Scentre Group

Preliminary Site Investigation

Proposed Penrith Westfield Living Centre
569 High Street
Penrith, 2750

25 February 2021

60168/135,485 Rev B

JBS&G Australia Pty Ltd

www.jbsg.com.au

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Abbreviations

Term	Definition
AEC	Area of Environmental Concern
AHD	Australian Height Datum
ASS	Acid Sulfate Soil
Bgl	below ground level
Council	Penrith City Council
CSM	Conceptual site model
BTEX	Benzene, toluene, ethylbenzene and xylenes
COPC	Contaminants of Potential Concern
CLM Act	Contaminated Land Management Act 1997
DP	Deposited Plan
EPA	Environment Protection Authority
JBS&G	JBS&G Australia Pty Ltd
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
OEH	Office of Environment and Heritage
OCPs	Organochlorine pesticides
PAHs	Polycyclic aromatic hydrocarbons
PCB	Polychlorinated biphenyls
POEO Act	Protection of the Environment Operations Act 1997
PSI	Preliminary Site Investigation
SEPP 55	State Environmental Planning Policy No. 55 – Remediation of Land
TRH	Total Recoverable Hydrocarbons

Executive Summary

JBS&G Australia Pty Ltd (JBS&G) was engaged by Scentre Group (Scentre, the client) to conduct a Preliminary Site Investigation (PSI) for two separate portions of Westfield Penrith, located at 569 High Street, Penrith (the site). The site is legally identified as part Lot 1 Deposited Plan (DP) 1137699 and covers an area of approximately 5,500 m^2.

It is understood that the commercial space within the south-eastern portion is proposed to be redeveloped to accommodate ten levels of commercial retail and office space as identified as 'Borec House'. The commercial building will further make use of an existing single level underground basement carpark that is understood to occupy the majority of the footprint within the development area.

It is further understood that the existing commercial space within the north-western portion is proposed to be redeveloped to accommodate twenty levels of commercial retail and office space as well as a hotel (on levels 12-20). The commercial building (identified as 'The Hub') will be constructed at grade.

This PSI was required to assess the suitability of the site for the proposed use in order to assist development planning and meet the requirements under *State Environmental Planning Policy No. 55 – Remediation of Land* (SEPP55) for a planning proposal to be submitted to Planning NSW.

Based on the findings of this investigation, and subject to the limitations in **Section 6**, the following conclusions are made:

- The site was used for residential purposes up until circa 1970s, when it was redeveloped for commercial purposes and used as a carpark. In the early 2000s, the site building within the south-eastern portion was integrated with the surrounding Penrith Westfield Shopping Centre to the north and west (including the north-western portion of the site);
- Based on an assessment of the history, environmental setting and a detailed site inspection, potentially contaminating activities include fill used for site levelling prior to construction, potential previous hazardous building materials (which may have been improperly demolished during redevelopment of the site in the 1970s) and the former dry cleaners located upgradient and in close proximity to the site;
- The assessment did not identify the potential for gross or widespread contamination;
- The overall risk for on-site migration of contamination from the upgradient dry cleaners is low to moderate;
- The overall risk for migration of contamination from the site is low to moderate;
- It is considered unlikely that activities at the site will have contaminated the land to a degree that would prevent the redevelopment of the site for commercial land-use; and
- In the event that contamination is identified at the site, it is anticipated that the site can be made suitable for the proposed land-use.

Based on these conclusions, and subject to the limitations in **Section 6,** JBS&G recommends completion of a targeted intrusive investigation of the site in accordance with a Sampling, Analysis and Quality Plan (SAQP) to provide a quantitative assessment of contaminant levels as associated with the areas of environmental concern identified above.

1. Introduction and Background

1.1 Introduction

JBS&G Australia Pty Ltd (JBS&G) was engaged by Scentre Group (Scentre, the client) to conduct a Preliminary Site Investigation (PSI) for two separate portions of Westfield Penrith, located at 569 High Street, Penrith (the site). The site is legally identified as part Lot 1 Deposited Plan (DP) 1137699 and covers an area of approximately 5,500 m^2.

It is understood that the commercial space within the south-eastern portion is proposed to be redeveloped to accommodate ten levels of commercial retail and office space as identified as 'Borec House'. The commercial building will further make use of an existing single level underground basement carpark that is understood to occupy the majority of the footprint within the development area.

It is further understood that the existing commercial space within the north-western portion is proposed to be redeveloped to accommodate twenty levels of commercial retail and office space as well as a hotel (on levels 12-20). The commercial building (identified as 'The Hub') will further make use of an existing single level underground basement carpark that is understood to occupy most of the footprint within the development area.

This PSI was required to assess the suitability of the site for the proposed use in order to assist development planning and meet the requirements under *State Environmental Planning Policy No. 55 – Remediation of Land* (SEPP55) for a planning proposal to be submitted to Planning NSW.

The investigation undertaken was completed in general accordance with National Environmental Protection Council (NEPC 2013[1]), Environmental Protection Agency (EPA 2017[2]), EPA (2020[3]) and SEPP 55[4] guidelines.

