October 1, 2016 submission to AER – includes Public Lands Act Applications for the following dispositions:

- Public Lands Act Application – Revision 2
- MSL 160757 – mine development area;
- LOC 160841 – west rail loop;
- LOC 160842 – east rail loop; and
- MSL 160758 – mine access corridor.

Benga Mining Limited operating as Riversdale Resources

Benga Mining Limited
12331 - 20 Avenue
Po Box 660
Blairmore, Alberta, T0K 0E0
Phone: +1 403 753 5160
Business Number 84170 9538

October 1, 2016

Mr. Norm Van Vliet
Land Use Officer, Public Lands Act, South Region
Alberta Energy Regulator
Suite 1000, 250 – 5th Street SW
Calgary, Alberta T2P 0R4

RE: Benga Mining Ltd. – Grassy Mountain Coal Project: Public Lands Act Application

Dear Mr. Van Vliet,

Benga Mining Limited (Benga), a wholly owned subsidiary of Riversdale Resources Limited (Riversdale), is proposing to develop a 4.5 million clean tonnes per year steelmaking coal mine, referred to as the Grassy Mountain Coal Project (the Project).

On September 23, Benga applied in accordance with the Public Lands Act for a Mineral Surface Lease (MSL) for the mining area, a Licence of Occupation (LOC) for the rail loadout facilities and adjacent access road and a MSL for a portion of the overland conveyor/access road/powerline right of way.

On September 30, 2016 the Alberta Energy Regulator (AER) notified Benga that the LOC application was being rejected. Benga has amended the application based on comments from the AER, and is resubmitting the attached application for two individual LOCs. One LOC will be for a portion of the rail loop located on the west end of the loadout facilities and the other LOC will be for the rail loop and adjacent access road located on the east end of the loadout facilities. Complete disposition application packages for these two LOCs are provided in Appendix 2 and Appendix 3 of the attached document. It is Benga's understanding that the AER does not require Benga to reissue the aforementioned MSL applications.

Correspondence regarding this integrated application package should be directed to the attention of:

Steve Mallyon, Managing Director
Benga Mining Ltd.
<contact information removed>

<email address removed>

or

Cal Clark, Manager Sustainability
Benga Mining Ltd.
12331 20th Avenue, Blairmore, Alberta T0K 0E0
<contact information removed>

<email address removed>

Sincerely,
<Original signed by>

Steve Mallyon, Managing Director
Benga Mining Ltd.

RIVERSDALE
RESOURCES

Public Lands Act Application
(Revision 2)

October, 2016

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1. INTRODUCTION

Benga Mining Limited (Benga), a wholly owned subsidiary of Riversdale Resources Limited (Riversdale), is proposing to develop the Grassy Mountain Coal Project (the Project) located in southwest Alberta, approximately 150 km southwest of Calgary (Figure 1-1). The Project will involve a surface metallurgical coal mine (for steel making), a coal handling and preparation plant (CHPP) with associated infrastructure, an overland conveyor system, which will parallel an existing high grade access corridor and connect to a rail load-out facility, and a new section of rail track (Figure 1-2). An Environmental Impact Assessment (EIA) has been undertaken for the Project and applications in accordance with the *Coal Conservation Act* (CCA), *Environmental Protection and Enhancement Act* (EPEA) and *Water Act* were submitted to the Alberta Energy Regulator in August 2016. This integrated document submission is herein referred to as the EIA.

The Project is situated on both crown and freehold land; therefore, an application in accordance with the *Public Lands Act* is also required in order to obtain approval to carry out activities on crown land. The following document constitutes the application for surface disposition in accordance with the *Public Lands Act*. The following report includes the information required on the applicable *Public Lands Act* forms including:

- Application for Surface Disposition;
- Environmental Field Report (EFR) Cover Document for all Dispositions 2.0;
- EFR Sites and Installations 3.0 Completion of Supplement A;
- EFR Access 4.0 Supplement B; and
- EFR Easement 6.0 Supplement D.

Complete disposition application packages including applicable forms, sketch plans, Public Land Standing reports and consents from overlapping disposition holders are provided in Appendix 1, Appendix 2, Appendix 3 and Appendix 4.

This application has been updated based on comments provided by the Alberta Energy Regulator (AER) on September 30, 2016 in relation to the licence of occupation application that was submitted on September 23, 2016. The applications for mineral surface lease included in the attached document remain unchanged from what was submitted on September 23, 2016.

2. APPLICATION FOR SURFACE DISPOSITION

An overview of the Project development footprint is provided as Figure 1-2. Benga is currently applying for a Mineral Surface Lease (MSL) for the mining area, a Licence of Occupation (LOC) for the western portion of the rail loop, a LOC for the eastern portion of the rail loop and adjacent access road and an MSL for the portion of the access corridor (i.e. overland conveyor/access road/powerline right of way) located adjacent to the proposed construction camp (Figure 2-1). Prior to construction Benga will submit a Miscellaneous Lease (DML) application to Alberta Environment and Parks (AEP) for the construction camp (Figure 2-1).

This development footprint occurs on both Freehold and Crown Land which has a variety of land uses. The extent of surface dispositions being requested by Benga is somewhat confined by the overlapping land uses. At the request of the AER, and in accordance with the *Public Lands Act*, Benga has excluded areas from the current application where there is an overlapping disposition. Benga has consent from the holders of these overlapping dispositions and is in the process of having these dispositions either closed or transferred to Benga. Once this process is complete Benga will apply to expand the surface dispositions currently being requested.

The following section includes the information required on the "Application for Surface Disposition" form that is required to apply for a disposition under the *Public Lands Act*. Sketch plans of the proposed MSL for the mining areas, LOCs for the rail loadout and adjacent access road and MSL for the access corridor (herein referred to as the proposed surface dispositions) are included in Appendix 1, Appendix 2, Appendix 3 and Appendix 4.

2.1 Contact Information

Questions in regards to this application can be directed to:

Steve Mallyon
Managing Director
Benga Mining Limited
PO Box 660, 12331 – 20th Avenue
Blairmore, AB, Canada, T0K 0E0
Email: <email address removed>
Business: <contact information removed>

2.2 Lands Requested

The Project overlies both Crown and freehold land (Figure 2-1). In order to determine the boundaries of the dispositions to be requested, Benga has undertaken a review of the land ownership for the entire Mine Permit Boundary area that was proposed in the CCA application. A list of the freehold titles located within the proposed Mine Permit Boundary is provided in Table 2-1.

Table 2-1 Freehold Titles within the Mine Permit Boundary

Title No.	Owner	Legal Location				
		QTR	SEC	TWP	RGE	Meridian
161 002 147	Benga Mining Limited	NW	19	8	3	5
051 223 917	Donkersgoed Feeders Ltd. & Berdina Farms Ltd.	SW	19	8	3	5
161 005 571	Benga Mining Limited	NW	30	8	3	5
041 017 188	Frances M. Gilmar	SW	30	8	3	5
931 216 964	Illyas Pagonis & Margo Pagonis	SW	31	8	3	5
131 243 634 +1	Benga Mining Limited	pt. NW	2	8	4	5
081 457 306	Crowsnest Pass Golf & Country Club	pt. NW	2	8	4	5
131 235 727	Benga Mining Limited	pt. SW	2	8	4	5
021 022 477 +2	Crowsnest Pass Golf & Country Club	pt. SW	2	8	4	5
081 457 306	Crowsnest Pass Golf & Country Club	pt. SW	2	8	4	5
081 457 306	Crowsnest Pass Golf & Country Club	pt. NE	3	8	4	5
081 457 306 +1	Crowsnest Pass Golf & Country Club	pt. SE	3	8	4	5
081 457 306	Crowsnest Pass Golf & Country Club	pt. SE	3	8	4	5
131 235 727 +2	Benga Mining Limited	NW	11	8	4	5
131 235 728 +6	Benga Mining Limited	NW	11	8	4	5
131 235 727 +2	Benga Mining Limited	SW	11	8	4	5
131 235 728 +6	Benga Mining Limited	SW	11	8	4	5
131 236 676	Benga Mining Limited	NW	14	8	4	5
131 236 677	Benga Mining Limited	NW	14	8	4	5
131 236 676	Benga Mining Limited	pt. SW	14	8	4	5
131 236 677	Benga Mining Limited	pt. SW	14	8	4	5

Table 2-1 Freehold Titles within the Mine Permit Boundary

Title No.	Owner	Legal Location				
		QTR	SEC	TWP	RGE	Meridian
131 236 674	Benga Mining Limited	NE	23	8	4	5
131 236 675	Benga Mining Limited	NE	23	8	4	5
131 236 674	Benga Mining Limited	SE	23	8	4	5
131 236 675	Benga Mining Limited	SE	23	8	4	5
151 261 447	Benga Mining Limited	NE	24	8	4	5
131 235 106	Benga Mining Limited	NW	24	8	4	5
131 235 107	Benga Mining Limited	NW	24	8	4	5
971 175 776	Adele P. Comstock, Carmellia R. Saretsky, Glory-J. D. G. Ritrovato, Adele P. Stella	SE	24	8	4	5
131 235 106	Benga Mining Limited	SW	24	8	4	5
131 235 107	Benga Mining Limited	SW	24	8	4	5
131 235 209	Benga Mining Limited	pt. NE	25	8	4	5
131 235 210	Benga Mining Limited	pt. NE	25	8	4	5
131 235 211	Benga Mining Limited	NW	25	8	4	5
131 235 212	Benga Mining Limited	NW	25	8	4	5
131 235 212	Benga Mining Limited	SE	25	8	4	5
131 235 211	Benga Mining Limited	SE	25	8	4	5
131 235 211	Benga Mining Limited	SW	25	8	4	5
131 235 212	Benga Mining Limited	SW	25	8	4	5
131 235 151	Benga Mining Limited	pt. NE	36	8	4	5
131 235 150	Benga Mining Limited	pt. NE	36	8	4	5
131 235 148	Benga Mining Limited	NW	36	8	4	5
131 235 149	Benga Mining Limited	NW	36	8	4	5
131 235 152	Benga Mining Limited	pt. SE	36	8	4	5
131 235 153	Benga Mining Limited	pt. SE	36	8	4	5
131 235 148	Benga Mining Limited	SW	36	8	4	5
131 235 149	Benga Mining Limited	SW	36	8	4	5

The lands to be included within the proposed surface dispositions are outlined in Table 2-2 and shown on Figure 2-1. Some of these lands are located within areas with registered plans. The proposed LOC for the western portion of the rail loop is located in Plan 8711438 Block 1 and the LOC for the eastern portion of the rail loop and access is located in Plan 8810387 Right of Way "A". The proposed MSL for the access corridor is within Plan 8910380 Block 1

Sketch plans of the proposed disposition areas, following requirements outlined in the Government of Alberta's guidance document "Content Requirements for Disposition Sketch Plans" are provided in Appendix 1, Appendix 2, Appendix 3 and Appendix 4.

Table 2-2 Lands to be included in the proposed surface dispositions.

Qtr/LS	Section	Township	Range	Meridian
Mineral Surface Lease (Mining Area)				
pt.L05, pt.L06, pt.L09, pt.L10, NW, L15, pt.L16,	13	8	4	5
pt.L08, pt.L09, pt.L16	14	8	4	5
pt.L10, pt.L15	25	8	4	5
L01, L08, L09, pt.L10, pt.L15, L16	26	8	4	5
L01, pt.L02, pt.L07, L08, pt.L09, pt.L10, pt.L14, pt.L15, pt.L16	35	8	4	5
L02, L07, L10, L15	36	8	4	5
pt.L13, pt.L14, pt. L15	31	8	3	5
pt.L02, pt.L03, pt.L04, pt.L05, pt.L06, pt.L12, pt.L13	6	9	3	5
pt. L01, L02, L07, pt. L08, SW, pt.L09, pt.L10, pt.L11, L12, L13, pt.L14, pt.L16	1	9	4	5
SE, pt.L03, L09, L10, L15, pt. L16	2	9	4	5
pt.L01, pt.L02	11	9	4	5
pt.L03, pt.L04	12	9	4	5
Licence of Occupation (Western Rail Loop)				
pt.L09	3	8	4	5
Licence of Occupation (Eastern Rail Loop and Access)				
pt.L03, pt.L06	2	8	4	5

Table 2-2 Lands to be included in the proposed surface dispositions.

