BRITISH COLUMBIA
The Best Place on Earth

Ministry of Energy, Mines & Petroleum Resources
Mining & Minerals Division
BC Geological Survey

Assessment Report
Title Page and Summary

TYPE OF REPORT [type of survey(s)]: Coal resource drilling exploration

TOTAL COST: CND$4.49M

AUTHOR(S): Chunfu Zhang **SIGNATURE(S):** Chunfu Zhang

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): 2009 – 1640554-200902 **YEAR OF WORK:** 2009

STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S):

PROPERTY NAME: Gething

CLAIM NAME(S) (on which the work was done): 417319,417331,417308,417646,417307,417310,417317,417314

COMMODITIES SOUGHT: Metallurgical Coal

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN:

MINING DIVISION: **NTS/BCGS:**

LATITUDE: 55 ° 59 '96 " **LONGITUDE:** 122 ° 17 '45.24 " **(at centre of work)**

OWNER(S):
1) Canadian Kailuan Dehua Mines Co.,Ltd. 2)

MAILING ADDRESS:
812-1130 W. Pender St, Vancouver, BC Canada V6e 4a4

OPERATOR(S) [who paid for the work]:
1) Canadian Kailuan Dehua Mines Co.,Ltd. 2)

MAILING ADDRESS:
812-1130 W. Pender St, Vancouver, BC Canada V6e 4a4

PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude):
See the attached report---Gething property geology and coal reserve base report

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS:
: Gething property geology and coal reserve base report By Norwest

Next Page

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
GEOLOGICAL (scale, area)			
Ground, mapping			
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne			
GEOCHEMICAL (number of samples analysed for...)			
Soil			
Silt			
Rock			
Other	Coal 70 samples		$56,000
DRILLING (total metres; number of holes, size)			
Core	2936.95, 14 drilling holes,HQ	417319,417331,417308,417646,41730	$2.33M(include non-core)
Non-core	5141.2,14 pro-collar drilling holes, 5.5 inch	417319,417331,417308,417646,41730	
RELATED TECHNICAL			
Sampling/assaying	rock geotech 142 samples		$150,000
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale, area)			
PREPARATORY / PHYSICAL			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/trail			
Trench (metres)			
Underground dev. (metres)			
Other			
		TOTAL COST:	CND$4.49M

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Ministry of Energy, Mines & Petroleum Resources
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BC Geological Survey

Assessment Report
Title Page and Summary

TYPE OF REPORT [type of survey(s)]: Gething bulk Sample geotech exploration **TOTAL COST:** CND$9.15M

AUTHOR(S): Chunfu Zhang **SIGNATURE(S):** Chunfu Zhang

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): 2012 - 1640554-201201 **YEAR OF WORK:** 2012

STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S):

PROPERTY NAME: Gething -

CLAIM NAME(S) (on which the work was done): 417319

COMMODITIES SOUGHT:

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN:

MINING DIVISION: **NTS/BCGS:**

LATITUDE: 55 ° 59 '96 " **LONGITUDE:** 122 ° 17 '45.24 " **(at centre of work)**

OWNER(S):
1) Canadian Kailuan Dehua Mines Co.,Ltd. 2)

MAILING ADDRESS:
812-1130 W. Pender St, Vancouver, BC Canada V6e 4a4

OPERATOR(S) [who paid for the work]:
1) Canadian Kailuan Dehua Mines Co.,Ltd. 2)

MAILING ADDRESS:
812-1130 W. Pender St, Vancouver, BC Canada V6e 4a4

PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude):
See the attached report---Geotechnical Investigation Report and Stantec Preliminary Geotechnical Assessment Report

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS:

Geotechnical Investigation Report by GES and Preliminary Geotechnical Assessment Report,Hydrogeology report by Stantec

Next Page

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
GEOLOGICAL (scale, area)			
Ground, mapping			
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne			
GEOCHEMICAL (number of samples analysed for...)			
Soil			
Silt			
Rock			
Other			
DRILLING (total metres; number of holes, size)			
Core	570.1m, 29 holes, HQ size	417319	CND$1.39M
Non-core	2496.13m. 17 holes, 8 inch&10 inch	417319	CND$6.41M
RELATED TECHNICAL			
Sampling/assaying			
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale, area)			
PREPARATORY / PHYSICAL			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/trail	4.78km		CND$0.56M
Trench (metres)			
Underground dev. (metres)			
Other	hydrological experiments		CND$0.46M
		TOTAL COST:	CND$9.15M

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Ministry of Energy, Mines & Petroleum Resources
Mining & Minerals Division
BC Geological Survey

Assessment Report
Title Page and Summary

TYPE OF REPORT [type of survey(s)]: None

TOTAL COST:

AUTHOR(S): Chunfu Zhang

SIGNATURE(S): Chunfu Zhang

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S):

YEAR OF WORK: 2014

STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S):

PROPERTY NAME: Gething

CLAIM NAME(S) (on which the work was done): 417319,417331,417308,417646,417307,417310,417317,417314

COMMODITIES SOUGHT: Metallurgical Coal

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN:

MINING DIVISION:

NTS/BCGS:

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PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude):
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REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS:

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Seismic			
Other			
Airborne			
GEOCHEMICAL (number of samples analysed for...)			
Soil			
Silt			
Rock			
Other			
DRILLING (total metres; number of holes, size)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling/assaying			
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale, area)			
PREPARATORY / PHYSICAL			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/trail			
Trench (metres)			
Underground dev. (metres)			
Other			
		TOTAL COST:	

Canadian Kailuan Dehua Mines Co., Ltd.

2009 - 2014

Technical Assessment Summary

of

Coal Resource Exploration
Geotechnical Investigation and Assessment
Hydrogeological Investigation

on the

Gething Coal Tenures
Peace River land District and Liard Mining Division
Northeast BC, Canada

Canadian Kailuan Dehua Mines Co., Ltd.

2015.04.09

2009 - 2014

Technical Assessment Summary

of

Coal Resource Exploration
Geotechnical Investigation and Assessment
Hydrogeological Investigation

Peace River land District and Liard Mining Division
Northeast BC, Canada

Gething Coal Tenures: 417304 417305 417306 417307 417308 417309 417310 417311 417312 417313 417314 417315 417316 417317 417318 417319 417320 417321 417322 417323 417324 417646

BCGS MAP No.: 093O088 093O089 093O098 093O099 094B008 094B009

UMT NAD83 Zone 10: Easting: 526370 - 549894; Northing: 619236 - 6212666

Latitude & Longitude: 55°52'35"N - 56°3'30"N; 122°12'5.5"W - 122°34'35.6"W

Prepared By: Chunfu Zhang

Reviewed By:

PROFESSIONAL GEOSCIENTIST PROVINCE OF BRITISH COLUMBIA L. T. V. LI # 35153

Chunfu Zhang

Canadian Kailuan Dehua Mines Co., Ltd.

Vincent Li, P.Eng.,P.Geo.

Canadian Dehua International Mines Group Inc.

2015.04.09

Section 4.4, Section 4.5, portions of Appendix 1 and portions of Appendix 2 remain confidential under the terms of the Coal Act Regulation, and have been removed from the public version.

http://www.bclaws.ca/civix/document/id/complete/statreg/251_2004

STATEMENT OF QUALIFICATION

- I, Vincent Li, P.Eng., P.Geo., is registered, in good standing, with APEGBC (No. 35153) in British Columbia and APEGA (No. 75174) in Alberta , Canada.
- I am Vice President and Chief Engineer of Canadian Dehua International Mines Group Inc. in (CDI) with a business address of 1450 -1199 West Hastings Street, Vancouver, British Columbia, V6E 3T5.
- I am a graduate of the University of Xian Science and Technology with a B.Eng. (Geology and Exploration) in 1984, a post-graduate of the University of Xian Architectural Science and Technology (Civil Engineering) in 1995, a graduate of Southern Alberta Institute of Technology with a B.A.Eng. (Petroleum Engineering Technology) in 2003. As well, I took courses related to environment, geology and mine engineering in such as University of Calgary and related organizations for professional development.
- I have practiced my profession continuously since 1984. I have mainly worked in consulting and mining in natural resource industry, which covers evaluation, exploration, feasibility study, environmental assessment, mine plan, mine permitting, mine development and project management in coal, oil, gas, and metal mineral resource. In-depth technical and leadership skills, and good working knowledge of mining related regulation, code and guideline. In specific, I have been working in underground coking coal mine development and iron/copper mineral prospection and exploration in Western Canada in recent of 6 years.
- I had involvement with 2009 Gething coal exploration, including exploration permitting, site geology and coal resource assessment conducted by Canadian Kailuan Dehua Mines Co., Ltd. (CKD), as well as I knew about 2012 Gething geotechnical and hydrogeological investigation when CKD planned and conducted the projects.
- This report has been prepared by the CKD in accordance with the independent third party's technical reports and the information available in the term of Gething coal tenure renew.

I am not aware of any material fact or material change with respect to the subject matter of the report that is not reflected in the report and therefore the omission of fact.

PROFESSIONAL ENGINEER
PROVINCE OF
L. T. V. LI
35153
BRITISH COLUMBIA
GEOSCIENTIST

Vincent Li, P.Eng., P.Geo.
Date: 09/04/2015

QUALIFICATIONS AND WORK EXPERIENCE of Author

CKD Mines Co., LTD
Suite 812 – 1130 W. Pender Street
Vancouver, B.C.
V6E 4A4
chunfu.zhang@ckdmines.com

I, Chunfu Zhang, Vice General Manager of CKD Mines Co., LTD am responsible for overseeing the technological, geological, and engineering matters relating to the development of the company's coal mining projects in Canada. For the past 6 six years I have worked the Gething Mine Project to the advanced exploration stage in preparation for bulk sampling and environmental assessment.

I have over thirty years of work experience as a graduate Senior Engineer in Coal Mining Geology, specializing in underground coal mine design and operation. I received a Bachelor Degree in Mine Engineering technology from China University of Mining and Technology. I am employed with Kailuan Energy and Chemical Co. and the Kailuan Group coal mining interests in North America.

