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Development Permit Application based on: Enhancement Act (EPEA) EPEA *Code of Practice for Pits,* "Bamber #2" Pit Operations NW, SW & SE 35-053-05 W5M NW & SW 36-053-05 W5M

Prepared for:
214131 Enterprises Ltd.

Prepared by:
Millennium EMS Solutions Ltd.

July 2015
File # 09-141

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1.0 INTRODUCTION

Millennium EMS Solutions Ltd. (MEMS) was retained by was retained by 214131 Enterprises Ltd. (Operating as T&T Sand and Gravel (T&T)) to prepare a development permit for T&T's "Bamber #2" aggregate pit operation as required under Alberta Environment and Parks (AEP) Code of Practice for Pits (2004)".

This registration is for the continued operation and eventual reclamation of a "dry" sand and gravel pit on a property leased exclusively by T&T. The original application was anticipated to be a wet operation from the borehole logs, however, once excavation activities began, there were no water issues encountered in the southern extent of the pit. This report describes the activities and operations for T&T's "Bamber #2" Pit (hereinafter referred to as the "Project" or the "Pit").

1.1 Project Overview

The Project involves existing and proposed soil, overburden and aggregate excavations for Pit operations on properties containing sand and gravel from glacial origins. After extraction, aggregate is crushed and screened to improve its engineering properties for use in the construction materials industry sector.

This application seeks authorization from the County of Lac St. Anne for the opening up, operation and reclamation of the Pit. When appropriate, T&T will file a Bamber #2 Update under EPEA *Code of Practice for Pits*. This application describes the Project as it pertains to the Pit, access roads, and associated infrastructure.

All updated or reviewed figures illustrating the Pit are included; both existing and conceptual site conditions; operation and reclamation plans in Appendix A. Schedules 1, 2 and 3 of the Code of Practice for Pits are included in Appendix B. A detailed security estimate is in Appendix C; Land titles are in Appendix D; and the Third Party Reliance Agreement is in Appendix E.

1.2 Location and Context

The original Project property is located within Parkland County with the expansion crossing into the County of Lac St. Anne, approximately 80 km west of Edmonton, north of Highway 16 (Figure 1). The Pit is located on the northeast quarter of section 26, Township 53, Range 5, west of the 5th Meridian. And the expansion quarters encompassing the NW, SW & SE of section 35 as well as the NW & SW of section 36 Township 53, Range 5, west of the 5th Meridian.

1.3 Landowners

The proposed Pit expansion is located on lands owned by Kim and Barbara Bamber. Current land title and lease agreement is included in Appendix D.

1.4 Municipal land Use Zoning

The current project property is located within Parkland County. The 'Parkland County Land Use District Map' designates the project property "Agricultural General District", with the land immediately surrounding, also designated the same. The north boarder of the NE-26 quarter section is the division between Parkland County and Lac St. Anne County.

2.0 EXISTING CONDITIONS

2.1 Topography

The site is dominated by undifferentiated coarse textured (sand, loamy sand, sandy loam material over moderately fine textured till. Typical to this type of surface lithology; the project is hummocky with a low to medium relief landforms and gentle (3-6%) to moderate (6-15%) slopes (ASIC 2001).

2.2 Hydrogeology

Initially, saturated layers were intercepted during testing activities, approximately 6 m below the ground surface. During the first few years of operations in the Northeast of 26, no groundwater has been encountered and has not influenced the excavation methods for the aggregate material.

Three groundwater wells are located in the NE 35, assumed to be servicing the acreages there. The two most recently drilled are registered to a Carrie (GIC Well ID: 460405) and a Glesner (GIC Well ID: 1640390). The Glesner well has its screen depth at 23.1 to 26.2 mbgl within shale layers identified on the lithology description. The Carrie well has its perforation depth at 51.8 to 57.9 mbgl also within shale layers identified on the lithology description. Copies of these Water Well Drilling Reports are located in Appendix D: Supporting Documentation. There are no mentions of sands or gravels in the lithology of the wells, but are likely above the 7 mbgl where the lithology starts.

2.3 Soils

The current pit is located in the Black-Dark Gray Soil Zone of central Alberta (ASSWG 1993). Soils information obtained from AGRASID indicated that the soil map unit (SMU) is COZCzbl2/H1l. These soils consist of Orthic Black Chernozems and Orthic Gray Luvisols developed on moderately fine textured till. Topsoil is averaged at 20 cm, subsoil is approximately 35 cm and overburden has an average depth of approximately 4 m. The total soil depth is approximately 4.55 m.

The northern 5 quarters had a topsoil survey completed in October of 2014 with 64 locations advanced. With the majority of the area undergone some improved pasture cultivation with a distinct Ap horizon (plow layer), typical soils were Eluviated Black Chernozems (with gleyed variations) and Dark Gray Luvisols (with gleyed variations). Two of the locations were a mineral gleysol with a surface peat of 35 cm, the peat material depth was included in the topsoil average. The topsoil for the expanded area ranged from 12-40 cm with some deep Ae layers, and averaged 24 cm. A slight increase from the original application area within the NE 26 quarter section. The subsoil

layer remained consistent with the previous application at 35 cm and average overburden depth increased to approximately 5.2 m

The previous application had stated and been approved as *"based on sloping requirements set by Alberta Environment Code of Practice for Pits, internal slopes will be reclaimed to be no steeper than 10:1 in the northern portion of the Pit and no steeper than 3:1 in the southern portion of the Pit."* Since the staging of the project area intends to reach the property boundaries the 3:1 slope is the default reclamation target. It is T&Ts intention to maximize the area of aerable land; to the landowner; upon expiration of the gravel resources. For a basis of minimum reclamation targets, the CLI map boundaries have been included in the figures and cross sections. T&T's reclamation goal of maximizing aerable land for the landowner will exceed the CLI requirements.

2.4 Surface Water

No major water bodies are located within the vicinity of the Pit. There are several dugouts located throughout the project area, the landowner utilizes them for watering cattle within the pasture quarters. Visible on Figure 2; the dugouts are located approximately central in the SW-35, south-central in the SE-35 and southwest in the SW-36 quarter sections.

2.5 Vegetation

The Pit is located within the Dry Mixedwood subregion, which is characterized by aspen white spruce forest (Strong and Leggatt 1992). More specifically vegetation at the Pit consists of pasture species and an aspen / white spruce /willow stands.

2.6 Wildlife

Due to previous and current land uses and minimal or fragmented cover on the Project Property, there are reduced opportunities for long term wildlife use or wildlife habitat.

According to the Canada Land Inventory, wildlife capabilities ratings for the Project property are as follows

Ungulates:

- Class 3, Subclass MG- land in this class comprises of 70% of the Project area. Lands in Class 3 impose slight limitations to ungulate (deer, moose, elk) production. The subset M modifier indicates poor soil moisture, either excessive or deficient. The subset modifier G refers to the landforms on site, they are lacking the proper distribution or interspersion for optimum ungulate habitat.
- Class 5, Subclass MN- land in this class comprises of 20% of the Project area. Lands in Class 5 have moderately severe limitations on the production of ungulates. The subset M modifier indicates poor soil moisture, either excessive or deficient. The subset modifier N indicates adverse soil which is described as having excessive salinity, lacking essential trace elements, and having characteristics or an abundance of toxic elements in the soil.

- Class 3, Subclass FM- land in this class comprises of 10% of the Project area. Lands in Class 3 impose slight limitations to ungulate production. The subset modifier F indicates low fertility, where the soils are lacking the necessary nutrients for optimum plant growth. . The subset M modifier indicates poor soil moisture, either excessive or deficient.

Waterfowl:

- Class 6, Subclass TF- land in this class comprises of 100% of the project area. Lands in Class 6 have severe limitations to the production. The subset modifier T indicates that the site has adverse topography and the subset modifier F indicates low fertility, that is poorly suited to use by waterfowl.

Ungulate populations may be evident in the wooded areas of the property and those to the east and south of the property. With the location of the wooded area to the immediate south, wildlife would in most situations, be in transit to the surrounding areas that provide greater coverage. Significant waterfowl populations are unlikely to occur on the project property.

2.7 Land Use

The Project is currently an active pit authorized under EPEA approval 248371-00-00. Current land use in the surrounding area is primarily agricultural. There is a third party gravel pit operator 1.2 km south of the project area within the southern portion of quarter section 23.

Table 1: Surrounding Land Use

Direction from Pit	Legal Land Location	Land Use
North	NE 35-053-05 W5M	Forested White zone (Lac Ste. Anne County) (4 – 40 acre acreage parcels)
	S1/2 02-054-05 W5M	Agriculture (Lac Ste. Anne County)
	SW 01-054-05 W5M	Forested White zone
East	NW 25-053-05 W5M	Forested White zone
	E1/2 36-053-05 W5M	Forested White zone (Lac Ste. Anne County)
South	SE 26-053-05 W5M	Agriculture
West	NW 26-053-05 W5M	Agriculture
	W1/2 34-053-05 W5M	Forested White zone (Lac Ste. Anne County)

John Thomas and 214131 Enterprises Ltd. delivered letters to local residences in the area; as notice for an open house at the Fallis Community Hall on April 29, 2015. This was to act as a precursor to submitting a development permit to the Lac St. Anne County and open lines of communication with adjacent and potentially affected area residences. Attached in Appendix D, are copies of the documents as well as a letter from a concerned landowner (one of the acreages in the NE 35 quarter section). Most of the concerns that the landowner expresses, are addressed as part of a typical COP application, while others, are general in nature.

3.0 PIT ACTIVITIES AND OPERATIONS

3.1 Proposed Pit Activities and Operations

Overburden depths within the expanded pit area are on average 5.8 meters in depth. The aggregate depth found below the overburden averages 7.7 meters in depth. The aggregate deposit to overburden ratio, based on the average depths, is 1.3 : 1. Within the 5 northern quarter sections and the areas quantified by boreholes, there is an estimated 11.7 million cubic meters of sand and gravel. To facilitate the ongoing Pit activities and operations, stripped overburden material is placed directly within depleted Pit areas. While some soil materials have been placed in stockpile, ongoing operations will be progressively replacing soil material(s) on areas that have been filled and contoured. These lands will be returned to the crop rotation by the landowner (as can be seen along the southern property boundary of Figure 2).

3.2 Pit Excavation and Development Setbacks

Development setbacks of the Project area will include a 3 m buffer along the property lines as required within the COP. As T&T is showing in the southern quarter section, and the average 4 meters of overburden there, is of sufficient volume of material to meet the reclaimed sloping requirements of the project area. i.e. no more than 3:1 on property lines and varying ratios based on local CLI ratings for internal slopes.

3.3 Pit Development Stages, Excavation Phases and Projected Schedule

As with most small gravel pit operations, T&T plans to operate on an intermittent schedule as the local market/contract demands. T&T projects that the project has a lifespan of 25-30 years. The pit development in the southern quarter (NE 26) has; and will continue to progresses, in stages of approximately 120 m by 120m (1.44 ha). This provides adequate room on each property line for the required 3 meter setback. The stages were developed in a sequence in which overburden can be directly placed for progressive reclamation and continued operations within the project area. The Pit opening will likely start in the SE 35 quarter section, following the progression from the ongoing operations and develop from there. The EPEA approval, as required by the COP, will be updated every 5 years. Alternatively, as development of the pit progresses and the conditions of the pit change, this would require an alteration from the planned sequence, and an additional update will be submitted to AEP.

3.4 Pit Infrastructure and Equipment

Aggregates that are excavated will be crushed and screened onsite. The primary processing and stockpile area is situated within the operating portion of the Bamber #2 project area. Stockpiles will remain active until all finished product is hauled offsite. The processing and stockpile area(s) will

transition through the stages as areas are excavated and reclaimed behind. Equipment and vehicles used at different phases of operation within the project area may include; mobile crushing and conveying systems and supporting infrastructure, gravel trucks, motor-scrapers, excavators, and bulldozers. Areas that are returned to agricultural uses may require soil preparation and seeding equipment (bulldozers, tractors, subsoilers and broadcast or seed-drills.

3.5 Pit Access

Access to the Pit is gained via Range Road 51 off of Highway 16 to the north. Range Road 551 has been upgraded and maintained in joint partnership in accordance with the development permit from Parkland County. There is an access road along the southern edge of the Property which allows haul trucks to reach the aggregate stock piles.

3.6 Noise Emissions and Controls

A range of appropriate noise control methods are deployed for the noise levels associated with Pit excavation operations. Noise mitigation measures proposed for use as part of Pit activities and operations:

- Stockpile sites used for screening;
- use manufacturers' noise-reducing accessories for equipment and vehicles when available;
- orient equipment to direct noise away from the receptor location;
- equipment locations at lower elevations below grade (in-Pit excavations);
- operator awareness when operating mobile equipment;
- limit duration of an activity or operation in a particular location; and
- keep equipment maintained for efficiency and reduction of noise.

3.7 Dust Emissions and Controls

Two primary fugitive dust sources onsite result from crushing and screening of aggregates along with equipment and vehicle travel within the Pit. Other dust sources may include new soil and overburden stockpiles, as well as Pit excavation and working areas. Dust emission mitigation measures are proposed for use as part of Pit activities and operations:

- Regular water spray use (or biodegradable suppressant) on unpaved access roads;
- Water spraying and sweeping of paved driveway and access;
- Stockpile sites used for screening;
- Equipment location at lower elevations below grade (in-Pit excavations);
- Operator awareness when operating mobile equipment and vehicles;
- Limit duration of an activity or operation in a particular location;

3.8 Erosion and Sediment Controls

Due to the nature of the pit excavation and the topography, any stormwater overland flow is contained within the pit and the disturbed area(s). The project remains a "dry pit" with slight accumulations following snow melt and precipitation events. This precipitation percolates into the pit bottom and away from ongoing operations within a short period. Any silt or sediment-laden surface runoff within the Pit excavation will infiltrate into the sand and gravel deposit. When and where appropriate, erosion and sediment controls, such as staked bales or silt fencing, will be deployed and maintained as required before starting any stripping or excavation operations.

3.9 Pit Access Controls

Signage and temporary fencing has been installed at the entrance to the Pit excavation and working areas. Signage and temporary fencing serve as both a hazard warning and safety advisory concerning unauthorized entries or trespass onto the project property.

4.0 RECLAMATION PLAN

4.1 Reclamation Objective

Conservation or Reclamation for Pit activities and operations, as indicated in the Activities plan, are developed to achieve equivalent land capability. That is, returning the disturbed land to a similar, but not necessarily the same, land use or uses after final reclamation work is complete. T&T proposes to reclaim this land for the agricultural uses (crop rotation of the landowner).

4.2 Conservation and Reclamation Activities

Through each successive development phase of the current Pit, topsoil and subsoil layers, estimated at 20 cm and 35 cm respectively, will be stripped and stockpiled in separate piles when preparing

designated Pit excavation areas. The topsoil for the expanded area ranged from 12-40 cm with some deep Ae layers, and averaged 24 cm. A slight increase in average depth from the original application within the NE 26 quarter section. The subsoil layer remained consistent with the previous application at 35 cm. Before sand and gravel excavations start, the overburden layer (on average, 5.8 m thick) is also excavated in lifts and direct placed in depleted Pit areas for pit contouring and reclamation purposes.

4.3 Progressive Conservation and Reclamation

Where practical after stage opening and operations expansion, T&T's first preference will be for direct placement, in proper sequence, for topsoil, subsoil and overburden materials in depleted areas of the Pit before storing these materials in stockpiles. This will be along the perimeter of the "Active Reclamation" polygon indicated within Appendix A. Sufficient separation distances, 1 meter or greater, will be provided between the stockpile sites to prevent potential mixing of soil(s) and overburden materials.

4.4 Reclamation Contours and Grading

Conceptual contours and grades for final reclamation work are indicated on the Activities plans presented in Appendix A. Base contours within the operations area will be graded to match the reclamation plan.

4.5 Revegetation

Revegetation will be staged with reclamation activities, see the area at the south and west extent of the project area, this has already been returned to the landowners crop rotation. Seed mixes and fertilizer application rates are to be determined at the time of reclamation in consultation with the landowner.

4.6 Weeds and Weed Control

Project properties will be monitored for noxious and restricted weeds as defined by Alberta's "Weed Control Act" and County bylaws. Herbicide may be applied to control weeds in accordance with the latest edition of the *Environmental Code of Practice for Pesticides (Alberta Environment 1997)* and the *Code of Practice for Pesticides.*

4.7 Monitoring and Maintenance

A monitoring program will be developed and implemented to assess the success of reclamation. It will be developed to ensure consistent, objective assessment until the desired plant community is established. Success will be measured compared to applicable reclamation criteria and the requirements set by regulatory approvals. Monitoring activities will assess the following:

- success of mitigative measures;
- landscape characteristics (e.g., subsidence, drainage); and
- erosion and sediment controls;

Post-reclamation monitoring will be conducted in late summer / fall to assess any revegetation work and will continue until vegetation has established. This will most likely occur two years following revegetation, depending upon the degree of disturbance and revegetation complexity.

5.0 SECURITY

Cost of reclamation for the Pit and Activities plan is determined using the following references:

- Alberta Roadbuilders and Heavy Construction Association (ARHCA), Equipment Rental Guide, 2015 Edition, providing current contractors rates; and
- The Caterpillar Performance Handbook (January 2014) Edition 44.

