Appendix 10

Contamination Assessment – Ground Doctor Pty Ltd

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Note: The Annexures of this report are available on the Project CD

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Ground Doctor Pty Ltd

Preliminary Contamination Assessment

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GrainCorp Operations Limited Rail Siding,
Lot 1 DP 818802,
Toongi, NSW

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On Behalf Of:
Australian Zirconia Ltd

9 November 2012
2012-GD001-RP1-FINAL

DOCUMENT CONTROLS

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Prepared For:	Australian Zirconia Limited Attention: Mr Michael Sutherland 65 Burswood Road BURSWOOD WA 6100 Ph: (08) 9227 5677 Fax: (08) 9227 8178 msutherland@alkane.com.au
Prepared By:	Ground Doctor Pty Ltd Pty Ltd PO Box 6278 14 Javea Close DUBBO NSW 2830 Ph: 0407 875 302 admin@grounddoc.com.au
Approved By:	 Mr James Morrow Environmental Engineer
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1 Introduction

Ground Doctor Pty Ltd (Ground Doctor) was commissioned by Australian Zirconia Ltd (AZL) to conduct a preliminary contamination assessment of a portion of land described as Lot 1 in Deposited Plan (DP) 818802, Toongi, NSW (the site).

The site is currently owned by GrainCorp Limited. AZL wish to purchase the site for potential later construction of a mineral processing facility alongside the Dubbo-Molong railway line. AZL are proposing to establish the Dubbo Zirconia Project (DZP) in the vicinity of the site. AZL is investigating the possibility of refurbishing the railway line from Dubbo to Toongi as part of the DZP. The DZP is State Significant Development.

1.1 Assessment Objectives

The objectives of the validation works were to:

- Assess the site setting, subsurface conditions at the site and the environment surrounding the site;
- Identify past and present land uses at the site;
- Identify potential sources of land contamination associated with past or present use of the site and potential contaminants of concern; and
- Quantify potential contamination at the site through collection of preliminary field data.

1.2 Scope of Work

To achieve the project objectives outlined above Ground Doctor completed the following work.

- Conducted a site inspection to establish current site conditions, surrounding land uses and potential human and environmental receptors located at/near the site.
- Reviewed and presented aerial photography held by NSW Land and Property Management Authority (LPMA). Aerial photographs reviewed were photographs taken in 1959, 1964, 1971, 1980, 1988, 1995, 2000 and 2004.
- Conducted a search of records held by Dubbo City Council (DCC) for information relevant to the site.
- Obtained land titles records for the site which outlined historical property transaction and property owner records.
- Conducted a search of NSW Office of Environment and Heritage database for notices pertaining to the site under Part 5 of the Contaminated Land Management Act 1997.
- Conducted a search of NSW Office of Environment and Heritage public register under Section 308 of the Protection of Environment Operations Act 1997 for licences, applications and notices pertaining to the site.
- Conducted a search of the NSW Office of Water (NOW) registered groundwater works database to identify groundwater works located within 1km of the site.
- Conducted a search of the NSW WorkCover dangerous goods register for licences pertaining to the storage of dangerous goods at the site.

- Reviewed available geology and soil landscape maps to assess subsurface conditions at the site.
- Conducted preliminary soil sampling to quantify any potential sources of contamination identified at the site. Soil samples were collected from the site surface at 7 locations.
- Analysed 8 soil samples in a laboratory for organochlorine pesticides (OCPs), heavy metals and asbestos.
- Prepared this report which outlines the works undertaken and presenting the findings of the preliminary contamination assessment.

1.3 Limitations of this Report

The findings of this report are based on the Scope of Work outlined in *Section 1.2*. Ground Doctor performed the services in a manner consistent with the normal level of care and expertise exercised by members of the environmental consulting profession. No warranties, express or implied are made.

The results of this assessment are based upon the information documented and presented in this report. All conclusions and recommendations regarding the site are the professional opinions of Ground Doctor personnel involved with the project, subject to the qualifications made above. While normal assessments of data reliability have been made, Ground Doctor assumes no responsibility or liability for errors in any data obtained from regulatory agencies, statements from sources outside of Ground Doctor, or developments resulting from situations outside the scope of this project.

Ground Doctor's assessment is limited strictly to identifying environmental issues associated with the subject property. Ground Doctor assessed surface soil at the site for identified compounds of concern associated with previous use of the site and adjacent land. The sampling locations were chosen based on knowledge of the site history which is documented in this report, with the aim of assessing areas of the site that were most likely to have been impacted by past activities of environmental concern. The absence or presence of relatively low concentrations of the compounds of concern in preliminary soil samples cannot be interpreted as a guarantee that potentially hazardous concentrations of contaminants of concern, or other potentially toxic or hazardous compounds, do not exist at the site.

The results of this assessment are based on the site conditions identified at the time of the site inspection and validation sampling. Ground Doctor will not be liable to revise the report to account for any changes in site characteristics, regulatory requirements, assessment criteria or the availability of additional information, subsequent to the issue date of this report. Changes to the subsurface conditions may occur subsequent to the investigations described herein, through natural processes or through the intentional or accidental addition of contaminants. The conclusions and recommendations reached in this report are based on the information obtained at the time of the investigations.

This report, including the data, findings and conclusions contained within it remains the intellectual property Ground Doctor Pty Ltd. A licence to use the report for the specific purpose identified is granted to Australian Zirconia Ltd subject to full payment of the agreed project fees. Ground Doctor Pty Ltd accepts no liability for use or interpretation by any person or body other than Australian Zirconia Ltd. This report should not be reproduced without prior approval by Australian Zirconia Ltd. The report should not be amended in any way without prior approval by Ground Doctor Pty Ltd. The report should not be relied upon by other parties, who should make their own enquires.

2 Site Description

2.1 Site Details

The site is located on a parcel of land described as Lot 1 DP 818802, approximately 21.4km to the south of the central business district of Dubbo. Information provided on the NSW Spatial Information Exchange Website (www.six.nsw.gov.au, 10/10/12) indicates that the site has no official street address.

The site location is shown *Figure 1* of *Annex A*.

The site is located within the Dubbo City Council local government area (LGA).

The site is approximately 2.7 hectares in area. According to the Section 149 Certificate (See *Annex C*) the site is zoned "SP2 – Infrastructure" at the time of the assessment.

Property details are summarised in *Table 1*.

Table 1: Summary of Site Details

	Description
Street Address:	Toongi Road, Toongi, NSW, 2830
Lot and DP Number:	Lot 1 DP 818802
Local Government Area:	Dubbo City Council
Zoning	SP2 – Infrastructure
Geographical Coordinates (MGA94 Zone 55):	East 649950 North 6409390 (Site Centre)

2.2 Site Layout and Features

A site inspection was conducted by Mr James Morrow of Ground Doctor on 16 October 2012. During the site inspection Ground Doctor spoke to Mr Malcom Bye, who has been a resident of Toongi since 1990, to obtain information about former operation of the site.

At the time of the site inspection the site was not in use.

The site layout at the time of the site inspection is shown in *Figure 2* of *Annex A*.

The site is accessed by a gate from Toongi Road which is located to the north of the site.

Site features at the time of the site inspection were as follows.

- An unsealed driveway led from the Toongi Road (northern) end of the site to the southern end of the site.
- The remains of a weighbridge are located in a central position of the site adjacent to the driveway. The weighbridge features a concrete pad and a small metal shed which houses the scales. The area adjacent to the weighbridge is filled such that the weigh bridge was located approximately 1m above the surrounding natural ground level. Fill visible on the surface is comprised of clay and crushed shale and sandstone. Synthetic inclusions were not identified on the surface of the filled area which indicates that fill is comprised of excavated natural material.
- A large rectangular concrete pad is located in the southern portion of the site. The concrete pad is elevated approximately 0.5m to 1.0m above the surrounding ground level and features concrete lined perimeter drainage. Information provided by Mr Malcom Bye (16

October 2012) indicated that a metal shed was formerly located above the slab. The shed was used for grain storage. The remains of a grain hopper are located partially underground on the eastern side of the concrete slab. The hopper is likely to be the former drop off point for trucks delivering grain to the site.

- An elevated steel hopper is located on the western side of the concrete slab. This hopper appears to have been used to transfer grain from the storage shed to trains. A rail siding was located immediately to the west of the elevated hopper but was believed to have been located outside the site boundary.

- Two metal sheds are located to the east of the rectangular concrete slab. The sheds had been used for storage of unknown objects.

- A small metal shed is located to the north east of the concrete pad. A toilet had been located within this building. Two concrete lined septic tanks are located to the east of the toilet.

- Several concrete footings are present in the area to the north of the toilet. Information provided by Mr Malcom Bye indicated that this area of the site had formerly been occupied by transportable temporary accommodation buildings which were used during seasons with above average grain harvests.

- A rectangular asphalt pad is located to the south of the rectangular concrete slab. The asphalt is overgrown with grass. The asphalt sealed area is believed to have been used as a grain storage area. A small drainage embankment is located on the eastern side of the asphalt pad. The western side of the asphalt pad is raised above natural ground level.

- Concrete ruins of a former weighbridge are present in the northern portion of the site. It was not clear whether the former weigh bridge was located within the site boundary.

- A drainage ditch is located parallel to the entire length of the eastern site boundary. The drainage feature appears to have been constructed by excavation of a ditch and placement of excavated material on the western side of the ditch. The drainage structure is likely to have been constructed to keep water from entering trafficable areas of the site and areas used for grain storage.

- The open area between the concrete pad and the weighbridge is elevated approximately 0m to 1m above the surrounding ground level indicating some filling has occurred in this area of the site. . Fill visible on the surface was comprised of clay and crushed shale and sandstone. Synthetic inclusions were not identified on the surface of the filled area which indicates that fill is comprised of excavated natural material.

- A metal platform is located adjacent to the driveway between the site entrance and the weighbridge. This platform is believed to have been used to inspect and test grain from the bin of trucks hauling grain to the site.

- Most areas of the site are covered by thick grass.

- An above ground power line is located at the southern end of the concrete floor pad of the former grain storage shed. The above ground hopper appeared to have been powered by electricity. Given the availability of electricity at the site it is inferred that fuel is unlikely to have been stored at the site in bulk.

- A mobile crane is located on the concrete floor slab of the northern gain storage. The crane is believed to have been used to dismantle the grain storage shed and was never removed from the site following the works.

- A former Railway Platform is located approximately 10m to the west of the site boundary. One rail line had been located on the western side of the platform and was believed to be the

main line. One (but possibly two) rail line was located between the site boundary and the railway platform. This line is believed to be a siding used primarily for loading of grain from the adjacent storages.

Anecdotal information provide by Mr Malcom Bye indicated that the grain storage facility remained operable until circa 1993. The railway line was decommissioned circa 1984 after several years of rail refurbishment and upgrading works between Dubbo and Toongi.

2.3 Adjoining Landuse

At the time of the site inspection land use of the adjoining properties is as follows.

- North – vacant land is located between the site and Toongi Road. A residential property is located on the northern side of Toongi Road. Land surrounding the residential property is used for dryland grazing and/or cropping.
- East and South –agricultural land which appears to be used for dryland grazing and cropping.
- West – former railway corridor including the former Toongi Railway Station platform and two rail lines. Land to the west of the rail corridor is occupied by three residential dwellings. Land surrounding the residential dwellings is agricultural land which appeared to be used for dryland gazing and/or cropping.

2.4 Topography

Topographic information published on the NSW Government Spatial Information Exchange (www.six.nsw.gov.au, 10/10/12) indicates that the average site elevation is approximately 285m AHD (Australian Height Datum).

The natural ground surface at the site slopes gently toward the west north-west. The average natural gradient is approximately 1-2%.

A drainage channel had been excavated along the eastern site boundary. The channel is approximately 1m deep. Soil excavated from the ditch has been placed as an embankment along the western side of the channel.

The area surrounding the weighbridge and the area between the weighbridge and the large concrete slab is elevated approximately 0.5m to 1.0m above natural ground level. This area appears to have been filled with soil and rock sourced from off site.

2.5 Geology and Soils

The 1:250,000 "*Dubbo*" Soil Landscape Series Sheet indicates that the site is situated on the "*Mitchell Creek*" soil group. This group is described as "*various alluvial deposits of sands, loams, and praire soils, with red-brown earths, yellow podzolic-solidic soils and red earths on older terraces*". The "*Mitchell Creek*" group also features "*small areas of black earths*".

These soils are found adjacent to minor streams and creeks in the area including Wambangalong Creek. Soils within the group are highly variable depending on parent material within localised catchments.

The 1999 *"1:250000 "Dubbo" Geological Sheet (SI/55-4)"* indicates that the site is situated on "*Quaternary Alluvium*" which overlies the "*Napperby Formation*". "*Quaternary Alluvium*" is described as "*alluvial silt, clay and sand, variable humic content, sporadic pebble to cobble sized*

unconsolidated conglomerate". The "*Napperby Formation*" is described as "*Siltstone thinly interbedded with fine to medium grained lithitic-quartz sandstone with minor conglomerate*".

2.6 Hydrogeology

Ground Doctor conducted a search of the NSW Government Natural Resource Atlas (www.nratlas.nsw.gov.au, 15/10/12) for registered groundwater works located within 1km of the site.

One registered groundwater work was identified within 1km of the site. Several additional registered bores were identified within 1500m of the site. Details of the nearest identified groundwater works for the site are summarised in *Table 2* and complete 'Groundwater Work Summary' forms for these bores are presented as *Annex D*.

The groundwater work summary forms indicate that the registered bores identified are used for stock, stock and domestic or domestic purposes.

The five nearest registered bores ranged from 27m to 60m deep. Groundwater bearing zones were typically encountered in hard rock aquifers greater than 15 m below ground level. Descriptions of water bearing strata included "granite", "rock", "conglomerate", "sand" and "weathered rock". Recorded standing water levels ranged from 12m to 28m below ground level. Water quality information was provided on two driller's logs. Water quality was described as "good" and "fresh".

