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APPENDIX A:
Mineral Properties

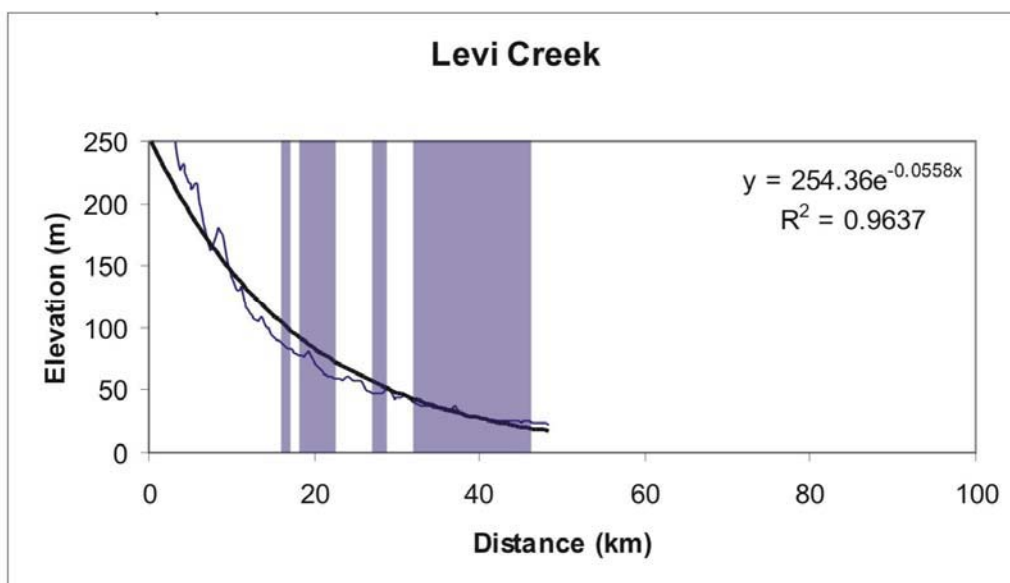
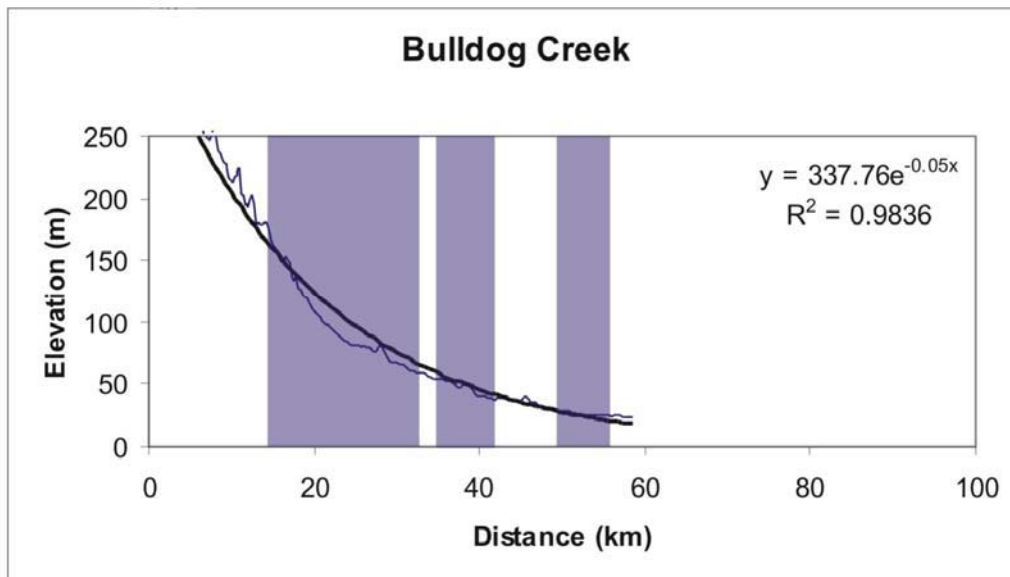
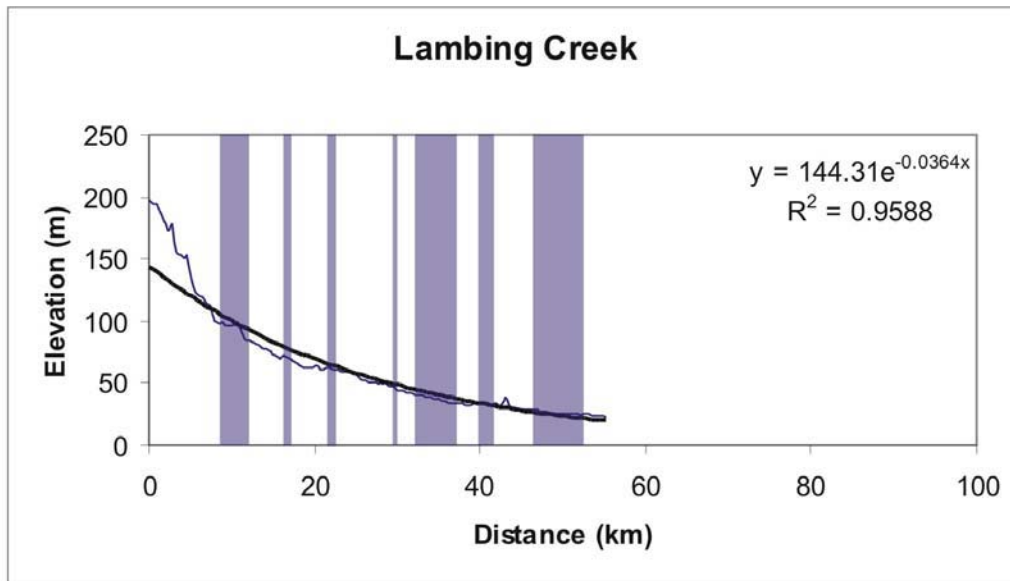
Mineral Properties

