



Grizzly Valley Rural Residential Subdivision Project Description

June 2006

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Grizzly Valley Rural Residential Subdivision Project Description

Executive Summary

The Government of Yukon plans to construct a 61-lot rural residential subdivision. As shown on (Figure 1) below, the site is located on the west side of the Klondike Highway (km.220) just north of the Grizzly Valley sod farm and south of Deep Creek.

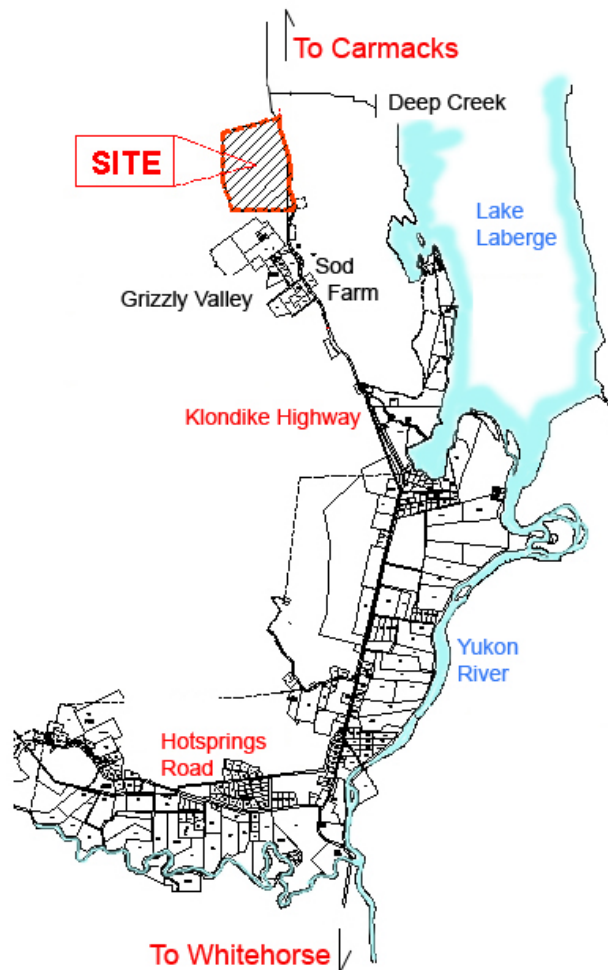


Figure 1 – Location Map

The site is currently zoned Hinterland under the Grizzly Valley Area Development Regulations and will need to be rezoned to permit rural residential development. The present regulations require a minimum residential lot size of 2 hectares. The subdivision design provides a mix of lot sizes between 3.0 and 10.2 hectares.

A forest fire burned substantial portions of this area in 1958. In the intervening years some firewood salvage has occurred and there is some evidence of minor recreational use along several trails built for fire fighting and salvage wood purposes. There are no existing residences within the study area.

According to Yukon Environment's records, the area contains no significant wildlife habitat. Residents regularly sight species such as bear, moose, mule deer, fox, wolf, coyote and rabbit in the Grizzly Valley area. Site inspections confirm wildlife use one of the glaciofluvial channels as a corridor through the area. The subdivision plan acknowledges this function and retains this link.

The site offers views of Lake Laberge to the east, Grizzly Valley and Flat Mountain to the south and the Miner's Range to the west.



View of Lake Laberge to the east

The layout takes advantage of the panoramic views available, which partly compensates for the lower quality of the post fire tree cover. The existing terrain means internal road lengths are longer than preferred and necessitate occasional 7-8% road grades. The subdivision has two main accesses from the Klondike Highway. Two accesses rather than one help to balance traffic loads and allow for an alternate access in an emergency situation. The cost of constructing this second access is significant and involves major cut and fill. This results in higher lot prices and makes lots less affordable. The impact of this trade off is moderated by providing a range of lot sizes.

The subdivision is within commuting distance of Whitehorse. It is intended to help relieve the pressure for spot land applications by providing a planned alternative. The 61 lots will generate approximately 186 new residents. Road and school capacity is sufficient to accommodate the additional traffic and students. School bus service already passes by the subdivision. Power and telephone service would be extended north along the highway from the Northwestel tower site across from the Sod Farm because the nearer Deep Creek substation is at 80% capacity.

The project will have the following positive impacts. The concentrated subdivision form results in a smaller overall development footprint relative to the impacts associated with the approval of an equivalent number of spot land applications. The development provides for a variety of lot sizes that meet known market needs particularly for persons wishing to maintain horses or dog teams or pursue non-soil based agriculture. The lot density and mixture of parcel sizes also means the new development will be more affordable to a wider range of people looking to obtain rural residential land.

The subdivision is located on lands scarred by a 1958 forest fire that is still in the early stages of regeneration. While this is less aesthetically pleasing, the forest fire risk is significantly reduced.

Negative impacts include an increase in the resident population by 186 persons, the conversion of open space to residential land use, and the potential for wildlife conflicts if good residential garbage management practices are not followed. The Lake Laberge Renewable Resource Council has also noted a growing concern that increased residential development tends to lead to more off-road vehicle (ORV) use as residents explore the surrounding crown land. The principal concern relates to impact on local sheep populations and moose habitat. ORV use in the Pilot Mountain area to the southwest is currently under study.