6.0 LIMITATIONS OF LIABILITY AND CLOSURE

This report has been prepared for the exclusive use of 214131 Enterprises Ltd. and authorized users for specific application to this Project. The work was conducted in accordance with the scope of work prepared for this project as well as verbal and written requests from 214131 Enterprises Ltd. and generally accepted reclamation work practices. No other warranty, expressed or implied, is made.

Millennium EMS Solutions Ltd. notes that conservation and reclamation activities outlined as part of the Activities plans have inherent limitations. No detailed site assessment on a given property (or properties) can whole eliminate uncertainty regarding the potential for recognized conditions in connection with a property (or properties).

214131 Enterprises Ltd. and AEP may rely on this report for specific application to this Project. This report and supplementary information was prepared with the intention of fulfilling AEP requirements for a completed update under the EPEA Code of Practice for Pits (2004).

Third parties may rely upon the information contained within this report to extent that such reliance is expressly within the project objectives and scope of work as presented herein, and only if such third parties first return an executed copy of the Millennium Third Party Reliance Agreement (Appendix E) and agree to be bound by the terms and conditions of the Millennium Third Party Reliance Agreement.

Please contact the undersigned at 780-391-2525, with any questions or review comments.

Yours truly,

Millennium EMS Solutions Ltd.

Prepared by:

Grant Woynarowich
Environmental Consultant

7.0 REFERENCES

Abacus Datagraphics. Accessed in April 2015. http:// http://www.abacusdatagraphics.com/abadata.asp

Alberta Environment. 1997. Environmental Code of Practice for Pesticides Alberta Environment. Queens Printer. Edmonton, Alberta. 20 pp.

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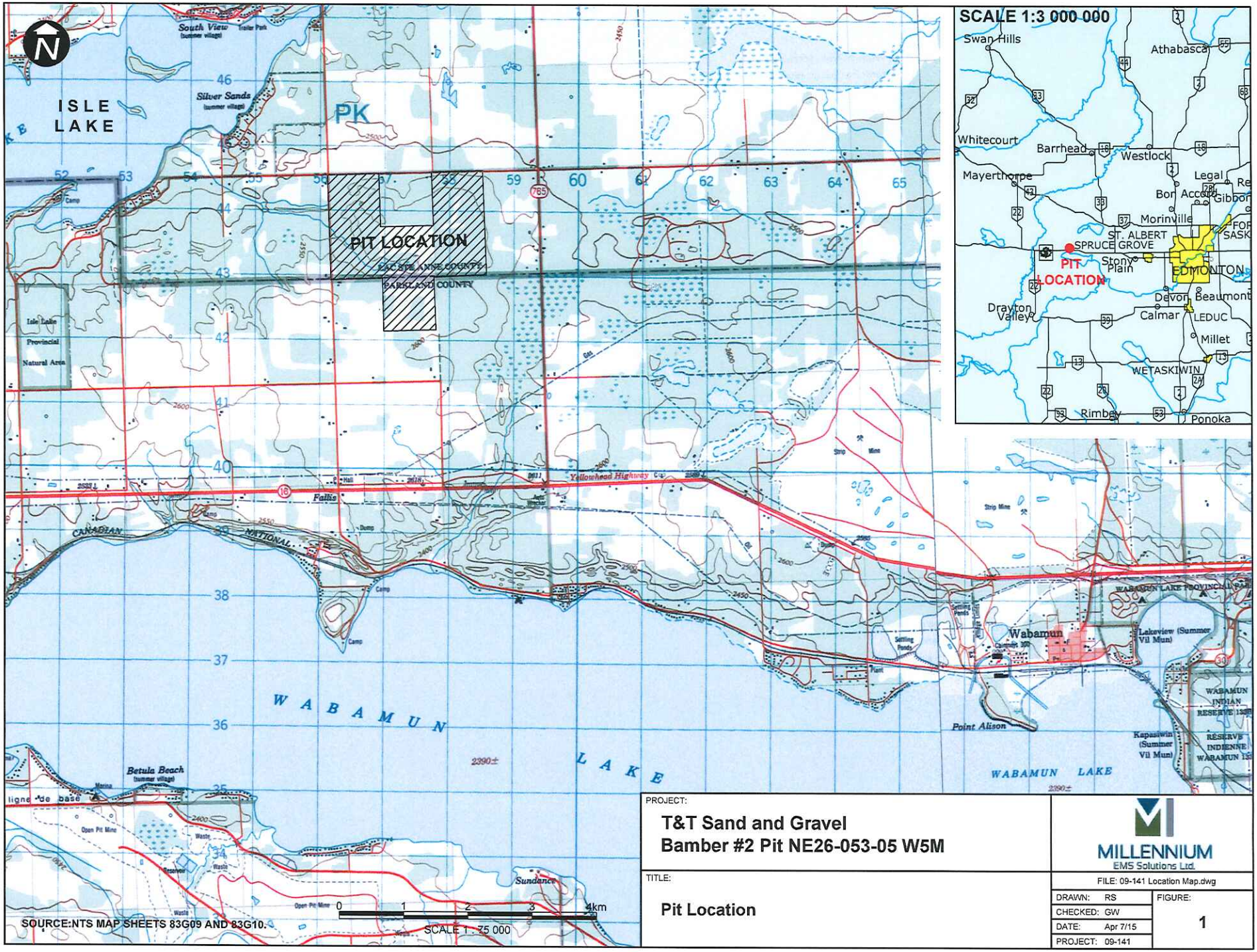
Hamilton, W.G., Price, M.C. and Langenberg, C.W. (compilers), 1999; Geologic Map of Alberta, Alberta Geologic Survey, Alberta Energy and Utilities Board, Map Number 236, scale 1:1,000,000.

Strong, W.L., and K.R. Leggat. 1992. Ecoregions of Alberta. Alberta Forestry, Lands, and Wildlife, Land Information Division, Resource Information Branch, Edmonton, AB.

APPENDIX A: FIGURES



PROJECT:

T&T Sand and Gravel
Bamber #2 Pit NE26-053-05 W5M

TITLE:

Pit Location

MILLENNIUM
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FILE: 09-141 Location Map.dwg

DRAWN: RS	FIGURE: 1
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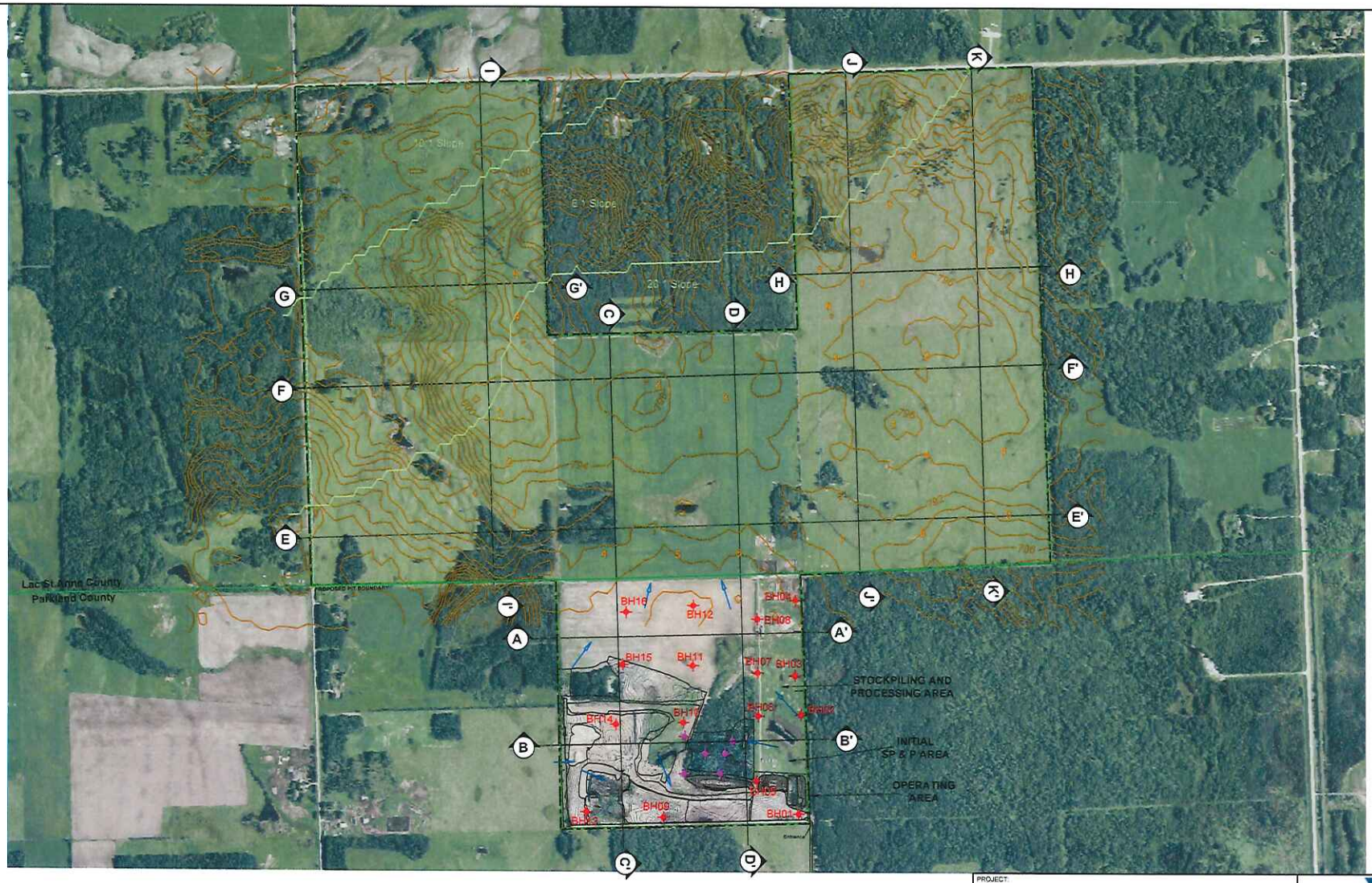
DATE: Apr 7/15	
PROJECT: 09-141	



Legend

- Borehole Location
- Proposed Pit Boundary (393.95ha)
- 3m Lease Buffer
- Cross Section Alignment
- Contour (2m Interval)
- CLI Classification Boundary

0 125 250 500m

Scale 1 : 12 500

NOTES:
1. Air photo from Abadatacus Datagraphics Ltd. dated May 21, 2013 - Sep.22, 2013.

PROJECT:
T&T Sand and Gravel
Bamber #2 Pit NE26-053-05 W5M

MILLENNIUM
EMS Solutions Ltd.

TITLE:
Existing Conditions

FILE: 09-141 Bamber 2 2015 Expansion.dwg

DRAWN: RS	FIGURE:
CHECKED: GW	2
DATE: Jul 10/15	
PROJECT: 09-00141	

Legend

- Borehole Location
- Proposed Pit Boundary (393.95ha)
- 3m Lease Buffer
- Cross Section Alignment
- Contour (2m Interval)
- CLI Classification Boundary
- Stages of Development

0 125 250 500m

Scale 1 : 12 500

NOTES:
1. Air photo from Abadatacus Datagraphics Ltd. dated May 21, 2013 - Sep.22, 2013.

PROJECT:
T&T Sand and Gravel
Bamber #2 Pit NE26-053-05 W5M

TITLE:
Operations and Mine Plan

MILLENNIUM EMS Solutions Ltd.

FILE: 09-141 Bamber 2 2015 Expansion.dwg

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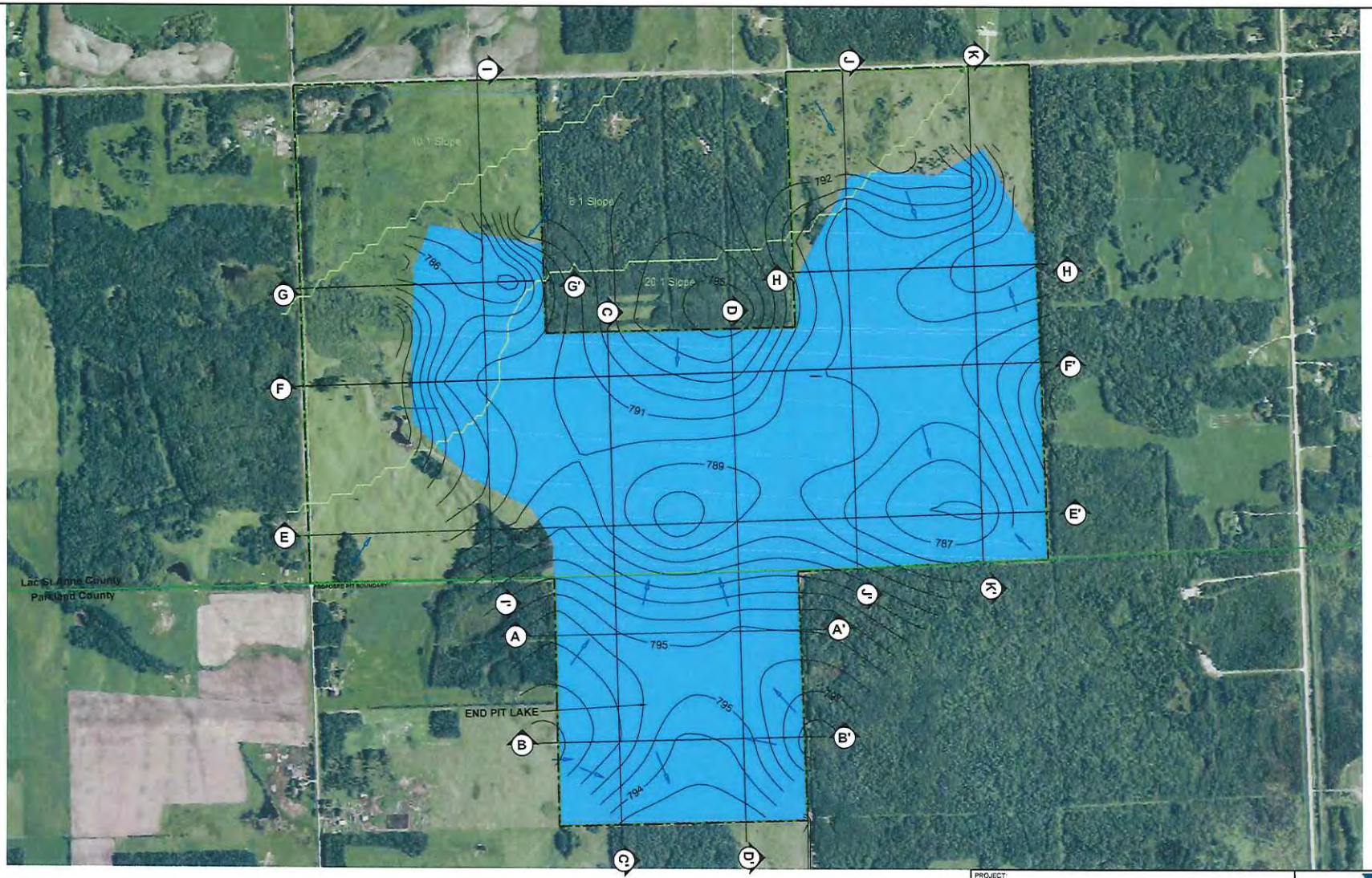
PROJECT: 09-00141	



Legend

- Borehole Location
- Proposed Pit Boundary (393.95ha)
- 3m Lease Buffer
- Cross Section Alignment
- Contour (2m Interval)
- CLI Classification Boundary
- Drainage Direction

0 125 250 500m

Scale 1 : 12 500

NOTES:
1. Air photo from Abadatacus Datagraphics Ltd. dated May 21, 2013 - Sep.22, 2013.
2. Contours estimated based on Reclaimed conditions cross section data, created in Global Surfer Software.

PROJECT:
T&T Sand and Gravel
Bamber #2 Pit NE26-053-05 W5M

TITLE:
Reclaimed Conditions

MILLENNIUM EMS Solutions Ltd.

