrip. Defined areas of fluvial plains and terraces that occur throughout the study area account for 3% of the LSA.

The figure presenting the distribution of terrain units the proposed airstrip LSA is included in **Annex 3**. This figure is colour-coded based on the dominant parent material.

Table 3.5-1: Baseline Terrain Distribution in the Airstrip LSA

Terrain Unit	Description	Total Area of LSA (ha)[1]	Percent of LSA (%)
FG	Glaciofluvial sediments	92.5	44.4
M	Undifferentiated till	74.0	35.6
O	Organic accumulations (bog and fen)	14.1	6.8
C	Colluvium (gravity-modified slopes)	7.7	3.7
F	Alluvium (inactive fluvial sediments)	6.7	3.2
A	Anthropogenic	13.3	6.4
Total		**208.1**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type.

3.5.3 Distribution of Soil Units in the Airstrip LSA

Alix association, developed on coarse-textured glaciofluvial deposits, is the most abundant association identified within the airstrip LSA, accounting for 44% of the area. Deserters soil association is also common within the LSA, accounting for 36% of the area (**Table 3.5-2**). Chief and Moxley associations account for 7% of the LSA, while the remaining area is comprised of fluvial Nithi and Nechako associations (3%) and the colluvial Pinkut association (4%).

The figure presenting the distribution of soil units in the proposed airstrip LSA is included in **Annex 3**. This figure is colour-coded based on the dominant soil association.

Table 3.5-2: Soil Associations in the Airstrip LSA

Soil Association Code	Soil Association Name	Total Area of LSA (ha)[1]	Percent of LSA (%)
AIX	Alix	92.5	44.4
DES	Deserters	74.0	35.6
CIF	Chief	13.9	6.7
PIK	Pinkut	7.7	3.7
NHK	Nechako	5.4	2.6
NIT	Nithi	1.3	0.6
MXY	Moxley	0.2	0.1
DL	Disturbed land	13.3	6.4
Total		**208.1**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type.

3.5.4 Reclamation Suitability of Soils within the Airstrip LSA

The dominant rating for reclamation suitability within the water pipeline LSA is *Fair* (86%), based on the high percentage of Alix and Deserters soil associations. The Nithi soil association, with reclamation suitability of *Good*, accounts for less than 1% of the LSA, and is confined to fluvial channels. Organic soils account for approximately 7% of the LSA. There are no soils with *Poor* suitability ratings identified in the LSA. In eskers present in the airstrip LSA, a rating of *Unsuitable* is applied to the material based on coarse fragment content. **Table 3.5-3** presents the distribution for reclamation suitability ratings identified in the LSA.

Table 3.5-3: Reclamation Suitability Ratings in the Airstrip LSA

Root Zone	Total Area of LSA (ha)[1]	Percent of LSA (%)
Good (Organic)	0.8	0.4
Fair	174.6	83.9
Fair (Organic)	4.1	2.0
Organic	11.0	5.3
Organic (Good)	2.6	1.3
Unsuitable	1.7	0.8
Not Rated	13.3	6.4
Total	**208.1**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type.

The figure presenting the dominant reclamation suitability rating for soil associations within the airstrip study area is included in **Annex 5**. Where the dominant class represents 40% to 60% of the unit, the dominant suitability rating is given and the significant rating(s) are shown in brackets (e.g., *Fair* (*Organic*)).

3.5.5 Terrain Stability Assessment of the Water Pipeline LSA

Based on the terrain stability mapping presented in **Table 3.5-4**, approximately 83% of the LSA is rated as stable (Class I and II). Those polygons with a Class III rating are considered stable; however, stability issues may develop if surface or drainage conditions are considerably altered. Approximately 8% of the study area is classified as potentially unstable Class IV. This area is more likely to have stability issues based on the texture of the material and the steepness of the slopes into the fluvial system below. *NR* terrain stability units occupy 6% of the LSA.

The figure presenting the distribution of terrain stability units within the water pipeline study area is included in **Annex 6**. This figure is colour-coded based on the terrain stability of the polygon.

Table 3.5-4: Terrain Stability Ratings in the Proposed Airstrip LSA

Terrain Stability Class Rating	Terrain Stability Descriptor	Total Area of LSA (ha)[1]	Percent of LSA (%)
I	Stable	16.9	8.1
II	Stable	155.8	74.9
III	Stable	4.8	2.3
IV	Potentially Unstable	17.3	8.3
V	Unstable	-	-
NR	NR	13.3	6.4
Total		**208.1**	**100.0**

Note: [1] Total area based on the map unit deciles of each different parent material type. NR = Not Rated.

3.5.6 Summary of Terrain and Soil Baseline Conditions in the Airstrip LSA

The baseline surficial geology of the LSA is dominated by sediment-controlled, moderately coarse to coarse-textured morainal deposits, accounting for 44% of the area. Approximately 36% of the LSA is classified as moderately fine to moderately coarse-textured morainal material. Fluvial deposits account for 3% of the LSA, and are associated with low-lying wetland areas, where organic accumulations account for 7% of the airstrip LSA. The proposed airstrip LSA is dominated by mineral soils, mostly of the Luvisolic and Brunisolic soil orders. Alix and Deserters are the dominant soil associations, with minor areas of colluvial Ormond, Nechako, and Nithi fluvial associations. The Chief and Moxley organic soil associations combined occupy approximately 7% of the LSA. For reclamation suitability of the LSA soils, the *Fair* rating is the most dominant within the LSA at 86%. *Good* ratings account for less than 1% of the LSA, and no soils are rated as *Poor. Unsuitable* soils account for another 1% of the LSA. Terrain stability within the LSA is generally rated as stable: Class I, II, and III stability ratings are identified for 85% of the LSA. Approximately 8% of the LSA comprises potentially unstable Class IV slopes, while no Class V slopes were identified in the LSA.

3.6 Transmission Line Study Area

3.6.1 Introduction

The transmission line extends from the mine site north towards a substation north of Francois Lake. The ROW for the transmission line is 50 m, while the LSA for the feature is 350 m (150 m on either side of the footprint/ROW). Approximately 20 km of the transmission line LSA boundary is shared with the LSA for the Kluskus FSR access. The information contained within this overlap area will be presented in both project components, regardless of duplication.

3.6.2 Distribution of Terrain Units in the Transmission Line LSA

In general, the terrain and landscape of the transmission line LSA is characterized by undulating to very steeply-sloping morainal deposits (both bedrock- and sediment-controlled), gently undulating glaciolacustrine and eolian deposits, and undulating to hummocky glaciofluvial and fluvial sediments.

Within the LSA, morainal parent material dominates, occupying approximately 60% of the area (**Table 3.6-1**). These parent materials are identified along the entire length of the transmission line, with localized incised glaciofluvial or fluvial channels. A large area of glaciolacustrine sediments east of Knewstubb Lake and near the northern end of the corridor has also been identified. Glaciofluvial deposits account for 11% of the transmission line LSA, and are primarily concentrated in areas near the mine site LSA, and at the area of overlap between the transmission line and access road LSAs east of Knewstubb Lake. Glaciolacustrine deposits are confined to low-lying areas in former glacial lake basins, and are typically fine-textured in nature, with low to very low coarse fragment content. These are most prevalent within the LSA to the area east of Knewstubb Lake, and account for 8% of the LSA. Associated with these glaciolacustrine deposits are wind-derived eolian deposits that occur as very thin discontinuous veneers overlying the water-lain deposits. These sediments account for 5% of the transmission line LSA. Fluvial deposits occupying valley bottoms and terraces account for 4%. Colluvial materials account for 2% of the LSA, and occur on steep to moderately steep slopes associated with fluvial channels and bedrock outcrops. Organic deposits and bedrock outcrops (occurring as inclusions with other parent materials) are localized and interspersed throughout the study area, and account for approximately 4% and less than 1%, respectively. Existing disturbances in the form of access roads and borrow sites account for 5% of the transmission line LSA.

Table 3.6-1: Baseline Terrain Distribution in the Transmission Line LSA

Terrain Unit	Description	Total Area of LSA (ha)[1]	Percent of LSA (%)
M	Undifferentiated till	2,555.1	59.6
FG	Glaciofluvial sediments	487.4	11.4
LG	Glaciolacustrine sediments	334.3	7.8
E	Eolian sediments	210.3	4.9
F	Alluvium (inactive fluvial sediments)	184.9	4.3
O	Organic accumulations (bog and fen)	176.1	4.1
C	Colluvium (gravity-modified slopes)	80.5	1.9
U	Undifferentiated material	1.4	<0.1
D	In-situ weathered bedrock	31.9	0.7
R	Bedrock outcrops	2.3	0.1
A	Anthropogenic	215.5	5.0
LA	Water	10.6	0.2
Total		**4,290.3**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type

The figure presenting the distribution of terrain units of the transmission line LSA is included in **Annex 3**. This figure is colour-coded based on the dominant parent material.

3.6.3 Distribution of Soil Units in the Transmission Line LSA

Within the transmission line LSA, soil associations related to morainal parent material are dominant. This includes the Deserters, Barrett, and Twain soil associations, which occupy 42%, 9%, and 9% of the LSA, respectively. The Alix soil association, found on glaciofluvial parent materials, is the next most abundant soil association within the LSA (11%). Berman and Knewstubb associations account for 13% of the LSA combined, and are found in defined glaciolacustrine basins. Ormond and Pinkut soil associations account for approximately 2% of the LSA. These colluviated soil associations are localized to steepened fluvial channel banks and areas of bedrock exposures. Bedrock outcrops account for less than 1%. Organic associations (Chief and Moxley) account for 4% of the area, and are located in depressional areas. Existing roads and borrow areas account for the disturbed land area of 5% identified within the transmission line LSA. **The baseline** soil map of the LSA is presented in **Annex 4**. Colours on the baseline soil map indicate the dominant soil association of the polygon. All map units with the same dominant soil series or variant are displayed as the same colour.

Table 3.6-2 presents the extent of soil associations within the LSA.

Table 3.6-2: Soil Associations in the Transmission Line LSA

Soil Association Code	Soil Association Name	Total Area of LSA (ha)[1]	Percent of LSA (%)
DES	Deserters	1,806.0	42.1
AIX	Alix	488.8	11.4
TWA	Twain	393.6	9.2
BRT	Barrett	387.4	9.0
BRM	Berman	280.2	6.5
KNE	Knewstubb	264.3	6.2
CIF	Chief	159.4	3.7
NIT	Nithi	148.6	3.5
ORM	Ormond	70.1	1.6
NHK	Nechako	36.3	0.8
MXY	Moxley	16.8	0.4
PIK	Pinkut	10.4	0.2
R	Bedrock outcrops	2.3	0.1
DL	Disturbed land	215.5	5.0
LA	Water	10.6	0.2
Total		**4,290.3**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type.

3.6.4 Reclamation Suitability of Soils within the Transmission Line LSA

The dominant rating for reclamation suitability within the LSA is *Fair* (64%), based on the high percentage of Deserters and Alix soil associations. This rating is determined by the soil pH, coarse textures, and high coarse fragment content within the root zone. Soils rated as *Good* for reclamation suitability are common within the LSA, at 20%. These include the Barrett, Knewstubb, and Nithi soil associations. These associations are generally finer in texture, with a lower coarse fragment content in the upper horizons. *Poor* ratings account for 9% of the LSA, and are associated with the Twain soil association. **Table 3.6-3** presents the distribution for reclamation suitability ratings identified in the LSA.

The figure presenting the dominant reclamation suitability rating for soil associations within the transmission line LSA is included in **Annex 5**. Where the dominant class represents 40% to 60% of the unit, the dominant suitability rating is given and the significant rating(s) are shown in brackets (e.g., *Fair* (*Organic*)).

Table 3.6-3: Summary of Reclamation Suitability Ratings in the Transmission Line LSA

Root Zone	Total Area of LSA (ha)[1]	Percent of LSA (%)
Good	583.9	13.6
Good (Fair)	93.0	2.2
Good (Organic)	40.4	0.9
Fair	2,234.4	52.1
Fair (Good)	379.8	8.9
Fair (Organic)	11.5	0.3
Fair (Poor)	106.3	2.5
Fair (NR)	7.8	0.2
Poor	317.4	7.4
Poor (Good)	9.4	0.2
Poor (Fair)	65.9	1.5
Unsuitable	15.5	0.4
Organic	117.7	2.7
Organic (Good)	6.7	0.2
Organic (Fair)	72.2	1.7
Organic (NR)	1.1	0.0
NR (Good)	3.9	0.1
Not Rated	223.6	5.2
Total	**4,290.3**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type.

3.6.5 Terrain Stability Assessment of the Transmission Line LSA

Generally, the LSA is rated as stable; however, the transmission line corridor crosses a part of the Nechako Range with steep slopes and bedrock outcropping, which may be prone to movement of the surficial material. The majority of the LSA is situated in areas of undulating to hummocky and moderately steep terrain. The deep fluvial channels that dissect the LSA are generally over-steepened, resulting in a potential for accelerated erosion and instability. Localized areas of seepage and soil creep processes result in elevated terrain stability ratings (Class II and III); however, the overall rating of stable still applies. This rating is based on the potential for surface erosion to occur following disturbance.

Based on the terrain stability mapping presented in **Table 3.6-4**, approximately 74% of the LSA is rated as stable (Class I and II). Class III polygons are considered stable; however, stability issues may develop if surface or drainage conditions are considerably altered. Class III terrain stability units occupy 16% of the LSA. Potentially unstable and unstable terrain accounts for 4% of the LSA. Approximately 5% of the LSA is not rated, which corresponds to areas of existing disturbance such as access roads and borrow areas.

The figure presenting the distribution of terrain stability units within the transmission line LSA is included in **Annex 6**. This figure is colour-coded based on the terrain stability of the polygon.

Table 3.6-4: Terrain Stability Ratings in the Transmission Line LSA

Terrain Stability Class Rating	Terrain Stability Descriptor	Total Area of LSA (ha)[1]	Percent of LSA (%)
I	Stable	889.6	20.7
II	Stable	2,297.2	53.5
III	Stable	700.0	16.3
IV	Potentially Unstable	178.9	4.2
V	Unstable	1.0	<0.1
NR	NR	223.6	5.2
Total		**4,290.3**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type

3.6.6 Summary of Terrain and Soil Baseline Conditions in the Transmission Line LSA

The baseline surficial geology of the LSA is dominated by both bedrock- and sediment-controlled, moderately fine to moderately coarse-textured morainal deposits, accounting for 66% of the area. Approximately 11% of the LSA is classified as glaciofluvial material, with an additional 8% identified as glaciolacustrine sediments. These glaciolacustrine deposits are concentrated to the east of Knewstubb Lake, and are associated with eolian deposits that account for 5% of the LSA. Bedrock-controlled slopes and relatively shallow surficial deposits occupy the portions of the LSA where the corridor crosses the Nechako Range, and the landscape is dominated by hummocky to mountainous terrain, with steeper slope gradients. Colluvial deposits are more common in this area, and account for 2% of the LSA. Equal proportions of fluvial and organic deposits are present within the LSA, each accounting for 4% of the area. Deserters, Twain, Alix, and Barrett are the dominant soil associations in the LSA, with minor areas of Ormond and Pinkut colluvial soils, and Nechako and Nithi fluvial associations. The Chief and Moxley soil associations occupy approximately 4% of the LSA.

When identifying the dominant reclamation suitability rating for a polygon, the *Fair* rating is the most dominant rating within the LSA, at 64%. *Good* ratings account for 20% of the LSA, and *Poor* ratings account for 9%. Terrain stability within the RSA is generally rated as stable: Class I, II, and III stability ratings are identified for 90% of the LSA. Potentially unstable Class IV and unstable Class V slopes occupy more than 4% of the LSA.

3.7 Mills Ranch Transmission Line Study Area

The Mills Ranch transmission line option is located at the south end of the transmission line near the mine site. This option is approximately 15 km long connecting near the south end of the proposed transmission line and connecting again into the proposed transmission line as it turns north. There is no overlap between the re-route option and the proposed transmission line. The ROW for the transmission line is 40 m, while the LSA for the feature is 340 m (150 m on either side of the footprint/ROW).

3.7.1 Distribution of Terrain Units in the Mills Ranch Transmission Line LSA

In general, the terrain and landscape of the transmission line LSA is characterized by undulating to very steeply-sloping morainal deposits (both bedrock- and sediment-controlled), gently undulating glaciolacustrine and eolian deposits, and undulating to ridged glaciofluvial and fluvial sediments including a large number of eskers containing high volumes of coarse fragment content.

Within the LSA, morainal parent material dominates, occupying approximately 66% of the area (**Table 3.7-1**). Identified along the entire length of the transmission line are parent materials with localized incised glaciofluvial or fluvial channels. Glaciofluvial deposits account for 17% of the transmission line Mills Ranch option, expressed as multiple esker features in the west end of the LSA. Glaciolacustrine deposits are confined to low-lying areas in former glacial lake basins, and are typically fine-textured in nature, with little to no coarse fragments. These are most prevalent within the central portion of the LSA in the glaciolacustrine area associated with Tatelkuz Lake, and account for 4% of the LSA. Fluvial deposits occupying valley bottoms and terraces account for 5%. Organic deposits are common and interspersed throughout the study area, and account for approximately 8%. Existing disturbances in the form of access roads and borrow sites account for less than 1% of the Mills Ranch re-route LSA.

Table 3.7-1: Baseline Terrain Distribution in the Mills Ranch Transmission Line LSA

Terrain Unit	Description	Total Area of LSA (ha)[1]	Percent of LSA (%)
M	Undifferentiated till	334.3	66.3
FG	Glaciofluvial sediments	85.8	17.0
O	Organic accumulations (bog and fen)	40.5	8.0
F	Alluvium (inactive fluvial sediments)	22.9	4.5
LG	Glaciolacustrine sediments	19.0	3.8
A	Anthropogenic	2.1	0.4
Total		**504.5**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type

The figure presenting the distribution of terrain units within the Mills Ranch transmission line re-route study area is included in **Annex 3**. This figure is colour-coded based on the dominant parent material.

3.7.2 Distribution of Soil Units in the Mills Ranch Transmission Line LSA

Within the Mills Ranch transmission line LSA, soil associations related to morainal parent material are dominant. This includes the Deserters and Barrett soil associations, which occupy 66%, of the LSA. The Alix soil association, found on glaciofluvial parent materials, is the second most abundant soil association within the LSA (17%). The Berman association accounts for less than 4% of the LSA, located within previous glaciolacustrine basins. Organic associations (Chief) account for 8% of the area, and are located in depressional

areas. The Nithi fluvial soil association accounts for 5%. Existing roads and other disturbance account for less than 1% of the transmission line LSA. The map showing the spatial distribution of soil associations within the LSA is included in **Annex 4**. **Table 3.7-2** presents the extent of soil associations within the LSA.

Table 3.7-2: Soil Associations in the Mills Ranch Transmission Line LSA

Soil Association Code	Soil Association Name	Total Area of LSA (ha)[1]	Percent of LSA (%)
DES	Deserters	333.1	
AIX	Alix	85.8	
CIF	Chief	40.5	
NIT	Nihti	22.9	
BRM	Berman	19.0	
BRT	Barrett	1.1	
DL	Disturbed land	2.1	
Total		**504.5**	

Note: [1]Total area based on the map unit deciles of each different parent material type.

The baseline soil map of the LSA is presented in **Annex 4**. Colours on the baseline soil map indicate the dominant soil association of the polygon. All map units with the same dominant soil series or variant are displayed as the same colour.

3.7.3 Reclamation Suitability of Soils within the Mills Ranch Transmission Line LSA

The dominant rating for reclamation suitability within the LSA is *Fair* (77%), based on the high percentage of Deserters and Alix soil associations. Soils rated as *Good* for reclamation suitability are common within the LSA, at 5%. These include the Barrett and Nithi soil associations. The rating of *Unsuitable* accounts for 12% of the LSA, and are associated with the large area of eskers intersected by the transmission line. Based on field observations, the material contained within these esker formations is extremely high in coarse fragment content and not suitable reclamation material. The figure presenting the dominant reclamation suitability rating for soil associations within the Mills Ranch transmission line LSA is included in **Annex 5**. Where the dominant class represents 40% to 60% of the unit, the dominant suitability rating is given and the significant rating(s) are shown in brackets (e.g., *Fair* (*Organic*)).

Table 3.7-3 presents the distribution for reclamation suitability ratings identified in the LSA.

Table 3.7-3: Summary of Reclamation Suitability Ratings in the Mills Ranch Transmission Line LSA

Root Zone	Total Area of LSA (ha)[1]	Percent of LSA (%)
Good	22.4	4.4
Good (Organic)	0.9	0.2
Fair	329.4	65.3
Fair (Good)	3.6	0.7
Fair (Organic)	53.0	10.5
Unsuitable	59.2	11.7
Organic	33.9	6.7
Not Rated	2.1	0.4
Total	**504.5**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type.

3.7.4 Terrain Stability Assessment of the Mills Ranch Transmission Line LSA

Generally, the LSA is rated as stable; however, the transmission line corridor crosses a large esker area that contributes to the high percentage of Class III slopes. The majority of the LSA is situated in areas of undulating to hummocky and moderately steep terrain. The deep fluvial channels dissecting the LSA are generally over-steepened, resulting in a potential for accelerated erosion and instability. Localized areas of seepage and soil creep processes result in elevated terrain stability ratings (Class II and III); however, the overall rating of stable still applies. This rating is based on the potential for surface erosion to occur following disturbance.

Based on the terrain stability mapping presented in **Table 3.7-4**, approximately 51% of the LSA is rated as stable (Class I and II). Those polygons with a Class III rating are considered stable; however, stability issues may develop if surface or drainage conditions are considerably altered. Class III terrain stability units occupy 46% of the LSA. Potentially unstable terrain accounts for 3% of the LSA. Based on the interpretation of aerial photos, no unstable slopes were identified within the Mills Ranch transmission line LSA.

Table 3.7-4: Terrain Stability Ratings in the Mills Ranch Transmission Line LSA

Terrain Stability Class Rating	Terrain Stability Descriptor	Total Area of LSA (ha)[1]	Percent of LSA (%)
I	Stable	56.2	11.1
II	Stable	198.9	39.4
III	Stable	231.3	45.8
IV	Potentially Unstable	16.1	3.2
V	Unstable	-	-
Not Rated	Not Rated	2.1	0.4
Total		**504.5**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type.

3.7.5 Summary of Terrain and Soil Baseline Conditions in the Mills Ranch Transmission Line LSA

The baseline surficial geology of the LSA is dominated by both bedrock- and sediment-controlled, moderately fine to moderately coarse-textured morainal deposits, accounting for 66% of the area. Approximately 17% of the LSA is classified as glaciofluvial material, with an additional 5% identified as fluvial sediments. Organic deposits are relatively common within the LSA, accounting for 8% of the area. Deserters and Alix are the dominant soil associations in the LSA, with minor areas of Nithi and Berman soil associations. The Chief soil association occupy approximately 8% of the LSA.

When identifying the dominant reclamation suitability rating for a polygon, the *Fair* rating is the most dominant rating within the RSA, at 77%. *Good* ratings account for 5% of the LSA, and *Unsuitable* ratings account for 12%. Esker formations with high coarse fragment content received the *Unsuitable* rating for reclamation material. Terrain stability within the LSA is generally rated as stable: Class I, II, and III stability ratings are identified for 96% of the LSA. Potentially unstable Class IV slopes occupy 3% of the LSA, while no unstable Class V slopes were identified within the LSA.

3.8 Stellako Transmission Line Study Area

The Stellako transmission line option extends for approximately 7 km on the northern end of the transmission line LSA to the east of the proposed transmission line corridor. The ROW for the transmission line is 40 m, while the LSA for the feature is 340 m (150 m on either side of the footprint/ROW). There is no overlap between the transmission line and the Stellako option.

3.8.1 Distribution of Terrain Units in the Stellako Transmission Line LSA

In general, the terrain and landscape of the Stellako transmission line LSA is characterized by undulating to very steeply-sloping morainal deposits (sediment-controlled), gently undulating glaciolacustrine, and undulating to hummocky glaciofluvial and fluvial sediments.

Within the LSA, morainal material is the most identified surficial deposit, occupying approximately 34% of the area (**Table 3.8-1**). These parent materials are located along the entire length of the transmission line, with localized incised glaciofluvial or fluvial channels. Glaciolacustrine deposits are confined to low-lying areas in former glacial lake basins, and are typically fine-textured in nature, with little to no coarse fragments. These sediments are prevalent within the LSA, and account for 28% of the LSA. Glaciofluvial deposits account for 21% of the Stellako transmission line LSA, and are primarily concentrated in the southern areas of the LSA. Colluvial materials account for 6% of the LSA, and occur on steep to moderately steep slopes associated with fluvial channels and bedrock outcrops. Fluvial deposits occupying valley bottoms and terraces account for 4%. Organic deposits are localized and interspersed throughout the study area, and account for approximately 6% of

the LSA. Existing disturbances in the form of access roads and borrow sites account for less than 1% of the Stellako transmission line LSA.

Table 3.8-1: Baseline Terrain Distribution in the Stellako Transmission Line LSA

Terrain Unit	Description	Total Area of LSA (ha)[1]	Percent of LSA (%)
M	Undifferentiated till	67.7	33.9
LG	Glaciolacustrine sediments	56.3	28.1
FG	Glaciofluvial sediments	42.0	21.0
O	Organic accumulations (bog and fen)	12.8	6.4
C	Colluvium (gravity-modified slopes)	12.4	6.2
F	Alluvium (inactive fluvial sediments)	7.3	3.6
D	In-situ weathered bedrock	0.0	0.0
A	Anthropogenic	0.3	0.2
LA	Water	1.2	0.6
Total		**200.1**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type

The figure presenting the distribution of terrain units within the Stellako transmission line LSA is included in **Annex 3**. This figure is colour-coded based on the dominant parent material.

3.8.2 Distribution of Soil Units in the Stellako Transmission Line LSA

Within the Stellako transmission line LSA, soil associations related to morainal parent material are the most abundant. This includes the Deserters, Barrett, and Twain soil associations, which occupy 25%, 9%, and less than 1% of the LSA, respectively. The Berman soil association is the most commonly mapped soil identified within the LSA accounting for 28% of the area. The Alix soil association, found on glaciofluvial parent materials, is the third most abundant soil association within the LSA (21%). The Ormond soil associations accounts for approximately 6% of the LSA. The colluviated soil associations are localized to steepened fluvial channel banks and areas of bedrock exposures. Organic associations (Chief and Moxley) account for 6% of the area, and are located in depressional areas. Existing roads and disturbed areas account for the disturbed land area of less than 2% identified within the Stellako transmission line LSA. The figure presenting the spatial distribution of soil associations within the LSA is included in **Annex 4**. The baseline soil map of the LSA is presented in **Annex 4**. Colours on the baseline soil map indicate the dominant soil association of the polygon. All map units with the same dominant soil series or variant are displayed as the same colour.

Table 3.8-2 presents the extent of soil associations within the LSA.

Table 3.8-2: Soil Associations in the Stellako Transmission Line LSA

Soil Association Code	Soil Association Name	Total Area of LSA (ha)[1]	Percent of LSA (%)
BRM	Berman	56.3	28.1
DES	Deserters	49.2	24.6
AIX	Alix	42.0	21.0
BRT	Barrett	18.5	9.3
ORM	Ormond	12.4	6.2
CIF	Chief	10.0	5.0
NIT	Nithi	7.3	3.6
MXY	Moxley	2.7	1.4
TWA	Twain	<0.1	<0.1
DL	Disturbed land	0.3	0.2
LA	Water	1.2	0.6
Total		**200.1**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type.

3.8.3 Reclamation Suitability of Soils within the Stellako Transmission Line LSA

The dominant rating for reclamation suitability within the LSA is *Fair* (83%), owing to the high percentage of Berman, Deserters, and Alix soil associations. Soils rated as *Good* for reclamation suitability account for 6% of the LSA. These include the Barrett and Nithi soil associations. *Organic* ratings account for 11% of the RSA, and are associated with the Chief and Moxley soil associations. **Table 3.6-3** presents the distribution for reclamation suitability ratings.

The figure presenting the dominant reclamation suitability rating for soil associations within the Stellako transmission line LSA is included in **Annex 5**. Where the dominant class represents 40% to 60% of the unit, the dominant suitability rating is given and the significant rating(s) are shown in brackets (e.g., *Fair* (*Organic*)).

Table 3.8-3: Summary of Reclamation Suitability Ratings in the Stellako Transmission Line LSA

Root Zone	Total Area of LSA (ha)[1]	Percent of LSA (%)
Good (Fair)	11.0	5.5
Fair	116.2	58.1
Fair (Good)	49.6	24.8
Fair (Poor)	0.1	<0.1
Organic	3.8	1.9
Organic (Fair)	17.9	8.9
Not Rated	1.5	0.8
Total	**200.1**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type.

3.8.4 Terrain Stability Assessment of the Stellako Transmission Line LSA

Generally, the LSA is rated as stable. The majority of the LSA is situated in areas of undulating to hummocky terrain. The fluvial channels which dissect the LSA are generally over-steepened, resulting in a potential for accelerated erosion and instability. Localized areas of seepage and soil creep processes result in elevated terrain stability ratings (Class II and III); however, the overall rating of stable still applies. This rating is based on the potential for surface erosion to occur following disturbance.

Based on the terrain stability mapping presented in **Table 3.8-4**, approximately 88% of the LSA is rated as stable (Class I and II). Polygons with a Class III rating are considered stable; however, stability issues may develop if surface or drainage conditions are considerably altered. Class III terrain stability units occupy less than 10% of the LSA. Potentially unstable terrain accounts for 1% of the LSA. Based on the interpretation of aerial photos, no unstable slopes were identified within the Stellako transmission line LSA.

Table 3.8-4: Terrain Stability Ratings in the Stellako Transmission Line LSA

Terrain Stability Class Rating	Terrain Stability Descriptor	Total Area of LSA (ha)[1]	Percent of LSA (%)
I	Stable	96.0	48.0
II	Stable	80.0	40.0
III	Stable	20.4	10.2
IV	Potentially Unstable	2.1	1.1
V	Unstable	-	-
NR	NR	1.5	0.8
Total		**200.1**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type.

3.8.5 Summary of Terrain and Soil Baseline Conditions in the Stellako Transmission Line LSA

The baseline surficial geology of the LSA is dominated by both bedrock- and sediment-controlled, moderately fine to moderately coarse-textured morainal deposits, accounting for 34% of the area. Approximately 21% of the LSA is classified as glaciofluvial material, with an additional 28% identified as glaciolacustrine sediments. Colluvial deposits are more common in areas where steeper slope gradients are identified, and account for 6% of the LSA. Equal proportions of colluvial and organic deposits are present within the LSA, each accounting for 6% of the area. Berman, Deserters, and Alix, are the dominant soil associations in the LSA, with minor areas of Ormond and Barrett soils. The Chief and Moxley soil associations occupy approximately 6% of the LSA.

When identifying the dominant reclamation suitability rating for a polygon, the *Fair* rating is the most dominant rating within the LSA, at 83%. *Good* ratings account for 6% of the LSA, and *Organic* ratings account for 11%. Terrain stability within the LSA is generally rated as stable:

Class I, II, and III stability ratings are identified for 98% of the LSA. Potentially unstable Class IV slopes occupy 1% of the LSA, while no unstable Class V slopes were identified within the LSA.

3.9 Access Route Study Area

3.9.1 Introduction

The majority of the proposed access route utilizes the existing Kluskus FSR north of the mine site towards Vanderhoof. Access from the Kluskus FSR to the proposed mine site will be provided by a new mine access road, approximately 5 km long (refer to **Section 3.10**). The ROW for the access route is 20 m, while the LSA for the feature is 220 m (100 m on either side of the footprint/ROW). The transmission line also contains significant overlap with both the access route LSA boundary (approximately 20 km). All overlap areas will be presented for each project component described in the baseline study.

3.9.2 Distribution of Terrain Units in the Access Road LSA

In general, the terrain and landscape of the access route LSA is characterized by undulating to hummocky plains incised with steeply-banked fluvial channels and moderately sloping, bedrock-controlled slopes. Within the LSA, morainal parent material comprises approximately 33% of the LSA (**Table 3.9-1**). Glaciofluvial sediments account for 27% of the LSA, and are defined by broad, undulating plains and hummocky upland areas and terraces. These deposits are concentrated in an area of outwash adjacent to Davidson Creek and other broad valley bottoms along the access route corridor. Glaciolacustrine and eolian deposits combined account for approximately 16%, and are commonly associated with each other near Knewstubb Lake. Organic accumulations are relatively common within the LSA, accounting for 7% of the area, while active fluvial channels account for only 2%. Colluvial materials on steep to moderately steep slopes are uncommon, and account for 1% of the LSA.

Table 3.9-1: Baseline Terrain Distribution in the Proposed Access Road LSA

Terrain Unit	Description	Total Area of LSA (ha)[1]	Percent of LSA (%)
M	Undifferentiated till	917.2	32.9
FG	Glaciofluvial sediments	746.5	26.8
LG	Glaciolacustrine sediments	411.6	14.8
O	Organic accumulations (bog and fen)	184.7	6.6
F	Alluvium (inactive fluvial sediments)	49.4	1.8
C	Colluvium (gravity-modified slopes)	27.2	1.0
E	Eolian sediments	22.5	0.8
A	Anthropogenic	415.0	14.9
LA	Water	10.2	0.4
Total		**2,784.3**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type.

The figure presenting the distribution of terrain units within each of the proposed access road study area (LSA) is included in **Annex 3**. This figure is colour-coded based on the dominant parent material.

3.9.3 Distribution of Soil Units in the Access Road LSA

Within the LSA, soil associations related to morainal parent material are dominant. This includes the Deserters (21%), Barrett (9%), and Twain (3%) soil associations. The Alix association, which is a Brunisolic soil developing on glaciofluvial sediments, accounts for 27% of the LSA. Associations derived from glaciolacustrine sediments, including the Berman, Vanderhoof, and Knewstubb associations, account for 16% of the LSA. Nechako and Nithi fluvial associations account for approximately 2% of the LSA, while Ormond and Pinkut colluvial soil associations account for 1%. These colluviated soil associations are localized to steepened fluvial channel banks and areas of bedrock exposures. Organic soils (Chief and Moxley) are common, at 7% of the area, and are located in depressional areas associated with fluvial systems and adjacent to open water bodies. **Table 3.9-2** presents the extent of soil associations within the LSA.

The baseline soil map of the LSA is presented in **Annex 5**. Colours on the baseline soil map indicate the dominant soil association of the polygon. All map units with the same dominant soil series or variant are displayed as the same colour.

Table 3.9-2: Soil Associations in the Access Road LSA

Soil Association Code	Soil Association Name	Total Area of LSA (ha)[1]	Percent of LSA (%)
AIX	Alix	746.5	26.8
DES	Deserters	586.8	21.1
BRM	Berman	270.7	9.7
BRT	Barrett	244.8	8.8
CIF	Chief	148.0	5.3
VAN	Vanderhoof	136.1	4.9
TWA	Twain	84.3	3.0
NIT	Nithi	44.0	1.6
MXY	Moxley	38.0	1.4
KNE	Knewstubb	27.2	1.0
ORM	Ormond	22.5	0.8
NHK	Nechako	5.4	0.2
PIK	Pinkut	4.7	0.2
DL	Disturbed land	415.0	14.9
LA	Water	10.2	0.4
Total		**2,784.3**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type.

3.9.4 Reclamation Suitability of Soils within the Access Road LSA

The most common rating for reclamation suitability within the LSA is *Fair*, at 62%, based on the high percentage of Deserters, Alix, and Berman soil associations. *Good* ratings account for 13% of the LSA, and *Poor* ratings account for 4% of the LSA. Approximately 15% of the LSA is *Not Rated* accounting for the relatively high percentage of existing disturbance from the Kluskus FSR. **Table 3.9-3** presents the distribution for reclamation suitability ratings identified in the LSA.

Table 3.9-3: Summary of Reclamation Suitability Ratings in the Access Road LSA

Root Zone	Total Area of LSA (ha)[1]	Percent of LSA (%)
Good	203.5	7.3
Good (Fair)	93.4	3.4
Good (Organic)	59.0	2.1
Fair	1,032.5	37.1
Fair (Good)	462.0	16.6
Fair (Organic)	225.0	8.1
Poor	0.9	0.0
Poor (Fair)	113.2	4.1
Unsuitable	16.9	0.6
Organic	52.9	1.9
Organic (Fair)	88.7	3.2
Organic (Good)	6.8	0.2
Organic (Poor)	4.2	0.2
NR	425.2	15.3
Total	**2,784.3**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type.

