

Sources of low-arsenic groundwater in the Bengal Basin: investigating the influence of the last glacial maximum palaeosol using a 115-km traverse across Bangladesh

M.A. Hoque^{a,†,*}, J.M. McArthur^a, and P. K. Sikdar^b

^aEarth Sciences, University College London, Gower Street, London WC1E 6BT, UK

^bEnvironment Management, Indian Institute of Social Welfare and Business Management, College Square, Kolkata 700073, India.

[†]Present Address: Department of Civil and Environmental Engineering, Imperial College London, South Kensington Campus, London SW7 2AZ, UK;

*Corresponding author: m.hoque@imperial.ac.uk, Telephone: +44(0)20 7594 6074

Table S1 Results of laboratory analysis of groundwater samples.

Global positioning system (GPS) co-ordinates (WGS 84). N/C= Completion colour not discernible; N/A = Not available; Red (?) = Colour uncertain, probably red; Black (?) = Colour uncertain, probably black. PI= Palaeo-interfluve, PC= Palaeo-channel, SPC = Shallow Palaeo-channel, PI? = Setting uncertain, probably PI.

Sample No	Latitude	Longitude	Depth (mbgl)	Stain	Fe (mg/L)	Mn (mg/L)	V (µg/L)	As (µg/L)	Mo (µg/L)	U (µg/L)	PC/PI
ENK475	23.3916	89.8202	11	Red	6.35	0.396	0	169	1.44	0.001	SPC
WJM 050	23.4124	88.7618	12	N/C	2.68	0.557	0.14	7.62	0.7	3.72	SPC
WJS 057	23.4213	88.7927	14	Black?	0.303	0.307	1.11	0.28	0.56	5.96	SPC
WMR 024	23.4027	88.8906	14	Black	0.11	0.217	1.48	3.73	0.49	18.4	SPC
ENK474	23.3913	89.8194	14	Red	9.59	0.626	0.04	186	1.56	0.002	SPC
ENK477	23.3925	89.8217	14	Red	5.67	0.4	0.06	161	1.82	0.001	SPC
ENK481	23.391	89.8245	14	Red	2.36	0.807	0.06	271	3.61	0.105	SPC
WMR 110	23.4036	88.8919	15	Red	4.68	0.689	0.06	81.7	0.98	0	SPC
WMB 031	23.3915	88.9566	15	Black?	1.13	0.378	0.05	58.1	1.27	0.128	SPC
WMB 105	23.3951	88.958	15	Black?	0.127	0.45	0.82	2.56	0.5	6.57	SPC
MKK061	23.4007	89.1166	15	N/C	2.58	0.117	0.07	4.71	0.17	0	SPC
EBO437	23.3814	89.6371	15	Red	0.613	0.671	0	50.5	0.74	1.08	SPC
EBO443	23.3809	89.6374	15	N/C	1.28	0.84	0.33	40.8	0.65	1.26	SPC
EBO441	23.3774	89.6384	15	Red	0.84	0.974	0.23	56.8	1	1.66	SPC
ENR470	23.39	89.7802	15	Red	7.08	0.215	0.03	60.7	1.2	0	SPC
ENK478	23.3929	89.8218	15	Red	5.47	0.902	0.07	265	2.22	0.002	SPC
ENP488	23.4137	89.8503	15	Red	12.9	0.704	0.13	264	1.18	0.01	SPC
ENP493	23.4133	89.8514	15	Red	7.44	0.752	0.08	535	4.5	0.001	SPC
WMR 021	23.4042	88.893	17	Black	0.224	0.835	0.36	0.64	0.25	8.92	SPC
WMB 036	23.3947	88.958	17	Red	1.23	0.604	0.06	33.7	0.66	1.32	SPC
ENP491	23.4143	89.8516	17	Red	9.03	0.415	0.25	367	3.01	0.001	SPC
WMK 027	23.3934	88.9223	18	Black?	1.97	0.313	0.16	8.29	0.5	0	SPC
WMK 026	23.3945	88.9229	18	Black?	1.4	0.42	0.18	67.2	0.69	0.135	SPC
MKKL092	23.408	89.2123	18	Red	3.04	0.057	0.08	40.4	0.56	0	SPC
WTJ 007	23.4183	88.8284	20	Red	7.19	0.102	0	282	2.2	0	SPC
EBO436	23.384	89.6393	20	Red	0.631	0.971	0.03	28.2	0.72	1.83	SPC
EBO435	23.3831	89.6394	20	Red	4.77	0.962	0.12	384	9.17	2.36	SPC
EBG450	23.3825	89.6745	20	Red	10.1	0.26	0	44.2	1.61	0.005	SPC
ENP484	23.4146	89.8494	20	Red			0.04	327	2.11	0	SPC
WMB 033	23.3931	88.957	21	Black?	1.31	0.362	0.08	40.5	0.74	0.656	SPC
ENK479	23.3925	89.8224	21	Red	6.79	0.81	0.11	280	1.97	0.001	SPC
ENP486	23.4113	89.8493	21	Red	13.6	0.378	0	317	2.3	0	SPC
WJS 053	23.4249	88.7965	23	Red	4.07	0.072	0.07	18.4	1.01	0	SPC
EMN422	23.3987	89.5814	23	Red	9.74	0.098	0	53.7	1.4	0	SPC
WTJ 011	23.4174	88.8308	24	Red	3.5	0.213	0.02	6.02	0.36	0	SPC
MKK060	23.4006	89.1158	24	Red	1.6	0.11	0	6.48	0.14	0	SPC
EBP459	23.3851	89.7291	24	Red	14	0.363	0.73	63.3	1.16	0.002	SPC