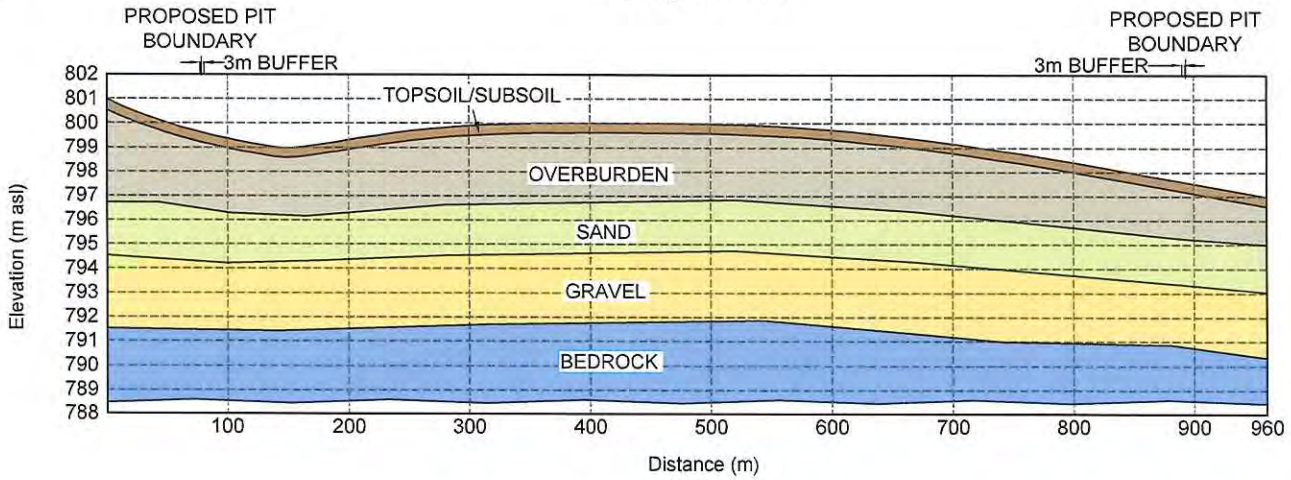
FILE: 09-141 Bamber 2 2015 Expansion.dwg

DRAWN: RS	FIGURE: 4
CHECKED: GW	
DATE: Jul 10/15	
PROJECT: 09-00141	

A
WEST

Existing Conditions

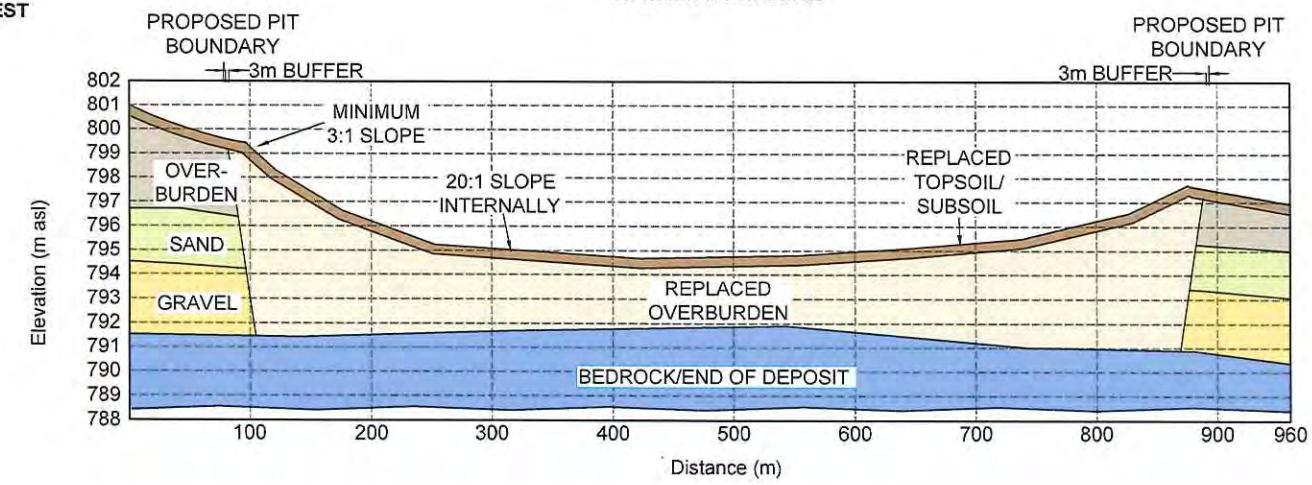
A'
EAST



A
WEST

Reclaimed Conditions

A'
EAST



0 40 80 200m
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20x Vertical Exaggeration

PROJECT:
T&T Sand and Gravel
Bamber #2 Pit NE26-053-05 W5M

MILLENNIUM
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TITLE:
Cross-Section A-A'

FILE: 09-141 Bamber 2_2014.DWG

DRAWN: RS	FIGURE:
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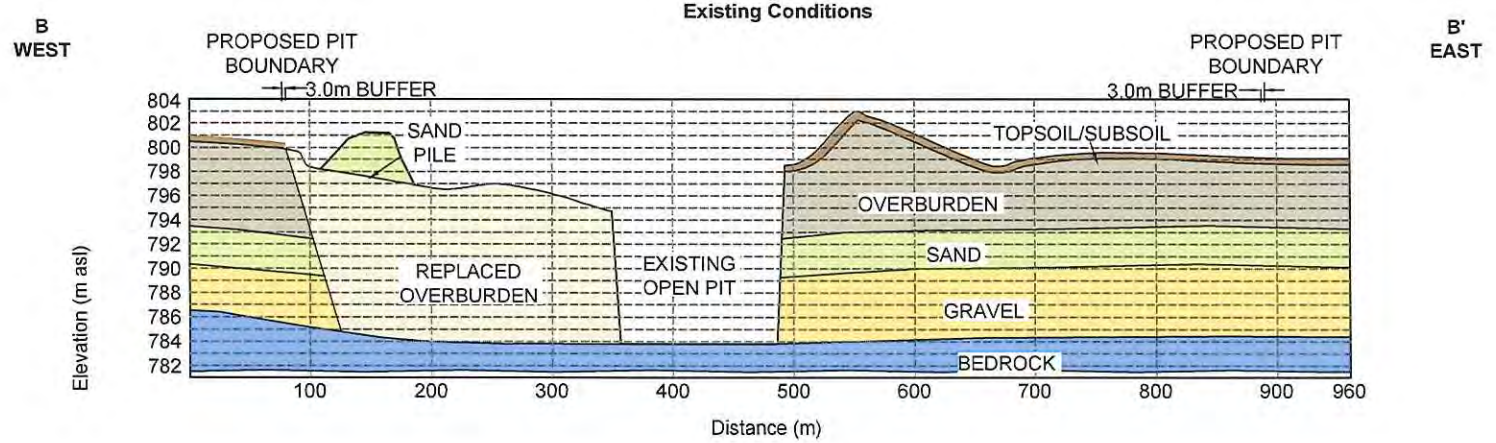
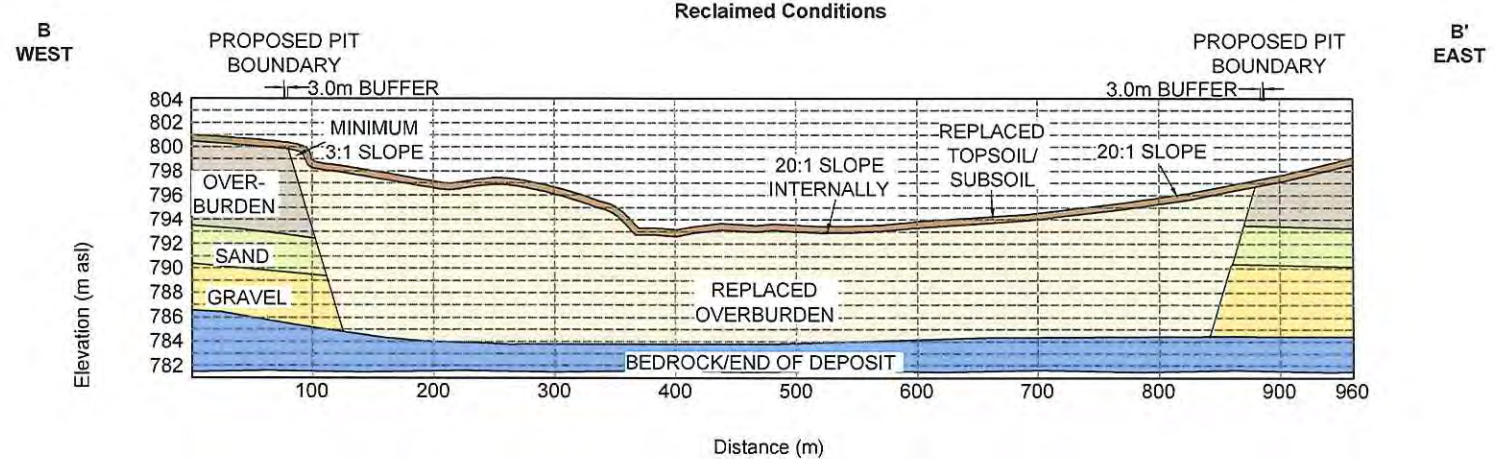
DATE: Jul 16/15	
PROJECT: 09-00141	

Existing Conditions



Reclaimed Conditions



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Scale 1 : 6 000

10x Vertical Exaggeration

PROJECT:

T&T Sand and Gravel
Bamber #2 Pit NE26-053-05 W5M

MILLENNIUM EMS Solutions Ltd.

TITLE:

Cross-Section B-B'

FILE: 09-141 Bamber 2_2014.DWG

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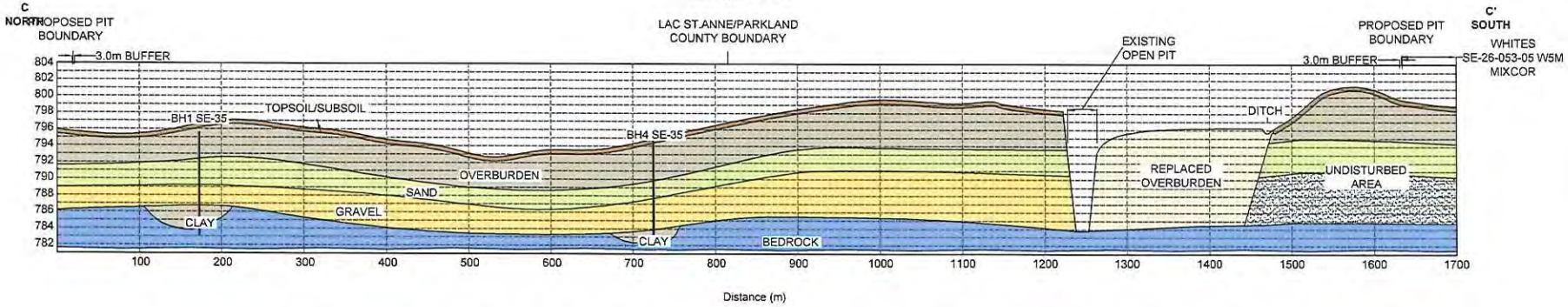
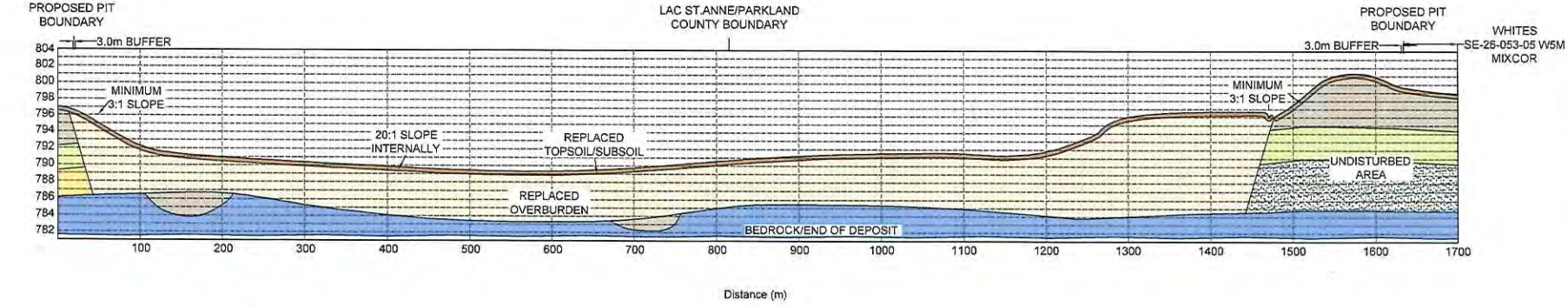
DATE: Jul 16/15	
PROJECT: 09-00141	

Existing Conditions



Reclaimed Conditions



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Scale 1 : 5 000

10x Vertical Exaggeration

PROJECT:
T&T Sand and Gravel
Bamber #2 Pit NE26-053-05 W5M

MILLENNIUM EMS Solutions Ltd.

TITLE:
Cross-Section CC'

FILE: 09-141 Bamber 2_2014.DWG

DRAWN: RS

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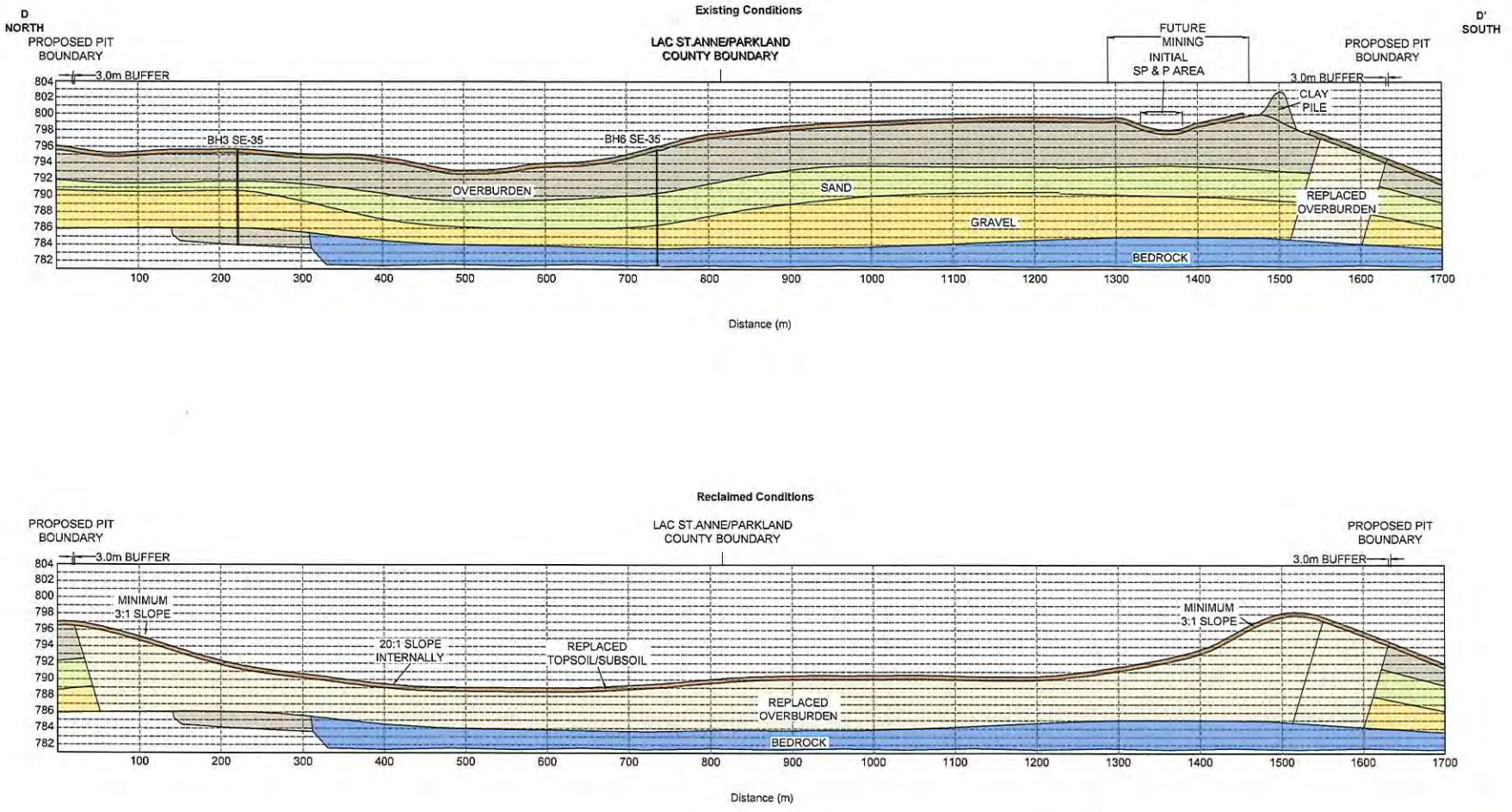
DATE: Jul 10/15

PROJECT: 09-00141

FIGURE: 7



PROJECT:
T&T Sand and Gravel
Bamber #2 Pit NE26-053-05 W5M

TITLE:
Cross-Section DD'

MILLENNIUM EMS Solutions Ltd.

