

# Report on Preliminary Contamination Assessment

Proposed Residential Subdivision:  
505 Minmi Road, Fletcher

CGS1706



Prepared for  
ADW Johnson Pty Ltd

24 March 2014

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## Document Information

Prepared for	ADW Johnson Pty Ltd
Job Reference	CGS1706
Project Name	Proposed Residential Subdivision: 505 Minmi Road, Fletcher
File Reference	CGS1706-004.0
Date	24 March 2014

## Document Control

Version	Date	Description of Revision	Prepared By	Prepared (Signature)	Reviewed By	Reviewed (Signature)
0	24/03/14	First issue to client	ZO		IGP	

Version	Reason for Issue	Approved for Release By	Approved (Signature)	Approved Release Date
0	First issue to client	IGP		24/03/14

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# 1 Introduction

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This report presents the results of a Phase 1 Preliminary Contamination Assessment (PCA) undertaken by Cardno Geotech Solutions (CGS) on the proposed residential development located at Lot 1 DP 844711, 505 Minmi Road, Fletcher. The proposed development comprises creation of over 100 residential allotments over two precincts (west and east) and approximately 2.8 km of internal road pavement.

A PCA was requested by the City of Newcastle (CoN) to accompany a rezoning Development Application (DA) following identification of possible filling on site. The assessment comprised of a desktop review, site inspection and targeted intrusive sampling. The sampling and laboratory testing was conducted as part of previous waste classification assessment by CGS as detailed in a report on Excavated Natural Material Assessment, reference CGS1706-003/1, dated 12 July 2013 [1].

The work was conducted for ADW Johnson Pty Ltd (ADWJ) who are the project managers acting on behalf of the site owner and developer. For the purpose of this assessment, a concept site plan was provided by ADWJ (reference 11813, Sheet 1 of 1, Version J, dated 8/06/2013).

## 2 Site Identification

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The site is defined as the proposed development within Lot 1 DP 844711, 505 Minmi Road, Fletcher, excluding the western portion ('Development Subject to MP.08/0125) as shown on Drawing 1 attached in Appendix A. The site is bounded by Minmi Road to the north, existing residential development to the east, and undeveloped land to the south and west.

## 3 Site History

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To aid in assessing site history, a discussion was held with personnel familiar with the site history, along with a review of available information and including:

- > Selected available historical aerial photographs for the area.
- > CoN records including Section 149 Certificates.
- > Title Deeds.
- > Public records maintained by the NSW Environment Protection Authority (EPA) regarding notices made under the Contaminated Land Management Act 1997 and licenses issued under the Protection of the Environment (Operations) Act 1997.

### 3.1 Discussion with Previous Site Operator

A discussion was held with Mr Warwick Denshire who is understood to have had operations at the site prior to 2005, and is familiar with the site works and history. The supplied information is summarised as follows.

- > The site was predominately undeveloped and undisturbed with the exception of some dumping of domestic waste and stockpiles of soil and rock, of which is assumed to have been predominately won from excavations on site associated with mine workings; however the exact origin is unknown.
- > Several mine subsidence depressions and possible mine adits or ventilation shafts were filled with site stockpiled material.
- > Some of the stockpiled material on site was levelled to create a goat paddock in the central portion of the site, which is still currently evident. The area was subsequently used as a compound area for the adjacent residential developments, with temporarily storage of a shipping container and machinery.

- > The site was used for grazing (goats) and no herbicide or pesticides were used in conjunction with the grazing activities.

## 3.2 Historical Aerial Photographs

A review of a range of available aerial photography indicated that site was predominately undeveloped. The ability to discern site features was limited due to the relatively small scale and poor resolution of some of the photographs. A summary of observed site features detailed in the reviewed aerial photography is detailed in Table 3-1, however the Aerial photographic review was limited to available photographs and there is a potential for previous site activity prior to 1954.

**Table 3-1 Aerial Photography Review**

Date	Reference	Comments
22 July 1954	Newcastle NSW 252-5050 Run 4 Black & White	On Site: The site comprises of undeveloped bushland. Some minor access tracks appear evident (possible remnant from previous site activity). Off Site: General surrounds are predominately undeveloped bushland to the south and east, cleared land to the north, Minmi Road to the north (alignment since altered), possible mine works to the west to southwest, along with a small structure and associated cleared land to the west.
22 August 1965	Northumberland Project NSW 1403-5175 Run 9 Black & White	On Site: Generally consistent with the 1954 photograph. Some of the access tracks appear more established. Off Site: Generally consistent with the 1954 photograph.
27 May 1975	Newcastle NSW 2314-131 Run 7 Black & White	On Site: Generally consistent with the 1965 photograph. Additional structure to the north of Minmi Road. Off Site: Generally consistent with the 1965 photograph, with some vegetation re-growth in previous disturbance areas to the southwest of the site.
27 April 1984	Newcastle NSW 3384-115 Run 7 Scale: 1:40000 Black & White	On Site: Generally consistent with the 1975 photograph. Off Site: Large areas of disturbance to the south of the site, possibly associated with mine activity. Some minor disturbance (possible filling) to the north of the site. Further vegetation re-growth to the southwest of the site.
25 February 1993	Newcastle NSW 4116 Run 10 Scale: 1:25000 Colour	On Site: Generally consistent with the 1984 photograph. Off Site: Minor alignment change to Minmi Road (curve straighten). Further disturbance and dam construction to the area southwest of the site, in areas of previous works and subsequent vegetation re-growth. Works to the south of the site appear to have ceased, and the area of previous large disturbances is grassed, with a dam also evident.
4 October 2004	Newcastle NSW 4875 (M2448) Run 10 Scale: 1:25000 Colour	On Site: Generally consistent with the 1993 photograph but with an area of disturbance and possible filling in the central portion of the site. A small structure (possible shipping container) is also evident. Some access tracks appear to be more established. Off Site: Further re-growth of vegetation in previously disturbed areas to the south and southwest. Construction of a residential subdivision to the east of the site.
30 January 2014	PhotoMap aerial image (Nearmap.com)	On Site: Generally consistent with the 2004 photograph but with some re-growth in the disturbed/filled the area in the central portion of the site. The structure (possible shipping contained) does not appear to remain. Off Site: Further re-growth of vegetation in previously disturbed areas to the south and southwest. Earthworks associated with subdivision development to the north of Minmi Road, and further residential subdivision construction to the east of the site.

The aerial photographs reviewed as part of the preliminary assessment are retained and copies are attached in Appendix B.

## 3.3 Office of Environment & Heritage 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.

### 3.4 City of Newcastle Records (Section 149 Certificates)

A review of the Section 149 certificates obtained from the CoN, which are attached in Appendix C, indicates the following.

- > The site is zoned as E4 Environmental Living.
- > The site is subject to Clause 3.1 and 3.2 of the Newcastle Local Environment Plan 2012.
- > The land is within a proclaimed Mine Subsidence District under the Mine Subsidence Compensation Act 1961.
- > The site has the potential to contain acid sulfate soils and works carried out on the land must be undertaken in accordance with the Newcastle Local Environment Plan 2012.
- > The property may be affected by land contamination.
- > The site is not located within flood prone land.
- > The site is not affected by a current notice or order (excluding those issued under the Environmental Planning and Assessment Act 1979 or the Local Government Act 1993).

### 3.5 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 C and are broadly summarised in Table 3-2 below.

**Table 3-2 Title Deed Search**

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
25.09.1917 (1917 to 1923)	William Charles Wentworth Francis William Hixson (No occupations noted)	Vol 1905 Fol 10
01.11.1923 (1923 to 1939)	George Alexander Peattie (Contractor) Sidney Ernest Cramp (Contractor)	Vol 1905 Fol 10 Now Vol 3628 Fol's 74 & 75
21.12.1939 (1939 to 1940)	Sidney Ernest Cramp (Contractor) Herbert Searles (Dairy Farmer)	Vol 3628 Fol's 74 & 75
19.08.1940 (1940 to 1940)	Sidney Ernest Cramp (Railway Employee) Herbert Searles (Dairy Farmer) (Transmission Application not investigated)	Vol 3628 Fol's 74 & 75
19.08.1940 (1940 to 1944)	Herbert Searles (Dairy Farmer)	Vol 3628 Fol's 74 & 75 Now Vol 5168 Fol 237
23.06.1944 (1944 to 1956)	Frank Cornelius Searles (Farmer) Hilda May Sketchley (Married Woman) Muriel Joyce Searles (Spinster) (Transmission Application not investigated)	Vol 5168 Fol 237
29.04.1956 (1956 to 1971)	Hilda May Sketchley (Married Woman)	Vol 5168 Fol 237
15.12.1971 (1971 to 2005)	Brian Hardie (Medical Practitioner)	Vol 5168 Fol 237 Now 1/844711
07.04.2005 (2005 to date)	Kingston Minmi Road Pty Ltd (Current Registered Proprietors)	1/844711

**Leases:**

Nil

**Easements:**

- > 01.11.1923 B17280 Right of Way and Easement 66 feet wide.
- > 11.08.1932 C 136521 Right of Way 66 feet wide.
- > 28.05.2008 D.P. 1108608 Right of Carriageway 15 metres wide.

## **4 Investigation Methodology**

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### **4.1 Fieldwork**

#### **4.1.1 Site Inspection**

A site inspection was undertaken by Principal Technical Officer from CGS on 21 and 22 February 2014 in order to map salient features of the site and the surrounding area. The inspection comprised of a walkover assessment and no restrictions on site accessibility was encountered.

#### **4.1.2 Sampling**

The fieldwork component conducted as part of previous assessment [1] comprised environmental soil sampling undertaken to identify potential Areas of Environment Concern (AEC) associated with the filling identified on site. The sampling was conducted on 29 May 2013 and comprised drilling shallow boreholes using an excavator and auger attachment at nine locations (ES001 to ES009). Four environmental soil samples were obtained from the boreholes and sampled in accordance with the procedure detailed in Section 4.2 below.

All fieldwork was carried out by a geotechnical engineer from CGS. Samples were located by reference to existing site features and based on the size of the fill area. The indicative locations are shown on Drawing 1, attached in Appendix A and should be considered as approximate only.

### **4.2 Sampling and Contamination Procedures**

Environmental sampling was performed according to CGS standard environmental soil sampling procedures including the following.

- > The use and changing of disposable gloves for 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 borehole.
- > Soil sample storage for all sampling events was via appropriate containers supplied by ALS laboratories.
- > Samples storage in chilled insulated containers prior to and during transport to the laboratory.
- > Sample storage less than 72 hours.

### **4.3 Laboratory Assessment**

The analytes selected for testing were conducted for the purpose classification of the filling in accordance with the Excavated Natural Material Exemption 2012 (ENM) [2] and comprised of the following, the results of which were reviewed as part of this assessment.

- > Heavy metals (Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Zinc)
- > Total Recoverable Hydrocarbons (TRH).
- > Monocyclic Aromatic Hydrocarbons: Benzene, Toluene, Ethyl-benzene, Xylenes (BTEX).

- > Polycyclic Aromatic Hydrocarbons (PAH).
- > Electrical Conductivity (EC) and pH: for previous assessment [1] but not required for this assessment.

The results and quality assurance are summarised in Section 7 and reports (Certificate of Analysis) are attached in Appendix D.

## 5 Site Inspection

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Topographically the site spans three north westerly trending gullies running off a north-east trending ridgeline with proposed development area on both east and west facing slopes either side of the combined gullies. Site slopes are generally gentle to moderate, but steeper in the vicinity of site boundaries and locally in drainage lines and gullies which cross the site falling to the west to north-west. Surface drainage follows the natural surfaces and existing drainage lines falling ultimately to Minmi Creek, to the north of the site.

The site was predominately relatively heavily vegetated at the time of fieldwork, with the exception of a small clearing in the area of filling, and where tracks have been established.

At the time of fieldwork, the site contained several access tracks which appeared to be used for a variety of purposes associated with previous site activity. The site has been subject to some minor disturbance and illegal dumping of predominately domestic waste materials and rubble, generally adjacent to the access tracks, as shown on Drawing 1. The anthropogenic materials included domestic waste, bricks, an abandoned vehicle, plastic pipe, timber, scrap metal, large concrete fragments, and fibrous cement fragments. It is noted that the fibrous cement could possibly contain bonded asbestos although it should be appreciated that the materials were only identified in two small areas with observed material spread over an area in the order of 2m<sup>2</sup>. Photographs of areas of potential contamination and anthropogenic materials are shown in Appendix E.