Qtr/LS	Section	Township	Range	Meridian
Miscellaneous Lease (Access Corridor)				
pt.L04	14	8	4	5

Note:

L Denotes Legal Subdivision (LS)

pt. Denotes portion of area indicated

3. PROJECT OVERVIEW

Information required for completion of the EFR Cover Document for all Dispositions 2.0 is provided in the following section.

3.1 Communications

As stated in Section 2.1, the applicant is Benga Mining Limited.

Numerous environmental assessments for the Project were initiated in 2014 and undertaken throughout 2015 and into 2016 as part of the EIA. These assessments were undertaken on behalf of Benga by a number of environmental and engineering firms. Contact details for any questions related to the environmental assessment and engineering can be directed to:

Cal Clark
Manager Sustainable Development
Riversdale Resources
12331 – 20th Avenue
P.O. Box 660
Blairmore, Alberta T0K 0E0
<email address removed>
Business: <contact information removed>

3.2 Surface Location

A summary of lands to be included in the proposed surface dispositions is provided in Table 2-2.

The mine is scheduled to begin pre-development activities in 2017 once licensing is complete, with the coal processing plant commissioning scheduled to come on-line in the third quarter of 2018. First

commercial coal production is scheduled to begin January, 2019. Construction will occur in both frozen and non-frozen ground conditions throughout the life of the Project. Final reclamation will be initiated in early 2042 with mine closure in late 2045.

3.2.1 Land Standing Review

A Public Land Standing Report was obtained, for each of the proposed surface dispositions, from the Geographic Land Information Management and Planning System on September 15, 2016 and is provided in Appendix 1, Appendix 2, Appendix 3 and Appendix 4. Land reservations within the proposed disposition boundaries are presented in Table 3-1 and shown on Figures 3-1 and 3-2.

The proposed surface disposition boundaries are not located within a provincial grazing reserve or the Chungo Access Management Area; however, it is located within a FireSmart Community Zone. Benga has developed a fire control plan based on the FireSmart Wildfire Assessment System (see Section C.7.6 of the EIA).

No Permanent/Research Sample Plots/Rangeland Benchmarks are located within 100 m of the proposed surface disposition boundary(s).

3.2.2 Stakeholders, Other Land Users

A summary of surface dispositions and associated conflicts within the surface dispositions that will be required for the Project are presented in Table 3-2 and Figure 3-3. Consents with holders of overlapping dispositions are provided in Appendix 1 (MSL Application [Mine Area]), Appendix 2 (western LOC Application), Appendix 3 (eastern LOC Application) and Appendix 4 (MSL Application [Access Corridor]).

Benga has been consulting with other land users in the area since 2013 and is working towards resolving stakeholder concerns as they arise. Key issues that have been raised through public engagement to-date, and where applicable, comments on how they have been resolved is provided in Section G.4.0 (Table 4.0-1) of the EIA.

Table 3-1 Reservations within the proposed disposition boundaries.

Reservation/ Activity Number	Conflict	Mitigation/ Action Required	Comment	Location within Proposed Surface Disposition Boundary
Mineral Surface Lease (Mining Area)				
CNT 090027	FireSmart Community Zone	Benga has prepared a fire control plan in accordance with the FireSmart Wildfire Assessment System (see Section C.7.6 of the EIA).	Disposition held by Forestry and Emergency Response Division of Environment and Sustainable Resource Development – Calgary Office	13-008-04 W5M; L08, NE 14-008-04 W5M; L01, L08, NE 26-008-04 W5M; SE, NE, L14 35-008-04 W5M; L10, L15 25-008-04 W5M; L02, L07, L10, L15 36-008-04 W5M; L13, L14, L15 31-008-03 W5M; SW, L02, L07, L12, L13 06-009-03 W5M; L09, L10, L16, SE, SW NW 01-009-04 W5M; L03, L06, L11, L14, SE, NE, 02-009-04 W5M; L01, L02, L03 11-009-04 W5M; L03, L04 12-009-04 W5M
CNT 860041	Potential Timber Disposal – to determine volumes and establish AU A.A.CC. within the McCrillivary Creek Misc. timber use area of the CS M.U.	There are no restrictions with use of this area. Main mitigation is to reclaim the area to equivalent capability as described in Section F of the EIA.	Disposition held by the Lands Division of Department of Sustainable Resource Development – Blairmore Office – Land Use Area	L09, L10, L16, SE, SW NW 01-009-04 W5M; L03, L06, LS11, LS14, SE, NE, 02-009-04 W5M; L01, L02, L03 11-009-04 W5M; L03, L04 12-009-04 W5M
CNT 980012	Snowmobile Trails – managed/maintained by Crowsnest Economic Development Board	Mitigation measures to be determine in consultation with local trail users such as the Crow Snow Riders Snowmobile Club.	Disposition held by the Lands Division of Department of Sustainable Resource Development – Blairmore Office – Land Use Area	L14 35-008-04 W5M; L02, L07, L12, L13 06-009-03 W5M; L03, L06 02-009-04 W5M; L01, L02, L03 11-009-04 W5M

Table 3-1 Reservations within the proposed disposition boundaries.

Reservation/ Activity Number	Conflict	Mitigation/ Action Required	Comment	Location within Proposed Surface Disposition Boundary
PNT 090084	Multiple Resource Concerns - This location may fall within an area of foothills fescue grassland, a very valuable native grassland type that is limited in remaining area.	Mitigation measures as described in Section 4.3.4 of CR #8 and Section E.8.5.1 of the EIA.	Disposition held by the Lands Division of Department of Sustainable Resource Development – Pincher Creek Office – Rangeland District	SW 02-008-04 W5M 13-008-04 W5M; L08, NE 14-008-04 W5M; L01, L08, NE 26-008-04 W5M
PNT 090087	Multiple Resource Concerns - This location may fall within an area of foothills fescue grassland, a very valuable native grassland type that is limited in remaining area.	Mitigation measures as described in Section 4.3.4 of CR #8 and Section E.8.5.1 of the EIA.	Disposition held by the Lands Division of Department of Sustainable Resource Development – Pincher Creek Office – Rangeland District	L02, L07, L12, L13 06-009-03 W5M; SE 35-008-04 W5M; NW, SE 01-009-04 W5M; L03, L06, L11, L14, NE, SE 02-009-04 W5M; L01, L02, L03 11-009-04 W5M; L03, L04 12-009-04 W5M
PNT 880617	Steep rolling topography. No agricultural dispositions are permitted with the exception of unimproved grazing.	In order to mitigate the concern associated with potential instability, Benga has developed mine design criteria based on the results of the geotechnical investigation and geological modelling (Section B.8.6 of the EIA). A Conservation and Reclamation Plan has been developed for the Project (Section F of the EIA), which outlines measures that will be utilized to return the land to equivalent capability.	Disposition held by the Lands Division of Department of Sustainable Resource Development – Pincher Creek Office – Rangeland District	L01, L08, NE 26-008-04 W5M

Table 3-1 Reservations within the proposed disposition boundaries.

Reservation/ Activity Number	Conflict	Mitigation/ Action Required	Comment	Location within Proposed Surface Disposition Boundary
PNT 880618	Steep rolling topography. No agricultural dispositions are permitted.	In order to mitigate the concern associated with potential instability, Benga has developed mine design criteria based on the results of the geotechnical investigation and geological modelling (Section B.8.6 of the EIA).	Disposition held by the Lands Division of Department of Sustainable Resource Development – Pincher Creek Office – Rangeland District	L10, L15 25-008-04 W5M; L02, L07, L10, L15-36-008-04 W5M
PNT 880619	Steep rolling topography. No agricultural dispositions are permitted with the exception of unimproved grazing.	A Conservation and Reclamation Plan has been developed for the Project (Section F of the EIA), which outlines measures that will be utilized to return the land to equivalent capability.	Disposition held by the Lands Division of Department of Sustainable Resource Development – Pincher Creek Office – Rangeland District	L08, L09, L16-14-008-04 W5M
PNT 930299	Grazing allotment area, no agricultural dispositions, grazing permits only. Gap Range Allotment.	Consultation has been undertaken with the grazing lease holders in the area (Section G of the EIA). A Conservation and Reclamation Plan has been developed for the Project (Section F of the EIA), which outlines measures that will be utilized to return the land to equivalent capability.	Disposition held by the Department of Sustainable Resource Development – Rocky Mountain Forest Reserve South Office – Rangeland District	L09, L10, L16, NW 01-009-04 W5M; L01, L02 11-009-04 W5M; L03, L04 12-009-04 W5M

Table 3-1 Reservations within the proposed disposition boundaries.

Reservation/ Activity Number	Conflict	Mitigation/ Action Required	Comment	Location within Proposed Surface Disposition Boundary
PNT 940130	Grazing allotment area, no agricultural dispositions, grazing permits only. Blairmore Gold Range Allotment.	Consultation has been undertaken with the grazing lease holders in the area (Section G of the EIA). A Conservation and Reclamation Plan has been developed for the Project (Section F of the EIA), which outlines measures that will be utilized to return the land to equivalent capability.	Disposition held by the Department of Sustainable Resource Development – Rocky Mountain Forest Reserve South Office – Rangeland District	L02, L07, L12, L13, SW 06-009-03 W5M; L14, NE, SE 35-008-04 W5M; L09, L10, L16, NW, SW, SW 01-009-04 W5M; L03, L06, LS11, L14, SE, NE 02-009-04 W5M
PNT 960092	Steep rolling topography. No agricultural dispositions are permitted with the exception of "Grazing Haying" - These lands best suited for grazing due to steep slopes ranging from 15% to >30%. Prime waterhsed protection along gold creek and fish habitat; potentially valuable for ungulate habitat and potential for reforestation under a multiple use plan.	In order to mitigate the concern associated with potential instability, Benga has developed mine design criteria based on the results of the geotechnical investigation and geological modelling (Section B.8.6 of the EIA). A Conservation and Reclamation Plan has been developed for the Project (Section F of the EIA), which outlines measures that will be utilized to return the land to equivalent capability.	Disposition held by the Department of Sustainable Resource Development – Pincher Creek Office – Rangeland District	L13, L14, L15 31-008-03 W5M

Table 3-1 Reservations within the proposed disposition boundaries.

Reservation/ Activity Number	Conflict	Mitigation/ Action Required	Comment	Location within Proposed Surface Disposition Boundary
Mineral Surface Lease (Access Corridor)				
PNT 900430*	Waste Disposal/Reclamation Site	Construction and Reclamation processes as discussed in Section 6.4 and 6.5 in order to return the land to equivalent capability. Utilization of waste storage (see Section 6.3) and spill response procedures (see Section C.7.6 of the EIA) that will reduce potential for contamination to enter the adjacent drainage.	Disposition held by the Department of Environment and Water	L03, L04, L15 14-008-04 W5M
Licence of Occupation (Western Rail Loop)				
CNT 090027	FireSmart Community Zone	Benga has prepared a Development of a fire control plan in accordance with the FireSmart Wildfire Assessment System (Section C.7.6).	Disposition held by the Forestry and Emergency Response Division of Environment and Sustainable Resource Development – Calgary Office	L03 02-008-04 W5M; L09, L10 03-008-04 W5M
PNT 090084	Multiple Resource Concerns - This location may fall within an area of foothills fescue grassland, a very valuable native grassland type that is limited in remaining area.	Mitigation measures as described in Section 4.3.4 of CR #8 and Section E.8.5.1 of the EIA.	Disposition held by the Lands Division of Department of Sustainable Resource Development – Pincher Creek Office – Rangeland District	SW 02-008-04 W5M NE 13-008-04 W5M NW 13-008-04 W5M NE 14-008-04 W5M SE 14-008-04 W5M NE 26-008-04 W5M SE 26-008-04 W5M
Licence of Occupation (Eastern Rail Loop & Access)				
CNT 090027	FireSmart Community Zone	Benga has prepared a Development of a fire control plan in accordance with the FireSmart Wildfire	Disposition held by the Forestry and Emergency Response Division of	L03 02-008-04 W5M; L09, L10 03-008-04 W5M

Table 3-1 Reservations within the proposed disposition boundaries.

