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Report

Phase 1 - Preliminary Contamination Assessment
Proposed Mixed Use Building Development
Lot 1 in DP 227083 and Lot 201 in DP 233376,
Nos 5-7 Northumberland Avenue
Auburn NSW

Prepared for:
Zhinar Architects Pty Ltd
Suite 1, Level 2 Rowe Street
EASTWOOD NSW 2122

Ref: JE14578A
December 2014

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16th December 2014

Our Ref: JE14578A-r1

Zhinar Architects Pty Ltd
Suite 1, Level 2 Rowe Street
EATSWOOD NSW 2122

Attention: Mr Angus Henson

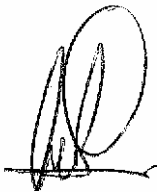
Dear Sir

Re: Phase 1 Preliminary Contamination Assessment Report
Proposed Mixed Use Building Development
Lot 1 in DP 227083 and Lot 201 in DP 233376
No 5-7 Northumberland Road, Auburn

Please find attached our Phase 1 Contamination Assessment report for the proposed mixed Use building development to be located at the site referred to as Lot 1 in DP 227083 and Lot 201 in DP 233376, No 5-7 Northumberland Road, Auburn

If there are any queries regarding this report, please contact the undersigned.

Yours faithfully,
GeoEnviro Consultancy Pty Ltd



Solern Liew CPEng
Director

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Drawing No 1: Site Features Plan

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1. INTRODUCTION

This report presents the results of a Phase 1 Preliminary Contamination Assessment for the property referred to as Lot 101 DP 31359 No 5-7 No 5-7 Northumberland Road Auburn as shown on Drawing No 1.

The investigation was commissioned by Mr Vince Bilotta of Zhinar Architects via a Phone Conversation; following our fee proposal referenced PC14693B dated 5th December 2014.

We understand that the proposed development will include construction of a mixed use residential/commercial building with basement car parking.

This study is required as a prerequisite to the processing of a Development Application by Council for the proposed residential development.

2. OBJECTIVE AND SCOPE OF WORKS

The preliminary contamination assessment was performed in general conformance with our understanding of the guidelines by the Australian and New Zealand Conservation Council (ANZECC), the NSW Environment Protection Authority (NSW EPA) and the Office of Environment and Heritage (OEH).

- A review of historic title information obtained from the Department of Lands,
- A review of aerial survey photographs for the last 60 years,
- A review of Department of Natural Resources groundwater bore data,
- A review of published information on the subsurface conditions in the general area,
- A search on the NSW EPA contaminated land register
- A review of Council's Section 149 (2) certificate,
- An inspection of the site to identify apparent or suspected areas of contamination.

3. SITE INFORMATION

3.1 Site Location

The site is located on the eastern side of Northumberland Road in Auburn approximately 45m from the intersection with Rawson Street. The site is irregular in shape measuring about 42m along the Northumberland Road frontage, 60m along the northern boundary and 45m along the southern boundary. Total site area is approximately 2100m^2.

Geographical location of the site is about 298400 Easting and 6250800 Northing. Refer to Drawing 1 for site locality.

The site abuts to a roadway to the south, commercial premises to the north and a car park area to the east.

The site is within the jurisdiction of Auburn City Council, Parish of Liberty Plains and the County of Cumberland.

3.2 Site Topography and Geography

The site is situated on gently undulating terrain with ground surface within the site approximately level. Surrounding natural ground surface has a slight fall to the north and east.

The 1:100,000 Soil Landscape of Sydney Series 9030 (Reference 1) prepared by the Soil Conservation Services of NSW indicates the site to be underlain by Residual soil belonging to the Blacktown landscape grouping. Typically soil consists of highly plastic moderately reactive clay of low permeability.

Based on the 1:100,000 geological map of Sydney (Reference 2); the site is situated in the transition zone between Bringelly Shale of the Wianamatta Group which consists of Shale, Carbonaceous claystone, claystone, laminite, dine to medium grained lithic sandstones, rare coal and tuff and Ashfield Shale also of the Wianamatta Group which consists of Black0dark grey shale and laminite and also has Minchinbury Sandstone in the interchange.

