MNA is considered a feasible and appropriate strategy for managing groundwater contamination given that:

- MNA would complement the primary remedial strategy of tar removal to the extent practicable;
- active remediation of groundwater impacts would be highly impractical and cost ineffective given the local hydrogeological conditions;
- the extent of the contamination plume in both the shallow and deep groundwater systems has been defined;
- there is no beneficial use of groundwater likely beneath the Site or downgradient areas in RailCorp land;
- the Site has been adequately characterised to determine the level of contamination, the lateral and vertical extent of soil contamination, source zone areas, the lithological profile, the hydrogeological regime, the extent of groundwater impacts and permeability of the profile; and
- existing data indicates a potential for natural attenuation to occur under both aerobic and anaerobic conditions, particularly the presence of methane suggesting active attenuation occurring.

10.3.2 Management Goals for Groundwater

As discussed in **Section 4.3**, the management of groundwater contamination will form part of the remediation approach to the Site.

An MNA program will be the basis to management of groundwater and will include monitoring the groundwater quality and evaluating the resulting data.

Evidence of the success of soil remediation will be directly linked to the MNA program, which is based on the following three lines of evidence:

- a reduction in the extent of the contamination plume;
- a reduction in contaminant concentrations in the plume; and
- indications of naturally occurring degradation based on geochemical parameters.

A system of metrics will be used that effectively enable an evaluation of the success of soil remediation and the progress of natural attenuation.

In that regard, by using existing groundwater data and collecting additional groundwater data during and post remediation, an evaluation on the progress of MNA will essentially look at:

- plume stability – to demonstrate whether the contamination plume has reached equilibrium (i.e. attenuation rate equals groundwater velocity) or is shrinking, or adversely, if the plume is expanding;
- statistical analysis – to determine contaminant concentration trends over time and degradation rates and degradation products;
- baseline conditions – to establish a bench mark to compare the progress of MNA (to demonstrate MNA is working), including an evaluation against

background conditions (to determine potential up gradient impacts migrating onto the Site) and a comparison against generic GILs (to determine level of potential risk posed by residual impacts). Baseline conditions can also be used to determine degradation products and rates of production.

The disturbance of the ground during excavation of tar sources may potentially generate an increase in leaching of some contaminants, and therefore increases in concentrations of contaminants in the groundwater may result for a short time during and subsequently after remediation. However, this scenario is unknown and is unlikely to affect the required outcomes of MNA in the long term.

10.3.3 MNA Program Design

The MNA program will use a network of new nested monitoring well locations on Site, as well as a network of existing monitoring wells off Site. Each new nested well location will comprise a shallow well that is screened through the perched groundwater system (between 1 to 4 mbgl), and a deep well that is screened through the saturated zone of the shale bedrock system (between 12 and 15 mbgl). The potential for ongoing source materials to exist in and around the Southern Gasholder should be taken into consideration when positioning well screens, particularly the base of the gasholder, where tar sources may have accumulated.

Each new monitoring well installed will need to be surveyed to Australian Height Datum by a professional surveyor.

Well Location and Rationale

The nested monitoring well locations should be installed at eight (8) new locations, as indicated on **Figure 6**. These new locations will facilitate monitoring at strategic positions on the down gradient site boundary, down gradient of source areas (gasholders and tar wells) and up gradient of the source areas. It is not expected that the groundwater gradient will be altered subsequent to Site remediation.

The location of these monitoring new wells will enable data collected during the MNA program to be assessed as one data set or separately to monitor:

1. residual tar impacts in remediated areas (i.e. Tar Wells and Northern Gasholder); and
2. potential tar material below the Southern Gasholder.

This approach will enable the MNA program to be assessed separately for each of these two areas over time, if for example, monitoring around the Southern Gasholder shows ongoing impacts, but the remediated areas of the Northern Gasholder and the tar wells indicate evidence of natural attenuation occurring. It may be appropriate to only continue monitoring the Southern Gasholder and the network of wells off Site in this instance.

The network of monitoring wells existing down gradient and off Site should continue to also be used as part of the monitoring program. These locations include MW38d, MW39s/MW39d, MW40s/MW40d and MW41d.

Timeframe

The MNA program will consist of two phases of monitoring. The first phase (monthly event) will include frequent data collection to establish baseline conditions,

contaminant presence/occurrence and establish statistical analysis and rates. The second phase (year 2 – biannual event) will include assessment of existing and new data to confirm the stability of the plume. If required, and with input from the NSW DECC, a third stage may be conducted to further assesses the plume stability. The staged approach will enable an end point to be selected for the MNA program and effectively an end to the site remediation process.

Sampling and Methodology

The analytical suite should be based on the contaminants of concern and parameters to enable assessment of natural attenuation. The expected analytical suite is provided in Table 10.2.

The purging and sampling of groundwater should be undertaken using a low-flow bladder technique. Where dewatering of the wells is encountered, then the use of bailers should be considered.

Field measurements will be undertaken during each monitoring event to measure the hydrogeological characteristics and footprint of the contamination plume. The expected field measurements to be collected are provided in Table 10.2.

A summary of the program design is provided in the table below.

Table 10.2 – MNA Program Design

Phase	Scope Item	Number of Wells	Monitoring Period	Sampling Event	Purging/Sampling Method	Analytical Suite	Field Parameters and Measurements
One	Existing Wells (off site)	6	Pre- remediation	Once	Low-Flow bladder	• Metals[1] • TPH • BTEX • PAH • Phenols • Ferrous Iron • Sulfate • Nitrate • Methane	• Standing Water level • Quality parameters[2] • Hydraulic conductivity
			During remediation	Monthly			
			12 months post remediation	Monthly			
	New Wells (on site)	16	12 months post remediation	Monthly			
Two	All wells	22	Post Remediation	Biannual			

(1) Arsenic (total), cadmium, chromium (total), copper, lead, mercury, nickel and zinc.

(2) Redox potential, Electrical conductivity, temperature, pH, dissolved oxygen and physical observation.

11 Conclusion

Based on the results and conclusions of the previous investigation programs, CH2M HILL considers that it is practical and feasible to remediate the Site to a condition that is considered acceptable for the proposed commercial/industrial land use and will not present an unacceptable risk to human health or the environment.

The combinations of remedial approaches documented in **Section 5.4** are seen as the preferred remedial options for the Site to address the ongoing health and ecological risks. Prior to remediation occurring, there is a requirement to obtaining relevant licences and approvals for the remediation and alternative treatment areas.

The preferred option includes a combination of:

- Installation of Site Security Fencing;
- Collection of liquid wastes/sludges and disposal at a liquid waste facility;
- Excavation, organic stabilisation treatment (at an alternative treatment site) and disposal of soil waste at a landfill facility under the NSW DECC General Approval for Immobilisation for coal tar materials – Approval #2005/14 (refer to **Section 3.1.5**);
- Excavation, thermal desorption treatment (at an alternate treatment site) and disposal of soil waste at a landfill facility;
- Excavation and disposal of soil waste at a landfill facility under the NSW DECC General Approval for Immobilisation for ash materials – Approval #1999/05 (refer to **Section 3.1.5**);
- Excavation and disposal of asbestos impacted demolition waste at a landfill facility;
- Excavation and disposal of untreated fill/soil waste at a landfill facility;
- Beneficial Reuse and Recycle (including segregation of demolition waste) of suitable materials where appropriate;
- Insitu (passive) chemical oxidation of residual source materials at depth subsequent to excavation and disposal of above materials; and
- Long term Environmental Management Plan (EMP) including a Groundwater Management Plan (GMP) with a Monitored Natural Attenuation (MNA) approach.

Following the completion of the remedial works a Validation Report will be prepared in general accordance with the requirements of the *NSW EPA Guidelines for Consultants Reporting on Contaminated Sites* (1998).

The requirement to prepare an EMP and continue ongoing monitoring of groundwater is paramount to assessing the success of site remediation.

12 References

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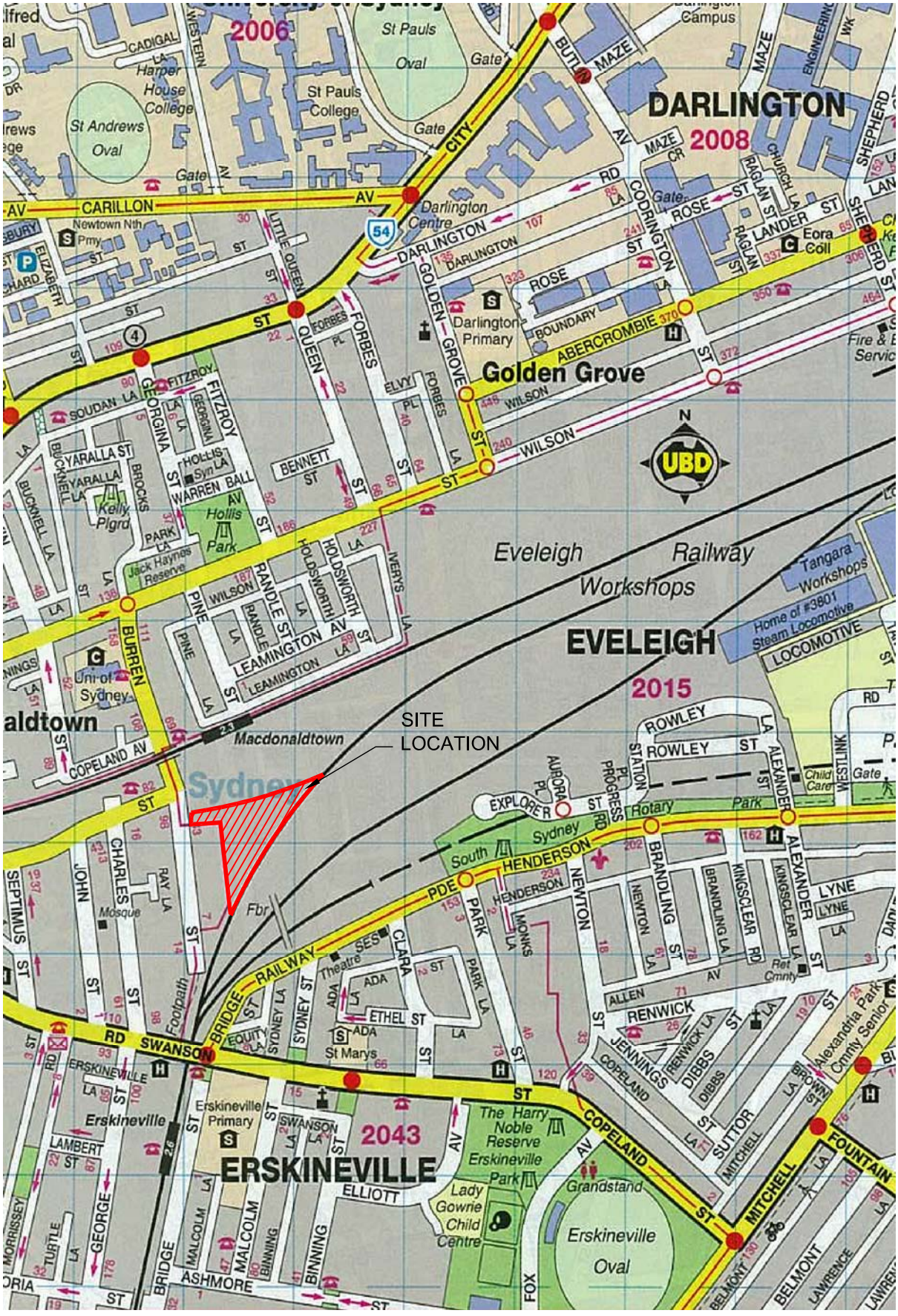
Figures



SOURCE WITH PERMISSION: 2006 UBD SYDNEY STREET DIRECTORY (42nd EDITION)

