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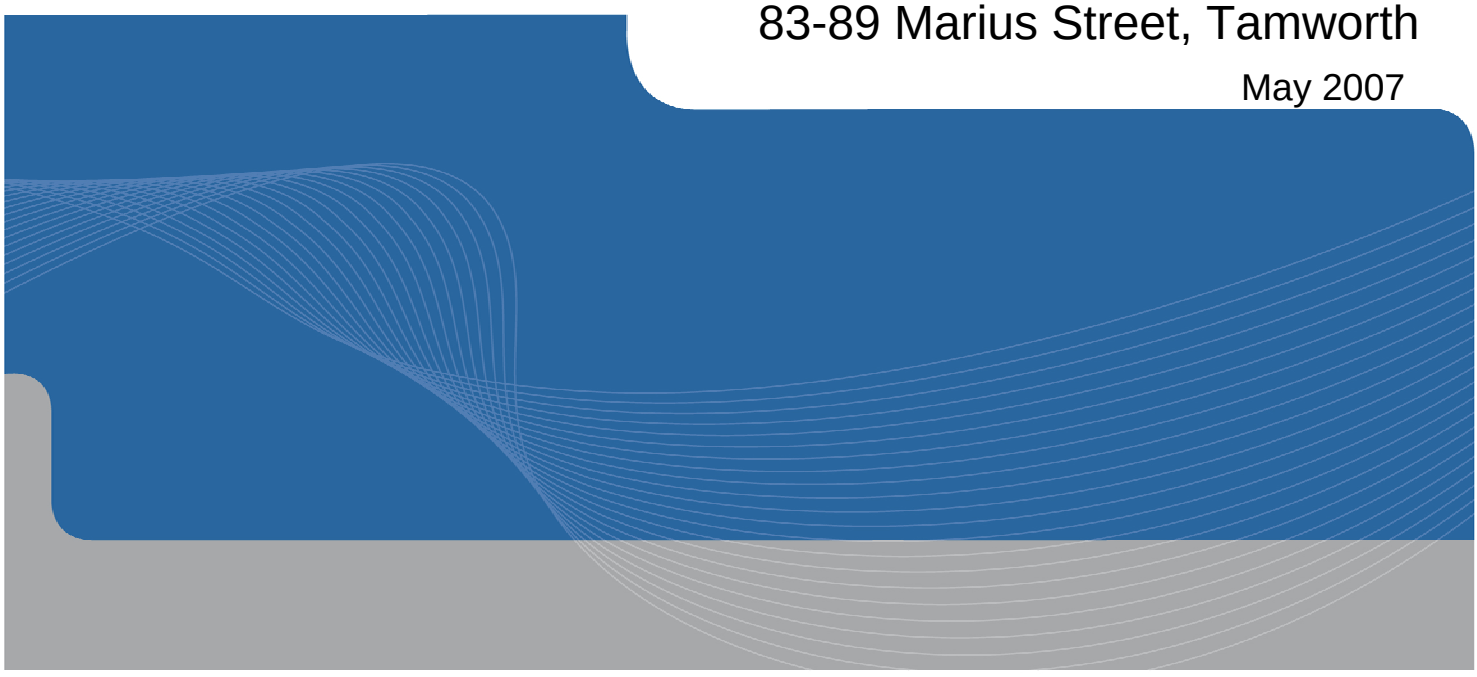
Telstra Corporation Limited

Report for Phase 1 and 2 Contamination Assessment,

8 O'Connell Street and

83-89 Marius Street, Tamworth

May 2007



INFRASTRUCTURE | MINING & INDUSTRY | DEFENCE | PROPERTY & BUILDINGS | ENVIRONMENT

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1. Introduction

GHD was engaged by Telstra Corporation Ltd (Telstra) through United Group Services (United) to undertake a Phase 1 and 2 Contamination Assessment of two adjacent sites located at 8 O'Connell Street and 83-89 Marius Street, Tamworth, NSW (Figure 1, Appendix A).

The legal descriptions of the sites include Lot 1, DP 70023 (8 O'Connell Street) and Lot 1, DP 803644 (83 – 89 Marius Street). The site at 8 O'Connell Street is currently being used as an egress point and carpark for 83 – 89 Marius Street, a Telstra Line Depot. Operations underway at the Line Depot include administration, planning and storing maintenance equipment. The combined area of the sites is approximately 1.29 hectares (ha).

This assessment was carried out as part of Telstra's program of divestment of surplus land. GHD understand that Telstra proposes to divest the site for either residential or commercial development.

1.1 Objectives

The objectives of the Phase 1 and 2 assessments were to:

- Establish historical site usage and site characteristics;
- Assess the presence of historical or current potentially contaminating land uses at the site;
- Assess the soil across the site (limited Phase 2) for the presence of potential contaminants which may be present, based on the results of the Phase 1 assessment; and
- Prepare a Phase 1 and 2 Contamination Assessment Report (this report).

1.2 Scope of Works

The scope of work undertaken by GHD as part of this investigation included Phase 1 and Phase 2 contamination assessments.

The Phase 1 assessment included:

- Desktop review of site geology, hydrogeology (including groundwater bore search) and topography information;
- Review of available historical aerial photographs, land title information, Section 149(2 and 5) certificates, Council records and WorkCover NSW Dangerous Goods records;
- A site inspection including:
  - observations of site conditions,
  - visual identification of areas of potential surface contamination and filled or excavated areas, and
  - identification of neighbouring land-uses; and

- Interviews with Peter Blom and Ray Warhurst.

The Phase 2 assessment included:

- Hand augering and soil sampling at twenty boreholes (BH1 through BH20) across the site;
- Laboratory analysis of twenty soil samples for concentrations of total petroleum hydrocarbons (TPH), benzene, toluene, ethyl benzene and xylene (BTEX), and 8 heavy metals, analysis of six soil samples (including four composite samples) for polycyclic aromatic hydrocarbons (PAH), analysis of five composite soil samples for polychlorinated biphenyls (PCB) and organochlorine pesticides (OCP), analysis of 10 soil samples for pH and analysis of three soil samples for asbestos;
- Interpretation of results; and
- Completion of this report.

1.3 Limitations

Works were undertaken in accordance with GHD's proposal dated 30 August 2006 (GHD ref:72742). Additional limitations included:

- Investigations of the quality of the groundwater at the site were not undertaken because previous investigations indicated that it is unlikely to be an issue; and
- Soil sampling and analysis was limited to surficial soils at twenty select locations.

Further limitations of the work are outlined in Section 8.

2. Phase 1 Assessment

2.1 Site Characterisation

2.1.1 Site Location and Description

Site characteristics including location information and the legal description are presented in Table 1, below.

Table 1 Site Characteristics

Civic Address	8 O'Connell Street and 83 – 89 Marius Street, Tamworth (Figure 1, Appendix A)
Owner	Telstra Corporation Limited
Occupier	Telstra Corporation Limited
Property Legal Description	Lot 1, DP 70023 and Lot 1, DP 803644, Tamworth Parish, County of Inglis
Area	The site encompasses an area of approximately 1.29 ha and is an irregular shape (Figure 2, Appendix A)
Surrounding Land Use	Northeast: Marius Street, commercial and residential properties Southeast: Marius Street, O'Connell Street, commercial and residential properties Southwest: O'Connell Street and commercial properties Northwest: Industrial, commercial and residential properties
Topography	The Tamworth 1:250,000 topographic map (GeoScience Australia, 2003) indicates that the site has an elevation of approximately 375 m Australian Height Datum (AHD). The site slopes gently south towards the Peel River, which is located approximately 400 m from the site
Vegetation and Surface Water	The site was covered in asphalt, with vegetation along Marius Street in healthy condition. No standing water was observed on the surface of the site.
Zoning	Lot 1, DP 70023 is zoned 3(a) – Business and Lot 1, DP 803644 is zoned 4 – Industrial under the Tamworth City Council Local Environment Plan of 1996. The surrounding area to the north and east is zoned 2(a) – Residential and the remaining area to the south and west is zoned 3(a) – Business

2.1.2 Geology

The Tamworth-Hastings 1:250,000 Metallogenic Series Sheets SH/56 13-14 and SI/56 1-2 indicate that the geology of the site is made up of the Parry Group from the Devonian-Carboniferous period, which includes Namoi Formation, Talcumba

Sandstone, Tangaratta Formation, Mandowa Mudstone, Keepit Conglomerate, Goonoo Goonoo Mudstone and Baldwin Formation.

2.1.3 Hydrogeology

Typically, groundwater follows surface topography and local drainage patterns and flows from higher elevations towards lower elevations. The surface topography of the Site suggests that the groundwater flow direction is towards the Peel River located approximately 400 m south of the Site.

A groundwater well search completed by the Department of Natural Resources (DNR) of their bore database indicated that there are ten bores located within 1 km radius of the site. Table 2, below, presents a summary of the information provided by DNR. Search documentation is provided in Appendix B.

Table 2 Summary of Groundwater Database Search

Bore ID	Approximate distance/ direction from site (m)	Authorised Purpose	Maximum Depth Drilled (mbgs)	Lithology (drillers log)	Surface Water Level (mbgs)
GW021787	1 km southeast	Investigation	10.70	Clay/gravel	8.20
GW037801	400 m south (opposite side of Peel River)	Test bore	12.80	Clay/gravel	N/A
GW037810	500 m south (opposite side of Peel River)	Test bore	14.00	Clay/sand	4.50
GW037811	500 m south (opposite side of Peel River)	Recreation	13.40	Clay/gravels	5.00
GW037866	400 m southwest (opposite side of Peel River)	Recreation	14.00	Gravel/ boulders	4.20
GW037867	200 m south	Recreation	15.50	Clay/sand	5.10
GW052834	500 m north	Irrigation	34.50	Clay	24.50
GW057928	500 m north	Industrial	38.00	Shale/basalt	26.20
GW902407	480 m northwest	Domestic	36.30	Shale	N/A
GW965054	450 m northeast	Domestic	22.86	N/A	N/A

N/A - Information not available

2.1.4 Topography

The area slopes gently to the south east. The site has been levelled with stormwater pits located across the site. It is expected that any surface water on the site would either pond on site or be collected in the stormwater pits.

2.1.5 Flood Potential

The location of the Site and the surrounding topography suggest that it is unlikely that the site and surrounding area would be subject to a major flood event, although localised stormwater flooding may be possible.

2.2 Site History

GHD undertook a review of historical data for the Site including review of previous investigations, historical title certificates, aerial photographs, NSW WorkCover records and NSW DEC records. The following section outlines the results of the historical review.

2.2.1 Previous Investigations

Information provided by Telstra via electronic communication included the following extracts from a valuation report (report details were not provided by Telstra to GHD):

- Structures at the site include:
  - Administration Building - Single storey brick structure with a concrete floor and metal deck roof erected in approximately 1982.
  - Store/Workshop - Single storey steel framed metal clad building with a concrete floor and pressed metal skillion roof. It was erected in approximately 1982;
  - Divisional Store - Single storey steel framed building with a concrete floor and galvanised iron roof and cladding. It was erected in approximately 1950;
  - M.V.R.S. Building - Single storey iron clad building with concrete floor, skillion iron roof and roller door;
  - Machinery Store - Single storey skillion structure erected in approximately 1980 with a steel frame and pressed metal roof and cladding; and
  - Training Room - Demountable building roofed and clad with aluminum.
- Other improvements include a washbay facility with an iron roof of 4 m by 8 m with concrete paving.
- The site also has extensive concrete and bitumen paving, kerb and guttering, retaining walls, flood lighting and man proof fencing.
- A visual site inspection (during valuation) did not reveal any obvious pollution or contamination but from information provided by a Mr. Michael Rumble (GHD infers that Mr. Rumble represents United KFPW, a subsidiary of United Group Services Pty Ltd) based on the valuation works/survey carried out on site, sections of the subject property have been found to be contaminated and require remediation.

- An underground petrol storage tank is still in the ground between the Administrative Building and the Store/Workshop. This tank was reportedly filled with water in about 1982 when the bowser was removed and the Store/Workshop built.
- Works have reportedly been carried out to ascertain the extent of contamination on the site with the view to have it remediated to make the site suitable for proposed residential land use, however, Tamworth City Council does not have any Development Application on record and Mr. Michael Rumble is reportedly not aware of any such proposal.

Telstra also provided portions of a Stage 1 and 2 Environmental Site Assessment that was conducted at 89 Marius Street, Tamworth, NSW by CH2MHill in 2001. A review of the portions of the report that were provided to GHD may be summarised as follows.

Telstra Tamworth Line Depot, 89 Marius Street, Tamworth, NSW. Prepared for Telstra Corporation Limited. Reference: 110368.T, November 2001.

- The Executive Summary stated that:
  - CH2MHill conducted a Stage 1 Preliminary Site Investigation (PSI) and a Stage 2 Detailed Site Investigation (DSI) at the site to evaluate the site's suitability for residential land use;
  - Following Stage 1 desktop works, intrusive works were conducted at the site with a solid flight auger to maximum 3 m depth. Soil samples were collected and analysed from 25 stratified random grid or targeted locations across the site at 0.1-0.2 m, 0.4-0.5 m and 0.8-1.1m depths. The site locations are shown on Figure 2 in Appendix A;
  - Soil samples were analysed for concentrations of metals, total petroleum hydrocarbons (TPH), benzene, ethylbenzene, toluene and xylene (BTEX), polycyclic aromatic hydrocarbons (PAH), organochlorine pesticides (OCP) and/or polychlorinated biphenols (PCB);
  - No fill was encountered during fieldwork. The site is underlain by sandy gravel and gravely silt to 0.3-1.1 m followed by silty clay;
  - Analytical results for all parameters in all samples analysed were less than HILs for residential land use with minimal access to soil or NSW EPA *Guidelines for Assessing Service Station Sites* (1994);
  - No visual or olfactory observations of hydrocarbon impact were noted in four boreholes advanced in the vicinity of the UST up to 3 m below ground level. CH2MHill considers it unlikely that the surrounding soils have been significantly impacted by the contents of the decommissioned petrol UST, however, the report states that there may be a small quantity of soil adjacent and below the tank that has been impacted from leaks or spills from the tank that could not be assessed during fieldwork;
  - CH2MHill considers the risk to groundwater from potential UST leaks or spills is small;
  - No surface hydrocarbon staining or cracks were observed in concrete in the vicinity of the washbay. CH2MHill considers it unlikely that the soils in the vicinity of the washbay have been significantly impacted; and

- The soils assessed during the work were considered suitable for residential land use with minimal access to soils. However, CH2MHill considers that further works are required to remove the UST, washbay and associated infrastructure and assess the soils directly below these structures for hydrocarbon impact.

- The report Conclusions (Section 13) contained information similar to that presented in the Executive Summary;
- The report Recommendations (Section 14) contained similar information to that presented in the Executive Summary plus the following:
  - CH2MHill recommends that a Remedial Action Plan (RAP) is prepared to decommission the washbay; and
  - The RAP should address issues including:
    - Sampling/testing the contents of the tank,
    - Removal and disposal of the UST and associated structures,
    - Excavation and stockpiling of all material from around the UST and washbay,
    - Assessment of soil situated around the UST and washbay locations, and
    - Validation and backfilling of excavations.

2.2.2 Certificate of Title Review

A historical title search was carried out on 24 October 2006 for the site by Advance Legal Search Pty Limited. Results of the historical title search are presented in Appendix B and summarised in Table 3, below.

Table 3 Summary of Historical Title Search Results

Year	Proprietor
	Lot 1 DP 70023 (8 O'Connell Street)
2002 – to present	Telstra Corporation Limited
1987 – 2002	Australian Telecommunications Commission
1900 - 1987	Private individuals
1900	Purchased/granted from Crown
	Lot 1 DP 803644 (83-89 Marius Street)
2001 – Present	Telstra Corporation Limited
1990 – 2001	Australian and Overseas Telecommunications Corporation Limited
1952 – 1990	The Commonwealth of Australia
1951 – 1952	The Council of the City of Tamworth

Year	Proprietor
1854 – 1951	Private individuals and trusts
1854	Purchased/granted from Crown

2.2.3 Historical Aerial Photographs

Historical aerial photographs of the Site and surrounding area (obtained from the NSW Department of Lands) were reviewed for 1953, 1965, 1989, 1998 and 2004. Historical aerial photographs are presented in Appendix C and summarised in Table 4, below.

Table 4 Review of Historical Aerial Photographs

Photograph	Observations
11/11/1953 Run: 3 Film: NSW48 5077 15,500 ft	**Site Observations** The Site is a vacant (cleared) block with scattered vegetation along the northeast and northwest perimeters. **Site Surrounds Observations** Properties to the southeast and southwest have small buildings, Marius Street is located to the northeast and land to the northwest is vacant.
29/07/1965 Run: 3 Film: NSW1368-5097 7,400 m	**Site Observations** The site appears to be divided. A large presumed Store/Workshop building and storage area is situated on the southeast side of the site. The northwest side of the site is vacant with the exception of a single building towards the southeast side of the site. The vegetation from the previous photo has been cleared. **Site Surrounds Observations** The surrounding land use appears to be unchanged since 1953 with the exception of two buildings located northwest of the site.
08/07/1989 Run: 3 Film: NSW3667 4435 m	**Site Observations** The site has undergone extensive development with four buildings present on site. These buildings appear to be in the same configuration as the Administration Building, Store/Workshop and Divisional Store buildings observed during the site inspection. Much of the remaining site surface appears to be paved and gardens have been established along the northeast boundary, adjacent to Marius Street. **Site Surrounds Observations** The surrounding land use appears relatively similar to 1965 with the exception of additional dwellings along northwest of the site and larger buildings located southwest of the site.

Photograph	Observations
01/08/1998	**Site Observations**
Run: 3 Film: NSW4442	The site appears relatively unchanged from 1989. The demountable training room and an outdoor storage area are situated in the same configuration as observed during the site inspection.
	Site Surrounds Observations
	The surrounding land use appears relatively unchanged from 1989 with the exception of additional buildings located northwest and southwest of the site.
17/09/2004	**Site Observations**
Run: 2	The site appears largely unchanged from 1998.
Film: NSW4871	**Site Surrounds Observations**
	The surrounding land use appears largely unchanged from 1998.

2.2.4 Permits, Licences, Approvals and Trade Waste Agreements

POEO Act 1997

A search of the EPA online public register on 24 October 2006 indicated that there are no licences pertaining to the Site, under Schedule 1 of the Protection of the Environment Operations Act 1997 (POEO Act) (DEC, 2005a).

Workcover NSW

On 21 November 2006, Workcover NSW replied to GHD's request for information regarding any Dangerous Goods information for 8 O'Connell Street, Tamworth. On 10 May 2007, Workcover NSW replied to GHD's request for information regarding any Dangerous Goods information for 83-89 Marius Street, Tamworth.

According to Workcover NSW, no dangerous goods have been registered for either site. Copies of the Workcover NSW reply letters are provided in Appendix B.

Council Records

Tamworth Regional Council provided GHD with:

- A copy of the Local Environmental Plan (1996) zoning applicable to the site (Appendix B) which confirmed that the site is situated in Zone 3a Business and Zone 4 Industrial; and
- Copies of the Section 149 (2) Planning Certificates for the site (Appendix B).

The Section 149(2) certificates for both addresses of the site (ie 8 O'Connell Street and 89 Marius Street) indicate the following:

- The land has not been proclaimed to be a mine subsidence district;
- The land is not affected by any road widening or road realignment proposal;
- There are no environmental planning instruments applying to the land which provide for the acquisition of the land by a public authority;

- The subject is not identified as being bushfire prone land; and
- Consideration of the former Tamworth City Council's adopted policy on contaminated land which restricts development of land in special circumstances is warranted, as is the application of provisions under relevant State legislation.

2.2.5 Product Spill, Loss or Discharge History

No information regarding product spill, loss or discharges at the site was found during the Phase 1 assessment.

2.2.6 Present and Past Industrial Processes

No present or past industrial or manufacturing processes have reportedly occurred on the site.

2.3 Site Inspection

A site inspection was conducted by GHD on 12 October 2006. Photographs taken at the site are included in Appendix D. The site currently operates as an administration and planning centre for telecommunication maintenance operations and storage of maintenance materials.

At the time of the site inspection, buildings covered approximately 20% of the site with the remaining portion of the site covered by asphalt paving, kerb and guttering, retaining walls, flood lighting, grassed and garden area and man proof fencing.

Services provided to the site include underground potable water, sewerage and stormwater services. Electrical and telephone service were available from overhead lines present along Marius Street.

Structures observed on the 83-89 Marius Street site included:

- An administration building – Single story brick structure with a concrete floor and metal roof reportedly constructed in approximately 1982. The building is fitted out as offices and covers approximately 820m^2;
- A store/workshop – Single story steel framed metal clad building with concrete floor and metal roof. The building has office and storage space. It was reportedly constructed in approximately 1982 and covers approximately 250m^2;
- A divisional store building – Single story steel famed building with a concrete floor and galvanised iron roof and cladding. The building has office and storage space. It was reportedly constructed in approximately 1950 and covers approximately 330m^2;
- A building known as the M.V.R.S Building – Single story iron clad building with concrete floor, skillion roof and roller door covering approximately 50m^2;
- A machinery store shed – Single story shed skillion structure reportedly constructed in approximately 1980 with a steel frame, metal roof and cladding. The building covers approximately 50m^2;
- A training room – Demountable building roofed and clad with aluminium and covering approximately 70m^2; and

- A roofed carwash facility, approximately 4 metres by 8 metres with concrete paving and a catch basin in the centre of the concrete floor.

A covered steel garbage bin labelled 'asbestos waste' was observed on the northern side of the site between the metal classroom and air cylinder storage bund.

No hazardous materials were encountered during the site inspection, however a filler valve for an Underground Storage Tank (UST) was observed between the brick office building and the metal warehouse.

During the site inspection no signs of contamination or standing water were observed and vegetation appeared to be in good condition.

2.4 Interviews

On 12 October 2006, GHD conducted an interview with Peter Blom, an employee of Telstra who was present onsite during the site inspection. The following summarises Peter's statements during this interview:

- An UST was situated between the Metal Office Buidling and the Metal Warehouse. Peter could not recall the removal of the UST;
- There is no history of chemical use or storage on the former line yard and depot site; and
- The site is used for operations planning and administration and storage of equipment and maintenance supplies and that no maintenance or servicing of vehicles is carried out on site.

On 3 May 2007, GHD conducted an interview with Ray Warhurst – Telstra Team Manager. Ray has worked at the site for approximately 25 years. The following summarises Ray's statements during this interview:

- Two bowsers were removed in circa 1988;
- Telephone poles were stored at the site between early 1990's to circa 2000;
- A wash bay on the site was decommissioned in 2001;
- Asbestos bins observed on the site during the site inspection were used to store asbestos from the removal of electrical pits in the field;
- A mechanic (ie servicing vehicles) ceased operation in the eastern shed circa 1990;
- Ray had no memory of the UST supposedly situated at the site being removed (ie excavated) from the site; and
- An old hall was located in the centre of the site circa 1975.

3. Results of Phase 1 Assessment

3.1 Sensitive Receptors

The nearest surface water receptor is the Peel River, located approximately 400 m south to southwest (ie downgradient) of the site. The only other sensitive receptor identified as proximal to the site included:

- One groundwater bore located approximately 200 m in an inferred down gradient direction (south) of the site.

3.2 Areas of Potential Environmental Concern

Areas of potential environmental concern (APEC), their associated potential contaminants of concern (PCOC) and related analytical parameters identified at the site, are summarised in Table 5, below and shown on Figure 2.