## 6 Criteria for Contamination Assessment

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### 6.1 General

It should be appreciated that the testing conducted as part of this assessment was preliminary in nature with a limited scope. The sampling and testing is not deemed a necessity for the purpose of PCA but was conducted for previous ENM classification [1] and the results have been reviewed as part of this assessment to supplement the findings of the desktop study and site inspection. The purpose of the current assessment was to identify potential areas for further assessment.

#### 6.1.1 National Environment Protection (Assessment of Site Contamination) Measure

The assessment criteria used to evaluate soil analytical results are based on the National Environment Protection (Assessment of Site Contamination) Measure (NEPM) [3]. Schedule B1 of the NEPM [3]: Guidelines on Investigation Levels for Soil and Groundwater provides limits on investigation concentrations based on human health and ecological risks associated with the presence of site contamination.

The proposed site use is residential and therefore the "Residential A" Health-based Investigation Levels (HIL A) has been adopted for the assessment. HIL A refers to residential use with garden or accessible soil with home grown produce less than 10% fruit and vegetable intake (no poultry), and also includes childcare centres, preschools and primary schools.

Ecological investigation levels (EIL) for urban residential and public open space have also been considered where suitable.

### 6.1.2 **NSW EPA Service Station Criteria**

The assessment criteria adopted for TRH (C6-C36) and BTEX were based on the NSW Environment Protection Authority (EPA) Contaminated Sites: Guidelines for Assessing Service Station Sites (GASSS) [4]. These guidelines provide assessment criteria for soil and water on service station sites and are applicable for sites where fuel oil or grease may have been utilised.

## 6.2 **Potential Areas of Environmental Concern**

The desktop review and site inspection has identified possible site contamination associated with the following.

- > Potential minor hydrocarbon contamination associated with the abandoned and wrecked motor vehicle.
- > Potential contamination associated with the isolated dumping of household items, along with building rubble such as bricks, concrete and fibrous cement fragments which are potentially asbestos containing material (ACM).
- > Possible hydrocarbon spillage associated with the use of the filled area in the central portion of the site as site compound and machinery storage area.
- > Possible component of imported filling associated with the fill area, of which based on anecdotal evidence was constructed used site fill assumed to be predominately site won.
- > Potential contamination associated with the fill material utilised to fill mine subsidence depressions and possible mine adits or ventilation shafts.

# 7 **Laboratory Testing**

## 7.1 **Testing Results**

Laboratory testing was carried out on selected soil samples and was conducted by ALS Laboratories, which holds current accreditation with the National Association of Testing Authorities, Australia (NATA). All testing was undertaken within the terms of their accreditation. The laboratory testing reports (Certificate of Analysis) are attached in Appendix D.

The results of laboratory analysis for inorganic and organic contaminants in the soil samples are summarised in the following tables.

- > Table 7-1: Results of Laboratory Analysis for Heavy Metals.
- > Table 7-2: Results of Laboratory Analysis for TPH/BTEX.
- > Table 7-3: Results of Laboratory Analysis for Polycyclic Aromatic Hydrocarbons (PAHs).

**Table 7-1 Results of laboratory soils analysis: metals**

Analyte <sup>(1)</sup>	PQL <sup>(2)</sup>	Guideline <sup>(3)</sup>	ES001	ES003	ES004	ES005
Arsenic	4	100	<4	12	9	8
Cadmium	0.4	20	<0.4	<0.4	<0.4	<0.4
Chromium	1	100	2	9	9	9
Copper	1	6000	3	48	26	24
Lead	1	300	19	70	31	29
Mercury	0.1	40	<0.1	<0.1	<0.1	<0.1
Nickel	1	400	2	7	7	5
Zinc	1	7400	19	390 <sup>(4)</sup>	210	140

Notes to table:

- (1) Results in mg/kg.  
(2) PQL: Practical Quantitation Limit.  
(3) Schedule B1 of the NEPM [3]: Guidelines on Investigation Levels for Soil and Groundwater.  
(4) Indicates an exceedance where the Cation Exchange Capacity (CEC) of the soil is less than 10 cmole/kg.

**Table 7-2 Results of laboratory soils analysis: TPH/BTEX**

Analyte <sup>(1)</sup>	PQL <sup>(2)</sup>	Guideline <sup>(3)</sup>	ES001	ES003	ES004	ES005
<b>Total Recoverable Hydrocarbons (TPH)</b>						
C6-C9	25	65	<25	<25	<25	<25
C10-C14	50		<50	<50	<50	<50
C15-C28	100	1000	<100	<100	<100	<100
C29-C36	100		<100	<100	<100	<100
<b>Monocyclic Aromatic Hydrocarbons (BTEX)</b>						
Benzene	0.2	1	<0.2	<0.2	<0.2	<0.2
Toluene	0.5	1.4	<0.5	<0.5	<0.5	<0.5
Ethyl Benzene	1	3.1	<1	<1	<1	<1
Total Xylene	2	14	<3	<3	<3	<3

Notes to table:

- (1) Results in mg/kg.  
(2) PQL: Practical Quantitation Limit.  
(3) EPA Contaminated Sites: Guidelines for Assessing Service Station Sites [4].

**Table 7-3 Results of laboratory soils analysis: PAH**

Analyte <sup>(1)</sup>	PQL <sup>(2)</sup>	Guideline <sup>(3)</sup>	ES001	ES003	ES004	ES005
Naphthalene	0.1	–	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	0.1	–	<0.1	<0.1	<0.1	<0.1
Acenaphthene	0.1	–	<0.1	<0.1	<0.1	<0.1
Fluorene	0.1	–	<0.1	<0.1	<0.1	<0.1
Phenanthrene	0.1	–	<0.1	<0.1	<0.1	<0.1
Anthracene	0.1	–	<0.1	<0.1	<0.1	<0.1
Fluoranthene	0.1	–	<0.1	<0.1	<0.1	<0.1
Pyrene	0.1	–	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	0.1	–	<0.1	<0.1	<0.1	<0.1
Chrysene	0.1	–	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	0.2	–	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	0.05	–	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	0.1	–	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	0.1	–	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	0.1	–	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ <sup>(4)</sup>	0.5	3	<0.5	<0.5	<0.5	<0.5
Total PAH	–	300	<2	<2	<2	<2

Notes to table:

- (1) Results in mg/kg.  
(2) PQL: Practical Quantitation Limit.  
(3) Schedule B1 of the NEPM [3]: Guidelines on Investigation Levels for Soil and Groundwater. Criteria for 'Total PAH' and 'Benzo(a)pyrene TEQ' only.

(4) Carcinogenic PAH HIL is based on the eight carcinogenic PAH and the Toxicity Equivalence Factor (TEF) relative to benzo(a)pyrene. The benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is calculated as the sum of the products of the concentration of each carcinogenic PAH and the applicable TEF.

## **7.2 Quality Assurance**

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

ALS Laboratories have undertaken internal quality assurance (QA) testing which also involves a review of the QA results and interpretation. Results are contained within the laboratory Certificate of Analysis in Appendix D.

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 were 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 Comments and Discussions**

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## **8.1 Analysis of Contamination Results**

### **8.1.1 Heavy Metals**

Appraisal of the results indicated that the levels of metals within the samples tested were below the Residential HIL A threshold limits as defined by the NEPM [3].

The levels of metals are generally below EIL threshold limits for urban residential and public open space as defined by the NEPM Schedule B1 Guidelines on Investigation Levels for Soil and Groundwater [3]. A slightly elevated zinc level in sample ES003 was recorded. Comparison with the current EIL would necessitate further testing to confirm the Cation Exchange Capacity (CEC) of the soil. It is noted that the assessment of CEC is a requirement of the new NEPM [3] which postdates the previous testing. It should be appreciated that the recorded level is generally consistent with typical background levels for the area and as such does not present an issue from a health based assessment.

### **8.1.2 TRH**

Appraisal of the results indicated TRH and BTEX levels were below the threshold limits as detailed GASSS [4].

### **8.1.3 PAH**

Appraisal of the results indicated that the levels of PAH, including total PAH and Carcinogenic PAH were below the Residential HIL A threshold limits as defined by the NEPM [3].

## **8.2 Potential Contamination**

The desktop review and site inspection has identified possible contamination associated with the following.

- > Minor potential hydrocarbon contamination associated with the abandoned and wrecked motor vehicle.
- > Low potential contamination associated with isolated dumping of household items, building rubble such as bricks, concrete and possible ACM associated with fibrous sheeting fragments.
- > Low potential for hydrocarbon spillage associated with the use of the filled area in the central portion of the site as site compound and machinery storage area.

- > Several minor areas of possible imported filling that may have potential for contamination depending on the origin source.

Based on the findings of the PCA and comparison of the analytical testing undertaken to threshold limits, no indication of gross contamination has been identified on the site. The majority of the dumped materials comprise materials of domestic origin and are typical of illegal dumping in bushland areas. The materials are generally inert and as such could be readily removed and disposed as general solid waste to a licensed waste facility during development. No specific validation would be required apart from visual confirmation of removal. The two small areas where potential asbestos containing materials were noted could be also be readily addressed during construction. Some limited additional testing would be recommended, as detailed in Section 8.3, with the results determining the need for further validation upon removal of the material.

While numerous areas of minor filling were observed the majority are stockpiled material and are consistent with site won soils excluded a stockpile of concrete fragments. It is understood that the proposed development configuration has been targeted to reduce the impact of former underground mining. It is noted that the majority of the areas impacted by fill are on the boundary or outside the developable area.

The limited intrusive sampling and testing regime associated with one identified filled area undertaken by CGS [1] did not indicate any exceedance of the HIL threshold limits NEPM [3] and GASSS[4].

### **8.3 Further Assessment**

The issue of minor areas of uncontrolled filling could readily be dealt with during construction. The majority of the filled material would need to be removed during development to address the uncontrolled geotechnical state of the material where the material is located within the development area. As the majority of the observed fill is generally consistent with the site won material the likelihood of gross contamination of these materials is low. It is recommended that where the material is proposed for beneficial reuse within development it should be assessed against the ENM [2] exemption at the start of construction. Similarly, any indications during removal of fill material such as odours or staining would be the basis for separation of suspect material to discreet stockpiles to allow additional assessment.

Further assessment would be recommended during construction as it would be done in conjunction with removal of dumped materials and/or fill and would include the following.

- > Validation testing beneath the location of the dumped abandoned vehicle upon removal.
- > Sampling and testing of any of the site fill proposed for reuse within the development against the ENM [2] exemption. It may be prudent to remove and stockpile the fill material separate prior to testing.
- > Confirmation of whether the fibrous sheeting fragments observed at the surface in two locations are ACM, and where confirmed, further assessment shall be conducted to determine the presence of asbestos fibres or asbestos fines in the soil in the vicinity of the where the fragments were observed.

## **9 Conclusions**

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The PCA was undertaken to determine the current site status in relation to potential contamination to support the proposed rezoning DA.

Based on the findings of the PCA and the limited previous analytical testing undertaken, no indication of gross contamination has been identified on the site. It is considered that the site would be suitable for residential development from a contamination perspective, subject to further assessment as summarised in Section 8.3 of this report being conducted.

## 10 Limitations

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Cardno Geotech Solutions (CGS) have performed investigation and consulting services for this project in general accordance with current professional and industry standards. The extent of testing was limited to discrete test locations and variations in ground conditions can occur between test locations that cannot be inferred or predicted.

A geotechnical consultant or qualified engineer should provide inspections during construction to confirm assumed conditions in this assessment. If subsurface conditions encountered during construction differ from those given in this report, further advice should be sought without delay.

Cardno Geotech Solutions, or any other reputable consultant, cannot provide unqualified warranties nor does it assume any liability for the site conditions not observed or accessible during the investigations. Site conditions may also change subsequent to the investigations and assessment due to ongoing use.

This report and associated documentation was undertaken for the specific purpose described in the report and should not be relied on for other purposes. This report was prepared solely for the use by ADW Johnson Pty Ltd, The City of Newcastle and the Department of Planning, and any reliance assumed by other parties on this report shall be at such parties own risk.

