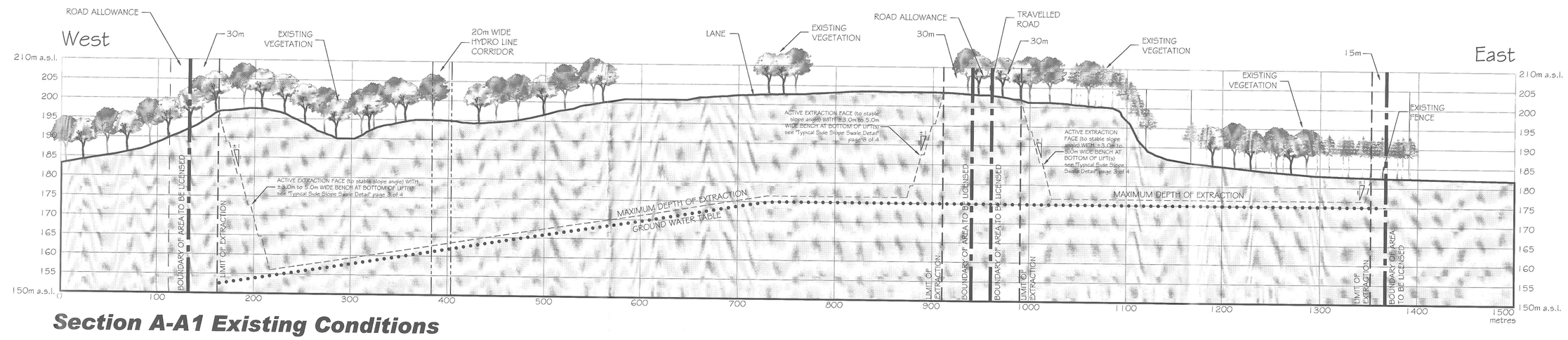
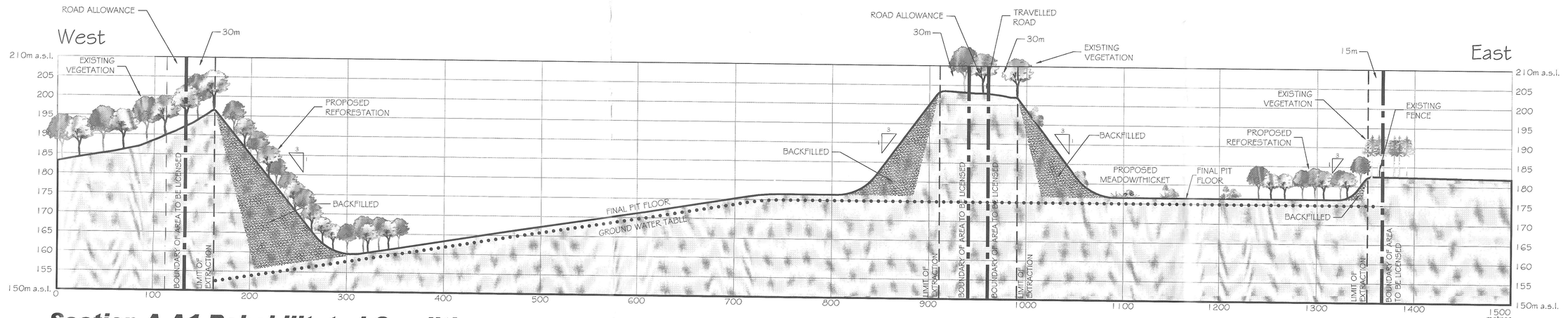
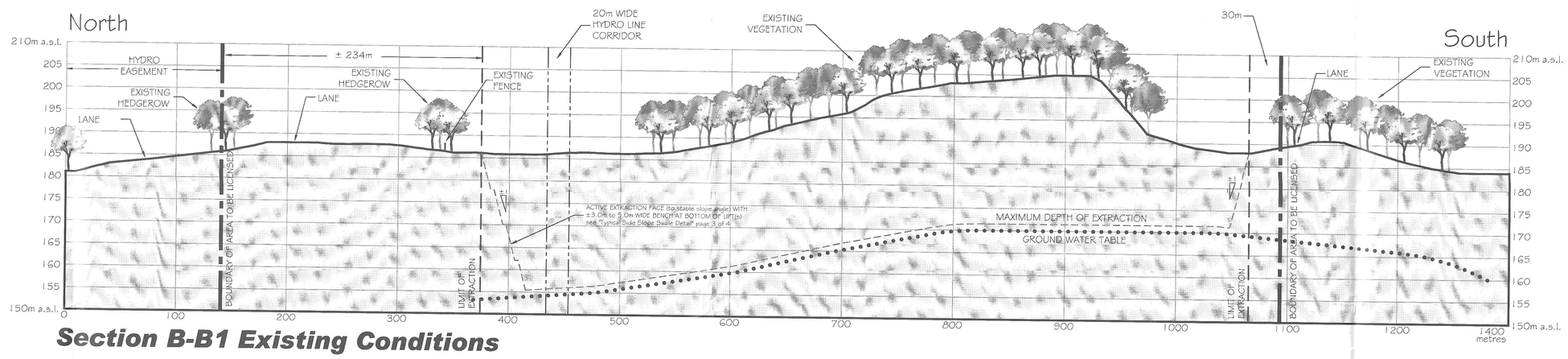