3.3 Hydrogeology

Groundwater is expected to flow in a general north westerly direction or south easterly direction towards either Duck River or Haslams Creek; the site is situated equidistant from both water courses. Both water courses flow to the north into Parramatta River.

Based on our local knowledge and previous investigation of the general surrounding area, we expect permanent groundwater table to be at a significant depth (i.e. in excess of 3m from ground surface.).

Infiltration of surface water through subsurface ground is expected to be limited due to the highly plastic subsoils present.

A study of groundwater conditions beneath the site and search of the NSW Department Infrastructure, Planning and Natural Resources groundwater database for the region was carried out. The search identified registered bores within 1km from the site; however, no information was recorded for them

Reference should be made to the Work Summary search in Appendix B for details. Based on the above information, the groundwater is not considered a significant resource in the immediate area of the site.

3.4 Site Inspection and Description

A site inspection was carried out on 10th December 2014 by an environmental scientist to observe existing site features and identify obvious or suspected areas of potential contamination.

At the time of the site inspection, the site was occupied by a brick building (Auburn Soccer Sports Club) with car parking areas at the rear and a driveway along the southern boundary providing street access to the car park. The entire site is covered with concrete slabs or bitumen pavements. The rear portion of the building and the adjacent northern building is situated about 1.2m below the car park suggesting the car park to have been raised and levelled by fill.

Refer to Appendix A for site photographs and Drawing No 1 for site feature plan. There were no obvious signs of gross ground contamination in the form of staining, odour or discolouration.

4. SITE INFORMATION

4.1 Historical Title search

Description of historical information on the previous owners of the site was obtained from the Department of Lands. The information can often be linked to possible land uses and provides an indication of potential contamination on the site.

The historical title search indicated the land to have been owned by individuals with occupations such as builders and dentists from the 1920s up to the mid 1960s. The site was purchased by the Auburn Soccer Sports Club Limited in the mid 1960s and they are the current owners of the property.

4.2 Aerial Photographs

A review of aerial photographs from 1930 to 1986 was carried out. The following is a summary of the observations made from the review.

Year	Reference	Description
1930	Map 3424, Run 4, Sydney 06/03/1930	The site appeared to consist of two residential dwellings fronting Northumberland road with small front lawns and relatively larger backyards. Surrounding properties appeared to consist of residential premises and commercial premises.
1951	NSW 467-133, Run 12 May 1951	The site appeared to consist of a commercial premise in the north western corner of the site. The remainder of the site appeared to consist of 3 residential dwellings. Surrounding properties appeared to consist of residential premises and commercial premises.
1961	NSW 1068-5029, Run 33 1961	The northern portion of the subject site is occupied by a large building. The southern portion appeared to have one commercial premise in the north eastern corner and one residential dwelling in the south western corner. The eastern portion of the site appeared to contain a number of small shed structures. Surrounding properties appeared to consist of residential premises and commercial premises.

Year	Reference	Description
1970	NSW 1909-5200, Run 16W, 07/07/1970	The buildings in the southern portion of the site were no longer present and it appeared that the large building to the north has been extended. The remainder of the site appeared to be used as parking areas for vehicles. Surrounding properties appeared to consist of residential premises and commercial premises.
1986	NSW 3528-84, Run 21, 03/08/1986	Subject site and surrounds appeared similar to 1970s

4.3 NSW EPA Records

A search of NSW EPA contaminated land register and licensing register indicate the subject site to have no records kept under the Contaminated Land Management Act 1997 and Environmentally Hazardous Chemical Act 1985.

Refer to Appendix B for details of the NSW EPA search.

4.4 WorkCover NSW Dangerous Goods Register

A search was carried out by WorkCover NSW for the subject site. WorkCover did not have any records kept under the licence to keep dangerous goods register for the subject site. Refer to Appendix C for a copy of the WorkCover search.

4.5 Section 149 (2) Certificate

A review of the Auburn City Council's Section 149 certificate indicates that under Part 5 Section 59 of the Contaminated Land Management Act 1997- notifies that the subject site is not an investigation area, remediation site, is subject to an investigation order; or a remediation order; or is the subject of a voluntary investigation proposal; or is the subject of a site audit statement, under the provisions of the Act.

