

APPENDIX 1: GUNNERSIDE BECK

METAL CONCENTRATION DATA

A1.1. GUNNERSIDE BECK FLOODPLAIN SEDIMENT DATA

Sample	Easting	Northing	Depth (cm)	<63 μm (mg kg ⁻¹)			2000-63 μm (mg kg ⁻¹)		
				Pb	Zn	Cd	Pb	Zn	Cd
G109	393868	502714	0-20	632	306	4.2	556	259	4.1
G110	393868	502714	20-40	759	428	6.2	492	374	5.2
G120	393828	502141	0-20	7438	1251	7.9	3801	983	6.8
G124	393745	501915	0-20	2799	562	3.7	2210	649	5.3
G125	393745	501915	20-40	4074	583	5.1	2795	656	5.2
G127	393710	501839	0-20	1889	437	3.6	1174	502	3.9
G128	393710	501839	20-40	855	313	2.7	440	340	2.4
G129	393710	501839	40-60	1321	402	3.6	534	292	2.3
G132	393727	501638	0-20	4126	1028	8.5	4210	856	6.6
G134	393732	501583	0-20	2571	805	7.3	1274	668	4.7
G135	393779	501528	0-150	112216	7303	70.4	84054	2202	68.9
G136	393779	501528	150-170	335	221	1.8	221	167	1.2
G137	393779	501528	170-180	1180	655	6.7	2348	529	4.2
G138	393779	501528	180-195	134	87	1.3	110	103	1.4
G139	393779	501528	195-205	276	219	1.6	104	105	0.7
G140	393779	501528	205-255	660	4390	53.8	1160	2929	21.6
G143	393799	501476	0-20	3923	2176	15.6	2775	3820	90.7
G144	393810	501473	0-20	3013	1991	17.9	1722	1544	12.3
G145	393823	501470	0-20	1984	671	5.5	1185	672	5.8
G150	393879	501329	0-20	3152	871	7.5	2775	792	7.5
G158	393931	501060	0-20	10825	3666	40.3	8101	3038	15.7
G160	393930	501026	0-20	3889	1299	9.7	2412	1036	7.5
G162	393900	500946	0-20	9419	3701	27.5	6102	2911	23.9
G164	393884	500857	0-20	2474	722	6.3	2152	706	5.4
G168	393894	500792	0-20	9245	3577	37.4	4782	3247	24.6
G169	393899	500726	0-20	15765	3625	27.8	22426	1231	48.0
G171	393913	500690	0-20	9377	3515	29.5	9095	2845	42.4
G172	393921	500627	0-20	3511	818	5.7	2378	804	5.7
G176	393966	500447	0-20	6644	1244	7.7	6053	1493	9.7
G177	393966	500447	20-40	9194	1456	10.3	8616	1312	10.2
G181	393986	500135	0-20	9309	374	4.0	9158	1452	11.7
G182	393986	500143	0-20	4932	1116	7.6	5940	1159	9.7
G184	394001	500146	0-20	10503	1535	10.3	9665	1830	13.0
G185	394001	500146	20-40	4386	729	6.5	2137	822	8.9
G186	394001	500146	40-60	6392	822	6.6	3218	771	6.8

G188	393997	500031	0-20	8205	1723	10.6	21539	3275	23.5
G189	394003	500034	0-20	7764	1294	8.4	6264	1303	8.0
G190	394003	500035	0-20	14451	1793	12.2	21318	2053	13.7
G191	394003	500035	20-40	4542	1175	9.5	3775	1001	8.3
G192	394003	500035	40-60	2549	831	5.5	4453	3147	25.9
G195	394013	499970	0-20	7998	1799	13.9	8291	1789	14.0
G196	394013	499970	20-40	3740	1060	8.6	3046	717	6.9
G197	394013	499970	40-60	7440	1284	7.5	6274	1188	6.8
G198	394013	499970	60-80	12147	1906	22.4	8175	1767	12.5
G200	394024	499962	0-20	1283	420	3.7	1835	603	5.1
G202	394060	499908	0-20	8222	1279	8.0	8361	1615	11.6
G205	394059	499886	0-20	5446	1066	8.4	2806	658	4.4
G206	394059	499886	20-40	5960	1741	13.3	3663	1189	10.3
G208	394065	499883	0-20	4953	1615	10.6	4220	1890	15.3
G211	394056	499835	0-20	6009	1631	10.0	3214	981	6.2
G216	394065	499756	0-20	8107	1700	12.5	6209	1307	11.8
G217	394065	499756	20-40	3636	1473	12.8	2707	979	9.2
G218	394135	499664	0-20	8239	4451	49.7	7058	3495	54.0
G219	394135	499664	20-25	4521	2365	28.2	5092	3111	51.0
G220	394135	499664	25-45	12133	2179	16.2	7263	1795	13.9
G221	394135	499664	45-65	7155	1762	17.8	9596	2477	23.8
G222	394135	499664	65-85	14084	2106	11.1	9755	1907	9.3
G223	394135	499664	85-105	933	2392	15.9	691	1348	8.9
G224	394115	499636	0-20	6226	2104	15.0	3421	2016	15.7
G229	394174	499566	0-20	9047	1091	9.5	4027	1471	12.5
G230	394167	499566	0-20	12175	1415	6.6	9733	3780	29.0
G232	394151	499563	0-20	9445	2812	12.9	6466	3843	43.2
G233	394154	499560	0-10	7189	1775	11.6	5010	1215	8.1
G236	394212	499530	0-20	20677	1832	17.6	10847	5312	77.9
G237	394212	499530	20-40	19203	2710	37.8	14993	3870	54.0
G240	394202	499531	0-10	4661	864	7.2	3234	2583	28.0
G241	394197	499519	0-20	11192	3438	21.6	8225	3449	30.6
G242	394198	499510	0-20	12180	1827	6.6	8451	3029	40.0
G244	394223	499479	0-20	5596	1884	12.5	3855	1687	11.2
G245	394271	499463	0-20	2936	4663	71.8	958	20	515.8
G247	394272	499431	0-20	2635	1510	14.8	1549	1398	15.8
G248	394272	499431	20-40	4127	1862	28.8	2480	1511	22.0
G250	394273	499397	0-20	3349	526	5.0	1861	472	3.7
G251	394265	499386	0-20	8328	1057	6.7	4733	2077	16.2
G252	394269	499376	0-20	10187	1419	6.2	7117	1899	13.2
G255	394372	499305	0-20	11076	1273	6.4	10189	2576	21.1
G256	394388	499309	0-20	16137	1981	16.6	7386	1247	11.2
G258	394391	499313	0-20	5907	556	3.5	4284	473	2.5
G261	394425	499183	0-20	8426	1615	16.6	3365	1003	12.0
G273	394821	498873	0-20	8650	2064	17.9	4434	1765	13.3
G277	394897	498862	0-20	4837	774	7.0	4204	1107	9.8
G280	394980	498775	0-20	3267	1306	10.3	3847	1340	12.0
G281	394980	498775	20-40	3332	1282	12.2	2731	1274	15.3
G282	394980	498775	40-60	2287	1378	14.8	1483	1097	11.5
G288	395034	498618	0-20	5698	1188	11.3	4881	1151	11.7
G289	395034	498618	20-40	7813	1922	16.8	6860	2599	22.5
G290	395034	498618	40-60	8704	2155	18.0	8637	1673	14.3
G292	395048	498525	0-20	11203	1398	10.1	8074	2864	22.2
G295	395065	498447	0-20	5101	1471	10.7	8683	2119	12.8