I have led the CKD Mining Project team members in carrying out *resource exploration drilling programs* for the Gething project in 2009, and the *Engineering geology and hydrogeological exploration and hydrogeological research program* for the Gething project in 2012.

I have been directly involved with both qualified independent contractors Norwest and Stantec in reviewing their work reports and the results of the work performed for CKD in 2009 and 2012.

Dated at Vancouver, British Columbia this day April 15,2015

ZHANG, Chunfu

Table of Contents

List of Tables

List of Figures

List of Appendices

1. INTRODUCTION AND HISTORY

Canadian Kailuan Dehua mines Co., Ltd. (CKD) wholly owns and operates the Gething Coal property located near Hudson's Hope in Northeast British Columbia (BC) (see Figure 1). The Gething Coal property consists of total 22 tenures and encompasses an area of 22,800 ha, which are presented in Table 1 and Figure 2.

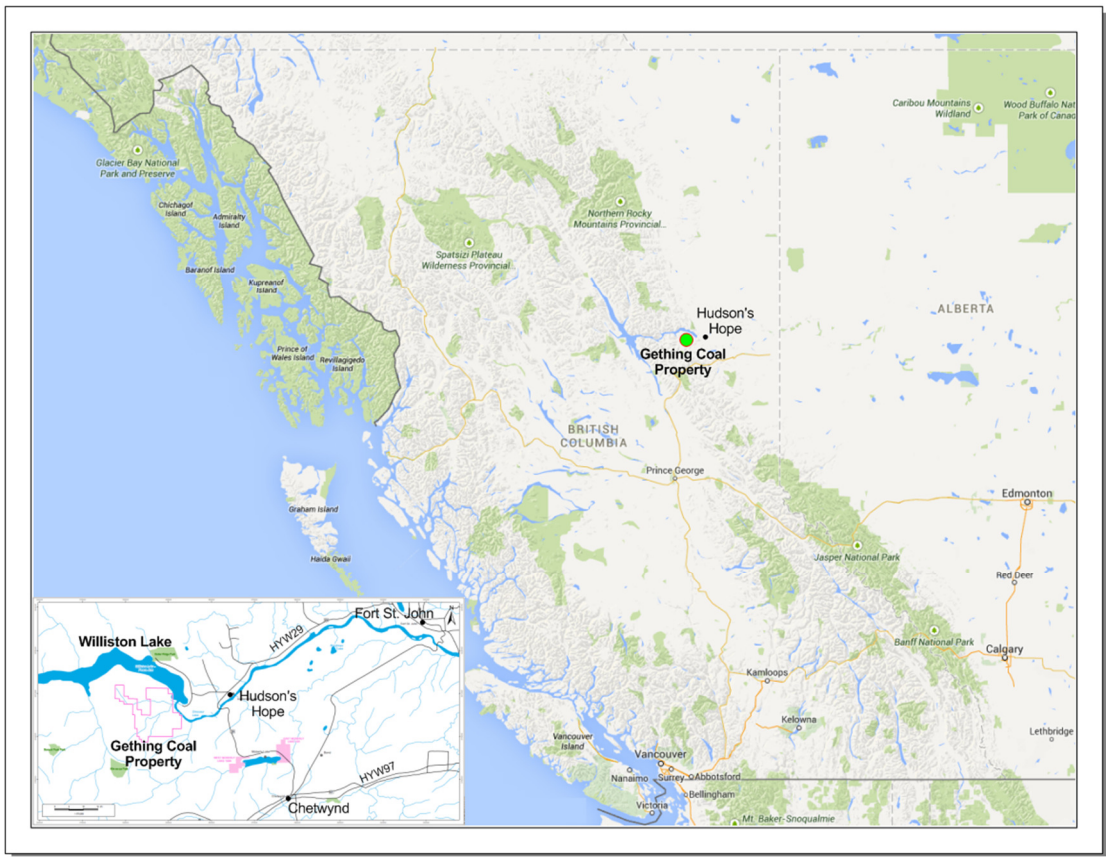

Figure 1 Location of Gething Coal Property

Historically Gething coal was discovered in 1903 in area of Hudson's Hope (Hudson's Hope Museum web site at http://www.hudsonshopemuseum.com), and had been taken to Peace River crossing and used as steam coal. With the outbreak of World War II, a few of coalmines were developed including Peace River Coal Mine, King Gething Coal Mine and Packwood Coal Mine, where the production of coal was supplied to Dawson Creek, Fort Saint John and the places along Alaska Highway. Mines were shut down after the World War Ⅱ.

The first documented exploration of the Gething Coal property was conducted by Texacal Resources Ltd. in 1971 and consisted of four boreholes. This initial exploration penetrated a large section of the Gething Formation and demonstrated the existence of potentially mineable metallurgical coal on the subject property.

A total of six drilling campaigns were accomplished between 1971 and 1980. The property was sold in 1972 to a joint venture (Bow River Resources and Rainier Energy Resources) and again in 1978 to Utah Mines Ltd. of Vancouver. Each of these companies continued to conduct exploration programs of the Gething coal resource, culminating in 1980 with a program of 16 cored boreholes, 13 rotary boreholes, field mapping, a gas desorption program, and a shallow seismic survey. Geologic exploration in the 1970's and 1980's in the area had revealed the potential for extraction of metallurgical grade coal from six coal seams.

The recently completed coal resource drilling program was carried out by CKD and managed by from February 2009 through July 2009. Drilling began on April 2, 2009 and continued through June 25, 2009, managed by Norwest Corporation, Salt Lake City of Utah, USA (Norwest). Norwest remained on site through July 2, 2009 to oversee relevant site and road reclamation.

Table 1 Tenure List of Gething Coal Property

Title Number	Owner	Title Type	Title Sub Type	Map Number	Issue Date	Good To Date	Status	Area (ha)
417304	147450 (100%)	Coal	License	093O098	2006/apr/13	2015/apr/13	GOOD	1168.0
417305	147450 (100%)	Coal	License	094B008	2006/apr/13	2015/apr/13	GOOD	876.0
417306	147450 (100%)	Coal	License	093O098	2006/apr/13	2015/apr/13	GOOD	579.0
417307	147450 (100%)	Coal	License	093O099	2006/apr/13	2015/apr/13	GOOD	797.0
417308	147450 (100%)	Coal	License	093O099	2006/apr/13	2015/apr/13	GOOD	723.0
417309	147450 (100%)	Coal	License	093O098	2006/apr/13	2015/apr/13	GOOD	652.0
417310	147450 (100%)	Coal	License	093O099	2006/apr/13	2015/apr/13	GOOD	580.0
417311	147450 (100%)	Coal	License	093O099	2006/apr/13	2015/apr/13	GOOD	290.0
417312	147450 (100%)	Coal	License	093O088	2006/apr/13	2015/apr/13	GOOD	798.0
417313	147450 (100%)	Coal	License	093O089	2006/apr/13	2015/apr/13	GOOD	580.0
417314	147450 (100%)	Coal	License	093O089	2006/apr/13	2015/apr/13	GOOD	1450.0
417315	147450 (100%)	Coal	License	093O089	2006/apr/13	2015/apr/13	GOOD	1449.0
417316	147450 (100%)	Coal	License	093O088	2006/apr/13	2015/apr/13	GOOD	1450.0
417317	147450 (100%)	Coal	License	093O099	2006/apr/13	2015/apr/13	GOOD	1448.0
417318	147450 (100%)	Coal	License	093O098	2006/apr/13	2015/apr/13	GOOD	1448.0
417319	147450 (100%)	Coal	License	093O099	2006/apr/13	2015/apr/13	GOOD	1447.0
417320	147450 (100%)	Coal	License	093O099	2006/apr/13	2015/apr/13	GOOD	1447.0
417321	147450 (100%)	Coal	License	093O099	2006/apr/13	2015/apr/13	GOOD	1446.0
417322	147450 (100%)	Coal	License	093O099	2006/apr/13	2015/apr/13	GOOD	1446.0
417323	147450 (100%)	Coal	License	094B009	2006/apr/13	2015/apr/13	GOOD	867.0
417324	147450 (100%)	Coal	License	094B008	2006/apr/13	2015/apr/13	GOOD	867.0
417646	147450 (100%)	Coal	Application	093O099	n/a	n/a		1014.0