The figure presenting the dominant reclamation suitability rating for soil associations within the access route LSA is included in **Annex 5**. Where the dominant class represents 40% to 60% of the unit, the dominant suitability rating is given and the significant rating(s) are shown in brackets (e.g., *Fair* (*Organic*)).

3.9.5 Terrain Stability Assessment of the Access Road LSA

Based on the terrain stability mapping, approximately 85% of the LSA is rated as stable (Classes I, II, and III) (**Table 3.9-4**). Those polygons with a Class III rating are considered stable; however, stability issues may develop if surface or drainage conditions are considerably altered. Class III terrain stability units occupy 1% of the LSA. Based on aerial photo and LiDAR interpretation, no potentially unstable (Class IV) or unstable terrain (Class V) was identified in the access route RSA. Approximately 15% of the LSA was not rated, accounting for open water bodies and areas of existing disturbances, including the existing access roads and borrow areas.

The figure presenting the terrain stability ratings for the access road study area are included in **Annex 6**.

Table 3.9-4: Terrain Stability Ratings in the Access Road LSA

Terrain Stability Class Rating	Terrain Stability Descriptor	Total Area of LSA (ha)[1]	Percent of LSA (%)
I	Stable	803.6	28.9
II	Stable	1,521.2	54.6
III	Stable	34.3	1.2
IV	Potentially Unstable	-	-
V	Unstable	-	-
NR	NR	425.2	15.3
Total		**2,784.3**	**100.0**

Note: [1] Total area based on the map unit deciles of each different parent material type.

3.9.6 Summary of Terrain and Soil Baseline Conditions in the Access Road Study Area

The baseline surficial geology of the access road LSA is dominated by both bedrock- and sediment-controlled, moderately fine to moderately coarse-textured morainal deposits, accounting for 33% of the area. Approximately 27% of the LSA is classified as glaciofluvial material, with an additional 15% identified as glaciolacustrine sediments. Colluvial deposits are uncommon, and account for 1% of the LSA. Organic deposits are common within the LSA, accounting for 7% of the area, while fluvial sediments are not as common, and account for 2% of the area. Approximately 15% of the LSA is rated as disturbed (A), which includes existing access routes and borrow sites. Alix, Deserters, Barrett, and Berman are the dominant soil associations, with minor areas of Vanderhoof, Twain, and Nithi associations. The Chief and Moxley soil associations occupy approximately 7% of the LSA.

When identifying the dominant reclamation suitability rating for a polygon, the *Fair* rating is the most dominant rating within the RSA, at 62%. This corresponds to the high percentage of Alix and Deserters soil associations mapped within the LSA. Good ratings account for 13% of the LSA, and *Poor* ratings account for 4%. Terrain stability within the LSA is generally rated as stable: Class I, II, and III stability ratings are identified for 85% of the LSA. The remaining 15% of the LSA is *NR* due to existing disturbance. Potentially unstable Class IV and unstable Class V slopes were not identified within the LSA.

3.10 Mine Access Route Study Area

3.10.1 Introduction

The mine access road is approximately 5 km and originates from the existing FSR to the east end of the mine site. The ROW for the access road is 20 m, while the LSA is variable width up to 400 m wide. There is no overlap between the mine access road and any other proposed features.

3.10.2 Distribution of Terrain Units in the Mine Access Road LSA

In general, the terrain and landscape of the mine access road LSA is characterized by undulating to hummocky till plains incised with steeply banked fluvial channels and moderately sloping, bedrock-controlled slopes. Morainal parent material comprises approximately 79% of the LSA (**Table 3.10-1**). Glaciofluvial sediments account for 14% of the LSA, and are identified as undulating plains and hummocky and ridged upland esker areas and terraces. These deposits are concentrated in an area of outwash adjacent to Davidson Creek and other broad valley bottoms along the access route corridor. Organic accumulations are not common within the LSA, accounting for 3% of the area, while active fluvial channels account for 2%.

The figure presenting the distribution of terrain units within each of the proposed mine access road study area (LSA) is included in **Annex 3**. This figure is colour-coded based on the dominant parent material.

Table 3.10-1: Baseline Terrain Distribution in the Proposed Mine Access Road LSA

Terrain Unit	Description	Total Area of LSA (ha)[1]	Percent of LSA (%)
M	Undifferentiated till	156.9	78.9
FG	Glaciofluvial sediments	26.8	13.5
O	Organic accumulations (bog and fen)	6.3	3.2
F	Alluvium (inactive fluvial sediments)	4.7	2.4
A	Anthropogenic	4.0	2.0
LA	Water	<0.1	<0.1
Total		**198.8**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type.

3.10.3 Distribution of Soil Units in the Mine Access Road LSA

Within the LSA, soil associations related to morainal parent material are dominant. This includes the Deserters (78%) and Barrett (1%) soil associations. The Alix association, which is a Brunisolic soil developing on glaciofluvial sediments, accounts for 14% of the LSA. Nechako and Nithi fluvial associations account for approximately 2% of the LSA, while Organic soils (Chief and Moxley) account for 3% of the area, and are located in depressional areas associated with fluvial systems and adjacent to open water bodies. The baseline soil map of the LSA is presented in **Annex 5**. Colours on the baseline soil map indicate the dominant soil association of the polygon. All map units with the same dominant soil series or variant are displayed as the same colour.

Table 3.10-2 presents the extent of soil associations within the LSA.

Table 3.10-2: Soil Associations in the Mine Access Road LSA

Soil Association Code	Soil Association Name	Total Area of LSA (ha)[1]	Percent of LSA (%)
DES	Deserters	155.6	78.3
AIX	Alix	26.8	13.5
MXY	Moxley	5.5	2.7
NIT	Nithi	2.5	1.3
NHK	Nechako	2.2	1.1
BRT	Barrett	1.2	0.6
CIF	Chief	0.9	0.4
DL	Disturbed land	4.0	2.0
LA	Water	0.0	<0.1
Total		**198.8**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type.

3.10.4 Reclamation Suitability of Soils within the Mine Access Road LSA

The most common rating for reclamation suitability within the LSA is *Fair*, at 95%, based on the high percentage of Deserters, and Alix soil associations. *Good* ratings account for just over 1% of the LSA, and no *Poor* ratings were identified in the LSA. Approximately 3% of the LSA is *Unsuitable,* while *NR* accounts for 2%. **Table 3.10-3** presents the distribution for reclamation suitability ratings identified in the LSA.

Table 3.10-3: Summary of Reclamation Suitability Ratings in the Mine Access Road LSA

Root Zone	Total Area of LSA (ha)[1]	Percent of LSA (%)
Good	2.1	1.1
Good (Organic)	0.5	0.2
Fair	174.6	90.9
Fair (Good)	3.1	1.6
Fair (Organic)	3.9	2.0
Organic	5.5	2.8
Unsuitable	5.1	2.7
NR	4.1	2.1
Total	**198.8**	**100.0**

Note: [1]Total area based on the map unit deciles of each different parent material type

The figure presenting the dominant reclamation suitability rating for soil associations within the mine access road LSA is included in **Annex 5**. Where the dominant class represents 40% to 60% of the unit, the dominant suitability rating is given and the significant rating(s) are shown in brackets (e.g., *Fair* (*Organic*)).

3.10.5 Terrain Stability Assessment of the Mine Access Road LSA

Based on the terrain stability mapping, approximately 98% of the LSA is rated as stable (Classes I, II, and III) (**Table 3.10-4**). Those polygons with a Class III rating are considered stable; however, stability issues may develop if surface or drainage conditions are considerably altered. Class III terrain stability units occupy 3% of the LSA. Based on aerial photo and LiDAR interpretation, no potentially unstable (Class IV) or unstable terrain (Class V) was identified in the mine access road LSA. Approximately 2% of the LSA was not rated, accounting for open water bodies and areas of existing disturbances, including the existing FSRs.

The figure presenting the terrain stability ratings for the mine access road study area is included in **Annex 6**.

Table 3.10-4: Terrain Stability Ratings in the Mine Access Road LSA

Terrain Stability Class Rating	Terrain Stability Descriptor	Total Area of LSA (ha)[1]	Percent of LSA (%)
I	Stable	43.4	21.8
II	Stable	146.3	73.6
III	Stable	5.1	2.6
IV	Potentially Unstable	-	-
V	Unstable	-	-
Not Rated	NR	4.1	2.0
Total		**198.8**	**100.0**

Note: [1] Total area based on the map unit deciles of each different parent material type.

3.10.6 Summary of Terrain and Soil Baseline Conditions in the Mine Access Road LSA

The baseline surficial geology of the access route LSA is dominated by sediment-controlled, moderately fine to moderately coarse-textured morainal deposits, accounting for 79% of the area. Approximately 14% of the LSA is classified as glaciofluvial material. Organic deposits are not common within the LSA, accounting for 3% of the area, while also not common are fluvial sediments, and account for 2% of the area. Approximately 2% of the LSA is rated as disturbed (A), which includes existing access routes. Alix and Deserters are the dominant soil associations, with minor areas of Nithi, Nechako, and Barrett associations. The Chief and Moxley soil associations occupy approximately 3% of the LSA.

When identifying the dominant reclamation suitability rating for a polygon, the *Fair* rating is the most dominant rating within the LSA at 95%. This corresponds to the high percentage of Alix and Deserters soil associations mapped within the LSA. *Good* ratings account for 1% of the LSA, and no *Poor* ratings were identified. Terrain stability within the LSA is generally rated as stable: Class I, II, and III stability ratings are identified for 98% of the LSA. The remaining 2% of the LSA is *NR* due to existing disturbance. Potentially unstable Class IV and unstable Class V slopes were not identified within the LSA.

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ANNEXES

Annex 1
Soil and Terrain Data

Table 1 Pre-disturbance Assessment Data for New Gold Blackwater Gold Mine

BW-100A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	376649	5896695	depression 0-0.5 %	Organic, Undifferentiated, Fluvial	very poorly	Rego Gleysol - Peaty	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	40-0						
Cg	0-60	SiCL	2.5Y 4/1	MA	SS	60-	F/F/P

BW-100B	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	376556	5896802	upper 2-5 %	Glaciofluvial	well	Eluviated Dystric Brunisol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	4-0						
Ae	0-9	LS	10YR 6/2	W/F/PL	FR	30-	
Bm	9-21	LS	10YR 5/4	W/M/SB	FR	30-	
BC	21-38	LS	10YR 5/3	W/M/SB	FR	20-	
C	38-60	LS	2.5Y 5/2	MA	FR	20-	

BW-102A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	376571	5897000	upper 10-15 %	Morainal	well	Eluviated Dystric Brunisol	slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	11-0						
Ae	0-8	Si	10YR 7/2	W/F/PL	FR	50-	
Bm	8-30	SL	10YR 5/6	M/F/SB	FR	50-	
BC	30-42	SL	10YR 5/3	M/F/SB	FR	50-	
C	42-100	SL	2.5Y 5/2	MA	FR	50-	

BW-103A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	376745	5897027	mid 10-15 %	Morainal	moderately well	Eluviated Dystric Brunisol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	7-0						
Ae	0-7	LS	10YR 6/2	W/F/PL	FR	30-	
Bm	7-22	SL	10YR 5/4	W/F/SB	FR	30-	
BC	22-45	SL	10YR 5/3	W/M/SB	FR	20-	
C	45-100	SL	2.5Y 5/2	MA	NS	20-	

BW-104A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	376957	5897076	lower 6-9 %	Morainal	well	Orthic Gray Luvisol	slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	7-0						
Ae	0-6	LS	10YR 5/2	W/F/PL	FR	30-	
Bt	6-22	SL	10YR 5/4	W/M/SB	FR	30-	
BC	22-49	LS	10YR 5/3	W/M/SB	FR	40-	
IIC	49-100	LS	2.5Y 5/2	MA	FR	70-	

BW-105A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	377239	5897270	mid 2-5 %	Glaciofluvial	well	Eluviated Dystric Brunisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	6-0						
Ae	0-7	S	10YR 6/2	SG	LO	20-	
Bm	7-16	LS	10YR 5/4	SG	LO	20-	
BC	16-30	S	10YR 5/3	SG	LO	20-	
C	30-60	S	2.5Y 5/2	SG	LO	20-	

BW-106A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2012	376397	5896082	upper 2-5 %	Morainal	moderately well	Orthic Gray Luvisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	9-0						
Ae	0-9	SL	10YR 7/1	W/F/PL	FR	20-	
Bt	9-27	SCL	10YR 5/4	W/F/SB	FR	30-	
C	27-70	SCL	2.5Y 5/2	MA	SS	30-	

BW-107A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2012	376526	5896018	mid 6-9 %	Morainal	well	Eluviated Dystric Brunisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	5-0						
Ae	0-8	LS	10YR 7/1	W/F/PL	FR	30-	
Bt	8-35	SL	10YR 5/4	W/F/SB	FR	30-	
C	35-60	SCL	2.5Y 5/2	MA	SS	20-	

BW-108A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	376574	5896218	mid 16-30 %	Morainal	well	Eluviated Dystric Brunisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	5-0						
Ae	0-6	LS	10YR 5/2	W/F/PL	FR	50-	
Bm	6-18	SL	10YR 5/4	W/F/SB	FR	50-	
BC	18-55	SL	10YR 5/3	W/F/SB	FR	40-	
C	55-80	SL	2.5Y 5/2	MA	FR	40-	

BW-10A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2012	373457	5891203	mid 16-30 %	Morainal	well	Orthic Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	3-0						
Bm	0-48	SiL	7.5 YR 3/2	vw,f,sb	FR	40-50,	
C	48-75	SiL	10 YR 4/4	MA	FR	40-50,	

BW-110A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2012	376114	5896163	crest 0-0.5 %	Glaciofluvial	well	Eluviated Dystric Brunisol	slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	3-0						
Ae	0-6	S	10YR 8/1	SG	LO	30-	
Bm	6-39	S	10YR 5/4	SG	LO	30-	
C	39-100	S	2.5Y 5/2	SG	LO	20-	

BW-111A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2012	375943	5896269	mid 31-45 %	Glaciofluvial	well	Eluviated Dystric Brunisol	very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	5-0						
Ae	0-7	S	10YR 7/1	SG	LO	50-	
Bm	7-35	S	10YR 5/4	SG	LO	50-	
C	35-60	S	2.5Y 5/2	SG	LO	50-	

BW-112A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2012	375855	5896346	mid 6-9 %	Glaciofluvial	well	Eluviated Dystric Brunisol	very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	7-0						
Ae	0-6	S	10YR 8/1	SG	LO	50-	
Bm	6-35	S	10YR 5/6	SG	LO	50-	
C	35-60	S	2.5Y 5/2	SG	LO	50-	

BW-113A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2012	375710	5896025	mid 16-30 %	Glaciofluvial	well	Eluviated Dystric Brunisol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	3-0						
Ae	0-11	S	10YR 7/1	SG	LO	50-	
Bm	11-38	S	10YR 5/6	SG	LO	50-	
BC	38-60	S	2.5Y 5/2	SG	LO	50-	

BW-114A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2012	375668	5896074	upper 6-9 %	Glaciofluvial	rapidly	Eluviated Dystric Brunisol	excessively	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	2-0						
Ae	0-6	S	10YR 8/1	SG	LO	70-	
Bm	6-35	S	10YR 5/4	SG	LO	70-	
C	35-50	S	2.5Y 5/2	SG	LO	70-	

BW-115A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2012	375658	5895856	lower 6-9 %	Glaciofluvial	well	Eluviated Dystric Brunisol	very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	4-0						
Ae	0-8	S	10YR 7/1	SG	LO	40-	
Bm	8-27	S	10YR 5/6	SG	LO	50-	
BC	27-45	S	10YR 5/4	SG	LO	50-	
C	45-100	S	2.5Y 5/2	SG	LO	50-	

BW-116A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2012	375695	5895642	depression 2-5 %	Fluvial	imperfectly	Orthic Regosol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	12-0						
C	0-60	cS	10YR 4/2	SG	LO	80-	

BW-117A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2012	375995	5895492	mid 6-9 %	Morainal	well	Orthic Gray Luvisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	9-0						
Ae	0-9	Si	10YR 7/1	W/F/PL	FR	40-	
Bt	9-25	SiL	10YR 5/4	M/F/SB	FR	60-	
C	25-60	SL	2.5Y 5/2	MA	FI	60-	

BW118A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2012	376241	5895687	depression 0-0.5 %	Morainal	imperfectly	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	22-0						
Ae	0-9	LS	10YR 7/1	W/F/PL	FR	20-	
Bm	9-28	S	10YR 4/4	SG	LO	50-	
C	28-60	SL	2.5Y 5/2	MA	FR	40-	

BW-119A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	376590	5894137	level 0.5-2 %	Morainal	well	Eluviated Dystric Brunisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	4-0						
Ae	0-6	SL	10YR 5/2	W/F/PL	FR	50-	
Bm	6-33	SL	10YR 5/6	W/F/SB	FR	50-	
C	33-50	SL	2.5Y 4/2	MA	FR	50-	

BW-11A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2012	373472	5891380	mid 16-30 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	2-0						
Ae	0-9	SiL	10 YR 3/2	MA	LO	70, SA-	
Bm	9-30	SiL	7.5 Y 3/4	MA	LO	70, SA-	
C	30+	SiL	10 YR 3/4	MA	LO	70, SA-	

BW-120A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	376595	5894209	mid 2-5 %	Morainal	well	Eluviated Dystric Brunisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	6-0						
Ae	0-7	SL	10YR 5/2	W/F/PL	FR	40-	
Bm	7-22	LS	10YR 5/6	M/M/SB	FR	40-	
BC	22-50	LS	10YR 5/4	M/M/SB	FR	30-	
C	50-60	SL	2.5Y 5/2	MA	FR	30-	

BW-121A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	376345	5894224	mid 2-5 %	Morainal	well	Eluviated Dystric Brunisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	11-0						
Ae	0-7	SL	10YR 7/2	W/F/PL	FR	20-	
Bm	7-32	LS	10YR 5/6	W/F/SB	FR	30-	
BC	32-50	SL	10YR 5/4	W/F/SB	FR	30-	
C	50-70	SL	2.5Y 5/2	MA	FR	30-	

BW-122A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	376496	5894336	mid 6-9 %	Morainal	well	Eluviated Dystric Brunisol	slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	7-0						
Ae	0-6	SL	10YR 7/2	W/F/PL	FR	50-	
Bm	6-33	SL	10YR 5/6	W/F/SB	FR	50-	
BC	33-41	SL	10YR 5/4	W/F/SB	FR	50-	
C	41-60	SL	2.5Y 5/2	MA	FR	60-	

BW-123A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	376665	5894332	mid 6-9 %	Morainal	well	Orthic Dystric Brunisol	slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	8-0						
Bm	0-26	SL	10YR 5/6	W/F/SB	FR	60-	
BC	26-38	SL	10YR 5/4	W/F/SB	FR	50-	
C	38-60	SL	2.5Y 4/2	MA	FR	50-	

BW-124A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	376359	5894351	lower 2-5 %	Morainal	well	Eluviated Dystric Brunisol	slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	9-0						
Ae	0-7	SL	10YR 7/2	W/F/PL	FR	50-	
Bm	7-24	SL	10YR 5/6	W/F/SB	FR	50-	
BC	24-47	SL	10YR 5/4	W/F/SB	FR	20-	
C	47-70	SL	2.5Y 5/2	MA	FR	20-	

BW-125A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	376192	5894230	mid 2-5 %	Morainal	moderately well	Gleyed Eluviated Dystric Brunisol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	14-0						
Ae	0-11	SL	10YR 5/2	MA	SS	40-	
Bm	11-31	SL	10YR 5/4	MA	SS	30-	
Cgj	31-50	SL	2.5Y 6/2	MA	SS	30-	

BW-126A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	376037	5894270	upper 2-5 %	Morainal	well	Eluviated Dystric Brunisol	slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	9-0						
Ae	0-12	SL	10YR 6/2	W/F/PL	FR	50-	
Bm	12-31	SL	10YR 5/4	W/F/SB	FR	30-	
C	31-50	SL	2.5Y 5/2	MA	FR	30-	

BW-127A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	376119	5894097	lower 2-5 %	Morainal	moderately well	Gleyed Eluviated Dystric Brunisol	slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	12-0						
Ae	0-12	SL	10YR 5/2	MA	SS	50-	
AB	12-19	SL	10YR 5/3	MA	SS	40-	
Bmgj	19-45	SL	10YR 5/4	MA	SS	40-	
Cgj	45-60	SL	2.5Y 4/2	MA	SS	50-	

BW-128A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	376422	5894018	level 0-0.5 %	Morainal	very poorly	Rego Gleysol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	15-0						
Cg	0-60	SiL	10Y 5/1	MA	SS	40-	F/M/P

BW-129A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	376152	5894031	upper 6-9 %	Morainal	well	Eluviated Dystric Brunisol	slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	5-0						
Ae	0-10	LS	10YR 5/2	W/F/PL	FR	30-	
AB	10-20	LS	10YR 5/3	W/F/PL	FR	30-	
Bm	20-37	LS	10YR 5/6	M/M/SB	FR	20-	
C	37-60	LS	2.5Y 5/2	MA	FR	20-	

BW-12A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2012	373436	5891576	mid 16-30 %	Morainal	well	Orthic Humo-Ferric Podzol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	4-0						
Ae	0-4	SiL	10 YR 6/2	MA	LO	15-20,	
Bf1	4-12	SiL	10 YR 4/6	MA	LO	15-20,	
Bf2	12-30	SiL	10 YR 5/6	MA	LO	15-20,	
C	30-60	SiL	10 YR 5/4	MA	LO	15-20,	

BW-130A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	376353	5893995	level 0-0.5 %	Organic, Undifferentiated, Morainal	very poorly	Terric Fibrisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	0-130						
Cg	130+	SiL	10Y 5/1	MA	SS	40-	F/M/P

BW-132A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	376046	5892743	mid 16-30 %	Morainal	rapidly	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	8-0						
Ae	0-12	SL	10 YR 6/2	SG	LO	25-30,	
Bm	12-55	SL	10 YR 4/6	SG	LO	25-30,	
BC	55-90	SL	10 YR 5/4	SG	LO	25-30,	
C	90+	SL	10 YR 5/3	SG	LO	25-30,	

BW-133A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	376093	5892644	mid 6-9 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	8-0						
Ae	0-10	SiL	10 YR 6/2	MA		50-60,	
Bm	10-43	SiL	10 YR 4/6	MA		50-60,	
C	43-100	SiL	10 YR 5/2	MA		50-60,	

BW-135A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	376007	5892579	mid 10-15 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	11-0						
Ae	0-12	SL	10 YR 6/2	SG	LO	50-60,	
Bm	12-58	SL	10 YR 4/6	SG	LO	50-60,	
BC	58-70	SL	10 YR 5/4	SG	LO	50-60,	
C	70-100	SiL	10 YR 5/3	MA	LO	50-60,	

BW-138A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	376150	5892928	lower 6-9 %	Morainal	imperfectly	Rego Gleysol - Peaty		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	15-0						
Aegj	0-11	SiL	10 YR 6/2	MA	NS	30,	-
Cgj	11-100	SiL	10 YR 5/1	MA	NS	30,	c,m,d

BW-139A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	376077	5893083	mid 16-30 %	Morainal	rapidly	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	6-0						
Ae	0-16	SiL	10 YR 6/2	SG	LO	30-40,	
Bm	16-48	SiL	10 YR 4/6	SG	LO	30-40,	
BC	48-75	SiL	10 YR 5/4	SG	LO	30-40,	
C	75+	SiL	10 YR 5/3	SG	LO	30-40,	

BW-141A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	375514	5892645	mid 10-15 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	8-0						
Ae	0-3	SiL	10 YR 6/2	MA	LO	50-	
Bm	3-19	SiL	10 YR 4/6	MA	LO	50-	
BC	19-53	SiL	10 YR 5/4	MA	LO	50-	
C	53-100	SiL	10 YR 5/2	MA	LO	50-	

BW-147A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	376127	5893289	lower 10-15 %	Fluvial	poorly	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	12-0						
Ae	0-13	SL	10 YR 6/2	SG	LO	40,	
Bm	13-41	LcS	10 YR 4/4	SG	LO	40,	
Cg	41-100	LS	10 YR 5/1	SG	LO	40,	f,m,p

BW-148A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	376053	5893409	mid 2-5 %	Morainal	rapidly	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	10-0						
Ahe	0-10	SiL	10 YR 2/2	w,f,sb	-	70-80,	
Bm	10-22	SiL	10 YR 4/4	MA	LO	70-80,	
C	22+	SiL	10 YR 5/3	MA	LO	70-80,	

BW-14A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2012	373528	5891775	mid 16-30 %	Morainal	well	Orthic Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
L	2-0						
Ah	0-2	SiL	10 YR 3/2	MA	LO	60-70,	
Bm	2-40+	SiL	10 YR 4/4	vw,f,sb	FR	60-70,	

BW-150A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	375929	5893414	lower 6-9 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	-						
Ae	0-15	SL	10 YR 6/2	SG	LO	50-60,	
Bm	15-29	SL	10 YR 4/6	SG	LO	50-60,	
C	29-100	SiL	10 YR 5/2	MA	LO	50-60,	

BW-156A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	375197	5893491	mid 16-30 %	Morainal	well	Eluviated Dystric Brunisol	slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	12-0						
Ae	0-8	S	10YR 5/2	SG	LO	30-	
Bm	8-32	LS	10YR 4/3	SG	LO	30-	
C	32-50	LS	2.5Y 5/2	MA	FR	40-	

BW-158A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	374958	5892435	lower 16-30 %	Morainal	moderately well	Gleyed Eluviated Dystric Brunisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	14-0						
Aegj	0-7	SL	10YR 6/2	MA	SS	40-	
Bmgj	7-45	SL	10YR 5/3	MA	SS	30-	F/C/F
Cg	45-60	SL	2.5Y 5/2	MA	SS	40-	F/M/D

BW-15A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2012	373471	5891903	mid 16-30 %	Fluvial	poorly	Rego Gleysol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	2-0						
Cg	0-50	SiL	2.5 Y 4/1	MA	NS	50,	f,c,p

BW-160A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	374857	5893430	mid 16-30 %	Morainal	well	Orthic Dystric Brunisol	exceedingly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	3-0						
Bm	0-34	LS	10YR 5/3	W/F/SB	FR	40-	
C	34-100	LS	2.5Y 5/1	MA	FR	40-	

BW-167A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	374759	5893345	mid 16-30 %	Morainal	well	Eluviated Dystric Brunisol	slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	12-0						
Ae	0-12	LS	10YR 5/2	M/M/PL	FR	20-	
Bm	12-43	LS	10YR 5/3	W/M/SB	FR	30-	
C	43-60	LS	2.5Y 4/2	MA	FR	30-	

BW-168A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	374739	5893114	mid 16-30 %	Morainal		Gleyed Eluviated Dystric Brunisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	5-0						
Aegj	0-5	SiL	10YR 4/2	W/F/PL	FR	60-	
Bmgj	5-31	SiL	10YR 5/3	S/F/SB	FR	60-	
Cg	31-60	SL	2.5Y 5/1	MA	SS	40-	

BW-16A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2012	373439	5892046		Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	2-0						
Ae	0-5	L	10 YR 5/3	MA	LO	60, SA-	
Bm	5-32	L	10 YR 4/6	MA	LO	60, SA-	
C	32+	L	10 YR 3/4	MA	LO	60, SA-	

BW-175A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	374696	5892910	mid 16-30 %	Morainal	well	Orthic Regosol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	15-0						
C	0-40	SiL	2.5Y 4/2	MA	FR	90-	

BW-176A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	374726	5892728	mid 46-70 %	Morainal	well	Eluviated Dystric Brunisol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	6-0						
Ae	0-8	SL	10YR 5/1	W/F/PL	FR	20-	
Bm	8-24	SL	10YR 5/4	W/M/SB	FR	20-	
BC	24-48	LcS	10YR 5/3	S/F/SB	FR	20-	
C	48-60	LcS	2.5Y 5/2	MA	FR	50-	

BW-17A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2012			upper 6-9 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	3-0						
Ae	0-7	SiL	10 YR 6/2	MA	LO	30-40,	
Bm	7-22	SiL	7.5 YR 4/6	MA	LO	30-40,	
C	22-50	SiL	10 YR 5/4	MA	LO	30-40,	

BW-181A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2012	374902	5892642		Morainal, Bedrock	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	3-0						
Ae	0-3	SL	10 YR 6/2	MA	LO	20-30,	
Bm	3-32	SL	7 YR 4/6	MA	LO	20-30,	
BC	32-51	SL	10 YR 4/4	MA	LO	40-50,	
C	51-67	SL	2.5 Y 5/2	MA	LO	40-50,	
D	67+						

BW-182A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	376273	5899086	mid 10-15 %	Morainal	well	Orthic Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	1-0						
Bm	0-19	SL	10 YR 4/4	SG	LO	20-30,	
BC	19-37	SL	10 YR 5/3	SG	LO	20-30,	
C	37+	LS	10 YR 3/3	SG	LO	20-30,	

BW-184A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	376008	5898978	mid 6-9 %	Glaciofluvial	well	Orthic Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	3-0						
Bm	0-18	SiL	10 YR 4/5	MA	LO	35, SR,	
BC	18-45	SiL	10 YR 6/4	MA	LO	35, SR,	
C	45-100	SiL	10 YR 6/2	MA	LO	35, SR,	

BW-185A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	375892	5898829	level 0.5-2 %	Organic, Undifferentiated	very poorly	Terric Mesic Humisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Om	0-60						
Oh	60-140						
Cg	140	L	2.5 Y 5/1	MA	SS	1-5, SR,	

BW-186A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	375795	5898733	mid 6-9 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	3-0						
Ae	0-4	SL	10 YR 6/2	SG	LO	30-40,	
Bm	4-19	SL	10 YR 4/6	SG	LO	30-40,	
BC	19-42	LS	10 YR 5/4	SG	LO	30-40,	
C	42+	LS	10 YR 5/2	SG	LO	30-40,	

BW-187A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	375709	5898648	mid 6-9 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	3-0						
Ae	0-7	SiL	10 YR 7/1	MA	LO	25-30,	
Bm	7-35	SiL	10 YR 4/6	MA	LO	25-30,	
C	35-70	SiL	10 YR 5/2	MA	LO	25-30,	

BW-188A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	375676	5898803	mid 6-9 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	2-0						
Ae	0-7	SiL	10 YR 6/2	MA	LO	30-40,	
Bm	7-36	SiL	10 YR 4/5	MA	LO	30-40,	
C	36+	SiL	10 YR 5/2	MA	LO	30-40,	

BW-189A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	375668	5899006	mid 6-9 %	Glaciofluvial	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	7-0						
Ae	0-4	SL	10 YR 6/2	SG	LO	35, SR,	
Bm	4-36	SL	10 YR 4/5	SG	LO	35, SR,	
C	36-100	SL	10 YR 5/2	SG	LO	35, SR,	

BW-18A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2012	373680	5892349	mid 6-9 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	2-0						
Ae	0-4	SiL	10 YR 6/2	MA	LO	50-60,	
Bm	4-32	SiL	10 YR 4/6	MA	LO	50-60,	
C	32-32+	SL	10 YR 5/2	MA	LO	50-60,	

BW-190A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	375762	5899073	mid 2-5 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	9-0						
Ae	0-8	SL	10 YR 6/2	SG	LO	25, SR,	
Bm	8-38	SL	10 YR 5/4	SG	LO	25, SR,	
C	38+	SL	10 YR 5/3	SG	LO	25, SR,	

BW-191A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	375966	5899092	crest 16-30 %	Morainal	well	Orthic Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	3-0						
Ah	0-5	SL	10 YR 5/2	SG	LO	30, SR,	
Bm	5-29	SL	10 YR 4/4	SG	LO	30, SR,	
C	29-100+	LS	10 YR 4/3	SG	LO	30, SR,	

BW-192A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	375915	5899497	level 6-9 %	Glaciofluvial	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	3-0						
Ae	0-4	SL	10 YR 6/2	SG	LO	30-40,	
Bm	4-36	SL	10 YR 4/4	SG	LO	30-40,	
C	36-100	SL	10 YR 3/3	SG	LO	30-40,	

BW-193A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	375784	5899426	mid 10-15 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	3-0						
Ae	0-9	fSL	10 YR 6/2	SG	LO	30, SR,	
Bm	9-34	fSL	10 YR 5/4	SG	LO	30, SR,	
C	34+	fSL	10 YR 3/3	SG	LO	30, SR,	

BW-194A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	375669	5899344	mid 10-15 %	Glaciofluvial	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
L	1-0						
Ae	0-5	SiL	10 YR 6/1	MA	LO	70, SR,	
Bm	5-24	SiL	10 YR 4/4	MA	LO	70, SR,	
BC	24-65	SiL	10 YR 5/4	MA	LO	70, SR,	

BW-195A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	375399	5899476	mid 16-30 %	Morainal		Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	3-0						
Ae	0-6	SL	10 YR 6/2	SG	LO	10-15,	
Bm	6-36	SL	10 YR 3/4	SG	LO	10-15,	
C	36+	SL	10 YR 3/3	SG	LO	10-15,	

BW-196A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	375496	5899281	mid 6-9 %	Glaciofluvial	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
L	1-0						
Ae	0-3	SL	10 YR 6/2	SG	LO	30, SR,	
Bm	3-45	SL	10 YR 5/6	SG	LO	30, SR,	
C	45-65	SL	10 YR 6/2	SG	LO	30, SR,	

BW-197A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	375240	5899224	mid 6-9 %	Glaciofluvial	rapidly	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Ae	0-2	LS	10 YR 6/2	SG	LO	20-30,	
Bm	2-22	LS	10 YR 4/6	SG	LO	20-30,	
BC	22-40	LS	10 YR 5/4	SG	LO	1-5, SR,	
c	40-80	S	10 YR 5/2	SG	LO	50,	

BW-198A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	375025	5899230	mid 2-5 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
L	1-0						
Ae	0-11	SiL	10 YR 6/2	MA	LO	50,	
Bm	11-50+	SiL	10 YR 5/4	MA	LO	50,	

BW-199A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	374903	5899389	upper 6-9 %	Morainal	well	Orthic Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	8-0						
Ahe	0-4	SiL	10 YR 3/6	MA	LO	50, SR,	
Bm	4-32	SiL	10 YR 4/5	vw,m,sb	LO	50, SR,	
BC	32-58	SiL	10 YR 4/4	MA	LO	50, SR,	
C	58-100	SiL	10 YR 5/3	MA	LO	50, SR,	

BW-19A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2012	373846	5892369	upper 16-30 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	2-0						
Ae	0-2	SiL	10 YR 6/2	MA	LO	30-40,	
Bm	2-26	SiL	10 YR 4/6	MA	LO	30-40,	
C	26-50	SiL	10 YR 5/2	MA	LO	30-40,	

BW-1A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2012	372190	5892416	crest 31-45 %	Morainal	rapidly	Orthic Humic Regosol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	12-0						
Ah	0-35	SL	10YR 3/2	M/M/GR	LO	80-	
C	35-60	SL	2.5Y 5/2	MA	LO	80-	
R	60						

BW-200A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	374773	5899526	crest 2-5 %	Morainal		Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	3-0						
Ae	0-3	LS	10 YR 6/2	SG	LO	50-60,	
Bm	3-24	LS	10 YR 4/5	SG	LO	50-60,	
C	24+	LS	10 YR 5/3	SG	LO	50-60,	

BW-201A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	375224	5898855	lower 10-15 %	Morainal	moderately well	Orthic Gray Luvisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	9-0						
Ae	0-10	SL	10 YR 5/2	w,m,pl	FR	10-20,	
Bt	10-33	SL	10 YR 4/4	m,m,sb	FR	10-20,	
Cgj	33+	LS	2.5 Y 6/1	MA	FI	10-20,	f,f,f

BW-202A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	375183	5898789	level 0-0.5 %	Organic, Undifferentiated	very poorly	Terric Humic Mesisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Om	0-70						
Oh	70-120						

BW-203A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2012	373641	5896803	level 0-0.5 %	Organic, Undifferentiated, Lacustrine	very poorly	Terric Mesisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Om	0-120						
Cg	120+	SiC	2.5 Y 5/1	MA	S	0	

BW-204A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2012	373832	5896977	mid 10-15 %	Morainal	imperfectly	Rego Humic Gleysol - Peaty		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	15-0						
Ah	0-4	L	10 YR 2/1	w,c,sb	FR	20-30,	
Cgj	4-60+	L	10 YR 5/2	MA	SS	60-75,	

