ADDENDUM

ROSEBERY TO SUMMIT LAKE RAIL TRAIL – MOTO-BYPASS ENVIRONMENTAL IMPACT ASSESSMENT

Prepared for:

Recreation Sites and Trails British Columbia

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1 INTRODUCTION

This report provides an addendum to the October 10, 2018 report *Rosebery to Summit lake Rail Trail and Moto-Bypass Environmental Impact Assessment* prepared for Recreation Sites and Trails British Columbia. That report examined potential environmental impacts related to a proposed multi-use trail network between Rosebery, BC and Summit Lake, BC. The greatest environmental concerns were associated with motorized (ATV) trail sections involving a bridge crossing over Bonanza Creek (MT Section 1 - Hills Gravel Pit to Shannon Creek FSR) and new construction from Summit Lake Ski Hill to the end of the planned BC Timber Sales construction of Bonanza South FSR (MT Section 3 - Central Bonanza Creek) (Figure 1).

A different location for a bridge crossing on Bonanza Creek was subsequently identified with input from Les Thiessen, P.Eng. Furthermore, since an agreement could not be reached to route the ATV trail along existing roads through the Summit Lake Ski Hill, additional ATV trail construction is proposed to connect the Bonanza FSR north and south. A site visit was conducted on October 29, 2018 by John Cathro, RPF (Cathro Consulting), and Tyson Ehlers, RPBio (Masse Environmental Consulting) to assess these revised ATV route options. This report describes the new proposed routes, examines the potential environmental impacts, and provides recommendations to mitigate those impacts.

