

# ***SILVERTIP PROJECT***

## ***1997 Summary Report***

### **Volume 2**

#### ***Geological Mapping, Seismic Surveying, and Diamond Drilling***

SUB-RECORDER RECEIVED
APR 15 1998
M.R. # ..... \$ .....
VANCOUVER, B.C.

56°56'N and 130°15'W

NTS sheet 104/O/16W

Liard Mining Division, British Columbia

BULL 1,2,4,7,8,10-12,15-28

CLIMAX 1-16

POST 1-5, 11-16

WAY 1-12, 16-27, 29-35Fr

BETH 1-4, RENEE 1, STAR 2-3, TOOTS 4

Owner: Silvertip Mining Corporation  
Operator: Imperial Metals Corporation

GEOLOGICAL SURVEY BRANCH  
SUMMARY REPORT

April 9, 1998

Chris Rees

25,495

This report consists of the following Volumes;

- Volume 1: Text (including Tables, Figures, Photos and Maps)
- Volume 2: Appendix A - 1997 Diamond and Reverse Circulation Drill Core Logs
- Volume 3: Appendix B - Silvertip Project Assay Certificates
- Volume 4: Appendix C - Silvertip Petrographic Analysis  
Appendix D - Silvertip Seismic - Final Report  
Appendix E - Geology and Resource Estimation  
Appendix F - Rock Quality Data  
Appendix G - A Preliminary Analysis of Lithochemical Data from the Silvertip Project  
Appendix H - Silvertip Project Quality Control Data  
Appendix I - Silvertip Project History of Previous Work

# **Appendix A**

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1997 Diamond and Reverse  
Circulation Drill Core Logs

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1997 ASSAY SUMMARY SILVERTIP PROJECT

Hole #	Work Order	QC	From (m)	To (m)	Length (m)	Sample #	Au g/t	Ag g/t	Pb %	Zn %
SSD-97-1	V97-01551.0		18.65	20	1.35	139501a	0.026	3.5	0.05	0.43
SSD-97-1	V97-01551.0		20	21.5	1.50	139502a	0.003	0.35	0.04	0.54
SSD-97-1	V97-01551.0		21.5	23	1.50	139503	0.017	2.1	0.06	0.24
SSD-97-1	V97-01551.0		23	24.5	1.50	139504	0.0025	1.9	0.08	0.46
SSD-97-2	V97-01551.0		44.2	44.5	0.30	139520a	0.06	121.8	2.93	1.72
SSD-97-2	V97-01551.0		45.75	46.55	0.80	139521	0.01	28.3	0.75	0.22
SSD-97-2	V97-01551.0		46.55	46.85	0.30	139522	0.908	573.6	10.51	12.35
SSD-97-2	V97-01551.0		46.85	47.3	0.45	139523	0.01	84.7	1.24	0.12
SSD-97-2	V97-01551.0		47.3	47.7	0.40	139524	0.093	654.1	17.49	6.6
SSD-97-2	V97-01551.0		47.7	49	1.30	139525a	0.006	1.6	0.005	0.005
SSD-97-2	V97-01551.0		49	50	1.00	139526	0.01	8.5	0.16	0.005
SSD-97-2	V97-01551.0		50	51.05	1.05	139527a	2.087	522.7	9.24	19.4
SSD-97-2	V97-01551.0		51.05	52	0.95	139528	2.205	622.8	14.52	18.54
SSD-97-2	V97-01551.0		52	53	1.00	139529	3.094	443.4	8.65	16
SSD-97-2	V97-01551.0		53	54	1.00	139530a	2.283	277.6	5.36	9.83
SSD-97-2	V97-01551.0		54	55	1.00	139531	1.453	172.5	5.38	4.97
SSD-97-2	V97-01551.0		55	56	1.00	139532	1.266	40.5	0.67	4.63
SSD-97-2	V97-01551.0		56	56.75	0.75	139533a	1.563	58.2	1.77	2.18
SSD-97-2	V97-01551.0		56.75	57.3	0.55	139534	4.107	206.6	3.56	17.11
SSD-97-2	V97-01551.0		57.3	58.3	1.00	139535a	0.61	521.3	13.43	10.4
SSD-97-2	V97-01551.0		58.3	59.3	1.00	139536	1.441	235.2	5.4	3.34
SSD-97-2	V97-01551.0		59.3	60.3	1.00	139537	2.009	556	7.8	12.7
SSD-97-2	V97-01551.0		60.3	61	0.70	139538	1.597	392.8	7.67	7.95
SSD-97-2	V97-01551.0		61	62.18	1.18	139539a	2.674	547.3	12.12	17.53
SSD-97-2	V97-01551.0		62.18	63.18	1.00	139540a	1.104	444.7	12.65	18.55
SSD-97-2	V97-01551.0		63.18	63.85	0.67	139541	0.403	288	7.8	14.65
SSQ-97-2	V97-01551.0		63.85	64.85	1.00	139542a	0.744	634.5	16.28	18.34
SSD-97-2	V97-01551.0		64.85	65.85	1.00	139543a	0.003	2.7	0.05	0.05
SSD-97-3	V97-1661.0		105.6	106.2	0.60	139545a	0.046	70.8	1.71	1.19
SSD-97-3	V97-1661.0		319.05	319.35	0.30	139558	0.132	27.2	0.37	4.27
SSD-97-3	V97-1661.0		402.85	403.5	0.65	139546a	0.0025	3.4	0.06	0.08
SSD-97-3	V97-1661.0		403.5	405	1.50	139547	0.013	12.3	0.1	0.32
SSD-97-3	V97-1661.0		405	406.5	1.50	139548	0.0025	2.1	0.0171	0.06
SSD-97-3	V97-1661.0		406.5	408	1.50	139549a	0.013	1	0.0061	0.06
SSD-97-3	V97-1661.0		408	409	1.00	139550a	0.014	1.7	0.0083	0.02
SSD-97-3	V97-1661.0		409	410	1.00	139551	0.035	127.2	2.09	10.8
SSD-97-3	V97-1661.0		410	411	1.00	139552	0.053	222.8	3.65	27.14
SSD-97-3	V97-1661.0		411	411.48	0.48	139553	0.028	14	0.17	1.35
SSD-97-3	V97-1661.0		411.48	411.91	0.43	139554a	0.273	715.3	11.7	11.81
SSD-97-3	V97-1661.0		411.91	413	1.09	139555	0.0025	2.2	0.014	0.06
SSD-97-3	V97-1661.0		418.75	419.35	0.60	139556	0.011	2.1	0.0062	0.36
SSD-97-3	V97-1661.0		420.13	420.38	0.25	139557	0.043	27.1	0.37	16.48
SSD-97-4	V97-02535.0		16.9	17.9	1.00	140099	0.028	3.5	0.06	0.65
SSD-97-4	V97-01663.0		17.9	18.15	0.25	139559	0.224	1619.2	29.43	33
SSD-97-4	V97-01663.0		18.15	18.35	0.20	139560a	0.03	51.7	1.24	2.88
SSD-97-4	V97-01663.0		18.35	18.9	0.55	139561	0.106	556	11.35	45.45
SSD-97-4	V97-01663.0		18.9	19.2	0.30	139562	0.022	24.5	0.5	0.89
SSD-97-4	V97-01663.0		19.2	19.5	0.40	139563	0.116	1282.9	32.03	35.87
SSD-97-4	V97-02535.0		19.6	21.4	1.80	140100	0.06	1.4	0.01	0.07
SSD-97-4	V97-02535.0		21.4	23.2	1.80	140101	0.058	16	0.42	0.26
SSD-97-4	V97-01663.0		23.2	23.88	0.68	139564a	0.137	868.2	19.25	39.64
SSD-97-4	V97-02535.0		23.88	25.03	1.15	140102	0.06	4.9	0.04	2.42
SSD-97-4	V97-02535.0		25.03	26.2	1.17	140103	0.048	10.4	0.32	0.33
SSD-97-4	V97-01663.0		26.2	26.5	0.30	139565	0.199	853.5	3.05	27.93
SSD-97-4	V97-02535.0		26.5	27.29	0.79	140104	0.115	17.9	0.38	3.93
SSD-97-4	V97-01663.0		27.29	27.49	0.20	139566	0.088	173.7	4.02	27.72

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Hole #	Work Order	QC	From (m)	To (m)	Length (m)	Sample #	Au g/t	Ag g/t	Pb %	Zn %
SSD-97-4	V97-02535.0		27.49	28.3	0.81	140105	0.026	2.2	0.04	0.23
SSD-97-4	V97-01663.0		28.3	28.96	0.66	139567	0.212	327.4	4.35	26.1
SSD-97-4	V97-02535.0		28.96	29.96	1.00	140106	0.065	3.6	0.07	0.03
SSD-97-4	V97-01663.0		82.25	83.25	1.00	139568a	0.043	22	0.59	0.38
SSD-97-4	V97-01663.0		83.25	84.25	1.00	139569a	0.216	186.5	3.69	6.58
SSD-97-4	V97-01663.0		84.25	85.25	1.00	139571	0.156	107.1	2.62	4.34
SSD-97-4	V97-01663.0		85.25	86.5	1.25	139572	0.109	89.3	1.84	2.79
SSD-97-4	V97-01663.0		86.5	87.5	1.00	139573a	0.0025	3.3	0.05	0.01
SSD-97-4	V97-01663.0		98.1	98.45	0.35	139574	1.108	1844.9	31.95	1.4
SSD-97-4	V97-01663.0		112	112.65	0.65	139575	0.542	279.2	5.59	5
SSD-97-4	V97-01663.0		112.65	113.5	0.85	139576a	0.46	237.1	4.25	14.49
SSD-97-4	V97-01663.0		115.88	116.1	0.22	139577	0.106	49.1	0.23	9.78
SSD-97-5	V97-01658.0		191.5	192.5	1.00	137578a	0.022	3.4	0.04	0.09
SSD-97-5	V97-01658.0		192.5	193.55	1.05	139579	0.065	225.6	2.38	5.02
SSD-97-5	V97-01658.0		193.55	194.55	1.00	139580	0.273	413.1	4.95	13.75
SSD-97-5	V97-01658.0		194.55	195.55	1.00	139581	0.062	457.8	6.81	10.6
SSD-97-5	V97-01658.0		195.55	196.2	0.65	139582	0.031	75.1	0.48	3.37
SSD-97-5	V97-01658.0		196.2	197.2	1.00	139583a	0.663	556.6	9.65	13.12
SSD-97-5	V97-01658.0		197.2	198.2	1.00	139584	1.168	966	20.44	12.62
SSD-97-5	V97-01658.0		198.2	199.2	1.00	139585	0.017	4	0.06	0.11
SSD-97-6	V97-01724.0		31.39	31.5	0.11	139586a	0.386	203.5	2.02	13.1
SSD-97-6	V97-01724.0		187.6	187.9	0.30	139587a	0.0025	4.3	0.05	0.023
SSD-97-6	V97-01724.0		260.82	261.82	1.00	139588	0.079	3.4	0.01	0.07
SSD-97-6	V97-01724.0		261.82	262.25	0.43	139589a	3.4	328.2	8.3	14.31
SSD-97-6	V97-01724.0		262.25	262.7	0.45	139591a	0.148	24.4	0.45	0.39
SSD-97-6	V97-01724.0		262.7	262.9	0.20	139592	1.3	228.2	4.92	4.9
SSD-97-6	V97-01724.0		262.9	264	1.10	139593	0.115	4	0.08	0.24
SSD-97-6	V97-01724.0		264	265.12	1.12	139594	0.203	3.9	0.07	0.36
SSD-97-6	V97-01724.0		265.12	265.57	0.45	139595a	2.405	1088.4	29.88	8.59
SSD-97-6	V97-01724.0		265.57	266.17	0.60	139596	0.029	16.4	0.53	0.33
SSD-97-6	V97-01724.0		266.17	266.45	0.28	139597	0.028	1.3	0.0071	0.0108
SSD-97-6	V97-01724.0		266.45	267.45	1.00	139598	0.267	13.2	0.09	0.02
SSRD-97-7	V97-01860.0		215.91	216.41	0.50	139599	0.166	187.7	2.39	16.02
SSRD-97-7	V97-02716.0		216.41	217.41	1.00	140158	0.016	30.5	0.43	0.93
SSRD-97-7	V97-02716.0		219.1	220.1	1.00	140159	0.014	8.5	0.12	0.33
SSRD-97-7	V97-01860.0		220.1	221.2	1.10	139600	0.623	57	1.3	2.72
SSRD-97-7	V97-02716.0		221.2	221.59	0.39	140160	0.377	40.4	1.01	1.28
SSRD-97-7	V97-02716.0		221.59	223.5	1.91	140161	0.164	10.7	0.21	0.17
SSRD-97-7	V97-01860.0		223.5	225.5	2.00	139601	0.116	128.7	2.71	3.13
SSRD-97-7	V97-02716.0		225.5	226.5	1.00	140162	0.024	81.3	1.65	2.48
SSRD-97-7	V97-02716.0		229.1	230.1	1.00	140163	0.028	3.4	0.01	0.0029
SSRD-97-7	V97-01860.0		230.1	231.3	1.20	139602	0.03	44.4	0.85	1.04
SSRD-97-7	V97-02716.0		231.3	232.3	1.00	140164	0.068	15.9	0.23	0.92
SSRD-97-7	V97-01860.0		466.75	467.4	0.65	139603	0.115	17.5	0.12	0.38
SSRD-97-7	V97-01860.0		467.4	468.25	0.85	139604	0.052	71.7	0.3	2.75
SSRD-97-7	V97-01860.0		468.25	469.25	1.00	139605	0.012	6.1	0.07	0.18
SSRD-97-7	V97-02716.0		469.25	469.8	0.55	140165	0.011	1.5	0.0046	0.0041
SSRD-97-7	V97-02716.0		469.8	470.9	1.10	140166	0.011	3.2	0.03	0.06
SSRD-97-7	V97-01860.0		470.9	471.65	0.75	139606	0.0025	0.1	0.004	0.005
SSRD-97-7	V97-01860.0		474.15	474.8	0.65	139607	0.0025	0.1	0.02	0.91
SSRD-97-7	V97-01860.0		496.2	497.2	1.00	139608	0.0025	0.1	0.02	0.09
SSRD-97-9	V97-01860.0	B	BLANK			139651	0.0025	0.5	0.012	0.004
SSRD-97-9	V97-01860.0		176.78	179.83	3.05	139652	0.055	22.1	0.311	1.6
SSRD-97-9	V97-01860.0		185.93	188.98	3.05	139653	0.13	20.3	0.304	5.7
SSD-97-11	V97-01916.0		9.14	10.67	1.53	139609	0.0025	1.7	0.01	0.0025

1997 ASSAY SUMMARY SILVERTIP PROJECT

Hole #	Work Order	QC	From (m)	To (m)	Length (m)	Sample #	Au g/t	Ag g/t	Pb %	Zn %
SSD-97-11	V97-01918.0	D	9.14	10.67	1.53	139610	0.0025	2.1	0.008	0.0025
SSD-97-11	V97-01918.0	B	BLANK			139611	0.0025	0.1	0.001	0.0031
SSD-97-11	V97-01918.0		54.75	54.9	0.15	139612	0.0025	13.1	0.15	0.07
SSD-97-11	V97-01918.0		54.9	56.4	1.50	139613	0.0025	3.2	0.02	0.0077
SSD-97-11	V97-01918.0		56.4	56.8	0.40	139614	0.006	2.5	0.0144	0.0128
SSD-97-11	V97-01918.0		56.8	58.5	1.70	139615	0.0025	2.7	0.03	0.0076
SSD-97-11	V97-01918.0		58.5	59.13	0.63	139616	0.008	0.3	0.0068	0.0048
SSD-97-11	V97-01918.0		59.13	60.13	1.00	139617	0.0025	0.4	0.0044	0.05
SSD-97-11	V97-01918.0		76.5	78.55	2.15	139618	0.007	15	0.18	1.77
SSD-97-11	V97-01918.0		78.65	79.65	1.00	139619	0.0025	0.7	0.0007	0.01
SSD-97-11	V97-01918.0		96.3	97.7	1.40	139620	0.0025	1.8	0.0025	0.08
SSD-97-12	V97-01918.0		82.5	83.4	0.90	139621	0.0025	2.4	0.03	0.04
SSD-97-12	V97-01918.0		83.4	84.43	1.03	139622	0.0025	2.8	0.06	0.26
SSD-97-12	V97-01918.0		84.43	85.34	0.91	139623	0.019	376.5	6.57	0.43
SSD-97-12	V97-01918.0		85.34	88.4	3.06	139624	0.034	25.9	1.17	0.65
SSD-97-12	V97-01918.0		88.4	89.5	1.10	139625	0.017	28.5	0.93	1.9
SSD-97-12	V97-01918.0		89.5	90.53	1.03	139626	0.012	28.5	0.88	1.17
SSD-97-12	V97-01918.0		90.53	91.53	1.00	139627	0.018	40.6	0.6	5.74
SSD-97-12	V97-01918.0		91.53	92.55	1.02	139628	0.01	19.7	0.32	1.83
SSD-97-12	V97-01918.0		92.55	93.57	1.02	139629	0.01	15.5	0.28	3.88
SSD-97-12	V97-01918.0	D	92.55	93.57	1.02	139630	0.006	13.5	0.23	3.45
SSD-97-12	V97-01918.0	B	BLANK			139631	0.0025	0.35	0.0027	0.0052
SSD-97-12	V97-01918.0		93.57	94.49	0.92	139632	0.015	13	0.4	2.15
SSD-97-12	V97-01918.0		94.49	97.1	2.61	139633	0.01	10.7	0.3	2.29
SSD-97-12	V97-01918.0		97.1	97.54	0.44	139634	0.0025	1.8	0.0073	0.14
SSD-97-12	V97-01918.0		97.54	98.45	0.91	139635	0.013	27.7	0.73	0.86
SSD-97-12	V97-01918.0		98.45	99.45	1.00	139636	0.0025	0.4	0.0013	0.0101
SSD-97-13	V97-01920.0		61.65	63.15	1.50	139637	0.0025	1.3	0.01	0.04
SSD-97-13	V97-01920.0		63.15	64.3	1.15	139638	0.008	1.4	0.01	0.06
SSD-97-13	V97-01920.0		64.3	65.8	1.50	139639	0.0025	4.7	0.0106	0.13
SSD-97-13	V97-01920.0		65.8	67.3	1.50	139640	0.0025	1.5	0.0013	0.1
SSD-97-13	V97-01920.0		67.3	68.8	1.50	139641	0.0025	2.1	0.0016	0.17
SSD-97-13	V97-01920.0		68.8	70.3	1.50	139642	0.0025	1.7	0.001	0.11
SSD-97-13	V97-01920.0		70.3	71.8	1.50	139643	0.0025	8	0.0021	0.22
SSD-97-13	V97-01920.0		71.8	73.3	1.50	139644	0.0025	7.2	0.0019	0.25
SSD-97-13	V97-01920.0		73.3	74.8	1.50	139645	0.0025	7.7	0.0084	0.51
SSD-97-13	V97-01920.0		74.8	76.3	1.50	139646	0.0025	8.5	0.0021	0.5
SSD-97-13	V97-01920.0		76.3	77.72	1.42	139647	0.0025	23.1	0.01	0.48
SSD-97-13	V97-01920.0		77.72	79.16	1.44	139648	0.0025	8.8	0.15	0.85
SSD-97-13	V97-01920.0		79.16	80.6	1.44	139649	0.0025	12.4	0.12	4.77
SSD-97-13	V97-01920.0	D	73.3	74.8	1.50	139650	0.0025	5.8	0.0089	0.54
SSD-97-13	V97-01920.0		80.6	82.1	1.50	139654	0.0025	3	0.02	0.49
SSD-97-13	V97-01920.0	B	BLANK			139655	0.0025	0.3	0.0019	0.0025
SSD-97-13	V97-01920.0		88.3	87.4	1.10	139656	0.025	12.3	0.05	0.86
SSD-97-13	V97-01920.0		87.4	88.2	0.80	139657	0.0025	5.5	0.02	0.29
SSD-97-13	V97-01920.0		99.8	100.3	0.50	139658	0.0025	4.8	0.02	3.33
SSD-97-13	V97-01920.0		103.65	104.45	0.80	139659	0.045	14.6	0.1	5.32
SSD-97-13	V97-01920.0		104.65	104.85	0.20	139660	0.0025	0.9	0.0019	0.05
SSD-97-13	V97-01920.0		104.85	105.38	0.53	139661	0.0025	5.3	0.02	7.22
SSD-97-13	V97-01920.0		145.08	145.5	0.42	139662	0.008	3.9	0.04	13.13
SSD-97-14	V97-01975.0		30.48	33.53	3.05	139663	0.016	3.8	0.03	0.09
SSD-97-14	V97-01975.0		33.53	35.97	2.44	139664	0.034	28.2	0.12	0.26
SSD-97-14	V97-01975.0		35.97	36.58	0.61	139665	0.006	6.7	0.46	9.6
SSD-97-14	V97-01975.0		36.58	39	2.42	139666	0.0025	1.8	0.03	0.24
SSD-97-14	V97-01975.0		39	39.5	0.50	139667	0.28	395.8	10.96	7.99
SSD-97-14	V97-01975.0		39.5	40.86	1.36	139668	0.024	7.2	0.28	0.76

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Hole #	Work Order	QC	From (m)	To (m)	Length (m)	Sample #	Au g/t	Ag g/t	Pb %	Zn %
SSD-97-14	V97-01975.0		40.86	42.1	1.24	139669	0.025	18.3	0.5	0.64
SSD-97-14	V97-01975.0		42.1	42.86	0.76	139670	0.0025	0.9	0.2	0.06
SSD-97-14	V97-01975.0		42.86	44	1.14	139671	0.014	4.5	0.18	0.74
SSD-97-14	V97-01975.0		44	45.42	1.42	139672	0.262	239.6	6.5	6
SSD-97-14	V97-01975.0		45.42	45.72	0.30	139673	0.026	42.6	1.29	0.37
SSD-97-14	V97-01975.0		45.72	45.97	0.25	139674	0.018	25.1	0.6	1.39
SSD-97-14	V97-01975.0		45.97	47.14	1.17	139675	0.262	739.7	15.62	21.43
SSD-97-14	V97-01975.0	D	45.97	47.14	1.17	139676	0.282	799.7	17.83	21.64
SSD-97-14	V97-01975.0		47.14	47.9	0.76	139677	0.386	483.4	13.07	6.49
SSD-97-14	V97-01975.0		47.9	49	1.10	139678	3.1	84.4	1.3	13.22
SSD-97-14	V97-01975.0		49	50	1.00	139679	5.72	37.4	0.55	5.01
SSD-97-14	V97-01975.0		50	51	1.00	139680	2.933	285.7	6.61	12.92
SSD-97-14	V97-01975.0		51	52	1.00	139681	4.399	56.9	0.78	14.88
SSD-97-14	V97-01975.0		52	53	1.00	139682	2.92	203.1	4.3	17.27
SSD-97-14	V97-01975.0		53	54.15	1.15	139683	1.101	45.3	1.23	2.86
SSD-97-14	V97-01975.0		54.15	55.1	0.95	139684	1.566	179.1	3.61	12.81
SSD-97-14	V97-01975.0		55.1	56.25	1.15	139685	3.288	200.6	4.09	13.4
SSD-97-14	V97-01975.0		56.25	57.35	1.10	139686	0.902	339.7	9.12	6.72
SSD-97-14	V97-01975.0	B	BLANK			139687	0.0025	1	0.02	0.01
SSD-97-14	V97-01975.0		57.35	58.35	1.00	139688	0.049	19.1	0.38	0.59
SSD-97-14	V97-01975.0		58.35	59.65	1.30	139689	0.007	12.5	0.3	0.08
SSD-97-14	V97-01975.0		59.65	59.9	0.25	139690	1.164	45.3	0.88	3.93
SSD-97-14	V97-01975.0		59.9	61	1.10	139691	0.066	15.7	0.5	0.2
SSD-97-14	V97-01975.0		77.8	78.8	1.00	139692	0.009	2.8	0.06	0.07
SSD-97-14	V97-01975.0		78.8	79.8	1.00	139693	1.633	153.4	3.16	5.44
SSD-97-14	V97-01975.0		79.8	80.8	1.00	139694	0.007	1.6	0.02	0.06
SSD-97-15	V97-02212.0		44.72	45.72	1.00	139695	0.018	4.1	0.02	0.23
SSD-97-15	V97-02212.0		45.72	46.55	0.83	139696	0.225	163.1	3.57	4.83
SSD-97-15	V97-02212.0		46.55	47.55	1.00	139697	0.05	68.1	1.36	1.05
SSD-97-15	V97-02212.0		47.55	48.55	1.00	139698	0.166	209.2	4.49	5.62
SSD-97-15	V97-02212.0		48.55	49.55	1.00	139699	0.098	246.8	5.06	6.08
SSD-97-15	V97-02212.0		49.55	50.55	1.00	139700	0.072	53.7	0.84	2.8
SSD-97-15	V97-02212.0		50.55	51.65	1.10	139701	2.695	285.1	5.56	10.83
SSD-97-15	V97-02212.0		51.65	52.4	0.75	139702	0.809	666.8	14.81	3.65
SSD-97-15	V97-02212.0	D	51.65	52.4	0.75	139703	0.754	673.8	14.58	3.49
SSD-97-15	V97-02212.0		52.4	53.4	1.00	139704	1.931	153.7	2.82	9.62
SSD-97-15	V97-02212.0		53.4	54.4	1.00	139705	1.025	529.5	11.73	18.91
SSD-97-15	V97-02212.0		54.4	55.91	1.51	139706	0.061	13.5	0.18	0.34
SSD-97-15	V97-02212.0		55.91	56.91	1.00	139707	0.201	21.6	0.25	0.67
SSD-97-15	V97-02212.0		56.91	57.91	1.00	139708	1.192	218.3	4.58	8.17
SSD-97-15	V97-02212.0	B	BLANK			139709	0.018	4	0.06	0.0651
SSD-97-15	V97-02212.0		57.91	58.91	1.00	139710	1.071	6.8	0.02	0.06
SSD-97-16	V97-02213.0		28.7	29	0.30	139751	0.013	2.7	0.03	0.65
SSD-97-16	V97-02213.0		33.5	34.1	0.60	139752	0.013	22.3	0.44	0.4
SSD-97-16	V97-02213.0		56.46	56.8	0.15	139753	0.011	1.2	0.02	0.81
SSD-97-16	V97-02213.0		59.1	59.4	0.30	139754	0.008	0.3	0.003	0.17
SSD-97-16	V97-02213.0		63.3	63.7	0.40	139755	0.0025	0.3	0.006	0.66
SSD-97-16	V97-02213.0		65.8	66.3	0.50	139756	0.031	10.5	0.21	0.36
SSD-97-16	V97-02213.0		69.3	69.5	0.20	139757	0.054	2.8	0.03	0.04
SSD-97-16	V97-02213.0		81.85	82.05	0.20	139758	0.028	5.3	0.17	0.22
SSD-97-17	V97-02213.0		19	19.4	0.40	139759	0.022	124.5	0.52	34.46
SSD-97-17	V97-02213.0		19.4	19.95	0.55	139760	0.022	38.8	0.23	3.21
SSD-97-17	V97-02213.0		19.95	20.8	0.85	139761	0.025	69.5	0.41	5.12
SSD-97-17	V97-02213.0		20.8	22	1.20	139762	0.017	1.9	0.0064	0.07
SSD-97-17	V97-02213.0		32.1	32.5	0.40	139763	0.04	49.2	0.85	2.06
SSD-97-17	V97-02213.0		95.75	96.1	0.35	139764	0.156	13.9	0.08	0.09

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Hole #	Work Order	QC	From (m)	To (m)	Length (m)	Sample #	Au g/t	Ag g/t	Pb %	Zn %
SSD-97-17	V97-02213.0		96.1	96.4	0.30	139765	0.072	17.8	0.19	10.12
SSD-97-17	V97-02213.0		96.4	97.45	1.05	139766	0.585	20.8	0.09	2.61
SSD-97-17	V97-02213.0		97.45	97.7	0.25	139767	0.248	411.9	7.41	11.99
SSD-97-17	V97-02213.0	B	BLANK			139768	0.173	0.2	0.006	0.02
SSD-97-17	V97-02213.0		97.7	98.7	1.00	139769	0.002	0.1	0.0032	0.0073
SSD-97-18	V97-02189.0		33.7	34.2	0.50	139770	0.068	2.3	0.04	0.2
SSD-97-18	V97-02189.0		34.2	35.3	1.10	139771	0.008	2.4	0.03	0.28
SSD-97-18	V97-02189.0		35.3	36.95	0.65	139772	0.04	80.4	0.72	16.95
SSD-97-18	V97-02189.0		35.95	37.4	1.45	139773	0.013	18	0.26	4.85
SSD-97-18	V97-02189.0		37.4	39.4	2.00	139774	0.025	18.9	0.2	3.67
SSD-97-18	V97-02189.0		39.4	39.6	0.20	139775	0.01	20.1	0.26	2.69
SSD-97-18	V97-02189.0		41.6	43.6	2.00	139776	0.028	35.9	0.84	6.52
SSD-97-18	V97-02189.0		43.6	44.7	1.10	139777	0.01	27.1	0.32	8.58
SSD-97-18	V97-02189.0		44.7	45.25	0.55	139778	0.023	68.7	0.85	14.92
SSD-97-18	V97-02189.0		45.25	46.1	0.85	139779	0.006	4.1	0.04	0.83
SSD-97-18	V97-02189.0		46.1	46.75	0.65	139780	0.011	6.1	0.04	0.95
SSD-97-18	V97-02189.0		46.75	47.85	1.10	139781	0.0025	7.7	0.04	0.43
SSD-97-18	V97-02189.0		47.85	48.4	0.55	139782	0.013	30.1	0.3	2.21
SSD-97-18	V97-02189.0		48.4	49.2	0.80	139783	0.018	12.9	0.08	1.82
SSD-97-18	V97-02189.0		49.2	50.2	1.00	139784	0.016	18.3	0.4	0.5
SSD-97-18	V97-02189.0		159.9	160.9	1.00	139785	0.0025	1.3	0.0038	0.02
SSD-97-18	V97-02189.0		164.8	165.9	1.10	139786	0.0025	0.1	0.0019	0.0022
SSD-97-18	V97-02189.0		183.15	183.43	0.28	139787	0.276	291.4	4.56	2.21
SSD-97-19	V97-02189.0		96.85	98	1.15	139711	0.0025	2	0.0288	0.2619
SSD-97-19	V97-02189.0		98	99	1.00	139712	0.069	6.1	0.1184	0.7802
SSD-97-19	V97-02189.0		168.25	169.25	1.00	139713	0.006	1.3	0.0064	0.0428
SSD-97-19	V97-02189.0		169.25	170.25	1.00	139714	0.0025	1.2	0.002	0.003
SSD-97-19	V97-02189.0		170.25	171.25	1.00	139715	0.0025	1.2	0.0009	0.0016
SSD-97-20	V97-02282.0		47.16	48.16	1.00	139716	0.022	2.4	0.03	0.1
SSD-97-20	V97-02282.0		48.16	48.9	0.74	139717	2.678	361.1	8.31	8.92
SSD-97-20	V97-02282.0		48.9	49.9	1.00	139718	0.916	52.5	0.95	2.13
SSD-97-20	V97-02282.0		49.9	50.9	1.00	139719	0.398	160.3	0.41	1.95
SSD-97-20	V97-02282.0		50.9	51.9	1.00	139720	0.754	104.6	2.42	3.02
SSD-97-20	V97-02282.0		51.9	52.85	0.95	139721	0.954	200.3	4.41	3.9
SSD-97-20	V97-02282.0		52.85	53.85	1.00	139722	1.054	192.4	3.47	5.06
SSD-97-20	V97-02282.0		53.85	54.8	0.95	139723	1.264	266	5.69	12.28
SSD-97-20	V97-02282.0	D	53.85	54.8	0.95	139724	0.948	233.4	4.81	11.14
SSD-97-20	V97-02282.0		54.8	55.8	1.00	139725	0.612	213.5	4.51	5.36
SSD-97-20	V97-02282.0		55.8	57.15	1.35	139726	0.284	43.4	1.09	1.54
SSD-97-20	V97-02282.0		57.15	58.15	1.00	139727	0.06	18.8	0.47	0.66
SSD-97-20	V97-02282.0		58.15	59.15	1.00	139728	0.03	4.7	0.09	0.43
SSD-97-20	V97-02282.0		59.15	60.15	1.00	139729	0.48	3.5	0.06	1.04
SSD-97-20	V97-02282.0		60.15	61.15	1.00	139730	0.02	2.6	0.01	1.71
SSD-97-20	V97-02282.0		61.15	62.15	1.00	139731	0.01	2.7	0.006	0.64
SSD-97-20	V97-02282.0		62.15	63.2	1.05	139732	0.012	2.8	0.02	0.15
SSD-97-20	V97-02282.0		63.2	64.25	1.05	139733	0.12	10.8	0.23	1.62
SSD-97-21	V97-02281.0		57.75	58.75	1.00	139736	0.013	2.5	0.0061	0.18
SSD-97-21	V97-02281.0		58.75	59.65	0.90	139737	2.281	113.7	2.65	9
SSD-97-21	V97-02281.0		59.65	60.1	0.45	139738	0.156	12.8	0.43	0.59
SSD-97-21	V97-02281.0		60.1	61	0.90	139739	1.723	344.3	7.84	13.42
SSD-97-21	V97-02281.0		61	62	1.00	139740	1.919	54.3	1.21	6.96
SSD-97-21	V97-02281.0		62	63	1.00	139741	1.37	23.7	0.36	5.65
SSD-97-21	V97-02281.0		63	64	1.00	139742	2.102	27.7	0.43	8.72
SSD-97-21	V97-02281.0		64	65.25	1.25	139743	1.588	124.9	2.21	16.35
SSD-97-21	V97-02281.0		65.25	66.5	1.25	139744	0.252	78.8	1.41	1.03



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Hole #	Work Order	QC	From (m)	To (m)	Length (m)	Sample #	Au g/t	Ag g/t	Pb %	Zn %
SSD-97-21	V97-02281.0		66.5	68.1	1.60	139746	1.835	179.2	3.48	7.15
SSD-97-21	V97-02281.0		68.1	69.1	1.00	139746	2.117	176.5	2.91	16.63
SSD-97-21	V97-02281.0	D	68.1	69.1	1.00	139747	1.955	129.9	2.47	17.67
SSD-97-21	V97-02281.0		69.1	70.1	1.00	139748	3.911	221.8	5.38	9.29
SSD-97-21	V97-02281.0		70.1	71.5	1.40	139749	2.398	192.6	4.81	12.24
SSD-97-21	V97-02281.0		71.5	72.5	1.00	139750	1.13	521.1	12.94	19.68
SSD-97-21	V97-02281.0	B	BLANK			139801	0.0025	1.8	0.0031	0.02
SSD-97-21	V97-02281.0		72.5	73	0.50	139802	0.854	56.4	1.2	3.49
SSD-97-21	V97-02281.0		73	74.5	1.50	139803	0.048	6.3	0.12	0.59
SSD-97-21	V97-02281.0		74.5	76	1.50	139804	0.012	5.2	0.13	0.35
SSD-97-21	V97-02281.0		76	76.85	0.85	139805	0.656	37.3	0.92	2.77
SSD-97-21	V97-02281.0		76.85	77.85	1.00	139806	0.0025	2.6	0.003	0.01
SSD-97-22	V97-02281.0		85.35	86.3	0.95	139788	0.007	3.3	0.07	0.14
SSD-97-22	V97-02281.0		86.3	87.1	0.80	139789	0.006	1.8	0.01	0.02
SSD-97-22	V97-02281.0		87.1	88.1	1.00	139790	0.0025	2.8	0.02	0.03
SSD-97-23	V97-02281.0		64	67.3	3.30	139791	0.007	0.1	0.22	17.15
SSD-97-24	V97-02281.0		24.3	25.91	1.61	139807	0.009	0.5	0.04	0.29
SSD-97-24	V97-02281.0		30	30.48	0.48	139808	0.013	2.5	0.0023	0.21
SSD-97-24	V97-02281.0		30.48	33.53	3.05	139809	0.028	27.6	0.23	0.42
SSD-97-24	V97-02281.0		33.53	36.58	3.05	139810	0.071	144.9	2.05	0.66
SSD-97-24	V97-02281.0		38.4	39.62	1.22	139811	0.009	10.6	0.06	2.3
SSD-97-24	V97-02281.0		39.62	40.84	1.22	139812	0.186	188.4	1.58	2.19
SSD-97-24	V97-02281.0		40.84	42.8	1.96	139813	0.792	238	5.52	6.41
SSD-97-24	V97-02281.0		45.15	45.72	0.57	139814	0.066	13.1	0.32	13.28
SSD-97-24	V97-02281.0		45.72	53.2	7.48	139815	0.108	24.8	1.06	10.98
SSD-97-24	V97-02281.0		53.2	54.85	1.65	139816	0.006	2.4	0.0026	0.03
SSD-97-24	V97-02281.0		Cave from hole			139817	0.031	5.3	0.75	12.48
SSD-97-24	V97-02281.0		54.85	55.85	1.00	139818	0.0025	2.2	0.0015	0.0157
SSD-97-25	V97-02377.0		36.5	37.5	1.00	139792	0.019	13.6	0.41	0.2
SSD-97-25	V97-02377.0		37.5	38.16	0.66	139793	0.352	162.7	3.11	3.46
SSD-97-25	V97-02377.0		38.16	38.95	0.80	139794	1.404	456.4	9.54	10.5
SSD-97-25	V97-02377.0		38.95	39.45	0.50	139796	0.364	98.1	2.72	2.01
SSD-97-25	V97-02377.0		39.45	39.97	0.52	139796	0.104	79.5	0.73	1.46
SSD-97-25	V97-02377.0		39.97	40.25	0.28	139797	0.101	127.3	3.15	1.81
SSD-97-25	V97-02377.0		40.25	41.25	1.00	139798	0.085	14.4	0.1	0.34
SSD-97-25	V97-02377.0		41.25	43	1.75	139799	0.07	123.5	0.29	0.28
SSD-97-25	V97-02377.0		43	43.75	0.75	139800	0.045	10.3	0.15	0.46
SSD-97-25	V97-02377.0		43.75	44.2	0.45	139851	0.032	14.3	0.34	0.76
SSD-97-25	V97-02377.0		44.2	45.25	1.05	139852	0.865	246.8	5.35	15.02
SSD-97-25	V97-02377.0	D	44.2	45.25	1.05	139853	0.818	229.6	5.18	17.7
SSD-97-25	V97-02377.0	B	BLANK			139854	0.0025	1.3	0.44	0.01
SSD-97-25	V97-02377.0		45.25	45.9	0.65	139855	0.027	18.6	0.44	0.71
SSD-97-25	V97-02377.0		45.9	47	1.10	139856	0.012	4.9	0.06	0.06
SSD-97-25	V97-02377.0		55.35	55.4	0.05	139867	0.039	2.9	0.0066	0.19
SSD-97-25	V97-02377.0		60.55	60.75	0.20	139858	0.0025	5.4	0.04	2.34
SSD-97-26	V97-02378.0		41.4	41.45	0.05	139859	0.0025	1.6	0.0077	0.03
SSD-97-26	V97-02378.0		45.52	45.85	0.33	139860	0.0025	0.1	0.0028	0.0141
SSD-97-26	V97-02378.0		65.5	66.5	1.00	139861	0.0025	0.1	0.0007	0.0029
SSD-97-26	V97-02378.0		87	88	1.00	139862	0.0025	0.1	0.001	0.1
SSD-97-26	V97-02378.0		121.55	122.5	0.95	139863	0.0025	0.1	0.0013	0.0062
SSD-97-26	V97-02378.0		126.1	126.6	0.50	139864	0.0025	0.7	0.0029	0.03
SSD-97-26	V97-02378.0		133.3	134.4	1.10	139865	0.0025	0.4	0.0034	0.0031
SSD-97-26	V97-02378.0		154	155.05	1.05	139866	0.0025	0.1	0.0005	0.0021
SSD-97-26	V97-02378.0		180	182.1	2.10	139867	0.0025	0.1	0.0008	0.0014

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Hole #	Work Order	QC	From (m)	To (m)	Length (m)	Sample #	Au g/t	Ag g/t	Pb %	Zn %
SSD-97-26	V97-02378.0		203.9	205.2	1.30	139868	0.0025	0.5	0.0048	0.0094
SSD-97-26	V97-02378.0		207	208.65	1.65	139869	0.0025	0.3	0.0015	0.42
SSD-97-26	V97-02378.0		216.9	218.4	1.50	139870	0.0025	0.1	0.0008	0.36
SSD-97-26	V97-02378.0		255.15	257.2	2.05	139871	0.0025	0.1	0.0007	0.03
SSD-97-26	V97-02378.0		270.9	272.4	1.50	139872	0.0025	0.1	0.0015	0.04
SSD-97-26	V97-02378.0		297.5	298.5	1.00	139873	0.0025	0.1	0.0005	0.0014
SSD-97-26	V97-02378.0		335.55	336.7	1.15	139874	0.0025	0.1	0.0005	0.0014
SSD-97-26	V97-02378.0		348.25	349.25	1.00	139875	0.0025	0.1	0.0003	0.0007
SSD-97-26	V97-02378.0		370.55	371.86	1.31	139876	0.0025	0.1	0.0004	0.001
SSD-97-27	V97-02377.0		14.55	16.46	1.91	139819	0.009	1.8	0.03	0.12
SSD-97-27	V97-02377.0		17.98	19.51	1.53	139820	0.01	2.4	0.01	0.13
SSD-97-27	V97-02377.0		42.67	49.5	6.83	139821	0.007	4.1	0.07	0.88
SSD-97-27	V97-02377.0		49.5	51.82	2.32	139822	0.0025	2	0.02	0.36
SSD-97-27	V97-02377.0		56.25	57.25	1.00	139823	0.015	0.3	0.0002	0.01
SSD-97-27	V97-02377.0		63.85	64.7	0.85	139824	0.0025	0.3	0.01	0.0018
SSD-97-28	V97-02378.0		24.06	25.06	1.00	139825	0.0025	0.1	0.0011	0.0034
SSD-97-28	V97-02378.0		25.06	26.5	1.44	139826	0.063	84.4	2.37	1.31
SSD-97-28	V97-02378.0		26.5	27.7	1.20	139827	0.075	3	0.05	0.14
SSD-97-28	V97-02378.0		27.7	28.9	1.20	139828	0.042	10.7	0.14	0.48
SSD-97-28	V97-02378.0		28.9	30.4	1.50	139829	0.062	101.4	2.5	1.83
SSD-97-28	V97-02378.0		30.4	32.2	1.80	139830	0.032	8.8	0.18	0.29
SSD-97-28	V97-02378.0		32.2	33.7	1.50	139831	0.014	4.3	0.04	0.41
SSD-97-28	V97-02378.0		33.7	35.1	1.40	139832	0.002	8.5	0.14	0.37
SSD-97-28	V97-02378.0		35.1	36.6	1.50	139833	0.006	3.3	0.05	0.14
SSD-97-28	V97-02378.0		36.6	38.1	1.50	139834	0.038	7.3	0.06	0.09
SSD-97-28	V97-02378.0		38.1	39.6	1.50	139835	0.015	2.3	0.01	0.06
SSD-97-28	V97-02378.0		39.6	40.4	0.80	139836	0.03	28	0.04	0.07
SSD-97-28	V97-02378.0		40.4	41	0.60	139837	2.005	4	0.04	0.16
SSD-97-28	V97-02378.0		41	42	1.00	139838	0.542	71.9	1.83	0.75
SSD-97-28	V97-02378.0		42	43.1	1.10	139839	0.285	317.2	5.53	10.95
SSD-97-28	V97-02378.0		43.1	44.1	1.00	139840	0.281	284.3	7.07	14.42
SSD-97-28	V97-02378.0		44.1	45.3	1.20	139841	0.438	152.7	2.73	5.85
SSD-97-28	V97-02378.0		45.3	46.3	1.00	139842	0.136	133.2	0.95	1.22
SSD-97-28	V97-02378.0		46.3	47	0.70	139843	0.482	95.9	0.44	1.35
SSD-97-28	V97-02378.0		47	48	1.00	139844	0.445	74.1	0.63	6.91
SSD-97-28	V97-02378.0	D	47	48	1.00	139845	0.41	32	0.61	5.33
SSD-97-28	V97-02378.0		48	49	1.00	139846	0.288	51	0.66	2.61
SSD-97-28	V97-02378.0		49	50.45	1.45	139847	0.345	10.1	0.17	0.95
SSD-97-28	V97-02378.0		50.45	51.45	1.00	139848	0.0025	2.7	0.05	0.19
SSD-97-28	V97-02378.0	B	BLANK			139849	0.038	0.1	0.0052	0.0034
DDS-97-29	V97-02378.0		34.9	35	0.10	139850	0.0025	6.8	0.06	1.42
DDS-97-29	V97-02378.0		35	36	1.00	140001	0.0025	1.2	0.0475	0.02
DDS-97-29	V97-02378.0		44.1	44.3	0.20	140002	0.0025	1.6	0.07	8.46
SSD-97-30	V97-02433.0		31.8	33.9	2.10	139877	0.008	4.5	0.0214	0.06
SSD-97-30	V97-02433.0		52.8	53.1	0.30	139878	0.015	1.4	0.0035	0.0105
SSD-97-30	V97-02433.0		75.35	75.75	0.40	139879	0.059	7.8	0.0758	0.27
SSD-97-30	V97-02433.0		86.6	88	1.40	139880	0.017	2.6	0.0264	2.35
SSD-97-31	V97-02433.0		42.6	43	0.40	140003	0.118	9.7	0.02	0.05
SSD-97-31	V97-02433.0		62.4	63.4	1.00	140004	0.102	16.8	0.33	0.18
SSD-97-31	V97-02433.0		63.4	64.3	0.90	140005	0.193	8	0.12	0.12
SSD-97-31	V97-02433.0		80.7	81.7	1.00	140006	0.007	1.3	0.0038	0.0054
SSD-97-31	V97-02433.0		88.4	89.9	1.50	140007	0.02	5.5	0.1	0.24
SSD-97-31	V97-02433.0		89.9	91.4	1.50	140008	0.041	10.7	0.2	1.15
SSD-97-31	V97-02433.0		91.4	92.6	1.20	140009	0.007	1.7	0.008	0.02

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Hole #	Work Order	QC	From (m)	To (m)	Length (m)	Sample #	Au g/t	Ag g/t	Pb %	Zn %
SSD-97-32	V97-02433.0		93.1	94.1	1.00	139881	0.016	1.3	0.02	0.04
SSD-97-32	V97-02433.0		94.1	95.1	1.00	139882	0.081	8.1	0.27	0.35
SSD-97-32	V97-02433.0		95.1	96.4	1.30	139883	2.05	317.7	9.42	6.43
SSD-97-32	V97-02433.0		96.4	97.65	1.25	139884	2.292	182.6	4.45	9
SSD-97-32	V97-02433.0		97.65	99.2	1.55	139886	1.475	237.5	6.22	16.14
SSD-97-32	V97-02433.0		99.2	101.1	1.90	139886	1.127	117.4	2.63	22.1
SSD-97-32	V97-02433.0		101.1	102.1	1.00	139887	1.15	111.8	1.41	15.28
SSD-97-32	V97-02433.0		102.1	102.65	0.55	139888	1.717	158.6	3.92	16.08
SSD-97-32	V97-02433.0		102.65	104.6	1.95	139889	1.691	140.9	2.19	12.65
SSD-97-32	V97-02433.0		104.6	105.35	0.75	139890	0.071	38.8	0.86	1.02
SSD-97-32	V97-02433.0		105.35	106.2	0.85	139891	1.694	555.7	11.75	18.45
SSD-97-32	V97-02433.0	D	105.35	106.2	0.85	139892	1.706	477.7	10.62	19.96
SSD-97-32	V97-02433.0	B	BLANK			139893	0.011	1.7	0.02	0.05
SSD-97-32	V97-02433.0		106.2	107.2	1.00	139894	0.0025	5.7	0.14	0.03
SSD-97-33	V97-02433.0		50.3	51.65	1.35	140010	0.02	3.3	0.02	0.13
SSD-97-33	V97-02433.0		51.65	52.9	1.25	140011	0.13	26.9	0.51	0.44
SSD-97-33	V97-02433.0		52.9	54.1	1.20	140012	0.0025	0.6	0.0079	0.02
SSD-97-33	V97-02433.0		54.1	55.25	1.15	140013	0.0025	0.1	0.0027	0.0061
SSD-97-33	V97-02433.0		55.25	56.25	1.00	140014	0.0025	0.1	0.0038	0.0039
SSD-97-33	V97-02433.0		56.25	57.4	1.15	140015	0.077	1238.6	24.49	6.91
SSD-97-33	V97-02433.0		57.4	57.85	0.45	140016	0.092	563.1	10.67	8
SSD-97-33	V97-02433.0		57.85	58.4	0.55	140017	0.013	179.9	2.61	0.21
SSD-97-33	V97-02433.0		58.4	58.9	0.50	140018	0.49	40.7	0.66	2.03
SSD-97-33	V97-02433.0		58.9	60.2	1.30	140019	0.325	347.3	4.73	6.46
SSD-97-33	V97-02433.0		60.2	60.6	0.40	140020	0.044	8.2	0.17	0.71
SSD-97-33	V97-02433.0		60.6	61.5	0.90	140021	0.361	487	8.99	9.61
SSD-97-33	V97-02433.0		61.5	62.3	0.80	140022	0.094	296.1	3.98	5.61
SSD-97-33	V97-02433.0		62.3	62.7	0.40	140023	0.015	8.6	0.12	0.48
SSD-97-33	V97-02433.0		62.7	63.1	0.40	140024	0.815	41.1	0.21	17.72
SSD-97-33	V97-02433.0		63.1	64.35	1.25	140025	0.079	35.8	0.64	0.76
SSD-97-33	V97-02433.0		64.35	64.7	0.35	140026	0.288	97.9	1.29	4.45
SSD-97-33	V97-02433.0		64.7	65.7	1.00	140027	0.027	9.4	0.04	0.04
SSD-97-33	V97-02433.0		65.7	66.5	0.80	140028	0.0025	1.4	0.0063	0.11
SSD-97-33	V97-02433.0		66.5	66.7	0.20	140029	0.249	12.9	0.09	1.97
SSD-97-33	V97-02433.0		66.7	67.7	1.00	140030	0.009	0.5	0.01	2.92
SSD-97-33	V97-02433.0		71	71.6	0.60	140031	0.0025	0.3	0.0056	9.27
SSD-97-33	V97-02433.0	D	57.4	57.85	0.45	140032	0.964	849.3	15.54	6.39
SSD-97-33	V97-02433.0	B	BLANK			140033	0.0025	1.4	0.02	0.01
SSD-97-34	V97-02433.0		44.3	45.3	1.00	139895	0.039	2	0.01	0.02
SSD-97-34	V97-02433.0		45.3	46.15	0.85	139896	4.827	1394.1	39.53	13.64
SSD-97-34	V97-02433.0		46.15	46.65	0.50	139897	1.074	259.1	6.95	13.69
SSD-97-34	V97-02433.0		46.65	47.15	0.50	139898	0.462	166.3	1.84	3.02
SSD-97-34	V97-02433.0		47.15	47.7	0.55	139899	0.874	77.9	2.51	3.28
SSD-97-34	V97-02433.0		47.7	49	1.30	139900	0.49	1151	26.52	18.37
SSD-97-34	V97-02433.0		49	50.3	1.30	139901	0.461	797	17.51	26.01
SSD-97-34	V97-02433.0	D	49	50.3	1.30	139902	0.49	808.5	16.5	25.87
SSD-97-34	V97-02433.0	B	BLANK			139903	0.007	2.4	0.03	0.07
SSD-97-34	V97-02433.0		50.3	51.3	1.00	139904	0.009	2.5	0.05	0.11
SSD-97-35	V97-02508.0		37.85	38.85	1.00	139905	0.0025	0.4	0.0056	0.0036
SSD-97-35	V97-02508.0		38.85	39.35	0.50	139906	0.301	894.3	22.86	10.47
SSD-97-35	V97-02508.0		39.35	41.13	1.78	139907	0.0025	1.8	0.03	0.0271
SSD-97-35	V97-02508.0		41.13	41.58	0.45	139908	0.012	1.6	0.01	0.0056
SSD-97-35	V97-02508.0		41.58	42.7	1.12	139909	0.064	0.4	0.0027	0.0033
SSD-97-35	V97-02508.0		42.7	43.2	0.50	139910	0.231	1645.8	29.73	12.61
SSD-97-35	V97-02508.0		43.2	45.09	1.89	139911	0.024	16.8	0.4	0.29

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Hole #	Work Order	QC	From (m)	To (m)	Length (m)	Sample #	Au g/t	Ag g/t	Pb %	Zn %
SSD-97-35	V97-02508.0		45.09	45.3	0.21	139912	0.451	307.5	9.5	12.93
SSD-97-35	V97-02508.0		45.3	45.55	0.25	139913	0.007	1.7	0.02	0.05
SSD-97-35	V97-02508.0		45.55	45.85	0.30	139914	0.209	462.5	9.17	8.54
SSD-97-35	V97-02508.0		45.85	46.25	0.40	139915	0.058	22.9	0.5	1.04
SSD-97-35	V97-02508.0		46.25	46.6	0.35	139916	0.262	310	6.81	19.8
SSD-97-35	V97-02508.0		46.6	47.95	1.35	139917	2.17	99.2	1.46	14.76
SSD-97-35	V97-02508.0		47.95	49.2	1.25	139918	2.233	85.2	1.49	15.83
SSD-97-35	V97-02508.0		49.2	50.2	1.00	139919	4.02	97.9	2.01	8.91
SSD-97-35	V97-02508.0		50.2	51.2	1.00	139920	4.884	65.5	1.14	10.23
SSD-97-35	V97-02508.0		51.2	52.4	1.20	139921	2.95	20.7	0.39	2.86
SSD-97-35	V97-02508.0		52.4	53.4	1.00	139922	1.406	116.2	2.57	5.07
SSD-97-35	V97-02508.0		53.4	54	0.60	139923	0.806	45.1	0.87	2.29
SSD-97-35	V97-02508.0		54	55.2	1.20	139924	1.781	146.7	3.2	6.92
SSD-97-35	V97-02508.0		55.2	56.45	1.25	139925	1.97	198.8	4.43	5.72
SSD-97-35	V97-02508.0		56.45	57.3	0.85	139926	1.625	287.6	5.48	6.4
SSD-97-35	V97-02508.0	D	56.45	57.3	0.85	139927	1.404	189.3	5.21	7.61
SSD-97-35	V97-02508.0		57.3	58.05	0.75	139928	0.248	1187.7	25.49	17.66
SSD-97-35	V97-02508.0	B	BLANK			139929	0.015	43	0.9	0.78
SSD-97-35	V97-02508.0		58.05	58.5	0.45	139930	1.563	93	2.43	4.72
SSD-97-35	V97-02508.0		58.5	59.5	1.00	139931	0.051	9.1	0.23	0.15
SSD-97-35	V97-02508.0		58.05	69.05	1.00	139932	0.01	7.6	0.17	0.1
SSD-97-35	V97-02508.0		69.05	70	0.95	139933	0.277	1224.8	29.08	23.84
SSD-97-35	V97-02508.0	B	BLANK			139934	0.009	49	1	0.52
SSD-97-35	V97-02508.0		70	71	1.00	139935	0.0025	12.3	0.3	0.23
SSD-97-35	V97-02508.0		78.2	79.25	1.05	139936	0.0025	1.1	0.01	0.2
SSD-97-35	V97-02508.0		79.25	81	1.75	139937	0.073	66.5	1.36	1.46
SSD-97-35	V97-02508.0		81	81.95	0.95	139938	0.067	320.1	6.98	5.24
SSD-97-35	V97-02508.0		81.95	82.8	0.85	139939	0.139	112	2.8	1.75
SSD-97-35	V97-02508.0		82.8	84.15	1.35	139940	0.011	2.3	0.03	0.07
SSD-97-35	V97-02508.0		86.5	86.82	0.32	139941	0.015	1.6	0.02	0.13
SSD-97-36	V97-02508.0		58.4	59.45	1.05	139942	0.111	5.8	0.0125	0.6
SSD-97-36	V97-02508.0		59.45	60.45	1.00	139943	0.05	6.3	0.04	0.52
SSD-97-36	V97-02508.0		60.45	61.8	1.15	139944	0.482	83.7	1.84	2.39
SSD-97-36	V97-02508.0		61.8	62	0.40	139945	0.033	823.3	16.28	6.95
SSD-97-36	V97-02508.0		62	62.85	0.85	139946	0.899	334.5	6.5	7.67
SSD-97-36	V97-02508.0	B	BLANK			139947	0.01	6.3	0.12	0.11
SSD-97-36	V97-02508.0		62.85	64	1.15	139948	0.0025	2	0.03	0.1
SSD-97-36	V97-02508.0		64	66.75	2.75	139949	0.014	4.1	0.03	0.5
SSD-97-37	V97-02505.0		89.7	90.7	1.00	140034	0.014	2.9	0.02	0.09
SSD-97-37	V97-02505.0		90.7	91.8	0.90	140035	1.815	217.1	3.03	13.55
SSD-97-37	V97-02505.0		91.8	92.8	1.00	140036	2.528	155.2	1.75	17.02
SSD-97-37	V97-02505.0		92.8	93.8	1.00	140037	2.096	853.4	18.72	11.54
SSD-97-37	V97-02505.0		93.8	94.5	0.90	140038	4.531	169	3.3	15.28
SSD-97-37	V97-02505.0	D	93.8	94.5	0.90	140039	3.36	221.9	4.82	15.42
SSD-97-37	V97-02505.0		94.5	95.4	0.90	140040	1.453	1615.9	41.76	8.84
SSD-97-37	V97-02505.0		95.4	96.75	1.35	140041	0.015	2.8	0.08	0.09
SSD-97-37	V97-02505.0		96.75	97.1	0.35	140042	2.142	1341	31.28	3.72
SSD-97-37	V97-02505.0		97.1	97.3	0.20	140043	0.118	103.2	2.24	1.2
SSD-97-37	V97-02505.0		97.3	98.25	0.95	140044	1.87	537.1	12.47	16.21
SSD-97-37	V97-02505.0		98.25	98.9	0.65	140045	0.817	50.2	1.36	2.6
SSD-97-37	V97-02505.0		98.9	98.5	0.60	140046	1.688	338	9.17	14.23
SSD-97-37	V97-02505.0	B	BLANK			140047	0.012	2.7	0.07	0.1
SSD-97-37	V97-02505.0		99.5	100.5	1.00	140048	0.012	4.4	0.11	0.16
SSD-97-37	V97-02505.0		100.5	102	1.50	140049	0.0025	2.4	0.04	0.02
SSD-97-37	V97-02505.0		102	103.5	1.50	140050	0.006	0.1	0.01	0.0097
SSD-97-37	V97-02505.0		103.5	104.2	0.70	140051	0.015	9.2	0.2	0.11
SSD-97-37	V97-02505.0		104.2	105.7	1.50	140052	0.0025	0.1	0.02	0.08

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Hole #	Work Order	QC	From (m)	To (m)	Length (m)	Sample #	Au g/t	Ag g/t	Pb %	Zn %
SSD-97-37	V97-02565.0		105.7	107.3	1.60	140053	0.006	3.5	0.05	0.12
SSD-97-37	V97-02565.0		107.3	108.3	1.00	140054	0.008	3.4	0.05	0.25
SSD-97-37	V97-02565.0		108.3	109.6	1.30	140055	1.128	217	4.65	8.19
SSD-97-37	V97-02565.0		109.6	111.15	1.55	140056	0.728	939.3	19.33	19.39
SSD-97-37	V97-02565.0		111.15	111.8	0.65	140057	0.539	331.2	7.88	12.62
SSD-97-37	V97-02565.0		111.8	113.4	1.60	140058	0.023	5.8	0.09	0.7
SSD-97-37	V97-02565.0		113.4	114.6	1.20	140059	1.686	328.2	7.4	9.97
SSD-97-37	V97-02565.0		114.6	116	1.40	140060	0.38	134.9	3.25	4
SSD-97-37	V97-02565.0		116	117.55	1.55	140061	0.058	10.5	0.22	0.27
SSD-97-37	V97-02565.0		117.55	118.55	1.00	140062	0.0025	0.1	0.01	0.01
SSD-97-38			NO SAMPLES							
SSD-97-39	V97-02565.0		92	93	1.00	139950	0.089	12	0.18	0.07
SSD-97-39	V97-02565.0		93	94.5	1.50	139951	0.323	79.9	1.33	1.95
SSD-97-39	V97-02565.0		94.5	95.4	0.90	139952	0.593	189.3	3.58	3.83
SSD-97-39	V97-02565.0		95.4	95.9	0.50	139953	0.777	435.9	9.75	10.73
SSD-97-39	V97-02565.0		95.9	97.5	1.60	139954	2.569	438.2	9.06	16.03
SSD-97-39	V97-02565.0	D	95.9	97.5	1.60	139955	2.317	430.9	8.87	15.64
SSD-97-39	V97-02565.0		97.5	99	1.50	139956	2.59	568.2	12.62	12.32
SSD-97-39	V97-02565.0	B	BLANK			139957	0.054	8.4	0.19	0.22
SSD-97-39	V97-02565.0		99	100.85	1.85	139958	2.396	432.3	10.82	12.45
SSD-97-39	V97-02565.0		100.85	102.05	1.20	139959	0.534	922.1	22.62	19.87
SSD-97-39	V97-02565.0		102.05	103.15	1.10	139960	2.256	438.8	9.99	19.35
SSD-97-39	V97-02565.0	D	102.05	103.15	1.10	139961	2.399	267.6	6.04	16.68
SSD-97-39	V97-02565.0		103.15	104.25	1.10	139962	1.397	693	16.3	23.86
SSD-97-39	V97-02565.0		104.25	105.35	1.10	139963	0.67	437.7	10.84	20.75
SSD-97-39	V97-02565.0		105.35	106.65	1.30	139964	0.248	1168.1	31.35	18.7
SSD-97-39	V97-02565.0	B	BLANK			139965	0.007	5.8	0.15	0.15
SSD-97-39	V97-02565.0		106.65	108.4	1.75	139966	0.491	647.1	16.76	21.88
SSD-97-39	V97-02565.0		108.4	109.4	1.00	139967	0.026	10.7	0.26	0.59
SSD-97-39	V97-02565.0		109.4	111	1.60	139968	0.014	37.1	0.77	1.21
SSD-97-39	V97-02565.0		111	112.5	1.50	139969	0.064	231.6	5.07	4.9
SSD-97-39	V97-02565.0		112.5	114.15	1.65	139970	0.018	39.6	0.96	0.96
SSD-97-39	V97-02565.0		114.15	115.15	1.00	139971	0.142	10.2	0.22	0.35
SSD-97-39	V97-02565.0		115.15	116.2	1.05	139972	0.0025	0.8	0.01	0.01
SSD-97-40	V97-02717.0		48.3	49.3	1.00	140256	0.026	7.3	0.09	0.2
SSD-97-40	V97-02717.0		49.3	51.54	2.24	140257	0.049	55.1	0.57	0.4
SSD-97-40	V97-02717.0		51.54	53.95	2.41	140258	0.12	50.5	0.41	0.54
SSD-97-40	V97-02717.0		53.95	63.1	9.15	140259	0.324	103.8	1.14	0.46
SSD-97-40	V97-02717.0		63.1	65.5	2.40	140260	0.013	1.2	0.03	0.66
SSD-97-40	V97-02717.0		65.5	67	1.50	140261	0.007	7.1	0.08	3.7
SSD-97-40	V97-02717.0		67	68	1.00	140262	0.0025	0.4	0.0032	0.87
SSD-97-40	V97-02717.0		67.7	69	1.30	140263	0.01	1.9	0.01	0.5
SSD-97-40	V97-02717.0		69	90.4	1.40	140264	0.017	1.9	0.03	0.009
SSD-97-40	V97-02717.0		90.4	91.4	1.00	140265	0.032	3.3	0.04	0.011
SSD-97-40	V97-02717.0		91.4	92.3	0.90	140266	0.056	30.9	0.69	0.1
SSD-97-40	V97-02717.0		92.3	93.65	1.35	140267	0.02	20	0.63	0.01
SSD-97-40	V97-02717.0		93.65	94.6	0.95	140268	0.015	17.2	1.17	0.01
SSD-97-40	V97-02717.0		94.6	95.45	0.85	140269	0.02	78.9	2.04	0.04
SSD-97-40	V97-02717.0		95.45	96.07	0.62	140270	0.038	500.1	10.68	1.66
SSD-97-40	V97-02717.0	B	BLANK			140271	0.0025	1.2	0.03	0.007
SSD-97-40	V97-02717.0		96.07	96.85	0.78	140272	0.015	99.8	2.34	1.3
SSD-97-40	V97-02717.0	D	96.07	96.85	0.78	140273	0.016	218.4	5.53	0.98
SSD-97-40	V97-02717.0		96.85	97.85	1.00	140274	0.0025	16	0.39	0.04
SSD-97-40	V97-02717.0		99.85	100.85	1.00	140275	0.009	0.4	0.006	0.003
SSD-97-40	V97-02717.0		100.85	101.45	0.60	140276	0.011	0.8	0.09	0.09
SSD-97-40	V97-02717.0		101.45	102.5	1.05	140277	0.008	0.4	0.01	0.006

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Hole #	Work Order	QC	From (m)	To (m)	Length (m)	Sample #	Au g/t	Ag g/t	Pb %	Zn %
SSD-97-41	V97-02565.0		98.6	99.6	1.00	140063	3.248	4.1	0.01	0.02
SSD-97-41	V97-02565.0		99.6	100.1	0.50	140064	0.172	11.7	0.29	0.59
SSD-97-41	V97-02565.0		100.1	101.15	1.05	140065	2.353	289.6	4.86	16.51
SSD-97-41	V97-02565.0		101.15	102.15	1.00	140066	1.629	379.7	6.46	18.55
SSD-97-41	V97-02565.0		102.15	103.2	1.05	140067	2.576	402.7	9.51	15.32
SSD-97-41	V97-02565.0		103.2	103.85	0.65	140068	0.297	1000	22.96	23.44
SSD-97-41	V97-02565.0		103.85	104.75	0.90	140069	0.134	5	0.03	0.05
SSD-97-41	V97-02565.0		104.75	105.75	1.00	140070	0.025	41.1	0.9	0.61
SSD-97-41	V97-02565.0		105.75	107.42	1.67	140071	0.0025	2.2	0.04	0.01
SSD-97-41	V97-02565.0		107.42	109.5	2.08	140072	0.04	947.5	19.08	9.4
SSD-97-41	V97-02565.0	D	107.42	109.5	2.08	140073	0.036	737.1	15.34	11.55
SSD-97-41	V97-02565.0	B	BLANK			140074	0.0025	0.7	0.03	0.05
SSD-97-41	V97-02565.0		109.5	110.5	1.00	140075	0.006	6.3	0.17	0.12
SSD-97-42	V97-02628.0		53.95	55	1.05	140107	0.108	7.5	0.13	0.68
SSD-97-42	V97-02628.0		55	56	1.00	140108	0.186	14.8	0.18	0.21
SSD-97-42	V97-02628.0		56	57	1.00	140109	0.304	41.1	0.51	1.47
SSD-97-42	V97-02628.0		57	57.8	0.80	140110	0.522	111.1	2.92	1.34
SSD-97-42	V97-02628.0		57.8	58.8	1.00	140111	0.144	21.6	0.57	0.44
SSD-97-42	V97-02628.0		58.8	59.7	0.90	140112	0.124	17.8	0.51	0.17
SSD-97-42	V97-02628.0		59.7	61.7	2.00	140113	0.008	1.4	0.03	0.21
SSD-97-42	V97-02628.0		61.7	63.1	1.40	140114	0.01	3.3	0.1	0.38
SSD-97-42	V97-02628.0		63.1	63.9	0.80	140115	0.237	4.9	0.05	0.17
SSD-97-42	V97-02628.0		63.9	64.8	0.90	140116	0.053	4.1	0.08	0.76
SSD-97-42	V97-02628.0	D	63.9	64.8	0.90	140117	0.306	5.1	0.1	0.77
SSD-97-42	V97-02628.0	B	BLANK			140118	0.0025	0.1	0.001	0.0046
SSD-97-42	V97-02628.0		64.8	66.3	1.50	140119	0.02	4	0.07	0.29
SSD-97-42	V97-02628.0		66.3	67.8	1.50	140120	0.0025	1.8	0.02	1.05
SSD-97-42	V97-02628.0		67.8	69.3	1.50	140121	0.0025	0.6	0.01	2.15
SSD-97-42	V97-02628.0		69.3	70.8	1.50	140122	0.0025	0.3	0.0031	2.24
SSD-97-42	V97-02628.0		70.8	72.3	1.50	140123	0.0025	0.1	0.0023	2.51
SSD-97-42	V97-02628.0		72.3	73.8	1.50	140124	0.0025	0.4	0.02	4.44
SSD-97-42	V97-02628.0		73.8	75.3	1.50	140125	0.007	1.8	0.04	0.75
SSD-97-42	V97-02628.0		75.3	76.7	1.40	140126	0.0025	12.2	0.32	9.91
SSD-97-42	V97-02628.0		76.7	77.2	0.50	140127	0.0025	0.3	0.0054	0.1
SSD-97-42	V97-02628.0		82.6	83.6	1.00	140128	0.0025	0.4	0.0026	0.39
SSD-97-42	V97-02628.0		83.6	85.1	1.50	140129	0.0025	1.9	0.0013	0.42
SSD-97-42	V97-02628.0		85.1	86.3	1.20	140130	0.0025	2	0.001	0.31
SSD-97-42	V97-02628.0		86.3	87.1	0.80	140131	0.0025	0.5	0.0012	0.18
SSD-97-42	V97-02628.0		87.1	87.75	0.65	140132	0.0025	0.1	0.0005	0.54
SSD-97-43	V97-02716.0		31.63	32.13	0.50	140167	0.055	7.6	0.18	0.43
SSD-97-43	V97-02716.0		32.13	32.3	0.17	140168	0.115	67.3	1.87	6.7
SSD-97-43	V97-02716.0		32.3	32.8	0.50	140169	0.007	1.1	0.01	0.02
SSD-97-43	V97-02716.0		93.8	94.6	0.80	140170	0.024	5.2	0.0039	0.0076
SSD-97-43	V97-02716.0		94.6	95.1	0.50	140171	0.03	10.9	0.08	0.08
SSD-97-43	V97-02716.0		95.1	96	0.90	140172	0.071	6.2	0.01	0.02
SSD-97-43	V97-02716.0		96	97	1.00	140173	0.006	0.7	0.0015	0.0048
SSD-97-43	V97-02716.0		132.5	133	0.50	140183	0.0025	1	0.0018	0.0063
SSD-97-43	V97-02716.0		133	133.9	0.90	140174	0.006	1.3	0.01	0.01
SSD-97-43	V97-02716.0		133.9	134.9	1.00	140175	0.674	83	1.94	1.99
SSD-97-43	V97-02716.0	D	133.9	134.9	1.00	140176	0.454	87.9	2	3.29
SSD-97-43	V97-02716.0		134.9	135.75	0.85	140177	1.552	498.6	11.35	11.62
SSD-97-43	V97-02716.0	B	BLANK			140178	0.0025	1.8	0.05	0.04
SSD-97-43	V97-02716.0		135.75	136.55	0.80	140179	1.505	353.6	8.84	10.49
SSD-97-43	V97-02716.0		136.55	137.85	1.30	140180	0.114	34.6	0.81	1.37
SSD-97-43	V97-02716.0		137.85	138.85	1.00	140181	0.016	3.8	0.06	0.17
SSD-97-43	V97-02716.0		138.85	139.6	0.75	140182	0.0025	1.4	0.02	0.04

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Hole #	Work Order	QC	From (m)	To (m)	Length (m)	Sample #	Au g/t	Ag g/t	Pb %	Zn %
SSD-97-44	V97-02628.0		63.5	64.5	1.00	140241	0.0025	4.5	0.02	0.29
SSD-97-44	V97-02628.0		64.5	64.73	0.23	140242	0.179	376.6	8.03	7.27
SSD-97-44	V97-02628.0	B	BLANK			140243	0.0025	0.4	0.0055	0.0086
SSD-97-44	V97-02628.0		64.73	65.75	1.02	140244	0.0025	0.6	0.01	0.03
SSD-97-46	V97-02717.0		86.25	87.25	1.00	140278	0.016	0.5	0.0043	0.0022
SSD-97-46	V97-02717.0		87.25	88	0.75	140279	0.011	0.7	0.01	0.0002
SSD-97-46	V97-02717.0		88	89.2	1.20	140280	0.005	0.4	0.0021	0.0003
SSD-97-46	V97-02717.0		103.18	103.68	0.50	140281	0.0025	0.3	0.0025	0.0001
SSD-97-46	V97-02717.0		103.68	103.95	0.27	140282	0.026	3	0.02	0.0001
SSD-97-46	V97-02717.0	B	BLANK			140283	0.0025	0.3	0.0014	0.0097
SSD-97-46	V97-02717.0		103.95	104.45	0.50	140284	0.0025	0.3	0.002	0.0032
SSD-97-46	V97-02717.0		105.85	106.35	0.50	140285	0.0025	0.3	0.0025	0.0005
SSD-97-46	V97-02717.0		106.35	106.95	0.60	140286	0.0025	0.3	0.0024	0.0008
SSD-97-46	V97-02717.0		106.95	107.45	0.50	140287	0.0025	0.4	0.0031	0.0017
SSD-97-46	V97-02717.0		49	50	1.00	140288	0.068	42.2	0.32	0.04
SSD-97-46	V97-02717.0		50	51.5	1.50	140289	0.267	147.8	1.17	0.19
SSD-97-46	V97-02717.0		51.5	56.6	5.10	140290	0.165	63.8	0.79	0.65
SSD-97-46	V97-02717.0	D	51.5	56.6	5.10	140291	0.149	68.5	0.99	0.77
SSD-97-46	V97-02717.0		56.6	57.6	1.00	140292	0.0025	0.6	0.0052	0.04
SSD-97-46	V97-02717.0		64.7	65.2	0.50	140293	0.0025	0.7	0.0029	0.71
SSD-97-46	V97-02717.0		65.2	66.45	1.25	140294	0.023	1.9	0.0042	0.97
SSD-97-46	V97-02717.0		66.45	67.65	1.20	140295	0.0025	0.4	0.0016	0.36
SSD-97-46	V97-02717.0		67.65	68.9	1.25	140296	0.008	0.6	0.0049	4.68
SSD-97-46	V97-02717.0	B	BLANK			140297	0.0025	0.3	0.0018	0.02
SSD-97-46	V97-02717.0		68.9	69.9	1.00	140298	0.0025	0.3	0.0014	0.68
SSD-97-47	V97-02716.0		33.55	36.35	2.80	140225	0.189	991.7	36.64	0.71
SSD-97-47	V97-02716.0		36.35	37.11	0.76	140226	0.647	184.5	3.46	7.52
SSD-97-47	V97-02716.0		37.11	38	0.89	140227	0.661	1430.6	27.92	10.73
SSD-97-47	V97-02716.0	D	37.11	38	0.89	140228	0.739	1450.2	26.21	12.86
SSD-97-47	V97-02716.0	B	BLANK			140229	0.013	3.4	0.07	0.04
SSD-97-47	V97-02716.0		38	40	2.00	140230	0.023	12.2	0.28	0.29
SSD-97-47	V97-02716.0		47.1	48.1	1.00	140231	0.021	58.1	1.4	0.32
SSD-97-47	V97-02716.0		48.1	48.35	0.25	140232	0.116	819.2	19.37	4.99
SSD-97-47	V97-02716.0		48.35	49.5	1.15	140233	0.288	36.5	0.87	1.59
SSD-97-47	V97-02716.0		49.5	50.53	1.03	140234	0.245	55.7	1.12	2.15
SSD-97-47	V97-02716.0		50.53	51	0.47	140235	0.794	108.4	1.96	5.81
SSD-97-47	V97-02716.0		51	52.03	1.03	140236	1.386	219.8	5.9	4.97
SSD-97-47	V97-02716.0		52.03	53.05	1.02	140237	0.032	17.7	0.42	0.27
SSD-97-47	V97-02716.0		75.5	76.45	0.95	140238	0.077	15.9	0.32	0.47
SSD-97-47	V97-02716.0		76.45	77.25	0.80	140239	1.023	185	4.53	6.54
SSD-97-47	V97-02716.0		77.25	78.4	1.15	140240	0.027	8.9	0.22	0.19
SSD-97-48	V97-02716.0		38.8	39.82	1.02	140184	0.104	67.7	0.02	0.05
SSD-97-48	V97-02716.0		39.82	42.67	3.05	140185	0.04	8.2	0.02	0.06
SSD-97-48	V97-02716.0		44.81	45.72	0.91	140186	0.026	4.1	0.02	0.03
SSD-97-48	V97-02716.0		46	47	1.00	140187	0.01	0.7	0.0011	0.03
SSD-97-48	V97-02716.0		47	48	1.00	140188	0.0025	0.7	0.0005	0.01
SSD-97-48	V97-02716.0		48	48.8	0.80	140189	1.434	1.1	0.0016	0.27
SSD-97-48	V97-02716.0	D	48	48.8	0.80	140190	0.008	0.7	0.0014	0.25
SSD-97-48	V97-02716.0		48.8	49.8	1.00	140191	0.007	0.7	0.0014	0.15
SSD-97-48	V97-02716.0		49.8	50.8	1.00	140192	0.009	1.3	0.01	0.45
SSD-97-48	V97-02716.0	B	BLANK			140193	0.0025	0.7	0.0003	0.0028
SSD-97-48	V97-02716.0		50.8	51.8	1.00	140194	0.0025	0.7	0.0004	0.0093
SSD-97-49	V97-02716.0		61.15	62.55	1.40	140195	0.021	12.3	0.23	0.6

1997 ASSAY SUMMARY SILVERTIP PROJECT

Hole #	Work Order	QC	From (m)	To (m)	Length (m)	Sample #	Ag g/t	Ag g/t	Pb %	Zn %
SSD-97-49	V97-02716.0		62.55	63.95	1.40	140196	0.01	6.8	0.09	0.28
SSD-97-49	V97-02716.0		63.95	65.35	1.40	140197	0.017	6	0.09	0.08
SSD-97-49	V97-02716.0		65.35	66.7	1.35	140198	0.082	19.6	0.31	0.55
SSD-97-49	V97-02716.0	B	BLANK			140199	0.0025	0.7	0.0012	0.0035
SSD-97-49	V97-02716.0		106.4	107.25	0.85	140200	0.0025	1	0.01	0.0034
SSD-97-60	V97-02535.0		70.4	71.4	1.00	139973	0.042	4.2	0.01	0.05
SSD-97-60	V97-02535.0		71.4	71.7	0.30	139974	0.509	57.2	1.78	1.71
SSD-97-60	V97-02535.0		71.7	72.4	0.70	139975	1.797	375	6.71	7.95
SSD-97-60	V97-02535.0	D	71.7	72.4	0.70	139976	2.634	360.2	8.08	9.36
SSD-97-60	V97-02535.0		72.4	73.12	0.72	139977	1.94	502.5	8.14	2.01
SSD-97-60	V97-02535.0		73.12	74.1	0.98	139978	1.504	1195.9	25.01	3.51
SSD-97-60	V97-02535.0	B	BLANK			139979	0.008	1.8	0.03	0.0055
SSD-97-60	V97-02535.0		74.1	75	0.90	139980	1.919	175	4.3	8.7
SSD-97-60	V97-02535.0		75	75.55	0.55	139981	0.058	14.2	0.32	0.76
SSD-97-60	V97-02535.0		75.55	76.5	0.95	139982	0.0025	0.2	0.07	0.84
SSD-97-60	V97-02535.0		90.85	91.3	0.45	139983	0.0025	0.4	0.0034	0.1
SSD-97-60	V97-02535.0		91.82	92.55	0.73	139984	0.0025	0.1	0.06	0.97
SSD-97-51	V97-02717.0		64.01	67.06	3.05	140351	0.008	1.2	0.0077	0.42
SSD-97-51	V97-02717.0		79.25	82.3	3.05	140352	0.084	1520.1	29.11	7.7
SSD-97-52	V97-02717.0		18.6	20.42	1.82	140357	0.016	7.5	0.12	0.38
SSD-97-52	V97-02717.0		20.42	23.47	3.05	140358	0.0025	0.7	0.02	0.11
SSD-97-52	V97-02717.0		23.47	29.57	6.10	140359	0.011	3.3	0.13	0.13
SSD-97-52	V97-02717.0		29.57	30.5	0.93	140360	0.007	1.9	0.06	0.23
SSD-97-52	V97-02717.0		30.5	32.1	1.60	140361	0.006	6.4	0.29	1.52
SSD-97-52	A9748014		32.1	32.61	0.51	199665	0.0025	275	4.89	31.1
SSD-97-52	V97-02717.0		32.61	35.45	2.84	140362	0.017	12.2	0.38	1.73
SSD-97-52	V97-02717.0	D	32.61	35.45	2.84	140363	0.007	7.3	0.39	1.75
SSD-97-52	V97-02717.0		35.45	35.9	0.45	140364	0.0025	0.6	0.02	0.14
SSD-97-52	V97-02717.0		37.78	38.85	1.07	140365	0.0025	0.5	0.0071	0.02
SSD-97-52	V97-02717.0		61.05	63.09	2.04	140366	0.0025	0.6	0.01	0.38
SSD-97-52	V97-02717.0		63.09	63.85	0.76	140367	0.0025	0.3	0.0033	0.18
SSD-97-52	V97-02717.0		63.85	64.95	1.10	140368	0.021	4.4	0.03	0.92
SSD-97-52	V97-02717.0		64.95	66.14	1.19	140369	0.0025	0.4	0.03	0.64
SSD-97-52	V97-02717.0		66.14	67.7	1.56	140370	0.0025	0.5	0.04	0.28
SSD-97-52	V97-02717.0	B	BLANK			140371	0.0025	0.2	0.0013	0.0017
SSD-97-53	V97-02628.0		72.15	73.17	1.02	140210	0.006	1.7	0.02	0.07
SSD-97-53	V97-02628.0		73.17	73.7	0.53	140211	0.0025	2.8	0.05	0.02
SSD-97-53	V97-02628.0		73.7	74.55	0.85	140212	1.072	577.1	11.07	9.87
SSD-97-53	V97-02628.0	D	73.7	74.55	0.85	140213	1.267	558.8	10.28	8.45
SSD-97-53	V97-02628.0		74.55	75.6	1.05	140214	1.687	663.5	11.14	8.02
SSD-97-53	V97-02628.0	B	BLANK			140215	0.01	3.1	0.07	0.04
SSD-97-53	V97-02628.0		75.6	76.55	0.95	140216	2.444	629.9	10.85	5.67
SSD-97-53	V97-02628.0		76.55	77.2	0.65	140217	1.877	133.9	2.75	9.87
SSD-97-53	V97-02628.0		77.2	78	0.80	140218	2.036	221.8	4.71	12.64
SSD-97-53	V97-02628.0		78	78.6	0.60	140219	1.742	461	9.01	13.42
SSD-97-53	V97-02628.0		78.6	79.2	0.60	140220	0.24	33	0.66	1.9
SSD-97-53	V97-02628.0		79.2	80	0.80	140221	0.711	208.7	4.48	4.58
SSD-97-53	V97-02628.0		80	80.95	0.95	140222	1.205	143.6	2.98	8.43
SSD-97-53	V97-02628.0		80.95	81.2	0.25	140223	0.202	23.8	0.56	1.14
SSD-97-53	V97-02628.0		81.2	82.3	1.10	140224	0.006	0.4	0.01	0.01
SSD-97-54	V97-02717.0		56.1	56.2	0.10	140299	0.0025	13	0.05	9.75
SSD-97-54	V97-02717.0		56.2	56.7	0.50	140300	0.0025	6.5	0.0065	0.55
SSD-97-55	V97-02717.0		66.3	66.85	0.55	140301	0.0025	2.9	0.0032	0.03



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Hole #	Core ID	Depth (m)	To (m)	Length (m)	Samples #	Ag pt	Ag pt	Pb %	Zn %
SSD-97-55	V97-02717.0	66.85	67.9	1.05	140302	0.0025	1	0.0025	0.1
SSD-97-55	V97-02717.0	67.9	68.7	0.80	140303	0.008	2.7	0.0087	0.2
SSD-97-55	V97-02717.0	68.7	69.7	1.00	140304	0.0025	0.3	0.0007	0.02
SSD-97-55	V97-02717.0	76.35	76.85	0.50	140306	0.0025	0.3	0.0006	0.01
SSD-97-55	V97-02717.0	76.85	76.92	0.07	140306	0.0025	0.5	0.0045	0.02
SSD-97-55	V97-02717.0	D 76.85	76.92	0.07	140307	0.0025	0.4	0.01	0.03
SSD-97-55	V97-02717.0	B BLANK			140308	0.0025	0.3	0.0008	0.03
SSD-97-55	V97-02717.0	76.92	77.42	0.50	140309	0.0025	0.5	0.0007	0.0062
SSD-97-56		NO SAMPLES							
SSD-97-57	V97-02717.0	26.6	27.85	1.25	140353	0.0025	1.3	0.02	0.2
SSD-97-57	V97-02717.0	27.85	28.85	1.00	140354	0.0025	3.5	0.06	0.0058
SSD-97-57	V97-02717.0	71.8	72.3	0.50	140355	0.0025	0.4	0.0028	0.02
SSD-97-57	V97-02717.0	72.3	72.55	0.25	140356	0.0025	4	0.11	28.2
SSD-97-58	V97-02717.0	42.6	43.1	0.60	140310	0.0025	2.3	0.15	0.16
SSD-97-58	V97-02717.0	43.1	46	2.90	140311	0.0025	3.8	0.07	0.31
SSD-97-58	V97-02717.0	46	51.82	5.82	140312	0.0025	13.9	0.38	7.29
SSD-97-58	V97-02717.0	B BLANK			140313	0.0025	0.2	0.0013	0.0046
SSD-97-59	V97-02717.0	20.1	21.45	1.35	140245	0.04	32.8	0.75	0.66
SSD-97-59	V97-02717.0	21.45	21.5	0.05	140246	0.191	1382.7	40.65	0.33
SSD-97-59	V97-02717.0	22.8	24.1	1.30	140247	0.0025	0.7	0.02	0.56
SSD-97-59	V97-02717.0	24.1	24.5	0.40	140248	0.013	12.3	0.24	4.1
SSD-97-59	V97-02717.0	24.6	26.95	2.45	140249	0.0025	0.4	0.01	1.71
SSD-97-59	V97-02717.0	26.95	27.65	0.70	140250	0.038	7.7	0.13	25.24
SSD-97-59	V97-02717.0	B BLANK			140251	0.0025	0.3	0.0024	0.04
SSD-97-59	V97-02717.0	27.65	28.65	1.00	140252	0.0025	0.3	0.0024	1.07
SSD-97-59	V97-02717.0	56.25	57.25	1.00	140253	0.0025	0.3	0.0015	0.0078
SSD-97-59	V97-02717.0	57.25	57.5	0.25	140254	0.012	0.4	0.01	0.0043
SSD-97-59	V97-02717.0	57.5	58.5	1.00	140255	0.0025	0.3	0.0021	0.01
SSD-97-60	V97-02718.0	190.9	191.9	1.00	140133	0.088	173.5	3.84	8.32
SSD-97-60	V97-02718.0	191.9	192.9	1.00	140134	0.123	295.5	5.3	9.99
SSD-97-60	V97-02718.0	192.9	193.9	1.00	140135	0.077	99	0.78	2.13
SSD-97-60	V97-02718.0	193.9	194.9	1.00	140136	0.034	48.8	0.08	0.14
SSD-97-60	V97-02718.0	D 193.9	194.9	1.00	140137	0.036	50	0.08	0.05
SSD-97-60	V97-02718.0	194.9	195.9	1.00	140138	0.171	97.4	0.79	7.07
SSD-97-60	V97-02718.0	B BLANK			140139	0.0025	2.2	0.02	0.06
SSD-97-60	V97-02718.0	195.9	196.9	1.00	140140	0.039	22.4	0.76	0.3
SSD-97-60	V97-02718.0	189.9	190.9	1.00	140141	0.006	2.2	0.02	0.03
SSD-97-60	V97-02718.0	229.6	230.1	0.50	140142	0.015	5.2	0.19	0.0084
SSD-97-60	V97-02718.0	230.1	230.3	0.20	140143	0.636	93	3.17	3.13
SSD-97-60	V97-02718.0	230.3	230.8	0.50	140144	0.021	1	0.02	0.03
SSD-97-61	V97-02628.0	54.5	56	1.50	139985	0.028	1.3	0.0031	0.0045
SSD-97-61	V97-02628.0	56	57	1.00	139986	0.058	10.4	0.15	0.06
SSD-97-61	V97-02628.0	57	57.6	0.60	139987	0.662	1247.8	27.58	11.75
SSD-97-61	V97-02628.0	57.6	57.85	0.25	139988	0.042	19.5	0.52	0.5
SSD-97-61	V97-02628.0	57.85	58.5	0.65	139989	0.448	634.3	15.75	18.16
SSD-97-61	V97-02628.0	58.5	59.05	0.55	139990	3.287	119.1	2.65	6.93
SSD-97-61	V97-02628.0	59.05	60.44	1.39	139991	3.021	329.3	5.95	29.02
SSD-97-61	V97-02628.0	60.44	62	1.56	139992	2.984	284.6	5.09	20.08
SSD-97-61	V97-02628.0	62	63	1.00	139993	2.617	342.5	6.28	17.06
SSD-97-61	V97-02628.0	63	63.9	0.90	139994	1.418	661.7	13.2	20.46
SSD-97-61	V97-02628.0	63.9	64.82	0.92	139995	1.083	539.9	12.23	9.88
SSD-97-61	V97-02628.0	64.82	66	1.18	139996	1.457	359.4	9.08	6.44
SSD-97-61	V97-02628.0	66	66.95	0.95	139997	3.307	332.2	6.5	4.06

1997 ASSAY SUMMARY SILVERTIP PROJECT

Hole #	Work Order	QC	From (m)	To (m)	Length (m)	Sample #	Au g/t	Ag g/t	Pb %	Zn %
SSD-97-61	V97-02628.0		66.95	68	1.05	139998	1.538	250.4	6.71	8.92
SSD-97-61	V97-02628.0		68	68.9	0.90	139999	1.579	326.4	5.9	13.38
SSD-97-61	V97-02628.0		68.9	69.8	0.90	140000	4.486	108.2	1.93	3.27
SSD-97-61	V97-02628.0		69.8	71	1.20	140201	0.694	724	15.1	7.96
SSD-97-61	V97-02628.0		71	72.3	1.30	140202	1.728	1844.4	38.93	4.72
SSD-97-61	V97-02628.0	B	BLANK			140203	0.0025	2.5	0.06	0.04
SSD-97-61	V97-02628.0		72.3	73.5	1.20	140204	6.301	198.2	4.45	8.17
SSD-97-61	V97-02628.0	D	72.3	73.5	1.20	140205	5.147	194.2	4	9.88
SSD-97-61	V97-02628.0		73.5	74.05	0.55	140206	3.117	503.6	12.96	16.23
SSD-97-61	V97-02628.0		75.25	76	0.75	140207	0.589	899.4	21.74	14.49
SSD-97-61	V97-02628.0		76	77	1.00	140208	0.007	3.6	0.08	0.05
SSD-97-61	V97-02628.0		88.39	89.55	1.16	140209	0.038	9.3	0.24	3.58
SSD-97-62	V97-02535.0		60.1	61.1	1.00	140076	0.057	7.9	0.12	0.22
SSD-97-62	V97-02535.0		61.1	62	0.90	140077	0.89	350.7	6.87	18.26
SSD-97-62	V97-02535.0		62	63	1.00	140078	0.724	284	5.86	13.04
SSD-97-62	V97-02535.0		63	64.5	1.50	140079	2.246	55.9	0.72	8.21
SSD-97-62	V97-02535.0		64.5	66	1.50	140080	2.034	50.6	0.61	9.94
SSD-97-62	V97-02535.0		66	67.5	1.50	140081	1.002	31	0.51	6.89
SSD-97-62	V97-02535.0		67.5	68.9	1.40	140082	1.479	89.9	1.4	5.49
SSD-97-62	V97-02535.0		68.9	69.95	1.05	140083	4.291	465.3	11.12	16.29
SSD-97-62	V97-02535.0		69.95	70.95	1.00	140084	0.736	468.7	11.75	10.98
SSD-97-62	V97-02535.0		70.95	71.75	0.80	140085	1.109	295.8	6.77	12.17
SSD-97-62	V97-02535.0	D	70.95	71.75	0.80	140086	1.857	352.9	8	10.83
SSD-97-62	V97-02535.0		71.75	72.5	0.75	140087	0.794	168.2	4.69	5.42
SSD-97-62	V97-02535.0		72.5	73.4	0.90	140088	2.153	52.5	1.41	3.64
SSD-97-62	V97-02535.0		73.4	74	0.60	140089	0.62	1070.9	27.4	18.81
SSD-97-62	V97-02535.0	B	BLANK			140090	0.006	0.7	0.01	0.0143
SSD-97-62	V97-02535.0		74	74.8	0.80	140091	0.096	32.1	0.71	1.45
SSD-97-62	V97-02535.0		74.8	75.8	1.00	140092	0.024	4.1	0.11	0.16
SSD-97-62	V97-02535.0		75.8	77.8	2.00	140093	0.012	0.3	0.0022	0.03
SSD-97-62	V97-02535.0		77.8	78.8	1.00	140094	0.008	1.7	0.04	0.12
SSD-97-62	V97-02535.0		78.8	79.65	0.85	140095	0.538	429.9	12.65	11.26
SSD-97-62	V97-02535.0		79.65	81	1.35	140096	0.02	17.4	0.39	1.05
SSD-97-62	V97-02535.0		81	82.3	1.30	140097	0.092	19.1	0.46	0.79
SSD-97-62	V97-02535.0		82.3	83.3	1.00	140098	0.0025	0.5	0.0042	0.01
SSD-97-63	V97-02716.0		98	100.8	2.80	140145	0.018	8.8	0.11	0.44
SSD-97-63	V97-02716.0		179.9	180.9	1.00	140146	0.0025	3.1	0.07	0.08
SSD-97-63	V97-02716.0		180.9	181.5	0.60	140147	0.266	528.2	13.07	11.59
SSD-97-63	V97-02716.0		181.5	182.2	0.70	140148	1.5	423.9	13.59	6.3
SSD-97-63	V97-02716.0	D	181.5	182.2	0.70	140149	1.836	339	8.05	7.97
SSD-97-63	V97-02716.0	B	BLANK			140150	0.0025	1.8	0.04	0.04
SSD-97-63	V97-02716.0		182.2	183.3	1.10	140151	0.016	3.3	0.03	0.11
SSD-97-63	V97-02716.0		183.3	185.3	2.00	140152	0.014	2.1	0.02	0.09
SSD-97-63	V97-02716.0		185.3	186.3	1.00	140153	0.01	2	0.02	0.07
SSD-97-63	V97-02716.0		186.3	187.26	0.96	140154	0.786	585.5	12.99	12.26
SSD-97-63	V97-02716.0		187.26	187.8	0.54	140155	0.022	5.1	0.15	0.15
SSD-97-63	V97-02716.0		187.8	188.4	0.60	140156	0.283	141.6	2.43	5.48
SSD-97-63	V97-02716.0		188.4	189.4	1.00	140157	0.013	2.9	0.04	0.13

1997 Weighted Averages - Silvertip Project

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-1</b>					
18.65 - 24.5	5.85	0.01	1.92	0.06	0.42

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-2</b>					
45.75 - 64.85 including	19.10	1.39	326.82	7.26	9.97
50.00 - 64.85 and	14.85	1.77	386.34	8.57	12.38
50.00-55.00 and	5.00	2.22	406.80	8.58	13.76
56.75-58.30 and	1.55	1.85	409.63	9.93	12.78
61.00-64.85	3.85	1.37	498.18	12.58	17.50

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-3</b>					
105.6 - 106.2	0.60	0.05	70.80	1.71	1.19
319.05 - 319.35	0.30	0.13	27.20	0.37	4.27
409.00 - 411.91 including	2.91	0.08	228.28	3.73	15.01
409.00 - 411.00	2.00	0.04	175.00	2.87	18.97
420.13 - 420.38	0.25	0.04	27.10	0.37	16.48

1997 Weighted Averages - Silvertip Project

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-4</b>					
17.9 - 19.6	1.70	0.10	730.26	15.77	28.49
23.2 - 23.88	0.68	0.14	868.20	19.25	39.64
26.2 - 26.5	0.30	0.20	853.50	3.05	27.93
27.29 - 27.49	0.20	0.09	173.70	4.02	27.72
28.3 - 28.96	0.66	0.21	327.40	4.35	26.10
83.25 - 86.5	3.25	0.16	124.68	2.65	4.43
98.1 - 98.45	0.35	1.11	1844.90	31.95	1.40
112.0 - 113.5	1.50	0.50	255.34	4.83	10.38

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-5</b>					
192.5 - 198.2 including	5.70	0.40	470.03	7.84	10.28
192.5 - 195.55 and	3.05	0.13	363.21	4.68	10.06
196.2 - 198.2	2.00	0.92	761.30	15.05	12.87

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-6</b>					
31.39 - 31.50	0.11	0.39	203.50	2.02	13.10
261.82 - 265.57 including	3.75	0.86	185.68	4.90	3.16
261.82 - 262.25 and	0.43	3.40	328.20	8.30	14.31
262.70 - 262.90 and	0.20	1.30	228.20	4.92	4.90
265.12 - 265.57	0.45	2.41	1088.40	29.88	8.59

1997 Weighted Averages - Silvertip Project

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-7</b>					
215.91-216.41	0.50	0.17	187.70	2.39	16.02
220.1-221.2	1.10	0.62	57.00	1.30	2.72
223.5-225.5	2.00	0.12	128.70	2.71	3.13

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-9</b>					
185.93 - 188.98	3.05	0.13	20.30	0.30	5.70

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-11</b>					
76.5-78.65	2.15	0.01	15.00	0.18	1.77

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-12</b>					
83.4 - 97.1	13.70	0.02	43.77	1.02	1.86
including 84.43 - 85.34	0.91	0.02	376.50	6.57	0.43
89.5 - 97.1	7.60	0.01	19.18	0.43	2.73

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-13</b>					
64.30 - 80.60	16.30	0.00	7.70	0.03	0.72
79.16 - 80.6	1.44	0.00	12.40	0.12	4.77
103.65 - 104.45	0.80	0.05	14.60	0.10	5.32
104.85 - 105.38	0.53	0	5.3	0.02	7.22
145.08 - 145.5	0.42	0.01	3.90	0.04	13.13

1997 Weighted Averages - Silvertip Project

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-14</b>					
39.0 - 39.5	0.50	0.28	395.80	10.96	7.99
44.0 - 57.35 including	13.35	2.09	231.81	5.34	10.63
45.97 - 47.9 and	1.93	0.32	675.15	15.96	15.67
50.0 - 53.0 and	3.00	3.42	181.90	3.90	15.02
54.15 - 57.35	3.20	1.96	242.03	5.68	10.93

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-15</b>					
45.72 - 54.40 including	8.68	0.82	254.62	5.35	7.23
47.55 - 49.55 and	2.00	0.13	228.00	4.77	5.85
50.55 - 54.40	3.85	0.93	307.35	6.66	8.12
56.91 - 58.91 including	2.00	1.13	112.55	2.30	4.12
56.91 - 57.91	1.00	1.19	218.30	4.58	8.17

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-16</b>					
33.5 - 34.1	0.60	0.01	22.30	0.44	0.40

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-17</b>					
19.00 - 19.40	0.40	0.02	124.50	0.52	34.46
19.95 - 20.80	0.85	0.03	69.50	0.41	5.12
97.45 - 97.70	0.25	0.25	411.90	7.41	11.99

1997 Weighted Averages - Silvertip Project

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-18</b>					
35.30 - 45.25 including 35.30 - 35.95	9.95	0.02	26.09	0.38	5.69
47.85 - 49.20	1.35	0.01	19.91	0.17	1.98
183.15 - 183.43	0.28	0.28	291.40	4.56	2.21

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-19</b>					
98.00 - 99.00	1.00	0.07	6.10	0.12	0.78

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-20</b>					
48.16 - 57.15 including 52.85 - 55.80	8.99	0.91	165.15	3.22	4.62
	2.95	0.97	223.25	4.54	7.49

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-21</b>					
58.75 - 72.5 including 58.75 - 59.65 and 64.00 - 72.5	13.75	1.80	163.93	3.61	9.94
	0.90	2.28	113.70	2.65	9.00
	8.50	1.85	203.57	4.48	11.16

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-22</b>					
85.35 - 86.30	0.95	0.01	3.30	0.07	0.14

1997 Weighted Averages - Silvertip Project

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-23</b>					
64.00 - 67.3	3.30	0.01	0.10	0.22	17.15

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-24</b>					
40.84 - 42.8	1.96	0.79	238.00	5.52	6.41
45.15 - 45.72	0.57	0.07	13.10	0.32	13.28

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-25</b>					
37.50 - 45.25 including 37.50 - 39.45 and 44.20 - 45.25	7.75	0.36	142.03	2.42	3.90
	1.95	0.79	266.63	5.65	5.98
	1.05	0.87	246.80	5.35	15.02

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-26</b>					
41.40 - 41.45	0.05	0.00	1.60	0.01	0.03
207.00 - 208.65	1.65	0.00	0.30	0.00	0.42
216.90 - 218.40	1.50	0.00	0.10	0.00	0.36

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-27</b>					
42.67 - 51.82	9.15	0.01	3.57	0.06	0.75



1997 Weighted Averages - Silvertip Project

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
SSD-97-28					
25.06 - 26.50	1.44	0.06	84.40	2.37	1.31
28.90 - 30.40	1.50	0.06	101.40	2.60	1.83
40.40 - 49.00 including 42.00 - 48.00	8.60 6.00	0.47 0.34	141.50 181.93	2.42 3.05	5.35 7.09

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
SSD-97-29					
44.10 - 44.30	0.20	0.00	1.60	0.07	8.46

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
SSD-97-30					
31.80 - 33.90	2.10	0.01	4.50	0.02	0.06
75.35 - 75.75	0.40	0.06	7.80	0.08	0.27
86.60 - 88.0	1.40	0.02	2.60	0.03	2.35

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
SSD-97-31					
62.40 - 64.30	1.90	0.15	12.63	0.23	0.15
88.40 - 91.40	3.00	0.03	8.10	0.15	0.70

1997 Weighted Averages - Silvertip Project

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-32</b>					
95.10 - 106.20 including 95.10 - 97.65	11.10	1.52	198.88	4.59	13.68
97.65 - 104.60	2.55	2.17	251.43	6.98	7.69
97.65 - 104.60	6.95	1.41	153.23	3.23	16.66
105.35 - 106.20	0.85	1.69	555.70	11.75	18.45

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-33</b>					
51.65 - 52.90	1.25	0.13	26.90	0.51	0.44
56.25 - 66.70 including 56.25 - 63.10	10.45	0.18	290.82	5.13	4.29
56.25 - 63.10	6.85	0.23	430.21	7.64	6.10
56.25 - 57.85	1.60	0.08	1048.62	20.58	7.22
58.90 - 60.20	1.30	0.33	347.30	4.73	6.45
60.60 - 62.30 and 62.70 - 64.70	1.70	0.24	397.16	6.63	7.73
62.70 - 64.70	2.00	0.26	47.73	0.67	4.80
71.00 - 71.60	0.60	0.00	0.30	0.01	9.27

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-34</b>					
45.30- 50.30 including 45.30 - 46.15	5.00	1.32	794.59	19.32	15.89
45.30 - 46.15	0.85	4.83	1394.10	39.53	13.64
47.70 - 50.30	2.60	0.48	974.00	22.02	22.19

1997 Weighted Averages - Silvertip Project

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-35</b>					
38.85 - 39.35	0.50	0.30	894.30	22.86	10.47
42.70 - 58.50 including	15.80	1.73	212.00	4.29	7.88
42.70 - 43.20	0.50	0.23	1645.80	29.73	12.61
42.70 - 46.60	3.90	0.11	301.55	5.89	5.00
45.55 - 45.85	0.30	0.21	462.50	9.17	8.54
46.25 - 52.40	6.15	2.97	87.34	1.60	11.25
52.40 - 57.30 and	4.90	1.61	165.77	3.50	5.58
57.30 - 58.05	0.75	0.25	1187.70	25.49	17.66
69.05 - 70.00	0.95	0.28	1224.80	29.08	23.84
79.25 - 82.80	3.55	0.09	145.26	3.21	2.54

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-36</b>					
60.45 - 62.85 including	2.40	0.55	295.83	5.90	5.02
61.60 - 62.85	1.25	0.62	490.98	9.63	7.44
62.00 - 62.85	0.85	0.90	334.60	6.50	7.67

1997 Weighted Averages - Silvertip Project

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-37</b>					
90.70 - 99.50 including 90.70 - 95.40	8.80	1.79	460.21	10.62	10.21
96.75 - 97.10	0.35	2.14	1341.00	31.28	3.72
97.30 - 98.25 and 98.90 - 99.50	0.95	1.87	537.10	12.47	16.21
108.30 - 116.00 including 109.60 - 111.80	7.70	0.72	330.56	7.10	8.78
113.40 - 114.60	1.20	1.69	328.20	7.40	9.97

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-38</b>					
No samples taken.					

