

COURT FILE NO. 2301-16114

COURT COURT OF KING'S BENCH OF ALBERTA

JUDICIAL CENTRE CALGARY

IN THE MATTER OF THE *COMPANIES' CREDITORS  
ARRANGEMENT ACT*, R.S.C. 1985, c. C-36, as amended  
AND IN THE MATTER OF THE COMPROMISE OR  
ARRANGEMENT OF MANTLE MATERIALS GROUP, LTD.

APPLICANTS MANTLE MATERIALS GROUP, LTD.

DOCUMENT **AFFIDAVIT**

ADDRESS FOR  
SERVICE AND  
CONTACT  
INFORMATION  
OF PARTY  
FILING THIS  
DOCUMENT

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File No. A171561

**Attention: Tom Cumming / Stephen Kroeger**

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**AFFIDAVIT OF BYRON LEVKULICH**

**SWORN ON FEBRUARY 13, 2024**

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I, BYRON LEVKULICH, of the City of Denver, in the State of Colorado, **MAKE OATH  
AND SAY THAT:**

1. I am a director of the applicant, Mantle Materials Group, Ltd. (“**Mantle**”) and have personal knowledge of the matters herein deposed to, except where stated to be based upon information and belief, in which case I verily believe same to be true.
2. I swear this Affidavit further to my Affidavits sworn November 1, 2023 (the “**November 1 Affidavit**”), November 27 (the “**November 27 Affidavit**”) and December 18, 2023 in these proceedings (the “**December 18 Affidavit**” and with the November 1

Affidavit and November 27 Affidavit, the “**2023 Affidavits**”). Capitalized terms not otherwise defined herein have the meanings given to them in the November 27 Affidavit.

3. In preparing this Affidavit I have consulted with legal, financial and other advisors of Mantle. I have also reviewed Mantle’s business records relevant to these proceedings and have satisfied myself that I am possessed of sufficient information and knowledge to swear this Affidavit.
4. I am authorized to swear this Affidavit as a corporate representative of Mantle.

### **Relief Sought**

5. This Application is made within the proceedings of Mantle under the *Companies’ Creditors Arrangement Act*, RSC 1985, c C-36, as amended (the “**CCAA**”), which were commenced by the initial Order of the Honourable Associate Chief Justice D.B. Nixon pronounced on January 10, 2024 (the “**Initial Order**”), by which the NOI Proceedings were taken up and continued under the *CCAA* (the “**CCAA Proceedings**”). The Initial Order was amended and restated by the Order of the Honourable Justice R.A. Neufeld pronounced on January 16, 2024 (the “**Amended Initial Order**”).
6. I make this Affidavit in support of this Application for the following Orders:
  - (a) an Order (the “**St. Paul SAVO**”) approving the sale of Mantle’s interest in the Freehold Pit Assets (as defined in paragraph 22(a) of this Affidavit) to the County of St. Paul No. 19 (“**St. Paul**”) pursuant to an asset purchase agreement dated January 8, 2024 (the “**St. Paul APA**”) between St. Paul and Mantle and the purchase and sale transaction contemplated thereby (the “**St. Paul Transaction**”) and vesting all of the right title and interest of Mantle in the Freehold Pit Assets in St. Paul free and clear of any and all free and clear of and from any and all caveats, security interests, hypothecs, pledges, mortgages, liens, trusts, reservations of ownership, privileges, interests, assignments, actions, judgements, executions, levies, taxes, writs of enforcement, charges, or other claims (collectively, “**Encumbrances**”) other than Encumbrances permitted thereby;

- (b) an Order (the “**PEA SAVO**”) approving the sale of Mantle’s interest in Public Pit Assets (as defined in paragraph 22(b) of this Affidavit) in the Counties of Smoky Lake and Long Lake to PEA Holdings Incorporated (“**PEA**”) pursuant to an asset purchase agreement dated February 9, 2024 (the “**PEA APA**”) between PEA and Mantle and the purchase and sale transaction contemplated thereby (the “**PEA Transaction**”) and vesting all of the right title and interest of Mantle the Public Pit Assets in PEA free and clear of any Encumbrances other than Encumbrances permitted thereby;
- (c) an Order (the “**Arrow West SAVO**”) approving the sale of the shares held by Mantle in Atlas Aggregates Inc. (“**Atlas**”, and such shares, the “**Atlas Shares**”) to Arrow-West Holdings Ltd. (“**Arrow West**”) pursuant to a share purchase agreement dated January 19, 2024 (the “**Arrow West SPA**”) between Arrow West and Mantle and the purchase and sale transaction contemplated thereby (the “**Arrow West Transaction**”) and vesting all of the right title and interest of Mantle in the Atlas Shares in Arrow West free and clear of any Encumbrances other than Encumbrances permitted thereby;
- (d) an Order extending the period in which all proceedings against Mantle are stayed (the “**Stay Period**”) from March 1, 2024 to September 30, 2024; and
- (e) an Order (the “**Sealing Order**”) sealing my Affidavit sworn February 13, 2024 (the “**Confidential Affidavit**”) and the Confidential Supplement (the “**Confidential Supplement**”) appended to the Second Report of FTI Consulting Canada Inc. (“**FTI**”) in its capacity as Court-appointed monitor of Mantle (in such capacity, the “**Monitor**”) on the court file until the termination of these CCAA Proceedings.

### **Background of Mantle and the CCAA Proceedings**

7. Mantle carried on the business in Alberta of extracting and processing gravel and other aggregates (“**Aggregate**”) and selling the Aggregate to construction companies, municipalities and service companies in the oil and gas industry. Mantle held interests in Crown and freehold lands located in the counties of Athabasca, Thorhild, Smoky Lake,

Lac La Biche, St. Paul, Two Hills and in the Municipal District of Bonnyville. Mantle acquired these interests in 2021 from affiliated predecessor corporations pursuant to a reorganization and restructuring of those predecessors in proceedings they had undertaken under the CCAA (the “**Predecessor CCAA Proceedings**”).

8. Mantle has or had access to the Crown lands through fourteen (14) surface material leases (each a “**SML**”). Of these, the pits subject to four (4) SMLs were being reclaimed (the “**Public Reclamation Pits**”), the pits subject to five (5) SMLs are open (the “**Public Operational Pits**”), the SMLs for two (2) land parcels expired but Mantle has applied to have them renewed (the “**Public Expired Pits**”), and pits which have never been opened on the Crown lands are subject to three (3) SMLs (the “**Public Unopened Pits**”, which together with the Public Operational Pits and the Public Expired Pits are the “**Public Sellable Pits**”).
9. Mantle has access to the freehold lands pursuant to eight (8) royalty agreements with the landowners thereof, each of which granted to Mantle a chose in action under which Mantle had the right to explore for, extract, process and sell Aggregate in exchange for the payment of royalties (the “**Royalty Agreements**”). Of these, the pits on the lands subject to two (2) Royalty Agreements are operational (the “**Freehold Operational Pits**”), the pits on the lands subject to four (4) Royalty Agreements have not been operated since before the Predecessor CCAA Proceedings and are being reclaimed (the “**Freehold Reclamation Pits**”), Mantle’s interest in the lands subject to one (1) Royalty Agreement has been transferred to a third party, and no registration was obtained for the lands subject to one (1) Royalty Agreement and those lands were never developed.
10. The reclamation of the pits located on freehold and Crown lands is being performed pursuant to a series of environmental protection orders issued by Alberta Environment and Public Areas (the “**AEPA**”) during the Predecessor CCAA Proceedings (the “**2021 EPOs**”) and a series of reclamation plan submitted by Mantle to and accepted by the AEPA. Under the *Environmental Protection and Enhancement Act*, RSA 2000, E-12, as amended, the *Conservation and Reclamation Regulation*, AR 115/93, as amended, and the regulations and codes thereunder (collectively, the “**EPEA**”), operators of aggregate pits are required

to reclaim the lands on which the pits are located in order to restore the lands to a state similar to their state prior to the Aggregate operations being undertaken (the obligations under the EPEA to reclaim being the “**Reclamation Obligations**”). Under the 2021 EPOs, Mantle was to complete the debris removal, recontouring, topsoil placement and planting required to reclaim the pits subject to such orders (the “**Major Reclamation Work**”). There is then a two year assessment period (the “**Assessment Period**”) during which any additional reclamation work to address issues such as erosion, excessive weeds or the failure of the planting to take must be addressed before Mantle is entitled to apply for reclamation certificates (the “**Assessment Period Reclamation Work**”).

11. The Atlas Shares consist of 7,820,077 Class “A” Common Shares in Atlas, which represents a 31.7% ownership interest in Atlas on a fully diluted basis. Atlas is a private corporation incorporated under the laws of Alberta. Atlas holds 50% of the shares in 138619 Alberta Ltd. (“**Glacier Aggregates**”), which holds a SML 030074 in public lands located at Crow Lake, Alberta (the “**Crow Lake SML**”). According to a report by KPMG, the lands subject to the Crow Lake SML possess estimated total production reserves of 21 million tons of gravel and 7 million tons of sand and have an approximate estimated production life of 40 years.
12. Because of continuing financial problems resulting from the legacy Reclamation Obligations, its indebtedness to its lenders, and insufficient revenues, Mantle initiated proposal proceedings (the “**NOI Proceedings**”) under Division I of Part III of the *Bankruptcy and Insolvency Act*, RSC 1985, c B-3, as amended (the “**BIA**”) on July 14, 2023 by filing a notice of intention to make a proposal. FTI was appointed as proposal trustee (in such capacity, the “**Proposal Trustee**”).
13. The purpose of the NOI Proceedings was to provide Mantle the stability available under the *BIA* in order to liquidate its assets in a commercially reasonable manner, complete the performance of its Reclamation Obligations, obtain the reclamation certificates it was required to obtain under the 2021 EPOs, and to distribute remaining net proceeds of realization to its creditors. Pursuant to an Order of the Honourable Justice C.C. Feasby made on August 15, 2023, as amended August 28, 2023 (the “**Amended August Order**”),

the Court approved an interim financing provided by an affiliate of Mantle's parent (the "**Interim Financing**"), granted charges securing the fees and expenses of the Proposal Trustee and its counsel and Mantle's counsel, securing the interim financing and security the obligation of Mantle to indemnify its officers and directors for certain liabilities that may arise during the proceedings (the "**Restructuring Charges**") and declared that the Restructuring Charges rank in priority to any other security, charges or encumbrances.

14. Once the Interim Financing was approved, between August and December of 2023 Mantle re-started the Major Reclamation Work, collected its accounts receivable, sold as much of its inventory of Aggregate as was commercially reasonable and sold its equipment by way of an auction carried out by Ritchie Bros. Auctioneers (Canada) Ltd. However, as the approval of the Interim Financing had been delayed until the end of August, Mantle was unable to complete all of the Major Reclamation Work before it had to cease because of the onset of winter.
15. Because the maximum time period for the NOI Proceedings under the *BIA* was limited to six months, and Mantle required the Court's protection during the two (2) year Assessment Period to fully perform its Reclamation Obligations, on November 28, 2023 Mantle filed an application under section 11.6 of the *CCAA* to take up the NOI Proceedings under the *CCAA* and convert them into the *CCAA* Proceedings. Pursuant to a decision of A.C.J. D.B. Nixon on January 10, 2024, the NOI Proceedings were taken up and converted to the *CCAA* Proceedings pursuant to the Initial Order.
16. Additional background information is provided in the 2023 Affidavits.

#### **Sale Processes for the Public Pit Assets, the Freehold Pit Assets and the Atlas Shares**

17. As related in my November 27 Affidavit,<sup>1</sup> according to Mantle's financial records, as of June 30, 2023 the aggregate amount of the Reclamation Obligations associated with the Public Reclamation Pits and Freehold Reclamation Pits was \$1,678,308, and the aggregate

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<sup>1</sup> November 27 Affidavit, at para 30.

amount of the Reclamation Obligations associated with the Public Sellable Pits and the Freehold Operational Pits was \$1,874,872.

18. The Public Reclamation Pits and the Freehold Reclamation Pits were considered by both Mantle and the Proposal Trustee to be unsellable. However, Mantle and the Proposal Trustee concluded that because the Freehold Operational Pits and Public Sellable Pits (collectively, the “**Sellable Pits**”) had significant reserves of Aggregate that exceeded their associated Reclamation Obligations, there was a realistic prospect that those pits could be sold to other companies or entities that would be acceptable to the AEPA and would assume the associated Reclamation Obligations. Since such sales would have the effect of removing these Reclamation Obligations from the estate, and these obligations would otherwise have to be performed before any distribution could be made to creditors, such sales would result in substantial net benefits to Mantle’s estate.
19. In August and September of 2023, Mantle’s management worked together with the Proposal Trustee to prepare marketing materials and a sale and marketing process for the Sellable Pits (the “**Pit Sale Process**”), set up an electronic data room (the “**Data Room**”) containing information relating to those pits in order to permit potentially interested parties to carry out due diligence, and prepared a form of non-disclosure agreement that potentially interested parties would need to execute in order to obtain access to the Data Room.
20. On September 20 and 21, 2023, Jason Mercier, Mantle’s former Business Development Manager, distributed a notice (the “**Sale Process Notice**”) that described the sale solicitation process, indicated the Data Room could be accessed by executing the NDA, stated the deadline for submitting bids was October 25, 2023 and described the Sellable Pits and their respective reserves of Aggregate. The Sale Process Notice was distributed to 92 companies and other organizations that Mantle believed would be potentially interested in acquiring the Sellable Pits, any inventory of Aggregate located thereon and their respective reserves.
21. Seven (7) parties entered into NDAs and accessed the Data Room prior to the bid deadline. In addition, a governmental body was permitted to access the Data Room without signing an NDA as there was insufficient time to negotiate the terms of that document with that

body and both Mantle and the Proposal Trustee concluded that there was limited risk in allowing access. Attached to my Affidavit as **Exhibit “A”** are true copies of the emails sent by Mantle. Also attached to my Affidavit and as **Exhibit “B”** is a true copy of the Sale Process Notice.

22. The only parties that submitted bids for the Sellable Pits were St. Paul, for the Freehold Operational Pits, and PEA, for the Public Sellable Pits. In particular:

(a) St. Paul submitted a bid (the “**St. Paul Bid**”) for:

- (i) Mantle’s interest in the freehold lands subject to a Royalty Agreement with the landowner, Jerry Shankowski, and his company 945441 Alberta Ltd. and Mantle, together with the estimated 4,755,104 metric tons of Aggregate reserves associated therewith and any Aggregate inventory located thereon; and
- (ii) Mantle’s interest in the freehold lands pursuant to a Royalty Agreement to which the landowners, Gail Charlene Havener, Lynne Havener, Terri Breen and Karren Richards, and Mantle are parties, together with the 2,143,128 metric tons of Aggregate reserves associated therewith and any Aggregate inventory located thereon,

(such interests, Royalty Agreements and Aggregate reserves and inventory being the “**Freehold Pit Assets**”)

(b) PEA submitted a bid (the “**PEA Bid**”) for:

- (i) Mantle’s interest in the Public Sellable Pits and associated SMLs located in the County of Smoky Lake identified as SML 110025, SML 110026, SML 110045, SML 110046, SML 110047, SML 120005 and SML 120100, together with the estimated 4,785,160 metric tons of Aggregate reserves in opened pits and 2,440,000 metric tons of Aggregate in unopened pits and the Aggregate inventory located thereon; and
- (ii) Mantle’s interest in the Public Sellable Pit and associated SML 100085 located in Thorhild County near Long Lake, together with the estimated 2,756,406 metric tons of Aggregate reserves in the unopened pits associated therewith,

(such interests, SMLs, Aggregate reserves and inventory being the “**Public Pit Assets**”).



23. After receiving the St. Paul Bid and PEA Bid, Mantle and the Proposal Trustee negotiated their terms with St. Paul and PEA. On January 31, 2023, the St. Paul APA was fully executed by St. Paul and Mantle and on February 12, 2024, the PEA APA was fully executed by PEA and Mantle.
24. Mantle and FTI also prepared a sale process for the Atlas Shares (the “**Share Sale Process**”). However, Atlas is a private company, the consent its board of directors was required to transfer shares in its capital, and its governance was subject to significant dispute between its management and many of its shareholders. As a result, Mantle and the Proposal Trustee concluded that only current shareholders or parties with significant knowledge of Atlas’ assets, business and affairs would likely be interested in purchasing the Atlas Shares.
25. However, as related in my sworn November 1 Affidavit,<sup>2</sup> the board of directors of Atlas informed Mantle they were unwilling to provide Mantle with the list of other shareholders and their contact details, but said that in the event they were not interested in bidding on the Atlas Shares, they would advise other shareholders of the opportunity. Because such a restriction was potentially detrimental to its marketing efforts, Mantle applied for an Order requiring that the shareholder list be provided to Mantle. The board of directors of Atlas ultimately agreed to provide the list of shareholders and their contact details to the Proposal Trustee on a confidential basis. These terms were incorporated into the Order of the Honourable Justice Dunlop pronounced on November 8, 2023 in the NOI Proceedings. Following this, Atlas provided a copy of its shareholder register and the contact details of its shareholders to the Proposal Trustee.
26. In December of 2023, Mantle and the Proposal Trustee created an electronic data room (the “**Share Data Room**”), containing due diligence and financial information relating to the Atlas Shares and the assets of Atlas and Glacier Aggregates, prepared a NDA that parties had to sign before being given access to the Share Data Room, and prepared a sale and solicitation process overview (the “**Atlas Share Sale Notice**”) in respect of the Atlas Shares, describing the Atlas Shares, the timeline for due diligence and requiring that bids

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<sup>2</sup> November 1 Affidavit, at paras 36 to 40.

to acquire the Atlas Shares be submitted by no later than January 4, 2024. Attached to this Affidavit as **Exhibit “C”** is a true copy of the Atlas Share Sale Notice.

27. On December 4, 2023, the Proposal Trustee sent the Atlas Share Sale Notice to all shareholders of Atlas listed in Mantle’s share register as well as any other potentially interest parties to solicit interest in the Atlas Shares.
28. Mantle and/or the Proposal Trustee received three (3) bids to acquire the Atlas Shares, which are more fully described in the Confidential Supplement. The bid provided by Arrow West was determined by Mantle and the Proposal Trustee to be the best bid, and therefore Mantle and Arrow West entered into the Arrow West SPA on January 19, 2024.

### **St. Paul APA**

29. Under the St. Paul APA,<sup>3</sup> Mantle agreed to sell all of its right, title and interest in the Freehold Pit Assets in exchange for the purchase price described therein and the assumption by St. Paul of the Reclamation Obligations and all liabilities under the Royalty Agreements associated therewith. A copy of the St. Paul APA is attached this this Affidavit as **Exhibit “D”** from which the economic terms have been redacted. An unredacted copy is attached as Exhibit “B” to the Confidential Affidavit.
30. The obligation of Mantle and St. Paul to complete the St. Paul Transaction is subject to the satisfaction of certain conditions precedent, including:
  - (a) mutual conditions precedent that:
    - (i) this Honourable Court grant the St. Paul SAVO described in paragraph 6(a) of this Affidavit;
    - (ii) the AEPA terminates or cancels the New EPOs (defined in paragraph 55 below) applicable to the Freehold Pit Assets; and
    - (iii) the AEPA approves the transfer to St. Paul of the registrations under the *EPEA* (“**Registrations**”) of the pits subject to the St. Paul APA or issued new Registrations in favour of St. Paul in respect of those pits;

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<sup>3</sup> Capitalized terms not otherwise defined in this part have the meanings given to them in the St. Paul APA.

- (b) conditions precedent in favour of St. Paul, including that each of the Landowners (as defined in the St. Paul APA) consent to the assignment of the relevant Royalty Agreements on terms reasonably acceptable to St. Paul, including that the Landowners waive any obligation by St. Paul to pay any amounts owing to the applicable Landowners under the Royalty Agreements;
  - (c) conditions precedent in favour of Mantle including:
    - (i) the County Council for St. Paul approves the form of the St. Paul APA;
    - (ii) each of the Landowners consent to the assignment of the relevant Royalty Agreements on terms reasonably acceptable to Mantle, including that the Landowners waive any obligation by Mantle to pay any amounts owing to the applicable Landowners under the Royalty Agreements; and
    - (iii) St. Paul deposits with the AEPA any required additional security and the AEPA confirms that upon receipt by the AEPA of any such new security, it will return to Mantle the security deposits provided by Mantle to the AEPA.
31. On or about January 30, 2024 the County Council approved the St. Paul APA.
32. During the week of February 12, 2024:
- (a) it is anticipated that Upland Environmental Ltd. (“**Upland Environmental**”), an environmental consultant retained by Mantle, will submit applications to the AEPA to transfer Registrations in respect of the Freehold Pit Assets to St. Paul; and
  - (b) Mantle in cooperation with St. Paul will be seeking the consent of the Landowners referred to in paragraphs 30(b) and 30(c)(ii) above.

### **PEA APA**

33. Under the PEA APA,<sup>4</sup> Mantle agreed to sell all of its right, title and interest in the Public Pit Assets in exchange for the purchase price described therein and the assumption by PEA of the Reclamation Obligations and all liabilities under the SMLs associated therewith. A copy of the PEA APA is attached this this Affidavit as **Exhibit “E”** from which the

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<sup>4</sup> Capitalized terms not otherwise defined in this part have the meanings given to them in the St. Paul APA.

economic terms have been redacted. An unredacted copy is attached as Exhibit “C” to the Confidential Affidavit.

34. Under section 2.4 of the PEA APA, Mantle covenants in favour of PEA to do the following:
- (a) employ reasonable commercial efforts to renew SML 110025 and SML 110026, which have expired (the “**Expired SMLs**”);
  - (b) employ reasonable commercial efforts to reinstate SML 100085, SML 110046, SML 120006 and SML 120100, which had been cancelled by Alberta Forestry and Parks (the “**AFP**”, and such SMLs, the “**Cancelled SMLs**”);
  - (c) reasonable commercial efforts to enable PEA to obtain the economic benefit of the security deposits currently posted with the AEPA in the approximate amount of \$480,210; and
  - (d) deliver to PEA all documentation filed by Mantle with the AEPA under the *Water Act*, RSA 2000, c W-3.
35. The obligation of Mantle and PEA to complete the PEA Transaction is subject to the satisfaction of certain conditions precedent, including:
- (a) mutual conditions precedent that:
    - (i) this Honourable Court grant the PEA SAVO described in paragraph 6(b) of this Affidavit;
    - (ii) the AEPA terminates or cancels the 2023 EPOs applicable to the Freehold Pit Assets; and
    - (iii) the AFP approves the transfer of the SMLs included in the Freehold Pit Assets to PEA;
  - (b) conditions precedent in favour of PEA including:
    - (i) the AEPA shall have confirmed to PEA that the security deposits provided by Mantle in respect of the Public Pit Assets or any cash in place thereof shall be treated as security posted by PEA with the AEPA in respect of the SMLs included in the Public Pit Assets;

- (ii) any security required by the AEPA in excess of the security described in paragraph 35(b)(i) above will be in an amount acceptable to PEA;
    - (iii) the AFP shall have reinstated the Cancelled SMLs, renewed the Expired SMLs and consented to the assignment to PEA of all of the SMLs subject to the PEA APA;
  - (c) conditions precedent in favour of Mantle including that PEA shall have deposited with the AEPA any additional security required by the AEPA.
36. Mantle submitted to the AFP:
- (a) an appeal of the cancellation of the Cancelled SMLs on December 21, 2023, requesting that the Cancelled SMLs be reinstated; and
  - (b) applications to renew the Expired SMLs on December 15, 2023.
37. During the week of February 12, 2024, it is anticipated that Upland will submit applications to the AFP to assign to PEA the SMLs subject to the PEA APA.
38. PEA requested that it have access to the Public Sellable Pits in the period between the Order approving the PEA APA being granted and the completion of the PEA Transaction in order to carry out work to clean up, re-contour and organize the lands on which they are located in order to prepare them for the commencement of operations. Pursuant to an interim access agreement dated as of February 9, 2024 (the “**Interim Access Agreement**”) between Mantle and PEA, Mantle agreed to provide such access, subject to the following terms:
- (a) the right of access was conditional on the PEA APA and Interim Access Order being fully executed and this Honourable Court issuing that Order;
  - (b) PEA is required to obtain the approval of Mantle for a work plan setting out in detail the work it proposes to carry out;
  - (c) PEA is required to indemnify Mantle for any increase in the Reclamation Obligations resulting from that access or work, or for any other liabilities resulting therefrom;

- (d) subject to obtaining the prior written consent of Mantle, PEA is also permitted to sell Aggregate inventory located on the lands provided that the amounts of any royalties payable in connection with such sales are remitted to Mantle, for remittance to the applicable governmental authorities, and all other proceeds are held in trust pending closing. If the PEA Transaction does not close, those proceeds must be returned to Mantle.

Attached as **Exhibit “F”** to this Affidavit is a true copy of the Interim Access Agreement.

**Benefits of the St. Paul APA and the PEA APA**

- 39. The purchase prices provided for under both the St. Paul APA and the PEA APA do not result in significant cash recoveries for Mantle’s estate. However, there are significant benefits to both the St. Paul Transaction and the PEA Transaction:
  - (a) Under the St. Paul Transaction, St. Paul will assume all of the Reclamation Obligations associated with the Public Pit Assets and Mantle should be entitled to the return of the security deposits posted in respect thereof with the AEPA, which amounts to \$408,550;
  - (b) In addition, the counterparties to the Royalty Agreements included in the Freehold Pit Assets should be better off because they will have a financially viable counterparty in St. Paul;
  - (c) Under the PEA Transaction, PEA will assume all of the Reclamation Obligations associated with the Public Pit Assets. Although PEA will obtain the benefit of Mantle’s security deposits that were posted in respect of the Public Pit Assets, which currently amount to \$424,616, the amount of the Reclamation Obligations associated with the Public Pit Assets as at June 30, 2023 was \$1,419,906.92; and
  - (d) If Mantle is able to successfully complete the PEA Transaction, Mantle’s estate will be in a substantially better position than if it remained responsible for satisfying the Reclamation Obligations before any distributions could be made to creditors.

40. In addition to the forgoing, to the best of my information and belief, both St. Paul and PEA are capable of complying with the obligations under the Royalty Agreements and SMLs that they will be assuming, and any Reclamation Obligations under the *EPEA*. As such, the completion of the St. Paul Transaction and PEA Transaction is in the public interest because financially viable operators (St. Paul and PEA) will step into the position of Mantle, which is insolvent and will not operate in the future.
41. Finally, the Monitor is supportive of the St. Paul Transaction and the PEA Transaction.

### **Arrow West SPA**

42. Under the Arrow West SPA, Mantle agreed to sell all of its right, title and interest in the Atlas Shares in exchange for the purchase price described therein. A copy of the Arrow West SPA is attached to this Affidavit as **Exhibit “G”** from which the economic terms have been redacted. An unredacted copy is attached as Exhibit “A” to the Confidential Affidavit.
43. The obligation of Mantle and Arrow West to complete the Arrow West Transaction is subject to the satisfaction of certain conditions precedent, including this Honourable Court shall have granted the Arrow West SAVO described in paragraph 6(c) of this Affidavit.
44. The Arrow West Transaction yields material value to the estate and the Arrow West bid was the highest bid submitted. The Proposal Trustee canvassed all parties who might realistically be expected to have an interest in the Atlas Shares in the Share Sale Process and adequate time was provided for those parties to submit bids.
45. The Monitor is supportive of the Arrow West Transaction.

### **Regulatory Actions by AEPA and AFP**

46. In September and October of 2023, AEPA issued the following new EPOs against the Public Sellable Pits and the Freehold Operational Pits (collectively, the “**Fall 2023 EPOs**”):

- (a) EPO-EPEA-35656-11 issued September 21, 2023 against the Freehold Operational Pit subject to the Royalty Agreement with the Haveners, requiring Mantle to reclaim the pit by October 31, 2023;
  - (b) EPO-EPEA-35656-12 issued September 21, 2023 against the Freehold Operational Pit subject to the Royalty Agreement with Mr. Shankowski, requiring Mantle to reclaim the pit by October 31, 2023;
  - (c) EPO-EPEA-35656-14 issued on October 18, 2023 against the Public Sellable Pit subject to SML 110025, requiring the pit to be reclaimed by November 24, 2023;
  - (d) EPO-EPEA-35656-15 issued on October 18, 2023 against the Public Sellable Pit subject to SML 110047, requiring the pit to be reclaimed by November 24, 2023; and
  - (e) EPO-EPEA-35659-17 issued on October 18, 2023 against the Public Sellable Pit subject to SML 110026, requiring the pit to be reclaimed by November 24, 2023.
47. In the Fall 2023 EPOs, AEPA stated it was issuing the orders because the AEPA Inspector was of the opinion that Mantle's financial resources and intention to reclaim these pits was in question. The AEPA issued the Fall 2023 EPOs notwithstanding that:
- (a) the time period within which to reclaim the pits was impossible to achieve;
  - (b) AEPA and AFP were aware the pits were subject to the Pit Sale Process, under which Mantle was seeking to sell the pits to purchasers who are acceptable to AEPA and able to comply with the obligations of operators under the applicable legislation, regulations, codes and licences;
  - (c) the pits have significant Aggregate reserves and would only be of interest to potential purchasers who would be able to operate them; and
  - (d) if the pits were completely reclaimed, as required under the Fall 2023 EPOs, the pits would no longer be operational, and therefore of no interest to potential purchasers.



48. Notwithstanding the forgoing, AEPA expressed the view that the Fall 2023 EPOs did not interfere in the Pit Sale Process and simply had the effect of giving potential purchasers notice of the Reclamation Obligations associated with the pits.
49. Mantle filed appeals of the Fall 2023 EPOs with the Environmental Appeals Board (the “**EAB**”) and requested the EAB order the Fall 2023 EPOs be stayed. On December 18, 2023, the EAB issued an order staying the Fall 2023 EPOs, pending either a decision on the appeal or the EAB ordering otherwise. The stay remains in place.
50. On September 8, 2023, AFP wrote to Mantle requesting an update on their intentions for 17 dispositions for gravel pits on public land that Mantle and/or JMB and 216 held, including the Public Sellable SMLs. In the same letter, AFP asked Mantle to advise when it would complete reclamation and apply for a reclamation certificate for nine pits. Of the 17 dispositions, 14 are SMLs, 1 is a department license of occupation, 1 is a commercial/industrial miscellaneous lease and 1 is a surface material exploration licence.
51. On September 15, 2023, Cory Pichota, the President and Chief Operating Officer of Mantle, advised AFP it was seeking to transfer the SMLs to third party purchasers pursuant to the Pit Sale Process. Mr. Pichota did not provide an update on any reclamation work performed or the anticipated reclamation certificate application date for the Public Sellable Pits, as this is information that would be provided at the time of the transfer application and/or by the third party that acquired the pit registration. Until such time as Mantle knew whether and to whom the pit registration was to be transferred, the discussion about reclamation and reclamation certificate application dates was premature.
52. For the Public Reclamation Pits, all of the reclamation work performed by Mantle and the anticipated reclamation certificate application dates were set out in reclamation progress reports filed with the AEPA on October 28, 2022 and October 16, 2023. In addition, the anticipated date for applying for a reclamation certificate was provided to Brendan Hemens, Director, Public Lands Disposition Management for AFP, in respect of SML060060, SML 120027, SML 930040, and SML 980116.

53. On October 11, 2023, AFP advised Mantle it intended to cancel four dispositions due to the failure to develop, including the Cancelled SMLs referred to in paragraph 34(b) of this Affidavit. Mantle was surprised to receive this notice, as the terms of the dispositions meant Mantle's deadline for beginning operations on the land had not yet expired. Mantle responded to the AFP on October 31, 2023, contesting the cancellation of the dispositions and advising these dispositions were included in the Pit Sale Process.
54. On December 12, 2023, Mantle's counsel provided AEPA with draft copies of the St. Paul APA and PEA APA.
55. Notwithstanding that AEPA had copies of the PEA APA, and the EAB issued an order staying the Fall 2023 EPOs, on January 30, 2024, AEPA issued the following additional EPOs (the "**2024 EPOs**", which together with the Fall 2023 EPOs are collectively referred to as the "**New EPOs**"):
- (a) EPO-EPEA-35659-13 in respect of the Public Sellable Pit subject to SML 110045, requiring that Mantle reclaim the pit by September 20, 2024; and
  - (b) EPO-EPEA-35659-16 in respect of the Public Sellable Pit subject to SML 120005, requiring that Mantle reclaim the pit by September 20, 2024.

Both of the Public Sellable Pits subject to the 2024 EPOs are included in the Freehold Pit Assets under the PEA APA. Attached as **Exhibits "H"** and **"I"** are true copies of the 2024 EPOs. According to the Affidavit of Heather Dent sworn December 14, 2023, EPOs against the Public Sellable Pits identified as SML 110045 and SML 120005 were issued in October 2023, but they were never received by Mantle.

56. Mantle appealed and sought a stay of the 2024 EPOs. Mantle also sought an adjournment and/or an abeyance of the appeals of the New EPOs in light of the St. Paul Transaction and the PEA Transaction.
57. As related above, it is a condition precedent of both the St. Paul Transaction and PEA Transaction that the New EPOs be cancelled because the New EPOs prevent the operation of the pits subject thereto by St. Paul and PEA respectively.

### **Status of Travelers Capital Corp. Appeals**

58. As related in paragraph 13 of this Affidavit, the Honourable Justice Feasby issued the Amended August Order approving the Interim Financing, granting the Restructuring Charges, and ordering that the Restructuring Charges rank in priority to all other Encumbrances, including security over certain equipment in favour Travelers Capital Corp. (“**Travelers**”). The Amended August Order was in accordance with Justice Feasby’s reasons released on August 28, 2023 (the “**August 28 Decision**”).
59. Shortly following the release of the August 28 Decision, Travelers filed with the Alberta Court of Appeal an application for confirmation that it had an automatic right to appeal the August 28 Decision and Amended Order under section 193(c) of the *BIA*, or in the alternative, for leave to appeal the August 28 Decision and Amended Order under section 193(e) of the *BIA*, on the basis that the Reclamation Liabilities did not rank in priority to Travelers’ security.
60. On October 23, 2023, the Honourable Justice de Wit of the Alberta Court of Appeal released a decision (the “**October 23 Decision**”) in which he found that Travelers did not have an automatic right of appeal under section 193(c), and denying leave to Travelers to appeal under section 193(e).
61. On November 2, 2023, Travelers again applied to the Alberta Court of Appeal seeking leave to appeal the October 23 Decision, arguing that the Court misunderstood or misapprehended the evidence and law relating to section 193(c) of the *BIA*. On November 17, 2023, Mantle filed a memorandum in response to Travelers’ application.
62. On November 27, 2023, the Honourable Justice de Wit released a decision denying Travelers permission to appeal the October 23 Decision (the “**November 27 Decision**”).
63. On December 20, 2023, Travelers filed a notice of application for leave to appeal to the Supreme Court of Canada seeking leave to appeal the October 23 Decision and the November 27 Decision (the “**SCC Leave Application**”).

64. On February 2, 2024, Mantle filed a response to leave application to the Supreme Court of Canada in response to the SCC Leave Application. On February 12, 2024, Travelers filed a reply to Mantle's response. To date the Supreme Court of Canada has not rendered a decision on the SCC Leave Application.

**Stay Extension**

65. The Stay Period provided for in the Amended Initial Order commenced on January 20, 2024 and terminates on March 1, 2024. Mantle is seeking to extend the Stay Period to September 30, 2024.
66. Since the Amended Initial Order was made on January 16, 2024, Mantle has continued to act diligently and in good faith in these CCAA Proceedings by, among other things:
- (a) negotiating the terms of and finalizing the PEA APA and Interim Access Agreement;
  - (b) preparing the response of Mantle to the SCC Leave Application;
  - (c) negotiating the terms of and finalizing the Arrow West SPA;
  - (d) negotiating the terms of a consulting agreement with Cory Pichota to secure his continuing services for Mantle during the CCAA Proceedings;
  - (e) communicating with AEPA and AFP in relation to the environmental protection orders issued by the AEPA and with respect to the AFP's decision to cancel four dispositions due to failure to develop;
  - (f) preparing the within Application; and
  - (g) continuing to plan and prepare for the reclamation work to be conducted during the Spring, Summer and Fall of 2024.
67. Should this Honourable Court grant an Order extending the Stay Period to September 30, 2024, Mantle anticipates carrying out the following activities:

- (a) applying to the AEPA to transfer the Registrations issued in respect of the Freehold Operational Pits to St. Paul;
  - (b) pursuing the application to the AFP for the renewal of the Expired SMLs, the reinstatement of the Cancelled SMLs, and applying to the AFP for the transfer of the SMLs in respect of the Public Sellable Pits;
  - (c) entering discussions with the AEPA for the return to Mantle of the security deposits relating to the Freehold Operational Pits upon the completion of the St. Paul Transaction;
  - (d) entering discussions with the AEPA and AFP to permit PEA to obtain the economic benefit of the security deposits currently posted in respect of the Public Sellable Pits;
  - (e) completing the St. Paul Transaction, the PEA Transaction and the Arrow West Transaction;
  - (f) carrying out and directing the reclamation work required to be performed in the Spring, Summer and Fall of 2024; and
  - (g) carrying out the other activities contemplated hereby.
68. Based on my review of Mantle's most recent cash flow statement, which will be appended to the second report of the Monitor, Mantle has sufficient funds through to September 30, 2024 to allow for the completion of the steps outlined above.
69. Extending the Stay Period to September 30, 2024 will reduce the number of times Mantle is required to return to Court for orders extending the Stay Period, which will reduce the ongoing professional costs of the estate to the benefit of all stakeholders.
70. During the course of 2024, Mantle will engage consultants to provide detailed estimates of the anticipated costs of completing the work required to fully address Mantle's Reclamation Obligations during the two (2) year Assessment Period. Mantle will attempt to determine, in consultation with the Monitor and other interested parties, including the

AEPA, whether sufficient certainty as to the quantum of those costs can be achieved in order to allow, subject to holding back reasonable and appropriate reserves, interim distributions to Mantle's creditors.

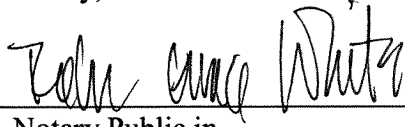
71. Having regard to the circumstances, I believe that the granting of an extension of the Stay Period to September 30, 2024 is necessary and in the best interests of Mantle and its stakeholders.
72. Mantle has acted, and continue to act, in good faith and with due diligence in respect of all matters during both the NOI Proceedings and the CCAA Proceedings, and no creditor will be prejudiced by the proposed extension of the Stay Period.
73. The Monitor supports of the proposed extension of the Stay Period to September 30, 2024.

#### **Sealing Order**

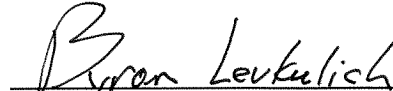
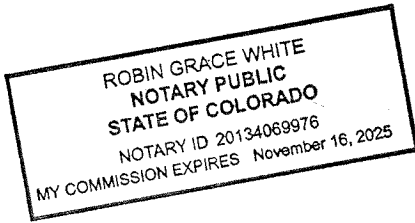
74. Unredacted copies of the Arrow West SPA, St. Paul APA and PEA APA are attached as exhibits to my Confidential Affidavit sworn February 12, 2024. These unredacted documents contain confidential and commercially sensitive information that, if disclosed, could adversely impact the interests of Mantle and its stakeholders. If any of the transactions subject to the Arrow West SPA, St. Paul APA and PEA APA do not close, the disclosure of unredacted copies of these agreements would hamper any new sale process in respect of the assets subject thereto. There are no reasonable alternative measures that would protect these sensitive commercial interests of Mantle and its stakeholders, and the limit on the public interest in open courts is of limited duration because the Sealing Order will only remain in effect until these transactions are close.
75. Similarly, the Confidential Supplement to the Monitor's report also contains the confidential and commercially sensitive information described above, as well as a comparison of the economic terms of Arrow West's bid for the Atlas Shares to the economic terms of other bidders. For the reasons discussed in paragraph 74, the disclosure of such information prior to the completion of the Arrow West Transaction, St. Paul Transaction and PEA Transaction would negatively impact any efforts to re-market the assets subject thereto should any of those transaction not close, and there are no reasonable

alternative measures for protecting that information, and the limit on the public interest is of limited duration.

Sworn before me at the City of Denver, in the State of Colorado, on this 13<sup>th</sup> day of February, 2024



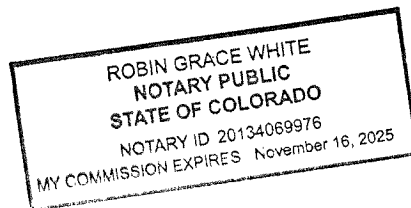
A Notary Public in and for the State of Colorado

  
Byron Levkulich

THIS IS EXHIBIT "A" TO THE AFFIDAVIT  
OF BYRON LEVKULICH SWORN ON THE  
13TH DAY OF FEBRUARY, 2024

*Robin Grace White*

Commissioner for Oaths in and for the  
State of Colorado





## **Zeineddine, Samah**

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**From:** Jason Mercier <jason.mercier@mantlegroup.ca>  
**Sent:** September 20, 2023 1:06 PM  
**To:** Cory Pichota; john.stout@rlholdings.com; Cumming, Tom; Kleebaum, Robert  
**Subject:** Mantle Materials Group - Sale and Solicitation Process Launch  
**Attachments:** Mantle Pits Teaser - Sept 2023 - FINAL 19 Sept 23.pdf  
  
**Importance:** High

**This message originated from outside of Gowling WLG. | Ce message provient de l'extérieur de Gowling WLG.**

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Greetings,

Mantle Materials Group, Ltd. (“**Mantle**” of the “**Company**”) has filed a Notice of Intention to Make a Proposal (“**NOI**”) on July 13, 2023, pursuant to section 50.4(1) of the Bankruptcy and Insolvency Act.

Mantle is launching a sale and solicitation process (the “**SSP**”) to solicit interest in, and opportunities for, a sale of, its pit registrations and mining lease rights (the “**Opportunity**”). Please see the attached document for more information.

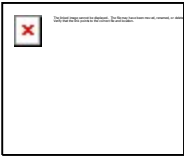
**The Bid Deadline for this Opportunity is October 25, 2023.**

To express interest and request an NDA, please contact:

Cory Pichota – President/COO – [cory.pichota@mantlegroup.ca](mailto:cory.pichota@mantlegroup.ca) or Jason Mercier – Business Development Manager – [Jason.mercier@mantlegroup.ca](mailto:Jason.mercier@mantlegroup.ca)

(Additional contact information is in the Mantle Pits Teaser document attached.)

Respectfully yours,



**Jason Mercier | Business Development Manager**

Cell: 780-207-0960

Email: [jason.mercier@mantlegroup.ca](mailto:jason.mercier@mantlegroup.ca)

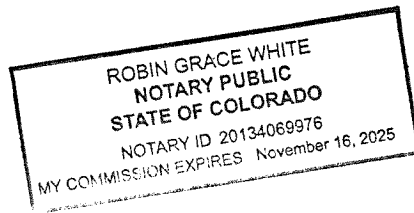
Website: [www.mantlegroup.ca](http://www.mantlegroup.ca)

Follow us on: [Facebook](#) | [LinkedIn](#)

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OF BYRON LEVKULICH SWORN ON THE  
13TH DAY OF FEBRUARY, 2024

*Robin Grace White*

Commissioner for Oaths in and for the  
State of Colorado





**MANTLE**  
MATERIALS GROUP



## 2023 NOI - Sale Solicitation Process



- Mantle Materials Group, Ltd. (“**Mantle**” of the “**Company**”) has filed a Notice of Intention to Make a Proposal (“**NOI**”) on July 13, 2023, pursuant to section 50.4(1) of the Bankruptcy and Insolvency Act.
- Mantle is launching a sale and solicitation process (the “**SSP**”) to solicit interest in, and opportunities for, a sale of, its pit registrations and mining lease rights (the “**Opportunity**”).
- The timeline for the SISP and contact information for the Opportunity are set out below. Additional information is available at <http://cfcanada.fticonsulting.com/mantle/> and access to a virtual data room is available to parties executing an NDA.

### Timeline

September 25, 2023      Data Room Open

October 25, 2023      Bid Deadline

### Contact Information

Cory Pichota  
President/ COO

[cory.pichota@mantlegroup.ca](mailto:cory.pichota@mantlegroup.ca)  
587-991-8440

Jason Mercier  
Business Development Manager

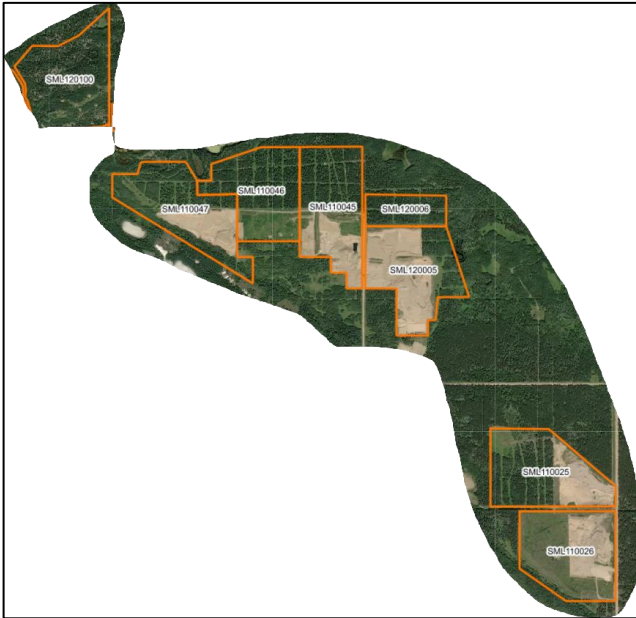
[jason.mercier@mantlegroup.ca](mailto:jason.mercier@mantlegroup.ca)  
780-207-0960



**MANTLE**  
MATERIALS GROUP

# Summary of Operating Pits

<https://maps.app.goo.gl/91XhPAobkQeSfPHM7>



## ESTIMATED RESERVES

(As of Sept 1, 2023)

4,785,160 Mt in Opened Pits

2,440,000 Mt in Unopened Pit

**Est. Life of Pit Gross Revenue: \$ 32.5 M<sup>1</sup>**

<sup>1</sup> 1,806290 Mt Net Reserves (after factoring in mining and processing loss estimates) x \$18.00 / Mt of finished product

## FINISHED INVENTORY

As of Sept 1, 2023

Des 2 Class 25 ~ 8,000 Mt

Des 4 Class 40 ~ 5,600 Mt

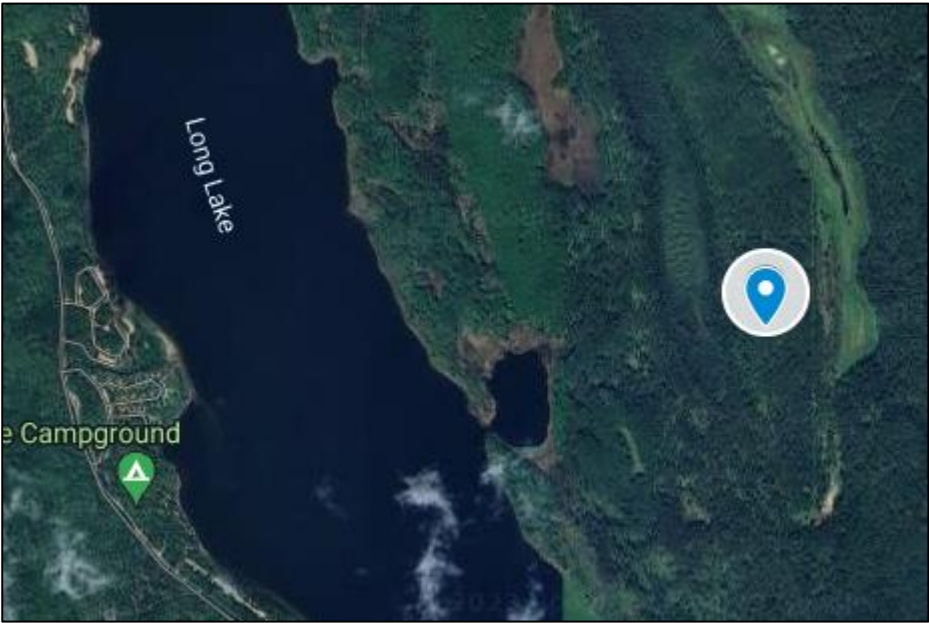
Des 6 Class 80 ~ 5,300 Mt

**Estimated FMV \$340,000<sup>1</sup>**

<sup>1</sup> Based on Average Selling Price FOB Pit past 12 months

| Pit Common Name | Public Lands                    |                        | Gross Estimated Reserves (Tonne) |
|-----------------|---------------------------------|------------------------|----------------------------------|
|                 | Disposition # or Registration # | Primary Market Service |                                  |
| JLG 5           | SML 110025                      | Smoky Lake             | 772,200                          |
| JLG 6           | SML 110026                      | Smoky Lake             | 752,400                          |
| JLG 7           | SML 110045                      | Smoky Lake             | 236,880                          |
| JLG 8           | SML 110046                      | Smoky Lake             | 747,100                          |
| JLG 9           | SML 110047                      | Smoky Lake             | 1,372,180                        |
| JLG 10          | SML 120005                      | Smoky Lake             | 904,400                          |
| JLG 11          | SML 120006                      | Smoky Lake             | -                                |
| JLG 12          | SML 120100                      | Smoky Lake             | 2,440,000                        |

<https://goo.gl/maps/vPX5QPDL9iGk1HiS6>



**ESTIMATED RESERVES**  
*(As of Sept 1, 2023)*

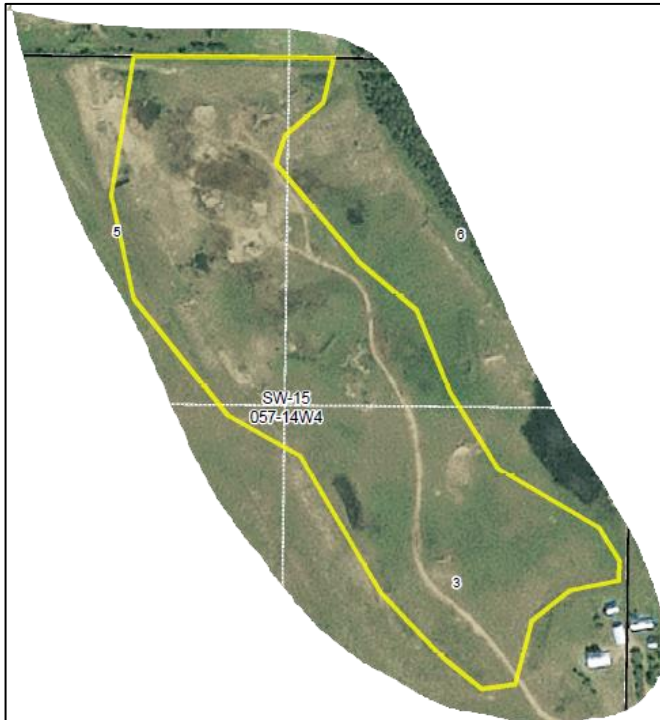
2,756,406 Mt in Unopened Pit  
**Est. Life of Pit Gross Revenue: \$ 29.8 M<sup>1</sup>**

<sup>1</sup> 1,6538,43 Mt net reserves (after factoring in mining and processing loss estimates) x \$ 18.00 / Mt of finished product

|                 |                | Public Lands         |                  |            |  |
|-----------------|----------------|----------------------|------------------|------------|--|
| Pit Common Name |                | Disposition # or     | Gross Estimated  |            |  |
|                 | Registration # | Primary Market Serve | Reserves (Tonne) | Status     |  |
| JLG 4           | SML100085      | Thorhild             | 2,756,406        | Not opened |  |



<https://goo.gl/maps/onewyTLVycBndrQ2A>



**ESTIMATED RESERVES**  
*(As of Sept 1, 2023)*

784,560 Mt in Opened Pits  
**Est. Life of Pit Gross Revenue: \$ 8.5 M<sup>1</sup>**

<sup>1</sup> 470,736 Mt net reserves (after factoring in mining and processing loss estimates) x \$18.00 / Mt of finished product

| Pit Common Name | Public Lands Disposition # or Registration # | Lease Holder           | Primary Market Service | Gross Estimated Reserves (Tonne) |
|-----------------|--|------------------------|------------------------|----------------------------------|
| Andrychuk       | n/a  | Mantle Materials Group | Fort Saskatchewan      | 784,560                          |

<https://maps.app.goo.gl/9bQp2jVZ5qPQzHvT7>



**ESTIMATED RESERVES**  
*(As of Sept 1, 2023)*

4,755,104 Mt in Opened Pits  
**Est. Life of Pit Gross Revenue: \$ 42.8 M<sup>1</sup>**

<sup>1</sup> 2,377,552 Mt net reserves (after factoring in mining and processing loss estimates) x \$18.00 / Mt of finished product

**FINISHED INVENTORY**  
*As of Sept 1, 2023*

Des 4 Class 20 ~ 4,900 Mt  
**Estimated FMV \$88,200<sup>1</sup>**

<sup>1</sup> Based on Average Selling Price FOB Pit past 12 months

| Pit Common Name | Public Lands   | Disposition # or     | Gross Estimated  | Status |
|-----------------|----------------|----------------------|------------------|--------|
|                 | Registration # | Primary Market Serve | Reserves (Tonne) |        |
| Shankowski      | 308161-00-00   | Elk Point            | 4,755,104        | Open   |

<https://goo.gl/maps/WAMRtRp7dok683Pt8>



## **ESTIMATED RESERVES**

*(As of Sept 1, 2023)*

2,143,128 Mt in Opened Pits

**Est. Life of Pit Gross Revenue: \$ 25.1 M<sup>1</sup>**

<sup>1</sup> 1,393,033 Mt net reserves (after factoring in mining and processing loss estimates) x \$18.00 / Mt of finished product

## **FINISHED INVENTORY**

*As of Sept 1, 2023*

Des 4 Class 20 ~ 21,000 Mt

Des 2 Class 40 ~ 18,700 Mt

Des 6 Class 80 ~ 22,200 Mt

Class 1 Rip Rap ~ 965 Mt

4" x 8" Gabion ~ 300 Mt

**Estimated FMV \$1,145,825<sup>1</sup>**

<sup>1</sup> Based on Average Selling Price FOB Pit past 12 months

| Pit Common Name | Registration # | Primary Market Service | Reserves (Tonne) | Status |
|-----------------|----------------|------------------------|------------------|--------|
| Havener         | 17395-01-00    | Elk Point              | 2,143,128        | Open   |

THIS IS EXHIBIT "C" TO THE AFFIDAVIT  
OF BYRON LEVKULICH SWORN ON THE  
13TH DAY OF FEBRUARY, 2024

*Robin Grace White*

Commissioner for Oaths in and for the  
State of Colorado

ROBIN GRACE WHITE  
NOTARY PUBLIC  
STATE OF COLORADO  
NOTARY ID 20134069976  
MY COMMISSION EXPIRES November 16, 2025

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## SALE AND SOLICITATION PROCESS OVERVIEW ATLAS AGGREGATES SHARES

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### **Situation Overview**

Mantle Materials Group (“Mantle” or the “Company”) is conducting a sale and solicitation process to solicit interest in the 7,820,077 Class “A” Common Shares (the “Shares”) that it holds in Atlas Aggregates Inc. (“Atlas”). Mantle’s shares represent a 31.7% ownership in Atlas on a fully diluted basis.

Included with this overview letter is an NDA that must be executed by interested parties prior to receiving access to a virtual data room.

The sale of the Shares will be on an “as is” basis, with no representation, warranty or condition with respect to title, encumbrances, description or quantity, or with respect to any information provided herein or in the Data Room or otherwise.

### **Process Timeline**

- Circulation of Sale and Solicitation Process Letter: Friday, December 1, 2023
- Data Room Open: Monday, December 4, 2023
- Offer Deadline: Friday, December 22, 2023

### **Contact Information**

All inquiries and information requests should be directed to the individuals below. Please include all individuals on email correspondence.

- **Cory Pichota** (President & COO of Mantle Materials Group)
  - Phone: 587-991-8440 | Email: cory.pichota@mantlegroup.ca
- **Jason Mercier** (Business Development Manager of Mantle Materials Group)
  - Phone: 780-207-0960 | Email: jason.mercier@mantlegroup.ca
- **Tom Cumming** (Outside Legal Counsel for Mantle Materials Group)
  - Phone: 403 606 4592 | Email: tom.cumming@gowlingwlg.com
- **Rob Kleebaum** (Representative of Proposal Trustee/ Proposed Monitor)
  - Phone: 403.454.6035 | Email: robert.kleebaum@fticonsulting.com

### **Atlas Aggregate Inc. Overview**

Atlas Aggregates Inc. holds a 50% ownership interest in 138619 Alberta Ltd (dba “Glacier Aggregates”) which holds a royalty interest associated with Surface Minerals Lease No. 030074 located at Crow Lake, Alberta (the “Crow Lake SML”).

The Crow Lake SML is located approximately 140 KM south of Fort McMurray, Alberta and possess an estimated total production volume of 21 million tons of gravel and 7 million tons of sand with an approximate estimated production life of 40 years (per a Fair Market Value of Royalty Interest report prepared by KPMG in October 2019 (the “KPMG Report”). Based on the then current royalty agreement in 2019 and various other assumptions made by KPMG following discussions with management, the estimated fair market value of the 50% royalty interest held by Atlas was \$3.85 million to \$4.65 million.

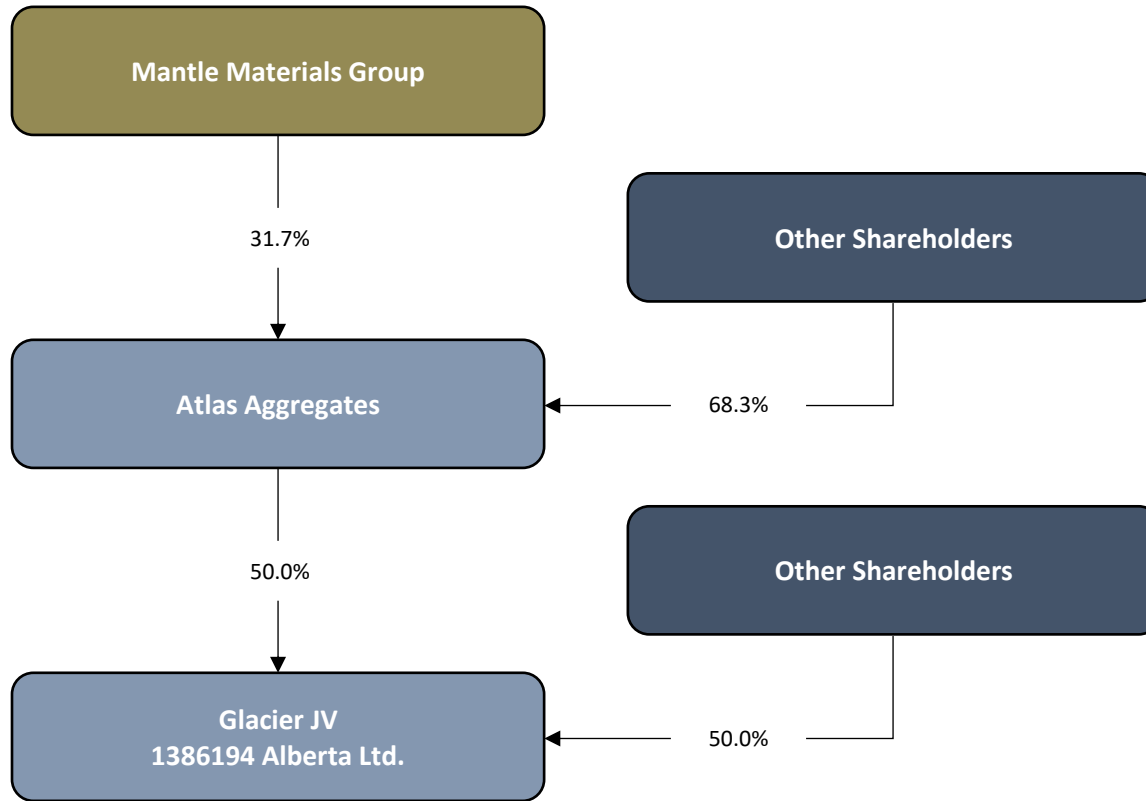
Additional information pertaining to Atlas and the Shares, including financial information and entity formation documents, will be made available in the virtual data room.

### **Instructions for Submission of Proposals**

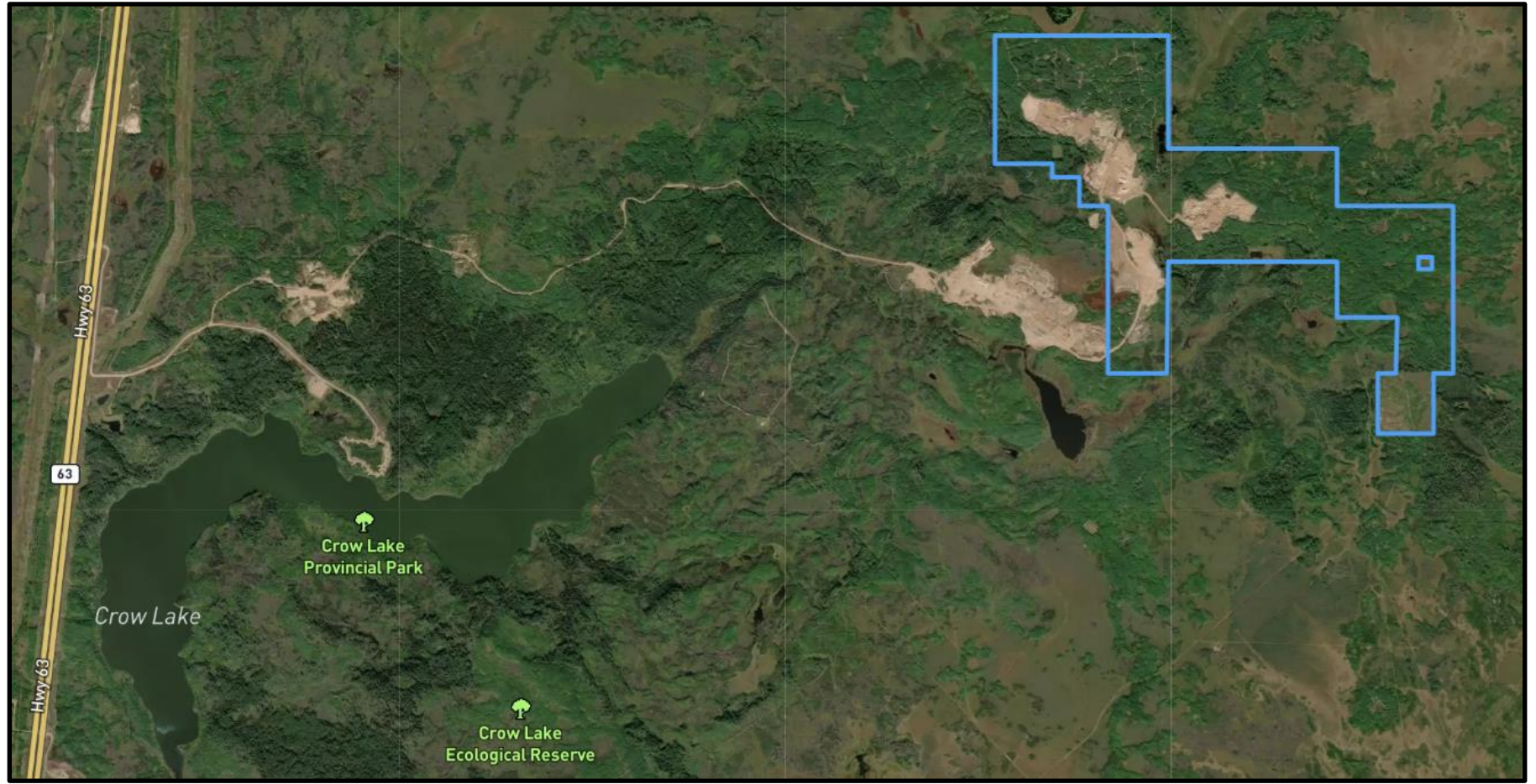
Written proposals should address the following:

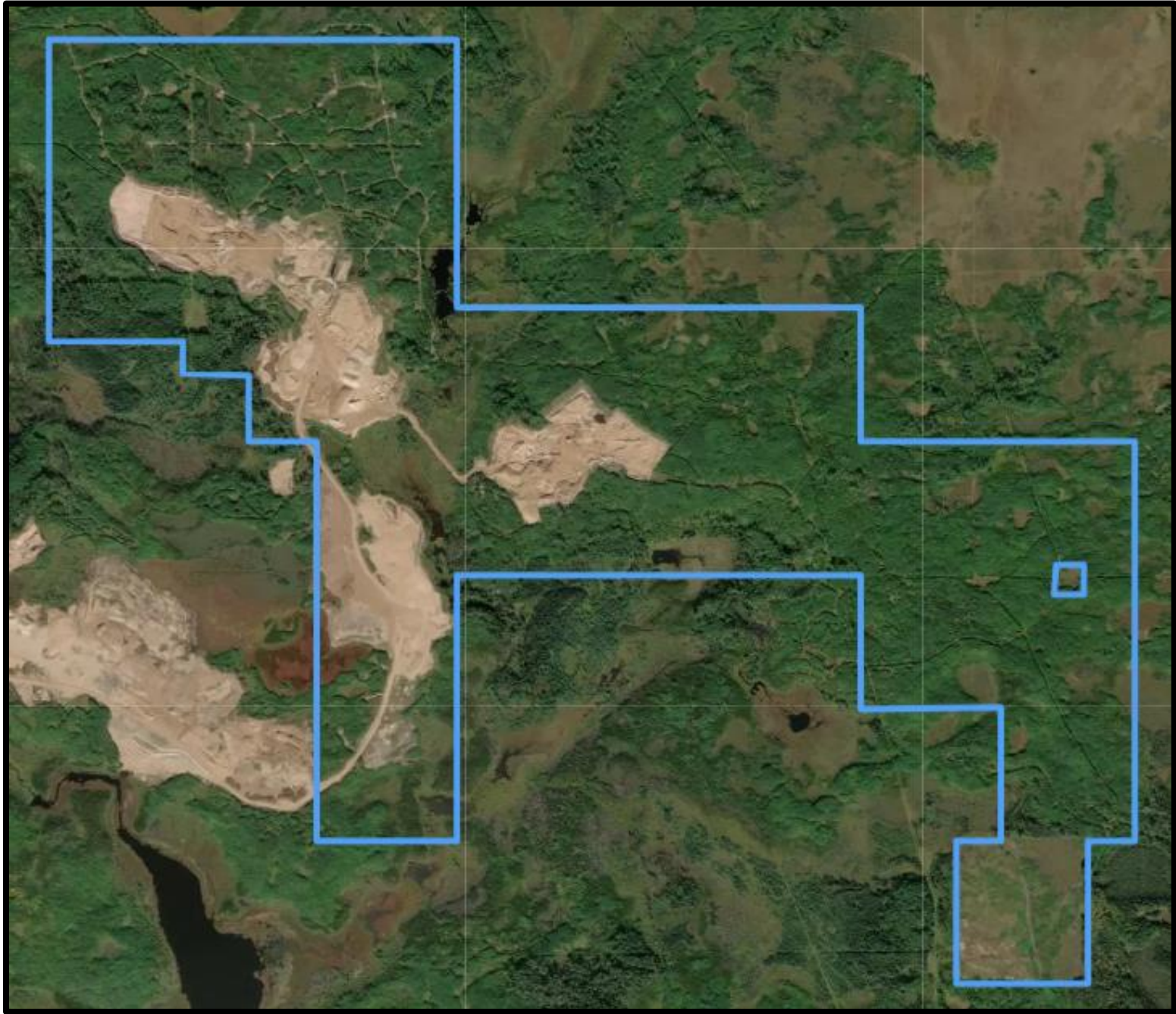
- Identity of Acquiror
- Purchase Price and Form of Consideration
- Source of Financing
- Due Diligence Requirements and Summary of Necessary Internal Review Process
- Timing Necessary to Close

### Glacier JV Organizational Chart



Crow Lake SML Map









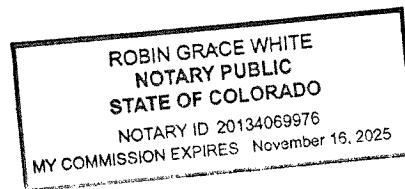
## Data Room Contents

1. Glacier Joint Venture Agreement
2. Atlas Financial Statements (2021 and 2022)
3. The KPMG Report - 2019 Fair Market Valuation of Royalty Interest
4. Share Certificates
5. Atlas Aggregates Entity Documents

THIS IS EXHIBIT "D" TO THE AFFIDAVIT  
OF BYRON LEVKULICH SWORN ON THE  
13TH DAY OF FEBRUARY, 2024

*Robin Grace White*

Commissioner for Oaths in and for the  
State of Colorado



## ASSET PURCHASE AGREEMENT

**THIS AGREEMENT** is dated as of January 8, 2024

**BETWEEN:**

**MANTLE MATERIALS GROUP, LTD.** (the “**Vendor**”)

- and -

**COUNTY OF ST. PAUL NO. 19** (the “**Purchaser**”)

### **CONTEXT:**

- A.** The Vendor carries on the business of extracting, processing and selling gravel and other aggregates from pits that it operates in the Province of Alberta (the “**Mantle Pits**”).
- B.** On July 14, 2023 (the “**Filing Date**”), the Vendor filed a notice of intention to make a proposal (the “**NOI**”) under section 50.4 of the *Bankruptcy and Insolvency Act*, RSC 1985, c B-3, as amended (the “**BIA**”), and FTI Consulting Canada Inc., a licensed insolvency trustee, was named as the proposal trustee of Mantle (in such capacity, the “**Proposal Trustee**”).
- C.** In September of 2023 the Vendor launched a sale solicitation process in respect of certain Mantle Pits under which parties interested in potentially purchasing one or more of the Mantle Pits were required to submit a non-binding bid or expression of interest by October 25, 2023, or such later date as the Vendor agrees to.
- D.** On October 25, 2023, the Purchaser submitted to the Vendor a non-binding letter setting out the terms under which it would purchase the Vendor’s interest in the Shankowski Pit, and on November 6, 2023, the Purchaser submitted to the Vendor a non-binding letter setting out the terms under which it would purchase the Vendor’s interest in the Havener Pit.
- E.** The Vendor wishes to sell and the Purchaser wishes to purchase the Assets (as defined below) upon and subject to the terms and conditions of this Agreement.

**THEREFORE**, the Parties agree as follows:

## **ARTICLE 1 INTERPRETATION**

### **1.1 Definitions**

In this Agreement the following terms have the following meanings:

- 1.1.1 “**AEPA**” means Alberta Environment and Protected Areas, the Governmental Authority responsible for regulatory matters under the Environmental Laws.
- 1.1.2 “**Aggregate Inventory**” means the gravel, sands and other aggregates which have been extracted and are located on the Shankowski Lands or Havener Lands.
- 1.1.3 “**Agreement**” means this agreement, including all Schedules, as it may be supplemented, amended, restated or replaced from time to time by written agreement between the Parties.

- 1.1.4 “**Applicable Law**” means, at any time, with respect to any Person, property, transaction or event, all applicable laws, statutes, regulations, treaties, judgments and decrees and (whether or not having the force of law) all applicable official directives, rules, consents, approvals, by-laws, permits, authorizations, guidelines, orders, codes and policies of any Governmental Authority having authority over that Person, property, transaction or event.
- 1.1.5 “**Approval and Vesting Order**” is defined in Section 4.3.1.
- 1.1.6 “**Assets**” means the right, title and interest of the Vendor in the Shankowski Pit, the Shankowski Pit Agreement, the Havener Pit, the Havener Pit Agreement, and any Aggregate Inventory.
- 1.1.7 “**Assumed Contracts**” means the Shankowski Agreement and Havener Agreement.
- 1.1.8 “**Assumed Liabilities**” means:
  - 1.1.8.1 all obligations and liabilities of the Vendor under the Assumed Contracts and arising out of or related to the operation of the Assets; and
  - 1.1.8.2 all Reclamation Liabilities.
- 1.1.9 “**August 15 Order**” means an Order of the Honourable Mr. Justice Feasby of the Court pronounced on August 15, 2023 in the Proposal Proceedings.
- 1.1.10 “**BIA**” is defined in Context paragraph B.
- 1.1.11 “**Business Day**” means any day other than a Saturday, Sunday or statutory holiday in the Province of Alberta or any other day on which the principal chartered banks located in the City of Calgary are not open for business during normal banking hours.
- 1.1.12 “**Closing**” means the successful completion of the Transaction.
- 1.1.13 “**Closing Date**” means the date which is five (5) Business Days immediately following the satisfaction or waiver of the conditions in Article 4.
- 1.1.14 “**Communication**” means any notice, demand, request, consent, approval or other communication which is required or permitted by this Agreement to be given or made by a Party.
- 1.1.15 “**Court**” means the Court of King’s Bench of Alberta.
- 1.1.16 “**Current Reclamation Security**” means the security held by the AEPA pursuant to the Environmental Laws in respect of the Havener Pit and Shankowski Pit to secure the performance of the Environmental Liabilities.
- 1.1.17 “**Data Room**” means the data room created and maintained by the Vendor in connection with the marketing and sale of the Assets.
- 1.1.18 “**Encumbrance**” means any mortgage, charge, liens, security interest or other encumbrance or interest of any kind whatsoever attaching to or affecting the Assets.
- 1.1.19 “**Environment**” means the ambient air, all layers of the atmosphere, all water including surface water and underground water, all land, all living organisms and the interacting natural

systems that include components of air, land, water, living organisms and organic and inorganic matter.

- 1.1.20 “**Environmental Laws**” means any Applicable Laws relating to the Environment and protection of the Environment, including the *Environmental Protection and Enhancement Act*, R.S.A. 2000, c. E-12, as amended, *Conservation and Reclamation Regulation*, AR 115/93, as amended, the *Activities Designation Regulation*, AR 276/2003, the *Approvals and Registrations Procedure Regulation*, AR113/93, as amended, and the *Code of Practice for Pits*.
- 1.1.21 “**EPOs**” means any environmental protection orders affecting the Havener Pit and Shankowski Pit, including those identified as EPO-EPEA-35639-11 and EPO-EPEA-35639-12.
- 1.1.22 “**ETA**” means Part IX of the *Excise Tax Act* (Canada).
- 1.1.23 “**Filing Date**” is defined in Context paragraph B.
- 1.1.24 “**Governmental Authority**” means any federal, provincial, local, municipal, regional, territorial, aboriginal, or other government, governmental or public department, branch, ministry, or court, domestic or foreign, including any district, agency, commission, board, arbitration panel or authority and any subdivision of the foregoing exercising or entitled to exercise any administrative, executive, judicial, ministerial, prerogative, legislative, regulatory or taxing authority or power of any nature, or any quasi-governmental or private body exercising any regulatory, expropriation or taxing authority under or for the account of any of the foregoing.
- 1.1.25 “**Havener Agreement**” means aggregate royalty agreement dated as of the 8<sup>th</sup> day of November, 2018 between the Vendor (through its predecessor in interest, JMB Crushing Systems ULC) and Helen Havener and Gail Havener.
- 1.1.26 “**Havener Landowners**” means, collectively, Gail Charlene Havener, Lynne Havener, Terri Breen and Karren Richards.
- 1.1.27 “**Havener Lands**” means those lands legally described as NW-16-56-7-WRM.
- 1.1.28 “**Havener Pit**” means the Mantle Pit located on the Havener Lands.
- 1.1.29 “**Landowners**” means the Havener Landowners and Shankowski Landowners, and “**Landowner**” means any one of them.
- 1.1.30 “**Mantle Pits**” is defined in Context paragraph A, and includes the Shankowski Pit and the Havener Pit.
- 1.1.31 “**New Reclamation Security**” is defined in Section 4.2.6.
- 1.1.32 “**NOI**” is defined in Context paragraph B.
- 1.1.33 “**Parties**” means the Vendor and the Purchaser, collectively, and “**Party**” means either of them.
- 1.1.34 “**Permitted Encumbrances**” means the Encumbrances listed on **Schedule “B”**.

- 1.1.35 “**Person**” means an individual, body corporate, sole proprietorship, partnership or trust or unincorporated association, unincorporated syndicate, unincorporated organization, or another entity, and a natural person, acting in his or her individual capacity or in his or her capacity as executor, trustee, administrator or legal representative, and any Governmental Authority.
- 1.1.36 “**Purchase Price**” is defined in Section 2.2.1.
- 1.1.37 “**Proposal Proceedings**” means the proposal proceedings of Mantle under the *BIA* commenced by the filing of the NOI.
- 1.1.38 “**Proposal Trustee**” is defined in Context paragraph B.
- 1.1.39 “**Reclamation Liabilities**” means all liabilities and obligations under the Environmental Laws respectively relating to the Havener Lands and Shankowski Lands.
- 1.1.40 “**Registrations**” means the registrations of the Shankowski Pit and the Havener Pit with the APEA under the Environmental Laws.
- 1.1.41 “**Shankowski Agreement**” means the aggregates royalty agreement dated as of the 29<sup>th</sup> day of October, 2018 between the Vendor (through its predecessor in interest, JMB Crushing Systems ULC) and the Shankowski Landowners.
- 1.1.42 “**Shankowski Landowners**” means Jerry Shankowski and 945441 Alberta Ltd.
- 1.1.43 “**Shankowski Lands**” means those lands legally described as SW 21-56-7-W4 being 160 acres more or less.
- 1.1.44 “**Shankowski Pit**” means the Mantle Pit located on the Shankowski Lands.
- 1.1.45 “**Tax**” means all taxes, duties, fees, premiums, assessments, imposts, levies, rates, withholdings, dues, government contributions and other charges of any kind imposed by any Governmental Authority, whether direct or indirect, together with all interest, penalties, fines, additions to tax or other additional amounts imposed in respect thereof.
- 1.1.46 “**Transaction**” means the transaction of purchase and sale contemplated by this Agreement.
- 1.1.47 “**Transfer Taxes**” means all Taxes levied on or measured by, or referred to as, goods and services taxes under the ETA.

## 1.2 Certain Rules of Interpretation

- 1.2.1 In this Agreement, words signifying the singular number include the plural and vice versa, and words signifying gender include all genders. Every use of the word “including” in this Agreement is to be construed as meaning “including, without limitation”.
- 1.2.2 The division of this Agreement into Articles and Sections, the insertion of headings and the provision of a table of contents are for convenience of reference only and do not affect the construction or interpretation of this Agreement.
- 1.2.3 Wherever in this Agreement reference is made to a calculation to be made in accordance with GAAP, the reference is to Canadian generally accepted accounting principles applicable

to private enterprises under Part II of the CPA Canada Handbook of the Chartered Professional Accountants of Canada, as amended at any time, applicable as at the date on which the calculation is made or required to be made in accordance with GAAP.

- 1.2.4 References in this Agreement to an Article, Section or Schedule are to be construed as references to an Article, Section or Schedule of or to this Agreement unless the context requires otherwise.
- 1.2.5 Unless otherwise specified in this Agreement, time periods within which or following which any payment is to be made or act is to be done will be calculated by excluding the day on which the period commences and including the day on which the period ends. If the last day of a time period is not a Business Day, the time period will end on the next Business Day.
- 1.2.6 Unless otherwise specified, any reference in this Agreement to any statute includes all regulations made thereunder or in connection therewith from time to time, and is to be construed as a reference to such statute as amended, supplemented or replaced from time to time.

**1.3 Governing Law and Attornment**

This Agreement is governed by, and is to be construed and interpreted in accordance with, the laws of the Province of Alberta and the laws of Canada applicable in that Province. Each of the Parties hereby irrevocably and unconditionally attorns to the exclusive jurisdiction of the courts of the Province of Alberta.

**1.4 Entire Agreement**

This Agreement, and any other agreements and documents to be delivered under this Agreement, constitutes the entire agreement between the Parties pertaining to the subject matter of this Agreement and supersedes all prior agreements, understandings, negotiations and discussions, whether oral or written, of the Parties, and there are no representations, warranties or other agreements between the Parties in connection with the subject matter of this Agreement except as specifically set out in this Agreement or in any other agreements and documents delivered under this Agreement. No Party has been induced to enter into this Agreement in reliance on, and there will be no liability assessed, either in tort or contract, with respect to, any warranty, representation, opinion, advice or assertion of fact, except to the extent it has been reduced to writing and included as a term in this Agreement or in any other agreements and documents delivered under this Agreement.

**1.5 Business Day**

Whenever any payment to be made or action to be taken under this Agreement is required to be made or taken on a day other than a Business Day, the payment is to be made or action taken on the next Business Day following.

**1.6 Schedules**

The following is a list of Schedules:

| <b>Subject Matter</b>      | <b>Schedule</b> |
|----------------------------|-----------------|
| Approval and Vesting Order | Schedule "A"    |

Permitted Encumbrances

Schedule "B"

**ARTICLE 2  
SALE AND PURCHASE AND ASSIGNMENT**

**2.1 Sale and Purchase of Assets and Assumption of Assumed Contracts and Assumed Liabilities**

2.1.1 Subject to the terms and conditions of this Agreement, effective as of the Closing:

2.1.1.1 the Vendor will sell to the Purchaser and the Purchaser will purchase the Assets;

2.1.1.2 the Vendor will assign to the Purchaser all of its rights, benefits and interests in and to the Assumed Contracts, and the Purchaser will assume the Assumed Contracts; and

2.1.1.3 the Purchaser will be deemed to have assumed and shall from and after the Closing perform the Assumed Liabilities.

2.1.2 On Closing, to the extent necessary, the Purchaser will enter into assumption agreements in form and substance satisfactory to each of the Purchaser and the Vendor, acting reasonably. The Purchaser acknowledges that the Vendor will have no responsibility whatsoever for curing any defaults, paying any arrears, or performing any obligations under or with respect to the Assumed Contracts.

**2.2 Purchase Price**

2.2.1 The purchase price payable by the Purchaser to the Vendor for the Assets is calculated as follows:

2.2.1.1 \$██████ payable by the Purchaser to the Vendor in respect of the Shankowski Pit, the Shankowski Pit Agreement and any Aggregate Inventory that is stored or located on the Shankowski Lands, together with the assumption by the Purchaser of the Assumed Liabilities as they pertain to the Shankowski Pit, the Shankowski Pit Agreement and the Shankowski Lands; and

2.2.1.2 \$██████ payable by the Vendor to the Purchaser in respect of the Havener Pit, the Havener Pit Agreement and any Aggregate Inventory that is stored or located on the Havener Lands, together with the assumption by the Purchaser of the Assumed Liabilities as they pertain to the Havener Pit, the Havener Pit Agreement and the Havener Lands,

with the \$██████ payable by the Vendor to the Purchaser under Section 2.2.1.2 being set off against the \$██████ payable by the Purchaser to the Vendor, for a net amount payable by the Purchaser to the Vendor equal to \$██████ (the "**Cash Component**").

2.2.2 At or before Closing, the Purchaser will pay to the Proposal Trustee, the Cash Component in immediately available funds by wire transfer in accordance with wire transfer instructions provided in writing by the Vendor to the Purchaser.



2.2.3 For greater certainty, there shall be no adjustment to the Purchase Price in favour of the Vendor or Purchaser on account of Aggregate Inventory.

**2.3 Transfer Taxes**

2.3.1 Subject to Section 2.3.2:

2.3.1.1 the Purchaser will be liable for and will pay all Transfer Taxes properly payable by the Purchaser in connection with the sale and transfer of the Assets, and, upon the reasonable request of the Vendor, the Purchaser will furnish proof of the payment of those Transfer Taxes to the appropriate Governmental Authority or provide to the Vendor any applicable exemptions evidencing that no Transfer Taxes are exigible in connection with the Transaction;

2.3.1.2 the Purchaser and Vendor acknowledge and agree that the Assets, other than the Aggregate Inventory, are deemed not to be a supply for Transfer Tax purposes under subsection 162(2) of the ETA;

2.3.1.3 the Purchaser and Vendor further acknowledge and agree that nil consideration is allocable to the Aggregate Inventory; and

2.3.1.4 the Purchaser agrees to indemnify and save the Vendor harmless from and against all claims and demands for payment of all applicable Transfer Taxes including penalties and interest and any liability or costs incurred as a result of any failure to pay such taxes when due, where such Transfer Taxes are exigible and not paid by the Purchaser; and

2.3.2 Notwithstanding Sections 2.3.1.1 to 2.3.1.3, the Vendor shall remit to the applicable Governmental Authority goods and services taxes in respect of the Transaction calculated on the basis of the Cash Component.

**ARTICLE 3  
REPRESENTATIONS AND WARRANTIES**

**3.1 Purchaser's Representations**

The Purchaser represents and warrants to the Vendor that:

3.1.1 the Purchaser is a municipal corporation subject to the Municipal Government Act and created pursuant to a municipal order dated January 30, 1942 and amended further to a ministerial order dated April 6, 20194 and further by Order in Council 1416/61;

3.1.2 the Purchaser has all the necessary corporate power, authority and capacity to enter into this Agreement and to perform its obligations and the execution and delivery of this Agreement and the consummation of the Transaction have been duly authorized by all necessary corporate actions on the part of the Purchaser;

3.1.3 the Purchaser is not a party to, bound or affected by or subject to any indenture, agreement, instrument, charter or by-law provision, order, judgment or decree which would be violated, contravened or breached by the execution and delivery by it of this Agreement or the performance by it of any of the terms contained in this Agreement;

- 3.1.4 the Purchaser has not agreed to pay any agent or broker fees or other commissions on the Purchase Price or otherwise in connection with the Transaction; and
- 3.1.5 the Purchaser is not a non-Canadian Person as defined in the *Investment Canada Act*.

### **3.2 Vendor's Representations**

The Vendor represents and warrants to the Purchaser that:

- 3.2.1 the Vendor is a corporation duly incorporated and existing under the laws of Alberta;
- 3.2.2 the Vendor has the right to enter into this Agreement and, subject to the granting of the Approval and Vesting Order by the Court, to complete the Transaction;
- 3.2.3 the Vendor is not a non-resident of Canada within the meaning of that term as used in the *Income Tax Act (Canada)*;
- 3.2.4 save and except for the charges created pursuant to the August 15 Order, the Vendor has not previously sold or done any act to encumber the Assets;
- 3.2.5 the Vendor has not agreed to pay any agent or broker fees or other commissions on the Purchase Price or otherwise in connection with the Transaction; and
- 3.2.6 to the best of the Vendor's knowledge, no actions or proceedings are pending and none have been threatened to restrain or prohibit the completion of the Transaction contemplated by this Agreement.

### **3.3 "As is, Where is"**

The Purchaser acknowledges that, subject to Sections 3.1 and 3.2, the Vendor is selling the Assets on an "as is, where is" basis as they exist on the Closing Date. The Purchaser further acknowledges that it has entered into this Agreement on the basis that the Vendor does not guarantee title to the Assets and that the Purchaser has conducted or will have conducted its own investigation and due diligence of the condition of and title to the Assets as it deems appropriate and has satisfied itself with regard to these matters. No representation, warranty or condition is expressed or can be implied as to title, encumbrances, description, fitness for purpose, merchantability, condition, quantity or quality, assignability, validity or enforceability, or in respect of any other matter or thing whatsoever concerning the Assets or the right of the Vendor to sell them save and except as expressly represented or warranted in this Agreement. Without limiting the generality of the foregoing, any and all conditions, warranties or representations expressed or implied pursuant to Applicable Laws do not apply to this Transaction and have been waived by the Purchaser. The description of the Assets contained in the Data Room is provided for the convenience of the Purchaser and the Vendor makes no representation or warranty with respect to the accuracy or completeness of that information or any other information provided by the Vendor to the Purchaser.

## **ARTICLE 4 CONDITIONS**

### **4.1 Conditions of the Purchaser**

The obligation of the Purchaser to complete the Transaction is subject to the fulfillment of each of the following conditions before the Closing Date (unless otherwise specified, or unless otherwise waived by the Purchaser as it may determine in its sole and unfettered discretion):

- 4.1.1 all representations and warranties of the Vendor contained in this Agreement will be true as of the Closing Date with the same effect as though made on and as of that date;
- 4.1.2 no action or proceedings will be pending or threatened to restrain or prohibit the completion of the Transaction contemplated by this Agreement on the Closing Date;
- 4.1.3 the Vendor will have performed each of its obligations under this Agreement to the extent required to be performed on or before the Closing Date; and
- 4.1.4 each Landowner shall have consented to the assignment of the Assumed Agreement to which they are party on terms reasonably acceptable to the Purchaser, which consent shall include a waiver of any obligation by the Purchaser to pay any obligations owing under the Assumed Agreement which accrued prior to Closing.

The foregoing conditions are for the exclusive benefit of the Purchaser. Any condition may be waived by the Purchaser in whole or in part. Any such waiver will be binding on the Purchaser only if made in writing.

### **4.2 Conditions of the Vendor**

The obligation of the Vendor to complete the Transaction is subject to the fulfillment of each of the following conditions before the Closing Date (unless otherwise specified, or unless otherwise waived by the Vendor in its sole discretion):

- 4.2.1 all representations and warranties of the Purchaser contained in this Agreement will be true as of the Closing Date with the same effect as though made on and as of that date;
- 4.2.2 no action or proceedings will be pending or threatened to restrain or prohibit the completion of the Transaction contemplated by this Agreement;
- 4.2.3 the Purchaser will have performed each of its obligations under this Agreement to the extent required to be performed on or before the Closing Date;
- 4.2.4 the County Council for the Purchaser shall have approved the form of this Agreement;
- 4.2.5 each Landowner shall have consented to the assignment of the Assumed Agreement to which they are party on terms reasonably acceptable to the Vendor, which consent shall include a waiver of any obligation by the Vendor to pay any obligations owing under the Assumed Agreement which accrued prior to Closing;
- 4.2.6 the Purchaser shall have deposited with the AEPA such security deposits in respect of the Shankowski Pit and Havener Pit as are required by the AEPA to secure the Reclamation

Liabilities associated with the Shankowski Pit and Havener Pit (the “**New Reclamation Security**”); and

- 4.2.7 the AEPA shall have confirmed in writing to the Vendor that upon receipt by the AEPA of the New Reclamation Security, the Current Reclamation Security shall be returned to the Vendor.

The foregoing conditions are for the exclusive benefit of the Vendor. Any condition may be waived by the Vendor in whole or in part. Any such waiver will be binding on the Vendor only if made in writing.

#### **4.3 Mutual Conditions**

The obligations of the Vendor and Purchaser to complete the Transaction are subject to the satisfaction of the following conditions precedent at or prior to the Closing:

- 4.3.1 the Court shall have made an Order Court approving this Agreement and the Transaction and vesting in the Purchaser all the right, title and interest of the Vendor in the Assets free and clear of all Encumbrances, save and except for the Permitted Encumbrances, such order to be substantially in the form of the order attached hereto as **Schedule “A”** (the “**Approval and Vesting Order**”);
- 4.3.2 the Approval and Vesting Order will not have been stayed, varied or vacated and no order will have been issued and no action or proceeding will be pending to restrain or prohibit the completion of the Transaction;
- 4.3.3 the AEPA shall have terminated the EPOs; and
- 4.3.4 the AEPA shall have approved the transfer to the Purchaser of the Registrations or issued new Registrations in favour of the Purchaser in place of the current Registrations.

The Parties hereto acknowledge that the foregoing conditions are for the mutual benefit of the Vendor and the Purchaser.

#### **4.4 Non-Satisfaction of Conditions**

If any condition set out in this Article is not satisfied or performed prior to the time specified therefor, the Party for whose benefit the condition is inserted may in writing:

- 4.4.1 waive compliance with the condition in whole or in part in its sole discretion by written notice to the other Party and without prejudice to any of its rights of termination in the event of non-fulfilment of any other condition in whole or in part; or
- 4.4.2 elect by written notice to the other Party delivered on or before the date specified for the condition to terminate this Agreement.

#### **4.5 Actions to Satisfy Conditions**

- 4.5.1 The Purchaser and Vendor will take such commercially reasonable actions as are required to obtain the consent of the AEPA to the transfer to the Purchaser of the Registrations, or the issuance of new Registrations to the Purchaser, in respect of it of the Shankowski Pit and Havener Pit. The Purchaser agrees to provide to the AEPA such financial and other

information as is required by the AEPA in connection therewith to evidence the Purchaser's ability to comply with the Environmental Laws and satisfy the Reclamation Liabilities associated with the Shankowski Pit and Havener Pit.

- 4.5.2 On or before Closing, the Purchaser shall provide to the AEPA the New Reclamation Security required by the AEPA and deliver to the Vendor satisfactory evidence that it has deposited the New Reclamation Security with the AEPA.

## **ARTICLE 5 CLOSING**

### **5.1 Closing**

The Closing of the Transaction will take place by telephone conference and electronic exchange of documents at 10:00 a.m. Mountain Time on the Closing Date or at such other place and time as the Parties may agree in writing.

### **5.2 Purchaser's Deliveries on Closing**

At or before the Closing Date, the Purchaser will execute and deliver to the Vendor the following, each of which will be in form and substance satisfactory to the Vendor's counsel, acting reasonably:

- 5.2.1 the Cash Component;
- 5.2.2 a certificate of a senior officer of the Purchaser dated the Closing Date, confirming that:
  - 5.2.2.1 all of the representations and warranties of the Purchaser contained in this Agreement are true as of the Closing Date, with the same effect as though made on and as of the Closing Date;
  - 5.2.2.2 each of the conditions precedent in Section 4.1, other than those previously stated as fulfilled, performed or waived by the Purchaser, have been fulfilled, performed or waived as of the Closing Date;
- 5.2.3 an assumption agreement as contemplated by Section 2.1.2;
- 5.2.4 evidence of the deposit of the New Reclamation Security with the AEPA; and
- 5.2.5 such further and other documentation as is referred to in this Agreement or as the Vendor may reasonably require to give effect to this Agreement.

The Purchaser shall also deliver the balance of the Purchase Price in accordance with the provisions of Section 2.2.2.

### **5.3 Vendor's Deliveries on Closing**

At or before the Closing Date, the Vendor will execute and deliver to the Purchaser the following, each of which will be in form and substance satisfactory to the Purchaser, acting reasonably:

- 5.3.1 a certificate of an officer of the Vendor dated the Closing Date confirming that:

- 5.3.1.1 all of the representations and warranties of the Vendor contained in this Agreement are true as of the Closing Date, with the same effect as though made on and as of the Closing Date;
- 5.3.1.2 each of the conditions precedent in Section 4.2 have been fulfilled, performed or waived as of the Closing Date;
- 5.3.2 an assumption agreement as contemplated by Section 2.1.2;
- 5.3.3 a true copy of the Approval and Vesting Order;
- 5.3.4 a transfer of any caveat registered by the Vendor against the Assets at the Alberta Land Titles Office; and
- 5.3.5 such further and other documentation as is referred to in this Agreement or as the Purchaser may reasonably require to give effect to this Agreement.

#### **5.4 Purchaser's Acknowledgement**

The Purchaser acknowledges that the Vendor is selling its right, title and interest in and to the Assets pursuant to this Agreement and the Approval and Vesting Order. The Purchaser agrees to purchase and accept the right, title and interest of the Vendor in and to the Assets pursuant to and in accordance with the terms of this Agreement and the Approval and Vesting Order.

#### **5.5 Possession of Assets**

The Vendor will remain in possession of the Assets until the Closing Date. On Closing, the Purchaser will take possession of the Assets as at the Closing Date. The Purchaser acknowledges that the Vendor has no obligation to deliver physical possession of the Assets to the Purchaser. In no event will the Assets be sold, assigned, transferred or set over to the Purchaser until the Purchaser has satisfied all delivery requirements outlined in Section 5.2.

#### **5.6 Access to Assets**

- 5.6.1 The Purchaser and its duly authorized Representatives may have reasonable access to the Assets during normal business hours prior to the Closing Date for the purpose of enabling the Purchaser to conduct such inspections of the Assets as it deems appropriate, provided the Purchaser gives the Vendor at least twenty-four (24) hours prior notice of the times it intends to conduct such inspections. Such inspection will only be conducted in the presence of a Representative of the Vendor if so required at the discretion of the Vendor.
- 5.6.2 The Vendor will furnish to the Purchaser and its duly authorized Representatives any financial and operating data and other information and documentation with respect to the Assets as the Purchaser reasonably requests, other than information subject to solicitor client privilege or confidentiality obligations.
- 5.6.3 The Purchaser agrees to indemnify and save the Vendor harmless from and against all claims, demands, losses, damages, actions and costs incurred or arising from or in any way directly related to the inspection of the Assets or the attendance of the Purchaser, its employees, contractors or agents at the Shankowski Lands or Havener Lands.

**5.7 Risk**

The Assets will be and remain at the risk of the Vendor until Closing and at the risk of the Purchaser from and after Closing.

**5.8 Termination**

5.8.1 If either the Vendor or the Purchaser validly terminates this Agreement pursuant to the provisions of Sections 4.4, all the obligations of both the Vendor and Purchaser pursuant to this Agreement will be at an end and neither Party will have any right to specific performance or other remedy against, or any right to recover damages or expenses from, the other.

5.8.2 The Parties agree that irreparable damage, for which monetary relief would not be an adequate remedy, would occur in the event that any provision of this Agreement is not performed in accordance with its specific terms or is otherwise breached, including if any of the Parties fails to take any action required of it hereunder to consummate the Transaction. It is accordingly agreed that (i) the Parties will be entitled to specific performance or other equitable relief to prevent breaches of this Agreement and to enforce specifically the terms and provisions hereof in the Court without proof of damages or otherwise, this being in addition to any other remedy to which they are entitled under this Agreement, and (ii) the right of specific performance and other equitable relief is an integral part of the Transaction and without that right, neither the Vendor nor the Purchaser would have entered into this Agreement. The remedies available to Vendor pursuant to this Section 5.8.2 will be in addition to any other remedy to which they were entitled at law or in equity, and the election to pursue specific performance will not restrict, impair or otherwise limit any Vendor from seeking to collect or collecting damages.

**ARTICLE 6  
GENERAL**

**6.1 Paramountcy**

In the event of any conflict or inconsistency between the provisions of this Agreement, and any other agreement, document or instrument executed or delivered by the Vendor in connection with this Transaction or this Agreement, the provisions of this Agreement will prevail to the extent of such conflict or inconsistency.

**6.2 Time of Essence**

Time is of the essence of this Agreement.

**6.3 Notices**

Any Communication must be in writing and either delivered personally or by courier, sent by prepaid registered mail or transmitted by e-mail or functionally equivalent electronic means of transmission, charges (if any) prepaid. Any Communication must be sent to the intended recipient at its address as follows:

6.3.1 If to the Purchaser:

County of St. Paul No. 19  
5015 – 49 Avenue  
St. Paul, AB T0A 3A4

Attention: Chief Administrative Officer  
E-mail: [jwallsmith@county.stpaul.ab.ca](mailto:jwallsmith@county.stpaul.ab.ca)

6.3.2 If to the Vendor:

Mantle Materials Group, Ltd.  
c/o Resource Land Holdings, LLC  
1400 16th Street, Suite 320  
Denver, CO 80202

Attention: John Stout, Senior Vice President  
E-mail: [john.stout@rlholdings.com](mailto:john.stout@rlholdings.com)

with a copy to:

Gowling WLG (Canada) LLP  
Suite 1600, 421 7<sup>th</sup> Avenue SW  
Calgary AB T2P 4K9

Attention: Tom Cumming / Stephen Kroeger  
E-mail: [tom.cumming@gowlingwlg.com](mailto:tom.cumming@gowlingwlg.com) / [stephen.kroeger@gowlingwlg.com](mailto:stephen.kroeger@gowlingwlg.com)

or at any other address as any Party may at any time advise the other by Communication given or made in accordance with this Section 6.3. Any Communication delivered to the Party to whom it is addressed will be deemed to have been given or made and received on the day it is delivered at that Party's address, provided that if that day is not a Business Day then the Communication will be deemed to have been given or made and received on the next Business Day. Any Communication sent by prepaid registered mail will be deemed to have been given or made and received on the fifth Business Day after which it is mailed. If a strike or lockout of postal employees is then in effect, or generally known to be impending, every Communication must be delivered personally or by courier or transmitted by e-mail or functionally equivalent electronic means of transmission. Any Communication transmitted by e-mail or functionally equivalent electronic means of transmission will be deemed to have been given or made and received on the day on which it is transmitted; but if the Communication is transmitted on a day which is not a Business Day or after 4:00 pm (local time of the recipient), the Communication will be deemed to have been given or made and received on the next Business Day.

#### 6.4 Severability

Each Section of this Agreement is distinct and severable. If any Section of this Agreement, in whole or in part, is or becomes illegal, invalid, void, voidable or unenforceable in any jurisdiction by any court of competent jurisdiction, the illegality, invalidity or unenforceability of that Section, in whole or in part, will not affect the legality, validity or enforceability of the remaining Sections of this Agreement, in whole or in part or the legality, validity or enforceability of that Section, in whole or in part, in any other jurisdiction.

#### 6.5 Submission to Jurisdiction

Each of the Parties irrevocably and unconditionally submits and attorns to the non-exclusive jurisdiction of the courts of the Province of Alberta to determine all issues, whether at law or in equity arising from



this Agreement. To the extent permitted by Applicable Law, each of the Parties irrevocably waives any objection, including any claim of inconvenient forum, that it may now or in the future have to the venue of any legal proceeding arising out of or relating to this Agreement in the courts of that Province, or that the subject matter of this Agreement may not be enforced in those courts, and irrevocably agrees not to seek, and waives any right to, judicial review by any court which may be called upon to enforce the judgment of the courts referred to in this Section 6.5, of the substantive merits of any suit, action or proceeding.

## **6.6 Amendment and Waiver**

No amendment, discharge, modification, restatement, supplement, termination or waiver of this Agreement or any Section of this Agreement is binding unless it is in writing and executed by the Party to be bound. No waiver of, failure to exercise or delay in exercising, any Section of this Agreement constitutes a waiver of any other Section (whether or not similar) nor does any waiver constitute a continuing waiver unless otherwise expressly provided.

## **6.7 Further Assurances**

Each Party will, at the requesting Party's cost and expense, execute and deliver any further agreements and documents and provide any further assurances, undertakings and information as may be reasonably required by the requesting Party to give effect to this Agreement and, without limiting the generality of this Section 6.7.

## **6.8 Assignment and Enurement**

Neither this Agreement nor any right or obligation under this Agreement may be assigned by either Party without the prior written consent of the other Party. This Agreement enures to the benefit of and is binding upon the Parties and their respective successors and permitted assigns.

## **6.9 Electronic Signatures and Delivery**

This Agreement and any counterpart of it may be signed by manual, digital or other electronic signatures, and delivered or transmitted by any digital, electronic or other intangible means, including by e-mail or other functionally equivalent electronic means of transmission, and that execution, delivery and transmission will be valid and legally effective to create a valid and binding agreement between the Parties.

## **6.10 Counterparts**

This Agreement may be signed and delivered by the Parties in counterparts, with the same effect as if each of the Parties had signed and delivered the same document, and that execution and delivery will be valid and legally effective.

## **6.11 Costs and Expenses**

Except as otherwise specified in this Agreement, all costs and expenses (including the fees and disbursements of accountants, legal counsel and other professional advisers) incurred in connection with this Agreement and the completion of the Transaction are to be paid by the Party incurring those costs and expenses. If this Agreement is terminated, the obligation of each Party to pay its own costs and expenses is subject to each Party's respective rights arising from a breach or termination.

Each of the Parties has executed and delivered this Agreement as of the date noted at the beginning of this Agreement.

**MANTLE MATERIALS GROUP, LTD.**

Per: DocuSigned by:

*Byron*

DA7FAEE6A770408...

Name:

Title:

**COUNTY OF ST. PAUL NO. 19**

Per:

DocuSigned by:

*Jason*

4CABA38B0D4D4CB...

Name: Jason Wallsmith

Title: Chief Administrative Officer

**COUNTY OF ST. PAUL NO. 19**

Per:

DocuSigned by:

*Maxine*

18A5E70086124E7...

Name: Maxine P. Oerffs

Title: Deputy Reeve

**SCHEDULE "A"**  
**FORM OF SALE APPROVAL AND VESTING ORDER**

**Order  
Rule 9.1**



COURT FILE NO. 2301 16114  
COURT COURT OF KING'S BENCH OF ALBERTA  
JUDICIAL CENTRE CALGARY

IN THE MATTER OF THE *COMPANIES' CREDITORS  
ARRANGEMENT ACT*, RSC 1985, c C-36, as amended  
AND IN THE MATTER OF THE COMPROMISE OR  
ARRANGEMENT OF MANTLE MATERIALS GROUP, LTD.

APPLICANT MANTLE MATERIALS GROUP, LTD.

DOCUMENT **ORDER (Sale Approval)**

ADDRESS FOR SERVICE AND CONTACT INFORMATION OF PARTY FILING THIS DOCUMENT **Gowling WLG (Canada) LLP**  
1600, 421 – 7<sup>th</sup> Avenue SW  
Calgary, AB T2P 4K9  
Attn: **Tom Cumming/Sam Gabor/Stephen Kroeger**  
Phone: 403.298.1938/403.298.1018  
Fax: 403.263.9193  
Email: tom.cumming@gowlingwlg.com / sam.gabor@gowlingwlg.com / stephen.kroeger@gowlingwlg.com  
File No.: A171561

**DATE ON WHICH ORDER WAS PRONOUNCED:**

**LOCATION AT WHICH ORDER WAS MADE:** Calgary Courts Centre

**NAME OF JUSTICE WHO MADE THIS ORDER:**

**UPON** the application (the “**Application**”) of Mantle Materials Group, Ltd. (“**MANTLE**”) that commenced the within proceedings (the “**Proceedings**”) pursuant to the initial order granted under the *Companies’ Creditors Arrangement Act* (the “**CCAA**”) on January 10, 2024 (as may be subsequently amended and restated, the “**Initial Order**”), for an order approving the sale transaction (the “**Transaction**”) contemplated by the asset purchase agreement dated January XX, 2024 (the “**APA**”) between Mantle, as vendor, and County of St. Paul No. 19 (the “**Purchaser**”), as purchaser, and appended as Exhibit “X” to the Affidavit of Byron Levkulich

sworn January XX, 2024 (the “**Levkulich Affidavit**”), and vesting in the Purchaser (or its nominee), all of Mantle’s right, title, and interest in and to the assets described in the APA (the “**Purchased Assets**”);

**AND UPON HAVING READ** the Initial Order; **AND UPON BEING ADVISED** that on July 19, 2023 Mantle filed a notice of intention to make a proposal (the “**Proposal Proceedings**”) under section 50.4 of the *Bankruptcy and Insolvency Act*, RSC 1985, c.B-3 (the “**BIA**”); **AND UPON BEING ADVISED** that Mantle, with the assistance of FTI Consulting Canada Inc., in its capacity as proposal trustee of Mantle (“**FTI**”), conducted a sales process for the Purchased Assets in the Proposal Proceedings; **AND UPON HAVING READ** the First Report of FTI (in such capacity, the “**Monitor**”), in its capacity as the court-appointed monitor of the Mantle, dated January XX, 2024, filed; **AND UPON HAVING READ** the Levkulich Affidavit, the Confidential Affidavit of Byron Levkulich sworn January XX, 2024 and the Affidavit of Service, to be filed; **AND UPON HEARING** the submissions of counsel for Mantle, the Monitor, and for any other parties who may be present; **IT IS HEREBY ORDERED AND DECLARED THAT:**

**Service**

1. Service of notice of this application and supporting materials is hereby declared to be good and sufficient, no other person is required to have been served with notice of this application, and time for service of this application is abridged to that actually given.

**Approval of Transaction**

2. The Transaction is hereby approved and execution of the APA is hereby authorized, ratified, confirmed, and approved, with such minor amendments as the Monitor and the Purchaser may agree to, with the consent of Mantle. The Monitor and Mantle are hereby authorized and directed to take such additional steps and Mantle is hereby authorized and empowered to execute such additional documents as may be necessary or desirable for the completion of the Transaction and conveyance of the Purchased Assets to the Purchaser (or its nominee).

### Vesting of Purchased Assets

3. Upon the delivery of a Monitor's certificate to the Purchaser (or its nominee) substantially in the form set out in **Schedule "A"** hereto (the "**Monitor's Certificate**"), all of Mantle's right, title, and interest in and to the Purchased Assets, as described in the APA, shall vest absolutely, exclusively, and entirely in the name of the Purchaser (or its nominee), free and clear of and from any and all caveats, security interests, hypothecs, pledges, mortgages, liens, trusts, reservations of ownership, privileges, interests, assignments, actions, judgements, executions, levies, taxes, writs of enforcement, charges, or other claims, whether contractual, statutory, financial, monetary, or otherwise, whether or not they have attached or been perfected, registered, or filed and whether secured, unsecured or otherwise (collectively, the "**Claims**") including, without limiting the generality of the foregoing:

- (a) any encumbrances or charges created by the Initial Order; and
- (b) all charges, security interests or claims evidenced by registrations pursuant to the *Personal Property Security Act* (Alberta) or any other personal property registry system;

and for greater certainty, this Court orders that all Claims, including Encumbrances, other than Permitted Encumbrances as set out in **Schedule "B"** hereto (the "**Permitted Encumbrances**"), affecting or relating to the Purchased Assets are hereby expunged, discharged and terminated as against the Purchased Assets.