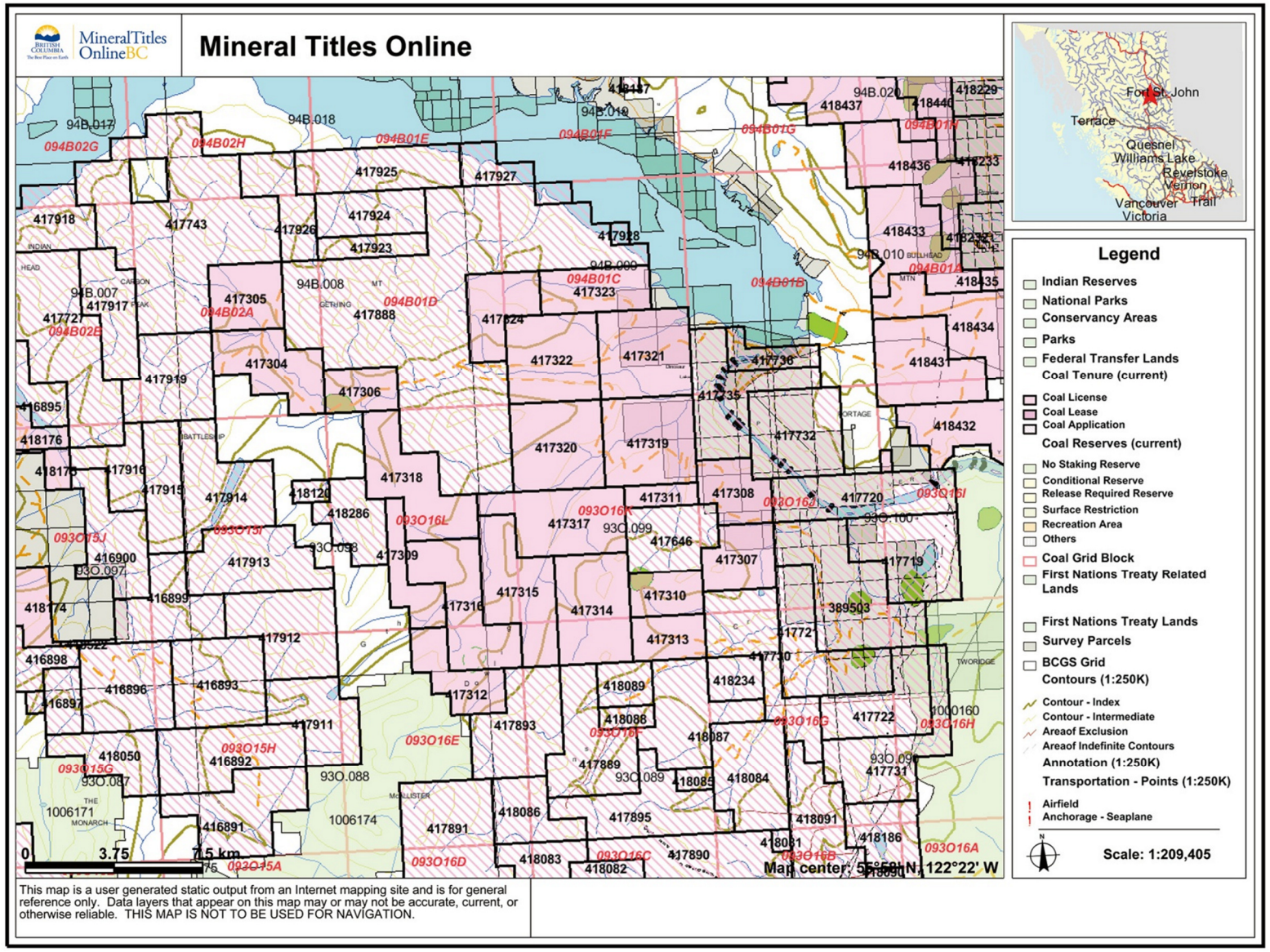

Figure 2 Coal Tenures of Gething Coal Property

The large Gething property is broken into 4 major areas of interest - Bri-Dowling, East Gething, South Gething and Adams (see Figure 3). The Bri-Dowling area in the southeast section of the property is to plan the Gething underground coal mine, which will be expected to produce 2 million tons of metallurgical/coking coal in the first phase of development.

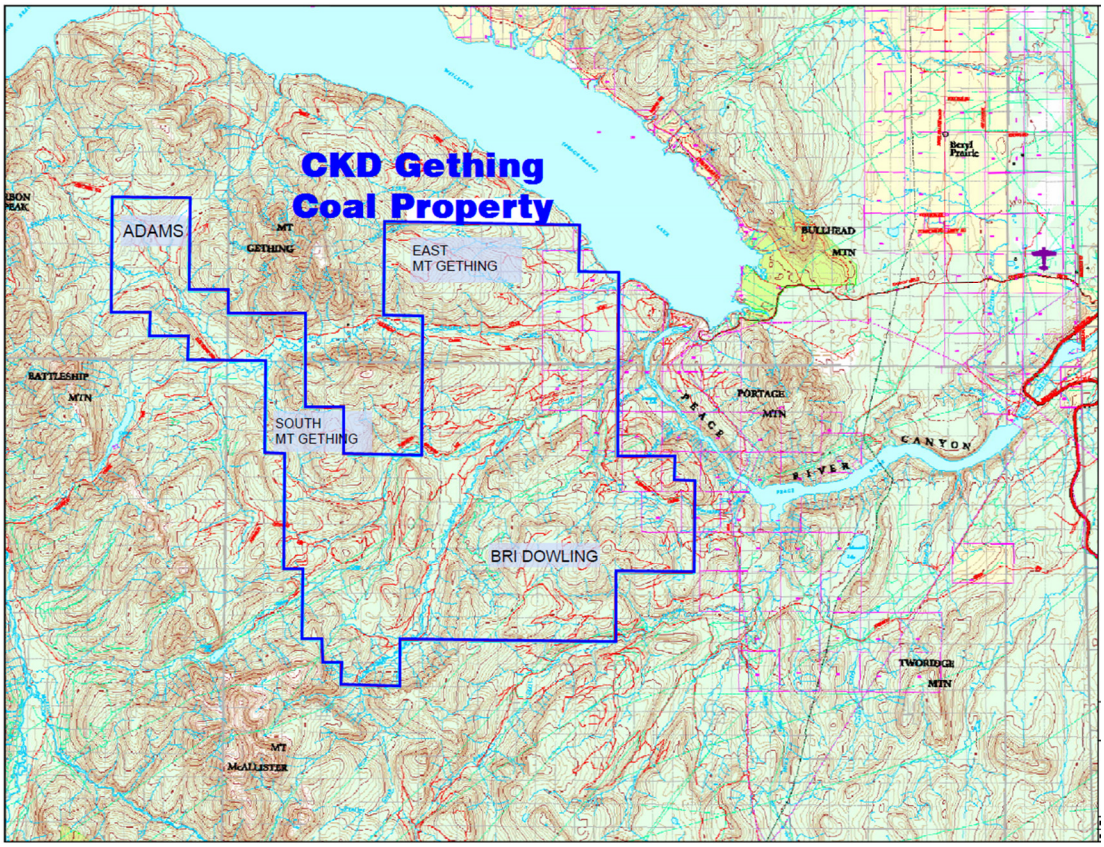

Figure 3 Coal Tenures of Gething Coal Property

2 PROPERTY LOCATION AND ACCESS

The Gething coal property is located approximately 25km west of Hudson's Hope, BC and directly south of Williston Lake (Figure 1 and 3). It lies within the foothills of the east of flank of Rocky Mountains. Two routes are identified to access the subject site. First is Johnson Creek Forest Service Road which intersects Highway 29 at the turn-off located approximately 19 km south of Hudson's Hope. An alternative route is from the town of Hudson's Hope to the W.A.C. Bennett Dam then through the Utah road and table road.

The property is covered by BCGS map sheets, 093O088, 093O089, 093O098, 093O099, 094B008 and 094B009. The coordinate of the property boundaries is UMT NAD83 Zone 10 Easting: 526370 – 549894 and Northing: 619236 – 6212666. The Latitude of the property boundary ranges from 55°52′35″N to 56°3′30″N and the Longitude of the property boundary varies from 122°12′5.5″W to 122°34′35.6″W.

3 TOPOGRAPHY

The topography in the Gething project area is rugged, being heavily dissected by northeast flowing stream drainages. Elevation ranges from approximately 600m in the lowest valleys to over 1,200m along the ridge and hill tops. Creek valleys tend to be steep and deeply incises through the covering layer of glacial till in the central and west of the project area, grading to broader valley bottoms with less stream gradient in the east.

The surface of the Gething project area is principally composed of boreal and subalpine forest, consisting mainly of pines, firs and spruce trees. In the valleys at the Stream bottoms there may be bogs and dense brush. Historically, there has been timber harvesting in the area and re- established tree growth varying sizes and ages.

4 2009 GETHING COAL RESOURCE EXPLORATION

4.1 OBJECTIVE

The overall objective is to improve the understanding of the coal geology and coal resource confidence. The program was designed to achieve the following specific objectives:

- Validate previous drilling with twin holes;
- Place more holes down dip from previous holes to improve resource confidence in the subject area;
- Provide sufficient core sample mass for detailed coal analyses necessary for coal washability testing and metallurgical coal marketing;
- Provide additional information on hydrology and gas content of coal that may impact mine planning and environmental concerns.

4.2 SUMMARY OF DRILLING

CKD conducted Gething coal resource drilling that had been focused on the eastern and central portions of the Bri-Dowling area. The drilling was started from April 2, 2009 through July 2009. Norwest provided on-site supervision and technical management, compiled all drilling, survey and test data, developed geology model, and prepared for the geology and coal reserve base report for CKD. The details including the drilling data can be referred from Appendix 1.

A total of 15 boreholes were developed on 14 sites with the drill meterage of approximately 8078.15 meters, of which, 12 core holes, 2 rotary holes and on large diameter hole. The rotary pre-collar drilling totaled 4701.2 meters, slimhole HQ coring was approximately 2560.95 meters, one full rotary hole was at 440 meters, and one large diameter core hole was approximately 376 meters. Figure 4 presents historical and 2009 drillhole locations. Table 2 provides a brief summary of borehole type, casing depth, procollar depth and related testing. is the summary of 15 drillholes in 2009.

All boreholes were logged with lithological descriptions, geophysical and geotechnical characteristics. Geotechnical and coal core samples were taken from each borehole for lab testing. Hydrogeological packer test was performed in 3 boreholes and coal methane desorption tests were performed in 3 holes. All drillholes were vertically orientated. The final collar survey of the drillholes is summarized in Table 3. The detailed methodology and procedures of drilling, sampling, handling, testing, etc. are described in Norwest's report in Appendix 1.

