

Appendix - Phase 1 Fish Passage Assessment Data and Photos

Location and Stream Data		Crossing Characteristics –	
Date	2020-10-16	Crossing Sub Type	Round Culvert
PSCIS ID	NA	Diameter (m)	1.2
External ID	4600005	Length (m)	19
Crew	AI, MF	Embedded	No
UTM Zone	11	Depth Embedded (m)	NA
Easting	638974	Resemble Channel	No
Northing	5484444	Backwatered	No
Stream	Tributary to Elk R	Percent Backwatered	NA
Road	Hwy 3	Fill Depth (m)	1.2
Road Tenure	NA	Outlet Drop (m)	0.5
Channel Width (m)	2.7	Outlet Pool Depth (m)	0
Stream Slope (%)	6	Inlet Drop	No
Beaver Activity	No	Slope (%)	7
Habitat Value	Low	Valley Fill	Deep Fill

Appendix - Phase 1 Fish Passage As...



Comments: Difficult to discern if slope (>60%) downstream between the highway and the Elk River is due to highway fill or was naturally occurring before highway installation.

Location and Stream Data		Crossing Characteristics –	
Date	2020-09-23	Crossing Sub Type	Round Culvert
PSCIS ID	197548	Diameter (m)	0.65
External ID	4600008	Length (m)	11
Crew	AI, KP	Embedded	Yes
UTM Zone	11	Depth Embedded (m)	0.1
Easting	640268	Resemble Channel	Yes
Northing	5481377	Backwatered	No
Stream	Tributary to Elk River	Percent Backwatered	NA
Road	Robinson Road	Fill Depth (m)	1.2
Road Tenure	MoTi local	Outlet Drop (m)	0
Channel Width (m)	1.2	Outlet Pool Depth (m)	0
Stream Slope (%)	0.5	Inlet Drop	No
Beaver Activity	No	Slope (%)	0.5
Habitat Value	Low	Valley Fill	Deep Fill

Appendix - Phase 1 Fish Passage As...



Comments: Dry mostly vegetated channel. Not likely fish habitat.

Location and Stream Data		Crossing Characteristics –	
Date	2020-09-24	Crossing Sub Type	Round Culvert
PSCIS ID	197580	Diameter (m)	0.6
External ID	4600026	Length (m)	22
Crew	AI, MF, DN	Embedded	No
UTM Zone	11	Depth Embedded (m)	NA
Easting	642911	Resemble Channel	No
Northing	5490630	Backwatered	No
Stream	Tributary to Elk River	Percent Backwatered	NA
Road	Dicken Rd	Fill Depth (m)	2
Road Tenure	MoTi collector	Outlet Drop (m)	1.3
Channel Width (m)	2.2	Outlet Pool Depth (m)	0.3
Stream Slope (%)	3	Inlet Drop	No
Beaver Activity	No	Slope (%)	1.5
Habitat Value	Low	Valley Fill	Deep Fill

Appendix - Phase 1 Fish Passage As...



Comments: Stream dry at time of survey. Children's fort in upstream channel indicating that flows are likely very minimal year round.

Location and Stream Data		Crossing Characteristics –	
Date	2020-09-24	Crossing Sub Type	Round Culvert
PSCIS ID	197581	Diameter (m)	0.95
External ID	4600028	Length (m)	14
Crew	AI, MF, DN	Embedded	No
UTM Zone	11	Depth Embedded (m)	NA
Easting	642559	Resemble Channel	No
Northing	5490377	Backwatered	No
Stream	Bean Creek	Percent Backwatered	NA
Road	Dicken Rd	Fill Depth (m)	1.2
Road Tenure	MoTi collector	Outlet Drop (m)	0.57
Channel Width (m)	2	Outlet Pool Depth (m)	0.22
Stream Slope (%)	5	Inlet Drop	No
Beaver Activity	No	Slope (%)	5.5
Habitat Value	High	Valley Fill	Deep Fill

Appendix - Phase 1 Fish Passage As...

Photos: External ID 4600028. From top left clockwise: Road/Site Card, Barrel, Outlet, Downstream, Upstream, Inlet.



Comments: Multiple fish observed in outlet pool (~190mm). Some gravels suitable for spawning located upstream.

Location and Stream Data		Crossing Characteristics –	
Date	2020-09-17	Crossing Sub Type	Round Culvert
PSCIS ID	197531	Diameter (m)	0.75
External ID	4600037	Length (m)	6
Crew	AI, KP	Embedded	Yes
UTM Zone	11	Depth Embedded (m)	0.1
Easting	651867	Resemble Channel	Yes
Northing	5522741	Backwatered	No
Stream	Dalzell Creek	Percent Backwatered	NA
Road	Driveway	Fill Depth (m)	0.3
Road Tenure	private	Outlet Drop (m)	0
Channel Width (m)	2.5	Outlet Pool Depth (m)	0
Stream Slope (%)	1.5	Inlet Drop	No
Beaver Activity	No	Slope (%)	2
Habitat Value	Medium	Valley Fill	Deep Fill

Appendix - Phase 1 Fish Passage As...