## 11 References

---

- [1] CGS1706-003/1, "Excavated Natural Material Assessment," Cardno Geotech Solutions, 12 July 2013.
- [2] Protection of the Environment Operations (Waste) Regulation 2005 - General Exemption Under Part 6, Clause 51 and 51A, "The excavated natural material exemption 2012," Department of Environment and Climate Change NSW, October 2012.
- [3] National Environment Protection (Assessment of Site Contamination) Measure 1999, "Schedule B1 Guidelines on Investigation Levels For Soil and Groundwater," National Environment Protection Council, 16 May 2013.
- [4] EPA Contaminated Sites, "Guidelines for Assessing Service Station Sites," NSW Environment Protection Authority, December 1994.

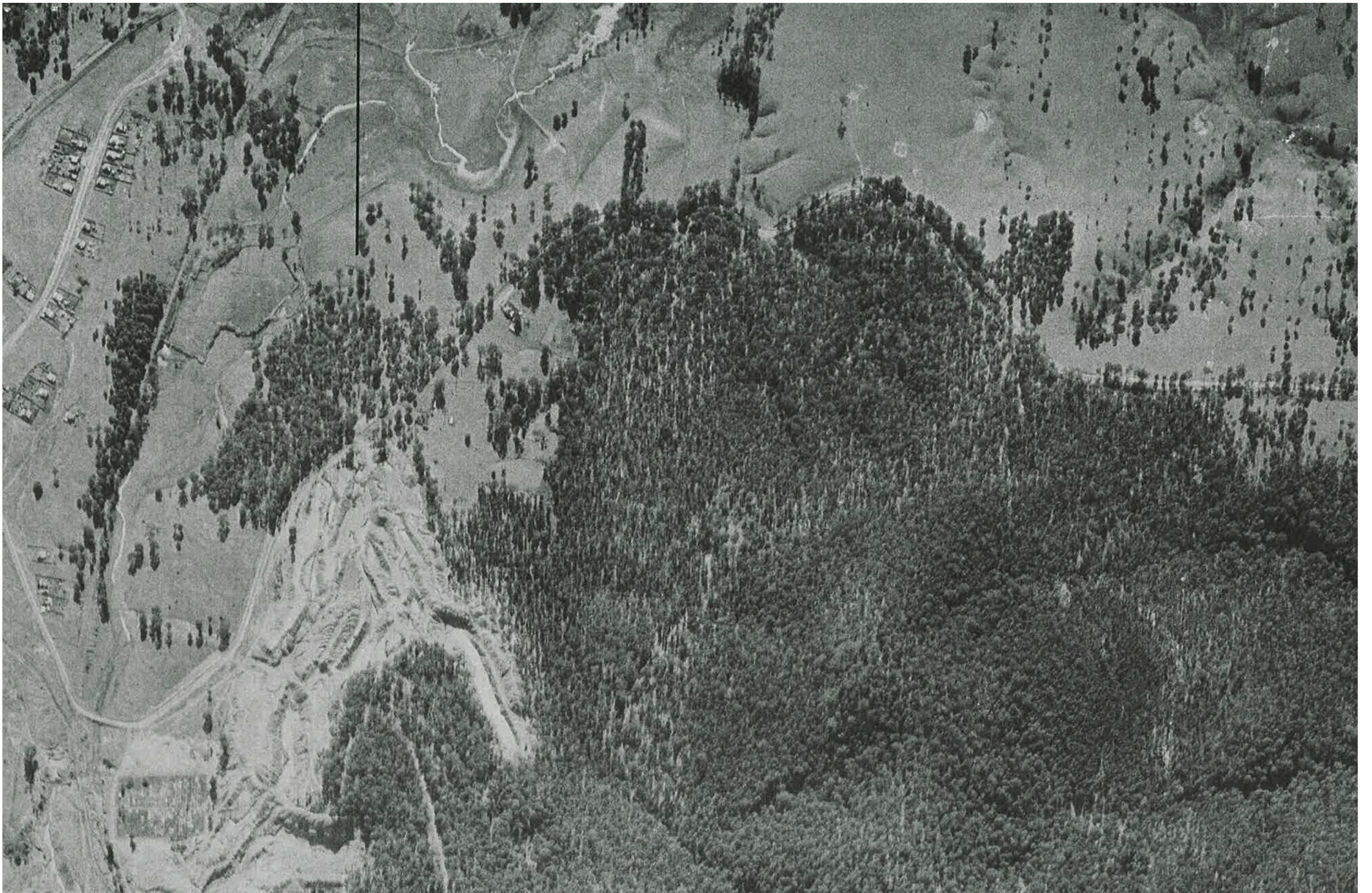
# APPENDIX A

## DRAWING



# APPENDIX B

## AERIAL PHOTOGRAPHY



Aerial photograph 1: 22 July 1954 (Newcastle NSW 252-5050, Run 4)



Aerial photograph 2: 22 August 1965 (Northumberland Project NSW 1403-5175, Run 9)



Aerial photograph 3: 27 May 1975 (Newcastle NSW 2314-131, Run 7)



Aerial photograph 4: 27 April 1984 (Newcastle NSW 3384-115, Run 7)



Aerial photograph 5: 25 February 1993 (Newcastle NSW 4116, Run 10)



Aerial photograph 6: 4 October 2004 (Newcastle, NSW 4875 (M2448), Run 10)



Aerial photograph 7: 30 January 2014 (PhotoMap aerial image - Nearmap.com)

# APPENDIX C

## COUNCIL RECORDS & TITLE DEEDS



# PLANNING CERTIFICATE

Section 149, Environmental Planning and Assessment Act 1979

**To:** Cardno Geotech Solutions  
PO Box 4224  
EDGEWORTH NSW 2285

**Certificate No:** 173800  
**Fees Paid:** \$133.00  
**Receipt No(s):** 4010760

**Your Reference:**

**Date of Issue:** 27/02/2014

**The Land:** LOT: 1 DP: 844711  
505 MINMI ROAD FLETCHER 2287

## Advice provided on this Certificate:

Advice under section 149(2): see items 1 – 18  
Additional advice under section 149 (5): see Items 19 – 28

## IMPORTANT: Please read this certificate carefully

This certificate contains important information about the land.

Please check for any item which could be inconsistent with the proposed use or development of the land. If there is anything you do not understand, phone Council's **Customer Enquiry Centre** on (02) 4974 2000, or come in and see us.

The information provided in this certificate relates only to the land described above. If you need information about adjoining or nearby land, or about the Council's development policies for the general area, contact Council's **Customer Enquiry Centre**.

All information provided is correct as at 27/02/2014. However, it's possible for changes to occur within a short time. We recommend that you only rely upon a very recent certificate.

## The City of Newcastle

PO Box 489  
NEWCASTLE 2300

Phone: (02) 4974 2000  
Facsimile: (02) 4974 2222

### Customer Enquiry Centre

Ground floor,  
282 King Street  
Newcastle NSW 2300

### Office hours:

Mondays to Fridays 8.30 am to 5.00 pm

## PART 1:

### ADVICE PROVIDED UNDER SECTION 149(2)

*ATTENTION: The explanatory notes appearing in italic print within Part 1 are provided to assist understanding, but do not form part of the advice provided under section 149(2). These notes shall be taken as being advice provided under section 149(5).*

#### 1. Names of relevant planning instruments and DCPs

The following environmental planning instruments, proposed environmental planning instruments and development control plans apply to the land, either in full or in part.

State Environmental Planning Policy No. 21 - Caravan Parks  
State Environmental Planning Policy No. 30 - Intensive Agriculture  
State Environmental Planning Policy No. 36 - Manufactured Home Estates  
State Environmental Planning Policy No. 44 - Koala Habitat Protection  
State Environmental Planning Policy No. 50 - Canal Estate Development  
State Environmental Planning Policy No. 55 - Remediation of Land  
State Environmental Planning Policy No. 62 - Sustainable Aquaculture  
State Environmental Planning Policy No. 64 - Advertising and Signage  
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004  
State Environmental Planning Policy (Major Development) 2005  
State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007  
State Environmental Planning Policy (Temporary Structures) 2007  
State Environmental Planning Policy (Infrastructure) 2007  
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008  
State Environmental Planning Policy (Affordable Rental Housing) 2009  
State Environmental Planning Policy (State and Regional Development) 2011  
Newcastle Local Environmental Plan 2012  
Newcastle Development Control Plan 2012

#### 2. Zoning and land use under relevant LEPs

##### Newcastle Local Environmental Plan 2012

**Zoning:** The Newcastle Local Environmental Plan 2012 identifies the land as being within the following zone(s):

**Zone E4 Environmental Living**

*Note: Refer to [www.newcastle.nsw.gov.au](http://www.newcastle.nsw.gov.au) or [www.legislation.nsw.gov.au](http://www.legislation.nsw.gov.au) web site for LEP instrument and zoning maps.*

The following is an extract from the zoning provisions contained in Newcastle Local Environmental Plan 2012:

## Zone E4 Environmental Living

- **Objectives of zone**

- To provide for low-impact residential development in areas with special ecological, scientific or aesthetic values.
- To ensure that residential development does not have an adverse effect on those values.
- To conserve the rural or bushland character and the biodiversity or other conservation values of the land.
- To provide for the development of land for purposes that will not, or will be unlikely to, prejudice its possible future development for urban purposes or its environmental conservation.

- **Permitted without consent**

Environmental protection works; Home occupations

- **Permitted with consent**

Agriculture; Animal boarding or training establishments; Bed and breakfast accommodation; Camping grounds; Caravan parks; Child care centres; Community facilities; Dwelling houses; Emergency services facilities; Environmental facilities; Farm buildings; Flood mitigation works; Home-based child care; Home businesses; Information and education facilities; Landscaping material supplies; Neighbourhood shops; Passenger transport facilities; Plant nurseries; Recreation areas; Research stations; Respite day care centres; Roads; Roadside stalls; Secondary dwellings

- **Prohibited**

Aquaculture; Industries; Intensive livestock agriculture; Service stations; Warehouse or distribution centres; Any other development not specified in, permitted without consent or permitted with consent

**Minimum land dimensions for erection of a dwelling-house:** The Newcastle Local Environmental Plan 2012 contains development standards relating to minimum land dimensions for the erection of a dwelling house. Refer to clause 4.1 Minimum subdivision lot size and Part 4 Principle development standards of the Newcastle LEP 2012 for provisions relating to minimum lot sizes for residential development.

**Critical habitat:** The Newcastle Local Environmental Plan 2012 does not identify the land as including or comprising critical habitat.

**Heritage conservation area:** The land is not within a heritage conservation area under the Newcastle Local Environmental Plan 2012.

**Heritage items:** There are no heritage items listed in the Newcastle Local Environmental Plan 2012 situated on the land.

## 3. Complying development

**Note Other requirements:** The advice below for all Complying Development Codes, is limited to identifying whether or not the **land**, the subject of the certificate, is land on which complying development may be carried out because of Clauses 1.17A(1)(c) to (e), (2), (3) & (4) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 (the Codes SEPP).

### General Housing Code

Complying development under the General Housing Code MAY be carried out on this land.

### Rural Housing Code

Complying development under the Rural Housing Code MAY be carried out on this land.

### Housing Alterations Code

Complying development under the Housing Alterations Code MAY be carried out on this land.

**General Development Code**

Complying development under the General Development Code MAY be carried out on this land.

**Commercial and Industrial Alterations Code**

Complying development under the Commercial and Industrial Alterations Code MAY be carried out on this land.

**Commercial and Industrial (New Buildings and Additions) Code**

Complying development under the Commercial and Industrial (New Buildings and Additions) Code MAY be carried out on this land.

**Subdivision Code**

Complying development under the Subdivision Code MAY be carried out on this land.

**Demolition Code**

Complying development under the Demolition Code MAY be carried out on this land.

**Fire Safety Code**

Complying development under the Fire Safety Code MAY be carried out on this land.

**4. Coastal Protection Act 1979**

The land IS NOT AFFECTED by the operation of sections 38 or 39 of the Coastal Protection Act 1979.

**4A. Certain information relating to beaches and coasts**

The land IS NOT AFFECTED by an order under Part 4D of the Coastal Protection Act 1979 in relation to temporary coastal protection works (within the meaning of that Act) on the land (or on public land adjacent to that land), except where the council is satisfied that such an order has been fully complied with.

The Council HAS NOT been notified under section 55X of the Coastal Protection Act 1979 that temporary coastal protection works (within the meaning of that Act) have been placed on the land (or on public land adjacent to that land).

**4B. Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works**

The land IS NOT subject to an agreement for annual charges under section 496B of the Local Government Act 1993 for coastal protection services (within the meaning of section 553B of that Act).

