

Preliminary Site Investigation

TWT Development, St Leonards

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TWT Development Pty Ltd

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Abbreviations and Units

BTEXN	Benzene, Toluene, Ethyl-benzene, Xylenes and Naphthalene
CHC	Chlorinated Hydrocarbons
MAH	Monocyclic Aromatic Hydrocarbons
OCP	Organochlorine Pesticides
OPP	Organophosphate Pesticides
PAHs	Polycyclic Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
SVOC	Semi-Volatile Organic Compounds
TDS	Total Dissolved Solids
TOC	Total Organic Carbon
TPH	Total Petroleum Hydrocarbons
TRH	Total Recoverable Hydrocarbons
VOC	Volatile Organic Compounds
VHC	Volatile Halogenated Compounds

Technical Terms

ACM	Asbestos Containing Material
AGL	Above Ground Level
AHD	Australian Height Datum
AMG	Australian Map Grid
ANZECC	Australian and New Zealand Environment and Conservation Council
AST	Aboveground Storage Tank
BDL	Below Detection Limit
BGL	Below Ground Level
COC	Chain of Custody
CoPC	Contaminants of Potential Concern
DECC	Former Department of Environment and Climate Change NSW
DECCW	Former Department of Environment, Climate Change and Water
DSI	Detailed Site Investigation
EPA	Environment Protection Authority
EPL	Environment Protection Licence
LOR	Limit of Reporting
N/A	Not Applicable
NEPM	National Environment Protection Measure
OEH	Office of Environment and Heritage
PSI	Preliminary Site Investigation
RL	Reduced Level
UST	Underground Storage Tank

Units

Ha	Hectares
mBGS	Metres Below Ground Surface

1 Introduction

1.1 Background

Cardno (NSW/ACT) Pty Ltd ("Cardno") was engaged by Auswin TWT Development Pty Ltd ("TWT") to prepare a Preliminary Site Investigation (PSI) for a proposed commercial / residential development located at 75-89 Chandos Street, 58-62 Atchison Street and 23-35 Atchison Street, St Leonards, New South Wales ("the Site"). The location of the site is depicted on **Figure 1** and the site features are depicted on Figure 2 (**Appendix A**).

The PSI has been prepared in accordance with the scope presented in Cardno's proposal dated 1 December 2014.

1.2 Purpose and Objectives

The purpose of this PSI is to provide the Client with preliminary advice on the contamination status of the Site and the consequent implications for its intended use. The PSI reviews current and historical activities undertaken at the Site and provides a preliminary environmental assessment of the potential for soil and/or groundwater contamination to be present.

The objectives of the PSI were to:

- > Identify the potential for past or present activities on the Site (and to the extent practicable, surrounding the Site) to cause contamination of land or groundwater at the Site;
- > Identify potential areas and contaminants of concern at the Site;
- > Identify potential receptors of contamination;
- > Assess the potential for beneficial uses of the land or groundwater to be put at risk due to contamination; and
- > Assess the requirement, if any, for further environmental assessment to make the Site suitable for the proposed use.

1.3 Scope

Cardno carried out the following scope of work to meet the objectives of the PSI:

- > Defined the Site, features and surrounds:
 - Listed the property title description and zoning;
 - Defined site boundaries based on land title information;
 - Defined site features including services, main buildings and other infrastructure;
 - Defined topography, surface water flows and drainage;
 - Identified nearby sensitive receivers; and
 - Reviewed regional and local geology and hydrogeology, including details on registered bores.
- > Assessed site conditions and the surrounding environment from the following sources:
 - Site inspection to confirm site features including visible evidence of fuel storage, cutting or filling of the site, subsidence, placement of wastes;
 - Inspected the surrounding area (within approximately 200m of the Site) for potential sources of soil or groundwater contamination;
- > Undertook of searches and review of historical information from the following sources:
 - Land titles;
 - Aerial photographs; and
 - NSW EPA maintained registers.