4. Upon delivery of the Monitor's Certificate and upon filing of a certified copy of this Order, together with any applicable registration fees, all governmental authorities including those referred to in this paragraph (collectively, "**Governmental Authorities**") are hereby authorized, requested and directed to accept delivery of such Monitor's Certificate and certified copy of this Order as though they were originals and to register such transfers, interest authorizations, discharges and discharge statements of conveyance as may be required to convey to the Purchaser or its nominee clear title to the Purchased Assets, subject only to Permitted Encumbrances. Without limiting the foregoing, the Registrar of Land

Titles (“**Land Titles Registrar**”) for the Lands shall and is hereby authorized, requested and directed to forthwith transfer to the Purchaser or its nominee the following:

- (a) the caveat registered as Instrument No. 002 170 374 and further described on Schedule “C” hereto against the lands and premises legally described as follows:

Meridian 4  
 Range 7  
 Township 56  
 Section 16,  
 Quarter North West  
 containing 64.7 hectares (160 acres) more or less; excepting thereout:

A) Plan 4286BM - Road 0.0004 hectares, 0.001 acres, more or less

B) all that portion commencing at the south west corner of the said quarter section; thence easterly along the south boundary 110 metres; thence northerly and parallel to the west boundary of the said quarter 110 metres; thence westerly and parallel to the said south boundary to a point on the west boundary; thence southerly along the said west boundary to the point of commencement containing 1.21 hectares, 3.00 acres

C) Plan 1722948 - Road 0.360 0.89

Excepting thereout all mines and minerals

(the “**Havener Lands**”);

- (b) the caveat registered as Instrument No. 222 033 728 and further described on Schedule “C” hereto against the lands and premises legally described as follows:

First  
 Meridian 4 Range 7 Township 56  
 Section 21  
 Quarter North West  
 Containing 64.7 Hectares (160 Acres) more or less  
 Excepting Thereout: Hectares (Acres) more or less  
 A) Plan 1722948 - Road 0.417 1.03  
 Excepting thereout all Mines and Minerals  
 And the right to work the same

Second  
 Meridian 4 Range 7 Township 56  
 Section 21  
 Quarter South West  
 Containing 64.7 Hectares (160 Acres) more or less  
 Excepting Thereout: Hectares (Acres) more or less  
 A) Plan 1722948 - Road 0.417 1.03

Excepting thereout all mines and minerals  
And the right to work the same

(the “**Shankowski Lands**” and together with the Havener Lands, the “**Lands**”)

and to amend the titles to the Lands to reflect such transfers.

5. In order to effect the transfers and discharges described above, this Court directs each of the Governmental Authorities to take such steps as are necessary to give effect to the terms of this Order and the APA. Presentment of this Order and the Monitor’s Certificate shall be the sole and sufficient authority for the Governmental Authorities to make and register transfers of title or interest and cancel and discharge registrations against any of the Purchased Assets of any Claims, including Encumbrances but excluding Permitted Encumbrances.
6. The Monitor is authorized and directed to undertake and perform such activities and obligations as are contemplated to be undertaken or performed by the Monitor pursuant to this Order, the Initial Order, the APA, or any ancillary document related thereto, and shall incur no liability in connection therewith, save and except for any gross negligence or wilful misconduct on its part.
7. No authorization, approval or other action by and no notice to or filing with any governmental authority or regulatory body exercising jurisdiction over the Purchased Assets is required for the due execution, delivery, and performance by Mantle of the APA.
8. Upon delivery of the Monitor’s Certificate together with a certified copy of this Order, this Order shall be immediately registered by the Land Titles Registrar notwithstanding the requirements of section 191(1) of the *Land Titles Act*, RSA 2000, c. L-7 and notwithstanding that the appeal period in respect of this Order has not elapsed. The Land Titles Registrar is hereby directed to accept all Affidavits of Corporate Signing Authority submitted by the Monitor in its capacity as Monitor of Mantle and not in its personal capacity.
9. For the purposes of determining the nature and priority of Claims, net proceeds from sale of the Purchased Assets shall stand in the place and stead of the Purchased Assets from and after delivery of the Monitor’s Certificate and all Claims including Encumbrances (but



excluding Permitted Encumbrances) shall not attach to, encumber, or otherwise form a charge, security interest, lien, or other Claim against the Purchased Assets and may be asserted against the net proceeds from sale of the Purchased Assets with the same priority as they had with respect to the Purchased Assets immediately prior to the sale, as if the Purchased Assets had not been sold and remained in the possession or control of the person having that possession or control immediately prior to the sale.

10. Upon completion of the Transaction, Mantle and all persons who claim by, through or under Mantle in respect of the Purchased Assets, and all persons or entities having any Claims of any kind whatsoever in respect of the Purchased Assets, shall stand absolutely and forever barred, estopped, and foreclosed from and permanently enjoined from pursuing, asserting, or claiming any and all right, title, estate, interest, royalty, rental, equity of redemption or other Claim whatsoever in respect of or to the Purchased Assets, and to the extent that any such persons or entities remain in the possession or control of any of the Purchased Assets, or any artifacts, certificates, instruments or other indicia of title representing or evidencing any right, title, estate, or interest in and to the Purchased Assets, they shall forthwith deliver possession thereof to the Purchaser (or its nominee).
11. The Purchaser (or its nominee) shall be entitled to enter into and upon, hold and enjoy the Purchased Assets for its own use and benefit without any interference of or by Mantle, or any person claiming by, through or against Mantle.
12. The Monitor is directed to file with the Court a copy of the Monitor's Certificate forthwith after delivery thereof to the Purchaser (or its nominee).
13. The Monitor may rely on written notice from Mantle and the Purchaser or their respective counsel regarding the fulfillment of conditions to closing under the APA and shall incur no liability with respect to the delivery of the Monitor's Certificate.

#### **Miscellaneous Matters**

14. Notwithstanding:
  - (a) the pendency of these proceedings and any declaration of insolvency made herein;

- (b) the pendency of any applications for a bankruptcy order now or hereafter issued pursuant to the BIA, in respect of Mantle, and any bankruptcy order issued pursuant to any such applications;
- (c) any assignment in bankruptcy made in respect of Mantle; and
- (d) the provisions of any federal or provincial statute:

the vesting of the Purchased Assets in the Purchaser (or its nominee) pursuant to this Order shall be binding on any trustee in bankruptcy that may be appointed in respect of Mantle and shall not be void or voidable by creditors of Mantle, nor shall it constitute nor be deemed to be a transfer at undervalue, settlement, fraudulent preference, assignment, fraudulent conveyance, or other reviewable transaction under the BIA or any other applicable federal or provincial legislation, nor shall it constitute oppressive or unfairly prejudicial conduct pursuant to any applicable federal or provincial legislation.

- 15. Mantle, the Monitor, the Purchaser (or its nominee), and any other interested party shall be at liberty to apply for further advice, assistance and direction as may be necessary in order to give full force and effect to the terms of this Order and to assist and aid the parties in closing the Transaction.
- 16. This Honourable Court hereby requests the aid and recognition of any court, tribunal, regulatory or administrative body having jurisdiction in Canada or in any of its provinces or territories or in any foreign jurisdiction, to act in aid of and to be complimentary to this Court in carrying out the terms of this Order, to give effect to this Order, and to assist Mantle, the Monitor and their respective agents in carrying out the terms of this Order. All courts, tribunals, regulatory and administrative bodies are hereby respectfully requested to make such order and to provide such assistance to Mantle and the Monitor as an officer of the Court as may be necessary or desirable to give effect to this Order or to assist Mantle, the Monitor and their respective agents in carrying out the terms of this Order.
- 17. Service of this Order shall be deemed good and sufficient by:
  - (a) Serving the same on:

- (i) the persons listed on the service list created in these proceedings;
  - (ii) any other person served with notice of the application for this Order;
  - (iii) any other parties attending or represented at the application for this Order;
  - (iv) the Purchaser or the Purchaser's solicitors;
- (b) Posting a copy of this Order on the Monitor's website at:  
<http://cfcanda.fticonsulting.com/mantle/default.htm>;

and service on any other person is hereby dispensed with.

18. Service of this Order may be effected by facsimile, electronic mail, personal delivery or courier. Service is deemed to be effected the next business day following transmission or delivery of this Order.

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Justice of the Court of King's Bench of  
Alberta

**SCHEDULE "A" - SAVO  
[Sale Approval]**

**MONITOR'S CERTIFICATE**



COURT FILE NO. 2301 16114  
COURT COURT OF KINGS'S BENCH OF ALBERTA  
JUDICIAL CENTRE CALGARY

IN THE MATTER OF THE *COMPANIES' CREDITORS  
ARRANGEMENT ACT*, RSC 1985, c C-36, as amended  
AND IN THE MATTER OF THE COMPROMISE OR  
ARRANGEMENT OF MANTLE MATERIALS GROUP, LTD.

DOCUMENT **MONITOR'S CERTIFICATE**

ADDRESS FOR SERVICE AND CONTACT INFORMATION OF PARTY FILING THIS DOCUMENT  
McCarthy Tétrault LLP  
4000, 421 – 7th Avenue SW  
Calgary, Alberta T2P 4K9  
Attn: Sean Collins/Pantelis Kyriakakis  
Tel: 403-260-3531 / 3536  
Fax: 403-260-3501  
Email: [scollins@mccarthy.ca](mailto:scollins@mccarthy.ca) / [pkyriakakis@mccarthy.ca](mailto:pkyriakakis@mccarthy.ca)

**RECITALS**

- A. Pursuant to an Order of the Honourable Associate Chief Justice D.B. Nixon of the Court of King’s Bench of Alberta, Judicial District of Calgary (the “**Court**”), dated January 10, 2024, as subsequently amended and restated on January 16, 2024, FTI Consulting Canada Inc., was appointed as the monitor (the “**Monitor**”) of Mantle Materials Group, Ltd.
  
- B. Pursuant to an Order of the Court dated January 16, 2024 (the “**SAVO**”), the Court approved the asset purchase agreement dated January XX, 2024 (the “**APA**”) between Mantle, as vendor, and County of St. Paul No. 19 (the “**Purchaser**”), as purchaser, and provided for the vesting in the Purchaser of Mantle’s right, title, and interest in and to the Purchased Assets, which vesting is to be effective with respect to the Purchased Assets upon the delivery by the Monitor to the Purchaser of a certificate confirming: (i) the payment by the Purchaser of the Purchase Price for the Purchased Assets; (ii) that all

conditions to the closing of the APA have been satisfied or waived by Mantle and the Purchaser; and (iii) the Transaction has been completed to the satisfaction of the Monitor.

C. Unless otherwise indicated herein, all capitalized terms have the meanings set out in the SAVO.

**THE MONITOR CERTIFIES** the following:

1. The Purchaser (or its nominee) has paid and the Monitor has received the purchase price for the Purchased Assets in accordance with and as contemplated by the terms of the APA;
2. The conditions to the closing of the APA have been satisfied or waived by Mantle and the Purchaser (or its nominee); and
3. The Transaction has been completed to the satisfaction of the Monitor.
4. This Certificate was delivered by the Monitor at **[Time]** on **[Date]**.

**FTI CONSULTING CANADA INC.,** in its capacity as the monitor of **MANTLE MATERIALS GROUP, LTD.** and not in its personal or corporate capacity.

Per: \_\_\_\_\_  
Name:  
Title:

**SCHEDULE "B" - SAVO**  
**[Permitted Encumbrances]**

1. Havener Lands - Short Legal Description – 4;7;56;16;NW

| <b>Legal Description</b>   |  |  |
|--|--|--|
| Meridian 4 Range 7 Township 56, Section 16, Quarter North West, containing 64.7 hectares (160 acres) more or less; Excepting thereout: |  |  |
| A)   | Plan 4286BM - Road   | 0.0004 hectares, 0.001 acres, more or less   |
| B)   | all that portion commencing at the south west corner of the said quarter section; thence easterly along the south boundary 110 metres; thence northerly and parallel to the west boundary of the said quarter 110 metres; thence westerly and parallel to the said south boundary to a point on the west boundary; thence southerly along the said west boundary to the point of commencement containing 1.21 hectares, 3.00 acres |  |
| C)   | Plan 1722948 - Road  | 0.360 0.89   |
| Excepting thereout all mines and minerals  |  |  |
| <b>Encumbrances, Liens and Interests</b>   |  |  |
| Registration No  | Date (D/M/Y)   | Particulars  |
| 882 162 859  | 19/07/1988   | Caveat Re: Easement<br>Caveator - Jimmy David Yarmuch<br>Box 645, Elk Point, Alberta T0A 1A0<br>(Data updated by: transfer of caveat 012383325)  |
| 972 003 876  | 06/01/1997   | Caveat Re: Surface Lease<br>Caveator - Canadian Natural Resources Limited.<br>Box 6926, Station "D", Calgary, Alberta T2p2g1<br>Agent - Donna Fellows<br>(Data updated by: change of name 042462572) |
| 972 229 534  | 05/08/1997   | Utility Right Of Way<br>Grantee - Canadian Natural Resources Limited.<br>Box 6926, Station "D", Calgary, Alberta T2P2G1<br>(Data updated by: change of name 042463878)                               |
|  |  | Caveat<br>Re : Royalty Agreement<br>Caveator - JMB Crushing Systems Ltd.<br>P O Box 478, Elk Point, Alberta T0A 1A0  |

2. Shankowski Lands - Short Legal Description – 4;7;56;21;NW & 4;7;56;21;SW

| <b>Legal Description</b>   |          |         |              |
|--|----------|---------|--------------|
| First  |          |         |              |
| Meridian 4 Range 7 Township 56, Section 21, Quarter North West, Containing 64.7 Hectares (160 Acres) More or Less, |          |         |              |
| Excepting Thereout:  |          |         |              |
|  | Hectares | (Acres) | More or Less |
| A) Plan 1722948 – Road   | 0.417    | 1.03    |              |

| Excepting Thereout All Mines and Minerals, and the Right to Work the Same   |              |  |
|---|--------------|--|
| Second  |              |  |
| Meridian 4 Range 7 Township 56, Section 21, Quarter South West, Containing 64.7 Hectares (160 Acres) More of Less |              |  |
| Excepting Thereout:   |              |  |
|   | Hectares     | (Acres) More or Less   |
| A) Plan 1722948 – Road  | 0.417        | 1.03   |
| Excepting Thereout All Mines and Minerals, and the Right to Work the Same   |              |  |
| Encumbrances, Liens and Interests   |              |  |
| Registration No   | Date (D/M/Y) | Particulars  |
| 862 021 825   | 30/01/1986   | Utility Right of Way<br>Grantee – Alberta Power Limited.<br>As to Portion or Plan 4286BM   |
| 972 235 435   | 08/08/1997   | Caveat<br>Re: Right of Way Agreement<br>Caveator – Canadian Natural Resources Limited<br>Box 6926, Station “D”, Calgary, Alberta T2P 2G1<br>Agent – Donna Fellows<br>Affected Land: 4;7;56;21; SW<br>(Data Updated By: Change of Name 042462560) |

**SCHEDULE "C" - SAVO**  
**[Encumbrances to be Transferred]**

1. Havener Lands - Short Legal Description – 4;7;56;16;NW

| <b>Encumbrances, Liens and Interests</b> |                     |   |
|--|---------------------|---|
| <b>Registration No</b>                   | <b>Date (D/M/Y)</b> | <b>Particulars</b>  |
| 002 170 374                              | 20/06/2000          | Caveat<br>Re: Royalty Agreement<br>Caveator – JMB Crushing Systems Ltd. |

2. Shankowski Lands - Short Legal Description – 4;7;56;21;NW & 4;7;56;21;SW

| <b>Encumbrances, Liens and Interests</b> |                     |   |
|--|---------------------|---|
| <b>Registration No</b>                   | <b>Date (D/M/Y)</b> | <b>Particulars</b>  |
| 222 033 728                              | 11/02/2022          | Caveat<br>Re: Purchasers Interest<br>Caveator – Mantle Materials Group, Ltd.<br>Affected Land: 4;7;56;21;SW |



**SCHEDULE "B"**  
**PERMITTED ENCUMBRANCES**

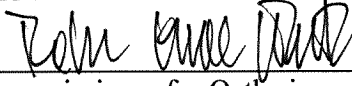
**Havener Lands**

| <b>Linc</b>   | <b>Short Legal</b>      | <b>Title Number</b>  | <b>Municipality</b>       |
|---|-------------------------|--|---------------------------|
| 0037 711 496  | 4;7;56;16;NW            | 232 311 221  | County of St. Paul No. 19 |
| <b>Estate</b>   | <b>Reference Number</b> | <b>Owners</b>  |                           |
| Fee Simple  | 202 265 265             | Karren Richards, as to an undivided 1/6 interest<br><br>Terri Breen, as to an undivided 1/6 interest<br><br>Lynne Havener, as to an undivided 1/6 interest<br><br>Gail Charlene Havener, as to an undivided 1/2 interest |                           |
| <b>Legal Description</b>  |                         |  |                           |
| Meridian 4 Range 7 Township 56, Section 16, Quarter North West, containing 64.7 hectares (160 acres) more or less; Excepting thereout:  |                         |  |                           |
| A) Plan 4286BM - Road 0.0004 hectares, 0.001 acres, more or less  |                         |  |                           |
| B) all that portion commencing at the south west corner of the said quarter section; thence easterly along the south boundary 110 metres; thence northerly and parallel to the west boundary of the said quarter 110 metres; thence westerly and parallel to the said south boundary to a point on the west boundary; thence southerly along the said west boundary to the point of commencement containing 1.21 hectares, 3.00 acres |                         |  |                           |
| C) Plan 1722948 - Road 0.360 0.89   |                         |  |                           |
| Excepting thereout all mines and minerals   |                         |  |                           |
| <b>Encumbrances, Liens and Interests</b>  |                         |  |                           |
| <b>Registration No</b>  | <b>Date (D/M/Y)</b>     | <b>Particulars</b>   |                           |
| 882 162 859   | 19/07/1988              | Caveat Re: Easement<br>Caveator - Jimmy David Yarmuch<br>Box 645, Elk Point, Alberta T0A 1A0<br>(Data updated by: transfer of caveat 012383325)  |                           |
| 972 003 876   | 06/01/1997              | Caveat Re: Surface Lease<br>Caveator - Canadian Natural Resources Limited.<br>Box 6926, Station "D", Calgary, Alberta T2p2g1<br>Agent - Donna Fellows<br>(Data updated by: change of name 042462572)                     |                           |
| 972 229 534   | 05/08/1997              | Utility Right Of Way<br>Grantee - Canadian Natural Resources Limited.<br>Box 6926, Station "D", Calgary, Alberta T2P2G1<br>(Data updated by: change of name 042463878)   |                           |
|   |                         | Caveat<br>Re : Royalty Agreement<br>Caveator - JMB Crushing Systems Ltd.<br>P O Box 478, Elk Point, Alberta T0A 1A0  |                           |

**Shankowski Lands**

| <b>Linc</b>   | <b>Short Legal</b>           | <b>Title Number</b>  | <b>Municipality</b>       |
|---|------------------------------|--|---------------------------|
| 0037 711 520<br>0037 711 538  | 4;7;56;21;NW<br>4;7;56;21;SW | 172 269 783 +5   | County of St. Paul No. 19 |
| <b>Estate</b>   | <b>Reference Number</b>      | <b>Owner</b>   |                           |
| Fee Simple  | 152 341 245 +2               | Jerry Shankowski   |                           |
| <b>Legal Description</b>  |                              |  |                           |
| <p>First</p> <p>Meridian 4 Range 7 Township 56, Section 21, Quarter North West, Containing 64.7 Hectares (160 Acres) More or Less,</p> <p>Excepting Thereout:                      Hectares    (Acres)    More or Less<br/> A) Plan 1722948 – Road                      0.417        1.03<br/> Excepting Thereout All Mines and Minerals, and the Right to Work the Same</p> <p>Second</p> <p>Meridian 4 Range 7 Township 56, Section 21, Quarter South West, Containing 64.7 Hectares (160 Acres) More or Less</p> <p>Excepting Thereout:                      Hectares    (Acres)    More or Less<br/> A) Plan 1722948 – Road                      0.417        1.03<br/> Excepting Thereout All Mines and Minerals, and the Right to Work the Same</p> |                              |  |                           |
| <b>Encumbrances, Liens and Interests</b>  |                              |  |                           |
| <b>Registration No</b>  | <b>Date (D/M/Y)</b>          | <b>Particulars</b>   |                           |
| 862 021 825   | 30/01/1986                   | Utility Right of Way<br>Grantee – Alberta Power Limited.<br>As to Portion or Plan 4286BM   |                           |
| 972 235 435   | 08/08/1997                   | Caveat<br>Re: Right of Way Agreement<br>Caveator – Canadian Natural Resources Limited<br>Box 6926, Station “D”, Calgary, Alberta T2P 2G1<br>Agent – Donna Fellows<br>Affected Land: 4;7;56;21; SW<br>(Data Updated By: Change of Name 042462560) |                           |

THIS IS EXHIBIT "E" TO THE AFFIDAVIT  
OF BYRON LEVKULICH SWORN ON THE  
13TH DAY OF FEBRUARY, 2024



\_\_\_\_\_  
Commissioner for Oaths in and for the  
State of Colorado

ROBIN GRACE WHITE  
NOTARY PUBLIC  
STATE OF COLORADO  
NOTARY ID 20134069976  
MY COMMISSION EXPIRES November 16, 2025

## ASSET PURCHASE AGREEMENT

THIS AGREEMENT is dated as of February 9, 2024

BETWEEN:

**MANTLE MATERIALS GROUP, LTD.** (the “Vendor”)

- and -

**PEA HOLDINGS INCORPORATED** (the “Purchaser”)

### CONTEXT:

- A. The Vendor carries on the business of extracting, processing and selling gravel and other aggregates from pits that it operates in the Province of Alberta (the “**Mantle Pits**”).
- B. On July 14, 2023 (the “**Filing Date**”), the Vendor filed a notice of intention to make a proposal (the “**NOI**”) under section 50.4 of the *Bankruptcy and Insolvency Act*, RSC 1985, c B-3, as amended (the “**BIA**”), and FTI Consulting Canada Inc., a licensed insolvency trustee, was named as the proposal trustee of Mantle (in such capacity, the “**Proposal Trustee**”).
- C. In September of 2023 the Vendor launched a sale solicitation process in respect of certain Mantle Pits under which parties interested in potentially purchasing one or more of the Mantle Pits were required to submit a non-binding bid or expression of interest by October 25, 2023, or such later date as the Vendor agrees to.
- D. On October 25, 2023, the Purchaser submitted to the Vendor a non-binding letter expressing interest in purchasing the Smoky Lake Pit and Long Lake Pit.
- E. Pursuant to an Initial Order of the Honourable ACJ D.B. Nixon pronounced on January 10, 2024, the proceedings of the Vendor under the *BIA* were taken up and continued under the *Companies’ Creditors Arrangement Act*, RSC 1985, c C-36, as amended (the “**CCAA**”) and FTI Consulting Canada Inc. was appointed as monitor (in such capacity, the “**Monitor**”).
- F. The Vendor wishes to sell and the Purchaser wishes to purchase the Assets (as defined below) upon and subject to the terms and conditions of this Agreement.

THEREFORE, the Parties agree as follows:

### ARTICLE 1 INTERPRETATION

#### 1.1 Definitions

In this Agreement the following terms have the following meanings:

- 1.1.1 “**AEPA**” means Alberta Environment and Protected Areas, the Governmental Authority responsible for regulatory matters under the Environmental Laws.
- 1.1.2 “**AFP**” means Alberta Forestry and Parks, the Governmental Authority responsible for the issuance of SMLs.

- 1.1.3 “**Aggregate Inventory**” means the gravel, sands and other aggregates which have been extracted and are located at the Long Lake Pit or the Smoky Lake Pits.
- 1.1.4 “**Agreement**” means this agreement, including all Schedules, as it may be supplemented, amended, restated or replaced from time to time by written agreement between the Parties.
- 1.1.5 “**Applicable Law**” means, at any time, with respect to any Person, property, transaction or event, all applicable laws, statutes, regulations, treaties, judgments and decrees and (whether or not having the force of law) all applicable official directives, rules, consents, approvals, by-laws, permits, authorizations, guidelines, orders, codes and policies of any Governmental Authority having authority over that Person, property, transaction or event.
- 1.1.6 “**Approval and Vesting Order**” is defined in Section 4.3.1.
- 1.1.7 “**Assets**” means the right, title and interest of the Vendor in the Long Lake Pit, the Long Lake SML, the Smoky Lake Pits, and the Smoky Lake SMLs and any Aggregate Inventory.
- 1.1.8 “**Assumed Contracts**” means the Long Lake SML and the Smoky Lake SML.
- 1.1.9 “**Assumed Liabilities**” means:
  - 1.1.9.1 all obligations and liabilities of the Vendor under the Assumed Contracts and arising out of or related to the operation of the Assets; and
  - 1.1.9.2 all Reclamation Liabilities.
- 1.1.10 “**August 15 Order**” means an Order of the Honourable Mr. Justice Feasby of the Court pronounced on August 15, 2023 in the Proposal Proceedings.
- 1.1.11 “**BIA**” is defined in Context paragraph B.
- 1.1.12 “**Business Day**” means any day other than a Saturday, Sunday or statutory holiday in the Province of Alberta or any other day on which the principal chartered banks located in the City of Calgary are not open for business during normal banking hours.
- 1.1.13 “**CCAA**” is defined in Context paragraph E.
- 1.1.14 “**Closing**” means the successful completion of the Transaction.
- 1.1.15 “**Closing Date**” means the date which is five (5) Business Days immediately following the satisfaction or waiver of the conditions in Article 4.
- 1.1.16 “**Communication**” means any notice, demand, request, consent, approval or other communication which is required or permitted by this Agreement to be given or made by a Party.
- 1.1.17 “**Court**” means the Court of King’s Bench of Alberta.
- 1.1.18 “**Current Reclamation Security**” means the security held by the AEPA in the aggregate face amount of \$480,210 pursuant to the Environmental Laws in respect of the Long Lake Pit and the Smoky Lake Pit to secure the performance of the Reclamation Liabilities.

- 1.1.19 “**Data Room**” means the data room created and maintained by the Vendor in connection with the marketing and sale of the Assets.
- 1.1.20 “**Encumbrance**” means any mortgage, charge, liens, security interest or other encumbrance or interest of any kind whatsoever attaching to or affecting the Assets.
- 1.1.21 “**Environment**” means the ambient air, all layers of the atmosphere, all water including surface water and underground water, all land, all living organisms and the interacting natural systems that include components of air, land, water, living organisms and organic and inorganic matter.
- 1.1.22 “**Environmental Laws**” means any Applicable Laws relating to the Environment and protection of the Environment, including the *Environmental Protection and Enhancement Act*, R.S.A. 2000, c. E-12, as amended, *Conservation and Reclamation Regulation*, AR 115/93, as amended, the *Activities Designation Regulation*, AR 276/2003, the *Approvals and Registrations Procedure Regulation*, AR113/93, as amended, and the *Code of Practice for Pits*.
- 1.1.23 “**EPOs**” means the Environmental Protection Orders issued by the AEPA in respect of the Long Lake Pit and Smoky Lake Pits, including those identified as EPO-EPEA 35659-13, EPO-EPEA-35659-14, EPO-EPEA-35659-15, EPO-EPEA-35659-16 and EPO-EPEA-35659-17.
- 1.1.24 “**ETA**” means Part IX of the *Excise Tax Act* (Canada).
- 1.1.25 “**Filing Date**” is defined in Context paragraph B.
- 1.1.26 “**Governmental Authority**” means any federal, provincial, local, municipal, regional, territorial, aboriginal, or other government, governmental or public department, branch, ministry, or court, domestic or foreign, including any district, agency, commission, board, arbitration panel or authority and any subdivision of the foregoing exercising or entitled to exercise any administrative, executive, judicial, ministerial, prerogative, legislative, regulatory or taxing authority or power of any nature, or any quasi-governmental or private body exercising any regulatory, expropriation or taxing authority under or for the account of any of the foregoing.
- 1.1.27 “**Long Lake Pit**” means the Aggregate pit in the County of Smoky Lake identified as JLG4 and which is subject to the Long Lake SML.
- 1.1.28 “**Long Lake SML**” means SML 100085.
- 1.1.29 “**Mantle Pits**” is defined in Context paragraph A, and includes the Long Lake Pit and the Smoky Lake Pit.
- 1.1.30 “**Monitor**” is defined in Context paragraph E.
- 1.1.31 “**New Reclamation Security**” is defined in Section 4.1.5.
- 1.1.32 “**NOI**” is defined in Context paragraph B.
- 1.1.33 “**Parties**” means the Vendor and the Purchaser, collectively, and “**Party**” means either of them.

- 1.1.34 “**Permitted Encumbrances**” means the Encumbrances listed on **Schedule “B”**.
- 1.1.35 “**Person**” means an individual, body corporate, sole proprietorship, partnership or trust or unincorporated association, unincorporated syndicate, unincorporated organization, or another entity, and a natural person, acting in his or her individual capacity or in his or her capacity as executor, trustee, administrator or legal representative, and any Governmental Authority.
- 1.1.36 “**Purchase Price**” is defined in Section 2.2.1.
- 1.1.37 “**Proposal Proceedings**” means the proposal proceedings of Mantle under the *BIA* commenced by the filing of the NOI.
- 1.1.38 “**Proposal Trustee**” is defined in Context paragraph B.
- 1.1.39 “**Reclamation Liabilities**” means all liabilities and obligations under the Environmental Laws respectively relating to the Long Lake Pit and Smoky Lake Pit.
- 1.1.40 “**SML**” means a surface material lease with the Crown in right of the Province of Alberta.
- 1.1.41 “**Smoky Lake Pits**” means those Aggregate pits in the County of Smoky Lake which are identified as follows, and are subject to the Smoky Lake SMLs.
- 1.1.42 “**Smoky Lake SMLs**” means, collectively, the SMLs referred to as (a) JLG 5, SML 110025, (b) JLG 6, SML 110026, (c) JLG 7, SML 110045, (d) JLG 8, SML 110046, (e) JLG 9, SML 110047, (f) JLG 10, SML 120005, (g) JLG 11, SML 120006, and (h) JLG 12, SML 120100.
- 1.1.43 “**Tax**” means all taxes, duties, fees, premiums, assessments, imposts, levies, rates, withholdings, dues, government contributions and other charges of any kind imposed by any Governmental Authority, whether direct or indirect, together with all interest, penalties, fines, additions to tax or other additional amounts imposed in respect thereof.
- 1.1.44 “**Transaction**” means the transaction of purchase and sale contemplated by this Agreement.
- 1.1.45 “**Transfer Taxes**” means all Taxes levied on or measured by, or referred to as, goods and services taxes under the ETA.

## **1.2 Certain Rules of Interpretation**

- 1.2.1 In this Agreement, words signifying the singular number include the plural and vice versa, and words signifying gender include all genders. Every use of the word “including” in this Agreement is to be construed as meaning “including, without limitation”.
- 1.2.2 The division of this Agreement into Articles and Sections, the insertion of headings and the provision of a table of contents are for convenience of reference only and do not affect the construction or interpretation of this Agreement.
- 1.2.3 Wherever in this Agreement reference is made to a calculation to be made in accordance with GAAP, the reference is to Canadian generally accepted accounting principles applicable to private enterprises under Part II of the CPA Canada Handbook of the Chartered Professional Accountants of Canada, as amended at any time, applicable as at the date on which the calculation is made or required to be made in accordance with GAAP.

- 1.2.4 References in this Agreement to an Article, Section or Schedule are to be construed as references to an Article, Section or Schedule of or to this Agreement unless the context requires otherwise.
- 1.2.5 Unless otherwise specified in this Agreement, time periods within which or following which any payment is to be made or act is to be done will be calculated by excluding the day on which the period commences and including the day on which the period ends. If the last day of a time period is not a Business Day, the time period will end on the next Business Day.
- 1.2.6 Unless otherwise specified, any reference in this Agreement to any statute includes all regulations made thereunder or in connection therewith from time to time, and is to be construed as a reference to such statute as amended, supplemented or replaced from time to time.

### **1.3 Governing Law and Attornment**

This Agreement is governed by, and is to be construed and interpreted in accordance with, the laws of the Province of Alberta and the laws of Canada applicable in that Province. Each of the Parties hereby irrevocably and unconditionally attorns to the exclusive jurisdiction of the courts of the Province of Alberta.

### **1.4 Entire Agreement**

This Agreement, and any other agreements and documents to be delivered under this Agreement, constitutes the entire agreement between the Parties pertaining to the subject matter of this Agreement and supersedes all prior agreements, understandings, negotiations and discussions, whether oral or written, of the Parties, and there are no representations, warranties or other agreements between the Parties in connection with the subject matter of this Agreement except as specifically set out in this Agreement or in any other agreements and documents delivered under this Agreement. No Party has been induced to enter into this Agreement in reliance on, and there will be no liability assessed, either in tort or contract, with respect to, any warranty, representation, opinion, advice or assertion of fact, except to the extent it has been reduced to writing and included as a term in this Agreement or in any other agreements and documents delivered under this Agreement.

### **1.5 Business Day**

Whenever any payment to be made or action to be taken under this Agreement is required to be made or taken on a day other than a Business Day, the payment is to be made or action taken on the next Business Day following.

### **1.6 Schedules**

The following is a list of Schedules:

| <b>Subject Matter</b>             | <b>Schedule</b> |
|-----------------------------------|-----------------|
| Approval and Vesting Order        | Schedule "A"    |
| Permitted Encumbrances            | Schedule "B"    |
| General Assignment of Disposition | Schedule "C"    |



**ARTICLE 2  
SALE AND PURCHASE AND ASSIGNMENT**

**2.1 Sale and Purchase of Assets and Assumption of Assumed Contracts and Assumed Liabilities**

2.1.1 Subject to the terms and conditions of this Agreement, effective as of the Closing:

2.1.1.1 the Vendor will sell to the Purchaser and the Purchaser will purchase the Assets;

2.1.1.2 the Vendor will assign to the Purchaser all of its rights, benefits and interests in and to the Assumed Contracts, and the Purchaser will assume the Assumed Contracts; and

2.1.1.3 the Purchaser will assume and perform the Assumed Liabilities.

2.1.2 On Closing, to the extent necessary, the Purchaser will enter into assumption agreements in form and substance satisfactory to each of the Purchaser and the Vendor, acting reasonably. The Purchaser acknowledges that the Vendor will have no responsibility whatsoever for curing any defaults, paying any arrears, or performing any obligations under or with respect to the Assumed Contracts.

**2.2 Purchase Price**

2.2.1 The purchase price payable by the Purchaser to the Vendor for the Assets will be cash in the amount of [REDACTED] (the "**Cash Component**") together with the assumption of the Assumed Liabilities.

2.2.2 At or before Closing, the Purchaser will pay to the Monitor, the Cash Component less the Deposit in immediately available funds by wire transfer in accordance with wire transfer instructions provided in writing by the Vendor to the Purchaser.

2.2.3 For greater certainty, there shall be no adjustment to the Purchase Price in favour of the Vendor or Purchaser on account of Inventory.

**2.3 Allocation**

The Purchase Price shall be allocated between the Assets as follows:

2.3.1 [REDACTED] to the Long Lake Pits;

2.3.2 [REDACTED] to the Smoky Lake Pits; and

2.3.3 [REDACTED] to the Aggregate Inventory.

**2.4 Covenants**

2.4.1 The Vendor shall employ reasonable commercial efforts to renew the following SMLs:

2.4.1.1 SML 110025 and SML 110026 (collectively, the "**Expired SMLs**"); and

2.4.1.2 SML100085, SML 110046, SML 120006 and SML 120100 (collectively, the "**Cancelled SMLs**"),

provided that in the event that the AEPA requires an increase in the amount of the Current Reclamation Security in respect of the Expired SMLs or Cancelled SMLs, the Vendor shall have no obligation to provide such increase, and in the event that the Purchaser fails to provide such increase in respect of all or some of the Expired SMLs or Cancelled SMLs, such Expired SMLs or Cancelled SMLs shall be excluded from the Transaction without any adjustment to the Purchase Price.

2.4.2 The Vendor shall employ reasonable commercial efforts to enable the Purchaser to obtain the economic benefit of the Current Reclamation Security, provided that the aggregate amount thereof does not exceed [REDACTED]

2.4.3 On Closing, the Vendor shall deliver to the Purchaser all documentation filed by the Vendor with the AEPA under the *Water Act*, RSA 2000, c W-3.

## **2.5 Transfer Taxes**

2.5.1 Subject to Section 2.5.2:

2.5.1.1 the Purchaser will be liable for and will pay all Transfer Taxes properly payable by the Purchaser in connection with the sale and transfer of the Assets, and, upon the reasonable request of the Vendor, the Purchaser will furnish proof of the payment of those Transfer Taxes to the appropriate Governmental Authority or provide to the Vendor any applicable exemptions evidencing that no Transfer Taxes are exigible in connection with the Transaction;

2.5.1.2 the Purchaser and Vendor acknowledge and agree that the Assets, other than the Aggregate Inventory, are deemed not to be a supply for Transfer Tax purposes under subsection 162(2) of the ETA;

2.5.1.3 the Purchaser and Vendor further acknowledge and agree that nil consideration is allocable to the Aggregate Inventory; and

2.5.1.4 the Purchaser agrees to indemnify and save the Vendor harmless from and against all claims and demands for payment of all applicable Transfer Taxes including penalties and interest and any liability or costs incurred as a result of any failure to pay such taxes when due, where such Transfer Taxes are exigible and not paid by the Purchaser.

2.5.2 Notwithstanding Sections 2.5.1.1 to 2.5.1.3, the Vendor shall remit to the applicable Governmental Authority goods and services taxes in respect of the Transaction calculated on the basis of the Cash Component.

## **ARTICLE 3 REPRESENTATIONS AND WARRANTIES**

### **3.1 Purchaser's Representations**

The Purchaser represents and warrants to the Vendor that:

3.1.1 the Purchaser is a corporation duly incorporated and existing under the laws of Alberta;

3.1.2 the Purchaser has all the necessary corporate power, authority and capacity to enter into this Agreement and to perform its obligations and the execution and delivery of this

Agreement and the consummation of the Transaction have been duly authorized by all necessary corporate actions on the part of the Purchaser;

- 3.1.3 the Purchaser is not a party to, bound or affected by or subject to any indenture, agreement, instrument, charter or by-law provision, order, judgment or decree which would be violated, contravened or breached by the execution and delivery by it of this Agreement or the performance by it of any of the terms contained in this Agreement;
- 3.1.4 the Purchaser has not agreed to pay any agent or broker fees or other commissions on the Purchase Price or otherwise in connection with the Transaction; and
- 3.1.5 the Purchaser is not a non-Canadian Person as defined in the *Investment Canada Act*.

### **3.2 Vendor's Representations**

The Vendor represents and warrants to the Purchaser that:

- 3.2.1 the Vendor is a corporation duly incorporated and existing under the laws of Alberta;
- 3.2.2 the Vendor has the right to enter into this Agreement and, subject to the granting of the Approval and Vesting Order by the Court, to complete the Transaction;
- 3.2.3 the Vendor is not a non-resident of Canada within the meaning of that term as used in the *Income Tax Act (Canada)*;
- 3.2.4 save and except for the charges created pursuant to the August 15 Order, the Vendor has not previously sold or done any act to encumber the Assets;
- 3.2.5 the Vendor has not agreed to pay any agent or broker fees or other commissions on the Purchase Price or otherwise in connection with the Transaction; and
- 3.2.6 to the best of the Vendor's knowledge, no actions or proceedings are pending and none have been threatened to restrain or prohibit the completion of the Transaction contemplated by this Agreement.

### **3.3 "As is, Where is"**

The Purchaser acknowledges that, subject to Sections 3.1 and 3.2, the Vendor is selling the Assets on an "as is, where is" basis as they exist on the Closing Date. The Purchaser further acknowledges that it has entered into this Agreement on the basis that the Vendor does not guarantee title to the Assets and that the Purchaser has conducted or will have conducted its own investigation and due diligence of the condition of and title to the Assets as it deems appropriate and has satisfied itself with regard to these matters. No representation, warranty or condition is expressed or can be implied as to title, encumbrances, description, fitness for purpose, merchantability, condition, quantity or quality, assignability, validity or enforceability, or in respect of any other matter or thing whatsoever concerning the Assets or the right of the Vendor to sell them save and except as expressly represented or warranted in this Agreement. Without limiting the generality of the foregoing, any and all conditions, warranties or representations expressed or implied pursuant to Applicable Laws do not apply to this Transaction and have been waived by the Purchaser. The description of the Assets contained in the Data Room is provided for the convenience of the Purchaser and the Vendor makes no representation or warranty with respect to the accuracy or completeness of that information or any other information provided by the Vendor to the Purchaser.

## ARTICLE 4 CONDITIONS

### 4.1 Conditions of the Purchaser

The obligation of the Purchaser to complete the Transaction is subject to the fulfillment of each of the following conditions before the Closing Date (unless otherwise specified, or unless otherwise waived by the Purchaser as it may determine in its sole and unfettered discretion):

- 4.1.1 all representations and warranties of the Vendor contained in this Agreement will be true as of the Closing Date with the same effect as though made on and as of that date;
- 4.1.2 no action or proceedings will be pending or threatened to restrain or prohibit the completion of the Transaction contemplated by this Agreement on the Closing Date;
- 4.1.3 the Vendor will have performed each of its obligations under this Agreement to the extent required to be performed on or before the Closing Date;
- 4.1.4 the AEPA shall have confirmed to the Purchaser that the Current Reclamation Security or any cash in place thereof shall be treated as security posted by the Purchaser with the AEPA in respect of the Assumed Contracts pursuant to the Environmental Laws;
- 4.1.5 any security required by the AEPA in respect of the Assumed Contracts in excess of the amount of the Current Reclamation Security shall be in an amount acceptable to the Purchaser (such excess security, the “**New Reclamation Security**”); and
- 4.1.6 the AFP shall have reinstated the Cancelled SMLs, renewed the Expired SMLs, and consented to the assignment of the Assumed Contracts on terms reasonably acceptable to the Purchaser.

The foregoing conditions are for the exclusive benefit of the Purchaser. Any condition may be waived by the Purchaser in whole or in part. Any such waiver will be binding on the Purchaser only if made in writing.

### 4.2 Conditions of the Vendor

The obligation of the Vendor to complete the Transaction is subject to the fulfillment of each of the following conditions before the Closing Date (unless otherwise specified, or unless otherwise waived by the Vendor in its sole discretion):

- 4.2.1 all representations and warranties of the Purchaser contained in this Agreement will be true as of the Closing Date with the same effect as though made on and as of that date;
- 4.2.2 no action or proceedings will be pending or threatened to restrain or prohibit the completion of the Transaction contemplated by this Agreement;
- 4.2.3 the Purchaser shall have deposited with the AEPA any New Reclamation Security required by the AEPA; and
- 4.2.4 the Purchaser will have performed each of its obligations under this Agreement to the extent required to be performed on or before the Closing Date.

The foregoing conditions are for the exclusive benefit of the Vendor. Any condition may be waived by the Vendor in whole or in part. Any such waiver will be binding on the Vendor only if made in writing.

#### **4.3 Mutual Conditions**

The obligations of the Vendor and Purchaser to complete the Transaction are subject to the satisfaction of the following conditions precedent at or prior to the Closing:

- 4.3.1 the Court shall have made an Order Court approving this Agreement and the Transaction and vesting in the Purchaser all the right, title and interest of the Vendor in the Assets free and clear of all Encumbrances, save and except for the Permitted Encumbrances, such order to be substantially in the form of the order attached hereto as **Schedule "A"** (the "**Approval and Vesting Order**");
- 4.3.2 the Approval and Vesting Order will not have been stayed, varied or vacated and no order will have been issued and no action or proceeding will be pending to restrain or prohibit the completion of the Transaction;
- 4.3.3 the AEPA shall have terminated the EPOs; and
- 4.3.4 the AFP shall have approved the transfer of the Long Lake SML and the Smoky Lake SMLs from the Vendor to the Purchaser.

The Parties hereto acknowledge that the foregoing conditions are for the mutual benefit of the Vendor and the Purchaser.

#### **4.4 Non-Satisfaction of Conditions**

If any condition set out in this Article is not satisfied or performed prior to the time specified therefor, the Party for whose benefit the condition is inserted may in writing:

- 4.4.1 waive compliance with the condition in whole or in part in its sole discretion by written notice to the other Party and without prejudice to any of its rights of termination in the event of non-fulfilment of any other condition in whole or in part; or
- 4.4.2 elect by written notice to the other Party delivered on or before the date specified for the condition to terminate this Agreement.

#### **4.5 Actions to Satisfy Conditions**

- 4.5.1 The Purchaser and Vendor will take such commercially reasonable actions as are required to obtain the consent of the AFP to the transfer to the Purchaser of the Long Lake SML and Smoky Lake SMLs. The Purchaser agrees to provide to the AFP and AEPA such financial and other information as is required by the AFP and AEPA in connection therewith to evidence the Purchaser's ability to comply with the Environmental Laws and satisfy the Reclamation Liabilities associated with the Long Lake SML and Smoky Lake SMLs.
- 4.5.2 On or before Closing, the Purchaser shall provide to the AEPA any New Reclamation Security required by the AEPA and deliver to the Vendor satisfactory evidence that it has deposited any New Reclamation Security with the AEPA.

## ARTICLE 5 CLOSING

### 5.1 Closing

The Closing of the Transaction will take place by telephone conference and electronic exchange of documents at 10:00 a.m. Mountain Time on the Closing Date or at such other place and time as the Parties may agree in writing.

### 5.2 Purchaser's Deliveries on Closing

At or before the Closing Date, the Purchaser will execute and deliver to the Vendor's counsel, the following, each of which will be in form and substance satisfactory to the Vendor's counsel, acting reasonably:

- 5.2.1 the Cash Component;
- 5.2.2 a certificate of a senior officer of the Purchaser dated the Closing Date, confirming that:
  - 5.2.2.1 all of the representations and warranties of the Purchaser contained in this Agreement are true as of the Closing Date, with the same effect as though made on and as of the Closing Date; and
  - 5.2.2.2 each of the conditions precedent in Section 4.1, other than those previously stated as fulfilled, performed or waived by the Purchaser, have been fulfilled, performed or waived as of the Closing Date;
- 5.2.3 evidence of the deposit of the New Reclamation Security with the AEPA;
- 5.2.4 an executed general assignment of disposition for the Assets in substantially the form attached hereto as **Schedule "C"**; and
- 5.2.5 such further and other documentation as is referred to in this Agreement or as the Vendor may reasonably require to give effect to this Agreement.

The Purchaser shall also deliver the balance of the Purchase Price in accordance with the provisions of Section 2.2.2.

### 5.3 Vendor's Deliveries on Closing

At or before the Closing Date, the Vendor will execute and deliver to the Purchaser the following, each of which will be in form and substance satisfactory to the Purchaser, acting reasonably:

- 5.3.1 a certificate of an officer of the Vendor dated the Closing Date confirming that:
  - 5.3.1.1 all of the representations and warranties of the Vendor contained in this Agreement are true as of the Closing Date, with the same effect as though made on and as of the Closing Date;
  - 5.3.1.2 each of the conditions precedent in Section 4.2 have been fulfilled, performed or waived as of the Closing Date;

- 5.3.2 one or more assignment agreements in the form required by the AFP to assign and transfer the Long Lake SML and Smoky Lake SML from the Vendor to the Purchaser;
- 5.3.3 a true copy of the Approval and Vesting Order;
- 5.3.4 an executed general assignment of disposition for the Assets in substantially the form attached hereto as **Schedule "C"**; and
- 5.3.5 such further and other documentation as is referred to in this Agreement or as the Purchaser may reasonably require to give effect to this Agreement.

#### **5.4 Purchaser's Acknowledgement**

The Purchaser acknowledges that the Vendor is selling its right, title and interest in and to the Assets pursuant to the Approval and Vesting Order. The Purchaser agrees to purchase and accept the right, title and interest of the Vendor in and to the Assets pursuant to and in accordance with the terms of this Agreement and the Approval and Vesting Order.

#### **5.5 Possession of Assets**

The Vendor will remain in possession of the Assets until the Closing Date. On Closing, the Purchaser will take possession of the Assets as at the Closing Date. The Purchaser acknowledges that the Vendor has no obligation to deliver physical possession of the Assets to the Purchaser. In no event will the Assets be sold, assigned, transferred or set over to the Purchaser until the Purchaser has satisfied all delivery requirements outlined in Section 5.2.

#### **5.6 Access to Assets**

- 5.6.1 The Purchaser and its duly authorized Representatives may have reasonable access to the Assets during normal business hours prior to the Closing Date for the purpose of enabling the Purchaser to conduct such inspections of the Assets as it deems appropriate, provided the Purchaser gives the Vendor at least twenty-four (24) hours prior notice of the times it intends to conduct such inspections. Such inspection will only be conducted in the presence of a Representative of the Vendor if so required at the discretion of the Vendor.
- 5.6.2 The Vendor will furnish to the Purchaser and its duly authorized Representatives any financial and operating data and other information and documentation with respect to the Assets as the Purchaser reasonably requests, other than information subject to solicitor client privilege or confidentiality obligations.
- 5.6.3 The Purchaser agrees to indemnify and save the Vendor harmless from and against all claims, demands, losses, damages, actions and costs incurred or arising from or in any way directly related to the inspection of the Assets or the attendance of the Purchaser, its employees, contractors or agents at the Long Lake Pit or Smoky Lake Pits.

#### **5.7 Risk**

The Assets will be and remain at the risk of the Vendor until Closing and at the risk of the Purchaser from and after Closing.

## **5.8 Termination**

- 5.8.1 If either the Vendor or the Purchaser validly terminates this Agreement pursuant to the provisions of Section 4.4, all the obligations of both the Vendor and Purchaser pursuant to this Agreement will be at an end and neither Party will have any right to specific performance or other remedy against, or any right to recover damages or expenses from, the other.
- 5.8.2 The Parties agree that irreparable damage, for which monetary relief would not be an adequate remedy, would occur in the event that any provision of this Agreement is not performed in accordance with its specific terms or is otherwise breached, including if any of the Parties fails to take any action required of it hereunder to consummate the Transaction. It is accordingly agreed that (i) the Parties will be entitled to specific performance or other equitable relief to prevent breaches of this Agreement and to enforce specifically the terms and provisions hereof in the Court without proof of damages or otherwise, this being in addition to any other remedy to which they are entitled under this Agreement, and (ii) the right of specific performance and other equitable relief is an integral part of the Transaction and without that right, neither the Vendor nor the Purchaser would have entered into this Agreement. The remedies available to Vendor pursuant to this Section 5.8.2 will be in addition to any other remedy to which they were entitled at law or in equity, and the election to pursue specific performance will not restrict, impair or otherwise limit any Vendor from seeking to collect or collecting damages. Limitation on Indemnity by the Vendor

## **ARTICLE 6 GENERAL**

### **6.1 Paramountcy**

In the event of any conflict or inconsistency between the provisions of this Agreement, and any other agreement, document or instrument executed or delivered by the Vendor in connection with this Transaction or this Agreement, the provisions of this Agreement will prevail to the extent of such conflict or inconsistency.

### **6.2 Time of Essence**

Time is of the essence of this Agreement.

### **6.3 Notices**

Any Communication must be in writing and either delivered personally or by courier, sent by prepaid registered mail or transmitted by e-mail or functionally equivalent electronic means of transmission, charges (if any) prepaid. Any Communication must be sent to the intended recipient at its address as follows:

#### **6.3.1 If to the Purchaser:**

PEA Holdings Incorporated  
PO Box 5123  
Westlock, AB T7P 2P4

Attention: Vance Auger  
E-mail: [vpauger@mcsnet.ca](mailto:vpauger@mcsnet.ca)



with a copy to:

Main Street Law LLP  
#12, 119 First Avenue,  
Spruce Grove, AB T7X 3A7

Attention: Sharisse A. McCalla  
E-mail: [smccalla@mainstreetlaw.ca](mailto:smccalla@mainstreetlaw.ca)

6.3.2 If to the Vendor:

Mantle Materials Group, Ltd.  
c/o Resource Land Holdings, LLC  
1400 16th Street, Suite 320  
Denver, CO 80202

Attention: John Stout, Senior Vice President  
E-mail: [john.stout@rlholdings.com](mailto:john.stout@rlholdings.com)

with a copy to:

Gowling WLG (Canada) LLP  
Suite 1600, 421 7<sup>th</sup> Avenue SW  
Calgary AB T2P 4K9

Attention: Tom Cumming / Stephen Kroeger  
E-mail: [tom.cumming@gowlingwlg.com](mailto:tom.cumming@gowlingwlg.com) / [stephen.kroeger@gowlingwlg.com](mailto:stephen.kroeger@gowlingwlg.com)

or at any other address as any Party may at any time advise the other by Communication given or made in accordance with this Section 6.3. Any Communication delivered to the Party to whom it is addressed will be deemed to have been given or made and received on the day it is delivered at that Party's address, provided that if that day is not a Business Day then the Communication will be deemed to have been given or made and received on the next Business Day. Any Communication sent by prepaid registered mail will be deemed to have been given or made and received on the [fifth] Business Day after which it is mailed. If a strike or lockout of postal employees is then in effect, or generally known to be impending, every Communication must be delivered personally or by courier or transmitted by e-mail or functionally equivalent electronic means of transmission. Any Communication transmitted by e-mail or functionally equivalent electronic means of transmission will be deemed to have been given or made and received on the day on which it is transmitted; but if the Communication is transmitted on a day which is not a Business Day or after 4:00 pm (local time of the recipient), the Communication will be deemed to have been given or made and received on the next Business Day.

#### 6.4 Severability

Each Section of this Agreement is distinct and severable. If any Section of this Agreement, in whole or in part, is or becomes illegal, invalid, void, voidable or unenforceable in any jurisdiction by any court of competent jurisdiction, the illegality, invalidity or unenforceability of that Section, in whole or in part, will not affect the legality, validity or enforceability of the remaining Sections of this Agreement, in whole or in part or the legality, validity or enforceability of that Section, in whole or in part, in any other jurisdiction.

## **6.5 Submission to Jurisdiction**

Each of the Parties irrevocably and unconditionally submits and attorns to the non-exclusive jurisdiction of the courts of the Province of Alberta to determine all issues, whether at law or in equity arising from this Agreement. To the extent permitted by Applicable Law, each of the Parties irrevocably waives any objection, including any claim of inconvenient forum, that it may now or in the future have to the venue of any legal proceeding arising out of or relating to this Agreement in the courts of that Province, or that the subject matter of this Agreement may not be enforced in those courts, and irrevocably agrees not to seek, and waives any right to, judicial review by any court which may be called upon to enforce the judgment of the courts referred to in this Section 6.5, of the substantive merits of any suit, action or proceeding.

## **6.6 Amendment and Waiver**

No amendment, discharge, modification, restatement, supplement, termination or waiver of this Agreement or any Section of this Agreement is binding unless it is in writing and executed by the Party to be bound. No waiver of, failure to exercise or delay in exercising, any Section of this Agreement constitutes a waiver of any other Section (whether or not similar) nor does any waiver constitute a continuing waiver unless otherwise expressly provided.

## **6.7 Further Assurances**

Each Party will, at the requesting Party's cost and expense, execute and deliver any further agreements and documents and provide any further assurances, undertakings and information as may be reasonably required by the requesting Party to give effect to this Agreement and, without limiting the generality of this Section 6.7.

## **6.8 Assignment and Enurement**

Neither this Agreement nor any right or obligation under this Agreement may be assigned by either Party without the prior written consent of the other Party. This Agreement enures to the benefit of and is binding upon the Parties and their respective successors and permitted assigns.

## **6.9 Electronic Signatures and Delivery**

This Agreement and any counterpart of it may be signed by manual, digital or other electronic signatures, and delivered or transmitted by any digital, electronic or other intangible means, including by e-mail or other functionally equivalent electronic means of transmission, and that execution, delivery and transmission will be valid and legally effective to create a valid and binding agreement between the Parties.

## **6.10 Counterparts**

This Agreement may be signed and delivered by the Parties in counterparts, with the same effect as if each of the Parties had signed and delivered the same document, and that execution and delivery will be valid and legally effective.

## **6.11 Costs and Expenses**

Except as otherwise specified in this Agreement, all costs and expenses (including the fees and disbursements of accountants, legal counsel and other professional advisers) incurred in connection with this Agreement and the completion of the Transaction are to be paid by the Party incurring those

costs and expenses. If this Agreement is terminated, the obligation of each Party to pay its own costs and expenses is subject to each Party's respective rights arising from a breach or termination.

Each of the Parties has executed and delivered this Agreement as of the date noted at the beginning of this Agreement.

**MANTLE MATERIALS GROUP, LTD.**

Per:

DocuSigned by:  
*Byron Lenkulich*  
DA7FAEE6A770498...

Name:

Title:

**PEA HOLDINGS INCORPORATED**

Per:

\_\_\_\_\_  
Name:

Title:

costs and expenses. If this Agreement is terminated, the obligation of each Party to pay its own costs and expenses is subject to each Party's respective rights arising from a breach or termination.

Each of the Parties has executed and delivered this Agreement as of the date noted at the beginning of this Agreement.

**MANTLE MATERIALS GROUP, LTD.**

Per:

\_\_\_\_\_  
Name:

Title:

**PEA HOLDINGS INCORPORATED**

Per:



\_\_\_\_\_  
Paula Auger (Feb 12, 2024 13:20 MST)

Name:

Title:

**SCHEDULE "A"**  
**APPROVAL AND VESTING ORDER**

Clerk's Stamp

COURT FILE NO. 2301 16114

COURT COURT OF KING'S BENCH OF ALBERTA

JUDICIAL CENTRE CALGARY

IN THE MATTER OF THE *COMPANIES' CREDITORS*  
*ARRANGEMENT ACT*, RSC 1985, c C-36, as amended

AND IN THE MATTER OF THE COMPROMISE OR  
ARRANGEMENT OF MANTLE MATERIALS GROUP, LTD.

APPLICANT MANTLE MATERIALS GROUP, LTD.

DOCUMENT **ORDER (Sale Approval – Smoky Lake & Long Lake)**

ADDRESS FOR SERVICE AND CONTACT  
**Gowling WLG (Canada) LLP**  
1600, 421 – 7<sup>th</sup> Avenue SW  
Calgary, AB T2P 4K9

INFORMATION OF PARTY FILING THIS DOCUMENT

Attn: **Tom Cumming/Sam Gabor/Stephen Kroeger**

Phone: 403.298.1938/403.298.1018

Fax: 403.263.9193

Email: tom.cumming@gowlingwlg.com / sam.gabor@gowlingwlg.com  
/ stephen.kroeger@gowlingwlg.com

File No.: A171561

**DATE ON WHICH ORDER WAS PRONOUNCED:** February 23, 2024

**LOCATION AT WHICH ORDER WAS MADE:** Calgary Courts Centre

**NAME OF JUSTICE WHO MADE THIS ORDER:** Honourable Justice M.H. Hollins

**UPON** the application (the “**Application**”) of Mantle Materials Group, Ltd. (“**Mantle**”) that commenced the within proceedings (the “**Proceedings**”) pursuant to the initial order granted under the *Companies' Creditors Arrangement Act* (the “**CCAA**”) on January 10, 2024 (as may be subsequently amended and restated, the “**Initial Order**”), for an order (a) approving the sale transaction (the “**Transaction**”) contemplated by the asset purchase agreement dated February XX, 2024 (the “**APA**”) between Mantle, as vendor, and PEA Holdings Incorporated (the “**Purchaser**”), as purchaser, and appended as Exhibit “X” to the Affidavit of Byron Levkulich

sworn February XX, 2024 (the “**Levkulich Affidavit**”), and (b) vesting in the Purchaser (or its nominee) all of Mantle’s right, title, and interest in and to the assets described in the APA (the “**Purchased Assets**”);

**AND UPON HAVING READ** the Initial Order; **AND UPON BEING ADVISED** that on July 19, 2023 Mantle filed a notice of intention to make a proposal (the “**Proposal Proceedings**”) under section 50.4 of the *Bankruptcy and Insolvency Act*, RSC 1985, c.B-3 (the “**BIA**”); **AND UPON BEING ADVISED** that Mantle, with the assistance of FTI Consulting Canada Inc., in its capacity as proposal trustee of Mantle (“**FTI**”), conducted a sales process for the Purchased Assets in the Proposal Proceedings; **AND UPON HAVING READ** the First Report of FTI (in such capacity, the “**Monitor**”), in its capacity as the court-appointed monitor of the Mantle, dated February XX, 2024, filed; **AND UPON HAVING READ** the Levkulich Affidavit, the Confidential Affidavit of Byron Levkulich sworn February XX, 2024 and the Affidavit of Service, to be filed; **AND UPON HEARING** the submissions of counsel for Mantle, the Monitor, and for any other parties who may be present; **IT IS HEREBY ORDERED AND DECLARED THAT:**

### **Service**

1. Service of notice of this application and supporting materials is hereby declared to be good and sufficient, no other person is required to have been served with notice of this application, and time for service of this application is abridged to that actually given.

### **Approval of Transaction**

2. The Transaction is hereby approved and execution of the APA is hereby authorized, ratified, confirmed, and approved, with such minor amendments as the Monitor and the Purchaser may agree to, with the consent of Mantle. The Monitor and Mantle are hereby authorized and directed to take such additional steps and Mantle is hereby authorized and empowered to execute such additional documents as may be necessary or desirable for the completion of the Transaction and conveyance of the Purchased Assets to the Purchaser (or its nominee).

### **Vesting of Purchased Assets**

3. Subject only to approval by the director (the “**Director**”) designated under section 5 of the *Public Lands Act* (Alberta) (the “**PLA**”) of the transfer or assignment of the land subject to the surface material leases and other dispositions included in the Purchased Assets (the “**SMLs**”) pursuant to section 43(1) of the *PLA*, upon the delivery of a Monitor’s certificate to the Purchaser (or its nominee) substantially in the form set out in **Schedule “A”** hereto (the “**Monitor’s Certificate**”), all of Mantle’s right, title, and interest in and to the Purchased Assets, as described in the APA, shall vest absolutely, exclusively, and entirely in the name of the Purchaser (or its nominee), free and clear of and from any and all caveats, security interests, hypothecs, pledges, mortgages, liens, trusts, reservations of ownership, privileges, interests, assignments, actions, judgements, executions, levies, taxes, writs of enforcement, charges, or other claims, whether contractual, statutory, financial, monetary, or otherwise, whether or not they have attached or been perfected, registered, or filed and whether secured, unsecured or otherwise (collectively, the “**Claims**”) including, without limiting the generality of the foregoing:

- (a) any encumbrances or charges created by the Initial Order; and
- (b) all charges, security interests or claims evidenced by registrations pursuant to the *Personal Property Security Act* (Alberta) or any other personal property registry system;

and for greater certainty, this Court orders that all Claims, including Encumbrances, other than Permitted Encumbrances as set out in **Schedule “B”** hereto (the “**Permitted Encumbrances**”), affecting or relating to the Purchased Assets are hereby expunged, discharged and terminated as against the Purchased Assets.

4. Subject to paragraph 3 of this Order, upon delivery of the Monitor’s Certificate and upon filing of a certified copy of this Order, together with any applicable registration fees, all governmental authorities including those referred to in this paragraph (collectively, “**Governmental Authorities**”) are hereby authorized, requested and directed to accept delivery of such Monitor’s Certificate and certified copy of this Order as though they were



originals, and the Director shall and is hereby authorized, requested and directed to forthwith cancel and discharge those Claims registered against the estate or interest of Mantle in and to any of the Purchased Assets, and transfer the SMLs to the Purchaser free and clear of all Claims including Encumbrances but excluding Permitted Encumbrances. Without limiting the foregoing, the Director shall and is hereby authorized, requested and directed to forthwith transfer to the Purchaser or its nominee the Purchased Assets and to amend the Long Lake SML and the Smoky Lake SMLs (as each is defined in the APA) to reflect such transfers.

5. Subject to paragraph 3 of this Order, in order to effect the transfers and discharges described above, this Court requests and directs each of the Governmental Authorities to take such steps as are necessary to give effect to the terms of this Order and the APA. Presentment of this Order and the Monitor's Certificate shall be the sole and sufficient authority for the Governmental Authorities to make and register transfers of title or interest and cancel and discharge registrations against any of the Purchased Assets of any Claims, including Encumbrances but excluding Permitted Encumbrances.
6. The Monitor is authorized and directed to undertake and perform such activities and obligations as are contemplated to be undertaken or performed by the Monitor pursuant to this Order, the Initial Order, the APA, or any ancillary document related thereto, and shall incur no liability in connection therewith, save and except for any gross negligence or wilful misconduct on its part.
7. No authorization, approval or other action by and no notice to or filing with any Governmental Authority or regulatory body exercising jurisdiction over the Purchased Assets is required for the due execution, delivery, and performance by Mantle of the APA.
8. Upon delivery of the Monitor's Certificate together with a certified copy of this Order, and subject to paragraph 3 of this Order: (a) the Director shall be authorized and directed to register this Order in the records of the Department (as such term is defined in the *PLA* notwithstanding that the appeal period in respect of this Order has not elapsed; and (b) the Director is hereby authorized to accept all Affidavits of Corporate Signing Authority

submitted by the Monitor in its capacity as Monitor of Mantle and not in its personal capacity.

9. For the purposes of determining the nature and priority of Claims, net proceeds from sale of the Purchased Assets shall stand in the place and stead of the Purchased Assets from and after delivery of the Monitor's Certificate and all Claims including Encumbrances (but excluding Permitted Encumbrances) shall not attach to, encumber, or otherwise form a charge, security interest, lien, or other Claim against the Purchased Assets and may be asserted against the net proceeds from sale of the Purchased Assets with the same priority as they had with respect to the Purchased Assets immediately prior to the sale, as if the Purchased Assets had not been sold and remained in the possession or control of the person having that possession or control immediately prior to the sale.
10. Upon completion of the Transaction, Mantle and all persons who claim by, through or under Mantle in respect of the Purchased Assets, and all persons or entities having any Claims of any kind whatsoever in respect of the Purchased Assets, shall stand absolutely and forever barred, estopped, and foreclosed from and permanently enjoined from pursuing, asserting, or claiming any and all right, title, estate, interest, royalty, rental, equity of redemption or other Claim whatsoever in respect of or to the Purchased Assets, and to the extent that any such persons or entities remain in the possession or control of any of the Purchased Assets, or any artifacts, certificates, instruments or other indicia of title representing or evidencing any right, title, estate, or interest in and to the Purchased Assets, they shall forthwith deliver possession thereof to the Purchaser (or its nominee).
11. The Purchaser (or its nominee) shall be entitled to enter into and upon, hold and enjoy the Purchased Assets for its own use and benefit without any interference of or by Mantle, or any person claiming by, through or against Mantle.
12. The Monitor is directed to file with the Court a copy of the Monitor's Certificate forthwith after delivery thereof to the Purchaser (or its nominee).

13. The Monitor may rely on written notice from Mantle and the Purchaser or their respective counsel regarding the fulfillment of conditions to closing under the APA and shall incur no liability with respect to the delivery of the Monitor's Certificate.

#### **Miscellaneous Matters**

14. Notwithstanding:
  - (a) the pendency of these proceedings and any declaration of insolvency made herein;
  - (b) the pendency of any applications for a bankruptcy order now or hereafter issued pursuant to the BIA, in respect of Mantle, and any bankruptcy order issued pursuant to any such applications;
  - (c) any assignment in bankruptcy made in respect of Mantle; and
  - (d) the provisions of any federal or provincial statute:

the vesting of the Purchased Assets in the Purchaser (or its nominee) pursuant to this Order shall be binding on any trustee in bankruptcy that may be appointed in respect of Mantle and shall not be void or voidable by creditors of Mantle, nor shall it constitute nor be deemed to be a transfer at undervalue, settlement, fraudulent preference, assignment, fraudulent conveyance, or other reviewable transaction under the BIA or any other applicable federal or provincial legislation, nor shall it constitute oppressive or unfairly prejudicial conduct pursuant to any applicable federal or provincial legislation.

15. Mantle, the Monitor, the Purchaser (or its nominee), and any other interested party shall be at liberty to apply for further advice, assistance and direction as may be necessary in order to give full force and effect to the terms of this Order and to assist and aid the parties in closing the Transaction.
16. This Honourable Court hereby requests the aid and recognition of any court, tribunal, regulatory or administrative body having jurisdiction in Canada or in any of its provinces or territories or in any foreign jurisdiction, to act in aid of and to be complimentary to this Court in carrying out the terms of this Order, to give effect to this Order, and to assist

Mantle, the Monitor and their respective agents in carrying out the terms of this Order. All courts, tribunals, regulatory and administrative bodies are hereby respectfully requested to make such order and to provide such assistance to Mantle and the Monitor as an officer of the Court as may be necessary or desirable to give effect to this Order or to assist Mantle, the Monitor and their respective agents in carrying out the terms of this Order.

17. Service of this Order shall be deemed good and sufficient by:

(a) Serving the same on:

- (i) the persons listed on the service list created in these proceedings;
- (ii) any other person served with notice of the application for this Order;
- (iii) any other parties attending or represented at the application for this Order;
- (iv) the Purchaser or the Purchaser's solicitors;

(b) Posting a copy of this Order on the Monitor's website at:  
<http://cfcanda.fticonsulting.com/mantle/default.htm>;

and service on any other person is hereby dispensed with.

18. Service of this Order may be effected by facsimile, electronic mail, personal delivery or courier. Service is deemed to be effected the next business day following transmission or delivery of this Order.

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Justice of the Court of King's Bench of  
Alberta

**SCHEDULE “A”  
[Sale Approval]**

**MONITOR'S CERTIFICATE**

Clerk's Stamp

COURT FILE NO. 2301 16114  
COURT COURT OF KING'S BENCH OF ALBERTA  
JUDICIAL CENTRE CALGARY

IN THE MATTER OF THE *COMPANIES' CREDITORS  
ARRANGEMENT ACT*, RSC 1985, c C-36, as amended  
AND IN THE MATTER OF THE COMPROMISE OR  
ARRANGEMENT OF MANTLE MATERIALS GROUP, LTD.

DOCUMENT **MONITOR'S CERTIFICATE**

ADDRESS FOR SERVICE AND CONTACT INFORMATION OF PARTY FILING THIS DOCUMENT  
McCarthy Tétrault LLP  
4000, 421 – 7th Avenue SW  
Calgary, Alberta T2P 4K9  
Attn: Sean Collins/Pantelis Kyriakakis  
Tel: 403-260-3531 / 3536  
Fax: 403-260-3501  
Email: [scollins@mccarthy.ca](mailto:scollins@mccarthy.ca) / [pkyriakakis@mccarthy.ca](mailto:pkyriakakis@mccarthy.ca)

**RECITALS**

- A. Pursuant to an Order of the Honourable Associate Chief Justice D.B. Nixon of the Court of King's Bench of Alberta, Judicial District of Calgary (the “**Court**”) pronounced January 10, 2024, as subsequently amended and restated on January 16, 2024, FTI Consulting Canada Inc., was appointed as the monitor (the “**Monitor**”) of Mantle Materials Group, Ltd.
- B. On February 23, 2024, the Court pronounced an Order (the “**SAVO**”) approving the asset purchase agreement dated February XX, 2024 (the “**APA**”) between Mantle, as vendor, and PEA Holdings Incorporated (the “**Purchaser**”), as purchaser, and vesting in the Purchaser of Mantle's right, title, and interest in and to the Purchased Assets, which vesting is to be effective upon the delivery by the Monitor to the Purchaser of a certificate confirming: (i) the payment by the Purchaser of the Purchase Price for the Purchased

Assets; (ii) that all conditions to the closing of the APA have been satisfied or waived by Mantle and the Purchaser; and (iii) the Transaction has been completed to the satisfaction of the Monitor.

- C. Unless otherwise indicated herein, all capitalized terms have the meanings set out in the SAVO.

**THE MONITOR CERTIFIES** the following:

1. The Purchaser (or its nominee) has paid and the Monitor has received the purchase price for the Purchased Assets in accordance with and as contemplated by the terms of the APA;
2. The conditions to the closing of the APA have been satisfied or waived by Mantle and the Purchaser (or its nominee); and
3. The Transaction has been completed to the satisfaction of the Monitor.
4. This Certificate was delivered by the Monitor at [**Time**] on [**Date**].

**FTI CONSULTING CANADA INC.**, in its capacity as the monitor of **MANTLE MATERIALS GROUP, LTD.** and not in its personal or corporate capacity.

Per: \_

---

Name:

Title:

**SCHEDULE "B"**  
**[Permitted Encumbrances]**

Nil

**SCHEDULE "B"**  
**PERMITTED ENCUMBRANCES**

NIL



**SCHEDULE "C"**  
**GENERAL ASSIGNMENT OF DISPOSITION**

# February 12, 2024 - Asset Agreement (ID 1202122)

Final Audit Report

2024-02-12

|                 |  |
|-----------------|--|
| Created:        | 2024-02-12                                   |
| By:             | Crystal Milmine (c.milmine@mainstreetlaw.ca) |
| Status:         | Signed                                       |
| Transaction ID: | CBJCHBCAABAAHdRr44A1JqxCAZWXrahG1YwFLULfOBjQ |

## "February 12, 2024 - Asset Agreement (ID 1202122)" History

 Document created by Crystal Milmine (c.milmine@mainstreetlaw.ca)


2024-02-12 - 4:40:40 PM GMT

 Document emailed to Paula Auger (vpauger@mcsnet.ca) for signature


2024-02-12 - 4:40:45 PM GMT

 Email viewed by Paula Auger (vpauger@mcsnet.ca)

2024-02-12 - 8:20:11 PM GMT

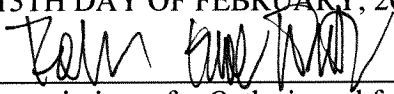
 Document e-signed by Paula Auger (vpauger@mcsnet.ca)

Signature Date: 2024-02-12 - 8:20:53 PM GMT - Time Source: server

 Agreement completed.

2024-02-12 - 8:20:53 PM GMT

THIS IS EXHIBIT "F" TO THE AFFIDAVIT  
OF BYRON LEVKULICH SWORN ON THE  
13TH DAY OF FEBRUARY, 2024

  
\_\_\_\_\_  
Commissioner for Oaths in and for the  
State of Colorado

ROBIN GRACE WHITE  
NOTARY PUBLIC  
STATE OF COLORADO  
NOTARY ID 20134069976  
MY COMMISSION EXPIRES November 16, 2025

## INTERIM ACCESS AGREEMENT

THIS AGREEMENT is dated as of February 9, 2024

BETWEEN:

**MANTLE MATERIALS GROUP, LTD.** (the “Vendor”)

- and -

**PEA HOLDINGS INCORPORATED** (the “Purchaser”)

### CONTEXT:

- A. Pursuant to an Initial Order of the Honourable ACJ D.B. Nixon of the Court of King’s Bench of Alberta (the “**Court**”) pronounced on January 10, 2024, the Vendor was granted protection under the *Companies’ Creditors Arrangement Act*, RSC 1985, c C-36, as amended (the “**CCAA**”) and FTI Consulting Canada Inc. was appointed as monitor (in such capacity, the “**Monitor**”).
- B. The Vendor has surface material leases giving it access to lands (the “**SML Lands**”) owned by His Majesty in right of the Province of Alberta identified as SML 100085, SML 110025, SML 110026, SML 110045, SML 110046, SML 110047, SML 120005, SML 120006 and SML 120100 (collectively, the “**Mantle SMLs**”, and individually, an “**SML**”).
- C. Pursuant to an asset purchase agreement dated as of February 9, 2024 (the “**APA**”, and the purchase and sale transaction contemplated thereby, the “**Transaction**”) between the Vendor and the Purchaser, the Vendor agreed to sell and the Purchaser agreed to purchase, among other things, the Mantle SMLs.
- D. The SMLs identified as SML 110025 and SML 110026 have expired by the Vendor has applied to Alberta Forestry and Parks (“**AFP**”) to renew those SMLs (collectively, the “**Expired SMLs**”). The SMLs identified as SML100085, SML 110046, SML 120006 and SML 120100 have been cancelled but the Vendor has applied to AFP to reinstate those SMLs (collectively, the “**Cancelled SMLs**”).
- E. The Purchaser wishes to have access to the SML Lands in the period between the conditions in this Agreement being satisfied and the Closing of the Transaction and the Vendor is willing to grant such access on the terms and subject to the conditions set out in this Agreement.

**THEREFORE**, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties agree as follows:

### 1. INTERPRETATION

#### 1.1 Defined Terms

In this Agreement the following terms have the following meanings:

- (a) “**AFP**” is defined in Context paragraph D.
- (b) “**Access Period**” is defined in Section 2.1(a).
- (c) “**Agreement**” means this agreement, including all Schedules, as it may be supplemented, amended, restated or replaced from time to time by written agreement between the Parties.

- (d) “**APA**” is defined in Context paragraph C.
- (e) “**Applicable Law**” means, at any time, with respect to any Person, property, transaction or event, all applicable laws, statutes, regulations, treaties, judgments and decrees and (whether or not having the force of law) all applicable official directives, rules, consents, approvals, by-laws, permits, authorizations, guidelines, orders, codes and policies of any Governmental Authority having authority over that Person, property, transaction or event.
- (f) “**Business Day**” means any day other than a Saturday, Sunday or statutory holiday in the Province of Alberta or any other day on which the principal chartered banks located in the City of Calgary are not open for business during normal banking hours.
- (g) “**Cancelled SMLs**” is defined in Context paragraph D.
- (h) “**CCAA**” is defined in Context paragraph A.
- (i) “**Closing**” is defined in section 1.1.14 of the APA.
- (j) “**Communication**” means any notice, demand, request, consent, approval or other communication which is required or permitted by this Agreement to be given or made by a Party.
- (k) “**Court**” is defined in Context paragraph A.
- (l) “**Environment**” means the ambient air, all layers of the atmosphere, all water including surface water and underground water, all land, all living organisms and the interacting natural systems that include components of air, land, water, living organisms and organic and inorganic matter.
- (m) “**Environmental Laws**” means any Applicable Laws relating to the Environment and protection of the Environment, including the *Environmental Protection and Enhancement Act*, RSA 2000, c. E-12, as amended, *Conservation and Reclamation Regulation*, AR 115/93, as amended, the *Activities Designation Regulation*, AR 276/2003, the *Approvals and Registrations Procedure Regulation*, AR113/93, as amended, and the *Code of Practice for Pits*.
- (n) “**Environmental Liabilities**” means any liability or obligation under the Environmental Laws, including for certainty reclamation liabilities.
- (o) “**Expired SMLs**” is defined in Context paragraph D.
- (p) “**Governmental Authority**” means any federal, provincial, local, municipal, regional, territorial, aboriginal, or other government, governmental or public department, branch, ministry, or court, domestic or foreign, including any district, agency, commission, board, arbitration panel or authority and any subdivision of the foregoing exercising or entitled to exercise any administrative, executive, judicial, ministerial, prerogative, legislative, regulatory or taxing authority or power of any nature, or any quasi-governmental or private body exercising any regulatory, expropriation or taxing authority under or for the account of any of the foregoing.
- (q) “**Liabilities**” is defined in Section 2.2.
- (r) “**Mantle SMLs**” is defined in Context paragraph B.
- (s) “**Monitor**” is defined in Context paragraph A.

- (t) **"Parties"** means the Vendor and the Purchaser, collectively, and **"Party"** means either of them.
- (u) **"Permitted Activities"** is defined in Section 2.1(a).
- (v) **"Person"** means an individual, body corporate, sole proprietorship, partnership or trust or unincorporated association, unincorporated syndicate, unincorporated organization, or another entity, and a natural person, acting in his or her individual capacity or in his or her capacity as executor, trustee, administrator or legal representative, and any Governmental Authority.
- (w) **"Representatives"** means, with respect to any Party, its Affiliates and their respective directors, officers, employees, agents and contractors.
- (x) **"SML"** is defined in Context paragraph B.
- (y) **"SML Lands"** is defined in Context paragraph B.
- (z) **"Transaction"** is defined in Context paragraph C.

## 1.2 **Certain Rules of Interpretation**

- (a) In this Agreement, words signifying the singular number include the plural and vice versa, and words signifying gender include all genders. Every use of the word "including" in this Agreement is to be construed as meaning "including, without limitation".
- (b) The division of this Agreement into Sections and the insertion of headings are for convenience of reference only and do not affect the construction or interpretation of this Agreement.
- (c) References in this Agreement to a Section are to be construed as references to a Section of this Agreement unless the context requires otherwise.
- (d) Unless otherwise specified, any reference in this Agreement to any statute includes all regulations made thereunder or in connection therewith from time to time, and is to be construed as a reference to such statute as amended, supplemented or replaced from time to time.

## 2. **INTERIM ACCESS**

### 2.1 **Access until Closing**

- (a) In the period between the conditions precedent in Section 2.5 being satisfied and Closing (the **"Access Period"**), the Vendor shall permit the Purchaser and its authorized Representatives reasonable access to the SML Lands (other than any SML Lands subject to an Expired SML or Cancelled SML, other than where such Expired SML is renewed or Cancelled SML is reinstated) in order to carry out the activities permitted under this Section 2.1 (**"Permitted Activities"**).
- (b) Prior to accessing the SML Activities in order to carry out Permitted Activities on SML Lands, the Purchaser shall provide to the Vendor a detailed work plan setting out the Permitted Activities that the Purchaser intends to carry out and the proposed time frames for such Permitted Activities, which work plan shall set out any Permitted Activities reasonably expected to cause or increase Environmental Liabilities, and shall require the

approval of the Vendor, acting reasonably, prior to the Permitted Activities being undertaken.

- (c) The Permitted Activities shall consist of the following work:
- (i) work to clean up, re-contour and organize the SML Lands in order to prepare them for the commencement of operations; and
  - (ii) with the explicit consent in writing of the Vendor, the sale of aggregate provided that any royalties payable in connection with such sales are held in trust by the Purchaser pending Closing, subject to the requirement that the Purchaser immediately remit to the Vendor the amount of any royalties or other amounts payable to applicable Governmental Authorities under the SML governing the SML Lands from which the aggregate was taken, which amounts the Vendor shall remit to such Governmental Authorities in accordance with Applicable Laws;
- (d) In the event that the Transaction fails to close in accordance with the APA, and the APA is terminated:
- (i) the Access Period shall terminate and the right of access of the Purchaser to the SML Lands pursuant to Section 2.1(a) shall immediately cease;
  - (ii) the Purchaser shall remit to the Vendor all amounts held in trust by it pursuant to Section 2.1(c)(ii); and
  - (iii) in the event that the Permitted Activities associated with the SML Lands have increased the Environmental Liabilities for which the Vendor is liable under Environmental Laws, the Purchaser shall pay to the Vendor the amount of such increase in excess of the amount remitted to the Vendor under Section 2.1(d)(ii). The amount of such increase shall be the reasonable estimate thereof provided by a third party environmental consultant acceptable to the Parties, acting reasonably. For the purposes of this Section, Upland Environmental Ltd. shall be deemed to be an acceptable consultant.

## 2.2 Damage and Liabilities

The Purchaser shall be responsible for any injury or damage to the SML Lands or any Person and any Environmental Liabilities caused by the Purchaser or its Representatives or its access to the SML Lands, and for any Environmental Liabilities caused by the Purchaser or its Representatives or resulting from their access to SML Lands (collectively, "**Liabilities**").

## 2.3 Public Liability Insurance

The Purchaser will maintain public liability insurance with a recognized Canadian insurance company in the amount of no less than \$5 million for the SML Lands and any Liabilities during the Access Period, and name the Vendor an additional insured.

## 2.4 Indemnity of the Purchaser

The Purchaser agrees that if it fails to indemnify and hold the Vendor harmless from and against all claims, demands, losses, damages, actions and costs incurred or arising from or in any way directly related to any Liability, including the costs and expenses of any action, suit, proceeding, demand, assessment, judgment, settlement or compromise and all interest, punitive damages, fines, penalties and reasonable professional fees and disbursements which the Vendor may suffer as a result thereof.

## 2.5 Conditions Precedent

The right of access of the Purchaser is subject to the satisfaction or waiver by the Vendor of the following conditions:

- (a) the APA and this Agreement shall have been fully executed by the Parties; and
- (b) the Court shall have issued the Approval and Vesting Order.

## 3. GENERAL

### 3.1 Paramountcy

In the event of any conflict or inconsistency between the provisions of this Agreement, and any other agreement, document or instrument executed or delivered by the Vendor in connection with this Transaction or this Agreement, the provisions of this Agreement will prevail to the extent of such conflict or inconsistency.

### 3.2 Time of Essence

Time is of the essence of this Agreement.

### 3.3 Notices

Any Communication must be in writing and either delivered personally or by courier, sent by prepaid registered mail or transmitted by e-mail or functionally equivalent electronic means of transmission, charges (if any) prepaid. Any Communication must be sent to the intended recipient at its address as follows:

- (a) If to the Purchaser:

PEA Holdings Incorporated  
PO Box 5123  
Westlock, AB T7P 2P4  
Attention: Vance Auger  
E-mail: vpauger@mcsnet.ca

with a copy to:

Main Street Law LLP  
#12, 119 First Avenue,  
Spruce Grove, AB T7X 3A7

Attention: Sharisse A. McCalla  
E-mail: smccalla@mainstreetlaw.ca

- (b) If to the Vendor:

Mantle Materials Group, Ltd.  
c/o Resource Land Holdings, LLC  
1400 16th Street, Suite 320  
Denver, CO 80202



Attention: John Stout, Senior Vice President  
E-mail: john.stout@rlholdings.com

with a copy to:  
Gowling WLG (Canada) LLP  
Suite 1600, 421 7th Avenue SW  
Calgary AB T2P 4K9

Attention: Tom Cumming / Stephen Kroeger  
E-mail: tom.cumming@gowlingwlg.com / stephen.kroeger@gowlingwlg.com

or at any other address as any Party may at any time advise the other by Communication given or made in accordance with this Section 3.3. Any Communication delivered to the Party to whom it is addressed will be deemed to have been given or made and received on the day it is delivered at that Party's address, provided that if that day is not a Business Day then the Communication will be deemed to have been given or made and received on the next Business Day. Any Communication sent by prepaid registered mail will be deemed to have been given or made and received on the [fifth] Business Day after which it is mailed. If a strike or lockout of postal employees is then in effect, or generally known to be impending, every Communication must be delivered personally or by courier or transmitted by e-mail or functionally equivalent electronic means of transmission. Any Communication transmitted by e-mail or functionally equivalent electronic means of transmission will be deemed to have been given or made and received on the day on which it is transmitted; but if the Communication is transmitted on a day which is not a Business Day or after 4:00 pm (local time of the recipient), the Communication will be deemed to have been given or made and received on the next Business Day.

### 3.4 Severability

Each Section of this Agreement is distinct and severable. If any Section of this Agreement, in whole or in part, is or becomes illegal, invalid, void, voidable or unenforceable in any jurisdiction by any court of competent jurisdiction, the illegality, invalidity or unenforceability of that Section, in whole or in part, will not affect the legality, validity or enforceability of the remaining Sections of this Agreement, in whole or in part or the legality, validity or enforceability of that Section, in whole or in part, in any other jurisdiction.

### 3.5 Submission to Jurisdiction

Each of the Parties irrevocably and unconditionally submits and attorns to the non-exclusive jurisdiction of the courts of the Province of Alberta to determine all issues, whether at law or in equity arising from this Agreement. To the extent permitted by Applicable Law, each of the Parties irrevocably waives any objection, including any claim of inconvenient forum, that it may now or in the future have to the venue of any legal proceeding arising out of or relating to this Agreement in the courts of that Province, or that the subject matter of this Agreement may not be enforced in those courts, and irrevocably agrees not to seek, and waives any right to, judicial review by any court which may be called upon to enforce the judgment of the courts referred to in this Section 3.5, of the substantive merits of any suit, action or proceeding.

### 3.6 Amendment and Waiver

No amendment, discharge, modification, restatement, supplement, termination or waiver of this Agreement or any Section of this Agreement is binding unless it is in writing and executed by the Party to be bound. No waiver of, failure to exercise or delay in exercising, any Section of this Agreement constitutes a waiver of any other Section (whether or not similar) nor does any waiver constitute a continuing waiver unless otherwise expressly provided.

### **3.7 Costs and Expenses**

Except as otherwise specified in this Agreement, all costs and expenses (including the fees and disbursements of accountants, legal counsel and other professional advisers) incurred in connection with this Agreement and the completion of the Transaction are to be paid by the Party incurring those costs and expenses. If this Agreement is terminated, the obligation of each Party to pay its own costs and expenses is subject to each Party's respective rights arising from a breach or termination.

### **3.8 Further Assurances**

Each Party will, at the requesting Party's cost and expense, execute and deliver any further agreements and documents and provide any further assurances, undertakings and information as may be reasonably required by the requesting Party to give effect to this Agreement and, without limiting the generality of this Section 3.8.

### **3.9 Assignment and Enurement**

Neither this Agreement nor any right or obligation under this Agreement may be assigned by either Party without the prior written consent of the other Party. This Agreement enures to the benefit of and is binding upon the Parties and their respective successors and permitted assigns.

### **3.10 Electronic Signatures and Delivery**

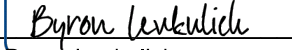
This Agreement and any counterpart of it may be signed by manual, digital or other electronic signatures, and delivered or transmitted by any digital, electronic or other intangible means, including by e-mail or other functionally equivalent electronic means of transmission, and that execution, delivery and transmission will be valid and legally effective to create a valid and binding agreement between the Parties. This Agreement may be signed and delivered by the Parties in counterparts, with the same effect as if each of the Parties had signed and delivered the same document, and that execution and delivery will be valid and legally effective.

Each of the Parties has executed and delivered this Agreement as of the date noted at the beginning of this Agreement.

**MANTLE MATERIALS GROUP, LTD.**

Per:

DocuSigned by:



Name: Byron Leukovich

Title: Authorized Representative

**PEA HOLDINGS INCORPORATED**

Per:

\_\_\_\_\_  
Name:

Title:

Each of the Parties has executed and delivered this Agreement as of the date noted at the beginning of this Agreement.

**MANTLE MATERIALS GROUP, LTD.**

Per:

\_\_\_\_\_  
Name:

Title:

**PEA HOLDINGS INCORPORATED**

Per:



\_\_\_\_\_  
Paula Auger (Feb 12, 2024 13:21 MST)

Name: Paula Auger

Title: President






# Feb 12, 2024 - Interim Access Agreement (ID 1202328)

Final Audit Report

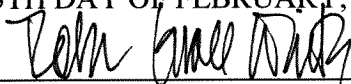
2024-02-12

|                 |  |
|-----------------|--|
| Created:        | 2024-02-12                                   |
| By:             | Crystal Milmine (c.milmine@mainstreetlaw.ca) |
| Status:         | Signed                                       |
| Transaction ID: | CBJCHBCAABAA6qnMTWRVCqFUGc1ogWPVjF3IAQ7vWkmu |

## "Feb 12, 2024 - Interim Access Agreement (ID 1202328)" History

-  Document created by Crystal Milmine (c.milmine@mainstreetlaw.ca)  
2024-02-12 - 6:20:03 PM GMT
-  Document emailed to Paula Auger (vpauger@mcsnet.ca) for signature  
2024-02-12 - 6:20:08 PM GMT
-  Email viewed by Paula Auger (vpauger@mcsnet.ca)  
2024-02-12 - 8:17:42 PM GMT
-  Document e-signed by Paula Auger (vpauger@mcsnet.ca)  
Signature Date: 2024-02-12 - 8:21:42 PM GMT - Time Source: server
-  Agreement completed.  
2024-02-12 - 8:21:42 PM GMT

THIS IS EXHIBIT "G" TO THE AFFIDAVIT  
OF BYRON LEVKULICH SWORN ON THE  
13TH DAY OF FEBRUARY, 2024



\_\_\_\_\_  
Commissioner for Oaths in and for the  
State of Colorado

ROBIN GRACE WHITE  
NOTARY PUBLIC  
STATE OF COLORADO  
NOTARY ID 20134069976  
MY COMMISSION EXPIRES November 16, 2025

## SHARE PURCHASE AGREEMENT

**THIS AGREEMENT** is dated as of January 19, 2024

B E T W E E N :

**MANTLE MATERIALS GROUP, LTD.** (the “**Vendor**”)

- and -

**ARROW-WEST HOLDINGS LTD.** (the “**Purchaser**”)

### CONTEXT:

- A. The Vendor owns the **Shares** in Atlas Aggregates Inc. (“**Atlas**”).
- B. On July 14, 2023 (the “**Filing Date**”), the Vendor filed a notice of intention to make a proposal (the “**NOI**”) under section 50.4 of the *Bankruptcy and Insolvency Act*, RSC 1985, c B-3, as amended (the “**BIA**”), and FTI Consulting Canada Inc. (“**FTI**”), a licensed insolvency trustee, was named as the proposal trustee of Mantle (in such capacity, the “**Proposal Trustee**”).
- C. On December 4, 2023, the Proposal Trustee launched a sale solicitation process in respect of the Shares under which parties interested in potentially purchasing the Shares were required to submit an offer to purchase the same by January 4, 2024 or such later date as the Proposal Trustee agreed to.
- D. On January 4, 2024, the Purchaser submitted to the Proposal Trustee an offer to purchase the Shares, which the Vendor and Proposal Trustee identified as the highest and otherwise best offer received.
- E. On January 10, 2024, the Court ordered that the Proposal Proceedings be taken up under and converted to proceedings under the *Companies’ Creditors Arrangement Act*, RSC 1985, c C-36, as amended (the “**CCAA**”) pursuant to an Order of the Honourable Justice Nixon (the “**CCAA Initial Order**”).
- F. The Vendor wishes to sell and the Purchaser wishes to purchase the Shares on and subject to the terms and conditions of this Agreement.

**THEREFORE**, the Parties agree as follows:

### ARTICLE 1 INTERPRETATION

#### 1.1 Definitions

In this Agreement the following terms have the following meanings:

- (a) “**Agreement**” means this agreement, including all Schedules, as it may be supplemented, amended, restated or replaced from time to time by written agreement between the Parties.
- (b) “**Applicable Law**” means, at any time, with respect to any Person, property, transaction or event, all applicable laws, statutes, regulations, treaties, judgments and decrees and (whether or not having the force of law) all applicable official directives, rules, consents,

approvals, by-laws, permits, authorizations, guidelines, orders, codes and policies of any Governmental Authority having authority over that Person, property, transaction or event.

- (c) “**Approval and Vesting Order**” is defined in Section 4.3(a).
- (d) “**Atlas**” is defined in Context paragraph A.
- (e) “**August 15 Order**” means an Order of the Honourable Mr. Justice Feasby of the Court pronounced on August 15, 2023 in the Proposal Proceedings.
- (f) “**BIA**” is defined in Context paragraph B.
- (g) “**Business Day**” means any day other than a Saturday, Sunday or statutory holiday in the Province of Alberta or any other day on which the principal chartered banks located in the City of Calgary are not open for business during normal banking hours.
- (h) “**CCAA**” is defined in Context paragraph E.
- (i) “**CCAA Initial Order**” is defined in Context paragraph E.
- (j) “**Closing**” means the successful completion of the Transaction.
- (k) “**Closing Date**” means the date which is two (2) Business Days immediately following the satisfaction or waiver of the conditions in Article 4.
- (l) “**Communication**” means any notice, demand, request, consent, approval or other communication which is required or permitted by this Agreement to be given or made by a Party.
- (m) “**Court**” means the Court of King’s Bench of Alberta.
- (n) “**Court Officer**” refers to FTI in its capacities as the Proposal Trustee and Monitor.
- (o) “**Data Room**” means the data room created and maintained by the Vendor in connection with the marketing and sale of the Shares.
- (p) “**Encumbrance**” means any mortgage, charge, liens, security interest or other encumbrance or interest of any kind whatsoever attaching to or affecting the Shares.
- (q) “**Filing Date**” is defined in Context paragraph B.
- (r) “**FTI**” is defined in Context paragraph B.
- (s) “**Governmental Authority**” means any federal, provincial, local, municipal, regional, territorial, aboriginal, or other government, governmental or public department, branch, ministry, or court, domestic or foreign, including any district, agency, commission, board, arbitration panel or authority and any subdivision of the foregoing exercising or entitled to exercise any administrative, executive, judicial, ministerial, prerogative, legislative, regulatory or taxing authority or power of any nature, or any quasi-governmental or private body exercising any regulatory, expropriation or taxing authority under or for the account of any of the foregoing.
- (t) “**NOI**” is defined in Context paragraph B.



- (u) **“Parties”** means the Vendor and the Purchaser, collectively, and **“Party”** means either of them.
- (v) **“Person”** means an individual, body corporate, sole proprietorship, partnership or trust or unincorporated association, unincorporated syndicate, unincorporated organization, or another entity, and a natural person, acting in his or her individual capacity or in his or her capacity as executor, trustee, administrator or legal representative, and any Governmental Authority.
- (w) **“Purchase Price”** is defined in Section 2.1.
- (x) **“Proposal Proceedings”** means the proposal proceedings of Mantle under the *BIA* commenced by the filing of the NOI.
- (y) **“Proposal Trustee”** is defined in Context paragraph B.
- (z) **“Share Certificates”** is defined in Section 5.3(b).
- (aa) **“Shares”** means 7,820,077 Class “A” Common Shares in Atlas.
- (bb) **“Transaction”** means the transaction of purchase and sale contemplated by this Agreement.

## 1.2 **Certain Rules of Interpretation**

- (a) In this Agreement, words signifying the singular number include the plural and vice versa, and words signifying gender include all genders. Every use of the word “including” in this Agreement is to be construed as meaning “including, without limitation”.
- (b) The division of this Agreement into Articles and Sections, the insertion of headings and the provision of a table of contents are for convenience of reference only and do not affect the construction or interpretation of this Agreement. References in this Agreement to an Article, Section or Schedule are to be construed as references to an Article, Section or Schedule of or to this Agreement unless the context requires otherwise.
- (c) Unless otherwise specified in this Agreement, time periods within which or following which any payment is to be made or act is to be done will be calculated by excluding the day on which the period commences and including the day on which the period ends. If the last day of a time period is not a Business Day, the time period will end on the next Business Day.

## 1.3 **Governing Law and Attornment**

This Agreement is governed by, and is to be construed and interpreted in accordance with, the laws of the Province of Alberta and the laws of Canada applicable in that Province. Each of the Parties hereby irrevocably and unconditionally attorns to the exclusive jurisdiction of the courts of the Province of Alberta.

## 1.4 **Entire Agreement**

This Agreement, and any other agreements and documents to be delivered under this Agreement, constitutes the entire agreement between the Parties pertaining to the subject matter of this Agreement and supersedes all prior agreements, understandings, negotiations and discussions, whether oral or

written, of the Parties, and there are no representations, warranties or other agreements between the Parties in connection with the subject matter of this Agreement except as specifically set out in this Agreement or in any other agreements and documents delivered under this Agreement. No Party has been induced to enter into this Agreement in reliance on, and there will be no liability assessed, either in tort or contract, with respect to, any warranty, representation, opinion, advice or assertion of fact, except to the extent it has been reduced to writing and included as a term in this Agreement or in any other agreements and documents delivered under this Agreement.

**1.5 Business Day**

Whenever any payment to be made or action to be taken under this Agreement is required to be made or taken on a day other than a Business Day, the payment is to be made or action taken on the next Business Day following.

**1.6 Schedules**

The following is a list of Schedules:

| <b>Subject Matter</b>      | <b>Schedule</b> |
|----------------------------|-----------------|
| Approval and Vesting Order | Schedule "A"    |

**ARTICLE 2  
SALE AND PURCHASE**

**2.1 Sale and Purchase of Shares**

Subject to the terms and conditions of this Agreement, effective as of the Closing, the Vendor will sell and the Purchaser will purchase the Shares.

**2.2 Purchase Price**

The aggregate purchase price (the "**Purchase Price**") payable by the Purchaser to the Vendor for the Shares will be \$██████. The Purchaser will pay and satisfy the Purchase Price in immediately available funds on or prior to Closing by wire transfer, which the Vendor hereby directs be wired to the Monitor in accordance with the wire transfer instructions provided in writing by the Monitor to the Purchaser.

**ARTICLE 3  
REPRESENTATIONS AND WARRANTIES**

**3.1 Purchaser's Representations**

The Purchaser represents and warrants to the Vendor that:

- (a) the Purchaser is a corporation incorporated and validly existing under the laws of the Province of Alberta;
- (b) the Purchaser has all the necessary corporate power, authority and capacity to enter into this Agreement and to perform its obligations and the execution and delivery of this Agreement and the consummation of the Transaction have been duly authorized by all necessary corporate actions on the part of the Purchaser;

- (c) the Purchaser is not a party to, bound or affected by or subject to any indenture, agreement, instrument, charter or by-law provision, order, judgment or decree which would be violated, contravened or breached by the execution and delivery by it of this Agreement or the performance by it of any of the terms contained in this Agreement;
- (d) the Purchaser has not agreed to pay any agent or broker fees or other commissions on the Purchase Price or otherwise in connection with the Transaction; and
- (e) the Purchaser is not a non-Canadian Person as defined in the *Investment Canada Act*.

### 3.2 Vendor's Representations

The Vendor represents and warrants to the Purchaser that:

- (a) the Vendor is a corporation incorporated and validly existing under the laws of Alberta;
- (b) the Vendor has the right to enter into this Agreement and, subject to the granting of the Approval and Vesting Order by the Court, to complete the Transaction;
- (c) the Vendor is not a non-resident of Canada within the meaning of that term as used in the *Income Tax Act (Canada)*;
- (d) save and except for the charges created pursuant to the August 15 Order, as subsequently carried over under the CCAA Initial Order, the Vendor has not previously sold or done any act to encumber the Shares since the Filing Date;
- (e) the Vendor has not agreed to pay any agent or broker fees or other commissions on the Purchase Price or otherwise in connection with the Transaction; and
- (f) to the best of the Vendor's knowledge, no actions or proceedings are pending and none have been threatened to restrain or prohibit the completion of the Transaction contemplated by this Agreement.

### 3.3 "As is, Where is"

The Purchaser acknowledges that, subject to Sections 3.1 and 3.2, the Vendor is selling the Shares on an "as is, where is" basis as they exist on the Closing Date. The Purchaser further acknowledges that it has entered into this Agreement on the basis that the Vendor does not guarantee title to the Shares and that the Purchaser has conducted or will have conducted its own investigation and due diligence of the condition of and title to the Shares as it deems appropriate and has satisfied itself with regard to these matters. No representation, warranty or condition is expressed or can be implied as to title, encumbrances, description, assignability, validity or enforceability, or in respect of any other matter or thing whatsoever concerning the Shares or the right of the Vendor to sell them save and except as expressly represented or warranted in this Agreement. Without limiting the generality of the foregoing, any and all conditions, warranties or representations expressed or implied pursuant to Applicable Laws do not apply to this Transaction and have been waived by the Purchaser. The description of the Shares contained in the Data Room is provided for the convenience of the Purchaser and neither the Vendor nor the Court Officer has made any representation or warranty with respect to the accuracy or completeness of that information or any other information provided by the Vendor to the Purchaser. The Parties further acknowledge and agree that the Court Officer and the Court Officer's respective former and current directors, officers, employees, agents, advisors, lawyers, and successors and assigns will have no liability under or in connection with this Agreement whatsoever or any portion thereof, whether

in its capacity as Court Officer, in its personal capacity, or otherwise; save and except for any claim or liability arising out of gross negligence or wilful misconduct on the part of the Court Officer.

## **ARTICLE 4 CONDITIONS**

### **4.1 Conditions of the Purchaser**

The obligation of the Purchaser to complete the Transaction is subject to the fulfillment of each of the following conditions before the Closing Date (unless otherwise specified, or unless otherwise waived by the Purchaser as it may determine in its sole and unfettered discretion):

- (a) all representations and warranties of the Vendor contained in this Agreement will be true as of the Closing Date with the same effect as though made on and as of that date;
- (b) no action or proceedings will be pending or threatened to restrain or prohibit the completion of the Transaction contemplated by this Agreement on the Closing Date; and
- (c) the Vendor will have performed each of its obligations under this Agreement to the extent required to be performed on or before the Closing Date.

The foregoing conditions are for the exclusive benefit of the Purchaser. Any condition may be waived by the Purchaser in whole or in part. Any such waiver will be binding on the Purchaser only if made in writing.

### **4.2 Conditions of the Vendor**

The obligation of the Vendor to complete the Transaction is subject to the fulfillment of each of the following conditions before the Closing Date (unless otherwise specified, or unless otherwise waived by the Vendor in its sole discretion):

- (a) all representations and warranties of the Purchaser contained in this Agreement will be true as of the Closing Date with the same effect as though made on and as of that date;
- (b) no action or proceedings will be pending or threatened to restrain or prohibit the completion of the Transaction contemplated by this Agreement; and
- (c) the Purchaser will have performed each of its obligations under this Agreement to the extent required to be performed on or before the Closing Date.

The foregoing conditions are for the exclusive benefit of the Vendor. Any condition may be waived by the Vendor in whole or in part. Any such waiver will be binding on the Vendor only if made in writing.

### **4.3 Mutual Conditions**

The obligations of the Vendor and Purchaser to complete the Transaction are subject to the satisfaction of the following conditions precedent at or prior to the Closing:

- (a) the Court shall have made an Order Court approving this Agreement and the Transaction and vesting in the Purchaser all the right, title and interest of the Vendor in the Shares free and clear of all Encumbrances, such order to be substantially in the form of the order attached hereto as **Schedule "A"** (the "**Approval and Vesting Order**");

- (b) the Approval and Vesting Order will not have been stayed, varied or vacated and no order will have been issued and no action or proceeding will be pending to restrain or prohibit the completion of the Transaction; and
- (c) if available, a certified copy of a resolution of the directors of Atlas authorizing the transfer of the Shares to the Purchaser, or in the alternative, a declaration in the Approval and Vesting Order dispensing with the requirement for such a resolution.

The Parties hereto acknowledge that the foregoing conditions are for the mutual benefit of the Vendor and the Purchaser.

#### 4.4 **Non-Satisfaction of Conditions**

If any condition set out in this Article is not satisfied or performed prior to the time specified therefor, the Party for whose benefit the condition is inserted may in writing:

- (a) waive compliance with the condition in whole or in part in its sole discretion by written notice to the other Party and without prejudice to any of its rights of termination in the event of non-fulfilment of any other condition in whole or in part; or
- (b) elect by written notice to the other Party delivered on or after the date specified for the condition to terminate this Agreement.

### **ARTICLE 5 CLOSING**

#### 5.1 **Closing**

The Closing of the Transaction will take place by telephone conference and electronic exchange of documents at 10:00 a.m. Mountain Time on the Closing Date or at such other place and time as the Parties may agree in writing.

#### 5.2 **Purchaser's Deliveries on Closing**

At or before the Closing Date, the Purchaser will execute and deliver to the Vendor the following, each of which will be in form and substance satisfactory to the Vendor's counsel, acting reasonably:

- (a) the Purchase Price;
- (b) a certificate of a senior officer of the Purchaser dated the Closing Date, confirming that:
  - (i) all of the representations and warranties of the Purchaser contained in this Agreement are true as of the Closing Date, with the same effect as though made on and as of the Closing Date; and
  - (ii) each of the conditions precedent in Section 4.1, other than those previously stated as fulfilled, performed or waived by the Purchaser, have been fulfilled, performed or waived as of the Closing Date; and
- (c) such further and other documentation as is referred to in this Agreement or as the Vendor may reasonably require to give effect to this Agreement.

### 5.3 Vendor's Deliveries on Closing

At or before the Closing Date, the Vendor will execute and deliver to the Purchaser the following, each of which will be in form and substance satisfactory to the Purchaser, acting reasonably:

- (a) a certificate of an officer of the Vendor dated the Closing Date confirming that:
  - (i) all of the representations and warranties of the Vendor contained in this Agreement are true as of the Closing Date, with the same effect as though made on and as of the Closing Date; and
  - (ii) each of the conditions precedent in Section 4.2 have been fulfilled, performed or waived as of the Closing Date;
- (b) the original share certificates representing the Shares, duly endorsed by an effective endorsement for transfer to the Purchaser (the "**Share Certificates**");
- (c) a true copy of the Approval and Vesting Order; and
- (d) such further and other documentation as is referred to in this Agreement or as the Purchaser may reasonably require to give effect to this Agreement.

### 5.4 Purchaser's Acknowledgement

The Purchaser acknowledges that the Vendor is selling its right, title and interest in and to the Shares pursuant to this Agreement and the Approval and Vesting Order. The Purchaser agrees to purchase and accept the right, title and interest of the Vendor in and to the Shares pursuant to and in accordance with the terms of this Agreement and the Approval and Vesting Order.

### 5.5 Termination

- (a) If either the Vendor or the Purchaser validly terminates this Agreement pursuant to the provisions of Sections 4.4, all the obligations of both the Vendor and Purchaser pursuant to this Agreement will be at an end and neither Party will have any right to specific performance or other remedy against, or any right to recover damages or expenses from, the other.
- (b) The Parties agree that irreparable damage, for which monetary relief would not be an adequate remedy, would occur in the event that any provision of this Agreement is not performed in accordance with its specific terms or is otherwise breached, including if any of the Parties fails to take any action required of it hereunder to consummate the Transaction. It is accordingly agreed that (i) the Parties will be entitled to specific performance or other equitable relief to prevent breaches of this Agreement and to enforce specifically the terms and provisions hereof in the Court without proof of damages or otherwise, this being in addition to any other remedy to which they are entitled under this Agreement, and (ii) the right of specific performance and other equitable relief is an integral part of the Transaction and without that right, neither the Vendor nor the Purchaser would have entered into this Agreement. The remedies available to Vendor pursuant to this Section 5.5(b) will be in addition to any other remedy to which they were entitled at law or in equity, and the election to pursue specific performance will not restrict, impair or otherwise limit any Vendor from seeking to collect or collecting damages.

## ARTICLE 6 GENERAL

### 6.1 Paramountcy

In the event of any conflict or inconsistency between the provisions of this Agreement, and any other agreement, document or instrument executed or delivered by the Vendor in connection with this Transaction or this Agreement, the provisions of this Agreement will prevail to the extent of such conflict or inconsistency.

### 6.2 Time of Essence

Time is of the essence of this Agreement.

### 6.3 Notices

Any Communication must be in writing and either delivered personally or by courier, sent by prepaid registered mail or transmitted by e-mail or functionally equivalent electronic means of transmission, charges (if any) prepaid. Any Communication must be sent to the intended recipient at its address as follows:

- (a) If to the Purchaser:

Arrow-West Holdings Ltd.  
[address]

Attention:           •  
E-mail:               •

- (b) If to the Vendor:

Mantle Materials Group, Ltd.  
c/o Resource Land Holdings, LLC  
1400 16th Street, Suite 320  
Denver, CO 80202

Attention:           John Stout, Senior Vice President  
E-mail:               [john.stout@rlholdings.com](mailto:john.stout@rlholdings.com)

with a copy to:

Gowling WLG (Canada) LLP  
Suite 1600, 421 7<sup>th</sup> Avenue SW  
Calgary AB T2P 4K9

Attention:           Tom Cumming / Stephen Kroeger  
E-mail:               [tom.cumming@gowlingwlg.com](mailto:tom.cumming@gowlingwlg.com) / [stephen.kroeger@gowlingwlg.com](mailto:stephen.kroeger@gowlingwlg.com)

or at any other address as any Party may at any time advise the other by Communication given or made in accordance with this Section 6.3. Any Communication delivered to the Party to whom it is addressed will be deemed to have been given or made and received on the day it is delivered at that Party's address, provided that if that day is not a Business Day then the Communication will be deemed to have been given or made and received on the next Business Day. Any Communication sent by prepaid

registered mail will be deemed to have been given or made and received on the fifth Business Day after which it is mailed. If a strike or lockout of postal employees is then in effect, or generally known to be impending, every Communication must be delivered personally or by courier or transmitted by e-mail or functionally equivalent electronic means of transmission. Any Communication transmitted by e-mail or functionally equivalent electronic means of transmission will be deemed to have been given or made and received on the day on which it is transmitted; but if the Communication is transmitted on a day which is not a Business Day or after 4:00 pm (local time of the recipient), the Communication will be deemed to have been given or made and received on the next Business Day.