**5. Mine Subsidence Compensation Act 1961**

The land IS within a proclaimed Mine Subsidence District under the Mine Subsidence Compensation Act 1961. The approval of the Mine Subsidence Board is required for all subdivision and building, except for certain minor structures. Surface development controls are in place to prevent damage from old, current or future mining. It is strongly recommended prospective purchasers consult with the Mine Subsidence Board regarding mine subsidence and any surface development guidelines. The Board can assist with information about mine subsidence and advise whether existing structures comply with the requirements of the Act.

*NOTE: Plans of existing and abandoned mine workings are available for viewing at the Mine Subsidence Board's offices. For further clarification and details, contact the Mine Subsidence Board, 117 Bull Street, Newcastle West. Ph (02) 49084300.*

**6. Road widening or realignment**

*NOTE: The Roads and Maritime Services (RMS) may have proposals that are not referred to in this item. For advice about affectation by RMS proposals, contact the Roads and Maritime Services, Locked Mail Bag 30 Newcastle 2300. Ph: 131 782.*

The land IS NOT AFFECTED by any road widening or road realignment under Division 2 of Part 3 of the Roads Act 1993.

The land IS NOT AFFECTED by any road widening or road realignment under an environmental planning instrument.

The land IS NOT AFFECTED by any road widening or road realignment under a resolution of the Council.

## **7. Policies on hazard risk restrictions**

Except as stated below, the land is not affected by a policy referred to in Item 7 of Schedule 4 of the Environmental Planning and Assessment Regulation 2000 that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

**Potential acid sulfate soils:** Works carried out on the land must be undertaken in accordance with Clause 6.1 Acid sulfate soils of the Newcastle Local Environmental Plan 2012.

**Bush fire:** Under clause 5.11 Bush fire hazard reduction of the Newcastle LEP 2012, bush fire hazard reduction work authorised by the Rural Fires Act 1997 may be carried out on any land without development consent.

*NOTE: The Rural Fires Act 1997 also makes provision relating to the carrying out of development on bush fire prone land.*

**Land Contamination:** Council's information currently indicates that the property may be affected by land contamination. Council has adopted a policy of restricting development or imposing conditions on properties affected by land contamination. Refer to Section 5.02 Land Contamination of Newcastle Development Control Plan 2012, which may be inspected or purchased at Council's Customer Enquiry Centre.

*NOTE: The absence of a policy to restrict development of the land because of the likelihood of a particular risk does not imply that the land is free from that risk. The Council considers the likelihood of natural and man-made risks when determining development applications under section 79C of the Environmental Planning and Assessment Act 1979. Detailed investigation carried out in conjunction with the preparation or assessment of a development application may result in the Council either refusing development consent or imposing conditions of consent on the basis of risks that are not identified above.*

## **7A. Flood related development controls information**

Council's current information indicates the property is not flood prone land as defined in the Floodplain Development Manual: the management of flood liable land, April 2005 published by the NSW Government.

## **8. Land reserved for acquisition**

The land is not identified for acquisition by a public authority (as referred to in section 27 of the Act) by any environmental planning instrument or proposed environmental planning instrument applying to the land.

## **9. Contributions plans**

The following contribution plan/s apply to the land.

### **Development Contributions Plan No.1, 2005:**

The Plan specifies section 94 contributions that may be imposed as a condition of development consent.

*NOTE: Contributions plans are available on Council's website or may be inspected or purchased at Council's Customer Enquiry Centre.*

### **Development Contributions Plan No.4, 2006 (Transport Facilities in Blue Gum Hills):**

The Plan specifies section 94 contributions that may be imposed as a condition of development consent.

*NOTE: Contributions plans are available on Council's website or may be inspected or purchased at Council's Customer Enquiry Centre.*

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**Western Corridor Section 94 Contributions Plan 2013:**

The Plan specifies section 94 contributions that may be imposed as a condition of development consent.

*NOTE: Contributions plans are available on Council's website or may be inspected or purchased at Council's Customer Enquiry Centre.*

**9A. Biodiversity certified land**

The land IS NOT biodiversity certified land within the meaning of Part 7AA of the Threatened Species Conservation Act 1995.

**10. Biobanking agreements**

The land IS NOT land to which a biobanking agreement under Part 7A of the Threatened Species Conservation Act 1995 relates.

**11. Bush fire prone land**

The land, either in whole or in part IS bush fire prone land for the purposes of the Environmental Planning and Assessment Act 1979.

**12. Property vegetation plans**

Not applicable. The Native Vegetation Act 2003 does not apply to the Newcastle local government area.

**13. Orders under Trees (Disputes Between Neighbours) Act 2006**

Council HAS NOT been notified that an order has been made under the Trees (Disputes between Neighbours) Act 2006 to carry out work in relation to a tree on the land.

**14. Directions under Part 3A**

The land IS NOT AFFECTED by a direction by the Minister in force under section 75P (2) (c1) of the Act.

**15. Site compatibility certificates and conditions for seniors housing**

(a) The land IS NOT AFFECTED by a current site compatibility certificate (of which the Council is aware) issued under the State Environmental Planning Policy (Housing for Seniors and People with a Disability) 2004.

(b) The land IS NOT AFFECTED by any terms of kind referred to in clause 18(2) of the State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004, that have been imposed as a condition of consent to a development application granted after 11 October, 2007 in respect of the land.

**16. Site compatibility certificates for infrastructure**

The land IS NOT AFFECTED by a valid site compatibility certificate (of which the Council is aware) issued under the State Environmental Planning Policy (Infrastructure) 2007.

**17. Site compatibility certificates and conditions for affordable rental housing**

The land IS NOT AFFECTED by a valid site compatibility certificate (of which the Council is aware) issued under the State Environmental Planning Policy (Affordable Rental Housing) 2009.

**18. Paper subdivision information**

The land is NOT AFFECTED by any development plan that applies to the land or that is proposed to be subject to a consent ballot.

**Note:** *There are no matters prescribed by section 59(2) of the Contaminated Land Management Act 1997 to be disclosed, however if other contamination information is held by the Council this may be provided under a section 149(5) certificate.*

## **PART 2:**

### **ADVICE PROVIDED UNDER SECTION 149(5)**

**ATTENTION:** *Section 149(6) of the Act states that a Council shall not incur any liability in respect of advice provided in good faith pursuant to sub-section 149(5).*

#### **19. Outstanding Notices and Orders issued by Council.**

Council records indicate that this premise IS NOT AFFECTED by a current notice or order (excluding the notices or orders mentioned in the note below).

*NOTE: The Council has not inspected the premises immediately prior to the issue of this certificate. It is possible that the premises are affected by matters of which the Council is unaware.*

**NOTE:** *This Certificate does not include any advice regarding outstanding notices or orders issued under the Environmental Planning and Assessment Act 1979 or the Local Government Act 1993. To obtain advice regarding these matters, you should lodge an application for a Certificate as to Outstanding Notices and Orders (accompanied by the appropriate fee). For further information, please contact the Customer Enquiry Centre on (02) 4974 2000.*

#### **20. Further consent requirements under the Newcastle Local Environmental Plan 2012.**

The following provisions of the Newcastle Local Environmental Plan 2012 affect the carrying out of development on the land. These provisions are in addition to those required to be disclosed at Item 2 of this Certificate.

Refer to clause 3.1 Exempt Development of the Newcastle Local Environmental Plan 2012

Refer to clause 3.2 Complying Development of the Newcastle Local Environmental Plan 2012

*Note: The Newcastle Local Environmental 2012 may have additional provisions that affect the carry out of development. Refer to the Newcastle Local Environmental 2012 for the full affect it may have on the land or obtain profession advice for more information.*

#### **21. Suspension of covenants.**

Refer to 1.9A Suspension of covenants, agreements and instruments of the Newcastle Local Environmental Plan 2012.

#### **22. Unexhibited proposed environmental planning instruments.**

The land IS NOT AFFECTED by a resolution of the Council to endorse a planning proposal which has yet to have a gateway determination pursuant to section 56(2) of the Act.

#### **23. Draft development control plans.**

A draft development control plan DOES NOT APPLY to the land. The draft plans are exhibited pursuant to Part 3 of the Environmental Planning and Assessment Regulation 2000.

#### **24. Heritage Act 1977.**

The land IS NOT AFFECTED by a listing on the State Heritage Register or an Interim Heritage Order that is in force under the Heritage Act 1977.

*NOTE: The above advice is provided to the extent that Council has been notified by the Heritage Council of NSW. For up-to-date details, contact the Office of Environment and Heritage, PO Box A290, South Sydney NSW 1232 Ph: (02) 9995 5000.*

## **25. Listing by National Trust of Australia.**

The land IS NOT AFFECTED by a listing of the National Trust of Australia (NSW).

*NOTE: The above advice is provided to the extent that Council has been notified by the National Trust of Australia (NSW). For up-to-date details, contact the National Trust.*

## **26. Australian Heritage Database.**

The land IS NOT AFFECTED by a listing on the Australian Heritage Database.

*NOTE: The above advice is provided to the extent that Council has been notified by the Department of the Environment, Heritage, Water and the Arts. For up-to-date details, contact the Department of the Environment, Heritage, Water and the Arts, King Edward Terrace, Parkes ACT 2600. Ph (02) 6274 1111.*

## **27. Environment Protection & Biodiversity Conservation Act 1999 (Cth)**

Under the (Commonwealth) Environment Protection and Biodiversity Conservation Act 1999, actions which have, may have or are likely to have, a significant impact on a matter of national environmental significance may be taken only with the approval of the Commonwealth Minister for the Environment.

Approval is also required for actions that have a significant effect on the environment of Commonwealth land. These actions may be on Commonwealth land or other land.

This approval is in addition to any approvals under the (NSW) Environmental Planning and Assessment Act 1979 or other NSW legislation.

Matters of national environmental significance are:

- declared World Heritage areas
- declared Ramsar wetlands
- listed threatened species and ecological communities
- listed migratory species
- nuclear actions
- the environment of Commonwealth marine areas.

Locations within the City of Newcastle that are a declared Ramsar wetland include Kooragang Nature Reserve and Shortland Wetlands. Listed threatened species and listed migratory species are known to occur within the City of Newcastle.

## **28. Other matters**

The land is affected by the following:

### **Newcastle earthquake**

Earthquakes occurred in the vicinity of Newcastle on 28th December 1989 and 6 August 1994. Buildings on the land may have suffered damage as a consequence of the earthquakes. Prospective purchasers are advised to make their own enquiries as to whether the property is affected by any damage.

### **Newcastle Urban Strategy (Updated 2009)**

The Newcastle Urban Strategy was adopted by the Council on 11 March 1998 and updated on 15 December 2009. The contents of the Strategy will be taken into account when the Council assesses development applications and amendments to the Newcastle Local Environmental Plan 2012.

*Note: Refer to Council's website to view the document. [www.newcastle.nsw.gov.au](http://www.newcastle.nsw.gov.au)*

### **Lower Hunter Regional Strategy (2006 - 2031)**

The Lower Hunter Regional Strategy has been prepared by the Department of Planning and Infrastructure. The contents of the strategy will be taken into account when Council assesses development applications and amendments to the Newcastle Local Environmental Plan 2012.

*Note: Refer to Council's website to view the document. [www.newcastle.nsw.gov.au](http://www.newcastle.nsw.gov.au)*

**Newcastle City-Wide Floodplain Risk Management Study and Plan (2012)**

The Newcastle City-wide Floodplain Risk Management Study and Plan addresses flood management for the City of Newcastle. The Study and Plan will be taken into account when Council assesses development applications and amendments to the Newcastle Local Environmental Plan 2012.

*Note: Refer to Council's website to view the document. [www.newcastle.nsw.gov.au](http://www.newcastle.nsw.gov.au)*

**Contaminated land information**

Council is in possession of contaminated land information relating to this property. Appendix A contains a list of this information. You can contact Council's Compliance Services Unit on 02 4974 2525 to arrange to view any documents listed.

Issued without alterations or additions, 27/02/14



for:  
**KEN GOULDTHORP**  
**GENERAL MANAGER**

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**Contaminated Land Information**

**ECM Number**

Council is in possession of the following contaminated land document(s) which relate to the land. Persons relying on the certificate are advised to examine and consider the contents of each document:

1. Report: Excavated Natural Material (ENM) Assessment Proposed  
Subdivision Lot 1 D.P. 844711 Minmi Road Fletcher

DW 4604541

Persons relying on the certificate are advised to make their own investigations as to whether the land is affected by elevated concentrations of soil or groundwater contaminants in relation to proposed purchase or use of land.



