

# Road Assessment Harrison Mills – Mt. Currie Addendum

prepared for:

*Land and Water British Columbia Inc.*

and

*South Coast Region Ministry of Transportation*

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submitted by:



in association with:

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## Executive Summary

A number of studies have been undertaken which have examined the feasibility of developing a public road to connect Pemberton /Mt. Currie to the Lower Fraser Valley along what has become known as the Sasquatch Corridor. Some of these studies focused on either progressive upgrading of the existing In-SHUCK-ch and Harrison West Forest Service Roads to a two-lane paved roadway, or making localized improvements to these Forest Service Roads (FSRs).

In 1999, Infrastructure Systems Ltd. (ISL) completed a study of the Sasquatch corridor for the Ministry of Transportation. The study proposed improvements that would provide a more consistent operating speed and would increase reliability and safety while utilizing as much as possible of the existing roadbed and structures along the corridor. The results of that study are contained in the report titled "Road Assessment – Harrison Mills to Mount Currie".

In 2003, the Ministry of Transportation initiated a study to examine the costs and impacts of constructing a two-lane, 60 km/h low traffic volume road along the corridor. This evaluation was confined to the design aspects of the road and did not assess the impact on regional traffic patterns.



Key Plan 1

In the 1999 study, ISL estimated the cost of upgrading the road along the Sasquatch Corridor between Mt. Currie and Harrison Mills to be \$200 million. This current study has estimated the total project cost at \$275 million. The updated cost includes the following components that ISL was not asked to include in the 1999 cost estimate:

- Replacement of eight single-lane bridges with new two-lane structures
- Engineering during design and construction
- Property acquisition
- Environmental mitigation
- Archaeological mitigation
- Project management.

The 2003 cost estimate is based on the alliance model of project delivery.

The roadway would:

- Provide access to First Nations communities and other residents and businesses in the corridor.
- Provide access for new commercial, tourist and recreation land uses.
- Offer an alternate access to Pemberton, Whistler, and Lillooet from the lower Fraser Valley.
- Provide an emergency route to Vancouver in the event of long term closures of Highway 99 between Horseshoe Bay and Squamish.

Development of a road in this corridor needs to be undertaken in a way which recognizes the following important considerations:

- First Nations interests.
- The rugged mountainous terrain.
- Archaeological and environmental impacts.
- The location of the hydro transmission line.
- The impact of natural hazards on road maintenance.

# 1.0 Introduction

A number of studies have been undertaken previously to evaluate potential highway routes that would connect Pemberton /Mt. Currie to the Lower Fraser Valley. The 1999 study "Road Assessment - Harrison Mills to Mt. Currie" recommended either an upgrade of the existing forest service roads to two-lane paved roadways (In-SHUCK-ch Road and Harrison West FSR) or a series of progressive localized improvements.

The study focused on carrying out improvements that would provide a more consistent operating speed and would increase reliability and safety while utilizing as much as possible the existing roadbed and structures along the corridor.



The 1999 study recommended that an alignment that utilizes the In-SHUCK-ch FSR from Hwy. 99 along the east side of the Lillooet Lake and Lillooet River crossing to the west side at the Lillooet Bridge and continuing on the west side until the south end of Harrison Lake. It recommended completion of the connection between Hwy. 99 (Mt. Currie) to Harrison Mills (Hwy. 7) by utilizing the existing paved road which extends from Harrison Mills northward for approximately 11 km and then utilizing the Harrison West FSR. The Harrison West FSR starts approximately 1 km north of the end of the paved section.

This study examined the cost and impact of constructing a two-lane paved low traffic volume road along this alignment. For purposes of orientation, the kilometre station used on the plans follows the kilometre markings posted along the In-SHUCK-ch and Harrison West FSRs.

## 2.0 Scope of Study

The purpose of this study, which is presented as an addendum to the 1999 study, was to update costs for a conceptual alignment of a paved two-lane roadway with a 60 km/h design speed. The roadway would be located along the east side of Lillooet Lake and River and the west side of Harrison Lake. The route extends from Highway 99 (near Mr. Currie) to Highway 7 (near Harrison Mills), a total distance of approximately 160 kilometres.

It is intended that the upgraded roadway would provide a safer, more reliable and shorter connection between the existing communities and resources in the Lillooet Valley and the Lower Mainland. It could also function as an alternative network route between the Pemberton Valley and the Lower Mainland. The proposed road upgrade would also make the Lillooet Lake, Lillooet River and Harrison Lake watersheds accessible for recreational use.

The objectives of this study were to:

- Develop a new cost estimate based on design criteria prescribed by the Ministry of Transportation.
- Disaggregate the cost estimate into discreet road sections.

## 3.0 Existing Conditions

The overall route is 160 km in length. The corridor was divided into eight logical sections. The four sections of the In-SHUCK-ch FSR, starting at the Duffy Lake Road, are:

- East side of Lillooet Lake to Tenas Bridge – Km. I-0 to I-29.5.
- Tenas Bridge to Skookumchuck settlement – Km. I -29.5 to I-51.
- Skookumchuck settlement to Lillooet River Bridge – Km. I-51 to I-76.5.
- Lillooet Bridge to north end of Harrison Lake– Km. I-76.5 to I-87.

The four sections of the Harrison West FSR four sections, starting at the south end of the Harrison West FSR, are:

- End of pavement 11 km north of Harrison Mills to a location where a number of different forestry roads meet – Km H-0 to H-23.
- Forestry roads intersection to Twenty Mile Bay access – Km H-23 to H-35.
- Twenty Mile Bay to Five Mile Bay access – Km H-35 to H-59.
- Five Mile Bay to north end of Harrison Lake – Km H-59 to H-73.

The alignment crosses 43 identifiable water courses. Ten of these are either box culverts or rock fords. The remainder are bridge structures of various types ranging from a 6 metre structure to a 45 metre structure across the Lillooet River. All existing structures are single lane and the current roadway width is between 3.5 and 5.0 metres.

The existing roadway was originally constructed to build the power line, service the logging industry, and connect communities along the length of the route. In certain locations, the roadway is within the hydro corridor.

The terrain along the route can be classified as one of five types:

1. Rough mountainous.
2. Mountainous.
3. Rough glacial.
4. Smooth glacial.
5. Level valley bottom.

These different terrains are described and shown on plans in Appendix 1. Each section of the route has been broken into parts by terrain type. The breakdown is listed by distance in a spreadsheet in Appendix 1. Appendix 2 contains plans and profiles of the corridor showing the different sections.

### **3.1 In-SHUCK-ch FSR (Lillooet Lake & Lillooet River)**

#### **Section 1 – East Side of Lillooet Lake – Km. I-0 to I-29.5**

The first segment extends southward from Highway 99 along the east side of Lillooet Lake and then along a short section of the Lillooet River to the Tenas Bridge. The road was originally constructed to serve the logging industry and to provide access to the hydro line and access in and out of the Lillooet Valley for First Nations residents.

This segment has primarily mountainous terrain interspaced with glacial terrain ending with level terrain adjacent to the Lillooet River. The Tenas Bridge provides the first opportunity to access the west side of the Lillooet River and Lillooet Lake as well as the First Nations community of Skateen.

The existing roadway in Section 1, with a width of approximately 6 metres in most locations, has a poor surface structure with many potholes as well as boulders projecting through the surface. ***Exhibit 3.1*** is a good representation of the road surface condition along the complete corridor.





***Exhibit 3.1***

### **Sections 2 & 3 – East Side of Lillooet River Km I-29.5 to I-51 and Km I-51 to I-76.5**

Section 2 extends along the east side of the Lillooet River from the Tenas Bridge to the Skookumchuck settlement (21.5 km) and Section 3 extends from Skookumchuck settlement to the Lillooet Bridge (24.6 km).

These two segments parallel the east bank of the Lillooet River on generally level terrain with pockets of glacial till. At a number of locations the adjacent mountainous terrain creates a bench adjacent to the Lillooet River. A number of First Nations communities as well as St. Agnes Well hotsprings and Skookumchuck hotsprings are located along these sections.

### **Section 4 – West side of Lillooet River – Km. I-76.5 to I-86.7**

Section 4 extends from the Lillooet River bridge along the west side of the Lillooet River to the north end of Harrison Lake. This 10 km section crosses a smooth glacial till area that is relatively flat, with one mountainous bench adjacent to the Lillooet Bridge.

## 3.2 Harrison West FSR

### Sections 5, 6, 7, and 8 - West side of Harrison Lake

The four roadway sections along the west side of Harrison Lake are:

- End of pavement 11 km north of Harrison Mills to a location where a number of different forestry roads meet – Km H-0 to H-23.
- Forestry roads intersection to Twenty Mile Bay access – Km H-23 to H-35.
- Twenty Mile Bay to Five Mile Bay access – Km H-35 to H-59.
- Five Mile Bay to north end of Harrison Lake – Km H-59 to H-73.

These sections are approximately 74 km in length. These segments of the road have a mix of rugged mountainous and rugged glacial terrain.



*Exhibit 3.2*

The Harrison West FSR connects a number of subsidiary forestry roads. The roadway surface width is between 3 and 6 metres. There are pullouts located along the route for passing oncoming vehicles. Communications between regular users of the road is maintained by radio. Vehicles not equipped with radios have limited opportunity to find a pullout prior to meeting an oncoming vehicle.



***Exhibit 3.3***

Trees, rocks and other material is often very close to the edge of the road as shown on ***Exhibits 3.2 & 3.3***. Tree branches regularly hang over the edge of the road. These intrusions reduce the comfort level of the driver and reduce the effective drivable width.

The terrain adjacent to the route varies from high overhanging rock to relatively flat sloping terrain. Vertical rock diminishes the clear distance from the edge of the road, and as a result, reduces the comfort level and drivable width of the road. Steep unstable terrain has resulted in landslides that block part or all of the road as shown on ***Exhibit 3.4***.



***Exhibit 3.4 - Landslide***

The terrain is generally consistent along all four sections of this corridor.

Both the In-SHUCK-ch/Harrison West Forest Service Roads pass through rock slides as well as active and historic debris torrents. Rocks and other debris can be encountered on the road at these locations (see **Exhibit 3.5**). Most of the larger structures have been located at an elevation so that debris torrent conditions within the channel do not threaten the structure. Small streams utilize culverts to handle the flow. Shifting or movement of the debris torrent channel has blocked culverts causing the road to wash out.



**Exhibit 3.5 – Debris Torrent**

## 4.0 Proposed Roadway

### 4.1 Design Criteria

The proposed roadway would be a recreational roadway designed to a low traffic volume standard not specifically matching any Provincial roadway classification. The following design criteria were specified by the Ministry of Transportation.

- Roadway Classification – No formal classification.
- Design Speed – 60 km/h (30 km/h with speed advisory where necessary in extreme terrain or to avoid structure costs).
- Basic Lanes – two lanes paved.
- Maximum Grade – 12%.
- Lane Width – 3.5 metres.
- Modified Paved Shoulder Width – 0.5 metres.
- Gravel Shoulder Width – 0.5 metres.
- Clear Zone and Recovery Slope – none.
- Rock Catchment Width – 1.25 metres.
- Bridges – primarily single lane.

Lane widths of 3.5 metres are consistent with TAC standards for a two-lane rural collector roadway classification.

The modified paved shoulder width of 0.5 metres is below the TAC standard of 1.56 metres for a rural collector roadway and below the 1.0 metre standard for rural local roadways. The 1.0 metre composite shoulder width was used for this basic access road.

## **5.0 Social Considerations**

### **5.1 First Nations**

There are seven First Nation communities within the Lillooet Valley. Residents are sometimes stranded by washouts and poor road conditions. Currently, all supplies and emergency services come from Pemberton to these remote communities. These people have the highest need for an improved road facility. A paved low volume road would:

- Provide improved safety under all weather conditions.
- Reduce travel time and vehicle operating costs.
- Improve reliability.
- Promote business development and employment opportunities.

There are many anthropological and archeological sites along the corridor. A search of existing databases should be completed to determine which sites have been catalogued in the corridor. Impact assessments should be done prior to embarking on any short or long term improvements. It should be noted that local communities prefer not to publicize the locations of archaeological and heritage sites, only to identify and protect them.

### **5.2 Parks**

There are no provincial parks located along this corridor. There are, however, a number of forestry campsites. These sites support amenities such as St. Agnes and Skookumchuck hotsprings and recreation activities such as fishing, hiking, and sightseeing.

### 5.3 Archaeological Sites

A number of archaeological sites have been identified along the route including remnants of the gold rush trail. There are at least seven areas with a combined length of approximately 9 km. where the existing road uses the historic trail.

There are a number of cemeteries located along the route (see *Exhibit 5.1*).



*Exhibit 5.1*

Other archaeological values include culturally modified trees and painted rock faces. The locations of known archaeological sites are indicated in the maps in *Appendix 2*. A complete inventory of culturally modified trees and pictographs is not available at this time. Further study will be required to determine the impacts to any trees and rocks with heritage value and to establish appropriate mitigation plans.

## **6.0 Environmental Considerations**

The proposed alignment is generally located on the mountain slopes adjacent to the Lillooet Lake, Lillooet River and Harrison Lake. Roads in such topography typically are exposed to such natural hazards as:

- Snow avalanches.
- Land slides.
- Rock falls.
- Debris torrents and washouts.
- Floods.

### **Waterway Impact**

A recent concern in road construction is the leaching of acid from freshly excavated rock faces. Leachate entering waterways may affect fish. A comprehensive geotechnical survey would be required prior to preliminary design to identify zones where acid-leaching rock is likely to pose a problem. A strategy should be developed to either use the material in embankments or to dispose of the material in stockpiles with appropriate neutralization blankets.

### **Fish Impact**

The existing gravel access road crosses many tributary streams. Many of these streams are fish-bearing and offer ideal fish-rearing habitat. A fish inventory and assessment should be completed as part of the field work leading up to the preliminary design. Culverts at fish-bearing streams should be designed to allow for the passage of fish.



## **7.0 Cost Estimate**

Costs have been calculated using five terrain types described in Appendix 1. The designation of sections of the corridor by the terrain types was based on field reconnaissance and topographical mapping.

This cost estimate was prepared using the Ministry of Transportation's elemental parametric highway cost estimating method. This method includes all major items of construction such as site preparation, earthworks, rock slope stabilization, gravelling, paving, drainage, bridge and retaining wall structures, and utility relocations. The sizes of bridge structures and retaining walls were estimated using bridge inspection information and cross-section details from earlier studies.

This cost estimate also includes amounts for environmental mitigation, archaeological investigation and mitigation, and property acquisition as well as preliminary and detailed design, project management and construction supervision.

The 1999 study of this corridor was based on the assumption that any of the existing single-lane bridges in good condition would not be replaced. This study assumed that eight bridges would be replaced, one in each section. Utilization of the existing bridges will compromise horizontal and vertical geometry at some of the bridge approaches.

The following approach will provide a cost-effective roadway:

### **Road Structure**

- 150mm granular sub base layer in areas of rock excavation, 300mm in glacial terrain and 450mm in valley bottoms (reflects an effective allocation of granular materials for a low volume road with a low volume of heavy vehicles).
- 150mm of crushed base gravel.
- 75mm asphalt pavement.

### **Road Rehabilitation**

- Replace only the most deficient bridges (one per section).
- No smooth wall blasting or rock slope stabilization as rock is strong and massive (lower capital cost will result in higher maintenance costs).

### **Other Considerations**

- Alliance delivery model recommended with lower engineering, project management and construction supervision costs. Basic quality control.
- Relocate only one high voltage tower at a cost of \$300,000 (Section 1).

This approach will provide a cost-effective facility for a low volume of traffic. Higher maintenance costs will be incurred. However, some future maintenance funds can be applied to areas where further improvements are most needed.

## **7.1 Right-of-Way Costs**

The majority of the corridor is Crown Land. There are a number of private land holdings at the northern end of the project just south of Duffy Lake Road. Some acquisition of private property may be required.

The alignment passes through seven First Nations reserves in Sections 2 and 3. Some acquisition of right-of-way may be required.

## **7.2 Utility Costs**

A BC Hydro high-voltage transmission line shares the corridor with the proposed roadway.

Based on discussions with BC Hydro officials, relocation of each hydro transmission tower is estimated to cost approximately \$300,000. While the proposed 60 km/h design speed affords some flexibility in alignment, there are areas where towers will compromise the alignment.

It is anticipated that one tower may require relocation at the north end of the project where the road and the towers would share a narrow bench area through difficult terrain adjacent to Lillooet Lake.

### **7.3 Environmental/Archaeological Mitigation**

Formal environmental and archaeological assessments of the corridor have not been carried out. However, there are known archaeological sites. There is at least one site in Section 1, six sites in Sections 2 and 3, and two sites along Section 4. The gold rush trail is encountered seven times for a total length of about 9.9 km along Section 2 & 3.

Costs for studies and mitigation have been based on known environmental and archaeological evidence along the corridor.

### **7.4 Detailed Cost Estimate**

The following table provides a summary of the cost estimate prepared using the "Elemental Parametric Method". More detailed itemized section-by-section cost breakdowns are included in Appendix 3.

<b>In-SHUCK-ch FSR</b>				
<b>Section</b>	<b>Road Construction</b>	<b>Structures</b>	<b>Engineering Project Mgmt.</b>	<b>Construction Cost</b>
1	\$27.1 M	\$4.7 M	\$5.2 M	\$37.0 M
2	\$20.7 M	\$1.7 M	\$3.8 M	\$26.2 M
3	\$29.6 M	\$5.1 M	\$5.0 M	\$39.7 M
4	\$12.1 M	\$1.2 M	\$2.0 M	\$15.3 M
<b>Subtotals</b>	<b>\$89.5 M</b>	<b>\$12.7 M</b>	<b>\$16.0 M</b>	<b>\$118.2 M</b>
<b>Harrison West FSR</b>				
5	\$30.8 M	\$12.7 M	\$5.6 M	\$49.1 M
6	\$17.7 M	\$6.5 M	\$3.0 M	\$27.2 M
7	\$35.2 M	\$8.8 M	\$5.7 M	\$49.7 M
8	\$21.4 M	\$6.0 M	\$3.4 M	\$30.8 M
<b>Subtotals</b>	<b>\$105.1 M</b>	<b>\$34.0 M</b>	<b>\$17.7 M</b>	<b>\$156.8 M</b>
Land				\$0.4 M
<b>TOTAL</b>	<b>\$194.6 M</b>	<b>\$46.7 M</b>	<b>\$33.7 M</b>	<b>\$275.4 M</b>

The additional cost of replacing all existing single-lane structures with two-lane structures is estimated to be \$15.0 M. No additional retaining wall are included in this estimate.

The unit prices used for this cost estimate are based on similar types of highway construction projects in the southwestern part of the province. A general contingency allowance of 20% has been included.

The cost estimate is in 2003 dollars. This cost estimate should be adjusted to include escalation between 2003 and the anticipated construction year. The actual construction cost may be affected by the volume of concurrent road construction activity underway at the time of contract tendering.

The 2003 cost estimate exceeds the 1999 estimate by \$75.4 M. The 1999 cost estimate was based on a lesser design standard and only reflected construction costs. It did not include the costs associated with the replacement of eight bridges, property acquisition, engineering and project management.