#### **6.4 Severability**

Each Section of this Agreement is distinct and severable. If any Section of this Agreement, in whole or in part, is or becomes illegal, invalid, void, voidable or unenforceable in any jurisdiction by any court of competent jurisdiction, the illegality, invalidity or unenforceability of that Section, in whole or in part, will not affect the legality, validity or enforceability of the remaining Sections of this Agreement, in whole or in part or the legality, validity or enforceability of that Section, in whole or in part, in any other jurisdiction.

#### **6.5 Submission to Jurisdiction**

Each of the Parties irrevocably and unconditionally submits and attorns to the non-exclusive jurisdiction of the courts of the Province of Alberta to determine all issues, whether at law or in equity arising from this Agreement. To the extent permitted by Applicable Law, each of the Parties irrevocably waives any objection, including any claim of inconvenient forum, that it may now or in the future have to the venue of any legal proceeding arising out of or relating to this Agreement in the courts of that Province, or that the subject matter of this Agreement may not be enforced in those courts, and irrevocably agrees not to seek, and waives any right to, judicial review by any court which may be called upon to enforce the judgment of the courts referred to in this Section 6.5, of the substantive merits of any suit, action or proceeding.

#### **6.6 Amendment and Waiver**

No amendment, discharge, modification, restatement, supplement, termination or waiver of this Agreement or any Section of this Agreement is binding unless it is in writing and executed by the Party to be bound. No waiver of, failure to exercise or delay in exercising, any Section of this Agreement constitutes a waiver of any other Section (whether or not similar) nor does any waiver constitute a continuing waiver unless otherwise expressly provided.

#### **6.7 Further Assurances**

Each Party will, at the requesting Party's cost and expense, execute and deliver any further agreements and documents and provide any further assurances, undertakings and information as may be reasonably required by the requesting Party to give effect to this Agreement and, without limiting the generality of this Section 6.7.

#### **6.8 Assignment and Enurement**

Neither this Agreement nor any right or obligation under this Agreement may be assigned by either Party without the prior written consent of the other Party. This Agreement enures to the benefit of and is binding upon the Parties and their respective successors and permitted assigns.



**6.9 Electronic Signatures and Delivery**

This Agreement and any counterpart of it may be signed by manual, digital or other electronic signatures, and delivered or transmitted by any digital, electronic or other intangible means, including by e-mail or other functionally equivalent electronic means of transmission, and that execution, delivery and transmission will be valid and legally effective to create a valid and binding agreement between the Parties.

**6.10 Counterparts**

This Agreement may be signed and delivered by the Parties in counterparts, with the same effect as if each of the Parties had signed and delivered the same document, and that execution and delivery will be valid and legally effective.

**6.11 Costs and Expenses**

Except as otherwise specified in this Agreement, all costs and expenses (including the fees and disbursements of accountants, legal counsel and other professional advisers) incurred in connection with this Agreement and the completion of the Transaction are to be paid by the Party incurring those costs and expenses. If this Agreement is terminated, the obligation of each Party to pay its own costs and expenses is subject to each Party's respective rights arising from a breach or termination.

Each of the Parties has executed and delivered this Agreement as of the date noted at the beginning of this Agreement.

**MANTLE MATERIALS GROUP, LTD.**

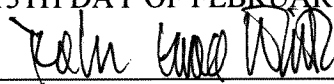
Per: DocuSigned by:  
  
\_\_\_\_\_  
DA7FAEE6A770408...  
Name:  
Title:

**ARROW-WEST HOLDINGS LTD.**

Per: DocuSigned by:  
  
\_\_\_\_\_  
05AD5C4A3F434E2...  
Name:  
Title:

**SCHEDULE "A"**  
**FORM OF SALE APPROVAL AND VESTING ORDER**

THIS IS EXHIBIT "H" TO THE AFFIDAVIT  
OF BYRON LEVKULICH SWORN ON THE  
13TH DAY OF FEBRUARY, 2024



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Commissioner for Oaths in and for the  
State of Colorado

ROBIN GRACE WHITE  
NOTARY PUBLIC  
STATE OF COLORADO  
NOTARY ID 20134069976  
MY COMMISSION EXPIRES November 16, 2025

**ENVIRONMENTAL PROTECTION AND ENHANCEMENT ACT**

BEING RSA 2000, c. E-12

**ENVIRONMENTAL PROTECTION ORDER EPO-EPEA-35659-13**

Mantle Materials Group, Ltd., previously JMB Crushing Systems Inc.  
P.O. Box 6977  
Bonnyville, AB T9N 2H4

Byron Levkulich, Director  
JMB Crushing Systems Inc. and Mantle Materials Group, Ltd.  
1400 16<sup>th</sup> Street, Suite 320  
Denver CO 80202  
United States

Aaron Patsch, Director  
JMB Crushing Systems Inc. and Mantle Materials Group, Ltd.  
1400 16<sup>th</sup> Street, Suite 320  
Denver CO 80202  
United States

(Collectively hereafter referred to as the “Parties”)

**WHEREAS** JMB Crushing Systems Inc. (“JMB”) operated a gravel pit (the “Pit”) on a portion of public land legally described as NE-15- and SE-15-061-18-W4M (the “Lands”) in the County of Smoky Lake, in the Province of Alberta;

**WHEREAS** on May 1, 2021, as part of the restructuring of JMB and 2161889 Alberta Ltd. (“216”) under the *Companies Creditors Arrangement Act*, JMB, 216 and Mantle Materials Group, Ltd. amalgamated and continued as Mantle Materials Group Ltd. (“Mantle”);

**WHEREAS** Byron Levkulich and Aaron Patsch are former Directors of JMB and 216, and are current Directors of Mantle;

**WHEREAS** the Pit is approximately 12.09 Hectares in area. Appendix “A” to this Order contains a map showing the dimensions, location, and features of the Pit;

**WHEREAS** a “pit” is defined in the *Environmental Protection and Enhancement Act* (the “Act”) to mean an operation on or excavation from the surface of the land for the purpose of removing sand and gravel and includes any associated infrastructure;

**WHEREAS** a “lease” is defined in the *Public Lands Administrative Regulations* (the “Regulation”) to mean a surface material lease;

**WHEREAS** the Lands are contained in surface material lease 110045 (“SML 110045”) that is a disposition that was originally issued to Robert Beaverford under the *Public Lands Act* on March 18, 2015. SML 110045 expires on March 17, 2025;

**WHEREAS** on November 29, 2018, SML 110045 was assigned from Robert Beaverford to 2161889 Alberta Ltd.;

**WHEREAS** Mantle is the current holder of SML 110045, as a result of the amalgamation of JMB, 216, and Mantle, in accordance with the *Regulation* for the Lands for the purpose of removing material by surface excavation;

**WHEREAS** “surface material” is defined in the *Regulation* to mean clay, marl, sand, gravel, topsoil, silt and peat;

**WHEREAS** on March 18, 2015, Alberta Environment and Protected Areas (“AEPA”) approved the Conservation and Reclamation Business Plan for SML 110045 (See Appendix “B”);

**WHEREAS** section 137 of Act states that an operator must conserve and reclaim specified land and unless exempted by the regulation, obtain a reclamation certificate in respect of the conservation and reclamation;

**WHEREAS** the Parties are persons who carry on or have carried on an activity on or in respect of specified land other than pursuant to an approval or registration, and are persons who act as principal or agent of person(s) referred to in any of the Act, under section 134(b)(i) to (vi), and therefore are operators;

**WHEREAS** Clause 13 of SML 110045 requires the operator to reclaim the surface of the land in a manner satisfactory to the Department;

**WHEREAS** Clause 19 of the Schedule A – Operating Conditions to SML 110045 states that the operator is to reclaim all disturbed land surfaces within two growing seasons. Interim reclamation, including site and debris clean-up, slope stabilization, recontouring with subsoil, and spreading of topsoil shall be done progressively and concurrently with operations “(Operating Condition)”;

**WHEREAS** the surface land disturbance on the Pit is “specified lands” as defined by the *Conservation and Reclamation Regulation* section 1(t)(v);

**WHEREAS** on July 14, 2023, Mantle commenced restructuring proceedings by filing a Notice of Intention to Make a Proposal pursuant to section 50.4(1) of the *Bankruptcy and Insolvency Act*, which proceedings were converted to a proceeding under the *Companies’ Creditors Arrangement Act* on January 10, 2024;

**WHEREAS** on September 8, 2023, Alberta Forestry and Parks (“FP”) advised Mantle that the disposition may be cancelled for non-use, as under disposition condition 055 a holder must commence operations within 4 years of the date of approval. The 2022 Annual Operating report from Mantle did not show any extraction had occurred to date. FP also asked Mantle if they intended to excavate mineable material from the pit before the end of the operating season;

**WHEREAS** on September 15, 2023, Mantle responded to FP that it was “looking to transfer the pit registration” and that it did not intend to use this site during the 2023 operation season;

**WHEREAS** on September 22, 2023, AEPA conducted a site inspection of SML 110045 and observed the following:

- stockpiles of marketable and reject aggregate material;
- excavation in the east part of the Pit is 7 m – 8 m deep and collecting surface water. the surface water occupied an area of approximately 0.14 ha;
- the surface of the north half of the Pit was not disturbed by pit operations, but was criss-crossed by pre-existing seismic lines;
- discarded metal, tires, and signage on the northern part of the Pit is contrary to Section 9.5 Waste and Hazardous Materials of the Conservation and Reclamation Business Plan that requires all wastes be removed;
- swallow nests were observed in the south facing slope of the stockpile located southeast of the waterbody;

**WHEREAS** Heather Dent, Compliance Manager, Regulatory Assurance Division, Boreal East District (the “Inspector”) has been designated as an Inspector for the purposes of issuing Environmental Protection Orders under section 140 of the Act;

**WHEREAS** the Inspector is of the opinion that Mantle’s financial resources, lack of any interim reclamation of the Pit, its statement that it was not going to use the Pit in 2023 and no stated intention to satisfy its regulatory obligations to reclaim and conserve the Pit warrants enforcement of its obligations given that Mantle is the successor corporation of JMB and 216 that were restructured in 2021 and more recently in 2023, Mantle commenced restructuring proceedings; and

**WHEREAS** the Inspector is of the opinion that directing the performance of work in the Pit is necessary to conserve and reclaim specified land.

**THEREFORE**, I Heather Dent, Inspector, pursuant to section 140 of the *Act*, DO HEREBY ORDER:

1. Mantle shall complete the following actions at the Pit on or before **September 20, 2024**:

- a. dewater the excavation in the Pit indicated in blue on the map in Appendix “A”.

No additional approval is required based on the *Water (Ministerial) Regulation* Schedule 1(2) that provides exemptions for dewatering (see Appendix “C”)

- b. place overburden materials within the Pit to a minimum thickness of 1.5 m and create the base for the subsoil and topsoil placement by contouring the Pit with reject material and other soil materials available and approved for reclamation in the Conservation and Reclamation Business Plan;
- c. establish grade and contour across the Pit so that:

- i. all reclaimed slopes are 6:1 or less steep as described in Section 10.0 Planned Reclamation of the Conservation and Reclamation Business Plan,
    - ii. a setback of 13 m along all of the boundaries of the Pit as described in Section 8.1 Buffers and Setbacks of the Conservation and Reclamation Business Plan (see Appendix B), is maintained;
    - iii. surface water drainage is directed to drain as shown in the Conservation and Reclamation Business Plan (see Appendix B), Drawings – Dwg. No. 6;
  - d. rip the subsoil in the Pit to alleviate compaction;
  - e. plan a varying depth of 20 – 54 cm of subsoil over the Pit;
  - f. place an average depth of 14 cm of topsoil over Pit; and
  - g. roll back woody debris located on the surface of the Pit to provide surface roughness and a variety of microsites for plant establishment.
2. Mantle shall complete the following actions on or before **November 24, 2024**:
  - a. revegetate the Pit with transplanting or spreading native seeds, including but not limited to seeds salvaged from the tops of conifer trees harvested from the Lands during site development, in accordance with the most recent Conservation and Reclamation Business Plan.
3. Mantle shall complete the following actions on or before **November 24, 2024**:
  - a. Monitor the Pit and take all necessary steps to:
    - i. prevent erosion on all slopes of the Pit,
    - ii. control weeds in accordance with *Weed Control Act*,
    - iii. ensure the revegetation required by clause 2 has established and is of acceptable density, height, and/or yield. Where needed, supplement revegetation by seeding with an approved mixture and/or planting native species to achieve effective revegetation of the Pit.



4. Mantle shall submit progress updates to the Inspector on **December 20, 2024, June 30, 2025,** and **January 1, 2026,** that include a detailed summary of all the reclamation activities including monitoring required in clause 1 to 3 inclusive in this order undertaken at the Pit.
5. Mantle must apply for a reclamation certificate as per Section 134 of the Act by **May 1, 2026.**

DATED at the City of Edmonton in the Province of Alberta, this 30th day of January 2024.



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Heather Dent, Inspector  
Regulatory Assurance Division-North

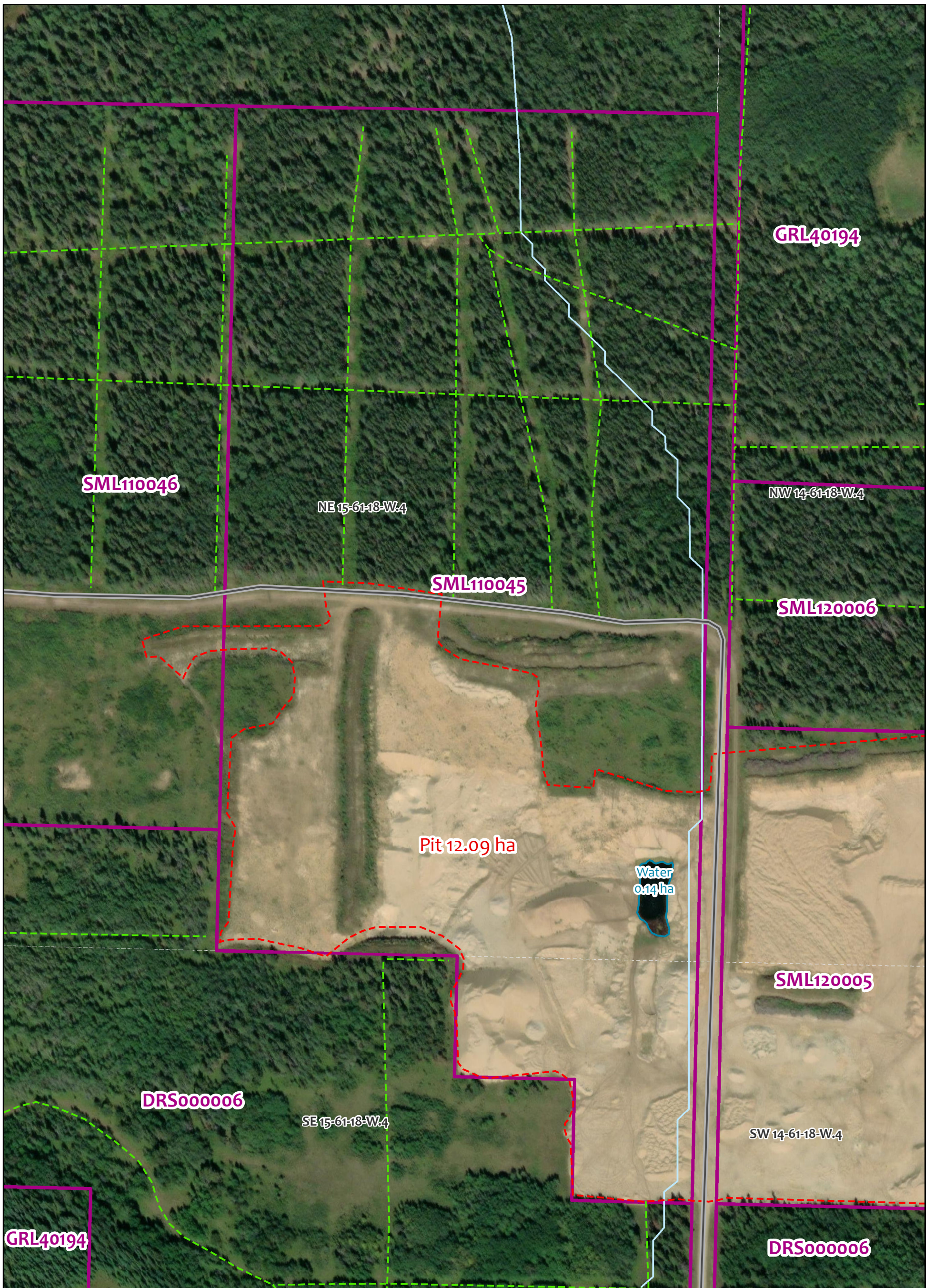
**Section 91 of the *Environmental Protection and Enhancement Act* may provide a right of appeal against this decision to the Alberta Environmental Appeals Board. There may be a strict time limit for filing such an appeal. A copy of section 91 is enclosed. For further information, please contact the Board Secretary at #306 Peace Hills Trust Tower, 10011 - 109 Street, Edmonton, Alberta, T5J 3S8; telephone (780) 427-6207; fax (780) 427-4693.**

**Notwithstanding the above requirements, the Party shall obtain all necessary approvals in complying with this order.**

**Take notice that this environmental protection order is a remedial tool only, and in no way precludes any enforcement proceedings being taken regarding this matter under this Act or any other legislation.**

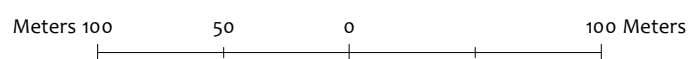
**Further, contravention of the Environmental Protection Order may lead to additional enforcement proceedings, up to and including prosecution.**

# APPENDIX A



Mantle Materials - Smoky Lake Pits  
SML110045

Scale 1 : 4,000



Information as depicted is subject to change, therefore the Government of Alberta assumes no responsibility for discrepancies at time of use.  
©2023 Government of Alberta  
Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community  
Resolution: 0.5m  
Accuracy: 5m  
Imagery Date: 20220830  
Source: Maxar

- - - Cutline/Trail
- Two Lane Gravel Road

- Pit (12.09 ha, inclusive of water area)
- Dispositions



Coordinate System: NAD 1983 UTM Zone 12N  
Produced by Northeast Geospatial Unit  
Created by: rhonda.connors on 10/6/2023  
Project # NE-0817\_SML110045  
Base Data provided by the Government of Alberta under the Alberta Open Government Licence.

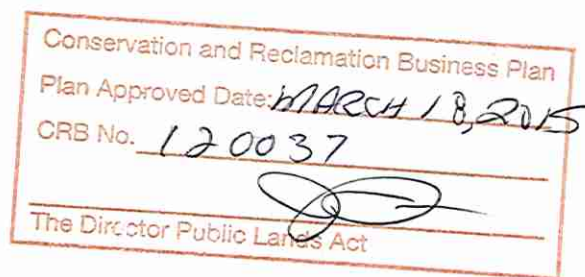
## **APPENDIX B**

**CONSERVATION RECLAMTION  
BUSINESS PLAN**

**And**

**ADDENDUM**

**APPROVAL FOR  
SML 110045**



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**Consolidated Conservation and  
Reclamation Business Plan  
Surface Materials Leases  
SML 110045, SML 110046, SML 110047**



*SML boundary over air photograph (Valtus Image, Aug. 6, 2008)*

*Sketches and illustrations are conceptual composites*

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*Prepared for Robert Beaverford, 541466 Alberta Ltd. and Glenn Ball by TORLAND INC.  
April 2012, revised October 2013*

### List of Revisions – October 2013

The CRB Plan dated April 2012 that was submitted to ESRD has been amended as described below:

- Summary
  - End land use changed to wildlife habit, no grazing
  - Description re: changed phasing, partial daylighting, mining of road allowance by County agreement as possible.
- 1.1 Development Overview
  - End land use changed to wildlife habit, no grazing
  - Added text regarding temporary portable asphalt plant
  - Changed description of mining block sequence
  - Revaluated statements re aggregate volume potential and life expectancy of the pit
- 5.3 Depth and Volume of Deposit
  - Revaluated statements re aggregate volume potential and life expectancy of the pit
- 6.4 Development Overview
  - Included Historical Resources review and clearance for SML110045 and SML110046; SML110047 is under study contract with The Archaeology Group, Edmonton
- 7.4 Wildlife
  - End land use changed to wildlife habit for ungulates, no grazing
- 7.7 Surface Drainage
  - End land use changed to wildlife habit for ungulates, no grazing
  - Added text regarding temporary portable asphalt plant
- 8.1 Buffers and Setbacks
  - Removed the reference to a 3m undisturbed buffer along the SML boundaries
- 8.2 Site preparation
  - Added text regarding salvage of woody debris and tops of conifers and deleted text regarding 3m buffer
  - Added text to describe the range of subsoil depths
- 9.5 Waste and Hazardous Materials
  - Added text regarding temporary portable asphalt plant
- 10.1 Sloping
  - 3:1 slopes changed to most slopes will be contoured to 6:1 or gentler. Added undulations to reclaimed topography
- 10.2 Decompaction and Soil Placement
  - Changed slopes to 6:1 or gentler
  - Added text regarding temporary portable asphalt plant
- 10.3 Revegetation
  - Added text regarding using tops of conifers for seed distribution during reclamation.
- 10.4 Reclaimed Surface Drainage
  - Changed slopes to 6:1

- Revised to match the changed development sequence plan (Dwg 3).
  
- Drawings
  - Dwg. 2,2A,2B – deleted 3m undisturbed buffer, change development blocks
  - Dwg. 3 – change mining block configuration and development sequence
  - Dwg. 4A- 4C – Revised AA',BB', CC', DD',FF' cross sections; Added note regarding 6:1 slopes; deleted 3m undisturbed buffer
  - Dwg. 6 – Added text regarding irregular topography and 6:1 slopes; surface drainage pattern changed; deleted 3m undisturbed buffer
  
- APPEND
  - Append D – added Historical Resource clearance documents for 110045 and 110046 (110047 pending)



## Summary

SML 110045, SML 110046 and SML 110047 are located within part of 15- 061-18-W4M. The Leaseholders plan to extract the sand and gravel within the lease areas to meet the demand for aggregate for private and public projects in the Smoky Lake area.

The area is currently wildlife habitat. Parts of SML 110045 and SML 110047, located within SE-15-061-18-W4M, are currently grazing lease area. Lease holder letters of consent are attached (Appendix D).

The site is accessed from the south by Range Road 181 and undeveloped government road allowances.

The SML's are remote from homes and recreation areas; neighbouring activities are industrial; and there are no known sensitive environmental features. This CRBP includes mitigation measures to minimize environmental impacts and effects on others working nearby. Clearing will occur either prior to March 15<sup>th</sup>, or following a site-review to ensure that the nesting of migratory birds is not disturbed.

The site will be cleared in two logging phases and trees will be salvaged; negotiations are underway with ALPAC and Millar Western for the salvage agreement. A part of the south western boundary of SML 110047 may be partially 'daylighted' and reclamation will be a lowering but not removal of the ridge that will develop as a result of partial 'daylighting'.

A proposal with the County to excavate the undeveloped road allowance along the east boundary of SML110045 if accepted will result in the east boundary to extend through to potential mining of an SML across the road allowance, thereby removing the 'ridge' that would develop if the allowance is not mined.

An application to ESRD for the installation of a temporary asphalt plant will be submitted to ESRD separately from the CRB submission herein. If authorized by ESRD, a temporary asphalt plant would operate for specific periods of time related to market demand and the plant operator will be required to operate under the Code of Practice for Asphalt Plants.

The reclaimed site will be suitable for wildlife habitat. The slopes and topography of the reclaimed site will be irregular to offer a more diverse habitat. Re-vegetation by natural succession is expected during the phased operation. Native trees will be transplanted and supplemented by native vegetation seeding as necessary to restore the natural habitat.

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**Appendices**

- Appendix A: Test Results
- Appendix B: Client Provided Test Results
- Appendix C: ASRD Landscape Analysis Tool Report
- Appendix D: FNC Consultation Decision; GRL Consent; Historical Resources Clearance
- Appendix E: Survey Plan

**Drawings**

- Dwg. 1: Site Location
- Dwg. 2 and 2A: Existing Site/Planned Development
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- Dwg. 4A, 4B, 4C: Cross-Sections
- Dwg. 5: Pitface Profiles
- Dwg. 6: Planned Reclamation

## **1.0 Introduction**

### **1.1 Development Overview**

The bulk volume of minable aggregate in these 3 SML's, 110045 (Robert Beaverford), 110046 (541466 Alberta Ltd.), and 110047 (Glenn Ball) may exceed 7,000,000 m<sup>3</sup>. The leaseholders propose to extract aggregate for private and public projects near Smoky Lake and the surrounding area. It is estimated that the gravel will be removed from the SMLs over a period of 10 to 12 years however market demand will significantly affect the timing for completion.

Mining is sequenced within two large mining blocks, MB1 and MB2 that are subdivided into sub-blocks for the purpose of illustration of the progressive reclamation. The operation including the progressive reclamation and reclamation phase is illustrated in five phases.

Mining area MB1 will be logged in the first phase. As mining moves within MB1, the overburden will be placed directly in portions of the mined area and thereby reduce the time and cost related to stockpiling overburden and then loading and placing overburden as separate operations.

MB2 will be logged and development will begin in a subsequent phase; concurrent progressive reclamation within MB1 will occur during the initial stage of development of MB2.

Operations will include tree clearing and salvage, soil stripping and soil salvage, aggregate excavation, crushing, screening, and aggregate stockpiling. A temporary portable asphalt plant may produce product for infrequent short periods under the Code of Practice for Asphalt Plants.

Once mining operations are complete, the site will be reclaimed to a treed and grass environment suitable for wildlife habitat.

### **1.2 Location and Ownership**

The Crown Dispositions are located approximately 26.2 kilometres (driving distance) north of Smoky Lake within Sec 15 – TWP 61 – RGE 18 – W4M in Smoky Lake County (Dwg.1).

## **2.0 Municipal Requirements**

### **2.1 Development Permit**

The lease holders will apply for and maintain a Development Permit from Smoky Lake County.

## **3.0 Alberta Government Requirements**

### **3.1 Alberta Land Survey**

Alberta Land Survey surveys were completed for the SML's boundaries by Gilmore Surveys (Artic) Ltd. (Appendix E).

## 4.0 Access

### 4.1 Transportation Plan/Haul Route

Gravel will be hauled along internal haul roads to the eastern boundary of SML 110045. From the eastern boundary of SML 110045, aggregate will be hauled approximately 1.1 km south along the undeveloped government road allowance, then east along the undeveloped government road allowance for approximately 1.6 km, then south along the undeveloped government road allowance for approximately 2.4 km to where RDS 930045 abuts the road allowance from the west, continue south on the road allowance 0.85 km to Township Road 610 onto Range Road 181, and a further 3.3 km south to the intersection of Range Road 181 and Township Road 604, where the trucks can continue south, or go east or west. A development permit from Smoky Lake County will address the haul route.

## 5.0 Site Evaluation

### 5.1 Site Assessment Methodology

On-site assessment was conducted during the testing phase on April 1, 2011, February 24, 28, 29, and March 01, 02, 05, 06, 2012. Further analyses were completed by examining test data (Appendix A and B) and by referencing various maps, reports, websites, and etc. (see References section). The Geographic Land Information Management Planning System (GLIMPS) was searched on March 17, 2011 to determine other interest holders. The SRD Landscape Analysis Tool (LAT July 5, 2011) was referenced to identify areas of special concern (Appendix C).

Base data and geo-referencing information were obtained from Abacus Datagraphics (1)<sup>1</sup> and AltaLis (4).

### 5.2 Testing

Testing of this area was completed March 15 and April 1, 2011 as part of SME 100149. Twenty-eight test holes within the SML boundaries and eight near the SML boundaries were drilled using a tracked skid steer with a 6 inch diameter flighted auger system. Rock content was determined by auger resistance and the matrix was observed as the augers brought the materials to the surface. Test logs are provided in Appendix A and test locations are shown on Dwg. 2 and Dwg. 2A.

The client completed additional logs from auger test holes and excavator test pits on February 24, 28, 29, and March 01, 02, 05, 06, 2012. TORLAND Inc. and the client classified materials according to slightly different schemes, however, the test results indicate the same overall stratigraphy. The locations of these test holes and test logs are provided in Appendix B and on Dwg. 2B.

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<sup>1</sup> Unless otherwise indicated, numbers in brackets refer to References

### 5.3 Depth and Volume of Deposit

The overburden depth ranges from 0 to 5.5 m, and where present, is on average 1.3 m deep.<sup>2</sup> Where mineable gravel is present, the thickness of the gravel units range from 0.6 m to 13.7 m and are on average 3.5 m. Most commonly, gravel is at the surface and there is a second mineable gravel layer below sand or low rock content gravel. These sand and low rock content gravel layers and lenses range in thickness from 1.2 m to 6.7 m and are on average 2.7 m. In the north parts of SML 110045 and 110046, the dominant material is sand (Dwg. 4A, 4B, 4C). The maximum depth of excavation will be 20 m. The potential minable bank volume of aggregate in each SML area will potentially exceed:

SML 110045 – 2,000, 000 m<sup>3</sup>  
SML 110046 – 2,000,000 m<sup>3</sup>  
SML 110047 – 3,000,000 m<sup>3</sup>

The quality of the gravel unit ranges from medium (35 to 50% rock content) to high (greater than 50% rock content) and the gravel is within a sand matrix.

Leaseholders are working on a joint agreement to mine through the common boundary with Alberta Transportation (DRS 000006) and the volume will increase by a small amount.

## 6.0 Areas of Regulatory Concern

### 6.1 Wildlife and Vegetation Sensitivities

No plant or animal species at risk are known to occur in the area (1), (8). There is not any known sensitive wildlife or vegetation features (see LAT report in Appendix C).

### 6.2 Migratory Birds

The nesting period for migratory birds is from early April to August 31 (6). Clearing will take place either prior to March 15<sup>th</sup>, or if clearing is to take place during the nesting period, the operator will consult with a qualified professional to inspect the area to ensure there are no active migratory bird nests prior to clearing the vegetation. If any active nests are found, those areas will not be disturbed until the qualified professional advises it is safe to do so.

### 6.3 Fisheries Act

Pit operations in the SMLs will not affect fish or fish habitat. White Earth Creek is located approximately 810m west of the southwestern boundary of SML 110047. White Earth Creek is inventoried as fish habitat (9).

Along all SML boundaries, except where daylighting will occur (part of the south western boundary of SML 110047), surface runoff will be retained onsite because slopes dip towards the centre of the SML (Dwg. 4A, 4B, 4C, 6). While daylighting, silt fences will be installed as

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<sup>2</sup> The following test holes were used to assess the deposit: SML 110045 – 401-408, 411-415, 428, 429, 435, 436; SML 110046 – 408-411, 416, 417, 425-430, 432; SML 110047 – 418, 420-426, 430-434

necessary to keep surface runoff and sediment on the site and no fluids or sediment will be carried offsite. Surface runoff will not be pumped off the SMLs. Progressive reclamation will begin as soon as possible to re-establish vegetation.

#### 6.4 Historical Resources

The current Historical Sites and Areas Document were reviewed (0. An HRV is not assigned for this area. A Historical Resources Impact Assessment review request has been responded to with a clearance proviso for 110045 and 110046 ( HRIA decision attached Append D):

*"Historical Resources Act clearance is granted subject to Section 31 of the Resources Act, "a person who discovers an historic resource in the course of making an excavation for a purpose other than for the purpose of seeking historic resources shall forthwith notify the minister of the discovery". The chance discovery of historical resources is to be reported to the contacts identified within the listing".*

SML110047 requires archaeological assessment (HRIA decision attached Append D):

*"Pursuant to Section 37(2) of the Historical Resources Act, a Historical Resources Impact Assessment (HRIA) report is required for all or portions of those activities described on this application and its attached plan(s)/sketch(es). The HRIA is to be prepared in accordance with the instructions outlined in the attached Schedule A".*

The Archaeology Group are contracted to complete the assessment and they have submitted the application for the permit to proceed with Alberta Culture.

#### 6.5 Parks/Other Protected or Special Areas

The nearest park/protected/special area is Hanmore Lake Provincial Recreation Area, located approximately 3.1 km (straight line) northeast of SML 110045. The SML is far enough away from the park that no impact will occur to the features within the park, and recreational users will not see or hear pit activities.

The SMLs do not lie within or adjacent to a Natural Area, Eco-reserve, or Heritage Rangeland. There are no known permanent or research sample plots, or Rangeland Benchmarks within 100m of the SML boundaries.

#### 6.6 First Nations Consultations

First Nations consultation with Saddle Lake, Whitefish (Goodfish), and Beaver Lake First Nations is complete (FNC # LLB20110380, LLB20110381, and LLB20110382 – Appendix D).

#### 6.7 Other Interest Holders

There are few interest holders in this area. An agreement has been reached with GRL 40194 holder Kevin Wawrynychuk (Consent to Withdrawal – Appendix D).

*Within 15-061-18-W4M:*

GRL 40194 - Kevin Wawrynychuk (Consent to Withdrawal);

PNTs 30854, 060150 - Athabasca Office - Rangeland District (Referral)

TPA 951 - Elmer Cardinal (Notification)

DRS 000006 and CRP 040034 – Transportation (Adjacent site – reclamation consideration)

## 7.0 Existing Land Use & Biophysical Conditions

### 7.1 Existing Land Use and Disturbances

The SML areas are currently forested wildlife habitat, and the parts of SML 110045 and SML 110047 within SE-15-061-18-W4M are grazing lease areas. There are fences, trails and cutlines in the SML area (Dwg. 2, 2A). Fences will be moved or adjusted as required in cooperation with the GRL holder.

### 7.2 Vegetation

The SMLs lie within the Central Mixedwood Subregion of the Boreal Forest Natural Region (12). The vegetation is dominated by mature spruce (70%). The forest is mixedwood ("CD" 70-50% coniferous trees). The ratio of spruce to pine is estimated at 4 to 1 and the ratio of aspen to other deciduous trees is estimated at 9 to 1.

There is no FMA holder for this area. Salvage of the pine will be completed by either ALPAC or Millar Western pending their on-site evaluation.

### 7.3 Forest Capability

The Canada Land Inventory for Forestry classifies the majority of the lease areas as 80% Class 5MF and 20% Class 6W (6). A small part of SML 110047 (northwest corner) is 50% Class 4M and 50% Class 5MF. The site has moderately severe to severe limitations to the growth of commercial forests due to soil moisture deficiency, low fertility, and soil moisture excess. A small part of SML 110047 (Class 4M) has moderate limitations to the growth of commercial forests due to soil moisture deficiency.

### 7.4 Wildlife

The area provides habitat for a variety of animals (e.g., deer, coyote, porcupine, hare, birds, etc.). Development of the lease in phases and progressive reclamation will minimize the length of time that wildlife is displaced. The site will be reclaimed through natural regeneration and succession, and tree planting. No long term impact to wildlife is expected. The reclaimed land will be wildlife habitat suitable for ungulates.

Migratory birds may nest within the site; therefore, clearing activity will be conditional (see 6.2

### 7.5 Soils

Regional soil studies describe the soils in the areas as follows:

- Orthic gray luvisol and dark gray luvisol; the area contains soils that are coarser textured than the dominant or co-dominant soils (AGRASID Soil Polygon 21830) (0, (2). The southwestern half of SML 110047 is mapped as miscellaneous organic soils and the landform is confined terraced floodplain with a limiting slope of 3% (AGRASID Soil Polygon 21805) (0, (2).
- 50% degraded dystic brunisol, loamy sand, rapidly drained (Nestow); 30% degraded eutric brunisol, coarse loamy sand, rapidly drained (Edwand); 20% degraded eutric brunisol and brunisolic gray luvisol, sandy loam and loamy sand, rapidly drained (Nicot



Complex) (15). The northwestern most part of SML 110047 contains undifferentiated soils on eroded slopes along stream channels (Rough Broken) (17)

The initial site visit in March 15 and April 1, 2011 and subsequent observations (240 back hoe excavation carried out in Feb-March 2012) indicate that the thickness of topsoil and subsoil varies across the site. The texture of the topsoil (A horizon) is sand and it ranges in thickness from 10 cm to 15cm (average 0.14) and the thickness of the subsoil (B horizon) ranges from 0 to 90cm (average 0.54). Topsoil and subsoil will be salvaged as described in 8.2 below.

#### 7.6 Topography

The topography is gently rolling to hummocky. Slopes range from gentle [6-9% (10:1)] to strong [16-30% (3:1)]. Located in SML 110047 is a strong sloped eastern valley wall of a meltwater channel, and there is a dry draw in the southeast corner of NW-15-061-18-W4M (Dwg. 2, 2A, 4B).

#### 7.7 Surface Drainage

The site does not contain and is not adjacent to a permanent water body. There is a creek or stream showing on the Smoky Lake County Ownership Map (14) however no creek or stream was located during the site visit. The four ponds adjacent to the SML areas are intermittent (Dwg. 2, 2A) (16). Local surface drainage patterns are likely where hummocks are present. The general direction of surface drainage is from northeast to southwest, except the northernmost 150 m (approximately) which drains towards the north. Overland flow is unlikely because the permeable gravel deposit is at surface – rainfall and snowmelt infiltrate the gravel before flowing in the subsurface towards the lower land west and north of the SMLs.

Along all SML boundaries surface runoff will be retained onsite with slopes that dip towards the centres of the site (Dwg. 4A, 4B, 6). Subject to ESRD approval a temporary portable asphalt plant will be located on a compacted pad. Berms will be constructed around the asphalt plant and asphalt haul route to contain any surface runoff. A HDPE liner will be installed under oil transfer area. Berm material will come from SML's 110045, 46 and 47. Surface runoff will not be pumped off the SML's. Progressive reclamation should begin as soon as possible to re-establish vegetation.

#### 7.8 Hydrogeology

The closest water well is located in SW-22-061-18-W4M (1827830); it is an Alberta Environment monitoring well. The next closest water wells are located approximately 3.5 km from the SML areas (1185109, 192303, 192296) (3). The extraction operation operations are dry and far enough from the water wells that no impact is expected.

Only one test hole within SML 110047 (TL 418 at 7.6m) encountered wet materials, and only three test holes near the SMLs encountered wet materials (TL 419, 433, 434 at 0.3m) (Appendix B, Dwg. 2, 2A). All of these holes are located below the top slope break of the meltwater channel valley. The water table has not been established in the SML areas. The operations will be dry.

It is likely that the SMLs are recharge areas because coarse materials are at the surface, and

no springs or water bodies occur in the SML areas.

## 7.9 Geology

The bedrock in the SML area is Late Cretaceous Belly River Group: nonmarine, grey to greenish grey, thick-bedded, feldspathic sandstone; greys clayey siltstone, grey and green mudstone; concretionary ironstone beds (11). No test holes or test pits intersected the bedrock.

The leases are located on a rolling and hummocky plain that is adjacent to and oriented parallel with a melt water channel that is occupied by the modern White Earth Creek. The geological origin of the sand and gravel is likely ice-contact fluvial (7).

## 7.10 Stratigraphy

The stratigraphy varies across the SMLs (Dwg. 4A, 4B, 4C). Generally, there is an alternating sequence of gravel and sand. Most commonly, gravel is at the surface and there is a second mineable gravel unit below a layer or lens of sand or low rock content gravel. There are places where the sand unit below gravel outcrops as overburden. There are also places where discontinuous sand bodies overly the topmost gravel unit. In the north parts of SML 110045 and SML 110046, the material is sand dominated (Dwg. 4A, 4B, 4C).

The quality of the gravel unit ranges from medium (35 to 50% rock content) to high (greater than 50% rock content).

## 8.0 Pit Development

### 8.1 Buffers and Setbacks

A maximum setback of 13 m is shown along all SML boundaries except where daylighting will occur. This setback was calculated by multiplying the average maximum depth of the excavation (8.5 m) by 1.5 (for a slope of 3 to 1). The setback may be mined if there is sufficient overburden or elimination for reclamation or the depth of excavation is less than 8.5 m

### 8.2 Site Preparation

Trees will be cleared in two phases from the SML's and the trees salvaged by a third party (Dwg 3). Tops of conifers will be salvaged for seed distribution during reclamation. Burning of woody debris is not planned unless required and authorized by ESRD. Logs and salvageable debris will be hauled off the site. The unsalvageable woody debris will be stockpiled in linear piles and covered with the salvaged topsoil to minimize fire hazard and to retain the debris for roll-back.

Topsoil (A horizon and the duff layer) will be stripped in one lift to an average depth of 14 cm and stockpiled where shown (Dwg. 3); where soil is less than 14 cm thick, the top 14 cm of materials will be stripped. Alternatively, the topsoil will be placed over woody debris piles to reduce the potential for fire. Subsoil (B horizon) will be stripped to a range of depths from 20-54 cm as available and stockpiled approximately as illustrated (Dwg. 3).

Overburden will be stripped in a separate lift to expose the minable aggregate.

Stockpiling of overburden and significant depths of subsoil will be minimized by an aggressive practice of 'direct-placement' (Dwg. 3).

### 8.3 Mining Sequence / Additional Development Opportunities

The planned clearing, mining, progressive and full reclamation is illustrated in Dwg. 3.

## 9.0 Mitigation Measures for Pit Operations

### 9.1 Dust Control

A speed limit of 15 km/h will be implemented in the active pit area and all loads of aggregate material will be covered and tarped to reduce the dust generated from vehicles. Covered loads also reduce the potential for vehicle damage from gravel falling off the trucks. Active areas and haul roads will be watered when necessary; water will be obtained off-site from an approved source.

### 9.2 Weed Control

No known noxious or restricted weeds were evident during the on-site evaluation. To reduce the chance for introducing weeds, vehicles will be cleaned regularly, topsoil and other materials will not be imported, and any seed mixtures will be certified as free of weeds prior to their use. The site will be monitored for evidence of weeds and a weed identification reference will be made available to onsite personnel<sup>3</sup>. Weed control will be implemented as necessary (e.g., picking, mowing, or spot spraying).

### 9.3 Noise Monitoring

All pit operations will be conducted in accordance with the provincial and municipal noise regulations. The proposed site is well-isolated from human settlement.

### 9.4 Wind and Water Erosion

The integrity of the soil stockpiles will be maintained by placing them at least 3m away from the toe of any other existing stockpiles and 5m from the edge of any pit faces. To reduce the potential for soil loss by erosion, soil stockpiles will be contoured and stabilized by seeding lightly according to Alberta Environment guidelines. During prolonged periods of inactivity, pit faces will be sloped to 1 to maintain stability and reduce erosion (ref. Dwg. 5). While daylighting, silt fences will be installed as necessary to keep surface runoff and sediment on the site.

### 9.5 Waste and Hazardous materials

All combustible refuse will be stored in metal dumpsters and disposed off-site. All non-

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<sup>3</sup> For a recent example of a weed identification guide, see the *Alberta Invasive Plant Identification Guide* <http://www.wheatlandcounty.ca/files/ID%20Book%202010%20-%20Final%20-%20Copy.pdf>, last accessed July 5, 2011.

combustibles, petroleum materials and containers will be disposed in appropriate off-site facilities. While on-site, all hazardous materials (fuel, oil, etc.) will be handled safely to prevent contamination of soil and water. Above ground storage tanks will have secondary containment that meets Alberta Environment's guidelines. A spill kit will be kept on site as a contingency in the event of a spill. Domestic refuse will be kept in animal proof containers and human waste will be managed in a self-contained portable toilet.

The asphalt plant will be operated in accordance with the Code of Practice for Asphalt Paving Plants. Additionally, the asphalt plant, supporting materials, and resulting waste and reject materials will be located where soil has been stripped and on compacted overburden and as far away from reclaimed areas as practicable. Any spills resulting from the plant will be cleaned up immediately; clean up materials will be available on site, and spent clean up materials that are kept on site will be maintained in covered containers until disposed offsite at an appropriate facility.

#### 9.6 Fire Protection

The area is not within a FireSmart Community Zone but the lease operator will implement strategies to minimize the risk of fire (10). All combustible refuse will be stored in metal dumpsters and disposed offsite. If any woody debris is to be burned on site (on the advice of the Forest Officer) the material will be placed on bare mineral soil and burned only under favourable wind, humidity and moisture conditions. With the advice of a Forest Officer, any woody debris left on site for reclamation purposes will be covered with soil to reduce the fire hazard.

### 10.0 Planned Reclamation

#### 10.1 Sloping

For the most part reclaimed slopes will be contoured to 6:1 or gentler. The topography of the reclaimed site will be variable and undulating so that a diverse wildlife habitat will develop. As indicated on Dwg. 4A, 4B, 4C, 5 and 6. The daylighted slope will be shaped to conform to the pre-existing topography.

#### 10.2 Decompaction and Soil Placement

All facilities including asphalt plant will be removed, and all wastes and any contaminated soils will be hauled off-site to an appropriate facility. Berms will be leveled if clean, if not they will be haul away.

The processing areas and all internal haul roads will be decompacted. These areas will be ripped to break up the surface and increase permeability prior to placing the soil.

At least 1.5 m of overburden and elimination materials will be placed on the pit floor (with poorer materials at the bottom) and most slopes will be contoured to 6:1 or gentler, or to conform with the existing topography (see section 10.1) (Dwg. 4A, 4B, 4C). Subsoil will be replaced to a varying depths of 20-54cm followed by topsoil to an average thickness of 14cm. Available woody debris will be rolled back to minimize erosion, provide small animal habitat, and provide suitable microsites for seed establishment in a succession of grasses, shrubs, deciduous trees and conifers.

### 10.3 Revegetation

The reclaimed site will be vegetated through natural regeneration from the soil seed bank and transplanting or spreading of native seeds. Tops of conifers will be salvaged for seed distribution during reclamation. Natural succession is expected to produce a sequence of native grasses, suckering aspen and shrubs, and over the longer term, potential regeneration of conifers.

The site will be monitored for vegetation growth and any areas that are slow to grow will be seeded with native species or an approved seed mixture according to Alberta Environment guidelines. (16)

### 10.4 Reclaimed Surface Drainage

Drawing 6 illustrates the surface drainage pattern of the reclaimed site. Due to the coarse nature of the overburden and reject materials that will be replaced during reclamation, most drainage is expected to be subsurface rather than overland flow. The 6:1 slopes along the majority of the excavation area perimeter will ensure that most overland flow is retained onsite and eventually seeps through to the subsurface and follows the natural drainage pattern. The partially daylighted slope will retain the subsurface drainage feature within the site. If required, following observation, a silt fence will be installed to entrap sediment and keep soil onsite. As the vegetation becomes well established, the fence will be removed.

### 11.0 Reclamation Security

91.81ha (226.86ac) in total will be cleared for development. Clearing will be sequenced within two large blocks MB1 and MB2 as described in the Dwg. 3 illustrations and related text as follows

|         | SML 110045        | SML110046         | SML110047         | Total              |
|---------|-------------------|-------------------|-------------------|--------------------|
| Block 1 | 17.30ha (42.75ac) | 9.76ha (24.12ac)  | 14.13ha (34.92ac) | 41.19ha (101.78ac) |
| Block 2 | 15.84ha (39.14ac) | 18.53ha (45.79ac) | 16.25ha (40.15ac) | 50.62ha (125.08ac) |

## References

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## APPENDIX A: Test Results

## APPENDIX B: Client Provided Test Data [78 page file available]

## APPENDIX C: ASRD Landscape Analysis Tool Report

## APPENDIX D: FNC Consultation Adequacy Decision GRL Consent Historical Resources Clearance

## APPENDIX E: Survey Plan

### Drawings:

- Dwg. No. 1: Site Location
- Dwg. No. 2 & 2A: Existing Site/Planned Development
- Dwg. No. 2B: 2012 Client Provided Test Data
- Dwg. No. 3: Development Sequencing
- Dwg. No. 4A, 4B & 4C: Cross-Section Profiles
- Dwg. No. 5: Pit Face Profiles
- Dwg. No. 6: Planned Reclamation



## APPENDIX A: Initial Test Results

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**SME 100149 Test Report.**  
**Within parts of Sec15-061-18 W4,**  
**[TEST LOGS.]**

**TABLE 1: TEST LOG**  
**REF: ATTACHED SKETCH 1 & 1A 'TEST LOCATIONS'**

|                     |   |                           |
|---------------------|---|---------------------------|
| TEST LOG            | SUBSURFACE TESTS                            |                           |
| SITE LOCATION:      | SME 100149 WITHIN PARTS OF SEC 15-061-18 W4 | MATERIALS CLASSIFICATION: |
| TEST PLAN:          | D. TORSTENSEN                               | J.L.G. BALL ENT / GORD    |
| EQUIPMENT OPERATOR: | J.L.G. BALL ENT / GORD                      | TORLAND / D. TORSTENSEN   |
| EQUIPMENT:          | TRACKED SKID STEER WITH 6" HYDRAULIC AUGER  | LOGS: D. TORSTENSEN       |
| TESTING DATE(S):    | MARCH 15 & APRIL 1, 2011                    |                           |

COORDINATES: UTM ZONE 12      GENERAL SOIL LITHOLOGY: TS 0-10cm SAND; SS 0-20cm SAND.  
 DEPTH UNITS: FEET (+/- NEAREST UNIT)      GENERAL TOPOGRAPHY: MATURE TREES, HILLS, ELEVATION VARIANCE APPROX 100 FT.

| TL 401   | TL 402   | TL 403  | TL 404   | TL 405   | TL 406  | TL 407  | TL 408  | TL 409  | TL 410  |
|--|--|---|--|--|---|---|---|---|---|
| 0395 733 E<br>6015 066 N<br>00 - 10+ Gs<br>10+ - 00 UTP<br>00 - 00<br>00 - 00<br>00 - 00<br>00 - 00        | 0395 699 E<br>6015 212 N<br>00 - 01 T<br>01 - 10 Gs<br>10 - 35 Fs<br>35 - 40+ Gs<br>00 - 00<br>00 - 00 | 0395 688 E<br>6015 391 N<br>00 - 01 T<br>01 - 15 Gs<br>15 - 30 Ps<br>30 - 40+ Fs<br>00 - 00<br>00 - 00  | 0395 672 E<br>6015 565 N<br>00 - 6" T<br>6" - 10 Gs<br>10 - 20 Ps<br>20 - 40 S<br>00 - 00<br>00 - 00       | 0395 659 E<br>6015 745 N<br>00 - 4" T<br>4" - 03 Gs<br>03 - 25 S<br>25 - 00 STOP<br>00 - 00<br>00 - 00<br>00 - 00                      | 0395 690 E<br>6015 984 N<br>00 - 25 S<br>25 - 00 STOP<br>00 - 00<br>00 - 00<br>00 - 00<br>00 - 00                       | 0395 523 E<br>6016 094 N<br>00 - 15 S<br>15 - 18 Gs<br>18 - 25 S<br>25 - 00 STOP<br>00 - 00<br>00 - 00    | 0395 302 E<br>6016 070 N<br>00 - 25 S<br>25 - 00 STOP<br>00 - 00<br>00 - 00<br>00 - 00<br>00 - 00                   | 0395 105 E<br>6015 969 N<br>00 - 25 S<br>25 - 00 STOP<br>00 - 00<br>00 - 00<br>00 - 00<br>00 - 00                         | 0395 231 E<br>6015 791 N<br>00 - 05 S<br>05 - 08 Fs<br>08 - 25 S<br>25 - 00 STOP<br>00 - 00<br>00 - 00                                  |
| TL 411   | TL 412   | TL 413  | TL 414   | TL 415   | TL 416  | TL 417  | TL 418  | TL 419  | TL 420  |
| 0395 454 E<br>6015 796 N<br>00 - 25 S<br>25 - 00 STOP<br>00 - 00<br>00 - 00<br>00 - 00<br>00 - 00          | 0395 518 E<br>6015 648 N<br>00 - 07 Fs<br>07 - 25 S<br>25 - 00 STOP<br>00 - 00<br>00 - 00              | 0395 587 E<br>6015 533 N<br>00 - 12 Fs<br>12 - 16 Gs<br>16 - 35 S<br>35 - 00 STOP<br>00 - 00<br>00 - 00 | 0395 523 E<br>6015 381 N<br>00 - 4+ Gs<br>4+ - 00 UTP<br>00 - 00<br>00 - 00<br>00 - 00<br>00 - 00          | 0395 443 E<br>6015 378 N<br>00 - 3+ Gs<br>3+ - 00 UTP<br>00 - 00<br>00 - 00<br>00 - 00<br>00 - 00                                      | 0395 319 E<br>6015 513 N<br>00 - 15 Gs<br>15 - 23 S<br>23 - 28 Fs<br>28 - 32 S<br>32 - 40+ Gs<br>00 - 00                | 0395 109 E<br>6015 544 N<br>00 - 05 Gs<br>05 - 18 Fs<br>18 - 26 Ps<br>26 - 34 S<br>34 - 40+ Gs<br>00 - 00 | 0394 959 E<br>6015 325 N<br>00 - 04 S<br>04 - 16 Gs<br>16 - 21 Ps<br>21 - 23 Gs<br>23 - 35 S<br>35 - 40+ Gs<br>W@25 | 0394 932 E<br>6015 088 N<br>00 - 01 T<br>01 - 20 C<br>20 - 00 STOP<br>00 - 00<br>00 - 00<br>W@1                           | 0394 734 E<br>6015 472 N<br>00 - 05 S<br>05 - 07 Gs<br>07 - 11 S<br>11 - 20 Fs<br>20 - 37 S<br>37 - 40+ Ps                              |
| TL 421   | TL 422   | TL 423  | TL 424   | TL 425   | TL 426  | TL 427  | TL 428  | TL 429  | TL 430  |
| 0394 487 E<br>6015 625 N<br>00 - 10 Gs<br>10 - 15 Ps<br>15 - 29 Gs<br>29 - 35 Ps<br>35 - 40+ Gs<br>00 - 00 | 0394 335 E<br>6015 780 N<br>00 - 12 Fs<br>12 - 25 S<br>25 - 40+ Gs<br>00 - 00<br>00 - 00               | 0394 212 E<br>6015 901 N<br>00 - 07 S<br>07 - 26 Fs<br>26 - 40 S<br>00 - 00<br>00 - 00                  | 0394 608 E<br>6016 019 N<br>00 - 05 S<br>05 - 11 Gs<br>11 - 23 S<br>23 - 25 Fs<br>25 - 35 S<br>35 - 40+ Fs | 0394 704 E<br>6016 731 N<br>00 - 6" T<br>6" - 21 Gs<br>21 - 36 Ps<br>36 - 40+ Gs<br>00 - 00<br>00 - 00                                 | 0395 051 E<br>6015 635 N<br>00 - 03 S<br>03 - 18 Fs<br>18 - 26 S<br>26 - 35 Fs<br>35 - 40 S<br>00 - 00                  | 0395 247 E<br>6015 656 N<br>00 - 18 S<br>18 - 24 Fs<br>24 - 36 Gs<br>36 - 40 S<br>00 - 00<br>00 - 00      | 0395 409 E<br>6015 563 N<br>00 - 02 S<br>02 - 12 Gs<br>12 - 34 S<br>34 - 55 Fs<br>55 - 65+ Gs<br>00 - 00            | 0395 397 E<br>6015 919 N<br>00 - 02 S<br>02 - 20 Gs<br>20 - 25 Fs<br>25 - 28 Gs<br>28 - 38 Fs<br>38 - 45 S<br>45 - 65+ Gs | 0395 009 E<br>6015 817 N<br>00 - 03 S<br>03 - 09 Fs<br>09 - 22 Gs<br>22 - 30 Fs<br>30 - 45 S<br>45 - 49 Gs<br>49 - 55 Fs<br>55 - 65+ Gs |
| TL 431   | TL 432   | TL 433  | TL 434   | TL 435   | TL 436  | TL 437  | TL 438  | TL 439  | TL 440  |
| 0394 587 E<br>6015 843 N<br>00 - 45 Gs<br>45 - 50 Fs<br>50 - 60+ Gs<br>60+ - 00 UTP<br>00 - 00<br>00 - 00  | 0394 910 E<br>6015 511 N<br>00 - 44 Gs<br>44 - 48 Fs<br>48 - 60 Gs<br>60 - 65 S<br>00 - 00<br>00 - 00  | 0394 583 E<br>6015 483 N<br>00 - 17 Sc<br>17 - 20 Fsc<br>20 - 00 STOP<br>00 - 00<br>00 - 00<br>W@1      | 0394 341 E<br>6015 483 N<br>00 - 20 Sc<br>20 - 00 STOP<br>00 - 00<br>00 - 00<br>00 - 00<br>W@1             | 0395 682 E<br>6015 486 N<br>00 - 02 S<br>02 - 09 Gs<br>09 - 16 S<br>16 - 40 Gs<br>40 - 46 Ps<br>46 - 51 S<br>51 - 55 Ps<br>55 - 65+ Gs | 0395 586 E<br>6015 928 N<br>00 - 02 Fs<br>02 - 14 S<br>14 - 29 Gs<br>29 - 34 Ps<br>34 - 60 Gs<br>60 - 65+ Fs<br>00 - 00 | 0000 000 E<br>0000 000 N<br>00 - 00<br>00 - 00<br>00 - 00<br>00 - 00<br>00 - 00<br>00 - 00                | 0000 000 E<br>0000 000 N<br>00 - 00<br>00 - 00<br>00 - 00<br>00 - 00<br>00 - 00<br>00 - 00                          | 0000 000 E<br>0000 000 N<br>00 - 00<br>00 - 00<br>00 - 00<br>00 - 00<br>00 - 00<br>00 - 00                                | 0000 000 E<br>0000 000 N<br>00 - 00<br>00 - 00<br>00 - 00<br>00 - 00<br>00 - 00<br>00 - 00  |

**LEGEND:**

|  |                |                |
|--|----------------|----------------|
| Pe Peat  | CS Clayey Sand | Cs Clayey Silt |
| T Organic Top Soils                                    | SSI Sandy Silt | SiS Silty Sand |
| C Clay   | SiC Silty Clay | SC Sandy Clay  |
| BR Bedrock   | SS Sandstone   |                |
| W@ Water @ (level or range of the top of wet material) |                |                |
| UTP Unable to penetrate                                |                |                |

**AGGREGATE PROFILE:**

|          |   |
|----------|---|
| Sa (S)   | Sand: estimated less than 20% gravel                |
| Low (P)  | Low gravel content: estimated 20-35% gravel         |
| Med (F)  | Medium gravel content: estimated 35-50% gravel      |
| High (G) | High gravel content: estimated more than 50% gravel |
| Definer: | Gs G in Sand; Gsi G in Silt; Gc G in Clay           |
|          | Gsc G in Sandy clay; Gcs G in Clayey sand;          |

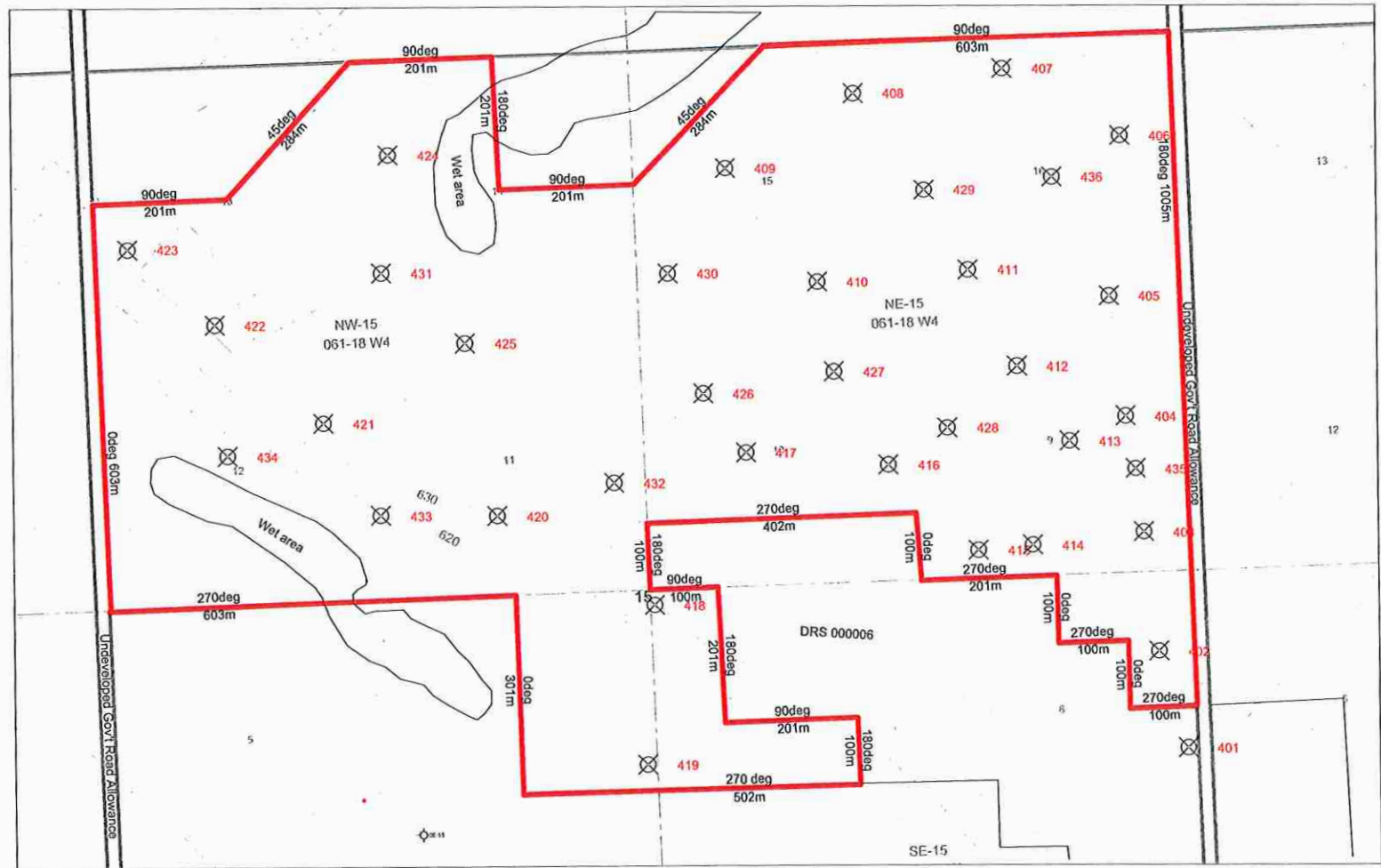
**Notes:**

- the test plan was intended as a preliminary evaluation only;
- Material classifications with flighted auger systems are based on auger resistance to classify the rock content. Sands, silts, and clays are determined by material brought to the surface by the auger. Classification using the auger system therefore is not as accurate as sampling from open pits; material sampling using open pits is recommended to ensure suitability of the material for particular product specifications.

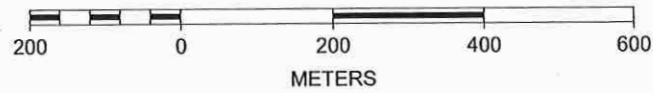
Amendment to April 2012 Submission to ESRD: Consolidated CRBP SML-110045, 110046, 110047 Submitted to ESRD-EDM 15 October 2013

SME 100149 Test Report.  
Within parts of Sec 15-061-18 W4  
[Sketch 1: Test Locations.]

Ref: attached Test Logs



SCALE 1 : 10,000

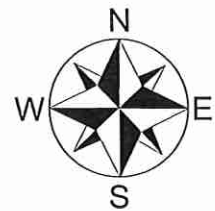
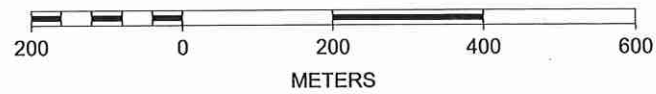


SME 100149 Test Report.  
Within parts of Sec 15-061-18 W4  
[Sketch 1A: Test Locations.]

Ref: attached Test Logs



SCALE 1 : 10,000



**APPENDIX B:**  
**Client Provided TestData**  
**[78 pps. Sampling data available –**  
**not included]**

Consolidated Conservation and Reclamation Business Plan (April 2012, revised May 2013)  
Applicants: Robert Beaverford, 541466 Alberta Ltd, and Glenn Ball  
Part of Sec 15 Twp061 Rge18 W4M  
SML 110045, SML 110046, SML 110047

**APPENDIX C: ASRD Landscape  
Analysis Tool Report**

There are 3 LAT Reports covering the consolidated area. All reports have the same Project Name however each report applies to the SML(s) within the areas shown on the Lat Report Map. Only site specific pages are included.

**Government of Alberta** ■

**Lands Division  
Sustainable Resource Development**

The LAT is not specifically designed for SMLs, however is generated and referred to here for the Base and Sensitive Features listed and the Map legend classification as generated for an MSL

## SCHEDULE B

### Landscape Analysis Tool Report

000000927E

Page 1 of 14

**Time:** 13:08 21 PM

**LAT Number:** 000000927E

**LAT Date:** 2011-07-05

**Project Name:** SML110046

**Project  
Description:**

**Disposition Type:** Mineral Surface Lease (MSL)

**Purpose Type:** Wellsite & Compressor (WELLCOMP)

#### Note to Applicants:

It is the applicant's responsibility to determine if an EAP application will be submitted to SRD as "standard" or "non-standard". Applicants should complete a thorough review of EAP processes, IS&G documents and LAT Reports generated prior to making this determination.

- "Standard" interim EAP application submissions are those where the applicant chooses to meet all of the associated SRD Approval Standards identified in the LAT Report being submitted with the application.
- "Non-standard" interim EAP application submissions are those where the applicant chooses not to meet, or is not able to meet, one or more of the associated SRD Approval Standards identified in the LAT Report being submitted with the application. Non-standard interim application submissions require the inclusion of a completed Non-standard Mitigation Supplement.
- "Where there is more than one applicable Approval Standard or Operating Condition, as the case may be, applicable to the activities and the Lands as identified in the LAT Report being submitted with the application, the more strict Approval Standard or Operating Condition shall prevail."

The information provided within the LAT Tool is a spatial representation of features provided for land use planning. The accuracy of these layers varies depending on the resource value being represented. Ground-truthing is required to ensure that the applicant will meet the applicable Integrated Standards and Guidelines.

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SCHEDULE B

Landscape Analysis Tool Report

000000927E  
Page 2 of 14

Base Features

|                                |  |                                   |                                  |
|--------------------------------|--|-----------------------------------|----------------------------------|
| Crown Ownership:               | <input type="text" value="Provincial/Untitled"/> | FMU:                              | <input type="text" value="LO1"/> |
| Green/White Area:              | <input type="text" value="White Area"/>          | FMA:                              | <input type="text"/>             |
| Municipality:                  | <input type="text" value="Smoky Lake County"/>   | Integrated Resource Plan (Local): | <input type="text"/>             |
| Provincial Grazing Reserve:    | <input type="text"/>                             |                                   |                                  |
| Rocky Mountain Forest Reserve: | <input type="text"/>                             |                                   |                                  |

Provincial Sanctuaries

|                    |                      |            |                      |
|--------------------|----------------------|------------|----------------------|
| Corridor Wildlife: | <input type="text"/> | Game Bird: | <input type="text"/> |
| Restricted Area:   | <input type="text"/> | Seasonal:  | <input type="text"/> |
|                    |                      | Wildlife:  | <input type="text"/> |



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SCHEDULE B

Landscape Analysis Tool Report

000000927E  
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Sensitive Features

| Wildlife                                 |                                 |   |                                 |
|--|---------------------------------|---|---------------------------------|
| Burrowing Owl Range:                     | <input type="text" value="No"/> | Ord's Kangaroo Rat Range:               | <input type="text" value="No"/> |
| Caribou Zones:                           | <input type="text" value="No"/> | Other Sensitive and Endangered Species: | <input type="text" value="No"/> |
| Colonial Nesting Birds:                  | <input type="text" value="No"/> | Piping Plover Waterbodies:              | <input type="text" value="No"/> |
| Eastern Short-horned Lizard Range:       | <input type="text" value="No"/> | Sensitive Amphibians Ranges:            | <input type="text" value="No"/> |
| Endangered and Threatened Plants Ranges: | <input type="text" value="No"/> | Sensitive Raptor Range:                 | <input type="text" value="No"/> |
| Greater Sage Grouse Habitat and Buffer:  | <input type="text" value="No"/> | Sensitive Snake Species Range:          | <input type="text" value="No"/> |
| Greater Sage Grouse Leks and Buffer:     | <input type="text" value="No"/> | Sharp-tailed Grouse Range:              | <input type="text" value="No"/> |
| Grizzly Bear Zone:                       | <input type="text" value="No"/> | Special Access Zone:                    | <input type="text" value="No"/> |
| Key Wildlife and Biodiversity Zones:     | <input type="text" value="No"/> | Swift Fox Range:                        | <input type="text" value="No"/> |
| Mountain Goat and Sheep Areas:           | <input type="text" value="No"/> | Trumpeter Swan Waterbodies/Watercourse: | <input type="text" value="No"/> |

| Water                   |   |
|-------------------------|---|
| Proximity to Waterbody: | Industry will ensure that the Watercourse/Waterbodies standards and conditions as defined within the Integrated Standards and Guidelines are followed. To ensure these setbacks and buffers are addressed and maintained, it is recommended that a pre-site assessment occur. |

| Grassland and Parkland Natural Region:    |                                 |
|---|---------------------------------|
| Grassland and/or Parkland Natural Region: | <input type="text" value="No"/> |

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**SCHEDULE B**

**Landscape Analysis Tool Report**

000000927E  
Page 4 of 14

| <u>Quarter</u> | <u>Section</u> | <u>Township</u> | <u>Range</u> | <u>Meridian</u> | <u>Sensitive Features by Quarter Section</u> |
|----------------|----------------|-----------------|--------------|-----------------|--|
| NE             | 15             | 61              | 18           | 4               |  |
| SE             | 15             | 61              | 18           | 4               |  |

The LAT is not specifically designed for SMLs, however is generated and referred to here for the Base and Sensitive Features listed and the Map legend classification as generated for an MSL

SCHEDULE B

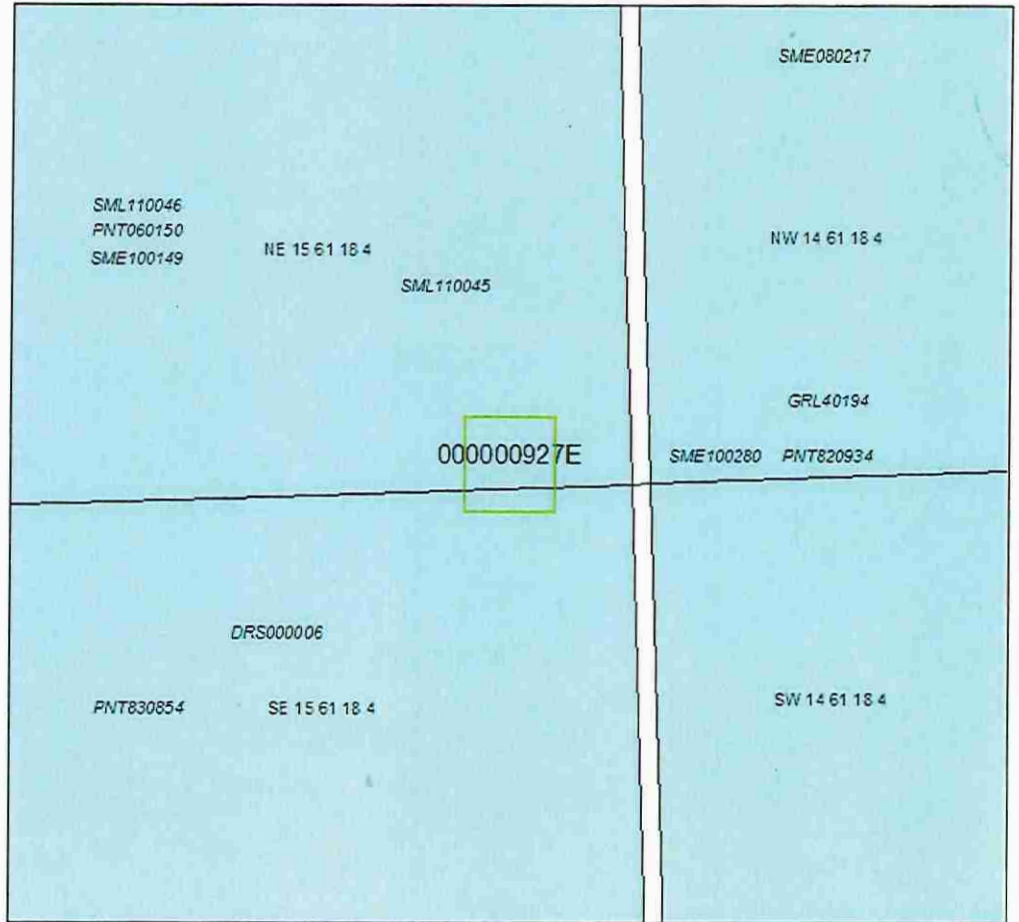
Landscape Analysis Tool Report

000000927E  
Page 5 of 14

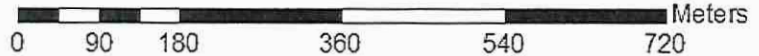


Legend

- ATS Quarter Section
- DIDS Conflicts
- DIDS Applications
- ATS Township
- Perennial Stream
- Indefinite Stream
- Recurring Stream
- Spillway
- Aquaduct
- Canal
- Ditch
- Perennial Oxbow
- Recurring Oxbow
- Canal
- Dugout
- Icefield
- Islands
- Lagoon
- Perennial Lake
- Recurring Lake
- Perennial Oxbow
- Recurring Oxbow
- Quarry
- Reservoir
- River
- Wetland



1:6,742



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## SCHEDULE B

### Landscape Analysis Tool Report

000000927F  
Page 1 of 14

**Time:** 13:09 00 PM

**LAT Number:** 000000927F

**LAT Date:** 2011-07-05

**Project Name:** SML110046

**Project  
Description:**

**Disposition Type:** Mineral Surface Lease (MSL)

**Purpose Type:** Wellsite & Compressor (WELLCOMP)

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SCHEDULE B

Landscape Analysis Tool Report

000000927F  
Page 2 of 14

Base Features

|                                |  |                                   |                                  |
|--------------------------------|--|-----------------------------------|----------------------------------|
| Crown Ownership:               | <input type="text" value="Provincial/Untitled"/> | FMU:                              | <input type="text" value="LO1"/> |
| Green/White Area:              | <input type="text" value="White Area"/>          | FMA:                              | <input type="text"/>             |
| Municipality:                  | <input type="text" value="Smoky Lake County"/>   |                                   |                                  |
| Provincial Grazing Reserve:    | <input type="text"/>                             | Integrated Resource Plan (Local): | <input type="text"/>             |
| Rocky Mountain Forest Reserve: | <input type="text"/>                             |                                   |                                  |

Provincial Sanctuaries

|                    |                      |            |                      |
|--------------------|----------------------|------------|----------------------|
| Corridor Wildlife: | <input type="text"/> | Game Bird: | <input type="text"/> |
| Restricted Area:   | <input type="text"/> | Seasonal:  | <input type="text"/> |
|                    |                      | Wildlife:  | <input type="text"/> |

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SCHEDULE B

Landscape Analysis Tool Report

000000927F  
Page 3 of 14

Sensitive Features

| Wildlife                                  |   |   |                                 |
|---|---|---|---------------------------------|
| Burrowing Owl Range:                      | <input type="text" value="No"/>   | Ord's Kangaroo Rat Range:               | <input type="text" value="No"/> |
| Caribou Zones:                            | <input type="text" value="No"/>   | Other Sensitive and Endangered Species: | <input type="text" value="No"/> |
| Colonial Nesting Birds:                   | <input type="text" value="No"/>   | Piping Plover Waterbodies:              | <input type="text" value="No"/> |
| Eastern Short-horned Lizard Range:        | <input type="text" value="No"/>   | Sensitive Amphibians Ranges:            | <input type="text" value="No"/> |
| Endangered and Threatened Plants Ranges:  | <input type="text" value="No"/>   | Sensitive Raptor Range:                 | <input type="text" value="No"/> |
| Greater Sage Grouse Habitat and Buffer:   | <input type="text" value="No"/>   | Sensitive Snake Species Range:          | <input type="text" value="No"/> |
| Greater Sage Grouse Leks and Buffer:      | <input type="text" value="No"/>   | Sharp-tailed Grouse Range:              | <input type="text" value="No"/> |
| Grizzly Bear Zone:                        | <input type="text" value="No"/>   | Special Access Zone:                    | <input type="text" value="No"/> |
| Key Wildlife and Biodiversity Zones:      | <input type="text" value="No"/>   | Swift Fox Range:                        | <input type="text" value="No"/> |
| Mountain Goat and Sheep Areas:            | <input type="text" value="No"/>   | Trumpeter Swan Waterbodies/Watercourse: | <input type="text" value="No"/> |
| Water                                     |   |   |                                 |
| Proximity to Waterbody:                   | Industry will ensure that the Watercourse/Waterbodies standards and conditions as defined within the Integrated Standards and Guidelines are followed. To ensure these setbacks and buffers are addressed and maintained, it is recommended that a pre-site assessment occur. |   |                                 |
| Grassland and Parkland Natural Region:    |   |   |                                 |
| Grassland and/or Parkland Natural Region: | <input type="text" value="No"/>   |   |                                 |

The LAT is not specifically designed for SMLs, however is generated and referred to here for the Base and Sensitive Features listed and the Map legend classification as generated for an MSL

**SCHEDULE B**

**Landscape Analysis Tool Report**

000000927F  
Page 4 of 14

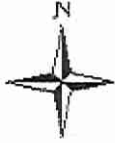
| <u>Quarter</u> | <u>Section</u> | <u>Township</u> | <u>Range</u> | <u>Meridian</u> | <u>Sensitive Features by Quarter Section</u> |
|----------------|----------------|-----------------|--------------|-----------------|--|
| NE             | 15             | 61              | 18           | 4               |  |
| NW             | 15             | 61              | 18           | 4               |  |

The LAT is not specifically designed for SMLs, however is generated and referred to here for the Base and Sensitive Features listed and the Map legend classification as generated for an MSL

**SCHEDULE B**

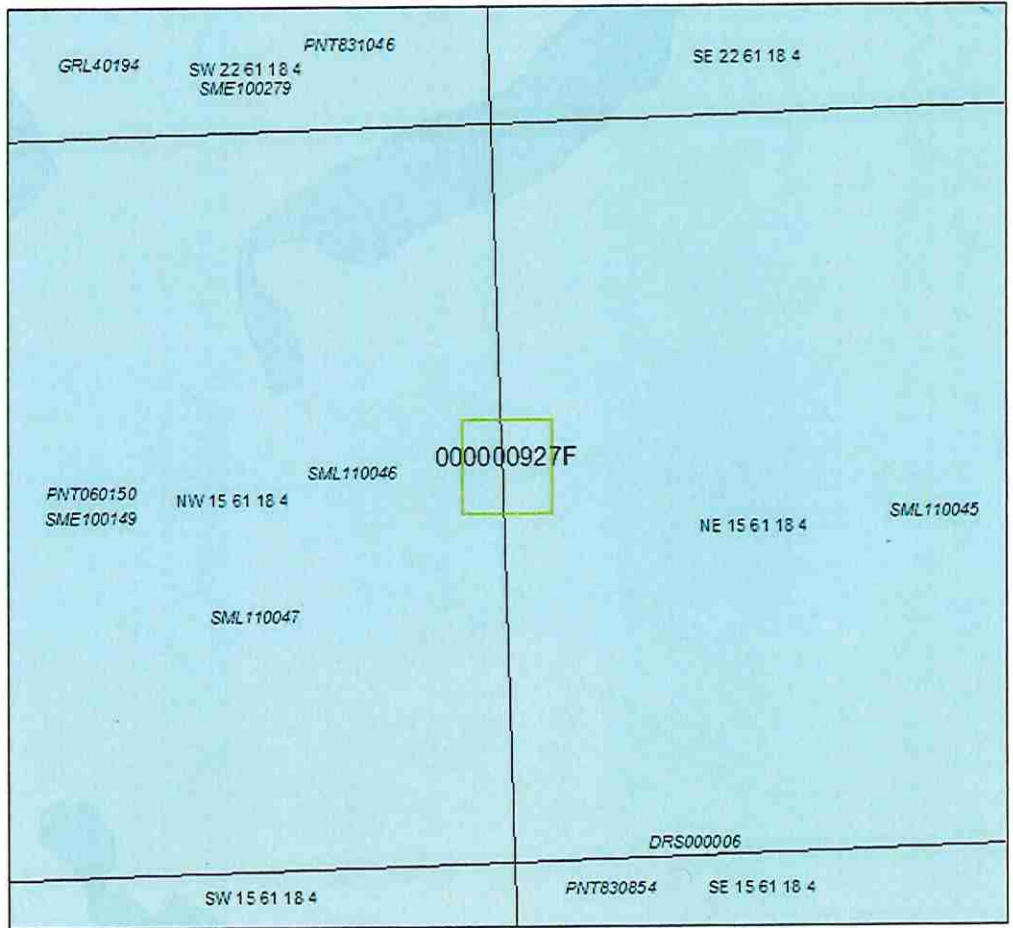
**Landscape Analysis Tool Report**

000000927F  
Page 5 of 14

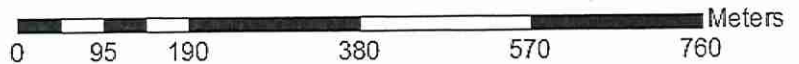


**Legend**

- ATS Quarter Section
- DIDS Conflicts
- DIDS Applications
- ATS Township
- Perennial Stream
- Indefinite Stream
- Recurring Stream
- Spillway
- Aquaduct
- Canal
- Ditch
- Perennial Oxbow
- Recurring Oxbow
- Canal
- Dugout
- Icefield
- Islands
- Lagoon
- Perennial Lake
- Recurring Lake
- Perennial Oxbow
- Recurring Oxbow
- Quarry
- Reservoir
- River
- Wetland



1:6,742





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## SCHEDULE B

### Landscape Analysis Tool Report

000000927D  
Page 1 of 14

**Time:** 13:07 09 PM

**LAT Number:** 000000927D

**LAT Date:** 2011-07-05

**Project Name:** SML110046

**Project  
Description:**

**Disposition Type:** Mineral Surface Lease (MSL)

**Purpose Type:** Wellsite & Compressor (WELLCOMP)

#### Note to Applicants:

It is the applicant's responsibility to determine if an EAP application will be submitted to SRD as "standard" or "non-standard". Applicants should complete a thorough review of EAP processes, IS&G documents and LAT Reports generated prior to making this determination.

- "Standard" interim EAP application submissions are those where the applicant chooses to meet all of the associated SRD Approval Standards identified in the LAT Report being submitted with the application.
- "Non-standard" interim EAP application submissions are those where the applicant chooses not to meet, or is not able to meet, one or more of the associated SRD Approval Standards identified in the LAT Report being submitted with the application. Non-standard interim application submissions require the inclusion of a completed Non-standard Mitigation Supplement.
- "Where there is more than one applicable Approval Standard or Operating Condition, as the case may be, applicable to the activities and the Lands as identified in the LAT Report being submitted with the application, the more strict Approval Standard or Operating Condition shall prevail."

The information provided within the LAT Tool is a spatial representation of features provided for land use planning. The accuracy of these layers varies depending on the resource value being represented. Ground-truthing is required to ensure that the applicant will meet the applicable Integrated Standards and Guidelines.

The LAT is not specifically designed for SMLs, however is generated and referred to here for the Base and Sensitive Features listed and the Map legend classification as generated for an MSL

SCHEDULE B

Landscape Analysis Tool Report

000000927D  
Page 2 of 14

Amendment to April 2012 Submission to ESRD: Consolidated CRBP SMLs 110045, 110046, 110047 Submitted to ESRD-EDM 15 October 2013

Base Features

|                                |  |                                   |                                  |
|--------------------------------|--|-----------------------------------|----------------------------------|
| Crown Ownership:               | <input type="text" value="Provincial/Untitled"/> | FMU:                              | <input type="text" value="LO1"/> |
| Green/White Area:              | <input type="text" value="White Area"/>          | FMA:                              | <input type="text"/>             |
| Municipality:                  | <input type="text" value="Smoky Lake County"/>   |                                   |                                  |
| Provincial Grazing Reserve:    | <input type="text"/>                             | Integrated Resource Plan (Local): | <input type="text"/>             |
| Rocky Mountain Forest Reserve: | <input type="text"/>                             |                                   |                                  |

Provincial Sanctuaries

|                    |                      |            |                      |
|--------------------|----------------------|------------|----------------------|
| Corridor Wildlife: | <input type="text"/> | Game Bird: | <input type="text"/> |
| Restricted Area:   | <input type="text"/> | Seasonal:  | <input type="text"/> |
|                    |                      | Wildlife:  | <input type="text"/> |

The LAT is not specifically designed for SMLs, however is generated and referred to here for the Base and Sensitive Features listed and the Map legend classification as generated for an MSL

SCHEDULE B

Landscape Analysis Tool Report

000000927D  
Page 3 of 14

Sensitive Features

| Wildlife                                 |                                 |
|--|---------------------------------|
| Burrowing Owl Range:                     | <input type="text" value="No"/> |
| Caribou Zones:                           | <input type="text" value="No"/> |
| Colonial Nesting Birds:                  | <input type="text" value="No"/> |
| Eastern Short-horned Lizard Range:       | <input type="text" value="No"/> |
| Endangered and Threatened Plants Ranges: | <input type="text" value="No"/> |
| Greater Sage Grouse Habitat and Buffer:  | <input type="text" value="No"/> |
| Greater Sage Grouse Leks and Buffer:     | <input type="text" value="No"/> |
| Grizzly Bear Zone:                       | <input type="text" value="No"/> |
| Key Wildlife and Biodiversity Zones:     | <input type="text" value="No"/> |
| Mountain Goat and Sheep Areas:           | <input type="text" value="No"/> |
| Ord's Kangaroo Rat Range:                | <input type="text" value="No"/> |
| Other Sensitive and Endangered Species:  | <input type="text" value="No"/> |
| Piping Plover Waterbodies:               | <input type="text" value="No"/> |
| Sensitive Amphibians Ranges:             | <input type="text" value="No"/> |
| Sensitive Raptor Range:                  | <input type="text" value="No"/> |
| Sensitive Snake Species Range:           | <input type="text" value="No"/> |
| Sharp-tailed Grouse Range:               | <input type="text" value="No"/> |
| Special Access Zone:                     | <input type="text" value="No"/> |
| Swift Fox Range:                         | <input type="text" value="No"/> |
| Trumpeter Swan Waterbodies/Watercourse:  | <input type="text" value="No"/> |

| Water                   |   |
|-------------------------|---|
| Proximity to Waterbody: | Industry will ensure that the Watercourse/Waterbodies standards and conditions as defined within the Integrated Standards and Guidelines are followed. To ensure these setbacks and buffers are addressed and maintained, it is recommended that a pre-site assessment occur. |

| Grassland and Parkland Natural Region:    |                                 |
|---|---------------------------------|
| Grassland and/or Parkland Natural Region: | <input type="text" value="No"/> |

The LAT is not specifically designed for SMLs, however is generated and referred to here for the Base and Sensitive Features listed and the Map legend classification as generated for an MSL

**SCHEDULE B**

**Landscape Analysis Tool Report**

000000927D  
Page 4 of 14

| <u>Quarter</u> | <u>Section</u> | <u>Township</u> | <u>Range</u> | <u>Meridian</u> | <u>Sensitive Features by Quarter Section</u> |
|----------------|----------------|-----------------|--------------|-----------------|--|
| NE             | 15             | 61              | 18           | 4               |  |
| NW             | 15             | 61              | 18           | 4               |  |
| SE             | 15             | 61              | 18           | 4               |  |
| SW             | 15             | 61              | 18           | 4               |  |

The LAT is not specifically designed for SMLs, however is generated and referred to here for the Base and Sensitive Features listed and the Map legend classification as generated for an MSL

SCHEDULE B

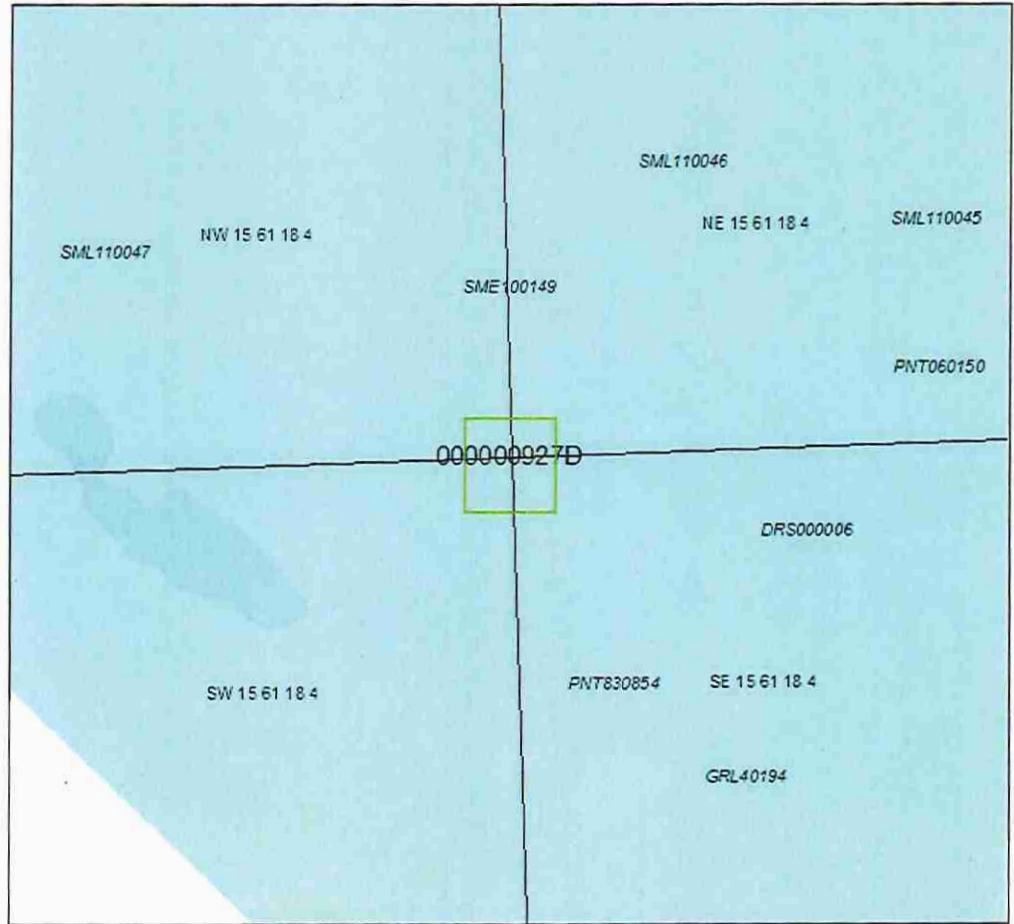
Landscape Analysis Tool Report

000000927D  
Page 5 of 14

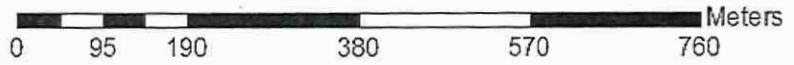


Legend

- ATS Quarter Section
- DIDS Conflicts
- DIDS Applications
- ATS Township
- Perennial Stream
- Indefinite Stream
- Recurring Stream
- Spillway
- Aquaduct
- Canal
- Ditch
- Perennial Oxbow
- Recurring Oxbow
- Canal
- Dugout
- Icefield
- Islands
- Lagoon
- Perennial Lake
- Recurring Lake
- Perennial Oxbow
- Recurring Oxbow
- Quarry
- Reservoir
- River
- Wetland



1:6,742



**APPENDIX D:**  
**FNC Consultation Adequacy Decision**  
**GRL Consent; Historical Resource Clearance**

---

**Government of Alberta** ■  
Sustainable Resource Development

First Nations Consultation Approvals Unit  
PO Box 150, 201 Kaybob Drive Fox Creek, AB T0H 1P0  
Tel: 780-622-3921 Fax: 780-622-3783  
[www.alberta.ca](http://www.alberta.ca)

February 15, 2012

FNC File # LLB20110380

Robert W. Beaverford  
52547 Range Road 223  
Sherwood Park, Alberta  
T8A 4P7

Dear Mr. Torstensen:

Re: Robert W. Beaverford - SML110045

Alberta Sustainable Resource Development has reviewed the consultation summary provided by Robert W. Beaverford regarding their proposed SML110045 which includes the following lands and/or area:

- NE-15-061-18-W4Mer
- SE-15-061-18-W4Mer

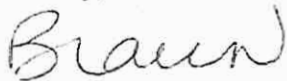
Based on our review, Alberta Sustainable Resource Development has determined that consultation is adequate for SML110045 as of February 15, 2012 with the following First Nations:

- Beaver Lake Cree Nation
- Saddle Lake Cree Nation
- Whitefish (Goodfish) Lake First Nation

The proponent may proceed with application for land activity dispositions as defined within this project. This letter does not grant any authority for the proponent to make application for any use of land not identified within this letter.

Should you have any questions, please contact the undersigned at 780-622-3921.

Sincerely,



Nicole Braun, RPFT  
Approvals Specialist



Freedom To Create. Spirit To Achieve.

**Government of Alberta** ■  
Sustainable Resource Development

First Nations Consultation Approvals Unit  
PO Box 150, 201 Kaybob Drive Fox Creek, AB T0H 1P0  
Tel: 780-622-3921 Fax: 780-622-3783  
[www.alberta.ca](http://www.alberta.ca)

February 15, 2012

FNC File # LLB20110381

541466 Alberta Ltd.  
PO Box 211  
Boyle, Alberta  
T0A 0M0

Dear Mr. Torstensen:

Re: 541466 Alberta Ltd. - SML110046

Alberta Sustainable Resource Development has reviewed the consultation summary provided by 541466 Alberta Ltd. regarding their proposed SML110046 which includes the following lands and/or area:

- NE-15-061-18-W4Mer
- NW-15-061-18-W4Mer

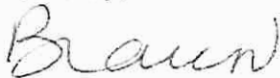
Based on our review, Alberta Sustainable Resource Development has determined that consultation is adequate for SML110046 as of February 15, 2012 with the following First Nations:

- Beaver Lake Cree Nation
- Saddle Lake Cree Nation
- Whitefish (Goodfish) Lake First Nation

The proponent may proceed with application for land activity dispositions as defined within this project. This letter does not grant any authority for the proponent to make application for any use of land not identified within this letter.

Should you have any questions, please contact the undersigned at 780-622-3921.

Sincerely,



Nicole Braun, RPFT  
Approvals Specialist



Freedom To Create. Spirit To Achieve.



February 16, 2012

FNC File # LLB20110382

Glenn Ball  
133-53046 Range Road 222  
Ardrossan, Alberta  
T8E 2E8

Dear Mr. Torstensen:

Re: Glenn Ball - SML110047

Alberta Sustainable Resource Development has reviewed the consultation summary provided by Glenn Ball regarding their proposed SML110047 which includes the following lands and/or area:

- NE-15-061-18-W5Mer
- SE-15-061-18-W5Mer
- SW-15-061-18-W5Mer

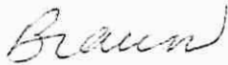
Based on our review, Alberta Sustainable Resource Development has determined that consultation is adequate for SML110047 as of February 16, 2012 with the following First Nations:

- Beaver Lake Cree Nation
- Saddle Lake Cree Nation
- Whitefish (Goodfish) Lake First Nation

The proponent may proceed with application for land activity dispositions as defined within this project. This letter does not grant any authority for the proponent to make application for any use of land not identified within this letter.

Should you have any questions, please contact the undersigned at 780-622-3921.

Sincerely,



Nicole Braun, RPFT  
Approvals Specialist



Freedom To Create. Spirit To Achieve.

Kevin Wawrynychuk  
Box 458  
Smokey Lake, Alta.  
T0A 3C0  
780-656-2263

December 03 2011

To Whom It May Concern: Alberta Sustainable Resource Development

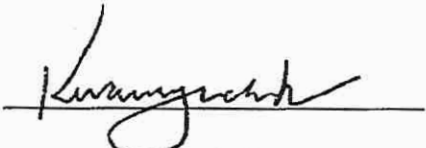
Land Location: NE15-61-18-W4 AND SE15-61-18-W4

Grant by GRL Lease Holder (GRL 40194)

The Grazing Lease Holder gives consent to remove

77.31 acres/ 31.29 hectares from GRL # 40194 for the sole purpose of

SML # 110045 for the sand and gravel extraction.



Kevin Wawrynychuk



Witness: MARLENE DIACHYSHYN

Date: DEC. 1 / 2011

Date: DEC. 1, 2011

Kevin Wawrynchuk  
Box 458  
Smokey Lake, Alta.  
T0A 3C0  
780-656-2263

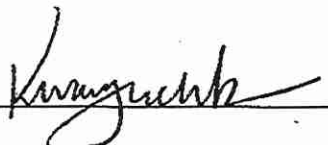
December 03 2011

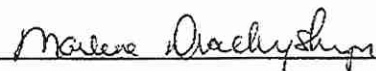
To Whom It May Concern: Alberta Sustainable Resource Development

Land Location: NW15-61-18-W4 AND NE15-61-18-W4

Grant by GRL Lease Holder (GRL 40194)

The Grazing Lease Holder gives consent to remove  
69.83 acres/ 28.26 hectares from GRL # 40194 for the sole purpose of  
SML # 110046 for the sand and gravel extraction.

  
Kevin Wawrynchuk

  
Witness: MARLENE DIACHYSHYN

Date: DEC. 1 / 2011

Date: DEC. 1, 2011

Kevin Wawrynychuk  
Box 458  
Smokey Lake, Alta.  
T0A 3C0  
780-656-2263

December 03 2011

To Whom It May Concern: Alberta Sustainable Resource Development

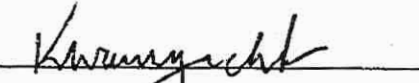
Land Location: NW15-61-18-W4 AND SW15-61-18-W4

**Grant by GRL Lease Holder (GRL 40194)**

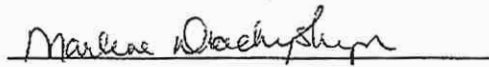
The Grazing Lease Holder gives consent to remove

79.31 acres/ 32.10 hectares from GRL # 40194 for the sole purpose of

SML # 110047 for the sand and gravel extraction.



Kevin Wawrynychuk



Witness: MARLENE DIACHYSHYN

Date: DEC. 1 / 2011

Date: DEC. 1, 2011



### Application for *Historical Resources Act* Clearance

|                                   |                        |
|-----------------------------------|------------------------|
| <b>Activity Administration</b>    |                        |
| Date Received: September 17, 2013 | HRM File: 4650-13-0086 |

**Purpose of Application:**      All New Lands                              Additional Lands                              No New Lands

**Project Category:** Aggregate Extraction (4650)

|                      |  |                                       |           |
|----------------------|--|---------------------------------------|-----------|
| <b>Project Type:</b> | <input checked="" type="checkbox"/> Sand / Gravel Extraction | ESRI Shapefiles are attached (yes/no) | No        |
|                      |  | Approximate Project Area (ha)         | 31.24ha   |
|                      |  | Mineral Surface Lease (MSL) Number(s) | SML110045 |

**Project Identifier:** SML110045 NE & SE 15-61-18-W4M

**Additional Identifier(s):**

|   |  |
|---|--|
| <b>Key Contact:</b> Mr. Vernon Torstensen   | <b>Affiliation:</b> Tor Land Resource Inc. |
| <b>Address:</b> Suite 128, 11230-104 Ave NW | <b>City / Province:</b> Edmonton, AB       |
| <b>Postal Code:</b> T5K 2X8                 | <b>Phone:</b> (780) 990-0012               |
| <b>E-mail:</b> AggregateAB@torland.ca       | <b>Fax:</b> (780) 990-0280                 |
|   | <b>Your File Number:</b> SML110045         |

Is the Proponent the same as the Key Contact?      Yes      No     If no, complete the following:

|   |   |
|---|---|
| <b>Proponent:</b> SML holder R. Beaverford. Operator JLG Ball | <b>Contact Name:</b> (Operator Pres. JLG Ball Enterprises)Lisa Ball |
| <b>Address:</b> Box 302                                       | <b>City / Province:</b> Boyle, AB                                   |
| <b>Postal Code:</b> TOA 0M0                                   | <b>Phone:</b> (780) 689-2395  |
| <b>E-mail:</b> lball@jlgball.com                              | <b>Fax:</b> () -  |

| Proposed Development Area |     |     |     |          | Land Ownership           |                          |                                     |                          |
|---------------------------|-----|-----|-----|----------|--------------------------|--------------------------|-------------------------------------|--------------------------|
| MER                       | RGE | TWP | SEC | LSD List | FRH                      | SA                       | CU                                  | CT                       |
| 4                         | 18  | 61  | 15  | 8,9,16   | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

| Listed Lands Affected |     |     |     |     |     |          |
|-----------------------|-----|-----|-----|-----|-----|----------|
| MER                   | RGE | TWP | SEC | LSD | HRV | Category |
|                       |     |     |     |     |     |          |

**Comments:** Remains treed except cutlines have been cleared for testing.

Amendment to April 2012 Submission to ESRD: Consolidated CRBP SMLs 110045, 110046, 110047 Submitted to ESRD-EDM 15 October 2013

**Historical Resources Impact Assessment:**

For archaeological resources:

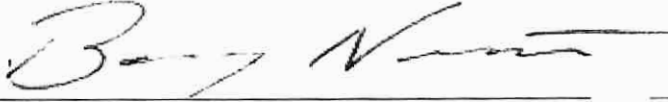
Has a HRIA been conducted?  Yes  No

Permit Number (if applicable):

For palaeontological resource:

Has a HRIA been conducted?  Yes  No

*Historical Resources Act* clearance is granted subject to Section 31 of the Resources Act, "a person who discovers an historic resource in the course of making an excavation for a purpose other than for the purpose of seeking historic resources shall forthwith notify the minister of the discovery". The chance discovery of historical resources is to be reported to the contacts identified within the listing.



October 02, 2013

Date



**Historical Resources Impact Assessment:**

For archaeological resources:

Has a HRIA been conducted?       Yes       No

Permit Number (if applicable):

For palaeontological resource:

Has a HRIA been conducted?       Yes       No

*Historical Resources Act* clearance is granted subject to Section 31 of the Resources Act, "a person who discovers an historic resource in the course of making an excavation for a purpose other than for the purpose of seeking historic resources shall forthwith notify the minister of the discovery". The chance discovery of historical resources is to be reported to the contacts identified within the listing.

October 02, 2013

Date



Application for *Historical Resources Act* Clearance

**Activity Administration**

Date Received: September 17, 2013      HRM File: 4650-13-0088

**Purpose of Application:**     All New Lands                       Additional Lands                       No New Lands

**Project Category:**    Aggregate Extraction (4650)

**Project Type:**     Sand / Gravel Extraction      ESRI Shapefiles are attached      No  
(yes/no)  
Approximate Project Area (ha)      32.19ha  
Mineral Surface Lease (MSL)      SML110047  
Number(s)

**Project Identifier:**    SML110047 NW & SW 15-61-18-W4M  
**Additional Identifier(s):**

|   |  |
|---|--|
| <b>Key Contact:</b> Mr. Vernon Torstensen   | <b>Affiliation:</b> Tor Land Resource Inc. |
| <b>Address:</b> Suite 128, 11230-104 Ave NW | <b>City / Province:</b> Edmonton, AB       |
| <b>Postal Code:</b> T5K 2X8                 | <b>Phone:</b> (780) 990-0012               |
| <b>E-mail:</b> AggregateAB@torland.ca       | <b>Fax:</b> (780) 990-0280                 |
|   | <b>Your File Number:</b> SML110047         |

Is the Proponent the same as the Key Contact?     Yes       No      If no, complete the following:

|  |   |
|--|---|
| <b>Proponent:</b> SML holder Glenn Ball. Operator JLG Ball | <b>Contact Name:</b> (Operator Pres. JLG Ball Enterprises)Lisa Ball |
| <b>Address:</b> Box 302                                    | <b>City / Province:</b> Boyle, AB                                   |
| <b>Postal Code:</b> TOA 0M0                                | <b>Phone:</b> (780) 689-2395  |
| <b>E-mail:</b> lball@jlgball.com                           | <b>Fax:</b> () -  |

| Proposed Development Area |     |     |     |                 | Land Ownership           |                          |                                     |                          |
|---------------------------|-----|-----|-----|-----------------|--------------------------|--------------------------|-------------------------------------|--------------------------|
| MER                       | RGE | TWP | SEC | LSD List        | FRH                      | SA                       | CU                                  | CT                       |
| 4                         | 18  | 61  | 15  | 6,7,11,12,13,14 | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

| Listed Lands Affected |     |     |     |     |     |          |  |
|-----------------------|-----|-----|-----|-----|-----|----------|--|
| MER                   | RGE | TWP | SEC | LSD | HRV | Category |  |

**Comments:** Remains treed except cutlines have been cleared for testing.

**Historical Resources Impact Assessment:**

For archaeological resources:

Has a HRIA been conducted?       Yes       No

Permit Number (if applicable):

For palaeontological resource:

Has a HRIA been conducted?       Yes       No

Pursuant to Section 37(2) of the *Historical Resources Act*, a Historical Resources Impact Assessment (HRIA) report is required for all or portions of those activities described on this application and its attached plan(s)/sketch(es). The HRIA is to be prepared in accordance with the instructions outlined in the attached Schedule A.



\_\_\_\_\_  
David Link

\_\_\_\_\_  
October 07, 2013

Date

**HISTORICAL RESOURCES ACT (HRA) REQUIREMENTS**

**SML HOLDER GLENN BALL. OPERATOR JLG BALL  
SML110047 NW & SW 15-61-18-W4M  
SAND / GRAVEL EXTRACTION**

**HRA REQUIREMENTS PROJECT FILE: 4650-13-0088  
(Schedule "A")**

For the purposes of this schedule, SML holder Glenn Ball, Operator JLG Ball shall be referred to as the "Proponent" and SML110047 NW & SW 15-61-18-W4M shall be referred to as the "Project".

**1.0 ARCHAEOLOGICAL RESOURCES**

The potential for the Project to affect archaeological resources is high.

**1.1 Historic Resources Impact Assessment**

Pursuant to Section 37(2) of the *Historical Resources Act (HRA, or Act)*, a Historic Resources Impact Assessment (HRIA) for archaeological resources and any work resulting from this assessment is to be conducted on behalf of the Proponent by an archaeologist qualified to hold an Archaeological Research Permit within the Province of Alberta. In order to conduct the HRIA, the archaeological consultant must submit "An Application for an Archaeological Research Permit - Mitigative Research Project" to the Historic Resources Management Branch, Heritage Division, Alberta Culture. Please allow ten working days for the permit to be processed. An approved permit must be issued prior to the initiation of any archaeological field investigations.

**1.1.1 Alberta Regulation 254/2002**

Archaeological investigations conducted under permit in Alberta are subject to the conditions stated within Alberta Regulation 254/2002, *Archaeological and Palaeontological Research Permit Regulation*, conditions set forth in the approved permit, and any other conditions that the Minister imposes under Section 30 of the Act.

**1.1.2 Contacting the Archaeological Survey**

For further information regarding the acquisition of a Permit to Excavate Archaeological Resources and/or archaeological consultants obligations under Alberta Regulation 254/2002, please contact Martina Purdon, Head, Archaeological Information & Regulatory Approvals at 780-431-2331 (toll-free 310-0000) or by e-mail at [martina.purdon@gov.ab.ca](mailto:martina.purdon@gov.ab.ca).

### 1.1.3 Coverage

The HRIA must include all areas of high archaeological potential within the Project area with a focus on the prominent valley margins.

### 1.1.4 Timing

The HRIA is to be carried out prior to the initiation of any land surface disturbance activities under snow-free, unfrozen ground conditions.

### 1.1.5 Deep Testing

A deep testing program is required in areas of significant sedimentation.

### 1.1.6 Location of HRIA studies

Within the final report, and any interim report(s), the location of pedestrian surveys, deep testing program(s) and the location and number of shovel tests must be discussed and clearly illustrated.

## 1.2 Reporting the results of archaeological resources HRIA

### 1.2.1 Submission of "Archaeological Site Inventory Data" forms

The Proponent's archaeological consultant is required to submit "Archaeological Site Inventory Data" forms for each prehistoric and historic archaeological site recorded or re-examined during the conduct of the HRIA. While the discovery of a site must be reported within 30 days following the date of discovery, site data forms are to be submitted within 30 days of the date on which the permit period ends, or at the same time or prior to the submission of any interim report or the final report, whichever comes first.

### 1.2.2 Submission of HRIA final report

The final report must be submitted within 180 days after the expiration of the permit, or at least six weeks prior to the anticipated conduct of land surface disturbance activities, whichever comes first. Copies of the final report, and any interim reports, are to be submitted to the Historic Resources Management Branch, Heritage Division, Alberta Culture, Old St. Stephen's College, 8820 – 112 Street, Edmonton, Alberta, T6G 2P8.

### 1.2.3 Submission of interim report(s)

Should the Proponent find it necessary to obtain *Historical Resources Act* clearance for portions or all of the lands affected by the Project prior to the submission of the final report, Alberta Culture will consider accepting the submission of an interim report, or reports.

## 2.0 REPORTING THE DISCOVERY OF HISTORIC RESOURCES

During the conduct of historic resources studies, a consultant may encounter historic resources that are not the subject of their field of expertise. Under this circumstance, the consultant must follow the instructions included in Attachment 1, *Standard Requirements under the Historical Resources Act, Reporting the Discovery of Historic Resources*.

## 3.0 FURTHER SALVAGE, PRESERVATIVE OR PROTECTIVE MEASURES

Based upon the results of the HRIA reporting the discovery of archaeological resources, palaeontological resources, historic period sites and/or Aboriginal Traditional Use site(s), the Proponent may be ordered to undertake further salvage, preservative or protective measures or take any other actions that the Minister responsible for the *Historical Resources Act* considers necessary.

## 4.0 REQUESTS FOR HISTORICAL RESOURCES ACT CLEARANCE

Based upon the results of the HRIA, Alberta Culture may consider granting *Historical Resources Act* clearance to all or portions of the Project area. In the final report, and any interim report(s), the Proponent's consultant(s) must clearly identify and illustrate those portions of the Project area for which *Historical Resources Act* clearance is requested.