## Cadastral Records Enquiry Report

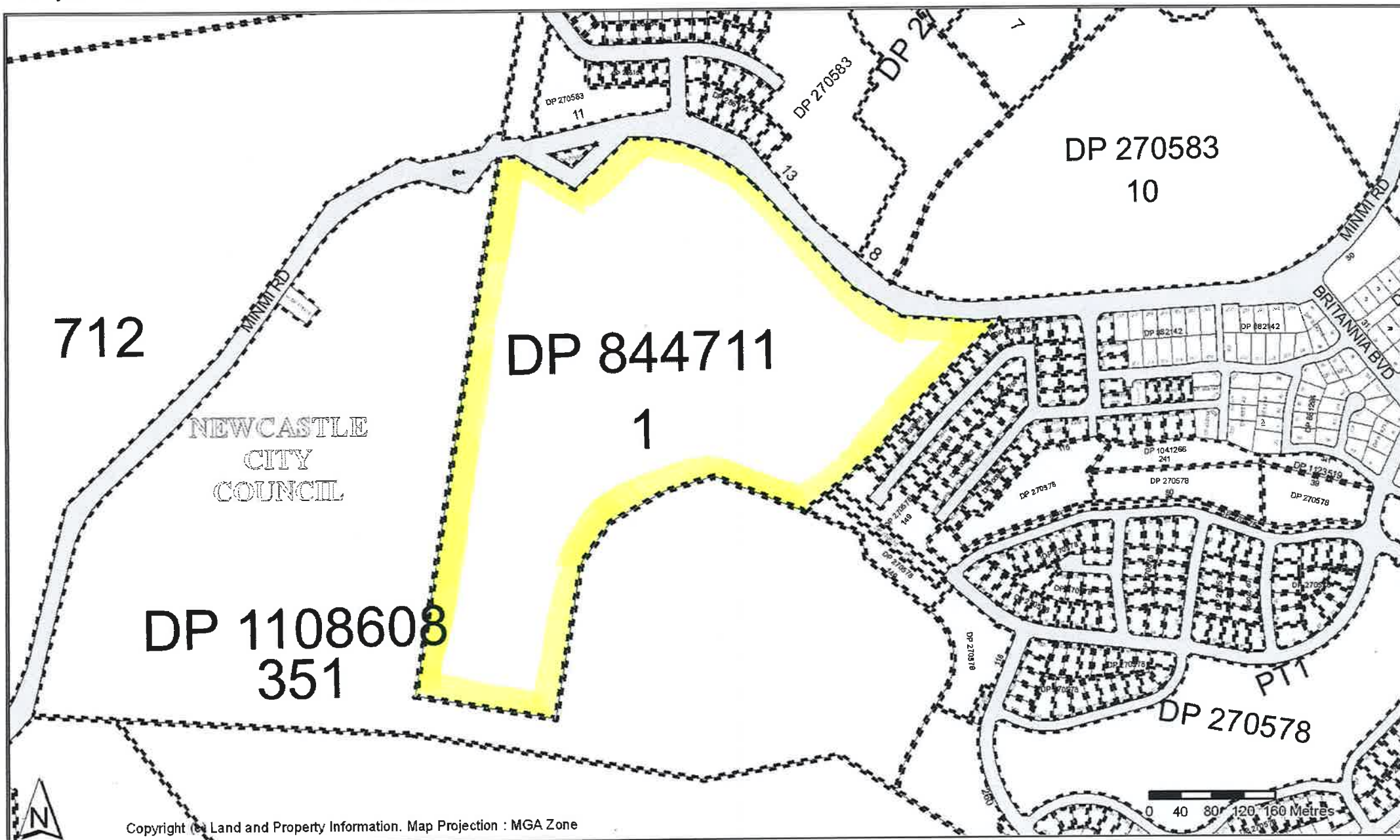
**Requested Parcel** : Lot 1 DP 844711

**LGA** : NEWCASTLE

**Parish** : HEXHAM

**Identified Parcel** : Lot 1 DP 844711

**County** : NORTHUMBERLAND



Copyright © Land and Property Information. Map Projection : MGA Zone

SIGNATURE AND SEALS ONLY

B. J. H. H. H.

H. J. H. H. H.

H. J. H. H. H.

H. J. H. H. H.

SHORT LINE TABLE				
LINE	BEARING	DISTANCE	RADIUS	ARC
1	79° 22' 55"	26.0435		
2	122° 04' 55"	71.49		
3	96° 46' 05"	64.94		
4	89° 59' 35"	34.02		
5	254° 16' 55"	64.005		
6	216° 09' 45"	64.005		
7	41° 10' 40"	45.695		
8	33° 38' 50"	45.695		
9	19° 31' 40"	74.64		
10	91° 08' 25"	47.475		
11	101° 09' 25"	90.445	260.0	90.91
12	111° 10' 45"	49.30		
13	128° 17' 35"	85.105		
14	332° 03' 00"	7.00		
15	87° 10' 30"	25.00		

- (X) RIGHT OF CARRIAGEWAY AND EASEMENT 20.115 WIDE  
(CREATED BY TRANSFER N° C. 136521 AND B. 17280)  
(Y) RIGHT OF CARRIAGEWAY AND EASEMENT FOR  
SERVICES 20 WIDE

## SURVEY PRACTICE REGULATION 1990 : CLAUSE 32(2)

MARK	I.S.G. CO-ORDINATES		ZONE	ACC.
	EASTING	NORTHING		
PM 74027	359847.347	1361139.031	56/1	2
PM 74028	358874.456	1361017.542	56/1	2
PM 74029	359307.775	1360758.438	56/1	2
SSM 44707	359547.520	1360790.683	56/1	2
SSM 57726	360281.106	1361090.903	56/1	2

SOURCE : I.S.G. CO-ORDINATES ADOPTED FROM  
S.C.I.M.S. AS AT 31 - 1 - 1994.

DP 844711

Registered 24.11.1994  
C.A. N° 6564 OF 19.8.1994

Title System: TORRENS

Purpose: SUBDIVISION

Ref Map: U5457-5\*,6\*,8\*,9

Last Plan: D.P. 810119

PLAN OF SUBDIVISION OF  
LOT 211 D.P. 810119

Lengths are in metres. Reduction Ratio 1: 5000

City: NEWCASTLE  
Locality: MINMI  
Parish: HEXHAM  
County: NORTHUMBERLAND

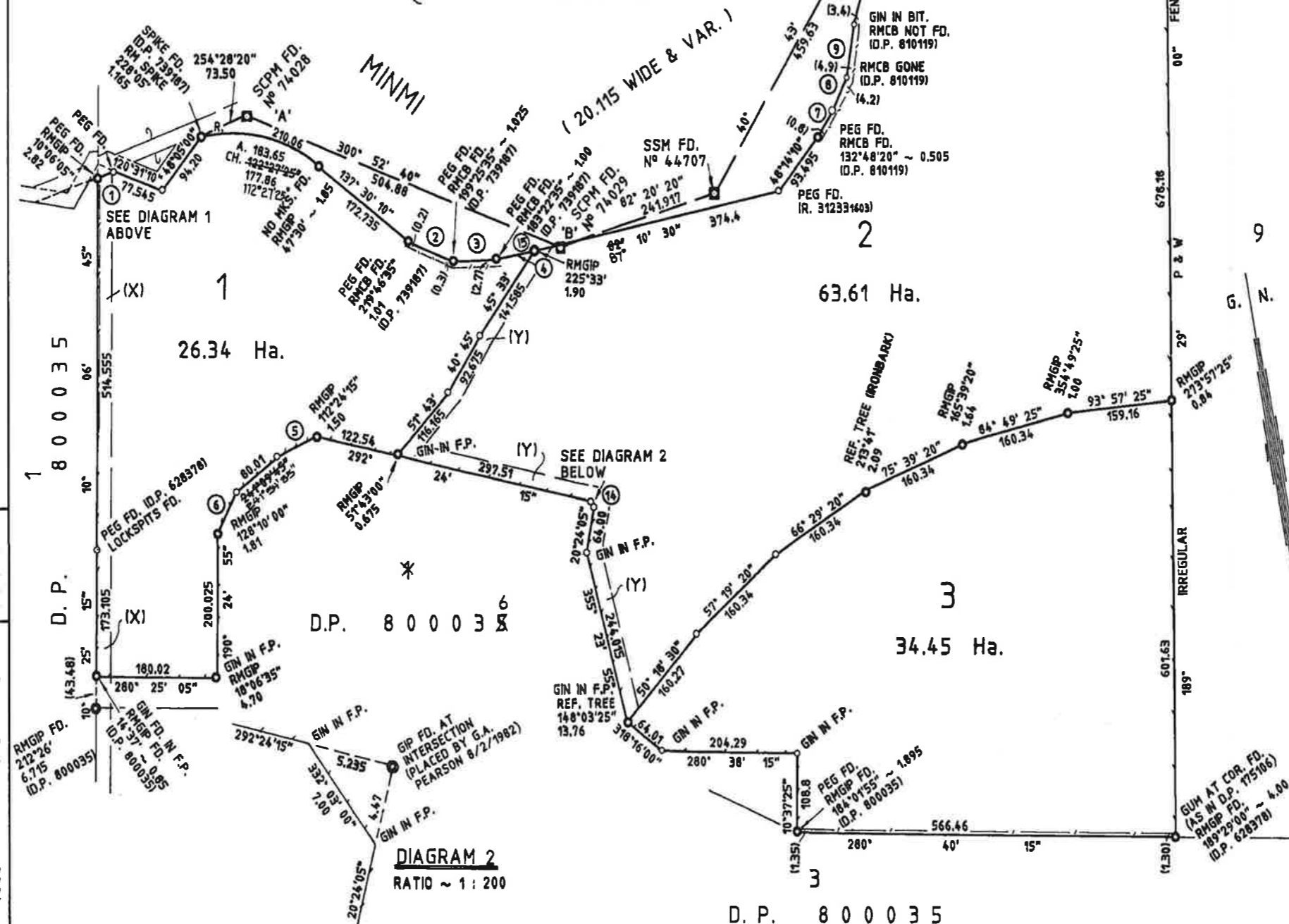
This is a plan of my plan.  
(Delete if inapplicable).EWAN ELLIOTT SMART  
or PALMER BRUYN & PARKER NEWCASTLEa surveyor registered under the Surveyors Act, 1929, as  
amended, hereby certify that the survey represented in this  
plan is accurate and has been made in accordance with the Survey  
Practice Regulation 1990 and was completed on5 JULY 1994  
Signature: Ewan Smart  
Surveyor registered under Surveyors Act, 1929, as amended.  
Datum Line of Asimuth: 'A' - 'B'

Plans used in preparation of survey/compilation:

D.P. 628378	D.P. 631806
D.P. 810119	D.P. 175106
D.P. 800035	R. 312331603
D.P. 734297	
D.P. 739187	

PANEL FOR USE ONLY for statements of intention  
to dedicate public roads, to create public reserves,  
drainage reserves, easements, restrictions on the  
use of land or positive covenants.

PURSUANT TO SECTION 88B OF THE  
CONVEYANCING ACT 1919 - 1964 AS  
AMENDED IT IS INTENDED TO  
CREATE :  
1. RIGHT OF CARRIAGEWAY 20 WIDE  
2. EASEMENT FOR SERVICES 20  
WIDE



Crown Lands Office Approval

PLAN APPROVED  
Authorised OfficerLand District  
Paper No.  
Field Book

Council Clerk's Certificate

I hereby certify that -

(a) the requirements of the Local Government Act, 1919 (other than  
the requirements for the registration of plans), and  
(b) the requirements of section 34B of the Metropolitan Water,  
Sewerage and Drainage Act, 1934, as amended, and Hunter District  
Water, Sewerage, and Drainage Act, 1938, as amended

have been complied with by the applicant in relation to the  
proposed SUBDIVISION  
(Insert "new road", "subdivision" or "consolidated lot") set out herein

Subdivision No. 6564

Date 19.08.1994

(Signature) [Signature]

Council File No. 17/30491/1010/01

\*This part of certificate to be deleted where the application is only for a  
consolidated lot or the opening of a new road or where the land to be  
subdivided is wholly outside the areas of operations of the Metropolitan  
Water, Sewerage and Drainage Board and the Hunter District Water  
Board.  
† Delete if inapplicable

SURVEYOR'S REFERENCE: S. 890

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

Signatures, Seals and Statements of intention to dedicate public roads, to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants.