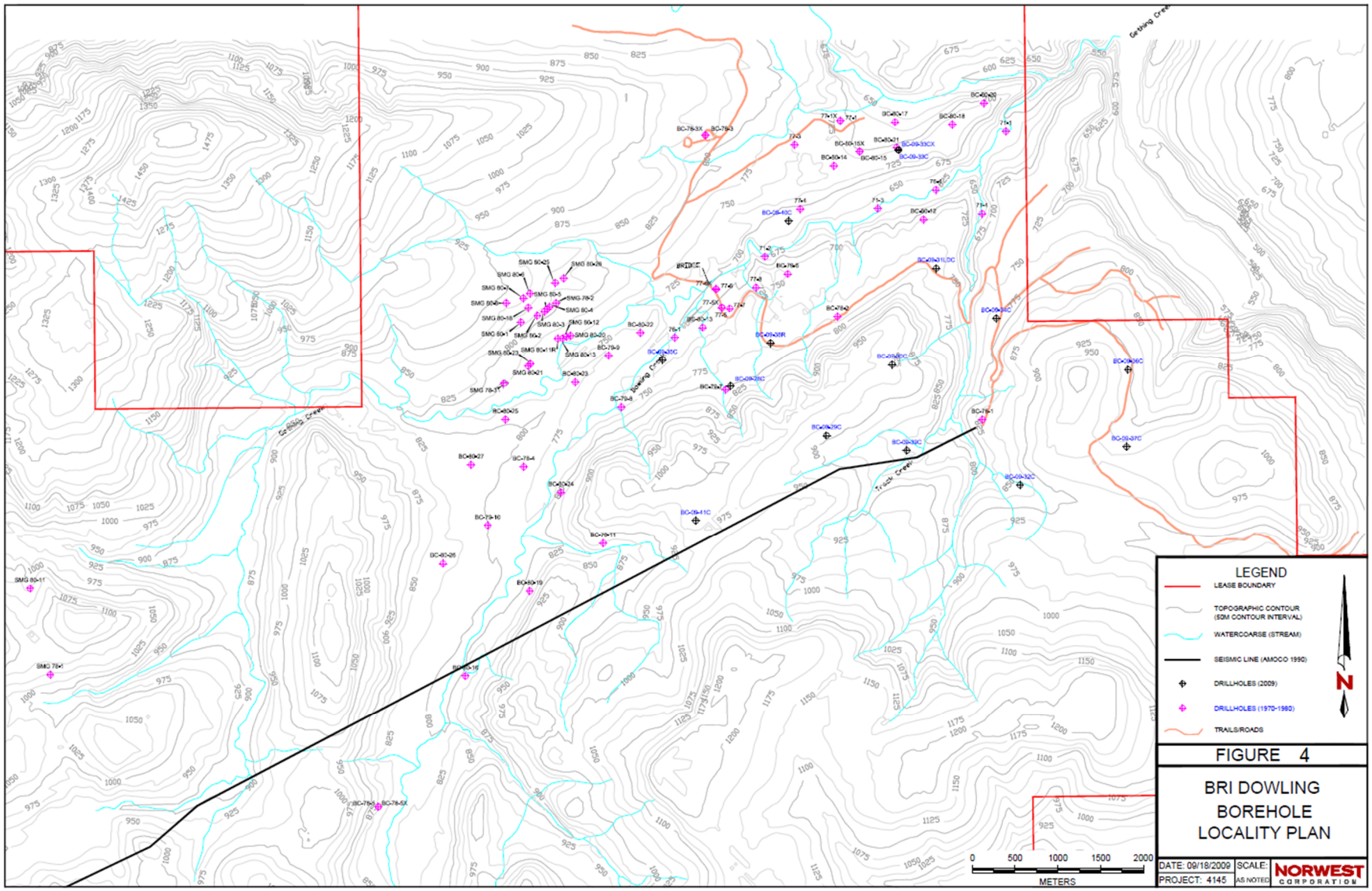

Figure 4 Historical and 2009 Drillhole Location

Table 2 2009 Drillhole Summary

BH ID	Total Depth	Type	ODEX Casing Depth	Procallor Depth	Packer Testing
BC-09-28C	361.0	Core	12.0	260	No
BC-09-29C	749.0	Core	11.0	567	No
BC-09-30C	683.0	Core	8.0	476	No
BC-09-31R	440.0	Rotary	19.5	NA	No
BC-09-31LD1	376.0	LD core	54.0	NA	No
BC-09-32C	812.0	Core	51.0	702	No
BC-09-33C	131.0	Core	70HWT	NA	No
BC-09-34C	494.0	Core	42.7	310	No
BC-09-35C	160.8	Core	20.9HWT	NA	No
BC-09-36C	701.0	Core CBM	19.7	484	No
BC-09-37C	885.0	Core	35.4	650	Yes
BC-09-38C	467.7	Rotary	38.0	NA	No
BC-09-39C	731.0	Core	53.0	539	Yes
BC-09-40C	184.7	Core	22 HWT	NA	Yes
BC-09-41C	902.0	Core	11.0	714	Yes
LD=Large Diameter, CBM=Coal Bed Methane					

Table 3 Drillhole Collar Surveys

BH ID	Northing	Easting	Elevation
BC-09-28C	6,202,781	543,232	771.9
BC-09-29C	6,202,204	544,355	865.6
BC-09-30C	6,203,033	545,123	901.6
BC-09-31R	6,204,170	545,639	724.4
BC-09-31LDC	6,204,164	545,638	724.2
BC-09-32C	6,201,626	546,617	850.5
BC-09-33C	6,205,554	545,196	715.5
BC-09-34C	6,203,578	546,339	746.9
BC-09-35C	6,203,088	542,435	681.5
BC-09-36C	6,202,973	547,883	903.2
BC-09-37C	6,202,072	547,865	935.9
BC-09-38R	6,203,289	543,699	732.0
BC-09-39C	6,202,028	545,294	794.3
BC-09-40C	6,204,716	543,909	648.8
BC-09-41C	6,201,209	542,823	933.4

4.3 COAL SETTING IN BRI-DOWLING AREA

Gething coal deposit lies within the northern portion of eastern Inner Foothills Belt of the Rocky Mountains, Western Canada Sedimentary Basin. Gething coal property mainly contains the clastic sedimentary rocks of Moose Bar Formation, Fort St. John Group and coal seams of the Gething Formation, Bullhead Group in Lower Cretaceous. The Cadomin Formation of Lower Cretaceous Bullhead Group forms the base of coal geologic section within the Gething coal area.

The total thickness of the Gething Formation in the Bri-Dowling area is to be 490 to 550 meters, with the coal seams of economic interest occurring within the top 150 meters of the formation. A total of 13 significant coal seams were penetrated while drilling (Table 4 and Figure 5), however three coal seams of Superio, Trojan and Lower Trojan are focused on as that of account of their more constant seams thickness and greater number of drillhole intercepts (Table 4).

Table 4 Bri-Dowling Coal Seam Thickness

Seam Group	Seam	Seam Thickness (m)	No. Drillhole Intercepts
Superior	Superior	1.16	57
	Lower Superior	0.69	16
Trojan	Tojan	1.43	52
	Lower Trojan	1.25	42
Titan	Titan	0.55	30
Falls	Falls E	0.52	27
	Falls D	0.63	19
	Falls B	0.73	12
	Falls A	0.54	18
Gething	Gething	0.79	23
Mogul	Mogul C	0.56	19
	Mogul B	0.79	19
	Mogul A	0.46	13

Seam correlation of Superio, Trojan and Lower Trojan Seams is illustrated in Figure 6, which were correlated by using both downhole geophysical logs and were subsequently compared with drillhole core descriptions and laboratory results.