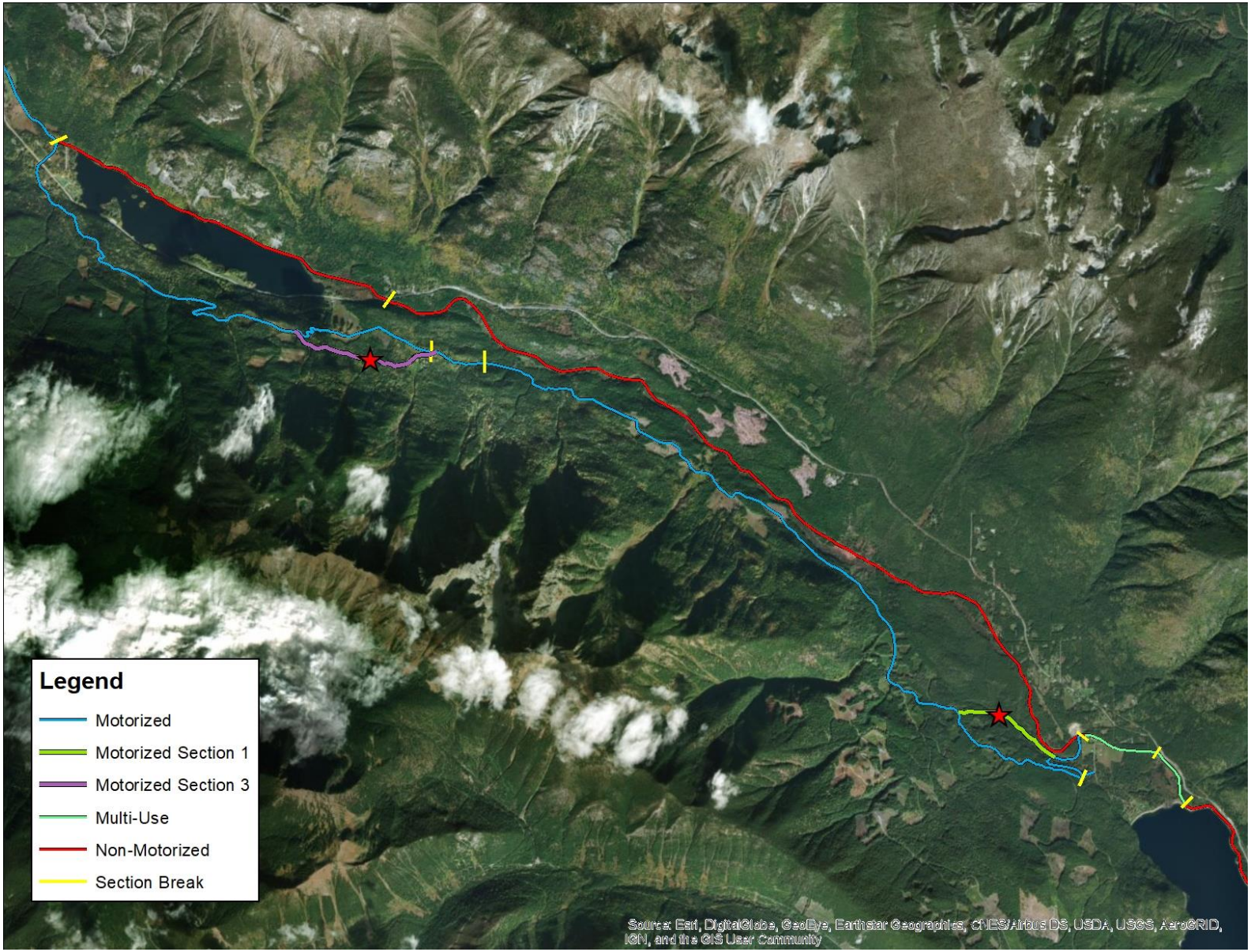

FIGURE 1. OVERVIEW MAP OF THE TRAIL SECTIONS USED FOR THE ENVIRONMENTAL IMPACT ASSESSMENT UPDATED TO SHOW THE PROPOSED NEW TRAIL ROUTES.

2 MT SECTION 1 - HILLS GRAVEL PIT TO BONANZA SOUTH FSR

2.1 Description

The original route for this section was planned to go from the rail trail at the gravel pit to Shannon Creek Forest Service Road (FSR), crossing Bonanza Creek at a point ~300-400 m above the existing bridge. The principal concerns with the bridge location were potential negative impacts to sensitive riparian ecosystems, water quality, and fish habitat. Other concerns were the spread of invasive plants, disturbance to wildlife, loss of wildlife trees, and impacts to species at risk. The baseline report recommended this crossing be avoided, and that the ATV trail use existing forest roads to access the west side of Slocan Lake at Wragge Beach. This option was rejected and a new route is proposed.

The new proposed route shares the same approach from the gravel pit south to a historic logging road adjacent to Bonanza Creek. It follows this road ~1.7 km from the gravel pit to an old crossing point (UTM 11 U 464837 5549528) where a new bridge will need to be built, and continues along old roads to Bonanza Creek FSR, for a total distance of ~2.9 km from the rail trail at the gravel pit (Figure 2).

From the rail trail at the gravel pit, there is a short (~50-100 m, ~50% slope) section that will require new trail construction through young conifer forest to connect to the old road. There is an unnamed tributary ~280 m from the gravel pit (11 U 465415 5549296). This is a small ephemeral stream that has eroded through the old road crossing and a culvert will be required for any future crossings (Photo 1).