Comments: Embedded culvert on private driveway. EB known upstream. Culvert does not appear likely to be significantly impacting upstream fish passage for juvenile or adult WCT at time of survey.

Location and Stream Data		Crossing Characteristics –	
Date	2020-09-17	Crossing Sub Type	Round Culvert
PSCIS ID	197532	Diameter (m)	0.75
External ID	4600038	Length (m)	12
Crew	AI, KP	Embedded	Yes
UTM Zone	11	Depth Embedded (m)	0.18
Easting	651917	Resemble Channel	Yes
Northing	5522888	Backwatered	No
Stream	Dalzell Creek	Percent Backwatered	NA
Road	Driveway	Fill Depth (m)	0.3
Road Tenure	private	Outlet Drop (m)	0
Channel Width (m)	1.2	Outlet Pool Depth (m)	0
Stream Slope (%)	1.5	Inlet Drop	Yes
Beaver Activity	No	Slope (%)	2
Habitat Value	Medium	Valley Fill	Deep Fill

Appendix - Phase 1 Fish Passage As...



Comments: Culvert collapsing in the middle. Private residence driveway. Wetland type habitat upstream. Culvert does not appear likely to be significantly impacting upstream fish passage for juvenile or adult WCT at time of survey.

Location and Stream Data		Crossing Characteristics -	
Date	2020-09-17	Crossing Sub Type	Round Culvert
PSCIS ID	197558	Diameter (m)	0.45
External ID	4600039	Length (m)	16
Crew	KP, AI	Embedded	Yes
UTM Zone	11	Depth Embedded (m)	0.07
Easting	651833	Resemble Channel	Yes
Northing	5522544	Backwatered	No
Stream	Dalzell Creek	Percent Backwatered	NA
Road	Lower Elk Valley Rd	Fill Depth (m)	1
Road Tenure	MoTi arterial	Outlet Drop (m)	0
Channel Width (m)	3.8	Outlet Pool Depth (m)	0.07
Stream Slope (%)	1	Inlet Drop	No
Beaver Activity	No	Slope (%)	3.5
Habitat Value	Medium	Valley Fill	Deep Fill

Appendix - Phase 1 Fish Passage As...

Photos: External ID 4600039. From top left clockwise: Road/Site Card, Barrel, Outlet, Downstream, Upstream, Inlet.



Comments: Three barrels (.45m each). Two of the three have water flowing through them. Upstream and downstream channel widens out, slow flow through vegetated channel. Highly manipulated banks. Deep fine substrate on both sides of crossing. Upstream resembles a wetland. Crossing does not appear likely to be significantly impacting upstream fish passage for juvenile or adult WCT at time of survey.

Location and Stream Data		Crossing Characteristics –	
Date	2020-09-17	Crossing Sub Type	Round Culvert
PSCIS ID	197530	Diameter (m)	0.9
External ID	4600040	Length (m)	22
Crew	AI, KP	Embedded	Yes
UTM Zone	11	Depth Embedded (m)	0.3
Easting	652004	Resemble Channel	Yes
Northing	5522330	Backwatered	No
Stream	Dalzell Creek	Percent Backwatered	NA
Road	Airport Road	Fill Depth (m)	0.5
Road Tenure	MoTi local	Outlet Drop (m)	0
Channel Width (m)	5	Outlet Pool Depth (m)	0
Stream Slope (%)	0	Inlet Drop	No
Beaver Activity	No	Slope (%)	2.5
Habitat Value	Medium	Valley Fill	Deep Fill

Appendix - Phase 1 Fish Passage As...



Comments: Fenced private land upstream and downstream. Wetland area downstream. Culvert does not appear likely to be significantly impacting upstream fish passage for juvenile or adult WCT at time of survey.

Location and Stream Data		Crossing Characteristics -	
Date	2020-09-17	Crossing Sub Type	Round Culvert
PSCIS ID	197534	Diameter (m)	3.2
External ID	4600069	Length (m)	18
Crew	AI, KP	Embedded	No
UTM Zone	11	Depth Embedded (m)	NA
Easting	650144	Resemble Channel	No
Northing	5532055	Backwatered	No
Stream	Weigart Creek	Percent Backwatered	NA
Road	Highway 43	Fill Depth (m)	1.3
Road Tenure	MoTi highway	Outlet Drop (m)	0.15
Channel Width (m)	4.3	Outlet Pool Depth (m)	0.6
Stream Slope (%)	2	Inlet Drop	Yes
Beaver Activity	No	Slope (%)	3.4
Habitat Value	High	Valley Fill	Deep Fill

Appendix - Phase 1 Fish Passage As...



Comments: Large stream with good flow. Flows currently mostly through south culvert which has slightly higher outlet drop. Similar elevation outlets so added together for width. Lazer level used for culvert slope. Cobble/boulder substrate. Boulder cover.