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-39</b>					
93.00 - 112.50 including 95.40 - 108.40	19.50	1.05	449.37	10.81	12.59
111.00 - 112.50	1.50	0.06	231.60	5.07	4.90

1997 Weighted Averages - Silvertip Project

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-40</b>					
53.95 - 63.10	9.15	0.32	103.80	1.14	0.46
95.45 - 96.85	1.40	0.03	277.08	6.03	1.46

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-41</b>					
98.60 - 99.60	1.00	3.25	4.10	0.01	0.02
100.10 - 109.50 including	9.40	0.77	401.78	8.21	9.30
100.10 - 103.85	3.75	1.87	468.43	9.72	17.92
107.42 - 109.5	2.08	0.04	947.50	19.08	9.40

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-42</b>					
56.00 - 57.80	1.80	0.40	72.21	1.58	1.41
66.30 - 76.70	10.40	0.00	2.36	0.06	3.23

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-43</b>					
133.90 - 137.85	3.95	0.85	211.31	4.99	5.58
134.90 - 136.55	1.65	1.53	428.30	10.13	11.07

1997 Weighted Averages - Silvertip Project

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
SSD-97-44					
64.50 - 64.73	0.23	0.18	376.60	8.03	7.27

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
SSD-97-45					
No Significant Results					

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
SSD-97-46					
50.00 - 51.50	1.50	0.27	147.80	1.17	0.19

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
SSD-97-47					
33.55 - 40.00	6.45	0.26	653.43	20.25	2.76
including 33.55 - 38.00	4.45	0.36	941.62	29.23	3.88
47.10 - 49.50	2.40	0.16	127.03	3.02	1.42
75.50 - 77.25	1.75	0.51	93.20	2.24	3.24

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
SSD-97-48					
No Significant Results					

1997 Weighted Averages - Silvertip Project

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-49</b>					
No Significant Results					

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-50</b>					
71.70 - 74.10	2.40	1.72	748.45	14.61	4.36
or					
71.40 - 75.00	3.60	1.67	547.48	10.96	5.22
including					
72.40 - 74.10	1.70	1.69	902.22	17.87	2.87

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-51</b>					
79.25 - 82.30	3.05	0.08	1520.10	29.11	7.70

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-52</b>					
32.1 - 32.61	0.51	0.00	275.00	4.69	31.10

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-53</b>					
73.70 - 80.95	7.25	1.48	365.50	6.79	8.22
including					
73.70 - 76.55	2.85	1.76	626.53	11.03	7.79
and					
77.20 - 78.60	1.40	1.91	324.31	6.55	12.97

1997 Weighted Averages - Silvertip Project

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-54</b>					
No Significant Results					

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-55</b>					
No Significant Results					

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-56</b>					
No Significant Results					

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-57</b>					
No Significant Results					

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-58</b>					
46.00 - 51.82	5.82	0.00	13.90	0.36	7.29

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-59</b>					
20.10 - 21.50	1.40	0.05	81.01	2.18	0.65



1997 Weighted Averages - Silvertip Project

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-60</b>					
190.90 - 192.90	2.00	0.11	234.50	4.47	9.16
194.90 - 195.90	1.00	0.17	97.40	0.79	7.07

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-61</b>					
57.00 - 76.00	19.00	2.16	495.56	10.64	11.58

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-62</b>					
61.10 - 74.00 including	12.90	1.59	228.03	5.18	10.17
61.10 - 63.00	1.90	0.80	315.59	6.34	15.51
68.90 - 71.75 and	2.85	2.15	418.91	10.12	13.27
73.40 - 74.00	0.60	0.62	1070.90	27.40	18.81
78.80 - 82.30 including	3.50	0.17	118.21	3.39	3.43
78.80 - 79.65	0.85	0.54	429.90	12.65	11.26

Interval in Metres	Interval length in Metres	Au g/t	Ag g/t	Pb %	Zn %
<b>SSD-97-63</b>					
180.90 - 182.20	1.30	0.93	472.04	13.35	8.74
186.30 - 188.40	2.10	0.45	309.43	6.67	7.20

HOLE NO: SSD-97-1

SECTION: 43750N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC.  
 HOLE TYPE : DIAMOND

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00 79.25 NQ
Drill contractor:	OLYMPIC DRILLING
Drill rig:	VALDOR 3000
Date started:	16/6/97
Date finished:	17/6/97
Logged by:	L. LEWIS
Relogged by:	
Sampled by:	C. AKELAITIS

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 6643748.38mN 424761.68mE 1203.76RL

Pre-collar depth: Final depth: 79.25  
 Purpose of hole: INFILL SILVER CK NORTH ZONE  
 Hole status: DRILLED TO DEPTH  
 Comments: COLLARED IN MCDAME  
 LIMESTONE, DID NOT  
 INTERSECT UNCONFORMITY

Material left in hole: ALL CASING  
 PULLED  
 Base of complete oxidation: 27.3M  
 Top of fresh rock: 27.3M  
 Water first encountered:  
 Water inflow estimate:

## \*\*\* SURVEY DATA \*\*\*

Survey Method: ACID TEST

Depth	Azimuth	Inclination
0.00	0.00	-90.00
9.14	0.00	-89.00
79.25	0.00	-88.00

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
18.65	24.50	5.85

## \*\*\* SUMMARY LOG \*\*\*

0.00	18.65	OVERBURDEN
18.65	27.30	MCDAME LIMESTONE
27.30	32.80	MCDAME LIMESTONE UNIT 2 FLOATSTONE
32.80	35.07	MCDAME LIMESTONE MATRIX BRECCIA
35.07	43.52	MCDAME LIMESTONE UNIT 2 FLOATSTONE
43.52	64.42	MCDAME LIMESTONE UNIT 3 FLOATSTONE
64.42	65.00	MCDAME LIMESTONE UNIT 4 PACKSTONE
65.00	79.25	MCDAME LIMESTONE UNIT 5
79.25		END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/ml	Ag g/ml	%Pb	%Zn
0.00	18.65	OVERBURDEN								
18.65	27.30	MCDAME LIMESTONE Pale to medium grey packstone. local bleached intervals with fossils unidentifiable. Massive stromatoporoid is the main fossil. Poor recovery over the interval, possibly due to proximity to the Camp Creek Fault. Sections of poor recovery are broken with moderate oxide staining. Vuggy pockets have traces of pyrite and siderite. Split surfaces show a black, dendritic, manganese (?) oxide. 18.65-20.00 PACKSTONE 55% recovery of rubbly, pale - bleached to medium grey, recrystallized limestone. Oxidized fractures of hematite + limonite. 20.00-21.50 PACKSTONE 60% recovery of partially recrystallized limestone. 10% calcite clots. Trace black sphalerite adjacent to calcite clots and within fractures. 21.50-23.00 PACKSTONE Similar to previous interval; local mosaic breccia with calcite matrix. 66% recovery. 23.00-24.50 PACKSTONE Mosaic breccia; oxides coat fractures and partially recrystallized. Visible massive stromatoporoids. 15% dolomite. 24.50-27.30 DOLOSTONE Dolomitized limestone, rubbly core with hematite + limonite stained fractures. Possible fault zone (except good recovery of 85%). 50% dolomite.	MLS1	139501	18.65	20.00	0.03	3.50	0.05	0.43
				139502	20.00	21.50	0.00	3.00	0.04	0.54
				139503	21.50	23.00	0.02	2.10	0.06	0.24
				139504	23.00	24.50	0.00	1.90	0.08	0.46
27.30	32.80	MCDAME LIMESTONE UNIT 2 FLOATSTONE Top part of unit is a mosaic breccia (27.3-27.6m) with calcite matrix. 27.6-29.7m is a dense packstone, minor crackle breccia and moderate stylolites marked by carbon concentration. Below 29.7m, massive stromatoporoid, minor amphipora, and scattered rugose corals "Typlasma" appear. Strong stylolitization from 32.0-32.8m and core is bleached pale grey (could almost call a stylolitic breccia). Local concentrations of fine grained pyrite along stylolites	MLS2							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/ml	Ag g/ml	%Pb	%Zn
		@ 40 degrees to core axis.								
32.80	35.07	MCDAME LIMESTONE MATRIX BRECCIA Possibly a solution collapse cavity now consists of matrix to rubble bx; matrix is dark grey to black fine grained calcareous silt (looks like Earn 1A), finely variably laminated. Contorted laminations around large limestone fragments. Graphitic partings along laminations. Irregular lower contact.	MLS							
35.07	43.52	MCDAME LIMESTONE UNIT 2 FLOATSTONE Massive stromatoporoids with lesser amphipora floatstone. Scattered high angle fractures (10-25 degrees to core axis) have yellowish-white coating and small bladed crystals (?).	MLS2							
43.52	64.42	MCDAME LIMESTONE UNIT 3 FLOATSTONE Top of unit has fine amphipora (<2mm) which characterizes the start of unit 3. Limestone varies from packstones (where amphipora is <2mm) to floatstones. Massive stromatoporoids are absent from the upper portion. Amphipora increases in size below 48.5m, accompanied by massive stromatoporoids. Scattered thamnopora and rugose corals. - 47.23m: Slickensides @ 30 to core axis, parallel to calcite vein, with green, glassy coating. - 51.50m: Slickensides @ 18 to core axis, along calcite stringer. 58.58-64.42 MOSAIC BRECCIA FLOATSTONE Brecciated interval; gradational from crackle to mosaic breccia. Vuggy, open space filling with oxide staining on fractures from 60.96-63.0m. No visible sulphides. Calcite veins trend @ 20-35 to core axis.	MLS3							
64.42	65.00	MCDAME LIMESTONE UNIT 4 PACKSTONE Euramphipora Packstone, tightly packed, thin, parallel with massive stromatoporoid sequence in centre of unit.	MLS4							
65.00	79.25	MCDAME LIMESTONE UNIT 5 Conspicuously coarse amphipora in upper 5 meters of unit, 3-5mm diameter; stachyodes (large cylindrical branching stromatoporoid, up to 2cm diameter) present from 67.4-69.7m. Amphipora is the main facies with lesser massive stromatoporoid. Intermittant crackle breccia zones	MLS5							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/ml	Ag g/ml	%Pb	%Zn
		between 72.0-79.25m. High angle fracturing trends 0-15 degrees to core axis.								

\*\*\* END OF HOLE \*\*\* 79.25

HOLE NO: SSD-97-2

SECTION: 43660N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43663.43mN 24759.13mE 1221.10RL

Pre-collar depth: Final depth: 79.25

Purpose of hole: TEST SILVER CREEK  
 EXTENSION

Hole status: DRILLED TO DEPTH

Comments: LZ: 46.55-47.7M, 50.0-64.85M

## \*\*\* SURVEY DATA \*\*\*

Survey Method: ACID TEST

Depth	Azimuth	Inclination
0.00	0.00	-90.00

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	79.25	NQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR 3000		
Date started:	17/6/97		
Date finished:	18/6/97		
Logged by:	L. LEWIS		
Relogged by:			
Sampled by:	C. AKELAITIS		

Material left in hole: 12' CASING LOST  
 DOWNHOLE

Base of complete oxidation

Top of fresh rock:

Water first encountered:

Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
44.20	44.50	0.30
45.75	65.85	20.10

## \*\*\* SUMMARY LOG \*\*\*

0.00	30.60	1B SANDSTONE
30.60	35.00	1AA GOUGE CARBONACEOUS ARGILLITE
35.00	38.70	1AA CARBONACEOUS ARGILLITE
38.70	40.95	1AC CALCAREOUS ARGILLITE
40.95	46.55	MCDAME LIMESTONE UNIT 1
46.55	46.85	LOWER ZONE PYRITE MASSIVE SULPHIDE
46.85	47.30	MCDAME LIMESTONE UNIT 1
47.30	47.70	LOWER ZONE BASE METAL MASSIVE SULPHIDE
47.70	50.00	MCDAME LIMESTONE UNIT 1
50.00	64.85	LOWER ZONE MASSIVE SULPHIDE
64.85	79.25	MCDAME LIMESTONE UNIT 2
79.25		END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
0.30	30.60	1B SANDSTONE Medium grey fine to medium grained massive sandstone with approximately 20% interbedded dark grey laminated siltstone. Scattered coarsening upward sequences up to 30cm thick. Minor quartz veining (<1%) as narrow veinlets sub-parallel to bedding (70 to core axis) and as high angle fracture fillings (10-35 degrees to core axis). Pervasive disseminated pyrite throughout the sandstone (2%). Also as clots and veinlets to 1mm parallel to bedding. 76% recovery. Sections of poorer recovery are generally the finer grained mudstone intervals.	1B							
30.60	35.00	1AA GOUGE CARBONACEOUS ARGILLITE Dark grey to black rubble / gouge, likely a fault zone. Contains angular argillite fragments and 5% fractured quartz (quartz is pre-faulting). Carbonaceous content increases downhole. Upper and lower contacts are broken, but possibly follow bedding (?). 1-2% disseminated pyrite. 70% recovery.	1AA							
35.00	38.70	1AA CARBONACEOUS ARGILLITE Dark grey thinly laminated carbonaceous argillite. 5% millimeter-sized calcite laminae, parallel to bedding (70 degrees to core axis), occasionally containing pyrite blebs. Intermittant weak to moderately calcareous intervals. Unit is weakly to moderately silicified. 88% recovery.	1AA							
38.70	40.95	1AC CALCAREOUS ARGILLITE  38.70-39.10 CALCAREOUS ARGILLITE Top of unit marked by a 9cm bed of light grey, fine grained calcarenite. Moderately silicified below. 39.10-40.95 CALCAREOUS ARGILLITE Broken, rubble interval of silicified argillite adjacent to fairly sharp (?) lower contact with limestone. 1% disseminated pyrite.	1AC							
40.95	46.55	MCDAME LIMESTONE UNIT 1 Light to medium grey limestone containing amphipora as the major fossil, and lesser massive stromatoporoids and thamnopora. Stylolites are common and strongly								

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		carbonaceous. Intermittant bleached intervals have obliterated fossils. Narrow rubble breccia intervals at 41.78 and 44.20m. Cross-cutting millimeter sized galena (+/- sphalerite) veinlets at 31.37, 31.47, 42.2 and 46.3m. These veinlets average 20 degrees to core axis and appear to be late as they cross-cut calcite veins. One pyrite veinlet at 45.25m follows a stylolite at 60 to core axis. 5% calcite veinlets and fracture fillings.								
		40.95-41.78 FLOATSTONE Amphipora - massive stromatoporoid floatstone; narrow galena - sphalerite veinlets at 31.37 and 31.47m @ 20 to core axis, cross-cut earlier calcite veins.	MLS1							
		41.78-42.00 MATRIX BRECCIA Angular Eam fragments (carbonaceous / calcareous argillite) floating in a calcareous sediment matrix. Stylolites common and are strongly carbonaceous. Upper contact follows a stylolite at 40 to core axis.								
		42.00-44.20 FLOATSTONE Slight increase in galena veinlets occurring at 20 to core axis (42.25, 43.7 and 43.9m). Bleached interval from 42.9 to 43.5m.								
		44.20-44.50 RUBBLE BRECCIA Brecciated interval with a 7cm clot of pyrite - galena - sphalerite. Galena concentrated along the outer edges of the pyrite clot and sphalerite generally as small clots along carbonaceous stylolites.		139520	44.20	44.50	0.06	123.00	2.93	1.72
		44.50-45.75 FLOATSTONE Weak crackle breccia texture; 1cm pyrite veinlet (45.25m) @ 60 to core axis concentrated along stylolite. Good Thamnopora at 45.45m (sub-unit 1B of McDame?).								
		45.75-46.55 FLOATSTONE Minor crackle breccia @ 46.2m. Increased galena veining (20 to core axis and displaces calcite vein). 3cm pyrite - galena clot at 46.5m.		139521	45.75	46.55	0.01	28.30	0.75	0.22

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
46.55	46.85	LOWER ZONE PYRITE MASSIVE SULPHIDE	LZ	139522	46.55	46.85	0.91	573.60	10.51	12.35
		46.55-46.85 PYRITE MASSIVE SULPHIDE Massive pyrite (70%), sphalerite (6%) galena (4%) with 10% white sugary-looking calcite and 10% remnant limestone (partially replaced, but still recognizable). Upper contact irregular; lower contact conformable at 65 to core axis.								
46.85	47.30	MCDAME LIMESTONE UNIT 1 46.85-47.30 FLOATSTONE One calcite - galena veinlet @ 25 to core axis. Carbonaceous stylolites juxtaposing different fossil types.	MLS1	139523	46.85	47.30	0.01	84.70	1.24	0.12
47.30	47.70	LOWER ZONE BASE METAL MASSIVE SULPHIDE	LZ	139524	47.30	47.70	0.09	654.10	17.49	6.60
		47.30-47.70 BASE METAL MASSIVE SULPHIDE Massive sulphide interval of pyrite (40%), sphalerite (20%) and galena (15%) with a 20cm interlayer of unmineralized limestone. Upper contact irregular and lower contact @ 30 to core axis.								
47.70	50.00	MCDAME LIMESTONE UNIT 1 47.70-49.00 PACKSTONE CRACKLE BRECCIA Amphipora packstone with crackle breccia texture. 10% calcite veins trend generally @ 20 to core axis. Trace sulphides. 49.00-50.00 PACKSTONE Lose the crackle bx; slight increase in galena veinlets @ 15 to core axis. Fossils not visible below 49.3m.	MLS1	139525	47.70	49.00	<5ppm	1.60	<0.01	<0.01
				139526	49.00	50.00	0.01	8.50	0.15	<0.01
50.00	64.85	LOWER ZONE MASSIVE SULPHIDE 50.00-51.05 BASE METAL MASSIVE SULPHIDE Sharp upper contact with McDame limestone @ 85 to core axis (appears conformable). 35% pyrite, 20% sphalerite, 15% galena, 5% quartz, 5% calcite, 20% remnant limestone. Pyrite fine grained to bladed. Red-brown sphalerite and galena (to 5mm) later than pyrite. Galena concentrated along margins of remnant limestone, intergrown with sphalerite and as late veins. One galena vein @ 40 to core axis. Quartz - sphalerite	LZ	139527	50.00	51.05	2.09	525.60	9.24	19.40
				139528	51.05	52.00	2.21	622.80	14.52	18.54

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		- galena vein @ 70 to core axis. 51.05-52.00 BASE METAL MASSIVE SULPHIDE Top of sample is a sharp (conformable?) contact between massive sulphide and limestone @ 70 to core axis. 8cm of limestone, with massive pyrite - sphalerite - galena below. 45% pyrite, 25% sphalerite, 10% galena, 5% quartz, 5% calcite and 10% limestone. Open space cavities (to 2cm) with quartz infilling. Increased sphalerite - galena towards base of sample. Core broken, but good recovery (95%).								
		52.00-53.00 PYRITE MASSIVE SULPHIDE Section of broken core, 75% recovery (pyrite is like sand). Similar to previous sample but with slightly less sphalerite + galena. No remnant limestone.		139529	52.00	53.00	3.09	443.40	8.65	16.00
		53.00-54.00 PYRITE MASSIVE SULPHIDE See an increase in whitish-gray, translucent quartz giving the rock a fine-grained speckled appearance. Some excellent bladed pyrite (marcasite after pyrite?) crystals to 1cm. Broken upper 20cm and competent rock below (coincident with increase silica content). 65% pyrite, 8% sphalerite, 7% galena, 15% quartz, 5% calcite. 80% recovery.		139530	53.00	54.00	2.28	277.60	5.32	9.93
		54.00-55.00 PYRITE MASSIVE SULPHIDE Similar to previous sample, with 100% recovery. 5cm of rubble breccia at base of interval (70 to core axis) Pyrite as small fragments (2mm) and also as matrix (syn to post-ore breccias). 65% pyrite, 10% sphalerite, 10% galena, 15% quartz, 5% calcite.		139531	54.00	55.00	1.45	172.50	5.38	4.97
		55.00-56.00 PYRITE MASSIVE SULPHIDE Decrease in sphalerite + galena. Sample includes 30cm of sheared - looking limestone with abundant carbonaceous stylolites. 45% pyrite, 5% sphalerite, 1% galena, 10% quartz, 5% calcite, 30% limestone. 100% recovery.		139532	55.00	56.00	1.26	40.50	0.67	4.63
		56.00-56.75 PYRITE MASSIVE SULPHIDE Sample includes 20cm of partially silicified limestone. Rock has a foliated look. foliation from 15 to 25 degrees		139533	56.00	56.75	1.57	54.30	1.72	2.20

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		to core axis. 100% recovery. 55% pyrite, 2% sphalerite, 1% galena, 15% quartz, 8% calcite.								
	56	75-57.30 PYRITE MASSIVE SULPHIDE Zone of massive pyrite, some of which is bladed and possibly brecciated (silica matrix). Bladed pyrite is brassy, while the other pyrite (intergrown with fine grained sphalerite (?)) is much duller in lustre. Slip-shear plane, 50 degrees to core axis @ 57.2m. Sharp lower contact @ 50 to core axis. 100% recovery. 75% pyrite, 8% sphalerite, 2% galena, 5% quartz, 5% calcite.		139534	56.75	57.30	4.11	206.60	3.56	17.11
				139535	57.30	58.30	0.61	521.30	13.46	10.19
	57	30-58.30 BASE METAL MASSIVE SULPHIDE Sharp increase in silica + galena. Galena associated with quartz and also occurs as late veinlets. Late dissolution has offset the galena veins. Fracture orientation approximately 40 to core axis. Vague brecciated remnants of limestone. 100% recovery. 35% pyrite, 20% galena, 10% sphalerite, 20% quartz, 10% calcite.		139536	58.30	59.30	1.44	235.20	5.40	3.34
	58	30-59.30 PYRITE MASSIVE SULPHIDE Coarse bladed pyrite and galena to 58.75; below 58.75, galena decreases significantly. Intermittent vugs with open space filling with euhedral quartz. 100% recovery. 65% pyrite, 7% sphalerite, 4% galena, 10% quartz, 3% calcite.		139537	59.30	60.30	2.01	556.00	7.80	12.70
	59	30-60.30 PYRITE MASSIVE SULPHIDE Interval of abundant bladed pyrite (marcasite), blades occasionally preferentially oriented (??) @ 10-15 degrees to core axis (sub-parallel to fractures). Rubbly core at base of interval - 75% recovery. 55% pyrite, 10% galena, 8% sphalerite, 10% quartz, 5% calcite.		139538	60.30	61.00	1.60	392.80	7.67	7.95
	60	30-61.00 PYRITE MASSIVE SULPHIDE At 60.5m there is about 10cm of rubble breccia. Black limestone fragments to 1cm are occasionally replaced by pyrite. Large bladed pyrite to 1cm present. Gn increases towards base of interval as irregular stringers. 100% recovery. 70% pyrite, 8% sphalerite, 4% galena,								

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From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		8% quartz, 7% calcite.								
	61	00-62.18 PYRITE MASSIVE SULPHIDE Upper 30cm and lower 20cm consist of porous, crumbly pyrite, with more competent cores in between with bands up to 8cm of massive galena. 93% recovery. 60% pyrite, 15% galena, 10% sphalerite, 10% calcite, 5% quartz.		139539	61.00	62.18	2.67	551.10	12.12	17.53
				139540	62.18	63.18	1.10	444.70	12.52	18.55
	62	18-63.18 BASE METAL MASSIVE SULPHIDE Increasing sphalerite + galena content. Clots often have an outer rim of sphalerite and inner core of calcite. These may be further rimmed by coarse galena. Sphalerite also rims pyrite clots. 100% recovery. 45% pyrite, 20% sphalerite, 10% galena, 15% calcite, 3% quartz.		139541	63.18	63.85	0.40	288.00	7.80	14.65
	63	18-63.85 PYRITE MASSIVE SULPHIDE MOSAIC BRECCIA 45% of interval consists of mosaic breccia - dark grey angular limestone fragments, spotted with calcite blebs, fragments to 3cm totally replaced by pyrite +/- sphalerite floating in a calcite matrix. 100% recovery. 35% pyrite, 12% sphalerite, 8% galena, 45% calcite.								
	63	85-64.85 PYRITE MASSIVE SULPHIDE Massive above, becoming thinly banded towards the lower contact. Millimeter pyrite layers are separated by millimeter thick sphalerite + calcite layers. Very sharp lower contact @ 55 to 70 degrees to core axis. 100% recovery. 60% pyrite, 15% sphalerite, 10% galena, 15% calcite.		139542	63.85	64.85	0.73	518.80	16.95	18.57
64.85	79.25	MCDAME LIMESTONE UNIT 2 Light grey, unaltered-looking massive stromatoporoid rudstone (>2mm-sized bioclasts, component supported), with 20% intercalated amphipora. Stylolites common, and in some intervals could be called stylolitic breccia. Only minor calcite veining down to 73.6m. From 73.6-79.25m, increased calcite veining and brecciation (crackle -> mosaic -> rubble breccia). Lacks visible sulphides. 64.85-65.85 RUDSTONE Sharp upper contact with Lower Zone massive	MLS2	139543	64.85	65.85	<5ppm	2.80	0.06	0.06

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From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		sulphides @ 50 to core axis. Surprisingly un-brecciated and unaltered-looking limestone Moderate stylolites. No visible sulphides. 5% calcite veining, generally 20-30 degrees to core axis 73.60-79.25 RUDSTONE CRACKLE BRECCIA Disrupted interval varies from crackle breccia to mosaic breccia (calcite to 15mm from the matrix). Rubble breccia forms irregular veinlets @ 50 to core axis (77.0m). Coarse calcite also as veins (to 4cm) @ 25 to core axis. Calcite fracture fillings cut earlier rubble breccia (78.9m). Trace disseminated pyrite.								

\*\*\* END OF HOLE \*\*\* 79.25

HOLE NO: SSD-97-3

SECTION: 43220N

GRID: SILVER CK S

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK S  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43225.00mN 25000.00mE 1412.00RL

Pre-collar depth: Final depth: 426.72

Purpose of hole: TEST S EXTENSION OF SILVER CK ZONE

Hole status: RODS BROKE, DID NOT DRILL TO DEPTH

Comments: LOWER ZONE: 409.0-411.91M

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
60.96	67.00	-87.00
106.68	36.00	-86.00
152.40	20.00	-86.00
198.12	9.00	-86.00
243.84	352.00	-82.50
289.56	357.00	-78.00
335.28	11.00	-72.00
415.53	13.00	-72.00

## \*\*\* SUMMARY LOG \*\*\*

2.00 32.00 2AP SILTSTONE / SANDSTONE  
 32.00 42.67 2AP FAULT ZONE  
 42.67 82.30 NO RECOVERY  
 82.30 94.30 2AP SANDSTONE  
 94.30 96.45 2AS LAMINATED SILTSTONE  
 96.45 97.30 EXHALITE - 0-ZONE  
 97.30 102.30 2AS LAMINATED MUDSTONE  
 102.30 113.30 2AA CARBONACEOUS ARGILLITE  
 113.30 114.95 NO RECOVERY FAULT ZONE  
 114.95 147.70 1B SANDSTONE / MUDSTONE / CONGLOMERATE

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00 426.72 NQ
Drill contractor:	OLYMPIC DRILLING
Drill rig:	VALDOR 3000
Date started:	18/6/97
Date finished:	26/6/97
Logged by:	L. LEWIS
Relogged by:	
Sampled by:	C. AKELAITIS

Material left in hole: 1200' NQ RODS, 2 BARRELS, BIT

Base of complete oxidation

Top of fresh rock:

Water first encountered:

Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
105.60	106.20	0.60
319.05	319.35	0.30
402.85	413.00	10.15
418.75	419.35	0.60
420.13	420.38	0.25

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

HOLE NO: SSD-97-3

SECTION: 43220N

GRID: SILVER CK S

147.70	161.45	2AA CARBONACEOUS ARGILLITE
161.45	315.09	1B
315.09	316.60	1BA SANDY MUDSTONE GOUGE
316.60	343.50	1BA SANDY MUDSTONE
343.50	361.20	1AA CARBONACEOUS ARGILLITE
361.20	376.77	1AC CONGLOMERATE
376.77	390.40	MCDAME LIMESTONE UNIT 2
390.40	396.24	1AC CALCAREOUS SANDSTONE / CONGLOMERATE
396.24	402.85	1AA CARBONACEOUS ARGILLITE
402.85	409.00	MCDAME LIMESTONE UNIT 2
409.00	411.91	LOWER ZONE MASSIVE SULPHIDE
411.91	420.13	MCDAME LIMESTONE RECRYSTALLIZED LIMESTONE
420.13	423.60	MCDAME LIMESTONE RECRYSTALLIZED LIMESTONE
423.60	426.72	MCDAME LIMESTONE UNIT 5
426.72		END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
2.00	32.00	<b>2AP SILTSTONE / SANDSTONE</b> Dark grey laminated siltstone, flaggy parting, with light grey fine to medium grained sandstone deformed thin beds to 5cm and lenses (small scale soft sediment deformation). Average bedding @ 70 to core axis, occasionally wavy. Poker chip core, commonly has hematite on fractures. Poor to moderate recovery ( % over entire unit). 10cm rusty quartz vein @ 12.2m, irregular contact approx 15 to core axis. -20.6-27.5m: Core broken and rubbly with sections of gouge and poor recovery. Possible fold (?) as bedding to core angle flattens to 35 degrees to core axis @ 23.9m.	2AP							
32.00	42.67	<b>2AP FAULT ZONE</b> Gouge - rubble zone with 27% recovery. Rubble consists of siltstone and sandstone. The zone is likely still in Unit 2AP. Bedding @ 34m is 75 to core axis.	2AP							
42.67	82.30	<b>NO RECOVERY</b>	2AP (?)							
82.30	94.30	<b>2AP SANDSTONE</b> Upper 2.5m is sandstone / siltstone with minor quartz vein rubble and gouge (27% recovery). From 84.84-85.34 is medium grey, fine grained competent sandstone, strongly calcareous, containing 8% quartz - calcite veinlets (to 1cm) @ 35 to core axis. 1% pyrite clots in the sandstone. The lower 9m is again rubbly and broken with 15% recovery.	2AP							
94.30	96.45	<b>2AS LAMINATED SILTSTONE</b> Dark grey, thinly laminated, carbonaceous siltstone. 15% quartz veining (4-20mm), trending @ 30 to core axis. 1% granular pyrite clots to 2cm within the veins. Bedding @ 70 to core axis.	2AS							
96.45	97.30	<b>EXHALITE - 0-ZONE</b> Pale grey to white, fine grained, finely laminated chert laminations @ 60 to core axis. 5% cross cutting quartz veinlets @ 35 to core axis with millimeter displacements along veins. 1% finely disseminated pyrite and small clots in veins and bedding parallel. Sharp lower contact @ 55 to core axis with 20cm quartz vein.	OZP							

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From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
97.30	102.30	<b>2AS LAMINATED MUDSTONE</b> Medium to dark grey, thinly laminated mudstone with minor silty laminae. Quartz +/- calcite veining abundant (35%) at various orientations from 45 to 60 to core axis, cross-cutting and bedding parallel. Brecciation along vein margins with inclusions of mudstone fragments within the veins. Trace disseminated pyrite in the mudstone and 1-2% small fine grained pyrite clots along vein margins and irregular stringers in the veins. At 99.64m, there is an interesting magenta-colored mineral, soft, which rims opaque quartz. Lower contact is quartz veined and the beginning of carbonaceous argillite.	2AS							
102.30	113.30	<b>2AA CARBONACEOUS ARGILLITE</b> Dark grey to black, thinly laminated, pyritiferous, carbonaceous argillite with trace to 1% galena veinlets, sub-parallel to bedding (75 degrees to core axis). After 70cm of irregular quartz veining from 106.4 - 107.1m, the rock contains thin calcareous beds and 20% quartz - calcite veins. 110.9 - 113.3m has 20% fine grained pyrite laminae. Broken, quartz veined lower contact. Unit broken - quartz veined intervals are the only competent zones, which are narrow. <b>105.60-106.20 2AA CARBONACEOUS ARGILLITE</b> Sample of fractured, contorted carbonaceous argillite, with 2% galena + sphalerite veinlets to 3mm, sub-parallel to laminations @ 75 to core axis. Very fine grained pyrite as small clots in quartz-calcite veins and rimming galena veinlets.	2AA	139545	105.60	106.20	0.05	70.80	1.70	1.18
113.30	114.95	<b>NO RECOVERY FAULT ZONE</b> Possible fault zone with gouge washed away (?) <5% recovery of small chips of pyrite-rich mudstone and quartz.	NR							
114.95	147.70	<b>1B SANDSTONE / MUDSTONE / CONGLOMERATE</b> Variable unit consisting of light grey laminated to massive sandstone, lesser dark grey laminated mudstone and conglomerate beds. Occasional graded beds, fining upward. Sandstone and conglomerate intervals are competent. Mudstone and quartz veined intervals often broken.								

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From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		<p>114 95-116 80 SANDSTONE Moderate foliation developed at 50 to core axis with small pressure shadows around coarse sand grains. Foliation intensity decreases downhole. 10% quartz - calcite veins to 10cm @ 20 to 60 to core axis. 1% late pyrite fracture fillings and foliation parallel veinlets. Faulted lower contact @ 60 to core axis.</p> <p>116 80-117 60 GOUGE ZONE FAULT ZONE Graphitic gouge with 25% recovery. Broken over contact.</p> <p>117 60-120 50 MUDSTONE Contorted mudstone - possible crag (?) fold adjacent to fault. Fold nose @ 118.8m where laminations are parallel to core axis.</p> <p>120 60-147 70 SANDSTONE / CONGLOMERATE Interval consists of mainly competent light gray, medium grained massive sandstone with conglomerate beds containing preferred clast fabric @ 70 to core axis which grade into sandstone, fining upward. One calcareous bed @ 133.8m. 12% quartz - calcite veining from 10 to 75 to core axis. Traces of galena, pyrite and arsenite in veins. Disseminated pyrite also within the conglomerate matrix. This could possibly be Unit 2AC (?) except for the abundance of conglomerate and the lack of calcareous sandstone. Siliceous, brecciated zone (thin exhalite?) from 147.0-147.7m at the lower contact with carbonaceous argillite. Broken lower contact.</p>	1B							
147 70	161.45	<p>2AA CARBONACEOUS ARGILLITE Possible repeat of Unit 2AA? Dark grey to black, moderate to strongly carbonaceous argillite. The upper 5m is strongly contorted, with 10% quartz - calcite - pyrite veining. Calcareous nodules at 149.8m are characteristic of Unit 2AA. The Discovery exhalite horizon, which normally marks the top of 2AA, was not intersected, but there is a narrow siliceous zone immediately above. Broken, incompetent core. The lower contact with 1B sandstone is fault gouge.</p>	2AA?							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
161.45	315.09	<p>161.45-176 80 SANDSTONE FAULT ZONE Graphitic gouge and sandstone rubble. 2% disseminated pyrite throughout the sandstone. Weak sericitization (associated with quartz veins?) from 172.0 to 173.2m. 10% quartz (arsenite) veining from 172.0-176.8m @ 40-55 to core axis. 55% recovery over entire interval. Gouge at upper contact and broken lower contact.</p> <p>176.80-216.53 SANDSTONE / CONGLOMERATE Top of Unit 1B contains the top of the first coarsening-upward cycle within the Earn Group characterized by an abundance of polymictic pebble conglomerates and medium to coarse grained massive to graded sandstone. The conglomerates occasionally fine upward into laminated siltstone; sequences vary in thickness from 50 cm to 2 meters. Reverse graded bed (?) from 209.1-210.0m. The majority of conglomerates are clast supported, and clasts, especially in the coarsest units, show a preferred orientation of about 70 degrees to core axis. Maximum clast size is 6cm - subrounded, black mudstone clasts which are generally confined to the basal portion of the conglomerate. The basal contact of the conglomerate beds is often irregular and possibly scoured. Moderately competent. Occasional weakly fractured zones with fractures from 10-30 to core axis. Rare quartz veining. At 212.4m: 1cm pyrite - quartz - sphalerite - galena veinlet @ 30 to core axis. 95% recovery. Gradational lower contact.</p> <p>216.53-229 20 LAMINATED SILTSTONE Dark grey, fine grained, laminated siltstone. Minor sandstone beds to 20cm and also as lenses within the siltstone. Flaser bedding visible. Moderately competent except from 222.0 - 224.0m which is broken. 4% quartz - carbonate veinlets to 2cm, with pyrite clots. Dis pyrite also as discontinuous laminae within the siltstone, parallel to bedding (avg 85 to core axis). 95% recovery.</p>	1B							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/mt	Ag g/mt	%Pb	%Zn
		<p>229.20-264.00 SANDSTONE / SILTSTONE Alternating massive medium grained sandstone beds (to 70 cm) and laminated siltstone (50/50). Minor conglomerate intervals, decreasing in grain size and frequency with depth. Competent rock with &gt;90% recovery. Broken intervals from 232.0-233.4m, 237.2-237.7m and 262.4-263.7m. Frequent wavy and flaser bedding structures seen in the siltstone intervals which also contain sandy lenses. Bedding averages 85 to core axis. One cm pyrite - sphalerite - boulangerite (?) veinlet @ 263.5m, 25 degrees to core axis. Trace pyrite as disseminations and in cross-cutting calcite veinlets.</p> <p>264.00-315.09 CALCAREOUS SANDSTONE / SILTSTONE 80% light grey to buff colored, massive, medium grained, calcareous sandstone, interbedded with 20% dark grey laminated to thinly bedded siltstone. Siltstone occasionally contains cross laminations. Strongly calcareous sandstone intervals are a distinct buff color, while the non-calcareous intervals are light to medium grey. Five, fining upward conglomerate units from 276.0-277.1m, 304.1-304.5m, 307.85-308.0m, 308.8-309.3m, and 309.6-310.3m. 1% bedding parallel quartz - calcite - pyrite stringers, concentrated in the finer grained intervals. Competent core, good recovery. Minor low angle fracturing @ 5-20 to core axis. - 270.1-270.5m: Crumbly core (sandstone) with cross-cutting quartz - pyrite stringers, 20-50 to core axis. Py blebs in quartz and in adjacent sandstone.</p>								
315.09	316.60	1BA SANDY MUDSTONE GOUGE Pyritic sandstone / mudstone, weakly carbonaceous gouge. Sharp upper contact @ 60 to core axis, lower contact broken. 50% recovery.	1BA							
316.60	343.50	1BA SANDY MUDSTONE Transitional between Unit 1B sandstones and Unit 1A shales. Medium to dark grey, laminated to thickly bedded mudstone with interbedded calcareous sandy beds. 1 - 30	1BA							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/mt	Ag g/mt	%Pb	%Zn
		<p>cm thick. Bedding to core axis shallows downhole, from 85 degrees @ 317, to 68 degrees @ 336m, then steepens to 73 @ 343m. 1% finely disseminated pyrite throughout the mudstones and clots in quartz - calcite stringers @ 45 to core axis. Less competent core than Unit 1B. Intermittent carbonaceous mudstone rubble intervals (321.6-323.5m, 329.6-331.5m, 332.6-334.3m, and 340.0-341.0m). 319.05-319.35 VEIN Sampled interval of 5 cm pyrite - sphalerite - quartz - calcite vein @ 20 to core axis. Banded sulphides, moving from the margins to the centre are: quartz - calcite, coarse, euhedral pyrite cubes to 1cm, coarse red-brown sphalerite to 5mm and filling the open space cavity is euhedral quartz to 6mm. 40% pyrite, 20% sphalerite, trace galena, 30% quartz, 10% calcite.</p>		139558	319.05	319.35	0.13	27.20	0.37	4.27
343.50	381.20	1AA CARBONACEOUS ARGILLITE Dark grey to black, moderate to strongly carbonaceous argillite; massive to thinly laminated. Intermittent zones of calcite - filled fractures and cross-cutting stringers (3%) with clots of pyrite. 2% bedding parallel siliceous bands (to 5cm) with abundant finely disseminated pyrite. Upper contact is gouge to 344.7m. Lower contact with Unit 1AC is broken. 60% recovery of broken chips and some gouge.	1AA							
381.20	376.77	1AC CONGLOMERATE Heterolithic conglomerate unit consisting of sub-angular to sub-rounded clasts of calcareous sandstone, mudstone and siltstone. Clast supported @ the top of the unit, gradational down section to matrix supported. Clasts to 10cm in a matrix of dark grey mudstone. The conglomerate intervals are interbedded with contorted, laminated siltstone and calcareous sandstone beds (calcareonite) to 20cm. Good recovery (80%) but broken. The calcarenite beds are the most competent. 2% pyrite as disseminations within the sandstone intervals and within siliceous nodules / clasts. Trace cpy. Core angles flatten to a fold nose @ 365m. Rare veining. Sharp lower contact with brecciated McDame limestone @ 50 to core axis.	1AC							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
376.77	390.40	MCDAME LIMESTONE UNIT 2 376.77-377.15 MOSAIC BRECCIA Mosaic breccia consisting of limestone + snail casts in a calcite matrix. Frequent carbonaceous stylonites. 377.15-378.50 CRACKLE BRECCIA PACKSTONE Packstone crackle breccia with 25% irregular calcite veining with margins often bounded by stylonites. 378.50-379.54 RUBBLE BRECCIA Rubble breccia and gouge with limestone and minor Eam clasts in a dark grey, muddy matrix. 379.54-390.40 RUDSTONE Stromatopora with minor amphipora, thamnopora and rugose corals (+ thin shelled brachiopods?). 10cm of Euramphipora @ 389.65m. Abundant rugose (Tryplasma) @ 386m. Minor stylonites; 10% irregular calcite stringers. Sharp lower contact @ 65 to core axis.	MLS2							
390.40	396.24	1AC CALCAREOUS SANDSTONE / CONGLOMERATE Possible channel fill within the limestone. Looks like alternating pulses of sedimentation / scour / sedimentation. Core broken below 395.3m. 390.40-392.40 CALCAREOUS SANDSTONE / CONGLOMERATE Bleached, altered, pale creamy gray-colored medium grained calcareous sandstone / conglomerate. Chaotic, sub-rounded clasts of chert, sandstone and siltstone (clasts also bleached to buff and cream color). Prominent calcite fractures @ 35 to core axis. 4% disseminated and clots of fine grained pyrite rimming clasts. Gradational contact with less altered rock below. 392.40-396.24 CALCAREOUS SANDSTONE / CONGLOMERATE Similar to above interval, but less bleached / altered. Clasts sub-angular to sub-rounded, more readily identifiable. One large conglomerate clast (18 unit), 5cm @ 394.15m. 1% fine grained pyrite as disseminations and blebs within calcite clots. Lower	1AC							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		contact broken.								
396.24	402.85	1AA CARBONACEOUS ARGILLITE Could be graphitic Unit 1AC - as unit is moderately calcareous. 1% disseminated pyrite. Upper contact broken, rubbly. No core > 4cm. 65% recovery. Sharp? (broken) lower contact with limestone.	1AA							
402.85	409.00	MCDAME LIMESTONE UNIT 2 402.85-403.50 FLOATSTONE CRACKLE BRECCIA Sharp, unconformable upper contact @ 55 to core axis. Crackle brecciated amphipora / euramphipora (minor massive stromatopora) floatstone. This could be either Unit 2 or Unit 4 ?? (both contain euramphipora). Pervasive stylonites. 20% calcite veining, up to 10cm, with irregular contacts (40-55 degrees to core axis). Discontinuous stringers of fine grained pyrite (+ minor galena) may occur along vein margins. Four slip planes with slickensides or smeared pyrite @ 402.83 (55 to core axis), 403.25 (40 to core axis), 403.3 (30 to core axis) and 403.5 (50 to core axis - lower contact). 403.50-405.00 RECRYSTALLIZED LIMESTONE - RUBBLE BRECCIA Sharp upper contact @ 55 to core axis, marked by a slip plane and 2 cm of massive pyrite - sphalente - galena. The lower contact of the sulphide band is sharp @ 75 to core axis. Rubble breccia (5% pyrite replacing fragments) intercalated with completely recrystallized limestone (now bleached yellowish-white, coarsely crystalline calcite). 405.00-406.50 RECRYSTALLIZED LIMESTONE Similar to previous interval. Rubble breccia from 405.14 to 405.4m. 406.50-408.00 RUBBLE BRECCIA RECRYSTALLIZED LIMESTONE Rubble breccia with abundant stylonites. 3% fine grained pyrite as irregular stringers along stylonites and disseminated throughout the breccia. Limestone fragments to 5 cm in a brownish-grey, calcareous matrix.	MLS2?	139546	402.85	403.50	<5ppm	3.40	0.06	0.08
				139547	403.50	405.00	0.01	12.30	0.10	0.32
				139548	405.00	406.50	<5ppm	2.10	<0.01	0.06
				139549	406.50	408.00	0.03	1.10	<0.01	0.05

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn	
		408.00-409.00 RUBBLE BRECCIA RECRYSTALLIZED LIMESTONE Similar to previous interval. 50% rubble breccia containing both medium grey limestone fragments and bleached recrystallized limestone. 3% fine grained pyrite as irregular stringers along stylolites and small clots within the breccia matrix. Trace sphalerite @ 408.92, just above the gradational lower contact (over 10cm) with the lower zone massive sulphide.		139550	408.00	409.00	0.01	2.00	<0.01	0.02
409.00	411.91	LOWER ZONE MASSIVE SULPHIDE 409.00-410.00 LOWER ZONE BASE METAL MASSIVE SULPHIDE Massive sulphides consisting of 30% pyrite, 20% sphalerite, 20% pyrrhotite, 7% galena and 2% chalcopyrite in quartz - carbonate gangue. Vague mineral zonation of pyrite cores altered to pyrrhotite (with associated chalcopyrite rimming pyrrhotite), surrounded by later dark red-brown sphalerite. Coarsely crystalline galena often rims sphalerite clots. Slightly vuggy, with euhedral quartz to 1cm in the open spaces. 5% of the carbonate is iron carbonate.	LZ	139551	409.00	410.00	0.04	127.20	2.09	10.80
		410.00-411.00 LOWER ZONE BASE METAL MASSIVE SULPHIDE Increased sphalerite + galena, decreased pyrrhotite and pyrite. 35% sphalerite, 30% pyrite, 10% galena, 5% pyrrhotite, and trace chalcopyrite in a gangue of 10% quartz, 5% carbonate. Vague compositional sulphide banding at 410.0m of 70 to core axis. Open space cavities at 410.17 and 410.62m. Sharp lower contact with limestone @ 25 to core axis - slip surface with a coating of pyrite.		139552	410.00	411.00	0.05	222.80	3.65	27.14
		411.00-411.48 MCDAME LIMESTONE Upper 20 cm is dark grey, partially dolomitized crackle breccia. Lower 48 cm is bleached, recrystallized limestone. Irregular sulphide pod at the dolomite - bleached limestone contact (stylolite) of pyrite - sphalerite - galena. Sharp, irregular lower contact with massive sulphide.		139553	411.00	411.48	0.03	14.00	0.17	1.35

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From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn	
		411.48-411.91 LOWER ZONE BASE METAL MASSIVE SULPHIDE Vuggy, massive sulphide consisting of 40% pyrite, 30% sphalerite, 5% galena in 25% carbonate - quartz gangue. Lower 10 cm shows good replacement of limestone fragments by pyrite. Sharp lower contact @ 65 to core axis with bleached limestone.		139554	411.48	411.91	0.27	715.30	11.68	11.88
411.91	420.13	MCDAME LIMESTONE RECRYSTALLIZED LIMESTONE Almost completely recrystallized to coarse calcite. Pale yellowish-white. Narrow intervals which are only partially recrystallized are light grey with diffuse fossils (possible amphipora @ 417.0m, 417.6m. Moderate stylolites. 2% pyrite as euhedral crystals to 8mm and fine grained lensed along stylolites. - 416.0m: irregular clast of pyrite + sphalerite. 411.91-413.00 RECRYSTALLIZED LIMESTONE Pale yellowish-white, recrystallized limestone (coarsely crystalline calcite); frequent stylolites. Mosaic breccia from 412.3 - 412.6m where medium grey dolomitized limestone fragments have replacement (?) rims of calcite. Matrix has a faint green color. 3% fine grained pyrite concentrated along stylolites. 418.75-419.35 RECRYSTALLIZED LIMESTONE Bleached, recrystallized limestone with increased fine grained pyrite + sphalerite concentrated along stylolites (1-3cm pod of pyrite - sphalerite at 419.0m). Also mm-sized pyrite cubes within the limestone. 419.80-420.13 MOSAIC BRECCIA 30% calcite cementing angular, partially dolomitized limestone clasts.	MLS	139555	411.91	413.00	<5ppm	2.20	<0.01	0.06
				139556	418.75	419.35	0.01	2.10	<0.01	0.36
420.13	423.60	MCDAME LIMESTONE RECRYSTALLIZED LIMESTONE Similar to previous interval, but decreased sulphides and stylolites. Irregular, sharp lower contact with non-recrystallized limestone. - 421.3-421.55m: Possible foliated amphipora @ 80 to core axis. - 422.3-422.7m: 10% sub-angular clasts of medium grey, partially dolomitized limestone (to 2cm), floating in a matrix	MLS	139557	420.13	420.38	0.04	27.10	0.37	16.48

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From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		of white, coarsely crystalline calcite 420.13-420.38 LOWER ZONE BASE METAL MASSIVE SULPHIDE Narrow massive sulphide interval consisting of 25% fine grained pyrite, 20% red-brown sphalerite, 15% calcite and 40% quartz with 30% limestone. Upper contact sharp, slightly irregular @ 50 to core axis (possibly following a stylolite) and the lower contact @ 80 to core axis.							
423.80	426.72	MCDAME LIMESTONE UNIT 5 Amphipora floatstone, where the amphipora are flattened and stretched along foliation @ 75 to core axis. 15% calcite - filled fractures and veins @ 30 to core axis. Trace pyrite.	MLS5?						

\*\*\* END OF HOLE \*\*\* 426.72

HOLE NO: SSD-97-4

SECTION:43864N

GRID:DISC. N

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : DISC. N  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC  
 HOLE TYPE : DIAMOND

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	137.16	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOOR 3000		
Date started:	27/6/97		
Date finished:	29/6/97		
Logged by:	L. LEWIS		
Relogged by:			
Sampled by:	C. AKELAITIS		

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43864.31mN 25209.18mE 1194.35RL

Pre-collar depth: Final depth: 137.16  
 Purpose of hole: INFILL BETWEEN DISC &  
 SILVER CK  
 Hole status: DRILLED TO DEPTH  
 Comments: BRECCIATED LZ AT  
 UNCONFORMITY

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

## \*\*\* SURVEY DATA \*\*\*

Survey Method: NO TESTS

Depth	Azimuth	Inclination
0.00	0.00	-90.00

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
16.90	29.96	13.06
82.25	87.50	5.25
98.10	98.45	0.35
112.00	113.50	1.50
115.88	116.10	0.22

## \*\*\* SUMMARY LOG \*\*\*

0.00 2.13 OVERBURDEN  
 2.13 17.90 1B SANDSTONE  
 17.90 28.96 1B SANDSTONE VEINED  
 28.96 33.53 1B SANDSTONE  
 33.53 61.00 1B SANDSTONE /  
 SILTSTONE  
 61.00 70.40 1BA SILTSTONE /  
 SANDSTONE  
 70.40 83.25 1AA CARBONACEOUS  
 ARGILLITE  
 83.25 86.50 LOWER ZONE  
 86.50 96.25 MCDAME LIMESTONE  
 BRECCIATED  
 96.25 98.10 MCDAME LIMESTONE UNIT  
 2  
 98.10 98.45 LOWER ZONE MASSIVE  
 SULPHIDE  
 98.45 106.80 MCDAME LIMESTONE UNIT  
 2  
 106.80 112.00 MCDAME LIMESTONE UNIT  
 3  
 112.00 113.50 LOWER ZONE PYRITE  
 MASSIVE SULPHIDE  
 113.50 115.88 MCDAME LIMESTONE UNIT  
 3 MOSAIC BRECCIA

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

HOLE NO: SSD-97-4

SECTION: 43864N

GRID: DISC. N

115.88	116.10	LOWER ZONE PYRITE MASSIVE SULPHIDE
116.10	117.50	MCDAME LIMESTONE UNIT 3 CRACKLE BRECCIA
117.50	119.60	MCDAME LIMESTONE RUBBLE BRECCIA
119.60	137.16	MCDAME LIMESTONE UNIT 5 BRECCIATED
137.16		END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
0.00	2.13	OVERBURDEN								
2.13	17.90	1B SANDSTONE Light grey, medium to coarse grained sandstone, weak to moderately foliated (55-65 to core axis). Rare conglomerate beds (@ 9m, 28m) that are also moderately foliated. Intermittant laminated siltstone interbeds. 1-3% disseminated pyrite throughout the sandstone (more than the typical, massive sandstone seen elsewhere). 78% recovery. Surface weathering producing strong ferric oxides-oxide staining down to 11.5m. Overall, the core is broken and rubbly with no piece > 10cm. Sharp, cross-cutting lower contact with sulphide vein @ 25 to core axis. 125 degree angle between sandstone bedding and vein. - 11.6 - 12.2m: siltstone gouge broken upper and lower contacts. * 6.90-17.90 SANDSTONE / SILTSTONE Alternating light grey, medium grained sandstone with weak to moderate foliation, and dark grey moderately foliated siltstone. 2% 5mm pyrite grains throughout siltstone matrix. 1cm roughly round pyrite nodule with quartz pressure shadow @ 16.95m.	1B	140099	16.90	17.90	0.03	3.50	0.06	0.65
17.90	28.96	1B SANDSTONE VEINED Sandstone, as described above, with 25% quartz - massive sulphide veining. These clearly cross-cut bedding / foliation and average 25 degrees to core axis. The veins are sphalerite - galena rich with considerably less pyrite as is seen in the Lower Zone sulphides. Galena decreases with depth. In drill hole 82-19, similar veins were logged as exhalite horizons, which is difficult to confirm. Also, these occur within the 1B sandstone, which lies stratigraphically below Unit 2A (host of the exhalite horizons). 17.90-18.15 VEIN MASSIVE SULPHIDE Quartz - massive sulphide vein of 35% pyrite, 30% sphalerite, 15% galena and 20% quartz. Coarsely intergrown black sphalerite and galena. Sharp upper contact @ 25 to core axis, cross-cuts foliation / bedding in sandstone. Angle between foliation and vein	1B	139559	17.90	18.15	0.22	1619.20	29.43	33.00
				139560	18.15	18.35	0.03	51.70	1.24	2.98

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		is approximately 110 degrees. Broken lower contact. 18.15-18.35 SANDSTONE Narrow interval of crumbly, altered coarse grained ss; 6% pyrite disseminated throughout, minor oxide staining on fractures @ 55 to core axis. 18.35-18.90 VEIN MASSIVE SULPHIDE Quartz - massive sulphide vein of 30% pyrite, 30% sphalerite, 10% galena and 20% quartz. Rubble and sulphide sand. Sharp upper contact @ 40 to core axis. Sharp lower contact @ 45 to core axis. 18.90-19.20 SANDSTONE Bleached, foliated sandstone, foliation @ 55 to core axis. 19.20-19.60 VEIN MASSIVE SULPHIDE Sphalerite-galena-rich vein of 35% sphalerite, 30% pyrite, 20% galena and 15% quartz. Sphalerite is both red-brown and black, coarsely crystalline. Sharp upper contact @ 50 to core axis, conformable with foliation. Sharp lower contact @ 30 to core axis, cross-cutting foliation. 19.60-21.40 SILTSTONE Brown weathering, medium to coarse grained siltstone, moderately foliated. <= 1cm pyrite nodules with quartz pressure shadows. - 20.0 - 20.8m: sandstone with fine siltstone interbeds. Bedding 52 to core axis. Frequent irregular calcite veinlets (1cm), 5 degrees to core axis. - 20.8 - 21.4m: medium to coarse grained sandstone, moderately foliated. 1% pyrite concentrated along siltstone beds. 21.40-23.20 SANDSTONE / SILTSTONE Medium to coarse grained sandstone with minor interbedded siltstone. Moderate foliation @ 65 to core axis. Gouge from 22.53 - 22.67m and 22.86 - 23.20m. 1-2% pyrite, tr galena, 1% quartz veinlets @ 35 to core axis which appear to post date the gouge. 23.20-23.88 VEIN MASSIVE SULPHIDE								
				139561	18.35	18.90	0.11	556.00	11.35	45.40
				139562	18.90	19.20	0.02	24.50	0.50	0.89
				139563	19.20	19.60	0.12	1282.90	32.03	35.80
				140100	19.60	21.40	0.06	1.40	0.01	0.07
				140101	21.40	23.20	0.06	16.00	0.42	0.26
				139564	23.20	23.88	0.14	868.20	19.25	39.60
				140102	23.88	25.03	0.06	4.90	0.04	2.42

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/mt	Ag g/mt	%Pb	%Zn
		Sphalerite galena-rich vein with 35% sphalerite, 20% pyrite, 10% galena, 15% quartz and 20% sandstone. Upper contact with crumbly, fractured sandstone is broken; sharp, cross-cutting lower contact @ 40 to core axis. Fractured sandstone below has a sphalerite stringer sub-parallel to core axis @ 5 degrees.								
		23 88-25 03 SANDSTONE Medium to coarse grained, light grey sandstone. Elongate clasts define moderate foliation (40 degrees to core axis). 1 red-brown sphalerite stringer, 4mm thick, 55 to core axis, with tr. pyrite + galena. Trace - 1% pyrite throughout the sandstone matrix. Fractures within the lower 10cm are iron oxide stained.								
		25 03-26 20 SANDSTONE Moderately foliated, medium to coarse grained, light grey sandstone, moderately fractured, tr. pyrite within the sandstone matrix. - 25.81 - 25.91m: 3cm wide, 2mm thick sphalerite-rich bleb. Sharp contact with sandstone, 90% sphalerite, 5% pyrite, 1% galena, and 4% quartz.		140103 139565	25 03 26 20	26 20 26 50	0.05 0.20	10.40 853.50	0.32 3.05	0.33 27.90
		26 20-26 50 VEIN MASSIVE SULPHIDE Increased quartz as vuggy intergrowths of euhedral crystals (open space-fill?). Banding within the vein on a centimeter scale @ 25 to core axis. 20% pyrite, 20% sphalerite, 5% galena and 55% quartz. Sharp upper contact @ 20 tca; broken lower contact.								
		26 50-27 29 SANDSTONE Moderately foliated, light grey, medium to coarse grained sandstone, 2% disseminated pyrite throughout. Broken and fractured iron oxide stained core. Intermittent sphalerite - pyrite - quartz - calcite - galena stringers, 1-5mm thick, oriented @ 15 and 45 degrees to core axis.		140104 139566	26 50 27 29	27 29 27 49	0.12 0.09	17.90 173.70	0.38 4.02	3.93 27.70
		27 29-27 49 VEIN MASSIVE SULPHIDE Narrow sphalerite - rich vein with 50% sphalerite, 30% pyrite, 5% galena and 15% quartz. Sharp upper contact @ 20 tca; broken lower contact. Rubby core.		140105	27 49	28 30	0.03	2.20	0.04	0.23

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/mt	Ag g/mt	%Pb	%Zn
		27 49-28 30 SANDSTONE Light grey, moderately foliated (60 to core axis), medium to coarse grained sandstone. Rare black shale rip-up clasts, now elongate parallel to foliation. 1-3% quartz - pyrite stringers, 1-2mm thick, @ 30 to core axis.								
		28 30-28 90 VEIN MASSIVE SULPHIDE Two cross-cutting sphalerite-rich veins, separated by 10cm of sandstone. 35% sphalerite, 20% pyrite, 5% galena, 20% quartz and 20% sandstone. Sharp upper contact @ 20 to core axis and approximate lower contact @ 15 to core axis.		139567	28 30	28 96	0.21	327.40	4.35	26.10
28 96	33 53	1B SANDSTONE Light grey, massive, medium to coarse grained sandstone. Moderately fractured, fractures trending @ 20 degrees and 65 degrees to core axis. Lacks mudstone interbeds. 3% disseminations and clots of pyrite in quartz stringers. Sharp conformable lower contact @ 60 to core axis with gouge interval. 28 96-29 96 SANDSTONE - 28.96 - 29.06m: Medium grey, medium to coarse grained, moderately foliated sandstone, with 5% disseminated pyrite. - 29.06 - 29.75m: Similar lithology to above, but strongly fractured, rubby core. One calcite - pyrite - galena - sphalerite stringer, 6mm thick, cross cuts foliation and is offset twice. - 29.75 - 29.96m: Sandstone, similar to description at the top of the interval. Minor interbedded siltstone. 5% disseminated pyrite.	1B	140106	28 96	29 96	0.07	3.60	0.07	0.03
33 53	61 00	1B SANDSTONE / SILTSTONE Alternating light grey, fine to medium grained sandstone beds, 1-40 cm thick, and dark grey, massive to thinly laminated siltstone (60% sandstone - 40% siltstone). Minor graded beds and wavy laminations. Bedding averages 65 degrees to core axis. Siltstone intervals are moderately fractured with sections of strongly fractured rock. 2% disseminated pyrite. Lower contact is gouge.	1B							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		- 33.53-34.25m: gouge (conformable to bedding). - 39.4-39.5m: gouge (conformable to bedding) - 50.6-50.9m: gouge with 7% disseminated pyrite (conformable to bedding) - 51.5-51.7m: gouge (conformable to bedding). - 52.85-52.95m: gouge (unconformable, 50 degrees to core axis). - 54.45-54.75m: sandstone with 10% quartz-filled fractures + 10% pyrite as small euhedral crystals in irregular stringers and disseminations throughout. - 59.9-60.5m: soft sediment deformation / slumping of sandstone lenses within the siltstone. 10% quartz - fe-carbonate clots and irregular veining.								
61.00	70.40	18A SILTSTONE / SANDSTONE Laminated siltstone with 15% thin, light grey sandstone interbeds. Poker chip core which breaks easily along bedding (50 degrees to core axis). Trace disseminated pyrite. Lacks veining. Broken lower contact with gouge. - 61.0-61.5m: gouge	18A							
70.40	83.25	1AA CARBONACEOUS ARGILLITE Dark grey to black, thinly laminated to massive, weakly calcareous, carbonaceous argillite. Frequent gouge intervals. Incompetent rock, no piece >10 cm. Competency increases below 80.8m (due to weak silicification?). Frequent hairline fractures and calcite-filled tension gashes along which rock easily breaks into small chips. Increased graphite towards lower contact. Bedding @ 60 to core axis. 1% disseminated pyrite. Gradational lower contact over 20 cm with rubble breccia. - 70.4-70.8m: gouge - 74.1-74.5m: gouge - 71.6-71.9m: gouge - 78.2-78.33m: gouge - 73.6-73.75m: gouge - 78.8-78.9m: gouge 82.25-83.25 CARBONACEOUS ARGILLITE Hanging wall sample. Black, strongly graphitic argillite, moderately broken. Trace to 1% pyrite blebs, concentrated along gradational lower contact with the rubble breccia.	1AA	139568	82.25	83.25	0.04	22.00	0.59	0.38

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
83.25	86.50	LOWER ZONE Syn- to post-ore deposition, rubble breccia with sulphide clasts (pyrite + minor sphalerite, galena), mixed in with shale and limestone clasts in a pyritic, dark grey clastic matrix.  83.25-84.25 LOWER ZONE RUBBLE BRECCIA Heterogeneous mix of sub-angular to sub-rounded clasts of graphitic argillite (1AA), limestone and sulphides (mainly pyrite, minor sphalerite + galena) in a fine grained, pyritic, weakly calcareous matrix. Syn- to post-ore breccia has possibly remobilized the sulphides and maybe explains the massive sulphide veins occurring in the 1B sandstone above?? 15% pyrite (fine grained within the matrix and clasts to 4 cm), 1% sphalerite (clasts to 5mm) and 1% galena.  84.25-85.25 LOWER ZONE RUBBLE BRECCIA Similar description as previous interval. Increased sphalerite as larger clasts and also within the matrix (late sphalerite?). Either a large limestone fragment or at the margin of brecciation from 84.75 - 85.25. Sharp, irregular contact between the limestone and breccia, sub-parallel to core axis.  85.25-86.50 LOWER ZONE RUBBLE BRECCIA Rubble breccia, as described above. Decreasing sulphide clasts with depth. Two large limestone clasts (10 & 14 cm). Low angle slickenside surface from 86.1-86.5 @ 10 to core axis. 15% pyrite, 1% sphalerite, trace galena. Irregular, sharp lower contact with limestone below.	LZ	139569	83.25	84.25	0.21	186.50	3.69	6.58
				139571	84.25	85.25	0.16	107.10	2.62	4.34
				139572	85.25	86.50	0.11	89.30	1.84	2.79
86.50	96.25	MCDAME LIMESTONE BRECCIATED Strongly disrupted interval of limestone. 30% partially dolomitized (dark grey, medium crystalline). Less than 10% original texture / fossils remain. Variable breccia types, including crackle, mosaic, and rubble breccia. 20% coarse calcite cementing breccia and as irregular veins. 4% fine grained pyrite as elongate irregular clots along calcite-filled fractures, replacing limestone clasts in breccia.								

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		and along stylolites. 96.50-87.50 MCDAME LIMESTONE Footwall sample. 10% is brecciated - both mosaic breccia with calcite cement and rubble breccia. Massive stromatoporoid + amphipora floatstone. 2% pyrite as pods and rimming clasts.	MLS1	139573	86.50	87.50	<5ppm	3.30	0.35	0.01
96.25	98.10	MCDAME LIMESTONE UNIT 2 Unbrecciated interval with good fossils. Massive stromatoporoid facies with frequent Thamnopora. Scattered rugose corals - Tryplasma. Irregular upper contact with mosaic breccia above. Irregular sharp lower contact with narrow Lower Zone massive sulphide.	MLS2							
98.10	98.45	LOWER ZONE MASSIVE SULPHIDE  98.10-98.45 LOWER ZONE PYRITE MASSIVE SULPHIDE Narrow massive sulphide interval consisting of 50% coarse grained pyrite, 15% galena as coarse grained clots within the pyrite, often with calcite pods rimming the galena. Irregular lower contact along stylolite.	LZ	139574	98.10	98.45	0.11	1844.90	31.95	0.14
98.45	106.80	MCDAME LIMESTONE UNIT 2 98.45-100.80 FLOATSTONE Unbrecciated, fossiliferous limestone containing amphipora, massive stromatoporoid and rugose corals. Irregular pyrite stringer (3 cm) @ 99.3m, trending approximately 30 to core axis and escapes along low angle fractures. 100.80-106.80 CRACKLE MOSAIC BRECCIA Brecciation ranges from crackle (40%) to mosaic (30%) to rubble breccia (20%). Moderate stylolites. Competent core with intermittent breaks along fractures trending @ 30 to core axis. 2% fine grained pyrite rimming clasts within the mosaic breccia. Irregular lower contact.	MLS2							
106.80	112.00	MCDAME LIMESTONE UNIT 3 Top of Unit 3 is interpreted as the appearance of fine amphipora (<2mm diameter). 20% calcite as veins (5-45 to core axis) and cementing clasts in crackle and lesser	MLS3							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		mosaic breccia. Sharp, irregular lower contact with massive sulphide, approximately 30 to core axis.								
112.00	113.50	LOWER ZONE PYRITE MASSIVE SULPHIDE 112.00-112.65 PYRITE MASSIVE SULPHIDE ALTERED 20 cm and 10 cm zone of massive pyrite - galena, separated by 20 and 15 cm of bleached limestone. The contacts between the massive sulphides and limestone are sharp @ 35 and 70 to core axis. Fine grained pyrite is seen replacing limestone clasts within mosaic breccia. 50% pyrite, 5% galena, 1% sphalerite, 10% calcite and 35% limestone. 112.65-113.50 PYRITE MASSIVE SULPHIDE Massive sulphide zone consisting of 70% pyrite, 15% sphalerite, 5% galena and 10% calcite. 1% includes a silver-colored, metallic mineral, possibly arsenopyrite. Sphalerite clots are pitted and exhibit vague compositional banding. Sharp, irregular lower contact @ 80 to core axis.	LZ	139575	112.00	112.65	0.54	279.20	5.59	5.00
				139576	112.65	113.50	0.46	237.10	4.25	14.49
113.50	115.88	MCDAME LIMESTONE UNIT 3 MOSAIC BRECCIA Crackle to mosaic breccia with 2 prominent fractures @ 15 and 50 degrees to core axis.	MLS3							
115.88	116.10	LOWER ZONE PYRITE MASSIVE SULPHIDE  115.88-116.10 PYRITE MASSIVE SULPHIDE Sandy, incompetent, pyritic massive sulphide zone containing 75% pyrite, 15% sphalerite and 5% galena. Sharp, irregular upper and lower contacts.	LZ	139577	115.88	116.10	0.11	49.10	0.23	9.78
116.10	117.50	MCDAME LIMESTONE UNIT 3 CRACKLE BRECCIA Crackle breccia. 15% calcite matrix. Sharp lower contact @ 40 to core axis along stylolite.	MLS3							
117.50	119.60	MCDAME LIMESTONE RUBBLE BRECCIA Yellowish-grey, dolomitized rubble breccia. Vague clast outlines and clasts of calcite (often fractured or partially replaced). 5% disseminated pyrite. Sharp lower contact @ 40 to core axis following a stylolite.	MLS							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/mt	Ag g/mt	%Pb	%Zn
119.60	137.16	<p>MCDAME LIMESTONE UNIT 5 BRECCIATED</p> <p>The top 4m has densely packed, coarse amphipora (to 4mm in diameter), characteristic of the upper portion of Unit 5. Unit 4, if present, is likely not detectable due to the extensive brecciation of almost the entire McDame limestone. Euramphipora is present in this unit but is much thicker in diameter (2mm) than the very thin, tightly packed Euramphipora that is typical of Unit 4.</p> <ul style="list-style-type: none"> <li>- 119.6-125.45m: Crackle to mosaic breccia. Open space cavity @ 122.2m with euhedral, coarsely crystalline calcite to 2 cm.</li> <li>- 125.45-132.4m: Bleached and recrystallized. 3% pyrite replacing limestone adjacent to calcite veins and fracture fillings. Rubble breccia from 127.1-127.3m and 128.3-128.5m.</li> <li>- 132.4-133.7m: Crackle breccia, amphipora floatstone with possible stacyodes. Open space cavity @ 133.25m with calcite to 1 cm.</li> <li>- 133.7-136.0m: Dolomitized ls. Medium grey, medium crystalline, crackle breccia with minor mosaic breccia. Open space cavity @ 135m.</li> <li>- 136.0-137.16m: Dense packstone crackle breccia.</li> </ul>	MLS5?							

\*\*\* END OF HOLE \*\*\* 137.16



HOLE NO: SSD-97-5

SECTION: 44006

GRID: DISC. NORTH

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : DISC. NORTH  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 44003.59mN 25301.29mE 1172.23RL

Pre-collar depth: Final depth: 228.60

Purpose of hole: INFILL DISCOVERY NORTH ZONE

Hole status: DRILLED TO DEPTH

Comments: LOWER ZONE: 192.5 - 198.2M

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
67.06	56.00	-87.00
112.78	44.00	-87.00
158.50	49.00	-88.00
219.46	87.00	-89.00

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	228.60	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR 3000		
Date started:	29/6/97		
Date finished:	3/7/97		
Logged by:	L. LEWIS		
Relogged by:			
Sampled by:	C. AKELAITIS		

Material left in hole: 50' CASING LOST  
DOWN HOLE

Base of complete oxidation

Top of fresh rock:

Water first encountered:

Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
191.50	199.20	7.70

## \*\*\* SUMMARY LOG \*\*\*

0.00 16.76 OVERBURDEN  
 16.76 31.90 2AS SILTSTONE  
 31.90 32.90 FAULT ZONE EXHALITE  
 32.90 71.63 2AC SILTSTONE /  
 CALCARENITE  
 71.63 79.60 2A/1B SANDSTONE /  
 SILTSTONE  
 79.60 105.16 1B SANDSTONE /  
 CONGLOMERATE  
 105.16 107.60 FAULT ZONE 1B  
 SANDSTONE  
 107.60 136.00 1B SANDSTONE  
 136.00 172.35 1B SANDSTONE /  
 SILTSTONE  
 172.35 192.50 1AA CARBONACEOUS  
 ARGILLITE  
 192.50 198.20 LOWER ZONE MASSIVE  
 SULPHIDE  
 198.20 201.85 MCDAME LIMESTONE UNIT  
 1  
 201.85 228.60 MCDAME LIMESTONE UNIT  
 2  
 228.60 END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
0.00	16.76	OVERBURDEN								
16.76	31.90	2AS SILTSTONE Dark grey, massive to thinly laminated siltstone. Broken core - poor recovery. Broken lower contact. - 28.7-29.9m: Brecciated siltstone consisting of sub-angular fragments in a vuggy, dark grey, fine grained clastic matrix - syn-sedimentary breccia (?).	2AS							
31.90	32.90	FAULT ZONE EXHALITE Light greenish-grey, fine grained, weakly siliceous, phylitic-looking rock - possibly an altered exhalite horizon??. In the surrounding holes, this interval was logged as an exhalite, but it is not particularly cherty. The lower contact appears gradational (color gradually changes from light green-grey to dark grey). Rubby, broken core with poor recovery.	FZ							
32.90	71.63	2AC SILTSTONE / CALCARENITE Interbedded, dark grey siltstone (5mm - 10cm thick beds) and light grey, fine grained, calcareous sandstone or calcarenite (3mm - 5cm thick). Broken, rubby core with poor to moderate recovery. Frequent calcite-filled, contorted hairline fractures. Bedding 45 degrees to core axis. Trace finely disseminated pyrite adjacent to calcite stringers and disseminated in the siltstone. - 46.6-48.76m: Gouge - 48.76-50.21m: No recovery - 56.34-57.91m: No recovery - 64.1-65.33m: Graphitic gouge - 65.53-68.58m: No recovery - 70.17-71.63m: No recovery *Note: No Discovery Exhalite or Unit 2AA, Carbonaceous Argillite was intersected.	2AC							
71.63	79.60	2A/1B SANDSTONE / SILTSTONE Transitional unit. Stippled interval of light grey massive to thinly laminated or cross laminated fine to medium grained sandstone (2mm - 6cm), and dark grey, massive siltstone (3mm - 2cm thick). Poker chip core that breaks easily along bedding (57 degrees to core axis). Lower contact chosen when the siltstone interbeds disappear and into	2A/1B							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		massive sandstone. 71.63-72.54 GOUGE 73.00-74.60 GOUGE Lower contact parallel to bedding. 75.00-75.45 QUARTZ VEIN 50% buff white quartz vein (core broken) with 2% pyrite clots in the vein and along vein margins. 75.45-76.10 GOUGE Lower contact parallel to bedding.								
79.60	105.16	1B SANDSTONE / CONGLOMERATE Light grey, medium to coarse grained, massive to foliated sandstone with 15% conglomerate beds. Minor siltstone interbeds to 5cm, usually at the top of graded beds. Core is unusually broken for the typical 1B sandstone. Frequent gouge intervals have poor recovery. Minor cross-cutting quartz - pyrite veins @ 86.1m and 89.78m (20 degrees to core axis). Trace disseminated pyrite throughout. Bedding in the siltstone is 65 to core axis. Foliation in the sandstone is 50 to core axis. - Conglomerates @: 93.5-94.87m - fining upward sequence with a sharp basal contact. 95.12-96.7m - preferred orientation of flattened pebbles @ 70 to core axis. 101.5-103.5m - rubble conglomerate.	1B							
105.16	107.60	FAULT ZONE 1B SANDSTONE Sub-rounded pebbles in pyritic gouge. Broken upper and lower contact.	FZ							
107.60	136.00	1B SANDSTONE As described above, minus the conglomerate sequences. Very broken core (brittle fracturing) with frequent gouge zones. Minor siltstone interbeds. Bedding @ 60 degrees to core axis. Lower contact where siltstone interbeds increase to >10%. - 124.1-126.2m: Contorted sandstone with 10% quartz - pyrite filled fractures / tension gashes @ 5-30 to core axis. Brittle, broken core 133.33-135.03 GOUGE 40% recovery	1B							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
136.00	172.35	<b>1B SANDSTONE / SILTSTONE</b> Siltstone beds increase to up 50% as massive interbeds to 4cm alternating with light grey, fine grained sandstone, becoming more thinly laminated below 155.4m. Bedding is 80 degrees to core axis @ 150m. Poker chip core, breaks easily along bedding planes (chips are 5mm - 5cm). 2% cross-cutting quartz - calcite fractures @ 0-15 to core axis. Trace - 1% disseminated pyrite (minor clots to 2cm associated with veining (eg. 154.0m). - 154.3-155.4m: pyritic siltstone gouge with 3% quartz rubble. Bedding angle flattens below gouge zone to 75 to core axis @ 158.9m. - Intermittant calcareous beds below 168m. - 168.0-172.35m: soft sediment deformation; lenses and pods of sandstone within siltstone beds. Contorted bedding. Sharp lower contact @ 70 to core axis with graphitic argillite (Unit 1A).	1B							
172.35	192.50	<b>1AA CARBONACEOUS ARGILLITE</b> Black, strongly carbonaceous argillite, massive to thinly laminated. 2% pyrite as disseminations, thin laminations parallel to bedding and as nodules in calcite lenses and pods. Blocky core. Bedding @ 55 to core axis @ 178m. - 188.6-190.6m: 75% small chips. <b>191.50-192.50 CARBONACEOUS ARGILLITE</b> Hanging wall sample, as described above. Broken, blocky core. No piece > 5cm. Trace disseminated pyrite. Sharp lower contact @ 60 to core axis with Lower Zone.	1AA							
				139578	191.50	192.50	0.02	3.40	0.04	0.09
192.50	198.20	<b>LOWER ZONE MASSIVE SULPHIDE</b> <b>192.50-193.55 PYRITE MASSIVE SULPHIDE</b> Galena - rich at the upper contact, along fracture margins which cut through quartz - pyrite. Vuggy, open-space filling with subhedral quartz. 60% pyrite, 15% sphalerite (red-brown & black), 5% galena, 15% quartz, 1% calcite. - 192.75-193.05m: Sandy, crumbly core <b>193.55-194.55 PYRITE MASSIVE SULPHIDE</b> Increased quartz & calcite, along with increased galena	LZ							
				139579	192.50	193.55	0.07	225.60	2.38	6.02
				139580	193.55	194.55	0.27	413.10	4.95	13.75

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		and sphalerite. Frequent open-space fill textures with euhedral quartz to 5mm. Prominent fractures @ 35 to core axis. Below 194.15m is broken, sandy core, with increased sphalerite. 50% pyrite, 15% sphalerite, 7% galena, 20% quartz and 5% calcite. <b>194.55-195.55 PYRITE MASSIVE SULPHIDE BRECCIA</b> Limestone breccia clasts replaced by pyrite, sphalerite, and galena. Fine grained, red-brown sphalerite replacing the matrix. Its difficult to say what type of breccia was the predecessor as there are only rare, remnant limestone clasts remaining. 55% pyrite, 20% sphalerite, 8% galena, 12% quartz, & 2% calcite. - 194.55-194.7m: sandy, very sphalerite-rich rubble.								
				139581	194.55	195.55	0.06	457.80	6.81	10.60
		<b>195.55-196.20 PYRITE MASSIVE SULPHIDE BRECCIA</b> Decreased sphalerite, galena & quartz. Increased calcite in pyrite-rich matrix. Large, partially replaced limestone clasts (to 10cm) floating in a mainly pyritic matrix. Vague compositional layering of pyrite & sphalerite (80 degrees to core axis) at the lower contact. 40% pyrite, 5% sphalerite, 1% galena, 15% calcite, 1% quartz, and 40% remnant limestone.								
				139582	195.55	196.20	0.03	75.10	0.48	3.37
				139583	196.20	197.20	0.66	569.40	9.65	13.12
		<b>196.20-197.20 BASE METAL MASSIVE SULPHIDE</b> Decreased pyrite, increased galena and sphalerite (coarse, mainly black, minor red-brown colored sphalerite). Fractures at 45 to core axis. Vague compositional banding of pyrite (1cm) and sphalerite (3mm) @ the top of the interval. Bands pinch and swell. 35% pyrite, 25% sphalerite, 10% galena, 15% calcite, 5% quartz & 7% limestone. - 196.75-196.82m: bleached limestone clast??								
				139584	197.20	198.20	1.17	966.00	20.44	2.62
		<b>197.20-198.20 BASE METAL MASSIVE SULPHIDE</b> Galena - sphalerite rich, with coarse crystals at the top and bottom of the sample, separated by a mainly pyritic (+ minor sphalerite) interval from 197.4-197.82m. Two types of py: massive fine grained pyrite in clots up to								

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		2cm and small euhedral cubes to 1mm (more pronounced metallic lustre than the fine grained variety) Pyrite bands oriented @ 45 to core axis. Sharp lower contact @ 55 to core axis. Minor brecciation at the limestone contact.								
198.20	201.85	MCDAME LIMESTONE UNIT 1 Dense packstone, devoid of fossils, with 2% calcite stringers @ 40 to core axis. The base of Unit 1 is at the appearance of the massive stromatoporoids. - 200.35m: 1cm pyrite band with a tr of galena @ 65 to core axis. - 201.85m: Sphalerite - pyrite stringer @ 30 to core axis 198.20-199.20 PACKSTONE Footwall sample of unaltered-looking, non-brecciated limestone. Minor hairline calcite-filled fractures. Trace pyrite along rare stylolites.	MLS1	139585	198.20	199.20	0.02	4.00	0.06	0.11
201.85	228.60	MCDAME LIMESTONE UNIT 2 Massive Stromatoporoid Unit with abundant globular, bulbous, hemispherical and tabular forms; in places accreted to form Stromatoporoid framestone (eg 212.1m, 216.4m, 218.0m, 222.3m, and 224.9m). Abundant <i>Thamnopora</i> and rugose corals from 219.4-223.0m. Minor <i>Euramphipora</i> at 221.7m. Scattered amphipora which increase below 223.5m. Intervals of dense packstone between fossilized sections. Tabular stromatoporoids oriented @ 75 degrees to core axis. Weak to moderate stylolites. - 213.1m: Pyrite - sphalerite - galena stringer, 1cm wide, @ 40 to core axis. *** This is an excellent fossilized, unbrecciated interval of McDame limestone with only minor, altered sections (a partially recrystallized, bleached zone from 201.85 - 204.4m, and a dolomitized zone from 206.2 - 208.72m); little visual indication of a 6m wide massive sulphide zone above. 201.85-204.40 RECRYSTALLIZED LIMESTONE Partially recrystallized, moderately bleached limestone. Massive stromatoporoids are stretched and have	MLS2							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		hairline fractures. 3% fine grained pyrite along stylolites, and clots to 1cm, adjacent to stylolites. 206.20-208.72 DOLOMITIZED Dolomitized, moderately fractured interval with 10% calcite-filled fractures, trending @ 0-30 degrees to core axis. Excellent longitudinal section of a rugose coral at 208.85m. Most fossils unidentifiable.								

\*\*\* END OF HOLE \*\*\* 228.60

HOLE NO: SSD-97-6

SECTION: 44127

GRID: DISC. NORTH

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : DISC. NORTH  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD M.D., BC  
 HOLE TYPE : DIAMOND

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	288.04	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR 3000		
Date started:	3/7/97		
Date finished:	8/7/97		
Logged by:	L. LEWIS		
Relogged by:			
Sampled by:	C. AKELAITIS		

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 44127.04mN 25360.37mE 1160.70RL

Pre-collar depth: Final depth: 288.04

Purpose of hole: INFILL DISC. NORTH, TEST  
SEISMIC

Hole status: DRILLED TO DEPTH

Comments: LZ: 261.82-262.9M, 265.12-265.57M

Material left in hole:

Base of complete oxidation

Top of fresh rock:

Water first encountered:

Water inflow estimate:

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
45.72	0.00	-90.00
91.44	0.00	-90.00
137.16	241.00	-89.00
182.88	247.00	-87.00
228.60	233.00	-84.00
274.32	242.00	-84.00

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
31.39	31.50	0.11
187.60	187.90	0.30
260.82	267.45	6.63

## \*\*\* SUMMARY LOG \*\*\*

0.00 10.67 OVERBURDEN  
 10.67 26.60 2AP SILTSTONE /  
SANDSTONE  
 26.60 31.50 EXHALITE - O-ZONE  
 31.50 34.90 2AS SILTSTONE  
 34.90 39.05 EXHALITE - O-ZONE  
 39.05 71.63 2AS SILTSTONE  
 71.63 96.01 2AS INTERBEDDED  
SILTSTONE / MUDSTONE  
 96.01 96.20 EXHALITE - F-ZONE  
 96.20 141.73 2AC SILTSTONE /  
MUDSTONE / CALCARENITE  
 141.73 150.30 EXHALITE - DISCOVERY  
ZONE  
 150.30 154.10 2AA CARBONACEOUS  
MUDSTONE  
 154.10 184.40 1B SANDSTONE /  
CONGLOMERATE /  
SILTSTONE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

HOLE NO: SSD-97-6

SECTION: 44127

GRID: DISC. NORTH

184.40	192.02	FAULT ZONE 1B SANDSTONE
192.02	209.50	1B SANDSTONE / SILTSTONE / CONGLOMERATE
209.50	223.00	FAULT ZONE 1B SILTSTONE / SANDSTONE
223.00	245.36	1BA SILTSTONE / SANDSTONE
245.36	260.30	1AA CARBONACEOUS ARGILLITE
260.30	261.82	1AC CALCARENITE
261.82	262.25	LOWER ZONE PYRITE MASSIVE SULPHIDE
262.25	262.70	MCDAME LIMESTONE UNIT 1
262.70	262.90	LOWER ZONE PYRITE MASSIVE SULPHIDE
262.90	265.12	MCDAME LIMESTONE UNIT 1
265.12	265.57	LOWER ZONE BASE METAL MASSIVE SULPHIDE
265.57	266.17	MCDAME LIMESTONE UNIT 1
266.17	266.45	LOWER ZONE PYRITE MASSIVE SULPHIDE
266.45	280.30	MCDAME LIMESTONE UNIT 1
280.30	288.04	MCDAME LIMESTONE UNIT 2
288.04		END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
0.00	10.67	OVERBURDEN								
10.67	26.60	2AP SILTSTONE / SANDSTONE Dark grey wavy to contorted laminated siltstone with 30% light grey, fine grained sandstone as deformed beds (to +5 cm) and lenses. Sandstone decreases towards lower contact. Soft sediment deformation structures are common. Bedding @ 55 to core axis. Sparse quartz stringers @ 55 to core axis (1%). Trace disseminated pyrite throughout. Broken lower contact with exhalite horizon. - 14.0-17.07m: broken core into small chips and minor gouge. Poor recovery - 19.5-26.6m: broken core, small chips and moderate gouge. Poor recovery	2AP							
26.60	31.50	EXHALITE - O-ZONE Light greenish grey, fine grained, wispy laminated, siliceous exhalite horizon, with 25% calcareous nodules (to 10cm) and layers. 1-2% wispy, fine grained pyrite and occasional elongate blebs define the layering. Blocky, broken core with moderate recovery. Sampled lower 11 cm of massive pyrite (minor sphalerite + galena). 31.39-31.50 PYRITE MASSIVE SULPHIDE 70% massive fine grained pyrite with 20% cross-cutting quartz - calcite stringers (to 2 cm) @ 30 to core axis. 3% sphalerite and 1% galena are small clots within the veins and galena also as mm stringers cross-cutting the massive pyrite, sub-parallel to the quartz - calcite stringers. Sharp lower contact @ 50 to core axis, parallel to bedding.	OZP	139586	31.39	31.50	0.39	203.50	2.02	13.10
31.50	34.90	2AS SILTSTONE Medium grey, fine grained, weakly carbonaceous massive siltstone. 5% quartz stringers @ 40 to core axis which cross-cut earlier, contorted calcite stringers. Trace disseminated pyrite.	2AS							
34.90	39.05	EXHALITE - O-ZONE Similar to the previous exhalite horizon, with 40% interbedded siltstone. Broken quartz - veined upper contact, broken lower contact. Core is broken and there is	OZP							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		moderate recovery. Trace disseminated pyrite and galena stringers (<1mm) @ 65 to core axis. (Galena stringer @ 36.7, 36.75m).								
39.05	71.63	2AS SILTSTONE Dark grey, massive to laminated siltstone. 30% weak to moderately carbonaceous intervals are black and often pyritic with 1% discontinuous stringers and disseminations. 8% light to medium grey, fine grained, laminated calcareous sandstone, up to 30 cm thick. The sandstone intervals are the most competent, while the rest of the section is either blocky, broken core, small chips or gouge with poor recovery. Bedding angles vary between 45-55 degrees to core axis. Rare galena (+/- pyrite) stringers occur near the upper contact with the exhalite (41.0m @ 45 to core axis, and 42.25m @ 70 to core axis). Broken, gouged lower contact with more competent siltstone. 43.40-44.50 CALCAREOUS SANDSTONE Light grey, strongly calcareous, fine grained, laminated sandstone. 10% early concordant calcite bands and later cross-cutting vuggy stringers; tr pyrite as disseminations and clots in calcite stringers. Broken upper and lower contact. 57.90-60.96 GOUGE Siltstone and clay gouge. 1% py. broken upper and lower contact. 60.96-62.48 NO RECOVERY 65.53-67.00 GOUGE 68.90-71.63 GOUGE 70% small siltstone chips, 30% blocky siltstone. 20 cm broken quartz - calcite vein, 45 degrees tca, tr disseminated pyrite.	2AS							
71.63	96.01	2AS INTERBEDDED SILTSTONE / MUDSTONE 50% dark grey, thinly laminated siltstone, 40% black massive to laminated mudstone and 10% strongly calcareous fine grained sandstone or siltstone. Mudstones are concentrated in the lower part of the interval. The competent calcareous beds are up to 30 cm thick. The remainder of the core is blocky to shabby. Trace to 1%	2AS							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		pyrite as bedding parallel laminations (60 degrees to core axis), clots in calcite pods to 2 cm, and blebs within quartz - calcite stringers. 3% quartz - calcite stringers from 20-45 to core axis. Early calcite stringers are contorted. Broken lower contact with narrow exhalite 95.50-100.50 GOUGE Weak to moderately carbonaceous gouge; 20% more competent calcareous siltstone / calcarenite intervals								
96.01	96.20	EXHALITE - F-ZONE Light, whitish-grey, fine grained, siliceous horizon. Possibly the F-zone exhalite. Trace disseminated pyrite. Blocky core, with broken upper and lower contacts	FZP							
96.20	141.73	2AC SILTSTONE / MUDSTONE / CALCARENITE Striped interval, consisting of alternating medium grey siltstone (40%), dark grey mudstone (35%) and light grey calcarenite (25%). Possible warp or fold, as the bedding angle flattens from 60 to core axis @ 96.3m, 30 degrees @ 105.1m and gradually back to 80 degrees @ 128.0m Frequent gouge, broken core, poor recovery down to 121.0m. Below 121m, the core is more competent with 25% broken and blocky; 2% contorted calcite stringers at variable angles to core axis and parallel to bedding. 106.40-107.00 GOUGE Gouge and siltstone chips. Sharp conformable upper contact @ 55 to core axis. 107.40-107.90 GOUGE Siltstone chips with minor gouge. 110.65-113.15 GOUGE Weak to moderately carbonaceous mudstone. Sharp, unconformable lower contact @ 15 to core axis 117.60-119.80 GOUGE Gouge consisting of carbonaceous mudstone / siltstone, and quartz rubble. Disseminated pyrite and galena to 5mm associated with the quartz vein.	2AC							
141.73	150.30	EXHALITE - DISCOVERY ZONE Exhalite-type beds interlayered with calcareous siltstone. No barite or other mineralization besides pyrite was noted in the exhalite. Its stratigraphic position, immediately above	DZP							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		the carbonaceous mudstone, indicates it is the Discovery Zone. Competent core, except from 149.52-150.3m, with good recovery. 141.73-143.10 CALCAREOUS SILTSTONE Pale whitish-grey, fine grained, thinly laminated calcareous siltstone (or carbonatized exhalite??). Phylitic sheen to the core. 143.10-144.50 EXHALITE Light yellowish-grey, fine grained, nodular to thinly laminated siliceous rock with 10% medium grey silty laminations. 5% quartz - filled fractures @ 15 to core axis. 2% fine grained pyrite as elongate blebs parallel to layering @ 60 to core axis. 144.50-147.65 CALCAREOUS SILTSTONE Calcareous to non-calcareous, laminated siltstone with siliceous nodules to 2 cm. The nodules are crudely elongated parallel to laminations. 1-2% pyrite partially filling nodules and as elongate blebs parallel to bedding. 147.65-148.05 EXHALITE Gradational upper contact where grey siltstone grades into a 40 cm thick exhalite horizon with a sharp, conformable lower contact @ 55 to core axis with medium grey, laminated siltstone. 149.52-150.30 EXHALITE Creamy white, fine grained, thinly laminated siliceous exhalite. Blocky core with no piece >10 cm. 2% elongate pyrite clots. Broken lower contact with Unit 2AA - carbonaceous mudstone. - 149.7m: Brecciated exhalite, partially altered to talc (soft, greasy feel along shear surface @ 35 to core axis.								
150.30	154.10	2AA CARBONACEOUS MUDSTONE Dark grey to black, moderate to strongly carbonaceous mudstone. Massive with slabby to flaggy parting. Frequent intervals of chips (to 2 cm). 8% thin quartz - calcite contorted stringers. 2% pyrite as discontinuous lenses	2AA							



From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		associated with the quartz - calcite. Trace galena at quartz - veined lower contact								
154.10	184.40	<b>1B SANDSTONE / CONGLOMERATE / SILTSTONE</b> The entire 1B Unit, from 154.1-223.0m is extremely broken. Incompetency suggesting proximity to intense faulting. Folding or warping is indicated by the flattening of bedding angles to 0 degrees (usually in brittle gouge zones, eg 185.3-192m). Scattered zones of brittle fractured quartz veining. Weak mineralization (pyrite +/- sphaerite, galena) associated with quartz veins. Pyrite also locally disseminated within the sandstone. Fractures within the more competent core trend @ 20-30 to core axis.  - 154.1-184.4m: 65% sandstone, 20% conglomerate and 15% siltstone. 25% gouge often with quartz fragments. Trace sulphides (pyrite +/- sphaerite, galena) 60% blocky core. - 181.65-181.8m Breccia Zone	1B							
184.40	192.02	<b>FAULT ZONE 1B SANDSTONE</b> Zone of intense fracturing / folding with 15% quartz gouge. Very incompetent rock. Core angle flattens from 55 @ 184.4m to 5 @ 191.1m and then steepens to 65 @ 199.9m (possible drag fold adjacent to fault zone?). 2% disseminated pyrite. Minor siltstone intervals are graphitic. Sharp lower contact @ 45 to core axis. <b>187.60-187.90 QUARTZ VEIN</b> Sample of quartz vein rubble and carbonaceous gouge. 3% disseminated pyrite. Broken upper and lower contact.	FZ	139587	187.60	187.90	<5ppm	4.30	0.05	<0.01
192.02	209.50	<b>1B SANDSTONE / SILTSTONE / CONGLOMERATE</b> 80% sandstone, 15% siltstone, 5% conglomerate. Blocky core with frequent fractures, 15 to 30, and 85 to core axis, but only minor gouge intervals. Irregular, broken quartz - calcite veining @ 203.75-204.2m and 207.1-207.3m; tr pyrite. Sharp lower contact with gouge @ 30 to core axis. <b>201.60-202.30 SYN-SEDIMENTARY BRECCIA</b> Sub-rounded sandstone clasts, 1mm - 4cm, in a light grey fine grained clastic matrix, clast-supported.	1B							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		Sharp upper and lower contact @ 25 to core axis.								
209.50	223.00	<b>FAULT ZONE 1B SILTSTONE / SANDSTONE</b> Fault zone gouge and chips of graphitic siltstone and fine to medium grained sandstone. 5% quartz - calcite rubble. Bedding angle difficult to tell, due to incompetent core, but remnant sandstone shows highly variable bedding angles from 35 - 60 to core axis.	FZ							
223.00	245.36	<b>1BA SILTSTONE / SANDSTONE</b> Striped unit of 85% dark grey to black, locally carbonaceous siltstone (4mm - 5cm thick) and light grey, fine grained sandstone (2mm - 2cm thick); flaggy parting. *Note*: 1BA transitional unit is defined as having between 5 - 25% sandstone. Incompetent core with rare pieces >10cm. Minor quartz - calcite stringers to 1cm, sub-parallel to bedding @ 75 to core axis. Locally pyritic, with up to 2% as bedding parallel bands to 5mm, especially in the massive, black, weakly carbonaceous siltstone. Gradational lower contact.	1BA							
245.36	260.30	<b>1AA CARBONACEOUS ARGILLITE</b> Black, massive, strongly carbonaceous argillite. 5% quartz - calcite fracture fillings. Core breaks easily along bedding; poker chip core, 5-15mm pieces. 40% small chips and gouge. 1% disseminated pyrite and fine grained blebs to 1cm in the quartz - calcite stringers. Bedding averages 70 to core axis. Becoming calcareous below 257.7m. Gradational lower contact with Unit 1AC.	1AA							
260.30	261.82	<b>1AC CALCARENITE</b> Medium grey, thin, wavy to cross-laminated, fine grained silty calcarenite. 15% irregular quartz - calcite fracture fillings and veining. Minor (cm) displacement along low angle fractures @ 10 to core axis (***reverse movement). 1% pyrite stringers, sub-parallel to bedding and cross-cutting early calcite stringers. <b>260.82-261.82 CALCARENITE</b> Hanging wall sample, as described above. Sharp lower contact @ 70 to core axis.	1AC	139588	260.82	261.82	0.08	3.40	0.01	0.07

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
261.82	262.25	LOWER ZONE PYRITE MASSIVE SULPHIDE  261.82-262.25 PYRITE MASSIVE SULPHIDE Massive to vaguely banded sulphides @ 50 to core axis, bands to 1 cm. 55% fine grained pyrite, 15% red-brown and black sphalerite, 10% galena, 15% calcite, 5% opaque quartz. Clots of quartz - calcite to 4 cm. Calcite also disseminated throughout the massive sulphide. Broken to crumbly core, 93% recovery. Sharp unconformable upper contact @ 70 to core axis. Irregular, stylonitic lower contact with McDame limestone.	LZ	139589	261.82	262.25	3.05	336.00	8.10	16.04
262.25	262.70	MCDAME LIMESTONE UNIT 1 262.25-262.70 FLOATSTONE STYLOLITIC BRECCIA Vuggy, amphipora floatstone. Styloitic breccia with very carbonaceous contacts. One irregular pyrite clot (8cm) and the remaining sulphides occur as narrow stringers along stylolites at about 70 to core axis. 12% pyrite, 2% sphalerite, 1% galena, 10% calcite and 5% quartz. Irregular lower contact.	MLS1	139591	262.25	262.70	0.15	24.40	0.45	0.39
262.70	262.90	LOWER ZONE PYRITE MASSIVE SULPHIDE  262.70-262.90 PYRITE MASSIVE SULPHIDE Narrow Lower Zone of semi-massive sulphide which follow stylolitic contacts and form irregular bands @ approximately 70 to core axis. Fine grained pyrite occurs in the centre of the band, with sphalerite rimming the pyrite. 40% fine grained pyrite, 8% black sphalerite, 2% galena, 5% quartz, 5% calcite and 40% limestone. Irregular lower contact.	LZ	139592	262.70	262.90	1.30	228.20	4.92	4.90
262.90	265.12	MCDAME LIMESTONE UNIT 1  262.90-264.00 PACKSTONE Moderately vuggy packstone to amphipora floatstone with frequent carbonaceous stylolites and minor crackle breccia. Mineralizations mainly as pyrite - quartz - calcite - sphalerite +/- galena stringers to 2cm. at 60 to core axis. Core breaks easily along stylolites.	MLS1	139593	262.90	264.00	0.12	4.00	0.08	0.24