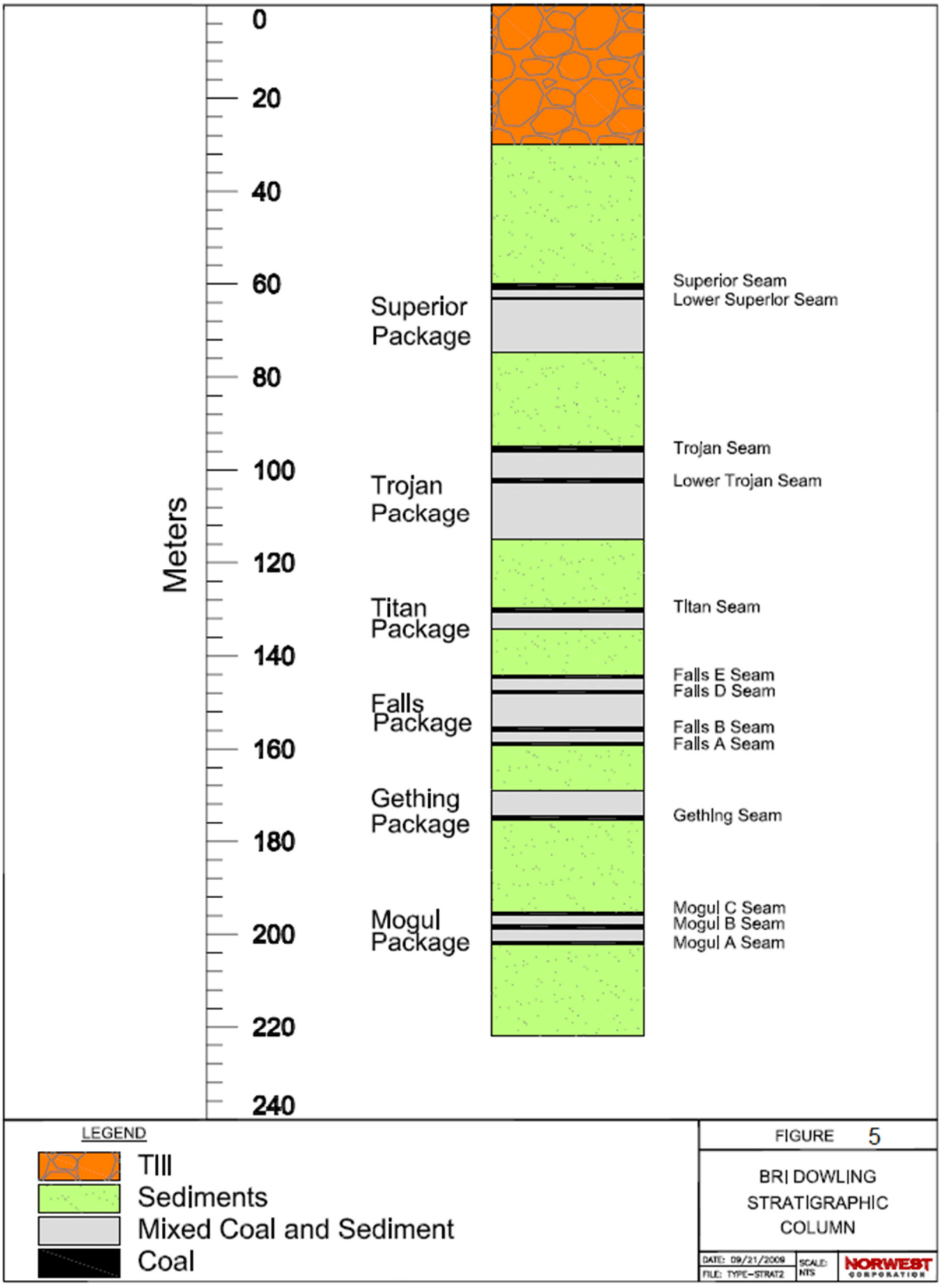

Figure 5 Coal Settings in Bri-Dowling Area

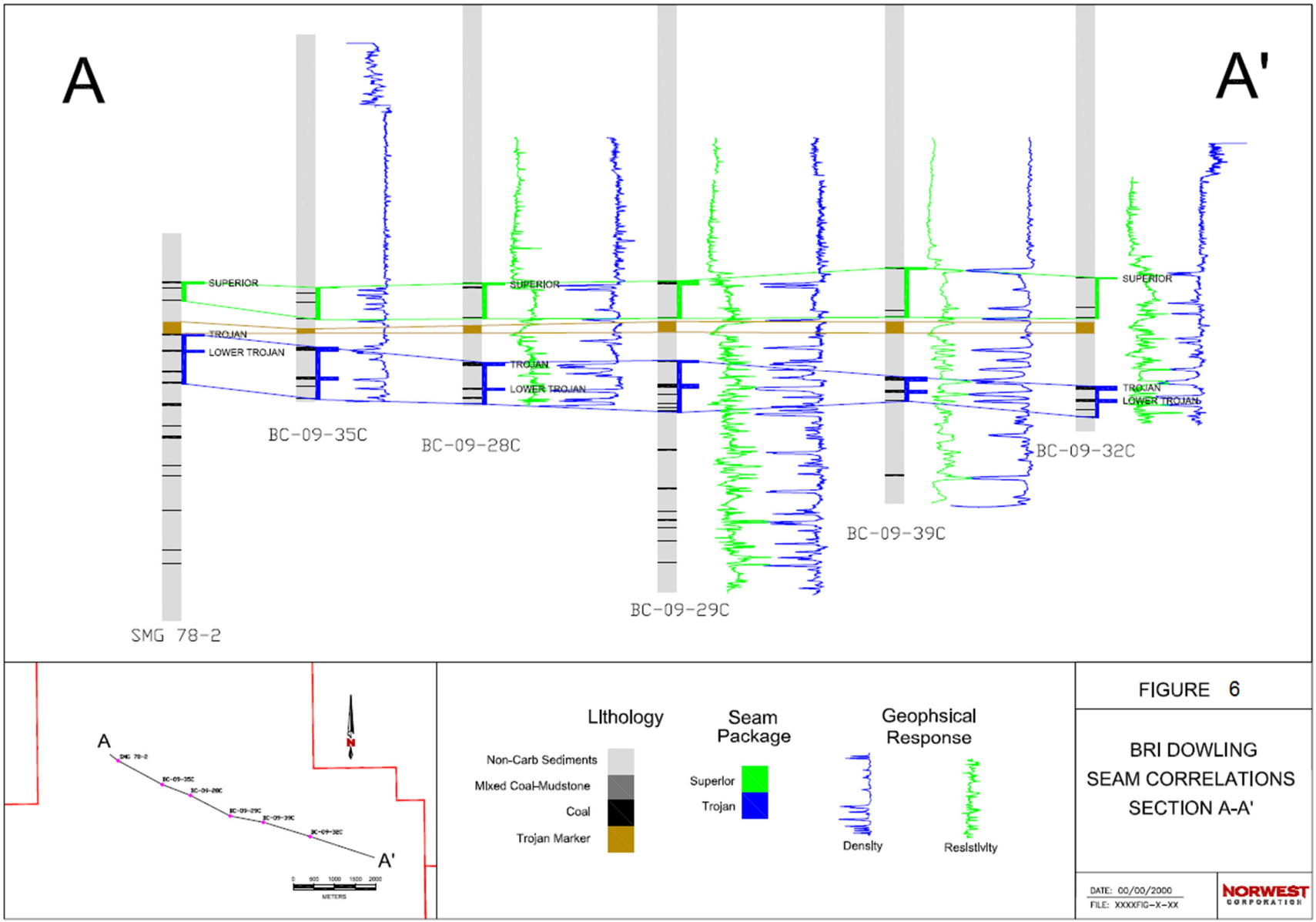

Figure 6 Seam Correlation of Section A – A′ in Bri-Dowling Area

5 2012 GEOTECHNICAL INVESTIGATION

5.1 OBJECTIVE

The purpose of the preliminary geotechnical site investigation was to obtain information on the soils, bedrock and groundwater conditions at the site, which is required for the design and construction of the proposed mine surface facilities in Bri-Dowling area.

- Boreholes in support of the geotechnical design of surface facilities;
- Boreholes in support of the geotechnical design of the declines and underground mine;
- Monitoring wells or test wells for the hydrogeological study;
- Laboratory measurements and testing of selected soil samples obtained from the boreholes.

5.2 SUMMARY OF PRELIMINARY GEOTECHNICAL INVESTIGATION AND ASSESSMENT

CKD contracted Global Earth Solutions Geotech Inc. (GES) and Stantec Consulting Limited (Stantec) to conduct a preliminary geotechnical site investigation and assessment of the Bulk Sample Permit Application area for the proposed Gething coal mine site in north Bri-Dowling area. The field investigation was started on June 25, 2012 and ended on July 19, 2012. The details including the drilling data, test data and investigation/assessment reports can be referred from Appendix 2 and 3.

The overall subsurface investigation for the mine site consisted of thirty test holes. Figure 7 shows the locations of geotechnical investigation drillholes. Boreholes were divided into three categories based on the purpose of the investigation. The borehole of First Category was completed for the purpose to support the surface facility design (Table 9); the borehole of Second Category was completed for the purpose to support the mine decline and underground mine design (Table 10); and the borehole of Third Category was completed for the purpose to support the mine hydrogeology investigation (Table 10).

The geotechnical subsurface investigation was continuously monitored by Stantec field representatives to identify the sample locations, classified the soil and bedrock encountered, kept a detailed log of each borehole, and observed and recorded pertinent site features when the site drilling complete.

Representative soil and bedrock samples were collected from the test drillholes and delivered to the Stantec laboratory in Burnaby, British Columbia for further visual identification and classification, natural moisture content measurement and proctor density test, etc.