Location and Stream Data		Crossing Characteristics –	
Date	2020-09-17	Crossing Sub Type	Round Culvert
PSCIS ID	197559	Diameter (m)	2.5
External ID	4600070	Length (m)	35
Crew	KP, AI	Embedded	Yes
UTM Zone	11	Depth Embedded (m)	0.05
Easting	651516	Resemble Channel	Yes
Northing	5528829	Backwatered	No
Stream	Brule Creek	Percent Backwatered	NA
Road	Highway 43	Fill Depth (m)	3
Road Tenure	MoTi highway	Outlet Drop (m)	0
Channel Width (m)	6.1	Outlet Pool Depth (m)	1.7
Stream Slope (%)	1.5	Inlet Drop	No
Beaver Activity	No	Slope (%)	2.5
Habitat Value	Medium	Valley Fill	Deep Fill

Appendix - Phase 1 Fish Passage As...



Comments: Dewatered upstream of highway for 600m. Deep pool present downstream fed subsurface from northside of culvert. Approximately 9 WCT in outlet pool. Four fish ~300mm and 5 fish ~200 mm. High confidence that the larger fish were WCT as easy to recognize spotted backs from bank.

Location and Stream Data		Crossing Characteristics –	
Date	2020-09-23	Crossing Sub Type	Round Culvert
PSCIS ID	197545	Diameter (m)	0.75
External ID	4600077	Length (m)	20
Crew	AI, KP	Embedded	Yes
UTM Zone	11	Depth Embedded (m)	0.1
Easting	639864	Resemble Channel	Yes
Northing	5483627	Backwatered	No
Stream	Tributary to Elk River	Percent Backwatered	NA
Road	Mt Mclean Road	Fill Depth (m)	4
Road Tenure	Fernie local	Outlet Drop (m)	0
Channel Width (m)	2.7	Outlet Pool Depth (m)	0
Stream Slope (%)	0.5	Inlet Drop	No
Beaver Activity	No	Slope (%)	0.5
Habitat Value	Low	Valley Fill	Deep Fill

Appendix - Phase 1 Fish Passage As...



Comments: Dry channel. Culvert is embedded.

Location and Stream Data		Crossing Characteristics –	
Date	2020-09-23	Crossing Sub Type	Round Culvert
PSCIS ID	197569	Diameter (m)	1.1
External ID	4600080	Length (m)	43
Crew	KP, AI	Embedded	No
UTM Zone	11	Depth Embedded (m)	NA
Easting	640568	Resemble Channel	No
Northing	5481516	Backwatered	No
Stream	Tributary to Elk River	Percent Backwatered	NA
Road	Cokato Road	Fill Depth (m)	2
Road Tenure	MoTi local	Outlet Drop (m)	0
Channel Width (m)	2.1	Outlet Pool Depth (m)	0
Stream Slope (%)	3.5	Inlet Drop	No
Beaver Activity	No	Slope (%)	4
Habitat Value	Low	Valley Fill	Deep Fill

Appendix - Phase 1 Fish Passage As...



Comments: 2 barrels, 0.90 and 1.1m. Debris rack on inlet. Stream dry at time of survey.

Location and Stream Data		Crossing Characteristics -	
Date	2020-09-17	Crossing Sub Type	Round Culvert
PSCIS ID	197529	Diameter (m)	0.6
External ID	4600084	Length (m)	22
Crew	AI, KP	Embedded	No
UTM Zone	11	Depth Embedded (m)	NA
Easting	651532	Resemble Channel	No
Northing	5521052	Backwatered	No
Stream	Littlemoor Creek	Percent Backwatered	NA
Road	Lower Elk Valley Rd	Fill Depth (m)	0.8
Road Tenure	MoTi arterial	Outlet Drop (m)	0.2
Channel Width (m)	1	Outlet Pool Depth (m)	0.15
Stream Slope (%)	0.5	Inlet Drop	No
Beaver Activity	No	Slope (%)	3
Habitat Value	Low	Valley Fill	Deep Fill

Appendix - Phase 1 Fish Passage As...



Comments: Flows through fenced private land upstream and downstream. Inlet has quite a bit of debris on it. Upstream is much steeper than downstream with gradient estimated at 12%. Small stream with good flow.

Location and Stream Data		Crossing Characteristics –	
Date	2020-09-17	Crossing Sub Type	Round Culvert
PSCIS ID	197556	Diameter (m)	0.45
External ID	4600090	Length (m)	18
Crew	KP, AI	Embedded	No
UTM Zone	11	Depth Embedded (m)	NA
Easting	651814	Resemble Channel	No
Northing	5519652	Backwatered	No
Stream	Tributary to Elk River	Percent Backwatered	NA
Road	Lower Elk Valley Rd	Fill Depth (m)	1
Road Tenure	MoTi arterial	Outlet Drop (m)	0
Channel Width (m)	0	Outlet Pool Depth (m)	0
Stream Slope (%)	0	Inlet Drop	No
Beaver Activity	No	Slope (%)	1.5
Habitat Value	Low	Valley Fill	Deep Fill

Appendix - Phase 1 Fish Passage As...