- > Prepared this PSI report, including:
 - Findings of the PSI; and
 - Recommendations regarding any activities, including further assessment that may be required to make the Site suitable for its intended future landuse.

1.4 Assessment Timeframe

The key milestones during this assessment are summarised in **Table 1-1**.

Table 1-1 Site Investigation Timeline

Date	Activity / Milestone
2 December 2014	Cardno engaged by the Client.
3 December 2014	Commencement of site history information gathering.
10 December 2014	Site Inspection
15 December 2014	PSI report issued to the Client

1.5 Structure of this Report

The structure of this report is as follows:

- > **Section 1** – introduction;
- > **Section 2** – describes the Site condition and surrounding environment;
- > **Section 3** – details the Site history;
- > **Section 4** – identifies areas and potential contaminants of concern;
- > **Section 5** – provides conclusions and recommendations.
- > **Section 6** – references.

1.6 Limitations

This assessment has been undertaken in general accordance with the current “industry standards” for a PSI for the purpose and objectives and scope identified in this report. These standards are set out in:

- > National Environment Protection [Assessment of Site Contamination] Measure (NEPM), December 1999, National Environment Protection Council (NEPC) as amended 2013.

The agreed scope of this assessment has been limited for the current purposes of the Client. The assessment may not identify contamination occurring in all areas of the site, or occurring after sampling was conducted. Subsurface conditions may vary considerably away from the sample locations where information has been obtained.

This Document has been provided by Cardno subject to the following limitations:

- > This Document has been prepared for the particular purpose outlined in Cardno’s proposal and no responsibility is accepted for the use of this Document, in whole or in part, in other contexts or for any other purpose.
- > The scope and the period of Cardno’s services are as described in Cardno’s proposal, and are subject to restrictions and limitations. Cardno did not perform a complete assessment of all possible conditions or circumstances that may exist at the site referenced in the Document. If a service is not expressly indicated, do not assume it has been provided. If a matter is not addressed, do not assume that any determination has been made by Cardno in regards to it.
- > Conditions may exist which were undetectable given the limited nature of the enquiry Cardno was retained to undertake with respect to the site. Variations in conditions may occur between investigatory

locations, and there may be special conditions pertaining to the site which have not been revealed by the investigation and which have not therefore been taken into account in the Document. Accordingly, additional studies and actions may be required.

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This assessment report is not any of the following:

- > A Site Audit Report or Site Audit Statement as defined under the *Contaminated Land Management Act, 1997*.
- > A Detailed ESA or Environmental Site Investigation sufficient for an Environmental Auditor to be able to conclude a Site Audit Report and Site Audit Statement.
- > A geotechnical report and the bore logs or test pit logs may not be sufficient as the basis for geotechnical advice.
- > A detailed hydrogeological assessment in conformance with NSW DEC (2007) Contaminated Sites: Guidelines for the Assessment and Management of Groundwater Contamination.
- > An assessment of groundwater contaminants potentially arising from other sites or sources nearby.
- > A total assessment of the site to determine suitability of the entire parcel of land at the site for one or more beneficial uses of land.

2 Site Condition and Surrounding Environment

2.1 Site Definition

The Site is located in a commercial precinct within the suburb of St Leonards, approximately 5 km northwest of the Sydney CBD. The site has been broken down into three investigation areas, denoted TWT1, TWT2 and TWT3. The Site location and the relative locations of the three investigation areas are shown on **Figure 2** in **Appendix A**. Site details are presented in **Table 2-1**.

Table 2-1 Site Identification

Item	Details
Site Address	TWT1: 75-89 Chandos Street TWT2: 58-62 Atchison Street TWT3: 23-35 Atchison Street
Approximate Site Area (ha)	TWT1: 2029.7 m ² TWT2: 1080.9 m ² TWT3: 2113.5 m ²
Title Details (lot/DP)	TWT1: 1/11581, A-B/443166, 31-32/11/2872, 28-29/455939 TWT2: 2-4/11/2872 TWT3: 27-31/10/2872, 321/566480
Local Government Area	North Sydney Council
Parish and County	Willoughby Parish, Cumberland County
Current Site Owners	TWT1: 75 Chandos Street Pty Ltd, TWT Development Pty Ltd TWT2: Atchison Lane Pty Ltd. TWT3: Atchison Pty Ltd.