1.2 Objectives

The objectives of the investigation are to assess the potential for historical contaminating activities at the site and provide a preliminary assessment of the suitability of the site for the proposed use, or to make recommendations to enable such assessments to be made in the future.

1.3 Scope of Works

The scope of works completed for this investigation comprised:

- A desktop review of site history and background information, to identify potential areas of environmental concern (AECs) and associated contaminants of potential concern (COPCs), including;
    - Section 10.7 Planning Certificate (2 and 5) provided by Council;
    - Historical aerial photographs;
    - Publicly available heritage records held by the Heritage NW and Council;
    - Review of current and historical land title records;

[1] *National Environmental Protection (assessment of Site Contamination) Measure 2013*. National Environment Protection Council, 2013 (NEPC 2013.

[2] *Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme (3rd Edition*). NSW Environment Protection Authority 2017 (EPA 2017)

[3] *Consultants Reporting on Contaminated Land Contaminated Land Guidelines*, NSW Environment Protection Authority, EPA, April 2020, updated 5 May 2020 (EPA 2020).

[4] *State Environment Planning Policy No. 55 – Remediation of Land*

- Records of EPA records of environmental incidents or former environmental licences for the site and immediate surrounds;
- Review of the environmental setting of the site and surrounding areas, including topography, geology and hydrogeology; and
- Review of licensed groundwater bores present within a 1.5 km radius of the site.

- Development and documentation of a conceptual site model (CSM) based on the available information; and
- Preparation of this report documenting the methods and results of the investigation.

1.4 Proposed Development

As noted in **Section 1.1**, it is proposed to redevelop the south-eastern portion to accommodate ten levels of commercial retail and office space. The commercial building will further make use of an existing single level underground basement carpark that is understood to occupy the majority of the footprint within the development area. It is further proposed to redevelop the existing commercial space within the north-western portion to accommodate twenty levels of commercial retail and office space as well as a hotel (on levels 12-20) and make use of an existing single level underground basement carpark. The concept plans for both Borec House and The Hub are provided in **Appendix A**.

For the purpose of this PSI and assessment of potential contamination risks, it is considered the proposed development does not involve a change in land use with regards to NEPC (2013) land use scenarios. The site is currently used for commercial/industrial purposes and the proposed redevelopment is consistent with the current land-use.

2. Site Condition and Surrounding Environment

2.1 Site Identification

The location and current layout of the site is shown in **Figures 1** and **2** respectively. The site details are summarised in **Table 2.1.**

Table 2.1: Summary of Site Details

Site Legal Identifier (as shown on **Figure 2**)	Part Lot 1 in DP 1137669
Site Address	569 High Street, Penrith NSW
Approximate Site Area	5,500 m^2
Local Government Authority	Penrith City Council (Council)
Approximate Coordinates (GDA 94 Map Grid of Australia (MGA) 56)	Easting: 286527 Northing: 6263010
Registered Site Owner	Scentre Management Limited
Current Zoning (Penrith Local Environmental Plan (LEP) 2010)	Zone B3 – Commercial Core
Previous Land Uses	Commercial (retail)
Current Land Uses	Commercial (retail)
Proposed Land Uses	Mixed-use consistent with NEPC (2013) commercial land use scenarios. (commercial retail, office space and hotel)

2.2 Site Description

A site inspection was undertaken on 17 February 2021 undertaken by a JBS&G Senior Environmental Consultant to assess site conditions and identify any potentially contaminating conditions and/or activities , with key observations documented below:

- The south-eastern portion of the site comprised a rectangular shaped parcel of land. Borec House, a multistorey building occupied this portion of the site. The building was used for commercial purposes, and contained a bank, tobacconist, lobby and vacant commercial spaces on the ground floor. A single level basement carpark underlay the ground level of Borec House.
- The north-western portion of the site comprised an irregular shaped parcel of land that forms part of the multilevel Westfield Shopping Centre. The ground floor level was used for commercial purposes that included various retail and restaurant spaces. A single level underground basement occupied the full extent of this portion of the site. The basement carpark extended into other parts of the Westfield Shopping Centre footprint.
- The elevations of the ground floor levels within the respective portions of the site were generally consistent with surrounding roads.
- No obvious signs of contamination (staining, etc) were observed on the ground surface of the site, which was almost completely covered in hardstand. No fill points, gatics, breathers or other indiactors of potential underground storage tanks (USTs) were observed.
- No diesel generators were observed within the basement footprints of the site.
- There was no evidence of significant contamination at the site in the form of odours or staining on the hardstand basement surfaces.

2.3 Surrounding Land Use

The current land uses of adjacent properties or properties across adjacent roadways is summarised below.

- North - the site is bound to the north by Jane Street and Penrith Station beyond.

- West - the site is bound to the west by Riley Street and the balance of the Westfield Shopping Centre.
- East – the site is bound to the east by Station Street. Across Station Street are several multi-storey buildings used for commercial purposes.
- South – the site is bound to the south by Henry Street and commercial buildings beyond.