The two cost estimates are reconciled as follows:

<b>1999 Cost Estimate</b>	<b>\$200.0 M</b>
Land	\$0.4 M
Environmental	\$3.5 M
Archaeological	\$4.5 M
Structures (including retaining walls)	\$22.6 M
Construction Supervision	\$10.7 M
Engineering / Project Management	\$33.7 M
<b>2003 Cost Estimate</b>	<b>\$275.4 M</b>

## 7.5 Maintenance Costs

Annual maintenance costs for this type of roadway will vary along the length of the route due to the changing conditions. The annual maintenance cost of a two-lane roadway would vary between \$11,000/km for flatter areas to \$16,000/km for more mountainous areas.

Based on a blended cost of approximately \$15,000/km/year for the 160 km road, the annual maintenance cost is expected to be about \$2.4 million.

## 7.6 Traffic Disruption/Traffic Management Cost

Non-forestry traffic is minimal. Since there are no detour routes, good communications with local residents will be required during construction in order to avoid excessive delays. As the majority of local residents drive 4x4 pickups and SUVs, they will be able to drive through rough construction sites with traffic control.

## **APPENDIX 1**

### **TERRAIN TYPES**

The terrain along the Harrison Mills to Mount Currie corridor can be characterized into five types:

- rough mountainous,
- mountainous,
- rough glacial,
- smooth glacial, and
- level valley bottom.

These terrain types are described below and illustrated graphically in a series of diagrams following the text. The corridor has been divided into short pieces by terrain type. The pieces are listed in a spreadsheet at the end of this Appendix. The pieces are shown as coloured line segments on the conceptual alignment plans in Appendix 2.

#### **Rough Mountainous Terrain**

- side slopes on one or both sides with rock cuts or future rock cuts between 5 and 10m
- can contain grades in excess of 10% necessitating switchbacks
- poor horizontal and vertical alignment associated with a design speed of 20 – 40 km/h

#### **Mountainous Terrain**

- rock side slopes on one or both sides of approximately 5 m or less
- grades usually less than 10%
- fewer switchbacks
- horizontal and vertical alignment associated with a design speed of approximately 30 – 50 km/h

#### **Rough Glacial Terrain**

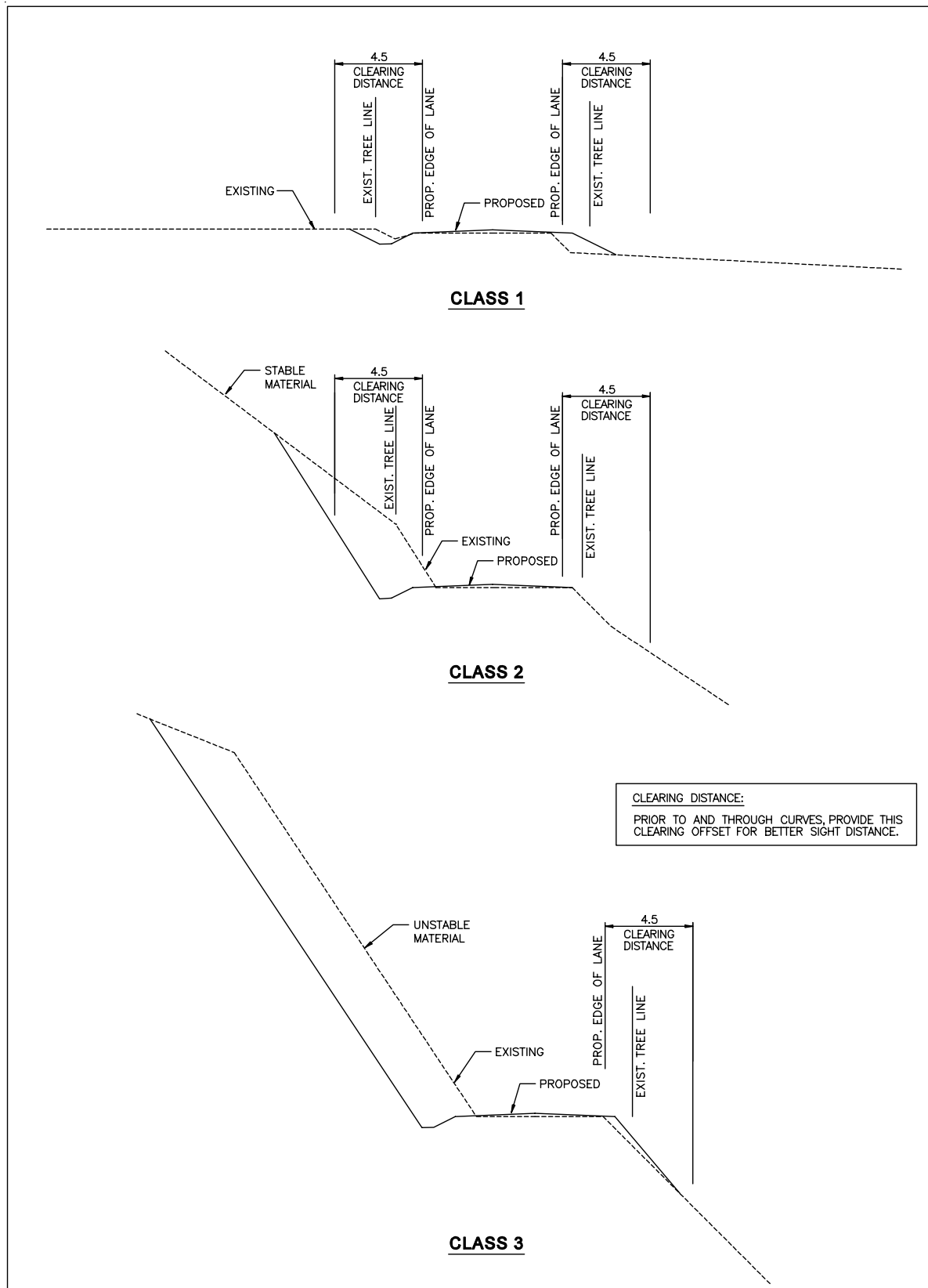
- high side slopes with slopes of approximately 1.5:1
- granular material with cobble rock mixed in
- steep drop-off; on one side
- switchback in certain locations
- some grades in excess of 10%
- horizontal and vertical alignment associated with a design speed of between 20 – 50 km/h

### **Smooth Glacial Terrain**

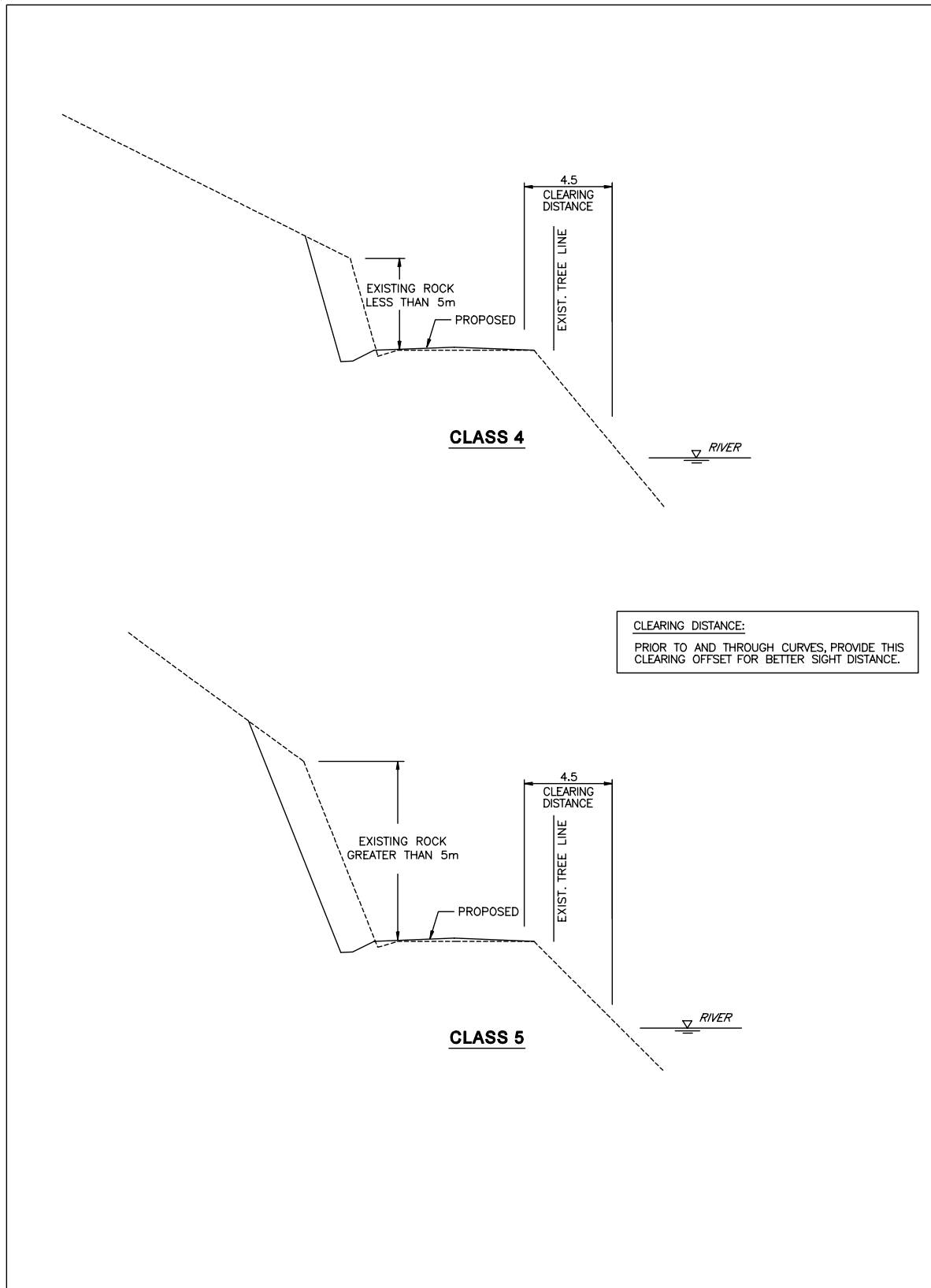
- back slopes less than 2 m high
- material in back slope is glacial granular till with cobble
- no switchbacks
- horizontal and vertical alignment associated with a design speed of 40 – 70 km/h

### **Level Terrain**

- terrain is flat usually with trees on each side
- roadway subgrade is soft due to poor drainage
- subgrade material contains more fines (silt)
- horizontal and vertical alignment will not pose any constraint for improvements



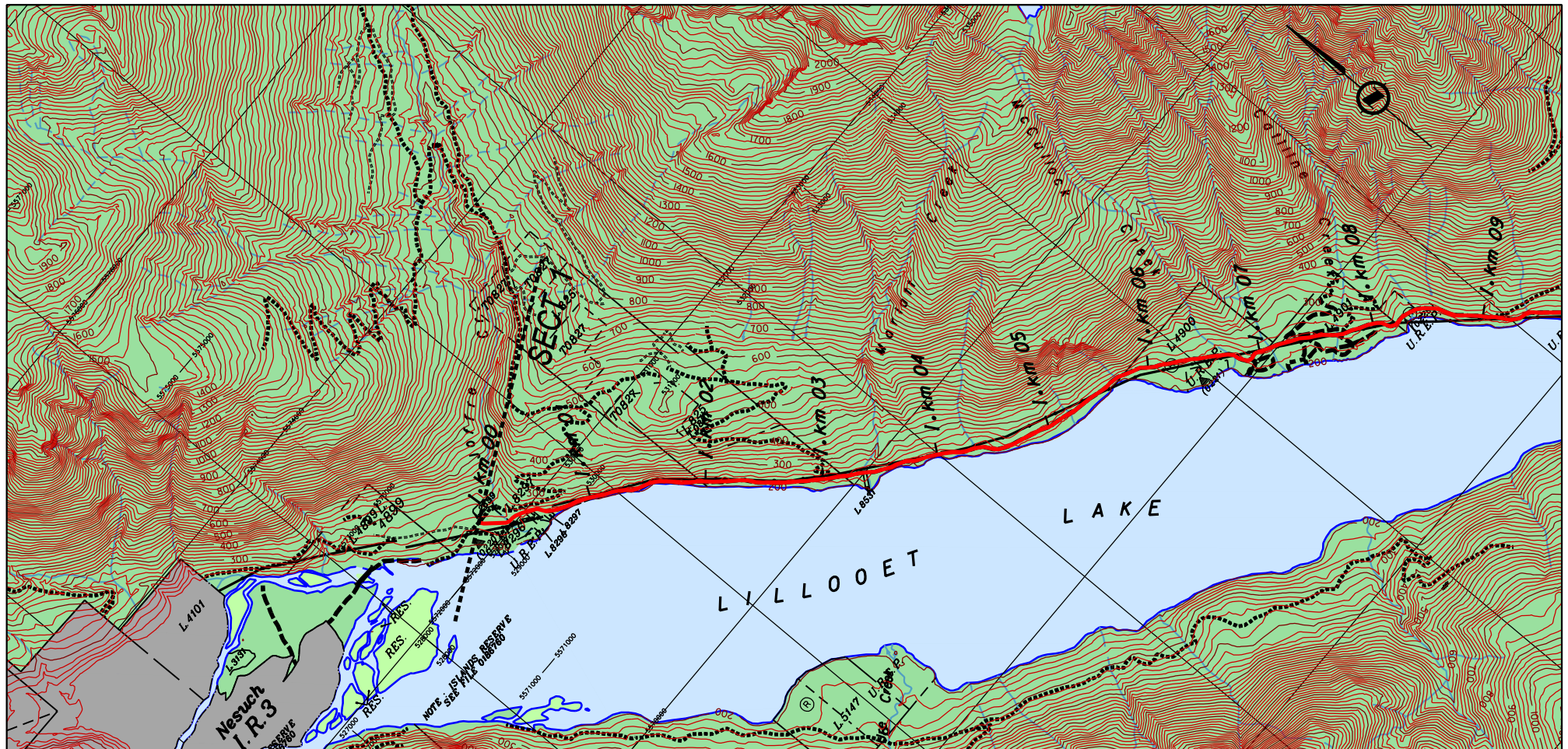




**Table of Sections & Terrain Types**

IN-SHUCK-CH FSR							
SECTION	STA TO STA	ROADWAY TYPE					
		Rock 5-10	Rock 0-5	G.T. Rough	G.T. Smooth	Flat Valley Bottom	HV Towers
	Class	5	4	3	2	1	
1	0-0.5			0.5			1.0
	0.5-1.5		1.0				
	1.5-4.5				3.0		
	4.5-8.0		3.5				
	8.0-10.5			2.5			
	10.5-12.0		1.5				
	12.0-13.0			1.0			
	13.0-14.5		1.5				
	14.5-16.5				2.0		
	16.5-18.5		2.0				
	18.5-21.5				3.0		
	21.5-22.0		0.5				
	22.0-23.5			1.5			
	23.5-24.0		0.5				
	24.0-29.5					5.5	
2	29.5-37.0					7.0	
	37.0-38.0	1.0					
	38.0-39.5			1.5			
	39.5-40.5	1.0					
	40.5-44.0					3.5	
	44.0-50.0						
	50.0-51.0		0.5		1.0	5.5	
3	50.0-57.0				7.0		
	57.0-62.0					5.0	
	62.0-68.0			6.0			
	68.0-69.0	1.0					
	69.0-74.0				5.0		
	74.0-74.5		0.5				
	74.5-76.5				2.0		
4	76.5-77.0	0.5					
	77.0-87				10.0		
Harrison West FSR							
5	0-4			4.0			
	4-7	3.0					
	7-9	2.0					
	9-16			7.0			
	16-18	2.0					
	18-23			5.0			
6	23-26			3.0			
	26-31	5.0					
	31-35			4.0			
7	35-42			7.0			
	42-46	4.0					
	46-50			4.0			
	50-59	9.0					
8	59-62	3.0					
	62-66			4.0			
	66-73	6.0					
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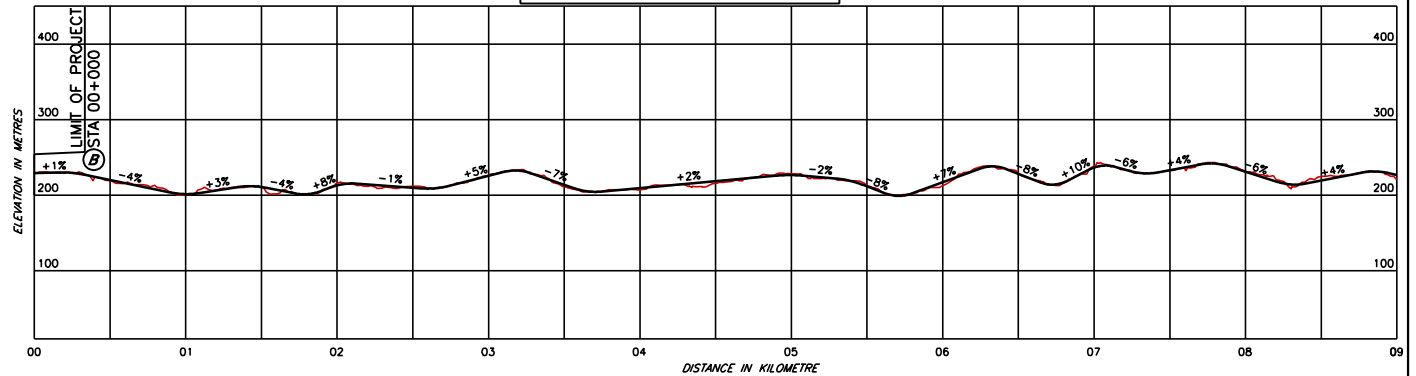
## APPENDIX 2