A1.2. GUNNERSIDE BECK CHANNEL SEDIMENT DATA

Sample	Easting	Northing	<63 μm (mg kg ⁻¹)			2000-63 μm (mg kg ⁻¹)		
			Pb	Zn	Cd	Pb	Zn	Cd
G102	393557	502940	2448	178	1.2	111	70	0.3
G104	393679	502855	610	326	2.4	170	108	0.6
G105	393774	502824	332	153	1.6	209	256	1.5
G106	393817	502790	314	157	1.6	289	253	1.9
G108	393863	502746	817	439	3.2	735	319	2.0
G111	393876	502663	377	261	2.1	408	267	1.2
G112	393898	502593	402	423	4.3	230	2961	24.7
G114	393906	502404	384	215	2.0	556	345	3.0
G225	393894	502389	580	291	2.9	320	209	1.5
G116	393881	502321	425	311	2.7	286	341	2.7
G117	393843	502219	1495	417	3.4	1076	442	2.8
G121	393794	502126	2652	839	6.4	2492	2107	13.9
G122	393767	502011	1148	511	3.9	1745	714	3.5
G123	393742	501910	1492	806	7.5	1269	637	4.9
G126	393711	501844	1787	720	5.1	1262	1661	7.1
G131	393717	501674	1023	338	2.7	547	161	1.2
G133	393739	501593	1350	433	4.0	734	238	2.2
G141	393773	501526	1156	612	5.5	1232	675	5.6
G142	393782	501515	2368	550	5.0	1604	333	3.0
G146	393832	501430	2107	1131	9.4	1429	1992	13.8
G148	393865	501374	1531	528	4.9	989	829	5.6
G151	393873	501319	2328	1050	8.8	1237	739	5.1
G155	393927	501214	12215	3542	36.6	18079	3456	118.4
G157	393936	501142	3867	1957	21.0	2203	2090	14.8
G159	393925	501059	9780	2575	19.1	8941	1959	11.2
G161	393907	500974	5318	2418	18.2	3073	3245	19.6
G163	393899	500916	3957	2024	14.0	2807	2569	18.6
G167	393886	500797	6756	2029	15.0	7667	3269	20.8
G170	393915	500694	7633	1790	14.3	24571	2784	17.3
G173	393931	500615	10556	3262	25.1	19950	2543	50.3
G175	393952	500465	21882	3351	29.8	48561	3310	26.0
G178	393980	500232	2969	1016	9.0	1954	659	5.7
G187	393993	500145	6607	1937	15.6	7258	3770	15.7
G193	394013	500033	7507	1857	20.8	6876	2021	12.2
G201	394079	499831	42160	3464	31.5	26634	2176	34.9
G207	394040	499883	25076	4180	36.6	13087	2232	17.0
G212	394079	499831	33948	5227	48.0	41578	883	97.7
G213	394065	499739	15332	5452	52.1	13701	1929	56.6
G225	394128	499648	13537	4534	45.5	6077	2708	25.5
G234	394146	499564	6068	1633	13.2	3771	1549	8.4
G243	394179	499505	17933	3467	27.4	4827	3156	24.1
G246	394258	499430	9987	4908	37.9	3844	2172	71.5
G249	394281	499423	6955	2537	21.9	3009	1400	10.7
G253	394333	499354	7632	3280	22.7	3905	2370	16.6
G254	394357	499295	6872	3146	25.1	3000	1496	7.2
G259	394399	499252	5843	2113	20.7	2899	1942	9.6
G260	394415	499197	5685	1696	15.6	5089	2107	19.8
G263	394467	499144	6608	3005	26.2	3701	3029	22.3
G264	394504	499108	3610	1827	15.5	2960	1231	12.4
G265	394537	499070	3579	1498	11.7	1499	740	5.9
G266	394549	499054	4625	2622	19.3	2764	1566	16.0