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		264.00-265.12 PACKSTONE Packstone with rare amphipora. Similar to previous interval, except more broken due to increased fracturing @ 15-30 degrees to core axis. Irregular lower contact with Lower Zone.		139594	264.00	265.12	0.20	3.90	0.07	0.36
265.12	265.57	LOWER ZONE BASE METAL MASSIVE SULPHIDE 265.12-265.57 BASE METAL MASSIVE SULPHIDE Galena-rich massive sulphide zone; coarse galena crystals to 4cm concentrated near upper and lower contacts. 10% limestone clasts remain unreplaced by sulphides. Narrow galena stringers cross-cut massive pyrite @ 55 to core axis. Sharp lower contact along a carbonaceous stylolite @ 75 to core axis.	LZ	139595	265.12	265.57	2.40	1088.40	30.05	8.58
265.57	266.17	MCDAME LIMESTONE UNIT 1  265.57-266.17 PACKSTONE Dense packstone with flattened stromatoporoids (?) @ 75 to core axis. Late, low angle fracture @ 10 to core axis, with 1cm displacements (reverse movement) stylolites and sphalerite - pyrite stringers. Irregular lower contact along stylolite with a weakly mineralized zone below.	MLS1	139596	265.57	266.17	0.03	16.40	0.53	0.33
266.17	266.45	LOWER ZONE PYRITE MASSIVE SULPHIDE 266.17-266.45 PYRITE MASSIVE SULPHIDE STYLOLITIC BRECCIA Fine grained pyrite replacing limestone styloitic breccia fragments. 40% pyrite, trace sphalerite + galena, 9% calcite, 1% quartz with 50% limestone clasts.	LZ	139597	266.17	266.45	0.03	1.30	<0.01	<0.01
266.45	280.30	MCDAME LIMESTONE UNIT 1  266.45-267.45 PACKSTONE FLOATSTONE Hanging wall sample consisting of dense packstone above, becoming richly fossilized below 266.95 with stromatoporoid, thamnopora, and rugose corals (possibly Unit 1B of the McDame). Moderately carbonaceous stylolites. 2% fine grained pyrite in small clots adjacent to stylolites. 10% calcite fracture fillings. Competent core. 267.45-269.80 FLOATSTONE CRACKLE BRECCIA	MLS1	139598	266.45	267.45	0.27	13.20	0.09	0.92

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		<p>Crackle brecciated, stromatoporoid and thamnopora floatstone with minor amphipora. Packstone also present.</p> <p>- 268.45m Pyrite stringer ( 5 - 3cm), thickens &amp; thins along stylolites @ 50 to core axis replacing limestone clasts in a narrow breccia interval.</p> <p>269.60-270.00 RUBBLE BRECCIA</p> <p>Possible cave / collapse breccia and clastic fill. Packstone and thamnopora - amphipora floatstone clasts, 5mm - 5cm, sub-rounded (some rounding of clasts due to styloliteization). Strong black carbon along clast boundaries and stylolites. Upper 30cm is thinly laminated, carbonaceous, calcareous siltstone @ 50 degrees to core axis (filling the top of the cave??). Trace disseminated pyrite. 15% calcite fill along stylolite margins. Irregular lower contact.</p> <p>270.00-273.40 CRACKLE BRECCIA PACKSTONE / FLOATSTONE</p> <p>Vuggy, crackle breccia, partially recrystallized with 20% calcite matrix. Amphipora + minor stromatoporoid. 20 cm rubble breccia at the base.</p> <p>273.40-280.30 PACKSTONE</p> <p>MCDAME LIMESTONE UNIT 1?? 80% packstone, 20% amphipora - stromatoporoid floatstone. Partially recrystallized limestone has a patchy appearance. Trace - 1% fine grained pyrite as irregular stringers, often with calcite and along stylolites. Large rugose coral @ 279.8m.</p> <p>- 276.8-277.3m: Crackle breccia with low angle, calcite - filled fractures @ 0 - 15 to core axis.</p>							
280.30	288.04	<p>MCDAME LIMESTONE UNIT 2</p> <p>Secondary dolomitization to coarsely crystalline dolomite has obliterated most fossils, except from 284-285.2m where there are excellent fossils with abundant stromatoporoid, thamnopora, amphipora and rugose corals. Faint stromatoporoid and thamnopora also identifiable in dolomitized sections. The dolomite intervals are dark gry, broken, and blocky. Trace - 1% fine grained pyrite, again</p>	MLS2						

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		<p>concentrated along stylolites or fractures. 10% calcite fracture filling or as coarse recrystallization.</p>							

\*\*\* END OF HOLE \*\*\* 288.04

HOLE NO: SSRD-97-7

SECTION: 43070

GRID: SILVER CK S

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK S  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC  
 HOLE TYPE : RC/DIAMOND

\*\*\* COLLAR COORDINATES AND RL \*\*\*

NOMINAL 43067.00mN 25113.00mE 1500.00RL

Pre-collar depth: Final depth: 562.36  
 Purpose of hole: SILVER CK SOUTH EXTENSION  
 Hole status: DRILLED TO DEPTH  
 Comments: QZ-SX VEINS IN 1B SANDSTONE, NO LOWER ZONE

\*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
64.01	249.00	-88.00
219.46	268.00	-80.00
259.08	284.00	-78.50
304.80	289.00	-78.00
350.52	289.00	-78.00
396.24	295.00	-79.00
441.96	299.00	-79.00
487.68	301.00	-80.00
533.40	304.00	-79.00

\*\*\* SUMMARY LOG \*\*\*

0.00 33.53 2A SILTSTONE / SANDSTONE  
 33.53 36.58 NO RECOVERY  
 36.58 67.06 2A SILTSTONE / SANDSTONE  
 67.06 73.15 EXHALITE - F-ZONE  
 73.15 213.36 2AC CALCAREOUS SANDSTONE / SILTSTONE  
 213.36 214.64 NO RECOVERY  
 214.64 237.13 2AA CARBONACEOUS ARGILLITE QUARTZ VEINED  
 237.13 446.23 1B SANDSTONE / CONGLOMERATE / MUDSTONE  
 446.23 459.50 1BA MUDSTONE / SANDSTONE  
 459.50 466.75 1AA CARBONACEOUS ARGILLITE

\*\*\* DRILLING SUMMARY \*\*\*

REVERSE CIRCULATION	0.00 213.36
Drill contractor:	MIDNIGHT SUN DRILLING
Drill rig:	
Date started:	5/7/97
Date finished:	8/7/97
Logged by:	L. LEWIS, C. AKELAITIS
Relogged by:	
Sampled by:	C. AKELAITIS
DIAMOND	213.36 562.36 NQ
Drill contractor:	OLYMPIC DRILLING
Drill rig:	VALDOR 3000
Date started:	8/7/97
Date finished:	16/7/97
Logged by:	L. LEWIS
Relogged by:	
Sampled by:	C. AKELAITIS

Material left in hole: 1250' NQ RODS STUCK IN HOLE

Base of complete oxidation

Top of fresh rock:

Water first encountered:

Water inflow estimate:

\*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
215.91	217.41	1.50
219.10	226.50	7.40
229.10	232.30	3.20
466.75	471.65	4.90
474.15	474.80	0.65
496.20	497.20	1.00

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

HOLE NO: SSRD-97-7

SECTION: 43070

GRID: SILVER CK S

466.75	467.40	1AC CALCAREOUS ARGILLITE
467.40	469.80	MCDAME LIMESTONE UNIT 1 BRECCIATED
469.80	477.50	MCDAME LIMESTONE UNIT 1 RECRYSTALLIZED DOLOMITIZED
477.50	493.12	MCDAME LIMESTONE UNIT 2
493.12	500.03	MCDAME LIMESTONE UNIT 3
500.03	502.28	MCDAME LIMESTONE UNIT 4
502.28	559.31	MCDAME LIMESTONE UNIT 5
559.31	562.36	MCDAME LIMESTONE UNIT 6
562.36		END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
000	33.53	2A SILTSTONE / SANDSTONE *The first 730 feet (213.36m) of this hole were completed by reverse circulation drilling. 12.5% of the rock chips over a 10 foot interval were collected in a sample bag by the drill crew. From each sample, a small portion was sieved, washed and described. This log represents a composite of the 10 foot chip sample descriptions. Below 213.36m, the log describes NQ drill core. Fine to medium sized chips are dark grey siltstone and and coarse chips are medium grey sandstone. Chips are all iron oxide stained with a trace to 1% disseminated pyrite.	2A							
33.53	36.58	NO RECOVERY								
36.58	67.06	2A SILTSTONE / SANDSTONE Similar to the interval above No Recovery containing a mix of iron oxide stained siltstone and sandstone chips with a trace of disseminated pyrite.	2A							
67.06	73.15	EXHALITE - F-ZONE Interval consists of 60% pyritic siliceous exhalite and 40% siltstone chips.	EXFZ							
73.15	213.36	2AC CALCAREOUS SANDSTONE / SILTSTONE Thick unit of sandstone - siltstone which is locally calcareous. Overall, the unit has 1% quartz and a trace of disseminated pyrite. - 161.54-164.59m: 5% quartz chips, tr pyrite. - 195.07-198.12m: 5% quartz chips, tr pyrite. - 204.22-207.26m: 5% quartz chips, tr pyrite. ** The reverse circulation chips end at 213.36m.	2AC							
213.36	214.64	NO RECOVERY								
214.64	237.13	2AA CARBONACEOUS ARGILLITE QUARTZ VEINED Broken, rubble core. Dark grey to black, thinly laminated to massive, weak to moderately carbonaceous argillite. In places, the bedding is warped / contorted (especially adjacent to quartz veins). Bedding oriented at 60 to core axis. Strongly quartz veined, approximately 25% from 5-20 cm wide. Where contacts intact, veins are at 45-70 to core axis. Veins are variable from conformable to cross-cutting. 3% yellowish-brown iron carbonate in quartz veins + trace sericite, 1-2% calcite, 7% fine grained pyrite as	2AA							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		semi-massive to massive bands to 50cm, narrow contorted stringers sub-parallel to bedding and minor clots in veins. Poor recovery. Representative samples taken of the semi-massive pyrite and quartz veining. Sharp, broken lower contact (quartz-breccia - 60 cm wide) with 1B sandstone / conglomerate.								
	214.65-215.91	CARBONACEOUS ARGILLITE As described above with 4% quartz (calcite) stringers. 3% fine grained pyrite, tr sphalerite + galena as stringers to 1 cm @ 65 to core axis. Bedding @ 50-65 to core axis. Broken lower contact with massive pyrite.		139599	215.91	216.41	0.17	187.70	2.39	16.02
	215.91-216.41	PYRITE MASSIVE SULPHIDE Massive fine grained pyrite with 2-4cm quartz - calcite stringers @ 40 to core axis. Sphalerite and galena concentrated along vein margins and as clots within veins. Sharp lower contact @ 65 to core axis. 90% recovery.		140158	216.41	217.41	0.02	30.50	0.43	0.93
	216.41-217.41	ARGILLITE Finely bedded argillite with minor thin sandstone beds (2mm - 2cm). Bedding 70 to core axis. 20% quartz stringers, 3mm - 10cm thick with 2-50% pyrite - 217.04 - 217.41m: Gauge.		140159	219.10	220.10	0.01	8.50	0.12	0.33
	219.10-220.10	ARGILLITE Finely bedded, dark grey argillite with 15% quartz stringers, 1mm - 2cm thick, cross cutting bedding @ 5 degrees and following bedding at 40 degrees. 2 - 20% pyrite, 3% sericite (?) on stringers and fractures. Very broken core, good recovery.		139600	220.10	221.20	0.62	57.00	1.30	2.72
	220.10-221.20	PYRITE MASSIVE SULPHIDE VEINED Upper 90 cm of interval is broken, quartz-veined carbonaceous argillite; veins to 10 cm are oriented at 60 to core axis. Clots of sphalerite + galena + pyrite in veins. Poor recovery. Lower 20 cm is massive fine grained pyrite. Sharp, conformable upper and lower contact @ 55 and 60 to core axis.		140160	221.20	221.59	0.38	40.40	1.01	1.29
	221.20-221.59	ARGILLITE								

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/mt	Ag g/mt	%Pb	%Zn
		Dark grey, finely bedded argillite. Good recovery but very rubbly core. 20% quartz stringers, 1% pyrite, 2% sericite.		140161	221.59	223.50	0.16	10.70	0.24	0.17
		221.59-223.50 QUARTZ VEIN ARGILLITE Poor recovery (20%) of rubbly, quartz-veined argillite. 5% pyrite in quartz clots. Pale yellow mineral present in quartz veins (honey sphalerite?).		139604	223.50	225.50	0.12	128.70	2.71	3.13
		223.50-225.50 QUARTZ VEIN ARGILLITE Broken, rubbly core, poor recovery. 40% white opaque quartz vein rubble with 10% pyrite clots, 3% galena to 7mm, 1% red-brown sphalerite, 1% pearly sericite in veins. Host is carbonaceous argillite.		140162	225.50	226.50	0.02	81.30	1.86	2.48
		225.50-226.50 ARGILLITE Moderate recovery of finely bedded dark grey argillite, bedding @ 55 to core axis. 5% quartz veining with 2% pyrite and 5% pale yellow powdery mineral (sericite?). Slickensides present on fracture surfaces. In the lower 7cm is a quartz stringer with 5% galena, 10% pyrite and gouge material.		140163	229.10	230.01	0.03	3.40	0.31	0.00
		229.10-230.10 ARGILLITE Dark grey, finely bedded argillite, 2% quartz stringers, 5% pyrite. Bedding and fractures both oriented at 55 degrees to core axis. 2% sericite (?) on slickensides - 229.27 - 229.34m: Very fine grained, pyrite-rich bed (50%), in sharp contact @ 50 degrees with argillite.		139602	230.10	231.30	0.03	44.40	0.95	1.04
		230.10-231.30 QUARTZ VEIN CARBONACEOUS ARGILLITE 70% quartz veins, 30% carbonaceous argillite. Similar to previously described interval, but more competent rock. Veins are up to 25 cm at 40 to core axis. Vugs within the quartz have pyrite cubes + galena. Later galena stringers cross-cut the earlier quartz veins @ 25 to core axis. The carbonate present is iron carbonate. Sharp upper contact @ 40 to core axis. Broken lower contact.		140164	231.30	232.30	0.07	15.90	0.23	0.92
		231.30-232.30 CARBONACEOUS ARGILLITE Good recovery of dark grey carbonaceous argillite. 5%								

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/mt	Ag g/mt	%Pb	%Zn
		quartz stringers with 1% pyrite. Below 231.65 is rubble, almost gouge, with slickensides.								
		235.55-237.13 CARBONACEOUS ARGILLITE BRECCIA Contact between Unit 2AA and 1B is brecciated and quartz healed (65% quartz, 30% siliceous argillite, 5% pyrite, tr sphalerite + galena). Broken upper and lower contact.								
237.13	446.23	1B SANDSTONE / CONGLOMERATE / MUDSTONE The top of Unit 1B is the top of the first coarsening upward cycle within the Earn Group - described in detail in log SSD-97-3 (176.8-216.53m). Scattered zones of quartz veining which cross-cut bedding, minor ferric oxides-carbonate + pyrite (minor sphalerite, galena). Py (+/- sphalerite, galena) also as stringers to 1 cm. Pyrite disseminated throughout, often increasing in the mudstone intervals as clots and bands parallel to bedding. Broken, blocky core + some gouge from 329.6 - 373.38m, including 10% quartz - iron carbonate veining and up to 5% pyrite. Core otherwise fairly competent. 237.13-264.25 SANDSTONE / CONGLOMERATE / MUDSTONE 45% light grey, medium grained massive to graded sandstone beds, 10-60 cm thick; 25% polymictic conglomerate, sub-angular to sub-rounded clasts (2 mm - 2 cm), generally clast-supported in a darker grey, fine grained sandy matrix. Pebbles vary from randomly oriented to elongate @ 70 to core axis. The base of the conglomerate is often an irregular / scoured contact. 30% dark grey thinly laminated to wavy laminated sandy mudstone, bedding @ 75 to core axis. Sand occurs as lenses within the mudstone. Mudstone intervals break easily along bedding (especially from 250.1-254.2m. 2% quartz (+/- calcite) veining with tr pyrite. Veins to 20 cm are parallel and cross-cutting bedding, 50 to core axis. Minor low angle vuggy fracture fillings with euhedral quartz (249.75m). -260.91m: Irregular discontinuous quartz stringer @ 5	1B							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		<p>to core axis with 3% pyrite, 2% ferric oxides-oxides (orange-brown hematite) and 2% galena. Gradational lower contact with carbonaceous mudstone</p> <p>264 25-282.00 CARBONACEOUS MUDSTONE Dark grey to black, weak to strongly carbonaceous, pyritic md; massive to thinly laminated, bedding @ 75 to core axis. Very contorted quartz - calcite stringers (8%), often with clots of pyrite (to 3 cm). Gradational lower contact with sandstone / conglomerate</p> <p>- 267.8-268.5m: Post vein breccia with clasts of quartz, mudstone, and pyrite in a fine grained, carbonaceous matrix.</p> <p>282.00-329.60 SANDSTONE / CONGLOMERATE Competent interval of 80% medium to coarse grained sandstone, and 20% conglomerate. The conglomerates are coarser grained than in the previous conglomerate interval, with elongate, polymictic clasts to 5 cm (largest clast generally the black mudstone clasts). Conglomerate intervals are up to 2 meters thick. Minor black mudstone beds to 8 cm thick (&lt;5%). 3% quartz - calcite stringers parallel and cross-cutting bedding. Trace - 2% pyrite in stringers and disseminations, concentrated around stringers. Trace galena in pyrite - quartz stringers between 287.9 - 288.5m. Trace sphalerite with pyrite stringers. Gradational, broken lower contact.</p> <p>- 287.95m: 5 mm pyrite - quartz stringer @ 25 to core axis.</p> <p>- 288.2m: 1 cm pyrite - galena - quartz stringer @ 25 to core axis.</p> <p>- 288.5m: 2 cm pyrite - galena - quartz stringer @ 25 to core axis.</p> <p>- 293.0-294.5m: broken core, quartz - pyrite vein rubble.</p> <p>- 317.7m: 5 mm quartz - pyrite - sphalerite (or ferric oxides-oxide??) stringer @ 30 to core axis.</p> <p>329.60-373.40 SANDSTONE / MUDSTONE /</p>								

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		<p><b>CONGLOMERATE</b> Blocky, broken, incompetent interval, including sections of gouge (quartz vein + pyritic carbonaceous mudstone) up to 2 m wide. Warped, steepened bedding angles adjacent to gouge. Poor recovery in gouge intervals. 6% quartz - calcite veining to 20 cm, contacts generally broken. 1-2% disseminated and clots of pyrite. Sharp lower contact with massive sandstone @ 60 to core axis.</p> <p>- 330.05-331.7m: Carbonaceous mudstone + quartz vein gouge. 4% fine grained pyrite + 2% clasts of an orange - brown mineral (sphalerite?).</p> <p>- 336.8-337.2m: Sandstone / mudstone gouge. 1% disseminated pyrite.</p> <p>- 343.7-344.58m: Sandstone / carbonaceous mudstone gouge; contorted bedding, flattens to 10 degrees to core axis.</p> <p>- 347.9-349.7m: Carbonaceous mudstone gouge. 3% quartz veining, 1% disseminated pyrite.</p> <p>- 361.1-363.5m: Carbonaceous mudstone / sandstone / quartz vein gouge, 15% quartz - calcite veining, 2% sandy pyrite.</p> <p>- 369.72-373.4m: Sandstone / carbonaceous mudstone / quartz vein gouge, 3% quartz veining, 1% pyrite.</p> <p>373.40-413.10 SANDSTONE Light to medium gray, medium to coarse, massive, occasionally graded sandstone. 5% dk grey, thin mudstone beds to 5 cm, frequently as the top of a fining upward sequence or as thin interbeds within the sandstone. 5% fine grained conglomerate intervals. Competent rock with only minor broken (often chloritic) intervals. Noticeable lack of veining and fracturing. 1% quartz - calcite stringers parallel to bedding and as low angle fractures @ 10-20 degrees to core axis. Trace - 1% disseminated pyrite. Lower contact placed at the appearance of &gt;10% mudstone intervals and a lack of</p>								



From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		<p>conglomerate. - 387.5-387.7m: Sandy gouge.</p> <p>413 10-423.50 MUDSTONE / SANDSTONE 80% dark grey, massive to wavy laminated chloritic mudstone 2mm - 25cm thick, interbedded with 20% medium grey, fine to medium grained massive sandstone beds. 5mm - 30cm thick. Sandstone abundance decreases significantly below 417.7m. 2% quartz - calcite (+ iron carbonate) stringers, often irregular or discontinuous @ 5 - 15 to core axis with pyrite clots to 4 mm. Trace disseminated pyrite in the sediments. Conformable lower contact where sandstone increases (graded beds). - 417.8m: 1 cm gouge cross-cutting bedding @ 40 to core axis.</p> <p>423 50-434.40 SANDSTONE/MUDSTONE Sequence of graded beds, fining upward from coarse sands, topped by thin mudstone intervals. Trace of bedding-parallel quartz - calcite stringers to 1cm and tr calcite stringers @ 25 to core axis. Trace of disseminated pyrite and clots in stringers. Lower contact @ the onset of calcareous sandy intervals. Competent sandstone, friable mudstone.</p> <p>434 40-446.23 MUDSTONE / CALCAREOUS SANDSTONE Striped sequence of thinly interbedded dark grey locally carbonaceous mudstone (@438.8) and light grey, fine grained calcareous sandstone, bands 1mm - 7cm thick. 3 - 35cm thick graded calcareous sandstone beds at the top of the interval. Poker chip core, parts easily along bedding. Bedding angle gradually flattens from 75 degrees @ 434.8m to 45 degrees @ 440m, and steepens again to 73 degrees @ 444.7m. Conformable lower contact at the termination of the calcareous sandstone beds.</p>							

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn	
446.23	459.50	<p>1BA MUDSTONE / SANDSTONE Transitional unit between 1B above and the graphitic argillite below, consisting of 85% dark grey, thinly laminated to massive mudstone with 15% thin, non-calcareous sandy interbeds. Poker chip core breaks easily along bedding (50 to core axis @ 455.2m). Core looks more competent in the photos than it really is due to the gel put down the hole which holds the core together (less blockage while drilling). Mudstone is locally graphitic. Gradational lower contact.</p>	1BA							
459.50	466.75	<p>1AA CARBONACEOUS ARGILLITE Black, massive, strongly carbonaceous argillite. Blocky core with abundant chips + minor gouge. Poor to moderate recovery. 3% irregular quartz - calcite stringers to 1cm, sub-parallel to bedding, concentrated in the upper 60 cm of the unit. 2% fine grained pyrite as thin stringers to 5mm parallel to bedding and small clots in quartz - calcite. Flat bedding angle of 35 degrees @ 463.1m.</p> <p>462.08-462.53 CALCARENITE Pale grey, fine grained, massive calcarenite - appears to have weak argillic alteration. 4% fine grained disseminated pyrite throughout. Broken upper contact, sharp lower contact @ 40 to core axis.</p>	1AA							
466.75	467.40	<p>1AC CALCAREOUS ARGILLITE 466.75-467.40 CALCAREOUS ARGILLITE Hanging wall sample. Dark grey to black, contorted, thinly laminated calcareous, graphitic argillite. Bedding @ 35 to core axis. 4% irregular, discontinuous calcite fracture fillings and stringers. 1% fine grained disseminated pyrite. Sharp, graphitic lower contact @ 30 to core axis with brecciated limestone below.</p>	1AC	139603	466.75	467.40	0.12	17.50	0.12	0.37
467.40	469.80	<p>MCDAME LIMESTONE UNIT 1 BRECCIATED 467.40-468.25 LIMESTONE MOSAIC BRECCIA Brecciated contact at the unconformity with calcite matrix. Narrow, semi-massive sulphide band (pyrite and dark brown sphalerite) from 467.88-468.03m, where the upper contact is at 40 to core axis (slickensides) and lower contact at 30 to core axis. Irregular pyrite -</p>	MLS1	139604	467.40	468.25	0.05	71.70	0.32	2.75

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		sphalerite clots below the sulfone band. 55% limestone, 25% calcite, 10% pyrite, and 7% sphalerite								
		468.25-469.25 LIMESTONE MOSAIC BRECCIA Brecciated limestone with no visible fossils remain. Fine grained pyrite as elongate clots along stylolites and rimming calcite matrix. 55% limestone, 30% calcite, 2% pyrite, trace sphalerite.		139605	468.25	469.25	0.01	6.10	0.07	0.18
		469.25-469.80 LIMESTONE MOSAIC BRECCIA Mosaic brecciated limestone with 30% calcite and tr pyrite along stylolites. No visible fossil remains		140165	469.25	469.80	0.01	1.50	0.00	0.00
469.80	477.50	MCDAME LIMESTONE UNIT 1 RECRYSTALLIZED DOLOMITIZED 45% moderately bleached (pale yellow) limestone, 40% recrystallized, medium crystalline calcite and 15% dolomitized. The alteration obliterates the fossils. Dolomitized sections are fractured and rubbly. 4% pyrite clots concentrated in recrystallized intervals. Minor brecciation, concentrated in dolomitized intervals.								
		469.80-470.90 RECRYSTALLIZED LIMESTONE Moderately bleached recrystallized (dolomitized) limestone. Carbonaceous stylolites and slickensides. No visible pyrite.	MLS1	140166	469.80	470.90	0.01	3.20	0.03	0.06
		470.90-471.65 RECRYSTALLIZED LIMESTONE Fractured, bleached interval, low angle fractures @ 5 to core axis. Fine grained pyrite clots and stringers associated with irregular calcite veining and fracturing. 5% dolomitized limestone at the base of the sample.		139606	470.90	471.65	0.00	0.10	0.00	0.01
		474.15-474.80 RECRYSTALLIZED LIMESTONE Similar to previous sample with the addition of 2% orange iron carbonate (siderite?) rimming pyrite, which rims the recrystallized limestone clots. Broken, rubbly core.		139607	474.15	474.80	0.00	0.10	0.02	0.91
477.50	493.12	MCDAME LIMESTONE UNIT 2 Massive stromatoporoid unit - difficult to pick the top of this unit due to the recrystallization and alteration of unit 1. Picked the top @ the first good, identifiable stromatoporoid. Where the unit is not recrystallized or dolomitized, it is dominated by massive stromatoporoid which have accreted	MLS2							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		in places to over 35 cm thick framestone. Dense packstone present with scattered amphipora between the stromatoporoids. Amphipora is sparse until 484.55m, below which they form intermediate facies. Thamnopora, typically found in the upper 4 meters of the unit, were not identified. Scattered rugose corals are present. 7% calcite veins, 50-70 degrees to core axis, often irregular, commonly with fine grained pyrite rimming the vein margins. Very minor brecciation.								
		478.23-479.70 MOSAIC BRECCIA DOLOMITIZED LIMESTONE Dolomitized interval, mosaic breccia, with 25% calcite veining and matrix material. 3% fine grained pyrite, again concentrated adjacent to calcite veining (30 to core axis).								
493.12	500.03	MCDAME LIMESTONE UNIT 3 Amphipora dominates this unit, with characteristically fine amphipora (<= 1mm) marking the top of the unit. Amphipora stretched along 60 to core axis. Local crackle breccia. 22% fine grained pyrite, concentrated in the interval sampled below. Minor stylolites (@ 61m).	MLS3	139608	496.20	497.20	0.00	0.10	0.02	0.09
		496.20-497.20 RUDSTONE CRACKLE BRECCIA Moderately mineralized interval, consisting of fine grained pyrite stringers and clots above, replacing limestone clasts; becoming more massive below where the pyrite is interlayered with coarsely crystalline calcite bands to 12 cm (@ 60 to core axis). Sharp unconformable lower contact @ 60 to core axis.								
500.03	502.28	MCDAME LIMESTONE UNIT 4 Classic, easily recognizable Unit 4, consisting of tightly packed, thin, parallel Euryamphipora, giving the limestone a laminated appearance. Euryamphipora trends @ 85 to core axis. Intercalated massive stromatoporoid and minor amphipora. - 501.1-501.55m: Partially dolomitized.	MLS4							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
502.28	559.31	<p><b>MCDAME LIMESTONE UNIT 5</b> Thick unit composed of mainly amphipora and dense packstone. The top 3.5 meters of the unit is characterized by the typical coarse amphipora which are up to 5mm in diameter. Sections of massive stromatoporoid intercalated in the upper 35m. Below 538m, mainly thick, alternating amphipora rudstone and nodular packstones, moderately stylolitized. Thin-shelled brachiopods locally present (eg 517.52m). One gastropod @ 529.55m.</p> <p>504.00-505.57 <b>FLOATSTONE DOLOMITIZED</b> Amphipora floatstone, blocky core which breaks easily along low angle fractures.</p> <p>506.25-508.20 <b>PACKSTONE DOLOMITIZED</b> Crackle brecciated, dolomitized packstone with low angle, calcite - filled fractures from 0-15 to core axis.</p> <p>509.60-509.90 <b>RUBBLE BRECCIA</b> Rubble breccia in a clastic matrix, oriented @ 20 to core axis. No visible sulphides.</p> <p>512.35-513.06 <b>DOLOMITIZED LIMESTONE MOSAIC BRECCIA</b> Crackle breccia at the top, becoming dolomitized mosaic breccia at the base. Sharp lower contact along stylolites with recrystallized limestone @ 75 to core axis.</p> <p>513.06-517.45 <b>RECRYSTALLIZED LIMESTONE</b> Yellowish-white, medium crystalline calcite, with frequent stylolites. No remnant fossils, except for massive stromatoporoid at the base.</p> <p>556.35-559.31 <b>FLOATSTONE DOLOMITIZED</b> Amphipora floatstone, blocky core, dolomitized with calcite - filled fractures @ 5-20 degrees to core axis.</p>	MLS5							
559.31	562.36	<p><b>MCDAME LIMESTONE UNIT 6</b> Top of unit 6 characterized by disseminated Euryamphipora (over 2 meters) which are considerably thicker than those typical of Unit 4 (about 2.5mm). Amphipora, stromatoporoids and thin shelled brachiopods are also present. Variable from floatstone to rudstone. Minor calcite veining @ 20 to core axis.</p>	MLS6							

HOLE NO: SSR-97-8

SECTION: 43150N

GRID: SILVER CK S.

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK S.  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC  
 HOLE TYPE : RC

\*\*\* DRILLING SUMMARY \*\*\*

RC	0.00 213.36
Drill contractor:	MIDNIGHT SUN DRILLING
Drill rig:	
Date started:	8/7/97
Date finished:	10/7/97
Logged by:	L. LEWIS, C. AKELAITIS
Relogged by:	
Sampled by:	C. AKELAITIS

\*\*\* COLLAR COORDINATES AND RL \*\*\*  
 NOMINAL 43150.00mN 25090.00mE 1468.00RL

Pre-collar depth: Final depth: 213.36  
 Purpose of hole: RC PILOT HOLE  
 Hole status: HOLE NOT COMPLETED WITH D. DRILL  
 Comments: HOLE TERMINATED IN EARN GROUP SEDIMENTS.

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

\*\*\* SURVEY DATA \*\*\*

Survey Method: NOT SURVEYED

Depth	Azimuth	Inclination
0.00	0.00	-90.00

\*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width

\*\*\* SUMMARY LOG \*\*\*

0.00 158.50 2A SILTSTONE / SANDSTONE  
 158.50 161.54 EXHALITE SILTSTONE  
 161.54 164.59 2AC CALCAREOUS SILTSTONE  
 164.59 167.64 EXHALITE SILTSTONE  
 167.64 198.12 2AC CALCAREOUS SANDSTONE / SILTSTONE  
 198.12 201.17 2AC CALCAREOUS SANDSTONE  
 201.17 213.36 2AC CALCAREOUS SILTSTONE  
 213.36 END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
0.00	158.50	2A SILTSTONE / SANDSTONE Reverse circulation chips consist of dark grey, fine grained, phyllitic siltstone with intermittent sandstone intervals. Weak iron oxide staining with trace to 1% quartz and pyrite. - 91.44 - 97.54m: Trace pyrite, sphalerite and galena in quartz chips. - 100.58 - 103.63m: Very fine chips, possible gouge - 118.87 - 121.92m: 15% quartz chips and trace pyrite within siltstone and sandstone - 137.16 - 140.21m: Very fine siltstone chips, possible gouge - 152.4 - 155.45m: Siltstone with 15% quartz, 2% pyrite and Ir galena. One large piece of exhalite within the sieved chips.	2A							
158.50	161.54	EXHALITE SILTSTONE Unit consists of 50% siltstone and 50% siliceous exhalite (possibly the F-Zone exhalite). Trace to 1% pyrite.	EX							
161.54	164.59	2AC CALCAREOUS SILTSTONE Mainly calcareous siltstone with scattered chips of quartz and exhalite.	2AC							
164.59	167.64	EXHALITE SILTSTONE 50% siliceous exhalite and 50% siltstone (both calcareous and non-calcareous siltstone).	EX							
167.64	198.12	2AC CALCAREOUS SANDSTONE / SILTSTONE Variably calcareous medium grained sandstone and fine grained siltstone, with tr - 15% quartz, and tr - 1% disseminated pyrite. - 179.87 - 182.93m: Calcareous siltstone with 15% quartz chips, 1% pyrite.	2AC							
198.12	201.17	2AC CALCAREOUS SANDSTONE Pyrite-rich calcarenite (2-3% pyrite), containing 10% quartz. **Note: 3% siliceous exhalite chips are present, possibly representing the U-Zone?.	2AC							
201.17	213.36	2AC CALCAREOUS SILTSTONE Weak to non-calcareous siltstone, trace - 1% pyrite. - 204.27 - 207.32m: Siltstone with rare chips of siliceous exhalite (possible O-Zone?).	2AC							

\*\*\* END OF HOLE \*\*\* 213.36

HOLE NO: SSR-97-9

SECTION: 43250N

GRID: SILVER CK S.

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK S.  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC  
 HOLE TYPE : RC

## \*\*\* DRILLING SUMMARY \*\*\*

RC	0.00	213.36
Drill contractor:	MIDNIGHT SUN DRILLING	
Drill rig:		
Date started:	10/7/97	
Date finished:	11/7/97	
Logged by:	L. LEWIS, C. AKELAITIS	
Relogged by:		
Sampled by:		

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

NOMINAL 43250.00mN 25160.00mE 1432.00RL

Pre-collar depth: Final depth: 213.36

Purpose of hole: RC PILOT HOLE

Hole status: HOLE NOT COMPLETED WITH  
D. DRILL

Comments: HOLE TERMINATED IN EARN  
GROUP SEDIMENTS

Material left in hole:

Base of complete oxidation

Top of fresh rock:

Water first encountered:

Water inflow estimate:

## \*\*\* SURVEY DATA \*\*\*

Survey Method: NOT SURVEYED

Depth	Azimuth	Inclination
0.00	270.00	-80.00

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
176.78	179.83	3.05
185.93	188.98	3.05

## \*\*\* SUMMARY LOG \*\*\*

0.00	149.39	2A SILTSTONE / SANDSTONE
149.39	152.44	EXHALITE SILTSTONE
152.44	170.69	2AC CALCAREOUS SILTSTONE
170.69	173.44	EXHALITE CALCAREOUS SILTSTONE
173.44	176.78	2AC CALCAREOUS SILTSTONE
176.78	192.02	EXHALITE - DISCOVERY ZONE
192.02	201.17	2AA ARGILLITE
201.17	213.36	1B SANDSTONE / SILTSTONE
213.36		END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
0.00	149.39	2A SILTSTONE / SANDSTONE Reverse circulation chips consist of dark grey, fine grained siltstone occasionally calcareous with intermittent sandstone intervals (up to 45% sandstone). Variably quartz veined with up to 15% quartz, and trace 2% pyrite. - 54.86 - 70.10m: 10% quartz chips with a trace of disseminated pyrite.	2A							
149.39	152.44	EXHALITE SILTSTONE 50% siltstone, 15% siliceous exhalite (possibly the F-Zone horizon), 15% quartz and 10% calcareous sandstone, with a trace of pyrite.	EX							
152.44	170.69	2AC CALCAREOUS SILTSTONE Predominantly dark grey, weakly calcareous siltstone containing tr - 5% quartz chips and tr - 2% pyrite. - 152.44 - 155.48m: Siltstone contains 15% quartz, 4% pyrite, tr galena and 2% pyritic exhalite.	2AC							
170.69	173.44	EXHALITE CALCAREOUS SILTSTONE 50% pyritic, siliceous exhalite (possibly the U-Zone horizon) and 50% calcareous siltstone.	EX							
173.44	176.78	2AC CALCAREOUS SILTSTONE Dark grey, calcareous siltstone with 2% quartz and tr disseminated pyrite.	2AC							
176.78	192.02	EXHALITE - DISCOVERY ZONE Likely the Discovery Zone Exhalite consisting of siliceous, quartz-veined, pyritic exhalite and minor amounts of siltstone. Pyrite ranges from 5-30%. Two samples taken indicate the presence of sphalerite with the best sample assaying 5.7% zn. 176.78-179.83 EXHALITE SAMPLE Sample of Discovery Zone exhalite, as described above. 10% pyrite, 3% fine grained, pale colored sphalerite. 185.93-188.98 EXHALITE SAMPLE Sample of pyritic exhalite with 30% pyrite, 10% sphalerite.	EXDZ	139652	176.78	179.83	0.06	22.10	0.31	1.60
				139653	185.93	188.98	0.13	20.30	0.30	5.70
192.02	201.17	2AA ARGILLITE Narrow interval of black, fine grained argillite - not carbonaceous like the typical 2AA. Trace - 2% disseminated pyrite.	2AA							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
201.17	213.36	1B SANDSTONE / SILTSTONE 50% sandstone, 50% siltstone, sporadically calcareous. Trace - 3% quartz, tr pyrite.	1B							

\*\*\* END OF HOLE \*\*\* 213.36

HOLE NO: SSR-97-10	SECTION: 43207N	GRID: SILVER CK S
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PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK S.  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC  
 HOLE TYPE : RC

\*\*\* DRILLING SUMMARY \*\*\*

RC	0.00 204.22
Drill contractor:	MIDNIGHT SUN DRILLING
Drill rig:	
Date started:	11/7/97
Date finished:	21/7/97
Logged by:	L. LEWIS, C. AKELAITIS
Relogged by:	
Sampled by:	

\*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43206.64mN 24941.80mE 1401.63RL

Pre-collar depth: Final depth: 204.22

Purpose of hole: RC PILOT HOLE  
 Hole status: HOLE NOT COMPLETED WITH D. DRILL

Comments: HOLE TERMINATED IN EARN GROUP SEDIMENTS

Material left in hole: 180' RODS, 40' CASING

Base of complete oxidation

Top of fresh rock:

Water first encountered:

Water inflow estimate:

\*\*\* SURVEY DATA \*\*\*

Survey Method: NOT SURVEYED

Depth	Azimuth	Inclination
0.00	135.00	-80.00

\*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width

\*\*\* SUMMARY LOG \*\*\*

0.00 33.53 2A SILTSTONE / SANDSTONE  
 33.53 36.58 EXHALITE SILTSTONE  
 36.58 88.39 2A SILTSTONE / SANDSTONE QUARTZ VEINED  
 88.39 91.44 EXHALITE  
 91.44 204.22 2AC CALCAREOUS SANDSTONE / SILTSTONE  
 204.22 END OF HOLE

Checked and signed:

Date:



From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
0.00	33.53	2A SILTSTONE / SANDSTONE Reverse circulation chips consisting of mainly dark grey fine grained siltstone with minor medium grey, medium grained sandstone. Weak iron oxide stain. - 27.44 - 30.49m: 55% black siltstone, 25% calcareous sandstone, 10% quartz and 10% exhalite with apple green mineral??	2A							
33.53	36.58	EXHALITE SILTSTONE Interval containing 60% iron oxide stained siltstone, 20% siliceous exhalite chips (1 - horizon?), and 10% quartz, 10% calcareous sandstone. Trace disseminated pyrite.	EX							
36.58	88.39	2A SILTSTONE / SANDSTONE QUARTZ VEINED 80% siltstone, 20% sandstone with abundant quartz veining - variable from 5-50%. Trace - 1% disseminated pyrite. Sandstone percentage increases to 80% below 70.12m. - 67.07 - 70.12m: 2 exhalite chips noted in the RC log.	2A							
88.39	91.44	EXHALITE Possibly the F-Zone Exhalite horizon containing 60% chert, 30% sandstone and 10% siltstone. Trace disseminated pyrite.	EX							
91.44	204.22	2AC CALCAREOUS SANDSTONE / SILTSTONE Interbedded calcareous sandstone and siltstone in variable amounts. Sandstone generally greater than siltstone. Below 180 meters, siltstone exceeds sandstone. Trace - 15% quartz chips, averaging approximately 2%, tr - 1% disseminated pyrite throughout.	2AC							

\*\*\* END OF HOLE \*\*\* 204.22

HOLE NO: SSD-97-11

SECTION: 42387N

GRID: SILVTIP HILL

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVTIP HILL  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 42387.32mN 24708.36mE 1521.77RL

Pre-collar depth: Final depth: 116.43

Purpose of hole: SHALLOW TEST OF SEISMIC TARGET

Hole status: DRILLED TO DEPTH

Comments: ALTERED WITH LZOX MUD 76.5-78.65M

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	270.00	-70.00
45.72	278.00	-70.00
109.73	276.00	-70.00

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	116.43	NQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR 3000		
Date started:	21/7/97		
Date finished:	22/7/97		
Logged by:	L. LEWIS		
Relogged by:			
Sampled by:	C. AKELAITIS		

Material left in hole:

Base of complete oxidation

Top of fresh rock:

Water first encountered:

Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
9.14	10.67	1.53
54.75	60.13	5.38
76.50	79.65	3.15
96.30	97.70	1.40

## \*\*\* SUMMARY LOG \*\*\*

0.00	2.80	OVERBURDEN
2.80	9.14	A1B PHYLLITE
9.14	10.67	QUARTZ VEIN
10.67	28.00	A1B PHYLLITE
28.00	45.10	A1B SANDSTONE / MUDSTONE / CONGLOMERATE
45.10	50.80	A1B PHYLLITE
50.80	56.40	FAULT ZONE A1B
56.40	56.80	A1B PHYLLITE
56.80	59.13	FAULT ZONE A1B PHYLLITE
59.13	76.50	MCDAME LIMESTONE UNIT 1
76.50	78.65	LOWER ZONE IRON OXIDE
78.65	82.35	MCDAME LIMESTONE UNIT 1
82.35	88.90	MCDAME LIMESTONE UNIT 2
88.90	103.90	FAULT ZONE MCDAME LIMESTONE UNIT 2
103.90	108.00	MCDAME LIMESTONE UNIT 2
108.00	116.43	MCDAME LIMESTONE UNIT 3

Checked and signed: \_\_\_\_\_

Date: \_\_\_\_\_

1997

SSD-97-11

HOLE NO: SSD-97-11

SECTION: 42387N

GRID: SILVTIP HILL

116.43

END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/mt	Ag g/mt	%Pb	%Zn
0.00	2.80	OVERBURDEN								
2.80	9.14	A1B PHYLLITE Pale greenish-grey fine to medium grained quartz sericite phyllite. Moderate phyllitic (crinkly) foliation with a silky sheen; core separates easily along foliation planes and frequent fractures. Cleavage and fractures are commonly coated in either hematite or limonite, giving the rock a pale orange color. The rock has a pitted texture due to weathering-out of cubic pyrite. Relict bedding visible @ 7.62-7.9, and 8.5m which is tightly folded / kink banded, at a low angle (5-15 degrees to core axis). Foliation is @ 80 to core axis. Irregular lower contact with quartz vein	A1B							
9.14	10.67	QUARTZ VEIN 9.14-10.67 QUARTZ VEIN Opaque, white, rubbly quartz vein, with 2% hematite-filled vugs and 2% limonite staining on frequent fractures. No visible sulphides remain. 70% recovery. Irregular upper contact with fragments of very soft, pale green phyllite in the upper 30 cm and the lower contact is broken.		139609	9.14	10.67	<5ppm	1.70	0.01	0.00
10.67	28.00	A1B PHYLLITE Similar to interval described from 2.8 - 9.14m. Poker chip core generally has good recovery with local gouge sections of poor recovery. Overall, approximately 1-3% hematite, 2-4% limonite, and trace -1% manganese oxide (black). - 20.6 - 28.0 m: Faint compositional banding @ 70 to core axis, consisting of millimeter to centimeter light grey sericite bands and yellow to orange-brown colored bands (sericite bands with iron oxide staining). Contorted banding around quartz pods. 10cm limonite gouge @ 26.0m. 10cm iron-oxide stained quartz vein at 27.5m with broken upper contact and sharp lower contact @ 70 to core axis.	A1B							
28.00	45.10	A1B SANDSTONE / MUDSTONE / CONGLOMERATE Interval of faint to well-recognizable sandstone, mudstone and conglomerate. The mudstone intervals are sericite-quartz phyllite, while the sandstone and conglomerate beds have a bleached, pale grey color, with rusty fractures, occasionally vuggy. The cubic vugs (to	A1B							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/mt	Ag g/mt	%Pb	%Zn
		6mm) are either weathered out pyrite or filled with hematite. The sandstone / conglomerate beds are more competent than the mudstone phyllite. The conglomerate consists of siliceous, sub-rounded clasts from 2-10mm, elongate clasts oriented @ 60 to core axis. The oxide staining is mainly within the matrix and rimming some of the clasts. Overall, 3% hematite, 1% limonite. Foliation (= bedding??) @ 65 to core axis.								
		41.60-42.00 QUARTZ VEIN Rusty, vuggy quartz vein with 3% hematite, 1% limonite. Upper and lower contacts somewhat irregular, approximately @ 45 to core axis.								
45.10	50.80	A1B PHYLLITE Pale yellowish-white to very light grey quartz - sericite - pyrite phyllite. Thin compositional banding of alternating light grey, fine grained siliceous bands and soft, yellowish-white sericite bands @ 65-70 to core axis. 3% boxwork texture of weathered-out pyrite, or hematite-filled vugs. Broken lower contact at the beginning of the rubbly core / fault zone.	A1B							
50.80	56.40	FAULT ZONE A1B Probable fault zone with poor recovery (12%), consisting of strongly oxide-stained siliceous pebbles. 50.80-54.75 NO RECOVERY 54.75-54.90 IRON OXIDE Sample of narrow zone of 70% iron oxide (50% limonite, 20% hematite) and 30% siliceous phyllite. 95% recovery. Broken upper and lower contacts with fault rubble. 54.90-56.40 FAULT ZONE PHYLLITE Fault zone rubble consisting of iron oxide-stained siliceous phyllite. 33% recovery. 4% limonite-coated fractures and 2% pyrite vugs, weathered to hematite.	A1B	139612 139613	54.75 54.90	54.90 56.40	<5ppm <6ppm	13.10 3.20	0.15 0.02	0.07 0.01
56.40	56.80	A1B PHYLLITE 56.40-56.80 PHYLLITE Sample of competent, siliceous phyllite with 4% limonite and 3% hematite.	A1B?	139614	56.40	56.80	0.01	2.50	0.01	0.01

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
56.80	59.13	<b>FAULT ZONE A1B PHYLLITE</b> Oxidized rubble / mud interval with 34% recovery <b>56.80-58.50 PHYLLITE</b> Sample of iron oxide-stained, siliceous phyllite rubble 32% recovery, 7% limonite, 3% hematite <b>58.50-59.13 IRON OXIDE MUD</b> Oxide mud interval with 25% limonite, 15% hematite and 60% phyllite chips. 32% recovery. Faulted, broken lower contact with limestone.	A1B	139615	56.80	58.50	<5ppm	2.70	0.03	0.07
				139616	58.50	59.13	0.01	0.30	0.01	0.00
59.13	76.50	<b>MCDAME LIMESTONE UNIT 1</b> Weakly bleached, mottled limestone consisting mainly of dense packstone, amorphous floatstone / grainstone, and minor massive stromatoporoid. Possible crinoid ossicles @ 74.08m. Amphipora are often stretched along foliation @ 70 to core axis (eg. 55-55m). The unit is moderately fractured with 2 prominent fractures @ 10 and 50 to core axis. The fractures are either coated in hematite or limonite. Scattered cubes, formally pyrite, now oxidized to hematite. Brecciation virtually absent, except for local crackle breccia. 3% calcite fracture filling, rarely as veins (75.35-75.5). Overall, 2% hematite, 2% limonite. Sharp lower contact @ 50 to core axis with calcite - iron oxide zone. <b>59.13-60.13 PACKSTONE</b> Sample below the unconformity in McDame limestone. Several clots of hematite adjacent to the contact and minor oxide staining along fractures. Limestone does not visually look altered, but has a vague mottled look, with no identifiable fossils. Minor crackle breccia. 20cm calcite vein, 70 degrees to core axis, at lower contact.	MLS1	139617	59.13	60.13	<5ppm	0.40	0.00	0.05
76.50	78.65	<b>LOWER ZONE IRON OXIDE</b> <b>76.50-78.65 IRON OXIDE</b> Oxidized Lower Zone?? Upper contact sharp @ 50 to core axis, with vuggy limestone (dissolved holes to 3cm). Poor recovery within the zone (16%), which consists of 20% oolitic calcite, 55% limonite, and 25% hematite. Core is very vuggy and broken. Sharp lower contact @ 55 to core axis.	LZOX	139618	76.50	78.65	0.01	15.00	0.18	1.77

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From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn	
78.65	82.35	<b>MCDAME LIMESTONE UNIT 1</b> Weakly silicified, mottled interval of limestone, few fossils visible (massive stromatoporoid, minor thamnopora). Crackle breccia with weak iron oxide staining. Difficult to pick the bottom of Unit 1. <b>78.65-79.65 PACKSTONE CRACKLE BRECCIA</b> Footwall sample of Lower Zone Oxide. As described above. 5cm of hematite mud @ 79.2-79.25m. 5% hematite, 2% limonite.	MLS1	139619	78.65	79.65	<5ppm	0.70	0.00	0.01	
82.35	88.90	<b>MCDAME LIMESTONE UNIT 2</b> <b>82.35-87.95 PACKSTONE DOLOMITIZED</b> Medium to dark grey, partially dolomitized limestone. Minor crackle breccias and calcite stringers, 20-30 degrees to core axis. Faint massive stromatoporoids visible as well as minor rugose corals (eg. 85.26m), and thamnopora. 1% pyrite cubes to 5mm, now oxidized to red-brown hematite, 1% limonite, mainly coating fractures. - 87.05m: 1cm calcite - hematite - limonite stringer @ 35 to core axis. Gradational lower contact over 80cm with non-dolomitized limestone. <b>87.95-88.90 PACKSTONE</b> Mottled packstone with faint, scattered massive stromatoporoid and one brachiopod shell @ 88.55m. Irregular lower contact with faulted limestone.	MLS2								
88.90	103.90	<b>FAULT ZONE MCDAME LIMESTONE UNIT 2</b> Probable fault zone consisting of competent intervals of massive stromatoporoid limestone, 20-120 cm wide, separated by iron oxide-stained rubble / gouge intervals, 20-70 cm wide. Crackle to mosaic breccia common. The oxides are concentrated in the rubble zones and over the entire unit, average 7% limonite, and 5% hematite. <b>ALTERED</b> representative sample of the rubble / gouge intervals is taken below. <b>96.30-97.70 FAULT ZONE RUBBLE</b> Sample interval of rubble zone consisting of iron oxide stained limestone fragments with 6% limonite and 4% hematite coating fracture surfaces and as gouge.	MLS2	139620	96.30	97.70	<5ppm	1.80	0.30	0.08	

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From	To	Geological Log	UNIT	SAMPLE FROM	TC	Au gmt	Ag gmt	%Pb	%Zn
103.90	108.00	MCDAME L.MESTONE UNIT 2 Good section of unbrecciated massive stromatoporoid and minor amphipora floatstone. Minor limonite coating fractures. - 107.5-108.0m: Crackle breccia.	MLS2						
108.00	116.43	MCDAME L.MESTONE UNIT 3 Amphipora floatstone / packstone with minor rugose corals and lhamnopora. Most of the unit is crackle breccia with 10% calcite - filled fractures @ 5-15 to core axis Amphipora moderately stretched along 70 to core axis. 1% limonite, trace hematite 114.00-114.50 FAULT ZONE Hematite-stained rubble. 6% hematite. Sharp upper contact @ 45 to core axis. broken lower contact. 114.50-116.43 PACKSTONE Fractured and oxide-stained, but not as rubby as above interval. 3% hematite, 1% limonite.	MLS3						

\*\*\* END OF HOLE \*\*\* 116.43

HOLE NO: SSD-97-12

SECTION: 42529N

GRID: SILVTIP HILL

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVTIP HILL  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, MC  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 42528.50mN 24696.68mE 1531.23RL

Pre-collar depth: Final depth: 108.39  
 Purpose of hole: TEST SHALLOW SEISMIC  
 TARGET  
 Hole status: DRILLED TO DEPTH  
 Comments: OXIDE LOWER ZONE: 83.4-97.  
 1M

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	270.00	-70.00
42.67	281.00	-67.00
103.63	289.00	-67.00

## \*\*\* SUMMARY LOG \*\*\*

0.00 6.10 OVERBURDEN  
 6.10 10.97 A1B PHYLLITE  
 10.97 24.38 A1B SANDSTONE PHYLLITE  
 24.38 38.50 A1B PHYLLITE  
 38.50 61.45 SANDSTONE /  
 CONGLOMERATE /  
 SILTSTONE  
 61.45 68.58 A1B PHYLLITE  
 68.58 79.30 FAULT ZONE A1B PHYLLITE  
 79.30 83.40 FAULT ZONE A1B PHYLLITE  
 83.40 97.10 LOWER ZONE OXIDIZED  
 97.10 97.54 MCDAME LIMESTONE UNIT  
 1  
 97.54 98.45 FAULT ZONE  
 98.45 100.16 MCDAME LIMESTONE UNIT  
 1 RUBBLE BRECCIA  
 100.16 102.09 MCDAME LIMESTONE UNIT  
 1  
 102.09 103.92 MCDAME LIMESTONE UNIT  
 1 MOSAIC BRECCIA  
 103.92 108.39 MCDAME LIMESTONE UNIT  
 1 RUBBLE BRECCIA  
 108.39 END OF HOLE

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	108.39	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR 3000		
Date started:	22/7/97		
Date finished:	24/7/97		
Logged by:	C. AKELAITIS, L. LEWIS		
Relogged by:			
Sampled by:	C. AKELAITIS		

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
82.50	99.45	16.95

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
0.00	6.10	OVERBURDEN								
6.10	10.97	A1B PHYLLITE Pale greenish-grey, fine to medium grained quartz sericite phyllite. Moderate phyllitic (crinkly) foliation with a silky sheen; core separates easily along foliation and frequent fractures. Cleavage and fractures are coated in hematite and limonite, giving the rock a pale orange color. The rock has a pitted texture due to weathering out of cubic pyrite. Relict bedding visible from 7.06-7.72m. Wavy bedding and foliation both @ 80 degrees to core axis. Conformable contact with sandstone. 6.82-7.06 FAULT ZONE Fault zone rubble consisting of iron oxide stained quartz sericite phyllite, 50% limonite.	A1B							
10.97	24.38	A1B SANDSTONE PHYLLITE Bleached pale grey, medium grained quartz sericite sandstone interbedded with pale greenish-grey fine grained quartz sericite phyllite, 70% sandstone, 30% phyllite. Core separates easily along foliation and fractures. Similar pitted appearance and oxide staining as the previous unit. Bedding (wavy and herringbone) occasionally visible @ 80 to core axis. Foliation @ 75 to core axis. Conformable lower contact. 21.85-24.38 RUBBLE GOUGE Interval of blocky rubbly core with minor gouge, 45% sandstone, 45% phyllite, 10% limonite - 24.06 - 24.21m: Quartz Vein @ 40 degrees, poor recovery with no visible sulphides, 2% hematite staining.	A1B							
24.38	38.50	A1B PHYLLITE Similar to interval described from 6.10 - 10.97m. Poker chip core, generally has good recovery. Overall, approximately 10% limonite and 3% hematite. Compositional banding @ 70 to core axis, consisting of millimeter to centimeter light green-grey sericite bands and yellow to orange-brown colored bands. Throughout the interval there are intermittent limonite filled joints at low angles (5-25 to core axis). - 27.59m: ALTERED series of fractures @ 30 to core axis	A1B							

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From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		with up to 1/2 centimeter displacement along bedding planes. - 27.74m: hematite nodule with banding contorted around it. - 28.73m: 3cm quartz stringer @ 58 to core axis, limonite stained and pitted surface from weathered out pyrite. - 38.33 - 38.5m: Strong limonite staining with quartz stringers.								
38.50	61.45	SANDSTONE / CONGLOMERATE / SILTSTONE Interval of faint to easily recognizable sandstone, mudstone and conglomerate. The mudstone intervals are dark grey to black quartz sericite phyllite. The sandstone and conglomerate have a bleached pale grey color with limonite filled fractures. Again, present is a pitted texture due to weathering out of pyrite. The conglomerate consists of sub-rounded siliceous clasts from 2-8mm in a finer grained matrix. Elongated clasts are oriented at 70 to core axis. Bedding at 48.95m is at 50 to core axis, foliation @ 55 to core axis. 38.89-39.62 FAULT ZONE Probable fault zone with moderate recovery (70%) consisting of strongly oxide stained siliceous pebbles and quartz, 75% limonite, 20% quartz, 5% hematite.	A1B							
61.45	68.58	A1B PHYLLITE Poor recovery of bleached grey, fine grained, weakly calcareous quartz sericite phyllite with pitted texture. At 50 degrees to core axis are 1-5mm mudstone beds, 5% hematite-filled vugs. Irregular upper and lower contacts. - 66.32 - 67.06m: Contorted and folded bedding. 61.45-62.48 FAULT ZONE PHYLLITE Oxidized phyllite rubble with poor recovery, 60% limonite, 30% hematite.	A1B							
68.58	79.30	FAULT ZONE A1B PHYLLITE Probable fault zone with poor recovery (15%) consisting of iron oxide stained quartz sericite phyllite pebbles. There is a minor amount of limonite gouge between 71.02 - 73.15m. The recovery in this interval is 11%. Overall 10% limonite, 5% hematite.	FZ							

SSD-97-12 Page 2



From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		70 14-71 02 PHYLLITE Pale yellowish-white to very light grey quartz sericite phyllite. Thin compositional banding of alternating soft yellowish white sericite bands with fine grained light grey siliceous bands. Banding is at 50 to core axis. Pitted core surface.								
79 30	83 40	FAULT ZONE A1B PHYLLITE Probable fault zone consisting of oxide stained phyllite rubble / mud, with 55% recovery. 82 50-83 40 PHYLLITE GOUGE Hanging wall sample to iron oxide zone below, consisting of iron oxide stained quartz sericite phyllite rubble / mud with small chips (2-5mm) of sericite and partially silicified phyllite within the mud. 75% recovery 15% limonite, 5% hematite.	FZ	139621	82 50	83 40	<5ppm	2.40	0.03	0.04
83 40	97 10	LOWER ZONE OXIDIZED Possible remnant of a lower zone, now oxidized to a rusty mud of variable recovery (10 - 88% recovery) Minor clay alteration present. 83 40-84 43 OXIDE MUD Sample of iron oxide mud with 85% limonite, 10% hematite and 5% calcite stringers. 53% recovery 84 43-85 34 OXIDE MUD Sample of iron oxide mud similar to the previous sample. 85% limonite, 10% hematite, 5% calcite and 42% recovery. 85 34-88 40 OXIDIZED Very poor recovery (10%) of more competent, but still oxidized rock. Sample is brownish-red, vuggy and broken core with 60% limonite, 25% hematite and 15% calcite stringers. 88 40-89 50 OXIDE MUD Surprisingly good recovery (84%) of reddish-brown to dark brown iron oxide mud. Also present is a sub-vitreous white mineral which exhibits conchoidal fracture and thought to be the clay mineral Halloysite (aluminum silicate - 5%). 75% limonite, 20% hematite. 89 50-90 53 OXIDE MUD	LZOX	139622	83 40	84 43	<5ppm	2.80	0.06	0.25
				139623	84 43	85 34	0.02	376.50	5.57	0.43
				139624	85 34	88 40	0.03	25.90	1.17	0.65
				139625	88 40	89 50	0.02	26.50	0.93	1.90
				139626	89 50	90 53	0.01	28.50	0.88	1.17

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		85% recovery of dark reddish-brown iron oxide mud containing 50% limonite, 45% hematite and 5% clay. 90 53-91 53 OXIDE MUD Similar to previous sample with 75% limonite, 20% hematite and 5% clay. 91 53-92 55 OXIDE MUD Light brown to reddish-brown oxide mud with 85% limonite, 12% hematite and 3% clay. 85% recovery. Within the mud there are mm-sized contorted bands - remnant banding?? 92 55-93 57 OXIDE MUD 80% recovery of light reddish-brown oxide mud with 92% limonite, 5% hematite and 7% white clay. *Note: Sample 139630 is a duplicate sample of this interval and 139631 is a blank following this interval. 93 57-94 49 OXIDE MUD Poor recovery (44%) of light reddish-brown oxide mud containing 90% limonite, 5% hematite, 4% white clay and 1% siliceous limestone. Trace of a soft silvery mineral - possibly antimony or stibnite? 94 49-97 10 OXIDE MUD 38% recovery of light brown oxide mud with a very sandy texture. 97% limonite, 3% hematite. Irregular lower contact with limestone.		139627	90 53	91 53	0.02	40.60	0.60	5.74
				139628	91 53	92 55	0.01	19.70	0.32	1.83
				139629	92 55	93 57	0.01	15.50	0.28	3.88
				139632	93 57	94 49	0.01	13.00	0.40	2.15
				139633	94 49	97 10	0.01	10.70	0.30	2.29
97 10	97 54	MCDAME LIMESTONE UNIT 1 97 10-97 54 FAULTED Weakly bleached amphiopora floatstone with 10% calcite veining. Fractures are coated in hematite + limonite. At the base of the interval, there is 3cm of gouge at a contact of 0 degrees to core axis. 2% limonite, 1% hematite.	MLS1	139634	97 10	97 54	<5ppm	1.90	0.01	0.14
97 54	98 45	FAULT ZONE 97 54-98 45 OXIDE MUD Probable fault zone with 3% recovery consisting of oxide stained limestone and phyllite and oxide mud. 65% limonite, 20% hematite, 10% limestone, 5% phyllite.	FZ	139635	97 54	98 45	0.01	27.70	0.73	0.96

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
98.45	100.16	MCDAME LIMESTONE UNIT 1 RUBBLE BRECCIA Rubble / mosaic breccia consisting of limestone and unaltered siltstone clasts 2mm-4cm in diameter in alternating calcite cement (50%) and sedimentary matrix (40%). Rare amphipora visible. Minor amounts of pitting due to oxidation of sulphides. 98.45-99.45 LIMESTONE RUBBLE BRECCIA Sample of mixed rubble and mosaic breccia. Mosaic breccia from 98.45 - 99.27m consisting of limestone and unaltered siltstone clast in calcite cement. Sub-rounded clasts range in size from 3mm - 1.5cm. From 99.27 - 99.45m, rubble breccia contains unaltered-looking siltstone and limestone clasts, 1mm - 2cm, in a sedimentary matrix, 47% recovery.	MLS1	139636	98.45	99.45	<5ppm	0.40	0.00	0.01
100.16	102.09	MCDAME LIMESTONE UNIT 1 Predominantly dense packstone with minor massive stromatoporoid, amphipora and Tryplasma. Stylolites present and are oxide stained. 5% calcite veining. Pitted appearance to the core due to sulphide oxidation.	MLS1							
102.09	103.92	MCDAME LIMESTONE UNIT 1 MOSAIC BRECCIA The upper 50cm made up of mosaic breccia containing clasts of sub-rounded limestone in a calcite cement. Below is packstone with very small amphipora (<2mm) and strongly calcite veined (0 - 45 degrees to core axis).	MLS1							
103.92	106.39	MCDAME LIMESTONE UNIT 1 RUBBLE BRECCIA Variable unit containing amphipora floatstone rubble breccia and packstone. Amphipora are very fine (<2mm) and there are possible Thamnopora @ 106.3m. Scattered cubes, formerly pyrite, now oxidized to hematite, are visible throughout the interval. There is a sharp contact, 30 to core axis, between packstone and rubble breccia at 106.04m. Fractures and stylolites are iron oxide stained. 4% calcite veining, 1% hematite, 2% limonite. 105.70-106.40 PACKSTONE Unaltered-looking packstone with scattered massive stromatoporoid (105.95m). Sharp upper and lower contacts with a rubble breccia. Upper contact at 40 degrees and lower contact at 30 degrees. Minor oxide	MLS1							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		stringers. 106.40-107.60 RUBBLE BRECCIA Breccia consisting of sub-rounded clasts, 2mm-3cm in diameter, of limestone and calcite on a sedimentary matrix. Hematite-filled stylolites and fractures. At 106.28m, there is a rubble breccia clast within the rubble breccia, indicating more than one episode of brecciation. 107.60-108.39 FLOATSTONE Amphipora floatstone, 2-4mm in diameter. 5% calcite veining and fracture filling. Stylolites are common and often oxide stained.								

\*\*\* END OF HOLE \*\*\* 108.39

HOLE NO: SSD-97-13

SECTION: 42356

GRID: SILVTIP HILL

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVTIP HILL  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 42356.36mN 24684.14mE 1513.29RL

Pre-collar depth: Final depth: 149.35  
 Purpose of hole: TEST DEEP SEISMIC TARGET  
 Hole status: DID NOT DRILL TO DEPTH,  
 LOST CIRC.  
 Comments: OXIDIZED, ALTERED LZ: 64.3-  
 80.6M

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
91.44	120.00	-88.00
146.30	124.00	-87.00

## \*\*\* SUMMARY LOG \*\*\*

0.00	3.05	OVERBURDEN
3.05	25.40	A1B PHYLLITE
25.40	51.70	A1B SANDSTONE / MUDSTONE / CONGLOMERATE
51.70	61.65	A1B PHYLLITE
61.65	64.30	FAULT ZONE A1A PHYLLITE
64.30	80.60	LOWER ZONE OXIDIZED ALTERED
80.60	97.54	FAULT ZONE MCDAME LIMESTONE UNIT 1
97.54	99.80	MCDAME LIMESTONE UNIT 2
99.80	100.30	LOWER ZONE OXIDIZED
100.30	103.65	MCDAME LIMESTONE UNIT 2
103.65	104.45	LOWER ZONE OXIDIZED
104.45	104.85	MCDAME LIMESTONE UNIT 2
104.85	105.38	LOWER ZONE OXIDIZED
105.38	116.32	MCDAME LIMESTONE UNIT 2
116.32	129.94	MCDAME LIMESTONE UNIT 3

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00 139.90 HQ
Drill contractor:	OLYMPIC DRILLING
Drill rig:	VALDOR 3000
Date started:	24/7/97
Date finished:	28/7/97
Logged by:	L. LEWIS
Relogged by:	
Sampled by:	C. AKELAITIS
DIAMOND	139.90 149.35 NQ
Drill contractor:	OLYMPIC DRILLING
Drill rig:	VALDOR 3000
Date started:	24/7/97
Date finished:	28/7/97
Logged by:	L. LEWIS
Relogged by:	
Sampled by:	C. AKELAITIS

Material left in hole:

Base of complete oxidation

Top of fresh rock:

Water first encountered:

Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
61.65	82.10	20.45
86.30	88.20	1.90
99.80	100.30	0.50
103.65	105.38	1.73
145.08	145.50	0.42

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

HOLE NO: SSD-97-13

SECTION: 42356

GRID: SILVTIP HILL

129.94	132.21	MCDAME LIMESTONE UNIT 4
132.21	139.90	MCDAME LIMESTONE UNIT 5
139.90	140.20	FAULT ZONE
140.20	145.08	MCDAME LIMESTONE UNIT 5
145.08	145.50	LOWER ZONE OXIDIZED
145.50	149.35	FAULT ZONE MCDAME LIMESTONE UNIT 5
149.35		END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
0.00	3.05	OVERBURDEN							
3.05	25.40	A1B PHYLLITE Similar to phyllite in holes SSD-97-11 & 12. Pale greenish-grey, fine grained quartz - sericite phyllite. Moderate phyllitic (crinkly) foliation with a silky sheen; core separates moderately easily along foliation planes and frequent fractures. Cleavage and fractures are commonly coated in hematite and lesser limonite. Prominent fractures at 20 & 40 degrees to core axis. 3% irregular, fractured quartz veining, 1-5 cm wide, with clots of hematite + limonite. Veins are sub-parallel to foliation @ 60-70 to core axis. Scattered, partially weathered-out quartz - hematite vugs to 3 cm. Fine to coarsely pitted from oxidized pyrite cubes. Broken lower contact with conglomerate. - 9.27m: 7cm of very pale grey, phyllitic gouge + iron oxide-stained chips. - 18.29m: 5cm of clay gouge + phyllitic chips. - 12-14m: Remnant (?) contorted, thin bedding @ 5-15 degrees to core axis. - 21.43m: 12cm of light grey clay gouge + limonite-stained chips. - 25.0-25.4m: Fractured interval of hematite + limonite-coated phyllite chips.	A1B						
25.40	51.70	A1B SANDSTONE / MUDSTONE / CONGLOMERATE Interval consisting of 60% bleached-looking, pitted, pale grey, fine to medium grained sandstone (iron oxide-stained massive to weakly foliated), 30% pale greenish-grey phyllite (mudstone), and 10% bleached, clast-supported pebble conglomerate. Sub-rounded clasts range from 3mm - 4cm and are often stretched along foliation at about 75 to core axis. Almost has a stylonitic-look between clasts. The conglomerate sequences fine upward to sandstone / phyllite. Fractured intervals are strongly oxide-stained. Overall, 3% limonite, 3% hematite. Hematite also replaces cubic pyrite to 6mm. 3% quartz veining to 3cm, either sub-parallel to foliation (75 to core axis) or at 15 to core axis. Occasional open-space fill with euhedral quartz crystals to 7 mm. Sharp lower contact @ 70 to core axis.	A1B						

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn	
		with banded, phyllitic interval below. 48.75-51.70 SANDSTONE 60% rubbly core, consisting of blocky, iron-stained sandstone, 4% limonite, 3% hematite.								
51.70	61.65	A1B PHYLLITE Pale yellowish-white to very light grey quartz - sericite phyllite. Thin compositional banding of alternating light grey, fine grained, siliceous mm bands and soft, yellowish-white sericite bands @ 73 to core axis. 3-6% boxwork texture of weathered-out pyrite or hematite-filled cubes to 1 cm. Strong iron-oxide staining on fractures. 4% hematite, 3% limonite. Core breaks moderately easily along foliation and there are frequent rubble zones (35%). Abrupt broken lower contact with fault zone below.	A1B							
61.65	64.30	FAULT ZONE A1A PHYLLITE 61.65-63.15 FAULT ZONE PHYLLITE Sample of rubbly, limonite-stained, quartz - sericite phyllite with 10% gouge. Chips are 1-6 cm. 15% limonite, 8% hematite. 63.15-64.30 FAULT ZONE PHYLLITE Similar to previous interval with slightly increased limonite - hematite staining. Increased gouge to 15%. 20% limonite, 10% hematite, and 20% unknown mineral which is earthy, white, sometimes with a greenish-blue tint, soft, powdery, conchoidal fracture, and white streak. Could possibly be Melanterite (??), a hydrous iron sulfate which is a secondary mineral and generally formed by the oxidation of pyrite or other iron-sulphide minerals in the zone of alteration in massive hydrothermal replacement deposits.	A1A	139637 139638	61.65 63.15	63.15 64.30	<5ppm 0.01	1.30 1.40	0.01 0.01	0.04 0.06
64.30	80.80	LOWER ZONE OXIDIZED ALTERED Wide zone of what appears to be an altered, oxidized massive sulphide zone. The mineralogy of this zone varies from the typical hematite - limonite iron oxides found at surface on the Silvertip Hill gossan. The main mineral, 40-55%, is a white, chalky, soft, clay-like mineral. It occasionally grades into a glassy, pale blue color, has a	LZOX?	139639	64.30	65.80	<5ppm	4.70	0.01	0.13

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		white streak and conchoidal fracture. Two samples from this zone were sent for XRD analysis to JBC (Mati Raudsepp). The first sample from 76.1m was the white clay-like material. The XRD pattern was typical of a relatively well-crystallized clay (Halloysite: $\text{Al}_2\text{Si}_2\text{O}_5(\text{OH})_4$ ). The second sample from 80.45m was the glassy pale blue material. The XRD pattern showed an amorphous clay, with peaks from halloysite and possibly montmorillonite and/or vermiculite. The SEM analysis of this sample indicated the presence of thin crusts of material relatively rich in zinc and/or manganese with minor copper and nickel (appear to be black spots with a dull lustre in hand specimen). Mr. Raudsepp suggests these could be just oxide crusts, or possibly baileychlore (a Zn-rich chlorite) which has been found from drill core in the Red Dome gold deposit in Australia. The next most abundant mineral is a black, powdery mineral - probably manganese oxide. Hematite + limonite account for 10-25% of the zone.								
		64.30-65.80 OXIDIZED ALTERED Crumbly incompetent interval containing approximately 50% black, soft mineral (manganese oxide?) and another soft mineral that is earthy white, grading into glassy, pale blue with conchoidal fracture - an amorphous clay (Al & Si in a 1:1 ratio from XRD analysis). Copper and nickel values appear to be related to the black spots with a dull lustre in hand specimen. Larger pieces to 2 cm have a fine, wavy, banded texture (replacement nature?). 10% hematite + limonite.		139640	65.80	67.30	<5ppm	1.50	0.00	0.10
		65.80-67.30 OXIDIZED ALTERED Similar to previous interval. Some of the larger pieces show faint colloform texture. 45% black manganese, 40% white clay, 10% hematite, 5% limonite.		139641	67.30	68.80	<5ppm	2.10	0.00	0.17
		67.30-68.80 OXIDIZED ALTERED Similar to previous 2 intervals with increased iron oxides. 35% black manganese, 40% white clay, 15%		139642	68.80	70.30	<5ppm	1.70	0.00	0.11

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		limonite, 10% hematite.								
		68.80-70.30 OXIDIZED ALTERED Similar again to previous samples with 50% white clay, 25% black manganese oxide, 15% limonite & 10% hematite. Crinkly, thinly contorted laminae.		139643	70.30	71.80	<5ppm	8.00	0.00	0.22
		70.30-71.80 OXIDIZED ALTERED Similar to above, but core held together better, so textures are more visible. 50% white clay, 35% black manganese, 10% orange & yellow brown limonite, 5% dark brown hematite. Occasional contorted thin laminae visible.		139644	71.80	73.30	<5ppm	7.20	0.00	0.25
		71.80-73.30 OXIDIZED ALTERED Similar to above interval with the addition of a chalky blue-grey mineral (10%) in pods to 6 cm with laminated white clay, manganese oxide and limonite rimming the pods. 50% white clay, 30% black manganese & 10% limonite.		139645	73.30	74.80	<5ppm	7.70	0.01	0.51
		73.30-74.80 OXIDIZED ALTERED Increased light orange limonite (25%), 55% white clay & 20% black manganese oxide. *Note: 139650 is a duplicate of this interval.		139646	74.80	76.30	<5ppm	8.50	0.00	0.50
		74.80-76.30 OXIDIZED ALTERED 50% earthy white to glassy blue clay, 30% black manganese, 10% dark brown hematite, 10% light brown limonite, arranged in contorted thin laminae or clots.		139647	76.30	77.72	<5ppm	23.10	0.01	0.46
		76.30-77.72 OXIDIZED ALTERED Similar to previous interval.		139648	77.72	79.16	<5ppm	8.80	0.15	0.85
		77.72-79.16 OXIDIZED ALTERED Very minor white clay remaining, mainly hematite (45%) and limonite (40%) mud, crumbly. 10% manganese oxide.		139649	79.16	80.60	<5ppm	12.40	0.12	4.77
		79.16-80.60 OXIDIZED ALTERED Similar to previous interval. Broken lower contact with limestone.								

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
80.60	97.54	<b>FAULT ZONE MCDAME LIMESTONE UNIT 1</b> Broken / fractured limestone with frequent oxide-stained rubble zones with poor recovery. Prominent fracturing @ 20, 30 & 50 degrees to core axis which are hematite and limonite coated. Packstone, amphipora, stromatoporoid and minor Thamnopora + rugose corals present. Mottled light grey to medium grey sl below 93.57m. 80.60-82.10 <b>FAULT ZONE GOUGE</b> Footwall sample below the altered Lower Zone. 33% recovery of 50% limestone rubble, 50% hematite-colored gouge, 20% limonite. Broken upper contact.	MLS1	139654	80.60	82.10	<5ppm	3.00	0.02	0.49
	82.10-84.20	<b>FAULT ZONE GOUGE</b> Similar to above sample interval consisting of chips of limestone in hematite gouge (20%). Broken lower contact.		139656	86.30	87.40	0.03	12.30	0.05	0.96
	86.30-87.40	<b>FAULT ZONE OXIDE MUD</b> Fault / oxide zone with 50% iron oxide mud, 40% limestone chips and 10% powdery calcite. Colloform texture on split surface of core.								
	87.40-88.20	<b>FAULT ZONE OXIDE MUD</b> Similar to previous interval with increased limestone. 70% limestone, 30% iron oxide mud / gouge. Sharp lower contact @ 55 to core axis.		139657	87.40	88.20	<5ppm	5.50	0.02	0.29
	89.90-93.75	<b>FAULT ZONE PACKSTONE</b> Limestone rubble / minor gouge zone with 40% recovery, 10% hematite, 5% limonite. Broken upper and lower contact.								
	95.75-96.20	<b>GOUGE OXIDE MUD</b> 40% limonite, 40% hematite & 20% limestone fragments. Sharp lower contact @ 50 to core axis.								
	96.75-97.54	<b>GOUGE OXIDE MUD</b> Similar to previous interval. 20% limonite, 50% hematite & 30% limestone. Approximately the base of McDame Limestone Unit 1. Start to see abundant massive stromatoporoid below this.								

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
97.54	99.80	<b>MCDAME LIMESTONE UNIT 2</b> Broken stromatoporoid floatstone with rubble & gouge from 97.54 - 99.1m.	MLS2							
99.80	100.30	<b>LOWER ZONE OXIDIZED</b> 99.80-100.30 <b>OXIDE MUD</b> Possible, narrow, oxidized Lower Zone containing mainly oxide mud (70% hematite, 10% limonite), 10% black manganese oxide and 8% white clay. Thinly laminated at irregular upper contact. Irregular lower contact. Good recovery.	LZOX	139658	99.80	100.30	<5ppm	4.80	0.02	3.33
100.30	103.65	<b>MCDAME LIMESTONE UNIT 2</b> Massive stromatoporoid - amphipora floatstone. Broken interval with low angle fracturing @ 15-25 degrees to core axis, coated in limonite. Noticeable lack of brecciation within the limestone. Irregular lower contact @ approximately 70 to core axis.	MLS2							
103.65	104.45	<b>LOWER ZONE OXIDIZED</b> 103.65-104.45 <b>OXIDE MUD</b> Oxide mud zone with 30% hematite chips. Looks to be an oxidized sulphide zone with good recovery. Surprisingly lacks the white clay mineral abundant in the zone adjacent to the unconformity. Sharp lower contact @ 45 to core axis.	LZOX	139659	103.65	104.45	0.04	14.60	0.10	5.32
104.45	104.85	<b>MCDAME LIMESTONE UNIT 2</b> 104.45-104.85 <b>LIMESTONE</b> Narrow interval of limestone with limonite gouge filled fractures @ 20 to core axis. 10% limonite. Sharp lower contact with Lower Zone @ 85 to core axis.	MLS2	139660	104.45	104.85	<5ppm	0.90	0.00	0.05
104.85	105.38	<b>LOWER ZONE OXIDIZED</b> 104.85-105.38 <b>OXIDE MUD</b> Similar to previous Lower Zone from 103.65 - 104.45m. Red-brown iron oxide mud zone. Can see fine, crinkly millimeter bands of black manganese and hematite 30% hematite chips, 70% mud. Sharp lower contact @ 30 to core axis.	LZOX	139661	104.85	105.38	<5ppm	5.30	0.02	7.22

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
105.38	116.32	MCDAME LIMESTONE UNIT 2 Massive stromatoporoid with intercalated amphipora floatstone. Rugose coral - Trypanasma throughout. Some sections of massive stromatoporoid framestone present. Very minor calcite stringers @ 10 - 15 to core axis. Less fractured / broken than the overlying limestone. Distinctive pinkish-red coating on fractures - Rhodochrosite?? (eg. 111.65m: doesn't react with zinc zap). - 108.95 - 109.2m: Narrow fault zone consisting of lime mud & limestone pebbles.	MLS2							
116.32	129.94	MCDAME LIMESTONE UNIT 3 Amphipora floatstone / rudstone with minor intercalated massive stromatoporoid and dense packstone. Frequent fractures @ 60 to core axis (6 per meter) with either the pinkish-red or limonite coating. Occasional vugs with hexagonal quartz to 1cm. - 117.43 - 118.0m: Rubbly, broken core with manganese + hematite stain. - 120.8m: 25 cm of stylolitic breccia. - 122.2 - 122.9m: Irregular calcite veining, very coarsely crystalline.	MLS3							
129.94	132.21	MCDAME LIMESTONE UNIT 4 Main Euryamphipora unit with intercalated massive stromatoporoid + minor amphipora. 3% calcite stringers and fracture fillings. Euryamphipora layering @ 85 to core axis.	MLS4							
132.21	139.90	MCDAME LIMESTONE UNIT 5 Top of unit 5 has the characteristic, very coarse amphipora (to 5mm diameter). Scattered, thin-shelled brachiopods and intercalated dense packstone. Moderately fractured with intermittent rubble / gouge intervals from 20-40cm, with hematite + limonite + pinkish-red staining. At 139.9m, lost circulation and reduced from HQ core to NQ.	MLS5							
139.90	140.20	FAULT ZONE Poor recovery of brown hematite mud + limestone pebbles.	FZ							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
140.20	145.08	MCDAME LIMESTONE UNIT 5 Mainly amphipora floatstone / rudstone, amphipora stretched along 85 degrees to core axis.	MLS5							
145.08	145.50	LOWER ZONE OXIDIZED 145.08-145.50 OXIDE MUD Sample of mainly orange mud - limonite.	LZOX?	139662	145.08	145.50	0.01	3.90	0.04	13.13
145.50	149.35	FAULT ZONE MCDAME LIMESTONE UNIT 5 Limonite stained limestone pebbles.	FZ							

\*\*\* END OF HOLE \*\*\* 149.35



HOLE NO: SSD-97-14

SECTION: 43690N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43689.51mN 24759.26mE 1217.76RL

Pre-collar depth: Final depth: 106.68

Purpose of hole: STEP-OUT DRILLING AROUND  
 SSD-97-2

Hole status: DRILLED TO DEPTH

Comments: LOWER ZONE: 45.42 - 57.35M

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
45.72	339.00	-88.00
100.58	331.00	-88.00

## \*\*\* SUMMARY LOG \*\*\*

0.00 18.29 OVERBURDEN  
 18.29 19.50 1B SILTSTONE /  
 SANDSTONE  
 19.50 30.48 FAULT ZONE 1AA GOUGE  
 30.48 36.58 FAULT ZONE MCDAME  
 LIMESTONE  
 36.58 45.42 MCDAME LIMESTONE  
 RUBBLE BRECCIA  
 45.42 57.35 LOWER ZONE MASSIVE  
 SULPHIDE  
 57.35 71.80 MCDAME LIMESTONE UNIT  
 2  
 71.80 78.80 MCDAME LIMESTONE UNIT  
 3  
 78.80 79.80 LOWER ZONE  
 79.80 86.90 MCDAME LIMESTONE UNIT  
 3 ALTERED RUBBLE  
 BRECCIA  
 86.90 100.45 MCDAME LIMESTONE UNIT  
 5 RUBBLE BRECCIA  
 100.45 106.68 YBR MUSCOVITE - PYRITE  
 PHYLLITE  
 106.68 END OF HOLE

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00 61.57 HQ
Drill contractor:	OLYMPIC DRILLING
Drill rig:	VALDOR 3000
Date started:	28/7/97
Date finished:	30/7/97
Logged by:	L. LEWIS
Relogged by:	
Sampled by:	C. AKELAITIS
DIAMOND	61.57 106.68 NQ
Drill contractor:	OLYMPIC DRILLING
Drill rig:	VALDOR 3000
Date started:	28/7/97
Date finished:	30/7/97
Logged by:	L. LEWIS
Relogged by:	
Sampled by:	C. AKELAITIS

Material left in hole:

Base of complete oxidation

Top of fresh rock:

Water first encountered:

Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
30.48	61.00	30.52
77.80	80.80	3.00

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn	
0.00	18.29	OVERBURDEN								
18.29	19.50	18 SILTSTONE / SANDSTONE 50% dark grey sandstone interlaminated with 40% medium grey, fine grained sandstone. 1% disseminated pyrite. Broken, incompetent core, no piece > 3 cm. 2% quartz stringers. Broken lower contact with fault zone.	18							
19.50	30.48	FAULT ZONE 1AA GOUGE Carbonaceous mud / gouge containing 30% angular sandstone siltstone and argillite chips, 5 - 25 mm, 4% quartz chips, 2% disseminated pyrite and very minor limonite staining. 5% recovery.	1AA							
30.48	36.58	FAULT ZONE MCDAME LIMESTONE Mixed interval containing strongly oxide-stained, silicified limestone chips (no reaction to HCl), limonite gouge with iron oxide stained chips and narrow interval of vuggy, strongly oxidized limestone (weak fizz). 30.48-33.53 FAULT ZONE LIMESTONE 10% recovery of silicified limestone rubble, chips from 1 cm to 6 cm, coated in limonite stain and minor hematite. No visible sulphides. 33.53-35.97 FAULT ZONE GOUGE Gouge zone consisting of 50% iron oxide mud (mainly limonite) and 50% small chips. 35.97-36.58 FAULT ZONE LIMESTONE Interval contains 2 pieces of extremely vuggy, iron oxide stained limestone. It may be a remnant breccia. The limestone is weakly silicified. 15% limonite, 10% hematite. 40% recovery. Broken lower contact with unmineralized limestone.	FZ	139663	30.48	33.53	0.02	3.80	0.03	0.09
				139664	33.53	35.97	0.03	28.20	0.12	0.26
				139665	35.97	36.58	0.01	6.70	0.46	9.60
36.58	45.42	MCDAME LIMESTONE RUBBLE BRECCIA Interval of alternating solid limestone and cave / collapse breccias consisting of Eam carbonaceous argillite and McDame limestone clasts in a carbonaceous, calcareous sediment matrix. It may represent a section through a series of surface karst topography that has now been filled with argillite and limestone fragments. Sulphides (mainly pyrite + minor galena) occur as fragments within the breccia, indicating syn- to post-mineralization cavity fill.	MLS	139666	36.58	39.00	<5ppm	1.80	0.03	0.24

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn	
		36.58-39.00 PACKSTONE CRACKLE BRECCIA Packstone with Amphipora - massive stromatoporoid floatstone, weakly silicified. Sections of crackle breccia with 15% calcite. Main fracturing @ 20 degrees to core axis. 2% fine grained pyrite clots, elongate along foliation @ 70 to core axis. Overall, 62% recovery. Sharp lower contact @ 30 to core axis with rubble breccia. - 37.9-38.87m. Fault / rubble zone with 10% recovery. Very coarse calcite crystals at the upper and lower contacts of the rubble zone indicating open space filling.								
		39.00-39.50 RUBBLE BRECCIA PYRITE MASSIVE SULPHIDE Cave / collapse breccia containing 60% pyrite (massive and clasts), 6% galena, 2% sphalerite, 10% quartz (small euhedral, open-space fill crystals), 8% calcite matrix and 15% carbonaceous argillite clasts. 90% recovery. Gradational lower contact with weakly mineralized rubble breccia below.		139667	39.00	39.50	0.28	395.80	10.96	7.99
		39.50-40.86 RUBBLE BRECCIA CARBONACEOUS ARGILLITE / LIMESTONE Cave / collapse clast supported breccia containing 75% carbonaceous argillite fragments (angular, 5mm - 10cm), 10% limestone fragments, 3% pyrite, tr galena (as rare massive sulphide clasts) in a fine grained, calcareous matrix. Clast size decreases towards the base of the interval. Sharp lower contact @ 15 to core axis with limestone. 100% recovery.		139668	39.50	40.86	0.02	7.20	0.28	0.76
				139669	40.86	42.10	0.03	18.30	0.50	0.64
		40.86-42.10 RUBBLE BRECCIA CARBONACEOUS ARGILLITE / LIMESTONE Interval of alternating limestone (50%) and cave / collapse breccias (50%), 25 - 40 cm wide. The limestone is packstone with scattered amphipora. The matrix-supported breccia intervals, contain angular argillite clasts (3mm - 5cm), 8% pyrite clasts (1mm - 5mm), trace galena, in a calcareous sediment matrix. Breccia intervals have variable sharp contacts with the								

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		Limestone, from 30-50 to core axis. Bedding of sediment fill at the top of one of the breccia intervals is 50 degrees to core axis (41.7m). 100% recovery.								
42	10-42.86	PACKSTONE Interval of unbrecciated, mottled limestone with no identifiable fossils. Trace pyrite. Broken lower contact with breccia below.		139670 139671	42.10 42.86	42.86 44.00	45.00 0.01	0.90 4.50	0.20 0.18	0.06 0.74
42	86-44.00	RUBBLE BRECCIA CARBONACEOUS ARGILLITE Cave / collapse breccia, similar to previous descriptions, containing mainly argillite fragments in a carbonaceous, slightly calcareous, sediment matrix. Fine grained, semi-massive pyrite concentrated in a 13 cm band, 65 degrees to core axis, at the lower contact. Trace galena. 70% recovery.		139672	44.00	45.42	0.26	239.60	6.50	5.00
45	42	57-35 LOWER ZONE MASSIVE SULPHIDE 45.42-45.72 PYRITE MASSIVE SULPHIDE Fairly sharp upper contact with McDame limestone @ 70 to core axis. Two massive sulphide bands, the upper one with vague compositional layering @ 85 to core axis, are separated by 10cm of limestone. 45% fine grained, granular massive pyrite. 10% coarse grained galena, 8% black sphalerite, 8% silica (in the sulphide matrix and as small euhedral crystals in open space cavities), 7% calcareous matrix and 30% remnant limestone banding. Fairly sharp lower contact @ 65 to core axis. 45.72-45.97 FLOATSTONE 25 cm interval of rugose coral ("Tryplasma") floatstone, with minor amphipora. Excellent cross-sections of the corals on the rock-sawn surface. Mainly fine grained granular pyrite present at the upper and lower contacts.	LZ	139673 139674 139675	45.42 45.72 45.97	45.72 45.97 47.14	0.03 0.02 0.26	42.50 25.10 739.70	1.29 0.60 15.52	0.37 1.39 21.43

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		Sharp lower contact with massive sulphide @ 60 to core axis.								
45	97-47.14	BASE METAL MASSIVE SULPHIDE Sharp upper contact with limestone @ 60 to core axis. Sulphide interval consisting of 45% massive, fine grained pyrite, 25% medium crystalline sphalerite, 15% galena (1-7mm). Sphalerite and galena increase towards the base and are crudely banded between 46.7-46.8m. Massive, black, sphalerite occurs from 46.85 - 47.14m. 10% fine grained carbonate is disseminated throughout and 5% white, opaque quartz occurs as clots to 1 cm. At 46.83m is a 1cm band of a dull, silver-colored mineral that may be arsenopyrite (?). Fairly sharp lower contact @ 65 to core axis. *Note: Sample 139676 is a duplicate of this interval.		139677 139678	47.14 47.90	47.90 49.00	0.39 3.10	483.40 84.40	13.07 1.30	5.49 13.22
47	14-47.90	PYRITE MASSIVE SULPHIDE Interlayered limestone (45%) and massive sulphide (55%), 30% pyrite, 13% disseminated sphalerite throughout the pyrite, and 7% medium to coarsely crystalline galena (to 1cm). The galena is concentrated along the contacts with the limestone. Moderately sharp contacts @ 70-80 to core axis between the limestone and sulphides.		139679	49.00	50.00	5.72	37.40	0.55	5.01
47	90-49.00	PYRITE MASSIVE SULPHIDE Massive pyrite (80%) interval, becoming brecciated towards the base of the sample where clasts of pyrite to 5cm occur in a siliceous matrix. Silica content noticeably increases in this interval (13%) as glassy, open space fill crystals and later, opaque, white fine grained silica filling the vugs. 48.1-48.35m: Incompetent section of sandy, fine grained pyrite.								
49	00-50.00	PYRITE MASSIVE SULPHIDE Similar to previous interval, but lacks the breccia texture. Intermittant banding seen in the later galena + sphalerite at 60 to 3cm cut the earlier, fine grained, massive pyrite. 80% pyrite, 6% galena, 4%								

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/ml	Ag g/ml	%Pb	%Zn
		sphalerite, 7% quartz and 1% calcite								
		50.00-51.00 PYRITE MASSIVE SULPHIDE Sample of mainly fine grained massive pyrite, 90%; becoming brecciated in the lower 30 cm. Py clasts are healed in a silica matrix (5%). Trace of sphalerite + galena.		139680	50.00	51.00	2.93	285.70	5.61	12.92
		51.00-52.00 PYRITE MASSIVE SULPHIDE BRECCIA Mainly brecciated pyrite clasts (80%) in a siliceous calcareous, pyritic matrix. 8% fine grained, reddish-brown sphalerite rimming pyrite and filling fractures within the pyrite clasts, increasing towards the base of the sample as medium crystalline clots. 1% galena as a discontinuous stringer @ 55 to core axis cross-cutting massive pyrite.		139681	51.00	52.00	4.34	56.90	0.75	14.59
		52.00-53.00 PYRITE MASSIVE SULPHIDE BRECCIA Similar to previous sample, brecciated massive pyrite into clasts, 2mm to 10cm in a weakly siliceous, calcareous, pyritic matrix. 2% fractured limestone at the base of the interval. - 52.73-52.8m: Vaguely banded galena, sphalerite, and pyrite. Sharp upper contact @ 60 to core axis irregular lower contact.		139682	52.00	53.00	2.92	203.10	4.30	17.27
		53.00-54.15 PYRITE MASSIVE SULPHIDE BRECCIA Mixed interval of 50% massive to brecciated pyrite, 3% sphalerite, 1% galena, 10% glassy to opaque, interstitial silica, 6% calcite matrix and 30% remnant, silicified limestone fragments. - 53.95-54.15m: Laminated calcareous, carbonaceous fine grained sediment, layering approximately @ 65 to core axis.		139683 139684	53.00 54.15	54.15 55.10	1.10 1.57	45.30 179.10	1.23 3.51	2.36 12.31
		54.15-55.10 PYRITE MASSIVE SULPHIDE Very porous to sandy, pyritic core, 80% recovery, 75% pyrite, 5% sphalerite, 3% galena, 10% calcite, 6% quartz. Some of the pyrite is likely bladed marcasite.								
		55.10-56.25 PYRITE MASSIVE SULPHIDE Approximately half the interval is brecciated massive pyrite healed by 7% silica and 10% calcite, 3%		139685	55.10	56.25	3.29	200.50	4.09	13.40

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/ml	Ag g/ml	%Pb	%Zn
		sphalerite, mainly as red-brown crystals rimming quartz pods, 5% galena as small clots within the quartz or massive pyrite. Carbonaceous, pyritic gouge at an irregular lower contact.								
		56.25-57.35 PYRITE MASSIVE SULPHIDE Base of the lower zone massive sulphide with increased remnant limestone (30%) as breccia clasts to 10cm. Gradational lower contact over 30 cm with unbrecciated, barren limestone. 40% massive to brecciated pyrite, 7% galena as clots and irregular bands at approximately 80 to core axis, 5% red-brown sphalerite as small clasts within the brecciated sections.		139686	56.25	57.35	0.90	339.70	9.12	6.72
57.35	71.80	MCDAME LIMESTONE UNIT 2 Fossiliferous limestone (massive stromatoporoid and minor amphipora, tryplasma) with minor stylonites, 10%, intermittent, narrow rubble breccia intervals. Possible Euramphipora @ 77.5m. Good recovery, but core is broken along frequent calcite-filled fractures @ 15 and 40 degrees to core axis. Trace-1% pyrite stringers (2mm) at 15 to core axis. Minor sulphides at the gradational upper contact with the lower zone and one pyrite vein from 59.65-59.9m. *Note: core was reduced from HQ to NQ at 61.57m.								
		57.35-58.35 FLOATSTONE RUBBLE BRECCIA Footwall sample consisting of 20cm of brecciated limestone clasts at the upper contact infilled with smaller pyrite clasts, and a trace of sphalerite + galena. Only trace of sulphide below 57.55m.	MLS2	139688	57.35	58.35	0.05	19.10	0.38	0.59
		58.35-59.65 PACKSTONE Interval above a narrow, semi-massive pyrite vein consisting of dense packstone with lesser massive stromatoporoid and amphipora floatstone. Trace pyrite along stylonites.		139689 139690	58.35 59.65	59.65 59.90	0.01 1.16	12.50 45.30	0.30 0.88	0.08 3.93
		59.65-59.90 PYRITE MASSIVE SULPHIDE Stringer zone pyrite vein, 5cm wide @ 35 to core axis.		139691	59.90	61.00	0.06	15.70	0.50	0.20
		59.90-61.00 FLOATSTONE Footwall sample of pyrite stringer. Mainly massive stromatoporoid floatstone, minor ruststone. Scattered stylonites and fragments of what looks like rubble.								

