



Hand's Lane
Rush
Co Dublin
21/02/07

Dr. Ian Murnane
EPA
Johnstown Castle Estate
Co. Wexford

Ref. Application of Fingal County Council for a waste licence
at Nevitt, Co.Dublin

Dear Dr. Murnane,

1. Further to my submission of the 5th Feb.07, it was necessary to obtain water monitoring borehole data for the till within the landfill footprint, which had been omitted from the EIS and subsequent applicant documentation. This data has now been obtained from Fingal County Council and is hereby attached for your information. A hydrogeological and geotechnical inspection of this data would help to clarify many of the difficult issues associated with the site, and we hereby request the EPA to carry out such a study, as the applicant has failed to do so in the EIS.
2. In order to facilitate a study of the borehole data I have attached a site map identifying the location of bedrock monitoring boreholes and those boreholes to which monitoring standpipes were not fitted.
3. The new borehole data in particular will allow for the comparison of groundwater levels in the bedrock with levels in overlying gravel and till, the calculation of local vertical and horizontal groundwater gradients, and a more accurate scientific assessment of the site vulnerability.
4. With reference to the comments of Dr. Paul Ashley, (report dated 31st August 06, para.4 p.4, and 7.2 p.9, and the Applicant in their reply to the EPA dated Jan 19, 07), in relation to hydraulic gradients within the landfill footprint, I would like to draw the

For inspector purposes only
Consent of copyright owner required for any other use.

following matters to your attention. (See attached copy of applicant's groundwater contour map, Sept.06)

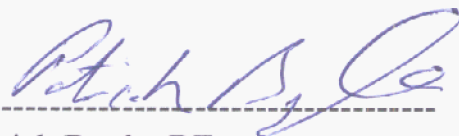
- There is a **sudden pronounced drop in bedrock water level** in the south eastern half of the proposed landfill footprint (see attached map-sector 3). Bedrock groundwater levels drop from ~50metres to~32metres Mod on the western edge of the site and remain at this level right across to the eastern edge. The groundwater levels in the till overlying this 32metre zone averages 46metres (ES8, GR1, GS4, GR5). The **vertical hydraulic gradient** overlying the 32metre zone is therefore 14 metres, and vertical groundwater flow to the underlying gravel is correspondingly much larger than previously calculated, with consequential larger concentrations of leachate reaching groundwater and a **much higher vulnerability rating** for this half of the site. The effect has been compared to a large **"French Drain"**.
The question must also be asked **"Where is all this water going"?** The Nevitt Lusk Action Group has repeatedly stated that the escaping groundwater is following a gravel pathway southwards into **the Fingal horticultural well-field** – a proven valuable groundwater source. There is nothing in the EIS which disproves this i.e. bedrock groundwater contour lines are not necessarily related to flow directions in overlying gravel, and the southern extent of these gravel beds have not been determined in the EIS.
- In the Northern and Western sector of the landfill, (see map-sector 1) conditions in the bedrock and overlying till are essentially artesian. This gives rise to the necessity for **dewatering and groundwater control** - an engineering task which may be impossible to achieve essentially because the landfill is on a hillside, the bedrock is fractured and moderately productive, and is overlain by gravel at depths of up to 30metres. In such conditions how is groundwater control to be achieved? **The EIS fails to address this important geotechnical problem.**
- The position of the **pronounced drop in hydraulic gradient**, essentially along the western edge of the site, constitutes a distinctive transitional zone (see map-sector 2). It also roughly corresponds to the location of the 10 metre cut slope, and shifts with seasonal rainfall (see attached contour maps). Serious complex issues regarding slope instability, blowout, liner sidewall failure, liner slippage, and pore pressures within and without the liner arise in this sector. **The EIS fails to address these geotechnical issues also.**

5. The attached copy of the Groundwater Contour Map submitted by the Applicant in Jan.07 differs from previous groundwater maps, in that the contour lines, at two metre intervals, are much more detailed than previous maps. The entire centre of the Corduff Valley lies between the 40 and 38metre contour lines and includes the north eastern section of the landfill site. The exact position of a water divide in the bedrock is thus difficult to determine. The position of a water divide in the overlying gravel is even more uncertain, although both bedrock and gravel maps indicate a gravel flowpath from the north-eastern sector of the proposed landfill towards **the Bog of Ring public water supply. The EIS fails to acknowledge the existence of this flowpath.**
6. We note the Applicants refusal to carry out a study, requested by the EPA, to estimate the extent of the water resource which would be compromised by the location of a landfill on this site. The presence of the resource has been identified by the GSI to lie directly east (and down gradient) of the proposed landfill. The Nevitt Lusk Action Group has consistently pointed out to the EPA that because of the presence of this resource **the EC Groundwater Directive would be contravened** by a landfill in the proposed location.
7. Dr. Paul Ashley of ~~McDonald~~ McDonald consultants has now been requested by the Group to carry out a review of the new borehole data and this report will be forwarded to the EPA.

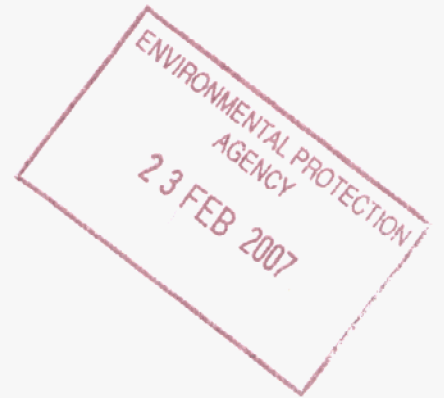
Conclusion

The Nevitt Lusk Action Group have gone to great lengths to assist the EPA in obtaining essential data and professional reports on subject matters which are vitally important and should have been included in the Applicants EIS. That this should have been necessary again points to the inadequacy of the EIS, and on this basis we feel totally justified in requesting the EPA to refuse this application.

Yours truly,



Patrick Boyle, BE.



Borehole Name	Date Casing Level (mAOD)	17/01/2006	17/01/2006
		Depth to water from top of casing (m)	Groundwater level (mAOD)
HR1a	35.072	2.099	32.973
HR1b	35.367	2.56	32.807
HR2a	37.774	0.682	37.092
HR2b	37.790	1.896	35.894
HR3	60.042	0.28	59.762
HR4	73.073	9.928	63.145
HR5	74.691	4.289	70.402
HR6	46.107	artesian	>46.107
HR7	35.931	0.15	35.781
HR8	39.756	1.405	38.351
HR9	38.008	8.05	29.958
HR10	35.728	1.505	34.223
HR11a	28.095	0.935	27.16
HR11b	28.109	0.954	27.155
HR12	26.419	0.71	25.709
HR13a	41.837	no measurement	no measurement
HR13b	41.851	no measurement	no measurement
SHR1	57.462	3.709	53.753
SHR2	35.456	5.869	29.587
SHR3	49.861	17.895	30.966
SHR3a	53.177	20.26	32.917
SHR4	31.265	2.032	29.233
SHR5	35.379	6.061	29.318
AGB2	49.888	18.135	31.753
BSA1	56.94	2.791	54.470
BSA2	31.826	2.838	28.988
BSA3a	39.363	9.9	29.463
BSA4	46.242	0.962	45.280
BSA5	59.97	3.789	56.180
BSA6	47.555	1.935	45.620
BRC1	56.94	6.7	50.238
BRC2	53.75	2.069	51.680
BRC3	35.959	6.453	29.506
BRC4	27.679	0.4	27.279
BRC5	54.54	12.11	42.430
BGB1a	41.715	artesian	>41.715
BGB1b	41.715	artesian	>41.715
BGB2a	59.89	3.71	56.182
BGB2b	59.89	3.712	56.180
BGB3a	37.77	8.065	29.706
BGB3b	37.77	1.23	36.541
ER1	51.444	artesian	>51.444
ER3	57.202	3.494	53.708
ER5	51.834	6.5	45.334

For inspection purposes only.
 Consent of copyright owner required for any other use.