ENR469	23.3915	89.7793	24	Red	16.7	0.399	0.2	447	1.55	0.01	SPC
ENR464	23.3948	89.7805	24	Red	10.9	0.208	0.12	40.9	0.77	0.009	SPC
ENR466	23.3938	89.781	24	Red	8.52	0.373	0.06	421	2.93	0.001	SPC
ENP492	23.415	89.851	24	Red	9.21	0.279	0.23	288	1.36	0.001	SPC
WJM 049	23.4125	88.762	27	N/C	4.17	0.414	0.01	5.35	0.42	0	SPC
WJM 051	23.4125	88.7622	27	Red	5.18	0.782	0.36	8.27	0.83	0.18	SPC
WJM 052	23.4123	88.7622	27	Red	2.07	0.574	0.29	10.7	0.71	3.06	SPC
MKK067	23.4028	89.1163	27	Red	2.73	0.054	0.01	7.77	0.13	0	SPC
EBP462	23.386	89.7286	27	Red	10.1	0.612	0.04	167	2.47	0.001	SPC
ENR473	23.3892	89.7777	27	Red	11	0.368	0.06	691	3.96	0.001	SPC
MST327	23.392	89.2844	29	Black	0.024	1.15	1.22	0.17	2.01	1.4	SPC
WJS 054	23.4234	88.7976	30	Red	4.43	0.057	0.09	24.5	0.76	0	SPC
MKE320	23.4043	89.0505	30	Red	3.37	0.483	0	42	0.67	0.044	SPC
MKG072	23.4116	89.1576	30	Red	5.14	0.749	0.06	52.4	1.37	0.017	SPC
WJM 003	23.4132	88.7605	32	Red	3.36	0.303	0	5.08	0.45	0	PC
WJH 013	23.4066	88.859	32	Red	4.55	0.378	0.27	16.1	1.78	0	PC
ENP490	23.4132	89.8522	33	Red	7.68	0.275	0.1	149	1.8	0.01	PC
EBP460	23.3846	89.7264	34	Red	4.04	0.693	0.03	199	2.05	0.002	PC
WJH 015	23.4057	88.8609	37	Red	4.78	0.142	0.01	10.8	1.64	0	PC
WMR 111	23.4036	88.8918	37	Red	4.63	0.335	0	139	1.93	0	PC
WKK 037	23.4116	88.9829	37	Red	1.87	0.486	0	31.8	0.87	0.858	PC
MSmA376	23.3896	89.4385	37	Black	0.019	0.707	2.96	0	1.21	5.45	PI
EBO433	23.3818	89.6374	37	Black	0.028	0.582	6.11	1.07	1.2	0.261	PI
EBG444	23.3816	89.6749	38	Red	8.28	0.354	0.04	39	1.18	0.006	PC
EBP457	23.3843	89.7304	38	Red	7.95	0.192	0.01	35.8	0.79	0.002	PC
WJM 004	23.4121	88.7609	40	Red	2.62	0.174	0.2	5.11	0.54	0	PC
WMR 019	23.4036	88.8913	40	Red	7.77	0.689	1.89	98.8	0.94	0	PC
WMR 020	23.4057	88.8918	40	Red	4.74	0.395	0	140	1.89	0	PC
WMK 028	23.3954	88.9229	40	Red	1.75	0.372	0	23.1	0.9	0.003	PC
MKKL087	23.409	89.2011	40	N/C	0.638	0.658	1.67	1.77	1.12	0.308	PI
MSU351	23.3882	89.3586	40	Red	6.43	0.179	0	85.1	0.9	0	PC
MKM094	23.4092	89.233	41	Black	0.055	0.659	3.87	0.67	1.26	0.578	PI
MKL320	23.399	89.0823	43	Black	0.041	0.525	8.19	42.8	0.54	0	PI?
MKK069	23.4022	89.1174	43	Black	1.61	0.038	0.02	6.57	0.47	0	PC
MKKL082	23.4079	89.2014	43	Black	0.041	0.953	2.17	0.34	0.97	2.68	PI
WJM 005	23.4116	88.7623	44	Red	3.98	0.197	0	15.5	0.74	0	PC
WMK 030	23.3958	88.9241	44	Black?	1.62	0.463	0.01	27.1	0.81	0	PC
MKE326	23.4041	89.0524	44	Black	0.05	1.3	3.79	0.27	0.93	4.54	PI
MKM301	23.4038	89.2322	44	Black	0.039	1.64	2.5	0	0.47	2.62	PI
WMB 034	23.3949	88.9577	46	Red	2.43	0.323	0.03	39.6	1.15	0	PC
WKP 043	23.4065	89.0334	46	Red	6	0.305	0.02	60.4	1.05	0	PC
MKS312	23.4076	89.26	46	Black	0.034	0.996	2.67	0.05	0.87	2.11	PI

