TSA Management Pty Ltd

Preliminary Site Investigation

The King's School
87-129 Pennant Hills Rd
Parramatta NSW

11 October 2023

61452-150732 (Rev 2)

JBS&G Australia Pty Ltd

www.jbsg.com.au

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Abbreviations

Term	Definition
ACM	Asbestos Containing Material
AEC	Area of Environmental Concern
AHD	Australian Height Datum
ASC NEPM	National Environment Protection (Assessment of Site Contamination) Measure
ASS	Acid Sulfate Soils
BaP	Benzo(a)pyrene
BaP TEQ	Benzo(a)pyrene Toxicity Equivalency Quotient
bgs	Below Ground Surface
BTEX	Benzene, Toluene, Ethylbenzene and Xylenes
CLM Act	Contaminated Land Management Act 1997
COPC	Contaminant of Potential Concern
CSM	Conceptual Site Model
DQI	Data Quality Indicators
DQO	Data Quality Objectives
DP	Deposited Plan
EIL/ESL	Ecological Investigation/Screening Levels
EPA	NSW Environment Protection Authority
EPL	Environment Protection Licence
HIL/HSL	Health Investigation/Screening Levels
JBS&G	JBS&G Australia Pty Ltd
LEP	Local Environmental Plan
LOR	Limit of Reporting
NATA	National Association of Testing Authorities
NEPC	National Environment Protection Council
OCPs	Organochlorine Pesticides
OEH	Office of Environment and Heritage
PAHs	Polycyclic Aromatic Hydrocarbons
PARCCS	Precision, Accuracy, Representativeness, Comparability, Completeness and Sensitivity
PCB	Polychlorinated Biphenyls
PID	Photo-Ionisation Detector
PFAS	Per- and Poly-Fluoroalkyl Substances
POEO Act	Protection of the Environment Operations Act 1997
PSI	Preliminary Site Investigation
QA/QC	Quality Assurance / Quality Control
RPD	Relative Percent Difference
SPOCAS	Suspension Peroxide Oxidation Combined Acidity and Sulphur
SSDA	State Significant Development Application
STEAM	Science, Technology, Engineering, Arts and Mathematics
SWL	Standing Water Level
TAS	Tara Anglican School
TCLP	Toxicity Characteristic Leaching Procedure
TKS	The Kings School
TRH	Total Recoverable Hydrocarbons
UCL	Upper Confidence Limit
VOC	Volatile Organic Compounds

Executive Summary

JBS&G Australia Pty Ltd (JBS&G) was engaged by The Council of the King's School (TKS, the client) to provide environmental consultancy services in relation to a preliminary site investigation (PSI), to support a State Significant Development Application (SSDA) for upgrades to school infrastructure. The school is located at 87-129 Pennant Hills Rd, North Parramatta, NSW.

The site subject to investigation comprises seven smaller areas of the school. The site includes parts of multiple cadastres as outlined in **Table 2.1** and shown on **Figure 2**. The site location is presented on **Figure 1** and site areas and layouts are shown on **Figures 2** and **2A** to **2G**.

As part of the investigation, JBS&G completed a detailed site investigation, limited soil sampling from geotechnical soil boreholes and hand augers, and sampled two groundwater installed during the geotechnical assessment. Based on the findings of this investigation, and subject to the limitations in **Section 11**, the following findings were made:

- Based on an assessment of the history, environmental setting and a detailed site inspection, potentially contaminating activities were identified. This included rural residential/agricultural and public (church and associated yard) land uses as part of the wider properties, and an offsite upgradient service station. The land the site areas fall within were acquired by TKS around 1954. Based on Aerial imagery, the redevelopment of the land into TKS and Tara Anglican School (TAS) occurred between 1951 and 1965. Although the land uses have not significantly changed, structural upgrades have been ongoing since.
- Fill material was encountered at all sample locations to maximum depths of between 0.4 m and 1.3 m bgs, and comprised brown / dark brown clay across most site areas. Brown sand, dark brown sandy and gravelly clay, and brown clay were encountered at BH02. Inclusions of gravels were noted at most locations, and asphalt/bitumen at BH02, BH06 and BH12. No asbestos was observed in fill, however given the presence of fill or disturbed topsoil at most locations, evidence indicating previous structures demolished in some site areas, and the limited intrusive investigations completed, there is the potential for asbestos to be present in fill and at former structure locations not identified during sampling documented herein.
- The investigation did not identify the presence of significant or widespread contamination, with the following results:
    - Arsenic was detected at one location at two depths (BH06_0.2-0.3 and BH06_0.4-0.5 and benzo(a)pyrene (BaP) toxicity equivalency quotient (TEQ) was detected at one location (BH08_0.2_0.3) above the adopted human health-based criterion. The impacts pose a potentially unacceptable health risk to site users. The source and spread of the identified impacts should be further assessed through a detailed site investigation;
    - Arsenic (BH06_0.2-0.3 and BH06_0.4-0.5) and BaP (BH08_0.2_0.3) were detected above the adopted ecological criterion. The risk to ecological receptors would appear low based on the lack of stressed vegetation at the locations;
    - Heavy metals (copper, nickel and zinc) reported in groundwater are considered consistent with levels typically observed in urban settings and in lieu of detections of impact in site soils, and are not considered consequent of contamination source(s) on the site.

- All concentrations of remaining contaminants of potential concern (COPC) in soil and groundwater were reported below the adopted health and ecological site assessment criteria.

Whilst the investigation identified the potential for soil impacts to be present at the site, it did not identify the potential for contamination which may preclude redevelopment of the site. Identified potential soil impacts did however exceed land use criteria at two locations which require further investigation to confirm whether management is required to make the site suitable.

It is recommended that detailed site investigation be undertaken to confirm the suitability of the land for the intended land uses and the need or otherwise for management of any unacceptable contamination.

It is also recommended that Hazardous Building Material Surveys (HBMS) be undertaken for any existing structures which will require demolition to facilitate redevelopment works.

1. Introduction

1.1 Introduction

JBS&G Australia Pty Ltd (JBS&G) was engaged by The Council of the King's School (TKS, the client) to provide environmental consultancy services in relation to a preliminary site investigation (PSI), to support a State Significant Development Application (SSDA) for upgrades to school infrastructure. The school is located at 87-129 Pennant Hills Rd, North Parramatta, NSW.

The site subject to investigation comprises seven smaller areas of the school. The site includes parts of multiple cadastres as outlined in **Table 2.1** and shown on **Figure 2**. The site location is presented on **Figure 1** and site areas and layouts are shown on **Figures 2** and **2A** to **2G**.

TKS is seeking to upgrade and enhance existing site conditions and to improve and plan for amenities and facilities to support the current and future student and staff population. The SSDA seeks approval for staged works at TKS, including future upgrades to the Preparatory School (future Stage 2), new Sports Pavilion, new Boarding House and Day Boy House, demolition of existing staff accommodation residences and replacement with nine new townhouse residences, a new Science, Technology, Engineering, Arts and Mathematics (STEAM) Building, and provision of a new vehicular entrance from the west and internal roadworks. It is noted that a portion of the road, extends into the neighbouring Tara Anglican School for Girls (TAS).

It is understood that the client requires a PSI to support the proposed development. The assessment has been developed in general accordance with the requirements of NEPC (2013[1]) and NSW Environment Protection Authority (EPA) made or endorsed guidance in relation to the assessment and management of site contamination, including planning guidelines relating to remediation of land aspects of *State Environmental Planning Policy (Resilience and Hazards) 2021* (R&H SEPP).

1.2 Objectives

The objectives of this PSI are to characterise the potential for contamination at the site, and to draw preliminary conclusions regarding the suitability of the site for the proposed use, or make recommendations to enable such conclusions to be drawn.

1.3 Scope of Works

The scope of works completed for this PSI assessment comprised:

- A desktop review of historical site use, environmental setting and background information to identify potential areas of environmental concern (AECs) and associated contaminants of potential concern (COPCs), including review of:
    - published regional topographic, geological, hydrological and hydrogeological information;
    - current and historical aerial imagery for the site and nearby surrounds at approximately even time spacing;
    - current and historical land title records for the site to identify historical owners and occupiers of the site;
    - state database records of environmental incidents, environmental protection licences and contaminated land management registers held by NSW EPA for the site and

[1] *National Environment Protection (Assessment of Site Contamination) Measure 1999*, National Environment Protection Council as amended 2013 (NEPC 2013)

surrounds as relevant to identify nearby potential sources of off-site contaminant migration; and

- searchable heritage database records for the site and surrounds.

- A detailed inspection of current site conditions to confirm the findings of the desktop assessment and identify any additional AECs;
- Development and documentation of a Conceptual Site Model (CSM) based on the available information;
- Limited soil sampling from 15 soil boreholes across the site areas, and groundwater sampling from two monitoring wells[2];
- Laboratory analysis of representative samples for a range of COPC and comparison of results to EPA endorsed assessment criteria;
- Preparation of a PSI report in general accordance with relevant EPA guidelines.

[2] Boreholes and monitoring wells were completed as part of a geotechnical investigation by others in parallel with this PSI.

2. Site Condition and Surrounding Environment

2.1 Site Identification

The site location is presented on **Figure 1** and site area layouts are presented on **Figure 2** and **Figures 2A** to **2G.** The site details are summarised in **Table 2.1** and described in the following sections.

Table 2.1 Summary Site Details

Lot / DP	Parts of Lots the site areas are located within: Preparatory School - Lot 1 DP57491, Lot 1 DP59169 Internal Road - Lot 1 DP581960, Lot 1 DP57491, Lot 1 DP964875, Lot 1 in 64765, Lot 10 DP1163900, Lots A and B DP329288 and Lot 1 DP59169 Staff Residences - Lot 1 DP57491 Day Boy House - Lot 10 DP812772 Sports Pavilion - Lot 1 DP581960 Boarding House - Lot 2 DP235857 STEAM Building - Lot 10 DP812772
School Address	87-129 Pennant Hills Rd, North Parramatta NSW
Local Government Authority	City of Parramatta Council
Site Zoning (Parramatta LEP 2023)	Zone SP2 – Educational Establishment (most of the site) Zone R2 Low Density Residential (Sports Pavilion and Part of Internal Road)
Current Use	Private Boarding School including sporting fields, tennis courts, classrooms, internal roads/tracks, and staff and student accommodation.
Proposed Use	Ongoing use as a Private Boarding School Specifically, preparatory school, road, staff accommodation townhouse residences, Day Boy House, Sports Pavilion, Boarding House and STEAM Building.

2.2 Site Description and Surrounding Land Use

A detailed site inspection was undertaken by one of JBS&G's trained and experienced environmental consultants on 23 and 24 January and 16 May 2023, and relevant details are documented below. A photographic log is presented in **Appendix A**.

2.2.1 Preparatory School

The area was located in the southwestern portion of TKS (refer **Photos 1-12**). The area comprised part of the preparatory school, including buildings dedicated to classrooms and administration offices generally along the eastern, southern and western boundaries. The structures enveloped a playground which was surfaced with concrete paths, artificial turf and poured rubber. Grass surfaces were present in areas outside of the building envelope.

The southern and western structures are proposed to be demolished as part of the upgrade works.

A vegetable garden was present in the northwest portion of the area. The garden appeared to have been raised approximately 1 m above the surrounding ground surfaces. Plant boxes, sheds and a greenhouse were noted.

2.2.2 Internal Road

The area was located in the western portion of TKS (refer **Photos 13-16**), and the southern portion extended into the neighbouring TAS.

At the time of the investigation the area comprised an existing gravel/asphalt road and parking lot, grass covered land and a portion of a basketball court. The southern portion of the existing road was a gravel track in poor condition, and the northern portion was asphalt sealed.

The area was surrounded by sporting fields, basketball court, a small farm with livestock (immediately west of the prep school) and open grass areas.

2.2.3 Staff Residences

The area was located in the general centre of TKS (refer **Photos 17-20**). The area comprised four tennis courts as well as metal benches and cloth shades along the western length. The area was located on a slope and higher ground levels were present along the southern and western extents of the courts, held by retaining walls.

2.2.4 Day Boy House

The area was located in the northeast portion of TKS, near the senior school campus (refer **Photos 21-24**).

The area was located between two residential structures. The ground surface cover was a mixture of asphalt roads, open grass areas and mulched garden patches with large trees spread around the area. Residual bushland was present in the northern portion of the area.

2.2.5 Sports Pavilion

The area was located north of two playing fields in the western portion of TKS (refer **Photos 25-28**). The proposed location of the Sports Pavilion was southwest of several structures, with demountable buildings located within the area boundary. A gravel driveway passed through the northwest of the area. The surrounding fields were well maintained and are used for a variety of sports throughout the year.

2.2.6 Boarding House

The area was located in the northern portion of TKS (refer **Photos 29-32**). The area was utilised for residential purposes, with two structures present. The residences were accessed via an asphalt driveway at the southern end of the area. most of the area was grass covered, with sporadic tree cover. Dense residual bushland was present in the northern portion of the area.

2.2.7 STEAM Building

The area was located in the northeast portion of TKS (refer **Photos 33** to **36**). The area was largely surfaced with grass cover and some exposed soil. The area sloped downwards to the northeast, with three level areas noted. A concrete pathway and stairs with manicured hedges passed through the western end of the area.

2.3 Surrounding Land Uses

The site areas were surrounded by TKS, with part of the Internal Road also surrounded by TAS to the southwest. Surrounding land-uses of TKS at the time of site inspection are described following:

- North: residual bushland and residential land;
- West: residual bushland, Parramatta Lake, TAS to the southwest then Charles Sturt University (CSU) campus, and then residential land;
- South: Pennant Hills Road/Cumberland Highway and residential land use and some commercial (cafes, pest control) and open space (Golf course) land uses. To the southwest is TAS and CSU Parramatta Campus, Burnside Public School, and a Baptist Church and associated School were located southwest of TKS and TAS.
- East: Ampol service station adjacent the southeast corner of TKS, largely residential land use with some commercial (restaurants and stores) and open space (Tudor Place Reserve Peggy Womersley Reserve and Kingsdene Oval) land uses.

2.4 Topography

Review of topographic information obtained from Google Earth Pro (Google Earth, 2018[3]) indicated that the elevation of TKS gently undulated between approximately 90 m to 42 m AHD Australian Height Datum (AHD). The highest level was located in the southeast corner of the property, and the lowest in the westernmost point of Hunts Creek. The overall slope of most of the property (including the Preparatory School, Day Boy House and Boarding House) was northwest towards Hunts Creek.

Staff Residences had been cut into a northeast facing slope. The land sloped down to the northeast towards a small tributary of Hunts Creek, which flowed northwest. The STEAM Building was also located on a northeast facing slope, with a downward gradient to the northeast, towards Hunts Creek.

The southwest portion of the site (Sports Pavilion and Internal Road) sloped southwest towards a tributary of Parramatta Lake.

2.5 Geology and Soils

Reference to the 1:100,000 Sydney Geological Survey (DMR 1983[4]) indicated that most of TKS was underlain by Triassic aged Ashfield Shale of the Wianamatta Group, characterised by black to dark grey shale and laminate. This group was present beneath the Preparatory School, most of the Internal Road, and Staff Residences, Day Boy House, Sports Pavilion and STEAM Building.

The western and northern fringes of TKS was underlain by Triassic aged Hawkesbury Sandstone of the Wianamatta Group. This group is characterised by medium to coarse grained quartz sandstone, very minor shale and laminate lenses, and was present beneath the Boarding House and the southwest portion of the Internal Road.

Reference to the online ESPADE 2.2 tool hosted by the NSW Office of Environment and Heritage (OEH 2023[5]) indicated that the areas are present within two landscape groups, the Gymea Soil Landscape (Sports Pavilion and Internal Road) and Glenorie Soil landscape (Preparatory School, and part of the Internal Road, Staff Residences, Day Boy House, Boarding House and STEAM Building) Groups.

The Glenorie Soil Landscape is characterised by low rolling to steep hills with slopes of 5-20%. Soils comprise shallow to moderately deep (<100 cm) red podzolic soils on crests, moderate deep (70–150 cm) red and brown podzolic soils on upper slopes, deep (>200 cm) yellow podzolic soils and gleyed podzolic soils along drainage lines.

The Gymea Soil Landscape is characterised by undulating to rolling rises and low hills with slopes of 10–25% and localised rock outcrop. Soils comprise shallow to moderately deep (30-100 cm) yellow earths and earth sands on crests and inside benches, shallow (<20cm) siliceous sands on leading edges of benches, localised gleyed soils and yellow podzolic soils one shale lenses, and shallow to moderately deep (<100cm) sands along drainage lines.

2.6 Hydrology

Inspection and review of NearMap[6] imagery identified several waterbodies within or near some site areas, and across TKS.

Hunts Creek passed through the northern portion of the school, leading west towards Parramatta Lake. Three dams were located across the school, one in the southwest at the start of a tributary to Parramatta Lake, and the other two in the northwest on a drainage line which fed a tributary of

[3] Google Earth Pro, imagery date 12/03/2018 (Google Earth, 2018)
[4] Sydney 1:100 000 Geological Sheet 9130, 1st edition, Department of Mineral Resources, 1983 (DMR 1983)
[5] *ESPADE 2.2* NSW Office of Environment and heritage, map data 2023, accessed 31 January 2023 (OEH 2023)
[6] NearMap website, http://maps.au.nearmap.com/ accessed 31 January 2023

Hunts Creek, at the northern arm of Parramatta Lake. The drainage line passed through Internal Road, with a large dam at the start located immediately north of the Preparatory School and a smaller dam located within the northern portion of the Internal Road (see **Figure 2B**). A third tributary was present in bushland in the northeast, and flowed directly into Hunts Creek in the north of the school property.

It is anticipated that precipitation falling onto unsealed/grassed site areas will infiltrate the soils at rates reflective of the clayey soils. For areas that are paved, surface runoff would migrate into stormwater drainage systems or otherwise flow overland to the nearest downgradient dams and creek lines. It is anticipated that overflow would be directed northwest towards Hunts Creek. The regional surface water flow is anticipated to flow northwest towards Parramatta Lake.

2.7 Hydrogeology

Licensed groundwater bore information was obtained from the NSW Department of Primary Industries groundwater mapping portal (NSW DPI 2023[7]) and results are included in **Appendix B**. Five groundwater wells were located within a 2.5 km centre of TKS. The relevant information from the wells is summarised in **Table 2.2**.

Table 2.2: Groundwater Monitoring Bores

Bore Number (Year Installed)	Distance / Direction from TKS	Intended Use	Drilled Depth (m bgs)	Standing Water Level (m bgs)	Lithology
GW102434 (1999)	1.8 km NE	Domestic	146	65 (WBZ: 45-46, 77-78 and 132-134)	0 - 1.50m: Soil (type unknown) 1.50 – 38.10 m: Sandstone 38.10 – 41.00 m: Shale 41.00 – 116.00 m: Sandstone/Shale Bands 116.00 – 120.00 m: Shale 120.00 – 146.00 m: Sandstone
GW108247 (2007)	1.8 km SW	Industrial	102	10 (WBZ: 14.5-14.8, 55-57 and 80.5-83.5)	0 – 3.00 m: Sandy Clay 3.00 – 6.00 m: Sandstone 6.00 – 10.50 m: Shale 10.50 – 29.00 m: Sandstone 29.00 -30.00 m: Shale 30.00 – 44.00 m: Sandstone 44.00 – 46.50 m: Shale 46.50 – 72.00 m: Sandstone 72.00 – 74.00 m: Shale 74.00 – 102.00 m: Sandstone
GW062300 (1988)	2.0 km SW	Industrial	100	(WBZ: 26.1 to 26.8 and 63.5-63.8)	0 – 0.4 m: Topsoil 0.40 – 9.50 m: Sandstone 9.50 – 12.10 m: Shale 12.10 – 37.70 m: Sandstone (water supply to 2.8m) 37.70 – 38.10 m: Shale 38.10 – 100.00 m: Sandstone (water supply)

SWL: Standing Water Level
bgs: Below Ground Surface
WBZ: Water Bearing Zone

The bores were drilled to final depths of between 100 m and 146 m into shale and sandstone material, with the standing water level recorded between 10 m and 65 m bgs. The bores were installed targeting deep bedrock groundwater. Based on log records of the water bearing zones and observed water supply, groundwater was encountered within sandstone layers in the bedrock.

[7] *Water NSW website, https://realtimedata.waternsw.com.au/,* Accessed 01 February 2023.

Shallow, intermittent, perched groundwater at the school is anticipated to be found in low lying areas particularly near creeks and gullies. While on top of hills, groundwater is expected to be deeper, with the potential for perched water at the interface of residual soils and bedrock.

2.8 Acid Sulfate Soils

Review of the 1:25 000 scale Prospect/Parramatta River Acid Sulfate Soil (ASS) Risk Map (DLWC 1997[8]) indicated that the site is located within an area of 'no known occurrence' of acid sulfate soil materials, consistent with the geological setting and elevation. Therefore it is considered that an ASS Management Plan is not required for the development works.

2.9 Meteorology

A review of average climatic data for the Bureau of Meteorology monitoring location within the school (Parramatta North (masons Drive[9]) indicated that the site was located within the following meteorological setting:

- Average minimum temperatures vary from 6.3 ^{o}C in July to 17.7 ^{o}C in January;
- Average maximum temperatures vary from 17.5 ^{o}C in July to 28.6 ^{o}C in January;
- The average annual rainfall is approximately 984.9 mm, with rainfall greater than 1 mm occurring on an average of 90.7 days per year; and
- Monthly rainfall varies from 50.2 mm in September to 128.4 mm in February with the wettest periods occurring on average between January and March.

2.10 Salinity

Review of the regional western Sydney salinity potential map[10] indicated the site is located in an area with a moderate salinity potential, with very low salinity potential along Hunts Creek.

The definition provided on the salinity map indicates moderate salinity potential is where scattered areas of scalding and indicator vegetation have been noted but no concentrations have been mapped. Areas of high salinity potential are typically encountered in lower slopes and drainage systems where water accumulation is high.

During the recent site inspection no potential salinity indicator plants or scalding were observed. Therefore it is considered that a Salinity Management Plan is not required for the development works.

[8] *Prospect/Parramatta River Acid Sulfate Soil Risk Map* (Edition 2), NSW Department of Land and Water Conservation (DLWC 1997)

[9] Commonwealth of Australia, 2023 Bureau of Meteorology, http://www.bom.gov.au/climate/averages/tables/cw_066124.shtml prepared 23 February 2023.

[10] Salinity Potential in Western Sydney 2002, Department of Infrastructure, Planning and Natural Resources (DIPNR, 2003).

3. Previous Investigations

No previous investigation reports were provided for the site, however a PSI was undertaken at the location of a proposed swimming pool redevelopment within TKS (see **Figure 2**). The assessment area was located approximately 160 m east of the Staff Residences, in the eastern portion of TKS. Although the investigation did not include any site areas, given its proximity to the Staff Residences of the site, the PSI report was reviewed, with relevant information summarised below.

3.1 PSI, Proposed Swimming Pool Development (JK 2022[11])

A PSI with limited soil sampling was undertaken in December 2021 to assess potential contamination to support the lodgement of a Development Application (DA). The scope of works included a desktop review and limited environmental sampling program including soil sampling from six boreholes, and groundwater monitoring well installation and sampling at two locations, completed as part of a parallel geotechnical investigation.

Historical titles were reviewed for the east portion of TKS (Lot 1 DP57491 (Staff Residences and parts of the Preparatory School and Internal Road) and Lot 10 DP812772 (Day Boy House)). The Lots were previously owned by merchants and were transferred to the Trustees of the Presbyterian Church of Australia in 1927 (Lot 1) and 1929 (Lot 10). Both Lots were acquired by The Council of the Kings School in 1954.

Fill materials were encountered to depths of approximately 0.4 m to 2.2 m bgs, and comprised silty sand and silty clay with inclusions of gravel, clay fines, ash and building rubble (glass, timber fragments). Fill material was underlain by residual silty clay and sandstone. No odours, staining or asbestos containing material (ACM) were reported to have been observed. No groundwater was encountered during drilling of boreholes, including those with monitoring wells installed. Wells were installed to 3.1 m and 0.9 m depths. The SWL was reported to be 1.69 m bgs at one groundwater monitoring well location, while the other was dry.

Soil laboratory analytical results were reported below the adopted human health and ecological assessment criteria for open space land use. No asbestos was reported within analysed samples however it was noted that augers were utilised for sample collection, which is not the preferred method for asbestos contamination characterisation. Due to the demolition waste inclusions in the fill material, it was considered that there was potential for asbestos impacts to be present.

Minor elevated concentrations of nickel and zinc were detected above the adopted 95% freshwater assessment criteria, as well as a slightly acidic pH. These results were considered likely to be a regional issue rather than an indication of site contamination.

The concentration of total recoverable hydrocarbons (TRH) F2 reported in groundwater exceeded the adopted health-based assessment criterion. It was reported that potential existed for accumulation of volatile gases within existing and proposed buildings. It was considered that further investigation was required to identify the source of the TRH F2 and better assess the potential risks. JBS&G notes there were no TRH results above detection limits in soil from the same location, and as such the potential source of TRH in groundwater is not clear, and does not appear to have been discussed by JK (2021). The nearest potential off site source is the service station adjacent the southeast corner of the school, which is upgradient of the pool area, albeit over 400 m away. Further, JBS&G considers the TRH in groundwater is not considered to pose a risk to current site areas noting the pool area is at lower elevations and as such hydraulically downgradient of nearest site areas.

[11] Preliminary (Stage 1) Site Investigation, Proposed Swimming Pool Development, The Kings School, 87-129 Pennant Hills Road, North Parramatta, NSW. Prepared for The Council of The Kings School by JKEnvironments Pty Ltd, Ref: E34585PRrpt, 25/02/2022 (JK 2022)

4. Site History

4.1 Aerial Photographs

Historical aerial photographs dated 1943, 1951, 1965, 1971, 1986, 1994, 2005, 2012, and 2022 were obtained from the Land and Property Information Division of the Department of Finances and Services and are presented in **Appendix C**. Key features in relation to the history of the site area are summarised in **Table 4.1**.

Table 4.1: Aerials Photograph Summary

Year	Site and Surrounding Land Features
1943	Preparatory School: mostly cleared land, with some tree cover along a Lot boundary in the east, and potential market garden and/or orchard area was west of the tree line, between the trees, and a large structure at/across the west boundary. Internal Road: most of the area was grass covered with some tree cover. The area also passed through road and earthen tracks. No structures evident in the area. Staff Residences: cleared land with grass ground cover and some sparse trees. Day Boy House: Residual bushland with a minor clearing at the southern end. Sports Pavilion: Most of the area appeared to be within a paddock and a small structure was visible in the northwest. Boarding House: residual bushland. STEAM Building: cleared land with grass ground cover, some sparse trees and possible earthen tracks in the northern portion of the area. The surrounding area had been largely cleared, with most of the land dedicated to rural residential use, Pennant Hills Road had been established. Hunts Creek and Parramatta Lake were visible in their present-day locations. Structures were present across the current day TKS and TSA properties, generally in the central southern and southwestern portions. Market gardens were also visible in the west of TKS and TAS boundary.
1951	The site areas and surrounding land appeared similar to the 1943 aerial image.
1965	Preparatory School: the market gardens were no longer visible and a dam was under construction along the northern boundary. Potential earthworks were observed in the northern portion of the area. The structure across the southwest boundary is still visible. A swimming pool was also visible immediately northeast of the area. Day Boy House: the residential structures were visible at the east and west ends and south of the area. Boarding House: some minor tree clearing had occurred, likely associated with the construction of buildings west of the area. STEAM Building: further tree clearing had occurred and an earthen track was visible in the northeast portion of the area. The Internal Road, Staff Residences, Day Boy House and Sports Pavilion areas appeared similar to the 1951 aerial image. The land south of Day Boy House had been cleared, and structures and a sports oval likely associated with TKS senior campus were present across the area. Sporting fields were also visible between Boarding House and Staff Residences. Some buildings east of Sports Pavilion had been demolished, and structures and a sports field were visible at the present-day TAS. The land surrounding the school properties had been developed for residential land use.
1971	Preparatory School: the northern area appeared to have been levelled and grass cover was visible. Staff Residences: The land had been cleared and possibly converted into grassed tennis courts. Buildings had been constructed immediately east and north, and also southeast, of the area. Sports Pavilion: the structure had been demolished and along with the surrounding land had been developed into sporting fields. The Internal Road, Day Boy House, Boarding House and STEAM Building areas appeared similar to the 1965 aerial image. Additional structures had appeared in a line down the centre of TKS property (near the Staff Residences). Further structures had been demolished north and constructed south of the Sports Pavilion. Construction of the dam north of the Preparatory School had been completed. Residential land use had increased in the surrounding land, with further tree clearance to the east and north of TKS.

Year	Site and Surrounding Land Features
1986	The site areas appeared similar to the 1971 image. A swimming pool was present east of the Staff Residences, structures had appeared north of the Sports Pavilion and south at TAS, and buildings were visible east of the present-day Preparatory School. Cricket practice cages were present along the northern length of the northern field (immediately south of the Day Boy House) Further residential development had occurred in the surrounding land, and James Ruse Drive had been constructed southwest of the site
1994	Preparatory School: small structures were visible in the general centre. Staff Residences: Tennis courts had been resurfaced. Boarding House: Residential structures were visible in the present-day locations and the eastern end had been cleared. STEAM Building: Part of a structure was present in the southeast corner of the area. Some new trees were visible. The Internal Road, Day Boy House, Sports Pavilion and Boarding House areas appeared similar to the 1986 aerial image. Some additional structures were present in the east of TKS and immediately east of the Preparatory School. Some additional residential structures were constructed southwest to southeast of TKS.
2005	Preparatory School: further structures have appeared across most of the area, generally consistent with the present-day . Internal Road: a carpark was visible in the eastern most portion of the area, with asphalt and grass surfaces. The Staff Residences, Day Boy House, Sports Pavilion, Boarding House and STEAM Building areas appeared similar to the 1986 aerial image. Some buildings had been extended in the eastern part of TKS (senior campus), west of Preparatory School and at TAS. The surrounding residential land appeared similar to the 1994 aerial image.
2012	Preparatory School: Sheds were visible in the northwest. Internal Road: vegetation and residual bushland in the north of the area had been cleared. Basketball courts had been constructed across and outside of the northern end of the area boundary. Staff Residences: tennis courts resurfaced. STEAM Building: The structure in the southeast was no longer visible. Earthworks, earthen roads and structures were present across the area. A carpark and field were visible immediately west of the general centre of Internal Road. Buildings had been extended, demolished and constructed across the eastern portion of TKS. Roads and carparks were visible in the southern end of TKS and the cricket practice cages had been upgraded. An additional structure was present at TAS. The land surrounding the schools appeared similar to the 2005 aerial image.
2022	Internal Road: a road and carpark were constructed in the southern end. STEAM Building: The structures were no longer visible and most of the area was vacant and grass covered. A concrete pathway was visible in the northwest portion of the area. Additional structures and a carpark were visible in the eastern end of TKS senior campus. A large building had been constructed at TAS, with a small construction site visible adjacent. The land surrounding the schools appeared similar to the 2012 aerial image.

4.2 EPA Records

A search of the NSW EPA database was undertaken for the site and immediate surrounding properties. EPA records are provided in **Appendix D**. The search was done through the following public registers:

- NSW EPA *Protection of the Environment Operations Act 1997* (POEO Act) public register of licence, applications and notices (maintained under Section 308 of the POEO Act).
    - No prevention, clean-up or prohibitions notices has been issued under the POEO Act for the site, TKS or immediate surrounding land.
- NSW EPA contaminated land public register of record of notices (under Section 58 of the *Contaminated Land Management Act 1997* (CLM Act)).
    - No notices have been issued under the CLM Act for the site, TKS and immediate surrounding land.
- NSW contaminated sites notified to the EPA (under Section 60 of the CLM Act).

- The site, TKS or immediate surrounding are not on the list of NSW contaminated sites notified to the EPA, except for the Caltex/Ampol service station on Pennant Hills Road adjacent the southeast corner of TKS, which is mentioned in **Section 3.1**. The service station has been assessed by EPA as not requiring regulation under the CLM Act. While it is hydraulically upgradient of eastern portions of TKS, it is not upgradient of any current site areas based on topography.

- PFAS Investigation Program.
  - The site or TKS are not listed by EPA on the NSW Government PFAS Investigation program. The closest identified PFAS investigation area is the Westleigh NSW Rural Fire Services Base (12 Warrigal Drive, Westleigh). Given the Base is 10 km north of the site, and in a different catchment, it is not considered to pose a risk to the site.

4.3 10.7 (2)(5) Council Planning Certificate

A Planning Certificate was obtained from City of Parramatta Council for TKS and is included in **Appendix E**. The planning certificate included the following information:

- The land is subject to Parramatta (former The Hills) Local Environmental Plan 2012.
- The land falls within Zone SP2 Infrastructure and R2 Low Density Residential;
- The land has been identified to possibly contain native vegetation and is subject to Part 7 of the Biodiversity Conservation Act 2016. The land is not biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016.;
- The land contains an item of environmental heritage;
- The land is identified as containing a locally significant Heritage Item but is not located within a heritage conservation area, and is identified as containing Heritage Items in the Parramatta LEP 2023;
- The land is subject to road widening or road realignment certification;
- This land has been partly or wholly identified as bush fire prone land;
- The land is subject to Part C Section 3 Landscaping of the Hills Development Control Plan 2012 for tree preservation;
- The land is within flood planning area and is subject to flood related development controls; and
- The land has not been notified by NSW Fair Trading of the property being listed on the Loose-fill Asbestos Register.

Under the section Matters Arising under the CLM Act, it was reported that the following information is available to Council:

- The land is not significantly contaminated land;
- The land is not subject to a management order;
- The land is not subject to an approved voluntary management proposal;
- The land is not subject to an ongoing maintenance order; and
- The land is not subject of a site audit statement.

4.4 Australian and NSW Heritage Searches

A search of both the Australian Heritage Trust database and the NSW Heritage Inventory did not identify any items of national or state historical significance within the site areas or in the immediate surrounds. Both Australian Heritage Trust and NSW Heritage information are included in **Appendix F.**

4.5 Integrity Assessment and Summary of Site History

Historically the site areas appeared to be utilised for rural residential and agricultural purposes, as well as public use (church and associated yard), as part of the wider properties. The land the site areas fall within were acquired by TKS around 1954. Based on Aerial imagery, the redevelopment of the land into TKS and TAS occurred between 1951 and 1965. Although the land uses have not significantly change, structural upgrades have been ongoing since.

Based on the range of sources and the consistency of the historical information, it is considered that the historical assessment has an acceptable level of accuracy with respect to the potentially contaminating activities historically occurring at the site.

5. Conceptual Site Model

5.1 Potential Areas of Environmental Concern

The following potential areas of environmental concern (AECs) at the site are based on the site history review and observations of site conditions during the detailed site inspection and are presented in **Table 5.1**. It is considered there are no offsite AECs within or beyond TKS that pose a potential risk to the site areas.

Table 5.1 Areas of Environmental Concern and Associated Contaminants of Potential Concern

Potential Area of Environmental Concern (AEC)	Contaminants of Potential Concern (COPC)
Onsite	
Historical and existing site structures	heavy metals, OCPs, PCBs, and asbestos
Fill materials of unknown origin	Heavy metals, PAH, TRH/ BTEX, OCPs/PCBs and asbestos
Historical and current agricultural land use	Heavy metals, OCPs, TRH/BTEX, PAHs, asbestos

5.2 Potentially Contaminated Media

- Surface soil;
- Fill materials;
- Natural soil/bedrock; and
- Groundwater.

Redevelopment works have occurred across portions of site areas, potentially resulting in impacts to surface and near surface soils associated with the incomplete removal of past building materials (potentially inclusive of lead paint and/or asbestos impacts).

Fill material was considered to be potentially contaminated based upon unidentified sources of fill material imported to the site historically to form existing site levels, and historical agricultural use of the land. Based on the potential leachability of COPCs that may be in the fill, vertical migration of COPCs through the soil profile may occur. Consequently, natural soils underlying fill were considered potentially contaminated.

Groundwater has also been identified as potentially impacted media due to the presence of subsurface fill material, depending on the presence and leachability of COPCs that may be present in the fill/soil profile.

5.3 Potential for Migration, Exposure Pathways and Receptors

Contaminants generally migrate from a 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 potential contaminants identified as part of the site history review are generally in either a solid form (e.g. heavy metals, asbestos, etc) or liquid form (e.g. fuel, pesticides, etc).

A large proportion of the site surfaces are comprised of vegetated surfaces i.e. grasses and vegetation, or paved. As such, dependent upon the nature and distribution of potential contamination at the site (i.e. surficial impacts), JBS&G does not consider there to be significant potential for the migration of contaminants via aeolian transport given these surface coverings act as natural windbreaks.