Table 5 Outcomes of Desk-top Review

APEC	Rationale/Details	PCOC
Underground Storage Tank and associated piping	◗ A UST appears to be situated in-ground between the store/workshop and the divisional store	Petrol or diesel - Total Petroleum Hydrocarbons (TPH), Polycyclic Aromatic Hydrocarbons (PAH), Benzene, Toluene, Ethylbenzene and Xylene (BTEX) and lead
Washbay facility and catch basin (drainage)	◗ The Phase 1 desktop review identified that a decommissioned carwash facility (washbay) exists onsite.	Material washed from vehicles, petrol and diesel residue, waste oil - TPH, PAH, BTEX, metals, organochlorine pesticides (OCP), perchlorinated biphenyls (PCB)
Potential asbestos waste	◗ A bin labelled 'asbestos waste' was present onsite, suggesting that asbestos containing materials (ACM) may have historically been stored or used onsite	ACM – Asbestos
Fill material across the site	◗ Although previous investigations did not encounter fill material, GHD was unable to review a complete copy of the Phase 1&2 PSI conducted by CH2MHill in 2001. As such, GHD infers that an assessment across the site for fill material is prudent	TPH, PAH, BTEX, metals, OCP, PCB, asbestos
Pole storage area	◗ Treated poles were stored on site for approximately six years. Contaminants may have leached from these poles.	TPH, BTEX, OCP, metals

3.3 Interpretation and Recommendations

Based on the results of the Phase 1 investigation and giving consideration to the limitations outlined in Sections 1.3 and 8, there is:

- moderate potential for contamination from historical land use;
- low potential for contamination from current land use; and
- low potential for contamination from current neighbouring land use.

Although the potential for site contamination is considered to be low to moderate, GHD recommended that intrusive investigations be undertaken to address the APECs outlined in Table 4, above. The site history assessment has not indicated any significant potential sources of groundwater contamination and as such it is considered unlikely that groundwater would be significantly impacted. To assess whether there are any contamination issues in soil at specific areas of the site, a limited Phase 2 intrusive investigation was recommended.

Intrusive investigations recommended by GHD included completing twenty intrusive hand auger sampling locations at the site, collection of soil samples and submission of samples for selected analysis of TPH, BTEX, PAH, metals, OCP, PCB, pH and asbestos. These recommendations are outlined in Table 6, below.

Table 6 Proposed Limited Phase 2 Investigations

Description (maximum 0.5 m depth in all locations)	Rationale	Analytical Parameters
Hand auger boreholes at 20 locations across the site	UST and associated piping Washbay and catch basin Potential ACM Potential fill material Pole storage area	TPH, BTEX, metals*, pH, PAH, OCP/PCB and Asbestos

* Arsenic (As), Cadmium (Cd), Chromium (Cr), Copper (Cu), Lead (Pb), Nickel (Ni), Zinc (Zn), Mercury (Hg).

4. Phase 2 Assessment

4.1 Overview

The purpose of the Phase 2 assessment was to undertake intrusive investigations to identify the degree and extent of contamination (if any) that may be present on the site. The investigations included:

- Preparation of a site specific Occupational Health and Safety Plan;
- Coring asphalt/concrete (Northwest Concrete Sawing and Drilling) prior to hand augering at each location;
- Hand auguring 20 boreholes (BH1 through BH20) at the site to 0.5 m depth and/or refusal. After sampling each location, soil was placed back in the borehole, sand was added to backfill the hole to surface, and concrete was placed over top to reseal the surface;
- Soil sampling during hand auguring;
- Submission of selected soil samples for selected analysis of potential contaminants of concern to ALS Laboratory Group (ALS), Sydney; and
- Interpretation and reporting.

4.2 Basis For Contamination Assessment

4.2.1 Relevant Guidelines

The guidelines used to assess the soil contamination status of the site included:

- NSW EPA (1994) “Guidelines for Assessing Service Station Sites”, Threshold Concentration for Sensitive Land Use – Soils;
- NSW DEC (2006) “Guidelines for the NSW Site Auditor Scheme”;
- ANZECC / NHMRC (1992) “Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites”; and
- NECP (1999) “National Environmental Protection (Assessment of Site Contamination) Measure 1999”, (NEPM).

4.2.2 Soil Investigation Thresholds

The NEPM includes a range of Soil Investigation Levels including Ecological Investigation Levels (EILs) largely similar to the Environmental Investigation Thresholds (EITs) listed in the Australian and New Zealand Guidelines for The Assessment and Management of Contaminated Sites (ANZECC/NHMRC 1992). Health Investigation Levels (HILs) are generally the same as the Health-based Soil Investigation Levels (HBSILs) listed in the Guidelines for the NSW Site Auditor Scheme (NSW DEC, 1998). However, the criteria in these guidelines are restricted to non-volatile and semi-volatile substances and do not include all the potential contaminants that may be at the site. Therefore, the substances not included in these

guidelines, the Threshold Concentrations (TC) from the “Guidelines for Assessing Service Station Sites” (1994) have been used.

Essentially both EILs and HILs are default values designed to protect the environmental and human receptors respectively. ANZECC/NHMRC recommends that generally where EITs are exceeded, an investigation should take place, but it is stressed that the values are intended as a guide only and site specific factors need to be taken into account when assessing data. It is stated that “in general terms the guideline values will protect the most sensitive receptor”, and of the receptors considered, the most sensitive and hence most stringent guidelines are for the protection of plant life.

The NEPM also uses the ANZECC / NHMRC 1992 definition of Investigation Level as the concentration above which further appropriate investigation and evaluation will be required. The EILs are based on consideration of phytoxicity and soil survey data, and supported by the “ANZECC B” EITs. It is acknowledged that future ecologically based guidelines will be developed at a regional level and related to land use, and that specific circumstances may warrant the use of more pertinent regional values.

The basis on which the HILs (or HBSILs) have been set should be assessed for relevance to the situation under consideration. HILs are provided for a range of different exposure settings or land uses:

“A” Standard Residential with garden/accessible soil (includes children day-care centres, kindergartens, pre-schools and primary schools).

“D” Residential with minimal opportunities for soil access.

“E” Parks, recreational open space and playing fields (including secondary schools).

“F” Commercial/industrial (includes shops, offices, factories and industrial sites).

Because the site is currently used for commercial purposes, the investigation level considered appropriate for this assessment is Setting F for Commercial/Industrial land use. However, as future potential land use may also include residential land use, investigation level Setting A for Standard Residential land use has also been considered. EILs were used as a guide for potential environmental impacts, although they are not necessarily relevant to existing commercial/industrial or proposed residential land uses.

It is stated in the NEPM [Schedule B(7a]) that the HILs provide “a trigger to assist in judging whether a detailed investigation of a site is necessary”. It is also stated “the levels should not be interpreted rigidly” and “the proposed land use, distribution of contaminants and the frequency distribution of elevated levels will all be very important in interpreting the results for a site”. Separate health and environmental investigation levels have been established to take into account the different sensitivities of humans and other components of the environment. The HILs are typically higher than, or in rare cases (eg lead) equal to or less than, the EILs. Site specific decisions need to be made to determine whether health or environmental levels (or both) should apply.

The methodology used when assessing contamination levels in soils at the site was to use the EILs and HILs as a cut off point to classify soils either as:

- Soils not contaminated, which pose no risk to the environment or human health and warrant no further action, i.e. concentrations less than or equal to the EILs.
- Soils containing elevated concentrations of contaminants, which may pose a risk to the environment (in particular plant species) but pose no risk to human health under the proposed land use scenario, i.e. concentrations greater than the EILs and less than HIL A and/or HIL F. These soils may warrant some form of remediation or management subject to further assessment giving consideration to environmental and health risks and proposed land use.
- Soils significantly contaminated which pose a risk to both the environment and human health, i.e. concentrations greater than or equal to HIL A and/or HIL F. Soils in this category would likely require remediation or management to permit the proposed land use, or would require a Site Specific, Risk Based Assessment to further determine potential risk to human health and the environment for current land use (ie commercial/industrial).

The methodology used to develop Ecological Investigation Levels (EILs) and Health Investigation Levels (HILs) for this site was in accordance with EPA recommendations and comprised the following (in order of preference).

Ecological Investigation/Threshold Concentration (EIL or TC)

- NEPC (1999) NEPM Schedule B(1), Ecological Investigation Levels;
- NSW DEC (2006) Guidelines for the NSW Site Auditor Scheme, Provisional Phytotoxicity – Based investigation Levels;
- ANZECC (1992), Guidelines for the Assessment and Management of Contaminated Sites, Environmental Investigation Thresholds; and
- NSW EPA (1994) Guidelines for Assessing Service Station Sites, Threshold Concentration for Sensitive Land Use - Soils (protection of terrestrial organisms in soil).

Health Investigation Levels/Threshold Concentration (HIL or TC)

- NEPC (1999) NEPM Schedule B(1), Health Investigation Levels, Exposure Setting F: Commercial/Industrial;
- NSW DEC (2006) Guidelines for the NSW Site Auditor Scheme incorporating the National Environmental Health Forum (1996), Soil Series No. 1, Health Based Soil Investigation Levels, Exposure Setting F: Commercial/Industrial; and
- NSW EPA (1994) Guidelines for Assessing Service Station Sites, Threshold Concentration for Sensitive Land Use - Soils (human health based levels).

Table 7, below, provides a summary of the investigation levels that were used to assess contamination levels.

Table 7 Health Based and Ecological Based Investigation Levels

Parameter	Ecological Investigation Levels (EILs)	Exposure Setting A - Health Based Investigation Levels (HILs)	Exposure Setting F - Health Based Investigation Levels (HILs)[a]
Heavy Metals			
Arsenic	20	100	500
Cadmium	3	20	100
Chromium [e]	400	100	500
Copper	100	1000	5000
Lead	600	300	1500
Nickel	60	600	3000
Mercury	1	15	75
Zinc	200	7000	35,000
TPH/BTEX			
C_6-C_9	-	65[b) (f)]	65[b) (f)]
C_{10}-C_{36}	-	1000[b) (f)]	1000[b) (f)]
Benzene	1[b)(c) (f)]	1[b)(c) (f)]	1[b)(c) (f)]
Toluene	1.4 [b) (d) (f)]	130[b)(f)]	130[b)(f)]
Ethyl Benzene	3.1 [b) (d) (f)]	50[b) (f)]	50[b) (f)]
Total Xylenes	14 [b) (d) (f)]	25[b) (f)]	25[b) (f)]
PAH			
Benzo(a)pyrene	-	1	5
Total PAHs	-	20	100
OC Pesticides			
Aldrin + Dieldrin	-	10	50
Chlordane	-	50	250
Heptachlor	-	10	50
DDT + DDD + DDE	-	200	1000
Total PCBs	-	10	20

Notes: All units in mg/kg unless otherwise noted.

(a) Health Based Soil Investigation Levels from *Guidelines for the NSW Site Auditor Scheme* (1998) or NEPM (1999) Schedule B(1) Health Investigation Levels.

(b) EPA (1994) *Guidelines for Assessing Service Station Sites* (1994), threshold concentrations for sensitive land use.

(c) A lower benzene concentration may be needed to protect groundwater.

(d) Netherlands MPC to protect terrestrial organisms in soil.

(e) Analysis in these investigations was presumed to be for Total Chromium, but is likely to be present the more common trivalent form.

(f) Values from EPA (1994) *Guidelines for Assessing Service Station Sites* (1994) used without multiplication, as per EPA advice to Auditors by letter dated 9 August 2000.

4.3 Methodology

GHD completed the following fieldwork at the site:

- On 5 May 2007, prior to any intrusive investigations, the location of the known underground utilities at the site were identified for GHD by a Telstra representative;
- On 5 May 2007, twenty auger boreholes (BH1– BH20) were excavated using a hand auger. The sample locations were recorded on the site plan and are shown on Figure 3, Appendix A. Prior to excavation of boreholes BH5, BH7, BH9 and BH10 to BH20 the overlying concrete or asphalt was cored by Northwest Concrete Sawing and Drilling;
- Soil samples were collected from 0 – 0.5 m depth in each borehole (BH1 – BH20), at 0.1 m depth and the maximum depth of the borehole;
- Samples were collected into appropriate laboratory supplied sample containers. Samples placed in jars were clearly labelled with sample number, sample location, and date. Sample containers were then transferred to a chilled esky with chain-of-custody documentation for sample preservation and tracking prior to and during shipment to the analytical laboratory;
- A second sample was collected in a sealable plastic bag and labelled. This sample was analysed for volatile organic compounds (VOC) using a photo-ionisation detector (PID);
- Selected samples were submitted to ALS for selected analysis of concentrations of TPH, BTEX, PAH, metals, asbestos, pH, OCP and PCB. Analysis of PAH, OCP and PCB parameters were conducted on four part composite samples (i.e., COMP1, COMP2, COMP3, COMP4, COMP5). The samples were composited by ALS. ALS forwarded the asbestos samples to Envirolab Services Pty Ltd (Envirolab) for analysis;
- QA samples were collected at a rate of 1 QA sample collected for every 10 field samples collected. Details regarding GHD's QA/QC program undertaken during the investigation are outlined in Section 4.4, below; and
- Immediately upon completion of each auger borehole, excavated soil was backfilled into the borehole. The following day boreholes were reinstated with sand and sealed with concrete by Northwest Concrete Sawing and Drilling.

All fieldwork was completed in accordance with GHD's standard Field Operating Procedures (FOP), which are available upon request. The locations of each borehole are shown on Figure 3 in Appendix A and the analytical parameters selected for each borehole location are outlined in Table 8, below.

Table 8 Intrusive Investigations

Location	Analytical Parameters
BH1	TPH, BTEX, Metals, pH
BH2	TPH, BTEX, Metals,
BH3	TPH, BTEX, Metals, pH
BH4	TPH, BTEX, Metals, Asbestos
BH5	TPH, BTEX, Metals, pH
BH6	TPH, BTEX, Metals, Asbestos
BH7	TPH, BTEX, Metals, Asbestos
BH8	TPH, BTEX, PAH, Metals, pH
BH9	TPH, BTEX, Metals
BH10	TPH, BTEX, Metals, pH
BH11	TPH, BTEX, Metals
BH12	TPH, BTEX, Metals, pH
BH13	TPH, BTEX, Metals
BH14	TPH, BTEX, Metals, pH
BH15	TPH, BTEX, Metals
BH16	TPH, BTEX, Metals, pH
BH17	TPH, BTEX, Metals
BH18	TPH, BTEX, Metals, pH
BH19	TPH, BTEX, Metals, pH
BH20	TPH, BTEX, Metals
COMP1 (BH16, BH17, BH19 and BH20)	OCP, PCB, PAH
COMP2 (BH1, BH2, BH3 and BH4)	OCP, PCB, PAH
COMP3 (BH11, BH12, BH13 and BH14)	OCP, PCB, PAH
COMP4 (BH5, BH6, BH7 and BH15)	OCP, PCB, PAH
COMP5 (BH8, BH9, BH10 and BH16)	OCP, PCB

4.4 Quality Assurance / Quality Control (QA/QC)

4.4.1 Field QA/QC

All fieldwork was conducted in general accordance with GHD's standard Field Operating Procedures (FOP). The FOP ensures that all environmental samples were collected by a set of uniform and systematic methods.

The FOP describes many field activities including:

- Implemented decontamination procedures;
- Sample identification procedures;
- Information requirements for bore hole logs;
- Chain of custody information requirements;
- Sample duplicate frequency; and
- Field equipment calibration requirements.

Field quality control procedures used during the project comprised:

Blind duplicates: Two blind duplicates (i.e., BH8-3 and BH18-2) were prepared in the field by duplicating the original sample (i.e., BH8-2 and BH18-1 respectively) and placing two equivalent portions into two separate containers. The blind duplicate samples were submitted to ALS with a unique sample identifier that does not allow recognition of the sample as a duplicate sample. Duplicate samples were analysed for the identical set of parameters requested for the corresponding original sample. For the blind duplicate sample pair, relative percentage difference (RPD) were calculated, using:

$$RPD(\%) = \frac{|C_o - C_d|}{C_o + C_d} \times 200$$

Where: C_o = Analyte concentration of the original sample

C_d = Analyte concentration of the duplicate sample

Blind duplicates provide an indication of the analytical precision of the project laboratory, but may also be affected by factors such as sampling methodology or inherent heterogeneity of the sample medium.

Duplicate samples were collected and analysed for TPH/BTEX and metals for Quality Control purposes at a nominal rate of approximately 1 in 10 samples.

4.4.2 Laboratory QA/QC

ALS undertook analyses utilising their own internal procedures and test methods (for which they are NATA accredited) and in accordance with their own quality assurance system which forms part of their NATA accreditation.

Laboratory quality control procedures used during the project, comprised spiked blanks, method blanks and duplicate sub-samples. A laboratory duplicate provides data on the analytical precision (repeatability) of an analytical batch.

5. Results of Phase 2 ESA

5.1 Observations

5.1.1 Stratigraphy

The lithology of the soil samples is outlined in Table A, Appendix E. The stratigraphy observed in the boreholes was as follows:

- BH1 toBH4, BH6 and BH8 – Silt, some gravel, fine to coarse grained, brown, damp; and
- BH5, BH7 and BH9 to BH20 – Asphalt/concrete, underlain with gravel, fine grained, trace sand and silt, damp, brown.

5.1.2 Volatile Organic Compounds

Volatile organic compound readings for all soil samples collected ranged from 2 ppm to 4.5 ppm. GHD notes that these concentrations are relatively low and do not generally indicate the presence of significant concentrations of volatile compounds. Despite these readings, a strong hydrocarbon odour was noted by GHD field personnel during augering and sampling at BH18.

5.2 Analytical Laboratory Results

A summary of the laboratory analytical results and site assessment criteria are presented in Tables B-F in Appendix E. Detailed laboratory analytical reports and chain of custody documents are provided in Appendix F.

The pH of the soil samples analysed ranged from 8.4 to 9.7.

The laboratory analytical results indicated that all soils contained concentrations of BTEX, OCP and PCB less than the applicable criteria.

One soil sample collected at 0.1 m depth from BH3-1 contained concentrations of arsenic (108 mg/kg) and chromium (119 mg/kg) greater than the applicable EIL (20 mg/kg and 100 mg/kg respectively) and HIL A (50 mg/kg and 100 mg/kg respectively) criteria. However, these concentrations are less than the HIL F criteria. All other soil samples analysed for concentrations of metals contained concentrations of metals less than the applicable criteria.

Concentrations of benzo(a)pyrene in soil composite COMP1 (1.3 mg/kg) exceeded the HIL A criteria of 1 mg/kg, but was less than the HIL F criteria. All other soil samples analysed for concentrations of PAH contained concentrations of PAHs (including benzo(a)pyrene) less than the relevant guidelines for PAH's.

One soil samples collected from 0.15 m depth at BH18 contained concentrations of Total TPH (3090 mg/kg) greater than the threshold for HIL A and HIL F of 1000 mg/kg.

The analytical laboratory results are also presented on Figure 4 in Appendix A.

No asbestos fibres were identified.

5.3 QA/QC Results

5.3.1 GHD Results

The RPD results for the original sample and its duplicate pair were within the accepted RPD percentage of 30-50% based on guidelines provided in AS 4482.1 (1997). However, the RPD for soil sample BH18-1 and its duplicate pair BH18-2 for concentrations of Total TPH had a RPD of 59% and hence exceeded the range considered acceptable. Despite this slight exceedance, the results are considered to be reliable because:

- All other parameters for sample BH18-1 and its duplicate pair BH18-2 were well within the acceptable range (i.e., the next highest RPD was 16%), as were the RPDs for all other samples and parameters;
- The heterogeneous gravel stratigraphy may have caused the variable result; and
- The relatively high concentration of Total TPH in the sample and duplicate may have caused the variable result.

5.3.2 Laboratory Results

The NATA certified laboratory analytical results refer to a quality control program, which comprised analysing spikes, method blanks and duplicate samples. Generally the reported results indicate that the laboratory achieved levels of performance within their recommended control limits during the period when the samples from this program were analysed.

6. Conclusions and Recommendations

On behalf of Telstra, GHD completed Phase 1 and 2 Environmental Site Assessments (ESA) at 8 O'Connell Street and 83 – 89 Marius Street, Tamworth. The site consists of Lot 1, DP 70023 (8 O'Connell Street) and Lot 1, DP 803644 (83 – 89 Marius Street), and is located on the north side of a commercial/industrial area of Tamworth. It is GHD's understanding that the site has been identified as surplus to Telstra's requirements and they propose to divest the site for either residential or commercial development.

The Phase 1 ESA indicated that there is moderate potential for contamination from previous land use, low potential for contamination from current land use and low potential for contamination from neighbouring land use. The main areas of potential concern were the UST, washbay, asbestos waste storage area, the pole storage area and fill material. The site history assessment has not indicated any significant potential sources of groundwater contamination and as such it is considered unlikely that groundwater would be significantly impacted. However, a groundwater assessment at the site would be necessary to confirm this inference.

To assess whether there were any contamination issues in soil at specific areas of the site, a limited Phase 2 intrusive investigation was undertaken. The Phase 2 ESA included conducting a site inspection and excavating twenty intrusive hand auger boreholes at the site, collection of soil samples and submission of samples for selected laboratory analysis of concentrations of TPH, BTEX, PAH, metals, pH, OCP/PCBs and asbestos.

One soil sample from BH18 contained concentrations of TPH greater than the selected HIL F criteria for commercial/industrial land use. All other soil samples analysed contained concentrations of selected contaminants less than the selected HIL F and/or less than the laboratory detection limit.

In addition to the one exceedance of HIL F, three samples exceeded the EIL's and/or HIL A criteria.

To ensure the site is suitable for its current commercial land use the contaminated soil at BH18 needs to be remeditated and validated. Further investigations and/or remediation is also required if it is proposed to develop the site for residential land use.

In addition to the remediation of the area at BH18, it is recommended that:

- The contents of the UST, the UST and the wash bay pit be removed and disposed at a suitably licensed facility;
- Excavated material classified and disposed of at a suitably licensed facility; and
- The excavations validated and reinstated with clean fill.

This will address some of the data gaps identified although the condition of the soil beneath the existing structures, and groundwater quality at the site will remain uncertain.

These conclusions present a brief summary of the information described in this report and should be read in the context of the more detailed information presented in the preceding sections of this report, including the scope of the investigations discussed in Section 1.2 and the limitations outlined in Sections 1.3 and 8.

7. References

ANZECC/NHMRC, 1992. Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites, 1992

CH2MHILL (2001*). Telstra Tamworth Line Depot, 89 Marius Street, Tamworth, NSW Stage 1 and 2 Environmental Site Assessment*. CH2MHILL, North Sydney.

Contaminated Land Management Act, 1997.

EPA, 1995, *Sampling Design Guidelines*, NSW Environment Protection Authority.

EPA, 1997, *Guidelines for Consultants Reporting on Contaminated Sites*, NSW Environment Protection Authority.

EPA, 1998, *Guidelines for the NSW Site Auditor Scheme*, NSW EPA, 1998.

NEPC, 1999, *National Environmental Protection (Assessment of Site Contamination) Measure (the NEPM),* National Environmental Protection Council.

NSW Environmental Protection Authority (EPA), 1994, *Contaminated Sites: Guidelines for Assessing Service Station Sites*.

8. Limitations

This report has been prepared by GHD Pty Ltd in response to specific briefs issued by Telstra Corporation Limited (Telstra) and proposals/variations for services presented by GHD to Tesltra and agreed to by Telstra**.** This report is intended for the sole use of the client. It has been prepared in accordance with the Terms of Engagement for the commission and on the basis of specific instructions and information provided by the client.

GHD accepts no responsibility for other use of the data. No warranties, expressed or implied, are offered to any third parties and no liability will be accepted for use of this report by any third party.

It should be noted, that in gathering facts for the study, GHD relied on verbal information supplied by client, on site records, and on visual inspection of the site, which may not have been independently verified. Evidence of soil contamination is not always obvious by visual inspection and environmental issues may not have manifested themselves at the time of inspection.

An understanding of the site conditions depends on the integration of many pieces of information, some regional, some site specific, some structure-specific and some experienced based. Hence this report should not be altered, amended or abbreviated, issued in part and issued incomplete in any way without prior checking and approval by GHD. GHD accepts no responsibility for any circumstances that arise from the issue of this report that has been modified other than by GHD.