ER6	44.852	1.27	43.582
ER7	35.393	5.84	29.553
ER8	52.449	17.79	34.659
ER9	52.97	20.74	32.226
ER10	52.97	13.965	39.001
ER12	35.128	5.792	29.336
ER13	58.070	3.58	54.490
ER14	57.49	3.743	53.746
ER15	31.2	2.383	28.817
GR1	48.342	1.025	47.317
GR2	42.610	1.38	41.230
GR5	41.688	1.5	40.188
GR7	34.334	5.098	29.236
GR16	32.493	3.68	28.813
ES1	47.641	0.16	47.481
ES2	57.438	1.578	55.860
ES3	40.965	11.609	29.356
ES4	48.183	2.15	46.033
ES5	44.255	13.173	31.082
ES6	35.529	6.179	29.350
ES7	40.434	3.099	37.335
ES8	49.624	5.66	43.964
ASA1	38.852	9.54	29.312
ASA2	35.377	6.089	29.288
ASA3	48.178	1.315	46.863
GS2	35.103	4.075	31.028
GS4	46.247	0.8	45.447
GS6	33.992	3.364	30.628
GS7	31.045	3.705	27.340
GS9	34.126	2.95	31.176
GS11	38.968	1.93	37.038
GS18	35.442	6.116	29.326
PW1	56.711	2.964	53.747
PW2	36.147	6.5	29.647
PW3	34.3	4.964	29.336

For inspection purposes only.
 Consent of copyright owner required for any other use.

Note
 No measurement taken as bull in field

Fingal Landfill Groundwater Levels March and April 2006



Borehole Name	14/03/2006	11/04/2006
	Groundwater level (mAOD)	Groundwater level (mAOD)
HR1a	32.934	32.942
HR1b	32.818	32.874
HR2a	37.201	37.034
HR2b	35.919	35.94
HR3	borehole damaged	borehole damaged
HR4	63.105	63.303
HR5	70.372	70.506
HR6	>46.107	>46.107
HR7	35.846	35.831
HR8	38.495	38.393
HR9	29.808	30.266
HR10	34.288	34.329
HR11a	27.235	27.254
HR11b	27.269	27.252
HR12	25.949	25.749
HR13a	39.822	39.877
HR13b	39.841	39.891
SHR1	53.717	53.724
SHR2	28.646	29.866
SHR3	32.011	32.126
SHR3a	32.957	33.037
SHR4	29.225	29.074
SHR5	31.309	29.594
AGB2	31.888	32.105
BSA1	54.521	54.551
BSA2	28.956	29.077
BSA3a	29.623	29.784
BSA4	45.137	45.132
BSA5	56.253	56.311
BSA6	45.245	45.122
BRC1	51.338	51.391
BRC2	51.894	51.697
BRC3	29.509	29.649
BRC4	27.349	27.36
BRC5	42.451	42.56
BGB1a	>41.715	>41.715
BGB1b	>41.715	>41.71
BGB2a	56.20	56.236
BGB2b	56.19	56.236
BGB3a	no data	29.948
BGB3b	36.96	36.521

For inspection purposes only.
Consent of copyright owner required for any other use.

Fingal Landfill Groundwater Levels March and April 2006

ER1	>51.444	>51.444
ER3	53.69	53.703
ER5	45.32	46.132
ER6	43.70	43.562
ER7	29.61	29.808
ER8	34.71	34.784
ER9	41.75	32.392
ER10	39.07	39.131
ER12	29.35	29.538
ER13	54.66	54.685
ER14	53.71	53.713
ER15	28.82	29.304
GR1	47.42	47.282
GR2	41.20	41.138
GR5	40.19	40.103
GR7	29.23	29.426
GR16	28.82	28.957
ES1	46.52	47.496
ES2	55.88	55.776
ES3	29.36	29.537
ES4	45.89	45.858
ES5	31.07	31.225
ES6	29.39	29.582
ES7	34.49	35.299
ES8	43.05	43.306
ASA1	29.32	29.492
ASA2	29.31	29.487
ASA3	47.00	46.854
GS2	29.04	31.213
GS4	45.60	45.427
GS6	32.83	31.405
GS7	26.38	27.455
GS9	31.22	31.356
GS11	37.12	37.154
GS18	29.20	29.462
PW1	53.69	53.721
PW2	29.69	29.902
PW3	29.36	29.532
OW6 D	36.57	36.56
OW6 S	37.555	37.545
OW3 D	34.75	30.95
OW3 S	34.755	30.715
TW14	29.61	29.83

For inspection purposes only.
Consent of copyright owner required for any other use.

Fingal Landfill Groundwater Levels March and April 2006

OW1 D	25.29	25.37
OW1 S	26.2	26.32
TESTP1/S 17	32.31	32.07
TESTP2/S 1B	32.65	32.45
OW2 D	18.24	18.21
OW2 S	20.73	20.7
TP6/S5	33.02	33.02
TP5/S6	33.08	32.88
GW1/S13	35.41	35.31
OW4	18.37	19.11
OW5 D	20.82	20.98
OW5 S	33.94	33.75
TW13	21.49	21.52
OW7	25.85	25.42
TP3/S4	32.8	32.47
TW10	37.13	36.81
TW7	62.41	62.44
TWX RHS	32.53	32.36
TWX LHS	32.53	32.29
TW12	34.83	34.71

For inspection purposes only.
Consent of copyright owner required for any other use.