Table 2: Summary of Five Nearest Registered Groundwater Works

Bore ID	Distance From Site (m)	Direction	Depth (m bgl)	SWL (m BGL)	Water Bearing Zones	Registered Use
GW014908	1000	S	28	17.9	19-20m (Conglomerate) 22-24m (Conglomerate) 24-26m (Sand)	Stock
GW056152	1200	SW	27.4m	-	-	Stock and Domestic
GW803017	1200	W	41.5	28.0	32-33m (Weathered Rock)	Domestic
GW800403	1200	W	60.0	-	53-54m (Granite)	Stock and Domestic
GW003590	1300	E	37.5	12.2	34-35m (Rock)	-

Ground Doctor spoke to Mr Malcom Bye who lived in one of the residential properties on the western side of the former Railway Line. Mr Bye has a groundwater bore which is located approximately 100m to the west of the site boundary. The bore is approximately 22m deep with a standing water level of approximately 5m below ground level. The groundwater bore is used for domestic purposes. The bore is thought to be located within alluvium associated with Wambangalong Creek.

2.7 Sensitive Environments

The nearest surface water feature is an unnamed ephemeral drain located approximately 140m to the west of the site. Wambangalong Creek is located approximately 380m to the north west of the site. Surface water runoff from the site is likely to flow into Wambangalong Creek.

The nearest registered groundwater work was GW014908 was located approximately 1000m to the south of the site. Registered bores were not identified between the site and Wambangalong Creek. An unregistered bore is located approximately 100m to the west of the site boundary. This bore is used for domestic purposes. Other houses within the Toongi village may also have unregistered groundwater bores.

The nearest residential land is located on the western side of the former railway station, approximately 70m west of the site boundary.

3 Site History and Relevant Information

3.1 Land Title Records

A search of land titles records was undertaken by OzArk Environmental and Heritage Management Pty Ltd on behalf of Ground Doctor. Results of the search are presented in *Annex E*.

A summary of the history of site ownership and lease information is presented in *Table 3*.

Table 3: Summary of Land Titles Search Information

Period	Site Owner / Lease Details
1991- October 2012	NSW Grain Corporation Limited
1991-1991	State Rail Authority of NSW
1921-1991	Railway Commissioners for NSW
Prior to 1921	Crown Land
(1910-1921)	*(Leased to James Ower)*

The site was Crown Land until 1921. The site was leased to James Ower between 1910 and 1921. The search did not identify a likely use of the site whilst it was leased.

The site was owned by the Rail Commissioners of NSW and the State Rail Authority of NSW between 1921 and 1991. In 1991 site ownership was transferred to the NSW Grain Corporation Limited. NSW Grain Corporation Limited owned the site between 1991 and the time of reporting (October 2012).

Prior to 1991 previous entities of NSW Grain Corporation Limited had been NSW government owned and operated. NSW Grain Corporation Limited was privatised in 1991. The privatisation of NSW Grain Corporation Limited coincides with the transfer of site ownership from the NSW State Rail Authority in 1991.

A plan in land title documents dated 1992 shows the site layout at that time. The plans shows that a weighbridge was located in the centre of the site. A large rectangular building labelled "G.I. Shed" and "Hopper" was located in the southern portion of the site. Four smaller "G.I. Sheds" were located on the eastern side of the large shed.

3.2 Aerial Photography Review

In order to assess past land uses at the site and on adjoining properties, Ground Doctor reviewed aerial photography archives held by the Land and Property Information Division of the NSW Department of Finance and Services. Photos reviewed included:

- 1959 (NSW 450/5063, Dubbo, Run 4D, 1959)
- 1964 (NSW 1219/5142, Dubbo, Run 8, June 1964)
- 1971 (NSW 1957/5162, Dubbo, Run 4, 24/8/1971)
- 1980 (NSW 2883/146, Dubbo, Run6, 18/08/80
- 1988 (NSW 3601/77, Dubbo, Run 8, 12/01/88)
- 1995 (NSW 4289/13-25, Dubbo, Run 7, 11/12/95)
- 2000 (NSW 4532/M2250, Dubbo, Run 7, 16/12/00)

- 2004 (NSW 4839/M2405, Dubbo, Run 7, 16/04/04)

Scanned copies of the site location within each of the aerial photographs are presented as *Annex B*.

3.2.1 The Site

The site appearance at the time of the 1959 photograph is outlined as follows.

- A long rectangular structure was present in the southern portion of the site. The structure was located in the same location as the asphalt pad that was identified during the site inspection. It is assumed that this structure was a grain storage shed.
- An unsealed driveway provided access to the site from Toongi Road. The driveway branched in two. The easternmost driveway was located in the current (October 2012) position of the main site driveway and appeared to provide vehicle access to the northern end of the grain storage structure. The driveway had a western arm which appeared to lead traffic through the former weighbridge, which was located in the northern end of the site, before joining back onto the main (eastern) driveway to the north of the grain storage shed.
- The remainder of the site appeared to be mostly comprised of grassed open space.
- Some light coloured objects were located in the current position of the small metals sheds (located to the east of the concrete floor pad).

In the 1964 aerial photograph an additional structure was located to the north of the grain storage shed shown in the 1959 aerial photograph. The structure was located in the same position as the concrete floor slab that remained at the site when this report was prepared and is assumed to be a grain storage shed. Small structures are visible on the eastern side of the new grain storage shed. These structures are likely to be the metal sheds that were present at the site during the site inspection.

Site driveways are located in the same position as shown in the 1959 aerial photograph. A small building is visible in the 1964 photograph adjacent to the former weighbridge.

An additional section of driveway appeared to provide access to the rail siding in the area north of the northern most grain shed.

There are no other noticeable changes to the site between the 1959 photograph and the 1964 photograph.

The 1971 aerial photograph is not clear. The area to the north of the northern grain shed appears dark in the photograph but the reason for this is not apparent. There are no other noticeable changes to the site between the 1964 photograph and the 1971 photograph.

The 1980 aerial photograph is slightly overexposed so the active parts of the site appear white. There are no noticeable changes to the site between the 1971 photograph and the 1980 photograph.

The 1988 aerial photograph is of limited clarity. It appears as though a new weighbridge had been constructed in the central portion of the site along the eastern (main) driveway. The western arm of the driveway no longer appears to be in use. There are no other noticeable changes to the site between the 1980 and 1988 aerial photographs.

In the 1995 aerial photograph the southern grain storage shed has been removed from the site. The footprint of the former grain shed is grey in colour indicating that the asphalt floor of the shed remained. The northern grain storage shed remains at the site. There are no other noticeable changes to the site between the 1988 and 1995 aerial photographs.

In the 2000 aerial photograph the metal shed of the northern grain storage appears to have been removed. The concrete floor of the shed remained at the site. The site appears to have the same layout as it did at the time of reporting.

In the 2004 aerial photograph the site appears to have the same layout as it did at the time of reporting.

3.2.2 Adjoining Land Uses

Land to the east of the site was open dryland grazing and cropping land in all of the aerial photographs reviewed.

Land to the south of the site was open dryland grazing and cropping land in all of the aerial photographs reviewed. Some land to the south of the site was part of the rail corridor in all photographs reviewed.

The Toongi Railway Station Platform was located to the west of the site in each aerial photograph reviewed. In each photograph a siding was present between the grain storage(s) and the former rail platform. A second line was present on the western side of the platform. Residential dwellings were present to the west of the railway station in all photographs that were reviewed. The area surrounding the residential dwellings was open space used for dryland grazing and cropping.

Toongi Road and a residential dwelling were located to the north of the site in each photograph that was reviewed. The area surrounding the residential dwelling was open space that was used for dryland cropping and grazing.

3.3 Council Document Review

Dubbo City Council conducted a search of all available council records held for Lot 1 DP 818802. No records were identified for the site. Council staff indicated that local government was unlikely to have been the consent authority for the site because it was owned by NSW State Rail Authority or the equivalent.

3.4 Rail Property File Review

Ground Doctor requested that John Holland Group conduct a search of property archives for information relating to the site. John Holland Group could not provide any information regarding the site history.

3.5 Section 149 Certificate

Ground Doctor obtained a copy of the Section 149 (2) certificate for the site. The certificate indicates the following.

"Pursuant to Section 59(2) of the Contaminated Land Management Act 1997, the subject land is:

(a) not within land declared to be significantly contaminated land under Pal1 3 of that Act;

(b) not subject to a management order in the meaning of that Act;

(c) not the subject of an approved voluntary management proposal of the Environment Protection Authority's agreement under Section 17 of that Act;

(d) not subject to an ongoing maintenance order under Part 3 of that Act;

(e) not subject of a site audit statement within the meaning of Part 4 of that Act."

A copy of the certificate is presented as *Annex C*.

3.6 NSW Office of Environment and Heritage Registers

Ground Doctor conducted a search of the NSW Office of Environment and Heritage register of sites with notices made under the Contaminated Land Management Act 1997.

Ground Doctor also conducted a search of the NSW Office of Environment and Heritage register of licences, applications and notices made under the Protection of Environment Operations Act 1997. These searches were conducted on 16 October 2012.

No records were found for the subject site or adjoining sites on either of the abovementioned searches.

3.7 NSW WorkCover Records

Ground Doctor requested that NSW WorkCover conduct a search of the dangerous goods licencing register for information relating to the site. NSW WorkCover did not find any records pertaining to the site. The results of the search are presented as *Annex F*.

3.8 Summary of Site History

The site history has been summarised based on the collective information outlined above and is presented in *Table 4*.

Table 4: Summary of Site History

Period	Inferred Land Use / Relevant Information
Prior to 1921	The site was Crown Land. During some of this period the site is likely to have been used for agricultural purposes. The site was leased to James Ower between 1910 to 1921.
1921 to 1991	The site was part of the railway corridor and was owned by the NSW government. During this period the site was used by NSW government operated grain storage and distribution operation. During this period it is inferred that grain was stored and handled at the site before being loaded on to trains in the adjacent rail siding. Early operation is likely to have involved bagging of grain for transport. Later operation would have involved transport of grain in bulk carriages. Aerial photographs indicate that in 1959 grain was being stored in a long rectangular shed located in the southern portion of the site. Based on site observations and aerial photographs it is inferred this storage had an asphalt sealed floor and was constructed of metal sheeting. Two small storage sheds and a toilet (which existed at the time of reporting) appear to be present in the 1959 aerial photograph and in subsequent photographs. Aerial photographs show that a second grain storage shed was constructed at the site between 1959 and 1964.
1991 - 2012	In 1991 the NSW government privatised the grain storage and distribution and this was taken over by NSW Grain Corporation Limited. Site ownership was transferred to NSW Grain Corporation Limited in 1991. Grain storage and distribution at the site is believed to have ceased circa 1993 due to closure of the railway line. The southern grain storage was dismantled between 1988 and 1995. The northern grain storage was dismantled between 1995 and 2000. At the time of the site inspection a concrete floor remained in the footprint of the northern storage and asphalt floor remained in the area occupied by the southern storage.

4 Potential Areas of Environmental Concern

Ground Doctor assessed potential areas of environmental concern at the site based on the information presented in *Sections 2 and 3*. Potential areas of environmental concern are discussed in *Table 5*.

Table 5: Summary of Potential Areas of Environmental Concern

Potential Area of Concern	Summary of Issue	Potential Contaminants of Concern
Grain Storage	The site appears to have been used for grain storage for a period of approximately 70 years (from the 1920's through to the 1990's). It is possible that pesticides were applied to grain storages during this period. Ground Doctor did not identify any evidence to suggest that chemicals or fuel was stored at the site in bulk. Equipment present at the site was powered by electricity and electricity was supplied to the site by above ground lines.	Organochlorine Pesticides and Heavy Metals.
Imported Fill	Some areas of the site were raised above natural ground level and appeared to have been filled. The presence of exposed rocks on the surface in these areas indicated that fill may have been imported to the site. The surface of areas inferred to have been filled was free of synthetic inclusions indicating that any fill imported to the site was likely to have been virgin excavated natural material from a local quarry. Given the sites rural setting the risk of imported fill being imported from contaminated sites is considered low.	-
Railway Siding Adjacent to the Site	Railway land can potentially be contaminated due to refuelling activities, maintenance of rolling stock, treatment of railway sleepers, control of weeds, use of asbestos in train brakes etc. The siding adjacent to the site is considered to be low risk of being contaminated. Based on our knowledge of the site history the siding was only used for loading of grain. Maintenance works and re-fuelling of diesel engines is likely to have been undertaken in dedicated facilities in Dubbo, which is relatively close to the site by rail. Ground Doctor did not identify any evidence to suggest that fuel or chemicals were stored within the rail corridor.	Heavy Metals, Polycyclic Aromatic Hydrocarbons, and Asbestos

5 Preliminary Soil Sampling and Analysis

The preliminary soil sampling and analytical plan was designed to assess the potential sources of contamination outlined in *Table 5*. It should be noted that the soil assessment undertaken was preliminary only and focused on areas that had potential to be impacted based on knowledge of the site history. The sampling density used for the assessment was not intended to comply with minimum sampling requirements outlined in the NSW EPA (1995) *Sampling Design Guidelines*.

5.1 Sampling Locations

Preliminary soil sampling locations are shown in *Figure 3* of *Annex A*.

Six soil samples (SS1 – SS6) were collected adjacent to the perimeter of the former grain storages. The floor of the northern grain storage had been sealed with concrete. The floor of the southern grain storage had been sealed with asphalt. The most likely receiving environment for any pesticide residue was considered to be the unsealed soil around the perimeter of the former storages.

Three of the six samples (SS1, SS3, and SS5) collected around the former grain storages were also located adjacent to the western site boundary and the former railway siding. These sampling locations were considered appropriate for assessing potential contamination associated with the rail siding.

An additional two soil samples (SS7 and SS8) were collected along the western site boundary to assess whether soil had been impacted by former railway activity on the adjacent siding.

5.2 Sampling Depth

The potential sources of contamination on the site and the adjoining rail siding were surface based activities. Near surface soils would have been impacted by any contaminating activities. As such, preliminary soil sampling was limited to the collection of near surface samples.