Figure 1
Site Location

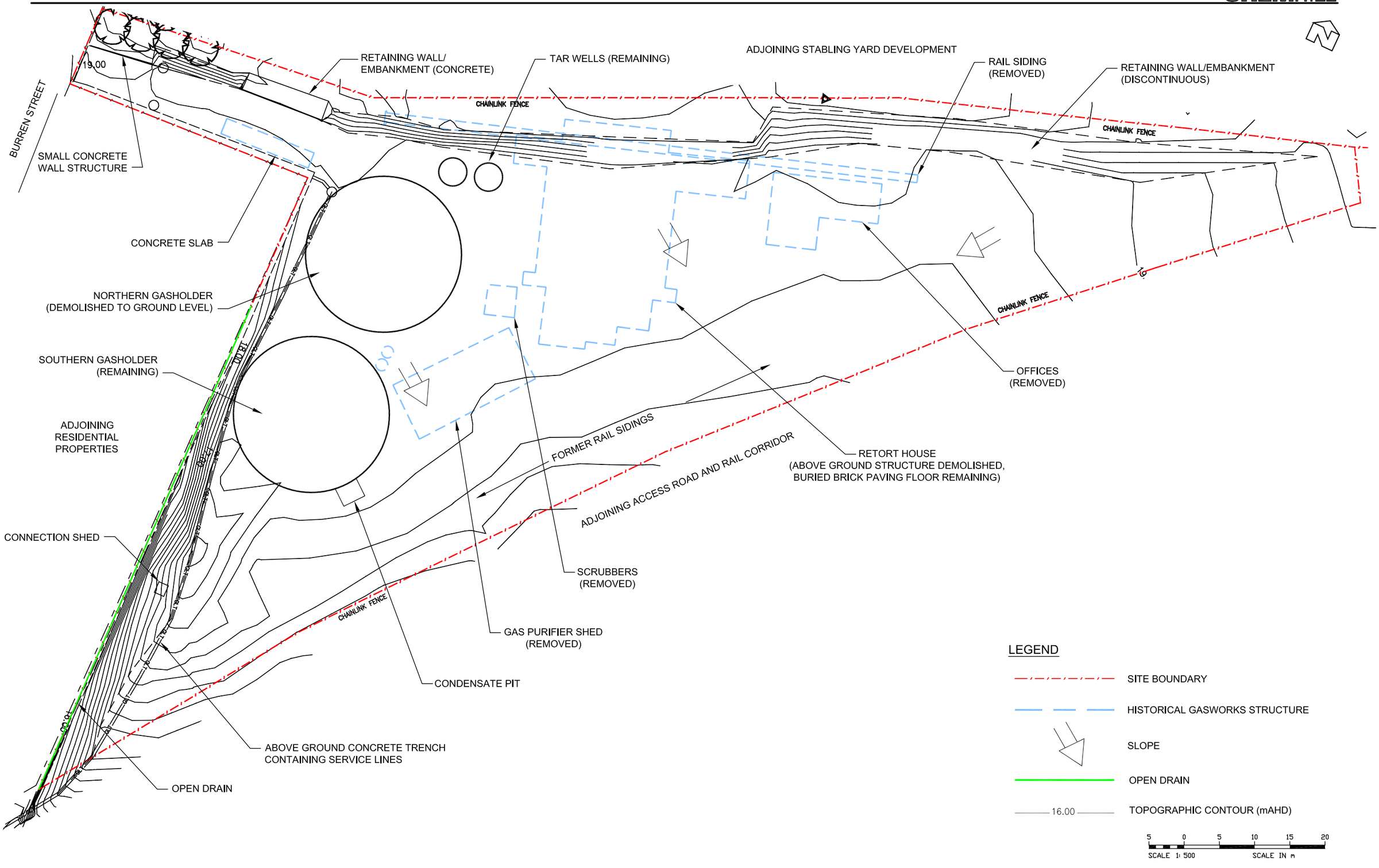
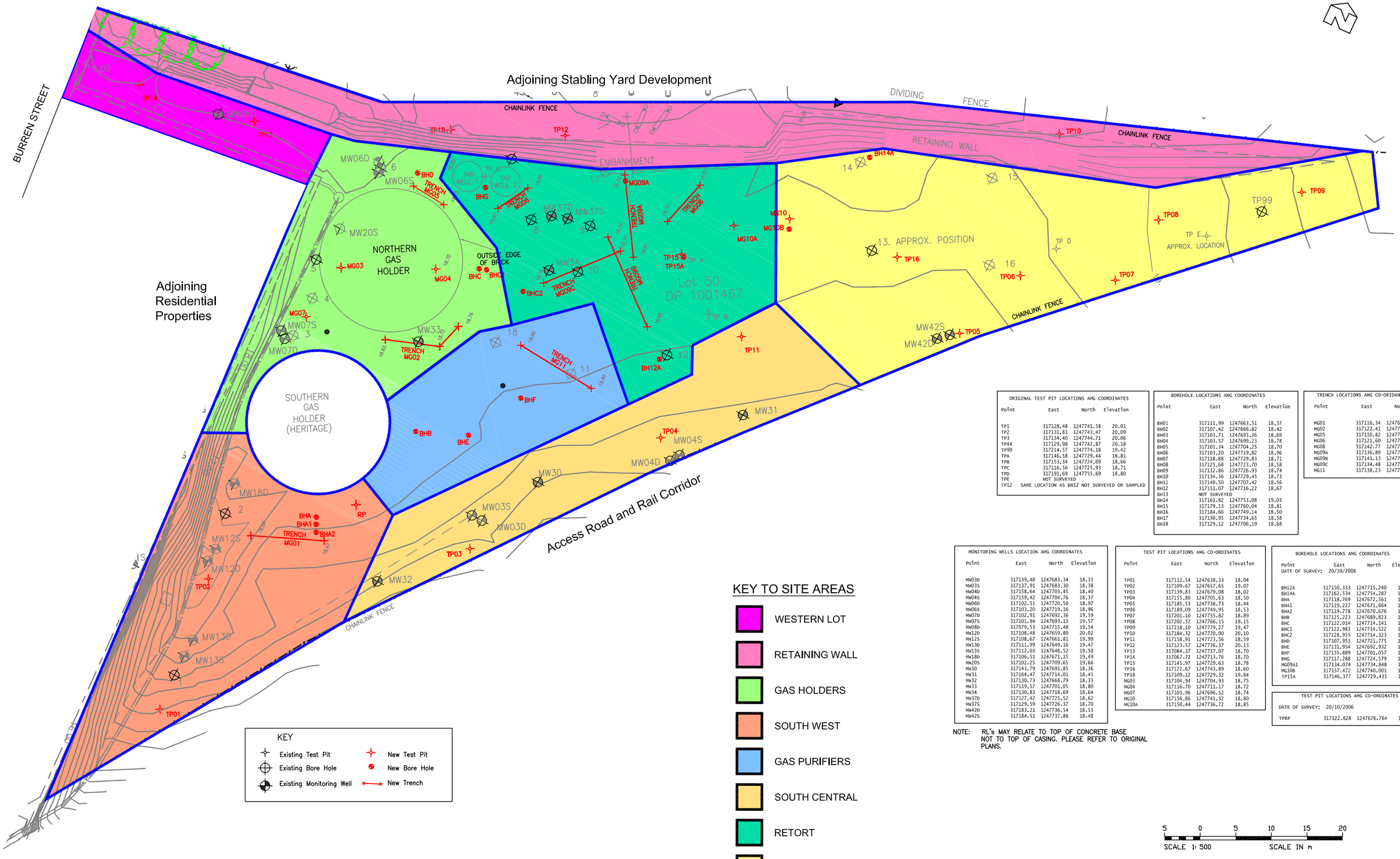


Figure 2
Historic & Current Site Layout



KEY

Existing Test Pit	New Test Pit
Existing Bore Hole	New Bore Hole
Existing Monitoring Well	New Trench

KEY TO SITE AREAS

- WESTERN LOT
- RETAINING WALL
- GAS HOLDERS
- SOUTH WEST
- GAS PURIFIERS
- SOUTH CENTRAL
- RETORT
- NORTH WEST

ORIGINAL TEST PIT LOCATIONS AMG COORDINATES

Point	East	North	Elevation
TP1	317128.48	1247741.58	20.01
TP2	317131.83	1247743.47	20.09
TP3	317134.40	1247744.71	20.06
TP44	317129.98	1247742.87	20.18
TP99	317214.57	1247774.18	19.42
TPA	317146.58	1247729.44	18.81
TPB	317153.34	1247724.09	18.66
TPC	317116.56	1247725.93	18.71
TPD	317191.69	1247755.69	18.80
TPE	NOT SURVEYED		
TP12	SAME LOCATION AS BH12 NOT SURVEYED OR SAMPLED		

BOREHOLE LOCATIONS AMG COORDINATES

Point	East	North	Elevation
BH01	317111.99	1247663.51	18.37
BH02	317107.42	1247666.82	18.42
BH03	317103.71	1247693.36	18.69
BH04	317103.57	1247699.23	18.78
BH05	317101.34	1247704.25	18.70
BH06	317103.20	1247719.82	18.96
BH07	317118.68	1247729.83	18.71
BH08	317125.68	1247723.70	18.58
BH09	317132.86	1247726.93	18.74
BH10	317134.36	1247729.45	18.73
BH11	317140.50	1247707.42	18.56
BH12	317151.07	1247716.22	18.67
BH13	NOT SURVEYED		
BH14	317161.82	1247753.08	19.03
BH15	317179.13	1247760.04	18.81
BH16	317184.66	1247749.14	18.50
BH17	317130.95	1247734.65	18.58
BH18	317129.12	1247706.19	18.68

TRENCH LOCATIONS AMG CO-ORIDANTES

Point	East	North
MG01	317116.34	1247667.86
MG02	317122.41	1247701.92
MG05	317110.82	1247719.75
MG06	317121.60	1247725.15
MG08	317142.77	1247736.07
MG09A	317136.89	1247730.85
MG09B	317141.13	1247722.61
MG09C	317134.48	1247721.27
MG11	317138.23	1247707.26

MONITORING WELLS LOCATION AMG COORDINATES

Point	East	North	Elevation
MW03D	317139.48	1247683.34	18.33
MW03S	317137.91	1247683.30	18.38
MW04D	317158.64	1247703.45	18.40
MW04S	317159.42	1247704.76	18.37
MW06D	317102.51	1247720.50	18.97
MW06S	317103.20	1247719.16	18.96
MW07D	317102.91	1247692.36	19.59
MW07S	317101.94	1247693.13	19.57
MW08D	317079.53	1247715.48	19.54
MW12D	317108.48	1247659.80	20.02
MW12S	317108.67	1247661.81	19.99
MW13D	317111.99	1247649.16	19.47
MW13S	317112.03	1247646.52	19.50
MW18D	317106.51	1247671.15	19.49
MW20S	317102.25	1247709.65	19.66
MW30	317143.79	1247691.85	18.36
MW31	317164.47	1247714.01	18.45
MW32	317130.73	1247668.79	18.33
MW33	317119.57	1247701.05	18.80
MW34	317130.83	1247718.69	18.64
MW37D	317127.42	1247725.52	18.62
MW37S	317129.59	1247726.37	18.70
MW42D	317183.21	1247736.54	18.53
MW42S	317184.51	1247737.86	18.48

TEST PIT LOCATIONS AMG CO-ORDINATES

Point	East	North	Elevation
TP01	317112.54	1247638.33	18.04
TP02	317109.67	1247657.65	19.07
TP03	317139.83	1247679.08	18.02
TP04	317155.80	1247705.63	18.50
TP05	317185.53	1247738.73	18.44
TP06	317189.09	1247749.95	18.53
TP07	317201.10	1247755.82	18.89
TP08	317202.32	1247766.15	19.15
TP09	317218.10	1247779.27	19.47
TP10	317184.32	1247770.00	20.10
TP11	317158.91	1247723.56	18.59
TP12	317123.57	1247736.37	20.13
TP13	317084.37	1247717.07	18.70
TP14	317067.72	1247713.76	18.70
TP15	317145.97	1247729.63	18.78
TP16	317172.67	1247743.89	18.60
TP18	317109.12	1247729.32	19.84
MG03	317104.94	1247704.93	18.75
MG04	317116.70	1247711.17	18.72
MG07	317103.96	1247696.52	18.74
MG10	317156.86	1247741.32	18.80
MG10A	317150.44	1247736.72	18.85

BOREHOLE LOCATIONS AMG COORDINATES

Point	East	North	Elevation
DATE OF SURVEY:	20/10/2006		
BH12A	317150.333	1247715.240	18.63
BH14A	317162.534	1247754.287	18.89
BHA	317118.769	1247672.561	18.46
BHA1	317119.227	1247671.664	18.41
BHA2	317119.778	1247670.676	18.48
BHB	317125.223	1247689.823	18.49
BHC	317122.014	1247714.141	18.78
BHC1	317122.083	1247714.522	18.75
BHC2	317128.955	1247714.323	18.66
BHD	317107.953	1247721.775	18.86
BHE	317131.954	1247692.932	18.50
BHF	317135.889	1247701.057	18.56
BHG	317117.288	1247724.579	18.61
MG09A1	317134.074	1247734.848	18.44
MG10B	317157.472	1247740.001	18.82
TP15A	317146.377	1247729.433	18.80

TEST PIT LOCATIONS AMG CO-ORDINATES

DATE OF SURVEY:	20/10/2006		
TPRP	317122.828	1247676.764	18.37

NOTE: RL's MAY RELATE TO TOP OF CONCRETE BASE NOT TO TOP OF CASING. PLEASE REFER TO ORIGINAL PLANS.