There is some potential for contaminant migration via infiltration of water and subsequent migration through the soil profile and groundwater.

5.4 Potential Exposure Pathways

Based on the COPC identified in various media as discussed above, the exposure pathways anticipated for the site include:

- Dermal;
- Ingestion; and
- Inhalation.

Due to the potential presence of impacted soil/fill on ground surfaces in areas of the site that may be accessed by current and/or future users of the site, dermal exposure must be considered a potential exposure pathway. In the event that dust is generated, ingestion and inhalation are also considered to be potential exposure pathways.

As groundwater is not anticipated to be extracted under the proposed land use, dermal contact and ingestion of groundwater is considered to be unlikely. However, dependent on the depth to groundwater and the extent of contamination in near surface soils/fill, there is a potential for exposure to groundwater during construction activities, although this too is considered unlikely due to the depth to groundwater at the site construction WHS controls.

5.4.1 Potential Receptors

Potential human receptors of environmental impact include future site users, visitors and construction/maintenance contractors engaged to work at the site who may potentially be exposed to COPCs through inhalation or direct contact with impacted soils and/ groundwater. Exposure to windblown dusts may pose a potential risk to sensitive human receptors however these are also considered unlikely given the predominantly vegetated or sealed site surfaces.

During redevelopment of the site, potential human receptors will include potential dermal contact with and ingestion of impacted soils as or inhalation of dusts/fibres associated with impacted soils by future excavations by site workers, visitor and occupants.

The site is currently primarily covered by vegetation, presenting ongoing potential ecological receptors, although no vegetation stress relating to potential contamination from known AECs was observed during site inspection. Flora on site are potential receptors of shallow soil contamination if present. Possible off-site ecological receptors include potential surface water dams and Hunts Creek, which passes through the northern portion of TKS.

5.5 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 be present at the site, associated with areas of disturbed natural/fill material, service easements and irrigation/stock dams on site.

Natural preferential pathways are likely limited to natural lithological boundaries, such as between porous soils and weathered/residual bedrock, where infiltrating groundwater is vertically confined and begins to migrate laterally, and surface water drainage features.

6. Sampling and Analysis Plan

6.1 Data Quality Objective

Data quality objectives (DQOs) were developed for the investigation, as discussed in the following sections.

6.1.1 State the Problem

The site areas are proposed to be upgraded to improve and plan for amenities and facilities to support the current and future student and staff population. The PSI is required to characterise potential contamination at the site, to support the SSDA.

6.1.2 Identify the Decision

To meet the specific project objectives, the following decisions must be made:

- Are there any unacceptable risks to likely future on site receptors?
- Are there any issues relating to local area background soil concentrations that exceed the appropriate soil criteria?
- Are there any impacts of chemical mixtures?
- Are there any aesthetic issues?
- Is there any potential for contaminant migration from the site?
- Is further investigation required to confirm site suitability?

6.1.3 Identify Inputs to the Decision

Inputs to the decision are:

- Historical site information, inspection of the site and discussion with the client to identify potential AECs and COPCs at the site;
- The collection and interpretation of environmental data through collection and analysis of soil and groundwater samples;
- Laboratory analysis of samples of potentially contaminated media for COPC; and
- Confirmation that data generated by sample analyses were of sufficient quality to allow reliable comparison to assessment criteria as undertaken by assessment of quality assurance / quality control (QA/QC).

6.1.4 Define the Study Boundaries

The study boundaries are limited to the site boundaries, as defined in **Figure 2**.

Due to the project objectives, seasonality has not been assessed as part of this investigation. Data will therefore be representative of the timing and duration of the current investigation.

6.1.5 Develop a Decision Rule

A summary of the decision rules for the assessment are presented in **Table 6.1**.

Table 6.1: Summary of Decision Rules

Decision Required to be Made	Decision Rule
1. Are there any unacceptable risks to on site future receptors from soils?	Soil analytical data was compared against EPA endorsed criteria including NEPC (2013). For the characterisation sample sets, statistical analysis of the data was undertaken if required and in accordance with relevant guidance documents, to facilitate the decisions. The following statistical criteria was adopted with respect to soils, where appropriate: Either: the reported concentrations were all below the site criteria; Or: the average site concentration for each analyte was below the adopted site criterion; no single analyte concentration exceeded 250% of the adopted site criterion; and the standard deviation of the results was less than 50% of the site criterion. And: the 95% upper confidence limit (UCL) of the average concentration for each analyte was below the adopted site criterion. Where results were below criteria, and/or if the statistical criteria stated above were satisfied, and site characterisation indicates potentially unacceptable risks are unlikely, the answer to the decision was No. Otherwise the answer to the decision was Yes.
2. Are there any issues relating to the local area background soil concentrations that exceed appropriate soil criteria?	Analytical data in natural soil samples were compared to the background levels for urban areas of NSW as described in NEPC 2013. Where concentrations were less than the background levels, the answer to the decision was No. Otherwise the answer to the decision was Yes.
3. Are there any chemical mixtures?	Were there more than one group of contaminants present which increase the risk of harm? If there was, the answer to the decision was Yes. Otherwise, the answer to the decision was No.
4. Are there any aesthetic issues associated with potentially impacted media at the site?	If there were any unacceptable odours, soil discolouration, or other aesthetic issues, the answer to the decision was Yes. Otherwise, the answer to the decision was No.
5. Is there any potential for contaminant migration from the site?	A qualitative assessment of contaminant sources, migration pathways and receptors was completed during assessment of investigation data collected. If the assessment identifies unacceptable risks to off-site receptors, the answer to the decision was Yes. Otherwise the answer to the decision was No.
6. Is further investigation required to confirm site suitability?	If any of the responses to the decision rules above were Yes, further investigation is required to confirm the site suitability for the development, and determine if a management strategy is required.

6.1.6 Optimise the Design for Obtaining Data

Limited soil and groundwater sampling was conducted as part of the PSI. The sampling locations were selected in order to target areas of potential environmental concern based on historical/current land use and field observations, and to ensure that data exists for key areas within the site. Sample locations are shown in **Figures 3** and **3A** to **3G**.

6.1.7 Specific Limits on Decision Errors

This step is to establish the decision maker's tolerable limits on decision errors, which are used to establish performance goals for limiting uncertainty in the data. Data generated during this project must be appropriate to allow decisions to be made with confidence.

Specific limits for this project have been adopted in accordance with the appropriate guidance from the NSW EPA, National Environmental Protection Measure (NEPM) (NEPC 2013[12]), appropriate Data Quality Indicators (DQIs) used to assess QA/QC and standard JBS&G procedures for field sampling and handling.

To assess the usability of the data prior to making decisions, the data will be assessed against pre-determined DQIs for to precision, accuracy, representativeness, comparability, completeness and sensitivity (PARCCS parameters). The acceptable limit on decision error is 95% compliance with DQIs.

The pre-determined DQIs established for the project are discussed below in relation to the PARCCS parameters and are shown in **Table 6.2**.

- **Precision** – measures the reproducibility of measurements under a given set of conditions. The precision of the laboratory data and sampling techniques is assessed by calculating the Relative Percent Difference (RPD) of duplicate samples.
- **Accuracy** – measures the bias in a measurement system. The accuracy of the laboratory data that are generated during this study is a measure of the closeness of the analytical results obtained by a method to the 'true' value. Accuracy is assessed by reference to the analytical results of laboratory control samples, laboratory spikes and analyses against reference standards.
- **Representativeness** – expresses the degree which sample data accurately and precisely represent a characteristic of a population or an environmental condition. Representativeness is achieved by collecting samples on a representative basis across the site, and by using an adequate number of sample locations to characterise the site to the required accuracy.
- **Comparability** – expresses the confidence with which one data set can be compared with another. This is achieved through maintaining a level of consistency in techniques used to collect samples; and ensuring analysing laboratories use consistent analysis techniques; and reporting methods.
- **Completeness** – is defined as the percentage of measurements made which are judged to be valid measurements. The completeness goal is set at there being sufficient valid data generated during the study.
- **Sensitivity** – expresses the appropriateness of the chosen field and laboratory methods, including the limits of reporting, in producing reliable data in relation to the adopted site assessment criteria.

[12] National Environmental Protection (Assessment of Site Contamination) Measure 1999. As compiled 16 May 2013 National Environmental Council (NEPC 2013)

Table 6.2: Data Quality Indicators

Data Quality Indicators	Frequency	Data Quality Criteria
Precision		
Laboratory Duplicates	1 / 20 samples/media	<50% RPD[1]
Accuracy		
Surrogate spikes	All organic samples	70-130% recovery
Laboratory control samples	1 per lab batch	70-130% recovery
Matrix spikes	1 per lab batch	70-130% recovery
Representativeness		
Sampling appropriate for media and analytes	All samples	-[2]
Samples extracted and analysed within holding times.	-	Organics (14 days), inorganics (6 months)
Laboratory blanks	1 per lab batch	<LOR
Comparability		
Standard operating procedures for sample collection & handling	All Samples	All Samples
Standard analytical methods used for all analyses	All Samples	NATA accreditation
Consistent field conditions, sampling staff and laboratory analysis	All Samples	All samples[2]
Limits of reporting appropriate and consistent	All Samples	All samples[2]
Completeness		
Sample description and COCs completed and appropriate	All Samples	All samples[2]
Appropriate documentation	All Samples	All samples[2]
Satisfactory frequency and result for QC samples		95% compliance
Data from critical samples is considered valid	-	Critical samples valid
Sensitivity		
Analytical methods and limits of recovery appropriate for media and adopted site assessment criteria	All samples	LOR ≤ site assessment criteria

[1] If the RPD between duplicates is greater than the pre-determined DQI, a judgment will be made as to whether the excess is critical in relation to the validation of the data set or unacceptable sampling error occurs in field.
[2] A qualitative assessment of compliance with standard procedures and appropriate sample collection methods will be completed during the DQI compliance assessment.

6.2 Soil Investigation

Soil samples were collected from boreholes using solid flight augers at eleven locations (BH01 to BH11) via drill rig and by JBS&G advanced hand auger at four locations (BH12 to BH15). Soil samples were collected from the ground surface (0-0.1 m), 0.3 m bgs and 0.5 m intervals to a maximum of 1.0 m bgs or 0.5 m into natural material (prior to refusal) at most locations. Sample locations BH14 and BH15 were advanced to 0.3 m bgs, to remove the need for service location. Physical evidence of gross contamination, such as seepage, discolouration, staining, odours, or other potential indications of contamination if observed were recorded on Borelogs (**Appendix G**).

Samples were collected directly from the augers with a new pair of nitrile gloves for each. Collected samples were immediately transferred to laboratory supplied sample jars or bags. The sample jars were then be transferred to a chilled ice box for sample preservation prior to and during shipment to the testing laboratory. A chain-of-custody form was completed and forwarded with the samples to the testing laboratory. Based upon field observations, samples were analysed for a range of contaminants of potential concern (COPC) in accordance with the sampling and analytical schedule (**Table 6.3**).

6.2.1 Soil Field PID Screening

Samples collected during the sampling event were screened on site using a calibrated photo-ionisation detector (PID) to assess the potential presence of volatile organic compounds (VOCs). Samples obtained for PID screening were placed in a sealed plastic bag for a period of approximately five minutes to equilibrate, prior to a PID being attached to the bag. Readings were then monitored

for a period of approximately one minute or until values stabilised and the stabilised/highest readings were recorded on the borehole logs. PID screening results were recorded on the bore logs included as **Appendix G**. PID calibration records are included in **Appendix H**.

6.3 Groundwater Investigation

6.3.1 Groundwater Monitoring Well Installation

Following soil sampling, two boreholes (BH06 and BH08) were advanced and converted into groundwater monitoring wells. The boreholes were advanced via solid flight auger to 4.7 m bgs (BH06) and 7.7 m bgs (BH08) for groundwater monitoring well installation. The wells were constructed using Class 18 PVC (50 mm diameter) screen and casing, with a 0.5 m (BH06) and 1 m (BH08) screen interval. A sand filter pack was placed adjacent to the screened interval with a 1.0 m bentonite seal above. The remaining bore annulus was backfilled with excess soil to the ground surface.

6.3.2 Well Development

Subsequent to well construction, the newly installed monitoring wells were thoroughly developed to remove fines, settle the filter pack and ensure representative groundwater samples could be collected. Well development was undertaken using a plastic bailer.

Following development of the monitoring wells, the wells were capped using a gas cap to enable the screening of VOCs prior to the completion of the groundwater monitoring event (GME).

6.3.3 Groundwater Sampling

The groundwater monitoring event was undertaken by JBS&G on 30 February 2023. The newly installed monitoring wells were allowed to settle for a period of 6 days after development. The following method was utilised for groundwater sample collection:

- Low flow pumping was undertaken with a peristaltic pump using new disposable silicone tubing and disposable low-density polyethylene (LDPE) tubing for sampling to remove standing/static water. The LDPE tubing was lowered to a maximum depth of two-thirds of the wetted screen length of the monitoring well prior to the commencement of purging;
- Purging of groundwater was then undertaken generally at a rate of 0.2 L/m while ensuring that the groundwater drawdown did not exceed 300 mm (as measured by the interface probe) during the pumping event;
- Measurement of field parameters including pH, conductivity, redox potential, dissolved oxygen and temperature was completed at a frequency of once every 1 to 5 minutes dependent on the purging rate, using a multi-parameter probe/meter and a flow cell;
- During the development, purging and sampling, features such as discolouration, staining, odours and other indications of contamination were noted of field forms;
- Groundwater samples were obtained using the low-flow peristaltic pump when three consecutive readings of field parameters met the following criteria: pH ± 0.5; dissolved oxygen ± 10% or 0.1 mg/L; electrical conductivity ± 3 %; and redox potential ± 10 mV (Ref: Vic EPA 2000 [13]);
- Collected groundwater samples were immediately transferred to pre-prepared laboratory supplied sample containers of appropriate composition for the required laboratory analysis. Groundwater samples were obtained in a manner that ensures no headspace remained in the bottles, and where appropriate were filtered in the field prior to preservation;

[13] Vic EPA 2000, Groundwater Sampling Guidelines April 2000

- Each of the sample bottles was labelled with the project ID, date, sampler's initials and unique monitoring well ID (or QC sample name), using permanent ink marker on labels affixed to the sides of the bottles by the laboratory;
- All bottles were placed directly into a pre-chilled ice chest, for transport to the testing laboratories; and
- A chain-of-custody form was completed and forwarded with the samples.

At the completion of sampling, single use sampling equipment was disposed of and re-useable equipment that potentially contacted groundwater was decontaminated as per the general procedures discussed in **Section 6.4**.

Samples were analysed in accordance with the analytical schedule provided in **Section 6.5**.

A record of gauging data, sample observations (including colour, odour, presence of light non-aqueous phase liquid (LNAPL), sheens) and sampling method details were recorded and are included in **Table 9.1**.

6.4 Decontamination and Calibration

Prior to the commencement of sampling activities, non-disposable sampling equipment, including hand auger and interface probe were cleaned with a water/detergent spray, rinsed with water and then air dried. The equipment was then inspected to ensure that no soil, oil, debris or other contaminants were apparent on the equipment prior to the commencement of works. Sampling equipment was subsequently decontaminated using the above process between each sampling location. New gloves were used for each sample collection.

Sample equipment where necessary, was appropriately calibrated.

Decontamination and calibration certificates for field works are provided in **Appendix E**.

6.5 Laboratory Analysis

JBS&G contracted Eurofins | MGT (Eurofins) as the primary laboratory all analyses. The laboratory was National Association of Testing Authority (NATA) accredited for all analytes. In addition, the laboratory was required to meet JBS&G's internal QA/QC requirements. Laboratory analysis of samples was conducted as summarised in **Table 6.3**. Copies of the laboratories Certificates of Analysis are provided in **Appendix J**.

Table 6.3 Sampling and Analytical Program

Sample Type	No. of Sampling Locations	Analyses (exc. QA/QC)
Soil	15 locations	Asbestos (500 mL) - 17 samples Heavy Metals (As, Cd, Cr, Cu, Hg, Ni, Pb, Zn) - 17 samples PAH - 17 samples TRH/BTEX - 12 samples OCP – 12 samples PCBs – 7 samples TCLP (metals/PAH) - 3 samples Ecological Parameters – 2 samples
Groundwater	2 locations	Heavy Metals (As, Cd, Cr, Cu, Hg, Ni, Pb, Zn) - 2 samples PAH - 2 samples TRH/BTEX - 2 samples

7. Assessment Criteria

7.1 Regulatory Guidelines

Development of site assessment criteria and the associated scope of investigation was undertaken with consideration to aspects of the following guidelines, as relevant:

- *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013),* National Environment Protection Council (NEPC 2013);
- *Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme*, 3rd Edition, NSW EPA, 2017 (NSW EPA 2017);
- *Contaminated land guidelines: Consultants reporting on contaminated land*, April 2020 (NSW EPA 2020);
- *Contaminated Land Guidelines: Sampling design part 1 – application, NSW EPA,* August 2022 (EPA 2022);
- *Waste Classification Guidelines, Part 1: Classifying Waste*, November 2014, NSW EPA (EPA 2014);
- *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, 29 August 2018, ANZAST (ANZAST 2018); and
- *Guidelines for Managing Risks in Recreational Water*, NHMRC, 2011 (NHMRC 2011).

7.2 Soil Assessment Criteria

As per the decision process for assessment of urban development sites (EPA 2017), a set of health and ecological assessment thresholds derived from NEPC (2013) were used for evaluation of site contamination data collected for this assessment.

Since the site areas are located within TKS (and a small portion of TAS) which includes a Preparatory School, and the proposed development is for ongoing boarding school use, the collected soil data were compared to land use criteria for the most conservative land use (i.e. residential - scenario A). The Day Boy House is located within the Secondary School and ongoing recreational use is proposed for the Sports Pavilion. As such, criteria for open space (scenario C) land use has also been considered for these areas.

The results of asbestos analysis were assessed in general accordance with NEPC (2013) guidance. Where there is no NSW EPA endorsed threshold for an individual COPC, the laboratory limit of reporting (LOR) was adopted as an initial screening value for the purposes of this assessment.

Analysed COPC concentrations in soil samples were compared against the following:

Health Based Criteria:

- Health Investigation Levels (HILs) 'residential' (HILs A & B) and 'open space' (HIL C) land use scenarios.
- Soil Health Screening Levels (HSLs) for asbestos and Vapour Intrusion in clay, 'residential' (HSLs A & B) and 'open space' (HSL C) land use scenario.

Ecological Screening Levels:

- Ecological Screening Levels (ESLs) 'residential and open space' land use scenario, in fine soil.
- Ecological Investigation Levels (EILs) 'residential and open space' land use scenario, including site-specific EILs derived for some metals per NEPC (2013) guidance.

TRH Management Limits

TRH Management Limits for consideration of the formation of Light Non-Aqueous Phase Liquids (LNAPLs), fire and explosive hazards, and effects on buried infrastructure under the 'residential' and 'open space' land use scenarios are considered where required after assessment of health and ecological criteria, per NEPC (2013) guidance.

Aesthetics

EPA (2017) and NEPC (2013) require consideration of aesthetic issues for all land uses. These can include staining, odours, visible ACM, substantial anthropogenic materials. Consideration is given herein to NEPC (2013) guidance on aesthetics in the context of the proposed land uses.

Waste Classification

Soil samples were also compared to EPA (2014) waste classification guidelines for General Solid Waste (GSW) to assist preliminary waste classification should proposed works require disposal of surplus soil, as presented in **Tables B** and **C**.

7.3 Groundwater Assessment Criteria

Groundwater analytical data for this assessment has been compared against the following groundwater criteria, and presented in **Table D**:

- To assess the potential risk of contaminated groundwater migrating from the site to nearby waterbodies, will be made to the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZG 2018). Given the heavily urbanised/disturbed nature of North Parramatta and proximity of urban areas to Hunts Creek and Parramatta Lake, criteria for protection of 95 % species in a moderately disturbed freshwater ecosystem have been adopted.
- Recreational criteria (taken as 10 x drinking water criteria for health consistent with NHMRC 2011) will be applied due to proximity of the site to Parramatta Lake; and
- HSLs for vapour intrusion for 'residential' (HSL A & B) and open space (HSL C) land uses for fine grained soils for groundwater sources between 4 - 8 m bgs.

8. Quality Assurance and Quality Control

Due to the preliminary nature of the groundwater assessment, a detailed assessment of QA/QC was not undertaken as part of the investigation. However, the field sampling, inspection and handling procedures administered by JBS&G typically produce QA/QC results which indicate that the data set are of an acceptable quality and suitable for use in preliminary site characterisation.

The NATA certified laboratory results indicate that the project laboratories were achieving levels of performance within their recommended control limits during the period when the samples from this program were analysed.

JBS&G consider that the data collected herein are of an acceptable quality upon which to draw conclusions regarding the environmental condition of the assessment area.

9. Results

9.1 Soil Results

9.1.1 Soil Field Observations

The lithology encountered at the site during the field works is summarised below. Borehole logs are included in **Appendix G** and sample locations are shown on **Figures 3A** to **3G**. A total of thirteen boreholes (BH01 to BH13) were sampled by JBS&G on 23 & 24 January 2023 and two boreholes (BH14 and BH15) were sampled on 16 May 2023 for the current investigation. Photographs of soil encountered are also included in **Appendix A**.

Most of the site surfaces was covered by grass with some building footprints (Preparatory School and the Boarding House) and sections of hardstand. All of the Staff Residences area was sealed. Underlying fill materials were encountered to maximum depths of 0.4 m and 1.3 m bgs, and comprised brown / dark brown clay across most site areas. Brown sand, dark brown sandy and gravelly clay, and brown clay were encountered at BH02. Inclusions of gravels were noted at most locations, and asphalt/bitumen were observed at BH02, BH06 and BH12. Minor black staining was observed at BH06 (refer **Photo 5**) between approximately 0.2 and 0.5 m bgs. PID readings ranged between 0.4 (BH02) and 12.4 ppm, with highest levels recorded at BH03_0.4-0.5 (12.4ppm), BH04_0.4-0.5 (12.3 ppm), BH04_0.6-0.7 (11.4 ppm) and BH06_0.4-0.5 (10 ppm).

Natural soils underlying fill generally consisted of brown/orange clay and was encountered at most sample locations. Brown sand and clayey sand were encountered at BH10 (refer **Photo 32**). Groundwater seepage was not encountered during drilling.

9.1.2 Soil Analytical Results

Representative samples were collected across the site (**Figures 3** and **3A** to **3G**) and were analysed for a range of COPCs. The summarised laboratory results are presented in **Table A**. Detailed laboratory reports and chain of custody documentation are provided in **Appendix J**.

9.1.2.1 Heavy Metals

Concentrations of heavy metals were reported below the adopted ecological and/or human health criteria in all soil samples selected for analysis, with the exception of arsenic at BH06 (Preparatory School). Concentrations of 180 mg/kg and 110 mg/kg were reported for BH06_0.2-0.3 and BH06_0.4-0.5, respectively, above the adopted HIL-A and EIL criteria.

9.1.2.2 TRH / BTEX

All TRH and BTEX concentrations were reported below the LOR and/or the adopted ecological and human health-based criteria and management limits. Low-level concentrations of TRH were detected at BH08_0.2_0.3 (Staff Residences), BH11_0.2_0.3 (Day Boy House) and BH14_0.2_0.3 (STEAM Building).

9.1.2.3 PAHs

Concentrations of PAHs were reported below the adopted ecological and/or human health criteria in all soil samples selected for analysis, with the exception of sample location BH08_0.2_0.3 (Staff Residences):

- Benzo(a)pyrene (BaP) Toxicity Equivalency Quotient (TEQ) with a concentration of 4.6 mg/kg, exceeding the HIL A and HIL C (3 mg/kg) and the HIL B (4 mg/kg) criteria; and
- BaP with a concentration of 3.1 mg/kg, exceeding the adopted ESL (0.7 mg/kg).

9.1.2.4 PCB

PCB concentrations were reported below the LOR and the adopted assessment criteria.

9.1.2.5 OCPs

All OCP concentrations were reported below the LOR and/or the adopted assessment criteria. A low-level concentration of 4,4-DDE was detected at BH02_0.9_1.

9.1.2.6 Asbestos

No asbestos was detected within analysed soil samples.

9.1.3 Preliminary Waste Classification

Soil analytical results were compared to EPA (2014) *Waste Classification Guidelines* General Solid Waste (GSW) criteria, as presented in **Table B**.

Concentrations of arsenic at BH06_0.2_0.3 and BH06_0.4_0.5, and nickel and BaP at BH08_0.2_0.3 were reported above the GSW contaminant threshold (CT1) but below the GSW specific contaminant concentration (SCC1) for application combined with toxicity characteristic leaching potential (TCLP) data. Representative TCLP leachate concentrations (**Table C**) were also reported below the GSW TCLP1 criteria for the contaminants.

All remaining chemical contaminant concentrations were reported below the GSW contaminant thresholds. Soil at the sampling locations is preliminarily classified as GSW, subject to confirmatory classification if disposal is required.

Where soil is required to be removed for disposal, preliminary waste classifications herein should be confirmed including additional sampling and analysis, with consideration to relevant EPA guidelines including EPA (2022) sampling design guidelines and EPA (2014) waste classification guidelines.

9.2 Groundwater Results

9.2.1 Groundwater Field Observations

Two groundwater monitoring wells were installed at the locations shown on **Figure 3, 3A** and **3C**. The standing water level was recorded at 3.02 m (BH06, Preparatory School) and 2.17 m (BH08, Staff Residences) below top of casing (btoc), undertaken on 16 March 2018.

Stabilised groundwater parameters as measured in the field prior to the collection of groundwater samples are presented in **Table 9.1**.

Table 9.1 Groundwater Parameters

Well ID	DO (mg/L)	EC (ms/cm)	pH	Redox (mV)	Temperature (°C)	Observations
BH06	3.65	382.1	5.68	193.6	20.2	Brown, medium turbidity, non-odorous, no sheen
BH08	0.85	812	5.71	184.4	20.3	Slightly brown, low turbidity, non-odorous, no sheen

Review of the field parameters as presented above indicates that the groundwater is mildly acidic, fresh and under generally reducing conditions (redox <200 mV). No odours or sheens or NAPL were observed.

9.2.2 Groundwater Analytical Results

The groundwater samples were submitted for laboratory analysis and a summary of the laboratory analytical results is presented in **Table D**. Complete laboratory reports and chain of custody documentation is provided in **Appendix J**.

9.2.2.1 Heavy Metals

Concentrations of heavy metals were reported below the LOR and/or the adopted drinking water and 95% freshwater criteria with the exception of:

- Copper at BH06 (0.006 mg/L) and BH08 (0.005 mg/L) exceeding the adopted 95% freshwater trigger value of 0.0014 mg/L);
- Nickel at BH08 (0.011 mg/L) reported at the adopted 95% freshwater trigger value of 0.011 mg/L); and
- Zinc at BH06 (0.04 mg/L) and BH08 (0.092 mg/L) exceeding the adopted 95% freshwater trigger value of 0.008 mg/L).

9.2.2.2 TRH/BTEX and PAHs

Low level concentrations of TRH/BTEX were detected in groundwater at BH06 below the adopted assessment criteria. Concentrations of TRH/BTEX and PAHs were reported below the LOR and/or site assessment criteria.

10. Site Characterisation

Section 6.1.5 provides decision rules applicable to determine if contamination is present at the site that may be potentially unacceptable for the proposed future land uses from a health and ecological health perspective. Discussion of each of these points is provided in the following sections.

10.1 Are there any unacceptable risks to likely future on-site receptors?

Soil

No asbestos was observed or detected within laboratory analysed soil samples, however noting the presence of fill in site areas and that former structures have been demolished from within or proximal to some site areas, there is the potential for asbestos to be present. Chemical COPC were reported below the adopted site assessment criteria, with exceptions discussed below.

Elevated concentrations of arsenic (BH06) and BaP (BH08) were reported above both human health and ecological criteria. Leachate testing (**Section 9.1.3**) indicated that BaP was not leachable, and the arsenic had low leachability. The risk to ecological receptors would appear low based on the lack of stressed vegetation at the locations. Neither arsenic nor BaP were detected above the LOR in groundwater at these locations did not, indicating the impacts are limited to soil.

Arsenic in shallow fill at BH06 (Preparatory School) exceeded HIL-A, and as such poses a potentially unacceptable health risk given its location. The source of the arsenic in fill is not known but could relate to arsenic-based pesticide/herbicide use, although no elevated OCP results were reported at this location. The results could also relate to staining observed in fill at this location. The results were not greater than 250% of the criterion, however further investigation is required to obtain sufficient data from this area of the site to meaningfully assess the data statistically for 95% UCL.

BaP TEQ was detected in shallow fill at BH08_0.2_0.3 (Staff Residences) above HIL-A and HIL-C criteria, and as such poses a potentially unacceptable risk to both pre/primary school and recreational use of this area. Further investigation of this area is required to obtain sufficient data for meaningful statistical assessment. The source of BaP is unknown.

All remaining concentrations of chemical contaminants were reported below the adopted site assessment criteria.

Groundwater

All concentrations of COPC in groundwater were reported below the adopted site assessment criteria except for minor exceedances in some samples for copper, nickel and zinc, as compared to ecological criteria. The elevated levels of heavy metals are consistent with levels typically observed in urban settings and in lieu of detections of impact in site soils, and are not considered consequent of contamination source(s) on the site.

10.2 Are there any issues relating to background soil concentrations that exceed appropriate site soil criteria?

Given the limited preliminary nature of the investigation, the soil sampling was targeted towards topsoil/fill material, which were considered to present the greatest potential risk. Contaminant concentrations in the topsoil/ fill at the site are considered likely to represent 'background' for the area, with the exception of identified arsenic and BaP. There are no known issues relating to natural background soil concentrations in the geological setting.

10.3 Are there any impacts of chemical mixtures?

There were no potential chemical mixtures identified during the investigation that may increase the risk of harm at the site or require special management.

10.4 Are there any aesthetic issues at the site?

No aesthetic issues of concern were identified at the site during the site inspections or intrusive investigation. Minor staining at BH06 could relate to elevated arsenic concentrations, but did not appear likely to pose an aesthetic issue, subject to further investigation.

10.5 Is there any evidence of, or potential for, migration of contaminants from the site?

The potential for migration of COPCs from the site is considered to be low based upon the general absence of chemical contaminants (except arsenic at one location and BaP at another) in soil. Further, ground surfaces across the site were observed to be covered with thick grass or hardstand, reducing potential surface water runoff and wind migration pathways.

Arsenic and BaP were not reported at concentrations following TCLP that indicated potential for leaching of COPC through the subsurface to groundwater, and these COPC were not reported in groundwater samples at these locations. As such the risk of COPC migration into groundwater and then offsite is considered low.

10.6 Is further investigation required to confirm site suitability?

Further investigation is required to confirm site suitability for the proposed development, and the need for any management strategy prior to development.

11. Conclusions and Recommendations

Based on the findings of this investigation, and subject to the limitations in **Section 11**, the following findings were made:

- Based on an assessment of the history, environmental setting and a detailed site inspection, potentially contaminating activities were identified. This included rural residential/agricultural and public (church and associated yard) land uses as part of the wider properties, and an offsite upgradient service station. The land the site areas fall within were acquired by TKS around 1954. Based on Aerial imagery, the redevelopment of the land into TKS and TAS occurred between 1951 and 1965. Although the land uses have not significantly changed, structural upgrades have been ongoing since.
- Fill material was encountered at all sample locations to maximum depths of between 0.4 m and 1.3 m bgs, and comprised brown / dark brown clay across most site areas. Brown sand, dark brown sandy and gravelly clay, and brown clay were encountered at BH02. Inclusions of gravels were noted at most locations, and asphalt/bitumen at BH02, BH06 and BH12. No asbestos was observed in fill, however given the presence of fill or disturbed topsoil at most locations, evidence indicating previous structures demolished in some site areas, and the limited intrusive investigations completed, there is the potential for asbestos to be present in fill and at former structure locations not identified during sampling documented herein.
- The investigation did not identify the presence of significant or widespread contamination, with the following results:
    - Arsenic was detected at one location at two depths (BH06_0.2-0.3 and BH06_0.4-0.5 and BaP TEQ was detected at one location (BH08_0.2_0.3) above the adopted human health-based criterion. The impacts pose a potentially unacceptable health risk to site users. The source and spread of the identified impacts should be further assessed through a detailed site investigation;
    - Arsenic (BH06_0.2-0.3 and BH06_0.4-0.5) and BaP (BH08_0.2_0.3) were detected above the adopted ecological criterion. The risk to ecological receptors would appear low based on the lack of stressed vegetation at the locations;
    - Heavy metals (copper, nickel and zinc) reported in groundwater are considered consistent with levels typically observed in urban settings and in lieu of detections of impact in site soils, and are not considered consequent of contamination source(s) on the site.
    - All concentrations of remaining COPC in soil and groundwater were reported below the adopted health and ecological site assessment criteria.

Whilst the investigation identified the potential for soil impacts to be present at the site, it did not identify the potential for contamination which may preclude redevelopment of the site. Identified potential soil impacts did however exceed land use criteria at two locations which require further investigation to confirm whether management is required to make the site suitable.

It is recommended that detailed site investigation be undertaken to confirm the suitability of the land for the intended land uses and the need or otherwise for management of any unacceptable contamination.

It is also recommended that Hazardous Building Material Surveys (HBMS) be undertaken for any existing structures which will require demolition to facilitate redevelopment works.

12. 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.