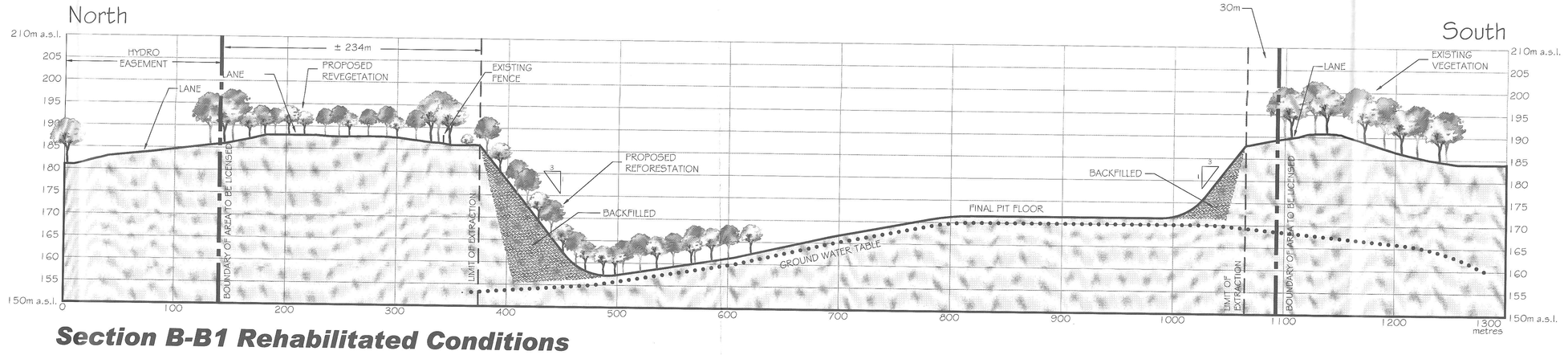
Section A-A1 Existing Conditions



Section A-A1 Rehabilitated Conditions



Section B-B1 Existing Conditions



Section B-B1 Rehabilitated Conditions

TABLE 2
RESIDENTIAL WATER WELL LOCATION SUMMARY

#	ADDRESS	RESIDENTIAL WELL DETAILS				MONITORING WELL
		WELL TYPE	APPROXIMATE DATE CONSTRUCTED	APPROXIMATE DEPTH (m)	APPROXIMATE WELL DIAMETER (m)	
1	Community Center (2997 County Road 30)	drilled	NA	NA	NA	
2	3054 County Road 30	dug	1930	7	1	
3	3006 County Road 30	drilled	NA	NA	NA	
4	230 Old Wooler Road	dug/drilled	2007	60	0.9/0.1	
5	268 Old Wooler Road	dug	2010	NA	NA	
6	292 Old Wooler Road	dug	2010	6	1	
7	370 Old Wooler Road	dug	100 years ago	NA	NA	Yes
8	373 A Old Wooler Road	drilled	25 years ago	NA	NA	
9	400 Old Wooler Road	drilled	2009	NA	0.1	
10	435 Old Wooler Road	drilled	1975	25	NA	
11	458 Old Wooler Road	drilled	2004	4.48*	0.1	Yes
12	483 Old Wooler Road.	drilled	NA	NA	NA	
13	488 Old Wooler Road	dug	1988	4	1	Yes
14	504 Old Wooler Road	dug	40 years ago	2.5	1	Yes
15	514 Old Wooler Road	drilled	2002/2003	16	0.1	
16	550 Old Wooler Road	drilled	1975	NA	NA	
17	667 Old Wooler Road	dug	1972	6	1	
18	732 Old Wooler Road	dug	NA	10	1	
19	821 Old Wooler Road	dug	NA	6	1	
20	130 Jameson Road	dug	20 years ago	6	1	Yes
21	229 Aranda Way	drilled	1992	50	0.1	
22	232 Aranda Way	dug	100 years Ago	6	1	Yes

NOTES:
