

N:\Bur-Graphics\Projects\2007\1373\07-1373-0055\Source\FromClient\RyanPopowitch\20091103\Old_Data\c12 - 1732945 site d5.8.dwg Nov 26, 2009 - 4:57pm



Photo 839 - Juvenile Arctic grayling (FL: 127 mm).



Photo 843 - Upstream view from 50 m downstream from pond outlet..



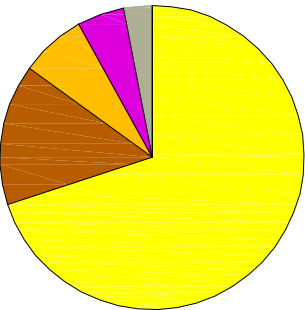
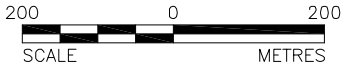
Photo 848 - Downstream view from 150 m downstream from outlet.



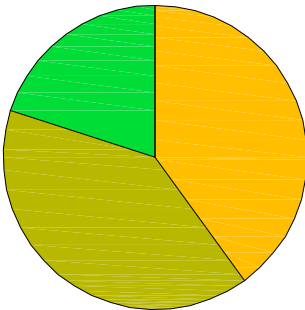
Photo 853 - Arctic grayling egg.



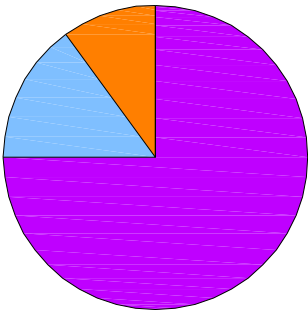
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DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 15



SUBSTRATE
DETRITUS
FINES
GRAVEL
COBBLE
BOULDER



INSTREAM COVER
VEGETATION
BOULDER GARDENS
UNDERCUT BANKS



HABITAT TYPE
RIFFLES
RUNS
POOLS

Site D5.8
Date of Survey: June 21, 2008

Upstream UTM: 550681 E, 6981814 N
Downstream UTM: 550519 E, 6981899 N

Water Quality:	
Time	08:00
Temperature	16.0°C
Conductivity	N/A
pH	N/A
DO	8 to 10 mg/L

Channel:	
Stream length surveyed	270.0 m
Mean channel width	2.3 m
Mean flooded width	21.5 m
Discharge	N/A

Fish Captured / Observed:			
Method	Capture (n)	Size range (mm)	Effort
E-fishing	NNST (12) ARGR (7)	36-71 67-127	322 s
Observations	NNST (20) ARGR (4)	50-70 100	— 10
Egg sampling	ARGR (9)	—	kicks

* N/A = Not Assessed

NOTE
ROAD ALIGNMENT HAS CHANGED SINCE THE INVESTIGATION.

PROJECT		COMAPLEX MELIADINE WEST GOLD PROJECT			
TITLE		AQUATIC HABITAT SUMMARY FOR SITE D5.8			
	PROJECT 07.1373.0055.4000			FILE No. 1732945	
	DESIGN	RP	26/11/09	SCALE AS SHOWN	REV. 0
	CADD	FN	26/11/09		
	CHECK	RP	26/11/09		
	REVIEW	JP	26/11/09		
FIGURE: C12					



Photo 772 - Upstream view from



Photo 777 - View of



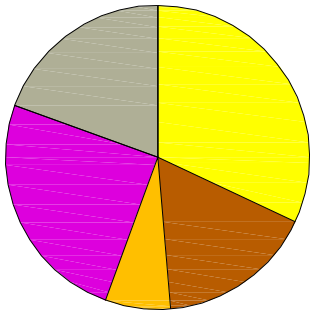
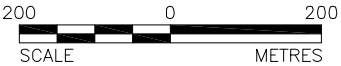
Photo 778 - View of