5.3 Sampling Methodology

Soil samples were collected from the upper 0.1m soil. A mattock was used to clear surface vegetation and loosen near surface soils. Soil was then collected by hand and placed directly into a laboratory supplied 125mL glass jar marked with the appropriate sample identification. Care was taken to ensure the sample collected had not come into direct contact with the mattock used to loosen soil.

The sampler wore a new pair of disposable nitrile gloves whilst collecting each soil sample. Jarred soil samples were placed on ice inside an esky immediately after collection. Care was taken to minimise potential loss of semi-volatile organic compounds including collecting the least disturbed sample, minimising head space in sample containers and storing samples on ice immediately after collection.

5.4 Sample Analysis

Sample details and analytical requirements were documented on a Chain of Custody form. The samples and Chain of Custody form were transported to Envirolab Services Pty Ltd (Envirolab) by overnight courier.

Each soil sample was analysed in the laboratory for organochlorine pesticides (OCPs) and heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc).

Selected soil samples collected along western site boundary (SS1, SS5, SS7 and SS8) were also analysed for asbestos and polycyclic aromatic hydrocarbons (PAHs).

Envirolab performed all laboratory analysis using National Association of Testing Authorities (NATA) accredited analytical methods.

6 Soil Results

6.1 Soil Assessment Criteria

Analytical results for heavy metals, OCPs and PAHs were assessed against the National Environment Protection (Assessment of Site Contamination) Measures 1999 (NEPM 1999) Schedule B(1) '*Guidelines on the Investigation Levels for Soil and Groundwater*'. The results were assessed against Health Investigation Level 'F' (HIL'F'), which is applicable for a commercial or industrial site.

There are no NSW EPA endorsed guidelines for assessing the presence of asbestos in soil. Ground Doctor adopted the detection of asbestos fibres in soil as the assessment criteria.

6.2 Sample Log

Sampling was undertaken between 9am and 11am on the morning of 17 October 2012. The weather was fine and the temperature at the time of sampling was approximately 20-25 degrees Celsius.

Sample details are outlined in *Table 6*.

Table 6: Sample Details

Sample ID	Sample Depth	Soil Type	Odour or Staining
SS1	0-0.1m	Silty Sand, brown, fine to coarse sand, dry	No
SS2	0-0.1m	Clayey Silt	No
SS3	0-0.1m	Silty Sand, brown, fine to coarse sand, dry	No
SS4	0-0.1m	Silty Sand, brown, fine to coarse sand, dry	No
SS5	0-0.1m	Silty Sand, brown, fine to coarse sand, dry	No
SS6	0-0.1m	Silty Sand, brown, fine to coarse sand, dry, with some railway ballast (coarse gravel to small cobbles blue metal).	No
SS7	0-0.1m	Silty Sand, brown, fine to coarse sand, dry, with some railway ballast (coarse gravel to small cobbles blue metal).	No
SS8	0-0.1m	Silty Sand, brown, fine to coarse sand, dry, with som railway ballast (coarse gravel to small cobbles blue metal).	No

6.3 Analytical Results

Laboratory analytical certificates and chain of custody forms are presented as *Annex H*.

Laboratory results for soil validation samples are summarised and compared to the site assessment criteria in *Table G1* of *Annex G*. Soil sampling locations are shown in *Figure 3* of *Annex A*.

Reported concentrations of PAHs were less than the estimated quantification limit (EQL) and the adopted assessment criteria in all surface soil samples that were analysed.

Reported concentrations of heavy metals in all surface soil samples were less than the adopted assessment criteria.

Reported concentrations of asbestos were less than 0.1mg/kg. Respirable asbestos fibres were not detected in any of the surface soil samples analysed.

Reported concentrations of OCPs were less than the adopted assessment criteria in all surface soil samples. Some OCPs including chlordane, dieldrin, DDE and DDT were detected in some surface soil samples collected adjacent to the former grain storages.

6.4 Evaluation of Analytical Results

OCPs were detected in most surface soil samples collected adjacent to the former grain storage areas of the site. The detection of some OCPs is consistent with knowledge of the site history, which suggested that OCPs may have been used to control insects within the grain stores. Reported concentrations of OCPs in all samples were well below the adopted assessment criteria. The results indicate that whilst some OCPs are present in near surface soil samples the concentrations are such that they are unlikely to pose an unacceptable risk of harm to human health if the site continues to be used for commercial and/or industrial purposes.

Groundwater was not assessed as part of the preliminary assessment. Assuming the concentrations of OCPs identified in near surface soils represent the most elevated concentrations in soil at the site the risk of there being significant groundwater contamination is low. OCPs are regarded as a persistent contaminant as they have relatively low solubility in water and do not readily migrate through the soil profile.

Reported concentrations of heavy metals were well below the assessment criteria. Zinc concentrations appear to be elevated in some samples. This is attributed to the former present of metal clad grain storages in the southern portion of the site.

PAHs and asbestos were not detected in surface soil samples collected as part of this assessment. These results indicate that there is unlikely to have been any significant impacts to soil from use of land adjoining the site as a former railway siding. This is to be expected given that rail corridor is unlikely to have been used intensively for maintenance of rolling stock or refuelling of locomotives.

7 Quality Assurance and Quality Control

7.1 Ground Doctor QA/QC

All field work was conducted in accordance with industry accepted standards and in accordance with Ground Doctor's standard operating field procedures. Field quality control included rigorous sample collection, sample documentation, use of clean gloves for the collection of each sample, correct use of field equipment and storage of samples with appropriate cooling media.

Standard sampling procedures were employed to ensure that the soil collected had not been in direct contact with the sampling tool. Hand excavation equipment was cleaned between sampling locations to minimise potential for cross contamination to occur.

Eight primary samples and one duplicate sample were analysed in the laboratory for the analytes of concern. Results of duplicate sample analysis were used to assess the efficiency of field procedures and the precision, accuracy and comparability of laboratory analysis.

As per sampling guidelines, the duplicate sample was split in the field but was not mixed (homogenised) due to the potential for loss of volatile and even semi-volatile compounds.

Ground Doctor Pty Ltd adopts the following criteria with which to asses the results of duplicate sampling:

- Calculated relative percentage difference (RPD) values should be less than 50% where the reported concentrations of analytes are greater than 10 times the EQL;

- Calculated RPD values should be less than 75% where the reported concentrations of analytes are greater than 5 times the EQL but less than 10 times the EQL; and

- Calculated RPD values should be less than 100% where the reported concentrations of analytes are less than 5 times the EQL.

Duplicate sampling results and calculated RPD values are presented in *Table G2* of *Annex G*. The concentrations of most analytes in both duplicate and primary samples were less than the EQL. Where the RPD could be calculated it ranged from 0% to 56%. With the exception of concentrations of lead the RPDs for all other analytes were within the target range. The RPD for lead in the duplicate and primary sample was 56%, which exceeded the target range. Whilst the RPD was outside the desired range the reported concentrations in both samples were of similar order of magnitude and were well below the adopted assessment criteria.

Overall the results of duplicate sample analysis indicated that there was good agreement between the primary and duplicate samples.

The agreement between the primary and duplicate samples and consistency of results and field observations indicates that the sampling and analytical methods used during the project are repeatable and that results obtained from sampling are representative of actual conditions within soils at the site.

7.2 Laboratory QA/QC

An evaluation of QA/QC procedures, including COC documentation, sample integrity and holding times, use of acceptable NATA analytical methods and laboratory QAQC test results was completed by Ground Doctor Pty Ltd.

Chain of custody documentation was signed and dated by the laboratory stating that all samples were received cool and in good order, and were presented in appropriate sample containers. Samples submitted for semi-volatile compound analysis were correctly contained with no headspace and all samples were labelled appropriately according to current field sampling protocols undertaken by Ground Doctor Pty Ltd.

Laboratory analysis of soil samples for all analytes was undertaken within the required technical holding times.

Envirolab performed internal QAQC testing and a review in accordance with NATA requirements, and standards established by them. Laboratory QAQC testing included analysis for laboratory surrogates and analysis of laboratory duplicates, matrix spikes, method blanks and laboratory control samples.

Results of laboratory QA/QC sample analysis were as follows:

- Analytes were not detected in any of the method blank samples;

- Recovery of surrogates and spiked compounds in all samples were within the laboratory's acceptable range.

- Calculated RPDs for laboratory duplicates were within the laboratories target range.

The results of the laboratory QAQC review indicate that that the analytical results reported by Envirolab are accurate and precise, and can be relied upon to make the conclusions in *Section 8* of this report.

8 Conclusions

Ground Doctor Pty Ltd concludes the following based on the works outlined in the previous sections of this report.

The site is believed to have been vacant and/or used for grazing purposes prior to 1921. In 1921 the site was acquired by the NSW Government as part of a rail corridor and Toongi siding. The site is believed to have been used as a grain storage and loading facility by the NSW Government up until 1991. In 1991 the NSW Government privatised grain operations and site ownership was transferred to NSW Grain Corporation Limited. The site remained operable as a grain storage and loading facility until circa 1993. The site has been vacant since circa 1993. OCPs were commonly used to protect grain against insects between the 1940's and 1980's and were likely to have been used to protect former grain storages at the site.

Ground Doctor collected six near surface samples immediately adjacent to the former grain storages to assess them for the presence of OCPs and heavy metals. Some OCPs were detected in near surface soil samples. Reported concentrations of OCPs were well below the adopted commercial and/or industrial land use assessment criteria adopted for the site. Concentrations of heavy metals adjacent to the former grain storages were also well below the adopted assessment criteria.

Land immediately to the west of the site was a railway corridor which featured a main line and a siding which was believed to have been used for grain loading. Ground Doctor collected 5 near surface soil samples along the western site boundary (adjacent to the former railway siding). Some of these samples were analysed for commonly encountered contaminants of concern associated with former railway sites. The reported concentrations of PAHs, OCPs and heavy metals in these samples were less than the adopted assessment criteria. Asbestos was not identified in any near surface sample collected adjacent to the railway siding. Ground Doctor did not assess soil for petroleum hydrocarbons. Given the sites proximity to Dubbo, the site was unlikely to have ever been used for bulk storage and loading of liquid fuels.

Some filling was identified at the site. Synthetic inclusions were not identified on the surface within the filled areas. The location of the site is such that the imported fill was likely to have been imported from a nearby quarry and was likely to have met the current definition of virgin excavated natural material. Fill at the site was unlikely to have come from a contaminated site as industry in the surrounding area at the time of filling was limited, and remains limited. Fill at the site was not assessed for these reasons.

Based on the results of this preliminary contamination assessment the site is considered suitable for ongoing commercial and/or industrial use.

Groundwater was not assessed as part of this preliminary assessment. The relatively insoluble and immobile nature of OCP contaminants is such that significant groundwater contamination is unlikely to be present at the site. However, the presence of groundwater impacts beneath the site cannot be ruled out as groundwater at the site was not assessed.

9 References

- Aerial Photography:
    - 1959 (NSW 450/5063, Dubbo, Run 4D, 1959)
    - 1964 (NSW 1219/5142, Dubbo, Run 8, June 1964)
    - 1971 (NSW 1957/5162, Dubbo, Run 4, 24/8/1971)
    - 1980 (NSW 2883/146, Dubbo, Run6, 18/08/80

  - 1988 (NSW 3601/77, Dubbo, Run 8, 12/01/88)
  - 1995 (NSW 4289/13-25, Dubbo, Run 7, 11/12/95)
  - 2000 (NSW 4532/M2250, Dubbo, Run 7, 16/12/00)
  - 2004 (NSW 4839/M2405, Dubbo, Run 7, 16/04/04)

- Malcom Bye (2012), Conversation between James Morrow and Malcom Bye regarding site history on 16 October 2012, 4-6pm.
- National Environment Protection (Assessment of Site Contamination) Measure (1999), '*Schedule B(1) - Guidelines on the Investigation Levels for Soil and Groundwater*'.
- NSW EPA (1995) "*Sampling Design Guidelines*".
- NSW Department of Land and Water Conservation (1999), "*Dubbo 1:250,000 Soil Landscape Series Sheet 55-4*", Edition 1.
- NSW Government (15/10/12), *NSW Natural Resource Atlas Website*, http://www.nratlas.nsw.gov.au.
- NSW Government (10/10/12), *NSW Spatial Information Exchange Website*, http://www.six.nsw.gov.au.
- NSW Government and Commonwealth of Australia (1999) "*Dubbo 1:250,000 Geological Series Sheet SI55/4*", Second Edition, May 1999.