PHOTO 1. EPHEMERAL STREAM CROSSING THE OLD ROAD ~280 M SOUTH OF THE GRAVEL PIT. NOV. 6, 2018

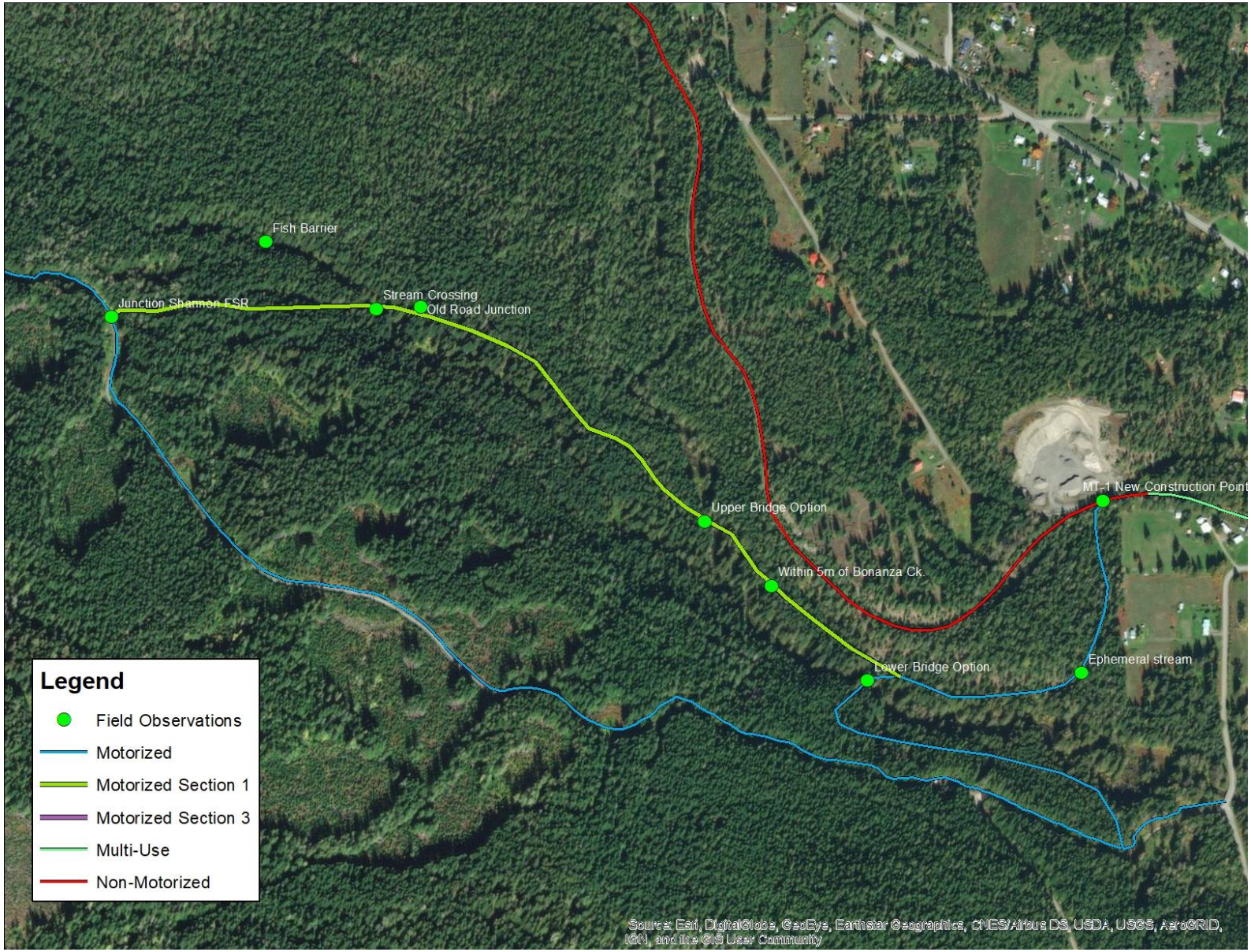

FIGURE 2. OVERVIEW MAP SHOWING THE NEW PROPOSED ROUTE AND BONANZA CREEK BRIDGE CROSSING FOR THE MOTORIZED TRAIL SECTION FROM HILLS GRAVEL PIT TO BONANZA SOUTH FSR.

The old road will require some debris and vegetation clearing to make it passable by ATVs, but is generally in good condition (Photo 2). In some places the road is within 5 m of Bonanza Creek, and infringes on sensitive riparian and fisheries zones (Photo 3). The new crossing is 1.1 km in a straight path upstream from the existing bridge on Bonanza Road, and ~750 m upstream from the original planned location (Figure 1; Photo 4-7). The span between the end of the built road on either side of Bonanza Creek is ~40 m. Channel width is 15 - 20 m. Stream gradient is ~5 %, with riffle/pool morphology, boulder substrate, and abundant large woody debris. The northeast bank is cobble/boulder substrate, riparian vegetation consists primarily of mountain alder, thimbleberry, dogwood, gooseberry, and scattered mature western redcedar. The southwest side is mesic conifer forest with the old road bed dropping right down to the stream bank (Photo 8).