Photo 787 - View of

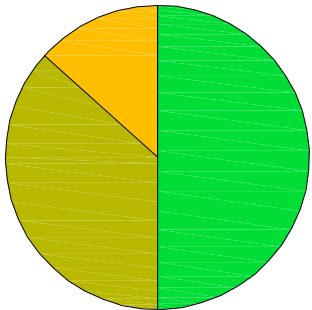


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SUBSTRATE

- DETRITUS
- FINES
- GRAVEL
- COBBLE
- BOULDER



INSTREAM COVER

- VEGETATION
- BOULDER GARDENS
- UNDERCUT BANKS

Site D5.8b
Date of Survey: July 15, 2009

Upstream UTM: 550949 E, 6981553 N
Downstream UTM: 550816 E, 6981644 N

Water Quality:

Time	13:15
Temperature	12.4°C
Conductivity	82 us/cm
pH	7.4
DO	11.9 ppm

Channel:

Stream length surveyed	300.0 m
Mean channel width	3.5 m
Mean flooded width	N/A
Discharge	0.032 cms

Fish Captured / Observed:

Method	Capture (n)	Size range (mm)	Effort
E-fishing			
Observations	NNST (10)		
Egg sampling			

* N/A = Not Assessed

PROJECT				COMAPLEX MELIADINE WEST GOLD PROJECT			
TITLE				AQUATIC HABITAT SUMMARY FOR SITE D5.8b			
		PROJECT 07.1373.0055.4000		FILE No.		1732945	
		DESIGN	RP	26/11/09	SCALE	AS SHOWN	REV. 0
		CADD	FN	26/11/09	FIGURE: C12b		
		CHECK	RP	26/11/09			
		REVIEW	JP	26/11/09			

N:\CAD\2007\1373\0055 Meliande West Gold Project\4000\c13 - 1732946 sited6.7.dwg Nov 21, 2008 9:11am



Photo 024 - Downstream view from 30 m upstream from proposed crossing location.



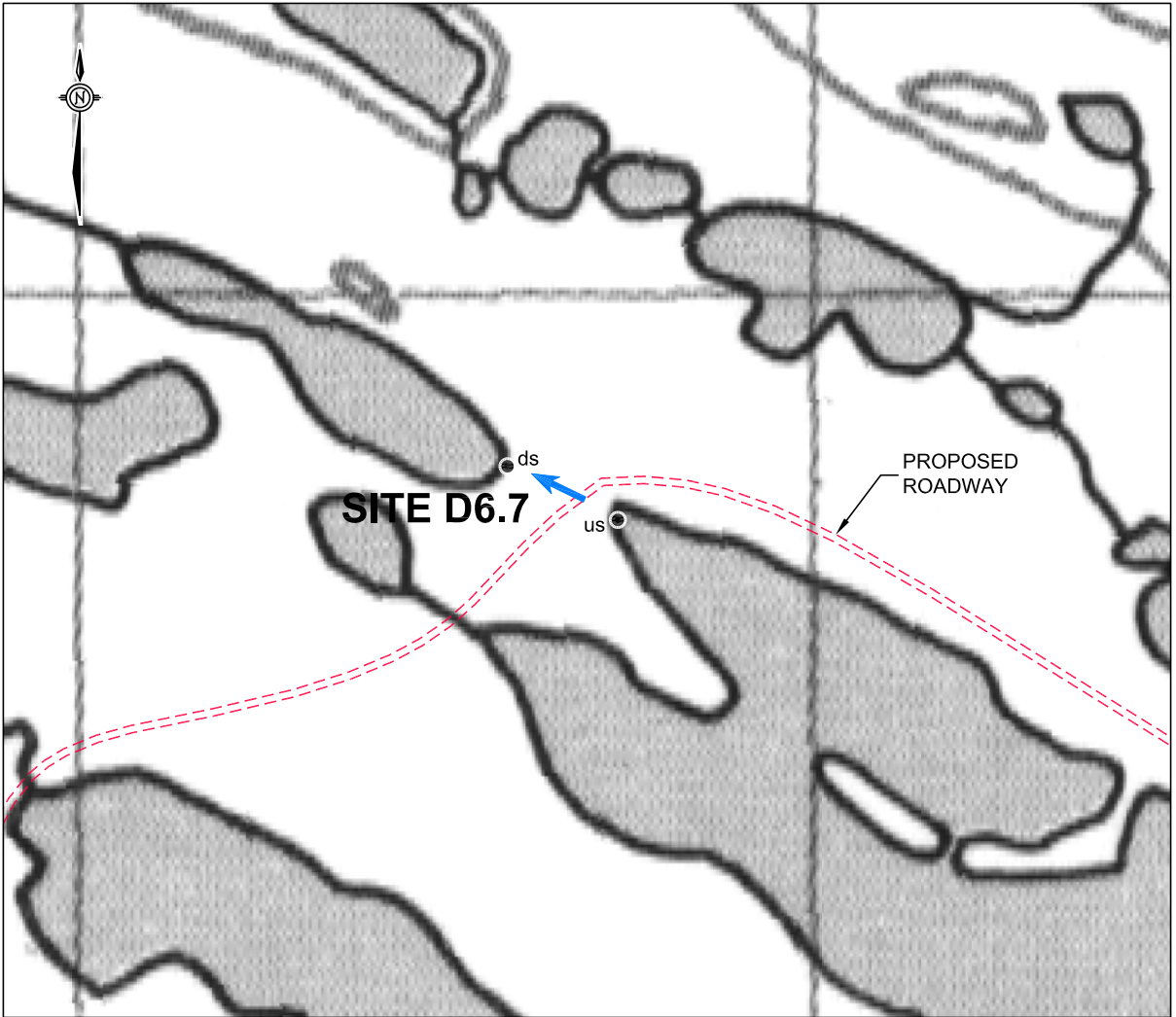
Photo 025 - Upstream view of dispersed water from 30 m upstream from proposed crossing location.