2.4 Topography

A review of topographical information available on SIX Maps[5] indicates that the site is located within a broader area that falls gently to the north-west towards the Nepean River. The ground surface of the site lies at an elevation of approximately 30 m Australian Height Datum (AHD). Observations made during the site inspection identified that the site lies essentially on flat terrain.

2.5 Geology and Soils

Reference to the 1:100 000 Geological Series Sheet for Penrith, DMR (1991[6]) indicates that the site is underlain by Bringelly Shale of the Wianamatta Group originating from the Middle Triassic epoch. This unit is comprised of shale, carbonaceous claystone, claystone, laminite, fine to medium-grained lithic sandstone, rare coal and tuff. Bringelly Shale is underlain by Ashfield Shale and, at depth, Hawkesbury Sandstone.

Reference to the 1:100 000 Soil Landscape Series Sheet for Penrith, DMR (1990[7]) indicates that the site is within the Richmond Soil Landscape group. This group of landscape is characterised by quaternary terraces of the Nepean and Georges Rivers. Relatively flat (slopes <1 %) and level. Splays, levees provide local relief of <3 m. Formerly a low open woodland. Richmond soils are poorly structured orange to red clay loams, clays and sands. Texture may increase with depth. Ironstone nodules may be present. Plastic clays in drainage lines, red earths and red podzolic soils occur on terrace surfaces with earthy sands on terrace edges. Limitations of the Richmond group include high erosion hazard on terrace edges and minor localised flooding.

2.6 Acid Sulfate Soils

The Guidelines for the Use of Acid Sulfate Soil Risk Maps, Department of Land and Water Conservation (DLWC) (1997[8]), has indicated that acid sulfate soils (ASS) are likely to be located in coastal lowlands up to about 10 m AHD. No risk map for the area encompassing the site was prepared as part of the acid sulfate soil risk map series, DLWC (1998). Review of the geographical and topographical location of the site has indicated that it is a significant distance away from tidal creeks or estuaries, and it is considered unlikely that ASS would exist at the site.

A review of Council's planning certificates (**Section 3.3**) identified that the land is not affected by a policy that restricts development because of the likelihood of ASS.

Based on the identified geological and topographical setting, it is considered that there is a low risk of encountering potential ASS during the disturbance of soils as part of future construction activities.

2.7 Salinity

Reference to the Department of Infrastructure, Planning and Natural Resources Salinity Potential in Western Sydney map, DIPNR (2003[9]), indicated the site exists within an area of 'moderate salinity potential'.

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[5] *Six Maps website, https://maps.six.nsw.gov.au/ accessed 21/10/2020.*

[6] *'Penrith 1:100 000 Geological Series Sheet 9030 (Edition 1)'.* Department of Mineral Resources, 1991, DMR (1991);

[7] *'Penrith 1:100 000 Soil Landscape Series Sheet 9030'*. Department of Mineral resources, 1990, DMR (1990);

[8] '*Guidelines for the use of Acid Sulfate Soil Risk Maps, Edition 2'*, 1998, Ref: ISBN 0 7347 5134 6, NSW DLWC (1998);

[9] *'Salinity Potential In Western Sydney 2002'*. Department of Infrastructure, Planning and Natural Resources, March 2003, DIPNR (2003);

Areas on Wianamatta Group Shales and tertiary Alluvial Terraces. Scattered areas of scalding and indicator vegetation have been noted but no concentrations have been mapped. Saline areas may occur in this zone which have not been identified or may occur if risk factors change adversely.

2.8 Hydrology

The site is largely covered by concrete, asphaltic pavements and building footprints. As such, surface water generated during periods of rainfall is anticipated to primarily enter the municipal stormwater system; via discharge into onsite stormwater catchment infrastructure or alternatively discharge into stormwater pits within the surrounding roadways.

The nearest water body to the site is Peach Tree Creek, approximately 1.1 km to the west of the site boundary. Peach Tree Creek ultimately discharges to the Nepean River. Municipal stormwater likely discharges to Peach Tree Creek and the Nepean River.

2.9 Hydrogeology

Registered groundwater bore information was obtained from Water NSW online search tool (Water NSW 2020[10]) is included in **Appendix B**. A review of the registered bore information indicated that there were thirteen bores within a 1.5 km radius of the Site. The registered bore information obtained from the search is summarised in **Table 2.2**.