G267	394573	499036	4830	1974	17.4	3571	1518	13.8
G268	394586	498998	7596	2192	20.0	4559	1199	11.0
G269	394649	498942	7201	2813	20.8	3210	1834	12.6
G270	394668	498923	5315	2580	21.3	2759	1937	17.1
G271	394727	498892	5115	1962	18.6	1891	1456	9.4
G272	394794	498864	4495	2356	15.4	3516	1518	10.7
G275	394834	498864	4459	2246	15.3	2806	1874	13.8
G276	394871	498847	4182	1956	17.6	2076	1033	8.5
G279	394940	498843	5159	2074	17.2	1651	1028	11.0
G284	394983	498743	6622	2607	22.4	4307	1756	13.1
G285	394976	498714	5344	2350	37.1	2494	2997	25.9
G286	394988	498694	10529	3110	29.5	598	417	2.5
G287	395013	498677	4931	2048	19.7	906	628	6.2
G291	395027	498615	5744	1974	17.9	2764	1114	17.6
G293	395030	498529	3969	2652	20.9	1884	1342	8.5
G294	395049	498451	9182	2669	22.3	4585	2061	15.3
G296	395069	498385	6814	3606	29.9	9609	3133	28.4
G297	395091	498316	3797	2319	17.0	1930	1701	7.8
G298	395093	498232	4355	1865	18.4	2229	2056	18.1
G299	395106	498140	4910	1951	17.2	4004	1318	13.0
G300	395108	498068	4895	2185	16.1	4983	2645	25.1
G301	395091	497977	5476	2973	26.6	7103	2047	18.1
G302	395015	497804	3641	2091	21.5	1601	1442	6.0

A1.3. GUNNERSIDE BECK MINE SPOIL DATA

Sample	Easting	Northing	<63 μm (mg kg ⁻¹)			2000-63 μm (mg kg ⁻¹)		
			Pb	Zn	Cd	Pb	Zn	Cd
G93	393986	501182	6913	5185	57.4	4635	5848	67.0
G94	393996	501172	21144	4875	35.3	27829	5150	34.9
G95	393986	501157	46635	4395	63.5	38065	637	203.4
G96	393981	501198	9017	2888	20.8	6608	2123	14.1
G97	393955	501260	3382	4760	40.6	5178	5893	43.3
G98	393986	501338	9857	3856	15.0	250	772	3.0
G99	394014	501361	2804	7728	22.1	2345	5213	17.5
G100	393914	501360	13193	3683	30.2	12617	3399	19.5
G118	393838	502164	64820	5020	34.3	63506	2218	63.1
G119	393840	502149	40136	3894	84.3	59239	1047	145.8
G147	393835	501404	9574	1261	14.7	4982	3504	40.3
G149	393867	501376	170	69	0.1	108	58	0.2
G152	393892	501301	11014	3413	10.0	17164	4518	10.8
G153	393891	501300	12884	3367	17.3	13096	3604	19.8
G154	393924	501237	3253	1592	7.6	5703	2951	13.3
G156	393940	501142	27544	5079	49.2	42896	1049	81.1
G165	393880	500859	7916	4046	11.3	7632	2657	11.2
G166	393882	500846	11214	4660	23.3	7962	1065	100.8
G194	394020	499974	7558	4162	46.3	18011	2706	254.1
G226	394170	499586	3604	2379	23.6	3395	3441	93.6
G227	394165	499604	5319	4334	77.1	3704	39	461.0
G228	394213	499541	643	5564	80.3	341	247	344.2

APPENDIX 2: FLOODPLAIN SEDIMENT

METAL CONCENTRATION DATA

A2.1. REETH FLOODPLAIN SEDIMENT DATA

Sample	Easting	Northing	<2 mm (mg kg ⁻¹)		
			Pb	Zn	Cd
R1	403814	498657	2311	857	5.44
R2	403806	498743	2394	991	7.01
R3	403795	498824	2216	838	5.87
R4	403794	498905	2774	1001	6.13
R5	403738	498722	2060	647	4.28
R6	403717	498803	1672	499	3.46
R7	403686	498884	1749	715	3.77
R8	403671	498712	1945	498	3.94
R9	403652	498749	1451	491	3.00
R10	403610	498818	2009	689	5.45
R11	403599	498766	1763	821	6.06
R12	403565	498780	2570	1203	7.66
R13	403525	498772	2162	1513	9.41
R14	403524	498890	1264	725	4.88
R15	403508	498889	2216	989	6.15
R16	403493	498889	1817	906	5.61
R17	403517	498875	2065	1020	6.65
R18	403503	498873	2196	1148	8.30
R19	403486	498873	3622	1163	6.52
R20	403495	498861	1918	990	6.53
R21	403478	498859	2547	900	5.65
R22	403467	498845	5257	1350	8.68
R23	403575	498851	1007	720	4.67
R24	403541	498834	1706	965	5.82
R25	403524	498826	1418	841	6.30
R26	403542	498852	1929	1179	8.26
R27	403256	498903	2437	1003	5.78
R28	403297	498903	1085	446	2.86
R29	403276	498871	2028	784	5.37
R30	403311	498858	1617	880	6.60
R31	403342	498897	1756	794	4.97
R32	403383	498899	1844	932	6.09
R33	403356	498852	1856	863	5.83
R34	403380	498813	1656	779	5.70