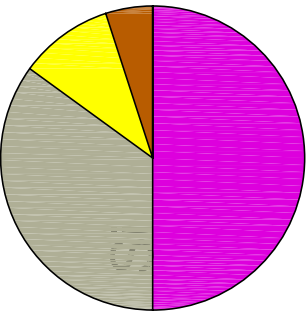
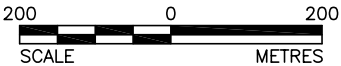
Photo 026 - Upstream view from 60 m upstream from proposed crossing, near end of wetted section.



Photo 027 - Downstream view from 60 m upstream from proposed crossing, near end of wetted section.

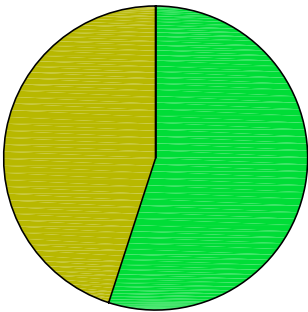


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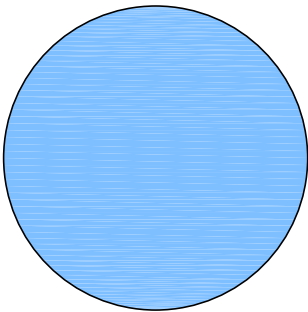
SUBSTRATE

- DETritus
- FINES
- GRAVEL
- COBBLE
- BOULDER



INSTREAM COVER

- VEGETATION
- BOULDER GARDENS
- UNDERCUT BANKS



HABITAT TYPE

- RIFFLES
- RUNS
- POOLS

Site D6.7
Date of Survey: June 17, 2008

Upstream UTM: 551736 E, 6981927 N
Downstream UTM: 551586 E, 6982000 N

Water Quality:

Time	17:00
Temperature	16.2°C
Conductivity	66.8 µS/cm
pH	7.5
DO	10 to 12 mg/L

Channel:

Stream length surveyed	140.0 m
Mean channel width	4.9 m
Mean flooded width	21.7 m
Discharge	N/A

Fish Captured / Observed:

Method	Capture (n)	Size range (mm)	Effort
E-fishing	—	—	138 s
Observations	—	—	—
Egg sampling	—	—	—

* N/A = Not Assessed

PROJECT	COMAPLEX MELIADINE WEST GOLD PROJECT				
TITLE	AQUATIC HABITAT SUMMARY FOR SITE D6.7				
	PROJECT 07.1373.0055.4000		FILE No. 1732946		
	DESIGN	RP	30/09/08	SCALE	AS SHOWN
	CADD	FN	21/10/08	REV.	0
	CHECK	RP	20/11/08	FIGURE: C13	
	REVIEW	JP	20/11/08		

Appendix G2. Habitat data from stream crossing sites along the Meliadine and Discovery Road Corridors, June 2008 and July 2009.