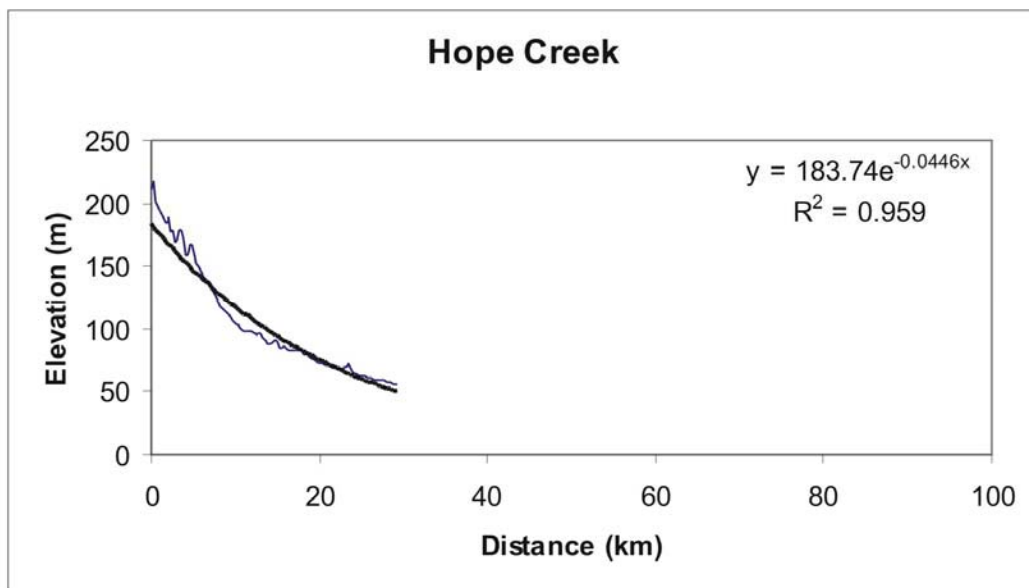
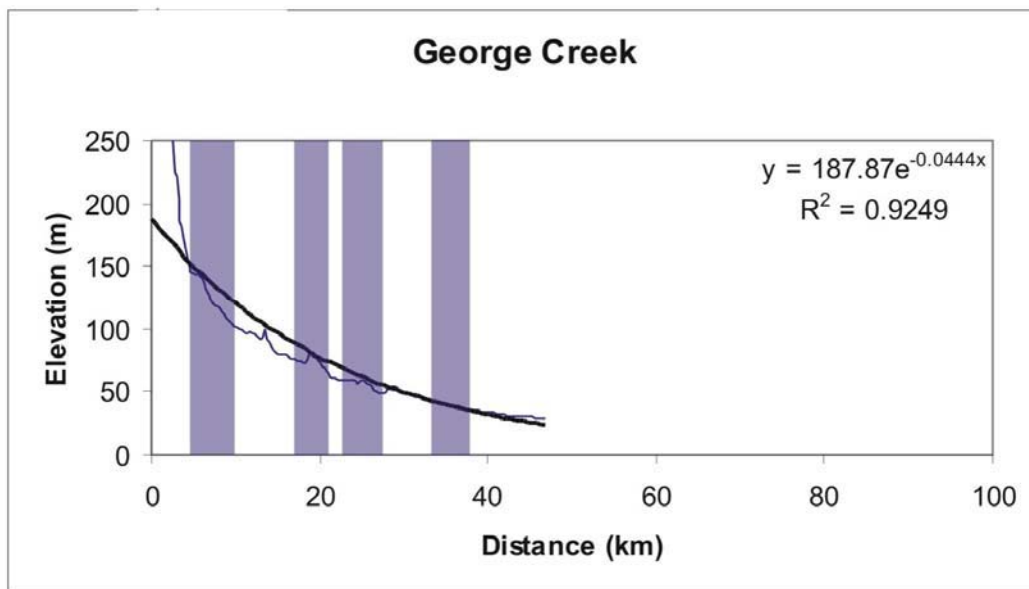
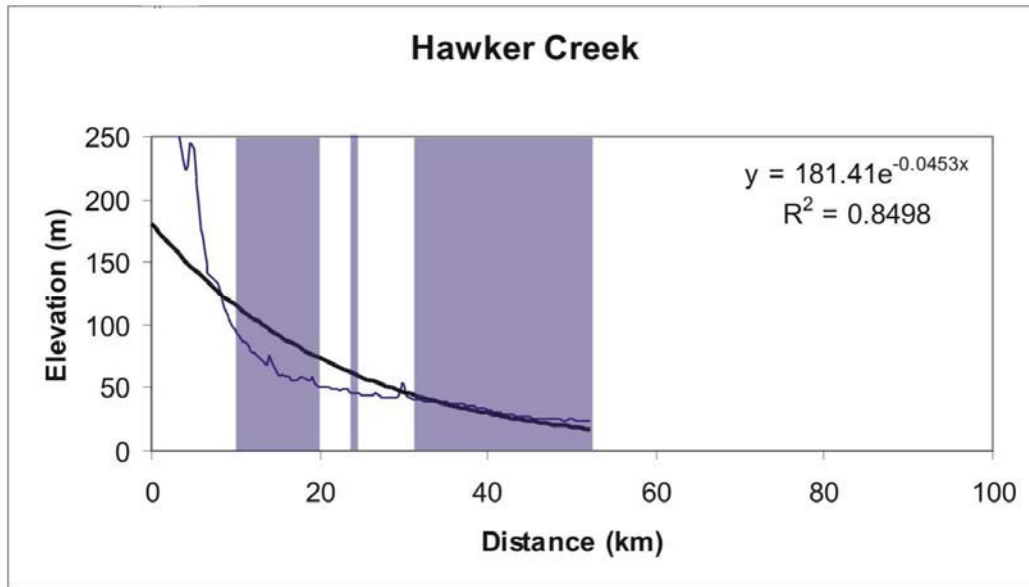
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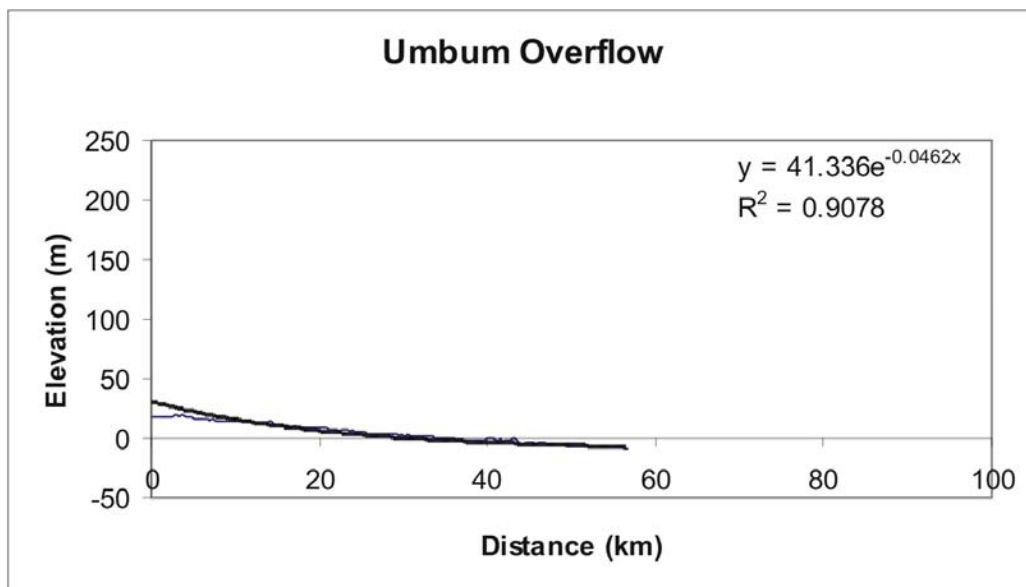
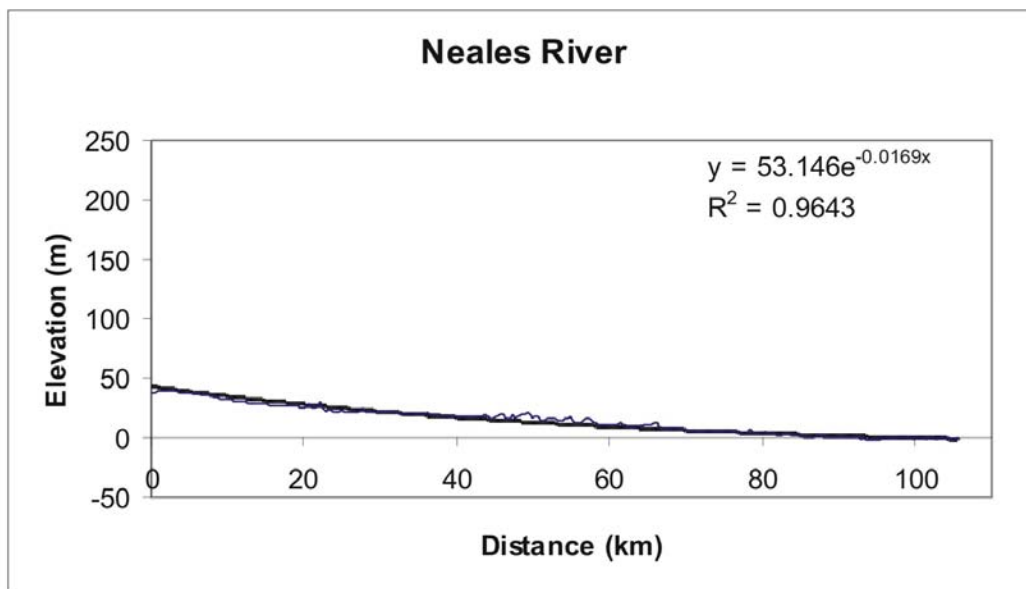
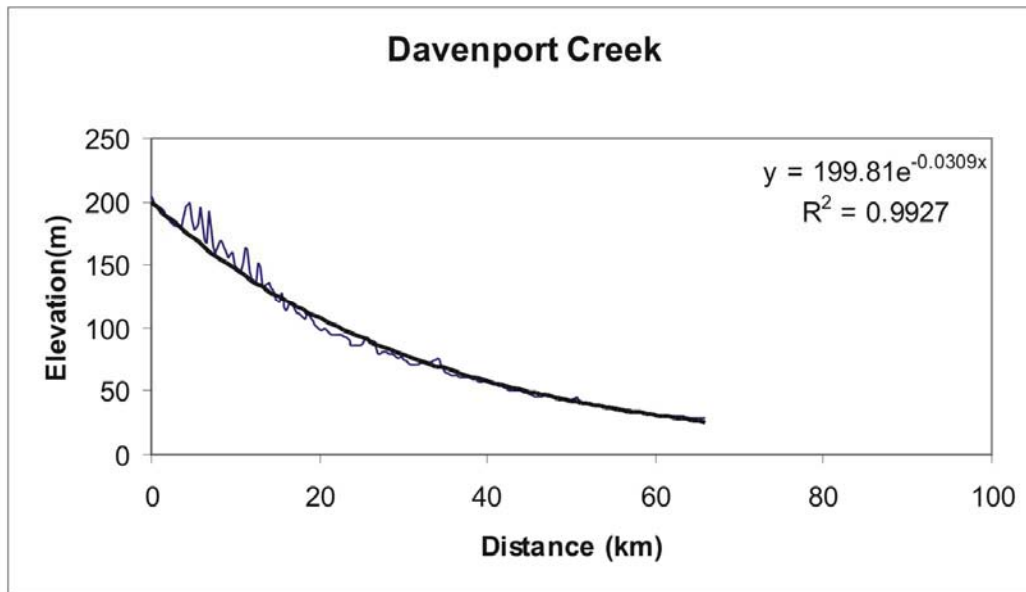
- Muscovite: $KAl_2(AlSi_3O_{10})(F,OH)_2$ – Potassium Aluminium Silicate Hydroxide Fluoride (Phyllosilicate)
A common rock forming mineral found in igneous, metamorphic and detrital sedimentary rocks. Although it has easy cleavage, the sheets are quite durable and are often found in sands that have undergone much erosion and transport that would have destroyed most other minerals.
- Illite: $(K,H)Al_2(Si,Al)_4O_{10}(OH)_2 \cdot xH_2O$ – (Clay-mica group)
Hydrated microscopic muscovite. A common component of shales.
- Smectite: $(Ca,Na,H)(Al,Mg,Fe,Zn)_2(Si,Al)_4O_{10}(OH)_2 \cdot xH_2O$ – (montmorillonite/smectite group)
Smectite forms microscopic or very small platy micaceous crystals.
- Calcite: $CaCO_3$ – Calcium Carbonate.
Forms oolitic, fossiliferous and massive limestone, cement for sandstone and shale, metamorphic marble and igneous carbonatite.
- Dolomite: $CaMg(CO_3)_2$ – Calcium Magnesium Carbonate
Formed via the diagenesis of calcite/aragonite. Also forms metamorphic marble, hydrothermal veins and replacement deposits.
- Alunite: $KAl_3(SO_4)_2(OH)_6$ – Potassium Aluminium Sulphate Hydroxide (Sulphate)
Formed by the action of sulphuric acid upon potassium-rich feldspars usually as a result of sulphuric acid accompanying hydrothermal solutions.
- Pyrophyllite: $AlSi_2O_5OH$ – Aluminium Silicate Hydroxide (Clay Group)
An early stage metamorphic mineral constituent of slate, phyllite, schist etc.