PHOTO 2. HISTORIC LOGGING ROAD BETWEEN THE HILLS GRAVEL PIT AND BONANZA CREEK. OCT. 29, 2018

PHOTO 3. THE OLD ROAD IS WITHIN 5 M OF BONANZA CREEK IN PLACES. OCT. 29, 2018

PHOTO 4. LOOKING SOUTHWEST ACROSS BONANZA CREEK FROM PROPOSED ATV BRIDGE CROSSING. OCT. 29, 2018

PHOTO 5. LOOKING DOWNSTREAM FROM PROPOSED ATV BRIDGE CROSSING OVER BONANZA CREEK. NOTE DEBRIS IN STREAM FROM THE OLD BRIDGE CROSSING AND PREVIOUS ATTEMPTS TO REBUILD THE CROSSING. OCTOBER 29, 2018

Photo 6. Looking upstream from proposed ATV bridge crossing over Bonanza Creek. Oct. 29, 2018

PHOTO 7. NORTHEAST BANK OF PROPOSED ATV BRIDGE CROSSING OVER BONANZA CREEK. OCT. 29, 2018

From the Bonanza Creek crossing the old road rises shortly to a relatively large flat bench with ~60-80 year-old mesic conifer forest resulting from past logging (Photo 9).

On the west side of Bonanza Creek, the route crosses an unnamed fish-bearing tributary stream (watershed code 340-047200-99600-13400; Photo 10-11). The crossing (UTM 11 U 464332 5549855) is located ~660 m along the route from Bonanza Creek and is a historic stream crossing with evidence of old wooden footings. Fish and fish habitat inventory data from sampling done in 1996 (Kokanee Forests Consulting 1997[1]) found rainbow trout (*Oncorhynchus mykiss*) and good habitat in this reach up to a 3 m waterfall barrier (UTM 11 U 464162 5549958) located ~200 m upstream of the crossing. The field visit did not attempt to locate this barrier nor determine the presence of fish in the stream, though the stream is presumed to be fish-bearing at this point based on habitat characteristics and available data. The channel width is 10-15 m, bank height 1.3 m and average depth 0.2-0.4 m. Stream gradient is 5 %.

From the tributary stream crossing, the route continues along the old road for ~485 m to the Bonanza FSR and passes through mature hemlock/cedar forest. The old road becomes more defined and has abundant deadfall that would need to be cleaned up for an ATV trail (Photo 12).

[1] Kokanee Forests Consulting Ltd. 1997. Fish and Fish Habitat Inventory Bonanza Creek. FRBC Project #KB-96-259-IN. Submitted to: Resource Inventory Program, Nelson Region. Ministry of Environment, Lands and Parks.

PHOTO 8. SOUTHWEST BANK OF BONANZA CREEK AT THE HISTORIC BRIDGE CROSSING. OCT. 29, 2018

PHOTO 9. THE OLD LOGGING ROAD/PROPOSED ATV TRAIL PASSES THROUGH YOUNG CONIFER FOREST ON A BENCH ABOVE THE SOUTHWEST SIDE OF BONANZA CREEK. OCTOBER 29, 2018

PHOTO 10. UNNAMED FISH-BEARING TRIBUTARY STREAM (WATERSHED CODE 340-047200-99600-13400) LOOKING DOWNSTREAM AT THE OLD LOGGING ROAD/PROPOSED ATV TRAIL CROSSING. OCTOBER 29, 2018

PHOTO 11. UNNAMED FISH-BEARING TRIBUTARY STREAM (WATERSHED CODE 340-047200-99600-13400) LOOKING UPSTREAM AT THE OLD LOGGING ROAD/PROPOSED ATV TRAIL CROSSING. OCTOBER 29, 2018

PHOTO 12. THE OLD LOGGING ROAD IS WELL DEFINED AND HAS ABUNDANT DEADFALL BEFORE IT CONNECTS TO BONANZA FSR. OCT. 29, 2018

2.2 Environmental Threats and Impacts

The new proposed crossing would require a shorter bridge span, with less direct impacts to sensitive riparian floodplain and wet forest than the lower crossing. However, many of the key environmental elements will still require mitigation, including:

- water quality and fish habitat associated with two stream crossings;
- wildlife habitat values;
- sensitive riparian ecosystems;
- species-at-risk, including the blue-listed Coeur d'Alene Oregonian (*Cryptomastix mullani*) and the blue-listed mountain moonwort (*Botrychium montanum*);
- soil erosion and the spread of invasive plants.