R35	403344	498832	2439	876	5.14
R36	403362	498796	1599	811	6.15
R37	403415	498780	1268	701	2.94
R38	403431	498852	1149	525	4.28
R39	403423	498691	1416	1233	7.06
R40	403382	498701	1348	981	5.95
R41	403345	498713	1559	1104	7.90
R42	403317	498738	2089	1411	7.45
R43	403131	498770	1104	904	5.62
R44	403135	498817	662	324	2.24
R45	403130	498864	2173	3855	39.80
R46	403130	498918	1099	822	8.33
R47	403169	498888	1713	1325	12.40
R48	403168	498840	1256	932	9.06
R49	403166	498788	1274	940	8.20
R50	403211	498717	1200	617	5.86
R51	403228	498775	1329	795	10.00
R52	403242	498822	2172	799	6.70
R53	403255	498770	1204	895	23.65
R54	403262	498708	1702	773	7.91
R55	403292	498709	2059	973	8.21
R56	403258	498745	1009	662	5.85
R57	403220	498814	1555	942	16.22
R58	403227	498843	2930	884	7.06
R59	403211	498862	2686	1019	7.98
R60	403234	498991	2712	770	10.23
R61	403281	498990	5047	1366	8.70
R62	403334	498988	3356	1290	13.06
R63	403279	498975	4294	1060	6.12
R64	403231	498977	4061	1163	5.56
R65	403253	498949	3419	1117	6.55
R66	403224	498935	2634	1189	8.05
R67	403398	498916	1256	632	3.64
R68	403353	498917	1748	866	5.97
R69	403322	498911	1902	848	5.70
R70	403385	498958	1753	870	7.01
R71	403343	498947	1806	757	4.52
R72	403315	498941	1623	806	6.31
R73	403289	498931	3983	858	6.28
R74	403262	498924	8052	1158	7.68
R75	403240	498915	6959	1185	7.73
R76	403276	498950	5035	882	6.47
R77	403307	498965	2912	899	7.08
R78	403369	498979	1849	855	7.41
R79	403406	498982	1531	807	6.22
R80	403457	498974	1617	710	3.79
R81	403508	498983	1330	709	5.55
R82	403522	498962	3166	1481	8.20
R83	403422	498956	1142	635	3.81
R84	403422	498909	1654	737	5.14
R85	403434	498890	1117	734	5.93
R86	403413	498882	1615	800	5.29

A2.2. BROMPTON-ON-SWALE FLOODPLAIN SEDIMENT DATA

Sample	Easting	Northing	<2 mm (mg kg ⁻¹)		
			Pb	Zn	Cd
B1	421712	499379	154	96	1.19
B2	421776	499377	187	89	1.57
B3	421835	499366	257	119	2.96
B4	421890	499357	600	165	3.41
B5	421947	499347	955	254	1.98
B6	422000	499338	1138	359	2.20
B7	422054	499334	1005	896	3.74
B8	422042	499214	1067	406	2.98
B9	422093	499198	2068	1302	8.24
B10	422124	499189	942	696	3.57
B11	421992	499232	631	218	2.02
B12	421940	499248	304	123	1.04
B13	421874	499268	162	125	1.65
B14	421712	499431	1365	422	2.48
B15	421769	499434	1334	483	3.46
B16	421824	499430	937	354	2.47
B17	421878	499422	1237	531	2.64
B18	421932	499408	1321	1066	5.57
B19	421972	499295	767	192	1.16
B20	422023	499271	1197	536	3.74
B21	422069	499250	2308	812	5.13
B22	422100	499241	1116	787	5.10
B23	421920	499304	369	123	0.94
B24	421872	499313	190	111	0.88
B25	421818	499332	178	107	1.01
B26	421766	499345	125	83	0.58
B27	421712	499356	150	88	0.78
B28	421664	499377	105	83	0.63
B29	421101	499807	1736	1159	6.28
B30	421049	499790	922	564	3.52
B31	420991	499772	2985	1248	8.57
B32	420911	499756	137	119	0.83
B33	421482	499427	1106	899	6.35
B34	421548	499457	1825	919	6.67
B35	421596	499480	978	673	4.65
B36	421639	499459	234	226	1.83
B37	421652	499478	241	184	1.09
B38	422112	499321	130	80	0.61
B39	422202	499180	896	618	3.24
B40	422202	499211	1401	584	4.12
B41	422203	499177	1203	816	4.52
B42	422226	499180	1741	898	5.75
B43	422249	499188	3054	2178	11.77
B44	422260	499249	343	107	0.89
B45	421467	499435	1068	894	5.10
B46	421055	499693	1820	437	2.89
B47	421110	499714	1546	376	2.69
B48	421160	499733	1938	484	2.58