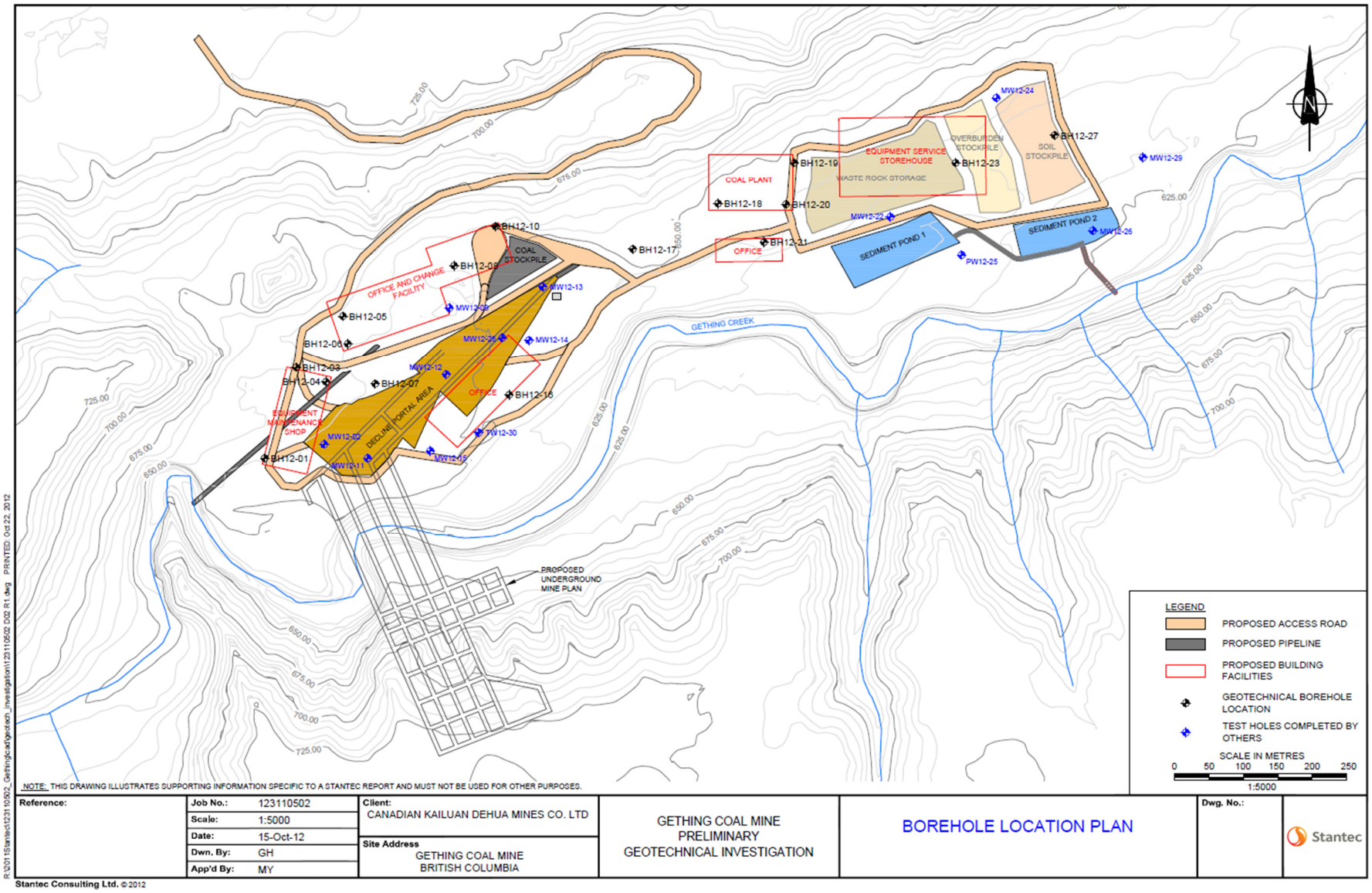

Figure 7 Geotechnical Drillhole Locations

Table 9 Boreholes Completed in Support of Surface Facility Design

Stantec Geotechnical Borehole ID	Stantec Hydrogeological Well ID	Northing	Easting	Comments
BH12-1	MW12-01	6204550	543582	Borehole drilling supervised by Stantec Geotechnical personnel
BH12-3	MW12-03	6204682	543628	Borehole drilling supervised by Stantec Geotechnical personnel
BH12-4	MW12-04	6204661	543671	Borehole drilling supervised by Stantec Geotechnical personnel
BH12-5	MW12-05	6204757	543696	Borehole drilling supervised by Stantec Geotechnical personnel
BH12-6	MW12-06	6204717	543703	Borehole drilling supervised by Stantec Geotechnical personnel
BH12-7	MW12-07	6204658	543743	Borehole drilling supervised by Stantec Geotechnical personnel
BH12-8	MW12-08	6204830	543858	Borehole drilling supervised by Stantec Geotechnical personnel
BH12-10	MW12-10	6204887	543918	Borehole drilling supervised by Stantec Hydrogeology personnel and GES
BH12-16	MW12-16	6204642	543938	Borehole drilling supervised by GES personnel
BH12-17	MW12-17	6204854	544118	Borehole drilling supervised by Stantec Hydrogeology personnel and GES
BH12-18	MW12-18	6204920	544242	Borehole drilling supervised by Stantec Geotechnical personnel
BH12-19	MW12-19	6204980	544353	Borehole drilling supervised by Stantec Geotechnical personnel
BH12-20	MW12-20	6204919	544341	Borehole drilling supervised by Stantec Geotechnical personnel
BH12-21	MW12-21	6204864	544309	Borehole drilling supervised by Stantec Geotechnical personnel
BH12-23	MW12-23	6204980	544588	Borehole drilling supervised by Stantec Geotechnical personnel
BH12-27	MW12-27	6205020	544732	Borehole drilling supervised by Stantec Geotechnical personnel

Table 10 Boreholes Completed in Support of Decline & U/G Mine Design, and Hydrogeological Study

Stantec Hydrogeology Well ID	Northing	Easting	Comments
MW12-02	6204570	543669	Borehole drilling supervised by GES field representative
MW12-09	6204769	543851	Borehole drilling supervised by GES field representative
MW12-11	6204550	543732	Borehole drilling supervised by GES field representative
MW12-12	6204672	543846	Borehole drilling supervised by GES field representative
MW12-13	6204799	543987	Borehole drilling supervised by GES field representative
MW12-14	6204722	543967	Borehole drilling supervised by GES field representative
MW12-15	6204560	543823	Borehole drilling supervised by GES field representative
MW12-22	6204901	544493	Borehole drilling supervised by Stantec Hydrogeology field representative
MW12-24	6205074	544647	Borehole drilling supervised by Stantec Hydrogeology field representative
PW12-25	6204846	544597	Borehole drilling supervised by Stantec Hydrogeology field representative
MW12-26	6204881	544788	Borehole drilling supervised by Stantec Hydrogeology field representative
TW12-28	6204726	543928	Borehole drilling supervised by Stantec Hydrogeology field representative
MW12-29	6204988	544861	Borehole drilling supervised by Stantec Hydrogeology field representative
MW12-30	6204587	543894	Borehole drilling supervised by GES field representative

5.3 SUMMARY OF CONCLUSION

By the preliminary geotechnical investigation, some important technical parameters were obtained that will support the detailed engineering design.

1) Unconfined Compressive Strength Results, please refer to Table 11.

Table 11 UCS Test Statistical Analysis Results

Rock Type	Mudstone (MPa)	Siltstone (MPa)	Sandstone (MPa)
Geometric Mean Value	13.2	19.4	35.6
Maximum	32	27.2	43.4
Minimum	6.9	14.9	28.2

2) Uniaxial Tensile Results, please refer to Table 12.

Table 12 Uniaxial Tensile Strength of Intact Rock Specimens

Depth (m)	Lithology	σt (MPa)
42.4	Sandstone	2.1
30.48	Siltstone	1.3
33.53	Sandstone(fine grained)	5.2
32.01	Mudstone	0.9
34.14	Mudstone	0.9

3) Triaxial Test Results, please refer to Table 13.

Table 13 Cohesion and Friction Angle based on Triaxial Test results

Lithology	Cohesion (MPa)	Friction Angle (Deg)
Mudstone	1.18	71
Siltstone	4.26	49
Sandstone	3.08	77

4) Direct Shear Test Results, please refer to Table 14.

Table 14 Cohesion and Friction Angle based on Direct Shear Test results

BH	Sample Depth (m)	Cohesion (MPa)	Friction Angle (Deg)
11	50	1.36	36-44
12	36	2.97	17-19
15	12.6	4.60	26-52
30	25.6	1.76	21-30
30	50	3.05	25-30

5) Elasticity Modulus Test Results, please refer toTable 15.

Table 15 Elasticity Modulus and UCS for different types of rocks

BH	Depth (m)	Lithology	E (GPa)	σc (MPa)
11	46	Mudstone	14.0	54.3
12	39	Siltstone	24.3	110.4
30	87	Sandstone	13.4	77.6

6 SITE HYDROGEOLOGY INVESTIGATION

6.1 OBJECTIVE

The comprehensive hydrogeological investigation program was conducted for the purpose of environmental assessment and specific objectives include:

- To construct groundwater monitoring wells for hydraulic testing and water quality sample collection;
- To facilitate in situ hydraulic testing;
- To acquire information for studying groundwater characteristics;
- To evaluation potential project interactions with groundwater systems;
- To attain additional hydrogeological information required to characterize baseline conditions.

6.2 SUMMARY OF SITE HYDROGEOLOGY INVESTIGATION

CKD contracted GES and Stantec to conduct a site hydrogeology investigation and assessment for the permitting of proposed Gething coal mine in north Bri-Dowling area. Accordingly, during the period of June 23 to August 6, 2012, a comprehensive site-wide hydrogeological investigation program was completed and a network of groundwater monitoring wells constructed to facilitate acquisition of groundwater quality samples required to characterize groundwater chemistry, and facilitate in situ hydraulic testing/monitoring programs required to characterize baseline groundwater hydraulics. The details including the drilling data, test data and investigation/assessment reports can be referred from Appendix 4, which was prepared by Stantec, December 2012.

A total of 40 hydrogeological boreholes were drilled on 30 locations as well as 41 standpipe piezometer-monitoring wells, 4 test wells and 3 production wells were constructed in the program. Groundwater samples were frequently collected and sent to ALS Environmental's (ALS) Burnaby, BC laboratory for analysis while variety of in-situ hydraulic testing was performed. Many of the monitoring wells were used continuously for ongoing baseline monitoring. The locations of hydrogeological drillholes are presented in Figure 8.

The completion details of the monitoring wells, test wells and production wells are summarized in Table 16.