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/t	Ag g/t	%Pb	%Zn
		breccia. 1% pyrite as fine grained clots at the bottom of the interval.								
71.80	78.80	MCDAME LIMESTONE UNIT 3 Upper 2 meters has the typical fine amphipora (1-3mm diameter), characteristic of the top of Unit 3. Minor massive stromatoporoid. 3% irregular coarse calcite veining. Broken core. 77.80-79.80 FLINTSTONE Hanging wall sample. Broken interval, moderately stylolitized, 1% pyrite and 3% calcite veining.	MLS3	139692	77.80	79.80	0.01	2.60	0.06	0.07
78.80	79.80	LOWER ZONE 79.80-79.80 PYRITE MASSIVE SULPHIDE RUBBLE BRECCIA Massive sulphide (65% pyrite, 3% sphalerite and 3% galena) replacing limestone rubble breccia. The sulphides are replacing both the calcareous matrix and the limestone clasts. Slickensides at the upper contact trend @ 35 to core axis. Sharp lower contact @ 50 to core axis.	LZ	139693	78.80	79.80	1.63	153.40	3.16	5.44
79.80	86.90	MCDAME LIMESTONE UNIT 3 ALTERED RUBBLE BRECCIA Bleached, clay-altered (?) rubble breccia limestone. No remnant fossils except at the base of the interval (rugose coral and amphipora). Broken rubble unit except for the upper 3 meters. 79.80-80.80 LIMESTONE RUBBLE BRECCIA Bleached, light bluish-grey brecciated limestone. Possibly clay-altered (?). Unusual texture - very contorted with abundant stylolites. 2% wispy pyrite concentrated along stylolites.	MLS3	139694	79.80	80.80	0.01	1.60	0.02	0.06
86.90	100.45	MCDAME LIMESTONE UNIT 5 RUBBLE BRECCIA Moderate to strongly brecciated interval (adjacent to the Camp Creek Fault). Mainly rubble breccia with minor crackle - mosaic breccia. Few fossils remain to identify the unit, but @ 86.9m, there are very coarse amphipora which marks the top of Unit 5. Trace to 1% fine grained wispy pyrite concentrated along carbonaceous stylolites. Sharp	MLSS							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/t	Ag g/t	%Pb	%Zn
		lower contact with YBR altered rock. - 93.3m: Strongly stylolitized with an interval of fine grained, laminated clastic limestone (fissure-fill?). - 99.2-99.75m: Dolomitized mosaic to rubble breccia.								
100.45	106.68	YBR MUSCOVITE - PYRITE PHYLLITE This is the rock type that previous years logging termed YBR dyke or YBR-type alteration. To be consistent, the same title will be used. Soft, very pale buff-grey, fine grained mica with 10-15% wispy fine grained pyrite clots and stringers which are parallel to and cross-cutting a vague, contorted foliation at about 60 degrees to core axis. Cross-cutting pyrite stringers trend at 25 to core axis. Fairly incompetent rock with intermittent brecciated (?) intervals. The fine grained nature of the rock makes it difficult to say whether it is intrusive or not. ** Petrographic sample from 105.1m.	YBR							

\*\*\* END OF HOLE \*\*\* 106.68

HOLE NO: SSD-97-15

SECTION: 43651

GRID: SILVER CK N

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP  
 PROSPECT :  
 GRID : SILVER CK N  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43651.40mN 24751.20mE 1223.75RL

Pre-collar depth: Final depth: 92.66

Purpose of hole: STEP-OUT DRILLING AROUND  
 SSD-97-2

Hole status: DRILLED TO DEPTH

Comments: BRECCIATED LOWER ZONE: 47.  
 55 - 57.91M

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
45.72	279.00	-89.00
91.44	2.00	-88.00

## \*\*\* SUMMARY LOG \*\*\*

0.00 9.14 OVERBURDEN  
 9.14 17.70 1B SANDSTONE  
 17.70 19.80 FAULT ZONE 1B  
 SANDSTONE  
 19.80 23.47 1B SANDSTONE  
 23.47 32.00 1B SANDSTONE /  
 SILTSTONE  
 32.00 33.53 FAULT ZONE GOUGE 1B  
 33.53 42.60 1B SANDSTONE /  
 SILTSTONE  
 42.60 45.72 FAULT ZONE 1AA GOUGE  
 45.72 47.55 1AA LIMESTONE RUBBLE  
 BRECCIA  
 47.55 54.40 LOWER ZONE MASSIVE  
 SULPHIDE BRECCIATED  
 54.40 56.91 1AA MOSAIC BRECCIA  
 56.91 57.91 LOWER ZONE SILICIFIED  
 57.91 60.70 1AA CARBONACEOUS  
 ARGILLITE  
 60.70 67.40 FAULT ZONE 1AA  
 CARBONACEOUS  
 ARGILLITE  
 67.40 70.10 1A/MLS RUBBLE BRECCIA

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0 00	92.66	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR 3000		
Date started:	30/7/97		
Date finished:	31/7/97		
Logged by:	L. LEWIS		
Relogged by:			
Sampled by:	C. AKELAITIS		

Material left in hole:

Base of complete oxidation

Top of fresh rock:

Water first encountered:

Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
44.72	58.91	14.19

Checked and signed: \_\_\_\_\_

Date: \_\_\_\_\_

HOLE NO: SSD-97-15

SECTION: 43651

GRID: SILVER CK N

70.10	84.25	MCDAME LIMESTONE RECRYSTALLIZED SILICIFIED
84.25	85.34	MCDAME LIMESTONE/1A ARGILLITE RUBBLE BRECCIA
85.34	92.66	MCDAME LIMESTONE CRACKLE BRECCIA
92.66		END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
0.30	9.14	OVERBURDEN								
9.14	17.70	1B SANDSTONE Medium grey, medium to coarse grained, pebbly sandstone. Massive to thickly bedded with rare interbeds of dark grey siltstone (showing flaser bedding). 1% carbonate partings @ 65 to core axis. Trace pyrite. Core has moderate limonite + hematite staining down to 17.0m. Fairly broken core along bedding (65 to core axis) and along fractures @ 45 to core axis. Broken lower contact @ start of rubble / fault zone	1B							
17.70	19.90	FAULT ZONE 1B SANDSTONE Rubble zone of sandstone chips (chips from 5mm - 6cm) 10% gouge, 5% quartz veining, 2% disseminated pyrite, 60% recovery.	FZ							
19.90	23.47	1B SANDSTONE Fractured sandstone, but good recovery. 4% quartz - iron carbonate veining @ 15 & 45 to core axis. Minor siltstone intervals are nearly chlorite phyllite (eg. 21.5m). Bedding @ 75 to core axis.	1B							
23.47	32.00	1B SANDSTONE / SILTSTONE 60% medium grey fine to medium grained sandstone, laminated to massive, 5mm-15cm thick, interbedded with 40% dark laminated siltstone / mudstone, 1mm - 4cm thick. Poker chip core breaks easily along bedding @ 75 to core axis. 1-3% quartz - iron carbonate stringers & fracture fillings @ 30 & 60 to core axis. Trace - 2% as disseminations along fractures and disseminated within the sandstone. Fairly sharp lower contact at approx 50 degrees to core axis with gouge / fault zone.	1B							
32.00	33.53	FAULT ZONE GOUGE 1B 35% recovery of pyritic sandstone breccia clasts and coarse, calcareous sandstone gouge. 5% pyrite, 5% quartz - calcite chips. Broken lower contact.	FZ							
33.53	42.60	1B SANDSTONE / SILTSTONE Similar to previous sandstone / siltstone interval with 60% fine grained sandstone interlaminated with 40% dark grey siltstone. Contorted bedding in zones of increased siltstone, especially between 37.4 - 38.0m. Increased	1B							

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From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		disseminated pyrite (3%), concentrated in sandy beds. Bedding to core axis angle gradually steepens from 85 degrees @ 36.6m to 60 degrees @ 46.4m. 2% quartz - iron carbonate stringers, many with mm to cm offsets - minor slips along bedding planes. Broken lower contact with 1AA gouge. - 39.7m: 3cm quartz vein @ 50 to core axis, 5% pyrite clasts								
42.60	45.72	FAULT ZONE 1AA GOUGE Carbonaceous gouge and chips of argillite with minor rubble to 3cm. 40% recovery. Weakly calcareous @ upper contact. 5% quartz chips, tr. pyrite. Broken lower contact. 44.72-45.72 GOUGE CARBONACEOUS ARGILLITE 40% recovery of hanging wall sample to weakly sulphidized interval below. As described above.	FZ	139695	44.72	45.72	0.02	4.10	0.02	0.23
45.72	47.55	1AA LIMESTONE RUBBLE BRECCIA Solution collapse breccia. Difficult to say if this is the top of the unconformity - appears highly irregular with frequent solution collapse features below. 45.72-46.55 CARBONACEOUS ARGILLITE / LIMESTONE RUBBLE BRECCIA Rubble breccia containing limestone, carbonaceous argillite and sulphide clasts in a calcareous, ab matrix. Clasts from 2mm - 3cm. 15% carbonaceous gouge. 45% recovery. 46.55-47.55 CARBONACEOUS ARGILLITE / LIMESTONE RUBBLE BRECCIA Hanging wall sample containing 50% recovery of rubble breccia similar to the above interval. Lower contact @ approx 50 to core axis.	1AA	139696 139697	45.72 46.55	46.55 47.55	0.23 0.05	163.10 68.10	3.57 1.36	4.83 1.05
47.55	54.40	LOWER ZONE MASSIVE SULPHIDE BRECCIATED 47.55-48.55 PYRITE MASSIVE SULPHIDE RUBBLE BRECCIA Brecciated sulphide interval with 35% remnant limestone. Frequent carbonaceous stylolites within the limestone. Sulphides concentrated in the upper 60cm. Contacts of sulphide with limestone are from 30 to 45 to	LZ	139698 139699	47.55 48.55	48.55 49.55	0.17 0.10	209.20 246.80	4.49 5.05	5.62 6.68

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From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/mt	Ag g/mt	%Pb	%Zn
		core axis. 40% pyrite, 5% galena clasts in a calcareous, carbonaceous matrix. Broken core along stylolites with 85% recovery		139700	49.55	50.55	0.07	53.70	0.84	2.90
		48.55-49.55 PYRITE MASSIVE SULPHIDE RUBBLE BRECCIA Clast-supported, heterogeneous mix of clasts including limestone, carbonaceous argillite and sulphide (pyrite + galena). Clasts from 5mm - 12cm in a calcareous, carbonaceous matrix. The breccia appears to be stylolitized.		139701	50.55	51.65	2.69	285.10	5.66	10.83
		49.55-50.55 PYRITE MASSIVE SULPHIDE RUBBLE BRECCIA Similar to previous interval. Broken and rubbly, but good recovery (95%). Irregular lower contact with massive sulphide @ 65 to core axis		139702	51.65	52.40	0.81	566.80	14.81	3.65
		50.55-51.65 PYRITE MASSIVE SULPHIDE Massive fine grained pyrite (55%), brown sphalerite (15%), galena (6%), and bladed marcasite (5%) with 10% remnant silicified limestone in the lower 30cm. At the upper contact, there is crude rhythmic banding of galena, sphalerite, and pyrite with bands to 1.5cm. Below this massive interval is brecciated sulphide in a coarsely crystalline calcite matrix. 90% recovery		139704	52.40	53.40	1.93	153.70	2.22	9.52
		51.65-52.40 PYRITE MASSIVE SULPHIDE MOSAIC BRECCIA Brecciated massive sulphide. 40% large pyrite clasts to 8cm, 15% galena clasts to 6cm and 5% sphalerite as clasts to 2cm, 10% limestone, all floating in a coarse calcite matrix (30%). *Some clasts contain pyrite + galena + brown sphalerite. Galena clasts is very coarse at the base of the interval. Carbonaceous stylolites. Moderately vuggy with open space to 2cm.		139705	53.40	54.40	1.02	529.50	11.73	18.91
		52.40-53.40 PYRITE MASSIVE SULPHIDE MOSAIC BRECCIA Similar to previous interval, except for increased sphalerite and decreased galena. Clasts also have a wider size variation from 3mm - 8cm, still floating in a								

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/mt	Ag g/mt	%Pb	%Zn
		calcite matrix, 30% calcite, 35% pyrite, 15% sphalerite, 5% galena and 5% marcasite								
		53.40-54.40 BASE METAL MASSIVE SULPHIDE Intersection of very massive sulphides, where randomly oriented galena stringers and clots, often + sphalerite, cross-cut fine grained intergrown pyrite + sphalerite. Occasional vugs - partially to fully sealed with coarse calcite pods, rimmed by sphalerite, then +/- galena (open space fill). Coarser sphalerite is brown to black; finer sphalerite intergrown with pyrite is red-brown. Minor silic at the top of the interval. 100% recovery. Very sharp lower contact @ 55 to core axis.								
54.40	56.91	1AA MOSAIC BRECCIA Brecciated Eam carbonaceous argillite clasts in a coarse calcite matrix (30%). 3% pyrite + 1% galena, and tr sphalerite as clots within the Eam clasts, and as small clasts to 1cm. Argillite clasts have pre-breccia, calcite-filled fractures. Becoming silicified with depth and introduction of silicified limestone clasts below 56.0m, becoming more of a rubble breccia.	1AA	139706	54.40	55.91	0.06	13.50	0.18	0.34
		54.40-55.91 CARBONACEOUS ARGILLITE MOSAIC BRECCIA At the sharp upper contact at 55 degrees, with massive sulphide is unbrecciated-looking Eam - possibly a large clast? Below 54.75m are very angular carbonaceous argillite clasts, 3mm to 8cm floating in a coarse calcite matrix (approximately 40% is clast-supported). 3% pyrite + 1% galena, tr sphalerite as rare clots in Eam fragments. Pyrite also small clasts to 1cm within the matrix.		139707	55.91	56.91	0.20	21.60	0.25	0.67
		55.91-56.91 CARBONACEOUS ARGILLITE / LIMESTONE RUBBLE BRECCIA Gradational change to a silicified rubble breccia, with only very minor calcite. Looks like a mix of limestone and Eam clasts (non-calcareous); clasts are medium to dark grey and much less angular looking than the previous interval. Core is also more rubbly. 85% recovery. 4% pyrite as small cubes and fine grained								

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		clots. 95% recovery Broken lower contact with sulphide interval.								
56.91	57.91	LOWER ZONE SILICIFIED	LZ	139708	56.91	57.91	1.19	218.30	4.58	8.17
		56.91-57.91 PYRITE MASSIVE SULPHIDE SILICIFIED Siliceous massive sulphide zone with 80% pyrite (both brassy yellow and duller brown-possibly has fine grained sphalerite in the duller pyrite). 7% brown fine grained sphalerite. 2% small galena clots with 10% mottled, siliceous fragments of limestone / argillite (?). Vuggy broken core. broken lower contact. 90% recovery. **Note: sample 139709 is a blank following this sample								
57.91	60.70	1AA CARBONACEOUS ARGILLITE Upper 40cm is broken, fractured core, becoming more competent below 58.6m. Laminated, weakly silicified carbonaceous argillite has bedding @ 85 to core axis (59.5m). 2% fine grained pyrite along fractures as thin laminations parallel to bedding. 10% quartz-filled fractures @ 20 & 60 to core axis. Broken lower contact with Earn chips and gouge 57.91-58.91 CARBONACEOUS ARGILLITE Footwall sample to Lower Zone, as described above. 10% quartz, 2% pyrite. 85% recovery.	1AA	139710	57.91	58.91	1.07	6.80	0.02	0.06
60.70	67.40	FAULT ZONE 1AA CARBONACEOUS ARGILLITE Poor recovery (40%) in a fault / breccia zone with 20% graphitic gouge, 60% carbonaceous argillite chips and 20% siliceous argillite competent core to 5cm. 2% disseminated pyrite in the gouge and clots within and adjacent to siliceous patches. Sharp lower contact @ 55 to core axis with more competent rubble breccia.	1AA							
67.40	70.10	1A/MLS RUBBLE BRECCIA 70% carbonaceous argillite clasts, 30% limestone clasts in a strongly graphitic, calcareous matrix. Clast-supported above, clastic matrix-supported towards base of the unit. Carbonaceous clasts are strongly fractured and fractures are now healed with quartz. Frequency of limestone clasts	1A/MLS							

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From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		increases towards the base @ contact with McDame 1-2% small sub-rounded pyrite clasts. Sharp lower contact @ 30 degrees. **Note: Pre-breccia fracturing - a late breccia event								
70.10	84.25	MCDAME LIMESTONE RECRYSTALLIZED SILICIFIED Mottled, pale blue-grey color, moderately silicified, partially recrystallized limestone. Very few remnant fossils to identify the unit by. Amphipora @ 80.7m & 81.9m. Rubble breccia intervals are often broken. 15% coarse calcite irregular veining from 83.0 - 84.0m. Moderate stylolites with carbonaceous partings. Scattered cavities filled with either fine grained carbonaceous sediment or rubble breccia (limestone + Earn clasts in a calcareous, graphitic sedimentary matrix). Up to 4% pyrite, generally concentrated as clasts within cave fills or elongate clots along stylolites. Sharp lower contact @ 55 to core axis with rubble breccia. 71.30-72.95 CARBONACEOUS ARGILLITE / LIMESTONE RUBBLE BRECCIA Looks like a cavity fill of Earn - limestone fragments in a strongly carbonaceous, calcareous matrix. Sharp upper and lower contact @ 25 to core axis. 3% pyrite as small clasts and as earlier stringers in limestone clasts. 74.40-74.70 CARBONACEOUS ARGILLITE Fracture filling within the limestone of very fine grained carbonaceous mud. Sharp upper contact @ 25 degrees. Irregular lower contact. 10% pyrite as clasts at the base of the filling. 75.00-75.10 LIMESTONE RUBBLE BRECCIA Narrow rubble breccia interval with fairly sharp contacts @ 25 degrees. Clasts are limestone and pyrite (30%).	MLS							
84.25	85.34	MCDAME LIMESTONE/1A ARGILLITE RUBBLE BRECCIA Broken interval, possibly another cave / collapse feature which filled up with limestone and Earn carbonaceous argillite fragments. Wide variation in sub-angular to sub-rounded fragments from 3mm to 15cm in a calcareous, strongly carbonaceous sedimentary matrix. Irregular.	MLS/1A							

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From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		broken lower contact							
85.34	92.66	MCDAME LIMESTONE CRACKLE BRECCIA Unit 1 or Unit 3?? Only remnant fossils are amphiobra. Frequent orbx 15% irregular calcite veining / fracture filling Moderate stylolites Trace to 1% disseminated pyrite	MLS						

\*\*\* END OF HOLE \*\*\* 92.66

HOLE NO: SSD-97-16

SECTION: 43583

GRID: SILVER CK E.

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK E.  
 MAP REFERENCE: 1040/16W  
 LOCATION : LIARD MD, B.C.  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43582.93mN 25112.04mE 1268.73RL

Pre-collar depth: Final depth: 128.00  
 Purpose of hole: TEST CONTINUITY FROM 84-62  
 Hole status: DRILLED TO DEPTH  
 Comments: NO LZ INTERSECTED

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY-SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
45.72	342.00	-87.00
91.44	346.00	-87.00

## \*\*\* SUMMARY LOG \*\*\*

0.00 13.10 OVERBURDEN  
 13.10 31.90 1B SANDSTONE  
 31.90 34.10 FAULT ZONE GOUGE ZONE  
 VEIN  
 34.10 52.10 1B SANDSTONE  
 52.10 57.00 1B SANDSTONE /  
 SILTSTONE PYRITE  
 57.00 61.65 1B SANDSTONE SHEARED  
 61.65 63.30 1AA ARGILLITE  
 63.30 65.80 MCDAME LIMESTONE  
 BRECCIA  
 65.80 66.30 FAULT ZONE GOUGE ZONE  
 66.30 72.20 MCDAME LIMESTONE UNIT  
 1  
 72.20 79.15 MCDAME LIMESTONE UNIT  
 2  
 79.15 88.80 MCDAME LIMESTONE UNIT  
 3  
 88.80 91.20 MCDAME LIMESTONE UNIT  
 4  
 91.20 111.70 MCDAME LIMESTONE UNIT  
 5  
 111.70 128.00 MCDAME LIMESTONE UNIT  
 5  
 128.00 END OF HOLE

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	128.00	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR 3000		
Date started:	31/7/97		
Date finished:	2/8/97		
Logged by:	C. REES		
Relogged by:			
Sampled by:	C. AKELAITIS		

Material left in hole:  
 Base of complete oxidation:  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
28.70	29.00	0.30
33.50	34.10	0.60
56.45	56.60	0.15
59.10	59.40	0.30
63.30	63.70	0.40
65.80	66.30	0.50
69.30	69.50	0.20
81.85	82.05	0.20

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
0 00	13 10	OVERBURDEN								
13 10	31 90	1B SANDSTONE Mostly mid-gray, moderately to thickly bedded sandstone, from fine to coarse-grained, and commonly pebbly near base of beds. Bedding-parallel flattening fabric evident from flattened mudstone chips in coarser intervals. One thin (0.4 m) interval of medium laminated fine sandstone to siltstone. 22 00-23 00 CONGLOMERATE Chert-argillite pebble conglomerate. Clast-supported. Largest clast 3 cm long. Clasts flattened in bedding-parallel foliation. Core quite broken up. 28 70-29 00 QUARTZ VEIN White quartz vein, about 15 cm thick, with sharp contact with thin carbonaceous argillite next to main sandstone. Vein contains seams of pyrite amounting to 5% and a few specks of galena. 30 80-31 30 CONGLOMERATE Coarse, basal part of a fining upward bed showing good grading. Underlain by carbonaceous shale.	1B							
				139751	28 70	29 00	0 01	2 70	0 03	0 65
31 90	34 10	FAULT ZONE GOUGE ZONE VEIN 31 90-32 60 FAULT ZONE GOUGE Possible fault zone. Black, very carbonaceous, rubbly to compacted gouge. Locally, comminuted vein quartz, and foliaceous shale with smeared out quartz. Upper contact with sandstone is strongly silicified. 32 60-33 50 CONTORTED SANDSTONE Laminated sandstone, siltstone and argillite, which has been contorted and dismembered. Presumably a zone of heterogeneous shear in footwall of immediately overlying fault zone. Argillite is strongly crenulated. Fine crackle veinlets of pyrite and of quartz, the latter increasing in width (up to 1-3 cm thick) downwards towards next minor interval. 33 50-34 10 QUARTZ VEIN Mostly white quartz but with narrow seams of coarse (1-2 mm) galena and lesser sphalerite and pyrite. Some open space. ALTERED few clasts of host sandstone floating near margin of vein. Quartz veins	FZ							
				139752	33 50	34 10	0 01	22 30	0 44	0 40

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		and veinlets extend for a further 80 cm into sandstone below vein.								
34 10	52 10	1B SANDSTONE Grey sandstone to siltstone. Sandstone mostly medium grained but locally coarse, including thin conglomerates at 44.4 m (20 cm thick) and 52.0 m (15 cm thick). Generally more thinly bedded than 1B sandstone between 13.1 and 31.9 m. Sandstone is commonly interlaminated with darker grey siltstone to argillite, forming thinly banded intervals. More silty or argillaceous zones are characterized by broken core, but probably not faulted. Generally has 1% fine disseminated pyrite, and locally 2-3%.	1B							
52 10	57 00	1B SANDSTONE / SILTSTONE pyrite Basically 1B sandstone, but differentiated, firstly, by a greater amount of pyrite, from 2-4%. Pyrite is fine grained and quite evenly disseminated. Probably primary, as not associated with quartz veining. Secondly, zone is characterized by being very broken and friable, much of the sandstone in a clayey matrix, or broken down completely into a pyritic, muddy sand. Possibly sheared, at least locally. 56 45-56 60 QUARTZ VEIN Portion of an irregularly deformed quartz vein within sheared sandstone/siltstone. Vein contains less than 1% pyrite and a trace of possible galena/sphalerite.	1B							
				139753	56 45	56 60	0 01	1 20	0 02	0 81
57 00	61 65	1B SANDSTONE SHEARED Poorly bedded, probably sheared sandstone to siltstone. Carbonaceous. Core is quite intact but actually it is probably cemented by a carbonaceous clayey matrix which has permeated disrupted sandstone. Only a hint of primary bedding locally. Fine, anastomosing, black argillaceous shears occur throughout. Somewhat pyritic, but not as much as previous interval. Note that underlying unit 1A is unusually thin - possibly due to shearing and attenuation along the 1B/1A contact.	1B							
				139754	59 10	59 40	0 01	0 30	0 00	0 17

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
51.55	53.30	1AA ARGILLITE Really a gouge zone composed of carbonaceous argillite (no sandstone) of unit 1A. Black, non-bedded, soft, friable clay-rich shale or gouge, with a few pieces of original argillite. Slightly calcareous in places from calcite crackle veinlets. Contact with silicified McDame limestone below is very sharp, marked by a few centimetres of rusty, brown to black microbreccia of mainly 1A material. No sulphides.	*AA							
63.30	65.80	MCDAME LIMESTONE BRECCIA 63.30-63.70 SILICIFIED LIMESTONE Mid-bluish grey limestone with clastic or microbreccia texture, cut by fine calcite veinlets. Very hard, due to silicification, though still reacts to HCl acid. Slightly rusty and broken core at base of this minor interval 63.70-65.80 LIMESTONE BRECCIA Pale to mid-grey limestone breccia. Mostly rubble to matrix breccia. Clasts are angular with sharp contacts and are well compacted, as if the breccia has been sheared. Minor calcite crackle veinlets. Minimal carbonaceous infiltration. Presumably Unit 1.	MLS1	139755	63.30	63.70	0.00	0.30	0.01	0.66
65.80	66.30	FAULT ZONE GOUGE ZONE Completely ground up sandies mud, with 10% chips of solid rock, of mostly limestone or calcite vein material. Mid- to dark grey.	FZ	139756	65.80	66.30	0.03	10.50	0.21	0.36
66.30	72.20	MCDAME LIMESTONE UNIT 1 Pale to mid-grey, weakly to moderately fossiliferous limestone. Weakly brecciated in uppermost 2 to 3 m, shown by local, sharp textural contrasts, but not much matrix or vein cement associated with it. Remainder of interval is dense, well packed limestone with local Amphipora and small stromatoporoids. Possible Thamnopora. About 10% calcite crackle and veinlets throughout interval. Weakly foliated. 69.30-69.50 PYRITIC MINERALIZATION VEINED Irregular vein or replacement, about 3 cm thick, consisting of dense, fine-grained pyrite, and host limestone. Some bleaching in limestone at contact.	MLS1	139757	69.30	69.50	0.54	2.80	0.03	0.04

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From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
72.20	79.15	MCDAME LIMESTONE UNIT 2 (Contacts tentative and approximate.) Mottled pale to mid-grey fossiliferous limestone, characterized by stromatoporoids and lesser Thamnopora and Amphipora, and rare Trypania solitary rugose corals. Not brecciated. Fossils not particularly flattened. Minor hairline calcite veinlets and thin veins, amounting to about 2-3% of core. Top taken as appearance of large stromatoporoids; base taken as approximately where stromatoporoids fade out.	MLS2							
79.15	88.80	MCDAME LIMESTONE UNIT 3 Mid-grey fossiliferous limestone with Amphipora dominant, particularly in lower part. Fine to medium crystalline limestone (packstone), also with Thamnopora and some stromatoporoids. Generally not brecciated at all, but locally a strong network of calcite veinlets, tending to mosaic breccia, but only in thin zones of a few centimetres. Minor, well-spaced stylolites. Lower part of unit, estimated to start at 84.0 m, is characterized by zones of densely packed, fairly coarse Amphipora, locally with large stromatoporoids. 81.85-82.05 VEINED About 90% cream-coloured calcite with irregular margins, which are 50 deg to core axis. 10% pyrite concentrated along margin of upper contact, partly oxidized to rusty limonite. No reaction to zinc-zag.	MLS3	139758	81.85	82.05	0.03	5.30	0.17	0.22
88.80	91.20	MCDAME LIMESTONE UNIT 4 Distinct, Euryamphipora-rich limestone. Densely packed rudstone, with middle subunit of less dense floatstone containing globular stromatoporoids and Amphipora, along with Euryamphipora. Late stage dilatational fracture at 90.5 m, with open space and drusy quartz.	MLS4							
91.20	111.70	MCDAME LIMESTONE UNIT 5 Dense, pale to mid-grey, fine-grained limestone. Generally intact, solid, good recovery. Main fossil is Amphipora, which can be densely packed in zones up to 1.5 m thick. Amphipora in upper part, just below McDame Unit 4, is conspicuously coarse. Other main fossil constituents are stromatoporoids but these are sporadic and considerably subordinate to Amphipora; they are most abundant between	MLS5							

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From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		<p>110.3 and 110.8 m and are quite strongly flattened here. About 40% to 50% of total interval is relatively featureless, weakly fossiliferous limestone (packstone). 109.9 m - 5-cm thick calcite vein at 50 deg to core axis.</p> <p>91 45-92.70 FRACTURED LIMESTONE Amphipora- and stromatopora-bearing limestone cut by several, spaced, open, crystal-lined fractures at low angle to core (15 deg to core axis). Appear to be late, dilatational (non-shear). Drusy quartz as well as calcite. Rusty fracture surfaces but no sulphides.</p>								
111.70	128.00	<p>MCDAME LIMESTONE UNIT 5 Change to much more inhomogeneous limestone varying from dense uniform packstone like overlying interval, to clastic limestone-dolomitic limestone, to brecciated limestone, to rare laminated calcareous wackestone/mudstone. Generally good recovery and intact limestone throughout.</p> <p>111 70-114.30 PACKSTONE / FLOATSTONE Mid-grey, fine- to medium-grained limestone with clastic or particulate texture - packstone to floatstone. Not quite matrix breccia. Partially dolomitized. Vague Amphipora locally. Possible gastropod. ALTERED few cm of limy mudstone/wackestone at and near base, which also has a 3-cm thick calcite vein parallel to layering (58 deg to core axis).</p> <p>114 30-117.70 PACKSTONE Pale to mid-grey, finely crystalline limestone. Possibly recrystallized. Numerous fine stylonites at high angle to core axis. Upper part looks strongly flattened, lower part less so, with Amphipora clearly discernible. Calcite veinlets increase downwards, towards next minor unit.</p> <p>117 70-119.25 RUBBLE MOSAIC BRECCIA Inhomogeneous limestone breccia. Clast supported with minimal matrix (rubble breccia), but up to 20% calcite vein cement (mosaic breccia). Abrupt textural</p>	MLS5							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		<p>contrasts. Some domains Amphipora-rich. Carbon-rich stylonitic seams in lower part.</p> <p>119.25-120.70 PACKSTONE CRACKLE BRECCIA Mid-grey, fine- to medium-grained packstone riddled with calcite crackle and veinlets in upper part. In lower part it is weakly dolomitized, with vague Amphipora. At 120.6 m is a small patch of fine-grained pyrite replacement.</p> <p>120 70-122.60 RUBBLE CRACKLE BRECCIA Blocky breccia with dissimilar limestone fragments, closely packed. Crackle-brecciated packstone with some carbon-rich seams, but mostly calcite veinlets. ALTERED few cm-scale patches of fine-grained pyrite replacement. Weakly dolomitized locally.</p> <p>122.60-123.50 PACKSTONE WACKESTONE Medium-grained clastic limestone, possibly composed of sand-sized, reworked limestone material. If so well sorted. Lowest 10 cm is laminated limy mudstone and wackestone (65 deg to core axis), showing soft-sediment deformation. Features indicate clastic sedimentation and current activity.</p> <p>123.50-128.00 PACKSTONE / FLOATSTONE BRECCIA Variable mudstone to floatstone to packstone, tending to breccia texture. Composed of dissimilar limestone fragments - mostly packstone with minor Amphipora-floatstone, in matrix of fine- to medium-grained limestone material. Brecciation interpreted as primary, not tectonic. Well-packed - no vein cement. ALTERED few small patches of fine pyrite replacement at 126.25 m.</p>								

HOLE NO: SSD-97-17	SECTION: 43523N	GRID: SILVER CK
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PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK  
 MAP REFERENCE: 1040/16W  
 LOCATION : LIARD MD, B.C.  
 HOLE TYPE : DIAMOND

\*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00 128.02 HQ
Drill contractor:	OLYMPIC DRILLING
Drill rig:	VALDOR 3000
Date started:	3/8/97
Date finished:	5/8/97
Logged by:	C. REES
Relogged by:	
Sampled by:	C. AKELAITIS

\*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED	43523.45mN	25109.60mE	1293.96RL
----------	------------	------------	-----------

Pre-collar depth:                      Final depth:                      128.02  
 Purpose of hole:                      STEP-OUT, SILVER CREEK  
 Hole status:                              DRILLED TO DEPTH  
 Comments:                                LZ 95.75-97.7M

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

\*\*\* SURVEY DATA \*\*\*

Survey Method: ACID TEST

Depth	Azimuth	Inclination
0.00	0.00	-90.00
45.72	0.00	-90.00
91.44	0.00	-88.00
128.02	0.00	-87.00

\*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
19.00	22.00	3.00
32.10	32.50	0.40
95.75	98.70	2.95

\*\*\* SUMMARY LOG \*\*\*

0.00	19.00	OVERBURDEN
19.00	20.80	EXHALITE - DISCOVERY ZONE
20.80	34.00	2AA CARBONACEOUS ARGILLITE SILTSTONE
34.00	38.20	1B SANDSTONE FAULTED
38.20	45.20	1B SANDSTONE
45.20	55.00	FAULT ZONE GOUGE
55.00	57.91	1B SANDSTONE
57.91	59.75	RUBBLE GOUGE FAULT ZONE
59.75	63.70	1B SANDSTONE / SILTSTONE
63.70	68.25	1B RUBBLE FLOATSTONE
68.25	77.50	1B LAMINATED SANDSTONE / SILTSTONE
77.50	95.75	1AA CARBONACEOUS ARGILLITE SILTSTONE
95.75	97.70	LOWER ZONE MASSIVE SULPHIDE
97.70	115.50	MCDAME LIMESTONE UNIT 1
115.50	124.30	MCDAME LIMESTONE UNIT 2

Checked and signed: _____	Date: _____
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1997

SSD-97-17

HOLE NO: SSD-97-17

SECTION: 43523N

GRID: SILVER CK

124.30	128.02	BRECCIATED MCDAME LIMESTONE
128.02		END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
0.00	19.00	OVERBURDEN	OB							
19.00	20.80	EXHALITE - DISCOVERY ZONE Exhalite unit presumably Discovery Zone. Mostly good recovery. Hard and siliceous. Two generations of pyrite and possibly silica. One initial syngenetic laminated silica-pyrite possibly with ferroan carbonate. Two superimposed replacement by silica +/- carbonate and pyrite, the latter represented by coarse euhedral cubes up to 8 mm across. ALTERED definite front of this hydrothermal replacement is visible, cutting across exhalite laminations.								
	19.00-19.40	ALTERED EXHALITE Pale grey, pale olive-brown. Fine grained, laminated siliceous exhalite. Probably has fine disseminated pyrite. Cut by several 0.5 to 1 cm-thick veins of sphalerite-galena-pyrite. These veins, and local coarse pyrite are secondary. Veins are 24 deg. To core axis.	EXDZ	139759 139760	19.00 19.40	19.40 19.95	0.02 0.02	124.50 38.80	0.52 0.23	34.46 3.21
	19.40-19.95	PYRITIC EXHALITE Pale grey, buff-orange exhalite which is strongly pyritized. Laminated siliceous rock overprinted by coarse pyrite cubes which are both concentrated in massive clusters and also scattered within secondary silica-ferroan carbonate.		139761	19.95	20.80	0.03	69.50	0.41	5.12
	19.95-20.80	ALTERED EXHALITE The most representative of the 3 subunits of this altered exhalite. Clearly laminated, pale grey siliceous exhalite with zones of orange-buff pyrite-?ankerite alteration. Coarse pyrite is secondary. Generally concentrated in planar zones mimetic on laminations.								
20.80	34.00	2AA CARBONACEOUS ARGILLITE SILTSTONE Dark grey to black, thin to medium laminated carbonaceous argillite to siltstone. All non-calcareous, very fine grained. Generally broken core, moderate to poor recovery, especially poor in some places. Laminae marked by 1-3 mm thick paler grey siltstone spaced within black argillite. Locally laminae or thin lenses are composed of fine-grained pyrite - probably syngenetic or diagenetic. Locally bedding								

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		laminations are disrupted by minor shearing. 20.80-22.00 ALTERED ARGILLITE Weakly altered, possibly silicified, argillite immediately below altered Discovery Zone. Sample taken to judge extent of hydrothermal envelope in bounding shale. Note sample metreage is 1.2 m, but only 0.65 m of core taken due to poor recovery here. Rock is black, hard, with rusty orange fracture surfaces.	2AA	139762	20.80	22.00	0.02	1.90	0.01	0.07
		32.10-32.50 PYRITIC SANDSTONE Narrow subunit, possibly transitional to unit 1B. Mid-grey, fine to medium-grained, medium to thinly laminated sandstone with disrupted bedding, possibly due to pressure solution. Interval includes a few, 1 to 5 mm-thick laminae of sulphides, including one of fine-grained pyrite, and another of galena and sphalerite. These are either sedimentary or less likely diagenetic.		139763	32.10	32.50	0.04	49.20	0.85	2.06
34.00	38.20	1B SANDSTONE FAULTED Over 4 m depth represented by 0.8 m of broken core. Rock is 1B sandstone, grey, medium grained to pebbly. About 30 cm of solid core and the rest is rubble or not recovered. Not much gouge, so not definitely a fault zone.	1B							
38.20	45.20	1B SANDSTONE Mid-grey, thickly bedded but locally laminated sandstone. Mostly medium to coarse grained, and locally pebbly. Very minor fine sandstone to siltstone. Not altered. Non-calcareous. Quite broken in places. 42.00-44.50 CONGLOMERATE Chert-argillite pebble conglomerate. Varies from clast-supported to matrix-supported. Clasts 2 to 3 cm long, subrounded to subangular.	1B							
45.20	55.00	FAULT ZONE GOUGE Thick interval of broken core and gouge that probably represents a fault zone. No more than 10% is 1B sandstone. Remainder is mostly dark grey to black, carbonaceous, crumbly chips of argillite or siltstone in black clayey matrix. Some is compacted but still disrupted by fine shears. Virtually no trace of bedding preserved.	FZ							

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
55.00	57.91	<b>1B SANDSTONE</b> Mid- to dark grey, fine to coarse grained sandstone. Faintly laminated in places. Carbonaceous shale partings. Non-calcareous. Locally, sandstone has 1% disseminated pyrite.	1B						
57.91	59.75	<b>RUBBLE GOUGE FAULT ZONE</b> Another possible fault zone. Mostly very broken up, grey, fine to coarse-grained, locally laminated sandstone and siltstone. Minor, 5 mm-thick quartz-pyrite veinlet. Perhaps 0.5 m of no recovery, and the rest carbonaceous muddy rubble.	FZ						
59.75	63.70	<b>1B SANDSTONE / SILTSTONE</b> Mostly intact, gray to dark gray sandstone and siltstone. Sandstone is medium to coarse-grained, thinly bedded; siltstone is medium laminated. Quite broken up with a clayey matrix in a couple of places. Non-calcareous.	1B						
63.70	68.25	<b>1B RUBBLE FLOATSTONE</b> Partially-calcareous siltstone to fine sandstone, and much interlaminated siltstone to slate. Some is fairly intact but most is broken or reduced to rubbly mud. Over 4 m of depth represented in 2 m of core. So possibly another fault here, or just broken.	1B						
68.25	77.50	<b>1B LAMINATED SANDSTONE / SILTSTONE</b> <b>68.25-72.50 LAMINATED SANDSTONE / SILTSTONE</b> Banded, pale to dark gray, very well and regularly medium interlaminated fine sandstone and siltstone/argillite. Laminae up to 1 cm or so, but most much less. No thick beds. Thickness of laminae decreases with depth, towards next minor interval. Sandstone in upper half (to -70 m) is calcareous; between 70 and 72 m it is generally non-calcareous. Poker-chip habit. <b>72.50-77.50 LAMINATED SILTSTONE / SANDSTONE</b> Very well medium laminated interval, similar to above, but only about 25% of the laminae here are fine sandstone, the rest being siltstone and shale. Locally the sandstone laminae are calcareous or weakly so, and some are pyritic. Siltstone is darker gray and also	1B						

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		locally calcareous. Poker chip habit.							
77.50	95.75	<b>1AA CARBONACEOUS ARGILLITE SILTSTONE</b> Quite homogeneous, dark bluish-grey to black, fine to very fine grained siltstone, argillite and shale. Generally thinly laminated, shown by intermittent, paler grey laminae of fine sandstone or coarse siltstone, which tend to be calcareous; up to 5 mm thick and generally faint. Predominant, almost black carbonaceous siltstone/argillite is quite hard, thinly laminated, weakly calcareous locally and has less than 1% very fine disseminated pyrite. Some polished slip surfaces parallel to bedding/cleavage, but overall less sheared than overlying 1B, although it is broken up somewhat. Fine calcite crackle appears in bottom 8 m, increasing to perhaps 2% near subunit 1AC. <b>94.60-95.75 CALCARENITE CALCAREOUS SILTSTONE</b> Thin to medium laminated siltstone to fine sandstone, generally pale and mid-grey. Calcareous throughout. Good regular lamination. Minor calcite veinlets, some parallel to lamination, and some at high angle to bedding and low angle to core axis.	1AA						
95.75	97.70	<b>LOWER ZONE MASSIVE SULPHIDE</b> <b>95.75-96.10 PYRITIC MASSIVE SULPHIDE</b> About 80% fine to medium grained massive sulphide and 20% remnant limestone in patches or indistinct wags. Difficult to identify sulphides. Tentatively: 60% pyrite, 20% galena + sphalerite (= 80%). Vaguely finely laminated. <b>96.10-96.40 MINERALIZED MCDAME LIMESTONE</b> Mid- to dark gray, thinly laminated limestone, sporadically replaced by pyrite and sphalerite. 70% limestone, 30% sulphides. Pyrite is fine grained, about 25%; sphalerite, 5%, is medium to coarse grained, and mainly occurs in veins or veinlets. Possibly some galena, but not definite. <b>96.40-97.45 PYRITIC MASSIVE SULPHIDE</b> Main massive sulphide subunit of Lower Zone. About 90% sulphides, comprising roughly 80% fine- to	LZ	139764 139765         139766	95.75 96.10         96.40 97.45	0.16 0.07         0.58	13.90 17.80         20.80	0.08 0.19         0.09	0.09 10.12         2.61

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/ml	Ag g/ml	%Pb	%Zn
		medium grained pyrite and possibly 10% fine sphalerite and galena though the latter two are hard to assess and may be more or less. Remnant silicified limestone forms cm-scale patches, amounting to 10%. Minor red-brown sphalerite in 1-3 mm thick quartz-veinlet.								
		97 45-97 70 BASE METAL MASSIVE SULPHIDE ALTERED MCDAME LIMESTONE Limestone and silicified limestone, and sulphides, in this marginal replacement zone. Sulphides are mainly massive fine pyrite which includes fine sphalerite and pods of coarse galena. Sulphides also form fine stringers in limestone, perhaps invading stylolites. Most of the galena in the Lower Zone is in this subunit.		139767	97 45	97 70	0.25	411.90	7.41	11.99
97 70	115 50	MCDAME LIMESTONE UNIT 1 97 70-98 70 MCDAME LIMESTONE UNIT 1 Immediately below Lower Zone, sampled (preceded by blank sample). Two-tone grey-pale grey stromatoporoids in mid-grey packstone. No sign of mineralization. Minor fine calcite veinlets. Tentatively unit 1B.  98 70-101 90 MCDAME LIMESTONE UNIT 1 Tentative, based on abundant Thamnopora. Mid-grey packstone to floatstone. Stromatoporoids common, minor Amphipora, mostly fine. Thin calcite veinlets, 1 to 5 mm thick, at low angles (0 to 30 deg.) To core axis. 4 cm thick pyrite + calcite vein @ 90 deg. To core axis at 101.6 m.  101 90-115 50 MCDAME LIMESTONE UNIT 1 Possibly unit 1C to E. Top very tentative, where abundant Thamnopora ends. Main fossil now is probably stromatoporoids. Variety of textures, mostly dense floatstone and packstone, locally rudstone. Not brecciated, not dolomitic. Quite common are calcite veinlets at low angles (0 to 35 deg.) To core axis. Calcite veinlets and crackle become more numerous near base, but not breccia. Calcite vein @ 111.3 m has fibres indicating near dip-slip shear on vein.	MLS1	139769	97 70	98 70	0.00	0.10	0.00	0.01

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/ml	Ag g/ml	%Pb	%Zn
		Thin-shelled brachiopods @ 111.4 m								
115 50	124 30	MCDAME LIMESTONE UNIT 2 Contact very tentative, located near onset of more abundant stromatoporoids. Pale to mid-grey, dense floatstone to packstone. Stromatoporoids and debris packed together with stylolite seams. Stringers and patches of fine grained pyrite very locally. Zones of good Amphipora in places, from 5 to 25 cm thick, generally associated with stromatoporoids, forming good floatstone. Calcite veinlets at low angles (0 to 20 deg.) To core axis are common, but especially between 119 and 122 m.	MLS2							
124 30	128 02	BRECCIATED MCDAME LIMESTONE Possibly still unit 2, but uncertain as completely brecciated. Suspect a tectonic origin - fracture-related - rather than sedimentary brecciation. 124 30-124 85 RUBBLE BRECCIA Mostly clast-supported breccia composed of limestone and white vein calcite clasts in darker grey clastic matrix. Fairly well packed. 124 85-126 25 MATRIX BRECCIA RUBBLE BRECCIA Fewer large clasts than previous. Mainly small (<2 cm) angular limestone clasts in limestone or minor precipitated calcite matrix. About 10% calcite infilling. 126 25-127 50 MATRIX BRECCIA MOSAIC BRECCIA Similar, matrix-rich rubble breccia to microbreccia, but with more (about 15%) precipitated white calcite vein infilling. Some clasts rich in Amphipora. No sulphides. 127 50-128 00 LIMESTONE BRECCIA Crackle-brecciated limestone with fine Amphipora, and some mosaic-matrix breccia.	MLS							

\*\*\* END OF HOLE \*\*\* 128 02

HOLE NO: SSD-97-18

SECTION: 43433

GRID: SILVER CK

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING  
 PROSPECT : CORPORATION

GRID : SILVER CK  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, B.C.  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43433.22mN 25088.45mE 1324.32RL

Pre-collar depth: Final depth: 184.40  
 Purpose of hole: STEP-OUT FROM 84-59  
 Hole status: DRILLED TO DEPTH  
 Comments: XM AT 183.15-183.45

## \*\*\* SURVEY DATA \*\*\*

Survey Method: NONE

Depth	Azimuth	Inclination
0.00	0.00	-90.00

## \*\*\* SUMMARY LOG \*\*\*

0.00 25.80 OVERBURDEN  
 25.80 33.70 2A PYRITIC SILTSTONE  
 33.70 46.75 EXHALITE - DISCOVERY  
 ZONE  
 46.75 52.00 2A PYRITIC INTERBEDDED  
 SILTSTONE / ARGILLITE  
 52.00 53.70 2AA CARBONACEOUS  
 ARGILLITE GOUGE  
 53.70 56.00 1B SANDSTONE  
 56.00 67.15 1B SHEARED RUBBLE  
 67.15 88.25 1B SANDSTONE /  
 SILTSTONE  
 88.25 89.50 1B SILTSTONE /  
 SANDSTONE RUBBLE  
 89.50 110.50 1B LAMINATED  
 SANDSTONE  
 110.50 114.80 1B SHEARED RUBBLE  
 114.80 135.00 1B LAMINATED SILTSTONE  
 / SANDSTONE  
 135.00 144.75 1BA LAMINATED  
 SILTSTONE  
 144.75 153.00 1A CARBONACEOUS  
 INTERBEDDED SILTSTONE  
 / ARGILLITE  
 153.00 159.90 1A CARBONACEOUS  
 RUBBLE BRECCIA

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	184.40	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR 3000		
Date started:	8/8/97		
Date finished:	8/11/97		
Logged by:	C. REES		
Relogged by:			
Sampled by:	C. AKELAITIS		

Material left in hole:

Base of complete oxidation

Top of fresh rock:

Water first encountered:

Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
33.70	39.60	5.90
41.60	50.20	8.60
159.90	160.90	1.00
164.80	165.90	1.10
183.15	183.43	0.28

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

HOLE NO: SSD-97-18

SECTION: 43433

GRID: SILVER CK

159.90	166.90	MCDAME LIMESTONE UNIT 1
166.90	169.70	MCDAME LIMESTONE UNIT 1 DOLOMITIZED LIMESTONE CRACKLE BRECCIA
169.70	173.40	MCDAME LIMESTONE UNIT 1
173.40	184.40	MCDAME LIMESTONE UNIT 2
184.40		END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
0.00	25.80	OVERBURDEN	OB							
25.80	33.70	2A PYRITIC SILTSTONE Very broken core due to fractured but not faulted rock. Mid-grey and rusty fine-grained laminated pyritic siltstone to fine sandstone. Crenulated phyllite laminae. Not particularly carbonaceous. Calcareous very locally in places appears silicified +/- strong fine- to medium grained pyrite. Pyrite-coated fracture surfaces. Unit has 2% pyrite overall.	2A							
33.70	46.75	EXHALITE - DISCOVERY ZONE	DZ							
		33.70-34.20 PYRITIC QUARTZ VEIN Quartz vein in siliceous exhalite. Vein itself is only 10 cm thick. Main feature is very strong pyrite at margin of vein and extending into exhalite. Pyrite is very coarse (up to 5 mm), subhedral, and is secondary.		139770	33.70	34.20	0.07	2.30	0.04	0.20
		34.20-35.30 SILICEOUS EXHALITE Very pale grey or creamy-buff. Very fine grained. Darker grey, fine discontinuous wavy wispy laminae. Hard, siliceous. Non-calcareous. Feature of this interval is paucity of pyrite - up to 1% very fine in the laminae.		139771 139772	34.20 35.30	35.30 35.95	0.01 0.04	2.40 80.40	0.03 0.72	0.28 16.95
		35.30-35.95 PYRITIC VEINED Basically the same, off-white, fine-grained faintly laminated exhalite but here has more coarse secondary pyrite and also appearance of 1 to 10 mm olive-buff blotchy carbonate replacement. Some pyrite follows laminae - may be mimetic on syngenetic pyrite. Minor galena and sphalerite - also secondary, and three 1-cm thick veins of coarse sphalerite and pyrite.								
		35.95-37.40 PYRITIC EXHALITE Off-white, wispy to well and thinly laminated exhalite, with much secondary pyrite but no apparent carbonate replacement, and no sphalerite or galena. Not too hard or siliceous.		139773 139774	35.95 37.40	37.40 39.40	0.01 0.03	18.00 18.90	0.26 0.20	4.85 3.67
		37.40-39.40 PYRITIC LAMINATED Off-white to pale buff-grey, pyritic laminated exhalite, like previous interval but with minor secondary		139775	39.40	39.60	0.01	20.10	0.26	2.69

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		carbonate. Some parts rich in pyrite, others weak. Overall 25% pyrite.								
		39.40-39.60 MINERALIZED SILTSTONE Mid-grey siltstone intervening between exhalites. About 1% disseminated fine pyrite. Has 1-cm thick vein of almost pure sphalerite. Core broken up but not faulted.								
		39.60-41.60 PYRITIC SILTSTONE Part of a few metres of siltstone in the middle of the Discovery Zone. Broken up but not faulted. Mid-grey fine-grained, weakly laminated. 1% disseminated pyrite.		139776	41.60	43.60	0.03	35.90	0.84	6.52
		41.60-43.60 PYRITIC EXHALITE Pale grey and brassy yellow, fine-grained laminated exhalite. Strong, coarse secondary pyrite, with a much smaller amount of fine galena and possibly sphalerite. Minor pale olive green, blebby carbonate replacement.		139777	43.60	44.70	0.01	27.10	0.32	8.58
		43.60-44.70 LAMINATED EXHALITE Very pale grey, very fine-grained, finely laminated rock. Maybe more of an altered siltstone or argillite than exhalite. Top 25 cm has coarse secondary pyrite and carbonate.		139778	44.70	45.25	0.23	68.70	0.85	14.92
		44.70-45.25 MINERALIZED EXHALITE Strongly altered/mineralized exhalite. Basic rock is pale buff-grey, vaguely laminated exhalite. Has minor, buff-coloured patches of carbonate alteration. Overprinted by strong coarse euhedral secondary pyrite. Quartz vein, 5 to 10 cm thick in centre of interval. Coarse-grained, waxy brown translucent sphalerite in quartz vein, several cm across.		139779	45.25	46.10	0.01	4.10	0.04	0.83
		45.25-46.10 PYRITIC EXHALITE Pale grey, well and thinly laminated exhalite. Upper part calcareous, rest quite siliceous. Pyrite is secondary and not strong.		139780	46.10	46.75	0.01	6.10	0.04	0.95
		46.10-46.75 ALTERED SILTSTONE Upper part like previous interval - thin to medium laminated exhalite or silicified siltstone. Lower part mid-grey, slightly bleached siltstone. Some lenses and								

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		laminae of chert. Some primary, very fine pyrite and some secondary pyrite. Quartz vein at base, with coarse pyrite and minor sphalerite.								
46.75	52.00	2A PYRITIC INTERBEDDED SILTSTONE / ARGILLITE 46.75-47.85 SHALE SILTSTONE Dark grey to black, argillite to siltstone with soft friable carbonaceous shale. Slightly pyritic. Minor calcite crackle. 47.85-48.40 VEINED SILTSTONE Fairly broken-up, grey siltstone/shale, veined with and somewhat replaced by quartz and calcite, accompanied by sulphides. Quite deformed and fragmented. 48.40-49.20 PYRITIC EXHALITE More of the carbonate-altered, pale grey exhalite overprinted by coarse pyrite that is typical of the Discovery Zone of the previous unit. 49.20-50.20 PYRITIC SILTSTONE Grey, fine-grained, possibly slightly silicified siltstone. Probably marginal to the major exhalite zone. Faintly, finely laminated. Extensive pyrite, some primary in fine laminae, some secondary and coarser grained. Non-calcareous. 50.20-52.00 SILTSTONE/ARGILLITE Very similar to previous subunit, but slightly less pyritic. Argillite is somewhat cherty.	2A	139781	46.75	47.85	0.00	7.70	0.04	0.43
				139782	47.85	48.40	0.01	30.10	0.30	2.21
				139783	48.40	49.20	0.02	12.69	0.08	1.82
				139784	49.20	50.20	0.02	19.30	0.40	0.50
52.00	53.70	2AA CARBONACEOUS ARGILLITE GOUGE Basal unit of unit 2, reduced to under 2 m of black argillite-siltstone gravel and chips packed in and cemented by black carbonaceous mud or clay gouge. No solid core. Probably sheared along the contact between the Discovery Zone above and unit 1B below.	2AA							
53.70	56.00	1B SANDSTONE Mid- to dark grey sandstone to fine sandstone and carbonaceous siltstone to shale. Core is broken, poor recovery. Quite internally fractured and finely crackle veined by quartz. Not calcareous. Somewhat pyritic due to weak alteration. 1-cm thick vein of pure coarse red-brown sphalerite at about 54 m - curious absence of any quartz	1B							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		gangue. This short interval really only documented to delineate the unit 2/1 boundary.								
56.00	67.15	1B SHEARED RUBBLE Thick zone of disintegrated sandstone, siltstone and shale, and muddy rubble and gouge. Dark grey to black, fairly soft, carbonaceous and pyritic. Variety of textures, in decreasing order of abundance: (a) microbreccia of small angular chips of rock and vein quartz in carbonaceous mud matrix. Quite pyritic; (b) Sandstone laced with small carbonaceous cracks and shears, but otherwise more or less intact; (c) Zones of broken sandstone or pebble/granule conglomerate; (d) Dark grey mud. Interpretation: probably not one big fault zone but several planes of displacement, anastomosing around lenses of less strongly deformed sandstone. Overall a significant interval of faulting.	1B							
67.15	88.25	1B SANDSTONE / SILTSTONE Generally typical lithologies of unit 1B, intact with good recovery. Well bedded to well laminated. Thicker beds are medium to coarse grained to pebbly sandstone, some with graded bedding and ball and pillow structure. Minor coarse conglomerate. Interspersed thin to medium laminated, pale grey sandstone to fine sandstone to dark grey siltstone. Crenulated shale or phyllite partings common. Rare quartz veinlets. Core angles of bedding consistently about 80 deg. Locally 1-2% disseminated pyrite. Rarely slightly calcareous.	1B							
88.25	89.50	1B SILTSTONE / SANDSTONE RUBBLE Narrow zone of rubbly, dark grey friable shale, and minor sandstone and siltstone. Possibly a small fault.	1B							
89.50	110.50	1B LAMINATED SANDSTONE Dominantly medium to thin-bedded weakly pyritic sandstone, some with coarse, pebbly basal layers. Generally internally laminated. Subordinate, well laminated fine sandstone and darker grey siltstone to stony argillite. Spherical pyritic nodules in a few places, 0.5 to 1 cm across, with pressure shadows. Probably diagenetic.	1B							



From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
110.50	114.80	<b>1B SHEARED RUBBLE</b> Mainly grey sandstone with minor siltstone. Core is quite broken up either into large angular pieces or into gravel-mud-gouge mixture. Locally sandstone is shot through with foliation-subparallel quartz veins etc. Overall interval could be sheared parallel to layering.	1B							
114.80	135.00	<b>1B LAMINATED SILTSTONE / SANDSTONE</b> Generally coarsening-upward unit of laminated sandstone and siltstone. Lower part: mid-to dark grey, well- and regularly thin to medium laminated siltstone and fine sandstone up to about 125 m. Non-calcareous. Only weakly pyritic if at all. Poker chip habit. Fairly good core recovery, no obvious faults. Upper part, 125 m to 114.8 m, gradually more thickly laminated to thinly bedded sandstone and lesser siltstone. Strong disseminated pyrite (3%) between 121.6 and 122.4 m. Some minor channeling and current structures in the coarser sandstone.	1B							
135.00	144.75	<b>1BA LAMINATED SILTSTONE</b> Gradational with 1B above and 1A below. Dark grey to black, well and thinly laminated siltstone and slaty siltstone. Roughly 10% paler grey fine sandstone laminae up to 1.5 cm thick, usually less than 5 mm. These may be quite rich (5 to 10%, rarely 50%) in disseminated pyrite. Poker chip habit. Generally good recovery.	1BA							
144.75	153.00	<b>1A CARBONACEOUS INTERBEDDED SILTSTONE / ARGILLITE</b> Dark grey to black, fine to very fine grained, carbonaceous siltstone to argillite with weak to moderate slaty cleavage. Faintly laminated. Rare thin laminae of fine sandstone or of pyritic siltstone. Otherwise uniform. Non-calcareous. Broken core from 149.4 to 152.2 m, but probably not a fault.	1A							
153.00	159.90	<b>1A CARBONACEOUS RUBBLE BRECCIA</b> <b>153.00-155.20 RUBBLE BRECCIA</b> Clast-supported rubble breccia composed of angular blocks and chips of black 1AA carbonaceous argillite, up to 3 cm across, well packed together with interstitial pale grey calcite cement. Cement is less than 10% of rock. No sulphides. Probably formed by floor collapse	1A							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		due to McDame dissolution. <b>155.20-158.40 RUBBLE BRECCIA RUBBLE</b> Same material as previous, broken into rubble, but probably not a fault. Some silica cement too. One 25-cm subinterval @ 156.0 m where clasts and matrix are subequal - mosaic breccia. <b>158.40-159.90 SILTSTONE RUBBLE BRECCIA</b> Basal zone of rubble breccia unit - larger pieces of laminated carbonaceous siltstone, tightly packed with carbonaceous mudstone matrix rather than calcite cement. Very black.								
159.90	166.90	<b>MCDAME LIMESTONE UNIT 1</b> <b>159.90-160.90 MCDAME LIMESTONE/1A ARGILLITE RUBBLE BRECCIA</b> Appearance of blocks of McDame limestone taken to mark unconformity. Thin, 1 m thick breccia composed of large and small blocks and chips of limestone and smaller chips of Eam argillite in a dark grey matrix of mainly small Eam and lesser carbonate fragments and sands. About 1% of clasts in matrix are of pyritic sulphide, and there is some wormy pyrite replacement in limestone breccia fragments. Interpreted as a syn-mineralization dissolution-collapse breccia. <b>160.90-164.80 PACKSTONE</b> Tentatively unit 1. Pale to mid-grey, very fine-grained, weakly fossiliferous limestone. Dense packstone ALTERED few thin bands or subvertical cracks filled with limestone-rich Eam-poor clastic breccia - cavities connected to unconformity. Rest of limestone is solid, compact. <b>164.80-165.90 PYRITIC LIMESTONE</b> Packstone limestone as above, not brecciated or particularly veined, but has several thin stringers of fine-grained pyrite. <b>165.90-166.90 PACKSTONE</b> As at 160.9 to 164.8 m. Pale to mid-grey packstone limestone. ALTERED few pyrite stringers.	MLS1	139785	159.90	160.90	0.00	1.30	0.00	0.02
				139786	164.80	165.90	0.00	0.10	0.00	0.00

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
166.90	169.70	MCDAME LIMESTONE UNIT 1 DOLOMITIZED LIMESTONE CRACKLE BRECCIA Dolomitic limestone within unit 1. Recrystallized to mid-grey medium grained crystalline. Moderate to strong calcite crackle veinlets, many accompanied by pyrite. Some thicker calcite veins 3 cm thick with mosaic breccia, especially at bottom contact, where there is some mm-scale open space filling by red-brown sphalerite.	MLS1							
169.70	173.40	MCDAME LIMESTONE UNIT 1 Pale to mid-grey dense packstone limestone. Generally non-fossiliferous except for a few Amphipora.	MLS1							
173.40	184.40	MCDAME LIMESTONE UNIT 2 Tentatively begun at 173.4 m where there is a marked increase in fossils, particularly stromatoporoids and Amphipora. 173.40-183.15 RUDSTONE FLOATSTONE Fossiliferous limestone varying from stromatoporoid-rudstone to Amphipora floatstone to lesser packstone. Minor Thamnopora, fine Amphipora and rare thin-shelled brachiopods. Quite well flattened, shown by flattening of fossils. No brecciation or dolomitization. Very minor calcite crackle veinlets. 5-cm thick pyrite vein @ 175.15 m. 183.15-183.43 BASE METAL MASSIVE SULPHIDE Lower Zone-like replacement massive sulphide, within limestone. Not a vein, despite sharp contacts. Sulphide about 40%, mainly pyrite but with significant coarse galena. 183.43-184.40 PACKSTONE Mid-grey limestone with minor fine Amphipora and possibly stromatoporoids. Fairly strong calcite crackle.	MLS2							
				139787	183.15	183.43	0.28	291.40	4.56	2.21

\*\*\* END OF HOLE \*\*\* 184.40

HOLE NO: SSD-97-19	SECTION: 43433N	GRID: SILVER CK E.
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PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK E.  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC  
 HOLE TYPE : DIAMOND

\*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	222.50	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR 3000		
Date started:	11/8/97		
Date finished:	14/8/97		
Logged by:	L. LEWIS		
Relogged by:			
Sampled by:	C. AKELAITIS		

\*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED	43433.22mN	25043.77mE	1315.42RL
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Pre-collar depth: Final depth: 222.50  
 Purpose of hole: INFILL DRILL ADJACENT TO SEISMIC  
 Hole status: DRILLED TO DEPTH  
 Comments: NO LOWER ZONE. PYRITE STRINGER ZONE 169.25-170.25M

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

\*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
96.85	99.00	2.15
168.25	171.25	3.00

\*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
45.72	49.00	-88.00
91.44	39.00	-87.00
137.16	27.00	-87.00
182.88	19.00	-86.00
217.93	8.00	-86.00

\*\*\* SUMMARY LOG \*\*\*

0.00	22.80	OVERBURDEN
22.80	26.70	FAULT ZONE 1B SANDSTONE
26.70	31.15	1B SANDSTONE
31.15	34.20	FAULT ZONE 1B SANDSTONE
34.20	52.20	1B SANDSTONE / SILTSTONE / CONGLOMERATE
52.20	54.00	FAULT ZONE 1B SANDSTONE
54.00	55.90	1B CONGLOMERATE / SANDSTONE
55.90	59.20	FAULT ZONE 1B SANDSTONE / CONGLOMERATE / SILTSTONE
59.20	96.85	1B SANDSTONE / SILTSTONE / CONGLOMERATE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

HOLE NO: SSD-97-19

SECTION: 43433N

GRID: SILVER CK E.

96.85	99.00	QUARTZ VEIN 1B
99.00	132.50	1B SANDSTONE/MUDSTONE
132.50	143.26	1B MUDSTONE / SANDSTONE
143.26	147.30	1BA MUDSTONE / SANDSTONE
147.30	162.76	1AA CARBONACEOUS ARGILLITE
162.76	164.59	NO RECOVERY
164.59	169.25	1AA CARBONACEOUS ARGILLITE
169.25	184.70	MCDAME LIMESTONE UNIT 1
184.70	192.45	MCDAME LIMESTONE RECRYSTALLIZED LIMESTONE
192.45	198.07	MCDAME LIMESTONE UNIT 1
198.07	207.35	MCDAME LIMESTONE UNIT 2
207.35	222.50	MCDAME LIMESTONE UNIT 3
222.50		END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
0.00	22.80	OVERBURDEN	OB						
22.80	26.70	FAULT ZONE 1B SANDSTONE 70% recovery of broken rubbly core. 30% of the recovery is gouge and small chips with the remainder being moderately sheared, medium grained sandstone with 5% quartz stringers and fracture fillings. 2% disseminated and small cubes of pyrite in sheared sandstone and along quartz stringer margins.	FZ						
26.70	31.15	1B SANDSTONE Zone of strongly broken, medium to coarse grained, massive sandstone with 90% recovery. 5% siltstone interbeds. No gouge and only minor, small chips. Fairly pyrite-rich with 3% disseminations and clots within the sandstone and in narrow, low angle stringers (5-10 degrees to core axis) with quartz, sphalerite + galena @ 24-35m.	1B						
31.15	34.20	FAULT ZONE 1B SANDSTONE Rubble (80%) / gouge (20%) interval of medium grained sandstone with 7% quartz veining, 2% disseminated pyrite. Sandstone appears moderately sheared and is now friable and crumbly. 55% recovery. Broken lower contact.	FZ						
34.20	52.20	1B SANDSTONE / SILTSTONE / CONGLOMERATE Mixed interval of predominantly medium grey, medium to coarse grained, massive sandstone, occasionally fining upward into dark grey, thinly laminated to massive siltstone beds 5mm - 3cm thick. 5% chert - sandstone - siltstone pebble conglomerate, clast-supported with sub-rounded clasts, 2mm - 6cm. Elongate clasts orientated @ 75 degrees to core axis. Conglomerate beds 20cm - 80cm thick, grade into coarse sandstone up section. 75% of the interval is broken along bedding (80 degrees) and fractures @ 10-20 degrees. Trace - 1% disseminated pyrite. - 40.7-42.2m. 25% irregular quartz veining with 2% pyrite clots and 1% black sphalerite clots to 1cm. Broken lower contact with fault zone.	1B						
52.20	54.00	FAULT ZONE 1B SANDSTONE Crumbly, sheared, pyritic ss. 40% recovery. 5% quartz chips, 3% disseminated pyrite. Broken upper and lower contact.	FZ						

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn	
54.00	55.90	1B CONGLOMERATE / SANDSTONE Finning upward unit with conglomerate at the base and coarse grained sandstone at the top. 1% fine grained pyrite within the pebble conglomerate clasts.	1B							
55.90	59.20	FAULT ZONE 1B SANDSTONE / CONGLOMERATE / SILTSTONE Possible fault zone consisting of 25% gouge, 30% chips and 45% coarse rubble of sandstone, conglomerate and siltstone. 3% quartz chips, 1% disseminated pyrite. Sharp lower contact @ 70 degrees to core axis.	1B							
59.20	96.85	1B SANDSTONE / SILTSTONE / CONGLOMERATE 1B Earn unit containing 75% sandstone, 20% siltstone and 5% conglomerate. Massive to graded sandstone beds are variably light to fed grey, fine to coarse grained, pebbly sand (finer sandstone generally thinly interbedded with dark grey siltstone, 3mm - 5cm thick). Occasional cross-laminations visible in the finer interbedded sandstone (eg. 71.0m). Siltstone intervals generally less competent, breaking easily along bedding planes @ 75 to core axis. Scattered quartz - pyrite round concretions to 1.5cm. Rare siltstone clasts within the sandstone beds. Predominantly sandstone below 84.7m. Trace - 2% disseminated pyrite, most abundant in the siltstone intervals from 65.0 - 68.0m. Irregular lower contact with quartz vnd interval below. 71.10-73.20 SANDSTONE / SILTSTONE 2% quartz - sulphide stringers, 3mm wide, @ 20 degrees to core axis containing pyrite, red-brown sphalerite and galena.	1B							
96.85	99.00	QUARTZ VEIN 1B Quartz - carbonate vnd interval containing 20% sandstone and carbonaceous mudstone wallrock clasts. 96.85-98.00 QUARTZ VEIN Irregular white, opaque, quartz flooded interval with frequent carbonaceous partings and wall rock inclusions. 3% pyrite clots, tr. sphalerite + galena. Carbonate is yellowish, but still reacts with HCl. 98.00-99.00 QUARTZ VEIN Similar to above interval with increased pyrite +	1B	139711	96.85	98.00	0.00	2.00	0.03	0.25
				139712	98.00	99.00	0.07	5.10	0.12	0.78

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		sphalerite - galena. Su prices concentrated in an irregular spot between 98.2 - 98.4m							
99.00	132.50	1B SANDSTONE/MUDSTONE 70% medium grey sandstone often pebbly sand with massive or fining upward into fine grained sandstone or mudstone. One coarse conglomerate bed, 15cm thick @ 104.9m. 30% dark grey to black mudstone interbeds 3mm - 1.0cm thick, occasionally pyritic. The mudstone is massive to thinly laminated. Fine sandy layers interbedded with mudstone may show cross-laminations. Sandstone intervals are moderately competent, while the mudstone parts easily along bedding planes. Intermittent quartz - pyrite stringers (1-5% quartz, tr - 2% pyrite) at 10 and 60 degrees to core axis. Stringers often have mm to cm displacement along slip / bedding planes. - 114.5m: 1cm quartz - sphalerite - pyrite - galena stringer @ 15 to core axis. - 127.5 - 130.0m: 15% calcareous sandstone beds typically lighter grey than the non-calcareous sandstone. - 130.55 - 130.8m: Moderately sheared sandstone, crumbly, minor clay alteration.	1B						
132.50	143.26	1B MUDSTONE / SANDSTONE Striped unit of dark grey, locally carbonaceous, mudstone (70%) interlaminated with light grey fine grained sandstone. Lams and thin beds are from 3mm - 7cm. Poker chip core breaks easily along bedding planes @ 65 to core axis. 1% disseminated pyrite. Rare quartz veining.	1B						
143.26	147.30	1BA MUDSTONE / SANDSTONE Transitional unit between 1B sandstone and 1AA argillite with 5 - 25% interlaminated sandstone. Similar striped appearance as the above unit, the difference being <25% sandstone. Bedding @ 60 to core axis.	1BA						
147.30	162.76	1AA CARBONACEOUS ARGILLITE Thicker than usual argillite interval. Black, broken interval of strongly carbonaceous argillite, massive to thinly laminated. Bedding @ 70 to core axis. 1% calcite stringers parallel to bedding and tension crack fillings. Trace - 1% pyrite dots in calcite stringers. Poor recovery from 160.93 - 162.76m.	1AA						

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		Core chips getting smaller with depth (looks like micro-breccia).							
162.76	164.59	NO RECOVERY	NR						
164.59	169.25	1AA CARBONACEOUS ARGILLITE Similar to previous carbonaceous argillite unit, but more broken and poorer recovery (65%). Chip surfaces parallel to bedding are extremely shiny and graphitic - suggesting possibly bedding parallel movement. 3% calcite fractures, 1 - 2% pyrite dots. 168.25-169.25 CARBONACEOUS ARGILLITE Hanging wall sample of unconformity, as described above. Hard to tell, because most of the core is chips, but it looks like crackle brecciated Eam. Sharp lower contact @ 40 degrees with brecciated, weakly sulphidized McDame Limestone.	1AA	139713	168.25 - 169.25	0.01	1.30	0.01	0.04
169.25	184.70	MCDAME LIMESTONE UNIT 1 169.25-170.25 PACKSTONE CRACKLE BRECCIA Pyrite stringer zone in crackle to stylolitic breccia, 10% pyrite dots and stringers replacing calcite matrix and limestone. Trace sphalerite. 15% calcite cement. 170.25-171.25 PACKSTONE CRACKLE BRECCIA Footwall sample to sulphide stringer zone. Crackle and stylolitic breccia. 2% fine grained pyrite concentrated along carbonaceous stylolites. 172.95-177.70 DOLOMITIZED LIMESTONE CRACKLE BRECCIA Dark grey, medium crystalline, dolomitized limestone clasts in a calcite matrix cement. Predominantly crackle breccia, minor mosaic breccia and rubble breccia. Rubbly, broken core below 174.5m. No identifiable fossils remain. 1% pyrite, 15% calcite cement. - 173.9m: 3cm calcite - pyrite stringer 30 degrees to core axis. Pyrite along vein margins and hair-line cracks, sub-parallel to vein selvage. 177.70-182.88 PACKSTONE STYLOLITIC BRECCIA Vuggy fractures which trend at 10 - 20 degrees, often contain bladed calcite infilling. Strongly stylolitic with	MLS1?	139714	169.25 - 170.25	0.00	1.20	0.00	0.30
				139715	170.25 - 171.25	0.00	1.20	0.00	0.00

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		intervals of crackle to mosaic breccia. The lower 50cm of the interval is mosaic breccia with siliceous cement. Possible amphipora + stromatopora present. 15% calcite, 8% quartz, and Ir pyrite. 182.88-184.70 PACKSTONE Amphipora stretched along 75 degrees to core axis. Minor <i>Thamnopora</i> and brachiopods. 20% irregular calcite veining. Narrow interval of rubble breccia in a calcareous sediment matrix at 183.1m. Moderate stylolites. Sharp lower contact @ 7C to core axis with recrystallized limestone.								
184.70	192.45	MCDAME LIMESTONE RECRYSTALLIZED LIMESTONE Mottled light blue-gray and white coarsely crystalline calcite. There are scattered remnant limestone portions that are only partially recrystallized. Moderate stylolites. Moderate fracturing @ 15 - 25 degrees to core axis, has displacement of up to 2cm (reverse movement). Trace - 1% pyrite, mainly elongate clots along stylolites.	MLS1?							
192.45	198.07	MCDAME LIMESTONE UNIT 1 Less altered than all the above limestone. Mainly packstone, minor amphipora floatstone and stromatopora floatstone. Bottom meter is partially dolomitized crackle breccia.	MLS1?							
198.07	207.35	MCDAME LIMESTONE UNIT 2 Massive stromatopora rudstone with scattered amphipora floatstone and dense packstone. Good <i>thamnopora</i> from 202.0 - 204.0m. Minor fractures oriented @ 10 - 20 degrees to core axis. Trace pyrite. - 205.2 - 205.45m: Recrystallized rubble breccia, in stylolitic contact with dolomitized crackle breccia below - 205.45 - 207.35m: Dolomitized crackle breccia, 30% broken, rubbly core.	MLS2							
207.35	222.50	MCDAME LIMESTONE UNIT 3 The top of Unit 3 (Main Amphipora Unit) was chosen at the onset of dense packstone and fine amphipora, 1-2mm in diameter, within the upper 2 meters. Minor massive stromatopora and thin-shelled brachiopods (209.7m). - 208.0 - 208.5m: Thinly laminated, fine grained.	MLS3							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		calcareous sediment; bedding @ 50 to core axis. Core typically breaks along this angle. - 220.6 - 221.5m: Amphipora Rudstone + <i>Thamnopora</i> .								

\*\*\* END OF HOLE \*\*\* 222.50

HOLE NO: SSD-97-20

SECTION: 43660N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43660.12mN 24778.86mE 1220.35RL

Pre-collar depth: Final depth: 103.63

Purpose of hole: INFILL GRID DRILL SILVER CK EXT.

Hole status: DRILLED TO DEPTH

Comments: LOWER ZONE: 48.16 - 57.17M

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
45.72	347.00	-88.00
94.49	344.00	-88.00

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	103.63	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR 3000		
Date started:	14/8/97		
Date finished:	16/8/97		
Logged by:	L. LEWIS		
Relogged by:			
Sampled by:	C. AKELAITIS		

Material left in hole: 25 FEET OF CASING LOST

Base of complete oxidation

Top of fresh rock:

Water first encountered:

Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
47.16	65.25	18.09

## \*\*\* SUMMARY LOG \*\*\*

0.00 8.40 OVERBURDEN  
 8.40 14.50 1B SANDSTONE  
 14.50 27.43 FAULT ZONE 1AA GOUGE  
 27.43 33.53 NO RECOVERY  
 33.53 42.06 1AA CARBONACEOUS ARGILLITE  
 42.06 48.16 MCDAME LIMESTONE UNIT 1 CRACKLE BRECCIA  
 48.16 57.15 LOWER ZONE MASSIVE SULPHIDE  
 57.15 64.25 1AA CARBONACEOUS ARGILLITE RUBBLE BRECCIA  
 64.25 87.70 MCDAME LIMESTONE UNIT 2  
 87.70 103.63 MCDAME LIMESTONE UNIT 3  
 103.63 END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_



From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
3.00	8.40	OVERBURDEN	OB							
8.40	14.50	1B SANDSTONE Medium grey, medium to coarse grained sandstone, occasionally pebbly. Iron oxide stained to 14.0m. Frequent fractures @ 60 degrees to core axis. Poor recovery and rubbly below 13.4m.	1B							
14.50	27.43	FAULT ZONE 1AA GOUGE Zone of 40% gouge and 60% chips. Poor recovery. Chips are dark grey to black, moderately coarse grained mudstone with thin hairline pyrite stringers and disseminations parallel to bedding (55 to core axis). 1% quartz-filled fractures.	FZ							
27.43	33.53	NO RECOVERY Likely part of the fault zone above.	NR							
33.53	42.06	1AA CARBONACEOUS ARGILLITE Dark grey to black argillite, moderately carbonaceous. Thinly laminated to massive, bedding @ 75 to core axis. The majority of the core is broken, both along bedding and iron oxide stained fractures (10 - 30 to core axis). Weak to moderately silicified. Trace - 1% pyrite, as disseminations in the argillite and small clots in rare quartz - calcite stringers. Broken lower contact with limestone.	1AA							
42.06	48.16	MCDAME LIMESTONE UNIT 1 CRACKLE BRECCIA Mainly amphipora floatstone and dense packstone, with minor massive stromatoporoid floatstone. Cluster of thamnopora @ 46.4m. Crackle breccia predominant with minor mosaic breccia. 15% calcite veining and matrix containing limestone breccia clasts. Scattered vugs to 3cm. Fractures trend at 10, 25 & 80 degrees to core axis. Increased calcite veining towards the base of the unit. - 46.5 - 46.7m: Sliver of Eam carbonaceous argillite collapse breccia with sharp lower contact @ 40 to core axis. 47.16-48.16 PACKSTONE MOSAIC BRECCIA Hanging wall sample to Lower Zone. 35% coarse calcite veining. Narrow, 10cm section of rubbly core. - 47.85 - 48.16m: Calcareous carbonaceous, thinly laminated sediment; layering about 70 degrees to core	MLST	139716	47.16	48.16	0.02	2.40	0.03	0.01

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		axis. Pyrite concentrated in this interval as mm to cm clots.								
48.16	57.15	LOWER ZONE MASSIVE SULPHIDE Note** This Lower Zone consists mostly of pods of massive sulphide up to 20cm wide (pyrite + sphalerite + galena) dispersed throughout the limestone. There are two wider zones of massive sulphide from 48.16-48.9m and 53.85-54.6m.	LZ	139717	48.16	48.90	2.68	351.10	8.31	8.92
		48.16-48.90 PYRITE MASSIVE SULPHIDE Predominantly fine grained pyrite (55%) +/- fine grained brown sphalerite (13%). Irregular calcite veins and fractures cross-cut the pyrite and clots of galena (7%) concentrated along calcite margins. 10% remnant limestone. Possibly the calcite is filling in earlier open space??		139718	48.90	49.90	0.92	52.50	0.95	2.13
		48.90-49.90 LIMESTONE MINERALIZED Stylolitic to Mosaic breccia. 45% limestone and 35% fine grained pyrite as clasts to 6cm within stylolitic breccia and clots partially replacing limestone. 5% sphalerite as clasts to 1cm and also fine grained within the pyrite. Coarse galena clots (4%) to 1cm. Significant dissolution / volume change as different limestone and sulphides are in contact with each other along stylolitic contacts. Fractures at 20-30 degrees to core axis.		139719	49.90	50.90	0.40	160.30	0.41	1.95
		49.90-50.90 LIMESTONE MINERALIZED More of a crackle breccia with stylolites present. 30% fine grained pyrite replacing limestone along stylolites and adjacent to calcite veining. Vugs towards the sample base have calcite crystals to 1cm. 50% limestone, tr sphalerite + galena.		139720	50.90	51.90	0.75	104.50	2.42	3.02
		50.90-51.90 PYRITE MASSIVE SULPHIDE RUBBLE BRECCIA Increased massive sulphide with 45% fine grained pyrite which has partially replaced limestone (limestone now mottled through with pyrite). Pyrite also as clasts in a narrow zone of rubble breccia with limestone and Eam argillite clasts. 7% dark brown sphalerite clots, often		139721	51.90	52.85	0.95	200.30	4.41	3.90

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		along margins of calcite veining (20%) Sphalerite also as matrix in rubble breccia. 3% galena as discontinuous stringers @ 35 degrees in pyrite and as small clasts within the breccia. 25% limestone								
51	90-52.95	LIMESTONE MINERALIZED Mixed interval of partially replaced limestone, rubble breccia with clasts of limestone, pyrite, sphalerite & galena in a calcareous, carbonaceous matrix. 60% limestone, 25% pyrite, 4% sphalerite, 2% galena. At 52-55m, sandwiched between sulphide rubble breccia, is thinly laminated, calcareous, carbonaceous sediment, bedding @ 85 to core axis. Contact of the sulphide rubble breccia is sharp @ 45 degrees.		139722	52.85	53.85	1.05	192.40	3.47	5.36
52.85-53.85		PYRITE MASSIVE SULPHIDE Increased massive sulphide in this sample, as clasts in rubble breccia, stylonitic breccia and mosaic breccia. Limestone clasts vary from fresh to partially replaced by pyrite. Coarse grained galena to 1cm, is concentrated in an upper section of rubble breccia @ 53.0m associated with coarse, dark brown sphalerite, 50% pyrite, 8% sphalerite, 5% galena & 20% limestone		139723	53.85	54.80	1.25	266.00	5.69	12.29
53	85-54.80	PYRITE MASSIVE SULPHIDE Massive to rubble brecciated massive sulphide with significantly increased base metals (60% pyrite, 15% sphalerite, 8% galena & 5% marcasite), 7% limestone clasts to 15cm.		139725	54.80	55.80	0.51	213.50	4.51	5.38
54.80-55.80		PYRITE MASSIVE SULPHIDE RUBBLE BRECCIA Rubbly to sandy pyritic core, 75% sulphide and 10% limestone clasts occur in a calcareous, strongly carbonaceous matrix. 60% pyrite, 10% sphalerite & 5% galena.		139726	55.80	57.15	0.28	43.40	1.39	1.54
55.80-57.15		PYRITE MASSIVE SULPHIDE RUBBLE BRECCIA More competent, less carbonaceous rubble breccia matrix. Increased Eam argillite clasts (20%) to 8 cm								

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		Sulphides again as clasts within the breccia. 30% pyrite, 5% sphalerite, 3% galena & 30% limestone. Sharp lower contact @ 30 degrees with Eam breccia.								
57.15	54.25	1AA CARBONACEOUS ARGILLITE RUBBLE BRECCIA Solution collapse, clast-supported rubble breccia containing 70% thinly laminated, angular carbonaceous argillite clasts (3mm - 15cm), 10% limestone clasts (concentrated in the upper 2 meters of the breccia), and 8% sulphide clasts (pyrite + minor sphalerite & galena) which decrease with depth. Fine grained pyrite also occurs in the matrix (58.9m). Vuggy matrix of calcareous, carbonaceous sediment has tr - 4% gypsum (?) lining the vugs (yellow, rare rhombohedral crystals, mainly porcelain-like fibrous aggregates; soft with a white streak, dissolves in HCl).	1AA	139727	57.15	58.15	0.06	18.80	0.47	0.65
57.15-58.15		CARBONACEOUS ARGILLITE / LIMESTONE RUBBLE BRECCIA Heterogeneous mix of angular to sub-angular clasts: 65% carbonaceous argillite, 10% limestone, 5% pyrite, tr sphalerite + galena in a calcareous, carbonaceous matrix. Competent with scattered gypsum-lined vugs (1%).		139728	58.15	59.15	0.03	4.70	0.09	0.43
58.15-59.15		CARBONACEOUS ARGILLITE RUBBLE BRECCIA As above with increased limestone clasts and calcareous matrix. Fine grained pyrite within the matrix as well as clasts. 10% pyrite, tr sphalerite + galena, 60% argillite, 20% limestone, 10% calcite, tr gypsum.		139729	59.15	60.15	0.48	3.50	0.05	1.04
59.15-60.15		CARBONACEOUS ARGILLITE RUBBLE BRECCIA Lose the limestone clasts - 80% angular carbonaceous argillite clasts, 5% pyrite clasts in a calcareous - carbonaceous - pyritic matrix. Moderately vuggy with 2% gypsum as fibrous aggregates lining the vugs.		139730	60.15	61.15	0.02	2.80	0.01	1.71
60.15-61.15		CARBONACEOUS ARGILLITE RUBBLE BRECCIA Decrease in clast size - now averaging 1cm, otherwise similar to the previous sample with increased gypsum. 5% pyrite, tr sphalerite + galena, 70% argillite, 4%		139731	61.15	62.15	0.01	2.70	0.00	0.64

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/mt	Ag g/mt	%Pb	%Zn
		gypsum, and 10% calcite								
		61 15-62 * 5 CARBONACEOUS ARGILLITE RUBBLE BRECCIA Average Eam argillite clast size increases to 3cm and pyrite content decreases (2%)		139732	62.15	63.20	0.01	2.80	0.02	0.15
		62 15-63 20 CARBONACEOUS ARGILLITE RUBBLE BRECCIA As above with 2% pyrite as small clasts to 6mm and finely disseminated through the matrix. Chaotic clast orientation. 95% argillite clasts.								
		63 20-64 25 CARBONACEOUS ARGILLITE RUBBLE BRECCIA Similar to previous sample. At the lower irregular contact with unbrecciated limestone is a 3cm sulphide band of pyrite + sphalerite + galena. *Note* Sample 139734 is a blank following this interval.		139733	63.20	64.25	0.12	10.80	0.23	0.62
64.25	97.70	MCDAME LIMESTONE UNIT 2 Massive stromatoporoid unit with intercalated amphipora facies. Excellent rugose corals (eg. 65.0m) and thamnopora tabulate corals scattered throughout. Moderately coarse euryamphipora (1-3mm) identified @ 64.5m, 64.55m, 64.6m, and 65.0m. Only a trace - 1% pyrite along scattered stylolites. Minor crackle breccia except where described below. Broken core from 67.85-75.65m and 78.7-80.5m. Narrow sedimentary breccia @ 69.75m with limestone clasts in a carbonaceous matrix. 64.25-65.25 FLOATSTONE Footwall sample of weakly mineralized solution collapse breccia above. As in general description above. Trace pyrite. 75.65-76.90 LIMESTONE MOSAIC BRECCIA Mosaic to rubble breccia. Vuggy mosaic breccia has a coarse calcite matrix (25%). Scattered euryamphipora identifiable. Trace pyrite.	MLS2	139735	64.25	65.25	<5ppm	<0.01	0.00	0.04

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/mt	Ag g/mt	%Pb	%Zn
87.70	103.63	MCDAME LIMESTONE UNIT 3 Boundary of unit 2 & 3 is at the termination of the massive stromatoporoid and the start of dense packstone with scattered amphipora - don't see the typical fine amphipora at the top, but the presence of rugose corals (eg. 88.85m) identifies this unit also (not present below unit 3). Thick sections of amphipora rudstone dominate the unit, with minor solitary massive stromatoporoid and Thamnopora. 1% calcite stringers at 10 and 35 degrees to core axis. Conspicuously unbrecciated. Below 102.1m, the amphipora become much coarser (5mm), which was at first confused with the top of unit 5, but with additional logging, it is apparent that this is typical. Possible stacyodes also present.	MLS3							

\*\*\* END OF HOLE \*\*\* 103.63

HOLE NO: SSD-97-21

SECTION: 43642N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43641.57mN 24781.12mE 1231.65RL

Pre-collar depth: Final depth: 109.73  
 Purpose of hole: INFILL GRID DRILL SILVER CK  
 EXT.  
 Hole status: DRILLED TO DEPTH  
 Comments: LOWER ZONE: 58.75 - 72.5M

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN / ACID

Depth	Azimuth	Inclination
0.00	0.00	-90.00
45.72	37.00	-87.00
103.63	37.00	-87.00

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0 00 109.73 HQ
Drill contractor:	OLYMPIC DRILLING
Drill rig:	VALDOR 3000
Date started:	16/8/97
Date finished:	17/8/97
Logged by:	L. LEWIS
Relogged by:	
Sampled by:	J. LETWIN

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
57.75	77.85	20.10

## \*\*\* SUMMARY LOG \*\*\*

0.00 6.10 OVERBURDEN  
 6.10 32.20 1B SANDSTONE /  
 CONGLOMERATE /  
 MUDSTONE  
 32.20 39.62 FAULT ZONE 1BA  
 MUDSTONE / SANDSTONE  
 39.62 51.35 FAULT ZONE 1AA  
 CARBONACEOUS  
 ARGILLITE  
 51.35 55.10 1AA CARBONACEOUS  
 ARGILLITE  
 55.10 58.75 MCDAME LIMESTONE UNIT  
 1 CRACKLE BRECCIA  
 58.75 72.50 LOWER ZONE MASSIVE  
 SULPHIDE  
 72.50 76.85 1AA CARBONACEOUS  
 ARGILLITE RUBBLE  
 BRECCIA  
 76.85 98.77 MCDAME LIMESTONE UNIT  
 2  
 98.77 109.73 MCDAME LIMESTONE UNIT  
 3  
 109.73 END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
0.00	31.00	OVERBURDEN	OB							
31.00	32.20	<b>B SANDSTONE / CONGLOMERATE / MUOSTONE</b> Predominantly medium grey medium to coarse grained pebble sandstone (85%). Massive with occasional graded beds. 10% pebble conglomerate, fining upward into coarse ss. elongate pebbles oriented along 60 degrees to core axis. Most of the unit is broken with frequent iron oxide stained fractures @ 20 & 60 degrees. Rare (5%) dark grey mudstone beds to 5cm; bedding @ 70 degrees. 1% quartz - calcite stringers to 1cm wide @ 20 & 60 degrees, occasionally with pyrite clots. Trace disseminated pyrite throughout the sandstone, increasing with increased shearing (ie. Gouge). Broken lower contact between sheared sandstone and Unit 1BA. - 25.7m: 10cm gouge - 29.2 - 29.57m: 37cm of gouge with 10% quartz chips 1% disseminated pyrite. 30.35-32.20 <b>FAULT ZONE SANDSTONE</b> Fairly good recovery (70%) in a possible fault zone containing 50% gouge and chips interleaved with more competent, but still sheared-looking sandstone. Contacts, where intact, vary between gouge & sandstone @ 45 and 80 degrees to core axis.	OB 1B							
32.20	39.62	<b>FAULT ZONE 1BA MUDSTONE / SANDSTONE</b> Striped interval of interbedded, moderately carbonaceous black mudstone (90%) and medium grey sandstone (10%). Poor recovery (45%) in a probable fault zone. 50% gouge and chips. 50% broken core. Minor (1%) quartz - calcite stringers, with 1cm offsets along bedding @ 60 degrees. Bedding and laminated often contorted. Trace - 1% pyrite.	FZ							
39.62	51.35	<b>FAULT ZONE 1AA CARBONACEOUS ARGILLITE</b> Black, carbonaceous argillite, poor recovery (45%) of broken core and chips, not really any gouge though. Shiny, graphitic bedding planes suggest bedding parallel movement, in addition to small scale slips along bedding which displaces earlier calcite fractures. Minor calcareous intervals to 5cm thick (medium to light grey color). 2% quartz - calcite pods and bedding parallel stringers. Trace -	FZ / 1AA							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		1% pyrite, as disseminations and clots adjacent to stringers.								
51.35	55.10	<b>1AA CARBONACEOUS ARGILLITE</b> More competent rock than above sections of rubby core; 85% recovery. Black carbonaceous argillite with 5% sandy laminated which are occasionally calcareous. 3% thin, contorted calcite stringers, sub-parallel to bedding @ 70 degrees. Trace - 1% disseminated and clots of pyrite. Trace galena @ 54.78m with pyrite in a quartz - calcite stringer. Sharp, unconformable, unbrecciated lower contact with the McDame limestone @ 55 degrees to core axis.	1AA							
55.10	58.75	<b>MCDAME LIMESTONE UNIT 1 CRACKLE BRECCIA</b> Mainly amphipora floatstone with sections of dense packstone. Crackle breccia with dominant calcite - filled fractures trending @ 5-20 degrees to core axis (ie - steeply dipping). Moderate stylolites. - 56.7 - 56.8m: Underground channel fill of thinly laminated carbonaceous (black) and calcareous (white) sediment. Bedding @ 75 degrees. <b>57.75-58.75 PACKSTONE</b> Hanging wall sample to Lower Zone massive sulphide. As in general description above with no significant increase in brecciation or visual alteration. Minor iron oxide stained vuggy fractures. Trace pyrite along stylolites.	MLS1							
				139736	57.75	58.75	0.01	2.50	0.01	0.18
58.75	72.50	<b>LOWER ZONE MASSIVE SULPHIDE</b> Visually, this zone appears very sphalerite - rich. Zones of partially replaced limestone are moderate to strongly silicified (dark blue-grey color). Overall estimate of sulphides is 45% pyrite, 10% marcasite, 15% sphalerite and 6% galena. <b>58.75-59.65 PYRITE MASSIVE SULPHIDE</b> Fairly sharp upper contact @ 65 degrees with weakly brecciated limestone. Massive pyrite (75%) sphalerite (10%) and galena (3%). Vague compositional banding with clots of sphalerite + galena. 2% gypsum (earthy, yellow fibrous masses) filling vugs. <b>59.65-60.10 PACKSTONE CRACKLE BRECCIA</b>	LZ							
				139737 139738	58.75 59.65	59.65 60.10	2.28 0.16	13.70 12.80	2.65 0.43	9.00 0.59

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		Narrow interval of partially calcite-flooded packstone with excellent <i>Thamnopora</i> fossils. Minor crackle breccia. Pyrite (10%) and a trace of sphalerite + galena are associated with calcite and a pod of rubble breccia. Sharp lower contact with massive sulphide @ 75 degrees.								
60	10-61.00	60-61.00 PYRITE MASSIVE SULPHIDE Sphalerite (15%) and galena (10%) - rich interval of massive sulphide. Much of the sphalerite is fine grained within the pyrite, giving pyrite a duller brown color similar to pyrrhotite. 10% galena as discontinuous ands @ 75 degrees and as clots. 40% pyrite, 10% marcasite. - 60.45 - 60.55m: Band of laminated, pyrite - and carbonaceous argillite bedding @ 75 to core axis		139739	60.10	61.00	1.72	344.30	7.54	13.42
61	60-62.00	60-62.00 SILICIFIED LIMESTONE MINERALIZED 50% silicified limestone mottled with sulphide clots and bands which are often rimmed by white, opaque quartz. 25% pyrite, 7% sphalerite, 3% galena, 10% marcasite, 20% quartz and 3% gypsum - lined vugs.		139740	61.00	62.00	1.92	54.30	1.21	5.96
62	62.00-63.00	62.00-63.00 SILICIFIED LIMESTONE MINERALIZED Very similar to previous sample. Good open-space fill examples - silica first, then pyrite, last is sphalerite with a tr of galena. 30% pyrite, 6% sphalerite, 1% galena, 5% marcasite, 20% quartz and 60% silicified limestone		139741	62.00	63.00	1.37	23.70	0.36	5.65
63	63.00-64.00	63.00-64.00 PYRITE MASSIVE SULPHIDE MOSAIC BRECCIA Similar to previous 2 samples with increased pyrite. Appears as a mosaic breccia with silicified limestone clasts and quartz - sulphide matrix. Euhedral pyrite in the open vugs. 40% pyrite, 10% marcasite, 7% sphalerite, 1% galena, 20% quartz and 40% silicified limestone.		139742	63.00	64.00	2.10	27.70	0.43	5.72
64	64.00-65.25	64.00-65.25 PYRITE MASSIVE SULPHIDE MOSAIC BRECCIA Very sphalerite - rich with a massive band from 64.72 - 65.06m ( sphalerite - pyrite - galena ). 35% siliceous		139743	64.00	65.25	1.59	124.90	2.21	16.35

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		limestone mottled with opaque white quartz and sulphides - sulphides partially replacing the limestone and as massive clots & veins. 30% pyrite, 5% marcasite, 25% sphalerite, 5% galena and 20% quartz.								
65	65.25-66.50	65.25-66.50 SILICIFIED LIMESTONE CRACKLE BRECCIA This is the sample with the least sulphides - 10% pyrite as bands @ 70 degrees and clots, often along calcite pod selvages. Increased calcite - filled fractures (15%), 1% lead grey mineral, semi-hard (Pb - antimony sulphide ??), subhedral crystals to 1cm.		139744	65.25	66.50	0.25	78.80	1.41	1.03
66	66.50-68.10	66.50-68.10 PYRITE MASSIVE SULPHIDE 65% massive sulphide pods and stringers with 35% mottled, silicified limestone. 25% bladed marcasite, 25% pyrite, 10% sphalerite, 5% galena and 2% sub-metallic, lead-grey mineral ??		139745	66.50	68.10	1.83	179.20	3.48	7.15
68	68.10-69.10	68.10-69.10 PYRITE MASSIVE SULPHIDE 95% recovery of massive bladed marcasite (30%), pyrite (30%), sphalerite (20%), galena (5%) and lead-grey mineral (3%). Some of the bladed marcasite is very crumbly. 5% limestone clasts (?) or remnant un-replaced limestone. *Note* Sample 139747 is a duplicate of this interval.		139746	68.10	69.10	2.12	176.50	2.91	15.63
69	69.10-70.10	69.10-70.10 PYRITE MASSIVE SULPHIDE The upper 60cm is massive clots of bladed marc, sphalerite and minor galena. The lower 40cm is fine grained pyrite, fractured in a semi-transparent, glassy silica matrix, vaguely banded. Increased marcasite, galena + sphalerite in the bottom 15cm. 30% marcasite, 30% pyrite, 13% sphalerite, 7% galena, 15% quartz and 5% calcite.		139748	69.10	70.10	3.91	221.90	5.38	9.29
70	70.10-71.50	70.10-71.50 PYRITE MASSIVE SULPHIDE BRECCIATED Massive sulphide interval of 30% fine grained pyrite, 20% bladed marcasite, 20% sphalerite clots and fine grained within pyrite, and 7% galena, often rimming or within siliceous pods. Crumbly sandy core from 70.9 -		139749	70.10	71.50	2.40	192.60	4.81	12.24

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		71.3m Brecciated throughout. 95% recovery. 71.50-72.50 BASE METAL MASSIVE SULPHIDE BRECCIATED Massive to crudely banded sphalerite (20%), galena (15%), pyrite (55%), and marcasite (5%). Sections of breccia increase towards lower contact and the bottom 20cm has angular clasts of Eam argillite. Layering of sulphide @ 60 degrees @ 72.4m Gradational contact with Eam breccia. *Note* Sample 139801 is a blank following this interval.		139750	71.50	72.50	1.13	521.10	12.94	19.68
72.50	76.85	1AA CARBONACEOUS ARGILLITE RUBBLE BRECCIA Solution collapse, silt-supported breccia of lithified, angular Eam carbonaceous argillite clasts with a variable matrix of calcareous, carbonaceous sediment, calcite cement and / or sulphides. Sulphide clasts and matrix concentrated in the upper 50cm and lower 50cm of the unit. Vugs are lined with gypsum. 72.50-73.00 CARBONACEOUS ARGILLITE RUBBLE BRECCIA 65% siliceous Eam carbonaceous argillite clasts, 2mm to 5cm, 5% pyrite clasts, 1% sphalerite clasts and a tr of galena in a calcareous, carbonaceous, fine grained pyritic matrix. Sulphides decrease with depth. 73.00-74.50 CARBONACEOUS ARGILLITE RUBBLE BRECCIA Vuggy, solution collapse breccia, vugs lined with calcite and brownish-yellow fibrous to bladed gypsum (?) - 74.3m: 3cm sphalerite - pyrite vein @ 25 degrees to core axis. 74.50-76.00 CARBONACEOUS ARGILLITE RUBBLE BRECCIA Similar to previous sample. 76.00-76.85 CARBONACEOUS ARGILLITE / LIMESTONE RUBBLE BRECCIA Rubble breccia with a heterogeneous mix of clasts including 45% carbonaceous argillite, 10% limestone and 35% sulphides (25% pyrite, 8% sphalerite, 2%	1AA	139802	72.50	73.00	0.85	56.40	1.20	3.49
				139803	73.00	74.50	0.05	6.30	0.12	0.59
				139804	74.50	76.00	0.01	5.20	0.13	0.35
				139805	76.00	76.85	0.68	37.30	0.92	2.77

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		galena) in a siliceous, pyritic matrix. Limestone clast are more frequent towards the lower contact with unmineralized McDame. Irregular, stylolitic contact.								
76.85	98.77	MCDAME LIMESTONE UNIT 2 Massive stromatoporoid unit with intercalated amphipora facies (floatstone to rudstone). Excellent fossil preservation in unbrecciated limestone including Thamnopora to 8cm, rugosa corals, scattered euryamphipora (between 78.6 - 79.1m). Occasionally stromatoporoid and amphipora framestone. Fractured core between 89 - 98 meters. Overall <5% calcite fracturing, tr - 1% pyrite. 76.85-77.85 RUDSTONE Footwall sample below the sulphidized Eam solution collapse breccia. Mass stromatoporoid rudstone, frequent stylolites, very minor crackle breccia. Trace pyrite along stylolites. 5% calcite fracture fillings @ 20 degrees to core axis.	MLS2	139806	76.85	77.85	0.00	2.60	3.00	0.01
98.77	109.73	MCDAME LIMESTONE UNIT 3 Mainly amphipora floatstone with minor rudstone and packstone. Scattered solitary massive stromatoporoid & Thamnopora. Very fine amphipora @ 103.8m. Occasional stylolites, minor crackle breccia, tr pyrite. Below 109.1m, the amphipora become much coarser (to 7mm) and was originally logged as Unit 5, but with additional logging, it is actually typical that the amphipora coarsen towards the base of Unit 3 (which can be confused with the top of Unit 5).	MLS3							

\*\*\* END OF HOLE \*\*\* 109.73

HOLE NO: SSD-97-22

SECTION: 43649N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 1040/16W  
 LOCATION : LIARD MD, B.C.  
 HOLE TYPE : DIAMOND

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	109.73	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR 3000		
Date started:	17/8/97		
Date finished:	18/8/97		
Logged by:	C. REES		
Relogged by:			
Sampled by:	J. LETWIN		

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43648.56mN 24733.46mE 1225.87RL

Pre-collar depth: Final depth: 109.73

Purpose of hole:

Hole status: DRILLED TO DEPTH

Comments: NO LZ ENCOUNTERED - FZ

Material left in hole:

Base of complete oxidation

Top of fresh rock:

Water first encountered:

Water inflow estimate:

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
45.72	19.00	-88.00
103.63	14.00	-87.00

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
85.35	88.10	2.75

## \*\*\* SUMMARY LOG \*\*\*

0.00 13.30 OVERBURDEN  
 13.30 23.40 1B SANDSTONE /  
 SILTSTONE  
 23.40 32.60 1B LAMINATED SILTSTONE  
 / SANDSTONE  
 32.60 38.30 1BA LAMINATED  
 SILTSTONE  
 38.30 45.30 1AA CARBONACEOUS  
 ARGILLITE/SILTSTONE  
 45.30 47.40 1AA RUBBLE GOUGE  
 47.40 50.90 QUARTZ VEIN  
 50.90 53.05 1AA SILTSTONE RUBBLE  
 53.05 54.75 1AA SILICIFIED ARGILLITE  
 54.75 64.25 FAULT ZONE 1AA RUBBLE  
 64.25 67.65 1AC CRACKLE BRECCIA  
 RUBBLE BRECCIA  
 67.65 69.20 MCDAME LIMESTONE  
 69.20 70.00 1A RUBBLE BRECCIA  
 70.00 72.00 MCDAME LIMESTONE  
 72.00 73.15 1A RUBBLE BRECCIA  
 73.15 76.35 MCDAME LIMESTONE UNIT  
 1  
 76.35 88.20 MCDAME LIMESTONE UNIT  
 2

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_



HOLE NO: SSD-97-22

SECTION: 43649N

GRID: SILVER CK EX

88.20	104.00	MCDAME LIMESTONE BRECCIATED DOLOMITIZED
104.00	105.20	FAULT ZONE GOUGE
105.20	107.25	MCDAME LIMESTONE BRECCIA
107.25	109.73	MCDAME LIMESTONE
109.73		END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
0.00	13.30	OVERBURDEN	OB						
13.30	23.40	1B SANDSTONE / SILTSTONE Poor recovery - poor condition due to near-surface fracturing. Mostly rubble and broken core of mid-grey, fine- to medium-grained, thinly bedded to weakly laminated sandstone and lesser siltstone. Weak fine disseminated pyrite. Several 2 to 5 mm thick veinlets of quartz, minor pyrite, and unidentified creamy pink mineral, various core angles.	1B						
23.40	32.60	1B LAMINATED SILTSTONE / SANDSTONE Mid- to dark grey, thin to medium interlaminated siltstone and subordinate sandstone to fine sandstone. No real beds of sandstone, just infrequent thicker laminae. Zones of 1 to 2% fine disseminated pyrite, especially in coarser laminae. Core quite broken but not faulted. Zone @ 30.8 m of numerous en echelon tension gash-like quartz-pyrite veinlets, suggesting semi-brittle shear zone.	1B						
32.60	38.30	1BA LAMINATED SILTSTONE Dark grey, well and thinly laminated siltstone to slaty argillite with minor (roughly 10%) fine sandstone laminae. Latter tend to have fine disseminated pyrite. Quite carbonaceous. Locally zones of pale grey siliceous laminae that show crenulation and siliceous patches with secondary pyrite. ALTERED few 0.5 to 1-cm thick quartz-pyrite veinlets. Unit has up to 1% pyrite overall.	1BA						
38.30	45.30	1AA CARBONACEOUS ARGILLITE/SILTSTONE Contact with 1BA above approximate, based on gradual decrease in fine sandstone component. Dark grey, very fine-grained, thinly laminated argillite to siltstone. Locally quite pyritic, with fine pyrite following laminae. Locally slightly silicified. ALTERED few, narrow quartz veinlets.	1AA						
45.30	47.40	1AA RUBBLE GOUGE As above carbonaceous argillite, but broken down to rubble and a short, 10 to 20 cm zone of carbonaceous muddy gouge. Not necessarily a major fault, but probably a zone of shear above the quartz vein unit immediately below.	1AA						

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From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
47.40	50.90	QUARTZ VEIN White bull quartz vein. Almost pure, just rare black selvages or seams of carbonaceous matter. No significant pyrite. Suspect vein's thickness is due to orientation subparallel to core axis, as were some veinlets in overlying unit.	QZ_VN						
50.90	53.05	1AA SILTSTONE RUBBLE Very poor recovery, broken core. Possibly a fault zone, but probably just fractured rock.	1AA						
53.05	54.75	1AA SILICIFIED ARGILLITE Dark grey to black, very fine-grained, silicified, weakly laminated carbonaceous argillite. Minor, very fine disseminated pyrite.	1AA						
54.75	64.25	FAULT ZONE 1AA RUBBLE Probable fault zone, based on extremely broken core and rubble, mud, and almost 3 m of compacted gouge. Parent rock is carbonaceous argillite to siltstone. Ten metres depth represented in just over one box, so poor recovery.	FZ						
64.25	67.65	1AC CRACKLE BRECCIA RUBBLE BRECCIA Dark grey to black, carbonaceous and moderately calcareous argillite to minor interlaminated siltstone. Finely crackle veined with calcite, and progressively broken up into crackle and rubble breccia. 10% open space filling with grey calcite cement, but otherwise tightly packed and matrix-poor. Up to 1% of matrix/cement is fine pyrite. Probably solution collapse breccia. Contact with MCDAME LIMESTONE very sharp.	1AC						
67.65	69.20	MCDAME LIMESTONE Grey, weakly silicified limestone with Amphipora. Possibly unit 1. Minor thin calcite veinlets, but otherwise not deformed or brecciated.	MLS						
69.20	70.00	1A RUBBLE BRECCIA Similar to 64.25-67.65 unit above. Rubble breccia and microbreccia of carbonaceous laminated argillite, originally cavern fill. Matrix is fine argillite debris, some grey calcite interstitial cement, and trace pyrite. Sharp depositional contact with limestone below.	1A						

SSD-97-22 Page 2

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/ml	Ag g/ml	%Pb	%Zn
70.00	72.00	MCDAME LIMESTONE Grey limestone (packstone?) bottom half rich in Amphipora. Solid, not brecciated.	MLS							
72.00	73.15	1A RUBBLE BRECCIA Another rubble breccia of angular 1A argillite fragments in matrix of Eam clastic material and grey calcite cement, locally verging on mosaic breccia. Rare fragments of pyrite, suggesting brecciation is syn- to post-mineralization. Sharp non-tectonic contact with limestone above.	1A							
73.15	76.35	MCDAME LIMESTONE UNIT 1 Possibly unit 1, although may not be distinct from unit below, called unit 2. Pale to mid-grey packstone to dense packstone. Main fossil is Amphipora. Two steep (subparallel to core axis) fissures filled with Eam and carbonate debris, filtered down from disconformity. Strong calcite crackle veinlets locally and stylolites with carbonaceous residue. Otherwise not brecciated.	MLS1							
76.35	88.20	MCDAME LIMESTONE UNIT 2 Top tentative, based on obvious stromatoporoids. Pale to fairly dark floatstone to packstone. Locally rich in Amphipora, and in Thamnopora. Moderately foliated and flattened, at least locally. Calcite crackle veinlets get stronger with depth, bordering on crackle breccia where calcite forms 15-20%. Pale pinkish-grey bleaching @ 82.35 m. Weak silicification locally. 85.35-86.30 LIMESTONE SAMPLE Grey Amphipora limestone, with minor calcite veinlets and very minor patches of pyrite replacement. Sample marginal to main pyritic limestone below. 86.30-87.10 PYRITIC DOLOMITIZED LIMESTONE Mid- to dark grey, quite strongly crackle veined limestone and dolomitic limestone. Top 10 cm and bottom 20 cm have strong replacement by very fine-grained pyrite and associated calcite and ?dolomite. Very sharp replacement front. No galena or sphalerite recognized. 87.10-88.20 LIMESTONE Grey limestone, weakly to moderately crackle-veined.	MLS2	139788	85.35	86.30	0.01	3.30	0.07	0.14
				139789	86.30	87.10	0.01	1.80	0.00	0.20
				139790	87.10	88.10	0.00	2.90	0.02	0.03

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/ml	Ag g/ml	%Pb	%Zn
		with very minor pyrite replacement stringers. Sample marginal to main pyritic zone above.								
88.20	104.00	MCDAME LIMESTONE BRECCIATED DOLOMITIZED Thick zone of varied breccia in hanging-wall of Camp Creek Fault Zone. Gradations from solid limestone to crackle breccia to rubble breccia to matrix breccia, with zones of mosaic breccia. About 60% of limestone is dolomitized. Interval has sustained intense fracturing, invasion by fluids, and brecciation, causing partial dolomitization and local bleaching/recrystallization of limestone. Very little mineralization associated, however. 88.20-89.70 DOLOMITIZED LIMESTONE CRACKLE BRECCIA Very sharp contact with preceding unit. Dark bluish-grey, fine- to medium-grained dolomitic limestone with fine stockwork of calcitic crackle and thicker veinlets. Subordinate cross-cutting zones, 20-30 cm thick of pale grey, very fine-grained recrystallized limestone, which seem to be fracture-controlled. 89.70-90.85 RECRYSTALLIZED LIMESTONE Off-white, very finely crystalline, bleached/recrystallized calcitic limestone. Appears to post-date dolomitization, remnants of which are visible. 90.85-93.60 DOLOMITIZED LIMESTONE CRACKLE BRECCIA Pale- to mid- to dark grey, fine- to medium crystalline dolomitized limestone. Fractured, with moderate calcite crackle lending to breccia. Local mosaic breccia. Also minor zones of recrystallized/bleached calcitic limestone. Rare thin replacement pyrite stringers, @ 91 m. 93.60-97.50 MATRIX BRECCIA RUBBLE BRECCIA Strongest brecciation of this major unit, almost certainly tectonic rather than sedimentary or solution collapse. Most parent rock is dark grey, medium-grained dolomitized limestone. Now forms angular breccia and microbreccia rubble fragments in matrix of either calcite cement (mosaic breccia), or brown to grey soft	MLS							

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au g/mt	Ag g/mt	%Pb	%Zn
		<p>mud (matrix breccia). Largest clast is 3 cm long, most less than 0.5 cm. Varies from clast-supported to matrix-supported. Fine pyrite in matrix.</p> <p>97 50-100.65 MOSAIC BRECCIA STYLOLITIC BRECCIA More mixed breccia in gray limestone and darker grey dolomitized limestone. Dolomitic parts tend to be strongly crackle-veined to brecciated, to mosaic breccia, with calcite cement. Limestone parts are more coherent, with minor crackle veining and stylolitic pressure solution.</p> <p>100 65-104.90 LIMESTONE STYLOLITIC BRECCIA Mostly pale grey limestone and limestone breccia. Minor crackle to matrix breccia, but mostly stylolitic breccia. Small patches of darker grey dolomitized limestone.</p>							
104.00	105.20	<p>FAULT ZONE GOUGE Very sharply defined fault zone, part of Camp Creek Fault System. Both upper and lower contacts are 36 deg. To core axis. Gouge is mid-grey calcareous mud or clay, well foliated parallel to contacts. Contains 20% porphyroclasts of variable size of pale grey limestone. Recovery remarkably good.</p>	FZ						
105.20	107.25	<p>MCDAME LIMESTONE BRECCIA Rubble to matrix breccia, tectonic in origin, in pale to mid-grey limestone. Variable clast size, most less than 1 cm. Some are dolomitic. Moderate to strong quartz and calcite crackle veining. Uppermost 25 cm immediately below fault is silicified and has delicate pyrite stringers parallel to fault contact. Well indurated rock.</p>	MLS						
107.25	109.73	<p>MCDAME LIMESTONE Transitional contact from previous interval into relatively solid grey limestone. Moderate crackle veining, decreasing downwards. Some small zones of microbrecciation. <i>Amphipora</i> and brachiopods recognizable @ 109.4 m. May be quite low in McDame succession, being footwall of fault.</p>	MLS						

\*\*\* END OF HOLE \*\*\* 109.73

HOLE NO: SSD-97-23

SECTION: 43680N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING  
 PROSPECT : CORPORATION

GRID : SILVER CK EX  
 MAP REFERENCE: 1040/16W  
 LOCATION : LIARD MD, B.C.  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43680.43mN 24740.56mE 1220.64RL

Pre-collar depth: Final depth: 115.82  
 Purpose of hole: STEP-OUT TOWARD CC FAULT  
 Hole status: DRILLED TO DEPTH  
 Comments: NO LZ ENCOUNTERED - FZ

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
54.86	29.00	-90.00
109.73	29.00	-89.00

## \*\*\* SUMMARY LOG \*\*\*

0.00	15.24	OVERBURDEN
15.24	20.50	1B LAMINATED SANDSTONE / SILTSTONE
20.50	33.60	1BA SILTSTONE
33.60	57.60	FAULT ZONE 1AC RUBBLE
57.60	64.00	MCDAME LIMESTONE VEINED BRECCIATED
64.00	67.30	1A GOSSAN RUBBLE
67.30	74.70	MCDAME LIMESTONE BRECCIATED VEINED
74.70	79.20	1AA RUBBLE BRECCIA MOSAIC BRECCIA
79.20	93.40	MCDAME LIMESTONE STYLOLITIC BRECCIA
93.40	96.00	1AA MCDAME LIMESTONE BRECCIA
96.00	104.85	FAULT ZONE GOUGE ZONE
104.85	115.82	MCDAME LIMESTONE CRACKLE BRECCIA MOSAIC BRECCIA
115.82		END OF HOLE

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND DRILL	0.00 115.82 HQ
Drill contractor:	OLYMPIC DRILLING
Drill rig:	VALDOR 3000
Date started:	18/8/97
Date finished:	19/8/97
Logged by:	C. REES
Relogged by:	
Sampled by:	J. LETWIN

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
64.00	67.30	3.30

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
0.00	15.24	OVERBURDEN	OB						
15.24	20.50	1B LAMINATED SANDSTONE / SILTSTONE Banded pale to mid-grey, medium laminated sandstone, fine sandstone, siltstone and shale. Shale is well and finely crumpled on partings. No thick sandstone beds, probably near base of 1B. Last metre of core quite broken.	1B						
20.50	33.50	1BA SILTSTONE Mid- to darkish-grey siltstone, slaty siltstone and shaly shale. Uniform, only weakly laminated if at all. Core badly broken. Rare fine sandstone. Non-calcareous. Probably lost some core, related to fault zone below.	1BA						
33.60	57.60	FAULT ZONE 1AC RUBBLE Poor to moderate recovery. Black, very carbonaceous rubbly mud or gouge fault breccia. Solid chips, generally less than 1 cm across, are mostly carbonaceous shale or argillite with lesser crackle-veined McDame limestone and minor vein quartz chips. Matrix is calcareous as well as very carbonaceous mud. Well compacted but otherwise completely disintegrated rock. Some highly polished slickensided foliation surfaces. No vein cement. 39.65-41.20 MCDAME LIMESTONE VEINED Short interval of broken limestone, shot through with calcite crackle and veinlets. Probably a large block in fault zone. 55.80-57.60 1AA BRECCIA Probably bottom margin of fault zone, where 1AA rubble breccia to mosaic breccia (fairly large angular fragments here) is flooded by white calcite and quartz vein cement. Minor small limestone fragments.	FZ						
57.60	84.00	MCDAME LIMESTONE VEINED BRECCIATED Mostly grey McDame limestone, with minor Amphipora. Limestone is generally masked by strong crackle veining and local crackle breccia, with some larger patches of white calcite vein and mosaic breccia. Prominent stylonitic breccia in bottom 2 metres. 60.40-61.30 DOLOMITIZED LIMESTONE As above and below, this is strongly crackle-veined carbonate, but also partially dolomitized to creamy-buff	MLS						

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn	
		colour here. One rusty fracture (sulphide?).								
64.00	67.30	1A GOSSAN RUBBLE Zone of very poor recovery (27%) composed of rusty brown gossan-like rubble. No unoxidized sulphide. Original rock appears to be siliceous Eam, mostly. No sludge or sand in box, possibly a cavity.	1A	139791	64.00	67.30	0.01	0.10	0.22	17.15
67.30	74.70	MCDAME LIMESTONE BRECCIATED VEINED Largely broken core. Strongly fractured and veined limestone, probably due to solution collapse, with calcite crackle and larger veinlets throughout. Locally dolomitized. Generally and variably brecciated; crackle breccia verging to mosaic breccia, stylonitic breccia, and some tectonic rubble breccia. Foliation parallel to core axis @ 71.8 m, indicating bulk rotation of limestone domains. Very minor fine-grained pyrite stringers.	MLS							
74.70	79.20	1AA RUBBLE BRECCIA MOSAIC BRECCIA Probably solution collapse breccia. Fragments mostly black laminated argillite, with 10% McDame limestone or dolomitized limestone. Mostly clast-supported rubble breccia with vein calcite and lesser clastic matrix. Mosaic breccia where stronger calcite matrix.	1AA							
79.20	93.40	MCDAME LIMESTONE STYLONITIC BRECCIA Pale to mid-grey, fine to very fine-grained, generally brecciated limestone. Much pressure- or hydrothermal solution indicated (cf. Overlying collapse breccias) by intense stylolites, and lesser crackle veining and brecciation. Some rubble breccia cavity fill @ 82 m. Rare pyrite fragments. Limestone deformed before brecciation events. Minor patchy dolomitization. Minor pyrite and very rare galena-sphaerite in stylolites. Limestone is very pale, possibly recrystallized, in bottom few metres.	MLS							
93.40	96.00	1AA MCDAME LIMESTONE BRECCIA Nice rubble to matrix (solution collapse?) breccia composed of blocks and chips of limestone, dolomitized limestone and 1AA argillite/siltstone. Mostly clast-supported, with mixed clastic and vein cement matrix. Rare sulphide fragments.	1AA							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/ml	Ag g/ml	%Pb	%Zn
96.00	104.85	<p><b>FAULT ZONE GOUGE ZONE</b>                      Major fault zone (Camp Creek Fault or splay) in McDame limestone. Predominantly pale to mid-grey, semi-compacted, calcareous, foliated mud-gouge with blocks (30-40 cm) or lensoidal porphyroclasts of limestone from 1 mm to several cm. One block @ 99.4 m is lithified tectonic breccia.</p>	FZ							
104.85	115.82	<p><b>MCDAME LIMESTONE CRACKLE BRECCIA MOSAIC BRECCIA</b>                      Core thoroughly broken into large and small chips though recovery OK. Grey fine to medium-grained limestone (unit unknown), pervasively and intensely crackle veined, tending locally to crackle or mosaic breccia as calcite increases. Intensely fractured footwall of overlying fault. Rare pyrite in calcite veinlets.</p>	MLS							

\*\*\* END OF HOLE \*\*\* 115.82

HOLE NO: SSD-97-24

SECTION: 43680N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC  
 HOLE TYPE : DIAMOND

\*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	121.92	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR 3000		
Date started:	19/8/97		
Date finished:	20/8/97		
Logged by:	L. LEWIS		
Relogged by:			
Sampled by:	J. LETWIN		

\*\*\* COLLAR COORDINATES AND RL \*\*\*  
 SURVEYED 43680.39mN 24854.77mE 1215.93RL

Pre-collar depth: Final depth: 121.92  
 Purpose of hole: TEST SHALLOW SEISMIC TARGET.  
 Hole status: DRILLED TO DEPTH  
 Comments: UNOXIDIZED LOWER ZONE: 40.84-42.8M. CAVES WITH OXIDE MUD ALSO.