2.2 Site Description

The Site, with a combined area of 5224.1 m², comprises several lots as detailed in **Table 2-1**. The site is currently occupied by a mixture of medium density office space, commercial premises, showrooms and artistic premises. The Site is bound by medium to high density residential and commercial properties. Buildings on the Site ranged from two to three stories in height.

An inspection of the Site was undertaken on 10 December 2014 by an experienced Environmental Scientist, with photographs from the site contained within a photographic log, presented as **Appendix B**. Details of observations made during the site inspection are provided in **Table 2-2**.

Table 2-2 Site Inspection

Item	Observations
Site use	Mixed commercial landuse, including: <ul style="list-style-type: none"> > Office space; > Retail and showrooms; > Artistic premises – galleries and art studios; > A ballet school; and > A motor vehicle repair shop (located at 31 Atchison Street - TWT3)
Weather condition	Overcast and approximately 26 °C.
Site slope and drainage features	Site drains towards the east with stormwater channelled via kerb and guttering in the subsurface stormwater drainage network.
Nearby water bodies	The nearest receiving body of water is Middle Harbour, located 2 km to the north east.
Site surface coverings	Generally hardstand with several small open areas with landscaping. Hardstand was generally in good condition.
Surface soils	There is little accessible soil, which is likely to have been imported soils for landscaping.
Site cut and fill	Some cut and fill to facilitate the construction of buildings. Some fill likely under buildings, particularly those without excavated underground parking facilities.
Buildings	Generally two to three storey office style buildings constructed of brick and blockwork.
Existing Services	Buildings serviced by electrical, communications and water services.
Potential asbestos in building materials	87 Chandos Street (TWT1) appears to have a roof constructed of fibre cement material.
Manufacturing, industrial or chemical processes and infrastructure	Motor vehicle repair shop located at 31 Atchison Street (TWT3).
Fuel storage tanks (USTs/ASTs)	1 x 900 L motor oil and 1 x 1500 L (approx.) waste motor oil ASTs located at 31 Atchison Street (TWT3).
Dangerous goods	1 x 900 L and 1 x 1500 L motor oil ASTs located at 31 Atchison Street (TWT3). Minor quantities of hazardous materials (eg paint, thinners, cleaning products) were observed in a variety of premises throughout the site. In all cases products were stored on hardstand surfaces and they were not present in quantities sufficient to pose a risk of soil or groundwater contamination.
Solid waste deposition	No evidence observed.
Liquid waste disposal features	Oil water separator located at 31 Atchison Street (TWT3). Vehicle washdown water is recovered, passed through the separator followed by disposal of the treated water via the metropolitan sewerage system.
Evidence of previous site contamination investigations	None observed.
Evidence of land contamination (staining or	Minor staining of the hardstand surfaces were observed at the motor workshop at 31

Item	Observations
odours)	Atchison Street (TWT3).
Evidence of groundwater contamination	None observed.
Groundwater use	None observed.
Vegetation	Small shrubs, hedges and grass in landscaped areas. All vegetation appears in good health.
Site fencing	Properties were generally unfenced with the exception of low decorative fencing on some properties.

2.3 Proposed Development

A high density mixed residential / commercial development is proposed for the Site and will include:

- > Demolition of existing structures and bulk earth works;
- > Construction of residential dwellings and commercial premises; and
- > Excavation for basement carpark.

Refer to **Appendix E** for plans of the proposed development.

2.4 Surrounding Land Uses

The site is located within the St Leonards commercial area and is surrounded by medium high density commercial and residential properties. Land uses around the site are detailed in **Table 2-3 to 2-5**.