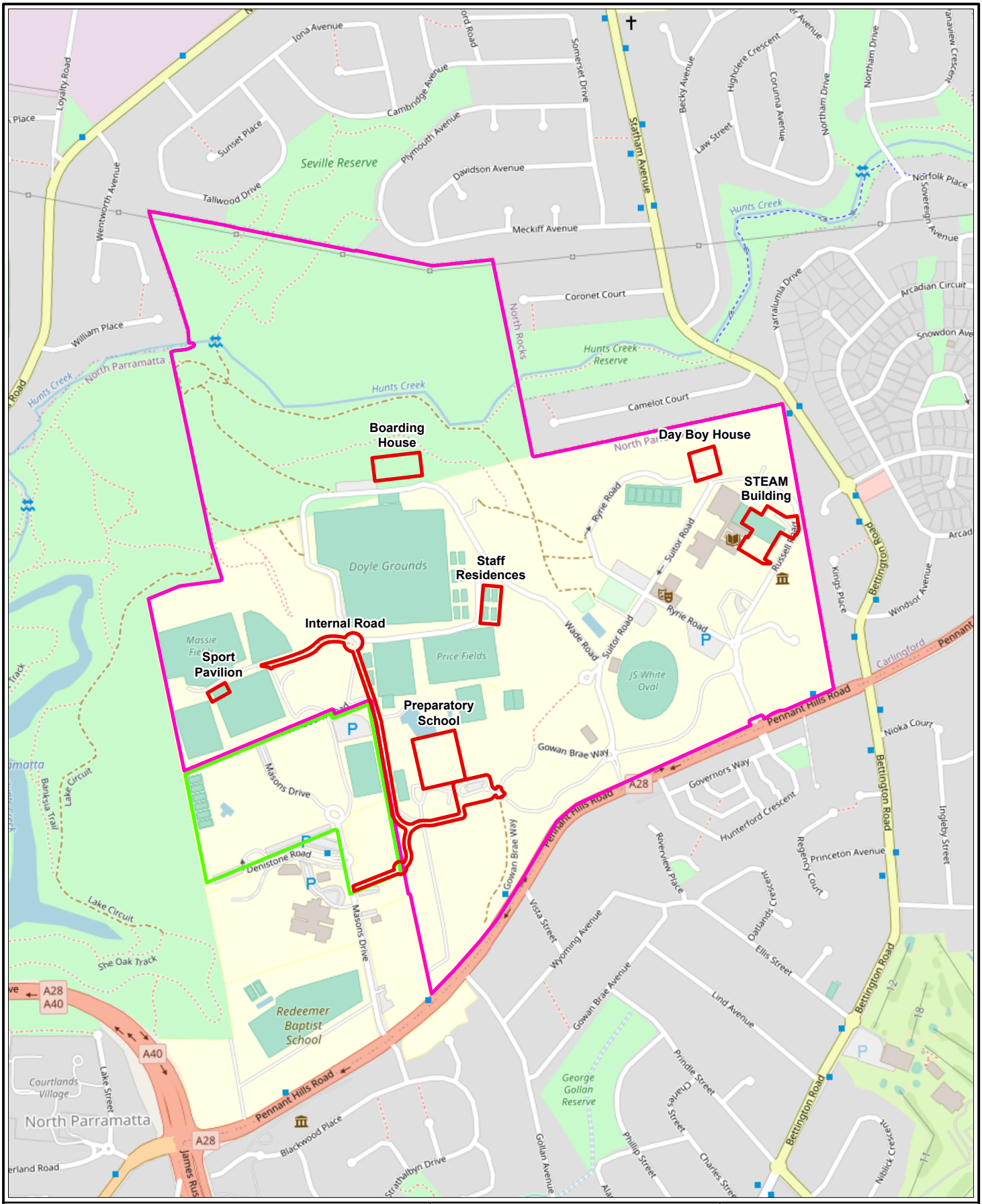
Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the 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 Boundaries
- The King's School
- Tara Anglican School for Girls

Scale 1:10,000 — 0 80 160 metres

Coord. Sys. GDA 1994 MGA Zone 56

Job No: 64152

Client: TSA Management

Version: R01 Rev 1 — Date 29/05/2023

Drawn By: PA/EP — Checked By: SS

The King's School
87-129 Pennant Hills Road
North Parramatta, NSW

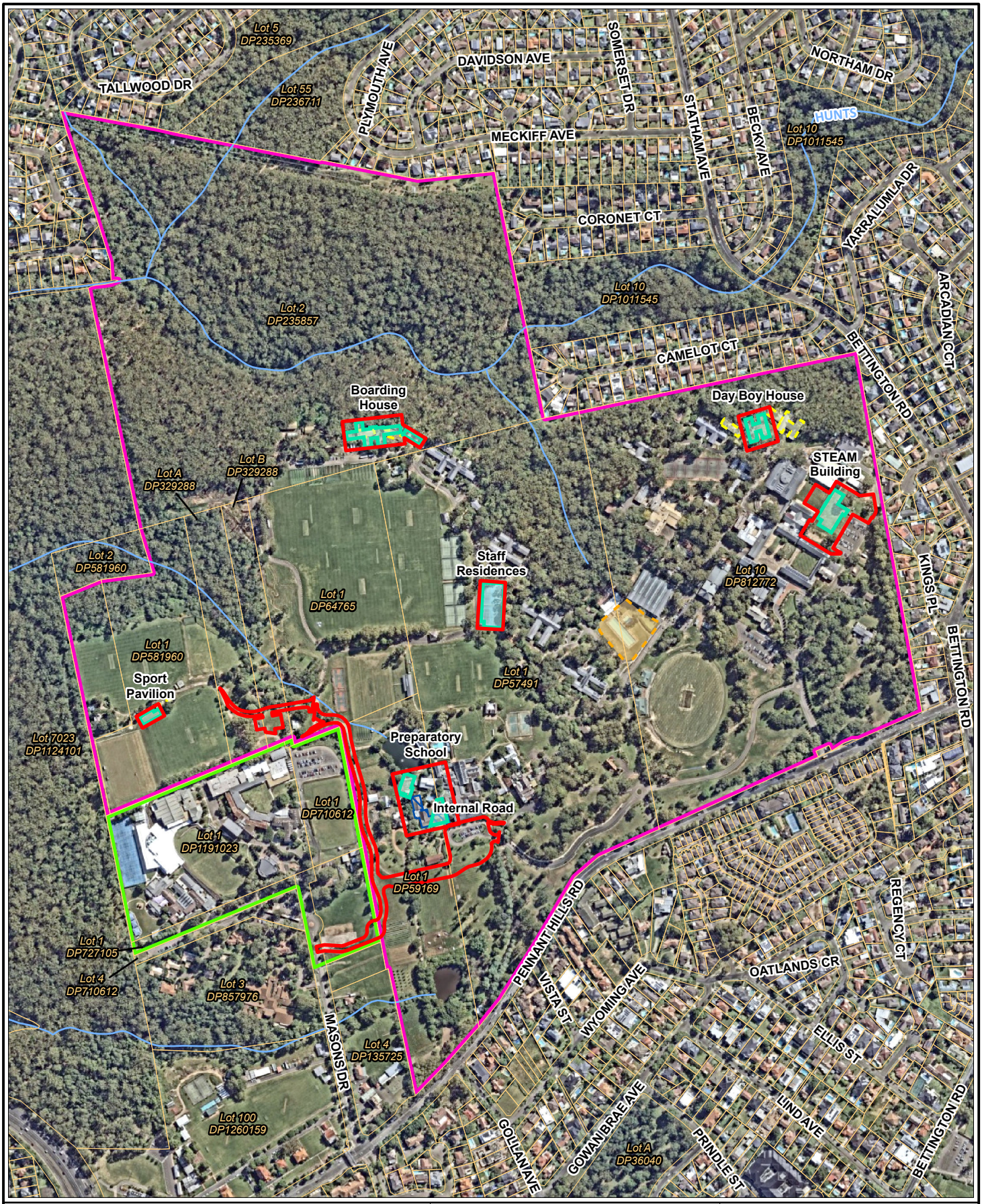
SITE LOCATION

FIGURE 1

JBS&G

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Reference: © OpenStreetMap (and) contributors, CC-BY-SA



Legend

- Approximate Site Boundaries
- NSW Cadastre (2022)
- The King's School
- Tara Anglican School for Girls
- Proposed Building Footprint
- Current Building
- Potential Demolition
- JK (2022) Assessment Area

Scale 1:8,000

0 60 120

metres

Coord. Sys. GDA 1994 MGA Zone 56

Job No: 64152

Client: TSA Management

Version: R01 Rev 0 | Date 28/07/2023

Drawn By: EP | Checked By: SS

The King's School
87-129 Pennant Hills Road
North Parramatta, NSW

SITE LAYOUT (OVERVIEW)

FIGURE 2

JBS&G

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Reference: Nearmap - www.nearmap.com (Capture Date: 30/03/2023)



Legend

- Approximate Site Boundaries
- NSW Cadastre (2022)
- The King's School
- Proposed Building Footprint
- Potential Demolition

Scale 1:600

0 5 10

metres

Coord. Sys. GDA 1994 MGA Zone 56

Job No: 64152

Client: TSA Management

Version: R01 Rev 1 | Date 30/05/2023

Drawn By: PA/EP | Checked By: SS

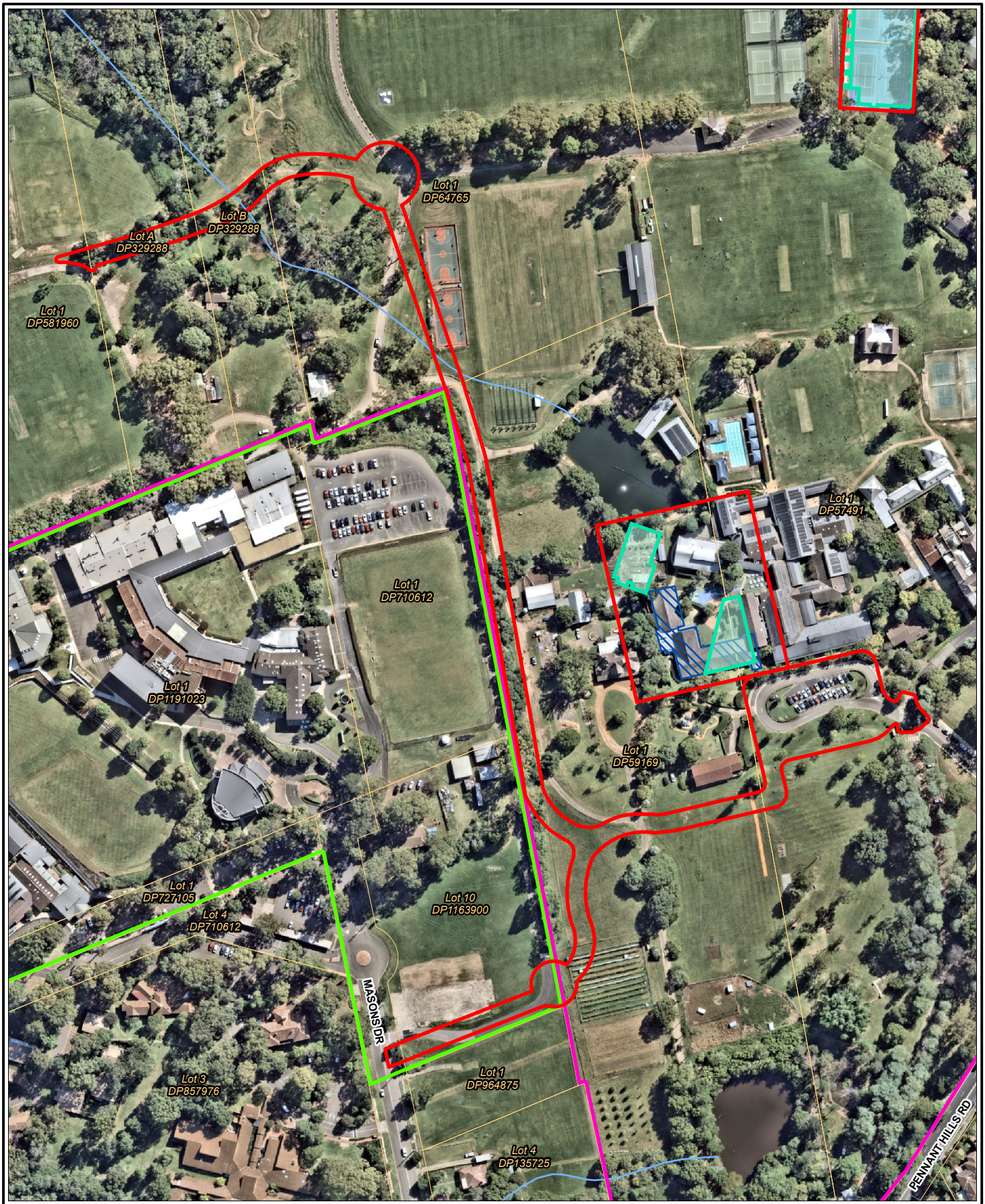
The King's School
87-129 Pennant Hills Road
North Parramatta, NSW

SITE LAYOUT -
PREPARATORY SCHOOL

FIGURE 2A

JBS&G

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Reference: Nearmap - www.nearmap.com (Capture Date: 29/05/2023)



Legend

- Approximate Site Boundaries
- NSW Cadastre (2022)
- The King's School
- Tara Anglican School for Girls
- Proposed Building Footprint
- Potential Demolition

Scale 1:2,800

0 20 40

metres

Coord. Sys. GDA 1994 MGA Zone 56

Job No: 64152

Client: TSA Management

Version: R01 Rev 1 | Date 30/05/2023

Drawn By: PA/EP | Checked By: SS

The King's School
87-129 Pennant Hills Road
North Parramatta, NSW

SITE LAYOUT -
INTERNAL ROAD

FIGURE 2B

JBS&G

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Reference: Nearmap - www.nearmap.com (Capture Date: 29/05/2023)



Legend

- Approximate Site Boundaries
- NSW Cadastre (2022)
- The King's School
- Proposed Building Footprint

Scale 1:400

0 3.5 7

metres

Coord. Sys. GDA 1994 MGA Zone 56

Job No: 64152

Client: TSA Management

Version: R01 Rev 1 | Date 30/05/2023

Drawn By: PA/EP | Checked By: SS

The King's School
87-129 Pennant Hills Road
North Parramatta, NSW

SITE LAYOUT -
STAFF RESIDENCES

FIGURE 2C

JBS&G

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Reference: Nearmap - www.nearmap.com (Capture Date: 29/05/2023)



Legend

- Approximate Site Boundaries
- NSW Cadastre (2022)
- The King's School
- Proposed Building Footprint
- Current Building

Scale 1:400

0 3.5 7

metres

Coord. Sys. GDA 1994 MGA Zone 56

Job No: 64152

Client: TSA Management

Version: R01 Rev 1 | Date 30/05/2023

Drawn By: PA/EP | Checked By: SS

The King's School
87-129 Pennant Hills Road
North Parramatta, NSW

SITE LAYOUT -
DAY BOY HOUSE

FIGURE 2D

JBS&G

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Reference: Nearmap - www.nearmap.com (Capture Date: 29/05/2023)



Legend

- Approximate Site Boundaries
- NSW Cadastre (2022)
- The King's School
- Proposed Building Footprint
- Current Building

Scale 1:300

0 2.5 5

metres

Coord. Sys. GDA 1994 MGA Zone 56

Job No: 64152

Client: TSA Management

Version: R01 Rev 1 | Date 30/05/2023

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The King's School
87-129 Pennant Hills Road
North Parramatta, NSW

SITE LAYOUT -
SPORT PAVILION

FIGURE 2E

JBS&G

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Reference: Nearmap - www.nearmap.com (Capture Date: 29/05/2023)



Legend

- Approximate Site Boundaries
- NSW Cadastre (2022)
- The King's School
- Proposed Building Footprint
- Current Building

Scale 1:800

0 7 14

metres

Coord. Sys. GDA 1994 MGA Zone 56

Job No: 64152

Client: TSA Management

Version: R01 Rev 1 | Date 28/07/2023

Drawn By: PA/EP | Checked By: SS

The King's School
87-129 Pennant Hills Road
North Parramatta, NSW

SITE LAYOUT -
BOARDING HOUSE

FIGURE 2F

JBS&G

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Reference: Nearmap - www.nearmap.com (Capture Date: 29/05/2023)



Legend

- Approximate Site Boundaries
- NSW Cadastre (2022)
- The King's School
- Proposed Building Footprint

Scale 1:700

0 6 12

metres

Coord. Sys. GDA 1994 MGA Zone 56

Job No: 64152

Client: TSA Management

Version: R01 Rev 1 | Date 30/05/2023

Drawn By: PA/EP | Checked By: SS

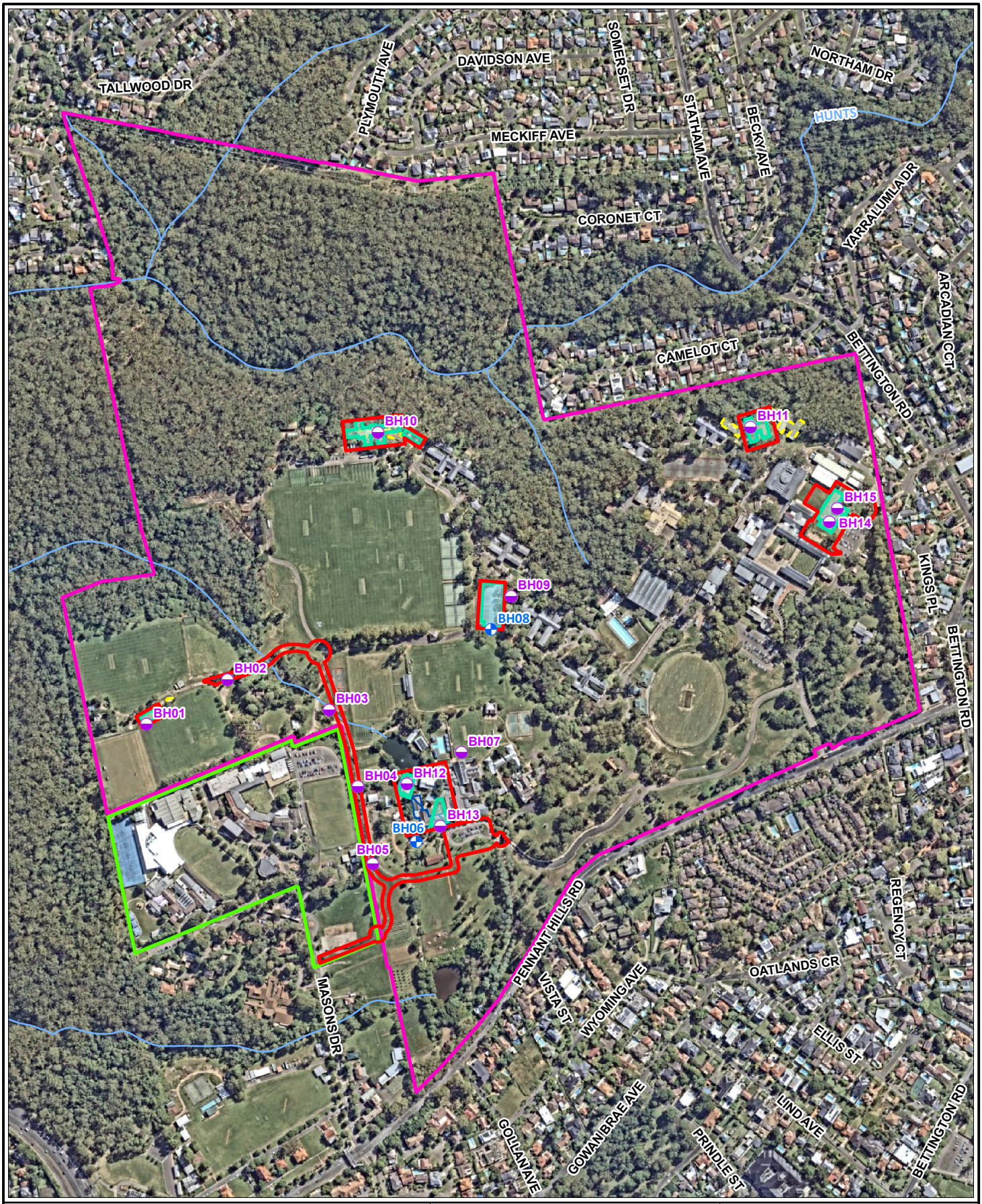
The King's School
87-129 Pennant Hills Road
North Parramatta, NSW

SITE LAYOUT -
STEAM BUILDING

FIGURE 2G

JBS&G

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Reference: Nearmap - www.nearmap.com (Capture Date: 29/05/2023)



Legend

- Approximate Site Boundaries
- The King's School
- Tara Anglican School for Girls
- Proposed Building Footprint
- Current Building
- Potential Demolition

Sample Locations

- Borehole
- Monitoring Well

Scale 1:8,000 — 0 60 120 metres

Coord. Sys. GDA 1994 MGA Zone 56

Job No: 64152

Client: TSA Management

Version: R01 Rev 1 | Date 30/05/2023

Drawn By: PA/EP | Checked By: SS

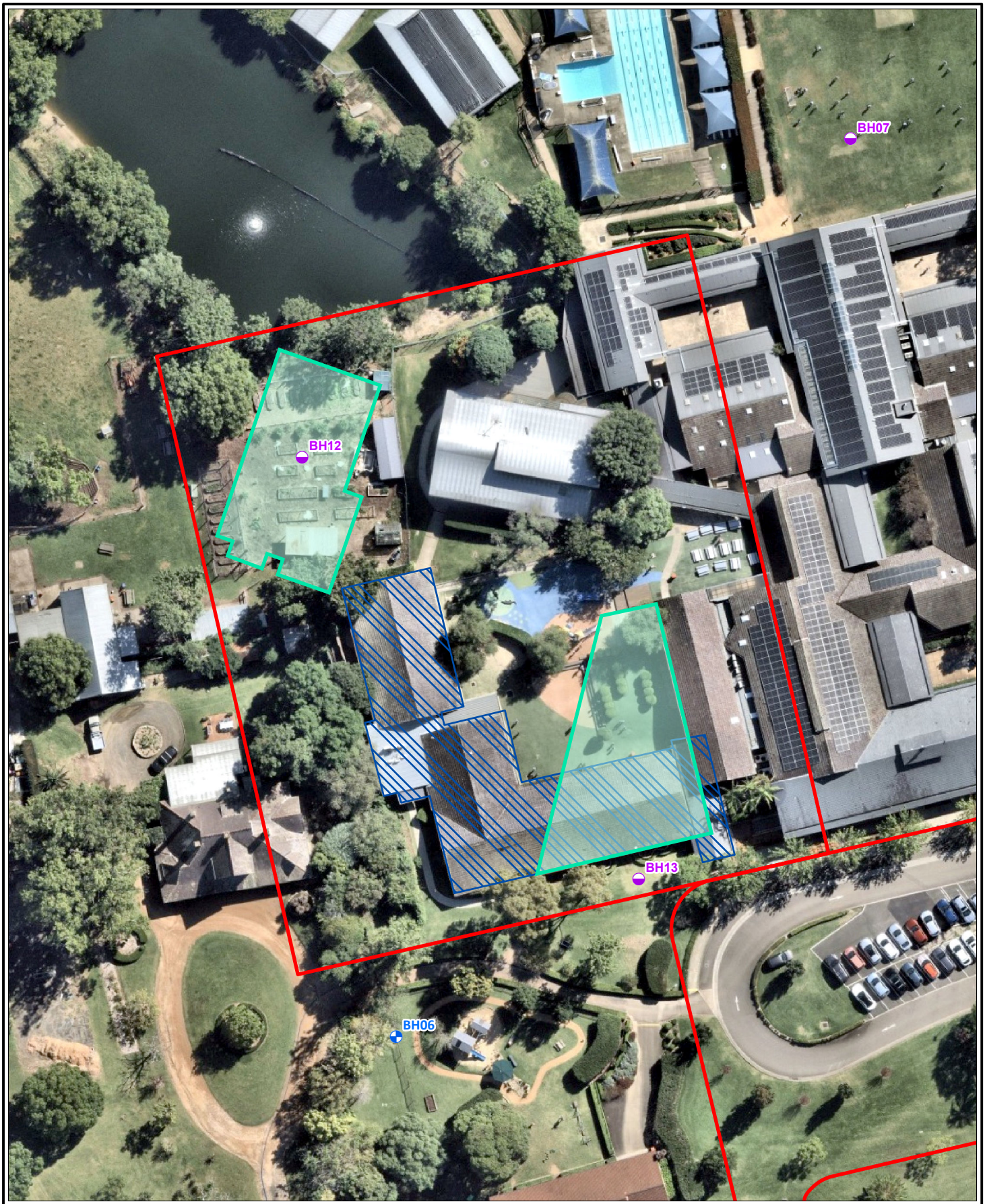
The King's School
87-129 Pennant Hills Road
North Parramatta, NSW

SAMPLE LOCATIONS (OVERVIEW)

FIGURE 3

JBS&G

File Name: C:\Users\epiccinin\JBS&G Australia\JBS&G - DCS - Internal - Documents\Projects\TSA Management\64152 TKS Masterplan Environmental & Geotechnical\GIS\02_MapProjects\64152_TKS_Masterplan_Environmental_Geotechnical_R01_Rev0.aprx
Reference: Nearmap - www.nearmap.com (Capture Date: 30/03/2023)



Legend

- Approximate Site Boundaries
- The King's School
- Proposed Building Footprint
- Potential Demolition

Sample Locations

- Borehole
- Monitoring Well

Scale 1:800

0 7 14

metres

Coord. Sys. GDA 1994 MGA Zone 56

Job No: 64152

Client: TSA Management

Version: R01 Rev 1 | Date 30/05/2023

Drawn By: PA/EP | Checked By: SS

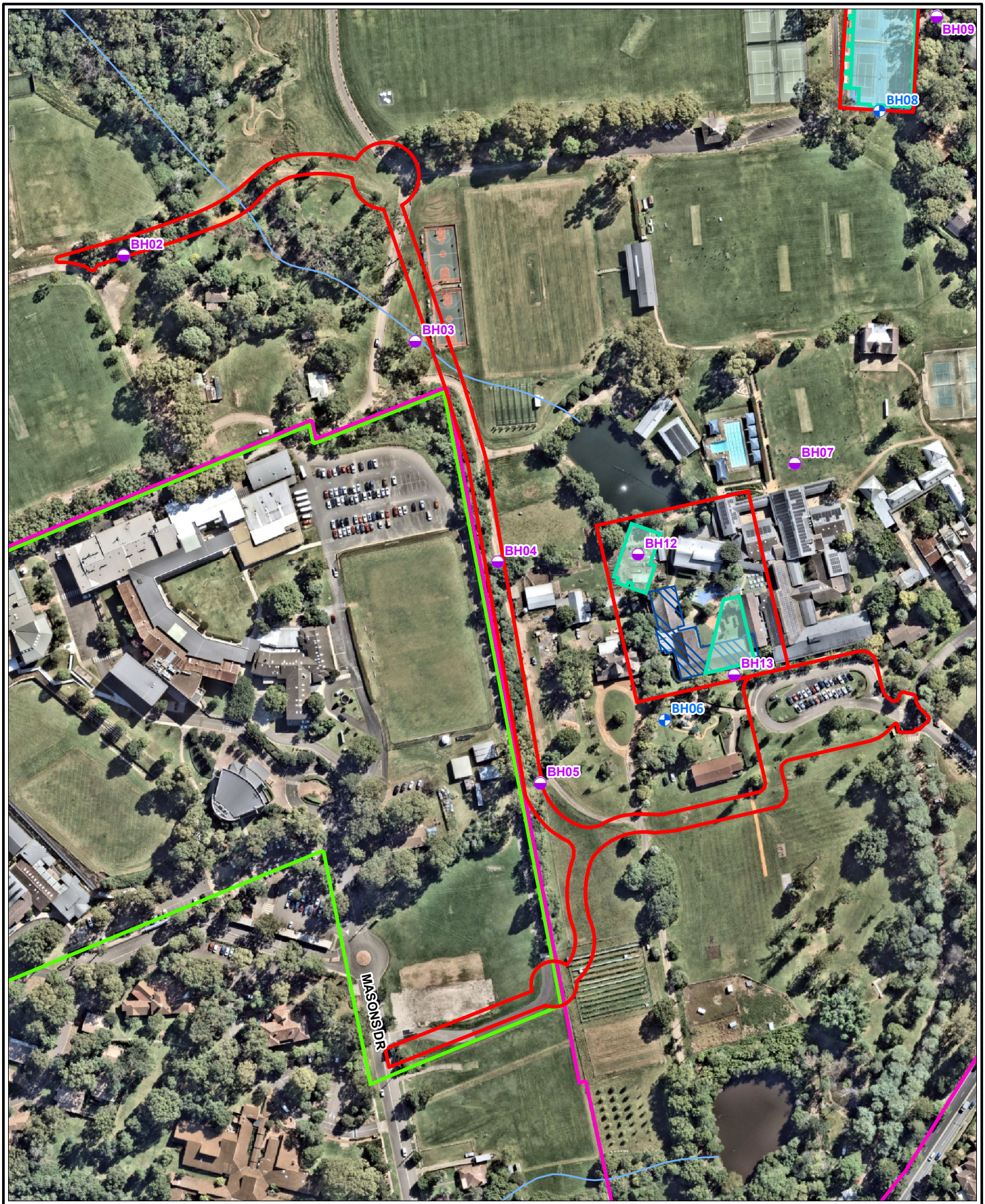
The King's School
87-129 Pennant Hills Road
North Parramatta, NSW

SAMPLE LOCATIONS - PREPARATORY SCHOOL

FIGURE 3A

JBS&G

File Name: C:\Users\epiccinin\JBS&G Australia\JBS&G - DCS - Internal - Documents\Projects\TSA Management\64152 TKS Masterplan Environmental & Geotechnical\GIS\02_MapProjects\64152_TKS_Masterplan_Environmental_Geotechnical_R01_Rev0.aprx
Reference: Nearmap - www.nearmap.com (Capture Date: 30/03/2023)



Legend

- Approximate Site Boundaries
- The King's School
- Tara Anglican School for Girls
- Proposed Building Footprint
- Potential Demolition

Sample Locations

- Borehole
- Monitoring Well

Scale 1:2,800

0 20 40

metres

Coord. Sys. GDA 1994 MGA Zone 56

Job No: 64152

Client: TSA Management

Version: R01 Rev 1 | Date 30/05/2023

Drawn By: PA/EP | Checked By: SS

The King's School
87-129 Pennant Hills Road
North Parramatta, NSW

SAMPLE LOCATIONS - INTERNAL ROAD

FIGURE 3B

JBS&G

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Reference: Nearmap - www.nearmap.com (Capture Date: 30/03/2023)



Legend

- Approximate Site Boundaries
- The King's School
- Proposed Building Footprint

Sample Locations

- Borehole
- Monitoring Well

Scale 1:400

0 3.5 7

metres

Coord. Sys. GDA 1994 MGA Zone 56

Job No: 64152

Client: TSA Management

Version: R01 Rev 1	Date 30/05/2023
Drawn By: PA/EP	Checked By: SS

The King's School
87-129 Pennant Hills Road
North Parramatta, NSW

SAMPLE LOCATIONS - STAFF RESIDENCES

FIGURE 3C

JBS&G

File Name: C:\Users\epiccinin\JBS&G Australia\JBS&G - DCS - Internal - Documents\Projects\TSA Management\64152 TKS Masterplan Environmental & Geotechnical\GIS\02_MapProjects\64152_TKS_Masterplan_Environmental_Geotechnical_R01_Rev0.aprx
Reference: Nearmap - www.nearmap.com (Capture Date: 30/03/2023)



Legend

- Approximate Site Boundaries
- The King's School
- Proposed Building Footprint
- Current Building

Sample Locations

- Borehole

Scale 1:400

0 3.5 7

metres

Coord. Sys. GDA 1994 MGA Zone 56

Job No: 64152

Client: TSA Management

Version: R01 Rev 1 | Date 30/05/2023

Drawn By: PA/EP | Checked By: SS

The King's School
87-129 Pennant Hills Road
North Parramatta, NSW

SAMPLE LOCATIONS -
DAY BOY HOUSE

FIGURE 3D

JBS&G

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Reference: Nearmap - www.nearmap.com (Capture Date: 30/03/2023)



Legend

- Approximate Site Boundaries
- The King's School
- Proposed Building Footprint
- Current Building

Sample Locations

- Borehole

Scale 1:300

0 2.5 5

metres

Coord. Sys. GDA 1994 MGA Zone 56

Job No: 64152

Client: TSA Management

Version: R01 Rev 1 | Date 30/05/2023

Drawn By: PA/EP | Checked By: SS

The King's School
87-129 Pennant Hills Road
North Parramatta, NSW

SAMPLE LOCATIONS - SPORT PAVILION

FIGURE 3E

JBS&G

File Name: C:\Users\epiccinin\JBS&G Australia\JBS&G - DCS - Internal - Documents\Projects\TSA Management\64152 TKS Masterplan Environmental & Geotechnical\GIS\02_MapProjects\64152_TKS_Masterplan_Environmental_Geotechnical_R01_Rev0.aprx
Reference: Nearmap - www.nearmap.com (Capture Date: 30/03/2023)



Legend

- Approximate Site Boundaries
- The King's School
- Proposed Building Footprint
- Current Building

Sample Locations (DSI, JBS&G 2023)

- Testpit
- Borehole

Sample Locations (PSI, JBS&G 2023)

- Borehole
- Monitoring Well

Scale 1:800

0 7 14

metres

Coord. Sys. GDA 1994 MGA Zone 56

Job No: 64152

Client: TSA Management

Version: R01 Rev 0 | Date 28/07/2023

Drawn By: EP | Checked By: SS

The King's School
87-129 Pennant Hills Road
North Parramatta, NSW

SAMPLE LOCATIONS - BOARDING HOUSE

FIGURE 3F

JBS&G

File Name: C:\Users\epiccinin\JBS&G Australia\JBS&G - DCS - Internal - Documents\Projects\TSA Management\64152 TKS Masterplan Environmental & Geotechnical\GIS\02_MapProjects\64152_TKS_Masterplan_Environmental_Geotechnical_R03_Rev0.aprx
Reference: Nearmap - www.nearmap.com (Capture Date: 30/03/2023)



Legend

- Approximate Site Boundaries
- The King's School
- Proposed Building Footprint

Sample Locations

- Borehole

Scale 1:700

0 6 12

metres

Coord. Sys. GDA 1994 MGA Zone 56

Job No: 64152

Client: TSA Management

Version: R01 Rev 1	Date 30/05/2023
Drawn By: PA/EP	Checked By: SS

The King's School
87-129 Pennant Hills Road
North Parramatta, NSW

SAMPLE LOCATIONS - STEAM BUILDING

FIGURE 3G

JBS&G

File Name: C:\Users\epiccinin\JBS&G Australia\JBS&G - DCS - Internal - Documents\Projects\TSA Management\64152 TKS Masterplan Environmental & Geotechnical\GIS\02_MapProjects\64152_TKS_Masterplan_Environmental_Geotechnical_R01_Rev0.aprx
Reference: Nearmap - www.nearmap.com (Capture Date: 30/03/2023)

Data Summary Tables

Table A: Soil Analytical Data Summary
Project Number: 64152
Project Name: The King's School PSI

	Metals & Metalloids								TPHs (NEPC 1999)					TRHs (NEPC 2013)						
	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 Fraction (Sum of Total)	C6-C10	C10-C16	C16-C34	C34-C40	C10-C40 (Sum of total)	F1 (C6-C10 minus BTEX)	F2 (C10-C16 less Naphthalene)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	2	0.4	5	5	5	0.1	5	5	20	20	50	50	50	20	50	100	100	100	20	50
NEPM 2013 Site Specific EIL - Urban Residential and Public Open Space	100		650[#1]	160[#1]	1100		200[#1]	530[#1]												
NEPM 2013 Table 1B(6) ESLs for Urban Res / open space, Fine Soil																1300	5600		180	120
NEPM 2013 Table 1A(1) HILs Res A Soil	100	20	100	6000	300	40	400	7400												
NEPM 2013 Table 1A(1) HILs Rec C Soil	300	90	300	17000	600	80	1200	30000												
NEPM 2013 Table 7 Res A Soil HSL for Asbestos in Soil																				
NEPM 2013 Table 7 Rec C Soil HSL for Asbestos in Soil																				
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay 0-1m																			50	280
NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Clay 0-1m																			NL	NL
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil														800	1000	3500	10000			
Sample Name	**Date**	**Lab Report No.**																		
BH01_0.2_0.3	24/01/2023	958609	9.5	<0.4	18	11	33	<0.1	<5	40	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50
BH02_0.9_1	24/01/2023	958609	8.1	<0.4	25	14	53	<0.1	<5	80	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50
BH03_0.4_0.5	24/01/2023	958609	8	<0.4	17	14	24	<0.1	8.9	55	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50
BH04_0.4_0.5	24/01/2023	958609	9.6	<0.4	18	8.6	20	<0.1	<5	39	-	-	-	-	-	-	-	-	-	-	-	-
BH05_0_0.1	24/01/2023	958609	8.7	<0.4	12	15	45	<0.1	6.2	41	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50
BH06_0.2_0.3	24/01/2023	958609	180	<0.4	13	10	61	<0.1	<5	17	-	-	-	-	-	-	-	-	-	-	-	-
BH06_0.4_0.5	24/01/2023	958609	110	<0.4	11	7.6	20	<0.1	<5	10	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50
BH07_0.2_0.3	24/01/2023	958609	7	<0.4	10	8.1	17	<0.1	<5	<5	-	-	-	-	-	-	-	-	-	-	-	-
BH08_0.2_0.3	24/01/2023	958609	<2	<0.4	7	36	<5	<0.1	92	35	<20	<20	140	95	235	<20	<50	210	<100	210	<20	<50
BH09_0_0.1	24/01/2023	958609	5.7	<0.4	17	6.3	20	<0.1	<5	13	-	-	-	-	-	-	-	-	-	-	-	-
BH10_0.4_0.5	24/01/2023	958609	<2	<0.4	<5	<5	<5	<0.1	<5	<5	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50
BH11_0.2_0.3	24/01/2023	958609	3.7	<0.4	9	8	11	<0.1	<5	14	<20	<20	69	78	147	<20	<50	120	<100	120	<20	<50
BH12_0.4_0.5	24/01/2023	958609	10	<0.4	20	26	61	<0.1	12	63	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50
BH12_0_0.1	24/01/2023	958609	4.3	<0.4	6.8	19	23	<0.1	9.7	76	-	-	-	-	-	-	-	-	-	-	-	-
BH13_0_0.1	24/01/2023	958609	3.3	<0.4	8.8	11	18	<0.1	9.2	42	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50
BH14_0.2-0.3	16/05/2023	990155	4.9	<0.4	15	23	22	<0.1	24	32	<20	<20	<50	68	68	<20	<50	<100	130	130	<20	<50
BH15_0-0.1	16/05/2023	990155	9	<0.4	14	19	27	<0.1	7	28	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50

Criteria Comments
#1 Site specific Ecological investigation levels calculated consistent with NEPC (2013) based on; average CEC (13 meq/100g), average pH (5.6 pH units), average % clay content (43%).