The main issue with the new route is it results in a greater travel distance (~1.5 km) within the riparian corridor of Bonanza Creek, where much of the old road is within 30 m of the riparian zone. As stated in the previous report, the riparian corridor is a high-value wildlife area that currently has no vehicle or other access. Opening the area up to recreational use will have a negative effect on wildlife that use the area. In addition, it risks spreading invasive plants deeper into the riparian corridor, and there will need to be more trees cut to create and maintain the trail, some of which could be valuable wildlife trees.

2.3 Recommendations

We recommend that the original lower bridge crossing is still a better option overall to minimize negative impacts to the riparian corridor along Bonanza Creek. A well-designed crossing would reduce the immediate

impacts to water quality, fish habitat, and floodplain ecosystems. This option significantly reduces the overall impacts of motorized travel through the riparian corridor and better maximizes the use of existing forest service roads.

3 MT SECTION 3 - CENTRAL BONANZA CREEK

3.1 Description

This section was originally intended to largely follow existing roads through Summit Lake Ski Hill, but now must be routed around the Ski Hill to connect Bonanza north FSR to Bonanza south FSR (Figure 3). This results in ~2.5 km of new construction added to the route, for a total of 3 km of new route construction. From Bonanza north FSR, the route begins in a young clear-cut and shortly enters mature forest. The benching terrain allows for numerous route selection options within the general area. Past logging has resulted in forest types that are predominantly 60-100 yr. old western redcedar, western hemlock, Douglas-fir and western larch on mesic sites, interspersed with wetter subhygric sites dominated by trembling aspen and paper birch. There are several seepage areas with saturated soils, and several small streams that will need to be crossed. A small (~1.5 m x 2.5 m) mucky water-filled depression was observed (Photo 13; UTM 11 U 456107 5554398) which appeared to be a seasonal animal wallow (though not a significant wallow as defined by the B.C. Ministry of Environment and Climate Change Strategy Ecosystems Branch 2018[2]).

[2]B.C. Ministry of Environment and Climate Change Strategy Ecosystems Branch. 2018. Wildlife Habitat Features Field Guide (Kootenay Boundary Region). https://www2.gov.bc.ca/assets/gov/environment/natural-resource-policy-legislation/legislation-regulation/frpa-pac/wildlife-habitat-features/whf_field_guide_kootenay_boundary.pdf