Refer to the certificate in Appendix C for details.

5. POTENTIAL FOR CONTAMINATION

5.1 Onsite Source

Agricultural Site Use

Searches of the site history as far back as 1916 give no indication that the land has been subjected to agricultural activities in the past and a review of aerial photographs show that no agricultural activity has occurred on the subject site since at least the 1930s.

Prior to 1916 the use of the land is unknown, however if the land had been subject to agricultural activities it should not pose a problem due to the fact that Organochlorine Pesticides is known to only have residue levels lasting up to 20 years, whilst Organophosphorus Pesticides (OPP), herbicides and fungicides are even less persistent in the environment.

From these findings the likelihood of gross ground contamination from past agricultural activities is considered low.

Existing Structures

The existing building which extends over the major portion of the site is being used as a club house and previous buildings were mainly used for residential. These buildings are not linked with activities with high risks of site contamination. There were no obvious signs of buried structures or tanks used for storage of fuel or chemicals.

We therefore consider the risk contamination from previous and current anthropogenic activities is considered low.

We note however that the rear and southern portions of the site are covered by bitumen pavements and it is common for old bitumen pavements to contain coal tar and hydrocarbon compounds (eg PAH). Should the old bitumen pavement contains these substances, there is a risk of these contaminants leaching into the underlying subbase and subgrade.

Dust generated from milling of the bitumen pavement surface during construction has a potential to cause an occupation health hazard and therefore adequate measures should be in placed to suppress dust.

Buried Fill

The presence of buried rubbish fill was not fully investigated in this Phase 1 assessment however based on our review of aerial photographs, ground surface within the site appeared to be generally undisturbed except the rear portion where fill is possibly used to raise and level the carpark.

Fill from unknown sources has the potential to be contaminated. Common contaminants may include Heavy Metals (As, Cd, Cr, Pb, Zn, As, Hg and Cu), organichlorine pesticides (OCP), Polychlorinated Biphenyls (PCB), Total Petroleum Hydrocarbons (TPH), Benzene, Toluene, Xylenes and Ethyl Xylenes (BTEX) and Polycyclic Aromatic Hydrocarbons (PAH).

Fill contamination within the site if exist is likely to be confined to the rear portion of the site.

5.2 Off-Site Source

The site is situated within a mixed residential and commercial area and there were no service station sites, heavy industrial premises or factories within close proximity to the site.

Based on our knowledge of the area, we expect the site to be underlain by residual clay and shale of low permeability with no natural ground water table at shallow depths (ie within 3m from surface).

Based on the above, we consider the risk of off site migration of contaminants into the subject site from runoff of adjoining sites or groundwater flows is considered low.

6. PRELIMINARY CONTAMINATION ASSESSMENT

This Phase 1 - Preliminary Contamination Assessment provides our preliminary comments on potential subsurface soil contamination of the site and the scope of this assessment was based on a site history appraisal and a visual site inspection. The conclusions presented in this report are professional opinions based solely upon visual observations of the site and its vicinity and our interpretation of the documentation made available. The quantitative level and extent of any contamination present could not be determined from this limited scope of work and the assessment has not undertaken any independent validation of the advice provided.

We understand that the Subject Site is to be developed into a mixed use (commercial/residential) building with basement car parking.

The Subject Site appeared to have been used for residential and commercial up until when the club building was constructed. There were no obvious contaminating activities present based on the review of historical gap data and there was no record of previous licenses issued by Workcover for storage of dangerous goods.

Based on the results of this preliminary study, we consider the risk of significant soil contamination within the Subject Site to be generally low and the site is suitable for the proposed residential Mixed Use Development.

Care should be taken during the construction stage of development. As this study was based only on visual information and the site was fully developed at the time of investigation there remains the risk of unexpected finds. Should buried rubbish or potential contaminated material be encountered during construction, the material must be appropriately classified before removal.

In the event where buried bonded asbestos fragments are encountered on the Subject Site during site excavation and construction, an unexpected asbestos finds protocol as detailed in Appendix D should be initiated.