Table A: Soil Analytical Data Summary
Project Number: 64152
Project Name: The King's School PSI

				BTEX						PAH																
				Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(a)pyrene TEQ	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	PAHs (Sum of total)
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				0.1	0.1	0.1	0.1	0.2	0.3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
NEPM 2013 Site Specific EIL - Urban Residential and Public Open Space																							170			
NEPM 2013 Table 1B(6) ESLs for Urban Res / open space, Fine Soil				65	105	125			45					0.7												
NEPM 2013 Table 1A(1) HILs Res A Soil															3											300
NEPM 2013 Table 1A(1) HILs Rec C Soil															3											300
NEPM 2013 Table 7 Res A Soil HSL for Asbestos in Soil																										
NEPM 2013 Table 7 Rec C Soil HSL for Asbestos in Soil																										
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay 0-1m				0.7	480	NL			110														5			
NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Clay 0-1m				NL	NL	NL			NL														NL			
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil																										
Sample Name	**Date**	**Lab Report No.**																								
BH01_0.2_0.3	24/01/2023	958609		<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH02_0.9_1	24/01/2023	958609		<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH03_0.4_0.5	24/01/2023	958609		<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH04_0.4_0.5	24/01/2023	958609		-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH05_0_0.1	24/01/2023	958609		<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH06_0.2_0.3	24/01/2023	958609		-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH06_0.4_0.5	24/01/2023	958609		<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH07_0.2_0.3	24/01/2023	958609		-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH08_0.2_0.3	24/01/2023	958609		<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	<0.5	0.6	<0.5	2.8	3.1	4.6	1.9	3.5	2.5	3.1	0.6	2.4	<0.5	1.5	<0.5	1.2	5.7	29
BH09_0_0.1	24/01/2023	958609		-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH10_0.4_0.5	24/01/2023	958609		<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH11_0.2_0.3	24/01/2023	958609		<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH12_0.4_0.5	24/01/2023	958609		<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH12_0_0.1	24/01/2023	958609		-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH13_0_0.1	24/01/2023	958609		<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH14_0.2-0.3	16/05/2023	990155		<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BH15_0-0.1	16/05/2023	990155		<0.1	<0.1	<0.1	<0.1	<0.2	<0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

Criteria Comments
#1 Site specific Ecological investigation levels calculated consistent with NEPC (2013) based on; average CEC (13 meq/100g), average pH (5.6 pH units), average % clay content (43%).

Table A: Soil Analytical Data Summary
Project Number: 64152
Project Name: The King's School PSI

	Organochlorine Pesticides																						
	4,4-DDE	a-BHC	b-BHC	d-BHC	g-BHC (Lindane)	Aldrin	Dieldrin	Aldrin + Dieldrin	Chlordane	DDT	DDD	DDT+DDE+DDD	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	Heptachlor	Heptachlor Epoxide	Methoxychlor	Toxaphene	Hexachlorobenzene
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.5	0.05
NEPM 2013 Site Specific EIL - Urban Residential and Public Open Space										180													
NEPM 2013 Table 1B(6) ESLs for Urban Res / open space, Fine Soil																							
NEPM 2013 Table 1A(1) HILs Res A Soil								6	50			240				10			6		300	20	10
NEPM 2013 Table 1A(1) HILs Rec C Soil								10	70			400				20			10		400	30	10
NEPM 2013 Table 7 Res A Soil HSL for Asbestos in Soil																							
NEPM 2013 Table 7 Rec C Soil HSL for Asbestos in Soil																							
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay 0-1m																							
NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Clay 0-1m																							
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil																							
Sample Name	**Date**	**Lab Report No.**																					
BH01_0.2_0.3	24/01/2023	958609	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05
BH02_0.9_1	24/01/2023	958609	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05
BH03_0.4_0.5	24/01/2023	958609	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05
BH04_0.4_0.5	24/01/2023	958609	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_0_0.1	24/01/2023	958609	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05
BH06_0.2_0.3	24/01/2023	958609	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH06_0.4_0.5	24/01/2023	958609	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05
BH07_0.2_0.3	24/01/2023	958609	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH08_0.2_0.3	24/01/2023	958609	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	<0.5
BH09_0_0.1	24/01/2023	958609	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH10_0.4_0.5	24/01/2023	958609	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05
BH11_0.2_0.3	24/01/2023	958609	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05
BH12_0.4_0.5	24/01/2023	958609	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05
BH12_0_0.1	24/01/2023	958609	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH13_0_0.1	24/01/2023	958609	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05
BH14_0.2-0.3	16/05/2023	990155	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	<0.5
BH15_0-0.1	16/05/2023	990155	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05

Criteria Comments
#1 Site specific Ecological investigation levels calculated consistent with NEPC (2013) based on; average CEC (13 meq/100g), average pH (5.6 pH units), average % clay content (43%).

Table A: Soil Analytical Data Summary
Project Number: 64152
Project Name: The King's School PSI

	Polychlorinated Biphenyls								Asbestos						
	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	Approximate Sample Mass	Asbestos from ACM in Soil	Asbestos from FA & AF in Soil	ACM - Comment	FA- Comment	AF - Comment	Respirable Fibres
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	g	% (w/w)	% (w/w)	Comment	Comment	Comment	Comment
EQL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1							
NEPM 2013 Site Specific EIL - Urban Residential and Public Open Space															
NEPM 2013 Table 1B(6) ESLs for Urban Res / open space, Fine Soil															
NEPM 2013 Table 1A(1) HILs Res A Soil								1							
NEPM 2013 Table 1A(1) HILs Rec C Soil								1							
NEPM 2013 Table 7 Res A Soil HSL for Asbestos in Soil										0.01	0.001				
NEPM 2013 Table 7 Rec C Soil HSL for Asbestos in Soil										0.02	0.001				
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay 0-1m															
NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Clay 0-1m															
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil															
Sample Name	**Date**	**Lab Report No.**													
BH01_0.2_0.3	24/01/2023	958609	-	-	-	-	-	-	-	-	315	0	0	Nil	Nil	Nil	Nil
BH02_0.9_1	24/01/2023	958609	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	411	0	0	Nil	Nil	Nil	Nil
BH03_0.4_0.5	24/01/2023	958609	-	-	-	-	-	-	-	-	368	0	0	Nil	Nil	Nil	Nil
BH04_0.4_0.5	24/01/2023	958609	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_0_0.1	24/01/2023	958609	-	-	-	-	-	-	-	-	358	0	0	Nil	Nil	Nil	Nil
BH06_0.2_0.3	24/01/2023	958609	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH06_0.4_0.5	24/01/2023	958609	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	375	0	0	Nil	Nil	Nil	Nil
BH07_0.2_0.3	24/01/2023	958609	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH08_0.2_0.3	24/01/2023	958609	-	-	-	-	-	-	-	-	440	0	0	Nil	Nil	Nil	Nil
BH09_0_0.1	24/01/2023	958609	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH10_0.4_0.5	24/01/2023	958609	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	410	0	0	Nil	Nil	Nil	Nil
BH11_0.2_0.3	24/01/2023	958609	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	461	0	0	Nil	Nil	Nil	Nil
BH12_0.4_0.5	24/01/2023	958609	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-	-	-	-	-
BH12_0_0.1	24/01/2023	958609	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH13_0_0.1	24/01/2023	958609	-	-	-	-	-	-	-	-	493	0	0	Nil	Nil	Nil	Nil
BH14_0.2-0.3	16/05/2023	990155	<1	<1	<1	<1	<1	<1	<1	<1	609	0	0	Nil	Nil	Nil	Nil
BH15_0-0.1	16/05/2023	990155	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	554	0	0	Nil	Nil	Nil	Nil

Criteria Comments
#1 Site specific Ecological investigation levels calculated consistent with NEPC (2013) based on; average CEC (13 meq/100g), average pH (5.6 pH units), average % clay content (43%).

Table B: Waste Classification Data Summary
Project Number: 64152
Project Name: The King's School PSI

	Metals & Metalloids								TPHs (NEPC 1999)					BTEX					
	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 Fraction (Sum of Total)	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	2	0.4	5	5	5	0.1	5	5	20	20	50	50	50	0.1	0.1	0.1	0.1	0.2	0.3
NSW 2014 General Solid Waste CT1 (Without TCLP)	100	20	100		100	4	40		650				10000	10	288	600			1000
NSW 2014 General Solid Waste SCC1 (with TCLP)	500	100	1900		1500	50	1050		650				10000	18	518	1080			1800

Sample Name	Date	Lab Report No.																	
BH01_0.2_0.3	24/01/2023	958609	9.5	<0.4	18	11	33	<0.1	<5	40	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
BH02_0.9_1	24/01/2023	958609	8.1	<0.4	25	14	53	<0.1	<5	80	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
BH03_0.4_0.5	24/01/2023	958609	8	<0.4	17	14	24	<0.1	8.9	55	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
BH04_0.4_0.5	24/01/2023	958609	9.6	<0.4	18	8.6	20	<0.1	<5	39	-	-	-	-	-	-	-	-	-	-	-
BH05_0_0.1	24/01/2023	958609	8.7	<0.4	12	15	45	<0.1	6.2	41	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
BH06_0.2_0.3	24/01/2023	958609	180	<0.4	13	10	61	<0.1	<5	17	-	-	-	-	-	-	-	-	-	-	-
BH06_0.4_0.5	24/01/2023	958609	110	<0.4	11	7.6	20	<0.1	<5	10	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
BH07_0.2_0.3	24/01/2023	958609	7	<0.4	10	8.1	17	<0.1	<5	<5	-	-	-	-	-	-	-	-	-	-	-
BH08_0.2_0.3	24/01/2023	958609	<2	<0.4	7	36	<5	<0.1	92	35	<20	<20	140	95	235	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
BH09_0_0.1	24/01/2023	958609	5.7	<0.4	17	6.3	20	<0.1	<5	13	-	-	-	-	-	-	-	-	-	-	-
BH10_0.4_0.5	24/01/2023	958609	<2	<0.4	<5	<5	<5	<0.1	<5	<5	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
BH11_0.2_0.3	24/01/2023	958609	3.7	<0.4	9	8	11	<0.1	<5	14	<20	<20	69	78	147	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
BH12_0.4_0.5	24/01/2023	958609	10	<0.4	20	26	61	<0.1	12	63	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
BH12_0_0.1	24/01/2023	958609	4.3	<0.4	6.8	19	23	<0.1	9.7	76	-	-	-	-	-	-	-	-	-	-	-
BH13_0_0.1	24/01/2023	958609	3.3	<0.4	8.8	11	18	<0.1	9.2	42	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
BH14_0.2-0.3	16/05/2023	990155	4.9	<0.4	15	23	22	<0.1	24	32	<20	<20	<50	68	68	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3
BH15_0-0.1	16/05/2023	990155	9	<0.4	14	19	27	<0.1	7	28	<20	<20	<50	<50	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.3

Table B: Waste Classification Data Summary
Project Number: 64152
Project Name: The King's School PSI

			PAH																	PCBs	Asbestos	
			Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(a)pyrene TEQ	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	PAHs (Sum of total)	PCBs (Sum of total)	Asbestos from ACM in Soil	Asbestos from FA & AF in Soil
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	% (w/w)	% (w/w)
EQL			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1		
NSW 2014 General Solid Waste CT1 (Without TCLP)							0.8														<50		
NSW 2014 General Solid Waste SCC1 (with TCLP)							10														<50		
Sample Name	**Date**	**Lab Report No.**																					
BH01_0.2_0.3	24/01/2023	958609	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	0	0
BH02_0.9_1	24/01/2023	958609	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	0	0
BH03_0.4_0.5	24/01/2023	958609	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	0	0
BH04_0.4_0.5	24/01/2023	958609	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-
BH05_0_0.1	24/01/2023	958609	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	0	0
BH06_0.2_0.3	24/01/2023	958609	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-
BH06_0.4_0.5	24/01/2023	958609	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	0	0
BH07_0.2_0.3	24/01/2023	958609	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-
BH08_0.2_0.3	24/01/2023	958609	<0.5	0.6	<0.5	2.8	3.1	4.6	1.9	3.5	2.5	3.1	0.6	2.4	<0.5	1.5	<0.5	1.2	5.7	29	-	0	0
BH09_0_0.1	24/01/2023	958609	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-
BH10_0.4_0.5	24/01/2023	958609	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	0	0
BH11_0.2_0.3	24/01/2023	958609	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	0	0
BH12_0.4_0.5	24/01/2023	958609	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	-	-
BH12_0_0.1	24/01/2023	958609	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-
BH13_0_0.1	24/01/2023	958609	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	0	0
BH14_0.2-0.3	16/05/2023	990155	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	0	0
BH15_0-0.1	16/05/2023	990155	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	0	0

Table B: Waste Classification Data Summary
Project Number: 64152
Project Name: The King's School PSI

	Organochlorine Pesticides																						
	4,4-DDE	a-BHC	b-BHC	d-BHC	g-BHC (Lindane)	Aldrin	Dieldrin	Aldrin + Dieldrin	Chlordane	DDT	DDD	DDT+DDE+DDD	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	Heptachlor	Heptachlor Epoxide	Hexachlorobenzene	Methoxychlor	Toxaphene
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.5
NSW 2014 General Solid Waste CT1 (Without TCLP)																							
NSW 2014 General Solid Waste SCC1 (with TCLP)																							
Sample Name	**Date**	**Lab Report No.**																					
BH01_0.2_0.3	24/01/2023	958609	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5
BH02_0.9_1	24/01/2023	958609	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5
BH03_0.4_0.5	24/01/2023	958609	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5
BH04_0.4_0.5	24/01/2023	958609	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_0_0.1	24/01/2023	958609	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5
BH06_0.2_0.3	24/01/2023	958609	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH06_0.4_0.5	24/01/2023	958609	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5
BH07_0.2_0.3	24/01/2023	958609	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH08_0.2_0.3	24/01/2023	958609	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10
BH09_0_0.1	24/01/2023	958609	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH10_0.4_0.5	24/01/2023	958609	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5
BH11_0.2_0.3	24/01/2023	958609	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5
BH12_0.4_0.5	24/01/2023	958609	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5
BH12_0_0.1	24/01/2023	958609	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH13_0_0.1	24/01/2023	958609	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5
BH14_0.2-0.3	16/05/2023	990155	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10	<0.5
BH15_0-0.1	16/05/2023	990155	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05

Table C: Leachate Data Summary
Project Number: 64152
Project Name: The King's School PSI

				Metals		PAH
				Arsenic	Nickel	Benzo(a)pyrene
				mg/L	mg/L	mg/L
EQL				0.01	0.01	0.001
NSW 2009 General Solid Waste (TCLP)				5	2	0.04
Sample Name	**Date**	**Lab Report No.**				
BH06_0.2-0.3	24/01/2023	961266		0.04	-	-
BH08_0.2-0.3	23/01/2023	961266		-	0.05	<0.001

Table D: Groundwater Analytical Results
Project Number: 64152
Project Name: The King's School

	Metals & Metalloids								TPHs (NEPC 1999)					TRHs (NEPC 2013)							BTEX					
	Arsenic (Filtered)	Cadmium (Filtered)	Chromium (III+VI) (Filtered)	Copper (Filtered)	Lead (Filtered)	Mercury (Filtered)	Nickel (Filtered)	Zinc (Filtered)	C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 Fraction (Sum of Total)	C6-C10	C10-C16	C16-C34	C34-C40	C10-C40 (Sum of total)	F1 (C6-C10 minus BTEX)	F2 (C10-C16 less Naphthalene)	Benzene	Toluene	Ethylbenzene	Xylene (o)	Xylene (m & p)	Xylene Total
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	0.001	0.0002	0.001	0.001	0.001	0.0001	0.001	0.005	0.02	0.05	0.1	0.1	0.1	0.02	0.05	0.1	0.1	0.1	0.02	0.05	0.001	0.001	0.001	0.001	0.002	0.003
ANZG (2018) Freshwater 95% toxicant DGVs	0.013	0.0002	0.001	0.0014	0.0034	0.0006	0.011	0.008													0.95	0.18	0.08	0.35	0.075	
Recreational (ADWG (2011) x 10)	0.1	0.02	0.5	20	0.1	0.01	0.2														0.01	8	3	6	6	6
NEPM 2013 Table 1A(4) Res HSL A/B GW for Vapour Intrusion, Clay 4-8m																			NL	NL	NL	NL	NL			NL
NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Clay 4-8m																			NL	NL	NL	NL	NL			NL
Sample Name	**Date**	**Lab Report No.**																								
BH06	30/01/2023	959301	<0.001	<0.0002	<0.001	0.006	<0.001	<0.0001	0.001	0.04	<0.02	0.08	0.4	<0.1	0.48	<0.02	0.06	0.5	<0.1	0.56	<0.02	0.06	<0.001	<0.001	0.002	0.003	0.007	0.01
BH08	30/01/2023	959301	<0.001	<0.0002	<0.001	0.005	<0.001	<0.0001	0.011	0.092	<0.02	<0.05	<0.1	<0.1	<0.1	<0.02	<0.05	<0.1	<0.1	<0.1	<0.02	<0.05	<0.001	<0.001	<0.001	<0.001	<0.002	<0.003

Table D: Groundwater Analytical Results

Project Number: 64152

Project Name: The King's School

	PAH																
	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	PAHs (Sum of total)
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
ANZG (2018) Freshwater 95% toxicant DGVs			0.0004		0.0002						0.0014			0.016	0.002		
Recreational (ADWG (2011) x 10)					0.0001												
NEPM 2013 Table 1A(4) Res HSL A/B GW for Vapour Intrusion, Clay 4-8m														NL			
NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Clay 4-8m														NL			

Sample Name	Date	Lab Report No.																
BH06	30/01/2023	959301	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
BH08	30/01/2023	959301	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001

Appendix A Photographic Log

PHOTO 1: ARTIFICIAL TURF WITHIN PLAY AREA IN PREP SCHOOL, FACING NORTH



PHOTO 2: CONCRETE AND POURED RUBBER GROUND SURFACES WITHIN PLAY AREA IN PREP SCHOOL, FACING NORTH



PHOTO 3: PREP SCHOOL CLASSROOMS (WESTERN BUILDING), FACING WEST



PHOTO 4: PREP SCHOOL CLASSROOMS IN THE SOUTHERN LENGTH OF THE PREP SCHOOL, FACING NORTHWEST (NEAR BH13)



JBS&G

Job No: 64152

Client: TSA Management

Version: Rev A | Date: 06/02/2023

Drawn By: SS | Checked By: MB

Not to Scale

Coord. Sys n/a

The King's School, North Parramatta, NSW

APPENDIX A – PHOTOGRAPHIC LOG

PHOTO 5: PREP SCHOOL - STAINED FILL MATERIAL ENCOUNTERED AT BH06 (0.2-0.3m)



PHOTO 6: PREP SCHOOL – FILL MATERIAL ENCOUNTERED AT BH13 (0.2-0.4m)



PHOTO 7: PREP SCHOOL (NEAR BH12) – VEGETABLE GARDEN IN NORTHWEST, FACING NORTH (DAM LOCATED IN THE BACKGROUND)



PHOTO 8: PREP SCHOOL (NEAR BH12) – VEGETABLE GARDEN IN NORTHWEST, FACING SOUTHWEST



JBS&G

Job No: 64152	
Client: TSA Management	
Version: Rev A	Date: 06/02/2023
Drawn By: SS	Checked By: MB
Not to Scale	
Coord. Sys n/a	

The King's School, North Parramatta, NSW

APPENDIX A – PHOTOGRAPHIC LOG

PHOTO 9: PREP SCHOOL (NEAR BH12) – VEGETABLE GARDEN IN NORTHWEST, FACING NORTH



PHOTO 10: PREP SCHOOL – FILL MATERIAL ENCOUNTERED AT BH12 (0.2-0.3m)



PHOTO 11: PREP SCHOOL (NEAR BH07) – NORTHEAST PORTION OF PREP SCHOOL, FACING WEST.



PHOTO 12: PREP SCHOOL – NATURAL CLAY (EXCLUDING OUTER LAYER OF SILT) ENCOUNTERED AT BH07 (0.4-0.5m)



JBS&G

Job No: 64152	
Client: TSA Management	
Version: Rev A	Date: 06/02/2023
Drawn By: SS	Checked By: MB
Not to Scale	
Coord. Sys n/a	

The King's School, North Parramatta, NSW

APPENDIX A – PHOTOGRAPHIC LOG

PHOTO 13: INTERNAL ROAD (NEAR BH03) – GRASSED OPEN AREA, FACING NORTH



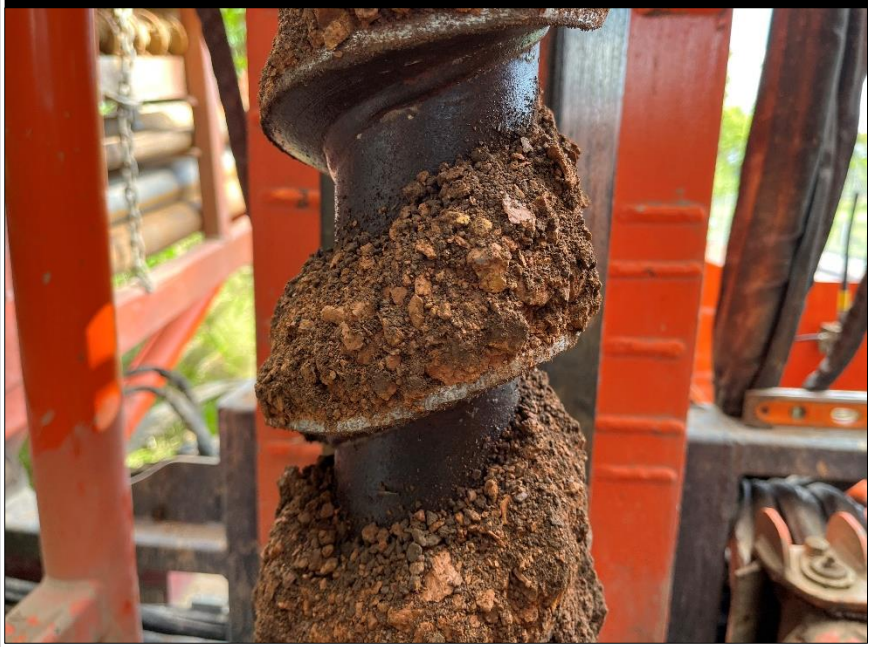
PHOTO 14: INTERNAL ROAD – FILL MATERIAL ENCOUNTERED AT BH03_0.2-0.3



PHOTO 15: INTERNAL ROAD (NEAR BH04) – GRAVEL ROAD, FACING NORTH



PHOTO 16: INTERNAL ROAD – NATURAL MATERIAL ENCOUNTERED AT BH04_0.6-0.7



JBS&G

Job No: 64152	
Client: TSA Management	
Version: Rev A	Date: 06/02/2023
Drawn By: SS	Checked By: MB
Not to Scale	
Coord. Sys n/a	

The King's School, North Parramatta, NSW

APPENDIX A – PHOTOGRAPHIC LOG

PHOTO 17: STAFF RESIDENCES (NEAR BH08) – TENNIS COURTS, FACING NORTH



PHOTO 18: STAFF RESIDENCES (NEAR BH09) – GROUND CONDITION IMMEDIATELY EAST OF THE TENNIS COURTS, FACING WEST



PHOTO 19: STAFF RESIDENCES – VEGETATION AT THE SOUTHERN END OF THE TENNIS COURTS, FACING WEST



PHOTO 20: STAFF RESIDENCES – FILL MATERIAL ENCOUNTERED AT BH09 (0.2-0.3m)



JBS&G

Job No: 64152

Client: TSA Management

Version: Rev A | Date: 06/02/2023

Drawn By: SS | Checked By: MB

Not to Scale

Coord. Sys n/a

The King's School, North Parramatta, NSW

APPENDIX A – PHOTOGRAPHIC LOG

PHOTO 21: DAY BOY HOUSE (NEAR BH11) – RESIDENTIAL STRUCTURE AND DENSE BUSHLAND, FACING WEST.



PHOTO 22: DAY BOY HOUSE – GROUND CONDITION IN THE SURROUNDING AREA, FACING SOUTH



PHOTO 23: DAY BOY HOUSE (NEAR BH11) – ASPHALT ROAD LEADING TO RESIDENCE, FACING SOUTHWEST



PHOTO 24: DAY BOY HOUSE – FILL MATERIAL ENCOUNTERED AT BH11 (0-0.1m)



JBS&G

Job No: 64152	
Client: TSA Management	
Version: Rev A	Date: 06/02/2023
Drawn By: SS	Checked By: MB
Not to Scale	
Coord. Sys n/a	

The King's School, North Parramatta, NSW

APPENDIX A – PHOTOGRAPHIC LOG

PHOTO 25: SPORT PAVILION (NEAR BH01) – STEEP SLOPE, FACING SOUTH. NOTED IS TARA GIRLS' SCHOOL IN THE BACKGROUND



PHOTO 26: SPORT PAVILION (NEAR BH01) – EAST PLAYING FIELD, FACING SOUTHEAST



PHOTO 27: SPORT PAVILION (NEAR BH01) – WEST PLAYING FIELD, FACING SOUTHWEST



PHOT0 28: SPORT PAVILION (BH01) – GROUND CONDITION AT BH01



JBS&G

Job No: 64152	
Client: TSA Management	
Version: Rev A	Date: 06/02/2023
Drawn By: SS	Checked By: MB
Not to Scale	
Coord. Sys n/a	

The King's School, North Parramatta, NSW

APPENDIX A – PHOTOGRAPHIC LOG

PHOTO 29: BOARDING HOUSE (NEAR BH10) – WESTERN RESIDENTIAL STRUCTURE, FACING WEST



PHOTO 30: BOARDING HOUSE (NEAR BH10) – EASTERN RESIDENTIAL STRUCTURE, FACING EAST



PHOTO 31: BOARDING HOUSE (NEAR BH10) – ASPHALT DRIVEWAY LEADING TO AND LARGE VEHICLE PARKING SOUTHWEST.



PHOT0 32: BOARDING HOUSE – NATURAL CLAYEY SAND ENCOUNTERED AT BH10 (0.4-0.5m)



JBS&G

Job No: 64152	
Client: TSA Management	
Version: Rev A	Date: 06/02/2023
Drawn By: SS	Checked By: MB
Not to Scale	
Coord. Sys n/a	

The King's School, North Parramatta, NSW

APPENDIX A – PHOTOGRAPHIC LOG

PHOTO 33: STEAM BUILDING (NEAR BH15) – NORTHER PORTION OF AREA, FACING SOUTH



PHOTO 34: STEAM BUILDING (NEAR BH14) – CENTRAL AND WESTERN PORTION OF AREA, FACING NORTHWEST



PHOTO 35: STEAM BUILDING (NEAR BH15) – SOUTHERN PORTION OF AREA, FACING SOUTHWEST



PHOT0 36: BOARDING HOUSE – FILL ENCOUNTERED AT BH14 (0-0.3m)



JBS&G

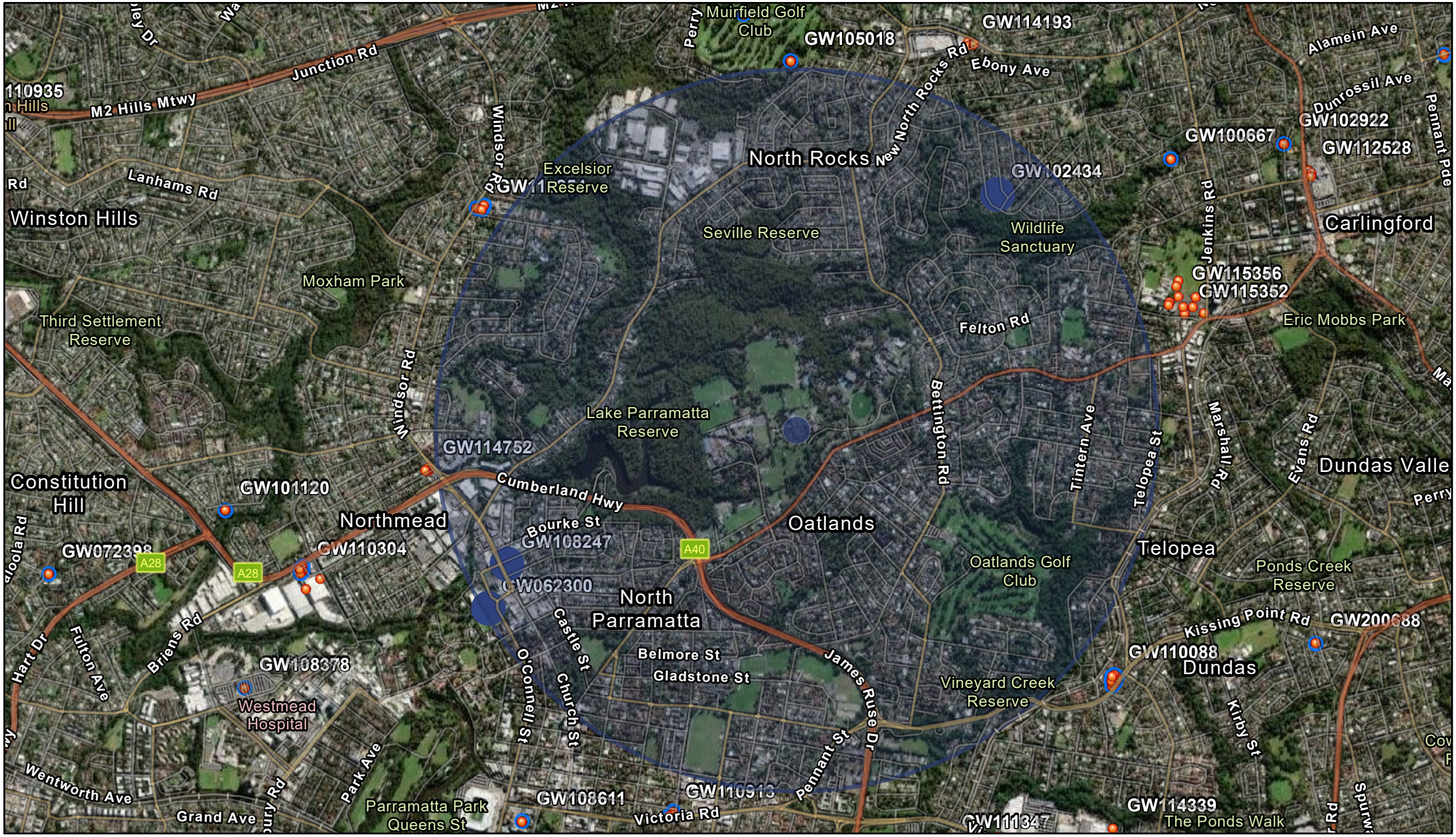
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Client: TSA Management	
Version: Rev A	Date: 23/05/2023
Drawn By: SS	Checked By: MB
Not to Scale	
Coord. Sys n/a	

The King's School, North Parramatta, NSW

APPENDIX A – PHOTOGRAPHIC LOG

Appendix B Groundwater Bore Search Results

JBS&G NSW PSI Web Map Extract



01/02/2023, 11:29:58 am

- Groundwater Bores (WaterNSW, 2021)*
- GeoReports - Groundwater Bore Data (Free)

1:36,112

0 0.25 0.5 1 mi

0 0.4 0.8 1.6 km

Esri, HERE, Garmin, Foursquare, METI/NASA, USGS, Maxar

JBS&G PSI Service

JBS&G, 2019

WaterNSW
Work Summary

GW062300

Licence: 10WA109363 **Licence Status:** CURRENT

Authorised Purpose(s): INDUSTRIAL
Intended Purpose(s): INDUSTRIAL

Work Type: Bore
Work Status:
Construct.Method: Cable Tool
Owner Type: Other Govt

Commenced Date: **Final Depth:** 100.00 m
Completion Date: 01/07/1988 **Drilled Depth:** 100.00 m

Contractor Name: (None)
Driller: John Hans Iselt
Assistant Driller:

Property: PARRAMATTA LINEN SERVICE 73 O'connell St NORTH PARRAMATTA 2151 NSW **Standing Water Level (m):**
GWMA: - **Salinity Description:** Fresh
GW Zone: - **Yield (L/s):**

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBERLAND	FIELD OF	2 734689
Licensed:	CUMBERLAND	FIELD OF MARS	Whole Lot 1//734689

Region: 10 - Sydney South Coast **CMA Map:** 9030-2N
River Basin: 213 - SYDNEY COAST - GEORGES RIVER **Grid Zone:** **Scale:**
Area/District:

Elevation: 0.00 m (A.H.D.) **Northing:** 6258428.000 **Latitude:** 33°47'53.3"S
Elevation Source: (Unknown) **Easting:** 314910.000 **Longitude:** 151°00'02.2"E

GS Map: - **MGA Zone:** 56 **Coordinate Source:** GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1	1	Casing	P.V.C.	-0.30	13.70	168			Cemented
1	1	Casing	Pressure Cemented	0.00	13.70	168			

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
26.10	26.80	0.70	Consolidated	18.00		0.30			
63.50	63.80	0.30	Consolidated	6.00		0.95			

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.40	0.40	Topsoil	Topsoil	
0.40	5.60	5.20	Sandstone Some Layers	Sandstone	

5.60	9.50	3.90	Sandstone Yellow	Sandstone	
9.50	12.10	2.60	Shale	Shale	
12.10	26.80	14.70	Sandstone Grey Water Supply	Sandstone	
26.80	37.70	10.90	Sandstone Grey Some Shale	Sandstone	
37.70	38.10	0.40	Shale	Shale	
38.10	100.00	61.90	Sandstone Grey Water Supply	Sandstone	
0.40	5.60	5.20	Shale Clay	Shale	

Remarks

08/05/1990: BORE IS NOT USED AS IRON REMOVAL IS UNECONOMIC -'89

***** End of GW062300 *****

Warning To Clients: This raw data has been supplied to the WaterNSW by drillers, licensees and other sources. WaterNSW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

WaterNSW
Work Summary

GW102434

Licence: 10WA108437 **Licence Status:** CURRENT

Authorised Purpose(s): DOMESTIC,STOCK
Intended Purpose(s): STOCK, DOMESTIC

Work Type: Bore
Work Status:
Construct.Method: Rotary
Owner Type:

Commenced Date:
Completion Date: 31/05/1999
Final Depth: 146.00 m
Drilled Depth: 146.00 m

Contractor Name: Ultra Drilling
Driller: Bradley Alan Dodd
Assistant Driller:

Property: SNAITH 6 Tamboy Ave CARLINGFORD 2118 NSW
GWMA: -
GW Zone: -
Standing Water Level (m): 65.000
Salinity Description:
Yield (L/s): 1.000

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBERLAND	FIELD OF	LOT231 DP259187
Licensed:	CUMBERLAND	FIELD OF MARS	Whole Lot 1//875860

Region: 10 - Sydney South Coast
River Basin: - Unknown
Area/District:
CMA Map:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6260856.000
Easting: 317796.000
Latitude: 33°46'36.3"S
Longitude: 151°01'56.2"E

GS Map: -
MGA Zone: 56
Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	5.00	200			Rotary Air
1		Hole	Hole	5.00	146.00	140			Rotary Air
1	1	Casing	P.V.C.	0.00	6.00	160	150		Suspended in Clamps, Seated on Bottom
1	1	Casing	Steel	0.00	2.00	185	175		Suspended in Clamps

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
45.00	46.00	1.00	Unknown		48.00	0.30	48.00		
77.00	78.00	1.00	Unknown		80.00	0.60	80.00		
132.00	134.00	2.00	Unknown	55.00	138.00	1.00	138.00	02:00:00	

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	1.50	1.50	SOIL	Soil	
1.50	2.10	0.60	SANDSTONE FLOATER	Sandstone	

2.10	38.10	36.00	SANDSTONE	Sandstone	
38.10	39.00	0.90	SHALE	Shale	
39.00	41.00	2.00	SHALE/SANDSTONE	Shale	
41.00	54.00	13.00	SANDSTONE/SHALE BANDS	Sandstone	
54.00	116.00	62.00	SANDSTONE	Sandstone	
116.00	120.00	4.00	SHALE	Shale	
120.00	126.00	6.00	SANDSTONE	Sandstone	
126.00	133.00	7.00	SANDSTONE/QUARTZ/IRONSTONE	Sandstone	
133.00	138.00	5.00	SANDSTONE SOFT	Sandstone	
138.00	146.00	8.00	SANDSTONE	Sandstone	

Remarks

31/05/1999: Form A Remarks:
THIS PROPERTY IS ON TOWN.
WAATER SUPPLY BORE IS FOR GARDEN USE ONLY.

