Cardno (NSW/ACT) Pty Ltd trading as
Cardno Geotech Solutions
ABN 95 001 145 035
P.O Box 4224, Edgeworth 2285
Unit 4/5 Arunga Dr, Beresfield 2322
[P] 0249 494300
[F] 0249 660485
[E] geotech@cardno.com.au

Cardno Geotech Solutions
Shaping the Future

PRELIMINARY CONTAMINATION ASSESSMENT

Lot 42 & 1012
Mount Vincent Road, East Maitland

Prepared for

Mr Dennis Wilton & Vincent Land Pty Ltd
C/- ACM Landmark Pty Ltd

Prepared by

Cardno Geotech Solutions Pty Ltd

GS ref: 1435-003/0

December 2012

APPENDIX A

DRAWINGS

AERIAL PHOTOGRAPH SCANS

APPENDIX B

S149 CERTIFICATES & TITLE DEES SEARCHES

APPENDIX C

FIELDWORK LOGS & SAMPLING RECORDS

APPENDIX D

LABORATORY RESULTS

GLOSSARY

$95\%UCL_{ave}$	The 95% Upper Confidence Limit of the mean concentration
AHD	Australian Height Datum (m), based on a mean sea level
ANZECC	Australian and New Zealand Environmental Conservation Council
HIL 'A'	HIL 'A' of the Health Based Investigation Levels, pg 9 Schedule B1, *National Environment Protection (Assessment of Site Contamination) Measure*
HIL 'D'	HIL 'D' of the Health Based Investigation Levels, pg 9 Schedule B1, National *Environment Protection (Assessment of Site Contamination) Measure.*
HIL 'E'	HIL 'E' of the Health Based Investigation Levels, pg 9 Schedule B1 *National Environment Protection (Assessment of Site Contamination) Measure*
HIL 'F'	HIL 'F' of the Health Based Investigation Levels, pg 10-11 Schedule B1 *National Environment Protection (Assessment of Site Contamination) Measure*
NEPM	National Environment Protection Measure
NHMRC	National Health and Medical Research Council
OCPs	Organochlorine Pesticides
PAHs	Polycyclic Aromatic Hydrocarbons
PCBs	Poly Chlorinated Biphenyls
PQL	Practical Quantification Limit
QA	Quality Assurance
QC	Quality Control
RPD	Relative Percentage Difference
TPH	Total Petroleum Hydrocarbons

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CGS Ref: 1435-003/0
19 December 2012

Mr Dennis Wilton and Vincent Land Pty Ltd
C/- ACM Landmark Pty Limited
P.O Box 627
Cessnock 2325

Attention: Mr Mark Leek

PRELIMINARY CONTAMINATION ASSESSMENT
LOT 42, DP 846326 AND LOT 1012 DP 1103879
MOUNT VINCENT ROAD, EAST MAITLAND

1 INTRODUCTION

This report presents the results of Preliminary Contamination Assessment (PCA) undertaken by Cardno Geotech Solutions Pty Ltd (CGS). The work was undertaken at the request of Mr Mark Leek of ACM Landmark Pty Limited (ACM) on behalf of the proponents Mr Dennis Wilton and Vincent Land Pty Ltd.

Based on discussions and project details provided, it is understood that it is proposed to apply for rezoning of the land currently zoned rural RU2 for urban use. The assessment was undertaken to determine the current site status in relation to potential contamination to support the proposed rezoning.

The assessment comprised a desktop review, site inspection and targeted intrusive sampling and testing. The results of the investigation are presented herein.

2 SITE DESCRIPTION & INSPECTION

The site comprises two parcels of land which are identified as Lot 42 in DP 846326, and Lot 1012 in DP 1103879 at East Maitland.

Both sites are situated south of Wilton Drive, with Lot 42 situated on the western side of Mount Vincent Road and Lot 1012 to the east side. The Mount Vincent Waste Facility lies to the south of Lot 1012, with existing recent residential subdivision development located immediately to the north of both lots. The site is partially underlain by the former mine workings of the Rathluba and Rathluba No 2 Collieries.

2.1 LOT 42 IN DP 846326

Lot 42 is irregular in shape with an approximate area of 27 ha and bounded by Mount Vincent Drive to the east and Wilton Drive to the north and rural/residence and rural land to the south and west.

Topographically the site is located on the south western flank of a ridgeline that trends northwest from a low hill to the east of Mt Vincent Road. Slope gradients across the site are generally less than 10° facing south west, locally steeper in drainage lines and are concavo-convex in shape.

Vegetation at the time of investigation comprised open pasture in the western portion of the proposed development area of Lot 42, with timbered land in the eastern portion.

The following observations were noted at the time of the fieldwork:

- Site elevations range between approximate R.L 40m A.H.D in the northern portion of Lot 42 to approximately 5m A.H.D at the lower part of the proposed development area of Lot 42;
- Surface drainage across the stages appears to follow site contours primarily directed to the south-west within two gully lines which fall to the southern and south-western ends of the site;
- A small dam is located adjacent to but above the western gully on the western end of the site (See photograph 1) and the remnant of a possible rural dam within the eastern gully in centre of the heavily timbered eastern portion of the site;
- A rural storage shed/stable and a timber stockyard is located towards the middle of the southern boundary (See Photograph 2)
- The area around the shed also comprises a storage area for a range of farm machinery, building materials, timber, galvanised metal sheeting, irrigation pipe and other sundry item;

- Some minor hydrocarbon surface staining in proximity to the stored farming machinery and a grease drum were noted around the shed;
- One sheet of fibrous cement which was the backing of an old timber shelf was noted near the shed;
- Based on surface exposures which reveal filling, an area located at the south-western corner of the site appears to be filled with the extent based on landform confined to the western side of the gully line and around the dam;
- Several small fragments of fibrous sheeting in the observed filled profile on the southern side of the western gully; and
- A damaged telecommunication line pit on the eastern side of the Lot which was made from a fibrous cement which may contain asbestos (See photograph 3).

Photograph 1 – *Filled areas around the western dam and gully line*

Photograph 2 – *Shed/Stable and stored items*

Photograph 3 – *Telecommunication pit on eastern boundary of Lot 42*

2.2 LOT 1012 IN DP 1103879

Lot 1012 is irregular in shape with an approximate area of 13.5 ha is bounded by Mount Vincent Road to the west and Wilton drive to the north, Mount Vincent Waste Facility to the south and undeveloped bushland to the east.

Topographically the site is located on the top of a ridge. Slope gradients across the site are gentle ranging from less than 1° to 5° facing both south and south-west and north and north east.