Photos: External ID 4600090. From top left clockwise: Road/Site Card, Barrel, Outlet, Downstream, Upstream, Inlet.



Comments: No visible channel. Not likely fish habitat. Agricultural area.

Location and Stream Data		Crossing Characteristics –	
Date	2020-09-17	Crossing Sub Type	Round Culvert
PSCIS ID	197557	Diameter (m)	0.8
External ID	4600092	Length (m)	18
Crew	KP, AI	Embedded	No
UTM Zone	11	Depth Embedded (m)	NA
Easting	651701	Resemble Channel	No
Northing	5521881	Backwatered	No
Stream	North Littlemoor Creek	Percent Backwatered	NA
Road	Lower Elk Valley Rd	Fill Depth (m)	0.6
Road Tenure	MoTi arterial	Outlet Drop (m)	0
Channel Width (m)	1.5	Outlet Pool Depth (m)	0
Stream Slope (%)	2.5	Inlet Drop	No
Beaver Activity	No	Slope (%)	3
Habitat Value	Low	Valley Fill	Deep Fill

Appendix - Phase 1 Fish Passage As...



Comments: Stream slope estimated due to fenced private land.

Location and Stream Data		Crossing Characteristics –	
Date	2020-09-23	Crossing Sub Type	Round Culvert
PSCIS ID	197546	Diameter (m)	0.5
External ID	4600102	Length (m)	16
Crew	Al, Kp	Embedded	No
UTM Zone	11	Depth Embedded (m)	NA
Easting	640306	Resemble Channel	No
Northing	5481672	Backwatered	No
Stream	Tributary to Elk River	Percent Backwatered	NA
Road	McGiverin Road	Fill Depth (m)	1
Road Tenure	MoTi local	Outlet Drop (m)	0
Channel Width (m)	0.5	Outlet Pool Depth (m)	0
Stream Slope (%)	0	Inlet Drop	No
Beaver Activity	No	Slope (%)	1
Habitat Value	Low	Valley Fill	Deep Fill

Appendix - Phase 1 Fish Passage As...



Comments: Vegetated channel. Not likely fish habitat.

Location and Stream Data		Crossing Characteristics –	
Date	2020-09-23	Crossing Sub Type	Round Culvert
PSCIS ID	197567	Diameter (m)	1.2
External ID	4600130	Length (m)	22
Crew	KP, AI	Embedded	No
UTM Zone	11	Depth Embedded (m)	NA
Easting	640037	Resemble Channel	No
Northing	5483655	Backwatered	Yes
Stream	Tributary to Elk River	Percent Backwatered	20
Road	Cokato Road	Fill Depth (m)	8
Road Tenure	Fernie collector	Outlet Drop (m)	0
Channel Width (m)	0.65	Outlet Pool Depth (m)	0
Stream Slope (%)	9	Inlet Drop	Yes
Beaver Activity	No	Slope (%)	9
Habitat Value	Low	Valley Fill	Deep Fill

Appendix - Phase 1 Fish Passage As...

Photos: External ID 4600130. From top left clockwise: Road/Site Card, Barrel, Outlet, Downstream, Upstream, Inlet.



Comments: Very low flow at time of survey and 0.5m inlet drop from debris. Very steep culvert, possibly 2 sections with further upstream section being much steeper.

Location and Stream Data		Crossing Characteristics –	
Date	2020-09-24	Crossing Sub Type	Round Culvert
PSCIS ID	197574	Diameter (m)	0.9
External ID	4600134	Length (m)	48
Crew	KP, AI	Embedded	No
UTM Zone	11	Depth Embedded (m)	NA
Easting	638639	Resemble Channel	No
Northing	5480681	Backwatered	No
Stream	Tributary to Elk River	Percent Backwatered	NA
Road	Fernie ski hill	Fill Depth (m)	3
Road Tenure	unclassified	Outlet Drop (m)	0.09
Channel Width (m)	1.4	Outlet Pool Depth (m)	0.22
Stream Slope (%)	5	Inlet Drop	No
Beaver Activity	No	Slope (%)	9
Habitat Value	Low	Valley Fill	Deep Fill

Appendix - Phase 1 Fish Passage As...



Comments: Debris guard on inlet. Unable to see through the culvert to other end. Highly manipulated banks, drains large parking area and ski hill. Steep with placed rocks (rip rap) in spots upstream. Stream goes under large turn around, paved area. Culvert likely >1 piece with slight angle. Armoured banks downstream, lots of sediment (sand) form pavement and parking area.