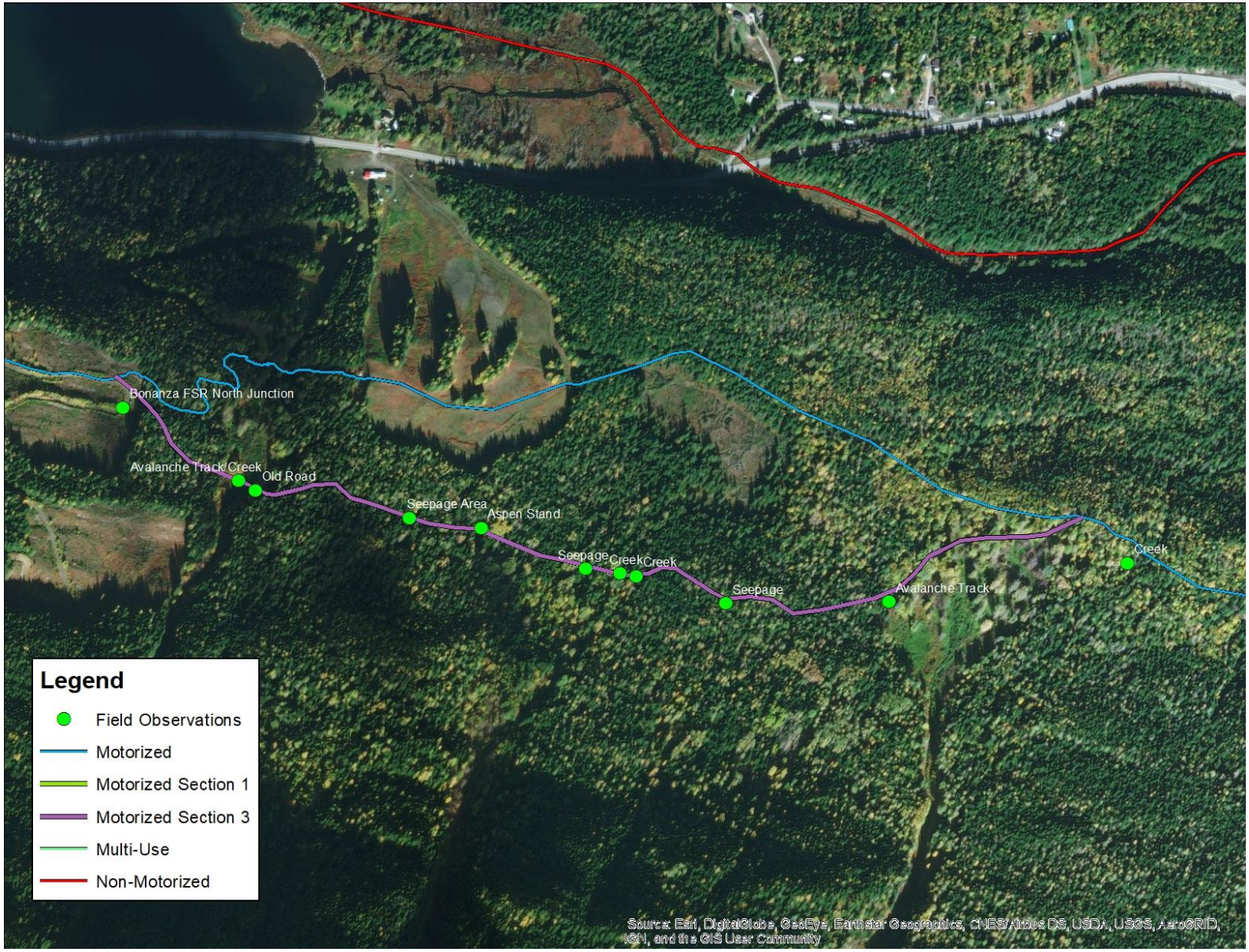

FIGURE 3. PROPOSED MOTORIZED TRAIL ROUTE, MT SECTION 3 CENTRAL BONANZA CREEK.

The proposed route crosses the bottom of an avalanche path located above the ski hill (Photo 14; UTM 11 U 455793 5554467). The opening is ~70 m wide with a stream (watershed code: 340-047200-99600-78900) running through the middle. Maintaining a permanent trail in this location would be challenging, since the area is unstable and any stream crossings would be subject to frequent erosion. The route will connect to the east end of the Summit Lake cross-country ski trail for a short distance before new construction is required to connect to the end of Bonanza south FSR. Another stream (watershed code: 340-047200-99600-669) at the base of a major avalanche path (Photo 15) will need to be crossed. A crossing was identified that avoids the forested swamp area above where the original route was planned (Photo 16).

There are five stream crossings in total along the road, and several seepage areas which will require need to be considered during trail construction and operation. None of the stream crossings are in fish bearing sections of these streams.