## 5.0 PRE-EMINENCE OF CONDITIONS OF HRA REQUIREMENTS

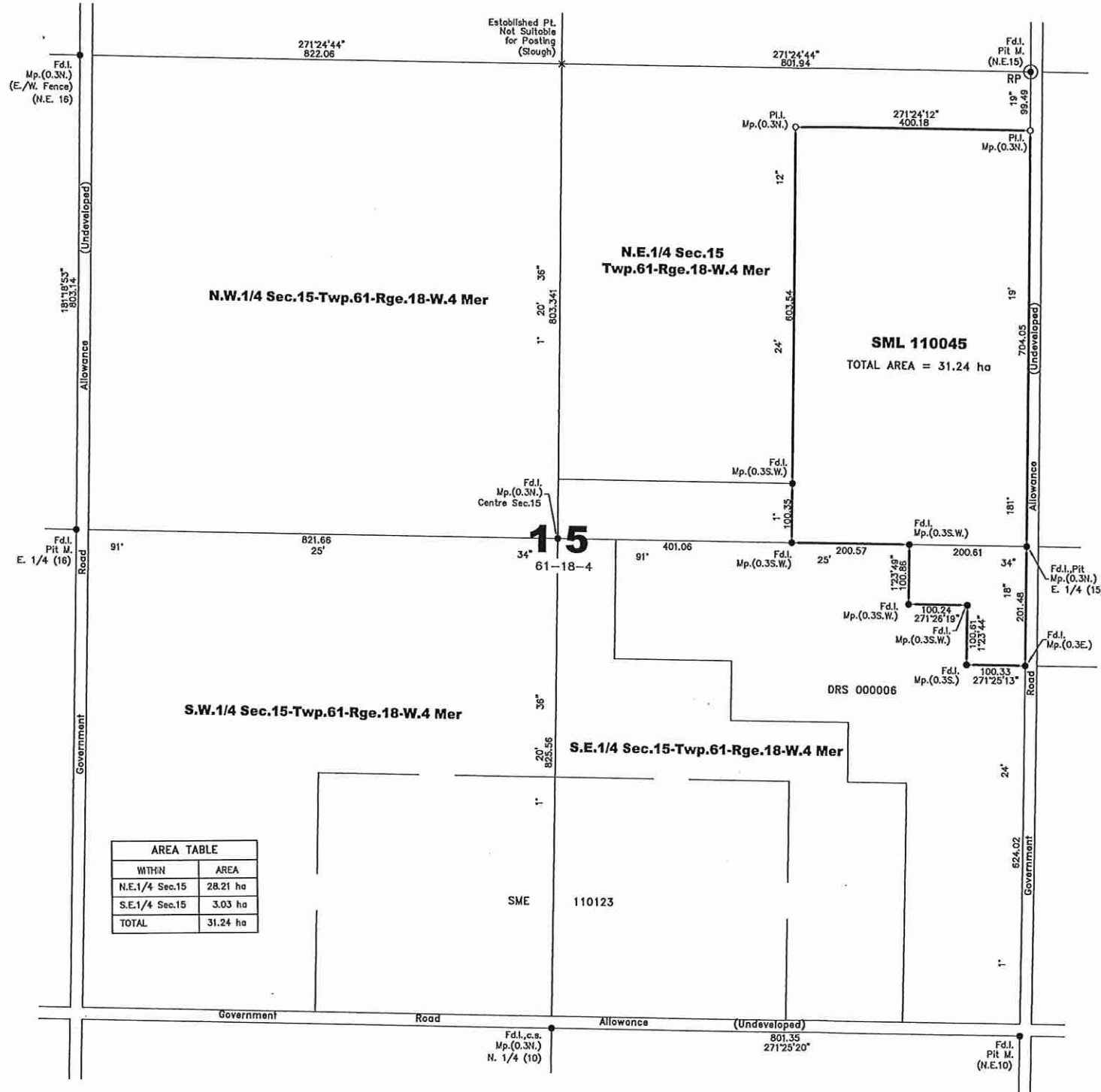
Should the contents of conditions included within this schedule be at variance with any instructions associated with the *Listing of Historic Resources* and/or the permit application, the conditions of the schedule take precedence. Following instructions as outlined in this schedule should result in the granting of *Historical Resources Act* approval and/or the issuance of requirements regarding further historic resources studies in a timely manner.

## 6.0 COMPLIANCE IS MANDATORY

These conditions shall be considered directions of the Minister of Alberta Culture under the *Act*. The proponent and agents acting on behalf of the Proponent are required to become knowledgeable of the conditions. Failure to abide by the conditions will result in *Historical Resources Act* approval not being granted, or delayed.

Consolidated Conservation and Reclamation Business Plan (April 2012, revised May 2013)  
Applicants: Robert Beaverford, 541466 Alberta Ltd, and Glenn Ball  
Part of Sec 15 Twp061 Rge18 W4M  
SML 110045, SML 110046, SML 110047

**APPENDIX E: Survey Plan**



| AREA TABLE     |          |
|----------------|----------|
| WITHN          | AREA     |
| N.E.1/4 Sec.15 | 28.21 ha |
| S.E.1/4 Sec.15 | 3.03 ha  |
| TOTAL          | 31.24 ha |

**PLAN**  
 SHOWING SURVEY OF  
**SML 110045**  
 ( For Surface Material Lease)  
 WITHIN  
**N.E. 1/4 & S.E.1/4 Sec. 15**  
**Twp. 61 - Rge. 18 - W.4 Mer**  
**ROBERT BEAVERFORD**  
**SMOKY LAKE COUNTY**  
**ALBERTA**

SCALE 1:5000  
**2012** D.C. GILLMORE, ALS

ALL DISTANCES ARE IN METRES AND DECIMALS THEREOF.  
 AREA DEALT WITH BY THIS PLAN BOUNDED THUS AND CONTAINS 31.24 ha . . .

COUNTERSUNK IS DENOTED THUS . . . c.s.  
 EAST IS DENOTED THUS . . . E.  
 FOUND IRON POST IS DENOTED THUS . . . Fd.I.  
 FOUND NO MARK IS DENOTED THUS . . . Fd. No Mk.  
 HECTARE IS DENOTED THUS . . . ha  
 MARKER POST IS DENOTED THUS . . . Mp.  
 MARKED IS DENOTED THUS . . . Mkd.  
 MERIDIAN IS DENOTED THUS . . . Mer.  
 MOUND IS DENOTED THUS . . . M.  
 NORTH IS DENOTED THUS . . . N.  
 NORTH AMERICAN DATUM IS DENOTED THUS . . . NAD  
 PIT (4 FOUND) IS DENOTED THUS . . . Pit  
 POINT IS DENOTED THUS . . . Pt.  
 RANGE IS DENOTED THUS . . . Rge.  
 RIGHT OF WAY IS DENOTED THUS . . . R/W  
 SECTION IS DENOTED THUS . . . Sec.  
 SOUTH IS DENOTED THUS . . . S.  
 STATUTORY IRON POST FOUND SHOWN THUS . . . ●  
 STATUTORY IRON POST PLANTED SHOWN THUS . . . ○  
 UNIVERSAL TRANSVERSE MERCATOR IS DENOTED THUS . . . UTM  
 WEST IS DENOTED THUS . . . W.

**PLAN DATUM**  
 THE REFERENCE POINT IS DERIVED FROM PUBLISHED ATS COORDINATES.  
 HORIZONTAL DATUM NAD83  
 PROJECTION UTM  
 DESCRIPTION Fd.I. ● N.E.15-61-18-4, DENOTED THUS ○ ● RP  
 NORTHING 6016133.922  
 EASTING 395772.129  
 COMBINED SCALE FACTOR 0.999634  
 CENTRAL MERIDIAN 111° W.

I, Duncan C. Gillmore, Alberta Land Surveyor, solemnly declare that the survey represented by this plan was made under my personal supervision, the survey was made in accordance with good surveying practices and in accordance with the provisions of the Surveys Act, the survey was performed between the dates of 22nd Day of February, and 25th Day of February, 2012, and that this plan is true and correct, and is prepared in accordance with the provisions of the Public Lands Act, and I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force as if made under oath.

Declared before me at 9:00 am  
 this 21st day of March, 2012.   
 ALBERTA LAND SURVEYOR

Pearl Gillmore  
 A Commissioner For Oaths  
 in and for the Province of Alberta  
 Commission expires on August 17, 2012

**GILLMORE SURVEYS (ARCTIC) LTD**  
 WS 12-15094 (1) GSAL 1183-44  
**FILE NO. SML 110045**

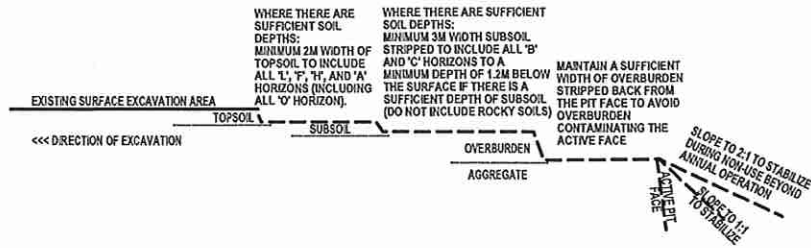


Amendment to April 2012 Submission to ESRO: Consolidated CRBP SMLs 110045, 110046, 110047 Submitted to ESRO-EDM 15 October 2013

**PROFILE -- ACTIVE PIT FACE**

AS THE ACTIVE PIT FACE APPROACHES PROPERTY, APPROVAL, AND RIGHT-OF-WAY BOUNDARIES:

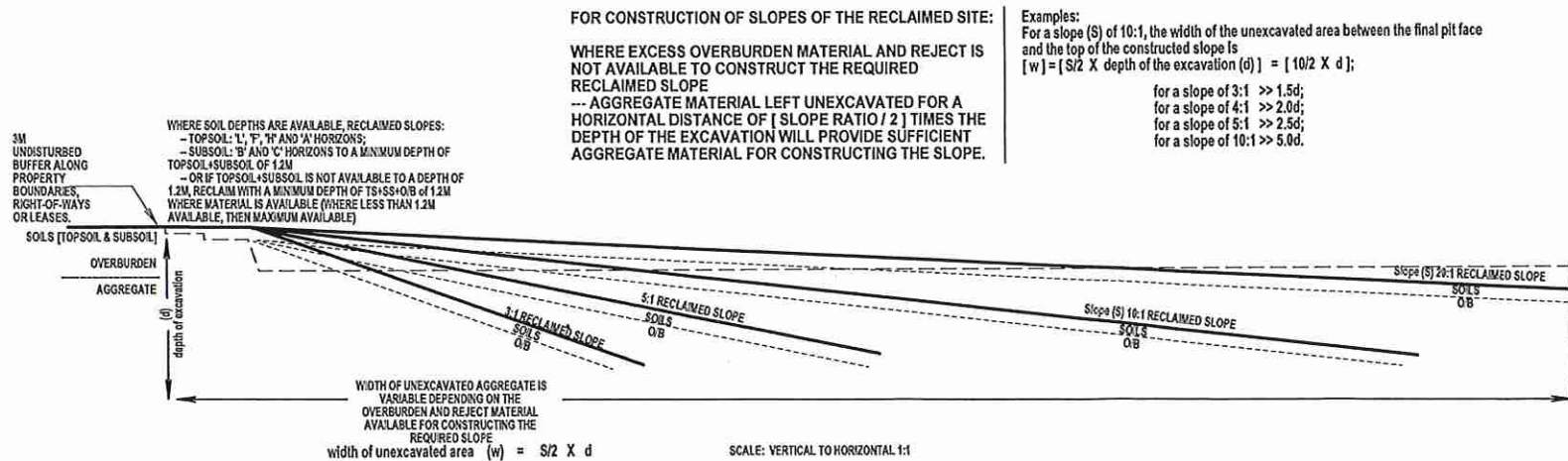
- A MINIMUM 3M UNDISTURBED BUFFER BETWEEN THE EXCAVATION AND RIGHT-OF-WAYS AND WELL SITE LEASES.
- AN ADDITIONAL 2M BUFFER WHERE THERE ARE TREADED BOUNDARIES OR BUFFERS MAY BE LEFT UNEXCAVATED [2M CLEARED BUT UNSTRIPPED] TO PROTECT THE TREE ROOT ZONE OF THE UNDISTURBED BUFFER
- SUFFICIENT UNEXCAVATED GRAVEL TO CONTOUR TO THE REQUIRED RECLAIMED SLOPES [SEE BELOW, "PROFILE - RECLAIMED SLOPES"].



**Notes:**

- On Deeded Land, the difference in sloping requirements at the property boundary (outer slopes) compared to the inner slopes (within the property) is that the slope required is 3:1 or gentler adjacent to property boundaries, whereas the inner slopes (within the property) are to be sloped so as to maintain the adjacent land use (typical examples are 10:1 or gentler adjacent to a cultivated field producing annual crops; 5:1 or gentler adjacent to forage crops).
- On Crown Land, all slopes are 3:1 or gentler.
- On Deeded Land, where possible, all slopes are reclaimed to 5:1 or gentler to minimize erosion and to allow for machinery to move and work the slope.
- Where a water body is constructed, specific sloping design criteria are required under the EPEA and the Water Act, and, if required, are described in the Plan herein [see 'Water Body Design Criteria'].

**PROFILE -- RECLAIMED SLOPES**



**Consolidated Conservation and Reclamation Business Plan  
Surface Materials Leases  
SML's 110045, 110046, 110047**

| SML Number | Legal Land Description                     | Area of Lease      | Lease Holder       |
|------------|--|--------------------|--------------------|
| 110045     | Within NE15-061-18-W4M and SE15-061-18-W4M | 31.24 ha(79.66 ac) | Robert Beaverford  |
| 110046     | Within NW15-061-18-W4M and NE15-061-18-W4M | 28.38 ha(70.13 ac) | 541466 Alberta Ltd |
| 110047     | Within NW15-061-18-W4M and SW15-061-18-W4M | 32.19 ha(79.54 ac) | Glenn Ball         |

- Dwg. No. 5**
- DRAWINGS**
- Dwg. No. 1 : Site Location
  - Dwg. No. 2 : Existing Site/Planned Development
  - Dwg. No. 2A : Existing Site/Planned Development
  - Dwg. No. 2B : 2012 Test Data
  - Dwg. No. 3 : Development Sequencing
  - Dwg. No. 4A : Cross-Section Profiles
  - Dwg. No. 4B : Cross-Section Profiles
  - Dwg. No. 4C : Cross-Section Profiles
  - Dwg. No. 5 : Pit Face Profiles
  - Dwg. No. 6 : Planned Reclamation

**LEGEND:**

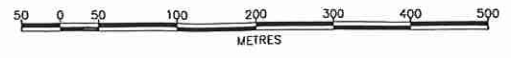
**TOR Land Resource Inc.**  
Suite 128, 11230-104 Ave.  
Edmonton AB T5K 2J8  
Tel 780 990 0012 (Edn)  
403 804 8768 (Cal)  
Mob 780 914 8631  
Fax 780 990 0280

Drawn by: M. Parseyan  
Checked by: VM. Torstensen  
March 2011

| PRO: 00000 | Revision No. | Revision | Date |
|------------|--------------|----------|------|
| Revisions: |              |          |      |



**PLAN**  
 SHOWING SURVEY OF  
**SML 110046**  
 ( For Surface Material Lease )  
 WITHIN  
**N. 1/2 Sec. 15**  
**Twp. 61 - Rge. 18 - W.4 Mer**  
**541466 ALBERTA LTD.**  
**SMOKY LAKE COUNTY**  
**ALBERTA**

SCALE 1:5000  
**2012** D.C. GILLMORE, ALS  


ALL DISTANCES ARE IN METRES AND DECIMALS THEREOF.

AREA DEALT WITH BY THIS PLAN BOUNDED THUS AND CONTAINS 28.38 ha . . .

COUNTERSUNK IS DENOTED THUS . . . . . c.s.  
 COUNTERSUNK IS DENOTED THUS . . . . . c.s.  
 EAST IS DENOTED THUS . . . . . E.  
 FOUND IRON POST IS DENOTED THUS . . . . . Fd.I.  
 FOUND NO MARK IS DENOTED THUS . . . . . Fd. No Mk.  
 HECTARE IS DENOTED THUS . . . . . ha  
 MARKER POST IS DENOTED THUS . . . . . Mp.  
 MARKED IS DENOTED THUS . . . . . Mkd.  
 MERIDIAN IS DENOTED THUS . . . . . Mer.  
 MOUND IS DENOTED THUS . . . . . M.  
 NORTH IS DENOTED THUS . . . . . N.  
 NORTH AMERICAN DATUM IS DENOTED THUS . . . . . NAD  
 PIT (4 FOUND) IS DENOTED THUS . . . . . Pit  
 POINT IS DENOTED THUS . . . . . Pt.  
 RANGE IS DENOTED THUS . . . . . Rge.  
 RIGHT OF WAY IS DENOTED THUS . . . . . R/W  
 SECTION IS DENOTED THUS . . . . . Sec.  
 SOUTH IS DENOTED THUS . . . . . S.  
 STATUTORY IRON POST FOUND SHOWN THUS . . . . . ●  
 STATUTORY IRON POST PLANTED SHOWN THUS . . . . . ○  
 UNIVERSAL TRANSVERSE MERCATOR IS DENOTED THUS . . . . . UTM  
 WEST IS DENOTED THUS . . . . . W.

**PLAN DATUM**

THE REFERENCE POINT IS DERIVED FROM PUBLISHED ATS COORDINATES.

HORIZONTAL DATUM NAD83  
 PROJECTION UTM  
 DESCRIPTION Fd.I. ● N.E.15-61-18-4, DENOTED THUS ○ RP  
 NORTHING 6016133.922  
 EASTING 395772.129  
 COMBINED SCALE FACTOR 0.999634  
 CENTRAL MERIDIAN 111° W.

I, Duncan C. Gillmore, Alberta Land Surveyor, solemnly declare that the survey represented by this plan was made under my personal supervision, the survey was made in accordance with good surveying practices and in accordance with the provisions of the Surveys Act, the survey was performed between the dates of 25th Day of February and 28th Day of February, 2012 and that this plan is true and correct, and is prepared in accordance with the provisions of the Public Lands Act, and I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force as if made under oath.

Declared before me at 9:00 am  
 this 21st day of March, 2012.

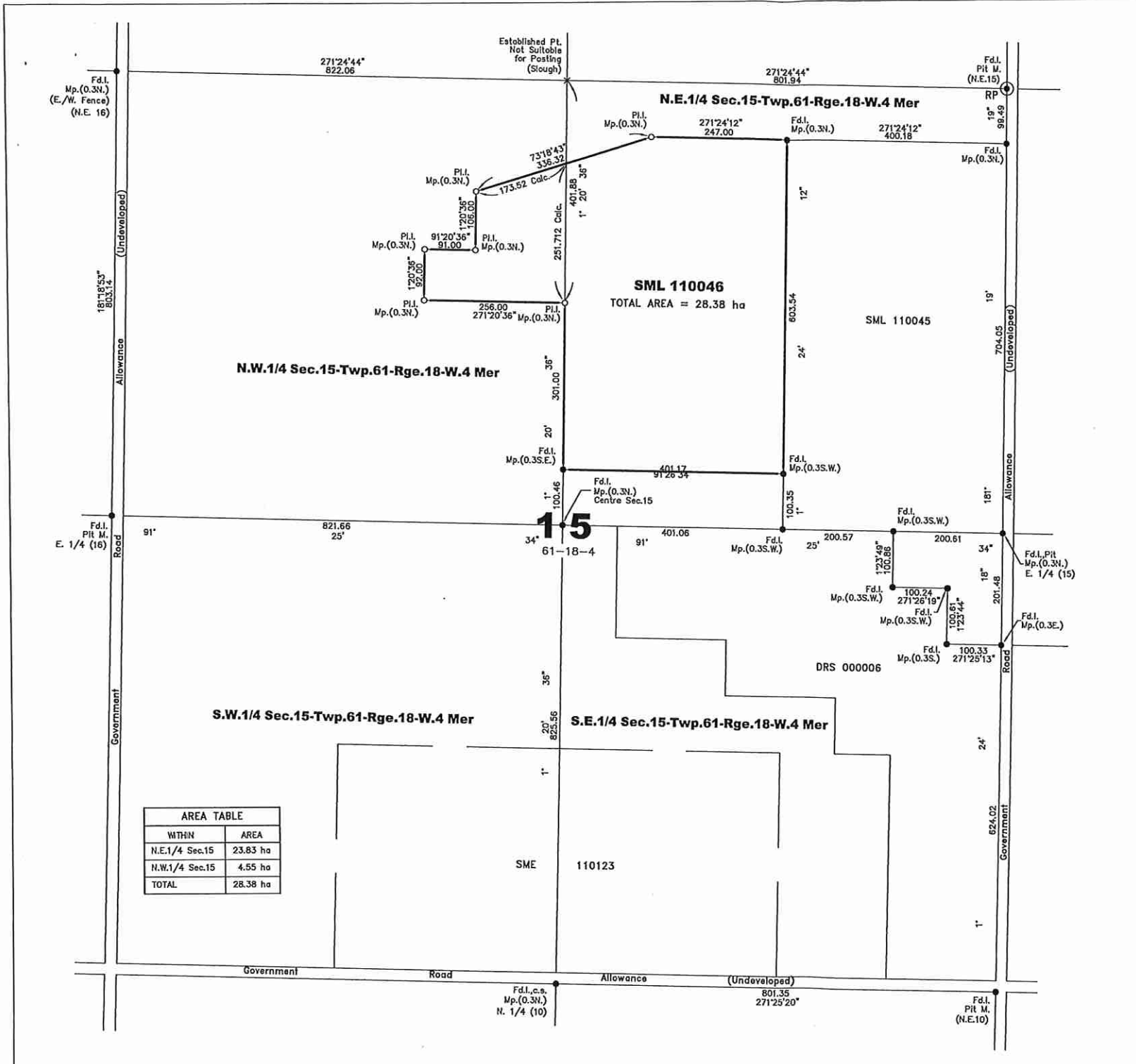
*Duncan C. Gillmore*  
 ALBERTA LAND SURVEYOR

*Pearl Gillmore*  
 Pearl Gillmore  
 A Commissioner For Oaths  
 in and for the Province of Alberta  
 Commission expires on August 17, 2012

**GILLMORE SURVEYS (ARCTIC) LTD**  
 WS 12-15094 (2) GSAL 1183-44  
**FILE NO. SML 110046**




Amendment to April 2012 Submission to ESRD: Consolidated CRBP SMLs 110045, 110046, 110047 Submitted to ESRD-EDM 15 October 2013



| AREA TABLE     |          |
|----------------|----------|
| WITHIN         | AREA     |
| N.E.1/4 Sec.15 | 23.83 ha |
| N.W.1/4 Sec.15 | 4.55 ha  |
| TOTAL          | 28.38 ha |

**PLAN**  
 SHOWING SURVEY OF  
**SML 110047**  
 ( For Surface Material Lease )  
 WITHIN  
**S. 1/2 & N.W. 1/4 Sec. 15**  
**Twp. 61 - Rge. 18 - W.4 Mer.**  
**GLEN BALL**  
**SMOKY LAKE COUNTY**  
**ALBERTA**


SCALE 1:5000  
 2012 D.C. GILLMORE, ALS  



ALL DISTANCES ARE IN METRES AND DECIMALS THEREOF.  
 AREA DEALT WITH BY THIS PLAN BOUNDED THUS AND CONTAINS 32.19 ha . . .

CALCULATED IS DENOTED THUS . . . . . Calc.  
 COUNTERSUNK IS DENOTED THUS . . . . . c.s.  
 EAST IS DENOTED THUS . . . . . E.  
 FOUND IRON POST IS DENOTED THUS . . . . . Fd.I.  
 FOUND NO MARK IS DENOTED THUS . . . . . Fd. No Mk.  
 HECTARE IS DENOTED THUS . . . . . ha  
 MARKER POST IS DENOTED THUS . . . . . Mp.  
 MARKED IS DENOTED THUS . . . . . Mkd.  
 MERIDIAN IS DENOTED THUS . . . . . Mer.  
 MOUND IS DENOTED THUS . . . . . M.  
 NORTH IS DENOTED THUS . . . . . N.  
 NORTH AMERICAN DATUM IS DENOTED THUS . . . . . NAD  
 PIT (4 FOUND) IS DENOTED THUS . . . . . PIT  
 POINT IS DENOTED THUS . . . . . Pt.  
 RANGE IS DENOTED THUS . . . . . Rge.  
 RIGHT OF WAY IS DENOTED THUS . . . . . R/W  
 SECTION IS DENOTED THUS . . . . . Sec.  
 SOUTH IS DENOTED THUS . . . . . S.  
 STATUTORY IRON POST FOUND SHOWN THUS . . . . . ●  
 STATUTORY IRON POST PLANTED SHOWN THUS . . . . . ○  
 UNIVERSAL TRANSVERSE MERCATOR IS DENOTED THUS . . . . . UTM  
 WEST IS DENOTED THUS . . . . . W.

**PLAN DATUM**  
 THE REFERENCE POINT IS DERIVED FROM PUBLISHED ATS COORDINATES.  
 HORIZONTAL DATUM NAD83  
 PROJECTION UTM  
 DESCRIPTION Fd.I. ● N.E.15-61-18-4, DENOTED THUS ○ RP  
 NORTHING 6016133.922  
 EASTING 395772.129  
 COMBINED SCALE FACTOR 0.999634  
 CENTRAL MERIDIAN 111° W.

I, Duncan C. Gillmore, Alberta Land Surveyor, solemnly declare that the survey represented by this plan was made under my personal supervision, the survey was made in accordance with good surveying practices and in accordance with the provisions of the Surveys Act, the survey was performed between the dates of 28th Day of February, and 3rd Day of March, 2012, and that this plan is true and correct, and is prepared in accordance with the provisions of the Public Lands Act, and I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force as if made under oath.

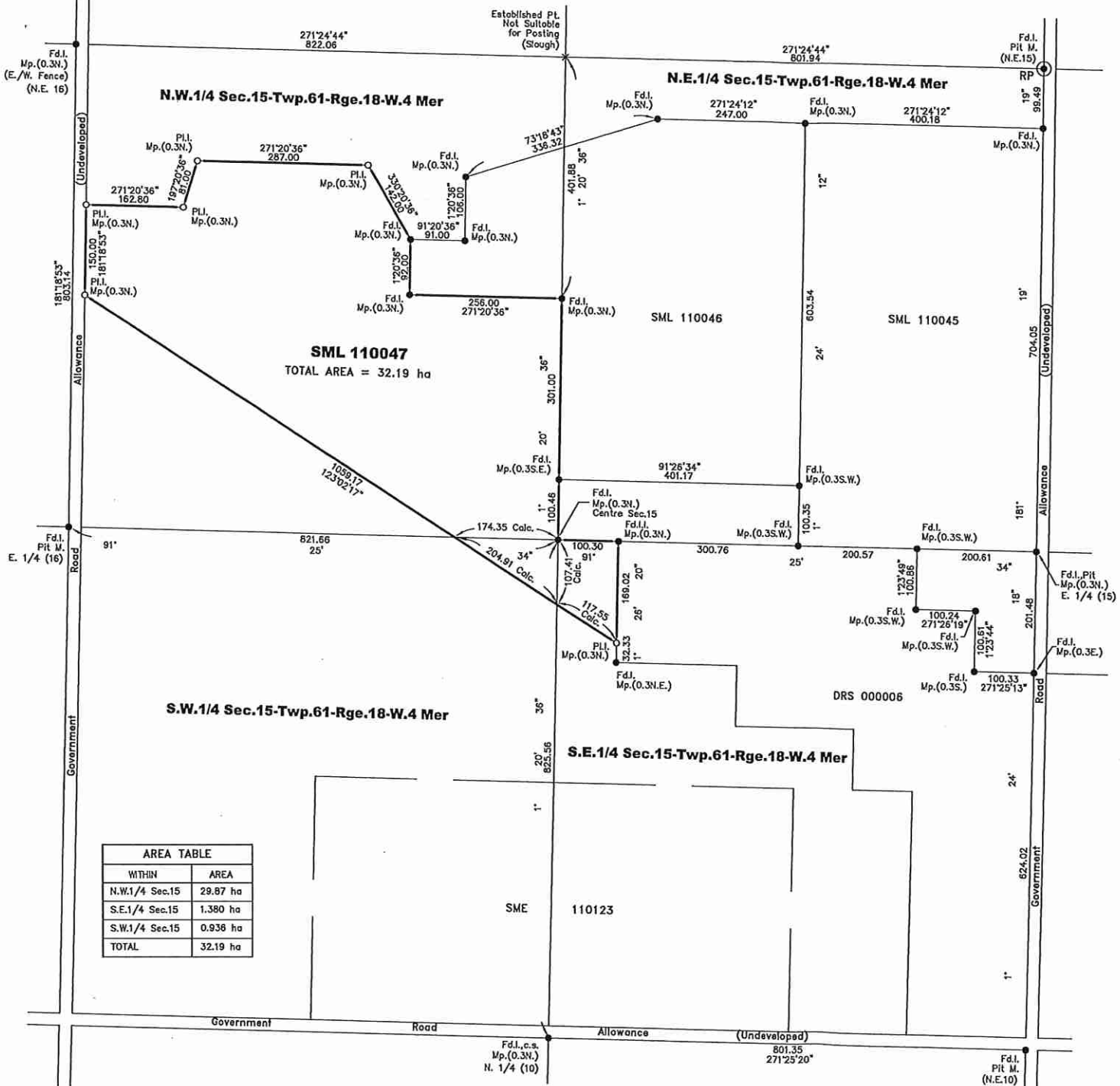
Declared before me at 9:00 am  
 this 21st day of March, 2012.   
 ALBERTA LAND SURVEYOR

  
 Pearl Gillmore  
 A Commissioner For Oaths  
 In and for the Province of Alberta  
 Commission expires on August 17, 2012

**GILLMORE SURVEYS (ARCTIC) LTD**  
 WS 12-15094 (3) GSAL 1183-44  
**FILE NO. SML 110047**



Amendment to April 2012 Submission to ESRD- Consolidated CRSP SMLs 110045, 110046, 110047 Submitted to ESRD-EDM 15 October 2013



| AREA TABLE     |                 |
|----------------|-----------------|
| WITHIN         | AREA            |
| N.W.1/4 Sec.15 | 29.87 ha        |
| S.E.1/4 Sec.15 | 1,380 ha        |
| S.W.1/4 Sec.15 | 0.938 ha        |
| <b>TOTAL</b>   | <b>32.19 ha</b> |

Consolidated Conservation and Reclamation Business Plan (April 2012, revised May 2013)  
Applicants: Robert Beaverford, 541466 Alberta Ltd, and Glenn Bail  
Part of Sec 15 Twp061 Rge18 W4M  
SML 110045, SML 110046, SML 110047

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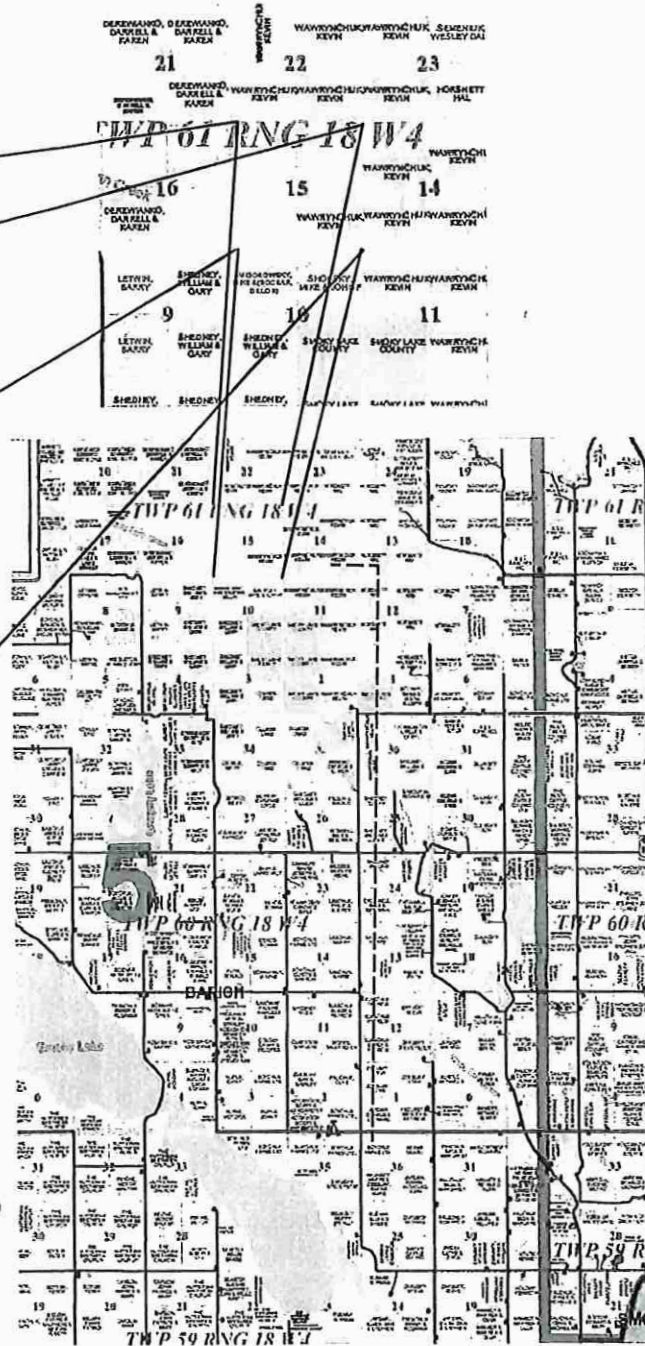
**Drawings:**

- Dwg. No. 1: Site Location
- Dwg. No. 2 & 2A: Existing Site/Planned Development
- Dwg. No. 2B: 2012 Client Provided Test Data
- Dwg. No. 3: Development Sequencing
- Dwg. No. 4A,4B & 4C: Cross-Section Profiles
- Dwg. No. 5: Pit Face Profiles
- Dwg. No. 6: Planned Reclamation

Valtus Air Photo  
Aug 06, 2008



Smoky Lake County Ownership Map  
Accurate Assessment Group Ltd  
2010



Consolidated Conservation and  
Reclamation Business Plan  
Surface Materials Leases  
SML's 110045, 110046, 110047

| SML Number | Legal Land Description                        | Area of Lease      | Lease Holder        |
|------------|---|--------------------|---------------------|
| 110045     | Within NE15-061-18-W4M<br>and SE15-061-18-W4M | 31.24 ha(79.66 ac) | Robert Beaverford   |
| 110046     | Within NW15-061-18-W4M<br>and NE15-061-18-W4M | 28.38 ha(70.13 ac) | 541466 Alberta Ltd. |
| 110047     | Within NW15-061-18-W4M<br>and SW15-061-18-W4M | 32.19 ha(79.54 ac) | Glenn Ball          |

- Dwg. No. 1**
- DRAWINGS**
- Dwg. No. 1 : Site Location
  - Dwg. No. 2 : Existing Site/Planned Development
  - Dwg. No. 2A : Existing Site/Planned Development
  - Dwg. No. 2B : 2012 Test Data
  - Dwg. No. 3 : Development Sequencing
  - Dwg. No. 4A : Cross-Section Profiles
  - Dwg. No. 4B : Cross-Section Profiles
  - Dwg. No. 4C : Cross-Section Profiles
  - Dwg. No. 5 : Pit Face Profiles
  - Dwg. No. 6 : Planned Reclamation

LEGEND:



TOR Land Resource Inc.  
Suite 128, 11230-104 Ave.  
Edmonton AB T6K 2G8  
Tel 780 990 0012 (Eds)  
403 804 8768 (Cal)  
Mob 780 914 9531  
Fax 780 990 0280

Drawn by: M. Parseyan  
Checked by: VM. Torstensen

July 2011

| PRO: 00000 | Revision No. | Revision                           | Date       |
|------------|--------------|------------------------------------|------------|
| Revisions: | 1            | Updated areas to match survey plan | March 2012 |
|            |              |                                    |            |
|            |              |                                    |            |

## Consolidated Conservation and Reclamation Business Plan Surface Materials Leases SML's 110045, 110046, 110047

| SML Number | Legal Land Description                     | Area of Lease      | Lease Holder        |
|------------|--|--------------------|---------------------|
| 110045     | Within NE15-061-18-W4M and SE15-061-18-W4M | 31.24 ha(79.66 ac) | Robert Beaverford   |
| 110046     | Within NW15-061-18-W4M and NE15-061-18-W4M | 28.38 ha(70.13 ac) | 541466 Alberta Ltd. |
| 110047     | Within NW15-061-18-W4M and SW15-061-18-W4M | 32.19 ha(79.54 ac) | Glenn Ball          |

### Dwg. No. 2

- DRAWINGS**
- Dwg. No. 1 : Site Location
  - Dwg. No. 2 : Existing Site/Planned Development
  - Dwg. No. 2A : Existing Site/Planned Development
  - Dwg. No. 2B : 2012 Test Data
  - Dwg. No. 3 : Development Sequencing
  - Dwg. No. 4A : Cross-Section Profiles
  - Dwg. No. 4B : Cross-Section Profiles
  - Dwg. No. 4C : Cross-Section Profiles
  - Dwg. No. 5 : Pit Face Profiles
  - Dwg. No. 6 : Planned Reclamation

**LEGEND:**

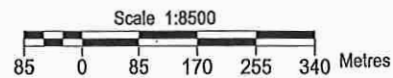
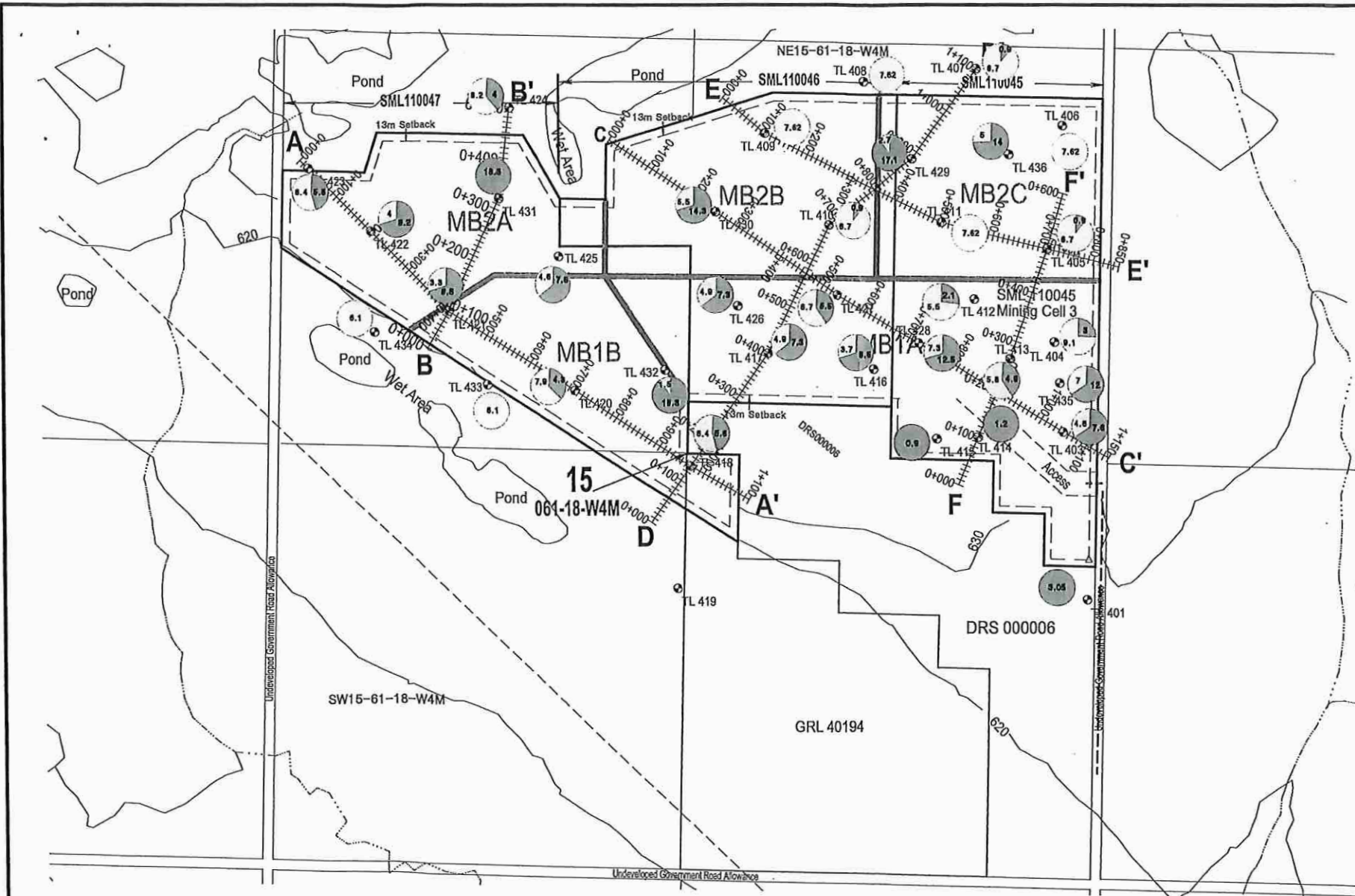
- SML Boundaries
- Mining Cells Boundaries
- Cutoffline
- Stream
- TL 408 Test Hole (700 series provided by client)
- Pie showing % of gravel (orange) and % sand (yellow) in test holes; Numbers indicate thickness in metre
- Pipeline Right of Way
- 620 Contour Lines (10m Intervals)
- Planned Access Road

TOR Land Resource Inc.  
 Suite 128, 11290-104 Ave.  
 Edmonton AB T6T 2Z8  
 Tel 780 800 0012 (Edn)  
 403 804 8765 (Cal)  
 Mob 780 914 8531  
 Fax 780 800 0280

Drawn by: M. Parseyan  
 Checked by: VM. Torstensen

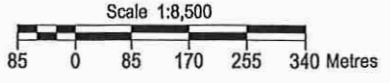
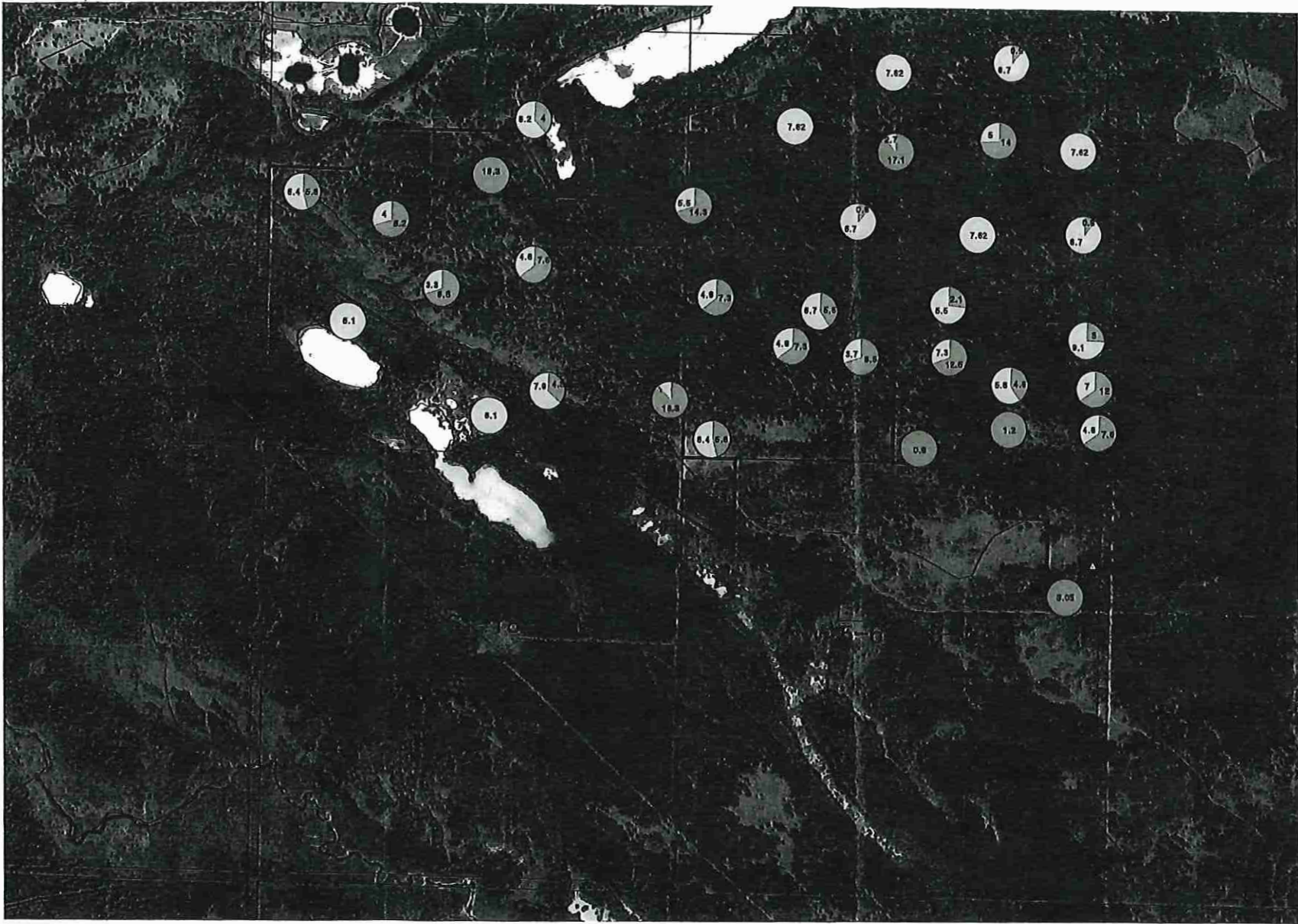
July 2011

| PRO: 00000 | Rev. # | Revision   | Date     |
|------------|--------|--|----------|
| Revisions: | 1      | Original submission ESRD   | Mar 2012 |
|            | 2      | Revised Draft — reclaim to wildlife habitat. Not submitted to ESRD | May 2013 |
|            | 3      | Revised Draft — reclaim to wildlife habitat. Mining Block amend    | Oct 2013 |



**Notes:**

The setback (13m) was calculated by multiplying the estimated average maximum depth of the excavation (8.5m) by 1.5 (for a slope of 3 to 1). Based on the test hole data, there is sufficient overburden, sand and elimination to construct 3:1 and 6:1 reclaimed slopes, thereby allowing mining the gravel up to the SML boundary.



**Consolidated Conservation and Reclamation Business Plan  
Surface Materials Leases  
SML's 110045, 110046, 110047**

| SML Number | Legal Land Description                     | Area of Lease      | Lease Holder       |
|------------|--|--------------------|--------------------|
| 110045     | Within NE15-061-18-W4M and SE15-061-18-W4M | 31.24 ha(79.66 ac) | Robert Beaverford  |
| 110046     | Within NW15-061-18-W4M and NE15-061-18-W4M | 28.38 ha(70.13 ac) | 541466 Alberta Ltd |
| 110047     | Within NW15-061-18-W4M and SW15-061-18-W4M | 32.19 ha(79.54 ac) | Glenn Ball         |

**Dwg. No. 2A**  
**DRAWINGS**  
 Dwg. No. 1 : Site Location  
 Dwg. No. 2 : Existing Site/Planned Development  
 Dwg. No. 2A : Existing Site/Planned Development  
 Dwg. No. 2B : 2012 Test Data  
 Dwg. No. 3 : Development Sequencing  
 Dwg. No. 4A : Cross-Section Profiles  
 Dwg. No. 4B : Cross-Section Profiles  
 Dwg. No. 4C : Cross-Section Profiles  
 Dwg. No. 5 : Pit Face Profiles  
 Dwg. No. 6 : Planned Reclamation

**LEGEND:**

SML Boundaries

Test Hole 700 series p = • • • • • rounded •  
 o • • ravel (orange) and % sand (yellow) in test holes; Numbers indicate thickness in metre

TOR Land Resource Inc.  
 Suite 128, 11230-104 Ave.  
 Edmonton AB T6K 2X8  
 Tel 780 990 0012 (Edm)  
 403 804 9766 (Cal)  
 Mob 780 914 9531  
 Fax 780 990 0280

Drawn by: M. Parseyan  
 Checked by: VM. Torstensen

July 2011

| PRO: 00000 | Rev. No. | Revision   | Date       |
|------------|----------|--|------------|
| Revisions: | 1        | Updated areas to match survey plan; Added pie charts*                | March 2012 |
|            | 2        | Removed Mining Block illustration (Amended MBs illustrated in Dwg 2) | Oct 2013   |







Consolidated Conservation and Reclamation Business Plan  
Surface Materials Leases  
SML's 110045, 110046, 110047

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Dwg. No. **2B**  
DRAWINGS

- Dwg. No. 1 : Site Location
- Dwg. No. 2 : Existing Site/Planned Development
- Dwg. No. 2A : Existing Site/Ortho Photo Base
- Dwg. No. 2B : 2012 Test Data
- Dwg. No. 3 : Development Sequencing
- Dwg. No. 4A : Cross-Section Profiles
- Dwg. No. 4B : Cross-Section Profiles
- Dwg. No. 4C : Cross-Section Profiles
- Dwg. No. 5 : Pit Face Profiles
- Dwg. No. 6 : Planned Reclamation

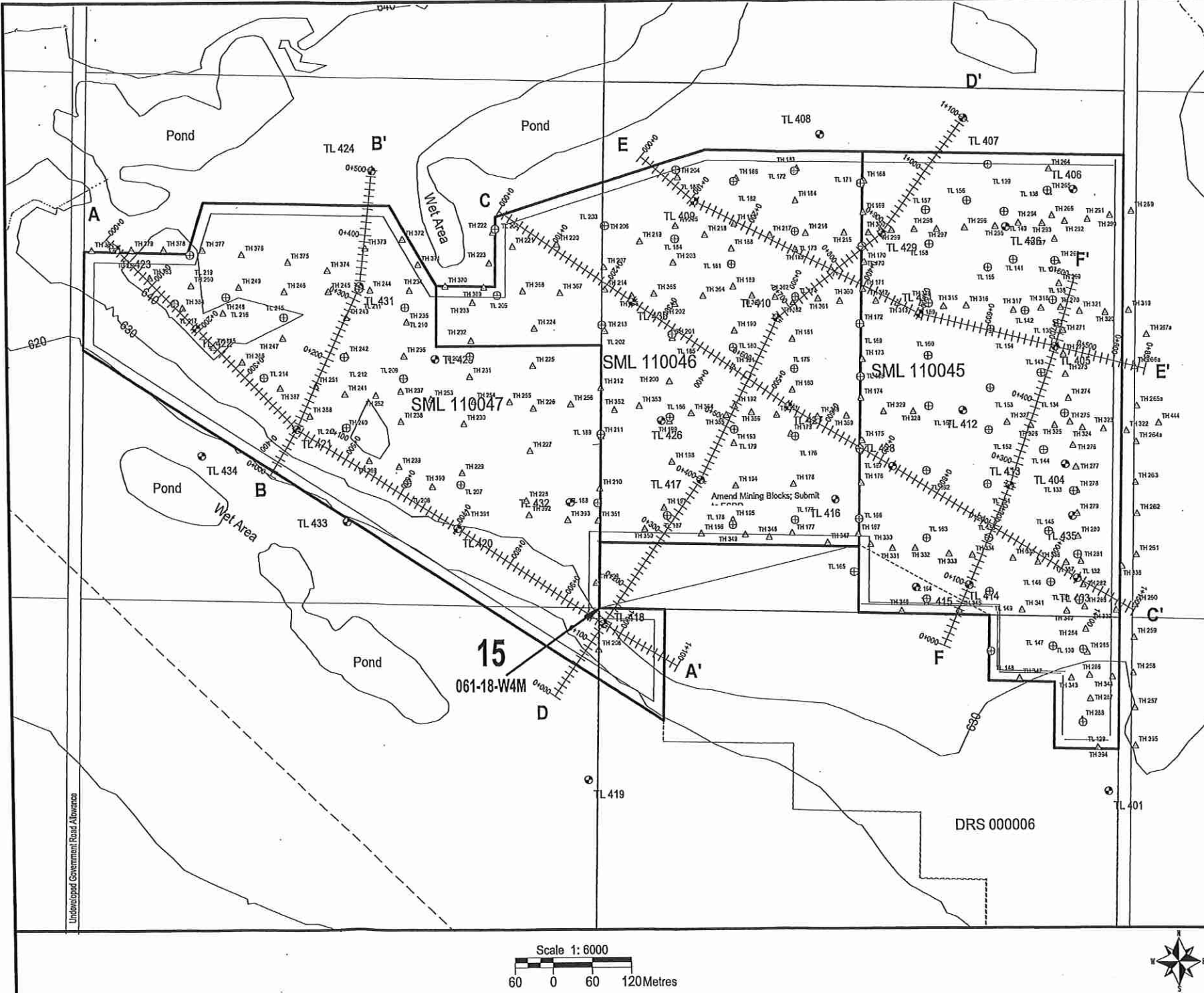
LEGEND:

-  SML Boundaries
-  Mining Cells Boundaries
-  Cutline
-  Stream
-  Client Provided Test Data (TL Series - Auger, TH Series - Hoe)
-  620 Contour Lines (10m Intervals)

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Tel 780 590 0012 (Ech)  
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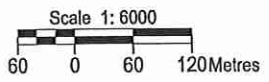
Drawn by: M. Parseyan  
Checked by: VM. Torstenson  
July 2011

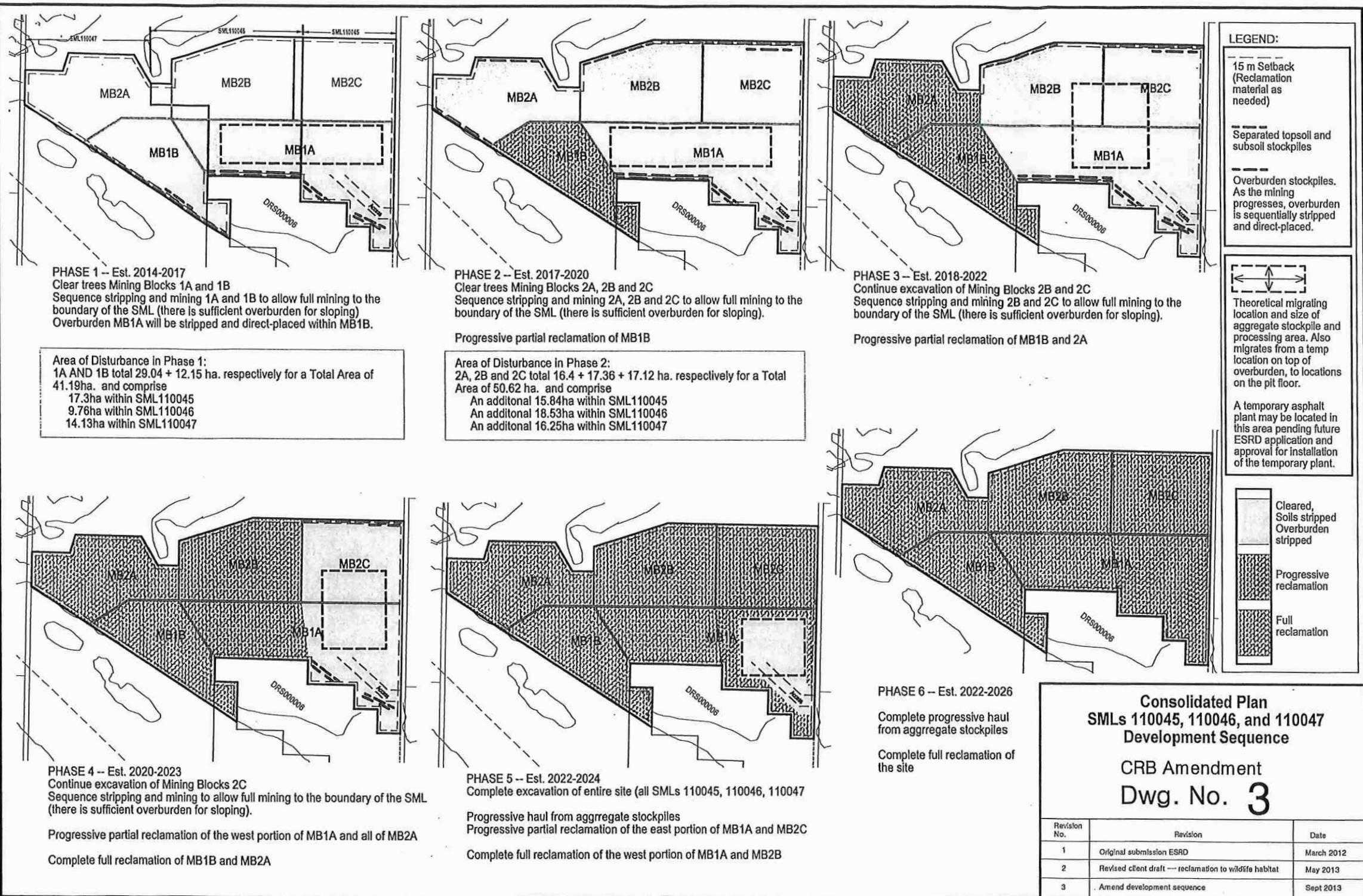
| PRO: 00000 | Revision No. | Revision      | Date       |
|------------|--------------|---------------|------------|
| Revisions: | 1            | Add test data | March 2012 |
|            |              |               |            |



Amendment to April 2012 Submission to ESRD: Consolidated CRBP SMLs 110045, 110046, 110047 Submitted to ESRD-EDM 15 October 2013

Undeveloped Government Road Allowance





**PHASE 1 – Est. 2014-2017**  
 Clear trees Mining Blocks 1A and 1B  
 Sequence stripping and mining 1A and 1B to allow full mining to the boundary of the SML (there is sufficient overburden for sloping)  
 Overburden MB1A will be stripped and direct-placed within MB1B.

Area of Disturbance in Phase 1:  
 1A AND 1B total 29.04 + 12.15 ha. respectively for a Total Area of 41.19ha. and comprise  
 17.3ha within SML110045  
 9.76ha within SML110046  
 14.13ha within SML110047

**PHASE 2 – Est. 2017-2020**  
 Clear trees Mining Blocks 2A, 2B and 2C  
 Sequence stripping and mining 2A, 2B and 2C to allow full mining to the boundary of the SML (there is sufficient overburden for sloping).

Progressive partial reclamation of MB1B  
 Area of Disturbance in Phase 2:  
 2A, 2B and 2C total 16.4 + 17.36 + 17.12 ha. respectively for a Total Area of 50.62 ha. and comprise  
 An additional 15.84ha within SML110045  
 An additional 18.53ha within SML110046  
 An additional 16.25ha within SML110047

**PHASE 3 – Est. 2018-2022**  
 Continue excavation of Mining Blocks 2B and 2C  
 Sequence stripping and mining 2B and 2C to allow full mining to the boundary of the SML (there is sufficient overburden for sloping).

Progressive partial reclamation of MB1B and 2A

**PHASE 4 – Est. 2020-2023**  
 Continue excavation of Mining Blocks 2C  
 Sequence stripping and mining to allow full mining to the boundary of the SML (there is sufficient overburden for sloping).

Progressive partial reclamation of the west portion of MB1A and all of MB2A  
 Complete full reclamation of MB1B and MB2A

**PHASE 5 – Est. 2022-2024**  
 Complete excavation of entire site (all SMLs 110045, 110046, 110047)

Progressive haul from aggregate stockpiles  
 Progressive partial reclamation of the east portion of MB1A and MB2C  
 Complete full reclamation of the west portion of MB1A and MB2B

**PHASE 6 – Est. 2022-2026**

Complete progressive haul from aggregate stockpiles  
 Complete full reclamation of the site

**LEGEND:**

- 15 m Setback (Reclamation material as needed)
- Separated topsoil and subsoil stockpiles
- Overburden stockpiles. As the mining progresses, overburden is sequentially stripped and direct-placed.
- Theoretical migrating location and size of aggregate stockpile and processing area. Also migrates from a temp location on top of overburden, to locations on the pit floor.
- A temporary asphalt plant may be located in this area pending future ESRD application and approval for installation of the temporary plant.

- Cleared, Soils stripped Overburden stripped
- Progressive reclamation
- Full reclamation

**Consolidated Plan**  
**SMLs 110045, 110046, and 110047**  
**Development Sequence**

**CRB Amendment**  
**Dwg. No. 3**

| Revision No. | Revision   | Date       |
|--------------|--|------------|
| 1            | Original submission ESRD                                 | March 2012 |
| 2            | Revised client draft --- reclamation to wildlife habitat | May 2013   |
| 3            | Amend development sequence                               | Sept 2013  |



## Consolidated Conservation and Reclamation Business Plan Surface Materials Leases SML's 110045, 110046, 110047

| SML Number | Legal Land Description                     | Area of Lease      | Lease Holder        |
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| 110046     | Within NW15-061-18-W4M and NE15-061-18-W4M | 28.38 ha(70.13 ac) | 541466 Alberta Ltd. |
| 110047     | Within NW15-061-18-W4M and SW15-061-18-W4M | 32.19 ha(79.54 ac) | Glenn Ball          |

**Dwg. No. 4A**  
**DRAWINGS**  
 Dwg. No. 1 : Site Location  
 Dwg. No. 2 : Existing Site/Planned Development  
 Dwg. No. 2A : Existing Site/Planned Development  
 Dwg. No. 2B : 2012 Test Data  
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 Dwg. No. 4A : Cross-Section Profiles  
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 Dwg. No. 4C : Cross-Section Profiles  
 Dwg. No. 5 : Pit Face Profiles  
 Dwg. No. 6 : Planned Reclamation

**LEGEND:**

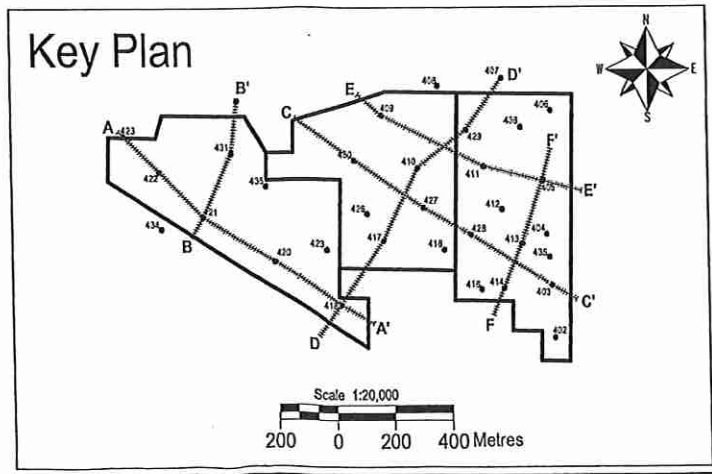
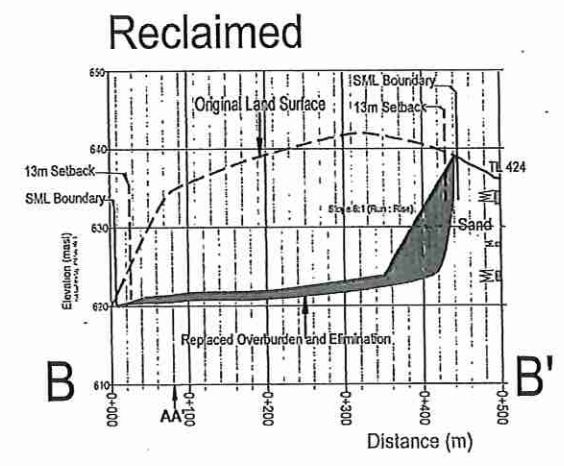
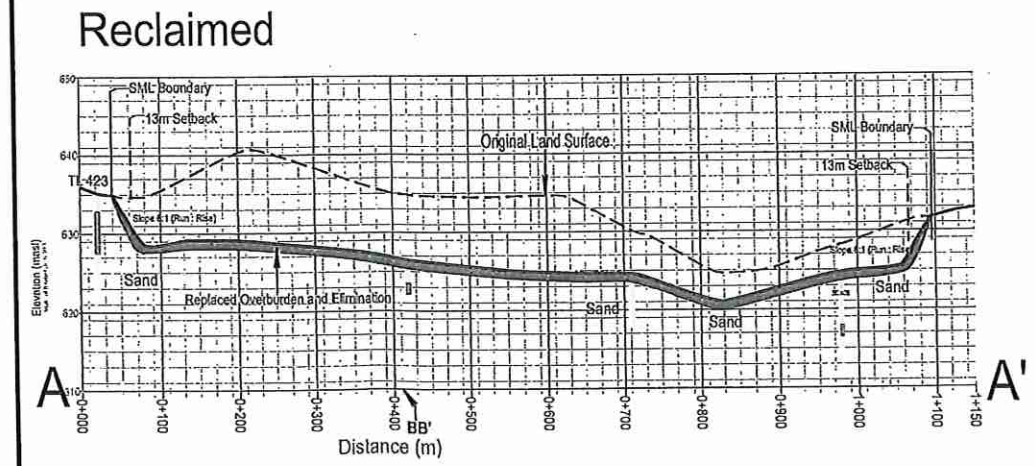
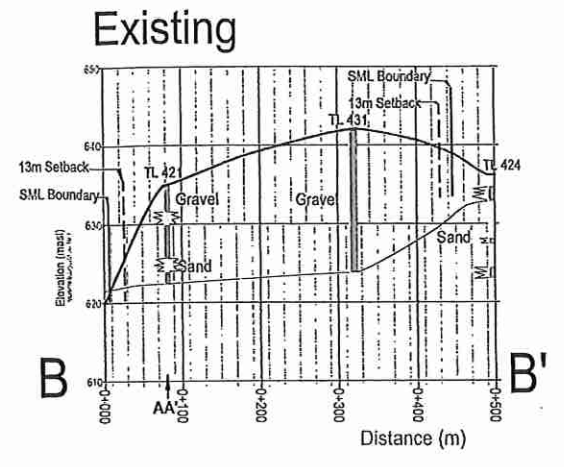
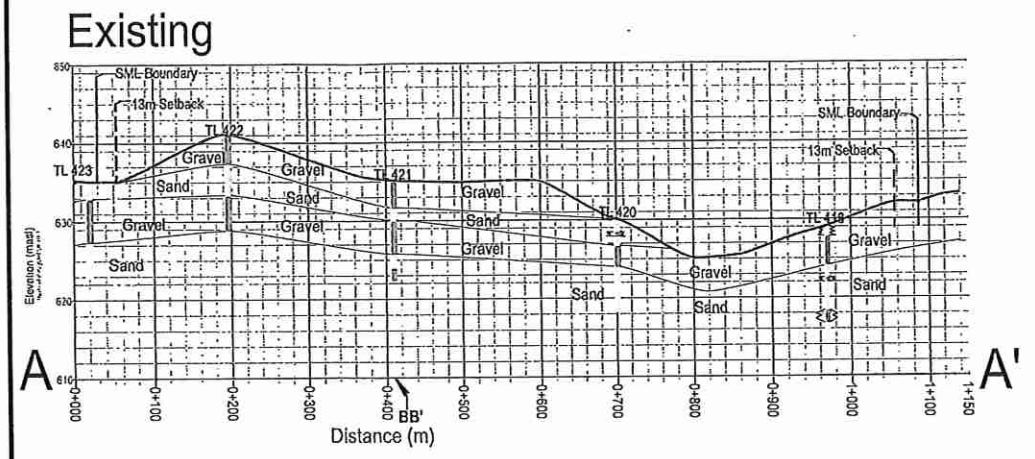
- Undisturbed Soil
- Gravel
- Sand
- Replaced Soil
- Replaced Overburden and Elimination
- UTP
- Slope (Run: Rise)
- Test Holes
- SML Boundary
- 15m Setback
- Pipeline RW

\* The Internal reclaimed slopes will be 6:1 or gentler

**TOR Land Resource Inc.**  
 Suite 128, 11230-104 Ave.  
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 Tel 780 550 0012 (Edm)  
 403 804 8766 (Cal)  
 Also 780 914 8551  
 Fax 780 550 0280

Drawn by: M. Parsseyan  
 Checked by: VM. Torstensen  
 July 2011

| PRO: 00000 | Revision No. | Revision   | Date       |
|------------|--------------|--|------------|
| Revisions: | 1            | Updated areas to match survey Plan; Updated stratigraphy information   | March 2012 |
|            | 2            | Revised AA', BB', CC', DD', FF' reclaimed site X-sections. Updated text regarding S1 slopes in the legend, deleted 3m buffer | May 2013   |



**EXISTING STRATIGRAPHY:**

Topsoil (A-Horizon): 0.10 - 0.15m sand, Average 0.14m  
 Subsoil (B-Horizon): 0 - 0.9m, Average 0.54m  
 Overburden: discontinuous sand bodies up to 5.5m thick (average 1.3 m)  
 Gravel: 0.6-13.7 m (3.5m average); lenses and layers of sand ranging from 1.2 to 6.7m thick (average 2.7m) may occur between minable gravel units

**RECLAIMED STRATIGRAPHY:**

Topsoil (A-Horizon): 0.14m  
 Subsoil (B-Horizon): 0.54m  
 Replaced Overburden and Screenings: at least 1.5m of overburden and elimination  
 Gravel or Sand: presence and thickness of these materials varies across the site

## Consolidated Conservation and Reclamation Business Plan Surface Materials Leases SML's 110045, 110046, 110047

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**Dwg. No. 4B**  
**DRAWINGS**  
 Dwg. No. 1 : Site Location  
 Dwg. No. 2 : Existing Site/Planned Development  
 Dwg. No. 2A : Existing Site/Planned Development  
 Dwg. No. 2B : 2012 Test Data  
 Dwg. No. 3 : Development Sequencing  
 Dwg. No. 4A : Cross-Section Profiles  
 Dwg. No. 4B : Cross-Section Profiles  
 Dwg. No. 4C : Cross-Section Profiles  
 Dwg. No. 5 : Pit Face Profiles  
 Dwg. No. 6 : Planned Reclamation

**LEGEND:**

- Undisturbed Soil
- Gravel
- Sand
- Replaced Soil
- Replaced Overburden and Elimination
- Unable to Penetrate
- Slope (Run : Rise)
- Test Holes
- SML Boundary
- 15m Setback
- Pipeline RW

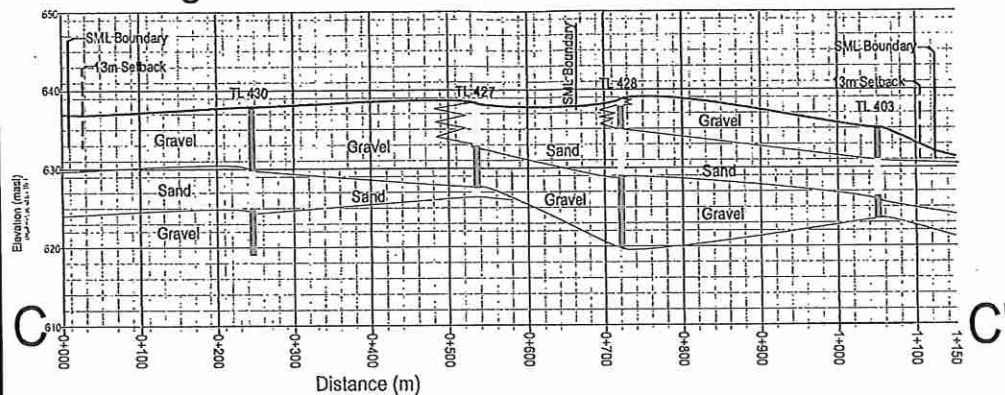
\* The internal reclaimed slopes will be 6:1 or gentler

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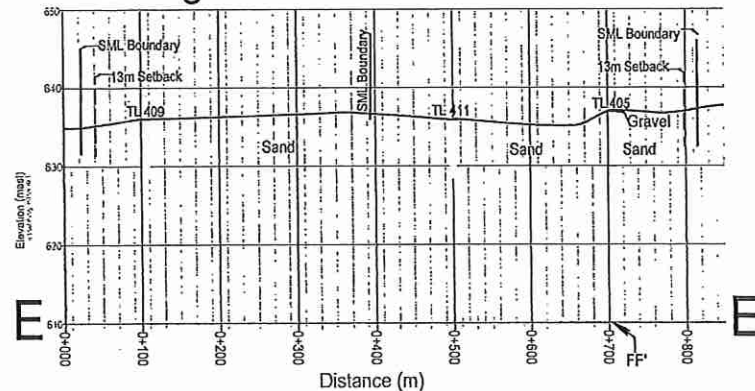
Drawn by: M. Parseyan  
 Checked by: VM. Torstensen  
 July 2011

| PRO: 00000 | Revision No. | Revision  | Date       |
|------------|--------------|---|------------|
| Revisions: | 1            | Updated areas to match survey Plan; Updated stratigraphy information  | March 2012 |
|            | 2            | Revised AA', BB', CC', DD, FF' reclaimed site X-sections, Updated text regarding 6:1 slopes in the legend, deleted 5m buffer. | May 2013   |

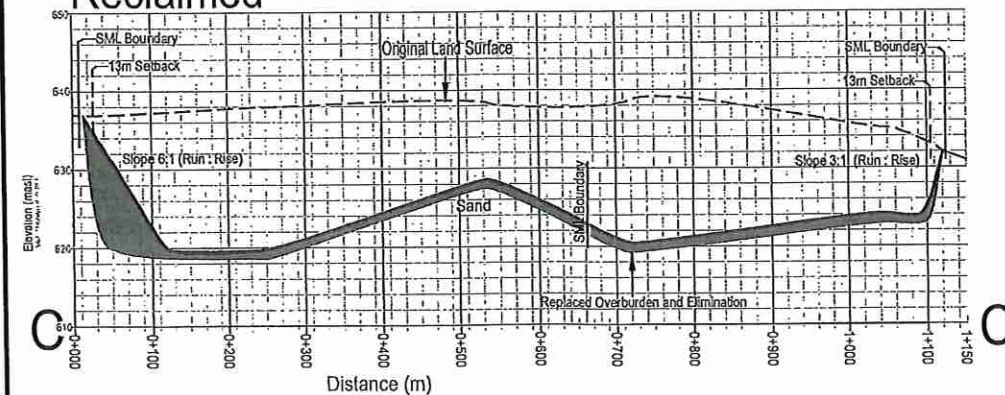
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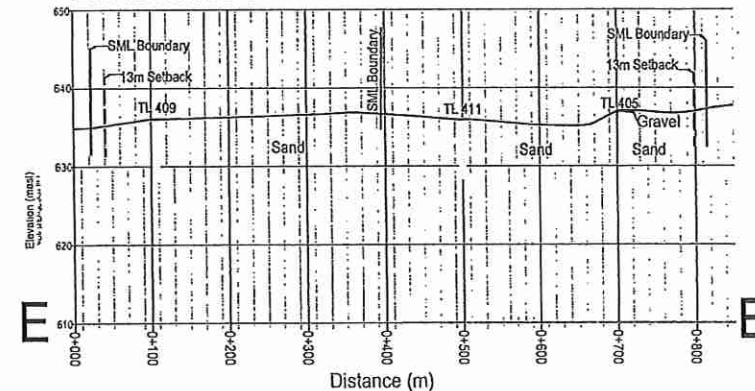
### Existing



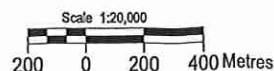
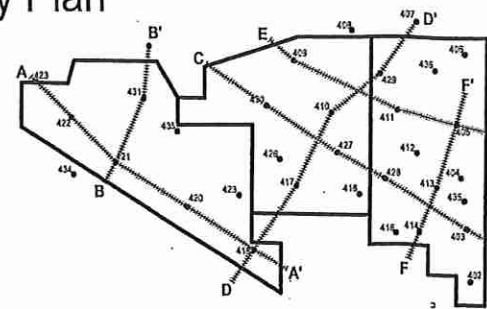
### Reclaimed



### Reclaimed



### Key Plan



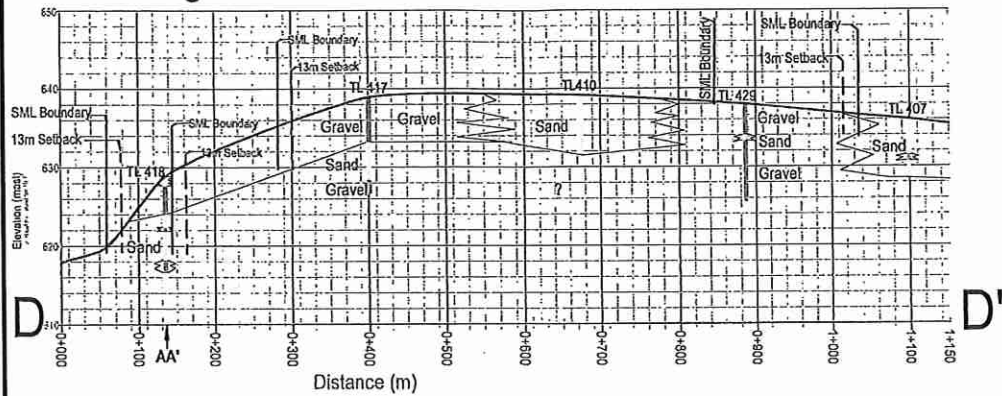
#### EXISTING STRATIGRAPHY :

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 Gravel: 0.6-13.7 m (3.5m average); lenses and layers of sand ranging from 1.2 to 6.7m thick (average 2.7m) may occur between minable gravel units

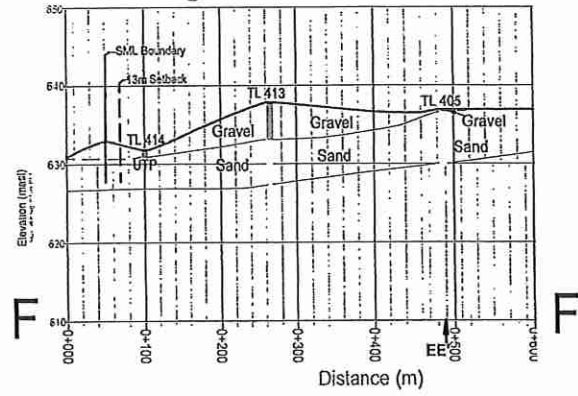
#### RECLAIMED STRATIGRAPHY :

Topsoil (A-Horizon): 0.14m  
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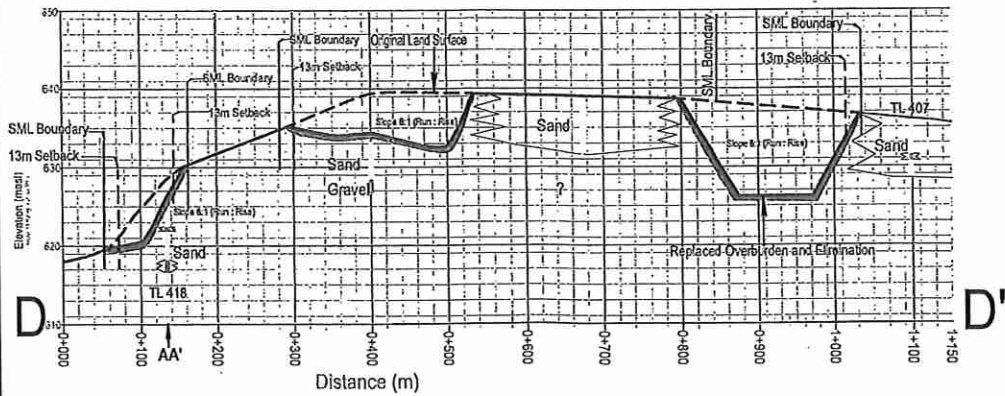
### Existing



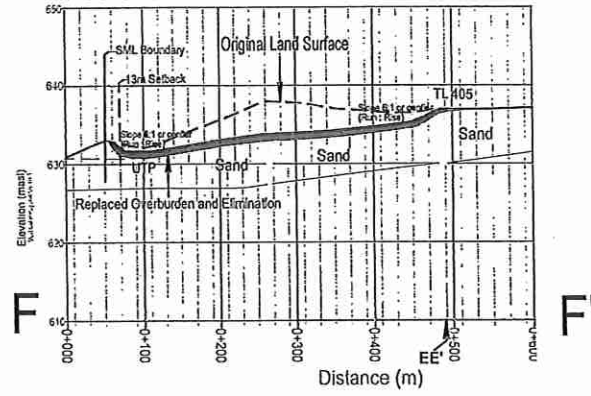
### Existing



### Reclaimed



### Reclaimed



## Consolidated Conservation and Reclamation Business Plan Surface Materials Leases SML's 110045, 110046, 110047

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## Dwg. No. 4C

- DRAWINGS**
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  - Dwg. No. 5 : Pit Face Profiles
  - Dwg. No. 6 : Planned Reclamation

**LEGEND:**

- Undisturbed Soil
- Gravel
- Sand
- Replaced Soil
- Replaced Overburden and Elimination
- UTP
- 3 1 Slope (Run : Rise)
- TL 215 Test Holes
- SML Boundary
- 15m Setback
- Pipeline RAW

\* The internal reclaimed slopes will be 6:1 or gentler

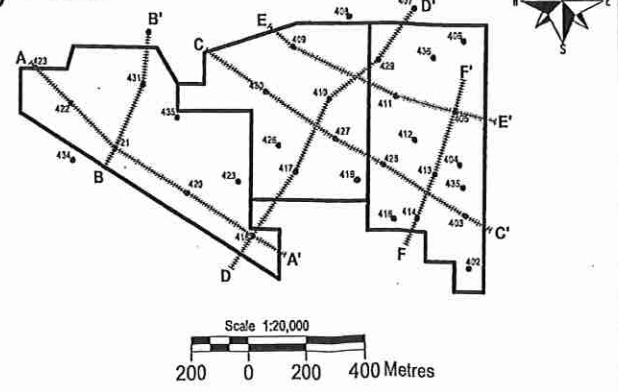
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Drawn by: M. Parseyan  
 Checked by: VM. Torstenson

July 2011

| PRO: 00000 | Revision No. | Revision   | Date       |
|------------|--------------|--|------------|
| Revisions: | 1            | Updated areas to match survey Plan; Updated stratigraphy information   | March 2012 |
|            | 2            | Revised AA', BB', CC', DD', FF' reclaimed site X-sections, Updated text regarding S1 slopes in the legend, deleted 3m buffer | May 2013   |

### Key Plan



**EXISTING STRATIGRAPHY :**

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

**Consolidated Conservation and Reclamation Business Plan  
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SML's 110045, 110046, 110047**

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| 110047     | Within NW15-061-18-W4M and SW15-061-18-W4M | 32.19 ha (79.54 ac) | Glenn Ball          |

**Dwg. No. 6**

- DRAWINGS**
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  - Dwg. No. 6 : Planned Reclamation

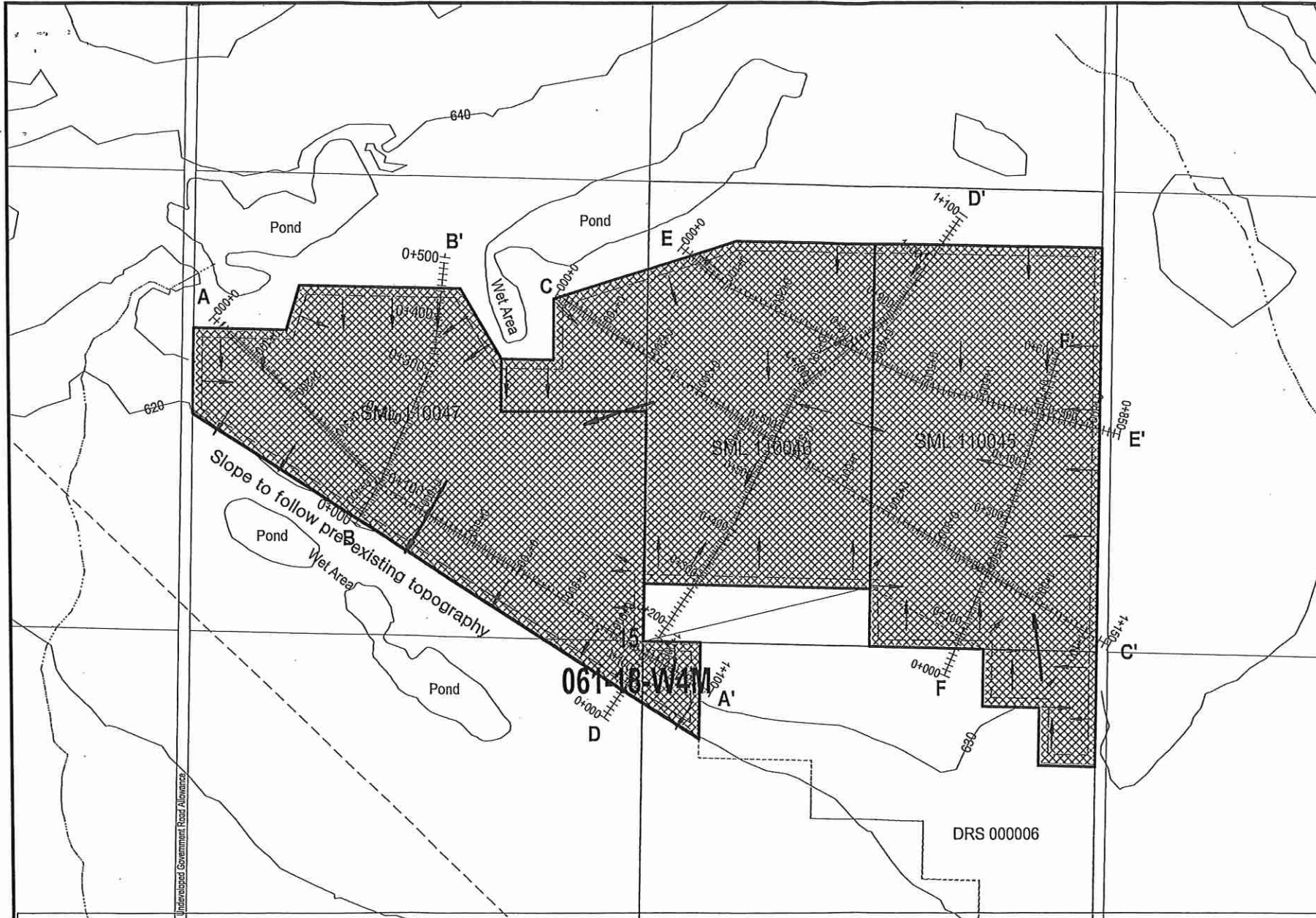
**LEGEND:**

-  SML Boundary
-  Undisturbed Soil
-  Reclaimed
-  Direction of Surface Drainage
-  3m Buffer
-  15m Setback

**TOR Land Resource Inc.**  
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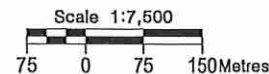
Drawn by: M. Parsayan  
 Checked by: VM. Torstensen  
 July 2011

| PRO: 00000 | Revision No. | Revision  | Date       |
|------------|--------------|---|------------|
| Revisions: | 1            | Updated areas to match survey plan  | March 2012 |
|            | 2            | Added text regarding irregular topography and 6:1 slopes; Surface Drainage Pattern changed, 3m buffer deleted | May 2013   |



**Notes:**

- All internal reclaimed slopes will be 6:1 or gentler to generate irregularity in the topography except the southwestern boundary of SML 110047 where the slope will follow the pre-existing topography.
- Soils will be replaced to a variable thickness to encourage biodiversity. Available woody debris will be rolled back to provide surface roughness and a variety of microsites for plant establishment
- SML's lie within the Central Mixedwood Subregion of the Boreal Forest Natural Region (15). The vegetation is dominated by mature spruce (70%). The forest is mixedwood ("CD" 70-50% coniferous trees). The ratio of spruce to pine is estimated at 4 to 1 and the ratio of aspen to other deciduous trees is estimated at 9 to 1.



**ADDENDUM**

**FOR**

**SML 110045**

## **APPEND TO THE CONSOLIDATED CRBP FOR SMLs 110045, 110046, 110047 SUBMITTED OCTOBER 2013:**

- **SUPPLEMENTAL INFORMATION IN RESPONSE TO ESRD REQUESTS**
- **A SUPPLEMENTAL ADDENDUM INCLUDING AMENDMENT INFORMATION TO THE CRBP SUBMITTED IN OCTOBER 2013**

### **SUMMARY**

**Addendum Information is directed to methods and practices to further minimize environmental impact and to enhance reclamation and restoration of native forest cover and vegetation suitable as wildlife habitat. More detail is provided to describe the methods and practices to restore natural vegetation as was present prior to mining.**

**Amendments are the change from two logging phases to three logging phases in order to minimize the loss of wildlife habitat and to reduce the time between the logging disturbance and completion of the mining and concurrent aggressive reclamation and restoration processes. The mining block configurations are unchanged however an aggressive sequence of mining and concurrent reclamation within each mining block is described in greater detail.**

**Extensive additional filedwork was conducted in June and July 2014, and provides an exceptional inventory of flora, fauna, and topographic features of this site (Append 1-6).**

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## **Section 1: Supplemental Information Responses to ESRD-LLB (March, 2013 SIR)**

### **Clarification of Access Route**

Access is via road allowances construction in agreement with Smoky Lake County:  
Construct —  
¾ mile of Rge Rd. 182 adjacent to the site, south to connect to Twp Rd 612;  
1 mile of Twp Rd. 612 connecting Rge Rd. 182 and Rge Rd. 181;  
5/8 mile of Rge Rd. 181 connecting Twp Rd 612 south to developed R/A.

### **Rationale for Restoration to Wildlife Habitat**

N1/2 Sec 15 is previously undisturbed with mature forest cover with a Trappers Allowance (TPA). The PNT for the area describes the area as not suitable for agricultural activity due to the adverse soil conditions. As the CRB drafts were discussed, Wally Peters emphasized that these lands be reclaimed as wildlife habitat and several amendments have been made to implement some very specific strategies to that end.

### **Confirmation of GRL Coverage (GRL40194)**

Only a small portion of the SML areas overlap the GRL coverage in SE15.

There is a small portion within SE15 that overlaps GRL 40194 that was withdrawn from the GRL. ESRD files show the GRL configuration prior to withdrawal; note that in the withdrawal document that the GRL holder provided they noted lands that are not all in the GRL.

### **Reference to MBCA (Migratory Birds Convention Act) and KWBZ**

There is a KWBZ west of these SMLs however there isn't a timing prescription (PNT or CNT) on this land. We note the consideration for migratory nesting and the developer working with the SML holders has committed to monitoring nesting before clearing as described in the CRB.

(Ref. CRB Section 6.2: Migratory Birds) "The nesting period for migratory birds is from early April to August 31. Clearing will take place either prior to March 15th, or if clearing is to take place during the nesting period, the operator will consult with a qualified professional to inspect the area to ensure there are no active migratory bird nests prior to clearing the vegetation. If any active nests are found, those areas will not be disturbed until the qualified professional advises it is safe to do so".

### **Clarification of Forest Capability**

Forest Capability is the description of the existing site and existing forest capability as ranked and rated; the CLI classification system is used as a base for the provided description. It is proposed that the reclaimed site be (with reference to CRB Sec 10.3: "The reclaimed site will be vegetated through natural regeneration from the soil seed bank and transplanting or spreading of native seeds. Tops of conifers will be salvaged for seed distribution during reclamation. Natural succession is expected to produce a sequence of native grasses, suckering aspen and shrubs, and over the longer term, potential regeneration of conifers. The site will be monitored for vegetation growth and any areas that are slow to grow will be seeded with native species or an approved seed mixture according to Alberta Environment guidelines. (16)". The reference (16) is to footnote 16) Re-vegetation Using Native Plant Materials, Guidelines for Industrial Development Sites. <http://environment.gov.ab.ca/info/library/5927.pdf>.



## Phasing of Mining Blocks

The three SML holders have an integrated development approach in agreement with one developer. This consolidated plan has been reviewed by Wally and the amendment that he asked for was in terms of the reclamation being more suited to wildlife habitat with more diverse topography ... this was done in the amended CRB. Wally's concern that development be staged to reduce the impact on existing wildlife habitat I believe is the intent of the discussion re two pits at once.

The three SMLs here comprising one pit are developed in a sequence to respond to the SML holders interests and a simultaneous level of development in each SML with ultimately a one pit efficient development and reclamation sequence; initially it was planned to have a sequence of two logging phases with the acreage of the first stage of development as roughly one half of the total acreage, with progressive reclamation of the first stage area to be in part prior to, and in part concurrent with any movement into the second stage of development.

In response to concerns expressed by ESRD the developer proposes three phases of logging to minimize the initial loss of wildlife habitat. Logging blocks smaller than the three logging phases compromise the opportunity to obtain a logging contractor.

There is consideration here for two main development factors as well as the intention to minimize to an extent, the impact on wildlife habitat. It is expected that the contracts to be filled by this aggregate source in the heartland are substantial and this is evidenced by the infrastructure investment in the current provincial budget. To be able to bid on these contracts and then to supply within the term required, is a challenge of advance planning, road construction, and site preparation to be managed at a suitable scale.

The CRB development sequence presents a regard for both the development and business challenges and is a plan to minimize the impact on wildlife habitat through aggressive progressive reclamation. The plan details herein enhance restoration.

## Clarification of Reclamation Process and Timing

[Reference the detail provided in the following Section 2].

### Managing woody debris and topsoil

There have been several discussions as how best to handle the woody debris for this site. Recommendations that resulted from these discussions including those with Wally Peters and from our experience is: a) salvage tree tops to enhance the seed bank within the salvaged soils; b) mix and partially cover the tops and debris with the soils to minimize fire hazard and begin a degree of decomposition; c) roll back this woody material with the soils. This is proposed to maximize the seed bank, reduce erosion, add natural succession opportunity, add biodiversity (small plants and animal initially), and minimize access by recreational vehicles. As discussed in the CRB, excessive amounts of debris may be proposed to be burned following discussions with ESRD Field and required permitting.

### Managing Setback for Slope Construction

The setback is an area of cleared and stripped but unexcavated aggregate that is required to be left for sloping to the designated slopes such as 3:1 and 6:1 on this site, where there is not sufficient overburden and elimination to be used to construct the slopes. This site however has substantial volumes of sand, and will have significant volumes of elimination of sand from the gravel to construct the slopes to the range of 3:1 to 6:1 slopes to provide varied more natural topographic features and biodiversity.

**Viability of seed bank and prologues**

It is expected that this will occur since aggressive progressive reclamation concurrent with development is planned as illustrated in the CRB and further described herein. Progressive reclamation during development as described provides the best opportunity for re-vegetation; how long that takes relies on several factors such as natural conditions that enhance the growth rate.  
[Reference the detail provided in the following Section 2].

**Mixed Cover**

A natural succession of mixed cover enhanced by transplanting trees and shrubs from areas to be stripped and areas to be logged; placement of plant 'islands' stripped from areas to be stripped for mining, and seeding of native seed (Certified).

**Tree planting**

During stages of progressive reclamation, smaller trees from the next area to be stripped and area to be logged are transplanted to previous areas under progressive reclamation.

**Seed type**

Natural succession and native transplantation is preferred, however, there are several re-vegetation strategies to be implemented; since aggressive progressive reclamation is a best practice here, there will be ample opportunity during development of this pit, to consider and implement contingency strategies for re-vegetation.

**Time for Restoration**

Progressive reclamation during development as described in the CRB provides the best opportunity for re-vegetation; how long that takes relies on several factors such as natural conditions that enhance the growth rate.  
The re-vegetation program described herein with concurrent and follow-up monitoring and mitigation will provide a best opportunity for a successful program.

[For additional detail to the points addressed in Section 1, refer to Section 2].

## **Section 2: Supplemental Information Responses to Area Reclamation Specialist (May 2014 SIR)**

### **Excavation Depths (CRBP Section 5.3)**

The overburden depth ranges from 0 to 5.5m, and where present, is on average 1.3m deep. Where the mineable gravel is present, the thickness of the gravel units range from 0.6 m to 13.7 m and are on average 3.5 m. Most commonly, gravel is at the surface and there is a second mineable gravel layer below sand or low rock content gravel. These sand and low rock content gravel layers and lenses range in thickness from 1.2 m to 6.7 m and are on average 2.7 m. In the north parts of SML 110045 and 110046, the dominant material is sand (CRBP Dwg. 4A, 4B, 4C). The maximum depth of excavation will be 20m.

### **Baseline Conditions**

Attached are soil, vegetation, and wildlife inventories completed in June and July 2014. Observation and sampling methods are described.

### **Compatibility with Adjacent Lands**

There are no agricultural, recreational or residential lands near the site. GRL 40194 is withdrawn by agreement from 7.5ac that had covered part of LSD 08, Sec15 that is now within SML110045. This GRL extends to Sec 14, 22 and the W1/2 of Sec 24 (GLIMPS shows GRL40194 expired in June 2014).

DRS000006 lies along the south bounds of the three SMLs; Knelsen Sand & Gravel Ltd began partial excavation of the DRS in 2014.

### **Soil Handling**

Following the detailed soil analyses conducted in June and July of 2014:

- The first lift will consist of LFH from 3 to 8cm with an average thickness of 4.6cm, and a topsoil A thickness from 3 to 20cm with an average thickness of 15.3cm. The combined thickness of LFH and A ranges from 6 to 18cm. Where the topsoil (TS) is less than 15cm, a minimum of 15cm will be stripped for the first lift. TS will be stockpiled on linear piles of chopped, chunked woody debris that is flattened to less than 1m in height.
- The second lift will consist of subsoil (SS) from 8 to 34cm with an average thickness of 15.3cm. SS will be stockpiled in linear stockpiles where the TS has been stripped and will be separated from TS stockpiles by a minimum of 3m.
- The third lift will consist of overburden (OB) from 0 to 5.5m and where available, stripped to a depth of 1.5m to salvage the higher quality overburden and stockpile where TS and SS have been stripped. OB stockpiles will be separated from TS and SS stockpiles by a minimum of 3m.
- In areas where there is little OB, these areas will be contoured with a minimum of 1.5m of screenings and lower quality overburden followed by excess OB salvaged from areas of greater depths of OB.
- Though there will be soils stockpiled for reclamation for the initial processing and aggregate stockpiling area, an aggressive plan of direct placement will be practiced to minimize the time between mining and re-vegetation for most of the site.

## Potential Temporary Asphalt Plant

(From Sec 7.7 of the CRBP): ... a temporary portable asphalt plant will be located on a compacted pad. Berms will be constructed around the asphalt plant area and haul route to contain any surface runoff. A HDPE liner will be installed under oil transfer area. Berm material will come from SML's 110045, 46 and 47. Surface runoff will not be pumped off the SML's.

Further clarification: A temporary asphalt plant if required for contracts will be operated in accordance with the Code of Practice for Asphalt Paving Plants. Additionally, the asphalt plant, supporting materials, and resulting waste and reject materials will be located where soil has been stripped, and on compacted overburden and as far from salvaged soils and reclaimed areas as practical. Spills resulting from the plant will be cleaned up if and as they occur; spill kits and other clean up equipment are on site; stripped soils from a clean-up will be contained until disposed at an off-site facility.

## Sequencing / Phasing Progressive Reclamation/Vegetation Restoration [Ref. Table 1: Development, Reclamation, Restoration and Monitoring Sequence ]

The development sequence described in Dwg3 of the Oct 2013 CRBP is intended to describe sequential mining of each individual Mining Blocks with the exception of the first Mining Block MB1A that will remain open for processing and aggregate stockpiling until the last phases. The illustration in the CRBP however is not clear in showing that blocks 2A, 2B and 2C are mined sequentially and that the mining of each block is followed by progressive reclamation of previous blocks.

In the process of reviewing and responding to the ESRD SIRs we see an opportunity to work toward less impact on wildlife habitat and improved opportunity for monitoring the success of reclamation and wildlife habitat restoration. For this the Mining Block units will remain the same as in the CRBP submitted in October 2013, however a significant change is that there will be three clearing/logging units rather than two; also emphasis that progressive reclamation is implemented concurrently within each Mining Block by following the mining operation within each Block.

### Reclamation/Restoration/Re-vegetation

Though natural succession from the seed bank, and transplantation from the next mining area as early as within the active mining block, the success of the regeneration will depend on follow-up work and enhancement by seeding. Weed control by cutting, seeding of a certified seed cover crop such as fall rye, reseeding as necessary, seeding of native seed from a registered seed source, and reseeding as necessary are practices that will be implemented, then monitored and enhanced as necessary.

Several sources of certified seed are listed in the Alberta Native Plant Council Native Plant Source List; ordering of seed in January will precede seeding requirements for the year. A regional source such as Bonnyville (Bow Point) will be one of the first considered sources; the Certified seed will reflect the existing diversity (Append 3,4,5).

The vast majority of the site is an undulating plateau covered with jack pine-aspen forest with a common blueberry-common bearberry dominated understory.  
(Ref. Appendix 3, Plant Community Descriptions, Eco-Site PC1).

The objective is restoration to forest cover for the majority of the site (PC1). For the first year a biennial cover crop such as fall rye will minimize erosion and control weeds for the first two years. Broadcast seeding at the standard agricultural rate will be roughly half the growth rate of drill seeding and will be less competitive to natural

succession from the seed bank, ingress of native species, and to transplanting or tree planting (aspen and black spruce) into the established biennial cover crop. As well the lower density of cover crop seed will encourage root systems that will resist erosion. A complete copy of the Guidelines is attached as additional information provided to the operators along with the CRBP and the information herein.

(Ref. Alberta Environment, Revegetation Using Native Plant Materials, Guidelines for Industrial Development Sites. <http://environment.gov.ab.ca/info/library/5927.pdf> ).

There are several small eco-sites on the south facing slope in SML110047 (Appendix 3, Plant Community Descriptions, Eco-Site(s)). To conserve and restore the tree, shrub, and understory varieties, areas (islands) will be left undisturbed while for disturbed areas an aggressive program of sequential direct placement/transplantation of top soils with vegetation will be implemented.

### **Sequential Monitoring of Progressive Reclamation**

The timing of completion of each mining block is market driven however each MB shown is estimated to be mined within a 1-4 year period. A portion of MB1A will be the first area under progressive reclamation and will be monitored during the 1-4 year period while active mining of MB1B and concurrent progressive reclamation of a portion of MB1B; and so on, this timing sequence will apply to each subsequent mining block.

The DRS immediately to the south of the site has been partially excavated in 2014 and offers an additional opportunity to monitor any successful re-vegetation program that may be implemented on that site (similar to the smaller eco-sites in the subject site) .

### **Measuring the Success of Progressive Reclamation**

The sequential return of vegetation will be measured by comparison to undisturbed lands surrounding the site that have similar topographic features and conditions.

Assessment to ensure that plant growth is progressing will be conducted within a 2-6 week period and the monitor will look for successful density and health of the re-vegetation and continued assessment for each spring, summer, fall season of regrowth. Ongoing assessment for the years following will ensure that the regrowth is sustained and that enhancement by additional transplantation and reseeding follows as necessary.

The return of wildlife will be sequential. With the benefit of the roll-back of debris, small animals should be evident in early years of restoration of wildlife habitat. With continued mining in the area larger animals will be slower to return; ongoing monitoring will allow a learned response to negative factors and possible mitigation.

### **Ongoing Observation and Consultation**

A great deal of new work is underway regarding the restoration of native habitat following industrial activity; the selection and density of cover crops and native seed are among factors at the forefront of discussion and research. Density of seed of the cover crop will be minimal in early stages of progressive reclamation in order to offer the best opportunity for regeneration from the seed bank, and for minimal competition for transplanted and planted trees and seeds.

**Table 1: Development, Reclamation, Restoration and Monitoring Design and Sequence**

| Summary of Plan Design [Reference the full CRBP and SIR response document herein for detailed descriptions] |   |
|---|---|
| Site Location   | Within Sec 15- 061-18-W4  |
| Site Dimensions   | A consolidated CRBP consisting of 3 SMLs: SML110045 (31.24ha); SML110046 (28.38ha); SML110047 (32.19ha)   |
| Development Design  | 3 Logging Phases within the 8 Phases of mining and reclamation sequenced through 5 Mining Blocks. Sequential Mining and Concurrent Aggressive Progressive Reclamation within each Mining Block (MB)   |
| Excavation Depths   | Overburden range 0-5.5m averaging 1.3m; maximum depth of excavation is 20m  |
| Reclamation & Restoration   | Aggressive progressive reclamation will be implemented concurrently with mining within each of the five MBs.  |
| Logging   | -Salvage, then clear and stockpile debris (debris stockpile chopped and compact to 1m or less in height and covered with topsoil).  |
| Logging Blocks [3 Logging Phases]   | Logging Phase MB1A: 26.40ha Total; 16.14ha within SML110045; 07.26ha within SML110046; 03.00ha within SML110047   |
|   | Logging Phase MB1B and MB2A: 29.19ha Total; 01.10ha within SML110046; 28.09ha within SML110047  |
|   | Logging Phase MB2B and MB2C: 36.22ha Total; 15.10ha within SML110045; 20.02ha within SML110046; 01.10ha within SML110047  |
| Stripping   | Strip and stockpile soils: TS, SS, higher quality OB; separate stockpiles by 3m or more. Strip and move poorer quality OB and place directly ready for progressive contouring as possible. Ready contoured areas, incl de-compaction for direct placement of soils as possible to start early re-vegetation program.  |
| Progressive Reclamation   | Ongoing weed control; sloping, contour using elimination and poorer quality OB; de-compaction; placement of higher quality OB and light contouring; placement SS and TS with roll-back; 'Islands' of surface vegetation and tree transplant from next stripping area; monitor and application of cover crop and native seeds to enhance restoration; design to restrict public vehicle access incl gating |
| Monitoring Progressive Reclamation  | Monitor and mitigate: weed control; erosion control; success of natural re-vegetation, to enhance transplantation; to use or extend cover crop; to extend use of native seed (use only certified seed).   |
| Full Reclamation  | Ongoing weed control; add 'Islands' of surface vegetation and tree transplant from next stripping area; add application of native seeds to enhance restoration as necessary (use only certified seed); design to discourage public vehicle access   |
| Monitoring Full Reclamation   | Monitor and mitigate: weed control; erosion control; success of natural re-vegetation, to enhance transplantation; to use or extend cover crop; to extend use of native seed (use only certified seed).<br>Monitor and mitigate: return of wildlife; impact from adjacent activity.   |

|   | Logging | Stripping  | Mining | Progressive Reclamation | Monitoring Progressive Reclamation   | Full Reclamation                        | Monitoring Full Reclamation       |   |
|---|---------|------------|--------|-------------------------|--|---|-----------------------------------|---|
| PHASES [Est. duration of phases 1-4 yrs.] | 1       | MB1A       | MB1A   | MB1A                    | Part MB1A (some perimeter areas follow mining)                               | 2-6 weeks initial, Spring, Summer, Fall |                                   |   |
|   | 2       | MB1B, MB2A | MB1B   | MB1B                    | Part MB1A (some perimeter areas)<br>Part MB1B (follow mining)                | 2-6 weeks initial, Spring, Summer, Fall |                                   |   |
|   | 3       |            | MB2A   | MB2A                    | MB1B,<br>Part MB2A (follow mining)   | 2-6 weeks initial, Spring, Summer, Fall | MB1B                              |   |
|   | 4       | MB2B, MB2C | MB2B   | MB2B                    | MB2A,<br>Part MB2B (follow mining)   | 2-6 weeks initial, Spring, Summer, Fall | MB1B, MB2A                        | Spring, Summer, Fall                    |
|   | 5       |            | MB2C   | MB2C                    | MB2B,<br>Part MB2C (follow mining)   | 2-6 weeks initial, Spring, Summer, Fall | MB1B, MB2A MB2B                   | Spring, Summer, Fall                    |
|   | 6       |            |        |                         | MB2C,<br>Part MB1A (move and reduce processing and aggregate stockpile area) | 2-6 weeks initial, Spring, Summer, Fall | MB1B, MB2A MB2B, MB2C, Part MB1A  | Spring, Summer, Fall                    |
|   | 7       |            |        |                         | Part MB1A (move and reduce processing and aggregate stockpile area)          | 2-6 weeks initial, Spring, Summer, Fall | SITE MB1B, MB2A MB2B, MB2C, MB1A. | Spring, Summer, Fall                    |
|   | 8       |            |        |                         |  |   | SITE MB1B, MB2A MB2B, MB2C, MB1A. | Spring, Summer, Fall<br>Minimum 2 years |

Reports in the Appendices are prepared by

Manna Parseyan M.Sc., Tor Land Resource Inc.  
Lana Laird M.Sc., Tor Land Resource Inc.

## **APPENDICES**

APPEND 1: Soil Survey Report

APPEND 2: Rare Plant Search

APPEND 3: Eco-site Survey Report

APPEND 4: Species Summary Report, LAT Report, Wildlife Occurrences and Photos

APPEND 5: Plant Species List and Photos

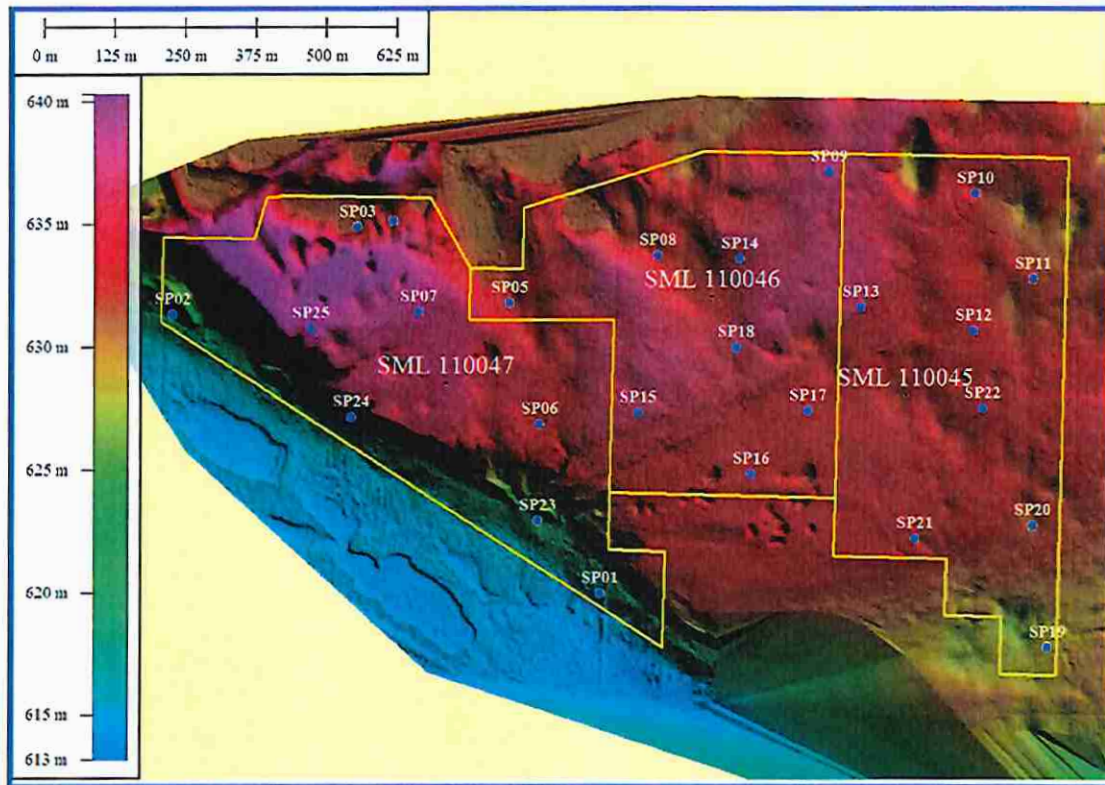
APPEND 6: Landscape, Topography, and Surface Drainage

APPEND 7: *Alberta Environment, Revegetation Using Native Plant Materials, Guidelines for Industrial Development Sites (with specific reference to Sites Returned to Forest Cover)*

## SML's 110045, 110046, 110047 Soil Survey

SML's 110045, 110046, and 110047 Soil Survey was completed over 4 days on June 12, June 13, July 11, and July 16, 2014. Information was gathered in 25 soil pit locations within the 3 SML's. The soil pit locations were selected based on variations in landscape and topography resulting from air photo and LiDAR data interpretations using an ecosite approach. For the detailed soil data see Table 1 and Figures 1.2 to 1.4. Figure 1.1 shows the Soil Survey Map of 3 SML's over *bare earth* LiDAR and Figures 1.2-1.4 illustrate soil pit locations for each SML over *bare earth* LiDAR with photos for each soil pit.