Location and Stream Data		Crossing Characteristics -	
Date	2020-09-18	Crossing Sub Type	Round Culvert
PSCIS ID	197562	Diameter (m)	0.9
External ID	4600140	Length (m)	22
Crew	KP, AI	Embedded	No
UTM Zone	11	Depth Embedded (m)	NA
Easting	651110	Resemble Channel	No
Northing	5515356	Backwatered	No
Stream	Whiting Creek	Percent Backwatered	NA
Road	Highway 43	Fill Depth (m)	3
Road Tenure	MoTi arterial	Outlet Drop (m)	0.18
Channel Width (m)	0.6	Outlet Pool Depth (m)	0
Stream Slope (%)	2	Inlet Drop	No
Beaver Activity	No	Slope (%)	1.5
Habitat Value	Low	Valley Fill	Deep Fill

Appendix - Phase 1 Fish Passage As...



Comments: No access up or downstream due to fenced private land. Stream slope estimated. Water pipe intake at the outlet.

Location and Stream Data		.	Crossing Characteristics –	
Date	2020-09-24	Crossing Sub Type	Pipe Arch	
PSCIS ID	197582	Diameter (m)	4	
External ID	4600157	Length (m)	44	
Crew	AI, MF, DN	Embedded	NA	
UTM Zone	11	Depth Embedded (m)	NA	
Easting	643565	Resemble Channel	NA	
Northing	5490325	Backwatered	NA	
Stream	Hartley Creek	Percent Backwatered	NA	
Road	Highway 3	Fill Depth (m)	NA	
Road Tenure	MoTi highway	Outlet Drop (m)	NA	
Channel Width (m)	NA	Outlet Pool Depth (m)	NA	
Stream Slope (%)	NA	Inlet Drop	NA	
Beaver Activity	No	Slope (%)	NA	
Habitat Value	NA	Valley Fill	NA	

Appendix - Phase 1 Fish Passage As...

Photos: External ID 4600157. From top left clockwise: Road/Site Card, Barrel, Outlet, Downstream, Upstream, Inlet.



Comments: This crossing is very full of debris and has been recently dredges. Less than 30cm freeboard from top of aggregated gravels at inlet and top of pipe arch. Newly installed overflow pipe (0.55 diameter) on left bank.

Location and Stream Data		Crossing Characteristics –	
Date	2020-09-24	Crossing Sub Type	Round Culvert
PSCIS ID	197583	Diameter (m)	1.8
External ID	4600158	Length (m)	30
Crew	AI, MF, DN	Embedded	No
UTM Zone	11	Depth Embedded (m)	NA
Easting	642739	Resemble Channel	No
Northing	5489444	Backwatered	No
Stream	Bean Creek	Percent Backwatered	NA
Road	Highway 3	Fill Depth (m)	1.5
Road Tenure	MoTi highway	Outlet Drop (m)	0.17
Channel Width (m)	3.2	Outlet Pool Depth (m)	0.24
Stream Slope (%)	0.5	Inlet Drop	No
Beaver Activity	No	Slope (%)	1
Habitat Value	Medium	Valley Fill	Deep Fill

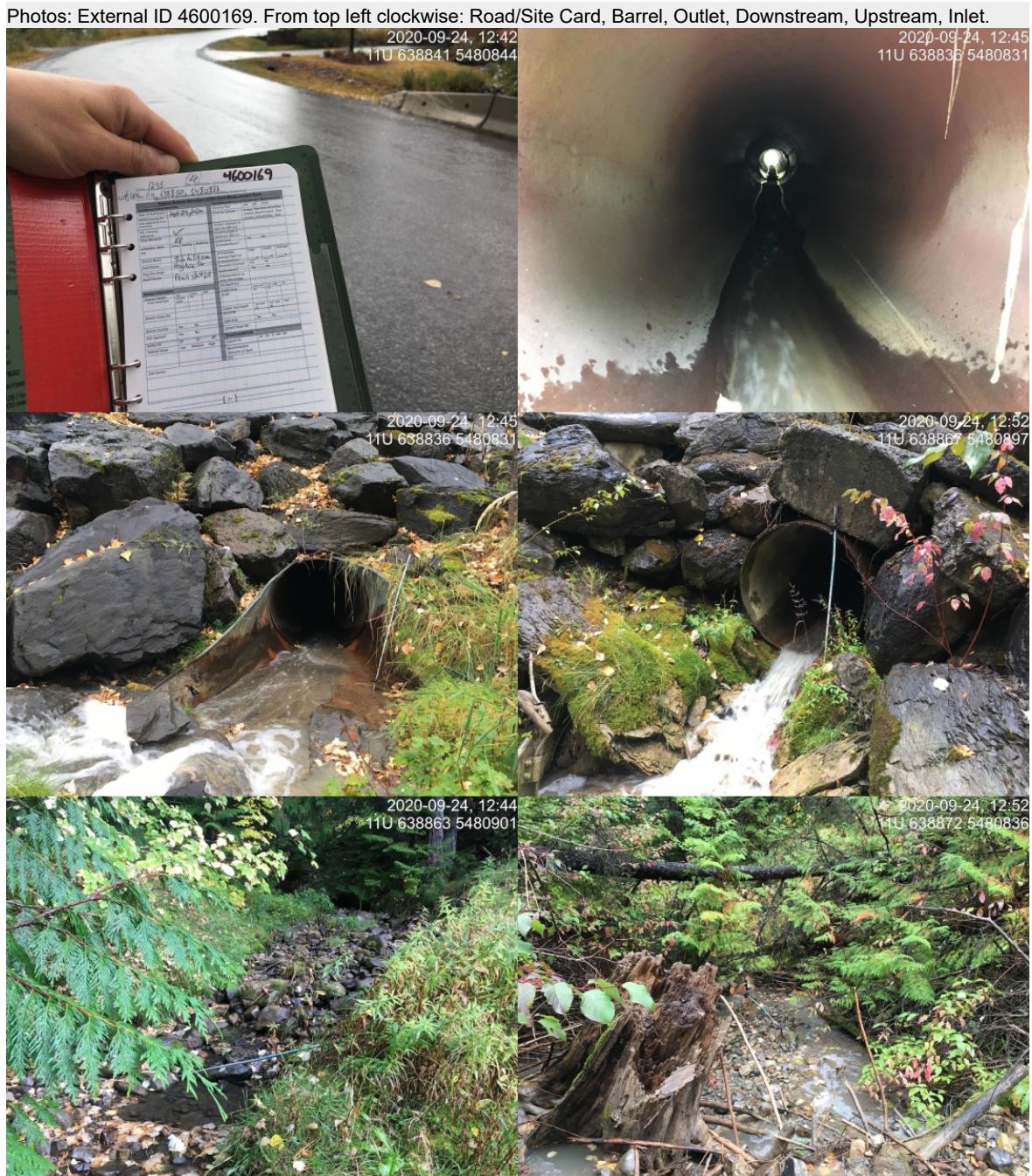
Appendix - Phase 1 Fish Passage As...