Development area Looking south toward the sod farm

GENERAL ENVIRONMENTAL ASSESSMENT INFORMATION

Project Title:	Grizzly Valley Rural Residential Subdivision
Proponent:	Community Development Branch, Community Services, Government of Yukon, PO Box 2703, Whitehorse, Yukon Y1A 2C6
Designated Office	Whitehorse
EA Type:	Environmental screening
EA Start Date:	June, 2006

RESPONSIBLE AUTHORITY IDENTIFICATION

Lead Responsible Authority:	Community Development Branch, Community Services
Proponent Project Manager	Brian Ritchie, Program Manager Tel: 667-3093 Fax 393-6216 E-mail: brian.ritchie@gov.yk.ca
Other Responsible Authority:	Bryony McIntyre, Manager Lands Branch Client Services, Energy, Mines and Resources
Consultant Contact	Ian D. Robertson MCIP Inukshuk Planning & Development Ltd Tel: 667-4759 Fax: 667-4020 E-mail: ian@inukshukplanning.ca
Screening Trigger:	Subdivision, land development funding, land use permit and public land disposition

PROJECT LOCATION

Region:	Lake Laberge - East
Topographic Map Sheet:	105E (3) 1:50,000
Geographic Location:	West side of the North Klondike Highway km 220
Latitude & Longitude:	61°02'32" N 135°13'15" E
Drainage Region:	Lake Laberge
Watershed:	Yukon River
Street Name:	North Klondike Highway
Nearest Community:	Whitehorse
Traditional Territory:	Ta'an Kwäch'än & Kwanlin Dun First Nations
Surrounding Land Status	YEC right-of-way, crown land to the north & west, private land to south.

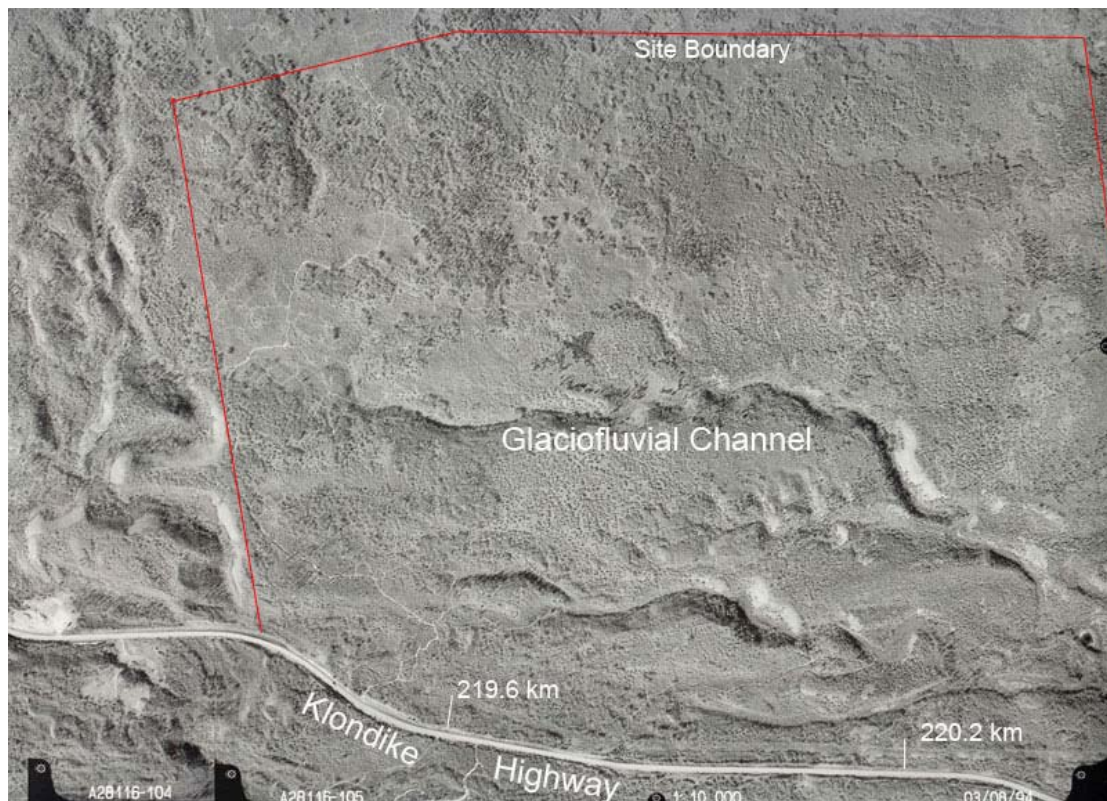
Grizzly Valley Rural Residential Subdivision Project Description

Introduction

The Government of Yukon is proposing to develop a 61-lot rural residential subdivision. The site is located on the west side of the North Klondike Highway (km.220) just north of the Grizzly Valley sod farm and south of Deep Creek. It is currently zoned Hinterland under the Grizzly Valley Area Development Regulations.

An initial study area of 940 hectares of crown land was identified and subsequently reduced to 565 ha for detailed examination after initial review. The site was identified in response to public interest in acquiring rural residential lots in the Whitehorse periphery and as a result of continuing interest in spot land applications along the highway corridor. The site is located west of the 138 Kv Aishihik to Faro power line that parallels the Klondike Highway. It is situated in an area that offers commanding views of Lake Laberge to the east, the Miners Range to the west and Grizzly Valley to the south. A substantial portion of the site was burned in a 1958 forest fire.

Subject to receipt of all necessary approvals, development would proceed in late 2006 with lots available for purchase in 2007.



Aerial photograph showing approximate boundary and entrance locations

Site Inventory

Terrain & Surficial Soils

The subdivision would be developed on a hill that rises steadily towards the west from the highway (806m asl) to an elevation ranging from 835 – 850m ASL. A detailed terrain analysis was conducted by EBA Engineering Consultants Ltd. Their report is in **Appendix 1**. EBA writes: “the upland terrain is gently rolling and fringed with several deeply incised glacial meltwater channels. A mid-slope, valley parallel meltwater channel separates the upland from a wide bench, which grades down slope with complex, irregular terrain comprised of hummocks, small ridges and multiple minor channels reflecting the depositional and erosion history.”