BW-205A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2012	374001	5897264	upper 10-15 %	Morainal	rapidly	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	4-0						
Ae	0-5	SL	10 YR 6/2	SG	LO	20-30,	
Bm	5-15	SL	10 YR 4/6	SG	LO	20-30,	
BC	15-26	SL	10 YR 4/4	SG	LO	20-30,	
C	26+	SL	10 YR 5/3	SG	LO	20-30,	

BW-206A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2012	374015	5897422	lower 6-9 %	Morainal	poorly	Rego Gleysol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	12-0						
Ah	0-7	L	10 YR 2/1	MA	SS	-	
Cg	7-70	SiCL	2.5 Y 4/1	MA	SS	80,	

BW-207A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2012	374043	5897661	mid 6-9 %	Morainal	rapidly	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	8-0						
Ae	0-9	SL	10 YR 6/2	SG	LO	30-40,	
Bm	9-23	SL	10 YR 4/5	SG	LO	30-40,	
BC	23-37	SL	10 YR 5/4	SG	LO	30-40,	
C	37+	SL	10 YR 5/3	SG	LO	30-40,	

BW-208A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2012	374170	5897851	upper 6-9 %		rapidly	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	5-0						
Ae	0-8	SL	10 YR 6/1	SG	LO	50, SR,	
Bm	8-17	SL	10 YR 4/6	SG	LO	40, SR,	
BC	17-26	SL	10 YR 4/3	SG	LO	40, SR,	
C	26+	SL	2.5 Y 5/3	SG	LO	40, SR,	

BW-209A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2012	374399	5897703	level 0.5-2 %	Organic, Undifferentiated, Morainal	poorly	Terric Mesisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Om	0-45						
Cg	45-80	L	2.5 Y 5/1	MA	NS	60,	

BW-20A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2012	374049	5892361		Morainal	well	Orthic Humic Gleysol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	8-0						
Ah	0-19	SL	10 YR 2/2	w,vf,sb	F	30-40,	
Cg	19-75	SCL	2.5 Y 5/3	MA	SS	30-40,	c,m,p

BW-210A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2012	374413	5897365	mid 6-9 %	Morainal	rapidly	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	4-0						
Ae	0-10	SL	10 YR 6/2	w,c,pl	FR	20-30,	
Bm	10-25	SL	10 YR 4/6	SG	LO	20-30,	
BC	25-38	SL	10 YR 5/4	SG	LO	20-30,	
C	38+	SL	2.5 Y 5/3	SG	LO	20-30,	

BW-211A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2012	374275	5897090	crest 6-9 %	Glaciofluvial	rapidly	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	4-0						
Ae	0-4	LS	10 YR 6/2	SG	LO	20-	
Bm	4-20	SL	10 YR 5/6	SG	LO	20-	
BC	20-38	SL	10 YR 5/4	SG	LO	20-	
C	38-65	SL	10 YR 5/3	SG	LO	20-	

BW-212A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2012	374150	5897017	lower 2-5 %	Morainal	poorly	Orthic Gleysol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	4-0						
Bg	0-50	L	10 YR 3/2	w,f,sb	NS	-	-
Cg	50-100	SiC	2.5 Y 4/1	MA	SS	-	-

BW-213A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	375319	5894377	mid 16-30 %	Morainal	well	Eluviated Dystric Brunisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	9-0						
Ae	0-8	SL	10YR 5/2	W/F/PL	FR	70-	
Bm	8-70	SL	10YR 5/4	M/F/SB	FR	70-	
C	70-80	SL	2.5Y 5/2	MA	FR	60-	

BW-214A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	374660	5894746	toe 2-5 %	Morainal	imperfectly	Rego Gleysol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	25-0						
Cg	0-30	Si	10Y /4/1	MA	SS	80-	F/F/P

BW-215A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	374756	5895036	upper 16-30 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	5-0						
Bm1	0-7	LS	10YR 5/6	W/M/GR	FR	70-	
Ae	7-16	LS	10YR 7/1	W/F/PL	FR	70-	
Bm2	16-29	LS	10YR 5/6	W/F/SB	FR	50-	
BC	29-45	SL	10YR 5/3	M/M/SB	FR	40-	
C	45-60	SL	2.5Y 5/2	MA	FR	50-	

BW-216A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	374686	5895295	depression 2-5 %	Morainal	imperfectly	Orthic Gleysol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	6-0						
Bgj	0-24	SiL	2.5Y 5/3	W/F/SB	FR	80-	
Cg	24-60	SiCL	2.5Y 5/2	MA	SS	20-	M/C/P

BW-217A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	24/07/2012	374416	5895422	mid 6-9 %	Morainal	imperfectly	Gleyed Dystric Brunisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	15-0						
Bmgj	0-23	LS	2.5Y 5/2	MA	FR	20-	F/M/F
Cgj	23-100	LS	2.5Y 4/2	MA	FR	30-	M/M/D

BW-218A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	24/07/2012	374005	5895514	mid 16-30 %	Morainal		Orthic Dystric Brunisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	12-0						
Bm	0-48	LS	10YR 5/4	W/F/SB	FR	40-	
C	48-70	LS	2.5Y 5/2	MA	FR	40-	

BW-219A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	24/07/2012	374245	5895499	mid 16-30 %	Morainal	well	Eluviated Dystric Brunisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	12-0						
Ae	0-9	SiL	10YR 6/2	W/F/PL	FR	20-	
Bm	9-28	LS	10YR 5/4	W/F/SB	FR	20-	
BC	28-52	LS	10YR 4/3	W/M/SB	FR	30-	
C	52-70	LS	2.5Y 4/2	MA	FR	30-	

BW-21A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2012	374257	5892506	mid 16-30 %	Morainal	poorly	Orthic Regosol - Peaty		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	20-0						
Cg	0-50	SiL	2.5 Y 5/1	MA	-	20, SR,	f,f,p

BW-220A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	24/07/2012	373648	5895573	lower 10-15 %	Morainal	well	Eluviated Dystric Brunisol	slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	11-0						
Ae	0-8	S	10YR 6/2	W/F/PL	FR	20-	
Bm	8-24	LS	10YR 5/6	W/F/SB	FR	20-	
BC	24-38	S	7.5YR 6/4	W/M/SB	FR	30-	
C	38-100	LS	2.5Y 5/2	MA	FR	30-	

BW-221A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	24/07/2012	373219	5895677	depression 2-5 %	Fluvial	imperfectly	Rego Humic Gleysol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	10-0						
Ahgj	0-35	SL	10YR 4/2	MA	SS	10-	
IICg	35-50	S	2.5Y 4/1	MA	NS	80-	

BW-222A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	24/07/2012	372914	5895881	depression 2-5 %	Morainal	poorly	Rego Humic Gleysol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	15-0						
Ahg	0-40	SiL	10YR 2/1	MA	SS	10-	
Cg	40-60	S	2.5Y 4/1	MA	NS	60-	

BW-223A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	24/07/2012	372456	5896341	mid 10-15 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	5-0						
Ae	0-9	SiL	10 YR 6/2	SG	LO	20-	
Bm	9-28	SiL	10 YR 4/6	SG	LO	20-	
C	28-100+	SiL	10 YR 5/2	SG	LO	20-	

BW-223B	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	24/07/2012	372359	5896036	mid 2-5 %	Morainal	well	Eluviated Dystric Brunisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	3-0						
Ae	0-7	LS	10YR 6/2	W/F/PL	FR	20-	
Bm	7-33	LS	10YR 5/6	W/F/SB	FR	30-	
C	33-50	S	2.5Y 5/2	MA	FR	40-	

BW-224A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	24/07/2012	371831	5896270	mid 6-9 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	4-0						
Ae	0-6	SiL	10 YR 6/2	MA	LO	25-	
Bm	6-32	SiL	10 YR 4/4	MA	LO	25-	
C	32-100	SiL	10 YR 5/2	MA	LO	25-	

BW-224B	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	24/07/2012	371845	5896352	upper 6-9 %	Morainal	well	Eluviated Dystric Brunisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	12-0						
Ae	0-6	fS	10YR 6/2	W/F/PL	FR	30-	
Bm	6-24	LS	10YR 5/6	W/F/SB	FR	20-	
BC	24-41	LS	10YR 5/3	W/M/SB	FR	20-	
C	41-100	LS	2.5Y 5/2	MA	FR	20-	

BW-225A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	374634	5893488	mid 16-30 %	Morainal	well	Eluviated Dystric Brunisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	14-0						
Ae	0-15	SiL	10YR 7/2	S/M/PL	FR	20-	
Bm	15-45	SiL	10YR 5/3	M/M/SB	FR	50-	
C	45-60	SiL	2.5Y 5/2	MA	FR	60-	

BW-22A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2012	374602	5892602	mid 10-15 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	9-0						
Ae	0-3	SiL	10 YR 5/2	MA	LO	30-	
Bm	3-60	SiL	10 YR 4/4	MA	LO	30-	
C	60+	SiL	2.5 Y 5/3	MA	LO	30-	

BW-23A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	376613	5891947	mid 10-15 %	Morainal	well	Orthic Humo-Ferric Podzol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	6-0						
Ae	0-15	SiL	10 YR 6/2	MA	LO	40-50,	
Bf1	15-27	SiL	10 YR 4/6	MA	LO	40-50,	
Bf2	27-45	SiL	10 YR 5/4	MA	LO	60-70,	
C	45-65	SiL	10 YR 5/3	MA	LO	60-70,	

BW-24A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	376458	5892004	mid 16-30 %	Morainal	well	Orthic Humo-Ferric Podzol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	9-0						
Ae	0-10	SL	10 YR 6/3	w,m,sb	FR	35, SR-	
Bf1	10-22	LS	5 YR 4/4	vw,f,sb	FR	35, SR-	
Bf2	22-33	LS	10 YR 4.5/6	MA	FR	35, SR-	
C	33+	SiL	10 YR 5/4	MA	FR	35, SR-	

BW-25A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	376377	5892044	mid 16-30 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	3-0						
Ae	0-4	SiL	10 YR 6/2	w,m,pl	FR	35,	
Bm	4-12	SiL	10 YR 4/6	w,f,sb	FR	35,	
BC	12-33	SiL	10 YR 5/3	MA	LO	35,	
C	33-60	SiL	10 YR 5/2	MA	LO	35,	

BW-26A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	376282	5892086	upper 10-15 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	8-0						
Ae	0-6	SiL	10 YR 6/2	MA	LO	50,	
Bm	6-32	SiL	10 YR 4/6	MA	LO	50,	
BC	32-60	SiL	10 YR 5/4	MA	LO	50,	
C	60-100	SiL	10 YR 5/3	MA	LO	50,	

BW-27A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	376187	5892152		Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	12-0						
Ae	0-8	SiL	10 YR 6/2	MA	LO	70,	
Bm	8-45	SiL	10 YR 4/6	MA	LO	70,	

BW-28A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	375662	5892545	mid 10-15 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	11-0						
Ae	0-9	LS	10 YR 6/2	SG	LO	40,	
Bm	9-48	LS	10 YR 4/6	SG	LO	40,	
BC	48-60	LS	10 YR 5/4	SG	LO	40,	
C	60-100	SL	10 YR 5/2	MA	NS	40,	

BW-29A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	375608	5892505	lower 6-9 %	Morainal	well	Eluviated Dystric Brunisol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	5-0						
Ae	0-6	SL	10YR 5/2	W/F/PL	FR	30-	
Bm	6-31	LS	7.5YR 4/3	W/M/SB	FR	20-	
C	31-50	LS	2.5Y 5/2	MA	FR	20-	

BW-2A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2012	372375	5892774	lower 46-70 %	Colluvial	very rapidly	Orthic Dystric Brunisol	excessively	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	6-0						
Ahe	0-8	S	10YR 4/2	W/F/GR	LO	80-	
Bm	8-60	S	10YR 5/4	SG	LO	80-	
C	60-80	S	2.5Y 5/2	SG	LO	80-	

BW-30A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	375549	5892480	toe 10-15 %	Morainal	well	Orthic Dystric Brunisol	exceedingly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	8-0						
Bm	0-24	LS	7.5Y 4/3	W/F/SB	FR	30-	
BC	24-50	SL	10YR 5/4	M/F/SB	FR	20-	
C	50-60	SL	2.5Y 5/2	MA	FR	30-	

BW-31A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	374996	5892229	lower 2-5 %	Morainal	well	Orthic Dystric Brunisol	exceedingly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	7-0						
Bm	0-17	SL	10YR 5/4	W/F/SB	FR	50-	
C	17-40	LS	2.5Y 5/2	MA	FR	50-	

BW-32A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	374939	5892177	level 0-0.5 %	Morainal	imperfectly	Rego Gleysol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	10-0						
Cg1	0-10	Si	5Y 4/1	MA	SS	10-	F/M/P
Cg2	10-50	S	2.5Y 5/1	MA	SS	80-	

BW-33A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	374648	5891820	mid 31-45 %	Morainal	rapidly	Eluviated Dystric Brunisol	very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	9-0						
Ah	0-14	SL	10YR 4/2	W/F/GR	LO	80-	
Bm	14-39	S	10YR 4/4	SG	LO	80-	
C	39-50	S	2.5Y 5/2	SG	LO	80-	

BW-34A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	374461	5891653	mid 16-30 %	Morainal	rapidly	Orthic Humic Regosol	excessively	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	3-0						
Ah	0-29	S	10YR 3/3	W/F/GR	LO	80-	
Bmj	29-36	S	10YR 4/4	SG	LO	80-	
C	36-50	S	2.5Y 4/3	SG	LO	80-	

BW-34B	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	24/07/2012	374346	5894475	depression 2-5 %	Morainal	poorly	Gleyed Humic Regosol	very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	25-0						
Ahg	0-15	SiL	10YR 3/1	MA	SS	90-	
Cg	15-30	SiL	2.5Y 5/2	MA	SS	90-	

BW-35A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	374764	5891985	lower 6-9 %	Morainal	well	Sombric Humo-Ferric Podzol	very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	12-0						
Ah	0-15	LS	10YR 3/1	W/F/GR	LO	80-	
Bf1	15-24	LS	7.5YR 3/4	M/M/GR	LO	80-	
Bf2	24-35	LS	7.5YR 4/4	M/M/GR	LO	80-	
C	35-50	S	2.5Y 4/2	MA	LO	80-	

BW-36A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	375135	5892289	lower 2-5 %	Morainal	rapidly	Eluviated Dystric Brunisol	exceedingly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	14-0						
Ahe	0-5	LS	10YR 4/2	W/F/PL	FR	80-	
Bm	5-36	LS	10YR 5/4	W/F/SB	FR	80-	
C	36-50	LS	2.5Y 5/2	MA	FR	80-	

BW-37A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	375312	5892413	lower 6-9 %	Morainal	rapidly	Eluviated Dystric Brunisol	very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	12-0						
Ahe	0-7	SL	10YR 4/2	W/F/PL	FR	80-	
Bm	7-38	LS	10YR 5/5	W/F/SB	FR	80-	
C	38-50	LS	2.5Y 5/2	MA	FR	80-	

BW-38A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	375795	5892348	mid 6-9 %	Glaciofluvial	rapidly	Orthic Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	6-0						
Bm	0-28	LS	10 YR 4/6	SG	LO	60,SR,	
C	28+	LS	10 YR 5/2	SG	LO	60,SR,	

BW-39A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	375942	5892254	mid 2-5 %	Morainal	rapidly	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	6-0						
Ae	0-13	LcS	10 YR 5/4	SG	LO	70,SR,	
Bm	13-60	LcS	7.5 YR 4/6	SG	LO	70,SR,	
C	60+	LcS	10 YR 5/1	SG	LO	70,SR,	

BW-3A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2012	372446	5892936	mid 31-45 %	Colluvial	rapidly	Orthic Regosol	slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	12-0						
C	0-30	S	2.5Y 5/2	SG	LO	90-	

BW-40A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2012	373755	5894076	mid 2-5 %	Morainal	moderately well	Eluviated Dystric Brunisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	12-0						
Ahe	0-6	SL	10YR 4/2	W/F/PL-GR	FR	30-	
Ae	6-13	SL	10YR 6/2	W/F/PL	FR	30-	
Bm	13-28	SL	10YR 5/4	M/M/SB	FR	30-	
C	28-50	SL	2.5Y 5/2	MA	FR	20-	

BW-41A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2012	373890	5894235	depression 0.5-2 %	Organic, Undifferentiated	poorly	Typic Fibrisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	0-120+						

BW-42A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2012	374137	5894289	level 0.5-2 %	Organic, Undifferentiated, Morainal	very poorly	Rego Gleysol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	35-0						
Cg	0-30	S	2.5Y 5/2	MA	NS	80-	

BW-43A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	24/07/2012	374336	5894465	upper 2-5 %	Morainal	rapidly	Orthic Regosol	very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	16-0						
C	0-20	S	2.5Y 5/2	SG	LO	90-	

BW-44A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2012	374660	5894632	mid 10-15 %	Morainal	well	Eluviated Dystric Brunisol	slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	6-0						
Ae1	0-7	Si	10YR 5/2	W/F/PL	FR	50-	
Bm1	7-26	SiL	10YR 5/4	M/M/SB	FR	50-	
Ae2	26-31	Si	10YR 7/1	M/M/PL	FR	20-	
Bm2	31-55	SiL	10YR 5/4	M/M/SB	FR	20-	
C	55-70	SiL	2.5Y 5/2	MA	FR	20-	

BW-46A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2012	374827	5892647	mid 10-15 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	10-0						
Ae	0-13	SiL	10 YR 6/2	MA	LO	30-40,	
Bm	13-40	SiL	10 YR 4/6	MA	LO	30-40,	
C	40-60	SiL	10 YR 5/2	MA	LO	50-60,	

BW-47A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2012	376489	5895862	depression 2-5 %	Morainal	imperfectly	Gleyed Cumulic Regosol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	10-0						
Cgj	0-22	SL	10YR 5/3	MA	SS	40-	
LFHb	22-24						
Cg	24-70	SL	2.5Y 5/2	MA	SS	40-	F/F/P

BW-48A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	375315	5898636	mid 6-9 %	Morainal	rapidly	Orthic Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	1-0						
Bm	0-35	SL	10 YR 4/6	SG	LO	1-5, SR,	
C	35-100+	SL	10 YR 5/3	SG	LO	10-15,	

BW-4A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2012	372509	5893157	lower 16-30 %	Colluvial	well	Orthic Gray Luvisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	16-0						
Ae	0-22	LS	10YR 5/2	M/F/PL	FR	80-	
Bt	22-40	SL	10YR 4/3	W/F/SB	FR	60-	
C	40-60	SL	2.5Y 5/2	MA	FR	60-	

BW-50A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	375041	5898378	upper 6-9 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	4-0						
Ae	0-16	SiL	10 YR 6/2	w,m,pl	FR	5-10,	
Bm	16-22	SiL	7.5 YR 4/6	w,m,sb	FR	5-10,	
BC	22-36	SiL	10 YR 4/4	MA	FR	20-25,	
C	36-100	SiL	10 YR 5/4	MA	FR	20-25,	

BW-51A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	24/07/2012	375141	5898230	mid 2-5 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	2-0						
Ae	0-3	LS	10 YR 6/2	SG	LO	20,SR,	
Bm	3-33	LS	10 YR 4/6	SG	LO	20,SR,	
C	33+	LS	10 YR 5/2	SG	LO	20,SR,	

BW-52A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	24/07/2012	374770	5898253	upper 10-15 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	3-0						
Ae	0-6	SiL	10 YR 6/2	MA	LO	20-30,	
Bm	6-46	SiL	10 YR 4/6	MA	LO	20-30,	
C	46-100	SiL	10 YR 5/3	MA	LO	20-30,	

BW-53A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	374990	5898037	mid 46-70 %	Glaciofluvial	rapidly	Orthic Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	2-0						
Bm	0-22	SL	10 YR 4/6	w,f,sb	FR	15-25,	
BC	22-36	SL	10 YR 5/4	MA	FR	15-25,	
C	36-100+	SL	10 YR 5/3	MA	FR	15-25,	

BW-54A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	374523	5898500	mid 6-9 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	7-0						
Ae	0-3	SiL	10 YR 6/2	MA	LO	25,	
Bm	3-22	SiL	10 YR 4/6	MA	LO	25,	
BC	22-46	SiL	10 YR 5/4	MA	LO	25,	
C	46-100	SiL	10 YR 5/3	MA	LO	25,	

BW-55A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	374217	5898527	mid 6-9 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	4-0						
Ae	0-2	SiL	10 YR 6/2	MA	LO	25,	
Bm	2-10	SiL	10 YR 4/6	MA	LO	25,	
BC	10-41	SiL	10 YR 5/4	MA	LO	25,	
C	41-100	SiL	10 YR 5/3	MA	LO	25,	

BW-56A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	373947	5898523	mid 6-9 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	4-0						
Ae	0-4	SiL	10 YR 6/2	MA	LO	25,	
Bm	4-31	SiL	10 YR 4/6	w,f,sb	FR	25,	
C	31-100	SiL	10 YR 5/3	MA	LO	25,	

BW-57A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	374559	5898863	lower 6-9 %	Morainal	moderately well	Orthic Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	10-0						
Bm	0-12	SiL	10 YR 3/4	w,f,sb	FR	20, SR,	
Cgj	12-75	SiL	10 YR 5/2	MA	LO	20, SR,	f,f,f

BW-58A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	374592	5898972	mid 6-9 %	Morainal	well	Orthic Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	7-0						
Bm	0-28	SiL	10 YR 4/5	MA	NS	20-30,	
C	28-100	SiL	10 YR 5/3	MA	NS	20-30,	

BW-59A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	374379	5899214	mid 16-30 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	14-0						
Ae	0-7	SiL	10 YR 6/2	MA	LO	15-20,	
Bm	7-44	SiL	10 YR 4/5	w,f,sb	FR	15-20,	
BC	44-62	SiL	10 YR 6/4	MA	LO	15-20,	
C	62-100	SiL	10 YR 5/3	MA	LO	15-20,	

BW-5A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2012	372611	5893413	toe 16-30 %	Colluvial	poorly	Rego Gleysol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	27-0						
Cg	0-50	SL	2.5Y 5/2	MA	SS	70-	

BW-62A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2012	382601	5899421	upper 2-5 %	Glaciofluvial	well	Orthic Dystric Brunisol	slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	3-0						
Aej	0-4	S	2.5Y 6/3	SG	LO	70-	
Bm	4-37	S	2.5Y 5/4	SG	LO	70-	
C	37-60	S	2.5Y 4/2	SG	LO	70-	

BW-63A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2012	382465	5899186	mid 16-30 %	Glaciofluvial	rapidly	Eluviated Dystric Brunisol	very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	2-0						
Ae	0-6	S	10YR 5/2	SG	LO	40-	
Bm	6-27	S	10YR 5/4	SG	LO	40-	
C	27-60	S	2.5Y 5/2	SG	LO	40-	

BW-64A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2012	382036	5899066	crest 31-45 %	Glaciofluvial	rapidly	Eluviated Dystric Brunisol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	4-0						
Ae	0-6	S	10YR 6/1	SG	LO	60-	
Bm	6-26	S	10YR 5/4	SG	LO	60-	
C	26-50	S	2.5Y 5/2	SG	LO		

BW-65A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2012	382135	5899056	upper 16-30 %	Glaciofluvial	well	Orthic Dystric Brunisol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	3-0						
Bm	0-25	S		SG	LO	60-	
C	25-50	S		SG	LO	60-	

BW-66A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2012	382226	5899064	lower 2-5 %	Morainal	well	Eluviated Dystric Brunisol	very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	4-0						
Ae	0-9	S	10YR 5/2	SG	LO	80-	
Bm	9-28	S	10YR 5/4	SG	LO	80-	
C	28-50	S	2.5Y 5/2	SG	LO	80-	

BW-67A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2012	382295	5899344	mid 6-9 %	Morainal	rapidly	Orthic Dystric Brunisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	5-0						
Ah	0-6	S	10YR 3/2	SG	LO	50-	
Bm	6-21	cS	10YR 5/4	SG	LO	50-	
C	21-60	cS	2.5Y 4/2	SG	LO	50-	

BW-68A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2012	382334	5899536	depression 2-5 %	Morainal	well	Orthic Dystric Brunisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	12-0						
Bm	0-12	SL	10YR 5/3	SG	LO	50-	
C	12-50	SL	2.5Y 4/2	SG	LO	50-	

BW-6A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2012	372637	5893602	toe 2-5 %	Morainal	well	Eluviated Dystric Brunisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	15-0						
Ae	0-11	SiL	10YR 6/2	W/F/PL	FR	60-	
Bm	11-31	SiL	10YR 5/3	M/F/SB	FR	60-	
C	31-60	SiL	2.5Y 5/2	MA	FR	40-	

BW-70A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2012	381771	5898934	mid 31-45 %	Glaciofluvial	rapidly	Orthic Dystric Brunisol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	6-0						
Bm	0-12	S	10YR 5/6	SG	LO	80-	
C	12-60	S	2.5Y 5/2	SG	LO	80-	

BW-71A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2012	381702	5898932	crest 31-45 %	Glaciofluvial	well	Orthic Dystric Brunisol	slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	8-0						
Bm	0-9	S	10YR 4/3	SG	LO	50-	
C	9-40	S	2.5Y 5/2	SG	LO	50-	

BW-73A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2012	381798	5898692	mid 16-30 %	Glaciofluvial	very rapidly	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	3-0						
Ae	0-5	LS	10 YR 6/2	SG	LO	80, SR,	
Bm	5-40	LS	10 YR 4/5	SG	LO	80, SR,	
C	40+	LS	10 YR 5/2	SG	LO	80, SR,	

BW-74A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2012	381872	5898695	level 2-5 %	Organic, Undifferentiated, Glaciofluvial	very poorly	Terric Fibric Mesisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	0-80						
Om	80-120						
Cg	120+	LS	2.5 Y 4/1	SG	NS	80, SR,	

BW-75A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2012	381990	5898682	level 2-5 %	Fluvial	poorly	Rego Gleysol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	15-0						
Cg1	0-70	SiL	5Y 5/1	MA	SS		
Cg2	70-120	S	5GY 6/1	MA	NS	10-	F/C/P

BW-77A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2012	381558	5898815	crest 16-30 %	Glaciofluvial	very rapidly	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	3-0						
Ae	0-17	LS	10 YR 6/3	MA	LO	85, SR,	
Bm	17-100	LS	10 YR 4/5	MA	LO	85, SR,	

BW-78A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2012	381450	5898758	mid 16-30 %	Glaciofluvial	very rapidly	Orthic Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	2-0						
Bm	0-10	LS	10 YR 4/4	SG	LO	90, SR,	
C	10-100	LS	10 YR 5/3	SG	LO	90, SR,	

BW-79A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2012	381154	5898468	crest 6-9 %	Glaciofluvial	very rapidly	Orthic Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	2-0						
Bm	0-8	LS	10 YR 4/4	SG	LO	85, SR,	
C	8-100	LS	10 YR 5/3	SG	LO	85, SR,	

BW-7A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2012	372753	5893768	toe 2-5 %	Morainal	rapidly	Eluviated Dystric Brunisol	exceedingly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	2-0						
Ae	0-9	S	10YR 7/1	SG	LO	40-	
Bm	9-28	S	10YR 5/6	SG	LO	30-	
BC	28-45	S	10YR 5/4	SG	LO	30-	
C	45-70	S	2.5Y 5/2	SG	LO	30-	

BW-80A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2012	381328	5898639	mid 16-30 %	Glaciofluvial	very rapidly	Orthic Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	2-0						
Bm	0-6	LS	10 YR 4/4	SG	LO	90, SR,	
C	6-100	LS	10 YR 5/2	SG	LO	90, SR,	

BW-81A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2012	381713	5899097		Glaciofluvial	well	Orthic Dystric Brunisol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	9-0						
Bm	0-9	S	10YR 4/3	SG	LO	50-	
C	9-40	S	2.5Y 4/2	SG	LO	50-	

BW-82A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2012	381952	5898599	depression 16-30 %	Organic, Undifferentiated, Glaciofluvial	very poorly	Terric Mesisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	0-20						
Om	20-105						
Ahg	105-115	S	10YR 3/1	SG	NS	50-	F/C/P
Cg	115-120	S	5Y 6/1	MA	NS		

BW-83A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2012	380529	5898753	mid 6-9 %	Morainal	well	Orthic Regosol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	10-0						
Ae	0-4	SiL	10 YR 6/2	MA	LO	50,	
C	4+	L	10 YR 5/2	MA	LO	60,	

BW-84A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2012	379853	5898891	mid 6-9 %	Morainal	well	Orthic Regosol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	4-0						
Ae	0-32	SiL	10 YR 6/3	w,m,pl	FR	20-30,	
IIC	32	CL	10 YR 4/4	MA	FI	10-15,	

BW-85A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2012	380700	5898662	mid 6-9 %	Morainal	well	Rego Gleysol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	9-0						
Ah	0-8	L	10 YR 2/1	MA	NS	10-20,	
Cg	8-65+	SL	2.5 Y 5/3	MA	SS	10-15,	m,m,p

BW-86A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2012	379751	5898767	mid 2-5 %	Morainal	well	Orthic Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	4-0						
Bm	0-18	SiL	10 YR 3/4	MA	LO	40-50,	
C	18-55	SiL	10 YR 6/2	MA	LO	40-50,	

BW-87A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2012	379484	5898649	mid 2-5 %	Morainal	well	Orthic Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	4-0						
Bm	0-24	SiL	10 YR 5/4	vw, m,sb	FR	30-	
C	24+	SiL	10 YR 6/2	SG	LO	30-	

BW-88A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2012	379359	5898622	mid 2-5 %	Morainal	well	Orthic Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	2-0						
Bm	0-16	SiL	10 YR 4/4	MA	LO	20-30,	
C	16-60	SiL	10 YR 6/2	MA	LO	30-40,	

BW-89A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2012	379190	5898586	mid 2-5 %	Morainal	well	Orthic Regosol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	10-0						
Ae	0-21	SL	10 YR 6/3	w,m,pl	FR	20-30,	
C	21-80	CL	2.5 Y 5/3	MA	FI	25, SR,	

BW-8A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2012	373054	5893900	level 0.5-2 %	Organic, Undifferentiated	very poorly	Terric Mesisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	0-20						
Om	20-110						
Cg	110-120	SL	2.5Y 5/1	MA	SS	80-	

BW-90A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2012	378920	5898508	lower 2-5 %	Morainal	well	Orthic Regosol - Peaty		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	21-0						
Cg	0-40	SiL	10 YR 6/2	MA	LO	40,	

BW-91A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2012	378708	5898487	mid 6-9 %	Morainal	well	Orthic Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	5-0						
Bm	0-22	SiL	10 YR 4/5	MA	LO	70, SR-	
C	22+	SiL	10 YR 5/2	MA	LO	70, SR-	

BW-92A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2012	378426	5895427	lower 6-9 %	Fluvial	poorly	Rego Humic Gleysol - Peaty		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	30-0						
Ahg	0-25	L	10 YR 2/1	MA	-	-	
Cg	25-70	CL	2.5 Y 4/1	MA	-	0	f,c,p

BW-93A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2012	378007	5898363	mid 6-9 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	5-0						
Ae	0-8	SiL	10 YR 6/2	MA	LO	40, SR-	
Bm	8-29	SiL	10 YR 4/5	MA	LO	40, SR-	
C	29+	SiL	10 YR 6/2	MA	LO	40, SR-	

BW-94A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	377312	5897168	level 0-0.5 %	Organic, Undifferentiated, Glaciofluvial	very poorly	Terric Fibrisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	0-80						
Om	80-90						
Cg	90-120	S	2.5Y 6/1	MA	NS	40-	

BW-95A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	376938	5897146	level 0-0.5 %	Glaciolacustrine	very poorly	Rego Gleysol - Peaty	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	50-0						
Cg	0-50	SiC	N 4/1	MA	S	40-	F/F/P

BW-96A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	377205	5896967	mid 10-15 %	Glaciofluvial	well	Eluviated Dystric Brunisol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	7-0						
Ae	0-7	SL	10YR 6/2	W/F/PL	FR	30-	
Bm	7-17	SL	10YR 5/6	W/F/SB	FR	30-	
C	17-55	SL	2.5Y 5/2	MA	FR	30-	

BW-97A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	377006	5896479	mid 6-9 %	Morainal	well	Eluviated Dystric Brunisol	slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	6-0						
Ae	0-6	L	10YR 7/2	W/F/PL	FR	30-	
Bm	6-17	L	10YR 5/8	W/M/GR	FR	30-	
BC	17-29	SL	10YR 5/3	W/F/SB	FR	50-	
C	29-85	L	2.5Y 5/2	MA	FR	50-	

BW-98A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	377126	5896751	mid 6-9 %	Glaciofluvial	well	Orthic Regosol	slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	18-0						
C	0-45	SL	2.5Y 5/2	M/M/GR	LO	80-	

BW-9A	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2012	373287	5894007	level 0-0.5 %	Organic, Undifferentiated, Morainal	very poorly	Typic Fibrisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	0-90						
Cg	90-120	SCL	10Y 6/1	MA	SS	80-	

BW-9B	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	StoninessNotes
	19/07/2012	376773	5896687	mid 10-15 %	Morainal	imperfectly	Orthic Gleysol	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	16-0						
Bg	0-16	SCL	10YR 5/2	M/F/SB	SS	40-	
Cg	16-80	SCL	2.5Y 5/2	MA	SS	40-	

PB-1	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	377287	5897114	toe 2-5 %	Glaciofluvial	well	Eluviated Dystric Brunisol	slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	3-0						
Ae	0-7	S	10YR 7/1	SG	LO		
Bm	7-35	S	10YR 5/6	SG	LO		
C	35-60	S	2.5Y 5/2	SG	LO		

PB-2	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	374498	5893489	lower 6-9 %	Morainal	well	Eluviated Dystric Brunisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	14-0						
Ae	0-19	SiL	10YR 6/2	W/M/PL	FR	50-	
Bm	19-55	LS	10YR 5/4	W/M/SB	FR	60-	
C	55-70	LS	2.5Y 5/2	MA	FR	60-	

PB-3	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	24/07/2012	375223	5896022	mid 16-30 %	Morainal	well	Orthic Dystric Brunisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	7-0						
Bm	0-34	SL	10YR 5/4	W/M/SB	FR	30-	
C	34-70	LS	2.5Y 5/2	MA	FR	40-	

PB-4	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	24/07/2012	374885	5896018	lower 16-30 %	Morainal	well	Eluviated Dystric Brunisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	5-0						
Ae	0-10	LS	10YR 6/1	W/F/PL	FR	20-	
Bm	10-25	LS	10YR 5/4	W/F/SB	FR	30-	
BC	25-41	LS	10YR 5/3	W/F/SB	FR	30-	
C	41-100	LS	2.5Y 4/2	MA	FR	30-	

PB-5	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	24/07/2012	374569	5896087	depression 2-5 %	Morainal	well	Eluviated Dystric Brunisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	12-0						
Ae	0-8	LS	10YR 6/1	W/F/PL	FR	20-	
Bm	8-17	LS	10YR 4/4	W/M/SB	FR	30-	
BC	17-24	S	10YR 5/3	SG	LO	60-	
C	24-100	S	2.5Y 5/2	SG	LO	90-	

PB-6	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	24/07/2012	375457	5896183	mid 46-70 %	Glaciofluvial	rapidly	Eluviated Dystric Brunisol	exceedingly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	5-0						
Ae	0-6	S	10YR 6/2	SG	LO	50-	
Bm	6-19	S	10YR 5/4	SG	LO	50-	
C	19-100	S	2.5Y 5/2	SG	LO	80-	

PB-7	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	24/07/2012	375535	5896478	upper 31-45 %	Glaciofluvial	well	Orthic Dystric Brunisol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	4-0						
Bm	0-34	LS	10YR 5/4	W/F/SB	FR	30-	
C	34-50	S	2.5Y 5/2	MA	FR	30-	

SC1	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	374495	5899394	mid 16-30 %	Morainal	rapidly	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	6-0						
Ae	0-13	fSL	10 YR 7/1	SG	SH	40-50,	
Bm	13-28	fSL	10 YR 5/4	SG	SH	40-50,	
BC	28-45	fSL	10 YR 4/4	SG	SH	40-50,	
C	45-100	fSL	10 YR 5/3	SG	SH	40-50,	

SC10	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	375506	5897950	mid 16-30 %	Morainal	rapidly	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	1-0						
Ae	0-1	SL	10 YR 6/2	MA	LO	15-20,	
Bm	1-19	SL	10 YR 4/4	MA	LO	15-20,	
C	19+	SL	10 YR 5/3	MA	LO	15-20,	