Comments: Fish observed at upstream crossing on Bean Rd. Grate on inlet may prevent passage off adult fish. Fill depth estimated from photos.

Location and Stream Data		Crossing Characteristics –	
Date	2020-09-24	Crossing Sub Type	Round Culvert
PSCIS ID	197573	Diameter (m)	1
External ID	4600169	Length (m)	36
Crew	KP, AI	Embedded	No
UTM Zone	11	Depth Embedded (m)	NA
Easting	638850	Resemble Channel	No
Northing	5480833	Backwatered	No
Stream	Tributary to Elk River	Percent Backwatered	NA
Road	Highline Drive	Fill Depth (m)	6
Road Tenure	MoTi local	Outlet Drop (m)	0.2
Channel Width (m)	2.3	Outlet Pool Depth (m)	0.25
Stream Slope (%)	11.5	Inlet Drop	No
Beaver Activity	No	Slope (%)	13
Habitat Value	Medium	Valley Fill	Deep Fill

Appendix - Phase 1 Fish Passage As...



Comments: Very recent heavy rains, 2 side channels for ski hill drainage infrastructure giving significant flow contributions just upstream of crossing, one of which is especially turbid (from large parking lot). Culvert not baffled, very steep. A lot of fill on paved access to condos. Old metal collar of culvert ripped off and in outlet pool.

Location and Stream Data		Crossing Characteristics –	
Date	2020-09-18	Crossing Sub Type	Round Culvert
PSCIS ID	197560	Diameter (m)	0.6
External ID	4600181	Length (m)	73
Crew	KP, AI	Embedded	No
UTM Zone	11	Depth Embedded (m)	NA
Easting	652322	Resemble Channel	No
Northing	5527529	Backwatered	No
Stream	Tributary to Elk River	Percent Backwatered	NA
Road	Line Creek Mine Rd	Fill Depth (m)	3.5
Road Tenure	MoTi local	Outlet Drop (m)	0
Channel Width (m)	0.5	Outlet Pool Depth (m)	0
Stream Slope (%)	2	Inlet Drop	No
Beaver Activity	No	Slope (%)	2
Habitat Value	Low	Valley Fill	Deep Fill

Appendix - Phase 1 Fish Passage As...



Comments: Dry at time of survey, no channel present, area vegetated grassland. Two culverts, 0.60m in diameter. Top culvert 0.5m higher than the lower.

Location and Stream Data		Crossing Characteristics –	
Date	2020-09-17	Crossing Sub Type	Oval Culvert
PSCIS ID	197533	Diameter (m)	3.3
External ID	4600183	Length (m)	20
Crew	AI, KP	Embedded	No
UTM Zone	11	Depth Embedded (m)	NA
Easting	651626	Resemble Channel	No
Northing	5528888	Backwatered	No
Stream	Brule Creek	Percent Backwatered	NA
Road	Busato Road	Fill Depth (m)	1
Road Tenure	MoTi local	Outlet Drop (m)	0.7
Channel Width (m)	7.1	Outlet Pool Depth (m)	1.5
Stream Slope (%)	2	Inlet Drop	Yes
Beaver Activity	No	Slope (%)	4
Habitat Value	High	Valley Fill	Deep Fill

Appendix - Phase 1 Fish Passage As...