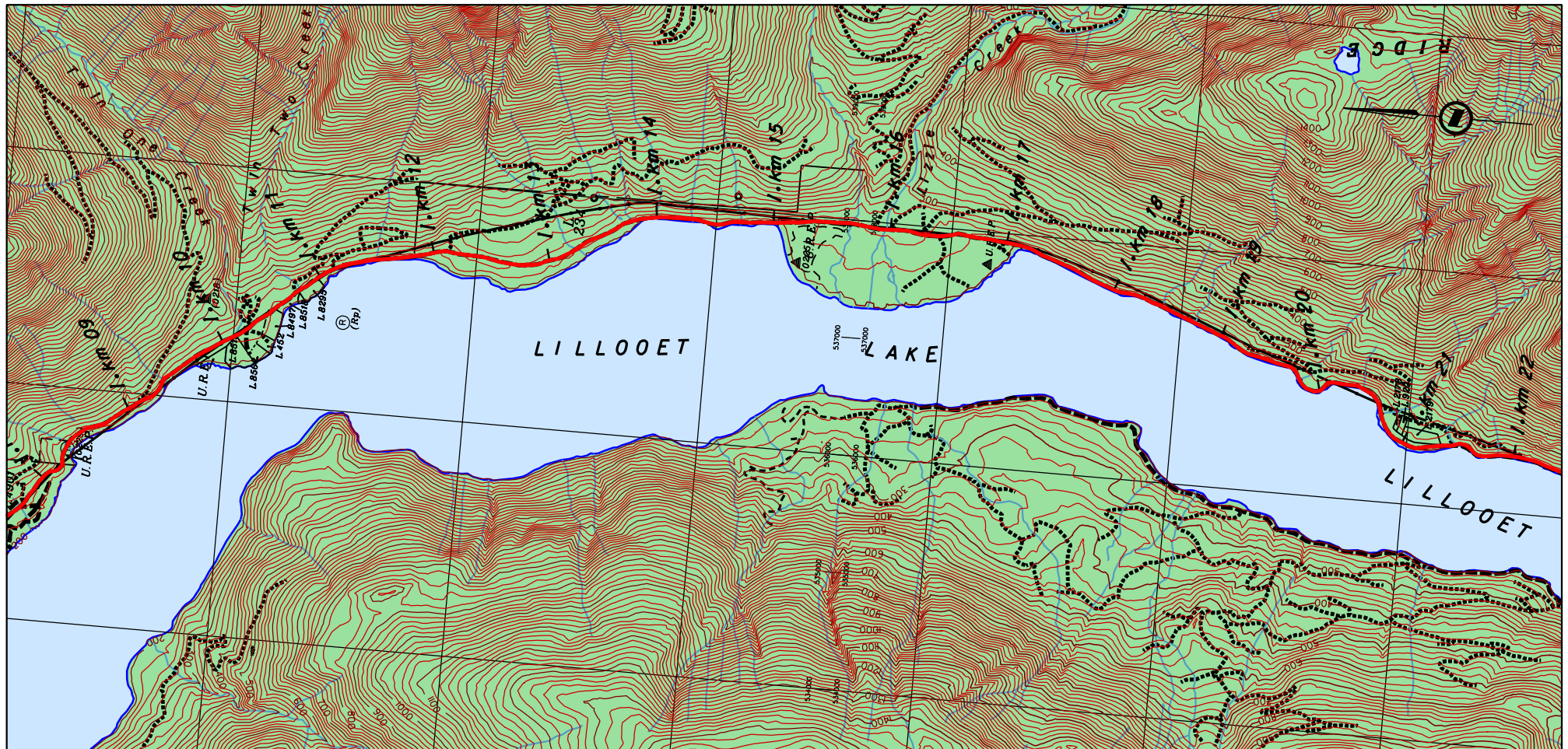
SECTION 1 (I. km 00 to I. km 29.6)

LEGEND

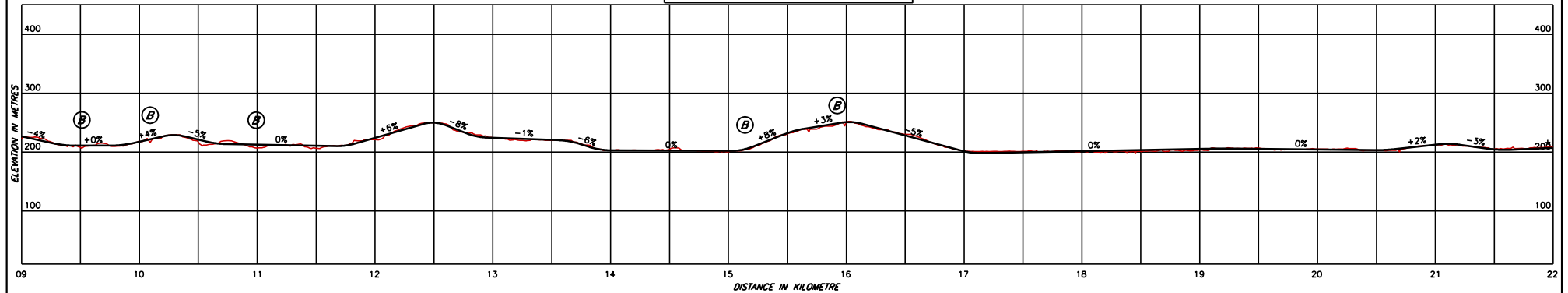
- Hydro Lines
- Campsite
- Archaeological Site
- Forest Service Road
- Indian Reserve
- Goldrush Trail
- Parks
- Proposed Route
- A.L.R. (Agriculture Land Reserve)
- Bridge Upgrade







SECTION 1 (l. km 00 to l. km 29.6)



ISL  
Infrastructure Systems Ltd.

0 Horiz. Scale: 1:50 000 2.5 km  
0 Vert. Scale: 1:10 000 500 m

File:  
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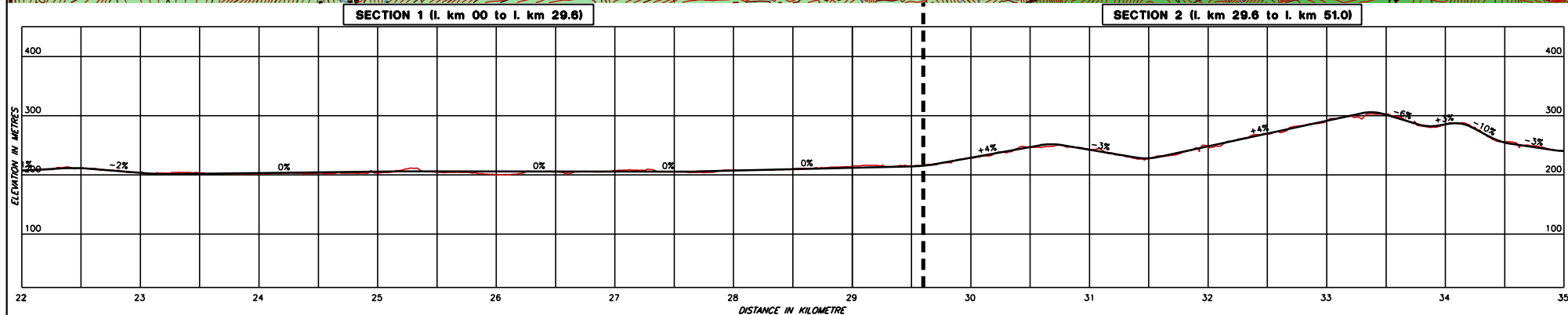
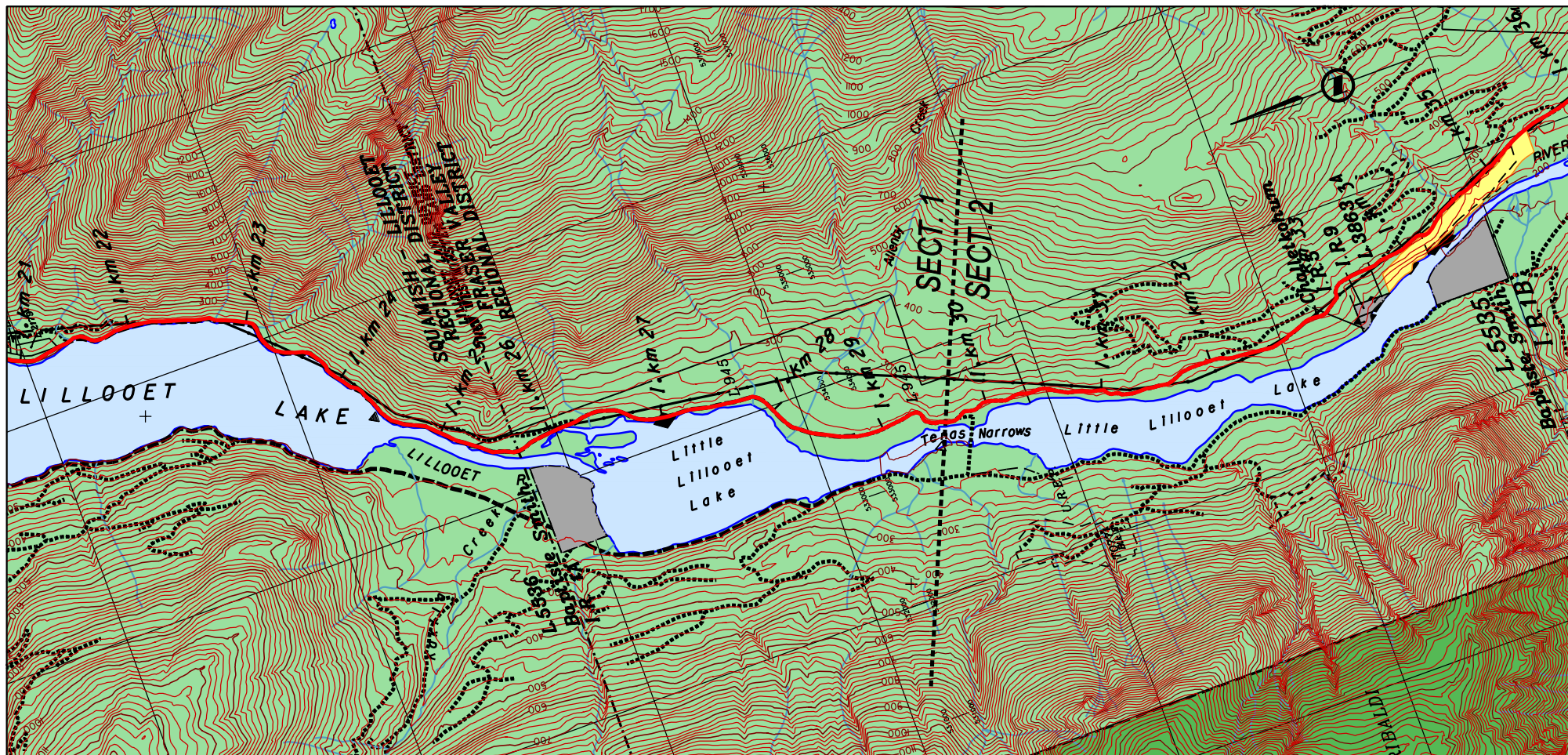
Date:  
2003/10/15



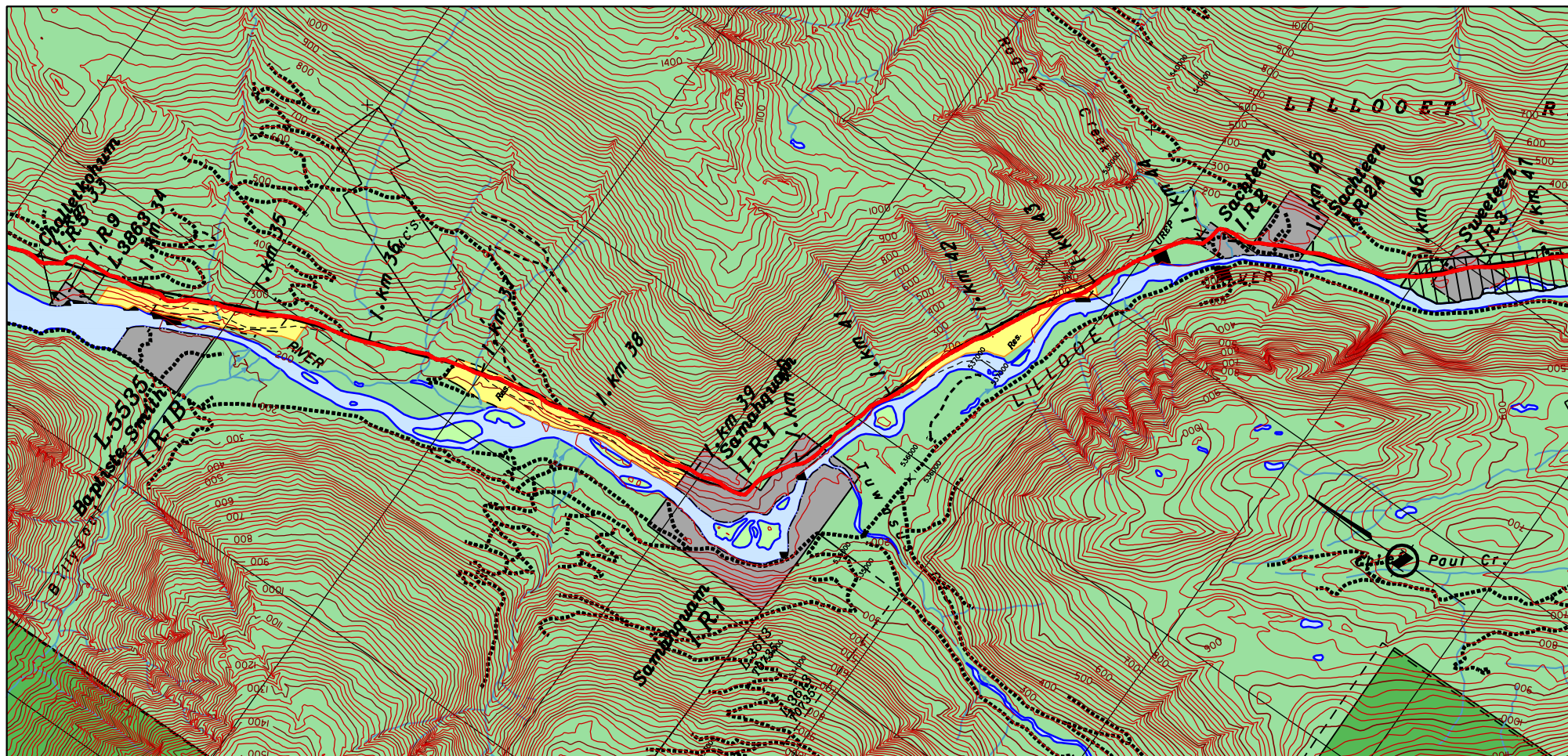
East side of Lillooet Lake and Lillooet River  
(In-Shuck-ch FSR)

MAP 2

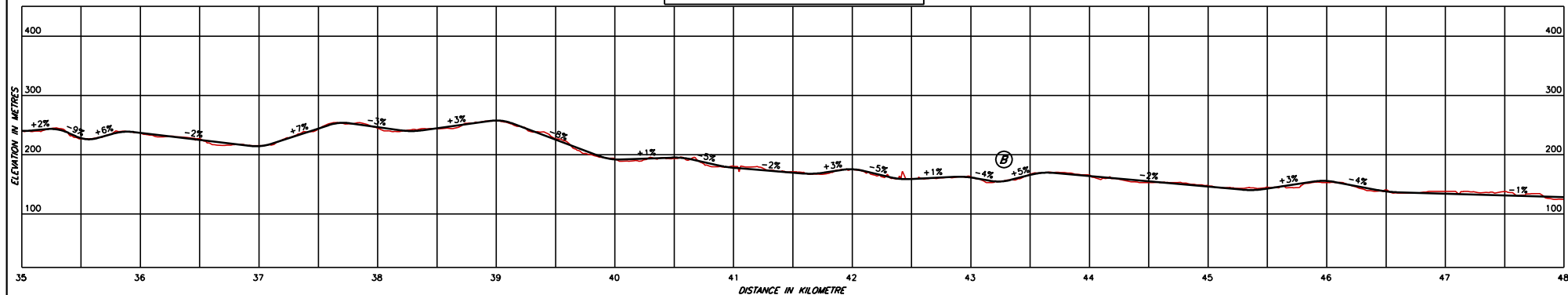




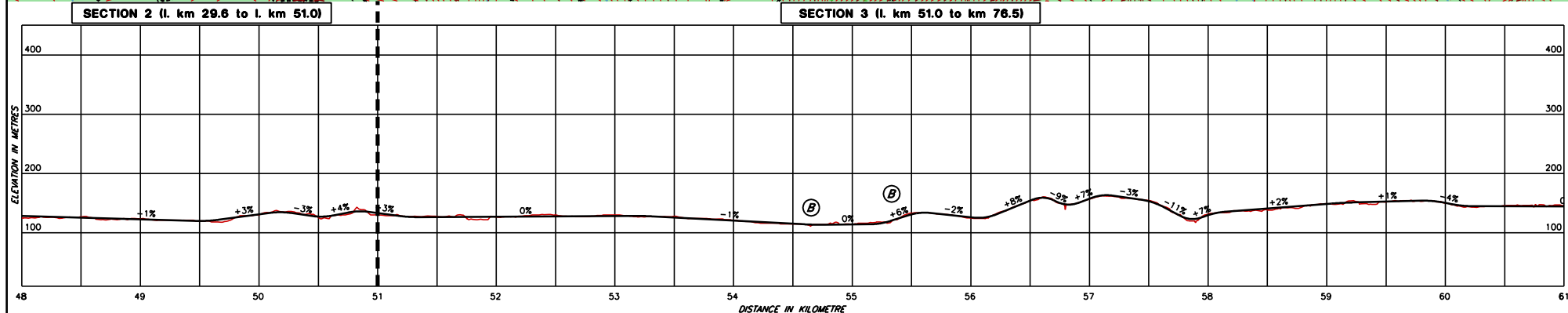
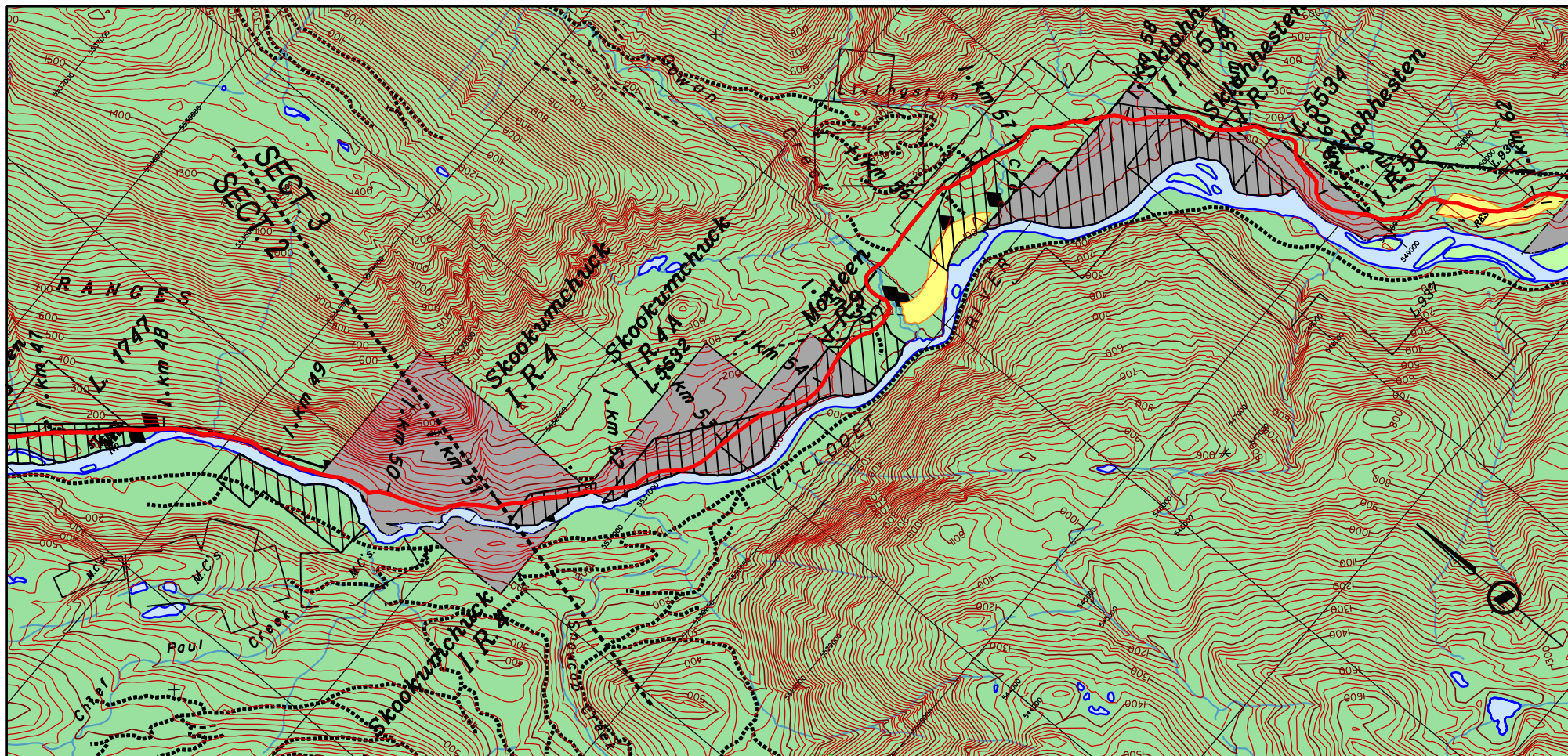