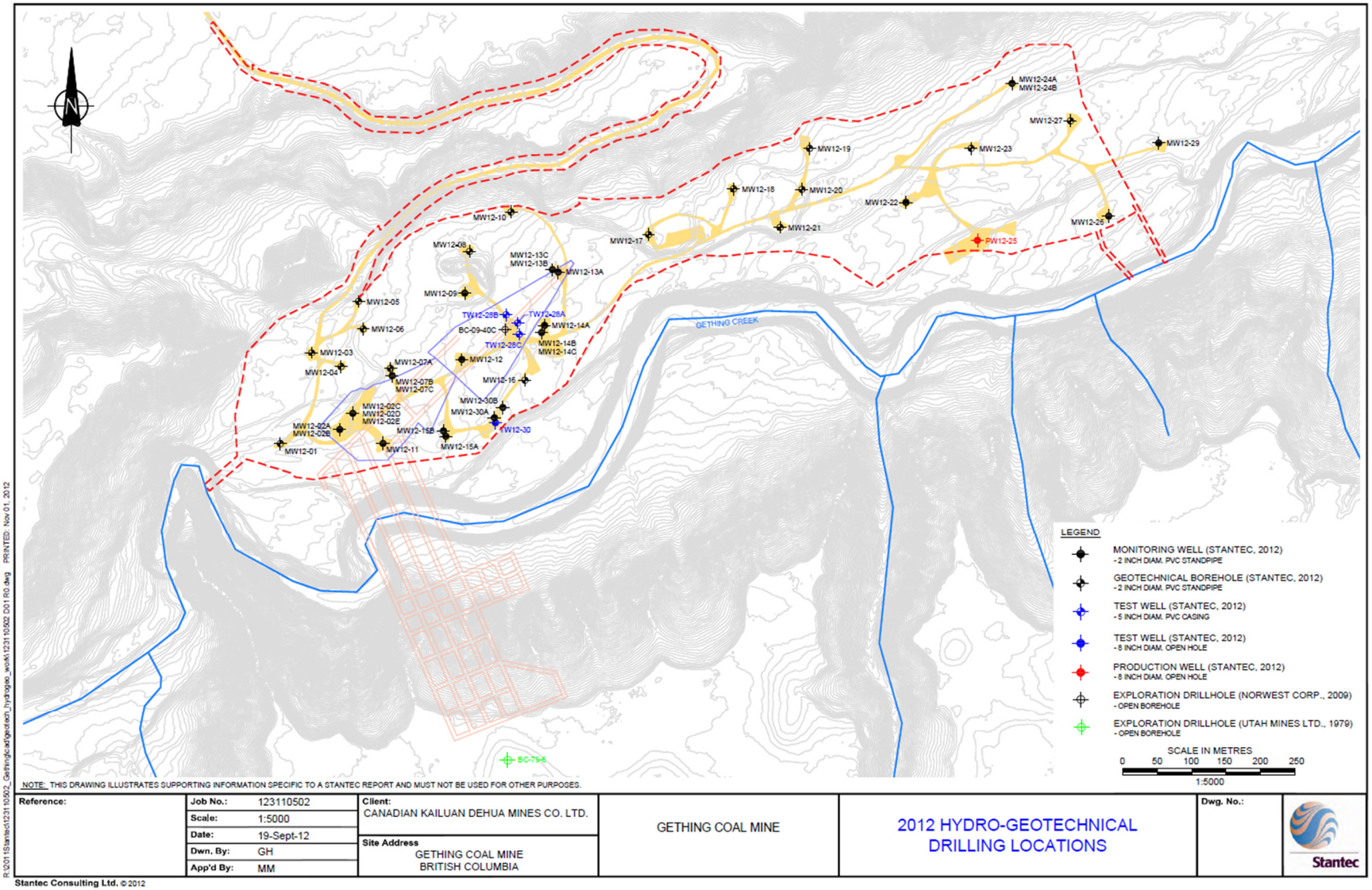

Figure 8 2012 Hydrogeological Exploration Drillhole Location

Table 16 Well Completion Summary and Groundwater Measurement

Well ID	Completion Details						Groundwater Measurements			
	Screened Stratigraphic Unit	Top of Screen (mbgs)	Bottom of Screen (mbgs)	Casing Stick-up (m)	Top of Casing Elevation (m geod)	Casing Diameter (mm)	Date and Time	Depth to Water (m-btoc)[1,2]	Depth to Water[2] (mbgs)	Groundwater Elevation (m geod)
MW12-01	Overburden	5.73	7.251	0.91	655.926	51	8/6/2012 8:48	5.162	4.252	650.764
MW12-02A	Bedrock	11.46	26.705	0.9	655.23	25	8/6/2012 8:51	7.156	6.256	648.074
MW12-02B	Overburden	5.851	8.898	0.899	655.229	25	8/6/2012 8:52	5.200	4.301	650.029
MW12-02C	Bedrock	66.214	82.992	0.776	654.29	51	8/6/2012 8:56	0.803	0.027	653.487
MW12-02D	Bedrock	47.508	62.752	0.771	654.285	51	8/6/2012 8:57	1.274	0.503	653.011
MW12-02E	Bedrock	29.95	39.104	0.77	654.284	51	8/6/2012 8:58	4.945	4.175	649.339
MW12-03	Weathered Bedrock	14.522	15.71	0.938	660.372	51	8/6/2012 8:42	5.276	4.338	655.096
MW12-04	Weathered Bedrock	14.197	15.718	0.893	658.132	51	8/6/2012 8:44	6.268	5.375	651.864
MW12-05	Weathered Bedrock	6.362	7.886	0.883	658.349	51	8/6/2012 8:33	2.682	1.799	655.667
MW12-06	Weathered Bedrock	9.16	10.68	0.969	656.085	51	8/6/2012 8:36	1.362	0.393	654.723
MW12-07A	Weathered Bedrock	11.185	12.705	0.992	653.65	51	8/6/2012 9:11	4.402	3.410	649.248
MW12-07B	Weathered Bedrock and Overburden	7.308	8.832	0.826	653.427	51	8/6/2012 9:12	3.929	3.103	649.498
MW12-07C	Overburden	3.642	4.552	0.831	653.432	51	8/6/2012 9:13	3.931	3.100	649.501
MW12-08	Weathered Bedrock	6.616	8.136	0.944	655.025	51	8/6/2012 9:41	2.117	1.173	652.908
MW12-09	Overburden	6.871	8.391	0.796	655.864	51	8/6/2012 9:44	6.906	6.110	648.958
MW12-10	Weathered Bedrock	9.129	10.651	0.911	655.32	51	8/6/2012 10:11	3.082	2.171	652.238
MW12-11	Bedrock	13.919	80.993	0.971	653.075	51	8/6/2012 9:01	4.338	3.367	648.737
MW12-12	Bedrock	20.138	49.173	1.202	652.306	51	8/6/2012 9:17	0.155	-1.047	652.151
MW12-13A	Weathered Bedrock	10.316	11.839	0.904	648.571	51	8/6/2012 10:15	4.568	3.664	644.003

Table 16 Well Completion Summary and Groundwater Measurement (continued)

Well ID	Completion Details						Groundwater Measurements			
	Screened Stratigraphic Unit	Top of Screen (mbgs)	Bottom of Screen (mbgs)	Casing Stick-up (m)	Top of Casing Elevation (m geod)	Casing Diameter (mm)	Date and Time	Depth to Water (m-btoc)[1,2]	Depth to Water[2] (mbgs)	Groundwater Elevation (m geod)
MW12-13B	Overburden	5.779	7.303	0.771	648.585	51	8/6/2012 10:16	4.643	3.872	643.942
MW12-13C	Overburden	2.869	4.385	0.771	648.585	51	8/6/2012 10:17	4.566	3.795	644.019
MW12-14A	Weathered Bedrock	7.314	8.837	0.886	648.317	51	8/6/2012 10:04	3.695	2.809	644.622
MW12-14B	Overburden	4.208	5.73	1.032	648.565	51	8/6/2012 10:06	4.167	3.135	644.398
MW12-14C	Overburden	2.481	3.387	1.019	648.552	51	8/6/2012 10:07	4.117	3.098	644.435
MW12-15A	Bedrock	18.749	58.374	1.001	652.482	51	8/6/2012 9:23	9.520	8.519	642.962
MW12-15B	Overburden	5.119	6.639	0.811	652.554	51	8/6/2012 9:21	5.771	4.960	646.783
MW12-16	Weathered Bedrock	9.403	10.925	0.977	649.223	51	8/6/2012 9:34	4.224	3.247	644.999
MW12-17	Weathered Bedrock	15.915	17.434	0.855	652.852	51	8/6/2012 10:29	10.105	9.250	642.747
MW12-18	Weathered Bedrock	14.33	15.849	0.92	648.946	51	8/6/2012 10:33	6.624	5.704	642.322
MW12-19	Overburden	8.753	10.274	0.997	648.883	51	8/6/2012 10:40	4.262	3.265	644.621
MW12-20	Weathered Bedrock	9.942	11.457	0.988	646.824	51	8/6/2012 10:43	3.351	2.363	643.473
MW12-21	Weathered Bedrock	15.094	16.614	0.889	648.559	51	8/6/2012 10:36	7.933	7.044	640.626
MW12-22	Overburden	2.656	4.171	0.934	637.711	51	8/6/2012 11:05	2.284	1.350	635.427
MW12-23	Weathered Bedrock	7.251	8.775	0.979	636.782	51	8/6/2012 10:51	2.485	1.506	634.297
MW12-24A	Overburden	15.138	16.654	1.032	641.709	51	8/6/2012 10:46	3.697	2.665	638.012
MW12-24B	Overburden	3.889	4.799	1.031	641.708	51	8/6/2012 10:47	4.959	3.928	636.749
MW12-26	Overburden	1.415	2.939	0.945	626.859	51	8/6/2012 11:02	2.368	1.423	624.491
MW12-27	Weathered Bedrock and Overburden	5.55	7.069	0.95	634.221	51	8/6/2012 10:56	1.874	0.924	632.347
MW12-29	Overburden	7.422	8.944	0.998	630.374	51	8/6/2012 10:59	2.155	1.157	628.219

Table 16 Well Completion Summary and Groundwater Measurement (continued)

Well ID	Completion Details						Groundwater Measurements			
	Screened Stratigraphic Unit	Top of Screen (mbgs)	Bottom of Screen (mbgs)	Casing Stick-up (m)	Top of Casing Elevation (m geod)	Casing Diameter (mm)	Date and Time	Depth to Water (m-btoc)[1,2]	Depth to Water[2] (mbgs)	Groundwater Elevation (m geod)
MW12-30A	Bedrock	18.658	82.682	0.812	650.491	51	8/6/2012 9:32	5.609	4.797	644.882
MW12-30B	Overburden	4.985	6.508	0.925	650.969	51	8/6/2012 9:25	3.151	2.226	647.818
TW12-28A[3]	Bedrock (Superior Seam)	25.420	30.000	n/a	650.444	127	8/6/2012 9:57	N/A	N/A	N/A
TW12-28B	Bedrock	12.954	17.528	0.85	650.544	127	8/6/2012 9:46	4.406	3.556	646.074
TW12-28C	Overburden	3.11	9.215	0.53	649.723	127	8/6/2012 9:58	4.285	3.755	645.394
TW12-30[3,4]	Bedrock	26.892	82.315	0.548	650.422	203	8/6/2012 9:26	N/A	N/A	N/A
PW12-25[4,5]	Bedrock	47.200	418.800	-0.116	631.378	203	8/6/2012 11:10	-36.597	–	667.975

NOTES:

[1] m-btoc = metres below top of casing

[2] Negative value indicates water above ground surface

[3] Casing shut-in. Water level and pressure readings not available.

[4] Completed as open hole. Reported top and bottom of screen (mbgs) are open hole interval.

[5] Casing shut-in with pressure gauge. Depth to water based on 53 PSI (pounds per square inch) reading.

Survey completed by McElhanney Land Surveys Ltd. (BCLS)

N/A = not available

6.3 SUMMARY OF CONCLUSION

1) Data from single borehole response tests were analyzed and Kb values estimated using the Hvorslev and Bower-Rice solutions. The Test results are summarized in Table 17.