MSS348	23.3884	89.3229	46	Black	0.034	1.21	3.3	0.13	1.82	0.607	PI
MSmS399	23.3895	89.4892	46	Black	0.268	0.902	2.74	0.78	0.37	7.33	PI
MSmS401	23.391	89.4913	46	Black	0.026	0.995	3.28	0.06	0.17	5.72	PI
MSmS402	23.3911	89.4914	46	Red	1.58	0.074	0	7.78	0.35	0.121	PC
EMK408	23.3858	89.5344	46	Black	0.052	0.88	2.05	0	0.24	3.54	PI
EMK409	23.3899	89.5366	46	Black	0.046	1.41	2.78	0.48	0.6	3.35	PI
MKE319	23.4045	89.0506	49	Black	0.248	1.63	1.65	2.75	1.43	4.1	PI
MKG073	23.4112	89.1575	49	N/C	0.054	0.893	3	0.12	0.94	0.948	PI
MKKL084	23.4075	89.2033	49	Black	0.029	0.794	2.29	0.09	0.35	2.38	PI
MKKL093	23.4075	89.2053	49	Black	0.122	1.64	3.13	0.4	0.42	4.65	PI
MKM304	23.4161	89.2368	49	Black	0.098	1.14	3.06	0.26	1.17	0.789	PI
MKS306	23.4128	89.2501	49	Black	0.159	0.97	3.77	249	2.21	0.703	PI?
MKS314	23.4087	89.2578	49	Black	0.041	1.1	2.69	0.27	0.64	2.68	PI
MSS339	23.3876	89.3125	49	Black	0.109	0.46	0.73	1.01	3.04	1.38	PI
MSS340	23.3887	89.3145	49	Black	0.025	0.671	2.66	0.15	0.7	1.44	PI
MSS343	23.3887	89.321	49	Red	10.5	0.29	0	24.7	0.58	0	PC
MSU359	23.3873	89.3584	49	Red	4.75	0.125	0	102	0.85	0	PC
MSA372	23.3891	89.3938	49	Black	0.057	0.518	1.78	0.17	0.78	4.74	PI
MSmA382	23.3922	89.4397	49	Black	0.058	0.461	2.33	0	0.75	5.32	PI
MSmA383	23.3916	89.4397	49	Black	0.054	0.56	1.26	0.08	0.89	5.46	PI
MSmA378	23.3925	89.441	49	Black?	0.042	0.574	3.09	0.02	0.89	3.01	PI
MSmB392	23.3822	89.4621	49	Black	0.029	0.424	1.76	0.02	1.08	4.9	PI
MSmB387	23.3803	89.4633	49	Black	0.031	0.469	2.14	0	0.96	6.08	PI
ENP489	23.4125	89.8523	49	Red	3.69	0.12	0.16	160	2.08	0.002	PC
WTJ 009	23.4157	88.8281	50	Red	4.26	0.101	0	65.6	1.4	0	PC
WJH 016	23.4063	88.8628	50	Red	2.63	0.139	0.1	9.56	1.18	0.042	PC
MKL326	23.3992	89.0822	50	Black	0.1	0.719	6.39	28.9	1.27	0.115	PI?
MKL325	23.3983	89.0856	50	Black	0.072	1.3	3.3	0.17	1.94	0.488	PI
MST329	23.3923	89.2861	50	Black	0.018	0.591	2.08	0.38	1.32	2.76	PI
MSS345	23.3886	89.3219	50	Black	1.98	0.625	3.26	1030	1.64	0.126	PI?
MSS346	23.3885	89.3224	50	Black			10	1.34	1.19	0.186	PI
EMK417	23.391	89.5375	50	Black?	7.44	0.108	0	10.9	0.41	0	PC
EMK414	23.3888	89.5437	50	Black	0.127	0.624	5.13	2.62	0.49	0.167	PI
MKG074	23.4115	89.1576	52	Red	1.24	0.886	0.93	7.3	1.24	2.14	PI?
MKKL086	23.4094	89.2016	52	Black	0.073	0.693	2.19	0.21	0.52	0.929	PI
MST332	23.3913	89.2865	52	Black	0.026	0.52	4.34	0.15	1.31	2	PI
MST336	23.3873	89.287	52	N/C	0.097	0.659	1.98	0	0.82	0.49	PI
MSU354	23.3866	89.3599	52	Red	5.4	0.199	0	23.5	0.73	0	PC
MSU355	23.3854	89.3604	52	Red	4.08	0.147	0	119	1.79	0	PC
MSA366	23.388	89.3936	52	Black	0.09	0.318	3.24	0.07	0.82	4.82	PI
EMK419	23.3897	89.5426	52	Red?	3.5	0.282	0	3.73	0.59	0	PC
MSA363	23.3869	89.3961	53	Red	5.25	0.134	0	16.6	0.97	0	PC