Table 2-3 Surrounding Land Use (TWT1: 75 – 89 Chandos Street)

Direction	Land Use or Activity
North	Chandos Street with low to high density residential buildings and low density commercial premises beyond.
West	High density commercial and residential premises.
East	Oxley Street with low to medium density residential buildings beyond.
South	Atchison Lane with high density commercial premises (TWT2) beyond.

Table 2-4 Surrounding Land Use (TWT2: 58 – 62 Atchison Street)

Direction	Land Use or Activity
North	Atchison Lane with commercial premises (TWT1) beyond.
West	High density commercial and residential premises.
East	Oxley Street with low density residential buildings beyond.
South	Atchison Street with commercial premises (TWT3) beyond.

Table 2-5 Surrounding Land Use (TWT3: 23 – 35 Atchison Street)

Direction	Land Use or Activity
North	Atchison Street with commercial premises (TWT2) beyond.
West	Mixed high density residential premises and commercial premises.
East	Oxley Street with low density residential buildings beyond.
South	Albany Lane with high density residential buildings and commercial premises beyond.

The area is serviced by public roads and access to the site is available from Chandos Street, Oxley Street, Atchison Lane, Atchison Street and Albany Lane. Public transport is available within the local area via bus services and St Leonards rail station, which is serviced by the Northern Line.

The site and surrounding uses are illustrated in the Site Plan in **Figure 2** in **Appendix A**.

2.5 Topography and Drainage

The site has an approximate elevation of 90 m AHD and falls to 84 m AHD from west to east. Surface water is channelled via kerb and guttering into a subsurface drainage network, before being channelled directly offsite towards Long Bay in Middle Harbour. Kerb and guttering is present along Chandos Street, Oxley Street, Atchison Road, Atchison Lane and Albany Lane which directs offsite surface water flows away from the Site.

The Site is sealed with the exception of a number of garden beds and minor grassed areas throughout the site.

2.6 Flood Potential

Given the elevation and drainage features of and surrounding the Site, flood potential is expected to be low.

2.7 Regional Geology and Hydrogeology

Soil Landscapes of the Sydney 1:100,000 Sheet (Chapman and Murphy 1989) indicates that the Site and surrounds are situated on the Triassic Wianamatta Group (Liverpool sub-group). The geology of this group is characterised by shale with some sandstone beds.

Groundwater bodies at the Site are expected to be:

- > Minor occurrences of shallow perched groundwater: and
- > Deeper aquifers contained with the Wianamatta Group Shales.

Groundwater is expected, on the basis of local and regional topography, to flow north east towards.

2.7.1 Groundwater Database

A search of the NSW Groundwater Database using NRATLAS on 12 December 2014 identified one bore within a 500 m radius of the Site. This bore was situated approximately 300m to the north east of the site. No data was available from the NRATLAS at the time of writing.

Cardno suggests groundwater is likely to be present within the sandstone and to a lesser extent, shale units underlying the site. The nature of groundwater usage in the vicinity of the site is unknown, though based on the number of bores depicted on the NRATLAS, groundwater usage in the vicinity of the site appears to be uncommon.

2.7.2 Acid Sulfate Soils

Based on the Acid Sulfate Soil Risk Maps within the North Sydney Council LEP 2001, the site does not appear to be affected by ASS.

2.7.3 Salinity

Based on the Salinity Hazard Map generated using NRATLAS Atlas, the occurrence of saline soil conditions at the Site is considered to be low. No level of salinity hazard was indicated at the Site on the hazard map.

2.8 **Potentially Sensitive Receivers**

Identified potentially sensitive receptors at and surrounding the Site include:

- > Current and future users of the site, including residents, employees, construction workers and customers;
- > Groundwater under the Site; and
- > Receiving water bodies (Middle Harbour).

2.9 **Previous Environmental Reports**

Previous environmental reports pertaining to the site (if any) were not available for review at the time of writing this report.