5 0 5 10 15 20
SCALE 1: 500 SCALE IN m

Figure 3
Site Areas and Previous Sampling Locations

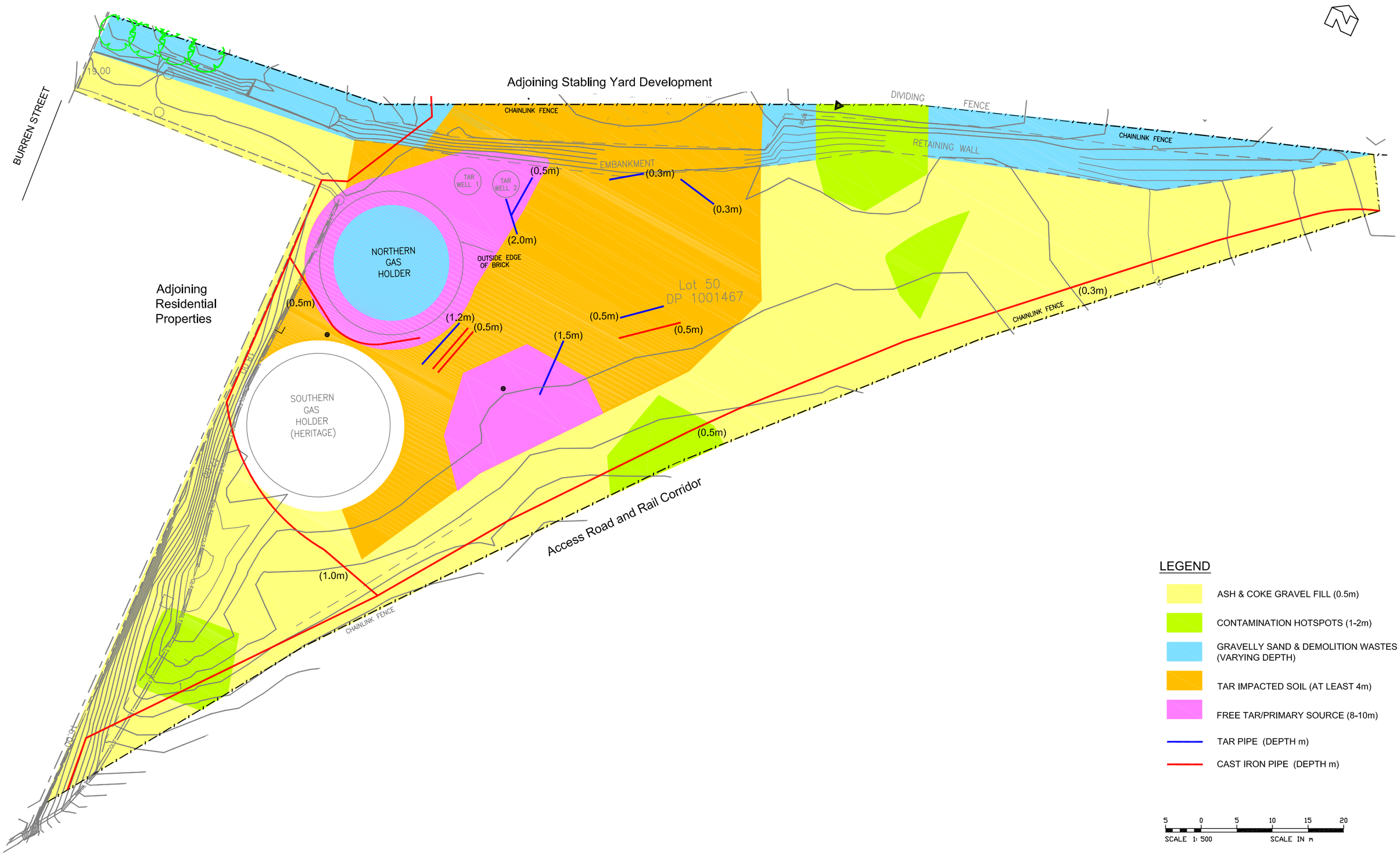


Figure 4
Remediation Areas
& Excavation Depth Estimates

Figure 5
Site Access and Traffic Routes

Figure 6
Groundwater Monitoring Well Locations for MNA Program

Tables

Table 1 - Summary of All Data for Fill & Silty Clay Material - Macdonaldtown Gasworks Site