MKE318	23.4033	89.052	55	Black	0.044	1.14	2.67	1.68	0.41	3.35	PI
MKL316	23.3983	89.0811	55	Black	0.291	1.01	10.7	58.6	0.95	0.182	PI?
MKL322	23.4	89.083	55	N/C	0.186	0.595	10.5	64.1	0.72	0.033	PI?
MKM099	23.4103	89.2301	55	Red	5.06	0.112	0.04	90.8	1.8	0	PC
MKM098	23.4088	89.231	55	N/C	0.037	1.73	2.85	0.17	1.59	1.38	PI?
MKM097	23.4067	89.2321	55	Black	0.006	1.06	2.6	0.48	1.12	0.971	PI
MKS315	23.4092	89.2603	55	Black	0.104	1.46	3.19	0.48	1.16	3.15	PI
MST337	23.3887	89.2837	55	Black	0.074	1.11	0	0.07	0.49	3.86	PI
MST338	23.3922	89.2867	55	Black	0.056	0.702	1.85	9.67	1.47	2.77	PI
MSS341	23.3893	89.316	55	Black	0.033	0.876	2.21	0.82	0.65	2.2	PI
MSA364	23.3872	89.3947	55	Black	1.19	0.44	0	2.79	1.04	0.804	PI?
MSA361	23.3864	89.3964	55	Black	0.078	0.281	5.22	82.2	1.01	0.019	PI?
MSmA374	23.3865	89.4399	55	Black	0.092	0.455	2.5	0	0.87	6.88	PI
MSmB395	23.3821	89.463	55	Black	0.054	0.391	2.63	0.29	1.07	5.14	PI
MSmB384	23.3811	89.4683	55	Black	0.039	0.862	2.35	0.14	1.22	3.81	PI
MSmS397	23.3867	89.4858	55	Black	0.028	1.16	2.56	0.16	0.36	10.7	PI
EMK406	23.3786	89.5278	55	Black	0.066	0.873	3.12	0.06	0.39	5.03	PI
EMK410	23.3897	89.5382	55	Black?	4.47	3.48	0.48	284	1.09	0.042	PI?
EMK415	23.3903	89.542	55	Black	1.27	1.03	0	0.68	0.32	0.021	PC
EMK418	23.3862	89.5423	55	Black	0.062	0.832	3.07	0	0.31	4.24	PI
EMK413	23.389	89.5492	55	Red?	3.75	0.517	0.23	14.8	1.35	0	PC
MKL317	23.3989	89.0811	56	Red	4.34	0.197	0	23.7	0.54	0	PC
MKG078	23.4107	89.1557	56	Black	0.028	0.711	2.01	0.22	0.8	5.29	PI
MSS342	23.3892	89.3188	56	Black	0.071	0.594	1.12	1.01	0.75	1.72	PI
MSA370	23.3892	89.394	56	Black	0.051	0.446	2.92	0.07	0.8	4.18	PI
EBG445	23.3819	89.6744	56	Black	0.077	1.07	0.98	0.82	1.17	4.08	PI
WKK 038	23.4121	88.982	58	Black	0.005	1.26	2.92	0.57	1.24	2.73	PI
WKK 040	23.4097	88.9837	58	Black	0.032	0.986	2.32	0.32	1.9	4.04	PI
MKE321	23.4047	89.052	58	Black	0.09	1.9	2.5	0.4	0.5	4.17	PI
MST330	23.3922	89.2866	58	Black	0.02	0.649	2.66	0.51	1.76	2.79	PI
MSS347	23.3892	89.3226	58	Black	0.01	1.01	10.5	3.72	1.21	0.31	PI
MSU358	23.3877	89.356	58	Red	4.38	0.122	0	74.7	1.29	0	PC
EMK416	23.3895	89.5417	58	Red	5.38	0.086	0	3.36	0.18	0	PC
EBG447	23.3806	89.6723	58	Black	0.054	1.71	3.68	0.46	1.57	0.384	PI
EBG448	23.3829	89.6737	58	Red	6.25	0.511	0	109	1.32	0.001	PC
WJH 017	23.4059	88.8615	59	Red	5.3	0.164	0.02	7.69	0.81	0	PC
EBG449	23.3834	89.675	59	Black?	0.124	1.12	7.96	69.2	1.12	0.569	PI?
MST334	23.3919	89.2903	61	Black	0.948	1.4	0	8.71	0.77	1.42	PI
MSmB389	23.3837	89.4614	61	Black	0.051	0.478	0.25	0.19	1.33	4.79	PI
MSmS405	23.3917	89.4962	61	Black	0.066	0.85	1.57	0.05	0.63	2.51	PI
EMK412	23.39	89.5429	62	Red	2.17	0.337	0	1.84	0.29	0.003	PC
MKE322	23.4034	89.0512	64	Black	0.045	2.03	1.68	4.51	0.27	3.58	PI

MKS307	23.4119	89.2547	64	Black	0.029	1.24	2.72	0.2	1.25	3.38	PI
EBG454	23.3829	89.6749	64	Black	0.137	1.6	4.36	19.2	1.16	6.21	PI
MSmB386	23.3808	89.4648	66	Red	2.57	0.316	0	20.5	0.83	0	PC
EMN428	23.3994	89.5825	67	N/A	0.515	0.647	0	11.7	0.38	0.9	PC
EBG452	23.3823	89.6749	67	Black	0.122	1.61	1.07	0.47	1.39	8.51	PI
EBG446	23.3818	89.6736	69	Black	0.042	2.01	4.14	0.52	1.35	2.97	PI
WKP 045	23.4088	89.0323	72	Black	0.662	0.786	0	35.9	0.94	0.086	PC
WKP 047	23.4093	89.0323	76	Red	7.7	0.732	0	37.9	0.64	0	PC
ENR468	23.3929	89.7786	76	Red	4.69	0.098	0.05	206	1.54	0.006	PC
MKE325	23.4019	89.0514	78	Red	4.83	1.79	0	87.3	1.71	0	PC
EMN426	23.3989	89.5825	79	Black	0.081	0.615	1.38	0	0.43	2.29	PI
EMN424	23.3982	89.5829	91	Black	0.074	1.8	1.99	108	0.6	0.117	PI?
EMN421	23.3989	89.5815	107	Black	0.308	0.114	0	26.5	1.34	1.66	PI?

Table S2 Results of field analysis for arsenic using a digital Arsenator® and of well colour-survey.

N/C = Completion colour not discernible; N/A = Not available; N/D = Note done (only well colour survey was carried out); Red (?) = Colour uncertain, probably red; Black (?) = Colour uncertain, probably black.