Lot 1012 contained approximately an equal portion of open pasture and open to sparse woodlands, with the south western corner containing medium dense woodlands.

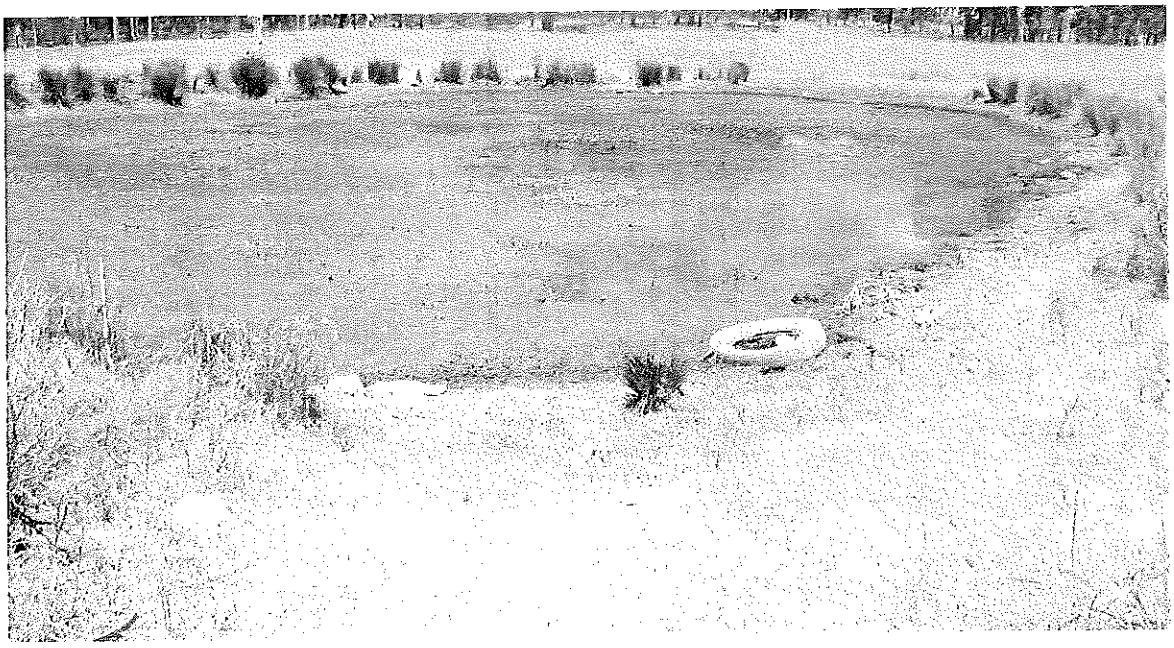
The following observations were noted at the time of the fieldwork:

- Site elevations on Lot 1012 range between approximate R.L 50m A.H.D in the centre of the Lot to approximately 32m A.H.D in the south western corner of Lot 1012;
- Surface drainage across the stages appears to follow site contours primarily directed from a central crest to the south west and the north east;
- A stockyard in the north west corner of the site;
- A small dam is located at the centre of the site;

- Four 1000L plastic water tanks were noted mounted on steel scaffolding for stock watering;
- Several areas of irregular surface suggesting previous disturbance were noted in the central cleared area;
- No visual or olfactory indicators of hydrocardnon spills; and
- Several sundry items noted around the site comprising plastic lids, steel, minor household discarded items, several old tyres , fencing wire and a large stockpile of wood consisting of both milled and unmilled timber;.

Photograph 4- Stock Water Tanks

Photograph 4 – *Stockyard North western Corner*



Photograph 5 – *Small dam centre of cleared area*

Photograph 6 - *North east Corner with timber pile in back ground*

3 SITE HISTORY

To aid in determining site history a review of available information was undertaken which involved:

- Review of available historical aerial photographs for the area;
- Review of Maitland City Council (MCC) records including S149 planning certificates, Lot 42 supplied by the client and Lot 1012 obtained direct from MCC;
- Review of Public records maintained by the NSW EPA regarding notices made under the *Contaminated Land Management Act 1997* and licenses issued under the *Protection of the Environment (Operations) Act 1997*; and
- Review of Title Deeds; and
- Discussion with Ms Narelle Campbell, the owner of the adjacent Lot 3 in DP 584658.

3.1 HISTORICAL AERIAL PHOTOGRAPHS

A review of a range of available aerial photography indicated that both sites have remained generally undeveloped since 1954, however mine activity immediately south of the site occurred between 1960 until the late 1980's. The ability to discern site features was limited due to the relatively small scale and poor resolution of some of the photographs.

Table 1 *Aerial Photograph Review*

Date	Reference	Comments
22 July 1954	Newcastle NSW 252-5124- Run 1NScale: -B/W	**LOT 42:** • Large clearing areas on the west side; • A access road on the south-eastern border of the site is visible which leads to a large structure and a number of smaller structures; • A small dam is located on the eastern side of the structures; • Dam/lake at the western end of the Lot; • Mount Vincent road is noticeable on the east. **LOT 1012:** • Clearing in the middle of the site with rural dam presence; • The lot is bounded by an access road to east; • An access road is visible within the lot on south-east corner. **Offsite:** • General surrounds are predominately pastoral/large clearings or bushland; • Some rural developments (assumed farm house complex) around north and western sides; • Large clearing area on south-eastern corner of Lot 1012;
19 August 1965	Northumberland Project 1965 NSW 1402-5089 Run 12 Scale: - B/W	Higher resolution image than the 1954 photograph **LOT 42:** • Generally consistent with the 1954 photograph; • Two gullies starting point around Mount Vincent Road and stretching in south-west direction are visible in the Lot; • A large proportion of the east end woodland was cleared and the regrowth of the smaller trees is evident; **LOT1012:** • Generally consistent with the 1954 photograph; • ; **Offsite:** • Large disturbed area to the south-west with several • structures are located at the location of the old structures on south-west corner of the lot which appears to be a mine development.
29 December	County of Northumberland	**LOT 42:** • Generally consistent with the 1965 photograph with an