Sample Location	Easting (AMG)	Northing (AMG)	Elevation (mAHD)	Soil Profile	Sample Depth (m)		Contaminants of Concern - Concentrations in mg/kg																
							BaP	Total PAH	TPH (C6-C9)	TPH (C10-C14)	TPH (C15-C28)	TPH (C29-C36)	Total C10-C36	Benzene	Toluene	Ethylbenzene	Total Xylenes	Metals	Cyanide (Total)	VOCs	Total Phenols	OCPs	OPPs	Asbestos	PCBs
Commercial / Industrial Landuse Guidelines (NEHF F / NSW EPA 1994 Service Station Guidelines)							5	100	65	-	-	-	1000	1	130	50	25	Various	2500	See BTEX	42500 (phenol)	50 (heptaclor) 50 (aldrin+dieldrin) 50 (chlordane) 1000 (DDT+DDE+DDD)			50
Gasholder																							
BH03	317103.713	1247693.358	18.690	Gravelly fil	0-0.1	0-0.1	**27**	**294.8**	nd	120	3300	1600	**5020**	nd	nd	nd	nd	< guidelines	-	-	18.4	-	-	-	-
				Red clay & decomposed shale	0.1-1.5	1.0-1.1	nd	nd	nd	nd	300	260	560	nd	nd	nd	nd	< guidelines	nd	-	-	-	-	-	-
BH04	317103.564	1247699.228	18.780	Gravelly fill	0-0.1	0-0.1	nd	nd	-	-	-	-	-	-	-	-	-	< guidelines	-	-	-	-	-	-	-
				Clay, gravel and shale fi	0.1-0.55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Coal slag fill & coarse sanc	0.55-0.8	0.7-0.8	**140**	**1697**	nd	1000	9700	1400	**12100**	nd	nd	nd	nd	< guidelines	-	-	419	-	-	-	-
				Clay, coal pieces, gravel, rock	0.8-1.5	0.8-0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Grey silty clay	1.5-2.5	1.5-1.6	nd	nd	-	-	-	-	-	nd	nd	nd	nd	< guidelines	-	-	-	-	-	-	-
BH05	317101.342	1247704.245	18.7	Refusal on Gas Holder at 0.0m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH06	317103.196	1247719.155	18.960	Bitumen	0-0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Coke fill, minor sanc	0.1-0.3	0.2-0.3	**190**	**2374**	11	2600	15000	2400	**20000**	nd	nd	nd	3	< guidelines	0.7	-	65	-	-	-	-
				Red clay fill & weathered shal	0.3-1.0	0.3-0.4	**30**	**137.3**	nd	70	580	260	910	nd	nd	nd	nd	< guidelines	-	-	nd	-	-	-	-
				Grey silty clay	1.0-2.2	1.0-1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Grey silty clay		2.0-2.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW06S	317103.196	1247719.155	18.960	Bitumen	0-0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Coke and sand fill	0.1-0.4	0.2-0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Coke and sand fill		0.3-0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Red clay and weathered shale	0.4-1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Silty clay fill	1.0-2.2	1-1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Silty clay fill		2-2.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW06D	317102.514	1247720.496	18.970	Coke and sand fill	0-0.3	0.2-0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Clay and weathered shale	0.3-1.1	0.3-0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Silty clay	1.0-2.2	1-1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Silty clay		2-2.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW07S	317101.940	1247693.130	19.575	Bitumen	0-0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Sandy clay fill	0.05-0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Red plastic clay	0.3-4.0	0.8-1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW07D	317102.910	1247692.360	19.590	Clay fill with HC odour	0-4.0	1.4-1.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	-	-	nd	-	-	-	-
MW20S	317102.250	1247709.650	19.660	Sandy clay fill	0-4.0	0.05-0.3	**6.1**	68.9	nd		398		398	nd	nd	nd	nd	<guidelines	-	nd	nd	-	-	-	-
MW33	332293.5328	6247699.5870	18.797	Silty sandy clay fill	0-0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Sandy silty clay fill, HC odour	0.1-0.6	0.5-0.95	-	-	-	-	**2124 (C16-C35 Aromatics) & 217 (Aliphatics)**			nd	nd	nd	nd	-	-	-	-	-	-	-	-
				Silty clay, HC odou	0.6-1.5	0.5-0.95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MG02	317122.410	1247701.920	18.680	Black ash, coke gravels, clinker fill, high odou	0-0.3	0	nd	**142.0**	**72**	290	nd	nd	290	**4.2**	5.8	22.1	**29.6**	-	-	-	1.3	-	-	-	-
				Red/grey mottled moderately plastic clay	0.3-1.0	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Dark brown low plasticity silty clay fill, black ooze, tar high odo	1.5-1.9	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Dark brown low plasticity silty clay fill, black ooze, tar high odo		1.8	**178**	**5301.9**	**189**	10300	21400	4440	**36140**	**3**	4.4	30.2	**165.8**	<guidelines	23.3	-	6.7	nd	nd	-	nd
MG03	317104.9400	1247704.9300	18.750	Gravelly sandy silt fill with ballast, bricks, scrap metal, sandstone bloci	0-1.0	0.1	**10.4**	**114.8**	nd	100	1800	850	**2750**	nd	nd	nd	nd	<guidelines	-	-	nd	nd	nd	nd	nd
MG04	317116.7000	1247711.1700	18.720	Gravelly sand fill with black and brown brick fragments	0-1.5	0.5	**6**	61.3	nd	nd	1340	470	**1810**	nd	nd	nd	nd	**Pb=2140**	-	-	-	-	-	-	-
				Fibro cement sheet fragment		1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	detected (fragment)	-
				Gravelly sand fill with black and brown brick fragments		1.5	1.3	15.30	nd	nd	240	nd	240	nd	nd	nd	nd	<guidelines	-	-	-	nd	nd	detected	nd
MG05	317110.820	1247701.920	18.730	Bitumen, ash gravels and crushed roc	0-0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Brown low plasticity silty clay fill with fine grave	0.3-1.3	0.5	-	-	nd	280	10800	2260	**13340**	nd	nd	nd	nd	<guidelines	-	-	-	-	-	-	-
				Brown low plasticity silty clay fill with fine gravels		1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MG07	317103.960	1247696.520	18.740	Gravelly ash fill and ballast	0-0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Red/grey mottled moderate plasticity clay fill with minor bricks	0.3-1.0	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	-	-	nd	-	-	-	-
BHC	317122.0140	1247714.1410	18.7800	Gravelly clay, wet, black staining, high odour	2.4-4.4	3.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Samples Analysed	-	-	-	-	-	-	15	15	14	-	-	-	15	16	16	16	16	15	3	1	10	3	3	3	3
Detects above criteria	-	-	-	-	-	-	8	7	2	-	-	-	8	2	0	0	2	1	0	0	0	0	0	0	0
Hotspots	-	-	-	-	-	-	5	4	1	-	-	-	6	2	0	0	1	0	0	0	0	0	0	0	0
Retort																									
BH07	317118.681	1247729.832	18.710	Coke fill, minor sanc	0-0.8	0-0.1	**200**	**2078**	nd	1300	11000	2100	**14400**	nd	nd	nd	nd	< guidelines	-	-	50	nd	-	-	-
				Clay, shale and rock fil	0.8-1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Clay, oil, tar, HC odou	1.0-2.0	1.4-1.5	**26**	**1144.8**	-	-	-	-	-	nd	nd	8	**32**	< guidelines	98	some detections	nd	-	-	-	nd
BH08	317125.080	1247723.696	18.580	Gravelly fill	0-0.5	0-0.1	4.6	53.3	-	-	-	-	-	-	-	-	-	< guidelines	-	-	-	-	-	-	-
				Coke and sand fill	0.5-1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Silty clay and coal slag	1.0-1.5	1.0-1.1	**7**	99.3	nd	120	740	120	980	nd	nd	nd	nd	< guidelines	-	-	nd	-	-	-	-
				Grey silty clay	1.5-2.5	1.6-1.7	**5.4**	82	-	-	-	-	-	nd	nd	nd	nd	< guidelines	-	-	-	-	-	-	nd
				Grey silty clay		2.3-2.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH09	317132.858	1247726.929	18.740	Sand and brick fill	0-0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Refusal on brick at 0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH10	317134.360	1247720.447	18.730	Ballast & slag fill	0-0.1	0-0.1	**11**	**112**	-	-	-	-	-	-	-	-	-	< guidelines	-	-	nd	-	-	-	-
				Ballast & slag fill	0-0.3	0.3	2.8	28	nd	30	300	140	470	nd	nd	nd	nd	< guidelines	-	-	-	-	-	-	-
				Refusal at 0.3 on concrete slab	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH17	317130.945	1247734.645	18.58	Refusal on foundations at 0.0m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH12	317151.071	1247716.220	18.670	Gravelly fill	0-0.1	0-0.1	**5.8**	49.3	-	-	-	-	-	-	-	-	-	<guidelines	3.4	-	-	-	-	-	-
				Coarse sand	0.1-2.0	0.9-1.0	nd	nd	-	-	-	-	-	-	-	-	-	<guidelines	3.4	nd	-	-	-	-	-
				Coarse sand		1.3-1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Clay, shale and coke fill	2.0-2.5	2.0-2.1	nd	0.6	-	-	-	-	-	nd	nd	nd	nd	-	3	-	-	-	-	-	-
				Clay and coke fill (odourous)	2.5-3.1	2.6-2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP12	(Same location as BH12) Not surveyed or sampled			Ash and coal	0-0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Sand with minor odour	0.3-3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Wet sand with odou	3.0-4.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPA	317146.580	1247729.442	18.81	Sand and gravel fil	0-1.5	1.6	**8.4**	**536.9**	**100**	1600	1400	200	**3200**	**1.6**	15	7	**65**	<guidelines	5.6	-	nd	-	-	-	-
				Tar migrating from brick seams	1.5-2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Refusal on concrete or brick at 2m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPB	317153.335	1247724.094	18.66	Sand and slag fill	0-1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Refusal on pipes and concrete at 1n	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPC	317116.562	1247725.926	18.71	Bricks, tar, HC odours	0-1.6	1	**8.4**	**750.6**	-	-	-	-	-	nd	5	9	**48**	<guidelines	34	-	nd	-	-	-	-
				Refusal on bricks at 1.6m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW34	332304.4362	6247717.4350	18.639	Gravelly sandy clay	0-0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Sandy clay	0.2-0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Silty clay, HC odour	0.4-1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Silty clay, oil sheen, odour	1.2-1.5	1.4	-	-	-	-	92 (C16-C35 Aromatics) & nd (Aliphatics)			nd	nd	nd	nd	-	-	-	-	-	-	-	-
MW37S	332303.0680	6247725.0410	18.696	Ballast	0-0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Ash fill	0.2-0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Silty clay fill	0.3-2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Silty clay fill with tar	2.0-4.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW37D	332300.9170	6247724.1940	18.615	Silty sandy gravel fill	0-0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Slag and brick fill	0.3-1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Silty clay fill, odours	0.3-1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Silty clay fill	1.3-2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MG06	317121.6000	1247725.1500	18.950	Brown low plasticity silty clay fill with visible tar and oil, HC odours	0-1.2	1.0	2	**135.00**	18	660	610	nd	**1270**	0.2	0.8	3	9.5	<guidelines	2.7	-	-	-	-	-	-
MG08	317142.7700	1247736.0700	18.700	Loose sandy ash and ballast fill with coarse gravels	0-0.3	0.3	-	-	-	-	-	-	-	-	-	-	-	<guidelines	-	-	-	-	-	-	-
				Red/grey moderately plastic gravelly clay fill, HC odours, tar seepa	0.3-1.6	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Red/grey moderately plastic gravelly clay fill with HC odours, tar seepa		1.5	**444**	**15237.60**	51	99100	310000	26000	**435100**	0.2	0.5	3.6	10.6	<guidelines	-	-	39	nd	nd	-	nd
				Brown/green, plastic silty clay fill with high odours and visible tar in pon	1.6-2.5	2.1	**6.9**	**321.20**	**97**	740	1620	430	**2790**	0.3	0.4	12.3	6	-	-	-	-	-	-	-
MG09A1				Sandy clay, free ta	0.7	0.7	**8.2**	**416.6**	39	850	2110	560	**3520**	**1.7**	6.6	2.4	21		23.6		2				
MG09B	317141.1300	1247722.6100	18.735	Sandy gravel fill/Concrete slal	0-0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Ash and clay fil	0.2-0.5	0.3	-	-	12	790	13800	6110	**20700**	0.5	1.1	0.3	4	<guidelines	-	-	-	-	-	-	-
				Gravelly clay fill	0.5-1.6	0.6	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	-	-	nd	nd	nd	-	nd
				Fibro cement sheet fragmen		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	detected (fragment)	-
		Not surveyed		Service pipe	-	PIPE	**595**	**26805.30**	**3770**	402000	654000	124000	**1180000**	**576**	**1210**	**156**	**1516**	<guidelines	-	-	9872.4	nd	nd	-	nd
MG09C	317134.4800	1247721.2700	18.735	Sandy gravel fill/Concrete slab	0-0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Ash gravels and sand fill	0.3-0.8	0.3	**5**	50.00	nd	nd	630	520	**1150**	nd	nd	nd	nd	<guidelines	nd	-	-	-	-	-	-
				Red/grey moderately plastic gravelly clay fill with visible pockets of tar	0.7-1.8	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Brown/green silty clay fill over weathered shale, high HC odours	1.8-3.8	1.9	2.1	73.60	18	300	360	nd	660	nd	0.4	0.5	0.6	<guidelines	nd	-	-	-	-	-	-
MG10A	317150.4400	1247736.7200	18.850	Sandy gravel fill and ballas	0-0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Black ash and coke gravel fi	0.3-0.8	0.7	**339**	**4758.20**	nd	9650	200000	25300	**234950**	nd	nd	nd	nd	<guidelines	27.1	-	76.5	nd	nd	nd	-
TP15	317145.9700	1247729.6300	18.780	Gravelly sand fill, overlying brickwork layer	0-0.3	0.3	2.2	19.80	nd	nd	230	150	380	nd	nd	nd	nd	-	1.1	-	-	-	-	-	-
				Ash and gravel fill with free tar in brickwork footin	0.3-1.8	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tar Well #2		Not surveyed		Coal Tar and gravels from tar well #	-	Well Contents	**164**	**25558**	**6690**	56700	35800	6200	**98700**	**814**	**1680**	**254**	**3170**	<guidelines	67.1	-	3384.2	-	-	-	-
Total Samples Analysed	-	-	-	-	-	-	22	22	14	-	-	-	15	19	19	19	19	19	12	2	10	5	4	2	5
Detects above criteria	-	-	-	-	-	-	13	10	2	-	-	-	9	2	0	0	3	0	0	0	0	0	0	1	0
Hotspots	-	-	-	-	-	-	6	10	0	-	-	-	7	0	0	0	1	0	0	0	0	0	0	0	0

Table 1 - Summary of All Data for Fill & Silty Clay Material - Macdonaldtown Gasworks Site