Table 2.2: Registered Groundwater Bore Search

Bore ID	Use	Property	Standing Water Level (m bgs)	Well Depth (m)	Encountered Geology Comments
GW026231	Recreation	N/A	-	8.53	Shallow silt and loam clay (4.26 m bgs) to river gravels (4.26-8.53 m bgs)
GW029710	Domestic	N/A	6.00	7.92	Shallow loam (0-2.74 m bgs) to river gravels (2.74-7.92 m bgs)
GW101178	Test Bore	N/A	8.00	11.20	Shallow sandy clay and grey sands (0-6.00 m bgs) to coarse river gravel and cobbles (6.00-10.50 m bgs) overlying residual shale.
GW103048	Recreation	Penrith Showground	6.00	8.00	-
GW108041	Monitoring	Coreen Ave Penrith	6.70	7.50	Shallow clay (0.20-3.30 m bgs) overlying river gravels (3.30-7.50 m bgs)
GW108042	Monitoring	Coreen Ave Penrith	6.40	8.00	Shallow clay (0.20-2.50 m bgs) overlying river gravels (2.50-7.50 m bgs)
GW108043	Monitoring	Coreen Ave Penrith	6.80	9.00	Shallow clayey sands (0.20-5.40 m bgs) overlying river ravels (5.40-9.00 m bgs)
GW108044	Monitoring	Coreen Ave Penrith	6.60	9.50	Shallow fill and silty clayey sands (0.00-6.40 m bgs) overlying river gravels (6.40-9.50 m bgs)
GW108484	Recreation	Station St Penrith	-	11.00	Shallow clay (0-6.00 m bgs) to sand (6.00-8.50 mbgs) overlying river gravels (8.50-11.00 m bgs)
GW111987	Monitoring	High St Penrith	-	9.00	Shallow clay (0-3.00 m bgs) overlying river gravels (3.00-9.00 m bgs)
GW111988	Monitoring	High St Penrith	7.50	9.00	Shallow clay (0-3.00 m bgs) overlying river gravels (3.00-9.00 m bgs)
GW111989	Monitoring	High St Penrith	7.50	9.00	Shallow clay (0-3.00 m bgs) overlying river gravels (3.00-9.00 m bgs)

Based on the reported geology, topography and depth to groundwater, groundwater migration is expected to occur in a north-westerly direction, towards Peach Tree Creek approximately 1.2 km away. Groundwater has been reported in the surrounding properties within the river gravels layer. A relatively shallow depth to water (between 5 m and 10 m bgs) is anticipated given the reported

[10] Water NSW search tool https://realtimedata.waternsw.com.au/. Accessed 8/2/2021.

levels in the surrounding groundwater wells and the lack of significant variation in topographic levels.

Registered groundwater bores located within a 1.5 km radius of the site are used for monitoring, recreational and testing purposes. Given the relatively dense urban use of the site and surrounding properties, there is a moderate probability of additional undocumented monitoring/irrigation bores near the site. None of the registered bores were reported to be used for drinking purposes.

2.10 Meteorology

A review of average climatic data for the nearest Bureau of Meteorology monitoring location (Penrith Lakes[11]) indicates the site is located within the following meteorological setting:

- Average minimum temperatures vary from 5.5 ^{o}C in July to 18.5 ^{o}C in January;
- Average maximum temperatures vary from 17.7 ^{o}C in July to 30.7 ^{o}C in January;
- The average annual rainfall is approximately 728.1 mm with rainfall greater than 1 mm occurring on an average of 71.7 days per year; and
- Monthly rainfall varies from 30.6 mm in September to 121.4 mm in June with the wettest periods occurring on average in January to June.

[11] http://www.bom.gov.au/climate/averages/tables/cw_067113.shtml, Commonwealth of Australia, 2013 Bureau of Meteorology, Product IDCJCM0028 accessed by JBS&G on 8 February 2021.

3. Site History

3.1 Historical Land Title Information

Relevant details from a historical review of the land titles for the site are listed in **Table 3.1**. A copy of title search results is provided in **Appendix C**.

Table 3.1: Summary of Historical Land Titles

Date	Registered Proprietor
As regards to the part numbered (1) on the attached Cadastral Records Enquiry Report (Appendix C)	
08.09.1922 (1922 to 1925)	Annie Australia Hobby (Married Woman)
19.11.1925 (1925 to 1931)	Elsie Adela Hobby (Married Woman)
26.05.1931 (1931 to 1961)	Ivy May Hand (Spinster)
20.06.1961 (1961 to 1963)	Council of the City of Penrith
19.09.1963 (1963 to 1964)	Lawrence Newbould (Stockbuyer)
13.01.1964 (1964 to 2002)	Borec Homes Pty Limited
05.07.2002 (2002 to 2006)	GPT Management Limited
24.04.2006 (2006 to 2011)	GPT Management Limited Westfield Management Limited
As regards the part numbered (2) on the attached Cadastral Records Enquiry Report (Appendix C)	
20.03.1922 (1922 to 1959)	Joseph Henry Hill (Tailor)
11.03.1959 (1959 to 1959)	Vera Manning (Widow) (Section 94 Application not investigated)
06.05.1959 (1959 to 1964)	Lawrence Newbould (Stockbuyer)
13.01.1964 (1964 to 2002)	Borec Homes Pty Limited
05.07.2002 (2002 to 2006)	GPT Management Limited
24.04.2006 (2006 to 2011)	GPT Management Limited Westfield Management Limited
As regards the part numbered (3) on the attached Cadastral Records Enquiry Report (Appendix C)	
20.03.1922 (1922 to 1959)	Letitia Hill (Married Woman)
11.03.1959 (1959 to 1959)	Vera Manning (Widow) (Section 94 Application not investigated)
06.05.1959 (1959 to 1962)	Lawrence Newbould (Stockbuyer)
06.12.1962 (1962 to 1969)	Harry Jacobs (Café Proprietor)
21.01.1969 (1969 to 2002)	Borec Homes Pty Limited
05.07.2002 (2002 to 2006)	GPT Management Limited
24.04.2006 (2006 to 2011)	GPT Management Limited Westfield Management Limited
As regards the part numbered (4) on the attached Cadastral Records Enquiry Report (Appendix C)	
23.03.1925 (1925 to 1935)	Charles John Kirkby Welch (Auctioneer)
01.10.1935 (1935 to 1935)	Richard Holdsworth (Gentleman)
21.10.1935 (1935 to 1938)	Stock Investments Limited