***** End of GW102434 *****

Warning To Clients: This raw data has been supplied to the WaterNSW by drillers, licensees and other sources. WaterNSW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

WaterNSW
Work Summary

GW108247

Licence: **Licence Status:**

Authorised Purpose(s):
Intended Purpose(s): INDUSTRIAL

Work Type: Bore
Work Status:
Construct.Method: Rotary
Owner Type:

Commenced Date: **Final Depth:** 102.00 m
Completion Date: 22/03/2007 **Drilled Depth:** 102.00 m

Contractor Name: INTERTEC DRILLING SERVICES
Driller: Colin Leslie Barden
Assistant Driller:

Property: **Standing Water Level (m):** 10.000
GWMA: **Salinity Description:**
GW Zone: **Yield (L/s):** 0.100

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBERLAND	FIELD OF	1 1083519
Licensed:			

Region: 10 - Sydney South Coast **CMA Map:**
River Basin: - Unknown **Grid Zone:** **Scale:**
Area/District:

Elevation: 0.00 m (A.H.D.) **Northing:** 6258684.000 **Latitude:** 33°47'45.1"S
Elevation Source: Unknown **Easting:** 315012.000 **Longitude:** 151°00'06.3"E

GS Map: - **MGA Zone:** 56 **Coordinate Source:** Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	5.50	203			Down Hole Hammer
1		Hole	Hole	5.50	102.00	158			Down Hole Hammer
1	1	Casing	Pvc Class 9	0.13	72.00	140			Suspended in Clamps, Screwed and Glued
1	1	Casing	Steel	0.13	6.00	158	148		Driven into Hole
1	1	Opening	Slots - Diagonal	14.00	18.00	140		0	Sawn, PVC Class 9, SL: 100.0mm, A: 3.00mm
1	1	Opening	Slots - Diagonal	54.00	60.00	140		0	Sawn, PVC Class 9, SL: 100.0mm, A: 3.00mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
14.50	14.80	0.30	Unknown			0.30	18.00		1790.00
55.00	57.00	2.00	Unknown			0.10	60.00		1730.00
80.50	83.50	3.00	Unknown	10.00		0.10	84.00		2000.00

Drillers Log

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

0.00	3.00	3.00	SANDY CLAY	Invalid Code	
3.00	6.00	3.00	SANDSTONE YELLOW	Sandstone	
6.00	10.50	4.50	SHALE	Shale	
10.50	14.50	4.00	SANDSTONE GREY	Sandstone	
14.50	14.80	0.30	SANDSTONE FRACTURED	Sandstone	
14.80	22.50	7.70	SANDSTONE GREY	Sandstone	
22.50	27.00	4.50	SANDSTONE QUARTZ	Sandstone	
27.00	29.00	2.00	SANDSTONE GREY	Sandstone	
29.00	30.00	1.00	SHALE	Shale	
30.00	44.00	14.00	SANDSTONE GREY	Sandstone	
44.00	46.50	2.50	SHALE	Shale	
46.50	55.00	8.50	SANDSTONE GREY	Sandstone	
55.00	57.00	2.00	SANDSTONE QUARTZ	Sandstone	
57.00	70.00	13.00	SANDSTONE GREY	Sandstone	
70.00	72.00	2.00	SANDSTONE QUARTZ	Sandstone	
72.00	74.00	2.00	SHALE	Shale	
74.00	76.00	2.00	SANDSTONE GREY	Sandstone	
76.00	77.00	1.00	SANDSTONE QUARTZ	Sandstone	
77.00	80.50	3.50	SANDSTONE GREY	Sandstone	
80.50	83.50	3.00	SANDSTONE QUARTZ	Sandstone	
83.50	93.00	9.50	SANDSTONE GREY	Sandstone	
93.00	94.50	1.50	SANDSTONE QUARTZ	Sandstone	
94.50	99.00	4.50	SANDSTONE GREY	Sandstone	
99.00	100.50	1.50	SANDSTONE QUARTZ	Sandstone	
100.50	102.00	1.50	SANDSTONE GREY	Sandstone	

Remarks

01/05/2008: Previous Lic No:10BL601222

***** End of GW108247 *****

Warning To Clients: This raw data has been supplied to the WaterNSW by drillers, licensees and other sources. WaterNSW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

Appendix C Aerial Imagery



Legend

- Approximate Site Boundary
- The King's School
- Tara Anglican School for Girls

JBS&G

Job No: 64152

Client: TSA Management

Version: Aerials	Date 30/05/2023
Drawn By: PA	Checked By: AC

Scale 1:11,000

0 100 200

metres

Coord. Sys. GDA 1994 MGA Zone 56

87-129 Pennant Hills Road
North Parramatta, NSW

HISTORICAL AERIAL PHOTOGRAPH - 1943

AERIAL 1943 A

File Name: 64152_TKS_Masterplan_Environmental_Geotechnical_Aerials
Reference: NSW Government | Copyright © Spatial Services 2023



Legend

- Approximate Site Boundary
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JBS&G

Job No: 64152

Client: TSA Management

Version: Aerials	Date 30/05/2023
Drawn By: PA	Checked By: AC

Scale 1:6,000

0 50 100

metres

Coord. Sys. GDA 1994 MGA Zone 56

87-129 Pennant Hills Road
North Parramatta, NSW

HISTORICAL AERIAL PHOTOGRAPH - 1943

AERIAL 1943 B

File Name: 64152_TKS_Masterplan_Environmental_Geotechnical_Aerials
Reference: NSW Government | Copyright © Spatial Services 2023



Legend

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JBS&G

Job No: 64152

Client: TSA Management

Version: Aerials	Date 30/05/2023
Drawn By: PA	Checked By: AC

Scale 1:11,000

0 100 200

metres

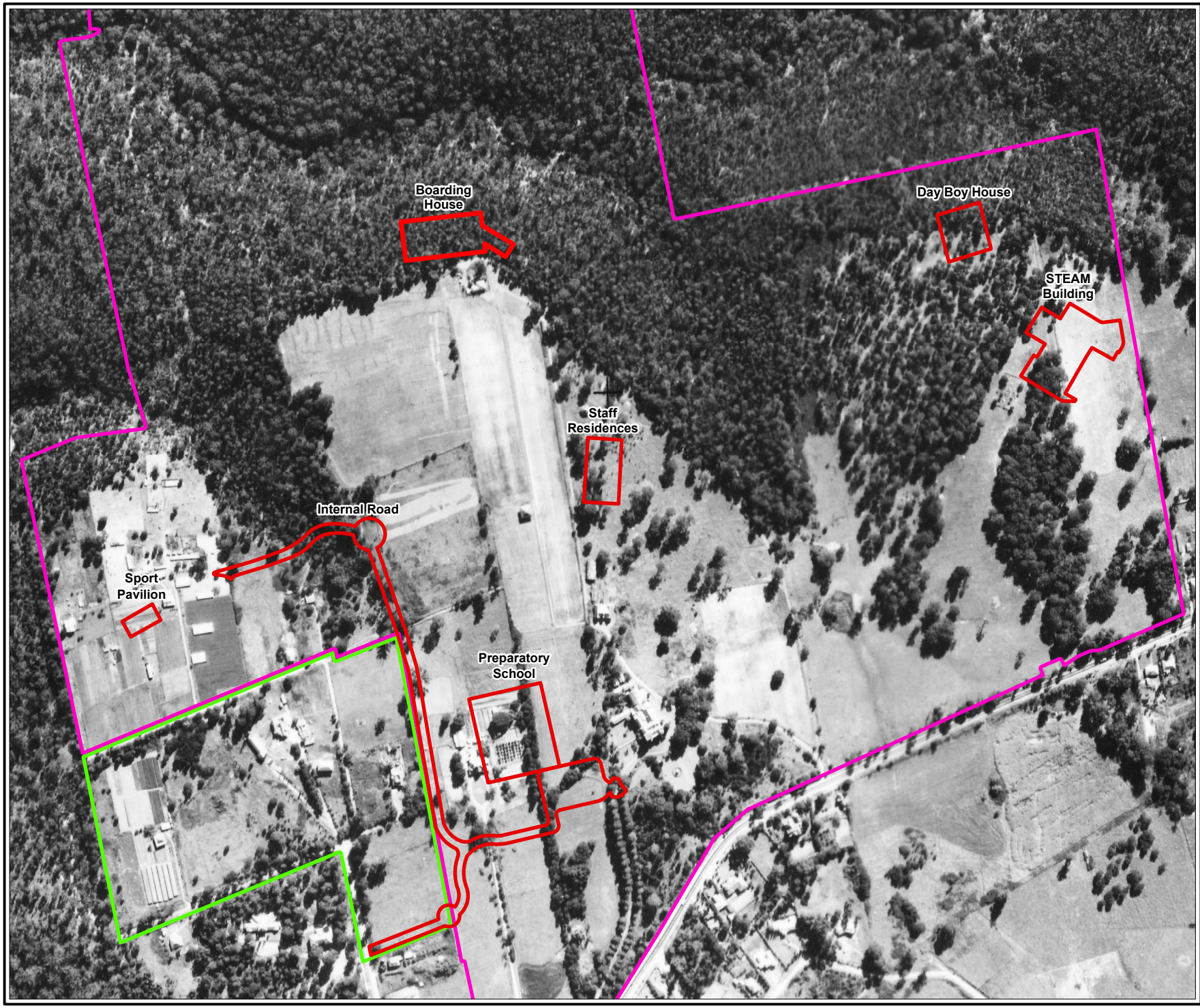
Coord. Sys. GDA 1994 MGA Zone 56

87-129 Pennant Hills Road
North Parramatta, NSW

HISTORICAL AERIAL PHOTOGRAPH - 1951

AERIAL 1951 A

File Name: 64152_TKS_Masterplan_Environmental_Geotechnical_Aerials
Reference: NSW Government | Copyright © Spatial Services 2023



Legend

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JBS&G

Job No: 64152

Client: TSA Management

Version: Aerials	Date 30/05/2023
Drawn By: PA	Checked By: AC

Scale 1:6,000

0 50 100

metres

Coord. Sys. GDA 1994 MGA Zone 56

87-129 Pennant Hills Road
North Parramatta, NSW

HISTORICAL AERIAL PHOTOGRAPH - 1951

AERIAL 1951 B

File Name: 64152_TKS_Masterplan_Environmental_Geotechnical_Aerials
Reference: NSW Government | Copyright © Spatial Services 2023



Legend

- Approximate Site Boundary
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JBS&G

Job No: 64152	
Client: TSA Management	
Version: Aerials	Date 30/05/2023
Drawn By: PA	Checked By: AC
Scale 1:11,000	

0 100 200
metres

Coord. Sys. GDA 1994 MGA Zone 56

87-129 Pennant Hills Road
North Parramatta, NSW

HISTORICAL AERIAL PHOTOGRAPH - 1965

AERIAL 1965 A

File Name: 64152_TKS_Masterplan_Environmental_Geotechnical_Aerials
Reference: NSW Government | Copyright © Spatial Services 2023



Legend

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JBS&G

Job No: 64152

Client: TSA Management

Version: Aerials	Date 30/05/2023
Drawn By: PA	Checked By: AC

Scale 1:6,000

0 50 100

metres

Coord. Sys. GDA 1994 MGA Zone 56

87-129 Pennant Hills Road
North Parramatta, NSW

HISTORICAL AERIAL PHOTOGRAPH - 1965

AERIAL 1965 B

File Name: 64152_TKS_Masterplan_Environmental_Geotechnical_Aerials
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Legend

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JBS&G

Job No: 64152

Client: TSA Management

Version: Aerials	Date 30/05/2023
Drawn By: PA	Checked By: AC

Scale 1:11,000

0 100 200

metres

Coord. Sys. GDA 1994 MGA Zone 56

87-129 Pennant Hills Road
North Parramatta, NSW

HISTORICAL AERIAL PHOTOGRAPH - 1971

AERIAL 1971 A

File Name: 64152_TKS_Masterplan_Environmental_Geotechnical_Aerials
Reference: NSW Government | Copyright © Spatial Services 2023



Legend

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JBS&G

Job No: 64152	
Client: TSA Management	
Version: Aerials	Date 30/05/2023
Drawn By: PA	Checked By: AC
Scale 1:6,000	

0 50 100
metres

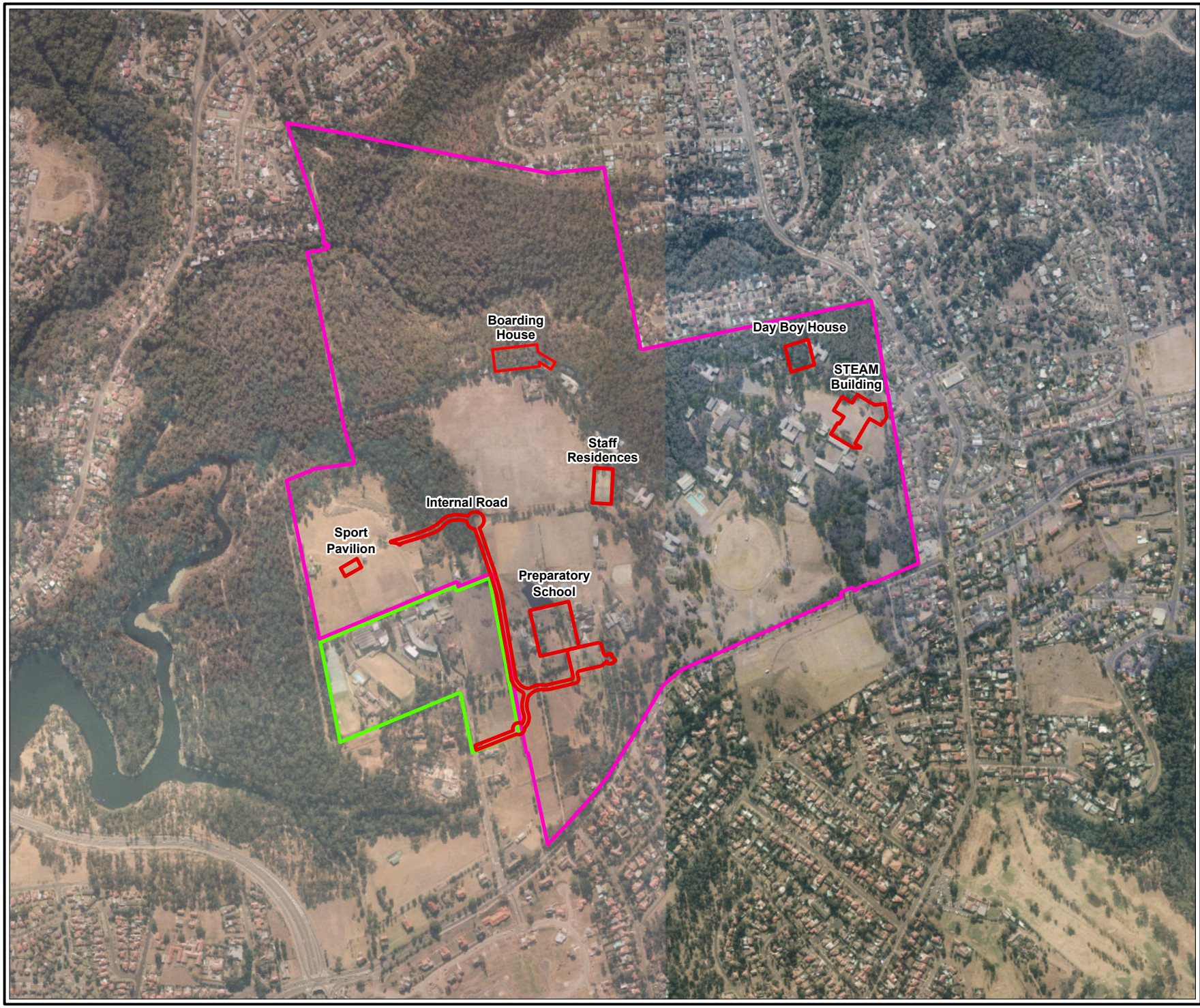
Coord. Sys. GDA 1994 MGA Zone 56

87-129 Pennant Hills Road
North Parramatta, NSW

HISTORICAL AERIAL PHOTOGRAPH - 1971

AERIAL 1971 B

File Name: 64152_TKS_Masterplan_Environmental_Geotechnical_Aerials
Reference: NSW Government | Copyright © Spatial Services 2023



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JBS&G

Job No: 64152

Client: TSA Management

Version: Aerials	Date 30/05/2023
Drawn By: PA	Checked By: AC

Scale 1:11,000

0 100 200

metres

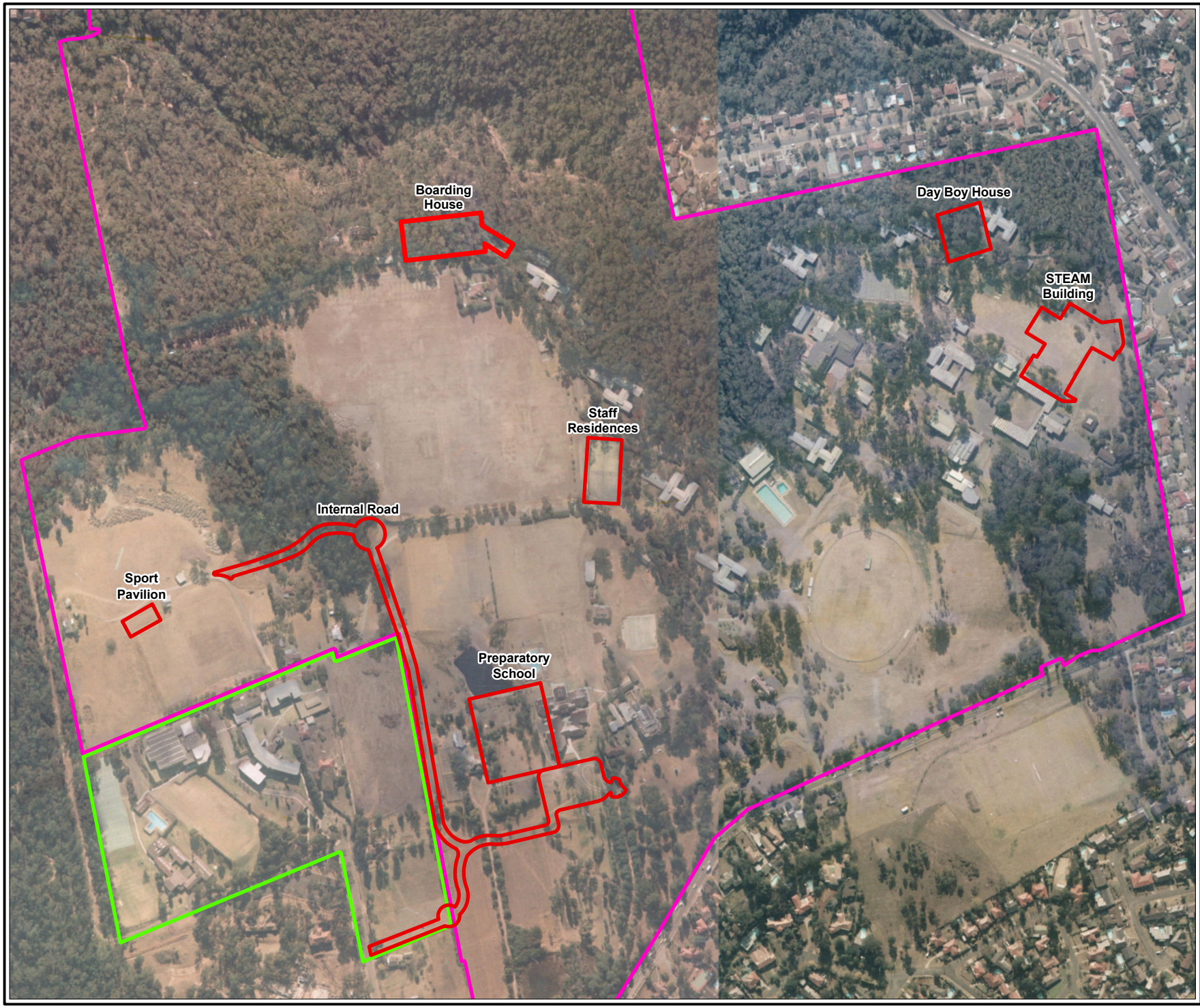
Coord. Sys. GDA 1994 MGA Zone 56

87-129 Pennant Hills Road
North Parramatta, NSW

HISTORICAL AERIAL PHOTOGRAPH - 1986

AERIAL 1986 A

File Name: 64152_TKS_Masterplan_Environmental_Geotechnical_Aerials
Reference: NSW Government | Copyright © Spatial Services 2023



Legend

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JBS&G

Job No: 64152

Client: TSA Management

Version: Aerials	Date 30/05/2023
Drawn By: PA	Checked By: AC

Scale 1:6,000

0 50 100

metres

Coord. Sys. GDA 1994 MGA Zone 56

87-129 Pennant Hills Road
North Parramatta, NSW

HISTORICAL AERIAL PHOTOGRAPH - 1986

AERIAL 1986 B

File Name: 64152_TKS_Masterplan_Environmental_Geotechnical_Aerials
Reference: NSW Government | Copyright © Spatial Services 2023



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JBS&G

Job No: 64152	
Client: TSA Management	
Version: Aerials	Date 30/05/2023
Drawn By: PA	Checked By: AC
Scale 1:11,000	

0 100 200
metres

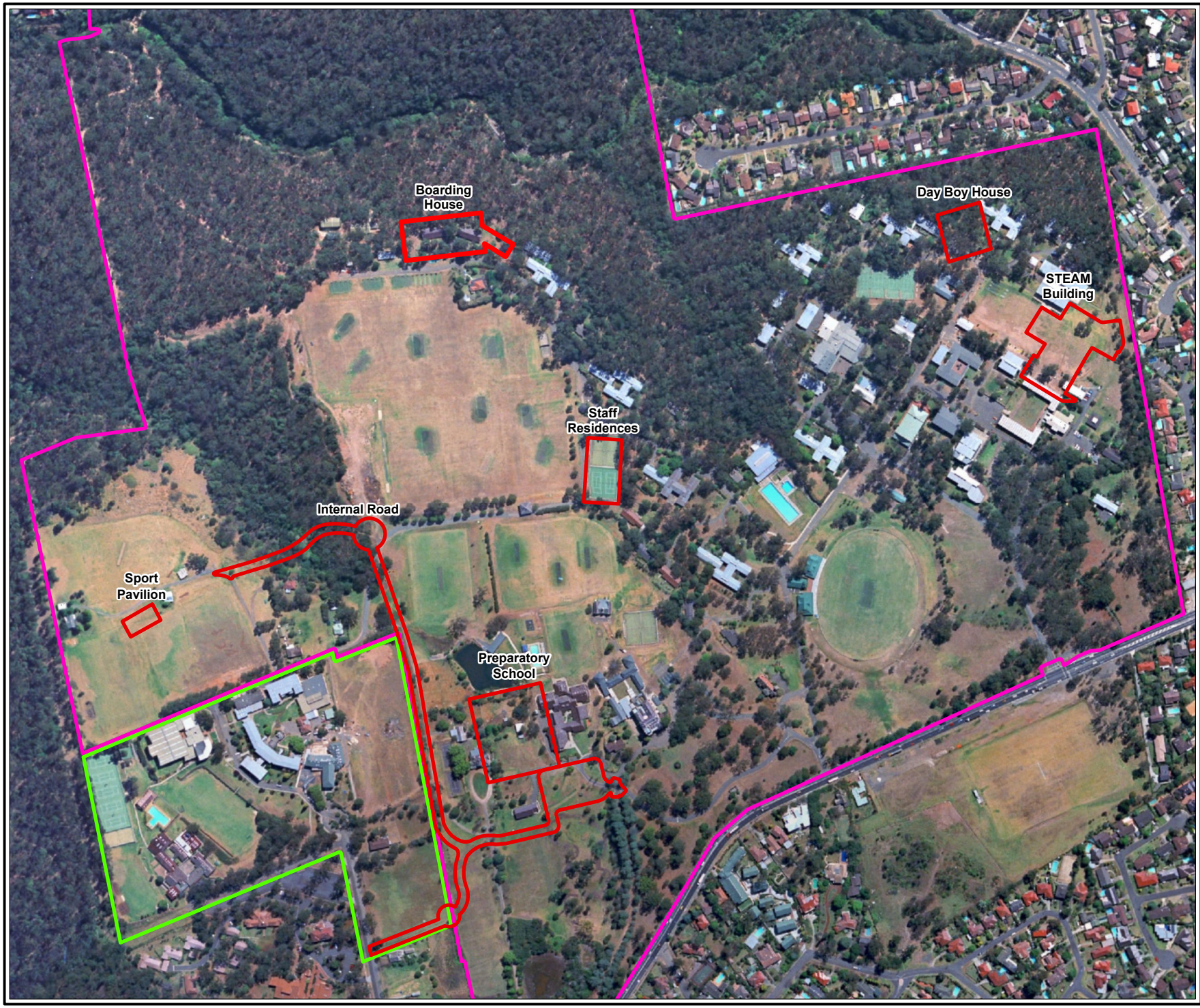
Coord. Sys. GDA 1994 MGA Zone 56

87-129 Pennant Hills Road
North Parramatta, NSW

HISTORICAL AERIAL PHOTOGRAPH - 1994

AERIAL 1994 A

File Name: 64152_TKS_Masterplan_Environmental_Geotechnical_Aerials
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Legend

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Job No: 64152	
Client: TSA Management	
Version: Aerials	Date 30/05/2023
Drawn By: PA	Checked By: AC
Scale 1:6,000	

0 50 100
metres

Coord. Sys. GDA 1994 MGA Zone 56

87-129 Pennant Hills Road
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HISTORICAL AERIAL PHOTOGRAPH - 1994

AERIAL 1994 B

File Name: 64152_TKS_Masterplan_Environmental_Geotechnical_Aerials
Reference: NSW Government | Copyright © Spatial Services 2023



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Job No: 64152

Client: TSA Management

Version: Aerials	Date 30/05/2023
Drawn By: PA	Checked By: AC

Scale 1:11,000

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metres

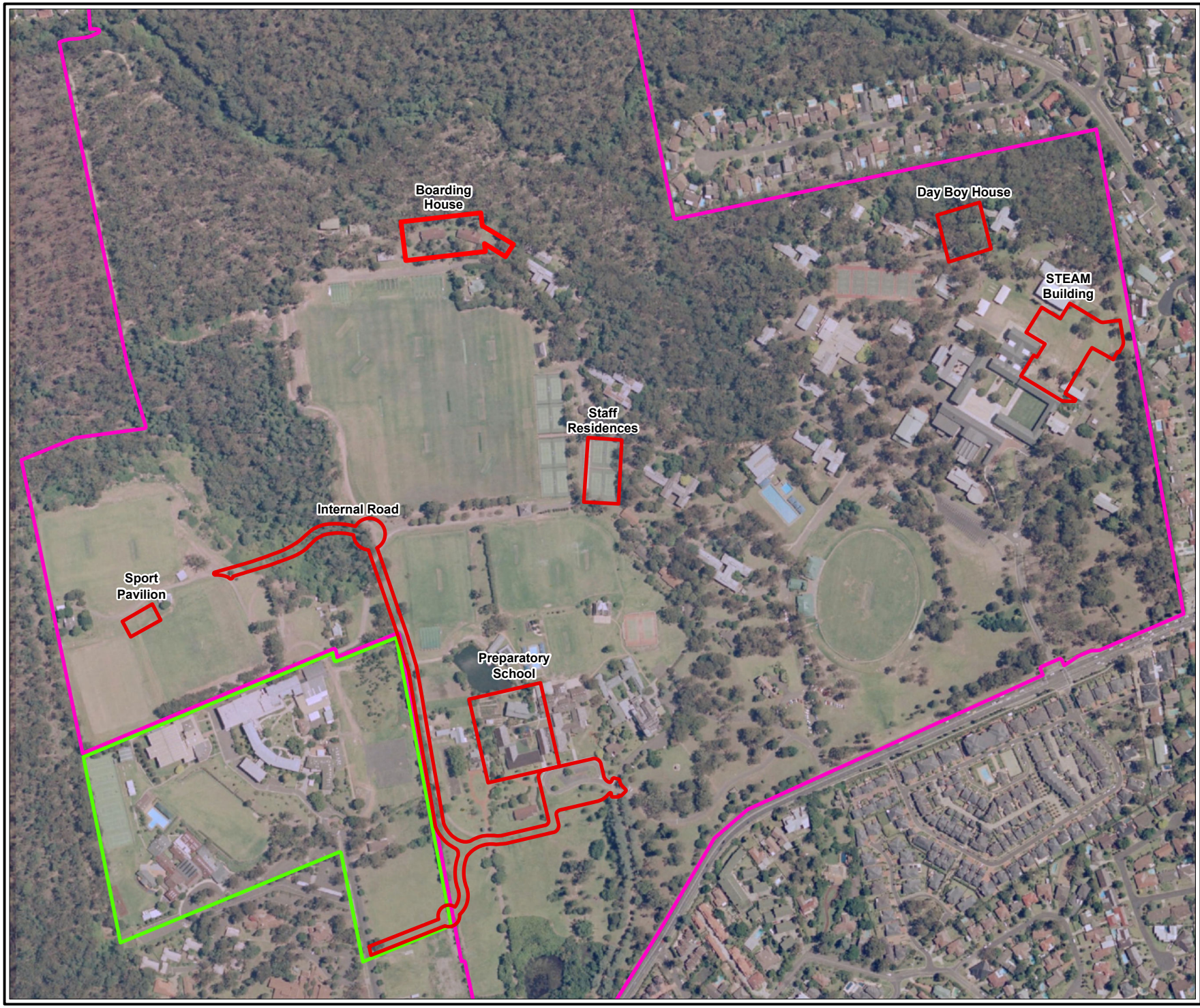
Coord. Sys. GDA 1994 MGA Zone 56

87-129 Pennant Hills Road
North Parramatta, NSW

HISTORICAL AERIAL PHOTOGRAPH - 2005

AERIAL 2005 A

File Name: 64152_TKS_Masterplan_Environmental_Geotechnical_Aerials
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Job No: 64152

Client: TSA Management

Version: Aerials	Date 30/05/2023
Drawn By: PA	Checked By: AC

Scale 1:6,000

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metres

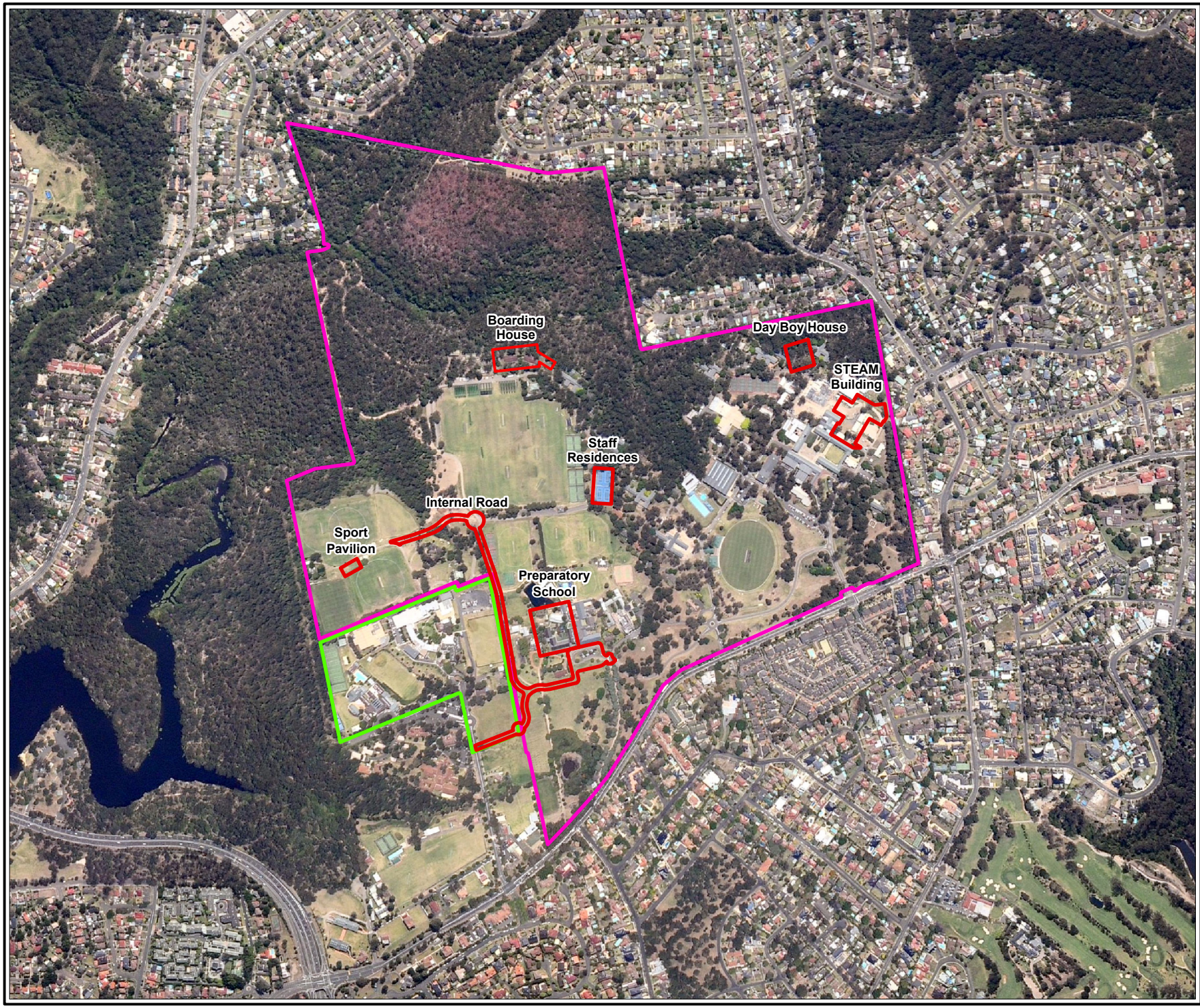
Coord. Sys. GDA 1994 MGA Zone 56

87-129 Pennant Hills Road
North Parramatta, NSW

HISTORICAL AERIAL PHOTOGRAPH - 2005

AERIAL 2005 B

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JBS&G

Job No: 64152

Client: TSA Management

Version: Aerials	Date 30/05/2023
Drawn By: PA	Checked By: AC

Scale 1:11,000

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metres

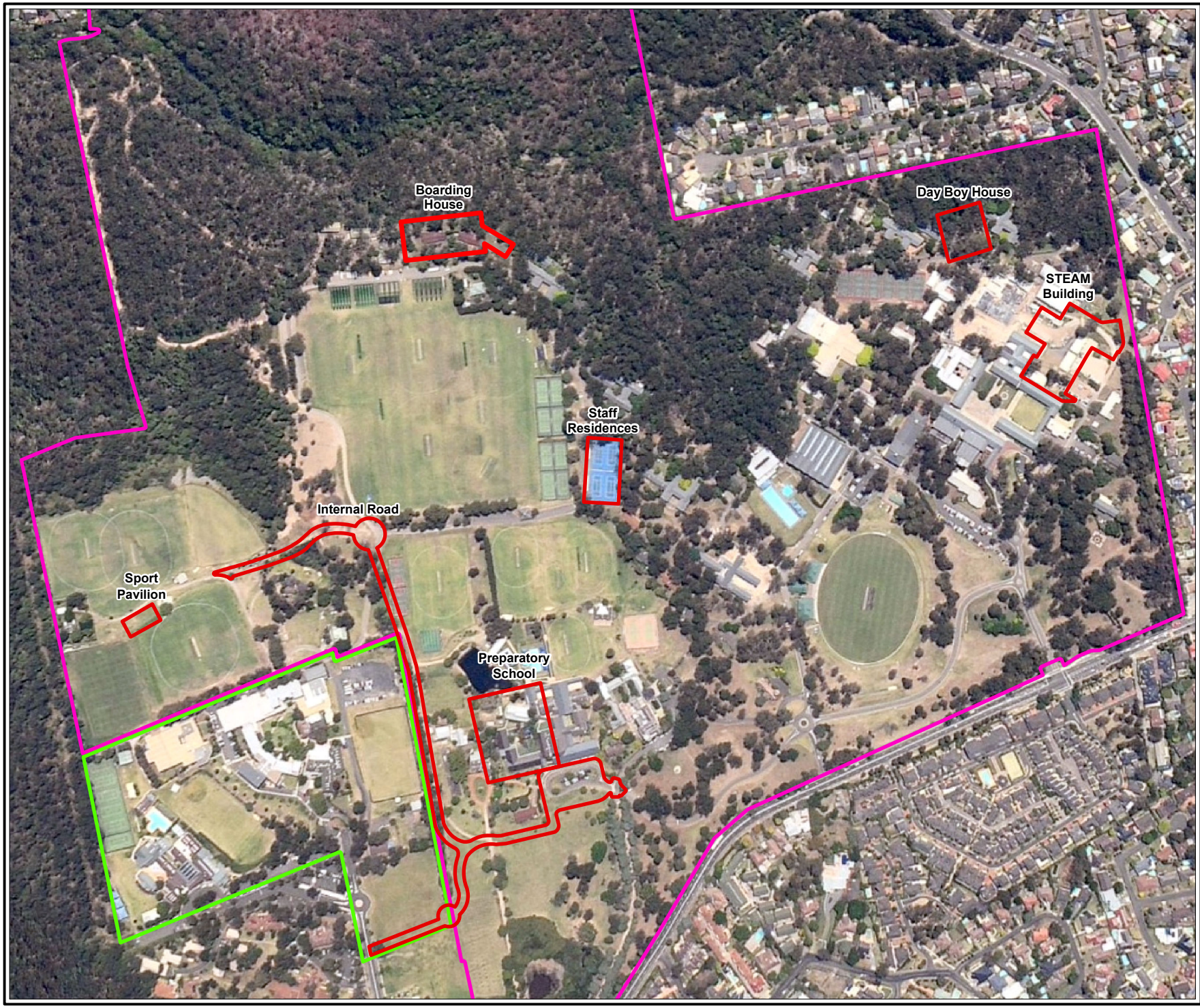
Coord. Sys. GDA 1994 MGA Zone 56

87-129 Pennant Hills Road
North Parramatta, NSW

HISTORICAL AERIAL PHOTOGRAPH - 2012

AERIAL 2012 A

File Name: 64152_TKS_Masterplan_Environmental_Geotechnical_Aerials
Reference: Nearmap - www.nearmap.com (Capture Date: 24/10/2012)