Fingal Landfill Groundwater Levels March and April 2006

ENVIRONMENTAL PROTECTION
AGENCY
23 FEB 2007

Borehole Name	11th May 06 Groundwater level (mAOD)	4th June 06 Groundwater level (mAOD)	4th July 06 Groundwater level (mAOD)	1st August 06 Groundwater level (mAOD)
HR1a	N/A	N/A	32.711	32.426
HR1b	N/A	N/A	32.778	32.498
HR2a	36.774	36.890	36.716	36.559
HR2b	35.840	35.890	35.762	35.660
HR3	N/A	N/A	N/A	N/A
HR4	62.959	63.161	62.898	62.698
HR5	70.327	70.402	70.171	70.011
HR6	>46.107	>46.107	>47.3*	>47.3*
HR7	35.711	36.200	36.200	>35.931
HR8	38.299	38.347	38.186	38.061
HR9	30.090	30.292	30.108	29.943
HR10	34.160	34.248	34.088	33.898
HR11a	27.145	27.185	27.035	26.865
HR11b	27.009	27.179	27.029	26.859
HR12	25.469	25.589	25.374	25.229
HR13a	39.817	42.200	42.200	>41.837
HR13b	39.601	39.851	39.760	39.706
SHR1	53.702	53.772	53.792	53.801
SHR2	29.693	29.226	29.696	29.536
SHR3	32.061	32.076	32.091	32.031
SHR3a	33.047	33.057	33.147	33.157
SHR4	29.245	29.305	29.185	29.067
SHR5	29.299	29.454	29.319	29.160
AGB2	31.944	31.993	31.938	31.878
BSA1	54.511	54.826	54.593	54.611
BSA2	28.806	29.056	28.906	28.761
BSA3a	29.508	29.593	29.478	29.313
BSA4	44.942	44.982	44.642	44.452
BSA5	56.119	56.185	55.949	55.761
BSA6	44.941	44.905	44.853	44.925
BRC1	51.398	51.408	51.388	51.328
BRC2	51.359	51.589	51.079	50.703
BRC3	29.544	29.608	29.509	29.369
BRC4	27.199	27.219	27.099	26.924
BRC5	42.475	42.485	42.490	42.495
BGB1a*	>41.715	>41.715	>41.715	>41.715
BGB1b*	>41.715	>41.715	>41.715	>41.715
BGB2a	56.012	56.112	55.872	55.672
BGB2b	56.012	56.112	55.872	55.672
BGB3a	29.802	29.946	29.811	29.657
BGB3b	36.241	36.241	35.922	35.740

For inspection purposes only.
Consent of copyright owner required for any other use.

Fingal Landfill Groundwater Levels March and April 2006

Borehole Name	11th May 06 Groundwater level (mAOD)	4th June 06 Groundwater level (mAOD)	4th July 06 Groundwater level (mAOD)	1st August 06 Groundwater level (mAOD)
ER1	>51.444	>51.444	>53.8*	>53.6*
ER3	53.732	53.742	53.762	53.767
ER5	46.023	46.176	45.554	44.742
ER6	43.472	43.677	43.397	42.992
ER7	29.647	29.798	29.661	29.501
ER8	34.779	34.779	34.829	34.829
ER9	41.351	32.376	32.401	32.366
ER10	39.106	39.136	39.136	39.116
ER12	29.378	29.478	29.353	29.180
ER13	54.559	54.590	54.370	54.280
ER14	53.749	53.759	53.719	53.779
ER15	28.800	28.885	28.750	28.583
GR1	47.132	46.902	46.497	46.287
GR2	40.950	40.940	40.580	40.420
GR5	40.018	39.828	39.658	39.448
GR7	30.549	28.393	29.244	29.084
GR16	28.813	28.908	28.773	28.620
ES1	Unable to dip - bull	47.343	47.147	47.016
ES2	45.855	55.246	55.538	55.388
ES3	29.382	29.495	29.345	29.185
ES4	45.687	45.698	45.547	45.463
ES5	31.170	31.235	31.145	31.085
ES6	29.629	29.558	29.419	29.261
ES7	34.534	36.234	36.634	36.899
ES8	43.516	43.999	44.259	44.504
ASA1	29.337	29.461	29.304	29.152
ASA2	29.227	29.430	29.307	29.129
ASA3	46.678	46.683	46.458	46.098
GS2	31.243	31.462	31.453	31.379
GS4	45.277	45.035	44.672	44.362
GS6	30.197	31.287	30.252	30.041
GS7	25.995	27.370	27.235	27.045
GS9	31.286	31.336	31.321	31.236
GS11	36.978	37.052	36.698	36.473
GS18	29.292	29.552	29.242	29.012
PW1	53.751	53.762	53.776	53.785
PW2	29.731	29.895	29.757	29.601
PW3	29.350	29.486	29.340	29.180
N/A	HR1a/b not accessible due to construction activities at M1 Business Park			
N/A	HR3 well destroyed by farming activities - flattened.			

Fingal Landfill Groundwater Levels March and April 2006

	11th May 06	4th June 06	4th July 06	1st August 06
Borehole Name	Groundwater level (mAOD)	Groundwater level (mAOD)	Groundwater level (mAOD)	Groundwater level (mAOD)
* Some leakage from Bourdon gauge. Calculated value a minimum.				

*For inspection purposes only.
Consent of copyright owner required for any other use.*

Fingal Landfill Project - Groundwater Level Data

Monitoring Well Location	Date	23-Jan-05	23-Jun-05	13-Jul-05	15-Jul-05	18-Aug-05	18-Aug-05	12-Sep-05
	Casing Level (mAOD)	Water level (mbloc)	Water level (mAOD)	Water level (mbloc)	Water level (mAOD)	Water level (mbloc)	Water level (mAOD)	Water level (mbloc)
HR1a	35.072	2.390	32.682	2.660	32.412	2.675	32.397	2.730
HR1b	35.367	2.690	32.677	3.952	31.415	2.975	32.392	3.035
HR2a	37.790	1.150	36.640	1.272	36.518	2.092	35.698	1.230
HR2b	37.774	2.020	35.754	2.140	35.634	2.213	35.561	2.130
HR3	60.042	0.940	59.102	1.090	58.952	1.225	58.817	1.430
HR4	73.073	10.332	62.741	10.427	62.646	10.468	62.605	10.550
HR5	74.691	4.533	70.158	4.672	70.019	4.850	69.841	4.850
HR6	46.107	0.560	45.547	artesian	>46.107	artesian	>46.107	artesian
HR7	35.931	0.320	35.611	0.250	35.681	artesian	>35.931	artesian
HR8	39.756	1.650	38.106	1.694	38.062	1.700	38.056	1.705
HR9	38.008	7.936	30.072	8.041	29.967	8.135	29.873	8.240
HR10	35.728	1.687	34.041	1.821	33.917	1.821	33.907	1.905
HR11a	28.095	0.900	27.195	1.190	26.905	1.210	26.885	1.315
HR11b	28.109	1.100	27.009	1.190	26.919	1.220	26.889	1.340
HR12	26.419	0.967	25.452	1.017	25.402	1.028	25.391	1.135
HR13a	41.837	2.115	39.722	2.186	39.651	2.197	39.640	2.245
HR13b	41.851	*	N/A	2.185	39.666	2.195	39.656	2.235
SHR1	57.462	3.305	54.157	3.120	54.342	3.205	54.257	4.274
SHR2	35.456	5.875	29.581	5.882	29.574	6.030	29.426	6.110
SHR3	49.861	15.510	34.351	17.640	32.221	17.740	32.121	17.840
SHR3a	53.177	*	N/A	*	N/A	*	N/A	20.120
SHR4	31.265	1.935	29.330	1.970	29.295	2.530	28.735	2.180
SHR5	35.379	5.750	29.629	5.950	29.429	6.330	29.049	6.469
AGB2	49.888	*	N/A	16.920	32.968	17.165	32.723	17.285
BSA1	55.941	5.031	54.880	2.070	54.871	2.045	54.896	2.085

Consent of copyright owner required for any other use.
For inspection purposes only.