2.10 **EPA Records Search**

2.10.1 Contaminated Land Record of Notices

The Contaminated Land Record of Notices is maintained by the Office of Environment and Heritage (OEH) in accordance with Part 5 of the *Contaminated Land Management (CLM) Act 1997* and contains regulatory notices issued by the Environment Protection Authority (EPA) in relation to contaminated sites. The Record of Notices was searched on 10 December 2014. No notices were identified for the suburb of St Leonards.

2.10.2 PoEO Public Register

The PoEO Public Register under Section 308 of the *Protection of the Environment Operations (PoEO) Act 1997* contains Environment Protection Licences (EPLs), applications and notices issued by the EPA. The Public Register was searched on 10 December 2014 within the suburb of St Leonards to identify any issues of relevance to the Site.

Three former and two active licences were identified but were not considered to be in close enough proximity to affect the subject Site.

2.10.3 List of NSW Contaminated Sites Notified to the EPA

A search of the List of NSW Contaminated Sites Notified to the EPA on 10 December 2014 did not identify any sites reported to the EPA within the suburb of St Leonards.

2.11 **Planning Information**

The Site is zoned B4 – Mixed Use, under the North Sydney City LEP (2013). The objectives of Zone B4 are:

- > To provide a mixture of compatible land uses;
- > To integrate suitable business, office, residential, retail and other development in accessible locations so as to maximise public transport patronage and encourage walking and cycling;
- > To create interesting and vibrant mixed use centres with safe, high quality urban environments with residential amenity; and
- > To maintain existing commercial space and allow for residential development in mixed use buildings, with non-residential uses on the lower levels and residential uses above those levels.

3 Site History

3.1 Historical Information Sources

The historical information sources listed in **Table 3-1** were obtained and reviewed.

Table 3-1 Historical and Background Information Sources

Information	Source	Details
Historical Title Search	NSW Land and Property Information	See lots listed in Table 2-1
Aerial Photographs	NSW Land and Property Information	Obtained scanned high resolution aerials for 1943, 1955, 1976, 1986, 1997, 2014
Heritage Council of NSW	NSW Office of Environment and Heritage	Searched the suburb of St Leonards

3.2 Historical Certificates of Title Review

A Land Title Search was undertaken by Legal Liaison Searching Services Pty Ltd for Lots listed in Table 2-1. Results of the search provided in **Appendix C**.

3.3 Historical Aerial Photograph Review

Six historical aerial photographs dating back to 1943 were sourced from LPI and are presented in **Appendix D**. An interpretation of the aerial photography is presented in **Table D1** in **Appendix D**.

3.4 Heritage Council

The State Heritage Inventory was searched online on 10 December 2014 within the suburb of St Leonards. The search did not identify any items listed by local government and state agencies that would be impacted by the proposed works.

3.5 Summary of Relevant Historical Activities

Historical land uses and potential activities occurring at the Site are summarised in **Table 3-2 to 3-5**. Activities with the potential to cause contamination are in bold text.

Table 3-2 Land Use History and Activities (TWT1: 75 – 89 Chandos Street)

Year	Information Source	Interpretation
1905 – 1960's	Aerial Imagery Title Information	Site used for low density housing on small lots.
1960s-1970's	Aerial Imagery Title Information	<ul style="list-style-type: none"> – <u>75 – 79 Chandos Street</u>: Two residential properties demolished and commercial warehouse style buildings constructed in the early 1960's. – <u>83 Chandos Street</u>: Two residential properties demolished in the late 1960's and large commercial warehouse style building constructed. – <u>87 Chandos Street</u>: Likely residential property until the early 1960's and later used for commercial office space. – <u>89 Chandos Street</u> residential property demolished in the mid 1960's and a commercial warehouse style building constructed. – Commercial structures possibly used for small scale manufacturing / warehousing.
1970's / 1980's - Present	Title Information	All current buildings likely converted to commercial office space.