APPENDIX B:
Longitudinal Stream Profiles

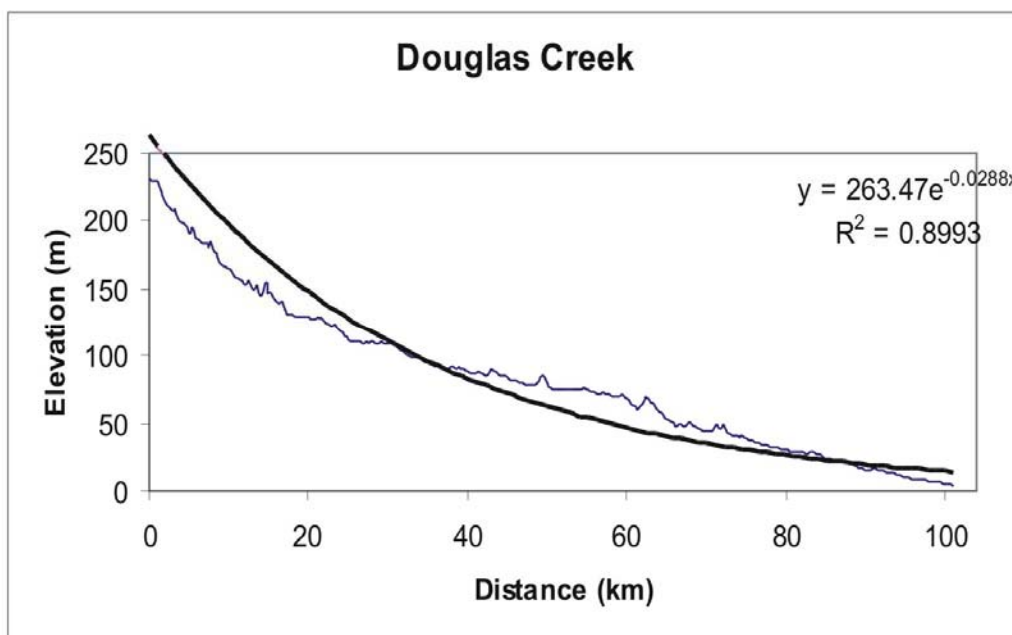
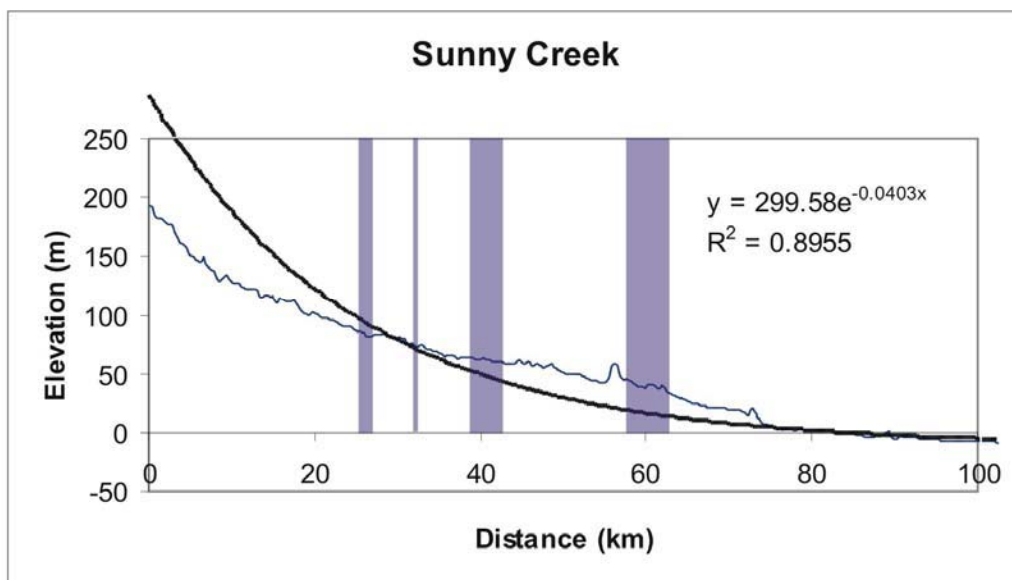
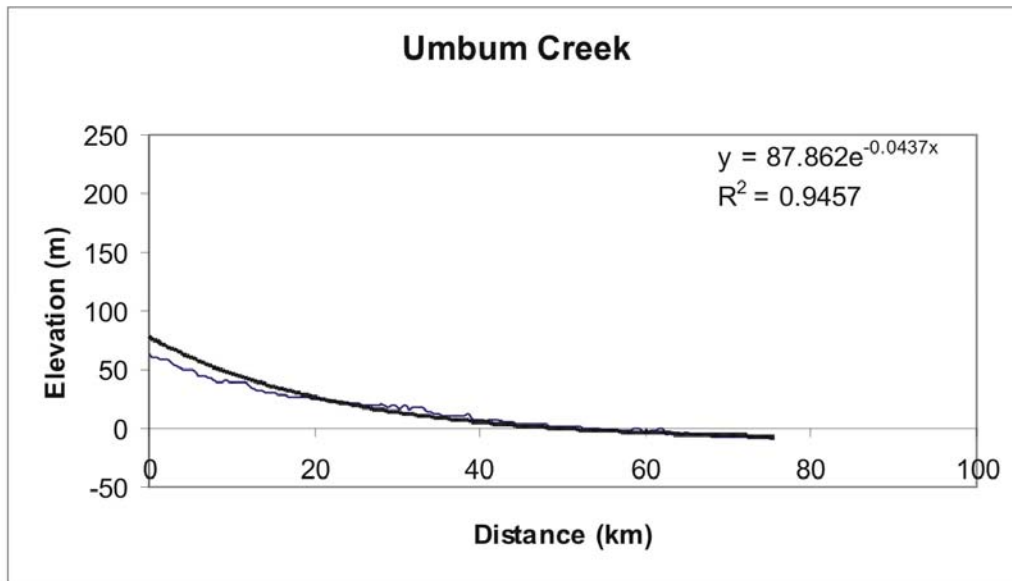
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Appendix B: Longitudinal Stream Profiles