Serial no	Latitude	Longitude	Depth (mbgl)	Stain	As (µg/l)
1	23.41424	88.75964	15.2	Red	24
2	23.41319	88.76095	35.1	Red	5
3	23.41376	88.76109	19.8	Red	4
4	23.42081	88.79118	18.3	N/A	8
5	23.42201	88.79506	30.5	N/A	33
6	23.42235	88.79638	19.8	Red	22
7	23.41726	88.82937	27.4	Red	55
8	23.41624	88.83018	24.4	Red	4
9	23.41715	88.83019	42.7	Red	32
10	23.41814	88.8302	25.9	Red	13
11	23.41775	88.83032	19.8	N/C	76
12	23.4176	88.83041	15.2	N/A	0
13	23.41759	88.8306	15.2	Red	0
14	23.4178	88.83136	22.9	Red	5
15	23.40499	88.85992	35.1	Red	15
16	23.40781	88.86153	39.6	Red	8
17	23.40096	88.89061	15.2	Red	15
18	23.40468	88.89087	12.2	Red	19
19	23.4029	88.89101	16.8	Red	29
20	23.40326	88.89222	13.7	N/A	12
21	23.4037	88.89573	18.3	Red	>100
22	23.39631	88.92338	15.2	Red	10
23	23.39487	88.92393	22.9	Red	20
24	23.39507	88.95625	15.2	Black?	0
25	23.39568	88.95702	15.2	Black?	2
26	23.39429	88.95792	15.2	Black?	0
27	23.39115	88.95823	15.2	Red?	73
28	23.3954	88.95929	36.6	N/A	46
29	23.39579	88.95944	15.2	N/A	31
30	23.40924	88.98173	15.2	Red?	53
31	23.41282	88.98246	57.9	Black	0
32	23.40947	88.9831	35.1	Red	47
33	23.40992	88.98362	21.3	Red?	41
34	23.40844	89.03215	12.2	N/A	96
35	23.4073	89.03232	25.9	Red?	52
36	23.4092	89.03233	62.5	Black	>100
37	23.4107	89.03257	45.7	Red	>100
38	23.40872	89.03285	76.2	Black?	13
39	23.4026	89.05075	25.9	Red	>88

40	23.40241	89.05103	73.2	Black	75
41	23.40306	89.05176	42.7	Black	25
42	23.39976	89.08114	42.7	Red?	6
43	23.39922	89.08154	48.8	Red	23
44	23.39869	89.0826	51.8	Black	15
45	23.39941	89.08423	50.3	N/A	0
46	23.39895	89.0855	57.9	Black	0
47	23.40191	89.11596	24.4	Red	5
48	23.40259	89.11618	22.9	N/A	16
49	23.40119	89.11652	27.4	Red	11
50	23.40184	89.11701	57.9	N/A	11
51	23.40161	89.11706	38.1	Red	9
52	23.40096	89.11726	22.9	Red	11
53	23.40304	89.11773	24.4	Red	4
54	23.41074	89.15524	51.8	Red	2
55	23.4111	89.15585	51.8	Black	0
56	23.41211	89.15786	48.8	Red	42
57	23.41181	89.15801	42.7	Red	36
58	23.41218	89.15807	53.3	Red	32
59	23.4109	89.15913	42.7	Red	52
60	23.41305	89.16112	51.8	Red	26
61	23.40861	89.19728	56.4	Red	71
62	23.40898	89.19834	56.4	Red	34
63	23.40917	89.20017	42.7	Red	84
64	23.40833	89.20218	44.2	Black	0
65	23.40838	89.20409	44.2	Black	0
66	23.40785	89.21284	48.8	Black	0
67	23.40945	89.23183	51.8	Red	46
68	23.40482	89.232	44.2	Black	0
69	23.40911	89.23264	44.2	Black	0
70	23.4069	89.23291	42.7	Black	0
71	23.41224	89.25737	54.9	Black	10
72	23.4088	89.25869	42.7	Black	0
73	23.41067	89.25885	54.9	Red	>96
74	23.40823	89.25943	48.8	Black	0
75	23.40883	89.25966	48.8	Black	0
76	23.39268	89.28537	45.7	Black	0
77	23.39203	89.28688	54.9	Black	0
78	23.39009	89.28751	48.8	Black?	0
79	23.39171	89.2904	54.9	Black?	7
80	23.38782	89.32072	45.7	Black?	67
81	23.38751	89.32099	48.8	Black	>100
82	23.38878	89.32171	54.9	Black?	69
83	23.38802	89.35783	54.9	Red	88
84	23.38564	89.35797	51.8	Red	67