Date	Registered Proprietor
15.07.1938 (1938 to 1940)	Charles John Kirkby Welch (Auctioneer)
11.09.1940 (1940 to 1965)	Thomas Noble Soper (Builder)
17.06.1965 (1965 to 1967)	T.N. Soper Holdings Pty Limited
21.12.1967 (1967 to 1980)	Lend Lease Development Pty Limited
11.07.1980 (1980 to	Borec Homes Pty Limited
05.07.2002 (2002 to 2006)	GPT Management Limited
24.04.2006 (2006 to 2011)	GPT Management Limited Westfield Management Limited

3.2 Historical Aerial Imagery

Copies of historical aerial photographs from regular intervals were obtained from the NSW Spatial Services in addition to recent aerial imagery from NearMap. Copies of historical aerial photographs reviewed as part of this assessment are provided in **Appendix D**. Relevant information from the aerial imagery review is summarised in **Table 3.2 below.**

Table 3.2: Summary of Historical Aerial Imagery Review

Year	Observations
1943	The site appeared to comprise a residential dwellings with possibly some animal pens/yards. Station Street is present and appears to be consistent with the current road alignment. Surrounding land-uses appear consistent with commercial (north, east and south) and residential (west) uses. Vacant land was located further to the west.
1956	The site appears unchanged from the 1943 aerial photograph. The surrounding land-uses appear generally consistent with the previous image. Some land to the southeast had been developed for commercial/industrial use.
1965	Structures formerly present within the south-eastern portion had been demolished and this area site was cleared vacant land. The north-western portion of the site appeared largely unchanged. Henry Street had been constructed adjoining the southern boundary of the site. There had been additional land to the east and south that had been developed for commercial/industrial use. A large carpark had been constructed to the southeast.
1970	A multi-level commercial building was in the process of been constructed over the south-eastern site extent. In addition, the majority of structures formerly present within the north-western portion had been demolished and this area site was largely cleared vacant land with the exception of a single structure in the eastern portion. Additional commercial development had occurred in surrounding properties. Residential buildings to the west had been demolished with a large building being constructed in this area.
1978	The construction of the commercial building in the south-eastern portion of the site appears to have been completed and covers the complete extent of this portion of the site. The ground surface in the north-western portion of the site appears to comprise of asphalt used for a carpark. Land adjoining the western boundary of the site appears to be in use as a carpark. A large building, possibly a shopping centre is visible to the west. Additional commercial development had occurred on surrounding land.
1986	The site appears largely consistent with the 1978 aerial photograph. Structures on the property adjoining the northern boundary (of the south-eastern portion) of the site has been demolished and replaced with paved ground. The remainder of the surrounding land appears largely unchanged from the 1978 aerial photograph.
1998	The site appears unchanged from the 1986 aerial photograph. The large building, possible shopping centre to the west has been extended or redeveloped into a larger building/set of buildings. What appears to be a multi-level commercial building has been constructed on land to the east.
2005	The south-eastern site appears unchanged from the 1998 aerial photograph. A commercial building has been constructed (including over the entire north-western site extent) and adjoins the south-eastern portion of the site building on its northern and western sides indicating the

Year	Observations
	site building may have been integrated with the adjoining development (i.e. part of the current Westfield Shopping Centre). The remainder so the surrounding land appears largely unchanged from the 1998 aerial photograph.
2010	With the exception of an additional structure (appears consistent with a shade-cloth) on the rooftop in the south-eastern portion of the site, the site and surrounding properties appear largely consistent with the 2005 aerial photograph.
2021	The site and surrounding properties appear largely consistent with the 2010 aerial photograph.