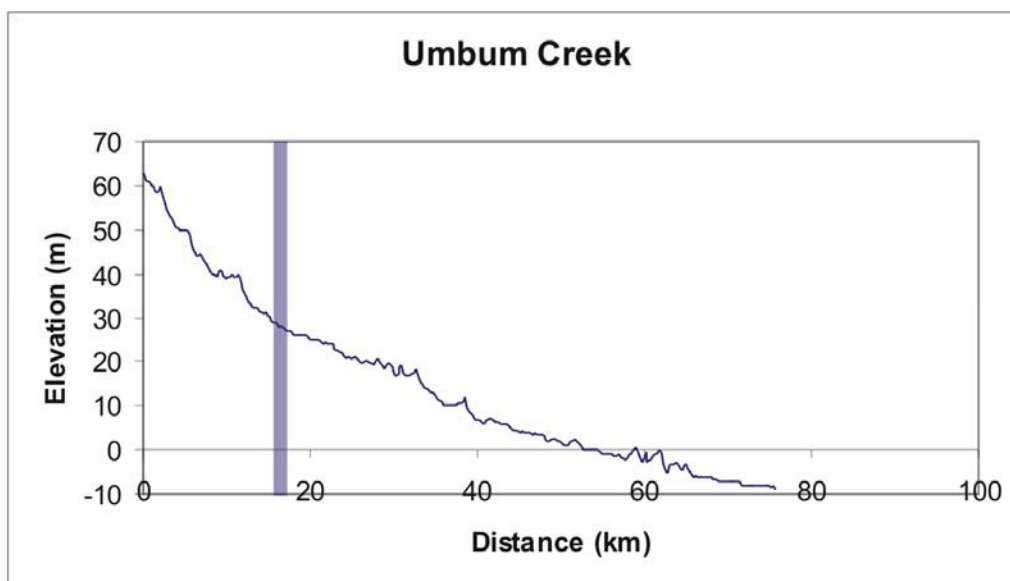
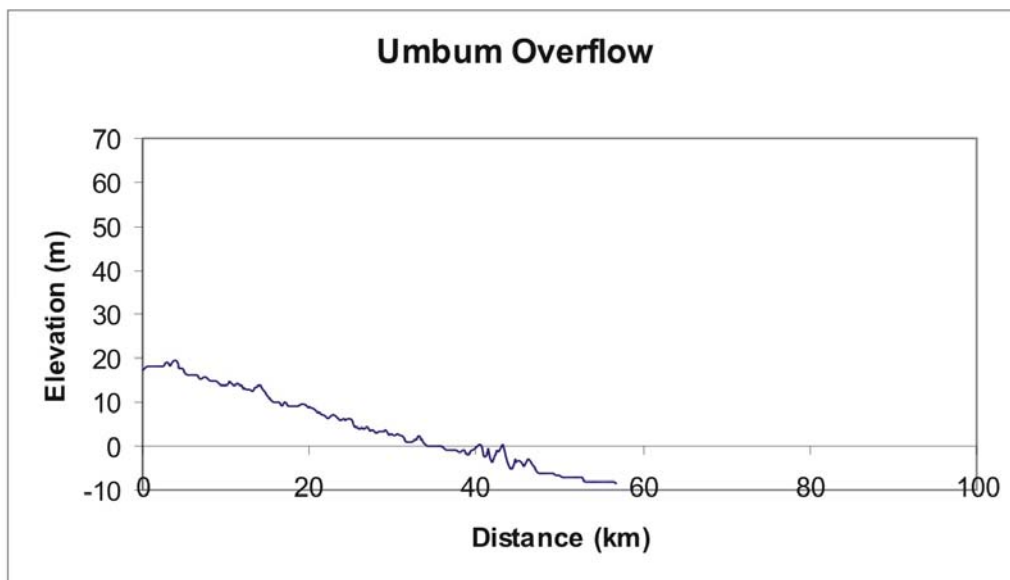
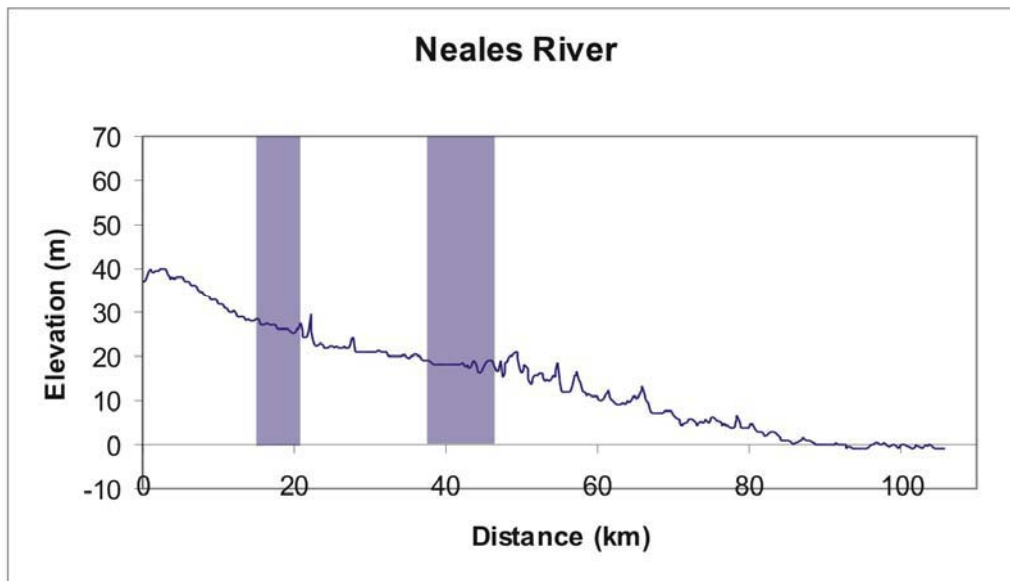




Landscape Evolution of the Umbum Creek Catchment
Appendix B: Longitudinal Stream Profiles



Detailed Longitudinal Stream Profiles for Selected Streams



NOTE: This image is included as a map in back pocket in the print copy of the thesis held in the University of Adelaide Library.

APPENDIX C: Regolith Geology of the Umbum Creek Catchment
(MAP INSERT)

**APPENDIX D:
Data Locations**

Landscape Evolution of the Umbum Creek Catchment
Appendix D: Data Locations

Trenches

Name	Locality	WGS 84 SUTM 53		
		Eastings	Northings	Elevation
1013	Lake Eyre Playa	686933.004	6849097.02	
1059	Big Perry Springs	633642.001	6865418.007	
3058	Umbum Ruins	641070.948	6855015.458	117.8865
5014	Neales Fan	671228.708	6871696.719	14.3053
5015	Neales Fan	679101.785	6871985.146	-3.23865
Jh002	Horseshoe Dam	676409.998	6845482.831	21.75537
Jh005	Coolabah Yards	659525.753	6872501.461	22.47632
Jh006	Coolabah Yards	659968.325	6873525.674	24.15857
Jh007	Coolabah Yards	660314.665	6873787.016	15.2666
Jh008	53J	662398.109	6876545.258	8.537354
Jh009	53J	665587.062	6876508.682	10.45996
Jh010	53J	669369.017	6873872.495	10.94055
Jh011	53J	669351.826	6873662.144	14.54553
Jh012	53J	669767.741	6874300.255	-1.07568