ENVIRONMENTAL PROTECTION
AGENCY
23 FEB 2007

October 2005

Fingal Landfill Project - Groundwater Level Data

BSA2	31.826	2.330	29.496	2.940	28.886	3.040	28.786	3.147
BSA3	39.363	9.400	29.963	9.980	29.383	9.998	29.365	10.093
BSA4	46.242	1.180	45.062	1.620	44.622	1.640	44.602	1.875
BSA5	59.969	4.000	55.969	4.120	55.849	4.265	55.704	4.430
BSA6	47.555	2.514	45.041	2.520	45.035	2.390	45.165	2.355
BRC1	56.938	5.480	51.458	5.550	51.388	5.620	51.318	5.635
BRC2	53.749	2.745	51.004	3.020	50.729	3.094	50.655	3.421
BRC3	35.959	6.503	29.456	6.500	29.459	6.610	29.349	6.700
BRC4	27.679	0.645	27.034	0.670	27.009	0.700	26.979	0.800
BRC5	54.540	11.789	42.751	#	N/A	11.905	42.635	12.010
BGB2b	59.892	3.890	56.002	4.010	55.882	4.150	55.742	4.320

For inspection purposes only.
 Consent of copyright owner required for any other use.

Fingal Landfill Project - Groundwater Level Data

Monitoring Well	Date	Water Level (ft/MGD)	Water Level (ft/MGD)	Water Level (ft/MGD)	Water Level (ft/MGD)	Water Level (ft/MGD)	Water Level (ft/MGD)	Water Level (ft/MGD)
	Casing Level (ft/MGD)							
ER1	51.444	artesian	>51.444	artesian	>51.444	artesian	>51.444	artesian
ER3	57.202	2.800	54.402	1.920	55.282	3.035	54.167	4.040
ER5	51.834	1.300	50.534	#	N/A	4.745	47.089	#
ER6	44.852	1.660	43.192	1.770	43.082	2.180	42.672	2.250
ER7	35.393	5.860	29.533	5.881	29.512	6.000	29.393	6.100
ER8	52.449	17.100	35.349	17.570	34.879	17.680	34.769	17.725
ER10	46.432	13.590	32.842	13.670	32.762	13.810	32.622	13.890
ER12	35.128	5.920	29.208	6.230	28.898	6.600	28.528	6.188
ER13	58.070	*	N/A	#	N/A	3.821	54.249	3.995
ER14	57.490	*	N/A	*	N/A	*	N/A	4.300
ER15	31.200	*	N/A	*	N/A	*	N/A	2.678
GR1	48.342	2.090	46.252	2.230	46.112	2.200	46.142	2.455
GR2	42.610	1.970	40.640	2.020	40.590	2.080	40.530	2.359
GR5	41.688	2.250	39.438	1.130	39.558	1.990	39.698	2.085
GR7	34.334	5.230	29.104	2.200	29.064	5.380	28.954	5.480
GR16	32.493	3.721	28.772	3.770	28.723	3.880	28.613	3.983
ES1	47.641	0.450	47.191	0.510	47.131	0.470	47.171	0.675
ES2	57.438	1.220	56.218	2.950	54.488	1.915	55.523	1.865
ES3	40.965	11.680	29.285	11.763	29.202	11.870	29.095	12.002
ES4	48.183	2.730	45.453	2.730	45.453	2.695	45.488	2.710
ES5	44.255	12.910	31.345	12.940	31.315	13.040	31.215	13.115
ES6	35.529	6.260	29.269	6.297	29.232	6.420	29.109	6.495
ES7	40.434	*	N/A	10.210	30.224	8.145	32.289	6.755
ES8	49.624	8.420	41.204	8.160	41.464	7.510	42.114	7.039
ASA1	38.852	*	N/A	9.711	29.141	9.810	29.042	9.930

Consent of copyright owner required for any reproduction. No secondary use permitted.

October 2005

Fingal Landfill Project - Groundwater Level Data

ASA2	35.377	5.237	30.140	6.280	29.097	6.400	28.977	6.551
ASA3	48.178	2.274	45.904	4.621	43.557	#	N/A	2.274
GS2	35.103	3.180	31.923	3.380	31.723	3.540	31.563	3.664
GS4	46.247	1.390	44.857	1.600	44.647	1.600	44.647	1.915
GS6	33.992	3.850	30.142	4.020	29.972	4.140	29.852	4.189
GS7	31.045	3.920	27.125	3.920	27.125	3.980	27.065	4.095
GS9	34.126	2.700	31.426	2.720	31.406	#	N/A	2.894
GS11	38.968	3.980	34.988	2.460	36.508	2.460	36.508	2.827
GS18	35.442	6.540	28.902	#	N/A	6.880	28.562	7.020
PW1	56.711	*	N/A	*	N/A	*	N/A	3.510
PW2	36.147	•	N/A	*	N/A	*	N/A	6.760
PW3	34.300	•	N/A	•	N/A	•	N/A	5.682

Notes:

* Monitoring well not constructed

Measurement not available due to site access restriction

For inspection purposes only.
Consent of copyright owner required for any other use.

Fingal Landfill Project - Groundwater Level Data

12-Sep-05	11-Oct-05	11-Oct-05
Water level (mAOD)	Water level (mbtoc)	Water level (mAOD)
32.342	2.885	32.187
32.332	3.177	32.190
36.560	1.295	36.495
35.644	2.183	35.591
58.612	1.615	58.427
62.523	10.610	62.463
69.841	4.810	69.881
>46.107	artesian	>46.107
35.746	0.200	35.731
38.051	1.705	38.051
29.768	8.360	29.648
33.823	1.920	33.808
26.780	1.366	26.735
26.769	1.344	26.761
25.284	1.164	25.255
39.592	2.287	39.550
39.616	2.395	39.456
53.188	5.443	52.019
29.346	6.206	29.250
32.021	17.893	31.968
33.057	20.073	33.104
29.085	2.301	28.964
28.910	6.554	28.825
32.603	17.433	32.455
54.856	4.693	52.248

For inspection purposes only.
Consent of copyright owner required for any other use.

Fingal Landfill Project - Groundwater Level Data

28.679	3.321	28.505
29.270	10.187	29.176
44.367	2.120	44.122
55.539	4.715	55.254
45.200	2.220	45.335
51.303	#	N/A
50.328	3.498	50.251
29.259	6.802	29.157
26.879	0.830	26.849
42.530	12.277	42.263
55.572	4.637	55.255

For inspection purposes only.
 Consent of copyright owner required for any other use.