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

\*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
24.30	25.91	1.61
30.00	36.58	6.58
38.40	42.80	4.40
45.15	55.85	10.70

\*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
45.72	19.00	-88.00
91.44	15.00	-88.00

\*\*\* SUMMARY LOG \*\*\*

0.00 12.19 OVERBURDEN  
 12.19 16.46 1B SANDSTONE  
 16.46 25.91 1AA CARBONACEOUS ARGILLITE  
 25.91 30.00 NO RECOVERY  
 30.00 30.48 MCDAME LIMESTONE  
 30.48 36.58 OXIDE MUD  
 36.58 38.40 NO RECOVERY  
 38.40 39.62 MCDAME LIMESTONE  
 39.62 40.84 OXIDE MUD  
 40.84 42.80 LOWER ZONE MASSIVE SULPHIDE  
 42.80 45.15 CAVE  
 45.15 45.72 MCDAME LIMESTONE RUBBLE BRECCIA  
 45.72 53.20 CAVE  
 53.20 60.50 MCDAME LIMESTONE UNIT 2  
 60.50 71.95 1A/MLS RUBBLE BRECCIA  
 71.95 121.92 MCDAME LIMESTONE UNIT 5  
 121.92 END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_



From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
0.00	12.19	OVERBURDEN	OB							
12.19	18.46	1B SANDSTONE Medium grey, coarse grained, ruboly massive sandstone with weak iron oxide stain. Poor recovery (13%). Broken lower contact with Unit 1AA.	1B							
18.46	25.91	1AA CARBONACEOUS ARGILLITE Black, laminated carbonaceous argillite. Mostly chips 2 - 5cm. No core > 5cm. Poor recovery of approximately 30%. Weak iron oxide stain. Below 20cm, frequent quartz-filled micro-fractures / crackle breccia. Increasing vugs + oxides towards base of unit. Trace - 2% disseminated and clots of pyrite.	1AA							
		24.30-25.91 CARBONACEOUS ARGILLITE RUBBLE BRECCIA Hanging wall sample to zone of no recovery and oxide mud below that. 13% recovery of vuggy carbonaceous argillite, rubble breccia, with moderate iron oxide staining.		139807	24.30	25.91	0.01	0.50	0.34	0.29
25.91	30.00	NO RECOVERY	NR							
30.00	30.48	MCDAME LIMESTONE 30.00-30.48 FLOATSTONE 19% recovery of 8cm of amphipora floatstone and 1/2 cm of hematite (20%). Below is a cave with iron oxide mud.	MLS	139808	30.00	30.48	0.01	2.50	0.00	0.21
30.48	36.58	LOWER ZONE OXIDIZED 30.48-33.53 OXIDE MUD 90cm recovered of 3.05m (20% recovery) of iron oxide mud with minor, very small Earn argillite and quartz chips from 2 - 20mm. 50% hematite, 40% limonite.	LZOX	139809	30.48	33.53	0.03	27.50	0.23	0.42
		33.53-36.58 OXIDE MUD Similar to previous interval. 13% recovery of iron oxide mud. 50% hematite, 50% limonite.		139810	33.53	36.58	0.07	144.90	2.05	0.66
36.58	38.40	NO RECOVERY	NR							
38.40	39.62	MCDAME LIMESTONE 38.40-39.62 DOLOMITIZED LIMESTONE CRACKLE BRECCIA 35% recovery of dolomitized limestone, crackle breccia.	MLS?	139811	38.40	39.62	0.01	10.60	0.06	2.30

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From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		Matrix is moderately vuggy and hematite stained. Minor rubble breccia stringers @ 10 degrees. 15% hematite.								
39.62	40.84	LOWER ZONE OXIDIZED 39.62-40.84 OXIDE MUD 16% recovery of red-brown mud and a 10cm strongly iron oxide stained section of vuggy limestone ?? breccia. 50% hematite, 5% limonite.	LZOX	139812	39.62	40.84	0.19	188.40	1.56	2.19
40.84	42.80	LOWER ZONE MASSIVE SULPHIDE 40.84-42.80 PYRITE MASSIVE SULPHIDE Relatively unoxidized sulphide rubble with sections of core up to 15 cm of brecciated sulphides. Core may be ground a bit at the bottom of the interval. 50% recovery. 70% fine grained pyrite, 10% dark brown sphalerite, and 8% galena in a weakly siliceous, calcareous matrix. Drillers block notes CAVITY @ the base of the sulphides.	LZ	139813	40.84	42.80	0.79	238.00	5.52	6.41
42.80	45.15	CAVE No recovery from this 2.34 meter deep cave.	CAVE							
45.15	45.72	MCDAME LIMESTONE RUBBLE BRECCIA 45.15-45.72 DOLOMITIZED LIMESTONE RUBBLE BRECCIA 95% recovery. Very vuggy rubble breccia limestone containing 75% iron oxide stained limestone and 25% unoxidized clots of fine breccia. Limestone does not fizz and is likely dolomitized. 3% pyrite, 40% hematite.	MLS?	139814	45.15	45.72	0.07	13.10	0.32	13.28
45.72	53.20	CAVE 45.72-53.20 CAVE Cave, 7.48 meters deep, with 30cm recovery (4%) of vuggy iron oxide rubble and small sulphide pebbles (sulphide pebbles may not actually be from this interval, but fallen down from the Lower Zone above - from 40.84 - 42.8m)	CAVE	139815	45.72	53.20	0.11	24.60	1.06	10.98

SSD-97-24 Page 2

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/mt	Ag g/mt	%Pb	%Zn
53.20	60.50	<p>MCDAME LIMESTONE UNIT 2</p> <p>53.20-54.85 RUDSTONE CRACKLE BRECCIA Footwall sample (#139816) to CAVE and LOWER ZONE. Crackle breccia massive stromatoporoid rudstone. Main fracturing @ 50 to core axis. 5% calcite, tr pyrite concentrated along styl.</p> <p>"NOTE" SAMPLE #139817 consists of cave material into the bottom of the hole between pulling the core tube and starting the next run, consisting of 40cm of iron oxide rubble and small pebbles of sulphides. This is likely from the cave / lower zone interval between 30.48-53.2m. Assays are as follows: 0.031g/t Au, 5.3g/t Ag, 0.75% Pb and 12.48% Zn.</p> <p>54.85-55.95 RUDSTONE RUBBLE BRECCIA Mass stromatoporoid rudstone, crackle to rubble breccia. 5% calcite, tr pyrite.</p> <p>55.95-60.50 FLOATSTONE CRACKLE BRECCIA Mass stromatoporoid and amphipora floatstone. Frequent calcite fractures, hematite-stained. Variable breccia textures from crackle to stylolitic to rubble. Stickensides @ 59.1m are 30 degrees to core axis. Coarse calcite open-space fill from 59.1-59.6m. Stylolitic lower contact with brecciated clastic limestone / fissure fill??</p>	MLS2?	139816	53.20	54.85	0.01	2.40	0.00	0.03
				139818	54.85	55.95	0.00	2.20	0.00	0.02
60.50	71.95	<p>1A/MLS RUBBLE BRECCIA</p> <p>Rubble brecciated clastic, carbonaceous interval with limestone clasts. Underground channel fill of carbonaceous sediment and limestone clasts. Bedding angles of the thinly laminated carbonaceous - calcareous fine to medium grained sediment vary from 45-70 degrees and are often contorted, wrapping around clasts. Soft sediment deformation. 1-2% pyrite, mainly as small (2-4mm) clasts in the breccia. Larger clasts @ 67.0m &amp; 68.0m. Fining upward bioclastic sediment from 71.1-71.95m. Sharp lower contact @ 60 degrees to core axis.</p>	1A/MLS							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/mt	Ag g/mt	%Pb	%Zn
71.95	121.92	<p>MCDAME LIMESTONE UNIT 5</p> <p>Main amphipora unit with thick sections of amphipora floatstone and rudstone. Intercalated dense packstone also present. Minor massive stromatoporoid facies and mixed (stromatoporoid + amphipora), and rare stachyodes. Section of good brachiopods and thamnopora from 91.8-92.1m. Sections of broken core down to 86.8m with carbonaceous stylolites.</p> <p>76.30-77.10 CARBONACEOUS ARGILLITE / LIMESTONE Clastic, carbonaceous, calcareous sediment, fissure or channel fill, graded fining upward sequence and reverse bedding oriented @ 80 to core axis. One graded sequence is a conglomerate.</p> <p>84.70-85.70 MOSAIC BRECCIA Mosaic breccia with 15% calcite cement. Lower contact roughly @ 30 to core axis.</p> <p>103.80-111.40 PACKSTONE Weakly bleached, partially recrystallized (?) stylolitic packstone. Only vague fossil outlines remain. 4% vuggy calcite stringers @ 20-40 degrees to core axis.</p>	MLS5							

\*\*\* END OF HOLE \*\*\* 121.92

HOLE NO: SSD-97-25

SECTION: 43679N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING  
 PROSPECT : CORPORATION

GRID : SILVER CK EX  
 MAP REFERENCE: 1040/16W  
 LOCATION : LIARD MD, B.C.  
 HOLE TYPE : DIAMOND

\*\*\* DRILLING SUMMARY \*\*\*

DIAMOND DRILL HOLE	0.00 79.25 HQ
Drill contractor:	OLYMPIC DRILLING
Drill rig:	VALDOR 3000
Date started:	20/8/97
Date finished:	21/8/97
Logged by:	C. REES
Relogged by:	
Sampled by:	J. LETWIN

\*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43679.58mN 24835.12mE 1201.22RL

Pre-collar depth: Final depth: 79.25  
 Purpose of hole: STEP-OUT  
 Hole status: DRILLED TO DEPTH  
 Comments: LZ 44.2-45.25

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

\*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN  
 (PARTIAL)

Depth	Azimuth	Inclination
0.00	0.00	-90.00
45.72	9.00	-88.00

\*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
36.50	47.00	10.50
55.35	55.40	0.05
60.55	60.75	0.20

\*\*\* SUMMARY LOG \*\*\*

0.00 24.50 OVERBURDEN  
 24.50 27.43 1A SILTSTONE  
 27.43 30.50 NO RECOVERY  
 30.50 35.70 MCDAME LIMESTONE UNIT  
 1  
 35.70 37.50 MCDAME LIMESTONE UNIT  
 1 CRACKLE BRECCIA  
 MOSAIC BRECCIA  
 37.50 40.25 LOWER ZONE MASSIVE  
 SULPHIDE BRECCIA  
 40.25 44.20 ALTERED MCDAME  
 LIMESTONE SILICIFIED  
 MOSAIC BRECCIA  
 44.20 45.25 LOWER ZONE BASE METAL  
 MASSIVE SULPHIDE  
 45.25 48.90 MCDAME LIMESTONE UNIT  
 1 RUBBLE BRECCIA  
 CRACKLE BRECCIA  
 48.90 53.65 MCDAME LIMESTONE UNIT  
 2 STYLOLITIC BRECCIA  
 53.65 68.80 MCDAME LIMESTONE UNIT  
 2  
 68.80 79.25 MCDAME LIMESTONE UNIT  
 3  
 79.25 END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/ml	Ag g/ml	%Pb	%Zn
0.00	24.50	OVERBURDEN	OB							
24.50	27.43	1A SILTSTONE Minimal recovery, one solid piece of core. Rusty laminated siltstone.	1A							
27.43	30.50	NO RECOVERY ALTERED few pieces of rubble, rusty chips of argillite and limestone. "Dry hole" indicated in core box.	NR							
30.50	35.70	MCDAME LIMESTONE UNIT 1 Mid-gray packstone limestone with pale-coloured mottling suggesting mild alteration or bleaching, some of it fracture-related. Minor calcite crackle veinlets and stylolitic pressure solution.	MLS1							
35.70	37.50	MCDAME LIMESTONE UNIT 1 CRACKLE BRECCIA MOSAIC BRECCIA Last interval grades into this more brecciated equivalent, which overlies Lower Zone. Broken core comprising crackle to mosaic breccia with calcite and quartz matrix. Cavity indicated in core box.	MLS1							
		36.50-37.50 BRECCIA Crackle to mosaic breccia, no visible sulphides. Sample immediately above Lower Zone.		139792	36.50	37.50	0.02	13.80	0.14	0.20
37.50	40.25	LOWER ZONE MASSIVE SULPHIDE BRECCIA 37.50-38.15 PYRITIC BRECCIA Abrupt upper contact with limestone. Mostly tightly-packed, clast-supported breccia composed of fragments of massive fine pyrite in matrix of pyrite and precipitated calcite. Some pyrite fragments contain galena or sphalerite. ALTERED few patches of limestone which are partially replaced by pyrite.	LZ	139793 139794	37.50 38.15	38.15 38.95	0.35 1.40	162.70 456.40	3.11 9.54	3.46 10.50
		38.15-38.95 PYRITIC MOSAIC BRECCIA Matrix-supported breccia composed of mid- to dark grey, angular, silicified limestone, and rare fragments of fine-grained pyrite or limestone partly replaced by pyrite. Matrix is mostly precipitated white vein calcite or rarely pyrite, or fine- to medium-grained clastic matrix of limestone and pyrite.								
		38.95-39.45 LIMESTONE BRECCIA Dominantly gray to buff-gray, silicified or dolomitized.		139795	38.95	39.45	0.36	98.10	2.72	2.01

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From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/ml	Ag g/ml	%Pb	%Zn
		limestone which is partly brecciated - crackle to mosaic breccia. Weak to moderate replacement pyrite and very local galena.								
		39.45-39.97 BASE METAL MASSIVE SULPHIDE Original silicified limestone largely (75%) replaced by massive sulphides. Mostly pyrite but with substantial galena and minor sphalerite. Non-brecciated.		139796 139797	39.45 39.97	39.97 40.25	0.10 0.10	79.50 127.30	0.73 3.14	1.46 1.81
		39.97-40.25 ALTERED MCDAME LIMESTONE MINERALIZED Rubble breccia, possibly replacement by-product of altered limestone fragments in matrix of limestone clasts and pyrite and galena.								
40.25	44.20	ALTERED MCDAME LIMESTONE SILICIFIED MOSAIC BRECCIA 40.25-41.25 SILICIFIED LIMESTONE BRECCIA Intensely brecciated rock, rubble to mosaic breccia. Fragments of silicified and/or dolomitized limestone, quartz and pyritic rock, in mainly precipitated matrix of quartz and calcite. Pyrite replacement in matrix locally.	AMLS	139798	40.25	41.25	0.09	14.40	0.10	0.34
		41.25-43.00 SILICIFIED BRECCIA Similar rock to previous. Intensely brecciated and silicified. Rubble and mosaic breccia probably formed before silica flooding. Latter may have been expelled from mineralization events above and below.		139799	41.25	43.00	0.07	123.50	0.29	0.28
		43.00-43.75 SILICIFIED BRECCIA Similar to previous, but more intense replacement of breccia fragments by silica and slightly more sulphide in matrix. Overall mosaic texture, but clasts indistinct.		139800	43.00	43.75	0.04	10.30	0.15	0.46
		43.75-44.20 LIMESTONE BRECCIA Between zone of strong brecciation and silicification, and next Lower Zone massive sulphide. Rubble to matrix breccia of slightly silicified grey limestone and crackle-veined silicified limestone. No sulphides.		139851	43.75	44.20	0.03	14.30	0.34	0.76
44.20	45.25	LOWER ZONE BASE METAL MASSIVE SULPHIDE Almost completely massive sulphide replacement, with minor interstitial white calcite and quartz. Some in situ brecciation of massive fine-grained pyrite. Subtle lamination in sulphides at high angle to core axis, suggesting	LZ	139852	44.20	45.25	0.86	246.80	5.35	15.02

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From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		replacement along primary layering. Galena medium to coarse-grained. Sphaerite red-brown. Pyrite 55% sph 20%, gal 10%, calcite 2%, quartz 1%.								
45.25	48.90	MCDAME LIMESTONE UNIT 1 RUBBLE BRECCIA CRACKLE BRECCIA 45.25-45.90 RUBBLE BRECCIA CRACKLE BRECCIA Immediate footwall of Lower Zone. Partially silicified, pale- to mid-grey limestone. Strong crackle-veining and minor brecciation, with some fine- to medium-grained pyrite in matrix. Grades into matrix-rich rubble breccia. 45.90-47.00 LIMESTONE Mid-bluish-grey limestone. Mostly intact, but with local minor calcite-crackle brecciation and some rubble breccia. No sulphides. 47.00-48.90 BRECCIATED LIMESTONE Various textures. Mostly rubble breccia - probably a small solution cavity fill - with no Eam. Larger limestone fragments are crackle-veined expanding to calcite mosaic breccia.	MLS1							
				139855	45.25	45.90	0.03	18.60	0.44	0.71
				139856	45.90	47.00	0.00	4.90	0.06	0.06
48.90	53.65	MCDAME LIMESTONE UNIT 2 STYLOLITIC BRECCIA Tentatively the onset of unit 2, based on significant stromatopora and Amphipora, minor Thamnopora and rare Tryplasma. Limestone generally intact but features strong stylolitic brecciation, and moderate to strong calcite veinlets, both disrupting continuity. Fine-grained pyrite very locally. Rusty drusy calcite vein @ 50 m.	MLS2							
53.55	68.80	MCDAME LIMESTONE UNIT 2 53.65-55.35 LIMESTONE Grey fossiliferous limestone with stylolites and minor calcite veinlets. 55.35-55.40 PYRITIC VEIN Sulphide vein, 1 to 3 cm thick, virtually normal to core axis. 95% fine-grained pyrite, 5% galena. Sharp contacts with limestone. 55.40-60.55 LIMESTONE Grey fossiliferous limestone with weak to moderate calcite veinlets. Floatstone to rudstone. Larger calcite veins @ 59.0 to 59.75 m, subparallel to core axis, one	MLS2							
				139857	55.35	55.40	0.04	2.90	0.01	0.19
				139858	60.55	60.75	0.00	5.40	0.04	2.34

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		with slickensides down dip. 60.55-60.75 MINERALIZED VEIN Short zone of limestone with narrow, shear-like vein of pyrite, galena, sphalerite and quartz. Really just a seam, 5 mm thick. 60.75-68.80 RUDSTONE FLOATSTONE Richly fossiliferous limestone with stromatopora, Amphipora and very locally Euryamphipora (@ 67 m) and Tryplasma. Tightly packed floatstone, grading to rudstone. Minor calcite veins, stylolites, but no brecciation.								
68.80	79.25	MCDAME LIMESTONE UNIT 3 Top taken at near maximum thickness of unit 2, and appearance of strong, fine Amphipora. Top is marked by numerous gastropods (not stratigraphically diagnostic). Amphipora floatstone dominant to 72 m. Followed by stromatopora-rich rudstone to floatstone to 77.5 m. Bottom 2 m is dense Amphipora floatstone. No significant brecciation or veining, no mineralization.	MLS3							

\*\*\* END OF HOLE \*\*\* 79.25

HOLE NO: SSD-97-26

SECTION: 42200

GRID: BRINCO HILL

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING  
 PROSPECT : CORPORATION

GRID : BRINCO HILL  
 MAP REFERENCE: 1040/16W  
 LOCATION : LIARD MD, B.C.  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

NOMINAL 42200.00mN 25929.00mE 1392.00RL

Pre-collar depth: Final depth: 371.86  
 Purpose of hole: TEST MAG. LOW, SEISMIC  
 TARGET  
 Hole status: DRILLED TO DEPTH  
 Comments: UNIT A2AP

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
45.72	0.00	-90.00
91.44	329.00	-88.00
137.16	327.00	-86.00
182.88	328.00	-86.00
228.60	344.00	-84.00
274.32	355.00	-84.00
320.04	349.00	-81.00
370.33	0.00	-80.00

## \*\*\* SUMMARY LOG \*\*\*

0.00 32.00 OVERBURDEN  
 32.00 44.90 A2B ALTERED SANDSTONE  
 / CONGLOMERATE  
 44.90 48.25 2B SANDSTONE /  
 CONGLOMERATE  
 48.25 51.85 A2B SANDSTONE  
 51.85 56.35 2B SANDSTONE  
 56.35 58.10 A2B SANDSTONE /  
 CONGLOMERATE  
 58.10 62.15 2A SANDSTONE  
 62.15 68.90 A2A SANDSTONE /  
 SILTSTONE  
 68.90 75.50 A2A SANDSTONE /  
 SILTSTONE  
 75.50 88.40 A2A SANDSTONE  
 CHLORITIC ARGILLITE  
 88.40 120.00 2AP SLATY SILTSTONE /  
 SANDSTONE

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND DRILL HOLE	0.00 371.86 HQ
Drill contractor:	OLYMPIC DRILLING
Drill rig:	LONGYEAR 'SUPER 38'
Date started:	21/8/97
Date finished:	26/8/97
Logged by:	C. REES
Relogged by:	
Sampled by:	J. LETWIN

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
41.40	41.45	0.05
45.52	45.85	0.33
65.50	66.50	1.00
87.00	88.00	1.00
121.55	122.50	0.95
126.10	126.60	0.50
133.30	134.40	1.10
154.00	155.05	1.05
180.00	182.10	2.10
203.90	205.20	1.30
207.00	208.65	1.65
216.90	218.40	1.50
255.15	257.20	2.05
270.90	272.40	1.50
297.50	298.50	1.00
335.55	336.70	1.15
348.25	349.25	1.00
370.55	371.86	1.31

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

HOLE NO: SSD-97-26

SECTION: 42200

GRID: BRINCO HILL

120.00	121.55	A2AP PHYLIC ALTERATION
121.55	122.50	QUARTZ VEIN
122.50	133.30	A2A SILTSTONE CHLORITIC ARGILLITE
133.30	134.40	QUARTZ VEIN
134.40	148.20	A2AP ALTERED SANDSTONE / SILTSTONE
148.20	149.70	FAULT ZONE SILTSTONE RUBBLE
149.70	152.40	2AP SANDSTONE / SILTSTONE
152.40	158.20	A2AP ALTERED SANDSTONE / SILTSTONE
158.20	165.00	2AP SANDSTONE / SILTSTONE SHALE
165.00	203.90	A2AP ALTERED SANDSTONE / SILTSTONE
203.90	205.20	QUARTZ VEIN
205.20	213.10	A2AP ALTERED SILTSTONE / SANDSTONE
213.10	225.85	A2AP PHYLIC ALTERATION SHALE
225.85	270.00	2AP SANDSTONE / SILTSTONE PYRITIC
270.00	286.10	A2AP PHYLIC ALTERATION SILTSTONE
286.10	292.60	2AP SILTSTONE / SANDSTONE
292.60	308.60	A2AP PHYLIC ALTERATION SILTSTONE / SANDSTONE
308.60	335.55	2AP SILTSTONE / SANDSTONE
335.55	336.70	A2AP PHYLIC ALTERATION SANDSTONE / SILTSTONE
336.70	370.55	2AP SILTSTONE / SANDSTONE
370.55	371.86	A2AP PHYLIC ALTERATION SANDSTONE / SILTSTONE
371.86		END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/l	Ag gm/l	%Pb	%Zn
0.00	32.00	OVERBURDEN	OB							
32.00	44.90	A2B ALTERED SANDSTONE / CONGLOMERATE Pale green-grey fissile argillite, sericite-chlorite alteration, and grey medium-grained slightly silicified sandstone. Thickly bedded to massive. Zones 10 to 40 cm thick of coarse pebble conglomerate. Many rounded chert-argillite clasts, bleached white. Less than 1% disseminated pyrite. Local nodules of pyrrhotite. Numerous rusty fractures - near-surface oxidation. 41.40-41.45 PYRITIC VEIN Vein of coarse pyrite, 1.5 cm thick. Virtually normal to core axis.	A2B	139859	41.40	41.45	0.00	0.60	0.01	0.03
44.90	48.25	2B SANDSTONE / CONGLOMERATE Medium to thickly bedded sandstone and lesser pebbly conglomerate. Weakly altered. 45.52-45.85 PYRITIC QUARTZ VEIN Quartz vein with fairly strong pyrite.	2B	139860	45.52	45.85	0.00	0.10	0.00	0.14
48.25	51.35	A2B SANDSTONE Grey medium to coarse-grained silicified sandstone, with regular fine stockwork of pale green-grey chlorite-sericite stringers and patches - alteration of more micaceous lithons. Minor pebble conglomerate. Generally weak to moderate disseminated pyrite. At least one 1.5 cm pyrrhotite nodule. Otherwise only weakly magnetic.	A2B							
51.35	56.35	2B SANDSTONE Dark grey siltstone to fine sandstone, thinly bedded to medium laminated. Disrupted bedding common, as in ZAP. Still 2B based on local conglomerate. Very weak disseminated pyrite.	2B							
56.35	58.10	A2B SANDSTONE / CONGLOMERATE Greenish-grey altered sandstone and chlorite-sericite argillite. One 30-cm thick bed of pebbly conglomerate.	A2B							
58.10	62.15	2A SANDSTONE Weakly altered sandstone to fine sandstone. Medium to thickly laminated, with some disrupted bedding. Olive-brown coloured carbonate alteration locally. 1% disseminated pyrite.	2A							

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From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/l	Ag gm/l	%Pb	%Zn
62.15	68.90	A2A SANDSTONE / SILTSTONE Mottled olive green-grey, and grey due to wispy or patchy phyllic (sericite-chlorite) alteration of sandstone-siltstone. Local mm-scale pyrite veinlets parallel to foliation/lamination. Minor disseminated pyrite. Weakly magnetic. 65.50-66.50 SAMPLE Representative sample	A2A	139861	65.50	66.50	0.00	0.10	0.00	0.00
68.90	75.50	A2A SANDSTONE / SILTSTONE Same as previous, but core is strongly fractured, broken, flaky, friable. Possibly more argillaceous rock. Possible small fault at around 73 m.	A2A							
75.50	88.40	A2A SANDSTONE CHLORITIC ARGILLITE As @ 62.15-68.9 m. Wispy pale to mid-grey (siliceous component) and olive green-grey (sericitic slate), altered sandstone/siltstone/shale. 1 to 2% pyrite disseminated or in narrow veinlets. Core is generally weakly magnetic. 87.00-88.00 SAMPLE Representative sample	A2A	139862	87.00	88.00	0.00	0.10	0.00	0.10
88.40	120.00	ZAP SLATY SILTSTONE / SANDSTONE Intimately mixed pale grey sandstone and darker grey siltstone to slate. Thickest sandstone beds 10 cm. Typical ZAP disrupted bedding and superimposed shearing along bedding fissility. Local quartz veinlets, up to 1 cm thick, at low angles to core axis (0 to 20 deg.). 1 to 2% disseminated pyrite.	2AP							
120.00	121.55	A2AP PHYLLIC ALTERATION As previous unit, but altered to typical quartz-sericite-chlorite assemblage. Pale green-grey.	A2AP							
121.55	122.50	QUARTZ VEIN White quartz vein. Cuts A2AP at low angle about 10 deg. About 1% pyrite.	QZ_VN	139863	121.55	122.50	0.00	0.10	0.00	0.01
122.50	133.30	A2A SILTSTONE CHLORITIC ARGILLITE Altered siltstone. Alternating bands, mm- to cm-scale of grey siliceous/sericitic rock and pale green chloritic slate or argillite. Locally more friable and fissile. 3% disseminated pyrite and probably pyrrhotite throughout. 126.10-126.60 PYRRHOTITE VEIN	A2A	139864	126.10	126.60	0.00	0.70	0.00	0.33

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From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn	
		Vein, on average 1 cm thick, of pyrrhotite and lesser pyrite subparallel to core axis. No quartz.								
133.30	134.40	QUARTZ VEIN White quartz vein surrounded by altered rocks. Weak to moderate pyrite and pyrrhotite.	QZ_VN	139865	133.30	134.40	0.00	0.40	0.00	0.00
134.40	148.20	A2AP ALTERED SANDSTONE / SILTSTONE 2AP disrupted sandstone and siltstone and silty slate, with variable alteration to grey and pale olive-green sericite-chlorite shale-slate. Stronger pyrite-pyrrhotite here, perhaps 4 to 5%. Some pyrrhotite nodules with quartz halos.	A2AP							
148.20	149.70	FAULT ZONE SILTSTONE RUBBLE Black, disintegrated silty siltstone, forming fine chips and rubble in silty mud-gouge. Probably a fault zone.	FZ							
149.70	152.40	2AP SANDSTONE / SILTSTONE Unaltered 2AP immediately beneath fault zone.	2AP							
152.40	158.20	A2AP ALTERED SANDSTONE / SILTSTONE Typical, with very minor pyrrhotite, less than 1%.	2AP	139866	154.00	155.05	0.00	0.10	0.00	0.00
158.20	165.00	2AP SANDSTONE / SILTSTONE SHALE Mixture of silty siltstone and mm- to cm-scale lenticular clumps of paler grey sandstone, semi-rounded by soft-sediment flow.	2AP							
165.00	203.90	A2AP ALTERED SANDSTONE / SILTSTONE Fairly uniform interval of usual altered 2AP. Alteration is silica-sericite-chlorite-pyrite (phyllitic) and minor buff-olive carbonate. Sandstone is silicified, +/- pyrite. Silty slate converted to sericite-chlorite slate. Pervasive interlacing of these microolithons. Pyrite and pyrrhotite evenly disseminated, amounting to 2 or 3%, with extra pyrrhotite concentrated in nodules or veins, which tend to be subparallel to foliation, at a high angle to core axis. Rock is magnetic in proportion to local pyrrhotite. 180.00-182.10 PYRITIC PYRRHOTITE Representative sample with 5% pyrite-pyrrhotite.	A2AP	139867	180.00	182.10	0.00	0.10	0.00	0.00
203.90	205.20	QUARTZ VEIN White quartz vein. Has about 3 or 4% pyrite and pyrrhotite, concentrated in fracture veinlets.	QZ_VN	139868	203.90	205.20	0.00	0.50	0.00	0.00

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn	
205.20	213.10	A2AP ALTERED SILTSTONE / SANDSTONE Typical phyllic alteration, but notably strong pyrrhotite and pyrite here. Both are finely disseminated in core, and pyrrhotite is main constituent of veinlets and nodules. Veinlets are generally 5 mm thick and either subparallel or normal to core axis. Nodules are 1 to 2 cm across, with one remarkably large spherical nodule about 6 cm in diameter.  207.00-208.65 PYRRHOTITE PYRITIC Interval fairly rich in disseminated, veinlet and nodular pyrite-pyrrhotite, including the large 6-cm diameter nodule.	A2AP	139869	207.00	208.65	0.00	0.30	0.00	0.42
213.10	225.85	A2AP PHYLLIC ALTERATION SHALE Probably the same rock as previous, but much more friable and broken down into chips and rubble of phyllic altered shale. Pale to mid-greenish grey. Chloritic as well as sericitic. Bottom 2 m are strongly comminuted, bordering on gouge and may be a fault. 216.90-218.40 VEIN Zone containing several veinlets, 5 to 15 mm thick, of dark brown to black sphalerite + pyrite and pyrrhotite, at high angle to core axis. 224.00-225.45 FAULT ZONE SHALE Possible fault zone. Strongly comminuted rubble to gouge in phyllic-altered shale.	A2AP	139870	216.90	218.40	0.00	0.10	0.00	0.36
225.85	270.00	2AP SANDSTONE / SILTSTONE PYRITIC Thick unit of uniform 2AP. Typical mixture of sandstone, fine sandstone, silty siltstone and slate. Sandstone is locally in medium to thick laminae, but is generally disrupted into the diagnostic slump structure. Rare folding of laminae. 2% pyrite, disseminated but with bias in arenaceous lenses. Pyrrhotite (1%) tends to be in larger clebs or nodules, some with strain shadows, or in 5 to 15 m-thick veinlets, with lesser pyrite and quartz. 255.15-257.20 VEINED PYRRHOTITE Sample taken of zone with 1-cm thick quartz veinlets and minor cracks, and several pyrrhotite veinlets.	2AP	139871	255.15	257.20	0.00	0.10	0.00	0.03

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
270.00	286.10	A2AP PHYLLIC ALTERATION SILTSTONE Fairly strong phyllic- altered siltstone and sandstone. Pale greenish-grey, very fine grained, soft and friable in places. Disseminated pyrite-pyrrhotite varies from weak to fairly strong. Locally present in veinlets and lenticular nodules. 2% pyrite, 2% pyrrhotite. 270.90-272.40 ALTERED VEINED Fairly representative. Has thin quartz vein with pyrite and black sphalerite.	A2AP	139872	270.90	272.40	0.00	0.10	0.00	0.00
286.10	292.60	2AP SILTSTONE / SANDSTONE Relatively undisturbed, thinly laminated siltstone and slaty siltstone, with minor medium to thick laminae of fine sandstone. 1% pyrite.	2AP							
292.60	308.60	A2AP PHYLLIC ALTERATION SILTSTONE / SANDSTONE Generally rather weak in disseminated sulphides, but still a few veinlets of pyrite-pyrrhotite, and some pyrite-coated fracture surfaces. 1% pyrite-pyrrhotite. 297.50-298.50 SAMPLE Representative sample with a few pyrrhotite veinlets.	A2AP	139873	297.50	298.50	0.00	0.10	0.00	0.00
308.60	335.55	2AP SILTSTONE / SANDSTONE Mostly strongly disrupted siltstone-sandstone mixture. Clumps and lenses of sandstone range from 1 mm to 10 cm in thickness, where small resembling a matrix-rich microformational breccia or conglomerate (photos). Other parts are well laminated but still offset or slightly contorted. Predominant siltstone, slaty siltstone or slate matrix is fairly dark grey. Unit has fairly strong, 2 or 3% disseminated pyrite and lesser pyrrhotite, some in veinlets.	2AP							
335.55	336.70	A2AP PHYLLIC ALTERATION SANDSTONE / SILTSTONE Short interval of phyllic alteration. 1% pyrite-pyrrhotite.	A2AP	139874	335.55	336.70	0.00	0.10	0.00	0.00
336.70	370.55	2AP SILTSTONE / SANDSTONE Thick interval of unaltered, very disrupted siltstone-sandstone mixture. Sandstone subordinate, generally in 1 to 3 cm lenses, but locally in more or less intact laminae or thin beds. Rest of rock is thin to medium laminated (slaty) siltstone to fine sandstone. Some sandstone laminae are tightly folded. Crenulation foliation locally well developed. 2% fine- to medium-grained	2AP							

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From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		disseminated pyrite. Pyrrhotite occurs in lenses and veinlets and rare nodules. 348.25-349.25 SAMPLE Typical interval.		139875	348.25	349.25	0.00	0.10	0.00	0.00
370.55	371.86	A2AP PHYLLIC ALTERATION SANDSTONE / SILTSTONE Moderately altered, with sandstone close to half the rock. Moderate pyrite-pyrrhotite, mostly in sandstone. 371.20-371.40 QUARTZ VEIN Part of major unit sample.	A2AP	139876	370.55	371.86	0.00	0.10	0.00	0.00

\*\*\* END OF HOLE \*\*\* 371.86

HOLE NO: SSD-97-27 SECTION: 43660N GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD. BC  
 HOLE TYPE : DIAMOND

\*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	91.44	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR 3000		
Date started:	21/8/97		
Date finished:	22/8/97		
Logged by:	L. LEWIS		
Relogged by:			
Sampled by:	J. LETWIN		

\*\*\* COLLAR COORDINATES AND RL \*\*\*  
 SURVEYED 43660.36mN 24799.64mE 1223.02RL

Pre-collar depth: Final depth: 91.44  
 Purpose of hole: INFILL DRILL SILVER CK EXT.  
 Hole status: DRILLED TO DEPTH  
 Comments: CAVE: 19.51 - 51.82M, MINOR OXIDE MUD

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

\*\*\* SURVEY DATA \*\*\*  
 Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
45.72	99.00	-88.00
91.44	74.00	-88.00

\*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
14.55	16.46	1.91
17.98	19.51	1.53
42.67	51.82	9.15
56.25	57.25	1.00
63.85	64.70	0.85

\*\*\* SUMMARY LOG \*\*\*

0.00	9.14	OVERBURDEN
9.14	14.55	1BA MUDSTONE / SANDSTONE
14.55	16.46	1BA MUDSTONE / SANDSTONE RUBBLE BRECCIA
16.46	17.98	NO RECOVERY
17.98	19.51	1BA MUDSTONE / SANDSTONE RUBBLE BRECCIA
19.51	42.67	CAVE
42.67	49.50	CAVE
49.50	51.82	CAVE MCDAME LIMESTONE
51.82	56.25	CAVE
56.25	76.10	MCDAME LIMESTONE UNIT 2
76.10	91.44	MCDAME LIMESTONE UNIT 3
91.44		END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
0.00	9.14	OVERBURDEN	OB							
9.14	14.55	1BA MUDSTONE / SANDSTONE Striped, transitional unit between Unit 1B sandstone and 1AA argillite. 80% dark grey mudstone beds 2mm - 1cm thick, interbedded with light grey fine grained sandstone, 2mm - 1cm thick. Bedding @ 75 to core axis. Fractures strongly hematite-stained. Moderate recovery. Broken lower contact with breccia. - 12.5m: 1cm gouge @ 5 degrees to core axis.	1BA							
14.55	16.46	1BA MUDSTONE / SANDSTONE RUBBLE BRECCIA 14.55-16.46 FERRICRETE Broken up, angular clasts of 1BA (interbedded mudstone / sandstone) 5mm - 10cm, clast-supported, cemented with what appears to be iron-rich sandy surficial material - iron-rich seep?? No visible unoxidized sulphides. Similar to what Chris Rees has encountered while surface mapping.	1BA	139819	14.55	16.46	0.01	0.70	0.03	0.12
16.46	17.98	NO RECOVERY 10cm caved in rubble from above breccia	NR							
17.98	19.51	1BA MUDSTONE / SANDSTONE RUBBLE BRECCIA 17.98-19.51 FERRICRETE Very similar to the previous sample, but poor recovery (50%). 10% hematite, 10% limonite. Broken lower contact with cavern below.	1BA	139820	17.98	19.51	0.01	1.20	0.01	0.13
19.51	42.67	CAVE Contains a total of approximately 20cm of 1BA rounded rubble with minor iron oxide staining. No visible sulphides. 5% recovery.	CAVE							
42.67	49.50	CAVE 42.67-49.50 IRON OXIDE RUBBLE Very poor recovery of 7% which includes 30% vuggy, iron oxide rubble to 6cm and 70% weak to moderately iron oxide stained mudstone chips (Eam which has fallen into the cavern??). 10% hematite, 10% limonite.	CAVE	139821	42.67	49.50	0.03	3.30	0.07	0.88
49.50	51.82	CAVE MCDAME LIMESTONE 49.50-51.82 CARBONACEOUS ARGILLITE / LIMESTONE RUBBLE Sample of 13% recovery containing limestone and iron	CAVE	139822	49.50	51.82	0.00	1.30	0.02	0.36

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		oxide stained mudstone rubble. Possible not in place, but caved in from above.								
51.82	56.25	CAVE No Recovery.	CAVE							
56.25	78.10	MCDAME LIMESTONE UNIT 2 Mass stromatoporoid unit - the limestone immediately below the cavern is unbrecciated, unaltered with abundant massive stromatoporoid and mixed stromatoporoid - amphipora floatstone. Thamnopora and the rugose coral "Tryplasma" are scattered throughout. Good rugose coral @ 60.3m. Zones of crackle breccia present. Rubble breccia intervals from 63.9-64.7m and 73.15-73.8m. The majority of calcite fractures and veining is at 30 degrees to core axis. Trace - 2% fine grained pyrite, generally associated with calcite veining. 56.25-57.25 PACKSTONE Footwall sample to cavern. Unaltered-looking limestone with 2% hairline calcite stringers @ 25 degrees NVS. 63.85-64.70 FLOATSTONE Sulphide (pyrite) stringer zone with 15% calcite veining (irregular clots of calcite), 6% fine grained pyrite along calcite selvages. Trace sphalerite. Sections of rubble breccia adjacent to veining.	MLS2	139823	56.25	57.25	0.00	3.50	0.00	0.01
				139824	63.85	64.70	0.00	3.30	0.01	0.00
78.10	91.44	MCDAME LIMESTONE UNIT 3 Top of Unit 3 is marked by conspicuously fine amphipora, followed by a band of massive stromatoporoid and amphipora mudstone from 78.25 - 86.6m. Below, is again dominated by amphipora. Intermittent crackle breccia and calcite (3-5%) fractures @ 10 - 30 degrees to core axis. Trace pyrite along stylolites.	MLS3							

HOLE NO: SSD-97-28

SECTION: 43669N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43669.41mN 24798.97mE 1211.04RL

Pre-collar depth: Final depth: 91.44  
 Purpose of hole: INFILL DRILL SILVER CREEK  
 EXT.  
 Hole status: DRILLED TO DEPTH  
 Comments: LZ: 42.0-45.3M, MINZ'D LS: 45.3-  
 50.45M

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
45.72	307.00	-86.00
85.34	309.00	-86.00

## \*\*\* SUMMARY LOG \*\*\*

0.00	19.80	OVERBURDEN
19.80	25.06	MCDAME LIMESTONE MOSAIC BRECCIA
25.06	28.90	MCDAME LIMESTONE
28.90	30.40	1AA CARBONACEOUS ARGILLITE / LIMESTONE RUBBLE BRECCIA
30.40	32.20	MCDAME LIMESTONE RUBBLE BRECCIA
32.20	35.10	1AA CARBONACEOUS ARGILLITE MOSAIC BRECCIA
35.10	42.00	MCDAME LIMESTONE BRECCIATED
42.00	45.30	LOWER ZONE BRECCIATED
45.30	50.45	MCDAME LIMESTONE MINERALIZED BRECCIATED
50.45	63.00	MCDAME LIMESTONE UNIT 2
63.00	81.27	MCDAME LIMESTONE UNIT 3
81.27	84.24	MCDAME LIMESTONE UNIT 4

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	91.44	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR 3000		
Date started:	22/8/97		
Date finished:	23/8/97		
Logged by:	L. LEWIS		
Relogged by:			
Sampled by:	J. LETWIN		

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
24.06	51.45	27.39

Checked and signed: \_\_\_\_\_

Date: \_\_\_\_\_

1997

SSD-97-28

HOLE NO: SSD-97-28

SECTION: 43669N

GRID: SILVER CK EX

84.24	91.44	MCDAME LIMESTONE UNIT
		5
91.44		END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/mt	Ag g/mt	%Pb	%Zn
0.00	19.80	OVERBURDEN	OB							
19.80	25.06	MCDAME LIMESTONE MOSAIC BRECCIA Core began in limestone. Mosaic breccia with minor crackle breccia. 20% coarse calcite cement. Core is broken and below 24.0m, the breccia contains siliceous 1AA carbonaceous argillite clasts. The limestone is weakly siliceous. Very minor oxide stain on fractures. 2% fine grained pyrite concentrated along stylolites and calcite margins. 24.06-25.06 FLOATSTONE MOSAIC BRECCIA Hanging wall sample to vnd limestone below. The majority is amphipora floatstone with an interval of brecciated carbonaceous argillite in the calcite cement (narrow solution collapse) from 24.2 - 24.4m	MLS?	139825	24.06	25.06	0.00	0.10	0.01	0.00
25.06	28.90	MCDAME LIMESTONE  25.06-26.50 PACKSTONE MINERALIZED Sulphide vnd packstone crackle breccia. Sharp upper contact @ 45 degrees between the limestone and a 15cm pyrite - calcite vein. Patches of remnant limestone in the pyrite - calcite. 12cm pyrite - sphalerite - galena - calcite vein @ the lower contact (45 degrees to core axis). Fissures or cracks in the limestone are filled with carbonaceous, calcareous, finely laminated sediment showing soft sediment deformation. 26.50-27.70 PACKSTONE CRACKLE BRECCIA Crackle breccia amphipora packstone. 3% pyrite, tr sphalerite + galena as small, mm clasts in narrow, rubble breccia fracture fillings in a carbonaceous, calcareous matrix - sediment. Pyrite also as clots to 2cm associated with calcite 27.70-28.90 PACKSTONE Similar to previous interval with sulphide clasts concentrated in carbonaceous - calcareous fracture fillings (from 28.3 - 28.4m). Upper contact of fracture is sharp @ 30 degrees.	MLS?	139826	25.06	25.50	0.06	84.40	2.37	1.31
				139827	26.50	27.70	0.07	3.00	0.05	0.14
				139828	27.70	28.90	0.04	10.70	0.14	0.48

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/mt	Ag g/mt	%Pb	%Zn
28.90	30.40	1AA CARBONACEOUS ARGILLITE / LIMESTONE RUBBLE BRECCIA 28.90-30.40 CARBONACEOUS ARGILLITE MINERALIZED Solution collapse breccia. Extremely variable over a shallow depth. The upper 30cm is clast-supported carbonaceous argillite in a calcite matrix. Following that is 30cm of carbonaceous argillite and sulphide clasts in a carbonaceous - calcareous matrix. Below, with a sharp contact @ 50 degrees is a large, 30cm clast (?) of limestone. In sharp, irregular contact with the limestone is carbonaceous argillite and sulphide rubble breccia, again in a carbonaceous - calcareous clastic matrix. 7% pyrite, 1% sphalerite, 2% galena, 15% calcite, 60% argillite, and 20% limestone.	1AA	139829	28.90	30.40	0.06	101.40	2.60	1.83
30.40	32.20	MCDAME LIMESTONE RUBBLE BRECCIA 30.40-32.20 PACKSTONE RUBBLE BRECCIA Strongly brecciated interval of mainly bleached, stylolitic limestone with a sliver of Eam, carbonaceous argillite solution collapse breccia from 30.8 - 30.9m. The brecciated lower 40cm looks almost tectonic. Sharp lower contact @ 20 degrees to core axis with Eam collapse breccia. 10% calcite, 1% pyrite.	MLS	139830	30.40	32.20	0.03	8.80	0.18	0.29
32.20	35.10	1AA CARBONACEOUS ARGILLITE MOSAIC BRECCIA Another solution collapse feature with a good example of subterranean laminated calcareous carbonaceous argillite @ the base of the collapse feature, bedding @ 50 degrees to core axis. 32.20-33.70 CARBONACEOUS ARGILLITE MOSAIC BRECCIA As described above. Angular, clast-supported breccia with clast size from 3mm - 12cm, chaotically arranged in coarse calcite cement. One large (8cm) limestone clast, similar to the lithology of the previous major unit. Trace pyrite. 3% pale yellow bladed gypsum. 33.70-35.10 CARBONACEOUS ARGILLITE MOSAIC BRECCIA	1AA	139831	32.20	33.70	0.01	4.30	0.04	0.41
				139832	33.70	35.10	0.00	8.50	0.14	0.37

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		Similar to above interval with slightly more calcite cement and scattered portions of carbonaceous - calcite matrix (more of a rubble breccia). The base of the unit is dark grey thinly laminated calcareous carbonaceous sediment. Conformable lower contact with basal conglomerate limestone @ 50 degrees. 5% gypsum with calcite.								
35.10	42.00	<b>MCDAME LIMESTONE BRECCIATED</b> Unit with a variety of breccia textures: the upper 2.5m predominantly syn-sedimentary breccia related to the limestone - Eam contact. Crack and fissure fill with carbonaceous calcareous laminated sediment and clasts common. Below 37.5m, secondary brecciation dominant with pressure solution stylolites and mosaic breccia cemented with coarse calcite. Trace - 3% fine grained pyrite, mainly as elongate pods along stylolites or as small clasts in rubble breccia. Trace galena + sphalerite below 40.4m as breccia clasts.								
		<b>35.10-36.60 LIMESTONE RUBBLE BRECCIA</b> As in general description above. 1% fine grained pyrite concentrated along stylolites. Limestone is bleached.	MLS?	139833	35.10	36.60	0.01	3.30	0.05	0.14
		<b>36.60-38.10 LIMESTONE RUBBLE BRECCIA</b> Similar to above. Secondary brecciation (stylolitic and mosaic) starts below 37.5m. 2% fine grained pyrite.		139834	36.60	38.10	0.04	7.30	0.05	0.09
		<b>38.10-39.60 LIMESTONE STYLOLITIC BRECCIA</b> Stylolitic breccia, bleached limestone with minor rubble breccia intervals and carbonaceous - calcareous clastic fill of openings within the limestone. 1% fine grained pyrite.		139835	38.10	39.60	0.01	2.30	0.01	0.35
		<b>39.60-40.40 LIMESTONE STYLOLITIC BRECCIA</b> Similar to previous interval. Frequent hairline calcite fractures @ 40 degrees.		139836	39.60	40.40	0.03	28.00	0.04	0.07
		<b>40.40-41.00 LIMESTONE STYLOLITIC BRECCIA</b> At the upper contact is a 6cm clot of pyrite - sphalerite - galena. Sphalerite rims the margins with fine grained pyrite and clots of galena + calcite in the centre. Pyrite as fine grained masses along stylolites and in rubble breccia matrix. 8% pyrite, 2% sphalerite, and 1%		139837	40.40	41.00	2.00	4.00	0.04	0.16

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		galena.								
		<b>41.00-42.00 LIMESTONE RUBBLE BRECCIA</b> Again a mix of breccia textures including rubble breccia, mosaic breccia & stylolitic breccia. Sulphides concentrated as clasts within the rubble and mosaic breccias. 4% pyrite, 1% sphalerite and 1% galena.		139838	41.00	42.00	0.54	71.90	1.83	0.75
42.00	45.30	<b>LOWER ZONE BRECCIATED</b> <b>42.00-43.10 PYRITE MASSIVE SULPHIDE MOSAIC BRECCIA</b> Interval of brecciated and later vnd limestone and massive sulphide. Rubble and mosaic breccia, consisting of 45% limestone clasts (at times partially replaced by pyrite, 30% pyrite + sphalerite + galena clasts. At 42.5m, the breccia is cut by a 4cm, crudely zoned coarse sphalerite - pyrite vein @ 40 degrees. Very coarse calcite open-space fill.	LZ	139839	42.00	43.10	0.28	317.20	5.53	10.95
		<b>43.10-44.10 PYRITE MASSIVE SULPHIDE RUBBLE BRECCIA</b> Variable interval with 25cm of rubble brecciated limestone + sulphides. 35cm of solid limestone and then 40cm of massive sphalerite - pyrite - galena @ the lower contact (30-50 degrees to core axis). Open space fill texture with vague compositional banding and coarse calcite in-fill. 2% dull, bluish-grey mineral - sub-metallic lustre, soft, granular appearance.		139840	43.10	44.10	0.28	284.30	7.07	14.42
		<b>44.10-45.30 PYRITE MASSIVE SULPHIDE RUBBLE BRECCIA</b> Rubble breccia consisting of limestone (55%) and sulphide clasts, some clastic and calcite cement matrix cut by later, sphalerite-rich veins @ approximately 50 degrees. 15% pyrite, 12% sphalerite, 3% galena, and 12% calcite.		139841	44.10	45.30	0.44	152.70	2.73	5.85
45.30	50.45	<b>MCDAME LIMESTONE MINERALIZED BRECCIATED</b>	MLS?							
		<b>45.30-46.30 LIMESTONE MATRIX BRECCIA</b> Matrix to mosaic breccia with clasts of limestone, lesser carbonaceous argillite and a few pyrite clasts. 3% pyrite with a tr of sphalerite + galena.		139842	45.30	46.30	0.14	133.20	0.95	1.22
				139843	46.30	47.00	0.48	96.90	0.44	1.35



From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		46 30-47.00 LIMESTONE MATRIX BRECCIA Increased pyrite clasts and decreased calcite cement Sedimentary infill @ 46.6m. laminations now kinked and contorted. 6% pyrite, tr sphalerite + galena.								
		47 00-48.00 LIMESTONE MASSIVE SULPHIDE Similar to previous interval with increased pyrite + sphalerite. Broken core. Scattered Eam carbonaceous argillite clasts. *Note* Sample 139845 is a duplicate of this interval.		139844	47.00	48.00	0.45	74.10	0.63	3.91
		48 00-49.00 LIMESTONE MATRIX BRECCIA Matrix to rubble breccia with limestone, sulphides and minor Eam clasts in a dark grey calcareous clastic (?) matrix. Fine grained pyrite also within the matrix. 5% pyrite, tr sphalerite + galena.		139846	48.00	49.00	0.29	51.00	0.66	2.6
		49 00-50.45 LIMESTONE RUBBLE BRECCIA Brecciated clastic-looking limestone with calcareous carbonaceous sediment in-filling between the sub-angular clasts. Vuggy texture. Decreased sulphides, except for a centimeter sphalerite - pyrite vein @ the base of the interval. Below this sulphides are rare. 3% pyrite, 1% sphalerite.		139847	49.00	50.45	0.35	10.10	0.17	0.65
50.45	63.00	MCDAME LIMESTONE UNIT 2 Massive stromatoporoid unit, bleached and vuggy in the upper 5 meters with 2 fracture sets @ 10 & 35 degrees to core axis. The unit is dominated by massive stromatoporoid with frequent intercalated amphipora. Scattered thamnopora and rugose corals. Euramphipora @ 62.3m. Only very minor brecciation, concentrated in the upper 3 meters. 3% calcite veining @ 0 - 30 degrees. Irregular stylolitic lower contact. 50 54-51.54 FLOATSTONE CRACKLE BRECCIA Footwall sample to mineralized limestone breccia above. Vuggy crackle breccia stromatoporoid floatstone, minor rubble breccia. Trace pyrite. *Note* Sample 139849 is a blank following this interval.	MLS2	139848	50.45	51.45	0.00	2.70	0.05	0.19

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
63.00	81.27	MCDAME LIMESTONE UNIT 3 The upper 5 meters consists of packstone and fine amphipora, characteristic of the top of unit 3. Excellent bed of rugose corals (Tryplasma) @ 64.6m. Massive stromatoporoid + minor Thamnopora and amphipora rudstone from 68.5 - 75.7m. From 75.7 - 80.5m, dominated by medium to coarse amphipora (to 4mm diam; could be confused with the coarse amphipora seen in the top of Unit 5). Moderate stylolites, 3% calcite veining, tr pyrite.	MLS3							
81.27	84.24	MCDAME LIMESTONE UNIT 4 Thick (3m) euryamphipora unit. Intercalated mixed massive stromatoporoid - amphipora facies from 82.2 - 82.5m and 82.9 - 83.5m. 7mm sphalerite stringer, 25 to core axis @ 82.5m.	MLS4							
84.24	91.44	MCDAME LIMESTONE UNIT 5 Upper 4 m of the unit contains conspicuously coarse amphipora (to 6mm diameter). Alternating sections of packstone and amphipora floatstone. 1% calcite stringers @ 35 to core axis.	MLS5							

\*\*\* END OF HOLE \*\*\* 91 44

HOLE NO: SSD-97-29

SECTION: 43680N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC.  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43680.20mN 24800.36mE 1215.14RL

Pre-collar depth: Final depth: 89.92  
 Purpose of hole: INFILL GRID DRILL SILVER CK  
 EXT.  
 Hole status: EXCESS ROD VIBRATION  
 BELOW 73.15M  
 Comments: LZ OXIDE RUBBLE FROM 34.6-  
 35.0M & 44.1-44.3M.

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
45.72	29.00	-87.00
89.92	294.00	-86.00

## \*\*\* SUMMARY LOG \*\*\*

0.00	9.14	OVERBURDEN
9.14	12.19	1BA MUDSTONE / SANDSTONE
12.19	13.41	NO RECOVERY
13.41	15.20	1BA MUDSTONE / SANDSTONE
15.20	17.07	NO RECOVERY
17.07	18.29	1BA MUDSTONE / SANDSTONE
18.29	22.56	NO RECOVERY
22.56	27.43	1BA MUDSTONE
27.43	30.48	NO RECOVERY
30.48	34.90	1BA MUDSTONE
34.90	35.00	LOWER ZONE OXIDIZED
35.00	39.56	MCDAME LIMESTONE BRECCIATED
39.56	50.60	MCDAME LIMESTONE
50.60	70.70	MCDAME LIMESTONE UNIT 2
70.70	88.75	MCDAME LIMESTONE UNIT 3
88.75	89.92	MCDAME LIMESTONE UNIT 4

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0 00 73.15 HQ
Drill contractor:	OLYMPIC DRILLING
Drill rig:	VALDOR 3000
Date started:	23/8/97
Date finished:	24/8/97
Logged by:	L. LEWIS
Relogged by:	
Sampled by:	J. LETWIN
DIAMOND	73.15 89.92 NQ
Drill contractor:	OLYMPIC DRILLING
Drill rig:	VALDOR 3000
Date started:	23/8/97
Date finished:	24/8/97
Logged by:	L. LEWIS
Relogged by:	
Sampled by:	J. LETWIN

Material left in hole:

Base of complete oxidation

Top of fresh rock:

Water first encountered:

Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
34.90	36.00	1.10
44.10	44.30	0.20

Checked and signed: \_\_\_\_\_

Date: \_\_\_\_\_

1997

SSD-97-29

HOLE NO: SSD-97-29

SECTION: 43680N

GRID: SILVER CK EX

89.92

END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
0.00	9.14	OVERBURDEN	OB							
9.14	12.19	1BA MUDSTONE / SANDSTONE 50% recovery of chips and rubble of 90% striped dark grey, massive to laminated mudstone weakly carbonaceous and 10% light grey, thin sandstone beds. Bedding @ 60 degrees (at 10.0m). Weak iron oxide stain on chips, bedding planes and fractures	1BA							
12.19	13.41	NO RECOVERY	NR							
13.41	15.20	1BA MUDSTONE / SANDSTONE Poor recovery (16%) of chips of mainly mudstone and minor (10%) ss, similar to previous description of Unit 1BA	1BA							
15.20	17.07	NO RECOVERY	NR							
17.07	18.29	1BA MUDSTONE / SANDSTONE 50% recovery of mainly iron oxide stained mudstone chips.	1BA							
18.29	22.56	NO RECOVERY	NR							
22.56	27.43	1BA MUDSTONE 4% recovery of dark grey mudstone chips and light grey phyllitic chips (altered mudstone?). Moderate iron oxide staining	1BA							
27.43	30.48	NO RECOVERY	NR							
30.48	34.90	1BA MUDSTONE 5% recovery of ferriferous and light grey, oxide stained phyllitic mudstone chips.	1BA?							
34.90	35.00	LOWER ZONE OXIDIZED  34.90-35.00 IRON OXIDE RUBBLE Strongly hematite and limonite stained, vuggy, porous limestone rubble - possibly remnant oxidized over zone. Zone was likely originally wider, but this is all that remains - 60% hematite, 10% limonite. Broken lower contact with fresh limestone.	LZOX	139850	34.90	35.00	0.00	6.80	0.06	1.42
35.00	39.56	MCDAME LIMESTONE BRECCIATED The upper 2 meters is non-brecciated packstone, broken, and only a trace of oxide stain on fractures. 35.00-36.00 PACKSTONE Footwall sample to iron oxide rubble. 65% recovery Trace of hematite stain. 37.00-39.56 LIMESTONE RUBBLE BRECCIA	MLS?	140001	35.00	36.00	0.00	1.20	0.05	0.02

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		Karst / cavern fill of bleached limestone clasts and calcareous clastic fine sediment. Minor calcite cement. Rare black Eam argillite clasts. At 38.9m, there is a fining upward calcareous sediment, with thin laminations / carbonaceous partings @ 60 degrees to core axis.								
39.56	50.60	MCDAME LIMESTONE Variable unit of mottled (partially recrystallized) limestone - fossils have vague boundaries. Styloites common often with fine grained pyrite along stylolitic contacts. Trace - 1% pyrite. Small clots of pale yellow iron carbonate. Possible narrow oxidized Lower Zone from 44.1 - 44.3m. 44.10-44.30 IRON OXIDE RUBBLE Narrow zone of vuggy, strongly iron-oxide stained limestone (?) rubble. Possibly a narrow, oxidized lower zone. 3% black manganese, 15% hematite, 5% limonite. 47.15-49.20 DOLOMITIZED LIMESTONE Gradational upper contact, sharp lower contact along stylolite. Dark grey, medium crystalline dolomitized limestone. Few fossils preserved. Excellent gastropod @ 48.3m.	MLS?	140002	44.10	44.30	0.00	1.60	0.07	8.46
50.60	70.70	MCDAME LIMESTONE UNIT 2 Mass stromatoporoid unit - very fossiliferous with thamnopora and rugose corals throughout. Intervals of mixed massive stromatoporoid and amphipora common. Disseminated euryamphipora @ 54.0 - 54.2m and 70.05m. Moderate stylolites, intermittent crackle breccia. Trace pyrite. - 51.7 - 52.7m: Vuggy crackle breccia with prominent calcite-filled fractures @ 20 to core axis.	MLS2							
70.70	88.75	MCDAME LIMESTONE UNIT 3 Top of the unit is marked by the appearance of fine amphipora (1-2mm diameter) in the upper 4 meters. Amphipora is common throughout with massive stromatoporoid nearly as abundant. Thamnopora and rugose corals throughout. Good gastropod @ 73.6m. 1-2% calcite stringers @ 10 - 30 degrees to core axis. Trace	MLS3							

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		pyrite. *note @ 73.15m reduced from HQ to NQ due to rod vibration							
88.751	89.92	MCDAME LIMESTONE UNIT 4 Broken core - due to excessive rod vibration?? Euryampipora Unit with massive stromatopora brachipods and thamnopora in the centre of the unit	MLS4						

\*\*\* END OF HOLE \*\*\* 89.92

HOLE NO: SSD-97-30

SECTION: 43700N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 1040/16W  
 LOCATION : LIARD MD, B.C.  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43700.06mN 24739.22mE 1217.96RL

Pre-collar depth: Final depth: 94.49  
 Purpose of hole: INFILL SILVER CREEK  
 EXTENSTION  
 Hole status: DRILLED TO DEPTH  
 Comments: NO LZ - MLS @ 52.8M

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
45.72	329.00	-87.00
94.49	329.00	-86.00

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	94.49	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR		
Date started:	24/8/97		
Date finished:	25/8/97		
Logged by:	C. REES		
Relogged by:			
Sampled by:	J. LETWIN		

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
31.80	33.90	2.10
52.80	53.10	0.30
75.35	75.75	0.40
86.60	88.00	1.40

## \*\*\* SUMMARY LOG \*\*\*

0.00 14.33 OVERBURDEN  
 14.33 15.00 1B LAMINATED SILTSTONE  
 / SANDSTONE  
 15.00 25.00 1BA SILTSTONE  
 25.00 31.80 FAULT ZONE 1BA RUBBLE  
 QUARTZ VEIN  
 31.80 33.90 1AA ARGILLITE/SILTSTONE  
 RUBBLE BRECCIA  
 35.40 38.20 1AA CARBONACEOUS  
 ARGILLITE/SILTSTONE  
 38.20 52.80 1AA RUBBLE BRECCIA  
 MOSAIC BRECCIA  
 52.80 53.10 MCDAME LIMESTONE  
 PYRITIC  
 53.10 64.90 MCDAME LIMESTONE  
 BRECCIATED  
 64.90 67.70 1AA MOSAIC BRECCIA  
 RUBBLE BRECCIA  
 67.70 71.25 MCDAME LIMESTONE  
 71.25 72.54 CAVE  
 72.54 91.40 MCDAME LIMESTONE  
 BRECCIATED  
 91.40 94.49 FAULT ZONE RUBBLE VEIN  
 94.49 END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
0.00	14.33	OVERBURDEN	CB							
14.33	15.00	1B LAMINATED SILTSTONE / SANDSTONE Dark grey slaty siltstone with laminae and lenses of pyritic fine sandstone. 1% disseminated pyrite, mostly very fine.	1B							
15.00	25.00	1BA SILTSTONE Broken core, but probably not a fault. Pyritic slaty siltstone with minor laminae of pyritic fine sandstone. Fairly carbonaceous. Last 8 m - very poor recovery.	1BA							
25.00	31.80	FAULT ZONE 1BA RUBBLE Interval of poor recovery, rubble. Chips and black mud of carbonaceous siltstone, argillite and minor fine sandstone. Similar to compacted fault zone gouge.	1BA							
31.80	33.90	QUARTZ VEIN Broken core of white quartz vein. No pyrite, but trace of a dark grey submetallic sulphide.	QZ_VN	139877	31.80	33.90	0.01	4.50	0.02	0.06
33.90	35.40	1AA ARGILLITE/SILTSTONE RUBBLE BRECCIA Broken core. Clast-supported rubble breccia comprising fragments of pale to dark grey carbonaceous argillite or siltstone, some silicified, and vein quartz. Matrix is compacted carbonaceous mud. Probably tectonic origin, related to vein above rather than solution collapse.	1AA							
35.40	38.20	1AA CARBONACEOUS ARGILLITE/SILTSTONE Broken core, but unbrecciated, very carbonaceous slaty siltstone and argillite.	1AA							
38.20	52.80	1AA RUBBLE BRECCIA MOSAIC BRECCIA Back into mostly clast-supported rubble breccia with fragments of carbonaceous siltstone and argillite, some pale grey and strongly silicified. Matrix in upper part is carbonaceous mud and vein quartz. Mostly very broken between 46.0 and 52.0, but probably not a fault. Bottom 1 m is clast-supported mosaic breccia with calcite cement.	1AA							
52.80	53.10	MCDAME LIMESTONE PYRITIC Sharp depositional contact with 1AA above. This uppermost interval of limestone has moderate pyrite replacement, associated with calcite crackle veining. Pyrite 35%.	MLS	139878	52.80	53.10	0.02	1.40	0.00	0.01

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
53.10	64.90	MCDAME LIMESTONE BRECCIATED Pale to mid-grey fossiliferous limestone. Amphipora common, minor stromatoporoids and rare Thamnopora. Stylolites and calcite crackle veinlets common. Much of limestone is variably brecciated, as follows. 53.10-54.80 CRACKLE BRECCIA MOSAIC BRECCIA Progression from crackle veining to crackle breccia to mosaic breccia. Calcite matrix. 57.10-58.10 CRACKLE BRECCIA MOSAIC BRECCIA 59.70-64.90 CRACKLE BRECCIA STYLOLITIC BRECCIA Mixed brecciation, with moderate to strong calcite crackle veinlets and thicker, cm-scale veins. Numerous stylolitic discontinuities in limestone. No mineralization or dolomitization.	MLS							
64.90	67.70	1AA MOSAIC BRECCIA RUBBLE BRECCIA 64.90-66.20 MOSAIC BRECCIA High contrast black and white. Matrix-supported breccia, angular shards and blocks of very carbonaceous argillite-siltstone, in white calcite vein matrix. 66.20-67.70 1AA RUBBLE BRECCIA Mostly black, very carbonaceous argillite and rubble. Towards base, accompanied by tightly packed, fine to coarse rubble fragments of limestone, in carbonaceous lime-mud matrix. Some matrix is bedded, suggesting sedimentation in paleokarst, pre-dating hydrothermal solution breccias above.	MLS							
67.70	71.25	MCDAME LIMESTONE Weakly brecciated pale to mid-grey limestone. Amphipora very locally. Calcite crackle veinlets throughout, varying on crackle breccia in places. About 40 cm in middle of interval is buff-grey dolomitized limestone.	MLS							
71.25	72.54	CAVE	CAVE							
72.54	91.40	MCDAME LIMESTONE BRECCIATED Thick, complicated unit of completely brecciated limestone. Predominantly rubble breccia with clastic matrix, but locally with strong calcite vein flooding - mosaic breccia. Calcite	MLS							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		<p>crackle veining and brecciation in larger fragments common. Coarse stylolitic breccia locally. Breccia matrix locally comprises distorted, bedded, carbonaceous lime-mud-sands, possibly indicating sedimentation in a paleokarst channel. This was superimposed by much later hydrothermal solution, fracturing, dolomitization and brecciation. Sulphides absent except for local fine pyrite stringers, locally limonitic.</p> <p>75.35-75.75 MINERALIZED RUBBLE BRECCIA Sedimentary rubble breccia with a 2 by 5 cm patch of pyrite and sphalerite, and some very minor pyrite replacement in matrix.</p> <p>86.60-88.00 RUBBLE BRECCIA PYRITIC Rubble breccia with a few stringers in matrix of fine pyrite, and pockets of oxidized or clay-altered material, possibly after minor sulphides.</p>								
				139879	75.35	75.75	0.06	7.80	0.08	0.27
				139880	86.60	88.00	0.02	2.60	0.03	2.35
91.40	94.49	<p>FAULT ZONE RUBBLE VEIN Mid-grey, quite soft and friable calcareous mud gouge zone with generally fine porphyroclasts of limestone and silicified limestone. Local larger blocks, 5 to 20 cm thick, are strongly fractured and veined. Gouge has an anastomosing foliation, with low to high angles to core axis. Probably part of Camp Creek Fault System.</p> <p>91.95-92.65 VEIN Bluish-white calcite vein, partly silicified. No mineralization.</p>	FZ							

\*\*\* END OF HOLE \*\*\* 94.49



HOLE NO: SSD-97-31

SECTION: 43667N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43666.70mN 24741.24mE 1222.54RL

Pre-collar depth: Final depth: 109.63

Purpose of hole: INFILL SILVER CREEK  
 EXTENSION

Hole status: DRILLED TO DEPTH

Comments: NO LZ. 29M FAULT ZONE @  
 UNCONFORMITY.

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
45.72	272.00	-89.00
97.54	299.00	-89.00

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	109.63	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR 3000		
Date started:	25/8/97		
Date finished:	26/8/97		
Logged by:	L. LEWIS		
Relogged by:			
Sampled by:	J. LETWIN		

Material left in hole:

Base of complete oxidation

Top of fresh rock:

Water first encountered:

Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
42.60	43.00	0.40
62.40	64.30	1.90
80.70	81.70	1.00
88.40	92.60	4.20

## \*\*\* SUMMARY LOG \*\*\*

0.00	13.72	OVERBURDEN
13.72	23.00	1B SANDSTONE / SILTSTONE
23.00	35.36	1BA MUDSTONE / SANDSTONE
35.36	64.30	FAULT ZONE 1AA CARBONACEOUS ARGILLITE
64.30	79.00	MCDAME LIMESTONE CRACKLE BRECCIA
79.00	96.35	ALTERED MCDAME LIMESTONE
96.35	97.90	MCDAME LIMESTONE TECTONIC BRECCIA
97.90	100.60	1A/MLS RUBBLE BRECCIA
100.60	102.90	ALTERED MCDAME LIMESTONE BRECCIATED
102.90	106.55	FAULT ZONE MCDAME LIMESTONE
106.55	109.63	DOLOMITIZED LIMESTONE CRACKLE BRECCIA
109.63		END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn	
0.30	13.72	OVERBURDEN	OB							
13.72	23.00	1B SANDSTONE / SILTSTONE Medium grey, fine to medium grained massive sandstone beds 1 - 50 cm thick, with 20% interbedded dark grey siltstone, 2mm - 10cm thick. Core breaks easily along sandstone / siltstone contacts, and along fractures. Bedding @ 50 to core axis. Weak iron oxide stain on fractures down to 17.0m. 1-4% quartz - calcite clots and stringers. Trace - 1% disseminated pyrite and small poos within quartz - calcite stringers. Broken lower contact with 1BA transitional unit.	1B							
23.00	35.36	1BA MUDSTONE / SANDSTONE Recovery deteriorates below 23.0m to about 60%, consisting of rubble, chips and minor gouge of thinly interbedded, dark grey, weakly carbonaceous mudstone (85%) and medium grey, fine grained sandstone (15%). Bedding @ 50 to core axis. Zones of crackle breccia cemented by 1-5% quartz - calcite, often with pyrite clots. Minor iron carbonate.	1BA							
35.36	64.30	FAULT ZONE 1AA CARBONACEOUS ARGILLITE Unit of strongly graphitic argillite, finely brecciated and healed with 15% quartz - calcite. Much of the fault zone is incompetent with poor recovery of small chips. Trace - 3% pyrite as clasts in the breccia and occasionally as small clots in the quartz - calcite matrix. Argillite clasts strongly fractured and contorted. Irregular lower contact with limestone. - 43.58 - 44.1m Limestone - appears to be a large block of McDame limestone caught up in the fault zone. Contorted and fractured with 1% pyrite clots in quartz - calcite stringers. Broken upper contact. Lower contact with graphitic argillite @ approx 40 to core axis. - 56.5 - 60.0m: Still strongly brecciated, but more competent rock with 90% recovery.	FZ							
		42.60-43.00 CARBONACEOUS ARGILLITE MINERALIZED Poor recovery (50%) of graphitic argillite and pyrite rubble, 25% pyrite, 5% quartz, 5% calcite.		140003	42.60	43.00	0.12	9.70	0.02	0.05
				140004	62.40	63.40	0.10	16.80	0.33	0.18

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn	
		62.40-63.40 CARBONACEOUS ARGILLITE MOSAIC BRECCIA Representative sample of weakly mineralized carbonaceous argillite fault breccia with 3% pyrite as fine grained clots in the quartz - calcite cement.		140005	63.40	64.30	0.19	8.00	0.12	0.12
		63.40-64.30 CARBONACEOUS ARGILLITE MOSAIC BRECCIA Hanging wall sample to barren unconformity. Consists mainly of carbonaceous argillite chips with 8% quartz - calcite cement on clast surfaces, 1% pyrite.								
64.30	79.00	MCDAME LIMESTONE CRACKLE BRECCIA Variable interval of mainly crackle breccia packstone and amphipora floatstone, with minor stromatopora. Periodic strong stylonitic breccia. Two narrow intervals of carbonaceous argillite and limestone rubble breccia from 65.0 - 65.5m and 67.5 - 67.7m. 5% small pyrite clasts (2 - 5mm) in the brecciated intervals. 3 - 5% calcite veining and fracture filling, occasionally with fine grained pyrite clots. Overall 1% pyrite. - 75.45 - 76.2m Dolomitized crackle breccia limestone.	MLS?							
79.00	96.35	ALTERED MCDAME LIMESTONE Mottled, partly recrystallized, vnd and locally brecciated interval. No identifiable fossils remain. 10% calcite + 4% pale orange ferro-carbonate veining, locally with up to 15% pyrite, 1% sphalerite and 1% galena. The rock has a weak fabric / foliation @ 40 degrees to core axis. Zones with sulphides are sampled and described below. Sharp @ 30 degrees with tectonic breccia.	AMLS	140006	80.70	81.70	0.01	1.30	0.30	0.01
		88.40-89.90 LIMESTONE ALTERED Rubble brecciated, stylonitic limestone, clastic matrix with moderate ferro-carbonate alteration. 12% elongate pyrite clots, sub-parallel to contorted fabric. 1% sphalerite + 1% galena clots within the pyrite.		140007	88.40	89.90	0.02	5.50	0.10	0.24
		89.00-91.40 LIMESTONE ALTERED Similar to above interval. Less contorted fabric, foliation @ 40 to core axis. 10% pale yellow-orange ferro-carbonate, 8% pyrite clots and stringers, 1% sphalerite + 1% galena clots.		140008	89.90	91.40	0.04	10.70	0.20	1.15

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		91.40-92.60 LIMESTONE ALTERED Rubble brecciated in the upper 25cm becoming foliated below with 5% pyrite stringers concentrated along foliation @ 45 degrees. Trace sphalerite + galena.		1400091	91.40	92.60	0.01	1.70	0.01	0.02
96.35	97.90	MCDAME LIMESTONE TECTONIC BRECCIA Pale yellowish-white. tectonic breccia containing highly comminuted, sub-rounded clasts of ferro-carbonate altered limestone and white calcite (vein-calcite?). Limestone clasts are also partially dolomitized. Zone is 50% rubble. Trace pyrite. Sharp upper contact with altered limestone @ 30 degrees. Gouge @ lower contact at approximately 30 degrees.	MLS							
97.90	100.60	1A/MLS RUBBLE BRECCIA Transported rubble breccia from a solution collapse feature above, into cracks and fissures within the limestone. Breccia consists of angular carbonaceous argillite and limestone clasts, tightly packed in 10% carbonaceous - calcareous clastic matrix. Minor secondary calcite cement. Trace pyrite clasts. Approaching the floor of the cavern, there are mainly limestone clasts in a calcareous matrix. Irregular lower contact.	1A/MLS							
100.60	102.90	ALTERED MCDAME LIMESTONE BRECCIATED Mottled, stylonitic to rubble breccia. Weak ferro-carbonate alteration as pale yellow patches. Trace pyrite. Sharp lower contact with fault @ 50 degrees.	AMLS							
102.90	108.55	FAULT ZONE MCDAME LIMESTONE Grey clay gouge with a foliation roughly @ 50 degrees. 50% intercalated stylonitic, pale grey to white recrystallized limestone. 1% pyrite. CAMP CREEK FAULT.	FZ							
106.55	109.63	DOLOMITIZED LIMESTONE CRACKLE BRECCIA Medium grey, rubbly, dolomitized limestone. Crackle breccia with 15% calcite veining and fracture filling.	DOLS							

\*\*\* END OF HOLE \*\*\* 109.63

HOLE NO: SSD-97-32

SECTION: 43600N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 1040/16W  
 LOCATION : LIARD MD, B.C.  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43600.44mN 24800.41mE 1258.97RL

Pre-collar depth: Final depth: 118.87

Purpose of hole: INFILL SILVER CREEK  
 EXTENSION

Hole status: DRILLED TO DEPTH

Comments: LZ @ 95.10-106.2M

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
64.01	34.00	-87.00
109.73	14.00	-87.00

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	118.87	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR		
Date started:	26/8/97		
Date finished:	27/8/97		
Logged by:	C. REES		
Relogged by:			
Sampled by:	J. LETWIN		

Material left in hole:

Base of complete oxidation

Top of fresh rock:

Water first encountered:

Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
93.10	107.20	14.10

## \*\*\* SUMMARY LOG \*\*\*

0.00 9.15 OVERBURDEN  
 9.15 21.10 1B SANDSTONE  
 21.10 39.30 1B LAMINATED  
 SANDSTONE  
 39.30 67.70 1B SANDSTONE  
 67.70 72.00 1BA SILTSTONE /  
 SANDSTONE  
 72.00 87.70 1AA 1AC SILTSTONE  
 87.70 94.10 MCDAME LIMESTONE UNIT  
 1  
 94.10 95.10 MCDAME LIMESTONE  
 PYRITIC  
 95.10 106.20 LOWER ZONE BASE METAL  
 MASSIVE SULPHIDE  
 106.20 118.87 MCDAME LIMESTONE UNIT  
 2  
 118.87 END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
0 00	9 15	OVERBURDEN	OB							
9 15	21 10	1B SANDSTONE Dominantly thickly bedded, grey, medium to coarse-grained sandstone. Some beds with granule conglomerate at base. Locally weakly pyritic. Minor short (10 to 30 cm) intervals of siltstone to fine sandstone.	1B							
21 10	39 30	1B LAMINATED SANDSTONE Silt sandstone dominant, but thin to medium laminated here rather than bedded. Sandstone is gray, medium to coarse-grained, and interaminated with lesser fine sandstone and siltstone and rarely shale or slaty siltstone. Locally strong pyrite from 1 to 10%. Also some pyritic nodules about 1 cm across. Broken core locally out no clear faults. Small 10 cm gouge zone @ 30.5 m. Very consistent bedding angles.	1B							
39 30	57 70	1B SANDSTONE Medium to thickly bedded, medium to coarse-grained pebbly sandstone. Quite massive beds, some conglomerate at base. Locally weakly pyritic. Relatively minor siltstone and slaty siltstone interbeds and laminae. 62.80-64.10 SHEARED SANDSTONE Same sandstone with minor silty shale, but partly broken and sheared, though probably not a significant fault.	1B							
57 70	72 00	1BA SILTSTONE / SANDSTONE Subequal grey sandstone and darker grey siltstone with shaly siltstone laminae. Minor quartz veinlets. Core quite broken.	1B							
72 00	87 70	1AA 1AC SILTSTONE Unit of very broken and comminuted core. Dark grey to black carbonaceous siltstone, slaty siltstone, argillite and shale. Some pieces calcareous, but no clear differentiation. Locally laminated. 76.20-79.00 GOUGE ZONE Broken core, small chips, in carbonaceous mud. Possible fault but not necessarily significant. 79.50-82.30 GOUGE ZONE Broken core, small chips, in carbonaceous mud.	1AA							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		Possible fault but not necessarily significant.								
87 70	94 10	MCDAME LIMESTONE UNIT 1 Contact with 1A not preserved but may be quite sharp. Limestone, tentatively unit 1, is solid and non-brecciated. Pale to mid-grey, fine-grained packstone with zones of Amphipora-rich floatstone (88.7 m) and Thamnopora floatstone (92.4 m). Sporadic Amphipora elsewhere. Minor stromatoporoids. Minor calcite crackle veinlets. Otherwise quite undeformed and dense. 93.10-94.10 SAMPLE Very minor hairline pyrite stringers, mainly along weak stylolites.	MLS1	139881	93 10	94 10	0 02	1 30	0 02	0 04
94 10	95 10	MCDAME LIMESTONE PYRITIC Limestone marginal to Lower Zone below. Still generally intact but has numerous bedding-parallel stylolites. Also patches of ?replacement quartz and associated fine-grained pyrite. Minor crackle- and stylolitic brecciation at contact with Lower Zone. Pyrite 10%.	MLS	139882	94 10	95 10	0 08	8 10	0 27	0 35
95 10	106 20	LOWER ZONE BASE METAL MASSIVE SULPHIDE 95.10-96.40 PYRITE MASSIVE SULPHIDE Pyrite-rich massive sulphide, almost all bladed marcasite texture. Minor small vuggy cavities lined with drusy quartz and pyrite. Galena next most common sulphide, in patches and bands and locally filling space between marcasite blades. Sphalerite occurs mainly at upper contact with overlying limestone. 96.40-97.65 PYRITE MASSIVE SULPHIDE Same as previous interval, with slightly more sphalerite. Virtually no limestone or gangue. 97.65-99.20 BASE METAL MASSIVE SULPHIDE 1AA Base metal-rich massive sulphide, with subequal pyrite, galena and sphalerite. Black, carbonaceous, somewhat silicified 1AA argillite preserved locally, showing marginal replacement by sulphides. Less marcasite versus pyrite. Minimal non-metallic gangue minerals. 99.20-101.10 BASE METAL MASSIVE SULPHIDE Similar to interval above, with less galena.	LZ	139883	95 10	96 40	2 05	317 70	94 20	8 43
				139884	96 40	97 65	2 29	182 50	4 45	9 00
				139885	97 65	99 20	1 48	237 80	8 22	16 14
				139886	99 20	101 10	1 13	117 40	2 63	22 10

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		101.10-102.10 PYRITE MASSIVE SULPHIDE SPHALERITE Sulphides replacing brecciated and silicified 1A argillite host rock, although latter is very minor constituent. Large marcasite rosaries prominent, with fine needles up to 3 cm long. Strong sphalerite, apparently little galena. Late- or post-replacement veinlets consisting of quartz lined with brilliant pyrite crystals.		139887	101.10	102.10	1.15	111.80	1.41	15.28
		102.10-102.65 BASE METAL MASSIVE SULPHIDE QUARTZ VEIN Strong pyrite-sphalerite-galena, broken up by slightly younger quartz. Another grey mineral present, dull, blue-grey, gray streak, fairly soft.		139888	102.10	102.65	1.72	158.60	3.92	16.08
		102.65-104.60 BASE METAL MASSIVE SULPHIDE Some remnant grey, silicified rock, probably 1A argillite, but mostly massive sulphide replacement.		139889	102.65	104.60	1.69	140.90	2.19	12.65
		104.60-105.35 ALTERED BRECCIA Dark grey to black rock speckled with grey to white quartz and calcite. Apparently 1AA argillite, possibly brecciated and silicified, and cut by crackle veinlets. Only local, weak, fine pyrite and possibly fine sphalerite.		139890	104.60	105.35	0.07	38.80	0.86	1.02
		105.35-106.20 BASE METAL MASSIVE SULPHIDE Back into one last massive sulphide zone. Mainly fine-grained pyrite, with also strong sphalerite and galena. Interval has very sharp lower contact, with a weak to moderate fabric and banding parallel to it - possibly a shear.		139891	105.35	106.20	1.69	555.70	11.75	18.45
106.20	118.87	MCDAME LIMESTONE UNIT 2 Predominantly intact, undeformed and unbrecciated fossiliferous McDame limestone. Abundant stromatoporoids and good Amphipora, Thamnopora and several Tryplasma. Minor stylolitic brecciation.								
		106.20-107.20 CRACKLE BRECCIA Predominantly intact limestone with minor brecciation near the top - crackle to rubble breccia, with very minor fracture-controlled pyrite. Otherwise, in good condition with stromatoporoids and Tryplasma solitary corals.	MLS2	139894	106.20	107.20	0.00	5.70	0.14	0.03

\*\*\* END OF HOLE \*\*\* 118.87

HOLE NO: SSD-97-33

SECTION: 43598N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43598.07mN 25019.52mE 1249.79RL

Pre-collar depth: Final depth: 84.12  
 Purpose of hole: INFILL SILVER CREEK  
 EXTENSION  
 Hole status: DRILLED TO DEPTH  
 Comments: LOWER ZONE: 56.25 - 63.10M

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
45.72	14.00	-88.00
83.82	29.00	-88.00

## \*\*\* SUMMARY LOG \*\*\*

0.00	23.90	OVERBURDEN
23.90	39.62	1BA MUDSTONE / SANDSTONE
39.62	52.90	1AA CARBONACEOUS ARGILLITE-BRECCIATED
52.90	56.25	MCDAME LIMESTONE CRACKLE BRECCIA
56.25	63.10	LOWER ZONE MASSIVE SULPHIDE
63.10	66.70	MCDAME LIMESTONE MINERALIZED RUBBLE BRECCIA
66.70	71.60	OXIDIZED LIMESTONE
71.60	81.00	MCDAME LIMESTONE STYLOLITIC BRECCIA
81.00	84.12	VEINED CALCITE
84.12		END OF HOLE

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	84.12	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	LONGYEAR "38"		
Date started:	26/8/97		
Date finished:	28/8/97		
Logged by:	L. LEWIS		
Relogged by:			
Sampled by:	J. LETWIN		

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
50.30	67.70	17.40
71.00	71.60	0.60

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/mt	Ag g/mt	%Pb	%Zn
0.00	23.90	OVERBURDEN	OB							
23.90	39.62	1BA MUDSTONE / SANDSTONE Transitional unit between 1B sandstone and 1AA argillite. 80% dark grey mudstone with mm carbonaceous partings and 20% interbedded, medium grey, fine grained sandstone. 5mm to 5cm thick. Bedding / laminated @ 65 to core axis. 4% quartz stringers, mm to cm thick, rarely with sulphides. At 35.8m, 4mm pyrite - sphalerite - galena stringer @ 55 degrees, roughly along the margin of a 7cm quartz vein. Two sphalerite stringers @ 36.7m, parallel to bedding, 1 & 3mm thick. Poker chip core, breaks easily along bedding planes. Trace finely disseminated pyrite throughout the sandy beds. Weak silicification.	1BA							
39.62	52.90	1AA CARBONACEOUS ARGILLITE BRECCIATED Dark grey to black, brecciated, moderately silicified carbonaceous argillite, 5% sandy beds concentrated in the upper 4 meters of the unit. Pockets of mosaic breccia with sugary quartz cement. In the quartz are patches of yellowish-green fibrous masses of gypsum(?) - 3%. Unit usually competent, possibly due to the silicification. 20% chips and broken core. Sulphides (pyrite) appears in quartz patches below 50.3m.	1AA	140010	50.30	51.65	0.02	3.30	0.02	0.13
		50.30-51.65 CARBONACEOUS ARGILLITE RUBBLE BRECCIA Segments of solution collapse with angular carbonaceous argillite clasts in a mostly sugary quartz matrix, lesser calcite and clastic matrix. Vugs lined with fine drusy quartz + gypsum (?). Interleaved with the breccias are intervals of finely laminated argillite from 75 - 90 degrees to core axis.		140011	51.65	52.90	0.13	26.90	0.51	0.44
		51.65-52.90 CARBONACEOUS ARGILLITE MINERALIZED Siliceous sedimentary rubble breccia containing 20% argillite clasts, 15% pyrite clasts, clots and cubes in the siliceous pods & matrix, 2% galena + 2% sphalerite as clots on the cavity margins. 1% soft grey mineral, dullish metallic lustre (stibnite or boulangerite??). Sharp, unconformable contact.								