Legend

- Approximate Site Boundary
- The King's School
- Tara Anglican School for Girls

JBS&G

Job No: 64152	
Client: TSA Management	
Version: Aerials	Date 30/05/2023
Drawn By: PA	Checked By: AC
Scale 1:6,000	

0 50 100
metres

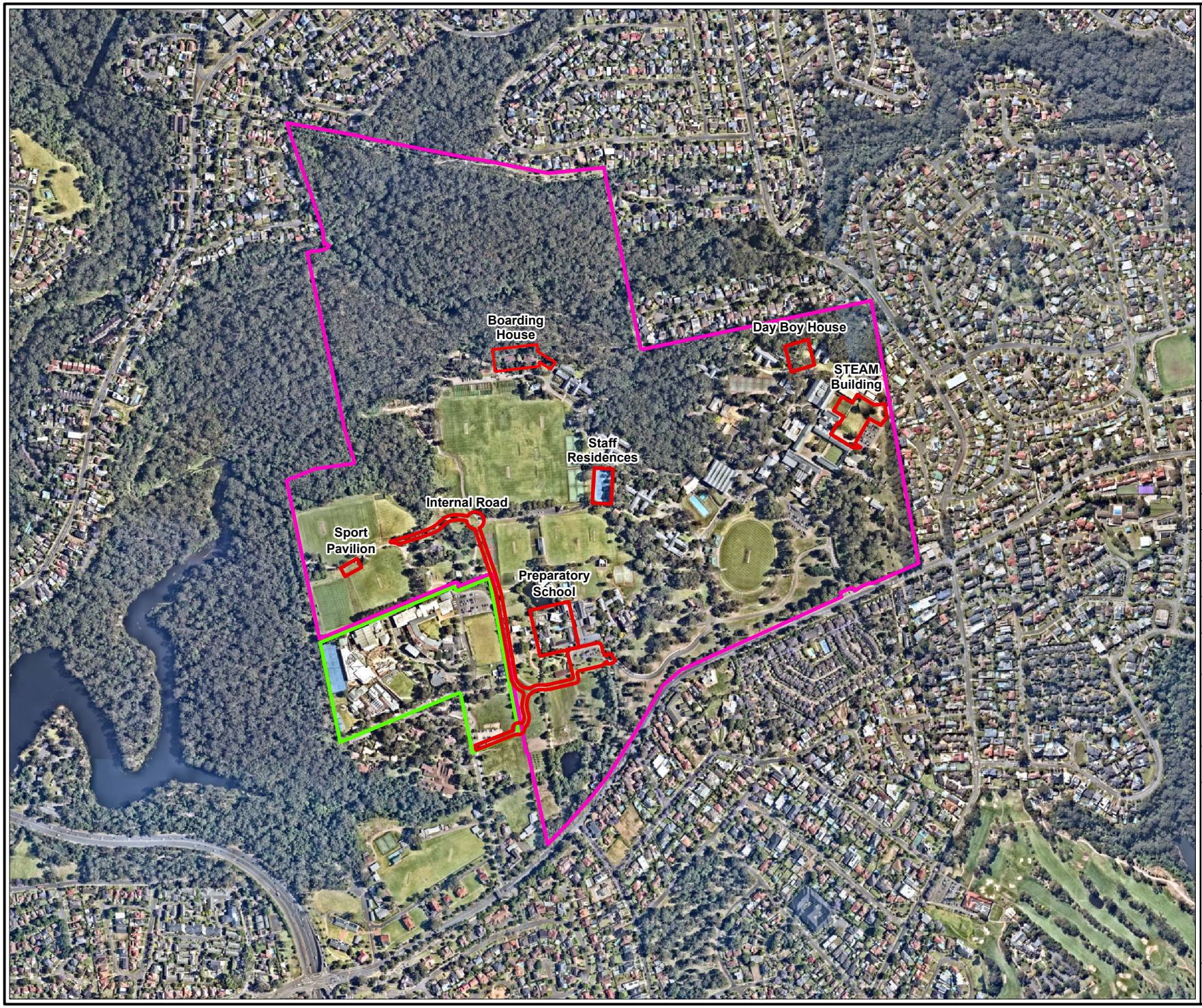
Coord. Sys. GDA 1994 MGA Zone 56

87-129 Pennant Hills Road
North Parramatta, NSW

HISTORICAL AERIAL PHOTOGRAPH - 2012

AERIAL 2012 B

File Name: 64152_TKS_Masterplan_Environmental_Geotechnical_Aerials
Reference: Nearmap - www.nearmap.com (Capture Date: 24/10/2012)



Legend

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JBS&G

Job No: 64152

Client: TSA Management

Version: Aerials	Date 30/05/2023
Drawn By: PA	Checked By: AC

Scale 1:11,000

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metres

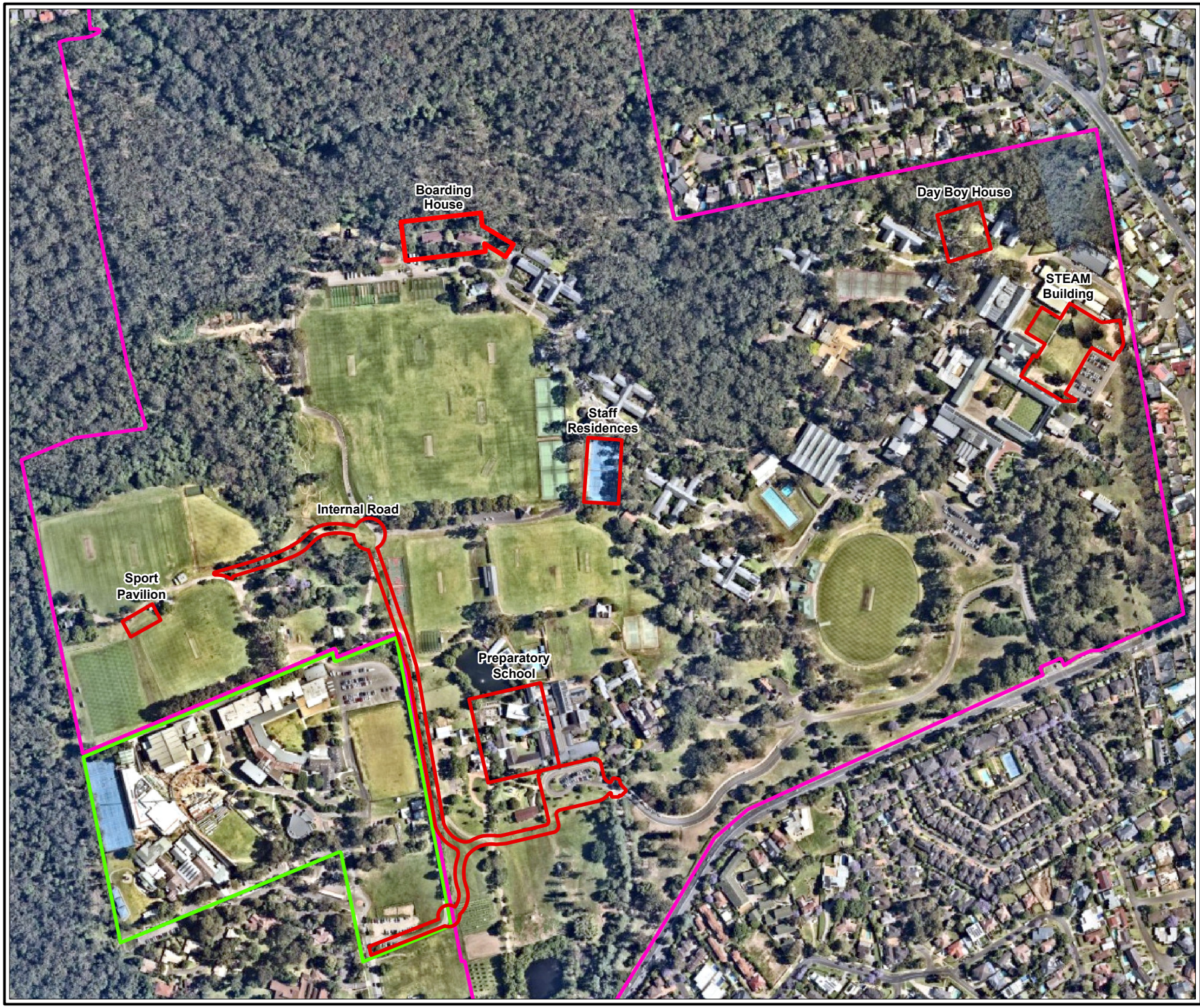
Coord. Sys. GDA 1994 MGA Zone 56

87-129 Pennant Hills Road
North Parramatta, NSW

HISTORICAL AERIAL PHOTOGRAPH - 2022

AERIAL 2022 A

File Name: 64152_TKS_Masterplan_Environmental_Geotechnical_Aerials
Reference: Nearmap - www.nearmap.com (Capture Date: 23/11/2022)



Legend

- Approximate Site Boundary
- The King's School
- Tara Anglican School for Girls

JBS&G

Job No: 64152

Client: TSA Management

Version: Aerials	Date 30/05/2023
Drawn By: PA	Checked By: AC

Scale 1:6,000

0 50 100

metres

Coord. Sys. GDA 1994 MGA Zone 56

87-129 Pennant Hills Road
North Parramatta, NSW

HISTORICAL AERIAL PHOTOGRAPH - 2022

AERIAL 2022 B

File Name: 64152_TKS_Masterplan_Environmental_Geotechnical_Aerials
Reference: Nearmap - www.nearmap.com (Capture Date: 23/11/2022)

Appendix D NSW EPA Records

Search results

Your search for: **General Search** with the following criteria

Suburb - North Parramatta

returned 0 result

Search Again

For business and industry

For local government

Contact us

131 555 (tel:131555)

Online (https://www.epa.nsw.gov.au/about-us/contact-us/feedback)

info@epa.nsw.gov.au (mailto:info@epa.nsw.gov.au)

EPA Office Locations (https://www.epa.nsw.gov.au/about-us/contact-us/locations)

Accessibility (https://www.epa.nsw.gov.au/about-us/contact-us/website-service-standards/help-index)
Disclaimer (https://www.epa.nsw.gov.au/about-us/contact-us/website-service-standards/disclaimer)
Privacy (https://www.epa.nsw.gov.au/about-us/contact-us/website-service-standards/privacy)
Copyright (https://www.epa.nsw.gov.au/about-us/contact-us/website-service-standards/copyright)

Find us on

Search results

Your search for: **General Search** with the following criteria

Suburb - oatlands

returned 0 result

Search Again

For business and industry

For local government

Contact us

131 555 (tel:131555)

Online (https://www.epa.nsw.gov.au/about-us/contact-us/feedback)

info@epa.nsw.gov.au (mailto:info@epa.nsw.gov.au)

EPA Office Locations (https://www.epa.nsw.gov.au/about-us/contact-us/locations)

Accessibility (https://www.epa.nsw.gov.au/about-us/contact-us/website-service-standards/help-index)
Disclaimer (https://www.epa.nsw.gov.au/about-us/contact-us/website-service-standards/disclaimer)
Privacy (https://www.epa.nsw.gov.au/about-us/contact-us/website-service-standards/privacy)
Copyright (https://www.epa.nsw.gov.au/about-us/contact-us/website-service-standards/copyright)

Find us on

Search results

Your search for:Suburb: NORTH PARRAMATTA

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.

If you want to know whether a specific site has been the subject of notices issued by the EPA under the CLM Act, we suggest that you search by Local Government Area only and carefully review the sites that are listed.
This public record provides information about sites regulated by the EPA under the Contaminated Land Management Act 1997, including sites currently and previously regulated under the Environmentally Hazardous Chemicals Act 1985. Your inquiry using the above search criteria has not matched any record of current or former regulation. You should consider searching again using different criteria. The fact that a site does not appear on the record does not necessarily mean that it is not affected by contamination. The site may have been notified to the EPA but not yet assessed, or contamination may be present but the site is not yet being regulated by the EPA. Further information about particular sites may be available from 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. In addition the EPA may be regulating contamination at the site through a licence under the Protection of the Environment Operations Act 1997. You may wish to search the POEO public register.POEO public register

23 February 2023

Search results

Your search for:Suburb: OATLANDS

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.

If you want to know whether a specific site has been the subject of notices issued by the EPA under the CLM Act, we suggest that you search by Local Government Area only and carefully review the sites that are listed.
This public record provides information about sites regulated by the EPA under the Contaminated Land Management Act 1997, including sites currently and previously regulated under the Environmentally Hazardous Chemicals Act 1985. Your inquiry using the above search criteria has not matched any record of current or former regulation. You should consider searching again using different criteria. The fact that a site does not appear on the record does not necessarily mean that it is not affected by contamination. The site may have been notified to the EPA but not yet assessed, or contamination may be present but the site is not yet being regulated by the EPA. Further information about particular sites may be available from 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. In addition the EPA may be regulating contamination at the site through a licence under the Protection of the Environment Operations Act 1997. You may wish to search the POEO public register.POEO public register

24 February 2023

Background

A strategy to systematically prioritise, assess and respond to notifications under Section 60 of the ***Contaminated Land Management Act 1997*** (CLM Act) has been developed by the EPA. This strategy acknowledges the EPA's obligations to make information available to the public under ***Government Information (Public Access) Act 2009***.

When a site is notified to the EPA, it may be accompanied by detailed site reports where the owner has been proactive in addressing the contamination and its source. However, often there is minimal information on the nature or extent of the contamination.

After receiving a report, the first step is to confirm that the report does not relate to a pollution incident. The Protection of the Environment Operations Act 1997 (POEO Act) deals with pollution incidents, waste stockpiling or dumping. The EPA also has an incident management process to manage significant incidents (https://www.epa.nsw.gov.au/reporting-and-incidents/incident-management).

In many cases, the information indicates the contamination is securely immobilised within the site, such as under a building or carpark, and is not currently causing any significant risks for the community or environment. Such sites may still need to be cleaned up, but this can be done in conjunction with any subsequent building or redevelopment of the land. These sites do not require intervention under the CLM Act, and are dealt with through the planning and development consent process. In these cases, the EPA informs the local council or other planning authority, so that the information can be recorded and considered at the appropriate time (https://www.epa.nsw.gov.au/your-environment/contaminated-land/managing-contaminated-land/role-of-planning-authorities).

Where indications are that the contamination could cause actual harm to the environment or an unacceptable offsite impact (i.e. the land is 'significantly contaminated'), the EPA would apply the regulatory provisions of the CLM Act to have the responsible polluter and/or landowner investigate and remediate the site. If the reported contamination could present an immediate or long-term threat to human health NSW Health will be consulted. SafeWork NSW and Water NSW can also be consulted if there appear to be occupational health and safety risks or an impact on groundwater quality.

As such, the sites notified to the EPA and presented in the list of contaminated sites notified to the EPA are at various stages of the assessment and remediation process. Understanding the nature of the underlying contamination, its implications and implementing a remediation program where required, can take a considerable period of time. The list provides an indication, in relation to each nominated site, as to the management status of that particular site. Further detailed information may be available from the EPA or the person who notified the site.

The following questions and answers may assist those interested in this issue.

Frequently asked questions

Why does my land appear on the list of notified sites?

Your land may appear on the list because:

- the site owner and/or the polluter has notified the EPA under section 60 of the CLM Act
- the EPA has been notified via other means and is satisfied that the site is or was contaminated.

If a site is on the list, it does not necessarily mean the contamination is significant enough to regulate under the CLM Act.

Does the list contain all contaminated sites in NSW?

No. The list only contains contaminated sites that EPA is aware of. If a site is not on the list, it does not necessarily mean the site is not contaminated.

The EPA relies on responsible parties and the public to notify contaminated sites.

How are notified contaminated sites managed by the EPA?

There are different ways the EPA can manage notified contaminated sites. Options include:

• regulation under the CLM Act, POEO Act, or both
• notifying the relevant planning authority for management under the planning and development process
• managing the site under the Protection of the Environment Operation (Underground Petroleum Storage Systems) Regulation 2014.

There are specific cases where contamination is managed under a tailored program operated by another agency (for example, the Resources & Geoscience's Legacy Mines Program).

What should I do if I am a potential buyer of a site that appears on the list?

You should seek advice from the seller to understand the contamination issue. You may need to seek independent contamination or legal advice.

The information provided in the list is indicative only and a starting point for your own assessment. Land contamination from past site uses is common, mainly in urban environments. If the site is properly remediated or managed, it may not affect the intended future use of the site.

Who can I contact if I need more information about a site?

You can contact the Environment Line at any time by calling 131 555 or by emailing info@environment.nsw.gov.au.

List of NSW Contaminated Sites Notified to the EPA

Disclaimer

The EPA has taken all reasonable care to ensure that the information in the list of contaminated sites notified to the EPA (the list) is complete and correct. The EPA does not, however, warrant or represent that the list is free from errors or omissions or that it is exhaustive.

The EPA may, without notice, change any or all of the information in the list at any time.

You should obtain independent advice before you make any decision based on the information in the list.

The list is made available on the understanding that the EPA, its servants and agents, to the extent permitted by law, accept no responsibility for any damage, cost, loss or expense incurred by you as a result of:

1. any information in the list; or
2. any error, omission or misrepresentation in the list; or
3. any malfunction or failure to function of the list;
4. without limiting (2) or (3) above, any delay, failure or error in recording, displaying or updating information.

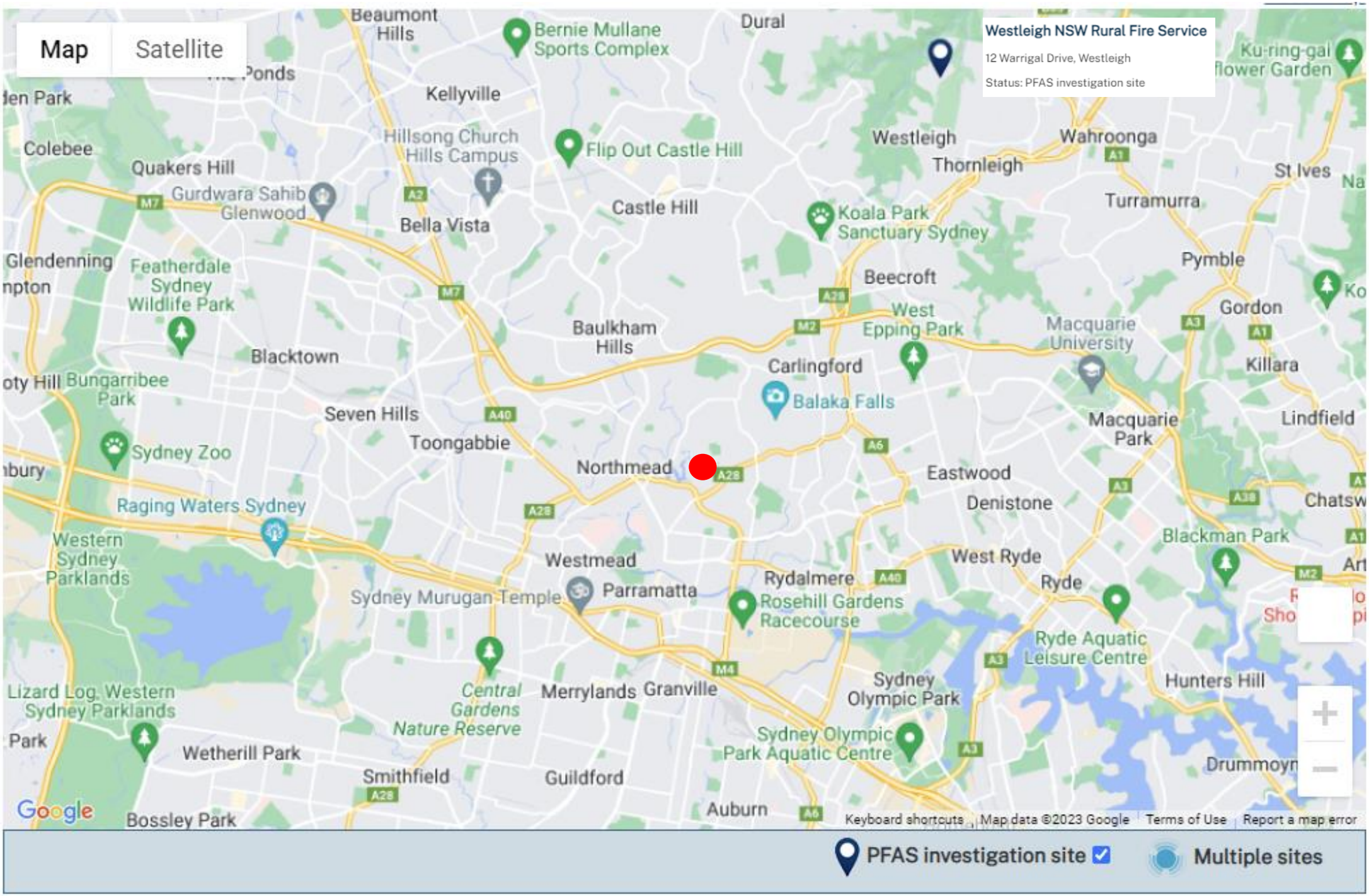
Site Status	Explanation
Under assessment	The contamination is being assessed by the EPA to determine whether regulation is required. The EPA may require further information to complete the assessment. For example, the completion of management actions regulated under the planning process or *Protection of the Environment Operations Act 1997*.
Under Preliminary Investigation Order	The EPA has issued a Preliminary Investigation Order under s10 of the *Contaminated Land Management Act 1997*, to obtain additional information needed to complete the assessment.
Regulation under CLM Act not required	The EPA has completed an assessment of the contamination and decided that regulation under the *Contaminated Land Management Act 1997* is not required.

Regulation being finalised	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the *Contaminated Land Management Act 1997*. A regulatory approach is being finalised.
Contamination currently regulated under CLM Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the Contaminated Land Management Act 1997 (CLM Act). Management of the contamination is regulated by the EPA under the CLM Act. Regulatory notices are available on the EPA's Contaminated Land Public Record.
Contamination currently regulated under POEO Act	Contamination is currently regulated under the Protection of the Environment Operations Act 1997 (POEO Act). The EPA as the appropriate regulatory authority reasonably suspects that a pollution incident is occurring/ has occurred and that it requires regulation under the POEO Act. The EPA may use environment protection notices, such as clean up notices, to require clean up action to be taken. Such regulatory notices are available on the POEO public register.
Contamination being managed via the planning process (EP&A Act)	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. The contamination of this site is managed by the consent authority under the *Environmental Planning and Assessment Act 1979* (EP&A Act) planning approval process, with EPA involvement as necessary to ensure significant contamination is adequately addressed. The consent authority is typically a local council or the Department of Planning and Environment.
Contamination formerly regulated under the CLM Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation under the *Contaminated Land Management Act 1997* (CLM Act). The contamination was addressed under the CLM Act.
Contamination formerly regulated under the POEO Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed under the *Protection of the Environment Operations Act 1997* (POEO Act).

Contamination was addressed via the planning process (EP&A Act)	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed by the appropriate consent authority via the planning process under the *Environmental Planning and Assessment Act 1979* (EP&A Act).
Ongoing maintenance required to manage residual contamination (CLM Act)	The EPA has determined that ongoing maintenance, under the Contaminated Land Management Act 1997 (CLM Act), is required to manage the residual contamination. Regulatory notices under the CLM Act are available on the EPA's Contaminated Land Public Record.

Suburb	SiteName	Address	ContaminationActivityType	ManagementClass	Latitude	Longitude
NEWPORT	7-Eleven (former Mobil) Service Station	307 Barrenjoey ROAD	Service Station	Regulation under CLM Act not required	-33.65632902	151.3182089
NEWPORT	Former Caltex Service Station Newport	316-324 Barrenjoey ROAD	Service Station	Regulation under CLM Act not required	-33.65634516	151.3191571
NEWTOWN	Caltex Service Station Newtown	26 - 36 Enmore ROAD	Service Station	Regulation under CLM Act not required	-33.89851331	151.17714
NEWTOWN	Former Service Station	81 Wilson STREET	Service Station	Contamination formerly regulated under the CLM Act	-33.89626791	151.1827556
NEWTOWN	Aluminium Enterprises	66 Brocks LANE	Metal Industry	Contamination was addressed via the planning process (EP&A Act)	-33.89467126	151.1847528
NEWTOWN	Adjacent to Former Service Station	79 Wilson STREET	Service Station	Contamination formerly regulated under the CLM Act	-33.89630155	151.1826567
NORAVILLE	Former Toukley Landfill	Wilfred Barrett DRIVE	Landfill	Regulation under CLM Act not required	-33.27734185	151.5537784
NORTH ALBURY	Caltex Service Station and Diesel Stop	79 Union ROAD	Service Station	Regulation under CLM Act not required	-36.05496713	146.9487635
NORTH BOAMBEE VALLEY	Caltex Service Station	Cnr Pacific Hwy & Halls ROAD	Service Station	Regulation under CLM Act not required	-30.30639482	153.1007996
NORTH BONDI	Caltex Service Station North Bondi	321 Old South Head ROAD	Service Station	Regulation under CLM Act not required	-33.88463526	151.268551
NORTH NARRABEEN	7-Eleven Service Station	1501-1503 Pittwater ROAD	Service Station	Regulation under CLM Act not required	-33.70749859	151.296351
NORTH RICHMOND	Caltex Service Station	50 Bells Line Of ROAD	Service Station	Regulation under CLM Act not required	-33.57991338	150.7202346
NORTH ROCKS	7-Eleven Service Station North Rocks	340 North Rocks ROAD	Service Station	Regulation under CLM Act not required	-33.76895144	151.0305952
NORTH ST MARYS	BP Service Station	76 Glossop STREET	Service Station	Regulation under CLM Act not required	-33.76020183	150.7818149
NORTH ST MARYS	Mt Druitt Transmission Substation	69 Kurrajong ROAD	Other Industry	Regulation being finalised	-33.76376093	150.7921691

Suburb	SiteName	Address	ContaminationActivityType	ManagementClass	Latitude	Longitude
NOWRA	Former gasworks	Lamonds LANE	Gasworks	Ongoing maintenance required to manage residual contamination (CLM Act)	-34.87111182	150.6000803
NOWRA	Former Hollingworth Scrap Yard	72-74 Jervis and 117 East STREET	Other Industry	Regulation under CLM Act not required	-34.88324216	150.6034361
NOWRA	Woolworths Service Station	60 North Street STREET	Service Station	Regulation under CLM Act not required	-34.87266278	150.6014052
NOWRA	Harry Sawkins Park	Bounded by Princes Hwy, Graham St & McGrath AVENUE	Gasworks	Regulation under CLM Act not required	-34.87093993	150.6037157
NOWRA EAST	Mobil Service Station	Lot 3 Kalandar STREET	Service Station	Contamination formerly regulated under the CLM Act	-34.88850535	150.6093504
NYNGAN	Caltex Service Station	39-41 Pangee STREET	Service Station	Regulation under CLM Act not required	-31.56101006	147.1914997
NYNGAN	Caltex Service Station	126 Pangee STREET	Service Station	Regulation under CLM Act not required	-31.56482841	147.2002892
NYNGAN	Main West Rail Line	Mitchell HIGHWAY	Other Industry	Regulation under CLM Act not required	-31.6411651	147.344176
OAK FLATS	Shellharbour City Works Depot	132 Industrial ROAD	Other Industry	Regulation under CLM Act not required	-34.56546013	150.8087225
OBERON	Caltex Service Station and Depot	Lowes Mount ROAD	Service Station	Regulation under CLM Act not required	-33.69509055	149.8570553
OBERON	Oberon Timber Complex	Lowes Mount ROAD	Other Industry	Regulation under CLM Act not required	-33.69264862	149.8564588
OBERON	Former Shell Depot	32 O'Connell ROAD	Other Petroleum	Regulation under CLM Act not required	-33.6997172	149.8450057
OBERON	CSR Ltd Property and King's Stockyard Creek	Off Endeavour STREET	Other Industry	Contamination formerly regulated under the CLM Act	-33.6922152	149.8686909
OCEAN SHORES	Former Ocean Shores Service Station	Pacific HIGHWAY	Service Station	Regulation under CLM Act not required	-28.51270299	153.5301496
OLD GUILDFORD	Caltex Service Station	636-644 Woodville ROAD	Service Station	Regulation under CLM Act not required	-33.86670857	150.9879189


Map
Satellite
Westleigh NSW Rural Fire Service
12 Warrigal Drive, Westleigh
Status: PFAS investigation site
Beaumont Hills
Bernie Mullane Sports Complex
Dural
Kellyville
Hillsong Church Hills Campus
Flip Out Castle Hill
Westleigh
Wahroonga
Thornleigh
Colebee
Quakers Hill
Gurdwara Sahib Glenwood
Bella Vista
Castle Hill
Koala Park Sanctuary Sydney
Turramurra
St Ives
Glendenning
Featherdale Sydney Wildlife Park
Beecroft
Pymble
Gordon
Baulkham Hills
West Epping Park
Macquarie University
Killara
Blacktown
Carlingford
Balaka Falls
Bungarribee Park
Seven Hills
Toongabbie
Macquarie Park
Lindfield
Sydney Zoo
Northmead
Eastwood
Raging Waters Sydney
Denistone
Western Sydney Parklands
Blackman Park
Westmead
Rydalmere
West Ryde
Parramatta
Ryde
Sydney Murugan Temple
Rosehill Gardens Racecourse
Ryde Aquatic Leisure Centre
Central Gardens Nature Reserve
Merrylands
Granville
Sydney Olympic Park
Hunters Hill
Lizard Log, Western Sydney Parklands
Wetherill Park
Sydney Olympic Park Aquatic Centre
Smithfield
Guildford
Auburn
Bossley Park
Google
Keyboard shortcuts
Map data ©2023 Google
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Report a map error
PFAS investigation site
Multiple sites

Appendix E 10.7 (2)(5) Council Planning Certificates

PLANNING CERTIFICATE

CERTIFICATE UNDER SECTION 10.7

Environmental Planning and Assessment Act, 1979 as amended

Certificate No: 2023/327

Fee: $156.00

Issue Date: 20 January 2023

Receipt No: 7009704

Applicant Ref: 64512:188616

DESCRIPTION OF LAND

Address: The Kings School
87-129 Pennant Hills Road
NORTH PARRAMATTA NSW 2151

Lot Details: Lot 1 DP 59169 Lot A DP 329288 Lot B DP 329288 Lot A DP 321595 Lot 2 DP 235857 Lot 1 DP 64765 Lot 1 DP 57491 Lot 1 DP 581960 Lot 10 DP 812772

SECTION A

The following Environmental Planning Instrument to which this certificate relates applies to the land:

Parramatta (former The Hills) Local Environmental Plan 2012

For the purpose of **Section 10.7(2)** it is advised that as the date of this certificate the abovementioned land is affected by the matters referred to as follows:

The land is zoned: SP2 Infrastructure PTHLEP2012

Zone SP2 - Infrastructure (Parramatta (former The Hills) Local Environmental Plan 2012)

Issued pursuant to Section 10.7 of the Environmental Planning and Assessment Act, 1979. NOTE: This table is an excerpt from the Parramatta (former The Hills) Local Environmental Plan 2012 and must be read in conjunction with and subject to the other provisions of that instrument, and in force at that date.

Zone SP2 Infrastructure

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

2 Permitted without consent
Roads

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

4 Prohibited
Any development not specified in item 2 or 3.

The land is zoned: R2 Low Density Residential PTHLEP2012

Zone R2 - Low Density Residential (Parramatta (former The Hills) Local Environmental Plan 2012)

Issued pursuant to Section 10.7 of the Environmental Planning and Assessment Act, 1979. NOTE: This table is an excerpt from the Parramatta (former The Hills) Local Environmental Plan 2012 and must be read in conjunction with and subject to the other provisions of that instrument, and in force at that date.

Zone R2 Low Density Residential

1 Objectives of zone
• To provide for the housing needs of the community within a low density residential environment.
• To enable other land uses that provide facilities or services to meet the day to day needs of residents.
• To maintain the existing low density residential character of the area.

2 Permitted without consent
Home business; Home occupations

3 Permitted with consent
Bed and breakfast accommodation; Building identification signs; Business identification signs; Centre-based child care facilities; Dual occupancies; Dwelling houses; Group homes; Health consulting rooms; Home-based child care; Oyster aquaculture; Pond-based aquaculture; Respite day care centres; Roads; Tank-based aquaculture; Any other development not specified in item 2 or 4

4 Prohibited
Agriculture; Air transport facilities; Airstrips; Amusement centres; Animal boarding or training establishments; Boat building and repair facilities; Boat launching ramps; Boat sheds; Camping grounds; Car parks; Caravan parks; Cemeteries; Charter and tourism boating facilities; Commercial premises; Correctional centres; Crematoria; Depots; Eco-tourist facilities; Electricity generating works; Entertainment facilities; Environmental facilities; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Function centres; Health services facilities; Heavy industrial storage establishments; Helipads; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Information and education facilities; Jetties; Local distribution premises; Marinas; Mooring pens; Moorings; Mortuaries; Open cut mining; Passenger transport facilities; Port facilities; Public administration buildings; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Research stations; Residential accommodation; Restricted premises; Rural industries; Service stations; Sewerage systems; Sex services premises; Signage; Storage premises; Tourist and visitor accommodation; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Veterinary hospitals; Warehouse or distribution centres; Waste or resource management facilities; Water recreation structures; Water supply systems; Wharf or boating facilities; Wholesale supplies

SECTION B
State Policies and Regional Environmental Plans
The land is also affected by the following State Environmental Planning Policies (SEPP) and Regional Environmental Plans (SREP):

State Environmental Planning Policy (SEPP) (Biodiversity and Conservation) 2021
State Environmental Planning Policy (SEPP) (Planning Systems) 2021
State Environmental Planning Policy (SEPP) (Resilience and Hazards) 2021
State Environmental Planning Policy (SEPP) (Transport and Infrastructure) 2021
State Environmental Planning Policy (SEPP) (Precincts—Central River City) 2021
State Environmental Planning Policy (SEPP) (Housing) 2021
State Environmental Planning Policy (SEPP) (Resources and Energy) 2021
State Environmental Planning Policy (SEPP) (Primary Production) 2021
State Environmental Planning Policy (SEPP) No.65 – Design Quality of Residential Flat Development.
State Environmental Planning Policy (SEPP) (Building Sustainability Index: BASIX) 2004
State Environmental Planning Policy (SEPP) (Exempt and Complying Development Codes) 2008

DRAFT State Environmental Planning Policy to amend State Environmental Planning Policy (SEPP) (Sydney Region Growth Centres) 2006 – Amendment to include the Greater Parramatta Priority Growth Area as a Growth Centre
DRAFT State Environmental Planning Policy (Draft SEPP) – Environment

N.B. All enquiries as to the application of Draft State Environmental Planning Policies should be directed to The NSW Department of Planning, Industry and Environment.

Employment zones reform - *translation of existing Business and Industrial zones into the new Employment zones*
On 26 April 2023, Business and Industrial zones will be replaced by Employment zones within standard instrument local environmental plans. The Department of Planning and Environment exhibited in May 2022 details of how each Local Environmental Plan that includes a Business or Industrial zone will be amended to include Employment zones. The exhibition detail can be viewed on the Planning Portal.

Please see *https://www.planningportal.nsw.gov.au/employment-zones* for more information.

Draft Local Environmental Plan
The land is affected by a Draft Local Environmental Plan which has been placed on Public Exhibition and has not yet been published. The Draft Local Environmental Plan is described below.

Planning Proposal – Draft Parramatta Local Environmental Plan 2020 (Harmonisation LEP)
This land is affected by a planning proposal seeking to create a single consolidated Local Environmental Plan (LEP) that will apply to the whole City of Parramatta Local Government Area (LGA). The new LEP will replace five (5) existing LEPs where they apply to land within the Parramatta LGA. These include:

- *Auburn Local Environmental Plan 2010*
- *Holroyd Local Environmental Plan 2013*
- *Hornsby Local Environmental Plan 2013*
- *Parramatta Local Environmental Plan 2011*
- *Parramatta (former The Hills) Local Environmental Plan 2012*

The new Parramatta LEP will create a common set of objectives, land use tables and provisions for all land within the LGA. This will result in some changes to the current planning controls applying to certain areas, including:

- Changes to land uses permitted in certain areas, because of the creation of a common set of land use tables.
- Prohibiting dual occupancy developments in certain locations.
- A minimum lot size of 600sqm and frontage to a public road of 15 metres development standards for Dual Occupancies or Manor Houses where they are permitted.
- Changes to height and FSR controls applying to residential zones – these include:
    - applying a FSR of 0.5:1 to R2 Low Density Residential zoned land and a FSR of 0.6:1 to R3 Medium Density Residential zoned land in the Parramatta (former The Hills) LEP 2012 and Hornsby Council LEP 2013 (where none currently applies);

  - reducing the FSR from 0.75:1 to 0.6:1 applying to R3 Medium Density Residential zoned land in Silverwater;
  - increasing the height limit from 8.5 metres to 9 metres applying to R2 Low Density Residential zoned land in the Hornsby Council LEP 2013;
  - applying a 11 metre height limit to R3 Medium Density Residential zoned land in the Parramatta (former The Hills) LEP 2012, Hornsby LEP 2013 and Auburn LEP 2010;
  - applying a FSR control to R4 High Density Residential zoned land in the former Parramatta (former The Hills) LEP 2012, Hornsby LEP 2013 and Auburn LEP 2010 (where none is currently applied); and,
  - a limited number of targeted site-specific changes associated with changes of zoning or to address anomalies.