Photos: External ID 4600183. From top left clockwise: Road/Site Card, Barrel, Outlet, Downstream, Upstream, Inlet.



Comments: Large stream with good flow at this crossing. Culvert inlet is damaged and there is a large outlet drop. Upstream of highway the stream is subsurface for ~600m.

Location and Stream Data		Crossing Characteristics –	
Date	2020-09-18	Crossing Sub Type	Round Culvert
PSCIS ID	197537	Diameter (m)	0.6
External ID	4600184	Length (m)	30
Crew	AI, KP	Embedded	No
UTM Zone	11	Depth Embedded (m)	NA
Easting	650954	Resemble Channel	No
Northing	5522199	Backwatered	No
Stream	North Littlemoor Creek	Percent Backwatered	NA
Road	Highway 43	Fill Depth (m)	4
Road Tenure	MoTi highway	Outlet Drop (m)	0.65
Channel Width (m)	1.6	Outlet Pool Depth (m)	0.55
Stream Slope (%)	5	Inlet Drop	No
Beaver Activity	No	Slope (%)	8
Habitat Value	Medium	Valley Fill	Deep Fill

Appendix - Phase 1 Fish Passage As...

Photos: External ID 4600184. From top left clockwise: Road/Site Card, Barrel, Outlet, Downstream, Upstream, Inlet.



Comments: Small stream with good flow, EB known upstream. Fenced private land upstream and downstream. Stream measurements estimated due to fenced private land. Large outlet drop.

Location and Stream Data		Crossing Characteristics –	
Date	2020-09-18	Crossing Sub Type	Round Culvert
PSCIS ID	197538	Diameter (m)	0.9
External ID	4600185	Length (m)	40
Crew	AI, KP	Embedded	No
UTM Zone	11	Depth Embedded (m)	NA
Easting	651002	Resemble Channel	No
Northing	5521022	Backwatered	No
Stream	Littlemoor Creek	Percent Backwatered	NA
Road	Highway 43	Fill Depth (m)	5
Road Tenure	MoTi highway	Outlet Drop (m)	0.3
Channel Width (m)	1.2	Outlet Pool Depth (m)	0.55
Stream Slope (%)	3.5	Inlet Drop	Yes
Beaver Activity	No	Slope (%)	5
Habitat Value	Medium	Valley Fill	Deep Fill

Appendix - Phase 1 Fish Passage As...



Comments: Culvert has extension with corner, small stream with good flow. WCT and EB documented upstream. Gravels present suitable for WCT and EB spawning.

Location and Stream Data		Crossing Characteristics –	
Date	2020-09-18	Crossing Sub Type	Round Culvert
PSCIS ID	197561	Diameter (m)	0.8
External ID	4600186	Length (m)	22
Crew	KP, AI	Embedded	No
UTM Zone	11	Depth Embedded (m)	NA
Easting	651051	Resemble Channel	No
Northing	5519343	Backwatered	No
Stream	Hollow Creek	Percent Backwatered	NA
Road	Highway 43	Fill Depth (m)	0.8
Road Tenure	MoTi highway	Outlet Drop (m)	0.46
Channel Width (m)	1.1	Outlet Pool Depth (m)	0.36
Stream Slope (%)	2	Inlet Drop	No
Beaver Activity	No	Slope (%)	4
Habitat Value	Low	Valley Fill	Deep Fill

Appendix - Phase 1 Fish Passage As...



Comments: No access up or downstream due to fenced private land. Stream slope estimated.

Location and Stream Data		Crossing Characteristics –	
Date	2020-09-23	Crossing Sub Type	Round Culvert
PSCIS ID	197571	Diameter (m)	1.2
External ID	4600316	Length (m)	12
Crew	KP, AI	Embedded	No
UTM Zone	11	Depth Embedded (m)	NA
Easting	641167	Resemble Channel	No
Northing	5479429	Backwatered	No
Stream	Tributary to Elk River	Percent Backwatered	NA
Road	Cokato Road	Fill Depth (m)	0.5
Road Tenure	MoTi local	Outlet Drop (m)	0
Channel Width (m)	4.1	Outlet Pool Depth (m)	0
Stream Slope (%)	4	Inlet Drop	No
Beaver Activity	No	Slope (%)	2.5
Habitat Value	Low	Valley Fill	Deep Fill

Appendix - Phase 1 Fish Passage As...



Comments: Stream dry at time of survey. Three barrels, 1.2m in diameter. All three very similar elevation, all perched .2-.50m above substrate.

Location and Stream Data		Crossing Characteristics –	
Date	2020-09-17	Crossing Sub Type	Round Culvert
PSCIS ID	197528	Diameter (m)	0.6
External ID	4600329	Length (m)	12
Crew	AI, KP	Embedded	No
UTM Zone	11	Depth Embedded (m)	NA
Easting	652325	Resemble Channel	Yes
Northing	5515789	Backwatered	No
Stream	Tributary to Whiting Creek	Percent Backwatered	NA
Road	Lower Elk Valley Rd	Fill Depth (m)	1
Road Tenure	MoTi arterial	Outlet Drop (m)	0
Channel Width (m)	0.5	Outlet Pool Depth (m)	0
Stream Slope (%)	0	Inlet Drop	No
Beaver Activity	No	Slope (%)	1
Habitat Value	Low	Valley Fill	Deep Fill

Appendix - Phase 1 Fish Passage As...