85	23.38706	89.35812	54.9	Red	50
86	23.38987	89.39365	48.8	Black	0
87	23.39033	89.39372	48.8	Black	0
88	23.38923	89.3938	53.3	Black	0
89	23.38891	89.39422	48.8	Black	0
90	23.38777	89.39424	51.8	Black	0
91	23.38688	89.39677	57.9	Black	0
92	23.39232	89.43884	48.8	Black	0
93	23.3881	89.43989	54.9	Black	0
94	23.39016	89.44009	50.3	Black	0
95	23.39219	89.44031	48.8	Black	0
96	23.39188	89.44072	48.8	Black	0
97	23.38254	89.46241	54.9	Black	0
98	23.38276	89.46262	54.9	Black	0
99	23.3815	89.46308	54.9	Black	0
100	23.3801	89.46673	61.0	N/A	2
101	23.38476	89.47744	45.7	Red	58
102	23.38878	89.4882	45.7	Black	0
103	23.39081	89.49003	45.7	Black	0
104	23.39188	89.4941	51.8	Black	0
105	23.37924	89.52939	51.8	Black	0
106	23.39031	89.53848	54.9	Black?	17
107	23.3994	89.58166	48.8	Black?	>95
108	23.39883	89.58167	86.9	N/A	0
109	23.39885	89.58173	83.8	Black	0
110	23.39968	89.58382	91.4	Black	>100
111	23.398	89.5854	50.3	Red	>100
112	23.37904	89.63697	12.8	Black	91
113	23.38029	89.63821	10.7	N/A	36
114	23.37847	89.6383	12.8	N/A	12
115	23.38326	89.63853	16.8	Red	17
116	23.38275	89.67449	64.0	Black	0
117	23.38296	89.67531	64.0	Black	2
118	23.38472	89.72946	15.2	Red	66
119	23.38499	89.73002	18.3	Red	15
120	23.38429	89.73094	21.3	Red	42
121	23.3893	89.77857	19.8	Red	>100
122	23.39005	89.77902	19.8	Red	88
123	23.39327	89.78048	18.3	Red	>100
124	23.39442	89.78056	29.0	Red	>100
125	23.39195	89.8206	13.7	Red	>100
126	23.39265	89.82258	18.3	Red	>100
127	23.39032	89.82456	13.7	Red	>100
128	23.41206	89.84896	19.8	Red	>100
129	23.41337	89.84931	24.4	Red	>100

Table S3 Results of well-colour survey alone for wells not in Tables S1 and S2.

GPS co-ordinates (WGS 84). Red (?) = Colour uncertain, probably red; Black (?) = Colour uncertain, probably black.

Serial no	Latitude	Longitude	Depth (mbgl)	Stain
1	23.40427	89.05035	54.9	Black
2	23.40413	89.05114	48.8	Black
3	23.39975	89.08176	48.8	Black?
4	23.39936	89.08178	48.8	Black?
5	23.39897	89.08525	45.7	Black
6	23.41022	89.15563	48.8	Red
7	23.40954	89.15631	51.8	Black
8	23.40933	89.15671	51.8	Black
9	23.41103	89.15942	42.7	Red
10	23.40907	89.20038	45.7	Black
11	23.40941	89.20134	39.6	Black
12	23.40903	89.20135	44.2	Black
13	23.40938	89.20197	44.2	Black
14	23.40882	89.20316	54.9	Black
15	23.40874	89.20376	48.8	Black
16	23.40724	89.20621	42.7	Black
17	23.40766	89.20695	44.2	Black
18	23.40784	89.2123	45.7	Black
19	23.40822	89.21235	48.8	Black
20	23.40734	89.21273	42.7	Red
21	23.40979	89.23053	54.9	Red
22	23.40831	89.23153	48.8	Black
23	23.40935	89.23166	51.8	Black
24	23.40758	89.232	45.7	Black
25	23.40438	89.23201	48.8	Black
26	23.40921	89.23202	42.7	Black
27	23.4041	89.2321	45.7	Black
28	23.41536	89.23901	51.8	Black
29	23.41263	89.24952	54.9	Black
30	23.41207	89.25428	51.8	Black
31	23.4121	89.25739	48.8	Red?
32	23.40838	89.25924	48.8	Black
33	23.38908	89.32105	48.8	Red
34	23.38749	89.32127	45.7	Red?
35	23.38802	89.32261	50.3	Black
36	23.38657	89.39713	54.9	Black
37	23.38669	89.39722	54.9	Black
38	23.38259	89.53271	51.8	Black
39	23.38794	89.53488	45.7	Black
40	23.39108	89.53557	48.8	Black

41	23.39029	89.53571	48.8	Black?
42	23.39122	89.53572	48.8	Black
43	23.39153	89.536	48.8	Black
44	23.39051	89.53655	48.8	Black
45	23.39198	89.53662	45.7	Black
46	23.39026	89.53687	48.8	Black
47	23.39028	89.53718	54.9	Black
48	23.39071	89.53727	48.8	Black?
49	23.39178	89.5373	45.7	Black
50	23.39102	89.5375	48.8	Red
51	23.38971	89.53797	48.8	Black
52	23.39072	89.53819	54.9	Black?
53	23.38986	89.54016	48.8	Black?
54	23.38992	89.54087	51.8	Black?
55	23.39259	89.54183	51.8	Black?
56	23.39305	89.54196	51.8	Black
57	23.39277	89.54197	51.8	Black
58	23.38577	89.54239	54.9	Black
59	23.38945	89.54333	54.9	Red
60	23.39313	89.54349	51.8	Black
61	23.39199	89.54428	54.9	Black
62	23.38985	89.54428	61.0	Black?
63	23.39148	89.54474	54.9	Black?
64	23.39181	89.54493	54.9	Black
65	23.38938	89.54521	54.9	Red
66	23.38832	89.54928	54.9	Red
67	23.38948	89.54973	54.9	Black
68	23.3983	89.5814	83.8	Black
69	23.3992	89.58144	85.3	Black?
70	23.39834	89.58167	97.5	Black
71	23.39846	89.58384	91.4	Black?
72	23.39998	89.5839	48.8	Black?
73	23.40014	89.58441	85.3	Black
74	23.38079	89.6724	57.9	Black

Figure S1 Photographs of recovered lithologies at drill site 11. A PI sequence, with the last glacial maximum palaeosol (LGMP) at 106–113 ft. The LGMP is overlain by fine-grained silts and clays, and fine sands. The pre-LGM brown sands grades to grey at 260 ft bgl.