The terrain analysis included: a literature review of existing records, air photo interpretation to determine test pit locations, supervision of the excavation of 10 test pits and completion of a percolation test in one location to confirm soil suitability for on-site sewage disposal.

The hummocky and irregular nature of the terrain is a reflection of its glaciofluvial origin. As the glacier receded tills were deposited and subsequent ice margin erosion resulted in a series of scoured glaciofluvial meltwater channels that are most prominent on the east half of the site. These channels generally trend to the north though one cuts from west to east at the south end of the site. These channels can be seasonally wet and often connect minor pockets of wetlands where the silt layer is thickest. Where the two main channels merge in the northeast corner of the site, there is a possibility of encountering pockets of discontinuous permafrost. EBA also cautions that there is also the possibility of encountering permafrost along steep, east facing slopes of the main glaciofluvial channel.

Neither bedrock nor groundwater was encountered during the test-pitting program, though bedrock outcrops were noted adjacent to the highway in the vicinity of the power line.

The complex nature of the terrain is reflected in the terrain map compiled by EBA. It provides general guidance concerning areas most suitable for development and highlights those areas with development constraints. These include the deeply incised meltwater channels, wetlands and areas of steeper slopes. In some instances modifying the natural slope through on-site grading can modify terrain constraints while setbacks from tops-of-banks can also be used to limit encroachment.

Surficial Drainage

The topography, soils and gradient determine the surficial drainage. There are no permanent watercourses present. The surficial drainage reflects the orientation of slopes and direction of the narrow, incised valleys created by the former meltwater channels that trend towards the north at mid-slope.

The development is not within the Horse or Deep Creek watersheds and will have no effect on those creeks' water quality.

The dominant soil is made up of a highly consolidated mix of silt, gravel sand till. Depths greater than 5m can be anticipated with the glaciofluvial sands and gravels thicker on lower valley slopes. The test pit program reveals that in the upland and mid-slope portions of the site, a discontinuous veneer of sand and gravel overlies the till with a silty sand present just below the organic root mat. Infiltration is generally good, even in the meltwater channels where the silt layer is often thicker.

On-site Sewage Disposal

The EBA report notes that “the predominant texture of material throughout the site is expected to be a dense sandy till overlain by a discontinuous veneer (up to 1m) of glaciofluvial gravely sand with trace silt (greater than 35% sand, 20 % gravel and less than 10% silt). Percolation tests focused on two of the three soil types present. The silty sand found immediately under the organic root map, ranges in depth from 0.3-1.0m in depth and has a percolation rate of 8-minutes/25 mm, which is acceptable for on-site sewage disposal.

“The deeper, silty, gravel sand till was tested at a depth of 2.0m and had a percolation rate of 55minutes/25 mm.” EBA notes this is only marginally acceptable, so systems should be constructed at the interface of the till and overlying soil to get an acceptable percolation rate. The third soil texture encountered in the study area is comprised of glaciofluvial gravel and sand that is known to be suitable for on-site sewage systems. EBA recommends a 5-minute/ 25 mm percolation rate be used for system sizing where such soils are present.

Given the complex nature of the terrain and likelihood that variable percolation rates will be encountered, the geotechnical engineers note the need for lot specific percolation tests to determine the appropriate size, placement and style of treatment system used.

Roadway Construction & Foundation Considerations

While the EBA report confirms the study area is suitable for the intended rural residential use, the rugged site topography will impact roadway construction and lot access. Quest Engineering also confirms that the nature of the terrain will affect the two access road grades as they snake up the east-facing slopes from the Klondike Highway to the lands most suitable for development. Road grades of 7-8% in places will necessitate cut and fill construction methods. Four sub-grade types are likely to be encountered, but in general the materials present are suitable for road construction purposes.

The construction of conventional foundation systems is considered acceptable throughout the study area. Shallow foundations may have the potential for frost heave but if surface water and roof run-off are controlled, the need for any special measures is not anticipated. For buildings with basements, perimeter insulation and a minimum of 2.5m of soil cover should be considered.

Forest Values

The forest cover is moderately dense to sparse in the 1958 burn area. Aspen interspersed with white spruce that escaped the 1958 forest fire dominates the higher, drier ground and south facing slopes. Dense pine trees with average heights of 2.5 to 3m have re-grown on land disturbed by the original forest fire. While there is some evidence of post-fire woodcutting in the burn area, it has generally been focused on the more accessible, south and western half of the study area branching off from an existing four-wheel drive trail.

Todd Pilgrim of Yukon Forest Operations confirmed there are no existing woodcutting permits in this area and the proposed development would have no impact on current and future forest harvest development planning in the general area.



Looking east down the central dirt road

Wild rose, Labrador tea, willow, bearberry, low bush cranberry and other associated shrub species are common except in burn areas where the density of pine re-growth has eliminated the understorey.

Wildlife Values

Area residents and wildlife biologists' report sighting grizzly and black bear, mule deer, moose, fox, coyotes, wolves and occasionally elk in this general area. Yukon Environment has identified the hill to the southeast across from the sod farm as winter sheep habitat.