Sample Location	Easting (AMG)	Northing (AMG)	Elevation (mAHD)	Soil Profile		Sample Depth (m)		Contaminants of Concern - Concentrations in mg/kg															
								BaP	Total PAH	TPH (C6-C9)	TPH (C10-C14)	TPH (C15-C28)	TPH (C29-C36)	Total C10-C36	Benzene	Toluene	Ethylbenzene	Total Xylenes	Metals	Cyanide (Total)	VOCs	Total Phenols	OCPs	OPPs	Asbestos	PCBs
Commercial / Industrial Landuse Guidelines (NEHF F / NSW EPA 1994 Service Station Guidelines)								5	100	65	-	-	-	1000	1	130	50	25	Various	2500	See BTEX	42500 (phenol)	50 (heptaclor) 50 (aldrin+dieldrin) 50 (chlordane) 1000 (DDT+DDE+DDD)			50
Gas Purifier																									
BH11	317140.501	1247707.420	18.560	Gravelly fill		0-0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Coarse sand		0.1-1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Clay and coke fill		1.1-2.3	1.2-1.3	-	-	-	-	-	-	-	-	-	-	-	< guidelines	nd	-	-	-	-	-	-
BH18	317129.119	1247706.185	18.680	Gravelly fil		0-0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Ash, coke and slag fil		0.2-0.4	0.2-0.3	**220**	**3953**	nd	3400	26000	9000	**38400**	nd	nd	nd	nd	<guidelines	8.8	-	97	-	-	-	-
				Clay and rock fill		0.4-1.0	0.4-0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Moist clay with strong odou		1.0-1.5	1.0-1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Fill with oil, tar, strong odou		1.5-1.9	1.7-1.8	**28**	**2160.8**	-	-	-	-	-	**7**	11	**80**	**210**	<guidelines	-	-	nd	-	-	-	-
				Silty clay (odour,		1.9-2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MG11	317138.230	1247707.260	18.600	Dark grey very gravelly sand fill with ash, coke and balla		0-0.2	0.2	**42**	**696.60**	nd	290	4720	1200	**6210**	nd	nd	nd	nd	<guidelines	nd	-	-	-	-	-	-
				Orange and red firm clay fil		0.5-1.7	1.5	-	-	-	-	-	-	-	-	-	-	-	-	2.5	-	-	-	-	-	-
				Yellow/orange medium sand fill with black staining and s		1.7-3.2	2.0	**48.8**	**728.80**	10	330	5760	1660	**7750**	nd	nd	nd	nd	<guidelines	3.5	-	1.1	nd	nd	-	nd
BHE	317131.9540	1247692.9320	18.5000	Reworked clay, low/med plast, firm		1.6	1.6																			
				Reworked clay, low/med plast, firm		2.2	2.2	nd	24.6 (naphthalene	**155**	170	190	nd	360	0.4	0.4	16.1	17		n		nd				
BHF	317135.8890	1247701.0570	18.5600	Reworked clay, low/med plast, firm, ash gravels		1	1.0	**6.4**	89.5	nd	90	740	320	**1150**	nd	nd	nd	nd		5.3		nd				
Total Samples Analysed	-	-	-	-		-	-	6	6	5	-	-	-	5	6	6	6	6	5	7	0	5	1	1	0	1
Detects above criteria	-	-	-	-		-	-	5	4	1	-	-	-	4	1	0	1	1	0	0	-	0	0	0	-	0
Hotspots	-	-	-	-		-	-	4	4	0	-	-	-	3	1	0	0	1	0	0	-	0	0	0	-	0
Northeast																									
BH13		Not surveyed		Gravelly fil		0-0.1	0-0.1	4.6	39.2	-	-	-	-	-	-	-	-	-	<guidelines	-	-	-	-	-	-	-
				Coke and sand fil		0.1-0.7	0.2-0.3	**39**	**413.2**	24	400	3400	3300	**7100**	**1.6**	5	nd	9	<guidelines	-	-	nd	-	-	-	-
				Red clay and weathered shale		0.7-1.0	0.9-1.0	nd	0.6	-	-	-	-	-	nd	nd	nd	nd		-	nd	-	-	-	-	-
				Silty clay		1.0-1.5	1.2-1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH14	317161.824	1247753.075	19.030	Gravelly fill		0-0.1	-	**5**	32.8	-	-	-	-	-	-	-	-	-	<guidelines	-	-	-	-	-	-	nd
				Sand and coke fill		0.1-0.7	0.2-0.3	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	<guidelines	nd	-	-	-	-	-	-
				Red clay and weathered shale		0.7-1.5	0.9-1.0	nd	3.8	-	-	-	-	-	**4.6**	nd	26	**48**	<guidelines	-	-	-	-	-	-	-
BH14A	317162.5340	1247754.2870	18.890	Silty clay, strong hydrocarbon odou		1.1-1.5	1.4	nd	0.7 (naphthalene	9	nd	nd	nd	nd	0.4	nd	nd	0.6				nd				
BH15	317179.131	1247760.045	18.810	Gravelly fil		0-0.1	0-0.1	**16**	88.7	-	-	-	-	-	-	-	-	-	<guidelines	-	-	-	-	-	-	-
				Sand and coke fil		0.1-0.8	0.2-0.3	**58**	**377.8**	nd	90	2800	1500	**4390**	nd	nd	nd	nd	<guidelines	nd	-	nd	-	-	-	-
				Red clay & weathered shale		0.8-1.0	0.9-1.0	2.4	14.8	-	-	-	-	-	nd	nd	nd	nd		-	-	-	-	-	-	-
				Clay and coke fill		1.0-2.0	1.4-1.5	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-
				Clay and coke fill			1.9-2.0	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-
BH16	317184.659	1247749.137	18.500	Gravelly fill		0-0.1	0-0.1	**11**	80.6	-	-	-	-	-	nd	nd	nd	nd	<guidelines	-	-	-	-	-	-	-
				Sand and rock fill		0.1-1.5	0.9-1.0	nd	nd	-	-	-	-	-	nd	nd	nd	nd	<guidelines	nd	-	-	-	-	-	-
						-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-
TPD	317191.694	1247755.693	18.8	Ash fill		0-0.3	0.2	**6.2**	68.7	-	-	-	-	-	nd	nd	nd	nd	<guidelines	-	-	-	-	-	-	-
				Sands		0.3-1.6	0.6	nd	nd	-	-	-	-	-	nd	nd	nd	nd	<guidelines	nd	-	-	-	-	-	-
TPE		Not surveyed		Ash fill		0-0.5	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-
TP99	317214.570	1247774.179	19.420	Ash and coke fill		0-0.5	0-0.1	nd	nd	-	-	-	-	-	nd	nd	nd	nd	<guidelines							
				Ash and coke fill			0.2-0.3	1.2	11.8	-	-	-	-	-	nd	nd	nd	nd	<guidelines	-	nd	-	nd	-	-	nd
MW42S	332357.7440	6247737.6530	18.484	Sandy silt		0-0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Silty clayey gravel fill		0.2-0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Sandy fill		0.5-1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Silt / sand / clay fill		1.5-1.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW42D	332356.4770	6247736.3090	18.529	Sandy silt		0-0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Silty clayey gravel fill		0.2-0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Sandy fill		0.5-1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Clayey sand fill		1.5-2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MG10	317156.8600	1247741.3200	18.800	Black ash and ballast fill with sandy material, HC odours		0-0.4	0.2	1.8	24.70	nd	nd	1390	500	**1890**	nd	nd	nd	nd	<guidelines	8	-	nd	nd	nd	nd	nd
				Red/grey mottled highly plastic clay		0.5-0.6	0.6	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-
MG10B	317157.4720	1247740.0010	18.820	Reworked clay, low/med plast, firn		1.1-2.0	1.8	1.6	38.40	nd	nd	nd	nd	nd	nd	nd	nd	nd				nd				
TP05	317185.5300	1247738.7300	18.440	Gravelly sand and ash, clinker and coke fill, odou		0-0.3	0.25	**158**	**4300.90**	-	-	-	-	-	-	-	-	-	-	-	-	8.1	-	-	nd	-
				Light brown low plasticity sandy clay fill		0.3-0.5	0.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	nd	-	nd	chlordane 0.14	nd	-	nd
				Yellow medium sand		0.5-1.2	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Dark brown clayey sil		1.2-1.9	1.5	nd	4.50	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	-	-	-	-	-	-	-
TP06	317189.0900	1247749.9500	18.530	Gravelly sand fill with ash, clinker and coke, dark staining and odo		0-0.3	0.25	**55**	**690.20**	-	-	-	-	-	-	-	-	-	-	-	-	20.5	-	-	nd	-
				Light brown/orange gravelly non plastic sandy clay fill with some clinker		0.3-0.5	0.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	nd	-	-	-	-	-	-
				Sandy clayey gravel of sandstone and clinker fil, black stains		0.5-1.4	1.0	0.7	6.00	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	nd	-	nd	nd	nd	-	nd
				Dark grey/brown clayey silt with slight stain in top 0.2m of stratum		1.4-2.3	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP07	317201.1000	1247755.8200	18.890	Degraded concrete slab		0-0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Black dark/grey gravelly sand fill of predomi-ntly ash, coke and clinker		0.2-0.5	0.25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	nd	-
				Gravelly clayey sand fill with brick fragments, sandstone and shale gravels		0.5-0.9	0.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	nd	-	-	-	-	-	-
				Grey/ red mottled sandy gravelly clay fill with sandstone and shale gravels		0.9-1.3	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Soft clayey silt		1.3-1.7	1.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-	-	-
TP08	317202.3200	1247766.1500	19.150	Black gravelly fine to coarse sand fill of ash clinker and coke with odour		0-0.4	0.25	**8.2**	78.40	-	-	-	-	-	-	-	-	-	-	-	-	nd	-	-	nd	-
				Light brown very sandy cobbley gravel of sandstone fill with slight odour		0.4-0.6	0.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	nd	-	nd	nd	nd	-	nd
				Grey with red mottles sandy gravelly (sandstone) clay fill		0.9-1.4	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	nd	-	nd	-	-	-	-
				Soft clayey silt		1.4-1.6	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP09	317218.1000	1247779.2700	19.470	Gravelly sand fill of ash clinker and coke, with odour		0-0.4	0.25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	nd	-
				Gravelly cobbly sand (crushed sandstone) fill, black staining top 0.1m		0.4-0.6	0.5	**5.4**	68.00	nd	nd	290	180	470	nd	nd	nd	nd	-	-	-	-	-	-	-	-
				Grey with orange/red mottles gravelly (shale) sandy clay		0.6-1.9	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	nd	-	nd	-	-	-	-
				Grey with orange/red mottles gravelly (shale) sandy clay			1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP16	317172.6700	1247743.8900	18.600	Gravelly (sandstone) cobbly sand fill of fine to coarse sandstor		0.2-0.6	0.3	**6.9**	55.20	13	60	760	460	**1280**	**1.2**	2.8	0.3	5.6	<guidelines	-	-	-	-	-	-	-
				As above but black stain and ta		0.6-1.5	1.0	**39.4**	**425.10**	**166**	320	5120	2200	**7640**	**3.1**	3.7	6.4	**61.2**	<guidelines	nd	-	0.6	nd	nd	-	nd
Total Samples Analysed	-	-	-	-		-	-	33	33	18	-	-	-	18	26	26	26	26	23	12	2	14	6	5	6	7
Detects above criteria	-	-	-	-		-	-	12	5	1	-	-	-	5	5	4	0	2	0	0	0	0	0	0	0	0
Hotspots	-	-	-	-		-	-	6	5	1	-	-	-	3	2	0	0	0	0	0	0	0	0	0	0	0
South Central																									
MW03S	317137.911	1247683.304	18.380	Sand and gravel fill		0-0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Gravelly clay fill		0.5-2.0	1-1.1	1.4	10.9	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	-	-	-	-	-	-	-
				Sandy clay fill		2-2.5	2-2.1	0.5	2.7	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	-	-	-	-	-	-	-
				Silty clay		2.5-3.5	3-3.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW03D	317139.485	1247683.339	18.330	Sand and gravel fill		0-0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Gravelly clay fill		0.5-2.0	1-1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Sandy clay fill		2-2.5	2-2.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Silty clay			3-3.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Silty clay		2.5-5.0	4-4.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW04S	317159.418	1247704.764	18.400	Sand and gravel fill		0-0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Sandy clay fill		0.6-2.0	1-1.1	nd	1.3	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	-	-	-	-	-	-	-
				Silty clay fill		2-2.5	2-2.1	nd	3.6	nd	nd	nd	nd	nd	**4**	nd	nd	nd	<guidelines	-	-	-	-	-	-	-
				Sandy clay fill		2.5-3.5	3-3.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW04D	317158.641	1247703.451	18.370	Sand and gravel fill		0-0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Sandy clay fill		0.6-2.0	1-1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Silty clay fill		2-2.5	2-2.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Sandy clay fill		2.5-5.5	3-3.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW30	332317.9292	6247690.8620	18.363	Topsoil		0-0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Silty sandy clay fill, HC odour		0.1-0.9	0-0.45	-	-	-	-	113 (C16-C35 Aromatics) & 154 (Aliphatics)			nd	nd	nd	nd	-	-	-	-	-	-	-	-
				Plastic clay possible odour		0.9-1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW31	332338.1760	6247713.4180	18.446	Topsoil		0-0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Silty sandy clay fill		0.1-0.9	0.5-0.95	-	-	-	-	50 (C16-C35 Aromatics) & 65 (Aliphatics)			nd	nd	nd	nd	-	-	-	-	-	-	-	-
				Gravelly sandy clay fill, odour		0.9-1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Silty clay		1.4-1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW32	332305.3280	6247667.5440	18.331	Clay and gravel, topsoil		0-0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Silty clay fill		0.1-0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Sandstone fill		0.3-0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Sandy silty clay fill		0.6-1.5	1.2	-	-	-	-	nd (C16-C35 Aromatics) & nd (Aliphatics)			nd	nd	nd	nd	-	-	-	-	-	-	-	-
TP03	317139.830	1247679.080	18.020	Gravelly sand fill, ash and crushed sandstone with ballast, clinker, odour		0-0.3	0.25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	nd	-
				Gravelly (sandstone) clay with ballast and coke		0.3-1.5	0.5	nd	1.20	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-	-	-
				Gravelly (sandstone) clay with ballast and coke			1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	-	-	nd	nd	nd	-	nd
				Dark grey non plastic clayey silt fill with strong HC-like odour		1.5-2.8	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Dark grey non plastic clayey silt fill with strong HC-like odour			2.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-	-	-
TP04	317155.800	1247705.630	18.500	Gravelly sand fill with ash, clinker, sandstone gravel and ash		0-0.5	0.25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	nd	-
				Orange/ light brown/ red mottled low plasticity gravelly (shale) clay		0.5-0.7	0.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-	-	-
				As above but with black odourous staining		0.7-0.8	0.7	nd	1.30	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	-	-	-	nd	nd	-	-
TP11	317158.910	1247723.560	18.590	Brown/ black gravelly sand fill predomi-ntly ash and coke		0-0.3	0.2	**6.2**	62.80	nd	nd	850	510	**1360**	nd	nd	nd	nd	<guidelines	-	-	-	-	-	nd	-
				Yellow/orange very clayey sand with layer of dense coke gravel 0.2-0.3m		0.3-1.0	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	nd	-	nd	nd	nd	-	nd
Total Samples Analysed	-	-	-	-		-	-	11	11	11	-	-	-	14	14	14	14	14	8	1	0	2	3	3	3	2
Detects above criteria	-	-	-	-		-	-	1	0	0	-	-	-	1	1	0	0	0	0	0	-	0	0	0	0	0
Hotspots	-	-	-	-		-	-	0	0	0	-	-	-	0	1	0	0	0	0	0	-	0	0	0	0	0

Table 1 - Summary of All Data for Fill & Silty Clay Material - Macdonaldtown Gasworks Site