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/mt	Ag g/mt	%Pb	%Zn
52.90	56.25	MCDAME LIMESTONE CRACKLE BRECCIA Unmineralized limestone, variable from packstone to amphipora floatstone. Local crackle breccia and sedimentary fissure fillings of calcareous carbonaceous sediment and small argillite clasts. Sharp lower contact @ 70 to core axis with Lower Zone massive sulphide.	MLS?	140012	52.90	54.10	0.00	0.60	0.01	0.02
		52.90-54.10 FLOATSTONE Footwall sample to mineralized Earn breccia. Stylolites common. 20% fine clastic rubble breccia - likely a small fissure or crack filling with a mixed calcite + clastic matrix. No visible sulphides.								
		54.10-55.25 PACKSTONE Similar to previous sample with the addition of 1% pyrite stringers along stylolites. Moderately bleached.		140013	54.10	55.25	0.00	0.10	0.00	0.01
		55.25-56.25 PACKSTONE CRACKLE BRECCIA Hanging wall sample to massive sulphide zone below. Moderately bleached, crackle breccia packstone with tr of disseminated pyrite. Sharp carbonaceous stylolitic lower contact at approximately 70 to core axis.		140014	55.25	56.25	0.00	0.10	0.00	0.00
56.25	63.10	LOWER ZONE MASSIVE SULPHIDE Massive pyrite, sphalerite + galena with 25% intercalated limestone intervals from fresh to partially altered. Overall, 55% pyrite, 8% galena, 7% galena, 5% quartz. Some spectacular coarse grained examples of pyrite, galena and sphalerite, especially in cavities.								
		56.25-57.40 BASE METAL MASSIVE SULPHIDE 55% massive fine grained pyrite and coarse euhedral pyrite filling cavities, 15% coarse clots of galena crystals and as bands with sphalerite interlayered with pyrite. 10% red-brown to black sphalerite. 7% quartz - lined vugs.	LZ	140015	56.25	57.40	0.08	1238.60	24.49	6.91
		57.40-57.85 BASE METAL MASSIVE SULPHIDE 55% small cubes and fine grained pyrite in a siliceous matrix. 12% coarse clots of galena, and 10% red-brown sphalerite patches. Galena and sphalerite are concentrated in the lower half of the sample. 1% black granular fine grained masses - tetrahedrite?? Very sharp lower contact with limestone @ 50 degrees.		140016	57.40	57.85	0.09	563.10	10.57	3.00



From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		*Note Sample 140032 is a duplicate of this interval		140017	57.85	58.40	0.01	179.90	2.51	0.21
		57.85-58.40 PACKSTONE		140018	58.40	58.90	0.49	40.70	0.66	2.03
		Weakly bleached, non-mineralized packstone except for 3% fine grained pyrite adjacent to irregular lower contact.		140019	58.90	60.20	0.33	347.30	4.73	6.45
		58.40-58.90 PYRITE MASSIVE SULPHIDE								
		Good replacement textures of fine grained pyrite (65%) replacing limestone. 10cm by 5cm patch of sphalerite (minor pyrite + galena) @ 58.5m. 5% granular quartz pods.								
		58.90-60.20 BASE METAL MASSIVE SULPHIDE								
		Actually semi-massive sulphide. Less whole scale replacement of the limestone. 40% limestone and partially dolomitized limestone breccia with clots of fine grained pyrite (30%), medium crystalline sphalerite (7%) and galena (5%). 5cm zoned galena - pyrite - sphalerite vein @ 60.1m. 35 degrees to core axis.		140020	60.20	60.60	0.04	8.20	0.17	0.71
		60.20-60.60 DOLOMITIZED LIMESTONE								
		Upper 15cm and lower 10cm is medium to dark grey, dolomitized limestone with 10% fine grained pyrite clots and blebs along stylolites. Irregular lower contact.		140021	60.60	61.50	0.36	487.00	8.99	6.61
		60.60-61.50 BASE METAL MASSIVE SULPHIDE								
		Massive base metal-rich bands (15% sphalerite, 10% galena, 45% pyrite) separated by patchy replacement of brecciated, dolomitized limestone.		140022	61.50	62.30	0.09	296.10	3.99	5.81
		61.50-62.30 PYRITE MASSIVE SULPHIDE		140023	62.30	62.70	0.01	8.60	0.12	0.48
		Partial replacement of dolomitized, probably brecciated limestone by fine grained to coarse pyrite (50%) with clots of sphalerite(5%) and galena (2%) in the pyrite and as cavity fillings.								
		62.30-62.70 DOLOMITIZED LIMESTONE SILICIFIED								
		Mottled, dolomitized and silicified limestone - may have originally been a breccia, but the original textures are obliterated. Slickensides 20 degrees to core axis @ 62.5m. 3% small pyrite clots concentrated at the upper and lower contacts.		140024	62.70	63.10	0.91	41.10	0.21	17.72
		62.70-63.10 BASE METAL MASSIVE SULPHIDE								

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		35% pyrite and bladed marcasite. 30% coarse red-brown to black sphalerite as clots in the pyrite and 3% galena. Upper 15cm is very siliceous. Fairly sharp lower contact @ 60 degrees with an altered rubble breccia.								
63.10	66.70	MCDAME LIMESTONE MINERALIZED RUBBLE BRECCIA								
		General Description: rubble breccia consisting of coarse calcite clasts in a dark grey, dolomitized matrix. Locally sulphide vnd. Overall approximately 7% pyrite, 2% sphalerite, tr - 1% galena.								
		53.10-64.35 DOLOMITIZED LIMESTONE RUBBLE BRECCIA	MLS	140025	63.10	64.35	0.08	35.80	0.64	0.76
		Hanging wall sample to Lower Zone. Sample as described in general description above. Moderately siliceous. 25% coarse calcite clasts (replaced limestone?) in a dolomitized matrix. Sulphides concentrated in the upper 60cm as irregular replacement clots. 7% pyrite, 2% sphalerite, 1% galena.		140026	64.35	64.70	0.29	97.90	1.29	4.45
		64.35-64.70 DOLOMITIZED LIMESTONE								
		As in general description. Sulphides are concentrated in 2 veins, 1 and 3cm wide @ 60 degrees to core axis.								
		64.70-65.70 DOLOMITIZED LIMESTONE		140027	64.70	65.70	0.03	9.40	0.04	0.04
		Silicified, dolomitized limestone with no original textures remaining. Vague banding that looks like a fold nose. Possible rubble breccia @ base of sample. 2% pyrite blebs.								
		65.70-66.50 LIMESTONE RUBBLE BRECCIA		140028	65.70	66.50	0.00	1.40	0.01	0.11
		Less altered than previous samples. Possible a sedimentary rubble breccia with patches dolomitization. Signs of oxidation with 5% vuggy, strongly oxide stained clots.								
		66.50-66.70 LIMESTONE MINERALIZED		140029	66.50	66.70	0.25	12.90	0.09	1.97
		50% pyrite replacing the matrix of siliceous rubble breccia. Pyrite concentrated along planes trending at 55 degrees to core axis. Sharp lower contact @ 55 degrees.								

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/mt	Ag g/mt	%Pb	%Zn
66.70	71.60	OXIDIZED LIMESTONE Stylolitic and crackle breccia packstone and stromatoporoid floatstone. 7% vuggy, oxide stained low angle cavities (10-20 degrees), honeycomb texture. Trace pyrite. 66.70-67.70 PACKSTONE Footwall sample to narrow massive sulphide vein. As in general description above. Oxide-stained fractures @ 10 degrees. Interval of vuggy core between 66.9 - 67.1 m. 71.00-71.60 FLOATSTONE Stylolitic floatstone with 2 intervals of vuggy, strongly oxide-stained limestone. Sampled to check for any remnant sulphides and whether this may have been a sulphide stringer zone. 5% black manganese (?) oxide, 15% hematite, and 5% limonite. *Note: Sample 140033 is a blank following duplicate sample 140032 (57.4 - 57.85m)	LSOX							
				140030	66.70	67.70	0.01	0.50	0.01	2.92
				140031	71.00	71.50	0.00	0.30	0.01	9.27
71.60	81.00	MCDAME LIMESTONE STYLOLITIC BRECCIA ALTERED mix of stromatoporoid floatstone, amphipora floatstone and packstone with scattered rugose corals and thamnopora. The coarser amphipora at 74.9m possibly indicate position near the base of Unit 3, stratigraphically. Local manganese and hematite staining on fractures. Gradational lower contact with calcite and limestone / or recrystallized limestone??	MLS?							
81.00	84.12	VEINED CALCITE Calcite vein or recrystallized limestone?? White coarse calcite (to 2cm) with 15% grey patches of remnant limestone. Moderate stylolites. One pyrite stringer @ 81.5m, concentrated along stylolite	VNI							

\*\*\* END OF HOLE \*\*\* 84.12

HOLE NO: SSD-97-34

SECTION: 43680N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 1040/16W  
 LOCATION : LIARD MD, B.C.  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43678.50mN 24780.57mE 1216.61RL

Pre-collar depth: Final depth: 88.39  
 Purpose of hole: INFILL SILVER CREEK  
 EXTENSION  
 Hole status: DRILLED TO DEPTH  
 Comments: CAVE@22.21-41.7M, LZ@45.3-  
 50.3M

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
36.58	6.00	-86.00
82.30	1.00	-86.00

## \*\*\* SUMMARY LOG \*\*\*

0.00 10.67 OVERBURDEN  
 10.67 11.00 1B SANDSTONE RUBBLE  
 11.00 19.70 1BA RUBBLE MUD  
 19.70 22.21 1BA SILTSTONE RUBBLE  
 22.21 41.70 NO RECOVERY CAVE  
 41.70 45.30 MCDAME LIMESTONE UNIT  
 1  
 45.30 50.30 LOWER ZONE BASE METAL  
 MASSIVE SULPHIDE  
 50.30 58.00 MCDAME LIMESTONE UNIT  
 2 BRECCIATED  
 58.00 82.55 MCDAME LIMESTONE UNIT  
 2  
 82.55 87.20 MCDAME LIMESTONE UNIT  
 3  
 87.20 88.39 MCDAME LIMESTONE UNIT  
 3 RUBBLE BRECCIA  
 MOSAIC BRECCIA  
 88.39 END OF HOLE

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	88.39	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR		
Date started:	27/8/97		
Date finished:	28/8/97		
Logged by:	C. REES		
Relogged by:			
Sampled by:	J. LETWIN		

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
44.30	51.30	7.00

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
3.00	10.67	OVERBURDEN	OB							
10.67	11.00	18 SANDSTONE RUBBLE Not well defined.	18							
11.00	19.70	18A RUBBLE MUD Fine rubble and chips of siltstone-argillite in mud matrix, or loose, coarser rubble of dark grey siltstone. Probably not a fault, though.	18A							
19.70	22.21	18A SILTSTONE RUBBLE Completely broken core of dark grey laminated siltstone to slaty siltstone and minor shale.	18A							
22.21	41.70	NO RECOVERY CAVE Virtually no recovery apart from a fraction of a metre of rounded chips of siltstone and rare sandstone. Also a few pieces of vein calcite, limestone and Eam argillite. Cavern indicated in core box between 35.36 and 39.62 m.	NR							
41.70	45.30	MCDAME LIMESTONE UNIT 1 Tentatively unit 1. Pale to mid-gray packstone limestone. Part is weakly to moderately brecciated. Uppermost 2 m is crackle breccia to rubble breccia to mosaic breccia, with calcite cement. Below this is basically undeformed packstone to floatstone, with Amphipora and stromatoporoids. Near base is thin, very carbonaceous mud/limy sediment laminae. 44.30-45.30 LIMESTONE SAMPLE One m sample of limestone overlying Lower Zone.	MLS1	139895	44.30	45.30	0.04	2.00	0.01	0.02
45.30	50.30	LOWER ZONE BASE METAL MASSIVE SULPHIDE 45.30-46.15 MASSIVE SULPHIDE GALENA Solid massive sulphide, galena-rich. Very sharp upper contact with limestone. Coarse-grained galena in bands and clots, separated by fine- to medium-grained pyrite and sphalerite. Negligible calcite and veinlets. 46.15-46.65 BASE METAL MASSIVE SULPHIDE Completely massive sulphide, similar to previous but less galena. Mostly fine-grained weakly brecciated pyrite probably mixed with fine sphalerite. Galena is noticeably coarser, perhaps slightly younger. 46.65-47.15 MINERALIZED SILICIFIED LIMESTONE Almost completely altered limestone, mostly silicified.	LZ	139896	45.30	46.15	4.83	1394.10	39.53	13.64
				139897	46.15	46.65	1.07	259.10	6.95	13.69
				139898	46.65	47.15	0.46	166.30	1.84	3.02

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		Speckled bluish-gray and white rock with patches of replacement sulphide, especially around small drusy quartz-lined spaces. 47.15-47.70 PYRITIC MASSIVE SULPHIDE Fine- to medium-grained, homogeneous mixture of pyrite-rich sulphide and siliceous host material. Not much textural or compositional variation. Percentages tentative. 47.70-49.00 BASE METAL MASSIVE SULPHIDE Almost completely massive sulphide, with 5% interstitial quartz and calcite. Remainder is subequal fine- to medium grained pyrite, coarse-grained brown sphalerite, and lustrous coarse galena. Zonation from fine pyrite to coarser yellow pyrite to sphalerite to galena. Weak banding at 45 deg. To core axis. Not brecciated. 49.00-50.30 BASE METAL MASSIVE SULPHIDE As previous, with slightly less galena. Very sharp, black-coated (fine sulphide or carbon?) shear fracture contact with almost pristine limestone below. Down-dip slickensides.		139899	47.15	47.70	0.87	77.90	2.51	3.28
				139900	47.70	49.00	0.49	1151.00	26.52	18.37
				139901	49.00	50.30	0.46	797.00	17.51	26.01
50.30	58.00	MCDAME LIMESTONE UNIT 2 BRECCIATED Pale to mid-gray limestone, mostly packstone, with some stromatoporoid- and Amphipora floatstone. Tryplasma solitary corals. Moderate to strong calcite crackle veinlets and stylolites throughout unit, locally increasing to brecciate the rock into crackle or mosaic breccia or more commonly, stylolitic breccia. Many narrow, open slightly vuggy tensional fractures. No mineralization. Core broken into rubble between 51.8 and 53.6 m. Possibly a small fault here. 50.30-51.30 LIMESTONE SAMPLE Limestone, with stylolites and crackle veining but no mineralization.	MLS2	139904	50.30	51.30	0.01	2.50	0.05	0.11
58.00	82.55	MCDAME LIMESTONE UNIT 2 Very fossiliferous limestone, mostly stromatoporoid- and Amphipora-rich floatstone and locally rudstone. Thamnopora and thin-shelled brachiopods common. Interval	MLS2							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		of dense packstone. Unit not brecciated except for local calcite crackle breccia. 69.50-70.50 RECRYSTALLIZED BRECCIA Minor interval marked by white calcite veining or replacement/recrystallization, with minor clots of fine pyrite. Also present is a 25-cm thick span of rubble-mosaic breccia.								
82.55	87.20	MCDAME LIMESTONE UNIT 3 Based on decrease in stromatoporoids and presence of fine Amphipora. Still fossiliferous floatstone and packstone. Gastropod. Not brecciated.	MLS3							
87.20	88.39	MCDAME LIMESTONE UNIT 3 RUBBLE BRECCIA MOSAIC BRECCIA Brecciated, fossiliferous (Thamnopora, Amphipora, stromatoporoids) limestone. Mixed rubble matrix and mosaic breccia. Solution collapse breccia. Some open space lined with very coarse idiomorphic calcite crystals. Some black carbonaceous/sulphide mud filling, or coating fracture surfaces, but no mineralization or alteration.	MLS3							

\*\*\* END OF HOLE \*\*\* 88.39

HOLE NO: SSD-97-35

SECTION: 43680N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 1040/16W  
 LOCATION : LIARD MD, B.C.  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43680.20mN 24761.97mE 1218.26RL

Pre-collar depth: Final depth: 91.44  
 Purpose of hole: INFILL SILVER CREEK  
 EXTENSION  
 Hole status: DRILLED TO DEPTH  
 Comments: MLS/LZ: 38.85-46.25; LZ: 46.25-  
 58.5, 69.05-70.0

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
45.72	7.00	-88.00
91.44	4.00	-88.00

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	91.44	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR 3000		
Date started:	28/8/97		
Date finished:	29/8/97		
Logged by:	C. REES		
Relogged by:			
Sampled by:	J. LETWIN		

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
37.85	59.50	21.65
68.05	71.00	2.95
78.20	84.15	5.95
86.50	86.82	0.32

## \*\*\* SUMMARY LOG \*\*\*

0.00 13.72 OVERBURDEN  
 13.72 21.60 1B SANDSTONE /  
 SILTSTONE  
 21.60 26.00 FAULT ZONE RUBBLE  
 GOUGE ZONE  
 26.00 34.00 1AA SILTSTONE RUBBLE  
 34.00 38.85 MCDAME LIMESTONE UNIT  
 2  
 38.85 46.25 MCDAME LIMESTONE  
 LOWER ZONE BASE METAL  
 MASSIVE SULPHIDE  
 46.25 58.50 LOWER ZONE BASE METAL  
 MASSIVE SULPHIDE  
 58.50 69.05 MCDAME LIMESTONE UNIT  
 2  
 69.05 70.00 LOWER ZONE BASE METAL  
 MASSIVE SULPHIDE  
 70.00 76.90 MCDAME LIMESTONE UNIT  
 2  
 76.90 79.25 MCDAME LIMESTONE  
 RUBBLE BRECCIA MOSAIC  
 BRECCIA  
 79.25 82.80 MCDAME LIMESTONE  
 BRECCIATED MINERALIZED

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

HOLE NO: SSD-97-35

SECTION: 43680N

GRID: SILVER CK EX

82.80	91.44	MCDAME LIMESTONE RUBBLE BRECCIA MATRIX BRECCIA
91.44		END OF HOLE

Checked and signed: _____	Date: _____
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From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/ml	Ag g/ml	%Pb	%Zn
0.00	13.72	OVERBURDEN	OB							
13.72	21.60	B SANDSTONE / SILTSTONE Generally broken core. Grey, medium-grained sandstone. Medium bedded to medium laminated. Minor siltstone. Bottom 2 m. is mainly very dark grey, thinly laminated siltstone and slaty siltstone. Disseminated fine pyrite.	BI							
21.60	26.00	FAULT ZONE RUBBLE GOUGE ZONE Very poor recovery. Rubble and small chips of black siltstone and argillite, part compacted and cemented in black mud. Solid pieces look sheared. Possible fault zone.	FZ							
26.00	34.00	1AA SILTSTONE RUBBLE Some poor recovery. Dark grey to black, faintly laminated carbonaceous siltstone. No brecciation but core is all broken.	1AA							
34.00	38.85	MCDAME LIMESTONE UNIT 2 Fossiliferous limestone, packstone to floatstone and marginal rudstone, with Amphipora, Thamnopora and stromatoporoids. Possibly unit 2, based on tentative Tryplasma. Core quite broken, with rusty fracture surfaces. Rusty brown gossanous pieces locally, presumably after minor pyrite mineralization. 37.85-38.85 LIMESTONE SAMPLE No mineralization.	MLS2	139905	37.85	38.85	0.00	0.40	0.01	0.00
38.85	46.25	MCDAME LIMESTONE LOWER ZONE BASE METAL MASSIVE SULPHIDE 38.85-39.35 BASE METAL MASSIVE SULPHIDE Massive sulphide replacement of unbrecciated limestone. Mostly fine-grained pyrite, with coarser grained sphalerite in patches and narrow bands, and very coarse galena. Minor interstitial calcite. 39.35-41.13 PACKSTONE / FLOATSTONE Mainly unmineralized packstone, with stromatopora floatstone with minor pyrite stringers in matrix surrounding fossils. 41.13-41.58 PYRITIC MASSIVE SULPHIDE Almost total replacement of limestone by fine to medium-grained pyrite. No obvious galena or sphalerite. Very sharp top and bottom replacement.	MLS	139906	38.85	39.35	0.30	894.30	22.86	10.47
				139907	39.35	41.13	0.00	1.80	0.03	0.03
				139908	41.13	41.58	0.01	1.60	0.00	0.01
				139909	41.58	42.70	0.06	0.40	0.00	0.00

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/ml	Ag g/ml	%Pb	%Zn
		fronts. Apparently not fracture- or breccia-controlled.								
		41 58-42.70 PACKSTONE / FLOATSTONE Grey packstone to floatstone limestone. Non-brecciated. Good flattening fabric. Minor pyrite stringers.								
		42 70-43.20 BASE METAL MASSIVE SULPHIDE Replacing limestone. Gradational top and bottom contacts. Looks like gradual encroachment. Pyrite fine grained, sphalerite and galena coarse grained.		139910	42.70	43.20	0.23	1645.80	29.73	12.61
		43.20-45.09 PACKSTONE Solid, non-brecciated limestone. Packstone with minor Amphipora and stromatoporoids.		139911	43.20	45.09	0.02	15.80	0.40	0.29
		45.09-45.30 BASE METAL MASSIVE SULPHIDE Narrow replacement veins. Fine- to medium-grained pyrite.		139912	45.09	45.30	0.45	307.50	9.50	12.93
				139913	45.30	45.55	0.01	1.70	0.02	0.05
		45.30-45.55 PACKSTONE		139914	45.55	45.85	0.21	462.50	9.17	8.54
		45.55-45.85 BASE METAL MASSIVE SULPHIDE Another narrow replacement veins. Pyrite fine- to medium-grained.		139915	45.85	46.25	0.06	22.90	0.50	0.04
		45.85-46.25 FLOATSTONE Fairly well foliated. Minor pyrite stringers.								
46.25	58.50	LOWER ZONE BASE METAL MASSIVE SULPHIDE 46.25-46.60 SPHALERITE PYRITIC Coarse sphalerite-rich massive sulphide, with lesser pyrite and galena. All slightly brecciated, with calcite matrix. 46.60-47.95 PYRITE SPHALERITE Massive sulphide with wispy, streaky texture subnormal to core axis. Interstitial calcite and quartz associated with sulphides. Locally very sphalerite-rich. 47.95-49.20 SPHALERITE MASSIVE SULPHIDE Similar to previous interval but even richer in sphalerite some in massive sulphide with fine pyrite, and some in vein-like infillings with quartz. Some vugs with quartz terminations. 49.20-50.20 MASSIVE SULPHIDE Similar to previous interval. Streaky, wispy massive sulphide with interstitial quartz and lesser calcite.	LZ	139916	46.25	46.60	0.26	310.00	6.81	19.80
				139917	46.60	47.95	2.17	99.20	1.46	14.76
				139918	47.95	49.20	2.23	85.20	1.49	15.83
				139919	49.20	50.20	4.02	97.90	2.01	8.91



From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/ml	Ag g/ml	%Pb	%Zn
		Remnants of silicified host material. Coarse calcite vein, 10 cm thick, at base								
50	20-51	20 MASSIVE SULPHIDE Massive sulphide typical of this LOWER ZONE. Dominantly fine- to medium-grained pyrite with fine interstitial quartz, with a vague banded texture. Late infillings of quartz generally have coarser sphalerite and minor galena.		139920	50 20	51 20	4.88	55.50	1.14	10.23
51	20-52	40 SILICEOUS MASSIVE SULPHIDE Partial sulphide replacement of host rock - silicified limestone? Streaky to mottled appearance. Mostly fine pyrite with silica and calcite veinlets. Some coarser pyrite and sphalerite around calcite infillings.		139921	51 20	52 40	2.96	20.70	0.59	2.36
				139922	52 40	53 40	4.11	116.20	2.57	5.07
52	40-53	40 PYRITIC LIMESTONE includes remnant of fossiliferous limestone about 20 cm thick, brecciated with pyrite stringers. Remainder is mostly partial sulphide replacement of silicified host rock, some of it brecciated with pyrite in matrix. Minor galena and sphalerite with calcite vein		139923	53 40	54 00	0.81	46.10	0.87	2.29
53	40-54	00 MINERALIZED BRECCIA Syn-mineralization rubble-matrix breccia. Angular fragments of limestone, silicified limestone and pyrite, in mainly pyrite matrix.								
54	00-55	20 PYRITIC LIMESTONE Variable interval. Some pyrite-sphalerite massive sulphide in well-defined cm-scale zones. Grey limestone and silicified limestone with quartz-pyrite veinlets, or clots of pyrite replacement. Bottom 25 cm is syn-mineralization breccia with strong sphalerite and galena.		139924	54 00	55 20	1.79	146.70	3.23	6.92
55	20-56	45 PYRITIC SILICIFIED LIMESTONE Strong replacement of partially silicified limestone, but not quite massive sulphide. Replacement comprises pyrite and sphalerite and lesser though locally strong galena. Locally only weakly mineralized limestone crackle breccia.		139925	55 20	56 45	1.97	198.80	4.43	5.72
56	45-57	30 BASE METAL MASSIVE SULPHIDE		139926	56 45	57 30	1.63	287.60	5.48	6.40

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From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/ml	Ag g/ml	%Pb	%Zn
		Completely massive sulphide, apart from 10-cm remnant of pale gray to white calcified limestone. Fine to coarse-grained pyrite dominant, including some marcasite. Local zones, up to 1 cm thick, rich in sphalerite or galena - both locally brecciated. Wispy or vague sulphide banding at high angle to core axis.		139928	57.30	58.05	0.25	1197.70	25.49	17.66
		57.30-58.05 SPHALERITE GALENA Massive sulphide with rather spectacular coarse-grained brown and black sphalerite and grey galena, in large patches and bands, with interstitial fine- to coarse-grained pyrite and creamy white calcite. Has appearance of vein, but very little non-metallic gangue.		139930	58.05	58.50	1.56	93.00	2.43	4.72
		58.05-58.50 PYRITIC MASSIVE SULPHIDE Pyrite-sphalerite rich massive sulphide replacement with interstitial white calcite. Vague spots which could be Amphipora. Very sharp lower contact with unmineralized, non-brecciated limestone.								
58	50	69.05 MCDAME LIMESTONE UNIT 2 Mostly undeformed fossiliferous limestone, apparently unit 2. Stromatopora- and Amphipora-rich floatstone to rudstone, and minor packstone. Minor stylonitic brecciation and broken core @ 62.5 to 63.0 m.								
		58.50-59.50 LIMESTONE SAMPLE Solid limestone with only very weak, thin pyrite stringers along stylonitic seams.	MLS2	139931	58.50	59.50	0.05	9.10	0.23	0.15
		68.05-69.05 LIMESTONE SAMPLE Rudstone-floatstone. Has very minor rubble breccia, with fine-grained pyrite-galena-sphalerite (amounting to 1%) in matrix.		139932	68.05	69.05	0.01	7.60	0.17	0.10
59	05	70.00 LOWER ZONE BASE METAL MASSIVE SULPHIDE Narrow Lower Zone with rather spectacular coarse sphalerite and galena, predominant over pyrite, interstitial calcite. Top and bottom contacts quite sharp, but not tectonic. Host rock may have been a thin horizon of calcareous mud or silt, judging by angular remnants. Sph 40%, galena 30%, pyrite 15%, calcite 10%. Photo 20	LZ	139933	69.05	70.00	0.28	1224.80	29.08	23.84
		69.05-70.00 LOWER ZONE BASE METAL MASSIVE SULPHIDE								

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From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		Narrow Lower Zone with rather spectacular coarse sphalerite and galena predominant over pyrite. Interstitial calcite. Top and bottom contacts quite sharp but not sheared. Host rock may have been a thin horizon of calcareous mud, judging by remnant angular fragments. CRE slide 20.								
70.00	76.90	MCDAME LIMESTONE UNIT 2 Fossiliferous limestone, probably unit 2. Rich in stromatoporoids, Amphipora, lesser Thamnopora. Floatstone to rudstone. Locally slightly dolomitized. Minor stylolitic and crackle brecciation, and calcite veinlets, but generally undeformed. Rare thin stringers of sphalerite-galena associated with calcite veinlets @ 71.9 m. 70.00-71.00 LIMESTONE SAMPLE Limestone with 1-cm thick vein of sphalerite and galena @ 70.8 m.	MLS2	139935	70.00	71.00	0.00	12.30	0.30	0.23
76.90	79.25	MCDAME LIMESTONE RUBBLE BRECCIA MOSAIC BRECCIA Same as above, but strongly, brittle brecciated and veined. Limestone fragments separated by veinlets and veins up to 5 cm thick of very coarse-grained and vuggy calcite. Idiomorphic crystals up to 2 cm across. Open space. Mosaic breccia mostly partly well-packed rubble breccia with calcite cement. Not mineralized. 78.20-79.25 LIMESTONE BRECCIA SAMPLE	MLS	139936	78.20	79.25	0.00	1.10	0.0*	0.20
79.25	82.80	MCDAME LIMESTONE BRECCIATED MINERALIZED Interesting syn- to post-mineralization rubble breccia, probably hydrothermal solution collapse. Very unsorted. Mostly clast-supported rubble breccia, and locally matrix-rich matrix breccia. Also stylolitic breccia in matrix-poor parts. Fragments are mostly irregular to subangular limestone, some dolomitized. Less commonly they are smaller, angular to subrounded pieces of pyrite, and coarse-grained galena or sphalerite, or combinations. These minerals also occur precipitating in and replacing matrix. Some coarse calcite veins. 79.25-81.00 RUBBLE BRECCIA MATRIX BRECCIA	MLS	139937	79.25	81.00	0.07	66.50	1.36	1.46

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		91.00-81.95 MINERALIZED BRECCIA Rubble to matrix breccia, with strongest mineralization. Sphalerite, galena and pyrite as clasts and as matrix cement.		139938	81.00	81.95	0.07	320.10	6.98	5.24
		81.95-82.80 RUBBLE BRECCIA STYLOLITIC BRECCIA Breccia with locally significant pyrite-sphalerite-galena, but less than previous sample, totalling less than 5%.		139939	81.95	82.80	0.14	112.00	2.80	1.75
82.80	91.44	MCDAME LIMESTONE RUBBLE BRECCIA MATRIX BRECCIA Variable texture, but all completely brecciated. Mostly matrix breccia with poorly sorted, coarse to fine heterolithic limestone fragments, some dolomitized. Zones of rubble breccia, and of superimposed crackle breccia. Less common stylolitic and mosaic breccia. Overall, does not look tectonic. May be a large solution pocket filled with mixed hydrothermal karst detritus. Very weak bedding indicated locally. May be fine sulphides disseminated in matrix. 82.80-84.15 BRECCIA SAMPLE Stylolitic, matrix and rubble breccia with rare pyrite fragments. Margin sample. 86.50-86.82 PYRITIC CRACKLE BRECCIA Highly crackle-veined, weakly dolomitized limestone with 3-cm thick patch of fine-grained pyrite replacement.	MLS	139940	82.80	84.15	0.01	2.30	0.03	0.07
				139941	86.50	86.82	0.01	1.50	0.02	0.13

\*\*\* END OF HOLE \*\*\* 91.44

HOLE NO: SSD-97-36

SECTION: 43620N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 1040/16W  
 LOCATION : LIARD MD, B.C.  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43620.74mN 24940.01mE 1241.33RL

Pre-collar depth: Final depth: 75.29  
 Purpose of hole: INFILL SILVER CREEK  
 EXTENSION  
 Hole status: ENDED IN CAVITY  
 Comments: LZ: 60.45-62.85M

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY-SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
45.72	47.00	-86.00
74.68	59.00	-87.00

## \*\*\* SUMMARY LOG \*\*\*

0.00	7.62	OVERBURDEN
7.62	18.00	1B SILTSTONE SANDSTONE
18.00	42.00	1BA LAMINATED SILTSTONE
42.00	60.45	1AA CARBONACEOUS INTERBEDDED SILTSTONE / ARGILLITE
60.45	62.85	LOWER ZONE BASE METAL MASSIVE SULPHIDE ALTERED MCDAME LIMESTONE
62.85	64.00	MCDAME LIMESTONE
64.00	66.75	ALTERED MCDAME LIMESTONE OXIDIZED
66.75	75.29	CAVE
75.29		END OF HOLE

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00 75.29 HQ
Drill contractor:	OLYMPIC DRILLING
Drill rig:	LONGYEAR "38"
Date started:	28/8/97
Date finished:	29/8/97
Logged by:	C. REES
Relogged by:	
Sampled by:	J. LETWIN

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
58.40	66.75	8.35

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/ml	Ag g/ml	%Pb	%Zn
0.00	7.62	OVERBURDEN	OB							
7.62	18.00	1B SILTSTONE SANDSTONE Flaky, friable rock due to near surface weatherings and mild oxidation. Mostly silty siltstone with minor medium laminae of paler grey sandstone.	1B							
18.00	42.00	1BA LAMINATED SILTSTONE Homogeneous unit. Dark bluish-grey, thin to medium laminated siltstone. Subordinate laminae of pyritic siltstone to fine sandstone. Carbonaceous. Moderately good slaty cleavage present throughout. Some planes are glassy smooth due to shearing, but otherwise not very deformed or faulted. ALTERED few pyritic quartz veinlets 5 to 10 mm thick, parallel or perpendicular to core axis. Core in good condition. Subinterval between 34.5 to 35.1 of paler grey siliceous rock (chert or silicified siltstone) which is quite disrupted and full of quartz crackle.	1BA							
42.00	60.45	1AA CARBONACEOUS INTERBEDDED SILTSTONE / ARGILLITE Dark grey to black, very carbonaceous silty siltstone to argillite. Poker chip habit. Cleavage is very planar and parallel to laminae, not crenulated, but somewhat spaced. Well and thinly laminated based on subtle colour variations, but grain size is uniformly fine. Calcareous only very locally. No 1AC. Rock is completely undeformed, even without crackle veining, except for 3-cm thick quartz veinlet microbreccia @ 55 m. Pieces of McDame limestone detritus appear in bottom 2 m, along with argillite intraclasts. Probably syn-sedimentary breccia because matrix argillite is bedded. Basal contact with McDame is sharp and depositional. 58.40-59.45 ARGILLITE SAMPLE Intraclast breccia in argillite matrix. 59.45-60.45 ARGILLITE SAMPLE	1AA	139942	58.40	59.45	0.11	3.97	0.01	0.60
60.45	62.85	LOWER ZONE BASE METAL MASSIVE SULPHIDE ALTERED MCDAME LIMESTONE 60.45-61.60 MINERALIZED SILICIFIED LIMESTONE Strongly silicified and possibly partly dolomitized limestone with pyrite, sphalerite and galena.	LZ	139944	60.45	61.60	0.48	93.70	1.84	2.39

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/ml	Ag g/ml	%Pb	%Zn
		Limestone is grey with bluish-white mottling. Cut by diffuse quartz veinlets and general disseminated silica. Sulphides are generally concentrated in narrow seams in quartz veinlets or in drusy quartz-lined cavities, which also have coarse pyrite. Fine sulphides also disseminated in host rock. Some crackle breccia near 1AA contact, with quartz-pyrite matrix. 61.60-62.00 GALENA LIMESTONE Less altered, grey limestone. Amphipora recognizable. Minor calcite veinlets, and stylonitic brecciation. Main feature is two 1.5 cm-thick parallel veins of coarse galena and sphalerite, at 25 deg. To core axis. Sharp contacts with host rock, which has little other mineralization. 62.00-62.85 BASE METAL MASSIVE SULPHIDE ALTERED MCDAME LIMESTONE Part sphalerite- or pyrite-rich massive sulphide, part altered and brecciated MCDAME LIMESTONE Limestone is silicified and cut by 1 to 10-mm thick veinlets of pyrite and marcasite, which locally expand into several-cm thick zones of massive pyrite replacement. Also, zones of massive brown sphalerite replacement, with lesser galena. Small, drusy quartz-filled cavities. Pyrite and sphalerite post-date silicification.		139945	61.60	62.00	0.03	823.30	16.28	6.95
				139946	62.00	62.85	0.90	334.60	6.50	7.67
62.85	64.00	MCDAME LIMESTONE Grey, fine- to medium-grained limestone. Texture modified by mild alteration, though still calcareous. Cut by creamy white calcite veins and veinlets up to 2 or 3 cm thick. Resulting crackle to mosaic breccia. Some amphipora and stromatoporoids recognizable. Not mineralized.	MLS	139948	62.85	64.00	0.00	2.00	0.03	0.10
64.00	66.75	ALTERED MCDAME LIMESTONE OXIDIZED Unusual rock, originally apparently layered limestone sediment with some small rubble clasts, and some dark grey to black carbonaceous mud matrix. Partially silicified. This has been invaded by creamy white calcite, both along bedding and in cross-cutting veinlets. Rock is now variably oxidized, with rusty brown stain, especially on limonitic	AMLS	139949	64.00	66.75	0.01	4.10	0.03	0.50

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		fracture surfaces. Suggests that sulphides accompanied veining and alteration before oxidation.							
66.75	75.29	CAVE	CAVE						

\*\*\* END OF HOLE \*\*\* 75.29

HOLE NO: SSD-97-37 SECTION: 43609N GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC  
 HOLE TYPE : DIAMOND

\*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	137.16	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR 3000		
Date started:	29/8/97		
Date finished:	30/8/97		
Logged by:	L. LEWIS		
Relogged by:			
Sampled by:	J. LETWIN		

\*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43609.15mN 24782.85mE 1255.96RL

Pre-collar depth: Final depth: 137.16  
 Purpose of hole: INFILL SILVER CREEK EXTENSION  
 Hole status: DRILLED TO DEPTH  
 Comments: LZ: 90.7 - 99.5M, 108.3 - 111.8M

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

\*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
39.62	356.00	-87.00
85.34	18.00	-86.00
131.06	14.00	-86.00

\*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
89.70	118.55	28.85

\*\*\* SUMMARY LOG \*\*\*

0.00 8.50 OVERBURDEN  
 8.50 17.70 1B CONGLOMERATE / SANDSTONE  
 17.70 39.05 1B SANDSTONE / SILTSTONE  
 39.05 61.90 1B SANDSTONE  
 61.90 80.30 1B SANDSTONE / SILTSTONE  
 80.30 81.69 FAULT ZONE 1B SANDSTONE  
 81.69 90.70 1AA CARBONACEOUS ARGILLITE  
 90.70 99.50 LOWER ZONE MASSIVE SULPHIDE  
 99.50 108.30 MCDAME LIMESTONE BRECCIATED  
 108.30 111.80 LOWER ZONE BRECCIATED  
 111.80 113.40 1A/MLS MOSAIC BRECCIA  
 113.40 116.00 LOWER ZONE BRECCIATED  
 116.00 117.55 1A/MLS RUBBLE BRECCIA  
 117.55 121.60 MCDAME LIMESTONE UNIT 2  
 121.60 137.16 MCDAME LIMESTONE UNIT 3

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

1997

SSD-97-37

HOLE NO: SSD-97-37

SECTION: 43609N

GRID: SILVER CK EX

137.16

END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
0.00	8.50	OVERBURDEN	OB							
8.50	17.70	1B CONGLOMERATE / SANDSTONE 60% pebble conglomerate beds. 0.3-2.0m thick which occasionally fine upward into coarse, massive to medium bedded sandstone (40%). The base of the conglomerate is generally in sharp contact with a thin bed of black mudstone, 5mm to 2cm thick. Pebbles vary from randomly oriented to elongated @ 75 to core axis. Weak iron oxide stain on fractures (10-20 degrees). Trace disseminated pyrite.	1B							
17.70	39.05	1B SANDSTONE / SILTSTONE Medium by, laminated to bedded, medium grained sandstone, interlaminated with 15% dark grey siltstone. 3mm to 10cm thick. Minor conglomerate beds. Core frequently broken along siltstone bedding planes @ 75 to core axis. Local quartz +/- iron carbonate stringers (tr-1%) parallel to bedding and cross-cutting @ 5-20 degrees to core axis. Up to 2% disseminated pyrite and quartz-pyrite nodules to 2cm.	1B							
39.05	61.90	1B SANDSTONE Medium grey, competent, massive pebble sandstone, beds to 4m thick. 10% conglomerate beds to 50cm thick. 5% black mudstone, predominantly @ the top of the fining upward sequences (eg. 45.1m and 54.8m). Good cross-laminations in a fine sandy mudstone bed @ 43.5m. Rare quartz - iron carbonate stringers, 2mm - 1cm thick, parallel to bedding @ 75 to core axis. Trace - 1% disseminated and nodules of pyrite. Below this interval, conglomerate beds are absent.	1B							
61.90	80.30	1B SANDSTONE / SILTSTONE Striped interval of interbedded, medium grey, medium grained sandstone (60%) and dark grey siltstone (40%). The sandstone varies from massive to laminated, beds 2mm to 30cm thick, occasionally wavy to cross-laminated. Poker chip core, especially in the siltstone layers, along bedding @ 80 degrees to core axis. Lacks any significant veining, <1% quartz stringers. Local fractured sections to 25cm thick. Trace - 1% disseminated pyrite and nodules.	1B							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
80.30	81.69	FAULT ZONE 1B SANDSTONE 35% recovery of 50% sandy gouge, weakly calcareous and 50% sandstone chips. 5% quartz chips, 2% disseminated pyrite. Broken upper and lower contacts.	FZ							
81.69	90.70	1AA CARBONACEOUS ARGILLITE Black, massive to thinly laminated carbonaceous argillite, moderately silicified. About 60% broken core and chips. 2% contorted hairline to 3cm wide quartz - calcite stringers, sub-parallel to laminations @ 75 to core axis and cross-cutting at 10 - 20 to core axis. Local, medium grey calcareous bands, mm to 2cm thick, increasing towards lower contact with limestone (90.2 - 90.7m could call 1AC, but so narrow that I lumped it with 1AA). Trace - 1% disseminated pyrite. Irregular, sharp lower contact with 8cm of limestone, below which the massive sulphide begins. Minor crackle breccia @ contact. 89.70-90.70 CARBONACEOUS ARGILLITE Calcareous carbonaceous argillite. Hanging wall sample to Lower Zone. 30% broken core and chips, down to 90.0m. Below is fairly competent, siliceous and moderately calcareous carbonaceous argillite, laminations @ 75 to core axis. Sample includes 8cm of limestone from 90.62 - 90.7m. Trace pyrite.	1AA	140034	89.70	90.70	0.01	2.90	0.02	0.09
90.70	99.50	LOWER ZONE MASSIVE SULPHIDE The upper portion from 90.7 - 95.4m is solid massive sulphides containing approximately 55% pyrite + marcasite, 25% sphalerite and 15% galena. Galena increases with depth and forms bands to 25cm wide; very coarse grained. From 95.4 - 99.5m, 45% limestone bands to 1.3m wide, are interleaved with massive sulphide bands to 1m wide. 90.70-91.60 BASE METAL MASSIVE SULPHIDE Broken upper contact with a narrow lense of limestone. Massive to slightly vuggy porous sulphides containing 35% red-brown sphalerite, 30% pyrite, 30% bladed marcasite and 2% galena clots. 91.60-92.60 BASE METAL MASSIVE SULPHIDE Very similar to previous sample, sphalerite - rich. 15% of the interval is incompetent, crumbly pyrite.	LZ	140035 140036 140037	90.70 91.60 92.60 92.60 93.50	91.60 92.60 93.50	1.81 2.53 2.10	217.10 155.20 853.40	3.03 1.75 8.72	13.55 17.02 11.64



From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
	92.60-93.60	92.60-93.60 BASE METAL MASSIVE SULPHIDE Start to get an increase in coarse clots of galena Below 93.3m the core is broken / crumbly Occasionally vague compositional banding @ 70 degrees to core axis		140038	93.60	94.50	4.53	169.00	3.30	15.28
	93.60-94.50	93.60-94.50 PYRITE MASSIVE SULPHIDE Massive sulphide again with 40% marcasite blades and rosettes to 3cm. 7% galena is interstitial to the blades of marcasite. 5% blebs of opaque white quartz 3mm - 1cm *Note: Sample 140039 is a duplicate of this interval.		140040	94.50	95.40	1.45	1615.90	41.76	8.84
	94.50-95.40	94.50-95.40 BASE METAL MASSIVE SULPHIDE Galena - rich interval. coarse galena bands up to 15cm thick. Galena stringers cross-cut the massive, fine grained pyrite, indicating galena is a later mineralizing stage. 5% remnant limestone, partially replaced by pyrite.		140041	95.40	96.75	0.01	2.80	0.08	0.09
	95.40-96.75	95.40-96.75 PACKSTONE CRACKLE BRECCIA Weak crackle breccia packstone and amphiopora floatstone with 7% calcite filling. 2% fine grained pyrite as a clot @ 95.8m. Broken upper contact. Sharp lower contact @ 85 to core axis.		140042	96.75	97.10	2.14	1341.00	31.28	3.72
	96.75-97.10	96.75-97.10 BASE METAL MASSIVE SULPHIDE Narrow, massive galena - pyrite vein, fine grained pyrite concentrated in the upper half which has calcite clots rimmed by red-brown sphalerite. Coarse galena dominates the lower half, crudely banded, with minor pyrite + sphalerite. Irregular lower contact with limestone.		140043	97.10	97.30	0.12	103.20	2.24	1.20
	97.10-97.30	97.10-97.30 PACKSTONE Narrow segment of unaltered-looking, weakly stylolitic packstone. Sample will likely run as the sulphides from the massive sulphides above seep down as stringers into the limestone. Lower contact @ about 40 degrees to core axis		140044	97.30	98.25	1.87	537.10	12.47	16.21
	97.30-98.25	97.30-98.25 BASE METAL MASSIVE SULPHIDE Mostly broken and crumbly, very sphalerite - rich								

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		interval. Unbroken core shows compositional banding of pyrite, sphalerite (both red-brown and honey-colored) quartz and galena @ 75-80 to core axis. Competent pieces have increase silica. 45% pyrite, 5% marcasite, 30% sphalerite, and 10% galena. Broken lower contact.		140045	98.25	98.90	0.82	50.20	1.38	2.60
	98.25-98.90	98.25-98.90 PACKSTONE STYLOLITIC BRECCIA Mottled, stylolitic limestone with 10% fine grained pyrite along stylolites and spreading out into the limestone. 2% galena and sphalerite stringers. Irregular lower contact.		140046	98.90	99.50	1.69	338.00	9.17	14.23
	98.90-99.50	98.90-99.50 PYRITE MASSIVE SULPHIDE 30% rubbly core. Sphalerite-rich zone with 20% sphalerite, 50% pyrite, 10% marcasite, 6% galena and 10% clots and irregular bands of quartz. Lower contact @ 35 to core axis. *Note: Sample 140047 is a blank following this interval.								
99.50	108.30	MCDAME LIMESTONE BRECCIATED Variable limestone interval, brecciated, partly recrystallized and patches of dolomitization. From 104.2 - 108.3m is mosaic breccia with approximately 40% very coarse calcite vein matrix. 1 - 3% pyrite, mainly as blebs along stylolites and along calcite fractures and vein margins.	MLS?	140048	99.50	100.50	0.01	4.40	0.11	0.16
	99.50-100.50	99.50-100.50 FLOATSTONE CRACKLE BRECCIA Footwall sample. Partly mottled massive stromatoporoid floatstone, vuggy along 5% calcite fractures. 1% pyrite along stylolites and fractures.		140049	100.50	102.00	0.00	2.40	0.34	0.02
	100.50-102.00	100.50-102.00 FLOATSTONE Similar to previous sample. Weakly bleached. 3% pale orange iron carbonate.		140050	102.00	103.50	0.01	0.10	0.01	0.01
	102.00-103.50	102.00-103.50 DOLOMITIZED LIMESTONE CRACKLE BRECCIA Darker grey, partly dolomitized limestone. Crackle breccia with 8% calcite and 2% iron-carbonate filling. 2% pyrite.		140051	103.50	104.20	0.01	9.20	0.20	0.11
	103.50-104.20	103.50-104.20 FLOATSTONE Weakly bleached, partially recrystallized massive stromatoporoid floatstone. 4% calcite 1%								

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		iron-carbonate, 1% pyrite clots 104.20-105.70 DOLOMITIZED LIMESTONE MOSAIC BRECCIA Start of the mosaic breccia which eventually turns into Lower Zone mosaic breccia. 40% sub-angular, partially dolomitized limestone clasts floating in 60% very coarse calcite cement. Calcite crystals to 2cm. 5% iron-carbonate, 1% pyrite.		140052	104.20	105.70	0.00	0.10	0.02	0.06
		105.70-107.30 DOLOMITIZED LIMESTONE MOSAIC BRECCIA Similar to previous sample. 55% calcite, 2% pyrite.		140053	105.70	107.30	0.01	3.50	0.05	0.12
		107.30-108.30 DOLOMITIZED LIMESTONE MOSAIC BRECCIA Hanging wall sample. Similar to above but almost clast-supported with only 25% calcite cement. Sharp lower contact @ 80 to core axis with Lower Zone.		140054	107.30	108.30	0.01	3.40	0.05	0.25
108.30	111.80	LOWER ZONE BRECCIATED Mixed interval of large (up to 30cm), sub-angular sulphide and limestone clasts with rare argillite clasts floating in a very coarse calcite cement. Overall: 60% pyrite, 10% sphalerite, 5% galena, 15% calcite, and 10% limestone. Massive sulphides from 111.15 - 111.8m. **Excellent example of post-mineralization brecciation.	LZ	140055	108.30	109.60	1.13	217.00	4.65	8.19
		108.30-109.60 PYRITE MASSIVE SULPHIDE MOSAIC BRECCIA Nice-looking, chaotic mosaic breccia containing 62% massive sulphide clasts, and 18% limestone clasts in a coarse calcite cement. Of the sulphides, 50% is pyrite, 8% sphalerite and 4% galena.		140056	109.60	111.15	0.73	939.30	19.33	19.39
		109.60-111.15 PYRITE MASSIVE SULPHIDE MOSAIC BRECCIA Very similar to the previous sample. 65% massive sulphide clasts and 10% limestone clasts in 25% calcite cement.								
		111.15-111.80 BASE METAL MASSIVE SULPHIDE 65cm of sphalerite and galena - rich massive sulphides, containing 25% red-brown sphalerite, 10% coarse galena and 58% pyrite. Broken lower contact with		140057	111.15	111.80	0.54	331.20	7.88	12.62

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		breccia zone below.								
111.80	113.40	1A/MLS MOSAIC BRECCIA 111.80-113.40 CARBONACEOUS ARGILLITE / LIMESTONE MOSAIC BRECCIA Solution collapse breccia containing 30% partly dolomitized limestone, 25% angular black argillite clasts in calcite (30%) and silica (5%) cement. 1% pyrite blebs.	1A/MLS	140058	111.80	113.40	0.02	5.80	0.09	0.70
113.40	116.00	LOWER ZONE BRECCIATED 113.40-114.60 PYRITE MASSIVE SULPHIDE MOSAIC BRECCIA 40% massive sulphide clasts (25% pyrite, 15% sphalerite, 5% galena), and 10% limestone and 5% argillite clasts in a mixed calcite (35%) and quartz (10%) matrix. 114.60-116.00 PYRITE MASSIVE SULPHIDE RUBBLE BRECCIA Solution collapse breccia with much more tightly-packed clasts than the overlying breccia. Still significant sulphides with 15% pyrite, 5% sphalerite and 1% galena, 40% limestone and 25% argillite clasts.	LZ	140059	113.40	114.60	1.89	328.20	7.40	9.97
				140060	114.60	116.00	0.38	134.90	3.25	4.00
116.00	117.55	1A/MLS RUBBLE BRECCIA Base of the solution collapse cavern. Sulphide clasts and calcite cement fill decreases with depth. Matrix is a fine calcareous, carbonaceous sediment. Below 116.2m, the clasts are predominantly limestone. 116.00-117.55 CARBONACEOUS ARGILLITE / LIMESTONE RUBBLE BRECCIA Decrease sulphides and a much finer breccia with mainly limestone (50%) and argillite (40%) clasts in a clastic, fine calcareous, carbonaceous sediment matrix. Sharp lower contact @ 70 degrees with McDame limestone. This looks to be the base of the solution collapse cavern.	1A/MLS	140061	116.00	117.55	0.06	10.50	0.22	0.27

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Al g/m <sup>3</sup>	Ag g/m <sup>3</sup>	%Pb	%Zn
117.55	121.90	MCDAME LIMESTONE UNIT 2 Only locally brecciated massive stromatoporoid unit with excellent preserved fossils - the main fossil is massive stromatoporoid with intercalated amphipora. <i>Thamnopora</i> and <i>Tryplasma</i> throughout and local <i>Euryamnipora</i> @ 120.6m 117.55-118.55 RUDSTONE As described above. 5% calcite crackle breccia / veining with trypite. Very sharp upper contact with scud on collapse cavern above @ 70 degrees	MLS2	140062	117.55	118.55	0.00	0.10	0.01	0.01
121.50	137.16	MCDAME LIMESTONE UNIT 3 Dense packstone and fine amnipora mark the upper 3 meters of Unit 3 - 126.4 - 128.75m Mixed massive stromatoporoid and amnipora facies with <i>Thamnopora</i> throughout - 132.1 - 137.16m Mosaic breccia / calcite vein. 50% coarse calcite with very minor iron carbonate. Lacks visible sulonides. Veining trends between 25 - 45 degrees to core axis.	MLS3							

\*\*\* END OF HOLE \*\*\* 137.16

HOLE NO: SSD-97-38 SECTION: 43680 GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 1040/16W  
 LOCATION : LIARD MD, B.C.  
 HOLE TYPE : DIAMOND

\*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	33.53	NQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	LONGYEAR "38"		
Date started:	29/8/97		
Date finished:	30/8/97		
Logged by:	C. REES		
Relogged by:			
Sampled by:	NO SAMPLES TAKEN		

\*\*\* COLLAR COORDINATES AND RL \*\*\*  
 SURVEYED 43679.96mN 24979.48mE 1223.90RL

Pre-collar depth: Final depth: 33.53  
 Purpose of hole: INFILL SILVER CREEK EXTENSION  
 Hole status: ABANDONED WHEN RODS BROKE.  
 Comments: UNCONFORMITY @ 25.2, NO LZ INTERSECTED.

Material left in hole: 110' NQ RODS, 1 NQ CORE BARREL

Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

\*\*\* SURVEY DATA \*\*\*

Survey Method: NOT SURVEYED

Depth	Azimuth	Inclination
0.00	0.00	-90.00

\*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width

\*\*\* SUMMARY LOG \*\*\*

0.00	18.29	OVERBURDEN
18.29	21.34	1AA SILTSTONE/ARGILLITE
21.34	25.20	ALTERED MCDAME LIMESTONE RUBBLE
25.20	28.30	MCDAME LIMESTONE DOLOMITIZED
28.30	33.53	MCDAME LIMESTONE
33.53		END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
0.00	18.29	OVERBURDEN	OB						
18.29	21.34	1AA SILTSTONE/ARGILLITE Very broken core and poor recovery. Rubble and small chips	1AA						
21.34	25.20	ALTERED MCDAME LIMESTONE RUBBLE Very broken core. Limestone is variably altered. Mottled grey, white, creamy buff-brown, general recrystallization or oxidation or carbonatization. Some calcite veining. Minor thin limonitic stringers in fractures. Weak dolomitization locally	AMLS						
25.20	28.30	MCDAME LIMESTONE DOLOMITIZED Mostly very broken core. Medium grained, mid-grey. Numerous calcite veinlets and crackle, and minor crackle breccia. Some very thin limonitic stringers with calcite crackle, and and on fractures. No significant mineralization before oxidation.	MLS						
28.30	33.53	MCDAME LIMESTONE Half solid core, half very broken. Relatively unaltered, mid-grey limestone. Vague amphipora. Minor pyrite-bearing calcite veinlets. Some oxidation - orange-brown rubble and fracture surfaces. Local bleaching/recrystallization but no other sign of mineralization.	MLS						

\*\*\* END OF HOLE \*\*\* 33 53

HOLE NO: SSD-97-39

SECTION: 43609N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 1040/16W  
 LOCATION : LIARD MD, B.C.  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43609.15mN 24782.85mE 1255.96RL

Pre-collar depth: Final depth: 137.16

Purpose of hole: INFILL SILVER CREEK  
 EXTENSION

Hole status: DRILLED TO DEPTH

Comments: LZ@95.4-108.4M

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	270.00	-77.00
39.62	277.00	-78.00
85.34	280.00	-78.00
131.06	278.00	-79.00

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	137.16	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR 3000		
Date started:	30/8/97		
Date finished:	31/8/97		
Logged by:	C. REES		
Relogged by:			
Sampled by:	J. LETWIN		

Material left in hole:

Base of complete oxidation

Top of fresh rock:

Water first encountered:

Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
92.00	116.20	24.20

## \*\*\* SUMMARY LOG \*\*\*

0.00 6.71 OVERBURDEN  
 6.71 35.60 1B SANDSTONE  
 35.60 36.80 FAULT ZONE RUBBLE  
 GOUGE  
 36.80 65.35 1B SANDSTONE  
 65.35 75.00 FAULT ZONE 1B  
 SANDSTONE  
 75.00 85.50 1B INTERLAMINATED  
 SANDSTONE / SILTSTONE  
 85.50 88.50 FAULT ZONE SILTSTONE  
 SHALE  
 88.50 93.00 1AA LAMINATED  
 ARGILLITE/SILTSTONE  
 93.00 95.40 1AA LOWER ZONE PYRITIC  
 95.40 108.40 LOWER ZONE MASSIVE  
 SULPHIDE  
 108.40 114.15 MCDAME LIMESTONE  
 RUBBLE BRECCIA  
 114.15 132.30 MCDAME LIMESTONE UNIT  
 2  
 132.30 137.16 MCDAME LIMESTONE UNIT  
 3  
 137.16 END OF HOLE

Checked and signed: \_\_\_\_\_

Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
0.00	5.71	OVERBURDEN	OB							
5.71	35.60	1B SANDSTONE Grey medium to thickly bedded sandstone locally pebbly at base of beds. Locally well inter laminated with minor siltstone. Not very pyritic.	1B							
35.60	36.80	FAULT ZONE RUBBLE GOUGE Broken core and muddy gouge with chips of 1B. Dark grey slickensided shear fractures in adjacent sandstone at lower contact are 21 deg. To core axis.	FZ							
36.80	65.35	1B SANDSTONE Thinly to thickly bedded sandstone, with rare granules and small pebbles. Thickest beds 0.5 to 1 m. Also minor intervals of interlaminated fine sandstone, siltstone and slaty siltstone to argillite. Locally sandstone has 1% disseminated pyrite. Nice wavy ripple laminations in interlaminated sandstone @ 65 m.	1B							
65.35	75.00	FAULT ZONE 1B SANDSTONE Core appears to be grazing a steep fault zone. Some solid core of 1B sandstone and minor siltstone, and rubble of same. But also sheared sandstone and rubbly gouge. One piece has gouge/sandstone contact running down core axis.	FZ							
75.00	85.50	1B INTERLAMINATED SANDSTONE / SILTSTONE Mostly well and medium to thinly interlaminated pale grey fine sandstone and darker grey siltstone and slaty siltstone. Cross-laminations common in sandstone. Also some sections of thin-bedded coarser sandstone, which are quite pyritic (3%). Core generally broken and quite sheared locally.	1B							
85.50	88.50	FAULT ZONE SILTSTONE SHALE Likely fault zone in fine sandstone to siltstone, reaching into 1AA. Finely sheared and broken down to rubbly or shaly gouge. Solid rock is pyritic and partly silicified.	FZ							
88.50	93.00	1AA LAMINATED ARGILLITE/SILTSTONE Well and thinly laminated siltstone to argillite, banded from mid- to dark grey. Very high core angles. Very locally weakly calcareous but no 1AC. 1 to 2% disseminated fine pyrite. Slightly slaty but generally competent. Quartz crackle and veinlets increasing towards base, some with	1AA							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		pyrite. 92.00-93.00 SAMPLE Sample marginal to mineralization.		139950	92.00	93.00	0.09	12.00	0.18	0.07
93.00	95.40	1AA LOWER ZONE PYRITIC Transitional to Lower Zone mineralization below, which has invaded Earn argillite here, through brittle fractures. Dominantly black siliceous and pyritic (syngenetic) siltstone to argillite. Progressively silicified and veined, grading from strong fine crackle to crackle breccia to mosaic breccia. Vein material/matrix may be quartz, pyrite, sphalerite or galena, but usually combination, with quartz and pyrite dominant. Unit ends where massive sulphide predominates. 93.00-94.50 SILICIFIED PYRITIC Silicified argillite with veinlets of quartz, pyrite, sphalerite and galena. 94.50-95.40 CRACKLE BRECCIA MOSAIC BRECCIA More strongly veined and brecciated, siliceous argillite. Crackle to mosaic breccia with sulphide matrix.	1AA	139951	93.00	94.50	0.32	79.90	1.33	1.95
				139952	94.50	95.40	0.59	189.30	3.58	3.83
95.40	108.40	LOWER ZONE MASSIVE SULPHIDE 95.40-95.90 MASSIVE SULPHIDE MATRIX BRECCIA Beginning of major massive sulphide, but still with large angular fragments of 1AA floating in sulphide, decreasing in size and frequency with depth. Pyrite matrix is dominantly fine to coarse, much of it bladed (marcasite?). Remainder is bronze-brown, fine-grained sphalerite and minor galena. 95.90-97.50 MASSIVE SULPHIDE SPHALERITE Solid, quite homogeneous massive sulphide comprising pyrite intergrown with grey-brown sphalerite. Both generally fine grained, with some coarse vuggy pyrite. Considerable marcasite. Galena generally concentrated with sphalerite. 97.50-99.00 MASSIVE SULPHIDE N.B. Thickness may not be as high as indicated. Similar to previous interval, patchily intergrown pyrite and sphalerite with local concentrations of galena. Not brecciated. No remnant host rock. 99.00-100.85 MASSIVE SULPHIDE	LZ	139953	95.40	95.90	0.78	435.90	9.75	10.73
				139954	95.90	97.50	2.57	438.20	9.06	16.03
				139955	97.50	99.00	2.59	568.20	12.62	12.32
				139958	99.00	100.85	2.40	432.30	10.82	12.45

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/l	Ag gm/t	%Pb	%Zn
		No significant change in composition or texture from previous. Largely broken core.		139959	100.85	102.05	0.53	922.10	22.62	19.87
		100.85-102.05 MASSIVE SULPHIDE GALENA Similar solid massive sulphide to above but more galena, which is coarse-grained and concentrated in streaky bands at fairly high angle to core axis, as if introduced along pre-existing layering. Very minor interstitial quartz and calcite. Some shearing, shown by slickensides in sulphides, usually down dip.		139960	102.05	103.15	2.26	438.80	9.99	19.35
		102.05-103.15 MASSIVE SULPHIDE Typical fine-grained, olive-brown massive sulphide possibly fine intergrown pyrite and sphalerite. Strong sphalerite but less galena than samples above and below.		139962	103.15	104.25	1.40	693.00	16.30	23.86
		103.15-104.25 BASE METAL MASSIVE SULPHIDE Massive sulphide strong in galena and especially sphalerite. Latter is fine grained brown and in streaky to spotty alternation with fine-grained pyrite. Bands about 70 deg. to core axis. Galena is coarse-grained and in discrete bands about 5 mm thick or in patches 1 cm thick. Negligible interstitial quartz.		139963	104.25	105.35	0.97	437.70	10.84	20.75
		104.25-105.35 MASSIVE SULPHIDE Similar to previous but less galena. Very sphalerite-rich in upper 25 cm.		139964	105.35	106.65	0.25	1168.10	31.35	18.70
		105.35-106.65 BASE METAL MASSIVE SULPHIDE MASSIVE SULPHIDE Strongest galena in LOWER ZONE. Overall streaky to blebby texture. Bands or zones 5 to 10 mm thick rich in coarse galena, in background of fine-grained pyrite. Similar bands of dark reddish sphalerite. Zonation is fine pyrite - sphalerite - galena. Also cavities in fine pyrite, lined with sphalerite and filled with coarse pyrite, galena and quartz (some drusy). N.B. Recovered length about 1.15 m rather than 1.3 m.		139966	106.65	108.40	0.49	647.10	16.76	21.88
		106.65-108.40 BASE METAL MASSIVE SULPHIDE Broken, rubbly massive sulphide, typical of sphalerite-rich zones. Generally fine-grained pyrite and								

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		coarse-grained sphalerite and galena. Minor rubble breccia at base with fragments of 1AA in sulphide matrix. Bottom contact with MCDAME LIMESTONE is a quite abrupt replacement front.								
108.40	114.15	MCDAME LIMESTONE RUBBLE BRECCIA 108.40-109.40 MINERALIZED RUBBLE BRECCIA Rubble breccia composed of mostly limestone clasts and matrix, poorly sorted, and about 5% sulphides. Sulphides occur as mm- to cm-scale fragments and finer matrix, and as delicate replacement stringers in clasts and matrix.	MLS	139967	108.40	109.40	0.03	10.70	0.26	0.59
		109.40-111.00 RUBBLE BRECCIA CRACKLE BRECCIA Intensely brecciated limestone. Mainly rubble breccia but fragments are also crackle-brecciated with quartz and calcite. Some limestone is dolomitized - darker grey, medium grained. Sulphides occur as mm-thick stringers in matrix or in slightly larger replacement patches. Brecciation generally syn-mineralization.		139968	109.40	111.00	0.01	67.10	0.77	1.21
		111.00-112.50 MINERALIZED RUBBLE BRECCIA Similar interval of intense rubble and crackle breccia but with more dolomitized limestone fragments, and more sulphides. Syn-mineralization breccia. Sulphides are rounded fragments 3 or 4 mm to 3 cm across (coarse sphalerite-galena clasts), but more commonly as stringers and interstitial fill in matrix, along with the predominant quartz and calcite cement and limestone matrix. At least two 10-cm thick veins of base metal-rich massive sulphide may be present, from broken core pieces.		139969	111.00	112.50	0.06	231.60	5.07	4.90
		112.50-114.15 RUBBLE BRECCIA MOSAIC BRECCIA Mixed solid limestone rubble to matrix breccia as described above (including 1AA fragments here) and mosaic breccia with coarse white calcite. Looks like breccias are filling fissures in solid limestone		139970	112.50	114.15	0.02	39.60	0.96	0.96



From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Al g/ml	Ag g/ml	%Pb	%Zn
114 15	132 30	MCDAME LIMESTONE UNIT 2 114 15-115 15 MINERALIZED LIMESTONE Limestone marginal to mineralization, with only one 4-cm thick band of rubble breccia containing pyrite, galena and sphalerite fragments 115 15-116 20 SAMPLE Limestone beyond all visible mineralization.	MLS2							
				139971	114 15	115 15	0 14	10 20	0 22	0 35
				139972	115 15	116 20	0 00	0 80	0 01	0 01
132 30	137 16	MCDAME LIMESTONE UNIT 3 Top placed at end of stromatoporic floatstone and onset of dense packstone with fine amphipora. Local stromatoporic floatstone/rudstone and amphipora floatstone. Not brecciated.	MLS3							

\*\*\* END OF HOLE \*\*\* 137 16

HOLE NO: SSD-97-40

SECTION: 43598N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 1040/16W  
 LOCATION : LIARD MD, B.C.  
 HOLE TYPE : DIAMOND

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	114.91	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	LONGYEAR "38"		
Date started:	30/8/97		
Date finished:	1/9/97		
Logged by:	C. REES		
Relogged by:			
Sampled by:	J. LETWIN		

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43598.07mN 25019.52mE 1249.79RL

Pre-collar depth: Final depth: 114.91  
 Purpose of hole: INFILL SILVER CREEK  
 EXTENSION  
 Hole status: DRILLED TO DEPTH  
 Comments: LZ OX @53.95-63.10M, LZ @91.  
 4-96.85M

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	350.00	-75.00
45.72	353.00	-74.00
113.39	349.00	-74.00

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
48.30	68.00	19.70
87.70	97.85	10.15
99.85	102.50	2.65

## \*\*\* SUMMARY LOG \*\*\*

0.00	13.90	OVERBURDEN
13.90	26.50	1AA SLATY INTERBEDDED SILTSTONE / ARGILLITE
26.50	32.00	NO RECOVERY
32.00	49.30	1AA LAMINATED INTERBEDDED SILTSTONE / ARGILLITE
49.30	51.45	1AA BRECCIATED MINERALIZED
51.45	53.95	A1A SILICIFIED PYRITIC
53.95	63.10	LOWER ZONE OXIDIZED GOSSAN BRECCIA
63.10	65.50	MCDAME LIMESTONE UNIT 1 PYRITIC OXIDIZED
65.50	67.00	ALTERED MCDAME LIMESTONE DOLOMITIZED OXIDIZED
67.00	70.55	MCDAME LIMESTONE UNIT 1 PYRITIC OXIDIZED
70.55	84.45	MCDAME LIMESTONE UNIT 2 RECRYSTALLIZED
84.45	91.40	ALTERED MCDAME LIMESTONE RECRYSTALLIZED PYRITIC

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

HOLE NO: SSD-97-40

SECTION: 43598N

GRID: SILVER CK EX

91.40	96.85	LOWER ZONE ALTERED MCDAME LIMESTONE BASE METAL MASSIVE SULPHIDE
96.85	102.50	ALTERED MCDAME LIMESTONE RECRYSTALLIZED
102.50	104.18	MCDAME LIMESTONE UNIT 3
104.18	106.05	ALTERED MCDAME LIMESTONE RECRYSTALLIZED
106.05	114.91	MCDAME LIMESTONE UNIT 3 ALTERED CRACKLE BRECCIA
114.91		END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
0.00	13.90	OVERBURDEN	OB							
13.90	26.50	*AA SLATY INTERBEDDED SILTSTONE / ARGILLITE Generally poor to moderate recovery, core very broken. No definite sandstone except in infrequent thin laminae within dominant dark grey to black siltstone to argillite. Moderate but non-penetrative slaty cleavage throughout, but fissile due to weatherings.	*AA							
26.50	32.00	NO RECOVERY Actually about 0.7 m of very broken, small chips and rubble, some slightly ground. May be a fault out no actual gouge.	NR							
32.00	49.30	*AA LAMINATED INTERBEDDED SILTSTONE / ARGILLITE Mostly very broken core and rubble. May include at least one fault, e.g. @ 41.5 m. Grey to black thinly laminated siltstone to argillite with moderate non-penetrative slaty cleavage and locally good, very fine S2 crenulation lineation. Solid pieces - hockey puck/poker chip. Very rare fine sandstone. Moderate core angles. Quite carbonaceous. Some shiny cleavage/slip surfaces. S2 dips roughly 55 deg. 48.30-49.30 SAMPLE Dark grey siltstone-argillite, with a few quartz-pyrite veinlets.	*AA	140256	48.30	49.30	0.03	7.30	0.09	0.20
49.30	51.45	*AA BRECCIATED MINERALIZED Dark grey, locally weakly calcareous siltstone/argillite. Local thin laminae of paler grey fine sandstone. Weakly to strongly crackle-veined with quartz and lesser calcite, locally becoming crackle to mosaic breccia over 5 to 20-cm thick zones. Hydrothermal fracturing and veining. These have some drusy-quartz lined open cavities 1 to 5 cm across, containing minor pyrite, galena and boulangerite needles. Also dull greenish-yellow mineral - gypsum? siderite? pyrite 1%, galena tr.	*AA	140257	49.30	51.45	0.05	55.10	0.57	0.40
51.45	53.95	A1A SILICIFIED PYRITIC Similar to previous, but much more brecciated, and argillite fragments are moderately to completely silicified to a hard speckled mid-grey, increasing downwards. Matrix still very quartz with numerous mm- to cm-scale open drusy cavities, many of which are also lined with medium to coarse	A1A	140258	51.45	53.95	0.12	50.50	0.41	0.54

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		crystalline pyrite. Possibly other, fine, grey sulphides. Larger patch of pyrite (4 cm thick) @ 52.05 m.								
53.95	63.10	LOWER ZONE OXIDIZED GOSSAN BRECCIA Possibly oxidized Lower Zone, given position. Parent rock probably same as previous, but here more sulphides, now almost completely oxidized to orange-brown gossan. Rubble to muddy sand, with remnants of grey siliceous rock or argillite fragments. About 60% recovery.	LZOX	140259	53.95	63.10	0.32	103.80	1.14	0.46
63.10	65.50	MCDAME LIMESTONE UNIT 1 PYRITIC OXIDIZED Grey, fine-grained limestone, very weakly altered. Minor calcite crackle veinlets, and pyritic seams, veinlets, stylolites and fractures, now all oxidized to orange-brown limonite. Moderate recovery.	MLS1	140260	63.10	65.50	0.01	1.20	0.03	0.66
65.50	67.00	ALTERED MCDAME LIMESTONE DOLOMITIZED OXIDIZED Similar rock, but more altered. Darker grey, medium crystalline dolomitized limestone, stained brown. Moderate to strong dolomite crackle, with heavier fracture-controlled limonite (after pyrite and manganese) than overlying MCDAME LIMESTONE UNIT 1. Core quite broken, and decomposed to rusty rubble in places.	AMLS	140261	65.50	67.00	0.01	7.10	0.08	3.70
67.00	70.55	MCDAME LIMESTONE UNIT 1 PYRITIC OXIDIZED Mostly grey fine-grained limestone with stromatoporoids and amphipora barely recognizable. No brecciation, but minor calcite crackle. Associated pyritic crackle and 1 mm thick veinlets, most of which are oxidized to limonite. Also rusty fracture surfaces. Lowest 40 cm is not oxidized - calcite + pyrite veinlets, and patches of very fine grained replacement pyrite. 67.00-68.00 SAMPLE	MLS1	140262	67.00	68.00	0.00	0.40	0.00	0.87
70.55	84.45	MCDAME LIMESTONE UNIT 2 RECRYSTALLIZED 70.55-71.95 FLOATSTONE RUDSTONE Basically unaltered amphipora- and stromatopora-rich floatstone to rudstone, with a few limonitic fractures 71.95-84.45 RECRYSTALLIZED LIMESTONE Predominant lithology of major unit. Fossiliferous floatstone to rudstone still obvious, but progressively	MLS2							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		overprinted by a moderate to strong recrystallization - sparry calcite overgrowths. ALTERED few pyritic/limonitic fractures and stylolites. No dolomitization or brecciation - 10 cm of limonitic rubble @ 75-15 m - possibly after pyrite vein								
84.45	91.40	ALTERED MCDAME LIMESTONE RECRYSTALLIZED PYRITIC Recrystallization above has increased to a remarkable degree. Mid-grey to white, completely recrystallized, marble-like limestone with unit 2 fossiliferous structure recognizable in uppermost 2 m. Mixture of very coarse sparite overgrowths (up to several cm across) and a fine to medium grained sucrosic recrystallization. Downwards, increasing fine to very coarse euhedral pyrite, mainly fracture- or vein-controlled, but locally in clots or disseminated in marbles. Interpretation intense carbonate diffusion and replacement, perhaps marginal to hydrothermal dissolution zone	AMLS							
		87.70-89.00 RECRYSTALLIZED LIMESTONE PYRITIC Mainly fracture-controlled, medium to coarse-grained pyrite, and rubble breccia with pyritic matrix @ 88.0 m.		140263	87.70	89.00	0.01	1.90	0.01	0.50
		89.00-90.40 RECRYSTALLIZED LIMESTONE PYRITIC Medium to coarse pyrite in 1 to 2 cm thick veins and fractures, with white recrystallized limestone. Minor coarse disseminated pyrite.		140264	89.00	90.40	0.02	1.90	0.03	0.01
		90.40-91.40 RECRYSTALLIZED LIMESTONE As above, with less pyrite.		140265	90.40	91.40	0.03	3.30	0.04	0.01
91.40	96.85	LOWER ZONE ALTERED MCDAME LIMESTONE BASE METAL MASSIVE SULPHIDE General: Not true or typical LOWER ZONE. Several vein-like zones of massive or semi-massive sulphide, 2 to 15 cm thick, dispersed between cm- to dm-scale, white recrystallized sparry limestone or marble. Really a zone of carbonate replacement with local clots of sulphides. Only one short zone isolated for assay; the rest are lumped with intervening carbonate.								

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		91.40-92.30 RECRYSTALLIZED LIMESTONE MINERALIZED Grey to white recrystallized limestone with one 12-cm thick and two 2-cm thick bands of massive sulphide. Mainly pyrite, but possibly fine sphalerite too. Dark grey to bluish-black sulphide may be fine galena (assays suggest not much sphalerite, galena).	LZ	140266	91.40	92.30	0.06	30.90	0.89	0.10
		92.30-93.65 RECRYSTALLIZED LIMESTONE MASSIVE SULPHIDE Two 12-cm thick bands of medium- to coarse-grained pyritic massive sulphide, and numerous smaller stringers and clots of sulphide within the predominant recrystallized limestone. Local spots of galena and possibly sphalerite. Sulphides appear to be relatively late, space-filling.		140267	92.30	93.65	0.02	20.00	0.63	0.01
		93.65-94.60 RECRYSTALLIZED LIMESTONE MINERALIZED White recrystallized carbonate with one 25-cm thick zone of strong but not massive sulphides. Medium- to coarse-grained pyrite and lesser galena and possibly sphalerite, concentrated in vein-like masses with calcite gangue.		140268	93.65	94.60	0.01	17.20	1.17	0.01
		94.60-95.45 RECRYSTALLIZED LIMESTONE MINERALIZED As above, with one 8-cm wide zone of medium- to coarse-grained pyrite and galena.		140269	94.60	95.45	0.02	79.90	2.04	0.04
		95.45-96.07 PYRITIC RECRYSTALLIZED LIMESTONE Semi-continuous, irregular sulphide in recrystallized carbonate. Forms clots several cm across, or wormy vein-like partitions between ovoidal carbonate domains.		140270	95.45	96.07	0.04	500.10	10.68	1.66
		96.07-96.85 RECRYSTALLIZED LIMESTONE MINERALIZED Clots, bands and stringers of sulphide in white recrystallized carbonate. Unusual in that galena +/- sphalerite exceeds pyrite. May not all be galena.		140272	96.07	96.85	0.01	99.80	2.34	1.30

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/l	Ag gm/l	%Pb	%Zn
96.85	102.50	ALTERED MCDAME LIMESTONE RECRYSTALLIZED Still very pale grey to white, completely recrystallized limestone, but sparite gives way to fine- to medium-grained crystalline carbonate with depth. Faint limestone textures. Probably includes unit 2 - unit 3 transition. 96.85-97.85 SAMPLE Virtually unmineralized recrystallized carbonate. 99.85-100.85 SAMPLE Fine-grained, sucrosic recrystallized limestone, with one 3-mm thick veinlet of fine- to medium-grained pyrite 100.85-101.45 VEIN PYRITIC Zone of calcite veins within moderately recrystallized limestone (possibly unit 3), each bounded by 1 to 5-cm thick fine- to medium-grained pyrite replacing adjacent limestone. Vein-controlled replacement. No galena or sphalerite detected. 101.45-102.50 RECRYSTALLIZED LIMESTONE PYRITE Moderately recrystallized limestone (probably unit 3), with similar but smaller amount of vein-like pyrite replacement.	AMLS	140274	96.85	97.85	0.00	16.00	0.39	0.04
				140275	99.85	100.85	0.01	0.40	0.01	0.00
				140276	100.85	101.45	0.01	0.80	0.39	0.09
				140277	101.45	102.50	0.01	0.40	0.01	0.01
102.50	104.18	MCDAME LIMESTONE UNIT 3 Mid-grey packstone to amphipora floatstone. Solid, unbrecciated, not recrystallized.	MLS3							
104.18	106.05	ALTERED MCDAME LIMESTONE RECRYSTALLIZED Back into strongly recrystallized limestone, with very coarse sparite overgrowths, 1 to 2 cm across.	AMLS							
106.05	114.91	MCDAME LIMESTONE UNIT 3 ALTERED CRACKLE BRECCIA Probably unit 3 packstone to floatstone. Variably crackle-veined, altered (mauve-grey bleaching along crackle or fractures, or mottling), recrystallized (fine- to medium-grained, white to grey, sucrosic), and crackle-bracciated (mainly in bottom 1.5 m). No mineralization, but hydrothermal fracturing and alteration/recrystallization still active.	MLS3							

\*\*\* END OF HOLE \*\*\* 114.91

HOLE NO: SSD-97-41

SECTION: 43596N

GRID: SILVER CK  
EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX.  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43596.03mN 24780.94mE 1256.19RL

Pre-collar depth: Final depth: 121.92

Purpose of hole: INFILL SILVER CREEK  
 EXTENSION

Hole status: DRILLED TO DEPTH

Comments: LZ: 100.1 - 103.85M, 107.42 -  
 109.5M

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	225.00	-78.00
70.10	228.00	-80.00
115.82	241.00	-82.00

## \*\*\* SUMMARY LOG \*\*\*

0.00	6.10	OVERBURDEN
6.10	21.98	1B SANDSTONE / CONGLOMERATE
21.98	43.50	1B SANDSTONE / SILTSTONE
43.50	64.00	1B SANDSTONE
64.00	79.60	1B SANDSTONE / SILTSTONE
79.60	84.70	1B SANDSTONE SHEARED
84.70	91.44	FAULT ZONE 1AA CARBONACEOUS ARGILLITE
91.44	99.60	1AA CARBONACEOUS ARGILLITE
99.60	100.10	MCDAME LIMESTONE BRECCIATED
100.10	103.85	LOWER ZONE MASSIVE SULPHIDE
103.85	105.75	1A/MLS CARBONACEOUS ARGILLITE / LIMESTONE BRECCIATED
105.75	107.42	MCDAME LIMESTONE
107.42	109.50	LOWER ZONE MASSIVE SULPHIDE

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	121.92 HQ
Drill contractor:	OLYMPIC DRILLING	
Drill rig:	LONGYEAR "38"	
Date started:	31/8/97	
Date finished:	1/9/97	
Logged by:	L. LEWIS	
Relogged by:		
Sampled by:	J. LETWIN	

Material left in hole:

Base of complete oxidation

Top of fresh rock:

Water first encountered:

Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
98.60	110.50	11.90

Checked and signed: \_\_\_\_\_

Date: \_\_\_\_\_

1997

SSD-97-41

HOLE NO: SSD-97-41

SECTION: 43596N

GRID: SILVER CK  
FX

109.50	113.90	MCDAME LIMESTONE DOLOMITIZED
113.90	121.92	MCDAME LIMESTONE UNIT 2
121.92		END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_



From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/mt	Ag g/mt	%Pb	%Zn
0.00	6.10	OVERBURDEN	OB							
6.10	21.98	1B SANDSTONE / CONGLOMERATE Medium grey, moderate to coarse grained, medium bedded to massive sandstone, interlayered with 50% pebble conglomerate beds 0.5 - 3m thick. Pebbles vary from randomly oriented to elongated @ 65 to core axis. Minor wavy to thinly laminated siltstone beds. 2mm - 4cm thick. Minor iron oxide stained fractures @ 10-25 degrees to core axis. - 14.3 - 18.29m: Moderately fractured and quartz - iron carbonate vnd conglomerate (minor sandstone). Vugs and fractures strongly hematite and limonite stained. 2% pyrite along fractures @ 5 - 15 to core axis.	1B							
21.98	43.50	1B SANDSTONE / SILTSTONE Medium grey, laminated to medium bedded, medium grained sandstone, interlaminated with 15% dark grey siltstone. 3mm - 10cm thick. Core moderately broken along bedding planes (75 to core axis) and fractures (15 - 25 to core axis). 2% quartz stringers. Trace - 1% pyrite as blebs in quartz stringer, disseminated and as nodules to 1cm. - 33.3m: 1cm pyrite - sphalerite - galena stringer @ 50 to core axis. - 37.85 - 38.0m: sandstone bed with 10% carbonaceous particles which appear to be fossil fragments, but unable to identify the fragments. Variable from elongate with rounded ends, elongate serrated particles to perfectly round fragments. - 42.85 - 43.5m: Fault Zone of carbonaceous, sandy gouge with 3% pyrite clots and disseminations, 5% quartz - iron carbonate chips.	1B							
43.50	64.00	1B SANDSTONE Medium grey, moderately competent, massive to thickly bedded pebble sandstone, occasionally fining upward, beds to 2 meters thick. 10% conglomerate intervals to 50cm thick, 5% black mudstone, as thin irregular beds / laminae and rip-up clasts in the basal conglomerates. Conglomerate beds absent below this interval. Rare (<1%) quartz stringers. Trace disseminated and nodules of pyrite.	1B							

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From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/mt	Ag g/mt	%Pb	%Zn
54.00	79.60	1B SANDSTONE / SILTSTONE Striped interval of interbedded medium grey, medium grained sandstone (60%) and dark grey siltstone (40%). The sandstone is predominantly thinly bedded; frequent cross and wavy laminations and occasional soft sediment deformation. Bedding @ 75 to core axis. Core frequently broken along bedding planes. <1% quartz hairline stringers. Trace disseminated pyrite and rare pyrite blebs to 3cm (eg 71.2m). Broken lower contact. - 73.9 - 79.6m: Broken core and chips, 5% gouge.	1B							
79.60	84.70	1B SANDSTONE SHEARED Crumbly, sheared-looking ss; full core recovery. Likely affected by the fault zone below @ the contact with carbonaceous argillite which forms a likely sliding plane for movement parallel or sub-parallel to bedding. Lower contact at approximately 80 degrees to core axis.	1B							
84.70	91.44	FAULT ZONE 1AA CARBONACEOUS ARGILLITE 20% recovery of graphitic gouge and carbonaceous argillite chips. Possibly a bedding parallel fault zone?? at the contact between 1B sandstone and 1AA. 1 - 3% quartz stringers and fracture fillings. Trace - 1% disseminated pyrite.	FZ							
91.44	99.60	1AA CARBONACEOUS ARGILLITE Black, massive to thinly laminated carbonaceous argillite, weak to moderately silicified. Unit broken with about 30% chips; moderate recovery. 2% quartz - iron carbonate clots and stringers. Trace - 1% disseminated and blebs of pyrite. Last meter above the unconformity is rubble breccia. Fairly sharp lower contact @ 70 to core axis. 98.60-99.60 CARBONACEOUS ARGILLITE RUBBLE BRECCIA Rubble brecciated, strongly carbonaceous argillite with 10% quartz and 3% calcite fracture fillings. Trace - 1% disseminated pyrite.	1AA	140063	98.60	99.60	3.25	4.10	0.01	0.02
99.60	100.10	MCDAME LIMESTONE BRECCIATED 99.60-100.10 LIMESTONE STYLOLITIC BRECCIA Hanging wall sample. Narrow interval of carbonaceous	MLS?	140064	99.60	100.10	0.17	11.70	0.29	0.59

SSD-97-4 Page 2

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		limestone, strongly stylolitic, with scattered clasts of argillite. 10% fine grained pyrite clots adjacent to the lower contact with massive sulphide below.								
100.10	103.85	<b>LOWER ZONE MASSIVE SULPHIDE</b> Minor mosaic breccia in the upper 50cm otherwise solid massive to banded sulphides containing overall approximately 60% pyrite, 25% sphalerite and 10% galena. The galena is concentrated in the interval from 103.2 - 103.85m. The upper 2 meters is crumbly and incompetent. <b>100.10-101.15 BASE METAL MASSIVE SULPHIDE</b> The upper 50cm is a mosaic breccia with large sulphide clasts (pyrite + sphalerite) in a calcite cement. Below 100.6m is massive and banded red-brown sphalerite + pyrite with minor galena. ** 100.65m - 1cm band of fine grained "dusty" galena. This is mentioned in the mineralogy section of the 1984 report, page 71 and described as a "very fine dusty gn phase associated w very minor Ag-bearing tetrahedrite argentite and boulangierite". Small blebs of this fine grained galena also occurs along the margins of sphalerite bands.	LZ	140065	100.10	101.15	2.35	289.60	4.86	16.51
		<b>101.15-102.15 PYRITE MASSIVE SULPHIDE</b> Similar to the lower half of the previous sample but decreased sphalerite and increased pyrite. About 50% of the iron sulphide is fine bladed marcasite rosettes.		140066	101.15	102.15	1.63	379.70	6.45	18.65
		<b>102.15-103.20 BASE METAL MASSIVE SULPHIDE</b> Sphalerite - galena rich interval with 35% red-brown sphalerite and 12% medium to coarse grained galena. Of the 40% pyrite, half is finely bladed marcasite. 3% gangue consisting of small calcite clots.		140067	102.15	103.20	2.58	402.70	9.51	15.32
		<b>103.20-103.85 BASE METAL MASSIVE SULPHIDE</b> Sample is extremely galena - sphalerite rich in a medium grained intergrown mosaic with fine grained pyrite clots throughout. Sharp lower contact @ 55 to core axis.		140068	103.20	103.85	0.30	1000.00	22.96	23.44

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
103.85	105.75	<b>1A/MLS CARBONACEOUS ARGILLITE / LIMESTONE BRECCIATED</b> Solution Collapse Breccia. The upper half, from 103.85 - 104.75m contains tightly packed argillite clasts in a calcite matrix. The lower half, from 104.75 - 105.75m is a heterolithic, altered rubble breccia containing limestone, argillite and sulphide clasts in a calcite matrix. <b>103.85-104.75 CARBONACEOUS ARGILLITE MOSAIC BRECCIA</b> Mostly coarse, black carbonaceous argillite clasts cemented by 10% coarse calcite. Sulphides virtually absent. Some of the laminated argillite could be nearly in place. Variable bedding between 55 - 75 to core axis. Gouge a the sharp lower contact, 40 to core axis. <b>104.75-105.75 LIMESTONE / CARBONACEOUS ARGILLITE RUBBLE BRECCIA</b> Very porous, mottled, altered-looking (clay-altered??) limestone / argillite / sulphide breccia in a calcite cement. Minor iron-carbonate adjacent to the upper contact. Possibly the base of the solution collapse cavity which has had post-mineralization fluids passing through the interval. Sharp lower contact @ 60 degrees.	1A/MLS	140069	103.85	104.75	0.13	5.00	0.03	0.05
				140070	104.75	105.75	0.03	41.10	0.90	0.61
105.75	107.42	<b>MCDAME LIMESTONE</b> <b>105.75-107.42 FLOATSTONE</b> Hanging wall sample to sulphide zone below. Weakly bleached massive stromatoporoid floatstone with 10% fine grained pyrite replacement from 107.0 - 107.4m. Irregular lower contact.	MLS?	140071	105.75	107.42	0.00	2.20	0.04	0.01
107.42	109.50	<b>LOWER ZONE MASSIVE SULPHIDE</b> <b>107.42-109.50 BASE METAL MASSIVE SULPHIDE</b> Excellent sample of distinctly wavy banded sulphides with galena on the outside, pyrite, then sphalerite at the centre. Some intervals almost colloform texture. 25% remnant limestone - partly dolomitized, 25% pyrite, 25% sphalerite and 25% galena. Irregular lower contact.	LZ	140072	107.42	109.50	0.04	947.50	19.08	9.40

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/ml	Ag g/ml	%Pb	%Zn
109.50	113.90	MCDAME LIMESTONE DOLOMITIZED Rubble dolomitized crackle breccia limestone with scattered identifiable fossils - mainly massive stromatopora and thamnopora. Trace - 2% fine grained pyrite clots and stringers. 109.50-110.50 DOLOMITIZED LIMESTONE CRACKLE BRECCIA Footwall sample as described above	MLS2	140075	109.50	110.50	0.01	6.30	0.17	0.12
113.90	121.92	MCDAME LIMESTONE UNIT 2 Very fossil-rich unit, massive stromatopora is the redominant fossil with abundant thamnopora and Tryplasma. Minor intercalated amphipora and packstone. 2% calcite stringers @ 45 to core axis. Trace pyrite	MLS2							

\*\*\* END OF HOLE \*\*\* 121.92

HOLE NO: SSD-97-42

SECTION: 43599N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43598.54mN 25018.59mE 1249.45RL

Pre-collar depth: Final depth: 111.25  
 Purpose of hole: INFILL SILVER CREEK  
 EXTENSION  
 Hole status: DRILLED TO DEPTH  
 Comments: LZ: 57.0 - 59.7M, MIN'ZD/OX LS:  
 66.3-76.7M

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	90.00	-70.00
48.77	88.00	-70.00
109.73	87.00	-70.00

## \*\*\* SUMMARY LOG \*\*\*

0.00	17.37	OVERBURDEN
17.37	21.60	1BA MUDSTONE / SANDSTONE
21.60	49.50	1AA CARBONACEOUS ARGILLITE
49.50	57.00	1AA CARBONACEOUS ARGILLITE BRECCIATED
57.00	59.70	LOWER ZONE BRECCIATED
59.70	66.30	OXIDIZED LIMESTONE BRECCIATED
66.30	76.70	OXIDIZED LIMESTONE MINERALIZED BRECCIATED
76.70	83.60	MCDAME LIMESTONE UNIT 3
83.60	107.80	ALTERED MCDAME LIMESTONE RECRYSTALLIZED
107.80	109.70	MCDAME LIMESTONE UNIT 3 CRACKLE BRECCIA
109.70	111.25	MCDAME LIMESTONE UNIT 4
111.25		END OF HOLE

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	111.25 HQ
Drill contractor:	OLYMPIC DRILLING	
Drill rig:	LONGYEAR "38"	
Date started:	1/9/97	
Date finished:	2/9/97	
Logged by:	L. LEWIS	
Relogged by:		
Sampled by:	J. LETWIN	

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
53.95	77.20	23.25
82.60	87.75	5.15

Checked and signed: \_\_\_\_\_

Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
0 00	17 37	OVERBURDEN	OB							
17 37	21 60	1BA MUDSTONE / SANDSTONE Dark grey, friable, non-carbonaceous laminated mudstone with 10% medium grey sandstone laminae. Weak hematite + limonite stain on fractures. Bedding @ 75 to core axis. Trace disseminated pyrite. Lacks any quartz veining. Transitional unit between 1B and 1A. The lower contact is approximately where the carbonaceous argillite begins and the sandstone disappears.	1BA							
21 60	49 50	1AA CARBONACEOUS ARGILLITE Black, laminated to thinly bedded carbonaceous argillite; locally moderately silicified and veined. Trace - 2% fine grained pyrite disseminated within the argillite and as small clots associated with interstitial quartz (1-4%) in brecciated intervals. Broken, incompetent core with chips in zones of stronger brecciation. Mainly crackle breccia. Broken lower contact @ the onset of stronger brecciation and the appearance of gypsum lining cavities and vugs.	1AA							
49 50	57 00	1AA CARBONACEOUS ARGILLITE BRECCIATED Similar rock type as previous unit, carbonaceous argillite, now variably brecciated and weakly mineralized. Possibly a solution collapse feature?? Sulphides increase towards the lower contact with Lower Zone. Breccia types include crackle, mosaic and rubble breccia. Vuggy quartz cement has a variety of infilling, including pyrite, sphalerite, and gypsum, tr galena. Frequent slip along 20 - 35 degrees. Irregular lower contact. Weakly silicified.	1AA							
		53 95-55 00 CARBONACEOUS ARGILLITE MOSAIC BRECCIA 60% vuggy, mosaic breccia (carbonaceous argillite in quartz cement), and 40% broken chips of argillite. Interstitial quartz cement occasionally lined with fine pyrite. Tr sphalerite + galena.		140107	53.95	55.00	0.11	7.50	0.13	0.68
		55 00-56 00 CARBONACEOUS ARGILLITE MOSAIC BRECCIA Similar to previous sample. 50% mosaic breccia with argillite clasts in quartz +/- sulphide matrix cement, 50% non-brecciated thinly laminated, bleached argillite.		140108	55.00	56.00	0.19	14.80	0.18	0.21

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		56 00-57 00 CARBONACEOUS ARGILLITE RUBBLE BRECCIA Mixed interval of rubble breccia and mosaic breccia, with increased interstitial sulphides, including 4% pyrite, 1% red-brown sphalerite and tr galena, all mainly lining quartz-rimmed vugs.		140109	56.00	57.00	0.30	41.10	0.51	1.47
57 00	59 70	LOWER ZONE BRECCIATED Weakly mineralized Lower Zone, mainly pyrite, containing 35% intercalated rubble brecciated, bleached limestone. The more massive sulphides are concentrated in the upper 0.8m and below is a sulphide stringer zone.	LZ							
		57 00-57 80 PYRITE MASSIVE SULPHIDE 85% massive fine grained pyrite, 3% fine red-brown sphalerite, 2% medium grained galena in a fine grained siliceous gangue. Pyrite is becoming brecciated towards the lower contact.		140110	57.00	57.80	0.52	111.10	2.92	1.34
				140111	57.80	58.80	0.14	21.60	0.57	0.44
		57 80-58 80 LIMESTONE MINERALIZED Pyrite stringer zone through slightly clay-altered (?), rubble breccia limestone. Likely another solution collapse breccia containing mainly limestone clasts (65%), minor argillite clasts (2%) in a pyritic matrix. 25% pyrite, 2% sphalerite, 1% galena.		140112	58.80	59.70	0.12	17.90	0.51	0.17
		58 80-59 70 LIMESTONE MINERALIZED Pyrite stringer zone, very similar to the previous sample. Start to see iron oxide stain on fractures. Below this interval is a wide zone of weak to moderately oxidized limestone. 25% pyrite, 1% sphalerite, 1% galena.								
59 70	66 30	OXIDIZED LIMESTONE BRECCIATED General Description: Variable unit of weak to moderately oxidized, rubble brecciated limestone with intermittent pyrite stringers. The breccia looks to be a cave fill of sub-angular to sub-rounded limestone clasts in a lime clastic matrix, locally laminated to thinly bedded. Vuggy, oxidized sections are rubbly and broken.	LSOX							
		59 70-61 70 LIMESTONE RUBBLE BRECCIA Broken interval of hematite + limonite stained limestone rubble breccia. The lower 20cm is moderately silicified.		140113	59.70	61.70	0.01	1.40	0.03	0.21

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		with a weak fabric (due to shearing?). 2% pyrite clots 3% hematite, 3% limonite								
		61 70-63.10 DOLOMITIZED LIMESTONE RUBBLE BRECCIA Dolomitized limestone clasts in an iron oxide matrix 5% unoxidized pyrite remains as blebs. Crumbly friable core. 8% hematite, 7% limonite.		140114	61.70	63.10	0.01	3.30	0.10	0.38
		63 10-63.90 DOLOMITIZED LIMESTONE RUBBLE BRECCIA Mottled zone of siliceous, dolomitized limestone clasts in a calcite matrix. Lacks oxidation. 2% pyrite blebs in the matrix. Light pink crust on the split surface - Rhodochrosite?? (common in oxidized zones of sulphide deposits)		140115	63.10	63.90	0.24	4.90	0.05	0.17
		63 90-64.80 Limestone mineralized 25cm of massive, fine to medium grained pyrite in a siliceous gangue, sandwiched between weakly sheared limestone above (with pyrite stringers) and brecciated, dolomitized limestone below. *Note: Sample 140117 is a duplicate of this interval and 140118 is a blank.		140116	63.90	64.80	0.05	4.10	0.08	0.76
		63 90-64.80 Limestone mineralized 25cm of massive, fine to medium grained pyrite in a siliceous gangue, sandwiched between weakly sheared limestone above (with pyrite stringers) and brecciated, dolomitized limestone below. *Note: Sample 140117 is a duplicate of this interval and 140118 is a blank.		140119	64.80	66.30	0.02	4.30	0.07	0.29
		64 80-66.30 Limestone rubble breccia - almost could be a conglomerate as the limestone clasts are sub-rounded in a limy clastic matrix with disseminated pyrite (3%) throughout. Minor oxidation.								
66.30	76.70	OXIDIZED LIMESTONE MINERALIZED BRECCIATED This interval was originally logged the same as the above zone but assays indicate a weakly mineralized zone (mainly zinc values - between 1 - 9.9%). Silicification is much more pronounced in this zone. Similar to the above unit - it appears to be a solution collapse breccia, likely part of the same feature above.	LSOX	140120	66.30	67.80	0.00	1.80	0.02	1.05
		66 30-67.80 OXIDIZED LIMESTONE RUBBLE BRECCIA Limestone rubble breccia, part of a solution collapse structure. Laminated calcareous medium grained sediment @ 67.7m is 85 degrees to core axis. Broken.		140121	67.80	69.30	0.30	0.60	0.01	2.15

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		rubbly where oxidized. 1% hematite, 2% limonite								
		67 80-69.30 Limestone rubble breccia Similar to previous interval. Good, limy laminated cave-fill from 67.8 - 69.0m @ 75 degrees to core axis. Interval is partially bleached, porous - clay-altered??		140122	69.30	70.80	0.00	0.30	0.00	2.24
		69 30-70.80 OXIDIZED LIMESTONE RUBBLE BRECCIA As above. Below 70.0m, core is rubbly, vuggy and moderately iron oxide stained. 6% hematite, 4% limonite, 2% pyrite.		140123	70.80	72.30	0.00	0.10	0.00	2.51
		70 80-72.30 SILICIFIED LIMESTONE Mottled, partially silicified limestone. 10% vuggy iron oxide stained. 2% pyrite clots, 6% hematite, 2% limonite.		140124	72.30	73.80	0.00	0.40	0.02	4.44
		72 30-73.80 SILICIFIED LIMESTONE Similar to previous interval, but increased pyrite. Stronger silicification and oxidation. Semi-massive pyrite band, 75 to core axis @ 73.7 - 73.8m.		140125	73.80	75.30	0.01	1.80	0.04	0.75
		73 80-75.30 SILICIFIED LIMESTONE Mottled, silicified ls: 4% pyrite stringers @ 75 degrees to core axis. 3% hematite, 2% limonite.		140126	75.30	76.70	0.00	12.20	0.32	9.91
		75 30-76.70 SILICIFIED LIMESTONE RUBBLE BRECCIA Upper half of the sample is strongly silicified with irregular pyrite (6%) clots, manganese stained along fractures. The lower half is vuggy, olive green stained to bleached limestone rubble breccia. Abrupt irregular lower contact at about 45 degrees with Unit 3. This marks the bottom of the solution collapse. 6% pyrite, tr galena, 4% hematite and 1% limonite.								
76.70	83.60	MCDAME LIMESTONE UNIT 3 The top of Unit 3 contains the characteristic dense packstone and fine amorphous (<1mm diameter). Also the typical thin bed of rugose corals - Trypastraea, present @ 78.2m. Minor iron oxide stained fractures. Pyrite clots and stringers, associated with calcite veining increase towards the altered interval below.								
		76 70-77.20 PACKSTONE	MLS3							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/l	Ag gm/l	%Pb	%Zn
		Footwall sample to oxidized zone. Appears virtually unaltered.		140127	76.70	77.20	0.00	0.30	0.01	0.10
		82.50-83.60 SILICIFIED LIMESTONE		140128	82.60	83.60	0.00	0.40	0.00	0.39
		Hanging wall sample. Mottled silicified limestone. 10% coarse grained calcite clots, 3% medium grained pyrite clots / stringers. Jagged irregular lower contact with pyritic, recrystallized zone below, approximately @ 70 to core axis.								
83.60	107.80	ALTERED MCDAME LIMESTONE RECRYSTALLIZED	AMLS							
		Wide interval of mainly grey to white coarsely crystalline calcite, medium to coarse grained pyrite in the upper 3.5m. Most original fossils and textures obliterated, occasionally faint evidence of original rock. Scattered stylolites. Some of the zone may actually be a calcite vein as opposed to recrystallized limestone, but its difficult to define boundaries. The upper pyritic zone is sampled and described below. Gradational lower contact with unaltered limestone below.		140129	83.60	85.10	0.00	1.90	0.00	0.42
		83.60-85.10 RECRYSTALLIZED LIMESTONE		140130	85.10	86.30	0.00	2.00	0.00	0.31
		Recrystallized, pyritic limestone, now light grey to white, medium to coarse grained calcite, spotted with 12% euhedral pyrite to 6mm. Looks very similar to the coarse pyrite seen in the Discovery Zone Exhalite. 10cm of massive pyrite @ the upper contact.								
		85.10-86.30 RECRYSTALLIZED LIMESTONE		140131	86.30	87.10	0.00	0.50	0.00	0.18
		Very similar to the previous sampled interval. 90% calcite, 10% pyrite.								
		86.30-87.10 RECRYSTALLIZED LIMESTONE		140132	87.10	87.75	0.00	0.10	0.00	0.54
		Decreasing pyrite (5%) in coarse grained calcite (95%).								
		87.10-87.75 RECRYSTALLIZED LIMESTONE								
		Footwall sample to pyritic zone. Faint remnant fossil shadows - possibly massive stromatoporoid. Below this, similar rock - coarse grained calcite, locally stylolitic, with Ir - 1% pyrite blebs along stylolites.								
107.80	109.70	MCDAME LIMESTONE UNIT 3 CRACKLE BRECCIA	MLS3							
		This marks the base of Unit 3 consisting of crackle breccia, amphipora floatstone. Fractures @ 10, 30 and 50 degrees to core axis.								