1979	NSW 2830-36 Run 4 Scale: 1: 16 000 B/W	increase vegetation regrowth on the eastern end; • . **LOT1012:** • Generally consistent with the 1965 photograph; **Offsite:** • Extensive open pit mining activities are located on southern side of the Lot 1012; • The mining work located on south-west corner of Lot 42 was developed. A carpark and three large buildings were constructed adjacent to the mine. **LOT 42:** • Generally consistent with the 1979 photograph;
23 May 1987	Newcastle NSW 3575-101 Run 3 Scale: 1:16 000 Colour	**LOT1012:** • Generally consistent with the 1979 photograph; **Offsite:** • Less mining activity on the south-west corner of the Lot, while the three main structures remained unchanged; • Strike change in the area development mainly at north with increase in number of dwellings. **LOT 42:** • Generally consistent with the 1987 photograph;
08 June 1996	Newcastle NSW 188-234 Run 6 Scale: 1:20 000 Colour	**LOT1012:** • Generally consistent with the 1987 photograph; **Offsite:** • The open pit mine on the south side of Lot 1012 appears to not have mining activities; • Increased number of housing at north of the site; • A residential dwelling was constructed at south-eastern side of the Lot 1012; • A large land disturbance on the north-eastern side of lot 1012 which seems to be associated with a new development; • Mount Vincent road was constructed; • The Wilton drive was partially constructed. **LOT 42:** • Generally consistent with the 1996 photograph; • A dam remains from the mining activities of the south-west corner of the Lot; • Scattered construction material and a structure is visible on eastern side of the removed old mine.
19 December 2009	Google Earth	**LOT1012:** • Generally consistent with the 1996 photograph; **Offsite:** • A large industrial building and an open storage are located south of the site; • Winton Drive construction was complete; • The lands on northern area are developed.

The aerial photographs reviewed as part of the assessment are retained and scans of the photographs are included in Appendix B.

3.2 Office of Environment & Heritage (EPA) Notices

A search of Department of Environment & Climate Change (DECC) records revealed no notices have been issued for the site under the Contaminated Land Management Act (1997). Under Section 308 of the Protection of the Environment Operations Act (POEO) a public register is required to list licenses, applications, or notices issued by the DECC. A search of the public register for the site did not reveal any licenses, applications, or notices.

3.3 Maitland City Council (MCC) Records (S149 certificates)

A review of the section 149 certificates obtained from MCC indicates;

- Lot 42 includes or is within 500m of Class 2 soils as define in the MCC Local Environmental Plan and as such may potentially be underlain by acid sulphate soils on the western end;
- Lot 1012 DP1103879 and Lot42 DP846326 are within a proclaimed Mine Subsidence District under the Mine Subsidence Compensation Act 1961;
- The land is not affected by the Contaminated Land Management Act 1997;
- Lot 1012 Lot 42 are identified as Zone RU2 Rural Landscape;
- Lot 42 is within the a Waste Disposal Buffer; and
- Both Lots are bush fire prone land;

A copy of the certificates are attached in Appendix B.

3.4 Title Deeds

Services First Registration Pty Ltd was engaged by CGS to undertake a title deed search of the lots which make up the site over a nominal 100 year period.

The search results are contained in Appendix B and are broadly summarised as detailed in the Table 2 below.

Table 2 *Title Deeds Search Results Summary*

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
	Lot 42 D.P. 846326 (1,5)	
15.09.1921 (1921 to 1942)	Catherine Gulliver (Married Woman)	Book 1236 No. 936
25.02.1942 (1942 to 1948)	Cecil Gulliver (Farmer)	Book 1921 No. 308
04.08.1948 (1948 to 1961)	Lillian (or Lilian) May Gulliver (Widow)	Book 2060 No. 634
04.08.1961 (1961 to 1968)	Desmond Clifford Yates (Dairy Farmer) Heather Olive Yates (Married Woman)	Book 2579 No.448
08.02.1968 (1968 to 1974)	Bernard Vaughan Campbell (Dairy Farmer) Marion June Campbell (Married Woman)	Book 2879 No. 193 Now Vol 12496 Fol 86 & Vol 13117 Fol 163
26.08.1974 (1974 to 1986)	Pulbah Pty Limited	Vol 12496 Fol 86& Vol 13117 Fol 163 Both now 2/703267
28.01.1986 (1986 to date)	# Denis Thomas Wilton (Company Director)	2/703267 Now 42/846326

Lot 1012
D.P. 1103879[2]

15.09.1921 (1921 to 1934)	William Geary Limited	Book 1236 No. 954
21.08.1934 (1934 to 1940)	George Geary (Butcher) Harold Geary (Clerk) Johanna Geary (Widow) (Executors of the Will of George Geary, Master Butcher) Also Alfred John Hayler (Retired Carpenter) Ella May Geary (Spinster) Eva Geary (Spinster), Now Eva Edge (Married Woman) Alice Maud Geary (Spinster)	Book 1697 No. 369
27.07.1940 (1940 to 1949)	George Geary (Butcher) Harold Geary (Clerk) Johanna Geary (Widow) (Executors of the Will of George Geary, Master Butcher) Also Alfred John Hayler (Retired Carpenter) Ella May Geary (Spinster) Eva Geary (Spinster), Now Eva Edge (Married Woman)	Book 1876 No. 511
15.11.1949 (1949 to 1951)	Andrew Alfred Huckstadt (Dairy Farmer) Marjorie Rosa Huckstadt (Married Woman)	Book 2107 No. 912
13.02.1951 (1951 to 2004)	Enid Helen Johnson (Married Woman)	Book 2160 No. 422 Now 102/1065984
10.07.2004 (2004 to 2007)	Enid Helen Johnson (Married Woman) John Kevin Johnson	
31.01.2007 (2007 to date)	# Vincent Pty Ltd	102/1065984

Notes to Table 2:

1. 24.05.1985, **Easement**, Right of Carriageway 5 wide-Released 03.06.1986
2. 19.01.1995, **Easement** to Drain Water 3 Wide
3. 15.04.1927 **Leased** to William Cranston Beatty (Miner)-Mining lease-term of 20 years
4. 01.04.1944 **Leased** to William Cranston Beatty, Garnet Arthur Beatty and John Rowland Beatty, Coal miners- mining lease of part-for the term of 20 years
5. 01.04.1944 **Leased** to William Cranston Beatty, Garnet Arthur Beatty and John Rowland Beatty, Coal miners- mining lease of another part-for the term of 20 years
6. 27.10.2006 **Easement** for Water Main variable width (D.P 1103879)
7. 14.11.1950 **Leased** to William Cranston Beatty, Garnet Arthur Beatty and John Rowland Beatty (Colliery Proprietors), for the term of 20 years from 01.10.1950 – Lease of mines beds, veins and steams of coal and shale

\# Denotes current registered proprietor

3.5 Discussion with Ms Narelle Campbell

During the site inspection a brief discussion was undertaken with Ms Narelle Campbell, the owner of the adjacent Lot 3 in DP 584658. Ms Campbell was familiar with Lot 42 as the lot comprised her former family dairy farm. Ms Campbell indicated that no former mining activity was conducted on Lot 42 and the collection of structures visible on the aerial photograph in proximity to the southern boundary of Lot 42 comprised the former mine office complex and associated hardstand.