B49	421208	499750	1447	412	2.09
B50	421254	499767	1389	367	1.58
B51	421064	499649	2112	475	4.23
B52	421123	499658	1178	273	4.47
B53	421175	499667	1266	311	4.09
B54	421235	499677	1556	384	3.59
B55	421278	499684	1629	390	3.47
B56	421331	499513	1397	404	4.84
B57	421283	499512	1276	304	3.02
B58	421235	499496	1485	314	3.43
B59	421282	499467	1130	256	3.78
B60	421331	499456	1369	408	3.92
B61	421354	499807	2750	895	5.65
B62	421369	499760	3459	1227	8.36
B63	421379	499708	1428	424	2.24
B64	421388	499654	1788	526	3.04
B65	421395	499601	1919	573	4.69
B66	421398	499549	3104	1162	6.77
B67	421409	499499	1787	836	6.81
B68	421424	499579	1417	655	6.23
B69	421425	499605	1489	893	5.73
B70	421427	499656	3492	2516	18.78
B71	421425	499731	1766	859	5.40
B72	421407	499775	1562	672	4.36
B73	421072	499605	728	195	1.81
B74	421129	499607	1818	343	2.03
B75	421181	499604	1240	224	1.83
B76	421234	499611	1650	349	2.10
B77	421282	499612	1237	293	1.88
B78	421333	499610	1904	431	2.54
B79	421332	499565	815	225	1.18
B80	421282	499566	1397	341	2.16
B81	421226	499566	1387	283	1.99
B82	421176	499569	1593	362	1.91
B83	421128	499569	1449	327	2.13
B84	421330	499802	2957	852	5.60
B85	421343	499753	861	220	1.79
B86	421353	499700	1293	375	1.75
B87	421362	499651	998	272	1.92
B88	421367	499599	1964	551	3.64
B89	421376	499550	3313	923	5.67
B90	421384	499499	2508	742	5.24
B91	421397	499452	3431	2363	13.67
B92	421392	499419	3484	1882	14.23
B93	421359	499497	2200	610	3.83
B94	421352	499522	1761	451	3.17
B95	421031	499688	2413	655	4.62
B96	421003	499684	1137	235	1.49
B97	420971	499678	1889	401	2.34
B98	420961	499658	252	114	1.02
B99	420982	499644	135	95	0.95
B100	421017	499637	148	105	0.81

A2.3. FAIRHOLME FLOODPLAIN SEDIMENT DATA

Sample	Easting	Northing	<2 mm (mg kg ⁻¹)		
			Pb	Zn	Cd
F1	432108	489139	1380	563	6.00
F2	432139	489149	985	333	2.83
F3	432185	489172	490	185	1.96
F4	432238	489194	199	94	0.94
F5	432293	489223	131	72	0.63
F6	432353	489251	78	42	0.55

A2.4. HOLME FLOODPLAIN SEDIMENT DATA

Sample	Easting	Northing	<2 mm (mg kg ⁻¹)		
			Pb	Zn	Cd
H1	436158	482470	264	151	1.49
H2	436133	482478	1399	440	4.29
H3	436103	482506	1351	428	4.13
H4	436049	482557	991	385	3.48
H5	436044	482599	351	128	1.41

A2.5. ELDMIRE FLOODPLAIN SEDIMENT DATA

Sample	Easting	Northing	<2 mm (mg kg ⁻¹)		
			Pb	Zn	Cd
E1	441921	474719	850	433	4.14
E2	441956	474728	1007	630	6.37
E3	441994	474734	454	185	2.01
E4	442033	474737	105	67	0.65

A2.6. MYTON-ON-SWALE FLOODPLAIN SEDIMENT DATA

Sample	Easting	Northing	<2 mm (mg kg ⁻¹)		
			Pb	Zn	Cd
M1	443563	466789	1054	375	3.95
M2	443564	466823	715	211	2.09
M3	443561	466885	826	291	2.50
M4	443554	466968	965	310	3.25
M5	443534	467064	998	292	2.24
M6	443517	467168	621	206	2.98

A2.7. SECONDARY DATA SOURCES

This appendix includes primary data only. Other data used in this investigation are available from the following sources:

Carter, J. H. (1998) Heavy metal contamination of alluvial sediments in the middle reaches of the River Swale, North Yorkshire. Unpublished M.Sc. dissertation, University of Leeds. 117pp.

Hudson-Edwards, K. A., Macklin, M. G. and Taylor, M. P. (1999) 2000 years of sediment-borne heavy metal storage in the Yorkshire Ouse basin, NE England, UK. *Hydrological Processes* **13**, 1087-1102.

Macklin, M. G., Ridgway, J., Passmore, D. G. and Rumsby, B. T. (1994) The use of overbank sediments for geochemical mapping and contamination assessment: results from selected English and Welsh floodplains. *Applied Geochemistry* **9**, 689-700.

Sedgwick, C. M. (2000) Heavy metal contamination in the River Swale catchment, northern England. Unpublished PhD Thesis, University of Leeds. 300pp.

Sparks, H. (1998) Radiometric dating and assessment of heavy metal contamination to vertically accreted sediments of the River Swale, North-East England. Unpublished B.Sc. dissertation, University of Lancaster. 74pp.

Taylor, M. P. and Macklin, M. G. (1997) Holocene alluvial sedimentation and valley floor development: the River Swale, Catterick, North Yorkshire, UK. *Proceedings of the Yorkshire Geological Society* **51**, 317-327.