Reservation/ Activity Number	Conflict	Mitigation/ Action Required	Comment	Location within Proposed Surface Disposition Boundary
		Assessment System (Section C.7.6).	Environment and Sustainable Resource Development – Calgary Office	
PNT 090084	Multiple Resource Concerns - This location may fall within an area of foothills fescue grassland, a very valuable native grassland type that is limited in remaining area.	Mitigation measures as described in Section 4.3.4 of CR #8 and Section E.8.5.1 of the EIA.	Disposition held by the Lands Division of Department of Sustainable Resource Development – Pincher Creek Office – Rangeland District	SW 02-008-04 W5M NE 13-008-04 W5M NW 13-008-04 W5M NE 14-008-04 W5M SE 14-008-04 W5M NE 26-008-04 W5M SE 26-008-04 W5M
PNT900426*	Registered Historic Resource – Greenhill Mine Complex	A Historical Resource Impact Assessment has been undertaken (see Section E.13 of the EIA and Section 5.8 of CR #10).	Not listed in LSAS report.	pt.L03, pt.L06 02-008-04 W5M

Note:

* Not included in LSAS Report but shown on AEP's Disposition Spatial Processing Tool.

Table 3-2 Dispositions within the boundaries of the dispositions proposed by Benga.

Disposition	Disposition Holder	Purpose	Location within Proposed Disposition Boundary	Status of Consent
Mineral Surface Lease (Mining Area)				
CTPC 050124	Egbert Veldman	Coniferous Timber Permit	NW-01-009-04 W5M; L09, L16-02-009-04 W5M; L01-11-009-04 W5M; L04-12-009-04 W5M	Consent letter in accordance with AER Bulletin 2015-02 is included in Appendix 1.
DLO140170	1653488 Alberta Inc.	Water Intake	NE 13-008-04 W5M	Not required at this time, as disposition is under application has not been approved. Area currently excluded from the boundary of the proposed disposition.
EZE830147	Altalink Management Ltd.	Powerline	L13-13-008-04 W5M; L15, L16-14-008-04 W5M	Area currently excluded from the boundary of the proposed disposition until overlap can be resolved. A consent letter in accordance with AER Bulletin 2015-02 is included in Appendix 1.
GRL 36801	Don Driver	Grazing Lease	NE-31-008-03 W5M	Consent letter in accordance with AER Bulletin 2015-02 is included in Appendix 1.
GRL960066	Don Driver	Grazing Lease	NW-31-008-03 W5M	Disposition listed as expiring in 2016/06/14. Consent letter in accordance with AER Bulletin 2015-02 is included in Appendix 1.

Table 3-2 Dispositions within the boundaries of the dispositions proposed by Benga.

GRP870052	Gold Creek Grazing Co-Op Ltd.	Grazing Permit	L08, L09, L16-14-008-04 W5M; L01, L08, L09, L15, L16-26-008-04 W5M	Consent letter in accordance with AER Bulletin 2015-02 is included in Appendix 1.
LOC141938	Benga Mining Ltd.	Access Road	L10, L15-25-008-04 W5M; L02, L10-36-008-04 W5M	None Required – Benga disposition.
MLL 1948	Devon Canada Corporation	Other Industrial	LSD 02, 07, 10, 15-14-008-04 W5M	Area currently excluded from the boundary of the proposed disposition until overlap can be resolved. Consent letter in accordance with AER Bulletin 2015-02 is included in Appendix 1.
MSL043285	Devon Canada Corporation	Wellsite	L01, LS02-11-009-04 W5M	
MSL801502	Devon Canada Corporation	Wellsite And Access Road	L13-01-009-04 W5M; L16-02-009-04 W5M; L01, L02-11-009-04 W5M; L04-12-009-04 W5M	
PLA052764	Devon Canada Corporation	Pipeline	L02-11-009-04 W5M	Consent letter in accordance with AER Bulletin 2015-02 is included in Appendix 1.
PLA800692	Lonlife Resources Ltd.; Norco Resources Limited; Canadian Natural Resources Limited; Opinac Exploration Limited	Pipeline	L13-01-009-04 W5M; L16-02-009-04 W5M; L01, L02-11-009-04 W5M; L04-12-009-04 W5M	Devon has confirmed that they are the holder of this PLA (it was purchased from CNRL). Consent letter in accordance with AER Bulletin 2015-02 is included in Appendix 1.
ROE156**	Devon Canada Corporation	Coal Mining	L10-25-008-04 W5M	Area currently excluded from the boundary of the proposed disposition until overlap can be resolved. Dispositions administered by Surface Rights Board, who will not transfer disposition to Benga
ROE324**	Devon Canada Corporation	Coal Mining	N½LS05, S½L12-06-009-03 W5M	
ROE1169**	Devon Canada Corporation	Coal Mining	L04, L05-06-009-03 W5M; LS01, L08-01-009-04 W5M	
ROE8751**	Devon Canada Corporation	Coal Mining	L15-25-008-04 W5M; L02, L07, L10-36-008-04 W5M	

Table 3-2 Dispositions within the boundaries of the dispositions proposed by Benga.

				until the Project receives EPEA and CCA approval.
TFA 154961	Benga Mining Ltd.	AER Access Temporary – Industrial	NW 31-008-03 W5M; NW 06-009-03 W5M; SE 01-009-04 W5M	None Required – Benga disposition.
TFA 155858	Benga Mining Ltd.	AER Access Temporary – Industrial	N 13-008-04 W5M; W 13-008-04 W5M; SE 14-008-04 W5M	None Required – Benga disposition.
TFA 162596	Benga Mining Ltd.	AER Access Temporary – Industrial		None Required – Benga disposition.
TFA 162911	Benga Mining Ltd.	AER Access Temporary – Industrial	N-13-008-04 W5M	None Required – Benga disposition.
TPA 1677	Terry D. Michalsky	Trapping Agreement	L14, NE, SE 35-008-04 W5M L03, L06, L11, L14, NE, SE-02-009-04-W5M; L03-11-009-04-W5M; SE, SW, NW, L16, L09, L10, 01-009-04-W5M; SW, L02, L07, L12, L13-06-009-03 W5M; pt.LS3, pt. L04-12-9009-04 W5M	Benga has notified the holder of the trapline. No formal consent required under the *Public Lands Act*.
TPA 2426	Jerry D. Newman	Trapping Agreement	pt.L01, pt.L2-11-09-04 W5M; pt.L03, pt.L04-12-09-04 W5M	Benga has notified the holder of the trapline. No formal consent required under the *Public Lands Act*.
Mineral Surface Lease (Access Corridor)				
No surface dispositions are present within the proposed MLL area.				
Licence of Occupation (Western Rail Loop)				
REC910007*	Crowsnest Pass Golf & Country Club	Non-Commercial Recreational Development	pt. LS09-03-008-04 W5M	Area currently excluded from the boundary of the proposed disposition until overlap can be resolved. Consent will be obtained prior to

Table 3-2 Dispositions within the boundaries of the dispositions proposed by Benga.

				development of the project in accordance with AER Bulletin 2015-02. Benga has consulted with the Golf & Country Club, there are no outstanding issues related to this REC.
DRS850045	Blairmore Office, Lands Division Department of Sustainable Resource Development	Blairmore Ranger Station; disposition listed as expiring in 2015/08/07	pt. LS10-03-008-04 W5M	Area currently excluded from the boundary of the proposed disposition until overlap can be resolved. Benga has consulted with the local lands office and it was agreed that the access to the helicopter pad within the DRS would be rerouted as shown in CR #10, Figure 5.1-2.
Licence of Occupation (Eastern Rail Loop & Access)				
PLA000472	Atco Gas And Pipelines Ltd. (South)	Pipeline	pt. LS03, pt. LS06-02-008-04 W5M	Area currently excluded from the boundary of the proposed disposition until overlap can be resolved. Consent letter in accordance with AER Bulletin 2015-02 is included in Appendix 3.

Notes:
* Not included in LSAS Report but shown on AEP's Disposition Spatial Processing Tool.
** Administered by the Surface Rights Board

3.2.3 Stakeholder Concerns

Benga has been undertaking an extensive public engagement and Aboriginal Consultation program for the Project, which was initiated in 2013 and is still ongoing as part of the regulatory process. The public engagement and Aboriginal Consultation programs are described in Section G and H of the EIA, respectively.

Benga has held three Public Forums and three Open Houses in the Crowsnest Pass to inform the public about the Project. Numerous meetings have also been held with the regional municipalities, local stakeholders, local residents and land owners, special interest groups, provincial and federal government agencies, senior cabinet ministers and specific individuals with concerns.

In addition to the Public Forums and Open House sessions, Benga has attended a local Trade Show in Blairmore and held numerous meetings with the municipalities in the region, particularly the specialized Municipality of Crowsnest Pass and the Municipal District of Ranchland.

Benga is working towards identifying and addressing stakeholder concerns as they are identified. Key issues that have been raised through public engagement to-date, and where applicable, comments on how they have been resolved is provided in Section G.4.0 (Table 4.0-1) of the EIA.

3.2.4 Integrated Planning

The Project is located in an area with significant historic mining activity. The proposed MSL boundary is located with consideration for the location of the coal resource and design requirements. Opportunities for use of existing clearings for the ancillary activities such as the rail loop, conveyor and construction camp were evaluated and facilities sited accordingly. The final location of the rail loop was determined based on discussions with various stakeholders. Additional information on the different alternatives evaluated for the Project is provided in Section A.7 of the EIA.

3.2.5 Aesthetic Concerns

As stated in Section G.4.0 (Table G.4.0-1) of the EIA, some concerns have been raised regarding the visual impact of the Project. A majority of the concerns raised focussed on the visual impacts of the proposed rail load-out facility.

Benga presented two viable locations at which to site the load-out facilities to the community for consideration and discussion. These options, referred to as “the golf course option” and “the valley bottom option” (see Section A.7.3 of the EIA). The community indicated a strong preference for the costlier “golf course option” and accordingly, Benga eliminated the valley bottom option from further consideration. In designing the golf course load-out facility, Benga incorporated input from the community in an effort to mitigate potential visual impacts. Members of the community frequently

voiced concerns that the load-out facility would be too visible from Highway 3. Accordingly, Benga redesigned the location of the load-out infrastructure to the back side of the rail loop, thereby moving the infrastructure further away from Highway 3. The site preparation (*i.e.*, grading) necessary to install load-out infrastructure in the proposed location will position the base of the load-out lower than the level of the highway, thereby reducing the relative height of the structure from Highway 3. To further obscure the view of the infrastructure from the highway and community, Benga will construct berms and plant vegetation around the perimeter of the railway. Benga will continue to engage in discussions with the community to address ideas for landscaping and other measures that would diminish concerns related to the visual impact of the load out infrastructure from the community's perspective.

In addition, a visual assessment of lighting around the rail load-out was undertaken and is provided in Section 5.16 of CR#1 (Air Quality) of the EIA. Several options for mitigation were identified and with the implementation of these mitigation measures it was determined that the visibility of operations will be low and the overall impact will be insignificant.