Fig. 1.1 Soil Survey Map of SML's 110045, 110046 and 110047





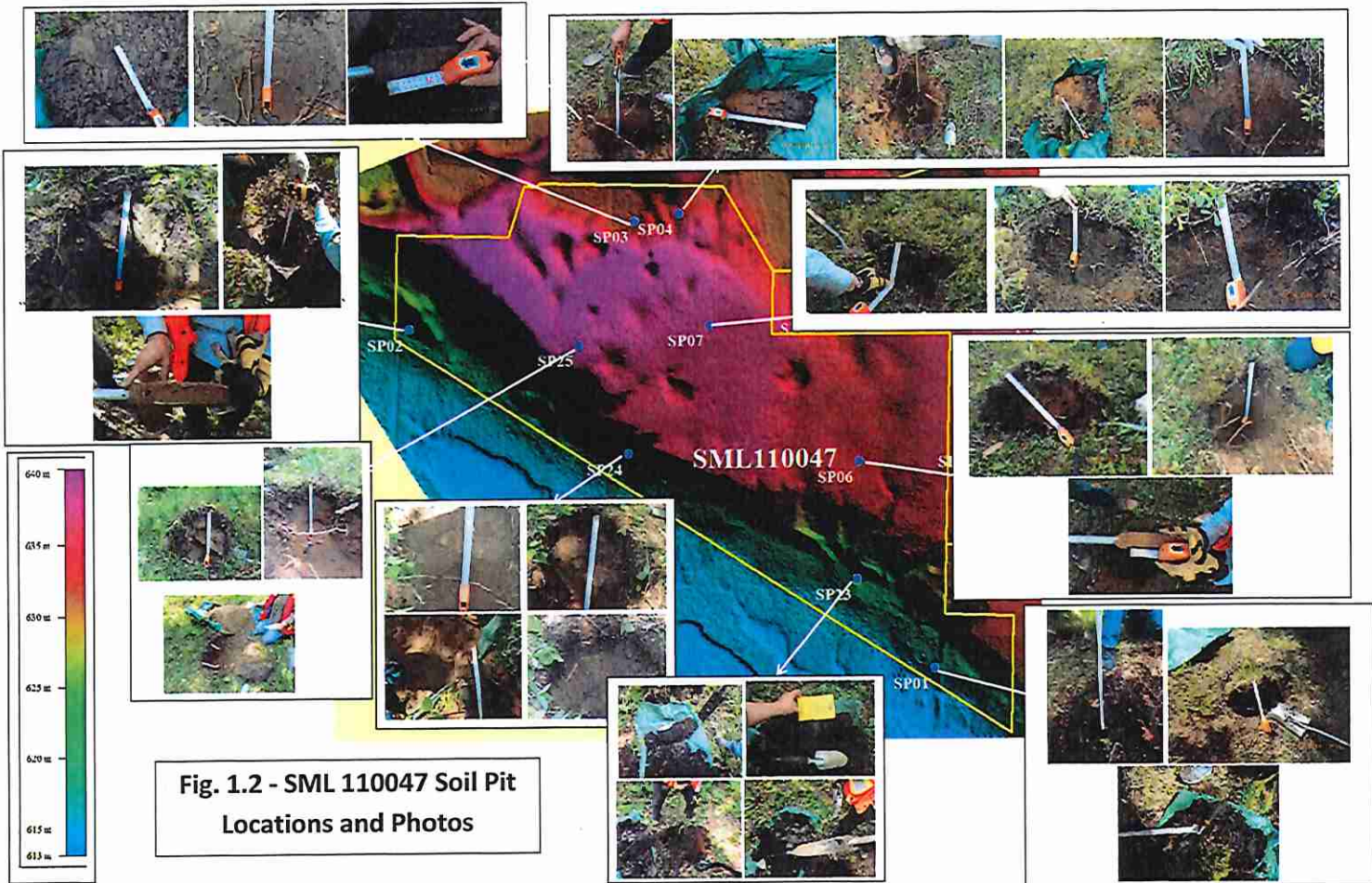
**Table 1.1- SML's 110045, 110046, 110047 Soil Survey Information**

| Soil pit Number | GPS Coordinates (Zone 12, NAD 83) |         | LFH (cm) | Topsoil "A" (cm)     | Topsoil Texture           | Subsoil "B" (cm) | Subsoil Texture | Slope Position and General Comments   | Soil Pit Location Vegetation  |
|-----------------|-----------------------------------|---------|----------|----------------------|---------------------------|------------------|-----------------|---|---|
|                 | Northing                          | Easting |          |                      |                           |                  |                 |   |   |
| SP01            | 6015272                           | 394938  | 5        | 40cm of organic soil | organic (fibric to mesic) | 0                |                 | Lower slope position; water @ 27 cm   | black spruce, tamarack, common Labrador tea, common horsetail, three-leaved Solomon's-seal, bishop's-cap, graminoids, peat moss hummocks nearby     |
| SP02            | 6015761                           | 394180  | 6        | 12                   | LS                        | 34               | S - LS          | Lower slope (gentle) near seepage area  | aspen, green alder, common bearberry, common blueberry, common Labrador tea, saskatoon, wild lily-of-the-valley, graminoids, occasional white birch |
| SP03            | 6015915                           | 394506  | 8        | 12                   | S                         | 12               | S - LS          | Edge of densely vegetated shallow depression; occasional rocks in subsoil                     | aspen, green alder, dwarf birch, common Labrador tea, common horsetail, feather moss, graminoids  |
| SP04            | 6015925                           | 394571  | 5        | 6                    | LS (coarse)               | 11               | LS              | Mid slope of "knoll"; hummocky terrain; charcoal in upper topsoil; occasional rock throughout | aspen, jack pine, green alder, common blueberry, common bearberry, graminoids, occasional reindeer lichen   |
| SP05            | 6015780                           | 394776  | 5        | 8                    | LS                        | 12               | LS              | Gently undulating plateau; coarse sand at bottom  | jack pine, aspen, common blueberry, common bearberry, occasional white spruce, wild strawberry, prickly rose, Viola sp.                             |
| SP06            | 6015569                           | 394829  | 4        | 13                   | LS                        | 10               | SC              | Gently undulating plateau; coarse clean sand below "B"  | jack pine, common bearberry, common blueberry, wild lily-of-the-valley, a few saplings, aspen nearby  |

|      |         |        |   |    |        |    |    |  |  |
|------|---------|--------|---|----|--------|----|----|--|--|
| SP07 | 6015765 | 394615 | 3 | 3  | LS     | 14 | LS | Gently undulating plateau; gravel below "B" @ 17 cm  | jack pine, common bearberry, common blueberry, wild lily-of-the-valley, occasional twining honeysuckle, Viola sp., small aspen nearby  |
| SP08 | 6015863 | 395040 | 4 | 8  | LS     | 9  | LS | Near base of gentle slope; clean, coarse golden sand below "B"   | jack pine, aspen, green alder, common blueberry, common bearberry, wild strawberry, wild lily-of-the-valley, graminoids, moss, occasional cut-leaved anemone, Canada buffaloberry, Viola sp. |
| SP09 | 6016012 | 395343 | 4 | 5  | LS     | 12 | LS | Nearly level plateau; some rock @ 50 cm  | jack pine, aspen, common blueberry, common bearberry, wild strawberry, wild lily-of-the-valley, graminoids, moss, occasional green alder   |
| SP10 | 6015973 | 395603 | 8 | 10 | LS     | 14 | LS | Gently undulating plateau; small rocks @ 35 cm; Gravel @ 72 cm - can't penetrate further   | jack pine, few aspen, common bearberry, common blueberry, green alder, saskatoon, wild lily-of-the-valley, wild strawberry, graminoids, moss, occasional Viola sp., cream-colored vetchling  |
| SP11 | 6015822 | 395706 | 7 | 7  | LS     | 17 | LS | Nearly level area on gently undulating plateau; some rock @ 34 cm  | jack pine, common bearberry, wild lily-of-the-valley, graminoids, moss, occasional prickly rose, cream-colored vetchling   |
| SP12 | 6015731 | 395600 | 7 | 6  | LS     | 13 | LS | Nearly level area on gently undulating plateau; coarse sand with small gravel @ 19 cm; clean medium-coarse sand with fewer rocks @ 47 cm | jack pine, few aspen saplings, common bearberry, saskatoon, wild lily-of-the-valley, wild strawberry, graminoids, moss, occasional common blueberry  |
| SP13 | 6015772 | 395400 | 3 | 4  | LS - S | 23 | LS | Midslope on very gently undulating plateau; coarse sand with small rocks @ 27 cm; fewer rocks with depth                                 | jack pine, aspen, common bearberry, common blueberry, prickly rose, wild lily-of-the-valley, saskatoon, graminoids, moss, occasional wild strawberry   |

|      |         |         |   |   |        |    |      |   |   |
|------|---------|---------|---|---|--------|----|------|---|---|
| SP14 | 6015858 | 395185  | 4 | 5 | LS - S | 18 | S-LS | Midslope on very gently undulating plateau; clean medium to coarse sand with occasional rock @ 23 cm                  | jack pine, aspen, common blueberry, common bearberry, wild lily-of-the-valley, graminoids, moss, occasional wild strawberry, twining honeysuckle                              |
| SP15 | 6015589 | 395003  | 5 | 8 | S-LS   | 15 | LS   | Top of slope on very gently undulating plateau; clean coarse sand @ 23 cm (occasional rocks from 32 cm)               | aspen, few jack pine, common blueberry, wild lily-of-the-valley, common bearberry, saskatoon, graminoids, occasional wild strawberry, twining honeysuckle, green alder nearby |
| SP16 | 6015481 | 395206  | 3 | 4 | SL     | 8  | SC   | Nearly level area on gently undulating plateau; gravel in very coarse sand below; unable to penetrate below 47 cm     | jack pine, aspen, common blueberry, common bearberry, saskatoon, wild lily-of-the-valley, graminoids, moss, occasional prickly rose   |
| SP17 | 6015592 | 395307  | 5 | 7 | SL     | 15 | SCL  | Nearly level area on gently undulating plateau; very coarse sand @ 22 cm; small gravel in coarse sandy matrix @ 43 cm | jack pine, few aspen saplings, common bearberry, common blueberry, wild lily-of-the-valley, graminoids, moss, occasional prickly rose   |
| SP18 | 6015703 | 395179  | 6 | 8 | S      | 18 | LS   | Level area on gently undulating plateau; clean, medium-grained golden sand below "B" horizon                          | jack pine, aspen, green alder, common bearberry, common blueberry, saskatoon, graminoids, moss, wild lily-of-the-valley, occasional prickly rose, Viola sp.                   |
| SP19 | 395734  | 6015177 | 3 | 4 | SiL    | 21 | L    | Nearly level terrain; gravel starts from 28 cm; big cobble near top; rocks in soil                                    | aspen, jack pine stand near disturbed area, saskatoon, prickly rose, veiny meadow rue, cream-colored vetchling, northern bedstraw, wild strawberry, graminoids                |
| SP20 | 395707  | 6015392 | 4 | 7 | SiL    | 8  | CL   | Undulating topography; rocks present from 7 cm; unable to penetrate below 46 cm                                       | large jack pine, small aspen, common blueberry, common bearberry, prickly rose, wild lily-of-the-valley, graminoids   |

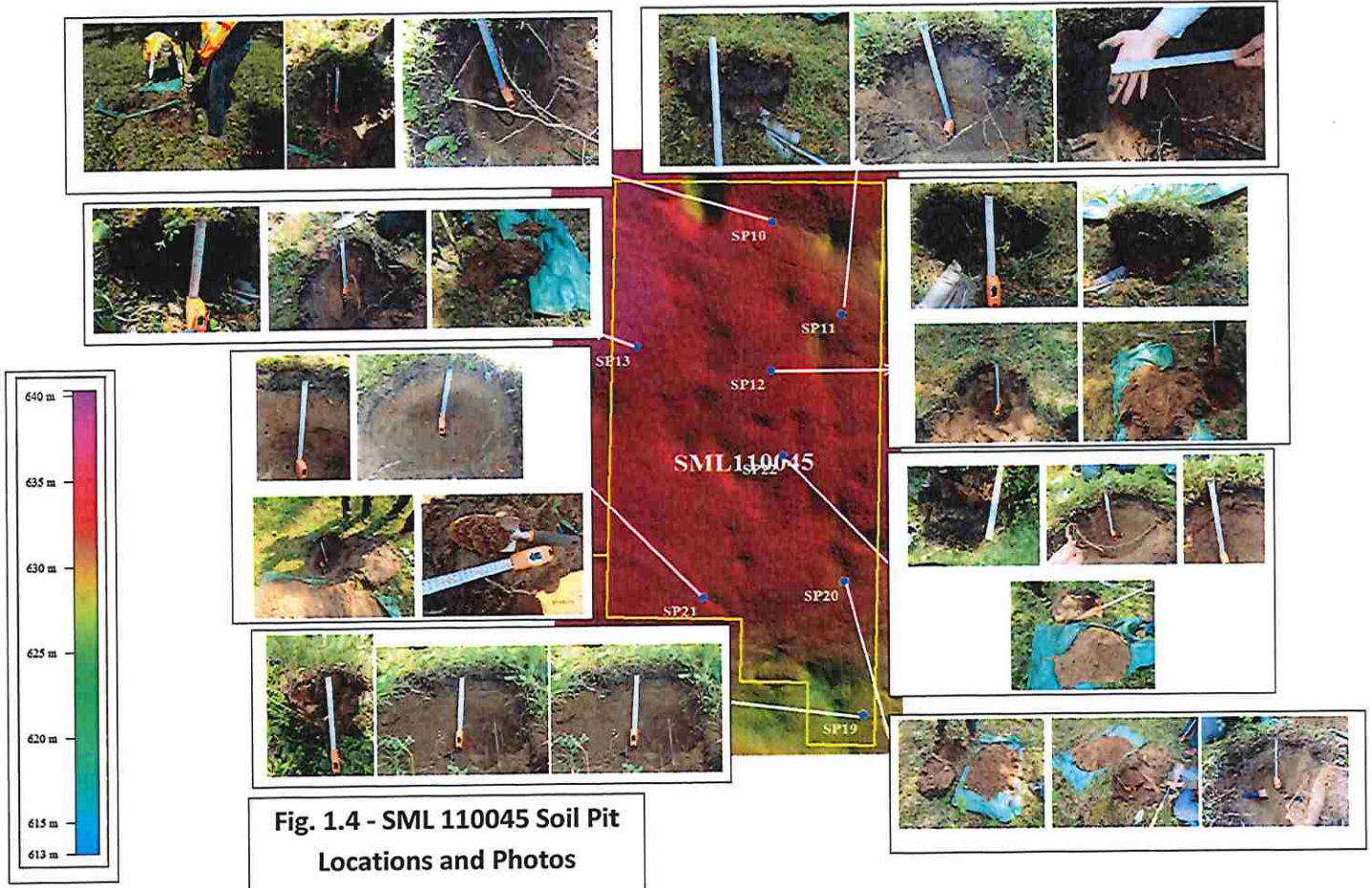
|   |        |         |   |    |    |    |        |  |  |
|---|--------|---------|---|----|----|----|--------|--|--|
| SP21  | 395497 | 6015370 | 4 | 7  | LS | 17 | SL     | Nearly level area on gently undulating plateau ; very coarse sand and small pebbles at the bottom                              | Large jack pine, small aspen, common blueberry, common bearberry, prickly rose, wild lily-of-the-valley, graminoids, cream-colored vetchling, northern bedstraw, saskatoon, twinflower, moss |
| SP22  | 395616 | 6015596 | 4 | 6  | SL | 12 | SL     | Nearly level area on gently undulating plateau; wavy contact with C; coarse sand with small rock below                         | jack pine, green alder, common blueberry, common bearberry, prickly rose, wild lily-of-the-valley, northern bedstraw, saskatoon, western wood lily, twinflower, graminoids, moss             |
| SP23  | 394826 | 6015401 | 5 | 20 | O  | 25 | SL     | Seepage area near base of slope; water encountered at about 100 cm; C horizon has iron staining                                | aspen, balsam poplar, white birch, white spruce, green alder, wild sarsaparilla, bunchberry, common Labrador tea, palmate-leaved coltsfoot, sweet-scented bedstraw, veiny meadow rue         |
| SP24  | 394495 | 6015580 | 2 | 7  | SL | 11 | SL     | Upper part of steep valley slope; coarse loamy sand with rock below 18 cm; gravel at 70 cm- Unable to penetrate                | aspen, prickly rose, saskatoon, wild strawberry, false Solomon's-seal, veiny meadow rue, northern bedstraw, graminoids, occasional wild bergamot   |
| SP25  | 394424 | 6015737 | 3 | 4  | LS | 19 | SL-SCL | Nearly level area on gently undulating plateau; very coarse loamy sand with rocks below 23 cm; unable to penetrate below 35 cm | aspen, green alder, saskatoon, prickly rose, common bearberry, wild sarsaparilla, wild lily-of-the-valley, common blueberry, wild strawberry, bunchberry, graminoids                         |
| Mineral Soil Average LFH Thickness: 4.6 cm; Average Topsoil Thickness: 7.5 cm; Average Subsoil Thickness: 15.3 cm |        |         |   |    |    |    |        |  |  |
| General Comments: Charcoal present at the top of soil profile in almost all the soil pits                         |        |         |   |    |    |    |        |  |  |
| All soil measurements thicknesses are in Centimetres  |        |         |   |    |    |    |        |  |  |



**Fig. 1.2 - SML 110047 Soil Pit Locations and Photos**



**Fig. 1.3 - SML 110046 Soil Pit Locations and Photos**



**Fig. 1.4 - SML 110045 Soil Pit Locations and Photos**

### Rare Plant Search for SML's 110045, 110046, and 110047

Search results from the ACIMS interactive website indicated the presence of a rare plant (long-leaved bluet, *Hedyotis longifolia*) within Township 61, Range 18, west of the 4<sup>th</sup> meridian (see attached ACIMS report).

Through further investigation by Lorna Allan of Tourism, Parks and Recreation, it was determined that known occurrences for this rare plant are located elsewhere in the Township and no occurrences have been recorded within the boundaries of the SML's (see attached email).

The preferred habitat for this plant is dry gravelly or sandy soils in open upland areas and its blooming period in Alberta is typically late June to July ("Wildflowers Across the Prairies", Vance, Jowsey & McLean, 1984). The flower is distinctive for its purplish blue to pale blue colour, the 4-lobed tubular corolla, and the 4 stamens inserted at the upper edge of the tube (see photos below).

**Hedyotis longifolia (Long-leaf Bluets)** -- photos from  
<http://www.minnesotawildflowers.info/flower/long-leaf-bluets>





During our field investigation of the site in June and July, we looked for the long-leaved bluet in all areas where detailed soil and vegetation information was gathered (over 25 locations), and during our general reconnaissance of the site as we travelled on foot between study locations. Intense searches (multiple traverses by 3 people) were also conducted along the xeric, sparsely treed areas at the top of the south-facing valley slope (see photos below).



These open ridge-top areas were thought to be the most likely location for the bluet to occur given its habitat preferences, but no occurrences were observed.

# Table of Results [Print Preview](#)

**Date:** 10/6/2014  
**Requestor:** Consultant  
**Reason for Request:** Environmental Assessment  
**SEC:** 15 **TWP:** 061 **RGE:** 18 **MER:** 4



## ■ Non-sensitive EOs: 0 *(Data Updated: June 2013)*

| M-RR-TTT-SS | EO_ID | ECODE | S_RANK | SNAME | SCOMNAME | LAST_OBS_D |
|-------------|-------|-------|--------|-------|----------|------------|
|-------------|-------|-------|--------|-------|----------|------------|

No Non-sensitive EOs Found: Next Steps - See FAQ

## ■ Sensitive EOs: 1 *(Data Updated: June 2013)*

| M-RR-TTT | EO_ID | ECODE      | S_RANK | SNAME               | SCOMNAME           | LAST_OBS_D |
|----------|-------|------------|--------|---------------------|--------------------|------------|
| 4-18-061 | 16323 | PDRUB1T0E0 | S2     | Hedyotis longifolia | long-leaved bluets | 7/7/2006   |

No Sensitive EOs Found: Next Steps - See FAQ

## ■ Protected Areas: 0 *(Data Updated: April 2013)*

| M-RR-TTT-SS | PROTECTED AREA NAME | TYPE | IUCN |
|-------------|---------------------|------|------|
|-------------|---------------------|------|------|

No Protected Areas Found

## ■ Crown Reservations/Notations: 0 *(Data Updated: April 2013)*

| M-RR-TTT-SS | NAME | TYPE |
|-------------|------|------|
|-------------|------|------|

No Crown Reservations/Notations Found

**From:** "TPR ACIMSData" <acims.data@gov.ab.ca>  
**Date:** Tuesday, July 15, 2014 11:21 AM  
**To:** <Lana.Laird@torland.ca>  
**Subject:** RE: ACIMS Data Request from - Lana Laird

Hello Lana

In response to your request regarding element occurrences in the vicinity of 15 and 21 of 61-18-W4M, I have reviewed the information in the Alberta Conservation Information Management System (ACIMS). The sensitive element documented in the township does not fall within your area of interest.

**Please remember that the results of a data search by the Alberta Conservation Information Management System are not intended as a final statement on the presence, absence, or condition of elements within a given area, or as a substitute for on-site surveys which may be required for environmental assessments.**

**Please also be advised that this information only addresses known occurrence information for elements of conservation concern. For rare vertebrate wildlife observation data, please contact the Fish and Wildlife Division representative closest to your area of concern.**

Also, we are asking for your help in keeping our data bases as accurate and up-to-date as possible. If you should discover any new element occurrences, please let us know. Feel free to notify us of any inaccuracies or discrepancies you may notice in our data, and give us your suggestions on how our services could be more useful to you.

Lorna Allen

for  
 Alberta Conservation Information Management System  
 Parks Division,  
 Alberta Tourism, Parks, and Recreation  
 (780) 427-6621

*The Alberta Conservation Information Management System is a member of NatureServe's network of conservation data centres - A Network Connecting Science with Conservation.  
 Un Réseau pour la Science et la Conservation.*

NatureServe web site: <http://www.natureserve.org/>

The Nature Conservancy's Conserveronline web site: <http://www.conserveonline.org>

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*Ce courriel (y compris les pièces jointes) est confidentiel et peut être privilégié. La distribution ou la divulgation non autorisée de ce courriel est interdite. Sa vulgation à toute personne autre que son destinataire ne constitue pas une renonciation de privilège. Si vous avez reçu ce courriel par erreur, veuillez nous aviser et éliminer ce courriel, ainsi que les pièces jointes, de votre système informatique et de vos dossiers.*

**From:** TPR Alberta Parks  
**Sent:** Monday, July 07, 2014 2:49 PM  
**To:** TPR ACIMSData  
**Subject:** ACIMS Data Request from - Lana Laird

## ACIMS Data Request

**Name:** Lana Laird  
**Email:** [Lana.Laird@torland.ca](mailto:Lana.Laird@torland.ca)  
**Requestor:** Consultant  
**Reason:** Environmental Assessment  
**Locations:** 15-61-18-W4M  
 21-61-18-W4M  
 ---  
 ---  
 ---

**Notes:**

We are conducting field visits and environmental assessments as part of the Conservation and Reclamation Business Plans for several proposed gravel pits located in Twp 61-18-W4M (within portions of Sections 15 and 21). The ACIMS Data Request Map indicates that a Sensitive Element (Long-leaved Bluet-- *Hedyotis longifolia*) occurs within this township. We would appreciate receiving additional information regarding the location, preferred habitat, typical flowering time, associated plant species, and any other important details for this plant that would aid us in developing a search strategy within the proposed disturbance areas. This information would also help us to develop appropriate mitigation measures if the plant is found. Thank you.

This email and any files transmitted with it are confidential and intended solely for the use of the individual or entity to whom they are addressed. If you have received this email in error please notify the system manager. This message contains confidential information and is intended only for the individual named. If you are not the named addressee you should not disseminate, distribute or copy this e-mail.

## Ecosite Classification for SML's 110045, 110046, and 110047

### Methodology

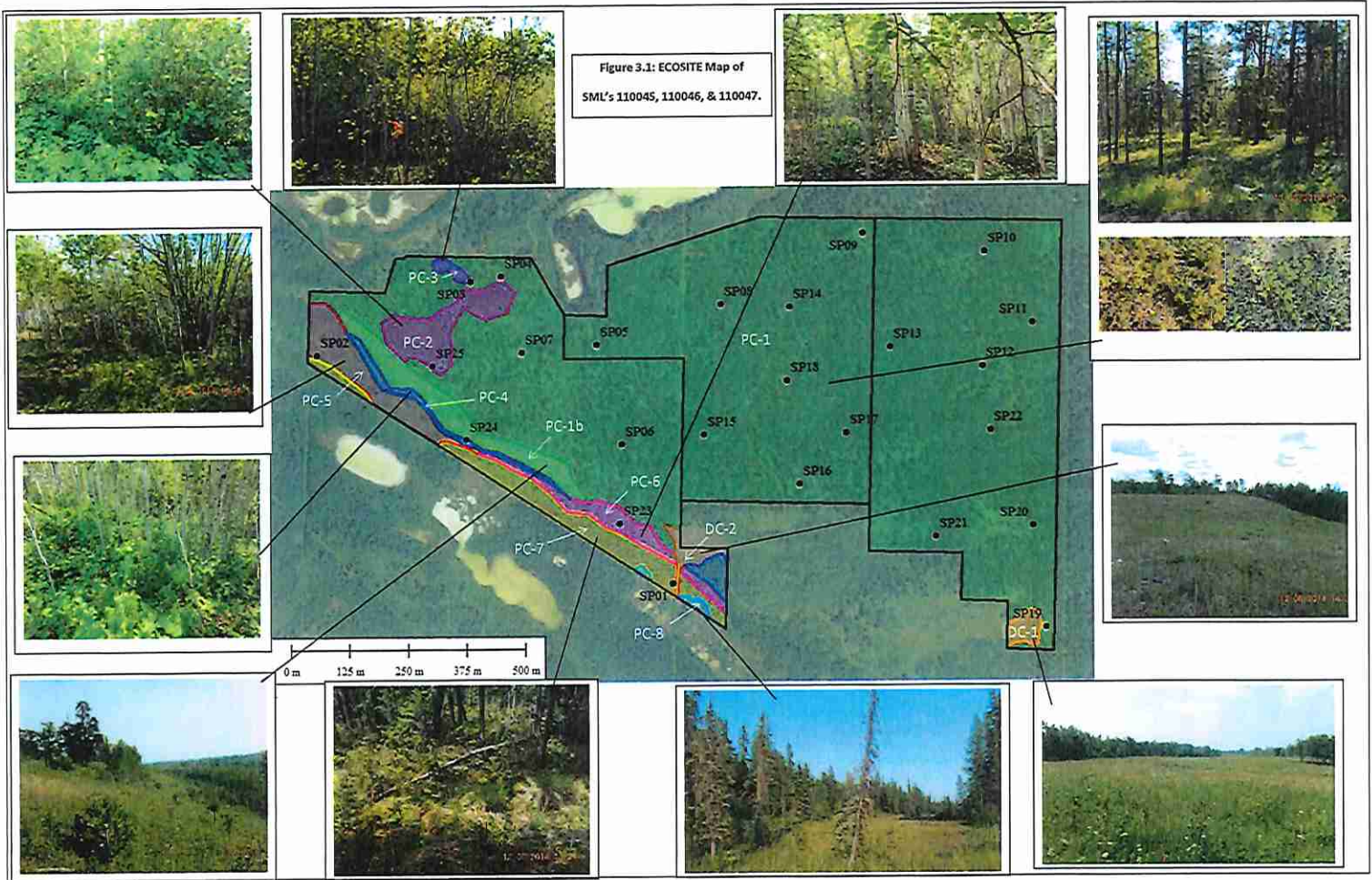
Provisional ecosite polygons were delineated on 1:3200 scale aerial photography and modified as necessary during site reconnaissance (see Figure 3.1). Undisturbed plant communities were classified using the dichotomous keys and plant community indicators described for the Boreal Mixedwood Natural Region in *Field Guide to Ecosites of Northern Alberta* (Beckingham and Archibald, 1996). Disturbed areas could not be classified to a natural plant community type but were generally described with a list of dominant species observed.

### Results

Table 3.1 below summarizes the 10 different plant communities (8 natural and 2 disturbed) observed on site. For natural communities, the Ecosite, Ecosite Phase, and Plant Community Type as classified in *Field Guide to Ecosites of Northern Alberta* are listed. In cases where the plant community type did not fit neatly into this classification system, the "best" matching plant community is listed with "variation" added in parentheses. Each plant community (including any observed deviations from the typical community) is described below. The areal extent of each plant community type is shown in Figure 3.1.

| <b>Table 3.1: Natural and Disturbed Plant Community Types Observed Onsite.</b> |   |                            |  |           |
|--|---|----------------------------|--|-----------|
| NUMBER   | Ecosite Code & Name                         | Ecosite Phase Code & Name  | Plant Community Code & Name  | Area (ha) |
| PC-1   | b - blueberry                               | b1 - blueberry Pj-Aw       | b1.1 - Pj-Aw/blueberry-bearberry                                     | 78.5      |
| PC-1b  | b - blueberry                               | b1 - blueberry Pj-Aw       | b1.1 - Pj-Aw/blueberry-bearberry (variation)                         | 2.6       |
| PC-2   | d - low-bush cranberry                      | d1 - low-bush cranberry Aw | d1.4 - Aw/green alder (variation)                                    | 2.1       |
| PC-3   | j – poor fen                                | j2 - shrubby poor fen      | j2.1 - black spruce-tamarack-dwarf birch/sedge/peat moss (variation) | 0.2       |
| PC-4   | d - low-bush cranberry                      | d1 - low-bush cranberry Aw | d1.4 - Aw/Saskatoon-pin cherry                                       | 1.0       |
| PC-5   | b - blueberry                               | b2 - blueberry Aw(Bw)      | b2.2 - Aw(Bw)/blueberry-green alder                                  | 2.2       |
| PC-6   | e – dogwood                                 | e1 – dogwood Pb-Aw         | e1.2 – Pb-Aw/bracted honeysuckle/fern                                | 1.2       |
| PC-7   | j – poor fen                                | j1 – treed poor fen        | j1.1 – Sb-Lt/dwarf birch/sedge/peat moss                             | 3.0       |
| PC-8   | k - rich fen                                | k3 - graminoid rich fen    | k3.1 - sedge fen   | 0.2       |
| DC-1   | Grassy meadow (seeded with a grass mixture) |                            |  | 0.4       |
| DC-2   | Disturbed grazed area near trail head       |                            |  | 0.4       |

Figure 3.1: ECOSITE Map of SML's 110045, 110046, & 110047.



## Plant Community Descriptions

### PC-1: Jack Pine-Aspen/Blueberry-Bearberry (b1.1)

The vast majority of the site occurs on an undulating plateau covered with jack pine – aspen forest with a common blueberry-common bearberry dominated understory. Indicator species for this plant community type were present throughout this ecosite type with some variation in proportional abundance due to local microtopography, variation in crown density, or successional stage (in response to local fire severity). For example, the relevant abundance of jack pine and aspen ranged from stands dominated by one or the other (usually jack pine) to an even mixture of both species. Many of the jack pine trees are fire-scarred. While common blueberry and common bearberry clearly dominate the shrub layer, other frequently observed species include: saskatoon, prickly rose, green alder, Labrador tea, wild lily-of-the-valley, wild strawberry, and feather mosses. Reindeer lichen was very rare.

The majority of the soil profiles in this community indicated well drained submesic to subxeric soil conditions with an effective soil texture of loamy sand (see soil pits SP04 to SP18, SP20 to SP23 in Table 1.1 in Appendix 1). In some areas, gravel occurred within 25 cm of the surface. Charcoal was present in all soil profiles.



Mixed jack pine and aspen overstory



Jack pine dominated overstory with occasional aspen



Typical understory in most locations

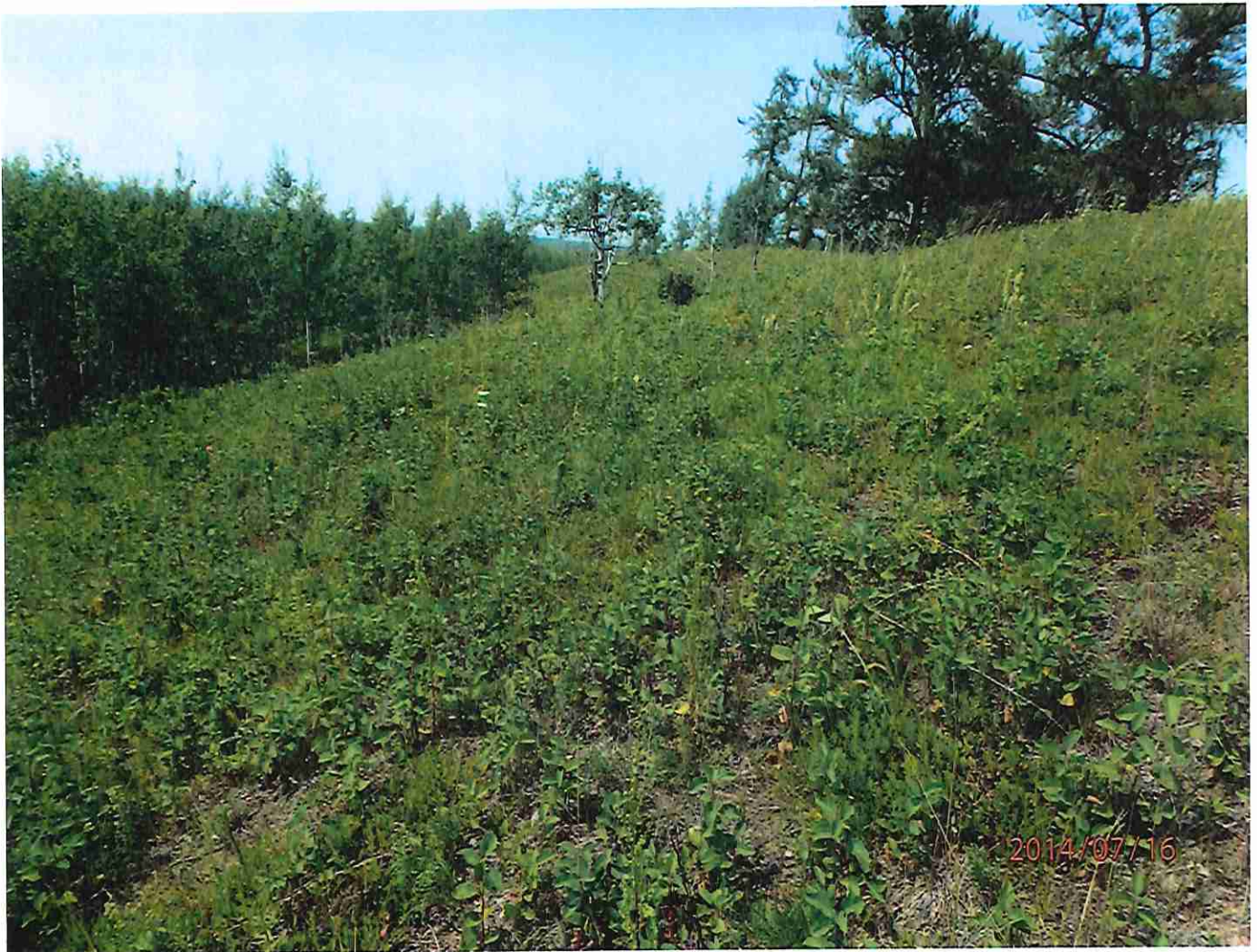


Typical understory in slight depressions or shady areas

PC-1b: Jack Pine-Aspen/Blueberry-Bearberry (b1.1) (Variation)

A variant of the typical jack pine-aspen/ blueberry plant community type was found along the top of the south-facing valley slope. This area is very sparsely treed with large jack pine and small wind-weathered aspen. Common bearberry and saskatoon dominate the shrub layer; other common shrubs include common blueberry and prickly rose with occasional Canada buffaloberry. Grasses and upland sedges dominate the herb layer; other species present include common yarrow, wild bergamot, northern bastard toadflax, and Artemisia species. Reindeer lichen was only occasionally encountered.

Due to rapid drainage, edaphic conditions are drier here than elsewhere on the plateau, but not sufficiently xeric for the site to be classified as a jack pine-lichen community as reindeer lichen was scarce.



Sparsely treed top of south facing valley slope



PC-2: Aspen/Green Alder (d1.4) (Variation)

A small narrow portion of the plateau was covered by a dense even-aged stand of young aspen with a shrub layer dominated by green alder. Other common understory species included prickly rose, twinflower, wild sarsaparilla and grass. The site varied from the typical aspen/ green alder plant community type described by Beckingham and Archibald by the presence of some saskatoon, common bearberry, and common blueberry plants. These species are common in the surrounding Jack pine-Aspen/blueberry-bearberry community (PC-1 described above).

Edaphic conditions here were slightly more mesic than elsewhere on the plateau with an effective soil texture of Sandy Clay Loam (see soil pit SP25 in Table 1.1 in Appendix 1).



Dense stand of young aspen with alder dominated understory

PC-3: Black Spruce – Tamarack - Dwarf Birch/Sedge/Peat Moss (j2.1) (Variation)

A small shallow depressional bowl near the northwest corner of the plateau contains a very dense, almost pure stand of dwarf birch. Only the edge of this community could be observed as the dwarf birch shrubs were growing so closely together the stand was impenetrable. Observed indicator species for this community type include dwarf birch, common Labrador tea, sedges, and mosses (including some peat moss). Other indicator species such as black spruce and bog cranberry were not observed but may be present in areas that were inaccessible. The soil profile near the edge of this community indicates poor drainage despite and effective texture of Loamy Sand: a thick mossy LFH layer overlies gleyed sand to loamy sand with iron mottles occurring within 35 cm of the surface (see SP03 in Table 1.1 in Appendix 1).



Very dense stand of dwarf birch with aspen and alder growing near the edge

The next 5 plant community types occur at different topographic positions of the south-facing valley slope near the south boundary of the site. These communities are often very narrow and ecotonal in nature as indicated by the presence of indicator plants from adjacent communities, and shifts in relative abundance from the typical distribution cited by Beckingham and Archibald for the best matching plant community type. Photo 3.1 below shows the gradient in plant communities on the steeper eastern portion of the valley slope from the top of the ridge to the valley bottom. Photo 3.2 shows the gentler western portion of the valley slope which exhibited fewer community types from the top of the valley slope to the valley bottom.



Photo 3.1: Eastern portion of the valley slope with the sparsely treed ridge top (PC-1b); aspen-dominated upper slope (PC-4); mixed overstory in mid slope seepage area (PC-6); treed fen lower slope (PC-7); and sedge fen to open marsh at the valley bottom (PC-8)



Photo 3.2: Western portion of valley slope with gentle aspen dominated upper and mid slopes (PC-5), treed fen lower slopes (PC-7); and sedge fen to open marsh at the valley bottom (PC-8)

PC-4: Aspen/Saskatoon-Pin cherry (d1.2)

The upper part of the valley slope (just below the ridge-top community PC-1b) is dominated by a dense stand of young aspen. Saskatoon and prickly rose co-dominate the shrub layer and other less common understory species include wild sarsaparilla, wild strawberry, cream-colored vetchling, veiny meadow rue, common yarrow, northern bedstraw, and occasional wild bergamot. Edaphic conditions are submesic with well drained sandy loam soil (see description of SP24 in Table 1.1 in Appendix 1).



Aspen stand on upper slope with prickly rose and saskatoon dominated understory

PC-5 Aspen-Birch/blueberry- green alder (b2.2)

The gentle south-facing valley slopes near the southwest site boundary are covered by an aspen-dominated overstory with lesser amounts of white birch and occasional white spruce. Common blueberry and green alder dominate the shrub layer; other common understory species include common bearberry, saskatoon, common Labrador tea, prickly rose, wild lily-of-the-valley, and graminoids. The effective soil texture in this community is Loamy Sand (see SP02 in Table 1.1 in Appendix 1).



Aspen dominated overstory with green alder and common blueberry dominated understory

PC-6: Balsam poplar - Aspen / bracted honeysuckle / fern (e1.2)

Seepage areas on the eastern part of the valley slope are occupied by a diverse overstory of aspen, white birch, balsam poplar, and occasional white spruce. Common shrubs include bracted honeysuckle, prickly rose, wild red raspberry, and low-bush cranberry. Common forbs include wild sarsaparilla, bunchberry, palmate-leaved coltsfoot, veiny meadow rue, and bishop's-cap. Alder-leaved buckthorn also occurs here (see photo below) and was differentiated from dogwood by its finely scalloped edges and an alternate (rather than opposite) leaf pattern. Edaphic conditions are subhygric and the soil profile showed a thick organic layer over gleyed sandy loam (see SP23 in Table 1.1 in Appendix 1)



Mixed overstory and diverse understory



Alder-leaved buckthorn (centre of photo)

PC-7: Black spruce - Tamarack/dwarf birch/sedge/peat moss (j1.1)

A treed poor fen occurs near the base of the valley slope. The tree layer is dominated by black spruce and tamarack; common Labrador tea dominates the shrub layer. Other common understory species include three-leaved Solomon's-seal, bishop's-cap, common horsetail, sedges, and mosses (often occurring in hummocks). Edaphic conditions are poorly drained and the soil profile shows gleyed mineral soil (clay) underlying a thick organic topsoil with water at 27 cm below the surface (see SP01 in Table 1.1 in Appendix 1).



Black spruce and tamarack dominated treed poor fen

PC-8: Sedge fen (k3.1)

Low-lying areas at the bottom of the valley slope are covered with a sedge fen plant community with occasional stunted tamarack and dwarf birch. The water table lies at or just below the surface and soils are saturated most of the year.

Depressional areas in the valley bottom (outside the site boundaries) contain open marshes dominated by cattails and sedges.



A sedge fen occurs on the left side of the photo; an open marsh area occurs on the right side (outside the site boundary)



# Fish and Wildlife Internet Mapping Tool (FWIMT)

(source database: Fish and Wildlife Management Information System (FWMIS))

## Species Summary Report

Report Created: 29-Sep-2014 15:05

### Species present within the current extent :

#### Fish Inventory

No records found.

#### Wildlife Inventory

No records found.

### Buffer Extent

#### Centroid (X,Y):

655516, 6014762

#### Projection

10-TM AEP Forest

#### Centroid: (Qtr Sec Twp Rng Mer)

NE 15 61 18 4

#### Buffer Radius:

3 kilometers

### Wildlife Contact Information

#### Primary Contact

Name: Barb Maile

Phone: 780-645-6335

Email: Barb.Maile@gov.ab.ca

Town:

#### Alternative

Name:

Phone:

Email:

Town:

### Fisheries Contact Information

#### Primary Contact

Name: FRLs:Denyse Gullion

Phone: 780-675-8205

Email: Denyse.Gullion@gov.ab.ca

Town: Athabasca

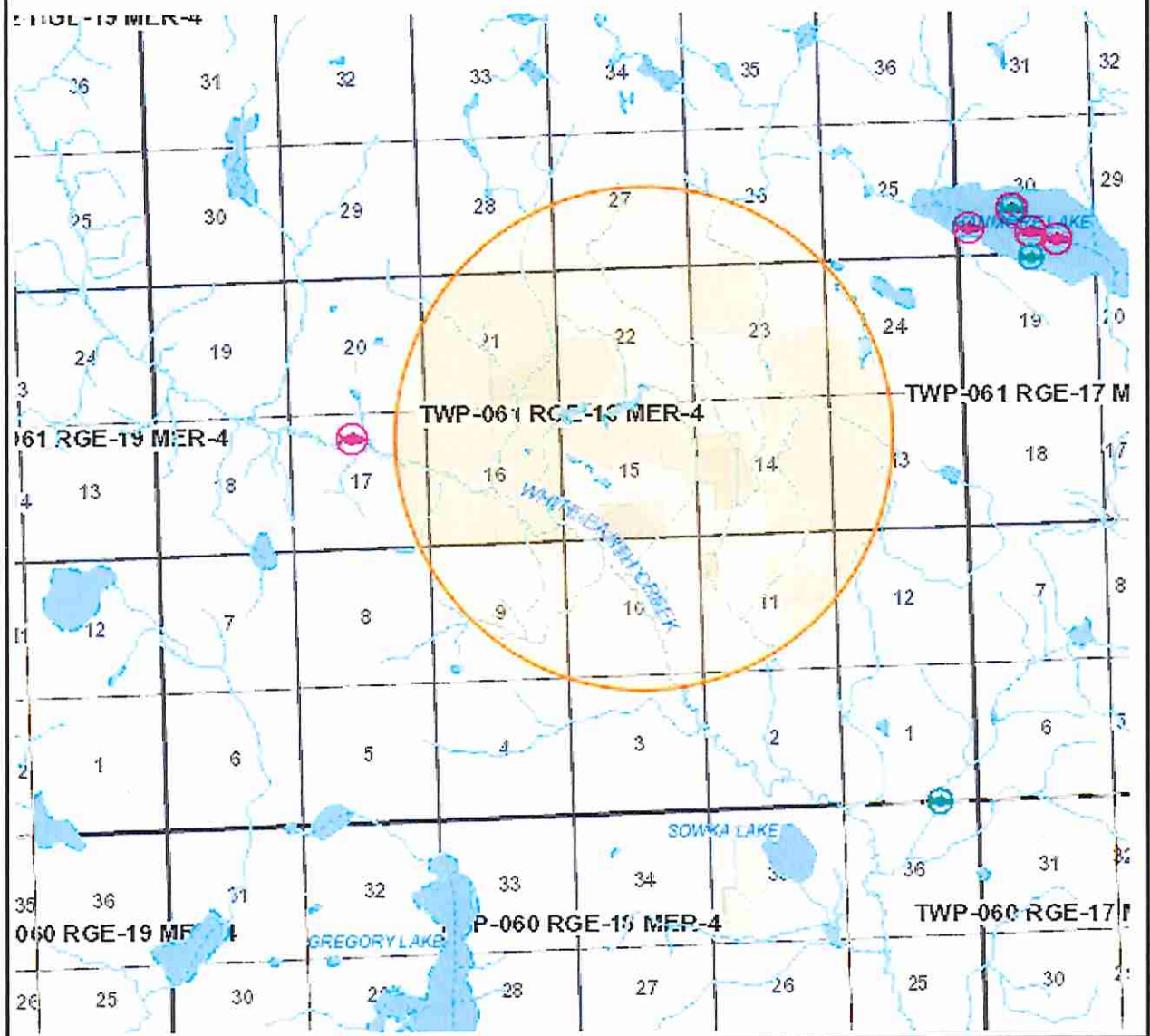
#### Alternative

Name:

Phone:

Email:

Town: Athabasca



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## Landscape Analysis Tool Report

|                             |  |
|-----------------------------|--|
| <b>Time:</b> 09:43 22 AM    |  |
| <b>LAT Number:</b>          | 00000370DD   |
| <b>LAT Date:</b>            | 2014-09-30   |
| <b>Project Name:</b>        | 45-47  |
| <b>Project Description:</b> |  |
| <b>Disposition Type:</b>    | Mineral Surface Lease (MSL)                        |
| <b>Purpose Type:</b>        | PNG or OS Facility-Oil/Bitumen Battery site (BATT) |

## Responsibility of Applicants:

It is the applicant's responsibility to conduct a full review of the generated LAT Report, ensuring that you have a full understanding of the defined standards and conditions, and any limitations as may also be imposed by any other law or Order of the Province or the Government of Canada that may impact on the proposed use of the land.

The applicant must assess if the proposed activity can meet those standards, conditions and limitations which will subsequently determine if an EAP application will be submitted to the regulatory body as "Standard" or "Non-Standard". Applicants should complete a thorough review of EAP processes, IS&G documents and generated LAT Reports prior to making this determination.

- "Standard" EAP application submissions are those where the applicant chooses to meet all of the associated Approval Standards identified in the LAT Report submitted as part of the application and aligns those standards to the associated supplements and the application plan.
- "Non-Standard" EAP application submissions are those where the applicant chooses not to meet, or is not able to meet, one or more of the associated Approval Standards identified in the LAT Report submitted as part of the application, or the requirements of reservations as identified within the land status report. Non-Standard EAP application submissions require the inclusion of a completed Non-Standard Mitigation Supplement.

The information provided within the LAT Tool is a spatial representation of features provided for land use planning. The accuracy of these layers varies depending on the resource value being represented. Site visits, wildlife surveys and ground-truthing is required to ensure that you, the applicant will meet the applicable Pre-Application requirements, Approval Standards, Operating Conditions and Best Management Practices of the Integrated Standards and Guidelines.

## Landscape Analysis Tool Report

**Base Features**

|                     |                     |                                |     |
|---------------------|---------------------|--------------------------------|-----|
| Crown Ownership:    | Provincial/Untitled | FMU:                           | LO1 |
| Green/White Area:   | White Area          | FMA:                           |     |
| Municipality:       | Smoky Lake County   | Provincial Grazing Reserve:    |     |
| Higher Level Plans: |                     | Rocky Mountain Forest Reserve: |     |
|                     |                     | PLUZ Areas:                    |     |

**Provincial Sanctuaries**

|                     |  |            |  |
|---------------------|--|------------|--|
| Wildlife Corridors: |  | Game Bird: |  |
| Restricted Area:    |  | Seasonal:  |  |

## Landscape Analysis Tool Report

**Sensitive Features**

| Wildlife                                 |                                  |
|--|----------------------------------|
| Burrowing Owl Range:                     | <input type="text"/>             |
| Caribou Zones:                           | <input type="text"/>             |
| Colonial Nesting Birds:                  | <input type="text"/>             |
| Eastern Short-horned Lizard Range:       | <input type="text"/>             |
| Endangered and Threatened Plants Ranges: | <input type="text"/>             |
| Greater Sage Grouse Habitat and Buffer:  | <input type="text"/>             |
| Greater Sage Grouse Leks and Buffer:     | <input type="text"/>             |
| Grizzly Bear Zone:                       | <input type="text"/>             |
| Key Wildlife and Biodiversity Areas:     | <input type="text" value="Yes"/> |
| Mountain Goat and Sheep Areas:           | <input type="text"/>             |
| Ord's Kangaroo Rat Range:                | <input type="text"/>             |
| Other Sensitive and Endangered Species:  | <input type="text"/>             |
| Piping Plover Waterbodies:               | <input type="text"/>             |
| Sensitive Amphibians Ranges:             | <input type="text"/>             |
| Sensitive Raptor Range:                  | <input type="text"/>             |
| Sensitive Snake Species Range:           | <input type="text"/>             |
| Sharp-tailed Grouse Leks and Buffer:     | <input type="text"/>             |
| Sharp-tailed Grouse Survey:              | <input type="text"/>             |
| Special Access Area:                     | <input type="text"/>             |
| Swift Fox Range:                         | <input type="text"/>             |
| Trumpeter Swan Waterbodies/Watercourse:  | <input type="text"/>             |

| Water                   |   |
|-------------------------|---|
| Proximity to Waterbody: | Industry will ensure that the Watercourse/Waterbodies standards and conditions as defined within the Integrated Standards and Guidelines are followed. To ensure these setbacks and buffers are addressed and maintained, it is recommended that a pre-site assessment occur. |

| Grassland and Parkland Natural Region:    |                      |
|---|----------------------|
| Grassland and/or Parkland Natural Region: | <input type="text"/> |

| Federal Orders:      |                      |
|----------------------|----------------------|
| Greater Sage Grouse: | <input type="text"/> |

## Landscape Analysis Tool Report

| <u>Quarter</u> | <u>Section</u> | <u>Township</u> | <u>Range</u> | <u>Meridian</u> | <u>Road Allow.</u> | <u>Sensitive Features by Quarter Section</u> |
|----------------|----------------|-----------------|--------------|-----------------|--------------------|--|
| NW             | 14             | 61              | 18           | 4               |                    |  |
| NW             | 14             | 61              | 18           | 4               | RW                 |  |
| SW             | 14             | 61              | 18           | 4               | RW                 |  |
| NE             | 15             | 61              | 18           | 4               |                    |  |
| NW             | 15             | 61              | 18           | 4               |                    |  |
























Landscape Analysis Tool Report

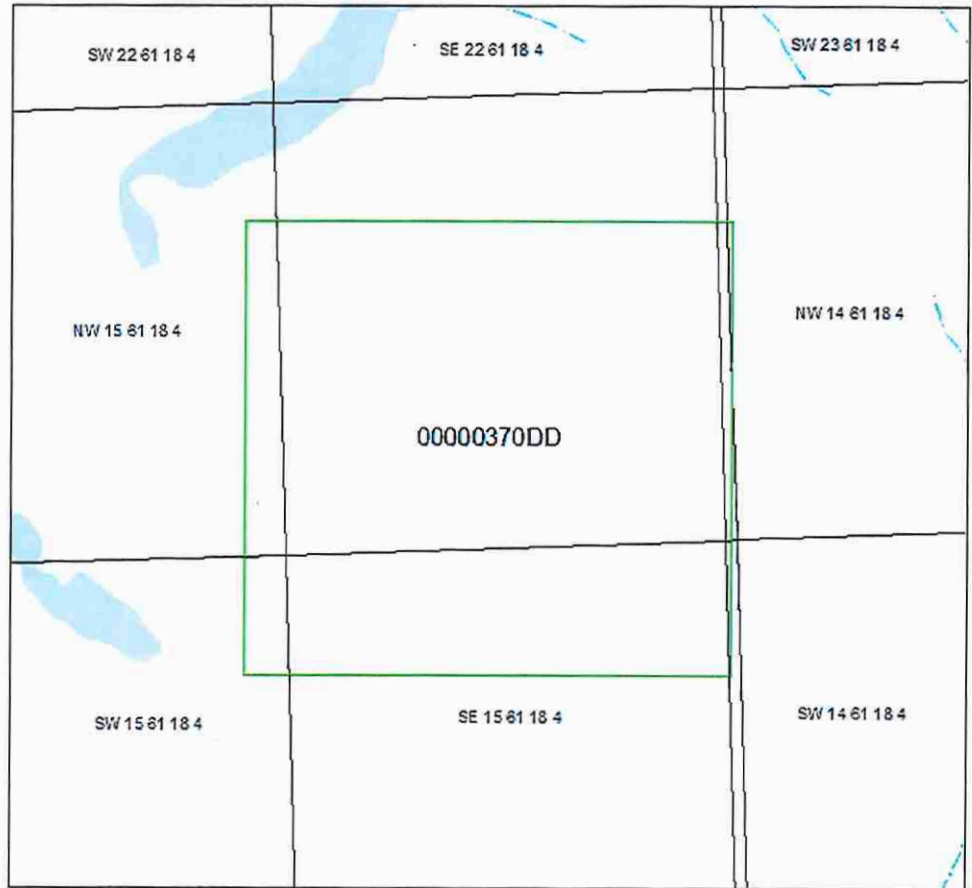
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|----------------------|--|
| <p>SE 15 61 18 4</p> | <p>Key Wildlife and Biodiversity Areas</p> |
| <p>SW 15 61 18 4</p> | <p>Key Wildlife and Biodiversity Areas</p> |

Landscape Analysis Tool Report

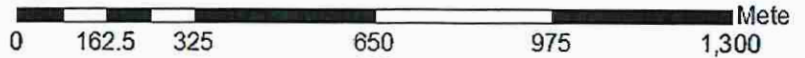


**Legend**

-  ATS Quarter Section
-  Perennial Stream
-  Indefinite Stream
-  Recurring Stream
-  Spillway
-  Aquaduct
-  Canal
-  Ditch
-  Perennial Oxbow
-  Recurring Oxbow
-  Canal
-  Dugout
-  Icefield
-  Islands
-  Lagoon
-  Perennial Lake
-  Recurring Lake
-  Perennial Oxbow
-  Recurring Oxbow
-  Quarry
-  Reservoir
-  River
-  Wetland



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## Landscape Analysis Tool Report

# Sensitivity Section Approval Standards and Operating Conditions

## Key Wildlife and Biodiversity Areas

### Approval Standards

#### 100.9.6.1

For all areas North of Highway (HWY) #1, no activity is permitted from January 15th to April 30th; and South of HWY #1, west of HWY #2, no activity is permitted from December 15th to April 30th; with the following exceptions under favourable (non-adverse) ground conditions:

- b. All wellsites or pipeline installations accessed using Class IV or V roads.
- c. All activities planned within 100 metres of existing arterial all-weather roads can be initiated at any time provided ground conditions are favourable, and may continue until adverse ground conditions are encountered.

#### 100.9.6.2

Wellsites, pipeline installations, plant sites and camps shall maintain a minimum 100 metre buffer to the edge of valley breaks. In the absence of well defined watercourse valley breaks, a 100 metre buffer from the permanent watercourse bank applies.

#### 100.9.6.7

Sites (e.g. plant sites, sumps) shall be constructed within 100 metres of an existing arterial all-weather permanent access.

### Operating Conditions

#### 200.9.6.1

No legumes are to be seeded for any re-vegetation.

#### 200.9.6.2

Re-vegetate wellsites, roads, pipelines and associated facilities to species compatible and consistent with the adjacent vegetation type (i.e., when the features are reseeded, reclaimed or partially restored).

**Landscape Analysis Tool Report**

|                             |  |
|-----------------------------|--|
| <b>Time:</b> 09:20 24 AM    |  |
| <b>LAT Number:</b>          | 00000370D6   |
| <b>LAT Date:</b>            | 2014-09-30   |
| <b>Project Name:</b>        | 45-47  |
| <b>Project Description:</b> |  |
| <b>Disposition Type:</b>    | Mineral Surface Lease (MSL)                        |
| <b>Purpose Type:</b>        | PNG or OS Facility-Oil/Bitumen Battery site (BATT) |

**Responsibility of Applicants:**

It is the applicant's responsibility to conduct a full review of the generated LAT Report, ensuring that you have a full understanding of the defined standards and conditions, and any limitations as may also be imposed by any other law or Order of the Province or the Government of Canada that may impact on the proposed use of the land.

The applicant must assess if the proposed activity can meet those standards, conditions and limitations which will subsequently determine if an EAP application will be submitted to the regulatory body as "Standard" or "Non-Standard". Applicants should complete a thorough review of EAP processes, IS&G documents and generated LAT Reports prior to making this determination.

- "Standard" EAP application submissions are those where the applicant chooses to meet all of the associated Approval Standards identified in the LAT Report submitted as part of the application and aligns those standards to the associated supplements and the application plan.
- "Non-Standard" EAP application submissions are those where the applicant chooses not to meet, or is not able to meet, one or more of the associated Approval Standards identified in the LAT Report submitted as part of the application, or the requirements of reservations as identified within the land status report. Non-Standard EAP application submissions require the inclusion of a completed Non-Standard Mitigation Supplement.

The information provided within the LAT Tool is a spatial representation of features provided for land use planning. The accuracy of these layers varies depending on the resource value being represented. Site visits, wildlife surveys and ground-truthing is required to ensure that you, the applicant will meet the applicable Pre-Application requirements, Approval Standards, Operating Conditions and Best Management Practices of the Integrated Standards and Guidelines.

**Landscape Analysis Tool Report**
**Base Features**

|                     |                     |                                |     |
|---------------------|---------------------|--------------------------------|-----|
| Crown Ownership:    | Provincial/Untitled | FMU:                           | LO1 |
| Green/White Area:   | White Area          | FMA:                           |     |
| Municipality:       | Smoky Lake County   | Provincial Grazing Reserve:    |     |
| Higher Level Plans: |                     | Rocky Mountain Forest Reserve: |     |
|                     |                     | PLUZ Areas:                    |     |

**Provincial Sanctuaries**

|                     |  |            |  |
|---------------------|--|------------|--|
| Wildlife Corridors: |  | Game Bird: |  |
| Restricted Area:    |  | Seasonal:  |  |

**Landscape Analysis Tool Report**
**Sensitive Features**
**Wildlife**

|  |                      |   |                      |
|--|----------------------|---|----------------------|
| Burrowing Owl Range:                     | <input type="text"/> | Other Sensitive and Endangered Species: | <input type="text"/> |
| Caribou Zones:                           | <input type="text"/> | Piping Plover Waterbodies:              | <input type="text"/> |
| Colonial Nesting Birds:                  | <input type="text"/> | Sensitive Amphibians Ranges:            | <input type="text"/> |
| Eastern Short-horned Lizard Range:       | <input type="text"/> | Sensitive Raptor Range:                 | <input type="text"/> |
| Endangered and Threatened Plants Ranges: | <input type="text"/> | Sensitive Snake Species Range:          | <input type="text"/> |
| Greater Sage Grouse Habitat and Buffer:  | <input type="text"/> | Sharp-tailed Grouse Leks and Buffer:    | <input type="text"/> |
| Greater Sage Grouse Leks and Buffer:     | <input type="text"/> | Sharp-tailed Grouse Survey:             | <input type="text"/> |
| Grizzly Bear Zone:                       | <input type="text"/> | Special Access Area:                    | <input type="text"/> |
| Key Wildlife and Biodiversity Areas:     | <input type="text"/> | Swift Fox Range:                        | <input type="text"/> |
| Mountain Goat and Sheep Areas:           | <input type="text"/> | Trumpeter Swan Waterbodies/Watercourse: | <input type="text"/> |
| Ord's Kangaroo Rat Range:                | <input type="text"/> |   |                      |

**Water**

Proximity to Waterbody:

Industry will ensure that the Watercourse/Waterbodies standards and conditions as defined within the Integrated Standards and Guidelines are followed. To ensure these setbacks and buffers are addressed and maintained, it is recommended that a pre-site assessment occur.

**Grassland and Parkland Natural Region:**

Grassland and/or Parkland Natural Region:

**Federal Orders:**

Greater Sage Grouse:

**Landscape Analysis Tool Report**

Quarter Section Township Range Meridian Road Allow. Sensitive Features by Quarter Section

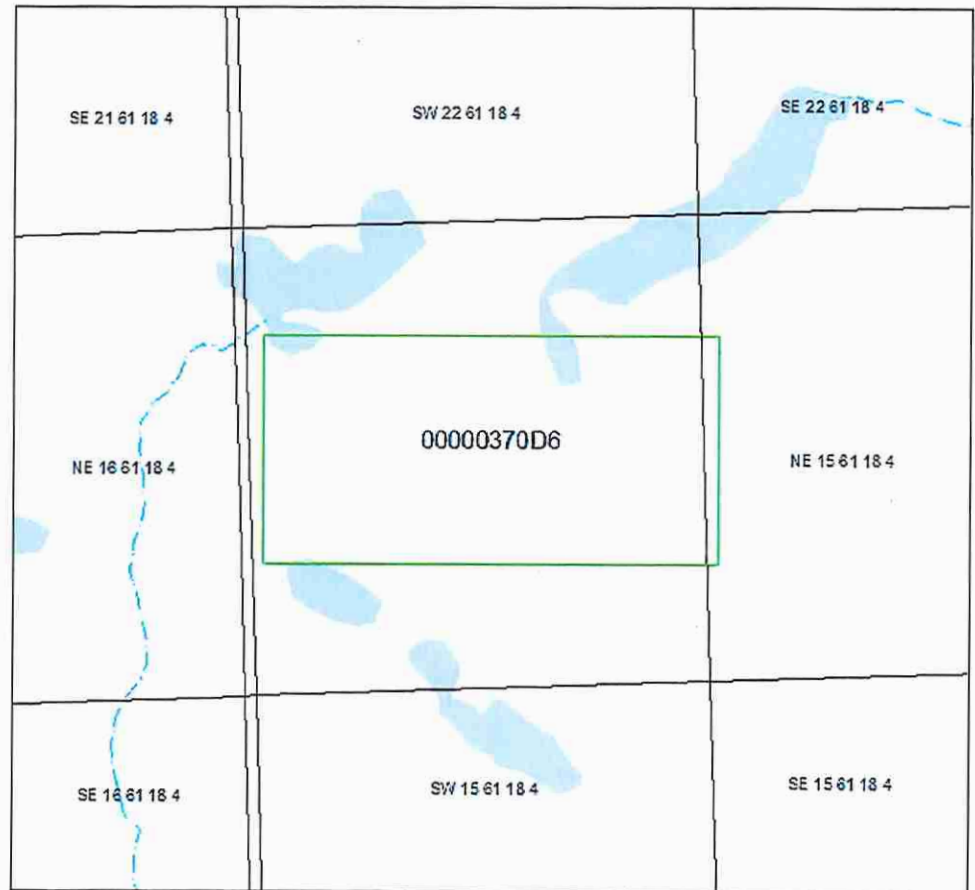
|    |    |    |    |   |  |  |
|----|----|----|----|---|--|--|
| NE | 15 | 61 | 18 | 4 |  |  |
| NW | 15 | 61 | 18 | 4 |  |  |

**Landscape Analysis Tool Report**

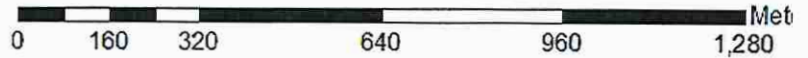


**Legend**

-  ATS Quarter Section
-  Perennial Stream
-  Indefinite Stream
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-  Spillway
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-  Perennial Oxbow
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-  Canal
-  Dugout
-  Icefield
-  Islands
-  Lagoon
-  Perennial Lake
-  Recurring Lake
-  Perennial Oxbow
-  Recurring Oxbow
-  Quarry
-  Reservoir
-  River
-  Wetland



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Sensitivity Section Approval Standards and Operating Conditions

## Wildlife in SML's 110045, 110046 and 110047

Tables 4.1 and 4.2 below list the wildlife observation and occurrences during field visits to the study area in June and July, 2014. Nomenclature follows the ACIMS "List of All Elements" available at:

[http://www.albertaparks.ca/media/387336/list\\_of\\_all\\_elements2014.xls](http://www.albertaparks.ca/media/387336/list_of_all_elements2014.xls)

**Table 4.1: List of Wildlife Occurrences (on-site)**

| Name   | Sightings, Evidence           | Comments    |
|--|-------------------------------|-------------|
| Cedar Waxwing ( <i>Bombycilla cedrorum</i> )             | Sighting                      | Photo taken |
| Canadian Toad ( <i>Anaxyrus hemiophrys</i> )             | Sighting                      | Photo taken |
| Hawk (Red-tailed?)                                       | heard the sound               |             |
| Canadian Tiger Swallowtail ( <i>Papilio canadensis</i> ) | Sighting                      | Photo taken |
| Aphrodite? Fritillary ( <i>Speyeria aphrodite?</i> )     | Sighting                      | Photo taken |
| European Skipper ( <i>Thymelicus lineola</i> )           | Sighting                      | Photo taken |
| Black Bear ( <i>Ursus americanus</i> )                   | heard the sound;<br>droppings | Photo taken |
| Deer   | tracks; droppings             | Photo taken |

**Table 4.2: List of Wildlife Occurrences (off-site)**

| Name  | Sightings, Evidence | distance in KM from the site | Comments                             |
|---|---------------------|------------------------------|--------------------------------------|
| Moose ( <i>Alces americanus</i> )                   | Sighting            | 1.2                          | black moose; Photo taken             |
| Mule Deer ( <i>Odocoileus hemionus</i> )            | Sighting            | 0.4                          | Photo taken                          |
| White-tailed Deer ( <i>Odocoileus virginianus</i> ) | Sighting            | 1.5                          | West of site                         |
| Ruffed Grouse ( <i>Bonasa umbellus</i> )            | Sighting            | 0.5                          | Photo taken                          |
| American Coot ( <i>Fulica americana</i> )           | Sighting            | 0.12                         | Wet area NW of the site- Photo taken |
| Lesser Scaup ( <i>Aythya affinis</i> )              | Sighting            | 0.12                         | Wet area NW of the site- Photo taken |
| Sandhill Crane ( <i>Grus canadensis</i> )           | Sighting            | 0.12                         | Wet area NW of the site- Photo taken |
| American Robin ( <i>Turdus migratorius</i> )        | Sighting            | 0.25                         | West of site                         |



**Wildlife Occurrences in SML's 110045, 110046 and 110047**



Canadian Tiger Swallowtail (*Papilio canadensis*)  
observed on-site



Canadian Tiger Swallowtail (*Papilio canadensis*)  
observed on-site



Canadian Toad (*Anaxyrus hemiophrys*) observed on-site



Mule Deer (*Odocoileus hemionus*) observed 0.4km off-site



Ruffed Grouse (*Bonasa umbellus*) observed 0.5km off-site



Mule Deer (*Odocoileus hemionus*) observed 0.4km off site

**Wildlife Occurrences in SML's 110045, 110046 and 110047**



Moose (*Alces americanus*) observed 1.2km off-site



Aphrodite? Fritillary (*Speyeria aphrodite?*) observed on-site



Cedar Waxwing (*Bombycilla cedrorum*) observed on-site



European Skippers (*Thymelicus lineola*) observed on-site



Sandhill Crane (*Grus canadensis*) observed 0.12km off-site



Sandhill Crane (*Grus canadensis*) observed 0.12km off-site

**Wildlife Occurrences in SML's 110045, 110046 and 110047**



Deer tracks on-site



Deer tracks on-site



Deer tracks on-site



Deer tracks on-site



Deer tracks on-site



Deer droppings on-site

Wildlife Occurrences in SML's 110045, 110046 and 110047



Bird observed on-site



Lesser Scaup (*Aythya affinis*) and American Coot (*Fulica americana*) observed 0.12km off -site



Deer droppings on-site



Deer droppings on-site



Deer droppings on-site



Deer droppings on-site

**Wildlife Occurrences in SML's 110045, 110046 and 110047**



Droppings (Canine?) on-site



Black Bear (*Ursus americanus*) droppings on-site



Black Bear (*Ursus americanus*) droppings on-site



Black Bear (*Ursus americanus*) droppings on-site



Black Bear (*Ursus americanus*) droppings on-site



Black Bear (*Ursus americanus*) droppings on-site

**Wildlife Occurrences in SML's 110045, 110046 and 110047**



Deer droppings on-site



Deer droppings on-site



Bone fragments on-site



An animal den on-site



Bird's eggshell on-site



Bird's eggshell on-site

**List of Plant Species  
for  
SML 110045, SML 110046, and SML 110047**

Table 5.1 below lists the plants observed during field visits to the study area in June and July, 2014. Nomenclature follows the ACIMS "List of All Elements" available at

[http://www.albertaparks.ca/media/387336/list\\_of\\_all\\_elements2014.xls](http://www.albertaparks.ca/media/387336/list_of_all_elements2014.xls)

**Table 5.1: List of plants observed on site**

| Life Form | Common Name                   | Scientific Name                              | Author                     |
|-----------|-------------------------------|--|----------------------------|
| TREE      | aspen                         | <i>Populus tremuloides</i>                   | Michx.                     |
|           | balsam poplar                 | <i>Populus balsamifera</i>                   | L.                         |
|           | black spruce                  | <i>Picea mariana</i>                         | (P. Mill.) B.S.P.          |
|           | jack pine                     | <i>Pinus banksiana</i>                       | Lamb.                      |
|           | river alder                   | <i>Alnus incana ssp. tenuifolia</i>          | (Nutt.) Breitung           |
|           | tamarack                      | <i>Larix laricina</i>                        | (Du Roi) K. Koch           |
|           | white birch                   | <i>Betula papyrifera</i>                     | Marsh.                     |
|           | white spruce                  | <i>Picea glauca</i>                          | (Moench) Voss              |
| SHRUB     | alder-leaved buckthorn        | <i>Rhamnus alnifolia</i>                     | L'Hér.                     |
|           | bog cranberry                 | <i>Vaccinium vitis-idaea</i>                 | L.                         |
|           | bracted honeysuckle           | <i>Lonicera involucrata var. involucrata</i> |                            |
|           | buckbrush                     | <i>Symphoricarpos occidentalis</i>           | Hook.                      |
|           | Canada buffaloberry           | <i>Shepherdia canadensis</i>                 | (L.) Nutt.                 |
|           | common bearberry              | <i>Arctostaphylos uva-ursi</i>               | (L.) Spreng.               |
|           | common blueberry              | <i>Vaccinium myrtilloides</i>                | Michx.                     |
|           | common Labrador tea           | <i>Ledum groenlandicum</i>                   | Oeder                      |
|           | dewberry                      | <i>Rubus pubescens</i>                       | Raf.                       |
|           | dwarf birch                   | <i>Betula pumila</i>                         | L.                         |
|           | dwarf raspberry               | <i>Rubus arcticus</i>                        | L.                         |
|           | graceful cinquefoil           | <i>Potentilla gracilis</i>                   | Dougl. ex Hook.            |
|           | green alder                   | <i>Alnus viridis</i>                         | (Vill.) Lam. & DC.         |
|           | low-bush cranberry            | <i>Viburnum edule</i>                        | (Michx.) Raf.              |
|           | prickly rose                  | <i>Rosa acicularis</i>                       | Lindl.                     |
|           | saskatoon                     | <i>Amelanchier alnifolia</i>                 | (Nutt.) Nutt. ex M. Roemer |
|           | snowberry                     | <i>Symphoricarpos albus</i>                  | (L.) Blake                 |
|           | twinflower                    | <i>Linnaea borealis</i>                      | L.                         |
|           | wild red raspberry            | <i>Rubus idaeus</i>                          | L.                         |
|           | willow                        | <i>Salix sp.</i>                             |                            |
| FORB      | bastard toadflax              | <i>Comandra umbellata</i>                    | (L.) Nutt.                 |
|           | bishop's-cap                  | <i>Mitella nuda</i>                          | L.                         |
|           | blue columbine                | <i>Aquilegia brevistyla</i>                  | Hook.                      |
|           | bunchberry                    | <i>Cornus canadensis</i>                     | L.                         |
|           | Canada goldenrod              | <i>Solidago canadensis</i>                   | L.                         |
|           | clasping-leaved twisted-stalk | <i>Streptopus amplexifolius</i>              | (L.) DC.                   |
|           | common blue-eyed grass        | <i>Sisyrinchium montanum</i>                 | Greene                     |
|           | common dandelion              | <i>Taraxacum officinale</i>                  | G.H. Weber ex Wiggers      |
|           | common horsetail              | <i>Equisetum arvense</i>                     | L.                         |
|           | common pink wintergreen       | <i>Pyrola asarifolia</i>                     | Michx.                     |
|           | common yarrow                 | <i>Achillea millefolium</i>                  | L.                         |
|           | cream-colored vetchling       | <i>Lathyrus ochroleucus</i>                  | Hook.                      |

|                                |                              |  |                 |
|--------------------------------|------------------------------|--|-----------------|
| FORB                           | cut-leaved anemone           | <i>Anemone multifida</i>                       | Poir.           |
|                                | early blue violet            | <i>Viola adunca</i>                            | Sm.             |
|                                | giant hyssop                 | <i>Agastache foeniculum</i>                    | (Pursh) Kuntze  |
|                                | harebell                     | <i>Campanula rotundifolia</i>                  | L.              |
|                                | Macoun's buttercup           | <i>Ranunculus macounii</i>                     | Britt.          |
|                                | northern bedstraw            | <i>Galium boreale</i>                          | L.              |
|                                | northern grass-of-parnassus  | <i>Parnassia palustris</i>                     | L.              |
|                                | palmate-leaved coltsfoot     | <i>Petasites frigidus</i> var. <i>palmatus</i> | (Ait.) Cronq.   |
|                                | red clover                   | <i>Trifolium pratense</i>                      | L.              |
|                                | saline shooting star         | <i>Dodecatheon pulchellum</i>                  | (Raf.) Merr.    |
|                                | seneca snakeroot             | <i>Polygala senega</i>                         | L.              |
|                                | silverweed                   | <i>Argentina anserina</i>                      | (L.) Rydb.      |
|                                | smooth fleabane              | <i>Erigeron glabellus</i>                      | Nutt.           |
|                                | star-flowered Solomon's-seal | <i>Smilacina stellata</i>                      | (L.) Link       |
|                                | strawberry blite             | <i>Chenopodium capitatum</i>                   | (L.) Aschers.   |
|                                | sweet-scented bedstraw       | <i>Galium triflorum</i>                        | Michx.          |
|                                | tall lungwort                | <i>Mertensia paniculata</i>                    | (Ait.) G. Don   |
|                                | three-leaved Solomon's-seal  | <i>Maianthemum trifolium</i>                   | (L.) Sloboda    |
|                                | three-toothed cinquefoil     | <i>Sibbaldiopsis tridentata</i>                | (Ait.) Rydb.    |
|                                | twining honeysuckle          | <i>Lonicera dioica</i>                         | L.              |
|                                | veiny meadow rue             | <i>Thalictrum venulosum</i>                    | Trel.           |
|                                | western wood lily            | <i>Lilium philadelphicum</i>                   | L.              |
|                                | white camas                  | <i>Zigadenus elegans</i>                       | Pursh           |
|                                | white clover                 | <i>Trifolium repens</i>                        | L.              |
|                                | wild bergamot                | <i>Monarda fistulosa</i>                       | L.              |
|                                | wild lily-of-the-valley      | <i>Maianthemum canadense</i>                   | Desf.           |
|                                | wild sarsaparilla            | <i>Aralia nudicaulis</i>                       | L.              |
|                                | wild strawberry              | <i>Fragaria virginiana</i>                     | Duchesne        |
|                                | wild vetch                   | <i>Vicia americana</i>                         | Muhl. ex Willd. |
|                                | pussytoes/everlasting        | <i>Antennaria</i> sp.                          |                 |
| sagewort/wormwood              | <i>Artemisia</i> spp.        |  |                 |
| scorpionweed                   | <i>Phacelia</i> sp.          |  |                 |
| thistle (not creeping thistle) | <i>Cirsium</i> sp.           |  |                 |
| GRAMINOID                      | hairy wild rye               | <i>Leymus innovatus</i>                        | (Beal) Pilger   |
|                                | timothy                      | <i>Phleum pratense</i>                         | L.              |
|                                | bluegrass                    | <i>Poa</i> spp.                                |                 |
|                                | brome grass                  | <i>Bromus</i> spp.                             |                 |
|                                | lowland sedges               | <i>Carex</i> spp.                              |                 |
|                                | upland sedges                | <i>Carex</i> spp.                              |                 |
|                                | wheat grass                  | <i>Agropyron</i> spp.                          |                 |
| MOSS                           | Schreber's moss              | <i>Pleurozium schreberi</i>                    | (Brid.) Mitt.   |
|                                | peat moss                    | <i>Sphagnum</i> spp.                           |                 |
| LICHEN                         | studded leather lichen       | <i>Peltigera aphthosa</i>                      |                 |
|                                | reindeer lichen              | <i>Cladonia</i> sp.                            |                 |



Vegetation in SML's 110045, 110046 and 110047



western wood lily (*Lilium philadelphicum*)



twining honeysuckle (*Lonicera dioica*)



cut-leaved anemone (*Anemone multifida*)



Canada goldenrod (*Solidago simplex*)



common blue-eyed grass (*Sisyrinchium montanum*)



common blue-eyed grass (*Sisyrinchium montanum*)

Vegetation in SML's 110045, 110046 and 110047



early blue violet (*Viola adunca*)



early blue violet (*Viola adunca*)



scorpionweed (*Phacelia* sp.)



wild lily-of-the-valley (*Maianthemum canadense*)



common Labrador tea (*Ledum groenlandicum*)



northern bedstraw (*Galium boreale*)

Vegetation in SML's 110045, 110046 and 110047



tall lungwort (*Mertensia paniculata*)



blue columbine (*Aquilegia brevistyla*)



blue columbine (*Aquilegia brevistyla*)



reindeer lichen (*Cladonia sp.*)



wild strawberry (*Fragaria virginiana*)



fleabane (*Erigeron sp.*)

Vegetation in SML's 110045, 110046 and 110047



common yarrow (*Achillea millefolium*)



twinflower (*Linnaea borealis*)



common pink wintergreen (*Pyrola asarifolia*)



common pink wintergreen (*Pyrola asarifolia*)



prickly rose (*Rosa acicularis*)



Canada buffaloberry (*Shepherdia canadensis*)

Vegetation in SML's 110045, 110046 and 110047



saline shooting star (*Dodecatheon pulchellum*)



pussytoes/everlasting (*Antennaria sp.*)



wild vetch (*Vicia americana*)



bunchberry (*Cornus canadensis*)

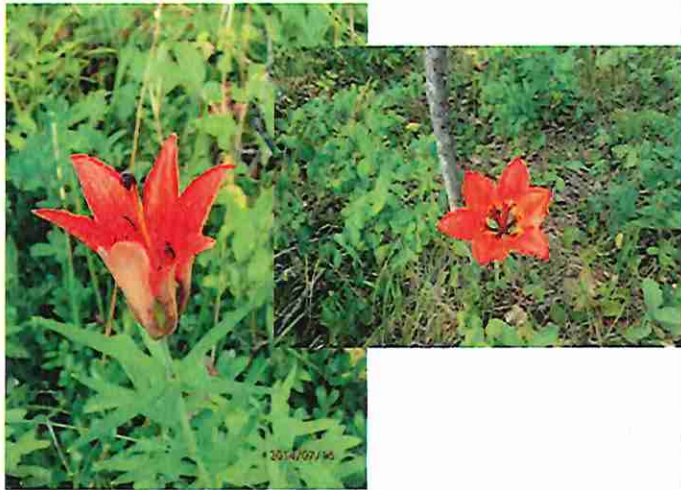


wild bergamot (*Monarda fistulosa*)

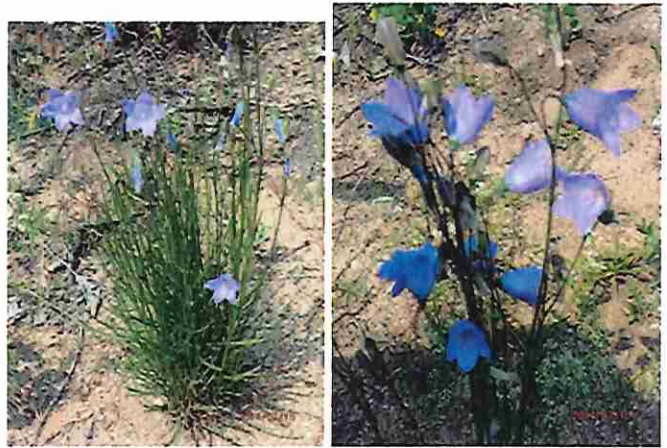


cut-leaved anemone (*Anemone multifida*)

Vegetation in SML's 110045, 110046 and 110047



western wood lily (*Lilium philadelphicum*)



harebell (*Campanula rotundifolia*)



thistle (*Cirsium sp.*)



strawberry blite (*Chenopodium capitatum*)



seneca snakeroot (*Polygala senega*)



northern bedstraw (*Galium boreale*)

Fig. 6.1 - Detailed topography 3D map of SML's 110045, 110046 and 110047 with LiDAR behind it (Vertical exaggerations 5X). Contours (1m contour interval) generated from bare earth LiDAR data (Aug-Nov 2009) using Global Mapper software. LIDAR sourced from Airborne Imaging; vertical accuracy 30 cm; horizontal accuracy 45 cm.

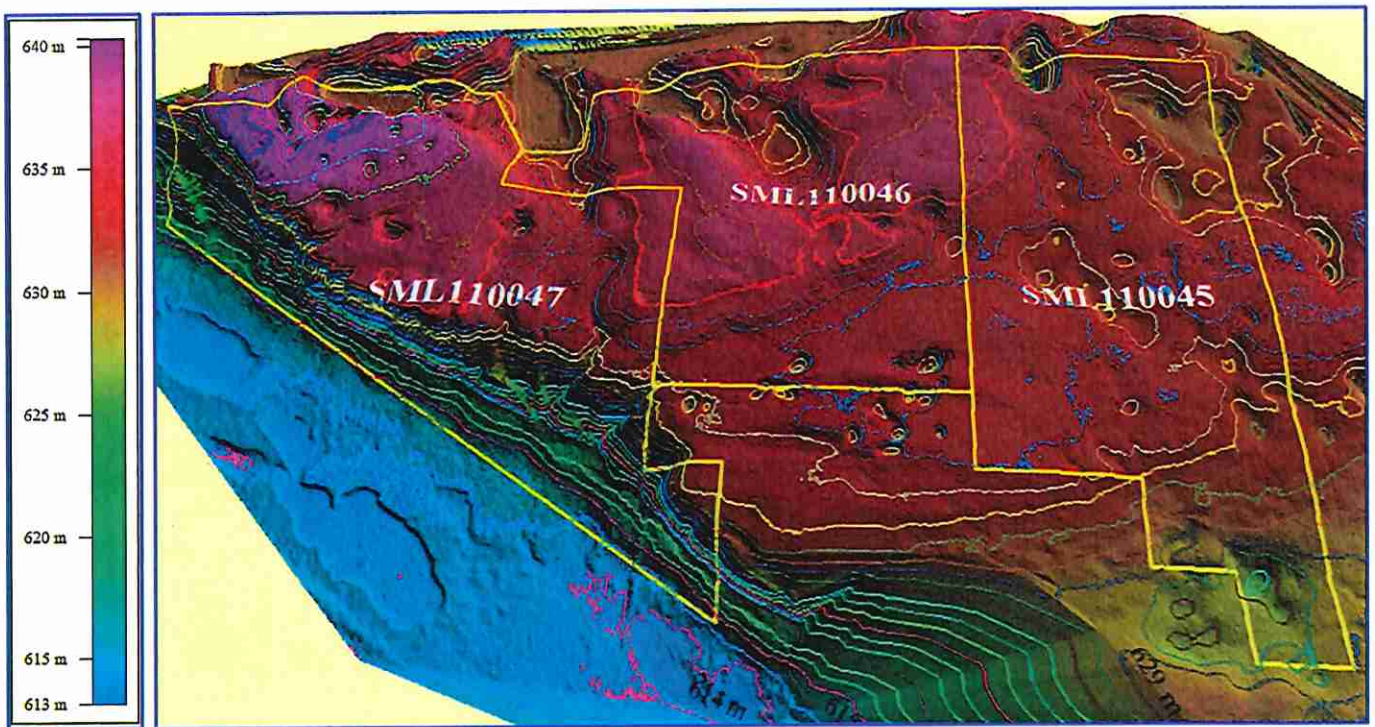


Fig. 6.2- SML 110045 Slope and Elevation Stats  
 (Generated from bare earth LiDAR data (Aug-Nov 2009) using Global Mapper software)

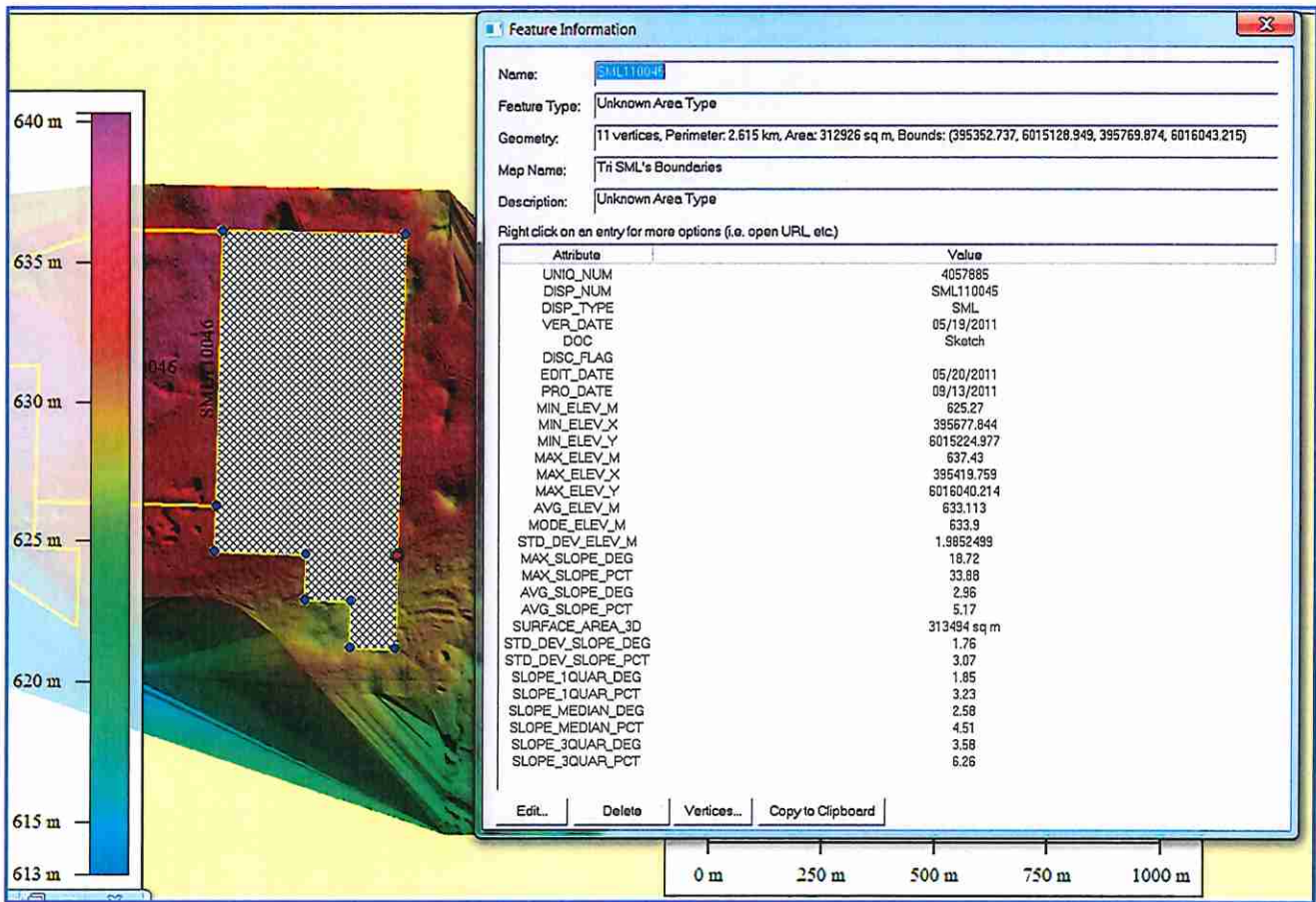




Fig. 6.3- SML 110046 Slope and Elevation Stats  
 (Generated from bare earth LiDAR data (Aug-Nov 2009) using Global Mapper software)

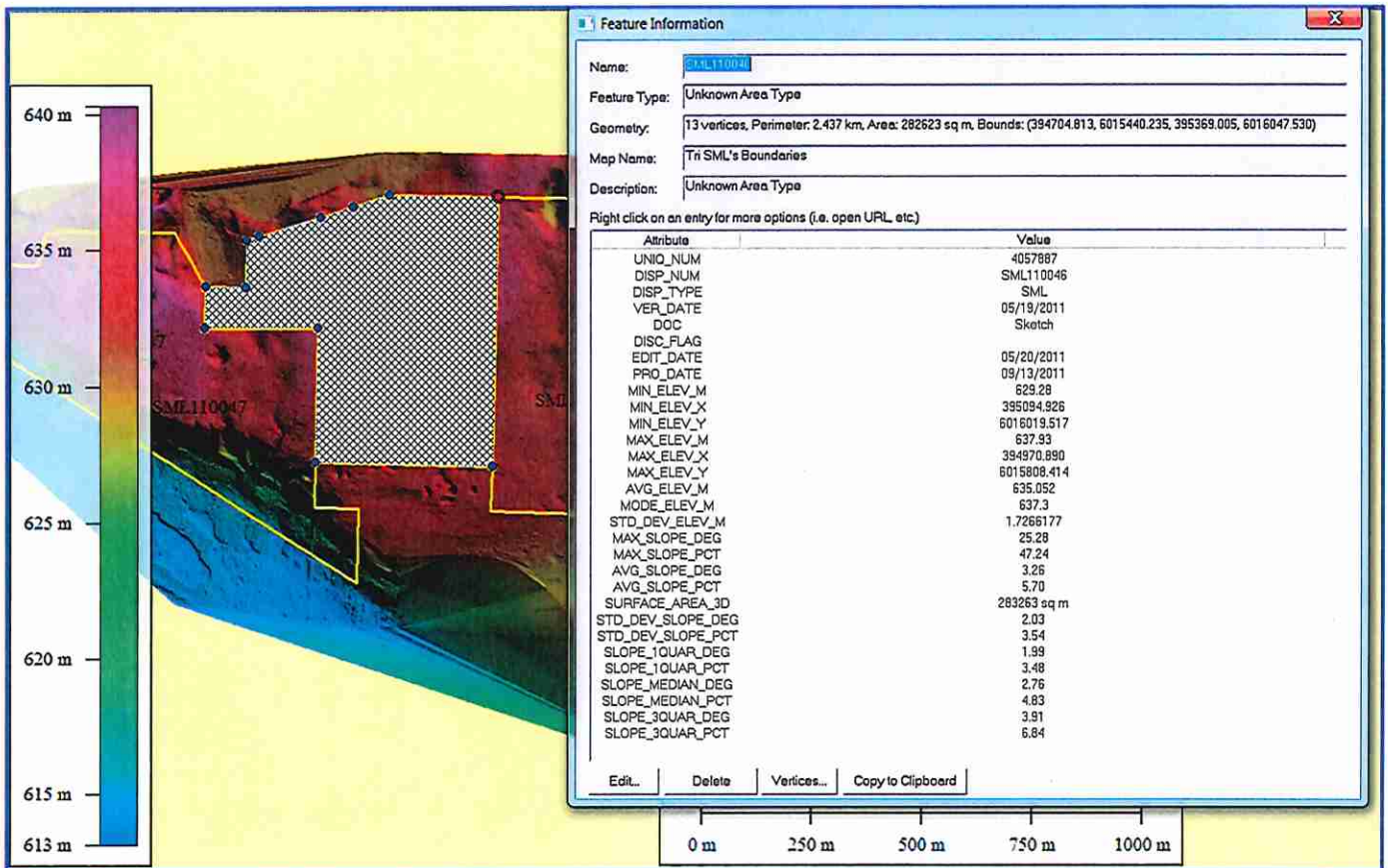


Fig. 6.4- SML 110047 Slope and Elevation Stats  
 (Generated from bare earth LiDAR data (Aug-Nov 2009) using Global Mapper software)

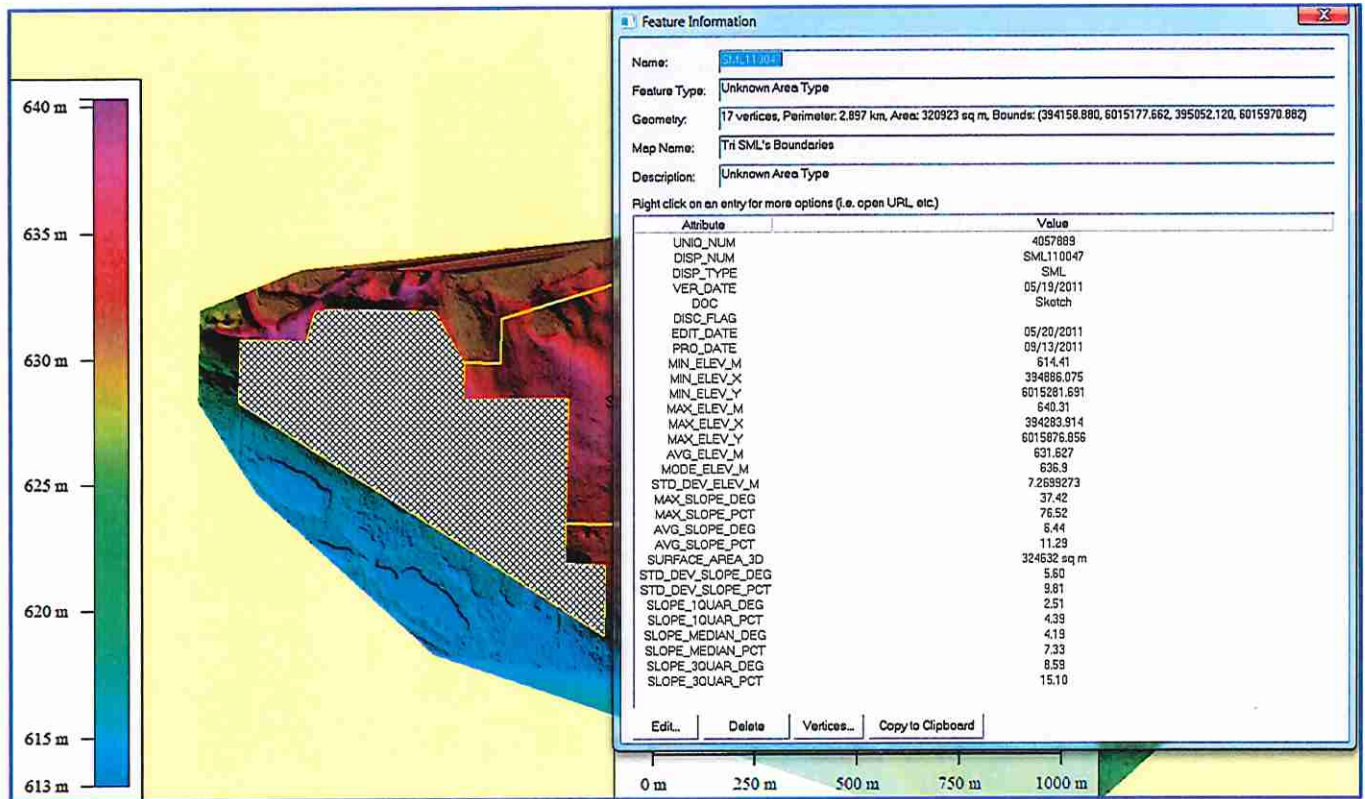
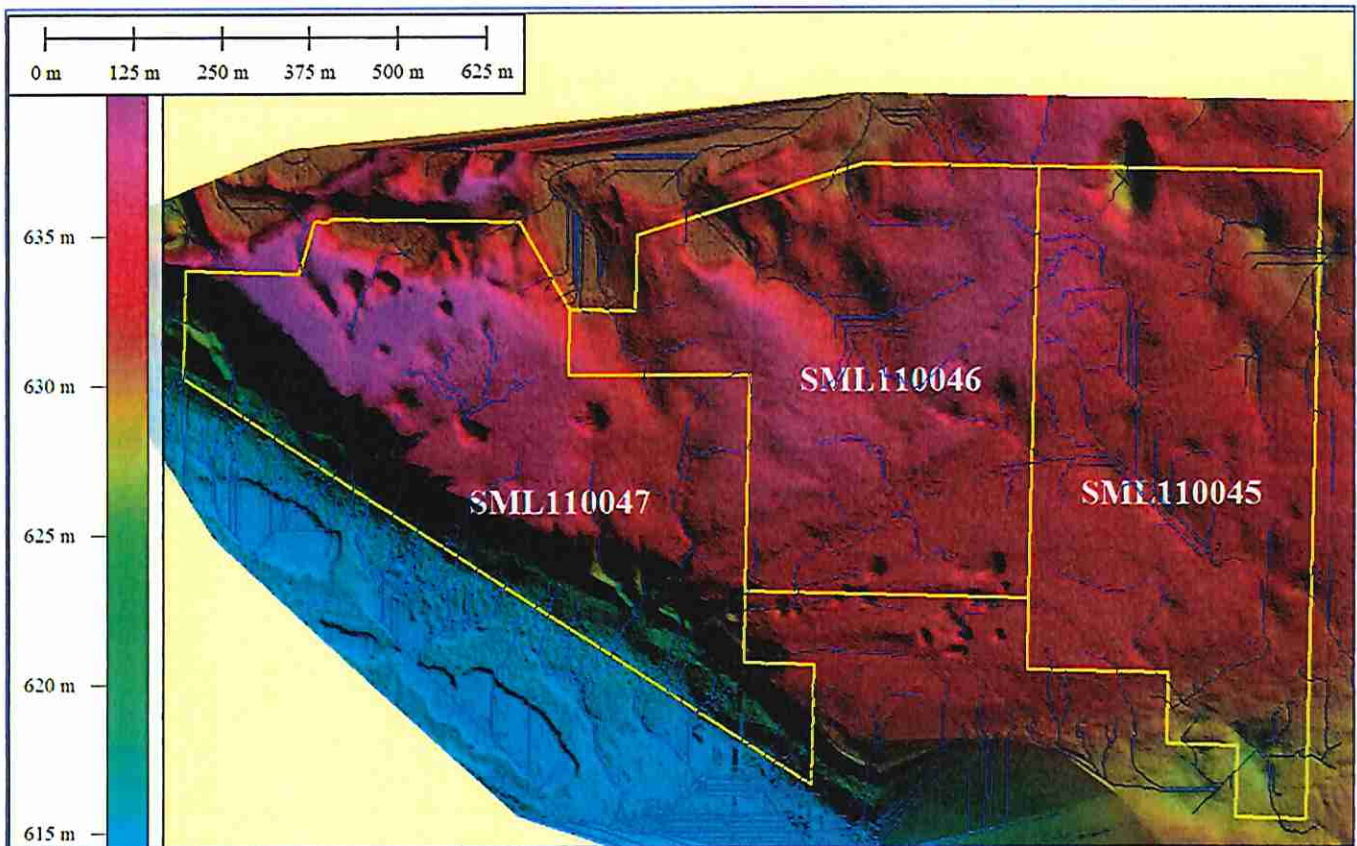


Fig. 6.5- Natural Surface Drainage Pattern (blue ines) in SML's 110045, 110046 and 110047  
(Generated from bare earth LIDAR data (Aug-Nov 2009) using Global Mapper software)





# Revegetation Using Native Plant Materials

## APPEND 7

### Guidelines for Industrial Development Sites

September 2003  
R&R/03-3

**Native species should be used where the revegetation goal is to re-establish a native plant community**

Operators of industrial developments on specified land are required to conserve and reclaim disturbances and obtain reclamation certificates. Conservation includes planning and management that protects the essential physical, chemical and biological characteristics of the environment. Reclamation requires the re-establishment of plant species that are compatible with the intended land use. This Fact Sheet gives guidance regarding the use of native plant materials for revegetation.

#### BACKGROUND

A native plant is defined as a species occurring within its historic range or in an extension of that range bounded by the dispersal potential of the plant and under the condition that the extension of that range is not known to be related to human activities.

Native species are recognized for their ecological function and intrinsic values as part of the natural forest, grassland, montane and wetland ecosystems, and should be conserved. Native plant material is used where the revegetation goal is to re-establish a native plant community, and there are insufficient native plant propagules in the soil or adjacent vegetation to accomplish this.

The use of native species should be consistent with local and/or regional land use plans/objectives and with existing or surrounding vegetation. The publication, *Native Plant Revegetation Guidelines for Alberta*, (Native Plant Working Group, 2001) should be consulted for more information.

#### GUIDELINES

##### Planning Revegetation Projects

Some native plant communities (e.g., rough fescue prairie) are very difficult to re-establish. It is very important to avoid disturbance to native plant communities whenever possible. If avoidance is not possible, then minimal disturbance techniques should be employed. Reduction of the area disturbed, use of special equipment and techniques and careful timing of construction can reduce impacts.

The goal of native revegetation is to establish a self-sustaining plant community that is compatible with surrounding land use. Achieving compatibility means meeting one or more of the following objectives consistent with the agreed upon post-disturbance land use: erosion control, provision of livestock forage, wildlife habitat, reforestation, traditional use, control of problem plant species (e.g., weeds, invasive plants), maintenance of biodiversity and aesthetics.

Sites and the surrounding area must be evaluated prior to disturbance to determine the most appropriate revegetation strategy. Species composition and plant community condition need to be recorded.

Rare and sensitive plants and plant communities should be identified and mitigation planned. The Alberta Natural Heritage Information Centre (ANHIC) has a database that tracks rare plants, animals, native plant communities and landscapes. Project managers must consult this database (780 427-5209).

The salvage of existing native plant materials and topsoil is a priority and needs to be considered in the planning stages. This is particularly important for native plant species for which seed is generally unavailable or for species that do not establish readily from seed.

**Native species should be selected based on their consistency and compatibility with pre-disturbance plant communities within the Natural Sub-region**

## Plant Material Selection

The revegetation goals of the project must be identified prior to deciding what types of native plant material to use, and how and where to use them. The revegetation plan should address short, medium and long-term goals within the context of the agreed upon end land use.

## Guidelines For Native Plant Selection

- Native species should be selected based on their consistency and compatibility with pre-disturbance plant communities within the Natural Sub-region.
- Lists of native trees, shrubs, grasses and forbs suited to various climates, soil types, and moisture regimes can be found in the publication, *A Guide to Using Native Plants on Disturbed Lands* (Gerling et al., 1996).
- Native species should be selected on the basis of known performance.
- Only seed species that will not come back naturally from the soil seedbank. For example, wetland areas do not require seeding as these already have a large seedbank of native species.
- The use of early successional species or native plant species that can survive in altered conditions can be considered in areas where late successional species may be difficult to establish.

## Guidelines For Selecting Plant Material For Erosion Control

- Use a native or non-native cover crop (annual, biennial, short-lived perennial) for early erosion control. Cover crops germinate and establish much more quickly than native species but do not persist in the community. It is important to seed the cover crop very lightly (1/10 of agricultural rate for cereal crops) or mow it so that it won't compete too much with native species for light and water.

- Seed or plant native species into the stubble of the annual crop or leave for natural recovery from the seed bank.
- Choose native species that have a range of heights/growth forms and rooting depths/patterns for maximum erosion protection.
- Use erosion control products (e.g., coir matting) and methods (e.g., water bars, diversion berms) in combination with seeding on erosion prone slopes.

## Guidelines For Selecting Plant Material For Maintaining Biodiversity

- Use a range of native plant materials (e.g., multiple species, varieties and/or age classes).
- Use different seed mixes and varying seeding rates. Using the same prescription everywhere results in too much uniformity. Keep careful records of what is done and where.
- Salvage the seedbank for replacement and plant materials such as seed or sod (that might otherwise not be available). For example, on sandy prairie soils where rangeland is in good to excellent condition, it is not necessary to seed needle and thread grass because it will come back from the seed bank.
- If one of the goals is to maintain biodiversity by encouraging movement of plants from offsite (e.g., on prairie):
  - Keep the proportion of very competitive, short-lived species like slender wheatgrass low
  - Lower the proportion of rhizomatous species (e.g., northern, western and streambank wheatgrass) as these species spread readily

## Guidelines For Selecting Plant Material For Sites Returned To Forest Cover

- Plant native or non-native cover crops for erosion and weed control the first year.
- Plant tree/shrub seedlings into stubble.
- Establish a grass cover only if the site has an erosion problem because perennial grass species can out-compete trees.

**It is important that native plant material used in revegetation is suitable in terms of performance, purity and potential germination**

## Guidelines For Selecting Plant Material For Use By Domestic Livestock

- ❑ Choose plant materials that match the surrounding pasture (so that use of the revegetated area can occur at the same time of the year).
- ❑ Do not include native plants in the mix that are known to be toxic to livestock.
- ❑ The success of revegetating grazed areas can only be assured by protecting the site from use by animals in the first year (or until the plants are well established). The grazing rotation can often be changed so that the pasture where the disturbance is located is rested.

## Guidelines For Selecting Plant Material For Creation Of Wildlife Habitat

- ❑ Use a holistic approach to revegetation to provide food and habitat for various animal species.
- ❑ Use native plant materials that fulfill the life-cycle requirements of key wildlife species.
- ❑ Use species that are similar to offsite.
- ❑ Plant species in patterns that simulate offsite conditions.

## Guidelines For Selecting Plant Material To Compete With Weeds Or Problem Plants

Sources are either close by or there are large volumes of undesirable seeds in the seedbank.

- ❑ Use a cover crop the first year (or longer) to compete with weeds and allow for weed control. If weeds still come up prolifically, mow and remove the excess prior to seed set (if growth of desirable plants is being inhibited).
- ❑ Seed native species that are known to be more competitive (e.g., wheatgrasses).
- ❑ Designing a seed mix with species that have differing growth forms (including roots) enables plants to occupy niches that would otherwise be occupied with weeds, and make more efficient use of resources (light, water). Healthy, desirable plants compete better with weeds.

## Seed Sources

It is very important to ensure that native plant material used in revegetation projects is suitable in terms of performance, purity and potential for germination.

- ❑ Use the Decision Making Chart for Sourcing Native Plant Material on page nine of the Native Plant Revegetation Guidelines for Alberta (Native Plant Working Group, 2001).
- ❑ The Alberta Native Plant Council has a listing of available native plant materials on their website, [www.anpc.ab.ca](http://www.anpc.ab.ca).
- ❑ Always ask for preferred species first (no demand means no supply). When preferred species are unavailable, be prepared with alternate choices or to alter the revegetation plan.
- ❑ Use scientific names when ordering seed.
- ❑ Make sure that the genetic source of the seed is from a similar region, otherwise performance can be an issue.
- ❑ Tree seed, seedlings and propagules use must be consistent with the *Management and Conservation Standards for Forest Tree Genetic Resources in Alberta* (Alberta Sustainable Resource Development - Lands and Forest Division, 2003). A seed lot registration number must be provided prior to use on public land.
- ❑ Ask the seed supplier for a Seed Analysis Certificate for each seed lot prior to mixing; check certificates for any weed species or other species of concern (e.g., invasive species like crested wheatgrass), timothy or smooth brome. This certificate indicates the germination potential of the seed which can vary widely and affects seeding rates.
- ❑ Order early (i.e., January) for availability.