SC11	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	375503	5897993	level 2-5 %	Fluvial	rapidly	Humic Regosol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	7-0						
Ah	0-7	LS	10 YR 2/1	SG	LO	60, SR,	
C	7-65	LS	10 YR 3/2	SG	LO	60, SR,	

SC12	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	375481	5898115	upper 10-15 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	4-0						
Ae	0-4	SiL	10 YR 6/2	MA	LO	25,	
Bm	4-27	SiL	10 YR 4/5	MA	LO	25,	
C	27-100	SiL	10 YR 5/3	MA	LO	25,	

SC13	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	375401	5898218	mid 6-9 %	Morainal	well	Orthic Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	7-0						
Bm	0-18	SiL	10 YR 4/6	MA	LO	20, SR,	
BC	18-26	SiL	10 YR 5/4	MA	LO	20, SR,	
C	26-100	SiL	10 YR 5/3	MA	LO	20, SR,	

SC14	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	375842	5892308		Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	11-0						
Ae	0-10	cSL	10 YR 6/2	SG	LO	40,	
Bm	10-48	cSL	7.5 YR 4/4	SG	LO	40,	
BC	48-62	cSL	10 YR 5/4	SG	LO	40,	
C	62-100	cSL	10 YR 5/2	SG	LO	40,	

SC15	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	23/07/2012	375806	5893397	mid 6-9 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	6-0						
Ae	0-21	SiL	10 YR 6/2	MA	LO	30-	
Bm	21-42	SiL	10 YR 4/5	MA	LO	30-	
C	42-100	SiL	10 YR 5/2	MA	LO	30-	

SC16	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	24/07/2012	374210	5897996	upper 10-15 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	4-0						
Ae	0-6	SiL	10 YR 6/2	MA	LO	20,SR-	
Bm	6-51	SiL	10 YR 4/6	MA	LO	20,SR-	
C	51-100	SiL	10 YR 5/3	MA	LO	20,SR-	

SC17	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	24/07/2012	374994	5897100	mid 10-15 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	3-0						
Ae	0-4	SiL	10 YR 6/2	MA	LO	30,SR/S	
Bm	4-22	SiL	10 YR 4/6	MA	LO	30,SR/S	
C	22-100	SL	10 YR 5/3	SG	LO	30,SR/S	

SC18	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	24/07/2012	375621	5897569	mid 6-9 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	5-0						
Ae	0-7	SL	10 YR 6/2	SG	LO	25-30,	
Bm	7-52	SL	10 YR 4/5	SG	LO	25-30,	
C	52-100+	SL	10 YR 5/2	SG	LO	25-30,	

SC19	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	24/07/2012	375865	5897871	level 0-0.5 %	Glaciofluvial	very rapidly	Orthic Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	1-0						
Ahe	0-3	LS	10 YR 2/2	SG	LO	20-	
Bm	3-32	LS	10 YR 4/4	SG	LO	20-	
C	32-100+	LS	10 YR 5/2	SG	LO	20-	

SC2	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	374726	5899350	mid 16-30 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	8-0						
Ae	0-9	SiL	10 YR 6/2	SG	LO	50, SR,	
Bm	9-36	SiL	10 YR 4/4	SG	LO	50, SR,	
BC	36-62	SiL	10 YR 5/4	SG	LO	50, SR,	
C	62+	SiL	10 YR 5/3	SG	LO	50, SR,	

SC20	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	24/07/2012	375977	5898013	mid 6-9 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	3-0						
Ae	0-3	SiL	10 YR 6/2	MA	LO	50-60,	
Bm	3-48	SiL	10 YR 4/6	MA	LO	50-60,	
C	48-100	SiL	10 YR 5/3	MA	LO	50-60,	

SC21	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	24/07/2012	375158	5897501	mid 10-15 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	4-0						
Ae	0-3	SiL	10 YR 6/2	MA	LO	20-30,	
Bm	3-21	LS	10 YR 4/6	SG	LO	20-30,	
BC	21-56	LS	10 YR 5/4	SG	LO	20-30,	
C	56-100	LS	10 YR 5/3	SG	LO	20-30,	

SC22	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	24/07/2012	374654	5896433		Morainal	rapidly	Orthic Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	4-0						
Bm	0-22	LS	10 YR 4/5	SG	LO	20-	
C	22-100	LS	10 YR 5/2	SG	LO	20-	

SC23	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	24/07/2012	374595	5896566	mid 6-9 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	4-0						
Ae	0-4	SiL	10 YR 6/2	MA	-	25,SR/S	
Bm	4-33	SiL	10 YR 4/6	MA	-	25,SR/S	
C	33-100	SL	10 YR 5/2	SG	-	25,SR/S	

SC24	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	24/07/2012	374290	5896555	mid 6-9 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	9-0						
Ae	0-13	LS	10 YR 6/3	SG	LO	25-30,	
Bm	13-46	LS	10 YR 4/4	SG	LO	25-30,	
C	46-100+	LS	10 YR 5/2	SG	LO	25-30,	

SC25	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	24/07/2012	373915	5896553	mid 6-9 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	7-0						
Ae	0-9	SiL	10 YR 6/2	SG	LO	20-30,	
Bm	9-27	SL	10 YR 4/6	SG	LO	20-30,	
C	27-100	SL	10 YR 5/2	SG	LO	20-30,	

SC3	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2012	375246	5899171	mid 10-15 %	Morainal	rapidly	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	3-0						
Ae	0-2	LS	10 YR 6/2	SG	LO	20, SR,	
Bm	2-29	LS	10 YR 4/6	SG	LO	50, SR,	
C	29+	LS	10 YR 5/2	SG	LO	30-40,	

SC4	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	373499	5898503	upper 10-15 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	8-0						
Ae	0-12	SiL	10 YR 6/2	MA	LO	20-30,	
Bm	12-38	SiL	10 YR 4/6	MA	LO	20-30,	
C	38-100	SiL	10 YR 5/3	MA	LO	20-30,	

SC5	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	373557	5898862	lower 6-9 %	Morainal		Orthic Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	40-0						
Ahe	0-15	SiL	10 YR 2/2	w,c,pl	NS	20-30,	
Ae	15-33	SiL	10 YR 5/2	w,c,pl	NS	20-30,	
Bm	33-65	SiL	10 YR 4/4	w,m,sb	NS	20-30,	
C	65-100	SiL	10 YR 5/2	MA	NS	20-30,	

SC6	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	373521	5899406	lower 2-5 %	Morainal	imperfectly	Eluviated Gleysol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	9-0						
Aegj	0-4	SiL	10 YR 6/2	MA	NS	60-70,	
Bgj	4-23	SiL	10 YR 4/4	MA	NS	60-70,	
Cgj	23-100+	SiL	10 YR 5/3	MA	NS	60-70,	

SC7	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	374300	5898982	mid 6-9 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	3-0						
Ae	0-4	SiL	10 YR 6/1	MA	LO	25,	
Bm	4-24	SiL	10 YR 4/4	MA	LO	25,	
C	24-100	SiL	10 YR 5/3	MA	LO	25,	

SC8	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	373957	5899048	mid 6-9 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	8-0						
Ae	0-4	SiL	10 YR 6/2	MA	LO	20,	
Bm	4-22	SiL	10 YR 4/4	MA	LO	20,	
C	22-100	SiL	10 YR 5/3	MA	LO	20,	

SC9	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	22/07/2012	373877	5899355	mid 6-9 %	Morainal	well	Orthic Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	8-0						
Bm	0-23	SiL	10 YR 4/5	MA	LO	20,	
C	23-100	SiL	10 YR 5/3	MA	LO	20,	

11-7106	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	10/08/2011	371476	5896473	mid 10-15 %	Morainal	well	Eluviated Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	5-0						
Ae	0-7	SiL	10 YR 6/2	W/F/Pl	FR	50/SR/	
Bm	7-38	SiCL	7.5 YR 4/6	W/F/SB	FR	50/SR/	
C	38-65	SiCL	10 YR 5/3	MA	FR	50/SR/	

11-7107	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	11/08/2011	373548	5890398	mid 6-9 %	Morainal	well	Orthic Dystric Brunisol	very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	5-0						
Ah	0-4	L	10 YR 2/2	W/F/GR	FR	25/SR/	
Bm	4-15	SiL-fSL	10 YR 3/4	W/F/GR	FR	15/SR/	
C	15-22	SiL-fSL	10 YR 4/2	W/F/GR	FR	15/SR/	
R	22-50+						

11-7110	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	12/08/2011	375299	5896432	level 0-0.5 %	Organic, Undifferentiated	very poorly	Typic Fibrisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	0-120+						

11-7111	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	13/08/2011	375819	5896921	mid 6-9 %	Morainal	well	Eluviated Dystric Brunisol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	8-0						
Ae	0-18	SL	10 YR 6/1	W/M/GR	FR	80/SR-	
Bm	18-50	SL	10 YR 4/5	W/F/GR	FR	80/SR-	

11-7112	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	15/08/2011	371856	5894426	mid 10-15 %	Morainal	well	Eluviated Dystric Brunisol	exceedingly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	4-0						
Ae	0-5	SL	7.5 YR 6/2	W/F/GR	FR	65/SR-	
Bm	5-50	SL	7.5 YR 4/6	W/F/GR	FR	65/SR-	

11-7113	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	16/08/2011	378953	5897912	mid 6-9 %	Glaciofluvial	rapidly	Eluviated Dystric Brunisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	10-0						
Ae	0-10	LS	5 YR 6/2	SG	LO	60/SR/f	
Bm	10-55	LS	5 YR 4/4	SG	LO	95/SR/f	
R	55+						

11-7114	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	16/08/2011	379066	5897985	upper 10-15 %	Morainal	well	Eluviated Dystric Brunisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	7-0						
Ae	0-11	SiL-L	10 YR 5/2	W/M/Pl	FR	35/SR-	
AB	11-23	SiL-L	10 YR 5/2	W/M/SB	FR	35/SR-	
Bm	23-65	SiL-L	10 YR 4/4	W/M/SB	FR	35/SR-	

G1	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	10/08/2011	371438	5896534	upper 31-45 %	Morainal	well	Eluviated Dystric Brunisol	very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	7-0						
Ae	0-9	SiL	10 YR 6/2	W/F/GR	FR	40/SR/	
Bm	9-45	SiL	10 YR 4/4	W/F/GR	FR	40/SR/	
C	45-50+	SiL	10 YR 5/2	MA	FR	40/SR/	

G10	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	10/08/2011	375995	5893917	level 0-0.5 %	Morainal	poorly	Rego Gleysol - Peaty	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	17-0						
Cg	0-100	CL	2.5 Y 5/1	MA	ST		

G15	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	11/08/2011	373729	5890952	mid 16-30 %	Morainal	well	Orthic Dystric Brunisol	exceedingly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	9-0						
Ah	0-4	L		GR	FR	40/SA/G	
Bm	4-35	SiL	7.5 YR 3/4	GR	FR	40/SR/	

G16	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	11/08/2011	373685	5891025		Morainal	well		exceedingly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	4-0						
Bm	0-30						

G17	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	11/08/2011	373902	5890819	mid 0-0.5 %				exceedingly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH							
Bhf		SiL	5 YR 3/2	GR	FR	70/SR-	

G18	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	11/08/2011	374367	5891102	mid 6-9 %	Morainal	well	Orthic Ferro-Humic Podzol	very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	7-0						
Ah	0-4	L	5 YR 3/2	W/F/GR	FR	45/SR-	
Bhf	4-19	L	7.5 YR 3/2	W/F/GR	FR	45/SR-	
Bf	19-30	L	7.5 YR 4/4	W/F/GR	FR	45/SR-	

G19	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	12/08/2011	372381	5892449		Morainal	well	Orthic Dystric Brunisol	very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	7-0						
Ah	0-7	L	10 YR 2/2	W/F/GR	FR	50/SR-	
Bm	7-32	SiL	10 YR 3/4	W/F/GR	FR	50/SR-	
C	32-45+	SiL	10 YR 4/3	MA	FR	50/SR-	

G2	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	10/08/2011	371419	5896695	crest 6-9 %	Morainal	well	Eluviated Dystric Brunisol	very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	13-0						
Ae	0-10	SiL	10 YR 6/2	GR	FR	50/SR-	
Bm	10-45	SiL	10 YR 4/6	GR	FR	40/SR-	

G20	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	12/08/2011	372454	5892603	mid 16-30 %	Morainal	well	Eluviated Dystric Brunisol	very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	7-0						
Ae	0-10	SiL	7.5 YR 6/2	W/F/GR	FR	35/SR-	
Bm	10-50	SiL	7.5 YR 4/6	W/F/GR	FR	45/SR-	

G22	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	12/08/2011	372637	5892650	lower 16-30 %	Colluvial	well	Orthic Dystric Brunisol	exceedingly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	4-0						
Bm	0-35	SiL	10 YR 3/4	GR	FR	85/SR-	

G23	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	12/08/2011	372759	5892627		Fluvial	poorly	Orthic Gleysol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH							
Bm	0-31	S		MA	FR	95/SR/f	
Cg	31-100	cSCL	2.5 Y 5/2	MA	S	30/SR/	

G24	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	12/08/2011	373184	5892629	lower 16-30 %		imperfectly	Orthic Regosol	very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	8-0						
C	0-30						

G25	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	12/08/2011	373491	5892813		Colluvial	imperfectly	Orthic Regosol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	7-0						
C	0-30	S		MA	FR	95/SR-	

G26	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	12/08/2011	373756	5892958	level 0.5-2 %	Organic, Undifferentiated	very poorly	Typic Fibrisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	0-120+						

G27	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	12/08/2011	375460	5894781	mid 16-30 %	Morainal	rapidly	Eluviated Dystric Brunisol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	8-0						
Ae	0-9	fSL	10 YR 6/2	SG	LO	65/SR/	
Bm	9-26	fSL	10 YR 4/6	SG	LO	65/SR/	
C	26-65	fSL	2.5 Y 4/2	SG	LO	65/SR/	

G28	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	12/08/2011	375506	5894986	upper 16-30 %	Morainal	well	Eluviated Dystric Brunisol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	6-0						
Ae	0-7	fSL	7.5 YR 6/2	W/F/GR	FR	35/SR/f	
Bm	7-36	fSL	7.5 YR 4/6	W/F/GR	FR	35/SR/f	
C	36-100	fSL	2.5 Y 5/3	W/F/GR	FR	35/SR/f	

G29	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	12/08/2011	375210	5895634	mid 6-9 %	Morainal	well	Orthic Dystric Brunisol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	2-0						
Bm	0-34	fSL	7.5 YR 4/6	W/F/GR	FR	45/SR-	
C	34-60	fSL	10 YR 5/3	W/F/GR	FR	60/SR-	

G3	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	10/08/2011	371401	5896771	lower 10-15 %	Morainal	poorly	Rego Humic Gleysol	slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	4-0						
Ah	0-11	CL	10 YR 2/2	W/F/GR	S	40/SR/	
Cg	11-50	CL	10 YR 5/2	MA	S	60/SR/	

G30	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	12/08/2011	375383	5896060	crest 10-15 %	Morainal	well	Orthic Dystric Brunisol	very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Bm	0-28	SL	10 YR3/4	W/F/GR	FR	25/SR/	
C	28-100	SL	10 YR 5/2	W/F/GR	FR	25/SR/	

G31	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	13/08/2011	375368	5896505	level 0.5-2 %	Organic, Undifferentiated	very poorly	Terric Mesisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	0-20						
Om	20-55						
Oh	55-65						
C	65-70+						

G32	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	13/08/2011	375633	5896809	lower 16-30 %	Morainal	moderately well	Eluviated Dystric Brunisol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	5-0						
Ae	0-9	fSL	10 YR 6/2	GR	FR	80/SR/	
Bm	9-30	fSL	10 YR 4/6	GR	FR	80/SR/	

G33	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	13/08/2011	375977	5897038	level 6-9 %	Fluvial	well	Orthic Dystric Brunisol	slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	5-0						
Bm	0-50	S	10 YR 3/4	SG	LO	70/SR/	

G34	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	13/08/2011	376182	5897218	mid 16-30 %	Fluvial	rapidly	Eluviated Dystric Brunisol	very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	5-0						
Ae	0-9	SL	10 YR 6/2	SG	LO	35/SR-	
Bm	9-33	LS	10 YR 4/6	SG	LO	35/SR-	
C	33-100+	LS	10 YR 5/3	SG	LO	35/SR-	

G35	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	13/08/2011	376835	5897757	lower 6-9 %	Morainal	imperfectly	Gleyed Dystric Brunisol	slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	12-0						
B	0-35	SL	10 YR 3/4	GR	FR	40/SR/	

G36	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	13/08/2011	377641	5898646	level 6-9 %	Fluvial	poorly	Rego Gleysol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	17-0						
Cg	0-80	LS	2.5 Y 5/1	MA	S.S	25/SR/	

G37	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	13/08/2011	373529	5894134	level 0.5-2 %	Organic, Undifferentiated	very poorly	Typic Fibrisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	0-120+						

G38	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	13/08/2011	373290	5894298	mid 10-15 %	Morainal	well	Eluviated Dystric Brunisol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF							
Ae	0-8	L	10 YR 6/1	W/F/GR	FR	95/SR/	
Bm	0-40	L	10 YR 4/6	W/F/GR	FR		

G39	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	13/08/2011	373092	5894367	mid 10-15 %	Morainal	well	Eluviated Dystric Brunisol	very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	8-0						
Ae	0-6	SL	10 YR 6/2	W/F/GR	FR	40/SR-	
Bm	6-50	SL	10 YR 4/5	W/F/GR	FR	40/SR-	

G4	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	10/08/2011	371526	5896099	depression 0-0.5 %	Organic, Undifferentiated	very poorly	Terric Mesisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Om	0-65						

G40	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	13/08/2011	372730	5894430	lower 10-15 %	Fluvial	imperfectly	Gleyed Regosol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	13-0						
Cg	0-40	SiCL	2.5 Y 5/2	GR	FR	55/SR-	

G41	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	13/08/2011	372192	5894520	mid 16-30 %	Morainal	well	Orthic Dystric Brunisol	slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	6-0						
Bm	0-65	SiL-L	7.5 YR 4/6	GR	FR	35/SR/	

G42	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	14/08/2011	373681	5896748	level 2-5 %	Organic, Undifferentiated	very poorly	Terric Mesisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Om	0-120+						

G43	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	14/08/2011	373950	5896635	mid 6-9 %	Morainal	well	Eluviated Dystric Brunisol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	7-0						
Ae	0-8	SL	10 YR 6/1	W/F/GR	FR	50/SR-	
Bm	8-60	SL	7.5 YR 4/6	W/F/GR	FR	50/SR-	

G44	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	14/08/2011	374320	5896513		Morainal	imperfectly	Rego Humic Gleysol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	4-0						
Ah	0-11	L	10 YR 2/2	GR	FR	50/SR-	
Cg	11-65	SL	10 YR 5/1	MA	S.S	50/SR-	

G45	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	14/08/2011	374731	5896446	mid 46-70 %	Glaciofluvial, Morainal	rapidly	Eluviated Dystric Brunisol	slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	3-0						
Ae	0-4	mS	10 YR 6/2	SG	LO	20/SR-	
Bm	4-40	mS	10 YR 4/6	SG	LO	20/SR-	
IIC	40-75	SL	2.5 Y 5/1	MA	FR	50/SR-	

G46	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	14/08/2011	374816	5896528	upper 16-30 %	Morainal	well	Eluviated Dystric Brunisol	exceedingly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	4-0						
Ae	0-4	L	7.5 YR 6/2	GR	FR	75/SR-	
Bm	4-55	fSL-SiL	7.5 YR 4/6	GR	FR	75/SR-	

G47	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	14/08/2011	374884	5896890	lower 16-30 %	Colluvial	rapidly	Orthic Dystric Brunisol		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	11-0						
Bm	0-30	SL				80/SA-	

G48	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	14/08/2011	375183	5897250	lower 31-45 %	Colluvial	well	Eluviated Dystric Brunisol	very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	4-0						
Ae	0-7	SL	10 YR 6/2	W/F/GR	FR	60/SR/	
Bm	7--40	SL	10 YR 4/6	W/F/GR	FR	60/SR/	

G49	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	14/08/2011	375681	5897694	level 10-15 %	Glaciofluvial	very rapidly	Eluviated Dystric Brunisol	very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	3-0						
Ae	0-4	S	10 YR 6/2	SG	LO	90/SR-	
Bm	4-38	S	10 YR 4/6	SG	LO	90/SR-	
C	38-65	cS	2.5 Y 5/2	SG	LO	95/SR-	

G5	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	10/08/2011	371488	5895974	mid 6-9 %	Morainal	well	Eluviated Dystric Brunisol	very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	7-0						
Ae	0-16	SiL	10 YR 6/2	MA	LO	80/SR-	
Bm	16-35	SiL	7.5 YR 4/6	MA	LO	60/SR/	

G50	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	14/08/2011	376168	5897956	level 0.5-2 %	Organic, Undifferentiated, Fluvial	very poorly	Terric Mesisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Om	0-55						
Cg	55-100	SCL	2.5 Y 5/1	MA	S	25/SR/	

G51	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	14/08/2011	376272	5898204	upper 6-9 %	Glaciofluvial	rapidly	Orthic Dystric Brunisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	2-0						
Ae	0-2	MS	10 YR 5/2	SG	LO	1-	
Bm	2-65	MS	10 YR 4/6	SG	LO	1-	

G52	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	14/08/2011	376321	5898355	level 2-5 %	Morainal	poorly	Orthic Gleysol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	16-0						
Bg	0-12	L	10 YR 4/4	MA	S.S	25/SR/	
Cg	12-70	L	2.5 YR 5/1	MA	S.S	25/SR/	

G53	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	15/08/2011	371766	5894371	level 0.5-2 %	Organic, Undifferentiated	very poorly	Typic Fibrisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	0-120						

G54	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	15/08/2011	371495	5894301	crest 6-9 %	Glaciofluvial, Morainal	well	Orthic Dystric Brunisol	very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	2-0						
Ae	0-3	LS	10 YR 5/2	W/F/GR	FR	45/SR-	
Bm	3-24	LS	10 YR 4/6	W/F/GR	FR	45/SR-	
IIC	24-65	LS	10 YR 5/3	MA	FR	60/SR-	

G55	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	15/08/2011	371428	5892733	mid 16-30 %	Morainal	well	Orthic Sombric Brunisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH							
Ah	0-19	L	10 YR 2/2	W/F/GR	FR	30/SA/G	
Bm	19-45	SiL	10 YR 4/4	W/F/GR	FR	50/SA-	

G56	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	15/08/2011	371616	5892958	mid 31-45 %	Colluvial, Morainal	well	Eluviated Dystric Brunisol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	10-0						
Ae	0-9	SL	7.5 YR 6/3	GR	FR	30/A-	
Bm	9-45	SL	5 YR 4/4	GR	FR	50/SA-	

G57	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	15/08/2011	371846	5893250	mid 31-45 %		well	Folisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	4-0						
C	0-4	SL					
R	4+						

G58	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	15/08/2011	371896	5893680	mid 71-100 %	Colluvial	rapidly	Orthic Regosol	very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF							
C						70/SA-	

G59	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	15/08/2011	371854	5893917	mid 31-45 %	Morainal	well	Eluviated Dystric Brunisol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF							
Ae	0-7		7.5 YR 6/2	W/F/GR	FR	55/SA-	
Bm	7-26	SL	7.5 YR 4/6	W/F/GR	FR	40/SR/	
C	26-31	SiL	10 YR 7/1	W/F/GR	FR	40/SR/	
Bm	31-48	SiL	10 YR 4/5	W/F/GR	FR	40/SR/	
C	48-80	SiL-L	10 YR 5/3	W/F/GR	FR	40/SR/	

G6	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	10/08/2011	371560	5895765	lower 10-15 %	Organic, Undifferentiated, Morainal	very poorly	Terric Melanic Brunisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Om	0-85						
Cg	85-100+	SCL	2.5 Y 5/1	MA	S	20/SR/	

G60	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	15/08/2011	371930	5894366	lower 0.5-2 %	Morainal	poorly	Rego Humic Gleysol	slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	23-0						
Ahg	0-12	SiL	10 YR 2/1	GR	S.S	35/SR/	
Cg	12-50	SiL	10 YR 5/1	MA	S.S	35/SR/	

G62	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	16/08/2011	378456	5898136	mid 10-15 %	Glaciofluvial, Morainal	moderately well	Gleyed Dystric Brunisol	slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	6-0						
Ae	0-9	SL	7.5 YR 5/2	SG	FR	40/SR/	
Bm	9-36	SL	7.5 YR 4/5	SG	FR	80/SR/f	
IICgj	36-50	SiL	2.5 Y 5/1	SiCL	S.S	80/SR/	

G63	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	16/08/2011	379120	5898877	mid 2-5 %	Morainal	well	Eluviated Dystric Brunisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	5-0						
Ae	0-10	SiL	2.5 YR 5/1	W/F/GR	FR	50/SR/	
Btj	10-40	SiL	2.5 YR 5/2	W/F/GR	FR	50/SR/	

G64	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	16/08/2011	370173	5896315	lower 6-9 %	Organic, Undifferentiated, Glaciofluvial	very poorly	Terric Mesisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Om	0-80						
Cg	80-100+	SL	2.5 Y 5/1	MA	S.S	55/SR/f	

G65	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	17/08/2011	374949	5891650	upper 10-15 %	Morainal	well	Orthic Dystric Brunisol	exceedingly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	4-0						
Ah	0-30	SL	10 YR 4/4	GR	FR	85/SA-	

G66	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	17/08/2011	374078	5892086	mid 16-30 %	Morainal	well	Orthic Sombric Brunisol	very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	7-0						
Ah	0-13	SiL	10 YR 2/2	W/F/GR	FR	70/SR-	
Bm	13-60	SiL	10 YR 4/5	W/F/GR	FR	45/SR-	

G67	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	17/08/2011	374604	5892259	lower 16-30 %	Morainal	imperfectly	Rego Humic Gleysol	very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	4-0						
Ah	0-13	L	10 YR 2/1	MA	N.S	70/SR-	
Cg	13-27	SiL		MA	S.S	70/SR-	

G69	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	17/08/2011	374031	5893303	crest 10-15 %	Glaciofluvial	well	Eluviated Dystric Brunisol	very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	3-0						
Ae	0-3	SL	10 YR 6/2	GR	FR	35/SR/	
Bm	3-34	SL	10 YR 4/6	GR	FR	35/SR/	
C	34-90	SL	10 YR 5/3	MA	FR	35/SR/	

G7	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	10/08/2011	371367	5895186	upper 46-70 %	Colluvial	rapidly	Eluviated Dystric Brunisol	exceedingly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	2-0						
Ae	0-4	SL	10 YR 6/2	SG	LO	80/SA-	
Bm	4-20	SiL-SL	10 YR 4/6	SG	LO	80/SA-	

G70	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	17/08/2011	373814	5893871	crest 10-15 %	Glaciofluvial, Morainal	well	Eluviated Dystric Brunisol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	3-0						
Ae	0-3	SL	10 YR 6/2	GR	FR	35/SR/	
Bm	3-27	SL	10 YR 4/6	GR	FR	35/SR/	
IIC	27-50	L	10 YR 5/2	MA	FR	35/SR/	

G71	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	17/08/2011	373162	5896426	mid 10-15 %	Colluvial	well	Eluviated Dystric Brunisol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	7-0						
Ae	0-11	SiL	10 YR 6/2	W/F/GR	FR	40/SR/	
Bm	11-38	SiL	10 YR 4/6	W/F/SB	FR	15/SR/	
C	38-75	mS	10 YR 5/4	SG	LO	1-	

G72	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	17/08/2011	372724	5895618	level 2-5 %	Glaciofluvial	rapidly	Eluviated Dystric Brunisol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	3-0						
Ae	0-3	LS	10 YR 6/2	SG	LO	70/SR-	
Bm	3-65	LS	10 YR 4/6	SG	LO	70/SR-	

G73	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/08/2011	373583	5899787	level 0.5-2 %	Organic, Undifferentiated	very poorly	Terric Mesisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	0-60						
Om	60-100						

G74	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/08/2011	373727	5899700	mid 10-15 %	Glaciofluvial	rapidly	Eluviated Dystric Brunisol	slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	3-0						
Ae	0-3	LS	10YR 6/2	SG	LO	35/SR/	
Bm	3-36	LS	10YR 4/6	SG	LO	35/SR/	
C	36-85+	SL	10YR 5/2	SG	LO	35/SR/	

G75	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/08/2011	373906	5899566	mid 16-30 %	Glaciofluvial, Morainal	well	Eluviated Dystric Brunisol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	12-0						
Ae	0-6	LS	10 YR 5/3	W/F/GR	FR	35/SR-	
Bm	6-36	LS	10 YR 5/4	M/F/GR	FR	35/SR-	
IIC	36-100+	CL	2.5 Y 5/3	MA	FR	15/SR-	

G76	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/08/2011	374131	5899452	upper 16-30 %	Glaciofluvial, Morainal	well	Eluviated Dystric Brunisol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	10-0						
Ae	0-10	SL	10 YR 6/2	SG	LO	35/SR/f	
Bm	10-55	SL	7.5 YR 4/6	SG	LO	35/SR/f	
IIC	55-90+	SL		MA	FR	35/SR/f	

G77	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/08/2011	374427	5899269	level 2-5 %	Fluvial	poorly	Rego Gleysol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	33-0						
Cg	0-70	SiC	2.5 Y 4/2	MA	S		C/M/P

G78	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/08/2011	374896	5898928	level 0-0.5 %	Organic, Undifferentiated	very poorly	Typic Fibrisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	0-120+						

G79	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/08/2011	374754	5891399	upper 16-30 %	Morainal	moderately well	Orthic Dystric Brunisol	exceedingly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	11-0						
Ah	0-7	L	7.5 YR 2/2	W/M/GR	FR	55/SR-	
Bm	7-46	L	7.5 YR 4/4	MA	S.S	40/SR-	
C	46-65	L	7.5 YR 5/2	MA	S.S	40/SR-	

G8	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	10/08/2011	371529	5895018	mid 31-45 %	Morainal	well	Eluviated Dystric Brunisol	moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	4-0						
Ae	0-5	SiL	10 YR 6/2	W/F/Pl	FR	40/SR-	
Bm	5-21	L	10 YR 4/5	W/F/SB	FR	40/SR-	
C	21-65	CL	10 YR 5/2	MA	FR	40/SR-	

G80	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/08/2011	375313	5891731	upper 16-30 %	Morainal	rapidly	Orthic Dystric Brunisol	excessively	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	3-0						
Bm	0-28	SL	10 YR 4/6	GR	FR	75/SR-	
C	28-50	SL	10 YR 5/3	MA	FR	70/SR-	

G81	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/08/2011	375563	5892273	mid 6-9 %	Morainal	well	Orthic Dystric Brunisol	exceedingly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	5-0						
Ah	0-6	L	10 YR 2/2	GR	FR	65/SR-	
Bm	6-45	SL	10 YR 4/6	GR	FR	65/SR-	

G9	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	10/08/2011	371908	5895761	level 0-0.5 %	Organic, Undifferentiated	very poorly	Typic Fibrisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	0-120+						

T13-108	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2013	377380	5894394			imperfectly			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Om	10-0						
Bm	0-28+	L	10 YR 3/3	w/f/gr	S.S	40/SA-	

T13-F009	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	10/07/2013	371757	5989567		Glaciolacustrine	well		excessively	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Bm	0-52	LS	10 YR 4/3	w/vf/gr	FR	70/SA-	
LFH	8-0						

T13-F024	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	11/07/2013	383662	5984164		Glaciofluvial	well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Bm	18-52	S	10 YR 4/6	w/vf/gr	Lo	30/SA-	
Ae	0-18	S	10 YR 5/2	w/vf/gr	Lo	30/SA-	
LFH	8-0						

T13-F048	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	13/07/2013	378578	59044901		Organic, Undifferentiated, Morainal	imperfectly		none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	28-19						
Om	19-9						
Oh	9-0						
Cg	0-20+	SiL	10 YR 3/2	m/f/sb	S.S	25/SA-	

T13-F050	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	14/07/2013	387295	5902733		Glaciofluvial	moderately well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	9-0						
Ae	0-14	SL	10 YR 4/3	w/f/gr	LO	40/SR/	
Bm	14-61+	SL	10 YR 3/4	w/f/gr	V.FR	40/SR/	m/f/d

T13-F068	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	15/07/2013	376312	5904809		Organic, Undifferentiated	poorly			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Oh	0-60						

T13-F074	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	16/07/2013	376114	5891860			moderately well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	4-0						
Ae	0-4	LS	10 YR 4/2	w/f/pl	Lo	35/SA-	
Bf	4-31	LS	7.5 YR 3/4	w/f/gr	vFR	35/SA-	
C	31-42	SL	10 YR 4/4	w/f/gr	vFR	35/SA-	

T13-F088	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	17/07/2013	378152	5899381		Morainal, Glaciofluvial	well		moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	3-0						
Bm	0-5	SL	10 YR 3/3	w/f/gr	Lo	8/SA-	
Bm2	5-13	SL	10 YR 3/4	w/f/gr	vFR	8/SA-	
C1	13-40	L	10 YR 4/2	m/f/ab	FR	8/SA-	
C2	40-50+	S	10 YR 4/2	w/f/gr	Lo	30/SA-	

T13-F104	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2013	387301	5912736		Morainal	well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	3-0						
Ae	0-1	-	-	-	-		
Bm	1-23	LS	10 YR 4/4	w/f/gr	Lo	20/SR/	
C	23-57+	SL	10 YR 4/2	w/f/gr	vFR	20/SR/	

T13-F127	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2013	378912	5900269		Glaciofluvial	well		moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	2-0						
Ae	0-2	S	10 YR 4/2	w/f/pl	Lo	40/SA-	
Bm	2-36	S	10 YR 4/4	w/f/gr	Lo	40/SA-	
C	36-59+	S	10 YR 4/3	w/f/gr	Lo	40/SA-	

T13-F131	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2013	379386	5900310			imperfectly			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	0-6						
Om	6-50+						

T13-F143	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2013	378697	5906318		Glaciofluvial	well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	8-0						
Bm	0-37	S	10 YR 4/4	w/f/gr	Lo	35/SA-	
C	37-53	S	10 YR 4/3	w/f/gr	Lo	35/SA-	

T13-G001	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	09/07/2013	387498	5973590		Morainal	well		very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	4-0						
Ae	0-4	LS	10 YR 6/2		unconsolidated	5/SA	
Bm	4-38	SL	10 YR 5/4		unconsolidated	25/SA	
C	38-45	SL	10 YR 5/2		unconsolidated	30/SA	

T13-G002	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	09/07/2013	387988	5973422	lower 0.5-2 %	Morainal	moderately well		moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	7-0						
Bm	0-22	L	10 YR 4/3	m/gr	FR	20/SA-	
C	22-30	L	10 YR 5/3		FR	25/SA-	

T13-G003	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	09/07/2013	388371	5973205		Morainal	well		slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	3-0						
Ae	0-2	LS	10 YR 6/2	w/f/pl	FR	0	
Bm	2-34	L	10 YR 4/4	w/f/gr	FR	20/SA-	
C	34-44	SL	10 YR 5/3	m/f/gr	FR	20/SA-	

T13-G004	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	09/07/2013	388597	5972994		Morainal	well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	6-0						
Ae	0-11	SL	10 YR 6/2	w/f/gr	FR	65/SA-	
Bm	11-29	SL	10 YR 4/3	w/f/gr	FR	65/SA-	

T13-G005	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	09/07/2013	389050	5972523		Morainal				

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	11-6						
Om	6-2						
Oh	2-0						
Ah	0-4	SiL	10 YR 3/2	m/f/gr	FR	50/A-	
C	4-18	SiL	10 YR 5/3	m/f/gr	FR	50/A-	

T13-G007	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	10/07/2013	371813	5988976		Glaciolacustrine	moderately well		none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	8-0						
Ah	0-4	SiL	10 YR 2/2	w/vf/pl	S.S	0	
Bm	4-7	SiL	10 YR 3/3	m/f/sb	S.S	0	
C	7-45	SiCL	10 YR 5/3	m/m/sb	ST	0	

T13-G008	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	10/07/2013	371798	5989190	level 2-5 %	Glaciolacustrine	moderately well		none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Bt	0-37	SiCL	10 YR 5/3	m/m/sb	ST	0	
LFH	7-0						