4 FIELDWORK

4.1 Areas of Environmental Concern (AEC)

The desktop review and site inspection has identified possible contamination associated with:

- Areas of filling/stockpiling and the stored items around the rural shed;
- The potential fill/CWR/overburdon related to the adjacent mine infrastructure on the common boundary of Lot 3 in DP 584658 and Lot 42 in the south western corner;
- Observed minor amounts of fibrous cement sheeting which may contain asbestos; and
- Possible contamination due to previous rural practices for which the land was generally used.

In order to provide preliminary comment on the identified AEC's a limited program of targeted intrusive testing was undertaken.

The fieldwork was based on observed conditions and the locations of the sampling comprised some targeted locations but primarily randomly spread over the area coincident with the proposed development. The locations of test pits and sampling are shown on Drawings, CGS1435-003-1 and CGS1435-003-2 attached in Appendix A.

4.2 Fieldwork, Sampling & Decontamination Procedures

The fieldwork component for the PCA by Cardno Geotech Solutions was undertaken by CGS's Principal Technical officer and a geotechnical engineer and comprised the following:

- A site walkover and visual inspection conducted in order to map salient features of the site and the surrounding area;
- Surface sampling and test pits , mainly in areas of filling identified in Lot 42;

- Collection of Seventeen (17) environmental soil samples. The initial sampling was targeted based on observed site conditions. A total of twelve (12) environmental / contamination samples of the original 17 samples were selected for analysis. The samples were selected from predominately targeted areas although samples of the natural profile were also nominated for testing. The testing comprised determination of heavy metals, hydrocarbons, pesticides. Some of the samples which include a component of Coal Washery rejects were only tested for TPH and PAH
- Given the observation of fibrous sheeting and filling the samples were also tested for the presence of asbestos fibres together with samples of the sheeting on the timber shelf in the storage area and the sheet fragments on the fill area in the south western corner of lot 42.

4.3 SAMPLING

Environmental sampling was performed according to CGS standard operating procedures with sampling data recorded on Chain of Custody sheets, and the general sampling procedure comprising:

- Collection of samples from both surface and in test pitting;
- The use and changing of disposable gloves between each sampling event to prevent cross contamination;
- Decontamination of all sampling equipment using a 3% solution of phosphate free detergent (Decon 90) and tap water prior to each pit;
- Soil sample storage for all sampling events was via appropriate containers supplied by ALS Group;
- Samples storage in a chilled insulated containers prior to transport to the laboratory; and
- Sample storage less than 24 hrs.

4.4 FIELDWORK RESULTS

The assessment indicates filling observed around the existing dam in the south-west corner of the Lot 42 which appears to comprise site won soils and a component of overburden soils likely to have been generated from previous coal mining activities. Based on the historical aerial photograph filling on the adjacent lot 3 in DP584658 associated with the development of the former coal mine office complex was extended over the lot boundary

Similarly there are some areas of minor surface filling in Lot 1012 which appear to be related to improving and or directing overland drainage and former tracks. The filling appears to be won from adjacent areas and was generally less than 0.3m.

Only minor seepage was noted in the test pits in the western gully area in lot 42 was observed on the site at the time of site investigation.

It should be noted that groundwater levels are affected by climatic conditions and soil permeability and will therefore vary with time.

Engineering logs of the test pits undertaken in lot 42 are contained in Appendix C. sampling was undertaken from the surface in Lot 1012.

5 ASSESSMENT CRITERIA

5.1 Soil

5.1.1 NEPM – National Environment Protection (Assessment of Site Contamination) Measure (1999)

The current assessment criteria used in NSW to evaluate soil analytical results are based on the NSW DECC Guidelines for the NSW Site Auditor Scheme 2nd Edition 2006 [1] and National Environment Protection Measure (NEPM) for the Assessment of Site Contamination, 1999 [2], and was used as the criteria for the assessment of the soil on site. Table 5A of Schedule B (1) Guideline on Investigation Levels for Soil and Groundwater provides limits on investigation concentrations for contaminants based on human health risk and certain exposure scenarios due to site use.

The proposed site use is residential and therefore the following guidelines have been adopted:

- Health Investigation Levels (HIL's) "**A.** Standard residential with garden/accessible soil (home-grown produce contributing less than 10% of vegetable and fruit intake: no poultry): this category includes children's day-care centres, kindergardens, preschools and primary schools."

5.1.2 NSW EPA – Service Station Criteria

- The assessment criteria adopted for TPH C_6-C_{36}, and BTEX comprised both the NEPM Guidelines [2] and the *"Guidelines for Assessing Service Station Sites" produced by the NSWEPA, December 1994*, [3]. These guidelines provide assessment criteria for soil and water on service station sites and are applicable for sites where fuel oil / grease have been utilised.

6 LABORATORY TESTING

Laboratory testing was carried out on soil samples using ALS Pty Ltd (ALS), which holds current accreditation with the National Association of Testing Authorities, Australia (NATA). The initial testing of the soil was undertaken as a broad scale assessment.

All testing was undertaken within the terms of their accreditation. Copies of the testing laboratory reports are shown in Appendix D. The results of laboratory analysis for inorganic and organic contaminants in the soil samples are summarised in the following tables:

- **Table 3** – Results of Laboratory Analysis for Heavy Metals;
- **Table 4** – Results of Laboratory Analysis for TPH/BTEX;
- **Table 5** – Results of Laboratory Analysis for Polycyclic Aromatic Hydrocarbons (PAHs);
- **Table 6** – Organochlorine & Organophosphorus Pesticides (OCP/OPP's);
- **Table 7** – Polychlorinated Biphenyls (PCB); and
- **Table 8** – Results of Asbestos testing of Soils & Sheeting Fragments; and

Table 3 *Results of Laboratory Analysis for Heavy Metals for soils (Results in mg/kg)*

Sample ID	As	Cd	Cr	Cu	Pb	Ni	Zn	Hg
ES006	7	<1	5	8	20	6	73	<0.1
ES007	7	<1	4	12	11	2	26	<0.1
ES009	<5	<1	2	<5	19	2	36	<0.1
ES115	<5	<1	4	7	20	3	56	<0.1
ES116	<5	<1	<2	<5	6	<2	148	<0.1
ES118	<5	1	<2	<5	22	2	1300	<0.1
ES119	<5	<1	3	<5	15	<2	98	<0.1
ES120	10	<1	10	<5	19	<2	28	<0.1
ES109	8	<1	4	13	42	4	89	<0.1
ES113	<5	<1	3	<5	13	2	22	<0.1
ES114	<5	<1	3	6	11	4	16	<0.1
ES102	<5	<1	5	<5	10	5	14	<0.1
LOR[1]	5	1	2	5	5	2	5	0.1
Guideline[2]	100	20	100	1000	300	600	7000	15