Parameter	Site M2.1				Site M3.0						Site M3.9						Site M5.0		Site M6.7		
	R1	R2	R3	R4	Out	R1	R2	R3	R4	In	Out	R1	R2	R3	R4	In	Out	In	R1	R2	R3
Stream Size (m)																					
Length Surveyed	200	200	200	90		50	50	50	50			50	50	50	50	170			50	50	50
Mean Channel Width					0.8	0.2	1.5	1.9	5.0	11.2			2.5	4.1	1.2						
Min Channel Width					0.2	0.2	0.5	0.1	0.2	0.3	0.2		0.8	1.9	1.0	13.9					
Max Channel Width	122	34	48	134	1.4	0.9	2.5	3.6	10.0	22.0	0.8		4.2	6.4	3.3	55.0	28.0	11.9			
Flooded Width	>200	58	102	148	22	38	18	16	10	46	12	50	27	66	34	55			36	26	54
Mean Depth	0.5	1.0	1.0	0.75	0.15	0.08	0.08	0.04	0.08	0.15	0.12	0.1	0.07	0.04	0.08	0.12	0.15	0.35			
Maximum Depth	>1	>1	>1	>1	0.18	0.19	0.12	0.16	0.15	0.22	0.42	0.12	0.1	0.11	0.15	0.17	0.26	0.58			
Channel Type (% Length)																					
Single	100	100	100	100	30	30	30	10					95	80				100			
Double													5								
Multiple Braids					70	40	40	30	15					20	50		100		100	70	
Dispersed							30				100				50				100		30
Flooded Banks					30			60	85												
Habitat Type (% Length)																					
Riffles	30	20	10	20			10										5				
Runs	70	70	70	80	70	45	60	10	15				100	100	40		75	100			
Pools		10	20		30	55	30	90	85		100				60		20				
Substrate (% Area)																					
Detritus						80	60	90	70	35	90	50	10	5	90	100		5	85		
Fines (<2 mm)	10	5	10	5			30	10	15	10		50	90	50	10		10	5		90	95
Gravel (2-64 mm)	20	5	20	5	10		10		5	5				20			20	10		10	5
Cobble (65-256 mm)	30	20	20	20	70	15			5	25				20			60	40	5		
Boulder (>256 mm)	40	70	50	70	20	5			5	25	10			5			10	40	10		
Instream Cover (%)																					
Undercut Bank				10						70	50										
Boulder Gardens	95	100	100	90	90	50	10			20	20						80	95			
Vegetation	5				10	50	90	100	100	10	30	100			100	100	20	5			

Notes: R1, R2, etc = individual stream sections; Out = outlet from lake/pond; In = inlet to lake/pond

Appendix G2. Habitat data from stream crossing sites along the Meliadine and Discovery Road Corridors, June 2008 and July 2009.