- Applying a 550sqm minimum subdivision lot size to residential land (except R2 Low Density Residential zoned land in the Parramatta (former The Hills) LEP 2012, which will retain the existing 700sqm requirement).
- Mapping of additional Biodiversity Land and Riparian Land and Waterways.
- A limited number of changes to the zoning of some sites to address inconsistencies and anomalies across current land use plans, this includes:
  - Removing the R1 General Residential zone, and rezoning this land to R4 High Density Residential or R3 Medium Density Residential;
  - Rezoning all public bushland reserves to E2 Environmental Conservation;
  - Rezoning some R3 Medium Density Residential zoned land in Northmead, North Rocks and Carlingford to R2 Low Density Residential; and,
  - Rezoning existing lawful places of public worship in the former Parramatta Council area from SP1 Special Activities to R2 Low Density Residential.

Further information on the Planning Proposal for the new Parramatta Local Environmental Plan (LEP) can be found at:
www.cityofparramatta.nsw.gov.au/planningharmonisation or by contacting Council.

Please note: Council is separately progressing a number of planning proposals relating to specific sites in the LGA. The intention is that, should these site-specific planning proposals be finalised before the new consolidated LEP is made, the respective amendments to planning controls will be carried over into the new LEP and the Harmonisation Planning Proposal will be updated as needed.

Proposed Zoning Draft Parramatta LEP 2020
The land is proposed to be zoned in the in the Draft Parramatta LEP 2020:

SP2 Infrastructure PLEP2020

Proposed Zone SP2 Infrastructure (Draft Parramatta LEP 2020)

Note: *The following land use table is an excerpt from the Draft Parramatta Local Environmental Plan 2020 (Harmonisation LEP) document exhibited on 31 August 2020 and must be read in conjunction with and subject to other provisions of that draft instrument.*

Zone SP2 Infrastructure

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

2 Permitted without consent
Nil

3 Permitted with consent
The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose; Aquaculture; Building identification signs; business identification signs; Environmental protection works; Flood mitigation works; Recreation areas; Roads

4 Prohibited
Any development not specified in item 2 or 3

Proposed Zoning Draft Parramatta LEP 2020
The land is proposed to be zoned in the in the Draft Parramatta LEP 2020:

R2 Zone Low Density Residential PLEP2020

Proposed Zone R2 Low Density Residential (Draft Parramatta LEP 2020)

Note: *The following land use table is an excerpt from the Draft Parramatta Local Environmental Plan 2020 (Harmonisation LEP) document exhibited on 31 August 2020 and must be read in conjunction with and subject to other provisions of that draft instrument.*

Zone R2 Low Density Residential

1 Objectives of zone
- To provide for the housing needs of the community within a low density residential environment.

- To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- To maintain the existing low density residential character of the area.
- To protect and enhance tree canopy, existing vegetation and other natural features.
- To ensure that non-residential land uses are located in a context and setting that minimises impacts on the amenity of a low density residential environment.
- To allow for a range of community facilities to be provided to serve the needs of residents, workers and visitors in residential neighbourhoods.

2 Permitted without consent
Home occupations

3 Permitted with consent
Bed and breakfast accommodation; Building identification signs; Business identification signs; Centre-based child care facilities; Community facilities; Dual occupancies; Dwelling houses; Educational establishments; Emergency services facilities; Environmental facilities; Environmental protection works; Exhibition homes; Exhibition villages; Flood mitigation works; Group homes; Health consulting rooms; Home-based child care; Home businesses; Home industries; Hospitals; Hostels; Neighbourhood shops; Oyster aquaculture; Pond-based aquaculture; Public administration buildings; Recreation areas; Recreation facilities (indoor); Recreation facilities (outdoor); Respite day care centres; Roads; Seniors housing; Tank-based aquaculture; Water recycling facilities

4 Prohibited
Any development not specified in item 2 or 3

Dual Occupancy Prohibition Map – Draft Parramatta LEP 2020
The land is located on land shown coloured purple and edged heavy black on the proposed Dual Occupancy Prohibition Map of the Draft Parramatta LEP 2020.

It is proposed that despite any other provision of the Draft Parramatta LEP 2020, development consent must not be granted to development for the purpose of a dual occupancy on land shown coloured purple and edged heavy black on the Dual Occupancy Prohibition Map of the Draft Parramatta LEP 2020.

It is also proposed under Clause 4.1(7) of the Draft Parramatta LEP 2020, that development consent must not be granted for the subdivision of a lot on which a dual occupancy is erected if:

(a) the lot is located on land shown coloured purple and edged heavy black on the Dual Occupancy Prohibition Map, and
(b) development consent for the dual occupancy was issued after the 31 August 2020.

Proposed Heritage Item Draft Parramatta LEP 2020
The land or part of the land is proposed to be identified as a Heritage Item in the Draft Parramatta LEP 2020.

Proposed inclusion on the Land Reservation Acquisition Map Draft Parramatta LEP 2020
The land or part of the land is proposed to be identified to be acquired for a public purpose on the Land Reservation Acquisition Map in the Draft Parramatta LEP 2020.

Proposed Riparian Land and Waterways Draft Parramatta LEP 2020
The land or part of the land is identified as "Riparian Land and Waterways" on the Natural Resources – Riparian Land and Waterways map of the Draft Parramatta LEP 2020.

Proposed Biodiversity Protection Draft Parramatta LEP 2020
The land or part of the land is identified as "Biodiversity" on the proposed Natural Resources Biodiversity map of the Draft Parramatta LEP 2020.

Development Control Plan
The land is affected by The Hills Development Control Plan 2012

Draft Late Night Trading Development Control Plan

Development Contribution Plan
The City of Parramatta (Outside CBD) Development Contributions Plan 2021 applies to the land.

Heritage Item/Heritage Conservation Area
The land is identified as containing a Heritage Item in the Parramatta (former The Hills) Local Environmental Plan 2012.

The land is identified as a Heritage Item with a significance of Local.

The land is affected by a planning proposal that seeks to identify the land as containing a Heritage Item in an environmental planning instrument. Refer to the Draft Local Environmental Plan section of this certificate for more details.

The land is not located in a heritage conservation area.

Road Widening
The land IS AFFECTED by road widening or road realignment under:

(1) Roads Act, 1993.
(2) Any Environmental Planning Instrument.
(3) A Resolution of Council. - The Hills Development Control Plan 2012 identifies the land as being affected by a proposed road or road widening.

Land Reservation Acquisition
The land is identified as being reserved for Classified Road (SP2) purposes on the Land Reservation Acquisition map in the Parramatta (former The Hills) Local Environmental Plan 2012.

The land is subject to a planning proposal that makes provision in relation to the acquisition of the land by a public authority. Refer to the Draft Local Environmental Plan section of this certificate for more details.

Site Compatibility Certificate (Affordable Rental Housing)
At the date of issue of this certificate Council is not aware of any
a. Site compatibility certificate (affordable rental housing),
in respect to the land.

Contamination
Matters contained in Clause 59(2) as amended in the Contaminated Land Management Act 1997 – as listed:

Clause 59(2)(a) - is the land to which the certificate relates is significantly contaminated land?
NO

Clause 59(2)(b) - is the land to which the certificate relates is subject to a management order?
NO

Clause 59(2)(c) - is the land to which the certificate relates is the subject of an approved voluntary management proposal?
NO

Clause 59(2)(d) - is the land to which the certificate relates is subject to an ongoing maintenance order?
NO

Clause 59(2)(e) - is the land to which the certificate relates is the subject of a site audit statement?
NO

Tree Preservation
The land is subject to Part C Section 3 Landscaping of The Hills Development Control Plan 2012.

Council has not been notified of an order under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land.

Coastal Protection
Has the owner (or any previous owner) of the land been consented in writing to the land being subject to annual charges under section 496B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act)?
NO

Council Policy
Council has not adopted a policy to restrict the development of the land by reason of the likelihood of projected sea level rise (coastal protection), tidal inundation, subsidence or any other risk.

Council has adopted a policy covering the entire City of Parramatta to restrict development of any land by reason of the likelihood of flooding.

Council has adopted by resolution a policy on contaminated land that applies to all land within the City of Parramatta. The Policy will restrict the development of the land if the circumstances set out in the policy prevail. A copy of the policy is available on Councils website at www.cityofparramatta.nsw.gov.au or from the Customer Service Centre

NSW Rural Fire Service Guidelines entitled 'Planning for Bushfire Protection 2019' applies to land covered by the Parramatta (former The Hills) Local Environmental Plan 2012. Development subject to bushfire risk will be required to address the requirements in these guidelines and can be downloaded off the RFS web site www.rfs.nsw.gov.au

The Hills Development Control Plan 2012 may also contain provisions for development on Bushfire Prone Land and Bushfire Hazard Management.

Please note: this is a statement of Council policy and not a statement on whether or not the property is affected by bushfire. That question is answered in the Bushfire Land section of this certificate.

Mine Subsidence
The land is not affected by the Coal Mine Subsidence Compensation Act 2017 proclaiming land to be a Mine Subsidence District.

Bushfire Land
This land is identified as partly or wholly bushfire prone land on Council's certified bushfire prone lands map.

Planning for Bushfire Protection 2019 requires all development applications on bushfire prone land to include a Bush Fire Assessment Report as explained in Section 4.14 of the Environmental Planning and Assessment Act.

Threatened Species
NSW Office of Environment and Heritage mapping indicates this site may contain 'native vegetation' or is included on the 'Biodiversity Values Map' which are subject to Part 7 of the Biodiversity Conservation Act 2016.

Biodiversity certified land
The land is not biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016.

Note. *Biodiversity certified land includes land certified under Part 7AA of the Threatened Species Conservation Act 1995 that is taken to be certified under Part 8 of the Biodiversity Conservation Act 2016.*

Biodiversity stewardship sites
The Chief Executive of the Office of Environment and Heritage has not notified the Council if the land is a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the Biodiversity Conservation Act 2016.

Note: Biodiversity stewardship agreements include biobanking agreements under Part 7A of the Threatened Species Conservation Act 1995 that are taken to be biodiversity stewardship agreements under Part 5 of the Biodiversity Conservation Act 2016.

Property vegetation plans
Council has not been notified of the existence of the property vegetation plan approved under Part 4 of the Native Vegetation Act 2003 on the land.

Paper Subdivision information
The land is not subject to any development plan adopted by a relevant authority or that is proposed to be subject to a consent ballot. A subdivision order does not apply to the land.

Note: Words and expressions used in this section have the same meaning as in the Environmental Planning and Assessment Regulation 2021, Part 10 and the Environmental Planning and Assessment Act 1979, Schedule 7.

Western Sydney Aerotropolis
Under State Environmental Planning Policy (Precincts—Western Parkland City) 2021, Chapter 4 the land:

(a) is not in an ANEF or ANEC contour of 20 or greater, as referred to in that Chapter, section 4.17,
(b) is not shown on the Lighting Intensity and Wind Shear Map,
(c) is not shown on the Obstacle Limitation Surface Map,
(d) is not in the "public safety area" on the Public Safety Area Map,
(e) is not in the "3 kilometre wildlife buffer zone" or the "13 kilometre wildlife buffer zone" on the Wildlife Buffer Zone Map.

Loose-Fill Asbestos Register
Council has not been notified by NSW Fair Trading of the property being listed on the loose-fill asbestos insulation register maintained by the Secretary of NSW Fair Trading.

Affected Building Notices and Building Product Rectification Orders
Council is not aware of whether there is any affected building notice, building product rectification order or notice of intention to make a building product rectification order that is in force in respect of the land.

Note: ***affected building notice*** has the same meaning as in the *Building Products (Safety) Act 2017.* ***building product rectification order*** has the same meaning as in the *Building Products (Safety) Act 2017.*

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

Exempt Development Codes

Clause 1.12 State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
The land **is not** land where the exempt development codes are varied under Clause 1.12 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

Clauses 1.16(1)(b1)–(d) or Clause 1.16A of State Environmental Planning Policy (Exempt and Complying Development Codes)
The following information only addresses whether or not the land is land on which exempt development may be carried out under each of the codes for exempt development because of the provisions of **Clauses 1.16(1)(b1)–(d) or Clause 1.16A** of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. It is not a statement that exempt development is permissible on the land.

Other land exemptions within State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 may also apply. Furthermore, other provisions within the relevant Local Environmental Plan or a State Environmental Planning Policy which restrict exempt development on the land may also apply.

It is your responsibility to ensure that you comply with the relevant exempt development provisions for the land.

Exempt Development pursuant to the exempt development codes **may** be carried out on the land under **Clauses 1.16(1)(b1)–(d) or Clause 1.16A** of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

Complying Development Codes

Note: This does not constitute a Complying Development Certificate under section 4.27 of the Environmental Planning and Assessment Act 1979

Clause 1.12 State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
The land is not land where the complying development codes are varied under Clause 1.12 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

Clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1)(c3) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
The following information only addresses whether or not the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of **Clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1)(c3) and 1.19** of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. It is not a statement that complying development is permissible on the land.

Other land exemptions within State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 may also apply. Furthermore, other provisions within the relevant Local Environmental Plan or a State Environmental Planning Policy which restrict complying development on the land may also apply.

It is your responsibility to ensure that you comply with the relevant complying development provisions for the land. Failure to comply with these provisions may mean that a Complying Development Certificate is invalid.

Housing Code; Low Rise Housing Diversity Code; Rural Housing Code
Complying Development pursuant to the Housing Code, Low Rise Housing Diversity Code and Rural Housing Code **may not** be carried out on the land or part of the land. The land is affected by specific land exemptions under **Clause 1.17A or Clause 1.18 (1) (c3) or Clause 1.19** of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. The land exemptions are:

- All of the land comprises, or contains an item of environmental heritage (that is listed on the State Heritage Register **or** that is subject to an interim heritage order under the Heritage Act 1977 **or** is identified as an item of environmental heritage in an environmental planning instrument),
  (Land Exemption Clause 1.17A of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008)

- Part of the land is reserved for a public purpose in an environmental planning instrument,
  (Land Exemption Clause 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008)

- All of the land comprises, or on which there is, a draft heritage item
  (Land Exemption Clause 1.18(1)(c3) of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008)

- Part of the land is identified by an environmental planning Instrument as being within a riverfront area.
  (Land Exemption Clause 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008)

- Part of the land is identified by an environmental planning Instrument as being within environmentally sensitive land.
  (Land Exemption Clause 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008)

Commercial and Industrial (New Buildings and Additions) Code

Complying Development pursuant to Commercial and Industrial (New Buildings and Additions) Code **may not** be carried out on the land or part of the land. The land is affected by specific land exemptions under **Clause 1.17A or Clause 1.18 (1) (c3) or Clause 1.19** of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. The land exemptions are:

- All of the land comprises, or contains an item of environmental heritage (that is listed on the State Heritage Register **or** that is subject to an interim heritage order under the Heritage Act 1977 **or** is identified as an item of environmental heritage in an environmental planning instrument),
  (Land Exemption Clause 1.17A of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008)

- Part of the land is reserved for a public purpose in an environmental planning instrument,
  (Land Exemption Clause 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008)

- All of the land comprises, or on which there is, a draft heritage item
  (Land Exemption Clause 1.18(1)(c3) of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008)

- Part of the land is identified by an environmental planning Instrument as being within a riverfront area.
  (Land Exemption Clause 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008)

- Part of the land is identified by an environmental planning Instrument as being within environmentally sensitive land.
  (Land Exemption Clause 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008)

Housing Alterations Code; General Development Code; General Commercial and Industrial (Alterations) Code; Container Recycling Facilities Code; Subdivision Code; Demolition Code; Fire Safety Code

Complying Development pursuant to the Housing Alterations Code, General Development Code, General Commercial and Industrial (Alterations) Code, Container Recycling Facilities Code, Subdivision Code, Demolition Code and Fire Safety Code **may not** be carried out on the land or part of the land. The land is affected by specific land exemptions under **Clause 1.17A or Clause 1.18 (1) (c3) or Clause 1.19** of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. The land exemptions are:

- All of the land comprises, or contains an item of environmental heritage (that is listed on the State Heritage Register **or** that is subject to an interim heritage order under the Heritage Act 1977 **or** is identified as an item of environmental heritage in an environmental planning instrument),
  (Land Exemption Clause 1.17A of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008)

- All of the land comprises, or on which there is, a draft heritage item
  (Land Exemption Clause 1.18(1)(c3) of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008)

Flood related development controls - 9(1) - *flood planning area*

The land or part of the land is within the flood planning area and subject to flood related development controls.

*'**Flood planning area**' has the same meaning as in the Floodplain Development Manual (ISBN 0 7347 5476 0) published by the NSW Government in April 2005, available at https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Water/Floodplains/floodplain-development-manual.pdf.*

SPECIAL NOTES

Applicants for Sections 10.7 Certificates are advised that Council does not hold sufficient information to fully detail the effect of any encumbrances on the title of the subject land. The information available to Council is provided on the basis that neither Council nor its servants hold out advice or warrant to you in any way its accuracy, nor shall Council or its servants, be liable for any negligence in the preparation of that information. Further information should be sought from relevant Statutory Departments.

SECTION C

The following additional information is issued under Section 10.7(5)

Pursuant to S10.7(5) the Council supplies information as set out below on the basis that the Council takes no responsibility for the accuracy of the information. The information if material should be independently checked by the applicant.

Flood Information

The land to which this certificate relates is within an area that is subject to a draft flood study report that was originally commissioned by The Hills Shire Council, entitled 'Urban Overland Flow Study', dated July 2015 (**File Reference**: The Hills Urban Overland Flow Study (Rev 3) Vol 1 - Report.docx) ("**Draft Flood Study**") This Draft Flood Study is currently in the process of being reviewed and finalised by The Hills Shire Council and its consultant, Catchment Simulation Solutions.

City of Parramatta Council does not guarantee the accuracy of, or warrant the content of, that Draft Flood Study. The Draft Flood Study indicates that the land to which this certificate relates may be affected by a 100 year Average Recurrence Interval flood.

Additional advice should be also sought from an appropriately qualified person as to the extents and potential hazards associated with the likely flooding of the land to which this certificate relates. The names of qualified persons that may provide such advice may be obtained from the Institution of Engineers Australia.

Note: Information contained within the Draft Flood Study may be subject to change as subsequent versions of this document are prepared and finalised by The Hills Shire Council and its consultant, Catchment Simulation Solutions.

Note: Advisory Information regarding Combustible Cladding

External combustible cladding on multi-storey buildings has been identified in local government areas including the City of Parramatta. Combustible cladding is a material that is capable of readily burning.

You should make your own enquiries as to the type of materials that have been used to construct the building. It is recommended that the purchaser obtain a building report from an appropriately qualified person to determine if any cladding type material may pose a risk to the building's occupants. Council may issue orders to rectify a building where combustible cladding is found.

Properties that have combustible cladding on buildings are listed in the NSW Government Combustible Cladding Register. Please refer to https://www.claddingregistration.nsw.gov.au/ or call 1300 305 695 for further information regarding the NSW Government Combustible Cladding Register.

There is potential for combustible cladding to be present on buildings that are not listed on the Register.

Note: Advisory Information regarding Loose-Fill asbestos Insulation
Research undertaken by the Loose-Fill Asbestos Insulation Taskforce has determined that there is a potential for loose-fill asbestos insulation to be found in residential dwellings constructed prior to 1980 in 28 local government areas including the City of Parramatta.

Some residential homes located in the City of Parramatta may contain loose-fill asbestos insulation, for example in the roof space. NSW Fair Trading maintains a Register of homes that are affected by loose-fill asbestos insulation.

You should make your own enquiries as to the age of the buildings on the land to which this certificate relates and, if it contains a building constructed prior to 1980, the council strongly recommends that any potential purchaser obtain advice from a licensed asbestos assessor to determine whether loose fill asbestos is present in any building on the land and, if so, the health risks (if any) this may pose for the building's occupants.

Please Contact NSW Fair Trading for further information.

This information has been provided pursuant to section 10.7(5) of the Environmental Planning and Assessment Act, 1979 as amended.

Bryan Hynes
Acting Chief Executive Officer

per



dated 20 January 2023

Appendix F Heritage Records

Search Results

No results found.

Enter at least one search criterion.

Search Hints

Search | Reset form

Place name: The King's School

Street name: 87-129 Pennant Hills Road

Town or suburb: North Parramatta

State: New South Wales

Country: Australia

Advanced search options

List: All Lists

Different lists will provide different status and class options

Local Government Area: The Kings School

Place ID number:

Legal status: --All--

Class: --All--

Keyword Search:

☑ Description ☑ Statement of Significance ☑ Place history

Latitude/Longitude

N

Latitude 1

Longitude 1 S Longitude 2

W E Latitude 2 E E

S

○ Wholly within region

◉ Wholly or partially within region

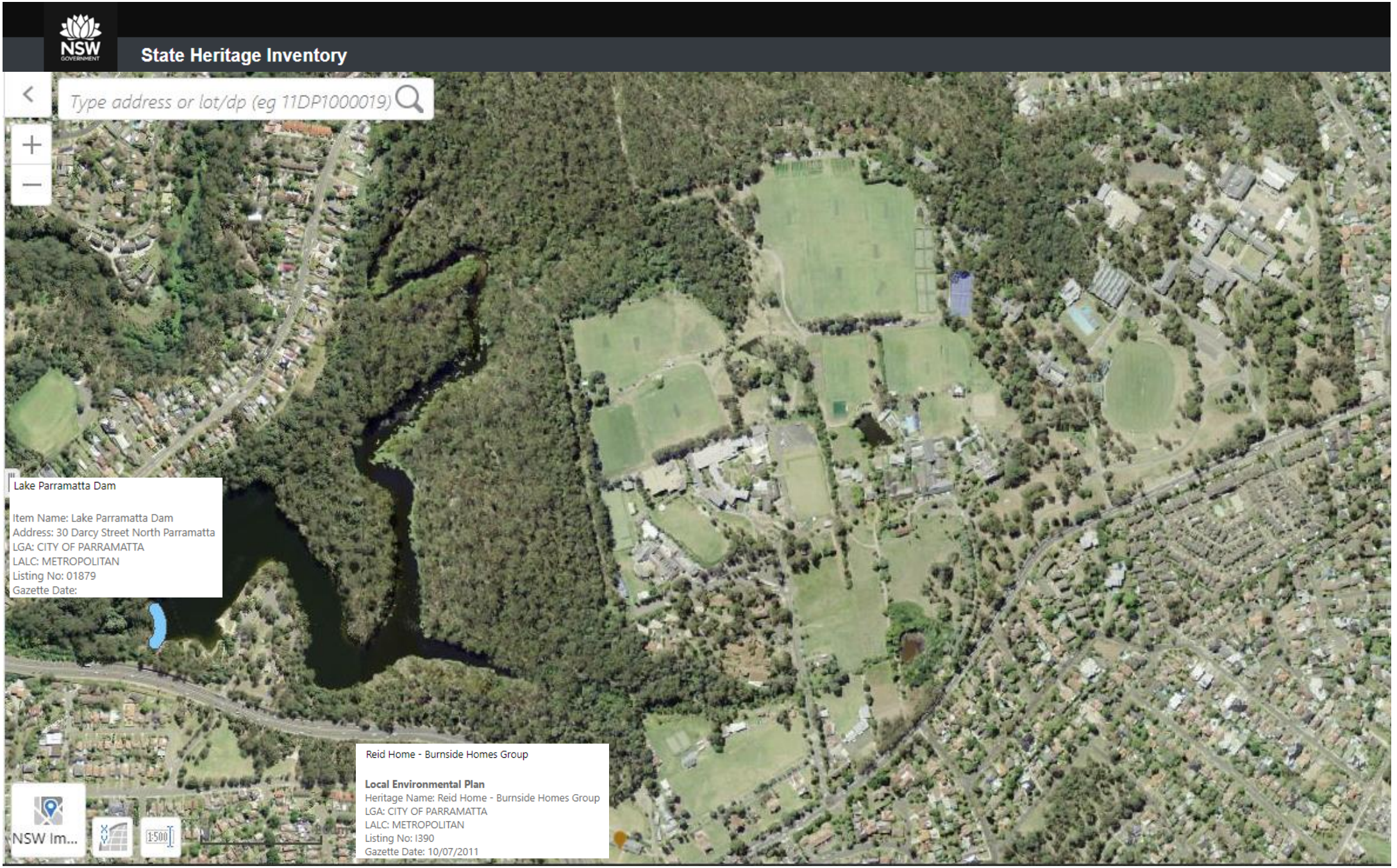
Longitude coordinates should be entered as ddd.mm.ss
Latitude coordinates should be entered as dd.mm.ss

Map Ref No:

1:100,000 eg 2357
1:250,000 eg SF-50-01

Search Hints

- Not all fields need to be filled in. The fewer you fill in the more results you will get.
- If you cannot find a place, check spelling and try alternative names. Reduce the number of words that you include and use fewer fields.


State Heritage Inventory
Type address or lot/dp (eg 11DP1000019)
Lake Parramatta Dam
Item Name: Lake Parramatta Dam
Address: 30 Darcy Street North Parramatta
LGA: CITY OF PARRAMATTA
LALC: METROPOLITAN
Listing No: 01879
Gazette Date:
Reid Home - Burnside Homes Group
Local Environmental Plan
Heritage Name: Reid Home - Burnside Homes Group
LGA: CITY OF PARRAMATTA
LALC: METROPOLITAN
Listing No: I390
Gazette Date: 10/07/2011
NSW Im...
1:500

Appendix G Borehole Logs

SOIL BOREHOLE BH01

PROJECT NUMBER 64152
PROJECT NAME The King's School
CLIENT TSA Management
ADDRESS 87-129 Pennant Hills Rd, North Parramatta, NSW

DRILLING COMPANY JK Drilling
DRILLING DATE 24-Jan-23
DRILL RIG GeoProbe
DRILLING METHOD Solid Flight Auger
DIAMETER

EASTING N/A
NORTHING N/A
COORD SYS GDA94_MGA_zone_56
COORD SOURCE
LOGGED BY Andrew Cheok

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
SFA		0.1		Fill	Fill - CLAY, dark brown, heterogeneous, damp, medium plasticity, firm, inclusions of roots, rootlets	DP	BH01_0.00-0.10	2.2	No Odour, Staining or Asbestos Containing Material Observed.
		0.2					BH01_0.20-0.30	1.7	No Odour, Staining or Asbestos Containing Material Observed.
		0.3							
		0.4		Fill	Fill - CLAY, dark brown, heterogeneous, damp, medium plasticity, firm, inclusions of brown/orange clay clumps	DP	BH01_0.40-0.50	3	No Odour, Staining or Asbestos Containing Material Observed.
		0.5							
		0.6							
		0.7		CH	Natural - CLAY, brown/orange, homogeneous, damp, high plasticity, firm	DP	BH01_0.70-0.80	1.1	No Odour, Staining or Asbestos Containing Material Observed.
		0.8			Termination Depth at: 0.80 m - Refusal				
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							
		1.5							
		1.6							
		1.7							
		1.8							
		1.9							

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produced by ESlog.ESdat.net on 07 Mar 2023

SOIL BOREHOLE BH02

PROJECT NUMBER 64152
PROJECT NAME The King's School
CLIENT TSA Management
ADDRESS 87-129 Pennant Hills Rd, North Parramatta, NSW

DRILLING COMPANY JK Drilling
DRILLING DATE 24-Jan-23
DRILL RIG GeoProbe
DRILLING METHOD Solid Flight Auger
DIAMETER

EASTING N/A
NORTHING N/A
COORD SYS GDA94_MGA_zone_56
COORD SOURCE
LOGGED BY Andrew Cheok

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
SFA		0.1		Fill	Fill - SAND, brown, heterogeneous, moist, poorly graded, medium sand, loose, inclusions of roots, rootlets, trace gravels	M	BH02_0.00-0.10	0.4	No Odour, Staining or Asbestos Containing Material Observed.
		0.2		Fill	Fill - Sandy CLAY, dark brown, heterogeneous, damp, medium plasticity, firm, medium sand, loose, inclusions of rootlets, trace gravels	DP	BH02_0.20-0.30	0.6	No Odour, Staining or Asbestos Containing Material Observed.
		0.3							
		0.4		Fill	Fill - Gravelly CLAY, dark brown, heterogeneous, damp, medium plasticity, firm, sub-angular gravels	DP	BH02_0.40-0.50	0.5	No Odour, Staining or Asbestos Containing Material Observed.
		0.5							
		0.6							
		0.7							
		0.8		Fill	Fill - CLAY, brown, heterogeneous, damp, high plasticity, firm, inclusions of rootlets, gravels, some bitumen pieces	DP			No Odour, Staining or Asbestos Containing Material Observed.
		0.9					BH02_0.90-1.00	0.5	
		1							
		1.1							
		1.2							
		1.3		CH	Natural - CLAY, brown, homogeneous, damp, high plasticity, firm	DP	BH02_1.30-1.40	3.1	No Odour, Staining or Asbestos Containing Material Observed.
		1.4							
		1.5			Termination Depth at: 1.50 m.				
		1.6							
		1.7							
		1.8							
		1.9							

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SOIL BOREHOLE BH03

PROJECT NUMBER 64152
PROJECT NAME The King's School
CLIENT TSA Management
ADDRESS 87-129 Pennant Hills Rd, North Parramatta, NSW

DRILLING COMPANY JK Drilling
DRILLING DATE 24-Jan-23
DRILL RIG GeoProbe
DRILLING METHOD Solid Flight Auger
DIAMETER

EASTING N/A
NORTHING N/A
COORD SYS GDA94_MGA_zone_56
COORD SOURCE
LOGGED BY Andrew Cheok

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
SFA		0.1		Fill	Fill - CLAY, dark brown, heterogeneous, damp, high plasticity, firm, inclusions of roots, rootlets, trace gravels	DP	BH03_0.00-0.10	8.5	No Odour, Staining or Asbestos Containing Material Observed.
		0.2					BH03_0.20-0.30	5.9	No Odour, Staining or Asbestos Containing Material Observed.
		0.3							
		0.4					BH03_0.40-0.50	12.4	No Odour, Staining or Asbestos Containing Material Observed.
		0.5							
		0.6							
		0.7							
		0.8							
		0.9		CH	Natural - CLAY, light brown, homogeneous, damp, high plasticity, firm, inclusions of trace rootlets	DP	BH03_0.90-1.00	6.6	No Odour, Staining or Asbestos Containing Material Observed.
		1							
		1.1							
		1.2							
		1.3							
		1.4			Termination Depth at: 1.40 m.				
		1.5							
		1.6							
		1.7							
		1.8							
		1.9							

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SOIL BOREHOLE BH04

PROJECT NUMBER 64152
PROJECT NAME The King's School
CLIENT TSA Management
ADDRESS 87-129 Pennant Hills Rd, North Parramatta, NSW

DRILLING COMPANY JK Drilling
DRILLING DATE 24-Jan-23
DRILL RIG GeoProbe
DRILLING METHOD Solid Flight Auger
DIAMETER

EASTING N/A
NORTHING N/A
COORD SYS GDA94_MGA_zone_56
COORD SOURCE
LOGGED BY Andrew Cheok

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
SFA		0.1		Fill	Fill - CLAY, dark brown, heterogeneous, damp, high plasticity, firm, inclusions of roots, rootlets, trace gravels	DP	BH04_0.00-0.10	4.1	No Odour, Staining or Asbestos Containing Material Observed.
		0.2					BH04_0.20-0.30	5.4	No Odour, Staining or Asbestos Containing Material Observed.
		0.3							
		0.4		Fill	Fill - CLAY, dark brown, heterogeneous, damp, high plasticity, firm, inclusions of brown/orange clay clumps	DP	BH04_0.40-0.50	12.3	No Odour, Staining or Asbestos Containing Material Observed.
		0.5							
		0.6		CH	Natural - CLAY, brown/orange, homogeneous, damp, high plasticity, firm	DP	BH04_0.60-0.70	11.4	No Odour, Staining or Asbestos Containing Material Observed.
		0.7							
		0.8							
		0.9							
		1							
		1.1			Termination Depth at: 1.10 m.				
		1.2							
		1.3							
		1.4							
		1.5							
		1.6							
		1.7							
		1.8							
		1.9							

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SOIL BOREHOLE BH05

PROJECT NUMBER 64152
PROJECT NAME The King's School
CLIENT TSA Management
ADDRESS 87-129 Pennant Hills Rd, North Parramatta, NSW

DRILLING COMPANY JK Drilling
DRILLING DATE 24-Jan-23
DRILL RIG GeoProbe
DRILLING METHOD Solid Flight Auger
DIAMETER

EASTING N/A
NORTHING N/A
COORD SYS GDA94_MGA_zone_56
COORD SOURCE
LOGGED BY Andrew Cheok

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
SFA		0.1		Fill	Fill - CLAY, dark brown, heterogeneous, damp, high plasticity, firm, inclusions of roots, rootlets, trace gravels	DP	BH05_0.00-0.10	4.2	No Odour, Staining or Asbestos Containing Material Observed.
		0.2					BH05_0.20-0.30	2.9	No Odour, Staining or Asbestos Containing Material Observed.
		0.3							
		0.4					BH05_0.40-0.50	5.4	No Odour, Staining or Asbestos Containing Material Observed.
		0.5							
		0.6		CH	Natural - CLAY, brown/orange, homogeneous, damp, high plasticity, stiff, inclusions of trace rootlets	DP			
		0.7					BH05_0.70-0.80	5.2	No Odour, Staining or Asbestos Containing Material Observed.
		0.8							
		0.9							
		1							
		1.1			Termination Depth at: 1.10 m.				
		1.2							
		1.3							
		1.4							
		1.5							
		1.6							
		1.7							
		1.8							
		1.9							

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GROUNDWATER WELL BH06

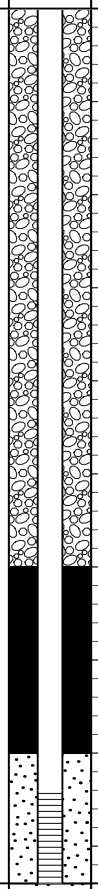
PROJECT NUMBER 64152
PROJECT NAME The King's School
CLIENT TSA Management
PERMIT NO. N/A
ADDRESS 87-129 Pennant Hills Rd, North Parramatta, NSW

DRILLING COMPANY JK Drilling
DRILLING DATE 24-Jan-23
DRILL RIG GeoProbe
DRILLING METHOD Solid Flight Auger
TOTAL DEPTH 4.7 m bgl
DIAMETER 150 mm

EASTING N/A
NORTHING N/A
ELEVATION N/A
COORD SYS GDA94_MGA_zone_56
COORD SOURCE
LOGGED BY Andrew Cheok

COMPLETION Gatic
CASING Class 18 PVC - 50mm
SCREEN INTERVAL 4.2 - 4.7 m bgl

COMMENTS

Drilling Method	Water (m bgl)	Well Details	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
SFA			0.5		Fill	Fill - CLAY, dark brown, heterogeneous, damp, high plasticity, firm, inclusions of roots, rootlets, trace gravels, trace bitumen	DP	BH06_0.00-0.10 BH06_0.20-0.30 BH06_0.40-0.50	2.8 9.8 10	No Odour, Staining or Asbestos Containing Material Observed.
			1		CH	Natural - CLAY, brown/orange, homogeneous, damp, high plasticity, stiff	DP DR	BH06_0.60-0.70	3.7	Slight Black Staining. No Odour or Asbestos Containing Material Observed.
			1.5		Bedrock	Natural - Shale and Sandstone				Slight Black Staining. No Odour or Asbestos Containing Material Observed.
			2							No Odour, Staining or Asbestos Containing Material Observed.
			2.5							
			3							
			3.5							
			4							
			4.5							
			5			Termination Depth at: 4.70 m.				
			5.5							
			6							
			6.5							
			7							
			7.5							

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SOIL BOREHOLE BH07

PROJECT NUMBER 64152
PROJECT NAME The King's School
CLIENT TSA Management
ADDRESS 87-129 Pennant Hills Rd, North Parramatta, NSW

DRILLING COMPANY JK Drilling
DRILLING DATE 24-Jan-23
DRILL RIG GeoProbe
DRILLING METHOD Solid Flight Auger
DIAMETER

EASTING N/A
NORTHING N/A
COORD SYS GDA94_MGA_zone_56
COORD SOURCE
LOGGED BY Andrew Cheok

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
SFA		0.1		Fill	Fill - CLAY, dark brown, heterogeneous, damp, high plasticity, firm, inclusions of roots, rootlets, trace gravels	DP	BH07_0.00-0.10	3.2	No Odour, Staining or Asbestos Containing Material Observed.
		0.2					BH07_0.20-0.30	3.7	No Odour, Staining or Asbestos Containing Material Observed.
		0.3							
		0.4		CH	Natural - CLAY, brown with grey mottle, homogeneous, damp, high plasticity, firm, inclusions of shale pieces	DP	BH07_0.40-0.50	4.7	No Odour, Staining or Asbestos Containing Material Observed.
		0.5							
		0.6							
		0.7							
		0.8			Termination at 0.75 m for environmental assessment (6.1 m for geotechnical assessment)				
		0.9							
		1							
		1.1							
		1.2							
		1.3							
		1.4							
		1.5							
		1.6							
		1.7							
		1.8							
		1.9							

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GROUNDWATER WELL BH08

PROJECT NUMBER 64152	**DRILLING COMPANY** JK Drilling	**EASTING** N/A
PROJECT NAME The King's School	**DRILLING DATE** 23-Jan-23	**NORTHING** N/A
CLIENT TSA Management	**DRILL RIG** GeoProbe	**ELEVATION** N/A
PERMIT NO. N/A	**DRILLING METHOD** Solid Flight Auger	**COORD SYS** GDA94_MGA_zone_56
ADDRESS 87-129 Pennant Hills Rd, North Parramatta, NSW	**TOTAL DEPTH** 7.8 m bgl	**COORD SOURCE**
	DIAMETER 150 mm	**LOGGED BY** Andrew Cheok
COMPLETION Gatic	**CASING** Class 18 PVC - 50mm	**SCREEN INTERVAL** 6.8 - 7.8 m bgl

COMMENTS

Drilling Method	Water (m bgl)	Well Details	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
SFA	▽		0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5 6 6.5 7 7.5		Fill	Fill - CLAY, dark brown, heterogeneous, damp, high plasticity, firm, inclusions of rootlets, gravels	DP	BH08_0.00-0.10 BH08_0.20-0.30	1.8 3.5	No Odour, Staining or Asbestos Containing Material Observed.
					CH	Natural - CLAY, brown/orange, homogeneous, damp, medium plasticity, firm	DP	BH08_0.40-0.50	3.8	No Odour, Staining or Asbestos Containing Material Observed.
							DP	BH08_0.80-0.90	4.3	No Odour, Staining or Asbestos Containing Material Observed.
					Bedrock	Natural - Shale and Sandstone				
						Termination Depth at: 7.80 m.				