Visual impacts on what the mountain will look like post mining has been raised by the Piikani Nation. Benga has developed a Conservation & Reclamation Plan for the Project (see Section F of the EIA). The reclaimed lands will feature regionally compatible landforms and vegetation patterns that are ecologically functional and successional. The goal of the reclamation plan is to develop lands that are maintenance-free and self-sustaining. The landscape will evolve through seral states of initial revegetation to self-sustaining ecosystems, consisting of mature vegetation communities typical of the Subalpine or Montane Sub Regions of the Rocky Mountain Natural Region (Natural Regions Committee 2006). Although new landscapes will be created during development and reclamation of the Project, they will be integrated with the surrounding undisturbed lands.

3.2.6 Land and Resource Use Planning

Management plans and policies applicable to the area were discussed in Section 4.2 and 5.3 of the Land Use Report (CR#10) of the EIA. The plans and policies applicable to the area include:

- Coal Development Policy (Alberta Energy 2015);
- Livingstone- Porcupine Hills Sub-Integrated Resource Plan (Alberta Forestry, Lands and Wildlife, 1987);
- Crowsnest Corridor Local Integrated Resource Plan (Alberta Forestry, Lands & Wildlife, 1991);
- South Saskatchewan Regional Plan (Alberta Government 2014); and
- South Saskatchewan River Basin Plan (Alberta Environment 2006).

The intent of these policies and planning initiatives are to help inform land use decisions. Through a review of regional policies and initiatives environmental issues and concerns have been identified and appropriate mitigation measures included in the design, construction, operation and reclamation plans for the Project. Therefore, development of the Project does not conflict with the intent of these policies and initiatives.

3.2.7 First Nations Consultation

A summary of Aboriginal Group consultation activities undertaken is provided in Section H.1.1 of the EIA.

Benga has been consulting with Aboriginal Groups potentially affected by the Project and those less affected who may have views on the Project. Groups included in the consultation program were identified by the Alberta Aboriginal Consultation Office (ACO) and the Canadian Environmental Assessment Agency. The ACO did not issue a First Nations Consultation Number for the Grassy Mountain Coal Project as the project was initiated prior to the ACO issuing consultation numbers for EPEA applications.

Aboriginal groups identified as potentially affected by the Project are:

- Blood Tribe (Kainai Nation);
- Piikani Nation;
- Siksika Nation;
- Stoney Nakoda Nation:
  - Bearspaw;
  - Chiniki; and
  - Wesley.
- Tsuut'ina Nation.

Aboriginal groups that are expected to be less affected by the Project include:

- Ktunaxa Nation:
  - St. Mary's Indian Band;
  - Lower Kootenay Indian Band;
  - Tobacco Plains Indian Band; and
  - Akisq'nuk First Nation.
- Samson Cree Nation;

- Shuswap Indian Band;
- Foothills Ojibway First Nation;
- Métis Nation of Alberta; and
- Métis Nation of British Columbia.

3.3 Wildlife/Environmental Concerns

3.3.1 Key/Critical Wildlife Zones

The northern most portion of the proposed MSL for the mining area is located in a Grizzly Bear Zone and the southern portion is located within a Mountain Goat and Sheep Range (Figure 3-4). Both of the proposed LOC areas are located in a Key Wildlife and Biodiversity Zone and Mountain Goat and Sheep Range, and the proposed MSL for the access corridor is located in a Mountain Goat and Sheep Range (Figure 3-4).

An assessment of the potential impacts to grizzly bears has been undertaken (Section 5.3.8 of CR #9 and Section E.9.3.7 of the EIA). It was predicted that with progressive reclamation as outlined in Section F of the EIA, the impacts on grizzly bears would be insignificant.

An assessment of the potential impacts to mountain goats has been undertaken (Section 5.4.6 of CR #9 and Section E.9 of the EIA). During the field assessments it was determined that there is no quality mountain goat habitat within the study area and no mountain goats were detected during the surveys conducted in 2014 or 2015.

An assessment of the potential impacts to bighorn sheep was also undertaken (Section 5.4.7 of CR #9 and Section E.9 of the EIA). Bighorn sheep were not identified during any of the wildlife surveys undertaken for the Project but are known to occur along Highway 3. Bighorn sheep may move through the mine permit boundary while travelling between winter and summer ranges, and therefore movement could be altered by the development of the overland conveyor. The conveyor has been designed to include wildlife crossings, which will mitigate the impact to wildlife movement (see Section 7.1.4 of CR #10 and Section E.9.5.1 of the EIA).

The Key Wildlife and Biodiversity Zones are a combination of key winter ungulate habitat and high potential for biodiversity (ESRD 2015). Key strategies for protection of these zones have been identified by ESRD 2015 and include minimizing vegetation clearing, minimizing activity in the winter, not creating new access and adhering to timing restrictions. Both portion s of the proposed LOCs are located adjacent to areas of existing developments (*e.g.* golf course, Highway 3, the community of Blairmore), where only a minimal amount of new clearing will be required for development of the LOCs.

3.3.2 Timing Constraints

The proposed mining area MSL is located between Blairmore Creek and Gold Creek. Gold and Blairmore creeks are both classified as Class B watercourses under the Alberta *Water Act* Code of Practice for Watercourse Crossings. As all of their associated tributaries within the proposed MSL area are less than 2 km from their associated creeks they are also considered Class B watercourses. The timing constraints for Gold Creek and associated tributaries are May 1 to August 15 and September 16 to April 5. The timing constraint for Blairmore Creek and its associated tributaries is May 1 to August 15. Neither of the mainstems of Blairmore Creek or Gold Creek will be directly impacted by development of the Project; however, mine pit and waste rock disposal area development will encroach upon some tributaries of both watercourses (Figure 1-2). Assessments on the potential impacts of this development, on aquatic resources, were included in the following sections of the EIA:

- CR #4 and E.4 discuss potential impacts on hydrology;
- CR #5 and E.5 discuss potential impacts on water quality; and
- CR #6 and E.6 discuss potential impacts on fish and fish habitat.

There are no aquatic resource timing restrictions associated with the proposed access corridor MSL. Figure 2-1 indicates that the access corridor encroaches upon an existing tributary to Blairmore Creek. The portion of tributary associated with this location has been substantially altered due to historical mining activities (*i.e.*, this area was once a drainage valley; however, was filled with legacy waste rock, with the surface reclaimed with vegetation). Currently, Alberta Environment and Parks holds a Protective Notation (PNT) for this drainage management system (PNT 900430 listed in Table 3-1). The LSAS report does not identify any restrictions associated with this PNT.

Wildlife timing constraints are discussed in CR #9 and Section E.9.5.1 and E.9.5.2 of the EIA. To avoid disrupting nesting migratory and resident songbirds and raptors, in accordance with Alberta's *Wildlife Act* and Canada's *Migratory Birds Convention Act* (Regulation 12:1) and the *Species at Risk Act*, Benga will schedule vegetation clearing activities outside the April 15 to August 31 period. In the event that vegetation clearing must occur within the restricted activity period, pre-disturbance nesting surveys will be conducted by experienced avian biologists according to established sensitive species inventory guidelines (Government of Alberta 2013a). Any active nest sites encountered will be buffered with the recommended setback distances based on specific species requirements (Government of Alberta 2013b, Environment Canada 2015).

3.3.3 Species at Risk (Plants/Animals)

As part of the EIA undertaken for the Project, several wildlife and vegetation species that are at risk were identified to occur within the Project Area. The assessment on impact to these species at risk is provided in the EIA as follows:

- Wildlife – Sections 5.3 and 5.4 of CR#9 and Section E.9.3.6; and
- Vegetation – Section 4.2 and 4.3 of CR #8 and Section E.8.3.2.

The wildlife species at risk that were either recorded during field surveys undertaken for the EIA or reported in FWMIS within the boundary of the proposed mining area MSL, and for which there is moderately to highly suitable habitat in the proposed MSL boundary, are outlined in Table 3-4. Incidental flyovers of birds (*e.g.*, golden eagles) are not included, unless accompanied by a sign of habitat usage (*e.g.*, breeding calls, confirmed nest). Measures to mitigate impact to these species are provided in Section 7.1.1 of CR #9 and Section E.9.5.1 of the EIA.

Table 3-4 Species at Risk that may occur in the proposed mining area MSL boundary.

Common Name	Provincial Status[1]	Federal Status[2]	Key Habitat Requirements
Amphibians and Reptiles			
Columbia spotted frog	Sensitive	Not At Risk	Permanent water bodies in mixed coniferous/ subalpine forests; 995 - >2,150 m in elevation.
Long-toed Salamander	Sensitive	Not At Risk	Under rocks, rotting logs, debris; near ponds, lakes, streams.
Western toad	Sensitive	Special Concern	Ponds, streams, rivers, lakes; overwinter in sandy upland forest.
Birds			
Bald eagle	Sensitive	Not At Risk	Forages in lakes and rivers with treed shorelines. Nests in mature trees along the edges of forests.
Barred owl	Sensitive	-	Mature and old mixedwood forests, with large trees containing large cavities for nesting.
Common nighthawk	Sensitive	Threatened – SARA Schedule 1	Cutblocks, forest clearings, prairies, rock outcrops. Nests near logs, boulders, and shrubs.
Olive-sided flycatcher	May Be At Risk	Threatened – SARA Schedule 1	Semi-open coniferous/mixedwood forests along edges/openings, near water with tall trees/snags.

Table 3-4 Species at Risk that may occur in the proposed mining area MSL boundary.

Common Name	Provincial Status[1]	Federal Status[2]	Key Habitat Requirements
Sora	Sensitive	-	Shallow and moderately deep water (marshes, ponds) with emergent vegetation.
Western wood pewee	Sensitive	-	Mature deciduous and mixed forests, forest edges, and riparian zones. Absent from dense forest.
Mammals			
American badger	Sensitive	-	Open spaces, grasslands, prairies, treeless slopes, riparian meadows.
Little brown myotis	Secure	Endangered – SARA Schedule 1	Roosts under loose bark on trees, tree cavities, buildings, bridges, caves. Forages near water.
Hoary bat	Sensitive	-	Open grassy areas in coniferous and deciduous forests. Forages near farmlands. Roosts in trees.
Bobcat	Sensitive	-	Coniferous/deciduous forests, brushy areas in coulees. Dens in rocky crevices, hollow logs.
Canada lynx	Sensitive	Not At Risk	Coniferous forest with downed woody debris and dense understory.
Wolverine	May Be At Risk	Special Concern	Large areas of remote wilderness in the foothills and mountains. Avoids human development.
Grizzly bear	Threatened	Special Concern	Open slopes, alpine meadows, cutblocks, burns, riparian areas, mature forest, and disturbed sites.

1 Alberta Wild Species General Status Listing (AEP 2010c)

2 COSEWIC/SARA status. Species with SARA status are indicated with SARA Schedule 1.

The wildlife species at risk that were either recorded during field surveys undertaken for the EIA or reported in FWMIS within a 1-km buffer around the centre of the proposed access corridor MSL, and for which there is moderately to highly suitable habitat in the proposed MSL boundary, are outlined in Table 3-5. As with the mining area MSL, incidental flyovers of birds (*e.g.*, golden eagles) are not included, unless accompanied by a sign of habitat usage (*e.g.*, breeding calls, confirmed nest).

The proposed access corridor MSL is located within a landscape characterized by open mixedwood, closed mixedwood, and closed spruce. However, the disposition itself is predominantly open grassland, with anthropogenic disturbance and a very small amount of riparian habitat and forest edge. The species indicated in Table 3-5 are based on the habitat within the disposition. Measures to

mitigate impact to these species are provided in Section 7.1.1 of CR #9 and Section E.9.5.1 of the EIA.

Table 3-5 Species at Risk that may occur within the proposed access corridor MSL boundary.