Notes to Table 3:

1 *LOR- Limiting of Reporting*
2 *National Environment Protection Measure (NEPM) for the Assessment of Site Contamination, 1999 [2] Health Based Investigation Levels, Column A Standard*
3 ***Bold** indicates exceedance of Guideline 1*

Table 4 *Results of Laboratory Analysis for TPH/BTEX (Results in mg/kg)*

Sample ID	Total Recoverable Hydrocarbons (TPH)		Monocyclic Aromatic Hydrocarbons (BTEX)			
	C6-C9	C10-C36	Benzene	Toluene	Ethyl Benzene	Xylene
ES006	<10	360	<0.2	<0.5	<0.5	<0.5
ES007	<10	<50	<0.2	<0.5	<0.5	<0.5
ES009	<10	230	<0.2	<0.5	<0.5	<0.5
ES115	<10	260	<0.2	<0.5	<0.5	<0.5
ES116	<10	<50	<0.2	<0.5	<0.5	<0.5
ES118	<10	<50	<0.2	<0.5	<0.5	<0.5
ES119	<10	<50	<0.2	<0.5	<0.5	<0.5
ES120	<10	<50	<0.2	<0.5	<0.5	<0.5
ES101	<10	**1770**	-	-	-	-
ES105	<10	330	-	-	-	-
ES107	<10	**2180**	-	-	-	-
ES108	<10	530	-	-	-	-
ES109	<10	680	<0.2	<0.5	<0.5	<0.5
ES113	<10	<50	<0.2	<0.5	<0.5	<0.5
ES114	<10	260	<0.2	<0.5	<0.5	<0.5
ES102	<10	<50	<0.2	<0.5	<0.5	<0.5
LOR[1]	10	50	0.2	0.5	0.5	0.5
Guideline[2]	65	1000	1	1.4	3.1	14
Guideline[3]	90	5600	N/A	N/A	N/A	N/a

Notes to Table 4:

1 *LOR- Limiting of Reporting*
2 *NSW EPA Contaminated Sites Guidelines for Assessing Service Station Sites (1994)[3]*
3 *National Environment Protection Measure (NEPM) for the Assessment of Site Contamination, 1999 [2] Health Based Investigation Levels, Column A Standard*
4 ***Bold** indicates exceedance of Guideline 1*

Table 5 *Results of Laboratory Analysis for PAHs*

Sample ID	Benzo(a)pyrene	Total Polycyclic aromatic hydrocarbons (PAH)
ES006	<0.5	<0.5
ES007	<0.5	<0.5
ES009	<0.5	<0.5
ES115	<0.5	<0.5
ES116	<0.5	<0.5
ES118	<0.5	<0.5
ES119	<0.5	2.1
ES120	<0.5	<0.5
ES101	<0.5	2.6
ES105	<0.5	<0.5
ES107	<0.5	3.1
ES108	<0.5	2.3
ES109	<0.5	0.7
ES113	0.6	<0.5
ES114	<0.5	0.6
ES102	<0.5	<0.5
LOR[1]	0.5	0.5
Guideline[2]	1	20

Notes to Table 5:

1 *LOR- Limiting of Reporting*
2 *National Environment Protection Measure (NEPM) for the Assessment of Site Contamination, 1999 [2] Health Based Investigation Levels, Column A Standard.*
3 ***Bold** indicates exceedance of Guideline 1*

Table 6 *Results of Laboratory Analysis for OCP/OPP*

Sample ID	Aldrin + Dieldrin	Chlordane	DDT + DDD + DDE	Heptachlor
ES006	<0.05	<0.05	<0.05	<0.05
ES007	<0.05	<0.05	<0.05	<0.05
ES009	<0.05	<0.05	<0.05	<0.05
ES115	<0.05	<0.05	<0.05	<0.05
ES116	<0.05	<0.05	<0.05	<0.05
ES118	<0.05	<0.05	<0.05	<0.05
ES119	<0.05	<0.05	<0.05	<0.05
ES120	<0.05	<0.05	<0.05	<0.05
ES109	<0.05	<0.05	<0.05	<0.05
ES113	<0.05	<0.05	<0.05	<0.05
ES114	<0.05	<0.05	<0.05	<0.05
ES102	<0.05	<0.05	<0.05	<0.05
LOR[1]	0.05	0.05	0.05	0.05
Guideline[2]	10	50	200	10

Notes to Table 6

1 *LOR- Limiting of Reporting*
2 *National Environment Protection Measure (NEPM) for the Assessment of Site Contamination, 1999 [2] Health Based Investigation Levels, Column A Standard. The thresholds are for combination of pesticides and some pesticides do not have current threshold concentrations.*
3 ***Bold** indicates exceedance of Guideline 1*

Table 7 *Results of Laboratory Analysis for Polychlorinated Biphenyls (PCB)*

Sample ID	Total Polychlorinated biphenyls (PCB)
ES115	<0.1
ES116	<0.1
ES118	<0.1
ES119	<0.1
ES120	<0.1
ES109	<0.1
ES113	<0.1
ES114	<0.1
ES102	<0.1
LOR[1]	0.1
Guideline[2]	10

Notes to Table 7

1 *LOR- Limiting of Reporting*
2 *National Environment Protection Measure (NEPM) for the Assessment of Site Contamination, 1999 [2] Health Based Investigation Levels, Column A Standard*
3 ***Bold** indicates exceedance of Guideline 1*

---Table 8 *Results of Laboratory Analysis for Asbestos in Soil or sheeting*

Sample ID	Asbestos detected	Asbestos Type
ES115	NO	-
ES116	NO	-
ES118	NO	-
ES119	NO	-
ES120	NO	-
ES109	NO	-
ES113	NO	-
ES114	NO	-
ES102	NO	-
PCA2	YES	Chrysotile
PCA3	YES	Chrysotile & Amosite

7 QUALITY ASSURANCE

Given the preliminary nature of the assessment no specific duplicate testing was conducted as part of the field sampling.

ALS Group has undertaken internal quality assurance testing which also involves a review of the QA results and interpretation. Results are contained within the laboratory report sheets in Appendix E.