FILE: 09-141 Bamber 2_2014.DWG

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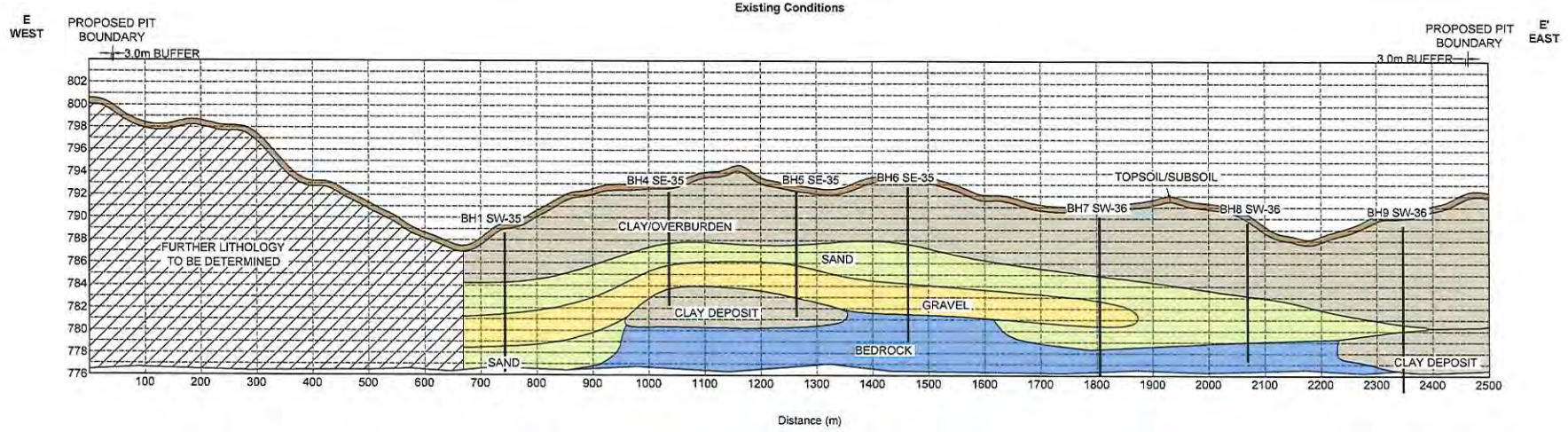
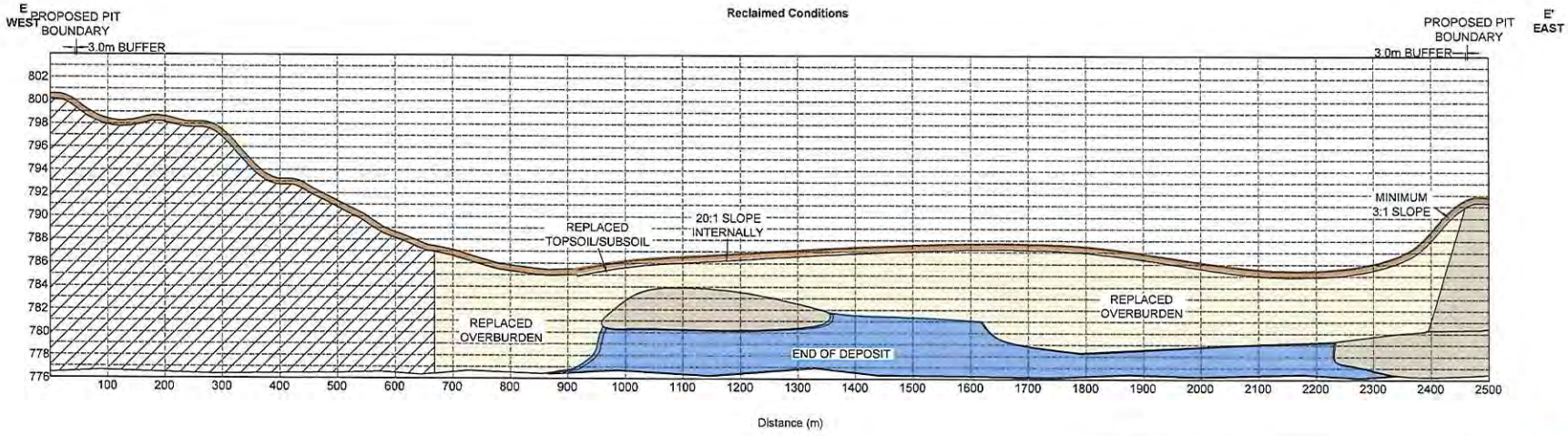
DATE: Jul 10/15	
PROJECT: 09-00141	

Existing Conditions



Reclaimed Conditions



0 50 100 200 300m

Scale 1 : 7 500

20x Vertical Exaggeration

PROJECT:

T&T Sand and Gravel
Bamber #2 Pit NE26-053-05 W5M

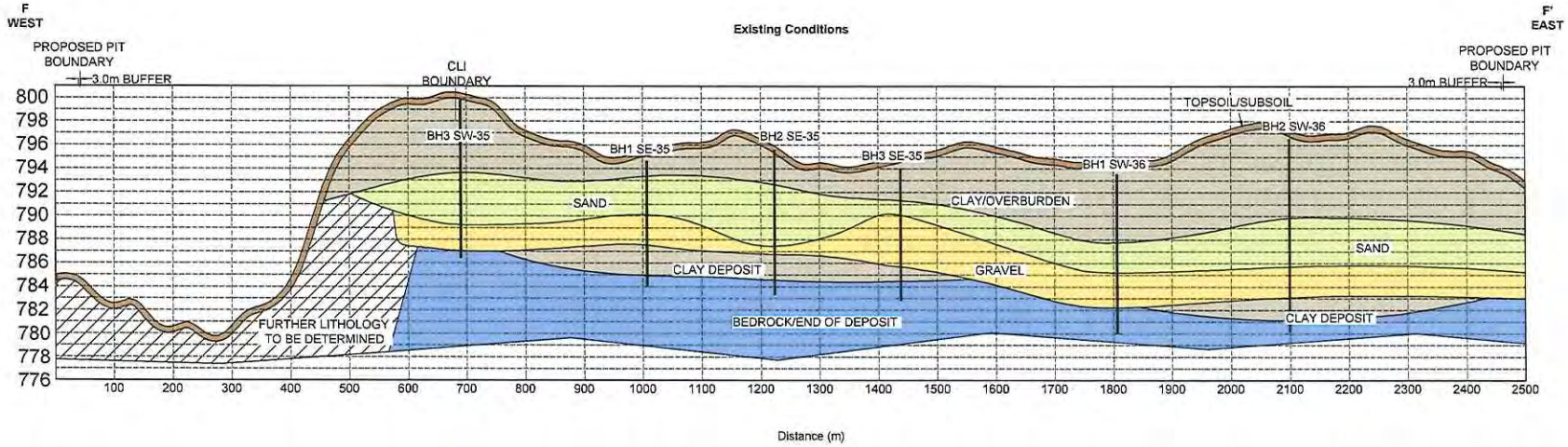
TITLE:

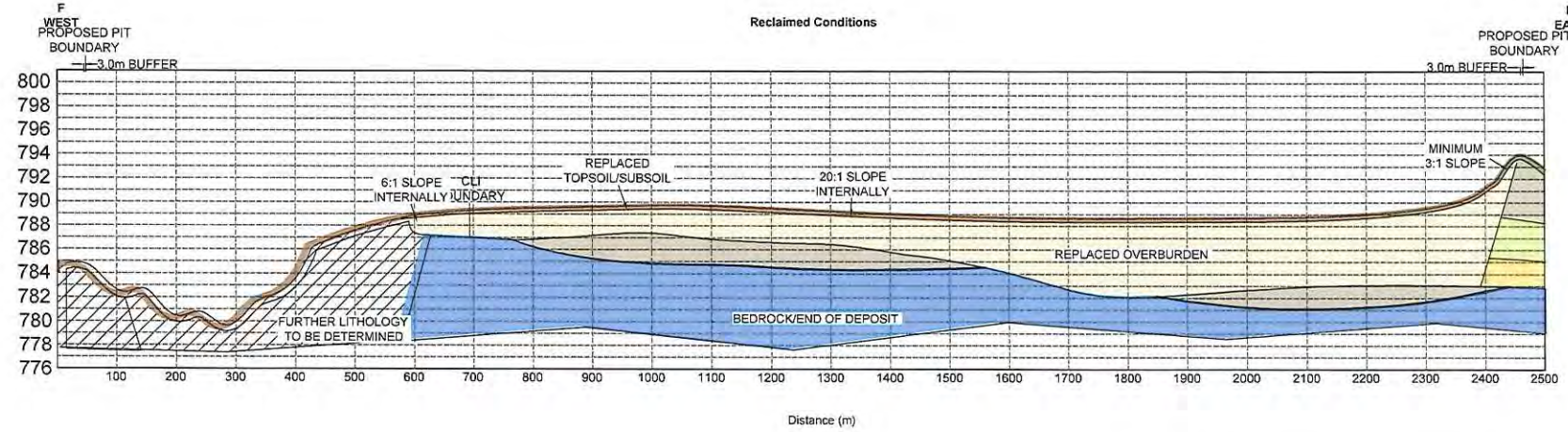
Cross-Section EE'

MILLENNIUM EMS Solutions Ltd.

FILE: 09-141 Bamber 2_2014.DWG

DRAWN: RS	FIGURE:
CHECKED: GW	9
DATE: Jul 10/15	
PROJECT: 09-30141	





0 50 100 200 300m

Scale 1 : 7 500

20x Vertical Exaggeration

PROJECT:

T&T Sand and Gravel
Bamber #2 Pit NE26-053-05 W5M

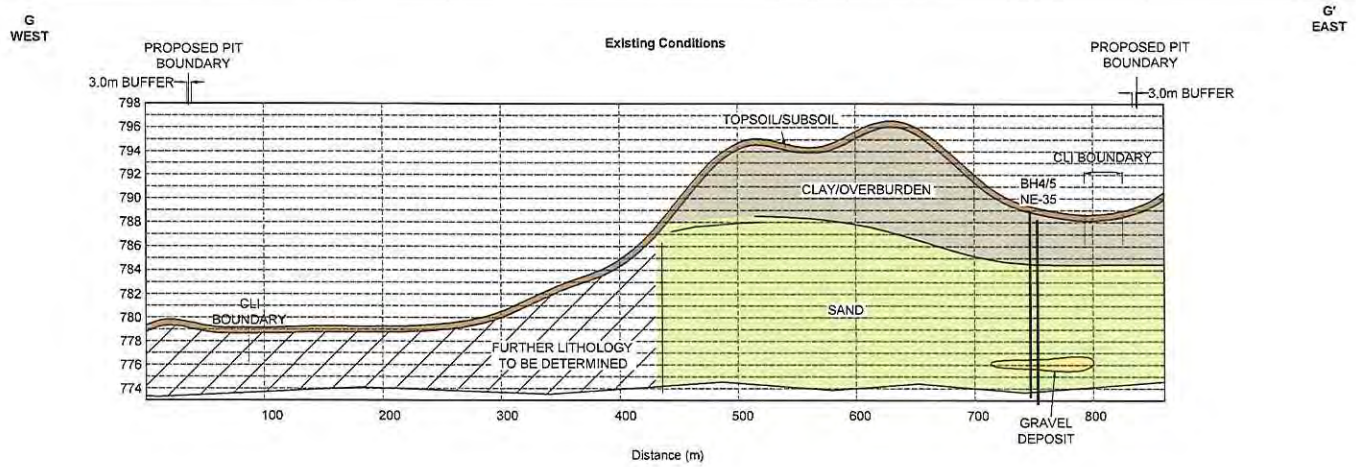
MILLENNIUM EMS Solutions Ltd.

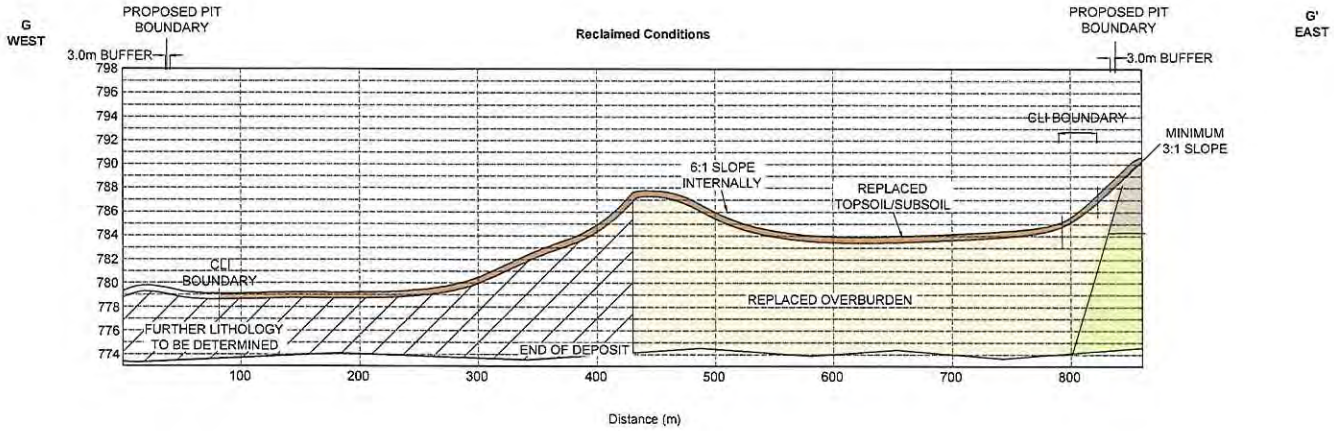
TITLE:

Cross-Section FF'

FILE: 09-141 Bamber 2_2014.DWG

DRAWN: RS	FIGURE:
CHECKED: GW	10
DATE: Jul 10/15	
PROJECT: 09-00141	





0 40 80 160m

Scale 1 : 4 000

10x Vertical Exaggeration

PROJECT:

T&T Sand and Gravel
Bamber #2 Pit NE26-053-05 W5M

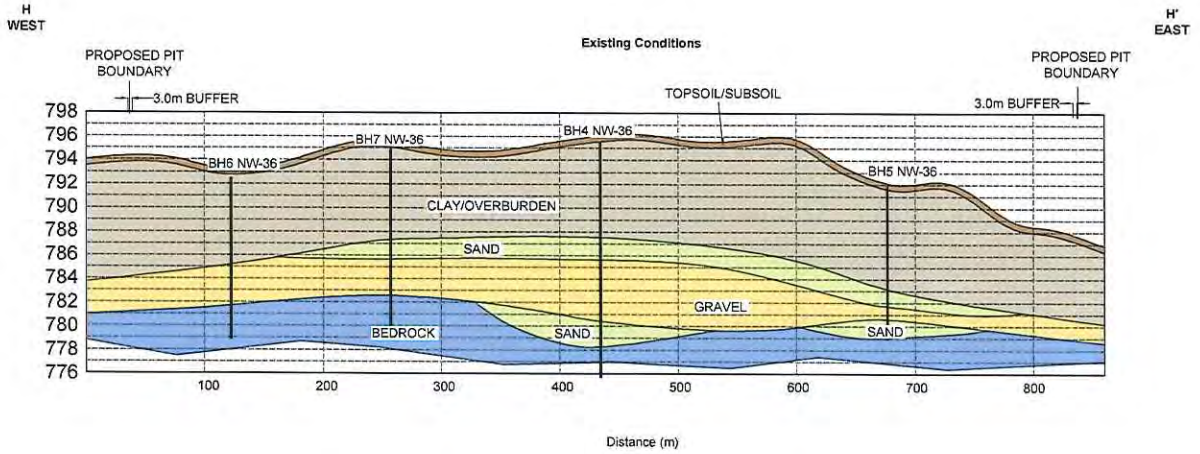
TITLE:

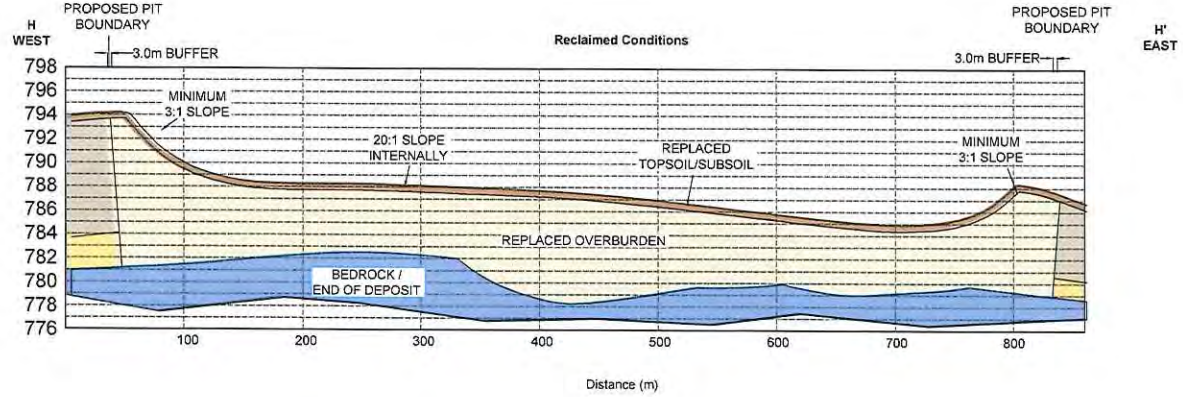
Cross-Section GG'

MILLENNIUM EMS Solutions Ltd.