The advice tendered in this report is based on information obtained from a restricted site inspection and sample collection at discrete locations across the site and may not fully represent the conditions that may be encountered across the site at other than these locations. It is emphasised that the actual characteristics of the sub-surface and surface materials may vary significantly between adjacent test points and sample intervals and at locations other than where observations, explorations and investigations have been made.

It should be noted that because of the inherent uncertainties in sub-surface evaluations, changed or anticipated sub-surface conditions may occur. GHD does not accept responsibility for the consequences of significant variations in the conditions.

The contents and conclusion of this report may be inappropriate for any third party in the context of that third party's particular purposes and circumstances. Any party other than those above should obtain its own independent information or advice and no responsibility is accepted and no duty of care is assumed by GHD Pty Ltd to any third party who may use or rely on the whole or any part of the content of this document.

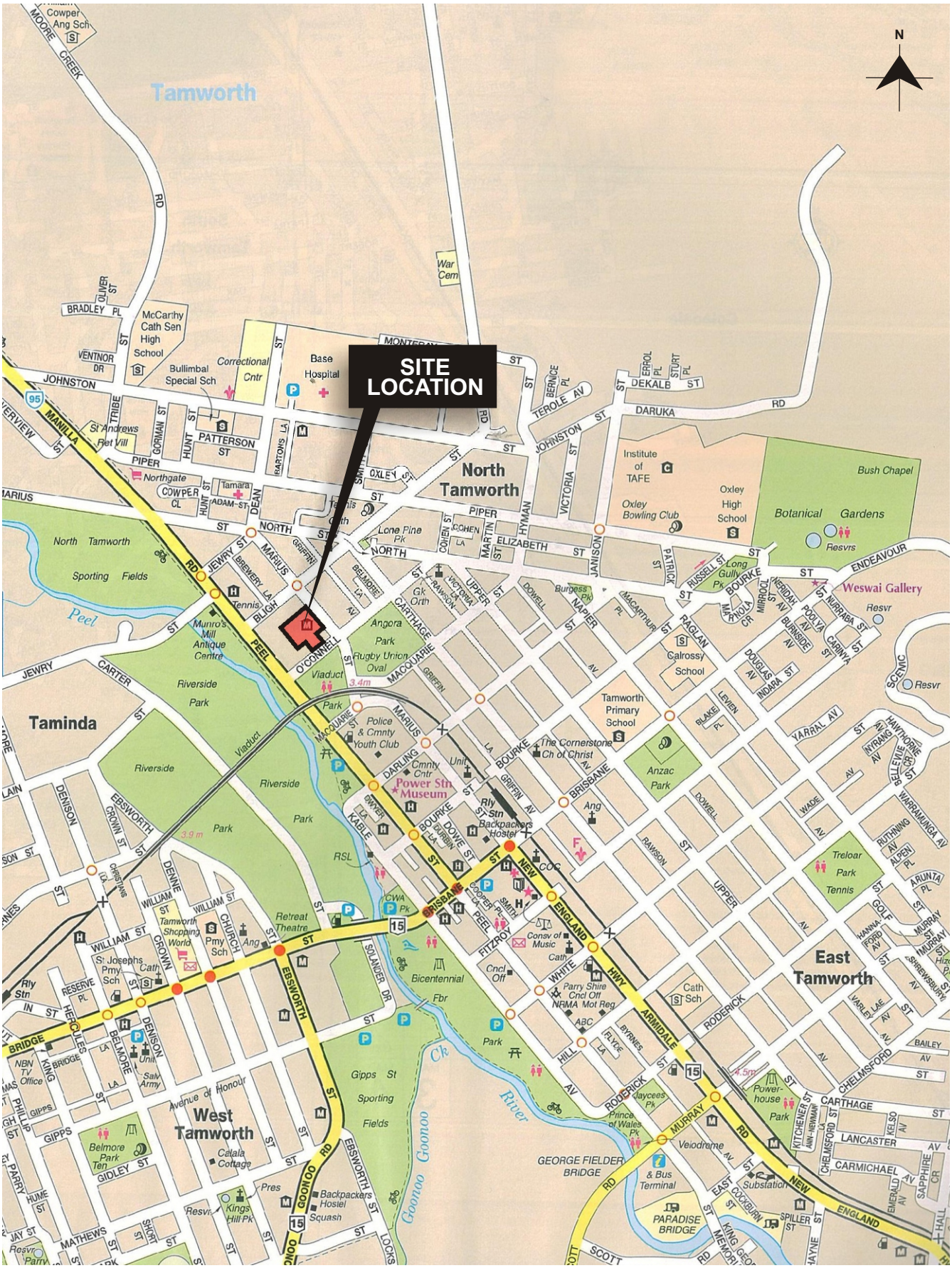
This document does not purport to provide legal advice and any conclusions or recommendations herein must not be relied upon as a substitute for such advice.

The work conducted by GHD under this commission has been to the standard that would normally be expected of professional environmental consulting firm practising in this field in the State of New South Wales. However, although strenuous effort has

been made to identify and assess all significant environmental issues required by this brief we cannot guarantee that other issues outside of the scope of work undertaken by GHD do not remain.

Appendix A

Figures



Source: Map reproduced with permission of UBD. Copyright Universal Publishers Pty Ltd DG08/06

GHD CLIENTS | PEOPLE | PERFORMANCE

Telstra
8 O'Connell Street & 83-89 Marius Street, Tamworth, NSW

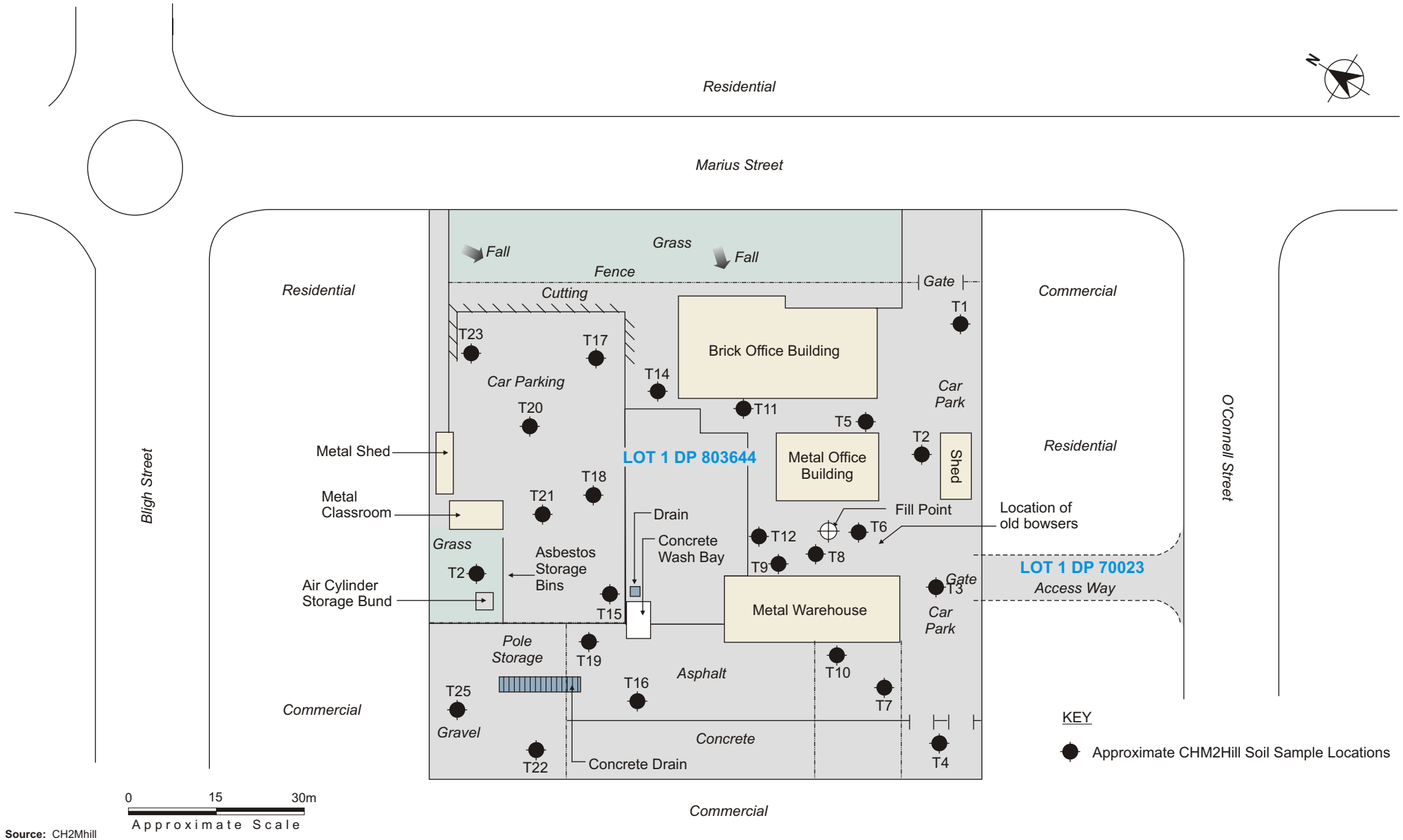
Site Location

scale nts | date 16 April 2007

job no 22-13035
file ref 2213035_LTN_01.cdr

Figure 1

2/115 West High Street Coffs Harbour NSW 2450 **T** 61 2 6650 5600 **F** 61 2 6652 6021 **W** www.ghd.com.au



Source: CH2Mhill

CLIENTS | PEOPLE | PERFORMANCE

Telstra Corporation Ltd
Phase 1 & 2 Contamination Assessment

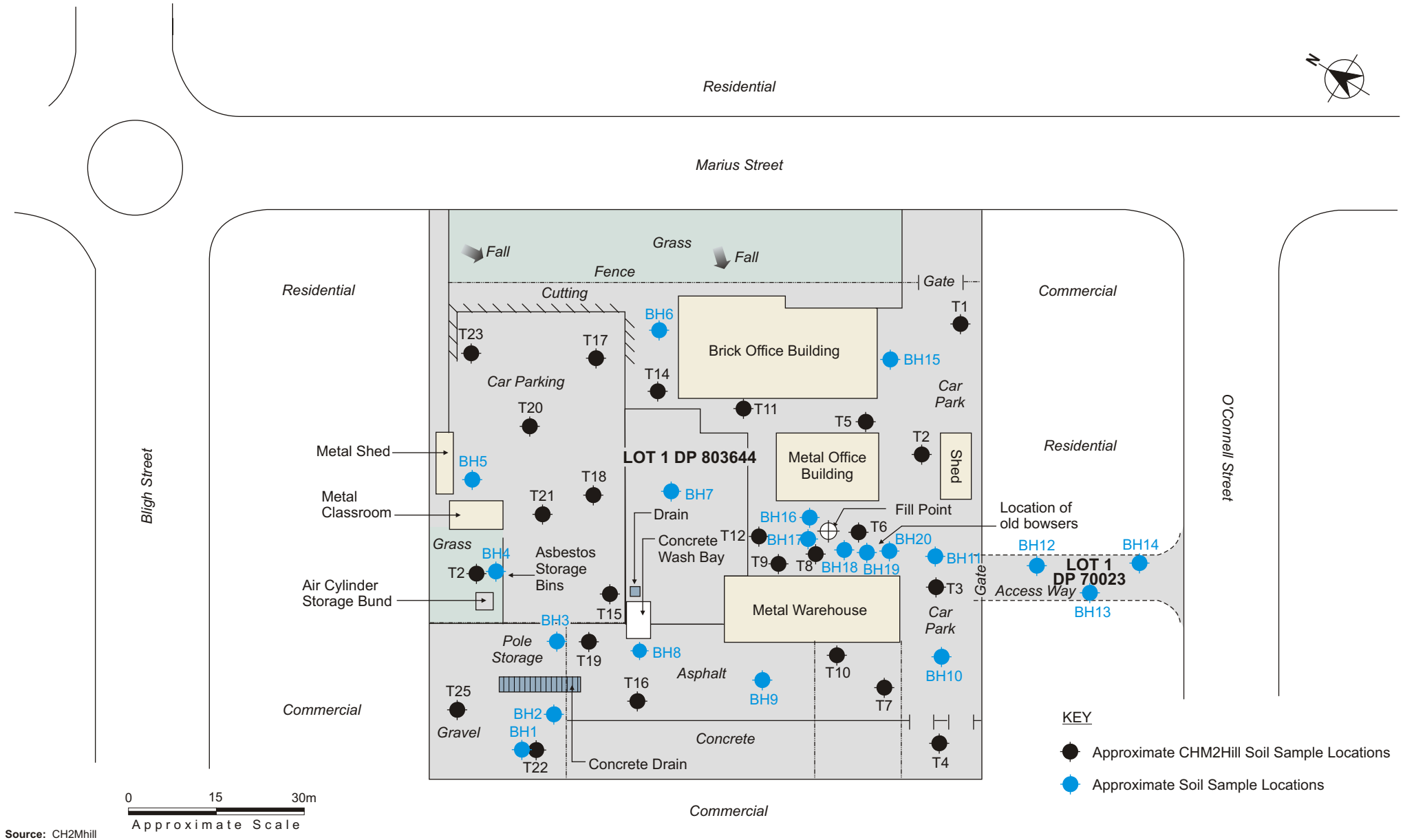
Soil Sample Locations

scale | as shown | date | 24 May 2007

job no | 22-13035
file ref | 2213035_LTN_03.cdr

Figure 2

2/115 West High Street Coffs Harbour NSW 2450 **T** 61 2 6650 5600 **F** 61 2 6652 6021 **W** www.ghd.com.au



Source: CH2Mhill

GHD CLIENTS | PEOPLE | PERFORMANCE

Telstra Corporation Ltd
Phase 1 & 2 Contamination Assessment

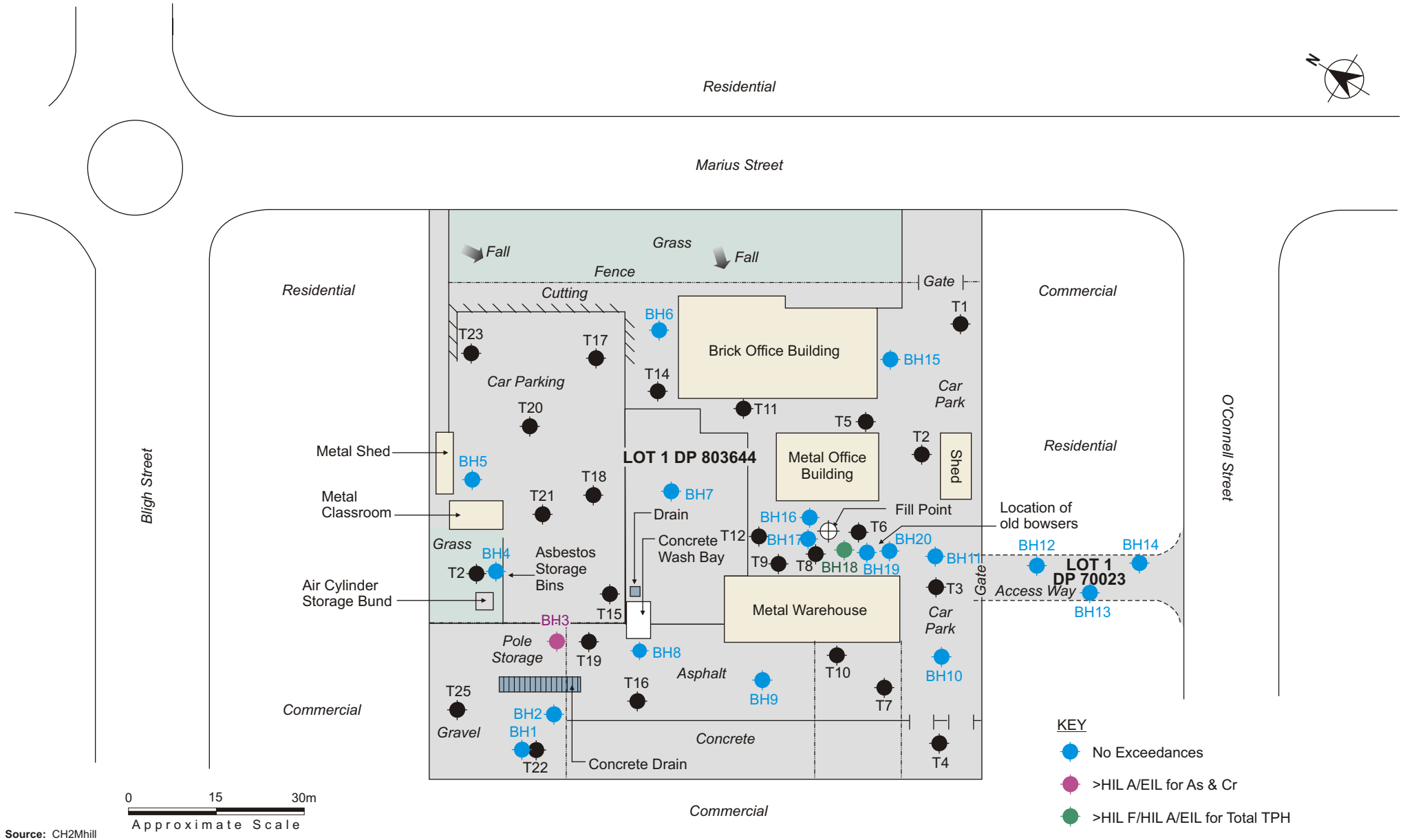
Soil Sample Locations

scale | as shown | date | 24 May 2007

job no | 22-13035
file ref | 2213035_LTN_04.cdr

Figure 3

2/115 West High Street Coffs Harbour NSW 2450 **T** 61 2 6650 5600 **F** 61 2 6652 6021 **W** www.ghd.com.au



Source: CH2Mhill

GHD CLIENTS | PEOPLE | PERFORMANCE

Telstra Corporation Ltd
Phase 1 & 2 Contamination Assessment

Soil Sample Results

scale | as shown | date | 24 May 2007

job no | 22-13035
file ref | 2213035_LTN_05.cdr

Figure 4

2/115 West High Street Coffs Harbour NSW 2450 **T** 61 2 6650 5600 **F** 61 2 6652 6021 **W** www.ghd.com.au

Appendix B

External Party Information

Groundwater Bore Search

Historical Title Search Results

NSW WorkCover Letters

Planning Certificates

Tamworth LEP Zoning

Date/Time :24-Oct-2006 12:23 PM
User :WDORRINGTON
Report :RMGW001D.QRP
Executable :S:\G5\PROD32\Ground.exe
Exe Date :30-Aug-2006
System :Groundwater
Database :Edbp

DEPARTMENT OF NATURAL RESOURCES
Work Summary

GW021787

Converted From HYDSYS

Licence :90BL013905
Licence Status Cancelled
Authorised Purpose(s) NOT KNOWN
Intended Purpose(s) ENG.INVEST.

Work Type : Bore
Work Status : Test Hole
Construct. Method : Cable Tool
Owner Type : Private

Commenced Date :
Completion Date :01-Jan-1963
Final Depth : 0.00
Drilled Depth : 10.70 m

Contractor Name :
Driller :
Assistant Driller's Name :

Property : - N/A
GWMA :005 - PEEL VALLEY
GW Zone :002 - PEEL CATCHMENT MISCELLANEOUS FR
Standing Water Level :
Salinity : (Unknown)
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	INGLIS	TAMWORTH	L2 (SEC 4)
Licensed :	INGLIS	TAMWORTH	N/A

Region :90 - BARWON
River Basin :419 - NAMOI RIVER
Area / District :
CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :(Unknown)
Northing :6558257.9
Easting :302457.4
Latitude (S) :31° 5' 34"
Longitude (E) :150° 55' 44"

GS Map :0033D1 **AMG Zone :**56
Coordinate Source :

Construction

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;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers

H	P	Component Type		From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Backfill	Backfill	0.00	10.70	0			

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
8.20	8.80	0.60	Unconsolidated						(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	1.22	1.22	Gravel Rubble	Gravel	
1.22	2.13	0.91	Clay Red Soft Tight	Clay	
2.13	3.87	1.74	Clay Red Tight Soft Seams	Clay	
3.87	7.32	3.45	Gravel Dry	Gravel	
3.87	7.32	3.45	Sand River	Sand	
7.32	8.23	0.91	Clay Fine Gravel	Clay	
8.23	8.84	0.61	Gravel Water Bearing	Gravel	
8.84	10.06	1.22	Clay Fine Gravel	Clay	
10.06	10.67	0.61	Shale Hard	Shale	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	01-Jan-1963		4.30				(Unknown)			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Remarks

LOT 4 SECTION 4 TAMWORTH

***** End of GW021787 *****

DEPARTMENT OF NATURAL RESOURCES
Work Summary

GW037801 *Converted From HYDSYS*

Licence :90BL100321
Licence Status Cancelled
Authorised Purpose(s) TEST BORE
Intended Purpose(s) G/WATER XPLORE

Work Type : Bore
Work Status : Test Hole
Construct. Method :(Unknown)
Owner Type : Local Govt

Commenced Date : **Final Depth :** 0.00
Completion Date :01-Nov-1974 **Drilled Depth :** 12.80 m

Contractor Name :
Driller :
Assistant Driller's Name :

Property : - N/A
GWMA :005 - PEEL VALLEY
GW Zone : -
Standing Water Level :
Salinity : (Unknown)
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	PARRY	CALALA	L25 (AACO 25)
Licensed :	PARRY	CALALA	23

Region :90 - BARWON
River Basin :419 - NAMOI RIVER
Area / District :
CMA Map :
Grid Zone : **Scale :**

Elevation :
Elevation Source :(Unknown)
Northing :6558856.5 **Latitude (S) :**31° 5' 14"
Easting :301804.6 **Longitude (E) :**150° 55' 20"

GS Map :0033D1 **AMG Zone :**56 **Coordinate Source :**GD.,PR. MAP

Construction

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;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers

H	P	Component Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Backfill Backfill	0.00	12.80	0			

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)

(No Water Bearing Zone Details Found)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	0.60	0.60	Soil	Soil	
0.60	2.13	1.53	Clay Sandy	Clay	
2.13	5.18	3.05	Clay Some Gravel	Clay	
5.18	5.48	0.30	Gravel Dry	Gravel	
5.48	6.09	0.61	Clay Stones	Clay	
6.09	7.01	0.92	Clay Gravel	Clay	
7.01	7.31	0.30	Wood Black	Wood	
7.31	12.19	4.88	Boulders Large	Boulders	
7.31	12.19	4.88	Silt Grey	Silt	
12.19	12.80	0.61	Shale	Shale	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	01-Nov-1974				3.79		(Unknown)			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Remarks

FARM 25 TAMWORTH FLATS SECTION

***** End of GW037801 *****

DEPARTMENT OF NATURAL RESOURCES
Work Summary

GW037810 *Converted From HYDSYS*

Licence :90BL100320
Licence Status Cancelled
Work Type : Bore
Work Status : Test Hole
Construct. Method :(Unknown)
Owner Type : Local Govt
Authorised Purpose(s) TEST BORE
Intended Purpose(s) G/WATER XPLORE

Commenced Date :
Completion Date :01-Oct-1974
Final Depth : 0.00
Drilled Depth : 14.00 m

Contractor Name :
Driller :
Assistant Driller's Name :

Property : - N/A
GWMA : -
GW Zone : -
Standing Water Level :
Salinity : Good
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
	Form A :PARRY	CALALA	L23 (AACO 23)
	Licensed :PARRY	CALALA	23

Region :90 - BARWON
River Basin :419 - NAMOI RIVER
Area / District :
CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :(Unknown)
Northing :6558541.8
Easting :301828.3
Latitude (S) :31° 5' 24"
Longitude (E) :150° 55' 21"