Parameter	Site M8.6						Site M11.5					Site M13.3					Site M22.6					Site M23.7			
	Out	R1	R2	R3	R4	In	Out	R1	R2	R3	In	Out	R1	R2	R3	In	Out	R1	R2	R3	In	Out	R1	R2	In
Stream Size (m)																									
Length Surveyed		30	30	30	30	170		100	100	100	80		100	100	100	40		50	50	50	50		50	50	40
Mean Channel Width	1.4	0.8	3.9	4.7	1.6	0.9	5.5	8.4	2.8	3.0	4.4	0.7	8.2	3.8	2.4	7.8	1.1	14.0	0.9	12.0	2.4	13.0	1.2	3.2	3.1
Min Channel Width	0.9	0.6	0.3	0.3	0.4	0.4	0.7	0.6	0.4	0.7	0.8	0.3	0.5	0.5	1.1	1.5	0.8	0.1	0.4	10.0	1.3	10.0	1.3	1.2	0.7
Max Channel Width	1.8	0.9	7.5	9.0	2.8	1.3	10.2	16.0	5.2	5.3	7.9	0.8	16.0	7.0	3.7	14.0	1.4	1.1	3.2	15.0	3.5	16.0	2.2	5.2	5.4
Flooded Width	20	9	12	12	22	16	46	16	16	48	28	0.82	3	9.5	18	44	12	60	15	25	5	42	42	44	48
Mean Depth	0.12	0.1	0.08	0.07	0.08	0.08	0.07	0.08	0.1	0.25	0.11	0.04	0.08	0.1	0.12	0.08	0.09	0.12	0.08	0.17	0.13	0.25	0.25	0.15	0.1
Maximum Depth	0.21	0.2	0.16	0.19	0.2	0.22	0.25	0.18	0.26	0.42	0.29	0.13	0.15	0.59	0.21	0.21	0.18	0.21	0.13	0.41	0.22	0.49	0.43	0.25	0.3
Channel Type (% Length)																									
Single				50					20	40			10	80	10			60							
Double									20																
Multiple Braids							80	90	40	30	80		45	20	30			70		50		100	100	100	
Dispersed		100	100	50	100		20	10	20	30	20		45		60			20	40	50					
Flooded Banks																		10							
Habitat Type (% Length)																									
Riffles									40	70	20														
Runs				5	5		80	95	55	20	50			75	20			20	60	10		100	80	90	
Pools		100	100	95	95		20	5	5	10	30		100	25	80			80	40	90			20	10	
Substrate (% Area)																									
Detritus	95	95	95	95	90	80	80	70	85	5	20	80	70	80	70	70	20	60	10	45	10			10	5
Fines (<2 mm)						5	20	20	10	5	10		30	20	5	10		30	10	40	10	5	10	10	5
Gravel (2-64 mm)						5				30	20				5		10		20		10	5	10	10	10
Cobble (65-256 mm)								5		30	20				10	10	10	5	40	5	10	30	40	10	50
Boulder (>256 mm)	5	5	5	5	10	10		5	5	30	30	20			10	10	60	5	20	10	60	60	40	60	30
Instream Cover (%)																									
Undercut Bank										70	40	30		70		10	10	25	10	5	10	10	10	20	
Boulder Gardens	5	5		5	15	10			5	20	40	30			30	10	70	5	40	5	80	90	70	40	80
Vegetation	95	95	100	95	85	90		100	95	10	20	40	100	30	70	80	20	70	50	90	10		20	40	20

Notes: R1, R2, etc = individual stream sections; Out = outlet from lake/pond; In = inlet to lake/pond

Appendix G2. Habitat data from stream crossing sites along the Meliadine and Discovery Road Corridors, June 2008 and July 2009.

Parameter	Site D1.2						Site D5.8				Site D5.8b						Site D6.7			
	Out	R1	R2	R3	R4	In	Out	R1	R2	In	Out	R1	R2	R3	R4	In	Out	R1	R2	R3
Stream Size (m)																				
Length Surveyed	100	100	100	100	100	100	50	50	50	60	50	50	50	50	50	50		30	30	30
Mean Channel Width	1.2	3.0	0.5	4.0	2.0	0.9	10.5	2.6	1.9	5.4	6.8	4.8	3.0	1.2	3.6	1.7	1.9	2.4	7.5	
Min Channel Width	0.6	0.9	0.4	0.7	0.5	1.8	1.4	1.4	1.2	1.5							1.1	0.9	1.2	
Max Channel Width	1.8	40	28	38	25	2.5	7.9	4.2	2.7	9.3							2.6	3.9	13.7	
Flooded Width	66	60	70	90	32	24	10.5	17.7	25.3	15.7							34	21	25	19
Mean Depth	0.10	0.15	0.20	0.20	0.15	0.10	0.15	0.10	0.10	0.10							0.15	0.05	0.01	
Maximum Depth	0.20	0.38	0.28	0.25	0.42	0.12	0.21	0.23	0.18	0.15		0.36	0.45	0.10	0.10	0.13	0.52	0.10	0.01	
Channel Type (% Length)																				
Single	40	40	90	50	90			10	80	20		90	20	100	100					
Double	10			30						10	100	10								
Multiple Braids	40	30		5			95	80	10	50							100	100		
Dispersed	10	10	5	10	5		5	10	10	20			80			100				
Flooded Banks		20	5	5	5															
Habitat Type (% Length)																				
Riffles								10	10	60										
Runs	80	20	70	10	90		90	70	80											
Pools	20	80	30	90	10		10	20	10	40							100	100		
Substrate (% Area)																				
Detritus	60	70	90	90	95	90		5	5	50		30	70	50			10	90	10	
Fines (<2 mm)	10	20	5	10	5	10	10	10	5	10	10	10		10		10	10			
Gravel (2-64 mm)	5	5					20	20	10	20	30	10	10		20	30			10	
Cobble (65-256 mm)	15	5					30	60	80	10	30	10	10	20	70	50			20	
Boulder (>256 mm)	10		5				40	5		10	30	40	10	20	10	10	80	10	60	
Instream Cover (%)																				
Undercut Bank								40	40			10		10	30	30				
Boulder Gardens	5				5		90	40	40	30	80	40	10	10	30	50	60		90	
Vegetation	95	100	100	100	95	100	10	20	20	70	20	50	90	80	40	20	40	100	10	