The review of internal QA indicates that sufficient internal QA was undertaken for most analytes and that, Recovery of Surrogates, Recovery of Spikes, Relative Percentage Differences for Duplicates, Laboratory Blank results and Holding times where within acceptance criteria as defined by ALS.

The data obtained from this testing is considered accurate and the results can be relied on to the for the purpose of the preliminary assessment.

8 ANALYSIS OF RESULTS

8.1 SOIL

8.1.1 HEAVY METALS

Appraisal of the results indicated that the levels of metals within the samples tested were below the threshold limits as detailed in National Environment Protection Measure (NEPM) for the Assessment of Site Contamination, 1999 [2] Col A.

8.1.2 TOTAL PETROLEUM HYDROCARBON (TPH)

Appraisal of the results indicated that the levels of Petroleum Hydrocarbons were generally below the threshold limits with two results in ES101 and ES107 above the threshold limits within the Guidelines for Assessing Service Station Sites [3], but below the thresholds within the National Environment Protection Measure (NEPM) for the Assessment of Site Contamination, 1999 [2] Col A

8.1.3 POLYCYCLIC AROMATIC HYDROCARBON (PAH)

Appraisal of the results indicated PAH's were below the threshold limits as detailed in the National Environment Protection Measure for the Assessment of Site Contamination, 1999 [3] Col F.

8.1.4 ORGANOPHOSPOROUS & ORGANOCHLORINE PESTICIDES (OPP/OCP) & POLYCHLORINATED BIPHENYLS (PCB)

Appraisal of the results indicated that the levels of OPP, OCP and PCB within the samples tested were below the threshold limits as detailed in National Environment Protection Measure for the Assessment of Site Contamination, 1999 [3] Col F.

8.2 ASBESTOS MATERIAL

Materials suspected of containing asbestos were identified during the fieldwork and comprised minor scattered fragments around the filled area, on the western side of the dam in Lot 42 and an asbestos sheet around the shed in the lot 42.

Most of the samples from the fill area and targeted samples from the both Lots were tested for asbestos fibres within the soil matrix. Asbestos was not detected in any of the soil samples but both sheet fragments were confirmed as containing asbestos.

9 DISCUSSION

The results suggest that the majority of both sites are in a natural condition with minor areas of surface disturbance such as excavation and or filling for dams and shallow diversion drains to direct overland surface flows. The exception to the above is a small section of filling on the southern end of the western gully below a dam in lot 42. The filling material in this location is considered to have encroached on lot 42 from the former mine office complex. It is noted that the fill material comprised gravelly clays and sandy gravels, some of which comprised coal rejects/overburden. It is noted that two of the samples tested had higher TPH results which exceeded the threshold limits for the Service Station guidelines [3] but not the NEPM guidelines [2]. During the course of the field work, with the exception of the some minor stained areas associated with equipment stored around the shed, no visible or olfactory evidence of hydrocarbons was noted in the fill material. It is probable that the measured TPH levels in the samples are related to the presence of low grade carbonaceous material with the fill.

While some staining was noted at the surface around the shed, a sample of one of these areas showed only minor amounts of TPH which were below the relevant guidelines.

It is considered that the confirmed presence of asbestos material could be readily addressed during construction. The sheet on the back of the timber shelf stored near the shed which was largely intact could be removed by an appropriately licenced contractor. The observed sheet fragments within the filled area on the western gully would be removed to a licensed waste facility during construction.

The S149 certificate indicates that Lot 42 has or is within 500m of Class 2 potential acid sulphate soils in accordance with MCC Local environmental plan of 2011. It is noted that the proposed developable area of Lot 42 is above RL 5 and as such the presence of acid sulphate soils is not anticipated. Specific assessment could be undertaken as part of development approval if required.

10 CONCLUSIONS

The preliminary contamination assessment was undertaken in order to determine the current status of the proposed development in relation to potential contamination from past site activities that may impact on the potential rezoning of the site.

The PCA has determined that potential contamination within the lots could have arisen from:

- Areas of filling/stockpiling and the stored items around the rural shed;
- The potential fill related to the adjacent mine infrastructure on the common boundary of Lot 3 in DP 584658 and Lot 42 in the south western corner;
- Observed minor amounts of fibrous cement sheeting which may contain asbestos; and
- Possible contamination due to previous rural practices for which the land was generally used.

Based on limited testing conducted as part of the PCA no indication of gross contamination has been identified. It is noted that an area of existing filling associated with the former mine office complex on the adjacent property has encroached on a small section of the southern boundary. It is suggested that from a contamination perspective the existing 'placed' filling would not be an impediment to development. The extent of the filled area has been well defined by test pitting and could be removed from site during development. Based on the results of the testing the material would be classified as General solid waste [4] with bonded asbestos fragments. Following removal the stripped surface could be validated to confirm that the fill material has been removed.

The old timber shelf with asbestos backing could be removed by a licensed contractor.

The observed telecommunication pit which may contain asbestos should be addressed by the asset owner.

Based on the results of the PCA, contamination does not pose a constraint to the proposed development. Demolition of the existing shed and removal of the stored items in Lot 42 should be undertaken during development and should be cognisant of potential contaminates within some of the items i.e. old, fuel oils and grease .

11 LIMITATIONS

Cardno Geotech Solutions (GS) have performed investigation and consulting services for this project in general accordance with current professional and industry standards for preliminary contamination assessment purposes.

The programme of limited field and laboratory sampling and testing, was undertaken was as a preliminary assessment and conditions different to those identified during these tasks may exist. Therefore CGS, or any other reputable consultant, cannot provide unqualified warranties, nor does CGS assume any liability for site conditions not observed or accessible during the time of the investigations. Site conditions can also change subsequent to CGS's assessment, due to ongoing use.

This report and associated documentation and the information herein have been prepared solely for the use of Mr Dennis. Wilton and Vincent Land Pty Ltd any reliance assumed by other parties on this report shall be at such parties own risk.