SECTION 2 (I. km 29.6 to I. km 51.0)

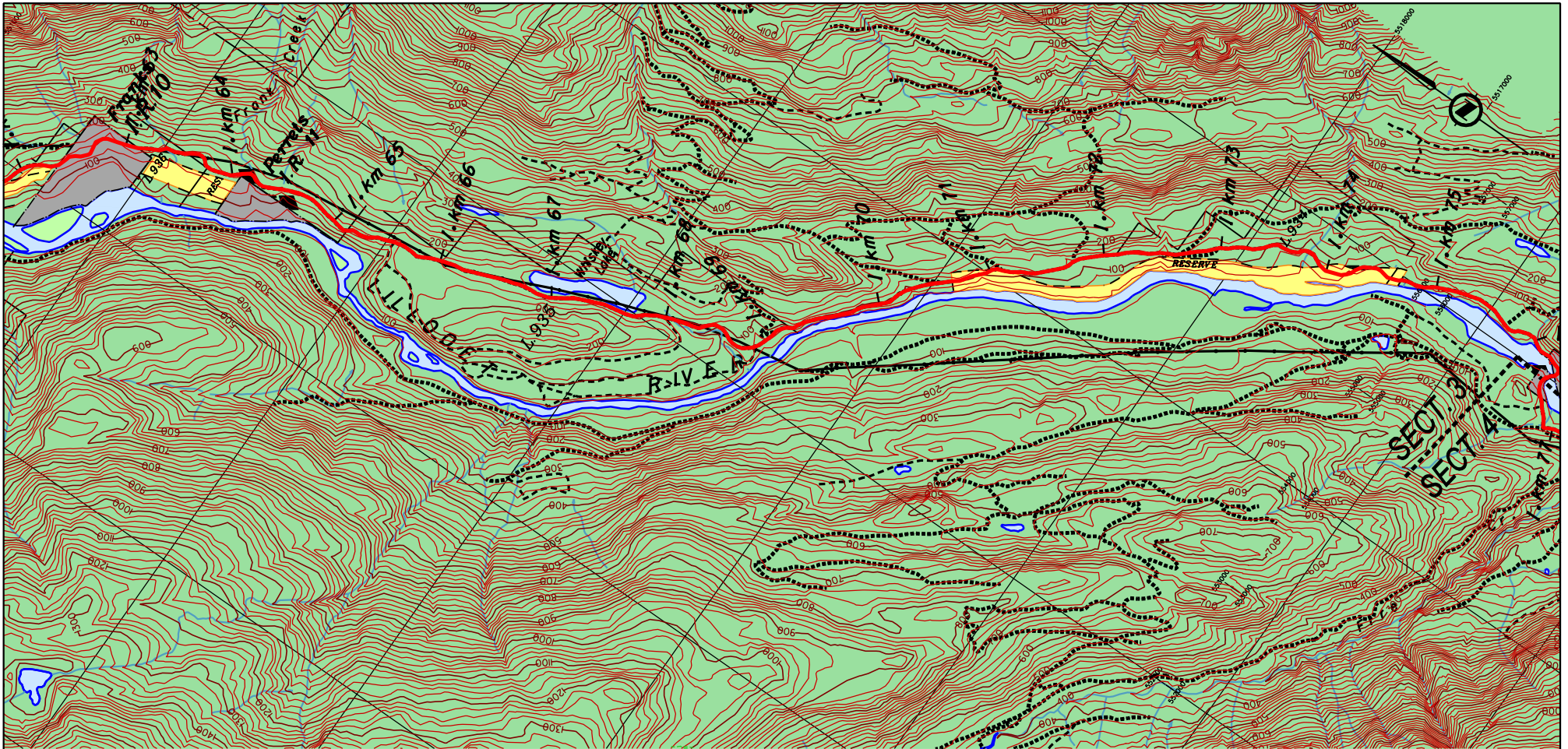




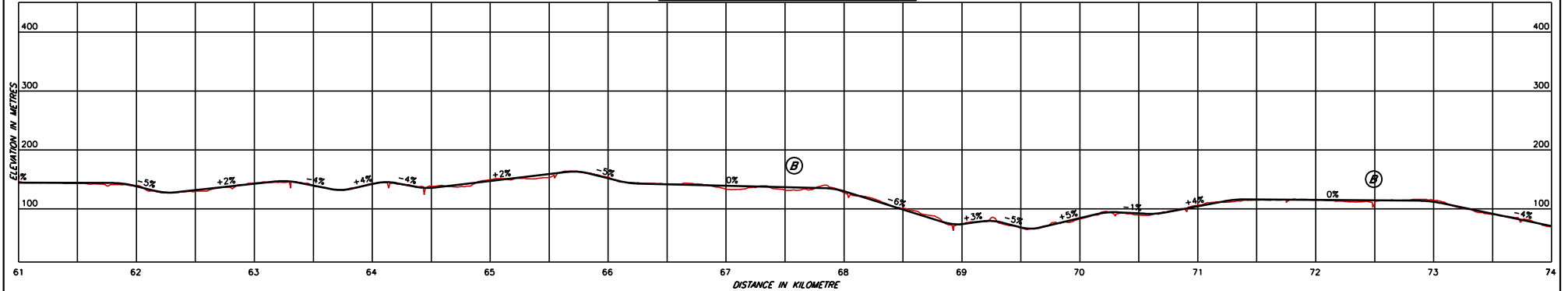


	<p>0      2.5 km</p> <p>0      500 m</p> <p>Horiz. Scale: 1:50 000</p> <p>Vert. Scale: 1:10 000</p>	<p>File:</p> <p>133a105.dgn</p>	<p>Date:</p> <p>2003/10/15</p>		<p>East side of Lillooet Lake and Lillooet River (In-Shuck-ch FSR)</p>	<p><b>MAP 5</b></p>
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SECTION 3 (l. km 51.0 to km 78.5)

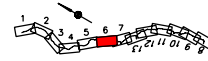


ISL  
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0 Horiz. Scale: 1:50 000 2.5 km  
0 Vert. Scale: 1:10 000 500 m

File:  
523a106.dgn

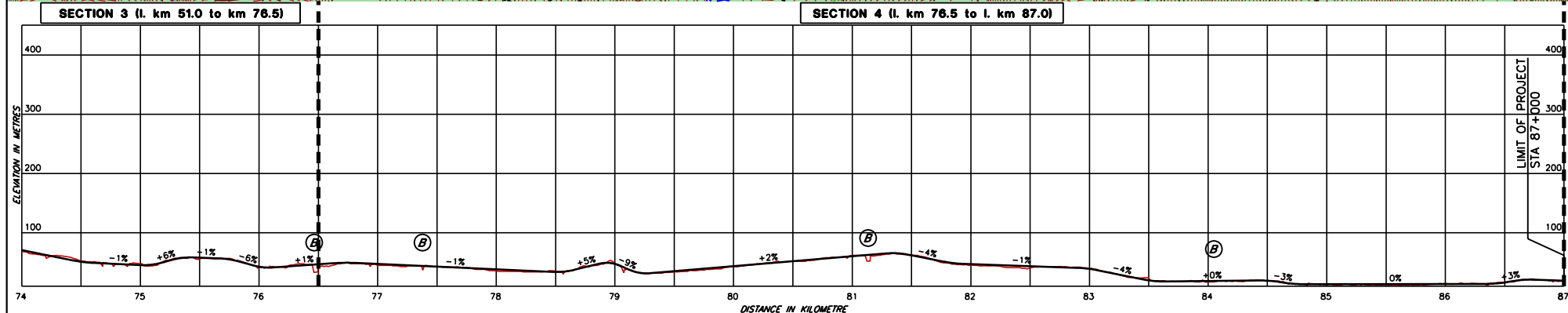
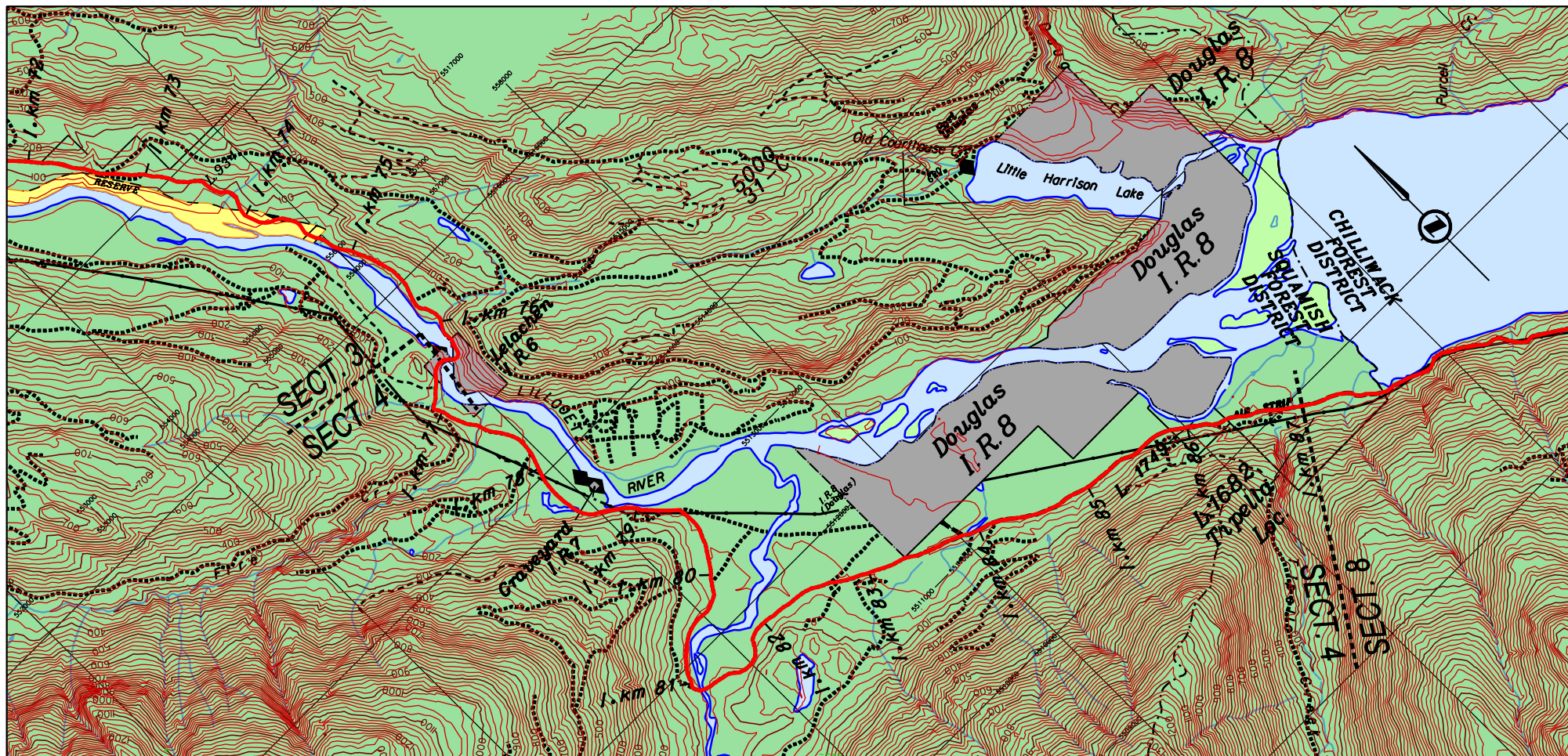
Date:  
2003/10/15



East side of Lillooet Lake and Lillooet River  
(In-Shuck-ch FSR)

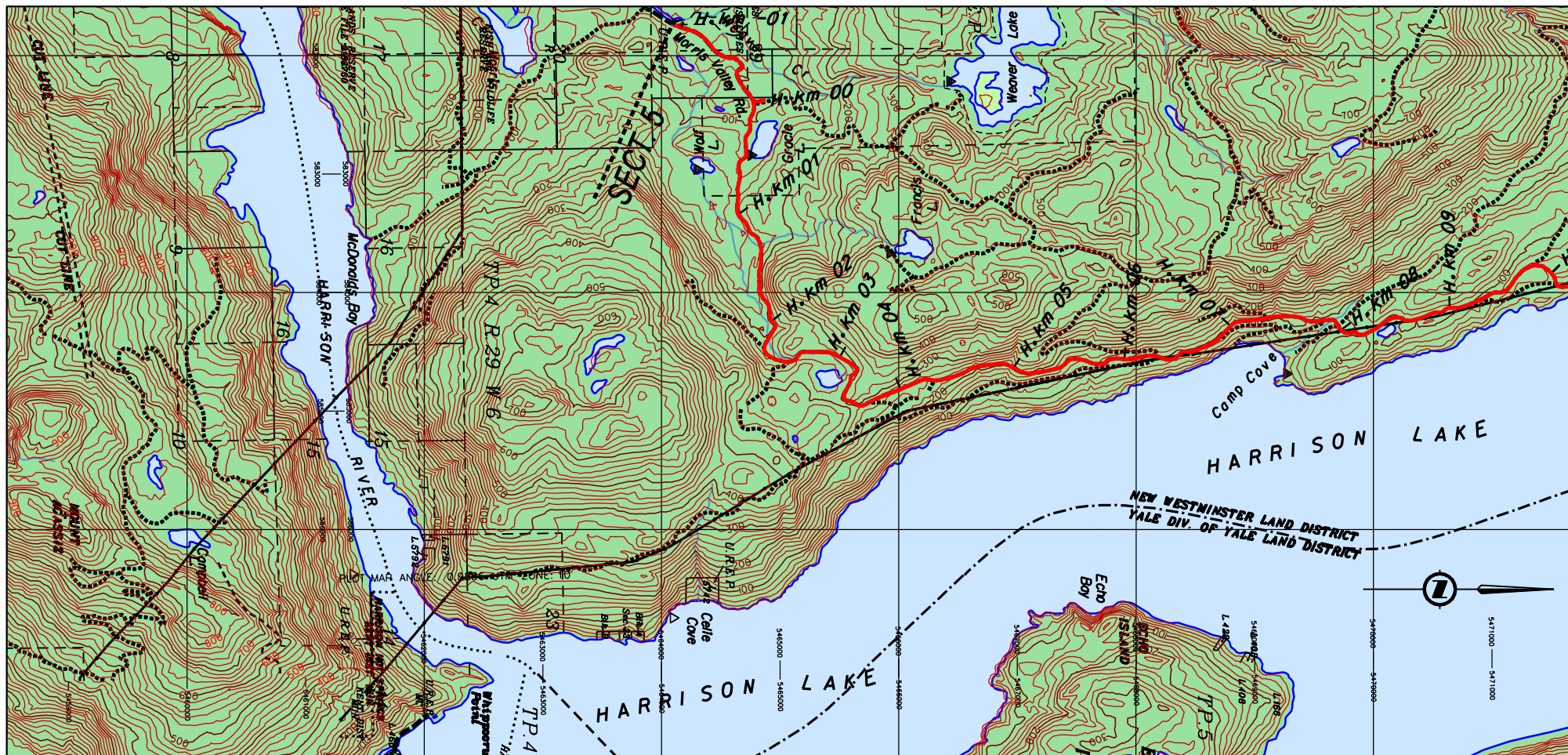
MAP 6





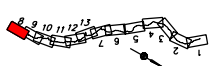
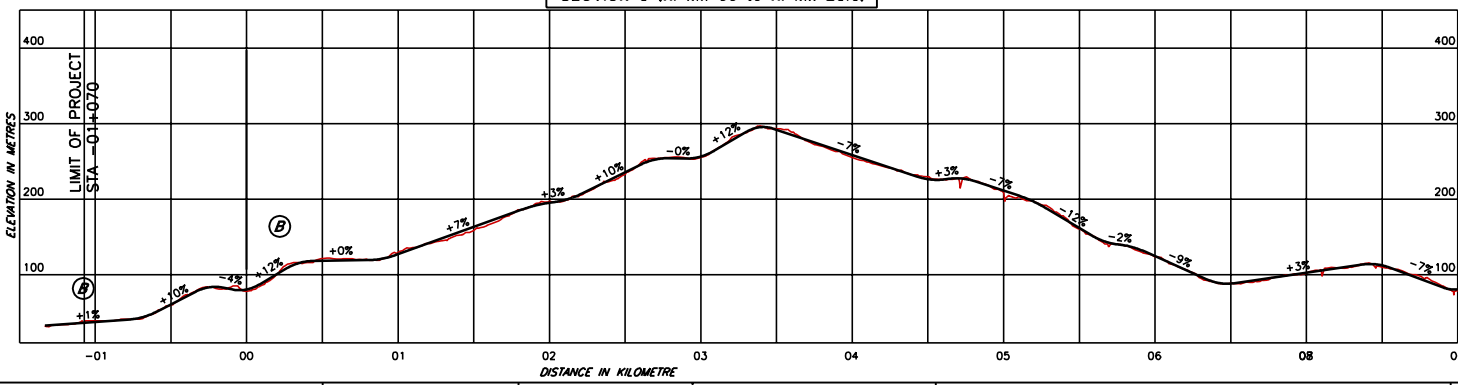
	<p>0      Horiz. Scale: 1:50 000      2.5 km</p> <p>0      Vert. Scale: 1:10 000      500 m</p>	<p>File: 133a107.dgn</p>	<p>Date: 2003/10/15</p>		<p>West side of Lillooet River (In-Shuck-ch FSR)</p>	<p><b>MAP 7</b></p>
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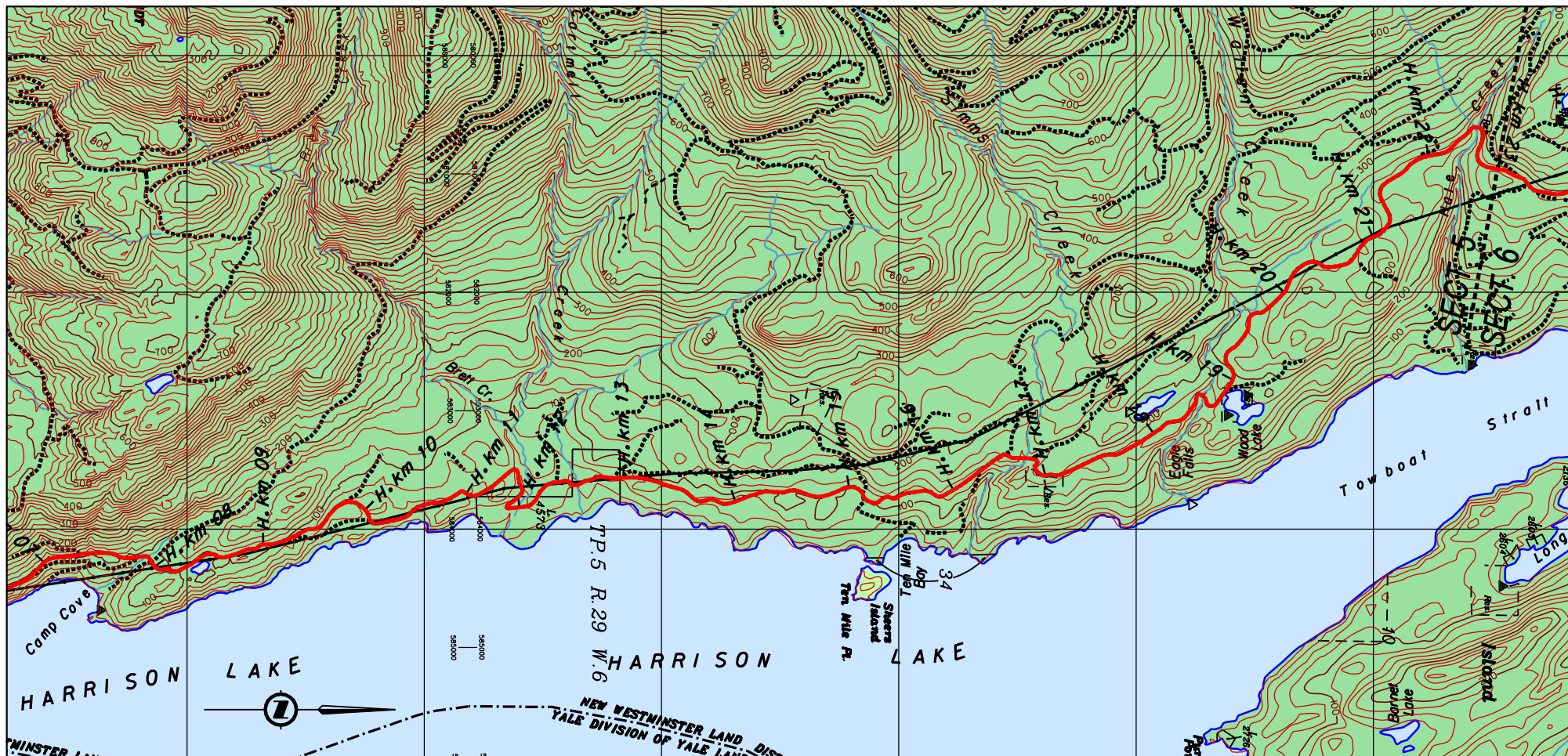