APPENDIX 3: FLOOD SEDIMENT

METAL CONCENTRATION DATA

A3.1. 2000 FLOODS OVERBANK SEDIMENT DATA

Sample	Easting	Northing	<63 μm (mg kg ⁻¹)			2000-63 μm (mg kg ⁻¹)		
			Pb	Zn	Cd	Pb	Zn	Cd
SW1	389676	500964	-	-	-	-	-	-
SW2	390583	500528	230	275	1.2	35	49	0.3
SW4	390844	500390	1572	1584	7.1	542	592	3.1
SW5	390808	499377	1653	1896	7.1	80	117	0.7
SW6	390998	498658	488	681	2.8	57	116	0.6
SW7	391288	498024	1267	1518	6.1	69	120	0.7
SW8	391535	497891	652	994	5.2	41	119	0.5
SW9	392211	497719	174	406	1.3	56	115	0.5
SW10	393359	497841	461	1493	4.2	57	225	1.3
SW11	394855	497884	1345	1534	5.7	96	152	1.0
SW13	395055	497780	5654	13918	29.1	525	376	1.7
SW14	396616	497598	1379	1793	6.2	113	222	1.1
SW15	397535	497422	2324	2050	18.9	167	216	1.2
SW16	399739	498465	4211	2277	7.8	202	200	1.0
SW17	400633	498330	1802	1971	6.5	159	196	0.8
SW18	401426	498448	3539	4881	13.6	243	485	1.9
SW20	401672	498498	19370	4055	13.6	8467	536	2.6
SW21	403419	498758	2272	1069	4.0	292	139	0.6
SW23	404656	498555	7122	2482	8.3	934	278	1.4
SW24	406919	497675	6817	2620	8.1	323	252	0.8
SW25	410214	498216	5689	1742	5.5	217	153	0.6
SW26	411340	499202	4968	1982	5.4	223	148	0.7
SW27	411626	501015	5310	2123	7.5	198	136	0.8
SW28	413367	501358	1956	1258	4.1	378	224	1.3
SW29	414610	500655	6951	1521	4.9	335	312	1.3
SW30	417047	500632	5316	2136	6.9	463	266	1.2
SW31	421038	499711	2708	1407	4.8	223	135	0.7
SW32	424716	497612	807	914	3.0	159	106	0.6
SW33	429024	496477	2331	1376	5.9	276	161	1.2
SW34	431844	491761	1681	1324	4.9	127	75	0.5
SW35	434861	486240	564	532	1.8	83	48	0.1
SW36	436347	479841	760	823	2.4	86	49	0.2
SW37	439779	475928	1088	754	2.6	64	38	0.1
SW38	443294	471387	955	820	3.2	254	141	0.8
SW39	443585	466717	890	862	3.1	67	42	0.2

A3.2. 2000 FLOODS CHANNEL-EDGE SEDIMENT DATA

Sample	Easting	Northing	<63 μm (mg kg ⁻¹)			2000-63 μm (mg kg ⁻¹)		
			Pb	Zn	Cd	Pb	Zn	Cd
SW1	389676	500964	49	149	0.6	12	28	0.1
SW2	390583	500528	685	876	2.7	1064	1474	11.0
SW4	390844	500390	962	2272	9.1	301	586	3.1
SW5	390808	499377	453	711	2.8	80	154	0.8
SW6	390998	498658	676	2229	9.1	114	550	3.2
SW7	391288	498024	689	1132	7.3	54	646	3.8
SW8	391535	497891	353	1195	2.9	39	261	0.7
SW9	392211	497719	966	938	4.2	82	64	0.4
SW10	393359	497841	1503	2133	7.7	79	239	1.0
SW11	394855	497884	1853	3900	17.8	242	300	1.6
SW13	395055	497780	2830	1621	6.5	924	1348	5.9
SW14	396616	497598	3797	3895	12.4	228	280	1.4
SW15	397535	497422	866	1809	6.7	129	354	1.4
SW16	399739	498465	624	1087	3.4	195	196	0.9
SW17	400633	498330	1944	3411	9.3	151	228	1.2
SW18	401426	498448	2134	2297	6.8	189	214	0.9
SW20	401672	498498	20312	3290	9.8	1370	298	1.2
SW21	403419	498758	1471	2109	6.0	224	203	1.0
SW23	404656	498555	2397	2128	6.7	541	396	2.0
SW24	406919	497675	8014	6473	29.5	473	1022	6.8
SW25	410214	498216	3145	1411	4.6	532	324	1.5
SW26	411340	499202	-	-	-	-	-	-
SW27	411626	501015	2056	2919	11.5	346	1202	6.8
SW28	413367	501358	2586	1498	4.7	365	317	1.2
SW29	414610	500655	5416	3183	5.0	280	220	0.9
SW30	417047	500632	1317	1898	5.9	283	310	1.8
SW31	421038	499711	3418	3287	9.5	164	122	0.5
SW32	424716	497612	3148	2043	7.4	122	104	0.5
SW33	429024	496477	1004	642	2.7	109	85	0.3
SW34	431844	491761	1665	1116	4.2	118	76	0.4
SW35	434861	486240	73	55	0.6	212	102	0.6
SW36	436347	479841	1359	909	3.8	72	46	0.2
SW37	439779	475928	1045	866	2.8	83	47	0.2
SW38	443294	471387	840	787	3.2	57	36	0.1
SW39	443585	466717	793	874	3.2	111	67	0.3