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Annex A:

Figures

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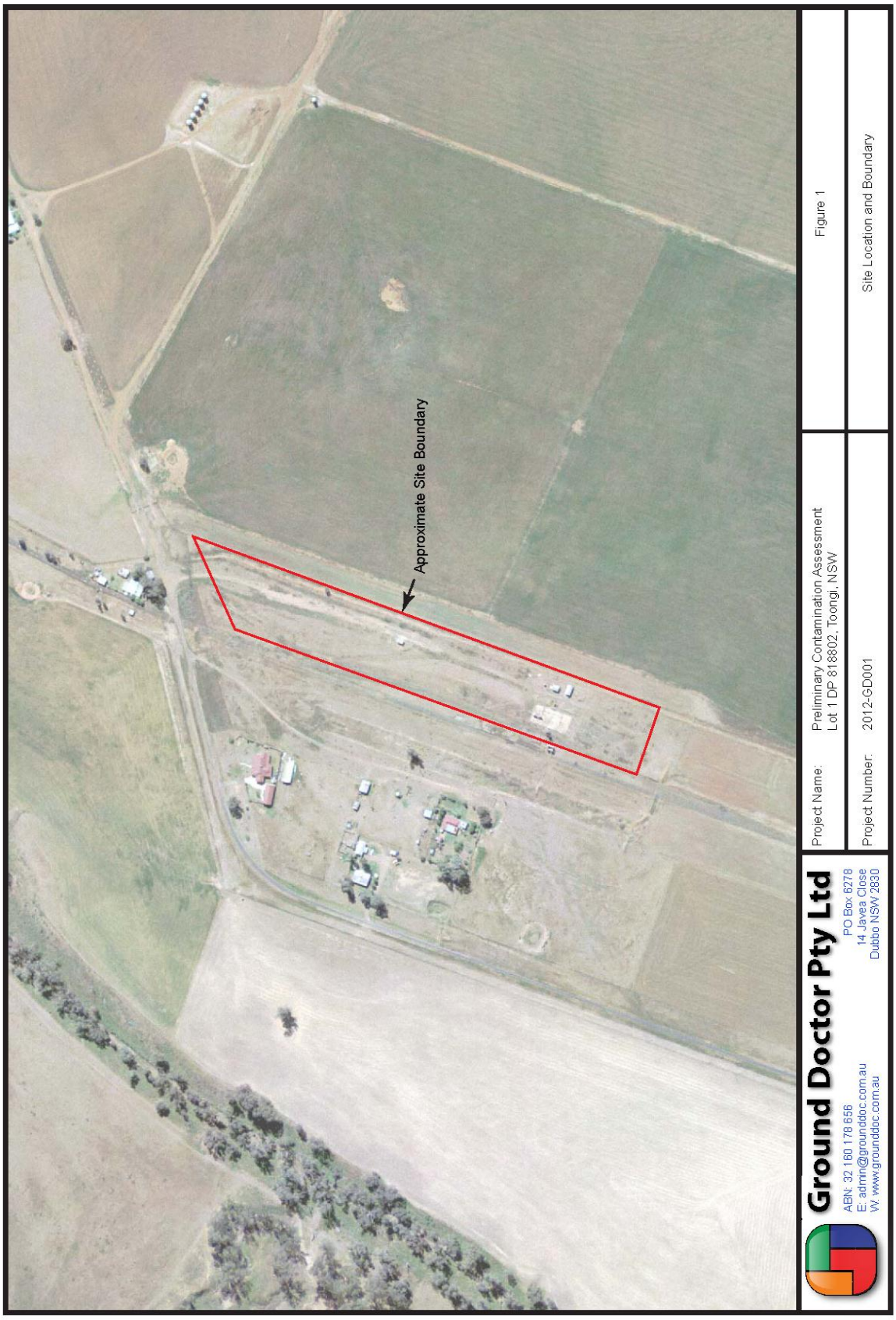
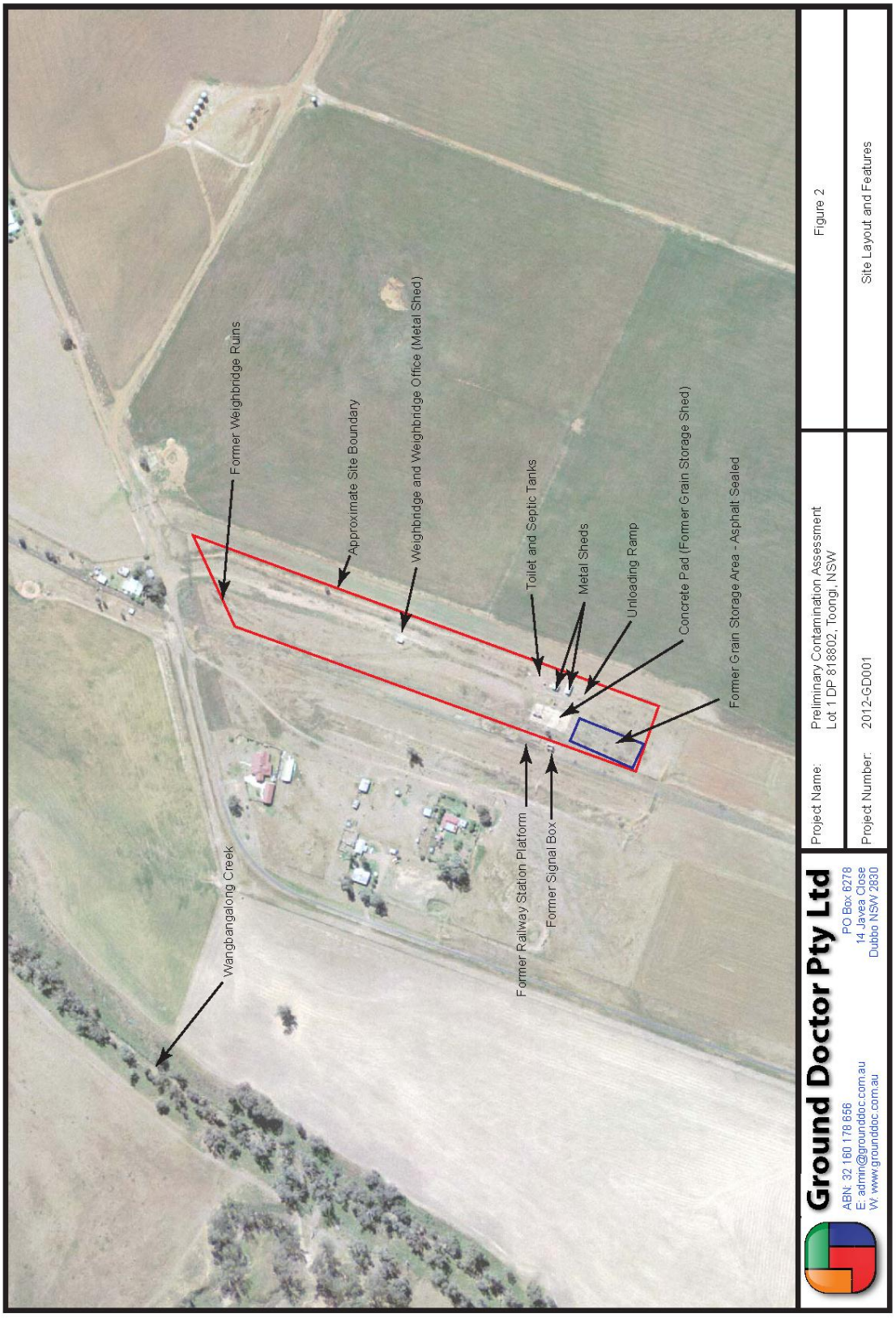
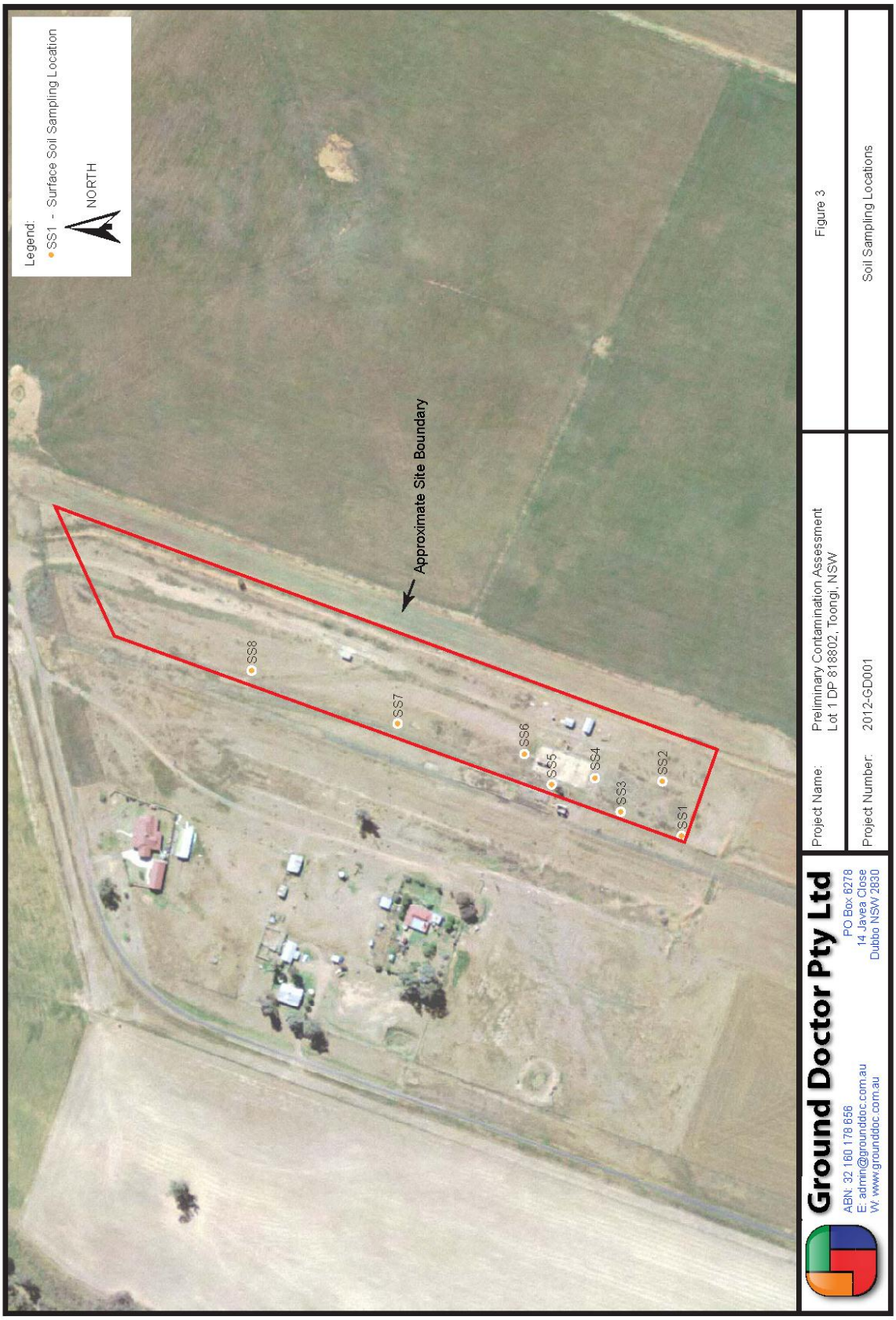

Approximate Site Boundary
Ground Doctor Pty Ltd
PO Box 6278
14 Javea Close
Dubbo NSW 2830
ABN: 32 160 178 656
E: admin@groundddoc.com.au
W: www.groundddoc.com.au
Project Name: Preliminary Contamination Assessment Lot 1 DP 818802, Toongi, NSW
Project Number: 2012-GD001
Figure 1
Site Location and Boundary


Former Weighbridge Ruins
Approximate Site Boundary
Weighbridge and Weighbridge Office (Metal Shed)
Toilet and Septic Tanks
Metal Sheds
Unloading Ramp
Concrete Pad (Former Grain Storage Shed)
Former Grain Storage Area - Asphalt Sealed
Former Railway Station Platform
Former Signal Box
Wangbangalong Creek
Ground Doctor Pty Ltd
ABN: 32 160 178 856
E: admin@grounddoc.com.au
W: www.grounddoc.com.au
PO Box 6278
14 Javea Close
Dubbo NSW 2830
Project Name: Preliminary Contamination Assessment
Lot 1 DP 818802, Toongi, NSW
Project Number: 2012-GD001
Figure 2
Site Layout and Features


Legend:
SS1 - Surface Soil Sampling Location
NORTH
Approximate Site Boundary
SS8
SS7
SS6
SS5
SS4
SS3
SS2
SS1
Ground Doctor Pty Ltd
PO Box 6278
14 Javea Close
Dubbo NSW 2830
ABN: 32 160 178 656
E: admin@grounddoc.com.au
W: www.grounddoc.com.au
Project Name: Preliminary Contamination Assessment
Lot 1 DP 818802, Toongi, NSW
Project Number: 2012-GD001
Figure 3
Soil Sampling Locations

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Annex B:

Aerial Photographs

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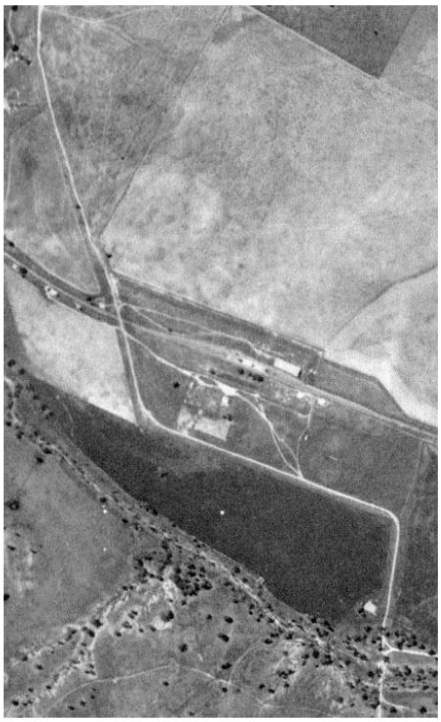


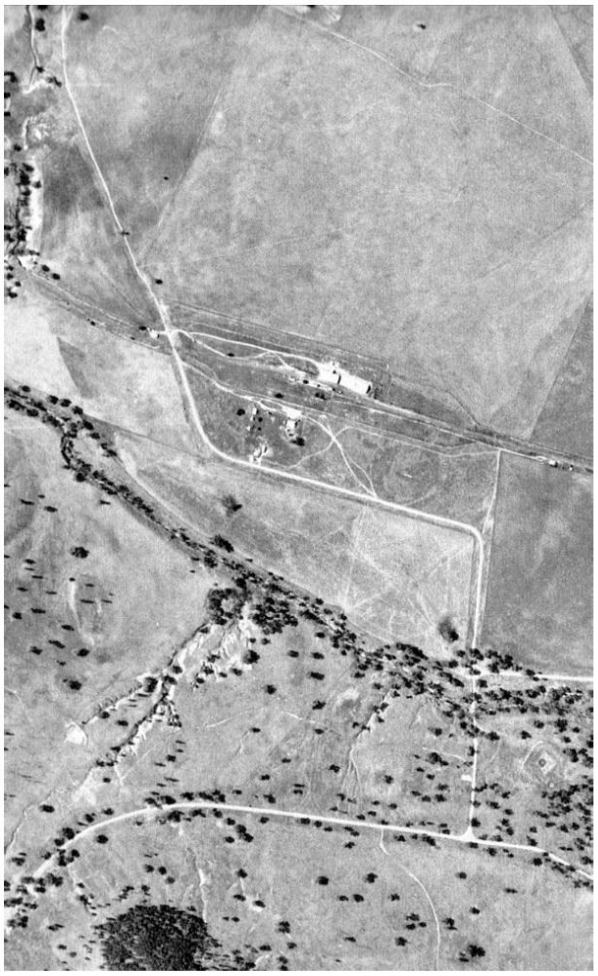
Project Name: Preliminary Contamination Assessment
Lot 1 DP 818802, Toongi, NSW