SECTION 5 (H. km 00 to H. km 23.0)

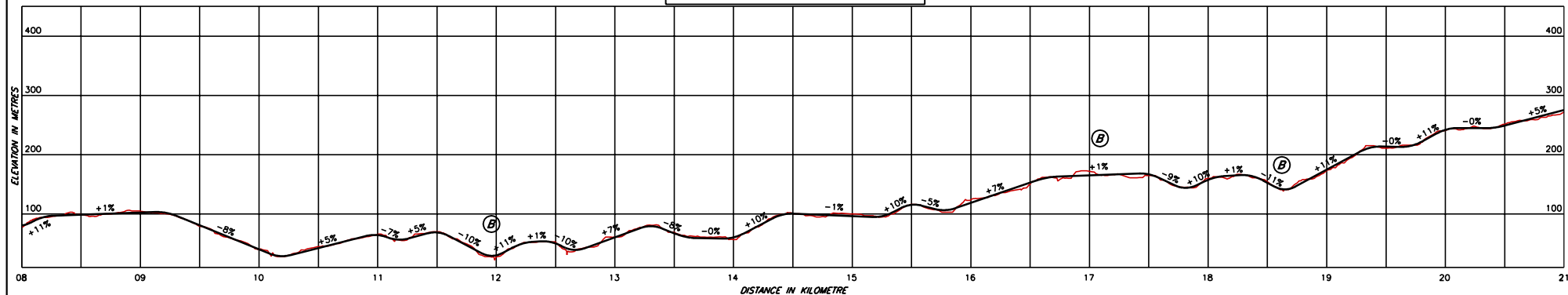
- LEGEND**
- Hydro Lines
  - Campsite
  - Archaeological Site
  - Forest Service Road
  - Indian Reserve
  - Goldrush Trail
  - Parks
  - Proposed Route
  - A.L.R. (Agriculture Land Reserve)
  - Proposed Bridge







SECTION 5 (H. km 00 to H. km 23.0)

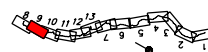


ISL  
Infrastructure Systems Ltd.

Horiz. Scale: 1:50 000 2.5 km  
Vert. Scale: 1:10 000 500 m

File:  
133a109.dgn

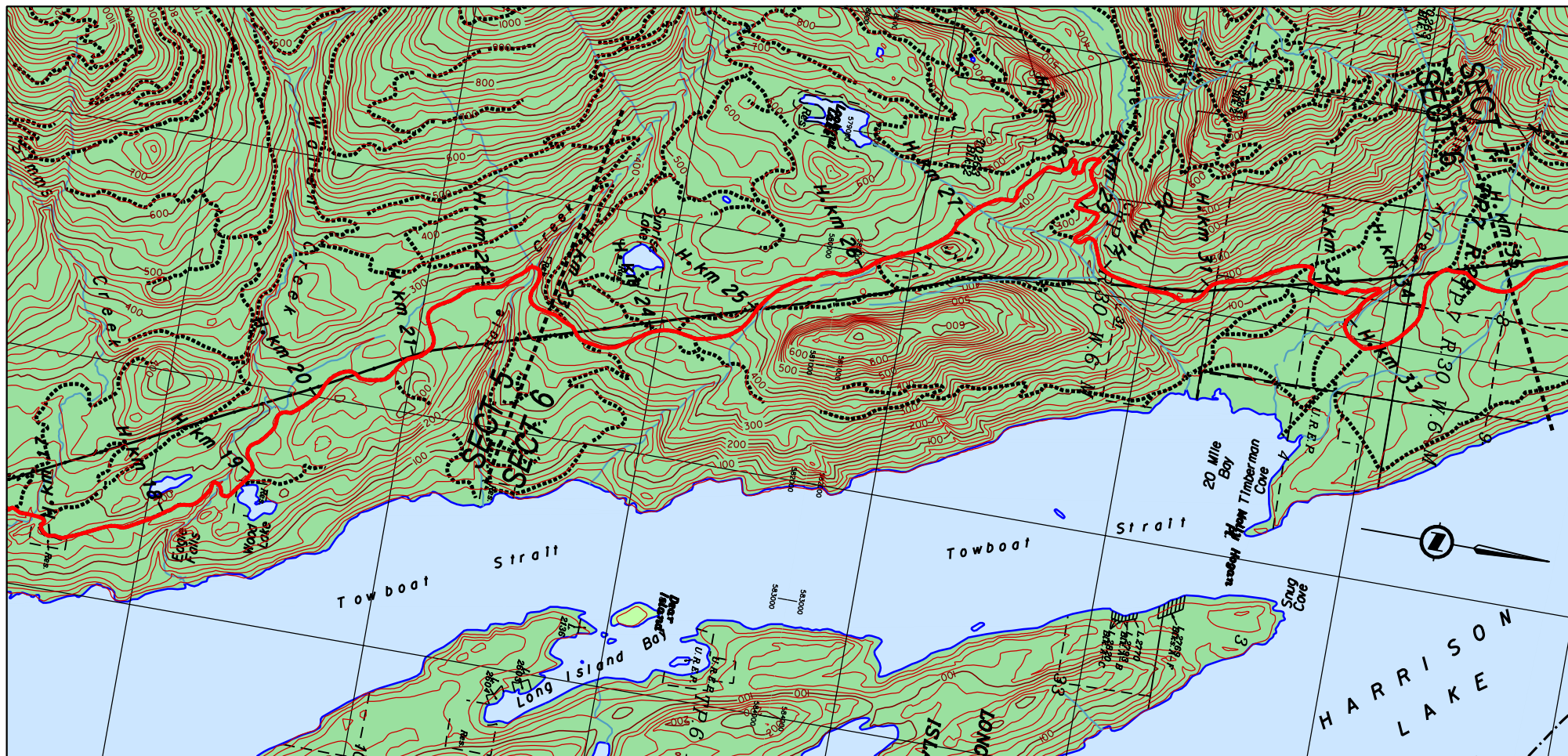
Date:  
2003/10/15



West side of Harrison Lake  
(Harrison West FSR)

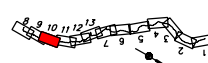
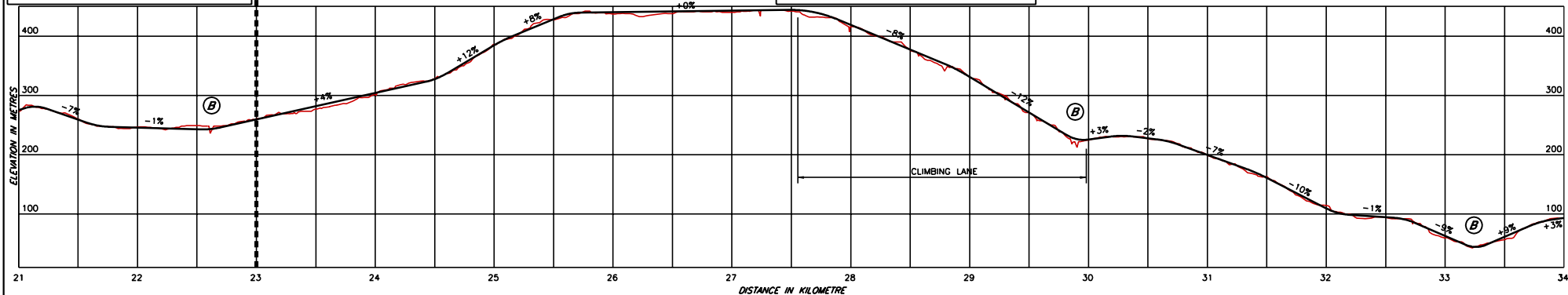
MAP 9



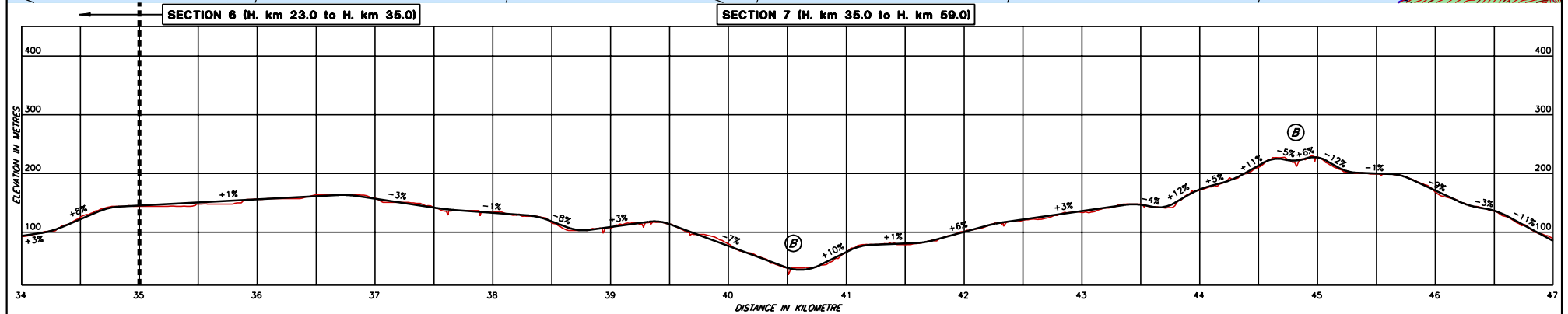


SECTION 5 (H. km 00 to H. km 23.0)

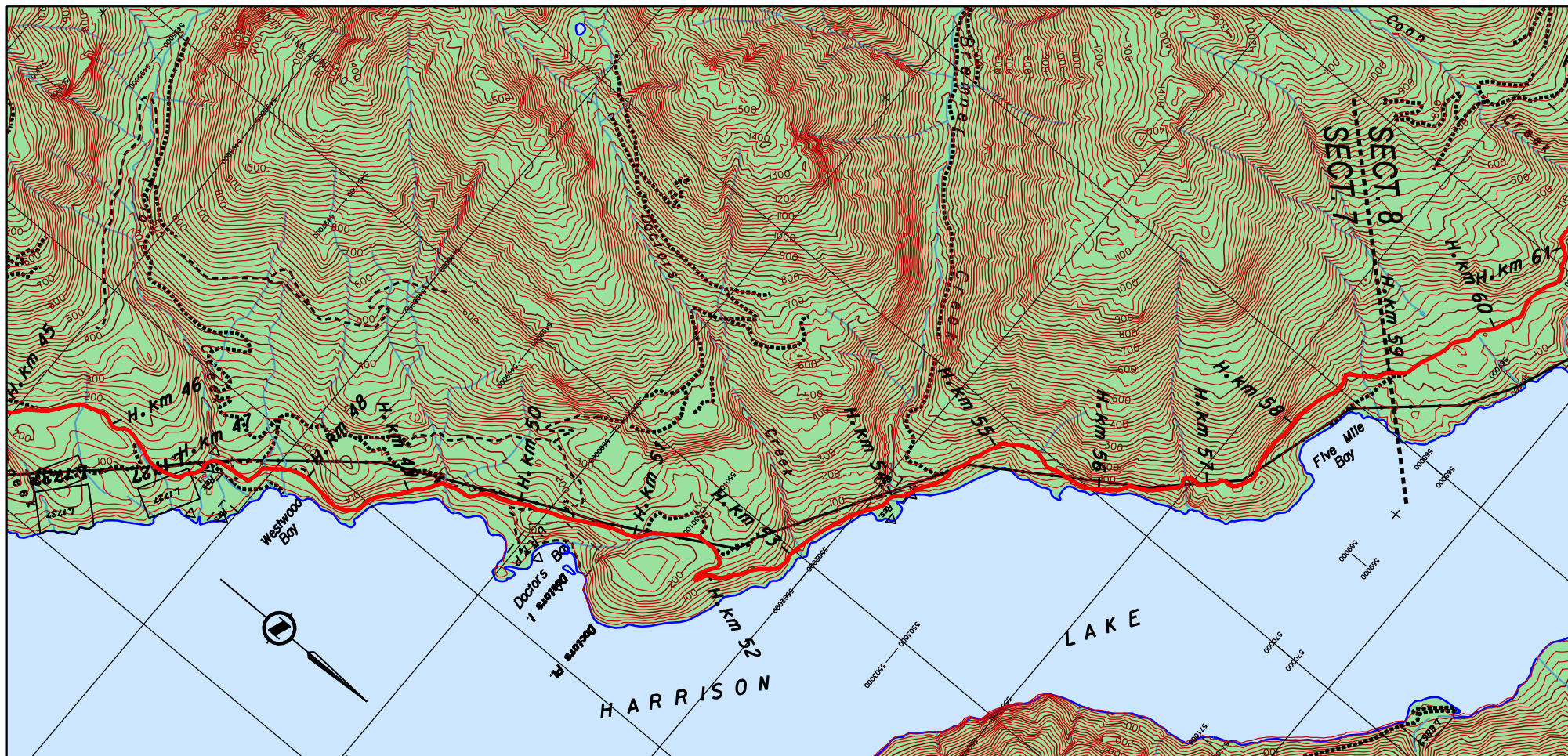
SECTION 6 (H. km 23.0 to H. km 35.0)





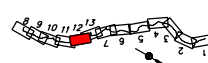
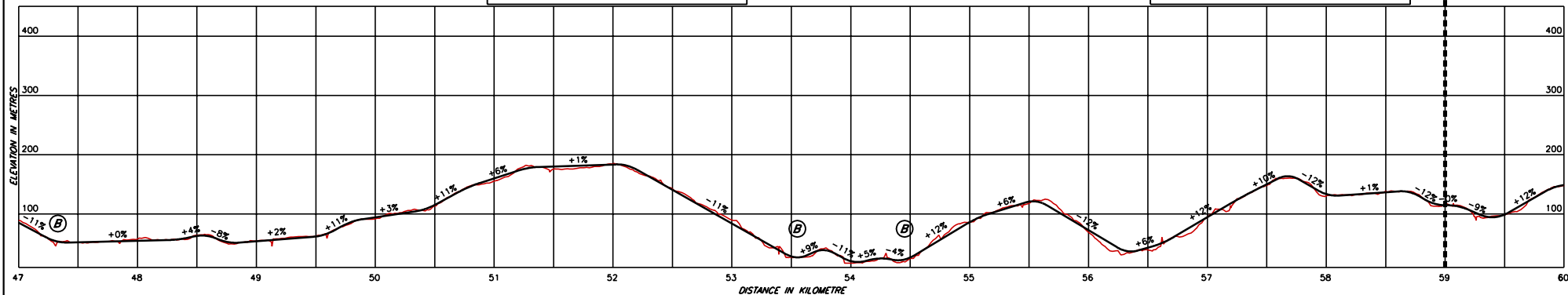




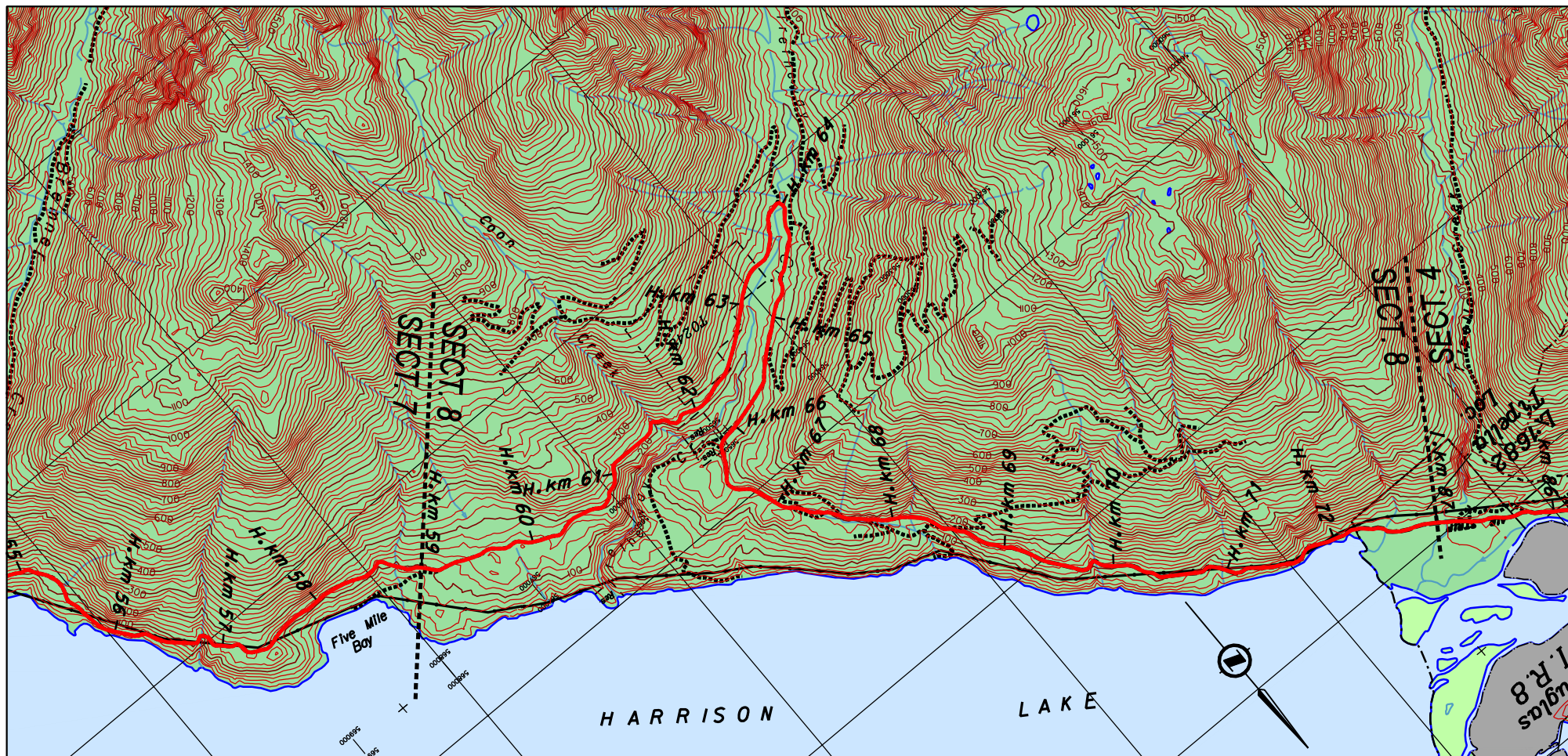


SECTION 7 (H. km 35.0 to H. km 59.0)