7. LIMITATION

This report is intended exclusively for the purposes outlined in Section 1 and 2 of this report. The scope of services performed in the execution of this investigation may not be appropriate to satisfy the needs of other uses.

It should be recognised that this assessment is not intended to be a definitive or quantitative investigation of the environmental impacts of the subject property and operations. Opinions and recommendations presented herein apply to the site as it existed at the time of the site inspection and cannot apply to changes of which GeoEnviro Consultancy is not aware and has not had the opportunity to, such as future illegal dumping of rubbish.

Your attention is drawn to Appendix E "Important Information about Your Environmental Site Assessment" in conjunction with which this report must be read, as it details important limitations regarding the investigation undertaken and this report. The statements presented in this document are intended to advise you of what should be your realistic expectations of this report and to present you with recommendations on how to minimise the risks associated with the ground works for this project. The document is not intended to reduce the level of responsibility accepted by GeoEnviro Consultancy, but rather to ensure that all parties who rely on this report are aware of the responsibilities each assumes in so doing.

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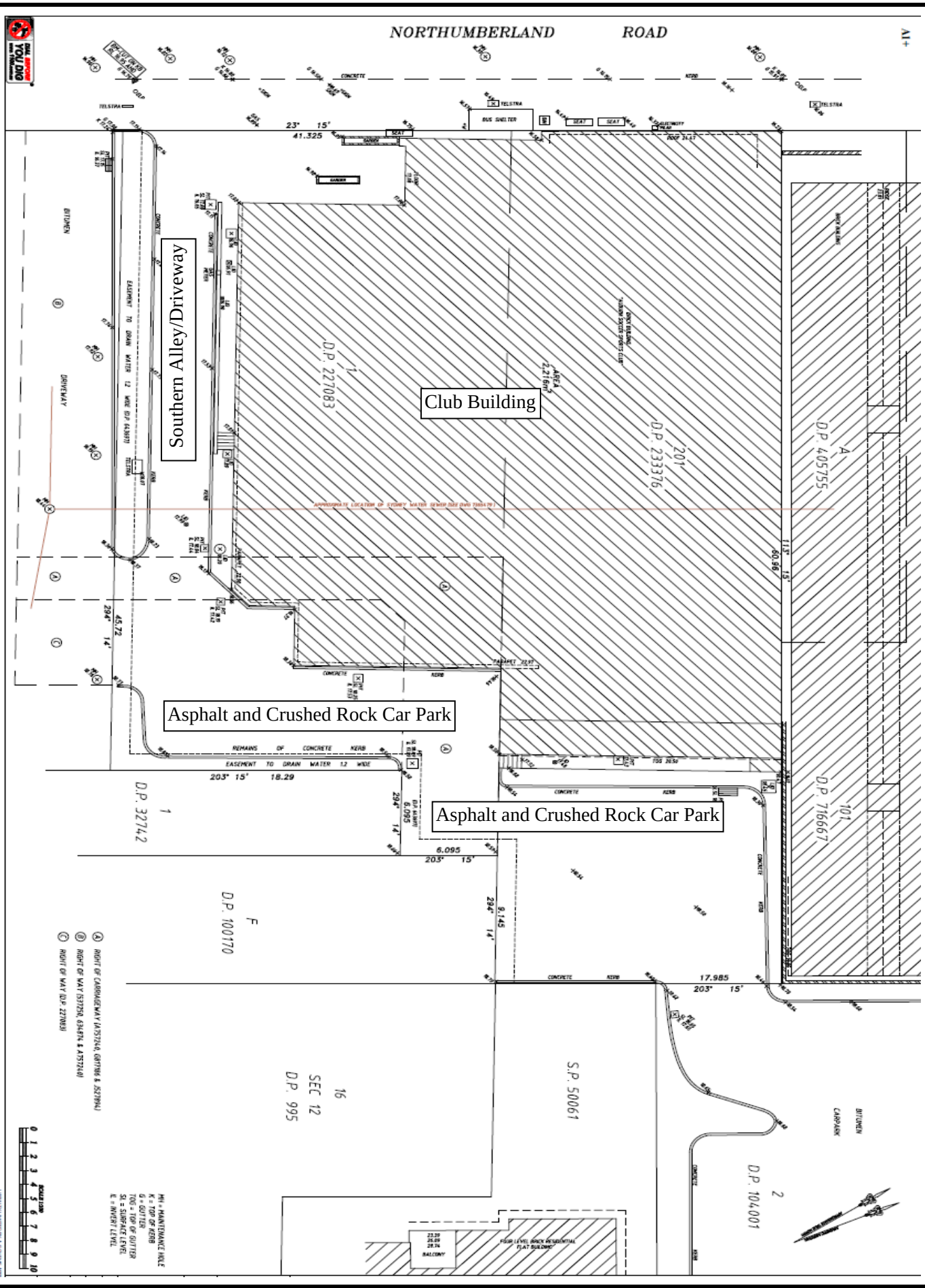
REFERENCES