Fingal Landfill Project - Groundwater Level Data

12-Sep-05	11-Oct-05	11-Dec-05
Water level (mAOD)	Water level (mAOD)	Water level (mAOD)
>51.444	artesian	>51.444
53.162	5.223	51.979
N/A	7.324	44.510
42.602	2.721	42.131
29.293	6.202	29.191
34.724	17.800	34.649
32.542	13.910	32.522
28.940	6.284	28.844
54.075	4.243	53.827
53.190	5.495	51.995
28.522	2.770	28.430
45.887	2.666	45.657
40.251	4.466	40.118
39.603	5.107	39.581
28.854	5.565	28.769
28.510	4.077	28.416
46.966	1.110	46.531
55.573	2.974	54.464
28.963	12.089	28.876
45.473	2.725	45.458
31.140	13.272	30.983
29.034	6.576	28.953
33.679	5.545	34.889
42.585	6.555	43.069
28.922	10.140	28.712

For inspection purposes only.
Consent of copyright owner required for any other use.

Fingal Landfill Project - Groundwater Level Data

28.826	6.576	28.801
45.904	2.070	46.108
31.439	3.905	31.198
44.332	2.073	44.174
29.803	4.320	29.672
26.950	4.150	26.895
31.232	2.995	31.131
36.141	3.086	35.882
28.422	7.000	28.442
53.201	5.100	51.611
29.387	6.885	29.262
28.618	5.481	28.819

For inspection purposes only.
Consent of copyright owner required for any other use.

07-08/12/2005

Borehole

Name	Groundwater level (mAOD)
HR1a	33.012
HR1b	33.027
HR2a	37.215
HR2b	35.916
HR3	59.702
HR4	63.108
HR5	70.371
HR6	>46.107
HR7	35.931
HR8	38.466
HR9	29.758
HR10	34.288
HR11a	27.17
HR11b	27.189
HR12	26.109
HR13a	39.712
HR13b	39.721
SHR1	53.627
SHR2	29.406
SHR3	31.711
SHR3a	32.712
SHR4	29.075
SHR5	29.174
AGB2	32.768
BSA1	54.276
BSA2	28.776
BSA3a	29.273
BSA4	45.072
BSA5	56.059



For inspection purposes only.
Consent of copyright owner required for any other use.

BSA6	45.995
BRC1	51.098
BRC2	51.729
BRC3	29.359
BRC4	27.279
BRC5	42.36
BGB1a	>41.715
BGB1b	>41.715
BGB2a	56.052
BGB2b	56.052
BGB3a	29.491
BGB3b	36.751
ER1	>51.444
ER3	53.602
ER5	45.239
ER6	43.537
ER7	29.353
ER8	34.449
ER9	31.991
ER10	38.746
ER12	29.198
ER13	54.39
ER14	53.609
ER15	28.69
GR1	47.077
GR2	40.97
GR5	40.128
GR7	29.094
GR16	28.638
ES1	47.496
ES2	55.788

*For inspection purposes only.
Consent of copyright owner required for any other use.*

ES3	29.15
ES4	45.903
ES5	31.155
ES6	29.159
ES7	36.334
ES8	43.734
ASA1	29.112
ASA2	29.147
ASA3	46.868
GS2	31.063
GS4	45.497
GS6	32.992
GS7	27.355
GS9	31.006
GS11	36.733
GS18	29.502
PW1	53.711
PW2	29.437
PW3	29.21

For inspection purposes only.
Consent of copyright owner required for any other use.

TES Ltd Bog of the Ring groundwater Level Monitoring Data (Water levels in mAOD)

Date	Well ID									
	OW6 D (bedrock)	OW6 S (Gravel)	OW3 D (Deep bedrock)	OW3 S (Clay)	TW14 (Shallow Bedrock)	OW1 D (Deep bedrock)	OW1 S (Gravel)	TESTP1/S 17 (Peat)	TESTP2/S 1B (Peat)	
17-Jan-05	36.66	37.555	32.43	32.575	32.65	29.37	30.05	32.16	32.67	

ENVIRONMENTAL PROTECTION
AGENCY
23 FEB 2007

For inspection purposes only.
Consent of copyright owner required for any other use.

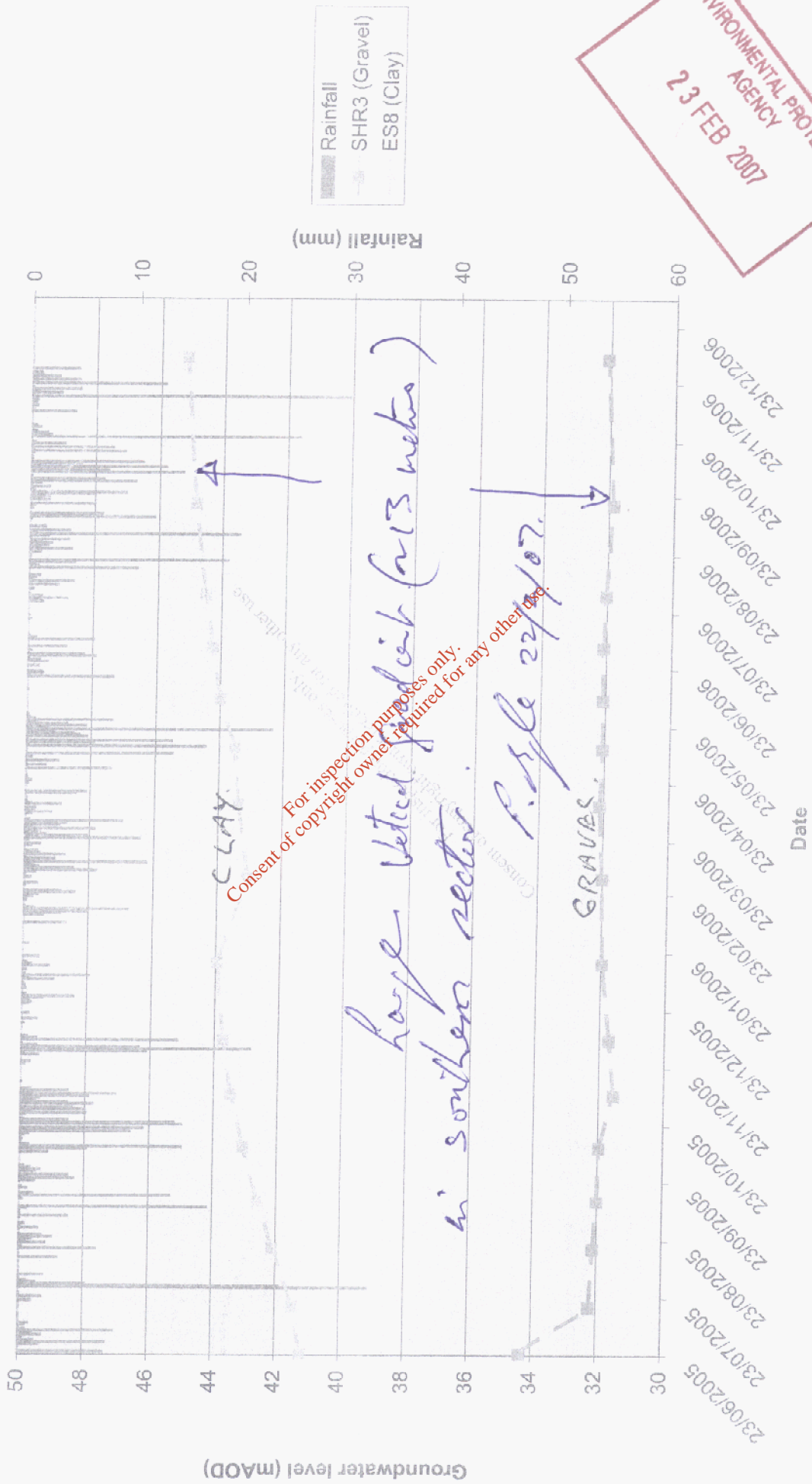
OW2 D					OW4	OW5 D		TW13	OW7		TW10	TW7	
(Shallow	OW2 S	TP6/S5	TP5/S6	GW1/S13	(Deep	(Shallow	OW5 S	(Shallow	(Shallow	TP3/S4	(Deep	(Deep	
Bedrock)	(Gravel)	(Peat)	(Peat)	(Peat)	bedrock)	bedrock)	(Clay)	bedrock)	bedrock)	(Peat)	bedrock)	bedrock)	TWX RHS
24	26.19	33.21	33.25	35.41	22.95	25.58	35.46	26.41	29.67	32.08	39.65	63.54	32.58