GS Map :0033D1 **AMG Zone :**56
Coordinate Source :GD.,PR. MAP

Construction

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;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Backfill	Backfill	0.00	14.00	0			
1	1	Casing	Threaded Steel	-0.60	5.90	203			(Unknown)
1	1	Opening	Screen	5.90	6.50	203		1	Johnson; SL: 0mm; A: 3.81mm
1	1	Opening	Screen	6.50	8.90	203		2	Johnson; SL: 0mm; A: 5.08mm
1	1	Annulus	(Unknown)	0.00	9.70	355			(Unknown); GS: .1mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
4.50	8.90	4.40	Unconsolidated	4.20		8.73			Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	3.04	3.04	Clay Dark Brown	Clay	
3.04	4.57	1.53	Clay Light Brown	Clay	
4.57	5.48	0.91	Sand Clay Water Supply	Sand	
5.48	6.09	0.61	Sand Fine Water Supply	Sand	
6.09	7.01	0.92	Sand Coarse Water Supply	Sand	
7.01	9.75	2.74	Gravel Large Water Supply	Gravel	
9.75	12.19	2.44	Clay	Clay	
9.75	12.19	2.44	Boulders Large Basalt	Boulders	
12.19	14.02	1.83	Shale	Shale	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	01-Jan-1974	12.00	4.20	7.90	8.73	7.00	Turbine Pump, shaft d			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Remarks

BORE UNSATY.CASING AND SCN WDRN FARM 23 TAMWORTH FLATS SECTION

***** End of GW037810 *****

DEPARTMENT OF NATURAL RESOURCES
Work Summary

GW037811 *Converted From HYDSYS*

Licence : 90BL100318
Licence Status Active
Authorised Purpose(s) RECREATION (GROUNDWATER)
Intended Purpose(s) IRRIGATION

Work Type : Bore
Work Status : (Unknown)
Construct. Method : (Unknown)
Owner Type : Local Govt

Commenced Date :
Completion Date : 01-Oct-1974
Final Depth : 13.40 m
Drilled Depth : 13.40 m

Contractor Name :
Driller :
Assistant Driller's Name :

Property : - N/A
GWMA : 005 - PEEL VALLEY
GW Zone : 001 - PEEL ALLUVIUM
Standing Water Level :
Salinity : Good
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	PARRY	CALALA	L23 (AACO 23)
Licensed :	PARRY	CALALA	23 975280

Region : 90 - BARWON
River Basin : 419 - NAMOI RIVER
Area / District :
CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source : (Unknown)
Northing : 6558562.4
Easting : 301904.4
Latitude (S) : 31° 5' 24"
Longitude (E) : 150° 55' 24"

GS Map : 0033D1
AMG Zone : 56
Coordinate Source : GD.,PR. MAP

Construction

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;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	Threaded Steel	-0.40	6.60	203			(Unknown)
1	1	Opening	Screen	6.50	7.40	203		1	Johnson; SL: 0mm; A: 3.81mm
1	1	Opening	Screen	7.40	8.90	203		2	Johnson; SL: 0mm; A: 5.08mm
1	1	Annulus	(Unknown)	0.00	9.40	355			(Unknown); GS: .1mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
5.00	8.90	3.90	Unconsolidated	3.90		13.64			Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	0.60	0.60	Soil	Soil	
0.60	3.04	2.44	Clay Dark Brown	Clay	
3.04	4.87	1.83	Clay Light Brown	Clay	
4.87	6.09	1.22	Clay Sandy Water Supply	Clay	
6.09	6.71	0.62	Sand Coarse Water Supply	Sand	
6.71	9.44	2.73	Gravel Large Water Supply	Gravel	
9.44	12.19	2.75	Clay	Clay	
9.44	12.19	2.75	Boulders Basalt	Boulders	
12.19	13.41	1.22	Shale	Shale	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	01-Jan-1974	12.00	3.90	7.00	13.64	7.00	Turbine Pump, shaft d			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Remarks

LOW CARBON GALVANISED STEEL AT TEST BORE V100319 (CONVERTED) FARM 23 TAMWORTH FLATS SECTION

***** End of GW037811 *****

DEPARTMENT OF NATURAL RESOURCES
Work Summary

GW037866 *Converted From HYDSYS*

Licence :90BL100317
Licence Status Active
Authorised Purpose(s) RECREATION (GROUNDWATER)
Intended Purpose(s) IRRIGATION

Work Type : Bore
Work Status :(Unknown)
Construct. Method :(Unknown)
Owner Type : Local Govt

Commenced Date :
Completion Date :01-Nov-1974
Final Depth : 14.00 m
Drilled Depth : 14.00 m

Contractor Name :
Driller :
Assistant Driller's Name :

Property : - N/A
GWMA :005 - PEEL VALLEY
GW Zone :001 - PEEL ALLUVIUM
Standing Water Level :
Salinity : (Unknown)
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
	Form A :PARRY	CALALA	AACO 26
	Licensed :PARRY	CALALA	26 975280

Region :90 - BARWON
River Basin :419 - NAMOI RIVER
Area / District :
CMA Map :9035-1N TAMWORTH
Grid Zone :56/1
Scale :1:25,000

Elevation :
Elevation Source :(Unknown)
Northing :6558921
Easting :301545
Latitude (S) :31° 5' 12"
Longitude (E) :150° 55' 13"

GS Map :0033D1 **AMG Zone :**56
Coordinate Source :GD.,PR. MAP

Construction

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;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	Threaded Steel	-0.30	5.70	203			(Unknown)
1	1	Casing	Threaded Steel	8.80	9.10	203			Seated on Bottom
1	1	Casing	Drilled	9.10	13.90	152			(Unknown)
1	1	Opening	Screen	5.70	8.70	203		1	Johnson; SL: 0mm; A: 0mm
1	1	Annulus	(Unknown)	0.00	10.30	355			(Unknown)

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
4.20	8.40	4.20	Unconsolidated	3.80		8.73			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	0.60	0.60	Topsoil	Topsoil	
0.60	0.91	0.31	Sand	Sand	
0.91	4.26	3.35	Clay	Clay	
0.91	4.26	3.35	Gravel Some Small	Gravel	
4.26	5.18	0.92	Gravel Large Dirty Water Supply	Gravel	
5.18	8.53	3.35	Gravel Large Water Supply	Gravel	
5.18	8.53	3.35	Boulders Some	Boulders	
8.53	10.36	1.83	Boulders	Boulders	
10.36	12.49	2.13	Boulders Very Large	Boulders	
12.49	14.02	1.53	Shale Yellow	Shale	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	01-Nov-1974	12.00	3.80	7.10	8.73	8.00	Turbine Pump, shaft d			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Remarks

LOW CARBON GAVANISED STEEL AT TEST BORE V100322 (CONVERTED) FARM 26 TAMWORTH FLATS SECTION

***** End of GW037866 *****

DEPARTMENT OF NATURAL RESOURCES
Work Summary

GW037867 *Converted From HYDSYS*

Licence : 90BL100328
Licence Status Active
Authorised Purpose(s) RECREATION (GROUNDWATER)
Intended Purpose(s) IRRIGATION

Work Type : Bore
Work Status : (Unknown)
Construct. Method : (Unknown)
Owner Type : Local Govt

Commenced Date :
Completion Date : 01-Oct-1974
Final Depth : 15.50 m
Drilled Depth : 15.50 m

Contractor Name :
Driller :
Assistant Driller's Name :

Property : - N/A
GWMA : 005 - PEEL VALLEY
GW Zone : -
Standing Water Level :
Salinity : Good
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
Form A :	INGLIS	TAMWORTH	SEC 68
Licensed :	INGLIS	TAMWORTH	0 758951

Region : 90 - BARWON
River Basin : 419 - NAMOI RIVER
Area / District :
CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source : (Unknown)
Northing : 6559075.1
Easting : 301887.2
Latitude (S) : 31° 5' 7"
Longitude (E) : 150° 55' 23"

GS Map : 0033D1
AMG Zone : 56
Coordinate Source : GD.,PR. MAP

Construction

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;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	Threaded Steel	0.30	5.70	203			(Unknown)
1	1	Opening	Screen	5.10	8.10	203		1	Johnson; SL: 0mm; A: 5.08mm
1	1	Annulus	(Unknown)	0.00	8.20	355			(Unknown); GS: .1mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
5.10	8.10	3.00	Unconsolidated	3.60		12.12			Good

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	2.74	2.74	Clay	Clay	
2.74	3.35	0.61	Clay Sandy	Clay	
3.35	5.18	1.83	Clay Dark Brown	Clay	
3.35	5.18	1.83	Some Stoney		
5.18	6.09	0.91	Sand Gravel Water Supply	Sand	
6.09	8.53	2.44	Sand Coarse Water Supply	Sand	
6.09	8.53	2.44	Gravel	Gravel	
6.09	8.53	2.44	Stones Some Large	Stones	
8.53	12.49	3.96	Clay	Clay	
8.53	12.49	3.96	Boulders Large Basalt	Boulders	
12.49	14.93	2.44	Shale Soft	Shale	
14.93	15.54	0.61	Slate	Slate	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	01-Jan-1974	12.00	3.60	6.60	12.12	7.00	Turbine Pump, shaft d			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Remarks

LOW CARBON GALVANISED STEEL SITED NTH OF RLWY ADJ MAJOR BEND AT TEST BORE V100328 (CONVERTED)

***** End of GW037867 *****

DEPARTMENT OF NATURAL RESOURCES
Work Summary

GW052834 *Converted From HYDSYS*

Licence :90BL115058
Licence Status Active
Work Type : Bore
Work Status :(Unknown)
Construct. Method : Cable Tool
Owner Type : Private
Authorised Purpose(s) IRRIGATION
Intended Purpose(s) GENERAL USE

Commenced Date : **Final Depth :** 34.50 m
Completion Date :01-Aug-1980 **Drilled Depth :** 34.50 m

Contractor Name :
Driller :1429 FRANCIS, David William
Assistant Driller's Name :

Property : - N/A
GWMA :005 - PEEL VALLEY
GW Zone : -
Standing Water Level :
Salinity : 7001-10000 ppm
Yield :

Site Details

Site Chosen By

	County	Parish	Portion/Lot DP
	Form A :INGLIS	TAMWORTH	395
	Licensed :INGLIS	TAMWORTH	395 753848

Region :90 - BARWON
River Basin :419 - NAMOI RIVER
Area / District :
CMA Map :9035-1N TAMWORTH
Grid Zone :56/1 **Scale :**1:25,000

Elevation :
Elevation Source :(Unknown)
Northing :6560050 **Latitude (S) :**31° 4' 35"
Easting :301725 **Longitude (E) :**150° 55' 18"

GS Map :0033D1 **AMG Zone :**56 **Coordinate Source :**GD.,ACC.MAP

Construction

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;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	Corrugated Galvenised Iron	-0.40	22.50	160			Driven into Hole
1	1	Casing	P.V.C.	22.50	34.50	125			Seated on Bottom
1	1	Opening	Slots - Horizontal	29.50	34.00	125		1	Mechanically Slotted; SL: 0mm; A: 2mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
24.50	34.00	9.50	Fractured	17.00		1.25			(Unknown)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	0.60	0.60	Topsoil	Topsoil	
0.60	7.50	6.90	Clay Sandy	Clay	
7.50	22.00	14.50	Clay Some Shale	Clay	
22.00	34.00	12.00	Shale Water Supply	Shale	
34.00	34.50	0.50	Basalt Black	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	07-Aug-1980		17.00	28.00	1.25		Bailer			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Remarks

***** End of GW052834 *****

DEPARTMENT OF NATURAL RESOURCES
Work Summary

GW057928 *Converted From HYDSYS*

Licence : 90BL125593
Licence Status Active
Authorised Purpose(s) INDUSTRIAL (LOW SECURITY); IRRIGATION
Intended Purpose(s) GENERAL USE

Work Type : Bore
Work Status : (Unknown)
Construct. Method : Rotary Air
Owner Type : Private

Commenced Date :
Completion Date : 01-Mar-1983
Final Depth : 38.00 m
Drilled Depth : 38.00 m

Contractor Name :
Driller : 1547 MANNION, Leonard George
Assistant Driller's Name :

Property : - N/A
GWMA : 005 - PEEL VALLEY
GW Zone : -
Standing Water Level :
Salinity : 1001-3000 ppm
Yield :

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A : INGLIS	TAMWORTH	99
	Licensed : INGLIS	TAMWORTH	99 753848

Region : 90 - BARWON
River Basin : 419 - NAMOI RIVER
Area / District :
CMA Map : 9035-1N TAMWORTH
Grid Zone : 56/1
Scale : 1:25,000

Elevation :
Elevation Source : (Unknown)
Northing : 6560065
Easting : 301910
Latitude (S) : 31° 4' 35"
Longitude (E) : 150° 55' 25"

GS Map : 0033D1 **AMG Zone :** 56
Coordinate Source : GD.,ACC.MAP

Construction

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;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	Threaded Steel	0.00	27.40	150			Driven into Hole
1	1	Opening	Slots - Vertical	25.00	27.40	150		1	Oxy-Acetylene Slotted; SL: 0mm; A: 5mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
26.20	26.50	0.30	Fractured	15.20		1.25			1001-3000 ppm

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	1.00	1.00	Soil	Soil	
1.00	18.60	17.60	Shale Yellow	Shale	
18.60	26.20	7.60	Shale Hard	Shale	
26.20	26.50	0.30	Basalt Water Supply	Basalt	
26.50	38.00	11.50	Basalt Hard	Basalt	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By
Single-Rate Pumping Test	30-Mar-1983	6.00	15.20	25.90	1.25	35.00	Turbine Pump, Subme			

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Remarks

***** End of GW057928 *****

DEPARTMENT OF NATURAL RESOURCES
Work Summary

GW902407

Licence : 90BL150073
Licence Status Active
Work Type : Bore
Work Status : (Unknown)
Construct. Method : Rotary
Owner Type : Private

Authorised Purpose(s)	Intended Purpose(s)
DOMESTIC	DOMESTIC

Commenced Date :
Completion Date :
Final Depth :
Drilled Depth : 36.30 m

Contractor Name : Unknown UNKNOWN
Driller :
Assistant Driller's Name :

Property : - N/A
GWMA : -
GW Zone : -
Standing Water Level :
Salinity : (Unknown)
Yield :

Site Details

Site Chosen By

County	Parish	Portion/Lot DP
Form A : INGLIS	TAMWORTH	LT7 DP5057
Licensed : INGLIS	TAMWORTH	7 5057

Region : 90 - BARWON
River Basin :
Area / District :
CMA Map :
Grid Zone :
Scale :

Elevation : 0.00
Elevation Source : (Unknown)
Northing : 6559969
Easting : 301578
Latitude (S) : 31° 4' 38"
Longitude (E) : 150° 55' 15"

GS Map :
AMG Zone : 56
Coordinate Source :

Construction

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;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	42.70				Rotary
1	1	Casing	P.V.C.	0.00	5.48	150			
1	1	Casing	Steel	5.48	42.70				

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)

(No Water Bearing Zone Details Found)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments
0.00	15.20	15.20			
15.20	18.30	3.10	Shale - water at 17.7	Shale	
18.30	36.30	18.00	Hard rock - some water	Hard Bands	

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Remarks

Form A Remarks:
Only Pump periodically during summer and winter. Demo purpose only.

***** End of GW902407 *****

DEPARTMENT OF NATURAL RESOURCES
Work Summary

GW965054

Licence : 90BL250216
Licence Status Active
Work Type : Bore
Work Status : (Unknown)
Construct. Method : (Unknown)
Owner Type :
Authorised Purpose(s) DOMESTIC
Intended Purpose(s) INDUSTRIAL

Commenced Date :
Completion Date : 01-May-1995
Final Depth : 22.86 m
Drilled Depth :

Contractor Name :
Driller : eacott, g
Assistant Driller's Name :

Property : - LOT 2 DP 519841
GWMA : -
GW Zone : -
Standing Water Level : 13.70 m
Salinity :
Yield :

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A :		
	Licensed : INGLIS	TAMWORTH	2 519841

Region : 90 - BARWON
River Basin :
Area / District :
CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :
Northing : 6559868
Easting : 301970
Latitude (S) : 31° 4' 41"
Longitude (E) : 150° 55' 27"

GS Map :
AMG Zone : 56
Coordinate Source :

Construction

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;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	22.86	152			(Unknown)
1	1	Casing	PVC Class 6	0.00	22.86	152			

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)

(No Water Bearing Zone Details Found)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

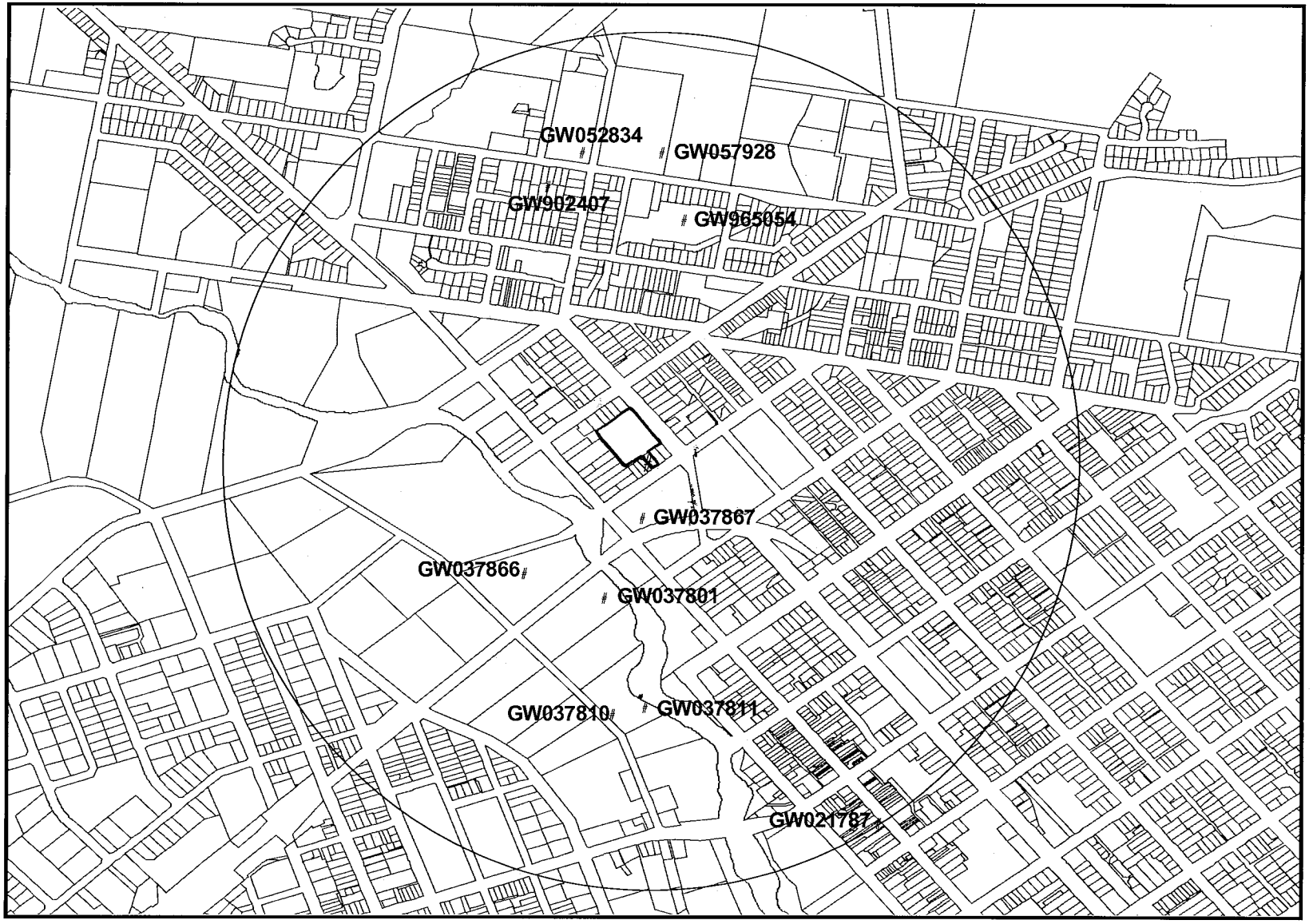
(No Pumping Test Reading Details Found)

Remarks

***** End of GW965054 *****

***** End of Report *****

GROUNDWATER BORE SEARCH



N

NSW Government
DEPARTMENT OF NATURAL RESOURCES

FILE REF: BAGDS0506064
Client: GHD Pty Ltd
Contact Name: Adam Playne
Bores within 1km of Lot 1 DP70023
Date of Search: 24/10/2006
By: Will Dorrington

Search Centre
\# Groundwater Bore
Cadastre
1km Radius

200 0 200 400 600 Metres

Disclaimer:
Data has been extracted from digitised field information held in the Barwon Region GIS, by the Department of Natural Resources (DNR). The State of New South Wales and the Department of Natural Resources and it's employees, officers, agents or servants are not responsible for the result of any actions taken on the basis of the information, or for any errors, omissions or inaccuracies contained in this map.
Base Data supplied from Department of Lands, Land & Property Division, Panorama Ave. Bathurst. N.S.W. 2795.