1. *1:100,000 Geological Map of Sydney – Geological Series Sheet 9130 (Edition 1) 1986*
2. *1:100,000 Soil Landscape Map of Sydney– Soil Conservation Service of NSW ; Sheet 9130*



GeoEnviro Consultancy Pty Ltd Unit 5, 39-41 Fourth Avenue, Blacktown NSW 2148, Australia Tel: (02) 96798733 Fax: (02) 96798744	**Drawn By: SG**	**Date: 16/12/2014**	**Zhinar Architects Pty Ltd**
	Checked By: SL	**Date: 16/12/2014**	**No 5-7 Northumberland Road, Auburn**
	Revision:	**Date:**	**Site Features Plan**
	Scale: Refer to Scale Bar	**A4**	**Project No: JE14578A** / **Drawing No: 1**

APPENDIX A

Site Photograph

Photo 1:Auburn Soccer Sports Club Building

Photo 2: Southern Alley/Driveway

Photo 3: Rear Car Park and Loading Bay

Photo 4: Rear Car Park

APPENDIX B

WorkCover, NSW EPA Records and Groundwater Bore Searches

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

Our Ref: D14/158887
Your Ref: Steven Goss

15 December 2014

Attention: Steven Goss
GeoEnviro Consultancy Pty Ltd
PO BOX 1543
Macquarie Centre
North Ryde NSW 2113

Dear Mr Goss,

RE SITE: 5-7 Northumberland Rd Auburn NSW

I refer to your site search request received by WorkCover NSW on 8 December 2014 requesting information on licences to keep dangerous goods for the above site.