Notes: R1, R2, etc = individual stream sections; Out = outlet from lake/pond; In = inlet to lake/pond

Appendix G3. Backpack electrofishing, egg sampling and in-situ water quality data for stream crossings along the Meliadine and Discovery Road corridors, 2008 and 2009

Site	Date	Time	Location (15V)		Sampling Effort		Water Temp. (°C)	Cond. (µS/cm)	pH (units)	Dis-charge (m³/s)	Number of Fish Captured or Observed				Total CPUE (fish/min)	Egg Sampling ^a			
			Easting	Northing	(m)	(s)					ARGR	SLSC	NNST	Total		No. Kicks	Prod. Kicks	Total Eggs	Max. Egg/k
M2.1	20-Jun-08	8:30	544788	6971714	690	557	3	-	-	-	1		2	3	0.32	4	0	0	0
M3.0	20-Jun-08	12:15	545428	6971863	400	211	11.5	-	-	-			2	2	0.57	-			
M3.9	18-Jun-08	15:45	546123	6972091	370	185	9	-	-	-				0	0.00	-			
M5.0	18-Jun-08	12:30	546637	6973130	29	293	11	-	-	0.034			220	220	45.05	10	0	0	0
M6.7	20-Jun-08	10:45	547397	6974529	150	-	-	-	-	-				0	0.00	-			
M8.6	18-Jun-08	7:30	547911	6975912	310	262	10	66.9	7.8	-				0	0.00	1	0	0	0
M11.5	19-Jun-08	16:15	547445	6978313	380	520	15	-	-	2.560	6		38	44	5.08	6	0	0	0
M13.3	19-Jun-08	13:30	546287	6979542	340	222	15	-	-	-			10	10	2.70	-			
M22.6	17-Jun-08	9:30	541243	6985579	180	398	9.6	63.6	7.5	-			27	27	4.07	-			
M23.7	17-Jun-08	12:30	541182	6986353	140	409	12.4	119.9	7.7	-	1	3	18	22	3.23	-			
D1.2	20-Jun-08	14:45	547004	6981213	530	211	20	-	-	-			2	2	0.57	-			
D5.8	21-Jun-08	8:00	550598	6981861	270	322	16	-	-	-	11		32	43	8.01	10	2	9	8
D5.8b	15-Jul-09	13:00	550911	6981544	300	-	12.4	82.0	7	0.032			10	10	0.00	-			
D6.7	17-Jun-08	17:00	551680	6981952	140	138	16.2	66.8	7.5	-				0	0.00	-			
Total					4229	3728					19	3	361	383	6.16	31	2	9	8

^a No. Kicks = number of 0.1 m² areas sampled; Prod. Kicks = number of kicks with eggs present; Total Eggs = total number of eggs collected; Max. Egg/k = maximum number of eggs collected in one kick; - = not assessed

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South America	+ 55 21 3095 9500

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