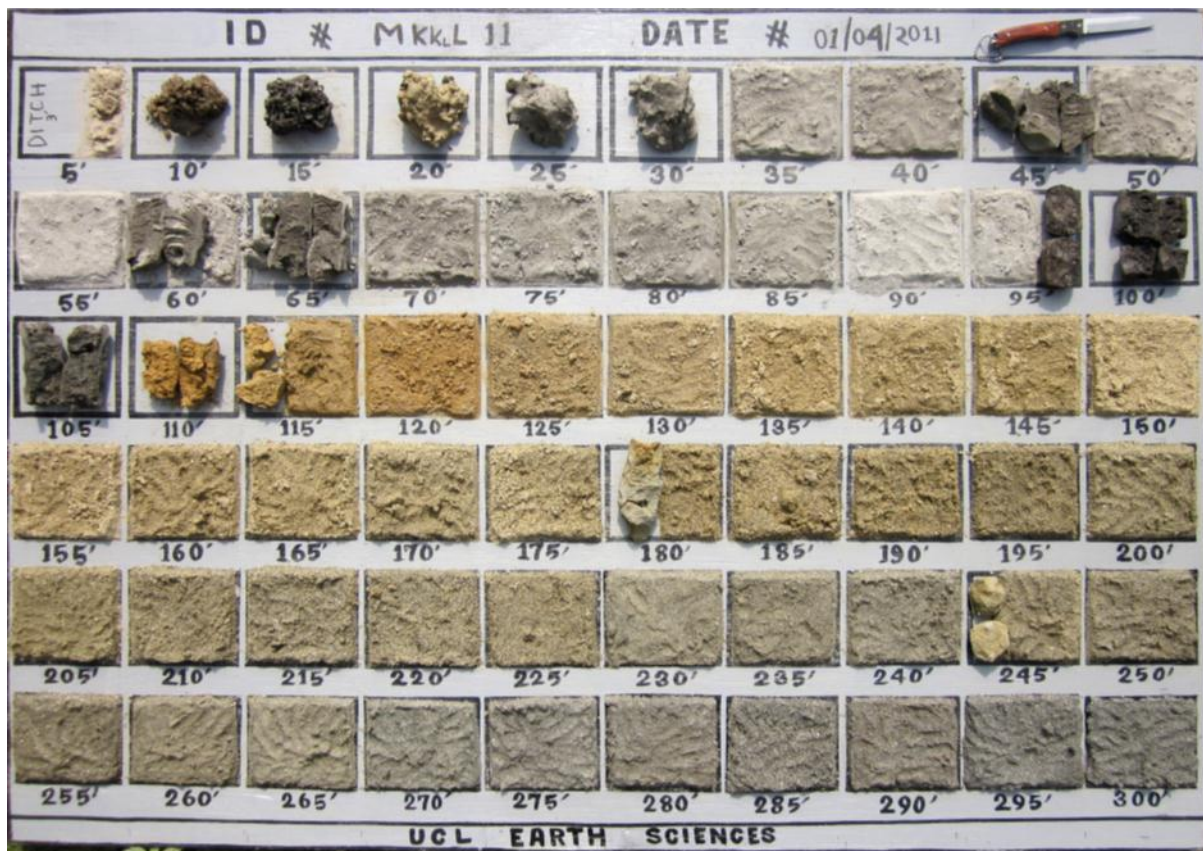


Figure S2 Photographs of recovered lithologies at drill site 11. Detail of sample recovery in clay-rich sediments over a 20-ft interval including the LGMP at drill site 11 (Fig. S1). Depth increases downward and from left to right. Note the sharpness of the change from grey clay to brown clay around 106 ft.



Figure S3 Photographs of recovered lithologies at drill site 25. A DPC sequence, comprising grey sand below 15 ft with thin clays at 30, 160, and 270 ft.