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

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

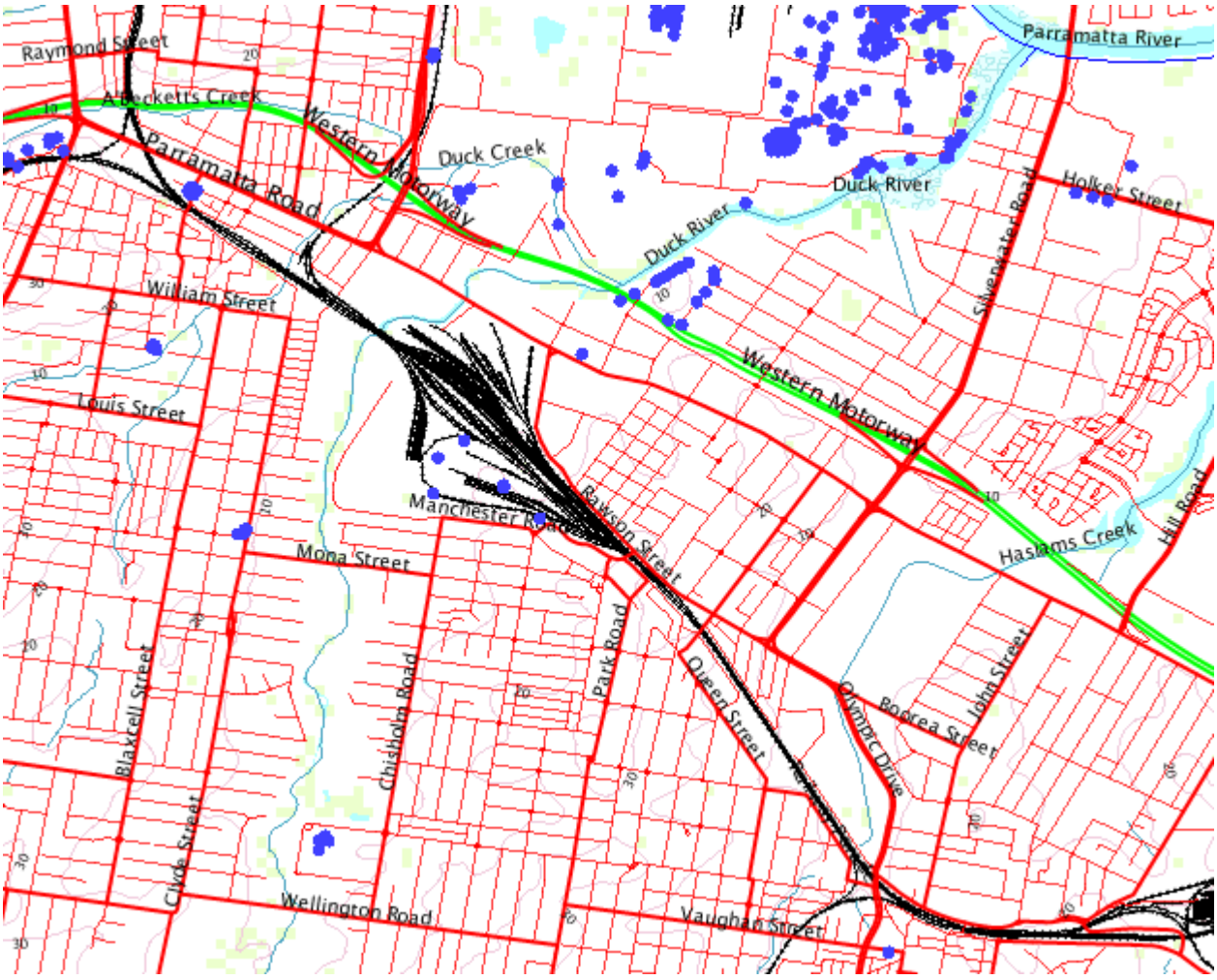
Yours Sincerely

Brent Jones
Senior Licensing Officer
Dangerous Goods Team

Auburn

Map created with NSW Natural Resource Atlas - http://nratlas.nsw.gov.au

Tuesday, December 16, 2014



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Legend

Symbol	Layer	Custodian
	Cities and large towns renderImage: Cannot build image from features	
Cowra	Populated places renderImage: Cannot build image from features	
	Towns	
	Groundwater Bores	
	Catchment Management Authority boundaries	
	Major rivers	
	Topographic base map	

Healthy Environment, Healthy Community, Healthy Business

Search results

Your search for: Text: Environmentally Hazardous Chemicals Act 1985
LGA: Auburn Council
Date from: 01 Jan 1985

Search Again
Refine Search

did not find any records in our database.

If a site does not appear on the record it may still be affected by contamination. For example:

- Contamination may be present but the site has not been regulated by the EPA under the Contaminated Land Management Act 1997 or the Environmentally Hazardous Chemicals Act 1985.
- The EPA may be regulating contamination at the site through a licence or notice under the Protection of the Environment Operations Act 1997 (POEO Act).
- Contamination at the site may be being managed under the planning process.

Search TIP

To search for a specific site, search by LGA (local government area) and carefully review all sites listed.

... more search tips

More information about particular sites may be available from:

- The POEO public register
- The appropriate planning authority: for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act.

See What's in the record and What's not in the record.