Data depicted here is the most up to date held by DNR in their Groundwater database, at the time of printing

P:\GISGUNRC\workgroups\DIM\GDS_requests\BAGDS0506064.apr

ADVANCE LEGAL SEARCH PTY LIMITED

(ACN 077 067 068)
ABN 49 077 067 068

PO Box 149
Yagoona NSW 2199

Telephone: +612 9754 1590
Mobile: 0412 169 809
Facsimile: +612 9754 1364
Email: alsearch@optusnet.com.au

24 October 2006

GHD Pty Ltd
Level 1, Coal Services Building,
1 Civic Ave,
SINGLETON NSW 2330

Attention: Adam Playne

RE: **83 – 89 Marius Street, Tamworth**

Note 1: **Folio Identifier 1/70023**
Note 2: **Folio Identifier 1/803644**

Note 1:

Current Search

Folio Identifier 1/70023 (title attached)
DP 70023 (plan attached)
Dated 17 October 2006
Registered Proprietor:
TELSTRA CORPORATION LIMITED

Title Tree
Lot 1 DP 70023

Folio Identifier 1/70023

Certificate of Title Volume 13232 Folio 39

Certificate of Title Volume 2617 Folio 244

P A 20023

Conveyance BK 1056 No. 113

Conveyance BK 1051 No. 874

*****

Summary of Proprietor(s)
Lot 1 DP 70023

Year	Proprietor
	(Lot 1 DP 70023)
2002 – todate	Telstra Corporation Limited
1988 – 2002	Australian Telecommunications Commission
	(Lot 1 DP 70023 being part Allotments 1 & 2 Section 29 Parish Tamworth- CT Vol 13232 Fol 39)
1987 – 1988	Australian telecommunications Commission
1977 – 1987	Desmond Laurie Keech, estate agent
	(Part Allotments 1 & 2 section 29 Parish Tamworth- Area 32 Perches- CT Vol 2617 Fol 244)
1976 – 1977	Desmond Laurie Keech, estate agent
1974 – 1976	Arthur Colin Maunder, retired Desmond Laurie Keech, estate agent
1974 – 1974	Public Trustee
1952 – 1974	Minnie Maud Burden, married woman
1944 – 1952	Thomas Marker, farmer
1934 – 1944	Lilian Margaret Hinds, wife of labourer
1930 – 1934	George Robert Patterson, contractor
1915 – 1930	John Patterson, contractor
	(Part Allotments 1 & 2 Section 29 Town of Tamworth- Area 32 Perches)
1915 – 1915	John Patterson, road contractor
1915 – 1915	Ida Woolcock, wife of plumber
1900 – 1915	Alexander John Johnston, trustee (auctioneer) Annie Woolcock, (estate)

*****

Note 2:

Current Search

Folio Identifier 1/803644 (title attached)
DP 803644 (plan attached)
Dated 17 October 2006
Registered Proprietor:
TELSTRA CORPORATION LIMITED

Title Tree
Lot 1 DP 803644

Folio Identifier 1/803644

P A 62020

Conveyance BK 2227 No. 770

Conveyance BK 2200 No. 690

Conveyance BK 1821 No. 680

Conveyance BK 1752 No. 70

Conveyance BK 788 No. 495

*****

Summary of Proprietor(s)
Lot 1 DP 803644

Year	Proprietor
	(Lot 1 DP 803644)
2001 – todae	Telstra Corporation Limited
1990 – 2001	Australian & Overseas Telecommunications Corporation Limited
	(Lots 3 to 8 Section 29 Town of Tamworth- Area 3 Acres)
1952 – 1990	The Commonwealth of Australia
1951 – 1952	The Council of the City of Tamworth
1950 – 1951	Susan Mary Maguire, widow
1938 – 1950	William Richard Burns, trustee Thomas Dominic Mangon, trustee William Thomas Power, trustee (trust for the central northern rugby football league)
1936 – 1938	Joseph Charles Maguire, trustee/publican William Richard Burns, trustee/saddler Thomas Dominic Mangon, trustee/ironmonger (trust for the central northern rugby football league)
1905 – 1936	Hope Fielder, farmer
1882 – 1905	George Judah Cohen, merchant (trustee) Benjamin Wolfe Levy, merchant (trustee)
1854 – 1882	Lewis Wolfe Levy, esquire (grantee)

*****

Department of Lands
Reliable from the ground up

Cadastral Records Enquiry Report

Ref : Box 97 - Tamworth

Requested Parcel : Lot 1 DP 803644

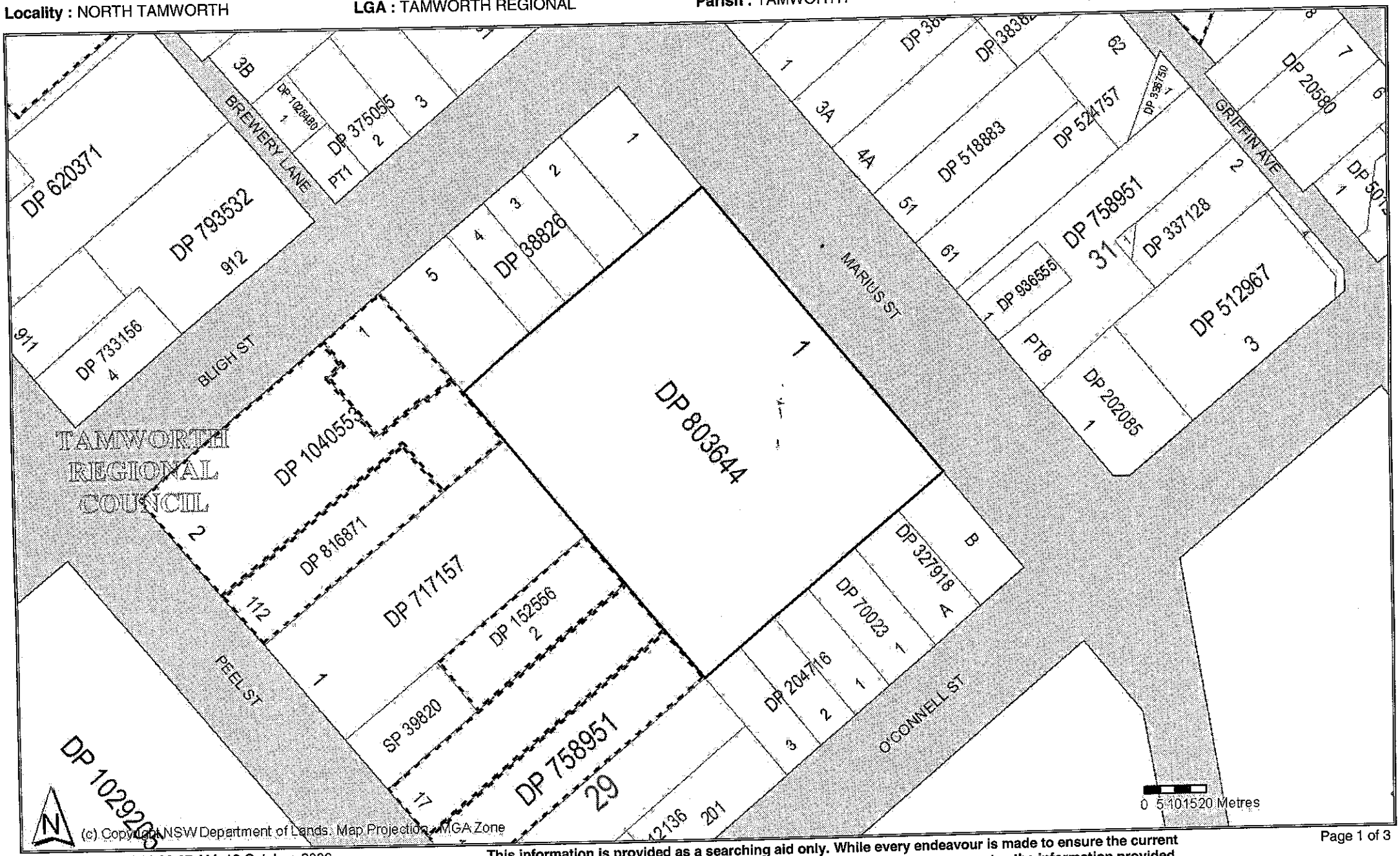
Identified Parcel : Lot 1 DP 803644

Locality : NORTH TAMWORTH

LGA : TAMWORTH REGIONAL

Parish : TAMWORTH

County : INGLIS



Report Generated 11:33:07 AM, 19 October, 2006

Information Provided Through
Advance Legal Search Pty Ltd
Ph. 0297541590 *Fax.* 0297541364

Historical Search

EziSearch
An Approved LPI *NSW*
Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
17/10/2006 1:15PM

FOLIO: 1/803644

First Title(s): OLD SYSTEM
Prior Title(s): PA62020

Recorded	Number	Type of Instrument	C.T. Issue
14/11/1990	PA62020	PRIMARY APPLICATION	FOLIO CREATED EDITION 1
20/11/1992	E917127	TRANSFER	EDITION 2
5/4/2001	7525950	CHANGE OF NAME	EDITION 3

*** END OF SEARCH ***

GHD - Tamworth ALSP PRINTED ON 17/10/2006

Information Provided Through
Advance Legal Search Pty Ltd
Ph. 0297541590 *Fax.* 0297541364

Title Search

EziSearch
An Approved LPI *NSW*
Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 1/803644

SEARCH DATE	TIME	EDITION NO	DATE
17/10/2006	1:13 PM	3	5/4/2001

LAND

LOT 1 IN DEPOSITED PLAN 803644
AT TAMWORTH
LOCAL GOVERNMENT AREA: TAMWORTH REGIONAL
PARISH OF TAMWORTH COUNTY OF INGLIS
TITLE DIAGRAM: DP803644

FIRST SCHEDULE

TELSTRA CORPORATION LIMITED (CN 7525950)

SECOND SCHEDULE (0 NOTIFICATIONS)

NIL

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

GHD - Tamworth ALSP PRINTED ON 17/10/2006

B97
/Req: B226866
/Doc: CT 13232-039
/Prt: 18-Oct-2006

CERTIFICATE OF TITLE

REAL PROPERTY ACT, 1900

Vol. 13232 Fol. 39

Vol. 175 Fol. 3

Prior Title Vol. 2617 Fol. 244

EDITION ISSUED

14 1 1977

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

CANCELLED

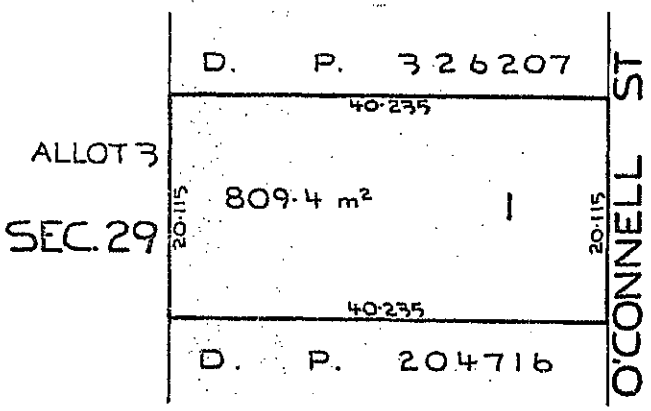
Registrar General

SEE AUTO FOLIO

(Page 1) Vol. 13232 Fol. 39

PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES



P993717 SM

REDUCTION RATIO 1:500

S

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 1 in Deposited Plan 70023 in the City of Tamworth Parish of Tamworth and County of Inglis being part of Allotments 1 and 2 of Section 29 separately granted to William Gordon Brereton on 11-5-1854. EXCEPTING THEREOUT all mines of coal reserved by the Crown Grant.

FIRST SCHEDULE

~~DESMOND LAURIE KEECH of Tamworth, Estate Agent.~~

SECOND SCHEDULE

GRH 1. Reservations and conditions, if any, contained in the Crown Grants above referred to.

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

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE REGISTRAR GENERAL'S OFFICE

RG 2/64

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

Vol. 13232 Fol. 39

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	REGISTERED	Signature of Registrar General
Australian Telecommunications Commission by Transfer W936037 Registered 25-6-1987				
CANCELLED				
SEE AUTO FOLIO				

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	PARTICULARS	REGISTERED	Signature of Registrar General	CANCELLATION	

(Page 2 of 2 pages)

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

Information Provided Through
Advance Legal Search Pty Ltd
Ph. 0297541590 *Fax.* 0297541364

Historical Search

EziSearch
An Approved LPI *NSW*
Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
17/10/2006 1:15PM

FOLIO: 1/70023

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 13232 FOL 39

Recorded	Number	Type of Instrument	C.T. Issue
21/8/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
18/11/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
19/2/2002	8367053	CHANGE OF NAME	EDITION 1

*** END OF SEARCH ***

GHD - Tamworth ALSP PRINTED ON 17/10/2006

Information Provided Through
Advance Legal Search Pty Ltd
Ph. 0297541590 *Fax.* 0297541364

Title Search

EziSearch
An Approved LPI *NSW*
Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 1/70023

SEARCH DATE	TIME	EDITION NO	DATE
17/10/2006	1:12 PM	1	19/2/2002

LAND

LOT 1 IN DEPOSITED PLAN 70023
LOCAL GOVERNMENT AREA: TAMWORTH REGIONAL
PARISH OF TAMWORTH COUNTY OF INGLIS
TITLE DIAGRAM: DP70023

FIRST SCHEDULE

TELSTRA CORPORATION LIMITED (CN 8367053)

SECOND SCHEDULE (1 NOTIFICATION)

1. RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

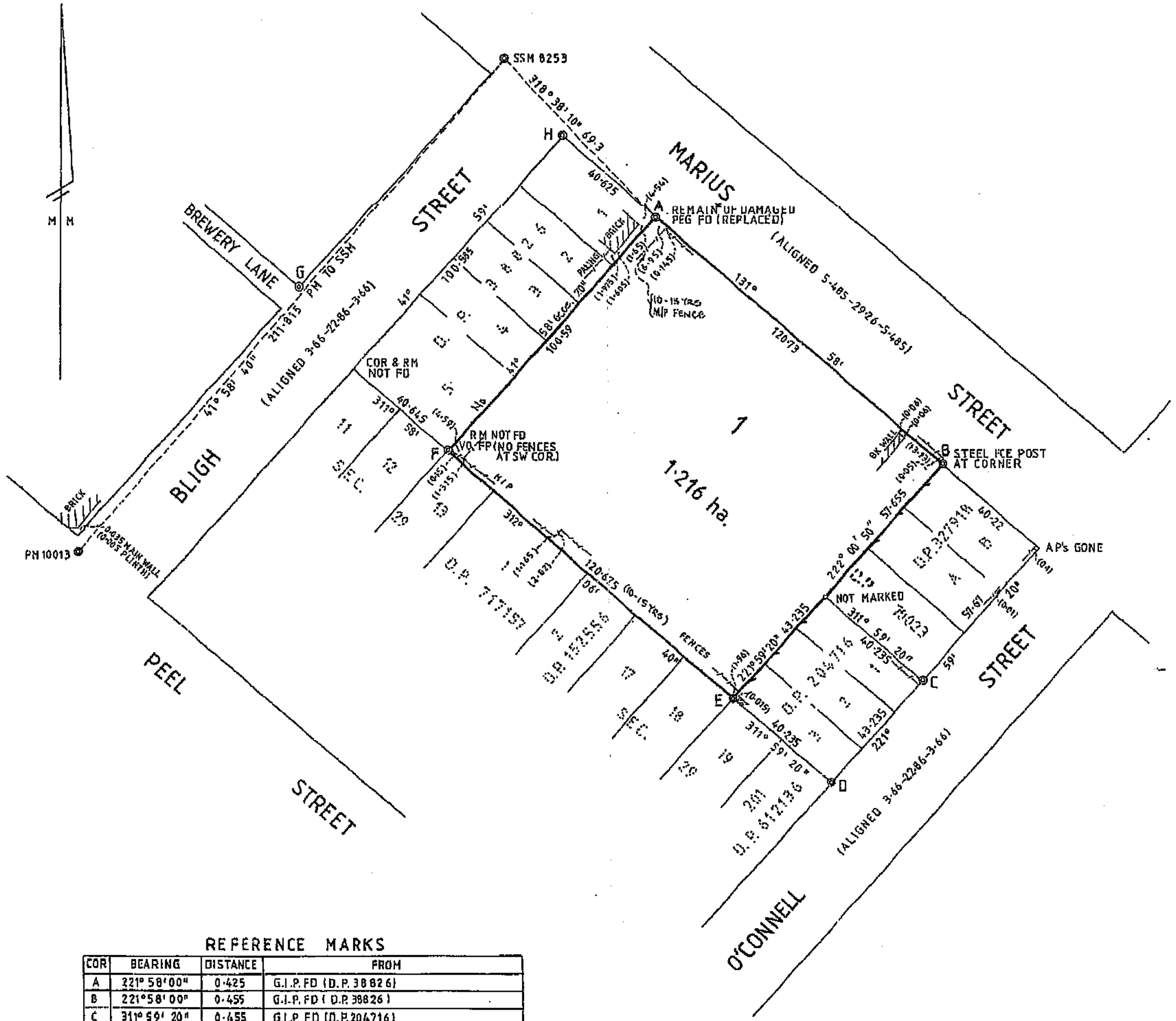
GHD - Tamworth ALSP PRINTED ON 17/10/2006

PLAN FORM 2

Plan Drawing only to appear in this space

*OFFICE USE ONLY

SIGNATURE AND SEALS ONLY.



a. Shwright

SIGNED for and on behalf of THE COMMONWEALTH OF AUSTRALIA by a person holding, occupying or performing the duties of the office of Principal Legal Officer (Posn No. 1058), New South Wales, in the presence of:—

An Officer of the Attorney-General's Department.

Crown Lands Office Approval

PLAN APPROVED ....
Authorised Officer
Land District ....
Paper No. ....
Field Book .... pages ....

Council Clerk's Certificate

I hereby certify that—

(a) the requirements of the Local Government Act, 1919 (other than the requirements for the registration of plans), and

*(b) the requirements of section 348 of the † Metropolitan Water, Sewerage and Drainage Act, 1924, as amended. † Hunter District Water, Sewerage, and Drainage Act, 1938, as amended

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

Subdivision No. ....
Date ....
(Signature) ....
Council Clerk
Council File No. ....

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

SURVEYOR'S REFERENCE: 24855 CP

REFERENCE MARKS

COR	BEARING	DISTANCE	FROM
A	221° 58' 00"	0·425	G.I.P. FD (D.P. 38826)
B	221° 58' 00"	0·455	G.I.P. FD (D.P. 38826)
C	311° 59' 20"	0·455	G.I.P. FD (D.P. 204716)
D	311° 59' 20"	0·455	G.I.P. FD (D.P. 204716)
E	238° 42' 00"	0·055	WING AT COR. BK WALL
F	308° 43' 00"	9·09	G.I.N. IN TREE STUMP & ⩚
G	311° 59' 20"	0·455	G.I.P. FD 0·25 DEEP (D.P. 38826)
H	AT INTERSECTION		G.I.P. FD (D.P. 38826)

10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 Table of mm 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

DP 803644

Registered: MB 13·11·1990

C.A: ————

Title System: OLD SYSTEM

Purpose: P.A. 62020

Ref. Map: CMA T9152-121

Last Plan: ————

PLAN OF ALLOTMENTS 3 TO 8 INCL, SEC. 29, CITY OF TAMWORTH

Lengths are in metres. Reduction Ratio 1: 1000

86/194

Mun./Shire/City: TAMWORTH

Locality: TAMWORTH

Parish: TAMWORTH

County: INGLIS

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

I, DAVID CRAIG RADFORD of AUSLIG N.S.W. a surveyor registered under the Surveyors Act, 1929, as amended, hereby certify that the survey represented in this plan .... is accurate and has been made in accordance with the Survey Practice Regulations, 1933 and any special requirements of the Department of Lands, and was completed on

19-10-1989

Signature David Radford

Surveyor registered under Surveyors Act 1929, as amended.
Datum Line of Azimuth A – B
Insert date of survey.

F.BK. P3892

Plans used in preparation of survey/compilation.
DP 204716
DP 38826

PANEL FOR USE ONLY for statements of intention to dedicate public roads or to create public reserves, drainage reserves, easements or restrictions as to user.

AMENDMENTS MADE IN L.T.O AT SURVEYORS REQUEST.

C 1 H 1 O O N

AUSLIG N.S.W. AUSTRALIAN SURVEYING AND LAND INFORMATION GROUP (N.S.W.) NEG. NO. 24855 DEPARTMENT OF ADMINISTRATIVE SERVICES

Req:R736440 /Doc:DL 7525950 /Rev:10-Apr-2001 /Sts:NO.OK /Prt:17-Oct-2006 13:20 /Pgs:ALL /Seq:1 of 4
Ref:ALSP /Src:M

97-10CN
Licence: 10V/0167/95
Edition: 9804

CHANGE OF NAI

New South Wales
Real Property Act 1900

7525950Q

(A) **TORRENS TITLE** SEE ANNEXURE "A"

(B) **REGISTERED DEALING** If applicable

(C) **LODGED BY**

LTO Box	Name, Address or DX and Telephone	CODE
	CORRS CHAMBERS WESTGARTH DX 133 SYDNEY Reference (optional): 898S 3430693 ADS.	CN

(D) **REGISTERED PROPRIETOR** Whose name is to be changed; show the name as it currently appears on the Torrens Title

AUSTRALIAN AND OVERSEAS TELECOMMUNICATIONS CORPORATION LIMITED ABN 33 051 775 556

(E) **NEW NAME** Of the above registered proprietor in full

TELSTRA CORPORATION LIMITED ABN: 33 051 775 556

(F) ~~I,~~ The registered proprietor referred to above, ~~apply~~ applies to have ~~my new~~ its name recorded in the Register in respect of the above land/ ~~registered dealing~~.

(G) **STATUTORY DECLARATION BY THE APPLICANT** SEE ANNEXURE "B"

~~I [new name] ..... solemnly and sincerely declare that~~

1. I am identical with the registered proprietor referred to above;
2. on ..... at .....
   in the State of ..... I married ..... ;
3. .....

I make this solemn declaration conscientiously believing the same to be true and by virtue of the Oaths Act 1900, and I certify this application to be correct for the purposes of the Real Property Act 1900.

Made and subscribed at SYDNEY in the state of NSW
on 21 March 2001 in the presence of -

Signature of witness: JP 19880853

Name of witness: PETER A JOHNSTON

Address of witness: 10/25 BAY ROAD CHISWICK NSW 2046

Qualification of witness: JUSTICE OF THE PEACE IN NSW 3/4/01

Signature of applicant:

UNDER POWER OF ATTORNEY Book 3887 No 733.

All handwriting must be in block capitals.

Checked by (LTO use):

THIS IS THE ANNEXURE MARKED "A"
REFERRED TO IN THE CHANGE OF NAME FORM
DATED MARCH, 2001

Folio Identifier 1/635662
Folio Identifier 1/828885
Folio Identifier 372/809941
Folio Identifier 1/601585
Folio Identifier 1/601586
Folio Identifier 1/601580
Folio Identifier 1/601579
Folio Identifier 2/771325
Folio Identifier 44/815644
Folio Identifier 1/601320
Folio Identifier 1/811303
Folio Identifier 52/597849
Folio Identifier 1/601587
Folio Identifier 1/534984
Folio Identifier 1/621732
Folio Identifier 1/700955
Folio Identifier 3/815082
Folio Identifier 1/803644

18

THIS IS THE ANNEXURE MARKED "B"
REFERRED TO IN THE CHANGE OF NAME FORM
DATED MARCH, 2001

STATUTORY DECLARATION

I, STEVEN LENNARD SMITH of Level 17, 233 Castlereagh Street, Sydney in the State of New South Wales do hereby solemnly and sincerely declare:

1 I am the attorney, appointed under Power of Attorney Registered No. 733 Book 3887.

2 Telstra Corporation Limited is the registered proprietor of various properties in New South Wales set out in Annexure "A" ("**Properties**").

3 The registered proprietor recorded on each certificate of title to the Properties is the Australian and Overseas Telecommunications Corporation Limited.

4 Telstra Corporation Limited was formerly known as the Australian and Overseas Telecommunications Corporation Limited.

5 By virtue of section 6 of the *Telecommunications Amendment Act 1988* the Australian Telecommunications Commission was preserved and continued in existence under the name of the Australian Telecommunications Corporation.

6 By virtue of section 8 of the *Overseas Telecommunications Act 1946* the Overseas Telecommunications Commission (Australia) was created.

7 By virtue of the *OTC (Conversion into Public Company) Act 1988* the name of the Overseas Telecommunications Commission (Australia) was changed to OTC Limited.

8 By virtue of section 11 of the *Australian and Overseas Telecommunications Corporation Act 1991* the Australian Telecommunications Corporation and OTC Limited were succeeded at law by the Australian and Overseas Telecommunications Corporation Limited ("AOTC").

9 The *Transport and Communication Legislation Amendment Act 1994* amended the *Australian and Overseas Telecommunications Corporation Act 1991* and AOTC was renamed Telstra Corporation Limited. *The Australian and Overseas Telecommunications Corporation Act 1991* became the *Telstra Corporation Act 1991*.

AND I MAKE this solemn declaration conscientiously believing the same to be true and by virtue of the provisions of the Oaths Act 1900.

DECLARED at Sydney in the said)
State this 21st day of March)
2001)
Before me:)

.....