1) '*' indicates metres.

TABLE 3
PARAMETERS FOR ANALYSIS

PARAMETERS	UNITS	PARAMETERS	UNITS
Field Parameters		**Metals**	
pH	pH	. Aluminum (Al)	µg/L
Temperature	t^0C	. Barium (Ba)	µg/L
Conductivity	(µS/cm)	. Beryllium (Be)	µg/L
Dissolved Oxygen	mg/L	. Boron (B)	µg/L
Turbidity	NTU	. Cadmium (Cd)	µg/L
		. Calcium (Ca)	µg/L
Inorganics		. Chromium (Cr)	µg/L
Total Ammonia-N	mg/L	. Cobalt (Co)	µg/L
Conductivity	uS/cm	. Copper (Cu)	µg/L
Dissolved Organic Carbon	mg/L	. Iron (Fe)	µg/L
Orthophosphate (P)	mg/L	. Lead (Pb)	µg/L
pH	pH	. Magnesium (Mg)	µg/L
Dissolved Sulphate (SO4)	mg/L	. Manganese (Mn)	µg/L
Alkalinity (Total as CaCO3)	mg/L	. Molybdenum (Mo)	µg/L
Dissolved Chloride (Cl)	mg/L	. Nickel (Ni)	µg/L
Nitrite (N)	mg/L	. Phosphorus (P)	µg/L
Nitrate (N)	mg/L	. Potassium (K)	µg/L
Nitrate + Nitrite	mg/L	. Silver (Ag)	µg/L
TDS	mg/L	. Sodium (Na)	µg/L
Hardness	mg/L	. Strontium (Sr)	µg/L
		. Vanadium (V)	µg/L
Microbiological		. Zinc (Zn)	µg/L
Background	CFU/100mL	**Petroleum Hydrocarbons**	
Total Coliforms	CFU/100mL	F1 (C6-C10)	µg/L
Escherichia coli	CFU/100mL	F2 (C10-C16)	µg/L
Faecal Streptococci	CFU/100mL	F3 (C16-C34)	µg/L
Heterotrophic PlateCount	CFU/100mL	F4 (C34-C50)	µg/L

a. ATTACHED TABLES COMPRISE THE DETAILS ON THE GROUNDWATER AND SURFACE WATER MONITORING PROGRAM AS CROSS REFERENCED IN NOTE 1.2.27 TECHNICAL RECOMMENDATIONS, HYDROGEOLOGY NOTE B ON PAGE 2 OF 4.