Outcrops

Name	Locality	WGS 84 SUTM 53		
		Eastings	Northings	Elevation
1024	Up-and-down Dam	666944.002	6850003.005	
4017	Croke Sec A	673769.145	6885413.396	13.82458
Vws001	Neales Cliff	677895.72	6884392.559	-5.16138
Vws002		677490	6884436	-4
Vws003	Neales Cliff	678137.167	6884424.162	-8.28565
Vws004	Neales Cliff	678162.934	6884460.203	-5.88232
Vws005		678059	6884324	-5
Vws006		678158	6884369	-4
Fourhl	Four Hills	645725.308	6845784.54	110.4364
7001	Mt. Anna	601564.312	6827813.51	227.9565
Jh013	Neales Overflow	676024.666	6887490.957	-6.84363

Base Stations

Name	Locality	WGS 84 SUTM 53		
		Eastings	Northings	Elevation
Stk500	Neales Cliff	681511	6887610	-7.08398
Stk501	Ghost Yard Beds	678529	6884866	-0.83545
Stkuni	Neales Oflow	676243	6887416	3.971191

Landscape Evolution of the Umbum Creek Catchment
Appendix D: Data Locations

Regolith Map Sample Location

Name	Locality	WGS 84 SUTM 53		
		Eastings	Northings	Elevation
1001	53J	650455	6828413	
1002	53J	654700	6828352	
1003	53J	651453	6830475	
1004	53J	652889	6832540	
1005	53J	657096	6835071	
1006	53J	661290	6835071	
1007	53J	664554	6838334	
1008	53J	655000	6843000	
1009	53J	657268	6843215	
1010	53J	677066	6845054	
1011	53J	678432	6849938	
1013	53J	686933	6849097	
1014	53J	678724	6851299	
1015	53J	680817	6853218	
1016	53J	683063	6853778	
1017	53J	683093	6853994	
1018	53J	683095	6853994	
1019	53J	668874	6842430	
1020	53J	666138	6841668	
1021	53J	667382	6845283	
1022	53J	666766	6848676	
1023	53J	666589	6849892	
1024	53J	666944	6850003	
1025	53J	665701	6850019	
1026	53J	663611	6853691	
1027	53J	662211	6854740	
1028	53J	660017	6856771	
1029	53J	659445	6857061	
1030	53J	657685	6857418	
1031	53J	654136	6862350	
1032	53J	650227	6866359	
1033	53J	646399	6866359	
1034	53J	641412	6860200	
1035	53J	635800	6855672	
1036	Umbum Bore	634678	6851381	
1037	53J	635476	6845562	
1038	53J	635820	6840750	
1039	53J	637047	6833878	
1040	53J	622871	6837757	
1041	53J	621588	6838139	
1042	53J	617599	6839085	
1043	53J	617158	6842345	
1044	53J	617363	6842754	
1045	George Crk Bore	618089	6847475	
1047	53J	620380	6847559	
1048	53J	620491	6848560	
1049	Hawker Springs	616173	6853657	

Landscape Evolution of the Umbum Creek Catchment
Appendix D: Data Locations

Name	Locality	WGS 84 SUTM 53		
		Eastings	Northings	Elevation
1050	53J	615694	6854097	
1051	53J	614355	6855423	
1052	Spring Hill	613281	6856423	
1053	53J	613771	6857980	
1054	53J	613771	6857980	
1055	Mt. Charles	620804	6864167	
1056	53J	624702	6865841	
1057	Big Perry Springs	633018	6863436	
1058	53J	633283	6865027	
1059	53J	633642	6865418	
1060	53J	634643	6869320	
1061	Lagoon Hill	634839	6870580	
1062	53J	632762	6872940	
1063	53J	632305	6873876	
1064	53J	628967	6876281	
1065	53J	619889	6876072	
1066	53J	613181	6876094	
1067	53J	609309	6878929	
1068	53J	607064	6878929	
1069	53J	606056	6878271	
1070	53J	593952	6877473	
1071	53J	598931	6874806	
1072	53J	603482	6873733	
1073	Milne Springs	605880	6872964	
1074	53J	611090	6867461	
1075	53J	612351	6865394	
1076	53J	612575	6859092	
1077	53J	612857	6854623	
1078	53J	615711	6851157	
1079	53J	623048	6848752	
1080	53J	627611	6849448	
1081	53J	632200	6850749	
1082	53J	635603	6851139	
1083	53J	639397	6854030	
1084	53J	644212	6855392	
1085	53J	649370	6853128	
2002	53J	685005.7	6853403.8	-11.1696
2003	53J	684998.7	6854237.5	-15.0148
2004	53J	685048	6854041.4	-19.1002
2005	Umbum Mouth Bar	687884.8	6850449.9	-11.4098
2006	53J	678011.3	6863974.9	-10.6888
2007	53J	678628	6864144.5	-10.6888
2008	Packsaddle Dam	674533.4	6875732.3	5.653442
2009	Neales Crossing	675455	6886798.4	8.056641
2010	53J	674447.4	6889814.5	13.58435
2011	53J	687378.3	6893831.3	-15.255
2012	53J	688548.3	6893977.6	-15.0148
2013	Neales Splay	689500.9	6895708.1	-6.36304

Landscape Evolution of the Umbum Creek Catchment
Appendix D: Data Locations

Name	Locality	WGS 84 SUTM 53		
		Eastings	Northings	Elevation
2014	Neales Delta Front	690821.6	6895802.3	-16.9374
2015	Ghost Yard Beds	681066.9	6887263.2	-14.7744
2016	53J	681513.6	6887585.2	9.258301
3001	53J	679248.4	6856134.6	-43.8541
3002	Umbum Crossing	678308.6	6855457.6	-44.5751
3003	53J	679055.6	6855178.6	-6.60339
3004	53J	676434.1	6853043.1	-2.99829
3005	53J	667620.5	6851122.9	3.009766
3006	53J	664847.3	6846169	26.32153
3007	53J	661120.8	6843828.9	29.44592
3008	53J	656257.4	6843528.6	39.77991
3009	53J	656096.9	6843807.7	64.77405
3010	53J	653482.7	6838209.4	64.77405
3011	53J	651943.7	6838182.7	68.61926
3012	53J	647582.4	6837020.4	85.44226
3014	53J	643019.1	6835657.5	100.8232
3015	53J	638442	6830530.8	94.81506
3016	53J	638491.5	6832720.3	97.45862
3017	53J	635442.3	6833335.9	81.83728
3018	53J	629781.7	6832014	73.42578
3019	53J	625232.7	6830452.8	101.5442
3020	53J	622618.5	6830143.2	104.6685
3021	53J	620271.5	6828691	108.2734
3022	53J	619982.8	6828632.9	104.6685
3023	53J	617312.2	6827602.6	119.0881
3024	53J	618318.2	6830747.2	108.0331
3025	53J	617412.3	6831823.7	91.69067
3026	53J	616960.8	6831830	106.1104
3027	53J	616574.2	6831737.3	125.8174
3028	53J	616431.4	6834460.5	97.45862
3030	53J	616085.1	6835613.7	115.4833
3031	53J	616074	6836824.2	100.3425
3032	53J	618288.5	6841321.9	84.2406
3033	53J	620736.3	6840756.8	79.19373
3034	53J	627103	6843541.3	77.51147
Spbrnk	Brinkley Springs	627914.9	6846455.1	62.61108
3036	53J	625518.5	6847908.3	68.37891
3037	53J	623842.1	6847274.9	79.19373
3038	53J	620520.4	6846285.7	91.45032
3040	53J	615931	6844360	105.6298
3041	53J	609341.4	6843362.9	163.3085
3042	Tarlton Springs	607657	6843545.1	176.2861
3043	53J	608091.4	6843696.3	166.1924
3044	53J	608069.8	6843661.7	178.2087
3045	53J	608181.7	6846322.1	165.2311
3046	53J	607784.2	6847559.1	183.9766
3047	53J	611824.9	6849032.3	148.6484
3048	53J	615062.5	6848391.6	93.13281