16 December 2014

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Healthy Environment, Healthy Community, Healthy Business

Search results

Your search for: Text: Contaminated Land Management Act 1997
LGA: Auburn Council
Date from: 01 Jan 1997

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APPENDIX C

Section 149 (2) Certificate

Appendix D

Unexpected Asbestos Finds Protocol

Unexpected Asbestos Finds

If asbestos is detected in area not identified as containing asbestos prior to, or during, bulk excavation works the following 'Unexpected Finds Protocol' will apply:

- Upon discovery of suspected asbestos containing material, the site manager is to be notified and the affected area closed off by the use of barrier tape and warning signs. Warning signs shall be specific to Asbestos Hazards and shall comply with the Australian Standard 1319-1994 – Safety Signs for the Occupational Environment;
- Work shall comply with WorkCover requirements including *Working with Asbestos*, *2008*;
- An OHS consultant or a hygienist is to be notified to inspect the area and confirm the presence of asbestos and determine whether the asbestos is classified as friable or bonded asbestos and determine the extent of remediation works to be undertaken. A report detailing this information will be compiled by the OHS consultant and provided to the Site Manager (SM) (or his representative);
- The impacted soil will be classified and disposed of, as a minimum, as Special Waste (Asbestos) at an appropriately licensed facility. In dry and windy conditions the stockpile will be kept lightly wetted and may be covered with plastic sheet whilst awaiting disposal;
- All work associated with asbestos in soil will be undertaken by a contractor holding a class AS-1 Licence (friable) or AS2 Licence for bonded asbestos, as appropriate. WorkCover must be notified 7 days in advance of any asbestos works;
- Monitoring for airborne asbestos fibres is to be carried out during the soil excavation in asbestos contaminated materials;
- Documentary evidence (weighbridge dockets) of correct disposal is to be provided to the Principal (or their representative);
- At the completion of the excavation, a clearance inspection is to be carried out, soil samples taken and analysed for asbestos fibres followed by written certification provided by an OHS Consultant that the area is safe to be accessed and worked (with respect to asbestos impact). If required, the filling material remaining in the inspected area can be covered/ sealed by an appropriate physical barrier layer of non-asbestos containing material prior to sign–off;
- Details are to be recorded in the site record system;
- Following clearance by an OHS Consultant or hygenist, the area may be reopened for further excavation or construction work.

Appendix E

Important Information about your Environmental Site Assessment

IMPORTANT INFORMATION REGARDING YOUR ENVIRONMENTAL SITE ASSESSMENT

These notes have been prepared by GeoEnviro Consultancy Pty Ltd, using guidelines prepared by ASFE. The Association of Engineering Firms Practising in the Geosciences. The notes are offered as an aid in the interpretation of your environmental site assessment report.

REASONS FOR AN ENVIRONMENTAL SITE ASSESSMENT

Environmental site assessments are typically, though not exclusively, performed in the following circumstances:

- As a pre- acquisition assessment on behalf of either a purchaser or a vendor, when a property is to be sold
- As a pre-development assessment, when a property or area of land is to be redeveloped, or the land use has change, eg from a factory to a residential subdivision
- As a pre-development assessment of greenfield sites, to establish baseline conditions and assess environmental, geological and hydrological constraints to the development of, eg, a landfill
- As an audit of the environmental effects of previous and present site usage

Each circumstance requires a specific approach to the assessment of soil and groundwater contamination. In all cases the objective is to identify and if possible, quantify the risks which unrecognised contamination poses to the ongoing or proposed activity. Such risk may be both financial (clean-up costs or limitations in site use) and physical (health risks to site users or the public).

ENVIRONMENTAL SITE ASSESSMENT LIMITATIONS

Although information provided by an environmental site assessment can reduce exposure to the risk of the presence of contamination, no environmental site assessment can eliminate the risk. Even a rigorous professional assessment may not detect all contamination within a site. Contaminants may be present in areas that were not surveyed or sampled, or may migrate to areas which did not show signs of contamination when sampled. Contaminant analysis cannot possibly cover every type of contaminant which may occur, only the most likely contaminants are screened.

AN ENVIRONMANTAL SITE ASSESSMENT REPORT IS BASED ON A UNIQUE SET OF PROJECT SPECIFIC FACTORS

Your environmental assessment report should not be used;

- When the nature of the proposed development is changed, eg, if a residential development is proposed, rather than a commercial development

- When the size or configuration of the proposed development is altered, eg, if a basement is added

- When the location or orientation of the proposed structure is modified
- When there is a change of land ownership, or
- For application to an adjacent site

In order to avoid costly problems, you should ask your consultant to assess any changes in the project since the assessment and the implications, if any, to recommendations made in the assessment.