Table 3-3 Land Use History and Activities (TWT2: 58 – 62 Atchison Street)

Year	Information Source	Interpretation
1917 – 1960's	Aerial Imagery Title Information	Site used for low density housing on small lots.
1960s-1970's	Aerial Imagery Title Information	<ul style="list-style-type: none"> – <u>58 Atchison Street</u>: Residential property demolished and commercial warehouse style buildings constructed in the late 1960's. Building possibly used for small scale commercial landuses e.g. warehousing. – <u>60 Atchison Street</u>: Residential property demolished and commercial warehouse style buildings constructed in the mid 1960's. Building possibly used for small scale warehousing and office space. – <u>62 Atchison Street</u>: Residential property demolished and commercial warehouse style buildings constructed in the mid 1960's. Building possibly used for small scale commercial landuses e.g. warehousing and office space.
1970's / 1980's - Present	Title Information	All current buildings likely converted to commercial office space.

Table 3-4 Land Use History and Activities (TWT3: 23 – 35 Atchison Street)

Year	Information Source	Interpretation
1917 – 1960's	Aerial Imagery Title Information	Site used for low density housing on small lots.
1960s-1970's	Aerial Imagery Title Information	<ul style="list-style-type: none"> – <u>23 Atchison Street</u>: Residential property demolished and commercial warehouse style building constructed in the mid 1960's. Building possibly used for commercial office space. – <u>25 Atchison Street</u>: Residential property demolished and commercial warehouse style building constructed in the early 1960's. Building possibly used for commercial landuses e.g. warehousing and office space. Warehouse building demolished in the mid 1970's and present commercial office building constructed. – <u>27-29 Atchison Street</u>: Residential property demolished and commercial warehouse style building constructed in the late 1950's / early 1960's. Building possibly used for small scale commercial landuses e.g. warehousing and office space. Manufacturing / warehouse building likely renovated between 1965 and 1976 into its current state as commercial office space. – <u>31 Atchison Street</u>: Residential property demolished and commercial warehouse style building constructed in the late 1950's / early 1960's. Building possibly used for small scale warehousing and office space. Manufacturing / warehouse building likely renovated between 1965 and 1976 into its current state as commercial office space. – <u>33-35 Atchison Street</u>: Residential property demolished and commercial warehouse style building constructed on 33 Atchison Street in late 1950's / early 1960's. 35 Atchison remained an empty lot. Warehouse style building demolished and current commercial office building constructed during the early 1970's.
1970's / 1980's - Present	Title Information	<ul style="list-style-type: none"> – <u>31 Atchison Street</u>: Building likely renovated between 1976 and 1986 into its current state. The site is currently occupied by a car service centre and office space. – All other current buildings likely converted to or remain commercial office space.

4 Areas and Potential Contaminants of Concern

4.1 Summary of Potential Contamination

The assessment has identified several potential sources of contamination which are summarised in **Table 4-1**.

Table 4-1 Site Activities and Potential Contaminants of Concern

Area of Environmental Concern	Site Activity / Potential Source	Contaminants of Potential Concern	Reasoning
<i>Onsite Sources</i>			
TWT 1-3	<ul style="list-style-type: none"> – Historical activities possibly including light manufacturing / warehousing. – Demolition of historical structures and residual waste. – Operation of a vehicle repair shop at 31 Atchison Street. – Presence of an electrical substation at 33-35 Atchison Street. 	<p>Potential exists for localised soil / groundwater impact within parts of the site. Possible contaminants include:</p> <ul style="list-style-type: none"> – Asbestos; – Metals; – Petroleum hydrocarbons (Polycyclic Aromatic Hydrocarbons [PAHs], Total Recoverable Hydrocarbons [TRH], Benzene, Toluene, Ethyl-benzene, Xylenes [BTEX]) ; and – TRH and Polychlorinated Biphenyl's (PCBs) for 33-35 Atchison Street only. 	<ul style="list-style-type: none"> – Given the age of the previous structures, hazardous building materials may have been present. – Residual demolition waste (potentially including hazardous building materials) may be present beneath current structures. – Uncontrolled fill material may be present beneath existing buildings. – Potential exists for petroleum hydrocarbon and metal impacts to soil and groundwater in the vicinity of the motor vehicle workshop as a result of lubricant and degreasing effluent releases to ground. – Potential exists for petroleum hydrocarbon and PCB impacts to soil and groundwater in the vicinity of the electrical substation as a result of possible oil releases to ground.
<i>Offsite Sources</i>			
Surrounding Commercial Properties	Various commercial properties are located up-gradient of the site.	Off-site sources of soil and / or groundwater contamination may be present as a result of historical landuses. Given the history of landuse in the area, the risk of gross contamination and on-site migration is expected to be low.	