For inspection purposes only.
 Consent of copyright owner required for any other use.

	TW12 (Shallow bedrock)	PW2 (bedrock)	PW3 (Shallow bedrock)	PW4 (Deep bedrock)	PW5 (Deep bedrock)	
TWX LHS	32.63	37.17	24.3	22.3	15.7	27

*For inspection purposes only.
Consent of copyright owner required for any other use.*

Groundwater levels at SHR3 and ES8



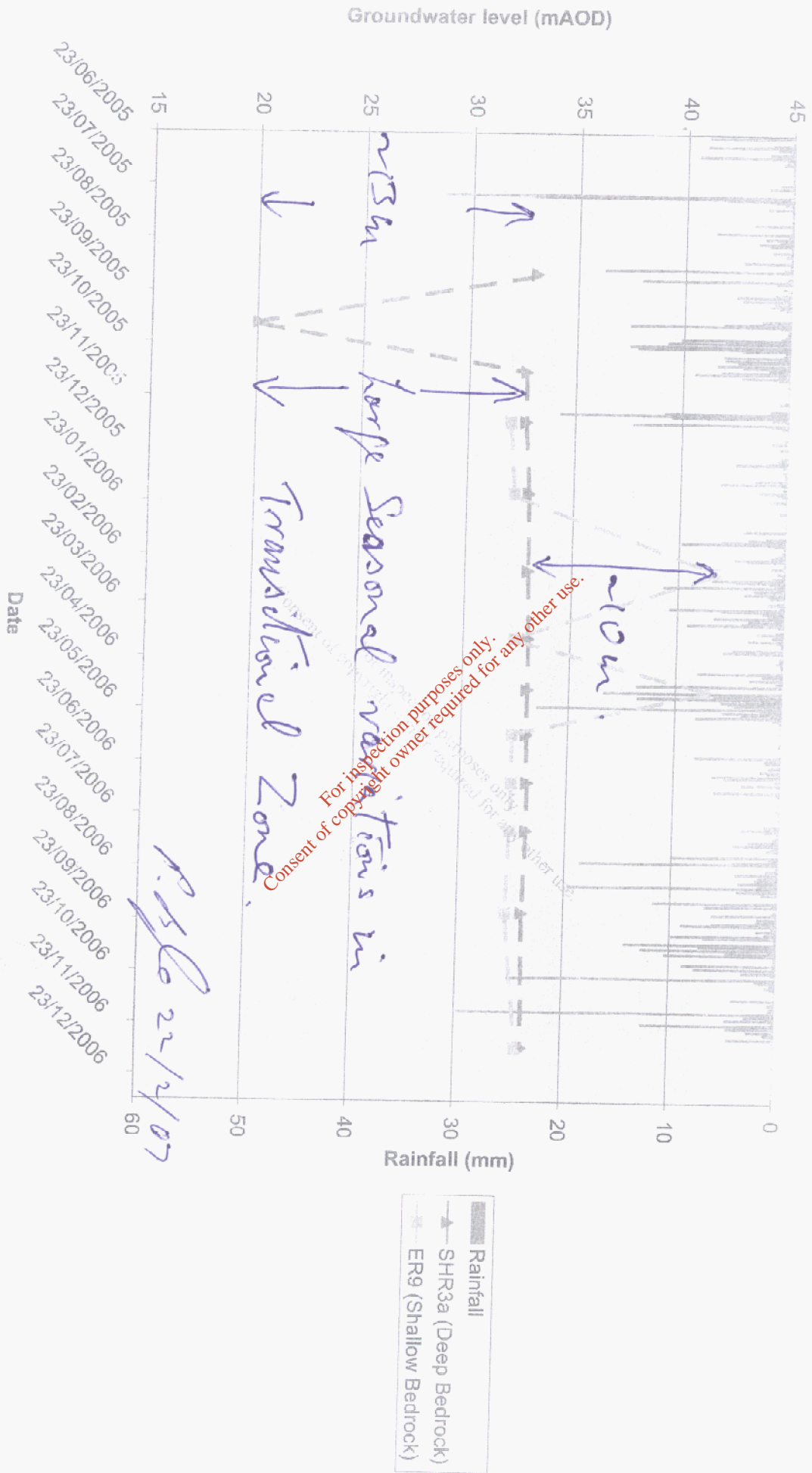
ENVIRONMENTAL PROTECTION
AGENCY
23 FEB 2007

Consent of copyright owner required for any other use.
For inspection purposes only.



large Vented Spillcock (213 meters)
in southern sector.