ENVIRONMENTAL SITE ASSESSMENT FINDINGS ARE PROFESSIONAL ESTIMATES

Site assessment identifies actual sub-surface conditions only at those points where samples are taken, when they are taken. Data obtained from the sampling and subsequent laboratory analyses are interpreted by geologists, engineers or scientist and opinions are drawn about the overall subsurface conditions, the nature and extent of contamination, the likely impact on any proposed development and appropriate remediation measures. Actual conditions may differ from those inferred, because no professional, no matter how qualified and no sub-surface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than an assessment indicates. Actual conditions in areas not sampled may differ from predictions. Nothing can be done to prevent the unanticipated, however, steps can be taken to help minimise the impact. For this reason, site owner should retain the services of their consultants throughout the development stage of the project in order to identify variances, conduct additional tests which may be necessary and to recommend solutions to problems encountered on site.

Soil and groundwater contamination is a field in which legislation and interpretation of legislation by government departments is changing rapidly. Whilst every attempt is made by GeoEnviro Consultancy Pty Ltd to be familiar with current policy, our interpretation of the investigation findings should not be taken to be that of the relevant authority. When approval from a statutory authority is required for a project, that approval should be directly sought.

STABILITY OF SUB-SURFACE CONDITIONS

Sub-surface conditions can change by natural processes and site activities. As an environmental site assessment is based on conditions existing at the time of the investigation, project decisions should not be based on environmental site assessment data which may have been affected by time. The consultant should be requested to advise if additional tests are required.

ENVIRONMENTAL SITE ASSESSMENTS ARE PERFORMED FOR SPECIFIC PURPOSES AND CLIENTS

Environmental site assessments are prepared in response to a specific scope of work required to meet the specific needs or specific individuals. An assessment prepared for a consulting civil engineer may not be adequate to a construction contractor or another civil engineer.

An assessment should not be used by other persons for any purpose, or by the client for a different purposes. No individual, other than the client, should apply an assessment, even for its intended purposes, without first conferring with the consultant. No person should apply an assessment for any purposes other than that originally contemplated, without first conferring with the consultant.

MISINTERPRETATION OF ENVIRONMENTAL SITE ASSESSMENTS

Costly problems can occur when design professionals develop plans based on misinterpretation of an environmental site assessment. In order to minimise problems, the environmental consultant should be retained to work with appropriate design professionals, to explain relevant findings and to review the adequacy of plans and specifications relative to contamination issues.

LOGS SHOULD NOT BE SEPARATED FORM THE REPORT

Borehole and test pit logs are prepared by environmental scientists, engineers or geologist, based upon interpretation of field conditions and laboratory evaluation of field samples. Field logs normally provided in our reports and these should not be redrawn for inclusion in site remediation or other design drawings, as subtle but significant drafting errors or omissions may occur in the transfer process. Photographic reproduction can eliminate this problem, however, contractors can still misinterpret the logs during bid preparation if separated from the test of the assessment. Should this occur, delays and disputes , or unanticipated costs may result.

To reduce the likelihood of boreholes and test pit logs misinterpretation, the complete assessment should be available to persons or organisations involved in the project, such as contractors, for their use. Denial of such access and disclaiming responsibility for the accuracy of sub-surface information does not insulate an owner from the attendant liability. It is critical that the site owner provides all available site information to persons and organisations, such as contractors.

READ RESPONSIBILITY CLAUSES CLOSELY

An environmental site assessment is based extensively on judgement and opinion, therefore, it is necessarily less exact than other disciplines. This situation has resulted in wholly unwarranted claim being lodged against consultants. In order to aid in prevention of this problem, model clauses have been developed for use in written transmittals. These are definitive clauses, designed to indicate consultant responsibility. Their use helps all parties involved recognise individual responsibilities and formulate appropriate action. Some of these definitive clauses are likely to appear in the environmental site assessment and you are encouraged to read them closely. Your consultant will be happy to give full and frank answers to any questions you may have.