The site itself has only moderate to low values partly due to the sparseness of tree cover and the aftermath of the 1958 fire. The regional biologist Rob Florkiewicz cautions however, that the department has minimal information on this area. Evidence of wildlife use of the main glaciofluvial channel was noted during winter site visits. In particular, small mammals such as hare, fox and coyote tracks were observed suggesting wildlife use the channels as movement corridors. While the hummocky terrain should provide some shelter and relief for larger mammals during the winter months, no visual evidence of animals bedding down or concentrated browsing patterns were identified during site reconnaissance.

The Ta'an Kwäch'än & Kwanlin Dun First Nations, Laberge Renewable Resource Council and Department of Environment Fish & Wildlife Division were all contacted and no wildlife habitat concerns were identified within the site boundary. Both Environment Yukon and the Laberge Renewable Resource Council indicated that the principal emerging concern was not the development of new lots per se but the impacts associated with new resident use of the surrounding area. The principal concern is related to the effect of increased backcountry access on wildlife as a result of increased outdoor recreational vehicle use (ORV). The Laberge Renewable Resource Council indicated a research study on the impacts of ORV use was currently underway in the Pilot Mountain area southwest of this site.

Heritage

Thomas Heritage Consulting conducted a Heritage Overview Assessment in September 2005. The assessment did not reveal the presence of any heritage features within the study area. The author concluded no additional field studies were required, as the chance of unearthing artefacts was low. No mitigation measures prior to development are deemed necessary.

The heritage consultant feels that no historic or archaeological sites will be impacted by the development of this property. For this reason it is the consultant's opinion that further heritage resource inventory and assessment work is not needed.

Agricultural Suitability

Agriculture Branch of EM&R confirms there is no class 5 agricultural land within the proposed subdivision. Other limitations to agricultural suitability include elevation, slope and access to water for irrigation purposes. The soils and terrain on the western half of the site could support some limited agricultural activity such as minor grazing provided the agricultural activity was secondary to the principal residential use. A typical activity might be a resident owning several horses for personal use that clears a field and provides supplementary feed.

Existing Land Use

There are two existing trails. The first and most actively used trail, approximately 2.2km long, climbs westward from the Klondike Highway over the ridge to access the flatter, southwestern half of the site. It appears to have been used mainly for personal fuel wood cutting access after the 1958 fire. No current woodcutting activity was observed. A second, less well-used 0.9km trail angles northward from the power line right-of-way before petering out in the vicinity of the main meltwater channel where it loops around a small knoll. The purpose of this trail is unclear and it does not appear to receive regular use.

Both trails are likely known to some residents of Grizzly Valley and/or Deep Creek and may receive occasional recreation use, possibly to provide hunting access in the fall, local hiking during the summer or perhaps snowmobile use during the winter. No anecdotal information could be found to confirm this hypothesis. One area resident did mention during the public meeting that it would not be difficult to link this area to the existing network of dog mushing and snowmobile trails to the south and north.

There are two First Nation trapping concessions within two kilometres of the site. The principal concern of local trappers would be increased recreational use of the surrounding area and the potential for conflicting use of their trapping trails by residents of the new subdivision interfering with their harvesting activity.

As of January 2006, there are no recorded placer or quartz mining claims within the study area.

The nearest garbage dump is at Deep Creek approximately 2.5km to the north. The Government of Yukon manages this landfill and is in the process of converting the facility to a domestic waste transfer station. Garbage will then be trucked to the City of Whitehorse landfill. The landfill/transfer station has sufficient capacity to handle new subdivision needs.

A minor amount of garbage has been illegally dumped off the main access trail just west of the power line. This will be removed and disposed of properly.



Illegal dumpsite off of the main access trail

Access and Proximity to Utilities/Schools

Highways & Public Works have plans to upgrade the North Klondike Highway past the study area to a 100km speed standard. Only minor alignment changes are anticipated restricting access point options. A site inspection with Transportation Engineering identified locations where with minor additional clearing and grading of the right-of-way edge, sight distance standards can be met. These are reflected in the subdivision plan. Final approval of the locations will be confirmed when the required Highway Access Permit is applied for. Highways contracted routine brushing of the right-of-way for this section of the Klondike Highway in February 2006.

Both power and telephone pass by the site. The existing 138 kV Aishihik to Faro power transmission line follows the west side of the highway. The nearest substation is at km 222 and serves Deep Creek. However, this substation is already at 80% capacity and YECL has determined it would be more economical in the long run to upgrade the Laberge sub-station and bring power north from near the Northwestel Tower to the subdivision.

Both elementary and high school buses pass by the site on the Klondike Highway. The Department of Education estimates that based on current demographics, a 61-lot subdivision will generate 25 elementary and 15 secondary students. Hidden Valley is the elementary school serving this area and it is currently at 50% capacity. Porter Creek Secondary School is currently at 80% capacity but enrolment is expected to decline given present and projected enrolments in the four elementary schools including Hidden Valley that feed the high school. Coupled with a planned expansion to the secondary school, the Department believes the school will have adequate capacity to accommodate the 15 additional students generated by this development.

The two access road configuration of the subdivision facilitates both school bus circulation and general road maintenance. The principal concern for school bus operations is whether the level of maintenance will be adequate on the 7-8% road grades during winter morning pickup after an overnight snowfall as priority is given to clearing the Klondike Highway first.

Subdivision Design Concept

A 61-lot subdivision with two primary accesses from the Klondike Highway is proposed. Both highway access points are dictated by sightlines and the 100km/hour traffic speed.



South access trail looking towards hill across from sod farm

The subdivision design puts most development on the higher, and generally flatter ground where lot owners can obtain the best views over the surrounding landscape. Due to the terrain, two accesses to the subdivision will require significant cut and fill to stay within the maximum 8% design standard. There is also an internal loop road on the west side of the site. The access road switchbacks are required because of the steep slopes.