Comments: Whiting creek appeared to not be present through agricultural field downstream. This appeared to be only channel present for Whiting crossing this road although the main Whiting channel is present upstream. Dry, heavily vegetated channel downstream. Defined channel upstream but seems unlikely to be fish bearing.

Location and Stream Data		Crossing Characteristics –	
Date	2020-09-24	Crossing Sub Type	Round Culvert
PSCIS ID	197579	Diameter (m)	1.2
External ID	4600332	Length (m)	25
Crew	AI, KP	Embedded	No
UTM Zone	11	Depth Embedded (m)	NA
Easting	639511	Resemble Channel	No
Northing	5481114	Backwatered	No
Stream	Tributary to Elk River	Percent Backwatered	NA
Road	Highway 3	Fill Depth (m)	2.3
Road Tenure	MoTi highway	Outlet Drop (m)	0
Channel Width (m)	3.3	Outlet Pool Depth (m)	0.5
Stream Slope (%)	4	Inlet Drop	Yes
Beaver Activity	No	Slope (%)	1.5
Habitat Value	Medium	Valley Fill	Deep Fill

Appendix - Phase 1 Fish Passage As...

Photos: External ID 4600332. From top left clockwise: Road/Site Card, Barrel, Outlet, Downstream, Upstream, Inlet.



Comments: Fry observed at outlet pool. Inlet of active pipe mostly plugged with debris. Overflow pipe is 0.8m outlet drop with fry/juveniles stranded in outlet pool. Flows out of Fernie Ski Hill Road development area.

Location and Stream Data		Crossing Characteristics –	
Date	2020-09-18	Crossing Sub Type	Oval Culvert
PSCIS ID	197542	Diameter (m)	2.6
External ID	4600367	Length (m)	20
Crew	AI, KP	Embedded	No
UTM Zone	11	Depth Embedded (m)	NA
Easting	643534	Resemble Channel	No
Northing	5490723	Backwatered	No
Stream	Hartley Creek	Percent Backwatered	NA
Road	Dicken Road	Fill Depth (m)	0.4
Road Tenure	MoTi collector	Outlet Drop (m)	0.4
Channel Width (m)	3.5	Outlet Pool Depth (m)	0.8
Stream Slope (%)	1	Inlet Drop	No
Beaver Activity	No	Slope (%)	2
Habitat Value	High	Valley Fill	Deep Fill

Appendix - Phase 1 Fish Passage As...



Comments: Laser level used for culvert slope. WCT spawning system. See Management Plan for the Westslope Cutthroat Trout (*Oncorhynchus clarkii lewisi*) in British Columbia 2014

<http://a100.gov.bc.ca/pub/eirs/finishDownloadDocument.do?subdocumentId=9781>

Location and Stream Data		Crossing Characteristics –	
Date	2020-09-20	Crossing Sub Type	Ford
PSCIS ID	197563	Diameter (m)	NA
External ID	4601129	Length (m)	NA
Crew	KP, AI	Embedded	NA
UTM Zone	11	Depth Embedded (m)	NA
Easting	661062	Resemble Channel	NA
Northing	5524446	Backwatered	NA
Stream	Grave Creek	Percent Backwatered	NA
Road	NA	Fill Depth (m)	NA
Road Tenure	unclassified	Outlet Drop (m)	NA
Channel Width (m)	NA	Outlet Pool Depth (m)	NA
Stream Slope (%)	NA	Inlet Drop	NA
Beaver Activity	No	Slope (%)	NA
Habitat Value	NA	Valley Fill	NA

Appendix - Phase 1 Fish Passage As...



Comments: Deactivated road. Ford.

Location and Stream Data	.	Crossing Characteristics	-
Date	2020-09-18	Crossing Sub Type	Ford
PSCIS ID	197535	Diameter (m)	NA
External ID	4601205	Length (m)	NA
Crew	AI, KP	Embedded	NA
UTM Zone	11	Depth Embedded (m)	NA
Easting	650917	Resemble Channel	NA
Northing	5528513	Backwatered	NA
Stream	Brule Creek	Percent Backwatered	NA
Road	Private	Fill Depth (m)	NA
Road Tenure	private	Outlet Drop (m)	NA
Channel Width (m)	NA	Outlet Pool Depth (m)	NA
Stream Slope (%)	NA	Inlet Drop	NA
Beaver Activity	No	Slope (%)	NA
Habitat Value	NA	Valley Fill	NA

Photos: External ID 4601205. From top left clockwise: Road/Site Card, Barrel, Outlet, Downstream, Upstream, Inlet.