R. Kyle 22/1/07.

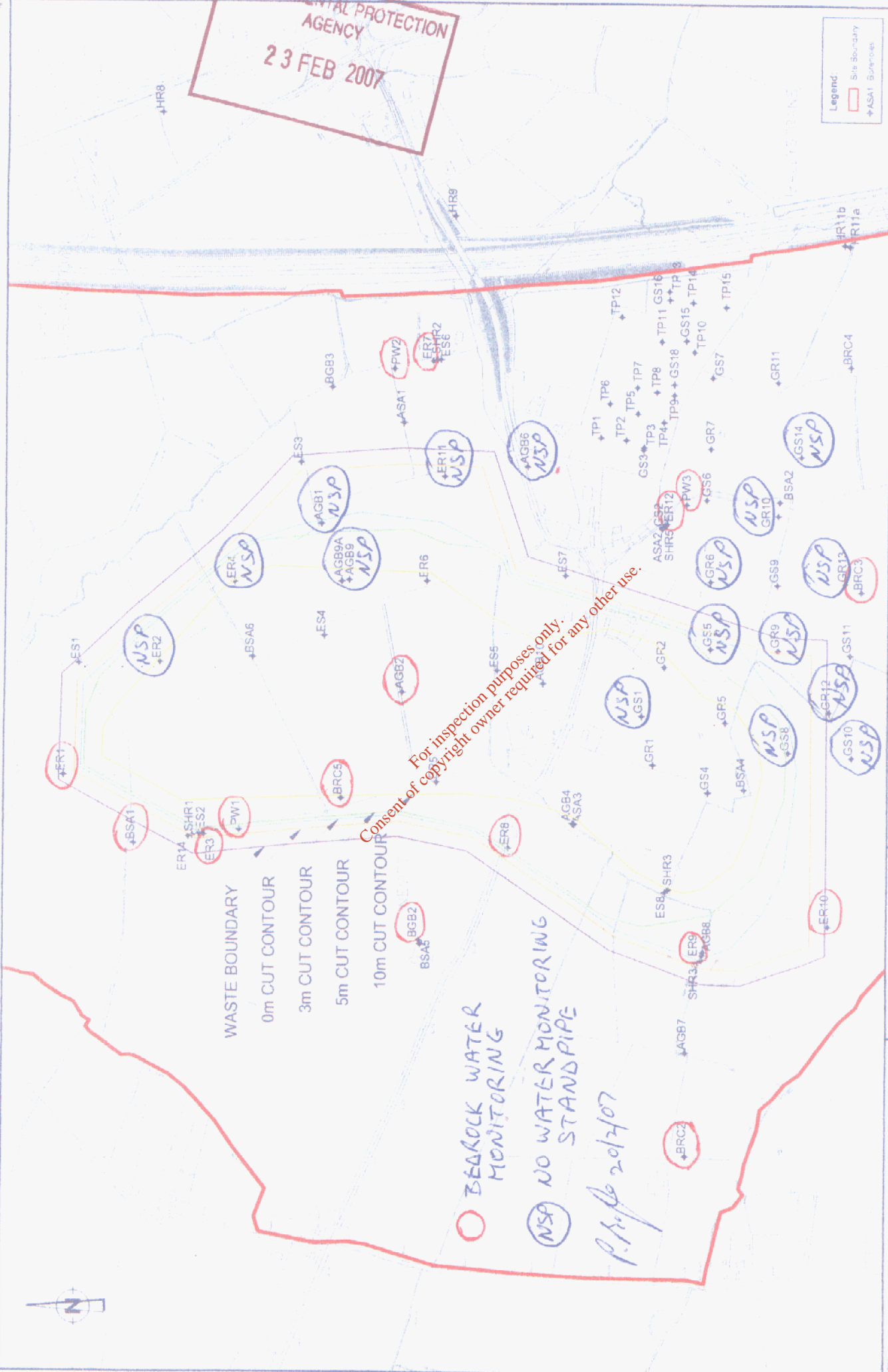
Groundwater levels at SHR3a & ER9



ENVIRONMENTAL PROTECTION
AGENCY
23 FEB 2007

Legend
 Site Boundary
 ASA1 Surberies

Drawn	MR	Checked	MR	Scale	1:1000
Approved	MR	Approved	MR	Fig No	Fig 2.15 F01
Date	10/02/07	Date	10/02/07	Sheet	1 of 1



For inspection purposes only.
 Consent of copyright owner required for any other use.