Common Name	Provincial Status[1]	Federal Status[2]	Key Habitat Requirements
Amphibians and Reptiles			
Long-toed Salamander	Sensitive	Not At Risk	Under rocks, rotting logs, debris; near ponds, lakes, streams.
Western toad	Sensitive	Special Concern	Ponds, streams, rivers, lakes; overwinter in sandy upland forest.
Birds			
Common nighthawk	Sensitive	Threatened – SARA Schedule 1	Cutblocks, forest clearings, prairies, rock outcrops. Nests near logs, boulders, and shrubs.
Western wood pewee	Sensitive	-	Mature deciduous and mixed forests, forest edges, and riparian zones. Absent from dense forest.
Mammals			
Hoary bat	Sensitive	-	Open grassy areas in coniferous and deciduous forests. Forages near farmlands. Roosts in trees.
Grizzly bear	Threatened	Special Concern	Open slopes, alpine meadows, cutblocks, burns, riparian areas, mature forest, and disturbed sites.

1 Alberta Wild Species General Status Listing (AEP 2010c)

2 COSEWIC/SARA status. Species with SARA status are indicated with SARA Schedule 1.

The proposed LOC boundaries are located near the golf course and adjacent to Highway 3. The habitat within both LOC boundaries includes open mixedwood, pine, and deciduous forest along with cleared areas. The species indicated in Table 3-6 are based on the habitat within the LOC boundary. Measures to mitigate impact to these species are provided in Section 7.1.1 of CR #9 and Section E.9.5.1 of the EIA.

Table 3-6 Species at Risk that may occur within the proposed LOC boundaries.

Common Name	Provincial Status[1]	Federal Status[2]	Key Habitat Requirements
Birds			
Common nighthawk	Sensitive	Threatened – SARA Schedule 1	Cutblocks, forest clearings, prairies, rock outcrops. Nests near logs, boulders, and shrubs.
Mammals			
Little brown myotis	Secure	Endangered – SARA Schedule 1	Roosts under loose bark on trees, tree cavities, buildings, bridges, caves. Forages near water.

1 Alberta Wild Species General Status Listing (AEP 2010c)

2 COSEWIC/SARA status. Species with SARA status are indicated with SARA Schedule 1.

Twenty-two vegetation species identified within the boundaries of the proposed surface dispositions at the time of the field assessment were on the Alberta Rare Plant Tracking and Watch Lists (ACIMS 2014) (Table 3-7). Two species identified are federally listed by COSEWIC and SARA: *Pinus albicaulis* (whitebark pine) and *Pinus flexilis* (limber pine). Whitebark pine is listed as Endangered in Alberta and British Columbia under SARA Schedule 1. Limber pine was designated as Endangered throughout its range in Alberta and British Columbia by COSEWIC in November 2014. Measures to mitigate impact to these species are provided in the EIA in Section 4.2.6 and 5.2 of CR #8 and Section E.8.5.1.

In addition, portions of the proposed dispositions are located within an area covered by protective notations due to the potential presence of foothills fescue grassland (Table 3-1). Measures that will be utilized to mitigate impact to these grasslands are provided in the EIA in Section 4.3.4 of CR #8 and Section E.8.5.1.

Table 3-7 Rare Plants Occurrences in the proposed surface disposition boundary.

Scientific Name	Common Name	Rank or Conservation Status				
		GRANK[1]	SRANK[1]	Tracked[2]	COSEWIC / SARA[3]	Provincial[4]
Vascular plants						
Angelica dawsonii	Yellow angelica	G4	S3	W	-	Sensitive
Carex petasata	Pasture sedge	G5	S1S2	Y	-	May be at risk
Eriogonum cernuum	Nodding umbrella-plant	G5	S2	Y	-	May be at risk
Eucephalus engelmannii	Elegant aster	G4G5	S3S4	W	-	May be at risk
Phacelia hastata	Silver-leaved scorpionweed	G5	S3	W	-	Sensitive
Pinus albicaulis	Whitebark pine	G3G4	S2	Y	Endangered	At risk (Endangered)
Pinus flexilis	Limber pine	G4	S2	Y	Endangered	At risk (Endangered)
Piperia unalascensis	Alaska bog orchid	G5	S2?	Y	-	Sensitive
Mosses and liverworts						
Conocephalum salebrosum	Liverwort	G5	S2	Y	-	May be at risk
Dicranum tauricum	Broken-leaf moss	G4	S1S2	Y	-	Sensitive
Lophozia ascendens	Liverwort	G4	S1	Y	-	May be at risk
Lophozia longidens	Liverwort	G5	S1	Y	-	May be at risk
Lophozia wenzelii	Liverwort	G4G5	S1	Y	-	May be at risk
Pellia neesiana	Liverwort	G5	S2	Y	-	-
Racomitrium aciculare	Moss	G5	S1	Y	-	Sensitive
Schistidium tenerum	Thread bloom moss	G5?	S2	Y	-	Sensitive
Lichens						
Cladonia umbricola	Shaded cladonia	G3G5	S1	Y	-	May be at risk
Nodobryoria abbreviata	Tufted foxtail lichen	G4?	S1	Y	-	May be at risk
Peltigera cinnamomea	Cinnamon dog pelt lichen	GNR	S2	Y	-	May be at risk

Table 3-7 Rare Plants Occurrences in the proposed surface disposition boundary.

Scientific Name	Common Name	Rank or Conservation Status				
		GRANK[1]	SRANK[1]	Tracked[2]	COSEWIC / SARA[3]	Provincial[4]
Umbilicaria americana	American rock tripe lichen	G5?	S2S3	Y	-	May be at risk
Vulpicida canadensis	Brown-eyed sunshine lichen	G3G5	S2	Y	-	Sensitive
Xylographa parallela	Black woodscript lichen	G5	S2S4	Y	-	May be at risk

[1] GRANK refers to global conservation rank and SRANK refers to subnational conservation rank). See EIA CR #8, Section 1.6.3 for definitions of rankings.

[2] Y – species is tracked, W – species is watched (ACIMS 2014).

[3] COSEWIC (2014), SARA (2014).

[4] General Status of Alberta Wild Species database (Government of Alberta 2010). (Endangered) refers to Endangered under Alberta's *Wildlife Act* (Government of Alberta 2014).

3.4 Historical Resources

A Historical Resources Impact Assessment (HRIA) was undertaken and submitted to Alberta Culture. The HRIA is currently under review and Alberta Culture has indicated that clearance for the Project will not be granted until the EPEA and CCA approvals have been issued. Further discussion on historical resources can be found in Section E.13 of the EIA.

3.5 Vegetation and Timber Cover

Vegetation within the mining area MSL boundary includes forest (deciduous dominant, coniferous dominant and mixedwoood) treed wetlands, cutblocks and grassy meadows. The proposed mining area MSL area is within Forest Management Unit (FMU) C5and C02. No Forestry Management Agreement (FMA) holders are located within these FMU's. Timber salvage is expected to commence in 2018 and continue through the life of the project as mining operations expand. Approximately 1,316 m^2 of coniferous timber and 114,550 m^2 of deciduous timber is present within the MSL boundary.

The proposed access corridor MSL is located in FMU CO2 in a previously developed area and only a small number of trees will need to be cleared during construction (Figure 6-1).

The proposed LOCs are located in FMU CO1 and CO2 in an area adjacent to significant development (Figure 5-1 and 5-2). Approximately 25 m^3 of deciduous timber and 200 m^3 of coniferous timber is present in the eastern LOC boundary and 25 m^3 of deciduous timber and 200 m^3 of coniferous timber is present in the western LOC boundary.

A timber management plan for the Project is provided in Section F.3.3 of the EIA. Timber volumes from crown land will be offered to the two main quota holders, Spray Lakes Sawmills (1980) Ltd. and Crowsnest Forest Products. Should these quota holders decline, the volumes will be made available to other interested parties.

3.6 Soil and Vegetation Management

The following sections outline soil sensitivities and topography within the boundary of the proposed dispositions, as well as problem vegetation/weeds/invasive species occurrence and management.

3.6.1 Soil and Topography

A Soil and Terrain Assessment was undertaken for the project and is provided in the EIA as CR #7. The area has varying mountainous topography, with slopes ranging from Class 1 to Class 9 (0 to >45 degrees). Steeper slopes Classes between 7 and 9 (16.5- 45 degrees) are most prevalent in the northern portion of the proposed mining area MSL boundary areas of the proposed disposition

boundary with the southern portion of the proposed mining area MSL boundary having slopes primarily between Class 6 and 7 (8 to 24 degrees). Surface expression varies across the area and includes sections of level, hummocky, terraced and inclined expression. The proposed access corridor MSL and a signification portion of the LOCs are located in previously disturbed area with variable topography due to existing development. Surface expression and slope class are further discussed is Section 3.3 of CR #7 in the EIA.

There are a few soil sensitivities within the mine area including, shallow depth to bedrock (bedrock at surface to depths <100 cm) and gravely and stony soils. Drainage ranged from very poor to very rapid. Very poor and well drained soils are located at the lower and mid slopes in the most southern portion of the proposed disposition area. Rapid to very rapidly drained areas are located throughout the area. These sensitivities have been considered during development of the Conservation & Reclamation Plan for the Project (Section F of the EIA), including the salvage and replacement of adequate material for use during reclamation (as discussed in Section F.2.1.5 of the EIA) and the establishment of positive surface and subsurface drainage (as discussed in Section F.4.4.1 of the EIA).

3.6.2 Problem Vegetation/Weeds/Invasive Species

During the vegetation survey undertaken as part of the EIA, nine noxious weeds, and 20 invasive vegetation species were identified within and surrounding the proposed surface disposition boundary (Section 3.9 of CR #8 of the EIA). The majority of the noxious and invasive species were observed in areas with existing disturbance (*i.e.,* pipelines, well sites, clearings, pastures, cutblocks, and along roads). A list of the noxious weeks identified in the mining area MSL and their associated degree of infestation is provided in Table 3-8. The location of noxious weeds found during the assessment is provided in the EIA in CR #8, Figure 3.9-1.

Table 3-8 Noxious Weeds identified in the proposed disposition boundaries.

Scientific Name	Common Name	Degree of Infestation
Bromus tectorum	downy brome	Low
Chrysanthemum leucanthemum	ox-eye daisy	Moderate
Cirsium arvense	creeping thistle	Moderate
Cynoglossum officinale	hound's-tongue	NA
Echium vulgare	blueweed	Low
Linaria dalmatica	dalmatian toadflax	Low

Table 3-8 Noxious Weeds identified in the proposed disposition boundaries.		
Scientific Name	**Common Name**	**Degree of Infestation**
Linaria vulgaris	common toadflax	Moderate
Ranunculus acris	tall buttercup	High
Verbascum thapsus	common mullein	High

Proposed clearing and construction activities have a moderate to high risk of increasing the spread of weeds on site. As required by the *Weed Control Act* and Regulations, noxious weed populations identified during baseline field sampling will be controlled prior to site disturbance and mine operation to prevent the further spread of weeds. Noxious weed management will occur in compliance with R&R/03-4 *Weeds on Industrial Development Sites* (Alberta Environment 2003).

3.7 Incidental Activities

As stated in Section 2.0 Benga will be making application to expand the surface dispositions once all overlapping dispositions have been closed or transferred to Benga, and will apply to Alberta Environment and Parks for a surface disposition for the construction camp area. There are no other incidental activities associated with the proposed surface dispositions that will be located on crown land and required for temporary use.

4. MINING AREA MSL

In accordance with the *Public Lands Act*, Benga is requesting a Mineral Surface Lease (MSL) for the main mining area that is located on Crown land (Figure 2-1). The MSL application package for the mining area including the a completed application form, sketch plans, the completed Environmental Field Report (EFR) forms, LSAS report and consent letters is provided in Appendix 1. Information required for completion of the EFR Supplement A - Sites and Installations form is provided in the following section.