Sample Location	Easting (AMG)	Northing (AMG)	Elevation (mAHD)	Soil Profile		Sample Depth (m)	Contaminants of Concern - Concentrations in mg/kg																		
							BaP	Total PAH	TPH (C6-C9)	TPH (C10-C14)	TPH (C15-C28)	TPH (C29-C36)	Total C10-C36	Benzene	Toluene	Ethylbenzene	Total Xylenes	Metals	Cyanide (Total)	VOCs	Total Phenols	OCPs	OPPs	Asbestos	PCBs
Commercial / Industrial Landuse Guidelines (NEHF F / NSW EPA 1994 Service Station Guidelines)							5	100	65	-	-	-	1000	1	130	50	25	Various	2500	See BTEX	42500 (phenol)	50 (heptaclor) 50 (aldrin+dieldrin) 50 (chlordane) 1000 (DDT+DDE+DDD)			50
Southwest																									
BH01	317111.994	1247643.511	18.370	Gravelly fill		0-0.1	0-0.1	3	21.3	nd	20	340	160	520	nd	nd	nd	nd	< guidelines	-	-	-	nd	-	-	-
				Fine sand / rock fill		0.1-2.9	0.9-1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Silty clay		2.9-3.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Silty clay & coke fill (odourous)		3.2-3.5	3.3-3.4	0.9	31.6	-	-	-	-	-	nd	nd	nd	nd	< guidelines	-	naphthalene = 2	-	-	-	-	-
				Silty clay		3.5-4.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02	317107.419	1247666.818	18.420	Red clay & decomposed shale		0-1.5	0-0.1	**14**	**141.8**	-	-	-	-	-	-	-	-	-	< guidelines	-	-	nd	-	-	-	-
				Red clay & decomposed shale			0.2-0.3	**35**	**203.4**	-	-	-	-	-	-	-	-	-	< guidelines	-	-	nd	nd	-	-	-
				Red clay & weathered shale		1.5-2.1	2.0-2.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Silty clay, rock fragments, HC odour		2.1-3.0	2.5-2.6	nd	0.9	12	50	nd	nd	50	nd	nd	nd	5	< guidelines	nd	-	-	-	-	-	-
				Plastic clay and gravel (odourous)		3.0-3.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Silty clay (odourous)		3.3-4.0	3.3-3.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VP01_01				-		-	Surface	**5.9**	93.5	nd	nd	420	550	995	nd	nd	nd	nd	< guidelines	-	-	-	nd	-	-	-
VP01_02				-		-	Surface	**10**	**137.7**	nd	nd	790	870	**1685**	nd	nd	nd	nd	< guidelines	-	-	-	nd	-	-	-
VP01_03				-		-	Surface	**7.1**	**104.3**	nd	nd	870	1100	**1995**	nd	nd	nd	nd	< guidelines	-	-	-	nd	-	-	-
VP01_04				-		-	Surface	**15**	**219.4**	nd	nd	830	1200	**2055**	nd	nd	nd	nd	< guidelines	-	-	-	nd	-	-	-
VP01_05				-		-	Surface	3.2	45.4	nd	nd	710	990	**1725**	nd	nd	nd	nd	< guidelines	-	-	-	nd	-	-	-
VP01_06	Not surveyed - VP01 & VP02 located 15m directly south			-		-	Surface	10	**134.1**	nd	nd	1600	1500	**3125**	nd	nd	nd	nd	**Pb=2140**	-	-	-	nd	-	-	-
VP02_01	of remaining gasholder			-		-	Surface	2.5	44.8	nd	nd	520	700	**1245**	nd	nd	nd	nd	< guidelines	-	-	-	nd	-	-	-
VP02_02				-		-	Surface	**12**	**258.3**	nd	nd	1500	1100	**2625**	nd	nd	nd	nd	**Pb=1510**	-	-	-	nd	-	-	-
VP02_03				-		-	Surface	3.3	68.9	nd	nd	420	490	935	nd	nd	nd	nd	< guidelines	-	-	-	nd	-	-	-
VP02_04				-		-	Surface	**12**	**236.6**	nd	nd	1300	1200	**2525**	nd	nd	nd	nd	< guidelines	-	-	-	nd	-	-	-
VP02_05				-		-	Surface	3.5	62.9	nd	nd	550	570	**1145**	nd	nd	nd	nd	< guidelines	-	-	-	nd	-	-	-
VP02_06				-		-	Surface	1.8	22.9	nd	nd	440	450	875	nd	nd	nd	nd	< guidelines	-	-	-	nd	-	-	-
MW12S	317108.660	1247661.840	19.990	Sandy clay fill		0-3.0	0.8-1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW12D	317108.480	1247659.800	20.020	Sandy clay fill		0-1.4	1.4-1.5	**7.7**	68.2	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	-	nd	nd	-	-	-	-
				Red plastic clay		1.4-10.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW13S	317112.030	1247646.520	19.500	Sandy clay and gravel fi		0-4.2	0.9-1.0	**34.9**	**346**	nd		6444		**6444**	nd	nd	nd	nd	<guidelines	-	nd	5.9	-	-	-	-
MW13D	317112.010	1247649.090	19.470	Sandy clay fill		0-1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Sandy clay (friable) fill		1.0-4.4	1.4-1.5	1	8.3	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	-	nd	nd	-	-	-	-
MW18D	317106.550	1247671.160	19.490	Sandy clay fill		0-1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW18D	317106.550	1247671.160	19.490	Red plastic clay		1.0-10.0	1.4-1.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	-	-	nd	-	-	-	-
MG01	317116.340	1247667.860	18.530	Sandy gravel fill and coke		0-0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	nd	-
				Red/grey mottled moderate plasticity clay fill		0.1-0.2	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	detected (fragment)	-
				Brown/ yellow gravelly silty clay fill		0.2-0.7	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Grey/brown moderately plastic clay fill, odours, black ash pockets		1.3-1.5	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MG01	317116.340	1247667.860	18.530	Black and white shale with coke gravel fill, HC odour		1.5-2.0	1.8	0.6	12.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	nd	-	nd	nd	nd	-	nd
				Brown, low plasticity silty clay fill, minor HC odours		2.0-2.6	2.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Brown low plasticity silty clay		2.6-3.2	2.8	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-	-	-
				Brown low plasticity silty clay			3.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP01	317112.540	1247638.330	18.040	Light brown gravelly (sandstone and concrete) sand fill		0-0.3	0.25	3.5	38.20	nd	nd	250	220	470	nd	nd	nd	nd	-	-	-	-	-	-	nd	-
				Brown/grey/red clayey gravelly (sandst, shale, concrete) sand fill, grey ash		0.3-1.4	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-	-	-
				Yellow, medium grained sandy gravelly clay		1.4-2.2	1.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	-	-	nd	nd	nd	-	nd
				Yellow, medium grained sandy gravelly clay			2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Brown very gravelly (sandstone shale) clayey sand		2.2-3.5	3.0	0.7	5.90	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-	-	-
TP02	317109.670	1247657.650	19.070	Grey/black gravelly sand fill, ash, clinker and coke			0.25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	nd	-
				Grey/black gravelly sand fill, ash, clinker and coke		0.1-1.2	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Grey/black gravelly sand fill, ash, clinker and coke			1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-	-	-
				Brown/orange gravelly clayey sand fill with patches of red sandy clay (1.4m)		1.2-1.7	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Brown/dark gravelly sand with sandstone and bricks, clinker and cobbles		1.7-2.8	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Brown/orange very sandy gravelly (coke) clay fill with clay pipe		2.8-3.9	3.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-	-	-
RP	317122.828	1247676.764	18.370	Gravelly clay, low plast, minor ash and ballast gravels		0-0.7	-																			
				Reworked clay, low/med plast, firm		0.7-1.2	-																			
RP	317122.828	1247676.764	18.370	Sandy clay fill - ceramic piping		1.2-2.0	2.0	**12.8**	**118.20**	nd	120	930	680	**1730**	nd	nd	nd	nd	<guidelines	-	-	nd	nd	nd	-	nd
RP		Not surveyed		Coal tar materia		-	PIPE	**491**	**20890**	**70**	4590	15200	4870	**24660**	**2**	3.6	1.1	**47**	<guidelines	-	-	7.6	nd	nd	-	nd
Total Samples Analysed	-	-	-	-		-	-	30	30	27	-	-	-	27	28	28	28	28	24	2	4	21	5	3	4	3
Detects above criteria	-	-	-	-		-	-	12	10	1	-	-	-	11	0	0	0	0	2	0	0	0	0	0	1	0
Hotspots	-	-	-	-		-	-	6	2	0	-	-	-	5	0	0	0	0	0	0	0	0	0	0	0	0
Retaining Wall																										
TP44	317129.984	1247742.866	20.180	Ash fill		0-0.3	0.2-0.3	**150**	**2472.4**	-	-	-	-	-	**15**	16	nd	10	<guidelines	-	-	74	-	-	-	-
				Clay and sandstone fragments		0.3-2.1	2.0-2.1	nd	nd	-	-	-	-	-	nd	nd	nd	nd	<guidelines	-	-	nd	-	-	-	-
TP1	332302.67	6247740.31	20.01	Sandy gravel and topso		0-0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Gravel, ash, coke, coal fill, odou		0.1-0.4	0.1-0.3	**67**	**898.1**	nd	190	6200	3000	**9390**	nd	nd	nd	nd	<guidelines	-	-	-	-	-	-	-
				Gravelly sand with fine ash, bricks		0.4-0.7	0.5-0.6	1.3	15.6	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	-	-	-	-	-	-	-
				Plastic clay		0.7-1.9	0.8-0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP2	332304.83	6247743.68	20.09	Sandy, ash, gravel, coal, coke, bricks		0-0.4	0-0.2	-	-	-	-	-	-	-	nd	nd	nd	nd	-	-	-	-	-	-	-	-
				Powdery grey ash fill		0.4-0.5	0.4-0.5	-	-	-	-	-	-	-	nd	nd	nd	nd	-	-	-	-	-	-	-	-
				Plastic clay		0.5-1.7	0.8-1.0	-	-	-	-	-	-	-	nd	nd	nd	nd	-	-	-	-	-	-	-	-
							1.3-1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP3	332307.71	6247745.13	20.06	Sandy gravel fil		0-0.2	0-0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Ash, coal, coke (black and white		0.2-0.4	0.2-0.3	1.4	14.3	**150**	130	760	210	**1100**	**3.2**	10	2.8	**179**	<guidelines	-	-	-	-	-	-	-
				Powdery grey ash fill		0.4-0.7	0.4-0.6	0.4	4.3	nd	nd	nd	nd	nd	nd	1.6	nd	nd	<guidelines	-	-	-	-	-	-	-
				Plastic clay		0.7-1.5	0.8-0.9	-	-	-	-	-	-	-	nd	nd	nd	nd	-	-	-	-	-	-	-	-
TP10	317184.32	1247770	20.1	Grey/black gravelly sand, ash, coke, coal, bricks, rail rivets and rail sleeper		0-0.8	0.25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	nd	-
				Grey/black gravelly sand, ash, coke, coal, bricks, rail rivets and rail sleeper			0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Yellow medium sand with concrete boulder and some mild grey staining		0.95-1.3	1.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	nd	-	nd	nd	nd	-	nd
				Orange with grey mottles gravelly (shale) clay		1.3-1.7	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Grey sandy gravel (shale)		1.7-2.3	2.0	1	14.50	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	2.2	-	-	-	-	-	-
				Orange with grey mottles gravelly (shale) clay		2.3-3.2	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP12	317123.57	1247736.37	20.13	Gravelly (ash, concrete, sandstone, brick) sand		0-0.6	0.25	**9.6**	**116.40**	nd	180	1420	720	**2320**	nd	nd	nd	nd	<guidelines	-	-	nd	-	-	detected	-
				Gravelly (ash, concrete, sandstone, brick) sand			0.5	1	11.40	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	-	-	nd	nd	nd	-	nd
				brick,concrete boulders, fibro sheet fragments		0.6-1.7	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP18	317109.12	1247729.32	19.84	Gravelly (ash, concrete, sandstone, brick) sand, fibro sheet fragments		0-1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	nd	-
				Gravelly (ash, concrete, sandstone, brick) sand, metals, rubber, leather, fibro		0-1.2	1.2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	3	-	nd	nd	nd	-	nd
				Brown slightly sandy clay		1.5-2.6	1.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Samples Analysed	-	-	-	-		-	-	11	11	9	-	-	-	9	15	10	10	10	11	3	0	6	3	3	3	3
Detects above criteria	-	-	-	-		-	-	3	3	1	-	-	-	3	2	0	0	1	0	0	-	0	0	0	1	0
Hotspots	-	-	-	-		-	-	2	2	0	-	-	-	1	2	0	0	1	0	0	-	0	0	0	0	0
Western Lot																										
MW08D	317079.530	1247715.480	19.540	Sandy clay fill		0-0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VP03_01				-		-	Surface	nd	nd	nd	nd	180	180	397.5	nd	nd	nd	nd	< guidelines	-	-	nd	-	-	-	-
VP03_02				-		-	Surface	2	23.3	nd	nd	210	200	447.5	nd	nd	nd	nd	< guidelines	-	-	nd	-	-	-	-
VP03_03	Not surveyed - VP03 located in north western corner,			-		-	Surface	1.6	19.6	nd	nd	340	230	607.5	nd	nd	nd	nd	< guidelines	-	-	nd	-	-	-	-
VP03_04	adjacent to fenceline of 43 Burren St			-		-	Surface	nd	8.7	nd	nd	140	140	317.5	nd	nd	nd	nd	< guidelines	-	-	nd	-	-	-	-
VP03_05				-		-	Surface	1.8	19.5	nd	nd	260	270	567.5	nd	nd	nd	nd	< guidelines	-	-	nd	-	-	-	-
VP03_06				-		-	Surface	nd	nd	nd	nd	50	50	137.5	nd	nd	nd	nd	< guidelines	-	-	nd	-	-	-	-
TP13	317084.37	1247717.07	18.7	Very gravelly sand fill of ash, clinker, burnt shale, coke, co		0-0.3	0.25	**45.5**	**512.00**	nd	190	6010	2670	**8870**	nd	nd	nd	nd	<guidelines	-	-	6.7	-	-	nd	-
				Brown non plastic friable silty clay with shale grav		0.4-0.6	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP14	317067.72	1247713.76	18.7	Dark gravelly sand, ash, visual staining (ash) blac		0-0.25	0.25	**7.4**	94.70	nd	50	2770	680	**3500**	nd	nd	nd	nd	<guidelines	-	-	nd	-	-	nd	-
				Brown/orange low plasticity silty gravelly (shale) clay fill		0.25-0.8	0.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-	-	-
Total Samples Analysed	-	-	-	-		-	-	9	9	9	-	-	-	9	9	9	9	9	8	0	0	8	0	0	2	0
Detects above criteria	-	-	-	-		-	-	2	1	0	-	-	-	2	0	0	0	0	0	-	-	0	-	-	0	-
Hotspots	-	-	-	-		-	-	1	1	0	-	-	-	2	0	0	0	0	0	-	-	0	-	-	0	-
Western Drain Sediments																										
OD01	Not surveyed - In drain behind gasholders			-		-	Surface	**10**	**125.9**	nd	nd	1500	1700	**3200**	nd	nd	nd	nd	< guidelines	-	-	nd	-	-	-	-
OD02	Not surveyed - drain south of gasholders			-		-	Surface	**8.2**	91.6	nd	160	700	980	**1840**	nd	nd	nd	nd	< guidelines	-	-	nd	-	-	-	-
OD03	Not surveyed - S extremity of drain			-		-	Surface	4.8	54.3	nd	400	1600	1400	**3400**	nd	nd	nd	nd	< guidelines	-	-	nd	-	-	-	-