○ BEAROCK WATER MONITORING
 (NSP) NO WATER MONITORING STANDPIPE
 P. Hoyle 20/2/07

BOREHOLE LOCATIONS WITH PROPOSED BASE CUTS

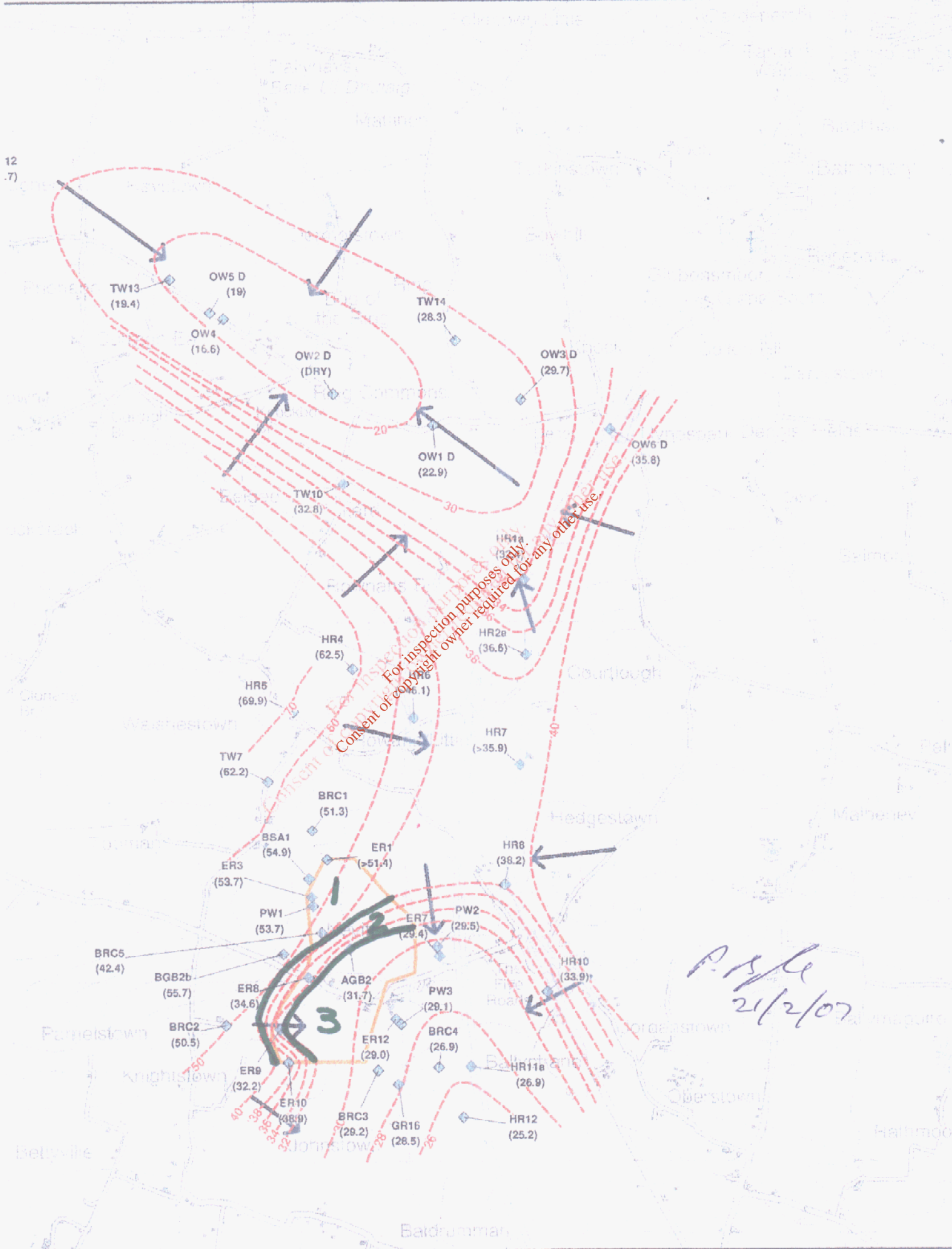
FINGAL LANDFILL PROJECT

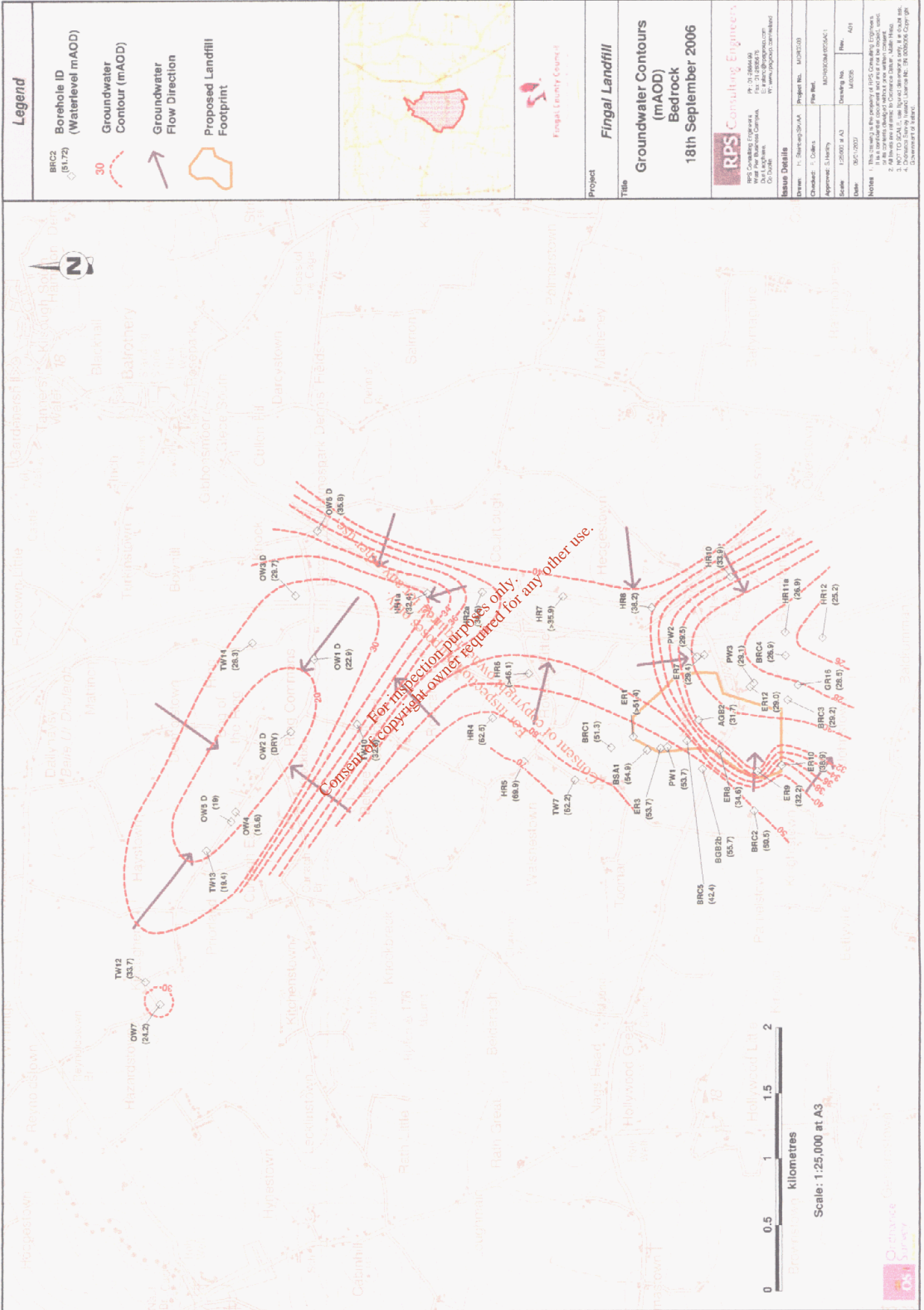
Project Name	FINGAL LANDFILL PROJECT
Client	FINAGAL COUNTY COUNCIL
Scale	1:1000
Date	10/02/07
Author	MR
Checker	MR
Approver	MR
Drawn	MR
Checked	MR
Approved	MR
Date	10/02/07

NOTES
 1. This drawing is for the purpose of...
 2. All dimensions are in millimeters unless otherwise stated.
 3. The drawing is to be used for...
 4. The drawing is to be used for...
 5. The drawing is to be used for...

RPS Consulting Engineers
 100, The Quadrant, Dublin 4, Ireland
 Tel: 01 494 4000 Fax: 01 494 4001
 Email: info@rps.ie www.rps.ie

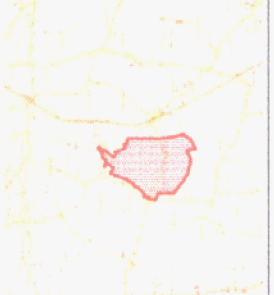
FINAGAL COUNTY COUNCIL
 Council Chamber, Phoenix Park
 County Hall, Swords, Co. Dub.
 Phone: 01 856 5000
 Fax: 01 856 5809





Legend

- BRC2 (51.72)
- Borehole ID (Waterlevel mAD)
- 30
- Groundwater Contour (mAD)
-
- Groundwater Flow Direction
-
- Proposed Landfill Footprint



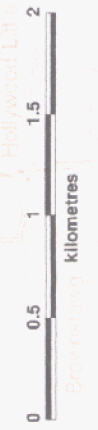
Project
Fingal Landfill

Title
Groundwater Contours (mAD) Bedrock
18th September 2006

RPS Consulting Engineers
RPS Consulting Engineers
Water Park Business Campus
Water Park Road
Cork, Ireland
Tel: 021 2666480
Fax: 021 2666475
www.rps.ie
www.rpsgroup.com

Issue Details	
Drawn: H. Sheehan/BAUA	Project No.: MUD200
Checked: S. Collins	Rev. No.
Approved: S. Henry	MCD/0001/05/04/01
Scale: 1:25,000 at A3	Drawing No.
Date: 09/09/2006	MUD200
	Rev. A01

- Notes**
- This drawing is the property of RPS Consulting Engineers and is not to be reproduced, stored in a retrieval system, or its contents divulged without the written consent of RPS Consulting Engineers.
 - All levels are relative to Ordnance Datum, Mean High Water.
 - For more information on RPS Consulting Engineers, please visit our website at www.rps.ie.
 - Ordnance Survey Licence No. SR 00050266 Copyright © Government of Ireland.



Scale: 1:25,000 at A3



Consent of copyright owner required for any other use.