Cross Sections

Legend

- Boundary of Area to be Licensed
- Limit of Extraction — ALL SETBACKS ARE DRAWN TO SCALE AND SHOW LABELLED DISTANCES.
- Vegetation/Trees — EXISTING OR PROPOSED AS INDICATED ON SECTIONS
- Maximum Depth of Extraction
- Cross Sections (A, A1, B, B1)
- Groundwater Table — SEE NOTE 2 THIS PAGE

Notes:

1. CROSS SECTIONS PLOTTED FROM TOPOGRAPHIC INFORMATION OBTAINED FROM FIRST BASE SOLUTIONS 'iMap' MAPPING SERVICE. ADDITIONAL HORIZONTAL AND VERTICAL CONTROL WAS ESTABLISHED ONSITE BY 43 DEGREES NORTH, SURVEY & MAPPING SOLUTIONS IN MARCH 2007. RECTIFYING JAGGER HIMS MONITORING WELLS: BH05-2, BH05-18, BH05-19, BH05-20 & BH06-1 WITH EXISTING ELEVATIONS. CONTOUR INTERVAL IS 1.0 METRE. ALL ELEVATIONS ARE GEODETIC.
2. HYDROGEOLOGICAL INFORMATION TAKEN FROM "HYDROGEOLOGICAL STUDY, ST. MARYS CEMENT INC. (CANADA), CODRINGTON PROPERTY" (SOURCE: JAGGER HIMS LIMITED, MARCH 2009) IDENTIFIES A MAY 2008 GROUNDWATER TABLE MOUND WITH AN ELEVATION OF ± 175m ABOVE SEA LEVEL (ASL) CENTRALLY LOCATED IN LOTS 33 & 32 FALLING OFF TO BELOW ± 150m ASL IN THE NORTHWEST, ± 155m ASL IN THE NORTHEAST, ± 165m ASL IN THE SOUTHEAST AND ± 160m ASL IN THE SOUTHWEST.
3. ALL MEASUREMENTS SHOWN ON THIS PLAN ARE IN METRES.

a. ATTACHED TABLES COMPRISE THE DETAILS ON THE GROUNDWATER AND SURFACE WATER MONITORING PROGRAM AS CROSS REFERENCED IN NOTE 1.2.27 TECHNICAL RECOMMENDATIONS, HYDROGEOLOGY NOTE B ON PAGE 2 OF 4.

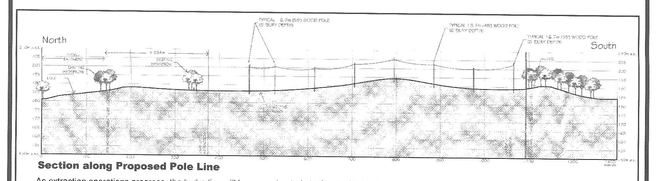
TABLE 1
MONITORING PROGRAM SUMMARY

BASELINE MONITORING			
MONITORING LOCATIONS	FREQUENCY	PARAMETERS	COMMENTS
GROUNDWATER			
BH05-2, BH05-18, BH05-19, BH05-20, BH06-1, A, C	Monthly for 1 year	Water Levels	A and 'C' are new wells to be installed across the water table. 'A' will be installed at least 1 year prior to extraction.
Six (6) Residential Wells within 1 km*	Quarterly for 1 year	Water Levels	Proposed residential wells include: 1 north of site, 1 east of site, and 4 along Old Wooler Road.
	Twice (July and April/May) for baseline	Field parameters, inorganics, metals, microbiological.	One event already completed in July 2011 to protect low water level information. Second event to be completed during spring (April/May) for high water level information.
Fish Hatchery Wells (assume 2)	Quarterly for 1 year	Water Levels	Where access is granted and if no historic data are available.
SURFACE WATER			
SWB, SWC	Quarterly for 1 year	Flow Rates	Tributaries of Marsh Creek and Cold Creek.
	Quarterly for 1 year	Field Parameters, Inorganics, Metals	Characterize springs at SWB and SWC, including cross-sections.
Study Area Springs	1 Event	Flow Rates, Field Parameters	Characterize springs, including cross-sections
Fish Hatchery Springs (assume 2)	Quarterly for 1 year	Flow Rates	Where access is granted and if no historic data are available. The springs will be characterized, including cross-sections.
	Quarterly for 1 year	Field Parameters	