The Grizzly Valley Area Development Regulations require a minimum lot size of 2 ha. The layout creates a mixture of lot sizes between 3.0 and 10.2 hectares. This density is required to make lot pricing affordable to a broader range of potential purchasers. The maximum road grade does not exceed 8%.

This road structure also creates a closed lot layout eliminating future expansion of the subdivision at a later date. This acknowledges the concern of some about the overall level of development and the potential for off-site impacts from increased ORV use.

Current demand and development economics suggests that this development could proceed as a single phase. Given the hummocky nature of the terrain and steepness of some grades, care has been taken to ensure all lots have at least one easily developed building site without extensive lot grading. However, some lots will require more lot grading than others and driveway access points will be dictated by sight line safety.

Transportation Engineering advises that acceleration/deceleration lanes may be required at the main subdivision entrance. Lighting will be required at all intersections.

Subdivision development costs including road construction, installation of power and telephone service is expected to cost between \$5.0-5.3M or between \$83-93,000 per lot. This is comparable with current market conditions.

The design retains 33.5% (189ha) of the 565ha study area as public open space, environmental protection and trails. This is well in excess of the minimum 10% requirement. There will be no trails created as part of the subdivision development, however a link to the surrounding hinterland is provided at 4 points. This allows residents of the internal lots a means to access the surrounding countryside without crossing private property and the opportunity for residents collectively, to construct an internal trail system linking all parts of the subdivision if they so wish.

The deeply incised meltwater channel is retained as a wildlife corridor. Since a crossing cannot be avoided, the design allows for two multi-plate culverts to be used that have been sized to allow free movement of large mammals. The loop road and setbacks from the top-of-bank in this area provides sufficient width and space to allow wildlife to move through the valley without direct observation from adjacent lots.

Construction Activities

Subdivision construction is anticipated to begin in late fall 2006 once subdivision approval is received and the land has been rezoned. The first step involves completion of the legal survey. After survey plan registration road rights-of-way will be cleared and grubbed. Installation of power, telephone and road surfaces will be done in the spring of 2007.

The meltwater channel will be crossed by installing two oversized culverts. The proposed culverts are similar to the culvert used at Mt. McIntyre for cross-country skiing. Only the north culvert crosses an intermittent drainage course. Construction will be scheduled when the area is dry using standard construction practices. This culvert will be installed with standard construction practices.

The source material for road construction will be obtained internally on-site by balancing the cut and fill. There is also an existing Highway's pit in the vicinity. Water will be used during road construction for compaction and dust control. Compaction for road gravels to 98% standard proctor density requires water use. Water will be trucked from Deep Creek by the highway or Lake Laberge.

The proposed width of the road is 8 metres within a 30 or 60 metre right-of-way depending on the cut and fill. If guiderail installation is necessary the road will be widened by 0.5m. Electrical and telephone infrastructure will be accessible to each lot and will be available along the proposed road right-of-way.

Construction will be carried out by a third party under contract to Yukon Government. The contract will be awarded following public tender and the contractor(s) are not known at this time. The contractors will be responsible for the following:

- establishment of a maintenance area;
- disposal of excavated material not suitable for reconstruction (waste);
- excavation, bedding, compacting, and installing new multiplate culvert(s);
- backfill and compaction of road embankment(s);
- supply and installation of rip rap erosion armour;
- construction of granular sub-base;
- construction of granular "A" base;
- water removal (>300 m³/day) for compaction and dust control.

Standard land use permit conditions and best practice guidelines will be followed.

Waste materials are generated during stripping and grubbing of the road rights-of-way and construction of the road surface. Any on-site borrow pits will be graded and reclaimed. Waste materials consist of granular materials unsuitable for construction and can include silts, organics, and ice rich soils. When removed from the work area, these materials will be reused to the extent possible in reclamation of right-of-way side slopes. Little if any of the on site trees are of sufficient size to merit salvage. Slash will be burned on site.