FILE: 09-141 Bamber 2_2014.DWG

DRAWN: RS	FIGURE:
CHECKED: GW	11
DATE: Jul 10/15	
PROJECT: 09-00141	





0 40 80 160m

Scale 1 : 4 000

10x Vertical Exaggeration

PROJECT:
T&T Sand and Gravel
Bamber #2 Pit NE26-053-05 W5M

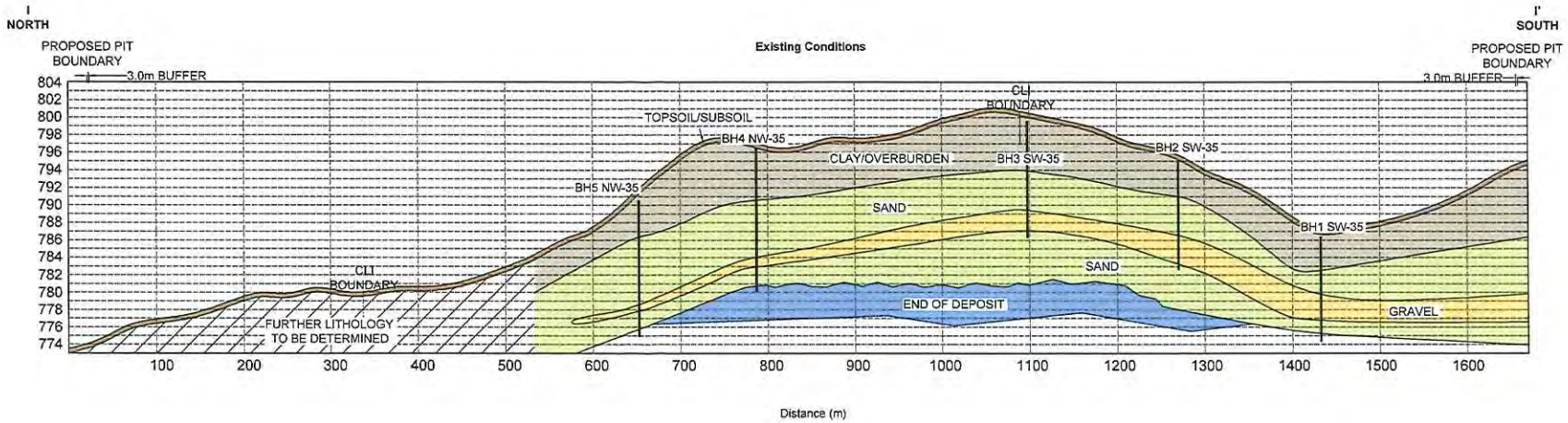
TITLE:
Cross-Section HH'

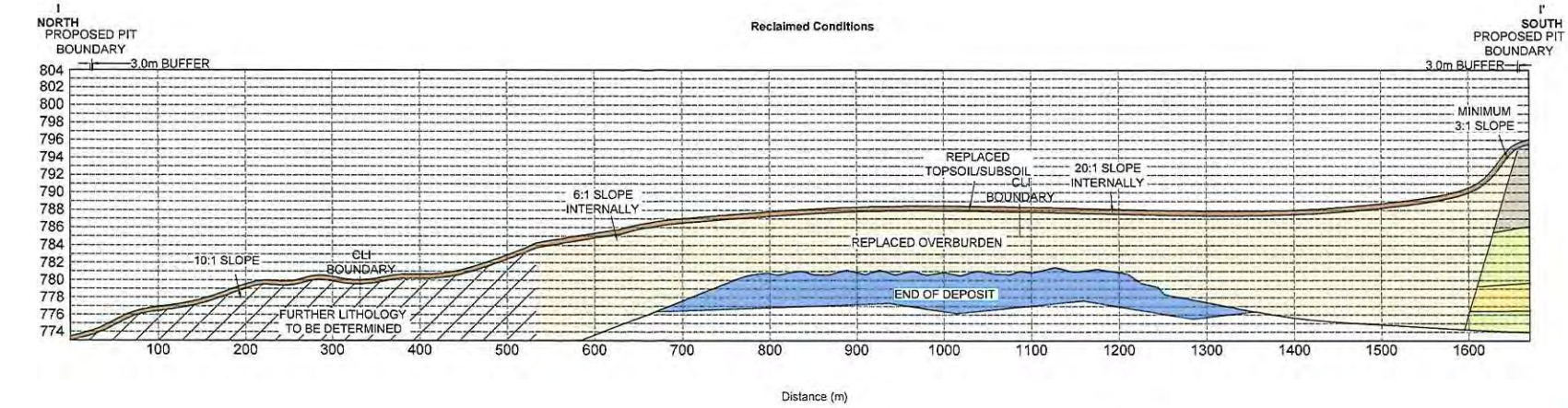
MILLENNIUM EMS Solutions Ltd.

FILE: 09-141 Bamber 2_2014.DWG

DRAWN:	RS
CHECKED:	GW
DATE:	Jul 15/15
PROJECT:	09-00141

FIGURE: 12





0 50 100 200m

Scale 1 : 5 000

10x Vertical Exaggeration

PROJECT:
T&T Sand and Gravel
Bamber #2 Pit NE26-053-05 W5M

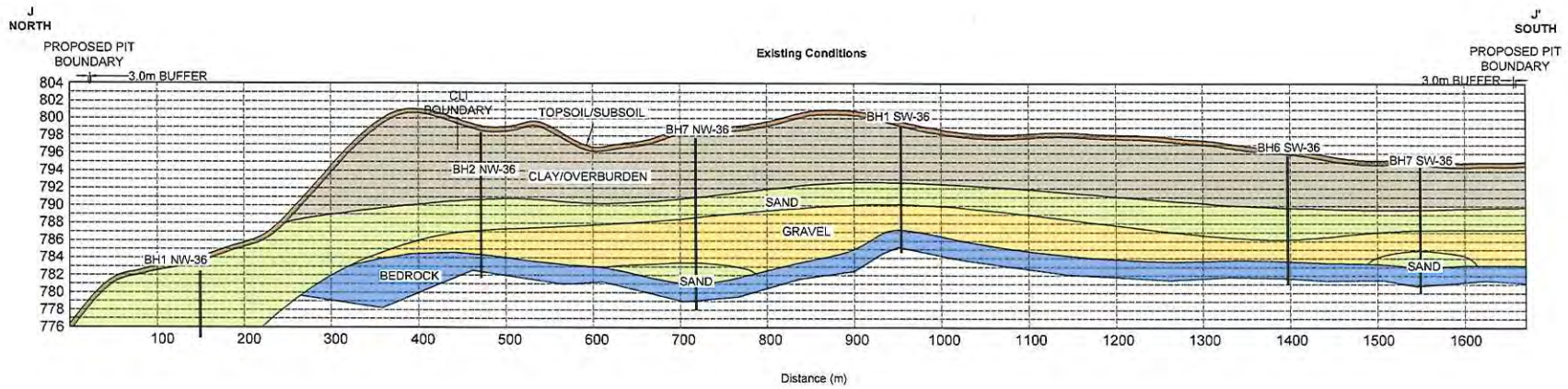
MILLENNIUM EMS Solutions Ltd.

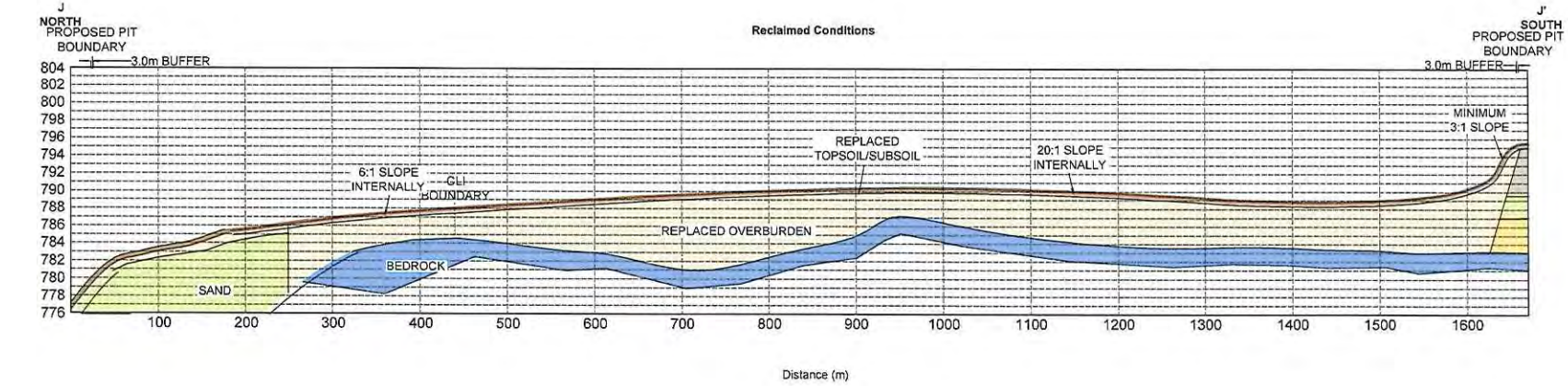
TITLE:
Cross-Section II'

FILE: 09-141 Bamber 2_2014.DWG

DRAWN:	RS
CHECKED:	GW
DATE:	Jul 10/15
PROJECT:	09-00141

FIGURE: 13





0 50 100 200m

Scale 1 : 5 000

10x Vertical Exaggeration

PROJECT:
T&T Sand and Gravel
Bamber #2 Pit NE26-053-05 W5M

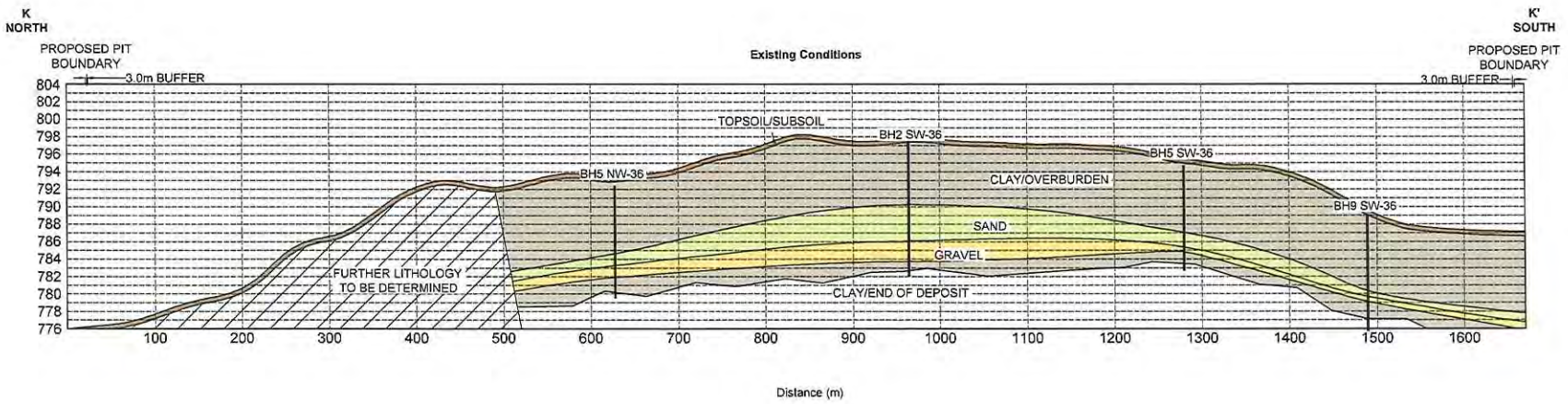
TITLE:
Cross-Section JJ'

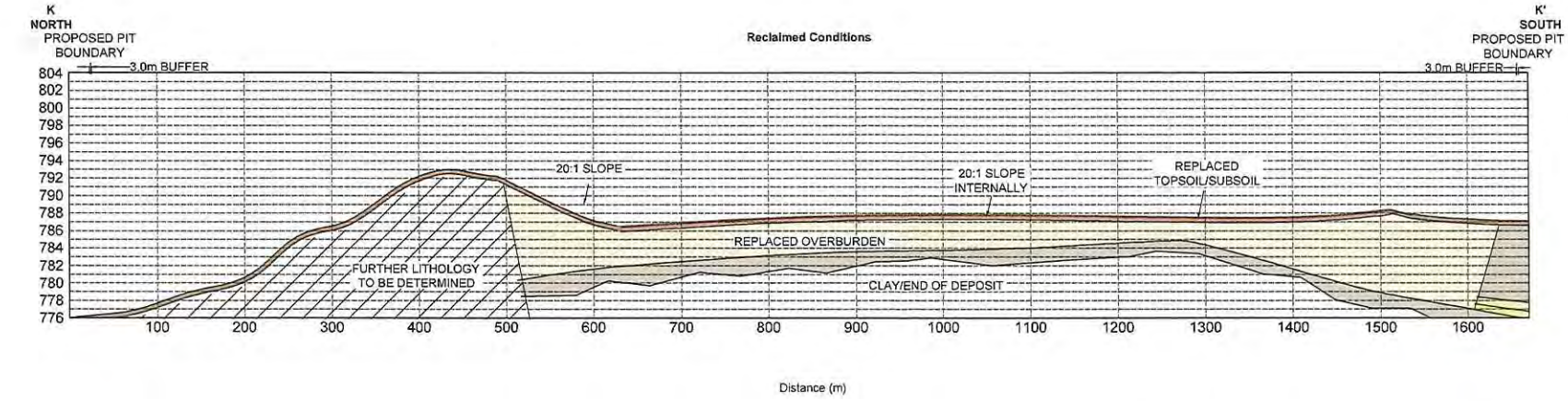
MILLENNIUM EMS Solutions Ltd.

FILE: 09-141 Bamber 2_2014.DWG

DRAWN:	RS
CHECKED:	GW
DATE:	Jul 16/15
PROJECT:	09-00141

FIGURE: 14





0 50 100 200m

Scale 1 : 5 000

10x Vertical Exaggeration

PROJECT:

T&T Sand and Gravel
Bamber #2 Pit NE26-053-05 W5M

MILLENNIUM EMS Solutions Ltd.

TITLE:

Cross-Section KK'

FILE: 09-141 Bamber 2_2014.DWG

DRAWN: RS	FIGURE:
CHECKED: DW	15
DATE: Jul 16/15	
PROJECT: 09-00141	

APPENDIX B: CODE OF PRACTICE FOR PITS; SCHEDULE 1, 2 AND 3

Code of Practice for Pits

Registration Application (Schedule 1)

Date: 24 July 2015

Previous Environmental Protection and Enhancement Act Approval Number: 248371-00-00

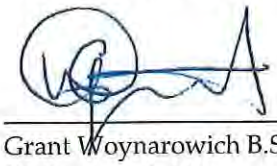
Water Act authorization required? ☐ Yes ☒ No

If Yes, ☐ application submitted or current *Water Act* Authorization Number: N/A

Name of Applicant (company or person in whose name the pit will be registered):
214131 Enterprises Ltd (operating as T&T Sand and Gravel)
Address:
Phone: Facsimile:
e-mail:

Name of Person Submitting Application: Grant Woynarowich
Company Name: Millennium EMS Solutions Ltd.
Job Title: Environmental Consultant
Address
Phone Facsimile:
e-mail:

Signature and title of person who prepared Registration Application:



Grant Woynarowich B.Sc.
Environmental Consultant

Name of Primary Contact for Pit: Mr. John Thomas
Job Title: President
Address:
Phone Facsimile:
e-mail: debjo@telusplanet.net

Pit Location Municipal Address or LSD-Sec-Twp-Rge-Mer	Registered Owners Name, Address and Phone Number	Occupants Name, Address and Phone Number
NE 26-53-05 W5M NW & S1/2 35-53-05 W5M NW &SW 36-053-05 W5M	Kim and Barbara Bamber	N/A

Activities Plan (Schedule 2, Part 1)

Aggregate Type (check off all that apply): ☒ Gravel ☒ Sand ☐ Clay ☐ Marl

Current Size of Pit: 18.74 ha (Operations 4.17ha, Active pit 4.29ha, Active reclamation 7.06ha and Reclaimed and seeded 3.22ha)

Average Thickness (indicate metres or centimetres for each one):
Topsoil: 24 cm Subsoil: 35 cm
Overburden: 5.2 m Aggregate: 7.1 m
Minimum depth: 7.3 m Maximum depth: 22.1 m Excavation Depth (avg.): 13.5 m

Topsoil Texture (check all that apply):
☐ organic soil ☒ mineral soil ☒ clay loam ☒ silty loam ☐ sand ☒ sandy loam
☐ loam ☐ clay ☐ silt ☐ other:

Description of techniques to prevent wind and water erosion, and to limit the movement of dust from the pit:

A variety of techniques and construction practices will be implemented throughout the construction and operation of the pit to prevent erosion and dust, these techniques may include:

- Suspension of soil handling activities during adverse weather conditions (windy or rain) to prevent soil loss and degradation;
- Topsoil and overburden stockpiles placed on stable ground, away from pit faces;
- Stockpiles are vegetated to prevent erosion;
- In pit roads will be graded, hard-surfaced and watered as necessary to prevent dust.

Participation in local or regional air monitoring initiative:

Not applicable as potential air impacts should be mitigated using the procedures outlined above.

Inactive pit conservation and reclamation techniques: (see also Sections 3.6, 3.7 and 3.8):

When the pit is left inactive, the following techniques and procedures will be implemented:

- Stockpiles will be placed in a stable location and seeded to protect against erosion and weed invasion;
- The Pit will be monitored and maintained to control weeds;
- Active pit faces will be sloped to a gradient no steeper than 2:1 to prevent slumping and create safer pit conditions;
- Positive drainage, as outlined above, will be maintained;
- Debris and garbage will be removed from the Pit;
- Appropriate signage will be installed throughout the Site to create safer pit conditions;
- The Pit will be monitored to ensure these conditions are met.

☒ Scale drawings and cross-sections of existing pit conditions and planned sequence of operation attached (see Appendix A).

Activities Plan (Part 2)

Maximum planned size of Pit:

NE 26 – Parkland County: 64 ha

NW & S ½ 35, NW & SW 36 – County of Lac St. Anne: 200.75 ha

Total: 264.75 ha.

Development Permit area for County of Lac St. Anne: 320 ha

Depth to groundwater (metres) in test holes (indicate each depth if multiple holes):

Saturated layers were intercepted during testing activities at approximately 6 m below the ground surface. During the first few years of operations, no groundwater has been encountered and has not influenced the excavation of the aggregate material. The project remains a "dry pit" with slight accumulations in the pit bottom following snow melt and precipitation events only.

Planned activities at the pit (check off all that apply): (see Sections 3.0)

☐ wet pit excavation ☐ concrete production ☐ mixing salt and aggregate
☐ mixing asphalt with aggregate ☐ spraying truck boxes ☐ aggregate washing
☐ use of alternative materials for reclamation

Mitigation measures for any of the above activities: (see Sections 3.0)

Erosion and sediment control measures around open excavations, no maintenance of equipment onsite except for emergency.

Proposed land uses for reclaimed pit (check all appropriate boxes):

☒ cultivation 100%	☐ hayland ____%	☒ pasture ____%
☐ native range ____%	☐ grassland ____%	☐ forest ____%
☐ wildlife habitat ____%	☐ waterbody ____%	☐ proposed subdivision ____%

☐ other (specify)

Pit water release (rationale for release, techniques and discharge points): N/A,

No diversion of water is required to facilitate pit excavations.