Landscape Evolution of the Umbum Creek Catchment
Appendix D: Data Locations

Name	Locality	WGS 84 SUTM 53		
		Eastings	Northings	Elevation
3049	53J	616727.9	6849198.7	99.38123
3050	McLean Bore	625530.4	6849435.9	69.34033
3051	53J	635030.8	6850676.6	42.90417
3052	53J	633258.8	6839964	79.43408
3053	53J	632823.4	6840013.6	77.27112
3054	53J	634268	6841445.5	79.19373
3055	53J	633482.1	6840409.3	88.08582
3056	53J	636913.2	6836873	94.57471
3057	Loudon Springs	637109.7	6837106.8	131.3448
3058	53J	641070.9	6855015.5	117.8865
3059	53J	647490.8	6855831.3	108.2734
3060	53J	647603.9	6856088	127.4996
3061	53J	647999.9	6857211.7	121.972
3062	53J	648535.1	6857285.1	133.2675
3063	53J	649042.5	6859159.9	92.6521
3064	53J	648235.4	6859895.8	38.57837
3066	53J	647523.4	6856663	45.06726
3067	53J	649652.4	6857375.3	54.43994
3068	53J	652933.5	6857570.7	118.3671
3069	53J	653737.2	6858113.1	135.911
3070	53J	656764.1	6857496.5	117.6461
3071	53J	665499.4	6859162.1	24.39893
3072	53J	665702.3	6859796.1	8.296997
3073	53J	666054.6	6862478.8	72.46448
3074	53J	662999.6	6863253.8	80.15503
3075	53J	661695	6864170	99.14087
3076	53J	663488.4	6867672.1	56.36255
3077	53J	659982.9	6870619.6	108.0331
3078	53J	653815.1	6871703.2	123.4139
3079	53J	650689.8	6870104.7	76.79053
3080	53J	644563.3	6869865.4	52.99792
3081	53J	639350.7	6877559.3	-1.07568
3083	53J	636940.4	6878451.6	-5.16138
3084	53J	635577.5	6881579.7	-2.03699
3085	53J	636169.6	6881146.5	14.78589
3087	53J	642799.1	6879685.9	24.39893
3088	53J	646443.5	6877122.9	8.296997
3089	53J	644931.3	6875298.8	9.017944
3090	53J	648132.5	6874870.9	10.45996
3091	53J	648921.3	6876501.8	-57.5527
3092	53J	651660.5	6872764.7	-43.1332
3093	53J	651255.1	6870667.9	-38.0863
4002	53J	688720.6	6855206.1	-4.44043
4003	53J	691552.9	6852757.8	-3.479
4004	The Lost City	690993	6853492	-6.60339
4005	53J	690941.7	6856198.5	-13.3324
4006	53J	690590.2	6856870	-12.6115
4007	53J	690135.8	6860169.3	-7.56458

Landscape Evolution of the Umbum Creek Catchment
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Name	Locality	WGS 84 SUTM 53		
		Eastings	Northings	Elevation
4008	53J	689888.7	6863215.9	0.606567
4009	53J	690117	6867440.1	-1.07568
4010	53J	687851.6	6871929.7	3.250122
4011	53J	685504.2	6876229	1.808228
4012	53J	683903.1	6880031.3	3.250122
4013	53J	683158.3	6882101.8	1.567871
4014	Neales Cliff	678356.4	6884668.1	-6.60339
4015	53J	676427.9	6882100.5	7.095337
4016	53J	674454.5	6886031.7	0.846924
4018	53J	673720.4	6878461.7	17.18921
4019	53J	676156.9	6868844.7	17.42957
4020	Umbum Crossing	679141.6	6858868.6	3.009766
4021	53J	672065.4	6862443.2	0.846924
4022	Piarooka Dam	669571.3	6866950	1.808228
4023	53J	656718.2	6873075.1	29.44592
4024	53J	654973.3	6875496.5	3.730835
4025	Lagoon Hill	636213.9	6872582.4	37.8573
4026	Lagoon Hill	635695.1	6872481.3	42.90417
4027	Lagoon Hill	624407.5	6874717.7	28.96533
4028	Lagoon Hill	623360	6874660.8	35.21375
4029	Milne Springs	608174.7	6873279.1	48.43176
4030	53J	609216.5	6869977.1	60.44824
4031	53J	616075.9	6836809.7	98.17969
5001	53J	648866.1	6825567.2	47.47046
5002	53J	684341.1	6870044.9	-7.80493
5003	53J	684378.6	6872378.7	-5.16138
5004	53J	632325.9	6821355.5	104.4281
5005	53J	636621.6	6831666.9	90.24878
5006	53J	635151.7	6853762.1	40.26062
5007	53J	640650.5	6859488	32.08948
5008	No.3 Yard	648766.5	6867460.6	19.35217
5010	Wildhorse Dam	661059.1	6866992	12.86328
5011	53J	659967.2	6868296.7	12.62292
5012	53J	662068.3	6869675.1	17.18921
5013	53J	663213.9	6869971.2	17.18921
5016	53J	680071.5	6872672.3	-0.11438
5017	53J	680062.2	6872808.7	3.490479
5018	53J	684842.3	6871054.7	-5.40173
5019	53J	684690	6870457.9	-6.12268
5020	53J	687107.8	6873095.9	-3.71924
5022	53J	693639.8	6869847.6	-13.3324
5023	53J	690932	6870957.5	-9.00659
5024	53J	673983.1	6868295.3	6.85498
5025	53J	683917.3	6864730.3	3.971191
5026	53J	683321.2	6863284.1	4.692139
5027	53J	680015.5	6861507.9	2.769531
5028	53J	675821	6860089.8	3.971191
5029	53J	674131.8	6863704.6	7.816406