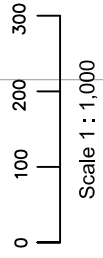
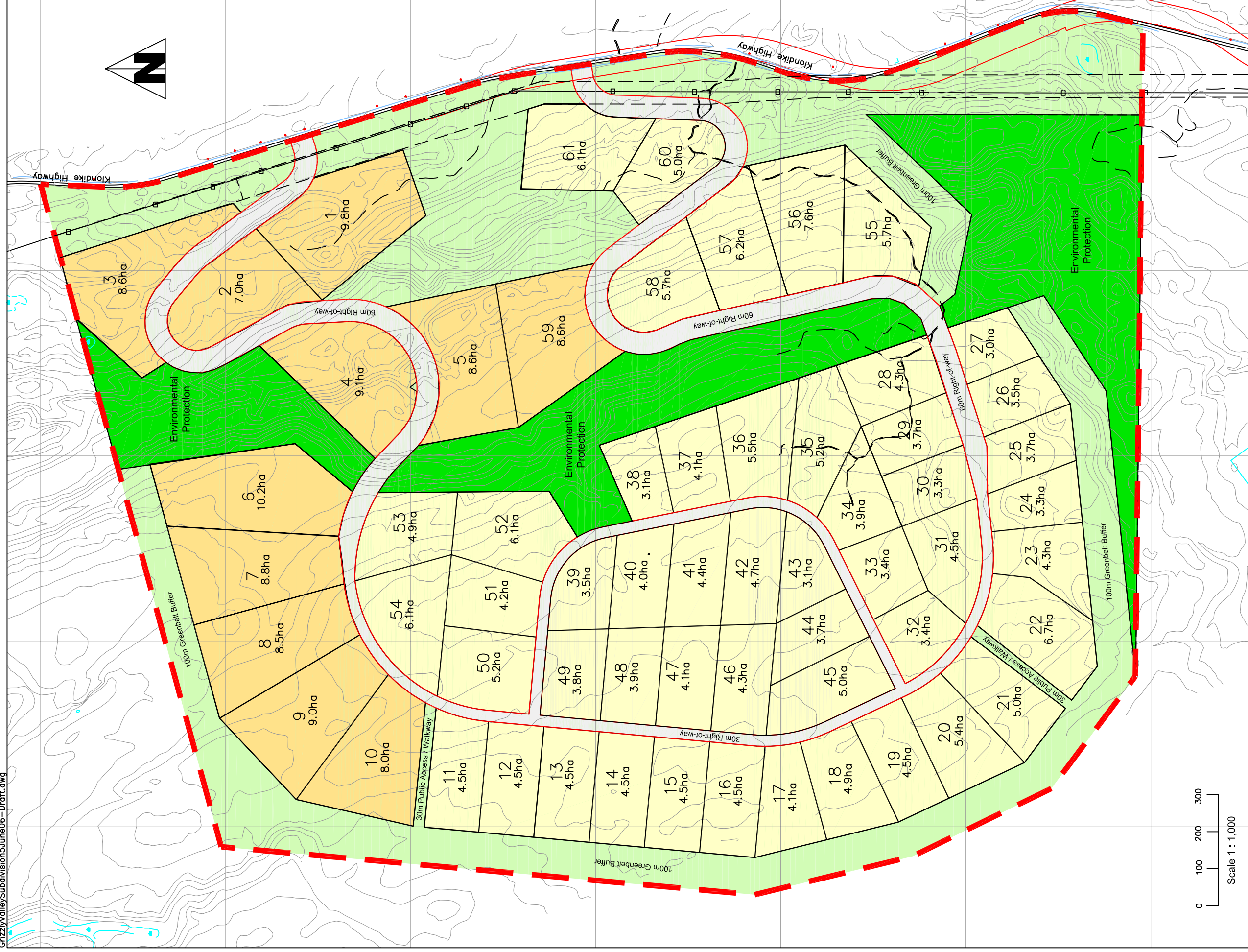
There are only two intermittent streams and several minor wetland areas on the site. No encroachment into the wetland areas is anticipated. Some run-off control will be required during construction and reclamation until the road ditches and side-slopes grow in following re-seeding.

Based on previous experience the following list provides an estimate of the equipment that may be used during construction:

1-2 hydraulic excavators (23 – 75 tonne)	1-2 gravel trucks (12-22 m ³ capacity)
1-2 fuel and service trucks	1 motor graders (200-300 fwhp)
1 vibratory compactor (10-20 tonne)	1 wheel loaders (3-10 m ³ capacity)
1 crawler tractor (30 – 50 tonne)	1 water truck (15,000-30,000 l capacity)
Various pickups	1 mechanic truck
Misc. tools as required (hand tools, chain saws, shovels, rakes, axes, cutting torches, etc.)	

Fuel will be contained in the contractors supplied fuel truck. No onsite storage is required.

The contractor is required to have a fuel spill contingency plan in place prior to beginning construction. The plan will be reviewed by HPW Environmental staff and once accepted, will be distributed to key construction personnel and posted in suitable locations on the project.



Grizzly Valley Rural Residential Subdivision

June 06, 2006

- Site Area (565.5 ha)
- 61 Lots (334.9 ha)
- 8.88 km of Road (7 ha)
- 33.5% (189 ha) Public Open Space
- Average Lot size 5.5 ha
- Road Top is a Minimum 8m Wide
- ROW Width Varies from 30m to 60m To Accommodate Cut & Fill Balances Across Steeper Slopes & Installation of Power & Telephone In ROW (33.7 ha)

- LEGEND**
- Development Area
 - Dirt Trail
 - New Residential Lots
 - New Dog Musher Lots
 - Environmental Protection
 - Greenbelt/Walkway

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Public Consultation

An initial letter and project information sheet was sent out to all Grizzly Valley area residents with a request for input in July 2005. No verbal or written responses were received. The Ta'an Kwäch'än & Kwanlin Dun First Nations were also provided with information on the study area and asked for input on First Nation traditional use and harvesting activities and any ideas or concerns they might have concerning how the subdivision should be planned. No written response was received from either First Nation. The Laberge Renewable Resource Council was also contacted. To date no written response has been received. Staff verbally communicated that their principal concern was related to the potential for increased off-road vehicle use of the lands surrounding the new subdivision and the potential for displacement and/or disturbance of wildlife populations. The presence of winter sheep habitat on the hill opposite the sod farm approximately 1km south of the subdivision was of particular concern.

An additional public meeting with area residents was held on March 29, 2006, to brief Grizzly Valley residents on the design and solicit input on the draft project description. The meeting was advertised in advance and letters written to the local community association and both First Nations.

Several themes were raised at the meeting and also reflected in the nine subsequent written responses received. These themes included:

- *A concern that new residents with lots larger than 4 ha would subdivide their lots at a later date effectively increasing the development by 30-50%.*

Response

Given the nature of the terrain, not all of these larger lots are suitable for further subdivision. Each request would be considered on its own merit. The option of creating a separate zone for this subdivision within the Grizzly Valley Area Development Regulations restricting future subdivision was put forward for discussion at the public meeting. This received a mixed response. It was generally felt that if restrictions are to be placed on any lots they should be established at the outset when the land is rezoned so the rules are clear to all and to prevent speculative lot purchases. This issue will be reviewed further during the public hearing on rezoning.