Average topsoil replacement depth (cm): 24cm (T&T is targeting total replacement, however, 19 cm - 80% of depth due to operational losses during handling may be acceptable)
Average subsoil replacement depth (cm): 35 cm (T&T is targeting total replacement, however, 28 cm - 80% of depth due to operational losses during handling)
Average overburden replacement depth (m): 5.2 m

☒ Scale drawings and cross-sections of reclaimed pit conditions attached (see Appendix A).

Description of pond in the reclaimed pit: N/A

Average depth of Pit excavations: 13.5 m

(includes the removal of topsoil, subsoil, overburden and aggregate materials)

Expected life of the deposit: 25-30 years, depending on contracts and local market demand

Equipment that will be used for removing and replacing topsoil and subsoil:

A motor scraper, excavator(s) and rock truck(s) will be used to remove and replace soil materials.

How have the property boundaries and buffers have been located and marked:

All property boundaries are marked by barbed wire fence; buffers and setback areas will be staked and identified in the field during Pit activities and operations. Open pit and operating areas will be fenced with signage.

The extraction setback:

As there is a sufficient volume of overburden to create post mining slopes, extraction setbacks will not be required.

Detailed description of the quality, depth and variation of groundwater encountered in test holes, reports, databases, etc.:

During the first few years of operations, no groundwater has been encountered and has not influenced the excavation of the aggregate material.

The CLI soil capability class for agriculture of the pre-disturbed landscape and the expected capability class in the reclaimed landscape – the relationship of slopes to soil capability classes are:

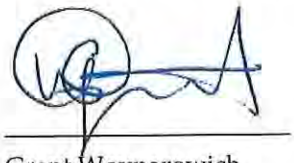
The land at this location is classified as 3, 4, 6 according to the Canadian Land Inventory. This rating indicates that 10% of the soil has limitations as to what crops can be grown on it, and may require special conservation practices, 70% of the soil has severe restrictions as to what is capable of growing on it and may require special conservation practices as well, while the remaining 20 % is classified as capable of producing perennial forage crops, and soil improvement is not possible. Given this classification, slopes will be re-established at 10:1 internally in the northern part of the Pit, and 3:1 internally along the southern part of the Pit. The expanded quarters to the north cover a large enough area that differing CLI's can be applied for reclamation, these areas have been identified on the cross sections and included as the basis for the Reclamation contours. As noted in the text of the report: *"It is T&Ts intention*

to maximize the area of aerable land; to the landowner; upon expiration of the gravel resources. T&T's reclamation goal of maximizing aerable land for the landowner will exceed the CLI requirements."

The seed mixtures or other forms of revegetation to be used:

Seed mixes and fertilizer use will be determined at the time of final reclamation after landowner consultation and will be consistent with the end land use, cultivation. Equipment required to complete the seeding will include a tractor and seed drill. Revegetation will be staged with reclamation activities to ensure areas are not left void of vegetation following reclamation.

Signature and title of person who developed Activities Plan:



Grant Woynarowich
Environmental Consultant

APPENDIX C: DETAILED COST OF RECLAMATION ESTIMATE

APPENDIX D: SUPPORTING DOCUMENTATION

THIS LEASE Made This 15th Day of December 2013

BETWEEN:

KIM GARY BAMBER and BARBARA JEAN BAMBER

-and-

(1577784 Alberta Ltd.)

(Hereafter described as "the Lessor")

-of the first part

-and-

214131 ENTERPRISES LTD.

(Hereafter described as "the Lessee")

-of the second part

LEASE AGREEMENT

RECITALS:

1. The Lessor is the Owner of those lands legally described as follows :

   MERIDIAN 5
   RANGE 5
   TOWNSHIP 54
   SECTION 36
   NORTH WEST QUARTER

   EXCEPTING THEREOUT ALL MINES AND MINERALS AREA:
   64.7 HECTARES (160 ACRES) MORE OR LESS

   The above described lands shall hereafter be described as "The Demised Premises."

2. The Lessee is in the business of crushing rock, producing and selling sand, gravel and rock products to its customers and has need of the raw product in order to provide the same. Usage of the term "Gravel" herein shall be taken to mean all sand and rock product.

3. The Lessor and the Lessee are desirous of entering into this Lease Agreement, the purpose of which to allow the Lessee to remove and process gravel from the Demised Premises.

Wherefore, the Parties enter into this Agreement and agree as follows, namely:

4. The Lessor hereby grants unto the Lessee a lease of the Demised Premises, such Lease Permits the removal of gravel from the Demised Premises. The Lessor grants unto the Lessee exclusive license and full liberty to search for, dig, get and remove gravel from the Demised Premises by excavating or other means of removal.

5. This grant and Lease by the Lessor allows the Lessee full liberty from time to time at all times during the continuance of this Lease and licence to enter upon the Demised Premises and right-of-way with or without vehicles for the purpose of exercising the License and liberty hereby granted.

6. The Lessor will sell and the Lessee will purchase all those deposits of gravel lying in and Under the Demised Premises, the price and quantity of which shall be set out below.

7. The Lease shall commence on the date this Agreement is signed by the Parties and shall continue for a period or term of Five (5) years therefrom.

8. The Lessor hereby grants unto the Lessee options to renew and extend this Lease for a period of Five (5) further years each and this option may be exercised at any time during the currency of the current five-year term of this Lease and may be exercised by giving the Lessor notice in writing at the address set out herein.

9. Whenever the option to renew or extend this Lease for an additional five-year term is exercised, the same terms and conditions as set out in this Lease shall be applicable except it is understood that the tonnage rate shall be renegotiated and fixed by the Parties at the conclusion of each 3 year period provided the Lessee has met all of the conditions of the Lease.

10. Payment for all gravel removed from the property shall be based on a value of $ er tonne for gravel (the specific product); per tonne for sand (the specific product). Tonnage shall be determined by weights over a platform scale provided by the Lessee.

11. Payment for all tonnage removed from the property, over the credited tonnage, within any calendar year shall be paid for at the rate of per tonne (gravel) and per tonne (sand) with payment for the past year being made prior to January 31st of the following year.

12. Failure of the Lessee to pay the annual Lease payment or payment for tonnage by January 31st of each year shall constitute a breach of the Lease and no further work or removal of gravel shall be carried out until payments have been made.

13. The Lessor shall have access for the purpose of inspection only to the gravel operation at all times and provided the Lessee is not in default, the Lessee shall be entitled to quiet possession and use of the Demised Premises at all times.

14. The Lessee shall have the right to terminate the Agreement at any time prior to the expiry date of the Agreement with One (1) year's notice in writing to the Lessor. Termination of the Lease Agreement does not release the Lessee from all required reclamation obligations.

15. The Lessee, upon completion or termination of the Lease, shall reclaim the property in accordance with Alberta Environment – Code of Practise for Pits. Reclamation shall include leaving the land in a farmable condition so as to be well drained with no pot holes or non-draining areas. The reclaimed land shall be seeded to an acceptable forage crop. The Lessor shall have the right to review and approve the Reclamation Plan prepared for the property.

16. The Lessee shall provide the Lessor with a copy of the daily summary of all truck weigh tickets for each day that gravel is removed from the property. Daily summaries shall be provided to the Lessor by the end of the following month.

17. The Lessee shall be responsible for the locating and any required locating of any utilities existing on the property and for the protection of the said utilities within the area of the gravel operation or affected by the gravel operation.

18. The Lessee shall be responsible for the placing of signs and providing the necessary security for the gravel pit area to ensure the protection of anyone entering the property against any hazard created by the gravel operation.

19. The Lessee shall provide the owner copies of all approvals, registrations, activity plans, security plans and estimates, all submitted reports, and an annual updated operating report for the pit operation.

20. There shall be no payment required by the Lessee until such time as the appropriate development permit is granted by the Lac Ste Anne County.

21. The addresses for notices to be sent to the Parties are as follows :

- For the Lessee:

  214131 Enterprises Ltd.

- For the Lessor:

  Kim & Barbara Bamber - and - 1577784 Alberta Ltd.

22. So far as is possible, the Lessee shall keep the Lessor fully and effectually indemnified against all actions, suits, causes of action, liabilities, claims, demands, costs, charges and expenses of every Kind whatsoever to which the Lessor may be subject or liable in respect of this grant and Lease hereby made or the exercise or purported exercise of the rights under this Agreement.

23. So far as is possible, the Lessor shall keep the Lessee fully and effectually indemnified against all actions, suits, causes of action, liabilities, claims, demands, costs, charges, and expenses of every kind whatsoever to which the Lessee may be subject or liable in respect of this grant and Lease hereby made as a consequence of any action or lack thereof on the part of the Lessor.

24. The Lessee shall consult with the Lessor regarding areas of pit to be developed.

25. The Lessee shall provide weed control for the pit areas only.

Therefore, The Parties have hereto fixed their names and seals effective on the date above described.

For the Lessor:

Witness :

KIM GARY BAMBER

Witness:

BARBARA JEAN BAMBER

For the Lessee:

JOHN THOMAS
President of **214131 ENTERPRISES LTD.**

THIS LEASE Made This 16th Day of DECEMBER 2013

BETWEEN:

KIM GARY BAMBER and BARBARA JEAN BAMBER

-and-

(1577784 Alberta Ltd.)

(Hereafter described as "the Lessor")

-of the first part

-and-

214131 ENTERPRISES LTD.

(Hereafter described as "the Lessee")

-of the second part

LEASE AGREEMENT

RECITALS:

1. The Lessor is the Owner of those lands legally described as follows :

   MERIDIAN 5
   RANGE 5
   TOWNSHIP 54
   SECTION 35
   SOUTH EAST QUARTER

   EXCEPTING THEREOUT ALL MINES AND MINERALS AREA:
   64.7 HECTARES (160 ACRES) MORE OR LESS

   The above described lands shall hereafter be described as "The Demised Premises."

2. The Lessee is in the business of crushing rock, producing and selling sand, gravel and rock products to its customers and has need of the raw product in order to provide the same. Usage of the term "Gravel" herein shall be taken to mean all sand and rock product.

3. The Lessor and the Lessee are desirous of entering into this Lease Agreement, the purpose of which to allow the Lessee to remove and process gravel from the Demised Premises.

Wherefore, the Parties enter into this Agreement and agree as follows, namely:

4. The Lessor hereby grants unto the Lessee a lease of the Demised Premises, such Lease Permits the removal of gravel from the Demised Premises. The Lessor grants unto the Lessee exclusive license and full liberty to search for, dig, get and remove gravel from the Demised Premises by excavating or other means of removal.

5. This grant and Lease by the Lessor allows the Lessee full liberty from time to time at all times during the continuance of this Lease and licence to enter upon the Demised Premises and right-of-way with or without vehicles for the purpose of exercising the License and liberty hereby granted.

6. The Lessor will sell and the Lessee will purchase all those deposits of gravel lying in and Under the Demised Premises, the price and quantity of which shall be set out below.

7. The Lease shall commence on the date this Agreement is signed by the Parties and shall continue for a period or term of Five (5) years therefrom.

8. The Lessor hereby grants unto the Lessee options to renew and extend this Lease for a period of Five (5) further years each and this option may be exercised at any time during the currency of the current five-year term of this Lease and may be exercised by giving the Lessor notice in writing at the address set out herein.

9. Whenever the option to renew or extend this Lease for an additional five-year term is exercised, the same terms and conditions as set out in this Lease shall be applicable except it is understood that the tonnage rate shall be renegotiated and fixed by the Parties at the conclusion of each 3 year period provided the Lessee has met all of the conditions of the Lease.

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12. Failure of the Lessee to pay the annual Lease payment or payment for tonnage by January 31st of each year shall constitute a breach of the Lease and no further work or removal of gravel shall be carried out until payments have been made.

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14. The Lessee shall have the right to terminate the Agreement at any time prior to the expiry date of the Agreement with One (1) year's notice in writing to the Lessor. Termination of the Lease Agreement does not release the Lessee from all required reclamation obligations.

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18. The Lessee shall be responsible for the placing of signs and providing the necessary security for the gravel pit area to ensure the protection of anyone entering the property against any hazard created by the gravel operation.

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20. There shall be no payment required by the Lessee until such time as the appropriate development permit is granted by the Lac Ste Anne County.

21. The addresses for notices to be sent to the Parties are as follows :

- For the Lessee:

  214131 Enterprises Ltd.

- For the Lessor:

  Kim & Barbara Bamber - and - 1577784 Alberta Ltd.

22. So far as is possible, the Lessee shall keep the Lessor fully and effectually indemnified against all actions, suits, causes of action, liabilities, claims, demands, costs, charges and expenses of every Kind whatsoever to which the Lessor may be subject or liable in respect of this grant and Lease hereby made or the exercise or purported exercise of the rights under this Agreement.

23. So far as is possible, the Lessor shall keep the Lessee fully and effectually indemnified against all actions, suits, causes of action, liabilities, claims, demands, costs, charges, and expenses of every kind whatsoever to which the Lessee may be subject or liable in respect of this grant and Lease hereby made as a consequence of any action or lack thereof on the part of the Lessor.

24. The Lessee shall consult with the Lessor regarding areas of pit to be developed.

25. The Lessee shall provide weed control for the pit areas only.

Therefore, The Parties have hereto fixed their names and seals effective on the date above described.

For the Lessor:

Witness:

KIM GARY BAMBER

Witness:

BARBARA JEAN BAMBER

For the Lessee:

JOHN THOMAS
President of **214131 ENTERPRISES LTD.**

THIS LEASE Made This 18th Day of December, 2013

BETWEEN:

KIM GARY BAMBER and BARBARA JEAN BAMBER
-and-
(1577784 Alberta Ltd.)
(Hereafter described as "the Lessor")

-of the first part

-and-

214131 ENTERPRISES LTD.
(Hereafter described as "the Lessee")

-of the second part

LEASE AGREEMENT

RECITALS:

1. The Lessor is the Owner of those lands legally described as follows :

   MERIDIAN 5
   RANGE 5
   TOWNSHIP 54
   SECTION 36
   SOUTH WEST QUARTER

   EXCEPTING THEREOUT ALL MINES AND MINERALS AREA:
   64.7 HECTARES (160 ACRES) MORE OR LESS

   The above described lands shall hereafter be described as "The Demised Premises."

2. The Lessee is in the business of crushing rock, producing and selling sand, gravel and rock products to its customers and has need of the raw product in order to provide the same. Usage of the term "Gravel" herein shall be taken to mean all sand and rock product.

3. The Lessor and the Lessee are desirous of entering into this Lease Agreement, the purpose of which to allow the Lessee to remove and process gravel from the Demised Premises.

Wherefore, the Parties enter into this Agreement and agree as follows, namely:

4. The Lessor hereby grants unto the Lessee a lease of the Demised Premises, such Lease Permits the removal of gravel from the Demised Premises. The Lessor grants unto the Lessee exclusive license and full liberty to search for, dig, get and remove gravel from the Demised Premises by excavating or other means of removal.

5. This grant and Lease by the Lessor allows the Lessee full liberty from time to time at all times during the continuance of this Lease and licence to enter upon the Demised Premises and right-of-way with or without vehicles for the purpose of exercising the License and liberty hereby granted.

6. The Lessor will sell and the Lessee will purchase all those deposits of gravel lying in and Under the Demised Premises, the price and quantity of which shall be set out below.

7. The Lease shall commence on the date this Agreement is signed by the Parties and shall continue for a period or term of Five (5) years therefrom.

8. The Lessor hereby grants unto the Lessee options to renew and extend this Lease for a period of Five (5) further years each and this option may be exercised at any time during the currency of the current five-year term of this Lease and may be exercised by giving the Lessor notice in writing at the address set out herein.

9. Whenever the option to renew or extend this Lease for an additional five-year term is exercised, the same terms and conditions as set out in this Lease shall be applicable except it is understood that the tonnage rate shall be renegotiated and fixed by the Parties at the conclusion of each 3 year period provided the Lessee has met all of the conditions of the Lease.

10. Payment for all gravel removed from the property shall be based on a value of $ er tonne for gravel (the specific product); per tonne for sand (the specific product). Tonnage shall be determined by weights over a platform scale provided by the Lessee.

11. Payment for all tonnage removed from the property, over the credited tonnage, within any calendar year shall be paid for at the rate of per tonne (gravel) and per tonne (sand) with payment for the past year being made prior to January 31st of the following year.

12. Failure of the Lessee to pay the annual Lease payment or payment for tonnage by January 31st of each year shall constitute a breach of the Lease and no further work or removal of gravel shall be carried out until payments have been made.

13. The Lessor shall have access for the purpose of inspection only to the gravel operation at all times and provided the Lessee is not in default, the Lessee shall be entitled to quiet possession and use of the Demised Premises at all times.

14. The Lessee shall have the right to terminate the Agreement at any time prior to the expiry date of the Agreement with One (1) year's notice in writing to the Lessor. Termination of the Lease Agreement does not release the Lessee from all required reclamation obligations.

15. The Lessee, upon completion or termination of the Lease, shall reclaim the property in accordance with Alberta Environment – Code of Practise for Pits. Reclamation shall include leaving the land in a farmable condition so as to be well drained with no pot holes or non-draining areas. The reclaimed land shall be seeded to an acceptable forage crop. The Lessor shall have the right to review and approve the Reclamation Plan prepared for the property.