A3.3. 2001 FLOODS OVERBANK SEDIMENT DATA

Sample	Easting	Northing	<63 μm (mg kg ⁻¹)			2000-63 μm (mg kg ⁻¹)		
			Pb	Zn	Cd	Pb	Zn	Cd
SW1	389676	500964	175	212	4.9	68	377	3.7
SW2	390583	500528	173	280	1.2	51	184	1.6
SW4	390844	500390	640	596	2.4	170	261	3.1
SW5	390808	499377	283	345	1.4	136	244	3.7
SW6	390998	498658	472	878	3.2	122	501	5.4
SW7	391288	498024	403	624	3.2	183	361	5.4
SW8	391535	497891	458	903	3.6	115	371	3.4
SW9	392211	497719	492	1320	5.6	288	1154	18.0
SW10	393359	497841	665	915	2.5	201	511	6.7
SW11	394855	497884	583	997	4.2	257	527	7.0
SW13	395055	497780	3936	1833	6.9	2814	1173	13.6
SW14	396616	497598	1222	1235	5.3	693	618	7.6
SW15	397535	497422	1019	923	3.3	427	538	6.4
SW16	399739	498465	1045	919	3.6	465	600	6.1
SW17	400633	498330	1263	1104	3.3	625	594	20.8
SW18	401426	498448	1807	1588	4.8	501	661	6.7
SW20	401672	498498	95127	29374	97.3	9869	2540	35.5
SW21	403419	498758	2619	1668	5.0	808	955	8.3
SW23	404656	498555	4316	2522	6.4	1631	1003	8.7
SW24	406919	497675	3421	1607	4.5	709	865	6.5
SW25	410214	498216	1604	737	2.7	636	684	2.9
SW26	411340	499202	2791	1963	5.7	772	871	4.8
SW27	411626	501015	2209	1150	2.9	736	584	3.7
SW28	413367	501358	2690	1169	3.8	885	1035	7.9
SW29	414610	500655	5559	1256	4.2	670	715	4.9
SW30	417047	500632	5125	1447	3.9	651	839	6.0
SW31	421038	499711	6575	2223	7.6	2261	905	9.7
SW32	424716	497612	-	-	-	-	-	-
SW33	429024	496477	1767	1107	2.4	557	433	3.6
SW34	431844	491761	1332	911	3.2	340	310	3.9
SW35	434861	486240	1193	824	3.1	293	268	2.2
SW36	436347	479841	965	582	2.4	203	181	1.3
SW37	439779	475928	933	618	2.3	323	241	1.3
SW38	443294	471387	292	311	1.7	422	399	5.1
SW39	443585	466717	594	450	1.5	183	175	1.0

A3.4. 2001 FLOODS CHANNEL-EDGE SEDIMENT DATA

Sample	Easting	Northing	<63 μm (mg kg ⁻¹)			2000-63 μm (mg kg ⁻¹)		
			Pb	Zn	Cd	Pb	Zn	Cd
SW1	389676	500964	159	285	1.7	63	213	4.5
SW2	390583	500528	289	230	3.0	69	148	1.4
SW4	390844	500390	457	609	2.6	622	1225	14.4
SW5	390808	499377	606	843	2.4	1019	5022	64.2
SW6	390998	498658	1089	4535	20.5	425	5474	66.9
SW7	391288	498024	444	937	4.0	318	587	6.2
SW8	391535	497891	-	-	-	-	-	-
SW9	392211	497719	806	2937	11.0	228	2340	30.5
SW10	393359	497841	533	1012	3.6	198	658	6.9
SW11	394855	497884	4	10	0.1	198	508	5.3
SW13	395055	497780	4189	1771	5.4	24803	12566	1.5
SW14	396616	497598	687	729	2.8	860	1102	10.2
SW15	397535	497422	978	992	2.9	332	466	4.7
SW16	399739	498465	1191	1167	5.2	470	501	7.3
SW17	400633	498330	1724	1431	4.7	581	718	6.0
SW18	401426	498448	6783	1883	5.3	1802	631	6.5
SW20	401672	498498	12823	6214	20.1	4584	4154	34.2
SW21	403419	498758	3346	1366	5.7	4437	1950	14.9
SW23	404656	498555	2309	1350	4.1	1193	1140	6.5
SW24	406919	497675	3118	3344	11.9	883	2436	13.3
SW25	410214	498216	1060	721	1.8	710	459	3.5
SW26	411340	499202	3027	1397	5.5	1000	706	5.9
SW27	411626	501015	2263	1397	4.5	872	614	5.5
SW28	413367	501358	4526	1762	5.3	1977	1308	10.9
SW29	414610	500655	-	-	-	-	-	-
SW30	417047	500632	1432	1106	2.6	759	1266	7.6
SW31	421038	499711	-	-	-	-	-	-
SW32	424716	497612	-	-	-	-	-	-
SW33	429024	496477	1695	1214	5.2	382	388	3.1
SW34	431844	491761	984	659	2.9	440	370	4.9
SW35	434861	486240	992	680	3.3	253	251	2.2
SW36	436347	479841	-	-	-	-	-	-
SW37	439779	475928	-	-	-	-	-	-
SW38	443294	471387	-	-	-	-	-	-
SW39	443585	466717	-	-	-	-	-	-

A3.5. 2002 FLOODS OVERBANK SEDIMENT DATA

Sample	Easting	Northing	<63 μm (mg kg ⁻¹)			2000-63 μm (mg kg ⁻¹)		
			Pb	Zn	Cd	Pb	Zn	Cd
SW1	389676	500964	265	232	ND	46	187	0.7
SW2	390583	500528	237	389	1.0	100	179	0.3
SW4	390844	500390	435	484	0.9	240	449	0.5
SW5	390808	499377	305	480	3.5	109	366	1.5
SW6	390998	498658	335	824	1.5	138	553	1.6
SW7	391288	498024	488	1440	4.3	246	1029	2.1
SW8	391535	497891	556	1275	2.4	256	695	1.9
SW9	392211	497719	911	1284	5.2	661	3480	8.2
SW10	393359	497841	684	1242	0.8	345	895	1.5
SW11	394855	497884	1057	1616	5.1	404	960	2.4
SW13	395055	497780	6961	4610	13.2	3421	4296	9.5
SW14	396616	497598	1791	1729	4.3	2053	1833	3.8
SW15	397535	497422	725	872	0.6	687	799	1.6
SW16	399739	498465	2577	2500	5.4	1617	1271	1.9
SW17	400633	498330	1611	1555	4.2	965	1087	3.2
SW18	401426	498448	1998	3094	0.0	872	1508	2.9
SW20	401672	498498	22590	6236	19.4	4993	3977	7.2
SW21	403419	498758	2679	1725	4.8	2237	1513	3.1
SW23	404656	498555	4565	3850	7.8	1821	1523	2.2
SW24	406919	497675	6276	3333	7.9	2236	1582	2.0
SW25	410214	498216	3292	2049	4.6	1397	938	1.8
SW26	411340	499202	4253	5637	7.8	1408	1516	2.4
SW27	411626	501015	5818	2778	3.2	1902	1376	2.4
SW28	413367	501358	5859	3524	5.6	3119	2154	4.7
SW29	414610	500655	6109	3102	5.9	1549	1702	2.2
SW30	417047	500632	3269	2587	5.8	1334	1188	1.6
SW31	421038	499711	3170	1606	4.5	1297	1000	2.9
SW32	424716	497612	2307	1461	1.6	1094	878	2.3
SW33	429024	496477	3271	1597	1.6	1052	762	1.8
SW34	431844	491761	1883	1119	1.7	910	644	1.6
SW35	434861	486240	1489	910	1.9	508	388	0.7
SW36	436347	479841	1339	905	3.1	609	376	0.9
SW37	439779	475928	1317	957	1.0	475	310	0.9
SW38	443294	471387	1480	1079	3.1	1216	873	2.6
SW39	443585	466717	926	703	1.6	522	421	0.7