- *Existing residents indicated they preferred the flexibility in the present Area Development Regulations and would not want to see the existing residential mixed-use zone changed to become more restrictive.*

Response

Establishing a separate new zone applicable to only this subdivision would accommodate that concern, particularly if the main concern is the possibility that residents may subdivide their larger lots at some time in the future. It would also mean there would be no effect on existing property owners.

- *Want larger lots for recreational purposes such as dog mushing*

Response

The plan has been amended to include some larger lots that will be zoned to allow large-scale dog mushing operations as a permitted use. The six lots (1-5 & 59) located close to the most northerly access from the Klondike Highway and the 5 largest lots (6-10) to the west of the meltwater channel have been identified as suitable for this purpose. The possibility that these lots will be used for this purpose will be made clear in the information package distributed by Lands Branch when the land lottery is scheduled.

- *Can the landfill support the extra demand?*

Response

Yes, Deep Creek is going to become a transfer station this year and there is sufficient capacity to manage the domestic waste generated by this development.

- *What is the impact on area schools?*

Response

The Department of Education confirms Hidden Valley School and Porter Creek Secondary School have adequate capacity to handle the number of students generated by this development. (See also page 11)

- *The subdivision will result in more recreational use of the surrounding area and specifically, increased off-road vehicle use that will negatively impact local wildlife.*

Response

The immediate area does not contain any significant wildlife habitat. Allowance for a wildlife travel corridor is included in the design. Increased recreational use of the surrounding area however is an inevitable consequence of rural residential development. Area residents support inclusion of lots for dog mushers and this will lead to more trail development, particularly, connections to the existing trail system to the south and north of this area. Off road vehicle use may also increase. The Government of Yukon will work with the Laberge Renewable Resource Council and Grizzly Valley Community Association to ensure the lot sales packages include literature on responsible recreation behaviour.

- *The access road grade is too steep and will be difficult to maintain especially in winter. Will one access be a safety problem?*

Response

The road grades meet the Transportation Association of Canada standards for road design and are acceptable to Yukon Highways. A lower road grade would have been preferred but the nature of the terrain makes it necessary to have short sections of 7-8% grade. It is acknowledged that maintenance costs will be higher as a result especially in winter.

The one access road concept was reconsidered and the plan was altered to add a second access.

- *This type of development belongs within Whitehorse not in a rural area.*

Response

This project meets known demand for larger, rural residential lifestyle lots that allow a broader range of uses than are allowed within city limits. The site is suited to the intended use and a planned subdivision has less impact than the uncontrolled development that has been occurring through spot land applications. The frequency of such applications confirms the demand.

- *Has the cumulative impact of this many septic systems located in close proximity to each other been considered?*

Response

Yes, a detailed geotechnical assessment was undertaken by EBA and their report is included in the submission. The lots are large enough to accommodate on-site septic systems. Lot purchasers will also be advised to complete site-specific assessments once they have determined their preferred building locations. Based on soil conditions and lot sizes, no cumulative impacts are anticipated from on-site sewage disposal.

- *Is the wildlife corridor wide enough?*

Response

The width of the wildlife corridor is based on terrain and field observation of wildlife movement patterns during the summer, fall and winter of 2005. The majority of activity occurs in the deeply incised meltwater channel and this has been protected to the extent possible. Since the road system must cross this gully in two places, oversized multi-plate culverts are proposed so as not to impede natural movement.

Other comments received included:

- A suggestion that yard lights and intersection lights be screened to minimize light pollution;
- A concern that public land development would undermine the private sector market;
- This is a much needed development and will relieve the pressure on Deep Creek;
- This is too much too soon and will change the character of our community; and
- A concern that people will buy the larger lots for speculative purposes.

Mitigation Measures & Cumulative Impacts

Table 1 summarizes the anticipated impacts and potential mitigation measures. The principal impact is the change of land use from open space to a rural residential subdivision. However, from a cumulative impact perspective, the net impact is positive because the footprint of a planned subdivision is substantially smaller than the sprawl associated with spot land transfers. The subdivision will generate increased traffic as most residents are anticipated to commute into Whitehorse to work and purchase goods and services.

There is no evidence of any substantive recreational use of this site at the present time. However, it is realistic to assume that recreational use of the surrounding area will increase in the future with this level of development. Past history suggests user conflicts will arise and it would be prudent to include information on appropriate behaviour in the lot sales packages so new residents are aware of their responsibilities in living in a rural environment.

An information package that addresses homeowner responsibilities in living in a rural environment may help. It should cover issues such as wildlife harassment, proper garbage handling, trail development on crown land and appropriate recreational behaviour.

The general integrity of the main wildlife trail in the former meltwater channel has been protected.

There is a 2 ha minimum lot size in the Residential/Commercial Mixed Use zone. Creation of a new land use zone for this subdivision would accommodate existing resident concerns that the present regulations affecting their properties not be changed while providing certainty to new residents on the regulations that would apply to their properties. In particular, a restriction on future subdivision could be applied to the new zone created to cover this development.

The socio-economic impact of this project is anticipated to be positive. There will be an initial capital expenditure of \$5.0-5.3M to construct the subdivision that will be offset by lot sales at market value. Market value is anticipated to exceed development cost. This will be followed by an injection into the economy of approximately \$200-250,00 per lot as residents construct new houses and install wells and septic systems. The majority of these funds will be spent locally.