BOLD Concentration exceeds Commercial/Industrial Guidelines
BOLD Hotspot of contamination (conc exceeds criteria by 250%)

Table 2 - Summary of All Data for Natural Soil - Macdonaldtown Gasworks Site

Sample Location	Easting (AMG)	Northing (AMG)	Elevation (mAHD)	Soil Profile	Sample Depth (m)		Contaminants of Concern - Concentrations in mg/kg															
							BaP	Total PAH	TPH (C6-C9)	TPH (C10-C14)	TPH (C15-C28)	TPH (C29-C36)	Total C10-C36	Benzene	Toluene	Ethylbenzene	Total Xylenes	Metals	Cyanide (Total)	VOCs	Total Phenols	OCPs	OPPs	PCBs
Commercial / Industrial Landuse Guidelines (NEHF F / NSW EPA 1994 Service Station Guidelines)							5	100	65	-	-	-	1000	1	130	50	25	Various	2500	See BTEX	42500 (phenol)	50 (heptaclor) 50 (aldrin+dieldrin) 50 (chlordane) 1000 (DDT+DDE+DDD)		50
Gasholders																						
BH03	317103.713	1247693.358	18.690	Grey plastic clay	1.5-2.8	2.4-2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Red/orange clay, weathered shale		2.9-3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Red/orange clay, weathered shale	2.8-4.0	3.9-4.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH04	317103.564	1247699.228	18.780	Red plastic clay, weathered shale	2.5-3.0	2.5-2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH06	317103.196	1247719.155	18.960	Red clay & weathered shale	2.2-3.1	3.0-3.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW06S	317103.196	1247719.155	18.960	Red clay and weathered shale	2.2-3.5	3-3.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW06D	317102.514	1247720.496	18.970	Red clay and weathered shale	2.2-7.0	3.0-3.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Shale	7.0-15.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW07D	317102.910	1247692.360	19.590	Plastic clay becoming weathered shale	4.0-11.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Shale	11.0-12.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MG02	317122.410	1247701.920	18.680	Red/ yellow mottled, med plastic clay becoming shale, HC odour		2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Red/ yellow mottled, med plastic clay becoming shale, HC odour		2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Red/ yellow mottled, med plastic clay becoming shale, HC odour		3.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Red/ yellow mottled, med plastic clay becoming shale, HC odour		3.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Red/ yellow mottled, med plastic clay becoming shale, HC odo	2.0-4.7	4.7	nd	1.20	4	nd	nd	nd	nd	0.3	nd	nd	nd	-	-	-	-	-	-	-
MG05	317110.820	1247701.920	18.730	Red/grey mottled, stiff, very high HC odo		1.8	2.2	**288.50**	**118**	2100	940	nd	**3040**	nd	5.6	15	**80.4**	<guidelines	-	-	nd	nd	nd	nd
				Red/grey mottled, stiff, very high HC odour		3.4	nd	43.80	-	-	-	-	-	-	-	-	-	-	-	-	nd	-	-	-
				Red/grey mottled, stiff, very high HC odour	1.3-5.0	5.0	nd	65.10	**92**	580	740	nd	**1320**	nd	7.3	3.9	**35**	-	-	-	-	-	-	-
MG07	317103.960	1247696.520	18.740	Red/yellow mottled, low plasticity sandy clay	3.0-4.0	4.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	-	-	nd	nd	nd	nd
BHA	317118.7690	1247672.5610	18.4600	Red/grey mottled weathered shale clay, dark stains, strong HC odour	4.0-6.0	5.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-	-
				Weathered shale with red ironstone gravelly fracturing, dark stains, odours		7.0	nd	nd	nd	nd	nd	nd	nd	0.4	nd	nd	nd	-			nd			
				Weathered shale with red ironstone gravelly fracturing, dark stains, odours	6.0-10.2	10.2	nd	3.5 (naphthalene)	nd	nd	nd	nd	nd	0.3	nd	nd	nd	-			nd			
BHA1	317119.2270	1247671.6640	18.4100	Weathered shale with red ironstone gravelly fracturing, dark stains, odours		7.0	nd	nd	nd	nd	nd	nd	nd	**1.6**	nd	nd	nd	-			nd			
				Weathered shale with red ironstone gravelly fracturing, dark stains, odours	6.0-10.2	10.2	nd	nd	nd	nd	nd	nd	nd	**1.4**	**nd**	nd	nd	-			nd			
BHA2	317119.7780	1247670.6760	18.4800	Weathered shale with red ironstone gravelly fracturing, dark stains, odours		7.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-			nd			
				Weathered shale with red ironstone gravelly fracturing, dark stains, odours	6.0-10.2	10.2	nd	nd	nd	nd	nd	nd	nd	0.9	nd	nd	nd	-			nd			
BHB	317125.2230	1247689.8230	18.4900	Red/grey mottled weathered shale clay, high odour	3.0-6.5	6.0	nd	5.9 (naphthalene)	4	nd	nd	nd	nd	0.5	0.9	nd	-			nd			
				Weathered shale with red ironstone gravelly fracturing, odou	6.5-9.6	9.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-			nd			
BHC	317122.0140	1247714.1410	18.7800	Brick annulus, free tar, wet, very high odour	5.5- 6.5	6.0	**17.6**	**1906.4**	**559**	5440	2610	710	**8760**	**6.4**	38.7	40.8	**246.7**	-			2.3			
BHC1	317122.9830	1247714.5220	18.7500	Weathered shale with red ironstone gravelly fracturing, dark stains, odou	7.2-8.0	8.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-			nd			
BHD	317107.9530	1247721.7750	18.8600	Red/grey mottled weathered shale clay, wet, HC odour, tar visit	6.5-8	7.0	nd	nd	8	nd	nd	nd	nd	**5.4**	0.2	0.7	1.6	-			nd			
				Weathered shale with red ironstone gravelly fracturing, odou	8.0-8.4	8.4	nd	nd	9	nd	nd	nd	nd	**7.5**	0.9	nd	0.8	-			11.4			
Total Samples Analysed							18	18	17	-	-	-	17	17	17	17	17	2	0	0	15	2	2	2
Detects above criteria							1	2	3	-	-	-	3	6	0	0	3	0	-	-	0	0	0	0
Hotspots							1	2	1	-	-	-	2	3	0	0	2	0	-	-	0	0	0	0
Retort							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH07	317118.681	1247729.832	18.710	Red clay, weather shale (odourous)	2.0-3.0	2.9-3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH08	317125.080	1247723.696	18.580	Grey compacted clay / shale	2.5-4.0	3.5-3.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW37D	332300.9170	6247724.1940	18.615	Plastic silty clay fill	2.5-9.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Clay and shale	9.0-12.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH12	317151.071	1247716.220	18.670	Red clay and weathered shale	3.1-4.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Plastic clay	4-4.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Compacted clay (slight odour	4.1-4.5	4.4-4.5	**8.4**	**224.4**	9	300	420	nd	720	**1**	3	nd	4	-	nd	-	34.2	-	-	-
BH12A	317150.333	1247715.24	18.63	Clay red/grey mottled, med plast, stiff - visible tar in pon	3.5-5	4.2	**13.9**	**515.6**	**228**	1190	3350	810	**5350**	**20**	53	8.3	**94.9**	-	4.6		6.9			
				Weathered shale with red ironstone gravelly fracturing	5-9.2	6.0	nd	nd	nd	nd	nd	nd	nd	0.2	nd	nd	nd	-			nd			
MG06	317121.6000	1247725.1500	18.950	Red/green mottled low plasticity clay, high HC odour, tar in pores		2.0	0.8	**101.50**	41	620	980	nd	**1600**	nd	2.5	6.9	22.7	<guidelines	-	-	nd	nd	nd	nd
				Red/green mottled low plasticity clay, high HC odour		3.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Red/green mottled low plasticity clay, high HC odour	2.0-4.7	4.7	nd	6.10	6	nd	nd	nd	nd	nd	nd	0.5	1.4	<guidelines	2.1	-	-	-	-	-
MG08	317142.7700	1247736.0700	18.700	Red/grey mottled highly plastic clay, visible tar in pores	2.5-3.5	3.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Grey/ white moderate plasticity weathered shale clay, faint HC odour	3.5-4.0	4.0	nd	8.40	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-	-
MG09B	317141.1300	1247722.6100	18.735	Red/grey mottled moderate plasticity clay	1.7-2.5	2.5	nd	0.70	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-	-
MG09C	317134.4800	1247721.2700	18.735	Brown/green low plasticity silty clay becoming shale, high HC odo	1.9-3.8	3.8	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	-	-	-	-	-	-
MG10A	317150.4400	1247736.7200	18.850	Red/grey highly plastic clay becoming weathered shale cl		2.8	**6.3**	**206.90**	56	760	3060	250	**4070**	**1.1**	1.9	6.3	18.9	<guidelines	-	-	nd	nd	nd	nd
				Red/grey highly plastic clay becoming weathered shale cl	2.3-4.0	4.0	nd	0.70	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	-	-	nd	-	-	-
TP15	317145.9700	1247729.6300	18.780	Red/grey mottled moderate plasticity clay, tar in pon		2.8	**10.8**	**426.20**	**107**	450	1400	240	**2090**	**1.8**	10.9	17.5	**56.2**	<guidelines	1.9	-	-	nd	nd	-
				Red/grey mottled moderate plasticity clay to weathered shale, tar in poi	2.5-4.1	4.1	0.5	18.10	**65**	nd	nd	nd	nd	**2.7**	10.6	4.9	24.8	<guidelines	-	-	-	nd	nd	-
TP15A	317146.377	1247729.433	18.8	Weathered shale with red ironstone gravelly fracturing, free tar, odours		6.0	nd	0.8 (naphthalene)	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	nd		nd			
				Weathered shale with red ironstone gravelly fracturing	5.0-8.0	7.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	nd		nd			
BHC2	317128.9550	1247714.3230	18.6600	Weathered shale with red ironstone gravelly fracturing, dark stains, odours		6.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-			nd			
				Weathered shale with red ironstone gravelly fracturing, odours	4.8-8.0	8.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-			nd			
BHG	317117.2880	1247724.5790	18.6100	Red/grey mottled moderate plasticity clay, tar in pores, high odours	4.8-6.0	6.0	1	76.6	24	160	220	nd	380	**2.4**	4.1	1.3	8.7	-	nd		7.4			
				Weathered shale with red ironstone gravelly fracturing, dark stains, odours		7.2	nd	12.3	8	nd	nd	nd	nd	nd	nd	0.4	1.6	-			nd			
				Weathered shale with red ironstone gravelly fracturing, odours	6.0-8.1	8.1	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-			nd			
MG09A1	317134.074	1247734.848	18.44	Red/grey mottled weathered shale clay, slight odour		3.6	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	nd		nd			
				Red/grey mottled weathered shale clay, slight odour	2.0-5.0	4.8	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	nd		nd			
Total Samples Analysed							21	21	21	-	-	-	21	21	21	21	21	7	9	0	15	4	4	2
Detects above criteria							4	5	3	-	-	-	4	6	0	0	2	0	0	-	0	0	0	0
Hotspots							1	2	1	-	-	-	2	2	0	0	1	0	0	0	0	0	0	0
Gas Purifier							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH11	317140.501	1247707.420	18.560	Grey clay	2.3-2.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Stiff weathered clay	2.8-3.9	3.0-3.1	-	-	-	-	-	-	-	-	-	-	-	<guidelines	nd	-	-	-	-	-
BH18	317129.119	1247706.185	18.680	Red clay and weathered shale (odour)	2.5-4.0	2.9-3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Red clay and weathered shale (odour)		3.9-4.0	nd	1.8	-	-	-	-	-	nd	nd	nd	nd	<guidelines	-	-	-	-	-	-
MG11	317138.230	1247707.260	18.600	Red/grey mottled very firm clay	3.2-4.0	4.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	nd	-	nd	-	-	-
BHE	317131.9540	1247692.9320	18.5000	Red/grey mottled weathered shale clay, slight odour	2.5-5.0	3.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	1.6		nd			
				Weathered shale with red ironstone gravelly fracturing, odours	5.0-8.4	8.4	nd	1.9 (naphthalene)	nd	nd	nd	nd	nd	1.6	0.2	nd	nd	-	nd		nd			
BHF	317135.8890	1247701.0570	18.5600	Red/grey mottled weathered shale clay, slight odour	2.4-5.5	3.6	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	nd		nd			
				Weathered shale with red ironstone gravelly fracturing, free tar, odours		7.0	nd	0.8 (naphthalene)	7	nd	nd	nd	nd	0.8	0.4	nd	1	-	nd		nd			
				Weathered shale with red ironstone gravelly fracturing, free tar, odours	5.5-9.0	8.5	1.1	**134.6**	22	650	510	100	**1260**	0.8	nd	1.9	9.8	-	nd		nd			
Total Samples Analysed							7	7	6	-	-	-	6	7	7	7	7	3	7	0	6	0	0	0
Detects above criteria							0	1	0	-	-	-	1	1	0	0	0	0	0	-	0	-	-	-
Hotspots							0	0	0	-	-	-	0	0	0	0	0	0	0	-	0	-	-	-
Northeast							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH13		Not surveyed		Clay and weathered shale	1.5-2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Plastic clay	2.0-3.9	3.0-3.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH14	317161.824	1247753.075	19.030	Red clay	1.5-2.5	2.2-2.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Grey plastic clay	2.5-3.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Sandy silty clay, very odorous	3.1-4.1	3.9-4.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				White clayey sand, crumbly	4.1-5.1	4.9-5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH14A						2.4	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-			nd			
BH15	317179.131	1247760.045	18.810	Plastic clay	2.0-2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				White clayey sand, crumbly	2.5-4.2	4.1-4.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH16	317184.659	1247749.137	18.500	Plastic clay and gravel	1.5-2.2	2.0-2.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Plastic clay	2.2-3.1	2.6-2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Plastic clay		3.0-3.1	nd	nd	-	-	-	-	-	nd	nd	nd	nd	<guidelines	-	-	-	-	-	-
				Weathered shale	3.1-4.1	4.0-4.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP99	317214.570	1247774.179	19.420	Clay	0.5-2.1	2.0-2.1	nd	nd	-	-	-	-	-	nd	nd	nd	nd	<guidelines	-	-	-	-	-	-
MW42S	332357.7440	6247737.6530	18.484	Silty clay	1.9-4.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW42D	332356.4770	6247736.3090	18.529	Sandy silty clay	2.3-12.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MG10B	317157.4720	1247740.0010	18.820	Red/grey mottled weathered shale clay		3.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd				nd			
TP05	317185.5300	1247738.7300	18.440	Red/brown firm clay	1.9-2.0	2.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-	-
TP06	317189.0900	1247749.9500	18.530	Red/brown with grey mottles higly plastic clay	2.3-2.7	2.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-	-
TP07	317201.1000	1247755.8200	18.890	Grey with red/brown mottles firm clay	1.7-2.2	2.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-	-
TP08	317202.3200	1247766.1500	19.150	Grey with red mottles very firm clay	1.9-2.0	2.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	-	-	-	-	-	-
TP09	317218.1000	1247779.2700	19.470	Grey with red mottles very firm clay	2.4-2.6	2.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	-	-	-	-	-	-
TP16	317172.6700	1247743.8900	18.600	Red/grey mottled very firm clay	1.5-3.8	3.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	nd	-	nd	-	-	-
Total Samples Analysed							10	10	8	-	-	-	8	10	10	10	10	5	1	0	3	0	0	0
Detects above criteria							0	0	0	-	-	-	0	0	0	0	0	0	0	-	0	-	-	-
Hotspots							0	0	0	-	-	-	0	0	0	0	0	0	0	-	0	-	-	-