**Replacing topsoil, relieving compaction, controlling persistent weeds, creating microsites and preparing a firm seedbed are critical steps in preparing a site for revegetation**

## Site Preparation

Site preparation is one of the most important factors in determining the success of revegetation projects. Inadequate preparation is one of the most common reasons for seeding failure.

- ❑ Topsoil and subsoil must be conserved and replaced. Newly constructed landforms require topsoil and subsoil suitable for the type of vegetation chosen.
- ❑ Any compaction that could inhibit root growth must be eliminated prior to seedbed preparation.
- ❑ Controlling persistent weeds/problem plants is crucial for revegetation success. Several years of control may be required to draw down the seedbank of undesirable species.
- ❑ Creating microsites using equipment that produces ridges and hollows (e.g., Kinsella Accuroller, Hodder Gouger) can enhance diversity and plant survival.
- ❑ Preparing a firm seedbed when drill seeding enhances germination by ensuring good soil to seed contact and regulating seeding depth.
- ❑ The use of nitrogen fertilizer is not recommended for most native revegetation projects. Fertilizer tends to promote weed growth and can slow down succession.

## Seeding and Planting

The chosen seeding or planting method varies according to project goals, end land use, previous experience and specific requirements of the species being used.

- ❑ Drill seeding is usually preferred over broadcast seeding because it uses less seed and places it in direct contact with the soil.
- ❑ A special drill (e.g., Truax, John Deere Rangeland) is usually required. All seeders must be calibrated for each mix (several times a day) to ensure efficient delivery of seed.

- ❑ Broadcast seeding is used in areas where access for drill seeders is poor. Broadcasting is also used for small seeded species and those that require light to germinate (e.g., June grass). Two to three times the amount of seed needed for drill seeding has to be used. Sites should be harrowed or rolled afterwards to ensure good soil to seed contact.

## Seeding or Planting Rates

Because native species differ so much in germination, establishment, growth habit and competitive interactions, it is recommended that an experienced revegetation specialist be consulted to design seed mixes.

- ❑ Seeding or planting rates should aim to meet project objectives.
- ❑ The target number of plants per square metre has to be decided.
- ❑ Reforestation guidelines recommend stems per hectare measurement as a guide to how many trees to place in a specific area. For other projects, the following target plant densities (following establishment) are recommended:
  - Grasses: 10 to 15 plants/m<sup>2</sup>
  - Forbs: 5 to 10 plants/m<sup>2</sup>
  - Shrubs: 1 to 2 plants/m<sup>2</sup>
  - Trees: 1 to 2 metres apart
- ❑ For seeding, calculations are made to determine how many pure live seeds (PLS) should be planted per square metre. Adjustments are made according to the relative ability of the species to germinate, establish and spread.
- ❑ Grass seeding rates of 300 seeds/m<sup>2</sup> are adequate for erosion control on most sites. More seed is not always better. If plants are too crowded, they do not develop robust shoot and root systems that are important for erosion control.
- ❑ If erosion is a concern, it is better to use effective erosion control products in combination with revegetation.

Revegetation is successful when the site is protected from erosion and plant composition and productivity meet end land use goals.

- On sites where ingress of native species from the surrounding plant community is desired, total seeding rates should be less than 300 seeds/m<sup>2</sup>. Since seed size is extremely variable, kg/ha varies according to the species used. Rates lower than 8 kg/ha are hard to run through a seed drill unless a carrier is used.
- Where competition from weeds or problem plants is a concern, increasing seeding rates of native species above normal rates can be beneficial.
- More information about calculating seeding rates and about the germination and establishment of various native species can be found in the publication, *Establishing Native Plant Communities* (Smreciu et al., 2003).

### Management of Revegetated Areas

Effective management of established native stands is required to ensure that the vegetation is sustainable.

- Restricted weeds must be eliminated and noxious weeds and invasive problem plants controlled. Care has to be taken to use methods that are compatible with the survival of desirable native plants in the stand.
- Non-persistent annual weeds (e.g., stinkweed, flixweed, Russian thistle) should only be controlled if they are inhibiting the growth of desirable native plants. Mowing and removal of excess material is the best approach. These weeds usually disappear from the stand in three to four years.
- Protection from grazing or browsing is advisable during the establishment period. Controlled grazing may help to eliminate unwanted plants.
- Grazing, mowing or prescribed burning of the revegetated area may be necessary to retain plant vigour and diversity and to reduce the risk of wildfire by maintaining safe fuel loads.

### Assessing Success

The establishment of a desired native plant community can be a lengthy process.

Landscape level assessments that should be made include erosion prevention and compatibility of the revegetated area with surrounding areas or agreed upon end land use. Revegetated areas should be checked several times in the first season and yearly thereafter.

Revegetation is considered successful if:

- Landforms are stable and there is no evidence of progressive erosion.
- There are sufficient numbers of plants, cover (live and litter) to ensure protection of the site from future erosion.
- The revegetated area can be used in the same manner and in conjunction with adjacent lands.
- The species growing on the site demonstrate that the existing or proposed end land use(s) can be sustained.
- Restricted or noxious weeds as designated in the *Weed Control Act* (or by the local municipality) are no more abundant than on controls.
- Eventually, vegetation productivity is equivalent or better than that of vegetation surrounding the disturbed area.
- Vegetation on the site is growing along expected successional trends.

There are key times that detailed assessments should be made to ensure that plant growth is sustainable:

- 3 to 6 weeks following seeding (density count to check seeding success; check health of shoots/roots).
- The end of the first growing season (density count; health).
- The end of the establishment period. This varies tremendously by species (e.g., one year for grasses; several years for many shrubs or trees). A density and/or cover assessment is carried out depending on the plant species. This assures that target plant densities have been met (e.g., 10 plants/m<sup>2</sup> for grasses). Health of plants above and below ground is also checked.





## Guidelines for Industrial Development Sites

- For communities that take a longer time to develop (e.g., forests, droughty prairie sites) or on drastically disturbed landscapes (e.g., mine sites), assessment is required until the plant community is considered to be sustainable.
- For some disturbance types, reclamation criteria have been developed (e.g., wellsites, pipelines, borrow pits). For natural recovery sites, guidance for assessment is provided in C&R/IL/02-3, as amended. The new Range Health Assessment may also be helpful for well-established plant communities.
- Good record keeping of every step in a revegetation program can help manage a specific site; determine necessary mitigation and assist with planning for future disturbances. The interpretation of successful revegetation is closely tied to the specific revegetation goal(s) for the site.

### USEFUL RESOURCES

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Alberta Energy and Utilities Board. Informational Letter 2002-1: *Principles for Minimizing Surface Disturbance in Native Prairie and Parkland Areas*. <http://www.eub.gov.ab.ca/bbs/requirements/ils/ils/il2002-01.htm>

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Native Plant Working Group. 2001. *Native Plant Revegetation Guidelines for Alberta*. H. Sinton (ed). Alberta Agriculture, Food and Rural Development and Alberta Environment. 58 pp. [www.agric.gov.ab.ca/publands/nprg/](http://www.agric.gov.ab.ca/publands/nprg/)



## Guidelines for Industrial Development Sites

Native Prairie Guidelines Working Group. 2002. *Petroleum Industry Activity in Native Prairie and Parkland Areas: Guidelines for Minimizing Surface Disturbance* (Calgary: Alberta Energy and Utilities Board), 36 p. Available from Alberta Energy and Utilities Board, Information Services, Main Floor, 540 - 5 Avenue SW, Calgary, Alberta T2P 3G4.

*Restoring Our Native Prairie Heritage*. Video script. Alberta Agriculture, Food and Rural Development.

Sinton, H. M. 2001. *Prairie Oil and Gas: A Lighter Footprint*. Alberta Environment. ISBN 0-7785-1711-X. 67 pp.

[www.gov.ab.ca/env/protenf/publications](http://www.gov.ab.ca/env/protenf/publications)

Smreciu, A., Sinton, H., Walker, D. and J. Bietz. 2003. *Establishing Native Plant Communities*. Alberta Agriculture, Food and Rural Development, Alberta Environment and Alberta Sustainable Resource Development (Available from Alberta Agriculture 1-800-292-5697).

Western Rangeland Consultants Inc. 2000. *The Transplantation of a Rare Native Grassland Ecosystem Adjacent to Highway 43, Near Grande Prairie, Alberta. Volume 3, Final Report*. Report prepared for Civil Projects Branch, Alberta Transportation, Edmonton, AB. 43 pp.

### CONTACTS

The following can be reached toll free by calling 310-0000 and then dialing the number shown below.

#### For public lands:

Alberta Sustainable Resource Development  
Public Lands Branch,  
3rd Floor, 9915 - 108 Street,  
EDMONTON, Alberta T5K 2G8.  
Phone: (780) 427-3570  
Fax: (780) 422-4251  
e-mail: [reclaim.account@gov.ab.ca](mailto:reclaim.account@gov.ab.ca)

#### For all other lands:

Alberta Environment,  
Science and Standards Branch,  
4th Floor, 9820-106 Street,  
EDMONTON, Alberta T5K 2J6  
Phone: (780) 944-0313  
Fax: (780) 422-4192  
e-mail: [land.management@gov.ab.ca](mailto:land.management@gov.ab.ca)

## **APPENDIX C**



Province of Alberta

## WATER ACT

# WATER (MINISTERIAL) REGULATION

### **Alberta Regulation 205/1998**

With amendments up to and including Alberta Regulation 93/2023

Current as of April 27, 2023

### Office Consolidation

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## Repeals

### Repeals

**75** The *Dam and Canal Safety Regulation* (AR 351/78), *Exemption Regulation* (AR 80/96), *Water Resources Regulation* (AR 73/91), *Water Power Regulation* (AR 72/91), *Water Supply System Rates Regulation* (AR 295/89) and *Water Well Regulation* (AR 123/93) are repealed.

## Expiry

**76** Repealed AR 253/2018 s26.

**77** Repealed AR 253/2018 s27.

## Schedule 1

### Activities that are Exempt from the Requirement for an Approval

**1(1)** In section 2(c), “crossing” includes but is not limited to a watercourse crossing, bridge crossing, culvert crossing or ford, but does not include an ice or snow bridge, pipeline crossing or telecommunication line crossing.

**(2)** Despite subsection (1), the only bridge crossing included in “crossing” is a single span bridge.

**2** The following activities are exempt from the requirement for an approval:

- (a) placing, constructing, installing, maintaining, using, replacing or removing a floating platform or a portable or seasonal pier, boat launch or dock in or adjacent to a water body, including cutting aquatic vegetation and removing invasive aquatic plants in accordance with the applicable disturbance standards established under section 3 of the *Public Lands Administration Regulation* (AR 187/2011) if directly incidental to the placing, constructing, installing, maintaining, using, replacing or removal of the floating platform or portable or seasonal pier, boat launch or dock;
- (b) placing, constructing, installing, maintaining, replacing or removing a fence in or adjacent to a water body;

- (c) placing, constructing, installing, maintaining, replacing or removing a crossing in a water body where
  - (i) the water body is not frequented by fish,
  - (ii) the hydraulic, hydrologic or hydrogeological characteristics of the water body are not altered at flood events below the one in 25 year flood event,
  - (iii) the size of the culvert used in constructing the crossing, if applicable, is 1.5 metres or less in diameter,
  - (iv) there is no diversion of water from the water body, and
  - (v) the installation of the crossing is not part of a causeway through a lake, slough, wetland or other similar water body;
- (d) landscaping except where
  - (i) it is in or adjacent to a watercourse frequented by fish or in a lake or a wetland, or
  - (ii) it changes the flow or volume of water on an adjacent parcel of land or adversely affects an aquatic environment;
- (e) installing a water supply line in, adjacent to or beneath a water body for the purpose of diverting water from the water body, if the line is installed by directional drilling or boring, and if a licence is not required for the diversion of the water and, where that water body is frequented by fish, if the installed water supply line has a screen of sufficient mesh size to prevent fish from entering;
- (f) installing a portable pump, portable aeration line or portable water supply line in or adjacent to a water body if there is not a significant alteration or disturbance of the bed or shore of the water body;
- (g) removal of debris from a water body that is not frequented by fish if the person removing the debris owns or occupies the land adjacent to the water body where the debris is located;
- (h) removal of a beaver dam from a water body if the person removing the beaver dam owns or occupies the land adjacent to the water body where the beaver dam is

- located, or has been authorized to remove the beaver dam under section 95 of the Act;
- (i) repealed AR 253/2018 s28;
  - (j) drilling or reclaiming an exploratory test hole, shot-hole or borehole, except where the drilling or reclaiming
    - (i) is related to groundwater exploration or for the purpose of a water well, or
    - (ii) is in a watercourse frequented by fish, a wet lakebed or a wetland;
  - (k) repealed AR 253/2018 s28;
  - (k.1) activities expressly exempted from the requirement of an approval by the Wells Directive;
  - (l) placing, constructing, maintaining or filling in a dugout except where the dugout
    - (i) is located in a watercourse frequented by fish or in a lake or a wetland,
    - (ii) is located in a watercourse, lake or wetland in an area that is subject to a reservation by order of the Minister under section 35 of the Act or that is subject to a Director's decision under section 53 of the Act,
    - (iii) would change the flow of water on an adjacent parcel of land,
    - (iv) has a capacity greater than 2500 cubic metres in volume,
    - (v) is located in the same watercourse and parcel of land as an existing dugout, or
    - (vi) is restricted by an approved water management plan;
  - (m) commencing, continuing or carrying out, including monitoring, an activity that is referred to in section 3 of this Regulation;
  - (n) the placing, constructing, installing, maintaining or operating of works to prevent surface water from flowing through or from or both through and from, a confined feeding operation or a manure storage facility as defined in the *Agricultural Operation Practices Act* if

- (i) the works do not significantly alter the volume, quality or rate of water flowing to each location where water naturally discharges from the area covered by the confined feeding operation or the manure storage facility,
  - (ii) the works do not alter or affect any non-flowing water body,
  - (iii) the works are not located on a water body frequented by fish,
  - (iv) the works are governed and regulated by an approval or registration with respect to a confined feeding operation or an authorization with respect to a manure storage facility, under Part 2 of the *Agricultural Operation Practices Act*,
  - (v) a professional engineer designs and develops plans for the works, stamps and signs the plans, certifies that the plan design meets the requirements of this clause and provides the owner with a copy of the plans and certification, and
  - (vi) the owner retains a copy of the engineer's plans and certification;
- (o) commencing, continuing or conducting exploration for groundwater for the purpose of obtaining information in support of an application for a licence under the Act;
- (p) an activity conducted for the purpose of dewatering a sand and gravel site if
- (i) the water diverted as a result of the dewatering is
    - (A) diverted into and retained in an on site pit within the boundaries of the project site, without using the water, or
    - (B) diverted back into a water body without using the water, if the water is equal to or of the same quality as the water that was originally diverted,
  - (ii) the dewatering site, the water body and the on site pit referred to in subclause (i) are hydraulically connected, and
  - (iii) there is no adverse effect on
    - (A) the aquatic environment,



- (B) a household user, licensee or traditional agriculture user, or
  - (C) any parcel of land;
- (q) an activity conducted for the purpose of dewatering a construction site if
- (i) there is no adverse effect on
    - (A) the aquatic environment,
    - (B) a household user, licensee or traditional agriculture user, or
    - (C) any parcel of land,
- and
- (ii) the maximum duration of the dewatering operation is 6 months or less for the entire construction project.
- AR 205/98 Sched.1;200/99;311/2002;237/2006;  
67/2007;253/2018;301/2020;159/2021

## Schedule 2

### Activities Within Designated Areas of the Province for Which an Approval is not Required

**1** An approval is not required for placing, constructing, installing, maintaining, replacing or removing an ice bridge or snow fill, unless the ice bridge or snow fill is located in or on

- (a) the portion of the North Saskatchewan River
  - (i) located between the Bighorn Dam and the Town of Drayton Valley, or
  - (ii) located between the west boundary of the Town of Devon and the City of Fort Saskatchewan;
- (b) the portion of the Red Deer River
  - (i) located between the north boundary of township 36, range 28, West of the 4th Meridian and the west boundary of township 39, range 26, West of the 4th Meridian, or
  - (ii) located between the north boundary of township 29, range 21, West of the 4th Meridian and the east

**Notice of appeal**

**91(1)** A notice of appeal may be submitted to the Board by the following persons in the following circumstances:

- (a)** where the Director issues an approval, makes an amendment, addition or deletion pursuant to an application under section 70(1)(a) or makes an amendment, addition or deletion pursuant to section 70(3)(a), a notice of appeal may be submitted
  - (i)** by the approval holder or by any person who previously submitted a statement of concern in accordance with section 73 and is directly affected by the Director's decision, in a case where notice of the application or proposed changes was provided under section 72(1) or (2), or
  - (ii)** by the approval holder or by any person who is directly affected by the Director's decision, in a case where no notice of the application or proposed changes was provided by reason of the operation of section 72(3);
- (b)** where the Director refuses
  - (i)** to issue an approval, or
  - (ii)** to make an amendment, addition or deletion in respect of an approval pursuant to an application under section 70(1)(a),

- the applicant may submit a notice of appeal;
- (c) where the Director cancels or suspends an approval under section 70(3)(b) or (4), the approval holder may submit a notice of appeal;
  - (d) where the Director cancels a certificate of qualification under section 83(1)(b), the holder of the certificate of qualification may submit a notice of appeal;
  - (e) where the Director issues an enforcement order under section 210(1)(a), (b) or (c), the person to whom the order is directed may submit a notice of appeal;
  - (f) where an inspector issues an environmental protection order regarding conservation and reclamation under section 140 or 141, the person to whom the order is directed may submit a notice of appeal;
  - (g) where the Director issues an environmental protection order under section 129,
    - (i) the person to whom the order is directed, and
    - (ii) any person who is directly affected by the designation of the contaminated sitemay submit a notice of appeal;
  - (h) where the Director issues an environmental protection order, except an environmental protection order directing the performance of emergency measures under section 114, 151 or 160 and an environmental protection order referred to in clause (g), the person to whom the order is directed may submit a notice of appeal;
  - (i) where an inspector issues a reclamation certificate under section 138, or the Director or an inspector amends a reclamation certificate under section 139, the operator and any person who receives a copy of the certificate or amendment under section 145 may submit a notice of appeal;
  - (j) where the Director or an inspector cancels a reclamation certificate, the operator may submit a notice of appeal;
  - (k) where the Director or an inspector refuses to accept an application for a reclamation certificate or an inspector refuses to issue a reclamation certificate, the operator may submit a notice of appeal;

- (l) where the Director or an inspector issues, amends or cancels a remediation certificate under section 117, any person who receives notice of the issuance, amendment or cancellation as provided for in the regulations may submit a notice of appeal;
  - (l.1) where the Director or an inspector refuses to accept an application for a remediation certificate or refuses to issue a remediation certificate under section 117, any person who receives notice of the refusal as provided for in the regulations may submit a notice of appeal;
  - (m) where the Director designates an area as a contaminated site under section 125, any person who is directly affected by the designation may submit a notice of appeal;
  - (n) where the Director requires a person to pay an administrative penalty under section 237, the person to whom the notice is directed may submit a notice of appeal;
  - (o) where the Director refuses a request for confidentiality under section 35(5)(b), the person to whom the notice is directed under section 35(6) may submit a notice of appeal;
  - (p) persons authorized under Part 9 of the *Water Act*, in accordance with Part 9 of the *Water Act*.
- (2) Notwithstanding subsection (1)(b), where the Director refuses to issue an approval pursuant to an order of the Minister under section 64, no notice of appeal may be submitted in respect of that refusal.
- (3) Where an activity prescribed in the regulations for the purposes of this subsection is the subject of an approval and is carried out in stages, and where the Director issues an approval in respect of a stage, no notice of appeal may be submitted in respect of a stage that is already covered by the approval.
- (4) A notice of appeal must be submitted to the Board
- (a) not later than 7 days after receipt of a copy of the enforcement order or the environmental protection order, in a case referred to in subsection (1)(e), (f) or (h),
  - (b) not later than one year after receipt of a copy of the reclamation certificate, in a case referred to in subsection (1)(i) relating to the issuing of a reclamation certificate, and

- (c) not later than 30 days after receipt of notice of the decision appealed from or the last provision of notice of the decision appealed from, as the case may be, in any other case.
- (5) The Board may, on application made before or after the expiry of the appeal period referred to in subsection (4), extend that period, where the Board is of the opinion that there are sufficient grounds for doing so.
- (6) A notice of appeal submitted to the Board under this Act or in accordance with the *Water Act* must contain the information and be made in the manner provided for in the regulations.
- (7) A notice of appeal initiates an appeal of the decision objected to.

RSA 2000 cE-12 s91;2002 c4 s1;2003 c37 s14;  
2003 c42 s6;2006 c15 s10

THIS IS EXHIBIT "I" TO THE AFFIDAVIT  
OF BYRON LEVKULICH SWORN ON THE  
13TH DAY OF FEBRUARY, 2024

*Robin Grace White*

Commissioner for Oaths in and for the  
State of Colorado

ROBIN GRACE WHITE  
NOTARY PUBLIC  
STATE OF COLORADO  
NOTARY ID 20134069976  
MY COMMISSION EXPIRES November 16, 2025

**ENVIRONMENTAL PROTECTION AND ENHANCEMENT ACT**

BEING RSA 2000, c. E-12

**ENVIRONMENTAL PROTECTION ORDER EPO-EPEA-35659-16**

Mantle Materials Group, Ltd., previously JMB Crushing Systems Inc.  
P.O. Box 6977  
Bonnyville, AB T9N 2H4

Byron Levkulich, Director  
JMB Crushing Systems Inc. and Mantle Materials Group, Ltd.  
1400 16<sup>th</sup> Street, Suite 320  
Denver CO 80202  
United States

Aaron Patsch, Director  
JMB Crushing Systems Inc. and Mantle Materials Group, Ltd.  
1400 16<sup>th</sup> Street, Suite 320  
Denver CO 80202  
United States

(Collectively hereafter referred to as the “Parties”)

**WHEREAS** 2161889 Alberta Ltd. (“216”) operated a gravel pit (the “Pit”) on a portion of public land legally described as NW-14- and SW-14-061-18-W4M (the “Lands”) in the County of Smoky Lake, in the Province of Alberta;

**WHEREAS** on May 1, 2021, as part of the restructuring of 216 and JMB Crushing Systems Inc. (“JMB”) under the *Companies Creditors Arrangement Act*, 216, JMB, and Mantle Materials Group, Ltd. amalgamated and continued as Mantle Materials Group Ltd. (“Mantle”);

**WHEREAS** Byron Levkulich and Aaron Patsch are former Directors of JMB and 216, and are current Directors of Mantle;

**WHEREAS** the Pit is approximately 22.15 Hectares in area. Appendix “A” to this Order contains a map showing the dimensions, location, and features of the Pit;

**WHEREAS** a “pit” is defined in the *Environmental Protection and Enhancement Act* (the “Act”) to mean an operation on or excavation from the surface of the land for the purpose of removing sand and gravel and includes any associated infrastructure;

**WHEREAS** a “lease” is defined in the *Public Lands Administrative Regulations* (the “Regulation”) to mean a surface material lease;

**WHEREAS** the Lands are contained in surface material lease 120005 (“SML 120005”) that is a disposition that was originally issued to Jordan Ball under the *Public Lands Act* on October 5, 2017. SML 120005 expires on October 4, 2027;

**WHEREAS** on May 2, 2019, SML 120005 was assigned from Jordan Ball to 2161889 Alberta Ltd.;

**WHEREAS** Mantle is the current disposition holder of SML 120005, as a result of the amalgamation of JMB, 216, and Mantle, in accordance with the *Regulation* for the Lands for the purpose of removing material by surface excavation;

**WHEREAS** “surface material” is defined in the *Regulation* to mean clay, marl, sand, gravel, topsoil, silt and peat;

**WHEREAS** on October 5, 2017, Alberta Environment and Protected Areas (“AEPA”) approved the Conservation and Reclamation Business Plan for SML 120005 (See Appendix “B”);

**WHEREAS** section 137 of Act states that an operator must conserve and reclaim specified land and unless exempted by the regulation, obtain a reclamation certificate in respect of the conservation and reclamation;

**WHEREAS** the Parties are persons who carry on or have carried on an activity on or in respect of specified land other than pursuant to an approval or registration, and are persons who act as principal or agent of person(s) referred to in any of the *Act*, under section 134(b)(i) to (vi), and therefore are operators;

**WHEREAS** Clause 20(c) of SML 120005 provides authority to EPA to, in its sole discretion, order the disposition holder to reclaim the Lands to an equivalent land capability, as defined in the *Regulation*;

**WHEREAS** Clause 3 of the Schedule A – Operating Conditions to SML 120005 states that the disposition holder shall conduct its operations or activities and reclaim any disturbed land in accordance with the most recent and regulatory approved Conservation and Reclamation Business Plan that forms part of the authority;

**WHEREAS** the surface land disturbance on the Pit is “specified lands” as defined by the *Conservation and Reclamation Regulation* section 1(t)(v);

**WHEREAS** on July 14, 2023, Mantle commenced restructuring proceedings by filing a Notice of Intention to Make a Proposal pursuant to section 50.4(1) of the *Bankruptcy and Insolvency Act*, which proceedings were converted to a proceeding under the *Companies’ Creditors Arrangement Act* on January 10, 2024;

**WHEREAS** on September 8, 2023, Alberta Forestry and Parks (“FP”) advised Mantle that the lease may be cancelled, or portions of the land withdrawn if development and production of the land was not in accordance with the approved Conservation and Reclamation Business Plan and Addendum. To date the site has only been partially excavated and does not follow the sequencing plan outlined in the Conservation and Reclamation Business Plan. FP also asked Mantle if they intend to excavate mineable material from the pit before the end of the operating season;



**WHEREAS** on September 15, 2023, Mantle responded to FP that it was “looking to transfer the pit registration”. Mantle did not respond to FP’s direct questions about completing reclamation at the Pit or applying for a reclamation certificate. Further, Mantle was silent on any interim reclamation that had been completed at the Pit;

**WHEREAS** on September 19, 2023, FP requested assistance from AEPA to enforce outstanding reclamation obligations on five pits on public land for which Mantle is the disposition holder including the Pit;

**WHEREAS** on September 22, 2023, AEPA conducted a site inspection of SML 120005 and observed the following:

- the north half of the developed Pit appeared to be bordered by topsoil berms around perimeter;
- slash piles arranged in an east-west direction extending from the west boundary of the Pit;
- topsoil berms covered in vegetation parallel to the slash piles;
- multiple stockpiles of coarse sand and pea gravel in what appeared to be the operations area in west central area of the Pit;
- the north side of the Pit appeared to be excavated to 2 m depth and refilled with tightly deposited coarse sand stockpiles;
- the southeast corner was dominated by a Pit excavated to a depth of 6 m, with side slopes approximately 1:1; and
- a large stockpile of what? was located west of the excavation to a height of approximately 6 m.

**WHEREAS** Heather Dent, Compliance Manager, Regulatory Assurance Division, Boreal East District (the “Inspector”) has been designated as an Inspector for the purposes of issuing Environmental Protection Orders under section 140 of the Act;

**WHEREAS** the Inspector is of the opinion that Mantle’s financial resources, lack of interim reclamation or any stated intention related to its regulatory obligation to reclaim and conserve the Pit warrants enforcement of its obligations given that Mantle is the successor corporation of JMB and 216 that were restructured in 2021 and more recently in 2023, Mantle commenced restructuring proceedings; and

**WHEREAS** the Inspector is of the opinion that directing the performance of work in the Pit is necessary to conserve and reclaim specified land.

**THEREFORE**, I Heather Dent, Inspector, pursuant to section 140 of the Act, DO HEREBY ORDER:

1. Mantle shall complete the following actions at the Lands on or before **September 20, 2024**:
  - a. place overburden materials within the Pit to a minimum thickness of 1.5 m and create the base for the soils placement by contouring the Pit with reject material and other soil materials available for reclamation;
  - b. establish grade and contour across the Pit so that:

- i. reclaimed slopes are 6:1 or gentler as described in Section 10.0 Planned Reclamation of the Conservation and Reclamation Business Plan,
    - ii. the 3 m undisturbed buffer along the Lands boundary, as described in Section 8.1 Buffers and Setbacks of the Conservation and Reclamation Business Plan (see Appendix B), is maintained;
    - iii. surface water drainage is directed to drain as shown in Conservation and Reclamation Business Plan (see Appendix B), Drawings – Dwg. No. 4;
  - c. rip the soils in the processing areas and all internal haul roads to alleviate compaction and increase permeability prior to placing soils;
  - d. place an average depth of 18 cm of soils over Pit; and
  - e. roll back woody debris located on the surface of the Pit to provide surface roughness and a variety of microsites for plant establishment.
2. Mantle shall complete the following actions on or before **November 24, 2024**:
- a. revegetate the Pit with planting islands of shrubs, various young trees, and a predominance of jack pine, and distribution of conifer seeds collected from trees harvested from the site during site development in accordance with the most recent Conservation and Reclamation Business Plan.
3. Mantle shall complete the following actions on or before **November 24, 2024**:
- a. Monitor the Pit and take all necessary steps to:
    - i. prevent erosion on all slopes of the Pit,
    - ii. control weeds in accordance with *Weed Control Act*,
    - iii. ensure the revegetation required by clause 2 has established and is of acceptable density, height, and/or yield. Where needed, supplement revegetation by seeding with an approved mixture and/or planting native species to achieve effective revegetation of the Lands.

4. Mantle shall submit progress updates to the Inspector on **December 20, 2024, June 30, 2025,** and **January 1, 2026,** that include a detailed summary of all the reclamation activities including monitoring required in clause 1 to 3 inclusive in this order undertaken at the Pit.
5. Mantle must apply for a reclamation certificate as per Section 134 of the Act by **May 1, 2026.**

DATED at the City of Edmonton in the Province of Alberta, this 30th day of January 2024.



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Heather Dent, Inspector  
Regulatory Assurance Division-North

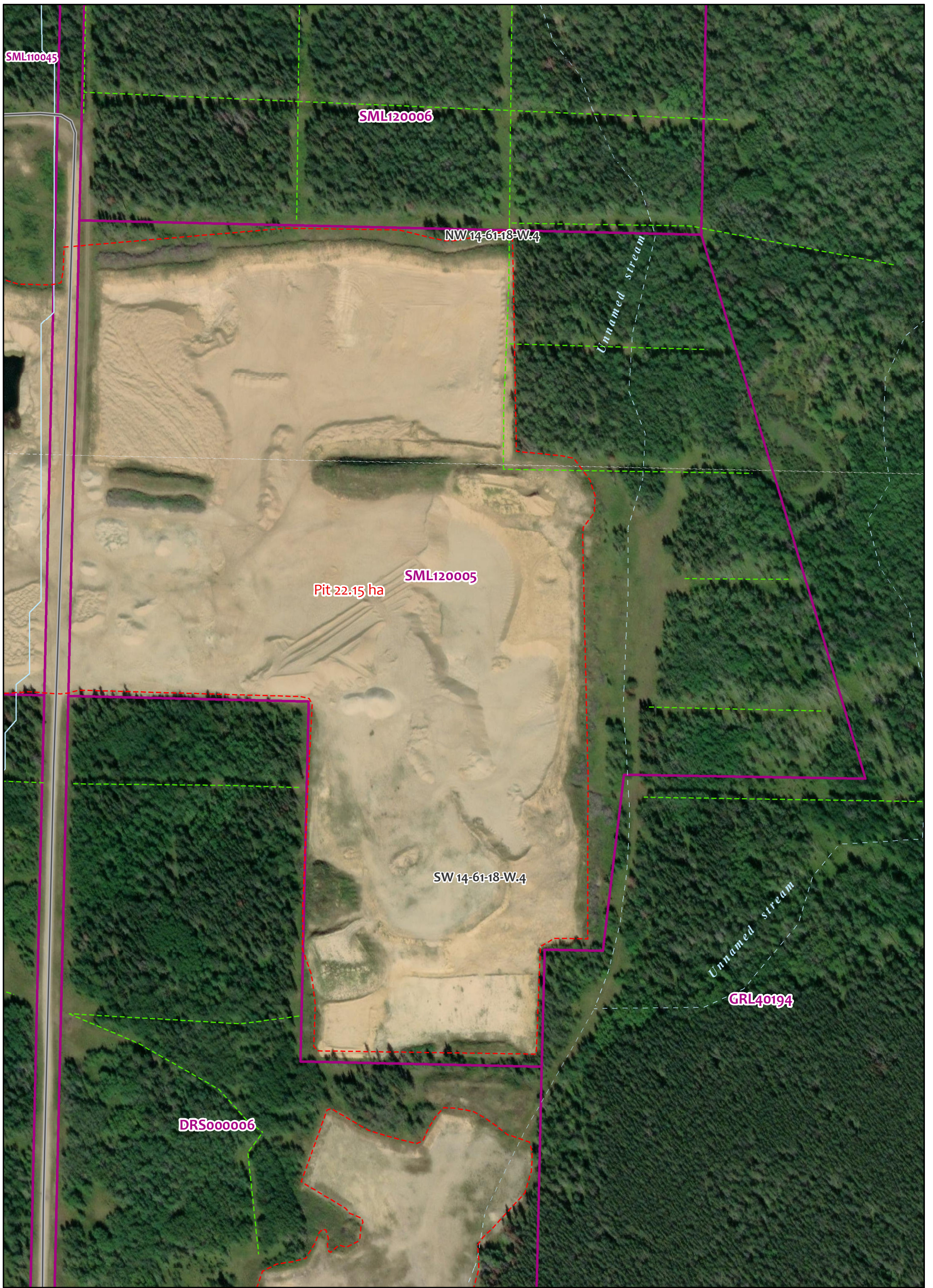
**Section 91 of the *Environmental Protection and Enhancement Act* may provide a right of appeal against this decision to the Alberta Environmental Appeals Board. There may be a strict time limit for filing such an appeal. A copy of section 91 is enclosed. For further information, please contact the Board Secretary at #306 Peace Hills Trust Tower, 10011 - 109 Street, Edmonton, Alberta, T5J 3S8; telephone (780) 427-6207; fax (780) 427-4693.**

**Notwithstanding the above requirements, the Party shall obtain all necessary approvals in complying with this order.**

**Take notice that this environmental protection order is a remedial tool only, and in no way precludes any enforcement proceedings being taken regarding this matter under this Act or any other legislation.**

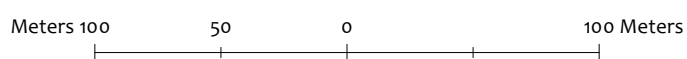
**Further, contravention of the Environmental Protection Order may lead to additional enforcement proceedings, up to and including prosecution.**

# **APPENDIX A**



Mantle Materials - Smoky Lake Pits  
SML120005

Scale 1 : 3,000



- - - Cutline/Trail
- Two Lane Gravel Road
- Pit (22.15 ha)
- Dispositions

Information as depicted is subject to change, therefore the Government of Alberta assumes no responsibility for discrepancies at time of use.  
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Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community  
Resolution: 0.5m  
Accuracy: 5m  
Imagery Date: 20220830  
Source: Maxar



Coordinate System: NAD 1983 UTM Zone 12N  
Produced by Northeast Geospatial Unit  
Created by: rhonda.connors on 10/6/2023  
Project # NE-0817\_SML120005  
Base Data provided by the Government of Alberta under the Alberta Open Government Licence.

# **APPENDIX B**

CONSERVATION AND RECLAMATION  
BUSINESS PLAN


AND

ADDENDUM

APPROVAL FOR

SURFACE MATERIAL LEASE NO

SML 120005

|   |
|---|
| Conservation and Reclamation Business Plan  |
| Plan Approved Date: 07.5/17   |
| CRB No. 140072  |
|  |
| The Director, and   |

---

# Conservation and Reclamation Business Plan

## Surface Materials Leases

### SML 120005 & SML 120006



*SML Boundary over air photograph (Valtus Image, July 31 to Sept. 2011)*

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*Sketches and illustrations are conceptual composites*

*Prepared for Jordan Ball and Cathy Ball by Tor Land Resource Inc.  
Revised September 2016; Created December 2013*



Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006

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## PREFACE

This is the revised Conservation and Reclamation Business Plan (CRBP) for SML 120005 and SML 120006. Changes from the original SML are found in **blue font**. Figures, tables, reports and drawings found throughout the document have also been updated to match the revised CRBP or added to provide clarity.

Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006

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## SUMMARY

SML 120005 and 120006 are located within parts of NW and SW 14-061-18-W4M. The Leaseholders plan to extract the sand and gravel within the lease areas to meet the demand for aggregate for private and public projects in Smoky Lake County, Sturgeon County and the Edmonton area.

The area is currently treed and has a grazing lease. Lease holder letters of consent are attached (Appendix E).

The site is accessed from the south by Range Road 181 and undeveloped government road allowances.

The SMLs are in a remote location, far from homes and recreation areas; neighbouring activities are industrial, and the area does report as a sensitive area for long-leaved bluets (*Houstonia longifolia*). A site investigation determined they are not present within the SMLs.

A wildlife survey was conducted in the SML to determine if any "Sensitive" species were present. Of the six sensitive bird species reported, the Least Flycatcher and Western Wood-pewee are of most concern as the SML areas have ideal for foraging and nesting. However, impact on these birds and all wildlife in the area will only be temporary. Tree clearing will occur prior to March 15th, or following a site-review to ensure that the nesting of migratory birds is not disturb. The site will be developed in stages and progressively reclaimed to grazing land as requested by AEP field office. Grazing land will provide more edge habitat and open space, which is ideal for the Least Flycatcher, and Western Wood-pewee.

The site will be cleared in multi phases and trees will be salvaged. Arrangements will be made with Vanderwell Contracts Ltd. or with any other available logging company, once approval is given.

The reclaimed site will be suitable for grazing, although it is recommended that the area be returned to wildlife habitat by the wildlife biologist. The slopes and topography of the reclaimed site will be gentle and rolling hills. Revegetation by natural succession is expected during the phased operation. Native trees will be transplanted in islands from the next area to be cleared and will supplement native revegetation from the seedbank within the salvaged soils. As the reclamation is monitored, additional seeding of native seeds will enhance revegetation.

Conservation and Reclamation Business Plan  
 Applicant: Jordan Ball and Cathy Ball  
 Parts of NW and SW 14-061-18-W4M  
 SML 120005 and SML 120006

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Applicant: Jordan Ball and Cathy Ball  
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Conservation and Reclamation Business Plan  
 Applicant: Jordan Ball and Cathy Ball  
 Parts of NW and SW 14-061-18-W4M  
 SML 120005 and SML 120006

## 1.0 INTRODUCTION

### 1.1 Development Overview

The bulk volume of mineable aggregate in SML 120005 (Jordan Ball) and SML 120006 (Cathy Ball) is approximately 3,960,730 m<sup>3</sup>; the leaseholders propose to extract aggregate for private and public projects in Smoky Lake County, Sturgeon County and the Edmonton area. It is estimated that the gravel will be removed from the SMLs over a period of 10 to 15 years; however, market demand will significantly affect the timing for completion.

Mining is sequenced within two large mining blocks, MB1 and MB2, which are subdivided into sub-blocks for the purpose of illustration of the progressive reclamation. The operation, including the progressive reclamation and reclamation phase, is illustrated in five phases (see Appendix F, DWG 2).

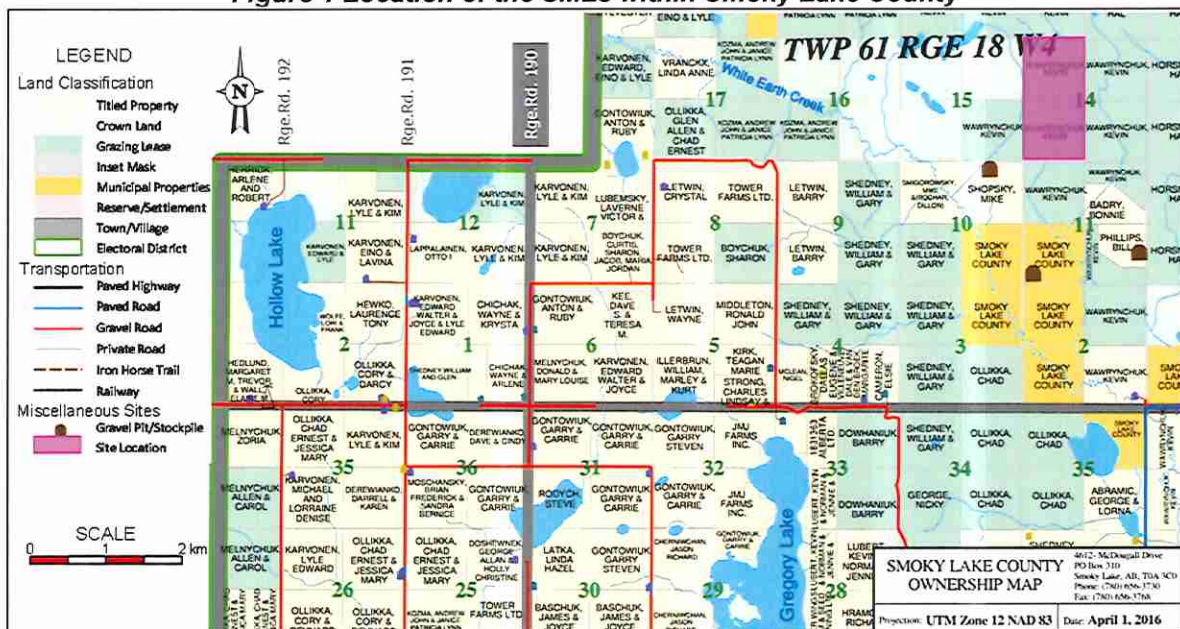
Operations will include tree clearing and salvage, soil stripping and salvage, aggregate excavation, crushing, screening and stockpiling. A temporary portable asphalt plant may produce product for infrequent short periods under the [Code of Practice for Asphalt Plants](#).

Once mining operations are complete, the site will be reclaimed to a treed and grass environment suitable for wildlife habitat.

### 1.2 Location and Ownership

The Crown Dispositions are located approximately 26.2 km (driving distance) north of Smoky Lake within parts of NW and SW 14-061-18-W4M in Smoky Lake County (as seen in Figure 1).

Figure 1 Location of the SMLs within Smoky Lake County



Source: [Smoky Lake County](#); accessed June 16, 2016 [1]

Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006

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## **2.0 MUNICIPAL REQUIREMENTS**

### **2.1 Development Permit**

The lease holders will apply for and maintain a Development Permit from Smoky Lake County.

## **3.0 ALBERTA GOVERNMENT REQUIREMENTS**

### **3.1 Alberta Land Survey**

Alberta Public Land Survey surveys were completed for the SML's boundaries by Gillmore Surveys (Arctic) Ltd. and the survey plan are dated November 5, 2013 (Appendix A).

## **4.0 ACCESS**

### **4.1 Transportation Plan/Haul Route**

Access to the site is along the west side of SML 120005 (see [Appendix F, DWG 2](#)). Hauling will be the access approximately 0.7 km south and 1.6 km east along the undeveloped Road Allowances. Then, it continues south along range road 181. From range road 181, trucks can continue south, or go east or west. A development permit from Smoky Lake County will address the haul route.

## **5.0 SITE EVALUATION**

### **5.1 Site Assessment Method**

On-site assessment was conducted during the testing phase on November 22, 2011. Further analyses were completed by examining test data (Appendix A) and by referencing various maps, reports, websites, and etc. (see References section). The Geographic Land Information Management Planning System (GLIMPS) was searched on October 08, 2013 to determine other interest holders. The Alberta Energy Regulator (AER) Landscape Analysis Tool (LAT) was referenced to identify areas of special concern (Appendix D) [2]. Base data and geo-referencing information were obtained from Abacus Datagraphics [3] and AltaLis [4].

### **5.2 Testing**

Testing of this area was completed November 23 to 26, 2011 as part of SME 100280; 15 test holes within the SML boundaries and 14 near the SML boundaries were drilled using a tracked skid steer with a 6 inch diameter flighted auger system. Rock content was determined by auger resistance and the matrix was observed as the augers brought the materials to the surface. Test logs are provided in Appendix A and test locations are shown on DWG 1A, 1B.

The client completed additional logs from excavator test pits on March 05 to 09, 2012 and March 15, 2012. The locations of these test holes and test logs are provided in Appendix B and on DWG 1C.



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### 5.3 Depth and Volume of Deposit

The sand overburden depth ranges from 0 to 3.6 m, and where present, is on average 1.5 m deep. Where mineable gravel is present, the thickness of the gravel units range from 0.6 m to 12.8 m and are on average 6.6 m. Most commonly, gravel is at the surface and there is a second mineable gravel layer below sand or low rock content gravel. These sand and low rock content gravel layers and lenses range in thickness from 0.6 to 5.4 m and are on average 2.7 m. The maximum depth of excavation will be 18.2 m.

The volume of gravel in each SML is estimated below:

- SML 120005: 3,479,300 m<sup>3</sup>
- SML 120006: 481,430 m<sup>3</sup>

The quality of the gravel unit ranges from medium (35 to 50% rock content) to high (greater than 50% rock content) and the gravel is within a sand matrix.

## 6.0 AREAS OF REGULATORY CONCERN

### 6.1 Wildlife and Vegetation Sensitivities

No plant or animal species with “At-risk” status are known to occur in the area [3], [5]. AER LAT reported no special features (wildlife or regions) in the SMLs [2], and the Fish and Wildlife Management Information System (FWMIS) reported no species present (fish or wildlife) in 3 km radius from the area, so a second report with a 5 km radius was generated [6]; both reports are found in Appendix D. A wildlife survey was conducted on July 15, 2016 by Beth MacCallum (P. Biol. MEDes), who was assisted by Manna Parseyan (Tor Land Resource Inc. Planner) and guidelines specified in [Sensitive Species inventory Guidelines](#) will be followed. It was reported that on site:

- 23 bird species were observed
  - o 17 are currently listed as “Secure”
  - o 6 are currently listed as “Sensitive”
  - o no Sharp-tailed Grouse, waterfowl, boreal raptors, or owls occurrences
- couple occurrences or sightings of black bear, coyote, red squirrel, ground squirrel, moose, and deer
- no amphibians occurrences

See section 7.4 or the Wildlife Report in Appendix D for more information.

Alberta Conservation Information Management System (ACIMS) data search results reported that the SMLs are within a sensitive area for long-leaved bluets (*Houstonia longifolia*) [7]. A detailed site investigation was carried out for long-leaved bluets; however, there were no occurrences of the sensitive species (see Appendix C for more details).

## 6.2 Migratory Birds

The nesting period for migratory birds is from early April to August 31 [8]. Clearing will take place either prior to March 15, or if clearing is to take place during the nesting period, the operator will consult with a qualified professional to inspect the area to ensure there are no active migratory bird nests present prior to clearing the vegetation. If any active nests are found, those areas will not be disturbed until the qualified professional advises it is safe to do so.

## 6.3 Fisheries Act

Pit operations in the SMLs will not affect fish or fish habitat. White Earth Creek is located approximately 1350 m south of the SML 120005. Along all SML boundaries surface runoff will be retained on-site because slopes dip towards the centre of the SMLs (DWG 3A, 3B, 3C, 4). Surface runoff will not be pumped off the SMLs. Progressive reclamation will begin as soon as possible to re-establish vegetation.

## 6.4 Historical Resources

The current Historical Sites and Areas Document were reviewed and an HRV is not assigned for these areas (19). Signed Applications for Historical Resources Act Clearance are included in Appendix C.

## 6.5 Parks/Other Protected or Special Areas

The nearest park/protected/special area is Hanmore Lake Provincial Recreation Area, located approximately 3.6 km (straight line) northeast of SML 120006. The SML is far enough away from the park that no impact will occur to the features within the park, and recreational users will not see or hear pit activities.

The SMLs do not lie within or adjacent to a Natural Area, Eco-reserve, or Heritage Rangeland. There are no known permanent or research sample plots, or Rangeland Benchmarks within 100 m of the SML boundaries.

## 6.6 First Nations Consultations

First Nations consultation with Saddle Lake, Whitefish (Goodfish), and Beaver Lake First Nations is complete (FNC # 201300671 and FNC # 201300557) (found in Appendix E).

## 6.7 Other Interest Holders

There are few interest holders in this area. Within W½ 14-061-18-W4M:

- TPA 951 Elmer Cardinal
- GRL 40194 Kevin Wawrynychuk
- LOC 080963 Canadian Natural Resource Limited
- MSL 081288 Canadian Natural Resource Limited
- PNT 830854 Athabasca Office - Rangeland District - Lands Division

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- DRS 000006 Transportation
- CRP 040034 Transportation
- PLA Canadian Natural Resource Limited

An agreement has been reached with GRL 40194 holder Kevin Wawrynychuk (found in Appendix E), and a notification will be sent to Elmer Cardinal (holder of TPA 951) 10 days prior to project development, as suggested in [Guidelines for Acquiring Surface Material Dispositions on Public Lands](#) [9]. No FMA holder for this area.

## 7.0 EXISTING LAND USE & BIOPHYSICAL CONDITIONS

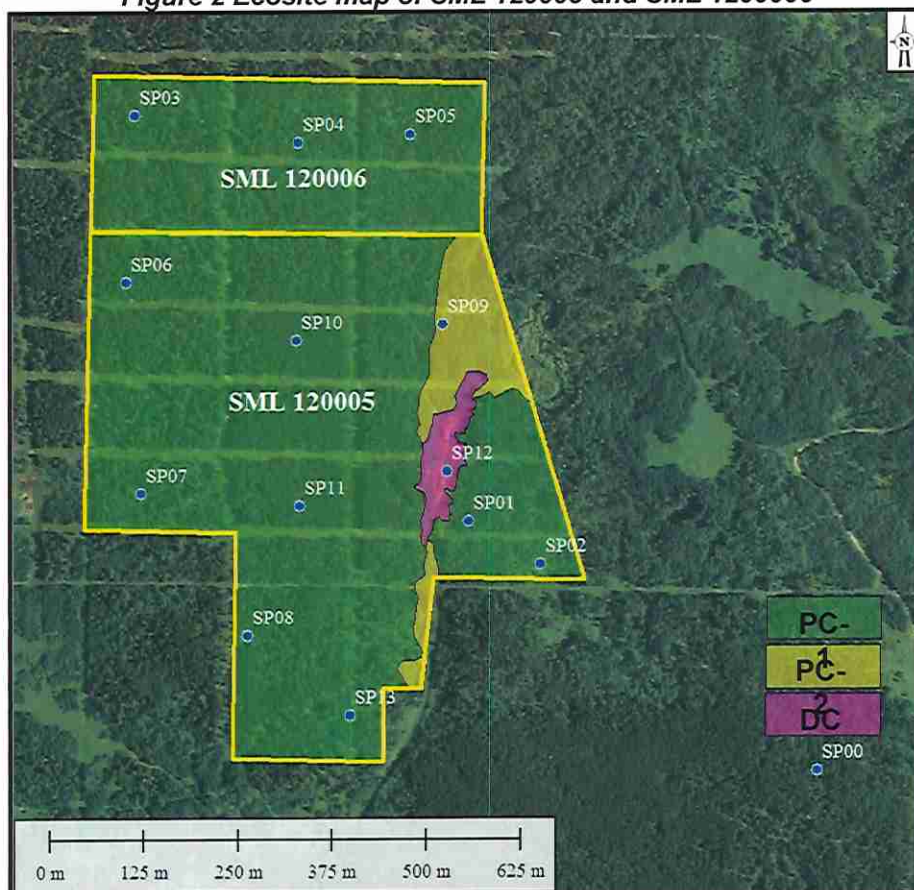
### 7.1 Existing Land Use and Disturbances

The SMLs area is currently forested wildlife habitat and a grazing lease area. There are trails and cutlines in the area (DWG 1A, 1B). Existing site conditions are described in Appendix B (soil), Appendix C (vegetation) and Appendix D (wildlife); the assessments were carried out by qualified team members.

### 7.2 Vegetation

The SMLs lie within the Central Mixedwood subregion of the Boreal Forest natural region [10]. The vegetation is dominated by mature spruce (70%). The forest is mixedwood ("CD" 70-50% coniferous trees). The ratio of spruce to pine is estimated at 4 to 1 and the ratio of aspen to other deciduous trees is estimated at 9 to 1.

**Figure 2 Ecosite map of SML 120005 and SML 120006**



Source: Valtus Imagery Inc. [11]; altered in Global Mapper

The ecosite polygons were delineated on 1:3200 scale aerial photograph, as seen in Figure 2. Undisturbed plant communities were classified using the dichotomous keys and plant community indicators described for the Boreal Mixedwood natural region in Field Guide to Ecosites of Northern Alberta [12], summarized in Table 1. The disturbed and grazed area could not be classified to a natural plant community type. Please refer to Appendix C, under Ecosite Classification for more information.

**Table 1 Natural and disturbed plant community types observed on-site [12]**

| Figure Label | Ecosite Code and Name               | Ecosite Phase Code and Name | Plant Community Code and Name    | Area (ha) |
|--------------|-------------------------------------|-----------------------------|----------------------------------|-----------|
| PC -1        | b – blueberry                       | b1 – blueberry Pj-Aw        | b1.1 – Pj-Aw/blueberry-bearberry | 38.9      |
| PC -2        | d – low-bush cranberry              | d1 – low-cranberry Aw       | b1.2 – Aw/saskatoon-pin cherry   | 2.2       |
| DC           | disturbed, cleared, and grazed area |                             |                                  | 0.8       |

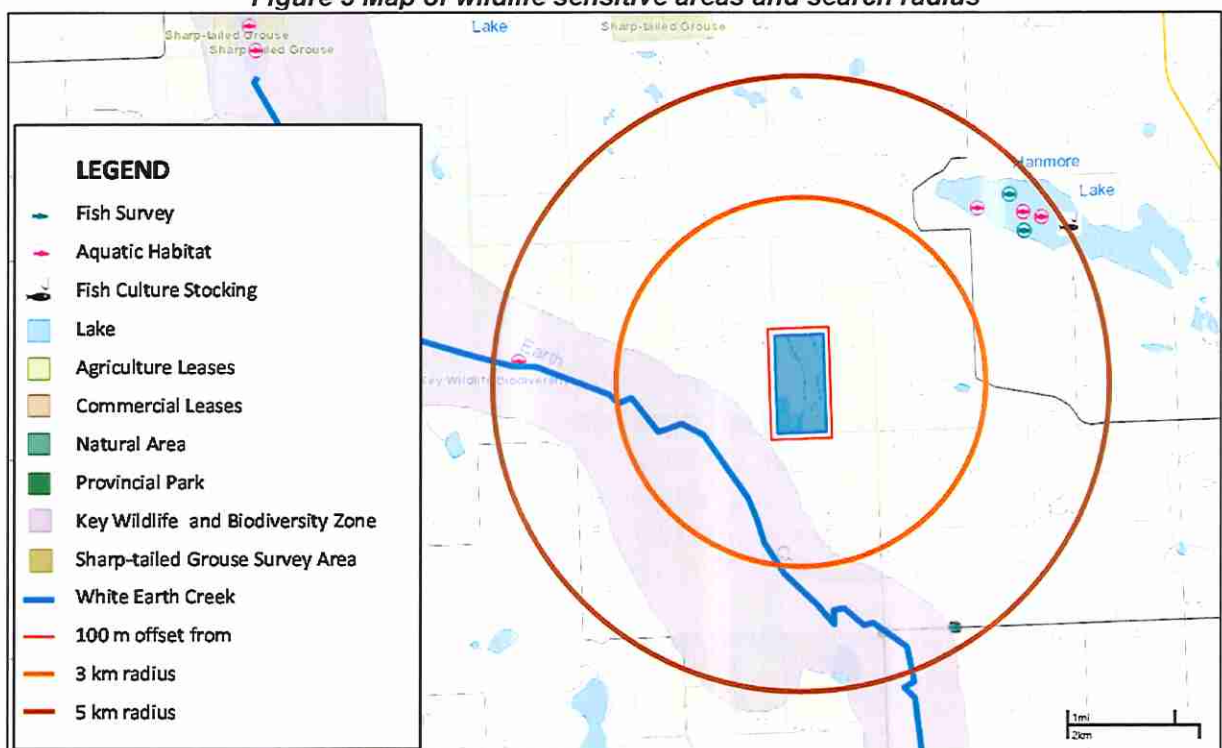
### 7.3 Forest Capability

The Canada Land Inventory for Forestry classifies the majority of the lease areas as 80% Class 5MF and 20% Class 6W [13]. The site has moderately severe to severe limitations to the growth of commercial forests due to soil moisture deficiency, low fertility, and soil moisture excess.

### 7.4 Wildlife

As previously mentioned the AER LAT and FWMIS reported no sensitive features, or wildlife and fish inventory. The search radius used in FWMIS was increased from 3 km to 5 km. As seen in Figure 3, the 5 km radius includes more of the Key Wildlife and Biodiversity Zone and Hanmore Lake and starts to approach the Sharp-tailed Grouse Survey Area north of the site. The wildlife survey conducted on July 15, 2016 found no evidence of Sharp-tailed Grouse. Sharptails choose habitat based on openness of landscapes, and prefer low density Boreal forest. The open landscape enables aggressive displays by males, while the sparse vegetation provides cover from predators. This type of habitat is only found in a small area on the SW corner of the lease.

**Figure 3 Map of wildlife sensitive areas and search radius**



Source: [Fish and Wildlife Management Information System](#); accessed June 21, 2016

Using the 5 km radius, Table 2 summarizes the “Sensitive” species reported by FWMIS.

**Table 2 Summary of sensitive species reported by FWMIS [6]**

| Common Name                | Scientific Name<br>[14]      | 2010 Status<br>[15] | Typical Habitat<br>[16] [17]        |
|----------------------------|------------------------------|---------------------|-------------------------------------|
| Canada Lynx                | <i>Lynx canadensis</i>       | Sensitive           | Forest                              |
| Western Toad (Boreal Toad) | <i>Anaxyrus boreas</i>       | Sensitive           | Ponds, streams, or lakes            |
| Common Yellowthroat        | <i>Geothlypis trichas</i>    | Sensitive           | Scrub<br>(wetlands/praries/forest)  |
| Great Blue Heron           | <i>Ardea herodias</i>        | Sensitive           | Marsh                               |
| Great Gray Owl             | <i>Strix nebulosa</i>        | Sensitive           | Dense timber                        |
| American Green-winged Teal | <i>Anas crecca</i>           | Sensitive           | Marsh                               |
| Least Flycatcher           | <i>Empidonax minimus</i>     | Sensitive           | Forest                              |
| Lesser Scaup               | <i>Aythya affinis</i>        | Sensitive           | Ponds, or lake                      |
| Sandhill Crane             | <i>Grus canadensis</i>       | Sensitive           | Marsh                               |
| Sedge Wren                 | <i>Cistothorus platensis</i> | Sensitive           | Marsh                               |
| Sora                       | <i>Porzana carolina</i>      | Sensitive           | Marsh                               |
| Western Wood-pewee         | <i>Contopus sordidulus</i>   | Sensitive           | Woodland edges or<br>riparian zones |

Due to the possibility of sensitive species being found on-site, a wildlife survey was conducted by Beth MacCallum (P. Biol. MEDes) on July 14 and 15, 2016. Please refer to the Wildlife Survey (in Appendix E) for complete observations and comments. The only sensitive species that were observed on or in the vicinity of the SMLs were:

- Barn Swallow (*Hirundo rustica*), Least Flycatcher (*Empidonax minimus*), and Western Wood-pewee (*Contopus sordidulus*) were seen on site
- signs of Pileated Woodpecker (*Dryocopus pileatus*) foraging in the study area
- common Nighthawk (*Chordeilis minor*) was heard on the road between study areas
- Black Tern (*Chidonais niger*) was observed from HWY 28

However, no roost sites were found for the Barn Swallows and the jack pine trees were too small for the Pileated Woodpecker to nest, so the SMLs are probably only used as foraging areas. The common Nighthawk was only heard when on the forest road, and is reported to nest in a wide range of habitats; therefore is not exclusive to the SML areas. The habitat for the Black Tern does not occur within the SMLs, and the one observed most likely nest on Smoky Lake. The only sensitive birds of concern are the Least Flycatcher and Western Wood-pewee, however they were no common to the area, and prefer edge habitat and open spaces, therefore there displacement from the SML areas would only be temporary. There were no occurrences of waterfowl or shorebirds on, due to the lack of waterbodies or wetlands in the area.

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In terms of mammals, typical species were found. There were signs of black bears, coyote, moose and deer in the area, and a Red squirrel, a Richardson's Ground squirrel, and whitetail deer were observed. No amphibians were found on site.

Overall, the area with the SMLs was not found to have any unique wildlife habitat, compared to the surrounding area, therefore no permanent impact is expected on the wildlife in this area. Migratory birds may nest within the site; therefore, tree clearing activity will be conditional (see section 6.2). The SML will be developed in phases and progressively reclaimed to minimize the length of time that wildlife is displaced. The site will be reclaimed through natural regeneration and succession, and tree planting. The reclaimed land will be grazing land as requested by AEP field office.

## 7.5 Soils

Regional soil studies describe the soils in the areas as follows:

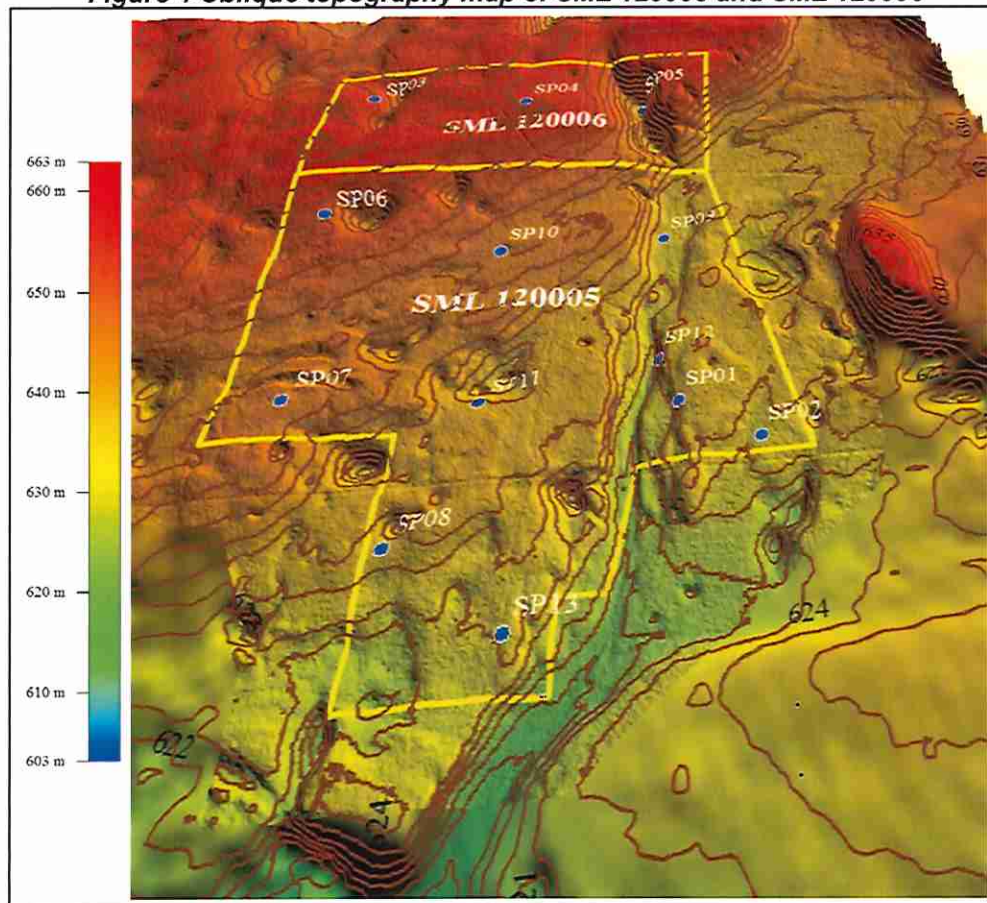
- Orthic gray luvisol and dark gray luvisol; the area contains soils that are coarser textured than the dominant or co-dominant soils (AGRASID Soil Polygon 21830) [18]
- 50% degraded dystic brunisol, loamy sand, rapidly drained (Nestow); 30% degraded eutric brunisol, coarse loamy sand, rapidly drained (Edwand); 20% degraded eutric brunisol and brunisolic gray luvisol, sandy loam and loamy sand, rapidly drained (Nicot Complex) [19], [20]

The initial site visit in November 23 to 26, 2011 and subsequent observations (22 back hoe excavation carried out in March 05 to 09, and March 15, 2012) indicate that the thickness of topsoil varies across the site. Most recently, a soil survey was completed on July 14 and 15, 2015. Refer to Appendix B for a plan-view map of sampling location and an observations summary.

## 7.6 Topography

The topography is gently rolling to hummocky. Slopes range from gentle [6-9% (10:1)]. [Figure 5](#) shows the topography of the area, and the statistics are summarized in [Table 3](#).

**Figure 4 Oblique topography map of SML 120005 and SML 120006**



Source: LiDAR Data sourced from AltaLis [4]; contours added in Global Mapper

Contours at 1m intervals were generated in Global Mapper software from bare earth LiDAR data, which was collected between August and November of 2009. The image has been vertically exaggerated 5 times.



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**Table 3 Topographic statistics of SMLs from Global Mapper**

| Parameter                    | Unit  | SML 120005 | SML 120006 |
|------------------------------|-------|------------|------------|
| perimeter                    | (km)  | 2.59       | 1.44       |
| area                         | (ha)  | 31.58      | 10.54      |
| surface area                 | (ha)  | 31.65      | 10.57      |
| minimum elevation            | (m)   | 620.13     | 624.07     |
| minimum elevation            | (x)   | 396158.28  | 396222.23  |
| minimum elevation            | (y)   | 6014819.69 | 6015576.73 |
| maximum elevation            | (m)   | 634.76     | 635.62     |
| maximum elevation            | (x)   | 395809.61  | 395799.69  |
| maximum elevation            | (y)   | 6015524.81 | 6015553.90 |
| average elevation            | (m)   | 627.21     | 632.62     |
| mode elevation               | (m)   | 629.10     | 634.00     |
| standard deviation elevation | (m)   | 2.76       | 2.24       |
| maximum slope                | (deg) | 24.06      | 21.00      |
| maximum slope                | (%)   | 44.65      | 38.38      |
| average slope                | (deg) | 3.14       | 3.62       |
| average slope                | (%)   | 5.49       | 6.32       |
| standard deviation slope     | (deg) | 2.10       | 2.69       |
| standard deviation slope     | (%)   | 3.67       | 4.70       |

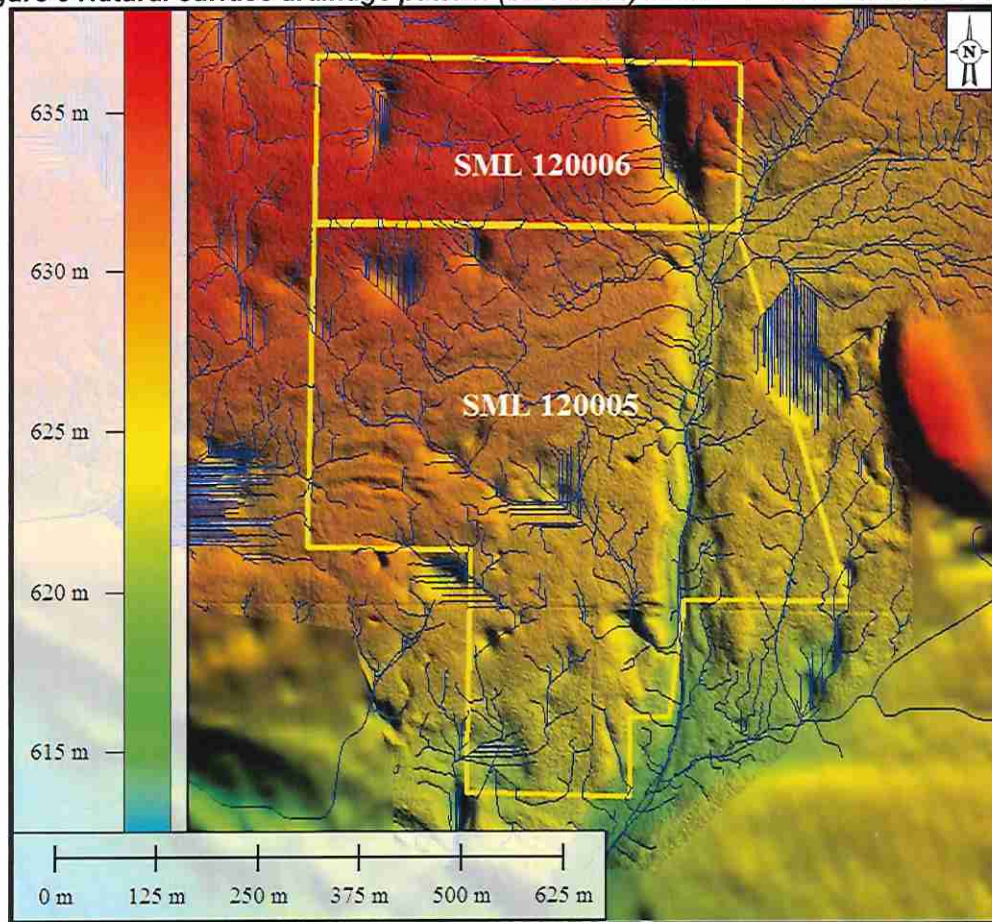
### 7.7 Storm Water and Surface Drainage

The site does not contain and is not adjacent to a permanent water body. There is an ephemeral draw, which is shown on the Smoky Lake County Ownership Map passing through the SMLs (see Appendix F, DWG 1A, 1B) [11]. Local surface drainage patterns are likely where hummocks are present. The general direction of surface drainage is from north to south, see Figure 5. Overland flow is unlikely because the permeable gravel deposit is at the surface – rainfall and snowmelt infiltrate the gravel before flowing in the subsurface towards the lower south.

A temporary portable asphalt plant will be located on a compacted pad. Berms will be constructed around the asphalt plant and asphalt haul route to contain any surface runoff. A HDPE liner will be installed under oil transfer area (see section 9.5 for more information about asphalt plant).

Along all SML boundaries, surface runoff will be retained on-site because slopes dip towards the centres of the SML areas (DWG 3A, 3B, 3C and 4). Surface runoff will not be pumped off the SMLs. Progressive reclamation will begin as soon as possible to re-establish vegetation.

**Figure 5 Natural surface drainage pattern (blue lines) in SML 120005 and SML 120006**



Source: LiDAR Data sourced from AltaLis [4]; contours added in Global Mapper

## 7.8 Hydrogeology

The closest water well is located in SW 22-061-18-W4M (1827830) which is more than 5 km away from the SMLs [21]. It is an Alberta Environment monitoring well. The extraction operation operations are dry and far enough from the water wells that no impact is expected.

Only one test hole within SML 120006 (TL 51 at 12.8 m) encountered wet materials (Appendix A, DWG 1A, 1B). The water table has not been established in the SML areas. The operations will be dry.

It is likely that the SMLs are recharge areas because coarse materials are at the surface, and no springs or water bodies occur in the SML areas.

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### 7.9 Geology

The bedrock in the SML area is from the Late Cretaceous Belly River group: non-marine, grey to greenish grey, thick-bedded, feldspathic sandstone; greys clayey siltstone, grey and green mudstone; concretionary ironstone beds [22]. No test holes or test pits intersected the bedrock.

The leases are located on a rolling and hummocky plain that is adjacent to and oriented parallel with a melt water channel that is occupied by the modern White Earth Creek. The geological origin of the sand and gravel is likely ice-contact fluvial [23].

### 7.10 Stratigraphy

The stratigraphy varies across the SMLs (DWG 3A, 3B, 3C). Generally, there is an alternating sequence of gravel and sand. Most commonly, gravel is at the surface and there is a second mineable gravel unit below a layer or lens of sand or low rock content gravel. There are places where the sand unit below gravel outcrops as overburden. There are also places where discontinuous sand bodies overly the topmost gravel unit. In the north west of SML 120006 the material is sand dominated (DWG 3A, 3B, 3C).

The quality of the gravel unit ranges from medium (35 to 50% rock content) to high (greater than 50% rock content).

## 8.0 DEVELOPMENT PLANNING

### 8.1 Buffers and Setbacks

There will be an undisturbed buffer of a minimum width of 3 m from the boundary of the SML. The buffer will protect tree roots of trees adjacent to the boundary and minimize fall-in.

A maximum setback of 45 m is shown along all SML boundaries. Setback was calculated by multiplying the average maximum depth of the excavation (15 m) by 3 (for a slope of 6:1). The setback may be mined if there is sufficient overburden or elimination for reclamation or the depth of excavation is less than 15 m.

The maximum pit size is estimated to be 42 ha, and volumes of material mined are

**Table 4 Bank volumes of material mined**

| Material        | Average Depth (cm) | Approximate Volume (m <sup>3</sup> ) |
|-----------------|--------------------|--------------------------------------|
| Topsoil         | 7.8                | 32,000                               |
| Subsoil         | 9.6                | 40,000                               |
| Overburden      | 1,500              | 630,000                              |
| Sand            | 2,700              | 1,134,000                            |
| Reject Material | -                  | 7,500,000                            |

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Reject material refers to aggregate rejected due to poor quality, high sand content, and screenings from the crushing process. The maximum amount of material required to produce 6:1 slope over a perimeter of 3000 m is approximately 1,012,500 m<sup>3</sup>. It is expected that the volume of overburden and sand will produce the required slopes; additionally, a significant volume of reject material will be left for sloping and contouring.

## 8.2 Site Preparation

Prior to clearing an AEP Timber Permit will be applied for. The salvage of the predominant jack pine will be completed by either Vanderwell Contractors Ltd. or other available logging companies in the area. It is estimated that approximately 3 to 4 truckloads will be removed per hectare. Tree clearing will occur in two phases, see section 8.3, Table 5 and Table 6 for sequencing or see Appendix F, DWG 2 for illustrations; tree clearing will be approximately 2 mining blocks ahead of stripping and development. The timing will be primarily market driven with the exception of wildlife consideration. Tops of conifers will be salvaged for seed distribution during reclamation. Logs and salvageable debris will be hauled off-site.

The majority of unsalvageable wood debris will be burned and minimize fire hazard (municipal permit will be acquired and plans to burn will be discussed with the AEP Field office). The remaining wood debris will be used for roll-back and be partially buried within the topsoil as a temporary erosion control (as suggested in section 8.7 [Guidelines for Acquiring Surface Material Dispositions on Public Lands \[9\]](#)). The partially buried wood debris as roll-back will provide suitable microsites for seed establishment and small animal habitat; access by recreational ATVs will also be minimized by roll-back.

Topsoil (A horizon and the duff layer) and subsoil will be stripped and stockpiled separately as seen in Appendix F, DWG 2. Overburden (where available) will be stripped in a separate lift to expose the minable aggregate. As summarized in Table 4, there will be approximately 32,000 m<sup>3</sup> of topsoil and 40,000 m<sup>3</sup> of subsoil.

### 8.3 Mining Sequence

The planned clearing, mining, progressive and full reclamation activities are summarized in Table 5, and Table 6 breaks down the development and mining sequence into phases. Refer to Appendix F, DWG 2 for visual presentation of mining sequence.

**Table 5 Summary of development, reclamation, and monitoring activities**

|   |  |
|---|--|
| <b>Site Location</b>                      | W1/2 Sec 14- 061-18-W4   |
| <b>Site Dimensions</b>                    | SML120005 (31.61 ha)<br>SML120006 (10.40 ha)<br>Total = 42.01 ha   |
| <b>Development Design</b>                 | Two Logging Phases within the 5 Phases of mining and reclamation. Sequential Mining and Concurrent Aggressive Progressive Reclamation is sequenced through 6 Mining Blocks (MB1A, MB1B, MB1C, MB2A, MB2B, MB2C). An initial stockpile and processing area (SP1) is centrally located and covers a combined area of 5ha comprised of parts of MB1A (1.0 ha), MB1C (1.0 ha), MB2A (1.5 ha), MB2C (1.5 ha). A second position of a stockpile and processing area (SP2) comprises 5 ha within MB1A and MB2C and replaces SP1). |
| <b>Excavation Depths</b>                  | Topsoil (TS) A horizon avg. 7.8cm;<br>Subsoil (SS) B horizon avg. 9.6 cm;<br>Overburden range 0 - 3.6 m; overburden avg. 1.5 m;<br>Maximum depth of excavation is 18.2; depth of excavation avg, 15 m  |
| <b>Reclamation &amp; Restoration</b>      | Aggressive progressive reclamation will be implemented concurrently with mining within each of the six mining blocks (MB).   |
| <b>Logging</b>                            | Salvage, then clear, burn excess, and stockpile debris (debris burned, then stockpile chopped and compact to 2 m or less in height and covered with topsoil).  |
| <b>Logging Blocks</b>                     | 22.0 ha total: 22.0 ha within SML120005; 00.0 ha within SML120006<br>20.0 ha total: 9.6 ha within SML120005; 10.4 ha within SML120006  |
| <b>Stripping</b>                          | Strip and stockpile soils: TS (7.8 cm), SS (9.6 cm), higher quality OB (1.5 m, where available); will be stockpiled separately. Strip and move poorer quality OB and place directly ready for progressive contouring as possible. Ready contoured areas, including de-compaction for direct placement of soils as possible to start early re-vegetation program.   |
| <b>Progressive Reclamation</b>            | Ongoing weed control; sloping, contour using elimination and poorer quality OB; de-compaction; placement of higher quality OB and light contouring; placement TS/SS with roll-back; 'Islands' of surface vegetation and tree transplant from next stripping area; monitor and application of cover crop and native seeds to enhance restoration; design to restrict public vehicle access including gating.  |
| <b>Monitoring Progressive Reclamation</b> | Monitor and mitigate: weed control; erosion control; success of natural re-vegetation, to enhance transplantation; to use or extend cover crop; to extend use of native seed (use only certified seed).  |
| <b>Full Reclamation</b>                   | Ongoing weed control; add 'Islands' of surface vegetation and tree transplant from next stripping area; add application of native seeds to enhance restoration as necessary (use only certified seed); design to discourage public vehicle access  |
| <b>Monitoring Full Reclamation</b>        | Monitor and mitigate: weed control; erosion control; success of natural re-vegetation, to enhance transplantation; to use or extend cover crop; to extend use of native seed (use only certified seed).<br>Monitor and mitigate: return of wildlife; impact from adjacent activity.  |

**Table 6 Phase summary of development, mining, and reclamation**

|   |   | Logging               | Stripping       | Mining     | Progressive Reclamation   | Monitoring Progressive Reclamation      | Full Reclamation                          | Monitoring Full Reclamation               |
|---|---|-----------------------|-----------------|------------|---|---|---|---|
| PHASES (Est. Duration of phases 1 to 4 years) | 1 | MB1A, MB1B, MB1C, SP1 | MB1A, MB1B, SP1 | MB1A, MB1B | MB1A (perimeter areas), Part MB1B (follow mining)                             | 2-6 weeks initial, Spring, Summer, Fall |   |   |
|   | 2 | MB2A, MB2B, MB2C      | MB1C, MB2A      | MB1C, MB2A | MB1A (perimeter areas), MB1B, MB1C (follow mining), Part MB2A (follow mining) | 2-6 weeks initial, Spring, Summer, Fall |   | Spring, Summer, Fall                      |
|   | 3 |                       | MB2B, SP1       | MB2B       | MB1A (perimeter areas), MB2A, Part MB2B (follow mining)                       | 2-6 weeks initial, Spring, Summer, Fall | MB1B, MB1C                                | Spring, Summer, Fall                      |
|   | 4 |                       | MB2C            | MB2C       | MB1A, MB2A, Part MB2B (follow mining)   | 2-6 weeks initial, Spring, Summer, Fall | MB1B, MB1C, MB2A                          | Spring, Summer, Fall                      |
|   | 5 |                       |                 |            | MB2B, Part MB2C (follow mining)   | 2-6 weeks initial, Spring, Summer, Fall | MB1B, MB1C, MB2A, MB2B                    | Spring, Summer, Fall                      |
|   | 6 |                       |                 |            | MB2C, Part MB1A (move and reduce processing and aggregate stockpile area)     | 2-6 weeks initial, Spring, Summer, Fall | Part MB1A<br>MB1B, MB1C, MB2A, MB2B, MB2C | Spring, Summer, Fall                      |
|   | 7 |                       |                 |            | Part MB1A (move and reduce processing and aggregate stockpile area)           | 2-6 weeks initial, Spring, Summer, Fall | All of site<br>MB1 and MB2                | Spring, Summer, Fall                      |
|   | 8 |                       |                 |            |   |   | All of site<br>MB1 and MB2                | Spring, Summer, Fall<br>(Minimum 2 years) |

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#### 8.4 Inactive Pit Planning

During prolonged periods of inactivity, pit faces will be sloped to 3:1 to maintain stability and reduce erosion. Soil stockpiles will be seeded to reduce erosion and loss of material. Weed monitoring and control will continue to be conducted on a monthly basis (unless ground is frozen).

### 9.0 OPERATIONS PLANNING

#### 9.1 Adverse Effects

Extraction of aggregate will decrease the biodiversity of the area; however, the area will be reclaimed to grazing land as per AEP Field recommendation.

Vegetation and wildlife assessments conclude that there are no unique or important vegetation communities or wildlife habitat in the area. A planned wildlife biologist's assessment however is pending. The soil assessment, site visits, and analysis of LiDAR data, concludes that there is a gully on the east side of the SML; the ecosystems within the gully does not vary from the surrounding area, and therefore is not an area of concern. There are no other topographical features, such as eskers, or sink holes, of interest or concern in the area. During extraction phases there is a concern for dust and noise. Dust mitigation and control measures will be implement to reduce its effects on air quality (see section 9.2) and therefore is not expected to have long term or permanent effects on the air quality. The noise created on site will have an impact on local wildlife; however, gravel extraction operations often have shown that many forms of wildlife are not significantly affected.

#### 9.2 Dust Control

A speed limit of 15 km/h will be implemented in the active pit area and all loads of aggregate material will be covered or tarped to reduce the dust generated from the loads as the trucks move from the site and along the haul route. Covered loads are required for travel on public roads to prevent gravel and dust from falling off the trucks. The crusher system will be placed at the bottom of the pit when there is sufficient room for the equipment and crushing system. Active areas and haul roads will be watered during dry periods; however, ongoing monitoring of the dust that settles on nearby vegetation will trigger watering of the processing area and haul route. Water will be obtained off-site from an approved source.

#### 9.3 Weed Control

During the site investigation on July 14 and 15, 2015, two types of weeds were found: white cockle (*Silene pratensis*), classified as a noxious weed, and annual Hawk's-beard (*Crepis tectorum*). When visible they will be hand-picked and disposed in containment.

To reduce introducing weeds to the site, vehicles will be cleaned regularly, topsoil and other materials will not be imported, and seed mixtures will be certified as free of weeds. For minor weed outbreaks, they will be hand-picked and disposed in containment. For larger weed

outbreaks spraying after full emergence but prior to flowering will be implemented following consultation with AEP field office. Weed removal will be done periodically by site personnel, but specifically before placement of topsoil and seeding. The site will be monitored for evidence of weeds and a weed identification reference will be made available to on-site personnel.

#### 9.4 Noise Monitoring

All pit operations will be conducted in accordance with the provincial and municipal noise regulations. The proposed site is well-isolated from human settlement.

#### 9.5 Wind and Water Erosion

The integrity of the soil stockpiles will be maintained by placing them at least 3 m away from the toe of any other existing stockpiles and 5 m from the edge of any pit faces. To reduce the potential for soil loss by erosion, soil stockpiles will be contoured and stabilized by seeding lightly according to Alberta Environment guidelines.

#### 9.6 Waste and Hazardous materials

All combustible refuse will be stored in metal dumpsters and disposed off-site. All non-combustibles, petroleum materials and containers will also be disposed off-site facilities. On-site, all hazardous materials (fuel, oil, etc.) will be handled safely to prevent contamination of soil and water. Above ground storage tanks will have secondary containment that meets Alberta Environment's guidelines [24]. A spill kit will be kept on-site as a contingency in the event of a spill. Domestic refuse will be kept in animal proof containers and human waste will be managed in a self-contained portable toilet.

A temporary, portable asphalt plant will be operated in accordance with the Code of Practice for Asphalt Paving Plants; it will be placed on a compacted pad, and berm will be used to divert run-off from the pad. Berm material will come from SML 120005 and SML 120006. The asphalt plant, supporting materials, and resulting waste and reject materials will be located where soil has been stripped, overburden has been compacted and a HDPE liner will be installed to reduce the potential of contaminants infiltrating the soil. They will also be located as far away from reclaimed areas as practicable. Any spills resulting from the plant will be cleaned up immediately; clean up materials will be available on-site, and spent clean up materials that are kept on-site will be maintained in covered containers until disposed off-site at an appropriate facility.

#### 9.7 Fire Protection

The area is not within a FireSmart Community Zone but the lease operator will implement strategies to minimize the risk of fire [25]. All combustible refuse will be stored in metal dumpsters and disposed off-site. If any woody debris is to be burned on-site (on the advice of the Forest Officer) the material will be placed on bare mineral soil and burned only under favourable wind, humidity and moisture conditions. With the advice of a Forest Officer, any



woody debris left on-site for reclamation purposes will be covered with soil to reduce the fire hazard.

## 10.0 RECLAMATION PLANNING

### 10.1 Sloping

The reclaimed slopes will be contoured to 6:1 or gentler. The topography of the reclaimed site will be relatively flat with surface variance due to contouring of undisturbed deposits of excessive sand. The site will be reclaimed to grazing land, as indicated on DWG 3A, 3B, 3C, and 4.

### 10.2 Decompaction and Soil Placement

All facilities including asphalt plant will be removed, and all wastes and any contaminated soils will be hauled off-site to an appropriate facility. Berms will be leveled if clean, if not they will be haul away.

The processing areas and all internal haul roads will be decompacted. These areas will be ripped to break up the surface and increase permeability prior to placing the soil.

At least 1.5 m of overburden and elimination materials will be placed on the pit floor (with poorer materials at the bottom) and most slopes will be contoured to 6:1 or gentler (DWG 3A, 3B, 3C). Soil will be replaced to a depth of 18 cm (average). Available woody debris will be rolled back to increase surface roughness and provide suitable microsites for seed establishment.

### 10.3 Revegetation

As the site is reclaimed the livestock will impact the effectiveness of revegetation; therefore, temporary fencing will be used until re-vegetation is successful. The reclaimed site will be vegetated through natural regeneration from the soil seed bank, transplanting to 'islands' of shrubs, various young trees, and a predominance of young jack pine trees transplanted from the next planned development mining block; native grass seed mixes geared to sandy soils will be requested and will be approved by the District Rangeland Agrologist, prior to use. As previously mentioned, tops of conifers will be salvaged for seed distribution during reclamation. Natural succession is expected to produce a sequence of native grasses, suckering aspen and shrubs, and over the longer term, regeneration of conifers.

The site will be monitored for vegetation growth and areas that are slow to grow will be seeded with native species or approved seed mixtures according to Alberta Environment guidelines [20].

Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006

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#### 10.4 Reclaimed Wetland and Surface Drainage

DWG 4 illustrates the surface drainage pattern of the reclaimed site. Due to the coarse nature of the overburden and reject materials that will be replaced during reclamation, most drainage is expected to be subsurface rather than overland flow. The 6:1 slopes along the majority of the excavation area perimeter will ensure that most overland flow is retained on-site and eventually seeps through to the subsurface and follows the natural drainage pattern.

#### 11.0 RECLAMATION SECURITY

In total, 42.01 ha (103.80 acres) of land will be cleared for development. Both SMLs will be cleared in phase 1:

|         | SML 120005             | SML120006              | Total                   |
|---------|------------------------|------------------------|-------------------------|
| Phase 1 | 31.61 ha (78.11 acres) | 10.40 ha (25.69 acres) | 42.01 ha (103.80 acres) |

Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006

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Applicant: Jordan Ball and Cathy Ball  
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Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006

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Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006

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## APPENDICES

### APPENDIX A

- Legal Survey Map
- Client Provided Test Data

### APPENDIX B

- Soil Survey Report

### APPENDIX C

- ACMIS Search Results
- Plant Species Observations
- Weed Survey Form and Observations
- Sensitive Plant Search
- Ecosite Classification

### APPENDIX D

- Wildlife Survey by Bighorn Wildlife Technologies Ltd.
- FWMIS Report
- AER Landscape Analysis Tool Report

### APPENDIX E

- FNC Adequacy Assessment
- Historical Resources Act Clearance
- GRL Consent

### APPENDIX F

- DWG 1A: Existing Site/Planned Development with auger test holes
- DWG 1B: Existing Site/Planned Development with back-hoe test holes
- DWG 1C: Existing Site/Planned Development with airphoto
- DWG 2: Development Sequencing
- DWG 3A: Cross-section A-A' Profiles
- DWG 3B: Cross-section B-B' Profiles
- DWG 3C: Cross-section C-C' Profiles
- DWG 4: Planned Reclamation

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Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006

APPENDIX A

- Legal Survey Map
- Client Provided Test Data

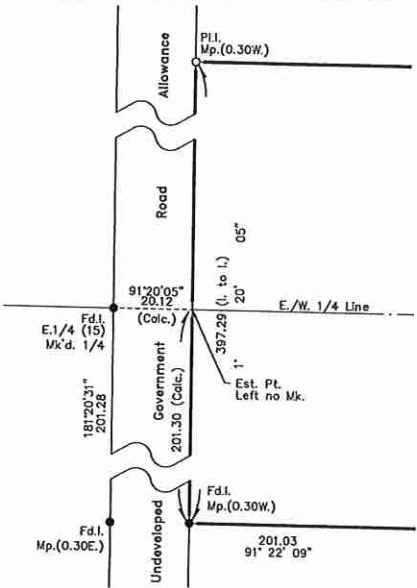
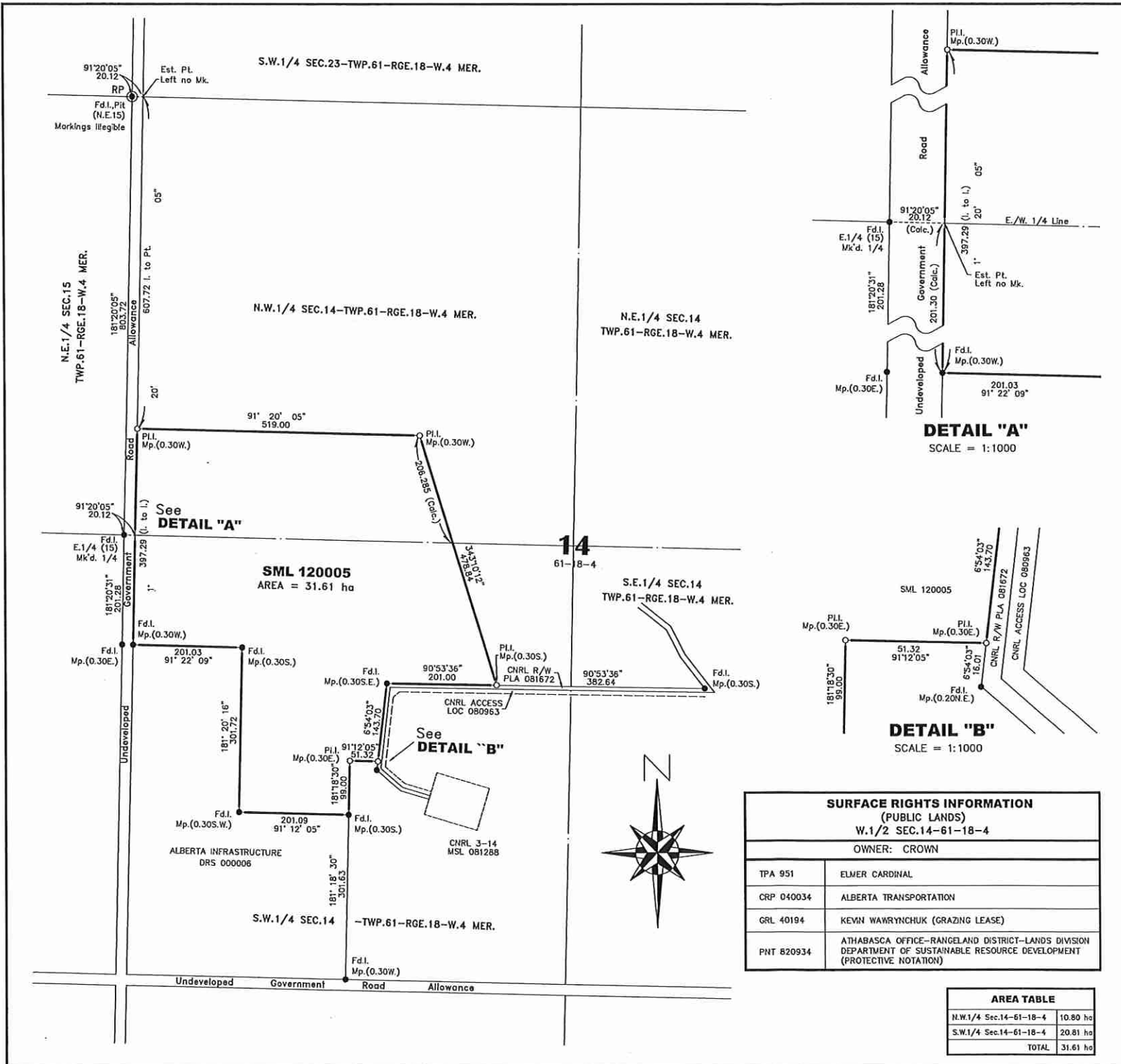
Conservation and Reclamation Business Plan  
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SML 120005 and SML 120006

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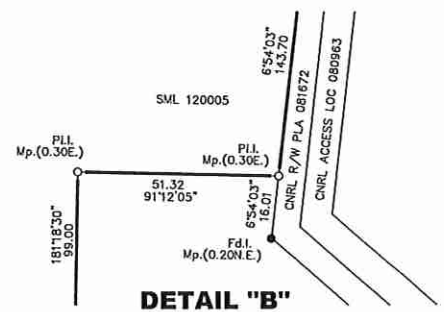
## **Appendix A.1**

### **Legal Survey Map**





**DETAIL "A"**  
SCALE = 1:1000



**DETAIL "B"**  
SCALE = 1:1000

| SURFACE RIGHTS INFORMATION<br>(PUBLIC LANDS)<br>W.1/2 SEC.14-61-18-4 |   |
|--|---|
| OWNER: CROWN   |   |
| TPA 951  | ELMER CARDINAL  |
| CRP 040034   | ALBERTA TRANSPORTATION  |
| GRL 40194  | KEVIN WAWRYNCHUK (GRAZING LEASE)  |
| PNT 820934   | ATHABASCA OFFICE-RANGELAND DISTRICT-LANDS DIVISION<br>DEPARTMENT OF SUSTAINABLE RESOURCE DEVELOPMENT<br>(PROTECTIVE NOTATION) |

| AREA TABLE             |          |
|------------------------|----------|
| N.W.1/4 Sec.14-61-18-4 | 10.80 ha |
| S.W.1/4 Sec.14-61-18-4 | 20.81 ha |
| TOTAL                  | 31.61 ha |

**PLAN**  
SHOWING SURVEY OF  
**(SML 120005)**  
**( For Surface Material Lease )**  
WITHIN  
**W.1/2 Sec.14-Twp.61-Rge.18-W.4 Mer**  
**JORDAN BALL**  
**SMOKY LAKE COUNTY**  
**ALBERTA**

SCALE 1:5000      2013      D.C. GILLMORE, ALS  
50 0 50 100 200 300 400 500  
METRES

ALL DISTANCES ARE IN METRES AND DECIMALS THEREOF.  
AREA DEALT WITH BY THIS PLAN BOUNDED THUS AND CONTAINS 31.61 ha . . .

CALCULATED IS DENOTED THUS . . . . . (Calc.)  
 COUNTERSUNK IS DENOTED THUS . . . . . c.s.  
 EAST IS DENOTED THUS . . . . . E.  
 ESTABLISHED IS DENOTED THUS . . . . . Est.  
 FOUND IRON POST IS DENOTED THUS . . . . . Fd.I.  
 FOUND NO MARK IS DENOTED THUS . . . . . Fd. No Mk.  
 HECTARE IS DENOTED THUS . . . . . ha  
 MARK IS DENOTED THUS . . . . . Mk.  
 MARKER POST IS DENOTED THUS . . . . . Mp.  
 MERIDIAN IS DENOTED THUS . . . . . Mer.  
 NORTH IS DENOTED THUS . . . . . N.  
 POINT IS DENOTED THUS . . . . . P.L.  
 RANGE IS DENOTED THUS . . . . . Rge.  
 RIGHT OF WAY IS DENOTED THUS . . . . . R/W  
 SECTION IS DENOTED THUS . . . . . Sec.  
 SOUTH IS DENOTED THUS . . . . . S.  
 STATUTORY IRON POST FOUND SHOWN THUS . . . . . ○  
 STATUTORY IRON POST PLANTED SHOWN THUS . . . . . ●  
 WEST IS DENOTED THUS . . . . . W.

**PLAN DATUM**

HORIZONTAL DATUM      NAD83  
 PROJECTION              UTM  
 DESCRIPTION            N.E. 15-61-18-4, DENOTED THUS . . . . . ○RP  
 NORTHING                6016133.922  
 EASTING                 395772.129  
 COMBINED SCALE FACTOR    0.999634  
 CENTRAL MERIDIAN        111° W.

I, Duncan C. Gillmore, Alberta Land Surveyor, solemnly declare that the survey represented by this plan was made under my personal supervision, the survey was made in accordance with good surveying practices and in accordance with the provisions of the Surveys Act, the survey was performed between the dates of 13th Day of October, and 18th Day of October, 2013, and that this plan is true and correct, and is prepared in accordance with the provisions of the Public Lands Act, and I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath.

Declared before me at City of Edmonton this 5th day of November, 2013.

*Duncan C. Gillmore*  
ALBERTA LAND SURVEYOR

*Pearl Gillmore*  
Pearl Gillmore  
A Commissioner For Oaths  
in and for the Province of Alberta  
Commission expires on August 17, 2017

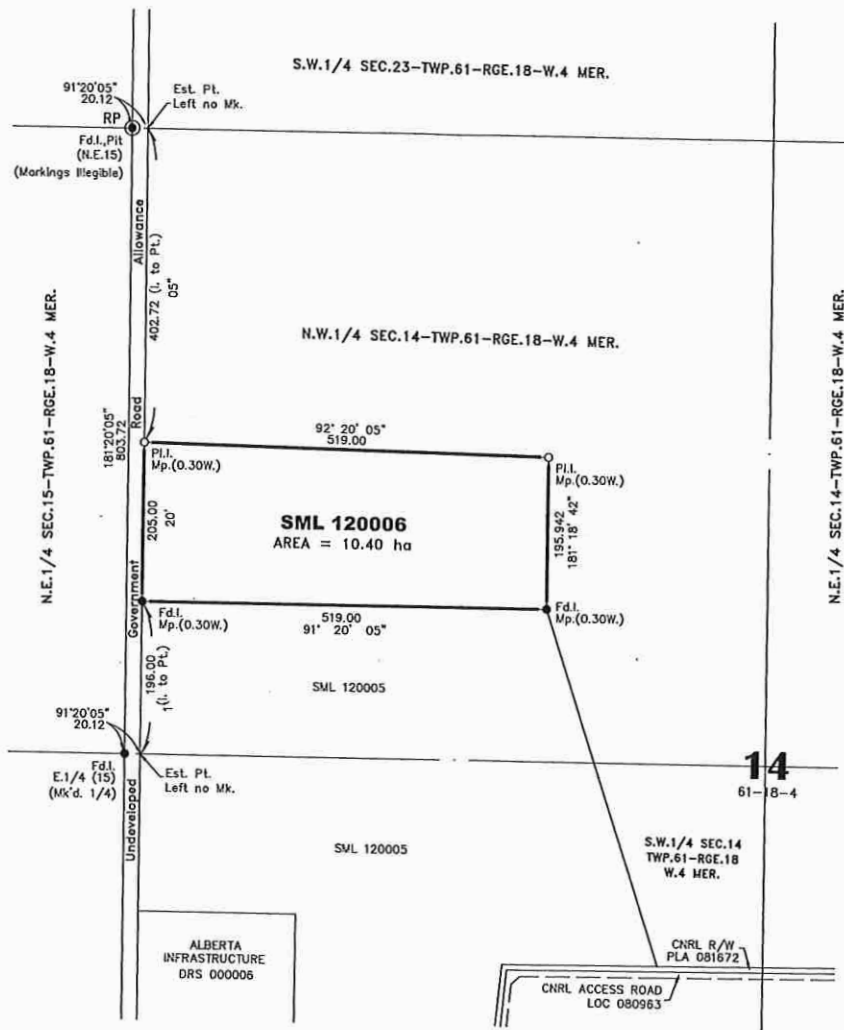
**GILLMORE SURVEYS (ARCTIC) LTD**  
WS 13-16060 GSAL 2058-19

**FILE NO.                      SML 120005**



J. Ball and C. Ball (SML 120005 & SML 120006) - CRBP Update and SIR Response (Electronically Submitted to AEP on Sept. 14, 2016; Hardcopies to be Submitted Sept. 20, 2016)

| SURFACE RIGHTS INFORMATION<br>(PUBLIC LANDS)<br>N.W.1/4 SEC.14-61-18-4 |   |
|--|---|
| OWNER: CROWN   |   |
| TPA 951  | ELMER CARDINAL  |
| CRP 040034   | ALBERTA TRANSPORTATION  |
| GRL 40194  | KEVIN WAWRYNCHUK (GRAZING LEASE)  |
| PNT 820934   | ATHABASCA OFFICE-RANGELAND DISTRICT-LANDS DIVISION<br>DEPARTMENT OF SUSTAINABLE RESOURCE DEVELOPMENT<br>(PROTECTIVE NOTATION) |



**PLAN**  
SHOWING SURVEY OF  
**(SML 120006)**  
**( For Surface Material Lease)**  
WITHIN  
**N.W.1/4 Sec.14-Twp.61-Rge.18-W.4 Mer**  
**CATHY BALL**  
**SMOKY LAKE COUNTY**  
**ALBERTA**

SCALE 1:5000      2013      D.C. GILLMORE, ALS

ALL DISTANCES ARE IN METRES AND DECIMALS THEREOF.  
AREA DEALT WITH BY THIS PLAN BOUNDED THUS AND CONTAINS 10.40 ha . . .

CALCULATED IS DENOTED THUS . . . . . (Calc)  
COUNTERSUNK IS DENOTED THUS . . . . . c.s.  
EAST IS DENOTED THUS . . . . . E.  
ESTABLISHED IS DENOTED THUS . . . . . Est.  
FOUND IRON POST IS DENOTED THUS . . . . . Fd.I.  
FOUND NO MARK IS DENOTED THUS . . . . . Fd. No Mk.  
HECTARE IS DENOTED THUS . . . . . ha  
MARK IS DENOTED THUS . . . . . Mk.  
MARKER POST IS DENOTED THUS . . . . . Mp.  
MARKED IS DENOTED THUS . . . . . .Mkd.  
MERIDIAN IS DENOTED THUS . . . . . Mer.  
NORTH IS DENOTED THUS . . . . . N.  
POINT IS DENOTED THUS . . . . . PL  
RANGE IS DENOTED THUS . . . . . Rge.  
RIGHT OF WAY IS DENOTED THUS . . . . . R/W  
SECTION IS DENOTED THUS . . . . . Sec.  
SOUTH IS DENOTED THUS . . . . . S.  
STATUTORY IRON POST FOUND SHOWN THUS . . . . . ●  
STATUTORY IRON POST PLANTED SHOWN THUS . . . . . ○  
WEST IS DENOTED THUS . . . . . W.

**PLAN DATUM**  
THE GEO-REFERENCED POINT IS A FOUND STATUTORY IRON POST, AND IS DERIVED FROM PUBLISHED ATS COORDINATES.

|                       |  |
|-----------------------|--|
| HORIZONTAL DATUM      | NAD83  |
| PROJECTION            | UTM  |
| DESCRIPTION           | N.E. 15-61-18-4, DENOTED THUS . . . . . ● RP |
| NORTHING              | 6016133.922                                  |
| EASTING               | 395772.129                                   |
| COMBINED SCALE FACTOR | 0.999634                                     |
| CENTRAL MERIDIAN      | 111° W.                                      |

I, Duncan C. Gillmore, Alberta Land Surveyor, solemnly declare that the survey represented by this plan was made under my personal supervision, the survey was made in accordance with good surveying practices and in accordance with the provisions of the Surveys Act, the survey was performed between the dates of 18th Day of October, and 23rd Day of October, 2013, and that this plan is true and correct, and is prepared in accordance with the provisions of the Public Lands Act, and I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath.

Declared before me at City of Edmonton this 5th day of November, 2013.

*Duncan C. Gillmore*  
ALBERTA LAND SURVEYOR

*Pearl Gillmore*  
Pearl Gillmore  
A Commissioner For Oaths  
in and for the Province of Alberta  
Commission expires on August 17, 2017

**GILLMORE SURVEYS (ARCTIC) LTD**  
WS 13-16060 GSAL 2058-19  
**FILE NO. SML 120006**



J. Ball and C. Ball (SML 120006 & SML 120007) - CRP Update and SR Response (Electronically Submitted to AEP on Sept. 14, 2016; Handcopies to be Submitted Sept. 20, 2016)

Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006

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## **Appendix A.2**

### **Client Provided Test Data**



On the test locations map, either the prefix "TM" has been added to three digit numbers in the test logs or "TM" has replaced "POI"

March 15/12  
SNL 06

(237) 0-2 sand  
2-16 very Rocky  
16-18 sand  
18-22 Good G  
22-41 sand  
41-43 Good G  
43-50 sand  
50-55 clay

(238) 0-9 very Rocky  
9-13 sand  
13-26 very Rocky  
26-47 1/2, 1, 2  
Rocky  
47-60 sand

(239) 0-2 very Rocky  
2-6 sand  
6-10 Good G  
10-16 sand  
16-35 very Rocky  
35-40 Good G  
40-45 Clay

On the test locations map, either the prefix "TH" has been added to three digit numbers in the test logs or "TH" has replaced "POI"

240

0-6 sand  
10-15 sand  
12-17 sand  
17-19 sand  
19-22 sand  
22-24 Good  
24-28 sand  
28-35 sand  
35-40 sand  
40-43 sand  
43-45 sand  
T.M. C  
0-1 sand  
1-6 sand  
6-8 sand  
8-50 sand  
50-55 sand

241

0-1 sand  
1-6 sand  
6-8 sand  
8-50 sand  
50-55 sand

242

0-2 sand  
2-4 Good  
4-10 sand  
10-13 Good  
13-15 sand  
15-18 sand  
18-22 sand  
22-24 Good  
24-28 sand  
28-35 sand  
35-40 sand  
40-43 sand  
43-45 sand

243

0-3 sand  
3-5 Good  
5-10 sand  
10-13 Good  
13-15 sand  
15-18 sand  
18-22 sand  
22-24 Good  
24-28 sand  
28-35 sand  
35-40 sand  
40-43 sand  
43-45 sand

On the test locations map, either the prefix "TH" has been added to three digit numbers in the test logs or "TH" has replaced "POI"

244

0-5 sand  
5-15 Good G  
15-22 sand  
22-24 Good G  
24-27 sand  
27-34 Good G  
34-45 sand  
45-47 Good G  
47-52 sand  
52-56 Good G  
56-70 sand

245

0-4 sand  
4-10 Good G  
10-23 very fine  
23-25 sand  
25-27 Good G  
27-30 sand  
30-33 Good G  
33-47 sand  
47-52 very fine  
52-55 Good G  
55-60 sand  
60-65 clay

On the test locations map, either the prefix "TH" has been added to three digit numbers in the test logs or "TH" has replaced "POI"

No. SML 128805

Date: March 5, 2012

Page: 0004

| POI | Top Soil | POI      | Notes |
|-----|----------|----------|-------|
| 180 | Top Soil | POI 957  | Notes |
| 181 | Top Soil | POI 958  | Notes |
| 182 | Top Soil | POI 959  | Notes |
| 183 | Top Soil | POI 960  | Notes |
| 184 | Top Soil | POI 961  | Notes |
| 185 | Top Soil | POI 962  | Notes |
| 186 | Top Soil | POI 963  | Notes |
| 187 | Top Soil | POI 964  | Notes |
| 188 | Top Soil | POI 965  | Notes |
| 189 | Top Soil | POI 966  | Notes |
| 190 | Top Soil | POI 967  | Notes |
| 191 | Top Soil | POI 968  | Notes |
| 192 | Top Soil | POI 969  | Notes |
| 193 | Top Soil | POI 970  | Notes |
| 194 | Top Soil | POI 971  | Notes |
| 195 | Top Soil | POI 972  | Notes |
| 196 | Top Soil | POI 973  | Notes |
| 197 | Top Soil | POI 974  | Notes |
| 198 | Top Soil | POI 975  | Notes |
| 199 | Top Soil | POI 976  | Notes |
| 200 | Top Soil | POI 977  | Notes |
| 201 | Top Soil | POI 978  | Notes |
| 202 | Top Soil | POI 979  | Notes |
| 203 | Top Soil | POI 980  | Notes |
| 204 | Top Soil | POI 981  | Notes |
| 205 | Top Soil | POI 982  | Notes |
| 206 | Top Soil | POI 983  | Notes |
| 207 | Top Soil | POI 984  | Notes |
| 208 | Top Soil | POI 985  | Notes |
| 209 | Top Soil | POI 986  | Notes |
| 210 | Top Soil | POI 987  | Notes |
| 211 | Top Soil | POI 988  | Notes |
| 212 | Top Soil | POI 989  | Notes |
| 213 | Top Soil | POI 990  | Notes |
| 214 | Top Soil | POI 991  | Notes |
| 215 | Top Soil | POI 992  | Notes |
| 216 | Top Soil | POI 993  | Notes |
| 217 | Top Soil | POI 994  | Notes |
| 218 | Top Soil | POI 995  | Notes |
| 219 | Top Soil | POI 996  | Notes |
| 220 | Top Soil | POI 997  | Notes |
| 221 | Top Soil | POI 998  | Notes |
| 222 | Top Soil | POI 999  | Notes |
| 223 | Top Soil | POI 1000 | Notes |

On the test locations map, either the prefix "TH" has been added to three digit numbers in the test logs or "TM" has replaced "POI"

No. <sup>SM 12205</sup> 12205  
Date March 5, 2012

Page

No. <sup>SM 12205</sup> 12205  
Date March 5, 2012

Page

2:17 PM POT 260 Pictures  
0-0.1 Top Soil 136  
0.1-1.1 Good Gravel up to 10" 137  
1.1-3.1 Sandy Gravel up to 3" 138  
3.1-5.5 Sand

2:50 PM POT 261 Pictures  
0-0.1 Top Soil 128  
0.1-1.1 Good Gravel up to 10" 129  
1.1-2.6 Sandy Gravel up to 3" 130  
2.6-5.5 Sand

3:30 PM POT 262 Pictures  
0-0.1 Top Soil 130  
0.1-0.4 Small Gravel & Sand 131  
0.4-0.6 Organic Material  
0.6-2.1 Gravel up to 6"-8"  
2.1-5.5 Sand

4:00 PM POT 263 Pictures  
0-0.1 Top Soil 132  
0.1-0.2 Sand 133  
0.2-1.2 Small Gravel & Sand  
1.2-1.3 Black sand  
1.3-1.8 Gravel up to 6"  
1.8-5.5 Sand

4:30 PM POT 264 Pictures  
0-0.1 Top Soil 134  
0.1-0.2 Sand 135  
0.2-0.5 Small Gravel  
0.5-2.0 Sand  
2.0-2.3 Gravel up to 5-6"  
2.3-5.5 Sand



On the test locations map, either the prefix "TH" has been added to three-digit numbers in the test logs or "TH" has replaced "POI"

No. SML 120005

No. SML 120006

Date March 6, 2012

Page

Date March 6, 2012

Page

| Time    | POI                   | Notes   | Picture # | Time    | POI                   | Notes    | Picture # |
|---------|-----------------------|---------|-----------|---------|-----------------------|----------|-----------|
| 7:55am  | POI 265               | Retains |           | 8:00am  | POI 268               | Pictures |           |
| 0-0.1   | Top Soil              | 136     |           | 0-0.1   | Top Soil              |          | 142       |
| 0.1-0.2 | Sandy gravel          | 137     |           | 0.1-0.7 | Sandy Gravel up to 2" |          | 143       |
| 0.2-0.5 | Small gravel up to 3" |         |           | 0.7-3.0 | Sand                  |          |           |
| 0.5-5.5 | Sand.                 |         |           |         | High Sh. Yellow in    |          |           |

| Time    | POI               | Notes    | Picture # | Time    | POI                   | Notes    | Picture # |
|---------|-------------------|----------|-----------|---------|-----------------------|----------|-----------|
| 8:28am  | POI 266           | Pictures |           | 9:45am  | POI 269               | Pictures |           |
| 0-0.1   | Top Soil          | 138      |           | 0-0.1   | Top Soil              |          | 144       |
| 0.1-0.4 | Very Sandy gravel | 139      |           | 0.1-1.0 | Sandy Gravel up to 2" |          | 145       |
| 0.4-5.5 | Sand              |          |           | 1.0-5.5 | Sand                  |          |           |

| Time    | POI                   | Notes    | Picture # | Time    | POI                      | Notes    | Picture # |
|---------|-----------------------|----------|-----------|---------|--------------------------|----------|-----------|
| 8:55am  | POI 267               | Pictures |           | 10:27am | POI 270                  | Pictures |           |
| 0-0.1   | Top Soil              | 140      |           | 0-0.1   | Top Soil                 |          | 146       |
| 0.1-0.7 | Sandy gravel up to 2" | 141      |           | 0.1-0.4 | Sandy Some Rock up to 2" |          | 147       |
| 0.7-5.5 | Sand.                 |          |           | 0.4-5.5 | Sand.                    |          |           |

On the test locations map, either the prefix "TH" has been added to three digit numbers in the test logs or "TH" has replaced "POI"

No. SML 120005  
Date March 6, 2012 Page

No. SML 120005  
Date March 6, 2012 Page

10:57 am POI 271 Pictures  
0-0.1 Top Soil 148  
0.1-1.1 Sandy Small Gravel up to 1" 149  
1.1-5.5 Sand.