A3.6. 2002 FLOODS CHANNEL-EDGE SEDIMENT DATA

Sample	Easting	Northing	<63 μm (mg kg ⁻¹)			2000-63 μm (mg kg ⁻¹)		
			Pb	Zn	Cd	Pb	Zn	Cd
SW1	389676	500964	512	392	1.0	75	544	0.9
SW2	390583	500528	607	693	3.0	105	332	1.2
SW4	390844	500390	364	673	0.9	300	1165	2.5
SW5	390808	499377	1318	2158	3.0	1832	7782	14.6
SW6	390998	498658	851	3964	5.8	559	6894	16.7
SW7	391288	498024	884	2575	7.8	410	7803	19.4
SW8	391535	497891	-	-	-	-	-	-
SW9	392211	497719	967	3026	5.7	738	1327	1.6
SW10	393359	497841	534	952	0.8	293	750	1.2
SW11	394855	497884	963	935	1.7	550	826	3.0
SW13	395055	497780	17457	7465	19.1	12087	7301	16.1
SW14	396616	497598	3835	4919	18.9	2579	4432	10.2
SW15	397535	497422	1568	1764	5.2	704	1106	2.4
SW16	399739	498465	-	-	-	-	-	-
SW17	400633	498330	1582	1928	1.4	797	914	1.5
SW18	401426	498448	1644	2307	3.4	1106	1653	2.5
SW20	401672	498498	8842	6667	24.5	5721	3389	5.8
SW21	403419	498758	3323	1960	3.0	2432	1537	1.6
SW23	404656	498555	4667	4142	6.2	1630	1187	1.5
SW24	406919	497675	4346	6608	9.8	2212	3223	3.3
SW25	410214	498216	-	-	-	-	-	-
SW26	411340	499202	4109	4154	13.1	2749	3667	6.9
SW27	411626	501015	-	-	-	-	-	-
SW28	413367	501358	2710	2038	9.0	1321	1083	1.8
SW29	414610	500655	6090	1674	4.0	4659	2194	3.9
SW30	417047	500632	4571	3269	6.3	1773	1643	2.5
SW31	421038	499711	2840	1816	7.0	940	1035	2.8
SW32	424716	497612	1573	1148	3.2	1112	918	1.1
SW33	429024	496477	1802	1198	1.9	849	677	0.9
SW34	431844	491761	-	-	-	-	-	-
SW35	434861	486240	-	-	-	-	-	-
SW36	436347	479841	-	-	-	-	-	-
SW37	439779	475928	-	-	-	-	-	-
SW38	443294	471387	-	-	-	-	-	-
SW39	443585	466717	-	-	-	-	-	-

A3.7. OVERBANK METAL DEPOSITION ON THE SWALE FLOODPLAIN (DEC 2001 – MARCH 2002)

Distance from source (km)	Overbank deposition (g m^{-2})			
	<i>Sediment</i>	<i>Pb</i>	<i>Zn</i>	<i>Cd</i>
5.85	9137.45	1.81	3.81	0.02
6.96	5984.67	1.90	6.60	0.04
7.79	8565.46	2.24	4.97	0.02
8.48	13441.97	3.41	9.07	0.04
8.79	10400.29	2.72	9.00	0.04
9.53	14664.46	5.34	15.86	0.09
10.67	15611.49	6.55	12.65	0.04
12.39	7716.20	6.91	9.94	0.05
12.62	10823.06	48.52	20.38	0.08
14.30	9570.89	53.51	20.63	0.11
18.07	16120.51	10.34	13.94	0.07
19.19	14740.52	14.83	16.00	0.07
19.83	31634.44	23.05	36.57	0.07
20.08	15875.88	252.85	56.72	0.23
22.23	7594.99	14.38	8.41	0.03
24.00	16912.19	107.15	14.55	0.11
26.74	16280.09	74.01	30.22	0.12
32.52	16604.68	23.93	31.35	0.05
34.53	9756.90	13.75	2.59	0.03
36.47	15356.64	36.61	26.86	0.08
38.41	21338.41	42.42	23.84	0.08
41.60	8458.50	9.58	9.36	0.03
47.70	12265.79	14.86	12.78	0.04
59.94	13809.22	12.80	14.85	0.06
81.38	22915.90	12.70	11.28	0.04
Mean	13823.22	31.85	16.89	0.07