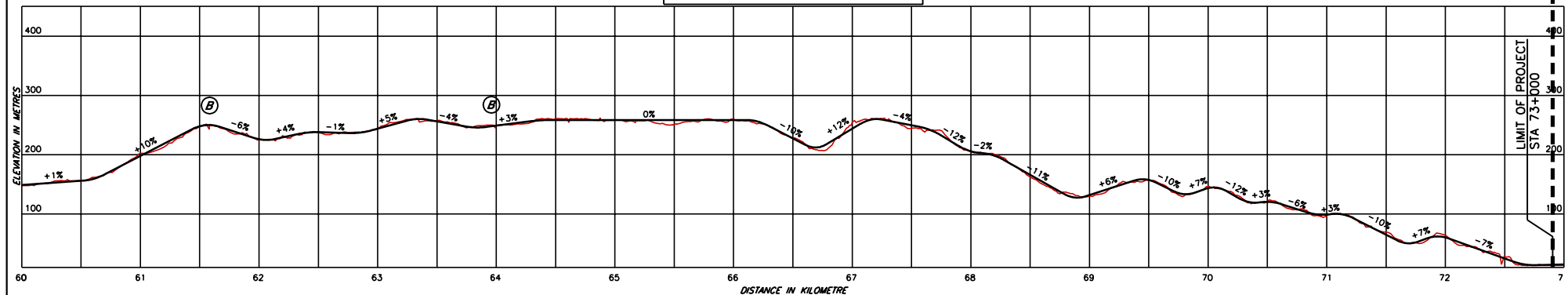
SECTION 8 (H. km 59.0 to H. km 73.0)







SECTION 8 (H. km 59.0 to H. km 73.0)



	<p>0      2.5 km</p> <p>0      500 m</p> <p>Horiz. Scale: 1:50 000</p> <p>Vert. Scale: 1:10 000</p>	<p>File:</p> <p>133a113.dgn</p>	<p>Date:</p> <p>2003/10/15</p>		<p>West side of Harrison Lake (Harrison West FSR)</p>	<p>MAP 13</p>
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## **APPENDIX 3**

Harrison Mills - Mt. Currie  
Development Road  
CONCEPTUAL ESTIMATE

H:\projects\30133	SECTION 1	SECTION 2	SECTION 3	SECTION 4	Section 5	Section 6	Section 7	Section 8	SUMMARY	Total	Road Type
File: Sasquatch\Spreadsheets\Cost_Est\Harr-	Km 10.0 -	Km 129.5	Km 151.0	Km 176.5	Km H0.0	Km H23.0	Km H35.0	Km H59.0	OF	Line	1. 2In Front
Infrastructure Systems Ltd. Harrison Mills-Mt. Currie	Km 129.5	Km 151.0	Km 176.5	Km 186.7	Km H23.0	Km H35.0	Km H59.0	Km H73.3	SUMMARIES	Cost	2. 2In Acc F
(2003 Dollars) Two-Lane Dev't. Road									ONLY	C/LM	3. 4In Acc F
ACTIVITY Conceptual Estimate											4. R4L-4L E
CODE EST. DATE Oct. 1, 2003											5. R2/3L-4L
Conceptual Est. MAIN RD	30000	21500	25500	10500	23000	12000	24000	14000	MR	160500	6. Retr. 4L-4
Blk Est. # 6.14B R2 DATE: Oct. 29, 2003	0	0	0	0	0	0	0	0	OR	0	7. R4L-4LE
Version Oct. 13, 2003 DESCRIPTION \TOTAL ROADS	30000	21500	25500	10500	23000	12000	24000	14000	TR	160500	8. New 4L E
Engineering	5,201,612	3,754,044	5,018,719	1,974,842	5,610,730	3,020,203	5,647,716	3,437,901		33,665,766	210
Land	0	218,250	218,250	0	0	0	0	0		436,500	3
Construction	31,882,559	22,393,880	34,742,832	13,210,807	43,488,225	24,072,772	44,072,182	27,390,335		241,253,591	1503
Management Reserve	0	0	0	0	0	0	0	0		0	0
Escalation	0	0	0	0	0	0	0	0		0	0
Total	37,084,171	26,366,174	39,979,801	15,185,649	49,098,955	27,092,975	49,719,897	30,828,236		275,355,857	1716
BASIC QUANTITY SUMMARY											
Construct. Cost ONLY Per L.M.	1,063	1,042	1,362	1,258	1,891	2,006	1,836	1,956	\$/LM	1,503	
Land Area	81.0	47.5	80.6	33.7	88.4	43.6	82.9	46.9	ha	504.6	
Mobilization	675,951	469,406	741,021	281,781	926,371	512,962	939,756	583,993		5,131,240	
Land Cont.	0	0	0	0	0	0	0	0		0	
Construction Cont.	7,002,796	4,924,882	7,632,511	2,902,347	9,541,617	5,283,506	9,679,487	6,015,126		52,982,274	55,673,906
Engineering Cont.	1,200,372	866,318	1,158,166	455,733	1,294,784	696,970	1,303,319	793,362		7,769,023	
Supervision Cont.	354,717	242,936	385,065	146,301	494,127	271,749	491,016	305,720		2,691,632	
Total Cont.	8,557,886	6,034,136	9,175,742	3,504,381	11,330,528	6,252,225	11,473,822	7,114,208		63,442,929	
S.G.S.B.	102,324	107,802	101,948	35,106	72,583	36,556	64,587	34,797	m3	555,702	
C.B.C.	53,449	37,841	45,717	18,376	41,302	22,594	42,944	24,981	m3	287,202	
Asphalt	47,144	32,924	40,816	15,971	37,335	21,817	38,969	22,707	t	257,682	
Concrete Barrier	14,600	3,600	16,600	8,700	19,800	10,600	21,800	13,000	lm	108,700	
Noise Attenuation Wall	0	0	0	0	0	0	0	0	m2	0	
No. of Light Poles	0	0	0	0	0	0	0	0	ea	0	
Sidewalk	0	0	0	0	0	0	0	0	lm	0	
Curb and Gutter	0	0	0	0	0	0	0	0	lm	0	
Signals	0	0	0	0	0	0	0	0	ea	0	
Bridge total area	200	250	240	500	300	480	250	300	m2	2,520	
Total Rock	150,860	93,696	291,535	64,884	302,791	237,892	561,245	389,303	m3	2,092,205	ENG 0 2,092,205
Total OM	716,183	411,495	567,884	338,945	841,186	371,145	597,964	277,314	m3	4,122,117	0 4,122,117
Total Stripping	112,079	53,944	212,126	45,516	83,044	36,088	57,200	25,844	m3	625,842	0 625,842
Total Borrow	0	0	0	0	0	0	0	0	m3	0	0
Total Cut/Excavation	979,122	559,135	1,071,545	449,345	1,227,021	645,125	1,216,409	692,461	m3	6,840,164	0 6,840,164
Total Fill	0	0	0	0	0	0	0	0	m3	0	0
Surplus or Deficit	979,122	559,135	1,071,545	449,345	1,227,021	645,125	1,216,409	692,461	m3	6,840,164	0
ENG & PM	5.202	3.754	5.019	1.975	5.611	3.020	5.648	3.438		33.666	33.667
LAND	0.000	0.218	0.218	0.000	0.000	0.000	0.000	0.000		0.437	0.436
CONST.	27.142	20.678	29.600	12.061	30.739	17.722	35.231	21.400		194.573	194.573
BRIDGES-R/W	4.741	1.716	5.143	1.150	12.749	6.351	8.841	5.990		46.681	46.681
MANAGEMENT RESERVE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000
ESCALATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000
TOTAL (Millions) (2003 Dollars)	37.085	26.366	39.980	15.186	49.099	27.093	49.720	30.828		275.357	275.357
TOTAL Cost per meter	\$ 1,236	\$ 1,226	\$ 1,568	\$ 1,446	\$ 2,135	\$ 2,258	\$ 2,072	\$ 2,202	\$	1,716	
Construction cost per meter	\$ 1,063	\$ 1,042	\$ 1,362	\$ 1,258	\$ 1,891	\$ 2,006	\$ 1,836	\$ 1,956	\$	1,503	

Road structure reduced  
Minimal design, day labour built  
Only structurally deficient bridges replaced as single lane  
30% general earthwork contingencies

Harrison Mills - Mt. Currie  
Development Road  
CONCEPTUAL ESTIMATE

H:\projects\30133 File: Sasquatch\Spreadsheets\Cost_Est\Harr- Infrastructure Systems Ltd. Harrison Mills-Mt. Currie (2003 Dollars) Two-Lane Dev't. Road ACTIVITY Conceptual Estimate CODE EST. DATE Oct. 1, 2003 Conceptual Est. MAIN RD Blk Est. # 6.14B R2 DATE: Oct. 29, 2003 Version Oct. 13, 2003 DESCRIPTION \TOTAL ROADS										SECTION 1 Km 10.0 - Km 129.5 0 30000	SECTION 2 Km 129.5 Km 151.0 0 21500	SECTION 3 Km 151.0 Km 176.5 0 25500	SECTION 4 Km 176.5 Km 186.7 0 10500	Section 5 Km H0.0 Km H23.0 0 23000	Section 6 Km H23.0 Km H35.0 0 12000	Section 7 Km H35.0 Km H59.0 0 24000	Section 8 Km H59.0 Km H73.3 0 14000	MR 0 OR	SUMMARY OF SUMMARIES ONLY 160500 0 160500	Total Line Cost C/LM 160500	Road Type: 1. 2In Front 2. 2In Acc F 3. 4In Acc F 4. R4L-4L E 5. R2/3L-4L 6. Retr. 4L-4 7. R4L-4LE 8. New 4L E % of T
SUMMARY BY ACTIVITY LEVEL																					
2000	PROJECT MANAGEMENT	1,443,512	1,026,311	1,556,225	591,106	1,911,191	1,054,602	1,935,361	1,199,998	10,718,305	67	3.9%									
2500	PLANNING	0	0	0	0	0	0	0	0	0	0	0.0%									
3000	PRELIMINARY DESIGN	2,026,775	1,444,584	1,728,017	706,958	1,596,912	831,751	1,645,260	963,667	10,943,924	68	4.0%									
3500	DETAILED DESIGN	530,953	416,831	576,311	221,046	807,844	436,880	763,775	480,875	4,234,515	26	1.5%									
	Total Engineering	2,557,728	1,861,415	2,304,328	928,003	2,404,756	1,268,631	2,409,036	1,444,541	15,178,439	95	5.5%									
4000	LAND ACQUISITION	0	218,250	218,250	0	0	0	0	0	436,500	3	0.2%									
5000	GRADE CONSTRUCTION	14,249,665	9,237,306	16,670,072	6,333,926	17,488,375	10,146,332	20,456,152	12,530,666	107,112,493	667	38.9%									
5200	ROAD SIDE CONSTRUCTION	0	0	0	0	0	0	0	0	0	0	0.0%									
5300	OTHER CONSTRUCTION	139,050	2,518,350	0	314,150	0	0	0	0	2,971,550	19	1.1%									
5500	STRUCTURAL CONSTRUCTION	3,445,427	1,246,789	3,737,973	835,073	9,264,850	4,615,482	6,424,677	4,353,347	33,923,617	211	12.3%									
6000	PAVING CONSTRUCTION	3,697,826	2,584,563	3,199,477	1,253,837	2,925,400	1,703,854	3,053,395	1,779,183	20,197,535	126	7.3%									
6500	OPERATIONAL CONSTRUCTION	1,675,686	529,266	1,834,183	937,506	2,126,765	1,146,019	2,330,736	1,387,225	11,967,385	75	4.3%									
6700	UTILITY CONSTRUCTION	135,000	300,000	0	0	0	0	0	0	435,000	3	0.2%									
6800	RESIDENT ENGINEERING	1,182,390	809,788	1,283,551	487,669	1,647,090	905,830	1,636,720	1,019,068	8,972,106	56	3.3%									
	Total Construction	24,525,045	17,226,062	26,725,255	10,162,160	33,452,481	18,517,517	33,901,678	21,069,488	185,579,686	1156	67.4%									
9700	CONTINGENCY	8,557,886	6,034,136	9,175,742	3,504,381	11,330,528	6,252,225	11,473,822	7,114,208	63,442,929	395	23.0%									
9800	SUB-TOTAL MANAGEMENT RESERVE	37,084,171 0	26,366,174 0	39,979,801 0	15,185,649 0	49,098,955 0	27,092,975 0	49,719,897 0	30,828,236 0	275,355,857 0	1716 0	100.0% 0.0%									
	TOTAL	37,084,171	26,366,174	39,979,801	15,185,649	49,098,955	27,092,975	49,719,897	30,828,236	275,355,857	1716	100.0%									
9900	ESCALATION	0	0	0	0	0	0	0	0	0	0										
	TOTAL COST	37,084,171	26,366,174	39,979,801	15,185,649	49,098,955	27,092,975	49,719,897	30,828,236	275,355,857	1716										
====	Const. Less Resident Eng.	23,342,655	16,416,274	25,441,704	9,674,491	31,805,390	17,611,686	32,264,958	20,050,420	176,607,579	1100										

H:\projects\30133 File: Sasquatch\Spreadsheets\Cost_Est\Harrison Mills-Mt. Currie (2003 Dollars) <b>Two-Lane Dev't. Road</b> ACTIVITY <b>Conceptual Estimate</b> CODE EST.DATE Oct. 1, 2003 Conceptual Est. MAIN RD Blk Est. # 6.14B R2 DATE: Oct. 29, 2003 Version Oct.13, 2003 DESCRIPTION \TOTAL ROADS													SECTION 1 Km 10.0 - Km 129.5 0 0 30000	SECTION 2 Km 129.5 Km 151.0 0 0 21500	SECTION 3 Km 151.0 Km 176.5 0 0 25500	SECTION 4 Km 176.5 Km 186.7 0 0 10500	Section 5 Km H0.0 Km H23.0 0 0 23000	Section 6 Km H23.0 Km H35.0 0 0 12000	Section 7 Km H35.0 Km H59.0 0 0 24000	Section 8 Km H59.0 Km H73.3 0 0 14000	MR OR TR	SUMMARY OF SUMMARIES ONLY 160500 0 160500	Total Line Cost C/LM 160500	Road Types 1. 2In Front 2. 2In Acc F 3. 4In Acc F 4.R4L-4L E 5.R2/3L-4L 6.Reetr.4L-4 7.R4L-4LE> 8. New 4L E
2500 PLANNING																								
2521 Consultant - transport. planning study													0	0	0	0	0	0	0	0	0	0		
2531 Consultant - corridor study													0	0	0	0	0	0	0	0	0	0		
2541 Consultant - functional plan. study													0	0	0	0	0	0	0	0	0	0		
2502 Consultant - general													0	0	0	0	0	0	0	0	0	0		
Consultant sub-total													0	0	0	0	0	0	0	0	0	0		
2510 Client - project ident.													0	0	0	0	0	0	0	0	0	0		
2520 Client - transport. planning study													0	0	0	0	0	0	0	0	0	0		
2530 Client - corridor study													0	0	0	0	0	0	0	0	0	0		
2540 Client - functional plan. study													0	0	0	0	0	0	0	0	0	0		
2501 Client - general													0	0	0	0	0	0	0	0	0	0		
Client Sub-total													0	0	0	0	0	0	0	0	0	0		
2599 Planning Contingency													0	0	0	0	0	0	0	0	0	0		
TOTAL PLANNING													0	0	0	0	0	0	0	0	0	0		
=====													=====	=====	=====	=====	=====	=====	=====	=====	=====	=====		
3000 PRELIMINARY DESIGN																								
3013 Consultant - aerial base plan													45,000	32,250	38,250	15,750	34,500	18,000	36,000	21,000	240,750	2		
3014 Consultant - prel. design													900,000	645,000	765,000	315,000	690,000	360,000	720,000	420,000	4,815,000	30		
3015 Consultant - control survey													9,380	6,730	7,970	3,280	7,190	3,750	7,500	4,370	50,170	0		
3021 Consultant - environmental impact													450,000	322,500	382,500	157,500	345,000	180,000	360,000	210,000	2,407,500	15		
3031 Consultant - funct.-road field survey													0	0	0	0	0	0	0	0	0	0		
3041 Consultant - functional design													300,000	215,000	255,000	105,000	230,000	120,000	240,000	140,000	1,605,000	10		
3051 Consultant - funct. structural des.													22,395	8,104	24,297	5,428	60,222	30,001	41,760	28,297	220,504	1		
3061 Consultant - geotechnical design													300,000	215,000	255,000	105,000	230,000	120,000	240,000	140,000	1,605,000	10		
3071 Consultant - right-of-way research													0	0	0	0	0	0	0	0	0	0		
3002 Consultant - general													0	0	0	0	0	0	0	0	0	0		
Consultant sub-total													2,026,775	1,444,584	1,728,017	706,958	1,596,912	831,751	1,645,260	963,667	10,943,924	68		
3010 Client - aerial base plan													0	0	0	0	0	0	0	0	0	0		
3011 Client - prel. design													0	0	0	0	0	0	0	0	0	0		
3012 Client - control survey													0	0	0	0	0	0	0	0	0	0		
3020 Client - environmental impact													0	0	0	0	0	0	0	0	0	0		
3030 Client - funct.-road field survey													0	0	0	0	0	0	0	0	0	0		
3040 Client - functional design													0	0	0	0	0	0	0	0	0	0		
3050 Client - funct. structural des.													0	0	0	0	0	0	0	0	0	0		
3060 Client - geotechnical design													0	0	0	0	0	0	0	0	0	0		
3070 Client - right-of-way research													0	0	0	0	0	0	0	0	0	0		
3001 Client - general													0	0	0	0	0	0	0	0	0	0		
Client Sub-total													0	0	0	0	0	0	0	0	0	0		
3099 Preliminary design Contingency													608,033	433,375	518,405	212,087	479,073	249,525	493,578	289,100	3,283,177	20		
TOTAL PRELIMINARY DESIGN													2,634,808	1,877,959	2,246,422	919,045	2,075,985	1,081,276	2,138,839	1,252,767	14,227,101	89		