11:30 am POI 272 Pictures  
0-0.1 Top Soil 150  
0.1-1.0 Sandy Small Gravel 151  
1.0-1.3 Bony Gravel up to 8"  
1.3-5.4 Sand  
Hole Stuffed in.

SML 120005  
12:30 pm POI 273 Pictures  
0-0.1 Top Soil 152  
0.1-0.7 Sand. 153  
0.7-0.9 Small gravel up to 1 1/2"  
0.9-1.2 Sand  
1.2-5.5 Sand

12:59 pm POI 274 Pictures  
0-0.1 Top Soil 154  
0.1-0.4 Small Gravel up to 3" 155  
0.4-0.9 Sand.  
0.9-2.0 Bony Gravel up to 8"  
2.0-3.4 Sand Some Rock up to 4"  
3.4-5.5 Sand

1:29 pm POI 275 Pictures  
0-0.1 Top Soil 156  
0.1-0.4 Small Gravel Sandy 157  
0.4-1.4 Sandy Gravel up to 5"  
1.4-1.8 Bony Gravel up to 10"  
1.8-2.4 Small gravel Sandy up to 3"  
2.4-2.7 Bony Gravel up to 3"  
2.7-5.5 Sand.

On the test locations map, either the prefix "TR" has been added to three digit numbers in the test logs or "TR" has replaced "PT".

No. SM1 120005

Date March 11, 2012

Page

2:15 pm Pot 236

0-0.1 Topsoil

0.1-0.3 Good Ground

0.3-0.6 Sandy Ground

0.6-1.5 Good Ground

1.5-2.6 Sandy some rocks up to 6"

2.5-5.5 Sandy very little rock

Pictures

158

159

4:10 pm Pot 239

0-0.1 Topsoil

0.1-1.1 Small Ground up to 3"

1.1-2.0 Good Ground up to 8"

2.0-3.0 Sandy or rock

3.0-5.5 Ground with little sandy up to 6"

Pictures

164

165

166

2:45 pm Pot 237

0-0.1 Topsoil

0.1-1.1 Good Ground

1.1-1.4 Sand

1.4-5.5 Sandy Ground up to 2.5' rock

Pictures

160

161

3:40 pm Pot 238

0-0.1 Topsoil

0.1-1.1 Good Ground

1.1-1.4 Sand

1.4-1.9 Small Ground up to 2"

1.9-5.0 Sand very little rock

5.0-5.5 Sand Many Rock

Pictures

162

163

No. SM1 120005

Date March 6, 2012

Page

4:10 pm Pot 239

0-0.1 Topsoil

0.1-1.1 Small Ground up to 3"

1.1-2.0 Good Ground up to 8"

2.0-3.0 Sandy or rock

3.0-5.5 Ground with little sandy up to 6"

Pictures

164

165

166

On the test locations map, either the prefix "TH" has been added to three digit numbers in the test logs or "TH" has replaced "POI"

No. JML 12.0005  
Date March 7, 2017 Page

7:55am Pot 280 Pictures  
0-0.1 Top Soil 167  
0.1-0.4 Sand 168  
0.4-1.0 Good sand up to 6"  
1.0-5.5 Good to a bit Sandy up to 4"

8:20am Pot 281 Pictures  
0-0.1 Top Soil 169  
0.1-0.7 Good Heavy Gravel up to 10" 168  
0.7-1.3 Small Gravel up to 2"  
1.3-5.5 Good Gravel up to 6" a little Sandy

8:45am Pot 282 Pictures  
0-0.1 Top Soil 171  
0.1-1.7 Small Gravel up to 8" 172  
1.1-5.5 Good Gravel up to 8" a little Sandy

No. JML 12.0005  
Date March 7, 2017 Page

8:50am Pot 283 Pictures  
0-0.1 Top Soil 173  
0.1-0.7 Small Gravel Sandy 174  
0.7-5.5 Good Gravel up to 8"

9:15am Pot 284 Pictures  
0-0.1 Top Soil 175  
0.1-0.6 Sand 176  
0.6-5.5 Good Gravel up to 6" a little Sandy (Enough to take)

9:30am Pot 285 Pictures  
0-0.1 Top Soil 177  
0.1-0.7 Sand 178  
0.7-1.3 Small Gravel  
1.3-5.5 Very Sandy Gravel

On the test locations map, either the prefix "TH" has been added to three digit numbers in the test logs or "TH" has replaced "POI"

No. SM. 12000.5  
Date March 7, 2012 Page

No. SM. 12000.5  
Date March 7, 2012 Page

11:30 am POI 286 Pictures  
0-0.1 Top Soil 179  
0.1-2.6 Sand 180  
2.6-5.5 Gravel up to 8" sandy

12:20 pm POI 287 Pictures  
0-0.1 Top Soil 181  
0.1-0.4 Sand 182  
1.4-5.5 Gravel up to 8" a little sandy

12:40 POI 288 Pictures  
0-0.1 Top Soil 183  
0.1-0.4 Sand 184  
0.4-4.5 Gravel Sandy up to 6"  
4.5-4.8 Sand  
4.8-5.5 Gravel Sandy up to 6"

10 pm POI 289 Pictures  
0-0.1 Top Soil 185  
0.1-0.4 Sand 186  
0.4-1.0 Gravel Sandy Gravel  
1.0-4.0 Pea Gravel Type Some Rock up to 6"  
4.0-4.5 Gravel up to 8"  
4.5-5.5 Pea Gravel Type

1:40 PM POI 290 Pictures  
0-0.1 Top Soil 187  
0.1-0.4 Gravel Sandy Gravel up to 8" 188  
0.4-0.7 Sandy Some Gravel  
0.7-3.0 Sand  
3.0-3.5 Sandy Some Rock  
3.5-4.5 Sand  
4.5-5.0 Pea Gravel Type  
Hole Skipped in

On the test locations map, either the prefix "TH" has been added to three digit numbers, in the test logs or "TH" has replaced "POI"

Date

March

Page

March 2012

Page

1 2:15 pm

POI 291

Pictures

0-0.1 Topsoil

189

0.1-1.1 Small Ground

upto 2"

189

1.1-2.1 Small Ground

upto 3"

190

2.1-3.1 Ground

upto 5"

190

3.1-3.5 Sand

Ground

190

3.5-5.5 Sand

3.5

1:34 pm

POI 290

Pictures

0-0.1 Topsoil

191

0.1-0.4 Sand

192

0.4-1.4 Sand

upto 3"

192

1.4-5.5 Sand

1.4

2:43 pm

POI 293

Pictures

0-0.1 Topsoil

193

0-0.3 Small Ground

194

0.3-1.7 Small Ground

195

1.7-2.1 Heavy Sand

upto 8"

195

2.1-5.5 Sand

2.1

POI 294

Pictures

0-0.1 Topsoil

196

0.1-0.8 Sand

197

0.8-1.0 Small Ground

upto 3"

197

1.0-1.6 Sand

197

1.6-1.9 Heavy Sand

upto 8"

197

1.9-5.5 Sand

1.9

POI 295

Pictures

0-0.1 Topsoil

198

0.1-0.3 Sand

199

0.3-1.3 Small Ground

Sandy

199

1.3-5.5 Sand

1.3

POI 296

Pictures

0-0.1 Topsoil

200

0.1-0.4 Sand

201

0.4-1.0 Small Ground

upto 2"

201

1.0-5.5 Sand

201

On the test locations map, either the prefix "TH" has been added to three digit numbers in the test logs or "TH" has replaced "POI"

No. SKL 120004

Date March 8, 2012

Page

No. SKL 120004

Date March 8, 2012

Page

1 9:05 am POI 297 Pictures  
 0-0.1 Top Soil 202  
 0.1-5.5 Sand 203

11:0 am POI 301 Pictures  
 0-0.1 Top Soil 210  
 0.1-3.5 Sand 211

9:35 am POI 298 Pictures  
 0-0.1 Top Soil 204  
 0.1-5.5 Sand 205

11:38 am POI 302 Pictures  
 0-0.1 Top Soil 212  
 0.1-5.5 Sand 213

10:20 am POI 299 Pictures  
 0-0.1 Top Soil 206  
 0.1-5.5 Sand 207

11:00 am POI 303 Pictures  
 0-0.1 Top Soil 214  
 0.1-0.9 Small Gravel/Sandy 215  
 0.9-1.0 Gravel up to 6"  
 1.0-5.0 Sand

10:45 am POI 300 Pictures  
 0-0.1 Top Soil 208  
 0.1-5.5 Sand 209

Hole Stuffed in  
 11:41 pm POI 304 Pictures  
 0-0.1 Top Soil 216  
 0.1-0.4 Sand 217  
 0.4-0.7 Small Gravel up to 4"  
 0.7-5.0 Sand

Hole Stuffed in

On the test locations map, either the prefix "TW" has been added to three-digit numbers in the test logs or "TW" has replaced "PQ"

No. SML 12000C  
Date March 8, 2012  
Page

No. SML 12000G  
Date March 8, 2012  
Page

2:45 pm  
0-0.1 Top Soil  
0.1-1.5 Sand  
1.5-5.5 Clay.

Point 305  
Pictures  
228  
229

3:00 pm  
0-0.1 Top Soil  
0.1-1.5 Sand  
1.5-5.5 Clay.

Point 308  
Pictures  
224  
225

3:22 pm  
0-0.1 Top Soil  
0.1-1.1 Small Gravel up to 1"  
1.1-5.1 Very Sandy Fine Rock up to 6"  
5.1-5.5 Clay.

Point 306  
Pictures  
220  
221

3:40 pm  
0-0.1 Top Soil  
0.1-0.9 Sand  
0.9-1.3 Sand/Gravel up to 3"  
1.3-2.2 Sand  
2.2-2.8 Gravel up to 8" sand  
2.8-5.2 Small Gravel/Sandy up to 4"

Point 307  
Pictures  
222  
223

3:40 pm  
0-0.1 Top Soil  
0.1-0.9 Sand  
0.9-1.3 Sand/Gravel up to 3"  
1.3-2.2 Sand  
2.2-2.8 Gravel up to 8" sand  
2.8-5.2 Small Gravel/Sandy up to 4"

Point 309  
Pictures  
226  
227

3:40 pm  
0-0.1 Top Soil  
0.1-0.9 Sand  
0.9-1.3 Sand/Gravel up to 3"  
1.3-2.2 Sand  
2.2-2.8 Gravel up to 8" sand  
2.8-5.2 Small Gravel/Sandy up to 4"

Point 307  
Pictures  
222  
223

3:40 pm  
0-0.1 Top Soil  
0.1-0.9 Sand  
0.9-1.3 Sand/Gravel up to 3"  
1.3-2.2 Sand  
2.2-2.8 Gravel up to 8" sand  
2.8-5.2 Small Gravel/Sandy up to 4"

Point 307  
Pictures  
222  
223

3:40 pm  
0-0.1 Top Soil  
0.1-0.9 Sand  
0.9-1.3 Sand/Gravel up to 3"  
1.3-2.2 Sand  
2.2-2.8 Gravel up to 8" sand  
2.8-5.2 Small Gravel/Sandy up to 4"

Point 307  
Pictures  
222  
223



On the test locations marked with the prefix "TR" has been added to three digit numbers in the test logs or "TH" has replaced "POI"

No. SM 120006  
Date March 9, 2012

No. SM 120004  
Date March 9, 2012

Page

Page

7:10 am POT 310 Pictures 228  
0-0.1 Top Soil  
6.1-0.4 Sand  
0.4-5.5 Clay

7:15 am POT 313 Pictures 234  
0-0.1 Top Soil  
0.1-0.2 Sand  
0.2-1.0 Sandy Soil  
1.0-1.5 Sandy Material up to 4"  
1.5-2.9 Sand  
2.9-3.0 Heavy Rock up to 12"  
0-5.5 Clay

8:00 am POT 311 Pictures 230  
0-0.1 Top Soil  
0.1-0.3 Rock & Sand  
0.3-5.5 Clay

8:00 am POT 314 Pictures 233  
0-0.1 Top Soil  
0.1-0.3 Sand  
0.3-0.9 Sandy Soil  
0.9-1.4 Clay up to 4"  
1.4-2.4 Sand  
2.4-2.9 Heavy Rock up to 12"  
2.9-5.5 Clay

8:00 am POT 312 Pictures 232  
0-0.1 Top Soil  
0.1-0.7 Sandy Soil  
0.7-1.0 Clay  
1.0-1.6 Small Sandy gravel  
1.6-5.5 Sand  
5.5 Pole Stuffed in

8:00 am POT 315 Pictures 235  
0-0.1 Top Soil  
0.1-0.3 Sand  
0.3-0.9 Sandy Soil  
0.9-1.4 Clay up to 4"  
1.4-2.4 Sand  
2.4-2.9 Heavy Rock up to 12"  
2.9-5.5 Clay

On the test locations map, either the prefix "TH" has been added to three digit numbers in the test logs or "TH" has replaced "POI"

No. SML 120006

Date March 9, 2012

Page

No. SML 120006

Date March 9, 2012

Page

| Time    | POI                | Soil | Picture  | Time     | POI                   | Soil | Picture  |
|---------|--------------------|------|----------|----------|-----------------------|------|----------|
| 9:10 am | POI 315            |      | Pictures | 10:45 am | POI 317               |      | Pictures |
| 0-0.1   | Top Soil           |      | 238      | 0-0.1    | Top Soil              |      | 242      |
| 0.1-0.9 | Sand               |      | 239      | 0.1-1.2  | Sandy Small Gravel 2" |      | 243      |
| 0.9-1.3 | Small Sandy Gravel |      |          | 1.2-1.8  | Clay                  |      |          |
| 1.3-1.5 | Sand               |      |          | 1.8-5.5  | Sand                  |      |          |
| 1.5-2.0 | Gravel up to 6"    |      |          |          |                       |      |          |
| 2.0-5.5 | Clay               |      |          |          |                       |      |          |

| Time     | POI                | Soil | Picture  | Time     | POI                   | Soil | Picture  |
|----------|--------------------|------|----------|----------|-----------------------|------|----------|
| 10:23 am | POI 316            |      | Pictures | 11:00 AM | POI 318               |      | Pictures |
| 0-0.1    | Top Soil           |      | 240      | 0-0.1    | Top Soil              |      | 244      |
| 0.1-0.3  | Sand               |      | 241      | 0.1-0.4  | Small gravel up to 3" |      | 245      |
| 0.3-0.9  | Sandy Small Gravel |      |          | 0.4-1.0  | Sand                  |      |          |
| 0.9-1.3  | Sand               |      |          | 1.0-5.0  | Small Gravel Sandy    |      |          |
| 1.3-1.9  | Small Sandy Gravel |      |          | 5.0-5.5  | Clay                  |      |          |
| 1.9-5.0  | Sand               |      |          |          |                       |      |          |
|          | Hole Stuffed in    |      |          |          |                       |      |          |

| Time | POI | Soil | Picture | Time     | POI                   | Soil | Picture  |
|------|-----|------|---------|----------|-----------------------|------|----------|
|      |     |      |         | 11:28 am | POI 319               |      | Pictures |
|      |     |      |         | 0-0.1    | Top Soil              |      | 246      |
|      |     |      |         | 0.1-0.7  | Sandy Small Gravel 3" |      | 247      |
|      |     |      |         | 0.7-1.3  | Sand                  |      |          |
|      |     |      |         | 1.3-1.6  | Sandy Small Gravel 2" |      |          |
|      |     |      |         | 1.6-5.0  | Sand                  |      |          |
|      |     |      |         |          | Hole Stuffed in       |      |          |

On the test locations map, either the prefix "TH" has been added to three digit numbers in the test logs or "TH" has replaced "POI"

No. SML 120006

Date March 9, 2012

Page

No.

Date

Page

11:48 am POI 320 Pictures  
 0-0.1 Top Soil 248  
 0.1-0.4 Sand 249  
 0.4-1.4 Small pebbles Gravel Sandy  
 1.4-5.5 Sand

12:43 pm POI 321 Pictures  
 0-0.1 Top Soil 250  
 0.1-5.5 Sand 251

1:25 pm POI 322 Pictures  
 0-0.1 Top Soil 252  
 0.1-1.1 Sand with small Rck 1" 253  
 0.1-1.7 Sandy Gravel up to 3"  
 1.7-4.0 Sand  
 4.0-5.5 Clay

On the test locations map, either the prefix "TH" has been added to three digit numbers in the test logs or "TH" has replaced "POI"

March 7/2012 - Pit 5

420 - ~~8:00~~ am.  
 0-2 ft. soils  
 2-6 ft. 2" rock  
 6-20 ft. 2-4" rock, lots of sand

421 - 8:30 am  
 0-2 ft. soils  
 2-14 ft. 2-6" rock, fair sand  
 14-18 ft. sand  
 18-20 ft. 2-4" rock, fair sand  
 sand at bottom

422 9:00 am.  
 0-2 ft. soils  
 2-4 ft. 2" rock  
 4-21 ft. - mostly sand.

423 9:30 am.  
 0-2 ft. soils  
 2-4 ft. sand  
 4-6 ft. sm. rock  
 6-21 ft. sand.

424 9:50 am.  
 0-3 ft. black soils  
 3-14 ft. frozen sand  
 14-19 ft. wet sand.

425 10:40 am.  
 0-3 ft. soils (black)  
 3-19 ft. sand.

426 11:00 am  
 0-2 ft. soils  
 2-4 ft. 2-4" rock  
 4-21 ft. sand

On the test locations map, either the prefix "TH" has been added to three digit numbers in the test logs or "TH" has replaced "POI"

418 - 4:10 pm  
0-2 ft. soils  
2-6 ft. 2-4" rock  
6-14 ft. random 4-6" rock  
14-20 ft. mostly sand.

419 - 4:35 pm.  
0-2 ft. soils  
2-8 ft. 2-3" rock & sand  
8-12 ft. 2-4" rock  
12-20 ft. mostly sand, <sup>random</sup> rock

March 7/2012 - Pit 5

420 - ~~8:00~~ am.  
0-2 ft. soils  
2-6 ft. 2" rock  
6-20 ft. 2-4" rock, lots of sand.

421 - 8:30 am  
0-2 ft. soils  
2-14 ft. 2-6" rock, fair sand  
14-18 ft. sand  
18-20 ft. 2-4" rock, fair sand  
Sand at bottom

422 9:00 am.  
0-2 ft. soils  
2-4 ft. 2" rock  
4-21 ft. - mostly sand.

423 9:30 am.  
0-2 ft. soils  
2-4 ft. sand  
4-6 ft. sm. rock  
6-21 ft. sand.

424 9:50 am.  
0-3 ft. black soils.  
3-14 ft. frozen sand.  
14-19 ft. wet sand.

425 10:40 am.  
0-3 ft. soils (black)  
3-19 ft. sand.

426 11:00 am  
0-2 ft. soils  
2-4 ft. 2-4" rock  
4-21 ft. sand

3 up horiz 2nd vertical

On the test locations map, either the prefix "TH" has been added to three digit numbers in the test logs or "TH" has replaced "POI"

SML 12006

427 11:25 am  
0-2 ft. soils  
2-20 ft. - 2-4" rock, <sup>lots of</sup> sand

428 12:30 pm  
0-2 ft. soils  
2-12 ft. 2" rock w/sand  
12-16 ft. sandier  
16-18 ft. 2-8" rock w/sand  
18-21 ft. sandier, some rock

429 1:00 pm  
left open. 0-2 ft. soils  
2-12 ft. 2-4" rock  
12-19 ft. sand w/random rock  
19-20 ft. hitting clay

430 1:20 pm  
left open 0-2 ft. soils  
2-20 ft. 2-6" rocks, <sup>pretty</sup> random

431 1:40 pm  
0-2 ft. soils  
2-12 ft. 2" rock, random  
12-19 ft. mostly sand

432 2:05 pm  
0-2 ft. soils  
2-10 ft. 2" rock, random  
10-18 ft. 4-6" rock  
14-21 ft. 4-6" rock, random

433 2:35 pm  
0-2 ft. soils  
2-8 ft. 2" rock, random  
8-19 ft. - 3-4" rock, <sup>very</sup> random  
3:00-4:00  
<sup>refill holes</sup>  
Pit 5

434 4:00 pm  
0-2 ft. soils  
2-3 ft. 2" rock  
3-9 ft. <sup>mostly sand</sup> random rock  
9-19 ft. sand.

435 4:15 pm  
0-2 ft. soils  
2-6 ft. 2" rock w/sand  
6-10 ft. sand.  
10-14 ft. 2-4" rock w/sand  
14-18 ft. <sup>mostly sand</sup> random rock  
18-19 ft. sand  
caved in

689-7885 - Lisa M. Anthony Henday - exit 90 st.

On the test locations map, either the prefix "TH" has been added to three digit numbers in the test logs or "TH" has replaced "POI"

Mar. 8/12 - Smz 120006

436 7:40 am.

0-2 ft. black soils

2-14 ft. sand.

14-17 ft. clay

437 8:00 am.

0-2 ft. soils

2-5 ft. 2-3" rock

5-20 ft. sand.

438 8:30 am.

0-2 ft. soils

2-3 ft. sand

4-16 ft. clay.

439 8:50 am.

0-2 ft. soils

2-10 ft. 2" rock, lots of sand

10-20 ft. sand.

440 9:05 am - ravine bottom

0-2 ft. soils

2-12 ft. 2" rock, very random

12-16 ft. 2" rock, black sand

couldn't go any further

caving in

441 9:35 am.

0-2 ft. soils

2-3 ft. sand.

3-5 ft. 2" rock w. d.

5-20 ft. sand

442 10:20 am

0-2 ft. soils

2-10 ft. <sup>very random</sup> 2" rocks

10-14 ft. 2-4" rock, sand

14-21 ft. sand

443 10:50 am

0-2 ft. soils

2-8 ft. 2-4" rock, <sup>really</sup> random

8-21 ft. sand.

444 11:15 am.

0-2 ft. soils

2-8 ft. 2"-6" rock <sup>very</sup> random

8-20 ft. sand.

79,70 1b

On the test locations map, either the prefix "TH" has been added to three digit numbers in the test logs or "TH" has replaced "POI"

March 8

- 445 6" Top soil 2' "B" soil  
2' to 8' sand with small pebbles  
6' to 18' clay no rock  
6 pictures
- 446 6" Top soil 2' B soil  
2' to 5' sand with some rock 1" to 3"  
5' to 21' clay no rock  
5 pictures
- 447 6" Top soil 2' "B" soil  
2' to 5' sand no rock  
5' to 10' yellow sand no rock  
10' to 15' ~~dry~~ wet clay  
15' to 20' blueish clay/sand no rock  
6 pictures
- 448 6" Top soil 2' B soil  
2' to 8' sand <sup>very little 1"</sup> ~~no rock~~ Rock  
8' to 10' 2 Big Rocks <sup>small</sup> ~~no small~~  
10' to 19' clay no rock  
19' to 21' wet clay/sand no rock  
4 pictures
- 449 6" Top soil 2' "B" soil  
2' to 8' sand no rock  
8' to 9' sand with some 1" Rock  
9' to 19' clay no rock  
19' to 20 wet clay/sand no rock  
3 pictures

- 450 6" Top soil 2' "B" soil  
2' to 4' sand no rock  
4' to 5' sand with some 1" to 3"  
5' to 18' sand no rock  
18' to 22' sand with water with  
Rock 3" to 6"  
4 pictures
- 451 6" Top soil 2' "B" soil  
2' to 4' small to 3" rock with sand  
4' to 5' sand no rock  
5' to 8' rock 1" to 6"  
8' to 16' sand no rock  
16' to 21' wet sand no rock  
5 pictures
- 452 6" Top soil 2' B soil  
2' to 5' sand with some small to  
5' to 19' white sand very few pebbles  
4 pictures
- 453 6" Top soil 2' "B" soil  
2' to 4' sand with some Rock  
4' to 5' rock 1" to 4"  
5' to 15' sand no rock  
15' to 19' sand with lots of small  
4 pictures

J. Ball and C. Ball ISML 120005 & ISML 120006 CRBP Update and SIR Response (Electronically Submitted to AEM on Sept. 14, 2016; Hardcopies to be Submitted Sept. 20, 2016)



On the ~~test location~~ <sup>map</sup>, either the prefix "TH" has been added to three digit numbers in the test logs or "TH" has replaced "POI"

Mar. 9/12 - SML 120006

- 454 7:30 am.  
0-2 ft. soils  
2-3 ft. random 2" rock  
3-20 ft. sand - no rock
- 455 0-2 ft. soils  
2-4 ft. 1-3" rock  
4-20 ft. sand - no rock
- 456 8:20 am.  
0-2 ft. soils  
2-4 ft. sm. rock, lots of sand  
4-20 ft. sand - no rock
- 457 8:55 am.  
0-2 ft. soils  
2-20 ft. sand - no rock
- 458 9:20 am  
0-2 ft. soils  
2-20 ft. sand - no rock
- 459 9:40 am  
0-2 ft. soils  
2-10 ft. odd rock, mostly sand  
10-20 ft. sand.

- 460 10:25 am  
0-2 ft. soils  
2-12 ft. 2-3" rock, <sup>really</sup> random  
12-21 ft. sand - no rock
- 461 0-2 ft. soils  
2-12 ft. sm. rock <sup>really</sup> random  
12-14 ft. 3-4" rock  
14-21 ft. sand.
- 462 11:15 am  
0-2 ft. soils  
2-17 ft. sm 2" rock, <sup>pretty</sup> random  
\* 17-18 ft. 6-8" rock  
18-19 ft. sandier again
- 463 11:40 am  
0-2 ft. soils  
2-21 ft. sand - no rock
- 464 12:50 pm  
0-2 ft. soils  
2-20 ft. sand - no rock
- 465 1:05 pm. <sup>12-18 ft. 2-3" rock</sup>  
\* 0-2 ft. soils  
2-10 ft. sand  
10-12 ft. 4-6" rock <sup>covered</sup>

J. Ball and C. Ball (SML 120005 & SML 120006) - CRBFR and SIR Response (Electronically Submitted to AEP on Sept. 14, 2016; Hardcopies to be Submitted Sept. 20, 2016)

SME 100280  
Nov 22/11

Auger Drilled Test Data

- (9) 6" Top soil  
6" to 4 feet Fair Gravel  
4 to 26 Bonev Gravel  
26 to 32 Fair Gravel  
32 to 50 sand  
50 clay.
- (10) 6" Top soil UTM 6014916  
6" to 2 sand  
2 to 26 very Bonev Gravel  
26 to 35 1" small rock  
35 to 39 sand  
39 to 45 Fair Gravel  
45 to 50 clay
- (11) 6" Top soil 6015321  
6" to 10 Fair Gravel  
10 to 20 Good Gravel  
20 to 25 sand  
25 to 45 Good Gravel  
45 to 50 Poor Gravel  
50 to 55 sand

- (12) 0-6" Top soil 6015503  
6" to 3 sand  
3 to 9 Poor Gravel  
9 - 14 Good Gravel  
14 - 18 sand  
18 - 25 Fair Gravel  
25 - 30 sand  
30 to 45 Good Gravel  
45 to 50 sand
- (14) 0-6" Top soil 6015738  
6" to 35 sand
- (15) 6" Top soil 6015068  
6" to 12 sand  
12 to 14 Fair Gravel  
14 to 32 sand  
32 to 40 Fair Gravel  
40 to 60 Good Gravel  
60 to P

SME 100280

- (16) 0-6" Top soil 6015417  
6" to 10" Fair Gravel  
10 to 30 Very Good Gravel  
30 to 32 Sand  
32 to 45 Very Good Gravel  
45 to 55 Poor Gravel sample
- (17) 6" Top soil 6015168  
6" to 35 Very Good Gravel  
35-42 Poor Gravel  
42 to 58 Sand  
Nov 24/11
- (18) 0-6" Top soil 6015021  
6" to 22 Sand  
2-15 Good Gravel  
15-25 Very Good Gravel  
25-35 Good Gravel  
35-60 Sand  
water at 45 feet

SME 100280

- (19) 6" Top soil 6014991  
6" to 20 Clay
- (20) 6" Top soil 6014975  
6" to 15 Sand  
15-25 Clay
- (21) 6" Top soil 6014962  
6" to 6 Sand  
6-20 Clay
- (22) 6" Top soil 6015052  
6" to 30 Sand  
30 to 35 Clay
- (23) 6" Top soil 6015025  
6" to 30 Sand
- (24) 6" Top soil 6015151  
6" to 30 Sand  
30 to 35 Clay
- (25) 6" Top soil 6015286  
20 Clay
- (26) 6" Top soil 6015484  
6" to 30 Sand  
30 to 45 Very Poor Gravel  
45 Gravel Below

SME 100280

- (27) 6" Top soil 6015691  
6" to 10 Fair Gravel  
10-15 very Rocky  
15-30 Clay.
- (28) 6" Top soil, 6015576  
6" to 5 very Rocky  
5-10 Fair Gravel  
10-15 very Rocky  
15-18 Fair Gravel  
18-25 Clay
- (29) 6" Top soil 6015361  
6" to 5 very Rocky  
5 to 7 Fair Gravel  
7-12 very Rocky  
12-17 Sand  
17-21 Good Gravel  
21-25 Clay  
(30) 6" Top soil 6015319  
6"-20 Clay

SME 100280

- (31) 6" to 20 Top soil 6015475  
6" to 20 Clay
- (32) 6" Top soil 6015626  
6" to 20 Clay  
Nov 25/11
- (33) 6" Top soil 6015189  
2" Sand  
2-10 Fair Gravel  
10-15 very Bumpy Rock  
15-25 very Bumpy Rock  
25-35 Fair Gravel  
35-40 Fair Gravel  
40-60 Sand
- (34) 6" Top soil 6015131  
6" to 25 sand  
25 to 30 Clay
- (35) 6" Top soil 6015273  
6" to 20 Clay

SME 100280

- (36) 6" Top soil 6015268
- 6" to 4" Sand
- 4" to 10" Fair Gravel
- 10-20 very Bony Rock.
- 20-28 Bony Rock
- 28-35 Fair Gravel
- 35-40 Fair Gravel
- 40-45 Sand
- 45-50 Sand
- (37) 6" Top soil 6015442
- 6" to 20" Clay
- (38) 6" Top soil 6015517
- 6" to 2" Fair Gravel
- 2" to 9" Sand.
- 9" to 15" Fair Gravel
- 15-18 Sand
- 18-30 very Good Gravel
- 30-35 Sand
- 35-40 Clay

SME 100280

- (39) 6" Top soil 6015632
- 6" to 5" Fair Gravel
- 5-10 Poor Gravel
- 10-14 Sand
- 14-16 Good Gravel
- 16-25 Clay
- (40) 6" Top soil 6015710
- 6" to 10" Fair Gravel
- 10 to 16 Sand
- 16 to 25 Clay
- (41) 6" Top soil 6015657
- 6" to 15" Sand
- 15-20 Clay
- (42) 6" Top soil 6015560
- 6" to 16" Sand
- 16-25 Clay
- (43) 6" Top soil 6015567
- 15 Feet Clay
- (44) 6" Top soil 6015500
- 6" to 20" Sand
- 20-25 Clay

SME 100280  
Nov 26/11

(50) 6" Top soil 6014949  
 6"-18 Very Good Gravel  
 18-35 sand  
 35-42 Good Gravel  
 42-50 Poor Gravel  
 (51) 6" Top soil 6015153  
 6"-20 Very Boney Rock  
 20-35 sand  
 35-42 small 1/2 Rock  
 42-45 sand water  
 45-55 Clay  
 (52) 6" Top soil 6015330  
 6"-36 very Boney Rock  
 36-40 sand  
 40-45 Clay  
 (53) 0-6" Top soil 6015674  
 6"-10 Fair Gravel  
 10-35 sand  
 (54) 0-6" Top soil 6015074  
 6"-15 sand  
 15-20 Clay

SME 100280

(45) 0-6" Top soil 6015398  
 6"-20 Sand  
 20-25 Clay  
 (46) 6" Top soil 6015204  
 6"-10 Fair Gravel  
 10-25 sand  
 25-30 Clay  
 (47) 6" Top soil 6015155  
 6" to 20 Clay  
 (48) 6" Top soil 6015263  
 6" to 20 Clay  
 (49) 6" Top soil 6015437  
 10 Feet sand  
 10 to 15 Clay

SME 100280

- (55) 0-6" Top soil 6015388  
6"-12" Fair Gravel  
12-15" sand  
15-20" Clay
- (56) 0" Top soil 6015523  
6"-4" Fair Gravel  
4"-20" Sand  
20"-25" Clay
- (57) 6" Top soil 6015686  
6"-10" Boney Rocky Gravel
- (58) 10-20" Clay  
0" Top soil 6015641  
6"-5" Boney Gravel  
5-20" Clay
- (59) 0-6" Top soil 6015278  
6"-15" Clay
- (60) 6" Top soil 6015197  
6"-20" Clay

SME 100280

Test hole Number : **TL 10** - Date : Nov. 23, 2011





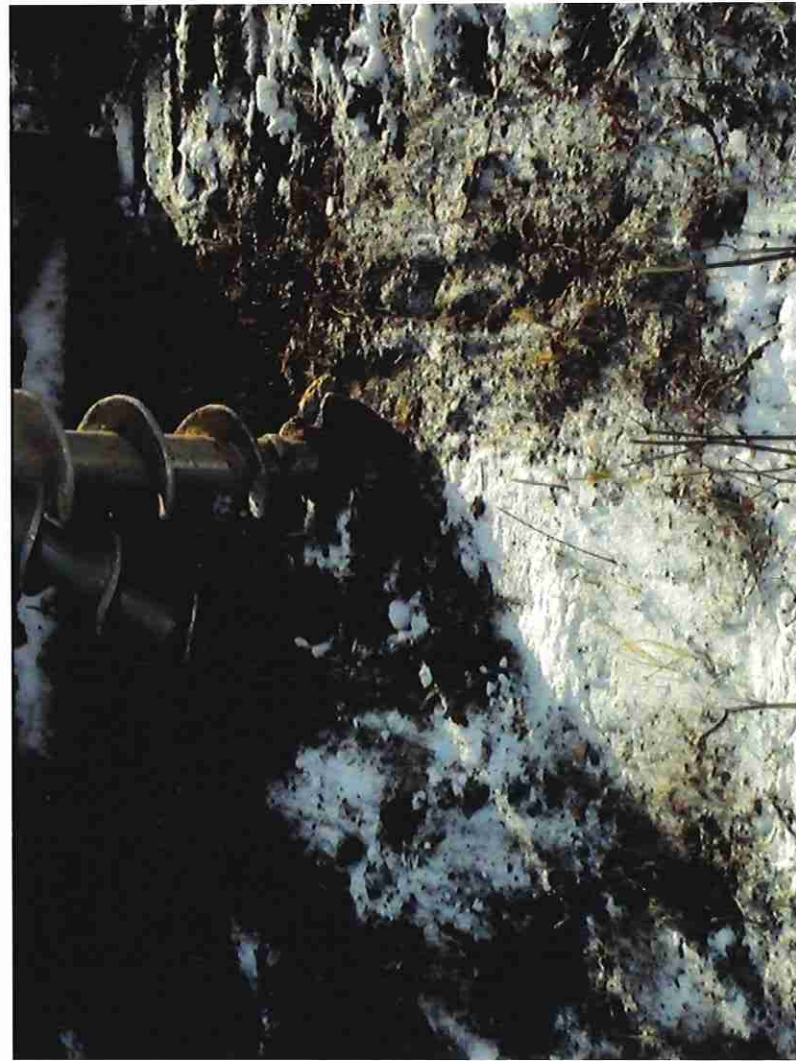
SME 100280

Test hole Number: **TL 20** - Date: Nov. 24, 2011



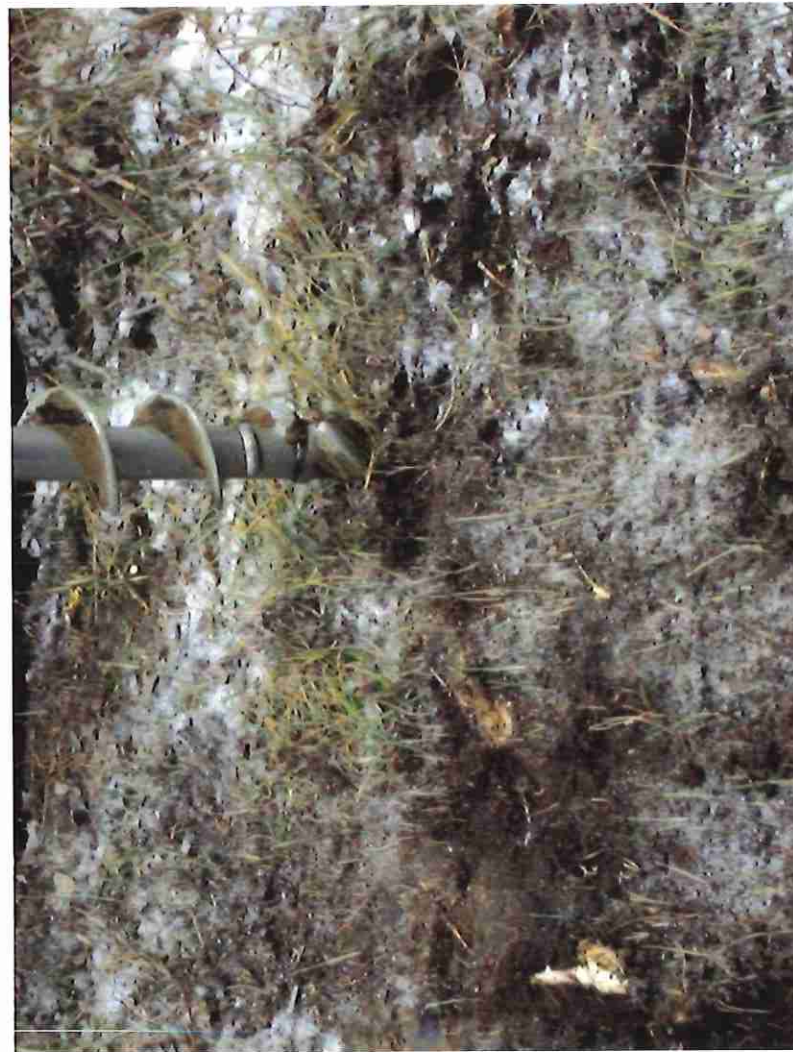
SME 100280

Test hole Number : **TL 28** - Date: Nov. 24, 2011



SME 100280

Test hole Number: **TL 41** - Date : Nov. 25, 2011



SME 100280

Test hole Number : **TL 56** - Date : Nov. 26, 2011



Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006

APPENDIX B  
• Soil Survey Report

Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006

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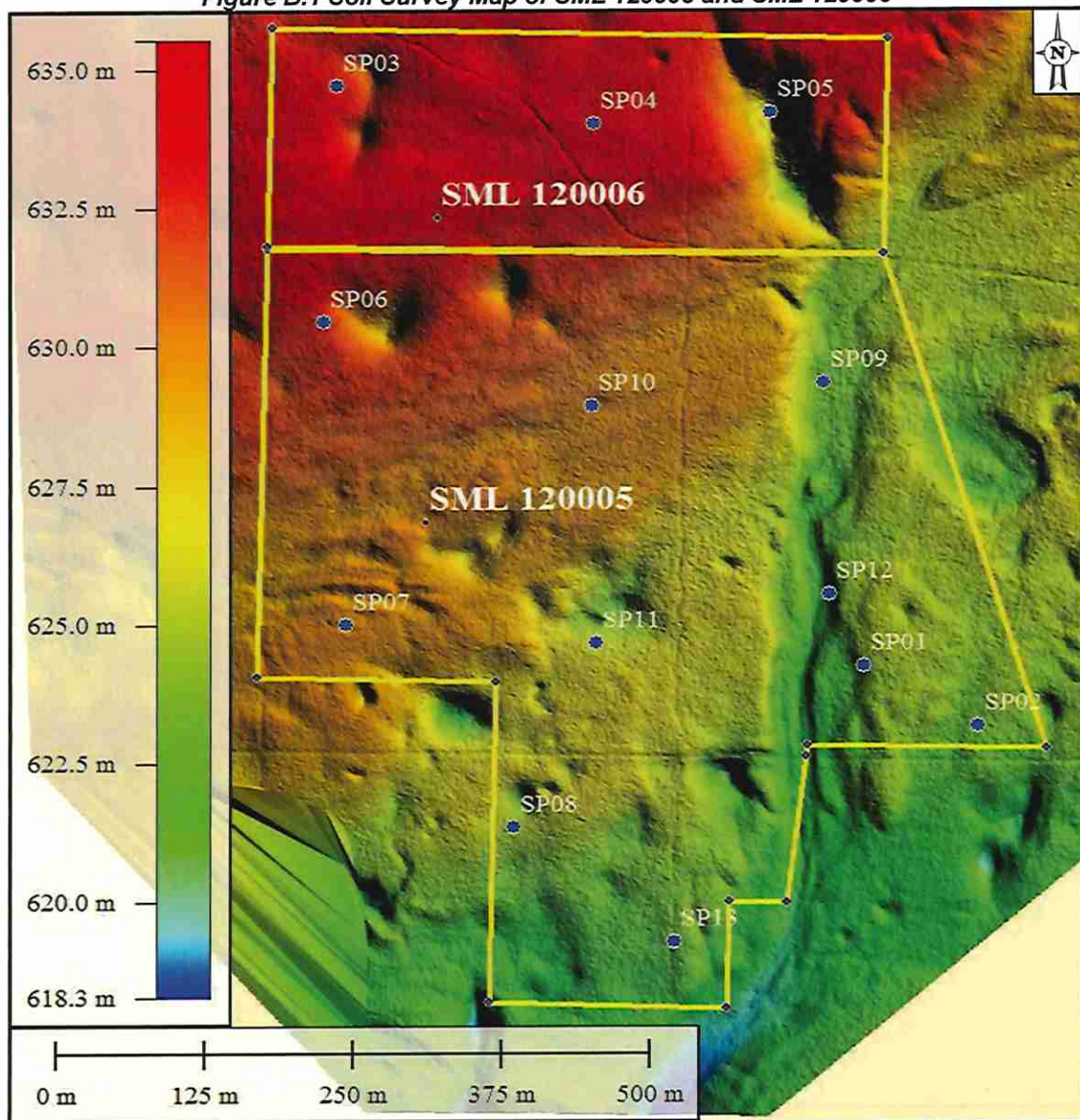
## **Appendix B.1**

### **Soil Survey Report**

### B.1 SOIL SURVEY REPORT OF SML 120005 AND SML 120006

SML 120005 and SML 120006 soil survey was completed on July 14 and 15, 2015. Information was gathered from 13 soil pit locations within the two SMLs. Figure B.1 displays the Soil Survey Map of the 2 SML's showing the soil pit locations over bare earth LIDAR. The soil pit locations were selected using an ecosystem approach by interpreting variations in landscape and vegetation patterns on available orthophotos and LIDAR data. Table B.1 summarizes findings and photos for each soil pit are also included.

Figure B.1 Soil Survey Map of SML 120005 and SML 120006



Source: LiDAR Data sourced from AltaLis [4]; contours added in Global Mapper

**Table B.1 Summary of Soil Survey Findings**

| Soil Pit Number | GPS Coordinates (Zone 12, NAD 83) |         | LFH (cm) | Soil Texture  | Slope Position and General Comments  | Soil Pit Location and Vegetation  |
|-----------------|-----------------------------------|---------|----------|---|--|---|
|                 | Northing                          | Easting |          |   |  |   |
| SP01            | 6015137                           | 396280  | 3        | Topsoil (A) = 10 cm; sandy loam<br>Subsoil (B) = 10 cm; sand      | undulating topography; a 7 cm sand layer containing small gravel below subsoil; golden coloured sand at the bottom; soil pit depth 50 cm, moose droppings close to soil pit location | jack pine, aspen, common bearberry, common blueberry, saskatoon, three-toothed cinquefoil, cream-colored vetchling, wild vetch, northern bedstraw, veiny meadow rue, wild lily-of-the-valley, fleabane, wild strawberry, graminoids   |
| SP02            | 6015081                           | 396375  | 5        | Topsoil (A) = 8 cm; sandy loam<br>Subsoil (B) = 16 cm; loam       | nearly level; golden coloured sand (sandy clay texture) containing small gravel at the bottom; soil pit depth 45 cm  | aspen dominated, occasional jack pine and white spruce, common blueberry, snowberry, Canada buffaloberry, twining honeysuckle, currant, prickly rose, saskatoon, cream-colored vetchling, veiny meadow rue, wild lily-of-the-valley, nodding onion, common yarrow, aster, northern bedstraw, Canada anemone, heart-leaved Alexanders, western wood lily, harebell, graminoids |
| SP03            | 6015678                           | 395837  | 5        | Topsoil (A) = 8 cm; sandy loam<br>Subsoil (B) = 10 cm; sandy loam | gently undulating plateau; mossy ground; wavy Ah; golden coloured sand containing small gravel at the bottom; soil pit depth 42 cm   | mainly jack pine, occasional aspen, green alder, common bearberry, common blueberry, bog cranberry, twinflower, saskatoon, prickly rose, cream-colored vetchling, wild vetch, northern bedstraw, wild lily-of-the-valley, wild strawberry, moss, graminoids   |
| SP04            | 6015641                           | 396053  | 5        | Topsoil (A) = 10 cm; sandy loam<br>Subsoil (B) = 6 cm; sandy loam | nearly flat; mossy ground; golden coloured coarse sand at the bottom; soil pit depth 50 cm   | same ratio of aspen and jack pine, green alder, common bearberry, common blueberry, Canada buffaloberry, bog cranberry, twining honeysuckle, twinflower, saskatoon, occasional prickly rose, wild sarsaparilla, cream-colored vetchling, northern bedstraw, wild lily-of-the-valley, wild strawberry, moss, graminoids  |



Conservation and Reclamation Business Plan  
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 Parts of NW & SW 14-061-18-W4M  
 SML 120005 & SML 120006

Ball [SML 120005 & SML 120006] - CRBP Update and SIR Response (Electronically Submitted to AEP on Sept. 14, 2016; Hardcopies to be Submitted Sr

| Soil Pit Number | GPS Coordinates (Zone 12, NAD 83) |         | LFH (cm) | Soil Texture   | Slope Position and General Comments   | Soil Pit Location and Vegetation   |
|-----------------|-----------------------------------|---------|----------|--|---|--|
|                 | Northing                          | Easting |          |  |   |  |
| P05             | 6015652                           | 396202  | 7        | Topsoil (A) = 16 cm; loamy sand<br>Subsoil (B) = 11 cm; loamy sand | bottom of the slope; mossy ground;<br>golden coloured sand at the bottom;<br>soil pit depth 55 cm   | mainly jack pine, less aspen,<br>common blueberry, common<br>bearberry, Canada buffaloberry, bog<br>cranberry, prickly rose, twining<br>honeysuckle, twinflower, saskatoon,<br>cream-colored vetchling, northern<br>bedstraw, pink wintergreen, one-<br>sided wintergreen, veiny meadow<br>rue, wild lily-of-the-valley, wild<br>strawberry, aster, moss, graminoids   |
| SP06            | 6015457                           | 395825  | 5        | Topsoil (A) = 9 cm; sandy loam<br>Subsoil (B) = 11 cm; loamy sand  | gently undulating plateau; mossy<br>floor; coarse sand with small gravels<br>below "B"; soil pit depth 40 cm                                    | same ratio of jack pine and aspen,<br>green alder, pin cherry, bracted<br>honeysuckle, common bearberry,<br>common blueberry, snowberry,<br>Canada buffaloberry, bog cranberry,<br>prickly rose, saskatoon, bunchberry,<br>cream-colored vetchling, northern<br>bedstraw, veiny meadow rue, wild<br>strawberry, moss, graminoids   |
| SP07            | 6015176                           | 395844  | 4        | Topsoil (A) = 6 cm; sandy loam<br>Subsoil (B) = 6.5 cm; sandy loam | gently undulating plateau; mossy<br>floor; gravel below "B" at 12.5 cm<br>(big gravel with loamy sand textured<br>matrix); soil pit depth 30 cm | jack pine, aspen (transition of aspen<br>to jack pine), small aspen, common<br>blueberry (lots), common bearberry,<br>twining honeysuckle, twinflower,<br>saskatoon, prickly rose, Canada<br>buffaloberry (occasional), cut-leaved<br>anemone, cream-colored vetchling,<br>wild vetch, northern bedstraw, veiny<br>meadow rue, three-toothed<br>cinquefoil, wild lily-of-the-valley, wild<br>strawberry, aster leaves, moss,<br>sedges, graminoids, lichen |

Conservation and Reclamation Business Plan  
 Applicant: Jordan Ball and Cathy Ball  
 Parts of NW & SW 14-061-18-W4M  
 SML 120005 & SML 120006

| Soil Pit Number | GPS Coordinates (Zone 12, NAD 83) |         | LFH (cm) | Soil Texture  | Slope Position and General Comments   | Soil Pit Location and Vegetation  |
|-----------------|-----------------------------------|---------|----------|---|---|---|
|                 | Northing                          | Easting |          |   |   |   |
| SP08            | 6014986                           | 395986  | 3        | Topsoil (A) = 4 cm; sandy loam<br>Subsoil (B) = 12 cm; loamy sand | gently undulating plateau; a 7 cm light coloured sand layer (sandy loam texture) below "B", clean; coarse golden sand containing small gravel at the bottom; soil pit depth 36 cm   | mixed aspen and jack pine, green alder, small aspen, common blueberry, common bearberry, twining honeysuckle, twinflower, saskatoon, Canada buffaloberry, cut-leaved anemone, cream-colored vetchling, wild vetch, northern bedstraw, three-toothed cinquefoil, wild lily-of-the-valley, wild strawberry, aster leaves, moss, graminoids  |
| SP09            | 6015399                           | 396246  | 3        | Topsoil (A) = 13 cm; silty loam<br>Subsoil (B) = 17 cm; clay loam | toe of a gentle slope; contains two "A" layer: first "A" 7 cm & 2nd "A" 6 cm thick, a 4 cm lighter grey layer (clay loam tex.) between the two "A"; second "B" (13 cm) is also light grey in colour; a tree log in the soil pit; clay at the bottom; soil pit depth 53 cm | only aspen, some willow, choke cherry, baneberry, wild red raspberry, currant, twining honeysuckle, saskatoon, prickly rose, cream-colored vetchling, wild vetch, veiny meadow rue, nodding onion, graminoids   |
| SP10            | 6015379                           | 396051  | 4        | Topsoil (A) = 3 cm; sandy loam<br>Subsoil (B) = 10 cm; loamy sand | nearly flat; mossy floor; "C" layer (loamy sand texture) has gravel in it; gravel layer starts at 23 cm; soil pit depth 28 cm -- can't penetrate further  | mainly aspen, some jack pine, small white spruce and small aspen, some willow, common blueberry, common bearberry, Canada buffaloberry, bog cranberry, bracted honeysuckle, prickly rose, twining honeysuckle, twinflower, saskatoon, a bit of snowberry, cut-leaved anemone, cream-colored vetchling, northern bedstraw, one-sided wintergreen, wild lily-of-the-valley, wild strawberry, aster leaves, moss, graminoids |

Ball [SML 120005 & SML 120006] - CRBP Update and SIR Response (Electronically Submitted to AEP on Sept. 14, 2016; Hardcopies to be Submitted S

Conservation and Reclamation Business Plan  
 Applicant: Jordan Ball and Cathy Ball  
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 SML 120005 & SML 120006

Ball [SML 120005 & SML 120006] - CRBP Update and SIR Response (Electronically Submitted to AEP on Sept. 14, 2016; Hardcopies to be Submitted Se

| Soil Pit Number | GPS Coordinates (Zone 12, NAD 83) |         | LFH (cm) | Soil Texture   | Slope Position and General Comments  | Soil Pit Location and Vegetation   |
|-----------------|-----------------------------------|---------|----------|--|--|--|
|                 | Northing                          | Easting |          |  |  |  |
| SP11            | 6015159                           | 396055  | 5        | Topsoil (A) = 4 cm; loamy sand<br>Subsoil (B) = 7 cm; loamy sand | mid slop, gently undulating; mossy floor; "C" layer starts at 16 cm; golden coloured coarse sand stats at 10 cm into "C"; soil pit depth 30 cm                     | mainly jack pine, aspen (occasional), 1 white spruce, small aspen, common blueberry, common bearberry, Canada buffaloberry, prickly rose, twining honeysuckle, twinflower, saskatoon, bunchberry, cream-colored vetchling, wild vetch, wild lily-of-the-valley, wild sarsaparilla (not widespread), aster leaves, moss, graminoids |
| SP12            | 6015204                           | 396251  | 2        | Topsoil (A) = 5cm; sandy loam<br>Subsoil (B) = 4 cm; loam        | soil pit location is in the cleared, disturbed, and grazed area; mid slope; compacted soil, very hard to dig; "C" layer texture is silt loam; soil pit depth 28 cm | small willow, choke cherry, saskatoon, snowberry, currant, prickly rose, wild vetch, veiny meadow rue, wild strawberry, graceful cinquefoil, harebell, fleabane, aster leaves, graminoids  |
| SP13            | 6014880                           | 396121  | 2        | Topsoil (A) = 6 cm; sandy loam<br>Subsoil (B) = 8 cm; sandy loam | nearly flat; " B" soil layer is cream coloured; golden coloured sand below, becomes softer and reddish at the bottom. Soil pit depth 60 cm                         | jack pine, young aspen, green alder, common blueberry (lots) , common bearberry, snowberry, prickly rose, saskatoon, bog cranberry, cream-colored vetchling, wild vetch, wild lily-of-the-valley, aster leaves, common yarrow, fleabane, northern bedstraw, wild strawberry, moss (not widespread), graminoids                     |

On average the thickness of:

- LFH = 4 cm
- Topsoil = 7.8 cm
- Subsoil = 9.6 cm

It should be noted that charcoal was present at the top of all soil profile in almost all the soil pits.

Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW & SW 14-061-18-W4M  
SML 120005 & SML 120006

**Soil Pit 01**



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**Soil Pit 02**



Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW & SW 14-061-18-W4M  
SML 120005 & SML 120006

**Soil Pit 03**



Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW & SW 14-061-18-W4M  
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**Soil Pit 04**



Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW & SW 14-061-18-W4M  
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**Soil Pit 05**





Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW & SW 14-061-18-W4M  
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**Soil Pit 06**



Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW & SW 14-061-18-W4M  
SML 120005 & SML 120006

**Soil Pit 07**



Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW & SW 14-061-18-W4M  
SML 120005 & SML 120006

**Soil Pit 08**



Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW & SW 14-061-18-W4M  
SML 120005 & SML 120006

**Soil Pit 09**



Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW & SW 14-061-18-W4M  
SML 120005 & SML 120006

**Soil Pit 10**



Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW & SW 14-061-18-W4M  
SML 120005 & SML 120006

**Soil Pit 11**



Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW & SW 14-061-18-W4M  
SML 120005 & SML 120006

**Soil Pit 12**



Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW & SW 14-061-18-W4M  
SML 120005 & SML 120006

**Soil Pit 13**





Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006

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**APPENDIX C**

- Plant Species Observations
- Weed Survey Form and Observations
- ACMIS Search Results
- Sensitive Plant Search
- Ecosite Classification

Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006

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## **Appendix C.1**

### **Plant Species Observations**

Conservation and Reclamation Business Plan  
 Applicant: Jordan Ball and Cathy Ball  
 Parts of NW and SW 14-061-18-W4M  
 SML 120005 and SML 120006

### C.1 PLANT SPECIES OBSERVATIONS

Table C.1 lists the plants observed and recorded during a field visit on July 14 to 15, 2015 to study the area. A portion of photographs taken are also included (following the Table C.1). The list is not intended to be a comprehensive list of all species present on the SML's, but it is representative of the plants observed. Non-native species are shown in red text. Nomenclature follows the ACIMS standard found in [List of All Elements](#) [14].

**Table C.1 Summary of plants observation during site investigation**

| Life Form           | Common Name               | Scientific Name                                    | Author                        |
|---------------------|---------------------------|--|-------------------------------|
| TREE                | aspen                     | <i>Populus tremuloides</i>                         | Michx.                        |
|                     | jack pine                 | <i>Pinus banksiana</i>                             | Lamb.                         |
|                     | white spruce              | <i>Picea glauca</i>                                | (Moench) Voss                 |
| SHRUB               | bog cranberry             | <i>Vaccinium vitis-idaea</i>                       | L.                            |
|                     | bracted honeysuckle       | <i>Lonicera involucrata</i> var. <i>nvolucrata</i> | (Richardson) Banks ex Spreng. |
|                     | buckbrush                 | <i>Symphoricarpos occidentalis</i>                 | Hook.                         |
|                     | Canada buffaloberry       | <i>Shepherdia canadensis</i>                       | (L.) Nutt.                    |
|                     | Choke cherry              | <i>Prunus virginiana</i>                           | L.                            |
|                     | common bearberry          | <i>Arctostaphylos uva-ursi</i>                     | (L.) Spreng.                  |
|                     | common blueberry          | <i>Vaccinium myrtilloides</i>                      | Michx.                        |
|                     | currant                   | <i>Ribes</i> spp.                                  |                               |
|                     | green alder               | <i>Alnus viridis</i>                               | (Vill.) Lam. & DC.            |
|                     | prickly rose              | <i>Rosa acicularis</i>                             | Lindl.                        |
|                     | red and white baneberry   | <i>Actaea rubra</i>                                | (Ait.) Willd.                 |
|                     | saskatoon                 | <i>Amelanchier alnifolia</i>                       | (Nutt.) Nutt. ex M. Roemer    |
|                     | snowberry                 | <i>Symphoricarpos albus</i>                        | (L.) Blake                    |
|                     | twining honeysuckle       | <i>Lonicera dioica</i>                             | L.                            |
|                     | twinflower                | <i>Linnaea borealis</i>                            | L.                            |
|                     | wild gooseberry           | <i>Ribes hirtellum</i>                             | Michx.                        |
|                     | wild red raspberry        | <i>Rubus idaeus</i>                                | L.                            |
|                     | willow                    | <i>Salix</i> sp.                                   |                               |
| FORB                | agrimony                  | <i>Agrimonia striata</i>                           | Michx.                        |
|                     | annual hawk's-beard       | <i>Crepis tectorum</i>                             | L.                            |
|                     | bunchberry                | <i>Cornus canadensis</i>                           | L.                            |
|                     | Canada anemone            | <i>Anemone canadensis</i>                          | L.                            |
|                     | Canada goldenrod          | <i>Solidago canadensis</i>                         | L.                            |
|                     | common dandelion          | <i>Taraxacum officinale</i>                        | G.H. Weber ex Wiggers         |
|                     | common fireweed           | <i>Epilobium angustifolium</i>                     | (L.) Holub.                   |
|                     | common pink wintergreen   | <i>Pyrola asarifolia</i>                           | Michx.                        |
|                     | common yarrow             | <i>Achillea millefolium</i>                        | L.                            |
|                     | cow parsnip               | <i>Heracleum lanatum</i>                           | Bartr.                        |
|                     | cream-colored vetchling   | <i>Lathyrus ochroleucus</i>                        | Hook.                         |
|                     | cut-leaved anemone        | <i>Anemone multifida</i>                           | Poir.                         |
|                     | Drummond's thistle        | <i>Cirsium drummondii</i>                          | Torr. & Gray                  |
| fringed loosestrife | <i>Lysimachia ciliate</i> | L.   |                               |

Conservation and Reclamation Business Plan  
 Applicant: Jordan Ball and Cathy Ball  
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 SML 120005 and SML 120006

J. Ball and C. Ball [SML 120005 & SML 120006] - CRBP Update and SIR Response (Electronically Submitted to AEP on Sept. 14, 2016; Hardcopies to be Submitted Sept. 20, 2016)

| Life Form               | Common Name                    | Scientific Name                  | Author                      |
|-------------------------|--------------------------------|----------------------------------|-----------------------------|
| FORB<br>(cont.)         | giant hyssop                   | <i>Agastache foeniculum</i>      | (Pursh) Kuntze              |
|                         | graceful cinquefoil            | <i>Potentilla gracilis</i>       | Dougl. ex Hook.             |
|                         | heart-leaved Alexanders        | <i>Zizis aptera</i>              | (Gray) Fern.                |
|                         | harebell                       | <i>Campanula rotundifolia</i>    | L.                          |
|                         | Lindley's aster                | <i>Symphotrichum ciliolatum</i>  | (Lindl.) Á. Löve & D. Löve  |
|                         | Macoun's buttercup             | <i>Ranunculus macounii</i>       | Britt.                      |
|                         | marsh hedge-nettle             | <i>Stachys palustris</i>         | L.                          |
|                         | narrow-leaved collomia         | <i>Collomia linearis</i>         | Nutt.                       |
|                         | northern bedstraw              | <i>Galium boreale</i>            | L.                          |
|                         | nodding onion                  | <i>Allium cernuum</i>            | Roth                        |
|                         | one-sided wintergreen          | <i>Orthilia secunda</i>          | (L.) House                  |
|                         | red clover                     | <i>Trifolium pratense</i>        | L.                          |
|                         | red and white baneberry        | <i>Actaea rubra</i>              | (Ait.) Willd.               |
|                         | seneca snakeroot               | <i>Polygala senega</i>           | L.                          |
|                         | smooth fleabane                | <i>Erigeron glabellus</i>        | Nutt.                       |
|                         | star-flowered Solomon's-seal   | <i>Smilacina stellata</i>        | (L.) Link                   |
|                         | tall larkspur                  | <i>Delphinium glaucum</i>        | S. Wats.                    |
|                         | tall lungwort                  | <i>Mertensia paniculata</i>      | (Ait.) G. Don               |
|                         | thistle (not creeping thistle) | <i>Cirsium sp.</i>               |                             |
|                         | three-toothed cinquefoil       | <i>Sibbaldiopsis tridentata</i>  | (Ait.) Rydb.                |
|                         | twining honeysuckle            | <i>Lonicera dioica</i>           | L.                          |
|                         | veiny meadow rue               | <i>Thalictrum venulosum</i>      | Trel.                       |
|                         | western Canada violet          | <i>Viola Canadensis</i>          | L.                          |
|                         | western wood lily              | <i>Lilium philadelphicum</i>     | L.                          |
|                         | white cinquefoil               | <i>Potentilla arguta</i>         | Pursh                       |
|                         | white cockle                   | <i>Silene pratensis</i>          | (P. Mill.) Greuter & Burdet |
| wild lily-of-the-valley | <i>Maianthemum canadense</i>   | Desf.                            |                             |
| wild sarsaparilla       | <i>Aralia nudicaulis</i>       | L.                               |                             |
| wild strawberry         | <i>Fragaria virginiana</i>     | Duchesne                         |                             |
| wild vetch              | <i>Vicia americana</i>         | Muhl. ex Willd.                  |                             |
| GRAMINOID               | bluegrass                      | <i>Poa spp.</i>                  |                             |
|                         | brome grass                    | <i>Bromus spp.</i>               |                             |
|                         | lowland sedges                 | <i>Carex spp.</i>                |                             |
|                         | upland sedges                  | <i>Carex spp.</i>                |                             |
|                         | wheat grass                    | <i>Agropyron spp.</i>            |                             |
| MOSS                    | Schreber's moss                | <i>Pleurozium schreberi</i>      | (Brid.) Mitt.               |
|                         | knight's plume moss            | <i>Ptilium crista-castrensis</i> | (Hedw.) De Not.             |
| LICHEN                  | reindeer lichen                | <i>Cladonia sp.</i>              |                             |
| FUNGI                   | various mushrooms              |                                  |                             |

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Applicant: Jordan Ball and Cathy Ball  
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prickly rose (*Rosa acicularis*)



common yarrow (*Achillea millefolium*)



western wood lily (*Lilium philadelphicum*)



nodding onion (*Allium cernuum*)



seneca snakeroot (*Polygala senega*)



wild lily-of-the-valley (*Maianthemum canadense*)  
twinflower (*Linnaea borealis*), common pink wintergreen  
(*Pyrola asarifolia*)

Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
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agrimony (*Agrimonia striata*)

northern bedstraw (*Galium boreale*)



smooth fleabane (*Erigeron glabellus*)



common pink wintergreen (*Pyrola asarifolia*)



veiny meadow rue (*Thalictrum venulosum*)



fringed loosestrife (*Lysimachia ciliate*)

Conservation and Reclamation Business Plan  
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giant hyssop (*Agastache foeniculum*)



tall lungwort (*Mertensia paniculata*)



three-toothed cinquefoil (*Potentilla tridentate*)



bunchberry (*Cornus canadensis*)



Lindley's aster (*Symphotrichum ciliolatum*)



wild sarsaparilla (*Aralia nudicaulis*)

Conservation and Reclamation Business Plan  
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red clover (*Trifolium pratense*)



Canada anemone (*Anemone canadensis*)



marsh hedge-nettle (*Stachys palustris*)



common fireweed (*Epilobium angustifolium*)



graceful cinquefoil (*Potentilla gracilis*)



harebell (*Campanula rotundifolia*)



Canada goldenrod (*Solidago Canadensis*)



Conservation and Reclamation Business Plan  
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western Canada violet (*Viola Canadensis*)



star-flowered Solomon's-seal (*Smilacina stellata*)



cream-colored vetchling (*Lathyrus ochroleucus*)



wild vetch (*Vicia americana*)



heart-leaved Alexanders (*Zizia aptera*)



tall larkspur (*Delphinium glaucum*)



wild gooseberry (*Ribes hirtellum*)

Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006



plains cinquefoil (*Potentilla bipinnatifida*)



narrow-leaved collomia (*Collomia linearis*)



white cinquefoil (*Potentilla argute*)



Drummond's thistle (*Cirsium drummondii*)



cow parsnip (*Heracleum lanatum*)



Macoun's buttercup (*Ranunculus macounii*)

Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
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SML 120005 and SML 120006



common blueberry (*Vaccinium myrtilloides*)



prickly rose (*Rosa acicularis*)



buckbrush (*Symphoricarpos occidentalis*)



snowberry (*Symphoricarpos* spp.)



saskatoon (*Amelanchier alnifolia*)



Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006



bog cranberry (*Vaccinium vitis-idaea*)



common bearberry (*Arctostaphylos uva-ursi*)



red and white baneberry (*Actaea rubra*)



twinflower (*Linnaea borealis*)



twining honeysuckle (*Lonicera dioica*)



Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006



Canada buffaloberry (*Shepherdia canadensis*)



pin cherry (*Prunus pennsylvanica*)



choke cherry (*Prunus virginiana*)



Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006

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Green alder (*Alnus viridis*)



reindeer lichen (*Cladonia* sp.)



Lichen growing on broken tree branches

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Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006



Schreber's moss (*Pleurozium schreberi*)



knight's plume moss (*Ptilium crista-castrensis*)



2 forms of fungi

Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006

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## **Appendix C.2**

### **Weed Survey Form and Observations**



Appendix A: Weed Survey Form

**Survey Date:** July 14-15, 2015 **Observer:** M. Parseyan, L. Laird, and N. Alemu (Tor Land Resource Inc.)

**Legal Land Description:** W1/2 14 61 18 4  
1/4 Sec Sec Twp Rge Mer  
**Comments/Description:** Consolidated SML 120005 (Jordan Ball) and SML120006 (Cathy Ball)  
**GPS Latitude:** approx. 54.27N (centroid of SML's) **Longitude:** approx. 112.59 W (centroid of SML's)

**A. Land Use Type:** Circle the appropriate category or fill in other.  
 Road, trail, wellsite, pipeline, seismic line, utility line, timber processing site,  
 cutblock, camp, mine, sand or gravel pit, crown land (grazing reserve) facility,  
 natural), private land (grazing land, cropland, natural)  
 Other Land Use Type: trails and cutlines through site

**B. Weed Species (or Description):**

1. white cockle (Silene pratensis)
2. annual hawk's-beard (Crepis tectorum)
3. \_\_\_\_\_

**C. Degree of Infestation and Approximate Infested Area:** Record the approximate infested area in hectares or, if linear, meters, according to the level of infestation.

|  | <u>Species 1</u> | <u>Species 2</u> | <u>Species 3</u> |
|--|------------------|------------------|------------------|
| Trace (Rare) = < 1% cover                          | <0.1 ha          | <0.1 ha          | _____ ha         |
| Low (Occasional plants) = ≥ 1% and < 5% cover      | _____ ha         | _____ ha         | _____ ha         |
| Moderate (Scattered plants) = ≥ 5% and < 25% cover | _____ ha         | _____ ha         | _____ ha         |
| High (Fairly dense) = ≥ 25% cover                  | _____ ha         | _____ ha         | _____ ha         |
| Linear (i.e. Trail, Seismic line)                  | _____ m          | _____ m          | _____ m          |

Comments: just a few plants in a cutline for each species

**D. Growth Stage:** From the list below, record the letter(s) representing the appropriate growth stage.

Species 1 FL Species 2 FL Species 3 \_\_\_\_\_

S = Seedling      B = Bolt      Bd = Bud      Fl = Flower      SS = Seed Set      M = Mature

**E. Control Action Taken:** None

\_\_\_\_\_  
 \_\_\_\_\_

**F. Signature:**

Company Representative: \_\_\_\_\_

Public Land Officer/Land Owner: \_\_\_\_\_

Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
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### C.2-2 Weed Observation

Two types of weeds were observed and recorded during a field visit on July 14 to 15, 2015 to study the area. Nomenclature follows the ACIMS standard found in [List of All Elements](#) [14]. The white cockle (*Silene latifolia* Poiret ssp.) is classified as a noxious weed by the Alberta Invasive Species [30] and the annual hawk's-beard (*Crepis tectorum*) is classified as a serious weed by Government of Alberta [27].

**Figure C.1 White cockle (*Silene latifolia* Poiret ssp.) a noxious weed found during site investigation**



Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
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**Figure C.2 Annual hawk's-beard (Crepis tectorum) a broad-leaved weed found during site investigation**



Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
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## Appendix C.3 ACIMS Search Results

## Table of Results [Print Preview](#)

**Date:** 17/6/2016  
**Requestor:** Consultant  
**Reason for Request:** Environmental Assessment  
**SEC:** 14 **TWP:** 061 **RGE:** 18 **MER:** 4



### ■ **Non-sensitive EOs: 0** (Data Updated: July 2015)

| M-RR-TTT-SS | EO_ID | ECODE | S_RANK | SNAME | SCOMNAME | LAST_OBS_D |
|-------------|-------|-------|--------|-------|----------|------------|
|-------------|-------|-------|--------|-------|----------|------------|

No Non-sensitive EOs Found: Next Steps - See FAQ

### ■ **Sensitive EOs: 1** (Data Updated: July 2015)

| M-RR-TTT | EO_ID | ECODE      | S_RANK | SNAME                | SCOMNAME           | LAST_OBS_D |
|----------|-------|------------|--------|----------------------|--------------------|------------|
| 4-18-061 | 16323 | PDRUB1T0E0 | S3     | Houstonia longifolia | long-leaved bluets | 7-Jul-06   |

No Sensitive EOs Found: Next Steps - See FAQ

### ■ **Protected Areas: 0** (Data Updated: May 2015)

| M-RR-TTT-SS | PROTECTED AREA NAME | TYPE | IUCN |
|-------------|---------------------|------|------|
|-------------|---------------------|------|------|

No Protected Areas Found

### ■ **Crown Reservations/Notations: 0** (Data Updated: May 2015)

| M-RR-TTT-SS | NAME | TYPE |
|-------------|------|------|
|-------------|------|------|

No Crown Reservations/Notations Found

Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-VW4M  
SML 120005 and SML 120006

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## **Appendix C.4**

### **Sensitive Plant Search**

Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006

#### C.4 SENSITIVE PLANT SEARCH

ACIMS Search Result shows the presence of long-leaved bluets (*Houstonia longifolia*) within SEC 14-061-18-W4M (classified as sensitive). The preferred habitat for this plant is dry gravelly or sandy soils in open upland areas; its blooming period in Alberta is typically late June to July [29]. The flower is distinctive for its purplish blue to pale blue colour, the 4-lobed tubular corolla, and the 4 stamens inserted at the upper edge of the tube, as seen in Figure C.3 and Figure C.4.

**Figure C.3 Long-leaved Bluets (*Houstonia longifolia*) photographed in Alberta**



Source: [Edmonton Nature Club](#) [28]

**Figure C.4 Long-leaved Bluets (*Houstonia longifolia*) photographed in Minnesota**



Source: [Minnesota Wildflowers, a field guide to the flora of Minnesota](#) [26]

Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
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SML 120005 and SML 120006

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During our field investigation of the site on July 14 and 15, 2015, the long-leaved bluet was searched. Detailed searches were done at the 13 soil pit locations and in large open areas; the sensitive plant was also searched for during general reconnaissance of the site. The areas with a high likelihood to host the sensitive plant, such as the gully photographed below, were traversed multiple times by 3 different individuals. Gully is located on the east side of the SMLs.

**Figure C.5 Photographs of preferred habitat of Long-leaved Bluets (*Houstonia longifolia*) taken during site investigation**



No occurrences were observed.



Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006

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## **Appendix C.5 Ecosite Classification**

Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006

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### C.5 ECOSITE CLASSIFICATION

As mentioned previously, three different plant communities were identified using indicators described for the Boreal Mixedwood Natural Region by Beckingham and Archibald in *Field Guide to Ecosites of Northern Alberta* (1996) [12]. The following sections describes the plant communities more in-depth along with photographs taken during site investigation.

#### C.5-1 Jack Pine-Aspen/Blueberry-Bearberry (b1.1)

The vast majority of the site occurs on an undulating plateau covered with jack pine-aspen forest with a common blueberry-common bearberry dominated understory. Indicator species for this plant community type were present throughout this ecosite type with some variation in proportional abundance due to local microtopography, variation in crown density, or successional stage (in response to local fire severity). For example, the relevant abundance of jack pine and aspen ranged from stands dominated by one or the other to an even mixture of both species. Some of the jack pine trees are fire-scarred as seen in Figure C.9. While common blueberry and common bearberry clearly dominate the shrub layer, other frequently observed species include: bog cranberry, Canada buffaloberry, twinflower, twining honeysuckle, saskatoon, prickly rose, green alder, wild lily-of-the-valley, cream-colored vetchling, wild strawberry, and feather mosses. Reindeer lichen was very rare.

The majority of the soil profiles in this community indicated well drained submesic to subxeric soil conditions with an effective soil texture of sandy loam to loamy sand (see soil pits SP01-08, SP10 to 11, SP13 in Table B.1 in Appendix B). In some areas, gravel occurred within 25 cm of the surface. Charcoal was present in all soil profiles.

**Figure C.6 Photographs of mixed jack pine-aspen overstory (left) and understory (right) taken during site investigation**



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The understory of the mixed aspen and jack pine consisted typically of common blueberry, common bearberry, prickly rose, saskatoon, northern bedstraw, cream coloured vetchling, wild strawberry, three-toothed cinquefoil, dandelion, and graminoids.

**Figure C.7 Photographs of jack pine dominated overstory (left) and understory (right) taken during site investigation)**



**Figure C.8 Photographs of aspen dominated overstory (left) and understory (right) taken during site investigation)**



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*Figure C.9 Fire scarred and burned jack pines found during site investigation*



#### C.5-2 Aspen/Saskatoon-Pin cherry (d1.2)

This plant community occurs in the northeast corner of SML 120005 where a fairly shallow gully is situated (Figure 3.1: Ecosite Map of SML 120005 and 120006). Overstory in this community is dominated by a dense stand of aspen. Prickly rose, saskatoon, willow, pin cherry, choke cherry, and wild red raspberry dominate the shrub layer. Other shrubs are currant, twining honeysuckle, and buckbrush. Additional understory species include cream-colored vetchling, wild vetch, veiny meadow rue, nodding onion, tall lungwort, giant hyssop, western Canada violet, wild strawberry, and northern bedstraw.

Edaphic conditions are mesic to submesic with silt loam textured topsoil and clay loam textured subsoil (see description of SP09 in Table B.1 in Appendix B).

**Figure C.10 Photographs of aspen/saskatoon-pin cheery overstory taken during site investigation**



In Figure C.10, young aspen, and willows can be seen (in the far left side), along with prickly rose and other vegetation typical of an Aspen/Saskatoon-Pin cherry (d1.2) plant community.

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**Figure C.11 Photographs of young aspen overstory (left) and understory (right) taken during site investigation**



The young aspen overstory with pin cherry, prickly rose and buckbrush shrubs can be seen in Figure C.11. The typical understory of Aspen/Saskatoon-Pin cherry (d1.2) consists of saskatoon, buckbrush, prickly rose, cream-colored vetchling, northern bedstraw, wild vetch, veiny meadow rue, nodding onion, wild strawberry, and graminoids.

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### C.5-3 Disturbed, cleared and grazed area

This area is located on the east side of SML 120005 (see Figure 2 in section 7.2). Common shrubs to occur in this area are small willow, choke cherry, saskatoon, snowberry, currant, and prickly rose. Other understory species include wild vetch, veiny meadow rue, wild strawberry, graceful cinquefoil, harebell, fleabane and aster. Soil is somewhat compacted and edaphic conditions are mesic to submesic. Topsoil texture is sandy loam and subsoil texture is loam (see description of SP12 in Table B.1 in Appendix B).

**Figure C.12 Disturbed, cleared, and grazed area on the east side of SML 120005**



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**APPENDIX D**

- Wildlife Survey by Bighorn Wildlife Technologies Ltd.
- FWMIS Report
- AER Landscape Analysis Tool Report



Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006

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**Appendix D.1**  
**Wildlife Survey by Bighorn Wildlife**  
**Technologies Ltd.**

## Surface Materials Leases: SML 120100, 120005 and 120006 Wildlife Survey

Prepared by Bighorn Wildlife Technologies Ltd.  
Prepared for Tor Land Resource Inc.  
September 11, 2016

### 1.0 Introduction

This report summarizes observations made during a wildlife survey of SML 120100, SML 120005 and SML 120006, July 14 and 15, 2016. Relative abundance and occurrence of all wildlife observed or heard are documented with special attention to species at risk as per Alberta Environment and Parks emails of March 3, 2016 and May 25, 2016 (M. Bernard). Beth MacCallum MEDES, P Biol and Rainer Ebel (ornithologist) assisted by Manna Parseyan conducted the survey.

### 2.0 Study Area

SML120100 is located within Sec 21-TWP 61-RGE 18-W4M while SML 120005 and 120006 are located within parts of Sec 14-TWP 61-RGE 18-W4M. Leaseholders plan to extract the sand and gravel within the lease areas to meet the demand for aggregate for private and public projects in Smoky Lake County, Sturgeon County and the Edmonton area. The study area is currently treed and falls within the Central Mixedwood Natural Subregion of the Boreal Natural Region. The SMLs have a grazing lease.

#### SML 120100

The dominant tree types in SML 120100 are jack pine and aspen. Main understory shrubs include common bearberry, green alder, common blueberry, prickly rose and saskatoon (Ball 2015). SML 120100 is located on a rolling and hummocky plain that is adjacent to and oriented NE-SW, parallel with a melt water channel that is occupied by the modern White Earth Creek (Ball 2015). A series of natural ponds are located outside of the southern boundary of the SML. The west side of the SML is bordered by a small stream.

#### SML 120005 and 120006

Vegetation is dominated by Jack Pine-Aspen/Blueberry- Bearberry (b1.1) ecosite [PC-1] (Figure 3-1, Appendix 3 Ecosite Survey Report). A small cleared area is located on the southeast corner. It is classified as a disturbed, cleared and grazed area [DC]. North of the cleared area there is a small area of Aspen/Saskatoon-Pin cherry (d1.2) vegetation (Ball and Ball 2013). The topography is gently rolling to hummocky. The site does not contain and is not adjacent to a permanent water body. There is an ephemeral draw which is shown on the Smoky Lake County Ownership Map passing through the SML's (DWG 1A, 1B) (15). Local surface drainage patterns are likely where hummocks are present. The general direction of surface drainage is from north to south. Overland flow is unlikely because the permeable gravel deposit is at the surface –

rainfall and snowmelt infiltrate the gravel before flowing in the subsurface towards the lower south. Several rounded depressions are found throughout the study area. These are fully treed.

### 3.0 Methods

Presence/not-detected of boreal breeding birds was sampled using a transect method covering the whole of the local area. On SML 120100 transects, were placed approximately 200 m apart in the direction (NE-SW) parallel to the slope of the ridges (Figure 1). Total transect length walked was 2,966 m; survey time was 2 hours. Additional time was spent recording birds on the nearby pond located on the SE corner of SML 120100. SML 120005 and 120006 were surveyed as one unit; transects were placed 100-200 m apart in a north south direction (Figure 2). Total transect length was 3744; survey time 4.5 hours.

SML 120100 was surveyed July 14 SML 120005 and 120006 were surveyed July 15. This time of year young birds have fledged but not begun to migrate therefore can be considered resident birds. During the survey, all birds observed or heard were recorded as well as sign (i.e., woodpecker holes, nests). All other wildlife sign and observations were also noted.

Observations made en route to the study areas (i.e., through the gravel pit and forest roads) were also recorded as incidental to the survey. Effort was made to identify species that may occur in the general area surrounding the study area by reviewing literature available from Long Lake Provincial Park (Schaafsma and Schaafsma 1973) located to the NW of the study area and interviewing local Smoky Lake (located to the south of the study area) naturalists R. and L. Morgan.

### 4.0 Results

#### 4.1 Relative Abundance and Occurrence

##### 4.1.1 SML 120100, 120005, 120006

Fourteen bird species and 39 birds were observed on SML120100 and 23 species and 121 birds were observed on SML120005 and 120006 for a total of 30 species and 160 birds (Table 1). The most common birds observed were: Black-capped Chickadee (36), White-winged Crossbill (30 in one flock), White-throated Sparrow (17) and Dark-eyed Junco (12). Relatively Common species were: Hermit Thrush (8), Blue-headed Vireo (7), Least Flycatcher (6), Warbling Vireo, and Barn Swallow. Less Common were: Western Wood-Pewee (4), Yellow-rumped Warbler (4), Red-eyed Vireo (3), Boreal Chickadee (3), American Goldfinch (3), Gray Jay (2), Blue Jay (2), Orange-crowned Warbler. One observation of each of the 11 following species was made during the survey: Mourning Dove, Great Horned Owl, Downy Woodpecker, Alder Flycatcher, Common Raven, Red-breasted Nuthatch, House Wren, American Robin, Cedar Waxwing, Clay-colored Sparrow, and Lincoln's Sparrow. Sign of the Yellow-bellied Sapsucker (old) and Pileated Woodpecker were also observed.

Birds exclusively observed on SML120100 were: Mourning Dove (calling from west side of small creek forming the west boundary of this SML), Great Horned Owl (feather), Yellow-

bellied Sapsucker (old holes in birch), Alder Flycatcher (from south boundary), Warbling Vireo (throughout), Gray Jay, and Common Raven.

Bird species exclusively observed on SML 120005 and 120006 were: Downy Woodpecker, Western Wood-Pewee, Least Flycatcher, House Wren (these three species were located in mature aspen-jackpine with dense shrub understory on access road from east side), Blue-headed Vireo (throughout), Red-eyed Vireo, Gray Jay, Boreal Chickadee, Red-breasted Nuthatch, Hermit Thrush, American Robin, Cedar Waxwing, Clay-colored Sparrow (open fields on east side), Lincoln's Sparrow, White-winged Crossbill (flyover), and American Goldfinch.

Note that all Dark-eyed Juncos observed were Slate-colored Juncos and all Yellow-rumped Warblers observed were Myrtle Warblers.

#### 4.1.2 Incidental

The following additional species were observed in the immediate vicinity of the SMLs on July 14 and 15.

In the gravel pits to the south of the SML's were: Killdeer (1), Wilson's Snipe (1), Tree Swallow (2), Savannah Sparrow (1) and Dark-eyed Junco (1). The gravel pits were comprised of a mix of active areas, volunteer graminoid-forb vegetated hummocks and small water-filled depressions. Cattle were grazing on the vegetated areas. A Texas gate separated the gravel pit area from a black spruce / tamarack marsh. Wilson's Snipe, Gray Jay, and Lincoln's Sparrow were identified at this location.

Several bird species were recorded from the road through the forested area between the gravel pits and the SMLs including a Common Nighthawk, not identified elsewhere.

A series of ponds were located in the lowlands on the SE corner of SML 120100 (Figure 1). The following species were observed on the pond and in the habitat surrounding the pond, July 14, 2016: Mallard (hen with 9 ducklings), Common Goldeneye (possibly an adult in eclipse plumage), Spotted Sandpiper (1), Alder Flycatcher (1), Red-eyed Vireo (1), Hermit Thrush (1), Cedar Waxwing (1), Tennessee Warbler (1), White-throated Sparrow (1). A Sandhill Crane has been observed here during spring migration (pers. comm. Manna Parseyan, Tor Land Resource Inc., July 14, 2016). Habitat for the Yellow Warbler and Common Yellowthroat occur adjacent this pond although none were detected at this time.

A Turkey Vulture and Black Tern were observed on Hwy 28 west of the Town of Smoky Lake and south of the waterbody Smoky Lake, July 15, 2016.

A total of 43 species and 212 birds were observed on the SMLs and immediate vicinity, July 14 and 15 (Table 1).

#### 4.1.3 Regional

Two other sources of birds in the region were researched and results added to Table 1. Eighty

species of birds were identified at Long Lake Provincial Park in 1973 (Schaafsma and Schaafsma 1973) and 35 species of birds were identified in the vicinity of the Town of Smoky Lake; most observations were in habitat near a bridge crossing of White Earth Creek about 5 km NE of Smoky Lake (pers. comm. Bob and Linda Morgan, July 31, 2016).

#### 4.1.4 Other Wildlife

Table 2 summarizes mammal and amphibian observations made during the July 14 and 15<sup>th</sup> survey. Sign of black bear (fresh scat and turned over logs) was observed throughout the study area. Red squirrel observations and middens were commonly encountered. A Richardson's Ground squirrel was observed in the gravel pits and coyote scat was present on the road between the gravel pits and study area. Moose and deer beds and tracks were found in both areas; two white-tailed deer were observed in a Jackpine stand north of SML 120006. Recent domestic cattle beds were found on a grassy slope in SML120100 and a Wood Frog was observed in riparian habitat associated with the small stream on the west side of SML 120100.

## 5.0 Summary

Alberta Environment and Parks (Miguel Bernard, email May 25, 2016) indicates that:

*SE-21-61-18 W4M is identified as an Environmentally Significant Area in proximity to a KWBZ, with numerous Species At Risk or Species of Management Concern identified within approximately 5 km of, and within similar habitats as, the SML area – suggesting that this area contains high biodiversity and habitat value (e.g. extracted from table: Western Toad (Sensitive and Special Concern), Canadian Toad (May Be At Risk, Data Deficient and Special Concern (Schedule 1), Green-winged Tea (Sensitive), Lesser Scaup (Sensitive), Great Blue Heron (Sensitive), Sora (Sensitive), Sandhill Crane (Sensitive), Western Wood-Pewee (Sensitive), Least Flycatcher (Sensitive), Sedge Wren (Sensitive), Common Yellowthroat (Sensitive) and Canada Lynx (Sensitive).*

and that (Miguel Bernard, email March 3, 2016):

*NW-14-61-18 W4M and SW-14-61-18 W4M are both identified as an Environmentally Significant Areas and lie within the 100 m break of White Earth Creek, with numerous Species At Risk or Species of Management Concern identified within approximately 5 km of, and within similar habitats as, the SML areas (e.g., Lesser Scaup, Green-winged Teal, Sharp-tailed Grouse, Sora, Great Gray Owl, Western Wood-Pewee, Least Flycatcher, Common Yellowthroat, Cape May Warbler, Western Toad, Canadian Toad) – suggesting that this area contains high biodiversity and habitat value.*

The occurrence or possible occurrence of these species is discussed in this section and under the categories: Amphibians, Sharp-tailed Grouse, Boreal breeding songbirds and woodpeckers and Boreal raptors and owls as per Miguel Bernard (emails May 25, 2016 and March 3, 2016).

## 5.1 Amphibians

Suitable waterbodies required by Canadian and Western toads for breeding and egg-laying in the spring do not occur on the SMLs. Similarly, habitat for the Lesser Scaup, Green-winged Teal, Sandhill Crane, Great Blue Heron, Sora, Sedge Wren and Common Yellowthroat does not occur on SML 120100, 120005 and 120006. These species are reliant on waterbodies or wetland shrub habitats associated with waterbodies. Shallow fishless ponds suitable for amphibian breeding ponds can be incorporated into reclamation activities thus providing future breeding habitat for toads, certain waterfowl and shorebirds.

## 5.2 Sharp-tailed Grouse

The Sharp-tailed Grouse (Sharptail) is listed as Sensitive in Alberta. Alberta Environment and Parks indicates that:

*“It is a common, widespread species; however, the population appears to be declining, and farming intensification has decreased habitat availability in central Alberta”*

(<http://esrd.alberta.ca/fish-wildlife/species-at-risk/wild-species-status-search.aspx>) [accessed, September 11, 2016].

No evidence of Sharp-tailed Grouse was found during the July 14 and 15, 2016 survey of SMLs 120100, 120005 and 120006. Sharp-tailed Grouse do not appear on the Long Lake Provincial Park bird list nor did the local naturalists from Smoky Lake mention them. Prime habitat for Sharp-tailed Grouse is found farther south and east of the Town of Smoky Lake but they do naturally occur in the Boreal forest at low densities. Hunting for Sharp-tailed Grouse in WMU504 (Amisk) is closed.

Good sharptail habitat contains a mix of grasses, forbs, and many species of shrubs. Sharptails primarily choose habitat based on openness of landscape, height and density of vegetation, and type of vegetation. Preferred vegetation types vary greatly. In the boreal forest, Sharp-tailed Grouse are found in brushy areas, openings, and bogs. In winter, sharp-tailed grouse rely on riparian areas, deciduous hardwood shrub gullies, and deciduous and open coniferous woods. Deciduous trees and shrubs are important for feeding, roosting, and escape.

Sharptails prefer leks sites (spring breeding grounds) with short, sparse vegetation such as grasses, weeds, forbs, and some shrubs. Sparse and open vegetation on leks enables aggressive displays by males and minimizes predation. Sparse shrubs providing escape cover from predators, are often found adjacent to leks. Leks are sometimes associated with recently burned or grazed sites.

Should sharptails occur in the study area, habitat found in SML 120100 is more suited to sharptail preferences that of SML 120005 and 120006, although a small area of cleared pasture is found in SML 120005. Habitat on SML 120100 is characterized by a mix of open dry grasslands, mixed jackpine-aspen forests and deciduous dominated forest associated with the

riparian area on the west side of the property. Alder, and a variety of berry-bearing shrubs (blueberry, saskatoon, bog cranberry and bearberry) are present throughout this area.

Reclamation promoting a diversity of habitats including grassy open areas, in proximity to open forests and shrubby areas is recommended habitat for Sharp-tailed Grouse.

It was noted that the berry crop (blueberry, saskatoon, bearberry, rose) was abundant in 2016. The inclusion of these plant species in a reclamation program is important for maintaining regional wildlife populations that depend on them (grouse, migratory bird species, black bear).

### 5.3 Boreal Breeding Songbirds and Woodpeckers

Of the 41 species observed on the SMLs and incidentally during the July 14 and 15 survey, 35 species were listed as 'Secure' by Alberta Environment and Parks and 6 were identified as 'Sensitive'. Sensitive species are: Black Tern, Common Nighthawk, Western Wood-Pewee, Least Flycatcher, Barn Swallow and Pileated Woodpecker.

Black Terns were observed just west of the Town of Smoky Lake from Hwy 28. These birds were likely nesting on Smoky Lake. Habitat for Black Terns does not occur in the study area.

Common Nighthawk nest in a wide range of open, vegetation-free habitats, including burnt-over areas, logged areas, rocky outcrops, grasslands, pastures, peat bogs, marshes, lakeshores, and river banks. This species also inhabits mixed and coniferous forests and is known to occur in dry Jackpine stands. One Common Nighthawk was heard from the forest road between the gravel pits and the study area.

Western Wood-Pewee and Least Flycatcher were found in SML 120005 and SML 120006. The Western Wood-Pewee occurred in edge habitat throughout this area. Least Flycatcher observations were localized on the east side of SML 120005 where the discontinuous canopy provided an ideal open space for foraging for insects under the aspen canopy cover and above the tall shrub vegetation.

Barn Swallows in small numbers were observed foraging above the tree canopy throughout the study area. It is unknown where the roost sites were; they may be some distance from the study area.

Three species of woodpeckers were recorded during the survey. Evidence of Yellow-bellied Sapsucker (Secure in Alberta) was found on birch trees located in SML120100 although the drilling was old and new birch was not touched indicating that perhaps the woodpecker population is low in the area.

Sign that Pileated Woodpecker (Sensitive in Alberta) was foraging on jackpine and aspen trees occurred in both study areas, but in general the aspen trees are too small for nesting for this large bird, especially in SML 120100. Small numbers of Pileated Woodpecker likely use the study area for foraging.

Downy and Hairy Woodpeckers (both Secure in Alberta) may occur along the creek area associated with SML 120100 but in very small numbers. In SML120005, one male Downy Woodpecker was observed in mature aspen forest on the east side of the property.

The Cape May Warbler (Sensitive in Alberta) may occur on the study area during spring and fall migration but old growth forest required for breeding does not occur in the study area.

#### 5.4 Boreal Raptors and Owls

No diurnal raptors were observed on the study area during the July 14 and 15, 2016 survey.

It is possible that Sharp-shinned Hawks (Secure in Alberta) and Cooper's Hawks (Secure in Alberta) use the area for hunting smaller birds. It is possible that Goshawks (Sensitive in Alberta) may also forage here as part of a territory but it is unlikely. Goshawks hunt a variety of small mammals and birds including grouse. Red squirrels and squirrel middens were found throughout the area but there was little evidence to suggest that snowshoe hare, an important prey species for the Goshawk, was present.

The study area is too dry for nesting by Northern Harriers (Sensitive in Alberta).

Trees in SML120100 are too small for nesting by the larger hawks present in the region: Red-tailed Hawk (Secure in Alberta), and Broad-winged Hawk (Sensitive in Alberta).

The Great Horned Owl (Secure in Alberta) is likely the most common nocturnal raptor present in the study area. It is known that Great Grey Owls (Sensitive in Alberta) nest in the Smoky Lake region. These birds may occur in the study area along with the Northern Hawk Owl (Secure in Alberta) in years of small mammal abundance. It is possible that Barred Owls (Sensitive in Alberta) occasionally move through the study area.

#### 6.0 References

Katie Ball. March 2015. Conservation and Reclamation Business Plan Surface Materials Lease SML 120100. Prepared by Tor Land Resource Inc.

Jordan Ball and Cathy Ball. December 2013. Consolidated Conservation and Reclamation Business Plan Surface Materials Leases SML 120005, SML 120006. Prepared for by Tor Land Resource Inc.

R.D. & S. Schaafsma. 1973. An ecological survey of Long Lake Provincial Park. Provided by Ksenija Vujnovic. Alberta Environment & Parks [e-mail September 9, 2016].



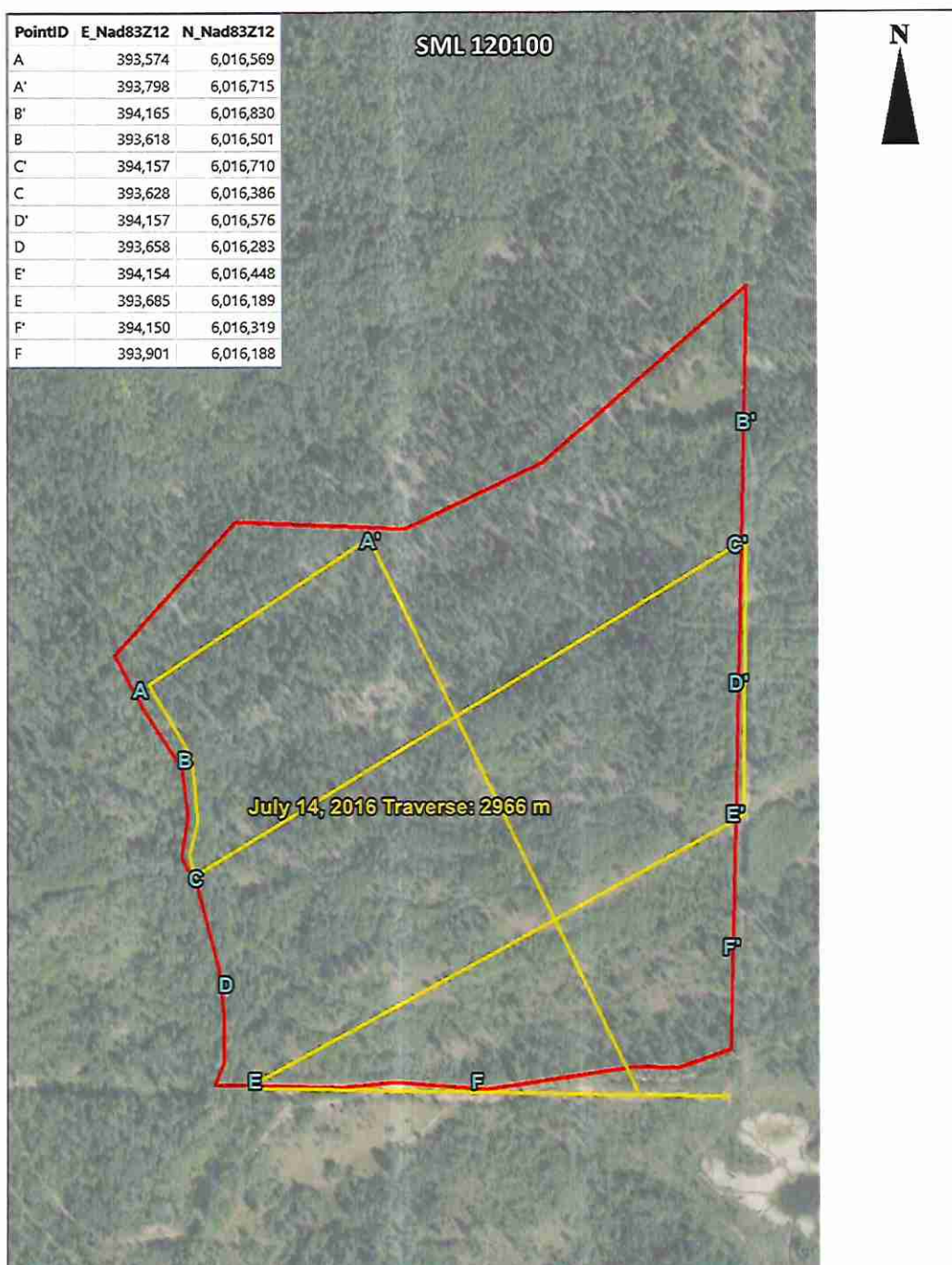


Figure 1. Boundary (red line) and survey route (yellow line) for SML 120100, July 14, 2016.

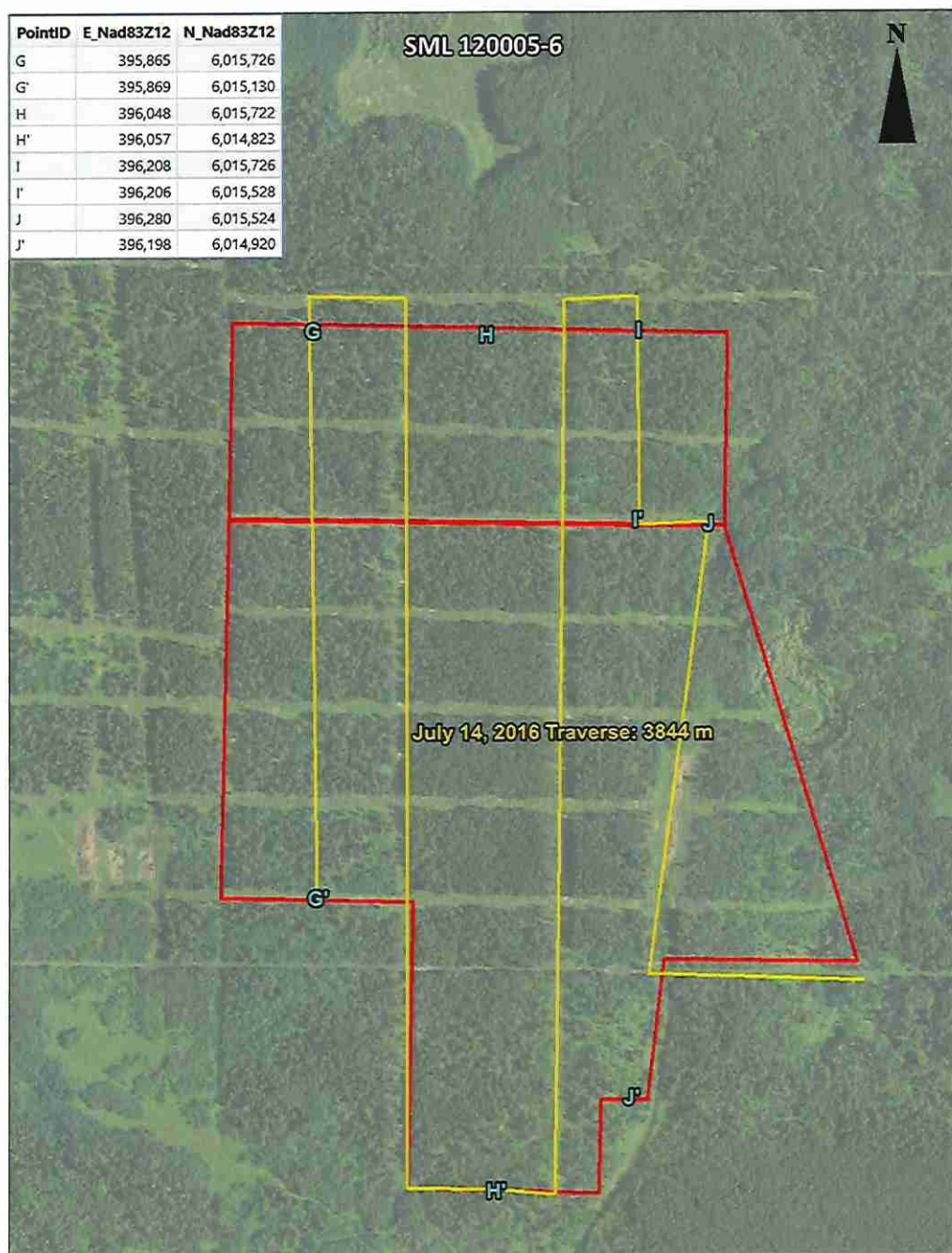


Figure 2. Boundary (red line) and survey route (yellow line) for SML 120005 and 120006, July 15, 2016.