3.3 Council Planning Certificates

A copy of the Section 10.7 (2 and 5) Planning Certificates for the site was obtained by JBS&G from the Council and is included in **Appendix I**. Relevant details are summarised below:

- The land is subject to the requirements under the Penrith City Council Local Environmental Plan 2010;
- The land is currently zoned B3 Commercial Core;
- The land does not comprise critical habitat;
- The land is not identified to be situated within a Conservation Area;
- The land contains an item of environmental heritage (it is noted Lot 1 in DP 1137669 extends beyond the site boundary and therefore the item of heritage may not be within the site extent);
- The land is not affected by the Coastal Protection code under the Coastal Protection Act 1979;
- The land is not affected by Section 15 of the Mine Subsidence Compensation Act 1961 proclaiming land to be a Mine Subsidence District.
- The land is not affected by any road widening or road realignment under Division 2 of Part 3 of the Roads Act, Penrith Local Environmental Plan 2010 or an environmental planning instrument;
- The land is not within an investigation area or remediation site under Part 3 of the Contaminated Land Management Act 1997;
- The land is not subject to an investigation order or remediation order within the meaning of the Contaminated Land Management Act 1997;
- The land is not subject to a voluntary investigation proposal (or voluntary remediation proposal) that is the subject of the Environment Protection Authority's agreement under section 15 or 26 of the Contaminated Land Management Act 1997;
- The land is not the subject of a site audit statement within the meaning of the Contaminated Land Management Act 1997; and
- All or part of the land is identified in Penrith LEP Clause 7.2 for Flood Planning. Development consent is required for any development on the land to which Clause 7.2 of the LEP applies.

3.4 NSW EPA Records

A search of the NSW EPA's public register maintained under the *Protection of the Environment Operations Act (POEO) 1997* was undertaken and is included as **Appendix E**.

The search identified that, for the site, there were:

- No prevention, clean up or prohibition notices;

- No transfer, variation, suspension, surrender or revocation of an environmental protection licence

A search was undertaken through the EPA's public contaminated land register and is included as **Appendix E**. The search identified that there have been no notices issued under the CLM Act for the site.

With regards to contamination, the site has not been notified to the EPA under section 60 of the CLM Act. An excerpt of the list of properties notified to the EPA is included in **Appendix E**. Review of the list of properties notified to the EPA, identified a former dry cleaner located hydraulically upgradient of the site at Shop 3/134-138 Henry Street was notified to the EPA for potential contamination on the property, however, regulation under the CLM Act was not considered warranted.

A search of the EPA's public per- and poly- fluoroalkyl substances register indicated that there were no records pertaining to the site or areas immediately surrounding the site.

3.5 State Heritage Registers

A search of the NSW Heritage database was undertaken and records are included in **Appendix G**. The site was not identified to contain an item of heritage significance, however, it is noted that the Red Cow Hotel (located to the north and east of the respective developable portions with address 569-595 High Street) comprises an item of heritage significance.

3.6 Integrity Assessment

The site was used for residential purposes up until circa 1970s, when it was redeveloped for commercial purposes and used as a carpark. In the early 2000s, the site building within the south-eastern portion was integrated with the surrounding Penrith Westfield Shopping Centre to the north and west (including the north-western portion of the site).

There are no notices or other information on state and local government records and data bases pertaining to contamination matters at the site.

4. Conceptual Site Model

4.1 Potential Areas of Environmental Concern

Based on the history review and observations made during the JBS&G inspection of the site, areas of environmental concern (AECs) have been identified and are presented in **Table 4.1**. These are considered to be generic in nature relating to historical development of the site rather than a result of historical activities at the site which are not considered to typically result in significant AECs.

Table 4.1: Areas of Environmental Concern and Contaminants of Potential Concern

Areas of Environmental Concern (AEC)	Primary Contaminants of Potential Concern (COPC)
Fill of unknown origin used to level the site	Heavy metals, total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylene (BTEX), polycyclic aromatic hydrocarbons (PAHs), organochlorine pesticides (OCPs), polychlorinated biphenyls (PCBs) and asbestos
Former dry cleaners located upgradient and in proximity to the site.	Volatile organic compounds (VOCs)

4.2 Potentially Contaminated Media

Potentially contaminated media present as related to site derived sources of contamination is anticipated to be limited to fill materials (if present), which may have been placed at the site as sub-grade materials during the construction of the Westfield Shopping Centre.

With consideration to the review of historical aerial imagery (**Section 3.2**) and geology/soil mapping, and the near level nature of the surrounding topography, significant amounts of fill are not expected to be present within the site. Notwithstanding, should fill materials be present, they have the potential to be contaminated by virtue of the unknown origin of the materials.

Given that only minor volumes of fill materials are anticipated, and that the site surface is covered in building footprints (or hardstand) preventing infiltration of surface water, it is considered unlikely that contaminants if present within site soils, have leached through the soil profile to impact natural soils and/or groundwater.

However, impacted groundwater may be present at the site as a result of contamination migrating from a former dry-cleaners at Shop 3/134-138 Henry Street. Dry cleaners often used chlorinated solvents (including trichloroethene and tetrachloroethene) which migrate via groundwater and can accumulate within enclosed building spaces (via vapour intrusion) as a result of the highly volatile nature of these compounds. As such, site groundwater and soil vapour may be impacted as a result of the historical contamination originating from a former dry-cleaner upgradient of the site.

4.3 Potential for Migration from Site

Contaminants generally migrate from site via a combination of windblown dusts, rainwater infiltration, groundwater migration and surface water runoff. The potential for contaminants to migrate is a combination of:

- The nature of the contaminants (solid/liquid and mobility characteristics);
- The extent of the contaminants (isolated or widespread);
- The location of the contaminants (surface soils or at depth); and
- The site topography, geology, hydrology and hydrogeology.