Road structure reduced  
Minimal design, day labour built  
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30% general earthwork contingencies

Harrison Mills - Mt. Currie  
Development Road  
CONCEPTUAL ESTIMATE

H:\projects\30133		SECTION 1	SECTION 2	SECTION 3	SECTION 4	Section 5	Section 6	Section 7	Section 8	SUMMARY	Total	Road Type
File: Sasquatch\Spreadsheets\Cost_Est\Harr-		Km 10.0 -	Km 129.5	Km 151.0	Km 176.5	Km 180.0	Km 223.0	Km 235.0	Km 259.0	OF	Line	1. 2In Front
Infrastructure Systems Ltd. Harrison Mills-Mt. Currie		Km 129.5	Km 151.0	Km 176.5	Km 186.7	Km 223.0	Km 235.0	Km 259.0	Km 273.3	SUMMARIES	Cost	2. 2In Acc F
(2003 Dollars) Two-Lane Dev't. Road										ONLY	C/LM	3. 4In Acc F
ACTIVITY Conceptual Estimate												4. R4L-4L E
CODE EST. DATE Oct. 1, 2003												5. R2/3L-4L
Conceptual Est.		30000	21500	25500	10500	23000	12000	24000	14000	160500		6. Retr. 4L-4
Blk Est. # 6.14B R2 DATE: Oct. 29, 2003		0	0	0	0	0	0	0	0	0		7. R4L-4LE
Version Oct. 13, 2003 DESCRIPTION \TOTAL ROADS		30000	21500	25500	10500	23000	12000	24000	14000	160500	160500	8. New 4L E
6700 UTILITIES												
6710 Util. Prov. - Hydro		45,000	300,000	0	0	0	0	0	0	345,000	2	
6711 Util. Prov. - Telephone		90,000	0	0	0	0	0	0	0	90,000	1	
Util. Prov. sub-total		135,000	300,000	0	0	0	0	0	0	435,000	3	
6712 Util. Others - pipelines		0	0	0	0	0	0	0	0	0	0	
6713 Util. Others - telecommunication		0	0	0	0	0	0	0	0	0	0	
6714 Util. Others - storm & sewer inspect.		0	0	0	0	0	0	0	0	0	0	
6715 Util. Others - waterworks inspect.		0	0	0	0	0	0	0	0	0	0	
6716 Util. Others - engineering services		0	0	0	0	0	0	0	0	0	0	
6717 Util. Others - parks/recreation-prel.		0	0	0	0	0	0	0	0	0	0	
6718 Util. Others - transit		0	0	0	0	0	0	0	0	0	0	
6719 Util. Others - tr-ops/signs & detours		0	0	0	0	0	0	0	0	0	0	
6701 Util. Others - general		0	0	0	0	0	0	0	0	0	0	
Util. Others sub-total		0	0	0	0	0	0	0	0	0	0	
6799 Util. Others Contingency		40,500	90,000	0	0	0	0	0	0	130,500	1	
TOTAL UTILITIES		175,500	390,000	0	0	0	0	0	0	565,500	4	
5000 GRADE CONSTRUCTION												
5032 Grade Constl - water		0	0	0	0	0	0	0	0	0	0	
5033 Grade Constl - sanitary		0	0	0	0	0	0	0	0	0	0	
5034 Grade Constl - storm		0	0	0	0	0	0	0	0	0	0	
5031 Grade Constl - mobilization		0	0	0	0	0	0	0	0	0	0	
5039 Grade Constl - utility contingency		0	0	0	0	0	0	0	0	0	0	
Grade Const. Utilities Sub-total		0	0	0	0	0	0	0	0	0	0	
5010 Grade Constl - site prep./clear, grubbing		972,142	569,936	967,650	404,115	1,060,518	523,590	995,022	562,506	6,055,479	38	
5020 Grade Constl - road grade/exc. placing, fill		9,643,295	5,597,428	12,070,771	4,373,366	13,449,663	8,015,702	16,466,213	10,211,324	79,827,763	497	
5030 Grade Constl - drainage/pipe, cul.		321,807	235,005	374,939	341,015	246,908	145,171	289,905	195,318	2,150,067	13	
5040 Grade Constl - mulitiplat		0	0	0	0	0	0	0	0	0	0	
5050 Grade Constl - SGSB/produce, place, comp		1,534,853	1,617,032	1,529,220	526,589	1,088,745	548,335	968,800	521,953	8,335,528	52	
5051 Grade Constl - CBC/produce, place, comp		1,068,970	756,829	914,335	367,513	826,032	451,873	858,873	499,619	5,744,044	36	
5060 Grade Constl - grade finishing landscaping		0	0	0	0	0	0	0	0	0	0	
5061 Grade Constl - grade finishing hydro seed.		213,559	112,029	227,620	96,845	267,139	126,136	241,528	134,975	1,419,831	9	
5062 Grade Constl - grade finishing fencing		0	0	0	0	0	0	0	0	0	0	
5063 Grade Constl - noise barriers		0	0	0	0	0	0	0	0	0	0	
5064 Grade Constl - passing lanes		0	0	0	0	0	0	0	0	0	0	
5090 Grade Constl - sidewalks, curb & gutter		0	0	0	0	0	0	0	0	0	0	
5005 Grade Constl - detours c/w ex, bf, paving		80,000	80,000	100,000	40,000	40,000	40,000	40,000	40,000	460,000	3	
5001 Grade Constl - mobilization		415,039	269,048	485,536	184,483	509,370	295,524	595,810	364,971	3,119,781	19	
5099 Grade Constl - Contingency		4,274,900	2,771,192	5,001,022	1,900,178	5,246,513	3,043,900	6,136,845	3,759,200	32,133,748	200	
Grade Construction Sub-total		18,524,565	12,008,497	21,671,093	8,234,103	22,734,888	13,190,231	26,592,997	16,289,866	139,246,241	868	
GRADE CONSTRUCTION COSTS		18,524,565	12,008,497	21,671,093	8,234,103	22,734,888	13,190,231	26,592,997	16,289,866	139,246,241	868	
3510 Grade Eng. - detailed design		185,246	120,085	216,711	82,341	227,349	131,902	265,930	162,899	1,392,462	9	
3519 Grade Eng. - detailed design/Contingency		55,574	36,025	65,013	24,702	68,205	39,571	79,779	48,870	417,739	3	
6810 Grade Eng. - general const. supervision		370,491	240,170	433,422	164,682	454,698	263,805	531,860	325,797	2,784,925	17	
6811 Grade Eng. - quality assurance		92,623	60,042	108,355	41,171	113,674	65,951	132,965	81,449	696,231	4	
6812 Grade Eng. - surveying		185,246	120,085	216,711	82,341	227,349	131,902	265,930	162,899	1,392,462	9	
6819 Grade Eng. - Residency Contingency		194,508	126,089	227,546	86,458	238,716	138,497	279,226	171,044	1,462,086	9	
Grade Engineering Sub-total		1,083,687	702,497	1,267,759	481,695	1,329,991	771,629	1,555,690	952,957	8,145,905	51	
Total Grade Const. & Eng. Costs		19,608,252	12,710,995	22,938,852	8,715,204	24,064,879	13,961,860	28,148,687	17,242,823	147,392,146	918	
Harr Pent 275 M SUM OF SUMS												
"Optimistic"												

Only structurally deficient bridges replaced as single-lane  
30% general earthwork contingencies

CONCEPTUAL ESTIMATE

H:\projects\30133 File: Sasquatch\Spreadsheets\Cost_Est\Harr- cture Systems Ltd. <b>Harrison Mills-Mt. Currie</b> (2003 Dollars) <b>Two-Lane Dev't. Road</b> ACTIVITY <b>Conceptual Estimate</b> CODE EST.DATE Oct. 1, 2003 Conceptual Est. MAIN RD Blk Est. # 6.14B R2 DATE: Oct. 29, 2003 Version Oct.13, 2003 DESCRIPTION \TOTAL ROADS										SECTION 1 Km I0.0 - Km I29.5 0 0 30000	SECTION 2 Km I29.5 Km I51.0 0 0 21500	SECTION 3 Km I51.0 Km I76.5 0 0 25500	SECTION 4 Km I76.5 Km I86.7 0 0 10500	Section 5 Km H0.0 Km H23.0 0 0 23000	Section 6 Km H23.0 Km H35.0 0 0 12000	Section 7 Km H35.0 Km H59.0 0 0 24000	Section 8 Km H59.0 Km H73.3 0 0 14000	MR OR TR	SUMMARY OF SUMMARIES ONLY 160500 0 160500	Total Line Cost C/LM 160500	Road Types 1. 2In Front 2. 2In Acc F 3. 4In Acc F 4.R4L-4L E 5.R2/3L-4L 6.Retr.4L-4 7.R4L-4LE> 8. New 4L E
5500 STRUCTURAL CONSTRUCTION																					
5522	Struct.Const - water	0	0	0	0	0	0	0	0	0	0	0									
5523	Struct.Const - sanitary	0	0	0	0	0	0	0	0	0	0	0									
5524	Struct.Const - storm	0	0	0	0	0	0	0	0	0	0	0									
5521	Struct.Const - mobilization	0	0	0	0	0	0	0	0	0	0	0									
5599	Struct.Const - utility contingency	0	0	0	0	0	0	0	0	0	0	0									
	Structural Const. Utilities Sub-total	0	0	0	0	0	0	0	0	0	0	0									
5510	Struct.Const - tunnel site preparation	0	0	0	0	0	0	0	0	0	0	0									
5511	Struct.Const - tunnel construction	0	0	0	0	0	0	0	0	0	0	0									
5512	Struct.Const - snow shed site prep.	0	0	0	0	0	0	0	0	0	0	0									
5513	Struct.Const - snow shed site const.	0	0	0	0	0	0	0	0	0	0	0									
5514	Struct.Const - bridge site preparation	55,200	37,600	57,600	105,750	45,000	69,300	35,800	42,300	448,550	3										
5515	Struct.Const - bridge piers	0	0	0	0	0	0	0	0	0	0	0									
5516	Struct.Const - bridge abutments	168,000	126,000	132,000	180,000	135,000	189,000	108,000	108,000	1,146,000	7										
5517	Struct.Const - bridge superstructure	200,000	250,000	252,000	525,000	315,000	504,000	250,000	315,000	2,611,000	16										
5518	Struct.Const - retain. wall site prep.	0	0	0	0	0	0	0	0	0	0	0									
5519	Struct.Const - retaining wall const.	2,921,875	796,875	3,187,500	0	8,500,000	3,718,750	5,843,750	3,761,250	28,730,000	179										
5501	Struct.Const - mobilization	100,352	36,314	108,873	24,323	269,850	134,432	187,127	126,797	988,067	6										
5529	Struct.Const - Contingency	1,033,628	374,037	1,121,392	250,522	2,779,455	1,384,644	1,927,403	1,306,004	10,177,085	63										
	Structural Construction Sub-total	4,479,055	1,620,826	4,859,365	1,085,594	12,044,305	6,000,126	8,352,079	5,659,350	44,100,701	275										
STRUCTURAL CONSTRUCTION COSTS		4,479,055	1,620,826	4,859,365	1,085,594	12,044,305	6,000,126	8,352,079	5,659,350	44,100,701	275										
3520	Struct. Eng. - detailed design	111,976	40,521	121,484	27,140	301,108	150,003	208,802	141,484	1,102,518	7										
3529	Struct. Eng. - detailed design/Contingency	33,593	12,156	36,445	8,142	90,332	45,001	62,641	42,445	330,755	2										
6820	Struct. Eng. - general const. supervision	134,372	48,625	145,781	32,568	361,329	180,004	250,562	169,781	1,323,021	8										
6821	Struct. Eng. - quality assurance	44,791	16,208	48,594	10,856	120,443	60,001	83,521	56,594	441,007	3										
6822	Struct. Eng. - surveying	22,395	8,104	24,297	5,428	60,222	30,001	41,760	28,297	220,504	1										
6829	Struct. Eng. - Residency Contingency	60,467	21,881	65,601	14,656	162,598	81,002	112,753	76,401	595,359	4										
	Structural Engineering Sub-total	407,594	147,495	442,202	98,789	1,096,032	546,011	760,039	515,001	4,013,164	25										
Total Structural & Eng. Costs		4,886,649	1,768,321	5,301,567	1,184,383	13,140,337	6,546,137	9,112,119	6,174,351	48,113,865	300										

Road structure reduced  
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File: H:\projects\30133 Sasquatch\Spreadsheets\Cost_Est\Harr- Infrastructure Systems Ltd. <b>Harrison Mills-Mt. Currie</b> (2003 Dollars) <b>Two-Lane Dev't. Road</b> ACTIVITY <b>Conceptual Estimate</b> CODE EST. DATE Oct. 1, 2003 Conceptual Est. MAIN RD Blk Est. # 6.14B R2 DATE: Oct. 29, 2003 Version Oct. 13, 2003 DESCRIPTION \TOTAL ROADS										SUMMARY OF SUMMARIES ONLY	Total Line Cost C/LM	Road Type: 1. 2In Front 2. 2In Acc F 3. 4In Acc F 4. R4L-4L E 5. R2/3L-4L 6. Retr. 4L-4 7. R4L-4LE 8. New 4L E
SECTION 1 Km 10.0 - Km 129.5	SECTION 2 Km 129.5 Km 151.0	SECTION 3 Km 151.0 Km 176.5	SECTION 4 Km 176.5 Km 186.7	Section 5 Km H0.0 Km H23.0	Section 6 Km H23.0 Km H35.0	Section 7 Km H35.0 Km H59.0	Section 8 Km H59.0 Km H73.3	Section 9 Km H73.3 Km H85.0	Section 10 Km H85.0 Km H97.5	160500	0	
30000	21500	25500	10500	23000	12000	24000	14000	MR	OR	160500	160500	
6000												
PAVING CONSTRUCTION												
6020 Paving Cons - machine paving asphalt	3,590,122	2,509,285	3,106,288	1,217,318	2,840,195	1,654,227	2,964,461	1,727,363		19,609,258	122	
6030 Paving Cons - machine paving concrete	0	0	0	0	0	0	0	0		0	0	
6040 Paving Cons - hot reprofiling	0	0	0	0	0	0	0	0		0	0	
6050 Paving Cons - shoulder paving	0	0	0	0	0	0	0	0		0	0	
6060 Paving Cons - pavement finishing	0	0	0	0	0	0	0	0		0	0	
6070 Paving Cons - seal coating	0	0	0	0	0	0	0	0		0	0	
6001 Paving Cons - mobilization	107,704	75,279	93,189	36,520	85,206	49,627	88,934	51,821		588,278	4	
6010 Paving Cons - pavement design	0	0	0	0	0	0	0	0		0	0	
6099 Paving Cons - Contingency	1,109,348	775,369	959,843	376,151	877,620	511,156	916,018	533,755		6,059,261	38	
PAVING CONSTRUCTION COSTS	4,807,174	3,359,932	4,159,320	1,629,988	3,803,021	2,215,010	3,969,413	2,312,938		26,256,796	164	
3560 Paving Eng. - detailed design	48,072	33,599	41,593	16,300	38,030	22,150	39,694	23,129		262,568	2	
3569 Paving Eng. - detailed design/Contingency	14,422	10,080	12,478	4,890	11,409	6,645	11,908	6,939		78,770	0	
6860 Paving Eng. - general const. supervision	96,143	67,199	83,186	32,600	76,060	44,300	79,388	46,259		525,136	3	
6861 Paving Eng. - quality assurance	96,143	67,199	83,186	32,600	76,060	44,300	79,388	46,259		525,136	3	
6862 Paving Eng. - surveying	24,036	16,800	20,797	8,150	19,015	11,075	19,847	11,565		131,264	1	
6869 Paving Eng. - Residency Contingency	64,897	45,359	56,151	22,005	51,341	29,903	53,587	31,225		354,467	2	
Paving Engineering Sub-total	343,713	240,235	297,391	116,544	271,916	158,373	283,813	165,375		1,877,361	12	
Total Paving Const. & Eng. Costs	5,150,887	3,600,167	4,456,711	1,746,532	4,074,936	2,373,383	4,253,226	2,478,314		28,134,157	175	
6500												
OPERATIONAL CONSTRUCTION												
6510 Operat. Cons - lighting	0	0	0	0	0	0	0	0		0	0	
6520 Operat. Cons - signals	0	0	0	0	0	0	0	0		0	0	
6530 Operat. Cons - signing	60,000	43,000	51,000	21,000	46,000	24,000	48,000	28,000		321,000	2	
6540 Operat. Cons - guard rail	1,387,000	342,000	1,577,000	826,500	1,881,000	1,007,000	2,071,000	1,235,000		10,326,500	64	
6550 Operat. Cons - pavement markings	179,880	128,850	152,760	62,700	137,820	81,640	143,850	83,820		971,320	6	
6501 Operat. Cons - mobilization	48,806	15,416	53,423	27,306	61,945	33,379	67,886	40,405		348,565	2	
6599 Operat. Cons - contingency	502,706	158,780	550,255	281,252	638,029	343,806	699,221	416,167		3,590,215	22	
OPERATIONAL CONSTRUCTION COSTS	2,178,392	688,045	2,384,438	1,218,758	2,764,794	1,489,825	3,029,956	1,803,392		15,557,600	97	
3540 Operat. Eng - detailed design	43,568	13,761	47,689	24,375	55,296	29,796	60,599	36,068		311,152	2	
3549 Operat. Eng - detailed design/Contingency	13,070	4,128	14,307	7,313	16,589	8,939	18,180	10,820		93,346	1	
6840 Operat. Eng - general const. supervision	87,136	27,522	95,378	48,750	110,592	59,593	121,198	72,136		622,304	4	
6841 Operat. Eng - quality assurance	10,892	3,440	11,922	6,094	13,824	7,449	15,150	9,017		77,788	0	
6842 Operat. Eng - surveying	10,892	3,440	11,922	6,094	13,824	7,449	15,150	9,017		77,788	0	
6849 Operat. Eng - Residency Contingency	32,676	10,321	35,767	18,281	41,472	22,347	45,449	27,051		233,364	1	
Operational Engineering Sub-total	198,234	62,612	216,984	110,907	251,596	135,574	275,726	164,109		1,415,742	9	
Total Operational Const. & Eng. Costs	2,376,626	750,657	2,601,421	1,329,665	3,016,390	1,625,399	3,305,682	1,967,501		16,973,342	106	

Road structure reduced  
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Harrison Mills - Mt. Currie  
Development Road  
CONCEPTUAL ESTIMATE