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Name	Locality	WGS 84 SUTM 53		
		Eastings	Northings	Elevation
5030	53J	672427.6	6872595.4	7.335693
5031	53J	672384.8	6875267.1	8.056641
5032	53J	672496.7	6879268.7	7.095337
5033	53J	672509.5	6880529.1	3.490479
5034	53J	672478.5	6883467.5	3.730835
5035	53J	669724.7	6881273	5.172729
5036	53J	665882.6	6878721.5	3.490479
5037	53J	661828.2	6875913	10.94055
5038	53J	660677.2	6874818.2	17.91016
5039	53J	629688.4	6821021.7	96.01672
5040	53J	626811.7	6823932.2	124.6157
5041	53J	626111.2	6824878.9	116.2042
5042	53J	623612	6826835.9	136.3917
5043	53J	622344.4	6827082.2	131.3448
5044	53J	621822.2	6827217.7	142.1597
5045	53J	620382.8	6827058.4	139.0353
5046	53J	618310.5	6829386.5	126.0576
5047	53J	600359.7	6871474.2	85.2019
5048	53J	598915.9	6866918.8	121.4913
5050	53J	600434.6	6862584.5	125.8174
5051	53J	600726	6862446.2	131.1045
5052	53J	600010.8	6859606.9	164.7504
5053	53J	606135.2	6866958.5	93.37305
5054	53J	611658.5	6860656.7	69.58057
5056	53J	608654.4	6857194.7	97.69897
5057	53J	607544.3	6855953.5	126.5383
5058	53J	605559.6	6854487.1	156.339
5059	53J	605100.1	6856678	146.0049
5060	53J	604565.9	6858865.6	125.8174
5061	53J	605149.3	6859091.9	133.5078
5062	53J	607837.5	6858595.7	109.7155
5063	53J	611050	6857924.5	96.73767
5064	53J	615428.6	6865428.4	58.76575
5065	53J	617829.9	6866575.8	49.39307
5066	53J	621134.5	6870606.7	38.57837
5067	53J	625464.5	6863116	44.34631
5068	53J	624917.5	6859967.9	60.68848
5069	53J	625544.5	6852607.6	66.4563
5070	53J	629286.4	6843881.2	58.52551
5071	53J	633034.7	6844186.8	50.83508
5072	53J	646404.4	6840795.8	73.18555
5073	53J	645779.3	6846308.8	58.0448
5074	53J	646237.7	6846539	106.8313
5075	53J	646349.2	6846187.8	108.754
5076	53J	648859.4	6847670.8	90.72937
6000	53J	628401.6	6822913.5	135.6707
6001	53J	620520.9	6825786.2	152.2533
6002	53J	619159.2	6825794.2	177.0072

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Name	Locality	WGS 84 SUTM 53		
		Eastings	Northings	Elevation
6003	53J	619402.6	6828713.8	170.5182
6004	53J	619863.9	6828954.3	174.1232
6005	53J	619786.3	6829554.9	196.9543
6006	53J	619657.1	6830239.9	188.7832
6007	53J	616440	6830634.9	164.51
6008	53J	616139.7	6830028.1	200.7996
6010	53J	616515.8	6832126.2	154.4163
6011	53J	614415.3	6841972.4	100.3425
6012	53J	612266	6840347.5	109.4751
6013	53J	611633.5	6840403.9	103.2264
6014	53J	621739.7	6840415.2	72.22412
6015	53J	624345.7	6856566.4	73.18555
6016	53J	621651.9	6855810.8	68.61926
6017	53J	620754.5	6855838.6	83.75989
6018	53J	620096.3	6852056.2	81.83728
6019	53J	609230.9	6864455	80.8761
6020	53J	609388.7	6861698	95.53601
6021	53J	603880.5	6861506.4	118.8478
6022	53J	602476.6	6861563	146.4855
6024	53J	597928.8	6875147.9	76.79053
6025	53J	617143.8	6878140.7	45.54785
6026	53J	616979.1	6881262.4	36.896
6027	53J	616144.2	6883605.4	37.8573
6028	53J	619685.5	6882193.5	37.8573
6029	53J	623328.9	6880738.5	36.896
6030	53J	629209.5	6879895.5	20.79407
6031	53J	660511.8	6871027.1	16.94885
6032	53J	661530	6877549.1	15.50696
6033	53J	658056.2	6876288.5	9.498657
6034	53J	665021	6877193.7	13.58435
6035	53J	666533	6872430	13.34399
6036	53J	667201.9	6870754.7	11.66162
6037	53J	667898.1	6868469.1	12.62292
6039	53J	683627.4	6858319	-23.4263
7003	53J	672964.6	6852289.4	0.846924
7004	53J	669508.3	6845127.7	20.07312
7005	53J	665791.6	6845700.3	38.8186
7006	53J	660403.7	6845399.1	56.12219
7007	53J	658204	6846033.5	54.43994
7009	53J	657020.8	6845978.3	55.88196
7011	53J	655179	6846285.4	52.75769
7012	53J	654378.6	6846759.8	62.37085
7013	53J	651995.7	6846608.9	69.34033
7014	53J	679225.6	6857118.7	-16.4567
7016	53J	669396.2	6874120.2	8.537354
7017	53J	672101.2	6875231.3	6.614746
7019	53J	674070.3	6879700.7	6.134033
7020	53J	677038.8	6880125.6	4.451782

Landscape Evolution of the Umbum Creek Catchment
Appendix D: Data Locations

Name	Locality	WGS 84 SUTM 53		
		Eastings	Northings	Elevation
7021	53J	673276.2	6880959.3	1.808228
7022	53J	673230.5	6884005.6	3.490479
7023	53J	676825.7	6865993.8	-2.03699
7024	53J	667340.3	6841091	-55.1495
7025	53J	635831.6	6833948.2	75.34839
7026	53J	633264.5	6834787.1	100.8232
7027	53J	631003.6	6833534.1	100.5829
7028	53J	623554.4	6831887.3	137.8336
7029	53J	636541.7	6817843.5	84.00024
7030	53J	673836.5	6846499.5	23.91833
7031	Douglas Delta	684877.2	6833475	-10.6888
7032	53J	683788.2	6835224.5	-3.71924
7033	53J	683880.1	6835379.7	-11.8905
7034	53J	679826.8	6833694.2	2.288818
8001	53J	634952.5	6852809.3	16.94885
8002	53J	641535.3	6860331.4	6.134033