Project Number: 2012-GD001

Figure B1

1959 Aerial Photograph

Ground Doctor Pty Ltd
PO Box 6278
14 Javea Close
Dubbo NSW 2830
ABN: 32 160 178 656
E: admin@grounddoc.com.au
W: www.grounddoc.com.au



Ground Doctor Pty Ltd
PO Box 6278
14 Javea Close
Dubbo NSW 2830
ABN: 32 160 178 856
E: admin@grounddoc.com.au
W: www.grounddoc.com.au

Project Name: Preliminary Contamination Assessment
Lot 1 DP 818802, Toongi, NSW

Project Number: 2012-GD001

Figure B2

1964 Aerial Photograph

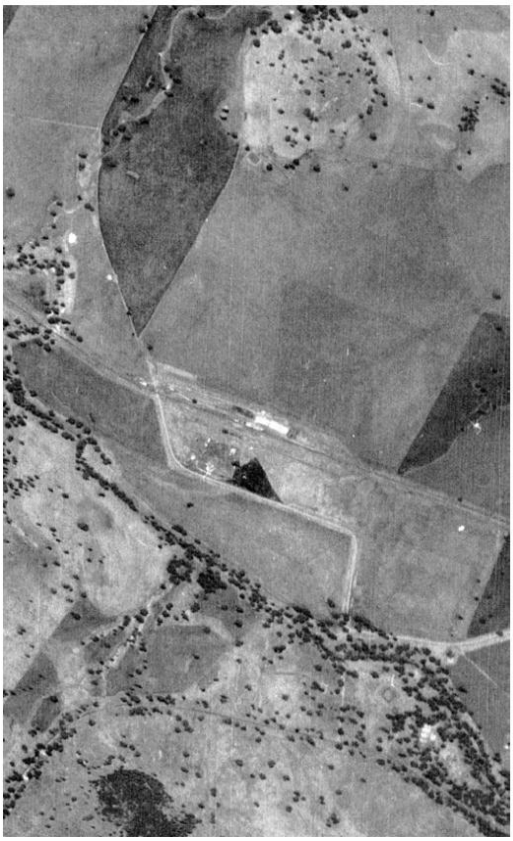


Figure B3

1971 Aerial Photograph

Project Name: Preliminary Contamination Assessment
Lot 1 DP 818802, Toongi, NSW

Project Number: 2012-GD001

Ground Doctor Pty Ltd
PO Box 6278
14 Javea Close
Dubbo NSW 2830
ABN: 32 160 178 656
E: admin@grounddoc.com.au
W: www.grounddoc.com.au

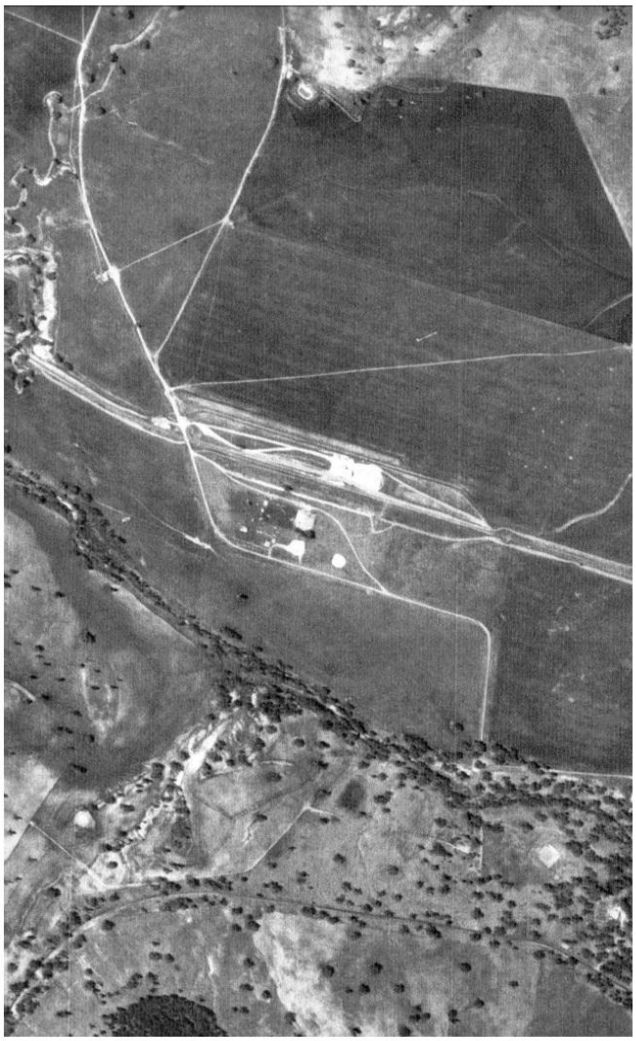


Figure B4

1980 Aerial Photograph

Project Name: Preliminary Contamination Assessment
Lot 1 DP 818802, Toongi, NSW

Project Number: 2012-GD001

Ground Doctor Pty Ltd
ABN: 32 160 178 656
E: admin@grounddoc.com.au
W: www.grounddoc.com.au
PO Box 6278
14 Javea Close
Dubbo NSW 2830

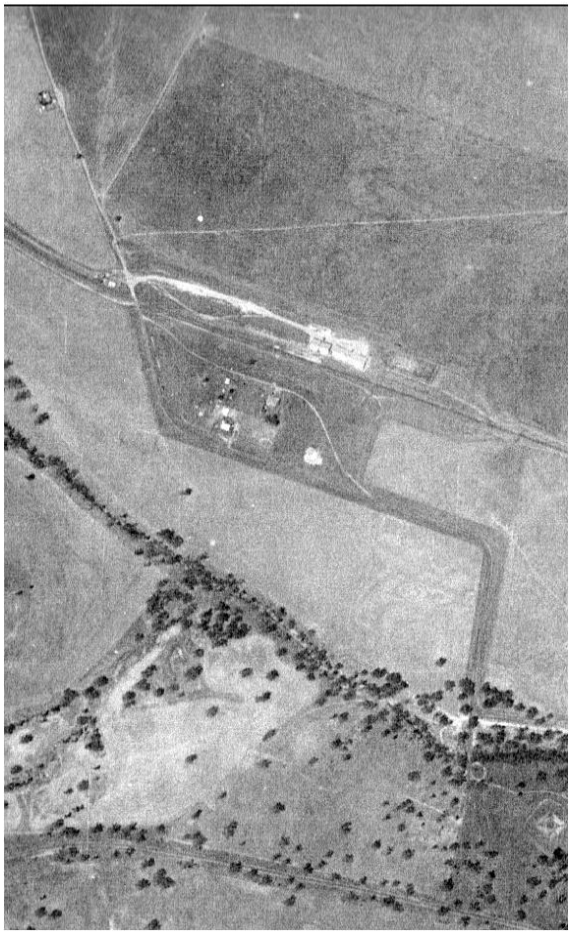


Figure B5

1988 Aerial Photograph

Project Name: Preliminary Contamination Assessment
Lot 1 DP 818802, Toongi, NSW

Project Number: 2012-GD001

Ground Doctor Pty Ltd
PO Box 6278
14 Javea Close
Dubbo NSW 2830
ABN: 32 160 178 656
E: admin@groundddoc.com.au
W: www.groundddoc.com.au

Project Name: Preliminary Contamination Assessment
Lot 1 DP 818802, Toongi, NSW

Project Number: 2012-GD001

Figure B6

1995 Aerial Photograph

Ground Doctor Pty Ltd
PO Box 6278
14 Javea Close
Dubbo NSW 2830
ABN: 32 160 178 656
E: admin@groundddoc.com.au
W: www.groundddoc.com.au

Project Name: Preliminary Contamination Assessment
Lot 1 DP 818802, Toongi, NSW

Project Number: 2012-GD001

Figure B7

2000 Aerial Photograph

Ground Doctor Pty Ltd
PO Box 6278
14 Java Close
Dubbo NSW 2830
ABN: 32 160 178 656
E: admin@grounddoc.com.au
W: www.grounddoc.com.au

Ground Doctor Pty Ltd
PO Box 6278
14 Javea Close
Dubbo NSW 2830
ABN: 32 160 178 856
E: admin@groundddoc.com.au
W: www.groundddoc.com.au

Project Name: Preliminary Contamination Assessment
Lot 1 DP 818802, Toongi, NSW

Project Number: 2012-GD001

Figure B8

2004 Aerial Photograph

Annex C:

Section 149 (2) Certificate

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DUBBO
CITY COUNCIL

PLANNING CERTIFICATE PURSUANT TO
SECTION 149 ENVIRONMENTAL PLANNING
AND ASSESSMENT ACT 1979 **Certificate No: 16978**

Applicant
James Morrow
Ground Doctor Pty Ltd
PO Box 6278
DUBBO NSW 2830

Applicant Reference: 2012-GD001

Receipt No:	186481	**Receipt Date:**	10/10/2012
Parcel No:	17864	**Print Date:**	16/10/2012

Property Description: Toongi Road Toongi
Lot: 1 DP: 818802

PART A: INFORMATION PROVIDED UNDER SECTION 149(2) OF THE ACT

At the date of this certificate the following LEPs, DCPs, REPs and SEPPs apply to the subject land:

Local Environmental Plan (LEP):
Dubbo Local Environmental Plan 2011 - applies to the subject land.

Development Control Plans (DCP):
DCP G3.1 - Designing for Access & Mobility applies to the subject land.

DCP G4.1 - Exempt & Complying Development applies to the subject land.

State Environmental Planning Policies (SEPP):
State Environmental Planning Policy No 4 - Development Without Consent and Miscellaneous Exempt and Complying Development (other than Clauses 6-10 and Parts 3 and 4) applies to the State.

All communications to:
THE GENERAL MANAGER PO BOX 81 CHURCH STREET DUBBO NSW 2830
T (02) 6801 4000 **F** (02) 6801 4259 **E** dcc@dubbo.nsw.gov.au
CIVIC ADMINISTRATION BUILDING CHURCH STREET DUBBO NSW 2830 ABN 77 296 185 278

PROUD TO BE AN
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State Environmental Planning Policy No 6 - Number of Storeys in a Building applies to the State.

State Environmental Planning Policy No 21 - Caravan Parks applies to the State.

State Environmental Planning Policy No 22 - Shops and Commercial Premises applies to the State.

State Environmental Planning Policy No 30 - Intensive Agriculture applies to the State.

State Environmental Planning Policy No 33 - Hazardous & Offensive Development applies to the State.

State Environmental Planning Policy No 36 – Manufactured Home Estates applies to the State.

State Environmental Planning Policy No 50 - Canal Estate Development applies to the State.

State Environmental Planning Policy No 55 - Remediation of Land applies to the State.

State Environmental Planning Policy No 62 – Sustainable Aquaculture applies to the State.

State Environmental Planning Policy No 64 - Advertising and Signage applies to the State.

State Environmental Planning Policy No 65 – Design Quality of Residential Flat Development applies to the State.

State Environmental Planning Policy (Major Developments) 2005 applies to the State.

State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 applies to the State.

State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004 applies to the State.

State Environmental Planning Policy (Temporary Structures) 2007 applies to the State.

State Environmental Planning Policy (Infrastructure) 2007 applies to the State.

State Environmental Planning Policy (Rural Lands) 2008 applies to the State.

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 applies to the State.

State Environmental Planning Policy (Affordable Rental Housing) 2009 applies to the State.

State Environmental Planning Policy (State and Regional Development) 2011 applies to the State.

Orana Regional Environmental Plan No 1 - Siding Spring applies to the Dubbo Local Government Area.

The subject land is zoned:
Zone SP2 Infrastructure

(1) Objectives of zone
- To provide for infrastructure and related uses.
- To prevent development that is not compatible with or that may detract from the provision of infrastructure.

(2) Permitted without consent
Roads

(3) Permitted with consent
The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose

(4) Prohibited
Any development not specified in item 2 or 3

Notwithstanding the above land use permissibility information indicating development "permitted without consent"; development "permitted with consent"; and development "prohibited", the *Dubbo Local Environmental Plan 2011* provides in some circumstances additional use provisions and other relevant land use permissibility/prohibition provisions.

It is recommended that consultation of the *Dubbo Local Environmental Plan 2011* be undertaken to ascertain precisely the types of land uses permissible or prohibited on the land the subject of this Certificate.

Development Standards - Dwelling House:
There are no development standards pursuant to the Dubbo Local Environmental Plan 2011 that fix minimum land dimensions for the erection of a dwelling house on the subject land, noting that dwelling houses are 'prohibited' in the subject zone.

Complying Development:
(1) Whether or not the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (c) and (d) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

(2) If complying development may not be carried out on that land because of the provisions of clauses 1.17A (c) and (d) and 1.19 of that Policy, the reasons why it may not be carried out under that clause.

General Housing Code:
No – does not apply to this land.

Rural Housing Code:
No – does not apply to this land.

Housing Alterations Code:
Complying Development can be undertaken on the land under the Housing Alterations Code as applicable.

General Development Code:
No – does not apply to this land.

General Commercial & Industrial Code:
No – does not apply to this land.

Subdivision Code:
Complying Development can be undertaken on the land under the Subdivision Code as applicable.

Demolition Code:
Complying Development can be undertaken on the land under the Demolition Code as applicable.

Coastal Protection:
The subject land is not affected by the operation of Section 38 or 39 of the Coastal Protection Act, 1979.

Mine Subsidence:
The subject land is not within a proclaimed mine subsidence district as defined by Section 15 of the Mine Subsidence Act 1961.