The COPCs identified with the generic AECs shown above are generally in solid form (e.g. asbestos, PAHs and metals), liquid form (e.g. TRH, BTEX, VOCs, OCPs) or gaseous form (e.g. BTEX, volatile TRH, VOCs and semi-volatile PAHs).

As noted in **Section 4.2**, it is considered unlikely that contaminants if present within site soils, have leached through the soil profile to natural soils and/or groundwater. However, impacted

groundwater may be present at the site as a result of contamination migrating from former dry-cleaners at Shop 3/134-138 Henry Street. Should impacted groundwater be identified to be migrating onto the site from the former dry-cleaner, then it will be also be possible to be migrating off-site.

The potential for off-site migration of vapours will only be relevant where volatile constituents are identified at significant levels. These constituents can migrate laterally from the site through diffusive/advective processes as well as through preferential pathways (refer to **Section 4.5**).

4.4 Potential Human and Ecological Receptors and Exposure Pathways

A summary of potential human receptors and associated exposure pathways for the site, based on the range of exposure scenarios that may occur under the different potential land-uses of the site is presented in **Table 4.2**.

Table 4.2: Summary of Potential Human Exposures

Receptor	Location	Media	Potential Exposure Pathways
Commercial Worker (adult)	Commercial building	Soils	Inhalation (vapours)
		Groundwater	Inhalation (vapours) Oral (infiltrating seepage water within basement) Dermal (infiltrating seepage water within basement if present)
Construction worker or intrusive maintenance worker (short duration)	Construction areas/ Excavations	Soils	Inhalation (vapours and particulates) Oral Dermal
		Groundwater	Inhalation (vapours) Oral (infiltrating seepage water) Dermal (infiltrating seepage water)

The site is currently primarily covered by hardstand pavements and building footprints. On this basis, there is currently limited on-site ecological receptors that could be exposed to environmental impacts underlying the site. The proposed development will maintain this exposure scenario with respect to potential ecological receptors.

Possible off-site ecological receptors are limited to potential impacts associated with groundwater (if present) migrating from the site into the Nepean River.

4.5 Preferential Pathways

For the purpose of this assessment, preferential pathways have been identified as natural and/or man-made pathways that result in the preferential migration of COPC as either liquids or gasses.

Man-made preferential pathways may present beneath the site, generally associated with areas of previously disturbed soils material and service easements.

Where environmental impact (particularly in liquid or gaseous form) is observed within proximity to these identified preferential pathways, further consideration to the potential migration of these impacts would be required.

5. Conclusions and Recommendations

Based on the findings of this investigation, and subject to the limitations in **Section 6**, the following conclusions are made:

- The site was used for residential purposes up until circa 1970s, when it was redeveloped for commercial purposes and used as a carpark. In the early 2000s, the site building within the south-eastern portion was integrated with the surrounding Penrith Westfield Shopping Centre to the north and west (including the north-western portion of the site);
- Based on an assessment of the history, environmental setting and a detailed site inspection, potentially contaminating activities include fill used for site levelling prior to and during construction of the current commercial buildings at the site and the former dry cleaners located upgradient and in close proximity to the site;
- The assessment did not identify the potential for gross or widespread contamination;
- The overall risk for on-site migration of contamination from the upgradient dry cleaners is low;
- The overall risk for migration of contamination from the site is low;
- It is considered unlikely that activities at the site will have contaminated the land to a degree that would prevent the redevelopment of the site for commercial land-use; and
- In the event that contamination is identified at the site, it is anticipated that the site can be made suitable for the proposed land-use.

Based on these conclusions, and subject to the limitations in **Section 6,** JBS&G recommends completion of a limited and targeted intrusive investigation of the site in accordance with a Sampling, Analysis and Quality Plan (SAQP) to provide a quantitative assessment of contaminant levels as associated with the areas of environmental concern identified above.

6. Limitations

This report has been prepared for use by the client who has commissioned the works in accordance with the project brief only, and has been based in part on information obtained from the client and other parties.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

JBS&G accepts no liability for use or interpretation by any person or body other than the client who commissioned the works. This report should not be reproduced without prior approval by the client, or amended in any way without prior approval by JBS&G, and should not be relied upon by other parties, who should make their own enquiries.