16. The Lessee shall provide the Lessor with a copy of the daily summary of all truck weigh tickets for each day that gravel is removed from the property. Daily summaries shall be provided to the Lessor by the end of the following month.

17. The Lessee shall be responsible for the locating and any required locating of any utilities existing on the property and for the protection of the said utilities within the area of the gravel operation or affected by the gravel operation.

18. The Lessee shall be responsible for the placing of signs and providing the necessary security for the gravel pit area to ensure the protection of anyone entering the property against any hazard created by the gravel operation.

19. The Lessee shall provide the owner copies of all approvals, registrations, activity plans, security plans and estimates, all submitted reports, and an annual updated operating report for the pit operation.

20. There shall be no payment required by the Lessee until such time as the appropriate development permit is granted by the Lac Ste Anne County.

21. The addresses for notices to be sent to the Parties are as follows :

- For the Lessee:

  214131 Enterprises Ltd.

- For the Lessor:

  Kim & Barbara Bamber - and - 1577784 Alberta Ltd.

22. So far as is possible, the Lessee shall keep the Lessor fully and effectually indemnified against all actions, suits, causes of action, liabilities, claims, demands, costs, charges and expenses of every Kind whatsoever to which the Lessor may be subject or liable in respect of this grant and Lease hereby made or the exercise or purported exercise of the rights under this Agreement.

23. So far as is possible, the Lessor shall keep the Lessee fully and effectually indemnified against all actions, suits, causes of action, liabilities, claims, demands, costs, charges, and expenses of every kind whatsoever to which the Lessee may be subject or liable in respect of this grant and Lease hereby made as a consequence of any action or lack thereof on the part of the Lessor.

24. The Lessee shall consult with the Lessor regarding areas of pit to be developed.

25. The Lessee shall provide weed control for the pit areas only.

Therefore, The Parties have hereto fixed their names and seals effective on the date above described.

For the Lessor:

Witness

KIM GARY BAMBER

Witness:

BARBARA JEAN BAMBER

For the Lessee:

JOHN THOMAS
President of **214131 ENTERPRISES LTD.**

THIS LEASE Made This 18th Day of DECEMBER 2013

BETWEEN:

KIM GARY BAMBER and BARBARA JEAN BAMBER
-and-
(1577784 Alberta Ltd.)
(Hereafter described as "the Lessor")

-of the first part

-and-

214131 ENTERPRISES LTD.
(Hereafter described as "the Lessee")

-of the second port

LEASE AGREEMENT

RECITALS:

1. The Lessor is the Owner of those lands legally described as follows :

   MERIDIAN 5
   RANGE 5
   TOWNSHIP 54
   SECTION 35
   WEST HALF

   EXCEPTING THEREOUT ALL MINES AND MINERALS AREA:
   64.7 HECTARES (160 ACRES) MORE OR LESS

   The above described lands shall hereafter be described as "The Demised Premises."

2. The Lessee is in the business of crushing rock, producing and selling sand, gravel and rock products to its customers and has need of the raw product in order to provide the same. Usage of the term "Gravel" herein shall be taken to mean all sand and rock product.

3. The Lessor and the Lessee are desirous of entering into this Lease Agreement, the purpose of which to allow the Lessee to remove and process gravel from the Demised Premises.

Wherefore, the Parties enter into this Agreement and agree as follows, namely:

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5. This grant and Lease by the Lessor allows the Lessee full liberty from time to time at all times during the continuance of this Lease and licence to enter upon the Demised Premises and right-of-way with or without vehicles for the purpose of exercising the License and liberty hereby granted.

6. The Lessor will sell and the Lessee will purchase all those deposits of gravel lying in and Under the Demised Premises, the price and quantity of which shall be set out below.

7. The Lease shall commence on the date this Agreement is signed by the Parties and shall continue for a period or term of Five (5) years therefrom.

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14. The Lessee shall have the right to terminate the Agreement at any time prior to the expiry date of the Agreement with One (1) year's notice in writing to the Lessor. Termination of the Lease Agreement does not release the Lessee from all required reclamation obligations.

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16. The Lessee shall provide the Lessor with a copy of the daily summary of all truck weigh tickets for each day that gravel is removed from the property. Daily summaries shall be provided to the Lessor by the end of the following month.

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18. The Lessee shall be responsible for the placing of signs and providing the necessary security for the gravel pit area to ensure the protection of anyone entering the property against any hazard created by the gravel operation.

19. The Lessee shall provide the owner copies of all approvals, registrations, activity plans, security plans and estimates, all submitted reports, and an annual updated operating report for the pit operation.

20. There shall be no payment required by the Lessee until such time as the appropriate development permit is granted by the Lac Ste Anne County.

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- For the Lessee:

  214131 Enterprises Ltd.

- For the Lessor:

  Kim & Barbara Bamber - and - 1577784 Alberta Ltd.

22. So far as is possible, the Lessee shall keep the Lessor fully and effectually indemnified against all actions, suits, causes of action, liabilities, claims, demands, costs, charges and expenses of every Kind whatsoever to which the Lessor may be subject or liable in respect of this grant and Lease hereby made or the exercise or purported exercise of the rights under this Agreement.

23. So far as is possible, the Lessor shall keep the Lessee fully and effectually indemnified against all actions, suits, causes of action, liabilities, claims, demands, costs, charges, and expenses of every kind whatsoever to which the Lessee may be subject or liable in respect of this grant and Lease hereby made as a consequence of any action or lack thereof on the part of the Lessor.

24. The Lessee shall consult with the Lessor regarding areas of pit to be developed.

25. The Lessee shall provide weed control for the pit areas only.

Therefore, The Parties have hereto fixed their names and seals effective on the date above described.

For the Lessor:

Witness :

KIM GARY BAMBER

Witness:

BARBARA JEAN BAMBER

For the Lessee:

JOHN THOMAS
President of **214131 ENTERPRISES LTD.**

214131 Enterprises Ltd.

May 1st, 2015

TO WHOM IT MAY CONCERN :

RE : NW 1/4-36-53-5 W5M North West Quarter
W ½-35-53-5-W5M West Half
SE ¼-35-53-5-W5M South East Quarter
SW ¼-36-53-5-W5M South West Quarter

214131 Enterprises Ltd., a family owned business has interest in applying to the Lac Ste Anne County to develop the above mentioned properties for aggregate extraction and processing. 214131 Enterprises Ltd. is presently operating an existing property in Parkland County on a quarter section just adjacent to the above listed properties.

As we are preparing to apply to the Lac Ste Anne County, we have started the process with the following steps.

Step One
John Thomas, President of 214131 Enterprises Ltd. met and talked with Lac Ste Anne County to express his interest in acquiring a Development Permit for the above mentioned Quarter Sections, to extract and process aggregates.

Step Two
Between April 9th and April 12th we hand delivered approximately 150 letters to residents in the area to inform them of our intent to apply to the Lac Ste Anne County for a Development Permit. In this letter we mentioned that we were planning to have an open house at the Fallis Hall on April 29th as a general information session. Copy of this letter in attachment for your perusal.

Step Three
We posted and advertisement / notification in the Lac Ste Anne Bulletin (April 13 issue) to notify residents of a meeting where they could express any concerns, ask questions, etc and give John Thomas, President of 214131 Enterprises Ltd. an opportunity to address these issues. Copy of this Advertisement / Notification posted in the Lac Ste Anne Bulletin is in attachment for your perusal.

Step Four

We held a community meeting, general information session at the Fallis Community Hall on April 29th, 2015 hoping to discuss and address any issues residents in the area might have with regards to our intent to apply for a Development Permit on the above mentioned properties. We held the meeting from 4:00 pm to 7:00 pm. We were hoping for a better turn out – but we had Seven people attend. We had them sign in upon arriving and gave each person a business card for John Thomas, President, 214131 Enterprises Ltd., and a letter advising of our intentions. In this letter we advised of our plans and advised our normal stages of extraction are 120 by 120meters (393 feet by 393 feet) square on average, and depths of the pits will be 12.2 to 15.25 meters (40 to 50 feet) deep. A copy of the letter handed out at this general information session is in attachment for your perusal.

At this meeting John spoke with **Mark and Pat Gleisner** of Darwell, as well as **Peter Bleszynski**? and they had a few questions and concerns that they discussed with John and John addressed these as best he could.

Colleen Vowel of Fallis came in and expressed her concerns

-Loss of Property Value
-Noise
-Extra Traffic
-Water Table
-Unsightliness
-How it will affect the Lake

Colleen was not really interested in what John had to say about any of these concerns and just advised that she would like to be kept posted on any further meetings with that might take place with the Lac Ste Anne County that she can attend.

John also met and spoke with both **Mark and Patsy Borle** of Fallis, Alberta and they expressed their exact same concerns as Colleen Vowel above as well as a concern for the wild life in the area. Mark enjoys hunting and has enjoyed hunting from tree stands in the area and expressed concerns of this being affected by having a gravel pit in the area.

Dave Currie from Wabamun also attended the meeting and had a very in depth conversation with John, also discussing several concerns that he has. Some of these concerns being

-Peace and Tranquility
-Loss of Property Value
-Wildlife
-How it would affect the Lake, the Stream to the Lake, the Slew waters, ducks nesting
-Water Flow
-Road Conditions and Dust Control
-Reclamation – the length of time
-Size of proposal
-limitations
-Noise

Dave Currie prepared a paper to express his concerns and a copy of this is in attachment for your perusal.

214131 Enterprises Ltd., next step will be to be in touch with the Lac Ste Anne County and proceed with going ahead with applying to the County to develop the properties in question as planned, for aggregate extraction and processing.

John Thomas, President
214131 Enterprises Ltd.

T & T Sand & Gravel Limited

April 09, 2015

TO ALL ADJACENT LAND OWNERS / LAC STE ANNE COUNTY

Re: NW-1/4-36-53-5-W5M North West Quarter
W-1/2-35-53-5-W5M West Half
SE-1/4-35-53-5-W5M South East Quarter
SW-1/4-36-53-5-W5M South West Quarter

Please accept this letter of our plans to apply to the County to develop the above mentioned properties for aggregate extraction and processing. We operate an existing property in Parkland County on a quarter section adjacent to the properties listed above.

We are planning to have an open house at the Fallis Hall on April 29th, 2015 as a general information session. We will be advertising in your local paper soon as to the time and date.

Should you have any questions or concerns, please do not hesitate to contact me on the above listed contact information, or on my cell 780-940-5283.

Thanks,

John Thomas
President
T & T Sand & Gravel Ltd.

STEP 2

STEP 3

COMMUNITY MEETING ANNOUNCEMENT

Please be advised of our intent to apply to the Lac Ste Anne County for a Development Permit for gravel extraction and processing of the following properties in your area

NW-1/4-36-53-5-W5M North West Quarter
W-1/2-35-53-5-W5M West Half
SE-1/4-35-53-5-W5M South East Quarter
SW-1/4-36-53-5-W5M South West Quarter

You are invited to attend a General Community Meeting being held at the Fallis Community Hall on April 29th, 2015 from 4pm to 7pm.

The meeting will be hosted by 214131 Enterprises Ltd. The purpose of the meeting will be to address any issues, concerns or questions you may have and to obtain public input on the project.

Should you have any questions, please feel free to contact the office at (780) 987-5221 or John Thomas at (780) 940-5283.

214131 Enterprises Ltd.
Box 5317
Devon, Alberta
T9G 1Y1

Community Meeting Announcement - Fallis Community Hall

Date	Name	Address	Phone Number
APR. 29/15	MARK + PAT GLEISNER		
Apr 29/15	Peter Blaszczynski		
Apr 29/15	Colleen Vowel		
Apr 29/15	MARK BORLE		
April 29 2015	Patsy Borle		
April 29/15	DAVE CURRIE		
	STRUT		

TO CONCERNED RESIDENTS :

Let me introduce ourselves, 214131 Enterprises Ltd., the applicant. This company is a family owned business, and we reside in Parkland County.
Our intention is to acquire a Development Permit for the following five quarter sections to extract and process Aggregates.

NW-1/4-36-53-5-W5M North West Quarter
W-1/2-35-53-5-W5M West Half
SE-1/4-35-53-5-W5M South East Quarter
SW-1/4-36-53-5-W5M South West Quarter

We have operated in Parkland County since 2009 directly South of the five quarters mentioned. Part of our long term plan is to continue moving north into the five quarters.
If we are successful in receiving the Development Permit, we anticipate no or very little stockpiles of overburden. Our normal stages of excavation are 120 by 120 meters (393 feet by 393 feet) square on average, and depths of the pits will be 12.2 – 15.25 meters (40 – 50 feet) deep. When it comes to transporting material offsite, we will be going through our Development to the South towards Highway 16.

The purpose of this meeting is to address any questions or concerns you might have. I can also be reached on my cell (780)940-5283.

Sincerely,

John Thomas
President
214131 Enterprises Ltd.

STEP 4


N
Legend
Development Area
EPEA No. 248371-00-00
County Division
Contour (2m Interval)
NOTES:
1. Countours generated from Isle Lakes survey data, 2015
2. Air photo from Abadalacus Datagraphics Ltd. dated May 21, 2013 - Sep 22, 2013.
0 0.25 0.5 1km
Scale 1 : 25 000
T&T Sand and Gravel
Bamber #2 Pit NE26-053-05 W5M
MILLENNIUM
Development Permit Area
1

April 13, 2015

Re: Pending application to the county to develop these properties for aggregrate extraction and processing, letter from John Thomas, President T&T Sand & Gravel Ltd., dated April 9, 2015 (wrote before a phone conversation with John on April 13, at approx. 2PM)

Background:

This letter (as above) was found stuck in our gate at the road entrance to our acreage at 5109-TWP Rd 540 on April 11, 2015.

My Concerns: (of this proposal)

1. Effect on Property Values
2. Effect on Wildlife
3. Effect on Traffic
    a. Volume (versus current useage, and effect on safety)
    b. Roads (effect from heavy traffic)
    c. Noise from road traffic
4. Noise from operations
5. Dust from operations
6. Groundwater and runoff
7. Reclamation and timeline
8. Approval process...
9. Size of proposal

1. I cannot imagine any possible positive influence on the property values of the 4 – 40 acre parcels on NE ¼ 35, 53, 5, W5. Due to all of the concerns I've referred to above, and summarized below, the only possible effect will be to distract potential buyers from purchasing these properties, as their current value is in the serenity of the location as it is today. The attraction to this land is its quiet rural setting, without any possible value being from possible gravel sales. The only potential positive financial gain to us as Lac Ste Anne County taxpayers, would be related to the county purchasing this gravel, should that be the intent of these pits, or receiving royalties from the sales. However, with the gravel from all of the other pits in the area being primarily shipped to the Edmonton area, I would predict that this gravel would also be hauled to Edmonton or area, which has minimal gain to our County.

2. Gravel pit operations will have a negative effect on Wildlife in the area. Since we purchased out acreage in 1978, we have had the pleasure of seeing a vast variety of wildlife on our land. This includes, moose, deer, fox, coyote, black bear, and even cougar. We have commonly seen herds of 20 or more deer in the hayfield directly to the south of us, which is one of the quarters referred to. There have also been a great variety of bird species (owls, pileated wood peckers, etc.) over the years, which could only be negatively affected versus attracting more. When we purchased our land, the quarters around us (all of the ones mentioned in the letter above), were primarily agricultural pasture land, with a percentage of the quarters being hayland, and the remainder being bush pasture. We have seen this land cleared of nearly all of the bush, which we didn't see as a positive due to the potential effect on wildlife, however were supportive of due to the minimal negative effect on our property

STEP 4 Letter → Paul Currie

value, and the positive effect on the farming community. Now, to imagine the effect on wildlife due to operations of gravel pits, is absolutely devastating.

3. Assuming the gravel would be hauled via the closest road(s) to these quarters, I would see a major impact to Tshp Rd 540. Township road 540 is the one and only route to our property, coming in from the east from Darwell highway 765, or from the west from Fallis Road Range Road 52. Should a gravel pit be started on either of the quarters to the east or west, it would have significant effect on this road, unless the haul route was out the south end of these quarters. Township road 540 was upgraded in approximately 2008 (?) taking down some sharp hills and raising the grade, and was resurfaced with cold roll in 2011 (?) making it a decent road. When the road was rebuilt, the top was narrowed in many places due to the limited road allowance width. This narrow top combined with large gravel hauling trucks, would make safe travelling on this road a thing of the past. We commonly use this road for foot or bicycle or horseback traffic to our neighbors, and this type of use would also become unsafe. The cold roll surface is already showing effects of traffic that is common to the area such as farm trucks and/or sewage trucks, and had a significant failure in 2012 (?) requiring a rebuild, when a small gravel haul was being conducted. If a small short term gravel haul created a failure, I have to assume that a more long term operation would have a more significant and major impact. I'm assuming the repair cost of this impact should be picked up by the gravel operations, but there will still be a negative effect on the county and us as residents. Currently, there is only rural traffic on this road, so noise from the traffic is minimal. Should this road be used for hauling gravel, the noise from the big trucks will be significant.

4. Gravel pit operations are inherently noisy and we've witnessed other gravel pits in the area to run 24 hours a day. Starting with stripping operations there would be large earthmoving machinery to remove and stockpile topsoil, and then the overburden. Once the overburden is stripped. there would be gravel crushers moved in, that are even noisier than the large earthmoving equipment, along with earth moving equipment to get the product to the crusher. On still evenings, we can hear gravel operations that are over a mile away, I can't imagine the noise and its effect, when they are within 1000 feet.