4.1 Site Description

A description of the Grassy Mountain Coal Project is included in Section C of the EIA. Physical works in support of the Project that will occur within the proposed mining area MSL boundary are shown on Figure 1-2 and include:

- open pit truck and shovel mining operations area;
- waste rock disposal areas (north and south of the pit area, in addition to in-pit);

- internal haul roads;
- topsoil storage area; and
- water management structures.

The topography of Grassy Mountain consists of rounded hills at lower elevations with moderate to steep grade slopes at higher elevations. The regional area is characterized by relatively high relief, with numerous valleys where watercourses are present. The site has a history of coal mining with the presence of both legacy surface and underground mines (Figure 4.4-1 in CR#10 of the EIA). The legacy surface mine is currently inside the footprint of the new proposed open pit.

The proposed mine is a truck/shovel operation where the rock overlying the coal seams will be drilled, blasted and excavated by mining shovels. The overburden rock will be loaded into haul trucks and then transported to designated disposal areas. The uncovered coal is then placed into trucks and hauled to the coal preparation plant for cleaning. The maximum pit depth is approximately 430 m at the north-central area of the pit. Mineable reserves total approximately 168 million RMT coal, or 92.6 million CMT, with 854 million BCM of overburden rock for an average product strip ratio of 9.2:1 BCM/CMT. Potential stability concerns that may influence construction procedures/requirements include:

- historic mining activities creating unstable slopes;
- steep grades;
- pit wall failures; and
- rock disposal area failures.

In order to mitigate the concern associated with potential instability, Benga has developed mine design criteria based on the results of the geotechnical investigation and geological modelling (Section B.8.6 of the EIA).

4.2 Vehicle and Equipment Access

The mining area MSL will be accessed from an access road that parallels the overland conveyor (Figure 1-2). A majority of this access is through land owned by Benga. There are two small portions of the road that are located on Crown land, and will be included in the MSL application for the access corridor and the eastern LOC application for the rail loop and access.

4.3 Contamination Prevention

Blairmore Creek and Gold Creek are located to the west and east of the Project, respectively. Although Benga will maintain a 100 m vegetated buffer between mine development and these

environmentally sensitive watercourses, the mine will encroach on tributaries to both Blairmore and Gold creeks (as outlined in Section 3.3.2). The proposed MSL boundary will encompass the entire mining area that is located on Crown land but will not include the bed and bank of either Blairmore or Gold creek.

The main potential mechanism for transport of deleterious materials from the site will be from surface runoff mobilizing the deleterious materials and transporting them to adjacent watercourses. Benga has included a comprehensive water management system in the mine design to reduce the potential for deleterious material to leave the site. These water management facilities are described in Section C.5.3 of the EIA, and include:

- maintaining a 100 m vegetated buffer between mine development and Blairmore Creek and Gold Creek;
- the development of a series of collection ditches and sedimentation settling ponds (which release to either Gold Creek or Blairmore Creek);
- the development of a series of collection ditches and surge ponds (three ponds which are part of Selenium Management Plan that will not release to Gold Creek or Blairmore Creek); and
- the development of site wide drainage civil works.

In addition, Benga will develop an Environmental Protection Program for the Project based on the Project design, potential environmental risk and outcomes of the environmental assessment and regulatory review process. The goal for the Environmental Protection Program is to first prevent and second to minimize adverse environmental impacts resulting from mine related operations. A brief discussion illustrating how environmental impacts are prevented and/or minimized through each of these mechanisms is provided in Section C.7.6 of the EIA.

4.4 Sumps

Benga does not anticipate the development of any sumps throughout the life of the Project.

4.5 Water Source

Proposed water supply sources and associated licensing are discussed in Sections C.5.1 and C.5.2 of the EIA.

4.6 Construction Strategy

As described in Section F.3.1 of the EIA, development of the mine will require clearing existing vegetation from the Project Footprint. A timber management plan is provided in Section F.3.3 of the EIA.

Soil conservation will be undertaken to ensure there will be sufficient volumes of suitable reclamation material to support the self-sustaining vegetation communities required to achieve the planned end land uses. A description of soil salvage and handling procedures is provided in Sections F.2.1.5, F.3.4 and F.4.2 of the EIA.

4.7 Reclamation Strategy

Proposed conservation and reclamation plans throughout the life of the project are presented in Section F.3.6 of the EIA and the mine closure plan is presented in Section F.4 of the EIA.

5. RAIL LOOP AND ACCESS ROAD LOCS

In accordance with the *Public Lands Act*, Benga is requesting two Licences of Occupation, one for the western portion of the rail loop and another for the eastern portion of the rail loop and adjacent access road (Figure 2-1). Details of the proposed rail loop including infrastructure, operations, maintenance and decommissioning are provided in Section C.3 of the EIA.

The LOC application packages including the a completed application form, sketch plans, the completed Environmental Field Report (EFR) forms, LSAS report and consent letters are provided in Appendix 2 and Appendix 3. Information required for completion of the EFR Supplement B - Access form is provided in this section.

5.1 Type of Access/Dimensions

The western LOC includes a portion of the rail loop that is approximately 150 m long with an irregular width due to the cut and fills required during construction (Figure 5-1). The eastern LOC includes a portion of the rail loop that is approximately 250 m long with an irregular width due to cut and fills and an access road that is 305 m long and 20 m wide (Figure 5-2).

5.2 Topography

A Soil and Terrain Assessment was undertaken for the project and is provided in the EIA as CR #7. A majority of the eastern LOC is located in a previously disturbed area with variable topography that has been altered due to existing development. The western LOC is located within an area of topography that ranges from strong to extreme (Class 6 to 8).

5.3 Watercourse Crossings

The boundary of the current western LOC being requested is outside the bed and bank of Blairmore Creek. No watercourse crossings are required for the current LOC disposition application.

5.4 Construction Strategy

A significant portion of the proposed LOC areas to be developed for the rail loop is located on previously developed land (Figure 5-1 and Figure 5-2). Existing golf course buildings and infrastructure will be removed. Any merchantable timber found will be salvaged (as outlined in Section F.3.3 of the EIA). Non-merchantable timber and slash materials will be left on the surface and will be incorporated into the soil during salvage operations. If there are excessive volumes of timber harvest residue that cannot be incorporated in the soil without degrading the soil quality, it will be separated and windrowed.

Soil conservation will be undertaken to ensure there will be sufficient volumes of suitable reclamation material to support the self-sustaining vegetation communities required to achieve the planned end land uses. A description of soil salvage and handling procedures is provided in Sections F.2.1.5, F.3.4 and F.4.2 of the EIA.

5.5 Reclamation Strategy

The LOCs will be reclaimed using the same practices and procedures outlined in Section F.3.6 of the EIA. After initial construction, interim reclamation will be undertaken in order to stabilize slopes. As stated in Section F.4.5.5 of the EIA, at mine closure the rail loop and supporting infrastructure will be fully reclaimed. The track will be dismantled and all associated infrastructure will be removed. The area will be recontoured to meet the sloping requirements, compaction will be alleviated and conserved soil will be replaced. The area will be revegetated to integrate with adjacent lands.

The rail loop will be reclaimed to a coniferous forest and mixed forest landscape (Figure F.3.6-8 of the EIA) using the revegetation procedures as for the rest of the mine as outlined in Section F.3.6.3.

6. ACCESS CORRIDOR MSL

In accordance with the *Public Lands Act*, Benga is requesting an MSL for the portions of the conveyor/powerline/access road right-of-way that are located adjacent to the proposed construction camp on a small area of crown land (Figure 2-1). As identified in Section 3.2.1, this portion of Crown land is also covered by a Protective Notation (PNT 900430). Details of the proposed access road and conveyor can be found in Sections C.4.1 and C.2.7 of the EIA.

The MSL application package, for this access corridor, including the a completed application form, sketch plans, the completed Environmental Field Report (EFR) forms, LSAS report and consent letters is provided in Appendix 4. The information presented in the following sections adheres to the requirements outlined in the EFR Supplements A (Sites and Installations), B (Access) and D (Easement) forms.

6.1 Site Description

The total area of the access corridor MSL is 0.73 ha, a majority of which is existing clearing (Figure 6-1). The boundary of the site is located within 100 m of a mapped watercourse, but this watercourse path was altered by drainage management works undertaken by Alberta Environment and Parks under PNT 900430. This watercourse is a tributary to Blairmore Creek, therefore is considered a Class B watercourse.

The access corridor includes a 10 m wide access road, a 3 m wide covered conveyor and a powerline right-of-way. The powerline will be located a minimum of 10 m from the tree line. The total right-of-way width will be 35 m. Only 0.15 ha of new clearing is required for construction of the access corridor in this area. A cross section of the access corridor is provided as Figure C.4.21-2 of the EIA.

6.2 Vehicle/Equipment Access

During construction this area will be accessed via an existing access road (Figure 6-1), a majority of which is through Freehold land owned by Benga. Benga will also be constructing a new mine access from Highway 3 to the mine infrastructure area. A small portion of this new access road is located on Crown land, and part of the LOC and MSL applications. Section C.4.1 of the EIA provides more detail on mine access.

6.3 Topography

A Soil and Terrain Assessment was undertaken for the project and is provided in the EIA as CR #7. The majority of the access corridor is located in a previously disturbed area with variable topography. Topography within the proposed utility corridor area ranges from strong to very strong (Class 6 to 7).

6.4 Watercourse Crossings

There is an existing access road that will be used during construction of the access corridor. The access corridor will cross a tributary to Blairmore Creek. Both the conveyor and powerline are overland structures that will be constructed outside the bed and bank of the tributary. The access road crossing will be constructed in accordance with the *Water Act Code of Practice for Watercourse Crossings*.

6.5 Wildfire Prevention Strategy

The portion of the proposed powerline is located within a Forest Protection Area but is within in a previously cleared area (Figure 6-1). The nearest community within the Forest Protection Area is Blairmore.

6.6 Site Development Strategy

A majority of the access corridor MSL area is on a previously cleared area (Figure 6-1). If encountered, merchantable timber will be salvaged as described in the timber management plan included in Section F.3.3 of the EIA.

Soil conservation will be undertaken to ensure there will be sufficient volumes of suitable reclamation material to support the self-sustaining vegetation communities required to achieve the planned end land uses. A description of soil salvage and handling procedures is provided in Sections F.2.1.5, F.3.4 and F.4.2 of the EIA.

6.7 Reclamation Strategy

The access corridor MSL will be reclaimed using the same practices and procedures outlined in Section F.3.6 of the EIA. As stated in Section F.4.5.1 of the EIA, all of the infrastructure will be removed and the disturbed areas will be recontoured to blend with the adjacent undisturbed lands. Compacted areas will be ripped to relieve compaction. Conserved reclamation material will be replaced and the disturbed areas will be revegetated.The access corridor will be reclaimed to a coniferous forest landscape (Figure F.3.6-8 of the EIA) using the revegetation procedures similar to the rest of the mine as outlined in Section F.3.6.3.