File: H:\projects\30133	SECTION 1	SECTION 2	SECTION 3	SECTION 4	Section 5	Section 6	Section 7	Section 8	SUMMARY	Total	Road Type
Structure Systems Ltd. Harrison Mills-Mt. Currie	Km 10.0 -	Km 129.5	Km 151.0	Km 176.5	Km H0.0	Km H23.0	Km H35.0	Km H59.0	OF	Line	1. 2In Front
(2003 Dollars) Two-Lane Dev't. Road	Km 129.5	Km 151.0	Km 176.5	Km 186.7	Km H23.0	Km H35.0	Km H59.0	Km H73.3	SUMMARIES	Cost	2. 2In Acc F
ACTIVITY Conceptual Estimate									ONLY	C/LM	3. 4In Acc F
CODE EST. DATE Oct. 1, 2003											4. R4L-4L E
Conceptual Est.	30000	21500	25500	10500	23000	12000	24000	14000	160500		5. R2/3L-4L
Blk Est. # 6.14B											6. Retr. 4L-4
Version Oct. 13, 2003											7. R4L-4LE
											8. New 4L E
5200 ROAD SIDE CONSTRUCTION											
5203 RoadSide Ci- water	0	0	0	0	0	0	0	0	0	0	0
5204 RoadSide Ci- sanitary	0	0	0	0	0	0	0	0	0	0	0
5205 RoadSide Ci- storm	0	0	0	0	0	0	0	0	0	0	0
5202 RoadSide Ci- mobilization	0	0	0	0	0	0	0	0	0	0	0
5209 RoadSide Ci- Utility Contingency	0	0	0	0	0	0	0	0	0	0	0
Road Side Const. Utilities Sub-total	0	0	0	0	0	0	0	0	0	0	0
5210 RoadSide Ci- weigh scales	0	0	0	0	0	0	0	0	0	0	0
5220 RoadSide Ci- safety rest areas	0	0	0	0	0	0	0	0	0	0	0
5230 RoadSide Ci- tourist rest & view areas	0	0	0	0	0	0	0	0	0	0	0
5201 RoadSide Ci- mobilization	0	0	0	0	0	0	0	0	0	0	0
5299 RoadSide Ci- Contingency	0	0	0	0	0	0	0	0	0	0	0
Road Side Construction Sub-total	0	0	0	0	0	0	0	0	0	0	0
ROAD SIDE CONSTRUCTION COSTS	0	0	0	0	0	0	0	0	0	0	0
3550 RoadSide Ei- detailed design	0	0	0	0	0	0	0	0	0	0	0
3559 RoadSide Ei- detailed design/Contingency	0	0	0	0	0	0	0	0	0	0	0
6850 RoadSide Ei- general const. supervision	0	0	0	0	0	0	0	0	0	0	0
6851 RoadSide Ei- quality assurance	0	0	0	0	0	0	0	0	0	0	0
6852 RoadSide Ei- surveying	0	0	0	0	0	0	0	0	0	0	0
6859 RoadSide Ei- Residency Contingency	0	0	0	0	0	0	0	0	0	0	0
Road Side Engineering Sub-total	0	0	0	0	0	0	0	0	0	0	0
Total Road Side Const. & Eng. Costs	0	0	0	0	0	0	0	0	0	0	0
5300 OTHER CONSTRUCTION											
5303 Other Const - water	0	0	0	0	0	0	0	0	0	0	0
5304 Other Const - sanitary	0	0	0	0	0	0	0	0	0	0	0
5305 Other Const - storm	0	0	0	0	0	0	0	0	0	0	0
5302 Other Const - mobilization	0	0	0	0	0	0	0	0	0	0	0
5309 Other Const - utility contingency	0	0	0	0	0	0	0	0	0	0	0
Other Const. Utilities Sub-total	0	0	0	0	0	0	0	0	0	0	0
5310 Other Const - railroads main & spur lines	0	0	0	0	0	0	0	0	0	0	0
5320 Other Const - railroad crossings	0	0	0	0	0	0	0	0	0	0	0
5330 Other Const - marine work	0	0	0	0	0	0	0	0	0	0	0
5340 Other Const - environmental mitigations	135,000	2,445,000	0	305,000	0	0	0	0	2,885,000	18	
5301 Other Const - mobilization	4,050	73,350	0	9,150	0	0	0	0	86,550	1	
5399 Other Const - Contingency	41,715	755,505	0	94,245	0	0	0	0	891,465	6	
Other Construction Sub-total	180,765	3,273,855	0	408,395	0	0	0	0	3,863,015	24	
OTHER CONSTRUCTION COSTS	180,765	3,273,855	0	408,395	0	0	0	0	3,863,015	24	
3570 Other Eng. - detailed design	6,327	114,585	0	14,294	0	0	0	0	135,206	1	
3579 Other Eng. - detailed design/Contingency	1,898	34,375	0	4,288	0	0	0	0	40,562	0	
6870 Other Eng. - general const. supervision	3,615	65,477	0	8,168	0	0	0	0	77,260	0	
6871 Other Eng. - quality assurance	1,808	32,739	0	4,084	0	0	0	0	38,630	0	
6872 Other Eng. - surveying	1,808	32,739	0	4,084	0	0	0	0	38,630	0	
6879 Other Eng. - Residency Contingency	2,169	39,286	0	4,901	0	0	0	0	46,356	0	
Other Engineering Sub-total	17,625	319,201	0	39,819	0	0	0	0	376,644	2	
Total Other Const. & Eng. Costs	198,390	3,593,056	0	448,213	0	0	0	0	4,239,659	26	
Harr-Pern. 275M SUM OF SUMS											
"Optimistic"											

Only structurally deficient bridges replaced as single lane  
30% general earthwork contingencies

Revised Nov. 28, 2003  
Printed: 12/22/2003 12:02 PM



Harrison Mills - Mt. Currie  
Development Road  
CONCEPTUAL ESTIMATE

H:\projects\30133 File: Sasquatch\Spreadsheets\Cost_Est\Harr- Infrastructure Systems Ltd. <b>Harrison Mills-Mt. Currie</b> (2003 Dollars) <b>Two-Lane Dev't. Road</b> ACTIVITY <b>Conceptual Estimate</b> CODE EST.DATE Oct. 1, 2003 Conceptual Est. MAIN RD Blk Est. # 6.14B R2 DATE: Oct. 29, 2003 Version Oct.13, 2003 DESCRIPTION \TOTAL ROADS										SUMMARY OF SUMMARIES ONLY	Total Line Cost C/LM	Road Types 1. 2In Front 2. 2In Acc F 3. 4In Acc F 4.R4L-4L E 5.R2/3L-4L 6.Reptr.4L-4 7.R4L-4LE> 8. New 4L E
	SECTION 1 Km 10.0 - Km 129.5	SECTION 2 Km 129.5 Km 151.0	SECTION 3 Km 151.0 Km 176.5	SECTION 4 Km 176.5 Km 186.7	Section 5 Km H0.0 Km H23.0	Section 6 Km H23.0 Km H35.0	Section 7 Km H35.0 Km H59.0	Section 8 Km H59.0 Km H73.3				
	0	0	0	0	0	0	0	0				
	0	0	0	0	0	0	0	0				
	30000	21500	25500	10500	23000	12000	24000	14000	MR	160500		
	0	0	0	0	0	0	0	0	OR	0		
	30000	21500	25500	10500	23000	12000	24000	14000	TR	160500	160500	
3500	DETAILED DESIGN											
	from 3510,3520,3540,3550,3570											
3530	Geotech. En - detailed design	513,745	419,316	555,720	213,785	808,317	434,008	747,533	472,654	4,165,077	26	
3539	Geotech. En - Contingency	135,765	94,280	148,834	56,596	186,062	103,028	188,750	117,295	1,030,610	6	
		40,729	28,284	44,650	16,979	55,818	30,909	56,625	35,188	309,183	2	
	<b>TOTAL DETAILED DESIGN COSTS</b>	690,239	541,880	749,204	287,359	1,050,197	567,945	992,908	625,137	5,504,870	34	
6800	RESIDENT ENGINEERING	0	0	0	0	0	0	0	0			
	from 6810,6820,6840,6850,6860,6870	1,537,107	1,052,724	1,668,616	633,969	2,141,218	1,177,580	2,127,736	1,324,788	11,663,738		
	<b>TOTAL RESIDENT ENG. COSTS</b>	1,537,107	1,052,724	1,668,616	633,969	2,141,218	1,177,580	2,127,736	1,324,788	11,663,738	73	
		0	0	0	0	0	0	0	0			
		0	0	0	0	0	0	0	0	0		
		0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	
	PART 1 SUMMARY											
	CONSTRUCTION	23,342,655	16,416,274	25,441,704	9,674,491	31,805,390	17,611,686	32,264,958	20,050,420	176,607,579	1100	
	ENGINEERING & SUPERVISION	3,740,119	2,671,203	3,587,879	1,415,672	4,051,846	2,174,462	4,045,755	2,463,609	24,150,545	150	
	CONTRACTUAL CONTINGENCY	8,124,832	5,726,243	8,708,875	3,327,049	10,757,171	5,935,844	10,893,214	6,754,209	60,227,437	375	
		0	0	0	0	0	0	0	0	0	0	
	<b>CONSTRUCTION COST TOTAL</b>	35,207,606	24,813,720	37,738,458	14,417,212	46,614,407	25,721,992	47,203,928	29,268,239	260,985,561	1626	

Harrison Mills - Mt. Currie  
Development Road  
CONCEPTUAL ESTIMATE

H:\projects\30133 File: Sasquatch\Spreadsheets\Cost_Est\Harr- Infrastructure Systems Ltd. Harrison Mills-Mt. Currie (2003 Dollars) Two-Lane Dev't. Road ACTIVITY Conceptual Estimate CODE EST. DATE Oct. 1, 2003 Conceptual Est. MAIN RD Blk Est. # 6.14B R2 DATE: Oct. 29, 2003 Version Oct. 13, 2003 DESCRIPTION \TOTAL ROADS										SECTION 1 Km 10.0 - Km 129.5 0 0 30000	SECTION 2 Km 129.5 Km 151.0 0 0 21500	SECTION 3 Km 151.0 Km 176.5 0 0 25500	SECTION 4 Km 176.5 Km 186.7 0 0 10500	Section 5 Km H0.0 Km H23.0 0 0 23000	Section 6 Km H23.0 Km H35.0 0 0 12000	Section 7 Km H35.0 Km H59.0 0 0 24000	Section 8 Km H59.0 Km H73.3 0 0 14000	SUMMARY OF SUMMARIES ONLY 160500 0 160500	Total Line Cost C/LM 160500	Road Types 1. 2In Front 2. 2In Acc F 3. 4In Acc F 4. R4L-4L E 5. R2/3L-4L 6. Retr. 4L-4 7. R4L-4LE 8. New 4L E
2000 PROJECT MANAGEMENT																				
2060 Project Man. - office costs wages										704,152	500,639	759,134	288,344	932,288	514,440	944,079	585,365	5,228,441	33	
2062 Project Man. - office costs - expenses										176,038	125,160	189,784	72,086	233,072	128,610	236,020	146,341	1,307,110	8	
2063 Project Man. - printing costs										0	0	0	0	0	0	0	0	0	0	
2061 Project Man. - general										0	0	0	0	0	0	0	0	0	0	
Project Manager Sub-total										880,190	625,799	948,918	360,430	1,165,360	643,050	1,180,098	731,706	6,535,552	41	
2010 Client - office costs wages										352,076	250,320	379,567	144,172	466,144	257,220	472,039	292,682	2,614,221	16	
2012 Client - office costs - expenses										176,038	125,160	189,784	72,086	233,072	128,610	236,020	146,341	1,307,110	8	
2030 Client - printing costs										0	0	0	0	0	0	0	0	0	0	
2011 Client - general										0	0	0	0	0	0	0	0	0	0	
Client Sub-total										528,114	375,480	569,351	216,258	699,216	385,830	708,059	439,024	3,921,331	24	
2070 Public Rel. - wages & expenses										0	0	0	0	0	0	0	0	0	0	
2072 Public Rel. - adv., media, displays										0	0	0	0	0	0	0	0	0	0	
2073 Public Rel. - opening ceremonies										0	0	0	0	0	0	0	0	0	0	
2071 Public Rel. - general										0	0	0	0	0	0	0	0	0	0	
Public Relations Sub-total										0	0	0	0	0	0	0	0	0	0	
2040 Legal Costs - lawyers fees										35,208	25,032	37,957	14,417	46,614	25,722	47,204	29,268	261,422	2	
2041 Legal Costs - general										0	0	0	0	0	0	0	0	0	0	
Legal Costs Sub-total										35,208	25,032	37,957	14,417	46,614	25,722	47,204	29,268	261,422	2	
2080 Insurance - const./ liability, E&O										0	0	0	0	0	0	0	0	0	0	
2081 Insurance - general										0	0	0	0	0	0	0	0	0	0	
Legal Costs Sub-total										0	0	0	0	0	0	0	0	0	0	
2099 Project Management Contingency										433,054	307,893	466,868	177,332	573,357	316,381	580,608	359,999	3,215,491	20	
TOTAL PROJECT MANAGEMENT COSTS										1,876,565	1,334,204	2,023,093	768,437	2,484,548	1,370,982	2,515,969	1,559,997	13,933,796	87	
4000 LAND										0	0	0	0	0	0	0	0	0	0	
4010 Land(Code 4-Mrkt,ROW,Serv,Imp.V,Ease.C,T										0	0	0	0	0	0	0	0	0	0	
Acquisition Sub-total										0	0	0	0	0	0	0	0	0	0	
4020 Land(Code 4-Bus.,5%,Mrg.P,Rel\$,P/Tax,Etc										0	0	0	0	0	0	0	0	0	0	
4030 Land(Code 4-Owners(LS,Apprsl,Rprt,Lgl,In										0	0	0	0	0	0	0	0	0	0	
4040 Land(Code 4-Demolition										0	0	0	0	0	0	0	0	0	0	
4050 Land(Code 4-Pro.Man,P.Tax,Util,Security										0	0	0	0	0	0	0	0	0	0	
4060 Land(Code 4-Not Used										0	0	0	0	0	0	0	0	0	0	
4070 Land(Code 4-Not Used										0	0	0	0	0	0	0	0	0	0	
4080 Land(Code 4-Acq.F,M/Sal,TrvIV,Cntr.S,Appr.										0	0	0	0	0	0	0	0	0	0	
4090 Land(Code 4-Surveys										0	0	0	0	0	0	0	0	0	0	
										0	0	0	0	0	0	0	0	0	0	
										0	0	0	0	0	0	0	0	0	0	
										0	0	0	0	0	0	0	0	0	0	
										0	0	0	0	0	0	0	0	0	0	
										0	0	0	0	0	0	0	0	0	0	
Associated costs-sub-total										0	0	0	0	0	0	0	0	0	0	
4099 Land Contingency Sub-total										0	0	0	0	0	0	0	0	0	0	
TOTAL LAND COSTS										0	218,250	218,250	0	0	0	0	0	436,500	3	

Road structure reduced  
Minimal design, day labour built

Only structurally deficient bridges replaced as single lane  
30% general earthwork contingencies

Harrison Mills - Mt. Currie  
Development Road  
CONCEPTUAL ESTIMATE

H:\projects\30133 File: Sasquatch\Spreadsheets\Cost_Est\Harrison Mills-Mt. Currie Structure Systems Ltd. (2003 Dollars) <b>Two-Lane Dev't. Road</b> ACTIVITY <b>Conceptual Estimate</b> CODE EST.DATE Oct. 1, 2003 Conceptual Est. MAIN RD Blk Est. # 6.14B R2 DATE: Oct. 29, 2003 Version Oct.13, 2003 DESCRIPTION \TOTAL ROADS											SECTION 1 Km 10.0 - Km 129.5 0 0 30000	SECTION 2 Km 129.5 Km 151.0 0 0 21500	SECTION 3 Km 151.0 Km 176.5 0 0 25500	SECTION 4 Km 176.5 Km 186.7 0 0 10500	Section 5 Km H0.0 Km H23.0 0 0 23000	Section 6 Km H23.0 Km H35.0 0 0 12000	Section 7 Km H35.0 Km H59.0 0 0 24000	Section 8 Km H59.0 Km H73.3 0 0 14000	MR OR TR	SUMMARY OF SUMMARIES ONLY  160500 0 160500	Total Line Cost C/LM  160500	Road Types 1. 2In Front 2. 2In Acc F 3. 4In Acc F 4.R4L-4L E 5.R2/3L-4L 6.Reptr.4L-4 7.R4L-4LE> 8. New 4L E
9800	MANAGEMENT RESERVE	0	0	0	0	0	0	0	0													
	MAN. RES. - planning	0	0	0	0	0	0	0	0		0	0										
	MAN. RES. - preliminary design	0	0	0	0	0	0	0	0		0	0										
	MAN. RES. - utility construction	0	0	0	0	0	0	0	0		0	0										
	MAN. RES. - grade construction	0	0	0	0	0	0	0	0		0	0										
	MAN. RES. - structural construction	0	0	0	0	0	0	0	0		0	0										
	MAN. RES. - paving construction	0	0	0	0	0	0	0	0		0	0										
	MAN. RES. - operation construction	0	0	0	0	0	0	0	0		0	0										
	MAN. RES. - roadside construction	0	0	0	0	0	0	0	0		0	0										
	MAN. RES. - other construction	0	0	0	0	0	0	0	0		0	0										
	MAN. RES. - project management	0	0	0	0	0	0	0	0		0	0										
	MAN. RES. - land	0	0	0	0	0	0	0	0		0	0										
	MAN. RES. - detailed eng.	0	0	0	0	0	0	0	0		0	0										
	MAN. RES. - residency eng.	0	0	0	0	0	0	0	0		0	0										
	MAN. RES. - risk contingency	0	0	0	0	0	0	0	0		0	0										
	TOTAL MANAGEMENT RESERVE	0	0	0	0	0	0	0	0		0	0										
=====																						
TOTAL LESS ESCALATION																						
FISCAL																						
9900	ESCALATION																					
	YEAR PROJECTED ESCALATION																					
	2002-2003	0	0	0	0	0	0	0	0		0	0										
	2003 - 2004	0	0	0	0	0	0	0	0		0	0										
	2004-2005	0	0	0	0	0	0	0	0		0	0										
	2005-2006	0	0	0	0	0	0	0	0		0	0										
	2006-2007	0	0	0	0	0	0	0	0		0	0										
	2007-2008	0	0	0	0	0	0	0	0		0	0										
	2008-2009	0	0	0	0	0	0	0	0		0	0										
	2009-2010	0	0	0	0	0	0	0	0		0	0										
	2010-2011	0	0	0	0	0	0	0	0		0	0										
	TOTAL ESCALATION	0	0	0	0	0	0	0	0		0	0										
=====																						
PART 2 SUMMARY NON-CONSTRUCTION CO:		0	0	0	0	0	0	0	0													
	Non-Construction	1,443,512	1,244,561	1,774,475	591,106	1,911,191	1,054,602	1,935,361	1,199,998		11,154,805	70										
	Non-Const. Contingency	433,054	307,893	466,868	177,332	573,357	316,381	580,608	359,999		3,215,491	20										
	TOTAL NON-CONSTRUCTION CO:	1,876,565	1,552,454	2,241,343	768,437	2,484,548	1,370,982	2,515,969	1,559,997		14,370,296	90										
=====																						
DIVISION TOTAL FOR ROAD TYPE		37,084,171	26,366,174	39,979,801	15,185,649	49,098,955	27,092,975	49,719,897	30,828,236		275,355,857	1716										