T13-G010	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	10/07/2013	371721	5989810	upper 46-70 %	Glaciofluvial	well		excessively	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Bm	0-41	S	10 YR 4/3	w/vf/gr	Lo	50/SA-	
LFH	11-0						

T13-G011	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	10/07/2013	371697	5990045		Glaciofluvial	well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	7-0						
Bm	0-35	S	10 YR 5/3	w/vf/gr	Lo	60/SR	

T13-G0112	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2013	378295	5895154		Morainal	imperfectly			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH							
LFH	6-0						
Ae	0-1	too thin to					
Bm	1-26	L	10 YR 4/3	MA	S>S	25/SA-	

T13-G012	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	01/07/2013	371625	5990315		Morainal	well		very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Bm	0-3	SiL	10 YR 5/3	w/vf.gr	FR	30/SA	
LFH	9-0						
C	3-35	SiL	10 YR 6/2	w/vf/gr	FR	30/SA	

T13-G014	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	10/07/2013	376370	5985113			well		moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	5-0						
Bm	0-6	L	10 YR 4/4	w/vf/gr	FR	15/SA	
C	6-38	L	10 YR 4/3	w/vf/gr	FR	15/SA	

T13-G015	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	10/07/2013	376917	5985205		Morainal	well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	7-0						
Bm	0-14	SL	10 YR 5/4	w/vf/gr	FR	25/SA-	
C	14-38	L	10 YR 4/2	w/vf/gr	FR	25/SA-	

T13-G016	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	10/07/2013	377257	3985413			well		excessively	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	4-0						
Bm	0-23	SL	10 YR 4/4	w/vf/gr	FR	70/A	

T13-G017	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	11/07/2013	378757	5985630		Glaciofluvial	well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	4-0						
Bm	0-32	S	10 YR 3/6	w/vf/gr	Lo	5/SR/G	
C	32-47	S	10 YR 4/4	w/vf/gr	Lo	5/SR/G	

T13-G018	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	11/07/2013	379903	5985850		Morainal	moderately well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	6-0						
Bm	0-27	L	10 YR 3/6	w/vf/gr	V.FR	25/SA-	

T13-G019	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	11/07/2013	379378	5985793		Morainal	imperfectly			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Bm	0-50	SiL	10 YR 3/6	w/m/sb	FR	15/SA/G	
LFH	4-0						

T13-G020	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	11/07/2013	382446	5984408			imperfectly			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	13-0						
Bgj	0-17	SiCL	10 YR 5/1	m/f/sb	FR	10/SA-	
C	17-28	SiL	10 YR 2/1	w-m/f/sb	FI	15/SA-	

T13-G021	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	11/07/2013	382640	5984287			moderately well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	6-0						
Ae	0-2	LS	10 YR 5/2	w/vf/gr	Lo	0	
Bm	2-18	S	10 YR 4/4	w/vf/gr	Lo	1/SR/G	
C	18-58	S	10 YR 5/3	w/vf/gr	Lo	1/SR/G	

T13-G026	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	11/07/2013	383757	5983204		Glaciofluvial	well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	4-0						
Bm	0-22	S	10 YR 4/4	w/vf/gr	Lo	0	
C	22-44	S	10 YR 4/3	w/vf/gr	Lo	0	

T13-G027	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	11/07/2013	383747	5983280		Fluvial	imperfectly		none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Oh	15-0						
C1	0-9	fSL	10 YR 3/2	w/vf/sb	S.S	0	
Ah	9-17	fSL	10 YR 2/2	w/vf/sb	S.S	0	
C2	17-21	fSL	10 YR 3/2	w/vf/sb	S.S	0	f/m/f

T13-G028	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	12/07/2013	395126	5954155			well		slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	3-0						
Ae	0-1		10 YR 4/1	w/vf/pl	Lo	1/SA-	
Bm	1-11	fSL	10 YR 4/4	w/vf/gr	Lo	1/SA-	
C	11-59	SL	10 YR 5/3	w/vf/gr	Lo	0	

T13-G029	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	12/07/2013	395083	5954070		Fluvial	imperfectly		slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
C1	0-6	fSL	10 YR 4/3	w/vf/gr	Lo	0	
Om	6-18						
C2	18-34	LS	10 YR 3/3	w/vf/gr	Lo	1/SA-	
Ah	34-44	L	10 YR 2/2	w/vf/gr	Lo	0	
C3	44-48	L	10 YR 3/3	w/f/gr	Lo	1/SA-	

T13-G030	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	12/07/2013	394880	5953434		Morainal	moderately well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	4-0						
Ae	0-3	fSL	10 YR 4/1	w/vf/pl	FR		
Bm	3-16	L	10 YR 4/4	w/vf/sb	v.FR	20/SA-	
C	16-34+	L	10 YR 5/2	w/f/sb	FR	20/SA-	

T13-G031	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	12/07/2013	394715	5952932		Organic, Undifferentiated	poorly			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Om	0-50+						

T13-G032	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	12/07/2013	394640	5952845		Glaciofluvial	well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
L	1-0						
Bm	0-33	S	10 YR 4/6	w/vf/gr	Lo	5/SR/G	
C	33-42	S	10 YR 5/4	w/vf/gr	Lo	5/SR/G	

T13-G033	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	12/07/2013	394748	5952664		Glaciofluvial	well		slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	7-0						
Ae	0-8	LS	10 YR 5/2	w/vf/pl	Lo	25/SA-	
Bm	8-35+	LS	10 YR 4/4	w/vf/gr	Lo	35/SA-	

T13-G0345	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	12/07/2013	394612	5952320		Glaciofluvial	well		moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	10-0						
Bm	0-30	SL	10 YR4/3	w/vf/gr	Lo	5-	

T13-G036	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	12/07/2013	394484	5952178		Fluvial	moderately well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	1-0						
C1	0-30	S	10 YR 3/4	w/vf/gr	Lo	5/SA-	
LFH2	30-34						
C2	34-50+	S	10 YR 3/4	w/vf/gr	Lo	5/SA-	

T13-G037	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	12/07/2013	394433	5951931		Morainal	imperfectly		exceedingly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	15-0						
Bm	0-20	SiL	10 YR 4/2	w/f/gr	ST	70/SR/	

T13-G038	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	12/07/2013	394202	5951483		Organic, Undifferentiated	poorly		none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Om	0-45+						

T13-G039	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	13/07/2013	389983	5913477		Morainal	imperfectly		moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	5-0						
Bm	0-1						
C1	1-27	L	10 YR 4/2	w/vf/gr	S.S	20/SA-	
C2	27-47+	L	10 YR 4/3	w/vf/gr	S.S	20/SA-	c/f/d

T13-G041	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	13/07/2013	389958	5913284		Morainal	imperfectly		moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	4-0						
Ae	0-1	LS	10 YR 4/2	w/vf/pl	NS	0	
Bm	1-30	L	10 YR 4/4	w/vf/gr	S.S	25/SA-	
C	30-50+	SiL	10 YR 4/3	w/vf/gr	S.S	25/SA-	

T13-G043	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	13/07/2013	389830	5912897		Fluvial, Morainal				

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
IIC	14-53	SiL	10 YR 4/2	m/m/ab	S.S	5/SA/G	
Bm	0-14	L	10 YR 4/3	w/vf/gr	S.S	60/SR/	
LFH	6-0						

T13-G044	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	13/07/2013	389831	5912810		Glaciofluvial	well		slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	7-0						
Bm	0-17	SL	10 YR 4/4	w/f/gr	Lo	35/SR/	
C	17-41	SL	10 YR 4/2	w/f/gr	Lo	35/SR/	

T13-G045	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	13/07/2013	377328	5903973		Morainal	well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	5-0						
Ae	0-2	LS	10 YR 5/1	w/f/pl	Lo	0	
Bm	2-24	L	10 YR 5/4	w/f/gr	Lo	30/SA-	
C	24-35	L	10 YR 5/2	m/f/sb	H	30/SA-	

T13-G046	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	13/07/2013	377804	5904391		Organic, Undifferentiated, Morainal	imperfectly		none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Oh	0-28						
Bt	28-40	CL	10 YR 3/2	m/m/ab	ST	15/SA-	m/f/p

T13-G047	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	13/07/2013	378001	5904587			well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	6-0						
Ae	0-1	SL	10 YR 4.5/2	w/vf/pl	Lo		
Bm	1-30	SL	10 YR 4/4	w/f/gr	Lo	30/SA-	
C	30-43+	SiL	10 YR 4/2	w/f/gr	H	30/SA-	

T13-G049	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	14/07/2013	387436	5902757		Glaciofluvial	imperfectly			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
O	16-0						
Ah	0-14	SiL	10 YR 3/2	MA	S.S	40/SR/	
Bg	14-28	SiL	10 YR 2/1	w/f/sb	S.S	40/-	f/f/f

T13-G051	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	14/07/2013	386684	5902794		Glaciofluvial	well		very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	5-0						
Bm	0-29	S	10 YR 4/4	w/f/gr	Lo	35/SA-	
C	29-46	LS	10 YR 4/3	w/f/gr	Lo	35/SA-	f/f/f

T13-G052	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	14/07/2013	386112	5902992		Morainal, Glaciofluvial	imperfectly			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	9-0						
Bg	0-28	L	10 YR 4/3	m/c/ab	ST	15/SR/	m/f/d
Cg	28-35	LS	10 YR 4/2	w/f/gr	NS	30/SR/	

T13-G054	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	14/07/2013	385928	5902989		Morainal	well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
C	13-29	CL	10 YR 4/2	m/f/ab	v.FI	25/SA-	
LFH	1-0						
Bm	0-13	SL	10 YR 4/4	w/f/gr	v.FR	25/SA-	

T13-G055	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	14/07/2013	385461	5903006			well		slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	6-0						
Bm	0-15	L	10 YR 4/4	w/f/sb	vFR	20/SA-	
C	15-30+	SiL	10 YR 4/2	w/f/ab	FI	20/SA-	

T13-G056	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	14/07/2013	384875	5903073		Glaciofluvial	well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	4-0						
Ae	0-0.5			w/f/pl			
Bm	0-15	LS	10 YR 4/4	w/f/gr	v.FR	25/SA-	
C	15-40	S	10 YR 4/2	w/f/gr	FR	25/SA-	

T13-G057	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	14/07/2013	379795	5900123		Glaciofluvial	well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	3-0						
Ae	0-2	LS	10 YR 5/2	w/f/gr	Lo	50/SA-	
Bm	2-34	LS	10 YR 4/4	w/f/gr	Lo	50/SA-	

T13-G060	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	14/07/2013	380537	5901105			poorly			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Bg	10+	SL	10 YR 4/3	w/f/gr	NS	35/SA-	
Ah	0-10	L	10 YR 2/1	w/m/sb	NS		
Oh	4-0						

T13-G061	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	14/07/2013	380570	5901406		Glaciofluvial	well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	2-0						
Ae	0-2	LS	10 YR 5/1	w/f/gr	Lo	15/SA-	
Bm	2-8	S	10 YR 4/4	w/f/gr	Lo	35/SA-	
C	8-48+	S	10 YR 4/3	w/f/gr	Lo	35/SA-	

T13-G062	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	15/07/2013	375056	5904419			moderately well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	9-0						
Bm	0-30	LS	10 YR 4/4	w/f/gr	vFR	40/SA-	
C	30-54	S	10 YR 4/3	w/f/gr	Lo	40/SA-	

T13-G063	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	15/07/2013	375139	5904395		Glaciofluvial	well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	3-0						
Ae	0-1	-	-				
Bm	1-25	S	10 YR 4/4	w/f/gr	Lo	7/SA-	
C	25-60+	S	10 YR 4/3	w/f/gr	Lo	7/SA-	

T13-G064	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	15/07/2013	3744201	5904006			imperfectly			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Oh	20-0						
Ah	0-26	Si	10 YR 2/2	MA	FR	0	
Bg	26-36	SiL	10 YR 3/2	m/m/ab	FI	0	

T13-G065	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	15/07/2013	374241	5903966		Colluvial	moderately well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	5-0						
Bm	0-30	SL	10 YR 4/4	w/f/gr	vFR	25/SA-	
C	30-38+	L	10 YR 4/3	w/f/gr	vFR	25/SA-	

T13-G066	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	15/07/2013	374314	5903943			moderately well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	3-0						
C	0-46	CL	10 YR 4/3	w/f/sb	FR	40/SA-	

T13-G067	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	15/07/2013	374379	5903933			well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	5-0						
Bm	0-42	LS	10 YR 3/6	w/f/gr	Lo	50/SR/	
C	42-46+	S	10 YR 4/2	w/f/gr	Lo	50/SR/	

T13-G069	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	15/07/2013					poorly			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Om	0-62+						

T13-G070	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	15/07/2013	376110	5904710		Colluvial	moderately well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	8-0						
Bm	0-31	LS	10 YR 4/4	w/f/gr	Lo	35/SR/	

T13-G072	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	15/07/2013					well		very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	2-0						
Bm	0-33	LS	10 YR 4/6	w/f/gr	Lo	40/SA-	
C	33-43	S	10 YR 4/2	w/f/gr	Lo	40/SA-	

T13-G073	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	16/07/2013	376023	5892118		Morainal	imperfectly		very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	7-0						
Ah	0-24	SL	10 YR 2/2	MA?	NS	80/SA-	

T13-G075	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	16/07/2013					moderately well		very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	7-0						
Ae	0-3	LS	10 YR 4/2	w/f/pl	Lo	40/SA-	
Bf	3-31	S	7.5 YR 3/3	w/f/gr	Lo	40/SA-	

T13-G076	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	16/07/2013	376607	5891655		Organic, Undifferentiated				

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Om	0-60+						

T13-G077	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	16/07/2013	376756	5891781		Morainal	imperfectly		very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	6-0						
C	0-31	L	10 YR 4/2	w/f/sb	FR	35/SA-	
Cgj	31-39+	SL	10 YR 3/4	w/f/gr	NS	35/SA-	

T13-G078	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	16/07/2013	376957	5892086		Morainal	well		exceedingly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	5-0						
Ae	0-4	LS	10 YR 4.5/1	w/f/pl	Lo	35/SA-	
Bf	4-27	LS	7.5 YR 3/4	w/f/gr	Lo	35SA-	

T13-G079	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	16/07/2013	377015	5892321		Morainal	moderately well		slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	3-0						
Ae	0-3	SL	10 YR 4.5/1	w/f/pl	Lo	35/SA-	
Bf	3-27	SL	10 YR 3/3	w/f/gr	Lo	35/SA-	
C	27-31+	SL	10 YR 4/4	w/f/gr	Lo	35/SA-	

T13-G080	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	16/07/2013	377378	5895676		Organic, Undifferentiated	poorly		none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Om	40+						

T13-G082	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	16/07/2013	377354	5893018		Morainal	moderately well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	7-0						
Ae	0-9	SL	10 YR 4.5/1	w/f/pl	Lo	50/SA-	
Bt	9-20	L	10 YR 4/4	w/f/gr	vFR	50/SA-	

T13-G083	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	16/07/2013	376986	589856		Morainal	well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	3-0						
Ae	0-5	LS	10 YR 4/2	w/f/pl	Lo	35/SA-	
Bf	5-20	SL	10 YR 4/6	w/f/gr	Lo	35/SA-	
C	20-30+	SL	10 YR 4/4	w/f/gr	vFR	35/SA-	

T13-G084	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	16/07/2013	376873	5892569			imperfectly			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	12-0						
Ae	0-9	LS	10 YR 4/2	w/fpl	Lo	55/SA/G	
Bmgj	9-19	LS	10 YR 4/3	w/f/gr	Lo	55/SA/G	

T13-G085	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	16/07/2013	376569	5892339		Morainal	well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	9-0						
Ae	0-8	LS	10 YR 5/1	w/f/pl	Lo	40/SA/G	
Bf	8-21	LS	7.5YR 3/4	w/f/gr	Lo	40/SA/G	

T13-G087	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	17/07/2013	378017	5899407		Glaciofluvial	well		very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
C	40-46	S	10 YR 4/2	w/f/gr	Lo	30/SA-	
LFH	1-0						
Bm	0-40	LS	10 YR 4/4	w/f/gr	Lo	30/SA-	

T13-G089	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	17/07/2013	378184	5899366		Fluvial	imperfectly		none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Oh	22-0						
C	0-19	LS	10 YR 3/3	w/f/gr	Lo	35/SR/	

T13--G090	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	17/07/2013	377281	5899856						

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Oh	11-0						
Bg	0-26	SiL	10 YR 3/3	m/m/ab	ST	40/SA-	m/f/d

T13-G093	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	17/07/2013	377573	5899576		Glaciofluvial	moderately well		slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	6-0						
Ae	0-10	S	10 YR 4/2	w/f/pl	Lo	30/SA-	
B	10-30+	S	10 YR 3/6	w/f/gr	Lo	30/SA-	

T13-G094	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	17/07/2013				Glaciofluvial	well		slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	7-0						
Ae	0-11	S	10 YR 4/2	w/f/gr	Lo	30/SA-	
Bm	11-38+	S	10 YR 4/4	w/f/gr	Lo	30/SA-	

T13-G095	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	17/07/2013	378024	5899872		Glaciofluvial	well		moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	4-0						
Ae	0-9	LS	10 YR 4/2	w/f/gr	Lo	40/SA-	
Bf	9-27	LS	7.5 YR 3/4	w/f/gr	Lo	40/SA-	

T13-G096	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	17/07/2013	377998	5899952			imperfectly			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Oh	20-0						
Cg	0-20+	LS	10 YR 3/2	w/f/gr	S.S	4/SA-	m/f/d

T13-G097	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	01/07/2013	377987	5900074			well		slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	3-0						
Ae	0-1	-	-			40/SA-	
Bm	1-23	S	10 YR 4/6	w/f/gr	Lo	40/SA-	
C	23-29+	S	10 YR 4/4	w/f/gr	Lo	40/SA-	

T13-G098	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	17/07/2013	377741	5900103		Glaciofluvial	well		none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	1-0						
Bm	0-10	S	10 YR 3/6	w/f/gr	Lo	8/SA-	
C	10-50+	S	10 YR 4/3	w/f/gr	Lo	8/SA-	

T13-G099	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2013				Organic, Undifferentiated	very poorly			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Om	0-150+						

T13-G100	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2013	386805	5911958		Morainal	well		slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	3-0						
Bm	0-11	L	10 YR 4/4	w/f/ab	FR	10/SA-	
Cg	11-58+	SiL	10 YR 4/2	m/m/sb	S.S	20/SA-	c/f/f

T13-G102	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2013	387003	5912026		Morainal	well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	3-0						
Bm	0-21	SL	10 YR 4/4	w/f/gr	Lo	20/SR/	
C	21-35	SL	10 YR 4/2	w/f/gr	FR	20/SR/	

T13-G103	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2013					very poorly			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Om	3-0						
C	0-20+	SiL		MA			

T13-G106	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2013	387441	5913135		Morainal	well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	2-0						
Bm	0-10	SL	10 YR 4/4	w/f/gr	vFR	15/SR/	
C	10-37	LS	10 YR 4/2	w/f/gr	vFR	15/SR/	

T13-G107	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2013	387546	5913391						

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	2-0						
Ae	0-1	LS	10 YR 4/2	w/f/pl	Lo	-	
Bm	1-10	SL	10 YR 4/4	w/f/gr	vFR	15/SA-	
C	10-30+	SL	10 YR 4/3	w/f/gr	vFR	15/SA-	

T13-G109	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2013	377508	5894546		Morainal	imperfectly			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	7-0						
Bm	0-32	L	10 YR 3/3	w/f/sb	S.S	35/SA-	

T13-G110	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2013	377834	5894720		Fluvial	imperfectly			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	5-0						
Bm	0-36+	S	10 YR 3/6	w/f/gr	Lo	25/SA-	

T13-G111	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2013	378058	5894950		Morainal	moderately well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	3-0						
C	0-27+	SL	10 YR 3/2	w/f/gr	vFR	40/SA-	

T13-G113	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2013					well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	9-0						
Ae	0-25	LS	10 YR 4/2	w/f/gr	Lo	80/SA-	
Bm	25-35	LS	10 YR 4/4	w/f/gr	Lo	40/SA-	

T13-G114	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2013	378714	5900356		Glaciofluvial	rapidly		moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	1-0						
C	0-30+	S	10 YR 4/3	w/f/gr	Lo	30/SA-	

T13-G115	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2013	378676	5900353		Glaciofluvial	well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	6-0						
Bm	0-40+	S	10 YR 4/4	w/f/gr	Lo	35/SA-	

T13-G117	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2013	378570	5900436		Glaciofluvial	well		slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	8-0						
Ae	0-1	S	10 YR 3/2	w/f/gr	Lo	25/SA-	
Bm	1-42	S	10 YR 3/6	w/f/gr	Lo	25/SA-	
C	42-45+	S	10 YR 4/3	w/f/gr	Lo	25/SA-	

T13-G119	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2013				Glaciofluvial	imperfectly	- Peaty	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Om	37-0						
Cg	0-18	LS	10 YR 4/2	w/f/gr	NS	25/SA-	

T13-G120	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2013	378712	5901044		Glaciofluvial	well		moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	1-0						
Bm	0-34	S	10 YR 3/4	w/f/gr	Lo	15/SA-	
C	34-41+	S	10 YR 4/2	w/f/gr	Lo	15/SA-	

T13-G121	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2013	378859	5901193		Organic, Undifferentiated	poorly			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Om	0-100						

T13-G122	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2013	379029	5901157		Glaciofluvial	well		none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	2-0						
Bm	0-21	S	10 YR 4/4	w/f/gr	Lo	8/SA-	
C	21-33+	S	10 YR 4/2	w/f/gr	Lo	8/SA-	

T13-G123	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	18/07/2013	379162	5901074		Glaciofluvial	well		very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	3-0						
Bm	0-41	S	10 YR 3/4	w/f/gr	Lo	40/SA-	

T13-G124	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2013	379158	5900894		Glaciofluvial	well		very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	4-0						
Bm	0-39+	S	w/f/gr	Lo	35/SA-SR/G		

T13-G125	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2013	379192	5900802		Morainal	imperfectly			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Oh	19-0						
Bg	0-12	L	10 YR 3/4	m/f/sb	S.S	40/SA-	

T13-G126	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	19/07/2013	379037	5900683		Organic, Undifferentiated	poorly		none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Om	0-15						
C1	15-18						
C2	18-80						

T13-G128	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2013	378933	5900160		Fluvial	moderately well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	9-0						
C1	0-13	S	10 YR 4/3	w/f/gr	Lo	2/SA-	
Ohb	13-15	humic	-				
C2	15-30+	S	10 YR 4/4	w/f/gr	Lo	25/SA-	

T13-G129	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2013	378976	5900044		Glaciofluvial	well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	4-0						
Ae	0-3	LS	10 YR 4/3	w/f/gr	Lo	50/SA-	
Bm	3-33+	S	10 YR 4/4	w/f/gr	Lo	50/SA-	

T13-G130	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2013	379419	5900252		Glaciofluvial	well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	6-0						
Bm	0-38	LS	10 YR 3/3	w/f/gr	Lo	50/SA-	

T13-G132	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2013	379608	5900361		Glaciofluvial	well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	4-0						
Bm	0-37	S	10 YR 4/4	w/f/gr	Lo	50/SA-	

T13-G133	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2013	379621	5900482		Glaciofluvial	well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	4-0						
Ae	0-7	S	10 YR 4/2	w/f/gr	Lo	60/SA-	
Bm	7-23	S	10 YR 4/4	w/f/gr	Lo	60/SA-	

T13-G134	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2013	379500	5900611		Organic, Undifferentiated, Glaciofluvial	imperfectly			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	5-0						
Om	0-25						
Bg	25-34+	SL	10 YR 3/2	w/f/gr	vFR	50/SA-	c/f/f

T13-G135	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2013	379173	5900531		Organic, Undifferentiated, Glaciofluvial	poorly		none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Om	23-0						
Cg	0-10	S	10 YR 3/2	w/f/gr	NS	cant	

T13-G136	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2013	379024	5904481		Glaciofluvial	well		slightly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	4-0						
Ae	0-8	SL	10 YR 5/1.5	w/f/pl	Lo	70/SA-	
Bm	8-32	LS	10 YR 4/4	w/f/gr	Lo	70/SA-	

T13-G137	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2013	378955	5902415		Morainal	well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	5-0						
Bm	0-13	L	10 YR 4/3	w/f/sb	FR	25/SA-	
C	13-27	SL	10 YR 4/2	w/f/gr	vFR	25/SA-	

T13-G138	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	20/07/2013	379116	5903256			imperfectly			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	8-0						
Bmg	0-20	SiL	10 YR 4/3	MA	ST	50/SA-	
Cg	20-30	SiL	10 YR 4/4	s/f/ab	H	30/SA-	c/f/d

T13-G139	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2013	378909	5901919		Glaciofluvial	well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	5-0						
Bmfj	0-25	SL	7.5 YR 3/3	w/f/gr	vFR	35/SA-	
C	25-33	SL	10 YR 3/3	w/f/gr	vFR	35/SA-	

T13-G140	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2013	378978	5901833		Organic, Undifferentiated, Morainal	imperfectly	- Peaty		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Om	27-0						
Ah	0-10	SiL	10 YR 2/2	MA	S.S	30/SA-	
Bg	10-30	SiL	10 YR 4/3	s/c/ab	S.S	30/SA-	m/c/p

T13-G141	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2013	378854	5905252		Morainal	imperfectly			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Bg	18-38	L	10 YR 4/3	MA	SS	25/SA-	m/f/d
Bm	0-18	L	10 YR 4/2	m/m/ab	FI	25/SA-	
LFH	10-0						

T13-G142	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2013	378657	5906392		Glaciofluvial	well		moderately	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	5-0						
Bm	0-33	S	10 YR 5/3	w/f/gr	Lo	50/SA-	

T13-G144	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2013	378714	5905944			imperfectly	- Peaty		

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Om	0-25						
Ah	25-40+	Si	10 YR 2/2	MA	S.S	40/SA-	

T13-G145	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	21/07/2013	378726	5905646		Morainal	well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	11-0						
Bm	0-9	SL	10 YR 4/4	w/f/gr	Lo	30/SA-	
C	9-29	L	10 YR 4/2	w/f/ab	vFR	30/SA-	

T13-V006	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	09/07/2013	389627	5971923	mid 16-30 %	Morainal	well		excessively	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH							
Bm							

T13-V059	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	14/07/2013	380277	5900538		Glaciofluvial	well			

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	3-0						
Bm	0-20+			w/f/gr	Lo	50/SR/	

T13-V091	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	17/07/2013	377372	5899795		Organic, Undifferentiated	very poorly		none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Om	0-100+						

T13-V092	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	17/07/2013				Organic, Undifferentiated	very poorly		none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Om	0-150+						

V10	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	11/08/2011	374344	5891434	upper 10-15 %	Morainal	rapidly	Folisol	very	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LFH	15-0						
Bm	0-10	L	7.5 YR 4/4	GR	FR	70/SR-	

V28	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	15/08/2011	371647	5894304	mid 6-9 %	Organic, Undifferentiated, Morainal	very poorly	Terric Mesisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Om	0-60						
Cg	60-100+	SL	2.5 Y 5/1	MA	S.S	40/SR-	

V40	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	17/08/2011	372576	5895502	level 2-5 %	Organic, Undifferentiated, Fluvial	very poorly	Terric Fibrisol	none	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
Of	0-120						

V7	Date	Easting	Northing	Slope Position + Class	Parent Material	Drainage	Soil Classification	Stoniness	Notes
	11/08/2011	373338	5890655	mid 31-45 %	Colluvial	rapidly	Folisol	exceedingly	

Horizon	Depth	Texture	Colour	Structure	Consistency	% C F	Mottles
LF	12-0						
C	0-5	L	10 YR 4/3	GR	FR	30/SA/C	
R	5-10+						

Annex 2
Laboratory Results

Final Analytical Report

Attention: Steve Clark

AMEC Environment & Infrastructure
5681-70 Street
Edmonton, AB T6B 3P6

Results for File: EC-64437

Project Number: VE52095.2I.3
Project Name: Blackwater

Date Received: 2012/11/23
Date of Report: 2012/12/07

Report reviewed by:

Jesse Dang, B.Sc.
Manager
Laboratory Services

Charlene Schermers
Director of QA/QC
Laboratory Services

** All samples will be disposed of after 30 days following analysis. Please contact the lab if you require additional sample storage time. (Samples deemed hazardous will be returned to the client at their own expense or disposal will be arranged.) **

Soil Analysis - Metals

Project No. VE52095.2I.3

Final
File No. EC-64437

Analyst	Date of Analysis (yyyy/m/d)	Analytical Parameter	Units	Reference Method	Lab #: Client ID: Sample Date: MDL	12-17173 BW-35A-LFH-Metals 2012/07/23 0:00	12-17173-D BW-35A-LFH-Metals Lab Duplicate	12-17174 BW-35A-TS-Metals 2012/07/23 0:00	12-17175 BW-35A-LFH 2012/07/23 0:00
LL	2012/11/28	Boron (Hot Water Soluble)	µg/g (ppm)	McKeague 4.61/EPA 6010	0.1	*< 0.4	*< 0.4	< 0.1	*< 0.4
LL	2012/11/28	Antimony	µg/g (ppm)	BCME	0.5	< 0.5	< 0.5	< 0.5	< 0.5
LL	2012/11/28	Arsenic	µg/g (ppm)	BCME	0.5	2.5	2.5	5.2	2.2
LL	2012/11/28	Barium	µg/g (ppm)	BCME	1	130	131	35	136
LL	2012/11/28	Beryllium	µg/g (ppm)	BCME	0.1	1.4	1.4	0.6	1.2
LL	2012/11/28	Cadmium	µg/g (ppm)	BCME	0.1	0.6	0.6	0.2	0.7
LL	2012/11/28	Chromium	µg/g (ppm)	BCME	0.5	2.4	2.4	9.4	3.2
LL	2012/11/28	Cobalt	µg/g (ppm)	BCME	0.5	1.5	1.5	4.3	1.6
LL	2012/11/28	Copper	µg/g (ppm)	BCME	0.1	7.4	7.2	8.0	9.2
LL	2012/11/28	Lead	µg/g (ppm)	BCME	0.5	12.8	12.8	9.9	9.3
LL	2012/11/28	Mercury	µg/g (ppm)	BCME	0.5	< 0.5	< 0.5	< 0.5	< 0.5
LL	2012/11/28	Molybdenum	µg/g (ppm)	BCME	0.5	1.0	1.0	0.9	0.8
LL	2012/11/28	Nickel	µg/g (ppm)	BCME	0.5	3.8	3.8	6.6	4.2
LL	2012/11/28	Selenium	µg/g (ppm)	BCME	0.5	< 0.5	< 0.5	< 0.5	< 0.5
LL	2012/11/28	Silver	µg/g (ppm)	BCME	0.1	0.4	0.4	0.2	0.2
LL	2012/11/28	Thallium	µg/g (ppm)	BCME	0.5	< 0.5	< 0.5	< 0.5	< 0.5
LL	2012/11/28	Tin	µg/g (ppm)	BCME	0.5	5.7	5.6	3.6	< 0.5
LL	2012/11/28	Vanadium	µg/g (ppm)	BCME	0.2	4.4	4.4	25.7	6.0
LL	2012/11/28	Zinc	µg/g (ppm)	BCME	0.5	31.6	31.3	35.0	38.7
TA	2012/12/03	pH (1:1 H2O) BC	pH units	BCME	0.01	4.50	4.47	4.77	4.56

Soil Analysis - Metals

Project No. VE52095.2I.3

Final
File No. EC-64437

Analyst	Date of Analysis (yyyy/m/d)	Analytical Parameter	Units	Reference Method	Lab #: Client ID: Sample Date: MDL	12-17176 BW-35A-Ah 2012/07/23 0:00	12-17178 BW-117A-LFH 2012/07/18 0:00	12-17180 BW-221A-LFH 2012/07/24 0:00	12-17181 BW-221A-Ahgj 2012/07/24 0:00
LL	2012/11/28	Boron (Hot Water Soluble)	µg/g (ppm)	McKeague 4.61/EPA 6010	0.1	< 0.1	*< 0.4	*< 0.4	< 0.1
LL	2012/11/28	Antimony	µg/g (ppm)	BCME	0.5	< 0.5	< 0.5	< 0.5	< 0.5
LL	2012/11/28	Arsenic	µg/g (ppm)	BCME	0.5	4.8	1.8	15.5	45.0
LL	2012/11/28	Barium	µg/g (ppm)	BCME	1	32	106	101	123
LL	2012/11/28	Beryllium	µg/g (ppm)	BCME	0.1	0.6	0.1	0.4	0.9
LL	2012/11/28	Cadmium	µg/g (ppm)	BCME	0.1	0.2	0.2	2.0	0.8
LL	2012/11/28	Chromium	µg/g (ppm)	BCME	0.5	10.4	1.9	5.8	11.9
LL	2012/11/28	Cobalt	µg/g (ppm)	BCME	0.5	5.0	1.3	4.2	6.3
LL	2012/11/28	Copper	µg/g (ppm)	BCME	0.1	9.0	5.5	9.3	9.3
LL	2012/11/28	Lead	µg/g (ppm)	BCME	0.5	7.1	11.9	13.5	20.5
LL	2012/11/28	Mercury	µg/g (ppm)	BCME	0.5	< 0.5	< 0.5	< 0.5	< 0.5
LL	2012/11/28	Molybdenum	µg/g (ppm)	BCME	0.5	0.9	0.6	1.6	2.8
LL	2012/11/28	Nickel	µg/g (ppm)	BCME	0.5	7.5	2.4	7.5	10.8
LL	2012/11/28	Selenium	µg/g (ppm)	BCME	0.5	< 0.5	< 0.5	< 0.5	< 0.5
LL	2012/11/28	Silver	µg/g (ppm)	BCME	0.1	0.2	0.7	< 0.1	< 0.1
LL	2012/11/28	Thallium	µg/g (ppm)	BCME	0.5	< 0.5	< 0.5	< 0.5	< 0.5
LL	2012/11/28	Tin	µg/g (ppm)	BCME	0.5	1.4	7.8	8.6	11.8
LL	2012/11/28	Vanadium	µg/g (ppm)	BCME	0.2	29.8	4.7	14.5	33.2
LL	2012/11/28	Zinc	µg/g (ppm)	BCME	0.5	38.3	44.1	114	84.4
TA	2012/12/03	pH (1:1 H2O) BC	pH units	BCME	0.01	4.89	4.10	4.93	5.24

Soil Analysis - Metals

Project No. VE52095.2I.3

Final
File No. EC-64437

Analyst	Date of Analysis (yyyy/m/d)	Analytical Parameter	Units	Reference Method	Lab #: Client ID: Sample Date: MDL	12-17182 BW-97A-LFH-Metals 2012/07/19 0:00	12-17184 BW-97A-Ae 2012/07/19 0:00	12-17188 BW-24A-LFH 2012/07/23 0:00	12-17189 BW-24A-Ae 2012/07/23 0:00
LL	2012/11/28	Boron (Hot Water Soluble)	µg/g (ppm)	McKeague 4.61/EPA 6010	0.1	*< 0.4	< 0.1	*< 0.4	< 0.1
LL	2012/11/28	Antimony	µg/g (ppm)	BCME	0.5	< 0.5	< 0.5	< 0.5	< 0.5
LL	2012/11/28	Arsenic	µg/g (ppm)	BCME	0.5	1.5	1.5	1.0	0.7
LL	2012/11/28	Barium	µg/g (ppm)	BCME	1	127	32	70	16
LL	2012/11/28	Beryllium	µg/g (ppm)	BCME	0.1	< 0.1	< 0.1	< 0.1	< 0.1
LL	2012/11/28	Cadmium	µg/g (ppm)	BCME	0.1	0.2	< 0.1	0.1	< 0.1
LL	2012/11/28	Chromium	µg/g (ppm)	BCME	0.5	3.1	8.9	< 0.5	1.9
LL	2012/11/28	Cobalt	µg/g (ppm)	BCME	0.5	0.8	2.0	< 0.5	< 0.5
LL	2012/11/28	Copper	µg/g (ppm)	BCME	0.1	3.9	3.2	5.4	1.6
LL	2012/11/28	Lead	µg/g (ppm)	BCME	0.5	12.1	14.2	4.8	5.4
LL	2012/11/28	Mercury	µg/g (ppm)	BCME	0.5	< 0.5	< 0.5	< 0.5	< 0.5
LL	2012/11/28	Molybdenum	µg/g (ppm)	BCME	0.5	0.8	< 0.5	< 0.5	< 0.5
LL	2012/11/28	Nickel	µg/g (ppm)	BCME	0.5	2.7	3.2	1.4	0.6
LL	2012/11/28	Selenium	µg/g (ppm)	BCME	0.5	< 0.5	< 0.5	< 0.5	< 0.5
LL	2012/11/28	Silver	µg/g (ppm)	BCME	0.1	< 0.1	< 0.1	0.3	0.1
LL	2012/11/28	Thallium	µg/g (ppm)	BCME	0.5	< 0.5	< 0.5	< 0.5	< 0.5
LL	2012/11/28	Tin	µg/g (ppm)	BCME	0.5	10.9	7.6	< 0.5	< 0.5
LL	2012/11/28	Vanadium	µg/g (ppm)	BCME	0.2	5.5	24.1	0.9	6.9
LL	2012/11/28	Zinc	µg/g (ppm)	BCME	0.5	24.6	25.2	48.3	5.6
TA	2012/12/03	pH (1:1 H2O) BC	pH units	BCME	0.01	3.75	3.94	3.97	3.88