Table 17 Hydraulic Conductivity (Kb) Estimates Summary

Well ID	Testing Method	Analytical Solution	Estimated Hydraulic Conductivity1 (m/sec)
Overburden			
MW12-01	Single Borehole Response Test	Bouwer-Rice Unconfined	7.8E-05
MW12-07C	Single Borehole Response Test	Bouwer-Rice Unconfined	2.7E-05
MW12-09	Single Borehole Response Test	Bouwer-Rice Unconfined	5.9E-05
MW12-13B	Single Borehole Response Test	Bouwer-Rice Unconfined	4.2E-05
MW12-14B	Single Borehole Response Test	Bouwer-Rice Unconfined	1.5E-04
MW12-19	Single Borehole Response Test	Bouwer-Rice Unconfined	4.3E-05
MW12-22	Single Borehole Response Test	Bouwer-Rice Unconfined	4.1E-07
MW12-29	Single Borehole Response Test	Bouwer-Rice Unconfined	3.1E-07
MW12-30B	Single Borehole Response Test	Bouwer-Rice Unconfined	2.1E-04
MW12-272	Single Borehole Response Test	Bouwer-Rice Unconfined	7.6E-06
		Geometric Mean	1.9E-05
		Arithmetic Mean	6.2E-05
		Median	4.2E-05
Overburden			
TW12-28C	5-day Pumping Test	Cooper-Jacob Unconfined with pumping well data	4.6E-05
TW12-28C	5-day Pumping Test	Theis Confined with pumping well data	4.1E-05
TW12-28C	5-day Pumping Test	Theis Recovery Confined will pumping well data	6.8E-05
TW12-28C	5-day Pumping Test	Theis Confined with MW12-14B obs well data	8.8E-05
TW12-28C	5-day Pumping Test	Theis Recovery Confined with MW12-14B obs well data	3.8E-04
		Geometric Mean	8.5E-05
		Arithmetic Mean	1.2E-04
		Median	6.8E-05

Table 17 Hydraulic Conductivity (Kb) Estimates Summary (Continued)

Weathered Bedrock			
MW12-05	Single Borehole Response Test	Hvorslev Confined	8.8E-05
MW12-07A	Single Borehole Response Test	Hvorslev Confined	7.3E-06
MW12-07B2	Single Borehole Response Test	Bouwer-Rice Unconfined	1.1E-04
MW12-10	Single Borehole Response Test	Hvorslev Confined	8.4E-07
MW12-13A	Single Borehole Response Test	Hvorslev Confined	1.7E-05
MW12-14A	Single Borehole Response Test	Hvorslev Confined	3.6E-06
MW12-21	Single Borehole Response Test	Hvorslev Confined	3.4E-06
MW12-16	Single Borehole Response Test	Hvorslev Confined	4.8E-06
		Geometric Mean	6.6E-06
		Arithmetic Mean	1.8E-05
		Median	4.8E-06
Bedrock			
MW12-02C	Single Borehole Response Test	Hvorslev Confined	4.6E-07
MW12-02D	Single Borehole Response Test	Hvorslev Confined	6.1E-07
MW12-12	Single Borehole Response Test	Hvorslev Confined	5.3E-07
MW12-15A	Single Borehole Response Test	Hvorslev Confined	3.2E-07
MW12-30A	Single Borehole Response Test	Hvorslev Confined	1.3E-07
		Geometric Mean	3.6E-07
		Arithmetic Mean	4.1E-07
		Median	4.6E-07
Bedrock			
TW12-30	5-day Pumping Test	Theis Confined Residual Recovery with pumping well data	1.0E-08
TW12-30	5-day Pumping Test	Theis Confined with pumping well data	4.1E-08
TW12-30	5-day Pumping Test	Theis Confined Residual Recovery with MW12-30A obs data	8.1E-08
		Geometric Mean	3.3E-08
		Arithmetic Mean	4.4E-08
		Median	4.1E-08

2) Data from four of the single borehole response tests were not analyzed due to trends in the data not attributable to either testing methodology or other site activities.

3) Long-duration pumping test data obtained during testing in TW12-28C and TW12-30 were analyzed and Kb values estimated using the Theis, Theis Recovery and Cooper-Jacob solutions. The results of these analyses are summarized in Table 17.

4) Table 18 summarizes the resulting arithmetic means for selected chemistry parameters.

Table 18 Groundwater Chemistry—Arithmetic Mean Values

Parameter1	**Hydrostratigraphy**			
	Overburden	**Weathered Bedrock**	**Bedrock**	**Bedrock2 (no coal)**
Physical				
Hardness (as CaCO3)	332.1	377	153	50.6
pH	8.01	7.92	7.90	8.26
Total Dissolved Solids	431	385	1767	497
Anions				
Alkalinity, Total (as CaCO3)	398	379	1694	447
Sulfate (SO4)	12.4	4.00	3.82	2.50
Nutrients				
Ammonia Nitrogen (NH3) – as N	0.0647	0.213	1.25	0.469
Nitrate as N	0.01544	0.00250	0.0354	0.0250
Nitrite as N	0.00181	0.00050	0.00708	0.0050
Dissolved Metals				
Aluminum (Al)	0.01182	0.00257	0.0245	0.00260
Antimony (Sb)	0.00023	0.00007	0.000393	0.000050
Arsenic (As)	0.00210	0.003	0.000472	0.000050
Barium (Ba)	0.756	1.65	0.80	0.91
Boron (B)	0.0295	0.037	0.367	0.215
Cadmium (Cd)	0.00005	0.000008	0.000029	0.0000050
Calcium (Ca)	86.1	89.1	43.6	11.8
Chromium (Cr)	0.000105	0.000153	0.000322	0.000150

Table 18 Groundwater Chemistry—Arithmetic Mean Values (continued)

Parameter[1]	Hydrostratigraphy			
	Overburden	Weathered Bedrock	Bedrock	Bedrock[2] (no coal)
Cobalt (Co)	0.000928	0.000263	0.000370	0.000150
Copper (Cu)	0.00177	0.0001	0.0011	0.000100
Iron (Fe)	1.45	3.354	0.606	0.065
Lead (Pb)	0.0000319	0.0000250	0.000146	0.0000250
Lithium (Li)	0.0190	0.022	1.01	0.307
Magnesium (Mg)	28.5	37.5	10.7	5.13
Manganese (Mn)	0.146	0.112	0.0344	0.0111
Mercury (Hg)	0.00001	0.00001	0.000005	0.0000050
Molybdenum (Mo)	0.00504	0.006	0.000708	0.000201
Nickel (Ni)	0.00423	0.001	0.00159	0.000530
Potassium (K)	1.90	1.342	1.78	0.956
Selenium (Se)	0.00028	0.00005	0.000245	0.0000500
Silver (Ag)	0.00002	0.000005	0.000029	0.00000500
Sodium (Na)	41.2	4.390	651	167.0
Strontium (Sr)	0.246	0.284	0.084	0.250
Thallium (Tl)	0.000010	0.000005	0.000029	0.00000500
Tin (Sn)	0.000768	0.000050	0.00029	0.0000500
Titanium (Ti)	0.00500	0.005	0.0075	0.00500
Uranium (U)	0.00141	0.00058	0.000323	0.000026
Vanadium (V)	0.00050	0.001	0.0029	0.000500
Zinc (Zn)	0.00470	0.003	0.012	0.00260

NOTES:
[1] All units are mg/L unless otherwise noted.
[2] Based on one sample from TW12-28B.

6) Based on the Darcian flow model described, the peak rate of groundwater flow from overburden, weathered bedrock, and bedrock (unweathered) into the declines excavations, decline entries, and the mine floor entry (Upper Trojan level) is estimated to be approximately 205 USgpm (12.9 L/s [litres per second]), as summarized in Table 19.

Table 19 Estimated Peak Groundwater In-Flow Rates

Hydrostratigraphic Unit	**Predicted Peak Flow[1, 2]**	
Overburden	115 USgpm	7.2 L/s
Weathered Bedrock	40 USgpm	2.5 L/s
Bedrock[3]	50 USgpm	3.1 L/s
Total	**205 USgpm**	**12.9 L/s**

NOTES:
1 USgpm = US gallon per minute
2 L/s = litre per second
3 Includes decline excavations, decline entries and mine entries.

The Exploration Costs in 2009 and 2012

1, COST IN 2009 DRILLING PROGRAM

The totally cost of drilling program in 2009 : CDN$ 4486330.

Including:
Total cost of hole drilling : CDN$ 2,334,228
Norwest technical consultant fee : CDN$ 814,194.4
Cost of geophysical log drilling :CDN$ 136,847.62
Hydrological experiment and environment assessment fee :CDN$ 110,505.05
The cost of drill site preparation, road construction and logging :CDN$ 387,518.53
Fuel consumption : CDN$ 103,931.42
Cost of drilling water supply : CDN$ 101,516.25
Drill site medical aid : CDN$ 75,199
Custom-made core box : CDN$ 60,000
Purchase the original two-dimensional seismic prospecting data and information description : CDN$ 58,207
The total of other cost, for example, road snow removal, reclamation, measurement, drilling field guard, stage environment evaluation, communication, equipment rental : CDN$304,182.69

2, COST IN 2012 ENGINEERING EXPLORATION AND HYDROGEOLOGICAL EXPERIMENT

Engineering geology and hydrogeological exploration and hydrogeological experiment in 2012 are divided into two stages. The first stage is from June to August. It is mainly on engineering geological drilling, shallow hydrogeological hole construction. The second stage is from November to December and is mainly on deep geological hydrological holes and hydrogeological experiment.

The cost of first stage:
The First stage Total Actual Cost: CDN$ 2740204.02

Road construction and drill site preparation: CDN$ 289790.70
The cost of drilling: CDN$ 1390396.75

Drill site medical aid: CDN$ 59875.20
Drill site safety management and technical support: CDN$ 469601.01
Shallow hydrogeological experiment: CDN$ 101290.91
Drill site gas safety monitor: CDN$ 73706.78
CKD drill site employee H2S safety training: CDN$ 3217.76
Communication equipment, Site lighting equipment, environmental facilities: CDN$ 99662.02
Accommodation: CDN$ 44666.62
Geotechnical engineering experiment and technical report: CDN$ 207996.27

The cost of second stage：
The Second stage Total Actual Cost : CDN$ 6407263.21

Drilling cost: CDN $4,544,862.56
HSE Site safety monitoring cost: CDN $ 198224.72 。
Precision Site pumping test cost：CDN $ 361,693.08 。
A&J Field first aid cost：CDN $109,004.00
Stantec Field engineers and safety management, report preparation cost： CDN $868974.91。
TDB Clearance of Site cost：CDN $ 265,798.82
Radio rental：CDN $6084.96
Car rental：CDN $11144.94
PCR lighthouse and toilet etc.：CDN $27,692.50
Garbage collection：CDN $1153.60
Snow removal：CDN $12629.12

Appendix 1 :

Gething Coal Property Geology and Coal Reserve Base Report

Prepared by Norwest Corporation, Salt Lake City of Utah, USA, March 16, 2010

1) Report
2) Geo-Model Input Data
3) Borehole Wireline Geophysical Logs_LAS and tiff
4) Scanned Original Borehole Core Lith Logs

Appendix 2:

Letter Report of Geotechnical Investigation Services for Gething Mine Project

Prepared by Global Earth Solutions Geotech Inc., December 17, 2012

Appendix 3:

Preliminary Geotechnical Assessment for Gething Mine Project

Prepared by Stantec Consulting Limited., March 31, 2015

Appendix 4:

Phase I Hydrogeology Investigation for Gething Mine Project

Prepared by Stantec Consulting Limited., December 2012