Executed by Kingston Fletcher Pty Limited  
ACN 109 187 564 in accordance  
with Section 127 of Corporations Act 2006  
by Peter Thomas Durbin  
Sole Director/Secretary

Executed by Kingston Minmi Pty Limited  
ACN 109 824 473 in accordance  
with Section 127 of Corporations Act 2006  
by Peter Thomas Durbin  
Sole Director/Secretary

EXECUTED BY JOINT THORLEY OPERATIONS  
PTY LIMITED ACN 100 013 289 FOR AND TO  
SECTION 127 OF THE CORPORATIONS ACT IN  
THE PRESENCE OF:

BOB VASILE  
DIRECTOR  
IN PLACE  
DIRECTOR

EXECUTED BY JOINT THORLEY OPERATIONS  
PTY LIMITED ACN 100 013 289 FOR AND TO  
SECTION 127 OF THE CORPORATIONS ACT IN  
THE PRESENCE OF:

BOB LIGHT  
DIRECTOR  
IN PLACE  
DIRECTOR

Crown Lands Office Approval

PLAN APPROVED

Authorised Officer

Land District

Paper No.

Field Book

Subdivision Certificate

I certify that provisions of a 100% of the Environmental Planning  
and Assessment Act 1979 have been satisfied in relation to:  
the proposed SUBDIVISION set out herein

the subdivision is for lease purposes in accordance with section  
of the Conveyancing Act 1919

Authorized Person/General Manager/Authorized Officer  
Council Authority: **Newcastle City Council**

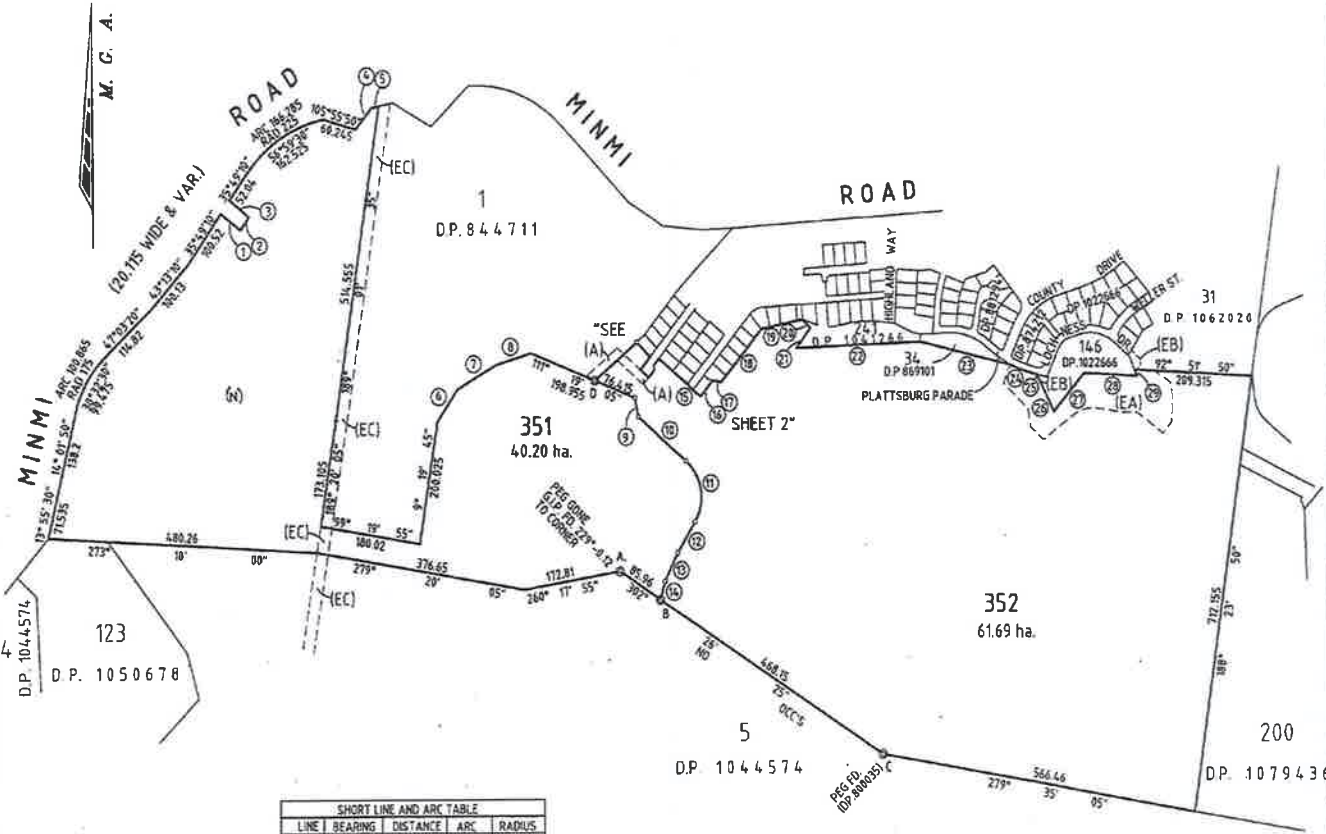
Date of endorsement

Accreditation no.

Subdivision Certificate no.

File no.

Note:  
When the plan is to be lodged electronically in the Land Titles Office,  
it should include a signature in an electronic or digital format  
approved by the Registrar General  
Delete whichever is inapplicable.



LINE	BEARING	DISTANCE	ARC	RADIUS
1	126°44'30"	4.351		
2	36°24'30"	25.53		
3	308°35'30"	43.915		
4	40°15'40"	65.295		
5	78°19'	13.185		
6	35°04'35"	64.095		
7	60°48'25"	80.01		
8	73°11'45"	64.095		
9	169°29'20"	31.35		
10	129°53'10"	110.825		
11	170°55'20"	99.79	108.86	76
12	212°44'30"	52.225		
13	206°35'	51.92		
14	195°06'20"	31.66		
15	130°07'50"	64.11		
16	40°07'50"	34.38		
17	101°55'50"	15.6		
18	40°07'50"	11.1		
19	78°17'50"	75.1		
20	135°12'50"	20.4		
21	238°51'50"	44.7		
22	87°27'50"	219.8		
23	101°04'50"	166.2		
24	109°36'20"	44.0	44.095	193.595
25	103°04'50"	6.05		
26	153°17'50"	66.595		
27	40°48'50"	82.0		
28	92°44'50"	95.3		
29	339°14'50"	10.7		

- (A) RIGHT OF CARRIAGEWAY 15 WIDE  
(EA) EASEMENT FOR WATER QUALITY CONTROL  
POND & ASSOCIATED STRUCTURES (DP.1022666)  
(EB) EASEMENT FOR DRAINAGE OF WATER OVER  
EXISTING LINE OF PIPES (DP.1022666)  
(EC) RIGHT OF CARRIAGEWAY & EASEMENT  
20.15 WIDE (C.136521 & B.17280)  
(N) COVENANT - Y190600

CORNER	BEARING & DISTANCE	MARK
A	259°35' - 151	R.M.G.I.P. FO (DP.800035)
B	195°06' - 0.145	R.M.G.I.P.
C	182°57' - 1.895	R.M.G.I.P. FO (DP.800035)
D	50°38' - 0.575	R.M.G.I.P. FO (DP.844711)

DP1108608 P

Registered: *Nil* 28.5.2008

CA: SEE CERTIFICATE

Title System: TORRENS

Purpose: SUBDIVISION

Ref Map: U5457-5\*6\*8\*9\*55\*

Local Plan: DP869101, DP844711,  
DP1008132, DP800036

PLAN OF SUBDIVISION OF LOT 36  
DP.869101, LOT 3 DP.844711, LOT  
2414 DP.1008132 & LOT 35 DP.800036  
AND RIGHT OF CARRIAGEWAY 15 WIDE  
WITHIN LOT 1 DP.844711

Lengths are in metres. Reduction Ratio 1: 6000

LGA: NEWCASTLE

Locality: FLETCHER, MINMI

Parish: ~~KAMBAM~~ HEXHAM

County: NORTHUMBERLAND

This is sheet 1 of my plan in 2 sheets.  
(Delete if inapplicable)

MURRAY PAUL EDWARDS

Asquith & deWHIT P.O.Box 179 CHARESTOWN, 2290  
a surveyor registered under the Surveying Act, 2002, certify  
that the survey represented in this plan is accurate, has been made  
in accordance with the Surveying Regulations 2001 and  
was completed on 20th JULY 2006  
The survey relates to LINES A, B, C & D, E, F, G, J.

(Specify the land actually surveyed or specify any land shown in  
the plan that is not the subject of the survey)

Signature: *M. Edwards* 3-8-06.  
Surveyor registered under the Surveying Act, 2002

Deputy Line: "X-Y" (MCA1) - SEE SHEET 2  
Type: Urban / Rural

Plans used in preparation of survey/completion.

DP.869101  
DP.844711  
DP.1008132  
DP.800035  
DP.800036  
DP.1008133

PANEL FOR USE ONLY for statements of intention  
to dedicate public roads, to create public reserves,  
drainage reserves, easements, restrictions on the  
use of land or positive covenants.

PURSUANT TO SECTION 88B OF  
THE CONVEYANCING ACT, 1919,  
AS AMENDED, IT IS INTENDED  
(A) TO CREATE :-

- (1) RIGHT OF CARRIAGEWAY  
15 WIDE  
(2) RESTRICTION ON THE USE  
OF LAND

(B) TO RELEASE :-

- (1) RIGHT OF CARRIAGEWAY 20  
WIDE (D.P.844711)  
(2) EASEMENT FOR SERVICES 20  
WIDE (D.P.844711)

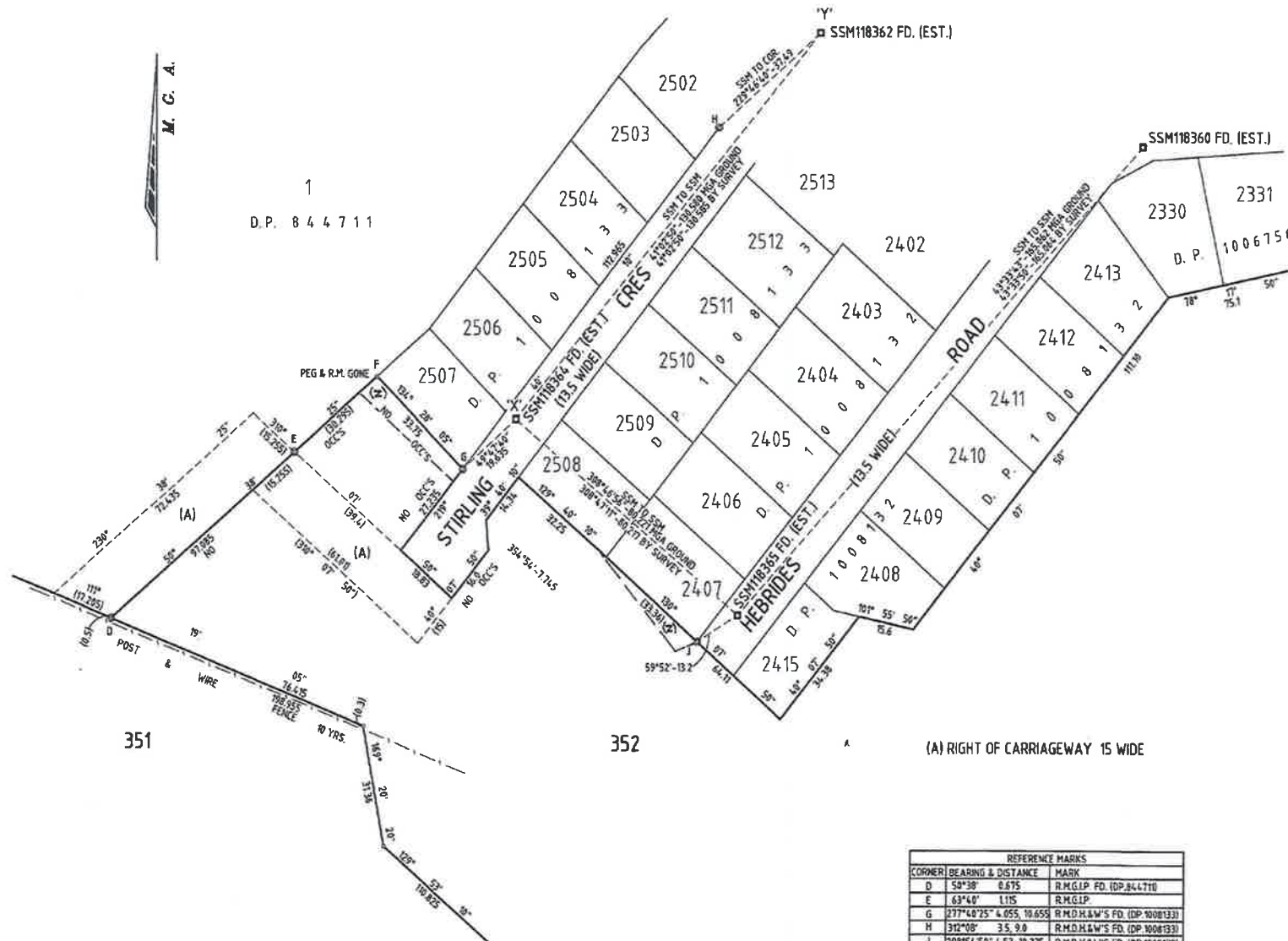
DP1108608

Registered *M.M.* 28.5.2008This is sheet 2 of my plan of 2 sheets  
dated 3-8-06*M. Edwards*