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/l	Ag gm/l	%Pb	%Zn
109.70	111.25	MCDAME LIMESTONE UNIT 4	MLS4							
		Unit 4 contains pseudo-laminated Euryamphipora and intercalated massive stromatoporoid. 5% calcite - cemented crackle breccia.								

\*\*\* END OF HOLE \*\*\* 111.25

HOLE NO: SSD-97-43

SECTION: 43596N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43595.61mN 24781.69mE 1256.34RL

Pre-collar depth: Final depth: 149.35

Purpose of hole: INFILL SILVER CREEK  
 EXTENSION

Hole status: DRILLED TO DEPTH

Comments: LOWER ZONE: 133.9- 136.55M

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	180.00	-78.00
60.69	178.00	-85.00
137.16	184.00	-86.00

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	149.35 HQ
Drill contractor:	OLYMPIC DRILLING	
Drill rig:	VALDOR 3000	
Date started:	1/9/97	
Date finished:	3/9/97	
Logged by:	L. LEWIS	
Relogged by:		
Sampled by:	J. LETWIN	

Material left in hole:

Base of complete oxidation:

Top of fresh rock:

Water first encountered:

Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
31.63	32.80	1.17
93.80	97.00	3.20
132.50	139.60	7.10

## \*\*\* SUMMARY LOG \*\*\*

0.00	6.09	OVERBURDEN
6.09	62.70	1B SANDSTONE / CONGLOMERATE / MUDSTONE
62.70	82.30	1B SANDSTONE/MUDSTONE
82.30	86.56	FAULT ZONE 1B SANDSTONE
86.56	93.80	FAULT ZONE 1AA CARBONACEOUS ARGILLITE
93.80	96.00	1A/MLS RUBBLE BRECCIA
96.00	116.20	MCDAME LIMESTONE UNIT 1
116.20	130.40	MCDAME LIMESTONE UNIT 2
130.40	132.50	MCDAME LIMESTONE UNIT 2 MOSAIC BRECCIA
132.50	133.90	1A/MLS RUBBLE BRECCIA
133.90	136.55	LOWER ZONE BRECCIATED
136.55	139.60	1A/MLS RUBBLE BRECCIA
139.60	149.35	MCDAME LIMESTONE UNIT 3
149.35		END OF HOLE

Checked and signed: \_\_\_\_\_

Date: \_\_\_\_\_



From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
0.00	6.09	OVERBURDEN	OB							
6.09	82.70	<p>1B SANDSTONE / CONGLOMERATE / MUDSTONE</p> <p>Thick unit of predominantly medium to coarse grained sandstone (65%), variable from massive to parallel laminated, to graded beds. Good example of graded fining upward sequence @ 49.9m. Intermittent pebble conglomerate beds (25%) from 10cm to 1.5m thick, occasionally grading into coarse sandstone (fining up). Pebbles range from randomly oriented to elongate @ 70 degrees (= bedding angle). 10% interbedded black mudstone, 3mm to 10cm thick, often with scouring or dewatering features where sand lenses slump into the mudstone.</p> <p>Weakly oxidized fractures and rubbly core down to 17.0m. Very minor quartz stringers (&lt;1%); parallel to bedding (70 degrees) and cross cutting at 30 degrees. Trace - 2% pyrite as disseminated throughout the sandstone and as nodules to 1.5cm with chert. Lower contact where the mudstone increases significantly and there are no more conglomerate beds</p> <p>- 44.1 - 47.0m: Sheared Sandstone, rubbly broken core. Only minor quartz stringers. Trace - 1% pyrite</p> <p>31.63-32.13 SANDSTONE/MUDSTONE</p> <p>Hanging wall sample, comprised of 85% parallel laminated sandstone and 15% mudstone. 2% stringer and disseminated pyrite</p> <p>32.13-32.30 VEIN</p> <p>3cm wide sulphide vein containing 20% coarse grained sphalerite, 10% galena and 8% pyrite. @ 50 degrees to core axis.</p> <p>32.30-32.80 SANDSTONE/MUDSTONE</p> <p>Footwall sample, 80% parallel laminated sandstone. 20% mudstone beds, which are wispy and occasionally have sandstone pods slumping into the mudstone.</p>	1B	140167	31.63	32.13	0.06	7.60	0.18	0.43
				140168	32.13	32.30	0.12	67.30	1.87	6.70
				140169	32.30	32.80	0.01	1.10	0.01	0.02
62.70	82.30	<p>1B SANDSTONE/MUDSTONE</p> <p>Striped unit of 60% light grey, fine to medium grained sandstone, beds massive to flaser bedded, interbedded with 40% black mudstone, 2mm - 15cm thick. Loca soft</p>	1B							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		<p>sediment deformation (eg. 68.4m) and rip-up mud clasts (eg. 80.9m). Rare quartz stringers (&lt;1%). Trace - 1% pyrite as disseminations and nodules. Broken lower contact with rubble / fault zone below. Micro-faults @ 50 degrees, reverse movement with up to 1cm displacement (eg. 69.7m).</p> <p>- 73.85 - 74.7m: Gouge, 23% recovery.</p> <p>78.00-82.30 SANDSTONE</p> <p>90% coarse to pebbly massive sandstone, 5% conglomerate, 5% mudstone. Core becoming increasingly broken. 1% disseminated and small pyrite clots.</p>								
82.30	86.56	<p>FAULT ZONE 1B SANDSTONE</p> <p>50% recovery of sandy rubble (70%) and gouge (30%). Rubble pieces are moderately fractured with 8% quartz cement. 1% disseminated pyrite. Bottom of the unit is where the graphitic (1AA) rubble begins.</p>	FZ							
86.56	93.80	<p>FAULT ZONE 1AA CARBONACEOUS ARGILLITE</p> <p>33% recovery of graphitic, occasionally calcareous argillite chips and gouge; 5% calcite stringers and fractures. Broken lower contact.</p>	FZ							
93.80	96.00	<p>1A/MLS RUBBLE BRECCIA</p> <p>Rubbly, broken interval of mixed carbonaceous argillite and limestone clasts in a limy carbonaceous clastic matrix. Likely a solution collapse feature related to the unconformity. 4% pyrite replacing limestone concentrated in the interval from 94.8 - 95.1m. Visually lacks base metal sulphides, and therefore did not call Lower Zone. Sharp lower contact @ 60 degrees between clastic limy sediment and limestone.</p> <p>93.80-94.60 CARBONACEOUS ARGILLITE / LIMESTONE RUBBLE BRECCIA</p> <p>15% limestone clasts concentrated in the upper 15cm of the interval; strongly stylonitic. Lower 85cm is chips and rubble of strongly carbonaceous argillite with frequent calcite fractures. 2% disseminated pyrite. Broken lower contact.</p> <p>94.60-95.10 CARBONACEOUS ARGILLITE /</p>	1A/MLS	140170	93.80	94.60	0.02	5.20	0.00	0.01
				140171	94.60	95.10	0.03	10.90	0.08	0.08
				140172	95.10	96.00	0.07	5.20	0.01	0.02

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn	
		<p>LIMESTONE RUBBLE BRECCIA Rubble breccia of limestone (25%) and argillite (25%) clasts in a limy carbonaceous sediment matrix. 15% pyrite partially replaces the limestone and as small clasts in the matrix.</p> <p>95 10-96 00 CARBONACEOUS ARGILLITE / LIMESTONE RUBBLE BRECCIA Solid core begins at the start of this interval, composed of one large limestone clast (25cm) in a rubble breccia with smaller argillite clasts (15%) in a limy carbonaceous sediment. 5% scattered pyrite clasts (to 1cm) and minor disseminations throughout the matrix. Sharp lower contact between sediment and limestone @ 60 to core axis.</p>									
96 00	116 20	<p>MCDAME LIMESTONE UNIT 1 Mixed unit of dense packstone, amphipora floatstone, mixed massive stromatoporoid and thamnopora floatstone (sub-unit 1B from 100.5 - 105.2m) and dolostone crackle breccia from 108.65-111.15m. Localized strong stylolites. - 106.7 - 108.65m: Crackle breccia interval, 15% calcite, with moderate shear fabric @ 107.74m. - 108.65 - 111.15m: Dolomitized limestone, crackle breccia, rubble zone. 96 00-97 00 FLOATSTONE Footwall sample to weakly mineralized rubble breccia. Amphipora floatstone and packstone with minor massive stromatoporoid. Moderate stylolites, tr pyrite.</p>	MLS1		140173	96 00	97 00	0.01	0.70	0.00	0.00
116 20	130 40	<p>MCDAME LIMESTONE UNIT 2 Typical fossiliferous Unit 2 - the main stromatoporoid unit, at times so lightly packed (partially due to stylolites) that the rock becomes stromatoporoid framestone. Scattered thamnopora in the upper 5m; rugose coral, Tryplasma is present throughout. Minor amphipora except from 124.0 - 125.0m. Intercalated Euryamphipora @ 120.4 - 121.3, 121.97 and 122.55m. Moderate stylolites, approximately 7 per meter. Minor (2%) calcite veining @ 30 degrees to core axis. Trace pyrite as wisps along stylolites.</p>	MLS2								

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
130 40	132 50	<p>MCDAME LIMESTONE UNIT 2 MOSAIC BRECCIA Approaching the brecciated Lower Zone. 60% amphipora floatstone clasts floating in 40% coarse calcite matrix. Possibly syn-Lower Zone brecciation as there is similar matrix (calcite) cementing portions of the Lower Zone. 1% pyrite concentrated in one stringer @ 130.5m. Irregular lower contact with rubble breccia. - 131.62 - 132.2m. Broken, rubbly core.</p>	MLS2							
132 50	133 90	<p>1A/MLS RUBBLE BRECCIA General Description: variable from matrix breccia to rubble breccia. Solution collapse feature containing 35% limestone, 15% argillite clasts in a mixed matrix of both coarse calcite (15%) and dark grey limy carbonaceous sediment (35%). Trace pyrite. Irregular lower contact with brecciated Lower Zone. 132 50-133 00 CARBONACEOUS ARGILLITE / LIMESTONE MATRIX BRECCIA As in general description above. 133 00-133 90 CARBONACEOUS ARGILLITE / LIMESTONE RUBBLE BRECCIA Hanging wall sample to Lower Zone; as in general description above. 20% calcite, 25% limestone, 20% argillite, tr pyrite. Irregular lower contact.</p>	1A/MLS	140183	132 50	133 00	0.00	1.00	0.00	0.01
				140174	133 00	133 90	0.01	1.30	0.01	0.01
133 90	136 55	<p>LOWER ZONE BRECCIATED Very coarsely brecciated base metal rich lower zone which includes large clasts / blocks, up to 25cm, of massive sulphides, limestone and argillite in a mixed matrix of calcite cement and limy carbonaceous sediment. 133 90-134 90 PYRITE MASSIVE SULPHIDE RUBBLE BRECCIA Highest stratigraphic sample of the Lower Zone, is not as sulphide-rich as the lower 2 samples. Clasts include 30% limestone, 15% argillite, 10% pyrite, 5% sphalerite, 3% galena in a mixed matrix of calcite cement and limy carbonaceous sediment infill. Clasts vary in size from 2mm - 10cm. Moderately broken. *Note: Sample 140176 is a duplicate of this interval. 134 90-135 75 BASE METAL MASSIVE SULPHIDE</p>	LZ	140175	133 90	134 90	0.67	83.00	1.94	1.99
				140177	134 90	135 75	1.55	498.50	11.35	11.62

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/mt	Ag g/mt	%Pb	%Zn
		<p>RUBBLE BRECCIA</p> <p>Beauty brecciated lower zone consisting of large clasts of sulphides, including one compositionally banded sulphide block 25cm, from 135.44 - 135.7m. Sulphide percentages include 15% red-brown sphalerite, 15% coarse galena, and 30% fine grained pyrite. The sulphide clasts, along with 15% argillite and 5% limestone clasts are in a mixed matrix of calcite cement and calcareous carbonaceous sediment.</p> <p>*Note: Sample 140178 is a Blank following this interval.</p>								
		<p>135.75-136.55 BASE METAL MASSIVE SULPHIDE RUBBLE BRECCIA</p> <p>Rubble breccia consisting of 20% pyrite, 12% sphalerite, 8% galena, 20% argillite (one large fractured clast is 20cm), and 5% limestone in both calcite cement (10%) and calcareous carbonaceous sediment. Sharp lower contact @ 20 degrees with very weakly mineralized breccia below.</p>		140179	135.75	136.55	1.50	353.60	8.84	10.49
136.55	139.60	<p>1A/MLS RUBBLE BRECCIA</p> <p>Three metre wide breccia interval (matrix to rubble breccia) of predominantly limestone clasts in a mixed calcite cement and calcareous, carbonaceous sediment matrix. Scattered sulphide clasts down to 137.85m. Irregular lower contact with unbrecciated limestone.</p> <p>136.55-137.85 CARBONACEOUS ARGILLITE / LIMESTONE RUBBLE BRECCIA</p> <p>Matrix breccia at the top and bottom of the interval, rubble breccia, with mainly calcite cement in the centre. 9% sulphide clasts (5% pyrite, 3% sphalerite, 1% galena) concentrated in the bottom half. 40% limestone and 15% argillite clasts.</p> <p>137.85-138.85 CARBONACEOUS ARGILLITE / LIMESTONE RUBBLE BRECCIA</p> <p>Large limestone clasts with locally laminated limy, carbonaceous sediment infill. 60% limestone, 5% argillite clasts and minor sulphides (2% pyrite).</p> <p>138.85-139.60 CARBONACEOUS ARGILLITE /</p>	1A/MLS	140180	136.55	137.85	0.11	34.60	0.81	1.37
				140181	137.85	138.85	0.02	3.80	0.06	0.17
				140182	138.85	139.60	0.00	1.40	0.02	0.04

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/mt	Ag g/mt	%Pb	%Zn
		<p>LIMESTONE</p> <p>Bottom of the brecciated zone where the matrix is much lighter in color (very little carbonaceous sediment) consisting of mainly calc sediment infill and minor calcite cement. 60% limestone, 5% argillite Tr pyrite.</p>								
139.60	149.35	<p>MCDAME LIMESTONE UNIT 3</p> <p>The upper 4.5m of Unit 3 has the typical fine amphipora (1-2mm diameter). Below 143.4m, predominantly amphipora rudstone and floatstone with minor intercalated massive stromatopora, often with stylolitic contacts. Scattered calcite veining / fracture filling (5%), but very little brecciation to not except for local stylolitic breccia. Trace pyrite.</p>	MLS3							

\*\*\* END OF HOLE \*\*\* 149.35

HOLE NO: SSD-97-44

SECTION: 43597N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 1040/16W  
 LOCATION : LIARD MD, B.C.  
 HOLE TYPE : DIAMOND

\*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00 108.81 HQ
Drill contractor:	OLYMPIC DRILLING
Drill rig:	LONGYEAR "38"
Date started:	2/9/97
Date finished:	4/9/97
Logged by:	C. REES
Relogged by:	
Sampled by:	J. LETWIN

\*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43597.27mN 25017.19mE 1249.62RL

Pre-collar depth: Final depth: 108.81  
 Purpose of hole: INFILL SILVER CREEK  
 EXTENSITON  
 Hole status: DRILLED TO DEPTH  
 Comments: LZ@64.5-64.73M NOT WELL  
 PRESERVED

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

\*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY-SUN

Depth	Azimuth	Inclination
0.00	225.00	-68.00
45.72	239.00	-71.00
106.68	244.00	-72.00

\*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
63.50	65.75	2.25

\*\*\* SUMMARY LOG \*\*\*

0.00 17.59 OVERBURDEN  
 17.59 58.50 1AA LAMINATED  
 INTERBEDDED SILTSTONE  
 / ARGILLITE  
 58.50 61.90 1AA 1AC RUBBLE BRECCIA  
 61.90 62.40 1AC CALCARENITE RUBBLE  
 BRECCIA  
 62.40 64.50 MCDAME LIMESTONE 1AA  
 RUBBLE BRECCIA  
 64.50 64.73 LOWER ZONE BASE METAL  
 MASSIVE SULPHIDE  
 64.73 69.00 MCDAME LIMESTONE UNIT  
 1 1B  
 69.00 81.40 MCDAME LIMESTONE UNIT  
 1  
 81.40 90.45 MCDAME LIMESTONE UNIT  
 1  
 90.45 103.15 MCDAME LIMESTONE UNIT  
 2  
 103.15 108.81 MCDAME LIMESTONE UNIT  
 3  
 108.81 END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
0.00	17.59	OVERBURDEN	OB							
17.59	58.50	1AA LAMINATED INTERBEDDED SILTSTONE / ARGILLITE Basically indivisible, typical unit 1. No real sandstone beds or laminae to delineate 1B or 1BA at top of hole although fine-grained 1B cannot be discounted. Note: large apparent thickness (ca. 40 m) may be explained by the relatively low bedding core angles. Predominant lithology is dark grey to black fine-grained thin- to medium laminated siltstone variably slaty, and argillite. Generally good crenulations on cleavage planes. Shiny partings common. Local laminae (1 to 5 mm thick) of pyritic siltstone to fine sandstone; some are tightly folded. Generally laminae are faint and irregular with fairly consistent core angles. Rock habit varies from competent hockey puck to poker chip, with some zones of fine rubble and friable soft shale, but no definite faults.	1AA							
58.50	61.90	1AA 1AC RUBBLE BRECCIA Basically similar, faintly laminated carbonaceous argillite to siltstone, but here locally calcareous, and brecciated. Short intervals (15 to 20 cm) of clast-supported rubble breccia in carbonaceous matrix. Near base is 20 cm of crackle to mosaic breccia with both quartz and calcite vein matrix.	1AA							
61.90	62.40	1AC CALCARENITE RUBBLE BRECCIA Mostly pale to dark grey thinly laminated calcarenite, with 25 cm of rubble breccia at base, towards contact with MCDAME LIMESTONE.	1AC							
62.40	64.50	MCDAME LIMESTONE 1AA RUBBLE BRECCIA Appearance of MCDAME LIMESTONE, possibly boulder at unconformity. Grey amphipora limestone from 62.4 to 62.9. Underlain by fairly coarse, clast-supported rubble breccia of predominantly 1AA or 1AC argillite in black argillaceous or lithic matrix. Also many limestone fragments and some calcarenite matrix. Probably paleo-karst collapse breccia sediment, or just a basal conglomerate; familiar facies. Not much calcite crackle - not hydrothermal. Broken core, poor to moderate recovery. 63.50-64.50 SAMPLE Roughly 1 m sample from above LOWER ZONE. Poor	MLS	140241	63.50	64.50	0.00	4.50	0.02	0.29

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		recovery, about 60%.								
64.50	64.73	LOWER ZONE BASE METAL MASSIVE SULPHIDE Not well preserved, mostly broken core and rubble, but clearly LOWER ZONE massive sulphide. Maybe slightly thicker than preserved, but not more than 50 cm. Best and largest piece rich in fine to coarse pyrite and galena. Percentages very rough. Sample is contaminated with rubble from bounding units - inevitable.	LZ	140242	64.50	64.73	0.18	376.60	8.03	7.27
64.73	69.00	MCDAME LIMESTONE UNIT 1 1B Possibly subunit 1B. Pale to mid-grey packstone to floatstone. Quite abundant <i>Thamnopora</i> and stromatoporoids, lesser amphipora and stachyodes. Not brecciated. Several 5-mm thick calcite veinlets @ 60 deg. To core axis.	MLS1	140244	64.73	65.75	0.00	0.60	0.01	0.03
69.00	81.40	MCDAME LIMESTONE UNIT 1 Tentatively subunit 1C. Generally pale to mid-grey dense packstone to floatstone. Scattered amphipora is main fossil, with some stromatoporoids in lower part. Minor weak dolomitization between 72.0 and 72.5 m, and some crackle to mosaic breccia between 73.6 and 74.0 m. Otherwise not deformed, although does have a fairly strong foliation at low core angles at around 79 to 80 m.	MLS1							
81.40	90.45	MCDAME LIMESTONE UNIT 1 Tentatively subunit 1E. Pale to mid-grey packstone to floatstone, with amphipora and some stromatoporoids. Otherwise not very fossiliferous. Uppermost 25 cm is darker speckled grey, medium-grained dolomitized limestone.	MLS1							
90.45	103.15	MCDAME LIMESTONE UNIT 2 Based on appearance of abundant stromatoporoids, amphipora, and several <i>Tryplasma</i> , forming floatstone to rudstone, with local packstone. Local calcite veining and crackle to mosaic breccia, at 100.5 to 102.0 m, but otherwise not brecciated. Weak patchy fine pyrite replacement @ 100.0 m and 100.5 m associated with calcite veinlets.	MLS2							

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
103.15	108.8	MCDAME LIMESTONE UNIT 3 Based on appearance of weakly fossiliferous dense packstone, but may still be part of unit MCDAME LIMESTONE UNIT 2. Mid-grey, amphipora packstone and amphipora- and stromatopora- and stromatopora- resembling unit 2. Some calcite veins and stylolites	MLS3						

\*\*\* END OF HOLE \*\*\* 108.81

HOLE NO: SSD-97-45

SECTION: 43621N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 1040/16W  
 LOCATION : LIARD MD, B.C.  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43621.20mN 24742.40mE 1230.60RL

Pre-collar depth: Final depth: 126.49  
 Purpose of hole: INFILL SILVER CREEK  
 EXTENSION  
 Hole status: DRILLED TO DEPTH  
 Comments: LZ @ 87.25-88.00M

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
45.72	20.00	-85.00
83.82	9.00	-84.00
121.92	18.00	-84.00

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	126.49	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR 3000		
Date started:	3/9/97		
Date finished:	4/9/97		
Logged by:	C. REES		
Relogged by:			
Sampled by:	J. LETWIN		

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
86.25	89.20	2.95
103.18	104.45	1.27
105.85	107.45	1.60

## \*\*\* SUMMARY LOG \*\*\*

0.00 12.19 OVERBURDEN  
 12.19 41.20 1B SANDSTONE  
 41.20 54.30 1B LAMINATED SILTSTONE  
 / SANDSTONE  
 54.30 55.50 1B LAMINATED SILTSTONE  
 55.50 61.05 1AA SILTSTONE RUBBLE  
 61.05 76.30 FAULT ZONE NO  
 RECOVERY 1AA  
 76.30 77.60 FAULT ZONE 1AA RUBBLE  
 BRECCIA  
 77.60 84.50 1AA RUBBLE BRECCIA  
 MCDAME LIMESTONE  
 84.50 87.25 MCDAME LIMESTONE  
 RUBBLE BRECCIA  
 87.25 88.00 LOWER ZONE PYRITE  
 MASSIVE SULPHIDE  
 MOSAIC BRECCIA  
 88.00 89.20 MCDAME LIMESTONE  
 MOSAIC BRECCIA  
 89.20 98.75 MCDAME LIMESTONE  
 BRECCIATED  
 98.75 105.85 ALTERED MCDAME  
 LIMESTONE CRACKLE  
 BRECCIA PYRITIC

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

HOLE NO: SSD-97-45

SECTION: 43621N

GRID: SILVER CK EX

105.85	110.20	ALTERED MCDAME LIMESTONE RECRYSTALLIZED PYRITIC
110.20	114.35	ALTERED MCDAME LIMESTONE CRACKLE BRECCIA MOSAIC BRECCIA
114.35	114.85	1AA CARBONACEOUS MUDSTONE
114.85	120.25	MCDAME LIMESTONE RUBBLE BRECCIA CRACKLE BRECCIA
120.25	126.49	FAULT ZONE MCDAME LIMESTONE GOUGE ZONE
126.49		END OF HOLE

Checked and signed: \_\_\_\_\_

Date: \_\_\_\_\_



From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
0.00	12.19	OVERBURDEN	OB							
12.19	41.20	1B SANDSTONE Typical 1B sandstone. Dominantly grey. Thickly (over 1 m) to medium to thinly bedded, graded sandstone. Pebbles or granule conglomerate up to 30 cm thick at base of some beds, finer tops commonly interlaminated siltstone and sandstone. Locally thicker intervals (1 to 2 m) of thick or medium interlaminated sandstone and siltstone. Locally disseminated pyrite or pyrite-coated fracture surfaces, but overall not very pyritic. Broken core between about 38 and 40 m but probably not a fault. Consistent bedding core angles. Weak, non-penetrative cleavage parallel to bedding.	1B							
41.20	54.30	1B LAMINATED SILTSTONE / SANDSTONE Pale grey to black, mostly well and medium to thinly interlaminated siltstone and fine sandstone. Some sandstone beds up to a few cm thick. Some laminae graded. Considerably more disseminated pyrite than overlying 1B unit, particularly in sandstone laminae, up to 5% overall. Unit quite broken into rubble, and small gouge zones @ 47.8 m, 49.0 and 50.7 m may be small faults. Some open to moderate buckle folding of laminae in lowest 1 m, around 54 m. 52.25-52.70 QUARTZ VEIN RUBBLE BRECCIA Small zone of deformed quartz-ferruginous vein and adjacent rubble breccia. Sheared vein.	1B							
54.30	55.50	1B LAMINATED SILTSTONE Dark grey, faintly laminated siltstone with weak cleavage. Some quartz veins. Very low core angles in bedding - due to fault-related rotation or folding, quite likely latter.	1B							
55.50	61.05	1AA SILTSTONE RUBBLE Dark grey to black, very carbonaceous and locally calcareous siltstone, argillite and crumbly shale. Core is broken and may include some fault gouge @ around 56 m. Bedding core angles irregular, and some polished cleavage or fracture surfaces. Solid pieces marked by quartz crackle and veinlets.	1AA							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
61.05	76.30	FAULT ZONE NO RECOVERY 1AA Almost no solid core, just rubble (some rounded) and some compacted fault gouge. No recovery between 64.0 and 71.63 m. Probably a fault zone in crackle- or rubble-brecciated 1AA.	FZ							
76.30	77.60	FAULT ZONE 1AA RUBBLE BRECCIA Dusty, dirty breccia, comprising fragments of intensely crackle-veined and probably silicified (pale grey) 1AA argillite in carbonaceous rubbly matrix. Polished slip surfaces in fragments and matrix. Probably faulted equivalent of succeeding interval.	FZ							
77.60	84.50	1AA RUBBLE BRECCIA MCDAME LIMESTONE Rubble breccia, largely broken, composed of tightly packed, angular, quartz-crackle veined pieces of 1AA in a matrix of mainly black carbonaceous and quite calcareous mud and lesser interstitial calcite filling. Some clasts silicified. Limestone clasts and blocks (20 cm across) appear in lowest 2 m, mixed with 1AA debris. All disoriented. Interpretation: solution pocket in limestone, fracturing and veining of overhanging 1AA, collapsing and mixing with limestone debris to form thick rubble breccia. Mainly mud to calcarenite matrix.	1AA							
84.50	87.25	MCDAME LIMESTONE RUBBLE BRECCIA Mostly grey fine-grained limestone with deformed amphipora, generally in blocks or disoriented intervals. Unusually strong ?ductile deformation in limestone. Also considerable rubble breccia, with limestone clasts dominant but some 1AA and pyritic sulphide clasts. Breccia matrix varies from clastic calcarenite, with carbonaceous clasts and mud, to precipitated calcite cement (mosaic breccia). Interpretation as above, but MCDAME LIMESTONE dominant. 86.25-87.25 SAMPLE Mainly limestone, with calcite veinlets	MLS	140278	86.25	87.25	0.02	0.50	0.00	0.00
87.25	88.00	LOWER ZONE PYRITE MASSIVE SULPHIDE MOSAIC BRECCIA Largely coarse white calcite vein with pieces or clots of fine- to medium-grained pyrite, and partly massive pyrite	LZ	140279	87.25	88.00	0.01	0.70	0.01	0.00

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/t	Ag g/t	%Pb	%Zn
		replacement of host limestone. May contain fine sphalerite Pyrite 30%								
88 00	89 20	MCDAME LIMESTONE MOSAIC BRECCIA Broken core. About half is grey crackle-veined packstone limestone, and half is coarse white calcite vein (up to 20 cm thick) or transitional mosaic breccia. No visible mineralization.	MLS	140280	88 00	89 20	0.01	0.40	0.02	0.00
89 20	98 75	MCDAME LIMESTONE BRECCIATED Variably brecciated pale to mid-grey limestone, packstone to floatstone, possibly unit 1. Amphipora main recognizable fossil. Limestone generally has weak to moderate calcite crackle, locally increasing to crackle and mosaic breccia. Weak to moderate stylolites and brecciation throughout. 95 30-96 00 DOLOMITIZED LIMESTONE CRACKLE BRECCIA Mid-grey, medium crystalline, dolomitized limestone, strongly crackle-veined to crackle breccia.	MLS							
98 75	105 85	ALTERED MCDAME LIMESTONE CRACKLE BRECCIA PYRITIC Strongly crackle-veined to moderately crackle-brecciated dolomitized limestone. Mid-buff-grey, medium to coarse crystalline dolomite, cut by calcite crackle and veinlets throughout. Possible stylolitic breccia too, but dolomitization has obscured this and all primary textures. Minor pyrite replacement and stringers, especially in lower half. 103 18-103 68 DOLOMITIZED LIMESTONE SAMPLE About 1% pyrite in dolomitized limestone, with strong calcite crackle stockwork. 103 68-103 95 PYRITIC DOLOMITIZED LIMESTONE Strongest pyrite. About 15% patchy and strong replacement in dolomitized limestone. 103 95-104 45 DOLOMITIZED LIMESTONE SAMPLE Very minor pyrite.	AMLS	140281	103 18	103 68	0.00	0.30	0.00	0.00
				140282	103 68	103 95	0.03	3.00	0.02	0.00
				140284	103 95	104 45	0.00	0.30	0.00	0.00
105 85	110 20	ALTERED MCDAME LIMESTONE RECRYSTALLIZED PYRITIC Still patchy medium-grained, grey dolomitized limestone, but strongly overprinted by a very fine-grained, pure, pale	AMLS	140285	105 85	106 35	0.00	0.30	0.00	0.00

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/t	Ag g/t	%Pb	%Zn
		bluish-white calcitic replacement or recrystallization. Much of it is in veins or streaks, accompanied by irregular stringers of fine-grained pyrite. Overall crackle or stylolitic breccia texture, but almost obscured by this alteration. 105 85-106 35 SAMPLE 106 35-106 95 PYRITIC SAMPLE About 3% pyrite stringers. 106 95-107 45 SAMPLE About 2% interstitial pyrite and stringers.		140286	106 35	106 95	0.00	0.30	0.00	0.00
				140287	106 95	107 45	0.00	0.40	0.00	0.00
110 20	114 35	ALTERED MCDAME LIMESTONE CRACKLE BRECCIA MOSAIC BRECCIA Back into mid-grey, medium crystalline dolomitized limestone. Intensely crackle veined, locally increasing to crackle and mosaic breccia, with calcite matrix. Very minor pyrite in veinlets. Also stylolitic breccia. Fracturing and veining probably due to Camp Creek Fault below. Bottom metre has rubble breccia with carbonaceous mud component.	AMLS							
114 35	114 85	1AA CARBONACEOUS MUDSTONE Not conclusively 1AA, may be McDama. Matte black, very carbonaceous and calcareous, very finely laminated, quite soft mudstone. Slow sedimentation in paleokarst cave. Not brecciated. Sedimentary lower contact.	1AA							
114 85	120 25	MCDAME LIMESTONE RUBBLE BRECCIA CRACKLE BRECCIA Completely brecciated, pale to mid-grey limestone. Mostly rubble breccia, at least partly paleokarst, with weakly bedded, carbonaceous mud and calcarenite matrix. Superimposed by increasing hydrothermal crackle veining to brecciation and patchy carbonate replacement, partly obscuring older breccia textures. Some dolomitization associated.	MLS							
120 25	126 49	FAULT ZONE MCDAME LIMESTONE GOUGE ZONE Mixture of intense pale grey fault gouge, carbonate mud, quite well compacted, and solid grey to white limestone porphyroclasts in blocks 50 cm thick to isolated clasts or lenses less than 1 cm within gouge. Limestone is intensely crackle-veined and brecciated and generally flooded by	FZ							

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au g/mt	Ag g/mt	%Pb	%Zn
		strong carbonate replacement to a speckled chalky white texture. Various foliation/shear angles. Very minor fine-grained pyrite associated with carbonate overprint. Carbonate replacement pre-dates faulting. Camp Creek Fault Zone							

\*\*\* END OF HOLE \*\*\* 125 49

HOLE NO: SSD-97-46

SECTION: 43621N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 1040/16W  
 LOCATION : LIARD MD. B.C.  
 HOLE TYPE : DIAMOND

## \*\*\* DRILLING SUMMARY \*\*\*

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43620.79mN 25050.32mE 1245.02RL

Pre-collar depth: Final depth: 117.96

Purpose of hole: INFILL SILVER CREEK  
 EXTENSION

Hole status: DRILLED TO DEPTH

Comments: LZ OX @51.5-56.6M

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
49.00	57.60	8.60
64.70	69.90	5.20

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
114.30	119.00	-89.00

## \*\*\* SUMMARY LOG \*\*\*

0.00 20.35 OVERBURDEN 1B RUBBLE  
 20.35 34.50 1AA SILTSTONE RUBBLE  
 34.50 36.60 1AA SILTSTONE RUBBLE  
 BRECCIA  
 36.60 42.50 1AA SILTSTONE ARGILLITE  
 42.50 46.30 1AA RUBBLE BRECCIA  
 46.30 50.00 A1A SILICIFIED RUBBLE  
 BRECCIA  
 50.00 51.50 A1A LIMONITIC RUBBLE  
 BRECCIA  
 51.50 56.60 LOWER ZONE OXIDIZED  
 LIMONITIC RUBBLE  
 BRECCIA  
 56.60 65.20 MCDAME LIMESTONE  
 RECRYSTALLIZED  
 65.20 68.90 ALTERED MCDAME  
 LIMESTONE  
 RECRYSTALLIZED PYRITIC  
 68.90 88.35 ALTERED MCDAME  
 LIMESTONE  
 RECRYSTALLIZED  
 88.35 89.85 ALTERED MCDAME  
 LIMESTONE  
 RECRYSTALLIZED PYRITIC  
 89.85 94.95 MCDAME LIMESTONE UNIT  
 3 RECRYSTALLIZED

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

HOLE NO: SSD-97-46

SECTION: 43621N

GRID: SILVER CK EX

94.95	96.65	MCDAME LIMESTONE UNIT 4
96.65	115.30	MCDAME LIMESTONE UNIT 5
115.30	117.96	MCDAME LIMESTONE UNIT 5 RECRYSTALLIZED
117.96		END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn	
0.00	20.35	OVERBURDEN 19 RUBBLE	OB							
20.35	34.50	1AA SILTSTONE RUBBLE Mid- to dark grey to black, thinly and faintly laminated slaty siltstone, siltstone, slate and argillite. Rare fine sandstone laminae. Weak disseminated pyrite. Broken core, chips and blocks or platy chips, but no definite fault. Minor rubble breccia of pale grey cherty argillite @ 24.05 m.	1AA							
34.50	36.60	1AA SILTSTONE RUBBLE BRECCIA Laminated siltstone-argillite in matrix-poor rubble breccia or as disrupted and rotated blocks - maybe just a fractured and jostled interval. Quartz and limonite in minimal matrix.	1AA							
36.60	42.50	1AA SILTSTONE ARGILLITE Pale to dark grey laminated slaty siltstone and argillite. Non-penetrative but good slaty cleavage. Rare fine sandstone laminae. Rusty brown limonitic fracture and cleavage surfaces. Rock locally pock-marked with limonite after pyrite. Bedding commonly disoriented, along core axis due to folding or block rotation. Minor intervals of rubble breccia @ 38 and 41.5 m, with rusty limonitic matrix.	1AA							
42.50	46.30	1AA RUBBLE BRECCIA Mid-grey to black to rusty brown, well-packed clast-supported rubble breccia in 1AA. Various-sized, disoriented fragments of weakly laminated argillite. Not much transportation or mixing. Matrix is clastic, with minimal interstitial quartz, and predominant iron-manganese oxide cement. Argillite is slightly bleached but not silicified.	1AA							
46.30	50.00	A1A SILICIFIED RUBBLE BRECCIA Similar to previous rubble breccia, but 1AA fragments here are moderately to strongly silicified to pale grey to speckled white, fine sugary crystalline texture. Also, more creamy white quartz matrix, some in drusy quartz-lined fracture-fillings 1 to 5 mm thick, with rusty-brown limonite after pyrite. Much core broken along deep-brown ferric oxides-Mn oxidized fractures and limonite-quartz veinlet surfaces. Limonitic pits common. 49.00-50.00 SAMPLE	A1A	140288	49.00	50.00	0.07	42.20	0.32	0.04

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn	
50.00	51.50	A1A LIMONITIC RUBBLE BRECCIA Next stage of rubble breccia has much more limonite and manganese oxide in matrix between pale grey, angular silicified 1AA shards and fragments. Still clast-supported. Rock is broken, porous and very rusty-brown. Presumably intense pyritic stockwork before oxidation.	A1A	140289	50.00	51.50	0.27	147.80	1.17	0.19
51.50	56.60	LOWER ZONE OXIDIZED LIMONITIC RUBBLE BRECCIA Poor recovery - 5.1 m in 1.7 m of rubble core. Mostly orange to dark red-brown ferric oxides and Mn oxides after pyrite. Still contains about 25% porous quartz and small angular shards of grey silicified A1AA. Tentatively Lower Zone, oxidized 1AA - sulphide rubble to matrix breccia. Not clear if sulphide was replacement cement or rubble fragments. Perhaps both.	LZOX	140290	51.50	56.60	0.17	63.60	0.79	0.65
56.60	65.20	MCDAME LIMESTONE RECRYSTALLIZED Pale- to mid-grey, mottled fossiliferous limestone, packstone to floatstone. Fairly abundant <i>amphipora</i> and <i>stromatoporoids</i> . Textures just recognizable through partial, moderate to strong recrystallization - medium to coarse-grained sparite overgrowths and some fine sucrosic recrystallization. Minor calcite crackle; minor limonitic fracture surfaces after pyritic seams. 56.60-57.60 SAMPLE	MLS	140292	56.60	57.60	0.00	0.60	0.01	0.04
		64.70-65.20 LIMESTONE LIMONITIC Slightly recrystallized limestone with strong calcite crackle, and one thin limonitic fracture.		140293	64.70	65.20	0.00	0.70	0.00	0.71
65.20	68.90	ALTERED MCDAME LIMESTONE RECRYSTALLIZED PYRITIC White and creamy-white, strongly altered fossiliferous limestone. Carbonate replacement or recrystallization either as very coarse (1 to 3 cm across) sparite, or fine- to medium-grained, pure sucrosic crystalline. Carbonate replacement accompanied by moderate to strong, medium to coarse pyrite, in seams or in fractures: in 1 to 5-cm thick clots or semi-massive concentrations, or disseminated in carbonate rock. Pyrite definitely part of the replacement, and is commonly at least partly oxidized to limonite.								

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn	
		producing rusty pockets and fractures. Traces of malachite in one								
		65.20-66.45 PYRITIC OXIDIZED White, medium-grained, strongly recrystallized carbonate with coarse disseminated or 1-cm clots of pyrite. Pyritic seams oxidized to limonite in upper 30 cm.	AMLS	140294	65.20	66.45	0.02	1.90	0.00	0.97
		66.45-67.65 RECRYSTALLIZED LIMESTONE Mottled creamy white and grey, recrystallized limestone. Virtually no pyrite but some limonitic fractures.		140295	66.45	67.65	0.00	0.40	0.00	0.36
		67.65-68.90 PYRITIC LIMONITIC White, coarsely recrystallized carbonate with several-cm across patches of medium to coarse pyrite and minor disseminated pyrite cubes, partly oxidized to limonite. Trace of malachite.		140296	67.65	68.90	0.01	0.60	0.00	4.68
58.90	88.35	ALTERED MCDAME LIMESTONE RECRYSTALLIZED Bluish-white, strongly and quite uniformly recrystallized limestone. Primary texture barely recognizable - mainly pale grey to white stromatoporoids. Possibly unit 2. All overprinted by very coarse sparite overgrowths. Accompanied by moderate calcite crackle and stylolites, both probably pre- the carbonate replacement. Uppermost 3 m has sporadic limonitic fractures and stringers. Remainder is unmineralized.								
		68.90-69.90 SAMPLE LIMONITIC ALTERATION Has a few limonitic fracture surfaces.	AMLS	140298	68.90	69.90	0.00	0.30	0.00	0.68
88.35	89.85	ALTERED MCDAME LIMESTONE RECRYSTALLIZED PYRITIC Similar to 65.2-68.9 m interval. Medium- to coarse-grained pyrite, unoxidized, associated with the carbonate replacement in calcitic pockets or in seams. Pyrite 5%.	AMLS							
89.85	94.95	MCDAME LIMESTONE UNIT 3 RECRYSTALLIZED Marginally and patchily altered and recrystallized. Mainly grey fine-grained packstone to amphipora-floatstone, probably unit 3. Patches of white, coarse calcite vein/replacement. Several altered rusty fractures at very low core angles in uppermost 2 m.	MLS3							

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From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
94.95	96.65	MCDAME LIMESTONE UNIT 4 Mid-grey, fine-grained. Euryamphipora-rich floatstone. Faintly recrystallized.	MLS4						
96.65	115.30	MCDAME LIMESTONE UNIT 5 Predominantly grey fossiliferous limestone, packstone to amphipora- or stromatoporoid-rich floatstone or rudstone. Fine, medium and coarse amphipora. Normal calcite crackle, generally not brecciated. Partially dolomitized between 99.45 and 100.2 m. Contorted, 3-cm thick vein of stylolite @ 112.4 m, with one open-space cavity or fracture (about 2 cm wide) lined with coarse euhedral calcite rhombs and spectacular 2-cm long needles of selenite. 96.65-98.25 PYRITIC CRACKLE BRECCIA Moderate calcite crackle veining, borderline microbreccia locally, accompanied by modest fine- to medium-grained, patchy pyrite replacement.	MLS5						
115.30	117.96	MCDAME LIMESTONE UNIT 5 RECRYSTALLIZED Limestone as above, but slightly different colour due to mid, fine- to medium-grained sugary recrystallization.	MLS5						

\*\*\* END OF HOLE \*\*\* 117.96

HOLE NO: SSD-97-47

SECTION: 43701N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 1040/16W  
 LOCATION : LIARD MD. B.C.  
 HOLE TYPE : DIAMOND

\*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	89.31	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR 3000		
Date started:	4/9/97		
Date finished:	5/9/97		
Logged by:	C. REES		
Relogged by:			
Sampled by:	J. LETWIN		

\*\*\* COLLAR COORDINATES AND RL \*\*\*  
 SURVEYED 43700.89mN 24759.63mE 1216.50RL

Pre-collar depth: Final depth: 89.31  
 Purpose of hole: INFILL SILVER CREEK  
 EXTENSION  
 Hole status: DRILLED TO DEPTH  
 Comments: LZ@48.1-52.03M. TWO MINOR  
 LZ ABOVE(ONE OXLZ), ONE  
 BELOW

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

\*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
33.55	40.00	6.45
47.10	53.05	5.95
75.50	78.40	2.90

\*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
45.72	35.00	-89.50
88.37	349.00	-89.00

\*\*\* SUMMARY LOG \*\*\*

0.00	14.98	OVERBURDEN
14.98	18.30	RUBBLE
18.30	19.20	GOUGE ZONE
19.20	33.55	CAVE NO RECOVERY
33.55	36.35	LOWER ZONE OXIDIZED OXIDIZED RUBBLE
36.35	38.00	LOWER ZONE MASSIVE SULPHIDE
38.00	43.40	MCDAME LIMESTONE
43.40	46.40	MCDAME LIMESTONE DOLOMITIZED CRACKLE BRECCIA
46.40	48.10	MCDAME LIMESTONE
48.10	52.03	LOWER ZONE SILICIFIED LIMESTONE RUBBLE BRECCIA
52.03	57.55	MCDAME LIMESTONE BRECCIATED
57.55	58.70	MCDAME LIMESTONE MOSAIC BRECCIA
58.70	60.65	MCDAME LIMESTONE BRECCIATED

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_



HOLE NO: SSD-97-47

SECTION: 43701N

GRID: SILVER CK EX

60.65	65.80	MCDAME LIMESTONE UNIT 2
65.80	73.90	MCDAME LIMESTONE UNIT 3
73.90	76.45	MCDAME LIMESTONE BRECCIATED
76.45	77.25	LOWER ZONE MINERALIZED BRECCIA
77.25	89.31	MCDAME LIMESTONE BRECCIATED
89.31		END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
0 00	14 98	OVERBURDEN	OB							
14 98	18 30	RUBBLE Mixed rubble. Probably none bedrock.	RB							
18 30	19 20	GOUGE ZONE Black compacted gouge comprising small chips (< 5 mm) of black argillite and vein quartz in black carbonaceous mud. May be a fault zone.	GM							
19 20	33 55	CAVE NO RECOVERY	CAVE							
33 55	36 35	LOWER ZONE OXIDIZED OXIDIZED RUBBLE Red-brown-orange, friable sand, granules, and rubble up to 5 cm across. Dominantly limonitic oxide, but some unoxidized galena chunks, dark bluish manganese, and pale yellow clay material. Some remnant host rock material, possibly completely silicified limestone. Interval preserved in 1 m of recovery.	LZO	140225	33 55	36 35	0.19	991.70	36.64	0.71
36 35	38 00	LOWER ZONE MASSIVE SULPHIDE 36 35-37 11 SILICEOUS MASSIVE SULPHIDE May be the unoxidized equivalent of previous unit. About 50% recovery. Mostly rubble. Massive sulphide replacement of silicified host rock (limestone?). Mostly fine to coarse, brassy yellow pyrite intergrown with quartz. Zone of strong, coarse-grained bluish-black sphalerite at beginning. Also small drusy quartz vugs with sphaerite and galena. Not solid massive sulphide. 37 11-38 00 BASE METAL MASSIVE SULPHIDE Solid massive sulphide. Minor remnant silicified limestone at base. Partly fine pyrite and sphalerite but remainder is strong coarse-grained sphalerite and galena. Not brecciated.	LZ	140226 140227	36 35 37 11	37 11 38 00	0.65 0.66	184.50 1430.60	3.46 27.92	1.52 10.73
38 00	43 40	MCDAME LIMESTONE Mottled grey, fossiliferous limestone. Fine grained. Not silicified or dolomitized. Mainly small stromatoporoids. Rather fragmentary texture but not really brecciated. Some calcite crackle and numerous 1 to 5 mm thick calcite veinlets, increasing downwards. 38 00-40 00 MCDAME LIMESTONE SAMPLE As above, with a few cm of rusty rubble @ 38.2 m. Very thin sulphide fractures or stylolitic stringers.	MLS	140230	38 00	40 00	0.02	12.20	0.28	0.29

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
43 40	46 40	MCDAME LIMESTONE DOLOMITIZED CRACKLE BRECCIA Brecciated and dolomitized limestone. ALTERED few vague fossils preserved. Otherwise strong crackle and stylolitic brecciation. Locally expands to mosaic breccia. Dolomitized parts are darker grey, medium crystalline. Some sulphide replacement @ 45.75 m, concentrated on fractures and stylolites. Pyrite and possibly sphalerite.	MLS							
46 40	48 10	MCDAME LIMESTONE Somewhat featureless grey, very fine-grained limestone. Packstone? Some crackle veining. Not altered. 47 10-48 10 SAMPLE Has 1-cm thick vein of galena and pyrite, and possibly sphalerite @ 47.7 m, at 48 deg. To core axis. Rest of sample is barren.	MLS	140231	47 10	48 10	0.02	58.10	1.40	0.32
48 10	52 03	LOWER ZONE SILICIFIED LIMESTONE RUBBLE BRECCIA 48 10-48 35 BASE METAL MASSIVE SULPHIDE VEIN Margin of massive sulphide replacement in limestone. Contact fairly sharp and sub-parallel to core axis. This short interval is vein-like mixture of fine- to medium-grained pyrite, and coarse-grained sphalerite and galena associated with quartz. 48 35-49 50 MINERALIZED RUBBLE BRECCIA Rubble to matrix breccia and crackle breccia. Weakly dolomitized and silicified limestone. Looks more like an in situ hydrothermal brecciation than depositional. Weakly mineralized with fine pyrite, and possibly fine sphalerite replacing some limestone, but mainly infiltrating fractures and stylolitic seams. 49 50-50 53 MINERALIZED RUBBLE BRECCIA Hydrothermal solution collapse rubble- to matrix breccia. Heterolithic poorly sorted fragments in fragmental matrix. Includes sulphide fragments but no Earn. Some fragments dolomitized. Superimposed crackle veining and minor brecciation. Fine pyrite mineralization present as patchy, diffuse replacement of	LZ	140232 140233 140234	48 10 48 35 49 50	48 35 49 50 50 53	0.12 0.29 0.24	819.20 36.50 55.70	19.37 0.87 1.12	4.99 1.59 2.15

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/t	Ag g/t	%Pb	%Zn
		matrix and of fragments, and invading seams and fractures. NB Values may be enhanced by 2-cm thick pyrite-sphaerite-calcite vein at top of interval.								
50	53-51.00	SILICIFIED RUBBLE BRECCIA Probably same rubble breccia but masked by strong milky white silicification. Streaky blotchy colouration. Moderate sulphide replacement in patches and clots including reddish-brown sphaerite.		140235	50.53	51.00	0.79	108.40	1.96	5.81
51.00-52.03		MINERALIZED SILICIFIED LIMESTONE Strongest mineralization of this weak Lower Zone major interval. Not quite massive sulphide except in one 30 cm zone. Silicified limestone rubble breccia host rock. Amphipora still recognizable. Moderate to strong replacement, but patchy or streaky, or in fairly isolated veins. Fine to medium-grained pyrite and locally sphaerite, and minor galena. Minor interstitial white quartz.		140236	51.00	52.03	1.39	219.80	5.90	4.97
52.03	57.55	MCDAME LIMESTONE BRECCIATED Packstone to floatstone fossiliferous limestone, possibly unit 2. Weakly to moderately brecciated, with zones of rubble- and crackle breccia. Probably paleokarst.	MLS	140237	52.03	53.05	0.03	17.70	0.42	0.27
52.03-53.05		MINERALIZED LIMESTONE Packstone to floatstone, slightly rubble brecciated. Some crackle breccia fractures mineralized with fine pyrite in uppermost 20 cm.								
57.55	58.70	MCDAME LIMESTONE MOSAIC BRECCIA Zone of brecciated limestone rich in calcite veining - quite heterolithic mosaic breccia.	MLS							
58.70	60.65	MCDAME LIMESTONE BRECCIATED Fossiliferous limestone, floatstone to rudstone. Amphipora, stromatoporoids, Thamnopora. Probably unit 2. Minor rubble breccia with pyrite fragments, in black fine carbonaceous/sulphide matrix. Remainder is moderate crackle breccia.	MLS							
60.65	65.80	MCDAME LIMESTONE UNIT 2 Fossiliferous floatstone to rudstone, amphipora- and stromatoporoid-rich, with rare Tryplasma. Very minor local rubble breccia or crackle breccia.	MLS2							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/t	Ag g/t	%Pb	%Zn
65.80	73.90	MCDAME LIMESTONE UNIT 3 Appearance of fine amphipora packstone to floatstone, with Tryplasma. Good stromatoporoids after about 71.0 m. Local laminated limy sediment - calcareous-arenite - probably primary or possibly paleokarst, 58.4 m. Grades into rubble breccia. Very local pyrite replacement in matrix. Strong, regular calcite veinlets, 1 to 15 mm thick, between 56 and 70 m, consistently 25 to 55 deg. To core axis.	MLS3							
73.90	76.45	MCDAME LIMESTONE BRECCIATED Thoroughly brecciated limestone. Mainly matrix- to rubble breccia. Larger pieces of limestone, strongly crackle or stylolitic brecciated. Rare sulphide fragments suggest hydrothermal karst. Also minor, mm-scale pyrite replacement, mainly scattered through matrix breccia. Some silicified limestone fragments.	MLS	140238	75.50	76.45	0.08	15.90	0.32	0.47
75.50-76.45		SAMPLE Minor pyrite in matrix.								
76.45	77.25	LOWER ZONE MINERALIZED BRECCIA Nice rubble- to matrix breccia, constituting weak Lower Zone. Heterolithic fragments, 1 mm to several-cm across including: crackle veined limestone, silicified limestone, small chips of 1AA argillite, vein quartz, pyritic- or pyrite-sphaerite-galena sulphide. Significant pyrite replacement in matrix also. May be connected to a decent LOWER ZONE elsewhere, reworked by hydrothermal solution collapse and transportation. Pyrite 15%, sph 8%, gal 5%.	LZ	140239	76.45	77.25	1.02	185.00	4.53	6.54
77.25	89.31	MCDAME LIMESTONE BRECCIATED Completely brecciated, unidentifiable limestone. Variety of textures. Predominantly paleokarst(?) rubble to matrix breccia. Very heterolithic. Much superimposed crackle-veining to brecciation and stylolitic brecciation. Rare sulphide fragments, including coarse galena, suggest at least some later hydrothermal brecciation. Supported by altered limestone fragments. Minor stringers of pyrite replacement. Very large breccia ceosil.	MLS	140240	77.25	78.40	0.03	9.90	0.22	0.19
77.25-78.40		SAMPLE Breccia with strong calcite crackle veining. Minor fine								

From	To	Geological Log	UNIT	SAMPLE: FROM	TO	Au gmt	Ag gwt	%Pb	%Zn
		pyrite in stylonites							

\*\*\* END OF HOLE \*\*\* 89.31

HOLE NO: SSD-97-48

SECTION: 43656N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43656.10mN 24899.20mE 1224.60RL

Pre-collar depth: Final depth: 91.45

Purpose of hole: INFILL SILVER CREEK  
 EXTENSION

Hole status: DRILLED TO DEPTH

Comments: NO LOWER ZONE  
 INTERSECTED, FREQUENT  
 CAVES.

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
45.72	96.00	-86.00
91.45	80.00	-87.50

## \*\*\* SUMMARY LOG \*\*\*

0.00	9.05	OVERBURDEN
9.05	9.14	1AA CARBONACEOUS ARGILLITE
9.14	12.19	NO RECOVERY
12.19	34.75	1AA CARBONACEOUS ARGILLITE
34.75	36.58	NO RECOVERY
36.58	39.62	1AA CARBONACEOUS ARGILLITE
39.62	42.67	MCDAME LIMESTONE BRECCIATED
42.67	44.81	CAVE
44.81	45.72	MCDAME LIMESTONE UNIT 2
45.72	46.00	CAVE
46.00	48.00	MCDAME LIMESTONE UNIT 2 BRECCIATED
48.00	50.80	MCDAME LIMESTONE UNIT 2 BRECCIATED
50.80	54.70	MCDAME LIMESTONE UNIT 2
54.70	74.65	MCDAME LIMESTONE UNIT 3 STYLOLITIC BRECCIA

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	91.45	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR 3000		
Date started:	5/9/97		
Date finished:	5/9/97		
Logged by:	L. LEWIS		
Relogged by:			
Sampled by:	J. LETWIN		

Material left in hole:

Base of complete oxidation

Top of fresh rock:

Water first encountered:

Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
38.60	42.67	4.07
44.81	45.72	0.91
46.00	51.80	5.80

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

1997

SSD-97-48

HOLE NO: SSD-97-48

SECTION: 43656N

GRID: SILVER CK EX

74.65	78.00	MCDAME LIMESTONE UNIT 4 STYLOLITIC BRECCIA
78.00	91.45	MCDAME LIMESTONE UNIT 5
91.45		END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn	
0.00	9.05	OVERBURDEN Two pieces of sandstone rubble between 6.1 - 9.05m (15cm recovery) is likely not in place. *Note: the unconformable surface is about half way through Unit 2, so no Unit 1 remains	OB							
9.05	9.14	1AA CARBONACEOUS ARGILLITE	1AA							
9.14	12.19	NO RECOVERY	NR							
12.19	34.75	1AA CARBONACEOUS ARGILLITE Black, massive to laminated carbonaceous argillite. Platy poker chip core, often in chips. Poor recovery (approximately 45%). Weak to moderately hematite + limonite staining along fractures and bedding planes. Bedding is 75 to core axis. - 24.0 - 24.5m: Chips of carbonaceous argillite with 15% quartz stringers and fracture fillings; possibly an incompetent healed breccia. 2% fine grained pyrite as small clots.	1AA							
34.75	36.58	NO RECOVERY	NR							
36.58	39.62	1AA CARBONACEOUS ARGILLITE As described from 12.19 - 34.75m. Very poor recovery (15%) from 36.58 - 38.6m, consisting of mm to cm size chips, moderate hematite + limonite staining. 5% quartz coating on chips (was possibly a breccia). 38.60-39.62 CARBONACEOUS ARGILLITE CRACKLE BRECCIA 68% recovery of laminated carbonaceous argillite; crackle breccia healed by 6% quartz. Vugs within the quartz are hematite stained, was likely pyrite prior to oxidation. Broken lower contact with rubbly limestone	1AA	140184	38.60	39.62	0.10	67.70	0.02	0.05
39.62	42.67	MCDAME LIMESTONE BRECCIATED 39.62-42.67 LIMESTONE MOSAIC BRECCIA 10% recovery of rubbly limestone mosaic breccia, moderately oxide stained. 15% granular quartz matrix. Probably such poor recovery as this is the roof of an underground cave. The roof of the cave may actually extend up into this interval.	MLS?	140185	39.62	42.67	0.04	9.20	0.02	0.06

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn	
42.67	44.81	CAVE No recovery, and no signs of oxide mud. Drillers block notes cave.	CAVE							
44.81	45.72	MCDAME LIMESTONE UNIT 2 44.81-45.72 FLOATSTONE Amphipora floatstone, 55% recovery, moderate limonite + hematite stain on low angle fractures (5-10 degrees to core axis). This is the roof of another cave.	MLS2	140186	44.81	45.72	0.03	4.10	0.02	0.03
45.72	46.00	CAVE No recovery, drillers block notes cave.	CAVE							
46.00	48.00	MCDAME LIMESTONE UNIT 2 BRECCIATED 46.00-47.00 RUDSTONE CRACKLE BRECCIA Massive stromatoporoid - amphipora rudstone. Moderate stylonites, weak crackle breccia and weak oxide stain. 50% rubbly core. 47.00-48.00 RUDSTONE CRACKLE BRECCIA Similar to previous sample, but weaker oxide stain on fractures. Lower 15cm is rubbly. Broken lower contact with breccia zone.	MLS2	140187	46.00	47.00	0.01	0.70	0.00	0.03
				140188	47.00	48.00	0.00	0.70	0.00	0.01
48.00	50.80	MCDAME LIMESTONE UNIT 2 BRECCIATED General Description: Solution Collapse Structure. Zone of clast-supported rubble breccia containing 80% limestone clast and 5% argillite clasts cemented by 15% calcite. The broken interval has weak to moderate hematite + limonite staining, minor rusty vugs, and good recovery (>85%). The interval has a somewhat odd look - like it may have had 2 episodes of brecciation?? 3% hematite, 1% lim: no visible unoxidized sulphides. Broken lower contact with undeformed limestone. 48.00-48.80 LIMESTONE RUBBLE BRECCIA As in the general description above. The top sample of the breccia zone has the most calcite cement (25%) and strongest oxide staining (5% hematite, 1% limonite). Main fracturing @ 25 to core axis. *Note: Sample 140190 is a duplicate of this interval. 48.80-49.80 LIMESTONE RUBBLE BRECCIA Upper 40cm is massive stromatoporoid and amphipora rudstone rubble. The lower 80cm is rubble breccia	MLS2	140189	48.00	48.80	1.43	1.10	0.00	0.27
				140191	48.80	49.80	0.01	0.70	0.00	0.15
				140192	49.80	50.80	0.01	1.30	0.01	0.45

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		containing 80% limestone, 5% argillite in 15% calcite cement. 49.80-50.80 LIMESTONE / CARBONACEOUS ARGILLITE RUBBLE BRECCIA Rubby breccia of 70% limestone and 10% argillite clasts in a mixed matrix of 15% calcite cement and 5% limy sediment. (Bottom of the solution collapse) 3% hematite, 1% limonite. Broken lower contact. *Note: Sample 140193 is a blank following this interval.								
50.80	54.70	MCDAME LIMESTONE UNIT 2 This is the bottom 4.5m of the massive stromatopora Unit 2 with minor amphipora and intercalated Euryamphipora (eg 53.2m). Lacks oxide staining. Moderate stylolites - one peculiar stylolite from 51.2 - 52.1m which runs parallel to core axis and shows considerable dissolution as the stylolite truncated fossils. 10% rubble core. <1% calcite veining. 50.80-51.80 FLOATSTONE Footwall sample to brecciated zone, as described above. No visible sulphides. <1% calcite stringers. Lacks brecciation.	MLS2	140194	50.80	51.80	0.00	0.70	0.00	0.01
54.70	74.65	MCDAME LIMESTONE UNIT 3 STYLOLITIC BRECCIA The top 4.5m contains the characteristic fine amphipora (1-2mm diameter). The usual intercalated zone of mixed massive stromatopora and amphipora occurs from 58.4 - 65.5m. The bottom 9m is dominated by amphipora floatstone and lesser rudstone. About 60% of the unit is broken along frequent stylolites. Stylolitic contacts are locally strongly carbonaceous. Local crackle breccia, no oxide staining, and pyrite along stylolites. - 54.5 - 64.8m: Minor limestone breccia with mixed calcite cement and limy sediment matrix. - 67.06 - 67.2m: Stylolitic breccia of laminated limy sediment. - 73.5 - 74.5m: Rubble breccia consisting of limestone clasts in a limy sed matrix, 1% pyrite.	MLS3							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
74.65	78.00	MCDAME LIMESTONE UNIT 4 STYLOLITIC BRECCIA Typical laminated Euryamphipora with intercalated massive stromatopora. The unit is broken along frequent stylolites. Trace pyrite. - 76.85 - 77.2m: Small cavern fill of laminated carbonaceous limy sediment, bedding @ 75 to core axis.	MLS4							
78.00	91.45	MCDAME LIMESTONE UNIT 5 The top of Unit 5 consists of packstone and coarse amphipora floatstone (up to 6mm diameter). The core is considerably less broken than the upper units. Minor calcite veining (2%). Trace - 1% pyrite. - 78.23 - 78.33m: 10% fine grained pyrite clots along stylolites and in calcite veining. - 79.4 - 79.65m: Rubble breccia. Small cavern or fissure fill of sub-angular to sub-rounded limestone clasts in limy laminated sediment.	MLS5							

\*\*\* END OF HOLE \*\*\* 91.45



HOLE NO: SSD-97-49

SECTION: 43624N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC.  
 HOLE TYPE : DIAMOND

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	116.45	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	LONGYEAR "38"		
Date started:	5/9/97		
Date finished:	6/9/97		
Logged by:	L. LEWIS		
Relogged by:			
Sampled by:	J. LETWIN		

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43624.50mN 24741.43mE 1230.78RL

Pre-collar depth: Final depth: 116.45

Purpose of hole: INFILL SILVER CREEK  
 EXTENSION

Hole status: DRILLED TO DEPTH

Comments: NO LOWER ZONE  
 INTERSECTED.

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	180.00	-76.00
45.72	169.00	-81.00
113.39	187.00	-83.50

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
61.15	66.70	5.55
106.40	107.25	0.85

## \*\*\* SUMMARY LOG \*\*\*

0.00 11.28 OVERBURDEN  
 11.28 43.45 1B SANDSTONE /  
 CONGLOMERATE /  
 MUDSTONE  
 43.45 57.15 1B  
 SANDSTONE/MUDSTONE  
 57.15 61.15 FAULT ZONE 1B  
 MUDSTONE / SANDSTONE  
 61.15 66.70 1A CARBONACEOUS  
 ARGILLITE RUBBLE  
 BRECCIA  
 66.70 70.55 FAULT ZONE 1A GOUGE  
 70.55 75.20 1AA CARBONACEOUS  
 ARGILLITE  
 75.20 82.00 FAULT ZONE 1AA  
 CARBONACEOUS  
 ARGILLITE  
 82.00 85.60 1AA CARBONACEOUS  
 ARGILLITE CRACKLE  
 BRECCIA  
 85.60 88.45 MCDAME LIMESTONE  
 CRACKLE BRECCIA  
 88.45 89.70 1AC CALCARENITE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

1997

SSD-97-49

HOLE NO: SSD-97-49

SECTION: 43624N

GRID: SILVER CK EX

89.70	105.55	MCDAME LIMESTONE BRECCIATED
105.55	116.45	ALTERED MCDAME LIMESTONE RECRYSTALLIZED BRECCIATED
116.45		END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
0.00	11.28	OVERBURDEN	OB							
11.28	43.45	1B SANDSTONE / CONGLOMERATE / MUDSTONE Unit predominantly medium grey, medium to coarse grained sandstone (65%) - variable from massive, parallel laminated (75 to core axis), and fining upward graded beds. Intermittant pebble conglomerate beds (25%) from 30cm to 1.5m thick, which often grade into coarse sandstone. 10% interbedded black mudstone, 5mm - 10cm thick. Occasional mudstone rip-up clasts in the conglomerate. <1% quartz stringers. Moderately fractured @ 30 degrees. Mudstone beds part easily, forming poker chip core. Trace - 1% disseminated pyrite throughout and local pyrite-chert nodules and coating fractures. Weak to moderately oxidized fractures and bedding planes down to 18.5m - 35.03m: 3mm quartz - sphalerite - galena - pyrite stringer @ 40 to core axis - 35.63m: 4mm quartz - sphalerite - galena - pyrite stringer @ 30 to core axis - 41.0m: 7mm iron-carbonate stringer, 30 degrees to core axis	1B							
43.45	57.15	1B SANDSTONE/MUDSTONE Striped unit of 60% fine to medium grained sandstone, beds massive to flaser bedded, 2mm - 80cm thick. Interbedded with the sandstone is 40% black mudstone, 2mm - 5cm thick. Narrow, fining upward sequences (7cm thick) from sandstone to mudstone (eg. 49.9m), the mudstone often with a wavy scoured top contact with overlying sandstone. Increased pyrite from upper unit. 2% pyrite as abundant disseminations in the sandy beds, as hairline fracture fillings (almost looking like tension gashes), and clots in quartz stringers. Broken lower contact. - 48.9m: 6cm quartz - pyrite stringer, sub-parallel to bedding @ 55 to core axis. 52.00-57.15 SANDSTONE 90% coarse to pebble massive sandstone, 5% conglomerate, 5% mudstone, 1% pyrite and <1% quartz.	1B							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
57.15	61.15	FAULT ZONE 1B MUDSTONE / SANDSTONE 65% recovery of rubble (50%), chips (30%) and gouge (20%). 3% quartz - iron carbonate, as irregular stringers. 2% disseminated and wispy of pyrite.	FZ							
61.15	66.70	1A CARBONACEOUS ARGILLITE RUBBLE BRECCIA General Description: Chaotic rubble breccia / deformed zone of silicified (cherty?) carbonaceous argillite in a quartz matrix. The core is frequently broken along strongly carbonaceous fractures. The silicified argillite is not black like usual, but mottled medium to pale grey. Minor iron carbonate associated with the quartz. Infrequent sulphide stringers (tr-3% pyrite, tr-1% sphalerite). >80% recovery. Broken lower contact with fault / gouge zone. 61.15-62.55 CARBONACEOUS ARGILLITE SILICIFIED As in general description above. Rock almost has a semi-ductile shear fabric. Irregular sulphide stringers (to 3mm) are concentrated in the lower half of the sample. 1% pyrite, 1% red-brown sphalerite, and tr galena. 62.55-63.95 CARBONACEOUS ARGILLITE SILICIFIED Same as previous sample. 1% wispy pyrite, tr sphalerite 63.95-65.35 CARBONACEOUS ARGILLITE SILICIFIED As in general description. 60% rubbly, graphitic core. 65.35-66.70 CARBONACEOUS ARGILLITE SILICIFIED Increased quartz (25%) towards lower contact with fault zone. 3% wispy pyrite and tr sphalerite within the silica matrix. *Note: Sample 140199 is a blank following this interval.	1A	140195	61.15	62.55	0.02	12.30	0.23	0.60
				140196	62.55	63.95	0.01	6.80	0.09	0.28
				140197	63.95	65.35	0.02	6.00	0.09	0.08
				140198	65.35	66.70	0.08	19.50	0.31	0.55
66.70	70.55	FAULT ZONE 1A GOUGE 87% recovery of predominantly graphitic gouge with minor chips and rubble. 3% quartz chips, tr - 1% disseminated pyrite. Broken lower contact.	FZ							

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
70.55	75.20	1AA CARBONACEOUS ARGILLITE Broken interval of rubbly carbonaceous argillite minor gouge from 72.5 - 72.7m. 1% quartz stringers. tr - 1% disseminated pyrite. Trace ductile clear gypsum needles @ 73.5m. Some very shiny, graphitic surfaces possibly indicating bedding - parallel slip.	1AA						
75.20	82.00	FAULT ZONE 1AA CARBONACEOUS ARGILLITE Section of poor recovery (35%) which includes 60% carbonaceous argillite pebbles and 40% graphitic gouge. 5% calcite stringers. Trace disseminated pyrite.	FZ?						
82.00	85.60	1AA CARBONACEOUS ARGILLITE CRACKLE BRECCIA Poor to moderate recovery of calcareous carbonaceous argillite. Calcite (7%) forms the matrix of the crackle breccia. Trace disseminated pyrite. Sharp lower contact with limestone @ 50 to core axis.	CRBX						
85.90	88.45	MCDAME LIMESTONE CRACKLE BRECCIA Rubbly interval of limestone with strong crackle breccia (local mosaic breccia) and frequent carbonaceous stylolites. Several amphipora distinguishable, but the majority of fossils are obliterated. Trace - 1% fine grained pyrite clots and 15% calcite cement. Broken lower contact.	MLS?						
88.45	89.70	1AC CALCARENITE Narrow cavern or channel fill of carbonaceous calcarenite - it actually grades from a carbonaceous argillite (crackle breccia) at the top into a calcarenite at the base with bedding @ 60 to core axis. 2% calcite, tr pyrite. Broken lower contact.	1AC						
89.70	105.55	MCDAME LIMESTONE BRECCIATED Variably brecciated, weak to strong, crackle mosaic and stylolitic breccias. Breccia intensity generally increases downhole. Core frequently broken (average 12 per meter) along carbonaceous stylolites. Trace - 1% fine grained pyrite clots and wisps along stylolitic contacts. Most fossils have been wiped out by the brecciation and local recrystallization, minor amphipora and thamnopora @ 105.35m that are stretched along a foliation / shear direction, 25 degrees to core axis. Lower contact approximately 25 degrees, similar to the shear direction.	MLS?						

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
105.55	116.45	ALTERED MCDAME LIMESTONE RECRYSTALLIZED BRECCIATED General Description: altered, bleached-looking interval of partially recrystallized limestone / carbonate-flooded - now abundant fine grained granular-looking calcite, with wisps and clots of fine grained pyrite (1-5%) along crackle breccia and stylolites. Ductile deformation gives the rock a shear banded texture, variable from 10 - 30 degrees to core axis. Patchy iron carbonate (pale yellow) is often bounded by pyrite. Intermittent dolomitization increases between 111.0 - 112.1m. From 115.2 - 116.43m is intense mosaic breccia. Unit is rubbly with no pieces >10cm in length. Limestone has likely been affected by the Camp Creek Fault structure. Representative sample taken below	AMLS							
		106.40-107.25 RECRYSTALLIZED LIMESTONE CRACKLE BRECCIA Representative sample as in general description above. 40% recrystallized, fine grained calcite. 3% iron-carbonate clots and 5% wisps of pyrite associated with the iron carbonate		140200	106.40	107.25	0.00	1.00	0.01	0.00

\*\*\* END OF HOLE \*\*\* 116.45

HOLE NO: SSD-97-50

SECTION: 43600N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 1040/16W  
 LOCATION : LIARD MD. B.C  
 HOLE TYPE : DIAMOND

\*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	109.73	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR 3000		
Date started:	6/9/97		
Date finished:	6/9/97		
Logged by:	C. REES		
Relogged by:			
Sampled by:	J. LETWIN		

\*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43598.60mN 24940.70mE 1252.40RL

Pre-collar depth: Final depth: 109.73

Purpose of hole: INFILL SILVER CREEK  
 EXTENSION

Hole status: DRILLED TO DEPTH

Comments: LZ @ 71.4-75.0M

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

\*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
57.91	66.00	-85.50
103.63	55.00	-85.00

\*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
70.40	76.50	6.10
90.85	91.30	0.45
91.82	92.55	0.73

\*\*\* SUMMARY LOG \*\*\*

0.00 6.10 OVERBURDEN  
 6.10 21.50 1B SANDSTONE  
 21.50 37.00 1B LAMINATED SILTSTONE  
 / SANDSTONE  
 37.00 42.00 1BA LAMINATED  
 SILTSTONE / SANDSTONE  
 42.00 59.50 1AA LAMINATED SLATE  
 59.50 71.40 1AC SLATY ARGILLITE  
 71.40 75.00 LOWER ZONE MASSIVE  
 SULPHIDE  
 75.00 75.55 MCDAME LIMESTONE  
 RUBBLE BRECCIA MATRIX  
 BRECCIA  
 75.55 87.60 MCDAME LIMESTONE UNIT  
 3  
 87.60 92.55 ALTERED MCDAME  
 LIMESTONE PYRITIC  
 92.55 102.55 MCDAME LIMESTONE UNIT  
 3  
 102.55 104.35 MCDAME LIMESTONE UNIT  
 4  
 104.35 109.73 MCDAME LIMESTONE UNIT  
 5  
 109.73 END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn	
0 00	6 10	OVERBURDEN	OB							
6 10	21 50	1B SANDSTONE Thin to medium-bedded, medium-grained grey sandstone. Locally inter laminated with silty slate. Rusty fractures (near surface oxidation).	1B							
21 50	37 00	1B LAMINATED SILTSTONE / SANDSTONE Dominantly dark grey slaty to shaly siltstone, with frequent laminae 1 to 5 mm thick of sandstone to fine sandstone some of which is rich in fine disseminated pyrite. Some rather low core angles and deformed bedding, indicating folding, and possibly some soft-sediment deformation.	1B							
37 00	42 00	1BA LAMINATED SILTSTONE / SANDSTONE Similar to previous unit, but thinner and less frequent fine sandstone, which is generally pyritic. Minor tectonic deformation.	1BA							
42 00	59 50	1AA LAMINATED SLATE Dark grey to black, homogeneous silty slate with minor spaced laminae of siltstone and strongly pyritic siltstone. Well cleaved, relatively competent rock. Poker chip. Some zones of broken core but no faulting apparent.	1AA							
59 50	71 40	1AC SLATY ARGILLITE Virtually identical appearance to previous interval, but calcareous. Dark grey to black, low-contrast lamination. Carbonaceous slaty argillite and calcareous siltstone. Hockey puck habit. Relatively competent, well cleaved, very fine grained rock. No significant veining or crackle. 70 40-71 40 LAMINATED CALCAREOUS SILTSTONE Bottom 1 m is mid-grey, well- and thinly laminated calcareous siltstone. Still competent, poker chip habit, with good cleavage on more argillaceous laminae. Some calcite crackle and veins up to 1 cm thick.	1AC	139973	70.40	71.40	0.04	4.20	0.01	0.05
71 40	75 00	LOWER ZONE MASSIVE SULPHIDE 71 40-71 70 MCDAME LIMESTONE PYRITIC Short interval before massive sulphide, of rubble breccia comprising large and small limestone fragments and lesser 1A fragments in limy sedimentary matrix. Includes sedimentary contact between Earn and McDame, which is sharp. About half of core is replaced	LZ	139974	71.40	71.70	0.51	57.20	1.78	1.71

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From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn	
		by pyrite and minor galena, hence inclusion in LOWER ZONE.								
		71 70-72.40 MASSIVE SULPHIDE Virtually total massive sulphide replacement. Mostly fine-grained pyrite or pyrite+sphalerite. Younger, open-space filling by coarse-grained pyrite or marcasite, galena, quartz and calcite.		139975	71.70	72.40	1.80	375.00	6.71	7.95
		72 40-73 12 MASSIVE SULPHIDE Similar to previous minor interval. Pyritic massive sulphide, probably with fine intergrown sphalerite. Partly brecciated texture (syn-mineralization). Considerable bladed marcasite and later coarser pyrite. Interstitial quartz and especially calcite. Weaker in galena than bounding samples.		139977	72.40	73.12	1.94	502.50	8.14	2.01
		73 12-74.10 BASE METAL MASSIVE SULPHIDE Syn-mineralization breccia texture, with fragments of fine pyrite massive sulphide in matrix of coarse galena and bladed marcasite, and minor interstitial quartz. May be fine sphalerite in with pyrite. Sample diluted by 8 cm of remnant limestone within otherwise total massive sulphide.		139978 139980	73.12 74.10	74.10 75.00	1.50 1.92	1195.90 175.00	25.01 4.30	3.51 8.70
		74 10-75.00 MASSIVE SULPHIDE BRECCIA Breccia, with almost all clasts and matrix composed of massive sulphide. Most clasts composed of marcasite or fine pyrite, or fine sphalerite, in matrix of fine pyrite and sphalerite. Towards basal contact with host limestone, are clasts of limestone with partial replacement by pyrite. Some coarse galena in matrix here. Interstices in MASSIVE SULPHIDE filled with quartz, red-brown sphalerite and galena. 'Museum samples.								
75 00	75 55	MCDAME LIMESTONE RUBBLE BRECCIA MATRIX BRECCIA Rubble breccia composed of large to small limestone fragments and detritus, rare massive sulphide fragments, and possibly some 1AA. Mostly clast-supported, but bottom 10 cm is matrix-rich and has sedimentary lamination. Actual unconformity contact is sharp, @ 43	MLS	139981	75.00	75.55	0.06	14.20	0.32	0.76

SSD-97-50 Page 2

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/ml	Ag g/ml	%Pb	%Zn
		ceg. To core axis. Suggests LOWER ZONE above invaded a several-m thick depositional conglomerate (rubble breccia) at Earn-McDame unconformity								
75.55	87.60	MCDAME LIMESTONE UNIT 3 Virtually solid, unbrecciated competent limestone. Probably all unit 3, although unit 2 may be only just above (not preserved). Depositional contact with previous rubble breccia unit. Limestone is pale to mid-grey packstone to fossiliferous floatstone, with fine- to coarse amphipora, <i>Thamnopora</i> and stromatopora. No significant dolomitization except for 20 cm very near top 75.55-78.50 SAMPLE Limestone sample, immediately past all LOWER ZONE mineralization.	MLS3	139982	75.55	75.50	0.00	0.20	0.07	0.94
87.60	92.55	ALTERED MCDAME LIMESTONE PYRITIC Somewhat bleached to a pale grey or off-white, much of it fracture-controlled. Remainder is pale grey, finely recrystallized, with loss of primary texture and fossil detail. Features zones of strong, fine- to medium-grained pyrite. Some of it is disseminated, and some is concentrated on margins of calcite veins or along fractures or stylolites. 90.85-91.30 SAMPLE PYRITIC Sample of pyritic mineralization. Disseminated and vein-hosted. 91.82-92.55 PYRITIC SAMPLE Creamy-white recrystallized limestone, with vein- and fracture-controlled pyrite.	AMLS	139983	90.85	91.30	0.00	0.40	0.00	0.10
				139984	91.82	92.55	0.00	0.10	0.06	0.97
92.55	102.55	MCDAME LIMESTONE UNIT 3 Back into unaltered limestone, similar to 75.55 to 87.6 m. Richer in amphipora here, with amphipora rudstone common. Minor crackle veining and breccia, and calcite veins between 97.7 and 100.6 m.	MLS3							
102.55	104.35	MCDAME LIMESTONE UNIT 4 Euryamphipora-rich limestone. Floatstone to rudstone. Minor stylolites and crackle veinlets.	MLS4							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/ml	Ag g/ml	%Pb	%Zn
104.35	109.73	MCDAME LIMESTONE UNIT 5 Mid-grey limestone, mostly packstone with fine- or coarse amphipora floatstone locally. Also stromatopora, minor <i>Thamnopora</i> . Weakly brecciated locally - crackle breccia to some mosaic breccia, and minor stylolitic breccia. No alteration or mineralization.	MLS5							

\*\*\* END OF HOLE \*\*\* 109.73

HOLE NO: SSD-97-51

SECTION: 43597E

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43597.49mN 24938.83mE 1252.32RL

Pre-collar depth: Final depth: 82.30

Purpose of hole: INFILL SILVER CREEK  
 EXTENSION

Hole status: HOLE TERMINATED EARLY IN  
 CAVE

Comments: OXIDE LZ: 3% REC FROM 79.25  
 - 82.3M

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	270.00	-73.00
30.48	227.00	-74.50
76.20	30.00	-76.00

## \*\*\* SUMMARY LOG \*\*\*

0.00 6.10 OVERBURDEN  
 6.10 16.76 1B SANDSTONE /  
 SILTSTONE  
 16.76 19.81 NO RECOVERY  
 19.81 52.00 1BA SILTSTONE /  
 SANDSTONE  
 52.00 67.06 1AA CARBONACEOUS  
 ARGILLITE  
 67.06 79.25 CAVE  
 79.25 82.30 LOWER ZONE OXIDIZED  
 82.30 END OF HOLE

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	82.30	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR 3000		
Date started:	6/9/97		
Date finished:	7/9/97		
Logged by:	L. LEWIS		
Relogged by:			
Sampled by:	J. LETWIN		

Material left in hole:  
 Base of complete oxidation:  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
64.01	67.06	3.05
79.25	82.30	3.05

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_



From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
0.00	6.10	OVERBURDEN	OB							
6.10	16.76	1B SANDSTONE / SILTSTONE Mainly medium grey to rusy, medium grained massive to thickly bedded sandstone with 20% interbedded dark grey massive siltstone, 5mm - 15cm thick. Bedding @ 50 to core axis. Moderate to strong hematite + limonite staining along fractures (10-30 degrees) and bedding planes. Siltstone has a weak phylitic shear. ** - 9.8m: possible graptolites / wood fragments ?? on bedding plane. Elongate serrated profile	1B							
16.76	19.81	NO RECOVERY Difficult to say the reason for no recovery as there is little evidence for faulting - no gouge, etc.	NR							
19.81	52.00	1BA SILTSTONE / SANDSTONE Striped, transitional unit of interbedded dark grey to black, locally carbonaceous siltstone and 15% light grey pyritic fine grained sandstone. Bedding @ 50 to core axis. Sandstone layers from 1mm - 2cm, locally cross-bedded and occasional pods and deformed lenses slumped into the siltstone beds (eg. 46.7m). Trace - 4% pyrite concentrated as semi-massive fine grained bands within the sandstone layers (eg. 44.25m) and also disseminated in the siltstone beds. - 44.5m: 4cm displacement @ 20 degrees to core axis, reverse movement.	1BA							
52.00	67.06	1AA CARBONACEOUS ARGILLITE Black, massive to parallel laminated carbonaceous argillite. Local sandy laminations and thin beds (5%). 1% bedding-parallel quartz - pyrite hairline stringers and pods 75% blocky, broken core with moderate to poor rec. Forms the roof of a large cavern. 64.01-67.06 CARBONACEOUS ARGILLITE RUBBLE 10% recovery of graphitic argillite rubble with a weak powdery white coating (likely not zinc oxide after seeing the assay results). 2% pyrite clots within the rubble	1AA	140351	64.01	67.06	0.01	1.20	0.01	0.42

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
67.06	79.25	CAVE No recovery.	CAVE							
79.25	82.30	LOWER ZONE OXIDIZED 79.25-82.30 IRON OXIDE RUBBLE 3% recovery of hematite rubble (not mud), a few argillite chips, 2 massive sulphide pieces (2cm across) which are 80% galena and 20% pyrite. One sulphide piece was put into the sample bag. No limestone present. *Note: The rods were vibrating badly in the cave and the hole was shut down.	LZOX	140352	79.25	82.30	0.08	1520.10	29.11	7.70

\*\*\* END OF HOLE \*\*\* 82.30

HOLE NO: SSD-97-52

SECTION: 43720N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43720.38mN 24759.81mE 1214.46RL

Pre-collar depth: Final depth:  
 Purpose of hole: INFILL SILVER CREEK  
 EXTENSION  
 Hole status: DRILLED TO DEPTH  
 Comments: LZ OXIDE: 30.5-35.45M, 30%  
 RECOVERY

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
45.72	340.00	-87.00
76.20	339.00	-86.00

## \*\*\* SUMMARY LOG \*\*\*

0.00 18.60 OVERBURDEN  
 18.60 30.50 1A ARGILLITE  
 30.50 35.45 LOWER ZONE OXIDIZED  
 35.45 58.00 MCDAME LIMESTONE UNIT  
 2  
 58.00 78.33 MCDAME LIMESTONE UNIT  
 3  
 78.33 END OF HOLE

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	78.33	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	LONGYEAR "38"		
Date started:	6/9/97		
Date finished:	7/9/97		
Logged by:	L. LEWIS		
Relogged by:			
Sampled by:	J. LETWIN		

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
18.60	35.90	17.30
37.78	38.85	1.07
61.05	67.70	6.65

Checked and signed: \_\_\_\_\_

Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
0.00	18.60	OVERBURDEN Original casing went to 6.10m and then casing was later reamed down to 18.29m. - 6.10 - 18.6m Overburden rubble consisting of predominantly 1B sandstone and minor limestone	OB							
18.60	30.50	1A ARGILLITE Poor recovery (15% overall) of hematite and limonite stained siltstone / argillite. Below 19.6m, core recovered consists only of siltstone / argillite chips and rubble. Turns into mud @ lower contact with oxidized zone 18.60-20.42 ARGILLITE 40% recovery of strongly oxide stained argillite (4% hematite, 3% limonite), very incompetent core - smaller and smaller chips downhole. Below this recovery decreases significantly. 20.42-23.47 ARGILLITE 11% recovery of light grey argillite chips - hard to tell if this is in place or fallen in from above after pulling rods. Moderate oxide stain. 23.47-29.57 ARGILLITE Similar to previous sample. 8% recovery of argillite chips with weak iron oxide stain. 29.57-30.50 ARGILLITE Similar to previous 2 samples. 20% recovery. Argillite chips becoming finer downhole and turns into argillite mud at the base	1A	140357	18.60	20.42	0.021	7.50	0.12	0.38
				140358	20.42	23.47	<5ppm	0.70	0.021	0.11
				140359	23.47	29.57	0.01	3.30	0.13	0.13
				140360	29.57	30.50	0.01	1.90	0.06	0.23
30.50	35.45	LOWER ZONE OXIDIZED 30.50-32.10 OXIDE MUD 30% recovery of mainly limonite mud with a small amount of crumbly chips of dolomitized limestone (?). 32.10-32.61 OXIDE MUD **Note that this sample interval was removed from the core box prior to logging for an ARD sample, but was initially described as similar to the previous sample. 50% recovery of iron oxide mud (70% limonite, 5% hematite) 32.61-35.45 OXIDE MUD 14% recovery of iron oxide mud containing	LZOX	140361	30.50	32.10	0.01	6.40	0.29	1.52
				199665	32.10	32.61	<5ppm	275.00	4.69	31.10
				140362	32.61	35.45	0.02	12.20	0.38	1.73

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		approximately 80% limonite and 10% hematite. *Note: Sample 140363 is a duplicate of this interval.								
35.45	58.00	MCDAME LIMESTONE UNIT 2 Main massive stromatoporoid unit with Thamnopora and rugose coral Tryplasma throughout. Minor amphipora. Intercalated Euryamphipora between 41.65-43.8m, and at 57.3m. Intermittant intervals of strong stylolitization creates massive stromatoporoid framestone (eg 49.3m). The upper contact with the oxide mud is dolomitized and calcite veined. The limestone is silicified from 37.78-39.05m. Small, underground cavern / crack fills with carbonaceous limy sediment and unusual sandy fill in the top one @ 43.95, 45.25 and 50.73m (range from 10 - 70cm). Pyrite is sparse, mainly along stylolites. 6cm pyrite band @ 53.5m. 35.45-35.90 DOLOMITIZED LIMESTONE CRACKLE BRECCIA Footwall sample. Broken upper contact with oxide mud zone. Dolomitized limestone is calcite veined (20%) at 15 degrees to core axis and has moderate crackle breccia. 6% limonite + 3% hematite staining on fractures and in crackle breccia matrix. 35.90-37.78 CAVE NO RECOVERY Possible cave, no mark on drifters block. 37.78-38.85 SILICIFIED LIMESTONE Weak crackle breccia and stylolitic breccia of strongly siliceous limestone - has a deep blue look to it (ie even looks siliceous). Trace pyrite along stylolites. No iron oxides present.	MLS2	140364	35.45	35.90	<5ppm	0.60	0.02	0.14
				140365	37.78	38.85	<5ppm	0.50	0.01	0.02
58.00	78.33	MCDAME LIMESTONE UNIT 3 The top 3 meters contains the characteristic fine amphipora (1-2mm diameter). The following usual massive stromatoporoid interval is unidentifiable due to the oxidized rubble zone from 61.05 - 67.7m (described in the samples below). The bottom portion of the hole, from 67.7 - 78.33m, is dominated by amphipora floatstone and ruststone, the amphipora coarsen downhole to 4mm. Calcite veining common in this interval (67.7 - 78.33m - 15% calcite) with mosaic breccia from 71.9 - 72.5m	MLS3	140366	61.05	63.09	<5ppm	0.60	0.01	0.36

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/m <sup>3</sup>	Ag g/m <sup>3</sup>	%Pb	%Zn
	61 05-63.09	FLOATSTONE BRECCIATED Variably brecciated, crackle - mosaic - stylolitic breccia. Rubbly core with 10% calcite matrix, 6% limonite, 3% hematite staining on fractures. 65% recovery.								
	63 09-63.85	FLOATSTONE STYLOLITIC BRECCIA Less broken and brecciated than above sample. mainly stylolitic breccia with 2% limonite and 1% hematite staining on fractures. 95% recovery.		140367	63 09	63 85	<5ppm	0.30	0.00	0.18
	63 85-64.95	FLOATSTONE OXIDIZED This interval contains the strongest oxidation of the zone with 25% limonite + hematite rubble, while the remainder is rusty stained stromatoporoid floatstone. 90% recovery.		140368	63 85	64 95	0.02	4.40	0.03	0.92
	64 95-66.14	FLOATSTONE CRACKLE BRECCIA Rubbly interval of massive stromatoporoid - amphiopora floatstone, moderate iron oxide staining - 4% limonite, 1% hematite. 80% recovery.		140369	64 95	66 14	<5ppm	0.40	0.03	0.64
	66 14-67.70	FLOATSTONE CRACKLE BRECCIA 40% recovery of bleached, iron oxide stained rubbly floatstone; 3% limonite, 1% hematite. *Note: Sample 140371 is a blank following this interval.		140370	66 14	67 70	<5ppm	0.50	0.04	0.28

\*\*\* END OF HOLE \*\*\*

HOLE NO: SSD-97-53

SECTION: 43620N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 1040/16W  
 LOCATION : LIARD MD, B.C.  
 HOLE TYPE : DIAMOND

\*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	97.54	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR 300		
Date started:	7/9/97		
Date finished:	8/9/97		
Logged by:	C. REES		
Relogged by:			
Sampled by:	J. LETWIN		

\*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43617.93mN 24900.26mE 1244.00RL

Pre-collar depth: Final depth: 97.54  
 Purpose of hole: INFILL SILVER CREEK  
 EXTENSION  
 Hole status: DRILLED TO DEPTH  
 Comments: LZ @ 73.7-80.95M

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

\*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	180.00	-75.00
91.44	182.00	-75.00

\*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
72.15	82.30	10.15

\*\*\* SUMMARY LOG \*\*\*

0.00 7.62 OVERBURDEN  
 7.62 20.00 1B SANDSTONE  
 20.00 40.30 1B LAMINATED SILTSTONE  
 / SANDSTONE  
 40.30 43.40 1BA LAMINATED  
 SILTSTONE  
 43.40 60.50 1AA INTERBEDDED  
 SILTSTONE / ARGILLITE  
 60.50 73.17 1AC CALCAREOUS  
 SILTSTONE ARGILLITE  
 73.17 73.70 MCDAME LIMESTONE  
 73.70 80.95 LOWER ZONE MASSIVE  
 SULPHIDE  
 80.95 86.80 MCDAME LIMESTONE UNIT  
 2  
 86.80 89.00 VEIN  
 89.00 91.00 MCDAME LIMESTONE UNIT  
 2 BRECCIATED  
 91.00 92.05 VEIN  
 92.05 93.00 MCDAME LIMESTONE UNIT  
 2 RUBBLE BRECCIA  
 MATRIX BRECCIA  
 93.00 95.50 MCDAME LIMESTONE UNIT  
 2  
 95.50 97.54 MCDAME LIMESTONE UNIT  
 3

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

1997

SSD-97-53

HOLE NO: SSD-97-53

SECTION: 43620N

GRID: SILVER CK EX

97.54

END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
0.00	7.62	OVERBURDEN	OB							
7.62	20.00	1B SANDSTONE Broken, rubbly core. Grey, medium bedded, medium-grained sandstone	1B							
20.00	40.30	1B LAMINATED SILTSTONE / SANDSTONE Mostly mid- to dark grey banded thin- to medium interaminated siltstone, silty siltstone or argillite and sandstone. Locally sandstone beds up to a few cm thick, but usually forms infrequent laminae 1 to 5 mm thick within finer lithologies. Generally has fine disseminated pyrite. Consistent core angles. Unit generally fines downwards.	1B							
40.30	43.40	1BA LAMINATED SILTSTONE Transitional contacts above and below. Well laminated dark grey slaty siltstone to argillite with minor thin, pyritic fine sandstone laminae, decreasing in frequency downwards.	1BA							
43.40	60.50	1AA INTERBEDDED SILTSTONE / ARGILLITE Dark grey to almost black, fairly competent, slaty argillite and siltstone. Well and thinly interlaminated, but colour differentiation is faint. Hockey puck to poker chip habit, with much broken core, but no faults except possibly a small one @ 48.6 m. Very minor paler grey fine sandstone laminae.	1AA							
60.50	73.17	1AC CALCAREOUS SILTSTONE ARGILLITE Only change from previous interval is gradual increase in calcareous cement. Still dark grey to black, competent, carbonaceous, moderately silty siltstone/argillite. Some polished cleavage surfaces. Poker chips. Not especially laminated except in bottom 2 m, which is finely laminated, coarsening downwards, mid-grey calcareous siltstone to fine calcareous-arenite. Very sharp depositional contact with MCDAME LIMESTONE below. No brecciation, fracturing or alteration. 72.15-73.17 SAMPLE CALCAREOUS SILTSTONE Bottom metre sample. No mineralization visible.	1AC	140210	72.15	73.17	0.01	1.70	0.02	0.07
73.17	73.70	MCDAME LIMESTONE Grey, weakly fossiliferous limestone. Some crackle and stylolitic breccia but no mineralization or alteration beyond a trace of very thin pyrite stringers in moderate foriation.	MLS	140211	73.17	73.70	0.00	2.80	0.05	0.02

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
73.70	80.95	LOWER ZONE MASSIVE SULPHIDE 73.70-74.55 BASE METAL MASSIVE SULPHIDE All massive sulphide except for 2% faint patches of silicified limestone host rock. Mostly fine- to medium-grained pyrite +/- sphalerite with discontinuous bands or clots of very coarse-grained red-brown sphalerite and galena. Also patches of fairly coarse yellow pyrite and some marcasite needles, the latter mainly associated with interstitial quartz infilling. 74.55-75.60 BASE METAL MASSIVE SULPHIDE Very similar to previous. Minor silicified limestone host. Remainder mainly fine to medium-grained pyrite/sphalerite massive sulphide. Local banding of coarse-grained sphalerite, galena, pyrite and interstitial quartz at about 70 deg. To core axis is even more clear here, as if these late minerals filled subhorizontal spaces between early-formed finer sulphides. Strong marcasite needles in places. 75.60-76.55 BASE METAL MASSIVE SULPHIDE Similar to previous, but slightly less galena. Patchy texture, either fine to medium (marcasite) grained pyrite-rich, or brown, fine-grained sphalerite-rich. Latter has locally strong galena. Also patches of quartz or calcite interstitial filling. 76.55-77.20 MASSIVE SULPHIDE RUBBLE Broken core. Texture not discernible. Rubble varies from bright yellow pyrite/marcasite to dull brown, fine- to medium-grained sulphide, which is probably pyrite-sphalerite mixture. 77.20-78.00 MASSIVE SULPHIDE Mostly broken core again. Fine to medium-grained pyrite and brownish fine-grained sphalerite. Brassy yellow, coarse pyrite, locally with marcasite texture. 78.00-78.60 MASSIVE SULPHIDE Broken core and compacted broken core rubble. Pyrite and sphalerite-rich massive sulphide. Fine to medium to coarse grained. Relatively minor galena. 78.60-79.20 MCDAME LIMESTONE RUBBLE	LZ	140212 140214 140216 140217 140218 140219 140220	73.70 74.55 75.60 76.55 77.20 78.00 78.60 79.20	74.55 75.60 76.55 77.20 78.00 78.60 79.20	1.07 1.69 2.44 1.88 2.04 1.74 0.24	577.10 663.50 629.90 133.90 221.80 461.00 33.00	11.07 11.14 10.86 2.75 4.71 9.01 0.56	9.87 9.02 5.67 9.87 12.84 13.42 1.90

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		<b>BRECCIA</b> Interval of bedded limestone sediment to breccia. Fairly good lamination, generally 0.5 to 2 cm thick of limy sand and bluish-black carbonaceous/sulphide-rich sand or mud. Fragments of limestone a few mm across are common. Also larger (several cm across) fragments of transported limestone. May be a paleokarst cavity/channel sediment. Not really silicified or mineralized but box contains sulphide pieces (misplaced?). Very fine pyrite along stylolites or hairline fractures.								
	79.20-80.00	<b>ALTERED MCDAME LIMESTONE MASSIVE SULPHIDE</b> Partly limestone rubble to stylolitic breccia host rock. Some is partially silicified. Apparently some sulphide fragments present, so may be syn-mineralization breccia, at least in part. Remainder of interval is massive sulphide replacement although some brecciated texture too. Sulphides invade rubble breccia matrix. Top of interval is 10-cm thick vein-like massive sulphide with coarse galena and sphalerite.		140221	79.20	80.00	0.71	208.70	4.48	4.58
	80.00-80.95	<b>MASSIVE SULPHIDE LIMESTONE</b> Bottom margin of LOWER ZONE. About 75% strong massive sulphide replacement. Clear replacement fronts but also has rubble-matrix breccia texture suggesting some disruption after precipitation. Strong sphalerite. Remaining 25% limestone host has stylolites and minor pyrite stringers.		140222	80.00	80.95	1.21	143.60	2.98	8.43
80.95	86.80	<b>MCDAME LIMESTONE UNIT 2</b> Pale to mid-grey fossiliferous limestone. Amphipora and stromatopora floatstone to locally rudstone, and some packstone. Rare Thamnopora and possibly Tryplasma. Uppermost 3.5 m features moderate crackle veining and slight brecciation, and stylolites, but otherwise is generally undeformed. Calcite veinlets 1 to 8 mm thick consistently about 25 deg. To core axis.								
	80.95-81.20	<b>MINERALIZED LIMESTONE</b> Limestone essentially outside LOWER ZONE, but with	MLS2	140223	80.95	81.20	0.20	23.80	0.56	1.14

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		a several-cm thick seam of matrix breccia or limestone sediment, with significant sulphides. Not clear if replacement or fragments.								
	81.20-82.30	<b>LIMESTONE SAMPLE</b> Undeformed, unmineralized limestone below LOWER ZONE.		140224	81.20	82.30	0.01	0.40	0.01	0.01
	83.65-83.80	<b>ALTERED RUBBLE BRECCIA</b> Somewhat odd, thin band of rubble breccia comprising generally small (mm-size) limestone fragments in a porous, altered (probably oxidized) matrix of grey carbonate cement and black carbonaceous/sulphide mud. May have had sulphide fragments, now oxidized and blackened. Forms a thin band or fissure in limestone, which is otherwise unmodified.								
86.80	89.00	<b>VEIN</b> About 90% calcite vein (remainder is host limestone as pendants and blocks mainly near top and bottom contacts). Creamy white, very coarse-grained, with euhedral calcite crystals several cm across. Appears to be a large tension fracture-filling in limestone, possibly around 20 deg. To core axis. No mineralization or alteration associated.	VEIN							
89.00	91.00	<b>MCDAME LIMESTONE UNIT 2 BRECCIATED</b> Unit 2 fossiliferous limestone, with weak to moderate calcite veinlets and associated brecciation, from crackle to minor mosaic breccia. Some stylolitic breccia top.	MLS2							
91.00	92.05	<b>VEIN</b> Another creamy white, very coarse grained calcite vein. Bounded by a few cm of mosaic breccia in limestone above and below.	VEIN							
92.05	93.00	<b>MCDAME LIMESTONE UNIT 2 RUBBLE BRECCIA MATRIX BRECCIA</b> Short interval of brecciated limestone, including rubble to matrix breccia with very black carbonaceous or fine sulphide matrix. Trace of laminated limy sediment. May have been a paleokarst channel. Above and below is minor rubble breccia and mosaic breccia with calcite cement.	MLS2							



From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
93.00	95.50	MCDAME LIMESTONE UNIT 2 Undeformed fossiliferous limestone	MLS2						
95.50	97.54	MCDAME LIMESTONE UNIT 3 Mostly grey packstone to fine-amorphous fossiliferous limestone. Also Tryplasma, notably. Minor crackle and stylolitic breccia at end of hole.	MLS3						

\*\*\* END OF HOLE \*\*\* 97.54

HOLE NO: SSD-97-54

SECTION: 43785N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 1040/16W  
 LOCATION : LIARD MD, B.C.  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43785.42mN 24744.54mE 1199.06RL

Pre-collar depth: Final depth: 93.57

Purpose of hole: INFILL SILVER CREEK  
 EXTENSION

Hole status: DRILLED TO DEPTH

Comments: STRAIGHT INTO MLS AT 23.6M

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
45.72	109.00	-89.00
89.00	159.00	-89.00