PHOTO 13. SMALL ANIMAL WALLOW IN A SEEPAGE AREA ALONG THE PROPOSED ALTERNATE ATV ROUTE ABOVE SUMMIT LAKE SKI HILL. OCTOBER 29, 2018

PHOTO 14. THE NEW TRAIL WILL HAVE TO CROSS THE BASE OF AN AVALANCHE PATH DIRECTLY ABOVE SUMMIT LAKE SKI HILL. OCTOBER 29, 2018

PHOTO 15. LARGE AVALANCHE PATH WHERE THE PROPOSED ALTERNATE ATV ROUTE WILL DROP DOWN TO CONNECT WITH THE SUMMIT LAKE SKI HILL TRAIL SYSTEM. OCTOBER 29, 2018

PHOTO 16. A GOOD CROSSING WAS FOUND ACROSS THIS STREAM (WATERSHED CODE: 340-047200-99600-669) TO AVOID MORE SENSITIVE WET FOREST/AVALANCHE PATH ECOSYSTEMS ABOVE. OCTOBER 29, 2018

3.2 Environmental Threats and Impacts

The new proposed route has the same construction, maintenance and operation impacts as the previous route, but adds another 2.5 km of new trail construction in order to avoid using the existing Summit Lake Ski Hill roads. The primary impacts associated with this route were identified in the baseline report, with additional impacts as noted:

- Impact to bear habitat and movement. This section is one of the only unroaded parts of the valley in an area that is well known to be important for bear habitat and movement. The creation of the trail may have negative effects on bear use depending on actual ATV use.
- Direct impact to blue-listed Coeur d'Alene Oregonian habitat from trail construction. While this mollusc is widespread in the region, it is a species-at-risk that is known to inhabit the area where the trail will be built. It is a small (about 15 mm wide) species that is typically found in or under leaf litter and therefore difficult to locate and likely impossible to salvage before trail construction.
- Water quality. The proposed trail route crosses several streams and seepage areas. While the streams are not fish-bearing at the crossing points, proper crossings will be required to minimize effects on water quality. Fords are not recommended where streams are incised and likely to cause siltation. Bridges or large culverts are the preferred crossing types, though this may be challenging where it crosses a stream running through the base of an avalanche path (watershed code: 340-047200-99600-78900) directly above Summit Lake Ski hill.

- Western toad habitat. The additional new trail construction is within the Summit Lake toad management area, and has potential to be used by adult toads as living habitat. Mitigation strategies should be adopted as identified in the baseline report.
- Vegetation clearing. There will be ~3 km of new trail construction. With an average width of 4 m, this results in ~1.2 ha of vegetation removal, mostly forested. Potential impacts to nesting birds and wildlife trees should be considered as part of the construction plan.

3.3 Recommendations

The key management recommendations for this section are adapted from the baseline report, with the addition of more impacted area.

1. Additional surveys of hydrologic feasibility, wildlife habitat features, species at risk, and sensitive sites are recommended, as well as bird surveys for any vegetation cleared during the breeding season.
2. Implement seasonal closures during active grizzly bear and western toad times.
3. Design the trail to avoid seepage areas and other identified sensitive sites, and install barriers to keep users on designated trails where necessary.
4. Install educational signage to inform users of seasonal closures and trail rules.

4 Conclusion and Recommendations

This report provides an assessment of new designs for sections of recreational trails (MT Section 1 - Hills Gravel Pit to Shannon Creek FSR, and MT Section 3 - Central Bonanza Creek) that were originally assessed in the baseline report, *Rosebery to Summit lake Rail Trail and Moto-Bypass Environmental Impact Assessment*. The reader should refer to that report for context and for specific recommendations to mitigate impacts to environmental values, including:

- streams and fish habitat (see Appendix 2 of the baseline report for a comprehensive listing);
- western toad and other amphibians;
- large mammals and other wildlife;
- birds; and
- species and ecosystems at risk (see Appendix 1 of the baseline report for a comprehensive listing).

The threats and impacts of a designated motorized recreational trail in the north Slocan Valley should be evaluated against the alternative status quo situation where there is currently no management strategy to guide development and regulate use. Currently much of the rail trail from Hills to Summit Lake is overgrown, and sees relatively little use; however, the old rail way has left a legacy of environmental impacts, and any increase in unregulated use poses additional threats to many key ecological values identified in our baseline report. Left unmanaged, there is no guarantee of environmental protection for the future, and no strategy to regulate use. As stated in our baseline report, securing the rail trail as a managed non-motorized recreational trail is desirable for maintaining the long-term ecological integrity of the Bonanza corridor, while providing many recreational benefits. In order to achieve this designation, agreement has been sought with motorized recreational users to provide access through the corridor.