Yours faithfully,
Cardno Geotech Solutions Pty Ltd

Alireza Mohiti
Geotechnical Engineer

Ian G Piper
Principal Technical Officer

James Young
Principal Engineering Geologist

REFERENCES

[1] NSW DEC *Guidelines for the NSW Site Auditor Scheme 2nd Edition 2006*

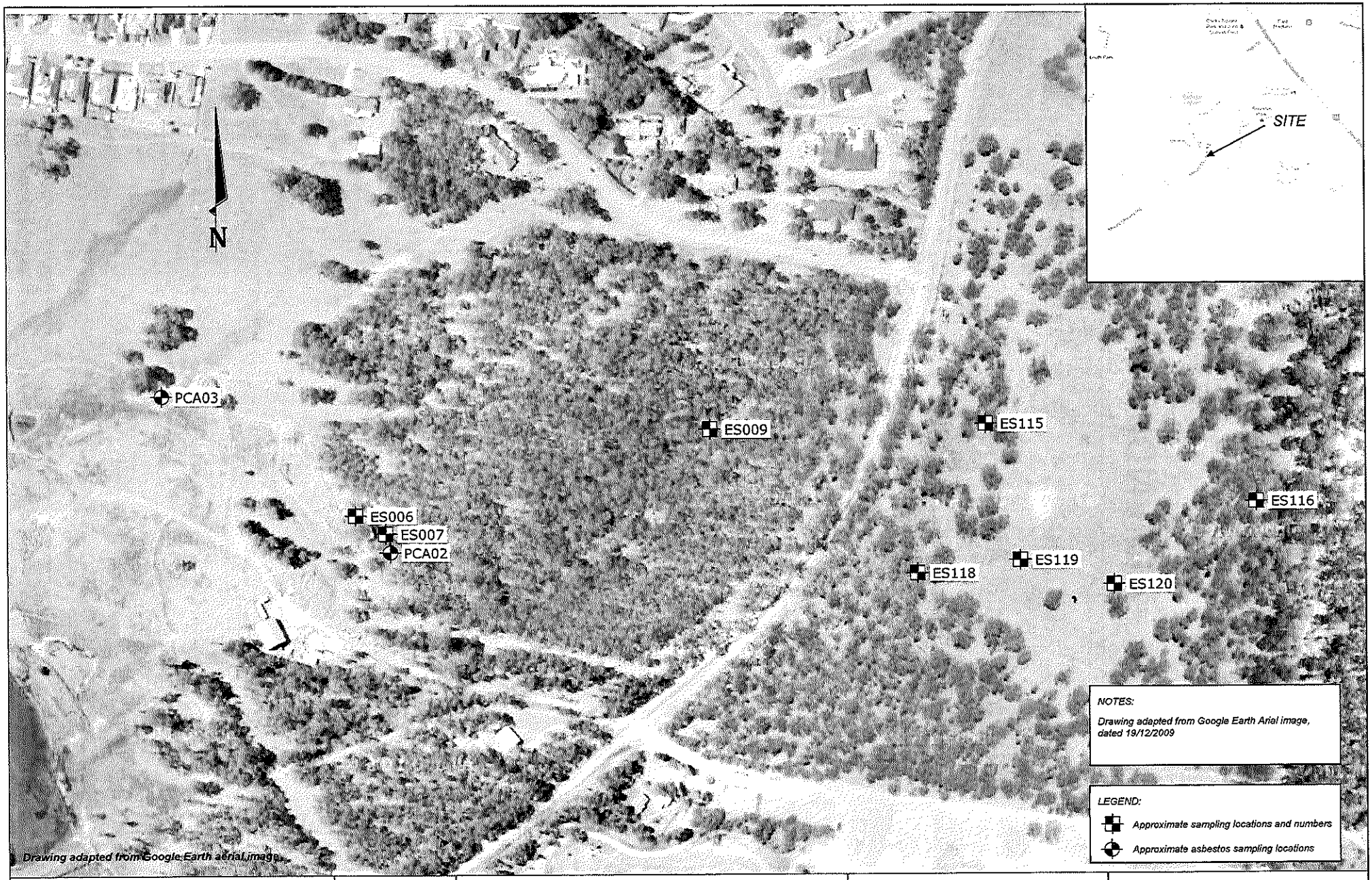
[2] NEPC, *National Environment Protection (Assessment of Site Contamination) Measure, 1999*

[3] NSWEPA, *Guidelines for Assessing Service Station Sites, December 1994*

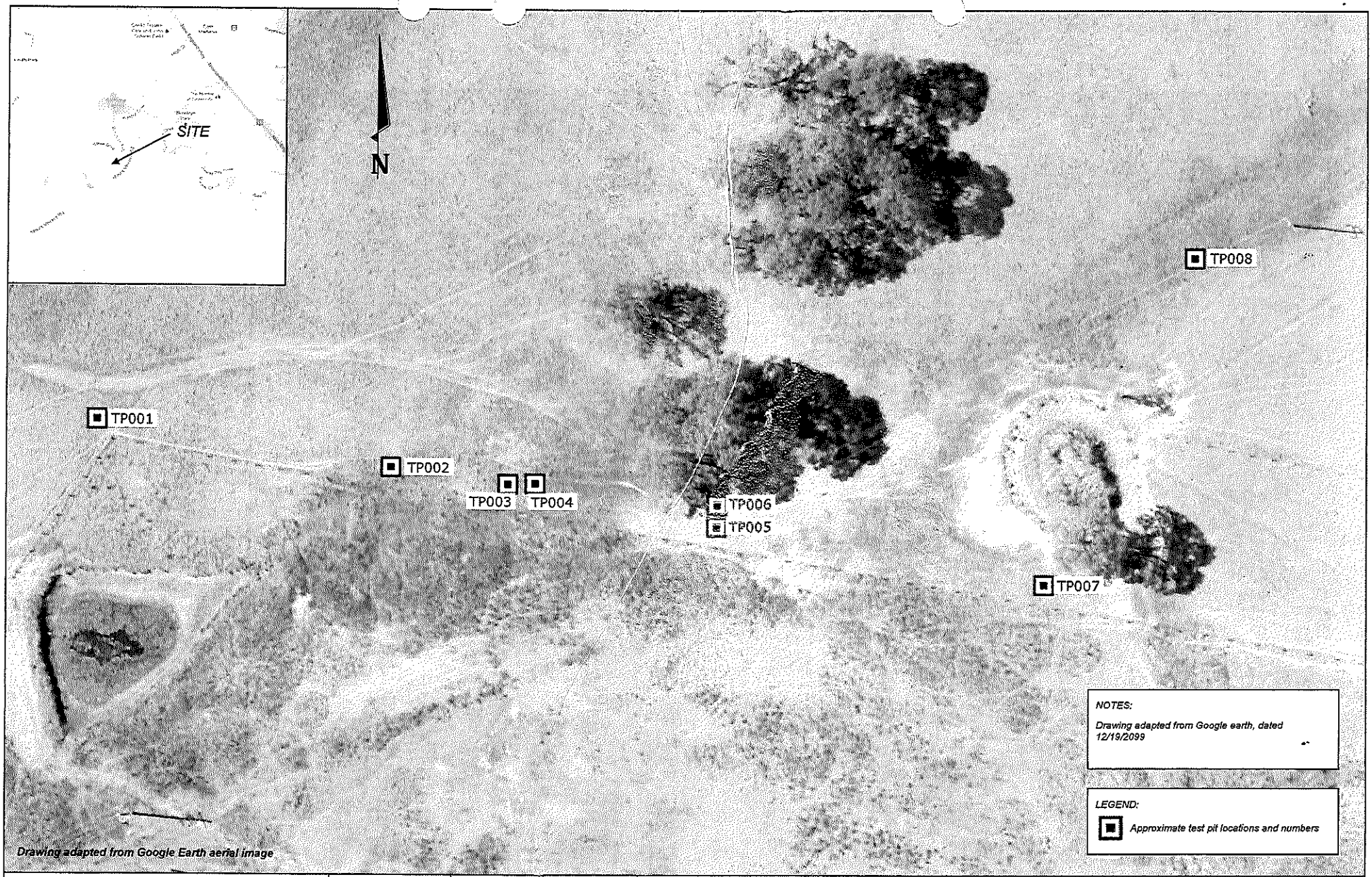
[4] Department of Environment and Climate Change & Water (DECCW) Part 1 Classifying Waste. 2009