The site appears to have a range of historical uses including residential housing, possible manufacture and warehousing as well as commercial office space. Demolition of historic structures on the site (resulting in residual demolition waste), the potential presence of imported fill under the existing buildings, and the presence of a vehicle repair shop (31 Atchison Street) and an electrical substation (33-35 Atchison Street) constitute potential sources of contamination. The demolition of historic structures and the potential for imported fill are potential sources of contamination to all portions of the site, whilst the vehicle repair shop and electrical substation are likely to be relevant to the specific premises identified and their surrounds.

Cardno notes that hazardous building materials may be present within existing buildings on the Site. Opportunistic inspection during the site inspection suggests these materials were generally in good condition. These materials, whilst not posing a contamination risk in their current state, would require management during any future demolition works to ensure they do not cause soil contamination.

5 Conclusions

5.1 Conclusions

Cardno has completed a Preliminary Site Investigation of the Site, located at 75-89 Chandos Street, 58-62 Atchison Street and 23-35 Atchison Street, St Leonards, NSW. The purpose of this assessment was to provide the Client with preliminary advice on the contamination status of the Site and the consequent implications for the suitability of the Site for its intended use (mixed use commercial and high density residential). Based on the findings of the PSI the following is concluded:

- > The site was historically used for low to medium density residential land use until the 1960's, following which time landuses generally changed to medium - high density commercial;
- > Activities that may constitute a potential source of contamination on the Site include:
 - Demolition of historical structures and the potential presence of residual demolition waste and / or imported fill material;
 - Historical warehousing / manufacturing activities;
 - Operation of a vehicle repair shop at 31 Atchison Street;
 - Operation of an electrical substation at 33-35 Atchison Street.
- > Visible land and / or groundwater contamination were not observed during the site inspection.

The site can be made suitable for its intended use, subject to the implementation of the recommendations outlined in Section 5.2. As such, the potential for contamination to occur at the Site is not considered to constrain rezoning or redevelopment of the Site.

5.2 Recommendations

Given the results of this assessment and nature of the proposed development, the following actions are recommended:

- If any existing soils are to remain on the developed Site, further assessment should be undertaken to validate the contamination status and suitability of such soils for the land use;
- Should any soils on the site be excavated for off-site disposal, the material should be classified and disposed in accordance with relevant regulatory guidance, including the NSW DECCW (2009) *Waste Classification Guidelines*;
- Any future works undertaken on the site involving demolition and soil disturbance should incorporate risk controls to mitigate potential risks posed to workers and the public from previously undocumented contamination; and
- Any future works involving demolition and soil disturbance should incorporate an unexpected finds protocol to facilitate the identification and management of previously undocumented contamination.

6 References

Chapman G.A. and Murphy C.L. (1989) *Soil landscapes of the Sydney 1:100,000 sheet*. Soil conservation service of NSW, Sydney.

DECC (2009) *Contaminated Sites: Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997*. Department of Environment and Climate Change NSW, Sydney. June 2009.

DECCW (2009) *Waste Classification Guidelines*. Department of Environment, Climate Change and Water NSW, December 2009.

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

NSW EPA (1997) *Contaminated Sites: Guidelines for Consultants reporting on Contaminated Sites*. NSW Environment Protection Authority, Sydney. Reprinted August 2011.