Motorized trails pose the greatest potential threat to the environment, with the most uncertainty about the impacts. Under the current proposed Bonanza corridor recreational trail plan, a separate motorized trail will remove ATVs from most of the rail trail from north Summit Lake to Hills. This alleviates potential negative impacts to the valley-bottom ecosystems of the Bonanza corridor and conflict with non-motorized users. However, those impacts will be displaced elsewhere in the corridor and there are still direct environmental impacts from constructing new trails and reopening old roads that will require mitigation. There is also uncertainty about how the intensity of use will be managed. Officially designating an ATV trail presents the possibility of this becoming a highly popular motorized recreation destination that threatens the long-term ecological integrity of a relatively remote and undisturbed corridor.

If the ultimate goal of the ATV trail is to provide motorized users with an out and return access to ride off-highway from Nakusp to the Girl Guide camp on Slocan Lake and back, alternative to the existing rail trail, then the cost-benefit of such a trail should be evaluated carefully, including input from residents of the local communities affected. Some questions that will need to be addressed include: How will access (i.e., gates, vehicle types) and unauthorized users (e.g., motorbikes, poachers) be regulated? Who will be responsible for enforcing trail closures? How will sensitive areas be protected (i.e., barriers to prevent riding through streams and wet sites)?

To this end, we advise caution in developing the motorized trail sections, and follow closely the recommendations made in this and the previous baseline report, summarised as follows:

1. A hydrological feasibility study should be done for new trail sections (particularly MT Section 3 Central Bonanza Creek) to ensure construction will not impair natural hydrological functioning near avalanche paths, streams and seepage areas.
2. Environmentally sensitive sites, seepage sites, riparian areas, ponds and streams need to be clearly identified along the route with barriers to prevent ATVs from entering and disturbing these sites.
3. Wildlife habitat features including wildlife trees, stick nests, animal wallows, bear dens, etc. should be identified and protected.
4. A species-at-risk survey should be done prior to ground disturbance and vegetation clearing (see Sec. 3.3 of the baseline report).
5. Breeding bird surveys should be done prior to any vegetation disturbance for construction and maintenance during the breeding bird season.
6. An invasive plant management plan should be part of the trail operation, with detailed monitoring plans and mitigation strategies.
7. Trail closures need to be strictly enforced:
    a. during seasonal western toad migrations (see Sec. 4.2 of the baseline report);
    b. during spring bear foraging periods (see Sec. 4.3 of the baseline report); and
    c. during fire season.
8. Spill kits should be mandatory equipment for motorized users, and refueling should not be allowed within 30 m of any water courses.
9. The trails should not be used for hunting (due to pressure on wildlife and public safety).

10. Develop a monitoring program to quantify and assess trail usage and better evaluate the cumulative user impacts on the environment. Options to consider include:
    - installing trail counters along the proposed motorized and multi-use sections, and
    - restricting ATV users to those with membership in an official trail management society.
11. Signage is recommended to increase public awareness and inform trail users about:
    - designated trail use (NMT, MT, MUT);
    - seasonal use restrictions (i.e. western toad migration windows, spring grizzly bear forage areas);
    - general wildlife precautions (managing bear attractants, controlling dogs, etc.); and
    - trail closures for public safety (e.g., bear sightings in area, washouts, rockfall, windfall, maintenance works, etc.).
12. Advocate responsible ATV use:
    - restrict use to designated trails only;
    - enforce speed limits in wildlife-sensitive areas and especially on multi-use sections;
    - do not drive at night;
    - refuel at least 30 m from streams;
    - do not discharge firearms along trail; and
    - inspect vehicles for invasive plants.
13. Record and report any grizzly bear, caribou, and other at-risk species sightings, including operational responses to encounters.