Table 2 - Summary of All Data for Natural Soil - Macdonaldtown Gasworks Site

Sample Location	Easting (AMG)	Northing (AMG)	Elevation (mAHD)	Soil Profile	Sample Depth (m)		Contaminants of Concern - Concentrations in mg/kg															
							BaP	Total PAH	TPH (C6-C9)	TPH (C10-C14)	TPH (C15-C28)	TPH (C29-C36)	Total C10-C36	Benzene	Toluene	Ethylbenzene	Total Xylenes	Metals	Cyanide (Total)	VOCs	Total Phenols	OCPs	OPPs	PCBs
Commercial / Industrial Landuse Guidelines (NEHF F / NSW EPA 1994 Service Station Guidelines)							5	100	65	-	-	-	1000	1	130	50	25	Various	2500	See BTEX	42500 (phenol)	50 (heptaclor) 50 (aldrin+dieldrin) 50 (chlordane) 1000 (DDT+DDE+DDD)		50
South Central							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW03D	317139.485	1247683.339	18.330	Siltstone	5.0-11.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Shale	11.0-13.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW04D	317158.641	1247703.451	18.370	Siltstone	5.5-10.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Shale	10-11.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP03	317139.830	1247679.080	18.020	Red/brown with grey mottles plastic silty clay, strong HC odour		3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Red/brown with grey mottles plastic silty clay, strong HC odour	2.8-4.0	4.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-	-
TP04	317155.800	1247705.630	18.500	Wet soft clayey silt, slight odour	2.0-2.9	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Red/ brown grey mottled slightly sandy clay, slight odour	2.9-3.1	3.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-	-
TP11	317158.910	1247723.560	18.590	Grey with red mottles very firm clay	3.2-4.0	3.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-	-
Total Samples Analysed							3	3	3	-	-	-	3	3	3	3	3	0	0	0	0	0	0	0
Detects above criteria							0	0	0	-	-	-	0	0	0	0	0	-	-	-	-	-	-	-
Hotspots							0	0	0	-	-	-	0	0	0	0	0	-	-	-	-	-	-	-
Southwest							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH01	317111.994	1247643.511	18.370	Red clay / weathered shale	4.0-4.5	4.0-4.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02	317107.419	1247666.818	18.420	Red clay, compacted, hard	4.0-4.5	4.4-4.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-	-
MW12S	317108.660	1247661.840	19.990	Red plastic clay	3.0-5.0		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW12D	317108.480	1247659.800	20.020	Shale	10.0-12.8		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW13S	317112.030	1247646.520	19.500	Red plastic clay	4.2-5.0		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW13D	317112.010	1247649.090	19.470	Plastic clay	4.4-10.0		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Shale	10.0-12.8		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW18D	317106.550	1247671.160	19.490	Shale bedrock	10.0-12.0		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MG01	317116.340	1247667.860	18.530	Red/ grey mottled highly plastic clay becoming shale, feint HC odour		3.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Red/ grey mottled highly plastic clay becoming shale, feint HC odour	3.3-5.0	5.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-	-
TP02	317109.670	1247657.650	19.070	Light grey with red mottles non-plastic firm clay	3.9-4.3	4.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Brown fine to coarse gravelly sand, coke and ash present, strong HC odour		4.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-	-
				Brown fine to coarse gravelly sand, coke and ash present, strong HC odour	4.3-4.5	4.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	-	-	-	nd	nd	-
Total Samples Analysed							4	4	4	-	-	-	4	4	4	4	4	1	0	0	0	1	1	0
Detects above criteria							0	0	0	-	-	-	0	0	0	0	0	0	-	-	-	0	0	-
Hotspots							0	0	0	-	-	-	0	0	0	0	0	0	-	-	-	0	0	-
Retaining Wall							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10	317184.32	1247770	20.1	Grey with red mottles very firm clay, shale gravels at top	3.2-4.1	4.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	-	-	-	-	-	-
TP18	317109.12	1247729.32	19.84	Red/ grey mottled clay		3.2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	nd	-	-	-	-	-
				Red/ grey mottled clay	2.6-4.4	4.4	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	-	-	-	-	-	-
Total Samples Analysed							3	3	3	-	-	-	3	3	3	3	3	3	1	0	0	0	0	0
Detects above criteria							0	0	0	-	-	-	0	0	0	0	0	0	0	-	-	-	-	-
Hotspots							0	0	0	-	-	-	0	0	0	0	0	0	0	-	-	-	-	-
Western Lot							-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW08D	317079.530	1247715.480	19.540	Red clay becoming weathered shale	0.4-11.0	1.4-1.5	0.7	5.6	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	-	-	nd	-	-	-
MW08D	317079.530	1247715.480	19.540	Shale	11.0-12.0		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP13	317084.37	1247717.07	18.7	Orange/yellow red mottled non plastic silty clay	0.6-1.3	1	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-	-
				Red/grey mottled very firm clay	1.3-1.7	1.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	-	-	-	-	-	-	-
TP14	317067.72	1247713.76	18.7	Orange/brown with red mottles slightly silty clay	0.8-1.2	1	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	-	-	nd	-	-	-
				Red/grey mottled slightly silty clay	1.2-1.8	1.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	<guidelines	nd	-	-	-	-	-
Total Samples Analysed							5	5	5	-	-	-	5	5	5	5	5	3	1	0	2	0	0	0
Detects above criteria							0	0	0	-	-	-	0	0	0	0	0	0	0	-	0	-	-	-
Hotspots							0	0	0	-	-	-	0	0	0	0	0	0	0	-	0	-	-	-

BOLD Concentration exceeds Commercial/Industrial Guidelines

BOLD Hotspots of contamination (conc exceeds criteria by 250%)