Soil Analysis - Metals

Project No. VE52095.2I.3

Final
File No. EC-64437

Analyst	Date of Analysis (yyyy/m/d)	Analytical Parameter	Units	Reference Method	Lab #: Client ID: Sample Date: MDL	12-17191 BW-20A-LFH 2012/07/20 0:00	12-17192 BW-20A-Ah 2012/07/20 0:00	12-17193 SC2-LF 2012/07/19 0:00	12-17194 SC2-Ae 2012/07/19 0:00
LL	2012/11/28	Boron (Hot Water Soluble)	µg/g (ppm)	McKeague 4.61/EPA 6010	0.1	*< 0.4	< 0.1	*< 0.4	< 0.1
LL	2012/11/28	Antimony	µg/g (ppm)	BCME	0.5	< 0.5	< 0.5	< 0.5	< 0.5
LL	2012/11/28	Arsenic	µg/g (ppm)	BCME	0.5	1.6	14.3	1.2	2.7
LL	2012/11/28	Barium	µg/g (ppm)	BCME	1	92	119	31	48
LL	2012/11/28	Beryllium	µg/g (ppm)	BCME	0.1	0.5	1.2	< 0.1	0.2
LL	2012/11/28	Cadmium	µg/g (ppm)	BCME	0.1	0.3	0.4	0.3	< 0.1
LL	2012/11/28	Chromium	µg/g (ppm)	BCME	0.5	< 0.5	19.1	0.6	11.2
LL	2012/11/28	Cobalt	µg/g (ppm)	BCME	0.5	1.7	9.6	< 0.5	4.7
LL	2012/11/28	Copper	µg/g (ppm)	BCME	0.1	5.4	16.1	4.7	6.2
LL	2012/11/28	Lead	µg/g (ppm)	BCME	0.5	9.2	12.4	6.8	8.1
LL	2012/11/28	Mercury	µg/g (ppm)	BCME	0.5	< 0.5	< 0.5	< 0.5	< 0.5
LL	2012/11/28	Molybdenum	µg/g (ppm)	BCME	0.5	0.5	3.1	0.7	0.6
LL	2012/11/28	Nickel	µg/g (ppm)	BCME	0.5	1.7	11.9	1.2	7.8
LL	2012/11/28	Selenium	µg/g (ppm)	BCME	0.5	< 0.5	< 0.5	< 0.5	< 0.5
LL	2012/11/28	Silver	µg/g (ppm)	BCME	0.1	0.5	< 0.1	0.4	< 0.1
LL	2012/11/28	Thallium	µg/g (ppm)	BCME	0.5	< 0.5	< 0.5	< 0.5	< 0.5
LL	2012/11/28	Tin	µg/g (ppm)	BCME	0.5	11.2	2.7	6.7	2.9
LL	2012/11/28	Vanadium	µg/g (ppm)	BCME	0.2	1.6	72.4	1.1	36.2
LL	2012/11/28	Zinc	µg/g (ppm)	BCME	0.5	26.6	81.0	69.2	33.1
TA	2012/12/03	pH (1:1 H2O) BC	pH units	BCME	0.01	4.88	4.37	4.24	4.42

Soil Analysis - Metals

Project No. VE52095.2I.3

Final
File No. EC-64437

Analyst	Date of Analysis (yyyy/m/d)	Analytical Parameter	Units	Reference Method	Lab #: Client ID: Sample Date: MDL	12-17196 BW-97A-7S-Metals 2012/07/19 0:00	12-17198 BW-117A-LFH-Metals 2012/07/18 0:00	12-17199 BW-117A-Ae 2012/07/18 0:00
LL	2012/11/28	Boron (Hot Water Soluble)	µg/g (ppm)	McKeague 4.61/EPA 6010	0.1	< 0.1	*< 0.4	< 0.1
LL	2012/11/28	Antimony	µg/g (ppm)	BCME	0.5	< 0.5	< 0.5	< 0.5
LL	2012/11/28	Arsenic	µg/g (ppm)	BCME	0.5	4.3	1.7	5.6
LL	2012/11/28	Barium	µg/g (ppm)	BCME	1	72	121	31
LL	2012/11/28	Beryllium	µg/g (ppm)	BCME	0.1	0.3	0.1	< 0.1
LL	2012/11/28	Cadmium	µg/g (ppm)	BCME	0.1	0.1	0.1	< 0.1
LL	2012/11/28	Chromium	µg/g (ppm)	BCME	0.5	14.8	1.6	7.7
LL	2012/11/28	Cobalt	µg/g (ppm)	BCME	0.5	4.9	1.1	2.3
LL	2012/11/28	Copper	µg/g (ppm)	BCME	0.1	6.9	5.3	3.4
LL	2012/11/28	Lead	µg/g (ppm)	BCME	0.5	12.5	9.8	15.3
LL	2012/11/28	Mercury	µg/g (ppm)	BCME	0.5	< 0.5	< 0.5	< 0.5
LL	2012/11/28	Molybdenum	µg/g (ppm)	BCME	0.5	1.0	0.5	0.6
LL	2012/11/28	Nickel	µg/g (ppm)	BCME	0.5	9.5	2.2	3.6
LL	2012/11/28	Selenium	µg/g (ppm)	BCME	0.5	< 0.5	< 0.5	< 0.5
LL	2012/11/28	Silver	µg/g (ppm)	BCME	0.1	0.1	0.5	< 0.1
LL	2012/11/28	Thallium	µg/g (ppm)	BCME	0.5	< 0.5	< 0.5	< 0.5
LL	2012/11/28	Tin	µg/g (ppm)	BCME	0.5	1.8	5.4	3.1
LL	2012/11/28	Vanadium	µg/g (ppm)	BCME	0.2	49.1	3.6	28.1
LL	2012/11/28	Zinc	µg/g (ppm)	BCME	0.5	66.1	44.5	24.4
TA	2012/12/03	pH (1:1 H2O) BC	pH units	BCME	0.01	4.58	3.89	4.17

Soil Analysis

Project No. VE52095.2I.3

Final
File No. EC-64437

Analyst	Date of Analysis (yyyy/m/d)	Analytical Parameter	Units	Reference Method	Lab #: / Client ID: / Sample Date: / MDL	12-17173 BW-35A-LFH-Metals 2012/07/23 0:00	12-17173-D BW-35A-LFH-Metals Lab Duplicate 2012/07/23 0:00	12-17174 BW-35A-TS-Metals 2012/07/23 0:00	12-17175 BW-35A-LFH 2012/07/23 0:00
TA	2012/12/03	pH (1:2 CaCl2)	pH units	McKeague 3.11	0.01	3.63	3.74	3.84	3.67

Analyst	Date of Analysis (yyyy/m/d)	Analytical Parameter	Units	Reference Method	Lab #: / Client ID: / Sample Date: / MDL	12-17176 BW-35A-Ah 2012/07/23 0:00	12-17177 BW-35A-Bm 2012/07/23 0:00	12-17178 BW-117A-LFH 2012/07/18 0:00	12-17179 BW-117A-Bt 2012/07/18 0:00
TA	2012/12/03	pH (1:2 CaCl2)	pH units	McKeague 3.11	0.01	3.95	4.02	3.15	3.96

Analyst	Date of Analysis (yyyy/m/d)	Analytical Parameter	Units	Reference Method	Lab #: / Client ID: / Sample Date: / MDL	12-17180 BW-221A-LFH 2012/07/24 0:00	12-17181 BW-221A-Ahgj 2012/07/24 0:00	12-17182 BW-97A-LFH-Metals 2012/07/19 0:00	12-17183 BW-97A-LFH 2012/07/19 0:00
TA	2012/12/03	pH (1:2 CaCl2)	pH units	McKeague 3.11	0.01	4.26	4.57	2.73	3.09

Soil Analysis

Project No. VE52095.2I.3

Final
File No. EC-64437

Analyst	Date of Analysis (yyyy/m/d)	Analytical Parameter	Units	Reference Method	Lab #: / Client ID: / Sample Date: / MDL	12-17184 BW-97A-Ae 2012/07/19 0:00	12-17185 BW-97A-Bm 2012/07/19 0:00	12-17186 BW-97A-C 2012/07/19 0:00	12-17187 BW12-A-Bm 2012/07/23 0:00
TA	2012/12/03	pH (1:2 CaCl2)	pH units	McKeague 3.11	0.01	3.10	3.65	4.32	3.89
JL	2012/11/28	pH (Sat. Paste)	pH units	McKeague 4.13	0.01	---	---	7.28	---
JL	2012/11/28	Conductivity (Sat. Paste)	mS/cm	McKeague 4.13	0.001	---	---	0.142	---
LL	2012/11/29	Calcium	meq/L	McKeague 3.21	0.01	---	---	0.69	---
LL	2012/11/29	Magnesium	meq/L	McKeague 3.21	0.01	---	---	0.45	---
LL	2012/11/29	Potassium	meq/L	McKeague 3.21	0.01	---	---	0.03	---
LL	2012/11/29	Sodium	meq/L	McKeague 3.21	0.01	---	---	0.35	---
TA	2012/11/29	Bicarbonate	meq/L	McKeague 3.21	1.0	---	---	< 1.0	---
AFD	2012/12/03	Chloride	meq/L	McKeague 3.21	0.01	---	---	0.28	---
AFD	2012/12/03	Sulphate	meq/L	McKeague 3.21	0.01	---	---	0.75	---
JL	2012/11/28	Saturation	%	McKeague 3.21	0.1	---	---	32.3	---
LL	2012/11/28	Calcium	µg/g (ppm)	Calculation	0.10	---	---	4.48	---
LL	2012/11/28	Magnesium	µg/g (ppm)	Calculation	0.10	---	---	1.76	---
LL	2012/11/28	Potassium	µg/g (ppm)	Calculation	0.10	---	---	0.37	---
LL	2012/11/28	Sodium	µg/g (ppm)	Calculation	0.10	---	---	2.63	---
LL	2012/11/28	Chloride	µg/g (ppm)	Calculation	0.10	---	---	3.23	---
LL	2012/11/28	Sulphate	µg/g (ppm)	Calculation	0.10	---	---	11.6	---
LL	2012/11/28	Bicarbonate	µg/g (ppm)	Calculation	0.1	---	---	4.1	---
LL	2012/11/28	Sodium Adsorption Ratio (SAR)		Calculation	0.10	---	---	0.47	---

Analyst	Date of Analysis (yyyy/m/d)	Analytical Parameter	Units	Reference Method	Lab #: / Client ID: / Sample Date: / MDL	12-17188 BW-24A-LFH 2012/07/23 0:00	12-17189 BW-24A-Ae 2012/07/23 0:00	12-17190 BW-24A-Bf 2012/07/23 0:00	12-17191 BW-20A-LFH 2012/07/20 0:00
TA	2012/12/03	pH (1:2 CaCl2)	pH units	McKeague 3.11	0.01	3.06	2.93	3.94	4.14

Soil Analysis

Project No. VE52095.2I.3

Final
File No. EC-64437

Analyst	Date of Analysis (yyyy/m/d)	Analytical Parameter	Units	Reference Method	Lab #: / Client ID: / Sample Date: / MDL	12-17192 BW-20A-Ah 2012/07/20 0:00	12-17193 SC2-LF 2012/07/19 0:00	12-17194 SC2-Ae 2012/07/19 0:00	12-17195 SC2-Bm 2012/07/19 0:00
TA	2012/12/03	pH (1:2 CaCl2)	pH units	McKeague 3.11	0.01	3.67	3.06	3.87	4.59

Analyst	Date of Analysis (yyyy/m/d)	Analytical Parameter	Units	Reference Method	Lab #: / Client ID: / Sample Date: / MDL	12-17196 BW-97A-7S-Metals 2012/07/19 0:00	12-17197 BW-97A-BC 2012/07/19 0:00	12-17198 BW-117A-LFH-Metals 2012/07/18 0:00	12-17199 BW-117A-Ae 2012/07/18 0:00
TA	2012/12/03	pH (1:2 CaCl2)	pH units	McKeague 3.11	0.01	3.68	4.38	3.02	3.42

Analyst	Date of Analysis (yyyy/m/d)	Analytical Parameter	Units	Reference Method	Lab #: / Client ID: / Sample Date: / MDL	12-17200 BW-117A-C 2012/07/18 0:00
JL	2012/11/28	pH (Sat. Paste)	pH units	McKeague 4.13	0.01	7.12
JL	2012/11/28	Conductivity (Sat. Paste)	mS/cm	McKeague 4.13	0.001	0.117
LL	2012/11/29	Calcium	meq/L	McKeague 3.21	0.01	0.66
LL	2012/11/29	Magnesium	meq/L	McKeague 3.21	0.01	0.36
LL	2012/11/29	Potassium	meq/L	McKeague 3.21	0.01	0.03
LL	2012/11/29	Sodium	meq/L	McKeague 3.21	0.01	0.31
TA	2012/11/29	Bicarbonate	meq/L	McKeague 3.21	1.0	< 1.0
AFD	2012/12/03	Chloride	meq/L	McKeague 3.21	0.01	0.21
AFD	2012/12/03	Sulphate	meq/L	McKeague 3.21	0.01	0.28
JL	2012/11/28	Saturation	%	McKeague 3.21	0.1	31.2
LL	2012/11/28	Calcium	µg/g (ppm)	Calculation	0.10	4.13
LL	2012/11/28	Magnesium	µg/g (ppm)	Calculation	0.10	1.36
LL	2012/11/28	Potassium	µg/g (ppm)	Calculation	0.10	0.39
LL	2012/11/28	Sodium	µg/g (ppm)	Calculation	0.10	2.23
LL	2012/11/28	Chloride	µg/g (ppm)	Calculation	0.10	2.36
LL	2012/11/28	Sulphate	µg/g (ppm)	Calculation	0.10	4.17
LL	2012/11/28	Bicarbonate	µg/g (ppm)	Calculation	0.1	7.0
LL	2012/11/28	Sodium Adsorption Ratio (SAR)		Calculation	0.10	0.44

Soil Analysis

Project No. VE52095.2I.3

Final
File No. EC-64437

Analyst	Date of Analysis (yyyy/m/d)	Analytical Parameter	Units	Reference Method	Lab #: / Client ID: / Sample Date: / MDL	12-17176 BW-35A-Ah 2012/07/23 0:00	12-17177 BW-35A-Bm 2012/07/23 0:00	12-17177-D BW-35A-Bm Lab Duplicate	12-17179 BW-117A-Bt 2012/07/18 0:00
LL	2012/12/05	Iron (Pyrophosphate Extr)	%	Carter 26.5	0.0001	---	0.5540	0.5080	---
LL	2012/12/05	Aluminum (Pyrophosphate Extr)	%	Carter 26.5	0.0001	---	1.38	1.40	---
TY	2012/12/05	Texture - Sand	%	McKeague 2.12	1	83	82	---	32
TY	2012/12/05	Texture - Silt	%	McKeague 2.12	1	17	18	---	48
TY	2012/12/05	Texture - Clay	%	McKeague 2.12	1	< 1	< 1	---	20

Analyst	Date of Analysis (yyyy/m/d)	Analytical Parameter	Units	Reference Method	Lab #: / Client ID: / Sample Date: / MDL	12-17179-D Lab Duplicate	12-17181 BW-221A-Ahgj 2012/07/24 0:00	12-17184 BW-97A-Ae 2012/07/19 0:00	12-17185 BW-97A-Bm 2012/07/19 0:00
LL	2012/12/05	Iron (Pyrophosphate Extr)	%	Carter 26.5	0.0001	---	---	---	0.6930
LL	2012/12/05	Aluminum (Pyrophosphate Extr)	%	Carter 26.5	0.0001	---	---	---	0.9010
TY	2012/12/05	Texture - Sand	%	McKeague 2.12	1	32	56	48	48
TY	2012/12/05	Texture - Silt	%	McKeague 2.12	1	48	34	42	38
TY	2012/12/05	Texture - Clay	%	McKeague 2.12	1	20	10	10	14

Analyst	Date of Analysis (yyyy/m/d)	Analytical Parameter	Units	Reference Method	Lab #: / Client ID: / Sample Date: / MDL	12-17186 BW-97A-C 2012/07/19 0:00	12-17187 BW12-A-Bm 2012/07/23 0:00	12-17189 BW-24A-Ae 2012/07/23 0:00	12-17190 BW-24A-Bf 2012/07/23 0:00
LL	2012/12/05	Iron (Pyrophosphate Extr)	%	Carter 26.5	0.0001	---	---	---	0.4890
LL	2012/12/05	Aluminum (Pyrophosphate Extr)	%	Carter 26.5	0.0001	---	---	---	1.14
TY	2012/12/05	Texture - Sand	%	McKeague 2.12	1	52	75	49	83
TY	2012/12/05	Texture - Silt	%	McKeague 2.12	1	32	24	44	16
TY	2012/12/05	Texture - Clay	%	McKeague 2.12	1	16	< 1	6	< 1

Analyst	Date of Analysis (yyyy/m/d)	Analytical Parameter	Units	Reference Method	Lab #: / Client ID: / Sample Date: / MDL	12-17192 BW-20A-Ah 2012/07/20 0:00	12-17194 SC2-Ae 2012/07/19 0:00	12-17195 SC2-Bm 2012/07/19 0:00	12-17197 BW-97A-BC 2012/07/19 0:00
LL	2012/12/05	Iron (Pyrophosphate Extr)	%	Carter 26.5	0.0001	---	---	0.6940	---
LL	2012/12/05	Aluminum (Pyrophosphate Extr)	%	Carter 26.5	0.0001	---	---	1.07	---
TY	2012/12/05	Texture - Sand	%	McKeague 2.12	1	62	62	76	64
TY	2012/12/05	Texture - Silt	%	McKeague 2.12	1	24	26	12	26
TY	2012/12/05	Texture - Clay	%	McKeague 2.12	1	14	12	12	10

Soil Analysis

Project No. VE52095.2I.3

Final
File No. EC-64437

Analyst	Date of Analysis (yyyy/m/d)	Analytical Parameter	Units	Reference Method	Lab #: / Client ID: / Sample Date: / MDL	12-17199 BW-117A-Ae 2012/07/18 0:00	12-17200 BW-117A-C 2012/07/18 0:00
TY	2012/12/05	Texture - Sand	%	McKeague 2.12	1	36	36
TY	2012/12/05	Texture - Silt	%	McKeague 2.12	1	44	44
TY	2012/12/05	Texture - Clay	%	McKeague 2.12	1	20	20

Quality Control Standard

Project No. VE52095.2I.3 File No. EC-64437

Soil Analysis - Metals

Analyst	Date of Analysis (yyyy/m/d)	Analytical Parameter	Units	Reference Method	MDL	Analyzed Value	Advisory Range	Target Value	Reference No.
LL	2012/11/28	Boron (Hot Water Soluble)	mg/L (ppm)	APHA 3120 B	0.1	1.0	0.90-1.10	1.0	QCP-QCS (CCV-Cats)
LL	2012/11/28	Antimony	µg/g (ppm)	BCME	0.1	178	0.5-269	120.0	ERA D073-540
LL	2012/11/28	Arsenic	µg/g (ppm)	BCME	0.5	8.2	7.22-8.97	8.1	SS#15
LL	2012/11/28	Barium	µg/g (ppm)	BCME	1	325	252-380	316	ERA D073-540
LL	2012/11/28	Beryllium	µg/g (ppm)	BCME	0.1	93.7	76.1-114	95.0	ERA D073-540
LL	2012/11/28	Cadmium	µg/g (ppm)	BCME	0.1	0.4	0.33-0.46	0.4	SS#15
LL	2012/11/28	Chromium	µg/g (ppm)	EBCME	0.5	96.2	73.6-118	95.9	ERA D073-540
LL	2012/11/28	Cobalt	µg/g (ppm)	EBCME	0.5	143	111-164	138.0	ERA D073-540
LL	2012/11/28	Copper	µg/g (ppm)	BCME	0.1	26.7	20.4-33.2	26.8	SS#15
LL	2012/11/28	Lead	µg/g (ppm)	BCME	0.5	11.7	8.8-13.6	11.2	SS#15
LL	2012/11/28	Mercury	µg/g (ppm)	BCME	0.5	15.0	10.9-19.5	15.2	ERA D073-540
LL	2012/11/28	Molybdenum	µg/g (ppm)	BCME	0.5	90.2	67.7-109	88.6	ERA D073-540
LL	2012/11/28	Nickel	µg/g (ppm)	BCME	0.5	134	96.3-145	121.0	ERA D073-540
LL	2012/11/28	Selenium	µg/g (ppm)	BCME	0.5	204	155-248	202.0	ERA D073-540
LL	2012/11/28	Silver	µg/g (ppm)	BCME	0.1	54.0	35.5-71.6	53.5	ERA D073-540
LL	2012/11/28	Thallium	µg/g (ppm)	BCME	0.5	243	174-287	231.0	ERA D073-540
LL	2012/11/28	Tin	µg/g (ppm)	BCME	0.5	132	98.3-166	132.0	ERA D073-540
LL	2012/11/28	Vanadium	µg/g (ppm)	BCME	0.2	106	78.6-129	104.0	ERA D073-540
LL	2012/11/28	Zinc	µg/g (ppm)	BCME	0.5	63.6	55.1-77.2	66.2	SS#15
TA	2012/12/03	pH (1:1 H2O) BC	pH Units	McKeague 4.11	0.01	7.25	7.21-7.57	7.39	SS#17

Soil Analysis

Analyst	Date of Analysis (yyyy/m/d)	Analytical Parameter	Units	Reference Method	MDL	Analyzed Value	Advisory Range	Target Value	Reference No.
TA	2012/12/03	pH (1:2 CaCl2)	pH Units	Mckeague 3.11	0.01	7.12	7.10-7.40	7.25	SS#17
JL	2012/11/28	pH (Sat. Paste)	pH units	McKeague 4.13	0.01	7.11	7.09-7.70	7.39	SS#18
JL	2012/11/28	Conductivity (Sat. Paste)	mS/cm	McKeague 4.13	0.001	2.69	2.02-2.70	2.360	SS#18
LL	2012/11/29	Calcium	meq/L	McKeague 3.21	0.01	20.8	18.01-22.60	20.30	SS#18
LL	2012/11/29	Magnesium	meq/L	McKeague 3.21	0.01	7.98	7.10-8.95	8.02	SS#18
LL	2012/11/29	Potassium	meq/L	McKeague 3.21	0.01	0.60	0.54-0.65	0.59	SS#18
LL	2012/11/29	Sodium	meq/L	McKeague 3.21	0.01	6.89	6.13-8.18	7.16	SS#18
TA	2012/11/29	Bicarbonate	meq/L	McKeague 3.21	1.0	6.4	3.51-7.38	5.4	SS#18
AFD	2012/12/03	Chloride	meq/L	McKeague 3.21	0.01	3.73	2.51-4.87	3.69	SS#18
AFD	2012/12/03	Sulphate	meq/L	McKeague 3.21	0.01	24.3	13.49-28.22	20.86	SS#18
JL	2012/11/28	Saturation	%	McKeague 3.21	0.1	49.7	42.6-55.4	49.0	SS#18

Quality Control Standard

Project No. VE52095.2I.3 File No. EC-64437

Soil Analysis

Analyst	Date of Analysis (yyyy/m/d)	Analytical Parameter	Units	Reference Method	MDL	Analyzed Value	Advisory Range	Target Value	Reference No.
LL	2012/12/05	Iron (Pyrophosphate Extr)	%	Carter 26.5	0.0001	0.6000	0.49-0.74	0.6100	SS#15
LL	2012/12/05	Aluminum (Pyrophosphate Extr)	%	Carter 26.5	0.0001	0.9500	0.83-1.27	1.0500	SS#15
TY	2012/12/05	Texture - Sand	%	McKeague 2.12	1	50	45-52	48	SS#18
TY	2012/12/05	Texture - Silt	%	McKeague 2.12	1	30	27-34	31	SS#18
TY	2012/12/05	Texture - Clay	%	McKeague 2.12	1	20	18-24	21	SS#18

Analytical Comments

Project No. VE52095.2I.3 File No. EC-64437

* Boron MDLs adjusted 4x for samples 12-17173, 12-17175, 12-17178, 12-17180, 12-17182, 12-17188, 12-17191, 12-17193, 12-17198 due to sample matrix interference.

All Analytical results pertain to samples analyzed as received.

BCME (Metals): British Columbia Ministry of Environment - Contaminated Sites Regulation, SALM Analytical Method 8, v1.0, 2001

BCME (pH1:1): British Columbia Ministry of Environment - Contaminated Sites Regulation, pH (1:1H2O), Method PHSED, v1.0, 2000

Carter: Carter, Martin R., 2008. Soil Sampling and Methods of Analysis, Canadian Society of Soil Science. Ottawa

McKeague: Manual on Soil Sampling and Methods of Analyses. Can. Soc. Soil Sci. Ottawa.

MDL - Method Detection Limit

EC-GH437

SRB19

amec EARTH & ENVIRONMENTAL 27899

Chain of Custody Record/Analysis Request

ISSUING OFFICE: Edmonton

Project Name: Blackwater Sampler: Steve Clark

Project Manager: Steve Clark Phone #: 780 989-4589

Project Number: VE52095 Phase: 21 Task: 3

Client Sample ID	AMEC E & E Lab Sample ID	Date Collected	Matrix (S=soil, W=water, A=air)	1L Bottle	250 mL Jar	40 mL Vial	1L Polyethylene	Plastic Bag	Boron (Hot water)	BC Trace Metals (ICP)	pH (1:2 CaCl2)	Pyrophosphate Fe + Al	Texture	Detailed Salinity	50% Rush (Notify Lab Prior to Submission)	100% Rush (Notify Lab Prior to Submission)
BW-35A-LFH-Metals	12-17173	July 23/12						✓	✓	✓	✓					
BW-35A-TS-Metals	74	July 23/12						✓	✓	✓	✓					
BW-35A-LFH	75	July 23/12						✓	✓	✓	✓					
BW-35A-Ah	76	July 23/12						✓	✓	✓	✓		✓			
BW-35A-Bm	77	July 23/12						✓			✓	✓	✓			
BW-117A-LFH	78	July 18/12						✓	✓	✓	✓					
BW-117A-Bt	79	July 18/12						✓			✓		✓			
BW-221A-LFH	80	July 24/12						✓	✓	✓	✓					
BW-221A-Ahe	81	July 24/12						✓	✓	✓	✓		✓			
BW-97A-LFH-Metals	82	July 19/12						✓	✓	✓	✓					
BW-97A-LFH	83	July 19/12						✓			✓					
BW-97A-Ae	84	July 19/12						✓	✓	✓	✓		✓			
BW-97A-Bm	85	July 19/12						✓			✓	✓	✓			
BW-97A-C	86	July 19/12						✓			✓		✓	✓		
BW-12A-Bm	87	July 20/12						✓			✓		✓			
BW-24A-LFH	88	July 23/12						✓	✓	✓	✓					
BW-24A-Ae	89	July 23/12						✓	✓	✓	✓		✓			
BW-24A-Bf	90	July 23/12						✓			✓	✓	✓			
BW-20A-LFH	91	July 20/12						✓	✓	✓	✓					
BW-20A-Ah	92	July 20/12						✓	✓	✓	✓		✓			

Analysis Requested: (write preferred method in box)

QUOTED PRICE

☐ YES ☐ NO

If Yes, Please attach a copy of quote.

Temperature 7.4°C

Receiver's Comments

RELINQUISHED BY SAMPLER	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature:	Signature:	Signature:
Printed Name: Steve Clark	Printed Name: J. Lanoo	Printed Name:	Printed Name:
Firm: AMEC	Firm: Amec	Firm:	Firm:
Date/Time: Nov. 23/12	Date/Time: Nov 23 2012 11:25	Date/Time:	Date/Time:

COMMENTS:

DISTRIBUTION: WHITE - return to originator; YELLOW - lab; PINK - retained by originator

amec EARTH & ENVIRONMENTAL 27900

Chain of Custody Record/Analysis Request

ISSUING OFFICE: Edmonton

Project Name: Blackwater	Sampler: Steve Clarke
Project Manager: Steve Clarke	Phone #: 780 989-4589
Project Number: VE52095	Phase: 21 Task: 3

Client Sample ID	AMEC E & E Lab Sample ID	Date Collected	Matrix (S=soil, W=water, A=air)	1L Bottle	250 mL Jar	40 mL Vial	1L Polyethylene	Plastic Bag	Boron (Hot Water)	BC Trace Metals (ICP)	pH (1:2 CaCl2)	Pyrophosphate Iron	Pyrophosphate Aluminum	Texture	Detailed Salinity	50% Rush (Notify Lab Prior to Submission)	100% Rush (Notify Lab Prior to Submission)
SC2-LF	93	July 19/12						✓	✓	✓	✓						
SC2-Ae	94	July 19/12						✓	✓	✓	✓			✓			
SC2-Bm	95	July 19/12						✓			✓	✓	✓	✓			
BW-97A-TS-Metals	96	July 19/12						✓	✓	✓	✓						
BW-97A-BC	97	July 19/12						✓			✓			✓			
BW-1179-LFN-Metals	98	July 18/12						✓	✓	✓	✓						
[illegible]		July 18/12						✓									
BW-1174-Ae	99	July 18/12						✓	✓	✓	✓			✓			
BW-1174-C	00	July 18/12						✓						✓	✓		

QUOTED PRICE

☐ YES ☐ NO

If Yes, Please attach a copy of quote.

Temperature

Receiver's Comments

RELINQUISHED BY SAMPLER	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature]	Signature:	Signature:	Signature:
Printed Name: Steve Clarke	Printed Name:	Printed Name:	Printed Name:
Firm: AMEC	Firm:	Firm:	Firm:
Date/Time: Nov. 23/12	Date/Time:	Date/Time:	Date/Time:

COMMENTS:

DISTRIBUTION: WHITE - return to originator; YELLOW - lab; PINK - retained by originator

Annex 3
Surficial Materials Maps

370000 375000 380000 385000 390000

5905000 5900000 5895000 5890000

Kluskus-Ootsa FSR
Proposed Airstrip
Proposed Airstrip Access Road
Proposed Mine Access Road
Proposed Transmission Line
Proposed Water Pipeline Route
Exploration Road
Fawnie Creek
Top Lake
Davidson Creek
Snake lake
Tatelkuz Lake
Chedakuz Creek
Chedlakuz Creek
Kuyakuz Lake
Mathews Creek

N

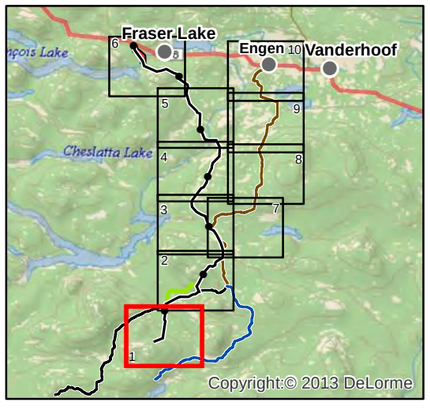
Legend

- AccessRoad
- Proposed Transmission Line
- Kluskus Blue FSR
- Kluskus Ootsa FSR
- Exploration Road
- Existing Road
- Proposed Water Pipeline Route
- Proposed Airstrip Access Road
- Stream
- Waterbody
- Proposed Mine Site
- Proposed Airstrip Extent

Terrain Units

- Morainal
- Glaciofluvial
- Colluvial
- Fluvial
- Organic
- Bedrock Outcrops
- Disturbed Land
- Water

KEY MAP



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Kilometres

Scale:1:80,000

Reference

BC Government GeoBC Data Distribution

CLIENT: newgold

PROJECT: Blackwater Gold Project

Terrain Units

DATE:	ANALYST:	
September, 2013	AA	**Page 1 of 10**
JOB No: VE52277	QA/QC: MY	PDF FILE: 05-100-003_terrain_units.pdf
GIS FILE: 05-100-003_terrain_units.mxd		
PROJECTION: UTM Zone 10	DATUM: NAD83	amec

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380000 385000 390000 395000 400000

5925000 5920000 5915000 5910000 5905000

East Erhorn Creek
Erhorn Creek
Erhorn Creek
Big Bend Creek
Brewster Lakes
Goose Lake
Ester Creek
Proposed Transmission Line
Kluskus FSR
Proposed Transmission Line
(Mills Ranch Reroute)
Chedakuz Creek
Davidson Creek
Tatelkuz Lake
Kluskus-Blue FSR
Proposed Transmission Line

N

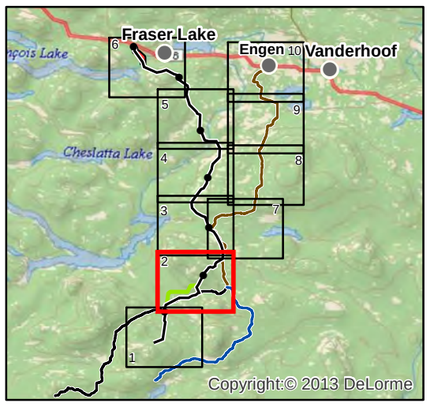
Legend

- AccessRoad
- Proposed Transmission Line
- Proposed Transmission Line (Mills Ranch Reroute)
- Kluskus FSR
- Kluskus Blue FSR
- Kluskus Ootsa FSR
- Existing Road
- Stream
- Waterbody

Terrain Units

- Morainal
- Glaciofluvial
- Colluvial
- Glaciolacustrine
- Fluvial
- Organic
- Disturbed Land
- Water

KEY MAP



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Kilometres

Scale:1:80,000

Reference
BC Government GeoBC Data Distribution

CLIENT: newgold

PROJECT: Blackwater Gold Project

Terrain Units

DATE: September, 2013	ANALYST: AA	**Page 2 of 10**
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380000 385000 390000 395000 400000

5940000 5935000 5930000 5925000

Cutoff Creek
Cutoff Creek
Cutoff Creek
Chief Gray Lake
Hobson Lake
Nechako Reservoir
Big Bend Creek
Finger Creek
Willington Lake
Proposed Transmission Line
Kluskus FSR
Schjelderup Creek
East Ehrhorn Creek
Big Bend Creek

N

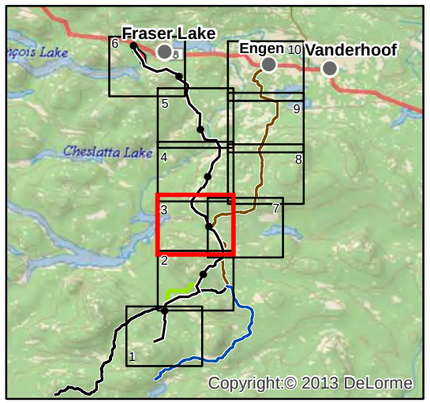
Legend

- Proposed Transmission Line
- Kluskus FSR
- Existing Road
- Stream
- Waterbody

Terrain Units

- Morainal
- Glaciofluvial
- Colluvial
- Glaciolacustrine
- Fluvial
- Eolian
- Organic
- Disturbed Land
- Water

KEY MAP



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Kilometres

Scale:1:80,000

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BC Government GeoBC Data Distribution

CLIENT: newgold

PROJECT: Blackwater Gold Project

Terrain Units

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380000 385000 390000 395000 400000

5960000 5955000 5950000 5945000

Hallett Lake
Triangle Lake
Lorne Lake
Bungalow Lake
Targe Creek
Bognaas Lake
Copley Lake
Nechako River
Greer Creek
Crystal Lake
Swanson Creek
Boomerang Lake
Cutoff Creek