JP 1988048853

A Justice of the Peace/Solicitor
10/25 BAY RD
CHISWICK NSW 2046

Plan Form No5 (for Apps etc)

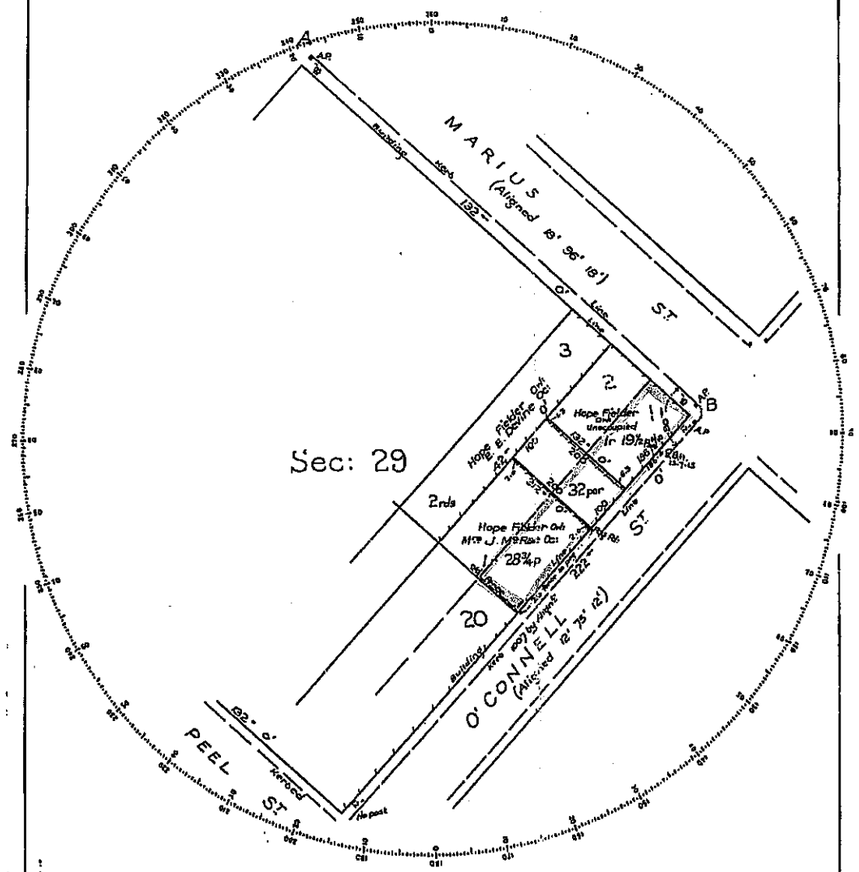
Municipality of Tamworth
Shire of

PLAN

R.P.A. 20023. of part of Allotments 1 & 2 of Section 29 TOWN OF TAMWORTH

Parish of Tamworth County of Inglis

Scale 2 Chains to an Inch



Re-declared before me at Tamworth
this 13th day of July A.D. 1915

I Edward Brace Henderson of Tamworth
Licensed Surveyor specially Licensed under the Real Property Act, do hereby solemnly and sincerely declare that the boundaries and measurements shown in this Plan are correct for the purposes of the said Act, and that the survey of the land to which the plan relates has been made* by me and I make this solemn declaration conscientiously believing the same to be true, and by virtue of the provisions of the Oaths Act 1900

Subscribed and declared before me at Tamworth
this 1st day of May A.D. 1915 J.P.

Edward B Henderson
Licensed Surveyor

Date of Survey 29th April 1915

Datum line of Azimuth A B

* Surveyed by me or under my immediate supervision as the

DP 70023

FEET	INCHES	METRES
12	-	3.658
18	-	5.486
75	-	22.860
96	-	29.261

LINKS	METRES
1.3	0.262
2	0.402
6.3	1.267
100	20.117
186.4	37.498
186.5	37.518
200	40.234
213	42.849

AC	RD	P	SQ M
-	-	32	809.4
-	1	19 1/2	1505
-	1	28 3/4	1739
-	2	-	2023

AMENDMENTS AND/OR ADDITIONS NOTED ON PLAN IN REGISTRAR GENERAL'S OFFICE

Table of mm

I, Bruce Richard Davies, Under Secretary for Lands and Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this day.

20th November, 1981

WorkCover
NEW SOUTH WALES

Our Ref: D07/043754
Your Ref: Ben Luffman

10 May 2007

Attention: Mr Ben Luffman
GHD
PO Box 1340
COFFS HARBOUR NSW 2450

Dear Ben

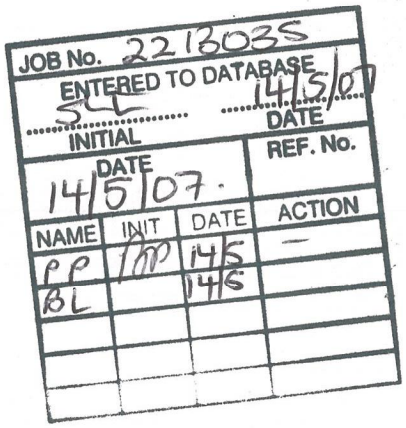
RE SITE: 83-89 Marius Street, Tamworth

I refer to your search request of 2 May 2007 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 has not located any records pertaining to the above-mentioned premises.

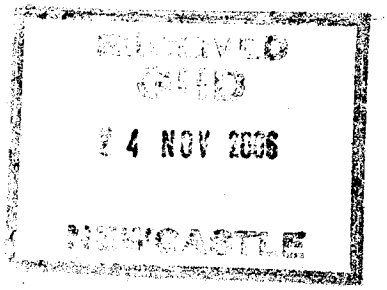
If you have any further queries, please contact Dangerous Goods Licensing staff on (02) 4321 5500.

Ian Gough
Team Leader
Dangerous Goods



WorkCover
NEW SOUTH WALES

Our Ref: D06/093816
Your Ref: Brett McLennan



21 November 2006

Attention: Mr Brett McLennan
GHD Pty Ltd
352 King St
NEWCASTLE NSW 2300

Dear Mr McLennan

RE SITE: 8 O'Connell St North Tamworth

I refer to your search request of 21 November 2006 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 has not located any records pertaining to the above-mentioned premises.

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

Deearne Smith
Senior Licensing Officer
Dangerous Goods

REGIONAL COUNCIL
Tamworth

ABN: 52 631 074 450

More than just a city. More than just one place

Certificate No: *PC0873/2007*
Receipt No: *216151*
Date: *13 November 2006*
Applicants Ref: *2213035*

PLANNING CERTIFICATE
ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

Applicant:

GHD Pty Ltd
Level 1,
Coal Services – Attention: Adam Plagne
1 Civic Avenue
SINGLETON NSW 2330

Owner (as recorded by Council):

Telstra Corporation Limited
Transfield Services
Locked Bag 12368
A'beckett Street Post Office
MELBOURNE VIC 8006

Land: PMS 03121 8 O'Connell Street NORTH TAMWORTH NSW 2340
Lot 1 Sec 29 DP 70023

This certificate is provided pursuant to Section 149(2) of the Act. At the date of this certificate, the subject land is affected by the following matters.

Zoning and land use under relevant LEPs

3(a) Business
Tamworth Local Environmental Plan 1996, as amended.
The Plan was gazetted on 4 April, 1996.

1. The extract from the relevant local environmental plan is the development control table for the zone. It sets out the zone objectives and development which is allowed without development consent; development only allowed with development consent; and development which is prohibited; as it relates to the land the subject of this certificate.
2. The relevant local environmental plan identifies certain land upon which heritage items or archaeological sites are situated. A specific clause of the Plan requires Council take into consideration the likely affect of any development on the heritage significance of any items in the locality.
3. No draft local environmental planning instruments apply to the subject land.
4. The erection of a dwelling-house on the land is not prohibited by a development standard relating to the minimum area on which a dwelling-house may be erected.

Names of relevant State Environmental Planning Policies

The following State Environmental Planning Policies apply to the subject land. Copies may be obtained from the NSW Government web-site.

5. State Environmental Planning Policy No. 1 - Development Standards.
6. State Environmental Planning Policy No. 4 - Development Without Consent.
7. State Environmental Planning Policy No. 8 - Surplus Public Land
8. State Environmental Planning Policy No. 9 - Group Homes
9. State Environmental Planning Policy No. 11 - Traffic Generating Developments

10. State Environmental Planning Policy No. 15 - Rural Landsharing Communities
11. State Environmental Planning Policy No. 21 - Caravan Parks
12. State Environmental Planning Policy No. 22 - Shops and Commercial Premises
13. State Environmental Planning Policy No. 32 - Urban Consolidation (Redevelopment of Urban Land)
14. State Environmental Planning Policy No. 34 - Major Employment Generating Industrial Development
15. State Environmental Planning Policy No. 45 - Permissibility of Mining
16. State Environmental Planning Policy No 48 - Major Putrescible Landfill Sites
17. State Environmental Planning Policy No.50 - Canal Estate Development
18. State Environmental Planning Policy No.55 - Remediation of Land
19. State Environmental Planning Policy No. 64 - Advertising and Signage
20. State Environmental Planning Policy No. 65 - Design Quality of Residential Flat Development
21. State Environmental Planning Policy Seniors Living 2004
22. State Environmental Planning Policy (ARTC Rail Infrastructure) 2004
23. State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
24. State Environmental Planning Policy (State Significant Development) 2005
25. Draft State Environmental Planning Policy - Subdivision
26. Draft State Environmental Planning Policy - Sewerage Works
27. Draft State Environmental Planning Policy - Development Standards

Names of relevant Regional Environmental Plans

28. The Council has not been notified of any regional environmental plans or draft regional environmental plans applying to the land.

Names of relevant Development Control Plans

29. Tamworth Development Control Plan No. 1 – Traffic and Parking Guidelines.
30. Tamworth Development Control Plan No. 2 - Guidelines for Commercial and Retail Development.
31. Tamworth Development Control Plan No. 3 - Outdoor Advertising Guidelines.
32. Tamworth Development Control Plan No. 4 - Guidelines for Industrial Development.
33. Tamworth Development Control Plan No. 5 - Residential Housing Guidelines.
34. Tamworth Development Control Plan No. 9 - Guidelines for Outdoor Lighting.
35. Tamworth Development Control Plan No. 12 - Guidelines for Dual Occupancy and "Granny Flat" Development.
36. Tamworth Development Control Plan No. 19 - Subdivision Guidelines.
37. Tamworth Development Control Plan No. 20 - Advertising/Notification of Development Applications.
38. Tamworth Regional Development Control Plan No.1 – Telecommunications and Radio-Communications.

Declared State significant development

39. Development to which State Environmental Planning Policy No. 34 – Major Employment Generating Development and State Environmental Planning Policy No. 48 - Major Putrescible Landfill Sites apply is State significant development.

Coastal Protection

40. The land is not affected by the operation of Section 38 or 39 of the Coastal Protection Act.

Mine subsidence

41. The land has not been proclaimed to be a mine subsidence district within the meaning of Section 15 of the Mine Subsidence Compensation Act 1961.

Road widening and road realignment

42. The land is not affected by any road widening or road realignment proposal under:-
    (1) section 262 of the Local Government Act, 1919;
    (2) an environmental planning instrument; or
    (3) any resolution of Council.

Council and other public authority policies on hazard risk restrictions

43. Council has not been notified by any other public authority that it requires Council to notify of a policy it has adopted which restricts the development of the land because of a hazard or risk.

44. Council has not adopted a policy to restrict the development of the land by reason of the likelihood of land slip, bushfire, flooding, tidal inundation, subsidence or any other risk unless it has been identified within this certificate.

Land reserved for acquisition

45. There are no environmental planning instruments applying to the land which provide for the acquisition of the land by a public authority, as referred to in Section 27 of the Act.

Contributions plans

46. The Tamworth Urban Section 94 Contributions Plan came into force on 1 August 2005. This Plan seeks contributions toward a range of public facilities to cater for the demand generated from the projected increase in population associated with development.

Matters arising under the Contaminated Land Management Act 1997

47. The former Tamworth City Council adopted by resolution a policy on contaminated land which restricts the development of the land in particular circumstances. The policy is implemented when zoning or land use changes are proposed on land which has previously been used for certain purposes or land which has been remediated for a specific use. Consideration of council's adopted policy and the application of provisions under relevant State legislation is warranted.

Bushfire Prone Land

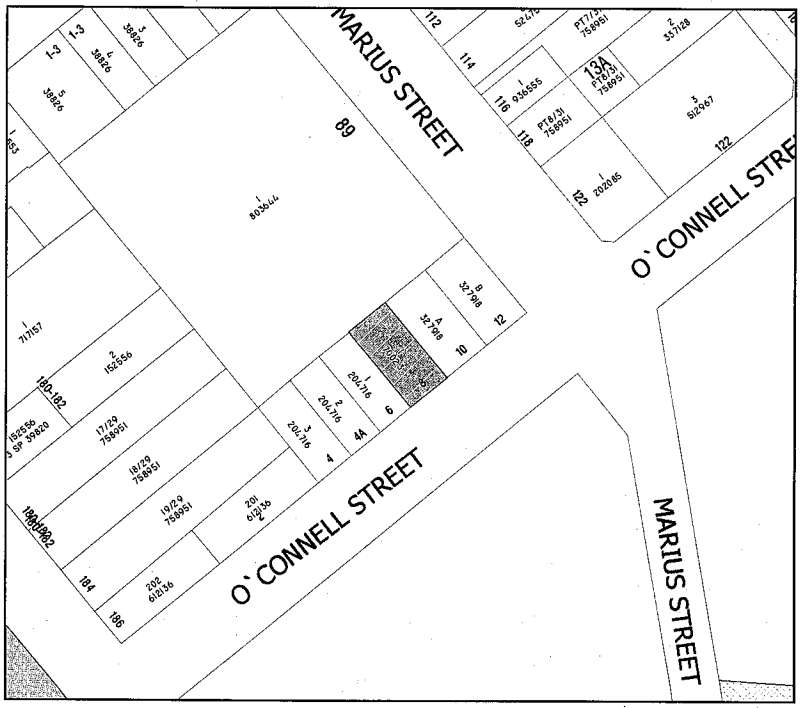
48. The subject land is not identified as being "bushfire prone land" on the Bushfire Prone Land Map, certified by the NSW Rural Fire Service.

Additional information provided pursuant to Section 149(5)

49. For information regarding buildings and structures on the land, please obtain a Building Certificate under Section 149A of the Environmental Planning and Assessment Act 1979.

50. Some land within the Tamworth Regional Council area is subject to aircraft noise associated with Tamworth Airport. Council has maps which indicate the land that is subject to noise exposure from aircraft and which contain information as to the likely level of noise and related matters. If you consider that the subject land is, or is likely to be affected by aircraft noise, or if you wish to ascertain whether the subject land might be affected by aircraft noise, please contact the Environment and Planning Services Department of Council.

51. Some land within the Tamworth Regional Council area is subject to flooding. Council has prepared a Floodplain Management Study in relation to the former Tamworth City Council local government area with accompanying flood maps which provide the best available information on flooding. If you consider that the subject land is, or is likely to be affected, or if you wish to ascertain whether it could be affected, please contact the Environment and Planning Services Department of Council.



Alison McGaffin
Director Environment, Planning & Economic Development

Tamworth Regional Council

ATTACHMENT TO PLANNING CERTIFICATE

Attached to this Certificate is an extract of the Tamworth Local Environmental Plan 1996 which sets out the zone objectives and developments which is allowed without development consent; development allowed only with development consent; and development which is prohibited; as it relates to the land, the subject of this certificate.

The attachment is provided for information purposes only. It should be noted that the land, the subject of this certificate may also be subject to other specific restrictions of the Tamworth Environmental Plan 1996 comprised in the following clauses:

Clause 31 – Development near zone boundaries

Clause 33 – Activities of Public Authorities

Clause 34 – How the Plan Covenants, Agreements, other Acts, etc

Clause 35 – Subdivision Controls

Clause 37 – Temporary Use of Land

Clause 41 – Advertising

Clause 42 – Servicing Provisions when Developing Land

Clause 46 – Development if the Vicinity of Heritage items

Clause 50 – Exempt Development

Clause 51 – Complying Development

Copies of the Tamworth Local Environment Plan 1996 can be obtained by contacting the Customer Service Counter at Council or by phoning (02) 67554 555.

Zone No. 3(a) Business

1 Objectives of the zone

(1) The general objectives of this zone is to provide for low intensity commercial and retail facilities which are unlikely to prejudice the viability of the central business district of the City of Tamworth.

(2) The specific objectives of this zone are:

(a) to ensure that the size and functions of both retail and commercial facilities are established in accordance with the Council's preferred hierarchy of retail and commercial centres for the City; and

(b) to restrict development generally to the provision of services required either by the travelling public or which serve the local community and are limited in scale.

(3) Development for the purpose of the following is usually not consistent with the objectives of this zone:
agriculture; dual occupancies; home activities; rural industries.

2 Development allowed without development consent

Development for the purpose of:

bushfire hazard reduction;
utility installations;
utility undertakings.

3 Development allowed only with development consent

Any development not included in Item 2 or 4.

4 Development which is prohibited

Development for the purpose of:

abattoirs;
airports;
brothels;
dwelling-houses (unless ancillary to development permitted in the zone);
extractive industries;
feed lots;
hazardous industries;
hazardous storage establishments;
liquid fuel depots;
major commercial premises;
major retail premises;
mines;
offensive industries;
offensive storage establishments;
re-use of effluent and biosolids;
rural workers' dwellings;
sawmills;
stock and sale yards.

Can the use of major commercial premises or major retail premises within Zone No. 3(a) be varied?

20. (1) This clause applies to buildings or places within Zone No. 3(a) that were lawfully being used for the purpose of major commercial premises or major retail premises, or both, immediately before this plan commenced.

(2) Nothing in this plan prevents consent from being granted for the use of a building or place to which this clause applies for business, commercial, supermarket, department store or shop purposes (or for any combination of those purposes) if, after the consent is granted:

(a) the amount of the gross floor area of the building or place that will be able to be lawfully used for any one or more of those purposes will not exceed the amount of the gross floor area of the building or place that was lawfully being so used immediately before this plan commenced, and

(b) the proportion of the floor space ratio of the building or place that will be able to be lawfully used for any one or more of those purposes will not exceed the proportion of the floor space ratio of the building or place that was lawfully being so used at that time.

(3) This clause does not prevent consent from being granted for development for the purpose of a bulky goods sales room or showroom.

What floor space ratios apply in this plan?

21. The floor space ratio of a building erected:

(a) on an allotment of land within Zone No. 3(a1) - is not to exceed 4:1; or

(b) on an allotment of land within Zone No. 3(a) - is not to exceed 1:1.

22. (1) & (2) Deleted by Amendment No. 2 of 13/12/96 (GG No. 146).

Tamworth Regional Council

437 Peel Street, Tamworth NSW 2340
Telephone:- (02) 6767 5555
Facsimile:- (02) 6767 5499
Email:- trc@tamworth.nsw.gov.au

Certificate No: *PC0703/2007*
Receipt No: *212281*
Date: *24 October 2006*
Applicants Ref: *CO ghd*

PLANNING CERTIFICATE
ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

Applicant:

Ghd
Level 1 Coal Services
CIVIC AVENUE SINGLETON NSW 2330

Owner (as recorded by Council):

Telstra Corporation Limited
Transfield Services
Locked Bag 12368
A'beckett Street Post Office
MELBOURNE VIC 8006

Land: PMS 03121 89 Marius Street NORTH TAMWORTH NSW 2340
Lot 1 DP 803644

This certificate is provided pursuant to Section 149(2) of the Act. At the date of this certificate, the subject land is affected by the following matters.

Zoning and land use under relevant LEPs

4 Industrial
Tamworth Local Environmental Plan 1996, as amended.
The Plan was gazetted on 4 April, 1996.

1. The extract from the relevant local environmental plan is the development control table for the zone. It sets out the zone objectives and development which is allowed without development consent; development only allowed with development consent; and development which is prohibited; as it relates to the land the subject of this certificate.
2. The relevant local environmental plan identifies certain land upon which heritage items or archaeological sites are situated. A specific clause of the Plan requires Council take into consideration the likely affect of any development on the heritage significance of any items in the locality.
3. The land to which this certificate applies maybe subject to clauses 52 and 53 of Tamworth Local Environmental Plan 1996 which specifies requirements for development of brothels and restricted premises. A copy of clauses 52 and 53 is attached, as is the map to Amendment No 14.
4. No draft local environmental planning instruments apply to the subject land.
5. The erection of a dwelling-house on the land is not prohibited by a development standard relating to the minimum area on which a dwelling-house may be erected.

Names of relevant State Environmental Planning Policies

The following State Environmental Planning Policies apply to the subject land. Copies may be obtained from the NSW Government web-site.

6. State Environmental Planning Policy No. 1 - Development Standards.
7. State Environmental Planning Policy No. 4 - Development Without Consent.
8. State Environmental Planning Policy No. 8 - Surplus Public Land
9. State Environmental Planning Policy No. 11 - Traffic Generating Developments
10. State Environmental Planning Policy No. 15 - Rural Landsharing Communities

11. State Environmental Planning Policy No. 30 - Intensive Agriculture
12. State Environmental Planning Policy No. 32 – Urban Consolidation (Redevelopment of Urban Land)
13. State Environmental Planning Policy No. 34 - Major Employment Generating Industrial Development
14. State Environmental Planning Policy No. 37 - Continued Mines and Extractive Industries
15. State Environmental Planning Policy No. 45 - Permissibility of Mining
16. State Environmental Planning Policy No 48 - Major Putrescible Landfill Sites
17. State Environmental Planning Policy No.50 - Canal Estate Development
18. State Environmental Planning Policy No.55 - Remediation of Land
19. State Environmental Planning Policy No. 64 - Advertising and Signage
20. State Environmental Planning Policy No. 65 - Design Quality of Residential Flat Development
21. State Environmental Planning Policy (Seniors Living) 2004
22. State Environmental Planning Policy (ARTC Rail Infrastructure) 2004
23. State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
24. State Environmental Planning Policy (State Significant Development) 2005
25. Draft State Environmental Planning Policy - Subdivision
26. Draft State Environmental Planning Policy - Sewerage Works
27. Draft State Environmental Planning Policy - Development Standards

Names of relevant Regional Environmental Plans

28. The Council has not been notified of any regional environmental plans or draft regional environmental plans applying to the land.

Names of relevant Development Control Plans

29. Tamworth Development Control Plan No. 1 – Traffic and Parking Guidelines.
30. Tamworth Development Control Plan No. 3 - Outdoor Advertising Guidelines.
31. Tamworth Development Control Plan No. 4 - Guidelines for Industrial Development.
32. Tamworth Development Control Plan No. 5 - Residential Housing Guidelines.
33. Tamworth Development Control Plan No. 9 - Guidelines for Outdoor Lighting.
34. Tamworth Development Control Plan No. 12 - Guidelines for Dual Occupancy and "Granny Flat" Development.
35. Tamworth Development Control Plan No. 13 - Regulation of Brothels and Restricted Premises.
36. Tamworth Development Control Plan No. 19 - Subdivision Guidelines.
37. Tamworth Development Control Plan No. 20 - Advertising/Notification of Development Applications.
38. Tamworth Regional Development Control Plan No.1 – Telecommunications and Radio-Communications.
39. Tamworth Development Control Plan No. 18 – Interim Flood Management Guidelines.

Declared State significant development

40. Development to which State Environmental Planning Policy No. 34 – Major Employment Generating Development and State Environmental Planning Policy No. 48 - Major Putrescible Landfill Sites apply is State significant development.

Coastal Protection

41. The land is not affected by the operation of Section 38 or 39 of the Coastal Protection Act.

Mine subsidence

42. The land has not been proclaimed to be a mine subsidence district within the meaning of Section 15 of the Mine Subsidence Compensation Act 1961.

Road widening and road realignment

43. The land is not affected by any road widening or road realignment proposal under:-
    (1) section 262 of the Local Government Act, 1919;
    (2) an environmental planning instrument; or
    (3) any resolution of Council.

Council and other public authority policies on hazard risk restrictions

44. Council has not been notified by any other public authority that it requires Council to notify of a policy it has adopted which restricts the development of the land because of a hazard or risk.

45. Tamworth Development Control Plan No. 18 - Interim Floodplain Management Policy 1993 applies to the subject land and may restrict the development of the land by reason of the likelihood of flooding. The principle purpose of the plan is to provide guidelines and more detailed provisions than are contained in Tamworth Local Environmental Plan 1996 which must be taken into consideration by the Council when assessing applications to carry out development on land identified as being flood liable. The Plan has been prepared in accordance with the NSW Government's Floodplain Development Manual published in February 1987. In accordance with the principles contained in the Manual, each application for development on such land will be considered on merit having regard to the planning considerations contained in Section 79C(1) of the Environmental Planning and Assessment Act 1979.

Land reserved for acquisition

46. There are no environmental planning instruments applying to the land which provide for the acquisition of the land by a public authority, as referred to in Section 27 of the Act.

Contributions plans

47. The Tamworth Urban Section 94 Contributions Plan came into force on 1 August 2005. This Plan seeks contributions toward a range of public facilities to cater for the demand generated from the projected increase in population associated with development.

Matters arising under the Contaminated Land Management Act 1997

48. The former Tamworth City Council adopted by resolution a policy on contaminated land which restricts the development of the land in particular circumstances. The policy is implemented when zoning or land use changes are proposed on land which has previously been used for certain purposes or land which has been remediated for a specific use. Consideration of council's adopted policy and the application of provisions under relevant State legislation is warranted.