While the development density could be reduced to help moderate the potential impact of future resident recreational use of the surrounding hinterland, it would result in a substantial increase in lot prices making the lots unaffordable to the majority of Yukon residents. The present lot density represents a balance between affordability and development cost.

Project Description - Grizzly Valley Rural Residential Subdivision

Table 1 - Relevant Valued Ecosystem and Cultural Components (VECC's), Potential Effects on VECC's, Mitigation, Effects Assessment and Significance Ranking

VECC's	Potential Effects	Effects Mitigable?	Mitigation	Significance of Effects								Significance
				Duration of Interaction	Magnitude of Interaction	Geographic Extent of Interaction	Reversibility	Ecological Context	Economy & Social Context	Risk Characterization	Overall Significance Ranking	
Soils	Disturbance during initial road construction due to amount of cut/fill required and individual lot grading	Yes	Soil horizon salvaged to extent possible, ROW ditches seeded and revegetated to prevent erosion, individual lot landscaping lot owner responsibility.	Short term	Low	Local, road right-of-way, driveways and building sites	yes	Low	Minimal	Low	Low	No
Vegetation	ROW, driveways, building sites cleared, power line ROW on lots brushed	Yes	Limited disturbance - Some natural revegetation will occur. ROWs will be revegetated. Lot owners responsible to fence & landscape own properties	Medium term	Moderate	Local, road and power ROW, driveways and building sites	yes	Low	Moderate	Low	Low	No
Wildlife	Some vegetation and habitat loss will occur as well as some displacement. Lot fencing and presence of new houses may restrict large ungulate movement. Some potential for human/wildlife conflict. The use of ORV's may affect surrounding wildlife habitat.	Yes	Meltwater channels used as wildlife corridor retained as open space, oversized culverts used to permit large mammal passage. Occasional wildlife conflicts can be minimized by lot owner education on garbage management practices and ORV use	Long term	Moderate	Local, primarily 1-2km radius	No	Moderate, no significant habitat within subdivision; greatest effect on movement	Minimal	Moderate due to displacement	Moderate	No
Air Quality	Wood stove emissions	Partially	Depends on number/proximity to each other. Higher ground will reduce frequency of possible air inversions.	Long term/ongoing	Low	Local	Yes	Low	Moderate	Moderate health risk	Low due to topography and prevailing winds	No
Aesthetics	Clearing, dust and noise during construction, loss of natural character	Yes	Watering for dust control; revegetation of disturbed areas	Short term	Moderate	Local	Yes	Low	Moderate	Low	Low	No
Archaeology	Potential unearthing of artefacts during road construction and lot development grading/debris removal.	Yes	Heritage assessment completed, confirms probability low. Contractor will be informed of standard procedure to halt construction and notify Government of Yukon if anything found.	Short term	Low	Local	No	Low	Moderate	Low	Low	No
Land Use	Change of use from open space to rural residential, restrictions on public use and movement. Potential for lot owners to subdivide lots to the minimum 2 ha lot size	No	Trail linkages preserved and connections enhanced. Open space dedication exceeds 10% minimum by 24%. Create a restricted zoning where the lots cannot be subdivided	Permanent	Moderate	Local	No	Low	Moderate	Low	Low	No
Traffic, Safety & Circulation	Increased traffic and turning movements on Klondike Highway; two main accesses for 61 lots	Yes	The two separate road entrances help split traffic flow, facilitate maintenance and school bus movement. Turning lanes at highway can be provided if necessary. Highway designed to handle substantially higher traffic loads than created by project.	Long term/permanent	Low	Local	No	Low	Moderate	Low	Low	No

Legend: Level of interaction of Project Environmental Effects with VECC or significance ranking defined as low, moderate, or high considers mitigation success.

Duration of Interaction = short term (1-3 years); medium term (4-10 years); long term(>10 years)

Magnitude of Interaction defines magnitude of effects on VECC

Geographic Extent of interaction = low (local); moderate (regional); high (territorial or national)

Reversibility = low (non-reversible)

Project Description - Grizzly Valley Rural Residential Subdivision

Table 2. Significance of Effects Descriptors

Descriptor	Duration of Interaction	Magnitude of Interaction	Geographic Extent of Interaction	Reversibility*	Ecological Context	Economic & Social Context	Risk Characterization
Low	<1 to 3 years	negligible - low effects to surrounding environment	local	75-100%	community with good ecological fitness and a high degree of resilience	community with good economic and social fitness and a high degree of resilience	negligible - low risk: negligible to high hazard assessment; low to medium exposure assessment; and low to medium consequence assessment
Moderate	4 to 10 years	moderate effects to surrounding environment	regional	40-75%	community with moderate ecological fitness and a moderate degree of resilience	community with moderate economic and social fitness and a moderate degree of resilience	low - medium risk: low to high hazard assessment; negligible to low exposure assessment; and negligible to low consequence assessment
High	>10 years	extreme - catastrophic effects to surrounding environment	territorial or national	<40%	community with poor ecological fitness and a low degree of resilience	community with a poor economic and social fitness and low degree of resilience	medium - high risk: low to high hazard assessment; medium to high exposure assessment; and medium to high consequence assessment

*Note: Reversibility values are opposite to other scales

Appendices

Appendix 1 – EBA Engineering Consultants Ltd. Geotechnical Evaluation for Planning and Design Proposed Grizzly Valley Development Area

[EBA Grizzly Valley Road Report1.pdf](#)

Appendix 2 – Thomas Heritage Consulting. Heritage. Overview Assessment Grizzly Valley

[Grizzly Valley 2005 Final2.pdf](#)