Proposed Transmission Line

N

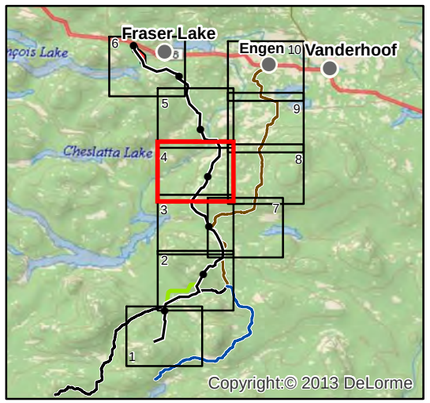
Legend

- Proposed Transmission Line
- Existing Road
- Stream
- Waterbody

Terrain Units

- Morainal
- Glaciofluvial
- Colluvial
- Glaciolacustrine
- Fluvial
- Organic
- Disturbed Land
- Water

KEY MAP



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Kilometres

Scale:1:80,000

Reference
BC Government GeoBC Data Distribution

CLIENT: newgold

PROJECT: Blackwater Gold Project

Terrain Units

DATE: September, 2013	ANALYST: AA	**Page 4 of 10**
JOB No: VE52277	QA/QC: MY	PDF FILE: 05-100-003_terrain_units.pdf
GIS FILE: 05-100-003_terrain_units.mxd		
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380000 385000 390000 395000 400000

5975000 5970000 5965000 5960000

Proposed Transmission Line

Smith Creek Limit Lake Centre Lake Milligan Lake Fifteen Creek Dorman Creek Tahultzu Creek Dorman Lake Twentysix Mile Lake Tahultzu Lake Hallett Lake Triangle Lake True Triangle Lake Bungalow Lake Lorne Lake Rognaas Lake Targe Creek Nechako River Greer Creek

N

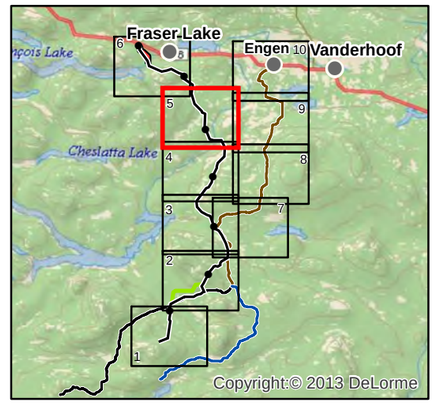
Legend

- Proposed Transmission Line
- Existing Road
- Stream
- Waterbody

Terrain Units

- Morainal
- Glaciofluvial
- Colluvial
- Glaciolacustrine
- Fluvial
- Organic
- Disturbed Land
- Water

KEY MAP



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Kilometres

Scale:1:80,000

Reference

BC Government GeoBC Data Distribution

CLIENT: newgold

PROJECT: Blackwater Gold Project

Terrain Units

DATE: September, 2013	ANALYST: AA	**Page 5 of 10**
JOB No: VE52277	QA/QC: MY	PDF FILE: 05-100-003_terrain_units.pdf
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365000 370000 375000 380000 385000

5995000 5990000 5985000 5980000

Endako
Stellako
Fraser Lake
Proposed Transmission Line
(Stellako Reroute)
Proposed Transmission Line
16
Four Mile Creek
Tatin Creek
Perry Creek
Deserter Lake
Stern Creek
Alf Creek
Fraser Lake
Casey Lake
Stellako River
Seas Lake
Shotgun Creek
Mudhole Creek
Robertson Creek
Francois Lake
Foster Lakes
Nithi River
Borel Lake
Anzus Lake

N

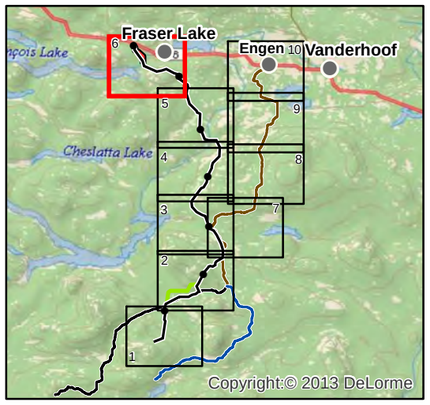
Legend

- Populated Place
- Highway
- Proposed Transmission Line
- Proposed Transmission Line (Stellako Reroute)
- Existing Road
- Stream
- Waterbody

Terrain Units

- Morainal
- Glaciofluvial
- Colluvial
- Glaciolacustrine
- Fluvial
- Organic
- Disturbed Land
- Water

KEY MAP



0 0.5 1 2 3 4 5
Kilometres
Scale:1:80,000

Reference
BC Government GeoBC Data Distribution

CLIENT: newgold

PROJECT: Blackwater Gold Project

Terrain Units

DATE: September, 2013	ANALYST: AA	**Page 6 of 10**
JOB No: VE52277	QA/QC: MY	PDF FILE: 05-100-003_terrain_units.pdf
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395000 400000 405000 410000 415000

5940000 5935000 5930000 5925000

Kluskus FSR

Cabin Creek
Secord Lake
Gluten Lake
Duten Lake
Vivian Lake
Provis Lake
Finger Creek
Finger Lake
Willington Lake
Finnie Lake
Andros Lake
Otter Lake
Stefiuk Lake
Tatuk Lake
Tatuk Creek
Lavoie Creek
Lavoie Lake
Hay Lake
Big Bend Creek

N

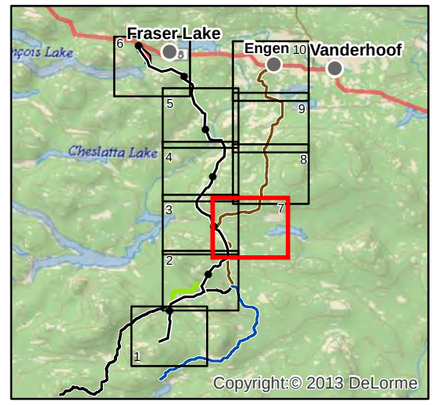
Legend

- Proposed Transmission Line
- Kluskus FSR
- Existing Road
- Stream
- Waterbody

Terrain Units

- Morainal
- Glaciofluvial
- Colluvial
- Glaciolacustrine
- Fluvial
- Eolian
- Organic
- Disturbed Land
- Water

KEY MAP



0 0.5 1 2 3 4 5

Kilometres

Scale:1:80,000

Reference

BC Government GeoBC Data Distribution

CLIENT: newgold

PROJECT: Blackwater Gold Project

Terrain Units

DATE:	ANALYST:	
September, 2013	AA	**Page 7 of 10**
JOB No: VE52277	QA/QC: MY	PDF FILE: 05-100-003_terrain_units.pdf
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405000 410000 415000 420000 425000

5960000 5955000 5950000 5945000

N

Kluskus FSR

Paddle Lake
Greer Creek
Home Lake
Greer Creek
Greer Creek
Corkscrew Creek
Sinkut River
Frank L
herang Lake
Johnson Lake
Secord Lake
Gluten Lake
Duten Lake
Cabin Creek

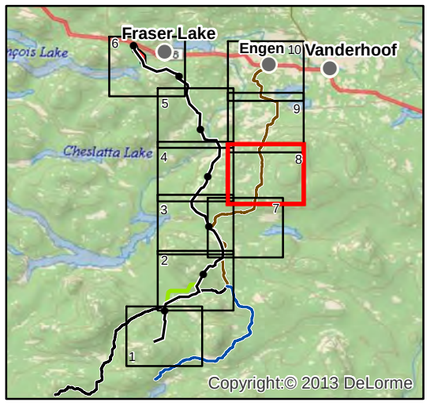
Legend

- Kluskus FSR
- Existing Road
- Stream
- Waterbody

Terrain Units

- Morainal
- Glaciofluvial
- Organic
- Disturbed Land
- Water

KEY MAP



0 0.5 1 2 3 4 5
Kilometres

Scale:1:80,000

Reference
BC Government GeoBC Data Distribution

CLIENT: newgold

PROJECT: Blackwater Gold Project

Terrain Units

DATE: September, 2013	ANALYST: AA	**Page 8 of 10**
JOB No: VE52277	QA/QC: MY	PDF FILE: 05-100-003_terrain_units.pdf
GIS FILE: 05-100-003_terrain_units.mxd		
PROJECTION: UTM Zone 10	DATUM: NAD83	amec

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405000 410000 415000 420000 425000

5975000 5970000 5965000 5960000

Tahultzu Creek
Tahultzu Creek
Tachick Lake
Nechako River
North Stony Creek
Stony Creek
Nulki
Nulki Lake
Corkscrew Creek
Kluskus FSR
Micks Creek
Micks Creek
Welch Lake
Stony Creek
Greer Creek
Corkscrew Creek

N

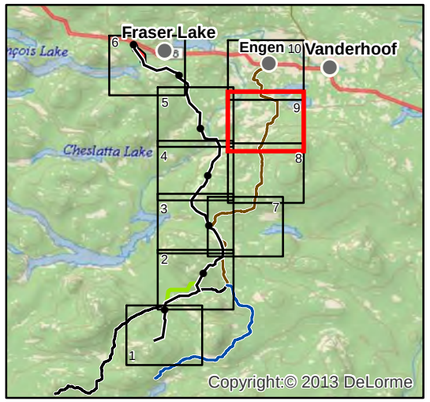
Legend

- Populated Place
- Kluskus FSR
- Existing Road
- Stream
- Waterbody

Terrain Units

- Morainal
- Glaciofluvial
- Glaciolacustrine
- Organic
- Disturbed Land
- Water

KEY MAP



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Kilometres

Scale:1:80,000

Reference
BC Government GeoBC Data Distribution

CLIENT: newgold

PROJECT: Blackwater Gold Project

Terrain Units

DATE: September, 2013	ANALYST: AA	**Page 9 of 10**
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405000 410000 415000 420000 425000

5995000 5990000 5985000 5980000

N

Engen Creek
Trankle Creek
Redmond Creek
Moss Creek
Nechako River
Croft Creek
Preston Creek
Phillips Creek
Ronson Lake
West Engen Creek
Engen
Marten Lake
Negaard Creek
East Negaard Creek
Goldie Creek
South Goldie Creek
Kluskus FSR
Leo Lake
Smith Creek
Milligan Lake
Tachick Lake
Tachick Creek
Tahultzu Creek
Nulki Lake

16

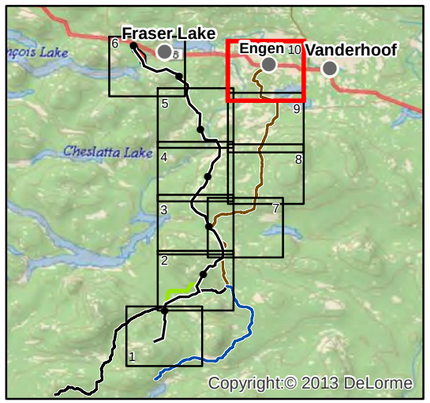
Legend

- Highway
- Kluskus FSR
- Existing Road
- Stream
- Waterbody

Terrain Units

- Glaciofluvial
- Colluvial
- Glaciolacustrine
- Organic
- Disturbed Land
- Water

KEY MAP



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Kilometres

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Reference

BC Government GeoBC Data Distribution

CLIENT: newgold

PROJECT: Blackwater Gold Project

Terrain Units

DATE:	ANALYST:	
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Annex 4
Soil Map Units

370000 375000 380000 385000 390000

5905000 5900000 5895000 5890000

Kluskus-Ootsa FSR
Proposed Airstrip Extent
Proposed Airstrip Extent Access Road
Proposed Mine Access Road
Proposed Transmission Line
Proposed Water Pipeline Route
Exploration Road
Fawnie Creek
Top Lake
Davidson Creek
Snake lake
Tatelkuz Lake
Chedakuz Creek
Chedakuz Creek
Kuyakuz Lake
Mathews Creek

N

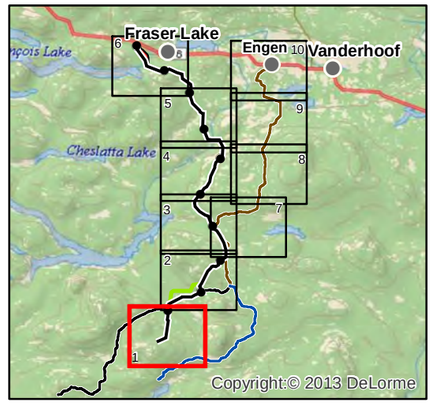
Legend

- Proposed Mine Access Road
- Proposed Transmission Line
- Proposed Water Pipeline Route
- Kluskus Blue FSR
- Kluskus Ootsa FSR
- Exploration Road
- Existing Road
- Stream
- Waterbody
- Proposed Mine Site

Soil Map Units

- Alix
- Deserters
- Twain
- Ormond
- Pinkut
- Nechako
- Nithi
- Chief
- Moxley
- Bedrock Outcrops
- Disturbed Land
- Water

KEY MAP



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Reference

BC Government GeoBC Data Distribution

CLIENT: newgold

PROJECT: Blackwater Gold Project

Soil Map Units

DATE:	ANALYST:	
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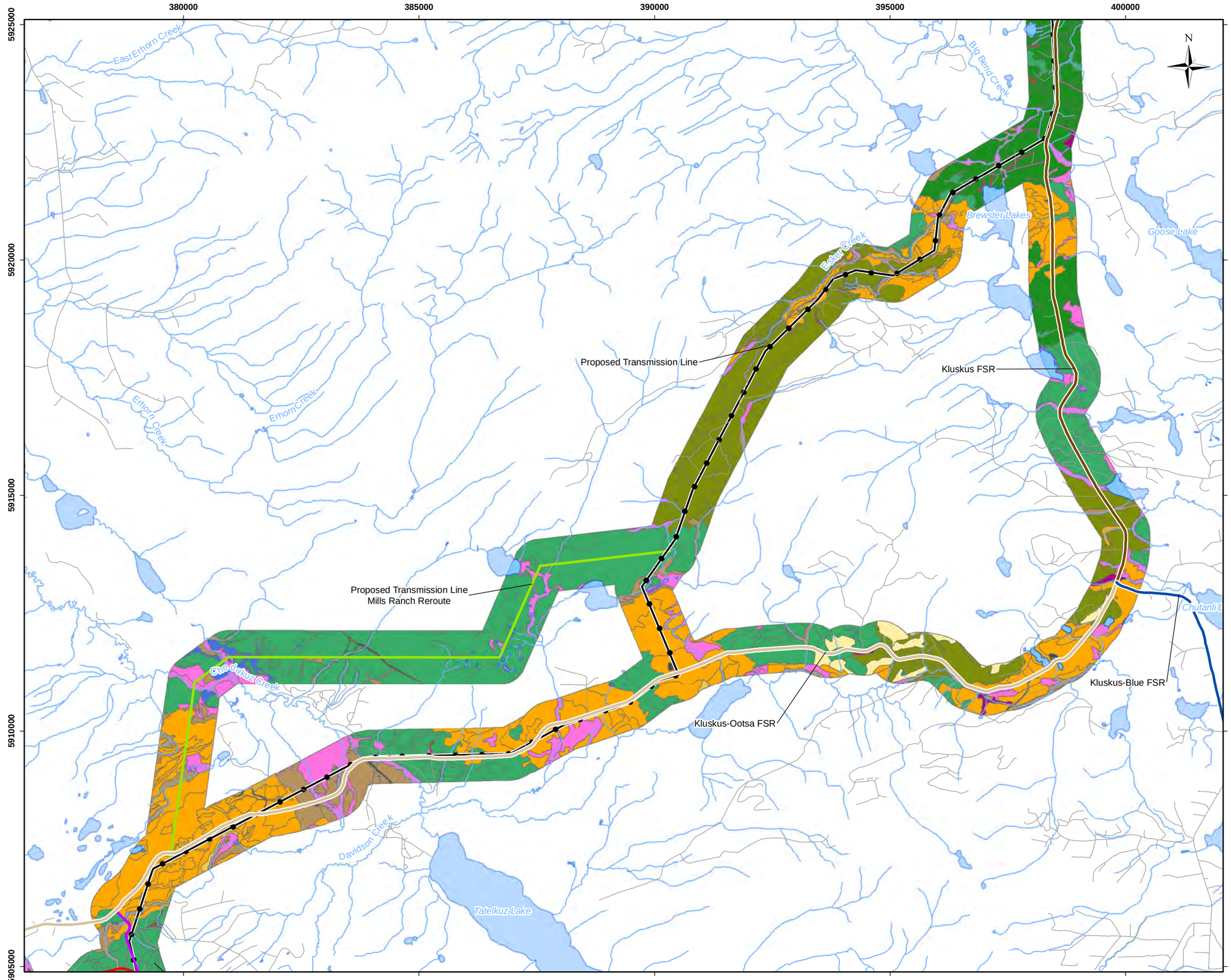


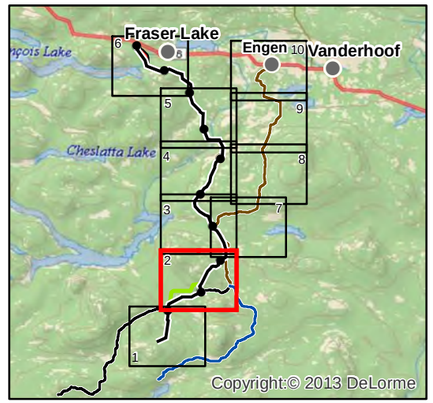
Legend

- Proposed Mine Access Road
- Proposed Transmission Line
- Proposed Transmission Line (Mills Ranch Reroute)
- Kluskus FSR
- Kluskus Blue FSR
- Kluskus Ootsa FSR
- Existing Road
- Stream
- Waterbody

Soil Map Units

- Alix
- Deserters
- Barrett
- Twain
- Berman
- Ormond
- Pinkut
- Nechako
- Nithi
- Chief
- Moxley
- Disturbed Land
- Water

KEY MAP



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Reference

BC Government GeoBC Data Distribution

CLIENT: newgold

PROJECT: Blackwater Gold Project

Soil Map Units

DATE:	ANALYST:	
September, 2013	AA	**Page 2 of 10**
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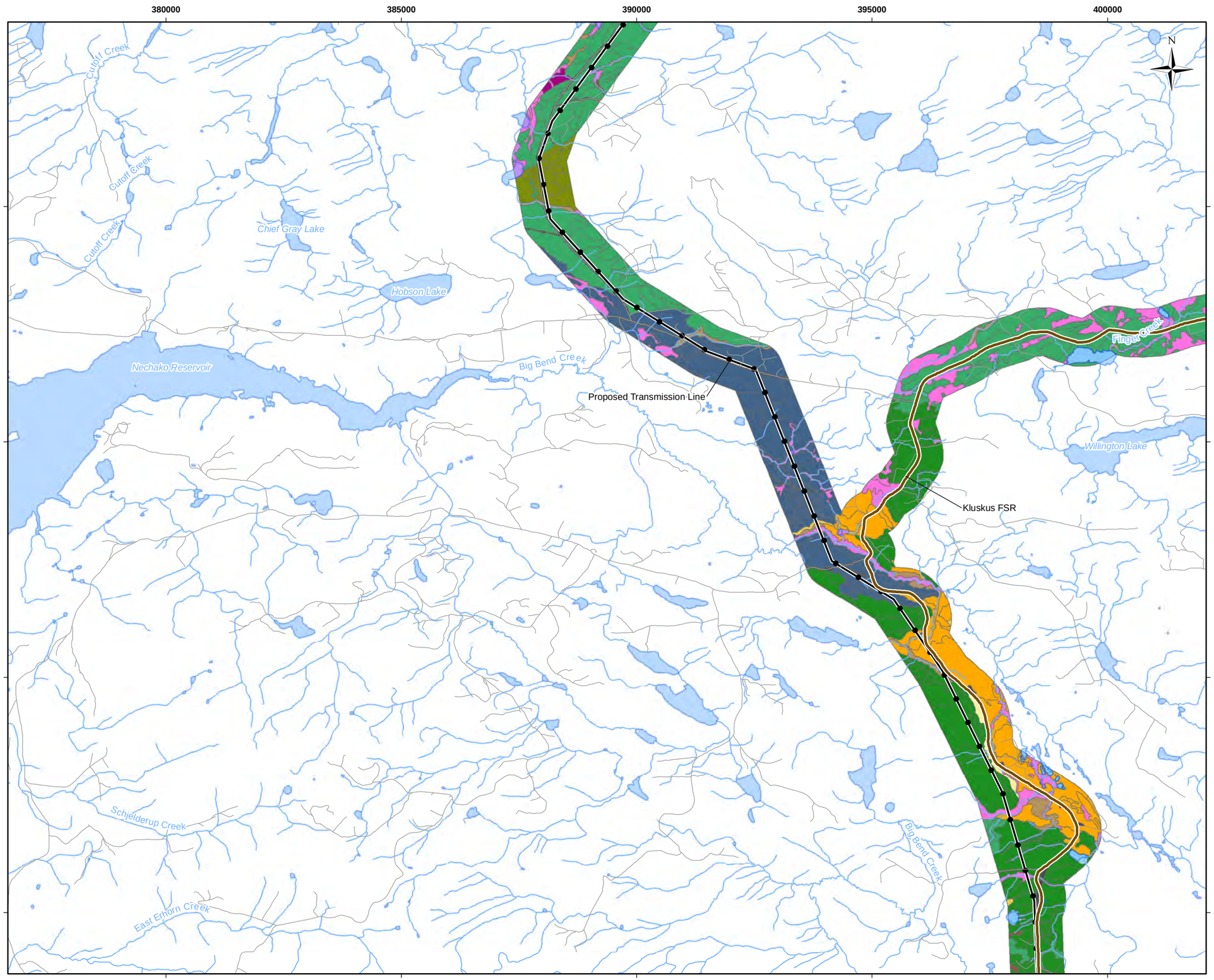


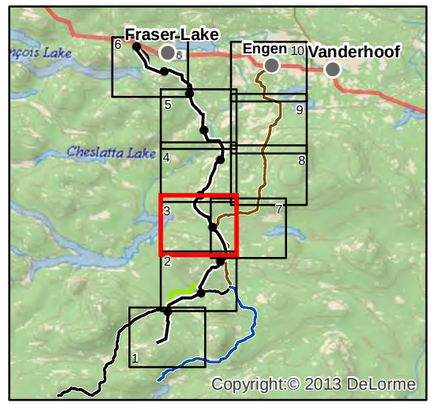
Legend

- Proposed Transmission Line
- Kluskus FSR
- Existing Road
- Stream
- Waterbody

Soil Map Units

- Alix
- Deserters
- Barrett
- Twain
- Knewstubb
- Ormond
- Pinkut
- Nechako
- Nithi
- Chief
- Moxley
- Disturbed Land
- Water

KEY MAP



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Kilometres

Scale:1:80,000

Reference

BC Government GeoBC Data Distribution

CLIENT: newgold		
PROJECT: Blackwater Gold Project		
Soil Map Units		
DATE: September, 2013	ANALYST: AA	**Page 3 of 10**
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380000 385000 390000 395000 400000

5960000 5955000 5950000 5945000

Hallett Lake
Triangle Lake
Lorne Lake
Bungalow Lake
Targe Creek
Bognaas Lake
Copley Lake
Nechako River
Greer Creek
Crystal Lake
Swanson Creek
Boomerang Lake
Cutoff Creek
Proposed Transmission Line

N

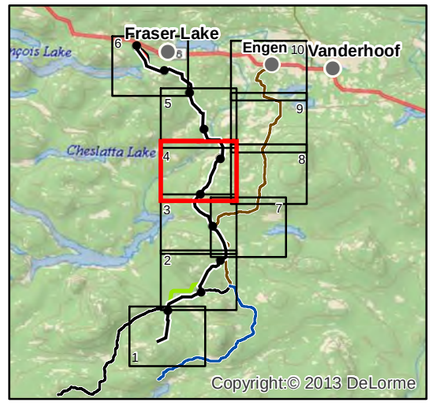
Legend

- Proposed Transmission Line
- Existing Road
- Stream
- Waterbody

Soil Map Units

- Alix
- Deserters
- Twain
- Berman
- Ormond
- Pinkut
- Nechako
- Nithi
- Chief
- Moxley
- Disturbed Land
- Water

KEY MAP



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Kilometres

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Reference
BC Government GeoBC Data Distribution

CLIENT: newgold

PROJECT: Blackwater Gold Project

Soil Map Units

DATE: September, 2013	ANALYST: AA	**Page 4 of 10**
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380000 385000 390000 395000 400000

5975000 5970000 5965000 5960000

Proposed Transmission Line

Smith Creek Limit Lake Fifteen Creek Dorman Creek Tahultzu Creek Dorman Lake Centre Lake Milligan Lake Twentysix Mile Lake Tahultzu Lake Hallett Lake Triangle Lake True Triangle Lake Targe Creek Lorne Lake Bungalow Lake Rognaas Lake Nechako River Greer Creek

N

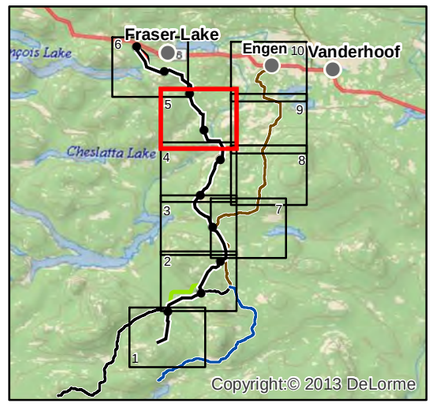
Legend

- Proposed Transmission Line
- Existing Road
- Stream
- Waterbody

Soil Map Units

- Alix
- Deserters
- Twain
- Berman
- Ormond
- Pinkut
- Nithi
- Chief
- Moxley
- Disturbed Land
- Water

KEY MAP



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Reference

BC Government GeoBC Data Distribution

CLIENT: newgold		
PROJECT: Blackwater Gold Project		
Soil Map Units		
DATE: September, 2013	ANALYST: AA	**Page 5 of 10**
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365000 370000 375000 380000 385000

5995000 5990000 5985000 5980000

Endako
Stellako
Fraser Lake
Proposed Transmission Line
(Stellako Reroute)
Proposed Transmission Line
Four Mile Creek
Tatin Creek
Perry Creek
Deserter Lake
Stern Creek
Alf Creek
Fraser Lake
Casey Lake
Stellako River
Seas Lake
Shotgun Creek
Mudhole Creek
Robertson Creek
16
Francois Lake
Foster Lakes
Nithi River
Borel Lake
Anzus Lake

N

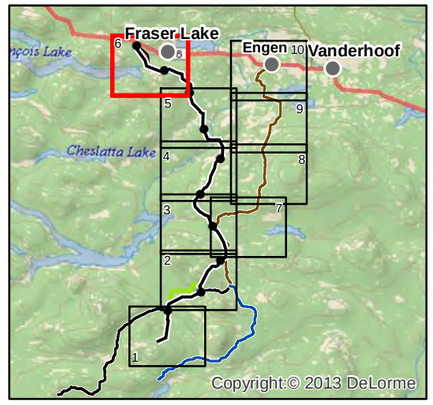
Legend

- Populated Place
- Highway
- Proposed Transmission Line
- Proposed Transmission Line (Stellako Reroute)
- Existing Road
- Stream
- Waterbody

Soil Map Units

- Alix
- Deserters
- Twain
- Berman
- Ormond
- Nithi
- Chief
- Moxley
- Disturbed Land
- Water

KEY MAP



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Reference
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CLIENT: newgold

PROJECT: Blackwater Gold Project

Soil Map Units

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395000 400000 405000 410000 415000

5940000 5935000 5930000 5925000

Secord Lake
Gluten Lake
Duten Lake
Cabin Creek
Vivian Lake
Provis Lake
Finger Creek
Finger Creek
Finger Lake
Willington Lake
Finger Creek
Finnie Lake
Andros Lake
Otter Lake
Stefiuk Lake
Kluskus FSR
Big Bend Creek
Tatuk Lake
Tatuk Creek
Tatuk Creek
Tatuk Creek
LavoieCreek
Lavoie Lake
Hay Lake
Big Bend Creek

N

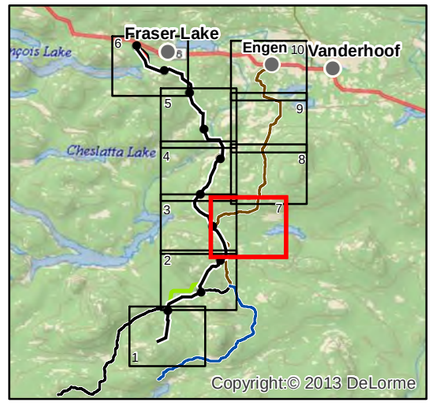
Legend

- Proposed Transmission Line
- Kluskus FSR
- Existing Road
- Stream
- Waterbody

Soil Map Units

- Alix
- Deserters
- Barrett
- Twain
- Knewstubb
- Ormond
- Pinkut
- Nechako
- Nithi
- Chief
- Moxley
- Disturbed Land
- Water

KEY MAP



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Reference

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PROJECT: Blackwater Gold Project		
Soil Map Units		
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405000 410000 415000 420000 425000

5960000 5955000 5950000 5945000

Kluskus FSR

Paddle Lake
Greer Creek
Home Lake
Greer Creek
Greer Creek
Corkscrew Creek
Sinkut River
Johnson Lake
Secord Lake
Gluten Lake
Duten Lake
Cabin Creek

N

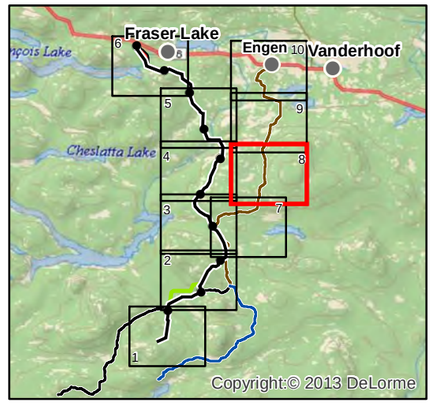
Legend

Kluskus FSR
Existing Road
Stream
Waterbody

Soil Map Units

Alix
Deserters
Twain
Chief
Moxley
Disturbed Land
Water

KEY MAP



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CLIENT: newgold

PROJECT: Blackwater Gold Project

Soil Map Units

DATE: September, 2013	ANALYST: AA	**Page 8 of 10**
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405000 410000 415000 420000 425000

5975000 5970000 5965000 5960000

Tahultzu Creek
Tahultzu Creek
Tachick Lake
Nechako River
North Stony Creek
Stony Creek
Nulki
Nulki Lake
Corkscrew Creek
Kluskus FSR
Micks Creek
Micks Creek
Welch Lake
Stony Creek
Greer Creek
Corkscrew Creek

N

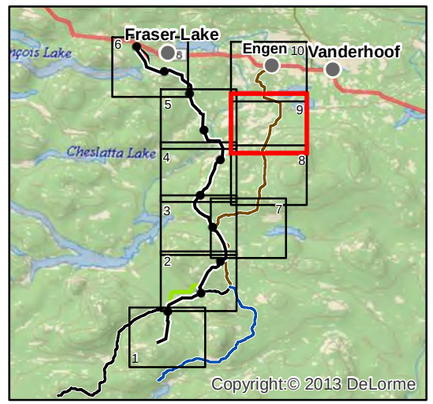
Legend

- Populated Place
- Kluskus FSR
- Existing Road
- Stream
- Waterbody

Soil Map Units

- Alix
- Deserters
- Barrett
- Berman
- Vanderhoof
- Chief
- Moxley
- Disturbed Land
- Water

KEY MAP



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Reference
BC Government GeoBC Data Distribution

CLIENT: newgold

PROJECT: Blackwater Gold Project

Soil Map Units

DATE:	ANALYST:	
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405000 410000 415000 420000 425000

5995000 5990000 5985000 5980000

N

Trankle Creek
Redmond Creek
Moss Creek
Trankle Creek
Nechako River
Engen Creek
Croft Creek
Preston Creek
Phillips Creek
Phillips Creek
Ronson Lake
West Engen Creek
West Engen Creek
Engen Creek
Croft Creek
16
Engen
Engen Creek
Croft Creek
Marten Lake
Negaard Creek
East Negaard Creek
Goldie Creek
Kluskus FSR
Leg Lake
Smith Creek
Nechako River
Goldie Creek
Goldie Creek
Negaard Creek
Goldie Creek
Goldie Creek
South Goldie Creek
Goldie Creek
South Goldie Creek
Milligan Lake
Tachick Lake
Tachick Creek
Tahultzu Creek
Tahultzu Creek
Nulki La

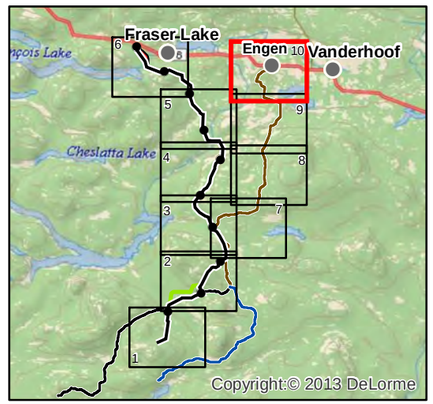
Legend

- Highway
- Kluskus FSR
- Existing Road
- Stream
- Waterbody

Soil Map Units

- Alix
- Berman
- Vanderhoof
- Pinkut
- Chief
- Moxley
- Disturbed Land
- Water

KEY MAP



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BC Government GeoBC Data Distribution

CLIENT: newgold

PROJECT: Blackwater Gold Project

Soil Map Units

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Annex 5
Reclamation Suitability Rating Map

370000 375000 380000 385000 390000

5905000 5900000 5895000 5890000

Proposed Airstrip Extent
Kluskus-Ootsa FSR
Fawnie Creek
Proposed Airstrip Access Road
Proposed Mine Access Road
Proposed Transmission Line
Proposed Water Pipeline Route
Davidson Creek
Tatelkuz Lake
Snake lake
Chedakuz Creek
Top Lake
Exploration Road
Mathews Creek
Kuyakuz Lake

N

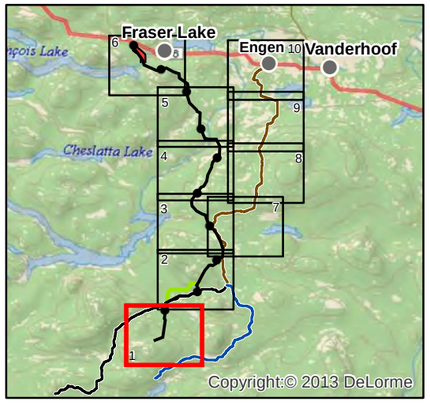
Legend

- Proposed Mine Access Road
- Proposed Transmission Line
- Proposed Airstrip Access Road
- Kluskus Blue FSR
- Kluskus Ootsa FSR
- Exploration Road
- Existing Road
- Proposed Water Pipeline Route
- Stream
- Waterbody
- Proposed Mine Site
- Proposed Airstrip Extent

Reclamation Suitability Ratings

- Fair
- Good
- Poor
- Organic
- NR
- Unsuitable

KEY MAP



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Reference
BC Government GeoBC Data Distribution

CLIENT: newgold

PROJECT: Blackwater Gold Project

Reclamation Suitability Ratings

DATE:	ANALYST:	
September, 2013	AA	**Page 1 of 10**
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380000 385000 390000 395000 400000

5925000 5920000 5915000 5910000 5905000

East Erhorn Creek
Erhorn Creek
Erhorn Creek
Big Bend Creek
Brewster Lakes
Baker Creek
Goose Lake
Chutanli L
Ons Jakuz Creek
Davidson Creek
Tatelkuz Lake

Proposed Transmission Line
Kluskus FSR
Proposed Transmission Line
(Mills Ranch Reroute)
Kluskus-Blue FSR
Kluskus-Ootsa FSR
Proposed Mine Access Road

N

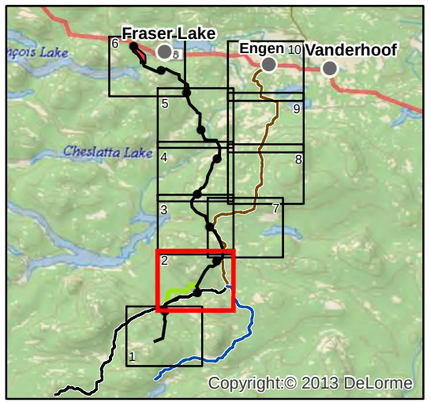
Legend

- Proposed Mine Access Road
- Proposed Transmission Line
- Proposed Transmission Line (Mills Ranch Reroute)
- Kluskus FSR
- Kluskus Blue FSR
- Kluskus Ootsa FSR
- Existing Road
- Stream
- Waterbody