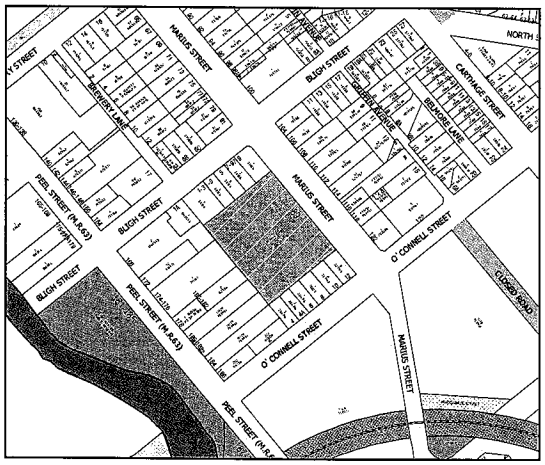
Bushfire Prone Land

49. The subject land is not identified as being "bushfire prone land" on the Bushfire Prone Land Map, certified by the NSW Rural Fire Service.

Additional information provided pursuant to Section 149(5)

50. For information regarding buildings and structures on the land, please obtain a Building Certificate under Section 149A of the Environmental Planning and Assessment Act 1979.

51. Some land within the Tamworth Regional Council area is subject to aircraft noise associated with Tamworth Airport. Council has maps which indicate the land that is subject to noise exposure from aircraft and which contain information as to the likely level of noise and related matters. If you consider that the subject land is, or is likely to be affected by aircraft noise, or if you wish to ascertain whether the subject land might be affected by aircraft noise, please contact the Environment and Planning Services Department of Council.



Alison McGaffin
Director Environment, Planning & Economic Development

Tamworth Regional Council

ATTACHMENT TO PLANNING CERTIFICATE

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The attachment is provided for information purposes only. It should be noted that the land, the subject of this certificate may also be subject to other specific restrictions of the Tamworth Environmental Plan 1996 comprised in the following clauses:

Clause 31 – Development near zone boundaries

Clause 33 – Activities of Public Authorities

Clause 34 – How the Plan Covenants, Agreements, other Acts, etc

Clause 35 – Subdivision Controls

Clause 37 – Temporary Use of Land

Clause 41 – Advertising

Clause 42 – Servicing Provisions when Developing Land

Clause 46 – Development if the Vicinity of Heritage items

Clause 50 – Exempt Development

Clause 51 – Complying Development

Copies of the Tamworth Local Environment Plan 1996 can be obtained by contacting the Customer Service Counter at Council or by phoning (02) 67554 555.

DEVELOPMENT CONTROL TABLE

Zone No. 4 Industrial

1 Objectives of the zone

(1) The general objectives of this zone are:

(a) to identify certain land within the City of Tamworth suited to development for industrial purposes; and

(b) to recognise and provide for the diverse demands and implications of industry, warehousing, transport, servicing activities and allied land uses.

(2) The specific objectives of this zone are:

(a) to provide an adequate stock of physically suitable and serviceable land to facilitate a broad range of industrial development;

(b) to locate and control industry to both meet its particular requirements and ensure minimal adverse physical and visual impact on the environment;

(c) to create recognisable industrial land use areas throughout the City of Tamworth by the expansion and consolidation of existing industrial localities;

(d) to promote convenience and accessibility between inter-related and inter-dependent activities by encouraging integration of complementary service industries (such as transport, storage and warehousing) with secondary industries (such as manufacturing, assembling and processing);

(e) to locate industrial development where it has ready or direct access to the existing and proposed main transport networks and to prevent any adverse intrusion on the function, safety and convenience of urban road networks;

(f) to allow other forms of development and services which are associated with or ancillary to industrial development;

(g) to allow other development where it can be demonstrated that suitable land or premises for that development are not available elsewhere and that the proposed use would not prejudice any existing use of, or future development on, the land or other land in the locality for industrial purposes; and

(h) to ensure that development does not adversely affect the flooding characteristics of the area or increase the hazard of flooding for adjoining land uses.

(3) Development for the purpose of the following is usually not consistent with the objectives of this zone:
agriculture; airports; assisted accommodation; boarding houses; camp or caravan sites; health consulting rooms; medical centres; motels; multiple dwellings; serviced apartments.

2 Development allowed without development consent

Development for the purpose of:

bushfire hazard reduction;
utility installations;
utility undertakings.

3 Development allowed only with development consent

Any development not included in Item 2 or 4.

4 Development which is prohibited

Development for the purpose of:

brothels (unless on land identified by diagonal hatching on the map) (Amendment No. 14 of 13/07/01);
dual occupancies;
dwelling-houses (unless ancillary to development permitted in the zone);
home activities;
housing for aged or disabled persons;
major commercial premises;
major retail premises;
manufactured home estates;
rural workers' dwellings;
shops (unless ancillary to development permitted in the zone or catering to the local needs of the industrial area).

CLAUSE 52

What are the restrictions on the location of a brothel?
(Amendment No. 14 of 13/07/01)

52. Notwithstanding any other provision of this plan, the Council must not grant consent to development for the purposes of a brothel unless it is satisfied that the boundary of the site of the proposed brothel will be at least 150 metres by road from any of the following:

(a) any existing dwelling,

(b) any residential zone,

(c) any place of public worship,
(d) any place designed for and utilised by children, such as any child care centre, community facility, educational establishment, entertainment facility, recreation area or recreation facility,

(e) any other brothel.

CLAUSE 53

What are the restrictions on the location of restricted premises?
(Amendment No. 14 of 13/07/01)

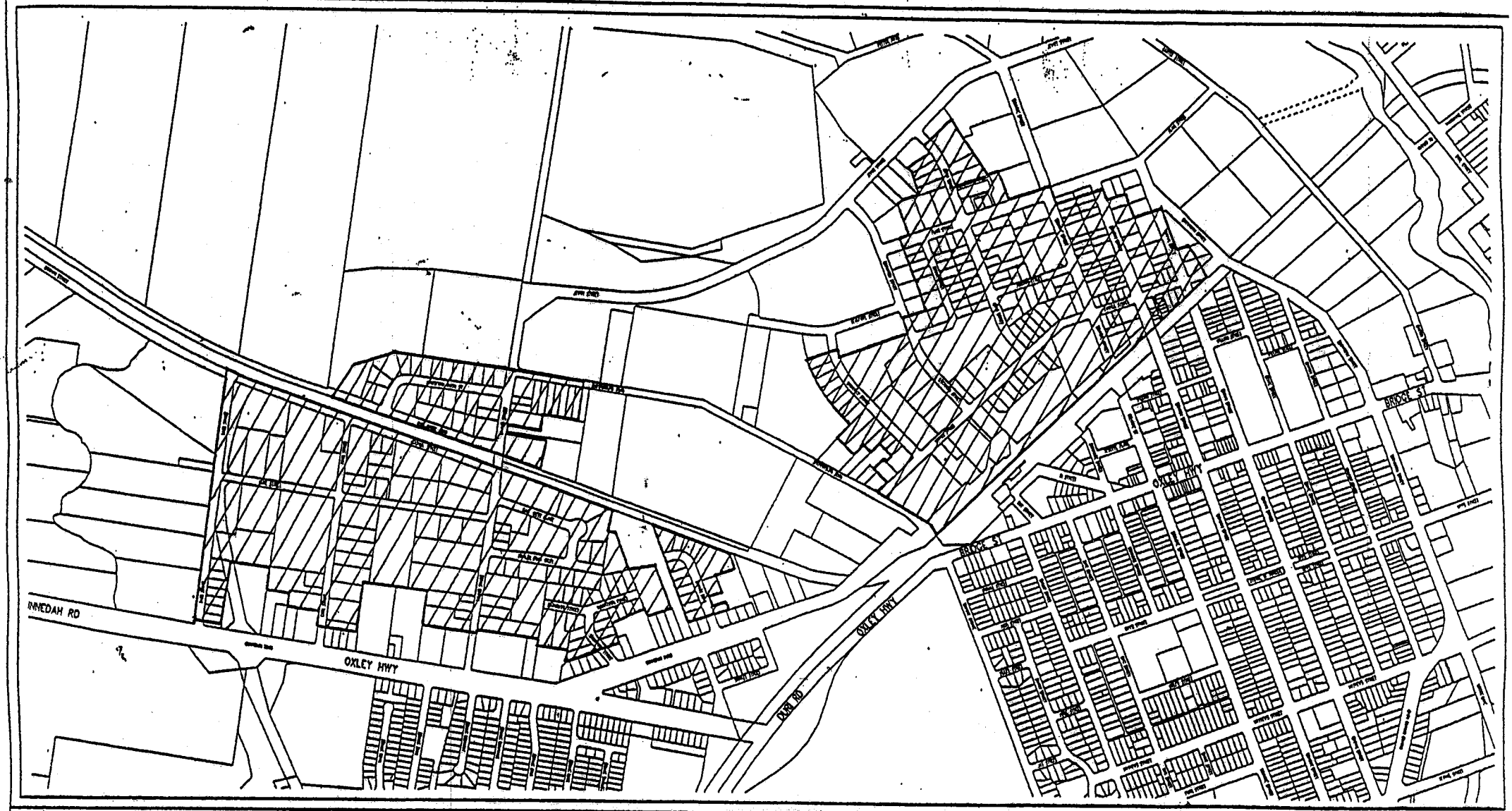
53. Notwithstanding any other provision of this plan, the Council must not grant consent to development for the purpose of restricted premises unless the Council is satisfied that:

(a) there will be no external advertising other than the name of the premises, and

(b) there will be access to the premises via a public road, and

(c) the boundary of the site of the restricted premises will be at least 150 metres by road from any other restricted premises, and

(d) the boundary of the site of the restricted premises will be at least 150 metres by road from any existing dwelling.



PREPARED BY	P HOY
SUPERVISED BY	G HARRISON
PLANNING OFFICER	G HARRISON
COUNCIL FILE No.	R19-44
DEPT. FILE No.	S00/00937
GOVT. GAZETTE OF	13 July 2001

LOCALITY – Taminda

N

SUBJECT LAND

Scale 1:10000

ENVIRONMENTAL PLANNING & ASSESSMENT ACT, 1979

CITY OF TAMWORTH

LOCAL ENVIRONMENTAL PLAN 1996

(AMENDMENT No. 14)

STATEMENT OF RELATIONSHIP WITH OTHER PLANS
AMENDS TAMWORTH LOCAL ENVIRONMENTAL PLAN 1996

CERTIFIED IN ACCORDANCE WITH THE ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979, AND REGULATIONS

Environment & Planning Services Director

DATE: 4/5/2001.

New South Wales Consolidated Regulations

TAMWORTH LOCAL ENVIRONMENTAL PLAN 1996 - REG 8

What zones apply in this plan?

8 What zones apply in this plan?

For the purposes of this plan, land to which this plan applies is within a zone specified below if the land is shown on the map in the manner specified below in relation to the zone:

Zone No 1 (a) Rural—coloured light brown,

Zone No 1 (c) Flood-Liable—coloured light brown, edged scarlet and lettered "1 (c)",

Zone No 1 (d) Rural-Residential—coloured light brown, edged scarlet and lettered "1 (d)",

Zone No 1 (e) Future Investigation—coloured light brown, edged scarlet and lettered "1 (e)",

Zone No 1 (h) Rural Small Holdings—coloured light brown, edged scarlet and lettered "1 (h)",

Zone No 2 Residential—coloured light scarlet,

Zone No 3 (a1) Central Business—coloured medium blue,

Zone No 3 (a) Business—coloured light blue, DP700Z3 Lot 1

Zone No 3 (b) Special Business (Airport)—coloured pale blue and lettered "3 (b) (Airport)",

Zone No 4 Industrial—coloured grey, Lot 1 DP 803644

Zone No 6 Recreation—coloured green,

Zone No 7 Environment Protection—coloured orange,

Zone No 9 (b) Proposed Car Park—coloured yellow,

Zone No 9 (c) Proposed Sub-Arterial Road—a broken red band.

Appendix C

Historical Aerial Photographs

1965 Aerial Photograph

-------- Site boundary

2004 Aerial Photograph

-------- Site boundary

1998 Aerial Photograph

-------- Site boundary

1989 Aerial Photograph

-------- Site boundary

1953 Aerial Photograph

-------- Site boundary

Appendix D

Photographs

Photographs

Photograph 1: Asbestos storage area

Photograph 2: BH3

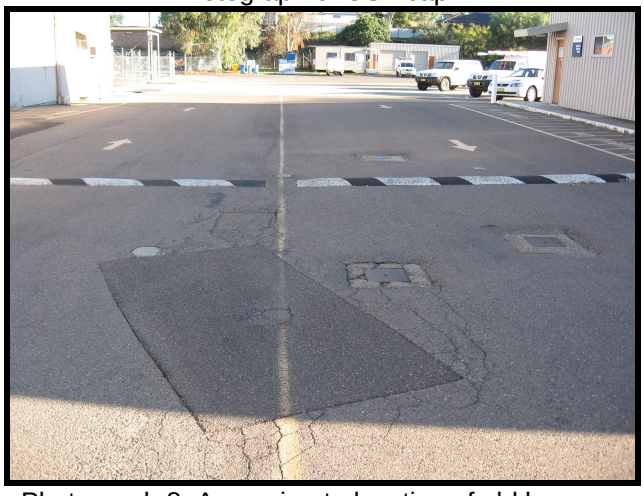
Photograph 3: BH18

Photograph 4: Driller

Photograph 5: Telegraph pole storage area

Photograph 6: UST cap

Photograph 7: Washbay



Photograph 8: Approximate location of old bowsers

Appendix E

Summary Tables of Results

GHD

www.ghd.com.au
ntlmail@ghd.com.au
Tel. (02) 4979 9999 Fax. (02) 4979 9988
352 King Street Newcastle NSW 2300

Client: Telstra - Marius St and O'Connell St, Tamworth, NSW
Title: Table A - Soil Sample Register
Job No: 2213035

Borehole	Sample ID	Depth (m)	VOC (ppm)	Lithology
BH1	BH1-1	0.1	2.7	Silt, some gravel, damp, brown
BH1	BH1-2	0.3	2.8	Silt, some gravel, damp, brown
BH2	BH2-1	0.1	2.7	Silt, some gravel, damp, brown
BH3	BH3-1	0.1	2.8	Silt, some gravel, damp, brown
BH4	BH4-1	0.1	2.6	Silt, some gravel, damp, brown
BH5	BH5-1	0.1	2.3	Gravel (fine-coarse), some clay, trace sand/silt, damp, orange/brown
BH6	BH6-1	0.1	2.6	Silt, trace gravel, damp, brown
BH6	BH6-2	0.2	2.6	Silt, trace gravel, damp, brown
BH7	BH7-1	0.2	2.6	Gravel (fine-coarse), trace silt, wet, brown
BH8	BH8-1	0.1	2.4	Silt, some clay & gravel, damp, brown
BH8	BH8-2	0.5	2.3	Clay, some silt, orange/brown, damp
BH8	BH8-3	-	-	Duplicate of BH8-2
BH9	BH9-1	0.2	2.5	Gravel (fine-coarse), trace silt, wet, brown
BH10	BH10-1	0.1	2.3	Gravel (fine-coarse), trace sand/silt, wet, brown
BH11	BH11-1	0.15	2.6	Gravel (fine-coarse), trace sand/silt, wet, brown
BH12	BH12-1	0.1	2.4	Gravel, trace silt, wet, brown
BH13	BH13-1	0.1	2.4	Gravel, trace silt, wet, brown
BH14	BH14-1	0.1	2.5	Gravel (fine-coarse), trace sand/silt, wet, brown
BH16	BH16-1	0.2	2.3	Gravel, some sand, trace silt, damp, brown
BH16	BH16-2	0.4	2.3	Sand (fine-coarse), some gravel, trace silt, damp, brown
BH17	BH17-1	0.1	2.1	Sand (fine-coarse), gravelly, trace silt, wet, grey
BH17	BH17-2	0.3	2	Clay, trace silt, orange, damp
BH18	BH18-1	0.15	4.5	Gravel (fine-coarse), trace sand/silt, wet, black
BH18	BH18-2	-	-	Duplicate of BH18-1
BH19	BH19-1	0.05	2.4	Gravel (fine-coarse), trace sand/silt, wet, brown
BH20	BH20-1	0.1	2.5	Gravel (fine-coarse), trace clay & sand, wet, orange/brown

GHD

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ntlmail@ghd.com.au
Tel. (02) 4979 9999 Fax. (02) 4979 9988
352 King Street Newcastle NSW 2300

Client: Telstra - Marius St and O'Connell St, Tamworth, NSW
Title: Table B - Soil Analytical Results - Metals and Asbestos
Job No: 2213035

20	Exceeds EILs
100	Exceeds HIL "A"
500	Exceeds HIL "F"

NB: Results expressed in mg/kg dry weight unless otherwise specified

Sample ID	pH	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Copper (Cu)	Lead (Pb)	Nickel (Ni)	Zinc (Zn)	Mercury (Hg)	Asbestos
EILs [1]		20	3	50	100	600	60	200	1	-
HILs - Exposure Setting A [2]		100	20	100 [4]	1000	300	600	7000	15	-
HILs - Exposure Setting F [3]		500	100	500 [4]	5000	1500	3000	35000	75	-
BH1-1	8.4	<5	<1	11	38	12	10	59	0.1	-
BH2-1	-	19	<1	28	41	7	8	38	<0.1	-
BH3-1	8.7	108	<1	119	93	12	9	68	<0.1	-
BH4-1	-	6	<1	20	29	27	17	96	<0.1	ND
BH5-1	9.2	<5	<1	3	<5	<5	13	6	<0.1	-
BH6-1	-	8	<1	22	35	69	14	181	<0.1	ND
BH7-1	-	6	<1	10	43	7	9	48	<0.1	ND
BH8-2	8.5	6	<1	17	23	10	11	59	<0.1	-
BH8-3	8.4	6	<1	20	27	16	15	70	<0.1	-
BH9-1	-	<5	<1	8	56	8	9	50	<0.1	-
BH10-1	9.7	<5	<1	8	59	5	9	65	<0.1	-
BH11-1	-	<5	<1	14	17	17	9	53	<0.1	-
BH12-1	9	<5	<1	8	61	8	11	68	<0.1	-
BH13-1	-	<5	<1	8	64	5	10	67	<0.1	-
BH14-1	9.3	<5	<1	9	60	<5	8	56	<0.1	-
BH15-1	-	6	<1	10	27	10	15	67	<0.1	-
BH16-2	9	<5	<1	8	<5	6	3	9	<0.1	-
BH17-1	-	<5	<1	7	<5	6	3	9	<0.1	-
BH18-1	9	<5	<1	11	16	23	10	107	<0.1	-
BH18-2	-	5	<1	11	16	22	12	107	<0.1	-
BH19-1	8.8	<5	<1	13	15	17	16	32	<0.1	-
BH20-1	-	<5	<1	8	11	10	7	24	0.1	-

[1] Ecological Investigation Level (Interim Urban) (NEPM 1999)
[2] Health Investigation Level "A" (Standard Residential) (NEPM, 1999)
[3] Health Investigation Level "F" (Commercial/Industrial) (NEPM, 1999)
[4] Cr(VI) Guideline Values
ND = Not Detected

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www.ghd.com.au
ntlmail@ghd.com.au
Tel. (02) 4979 9999 Fax. (02) 4979 9988
352 King Street Newcastle NSW 2300

Client: Telstra - Marius St and O'Connell St, Tamworth, NSW
Title: Table C - Soil Analytical Results - PAHs
Job No: 2213035

100	Exceeds HIL "A"
500	Exceeds HIL "F"

NB: Results expressed in mg/kg dry weight unless otherwise specified

Sample ID	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1.2.3.cd)pyrene	Dibenz(a.h)anthracene	Benzo(g.h.i)perylene	Total PAH
HILs - Exposure Setting A [1]	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	20
HILs - Exposure Setting F [2]	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	100
BH8-2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-
BH18-1	1.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-
COMP 1	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	1.1	1.5	0.6	0.6	1.6	0.7	1.3	1	<0.5	1.4	-
COMP 2	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	2.1	2	0.5	1.3	1.4	0.7	0.5	0.5	<0.5	0.6	-
COMP 3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-
COMP 4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-

[1] Health Investigation Level "A" (Standard Residential) (NEPM, 1999)
[2] Health Investigation Level "F" (Commercial/Industrial) (NEPM, 1999)

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ntlmail@ghd.com.au
Tel. (02) 4979 9999 Fax. (02) 4979 9988
352 King Street Newcastle NSW 2300

Client: Telstra - Marius St and O'Connell St, Tamworth, NSW
Title: Table D - Soil Analytical Results - TPH
Job No: 2213035

20	Exceeds Concentrations for sensitive land use
500	Exceeds Concentrations foe commercial/industrial land use

NB: Results expressed in mg/kg dry weight unless otherwise specified

Sample ID	C_6 - C_9 Fraction	C_{10} - C_{14} Fraction	C_{15} - C_{28} Fraction	C_{29} - C_{36} Fraction	Total Detected TPH (C_{10}-C_{36})	Benzene	Toluene	Chlorobenzene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene
Threshold concentrations for: sensitive land use [1]	**65**				**1000**	**1 [2]**	**1.4 [3]**	-	**3.1 [3]**	**14 [4]**	
Threshold concentrations for: Residential Criteria [1]	**65**				**1000**	**1 [2]**	**130**	**-**	**50**	**25 [4]**	
Threshold concentrations for: Commercial Industrial Criteria [1]	**65**				**1000**	**1 [2]**	**130**	**-**	**50**	**25 [4]**	
BH1-1	<10	<50	<100	<100	-	<0.2	<0.5	-	<0.5	<0.5	<0.5
BH2-1	<10	<50	<100	<100	-	<0.2	<0.5	-	<0.5	<0.5	<0.5
BH3-1	<10	<50	<100	<100	-	<0.2	<0.5	-	<0.5	<0.5	<0.5
BH4-1	<10	<50	210	110	330	<0.2	<0.5	-	<0.5	<0.5	<0.5
BH5-1	<10	<50	<100	<100	-	<0.2	<0.5	-	<0.5	<0.5	<0.5
BH6-1	<10	<50	<100	<100	-	<0.2	<0.5	-	<0.5	<0.5	<0.5
BH7-1	<10	<50	<100	<100	-	<0.2	<0.5	-	<0.5	<0.5	<0.5
BH8-2	<10	<50	<100	<100	-	<0.2	<0.5	-	<0.5	<0.5	<0.5
BH8-3	<10	<50	<100	<100	-	<0.2	<0.5	-	<0.5	<0.5	<0.5
BH9-1	<10	<50	<100	<100	-	<0.2	<0.5	-	<0.5	<0.5	<0.5
BH10-1	<10	<50	<100	<100	-	<0.2	<0.5	-	<0.5	<0.5	<0.5
BH11-1	<10	<50	<100	<100	-	<0.2	<0.5	-	<0.5	<0.5	<0.5
BH12-1	<10	<50	<100	<100	-	<0.2	<0.5	-	<0.5	<0.5	<0.5
BH13-1	<10	<50	<100	<100	-	<0.2	<0.5	-	<0.5	<0.5	<0.5
BH14-1	<10	<50	<100	<100	-	<0.2	<0.5	-	<0.5	<0.5	<0.5
BH15-1	<10	<50	<100	<100	-	<0.2	<0.5	-	<0.5	<0.5	<0.5
BH16-2	<10	<50	<100	<100	-	<0.2	<0.5	-	<0.5	<0.5	<0.5
BH17-1	<10	<50	<100	<100	-	<0.2	<0.5	-	<0.5	<0.5	<0.5
BH18-1	24	1020	2070	<100	3090	<0.2	<0.5	-	<0.5	<0.5	<0.5
BH18-2	22	870	1800	<100	1670	<0.2	<0.5	-	<0.5	<0.5	<0.5
BH19-1	<10	<50	<100	<100	-	<0.2	<0.5	-	<0.5	<0.5	<0.5
BH20-1	<10	<50	<100	<100	-	<0.2	<0.5	-	<0.5	<0.5	<0.5