Surveyor registered under the Surveying Act, 2002

This is sheet 2 of my plan of 2 sheets  
commenced by my Certificate No. 7946  
on 19/2/2007*G. Mansfield*  
Authorized Person/General Manager/Providing Certificate

For any release space is insufficient in any part of Plan Form 2

Signed at Sydney the 17<sup>th</sup> day of March 2008  
For Commonwealth Bank of Australia  
A.C.N. 123 123 124 by its duly appointed  
Attorney under Power of Attorney No. LSG  
Book 4347 who declares that he has not  
received notice of revocation of the power*Ray Barroga*  
Witness  
RAY BARROGA  
MANAGER, BANK OF AUSTRALIA  
DECLARED CORRECTMirvac Homes (NSW) Pty Limited  
ABN 22 006 922 998  
pursuant to S.127(1) of  
the Corporations Act*M. Mansfield*  
Secretary  
Mickaela Campbell  
Samantha Wood  
Dilekhan  
Garry Wilford

- (2) BENEFITED BY EASEMENT FOR DRAINAGE OF WATER 2 WIDE (DP1006756)  
 - EASEMENT FOR DRAINAGE OF WATER 2 WIDE (DP1006756)  
 - RIGHT OF ACCESS 5.6 WIDE (DP1006756)  
 - EASEMENT FOR DRAINAGE OF WATER 2 WIDE (DP1006756)

REFERENCE MARKS		
CORNER	BEARING & DISTANCE	MARK
D	50°38' 0.675	R.M.G.I.P. FD. (DP1006756)
E	63°40' 1.115	R.M.G.I.P.
G	277°40'25" 4.055, 10.055	R.M.D.H.A.W.'S FD. (DP1008133)
H	312°08' 3.5, 9.0	R.M.D.H.A.W.'S FD. (DP1008133)
J	298°54'59" 4.53, 10.235	R.M.D.H.A.W.'S FD. (DP1008132)

SURVEYING REGULATION, 2001 (CLAUSE 32 (2))				
MARK	M.G.A. CO-ORDINATES	ZONE	CLASS	ORDER
SSM 118360	272 367.076	6 361 408.910	B	2
SSM 118361	272 210.599	6 361 438.072	C	3
SSM 118362	272 125.777	6 361 399.563	C	3
SSM 118363	272 100.799	6 361 378.315	A	1
COMBINED SCALE AND SEA LEVEL CORRECTION - 0.00001%				
SOURCE	LPI NSW SCMS 27TH JULY 2006			



# CERTIFICATE OF TITLE

PROPERTY ACT, 1900



11852-218

NEW SOUTH WALES

Appln. No.13723

Prior Title Vol.5168 Fol.237

Vol. **11852** Fol. **218**

Edition issued 15-6-1972

M582521

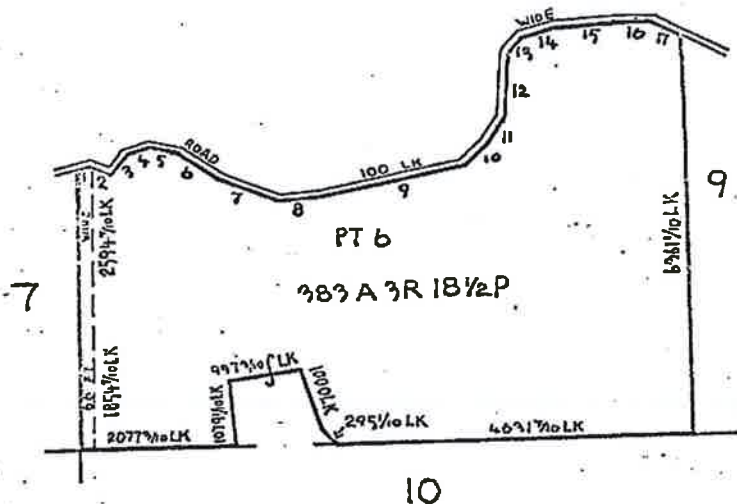


I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

*Janetson*  
Registrar General



## PLAN SHOWING LOCATION OF LAND



## SCHEDULE

LINE	DISTANCE
1	76 7/10 LK
2	43 5 9/10 LK
3	47 3 9/10 LK
4	70 6 4/10 LK
5	79 8 1/2 LK
6	66 5 4/10 LK
7	81 5 LK
8	49 1 1/10 LK
9	19 0 5 LK
10	46 4 1/2 LK
11	45 3 1/10 LK
12	10 4 8 9/10 LK
13	23 4 9/10 LK
14	76 4 1/10 LK
15	85 9 9/10 LK
16	47 3 4/10 LK
17	42 3 LK

M582521 DN  
of

SCALE: 20 CHAINS TO ONE INCH

## ESTATE AND LAND REFERRED TO

Estate in Fee Simple in the land shown in plan lodged with Transfer No.B17280 (Filed as F.P. 175106) in the City of Newcastle Parish of Hexham and County of Northumberland being the part of Portion 6 granted to William Charles Wentworth on 20-2-1839 shown in the plan hereon. EXCEPTING THEREOUT an undivided one half share in all mines, beds, veins and seams of coal and shale excepted by Transfer No.M582521.

## FIRST SCHEDULE

BRIAN HARDIE of Wallsend, Medical Practitioner.

## SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
2. Rights of Way and Easement created by Transfer No.B17280 affecting the part of the land within described shown as "66 Ft. Wide" in the plan hereon.
3. Right of Way created by Transfer No.C136521 affecting the part of the land within described shown as "66 ft. wide" in the plan hereon.
4. Rights to mine created by Transfer No.M582521 affecting the land within described.

*Janetson*  
Registrar General

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED.





# CERTIFICATE OF TITLE

PROPERTY ACT, 1900



14942223

NEW SOUTH WALES

First Title: Old System

Prior Title: Vol.11852 Fol.218



Vol. 14942 Fol. 223

EDITION ISSUED

7 12 1982

I certify that the person named in the First Schedule is the registered proprietor of an estate in fee simple (or such other estate or interest as is set out below) in the land described subject to the recordings appearing in the Second Schedule and to the provisions of the Real Property Act, 1900.

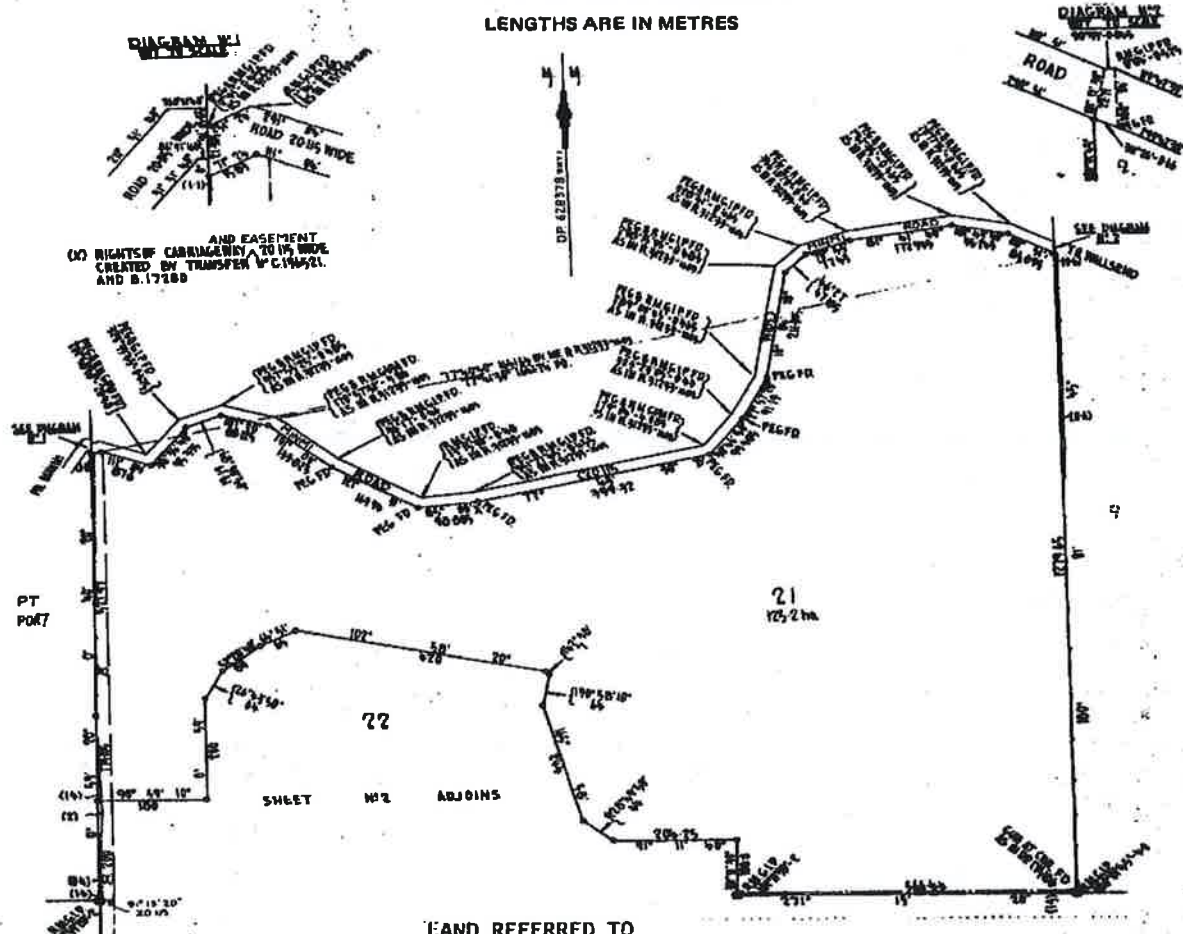
**CANCELLED**



Registrar General.

## PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES



## LAND REFERRED TO

Lot 21 in Deposited Plan 628378 at Minmi in the City of Newcastle Parish of Hexham and County of Northumberland.

## FIRST SCHEDULE

BRIAN HARDIE.

## SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grant.
2. B17280 Right of way and easement affecting the part of the land above described shown so burdened in Deposited Plan 628378.
3. C136521 Right of way affecting the part of the land above described shown so burdened in Deposited Plan 628378.
4. M502522 Mortgage to Sketchley Pty. Limited. Discharged V46060
5. M502522 Mortgage. Mortgagee: Westpac Banking Corporation. See Transfer N777466. Cancelled V46060
6. M502522 Mortgage. Mortgagee: Sketchley Pty. Limited. See Transfer T273606. Cancelled V46060

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

**FIRST SCHEDULE (continued)**  
**REGISTERED PROPRIETOR**

Registrar General

**SECOND SCHEDULE (continued)**

PARTICULARS

Registrar General CANCELLATION

The interest of the Council of the Local Government Area in the public road dedicated in DP 734187

Registered



Y145929 Mortgage to Westpac Savings Bank Limited Registered 2-2-1989  
Y255598 Mortgage to Westpac Banking Corporation. Registered 29-3-1989



DP/SP 810119 Registered 4-7-91  
This folio is cancelled as to whole/part upon creation of computer folios for lots 211 in the above-mentioned plan.