Reclamation Suitability Ratings

- Fair
- Good
- Poor
- Organic
- NR
- Unsuitable

KEY MAP



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Reference
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CLIENT: newgold

PROJECT: Blackwater Gold Project

Reclamation Suitability Ratings

DATE: September, 2013	ANALYST: AA	**Page 2 of 10**
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380000 385000 390000 395000 400000

5940000 5935000 5930000 5925000

Cutoff Creek
Cutoff Creek
Cutoff Creek
Chief Gray Lake
Hobson Lake
Nechako Reservoir
Big Bend Creek
Finger Creek
Willington Lake
Schjelderup Creek
East Ehrorn Creek
Big Bend Creek
Kluskus FSR
Proposed Transmission Line
Proposed Transmission Line

N

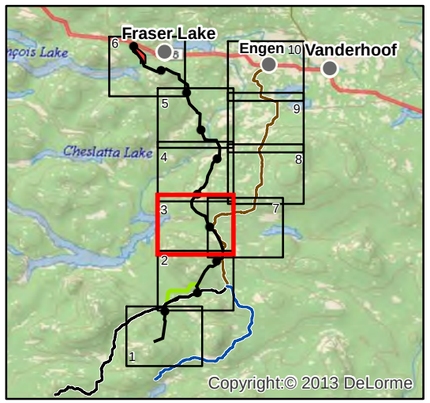
Legend

- Proposed Transmission Line
- Kluskus FSR
- Existing Road
- Stream
- Waterbody

Reclamation Suitability Ratings

- Fair
- Good
- Poor
- Organic
- NR

KEY MAP



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Scale:1:80,000

Reference
BC Government GeoBC Data Distribution

CLIENT: newgold

PROJECT: Blackwater Gold Project

Reclamation Suitability Ratings

DATE:	ANALYST:	
September, 2013	AA	**Page 3 of 10**
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GIS FILE: 05-100-004_reclamation.mxd		
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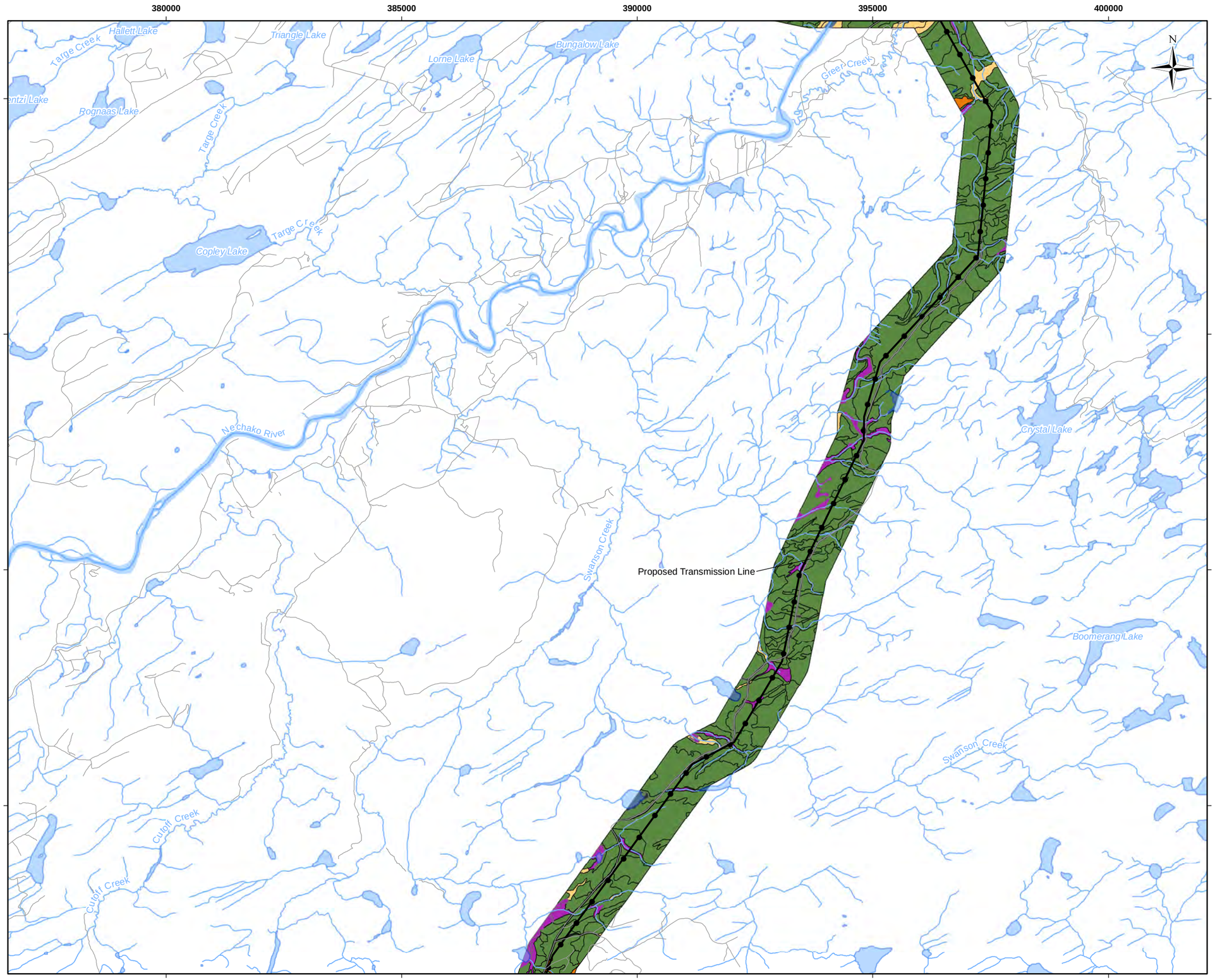


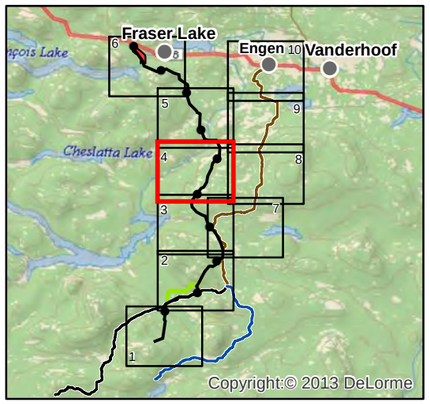
Legend

- Proposed Transmission Line
- Existing Road
- Stream
- Waterbody

Reclamation Suitability Ratings

- Fair
- Good
- Poor
- Organic
- NR

KEY MAP



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Kilometres

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PROJECT: Blackwater Gold Project

Reclamation Suitability Ratings

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380000 385000 390000 395000 400000

5975000 5970000 5965000 5960000

Proposed Transmission Line

Smith Creek Limit Lake Centre Lake Milligan Lake Fifteen Creek Dorman Creek Tahultzu Creek Dorman Lake Twentysix Mile Lake Tahultzu Lake Hallett Lake Triangle Lake True Triangle Lake Bungalow Lake Lorne Lake Rognaas Lake Targe Creek Nechako River Greer Creek

N

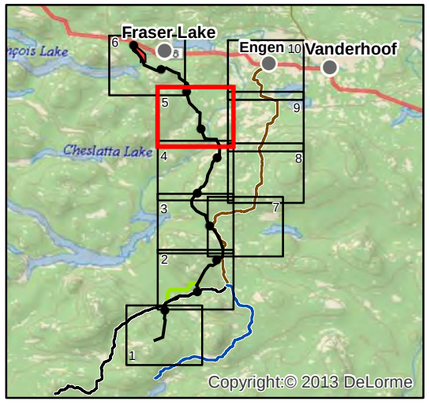
Legend

- Proposed Transmission Line
- Existing Road
- Stream
- Waterbody

Reclamation Suitability Ratings

- Fair
- Good
- Poor
- Organic
- NR

KEY MAP



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Kilometres

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Reference

BC Government GeoBC Data Distribution

CLIENT: newgold

PROJECT: Blackwater Gold Project

Reclamation Suitability Ratings

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365000 370000 375000 380000 385000

5995000 5990000 5985000 5980000

Endako
Stellako
Fraser Lake
Engen
Vanderhoof
Proposed Transmission Line
(Stellako Reroute)
Proposed Transmission Line
Four Mile Creek
Tatin Creek
Perry Creek
Deserter Lake
Stern Creek
Alf Creek
Fraser Lake
Casey Lake
Stellako River
Seas Lake
Shotgun Creek
Mudhole Creek
Robertson Creek
Francois Lake
Foster Lakes
Nithi River
Borel Lake
Anzus Lake
16

N

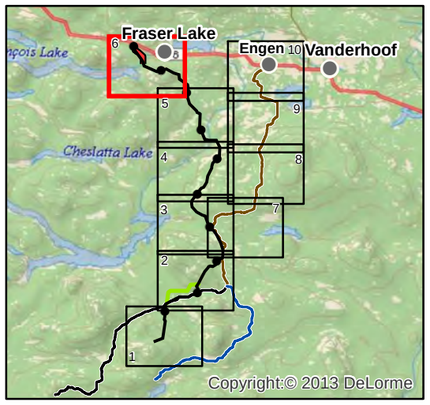
Legend

- Populated Place
- Highway
- Proposed Transmission Line
- Proposed Transmission Line (Stellako Reroute)
- Existing Road
- Stream
- Waterbody

Reclamation Suitability Ratings

- Fair
- Good
- Poor
- Organic
- NR

KEY MAP



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Reclamation Suitability Ratings

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395000 400000 405000 410000 415000

5940000 5935000 5930000 5925000

Kluskus FSR

Cabin Creek
Secord Lake
Gluten Lake
Duten Lake
Vivian Lake
Provis Lake
Finger Creek
Finger Lake
Willington Lake
Finnie Lake
Andros Lake
Otter Lake
Stefiuk Lake
Tatuk Lake
Tatuk Creek
Lavoie Creek
Lavoie Lake
Hay Lake
Big Bend Creek

N

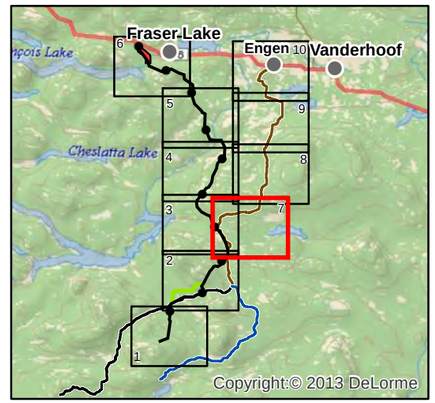
Legend

- Proposed Transmission Line
- Kluskus FSR
- Existing Road
- Stream
- Waterbody

Reclamation Suitability Ratings

- Fair
- Good
- Poor
- Organic
- NR

KEY MAP



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Reclamation Suitability Ratings

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405000 410000 415000 420000 425000

5960000 5955000 5950000 5945000

N

Kluskus FSR

Paddle Lake
Greer Creek
Home Lake
Greer Creek
Greer Creek
Corkscrew Creek
Sinkut River
Johnson Lake
Secord Lake
Gluten Lake
Duten Lake
Cabin Creek
Frank L
herang Lake

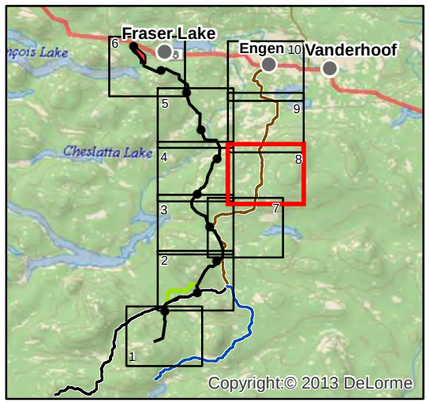
Legend

- Kluskus FSR
- Existing Road
- Stream
- Waterbody

Reclamation Suitability Ratings

- Fair
- Poor
- Organic
- NR

KEY MAP



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PROJECT: Blackwater Gold Project

Reclamation Suitability Ratings

DATE: September, 2013	ANALYST: AA	**Page 8 of 10**
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405000 410000 415000 420000 425000

5975000 5970000 5965000 5960000

Tahultzu Creek
Tachick Lake
Nechako River
North Stony Creek
Stony Creek
Nulki
Nulki Lake
Corkscrew Creek
Kluskus FSR
Micks Creek
Welch Lake
Greer Creek

N

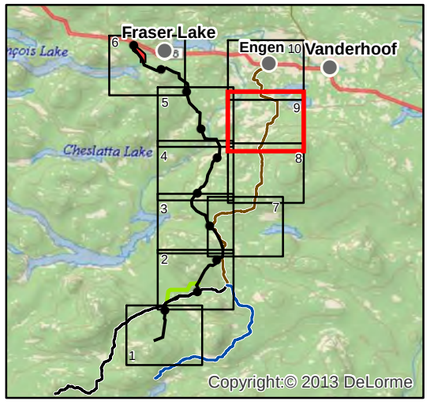
Legend

- Populated Place
- Kluskus FSR
- Existing Road
- Stream
- Waterbody

Reclamation Suitability Ratings

- Fair
- Good
- Organic
- NR

KEY MAP



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PROJECT: Blackwater Gold Project

Reclamation Suitability Ratings

DATE:	ANALYST:	
September, 2013	AA	**Page 9 of 10**
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405000 410000 415000 420000 425000

5995000 5990000 5985000 5980000

N

Trankle Creek
Redmond Creek
Moss Creek
Trankle Creek
Nechako River
Engen Creek
Croft Creek
Preston Creek
Phillips Creek
Phillips Creek
Ronson Lake
West Engen Creek
West Engen Creek
Engen Creek
Croft Creek
16
Engen
Engen Creek
Croft Creek
Marten Lake
Negaard Creek
East Negaard Creek
Kluskus FSR
Goldie Creek
Negaard Creek
Goldie Creek
Goldie Creek
Goldie Creek
Goldie Creek
South Goldie Creek
Leg Lake
Smith Creek
Nechako River
South Goldie Creek
Milligan Lake
Tachick Lake
Tachick Creek
Tahultzu Creek
Tahultzu Creek
Nulki La

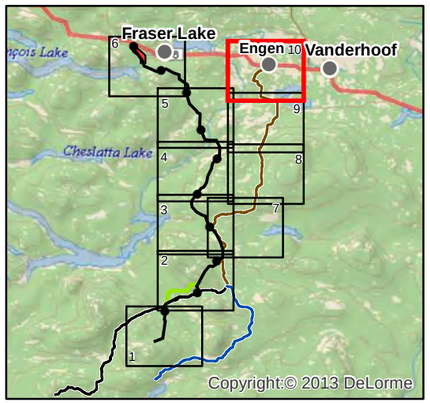
Legend

- Highway
- Kluskus FSR
- Existing Road
- Stream
- Waterbody

Reclamation Suitability Ratings

- Fair
- Good
- Organic
- NR

KEY MAP



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Reference

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PROJECT: Blackwater Gold Project

Reclamation Suitability Ratings

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Annex 6
Terrain Stability Map

370000 375000 380000 385000 390000

5905000 5900000 5895000 5890000

Proposed Transmission Line
Proposed Airstrip Extent
Kluskus-Ootsa FSR
Proposed Mine Access Road
Fawnie Creek
Proposed Airstrip Access Road
Proposed Mine Access Road
Davidson Creek
Tatelkuz Lake
Fawnie Creek
Proposed Water Pipeline Route
Top Lake
Snake lake
Chedakuz Creek
Exploration Road
Davidson Creek
Chedakuz Creek
Kuyakuz Lake
Mathews Creek
Kluskus-Blue FSR

N

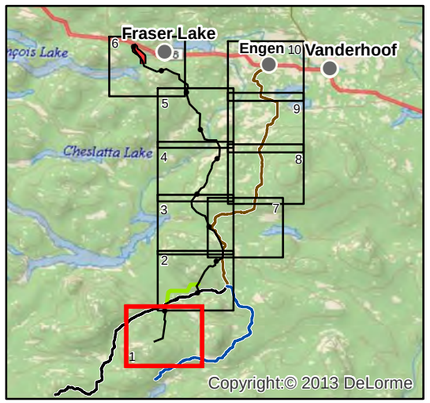
Legend

- Proposed Mine Access Road
- Kluskus Blue FSR
- Kluskus Ootsa FSR
- Proposed Water Pipeline Route
- Proposed Airstrip Access Road
- Existing Road
- Exploration Road
- Proposed Transmission Line
- Stream
- Waterbody
- Proposed Mine Site
- Proposed Airstrip Extent

Terrain Stability Classes

- I
- II
- III
- IV
- V
- NR

KEY MAP



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Kilometres

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Reference

BC Government GeoBC Data Distribution

CLIENT: newgold		
PROJECT: Blackwater Gold Project		
Terrain Stability Map		
DATE: September, 2013	ANALYST: MY	**Page 1 of 10**
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380000 385000 390000 395000 400000

5925000 5920000 5915000 5910000 5905000

East Erhorn Creek
Erhorn Creek
Erhorn Creek
Big Bend Creek
Brewster Lakes
Goose Lake
Eaker Creek
Kluskus FSR
Proposed Transmission Line
(Mills Ranch Reroute)
Chelaklaz Creek
Davidson Creek
Tatelkuz Lake
Proposed Transmission Line
Kluskus-Blue FSR
Chutanli L

N

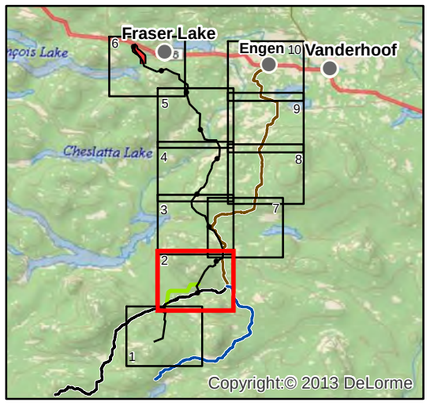
Legend

- Proposed Mine Access Road
- Kluskus FSR
- Kluskus Blue FSR
- Kluskus Ootsa FSR
- Existing Road
- Proposed Transmission Line
- Proposed Transmission Line (Mills Ranch Reroute)
- Stream
- Waterbody

Terrain Stability Classes

- I
- II
- III
- IV
- NR

KEY MAP



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CLIENT: newgold

PROJECT: Blackwater Gold Project

Terrain Stability Map

DATE:	ANALYST:	
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380000 385000 390000 395000 400000

5940000 5935000 5930000 5925000

Cutoff Creek
Cutoff Creek
Cutoff Creek
Chief Gray Lake
Hobson Lake
Nechako Reservoir
Big Bend Creek
Finger Creek
Willington Lake
Schjelderup Creek
East Ehrhorn Creek
Big Bend Creek
Proposed Transmission Line
Kluskus FSR

N

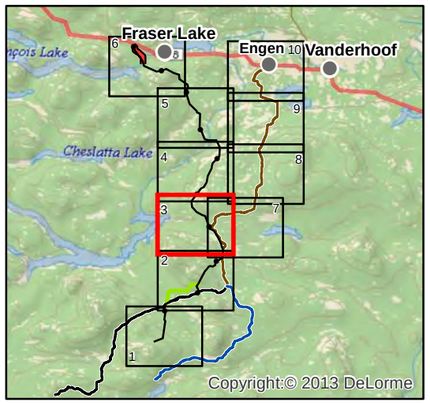
Legend

- Kluskus FSR
- Existing Road
- Proposed Transmission Line
- Stream
- Waterbody

Terrain Stability Classes

- I
- II
- III
- NR

KEY MAP



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PROJECT: Blackwater Gold Project

Terrain Stability Map

DATE:	ANALYST:	
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380000 385000 390000 395000 400000

5960000 5955000 5950000 5945000

Hallett Lake
Triangle Lake
Lorne Lake
Bungalow Lake
Greer Creek
Targe Creek
Bognaas Lake
Copley Lake
Nechako River
Crystal Lake
Swanson Creek
Boomerang Lake
Cutoff Creek

Proposed Transmission Line

N

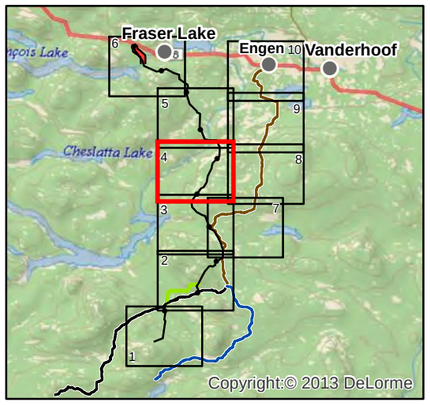
Legend

- Existing Road
- Proposed Transmission Line
- Stream
- Waterbody

Terrain Stability Classes

- I
- II
- III
- NR

KEY MAP



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Kilometres

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BC Government GeoBC Data Distribution

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PROJECT: Blackwater Gold Project		
Terrain Stability Map		
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380000 385000 390000 395000 400000

5975000 5970000 5965000 5960000

Proposed Transmission Line

Fifteen Creek
Smith Creek
Limit Lake
Centre Lake
Milligan Lake
Dorman Creek
Dorman Lake
Tahultzu Creek
Tahultzu Lake
Twentysix Mile Lake
Hallett Lake
Triangle Lake
True Triangle Lake
Targe Creek
Lorne Lake
Bungalow Lake
Rognaas Lake
Nechatraz Creek
Greer Creek

N

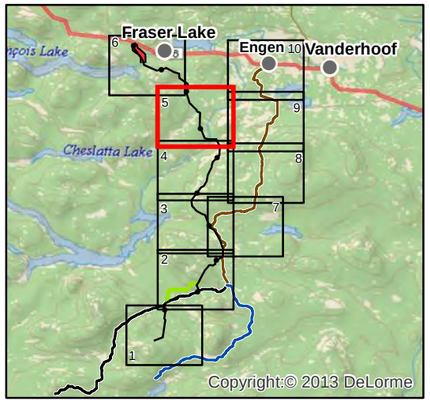
Legend

- Existing Road
- Proposed Transmission Line
- Stream
- Waterbody

Terrain Stability Classes

- I
- II
- III
- IV
- V
- NR

KEY MAP



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Kilometres

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CLIENT: newgold

PROJECT: Blackwater Gold Project

Terrain Stability Map

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365000 370000 375000 380000 385000

5995000 5990000 5985000 5980000

Endako
Stellako
Fraser Lake
Proposed Transmission Line
(Stellako Reroute)
Proposed Transmission Line
16
Four Mile Creek
Tatin Creek
Perry Creek
Deserter Lake
Stern Creek
Alf Creek
Fraser Lake
Casey Lake
Seas Lake
Shotgun Creek
Mudhole Creek
Robertson Creek
Stellako River
Francois Lake
Foster Lakes
Nithi River
Borel Lake
Anzus Lake

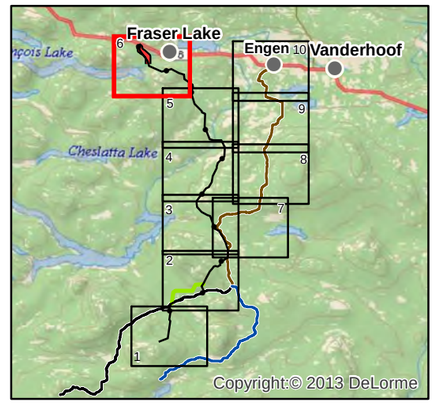
Legend

- Populated Place
- Highway
- Existing Transmission Line
- Existing Road
- Proposed Transmission Line
- Proposed Transmission Line (Stellako Reroute)
- Stream
- Waterbody

Terrain Stability Classes

- I
- II
- III
- IV
- NR

KEY MAP



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Kilometres

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5940000 5935000 5930000 5925000

Kluskus FSR

Kluskus FSR

Kluskus FSR

Cabin Creek

Secord Lake

Gluten Lake

Duten Lake

Vivian Lake

Provis Lake

Finger Creek

Finger Creek

Finger Lake

Willington Lake

Finger Creek

Finnie Lake

Andros Lake

Otter Lake

Stefiuk Lake

Big Bend Creek

Tatuk Creek

Tatuk Creek

Tatuk Creek

Tatuk Lake

Lavoie Creek

Lavoie Lake

Hay Lake

Big Bend Creek

N

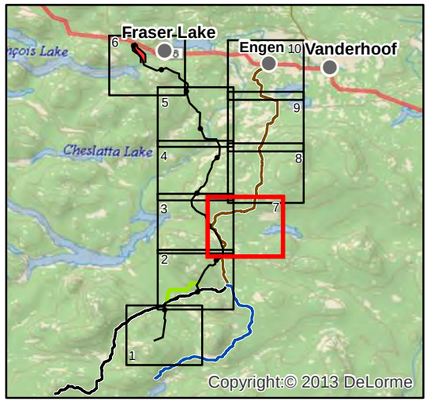
Legend

- Kluskus FSR
- Existing Road
- Proposed Transmission Line
- Stream
- Waterbody

Terrain Stability Classes

- I
- II
- III
- NR

KEY MAP



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Kilometres

Scale:1:80,000

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BC Government GeoBC Data Distribution

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PROJECT: Blackwater Gold Project

Terrain Stability Map

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405000 410000 415000 420000 425000

5960000 5955000 5950000 5945000

N

Kluskus FSR

Greer Creek
Paddle Lake
Home Lake
Greer Creek
Greer Creek
Corkscrew Creek
Sinkut River
Johnson Lake
Secord Lake
Gluten Lake
Duten Lake
Cabin Creek

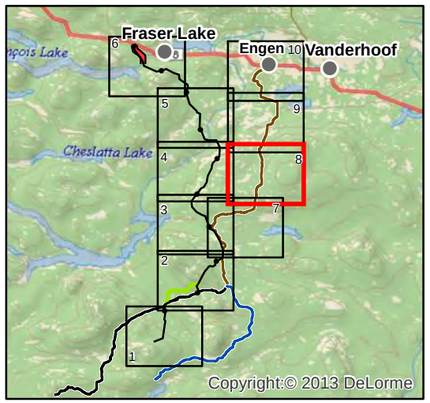
Legend

- Kluskus FSR
- Existing Road
- Stream
- Waterbody

Terrain Stability Classes

- I
- II
- NR

KEY MAP



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Kilometres

Scale:1:80,000

Reference

BC Government GeoBC Data Distribution

CLIENT: newgold

PROJECT: Blackwater Gold Project

Terrain Stability Map

DATE: September, 2013	ANALYST: MY	**Page 8 of 10**
JOB No: VE52095	QA/QC: SB	PDF FILE: 05-100-001_terrain_stability.pdf
GIS FILE: 05-100-001_terrain_stability.mxd		
PROJECTION: UTM Zone 10	DATUM: NAD83	amec

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405000 410000 415000 420000 425000

5975000 5970000 5965000 5960000

Tahultzu Creek
Tahultzu Creek
Tachick Lake
Nechako River
North Stony Creek
Stony Creek
Corkscrew Creek
Nulki
Nulki Lake
Kluskus FSR
Micks Creek
Micks Creek
Welch Lake
Stony Creek
Greer Creek
Corkscrew Creek

N

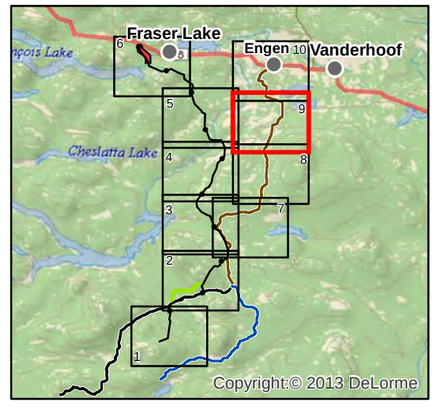
Legend

- Populated Place
- Kluskus FSR
- Existing Road
- Stream
- Waterbody

Terrain Stability Classes

- I
- II
- III
- NR

KEY MAP



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Kilometres

Scale:1:80,000

Reference
BC Government GeoBC Data Distribution

CLIENT: newgold

PROJECT: Blackwater Gold Project

Terrain Stability Map

DATE:	ANALYST:	
September, 2013	MY	**Page 9 of 10**
JOB No: VE52095	QA/QC: SB	PDF FILE: 05-100-001_terrain_stability.pdf
GIS FILE: 05-100-001_terrain_stability.mxd		
PROJECTION: UTM Zone 10	DATUM: NAD83	amec

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405000 410000 415000 420000 425000

5995000 5990000 5985000 5980000

N

Trankle Creek
Redmond Creek
Moss Creek
Trankle Creek
Nechako River
Engen Creek
Croft Creek
Preston Creek
Phillips Creek
Phillips Creek
Ronson Lake
West Engen Creek
West Engen Creek
Engen Creek
Croft Creek
16
Engen
Engen Creek
Croft Creek
Marten Lake
Negaard Creek
East Negaard Creek
Goldie Creek
Kluskus FSR
Negaard Creek
Goldie Creek
Goldie Creek
Goldie Creek
Goldie Creek
South Goldie Creek
Leg Lake
Smith Creek
Nechako River
Goldie Creek
South Goldie Creek
Milligan Lake
Tachick Lake
Tachick Creek
Tahultzu Creek
Tahultzu Creek
Nulki Lake

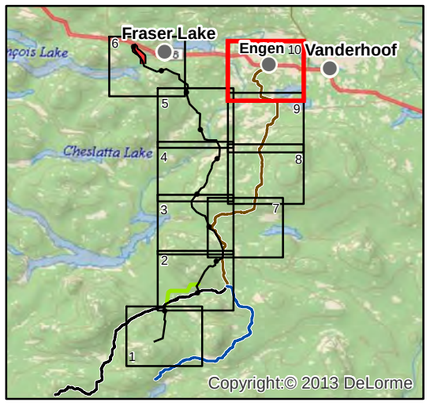
Legend

- Highway
- Existing Transmission Line
- Kluskus FSR
- Existing Road
- Stream
- Waterbody

Terrain Stability Classes

- I
- II
- III
- NR

KEY MAP



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Kilometres

Scale:1:80,000

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Terrain Stability Map

DATE: September, 2013	ANALYST: MY	**Page 10 of 10**
JOB No: VE52095	QA/QC: SB	PDF FILE: 05-100-001_terrain_stability.pdf
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Annex 7
Soil and Terrain Legend

Annex 7.1
Terrain Mapping Legend for the Project Study Areas

Parent Materials of the Project Study Areas

PARENT MATERIALS		
Holocene		
O	Organic Deposits	Undifferentiated bog deposits; nutrient poor and commonly strongly acidic; development of sphagnum in closed drainage systems; woody to fibrous to mucky peat underlain by mineral sediment at depth.
C	Colluvial Deposits	Slope and slump deposits formed by gravity-induced movement; confined to valley slopes and floors.
F	Fluvial Deposits	Sand, silt, clay, gravel, and organic sediments deposited by modern streams in valley bottom positions; commonly well sorted or stratified.
Pleistocene		
GF	Glaciofluvial Deposits	Stratified gravel and sand, minor silt, clay, deposited by glacial meltwater subareally in front of the ice (outwash)
M	Glacial Deposits/Moraine	Unsorted to poorly sorted diamict (a mixture of sand, silt, clay, pebbles, cobbles, and boulders.
R	Exposed Bedrock	Pre-quaternary undivided bedrock; may contain siltstone, sandstone, shale, and localized crystalline.

Surface Expression of Parent Materials of the Project Study Areas

Topographic Form		
a	Moderate slope	Slopes are between 16°C and 26°C (27% to 49%).
b	Blanket	Thickness of surface material is greater than 1 m.
c	Cones	A fan shaped landform that is a sector of a cone: longitudinal gradient more than 15°C (26%).
d	Depressions	Hollows, separated from an adjacent gentler surface by a marked break of slope.
f	Fans	A fan shaped landform that is a sector of a cone: longitudinal gradient less than 15°C (26%).
h	Hummocky	Non-linear rises and hollows with many slopes steeper than 15°C (26%).
j	Gentle slope	Slopes are between 4°C and 15°C (6% to 26%).
k	Moderately steep slope	Slopes are between 27°C and 35°C (50% to 70%).
m	Rolling	Elongated rises and hollows with slopes generally less than 15°C (26%).
p	Plain	Slopes are between 0°C and 3°C (0% to 5%).
r	Ridged	Elongated rises and hollows with slopes steeper than 15°C (26%).
s	Steep slope	Slopes are steeper than 35°C (70%).
t	Terrace	Level areas and scarps adjacent downslope; stepped topography.
u	Undulating	Low relief rolling terrain; swell and swale topography; commonly less than 2 m in relief.
v	Veneer	Thin deposit less than 1 m thick; may be discontinuous; commonly occurs as a drape revealing some geomorphic pattern of the underlying material.

Geomorphological Processes of Surficial Materials

V	Gully erosion	The modification of unconsolidated and consolidated surfaces by various processes such as running water, mass movement and snow avalanching, resulting in the formation of parallel and sub-parallel long, narrow ravines.
F	Slow mass movements	Slow downslope movement of masses of cohesive or non-cohesive surficial material and/or bedrock by creeping, flowing or sliding.
B	Braiding channel	Active channel zone characterized by diverging and converging channels separated by un-vegetated bars.
E	Channeled by meltwater	Erosion and channel formation by meltwater alongside, beneath, or in front of a glacier or ice sheet.
R	Rapid mass movements	Rapid downslope movement by falling, rolling, sliding, or flowing of dry, moist, or saturated debris from surficial material and/or bedrock.
H	Kettled	Depressions in surficial materials resulting from the melting of buries or partially buries glacier ice.
L	Surface seepage	Abundant surface seepage, or evidence of substantial seasonal seepage, is provided by physical or vegetation indicators.
N	Nivation	Erosion of bedrock or surficial materials beneath and along the margin of snow patches by freeze-thaw processes, meltwater action and snow creep.

Terrain Drainage Classification

Drainage		
Class		**Description**
1	Very Rapid	Water moves through the soil profile very quickly with no storage capability.
2	Rapid	Water moves through the soil profile very quickly with little to no storage capability.
3-4	Well	Water moves through the soil profile quickly with limited storage capability.
4-5	Moderately Well	Water moves through the soil profile slowly with water stored some of the year (<3 months).
5	Imperfect	Water moves very slowly through soil profile with water stored for half of the year (<6 months).
6	Poor	Standing water and saturated soils for most of the year (<10 months).
7	Very Poor	Standing water and saturated soils for all of the year.

Complex

Where two or three classes of terrain are interspersed in a mosaic or repeating pattern on a scale too small to warrant meaningful differentiation, the proportion of each component in the combination is assigned a decile percentage based on its distribution in the polygon. Geomorphological process symbols are applied where a large portion or where several sites in a polygon are affected. For example:

> **8Mu 2Cvb-V** – means that the area is underlain by approximately 80% undulating Morainal material and 20% Colluvial veneers and blankets with gullied features.

Annex 7.2
Soil Mapping Legend

Identified Soil Associations

Soil Association	Dominant Order	Subgroups	Parent Material
Alix	Brunisol	Orthic Dystric Brunisol	Glaciofluvial
Barrett	Luvisol	Orthic Gray Luvisol Gleyed Orthic Gray Luvisol Brunisolic Gray Luvisol	Morainal (basal till)
Berman	Luvisol	Orthic Gray Luvisol Gleyed Orthic Gray Luvisol Gleysols	Glaciolacustrine
Chief	Mesisol	Typic Mesisol Terric Mesisol	Organics (FNPT)
Deserters	Luvisol	Brunisolic Gray Luvisol Gleyed Brunisolic Gray Luvisol Orthic Gray Luvisol	Morainal (basal till)
Knewstubb	Brunisol	Orthic Dystric Brunisol Orthic Eutric Brunisol	Glaciolacustrine
Moxley	Mesisol	Typic Mesisol Terric Mesisol	Organics (SPPT)
Nechako	Luvisol	Orthic Gray Luvisol Gleyed Gray Luvisol	Fluvial
Nithi	Brunisol	Orthic Dystric Brunisol Orthic Eutric Brunisol	Fluvial
Ormond	Brunisol	Orthic Dystric Brunisol Lithic Regosol	Colluvium/bedrock
Pinkut	Brunisol	Orthic Eutric Brunisol Orthic Dystric Brunisol	Colluvium/till
Twain	Podzol	Orthic Humo-Ferric Podzol Brunisolic Gray Luvisol Gleyed Orthic Humo-Ferric Podzol	Morainal (basal till)
Vanderhoof	Luvisol	Orthic Gray Luvisol Gleyed Orthic Gray Luvisol Gleysols	Glaciolacustrine
Non-Soil Units			
Disturbed land	DL	-	Anthropogenically modified parent materials
Exposed bedrock	R	-	Local bedrock exposed in-situ
Water	LA	-	Open water bodies (lakes, ponds, streams)