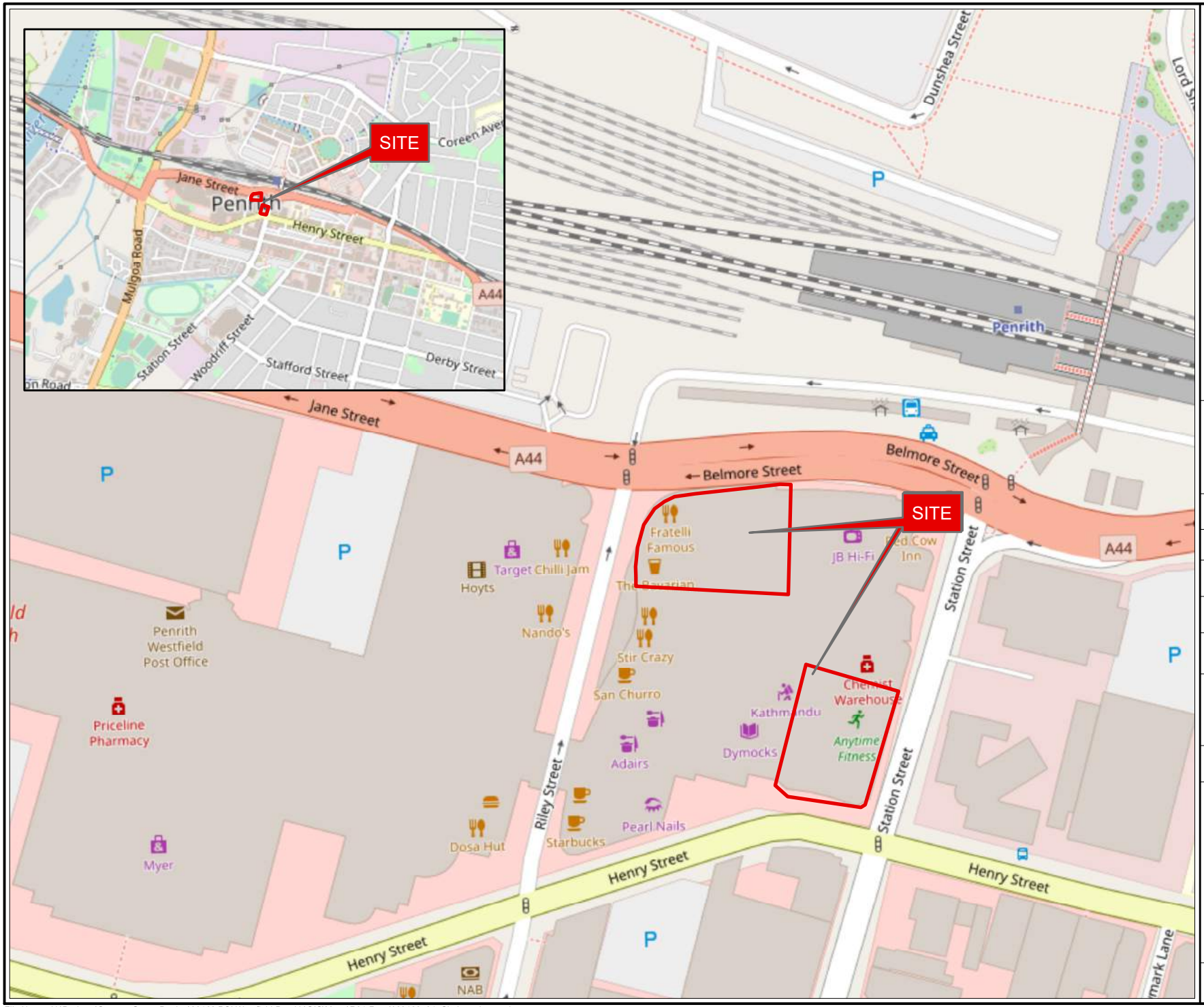
Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements.

Limited sampling and laboratory analyses were undertaken as part of the investigations undertaken, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

Changes to the subsurface conditions may occur subsequent to the investigations described herein, through natural processes or through the intentional or accidental addition of contaminants. The conclusions and recommendations reached in this report are based on the information obtained at the time of the investigations.

This report does not provide a complete assessment of the environmental status of the site, and it is limited to the scope defined herein. Should information become available regarding conditions at the site including previously unknown sources of contamination, JBS&G reserves the right to review the report in the context of the additional information.

Figures



Legend:
Approximate Site Boundary

JBS&G

Job No: 60168	
Client: Scentre Group Design	
Version: R01 Rev A	Date 9/02/2021
Drawn By: RH	Checked By: CB
Scale 1:2,000	

0 25 50
metres

Coord. Sys. GDA 1994 MGA Zone 56

569 High Street,
Penrith, NSW

SITE LOCATION

FIGURE 1

File Name: N:\Projects\Scentre Group Design\60168 PSI Westfield Penrith\GIS\Maps\R01 Rev A\60168_01_SiteLocation.mxd
Reference: NSW DFSI, 2019



Legend:

Approximate Site Boundary

NSW Cadastre (DFSI, 2021)

JBS&G

Job No: 60168	
Client: Scentre Group Design	
Version: R01 Rev A	Date 9/02/2021
Drawn By: RH	Checked By: CB
Scale 1:1,200	

0 10 20

metres

Coord. Sys. GDA 1994 MGA Zone 56

569 High Street,
Penrith, NSW

SITE LAYOUT

FIGURE 2

File Name: \\JBSG-NSW-FS01\Company Data\Projects\Scentre Group Design\60168 PSI Westfield Penrith\GIS\Maps\R01 Rev A\60168_02_SiteLayout.mxd
Reference: Nearmap (2020-06-08)