APPENDIX A

Drawings & Aerial Photograph Scans

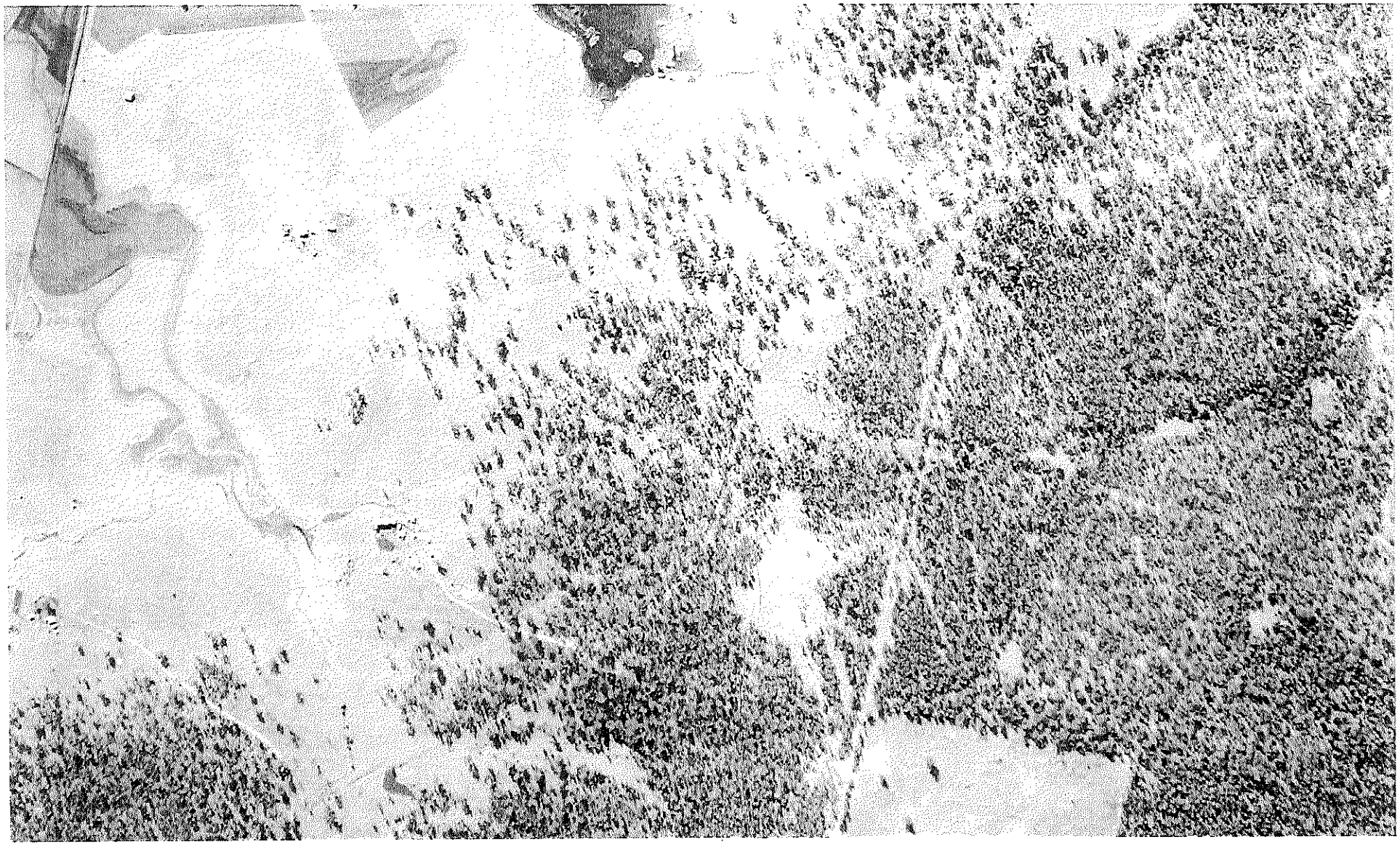


Cardno Geotech Solutions Shaping the Future	Unit 4, 5 Arunga Drive, Beresfield NSW 2322	SAMPLING LOCATION PLAN PRELIMINARY CONTAMINATION ASSESSMENT LOTS 42 AND 1012 MT VINCENT ROAD, EAST MAITLAND	CLIENT: Mr Dennis Wilton and Vincent Land Pty Ltd PROJECT REFERENCE: CGS1435 DRAWING NUMBER: CGS1435-003-1	DRAWN BY: AM APPROVED BY: DATE: 18 December 2012 SCALE: NTS OFFICE: Beresfield



Cardno Geotech Solutions Shaping the Future	Unit 4, 5 Arunga Drive, Beresfield NSW 2322	TEST PIT LOCATION PLAN PRELIMINARY CONTAMINATION ASSESSMENT LOT 42 MOUNT VINCENT ROAD, EAST MAITLAND	CLIENT: Mr Dennis Wilton and Vincent Land Pty Ltd PROJECT REFERENCE: CGS1435 DRAWING NUMBER: CGS1435-003-2	DRAWN BY: AM APPROVED BY: DATE: 18 December 2012 SCALE: NTS OFFICE: Beresfield

Aerial 1-22 July 1954



Aerial 2-19 August 1965

Aerial 3-29 December 1979

Aerial 4-18 May 1987

Aerial 5-8 June 1996