5. Dust from the operations, and especially from the quarter due west of us, will have a negative impact, with the prevailing westerly winds and minimal brush land between us and this quarter to collect the dust. I would expect that there would be dust control measures requested by any approval, but how would they be measured or enforced?

6. Groundwater and/or runoff water is a real unknown, and therefore a concern for us. We have a waterwell drilled to approx. 180ft. that gets its supply from an underground aquifer, that is difficult to determine where it is fed from. With that in mind, any pits in the immediate area, would have the potential to effect this aquifer, and if there should become an issue with our waterwell, determining the cause would be an exercise in futility. Related to this issue is a concern that the groundwater from the western quarters flows west and north and in to Lake Isle, so I would expect that there would need to be a groundwater management plan provided with any approval for these pits to ensure no silt enters this stream. Similarly, there is a slough on the fence line between our property and the quarter due south of us, which has annual waterfowl use, which could be effected, and this slough overflows to a small stream that flows down through our acreage during spring runoff.

7. Reclamation of gravel pits in the area seems to be nonexistent. That is, I see virtually all of the gravel pits that have been in operation since we have moved to this area,

remaining as moonscapes, versus being reclaimed to useable land. Where gravel operations have been on hold, poplar trees with 4-6" trunks are growing up through piles of stockpiled overburden, and there are several areas where the land has remained a moonscape since gravel extraction has been complete or put on hold.. I have a very strong opinion that once a gravel operation is started, it is an eyesore for a lifetime, meaning that the land will not be turned back in to agricultural or parkland in the lives of my grandchildren who are currently enjoying this area. I would expect that there will need to be a reclamation plan and timeline provided with the approval to proceed with any gravel operation, but that would still leave me with a concern for how, or by whom, this plan was to be monitored and followed up on should it not be followed.

8. I do not know the process or timelines for approval, for controlling operations and/or for reclamation plans and stipulations. I am very concerned that even though we've been living in a serene environment for nearly 40 years, we will have little or no influence on business desires and the greed for financial gain at all expense, be allowed to take this away from us. As well, I'm concerned that the operations would be allowed to go without noise/dust/reclamation/etc. conditions, and go unmonitored for those conditions, thereby allowing total disregard for their neighbors or the environment.

9. When I consider the potential size of this gravel pit, it is overwhelming. The proposal specifically refers to 5 quarter sections of land, meaning we could be either 3/4 surrounded by gravel pit, or we could have pits in operation around us for 20-40 years. I do not support a gravel pit on any of these quarters, say nothing about the potential to have one on each of the 5 quarters referred to. At this point, I have to also assume that should approval be granted on these quarters, the operations would or could be right up to the fence lines, which would leave no buffer zones to these issues.

Please, don't let the serenity and tranquility of our 40 acres of paradise be taken away from us and our grandchildren. We purchased this property in 1978 due to its location, and we have been very fortunate to have a peaceful atmosphere.

Dave & Debbie Currie,

Water Well Drilling Report

View in Imperial | Export to Excel

The driller supplies the data contained in this report. The Province disclaims responsibility for its accuracy. The information on this report will be retained in a public database.

GIC Well ID 471154
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1984/06/19

GOWN ID

Measurement in Metric

Well Identification and Location

Owner Name	Address	Town	Province	Country	Postal Code
MYER, RON	GEN DEL, WABAMUN				

Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description
	NE	35	053	05	5				

Measured from Boundary of
m from
m from

GPS Coordinates in Decimal Degrees (NAD 83)
Latitude 53.624649 Longitude -114.622219
How Location Obtained
Not Verified

Elevation m
How Elevation Obtained
Not Obtained

Drilling Information

Method of Drilling
Rotary

Proposed Well Use
Domestic

Type of Work
New Well

Measurement in Metric

Formation Log

Depth from ground level (m)	Water Bearing	Lithology Description
22.86		Clay & Boulders
25.30		Coal
25.91		Brown Shale
30.48		Coal

Measurement in Metric

Yield Test Summary

Recommended Pump Rate 0.00 L/min

Test Date	Water Removal Rate (L/min)	Static Water Level (m)
1984/06/07	45.46	11.58

Measurement in Metric

Well Completion

Total Depth Drilled	Finished Well Depth	Start Date	End Date
30.48 m		1984/06/06	1984/06/07

Borehole

Diameter (cm)	From (m)	To (m)
0.00	0.00	30.48

Surface Casing (if applicable)
Steel
Size OD : 14.12 cm
Wall Thickness : 0.396 cm
Bottom at : 27.43 m

Well Casing/Liner
Steel
Size OD : 11.58 cm
Wall Thickness : 0.000 cm
Top at : 0.00 m
Bottom at : 30.48 m

Perforations

From (m)	To (m)	Diameter or Slot Width(cm)	Slot Length(cm)	Hole or Slot Interval(cm)
27.43	30.48	0.318		30.48

Perforated by Torch

Annular Seal Driven
Placed from 0.00 m to 27.43 m
Amount

Other Seals

Type	At (m)

Screen Type
Size OD : 0.00 cm

From (m)	To (m)	Slot Size (cm)

Attachment
Top Fittings
Bottom Fittings

Pack
Type
Grain Size
Amount

Contractor Certification

Name of Journeyman responsible for drilling/construction of well
UNKNOWN NA DRILLER

Company Name
BIG IRON DRILLING LTD.

Certification No
1

Copy of Well report provided to owner
Date approval holder signed

Printed on 7/14/2015 10:16:48 AM

Water Well Drilling Report

View in Imperial | Export to Excel

The driller supplies the data contained in this report. The Province disclaims responsibility for its accuracy. The information on this report will be retained in a public database.

GIC Well ID 471154
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1984/06/19

GOWN ID

Measurement in Metric

Well Identification and Location

Owner Name	Address	Town	Province	Country	Postal Code
MYER, RON	GEN DEL, WABAMUN				

Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description
	NE	35	053	05	5				

Measured from Boundary of
m from
m from

GPS Coordinates in Decimal Degrees (NAD 83)
Latitude 53.624649 Longitude -114.622219
How Location Obtained
Not Verified

Elevation m
How Elevation Obtained
Not Obtained

Measurement in Metric

Additional Information

Distance From Top of Casing to Ground Level cm
Is Artesian Flow
Rate L/min

Is Flow Control Installed
Describe

Recommended Pump Rate 0.00 L/min
Recommended Pump Intake Depth (From TOC) 24.99 m

Pump Installed Yes Depth m
Type SUB Make H.P. 1/2
Model (Output Rating)

Did you Encounter Saline Water (>4000 ppm TDS) Depth m
Gas Depth m

Well Disinfected Upon Completion
Geophysical Log Taken
Submitted to ESRD

Sample Collected for Potability
Submitted to ESRD Yes

Additional Comments on Well
DRILLER REPORTS WATER IS MEDIUM HARD

Yield Test

Taken From Ground Level
Depth to water level

Measurement in Metric

Test Date	Start Time	Static Water Level
1984/06/07	12:00 AM	11.58 m

Drawdown (m)	Elapsed Time Minutes:Sec	Recovery (m)

Method of Water Removal

Type Bailer
Removal Rate 45.46 L/min
Depth Withdrawn From 14.33 m

If water removal period was < 2 hours, explain why

Water Diverted for Drilling

Water Source	Amount Taken	Diversion Date & Time
	L	

Contractor Certification

Name of Journeyman responsible for drilling/construction of well
UNKNOWN NA DRILLER

Company Name
BIG IRON DRILLING LTD.

Certification No
1

Copy of Well report provided to owner

Date approval holder signed

Water Well Drilling Report

View in Imperial | Export to Excel

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GIC Well ID 490405
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1998/01/20

GOWN ID

Measurement in Metric

Well Identification and Location

Owner Name	Address	Town	Province	Country	Postal Code
CARRIE, DAVE	P.O. BOX 245 WABAMUN				

Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description
	16	35	053	05	5	14		4050TR	

Measured from Boundary of
182.88 m from North
304.80 m from East

GPS Coordinates in Decimal Degrees (NAD 83)
Latitude 53.626621 Longitude -114.620744
How Location Obtained
Not Verified

Elevation m
How Elevation Obtained
Not Obtained

Drilling Information

Method of Drilling
Rotary

Proposed Well Use
Domestic

Type of Work
New Well

Formation Log

Measurement in Metric

Depth from ground level (m)	Water Bearing	Lithology Description
7.01		Brown Sandy Clay
13.72		Gray Clay
17.37		Brown Coarse Grained Sandstone
29.87		Brown Shale & Coal
30.78		Gray Shale
34.75		Coal
37.80		Green Shale
52.73		Brownish Gray Shale
56.08		Coal
57.91		Gray Shale

Yield Test Summary

Measurement in Metric

Recommended Pump Rate 31.82 L/min

Test Date	Water Removal Rate (L/min)	Static Water Level (m)
1997/12/31	45.46	27.74

Well Completion

Measurement in Metric

Total Depth Drilled	Finished Well Depth	Start Date	End Date
57.91 m		1997/12/30	1997/12/31

Borehole

Diameter (cm)	From (m)	To (m)
0.00	0.00	57.91

Surface Casing (if applicable)
Plastic
Size OD : 15.24 cm
Wall Thickness : 1.001 cm
Bottom at : 36.58 m

Well Casing/Liner
Plastic
Size OD : 11.43 cm
Wall Thickness : 0.620 cm
Top at : 33.53 m
Bottom at : 57.91 m

Perforations

From (m)	To (m)	Diameter or Slot Width(cm)	Slot Length(cm)	Hole or Slot Interval(cm)
51.82	57.91	0.025		3.81

Perforated by Machine

Annular Seal Driven & Bentonite
Placed from 30.48 m to 36.58 m
Amount

Other Seals

Type	At (m)

Screen Type
Size OD : 0.00 cm

From (m)	To (m)	Slot Size (cm)

Attachment
Top Fittings
Bottom Fittings

Pack
Type
Grain Size
Amount

Contractor Certification

Name of Journeyman responsible for drilling/construction of well
UNKNOWN NA DRILLER

Company Name
COBOB PUMPS & SERVICES LTD.

Certification No
1

Copy of Well report provided to owner
Date approval holder signed

Water Well Drilling Report

View in Imperial | Export to Excel

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GIC Well ID 490405
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1998/01/20

GOWN ID

Well Identification and Location

Measurement in Metric

Owner Name	Address	Town	Province	Country	Postal Code
CARRIE, DAVE	P.O. BOX 245 WABAMUN				

Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description
	16	35	053	05	5	14		4050TR	

Measured from Boundary of
182.88 m from North
304.80 m from East

GPS Coordinates in Decimal Degrees (NAD 83)
Latitude 53.626621 Longitude -114.620744
How Location Obtained
Not Verified

Elevation m
How Elevation Obtained
Not Obtained

Additional Information

Measurement in Metric

Distance From Top of Casing to Ground Level cm
Is Artesian Flow
Rate L/min

Is Flow Control Installed
Describe

Recommended Pump Rate 31.82 L/min
Recommended Pump Intake Depth (From TOC) 48.77 m

Pump Installed Yes Depth m
Type SUB Make GOULD H.P.
7GS05422
Model (Output Rating)

Did you Encounter Saline Water (>4000 ppm TDS) Depth m
Gas Depth m

Well Disinfected Upon Completion
Geophysical Log Taken
Submitted to ESRD

Sample Collected for Potability Submitted to ESRD

Additional Comments on Well
DRILLER REPORTS DISTANCE FROM TOP OF CASING TO GROUND LEVEL: 18".

Yield Test

Taken From Ground Level
Depth to water level

Measurement in Metric

Test Date 1997/12/31
Start Time 7:12 AM
Static Water Level 27.74 m

Method of Water Removal
Type Air
Removal Rate 45.46 L/min
Depth Withdrawn From 48.77 m

If water removal period was < 2 hours, explain why

Drawdown (m)	Elapsed Time Minutes:Sec	Recovery (m)
27.74	0:00	48.77
48.77	1:00	35.36
48.77	2:00	32.31
48.77	3:00	31.09
48.77	4:00	30.48
48.77	5:00	30.18
48.77	6:00	29.87
48.77	120:00	

Water Diverted for Drilling

Water Source
Amount Taken L
Diversion Date & Time

Contractor Certification

Name of Journeyman responsible for drilling/construction of well
UNKNOWN NA DRILLER

Company Name
COBOB PUMPS & SERVICES LTD.

Certification No
1

Copy of Well report provided to owner Date approval holder signed

Water Well Drilling Report

View in Imperial | Export to Excel

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GIC Well ID 1640390
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 2014/01/13

GOWN ID

Measurement in Metric

Well Identification and Location

Owner Name	Address	Town	Province	Country	Postal Code
GLESNER, MARK	TOWNSHIP ROAD 540	FALLIS	ALBERTA	CANADA	

Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description
	16	35	53	5	5				

Measured from Boundary of
m from
m from

GPS Coordinates in Decimal Degrees (NAD 83)
Latitude 53.627560 Longitude -114.620750
How Location Obtained
Differential corrected handheld GPS 5-10m

Elevation 769.62 m
How Elevation Obtained
Differential corrected handheld GPS 5-10m

Drilling Information

Method of Drilling
Rotary - Mud

Proposed Well Use
Domestic

Type of Work
New Well

Formation Log

Measurement in Metric

Depth from ground level (m)	Water Bearing	Lithology Description
7.32		Blue Clay
11.28		Blue Clay
14.63		Hard Sand
17.98		Coal
19.20		Brown Shale
22.86		See Comments Coal
29.57		Gray Soft Shale
32.00		Brown Soft Shale
45.11		Soft Shale
46.63		Brown Hard Shale
49.99		Green Shale
58.52		Soft Coal

Yield Test Summary

Measurement in Metric

Recommended Pump Rate 31.82 L/min

Test Date	Water Removal Rate (L/min)	Static Water Level (m)
2013/09/26	36.37	5.34

Well Completion

Measurement in Metric

Total Depth Drilled	Finished Well Depth	Start Date	End Date
58.52 m	26.21 m	2013/09/25	2013/09/26

Borehole

Diameter (cm)	From (m)	To (m)
20.00	0.00	26.21

Surface Casing (if applicable)
Plastic
Size OD : 5.24 cm
Wall Thickness : 0.991 cm
Bottom at : 23.16 m

Well Casing/Liner
Size OD : cm
Wall Thickness : cm
Top at : m
Bottom at : m

Perforations

From (m)	To (m)	Diameter or Slot Width(cm)	Slot Length(cm)	Hole or Slot Interval(cm)

Perforated by

Annular Seal Bentonite Chips/Tablets
Placed from 0.00 m to 21.34 m
Amount 250.00 Pounds

Other Seals

Type	At (m)

Screen Type Stainless Steel
Size OD : cm

From (m)	To (m)	Slot Size (cm)
23.16	26.21	0.025

Attachment
Top Fittings
Bottom Fittings

Pack
Type Artificial
Grain Size 20.40
Amount 200.00 Pounds

Contractor Certification

Name of Journeyman responsible for drilling/construction of well
ROD MACINTOSH

Company Name
RODCO DRILLING

Certification No
5977Q

Copy of Well report provided to owner
Yes

Date approval holder signed
2013/09/26

Water Well Drilling Report

View in Imperial | Export to Excel

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GIC Well ID 1640390
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 2014/01/13

GOWN ID

Measurement in Metric

Well Identification and Location

Owner Name	Address	Town	Province	Country	Postal Code
GLESNER, MARK	TOWNSHIP ROAD 540	FALLIS	ALBERTA	CANADA	

Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description
	16	35	53	5	5				

Measured from Boundary of
m from
m from

GPS Coordinates in Decimal Degrees (NAD 83)
Latitude 53.627560 Longitude -114.620750
How Location Obtained
Differential corrected handheld GPS 5-10m

Elevation 769.62 m
How Elevation Obtained
Differential corrected handheld GPS 5-10m

Measurement in Metric

Additional Information

Distance From Top of Casing to Ground Level 60.96 cm
Is Artesian Flow
Rate L/min
Is Flow Control Installed
Describe

Recommended Pump Rate 31.82 L/min
Recommended Pump Intake Depth (From TOC) 18.29 m
Pump Installed Depth m
Type Make H.P.
Model (Output Rating)

Did you Encounter Saline Water (>4000 ppm TDS) Depth m
Gas Depth m
Well Disinfected Upon Completion Yes
Geophysical Log Taken
Submitted to ESRD
Sample Collected for Potability Submitted to ESRD
Additional Comments on Well

Measurement in Metric

Yield Test

Test Date 2013/09/26
Start Time 11:00 AM
Static Water Level 5.34 m

Taken From Top of Casing
Depth to water level

Drawdown (m)	Elapsed Time Minutes:Sec	Recovery (m)
	0:00	18.29
	1:00	13.27
	2:00	11.49
	3:00	
	4:00	7.38
	5:00	6.32
	6:00	5.69
	7:00	5.55
	8:00	5.54
	9:00	5.54

Method of Water Removal
Type Air
Removal Rate 36.37 L/min
Depth Withdrawn From 18.29 m

If water removal period was < 2 hours, explain why

Water Diverted for Drilling

Water Source	Amount Taken	Diversion Date & Time
MUNICIPAL SUPPLY	9092.18 L	2013/09/25 2:15 PM

Contractor Certification

Name of Journeyman responsible for drilling/construction of well
ROD MACINTOSH

Company Name
RODCO DRILLING

Certification No
5977Q

Copy of Well report provided to owner
Yes

Date approval holder signed
2013/09/26