**NOTATIONS AND UNREGISTERED DEALINGS**

V460607M.1  
DP 734187 R  
Y145929 R  
Y255598 R

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

-----

SEARCH DATE

-----

21/2/2014 3:10PM

FOLIO: 211/810119

-----

First Title(s): OLD SYSTEM

Prior Title(s): VOL 14942 FOL 223

Recorded	Number	Type of Instrument	C.T. Issue
-----	-----	-----	-----
5/7/1991	DP810119	DEPOSITED PLAN	FOLIO CREATED EDITION 1
24/11/1994	DP844711	DEPOSITED PLAN	FOLIO CANCELLED

\*\*\* END OF SEARCH \*\*\*

mg

PRINTED ON 21/2/2014

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

21/2/2014 3:09PM

FOLIO: 1/844711

First Title(s): OLD SYSTEM

Prior Title(s): 211/810119

Recorded	Number	Type of Instrument	C.T. Issue
24/11/1994	DP844711	DEPOSITED PLAN	FOLIO CREATED EDITION 1
15/8/1995	O459530	CAVEAT	
2/2/1996	O883648	CAVEAT	
18/6/1996	2237045	WITHDRAWAL OF CAVEAT	
9/10/2000	6996350	APPLICATION FOR PREPARATION OF LAPSING NOTICE	
2/6/2003	9663491	CAVEAT	
7/4/2005	AB395889	WITHDRAWAL OF CAVEAT	
7/4/2005	AB395890	DISCHARGE OF MORTGAGE	
7/4/2005	AB395891	TRANSFER	
7/4/2005	AB395892	MORTGAGE	EDITION 2
27/3/2008	AD847132	DEPARTMENTAL DEALING	
28/5/2008	DP1108608	DEPOSITED PLAN	
23/7/2008	AE100145	DEPARTMENTAL DEALING	EDITION 3
26/8/2008	AE171148	DISCHARGE OF MORTGAGE	
26/8/2008	AE171149	MORTGAGE	EDITION 4
13/3/2013	AH607889	DISCHARGE OF MORTGAGE	
13/3/2013	AH607890	MORTGAGE	EDITION 5

\*\*\* END OF SEARCH \*\*\*

mg

PRINTED ON 21/2/2014



# Title Search

**InfoTrack**  
An Approved LPI NSW  
Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 1/844711

SEARCH DATE	TIME	EDITION NO	DATE
21/2/2014	3:09 PM	5	13/3/2013

LAND

LOT 1 IN DEPOSITED PLAN 844711  
AT MINMI  
LOCAL GOVERNMENT AREA NEWCASTLE  
PARISH OF HEXHAM COUNTY OF NORTHUMBERLAND  
TITLE DIAGRAM DP844711

FIRST SCHEDULE

KINGSTON MINMI ROAD PTY LTD (T AB395891)

SECOND SCHEDULE (4 NOTIFICATIONS)

- 1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
- 2 EASEMENT(S) AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE  
DIAGRAM CREATED BY:  
B17280 -RIGHT OF CARRIAGEWAY & EASEMENT 20.115 WIDE  
C136521 -RIGHT OF CARRIAGEWAY
- 3 DP1108608 RIGHT OF CARRIAGEWAY 15 METRE(S) WIDE AFFECTING THE  
PART(S) SHOWN SO BURDENED IN DP1108608
- 4 AH607890 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED

NOTATIONS

UNREGISTERED DEALINGS: NIL

\*\*\* END OF SEARCH \*\*\*

mg

PRINTED ON 21/2/2014

\* Any entries preceded by an asterisk do not appear on the current edition of the Certificate of Title. Warning: the information appearing under notations has not been formally recorded in the Register. InfoTrack an approved NSW Information Broker hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with Section 96B(2) of the Real Property Act 1900.

21/02/2014

# APPENDIX D

## CERTIFICATE OF ANALYSIS

**CERTIFICATE OF ANALYSIS**

**91632**

**Client:**

**Cardno Geotech Solutions**  
PO Box 4224  
Edgeworth  
NSW 2285

**Attention:** Dane Dwyer / Daniel Barnes

**Sample log in details:**

Your Reference:	<b><u>CGS1706</u></b>
No. of samples:	4 Soils
Date samples received / completed instructions received	31/05/13 / 31/05/13

**Analysis Details:**

Please refer to the following pages for results, methodology summary and quality control data.  
Samples were analysed as received from the client. Results relate specifically to the samples as received.  
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.  
***Please refer to the last page of this report for any comments relating to the results.***

**Report Details:**

Date results requested by: / Issue Date:	7/06/13 / 6/06/13
Date of Preliminary Report:	Not issued

NATA accreditation number 2901. This document shall not be reproduced except in full.  
Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with \*.**

**Results Approved By:**



Jacinta Hurst  
Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil					
Our Reference:	UNITS	91632-1	91632-2	91632-3	91632-4
Your Reference	-----	ES001	ES003	ES004	ES005
Date Sampled	-----	29/05/2013	29/05/2013	29/05/2013	29/05/2013
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	03/06/2013	03/06/2013	03/06/2013	03/06/2013
Date analysed	-	04/06/2013	04/06/2013	04/06/2013	04/06/2013
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	<25	<25	<25	<25
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	<25	<25	<25	<25
vTPHC <sub>6</sub> - C <sub>10</sub> less BTEX (F1)	mg/kg	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	102	109	104	107

svTRH (C10-C40) in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ----- -----	91632-1 ES001 29/05/2013 Soil	91632-2 ES003 29/05/2013 Soil	91632-3 ES004 29/05/2013 Soil	91632-4 ES005 29/05/2013 Soil
Date extracted	-	03/06/2013	03/06/2013	03/06/2013	03/06/2013
Date analysed	-	04/06/2013	04/06/2013	04/06/2013	04/06/2013
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	<50	<50	<50	<50
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	<100	<100	<100	<100
TRHC <sub>29</sub> - C <sub>36</sub>	mg/kg	<100	<100	<100	<100
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	<50	<50	<50	<50
TRH>C <sub>10</sub> - C <sub>16</sub> less Naphthalene (F2)	mg/kg	<50	<50	<50	<50
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	<100	<100	<100	<100
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	<100	<100	<100	<100
Surrogate o-Terphenyl	%	92	93	88	86

PAHs in Soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ----- -----	91632-1 ES001 29/05/2013 Soil	91632-2 ES003 29/05/2013 Soil	91632-3 ES004 29/05/2013 Soil	91632-4 ES005 29/05/2013 Soil
Date extracted	-	03/06/2013	03/06/2013	03/06/2013	03/06/2013
Date analysed	-	03/06/2013	03/06/2013	03/06/2013	03/06/2013
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	mg/kg	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	92	95	93	91

Acid Extractable metals in soil Our Reference: Your Reference Date Sampled Type of sample	UNITS ----- -----	91632-1 ES001 29/05/2013 Soil	91632-2 ES003 29/05/2013 Soil	91632-3 ES004 29/05/2013 Soil	91632-4 ES005 29/05/2013 Soil
Date digested	-	03/06/2013	03/06/2013	03/06/2013	03/06/2013
Date analysed	-	03/06/2013	03/06/2013	03/06/2013	03/06/2013
Arsenic	mg/kg	<4	12	9	8
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	2	9	9	9
Copper	mg/kg	3	48	26	24
Lead	mg/kg	19	70	31	29
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	7	7	5
Zinc	mg/kg	19	390	210	140

Miscellaneous Inorg - soil					
Our Reference:	UNITS	91632-1	91632-2	91632-3	91632-4
Your Reference	-----	ES001	ES003	ES004	ES005
Date Sampled	-----	29/05/2013	29/05/2013	29/05/2013	29/05/2013
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	04/06/2013	04/06/2013	04/06/2013	04/06/2013
Date analysed	-	04/06/2013	04/06/2013	04/06/2013	04/06/2013
pH 1:5 soil:water	pH Units	5.4	6.7	7.0	7.0
Electrical Conductivity 1:5 soil:water	µS/cm	36	22	46	28

Moisture					
Our Reference:	UNITS	91632-1	91632-2	91632-3	91632-4
Your Reference	-----	ES001	ES003	ES004	ES005
Date Sampled	-----	29/05/2013	29/05/2013	29/05/2013	29/05/2013
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	03/06/13	03/06/13	03/06/13	03/06/13
Date analysed	-	04/06/13	04/06/13	04/06/13	04/06/13
Moisture	%	18	9.9	11	9.5

MethodID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA 22nd ED, 4500-H+.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell and dedicated meter, in accordance with APHA 22nd ED 2510 and Rayment & Lyons.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 4 hours.

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
vTRH(C6-C10)/BTEXN in Soil						Base II Duplicate II %RPD		
Date extracted	-			03/06/2013	[NT]	[NT]	LCS-10	03/06/2013
Date analysed	-			04/06/2013	[NT]	[NT]	LCS-10	04/06/2013
TRHC <sub>6</sub> - C <sub>9</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-10	102%
TRHC <sub>6</sub> - C <sub>10</sub>	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-10	102%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS-10	90%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS-10	100%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-10	106%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS-10	107%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-10	114%
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	116	[NT]	[NT]	LCS-10	116%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
svTRH (C10-C40) in Soil						Base II Duplicate II %RPD		
Date extracted	-			03/06/2013	[NT]	[NT]	LCS-2	03/06/2013
Date analysed	-			04/06/2013	[NT]	[NT]	LCS-2	04/06/2013
TRHC <sub>10</sub> - C <sub>14</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-2	108%
TRHC <sub>15</sub> - C <sub>28</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-2	111%
TRHC <sub>28</sub> - C <sub>36</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-2	107%
TRH>C <sub>10</sub> -C <sub>16</sub>	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-2	108%
TRH>C <sub>16</sub> -C <sub>34</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-2	111%
TRH>C <sub>34</sub> -C <sub>40</sub>	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-2	107%
Surrogate o-Terphenyl	%		Org-003	86	[NT]	[NT]	LCS-2	104%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Date extracted	-			03/06/2013	[NT]	[NT]	LCS-2	03/06/2013
Date analysed	-			03/06/2013	[NT]	[NT]	LCS-2	03/06/2013
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-2	106%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-2	114%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-2	107%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-2	108%

QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
PAHs in Soil						Base II Duplicate II %RPD		
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-2	115%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-2	101%
Benzo(b+k)fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	[NT]	[NT]	LCS-2	129%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	92	[NT]	[NT]	LCS-2	91%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Acid Extractable metals in soil						Base II Duplicate II %RPD		
Date digested	-			03/06/2013	[NT]	[NT]	LCS-1	03/06/2013
Date analysed	-			03/06/2013	[NT]	[NT]	LCS-1	03/06/2013
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	LCS-1	95%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	LCS-1	93%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	98%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	97%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	94%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	LCS-1	105%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	97%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	97%

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QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Miscellaneous Inorg - soil						Base II Duplicate II %RPD		
Date prepared	-			04/06/2013	91632-1	04/06/2013    04/06/2013	LCS-1	04/06/2013
Date analysed	-			04/06/2013	91632-1	04/06/2013    04/06/2013	LCS-1	04/06/2013
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	91632-1	5.4    5.2    RPD: 4	LCS-1	103%
Electrical Conductivity 1:5 soil:water	µS/cm	1	Inorg-002	<1	91632-1	36    42    RPD: 15	LCS-1	108%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank				
Moisture								
Date prepared	-			[NT]				
Date analysed	-			[NT]				
Moisture	%	0.1	Inorg-008	[NT]				

**Report Comments:**

Asbestos ID was analysed by Approved Identifier: Not applicable for this job  
 Asbestos ID was authorised by Approved Signatory: Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

**Quality Control Definitions**

**Blank:** This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

**Duplicate:** This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

**Matrix Spike :** A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

**LCS (Laboratory Control Sample) :** This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

**Surrogate Spike:** Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

**Laboratory Acceptance Criteria**

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

# APPENDIX E

## SITE PHOTOGRAPHS



Photograph 1: Dumped waste and abandoned vehicle



Photograph 2: Abandoned vehicle



Photograph 3: Bricks adjacent to and filled in tracks



Photograph 4: Dumped waste, timber stockpile, and small fill mound adjacent to track



**Photograph 5: Dumped waste adjacent track**



**Photograph 6: Filled area**



Photograph 7: Fire pit area with dumped waste



Photograph 8: Fill mound adjacent to fire pit area



Photograph 9: Concrete fragments



Photograph 10: Filling in area of concrete fragments



Photograph 11: Fragments of possible asbestos containing material