Road Widening and Road Realignment:
The land is not affected by any road widening or road realignment under:

(a) Division 2 of Part 3 of the Roads Act 1993, or
(b) any environmental planning instrument, or
(c) any resolution of the Council.

Council and Other Public Authority Policies on Hazard Risk Restrictions:
The land the subject of this Certificate is not affected by any Policy adopted by the Council that restricts the use of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence or acid sulphate soils.

The subject land is not affected by a policy adopted by any other public authority and notified to the Council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the Council, that restricts the development of the land because of the likelihood of land slip, bushfire, flooding, tidal inundation, subsidence, acid sulphate soils or any other risk.

The subject land is in whole/part classified as "Natural Resource – Riparian Land and Waterways and Groundwater Vulnerability" pursuant to the Dubbo Local Environmental Plan, 2011, Clause 7.5. For further information please contact Council's Environmental Services Division.

Flood related Development Controls Information:
The subject land is not affected by any Policy adopted by the Council that restricts the use of the land because of the likelihood of flooding.

Land Reserved for Acquisition:
There is no environmental planning instrument, deemed environmental planning instrument or draft environmental planning instrument applying to the subject land that provides for the acquisition of the land by a public authority, as referred to in Section 27 of the Environmental Planning and Assessment Act 1979.

Contribution Plans:
Section 94 Contributions Plan - Open Space & Recreation Facilities Plan applies to the land.

Bushfire Prone Land:
The subject land is not identified as Bush Fire Prone Land on the Bush Fire Prone Land map certified by the Commissioner of the NSW Rural Fire Service under Section 146 of the Environmental Planning & Assessment Act 1979 (EP&A Act 1979).

Orders under Trees (Disputes Between Neighbours) Act 2006:
Council is not aware of any order made under the Trees (Dispute Between Neighbours) Act 2006 applying to the subject land.

Site Compatibility Certificates and Conditions for Seniors Housing:
Council is not aware of any current site compatibility certificate (seniors housing) applying to the subject land.

Site Compatibility Certificates for Infrastructure:
Council is not aware of any current site compatibility certificate (infrastructure) applying to the subject land.

Site Compatibility Certificate and Conditions for Affordable Rental Housing:
Council is not aware of any current site compatibility certificate (affordable rental housing) applying to the subject land.

Matters arising under the Contaminated Land Management Act 1997:
Pursuant to Section 59(2) of the Contaminated Land Management Act 1997, the subject land is:

(a) not within land declared to be significantly contaminated land under Part 3 of that Act;
(b) not subject to a management order in the meaning of that Act;
(c) not the subject of an approved voluntary management proposal of the Environment Protection Authority`s agreement under Section 17 of that Act;
(d) not subject to an ongoing maintenance order under Part 3 of that Act;
(e) not subject of a site audit statement within the meaning of Part 4 of that Act.

For further inquiries please contact Council's Customer Service Officer on 6801 4000.

Melissa Watkins
Director Environmental Services
Per:

Checked Planning Information: .....

Annex D:

Groundwater Work Summary Forms

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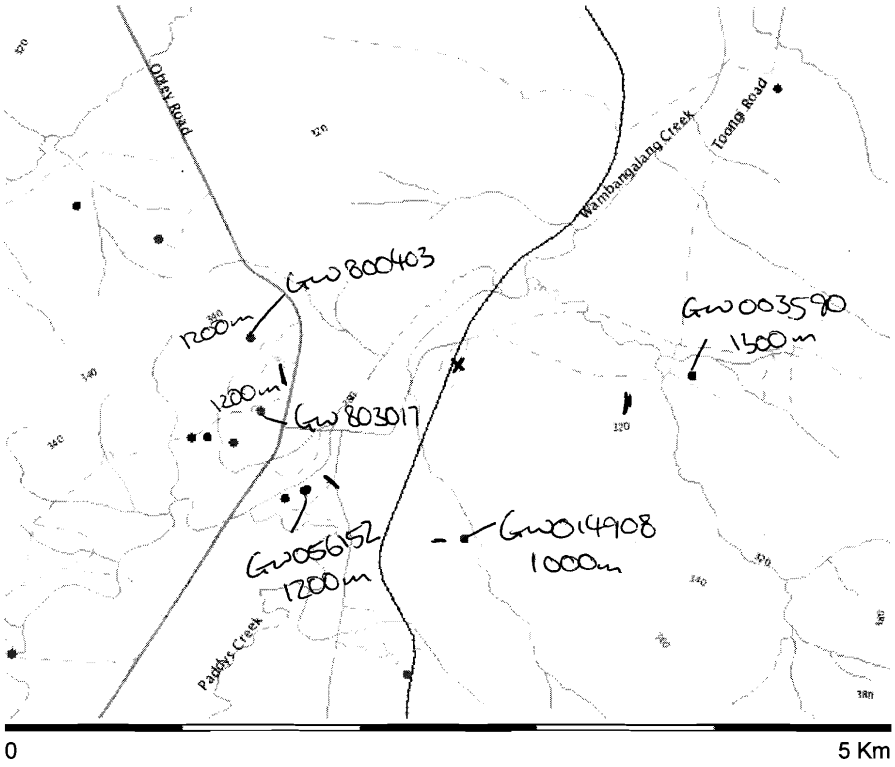
Print Map http://nratlas.nsw.gov.au/wmc/custom/widgets/printlink/popup/printma...

Map from the NSW Natural Resource Atlas

Map created with NSW Natural Resource Atlas - http://nratlas.nsw.gov.au
Monday, October 15, 2012



Legend

Symbol	Layer	Custodian
	Cities and large towns renderImage: Cannot build image from features	
Canva	Populated places renderImage: Cannot build image from features	
	Towns	
	Groundwater Bores	
	Catchment Management Authority boundaries	
	Major rivers	
Primary/arterial road Motorway/freeway Railway Runway Contour Background	Topographic base map	

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, October 15, 2012

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW003590

Works Details (top)

GROUNDWATER NUMBER	GW003590
LIC-NUM	
AUTHORISED-PURPOSES	
INTENDED-PURPOSES	NOT KNOWN
WORK-TYPE	Well & Bore
WORK-STATUS	Reconditioned Bore
CONSTRUCTION-METHOD	(Unknown)
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	
FINAL-DEPTH (metres)	37.50
DRILLED-DEPTH (metres)	37.50
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	
GWMA	
GW-ZONE	
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details (top)

REGION	80 - MACQUARIE-WESTERN
RIVER-BASIN	421 - MACQUARIE RIVER
AREA-DISTRICT	
CMA-MAP	8633-S
GRID-ZONE	55/3
SCALE	1:50,000
ELEVATION	
ELEVATION-SOURCE	(Unknown)
NORTHING	6409361.00
EASTING	651458.00
LATITUDE	32 26' 33"
LONGITUDE	148 36' 40"
GS-MAP	0050C2
AMG-ZONE	55
COORD-SOURCE	PR.,ACC.MAP
REMARK	

Form-A (top)

COUNTY	GORDON
PARISH	BENOLONG
PORTION-LOT-DP	31

Licensed (top)

no details

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1	1	Casing	Threaded Steel	-0.30	33.90	152			(Unknown)

Water Bearing Zones (top)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC	S-W-L	D-D-L	YIELD	TEST-HOLE-DEPTH (metres)	DURATION	SALINITY
34.40	34.40	0.00	(Unknown)	12.20		0.46			Fresh

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	14.94	14.94	Water Supply		
14.94	16.46	1.52	Shale Rotten		
16.46	33.53	17.07	Rock Rotten		
33.53	34.44	0.91	Rock Hard		
34.44	37.49	3.05	Rock Water Supply		

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, October 15, 2012

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW014908

Works Details (top)

GROUNDWATER NUMBER	GW014908
LIC-NUM	80WA710335
AUTHORISED-PURPOSES	STOCK
INTENDED-PURPOSES	STOCK
WORK-TYPE	Bore open thru rock
WORK-STATUS	(Unknown)
CONSTRUCTION-METHOD	Cable Tool
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	1963-07-01
FINAL-DEPTH (metres)	28.00
DRILLED-DEPTH (metres)	28.00
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	WYCHITELLA
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details (top)

REGION	80 - MACQUARIE-WESTERN
RIVER-BASIN	421 - MACQUARIE RIVER
AREA-DISTRICT	
CMA-MAP	8633-S
GRID-ZONE	55/3
SCALE	1:50,000
ELEVATION	
ELEVATION-SOURCE	(Unknown)
NORTHING	6408151.00
EASTING	649977.00
LATITUDE	32 27' 13"
LONGITUDE	148 35' 44"
GS-MAP	0050C2
AMG-ZONE	55
COORD-SOURCE	GD.,ACC.MAP
REMARK	

Form-A (top)

COUNTY	GORDON
PARISH	BENOLONG
PORTION-LOT-DP	35

Licensed (top)

COUNTY	GORDON
PARISH	BENOLONG
PORTION-LOT-DP	35 753220

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1	1	Casing	Threaded Steel	-0.20	19.90	152			Suspended in Clamps

Water Bearing Zones (top)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC	S-W-L	D-D-L	YIELD	TEST-HOLE-DEPTH (metres)	DURATION	SALINITY
19.50	20.10	0.60	(Unknown)	18.60		0.06			(Unknown)
22.60	23.80	1.20	(Unknown)	18.60		0.30			(Unknown)
24.10	26.20	2.10	Consolidated	17.90		0.61			(Unknown)

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	1.22	1.22	Soil		
1.22	4.27	3.05	Clay		
4.27	11.58	7.31	Clay Yellow		
11.58	19.81	8.23	Conglomerate Red Water Supply		
19.81	24.08	4.27	Conglomerate Water Supply		
24.08	26.82	2.74	Sand Rock Water Supply		
26.82	28.04	1.22	Rock Red		

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, October 15, 2012

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW056152

Works Details (top)

GROUNDWATER NUMBER	GW056152
LIC-NUM	80WA711097
AUTHORISED-PURPOSES	DOMESTIC STOCK
INTENDED-PURPOSES	NOT KNOWN
WORK-TYPE	Bore
WORK-STATUS	Supply Obtained
CONSTRUCTION-METHOD	(Unknown)
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	
FINAL-DEPTH (metres)	27.40
DRILLED-DEPTH (metres)	0.00
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	WYCHITELLA
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details (top)

REGION	80 - MACQUARIE-WESTERN
RIVER-BASIN	421 - MACQUARIE RIVER
AREA-DISTRICT	
CMA-MAP	8633-S
GRID-ZONE	55/3
SCALE	1:50,000
ELEVATION	
ELEVATION-SOURCE	(Unknown)
NORTHING	6408536.00
EASTING	648964.00
LATITUDE	32 27' 1"
LONGITUDE	148 35' 5"
GS-MAP	0050C2
AMG-ZONE	55
COORD-SOURCE	GD.,ACC.MAP
REMARK	

Form-A (top)

COUNTY	GORDON
PARISH	BENOLONG
PORTION-LOT-DP	35

Licensed (top)

COUNTY	GORDON
PARISH	BENOLONG
PORTION-LOT-DP	35 753220

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1	1	Casing	Threaded Steel	0.00	27.40	152			Seated on Bottom

Water Bearing Zones (top)

no details

Drillers Log (top)

no details

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, October 15, 2012

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW800403

Works Details (top)

GROUNDWATER NUMBER	GW800403
LIC-NUM	80WA712393
AUTHORISED-PURPOSES	DOMESTIC STOCK
INTENDED-PURPOSES	DOMESTIC STOCK
WORK-TYPE	Bore
WORK-STATUS	(Unknown)
CONSTRUCTION-METHOD	Rotary Air
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	1997-10-16
FINAL-DEPTH (metres)	60.00
DRILLED-DEPTH (metres)	60.00
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	" WIRRIWAY "
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	
SALINITY	
YIELD	0.25

Site Details (top)

REGION	80 - MACQUARIE-WESTERN
RIVER-BASIN	421 - MACQUARIE RIVER
AREA-DISTRICT	
CMA-MAP	8633-S
GRID-ZONE	55/3
SCALE	1:50,000
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6409684.00
EASTING	648630.00
LATITUDE	32 26' 24"
LONGITUDE	148 34' 52"
GS-MAP	50CD2
AMG-ZONE	55
COORD-SOURCE	Map Interpretation
REMARK	

Form-A (top)

COUNTY	GORDON
PARISH	OXLEY
PORTION-LOT-DP	LOT 3 DP 834835

Licensed (top)

COUNTY	GORDON
PARISH	OXLEY
PORTION-LOT-DP	3 834835

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	29.80	181			Rotary Air
1		Hole	Hole	29.80	60.00	152			Rotary Air
1	1	Casing	PVC Class 9	-0.30	29.70		150		Glued; Driven into Hole

Water Bearing Zones (top)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC	S-W-L	D-D-L	YIELD	TEST-HOLE-DEPTH (metres)	DURATION	SALINITY
53.00	53.50	0.50				0.25	53.50		Good

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	1.00	1.00	Topsoil		
1.00	22.00	21.00	Broken Granite		
22.00	28.00	6.00	White Granite		
28.00	36.00	8.00	Brown Granite		
36.00	60.00	24.00	Grey Granite		

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, October 15, 2012

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW803017

Works Details (top)

GROUNDWATER NUMBER	GW803017
LIC-NUM	80BL242846
AUTHORISED-PURPOSES	DOMESTIC
INTENDED-PURPOSES	DOMESTIC
WORK-TYPE	Bore
WORK-STATUS	Supply Obtained
CONSTRUCTION-METHOD	Down Hole Hammer
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2005-12-05
FINAL-DEPTH (metres)	41.50
DRILLED-DEPTH (metres)	41.50
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	218R OBLEY ROAD
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	28.00
SALINITY	
YIELD	0.50

Site Details (top)

REGION	80 - MACQUARIE-WESTERN
RIVER-BASIN	421 - MACQUARIE RIVER
AREA-DISTRICT	
CMA-MAP	8633-S
GRID-ZONE	55/3
SCALE	1:50,000
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6409137.00
EASTING	648689.00
LATITUDE	32 26' 42"
LONGITUDE	148 34' 54"
GS-MAP	
AMG-ZONE	55
COORD-SOURCE	GIS - Geographic Information System
REMARK	