7. REFERENCES:

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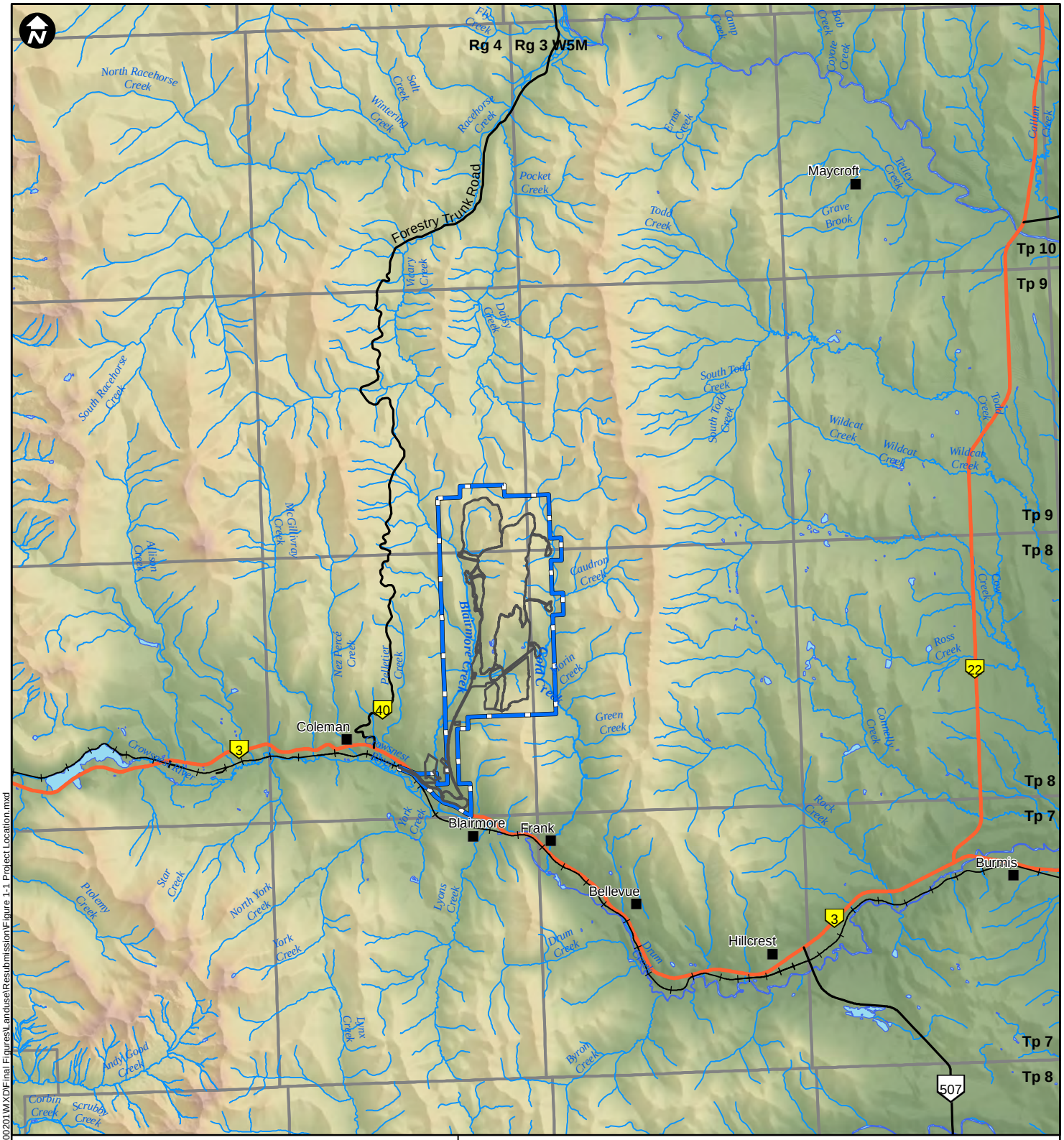
FIGURES



LEGEND

- Primary Highway
- Secondary Highway
- Existing Railway
- Surface Water Drainage
- Mine Permit Boundary
- Project Footprint

PROJECT

RIVERSDALE RESOURCES

GRASSY MOUNTAIN COAL PROJECT

TITLE

PROJECT LOCATION

NOTES

AltaLIS, 2016; GeoBase, 2016; NRCAN, 2016; Riversdale, 2016
Datum/Projection: UTM NAD 83 Zone 11

PROJECT:	14-00201-01
DRAWN BY:	JDC/JL
CHECKED BY:	KY
DATE:	JUNE 27, 2016

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FIGURE 1-1

Document Path: K:\Active Projects 2014\AP 14-00201 to 14-00250\14-00201\MXD\Final Figures\Landuse\ResubmissionFigure 1-1 Project Location.mxd

Mine Permit Boundary
North Rock Disposal Area
Ultimate Pit Extent
Central Rock Disposal Area
Coal Handling Processing Plant and Infrastructure
Topsoil Stockpiles
Water Pipeline/ Service Road
Covered Conveyor, Access Road and Powerline ROW
Haul Road
South Rock Disposal Area
Construction Camp
Rail Loadout
Rail Loop
Road Access
Forestry Trunk Road
Coleman
Blairmore
Frank
Rg 4
Rg 3 W5M
Tp 9
Tp 8
Tp 7
Daisy Creek
Caudron Creek
Blairmore Creek
Morin Creek
Gold Creek
Green Creek
Pelletier Creek
York Creek
Lyons Creek
North York Creek
Nez Perce Creek
McGillivray Creek
Crowsnest River

LEGEND

- Primary Highway
- Secondary Highway
- Existing Railway
- Existing Access Road
- Existing Powerline
- CHPP Facilities
- Water Pipeline/Service Road
- Railway Loop
- Helipad Access
- Mine Permit Boundary
- Ultimate Pit Extent
- Ultimate Rock Disposal Area Extent
- Topsoil Storage
- Construction Camp
- Ponds and Ditches
- Coal Handling Processing Plant and Infrastructure
- Covered Conveyor, Access Road
- Golf Course Area
- Undisturbed Area

PROJECT

RIVERSDALE RESOURCES

GRASSY MOUNTAIN COAL PROJECT

TITLE

DEVELOPMENT PLAN

NOTES

AltaLIS, 2016; MEMS, 2016; Riversdale, 2016
Datum/Projection: UTM NAD 83 Zone 11

PROJECT:	14-00201-01
DRAWN BY:	JDC/JL
CHECKED BY:	KY
DATE:	JUNE 27, 2016

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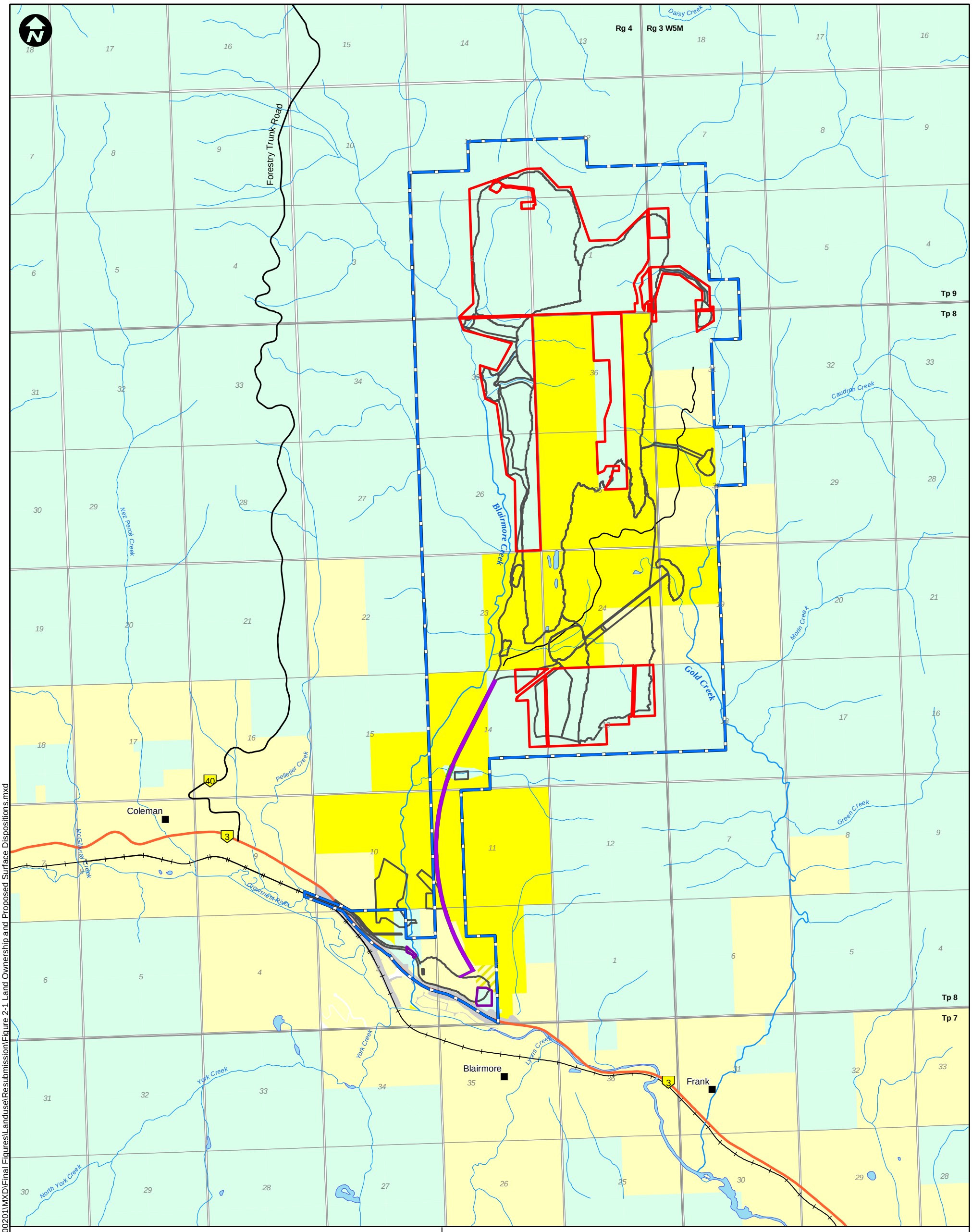
FIGURE
1-2

Document Path: K:\Active Projects 2014\AP 14-00201 to 14-00250\14-00201\MXD\Final Figures\Landuse\Resubmission\Figure 1-2 Development Plan.mxd



LEGEND

- Primary Highway
- Secondary Highway
- Existing Railway
- Mine Permit Boundary
- Covered Conveyor, Access Road and Powerline ROW
- Project Footprint
- LOC Boundary
- MSL Boundary (Access Corridor)
- MSL Boundary (Mine Area)

Land Ownership

- Crown
- Freehold - Benga
- Freehold - Benga 50%, Other 50%
- Freehold - Other
- Registered Roadway

PROJECT

RIVERSDALE RESOURCES

GRASSY MOUNTAIN COAL PROJECT

TITLE

LAND OWNERSHIP AND LOCATION OF PROPOSED SURFACE DISPOSITIONS

NOTES

AltaLIS, 2016; MEMS, 2016; Riversdale, 2016
Datum/Projection: UTM NAD 83 Zone 11

PROJECT:	14-00201-01
DRAWN BY:	JL/SL
CHECKED BY:	KY
DATE:	SEPTEMBER 23, 2016

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FIGURE
2-1

Document Path: K:\Active Projects 2014\AP 14-00201 to 14-00250\14-00201MXD\Final Figures\Landuse\Resubmission\Figure 2-1 Land Ownership and Proposed Surface Dispositions.mxd

Rg 4
Rg 3 W5M
Tp 9
Tp 8
Tp 7
Forestry Trunk Road
Coleman
Blairmore
Frank
Crowsnest River
Blairmore Creek
Pelletier Creek
Nez Perce Creek
Gold Creek
Mohr Creek
Green Creek
Caudron Creek
York Creek
Lyons Creek

LEGEND

- Primary Highway
- Secondary Highway
- Existing Railway
- Study Area
- LOC Boundary
- MSL Boundary (Access Corridor)
- MSL Boundary (Mine Area)

Disposition Type

- Disposition Reservation (DRS)
- Firesmart Zone (CNT090027)
- Potential Timber Disposal (CNT860041)
- Green Creek Wintering Site (CNT880242)
- Snowmobile Trails (CNT980012)