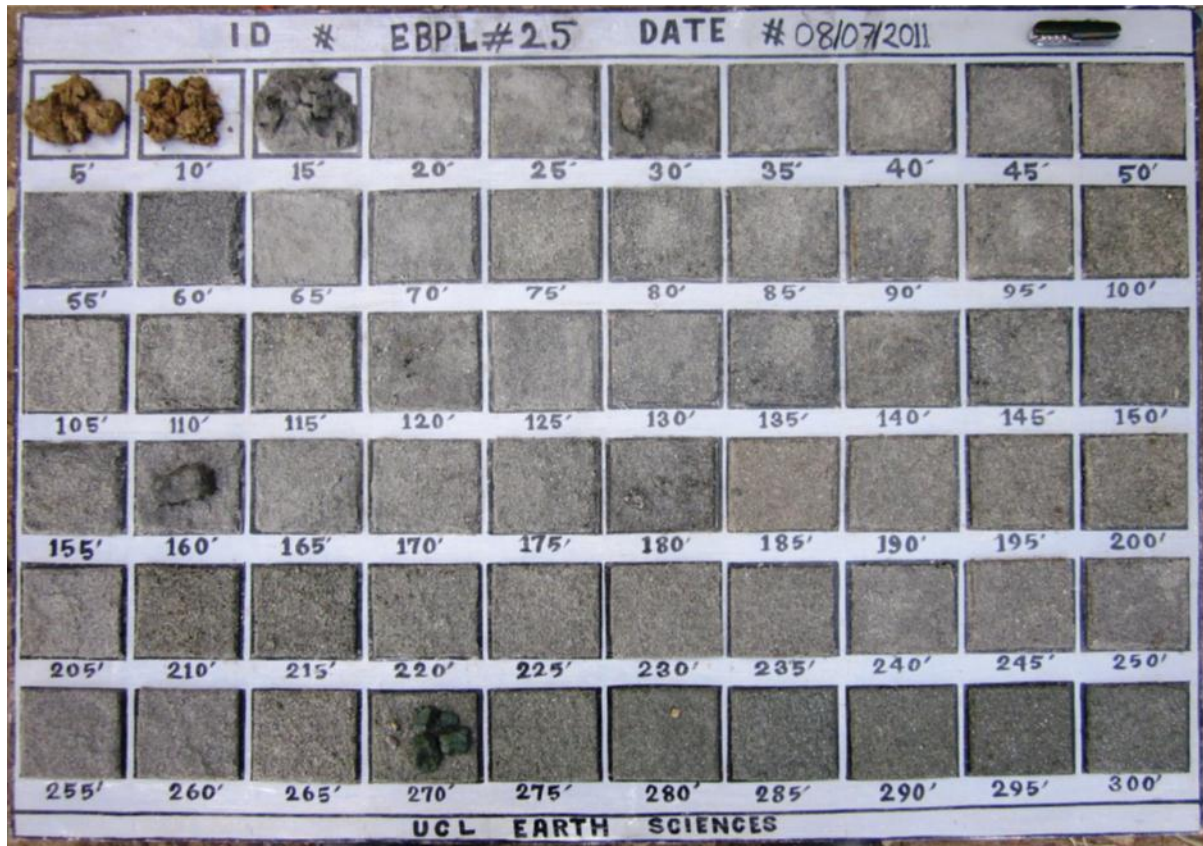


Figure S4 Photographs of recovered lithologies at drill site 7. An SPC sequence overlying a full PI sequence, with the LGMP at 110 to 120 ft depth, and the peaty clay overlying the LGMP.



Figure S5 Photographs of recovered lithologies at drill site 10. An SPC sequence (to 123 ft) over a TIP sequence (below 123 ft). The LGMP has been removed by erosion and the SPC and TIP sequences are separated only by the thin grey clay at 120 to 123 ft. The brown sands below 123 ft have been partially reduced and so have lost some of their brown coloration, particularly in the interval 123 to 135 ft. Around the drill site, domestic wells screened below 120 m depth yield low-As water.

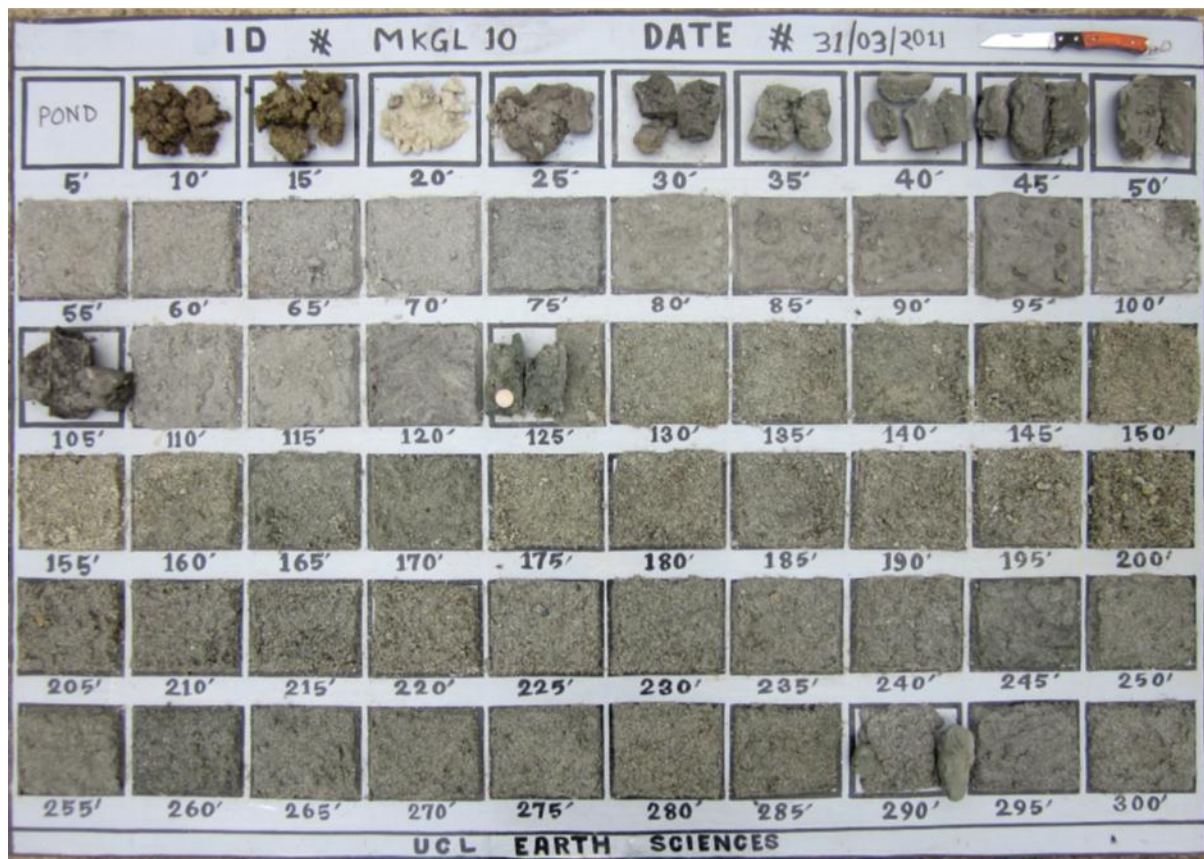


Figure S6 Photographs of recovered lithologies at drill site 20. Clays over a PI sequence. There is no SPC sequence at this site.