[1] Guidelines for Assessing Service Station Sites (NSW EPA, 1994)
[2] A lower benzene concentration may be needed to protect groundwater.
[3] Netherlands MPC for the protection of terrestrial organisms in soil
[4] Total xylene
nd - non detect

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www.ghd.com.au
ntlmail@ghd.com.au
Tel. (02) 4979 9999 Fax. (02) 4979 9988
352 King Street Newcastle NSW 2300

Client: Telstra - Marius St and O'Connell St, Tamworth, NSW
Title: Table E - Soil Analytical Results - OCP and PCB
Job No: 2213035

100	Exceeds HIL "A"
500	Exceeds HIL "F"

NB: Results expressed in mg/kg (ppm) dry weight unless otherwise specified

Sample ID	alpha-BHC	HCB	beta-BHC	gamma-BHC	delta-BHC	Heptachlor	Aldrin	Heptachlor epoxide	Chlordane - trans	alpha-Endosulfan	Chlordane - cis	Dieldrin	DDE	Endrin	beta-Endosulfan	DDD	Endrin aldehyde	Endosulfan sulfate	DDT	Endrin ketone	Methoxychlor	Total Detected PCB
HILs - Exposure Setting A [1]	-	-	-	-	-	10	10 [4]	-	50 [5]	-	50 [5]	10 [4]	200 [6]	-	-	200 [6]	-	-	200 [6]	-	-	10
HILs - Exposure Setting F [2]	-	-	-		-	50	50 [4]	-	250 [5]	-	100 [5]	50 [4]	1000 [6]	-	-	1000 [6]	-	-	1000 [6]	-	-	20
COMP 1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<0.1
COMP 2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<0.1
COMP 3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<0.1
COMP 4	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<0.1
COMP 5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<0.1

[1] Health Investigation Level "A" (Standard Residential) (NEPM, 1999)
[2] Health Investigation Level "F" (Commercial/Industrial) (NEPM, 1999)
[4] Total of Aldrin and Dieldrin
[5] Total of Trans-chlordane and cis-chlordane
[6] Total of DDT, DDD and DDE

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www.ghd.com.au
ntlmail@ghd.com.au
Tel. (02) 4979 9999 Fax. (02) 4979 9988
352 King Street Newcastle NSW 2300

Client: Telstra - Marius St and O'Connell St, Tamworth, NSW
Title: Table F - Relative Percentage Difference RPD
Job No: 2213035

	pH	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Copper (Cu)	Lead (Pb)	Nickel (Ni)	Zinc (Zn)	Mercury (Hg)
BH8-2	8.5	6	<1	17	23	10	11	59	<0.1
BH8-3	8.4	6	<1	20	27	16	15	70	<0.1
RPD	-	-	-	16	16	46	31	17	-

	pH	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Copper (Cu)	Lead (Pb)	Nickel (Ni)	Zinc (Zn)	Mercury (Hg)
BH18-1	9	<5	<1	11	16	23	10	107	<0.1
BH18-2	-	5	<1	11	16	22	12	107	<0.1
RPD	-	-	-	0	0	4	18	0	-

	C_6 - C_9 Fraction	C_{10} - C_{14} Fraction	C_{15} - C_{28} Fraction	C_{29} - C_{36} Fraction	Total Detected TPH (C_{10}-C_{36})	Benzene	Toluene	Chlorobenzene	Ethylbenzene	meta- & para-Xylen	ortho-Xylene
BH18-1	24	1020	2070	<100	3090	<0.2	<0.5	-	<0.5	<0.5	<0.5
BH18-2	22	870	1800	<100	1670	<0.2	<0.5	-	<0.5	<0.5	<0.5
RPD	9	16	14	-	60	-	-	-	-	-	-

Appendix F

Laboratory Analytical Certificates

Envirolab Services Pty Ltd
ABN 37 112 535 645
54 Frenchs Rd Willoughby NSW 2068
ph 02 9958 5801 fax 02 9958 5803
email: tnotaras@envirolabservices.com.au

CERTIFICATE OF ANALYSIS 11062

Client:
Australian Laboratory Services Pty Ltd
277 Woodpark Rd
Smithfield
NSW 2164

Attention: Victor Kedicioglu

Sample log in details:

Your Reference:	**ES0705876**
No. of samples:	3 Soils
Date samples received:	10/05/07
Date completed instructions received:	10/05/07

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:	14/05/07
Date of Preliminary Report:	Not issued
Issue Date:	11/05/07

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Accredited for compliance with ISO/IEC 17025.
Tests not covered by NATA are denoted with *.

Results Approved By:

Joshua Lim
Chemist

Asbestos ID - soils Our Reference: Your Reference Sample ID	UNITS ---------- ----------	11062-1 BH4-1 ES0705876-4	11062-2 BH6-1 ES0705876-6	11062-3 BH7-1 ES0705876-7
Sample Description	-	30g sand and rocks	30g sand and rocks	60g sand and rocks
Asbestos ID in soil	--	No asbestos detected	No asbestos detected	No asbestos detected
Trace Analysis	--	Respirable fibres not detected	Respirable fibres not detected	Respirable fibres not detected

Method ID	Methodology Summary
AS4964-2004	Qualitative identification of asbestos type fibres in bulk using Polarised Light Microscopy and Dispersion Staining Techniques.

Report Comments:

Asbestos analysed by: Joshua Lim

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

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:

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. Surrogates: Generally 60-140% is acceptable.

ALS Environmental

CERTIFICATE OF ANALYSIS

Client	: **GHD SERVICES PTY LTD**	*Laboratory*	: **Environmental Division Sydney**	*Page*	: **1 of 14**
Contact	: **MR BEN LUFFMAN**	*Contact*	: **Victor Kedicioglu**	*Work Order*	: **ES0705876**
Address	: **COFFS HARBOUR SYDNEY NSW AUSTRALIA 2450**	*Address*	: **277-289 Woodpark Road Smithfield NSW Australia 2164**		
E-mail	: **ben_luffman@ghd.com.au**	*E-mail*	: **Victor.Kedicioglu@alsenviro.com**		
Telephone	: **6650 5600**	*Telephone*	: **61-2-8784 8555**		
Facsimile	: **- Not provided -**	*Facsimile*	: **61-2-8784 8500**		
Project	: **2213035**	*Quote number*	: **EN/005/07**	*Date received*	: **4 May 2007**
Order number	: **- Not provided -**			*Date issued*	: **15 May 2007**
C-O-C number	: **- Not provided -**			*No. of samples*	- *Received* : **32**
Site	: **- Not provided -**				*Analysed* : **27**

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Accredited for compliance with ISO/IEC 17025.

This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatory	*Position*	*Department*
Ankit Joshi		**Inorganics - NATA 825 (10911 - Sydney)**
Celine Conceicao	**Spectroscopist**	**Inorganics - NATA 825 (10911 - Sydney)**
EDWANDY FADJAR	**Senior Organic Chemist**	**Organics - NATA 825 (10911 - Sydney)**
Pabi Subba		**Organics - NATA 825 (10911 - Sydney)**

Comments

This report for the ALSE reference ES0705876 supersedes any previous reports with this reference. Results apply to the samples as submitted. All pages of this report have been checked and approved for release.

This report contains the following information:

- **Analytical Results for Samples Submitted**
- **Surrogate Recovery Data**

The analytical procedures used by ALS Environmental have been developed from established internationally-recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported herein. Reference methods from which ALSE methods are based are provided in parenthesis.

When moisture determination has been performed, results are reported on a dry weight basis. When a reported 'less than' result is higher than the LOR, this may be due to primary sample extracts/digestion dilution and/or insuffient sample amount for analysis. Surrogate Recovery Limits are static and based on USEPA SW846 or ALS-QWI/EN38 (in the absence of specified USEPA limits). Where LOR of reported result differ from standard LOR, this may be due to high moisture, reduced sample amount or matrix interference. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number, LOR = Limit of Reporting. * Indicates failed Surrogate Recoveries.

ALS Environmental

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: BH1-1	BH2-1	BH3-1	BH4-1	BH5-1
Sample Matrix Type / Description				SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date / Time				3 May 2007 14:30	3 May 2007 14:30	3 May 2007 14:30	3 May 2007 14:30	3 May 2007 14:30
Laboratory Sample ID				ES0705876-001	ES0705876-002	ES0705876-003	ES0705876-004	ES0705876-005
EA002 : pH (Soils)								
pH Value		0.1	pH Unit	8.4	----	8.7	----	9.2
EA055: Moisture Content								
Moisture Content (dried @ 103°C)		1.0	%	9.0	2.5	4.0	11.5	5.1
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	19	108	6	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	11	28	119	20	3
Copper	7440-50-8	5	mg/kg	28	41	93	29	<5
Lead	7439-92-1	5	mg/kg	12	7	12	27	<5
Nickel	7440-02-0	2	mg/kg	10	8	9	17	3
Zinc	7440-66-6	5	mg/kg	59	38	68	96	6
EG035T: Total Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction		10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction		50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction		100	mg/kg	<100	<100	<100	210	<100
C29 - C36 Fraction		100	mg/kg	<100	<100	<100	110	<100
EP080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	117	118	119	112	117
Toluene-D8	2037-26-5	0.1	%	120	121	121	113	106
4-Bromofluorobenzene	460-00-4	0.1	%	118	112	110	105	112

ALS Environmental

Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: BH6-1	BH7-1	BH8-2	BH8-3	BH9-1
Sample Matrix Type / Description:				SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date / Time:				3 May 2007 14:30	3 May 2007 14:30	3 May 2007 14:30	3 May 2007 14:30	3 May 2007 14:30
Laboratory Sample ID:				ES0705876-006	ES0705876-007	ES0705876-008	ES0705876-009	ES0705876-010
EA002 : pH (Soils)								
pH Value		0.1	pH Unit	----	----	8.5	8.4	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)		1.0	%	12.9	19.5	14.3	13.5	10.2
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	8	6	6	6	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	22	10	17	20	8
Copper	7440-50-8	5	mg/kg	35	43	23	27	56
Lead	7439-92-1	5	mg/kg	69	7	10	16	8
Nickel	7440-02-0	2	mg/kg	14	9	11	15	9
Zinc	7440-66-6	5	mg/kg	181	48	59	70	50
EG035T: Total Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	----	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	----	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg	----	----	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg	----	----	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg	----	----	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg	----	----	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg	----	----	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg	----	----	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	----	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg	----	----	<0.5	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	----	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	----	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	----	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	----	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	----	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	----	<0.5	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction		10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction		50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction		100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction		100	mg/kg	<100	<100	<100	<100	<100
EP080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2

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Analytical Results

	Client Sample ID :	BH6-1	BH7-1	BH8-2	BH8-3	BH9-1
	Sample Matrix Type / Description :	SOIL	SOIL	SOIL	SOIL	SOIL
	Sample Date / Time :	3 May 2007 14:30	3 May 2007 14:30	3 May 2007 14:30	3 May 2007 14:30	3 May 2007 14:30
	Laboratory Sample ID :	ES0705876-006	ES0705876-007	ES0705876-008	ES0705876-009	ES0705876-010
Analyte	CAS number	LOR	Units			
EP080: BTEX						
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP075(SIM)S: Phenolic Compound Surrogates						
Phenol-d6	13127-88-3	0.1	%	----	----	67.3	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	----	----	66.9	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%	----	----	50.5	----	----
EP075(SIM)T: PAH Surrogates						
2-Fluorobiphenyl	321-60-8	0.1	%	----	----	76.5	----	----
Anthracene-d10	1719-06-8	0.1	%	----	----	72.9	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	----	----	76.8	----	----
EP080S: TPH(V)/BTEX Surrogates						
1.2-Dichloroethane-D4	17060-07-0	0.1	%	108	102	118	115	120
Toluene-D8	2037-26-5	0.1	%	94.2	91.8	108	99.4	101
4-Bromofluorobenzene	460-00-4	0.1	%	101	100	114	108	111

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Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: BH10-1	BH11-1	BH13-1	BH14-1	BH15-1
Sample Matrix Type / Description				SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date / Time				3 May 2007 14:30	3 May 2007 14:30	3 May 2007 14:30	3 May 2007 14:30	3 May 2007 14:30
Laboratory Sample ID				ES0705876-011	ES0705876-012	ES0705876-013	ES0705876-014	ES0705876-015
EA002 : pH (Soils)								
pH Value		0.1	pH Unit	9.7	----	----	9.3	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)		1.0	%	7.6	11.7	5.6	6.7	14.0
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	6
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	8	14	8	9	10
Copper	7440-50-8	5	mg/kg	59	17	64	60	27
Lead	7439-92-1	5	mg/kg	5	17	5	<5	10
Nickel	7440-02-0	2	mg/kg	9	9	10	8	15
Zinc	7440-66-6	5	mg/kg	65	53	67	56	67
EG035T: Total Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction		10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction		50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction		100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction		100	mg/kg	<100	<100	<100	<100	<100
EP080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	92.1	115	98.6	120	85.8
Toluene-D8	2037-26-5	0.1	%	104	102	102	99.0	87.0
4-Bromofluorobenzene	460-00-4	0.1	%	89.3	111	94.8	111	81.7

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Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: BH16-2	BH17-1	BH18-1	BH18-2	BH19-1
Sample Matrix Type / Description				SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date / Time				3 May 2007 14:30	3 May 2007 14:30	3 May 2007 14:30	3 May 2007 14:30	3 May 2007 14:30
Laboratory Sample ID				ES0705876-016	ES0705876-017	ES0705876-018	ES0705876-019	ES0705876-020
EA002 : pH (Soils)								
pH Value		0.1	pH Unit	9.0	----	9.0	----	8.8
EA055: Moisture Content								
Moisture Content (dried @ 103°C)		1.0	%	5.0	9.0	16.7	13.3	17.0
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	8	7	11	11	13
Copper	7440-50-8	5	mg/kg	<5	<5	16	16	15
Lead	7439-92-1	5	mg/kg	6	6	23	22	17
Nickel	7440-02-0	2	mg/kg	3	3	10	12	16
Zinc	7440-66-6	5	mg/kg	9	9	107	107	32
EG035T: Total Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	----	1.8	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	----	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg	----	----	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg	----	----	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg	----	----	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg	----	----	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg	----	----	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg	----	----	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	----	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg	----	----	<0.5	----	----
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	----	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	----	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	----	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	----	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	----	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	----	<0.5	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction		10	mg/kg	<10	<10	24	22	<10
C10 - C14 Fraction		50	mg/kg	<50	<50	1020	870	<50
C15 - C28 Fraction		100	mg/kg	<100	<100	2070	1800	<100
C29 - C36 Fraction		100	mg/kg	<100	<100	<100	<100	<100
EP080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2

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Analytical Results

Client Sample ID				BH16-2	BH17-1	BH18-1	BH18-2	BH19-1
Sample Matrix Type / Description				SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date / Time				3 May 2007 14:30	3 May 2007 14:30	3 May 2007 14:30	3 May 2007 14:30	3 May 2007 14:30
Laboratory Sample ID				ES0705876-016	ES0705876-017	ES0705876-018	ES0705876-019	ES0705876-020
Analyte	**CAS number**	**LOR**	**Units**					
EP080: BTEX								
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	2.4	2.2	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	1.0	0.9	<0.5
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	----	----	74.0	----	----
2-Chlorophenol-D4	93951-73-6	0.1	%	----	----	73.2	----	----
2.4.6-Tribromophenol	118-79-6	0.1	%	----	----	59.4	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	----	----	78.9	----	----
Anthracene-d10	1719-06-8	0.1	%	----	----	74.1	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	----	----	75.7	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.1	%	91.2	89.3	90.1	91.4	97.6
Toluene-D8	2037-26-5	0.1	%	94.1	96.3	90.9	97.1	86.1
4-Bromofluorobenzene	460-00-4	0.1	%	88.2	90.0	88.5	95.8	96.8

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Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: BH20-1	BH12-1	COMP 1	COMP 2	COMP 3
Sample Matrix Type / Description				SOIL	SOIL	SOIL	SOIL	SOIL
Sample Date / Time				3 May 2007 14:30	3 May 2007 14:30	3 May 2007 10:00	3 May 2007 10:00	3 May 2007 10:00
Laboratory Sample ID				ES0705876-021	ES0705876-022	ES0705876-023	ES0705876-024	ES0705876-025
EA002 : pH (Soils)								
pH Value		0.1	pH Unit	----	9.0	----	----	----
EA055: Moisture Content								
Moisture Content (dried @ 103°C)		1.0	%	12.3	5.6	9.1	7.8	6.8
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg	8	8	----	----	----
Copper	7440-50-8	5	mg/kg	11	61	----	----	----
Lead	7439-92-1	5	mg/kg	10	8	----	----	----
Nickel	7440-02-0	2	mg/kg	7	11	----	----	----
Zinc	7440-66-6	5	mg/kg	24	68	----	----	----
EG035T: Total Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.1	<0.1	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls		0.10	mg/kg	----	----	<0.10	<0.10	<0.10
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
4.4'-DDE	72-55-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
4.4'-DDD	72-54-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
4.4'-DDT	50-29-3	0.2	mg/kg	----	----	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	----	----	<0.2	<0.2	<0.2

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Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: BH20-1 Sample Matrix Type / Description: SOIL Sample Date / Time: 3 May 2007 14:30 Laboratory Sample ID: ES0705876-021	Client Sample ID: BH12-1 Sample Matrix Type / Description: SOIL Sample Date / Time: 3 May 2007 14:30 Laboratory Sample ID: ES0705876-022	Client Sample ID: COMP 1 Sample Matrix Type / Description: SOIL Sample Date / Time: 3 May 2007 10:00 Laboratory Sample ID: ES0705876-023	Client Sample ID: COMP 2 Sample Matrix Type / Description: SOIL Sample Date / Time: 3 May 2007 10:00 Laboratory Sample ID: ES0705876-024	Client Sample ID: COMP 3 Sample Matrix Type / Description: SOIL Sample Date / Time: 3 May 2007 10:00 Laboratory Sample ID: ES0705876-025
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	----	----	0.8	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	----	----	<0.5	0.6	<0.5
Anthracene	120-12-7	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	----	----	1.1	2.1	<0.5
Pyrene	129-00-0	0.5	mg/kg	----	----	1.5	2.0	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	----	0.6	0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	----	----	0.6	1.3	<0.5
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	----	----	1.6	1.4	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	----	0.7	0.7	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	----	1.3	0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	----	1.0	0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	----	1.4	0.6	<0.5
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction		10	mg/kg	<10	<10	----	----	----
C10 - C14 Fraction		50	mg/kg	<50	<50	----	----	----
C15 - C28 Fraction		100	mg/kg	<100	<100	----	----	----
C29 - C36 Fraction		100	mg/kg	<100	<100	----	----	----
EP080: BTEX								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	61.5	71.3	69.4
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.1	%	----	----	99.1	101	101
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.1	%	----	----	128	113	115
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.1	%	----	----	79.0	73.3	70.3
2-Chlorophenol-D4	93951-73-6	0.1	%	----	----	76.6	71.7	68.2

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Analytical Results

				Client Sample ID :	BH20-1	BH12-1	COMP 1	COMP 2	COMP 3
				Sample Matrix Type / Description :	SOIL	SOIL	SOIL	SOIL	SOIL
				Sample Date / Time :	3 May 2007 14:30	3 May 2007 14:30	3 May 2007 10:00	3 May 2007 10:00	3 May 2007 10:00
				Laboratory Sample ID :					
Analyte	*CAS number*	*LOR*	*Units*		ES0705876-021	ES0705876-022	ES0705876-023	ES0705876-024	ES0705876-025
EP075(SIM)S: Phenolic Compound Surrogates									
2.4.6-Tribromophenol	118-79-6	0.1	%		----	----	67.8	64.1	56.2
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%		----	----	86.4	80.9	76.6
Anthracene-d10	1719-06-8	0.1	%		----	----	79.0	76.4	72.0
4-Terphenyl-d14	1718-51-0	0.1	%		----	----	81.0	81.1	76.9
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.1	%		78.9	82.8	----	----	----
Toluene-D8	2037-26-5	0.1	%		93.5	92.8	----	----	----
4-Bromofluorobenzene	460-00-4	0.1	%		82.2	84.6	----	----	----

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Analytical Results

Analyte	CAS number	LOR	Units	Client Sample ID: COMP 4 Sample Matrix Type / Description: SOIL Sample Date / Time: 3 May 2007 10:00 Laboratory Sample ID: ES0705876-026	Client Sample ID: COMP 5 Sample Matrix Type / Description: SOIL Sample Date / Time: 3 May 2007 10:00 Laboratory Sample ID: ES0705876-027			
EA055: Moisture Content								
Moisture Content (dried @ 103°C)		1.0	%	13.2	8.3			
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls		0.10	mg/kg	<0.10	<0.10			
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05			
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05			
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05			
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05			
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05			
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05			
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05			
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05			
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05			
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05			
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05			
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05			
4.4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05			
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05			
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05			
4.4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05			
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05			
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05			
4.4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2			
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05			
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2			
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----			
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----			
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----			
Fluorene	86-73-7	0.5	mg/kg	<0.5	----			
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----			
Anthracene	120-12-7	0.5	mg/kg	<0.5	----			
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----			
Pyrene	129-00-0	0.5	mg/kg	<0.5	----			
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----			
Chrysene	218-01-9	0.5	mg/kg	<0.5	----			
Benzo(b)fluoranthene	205-99-2	0.5	mg/kg	<0.5	----			

ALS Environmental

Analytical Results

				Client Sample ID :	COMP 4	COMP 5			
				Sample Matrix Type / Description :	SOIL	SOIL			
				Sample Date / Time :	3 May 2007 10:00	3 May 2007 10:00			
				Laboratory Sample ID :					
Analyte	*CAS number*	*LOR*	*Units*		ES0705876-026	ES0705876-027			
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	----			
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----			
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----			
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----			
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----			
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		63.2	65.8			
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.1	%		92.1	98.4			
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.1	%		104	93.9			
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.1	%		72.8	----			
2-Chlorophenol-D4	93951-73-6	0.1	%		71.3	----			
2.4.6-Tribromophenol	118-79-6	0.1	%		60.6	----			
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.1	%		80.7	----			
Anthracene-d10	1719-06-8	0.1	%		76.1	----			
4-Terphenyl-d14	1718-51-0	0.1	%		82.2	----			

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Surrogate Control Limits

Matrix Type: SOIL - Surrogate Control Limits ***Surrogate Control Limits***

Method name	*Analyte name*	*Lower Limit*	*Upper Limit*
EP066: Polychlorinated Biphenyls (PCB)			
EP066S: PCB Surrogate	Decachlorobiphenyl	10	164
EP068: Pesticides by GCMS			
EP068S: Organochlorine Pesticide Surrogate	Dibromo-DDE	10	136
EP068T: Organophosphorus Pesticide Surrogate	DEF	10	136
EP075(SIM): PAH/Phenols (SIM)			
EP075(SIM)S: Phenolic Compound Surrogates	Phenol-d6	24	113
	2-Chlorophenol-D4	23	134
	2,4,6-Tribromophenol	19	122
EP075(SIM)T: PAH Surrogates	2-Fluorobiphenyl	30	115
	Anthracene-d10	27	133
	4-Terphenyl-d14	18	137
EP080: TPH Volatiles/BTEX			
EP080S: TPH(V)/BTEX Surrogates	1,2-Dichloroethane-D4	80	120
	Toluene-D8	81	117
	4-Bromofluorobenzene	74	121

GHD Pty Ltd ABN 39 008 488 373

352 King St Newcastle NSW 2300
PO Box 5403 Hunter Region Mail Centre NSW 2310
T: (02) 4979 9999 F: (02) 4979 9988 E: ntlmail@ghd.com.au

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		Name	Signature	Name	Signature	Date
0	B Luffman	T Millen	Ben	M Armstrong		25/5/07