## \*\*\* SUMMARY LOG \*\*\*

0.00	23.35	OVERBURDEN 18 RUBBLE
23.35	23.60	1AA BRECCIATED
23.60	29.55	ALTERED MCDAME LIMESTONE CRACKLE BRECCIA RUBBLE
29.55	30.60	ALTERED MCDAME LIMESTONE DOLOMITIZED LIMESTONE CRACKLE BRECCIA
30.60	33.80	ALTERED MCDAME LIMESTONE CARBONATE ALTERATION CRACKLE BRECCIA
33.80	38.20	ALTERED MCDAME LIMESTONE DOLOMITIZED LIMESTONE CRACKLE BRECCIA
38.20	43.15	ALTERED MCDAME LIMESTONE CRACKLE BRECCIA
43.15	47.55	MCDAME LIMESTONE RUBBLE BRECCIA
47.55	56.10	MCDAME LIMESTONE CRACKLE BRECCIA

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00 93.57 HQ
Drill contractor:	OLYMPIC DRILLING
Drill rig:	LONGYEAR "38"
Date started:	7/9/97
Date finished:	9/9/97
Logged by:	C. REES
Relogged by:	
Sampled by:	J. LETWIN

Material left in hole:

Base of complete oxidation

Top of fresh rock:

Water first encountered:

Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
56.10	56.70	0.60

Checked and signed: \_\_\_\_\_

Date: \_\_\_\_\_

HOLE NO: SSD-97-54

SECTION: 43785N

GRID: SILVER CK EX

56.10	60.10	MCDAME LIMESTONE BRECCIATED PYRITIC
60.10	62.90	MCDAME LIMESTONE RECRYSTALLIZED
62.90	63.10	1AA CALCARENITE MATRIX BRECCIA
63.10	64.90	ALTERED MCDAME LIMESTONE RUBBLE BRECCIA STYLOLITIC BRECCIA
64.90	68.70	FAULT ZONE CALCAREOUS GOUGE
68.70	72.30	MCDAME LIMESTONE
72.30	75.35	ALTERED MCDAME LIMESTONE DOLOMITIZED LIMESTONE CRACKLE BRECCIA
75.35	81.10	MCDAME LIMESTONE CRACKLE BRECCIA
81.10	89.90	ALTERED MCDAME LIMESTONE DOLOMITIZED LIMESTONE CRACKLE BRECCIA
89.90	93.57	ALTERED MCDAME LIMESTONE DOLOMITIZED LIMESTONE BRECCIATED
93.57		END OF HOLE

Checked and signed: \_\_\_\_\_

Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/l	Ag gm/l	%Pb	%Zn
0.00	23.35	OVERBURDEN 13 RUBBLE	OB						
23.35	23.60	1AA BRECCIATED Disoriented, fractured pieces of 1AA non-ca calcareous argillite, cemented by porous orange-brown limonitic cement. May be recent ferrocrete-like deposit. Broken core	AA						
23.60	29.55	ALTERED MCDAME LIMESTONE CRACKLE BRECCIA RUBBLE Poor recovery, 6 m in 3.85 m. Largely somewhat ground rubble and chips. Altered-looking limestone - very fine grained, milky pale to mid-grey, possibly weakly silicified locally. Veined and very finely crackle-brecciated with calcite, and possibly flooded by a carbonate and ferro-carbonate (creamy-buff-orange) alteration. Many rusty limonitic fractures	AMLS						
29.55	30.60	ALTERED MCDAME LIMESTONE DOLOMITIZED LIMESTONE CRACKLE BRECCIA Mid- to dark grey, medium-grained dolomitized limestone, intensely and very finely crackled and overprinted by related carbonate and ferro-carbonate alteration.	AMLS						
30.60	33.60	ALTERED MCDAME LIMESTONE CARBONATE ALTERATION CRACKLE BRECCIA Strongly hydrothermally altered limestone. Flooded by carbonate through intense fine crackle brecciation and stylolitic seams. Vague blotchy carbonate and lesser ferrocarbonate replacement throughout. Primary textures obliterated. Several deep orange-brown patches and fractures of limonite, after oxidized pyrite	AMLS						
33.60	38.20	ALTERED MCDAME LIMESTONE DOLOMITIZED LIMESTONE CRACKLE BRECCIA As above, but most of limestone was dolomitized before or during intense crackle veining and invasion by hydrothermal carbonate in crackle, veinlets or in larger replacement patches.	AMLS						
38.20	43.15	ALTERED MCDAME LIMESTONE CRACKLE BRECCIA Less intensely crackle-veined and altered than above units. Mid-grey, fine- to very fine grained limestone, strongly and finely crackled by carbonate and larger (1 to 5 mm thick) calcite veinlets. Locally, pale pinkish-grey	AMLS						

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/l	Ag gm/l	%Pb	%Zn	
		bleaching/alteration permeates limestone, commonly emanating from fractures, crackle or stylolites. Some crackle- and mosaic-brecciation. Primary texture still obscure. Minor rusty fractures								
43.15	47.55	MCDAME LIMESTONE RUBBLE BRECCIA Still weak (to moderate) hydrothermal overprint, but here ?paleokarst rubble breccia texture apparent. Mixed, unsorted, mainly clast-supported rubble breccia. Superimposed by patchy calcite crackle, stylolites and local mosaic breccia. Minor patchy carbonate replacement, and fine grained replacement pyrite stringers, mainly in matrix, also a trace of galena	MLS							
47.55	56.10	MCDAME LIMESTONE CRACKLE BRECCIA Strengthening of fine (<1 mm) calcite crackle veining in limestone again, accompanied by stylolites and general, moderate, patchy carbonate overprint. Possibly some rubble breccia locally. Limestone is generally mid- to dark grey, fine grained. Zones of amphipora-rich floatstone recognizable in places. Locally, small patches of bleaching or carbonate replacement, some accompanied by fine stringy pyrite, especially around stronger crackle.	MLS							
56.10	60.10	MCDAME LIMESTONE BRECCIATED PYRITIC 56.10-56.20 LIMONITIC RUBBLE Small zone of rusty, limonitic limestone rubble. 56.20-56.70 RUBBLE BRECCIA PYRITIC Minor rubble breccia, with small amount of patchy (<1 cm) to stringy very fine pyrite, in matrix or along stylolites. 56.70-60.10 CRACKLE BRECCIA RUBBLE BRECCIA Mid-grey, fine-grained limestone, comprising packstone, amphipora-floatstone, or mixed rubble breccia. All generally affected by crackle veining, weak to locally strong, in places increasing to crackle breccia. Local patches of pale pinkish-grey bleaching or recrystallization. Weak, fine pyrite in matrix of rubble breccia.	MLS	140299 140300	56.10 56.20	56.20 56.70	0.00 0.00	13.00 6.50	0.05 0.01	9.75 0.55

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gwt	Ag gwt	%Pb	%Zn
60.10	62.90	MCDAME LIMESTONE RECRYSTALLIZED Packstone to amphipora-floatstone to rudstone. Calcite crackle and veinlets increase downwards but not strong, and no brecciation. Main feature is pale milky grey mottling, commonly fracture-controlled, indicating bleaching and recrystallization. Increases with depth. Bottom 15 cm is calcite mosaic breccia with 1AA fragments and very minor sulphides.	MLS						
62.90	63.10	1AA CALCARENITE MATRIX BRECCIA Thin unit of well and thinly laminated 1AA (assumed) pale grey to black calcareous-arenite and silty shale. Lower half immediately above next unit of MCDAME LIMESTONE is carbonaceous matrix breccia. Thin palekarst deposit. Bedding 55 deg. To core axis.	1AA						
63.10	64.90	ALTERED MCDAME LIMESTONE RUBBLE BRECCIA STYLOLITIC BRECCIA Upper 20 cm is rubble breccia with minor calcareous-arenite matrix. Remainder is generally altered-looking, finely brecciated limestone. All primary textures obscured by closely-spaced (0.5 to 1.5 cm) fine stylolites and related calcite crackle and general recrystallization. Trace of fine pyrite stringers.	AMLS						
64.90	68.70	FAULT ZONE CALCAREOUS GOUGE Part of Camp Creek Fault System. Mixture of predominant mid-grey, calcareous gouge-mud and limestone porphyroclasts from mm-scale to blocks 10 cm thick. Gouge has anastomosing foliation but quite variable from 90 to 50 deg. To core axis. Some porphyroclasts have irregular sutured margins, suggesting pressure solution within fault. Rare pyritic limestone fragments.	FZ						
68.70	72.30	MCDAME LIMESTONE Mid-grey fine crystalline packstone to amphipora-floatstone. Perhaps slightly recrystallized. Weak to moderate calcite crackle veinlets, locally brecciating rock. Limestone quite deformed - semi-ductile with flattened amphipora.	MLS						

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gwt	Ag gwt	%Pb	%Zn
72.30	75.35	ALTERED MCDAME LIMESTONE DOLOMITIZED LIMESTONE CRACKLE BRECCIA Altered and delicately brecciated limestone. Mainly dolomitization but some silicification. Mid- to dark grey, fine to medium-grained. Riddled with moderate to intense calcite crackle stockwork. Presumably highly fractured footwall of fault. Local paler grey bleaching/recrystallization. Minor mosaic breccias.	AMLS						
75.35	81.10	MCDAME LIMESTONE CRACKLE BRECCIA Mostly intact, grey fine-grained limestone, locally amphipora-rich. Upper 2 m has numerous stylolites at high core angle. Calcite crackle and veining varies from weak to moderate, with local crackle to mosaic breccia over 10 to 30 cm. One 15-cm zone of dolomitized limestone.	MLS						
81.10	89.90	ALTERED MCDAME LIMESTONE DOLOMITIZED LIMESTONE CRACKLE BRECCIA Somewhat variable but essentially moderately crackle-veined dolomitized limestone. Locally silicified too. Darkish-grey, medium-grained crystalline texture, with zones 5 to 10 cm thick with amphipora preserved. Also a couple of narrow zones of paler bluish-grey undolomitized limestone. Weak to moderate calcite crackle and 1 to 5 mm thick veinlets throughout, locally strengthening to crackle breccia. ALTERED few rusty fractures but no evidence of mineralization. Uppermost 2 m has patches of, and fracture-controlled, bleaching/carbonate replacement. Don't think unit is MCDAME DOLOSTONE. Bottom 2 m is very broken core.	AMLS						
89.90	93.57	ALTERED MCDAME LIMESTONE DOLOMITIZED LIMESTONE BRECCIATED Similar to previous unit. Darkish-grey, fine to medium crystalline, dolomitized and locally silicified limestone with moderate to strong calcite crackle and veinlets. Zones, fissures of somewhat stronger crackle to rubble breccia locally with a fracture-related bleaching alteration of matrix. No remnant limestone or primary textures here. Trace pyrite.	AMLS						

HOLE NO: SSD-97-55

SECTION: 43620N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 1040/16W  
 LOCATION : LIARD MD, B.C.  
 HOLE TYPE : DIAMOND

\*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	106.68	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR 3000		
Date started:	8/9/97		
Date finished:	9/9/97		
Logged by:	C. REES		
Relogged by:			
Sampled by:	J. LETWIN		

\*\*\* COLLAR COORDINATES AND RL \*\*\*  
 SURVEYED 43619.34mN 24898.66mE 1244.24RL

Pre-collar depth: Final depth: 106.68  
 Purpose of hole: INFILL SILVER CREEK  
 EXTENSION  
 Hole status: DRILLED TO DEPTH  
 Comments: NO LZ INTERCEPTED

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

\*\*\* SURVEY DATA \*\*\*  
 Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	270.00	-87.00
45.72	309.00	-86.50
100.58	319.00	-86.00

\*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
66.30	69.70	3.40
76.35	77.42	1.07

\*\*\* SUMMARY LOG \*\*\*

0.00	15.24	OVERBURDEN
15.24	24.38	NO RECOVERY
24.38	29.25	1B SANDSTONE
29.25	38.40	1B INTERLAMINATED SILTSTONE / SANDSTONE
38.40	52.73	1AA INTERBEDDED SILTSTONE / ARGILLITE
52.73	56.39	NO RECOVERY
56.39	66.30	1AA CALCAREOUS ARGILLITE/SILTSTONE
66.30	66.85	1AC CALCARENITE LAMINATED SILTSTONE
66.85	68.70	MCDAME LIMESTONE 1A RUBBLE BRECCIA
68.70	76.85	MCDAME LIMESTONE UNIT 2
76.85	76.92	MASSIVE SULPHIDE PYRITIC
76.92	79.15	MCDAME LIMESTONE UNIT 2 MOSAIC BRECCIA RUBBLE BRECCIA
79.15	88.75	MCDAME LIMESTONE UNIT 2
88.75	106.68	MCDAME LIMESTONE UNIT 3

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

1997

SSD-97-55

HOLE NO: SSD-97-55

SECTION: 43620N

GRID: SILVER CK EX

106.68

END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
0.00	15.24	OVERBURDEN	OB							
15.24	24.38	NO RECOVERY	NR							
24.38	29.25	1B SANDSTONE Very poor recovery. Rubble	1B							
29.25	38.40	1B INTERLAMINATED SILTSTONE / SANDSTONE Well and thinly interlamined dark grey siltstone and paler grey, fine to medium-grained sandstone. Siltstone increases with depth. Quite pyritic especially sandstone. Very regular lamination, mm-scale, consistent core angles. Moderate non-penetrative slaty cleavage. Hockey puck habit. Gradation to next unit, 1AA.	1B							
38.40	52.73	1AA INTERBEDDED SILTSTONE / ARGILLITE Dark grey to black thin to medium laminated siltstone to argillite. Quite carbonaceous. Weak to moderate bedding-parallel cleavage. Occasional 1 to 5 mm thick pyritic fine sandstone laminae. Otherwise uniform (laminated) unit. Quite consistent bedding core angles. Rare pale grey deformed cherty argillite laminae and associated quartz crackle. 2 to 4-mm thick quartz veinlets @ 15 deg. To core axis, locally. Possible minor fault @ 45.5 m.	1AA							
52.73	56.39	NO RECOVERY	NR							
56.39	66.30	1AA CALCAREOUS ARGILLITE/SILTSTONE Similar to above, but weakly calcareous, more carbonaceous; less pyritic; less well laminated; and more argillaceous with a more penetrative slaty cleavage. Poker chip habit. Dense black slaty argillite or slate. Minor siltstone laminae. Very broken, platy slaty chips. Very little quartz crackle or fracturing.	1AA							
66.30	66.85	1AC CALCARENITE LAMINATED SILTSTONE Finely laminated, pale to dark grey, fine to medium-grained calcareous-arenite to calcareous siltstone. Rubbly core but rock not fractured or brecciated.	1AA	140301	66.30	66.85	0.00	2.90	0.00	0.03
66.85	68.70	MCDAME LIMESTONE 1A RUBBLE BRECCIA 66.85-67.90 MCDAME LIMESTONE/1A ARGILLITE RUBBLE BRECCIA Probably paleokarst rubble breccia, but post-Jurassic	MLS	140302	66.85	67.90	0.00	1.00	0.00	0.00

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		deformation. Mixed, unsorted, clast-supported breccia of angular to subrounded limestone, and lesser chips and blocks of pre-lithified 1AA. Fine rubble or litharenite matrix. About 1% fine pyrite in matrix and possibly one fragment. Unclear why overlying 1AC unit is not more brecciated if this is a solution pocket. 67.90-68.70 1A/MLS RUBBLE BRECCIA Similar to above, but much more and larger 1AA rubble than limestone. Latter is mainly smaller fragments in carbonaceous calcareous-arenite matrix. 1AA-clast-supported. 1% pyrite in matrix, probably hydrothermal mainly but some clastic. Fairly sharp contact with solid MCDAME LIMESTONE of next unit.		140303	67.90	68.70	0.01	2.70	0.01	0.20
68.70	76.85	MCDAME LIMESTONE UNIT 2 Fossiliferous limestone. Typical stromatopora- and amphipora-rich floatstone to local rudstone, with a few <i>Thamnopora</i> and <i>Tryplasma</i> . Brecciated moderately by widespread stylolites throughout, and by locally strong calcite veinlets and crackle, culminating in places in crackle- and mosaic breccia zones a few cm thick. One or two open cavities or veins lined with very coarse calcite rhombs. 68.70-69.70 LIMESTONE SAMPLE	MLS2	140304 140305	68.70 76.35	69.70 76.85	0.00 0.00	0.30 0.30	0.00 0.00	0.02 0.01
76.85	76.92	76.35-76.85 LIMESTONE SAMPLE MASSIVE SULPHIDE PYRITIC Perhaps vein- or bedding plane- controlled replacement, comprising massive fine-grained pyrite with minor interstitial calcite. Sharp replacement front on upper contact. 7 cm thick, virtually normal to core axis.	MS	140306	76.85	76.92	0.00	0.50	0.00	0.02
76.92	79.15	MCDAME LIMESTONE UNIT 2 MOSAIC BRECCIA RUBBLE BRECCIA Variety of breccias. Some crackle to mosaic breccia, with calcite veins up to 15 cm thick. Local rubble breccia with either clastic matrix or vein calcite cement, both up to 20 cm thick. Intervening limestone has marked stylolitic breccia. Notable zone @ 78.7 m of irregularly laminated.								



From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au g/m <sup>3</sup>	Ag g/m <sup>3</sup>	%Pb	%Zn	
		highly carbonaceous calcareous-arenite or bedded matrix breccia. Only 10 cm thick. All paleokarst features. Bedding 68 deg. To core axis. 76.92-77.42 VEINED LIMESTONE. Sample beneath pyrite veins. Limestone cut by and somewhat brecciated by calcite veinlets.	MLS2	140309	76.92	77.42	0.001	0.50	0.001	0.01
79.15	88.75	MCDAME LIMESTONE UNIT 2 Stromatoporoid- amphipora-rich floatstone to rudstone. Not brecciated except for 20 cm of mosaic breccia @ 85.8 m. Bottom 2 m is broken core but not faulted.	MLS2							
88.75	106.68	MCDAME LIMESTONE UNIT 3 Mid-gray dense packstone with fine amphipora at top. Amphipora- and stromatoporoid floatstone to rudstone between 91.25 and 97.5 m. Medium to coarse amphipora packstone to floatstone to rudstone to EOH. Overall not brecciated or strongly veined. Vuggy calcite dilatational fractures @ 95.5 to 98.0 m. 10 cm of patchy pyrite replacement @ 90.0 m. Rusty fractures, broken core and slightly bleached limestone @ 92.0 to 94.0 m.	MLS3							

\*\*\* END OF HOLE \*\*\* 106.68

HOLE NO: SSD-97-56

SECTION: 43720N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD BC  
 HOLE TYPE : DIAMOND

\*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	84.43	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	LONGYEAR "38"		
Date started:	9/9/97		
Date finished:	10/9/97		
Logged by:	L. LEWIS		
Relogged by:			
Sampled by:	NO SAMPLES TAKEN		

\*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43720.31mN 24800.20mE 1209.30RL

Pre-collar depth: Final depth: 84.43

Purpose of hole: INFILL SILVER CREEK EXTENSION

Hole status: DRILLED TO DEPTH

Comments: DID NOT INTERSECT THE UNCONFORMITY.

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

\*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width

\*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
45.72	325.00	-87.50
79.86	328.00	-87.00

\*\*\* SUMMARY LOG \*\*\*

0.00 15.85 OVERBURDEN  
 15.85 41.05 MCDAME LIMESTONE UNIT  
 1  
 41.05 60.15 MCDAME LIMESTONE UNIT  
 2  
 60.15 78.25 MCDAME LIMESTONE UNIT  
 3  
 78.25 79.80 MCDAME LIMESTONE UNIT  
 4  
 79.80 84.43 MCDAME LIMESTONE UNIT  
 5  
 84.43 END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
0.00	15.85	OVERBURDEN *Note: Casing put down to 14.0m then reamed casing to 52s (15.85m). From 14.0 - 15.85m a rubble and poor recovery of 90% limestone, 10% mudstone with weak iron oxide staining. The mudstone chips from the top of the hole is likely overburden and not in place.	OB						
15.85	41.05	MCDAME LIMESTONE UNIT 1 Variable Unit 1 consisting of dense packstone, amphipora floatstone and massive stromatopora floatstone as the main fossil rock types with minor dolomitized limestone. Local calcite veining and prox. fractures often iron oxide stained down to 30.0m, likely due to oxidation of pyrite associated with fractures and stylolites. Prominent fractures @ 20 degrees to core axis. - 32.15m: Unusually large rugose corals (3cm diameter), cross section - 34.07m: 5mm pyrite - sphalerite - galena stringer @ 30 degrees immediately above a dolomitized interval. - 34.2 - 35.05m: Dolomitized limestone, crackle breccia with calcite cement (10%)	MLS1						
41.05	60.15	MCDAME LIMESTONE UNIT 2 Beautifully fossilized, unbrecciated Unit 2, containing massive stromatopora floatstone and rudstone with local framestone where stromatopora are tightly packed. The amphipora is intercalated with massive stromatopora. Excellent rugose corals (Tryplasma) throughout, and thamnopora. Intercalated Euryamphipora @ 42.5, 58.35 and 59.3m. <1% calcite veining. 2 - 7 stylolites per meter along which core breaks moderately easily. - 46.9 - 47.0m: 10% fine grained pyrite clots associated with calcite.	MLS2						
60.15	78.25	MCDAME LIMESTONE UNIT 3 The upper 5 meters is dominated by packstone with abundant fine amphipora (1-2mm diameter), typical of the upper section of Unit 3. The middle section, from 68.95 - 72.3m is a mixed massive stromatopora - amphipora rudstone, while the lower third is dominated by amphipora, which becomes quite coarse (to 4mm diameter) towards the	MLS3						

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		lower contact. Minor crackle breccia and broken core from 76.55 - 77.7m. Trace pyrite along stylolites.							
78.25	79.80	MCDAME LIMESTONE UNIT 4 Main Euryamphipora unit, pseudo-laminated @ 60 degrees to core axis with intercalated massive stromatopora. No visible sulphides, <1% calcite veining.	MLS4						
79.80	84.43	MCDAME LIMESTONE UNIT 5 The top of Unit 5 is dominated by packstone and floatstone with very coarse amphipora (to 6mm diameter), minor massive stromatopora and brachiopod shells (82.0m). 1% calcite veining @ 15 to core axis. 1-5 stylolites per meter. At 83.75m, can see displacement of a calcite vein at a stylolitic contact.	MLS5						

\*\*\* END OF HOLE \*\*\* 84.43

HOLE NO: SSD-97-57

SECTION: 43661N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC  
 HOLE TYPE : DIAMOND

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43660.75mN 24820.00mE 1224.30RL

Pre-collar depth: Final depth: 73.15

Purpose of hole: INFILL SILVER CREEK  
 EXTENSION

Hole status: HOLE TERMINATED IN A  
 CAVERN

Comments: OXIDE ZONE: 72.3 - 72.55M

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
36.58	43.00	-86.50
73.15	42.00	-88.00

## \*\*\* SUMMARY LOG \*\*\*

0.00	12.19	OVERBURDEN
12.19	12.45	1B SANDSTONE
12.45	15.24	FAULT ZONE 1B
15.24	21.34	NO RECOVERY
21.34	27.85	1AA CARBONACEOUS ARGILLITE
27.85	60.10	MCDAME LIMESTONE UNIT 1
60.10	72.30	MCDAME LIMESTONE UNIT 2
72.30	72.55	LOWER ZONE OXIDIZED
72.55	73.15	CAVE
73.15		END OF HOLE

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	73.15	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR 3000		
Date started:	9/9/97		
Date finished:	9/9/97		
Logged by:	L. LEWIS		
Relogged by:			
Sampled by:	J. LETWIN		

Material left in hole:

Base of complete oxidation

Top of fresh rock:

Water first encountered:

Water inflow estimate:

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
26.60	28.85	2.25
71.80	72.55	0.75

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn	
0.00	12.19	OVERBURDEN	OB							
12.19	12.45	*B SANDSTONE Mostly sandstone / siltstone rubble (1 piece of granodiorite) and chips with 1 reliable piece of sandstone (could possibly be a boulder, but not likely). Weak iron oxide stain.	1B							
12.45	15.24	FAULT ZONE 1B 4% recovery of oxide stained sandy rubble. Very minor gouge.	FZ							
15.24	21.34	NO RECOVERY	NR							
21.34	27.85	*AA CARBONACEOUS ARGILLITE Black, laminated carbonaceous argillite, rubble with poor recovery from 21.34 - 23.0m. From 24.5 - 27.85m, argillite laminae are contorted / deformed, with 5% quartz - calcite pods, stringers and fracture fillings. 3% hematite pods and laminations that were likely pyrite prior to oxidation. Sharp quiet lower contact @ 85 degrees with limestone, i.e. - very little brecciation in both the argillite or limestone. 26.60-27.85 CARBONACEOUS ARGILLITE CRACKLE BRECCIA Minor crackle brecciated carbonaceous argillite; contorted laminations separated by discontinuous wisps and stringers of quartz, calcite, and hematite. Fairly competent, except from 27.35 - 27.5m which is graphitic gouge and small quartz chips. Brecciation and hematite decreases towards the sharp lower contact @ 85 to core axis with limestone.	1AA	140353	26.60	27.85	0.00	1.30	0.02	0.20
27.85	60.10	MCDAME LIMESTONE UNIT 1 Close to a complete section of Unit 1, with local dolomitized intervals. - 27.85 - 33.9m: SUB-UNIT 1A has subequal dense packstone and amphipora floatstone, minor stromatopora and thamnopora. Minor to moderate stylolites. 3% calcite stringers @ 15 to core axis with displacement of 2cm (normal). Pyrite is concentrated in the first meter below the unconformity. - 33.9 - 38.6m: SUB-UNIT 1B consists of abundant Thamnopora and massive stromatopora, minor amphipora. Weak to moderate stylolites. Ir pyrite.								

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn	
		- 38.6 - 56.5m: SUB-UNIT 1C. The upper 7 meters is dominated by dense packstone and amphipora floatstone, while the lower 10 meters is dominated by massive stromatopora (core fairly broken and partially dolomitized). - 56.5 - 60.1m: Dolomitized Limestone - Crackle Breccia. Moderate limonite + hematite stain on fractures (15 - 25 to core axis). 27.85-28.85 FLOATSTONE Footwall sample to unmineralized unconformity. Minor calcite veining (5%), minor stylolites. 2% fine grained pyrite as wispy stringers and clots along stylolites.	MLS1	140354	27.85	28.85	0.00	3.50	0.06	0.01
60.10	72.30	MCDAME LIMESTONE UNIT 2 Main massive stromatopora unit with thamnopora and rugose coral Trypaema throughout (good corals @ 69.9m). Minor amphipora. Intercalated Euryamphipora between 68.3 - 71.0m. Intermittent intervals of strong stylolitization, creating a massive stromatopora framestone. Broken lower contact with oxidized rubble. 71.80-72.30 RUDSTONE Amphipora rudstone. Hanging wall sample to oxidized rubble below. 1% calcite stringers, Ir pyrite.	MLS2	140355	71.80	72.30	0.00	0.40	0.00	0.02
72.30	72.55	LOWER ZONE OXIDIZED 72.30-72.55 IRON OXIDE Narrow rubble zone of very vuggy, strongly hematite + limonite stained rock - does not react with HCl (dolomitized??). Below is a cavern and likely the channel of fluids which oxidized this zone. *Note: Did not originally call this Lower Zone - termed the interval oxidized limestone but with the high grade Zn assay of 28.2%, it is likely oxidized Lower Zone.	LZOX	140356	72.30	72.55	0.00	4.00	0.11	28.20
72.55	73.15	CAVE No recovery. Hole terminated early due to excess drill rod vibration.	CAVE							

HOLE NO: SSD-97-58

SECTION: 43660N

GRID: SILVER CK N

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK N  
 MAP REFERENCE: 1040/16W  
 LOCATION : LIARD MD, B.C.  
 HOLE TYPE : DIAMOND

\*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	51.82	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR 3000		
Date started:	9/9/97		
Date finished:	10/9/97		
Logged by:	C. REES		
Relogged by:			
Sampled by:	J. LETWIN		

\*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43660.38mN 24820.93mE 1224.25RL

Pre-collar depth: Final depth: 51.82  
 Purpose of hole: INFILL SILVER CREEK  
 EXTENSION  
 Hole status: DRILLED TO DEPTH  
 Comments: LZOX @ 46.0-51.82M, POOR  
 RECOVERY

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

\*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	90.00	-54.00
45.72	78.00	-55.50

\*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
42.50	51.82	9.32

\*\*\* SUMMARY LOG \*\*\*

0.00 15.24 OVERBURDEN 1B RUBBLE  
 15.24 18.30 1B SILTSTONE RUBBLE  
 18.30 21.34 NO RECOVERY  
 21.34 25.91 1AA SLATY SILTSTONE  
 25.91 27.43 NO RECOVERY  
 27.43 30.48 1AA INTERBEDDED  
 SILTSTONE / ARGILLITE  
 30.48 32.30 NO RECOVERY  
 32.30 36.57 1AA INTERBEDDED  
 SILTSTONE / ARGILLITE  
 36.57 39.62 NO RECOVERY  
 39.62 42.50 1AA ARGILLITE/SILTSTONE  
 RUBBLE  
 42.50 46.00 A1A OXIDIZED RUBBLE  
 BRECCIA  
 46.00 51.82 LOWER ZONE OXIDIZED  
 GOSSAN RUBBLE  
 51.82 END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
0.00	15.24	OVERBURDEN 1B RUBBLE	OB							
15.24	18.30	1B SILTSTONE RUBBLE Very poor recovery (10%). Rubble of dark grey slaty siltstone and minor fine sandstone. Probably 1B possibly 1AA.	1B							
18.30	21.34	NO RECOVERY	NR							
21.34	25.91	1AA SLATY SILTSTONE Very poor recovery. Chips and rubble of dark grey siltstone somewhat slaty and minor laminae of pyritic fine sandstone. Not oxidized.	1AA							
25.91	27.43	NO RECOVERY	NR							
27.43	30.48	1AA INTERBEDDED SILTSTONE / ARGILLITE Poor recovery. Mostly chips and rubble of weakly laminated, dark grey to black siltstone to argillite. Weak slaty cleavage. ALTERED few pyritic siltstone laminae. Non-calcareous. Not oxidized.	1AA							
30.48	32.30	NO RECOVERY	NR							
32.30	36.57	1AA INTERBEDDED SILTSTONE / ARGILLITE Extremely poor recovery (1 to 2%). Chips and rubble of dark grey to black, weakly slaty and laminated, argillite-siltstone.	1AA							
36.57	39.62	NO RECOVERY	NR							
39.62	42.50	1AA ARGILLITE/SILTSTONE RUBBLE Very poor recovery. Small chips and slightly ground rubble of dark grey siltstone-argillite. Still not oxidized.	1AA							
42.50	46.00	A1A OXIDIZED RUBBLE BRECCIA 42.50-43.10 CRACKLE BRECCIA RUBBLE BRECCIA Poor recovery. Somewhat rusty and bleached, laminated siltstone. Cut by some rusty quartz veinlets and crackle, grading from crackle breccia to rubble breccia. Rusty limonitic cement - broken core and rubble. Top of oxidized zone. 43.10-46.00 OXIDIZED RUBBLE BRECCIA Poor recovery (about 65%). Parent rock was thinly laminated siltstone to argillite. Now pale to mid-grey, bleached-looking but now silicified and variably oxidized rusty-brown with numerous limonitic pits and fractures. Grades to clast-supported rubble breccia, with brown	A1A	140310	42.50	43.10	0.00	22.30	0.15	0.16
				140311	43.10	46.00	0.00	3.60	0.07	0.31

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From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		earthy limonitic cement, much of it dissolved away. Core generally broken and rubbly, with deep orange-brown fracture surfaces. Relatively young oxidation. Minor quartz veinlets.								
46.00	51.82	LOWER ZONE OXIDIZED GOSSAN RUBBLE Very poor recovery (10 to 15%). Some solid core but mostly rounded rubble. Virtually no remnant parent rock. Deep orange-brown, earthy, limonitic gossan. Possibly completely oxidized massive sulphide. Tentatively Lower Zone on that basis.	LZOX	140312	46.00	51.82	0.00	13.90	0.36	7.29

\*\*\* END OF HOLE \*\*\* 51.82

HOLE NO: SSD-97-59 SECTION: 43700N GRID: SILVER CK N

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK N  
 MAP REFERENCE: 1040/16W  
 LOCATION : LIARD MD, B.C.  
 HOLE TYPE : DIAMOND

\*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00 76.20 HQ
Drill contractor:	OLYMPIC DRILLING
Drill rig:	VALDOR 3000
Date started:	10/9/97
Date finished:	10/9/97
Logged by:	C. REES
Relogged by:	
Sampled by:	J. LETWIN

\*\*\* COLLAR COORDINATES AND RL \*\*\*  
 SURVEYED 43698.90mN 24820.00mE 1209.60RL

Pre-collar depth: Final depth: 76.20  
 Purpose of hole: NORTH LIMIT, SILVER CK EXTENSION  
 Hole status: DRILLED TO DEPTH  
 Comments: LZ @ 21.45-21.5M. OX ABOVE AND BELOW

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

\*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
20.10	21.50	1.40
22.80	28.65	5.85
56.25	58.50	2.25

\*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
36.58	11.00	-87.00
70.10	34.00	-87.00

\*\*\* SUMMARY LOG \*\*\*

0.00 7.75 OVERBURDEN  
 7.75 13.40 MCDAME LIMESTONE UNIT  
 1 BRECCIATED  
 13.40 18.80 MCDAME LIMESTONE 1AA  
 BRECCIA  
 18.80 20.10 MCDAME LIMESTONE  
 20.10 21.45 1AA ARGILLITE BRECCIA  
 21.45 21.50 LOWER ZONE BASE METAL  
 MASSIVE SULPHIDE  
 21.50 22.80 NO RECOVERY  
 22.80 27.65 MCDAME LIMESTONE UNIT  
 1 MINERALIZED OXIDIZED  
 27.65 34.40 ALTERED MCDAME  
 LIMESTONE OXIDIZED  
 DOLOMITIZED  
 34.40 38.25 MCDAME LIMESTONE UNIT  
 1  
 38.25 60.50 MCDAME LIMESTONE UNIT  
 2  
 60.50 71.35 MCDAME LIMESTONE UNIT  
 3  
 71.35 76.20 MCDAME LIMESTONE UNIT  
 3 CRACKLE BRECCIA  
 MOSAIC BRECCIA

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_



1997

SSD-97-59

HOLE NO: SSD-97-59

SECTION: 43700N

GRID: SILVER CK N

76.20

END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
0.00	7.75	OVERBURDEN	OB							
7.75	13.40	MCDAME LIMESTONE UNIT 1 BRECCIATED Generally mid-grey, fine-grained limestone packstone to amphipora floatstone. A1 weakly to moderately brecciated with strong calcite crackle increasing to crackle breccia and very local mosaic breccia. Also moderate stylolitic brecciation. Local bleaching to pale pinkish-mauve colour. Uppermost 1 m is broken rubble. Some rusty fractures.	MLS							
13.40	18.80	MCDAME LIMESTONE 1AA BRECCIA 13.40-14.90 MOSAIC BRECCIA Composed of mm- to cm-scale angular fragments of limestone and (increasing with depth) 1AA argillite. Very coarse, white vein calcite cement/matrix decreases with depth as packing density increases. Fracture-related open space vein filling of limestone roof, above solution collapse rubble breccia below (next minor). 14.90-18.80 RUBBLE BRECCIA MOSAIC BRECCIA Well developed solution collapse rubble to matrix breccia with superimposed mosaic breccia. Well mixed, angular fragments of lithified 1AA and MCDAME LIMESTONE in variably clast-supported or matrix-supported breccia. Some argillite is pyritic. No sign of massive sulphide detritus. Largest clasts are big blocks several cm across. Locality matrix is laminated - indicates periodic quiescence in cavity, with sediment accumulating between collapses/influxes. Also later calcite veining forming mosaic breccia. Largest vein is 45 cm thick. Bottom 40 cm is large 1AA blocks.	MLS							
18.80	20.10	MCDAME LIMESTONE Grey packstone to amphipora floatstone. Possibly a big block or protrusion on cavity floor.	MLS							
20.10	21.45	1AA ARGILLITE BRECCIA Very poor recovery - 1.35 m in about 35 cm of rubble. Compsnes breccia of disoriented laminated argillite fragments in cement of quartz and limonite. Possibly originally a collapsed block(s) at base of the solution cavity.	1AA	140245	20.10	21.45	0.04	32.80	0.75	0.66

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
21.45	21.50	LOWER ZONE BASE METAL MASSIVE SULPHIDE Basically just one plum-sized, slightly ground piece of galena-rich massive sulphide, covered by yellow-brown limonitic stain. Unclear whether in situ replacement or part of cavern detritus.	LZ	140246	21.45	21.50	0.19	1382.70	40.65	0.33
21.50	22.80	NO RECOVERY	NR							
22.80	27.65	MCDAME LIMESTONE UNIT 1 MINERALIZED OXIDIZED Limestone characterized by dm-scale zones of strongly oxidized mineralization and rusty fractures and veinlets. 22.80-24.10 LIMESTONE Basically unaltered, unbrecciated mottled grey packstone. 24.10-24.50 OXIDIZED GOSSAN Sharply-defined, short interval of completely oxidized rock. Quite solid, cemented by limonite. May have been pyritic vein or massive sulphide. 24.50-26.95 LIMESTONE Pale to mid-grey mottled packstone. Cut by a few rusty fractures and stylolites, especially strong near upper and lower contacts. 26.95-27.65 OXIDIZED RUBBLE BRECCIA Moderately to intensely oxidized rock. Partly red-brown to almost black (manganese-iron) goossan after ?pyritic rubble breccia. Remainder has clear rubble to crackle breccia structure - host was silicified limestone, crackled and veined by sulphides - now red-brown limonite. Porous texture due to partial dissolution. N.B. Good malachite in some of these weathered-out pockets.	MLS1	140247	22.80	24.10	0.00	0.70	0.02	0.56
				140248	24.10	24.50	0.01	12.30	0.24	4.10
				140249	24.50	26.95	0.00	0.40	0.01	1.71
				140250	26.95	27.65	0.04	7.70	0.13	25.24
27.65	34.40	ALTERED MCDAME LIMESTONE OXIDIZED DOLOMITIZED Variably mottled and speckled, grey limestone of unit 1 - packstone. Possible stromatoporoids. Rubble breccia common. Interval characterized by moderate to strong fracturing and crackle veining by calcite, and by very fine grained dark brown or completely oxidized sulphides. Also rusty stylolites. Probably originally cut by pyrite stringers, now oxidized.	AMLS	140252	27.65	28.65	0.00	0.30	0.00	1.07

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/ml	Ag g/ml	%Pb	%Zn
		27 65-28 65 SAMPLE Limestone with a few rusty fractures and veinlets								
		31.30-32 80 DOLOMITIZED LIMESTONE RUBBLE BRECCIA Crackle to rubble to mosaic breccia. About 30% of limestone fragments are dolomitized. Still moderate to strong rusty fractures and staining.								
		32 80-34 40 DOLOMITIZED LIMESTONE CRACKLE BRECCIA Mid- to dark speckled grey medium-grained dolomitized limestone, cut by moderate to strong calcite crackle veinlets, tending to crackle breccia and minor mosaic breccia. Veinlets probably had pyrite - now oxidized giving rusty brown fractures								
34 40	38.25	MCDAME LIMESTONE UNIT 1 Probably subunit 1E. Pale to mid-grey, fine-grained packstone. Local amphipora. Minor stylolitic brecciation and calcite crackle. 2-cm thick calcite-pyrite vein (unoxidized) @ 36.3 m.	MLS1							
38 25	60.50	MCDAME LIMESTONE UNIT 2 Abrupt appearance of very fossiliferous unit 2. Predominantly stromatoporoid- or amphipora floatstone to rudstone. Local Tryplasma. Generally unbrecciated but has local and very minor stylolitic brecciation. Calcite crackle and veinlets fairly strong between 40.3 and 44.25 m. Numerous vertical calcite veinlets, 5 to 20 mm thick throughout unit. Another set of fractures and veinlets common, 25 to 35 deg. To core axis. Some have dip-slip crystal fibres.	MLS2							
		56 25-57 25 SAMPLE Limestone with minor pyrite stringers between fossils.		140253	56 25	57 25	0.00	0.30	0.00	0.01
		57 25-57 50 PYRITIC LIMESTONE Floatstone to rubble breccia, with fairly strong replacement pyrite and stringers in matrix. No significant fracturing or veining associated, just an insidious replacement		140254	57 25	57 50	0.00	0.40	0.01	0.00
		57 50-58 50 LIMESTONE SAMPLE Rudstone limestone with a few pyrite stringers between		140255	57 50	58 50	0.00	0.30	0.00	0.01

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au g/ml	Ag g/ml	%Pb	%Zn
		fossils.								
60.50	71.35	MCDAME LIMESTONE UNIT 3 Begins with fine amphipora packstone to floatstone, followed by interval of stromatoporoid rudstone. Lower, amphipora-floatstone to rudstone, and local Tryplasma. Calcite veinlets @ 20 to 30 deg. To core axis. Thin-shelled brachiopods. Calcite crackle veinlets increase towards base.	MLS3							
71.35	76.20	MCDAME LIMESTONE UNIT 3 CRACKLE BRECCIA MOSAIC BRECCIA Amphipora-floatstone to rudstone, and lesser packstone. Unit quite strongly crackle veined and brecciated, locally increasing to mosaic breccia, although thickest calcite veins are only 2 to 3 cm thick. Stylolites and stylolitic brecciation also quite strong. Veins at low angle to core axis are quite prominent. Fractures and veining may indicate proximity to fault.	MLS3							

\*\*\* END OF HOLE \*\*\* 76.20

HOLE NO: SSD-97-60 SECTION: 44042N GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC  
 HOLE TYPE : DIAMOND

\*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	237.74	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	LONGYEAR "38"		
Date started:	10/9/97		
Date finished:	13/9/97		
Logged by:	L. LEWIS		
Relogged by:			
Sampled by:	J. LETWIN		

\*\*\* COLLAR COORDINATES AND RL \*\*\*  
 SURVEYED 44041.58mN 25310.61mE 1168.92RL

Pre-collar depth: Final depth: 237.74  
 Purpose of hole: INFILL SILVER CREEK EXTENSION  
 Hole status: DRILLED TO DEPTH  
 Comments: LOWER ZONE: 190.9 - 195.9M

Material left in hole: 10' HW CASING  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

\*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
189.90	196.90	7.00
229.60	230.80	1.20

\*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	270.00	-87.00
30.48	335.00	-88.00
91.44	301.00	-89.00
152.40	276.00	-88.00
236.22	284.00	-86.00

\*\*\* SUMMARY LOG \*\*\*

0.00 14.33 OVERBURDEN  
 14.33 41.35 2AS SILTSTONE  
 41.35 47.50 FAULT ZONE EXHALITE - F-ZONE  
 47.50 78.00 2AC SILTSTONE /  
 CALCARENITE  
 78.00 83.30 FAULT ZONE 1B  
 SANDSTONE  
 83.30 90.45 1B SANDSTONE /  
 CONGLOMERATE  
 90.45 105.80 FAULT ZONE 1B  
 SANDSTONE /  
 CONGLOMERATE  
 105.80 114.80 1B CONGLOMERATE  
 114.80 123.80 FAULT ZONE 1B  
 SANDSTONE  
 123.80 133.70 1B SANDSTONE  
 133.70 141.80 FAULT ZONE 1B QUARTZ  
 VEINED  
 141.80 173.55 1B SANDSTONE /  
 SILTSTONE  
 173.55 179.20 1BA MUDSTONE /  
 SANDSTONE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

HOLE NO: SSD-97-60

SECTION: 44042N

GRID: SILVER CK EX

179.20	190.90	1AA CARBONACEOUS ARGILLITE
190.90	195.90	LOWER ZONE MASSIVE SULPHIDE
195.90	215.15	MCDAME LIMESTONE UNIT 1
215.15	237.74	MCDAME LIMESTONE UNIT 2
237.74		END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au g/ml	Ag g/ml	%Pb	%Zn
0.00	14.33	OVERBURDEN	OB						
14.33	41.35	2AS SILTSTONE Dark grey, massive to thickly bedded, moderately siliceous siltstone. Broken core, only 1 piece >10cm and frequent intervals of small chips. 1% contorted quartz stringers. Ir - 1% disseminated pyrite and small clots in quartz stringers. Poor recovery. Grades into the cherty exhalite below.	2AS						
41.35	47.50	FAULT ZONE EXHALITE - F-ZONE The upper 40cm is solid core of light green sh-grey fine grained, thinly laminated chert / silica with siliceous nodules, elongate to bedding @ 50 to core axis. Trace pyrite. From 41.76 - 47.5m are pebbles and gouge of altered - looking exhalite (similar to the intersection in SSD-97-5 (31.9 - 32.9m) - 5% recovery. Broken lower contact.	FZ						
47.50	78.00	2AC SILTSTONE / CALCARENITE Interbedded, dark grey siltstone (5mm - 10cm beds) and light grey laminated to thinly bedded calcareous sandstone / calcarenite (2mm - 3cm thick). Siltstone occasionally carbonaceous. Bedding @ 50 to core axis. 1 - 3% irregular quartz stringers. Trace - 1% disseminated pyrite in the sandstone and siltstone. Broken, rubbly core with poor to moderate recovery. Faulted lower contact. *Note: no Discovery Exhalite or 2AA carbonaceous argillite present in the section.	2AC						
78.00	83.30	FAULT ZONE 1B SANDSTONE Fault zone comprised of 75% sandy gouge and 25% sandstone & conglomerate rubble. Minor bull white quartz chips. Ir pyrite.	FZ						
83.30	90.45	1B SANDSTONE / CONGLOMERATE Light grey, medium to coarse grained massive blocky sandstone with 20% conglomerate beds. 1% pyrite blebs in the conglomerate matrix and disseminated throughout the sandstone. Local bedding parallel quartz stringers (2%), 60 to core axis with Ir pyrite + sphalerite (90.15m). Broken lower contact.	1B						

SSD-97-60 Page 1

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au g/ml	Ag g/ml	%Pb	%Zn
90.45	105.80	FAULT ZONE 1B SANDSTONE / CONGLOMERATE 60% recovery of sandy to pebbly gouge and intermittent pyritic sandstone & conglomerate rubble. 5% white, bull quartz chips, 1% disseminated pyrite. Broken lower contact.	FZ						
105.80	114.80	1B CONGLOMERATE Unit predominantly pebble conglomerate, the majority of sub-rounded, elongate clasts between 2 - 10cm, flattened along 60 degrees to core axis. Rare clasts to 7cm and minor shale rip-up clasts. 15% interlaminated sandstone / siltstone occasionally with flaser bedding. Interval lacks quartz veining. Trace disseminated pyrite. Broken lower contact.	1B						
114.80	123.80	FAULT ZONE 1B SANDSTONE Intermittent gouge / breccia zones (40%) between rubbly sandstone. Prominent fault / slip surfaces @ 30 degrees to core axis (e.g. 122.65m). 65% recovery. Broken, 1cm sphalerite vein @ 121.0m.	FZ						
123.80	133.70	1B SANDSTONE Very thinly bedded light grey, medium to coarse grained sandstone with 25% silty partings, laminae and thin beds. Minor black mudstone beds to 3cm. 1% quartz stringers, parallel to bedding (60 to core axis) and cross-cutting, frequently with pyrite blebs. 1 - 2% disseminated and stringers of pyrite. Quartz veined lower contact with fault zone. - 125.7m: 5mm X 4cm quartz clot, elongate along bedding with coarse red-brown sphalerite clots. - 132.65 - 132.8m: Gouge	1B						
133.70	141.80	FAULT ZONE 1B QUARTZ VEINED 30% quartz - mica - pyrite vein rubble and small chips in sandy to silty gouge. 4% pyrite. Broken lower contact. Below is significantly increased siltstone.	FZ						
141.80	173.55	1B SANDSTONE / SILTSTONE Striped unit of poken chip core containing 60% light grey medium to fine grained sandstone beds 2mm - 20cm thick interbedded with 40% siltstone (minor carbonaceous mudstone), beds 2mm - 3cm. Sandstone has occasional	1B						

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		<p>wavy to cross-laminations and minor soft sediment deformation with lenses and pods of sandstone within siltstone beds (e.g. 163.45m). 2% quartz - calcite stringers and fracture fillings, generally @ 15 degrees to core axis and often with pyrite clots. Quartz - calcite veining rare below 154.7m. Intermittant narrow fault zones of chios and gouge. Trace - 1% pyrite. Bedding varies from 80-75 to core axis (80 @ top and bottom and 75 in the middle of the unit). Sheared / faulted intervals often graphitic.</p> <p>- 146.6 - 148.0m. Thickly bedded sandstone (to 25cm) with thin siltstone interbeds. Below 148m, there are no thick sandstone beds.</p> <p>- 149.0 - 150.0m Breccia / Fault. Chios, clasts and pebbles of sandstone with post quartz veining.</p> <p>- 157.4 - 157.58m. Gouge (siltstone)</p> <p>- 159.4 - 159.6m Gouge - graphitic variable upper contact @ 10 - 30 to core axis.</p> <p>- 165.2 - 185.5m Gouge and chips including 6% quartz rubble.</p> <p>- 168.4 - 168.6m Gouge - graphitic</p>							
173.55	179.20	<p><b>1BA MUDSTONE / SANDSTONE</b></p> <p>Transitional between units 1B and 1A, consisting of 85% dark grey, thickly laminated mudstone, locally carbonaceous, interlaminated with 15% light grey, often pyritic sandstone beds. 2mm - 1cm thick. Bedding @ 85 to core axis @ the top of the unit, steepening to 55 to core axis adjacent to the lower contact. &lt;1% quartz stringers, 2% pyrite, Ir galena (1mm stringer parallel to bedding @ 177.95m), Ir sphalerite (1mm stringer @ 177.7m). Poker chip core and 25% graphitic mudstone flakes. Lower contact where the sandstone decreases to &lt;5%.</p>	1BA						
179.20	190.90	<p><b>1AA CARBONACEOUS ARGILLITE</b></p> <p>Black, massive (upper) to thinly laminated (lower), weakly silicified, carbonaceous argillite. Blocky, broken core. 2% pyrite as thin stringers parallel to bedding (70 to core axis). Trace sphalerite + galena in 3 quartz - calcite stringers, 2cm wide @ 182.4m, 184.3m and 185.3m. Sharp, broken lower contact with Lower Zone.</p>	1AA						

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn	
		<p><b>*89.90-190.90 CARBONACEOUS ARGILLITE</b></p> <p>Hanging wall sample of poker chip, rubbly and vuggy carbonaceous argillite. 1% quartz pods, 5% disseminated pyrite concentrated in the lower 25cm, adjacent to the Lower Zone, which is brecciated and vuggy.</p>		140141	189.90	190.90	0.01	2.20	0.02	3.03
190.90	195.90	<p><b>LOWER ZONE MASSIVE SULPHIDE</b></p> <p>Unconformity related mineralization @ the Eam 1AA argillite and McDame limestone contact. Zone is quite similar in appearance and width as hole SSD-97-5, 40m to the south, but not as galena - rich. (SSD-97-5 intersected 5.7m of massive sulphide @ the unconformity). Estimate of overall sulphide content for the zone: 65% pyrite, 15% red brown &amp; black sphalerite, &amp; 8% galena, with 5% limestone in a siliceous gangue of 5% quartz. The zone is fairly competent with approximately 20% crumbly core.</p> <p><b>190.90-191.90 PYRITE MASSIVE SULPHIDE</b></p> <p>Mainly massive, fine to medium grained pyrite (75%) with 13% red-brown &amp; black sphalerite as medium to coarse grained clots throughout the pyrite, 4% dusty grey fine grained galena and minor coarse galena, in a mainly siliceous gangue. Small vugs have excellent hexagonal quartz crystals.</p> <p><b>191.90-192.90 BASE METAL MASSIVE SULPHIDE</b></p> <p>Sphalerite-rich interval with 25% red-brown &amp; black sphalerite, 7% coarse galena associated with the sphalerite &amp; 60% medium grained pyrite in a siliceous gangue (6% quartz). 1% remnant limestone fragments / clasts?? Lower 50cm contains crumbly, sandy core.</p> <p><b>192.90-193.90 PYRITE MASSIVE SULPHIDE</b></p> <p><b>BRECCIATED</b></p> <p>Possibly a replaced rubble breccia as there are 2% argillite clasts and 15% limestone clasts in a sulphide and minor silica matrix. Sphalerite-rich @ the upper contact.</p> <p><b>193.90-194.90 PYRITE MASSIVE SULPHIDE</b></p> <p>Competent, pyrite - rich massive sulphide in a siliceous gangue. 78% pyrite, 10% sphalerite mainly intergrown</p>	LZ	140133	190.90	191.90	0.09	173.50	3.64	8.32
		<p><b>191.90-192.90 BASE METAL MASSIVE SULPHIDE</b></p> <p>Sphalerite-rich interval with 25% red-brown &amp; black sphalerite, 7% coarse galena associated with the sphalerite &amp; 60% medium grained pyrite in a siliceous gangue (6% quartz). 1% remnant limestone fragments / clasts?? Lower 50cm contains crumbly, sandy core.</p>		140134	191.90	192.90	0.12	295.50	5.30	9.99
		<p><b>192.90-193.90 PYRITE MASSIVE SULPHIDE</b></p> <p><b>BRECCIATED</b></p> <p>Possibly a replaced rubble breccia as there are 2% argillite clasts and 15% limestone clasts in a sulphide and minor silica matrix. Sphalerite-rich @ the upper contact.</p>		140135	192.90	193.90	0.08	99.00	0.78	2.13
		<p><b>193.90-194.90 PYRITE MASSIVE SULPHIDE</b></p> <p>Competent, pyrite - rich massive sulphide in a siliceous gangue. 78% pyrite, 10% sphalerite mainly intergrown</p>		140136	193.90	194.90	0.03	48.80	0.08	0.14

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		with pyrite, 1% galena, 10% silica and 1% calcite Lining vugs are dark brown hard concretionary masses. *Note: Sample 140137 is a duplicate of this interval 194.90-195.90 BASE METAL MASSIVE SULPHIDE Sphaerite-rich interval of crumbly coarse pyrite (65%) and 25% red-brown to black coarse sphaerite. 3% limestone clast remain concentrated at the sharp lower contact with limestone @ 50 to core axis. Looks like syn to post-mineralization breccia. *Note: Sample 140139 is a blank sample following this interval.		140138	194.90: 195.90	0.17	97.40	0.79	1.07
195.90	215.15	MCDAME LIMESTONE UNIT 1 Partly dolomitized Unit 1 with portions of the subunits recognizable. The upper meter, adjacent to the massive sulphide is bleached pale grey with minor pyrite stringers 195.90-196.90 FLOATSTONE Footwall sample of bleached unbrecciated massive stromatoporoid floatstone with 2% pyrite stringers @ 65 - 75 to core axis. 196.90-202.65 FLOATSTONE Sub-unit 1c of McDame limestone Unit 1, containing a mix of massive stromatoporoid rudstone & floatstone, dense packstone and minor stachyodes. Minor stylolites with 1% fine grained pyrite along them. 1% calcite concentrated in fractures within a dolomitized section from 197.0 - 197.4m. Good gastropod x-section @ 201.55m 202.65-210.40 DOLOMITIZED LIMESTONE Blocky, dolomitized limestone with 5% calcite - filled fractures and few remaining identifiable fossils. 210.40-215.15 PACKSTONE Sub-unit 1e, consisting of dense packstone with minor massive stromatoporoid floatstone. 3% pyrite, concentrated from 213.55 - 213.8m as semi-massive cots. - 211.15 - 211.8m: Dolomitized limestone.	MLS1	140140	195.90 196.90	0.04	22.40	0.76	0.30

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
215.15	237.74	MCDAME LIMESTONE UNIT 2 Very fossiliferous Unit 2 consisting of massive stromatoporoid, mixed massive stromatoporoid + amphipora and Thamnopora + rugose coral Trypasma throughout. Rare crackle breccia. Three pyrite - sphaerite - galena stringers @ 226.24m (1cm, 90 to core axis), 230.2m and 233.85m (1cm, 80 to core axis). The sampled middle stringer is the largest (3cm). 229.60-230.10 RUDSTONE Hanging wall sample above sulphide stringer. Massive stromatoporoid rudstone. 1% pyrite along stylolites. 230.10-230.30 RUDSTONE VEINED Sample interval contains a 3cm sphaerite - galena - pyrite vein @ 65 to core axis @ 230.2m. 230.30-230.80 RUDSTONE Footwall sample. Massive stromatoporoid - amphipora rudstone. Trace pyrite.	MLS2	140142	229.60 230.10	0.01	5.20	0.19	0.01
				140143	230.10 230.30	0.64	93.00	3.17	3.13
				140144	230.30 230.80	0.02	1.00	0.02	0.03

\*\*\* END OF HOLE \*\*\* 237.74



HOLE NO: SSD-97-61

SECTION: 43640N

GRID: SILVER CK N

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK N  
 MAP REFERENCE: 1040/16W  
 LOCATION : LIARD MD, B.C.  
 HOLE TYPE : DIAMOND

## \*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	109.73	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR 3000		
Date started:	10/9/97		
Date finished:	11/9/97		
Logged by:	C. REES		
Relogged by:			
Sampled by:	J. LETWIN		

## \*\*\* COLLAR COORDINATES AND RL \*\*\*

SURVEYED 43639.56mN 24759.20mE 1228.04RL

Pre-collar depth: Final depth: 109.73  
 Purpose of hole: INFILL SILVER CREEK  
 EXTENSION  
 Hole status: DRILLED TO DEPTH  
 Comments: LZ @ 57.0-67.0M

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

## \*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	0.00	-90.00
57.91	63.00	-87.50
103.63	41.00	-86.00

## \*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
54.50	74.05	19.55
75.25	77.00	1.75
88.39	89.55	1.16

## \*\*\* SUMMARY LOG \*\*\*

0.00	13.41	OVERBURDEN
13.41	44.00	1B SANDSTONE
44.00	48.75	FAULT ZONE GOUGE RUBBLE
48.75	54.50	1AA SLATY ARGILLITE
54.50	57.00	1AC CALCAREOUS ARGILLITE/SILTSTONE
57.00	76.00	LOWER ZONE MASSIVE SULPHIDE
76.00	77.65	MCDAME LIMESTONE UNIT 2
77.65	79.25	MCDAME LIMESTONE UNIT 2 RUBBLE BRECCIA
79.25	91.65	MCDAME LIMESTONE UNIT 2
91.65	103.00	MCDAME LIMESTONE UNIT 3
103.00	107.55	MCDAME LIMESTONE UNIT 3 CRACKLE BRECCIA RUBBLE BRECCIA
107.55	109.73	MCDAME LIMESTONE UNIT 3
109.73		END OF HOLE

Checked and signed: \_\_\_\_\_

Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au g/ml	Ag g/ml	%Pb	%Zn	
0.00	13.41	OVERBURDEN	OB							
13.41	44.00	1B SANDSTONE Good solid, medium- to thickly bedded grey sandstone to coarse sandstone. Pebbly to conglomeratic zones locally 5 to 15 cm thick. Towards base, finer sandstone predominates, commonly inter laminated (thin to medium) with darker grey siltstone. Sandstone quite pyritic towards lower contact (5% pyrite), which is an abrupt fault.	B							
44.00	48.75	FAULT ZONE GOUGE RUBBLE Fault zone, mainly in 1AA argillite. Completely comminuted argillite and shale chips, predominantly only a few mm in size or less, black gouge mud.	FZ							
48.75	54.50	1AA SLATY ARGILLITE Mostly broken core, otherwise pocker chip habit. Dark grey to black, very fine grained carbonaceous argillite to siltstone with moderate slaty cleavage. Polished slip surfaces on many cleavage planes. Thinly laminated bedding. Quartz veinlets locally, and irregular crackle subparallel to bedding in some more silty laminae. Overall not fractured or brecciated.	AA							
54.50	57.00	1AC CALCAREOUS ARGILLITE/SILTSTONE Essentially the same as above, but calcareous. Black to dark grey, thinly laminated argillite to siltstone. Cleavage, but not very strong. Quartz and calcite fine crackle, some pyritic. Very broken core, some very poor recovery between 55 and 56 m. Otherwise rock not brecciated. 54.50-56.00 SAMPLE No pyrite in argillite. 56.00-57.00 SAMPLE Minor pyrite in quartz crackle.	1AC	139985 139986	54.50 56.00	56.00 57.00	0.03 0.06	1.30 10.40	0.00 0.15	0.00 0.06
57.00	76.00	LOWER ZONE MASSIVE SULPHIDE 57.00-57.60 BASE METAL MASSIVE SULPHIDE Sharp upper contact with calcareous siltstone. Massive sulphide with about 15% indistinct residual limestone. Partly fine-grained yellow pyrite. Remainder is medium- to coarse-grained galena, pyrite and sphalerite in streaky or blebby concentrations, locally with interstitial calcite and quartz. Maybe late-stage replacement.	LZ	139987	57.00	57.80	0.66	1247.80	27.58	11.75

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au g/ml	Ag g/ml	%Pb	%Zn	
		57.60-57.85 MCDAME LIMESTONE Short (25 cm) remnant of host limestone. Some crackle but otherwise remarkably pristine.		139988	57.60	57.85	0.04	19.50	0.52	0.50
		57.85-58.50 BASE METAL MASSIVE SULPHIDE Back into strong massive sulphide. Some fine-grained pyrite but mostly medium- to coarse-grained sphalerite, pyrite and galena.		139989	57.85	58.50	0.45	634.30	16.75	18.16
		58.50-59.05 PYRITIC LIMESTONE Mostly host limestone, somewhat brecciated (crackle, stylolitic, rubble). Has partial replacement by fine pyrite, along pseudo-laminations and along fractures. Some coarse vuggy pyrite. May be fine sphalerite in with pyrite.		139990 139991	58.50 59.05	59.05 60.44	3.29 3.02	119.10 329.30	2.65 5.95	6.93 29.02
		59.05-60.44 MASSIVE SULPHIDE Massive sulphide, slightly brecciated texture. Mostly fine- to medium-grained pyrite, with colour variation from yellow to brown possibly indicating intergrown fine sphalerite. Some coarser pyrite. Minor galena.		139992	60.44	62.00	2.99	284.60	5.09	20.38
		60.44-62.00 MASSIVE SULPHIDE LAMINATED Moderately strong massive sulphide, with streaky laminated texture, as if replaced laminated rock. Mainly fine-grained pyrite and sphalerite. Late, vug-filling calcite and quartz, with coarser galena and pyrite. Some remnant silicified limestone.								
		62.00-63.00 MASSIVE SULPHIDE Strong massive sulphide. Negligible remnant silicified limestone. Slightly brecciated, vaguely banded texture. Mainly fine pyrite and sphalerite. Later coarser pyrite and galena, some bladed pyrite (marcasite).		139993	62.00	63.00	2.62	342.50	6.28	17.06
		63.00-63.90 BASE METAL MASSIVE SULPHIDE Part fine-grained pyrite and sphalerite, part coarse-grained pyrite, sphalerite and galena. No remnant host rock.		139994 139995	63.00 63.90	63.90 64.82	1.42 1.08	661.70 539.90	13.20 12.23	20.45 9.88
		63.90-64.82 MASSIVE SULPHIDE Fine to medium-grained pyrite and sphalerite. Later coarser pyrite, sphalerite and galena, locally associated with interstitial quartz.		139996	64.82	66.00	1.46	359.40	9.08	6.44

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn	
		64 82-66 00 MASSIVE SULPHIDE Almost total massive sulphide. Very minor black argillite partially replaced by fine sulphide. Remainder mostly fine to medium-grained pyrite and sphalerite. Streaky texture. Some coarser pyrite and marcasite needles. Galena concentrated in fracture- or aite space-filling. Trace interstitial quartz.								
		66 00-66.95 PYRITIC ALTERED MCDAME LIMESTONE Predominantly sulphide but with substantial grey to bluish-white silicified limestone and related milky quartz, gradually and variably replaced by sulphide. Sulphide is partly fine pyrite and sphalerite but also much coarse pyrite and galena and marcasite.		139997	66.00	66.95	3.31	332.20	6.50	4.06
		66 95-68.00 ALTERED MCDAME LIMESTONE MINERALIZED Similar to previous, but silicified limestone clearly dominant here. Milky blue-grey and white. No HCl reaction. Replacement sulphide is conspicuously coarse-grained, and concentrated in large patches and in more siliceous tentacles between ALTERED MCDAME LIMESTONE islands. Mostly pyrite cubes and marcasite but significant red-brown sphalerite too. Lesser galena.		139998	66.95	68.00	1.54	250.40	5.71	9.92
		68 00-68.90 MASSIVE SULPHIDE Back into massive sulphide. Fine-grained pyrite and sphalerite, some in rubble breccia texture, some with pseudo-laminated texture. Also significant coarse-grained pyrite and lesser galena, and interstitial milky white quartz.		139999	68.00	68.90	1.58	326.40	5.90	13.38
		68 90-69.80 MASSIVE SULPHIDE BRECCIATED Dominantly pyritic massive sulphide, but fragmentary texture. Yellow fine to coarse pyrite fragments 1 mm to several cm across, in matrix of grey-white silica or darker fine-grained sulphide, which may include sphalerite. Some remnant silicified limestone. Marcasite common among coarser pyrite.		140000 140201	68.90 69.80	69.80 71.00	4.49 3.69	106.20 724.00	1.93 15.10	3.27 7.95

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn	
		69 80-71.00 SILICEOUS MASSIVE SULPHIDE Partly silicified limestone, with partial pyrite replacement. Remainder is unusual texture. Silicified limestone with fine (mm-scale) wispy and stripy replacement by sulphides, particularly brownish fine-grained sphalerite. Local clots of coarse galena and yellow pyrite. Interstitial white quartz common.		140202	71.00	72.30	1.73	1844.40	38.93	4.72
		71 00-72.30 MASSIVE SULPHIDE GALENA Almost total massive sulphide. Fine- to medium-grained pyrite and probably sphalerite with somewhat brecciated texture. Some fine milky white quartz infilling. Feature of this interval is very strong coarse galena. Two main concentrations @ 71.3 and 72.1 m. Apparently replacement rather than vein, as no non-metallic gangue associated.		140204	72.30	73.50	6.30	198.20	4.45	8.17
		72 30-73.50 MASSIVE SULPHIDE Solid, pyrite-rich massive sulphide with possibly much fine sphalerite with fine pyrite. Slightly brecciated texture, quite homogeneous. Very minor interstitial quartz galena.		140206	73.50	74.05	3.12	503.60	12.96	16.23
		73 50-74.05 BASE METAL MASSIVE SULPHIDE All massive sulphide. Mostly fine-grained pyrite and brownish-grey sphalerite. Some coarse pyrite. Local weak banding texture. Features a 4-cm thick oblique band of very coarse galena. Not a vein.								
		74 05-75.25 CAVE No particular contrast in core either side, but "cavity" block placed in core box.		140207	75.25	76.00	0.59	899.40	21.74	14.49
		75 25-76.00 BASE METAL MASSIVE SULPHIDE Strong massive sulphide zone at base of Lower Zone, no remnant host rock. Heterogeneous texture. Some rubbly breccia, with galena-rich or pyrite-rich fragments in fine, dark, pyrite-sphalerite matrix. Elsewhere, coarse galena and, especially, coarse sphalerite bands 1 or 2 cm thick. Trace interstitial quartz. Abrupt lower contact with MCDAME LIMESTONE, although not exactly preserved - actually some weakly oxidized.								

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		rubble there								
75.00	77.65	MCDAME LIMESTONE UNIT 2 Mottled pale to mid-grey fossiliferous limestone - floatstone Amphipora and stromatoporoids. Not particularly brecciated, except for uppermost 1 m. immediately beneath Lower Zone above. Virtually no sulphides so LOWER ZONE contact is sharp. 75.00-77.00 SAMPLE Weak to moderate calcite crackle veining and stylolites.	MLS2	140208	76.30	77.00	0.01	3.60	0.08	0.06
77.65	79.25	MCDAME LIMESTONE UNIT 2 RUBBLE BRECCIA Mostly rubble breccia comprising angular limestone fragments in matrix of clastic limestone detritus. Very little vein matrix. Both clast- and matrix-supported. Breccia tapers downwards - paleokarst fissure filled with limestone detritus. Graded bed near bottom. Trace sulphide in matrix near top of interval.	MLS2							
79.25	91.65	MCDAME LIMESTONE UNIT 2 Typical unit 2, fossiliferous floatstone to rudstone. Stromatoporoid- and amphipora-rich. Good core, no brecciation 88.39-89.55 OXIDIZED RUBBLE Poor recovery. "Drop core" block placed in box. ALTERED few pieces of oxidized rubble. Dark brownish-grey. May have had sulphides once.	MLS2	140209	88.39	89.55	0.04	9.30	0.24	3.58
91.65	103.00	MCDAME LIMESTONE UNIT 3 Fossiliferous limestone. Packstone to floatstone, with fine amphipora-packstone near top, followed by fine- to medium amphipora rudstone. Stromatoporoid-rich subunit around 99-102 m. Unit not brecciated except for local minor crackle breccia, and calcite veinlets.	MLS3							
103.00	107.55	MCDAME LIMESTONE UNIT 3 CRACKLE BRECCIA RUBBLE BRECCIA Fossiliferous limestone with strong brecciation - combination of crackle and stylolitic brecciation, with substantial calcite veinlets. Cavity-fill rubble to matrix breccia between 106.65 and 107.55 m. Strong black carbonaceous mud matrix near top, though not necessarily Eam.	MLS3							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
107.55	109.73	MCDAME LIMESTONE UNIT 3 Limestone floatstone to packstone. 25 cm thick, well laminated limy sediment, possibly paleokarst, near base of hole.	MLS3							

\*\*\* END OF HOLE \*\*\* 109.73

HOLE NO: SSD-97-62

SECTION: 43640N

GRID: SILVER CK EX

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : SILVER CK EX  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC.  
 HOLE TYPE : DIAMOND

\*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	106.68	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	VALDOR 3000		
Date started:	11/9/97		
Date finished:	12/9/97		
Logged by:	L. LEWIS		
Relogged by:			
Sampled by:	J. LETWIN		

\*\*\* COLLAR COORDINATES AND RL \*\*\*  
 SURVEYED 43639.83mN 24759.36mE 1228.03RL

Pre-collar depth: Final depth: 106.68  
 Purpose of hole: INFILL SILVER CREEK  
 EXTENSION.  
 Hole status: DRILLED TO DEPTH  
 Comments: LZ: 61.1 - 74.0M, 78.8 - 79.65M

Material left in hole:  
 Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

\*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	44.00	-76.00
45.72	47.00	-75.00
103.63	45.00	-75.00

\*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
60.10	83.30	23.20

\*\*\* SUMMARY LOG \*\*\*

0.00 16.76 OVERBURDEN  
 16.76 29.40 1B SANDSTONE /  
 CONGLOMERATE  
 29.40 39.62 FAULT ZONE 1B  
 SANDSTONE / SILTSTONE  
 39.62 42.00 FAULT ZONE 1AA  
 CARBONACEOUS  
 ARGILLITE  
 42.00 42.67 NO RECOVERY  
 42.67 48.27 FAULT ZONE 1AA  
 CARBONACEOUS  
 ARGILLITE  
 48.27 55.10 1AA CARBONACEOUS  
 ARGILLITE SILICIFIED  
 55.10 61.10 MCDAME LIMESTONE UNIT  
 1 CRACKLE BRECCIA  
 61.10 74.00 LOWER ZONE BRECCIATED  
 74.00 74.80 MCDAME LIMESTONE/1A  
 ARGILLITE RUBBLE  
 BRECCIA  
 74.80 78.80 MCDAME LIMESTONE UNIT  
 2  
 78.80 79.65 LOWER ZONE BRECCIATED  
 79.65 82.30 1AA RUBBLE BRECCIA  
 MINERALIZED

Checked and signed: \_\_\_\_\_

Date: \_\_\_\_\_

1997

SSD-97-62

HOLE NO: SSD-97-62

SECTION: 43640N

GRID: SILVER CK EX

82.30	88.39	MCDAME LIMESTONE UNIT 2
88.39	106.68	MCDAME LIMESTONE UNIT 3
106.68		END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
0.00	16.76	OVERBURDEN	OB						
16.76	29.40	1B SANDSTONE / CONGLOMERATE Typical 1B sandstone / conglomerate sequence of medium grey, medium to coarse grained, thickly bedded to massive sandstone (85%) and pebbly conglomerate beds (15%) from 25 - 50cm thick. Conglomerate predominantly fines upward into sandstone. Occasionally a section of the graded bed will have reverse graded bedding. Basal conglomerate, in contact with thinly laminated siltstone have scoured the top of the siltstone bed which is now irregular (eg 23 Cm). Minor thinly laminated sandy siltstone, bedding @ 80 to core axis. <1% quartz str. Ir. 1% finely disseminated pyrite. Lower contact with pyritic gouge @ approximately 60 degrees. - 28.9 - 29.05m: Crackly breccia with sandstone clasts in a quartz matrix. Breccia possibly resulting from the shearing / faulting below.	1B						
29.40	39.62	FAULT ZONE 1B SANDSTONE / SILTSTONE Fault zone with 35% recovery of 80% pyritic sandstone and 20% pyritic, laminated siltstone. Mainly gouge, chips and rubble with minor competent sandstone. 1-3% quartz stringers, 3% finely disseminated pyrite. Prominent fracturing @ 40 to core axis.	FZ						
39.62	42.00	FAULT ZONE 1AA CARBONACEOUS ARGILLITE Continuation of the fault zone in the sandstone above, now in a different lithology. 17% recovery of carbonaceous gouge, 8% quartz chips and 2% disseminated pyrite.	FZ						
42.00	42.67	NO RECOVERY Driller's block notes 2 foot cavity here.	NR						
42.67	48.27	FAULT ZONE 1AA CARBONACEOUS ARGILLITE Similar to fault zone from 39.62 - 42.0m. 12% recovery of carbonaceous gouge, black mud, 6% quartz chips and 2% disseminated pyrite. Broken lower contact.	FZ						
48.27	55.10	1AA CARBONACEOUS ARGILLITE SILICIFIED Black, laminated, weak to moderately carbonaceous argillite / siltstone; moderately silicified. 15% medium grey, fine grained calcareous laminae. Unit broken into chips, 1cm - 6cm, but good recovery (>80%). 2% quartz - calcite	1AA						

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From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn	
		hairline stringers, sub-parallel to bedding @ 80 degrees and cross-cutting. Trace - 1% finely disseminated pyrite. Sharp, unconformable lower contact with limestone @ 45 to core axis.								
55.10	61.10	MCDAME LIMESTONE UNIT 1 CRACKLE BRECCIA Sharp, fairly undeformed unconformity (ie - non- to weakly brecciated). Sharp upper contact @ 45 to core axis. Sporadic crackle and stylolitic breccia. 3% calcite stringers and coarse grained open-space fill, the majority at 20 degrees. Variable rock type from amphipora floatstone to packstone to massive stromatoporoid + thamnopora rudstone. 10cm Thamnopora bed at 59.6m may indicate sub-unit 1b of the McDame Limestone Unit 1. One pod of pyrite replacement between 56.25 - 56.5m (25% pyrite), otherwise, only a trace - 1% disseminated and blebs of pyrite along stylolites. Sharp, irregular lower contact with Lower Zone @ 55 to core axis. 60.10-61.10 FLOATSTONE STYLOLITIC BRECCIA Hanging wall sample of massive stromatoporoid floatstone, moderate stylolites. 2% fine grained pyrite concentrated along stylolites. Trace galena + sphalerite as hairline stringers. Moderately broken (8 breaks per meter). Sharp irregular lower contact with Lower Zone	MLS1	140076	60.10	61.10	0.06	7.90	0.12	0.22
61.10	74.00	LOWER ZONE BRECCIATED This is a highly variable lower zone with a mix of massive sulphide, limestone breccia in a sulphide / silica cement, and brecciated sulphides with argillite limestone clasts in a coarse calcite cement. Yellowish-brown bladed gypsum (?) throughout coating fractures and in vugs and cavities 61.10-62.00 BASE METAL MASSIVE SULPHIDE Red-brown, sphalerite - rich interval of massive sulphide with 30% sphalerite as irregular bands and clots; 5% medium grained galena as clots and bands associated with sphalerite. Of the 55% pyrite - approximately 1/3 is finely bladed marcasite. 3% olive-yellow flakes of gypsum lining vugs and fractures. 62.00-63.00 PYRITE MASSIVE SULPHIDE	LZ	140077	61.10	62.00	0.89	350.70	6.87	18.26
				140078	62.00	63.00	0.72	284.00	5.86	13.04

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From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au g/mt	Ag g/mt	%Pb	%Zn	
		Half the sphalerite in this interval compared with the above sample, concentrated in the lower 50cm. Increased sugary calcite as narrow bands (3mm) between galena + pyrite. 5% remnant, partly replaced limestone.								
63.00-64.50		<b>PYRITE MASSIVE SULPHIDE LIMESTONE</b> Mosaic breccia of dark grey (black when wet), silicified / dolomitized limestone clasts in a variable matrix of sulphides, silica and minor calcite. 20% limestone, 45% pyrite, 12% sphalerite, 2% galena, 15% quartz and 5% calcite.		140079	63.00	64.50	2.25	55.90	0.72	8.21
64.50-66.00		<b>PYRITE MASSIVE SULPHIDE LIMESTONE</b> Similar textures as the previous sample, with slightly more silicified limestone clasts and slightly decreased pyrite. Bladed marcasite present. 50% pyrite, 15% sphalerite, 1% galena, 15% quartz, 3% calcite and 25% limestone.		140080	64.50	66.00	2.031	50.80	0.81	9.84
66.00-67.50		<b>LIMESTONE PYRITE MASSIVE SULPHIDE</b> Again mosaic breccia, but with increased silica and decreased sulphides in the matrix. Some beauty quartz crystals in open cavities. Vugs lined by red-brown sphalerite, then pyrite. 3% gypsum lining vugs. 25% pyrite, 10% sphalerite, 1% galena, 20% quartz and 40% limestone.		140081	66.00	67.50	1.00	31.00	0.51	6.89
67.50-68.90		<b>LIMESTONE PYRITE MASSIVE SULPHIDE</b> Mixed interval of massive sulphide and limestone breccia, now in a coarse calcite gangue, as opposed to the silica cement in the above samples. 40% limestone clasts are silicified (and dolomitized). 35% pyrite, 10% sphalerite, 1% galena, 8% calcite, 6% quartz and 40% limestone.		140082	67.50	68.90	1.48	89.90	1.40	5.49
68.90-69.95		<b>PYRITE MASSIVE SULPHIDE</b> Massive to brecciated interval in a mixed gangue of		140083	68.90	69.95	4.29	465.30	11.12	16.29

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au g/mt	Ag g/mt	%Pb	%Zn	
		coarse calcite and late interstitial euhedral quartz. 55% fine grained pyrite and bladed marcasite. 15% red-brown sphalerite, 10% fine to medium grained galena, and 2% gypsum.								
69.95-70.95		<b>PYRITE MASSIVE SULPHIDE RUBBLE BRECCIA</b> Post-mineralization breccia of predominantly sulphide (50% pyrite, 20% sphalerite, 10% galena) in 10% calcite gangue. Some of the galena looks to be syn-breccia. 2% of the galena is the fine grained dusty granular-type masses.		140084	69.95	70.95	0.74	468.70	11.75	10.98
70.95-71.75		<b>PYRITE MASSIVE SULPHIDE RUBBLE BRECCIA</b> Vuggy, porous core with abundant fibrous gypsum masses and blades (5%) lining cavities. 5% limestone clasts, 60% pyrite, 10% sphalerite, 10% galena in a mostly calcite gangue (8%) with 2% quartz pods. *Note: Sample 140086 is a duplicate of this interval.		140085	70.95	71.75	1.11	295.80	6.77	12.17
71.75-72.50		<b>PYRITE MASSIVE SULPHIDE RUBBLE BRECCIA</b> Heterogeneous breccia of 15% dolomitized limestone clasts, 50% pyrite clasts, 10% sphalerite and 1% galena clasts in a calcareous, sulphide matrix with pyrite + sphalerite + galena.		140087	71.75	72.50	0.79	168.20	4.69	5.42
72.50-73.40		<b>PYRITE MASSIVE SULPHIDE RUBBLE BRECCIA</b> Massive to brecciated massive sulphide (50% pyrite, 7% sphalerite, 2% galena) with 20% limestone and 5% argillite clasts. Limestone and argillite are concentrated in the lower 40cm of the interval.		140088	72.50	73.40	2.15	52.50	1.41	3.64
73.40-74.00		<b>BASE METAL MASSIVE SULPHIDE</b> Base metal rich interval of 40% galena, 35% sphalerite and 15% pyrite. At 73.55m is a clot of a grey fine grained soft sulphide (4cm) of what could be the "dusty" galena which is actually a mix of galena + tetrahedrite + boulangerite, etc (see 1984 report from Cordilleran Engineering - sulphide mineralogy).		140089	73.40	74.00	0.62	1070.90	27.40	18.81



From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn	
		description: Interval quite crumbly with 5% interstitial gypsum. Rhythmic compositional banding: quartz + calcite pyrite sphalerite galena @ 65 to core axis adjacent to the lower contact also at 65 degrees								
74.00	74.80	MCDAME LIMESTONE/1A ARGILLITE RUBBLE BRECCIA 74.00-74.80 RUBBLE BRECCIA Episodic cavefill of 50% limestone clasts, 5% argillite clasts, 5% sulphide clasts in a medium to dark grey limy to carbonaceous, pyritic, laminated clastic matrix. Sediment bedding @ 60 to core axis. Irregular but sharp lower contact with unmineralized limestone.	MLS1A	140091	74.00	74.80	0.10	32.10	0.71	1.45
74.80	78.80	MCDAME LIMESTONE UNIT 2 Four meters of very fossiliferous Unit 2 - massive stromatoporoid is the major fossil, minor amphiopora and thamnopora + Tryplasma throughout. Minor brachiopod shells. Variably stylolitic strongest between 77.8 and 78.8m. Narrow mosaic breccia from 77.5 - 77.8m. Intermittent steep fractures (5-10 to core axis) to 1cm wide filled with limy sediment. Trace pyrite as blebs along stylolites and disseminated in cracks and fractures. Sharp irregular lower contact with brecciated cave-fill below 74.80-75.80 RUDSTONE STYLOLITIC BRECCIA Moderate stylolitic breccia of massive stromatoporoid rudstone. Trace pyrite 75.80-77.80 RUDSTONE As in general description. Narrow mosaic breccia with limestone clasts in coarse calcite cement from 77.6 - 77.8m 77.80-78.80 RUDSTONE STYLOLITIC BRECCIA Hanging wall sample to brecciated Lower Zone below. Moderate to strong stylolitic breccia. 1% fine grained pyrite concentrated in fractures adjacent to Lower Zone.	MLS2	140092	74.80	75.80	0.02	4.10	0.11	0.16
				140093	75.80	77.80	0.01	0.30	0.00	0.33
				140094	77.80	78.80	0.01	1.70	0.04	0.12
78.80	79.65	LOWER ZONE BRECCIATED 78.80-79.65 RUBBLE BRECCIA **Post-mineralization solution collapse rubble breccia with a heterogeneous mix of limestone (25%), pyrite (35%), sphalerite (15%) and galena (12%) clasts in a	LZ	140095	78.80	79.65	0.54	429.90	12.65	11.26

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn	
		dark limy matrix. **Interesting feature @ the top of the interval where there is 10cm of thinly laminated, limy medium grained sediment @ 60 degrees to core axis, with small clasts of sulphide and limestone. This could possibly be the final / late sediment infill of space at the top of a solution collapse feature.								
79.65	82.30	1AA RUBBLE BRECCIA MINERALIZED General Description: Likely part of the same solution collapse breccia as the Lower Zone above, but this interval is composed of mainly 1AA argillite clasts in a predominantly clastic matrix of carbonaceous limy sediment. Scattered sulphide clasts (mainly pyrite), increase towards the base of the unit. 79.65-81.00 CARBONACEOUS ARGILLITE RUBBLE BRECCIA As in the general description above. Clast supported breccia of angular black argillite clasts and 5% limestone clasts in a fine to medium grained limy sediment matrix. Minor calcite cement from 80.3 - 80.8m. 8% pyrite clasts and also finely disseminated sulphide in the matrix. 81.00-82.30 CARBONACEOUS ARGILLITE / LIMESTONE RUBBLE BRECCIA Slightly more matrix and sulphides in this sample. ** The fine sulphides in the matrix look to be detrital and not replacement of the matrix. Also larger sulphide clasts to 4cm present. The basal 20cm of the solution collapse is mainly limestone clasts in calcite cement.	1AA	140096	79.65	81.00	0.02	17.40	0.39	1.05
				140097	81.00	82.30	0.09	19.10	0.46	0.79
82.30	88.39	MCDAME LIMESTONE UNIT 2 Basal portion of Unit 2 - massive stromatoporoid rudstone with scattered amphiopora, thamnopora and rugose corals. Significant brecciation confined to the upper meter, adjacent to the solution collapse breccia above 82.30-83.30 RUDSTONE MOSAIC BRECCIA The upper 20cm adjacent to the solution collapse breccia is a mosaic breccia of limestone clasts floating in a coarse calcite cement. Below is minor crackle	MLS2	140098	82.30	83.30	0.00	0.50	0.00	0.01

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
		breccia. 2% fine grained pyrite occurs along stylolites and locally, partially replacing limestone adjacent to calcite-filled fractures.							
86.39	106.68	<p>MCDAME LIMESTONE UNIT 3</p> <p>The upper 4 meters of Unit 3 contains the typical dense packstone with fine amphipora (1-2mm diameter). At 90.0m, a thin bed of <i>Trypasma rugose</i> corals occurs. There is one gastropod @ 91.75m. No significant brecciation or mineralization. Local broken sections along low angle fractures.</p> <ul style="list-style-type: none"> <li>- 92.4 - 96.3m: The typical massive stromatoporoid facies, present about 4 meters below the upper contact of Unit 3. Minor amphipora, thamnopora and <i>Trypasma</i>.</li> <li>- 96.3 - 106.68m: Dominated by amphipora ranging from floatstone to framestone (very tightly packed amphipora). The amphipora tend to coarsen towards the lower part of the unit (to 5mm) and can be confused with the top of Unit 5.</li> </ul>	MLS3i						

\*\*\* END OF HOLE \*\*\* 106.68

HOLE NO: SSD-97-63

SECTION: 44041N

GRID: DISCOVERY N

PROJECT CODE : SILVERTIP  
 TENEMENT : SILVERTIP MINING CORP.  
 PROSPECT :  
 GRID : DISCOVERY N  
 MAP REFERENCE: 104/O-16W  
 LOCATION : LIARD MD, BC.  
 HOLE TYPE : DIAMOND

\*\*\* DRILLING SUMMARY \*\*\*

DIAMOND	0.00	215.49	HQ
Drill contractor:	OLYMPIC DRILLING		
Drill rig:	LONGYEAR "38"		
Date started:	13/9/97		
Date finished:	18/9/97		
Logged by:	L. LEWIS		
Relogged by:			
Sampled by:	J. LETWIN		

\*\*\* COLLAR COORDINATES AND RL \*\*\*  
 SURVEYED 44040.71mN 25309.71mE 1168.97RL

Pre-collar depth: Final depth: 215.49  
 Purpose of hole: TEST LZ CONTINUITY WITH 97-60  
 Hole status: DRILLED TO DEPTH  
 Comments: LOWER ZONE: 180.9 - 182.2M,  
 186.3 - 187.26M

Material left in hole: 80' HQ RODS, 5' HW CASING, ETC

Base of complete oxidation  
 Top of fresh rock:  
 Water first encountered:  
 Water inflow estimate:

\*\*\* SURVEY DATA \*\*\*

Survey Method: SPERRY SUN

Depth	Azimuth	Inclination
0.00	270.00	-75.00
213.36	265.00	-76.00

\*\*\* SIGNIFICANT ASSAYS \*\*\*

From	To	Width
98.00	100.80	2.80
179.90	189.40	9.50

\*\*\* SUMMARY LOG \*\*\*

0.00 17.37 OVERBURDEN  
 17.37 36.90 2AS SILTSTONE  
 36.90 41.40 EXHALITE - F-ZONE  
 41.40 53.15 2AC SILTSTONE /  
 CALCARENITE  
 53.15 64.00 FAULT ZONE 2AC  
 64.00 67.80 2AC SILTSTONE /  
 CALCARENITE  
 67.80 86.90 FAULT ZONE 1B  
 SANDSTONE  
 86.90 93.45 1B SANDSTONE /  
 CONGLOMERATE  
 93.45 94.80 FAULT ZONE GOUGE 1B  
 94.80 98.00 1B SANDSTONE /  
 CONGLOMERATE  
 98.00 100.80 FAULT ZONE 1B  
 100.80 120.30 1B SANDSTONE /  
 CONGLOMERATE  
 120.30 124.20 FAULT ZONE 1B  
 SANDSTONE  
 124.20 139.29 1B SANDSTONE  
 139.29 160.10 1B SANDSTONE /  
 SILTSTONE  
 160.10 169.50 FAULT ZONE 1BA  
 MUDSTONE / SANDSTONE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

HOLE NO: SSD-97-63

SECTION: 44041N

GRID: DISCOVERY N

169.50	174.15	1BA MUDSTONE / SANDSTONE
174.15	175.20	1AA CARBONACEOUS ARGILLITE
175.20	176.06	1AC CALCARENITE
176.06	180.90	MCDAME LIMESTONE UNIT 1
180.90	182.20	LOWER ZONE MASSIVE SULPHIDE
182.20	186.30	1AC CALCARENITE
186.30	187.26	LOWER ZONE MASSIVE SULPHIDE
187.26	187.80	MCDAME LIMESTONE UNIT 1
187.80	188.40	LOWER ZONE BRECCIATED
188.40	215.49	MCDAME LIMESTONE UNIT 1
215.49		END OF HOLE

Checked and signed: \_\_\_\_\_ Date: \_\_\_\_\_

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
0.00	17.37	OVERBURDEN	OB							
17.37	36.90	2AS SILTSTONE Dark grey, massive to thickly bedded, moderately siliceous siltstone. Broken, blocky core, poor to moderate recovery. 2% contorted quartz - calcite stringers to 5mm, trace to 1% disseminated pyrite in the siltstone and small clots on margins of stringers. 5mm calcite - sphalerite stringer @ 28.1m, 30 degrees to core axis. Bedding @ 70 to core axis. Gradational lower contact with siliceous exhalite (ie gradually becoming paler green in color and more siliceous)	2AS							
36.90	41.40	EXHALITE - F-ZONE Not faulted, like in previous holes 97-5 and 97-60. Light greenish-grey, fine grained, thinly laminated chert / silica with frequent siliceous nodules. 2% wispy pyrite parallel to laminae @ 65 to core axis. 6% quartz - calcite veining. Trace smeared galena on fracture surface @ 40.45m. 30% interbedded siliceous siltstone. Broken lower contact.	EX							
41.40	53.15	2AC SILTSTONE / CALCARENITE Interbedded medium to dark grey siltstone (5mm - 10cm beds) and light grey, thin to thick bedded, fine grained calcareous siltstone / calcarenite. Minor soft sediment deformation with lenses and beds of sandstone within the siltstone beds (eg 50.8m). 2% calcite - quartz stringers, occasionally with clots of pyrite. Overall, Ir pyrite. Abrupt broken lower contact with broken up / veined interval below	2AC							
53.15	64.00	FAULT ZONE 2AC Micro-brecciated interval of siltstone (locally graphitic) and calcarenite with 10% quartz +/- calcite stringers and fracture fillings. In places there is mosaic breccia with quartz cement. The broken interval is now mainly chips and rubble. 1% pyrite as small clots in the quartz or as disseminations in the calcarenite beds (eg 62.45m). This may not be the actual fault zone, as there is only minor gouge, but likely proximal to a major fault. The bottom of the interval was chosen where the veining drops off significantly.	FZ							

From	To	Geological Log	UNIT	SAMPLE	FROM	TO	Au gmt	Ag gmt	%Pb	%Zn
64.00	67.80	2AC SILTSTONE / CALCARENITE Rubbly interval of laminated to thinly interbedded siltstone and calcarenite, the calcarenite beds decreasing in thickness from above. 2% quartz - calcite contorted stringers. 1% disseminated pyrite. Broken lower contact with gouge / fault zone.	2AC							
67.80	86.90	FAULT ZONE 1B SANDSTONE Gouge (70%) / rubble interval of pyritic sandstone and graphitic siltstone. In the "almost" gouge intervals, very contorted bedding and brecciation is visible (eg 78.0m). 4% intermittent quartz vein rubble, 3% disseminated pyrite. Broken lower contact, 65% recovery.	FZ							
86.90	93.45	1B SANDSTONE / CONGLOMERATE Medium grey, medium to coarse grained massive, blocky sandstone with 30% pebble conglomerate, elongate sub-angular to sub-rounded clasts oriented along 70 degrees to core axis. - 89.2 - 89.55m: Gouge, upper contact @ 70 degrees. - 92.2 - 92.4m: Gouge, upper contact @ 60 degrees.	1B							
93.45	94.80	FAULT ZONE GOUGE 1B 45% recovery of sand to silty gouge, 20% quartz - iron carbonate chips, 2% clots and disseminations of pyrite.	FZ							
94.80	98.00	1B SANDSTONE / CONGLOMERATE Blocky, broken interval of sandstone (60%) and conglomerate (40%). Similar description to major unit described from 86.9 - 93.45m. Trace disseminated pyrite.	1B							
98.00	100.80	FAULT ZONE 1B 98.00-100.80 GOUGE Sample of sandy to graphitic gouge with 3% disseminated pyrite. 48% recovery. Sharp lower contact parallel to bedding @ 68 degrees.	FZ	140145	98.00	100.80	0.02	9.80	0.11	0.44
100.80	120.30	1B SANDSTONE / CONGLOMERATE Unit predominantly sandstone (70%), massive to thinly bedded with dark grey silty partings, laminae and thin beds. 30% pebble conglomerate beds to 1 meter thick, often fining upward into coarse sandstone. 1% pyrite, disseminated and as circular concretions with a quartz halo. Occasional wavy to cross-aminations in the silty sandstone (eg	1B							

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
		116.3m. Bedding @ 70 to core axis. Increasingly more fractured towards the broken lower contact.							
120.30	124.20	FAULT ZONE 1B SANDSTONE 65% recovery of 60% sandstone / siltstone chips and 40% gouge. 1% disseminated pyrite.	FZ						
124.20	139.29	1B SANDSTONE Unit predominantly medium grey, fine grained, massive sandstone with minor siltstone laminae and beds to 1cm bedding @ 80 degrees (flattening). Broken blocky core, intermittent narrow gouge zones <1% quartz stringers, Ir disseminated pyrite.	1B						
139.29	160.10	1B SANDSTONE / SILTSTONE Striped unit of poker chip core containing 60% light grey medium to fine grained sandstone laminae and beds (2mm - 10cm thick). Micro-scale reverse faults / slip 50 degrees to core axis @ 150.7m. Trace disseminated pyrite and nodules. 4cm iron-carbonate clot @ 159.45m. Broken lower contact with fault zone. 146.90-149.10 FAULT ZONE Crumbly brecciated zone of sandstone and graphitic mudstone. 50% gouge, 50% rubby core, 1% disseminated and clots of pyrite.	1B						
160.10	169.50	FAULT ZONE 1BA MUDSTONE / SANDSTONE 65% recovery of predominantly very friable, warped, contorted thin beds of interbedded mudstone and sandstone. Bedding angle varies from 80 to 5 degrees to core axis. 20% gouge (weak to moderately carbonaceous), 50% small chips (<1cm), 30% platy to blocky core, 5% scattered quartz stringers and veins to 15cm, 1% disseminations and clots of pyrite, concentrated around quartz veining. Broken lower contact.	FZ						
169.50	174.15	1BA MUDSTONE / SANDSTONE Predominantly black mudstone beds, 2mm - 10cm thick with 15% laminae and thin, light grey sandstone beds, 2mm - 1cm thick. Occasional soft sediment deformation with pods and lenses of sandstone in the mudstone. Sandstone layers frequently pyrite-rich (3%). Conformable lower contact where sandstone decreases to <5%.	1BA						

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn
174.15	175.20	1AA CARBONACEOUS ARGILLITE Narrow unit of black, flaggy, carbonaceous argillite. Broken chips in the lower half where there is 5% quartz - calcite stringers + 1% wisps and stringers of pyrite. Sharp conformable lower contact @ 85 to core axis.	1AA						
175.20	176.06	1AC CALCARENITE Medium grey, fine grained, carbonaceous calcarenite with possible thin cross-beds. 7% calcite veining, parallel to bedding. Trace disseminated pyrite. Non-brecciated, quiet lower contact with limestone @ 70 degrees to core axis.	1AC						
176.06	180.90	MCDAME LIMESTONE UNIT 1 Unit 1 of the McDame limestone comprised mainly of amphipora floatstone and rudstone, minor dense packstone and rare massive stromatoporoid. Lacks brecciation. Intermittent pale grey to white bleached intervals. Trace pyrite as wisps along stylolites. - 176.6 - 178.9m: Amphipora floatstone with particularly clear cross sections showing the axial canal. 179.90-180.90 FLOATSTONE Hanging wall sample above the Lower Zone. Moderately bleached, scattered stylolites with 1% pyrite and tr galena. Very sharp lower contact @ 75 to core axis.	MLS1	140146	179.90 180.90	<5ppm	3.10	0.07	0.08
180.90	182.20	LOWER ZONE MASSIVE SULPHIDE Narrow Lower Zone of banded to massive sulphide in a silica gangue (+/- cc) 180.90-181.50 BASE METAL MASSIVE SULPHIDE Massive to delicately banded, fine grained pyrite (50%), coarse dark red-brown sphalerite (25%), coarse galena (15%) and quartz + minor calcite. Some bladed marcasite present. Wavy bands are 3-10mm thick arranged pyrite - sphalerite - galena - quartz - galena - sphalerite - pyrite. Vugs have small hexagonal euhedral quartz crystals to 5mm. 181.50-182.20 BASE METAL MASSIVE SULPHIDE Banding in the upper 10cm is similar to the previous sample. Increased quartz to 15% as bands and clots with euhedral crystals to 8mm in cavities. Lower 60cm	LZ	140147	180.90 181.50	0.27	528.20	13.07	11.59
				140148	181.50 182.20	1.50	423.90	13.59	6.30

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn	
		5 massive fine grained pyrite and minor marcasite with clots and rare bands of red-brown sphalerite + galena. Sharp lower contact with carbonaceous calcarenite @ 70 degrees. 5% remnant limestone clasts @ the basal contact. 45% pyrite, 20% sphalerite and 10% galena. *Note: Sample 140149 is a duplicate of this interval and 140150 is a blank following this interval.								
182.20	186.30	1AC CALCARENITE Probably a subterranean cavern fill in previously karsted limestone consisting of laminated black carbonaceous argillite and medium grey calcarenite. Bedding @ 77 degrees (183.5m) steepening to 85 degrees at 185.1m. Below 184.3m the interbanded carbonaceous argillite and calcarenite grades into a thick section of thinly laminated calcarenite. Minor brecciation and veining @ upper and lower contacts. Irregular lower contact with Lower Zone. Unusual to see such an unbrecciated cavern fill of this thickness (4.1m). 182.20-183.30 CARBONACEOUS ARGILLITE Footwall sample. The upper 30cm adjacent to the Lower Zone is graphitic, friable and broken with 5% calcite veining and 2% disseminated pyrite. Below 182.5m more competent but still breaks easily along bedding (77 to core axis). 25% calcarenite beds from 2mm - 10cm thick. 183.30-185.30 CALCARENITE Similar to previous sample minus the calcite veining. Laminations @ 65 to core axis. Trace disseminated pyrite. 185.30-186.30 CALCARENITE RUBBLE BRECCIA Hanging wall sample. Brecciation due to probable solution collapse below (ie hydrothermal) gradually becomes stronger towards the lower contact with massive sulphides. 2% wisps and clots of pyrite, tr sphalerite + galena adjacent to lower contact.	1AC	140151	182.20	183.30	0.00	3.30	0.03	0.11
				140152	183.30	185.30	0.01	2.10	0.02	0.09
				140153	185.30	186.30	0.01	2.00	0.02	0.07

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gm/t	Ag gm/t	%Pb	%Zn	
186.30	187.26	LOWER ZONE MASSIVE SULPHIDE 186.30-187.26 PYRITE MASSIVE SULPHIDE Coarse, dark brown, sphalerite - rich interval (25%), often intergrown with coarse galena (7%). The sphalerite + galena bands cut fine grained pyrite (60%). 4% interstitial calcite and 4% quartz gangue. 7% clast of calcarenite / limestone. Difficult to tell, but the sulphides may be replacing a calcarenite / limestone breccia. Broken lower contact.	LZ	140154	186.30	187.26	0.79	565.50	12.99	12.26
187.26	187.80	MCDAME LIMESTONE UNIT 1 187.26-187.80 FLOATSTONE Amphipora - massive stromatoporoid floatstone with very small thamnopora ?? (<1.5cm). Rubbly, broken core, tr pyrite. This is both a hangingwall and footwall sample. Broken lower contact.	MLS1	140155	187.26	187.80	0.02	5.10	0.15	0.15
187.80	188.40	LOWER ZONE BRECCIATED 187.80-188.40 PYRITE MASSIVE SULPHIDE RUBBLE BRECCIA The top half of the narrow Lower Zone is banded sphalerite, pyrite, + galena with intercalated limestone. The lower 30cm is syn to post-ore rubble breccia consisting of limestone (or calcarenite clasts) and sulphide clasts in a black limy matrix + disseminated sulphide in the matrix. Sharp lower contact @ 70 to core axis. 30% pyrite, 10% sphalerite, 5% galena, and 25% limestone.	LZ	140156	187.80	188.40	0.28	141.60	2.43	5.46
188.40	215.49	MCDAME LIMESTONE UNIT 1 Variable unit of amphipora floatstone, mixed amphipora - massive stromatoporoid floatstone, massive stromatoporoid - thamnopora rudstone (likely sub-unit 1b), dense packstone and 2 narrow dolomitized intervals (<1m wide). Local strong stylolization (eg 203.45m). 2% calcite stringers, tr pyrite, sphalerite and galena as rare mm stringers. Pyrite more frequently along stylolites. Millimeter pyrite - sphalerite - galena stringers, 80 - 85 to core axis @ 191.97m, 192.55m, 194.5m, 195.0m, 195.38m, and 201.55m. Core is frequently broken along fractures (30 degrees) and								

From	To	Geological Log	UNIT	SAMPLE FROM	TO	Au gmt	Ag gmt	%Pb	%Zn	
		stylolites - 202.6 - 203.3m: Dolomitized limestone - 212.6 - 212.95m: Dolomitized limestone - 213.65 - 213.8m: Calcite vein with stylolitic contacts 188.40-189.40 FLOATSTONE STYLOLITIC BRECCIA Footwall sample to brecciated Lower Zone consisting of amphipora - massive stromatoporoid floatstone. moderate stylolites 1% pyrite stringers Minor (2%) calcite - filled fractures @ 25 to core axis	MLS1	140157	188.40	189.40	0.01	2.90	0.04	0.13

\*\*\* END OF HOLE \*\*\* 215.49