NOTES:
1) '*' denotes see Table 2 for list of residential wells. Focus is on shallow dug wells. Final wells to be sampled will depend on access approval by landowner.
2) Quarterly indicates March, June, September, December.
3) See Table 3 for parameter list.
4) Establish trigger mechanisms for water levels/flows and quality after one year of baseline monitoring.
5) Precipitation conditions will be documented prior to sampling springs and undertaking sampling activities.

PROPOSED MONITORING PROGRAM			
MONITORING LOCATIONS	FREQUENCY	PARAMETERS	COMMENTS
GROUNDWATER			
BH05-2, BH05-18, BH05-19, BH05-20, BH06-1, A, C	Quarterly	Water Levels	BH05-19 and BH05-20 will be decommissioned during extraction.
	Semiannually	Field parameters, inorganics, metals	
	Annually if onsite fueling or fuel storage.	Petroleum Hydrocarbons	
Six (6) Residential Wells within 1 km*	Annually	Water Levels	Proposed residential wells include: 1 north of site, 1 east of site, and 4 along Old Wooler Road.
	Annually	Field parameters, inorganics, metals, microbiological.	
Fish Hatchery Wells (assume 2)	Semiannually	Water Levels	Where access is granted.
SURFACE WATER			
SWB, SWC	Semiannually	Flow Rates	Tributaries of Marsh Creek and Cold Creek.
	Semiannually	Field Parameters, Inorganics, Metals	
	Semiannually	Flow Rates	Where access is granted.
	Annually	Field Parameters	

NOTES:
1) '*' denotes see Table 2 for list of residential wells. Focus is on shallow dug wells. Final wells to be sampled will depend on access approval by landowner.
2) Quarterly indicates March, June, September, and December.
3) Annually indicates September.
4) Semiannually indicates March and September.
5) See Table 3 for parameter list.
6) Proposed Monitoring Program may be revised based on results of one year of baseline monitoring.
7) Precipitation conditions will be documented prior to sampling springs and undertaking sampling activities.



Section along Proposed Pole Line

As extraction operations progress, the hydro line will be reconstructed at a lower elevation within the existing corridor. Once available, detailed design drawings for the replacement line will be provided to MNRF.

(From Behan Construction Ltd., September 2017)

See page 2 of 4 for location

SCALE
Horizontal 1:2000
50 0 50 100 metres
Vertical 1:500
4x vertical exageration

A.S. SANDERS IS AUTHORIZED BY THE MINISTER OF NATURAL RESOURCES PURSUANT TO SECTION 13 OF THE AGGREGATE RESOURCES ACT TO PREPARE AND CERTIFY SITE PLANS.

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE
200-540 BINGEMANS CENTRE DR. KITCHENER, ON N2B 3X9
P: 519.576.3650 F: 519.576.0121 | WWW.MHBCPLAN.COM

DRAFT REVISIONS	
January 30, 2014 - Licence Issuance	

FOR AGENCY REVIEW	
APPROVED REHABILITATION PLAN	
DATE	DESCRIPTION
September 18, 2017	Installation of hydro lines/poles on site.

PROJECT NAME:
Codrington Pit

Job No.	Y321D CBM Codrington
Dwn. By	G.H./D.B.G.
Chkd. By	A.S.
File No.	K:\Y321D_CBM_Hilton\AI\Xsecplan_4of4.dwg

Approved under the Aggregate Resources Act
Ministry of Natural Resources and Forestry
Date: Sept 18/17

Part Lots 32 -34
Concession 6
Municipality of Brighton
(geographic township of Brighton)
County of Northumberland

ST MARYS CBM

St.Marys Cement Inc. (Canada)
55 Industrial St. Toronto, Ontario
M4G 3W9 Telephone (416) 423-1300

624984