PROJECT

RIVERSDALE RESOURCES

GRASSY MOUNTAIN COAL PROJECT

TITLE

CROWN RESERVATIONS - CONSULTATIVE NOTATIONS AND DISPOSITION RESERVATIONS

NOTES

AltaLIS, 2016; MEMS, 2016; Riversdale, 2016
Datum/Projection: UTM NAD 83 Zone 11

PROJECT: 14-00201-01
DRAWN BY: JL/SL
CHECKED BY: KY
DATE: SEPTEMBER 23, 2016

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FIGURE

3-1

Document Path: K:\Active Projects 2014\AP 14-00201 to 14-00250\14-00201\MXD\Final Figures\Landuse\Resubmission\Figure 3-1 Crown Reservations - CNT.mxd

Rg 4
Rg 3 W5M
Tp 9
Tp 8
Tp 7
Forestry Trunk Road
Blairmore Creek
Gold Creek
40
3

Document Path: K:\Active Projects 2014\AP 14-00201 to 14-00250\14-00201\MXD\Final Figures\Landuse\Resubmission\Figure 3-2 Crown Reservations - PNT.mxd

LEGEND

- Primary Highway
- Secondary Highway
- Existing Railway
- Study Area
- LOC Boundary
- MSL Boundary (Access Corridor)
- MSL Boundary (Mine Area)

Protective Notation (PNT)

- Grazing Area (PNT890351, PNT890378, PNT930299, PNT940130)
- Grazing, Watershed Protection, Wildlife Habitat (PNT960092)
- Unimproved Grazing (PNT880617, PNT880619, PNT880625)
- Mountainous Terrain Rock Outcrop (PNT810769)
- No Agricultural Disposition (PNT700566, PNT776398, PNT880618)
- Potential Fescue Grassland (PNT090084, PNT090087)
- Water Disposal/Reclamation (PNT 900430)
- Registered Historic Resource (PNT900426, DHR010001)

PROJECT

RIVERSDALE RESOURCES

GRASSY MOUNTAIN COAL PROJECT

TITLE

CROWN RESERVATIONS - PROTECTIVE NOTATIONS

NOTES

AltaLIS, 2016; MEMS, 2016; Riversdale, 2016
Datum/Projection: UTM NAD 83 Zone 11

PROJECT: 14-00201-01
DRAWN BY: JL/SL
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DATE: SEPTEMBER 23, 2016

0 1 2 4
Kilometres

FIGURE
3-2

Rg 4 Rg 3 W5M

Tp 9

Tp 8

Tp 7

Forestry Trunk Road

Daisy Creek

Caudron Creek

Nez Perce Creek

Blairmore Creek

Monin Creek

Gold Creek

Green Creek

Pelletier Creek

Crowsnest River

York Creek

Lyons Creek

Coleman

Blairmore

Frank

40

3

LEGEND

- Primary Highway
- Secondary Highway
- Existing Railway
- Study Area
- LOC Boundary
- MSL Boundary (Access Corridor)
- MSL Boundary (Mine Area)

Existing Surface Dispositions

- Mineral Surface Lease (MSL)
- Pipeline Agreement (PLA)
- License of Occupation (LOC)
- Right-of-Entry (ROE)
- Easement (EZE)
- Registered Roadway (RRD)
- Grazing Permit (GRP)
- Disposition Reservation (DRS)
- Pipeline Installation Lease (PIL)
- Grazing Lease (GRL)
- Recreational Lease (REC)
- Miscellaneous Lease (MLL)
- AEP License of Occupation (DLO)

PROJECT

RIVERSDALE RESOURCES

GRASSY MOUNTAIN COAL PROJECT

TITLE

EXISTING SURFACE DISPOSITIONS

NOTES

AltaLIS, 2016; MEMS, 2016; Riversdale, 2016
Datum/Projection: UTM NAD 83 Zone 11

PROJECT: 14-00201-01
DRAWN BY: JDC/JL
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DATE: SEPTEMBER 23, 2016

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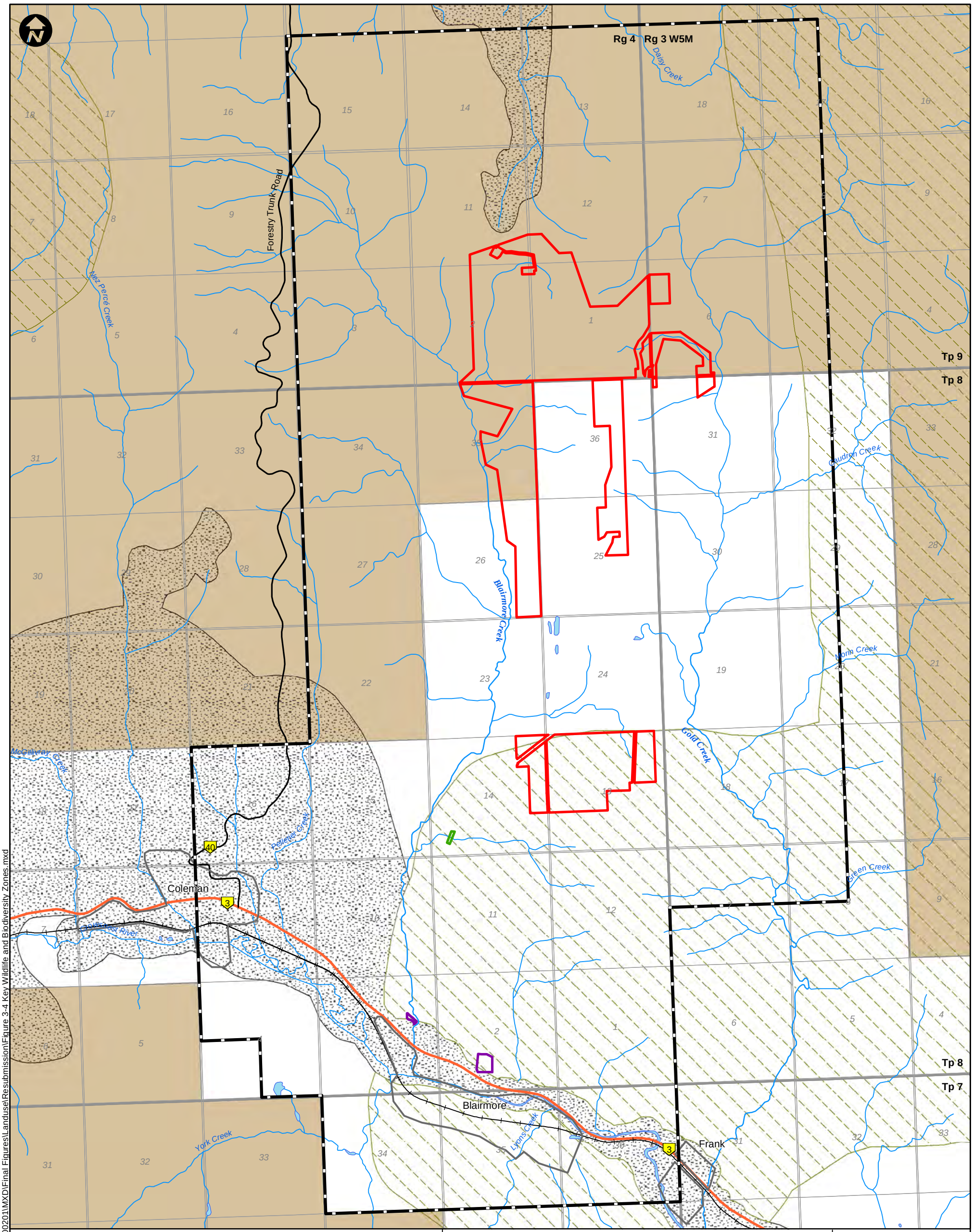
Kilometres

FIGURE

3-3

Document Path: K:\Active Projects 2014\AP 14-00201 to 14-00250\14-00201\MXD\Final Figures\Landuse\Resubmission\Figure 3-3 Surface Dispositions.mxd



LEGEND

- Existing Railway
- Surface Water Drainage
- Study Area
- LOC Boundary
- MSL Boundary (Access Corridor)
- MSL Boundary (Mine Area)
- Mountain Goat and Sheep Range
- Key Wildlife and Biodiversity Zone
- Grizzly Bear Zone

PROJECT

RIVERSDALE RESOURCES

GRASSY MOUNTAIN COAL PROJECT

TITLE

KEY WILDLIFE AND BIODIVERSITY ZONES

NOTES

AltaLIS, 2016; GeoBase, 2011; NRCAN, 2016; Riversdale, 2016
Datum/Projection: UTM NAD 83 Zone 11

PROJECT:	14-00201-01
DRAWN BY:	JDC/JL
CHECKED BY:	KY
DATE:	SEPTEMBER 23, 2016

0 1 2 4
Kilometres

FIGURE

3-4

Document Path: K:\Active Projects 2014\AP 14-00201 to 14-00250\14-00201\MXD\Final Figures\Landuse\Resubmission\Figure 3-4 Key Wildlife and Biodiversity Zones.mxd

R4 W5M

14-3
15-3
16-3
13-2
Unnamed Creek
Blairmore Creek
10-3
11-3
9-3
12-2
3
6-3
7-3
8-3
5-2

Document Path: K:\Active Projects 2014\AP 14-00201 to 14-00250\14-00201\WXD\Final Figures\Landuse\Resubmission\Figure 5-1 LOC Site Plan.mxd

LEGEND

- Railway Alignment
- License of Occupation (LOC) Boundary
- Extent of Clearing and Disturbance

PROJECT

RIVERSDALE RESOURCES

GRASSY MOUNTAIN COAL PROJECT

TITLE

RAIL ALIGNMENT
LICENSE OF OCCUPATION (LOC) SITE PLAN
09-03-008-04 W5

PROJECT: 14-00201
DRAWN BY: JL
CHECKED BY: KY
DATE: SEPTEMBER 23, 2016

NOTES

AltaLIS, 2016; MEMS, 2016
RapidEye, 2015 (Image Date: Jul 26/13); Riversdale, 2016.
Datum/Projection: UTM 3TM Nad 83

0 25 50 100
Metres

FIGURE

5-1

LEGEND

- Existing Powerline
- Railway Alignment
- Proposed Access Road
- Extent of Clearing (20m Right of Way)
- License of Occupation (LOC) Boundary
- Extent of Clearing and Disturbance

PROJECT

RIVERSDALE RESOURCES

GRASSY MOUNTAIN COAL PROJECT

TITLE

LICENSE OF OCCUPATION (LOC) SITE PLAN

03/06-02-008-04 W5

PROJECT: 14-00201
DRAWN BY: JL
CHECKED BY: KY
DATE: JULY 14, 2016

FIGURE

5-2

NOTES

AltaLIS, 2016; MEMS, 2016
RapidEye, 2015 (Image Date: Jul 26/13); Riversdale, 2016.
Datum/Projection: UTM 3TM Nad 83

0 50 100 200
Metres

Document Path: K:\Active Projects 2014\AP 14-00201 to 14-00250\14-00201\MXD\Final Figures\Landuse\Resubmission\Figure 5-2 LOC Site Plan.mxd

R4 W5M

4-14

3-14

T8

LEGEND

- Access Road
- Conveyor
- Extent of Clearing and Disturbance
- Powerline
- Mineral Surface Lease (MSL) Boundary
- Disposition
- Proposed Mine Permit Boundary

PROJECT

RIVERSDALE RESOURCES

GRASSY MOUNTAIN COAL PROJECT

TITLE

MINERAL SURFACE LEASE (MSL) SITE PLAN
3/4-14-03-008-04 W5

PROJECT: 14-00201
DRAWN BY: JL
CHECKED BY: KY
DATE: SEPTEMBER 23, 2016

NOTES

AltaLIS, 2016; MEMS, 2016
RapidEye, 2015 (Image Date: Jul 26/13); Riversdale, 2016.
Datum/Projection: UTM 3TM Nad 83

0 25 50 100
Metres

FIGURE

6-1

Document Path: K:\Active Projects 2014\AP 14-00201 to 14-00250\14-00201MXD\Final Figures\Landuse\Resubmission\Figure 6-1 MSL Site Plan.mxd