Form-A (top)

COUNTY	GORDON
PARISH	OXLEY
PORTION-LOT-DP	4//834835

Licensed (top)

COUNTY	GORDON
PARISH	OXLEY
PORTION-LOT-DP	4 834835

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	1.50	213			Down Hole Hammer
1		Hole	Hole	1.50	41.50	200			Down Hole Hammer
1	1	Casing	Casing Protector	0.00	1.50	213	200		
1	1	Casing	PVC Class 9	0.00	41.50	163	150		Glued; Seated on Bottom; Cap
1	1	Opening	Slots - Vertical	29.50	35.50	163			PVC Class 9; Sawn; SL: 20mm; A: 5mm; Glued
1		Annulus	Crushed Aggregate	0.00	25.00	200	163	1	
1		Annulus	Waterworn/Rounded	25.00	41.50	200	163	2	Graded; GS: 8-10mm

Water Bearing Zones (top)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC	S-W-L	D-D-L	YIELD	TEST-HOLE-DEPTH (metres)	DURATION	SALINITY
32.50	33.25	0.75		28.00		0.50			

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	2.00	2.00	Clay		
2.00	28.00	26.00	Weathered Rock		
28.00	30.00	2.00	Weathered & Fresh Rock		
30.00	32.50	2.50	Rock, Fresh		
32.50	33.25	0.75	Weathered Zone, Aquifer		
33.25	41.50	8.25	Rock, Fresh		

Groundwater Works Summary http://is2.dnr.nsw.gov.au/proxy/dipnr/gwworks?GWWID=GW803017

The DIPNR does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

Annex E:

Land Title Records

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ADVANCE LEGAL SEARCHERS PTY LTD

(ACN 147 943 842)
ABN 82 147 943 842

PO Box 149
Yagoona NSW 2199

Telephone: +612 9754 1590
Mobile: 0412 169 809
Facsimile: +612 8076 3026
Email: alsearch@optusnet.com.au

15th October, 2012

OZARK ENVIRONMENTAL & HERITAGE MANAGEMENT Pty Ltd
PO Box 2069,
DUBBO NSW 2830

Attention: Kim Tuovinen,

RE: **Lot 1, Toongi Railway,**
Toongi

Current Search

Folio Identifier 1/818802 (title attached)
DP 818802 (plan attached)
Dated 11th October, 2012
Registered Proprietor:
N.S.W. GRAIN CORPORATION LIMITED

-2-

Title Tree
Lot 1 DP 818802

Folio Identifier 1/818802

CA 54555

Conveyance Book 3861 No 608

Government Gazette 18 November, 1921 Folio 6582

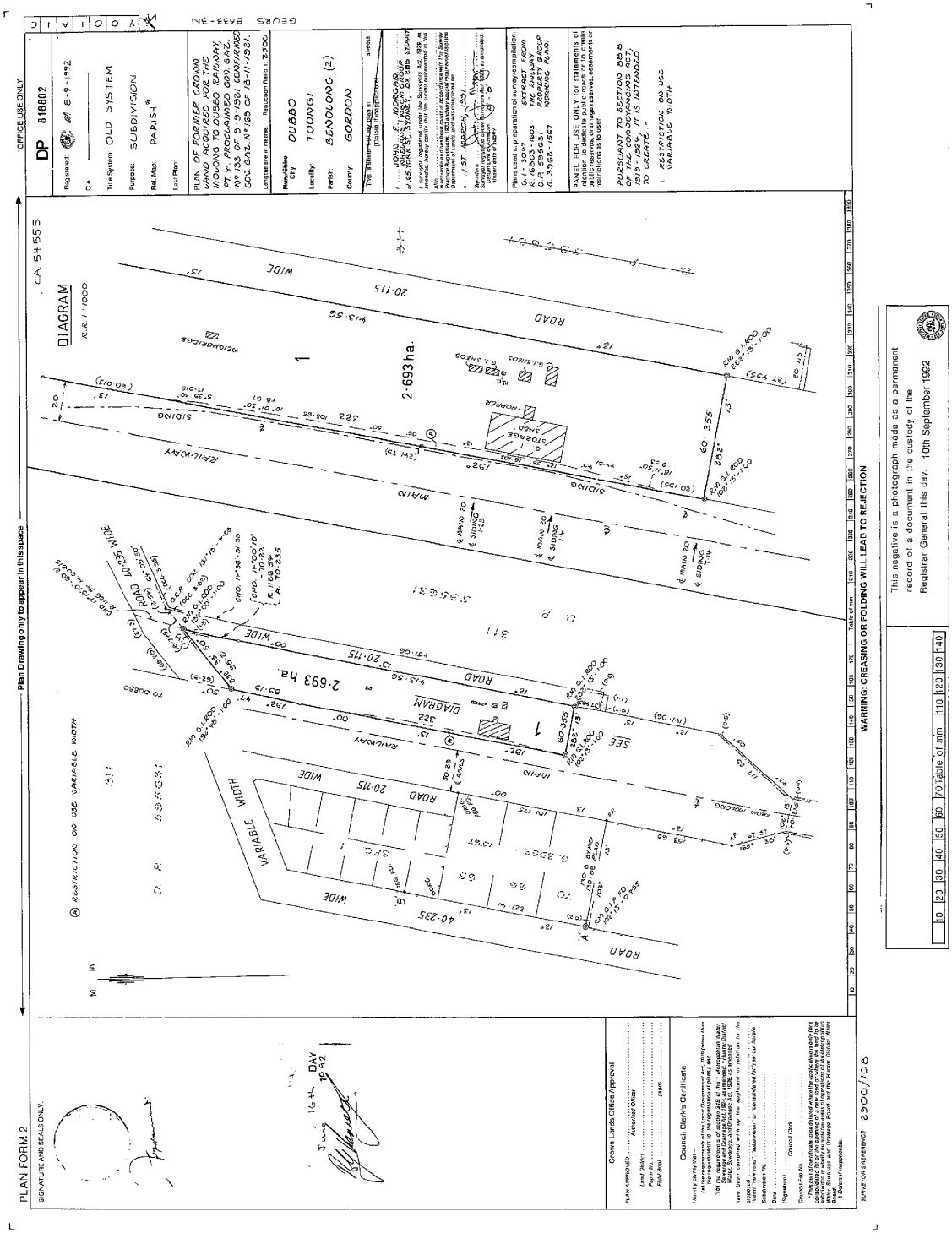
Crown Land

*****

Summary of Proprietors
Lot 1 DP 818802

Year	Proprietor
	(Lot 1 DP 818802)
1992 – todate	N.S.W. Grain Corporation Limited
	(Part of the Molong to Dubbo Railway – Parish Benolong and other lands – Area 2.693Ha – Conv Bk 3861 No 608)
1991 – 1992	N.S.W. Grain Corporation Limited
1991 – 1991	State Rail Authority of New South Wales
	(Molong to Dubbo Railway –Gov Gaz 18th November, 1921 Folio 6582)
1921 – 1991	Railway Commissioners for New South Wales
	(Portion 31 Parish Benolong, County Cumberland)
Prior – 1921	Crown Land
(1910 – 1921)	*(Crown Lease 10/33 Dubbo to James Ower)*

*****



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Annex F:

NSW WorkCover Search Results

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WorkCover NSW
92-100 Donnison Street, Gosford, NSW 2250
Locked Bag 2906, Lisarow, NSW 2252
T 02 4321 5000 F 02 4325 4145
WorkCover Assistance Service 13 10 50
DX 731 Sydney workcover.nsw.gov.au

Our Ref: D12/150747
Your Ref: James Morrow

12 October 2012

Attention: James Morrow
Ground Doctor Pty Ltd
PO Box 6278
Dubbo NSW 2830

Dear Mr Morrow,

RE SITE: Toongi Rd Toongi

I refer to your site search request received by WorkCover NSW on 5 October 2012 requesting information on licences to keep dangerous goods for the above site.

A search of the Stored Chemical Information Database (SCID) and the microfiche records held by WorkCover NSW has not located any records pertaining to the above mentioned premises.

If you have any further queries please contact the Dangerous Goods Licensing Team on (02) 4321 5500.

Yours Sincerely

Brent Jones
Senior Licensing Officer
Dangerous Goods Team

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Annex G:

Analytical Results Summary Tables

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TABLE G1
Summary of Soil Analytical Results - Metals, OCPs, PAHs and Asbestos (mg/kg)
Preliminary Contamination Assessment - Toongi Rail Siding, Lot 1 DP 818802, TOONGI, NSW

Sample ID	EQL	NEPM (1999) Guidelines HIL'F'	SS1 17/10/12	SS2 17/10/12	SS3 17/10/12	SS4 17/10/12	SS5 17/10/12	SS6 17/10/12	SS7 17/10/12	SS8 17/10/12
Metals										
Arsenic	4	500	**6**	<4	**10**	<4	**5**	**93**	**59**	**10**
Cadmium	0.5	100	<0.5	<0.5	<0.5	<0.5	<0.5	**1**	<0.5	<0.5
Chromium	1	500	**19**	**18**	**27**	**16**	**20**	**30**	**27**	**29**
Copper	1	5000	**8**	**9**	**21**	**13**	**28**	**29**	**13**	**14**
Lead	1	1500	**16**	**10**	**26**	**13**	**10**	**39**	**15**	**62**
Mercury	0.1	75	<0.1	<0.1	<0.1	<0.1	**0.4**	**0.2**	<0.1	<0.1
Nickel	1	3000	**5**	**6**	**10**	**4**	**19**	**11**	**8**	**13**
Zinc	5	35000	**130**	**160**	**470**	**120**	**210**	**640**	**41**	**50**
OCPs										
Hexachlorobenzene	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
a-BHC	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
g-BHC (Lindane)	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
b-BHC	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
d-BHC	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	0.1	50a	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-chlordane	0.1	250b	**0.1**	<0.1	**0.1**	**0.1**	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	0.1	250b	**0.1**	<0.1	**0.2**	**0.1**	<0.1	<0.1	<0.1	<0.1
Endosulfan I	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	0.1	1000c	**0.3**	<0.1	<0.1	**0.2**	<0.1	<0.1	<0.1	<0.1
Dieldrin	0.1	50a	**2.3**	**0.4**	**1.8**	**0.2**	<0.1	**0.4**	<0.1	<0.1
Endrin	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	0.1	1000c	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	0.1	1000c	**0.5**	**0.2**	**0.2**	**0.1**	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulphan Sulphate	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PAHs										
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	5	<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
Total PAHs	-	100	<0.1	-	-	-	<0.1	-	<0.1	<0.1
Asbestos										
Asbestos in Soil	0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Trace Analysis	Detection	-	NRF	NRF	NRF	NRF	NRF	NRF	NRF	NRF

	Shaded cell indicates concentration exceeds assessment criteria
a	Guideline applies to the sum of Aldrin and Dieldrin concentrations
b	Guideline applies to the sum of alpha and gamma chlordane concentrations
c	Guideline applies to the sum of DDE, DDD and DDT concentrations
NRF	No Respirable Fibres detected

TABLE G2

Relative Percentage Diffierence Between Duplicate and Primary Samples - Metals, OCPs, PAHs and Asbestos (mg/kg)
Preliminary Contamination Assessment - Toongi Rail Siding, Lot 1 DP 818802, TOONGI, NSW

Sample ID	EQL	SS1 17/10/12	DUPA	RPD %
Metals				
Arsenic	4	**6**	**4**	**40**
Cadmium	0.5	<0.5	<0.5	-
Chromium	1	**19**	**16**	**17**
Copper	1	**8**	**6**	**29**
Lead	1	**16**	**9**	**56**
Mercury	0.1	<0.1	<0.1	-
Nickel	1	**5**	**4**	**22**
Zinc	5	**130**	**130**	**0**
OCPs				
Hexachlorobenzene	0.1	<0.1	<0.1	-
a-BHC	0.1	<0.1	<0.1	-
g-BHC (Lindane)	0.1	<0.1	<0.1	-
b-BHC	0.1	<0.1	<0.1	-
Heptachlor	0.1	<0.1	<0.1	-
d-BHC	0.1	<0.1	<0.1	-
Aldrin	0.1	<0.1	<0.1	-
Heptachlor epoxide	0.1	<0.1	<0.1	-
gamma-chlordane	0.1	**0.1**	**0.1**	**0**
alpha-chlordane	0.1	**0.1**	**0.1**	**0**
Endosulfan I	0.1	<0.1	<0.1	-
pp-DDE	0.1	**0.3**	**0.2**	**40**
Dieldrin	0.1	**2.3**	**1.8**	**24**
Endrin	0.1	<0.1	<0.1	-
pp-DDD	0.1	<0.1	<0.1	-
Endosulfan II	0.1	<0.1	<0.1	-
pp-DDT	0.1	**0.5**	**0.4**	**22**
Endrin Aldehyde	0.1	<0.1	<0.1	-
Endosulphan Sulphate	0.1	<0.1	<0.1	-
Methoxychlor	0.1	<0.1	<0.1	-
PAHs				
Naphthalene	0.1	<0.1	<0.1	-
Acenaphthylene	0.1	<0.1	<0.1	-
Acenaphthene	0.1	<0.1	<0.1	-
Fluorene	0.1	<0.1	<0.1	-
Phenanthrene	0.1	<0.1	<0.1	-
Anthracene	0.1	<0.1	<0.1	-
Fluoranthene	0.1	<0.1	<0.1	-
Pyrene	0.1	<0.1	<0.1	-
Benzo(a)anthracene	0.1	<0.1	<0.1	-
Chrysene	0.1	<0.1	<0.1	-
Benzo(b+k)fluoranthene	0.2	<0.2	<0.2	-
Benzo(a)pyrene	0.05	<0.05	<0.05	-
Indeno(1,2,3-c,d)pyrene	0.1	<0.1	<0.1	-
Dibenzo(a,h)anthracene	0.1	<0.1	<0.1	-
Benzo(g,h,i)perylene	0.1	<0.1	<0.1	-
Total PAHs	-	<0.1	<0.1	-
Asbestos				
Asbestos in Soil	0.1	<0.1	<0.1	<0.1
Trace Analysis	Detection	NRF	NRF	NRF

Shaded cell indicates RPD exceeds adopted assessment criteria

NRF — No Respirable Fibres detected

Annex H:

Laboratory Certificate of Analysis

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Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client:

Ground Doctor Pty Ltd
PO Box 6278
Dubbo NSW 2830

ph: 0407 875 302
Fax:

Attention: James Morrow

Sample log in details:

Your reference:	**Toongi Rail Siding**
Envirolab Reference:	**80417**
Date received:	18/10/12
Date results expected to be reported:	**25/10/12**

Samples received in appropriate condition for analysis:	YES
No. of samples provided	9 soil
Turnaround time requested:	Standard
Temperature on receipt	Cool
Cooling Method:	Ice
Sampling Date Provided:	YES

Comments:

Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples.