Table 1. Bird list for SML 120100 (July 14, 2016), SML 120005 and 120006 (July 15, 2016), Incidental to the SMLs (July 14 &amp; 15, 2016), Long Lake Provincial Park (1973) and Smoky Lake area (recent).

| No.                     | Common Name                 | SML<br>120100 | SML<br>120005<br>120006 | Incidental    | All<br>SMLs<br>and<br>Incidental | Birds in<br>Smoky Lake<br>area | Birds in<br>Long Lake<br>Provincial<br>Park |
|-------------------------|-----------------------------|---------------|-------------------------|---------------|----------------------------------|--------------------------------|---|
|                         |                             | 14-Jul        | 15-Jul                  | July<br>14&15 | July<br>14&15                    | recent                         | 1973  |
| <b>Order</b>            |                             |               |                         |               |                                  |                                |   |
|                         | <b>Family</b>               |               |                         |               |                                  |                                |   |
| <b>Anseriformes</b>     |                             |               |                         |               |                                  |                                |   |
|                         | <b>Anatidae</b>             |               |                         |               |                                  |                                |   |
| 1                       | American Wigeon             |               |                         |               |                                  |                                | O; U  |
| 2                       | Mallard                     |               |                         | 10            | 10                               |                                | Br; C                                       |
| 3                       | Blue-winged Teal            |               |                         |               |                                  |                                | O; U  |
| 4                       | Northern Shoveler           |               |                         |               |                                  | O                              |   |
| 5                       | Northern Pintail            |               |                         |               |                                  | O                              |   |
| 6                       | Lesser Scaup                |               |                         |               |                                  |                                | O; C  |
| 7                       | White-winged Scoter         |               |                         |               |                                  |                                | O; U  |
| 8                       | Bufflehead                  |               |                         |               |                                  | O                              | O; U  |
| 9                       | Common Goldeneye            |               |                         | 1             | 1                                | O                              | O; C  |
| 10                      | Barrow's Goldeneye          |               |                         |               |                                  |                                | O; VU                                       |
| <b>Galliformes</b>      |                             |               |                         |               |                                  |                                |   |
|                         | <b>Phasianidae</b>          |               |                         |               |                                  |                                |   |
| 11                      | Ring-necked Pheasant        |               |                         |               |                                  | O                              |   |
| 12                      | Ruffed Grouse               |               |                         |               |                                  |                                | Br; U                                       |
| <b>Gaviiformes</b>      |                             |               |                         |               |                                  |                                |   |
|                         | <b>Gaviidae</b>             |               |                         |               |                                  |                                |   |
| 13                      | Common Loon                 |               |                         |               |                                  |                                | PrB   |
| <b>Podicipediformes</b> |                             |               |                         |               |                                  |                                |   |
|                         | <b>Podicipedidae</b>        |               |                         |               |                                  |                                |   |
| 14                      | Horned Grebe                |               |                         |               |                                  |                                | PrB   |
| 15                      | Red-necked Grebe            |               |                         |               |                                  |                                | Br; C                                       |
| <b>Suliformes</b>       |                             |               |                         |               |                                  |                                |   |
|                         | <b>Phalacrocoracidae</b>    |               |                         |               |                                  |                                |   |
| 16                      | Double-crested<br>Cormorant |               |                         |               |                                  | O                              |   |
| <b>Pelecaniformes</b>   |                             |               |                         |               |                                  |                                |   |
|                         | <b>Ardeidae</b>             |               |                         |               |                                  |                                |   |
| 17                      | Great Blue Heron            |               |                         |               |                                  | O                              | O; U  |
| <b>Accipitriformes</b>  |                             |               |                         |               |                                  |                                |   |
|                         | <b>Cathartidae</b>          |               |                         |               |                                  |                                |   |

|    |                         |   |  |   |   |   |       |
|----|-------------------------|---|--|---|---|---|-------|
| 18 | Turkey Vulture          |   |  | 1 | 1 |   |       |
|    | <b>Pandionidae</b>      |   |  |   |   |   |       |
| 19 | Osprey                  |   |  |   |   |   | O     |
|    | <b>Accipitridae</b>     |   |  |   |   |   |       |
| 20 | Broad-winged Hawk       |   |  |   |   |   | O; FC |
| 21 | Red-tailed Hawk         |   |  |   |   | O |       |
|    | <b>Gruiformes</b>       |   |  |   |   |   |       |
|    | <b>Rallidae</b>         |   |  |   |   |   |       |
| 22 | American Coot           |   |  |   |   |   | O; U  |
|    | <b>Gruidae</b>          |   |  |   |   |   |       |
| 23 | Sandhill Crane          |   |  |   |   | O |       |
|    | <b>Charadriiformes</b>  |   |  |   |   |   |       |
|    | <b>Recurvirostridae</b> |   |  |   |   |   |       |
| 24 | American Avocet         |   |  |   |   |   | Acc   |
|    | <b>Charadriidae</b>     |   |  |   |   |   |       |
| 25 | Killdeer                |   |  | 1 | 1 | O |       |
|    | <b>Scolopacidae</b>     |   |  |   |   |   |       |
| 26 | Spotted Sandpiper       |   |  | 1 | 1 |   | O; C  |
| 27 | Lesser Yellowlegs       |   |  |   |   |   | O; C  |
| 28 | Least Sandpiper         |   |  |   |   |   | O; C  |
| 29 | Semipalmated Sandpiper  |   |  |   |   |   | O; C  |
| 30 | Wilson's Snipe          |   |  | 2 | 2 |   | Br; U |
|    | <b>Laridae</b>          |   |  |   |   |   |       |
| 31 | Bonaparte's Gull        |   |  |   |   |   | O; C  |
| 32 | Franklin's Gull         |   |  |   |   |   | O; U  |
| 33 | California Gull         |   |  |   |   |   | O; U  |
| 34 | Herring Gull            |   |  |   |   |   | O; VU |
| 35 | Black Tern              |   |  | 1 | 1 |   | O; C  |
|    | <b>Columbiformes</b>    |   |  |   |   |   |       |
|    | <b>Columbidae</b>       |   |  |   |   |   |       |
| 36 | Eurasian Collared-Dove  |   |  |   |   | O |       |
| 37 | Mourning Dove           | 1 |  |   | 1 | O |       |
|    | <b>Cuculiformes</b>     |   |  |   |   |   |       |
|    | <b>Cuculidae</b>        |   |  |   |   |   |       |
| 38 | Black-billed Cuckoo     |   |  |   |   |   | PoB   |
|    | <b>Strigiformes</b>     |   |  |   |   |   |       |
|    | <b>Strigidae</b>        |   |  |   |   |   |       |
| 39 | Great Horned Owl        | 1 |  |   | 1 |   | O; U  |
| 40 | Great Gray Owl          |   |  |   |   | O |       |
|    | <b>Caprimulgiformes</b> |   |  |   |   |   |       |
|    | <b>Caprimulgidae</b>    |   |  |   |   |   |       |

|    |                               |      |      |   |      |   |       |
|----|-------------------------------|------|------|---|------|---|-------|
| 41 | Common Nighthawk              |      |      | 1 | 1    |   | O; U  |
|    | <b>Trochilidae</b>            |      |      |   |      |   |       |
| 42 | Ruby-throated Hummingbird     |      |      |   |      | O | O; VU |
| 43 | Rufous Hummingbird            |      |      |   |      | O |       |
|    | <b>Coraciiformes</b>          |      |      |   |      |   |       |
|    | <b>Alcedinidae</b>            |      |      |   |      |   |       |
| 44 | Belted Kingfisher             |      |      |   |      |   | O; U  |
|    | <b>Piciformes</b>             |      |      |   |      |   |       |
|    | <b>Picidae</b>                |      |      |   |      |   |       |
| 45 | Yellow-bellied Sapsucker      | Sign |      |   | Sign | O | O; U  |
| 46 | Downy Woodpecker              |      | 1    |   | 1    | O | O; U  |
| 47 | Hairy Woodpecker              |      |      |   |      |   | O; VU |
| 48 | Northern Flicker              |      |      |   |      |   | O; VU |
| 49 | Pileated Woodpecker           | Sign | Sign |   | Sign |   | PrB   |
|    | <b>Falconiformes</b>          |      |      |   |      |   |       |
|    | <b>Falconidae</b>             |      |      |   |      |   |       |
|    | Merlin                        |      |      |   |      |   | O     |
|    | <b>Passeriformes</b>          |      |      |   |      |   |       |
|    | <b>Tyrannidae</b>             |      |      |   |      |   |       |
| 50 | Western Wood-Pewee            |      | 4    |   | 4    |   | O; C  |
| 51 | Alder Flycatcher              | 1    |      | 1 | 2    |   | O; C  |
| 52 | Least Flycatcher              |      | 6    |   | 6    |   |       |
| 53 | Eastern Phoebe                |      |      |   |      | O | O; U  |
| 54 | Eastern Kingbird              |      |      |   |      | O | O; C  |
|    | <b>Vireonidae</b>             |      |      |   |      |   |       |
| 55 | Blue-headed Vireo             |      | 7    |   | 7    |   | O; VU |
| 56 | Warbling Vireo                | 5    |      |   | 5    |   |       |
| 57 | Red-eyed Vireo                |      | 3    | 3 | 6    |   | O; C  |
|    | <b>Corvidae</b>               |      |      |   |      |   |       |
| 58 | Gray Jay                      |      | 2    | 1 | 3    |   | O; C  |
| 59 | Blue Jay                      | 2    |      |   | 2    | O | O; U  |
| 60 | Black-billed Magpie           |      |      |   |      | O | O; VU |
| 61 | American Crow                 |      |      |   |      | O | O; C  |
| 62 | Common Raven                  | 1    |      |   | 1    | O |       |
|    | <b>Hirundinidae</b>           |      |      |   |      |   |       |
| 63 | Purple Martin                 |      |      |   |      | O |       |
| 34 | Tree Swallow                  |      |      | 2 | 2    | O | O; C  |
| 65 | Northern Rough-winged Swallow |      |      |   |      |   | O; U  |
| 66 | Cliff Swallow                 |      |      |   |      | O |       |

|    |                         |    |    |   |    |   |       |
|----|-------------------------|----|----|---|----|---|-------|
| 67 | Barn Swallow            | 2  | 3  |   | 5  | O | O; C  |
|    | <b>Paridae</b>          |    |    |   |    |   |       |
| 68 | Black-capped Chickadee  | 13 | 23 | 7 | 43 |   | O; C  |
| 69 | Boreal Chickadee        |    | 3  |   | 3  |   |       |
|    | <b>Sittidae</b>         |    |    |   |    |   |       |
| 70 | Red-breasted Nuthatch   |    | 1  |   | 1  |   |       |
|    | <b>Troglodytidae</b>    |    |    |   |    |   |       |
| 71 | House Wren              |    | 1  |   | 1  |   | O; FC |
| 72 | Marsh Wren              |    |    |   |    |   | O; FC |
|    | <b>Turdidae</b>         |    |    |   |    |   |       |
| 73 | Mountain Bluebird       |    |    |   |    | O |       |
| 74 | Veery                   |    |    |   |    |   | O; C  |
| 75 | Swainson's Thrush       |    |    |   |    |   | O; VU |
| 76 | Hermit Thrush           |    | 8  | 4 | 12 |   | O; VU |
| 77 | American Robin          |    | 1  | 1 | 2  |   | O; C  |
|    | <b>Sturnidae</b>        |    |    |   |    |   |       |
| 78 | European Starling       |    |    |   |    |   |       |
|    | <b>Bombycillidae</b>    |    |    |   |    |   |       |
| 79 | Cedar Waxwing           |    | 1  | 2 | 3  | O | O; U  |
|    | <b>Parulidae</b>        |    |    |   |    |   |       |
| 80 | Ovenbird                |    |    |   |    |   | O; C  |
| 81 | Black-and-white Warbler |    |    |   |    |   | O; U  |
| 82 | Tennessee Warbler       |    |    | 2 | 2  |   | O; C  |
| 83 | Orange-crowned Warbler  | 1  | 1  |   | 2  |   |       |
| 84 | Mourning Warbler        |    |    |   |    |   | O; U  |
| 85 | American Redstart       |    |    |   |    |   | O; U  |
| 86 | Yellow Warbler          |    |    |   |    | O | O; C  |
| 87 | Chestnut-sided Warbler  |    |    |   |    |   | O; VU |
| 88 | Yellow-rumped Warbler   | 1  | 3  |   | 4  |   | O; C  |
| 89 | Wilson's Warbler        |    |    |   |    |   | O; U  |
|    | <b>Emberizidae</b>      |    |    |   |    |   |       |
| 90 | Chipping Sparrow        |    |    |   |    |   | O; U  |
| 91 | Clay-colored Sparrow    |    | 1  |   | 1  |   | O; C  |
| 92 | Vesper Sparrow          |    |    |   |    | O |       |
| 93 | Savannah Sparrow        |    |    | 1 | 1  |   |       |
| 94 | Song Sparrow            |    |    |   |    | O | O; U  |
| 95 | Lincoln's Sparrow       |    | 1  | 1 | 2  |   |       |
| 96 | White-throated Sparrow  | 6  | 11 | 5 | 22 |   | O; C  |
| 97 | Dark-eyed Junco         | 5  | 7  | 4 | 16 | O | O; C  |
|    | <b>Cardinalidae</b>     |    |    |   |    |   |       |
| 98 | Rose-breasted Grosbeak  |    |    |   |    |   | O; C  |

|   |                        |    |     |    |     |    |        |
|---|------------------------|----|-----|----|-----|----|--------|
| 99  | Red-winged Blackbird   |    |     |    |     |    | O; C   |
| 100   | Brewer's Blackbird     |    |     |    |     |    | Br; VU |
| 101   | Brown-headed Cowbird   |    |     |    |     |    | Br; FC |
| 102   | Baltimore Oriole       |    |     |    |     |    | O; C   |
|   | <b>Fringillidae</b>    |    |     |    |     |    |        |
| 103   | White-winged Crossbill |    | 30  |    | 30  |    |        |
| 104   | Pine Siskin            |    |     |    |     |    | O; VU  |
| 105   | American Goldfinch     |    | 3   |    | 3   | O  | O; VU  |
|   | <b>Passeridae</b>      |    |     |    |     |    |        |
| 106   | House Sparrow          |    |     |    |     | O  |        |
|   | No of species          | 14 | 23  | 21 | 43  | 35 | 80     |
|   | Total Birds            | 39 | 121 | 52 | 212 |    |        |
|   |                        |    |     |    |     |    |        |
| Breeding Status (Long Lake Provincial Park)   |                        |    |     |    |     |    |        |
| Br Breeding confirmed (nest building, eggs in nest, adult carrying food, recently fledged young)              |                        |    |     |    |     |    |        |
| PrB Probable Breeding (pair or male observed in suitable habitat exhibiting courtship or visits to nest site) |                        |    |     |    |     |    |        |
| PoB Possible Breeding (observed or heard singing in suitable habitat)   |                        |    |     |    |     |    |        |
| O Observed (Information not enough to determine seasonal occurrence or breeding)                              |                        |    |     |    |     |    |        |
| Relative Abundance (Long Lake Provincial Park)  |                        |    |     |    |     |    |        |
| C Common (Species very likely to be seen)   |                        |    |     |    |     |    |        |
| FC Fairly Common (Species rather numerous but fewer than common species)                                      |                        |    |     |    |     |    |        |
| U Uncommon (Species seen infrequently, may have a large range or occur in low numbers)                        |                        |    |     |    |     |    |        |
| VU Very Uncommon (record of one bird or one pair during observation period)                                   |                        |    |     |    |     |    |        |

Table 2. Wildlife observations and sign recorded during the bird survey of SML 120100, 120005 and 120006, July 14 and 15, 2016. Refer to Figure 1 and 2 for location reference.

July 14, 2016

| Number of sightings           | Wildlife observations or sign                | Location (with GPS location when available)<br>[UTM Zone 12] |
|-------------------------------|--|--|
| In the vicinity of SML 120100 |  |  |
| 1                             | Richardson's Ground Squirrel                 | in gravel pits south of study area.                          |
|                               | Coyote scat                                  | on forest road between gravel pit and study area             |
| In SML 120100                 |  |  |
|                               | Deer tracks                                  | on trail from SE corner to F                                 |
|                               | Black bear droppings (old) on slope          | 394048 E, 6016395 N  |
|                               | Moose tracks                                 | heading N along fence between E and E'                       |
|                               | Deer tracks                                  | heading S along fence between E and E'                       |
| 1                             | Milbert's Tortoiseshell                      | between E' and C'  |
|                               | Red squirrel - very large midden             | 393969 E, 6016608 N  |
|                               | Black bear possible den                      | 393969 E, 6016608 N  |
|                               | Pileated Woodpecker holes in jack pine trees | 393955E, 6016575 N   |
|                               | Moose tracks in old test plot                | 393737 E, 6016402 N  |
| 7                             | Domestic cattle beds on grass/sedge slope    | 393680 E, 6016378 N  |
| 1                             | Wood frog under aspen forest beside creek    | 393639 E, 6016369 N  |
| 1                             | summer squirrel nest                         | 393768 E, 6016733 N  |
|                               | Black bear sign: logs turned over            | 394111 E, 6016251 N  |
| 1                             | old set of White-tailed Deer antlers         | 394111 E, 6016251 N  |



July 15, 2016

SML120005 and 120006

| Time of Observation (HH:MM) 24hr | Number of sightings | Wildlife observations or sign                        | Location (with GPS location when available) [UTM Zone 12]                            |
|----------------------------------|---------------------|--|--|
| 08:49                            |                     | Black bear droppings                                 | along trail and logs turned over J' to J   |
| 09:06                            |                     | Moose bed on cutline and moose tracks                | 396202 E, 6015614 N  |
| 9:15                             |                     | Large squirrel midden                                | in bottom of 2 <sup>nd</sup> basin north of cutline<br>396201 E, 6015643 N           |
| 09:30                            | 2                   | White-tailed deer (female and unknown)               | in jack pine stand on the north side of cutline at I (Figure 2); snort and run away. |
| 10:40                            |                     | Pileated Woodpecker holes at the base of aspen trees | 396065 E, 6014826 N  |
| 10:40                            |                     | very old female white-tailed deer skull and femur    | near H' (Figure 2)   |
| 10:52                            |                     | log rolled by black bear (fresh)                     |  |
| 11:40                            |                     | Pileated Woodpecker holes                            | in tree between G and G' (Figure 2)<br>395899 E, 6015740 N                           |
| 11:40                            |                     | log rolled by black bear                             | 385887 E, 6015299 N  |

**APPENDIX I. An Ecological Survey of Long Lake Provincial Park. 1973. R.D. and S. Schaafsma. Appendix 2. Annotated List of the Birds**

An Ecological Survey of Long Lake Provincial Park  
1973. R.D. & S. Schaafsma

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APPENDIX 2: ANNOTATED LIST OF THE BIRDS

- Common Loon (Gavia immer) - One pair, probably nesting, seen on lake from time to time.
- Red-necked Grebe (Podiceps grisegena) - Commonly seen near lake shores, several nests were found in bulrushes and cattails.
- Horned Grebe (Podiceps auritus) - One pair, probably nesting, seen at south end of lake.
- Great Blue Heron (Ardea herodias) - Two individuals seen from time to time.
- Mallard (Anas platyrhynchos) - Commonly seen in shallows near the lake shore. Several nests were sighted, one as late as July 10.
- Blue-winged Teal (Anas discors) - Occasionally seen in shallows near the lake shore.
- American Wigeon (Anas americana) - Occasionally seen on lake.
- Lesser Scaup (Aythya affinis) - Small flocks commonly seen on lake.
- Common Goldeneye (Bucephala clangula) - Small flocks commonly seen in the spring, individuals occasionally seen on the lake throughout the summer.
- Barrow's Goldeneye (Bucephala islandica) - One pair seen on the lake near the southern park boundaries.
- Bufflehead (Bucephala albeola) - Occasionally seen on lake.

White-winged Scoter (Melanitta deglandi) - Seen occasionally in spring, but rarely sighted during the summer.

Broad-winged Hawk (Buteo platypterus) - Often seen near aspen poplar - sedge community ecotones.

*add Merlin, Osprey*

Eagle (species uncertain) - Sighted once near dusk.

Ruffed Grouse (Bonasa umbellus) - One male heard drumming during spring. Drumming location found and male was sighted on several occasions.

Coot (Fulica americana) - Occasionally seen in shallows along lake shore.

Common Snipe (Capella gallinago) - Sighted while male was performing his display flight.

Spotted Sandpiper (Actitis macularia) - Common along shorelines.

Lesser Yellowlegs (Tringa flavipes) - Common along shorelines.

Least Sandpiper (Calidris minutilla) - Common along shorelines.

Semipalmated Sandpiper (Calidris pusillus) - Common along shorelines.

American Avocet (Recurvirostra americana) - Three birds sighted on lake May 25. Unique sighting; the birds were out of their normal range and were not seen again.

Herring Gull (Larus argentatus) - Sighted on one occasion on May 25.

California Gull (Larus californicus) - Occasionally seen on lake.

Franklin's Gull (Larus pipixcan) - Occasionally seen on lake.

Bonaparte's Gull (Larus philadelphia) - Common on lake.

Black Tern (Chlidonias niger): Commonly seen feeding over lake.

Black-billed Cuckoo (Coccyzus erythrophthalmus) - Individual sighted on several occasions about one mile north of park. Possibly nesting.

Great Horned Owl (Bubo virginianus) - Sighted on several occasions in trees near lake shore.

Common Nighthawk (Chordeiles minor) - Occasionally seen flying at dusk. Female with two chicks seen July 10 in an open jackpine community.

Ruby-throated Hummingbird (Archilochus colubris) - Seen on one occasion in park maintenance area.

Belted Kingfisher (Megaceryle alcyon) - Occasionally seen in trees along lake shore.

Common Flicker (Colaptes auratus) - Sighted on a single occasion in an old balsam poplar.

Pileated Woodpecker (Dryocopus pileatus) - Occasionally seen in mature balsam poplar stands. Probably nesting.

Yellow-bellied Sapsucker (Sphyrapicus varius) - Sighted on several occasions in black spruce forests.

Hairy Woodpecker (Dendrocopos villosus) - Sighted on one occasion in a black spruce tree.

Downy Woodpecker (Dendrocopos pubescens) - Occasionally seen in aspen-balsam poplar forests.

Eastern Kingbird (Tyrannus tyrannus) - Common in open wooded areas.

Eastern Phoebe (Sayornis phoebe) - Occasionally seen in aspen-balsam poplar forests.

Trail's Flycatcher (Empidonax traillii) - Common in open black spruce bogs.

Western Wood Peewee (Contopus sordidulus) Common in black spruce bogs.

Tree Swallow (Iridoprocne bicolor) - Commonly sighted over lawn communities.

Rough-winged Swallow (Stelgidopteryx ruficollis) - Occasionally seen in lawn communities.

Barn Swallow (Hirundo rustica) - Common in picnic areas, nests found under eaves of cabins.

Gray Jay (Perisoreus canadensis) - Common in black spruce bogs.

Blue Jay (Cyanocitta cristata) - Occasionally seen in mixed poplar forests.

Black-billed Magpie (Pica pica) - Group of five individuals sighted on a single occasion.

Common Crow (Corvus brachyrhynchos) - Common around picnic and dumping grounds.

Black-capped Chickadee (Parus atricapillus) - Common throughout the park's wooded areas.

House Wren (Troglodytes aedon) - Sighted on several occasions near campsites.

Long-billed Marsh Wren (Telmatodytes palustris) - Several individuals in reeds at north end of lake.

American Robin (Turdus migratorius) - Common in open forests.

✓ Hermit Thrush (Catharus guttatus) - Rare in dry aspen poplar and jackpine communities.

Swainson's Thrush (Catharus ustulata) - A single individual was seen in an aspen forest community.

Veery (Catharus fuscus) - Common in aspen-balsam poplar forests.

Cedar Waxwing (Bombycilla cedrorum) - Occasionally seen in trees at edge of clearings.

Solitary Vireo (Vireo solitarius) - Seen on one occasion in an aspen-balsam poplar forest.

Red-eyed Vireo (Vireo olivaceus) - Common in aspen-balsam poplar forests.

Black-and-white Warbler (Mniotilta varia) - Occasional in willow communities.

Tennessee Warbler (Vermivora peregrina) - Common in aspen-balsam poplar forests.

Yellow Warbler (Dendroica petechia) - Common in willow thickets.

Myrtle Warbler (Dendroica coronata) - Common in open woodlands.

Chestnut-sided Warbler (Dendroica pensylvanica) - A single pair sighted in a willow thicket. This species is very rare in Alberta.

Ovenbird (Seiurus aurocapillus) - Common in aspen-balsam poplar woodlands.

Mourning Warbler (Oporornis philadelphia) - Occasionally seen in shrub understories of aspen forests.

Wilson's Warbler (Wilsonia pusilla) - Occasionally seen in willow thickets.

- American Redstart (Setophaga ruticilla) - Occasionally seen in aspen-balsam woodland - willow thicket ecotones.
- Red-winged Blackbird (Agelaius phoeniceus) - Common in reeds and cattails along lake shores.
- Baltimore Oriole (Icterus galbula) - Common in open aspen forests.
- Brewers Blackbird (Euphagus cyanocephalus) - One pair seen nesting in planted spruce trees. July 10.
- Brown-headed Cowbird (Molothrus ater) - Abundant around picnic grounds. Eggs found in the nest of a hermit thrush.
- Rose-breasted Grosbeak (Pheucticus ludovicianus) - Common in forested areas throughout park.
- Pine Siskin (Spinus pinus) - Sighted in a black spruce bog in one occasion.
- American Goldfinch (Spinus tristis) - One individual sighted in a willow thicket.
- Dark-eyed Junco (Junco hyemalis) - Common in open areas.
- Chipping Sparrow (Spizella passerina) - Occasional in forested areas.
- Clay-colored Sparrow (Spizella pallida) - Common in open areas and along forested roadsides.
- White-throated Sparrow (Zonotrichia albicollis) - Common in forested areas.
- Song Sparrow (Melospiza melodia) - Occasionally seen in thickets along lake shores.



APPENDIX II. Photos July 14, 2016



Fig.1 – Cattle grazing in gravel pits



Fig.2 – Pileated woodpecker holes in jack pine



Fig.3 – Potential bear den



Fig.4 – Open grasslands on NE-SW trending ridges



Fig. 5 – Wood frog in ground litter



Fig.6 – Open mixed wood forest

APPENDIX II. (CONT')      Photos July 15, 2016



Fig.7 – Aspen/jack pine mixed wood southeast side of SML 120005

Fig.8 – Cleared pasture SML 120005



Fig.9 – Extensive wild onion in understory SML 120006



Fig.10 – White-tailed deer doe, edge of SML 120006



Fig.11 – Squirrel Midden



Fig.12 – Pileated woodpecker Activity in aspen

Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006

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## **Appendix D.2**

### **FWMIS Report**

# Fish and Wildlife Internet Mapping Tool (FWIMT)

(source database: Fish and Wildlife Management Information System (FWMIS))

## Species Summary Report

Report Created: 17-Jun-2016 09:09

### Species present within the current extent :

**Fish Inventory**

No Species Found in Search Extent

**Wildlife Inventory**

No Species Found in Search Extent

**Stocked Inventory**

No Species Found in Search Extent

### Buffer Extent

**Centroid (X,Y):**  
656473, 6014408

**Projection**  
10-TM AEP Forest

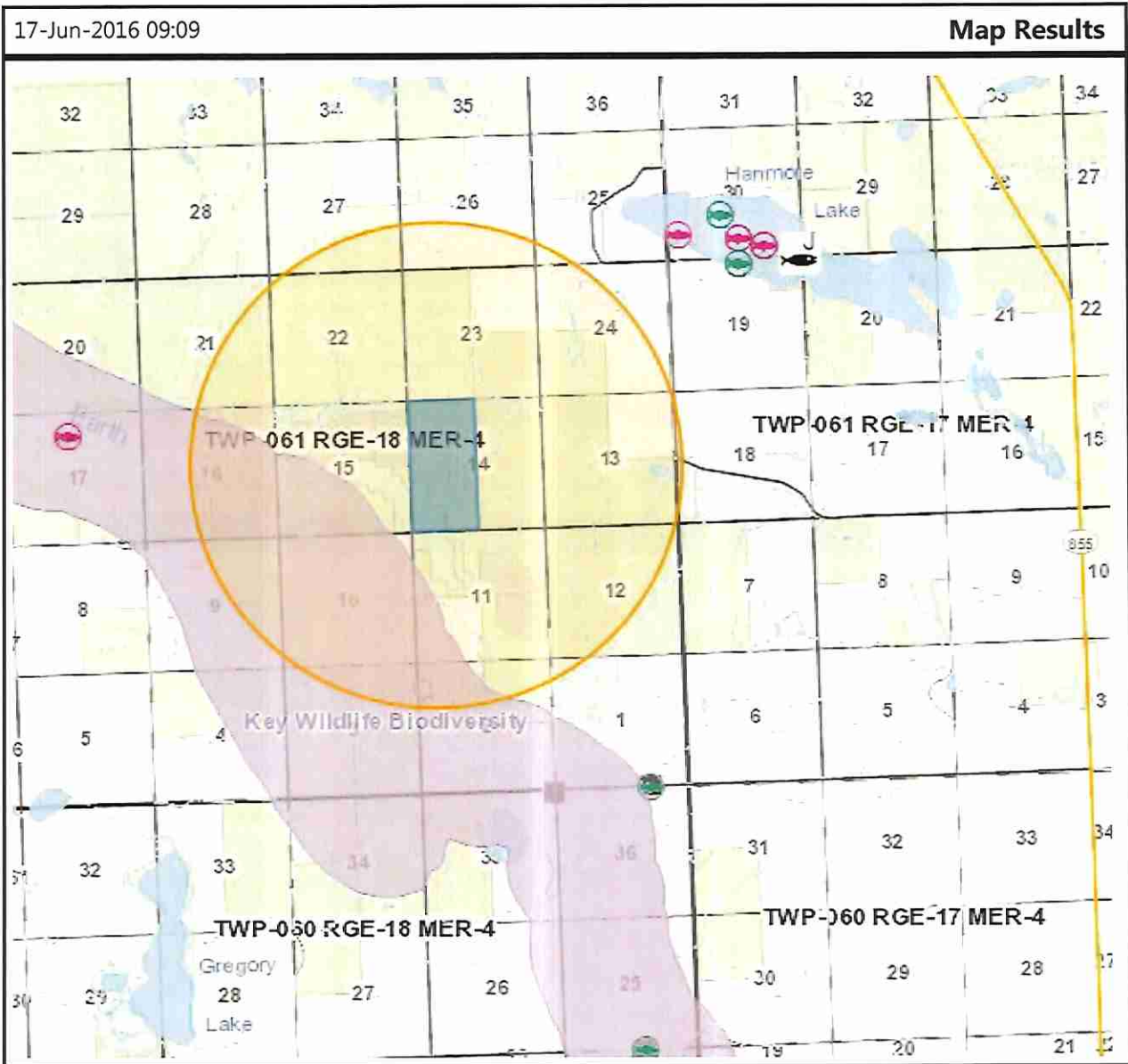
**Centroid:**  
(Qtr Sec Twp Rng Mer)  
NW 14 61 18 4

**Buffer Radius:**  
3 kilometers

### Contact Information

For contact information, please visit:

<http://aep.alberta.ca/about-us/contact-us/fisheries-wildlife-management-area-contacts.aspx>



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# Fish and Wildlife Internet Mapping Tool (FWIMT)

(source database: Fish and Wildlife Management Information System (FWMIS))

## Species Summary Report

Report Created: 21-Jun-2016 10:33

### Species present within the current extent :

#### Fish Inventory

BROOK STICKLEBACK  
LAKE CHUB  
LAKE WHITEFISH  
NORTHERN PIKE  
SPOTTAIL SHINER  
WHITE SUCKER  
YELLOW PERCH

#### Wildlife Inventory

BOREAL TOAD  
CANADA LYNX  
COMMON YELLOWTHROAT  
GREAT BLUE HERON  
GREAT GRAY OWL  
GREEN-WINGED TEAL  
LEAST FLYCATCHER  
LESSER SCAUP  
SANDHILL CRANE  
SEDGE WREN  
SORA  
WESTERN WOOD-PEWEE

#### Stocked Inventory

No Species Found in Search Extent

### Buffer Extent

**Centroid (X,Y):**  
656575, 6014386

**Projection**  
10-TM AEP Forest

**Centroid:**  
**(Qtr Sec Twp Rng Mer)**  
SW 14 61 18 4

**Buffer Radius:**  
5 kilometers

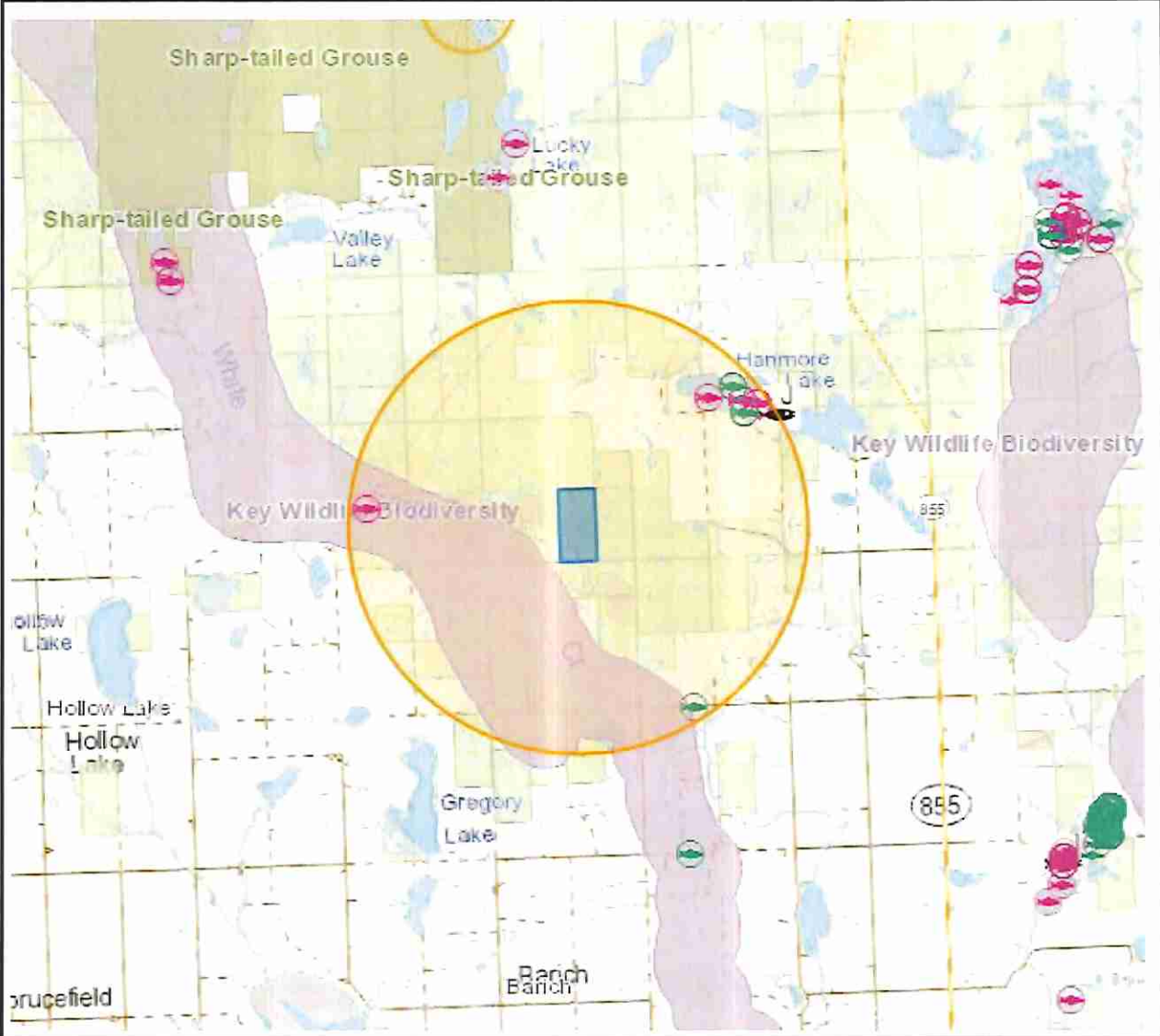
### Contact Information

For contact information, please visit:

<http://aep.alberta.ca/about-us/contact-us/fisheries-wildlife-management-area-contacts.aspx>

21-Jun-2016 10:33

Map Results



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Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006

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## **Appendix D.3**

### **AER Landscape Analysis Tool Report**





Mineral Surface Lease (MSL)

## Landscape Analysis Tool Report

00000411B4  
Page 1 of 14

Time: 14:25 16 PM

LAT Number: 00000411B4

LAT Date: 2016-06-20

Project Name:

Project Description:

Disposition Type: Mineral Surface Lease (MSL)

Purpose Type: Wellsite-PNG Production (MW) (WELLPRODMW)

### Responsibility of Applicants:

It is the applicant's responsibility to conduct a full review of the generated LAT Report, ensuring that you have a full understanding of the defined standards and conditions, and any limitations as may also be imposed by any other law or Order of the Province or the Government of Canada that may impact on the proposed use of the land.

The applicant must assess if the proposed activity can meet those standards, conditions and limitations which will subsequently determine if an EAP application will be submitted to the regulatory body as "Standard" or "Non-Standard". Applicants should complete a thorough review of EAP processes, IS&G documents and generated LAT Reports prior to making this determination.

- "Standard" EAP application submissions are those where the applicant chooses to meet all of the associated Approval Standards identified in the LAT Report submitted as part of the application and aligns those standards to the associated supplements and the application plan.
- "Non-Standard" EAP application submissions are those where the applicant chooses not to meet, or is not able to meet, one or more of the associated Approval Standards identified in the LAT Report submitted as part of the application, or the requirements of reservations as identified within the land status report. Non-Standard EAP application submissions require the inclusion of a completed Non-Standard Mitigation Supplement.

The information provided within the LAT Tool is a spatial representation of features provided for land use planning. The accuracy of these layers varies depending on the resource value being represented. Site visits, wildlife surveys and ground-truthing is required to ensure that you, the applicant will meet the applicable Pre-Application requirements, Approval Standards, Operating Conditions and Best Management Practices of the Integrated Standards and Guidelines.

## Landscape Analysis Tool Report

## Base Features

|                     |                     |                                |     |
|---------------------|---------------------|--------------------------------|-----|
| Crown Ownership:    | Provincial/Untitled | FMU:                           | LO1 |
| Green/White Area:   | White Area          | FMA:                           |     |
| Municipality:       | Smoky Lake County   | Provincial Grazing Reserve:    |     |
| Higher Level Plans: |                     | Rocky Mountain Forest Reserve: |     |
|                     |                     | PLUZ Areas:                    |     |

## Provincial Sanctuaries

|                     |  |            |  |
|---------------------|--|------------|--|
| Wildlife Corridors: |  | Game Bird: |  |
| Restricted Area:    |  | Seasonal:  |  |

**Sensitive Features**

| Wildlife                                 |                      |
|--|----------------------|
| Burrowing Owl Range:                     | <input type="text"/> |
| Caribou Range:                           | <input type="text"/> |
| Colonial Nesting Birds:                  | <input type="text"/> |
| Eastern Short-horned Lizard Range:       | <input type="text"/> |
| Endangered and Threatened Plants Ranges: | <input type="text"/> |
| Greater Sage Grouse Range:               | <input type="text"/> |
| Greater Sage Grouse Leks and Buffer:     | <input type="text"/> |
| Grizzly Bear Zone:                       | <input type="text"/> |
| Key Wildlife and Biodiversity Areas:     | <input type="text"/> |
| Mountain Goat and Sheep Areas:           | <input type="text"/> |
| Ord's Kangaroo Rat Range:                | <input type="text"/> |
| Other Sensitive and Endangered Species:  | <input type="text"/> |
| Piping Plover Waterbodies:               | <input type="text"/> |
| Sensitive Amphibians Ranges:             | <input type="text"/> |
| Sensitive Raptor Range:                  | <input type="text"/> |
| Sensitive Snake Species Range:           | <input type="text"/> |
| Sharp-tailed Grouse Leks and Buffer:     | <input type="text"/> |
| Sharp-tailed Grouse Survey:              | <input type="text"/> |
| Special Access Area:                     | <input type="text"/> |
| Swift Fox Range:                         | <input type="text"/> |
| Trumpeter Swan Waterbodies/Watercourse:  | <input type="text"/> |

| Water                   |   |
|-------------------------|---|
| Proximity to Waterbody: | Industry will ensure that the Watercourse/Waterbodies standards and conditions as defined within the Integrated Standards and Guidelines are followed. To ensure these setbacks and buffers are addressed and maintained, it is recommended that a pre-site assessment occur. |

| Grassland and Parkland Natural Region:    |                      |
|---|----------------------|
| Grassland and/or Parkland Natural Region: | <input type="text"/> |

| Federal Orders:      |                      |
|----------------------|----------------------|
| Greater Sage Grouse: | <input type="text"/> |
























## Landscape Analysis Tool Report

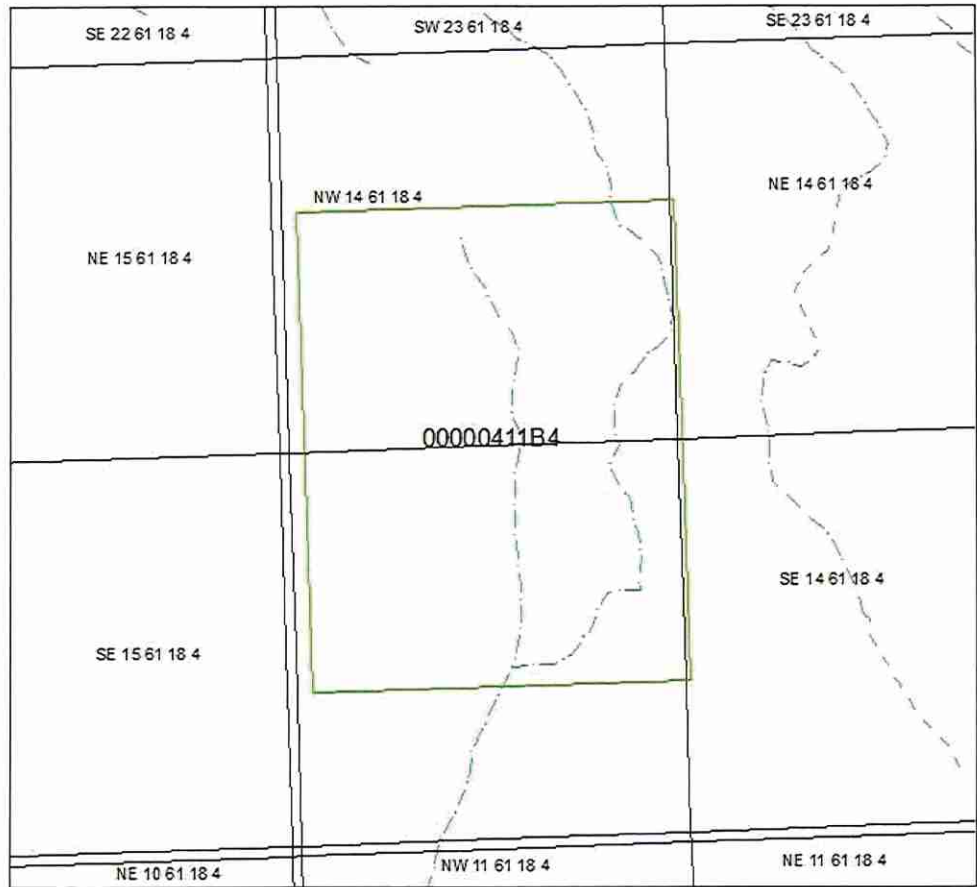
| <u>Quarter</u> | <u>Section</u> | <u>Township</u> | <u>Range</u> | <u>Meridian</u> | <u>Road Allow.</u> | <u>Sensitive Features by Quarter Section</u> |
|----------------|----------------|-----------------|--------------|-----------------|--------------------|--|
| NE             | 14             | 61              | 18           | 4               |                    |  |
| NW             | 14             | 61              | 18           | 4               |                    |  |
| SE             | 14             | 61              | 18           | 4               |                    |  |
| SW             | 14             | 61              | 18           | 4               |                    |  |

Landscape Analysis Tool Report

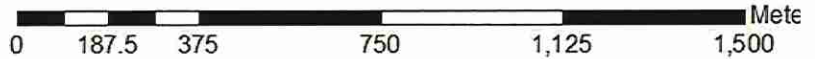


**Legend**

-  ATS Quarter Section
-  Perennial Stream
-  Indefinite Stream
-  Recurring Stream
-  Spillway
-  Aquaduct
-  Canal
-  Ditch
-  Perennial Oxbow
-  Recurring Oxbow
-  Canal
-  Dugout
-  Icefield
-  Islands
-  Lagoon
-  Perennial Lake
-  Recurring Lake
-  Perennial Oxbow
-  Recurring Oxbow
-  Quarry
-  Reservoir
-  River
-  Wetland



1:12,107



Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006

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**APPENDIX E**

- FNC Adequacy Assessment
- Historical Resources Act Clearance
- GRL Consent

Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006

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## **Appendix E.1**

### **FNC Adequacy Assessment**

FNC ADEQUACY ASSESSMENT

FNC Number: FNC201300671

Date of Submission: 2013/01/23

Client Project Name:

Alberta Environment and Sustainable Resource Development has reviewed the consultation summary regarding the proposed projects provided by: BALL, JORDAN

Based on our review, in accordance with The Government of Alberta's First Nations Consultation Policy and Land Management and Resource Development - May 16, 2005 (the Policy) and Alberta's First Nations Consultation Guidelines on Resource Development and Land Management - November 14, 2007, Alberta Environment and Sustainable Resource Development has determined an Adequacy Decision for each FNC Activity Number.

The proponent may proceed with disposition application for land activities deemed Adequate as identified within the following table.

Supporting Comments/Direction:

[Empty box for Supporting Comments/Direction]

Be advised that this notice does not grant the client any authority to make application for any use of land not identified within this notification.

Reviewing Officer: Filax, Jennifer

Date of Review: 2013/03/22

Should you have any questions, please contact the Reviewing Officer at: (780)415-9542

Consultation contacts for each First Nation as identified below (name, mailing address, phone number) are available at http://www.aboriginal.alberta.ca

Personal information is collected in accordance with the Government of Alberta Aboriginal Consultation Policy and Section 33(c) of the Freedom of Information and Protection of Privacy Act. The personal information collected within this form will be used to administer the Aboriginal Consultation process. If you have any questions about the collection or use of this information, you can contact the Information Lead, Aboriginal Affairs Branch, Great West Life Building, Fourth Floor, 9920 - 108 Street, Edmonton, Alberta, Canada, T5K 2M4 at 780-644-8733.

J. Ball and C. Ball [SML 120005 & SML 120006] - CRBP Update and SIR Response (Electronically Submitted to AEP on Sept. 14, 2016; Hardcopies to be Submitted Sept. 20, 2016)



FNC ADEQUACY ASSESSMENT

FNC Number: FNC201300557

Date of Submission: 2013/01/21

Client Project Name:

Alberta Environment and Sustainable Resource Development has reviewed the consultation summary regarding the proposed projects provided by: BALL, CATHY

Based on our review, in accordance with The Government of Alberta's First Nations Consultation Policy and Land Management and Resource Development - May 16, 2005 (the Policy) and Alberta's First Nations Consultation Guidelines on Resource Development and Land Management - November 14, 2007, Alberta Environment and Sustainable Resource Development has determined an Adequacy Decision for each FNC Activity Number.

The proponent may proceed with disposition application for land activities deemed Adequate as identified within the following table.

Supporting Comments/Direction:

[Empty box for Supporting Comments/Direction]

Be advised that this notice does not grant the client any authority to make application for any use of land not identified within this notification.

Reviewing Officer: Butt, Jody

Date of Review: 2013/03/22

Should you have any questions, please contact the Reviewing Officer at: (780)643-6580

Consultation contacts for each First Nation as identified below (name, mailing address, phone number) are available at http://www.aboriginal.alberta.ca

Personal information is collected in accordance with the Government of Alberta Aboriginal Consultation Policy and Section 33(c) of the Freedom of Information and Protection of Privacy Act. The personal information collected within this form will be used to administer the Aboriginal Consultation process. If you have any questions about the collection or use of this information, you can contact the Information Lead, Aboriginal Affairs Branch, Great West Life Building, Fourth Floor, 9920 - 108 Street, Edmonton, Alberta, Canada, T5K 2M4 at 780-644-8733.

FNC - Adequacy Assessment

| FNC Activity Number | Disp Type | Purpose Type     |                |                  | Activity Area/Distance   | Land Use Area                          |
|---------------------|-----------|------------------|----------------|------------------|--------------------------|--|
| FNC201300557-001    | SML       | SAND AND GRAVEL  |                |                  | 10.53 HA                 | Lac La Biche                           |
|                     |           | ATS Legal - From | ATS Legal - To | First Nation (s) | Saddle Lake First Nation | Whitefish (Goodfish) Lake First Nation |
|                     |           | NW 14 61 18 4    | NW 14 61 18 4  |                  |                          | Beaver Lake Cree Nation                |
|                     |           |                  |                |                  |                          |  |
|                     |           |                  |                |                  |                          |  |
|                     |           |                  |                |                  | <b>Action Required</b>   | Notification with Follow-up            |
|                     |           |                  |                |                  | <b>Adequacy</b>          | Adequate                               |

| FNC Activity Number | Disp Type | Purpose Type     |                |                  | Activity Area/Distance | Land Use Area |
|---------------------|-----------|------------------|----------------|------------------|------------------------|---------------|
|                     |           |                  |                |                  |                        |               |
|                     |           | ATS Legal - From | ATS Legal - To | First Nation (s) |                        |               |
|                     |           |                  |                |                  |                        |               |
|                     |           |                  |                |                  |                        |               |
|                     |           |                  |                |                  |                        |               |
|                     |           |                  |                |                  | <b>Action Required</b> |               |
|                     |           |                  |                |                  | <b>Adequacy</b>        |               |

| FNC Activity Number | Disp Type | Purpose Type     |                |                  | Activity Area/Distance | Land Use Area |
|---------------------|-----------|------------------|----------------|------------------|------------------------|---------------|
|                     |           |                  |                |                  |                        |               |
|                     |           | ATS Legal - From | ATS Legal - To | First Nation (s) |                        |               |
|                     |           |                  |                |                  |                        |               |
|                     |           |                  |                |                  |                        |               |
|                     |           |                  |                |                  |                        |               |
|                     |           |                  |                |                  | <b>Action Required</b> |               |
|                     |           |                  |                |                  | <b>Adequacy</b>        |               |

Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006

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## **Appendix E.2**

### **Historical Resources Act Clearance**



# Application for *Historical Resources Act* Clearance

## Activity Administration

Date Received: October 23, 2013

HRM File: 4650-13-0094

**Purpose of Application:**  All New Lands  Additional Lands  No New Lands

**Project Category:** Aggregate Extraction (4650)

**Project Type:**  Sand / Gravel Extraction  
Approximate Project Area (ha) 10.53 ha  
Other Reference Number SML120006

**Project Identifier:** SML120006 NW 14-61-18-W4M  
**Additional Identifier(s):**

|   |  |
|---|--|
| <b>Key Contact:</b> Mr. Vernon Torstensen   | <b>Affiliation:</b> Tor Land Resource Inc. |
| <b>Address:</b> Suite 128, 11230-104 Ave NW | <b>City / Province:</b> Edmonton, AB       |
| <b>Postal Code:</b> T5K 2X8                 | <b>Phone:</b> (780) 990-0012               |
| <b>E-mail:</b> AggregateAB@torland.ca       | <b>Fax:</b> (780) 990-0280                 |
|   | <b>Your File Number:</b> SML120006         |

Is the Proponent the same as the Key Contact?  Yes  No If no, complete the following:

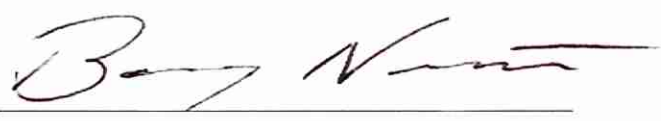
|  |                                       |
|--|---------------------------------------|
| <b>Proponent:</b> Cathy Ball             | <b>Contact Name:</b> Cathy Ball       |
| <b>Address:</b> 133-53046 Range Road 222 | <b>City / Province:</b> Ardrossan, AB |
| <b>Postal Code:</b> T8E 2E8              | <b>Phone:</b> (780) 922-5337          |
| <b>E-mail:</b> allb_mech@shaw.ca         | <b>Fax:</b> (780) 922-5327            |

| Proposed Development Area |     |     |     |          | Land Ownership           |                          |                                     |                          |
|---------------------------|-----|-----|-----|----------|--------------------------|--------------------------|-------------------------------------|--------------------------|
| MER                       | RGE | TWP | SEC | LSD List | FRH                      | SA                       | CU                                  | CT                       |
| 4                         | 18  | 61  | 14  | 11,12    | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

J. Ball and C. Ball (SML 120005 & SML 120006) - CRBP Update and SIR Response (Electronically Submitted to AEP on Sept. 14, 2016; Hardcopies to be Submitted Sept. 20, 2016)

|  |                              |  |                                |
|--|------------------------------|--|--------------------------------|
| <b>Historical Resources Impact Assessment:</b> |                              |  |                                |
| <u>For archaeological resources:</u>           |                              |  |                                |
| Has a HRIA been conducted?                     | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | Permit Number (if applicable): |
| <u>For palaeontological resource:</u>          |                              |  |                                |
| Has a HRIA been conducted?                     | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |                                |

*Historical Resources Act* clearance is granted subject to Section 31 of the Resources Act, "a person who discovers an historic resource in the course of making an excavation for a purpose other than for the purpose of seeking historic resources shall forthwith notify the minister of the discovery". The chance discovery of historical resources is to be reported to the contacts identified within the listing.

  
\_\_\_\_\_

November 14, 2013  
Date



## Application for *Historical Resources Act* Clearance

### Activity Administration

Date Received: October 23, 2013

HRM File: 4650-13-0095

**Purpose of Application:**  All New Lands  Additional Lands  No New Lands

**Project Category:** Aggregate Extraction (4650)

**Project Type:**  Sand / Gravel Extraction  
 ESRI Shapefiles are attached (yes/no) NO  
 Approximate Project Area (ha) 31.63 ha  
 Other Reference Number SML120005

**Project Identifier:** SML120005 W 1/2 14-61-18-W4M

**Additional Identifier(s):**

**Key Contact:** Mr. Vernon Torstensen  
 Address: Suite 128, 11230-104 Ave NW  
 Postal Code: T5K 2X8  
 E-mail: AggregateAB@torland.ca  
**Affiliation:** Tor Land Resource Inc.  
**City / Province:** Edmonton, AB  
**Phone:** (780) 990-0012  
**Fax:** (780) 990-0280  
**Your File Number:** SML120005

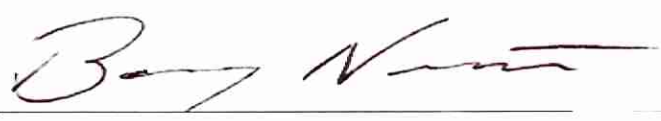
Is the Proponent the same as the Key Contact?  Yes  No If no, complete the following:

**Proponent:** Jordan Ball  
 Address: 133-53046 RANGE ROAD 222  
 Postal Code: T8E 2E8  
 E-mail: allb\_mech@shaw.ca  
**Contact Name:** Jordan Ball  
**City / Province:** Ardrossan, AB  
**Phone:** (780) 922-5337  
**Fax:** (780) 922-5327

| Proposed Development Area |     |     |     |             | Land Ownership           |                          |                                     |                          |
|---------------------------|-----|-----|-----|-------------|--------------------------|--------------------------|-------------------------------------|--------------------------|
| MER                       | RGE | TWP | SEC | LSD List    | FRH                      | SA                       | CU                                  | CT                       |
| 4                         | 18  | 61  | 14  | 4,5,6,11,12 | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

|  |                              |  |                                |
|--|------------------------------|--|--------------------------------|
| <b>Historical Resources Impact Assessment:</b> |                              |  |                                |
| <u>For archaeological resources:</u>           |                              |  |                                |
| Has a HRIA been conducted?                     | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | Permit Number (if applicable): |
| <u>For palaeontological resource:</u>          |                              |  |                                |
| Has a HRIA been conducted?                     | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |                                |

*Historical Resources Act* clearance is granted subject to Section 31 of the Resources Act, "a person who discovers an historic resource in the course of making an excavation for a purpose other than for the purpose of seeking historic resources shall forthwith notify the minister of the discovery". The chance discovery of historical resources is to be reported to the contacts identified within the listing.

  
November 14, 2013  
Date

Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006

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## **Appendix E.3**

### **GRL Consent**



FNC - Adequacy Assessment

| FNC Activity Number | Disp Type | Purpose Type     |                |                  | Activity Area/Distance  | Land Use Area               |
|---------------------|-----------|------------------|----------------|------------------|-------------------------|-----------------------------|
| FNC201300671-001    | SML       | SAND AND GRAVEL  |                |                  | 31.63 HA                | Lac La Biche                |
|                     |           | ATS Legal - From | ATS Legal - To | First Nation (s) | Beaver Lake Cree Nation | Saddle Lake First Nation    |
|                     |           | NW 14 61 18 4    | SW 14 61 18 4  |                  |                         |                             |
|                     |           |                  |                |                  | Action Required         | Notification with Follow-up |
|                     |           |                  |                |                  | Adequacy                | Adequate                    |

| FNC Activity Number | Disp Type | Purpose Type     |                |                  | Activity Area/Distance | Land Use Area |
|---------------------|-----------|------------------|----------------|------------------|------------------------|---------------|
|                     |           |                  |                |                  |                        |               |
|                     |           | ATS Legal - From | ATS Legal - To | First Nation (s) |                        |               |
|                     |           |                  |                |                  |                        |               |
|                     |           |                  |                |                  | Action Required        |               |
|                     |           |                  |                |                  | Adequacy               |               |

| FNC Activity Number | Disp Type | Purpose Type     |                |                  | Activity Area/Distance | Land Use Area |
|---------------------|-----------|------------------|----------------|------------------|------------------------|---------------|
|                     |           |                  |                |                  |                        |               |
|                     |           | ATS Legal - From | ATS Legal - To | First Nation (s) |                        |               |
|                     |           |                  |                |                  |                        |               |
|                     |           |                  |                |                  | Action Required        |               |
|                     |           |                  |                |                  | Adequacy               |               |

Kevin Wawrynychuk  
Box 458  
Smokey Lake, Alta.  
T0A 3C0  
780-656-2263

March 13, 2012

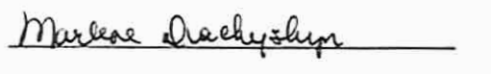
To Whom It May Concern: Alberta Sustainable Resource Development

Land Location: NE & NW 14-61-18-W4

Grant by GRL Lease Holder (GRL 40194)

The Grazing Lease Holder gives consent to remove  
76.23 acres/ 30.85 hectares from GRL # 40194 for the sole purpose of  
SML # 120006 for the sand and gravel extraction.

  
Kevin Wawrynychuk

  
Witness: MARLENE DIACHYSHYN

Date: MARCH 19, 2012

Date: MARCH 19, 2012

Note: The size of SML was subsequently was reduced later from 30.85 to 10.40 ha

Kevin Wawrynychuk  
Box 458  
Smokey Lake, Alta.  
T0A 3C0  
780-656-2263

March 13, 2012

To Whom It May Concern: Alberta Sustainable Resource Development

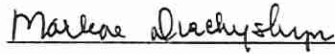
Land Location:    NW & SW 14-61-18-W4   

Grant by GRL Lease Holder (GRL   40194  )

The Grazing Lease Holder gives consent to remove  
  78.15   acres/   31.63   hectares from GRL # 40194 for the sole purpose of  
SML #   120005   for the sand and gravel extraction.

  
\_\_\_\_\_

Kevin Wawrynychuk

  
\_\_\_\_\_

Witness: MARLENE DIACHYSHYN

Date: MARCH 19, 2012

Date: MARCH 19, 2012

Conservation and Reclamation Business Plan  
Applicant: Jordan Ball and Cathy Ball  
Parts of NW and SW 14-061-18-W4M  
SML 120005 and SML 120006

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**APPENDIX F**

- DWG 1A: Existing Site/Planned Development with auger test holes
- DWG 1B: Existing Site/Planned Development with back-hoe test holes
- DWG 1C: Existing Site/Planned Development with airphoto
- DWG 2: Development Sequencing
- DWG 3A: Cross-section A-A' Profiles
- DWG 3B: Cross-section B-B' Profiles
- DWG 3C: Cross-section C-C' Profiles
- DWG 4: Planned Reclamation

**Conservation and Reclamation  
 Business Plan  
 Surface Materials Lease  
 SML 120005 and SML 120006**

| SML Number | Legal Land Description | Area of Lease          | Lease Holder |
|------------|------------------------|------------------------|--------------|
| SML 120005 | NW 14-061-18-W4M       | 10.40 ha (25.69 acres) | Cathy Ball   |
| SML 120006 | W 14-061-18-W4M        | 31.61 ha (78.11 acres) | Jordan Ball  |

**DWG 1A**

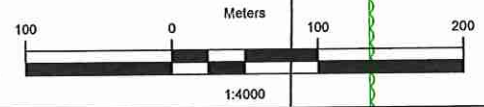
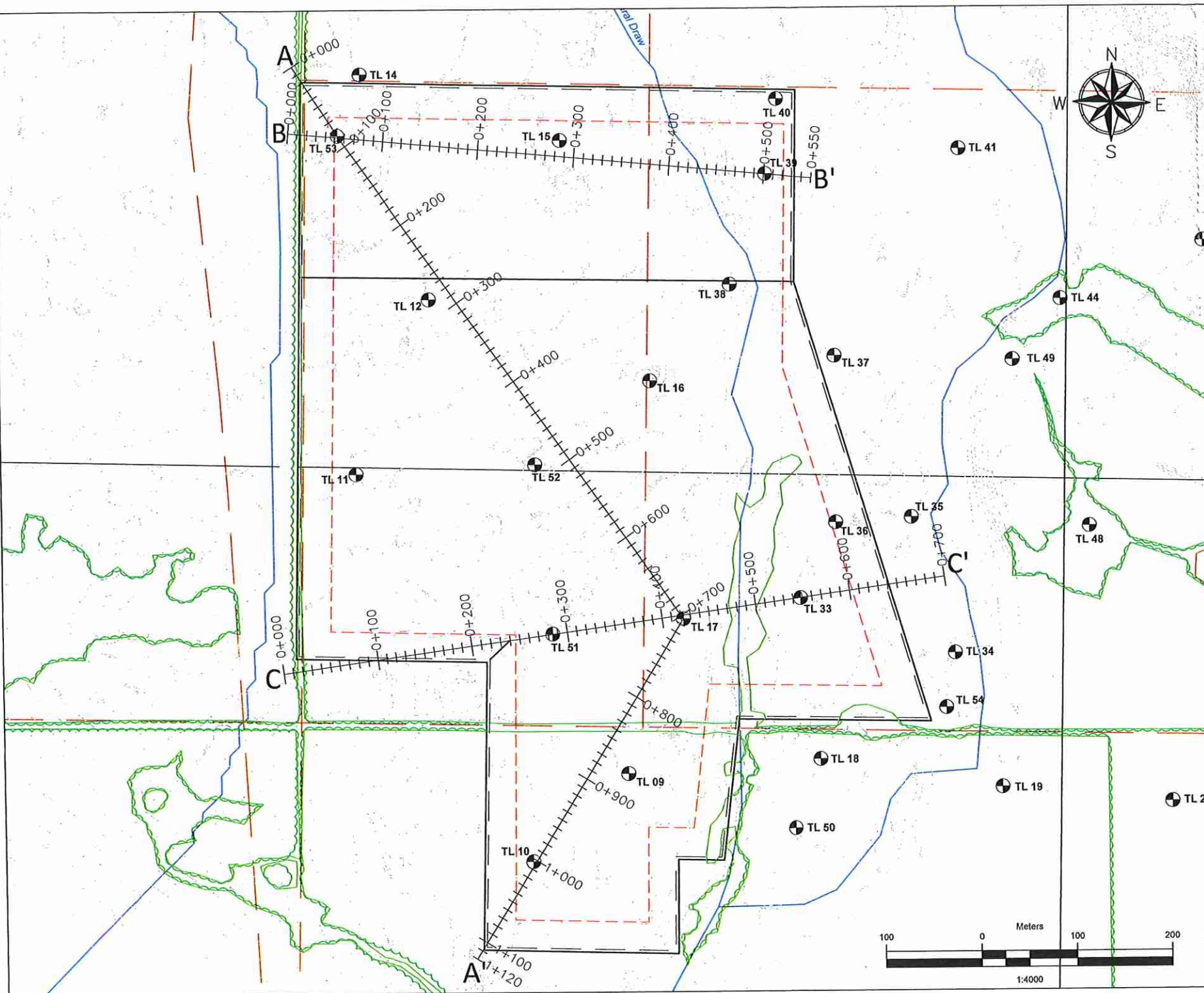
**DRAWINGS**  
 DWG 1A : Existing Site/Planned Development (Auger Test Holes)  
 DWG 1B: Existing Site/Planned Development (Back-hoe Test Holes)  
 DWG 1C: Existing Site/Planned Development (Airphoto)  
 DWG 2 : Development Sequencing  
 DWG 3A - 3C: Cross-section Profiles A-A', B-B', C-C'  
 DWG 4: Planned Reclamation

**Legend**

- SML boundary
- Quarter section boundary
- Elevation contours (1m intervals)  
LiDAR (Nov. 2009)
- Cutlines and trails
- Dispositions
- Surface water features
- Setback to create slopes (avg. 28 m)
- 3 m undisturbed buffer
- Auger Test Holes (see DWG 1A)
- Back-hoe Test Holes (see DWG 1B)
- Treed area

|   |  |
|---|--|
| Plan Design/Prepared by:<br><b>TOR Land Resources Inc.</b><br>Suite 128, 11230 - 104 Ave<br>Edmonton, AB T5K 2X8<br>Tel: (780) 990 - 0012<br>Mob: (780) 914 - 9531<br>Fax: (780) 990 - 0280 | Drawn By: Shawn Palichuk<br><br>Date: December, 2013 |
|---|--|

| Revision No. | Revised By:   | Date       |
|--------------|---------------|------------|
| 1            | Janeen Ogloza | 07/22/2016 |
|              |               |            |
|              |               |            |



**Conservation and Reclamation  
Business Plan  
Surface Materials Lease  
SML 120005 and SML 120006**

| SML Number | Legal Land Description | Area of Lease          | Lease Holder |
|------------|------------------------|------------------------|--------------|
| SML 120005 | NW 14-061-18-W4M       | 10.40 ha (25.69 acres) | Cathy Ball   |
| SML 120006 | W 14-061-18-W4M        | 31.61 ha (78.11 acres) | Jordan Ball  |

**DWG 1B**

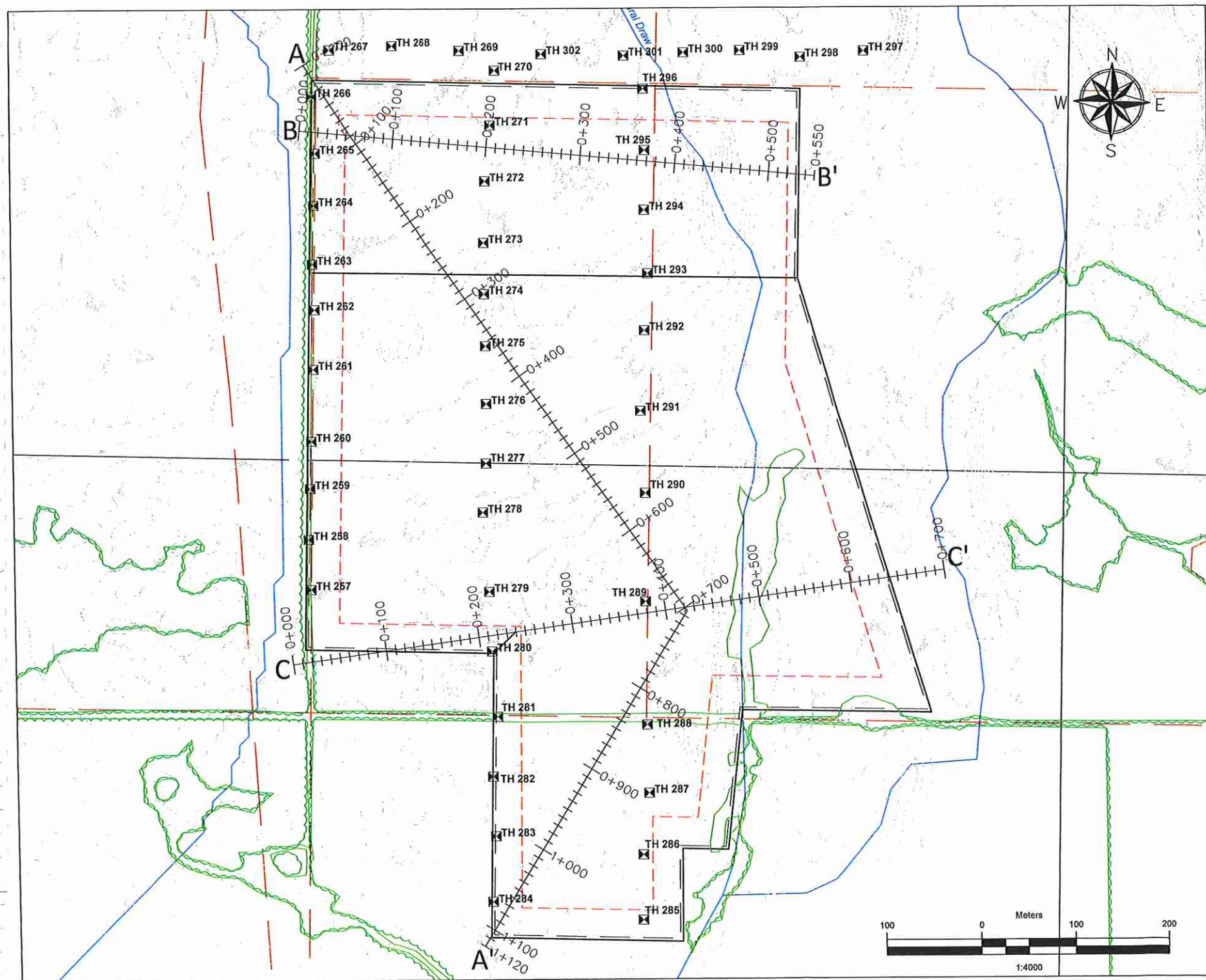
**DRAWINGS**  
 DWG 1A : Existing Site/Planned Development (Auger Test Holes)  
 DWG 1B: Existing Site/Planned Development (Back-hoe Test Holes)  
 DWG 1C: Existing Site/Planned Development (Airphoto)  
 DWG 2: Development Sequencing  
 DWG 3A - 3C: Cross-section Profiles A-A', B-B', C-C'  
 DWG 4: Planned Reclamation

**Legend**

- SML boundary
- Quarter section boundary
- Elevation contours (1m intervals)  
LiDAR (Nov. 2009)
- Cutlines and trails
- Dispositions
- Surface water features
- Setback to create slopes (avg. 28 m)
- 3 m undisturbed buffer
- Auger Test Holes (see DWG 1A)
- Back-hoe Test Holes (see DWG 1B)
- Treed area

|   |  |
|---|--|
| Plan Design/Prepared by:<br><br><b>TOR Land Resources Inc.</b><br>Suite 128, 11230 - 104 Ave<br>Edmonton, AB T5K 2X8<br>Tel: (780) 990 - 0012<br>Mob: (780) 914 - 9531<br>Fax: (780) 990 - 0280 | Drawn By: Shawn Palichuk<br><br>Date: December, 2013 |
|---|--|

| Revision No. | Revised By:   | Date       |
|--------------|---------------|------------|
| 1            | Janeen Ogloza | 07/22/2016 |
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Conservation and Reclamation  
Business Plan  
Surface Materials Lease  
SML 120005 and SML 120006

| SML Number | Legal Land Description | Area of Lease          | Lease Holder |
|------------|------------------------|------------------------|--------------|
| SML 120005 | NW 14-061-18-W4M       | 10.40 ha (25.69 acres) | Cathy Ball   |
| SML 120006 | W 14-061-18-W4M        | 31.61 ha (78.11 acres) | Jordan Ball  |

**DWG 1C**

- DRAWINGS**
- DWG 1A : Existing Site/Planned Development (Auger Test Holes)
  - DWG 1B: Existing Site/Planned Development (Back-hoe Test Holes)
  - DWG 1C: Existing Site/Planned Development (Airphoto)
  - DWG 2: Development Sequencing
  - DWG 3A - 3C: Cross-section Profiles A-A', B-B', C-C'
  - DWG 4: Planned Reclamation

**Legend**

- SML boundary
- Quarter section boundary
- Elevation contours (1m intervals)  
LIDAR (Nov. 2009)
- Cutlines and trails
- Dispositions
- Surface water features
- Setback to create slopes (avg. 28 m)
- 3 m undisturbed buffer
- TL 00 Auger Test Holes (see DWG 1A)
- TH 000 Back-hoe Test Holes (see DWG 1B)
- Treed area

Plan Design/Prepared by:

Drawn By: Shawn Palichuk

**TOR Land Resources Inc.**  
Suite 128, 11230 - 104 Ave  
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Tel: (780) 990 - 0012  
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| 1            | Janeen Ogloza | 07/22/2016 |
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## Conservation and Reclamation Business Plan Surface Materials Lease SML 120005 and SML 120006

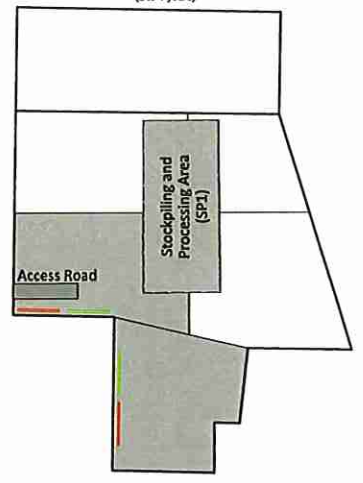
| SML Number | Legal Land Description | Area of Lease          | Lease Holder |
|------------|------------------------|------------------------|--------------|
| SML 120005 | NW 14-061-18-W4M       | 10.40 ha (25.69 acres) | Cathy Ball   |
| SML 120006 | W 14-061-18-W4M        | 31.61 ha (78.11 acres) | Jordan Ball  |

### DWG 2

- DRAWINGS**
- DWG 1A : Existing Site/Planned Development (Auger Test Holes)
  - DWG 1B: Existing Site/Planned Development (Back-hoe Test Holes)
  - DWG 1C: Existing Site/Planned Development (Airphoto)
  - DWG 2: Development Sequencing
  - DWG 3A - 3C: Cross-section Profiles A-A', B-B', C-C'
  - DWG 4: Planned Reclamation

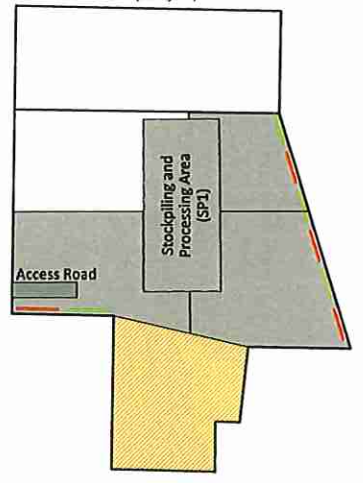
- Legend**
- Mining block (MB)
  - Soil stockpiles
  - Wood debris
  - Stockpiling processing area
  - Active excavation/stripped area
  - Partially reclaimed
  - Reclaimed

### Phase 1 SITE PREPARATION, EXCAVATION OF MB 1A, MB 1B, and SP1 (2 to 4 years)



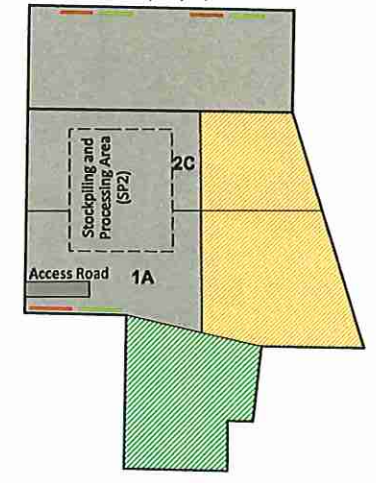
- Develop access road
- Clear trees from MB 1A, MB 1B, and SP 1; salvage tops of conifers and retain as seed source for reclamation; salvage merchantable material and haul off site; stockpile wood debris (including stumps, limbs, and tops) in linear piles within the setbacks to be used for roll back)
- Strip topsoil and subsoil in one lift from MB 1A and MB 1B; (subsoil is less than 5 cm). Stockpile soils in linear piles within the setbacks
- Strip at least 1.2 m of good quality overburden and stockpile separately from soils
- Excavate MB 1A and MB 1B

### Phase 2 RECLAIM MB 1B, EXCAVATION OF MB 1C and MB 2A (2 to 3 years)



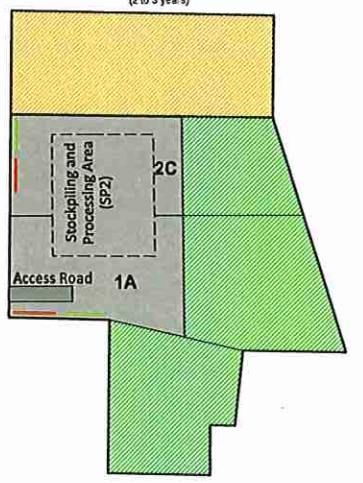
- Clear trees from MB 1C, and MB 2A; salvage tops of conifers and retain as seed source for reclamation; salvage merchantable material and haul off site; stockpile wood debris in linear piles within the setbacks
- Strip soils from MB 1C and MB 2A; strip topsoil and subsoil in one lift; stockpile soils in linear piles within the setbacks
- Strip at least 1.2 m of good quality overburden and stockpile separately from soils
- Excavate MB 1C and MB 2A
- Begin progressive reclamation of MB 1B once aggregate material is removed

### Phase 3 RECLAIM MB 1C AND MB 2A, EXCAVATION OF MB 2B AND MB 2C (2 to 3 years)



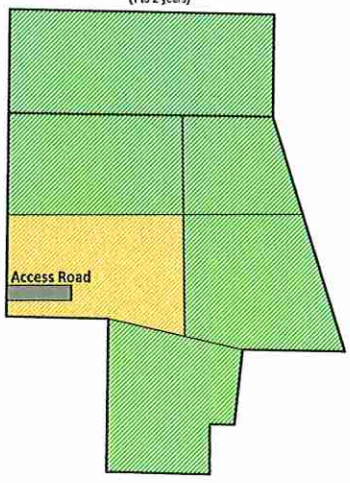
- Clear trees from MB 2B, and MB 2C; salvage tops of conifers and retain as seed source for reclamation; salvage merchantable material and haul off site; stockpile wood debris in linear piles within the setbacks
- Strip soils from MB 2A and MB 2C; strip topsoil and subsoil in one lift; stockpile soils in linear piles within the setbacks
- Strip at least 1.2 m of good quality overburden and stockpile separately from soils
- Excavate MB 2C and MB 2B
- Begin progressive reclamation of MB 1C and MB 2A once aggregate material is removed

### Phase 4 RECLAIM MB 2B, DECOMPACT MB 1A, MB 2C, AND SP2 (2 to 3 years)



- Excavate remained of MB 1A, MB 2C, and SP2
- Begin progressive reclamation of MB 2B once aggregate material is removed

### Phase 5 RECLAIM SITE, DECOMPACT ACCESS ROAD (1 to 2 years)



- Begin progressive reclamation of MB 1A once aggregate material is removed
- Finish reclaiming the entire site

### DEVELOPMENT SEQUENCE

#### Site Preparation

##### Phases 1 to 3:

- Develop access road in the undeveloped government road allowance
- Clear trees from the all the mining block phases; salvage top of conifers for seed distribution during reclamation and salvage merchantable timber
- Pile remaining wood debris (including stumps and limbs) in linear piles within setback to be used for rollback.

#### Excavation and Progressive Reclamation

##### Phases 1 to 4:

- Since subsoil is less than 5 cm deep, strip topsoil (including duff layer) and subsoil in 20 cm lifts; pile in linear stockpiles in setback of active mining blocks
- Strip overburden and pile separately from soils in setbacks
- Begin excavation
- Contour slopes and replace soil in completed areas where no further disturbance will occur; rollback wood debris
- Repeat above sequence until the resource is exhausted in all mining blocks

#### Final Reclamation

##### Phase 5:

- Decompact access road, stockpile and processing areas, and other compacted areas
- Use setback material to create 6:1 slope; wherever possible generate irregular and variable final topography of the reclaimed site
- Replace remaining soil and roll back material
- Revegetate through tree planting, natural regeneration from the soil seed bank, and natural succession
- Monitor recovery and supplement natural regeneration, if necessary by seeding with an approved mixture and/or plating native species
- The end land use is suitable for wildlife habitat

|   |   |
|---|---|
| Plan Design/Prepared by:<br><b>TOR Land Resources Inc.</b><br>Suite 128, 11230 - 104 Ave<br>Edmonton, AB T5K 2X8<br>Tel: (780) 990 - 0012<br>Mob: (780) 914 - 9531<br>Fax: (780) 990 - 0280 | Drawn By: Shawn Pallichuk<br><br>Date: December, 2013 |
|---|---|

| Revision No. | Revised By:   | Date       |
|--------------|---------------|------------|
| 1            | Janeen Ogloza | 07/22/2016 |
|              |               |            |
|              |               |            |



Conservation and Reclamation  
Business Plan  
Surface Materials Lease  
SML 120005 and SML 120006

| SML Number | Legal Land Description | Area of Lease          | Lease Holder |
|------------|------------------------|------------------------|--------------|
| SML 120005 | NW 14-061-18-W4M       | 10.40 ha (25.69 acres) | Cathy Ball   |
| SML 120006 | W 14-061-18-W4M        | 31.61 ha (78.11 acres) | Jordan Ball  |

DWG 3A

DRAWINGS

- DWG 1A: Existing Site/Planned Development (Auger Test Holes)
- DWG 1B: Existing Site/Planned Development (Back-hoe Test Holes)
- DWG 1C: Existing Site/Planned Development (Airphoto)
- DWG 2: Development Sequencing
- DWG 3A - 3C: Cross-section Profiles A-A', B-B', C-C'
- DWG 4: Planned Reclamation

Plan Design/Prepared by:

Drawn By: Shawn Palichuk

**TOR Land Resources Inc.**  
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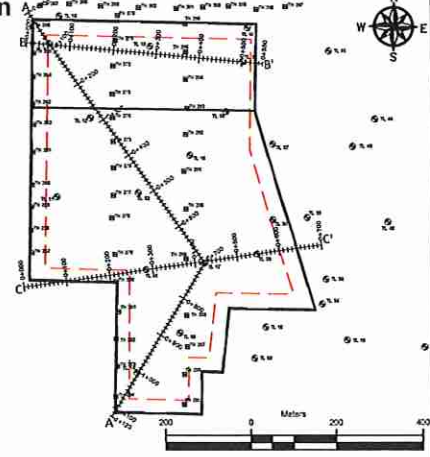
Date: December, 2013

| Revision No. | Revised By:   | Date       |
|--------------|---------------|------------|
| 1            | Janeen Ogloza | 07/22/2016 |

Legend

- Undisturbed land surface
- Original land surface
- Replaced topsoil
- Material layers
- Topsoil
- Overburden
- Clay
- Gravel
- Sand
- Reclamation material
- Replaced setback material
- Test holes

Key Plan

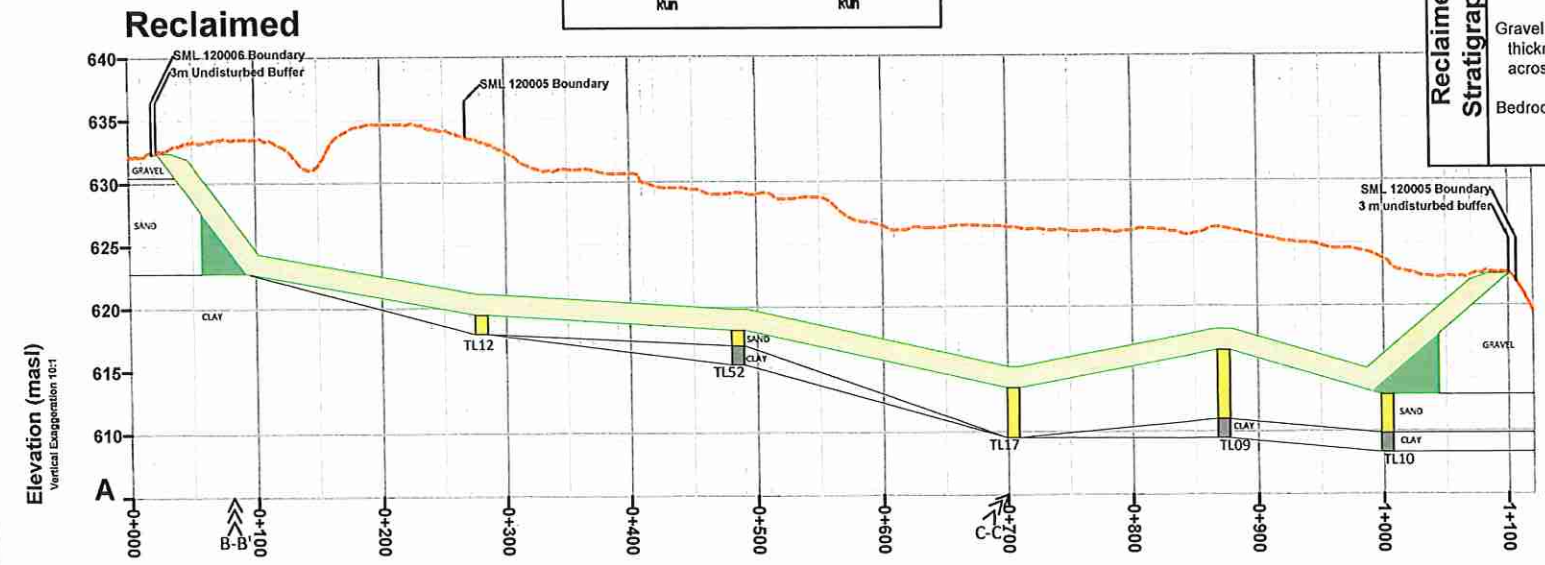
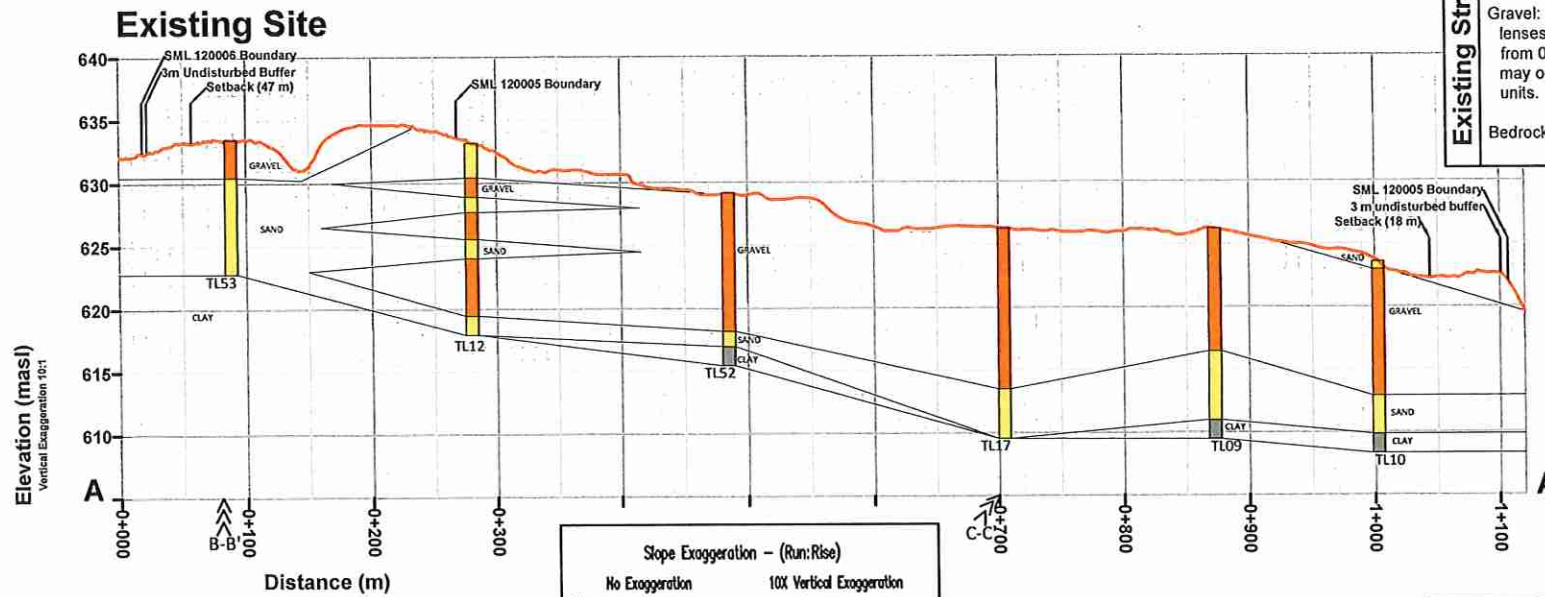
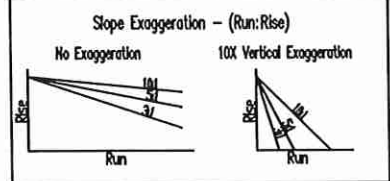


**Existing Stratigraphy**

Topsoil: 0.10 - 0.15 m (sand)  
Subsoil: 0 - 0.5 m  
Overburden: 0 - 3.6 m (avg 1.5 m) has discontinuous sand bodies  
Gravel: 0.6 - 12.8 m (avg 6.6 m) lenses and layers of sand ranging from 0.6 - 5.4 m thickness (avg 2.7 m) may occur between mineable gravel units.  
Bedrock: clay below

**Reclaimed Stratigraphy**

Topsoil/Subsoil: 0.15 - 0.18 m  
Replaced Overburden: 1.5 m has discontinuous sand bodies  
Gravel or Sand: presence and thickness of these materials varies across the site.  
Bedrock: clay below



Conservation and Reclamation  
Business Plan  
Surface Materials Lease  
SML 120005 and SML 120006

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DWG 3B

DRAWINGS

- DWG 1A : Existing Site/Planned Development (Auger Test Holes)
- DWG 1B : Existing Site/Planned Development (Back-hoe Test Holes)
- DWG 1C : Existing Site/Planned Development (Airphoto)
- DWG 2 : Development Sequencing
- DWG 3A - 3C : Cross-section Profiles A-A', B-B', C-C'
- DWG 4 : Planned Reclamation

Plan Design/Prepared by:

Drawn By: Shawn Palichuk

TOR Land Resources Inc.

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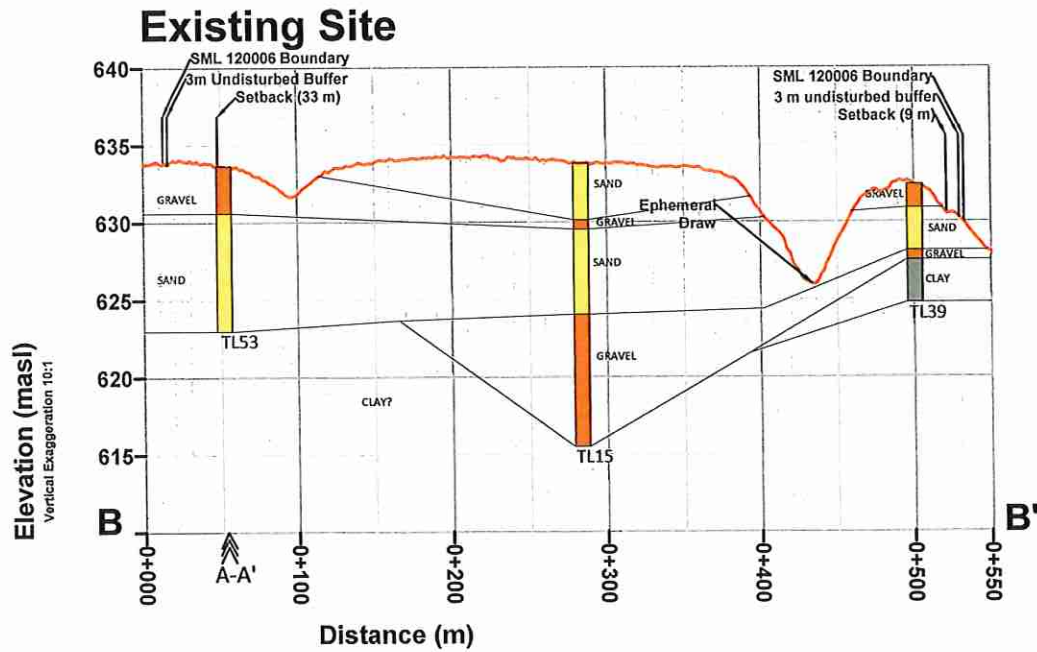
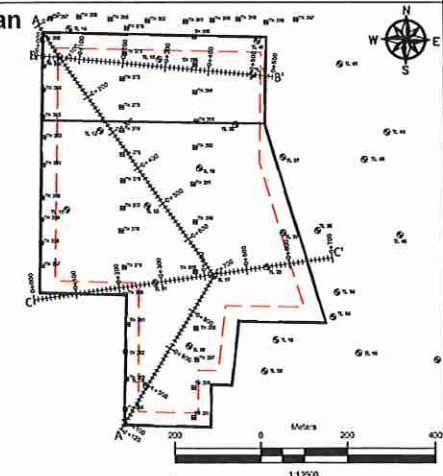
Date: December, 2013

| Revision No. | Revised By:   | Date       |
|--------------|---------------|------------|
| 1            | Janeen Ogloza | 07/22/2016 |

Legend

- Undisturbed land surface
- - - Original land surface
- Replaced topsoil
- Material layers
- Topsoil
- Overburden
- Clay
- Gravel
- Sand
- Reclamation material
- Replaced setback material
- Test holes

Key Plan



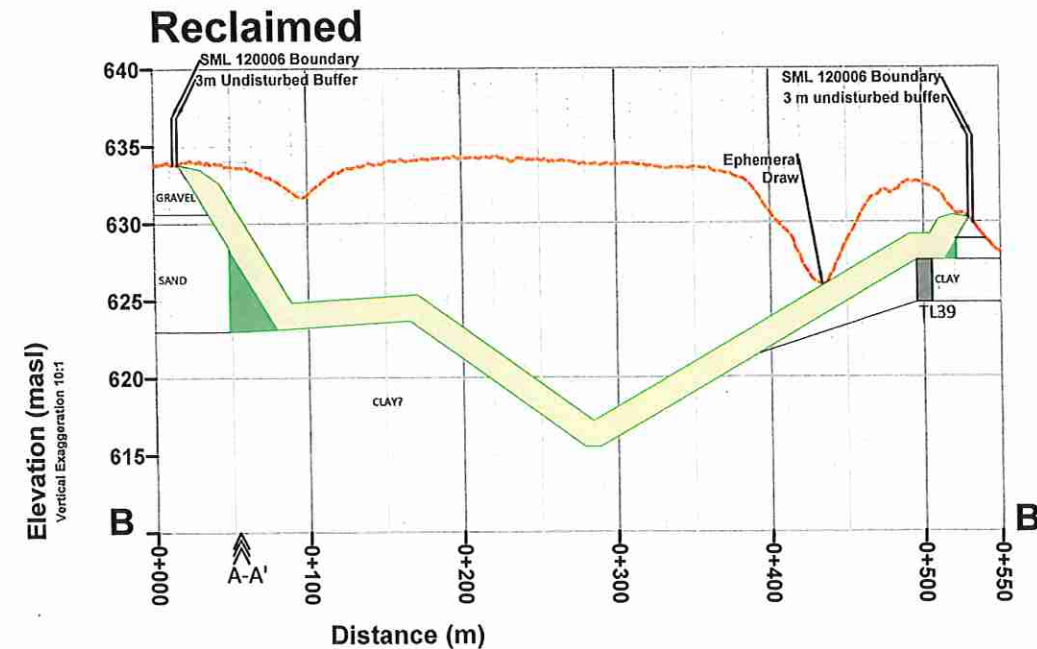
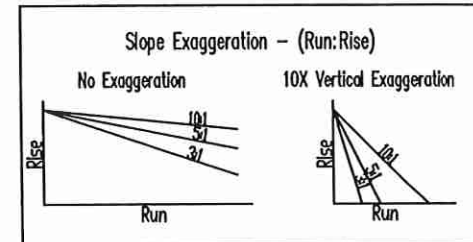
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Subsoil: 0 - 0.5 m

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Gravel: 0.6 - 12.8 m (avg 6.6 m) lenses and layers of sand ranging from 0.6 - 5.4 m thickness (avg 2.7 m) may occur between mineable gravel units.

Bedrock: clay below



**Reclaimed Stratigraphy**

Topsoil/Subsoil: 0.15 - 0.18 m

Replaced Overburden: 1.5 m has discontinuous sand bodies

Gravel or Sand: presence and thickness of these materials varies across the site.

Bedrock: clay below

Conservation and Reclamation  
Business Plan  
Surface Materials Lease  
SML 120005 and SML 120006

| SML Number | Legal Land Description | Area of Lease          | Lease Holder |
|------------|------------------------|------------------------|--------------|
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| SML 120006 | W 14-051-18-W4M        | 31.61 ha (78.11 acres) | Jordan Ball  |

**DWG 3C**

**DRAWINGS**  
 DWG 1A: Existing Site/Planned Development (Auger Test Holes)  
 DWG 1B: Existing Site/Planned Development (Back-hoe Test Holes)  
 DWG 1C: Existing Site/Planned Development (Airphoto)  
 DWG 2: Development Sequencing  
 DWG 3A - 3C: Cross-section Profiles A-A', B-B', C-C'  
 DWG 4: Planned Reclamation

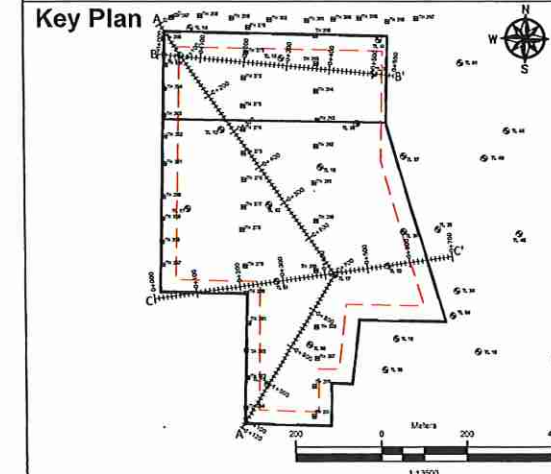
Plan Design/Prepared by: **TOR Land Resources Inc.**  
 Suite 128, 11230 - 104 Ave  
 Edmonton, AB T5K 2X8  
 Tel: (780) 990-0012  
 Mob: (780) 914-9531  
 Fax: (780) 990-0280

Drawn By: Shawn Pallchuk  
 Date: December, 2013

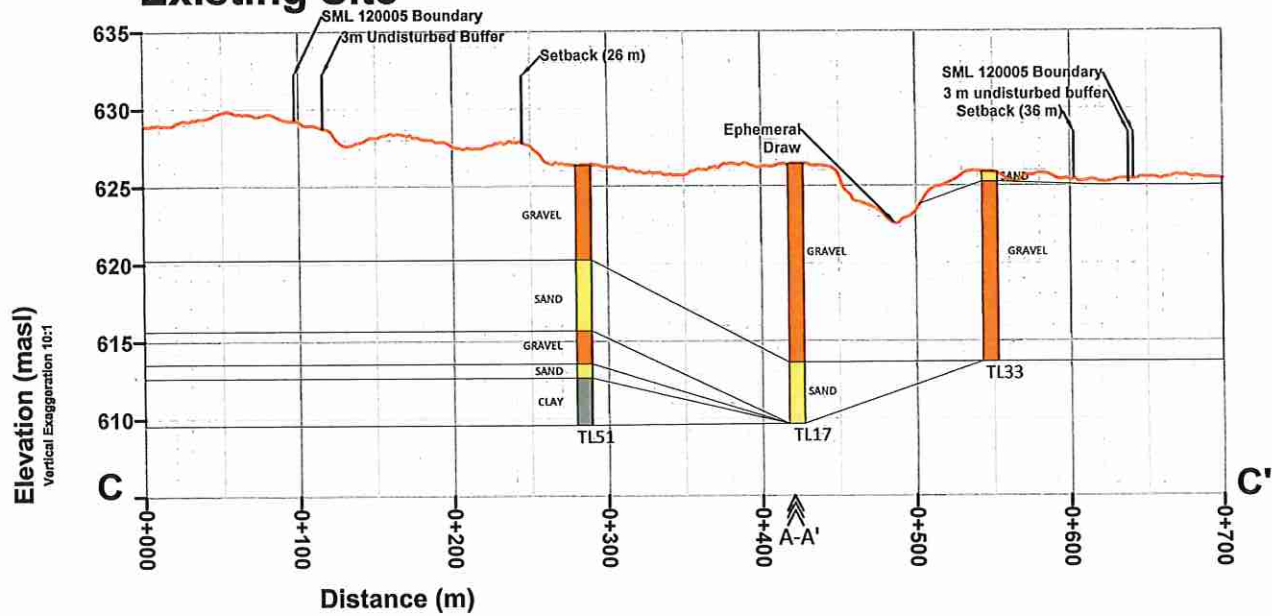
| Revision No. | Revised By:   | Date       |
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| 1            | Janeen Ogloza | 07/22/2016 |

**Legend**

|  |                          |  |                           |
|--|--------------------------|--|---------------------------|
|  | Undisturbed land surface |  | Clay                      |
|  | Original land surface    |  | Gravel                    |
|  | Replaced topsoil         |  | Sand                      |
|  | Material layers          |  | Reclamation material      |
|  | Topsoil                  |  | Replaced setback material |
|  | Overburden               |  | Test holes                |

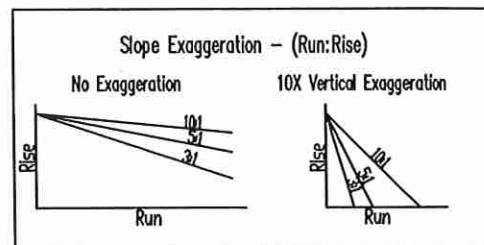


**Existing Site**



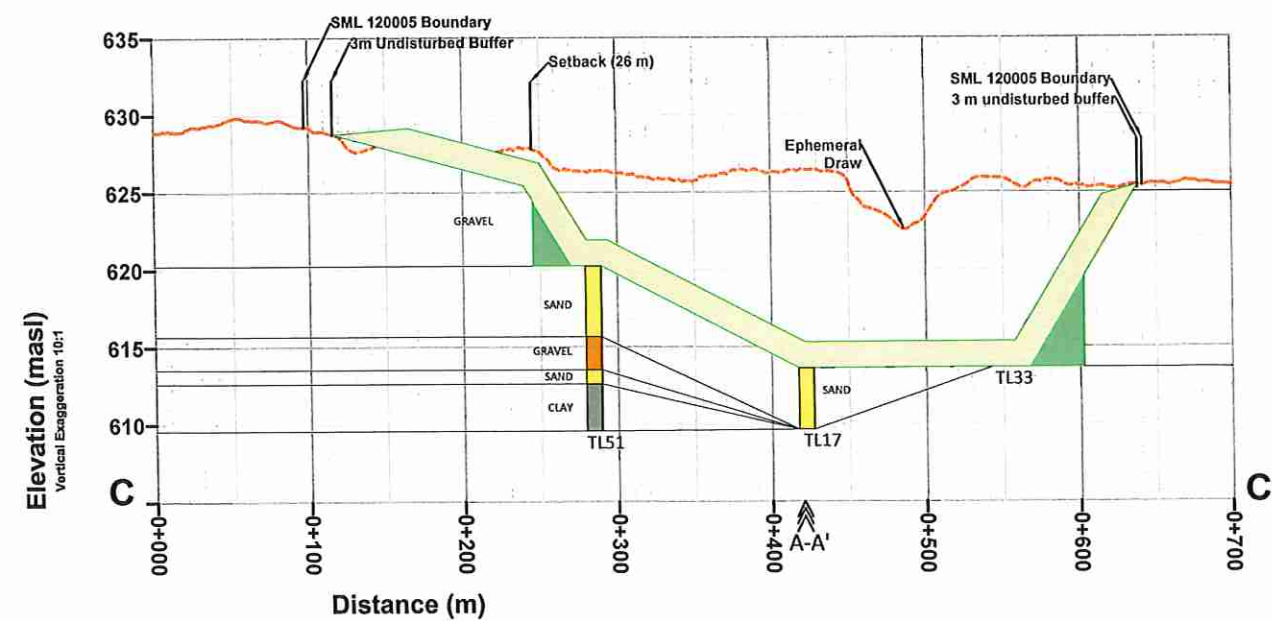
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 Bedrock: clay below



**Reclaimed Stratigraphy**

Topsoil/Subsoil: 0.15 - 0.18 m  
 Replaced Overburden: 1.5 m has discontinuous sand bodies  
 Gravel or Sand: presence and thickness of these materials varies across the site.  
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Conservation and Reclamation  
Business Plan  
Surface Materials Lease  
SML 120005 and SML 120006

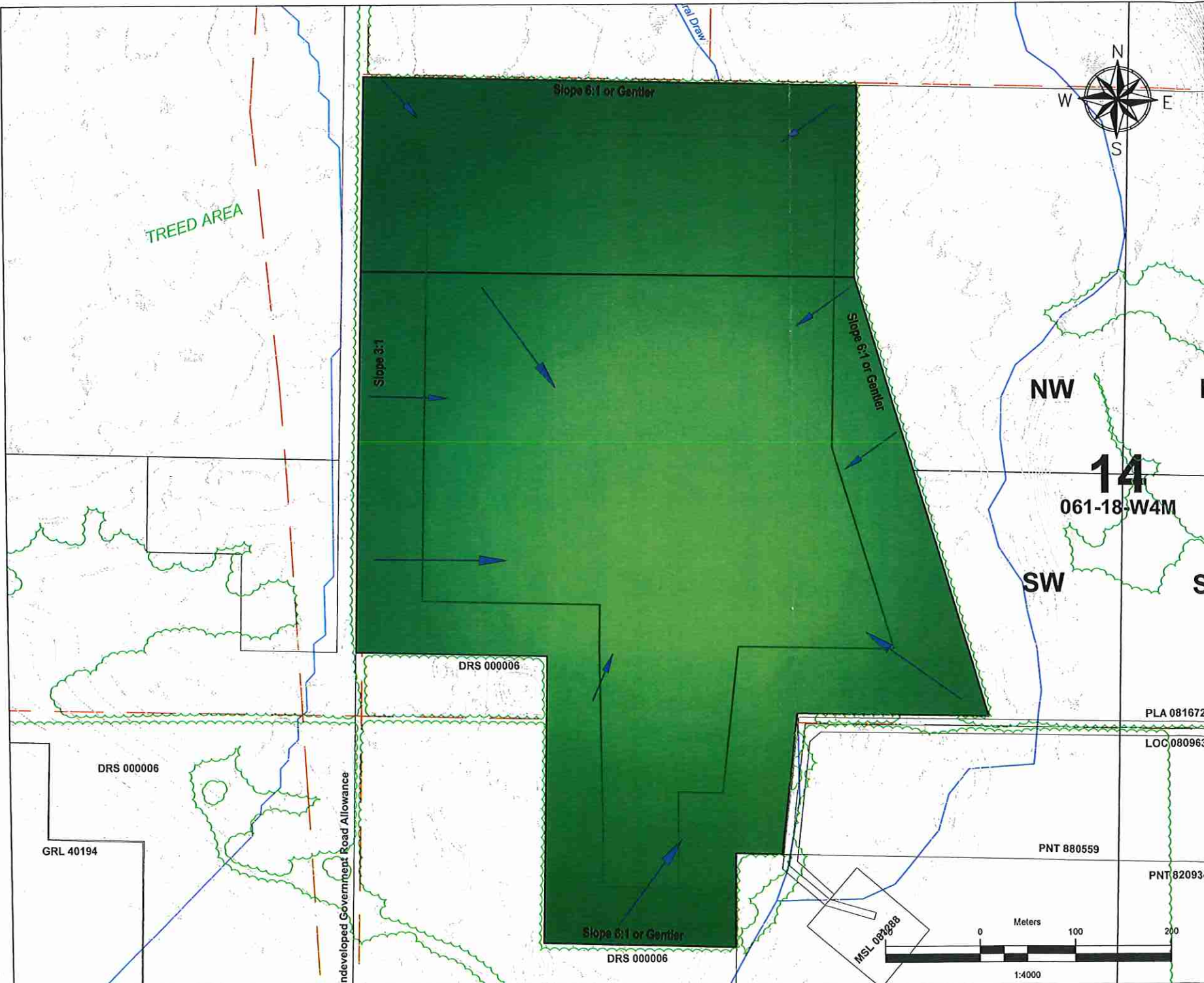
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**DWG 4**

**DRAWINGS**  
 DWG 1A: Existing Site/Planned Development (Auger Test Holes)  
 DWG 1B: Existing Site/Planned Development (Back-hoe Test Holes)  
 DWG 1C: Existing Site/Planned Development (Airphoto)  
 DWG 2: Development Sequencing  
 DWG 3A - 3C: Cross-section Profiles A-A', B-B', C-C'  
 DWG 4: Planned Reclamation

**Legend**

- SML boundary
- Quarter section boundary
- Elevation contours (1m intervals) LIDAR (Oct 2015)
- Cutlines and trails
- Dispositions
- Surface water features
- Road access
- Reclaimed site
- Treed area



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**Notice of appeal**

**91(1)** A notice of appeal may be submitted to the Board by the following persons in the following circumstances:

- (a)** where the Director issues an approval, makes an amendment, addition or deletion pursuant to an application under section 70(1)(a) or makes an amendment, addition or deletion pursuant to section 70(3)(a), a notice of appeal may be submitted
  - (i)** by the approval holder or by any person who previously submitted a statement of concern in accordance with section 73 and is directly affected by the Director's decision, in a case where notice of the application or proposed changes was provided under section 72(1) or (2), or
  - (ii)** by the approval holder or by any person who is directly affected by the Director's decision, in a case where no notice of the application or proposed changes was provided by reason of the operation of section 72(3);
- (b)** where the Director refuses
  - (i)** to issue an approval, or
  - (ii)** to make an amendment, addition or deletion in respect of an approval pursuant to an application under section 70(1)(a),

- the applicant may submit a notice of appeal;
- (c) where the Director cancels or suspends an approval under section 70(3)(b) or (4), the approval holder may submit a notice of appeal;
  - (d) where the Director cancels a certificate of qualification under section 83(1)(b), the holder of the certificate of qualification may submit a notice of appeal;
  - (e) where the Director issues an enforcement order under section 210(1)(a), (b) or (c), the person to whom the order is directed may submit a notice of appeal;
  - (f) where an inspector issues an environmental protection order regarding conservation and reclamation under section 140 or 141, the person to whom the order is directed may submit a notice of appeal;
  - (g) where the Director issues an environmental protection order under section 129,
    - (i) the person to whom the order is directed, and
    - (ii) any person who is directly affected by the designation of the contaminated sitemay submit a notice of appeal;
  - (h) where the Director issues an environmental protection order, except an environmental protection order directing the performance of emergency measures under section 114, 151 or 160 and an environmental protection order referred to in clause (g), the person to whom the order is directed may submit a notice of appeal;
  - (i) where an inspector issues a reclamation certificate under section 138, or the Director or an inspector amends a reclamation certificate under section 139, the operator and any person who receives a copy of the certificate or amendment under section 145 may submit a notice of appeal;
  - (j) where the Director or an inspector cancels a reclamation certificate, the operator may submit a notice of appeal;
  - (k) where the Director or an inspector refuses to accept an application for a reclamation certificate or an inspector refuses to issue a reclamation certificate, the operator may submit a notice of appeal;

- (l) where the Director or an inspector issues, amends or cancels a remediation certificate under section 117, any person who receives notice of the issuance, amendment or cancellation as provided for in the regulations may submit a notice of appeal;
  - (l.1) where the Director or an inspector refuses to accept an application for a remediation certificate or refuses to issue a remediation certificate under section 117, any person who receives notice of the refusal as provided for in the regulations may submit a notice of appeal;
  - (m) where the Director designates an area as a contaminated site under section 125, any person who is directly affected by the designation may submit a notice of appeal;
  - (n) where the Director requires a person to pay an administrative penalty under section 237, the person to whom the notice is directed may submit a notice of appeal;
  - (o) where the Director refuses a request for confidentiality under section 35(5)(b), the person to whom the notice is directed under section 35(6) may submit a notice of appeal;
  - (p) persons authorized under Part 9 of the *Water Act*, in accordance with Part 9 of the *Water Act*.
- (2) Notwithstanding subsection (1)(b), where the Director refuses to issue an approval pursuant to an order of the Minister under section 64, no notice of appeal may be submitted in respect of that refusal.
- (3) Where an activity prescribed in the regulations for the purposes of this subsection is the subject of an approval and is carried out in stages, and where the Director issues an approval in respect of a stage, no notice of appeal may be submitted in respect of a stage that is already covered by the approval.
- (4) A notice of appeal must be submitted to the Board
- (a) not later than 7 days after receipt of a copy of the enforcement order or the environmental protection order, in a case referred to in subsection (1)(e), (f) or (h),
  - (b) not later than one year after receipt of a copy of the reclamation certificate, in a case referred to in subsection (1)(i) relating to the issuing of a reclamation certificate, and

- (c) not later than 30 days after receipt of notice of the decision appealed from or the last provision of notice of the decision appealed from, as the case may be, in any other case.
- (5) The Board may, on application made before or after the expiry of the appeal period referred to in subsection (4), extend that period, where the Board is of the opinion that there are sufficient grounds for doing so.
- (6) A notice of appeal submitted to the Board under this Act or in accordance with the *Water Act* must contain the information and be made in the manner provided for in the regulations.
- (7) A notice of appeal initiates an appeal of the decision objected to.

RSA 2000 cE-12 s91;2002 c4 s1;2003 c37 s14;  
2003 c42 s6;2006 c15 s10