Contact details:

Please direct any queries to Aileen Hie or Jacinta Hurst
ph: 02 9910 6200 fax: 02 9910 6201
email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au

Page 1 of 1

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS **80417**

Client:
Ground Doctor Pty Ltd
PO Box 6278
Dubbo
NSW 2830

Attention: James Morrow

Sample log in details:

Your Reference:	**Toongi Rail Siding**		
No. of samples:	9 soil		
Date samples received / completed instructions received	18/10/12	/	18/10/12

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:	25/10/12	/	25/10/12
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:

Rhian Morgan
Reporting Supervisor

Hinoko Miyazaki
Chemist

Lulu Guo
Approved Signatory

Jeremy Faircloth
Chemist

Envirolab Reference: 80417
Revision No: R 00

ACCREDITED FOR TECHNICAL COMPETENCE

Client Reference: Toongi Rail Siding

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	80417-1 SS1 0-0.1 17/10/2012 soil	80417-5 SS5 0-0.1 17/10/2012 soil	80417-7 SS7 0-0.1 17/10/2012 soil	80417-8 SS8 0-0.1 17/10/2012 soil	80417-9 DUPA - 17/10/2012 soil
Date extracted	-	18/10/2012	18/10/2012	18/10/2012	18/10/2012	18/10/2012
Date analysed	-	22/10/2012	22/10/2012	22/10/2012	22/10/2012	22/10/2012
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<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	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	89	87	93	94	93

Envirolab Reference: 80417
Revision No: R 00

Client Reference: Toongi Rail Siding

Organochlorine Pesticides in soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ---------- 	80417-1 SS1 0-0.1 17/10/2012 soil	80417-2 SS2 0-0.1 17/10/2012 soil	80417-3 SS3 0-0.1 17/10/2012 soil	80417-4 SS4 0-0.1 17/10/2012 soil	80417-5 SS5 0-0.1 17/10/2012 soil
Date extracted	-	18/10/2012	18/10/2012	18/10/2012	18/10/2012	18/10/2012
Date analysed	-	21/10/2012	21/10/2012	21/10/2012	21/10/2012	21/10/2012
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	0.1	<0.1	0.1	0.1	<0.1
alpha-chlordane	mg/kg	0.1	<0.1	0.2	0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	0.3	<0.1	<0.1	0.2	<0.1
Dieldrin	mg/kg	2.3	0.4	1.8	0.2	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	0.5	0.2	0.2	0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	101	108	102	99	103

Envirolab Reference: 80417
Revision No: R 00

Client Reference: Toongi Rail Siding

Organochlorine Pesticides in soil					
Our Reference:	UNITS	80417-6	80417-7	80417-8	80417-9
Your Reference	----------	SS6	SS7	SS8	DUPA
Depth	----------	0-0.1	0-0.1	0-0.1	-
Date Sampled		17/10/2012	17/10/2012	17/10/2012	17/10/2012
Type of sample		soil	soil	soil	soil
Date extracted	-	18/10/2012	18/10/2012	18/10/2012	18/10/2012
Date analysed	-	21/10/2012	21/10/2012	21/10/2012	21/10/2012
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	0.2
Dieldrin	mg/kg	0.4	<0.1	<0.1	1.8
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	0.4
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	94	100	103	105

Client Reference: Toongi Rail Siding

Acid Extractable metals in soil						
Our Reference:	UNITS	80417-1	80417-2	80417-3	80417-4	80417-5
Your Reference	----------	SS1	SS2	SS3	SS4	SS5
Depth	----------	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		17/10/2012	17/10/2012	17/10/2012	17/10/2012	17/10/2012
Type of sample		soil	soil	soil	soil	soil
Date digested	-	19/10/2012	19/10/2012	19/10/2012	19/10/2012	19/10/2012
Date analysed	-	19/10/2012	19/10/2012	19/10/2012	19/10/2012	19/10/2012
Arsenic	mg/kg	6	<4	10	<4	5
Cadmium	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	mg/kg	19	18	27	16	20
Copper	mg/kg	8	9	21	13	28
Lead	mg/kg	16	10	26	13	10
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	0.4
Nickel	mg/kg	5	6	10	4	19
Zinc	mg/kg	130	160	470	120	210

Acid Extractable metals in soil					
Our Reference:	UNITS	80417-6	80417-7	80417-8	80417-9
Your Reference	----------	SS6	SS7	SS8	DUPA
Depth	----------	0-0.1	0-0.1	0-0.1	-
Date Sampled		17/10/2012	17/10/2012	17/10/2012	17/10/2012
Type of sample		soil	soil	soil	soil
Date digested	-	19/10/2012	19/10/2012	19/10/2012	19/10/2012
Date analysed	-	19/10/2012	19/10/2012	19/10/2012	19/10/2012
Arsenic	mg/kg	93	59	10	4
Cadmium	mg/kg	1.0	<0.5	<0.5	<0.5
Chromium	mg/kg	30	27	29	16
Copper	mg/kg	29	13	14	6
Lead	mg/kg	39	15	62	9
Mercury	mg/kg	0.2	<0.1	<0.1	<0.1
Nickel	mg/kg	11	8	13	4
Zinc	mg/kg	640	41	50	130

Envirolab Reference: 80417
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Client Reference: Toongi Rail Siding

Moisture						
Our Reference:	UNITS	80417-1	80417-2	80417-3	80417-4	80417-5
Your Reference	----------	SS1	SS2	SS3	SS4	SS5
Depth	----------	0-0.1	0-0.1	0-0.1	0-0.1	0-0.1
Date Sampled		17/10/2012	17/10/2012	17/10/2012	17/10/2012	17/10/2012
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	18/10/2012	18/10/2012	18/10/2012	18/10/2012	18/10/2012
Date analysed	-	19/10/2012	19/10/2012	19/10/2012	19/10/2012	19/10/2012
Moisture	%	2.7	5.1	18	8.4	6.8

Moisture					
Our Reference:	UNITS	80417-6	80417-7	80417-8	80417-9
Your Reference	----------	SS6	SS7	SS8	DUPA
Depth	----------	0-0.1	0-0.1	0-0.1	-
Date Sampled		17/10/2012	17/10/2012	17/10/2012	17/10/2012
Type of sample		soil	soil	soil	soil
Date prepared	-	18/10/2012	18/10/2012	18/10/2012	18/10/2012
Date analysed	-	19/10/2012	19/10/2012	19/10/2012	19/10/2012
Moisture	%	8.7	4.4	6.7	8.3

Client Reference: Toongi Rail Siding

Asbestos ID - soils Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ---------- 	80417-1 SS1 0-0.1 17/10/2012 soil	80417-5 SS5 0-0.1 17/10/2012 soil	80417-7 SS7 0-0.1 17/10/2012 soil	80417-8 SS8 0-0.1 17/10/2012 soil	80417-9 DUPA - 17/10/2012 soil
Date analysed	-	24/10/2012	24/10/2012	24/10/2012	24/10/2012	24/10/2012
Sample mass tested	g	Approx 40g	Approx 40g	Approx 40g	Approx 40g	Approx 40g
Sample Description	-	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected	No respirable fibres detected

Client Reference: Toongi Rail Siding

Method ID	Methodology Summary
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105 deg C for a minimum of 4 hours.
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.

Client Reference: Toongi Rail Siding

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			18/10/2012	[NT]	[NT]	LCS-10	18/10/2012
Date analysed	-			22/10/2012	[NT]	[NT]	LCS-10	22/10/2012
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-10	92%
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-10	92%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-10	95%
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-10	98%
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	[NT]	[NT]	LCS-10	91%
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-10	82%
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-10	115%
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-d_{14}	%		Org-012 subset	90	[NT]	[NT]	LCS-10	86%

Envirolab Reference: 80417
Revision No: R 00

Client Reference: Toongi Rail Siding

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			18/10/2012	[NT]	[NT]	LCS-10	18/10/2012
Date analysed	-			21/10/2012	[NT]	[NT]	LCS-10	21/10/2012
HCB	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-10	98%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-10	102%
Heptachlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-10	97%
delta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-10	101%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-10	104%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-10	103%
Dieldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-10	109%
Endrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-10	101%
pp-DDD	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-10	106%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-10	100%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%		Org-005	98	[NT]	[NT]	LCS-10	101%

Client Reference: Toongi Rail Siding

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date digested	-			19/10/2012	[NT]	[NT]	LCS-1	19/10/2012
Date analysed	-			19/10/2012	[NT]	[NT]	LCS-1	19/10/2012
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	LCS-1	96%
Cadmium	mg/kg	0.5	Metals-020 ICP-AES	<0.5	[NT]	[NT]	LCS-1	92%
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	100%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	92%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	LCS-1	107%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	95%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-1	109%

QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank
Date prepared	-			[NT]
Date analysed	-			[NT]
Moisture	%	0.1	Inorg-008	[NT]

QUALITY CONTROL Asbestos ID - soils	UNITS	PQL	METHOD	Blank
Date analysed	-			[NT]

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	[NT]	[NT]	80417-1	19/10/2012
Date analysed	-	[NT]	[NT]	80417-1	19/10/2012
Arsenic	mg/kg	[NT]	[NT]	80417-1	88%
Cadmium	mg/kg	[NT]	[NT]	80417-1	94%
Chromium	mg/kg	[NT]	[NT]	80417-1	84%
Copper	mg/kg	[NT]	[NT]	80417-1	101%
Lead	mg/kg	[NT]	[NT]	80417-1	74%
Mercury	mg/kg	[NT]	[NT]	80417-1	109%
Nickel	mg/kg	[NT]	[NT]	80417-1	86%
Zinc	mg/kg	[NT]	[NT]	80417-1	106%

Envirolab Reference: 80417
Revision No: R 00

Client Reference: Toongi Rail Siding

Report Comments:
Asbestos: A portion of the supplied sample was sub-sampled for asbestos analysis according to Envirolab procedures. We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab recommends supplying 40-50g of sample in its own container.

Asbestos ID was analysed by Approved Identifier:	Paul Ching
Asbestos ID was authorised by Approved Signatory:	Lulu Guo

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 batched of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

CHAIN OF CUSTODY - Client

ENVIROLAB GROUP

Client: Ground Doctor Pty Ltd	Client Project Name / Number / Site etc (ie report title): Toongi Rail Siding	Envirolab Services 12 Ashley St, Chatswood, NSW 2067 Phone: 02 9910 6200 Fax :02 9910 6201 E-mail: ahie@envirolabservices.com.au Contact: Aileen Hie
Contact person: James Morrow	PO No.: 2012-GD001-1	
Project Mgr: James Morrow	Envirolab Quote No. :	
Sampler: James Morrow	Date results required: Standard	
Address: PO Box 6278, DUBBO, NSW 2830	Or choose: standard / same day / 1 day / 2 day / 3 day *Note: Inform lab in advance if urgent turnaround is required - surcharge applies*	Envirolab Services WA t/a MPL 16-18 Hayden Crt, Myaree WA 6154 Phone: 08 9317 2505 Fax :08 9317 4163 E-mail: lab@mpl.com.au Contact: Joshua Lim
Phone: -- Mob: 0407 875 302	Lab comments:	
Fax: --		
Email: james.morrow@grounddoc.com.au		

Sample information					Tests Required										Comments
Envirolab Sample ID	Client Sample ID or information	Depth	Date sampled	Type of sample	M8 Metals	OCPs	Asbestos	PAHs							Provide as much information about the sample as you can
1	SS1	0-0.1m	17-Oct-12	Soil	x	x	x	x							
2	SS2	0-0.1m	17-Oct-12	Soil	x	x									
3	SS3	0-0.1m	17-Oct-12	Soil	x	x									
4	SS4	0-0.1m	17-Oct-12	Soil	x	x									
5	SS5	0-0.1m	17-Oct-12	Soil	x	x	x	x							
6	SS6	0-0.1m	17-Oct-12	Soil	x	x									
7	SS7	0-0.1m	17-Oct-12	Soil	x	x	x	x							
8	SS8	0-0.1m	17-Oct-12	Soil	x	x	x	x							
9	DUP A	-	17-Oct-12	Soil	x	x	x	x							

ENVIROLAB Envirolab Services 12 Ashley St Chatswood NSW 2067 Ph: (02) 9910 6200

Job No: 80417

Date Received: 18/10/12

Time Received: 11:30

Received by: PT

Temp: Cool/Ambient

Cooling: Icepack

Security: Intact/Broken/None

Relinquished by (company):	Ground Doctor Pty Ltd	Received by (company): ES	*Lab use only:*
Print Name:	James Morrow	Print Name: Prat	Samples Received: Cool or Ambient (circle one)
Date & Time:	17/10/12 1100	Date & Time: 18/10/12 11:30	Temperature Received at: (if applicable)
Signature:	JRM	Signature: PT	Transported by: Hand delivered / courier

White - Lab copy / Blue - Client copy / Pink - Retain in Book

Form: 302 - Chain of Custody-Client, Issued 16/03/10, Version 4, Page 1 of 1.

Ground Doctor Pty Ltd