SOIL BOREHOLE BH09

PROJECT NUMBER 64152
PROJECT NAME The King's School
CLIENT TSA Management
ADDRESS 87-129 Pennant Hills Rd, North Parramatta, NSW

DRILLING COMPANY JK Drilling
DRILLING DATE 23-Jan-23
DRILL RIG GeoProbe
DRILLING METHOD Solid Flight Auger
DIAMETER

EASTING N/A
NORTHING N/A
COORD SYS GDA94_MGA_zone_56
COORD SOURCE
LOGGED BY Andrew Cheok

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
SFA		0.1		Fill	Fill - Silty CLAY, light brown, heterogeneous, dry, low plasticity, firm, incluisons of rootlets, gravels	DR	BH09_0.00-0.10	3.8	No Odour, Staining or Asbestos Containing Material Observed.
		0.2					BH09_0.20-0.30	2.7	No Odour, Staining or Asbestos Containing Material Observed.
		0.3							
		0.4		CH	Natural - CLAY, brown and red mottle, homogeneous, damp, high plasticity, stiff	DP	BH09_0.40-0.50	2.6	No Odour, Staining or Asbestos Containing Material Observed.
		0.5							
		0.6							
		0.7							
		0.8					BH09_0.80-0.90	4.9	No Odour, Staining or Asbestos Containing Material Observed.
		0.9			Termination at 0.9 m for environmental assessment (2.8 m for geotechnical assessment)				
		1							
		1.1							
		1.2							
		1.3							
		1.4							
		1.5							
		1.6							
		1.7							
		1.8							
		1.9							

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SOIL BOREHOLE BH10

PROJECT NUMBER 64152
PROJECT NAME The King's School
CLIENT TSA Management
ADDRESS 87-129 Pennant Hills Rd, North Parramatta, NSW

DRILLING COMPANY JK Drilling
DRILLING DATE 23-Jan-23
DRILL RIG GeoProbe
DRILLING METHOD Solid Flight Auger
DIAMETER

EASTING N/A
NORTHING N/A
COORD SYS GDA94_MGA_zone_56
COORD SOURCE
LOGGED BY Andrew Cheok

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
SFA		0.1		Fill	Fill - CLAY, dark brown, heterogeneous, dry, low plasticity, firm, inclusions of roots, rootlets, some gravels	DP	BH10_0.00-0.10	2.8	No Odour, Staining or Asbestos Containing Material Observed.
		0.2					BH10_0.20-0.30	3.9	No Odour, Staining or Asbestos Containing Material Observed.
		0.3							
		0.4		SP	Natural - silty SAND, brown/dark brown, homogeneous, moist, poorly graded, medium sand, loose, traces of clay	M	BH10_0.40-0.50	3.7	No Odour, Staining or Asbestos Containing Material Observed.
		0.5							
		0.6							
		0.7							
		0.8		SC	Natural - Clayey SAND, light brown/red, homogeneous, moist, poorly graded, fine sand, medium dense, increased clay content with depth	M	BH10_0.80-0.90	4.5	No Odour, Staining or Asbestos Containing Material Observed.
		0.9			Termination at 0.90 m for environmental assessment (1.3 m for geotechnical assessment)				
		1							
		1.1							
		1.2							
		1.3							
		1.4							
		1.5							
		1.6							
		1.7							
		1.8							
		1.9							

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SOIL BOREHOLE BH11

PROJECT NUMBER 64152
PROJECT NAME The King's School
CLIENT TSA Management
ADDRESS 87-129 Pennant Hills Rd, North Parramatta, NSW

DRILLING COMPANY JK Drilling
DRILLING DATE 23-Jan-23
DRILL RIG GeoProbe
DRILLING METHOD Solid Flight Auger
DIAMETER

EASTING N/A
NORTHING N/A
COORD SYS GDA94_MGA_zone_56
COORD SOURCE
LOGGED BY Andrew Cheok

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
SFA		0.1		Fill	Fill - CLAY, dark brown, heterogeneous, damp, low plasticity, firm, inclusions of roots, rootlets	DP	BH11_0.00-0.10	5.8	No Odour, Staining or Asbestos Containing Material Observed.
		0.2		Fill	Fill - CLAY, dark brown, heterogeneous, damp, medium plasticity, firm, inclusions of rootlets, trace gravels	DP	BH11_0.20-0.30	6.3	No Odour, Staining or Asbestos Containing Material Observed.
		0.3							
		0.4		CH	Natural - CLAY, dark brown/brown, homogeneous, damp, high plasticity, firm	DP	BH11_0.40-0.50	5	No Odour, Staining or Asbestos Containing Material Observed.
		0.5							
		0.6							
		0.7							
		0.8							
		0.9			Termination at 0.90 m for environmental assessment (1.6 m for geotechnical assessment)				
		1							
		1.1							
		1.2							
		1.3							
		1.4							
		1.5							
		1.6							
		1.7							
		1.8							
		1.9							

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SOIL BOREHOLE BH12

PROJECT NUMBER 64152
PROJECT NAME The King's School
CLIENT TSA Management
ADDRESS 87-129 Pennant Hills Rd, North Parramatta, NSW

DRILLING COMPANY
DRILLING DATE 23-Jan-23
DRILL RIG N/A
DRILLING METHOD Hand Auger
DIAMETER

EASTING N/A
NORTHING N/A
COORD SYS GDA94_MGA_zone_56
COORD SOURCE
LOGGED BY Andrew Cheok

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
HA		0.1		Fill	Fill - CLAY, dark brown, heterogeneous, damp, high plasticity, firm, inclusions of rootlets, gravels, trace rocks, some clay inclusions, trace bitumen	DP	BH12_0.00-0.10	5.6	Slight Organic Odour. No Staining or Asbestos Containing Material Observed.
		0.2							Slight Organic Odour. No Staining or Asbestos Containing Material Observed.
		0.3					BH12_0.20-0.30	4.4	
		0.4							Slight Organic Odour. No Staining or Asbestos Containing Material Observed.
		0.5					BH12_0.40-0.50	4.3	
		0.6							
		0.7							
		0.8							
		0.9							Slight Organic Odour. No Staining or Asbestos Containing Material Observed.
		1					BH12_0.90-1.00	2.6	
		1.1							
		1.2							No Odour, Staining or Asbestos Containing Material Observed.
		1.3		CH	Natural - CLAY, brown/orange, homogeneous, damp, high plasticity, firm	DP	BH12_1.20-1.30	4.1	
		1.4							
		1.5							
		1.6							
		1.7							
		1.8			Termination Depth at: 1.70 m.				
		1.9							

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SOIL BOREHOLE BH13

PROJECT NUMBER 64152
PROJECT NAME The King's School
CLIENT TSA Management
ADDRESS 87-129 Pennant Hills Rd, North Parramatta, NSW

DRILLING COMPANY
DRILLING DATE 23-Jan-23
DRILL RIG N/A
DRILLING METHOD Hand Auger
DIAMETER

EASTING N/A
NORTHING N/A
COORD SYS GDA94_MGA_zone_56
COORD SOURCE
LOGGED BY Andrew Cheok

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
HA		0.1		Fill	Fill - CLAY, dark brown, heterogeneous, damp, medium plasticity, firm, inclusions of roots, rootlets, trace gravels	DP	BH13_0.00-0.10	9.5	No Odour, Staining or Asbestos Containing Material Observed.
		0.2					BH13_0.20-0.30	6	No Odour, Staining or Asbestos Containing Material Observed.
		0.3							
		0.4		CH	Natural - CLAY, brown, homogeneous, damp, high plasticity, firm	DP	BH13_0.40-0.50	6.9	No Odour, Staining or Asbestos Containing Material Observed.
		0.5							
		0.6							
		0.7							
		0.8					BH13_0.80-0.90	9.1	No Odour, Staining or Asbestos Containing Material Observed.
		0.9			Termination Depth at: 0.90 m.				
		1							
		1.1							
		1.2							
		1.3							
		1.4							
		1.5							
		1.6							
		1.7							
		1.8							
		1.9							

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SOIL BOREHOLE BH14

Project Number 64152
Client TSA Management
Project Name The King's School
Address 87-129 Pennant Hills Rd, North Parramatta, NSW

Contractor
Date 16-May-23
Plant N/A
Method Hand Auger

Easting N/A
Northing N/A
Coordinate System GDA94_MGA_zone_56
Logged By Sarah Style

Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
HA		0.05 0.1 0.15 0.2 0.25 0.3		Fill	Fill - Silty CLAY, brown, heterogeneous, damp, non-plastic, soft, inclusions of brick and concrete fragments, sandstone and shale gravels, asphalt fragment.	DP	BH14_0.00-0.10	0.1	No Odour, Staining or Asbestos Containing Material
							BH14_0.20-0.30	0.1	No Odour, Staining or Asbestos Containing Material
		0.35 0.4 0.45 0.5 0.55 0.6 0.65 0.7 0.75 0.8 0.85 0.9 0.95			Termination Depth at: 0.30 m.				

Comments:

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SOIL BOREHOLE BH15

Project Number 64152	**Contractor**	**Easting** N/A
Client TSA Management	**Date** 16-May-23	**Northing** N/A
Project Name The King's School	**Plant** N/A	**Coordinate System** GDA94_MGA_zone_56
Address 87-129 Pennant Hills Rd, North Parramatta, NSW	**Method** Hand Auger	**Logged By** Sarah Style

Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
HA		0.05 0.1 0.15 0.2 0.25 0.3		Fill	Fill - Silty CLAY, brown, heterogeneous, damp, non-plastic, soft, inclusions of shale and sandstone gravels More orange with depth.	DP	BH15_0.00-0.10	0.2	No Odour, Staining or Asbestos Containing Material
							BH15_0.20-0.30	0	No Odour, Staining or Asbestos Containing Material
		0.35 0.4 0.45 0.5 0.55 0.6 0.65 0.7 0.75 0.8 0.85 0.9 0.95			Termination Depth at: 0.30 m.				

Comments:

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Appendix H Decontamination and Calibration Records

Field Equipment Calibration and Decontamination

PROJECT NAME: TKS	**PROJECT NO:** 64152
FIELDWORK DATES: 23/01	**SAMPLERS:** A. CHEOK
TYPE OF INVESTIGATION: Borehole Drilling	**PROJECT MANAGER:** S. STYLE

CALIBRATION SUMMARY

EQUIPMENT: PID
CALIBRATION STANDARD: 100ppm Isobutejlene

DATE	TIME	READING (ppm)	COMMENTS
23/01	9:30	0	Zero Cal
↓	9:31	100	100ppm Isobutylene
↓	9:32	102.4	Bump test
24/01	7:00	0	Zero Cal
↓	7:01	100	100ppm Isobutylene
↓	7:02	103.1	Bump test

DECONTAMINATION SUMMARY

EQUIPMENT: HAND AUGER

1	Was the equipment decontaminated appropriately prior to sampling at each location?	(Y)	N	(NA)
2	Was excess soil removed by scraping, brushing or wiping with disposable towels?	(Y)	N	(NA)
3	Was the equipment contaminated with grease, tar or similar material?	Y	N	(NA)
	If so, was the equipment steam cleaned or rinsed with pesticide-grade acetone:hexane?	Y	N	(NA)
4	Was phosphate-free detergent used to wash the equipment?	(Y)	N	(NA)
5	Was the equipment rinsed with clean water?	(Y)	N	NA
6	Was the equipment then rinsed with deionised water?	(Y)	N	NA
7	Were all sample containers cleaned and acid or solvent washed prior to sample collection?	(Y)	N	NA

WERE ANY ADDITIONAL DECONTAMINATION MEASURES REQUIRED? PROVIDE DETAILS

FRESH PAIR OF NITRILE GLOVES AT EACH LOCATION.

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Field Equipment Calibration and Decontamination

PROJECT NAME: TKS	PROJECT NO: ~~614~~ 64152
FIELDWORK DATES: 30/01/23	SAMPLERS: A. CHEOK
TYPE OF INVESTIGATION: GME	PROJECT MANAGER: S. STYLES

CALIBRATION SUMMARY

EQUIPMENT: PID, WQM
CALIBRATION STANDARD: 100ppm Isobutylene.

DATE	TIME	READING (ppm)	COMMENTS
30/01	0800	0	Zero Cal
	0801	100	100ppm Isobutylene.
	0802	100.2.	Bump Test.
	0730	3.97	PH 4.0
		7.15	PH 7.0
		9.99	PH 10.0
		1348.	EC_ 1413 µs/cm
		235.5	Redox
		95.89	DO
		21.9	Temp. C°

DECONTAMINATION SUMMARY

EQUIPMENT: IP

1	Was the equipment decontaminated appropriately prior to sampling at each location?	(Y)	N	NA
2	Was excess soil removed by scraping, brushing or wiping with disposable towels?	Y	N	(NA)
3	Was the equipment contaminated with grease, tar or similar material?	Y	N	(NA)
	If so, was the equipment steam cleaned or rinsed with pesticide-grade acetone:hexane?	Y	N	(NA)
4	Was phosphate-free detergent used to wash the equipment?	(Y)	N	NA
5	Was the equipment rinsed with clean water?	(Y)	N	NA
6	Was the equipment then rinsed with deionised water?	(Y)	N	NA
7	Were all sample containers cleaned and acid or solvent washed prior to sample collection?	(Y)	N	NA

WERE ANY ADDITIONAL DECONTAMINATION MEASURES REQUIRED? PROVIDE DETAILS

New pair of Nitrile gloves used at each location.

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Field Equipment Calibration and Decontamination

PROJECT NAME: TKS	**PROJECT NO:** 64152
FIELDWORK DATES: 16/05/23	**SAMPLERS:** S.Style
TYPE OF INVESTIGATION: PSI	**PROJECT MANAGER:** S.Style

CALIBRATION SUMMARY

EQUIPMENT: PID
CALIBRATION STANDARD: Isobutylene (100 PPM)

DATE	TIME	READING (ppm)	COMMENTS
16/5/23	10am	0	zero cal ok
		100.1	STD cal ok
		100.1	Bump test.

DECONTAMINATION SUMMARY

EQUIPMENT: Mattock/Hand auger

1	Was the equipment decontaminated appropriately prior to sampling at each location?	(Y)	N	NA
2	Was excess soil removed by scraping, brushing or wiping with disposable towels?	(Y)	N	NA
3	Was the equipment contaminated with grease, tar or similar material?	~~Y~~	N	(NA)
	If so, was the equipment steam cleaned or rinsed with pesticide-grade acetone:hexane?	Y	N	(NA)
4	Was phosphate-free detergent used to wash the equipment?	(Y)	N	NA
5	Was the equipment rinsed with clean water?	(Y)	N	NA
6	Was the equipment then rinsed with deionised water?	(Y)	N	NA
7	Were all sample containers cleaned and acid or solvent washed prior to sample collection?	(Y)	N	NA

WERE ANY ADDITIONAL DECONTAMINATION MEASURES REQUIRED? PROVIDE DETAILS

Fresh nitrile gloves used for each sample collection

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Appendix I Quality Assurance / Quality Control

The QA/QC results for soil and surface water samples collected at the site are summarised in **Table I.1** and discussed below. Detailed QA/QC results are included in the laboratory reports in **Appendix J**.

Table I.1: Data Quality Indicator Assessment

Data Quality Indicator		
Precision		
Laboratory Duplicates	<50% RPD	Yes
Accuracy		
Surrogate spikes	52 - 145% recovery	Partial[1]
Laboratory control samples	70 – 130% recovery	Yes
Matrix spikes	70 – 130% recovery	Yes
Representativeness		
Standard operating procedures for sample collection & handling	Field scientist used the same standard operating procedures throughout works.	Yes
Samples extracted and analysed within holding times.	All primary and duplicate samples were extracted within 14 days of sampling.	Yes
Laboratory blank	<LOR	Yes
Comparability		
Standard analytical methods used for all analyses	Standard analytical methods used	Yes
Consistent field conditions, sampling staff and laboratory analysis	Sampling was conducted by the same field scientist. Standard operating procedures were conducted throughout the works. Field conditions remained the same throughout the works. The primary lab remained consistent throughout the investigation.	Yes
Limits of reporting appropriate and consistent	Soil limits of reporting were consistent and appropriate.	Yes
Completeness		
Soil description and COCs completed and appropriate	All bore logs and COCs were completed appropriately.	Yes
Appropriate documentation	All appropriate field documentation is included in the Appendices.	Yes
Satisfactory frequency and result for QC samples	The QC results are considered adequate for the purposes of the investigation.	Yes
Data from critical samples	Samples were analysed at locations where potential for contamination was observed.	Yes
Sensitivity		
Analytical methods and limits of recovery appropriate for media and adopted site assessment criteria	Analytical methods and limits of recovery were considered appropriate for media and adopted site assessment criteria for all soil analytes.	Yes

1. See discussion of DQI exceedances below

Soil QA/QC Discussion

Precision

Laboratory Duplicates

Laboratory duplicate RPDs were within the JBS&G DQI of 0-50%.

Accuracy

Surrogate Spikes

Some surrogate spike recoveries were outside the typically accepted range of 70-130%, however were within the National Association of Testing Authorities (NATA) acceptable limits of 50-150%.

Laboratory Control Samples

A sufficient number of laboratory control samples were analysed for all media types and all reported recoveries were within the G acceptable range of 70-130%.

Matrix Spikes

Matrix spike samples analysed reported recoveries within the JBS&G acceptable range of 70-130%.

Representativeness

Sampling appropriate for media and analytes

All sampling works completed during the investigation were conducted in accordance with JBS&G standard operating procedures. Soil sampling was conducted with the advancement of boreholes and hand augers, considered appropriate for the potential site contaminants. It is noted that boreholes are not the preferred method of investigation for asbestos, in which the analysis as part of this investigation is for information purposes only. Groundwater sampling was completed using a low flow peristaltic pump which is also considered appropriate for the potential site contaminants in groundwater.

Soil and water sampling was conducted as described in **Section 6.2**.

Holding Times

All samples were extracted within the recommended holding times for all analytes.

Decontamination and Calibration

All field equipment was decontaminated and calibrated appropriately as per the procedure identified in **Section 6.2.4**.

Comparability

An experienced JBS&G field scientist undertook all sampling in accordance with standard JBS&G sampling methods. Field works and sampling were undertaken by the same JBS&G field scientist throughout the works.

All field documentation was appropriately completed. The nominated laboratories undertook all analysis in accordance with the relevant NATA accredited methods.

Completeness

Samples were transported under full chain of custody (COC) documentation. The COC documentation was completed correctly and the selected analyses were correctly conducted.

All field documentation was completed appropriately including COCs (**Appendix J**) soil logs (**Appendix G**), and calibration and decontamination sheets (**Appendix H**).

The frequency of analysis and result for all QC samples were appropriate.

Sensitivity

Laboratory analysis methods for most contaminants in soil and groundwater adopted during the investigation used limits of reporting significantly less than the site assessment criteria to ensure the contaminant concentrations could be confidently identified as being less than the adopted soil site assessment criteria.

QA/QC Assessment

The field sampling and handling procedures produced QA/QC results which indicate that the data are of an acceptable quality and suitable for use in preliminary site characterisation.

The NATA certified laboratory results sheets indicate that the project laboratory was generally achieving levels of performance within its recommended control limits during the period when the samples of this program were analysed.

On the basis of the results of the field and laboratory QA/QC program, the data are of an acceptable quality upon which to draw preliminary conclusions regarding the environmental condition of the site.

Appendix J Laboratory Report and Chain of Custody Documentation

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025–Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

JBS & G Australia (NSW) P/L
Level 1, 50 Margaret St
Sydney
NSW 2000

Attention:	Sarah Style
Report	958609-AID
Project Name	TKS
Project ID	64152
Received Date	Jan 25, 2023
Date Reported	Feb 06, 2023

Methodology:

Asbestos Fibre Identification	Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques. *NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.*
Unknown Mineral Fibres	Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity. *NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.*
Subsampling Soil Samples	The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) is employed. *NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis, in accordance with AS 4964-2004.*
Bonded asbestos-containing material (ACM)	The material is first examined and any fibres isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination.The resultant material is then further examined in accordance with AS 4964 - 2004. *NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.*
Limit of Reporting	The performance limitation of the AS 4964 (2004) method for non-homogeneous samples is around 0.1 g/kg (equivalent to 0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis, this is considered to be at the nominal reporting limit of 0.01% (w/w). The NEPM screening level of 0.001% (w/w) is intended as an on-site determination, not a laboratory Limit of Reporting (LOR), per se. Examination of a large sample size (e.g. 500 mL) may improve the likelihood of detecting asbestos, particularly AF, to aid assessment against the NEPM criteria. Gravimetric determinations to this level of accuracy are outside of AS 4964 and hence NATA Accreditation does not cover the performance of this service (non-NATA results shown with an asterisk). *NOTE: NATA News March 2014, p.7, states in relation to AS 4964: "This is a qualitative method with a nominal reporting limit of 0.01 % " and that currently in Australia "there is no validated method available for the quantification of asbestos".This report is consistent with the analytical procedures and reporting recommendations in the NEPM and the WA DoH.*

Project Name TKS
Project ID 64152
Date Sampled Jan 24, 2023
Report 958609-AID

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
BH01_0.2_0.3	23-Ja0040471	Jan 24, 2023	Approximate Sample 315g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
BH02_0.9_1	23-Ja0040472	Jan 24, 2023	Approximate Sample 411g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
BH03_0.4_0.5	23-Ja0040473	Jan 24, 2023	Approximate Sample 368g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
BH05_0_0.1	23-Ja0040475	Jan 24, 2023	Approximate Sample 358g Sample consisted of: Brown fine-grained clayey soil, plant residue and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
BH06_0.4_0.5	23-Ja0040477	Jan 24, 2023	Approximate Sample 375g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
BH08_0.2_0.3	23-Ja0040479	Jan 24, 2023	Approximate Sample 440g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
BH10_0.4_0.5	23-Ja0040481	Jan 24, 2023	Approximate Sample 410g Sample consisted of: Brown coarse-grained sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
BH11_0.2_0.3	23-Ja0040482	Jan 24, 2023	Approximate Sample 461g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
BH13_0_0.1	23-Ja0040485	Jan 24, 2023	Approximate Sample 493g Sample consisted of: Brown coarse-grained sandy soil, plant residue and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Jan 27, 2023	Indefinite

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Project Name: TKS
Project ID: 64152

Order No.:
Report #: 958609
Phone: 02 8245 0300
Fax:

Received: Jan 25, 2023 5:45 PM
Due: Feb 6, 2023
Priority: 3 Day
Contact Name: Sarah Style

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						% Clay	Asbestos - WA guidelines	HOLD	pH (1:5 Aqueous extract at 25 °C as rec.)	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Metals M8	Moisture Set	Cation Exchange Capacity	Eurofins Suite B1	JBS&G Suite 2
Melbourne Laboratory - NATA # 1261 Site # 1254														X		
Sydney Laboratory - NATA # 1261 Site # 18217							X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794						X										
External Laboratory																
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**											
1	BH01_0.2_0.3	Jan 24, 2023		Soil	S23-Ja0040471		X			X	X	X	X		X	
2	BH02_0.9_1	Jan 24, 2023		Soil	S23-Ja0040472		X						X			X
3	BH03_0.4_0.5	Jan 24, 2023		Soil	S23-Ja0040473		X			X	X	X	X		X	
4	BH04_0.4_0.5	Jan 24, 2023		Soil	S23-Ja0040474					X		X	X			
5	BH05_0_0.1	Jan 24, 2023		Soil	S23-Ja0040475		X			X	X	X	X		X	
6	BH06_0.2_0.3	Jan 24, 2023		Soil	S23-Ja0040476					X		X	X			
7	BH06_0.4_0.5	Jan 24, 2023		Soil	S23-Ja0040477		X						X			X
8	BH07_0.2_0.3	Jan 24, 2023		Soil	S23-Ja0040478					X		X	X			
9	BH08_0.2_0.3	Jan 24, 2023		Soil	S23-Ja0040479		X			X	X	X	X		X	
10	BH09_0_0.1	Jan 24, 2023		Soil	S23-Ja0040480					X		X	X			
11	BH10_0.4_0.5	Jan 24, 2023		Soil	S23-Ja0040481		X						X			X

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Melbourne Laboratory - NATA # 1261 Site # 1254														X		
Sydney Laboratory - NATA # 1261 Site # 18217							X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794						X										
12	BH11_0.2_0.3	Jan 24, 2023		Soil	S23-Ja0040482		X						X			X
13	BH12_0_0.1	Jan 24, 2023		Soil	S23-Ja0040483					X		X	X			
14	BH12_0.4_0.5	Jan 24, 2023		Soil	S23-Ja0040484								X			X
15	BH13_0_0.1	Jan 24, 2023		Soil	S23-Ja0040485		X			X	X	X	X		X	
16	BH01_0_0.1	Jan 24, 2023		Soil	S23-Ja0040486			X								
17	BH01_0.4_0.5	Jan 24, 2023		Soil	S23-Ja0040487			X								
18	BH01_0.7_0.8	Jan 24, 2023		Soil	S23-Ja0040488			X								
19	BH02_0_0.1	Jan 24, 2023		Soil	S23-Ja0040489			X								
20	BH02_0.2_0.3	Jan 24, 2023		Soil	S23-Ja0040490			X								
21	BH02_0.4_0.5	Jan 24, 2023		Soil	S23-Ja0040491			X								
22	BH02_1.3_1.4	Jan 24, 2023		Soil	S23-Ja0040492	X			X				X	X		
23	BH03_0_0.1	Jan 24, 2023		Soil	S23-Ja0040493			X								
24	BH03_0.2_0.3	Jan 24, 2023		Soil	S23-Ja0040494			X								
25	BH03_0.9_1	Jan 24, 2023		Soil	S23-Ja0040495			X								

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Melbourne Laboratory - NATA # 1261 Site # 1254														X		
Sydney Laboratory - NATA # 1261 Site # 18217							X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794						X										
26	BH04_0_0.1	Jan 24, 2023		Soil	S23-Ja0040496			X								
27	BH04_0.2_0.3	Jan 24, 2023		Soil	S23-Ja0040497			X								
28	BH04_0.6_0.7	Jan 24, 2023		Soil	S23-Ja0040498			X								
29	BH05_0.2_0.3	Jan 24, 2023		Soil	S23-Ja0040499			X								
30	BH05_0.4_0.5	Jan 24, 2023		Soil	S23-Ja0040500			X								
31	BH05_0.7_0.8	Jan 24, 2023		Soil	S23-Ja0040501			X								
32	BH06_0_0.1	Jan 24, 2023		Soil	S23-Ja0040502			X								
33	BH06_0.6_0.7	Jan 24, 2023		Soil	S23-Ja0040503			X								
34	BH07_0_0.1	Jan 24, 2023		Soil	S23-Ja0040504			X								
35	BH07_0.4_0.5	Jan 24, 2023		Soil	S23-Ja0040505			X								
36	BH08_0_0.1	Jan 24, 2023		Soil	S23-Ja0040506			X								
37	BH08_0.4_0.5	Jan 24, 2023		Soil	S23-Ja0040507			X								
38	BH08_0.8_0.9	Jan 24, 2023		Soil	S23-Ja0040508			X								
39	BH09_0.2_0.3	Jan 24, 2023		Soil	S23-Ja0040509			X								

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Melbourne Laboratory - NATA # 1261 Site # 1254														X		
Sydney Laboratory - NATA # 1261 Site # 18217							X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794						X										
40	BH09_0.4_0.5	Jan 24, 2023		Soil	S23-Ja0040510			X								
41	BH09_0.8_0.9	Jan 24, 2023		Soil	S23-Ja0040511			X								
42	BH10_0_0.1	Jan 24, 2023		Soil	S23-Ja0040512			X								
43	BH10_0.2_0.3	Jan 24, 2023		Soil	S23-Ja0040513			X								
44	BH10_0.8_0.9	Jan 24, 2023		Soil	S23-Ja0040514			X								
45	BH11_0_0.1	Jan 24, 2023		Soil	S23-Ja0040515			X								
46	BH11_0.4_0.5	Jan 24, 2023		Soil	S23-Ja0040516			X								
47	BH12_0.2_0.3	Jan 24, 2023		Soil	S23-Ja0040517			X								
48	BH12_0.9_1	Jan 24, 2023		Soil	S23-Ja0040518			X								
49	BH12_1.2_1.3	Jan 24, 2023		Soil	S23-Ja0040519	X		X	X				X	X		
50	BH13_0.2_0.3	Jan 24, 2023		Soil	S23-Ja0040520			X								
51	BH13_0.4_0.5	Jan 24, 2023		Soil	S23-Ja0040521			X								
52	BH13_0.8_0.9	Jan 24, 2023		Soil	S23-Ja0040522			X								
53	TS	Jan 24, 2023		Water	S23-Ja0040523			X								

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Melbourne Laboratory - NATA # 1261 Site # 1254														X		
Sydney Laboratory - NATA # 1261 Site # 18217							X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794						X										
54	TB	Jan 24, 2023		Water	S23-Ja0040524			X								
55	RINSATE	Jan 24, 2023		Water	S23-Ja0040525			X								
Test Counts						2	9	39	2	10	5	10	17	2	5	5

Internal Quality Control Review and Glossary General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with the colour **blue** indicates data provided by customer that may have an impact on the results.
5. Information identified on this report with the colour **orange** indicates sections of the report not covered by the laboratory's scope of NATA accreditation.
6. This report replaces any interim results previously issued.

Holding Times

Please refer to the most recent version of the 'Sample Preservation and Container Guide' for holding times (QS3001).
If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported. Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w:	Percentage weight-for-weight basis, e.g. of asbestos in asbestos-containing finds in soil samples (**% w/w**)
F/fld	Airborne fibre filter loading as Fibres (**N**) per Fields counted (**n**)
F/mL	Airborne fibre reported concentration as Fibres per millilitre of air drawn over the sampler membrane (**C**)
g, kg	Mass, e.g. of whole sample (**M**) or asbestos-containing find within the sample (**m**)
g/kg	Concentration in grams per kilogram
L, mL	Volume, e.g. of air as measured in AFM (**V** = **r** x **t**)
L/min	Airborne fibre sampling Flowrate as litres per minute of air drawn over the sampler membrane (**r**)
min	Time (**t**), e.g. of air sample collection period

Calculations

Airborne Fibre Concentration: $C = \left(\frac{A}{a}\right) \times \left(\frac{N}{n}\right) \times \left(\frac{1}{r}\right) \times \left(\frac{1}{t}\right) = K \times \left(\frac{N}{n}\right) \times \left(\frac{1}{V}\right)$

Asbestos Content (as asbestos): $\%\, w/w = \frac{(m \times P_A)}{M}$

Weighted Average (of asbestos): $\%_{WA} = \sum \frac{(m \times P_A)_x}{x}$

Terms

%asbestos	Estimated percentage of asbestos in a given matrix. May be derived from knowledge or experience of the material, informed by HSG264 *Appendix 2*, else assumed to be 15% in accordance with WA DOH *Appendix 2* (**P_A**).
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded (non-friable) condition. For the purposes of the NEPM and WA DOH, ACM corresponds to material larger than 7 mm x 7 mm.
AF	Asbestos Fines. Asbestos contamination within a soil sample, as defined by WA DOH. Includes loose fibre bundles and small pieces of friable and non-friable material such as asbestos cement fragments mixed with soil. Considered under the NEPM as equivalent to "non-bonded / friable".
AFM	Airborne Fibre Monitoring, e.g. by the MFM.
Amosite	Amosite Asbestos Detected. Amosite may also refer to Fibrous Grunerite or Brown Asbestos. Identified in accordance with AS 4964-2004.
AS	Australian Standard.
Asbestos Content (as asbestos)	Total % w/w asbestos content in asbestos-containing finds in a soil sample (**% w/w**).
Chrysotile	Chrysotile Asbestos Detected. Chrysotile may also refer to Fibrous Serpentine or White Asbestos. Identified in accordance with AS 4964-2004.
COC	Chain of Custody.
Crocidolite	Crocidolite Asbestos Detected. Crocidolite may also refer to Fibrous Riebeckite or Blue Asbestos. Identified in accordance with AS 4964-2004.
Dry	Sample is dried by heating prior to analysis.
DS	Dispersion Staining. Technique required for Unequivocal Identification of asbestos fibres by PLM.
FA	Fibrous Asbestos. Asbestos containing material that is wholly or in part friable, including materials with higher asbestos content with a propensity to become friable with handling, and any material that was previously non-friable and in a severely degraded condition. For the purposes of the NEPM and WA DOH, FA generally corresponds to material larger than 7 mm x 7 mm, although FA may be more difficult to visibly distinguish and may be assessed as AF.
Fibre Count	Total of all fibres (whether asbestos or not) meeting the counting criteria set out in the NOHSC:3003
Fibre ID	Fibre Identification. Unequivocal identification of asbestos fibres according to AS 4964-2004. Includes Chrysotile, Amosite (Grunerite) or Crocidolite asbestos.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory's remit to assess degree of friability.
HSG248	UK HSE HSG248, *Asbestos: The Analysts Guide*, 2nd Edition (2021).
HSG264	UK HSE HSG264, *Asbestos: The Survey Guide* (2012).
ISO (also ISO/IEC)	International Organization for Standardization / International Electrotechnical Commission.
K Factor	Microscope constant (**K**) as derived from the effective filter area of the given AFM membrane used for collecting the sample (**A**) and the projected eyepiece graticule area of the specific microscope used for the analysis (**a**).
LOR	Limit of Reporting.
MFM (also NOHSC:3003)	Membrane Filter Method. As described by the Australian Government National Occupational Health and Safety Commission, *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres*, 2nd Edition [NOHSC:3003(2005)].
NEPM (also ASC NEPM)	National Environment Protection (Assessment of Site Contamination) Measure, (2013, as amended).
Organic	Organic Fibres Detected. Organic may refer to Natural or Man-Made Polymeric Fibres. Identified in accordance with AS 4964-2004.
PCM	Phase Contrast Microscopy. As used for Fibre Counting according to the MFM.
PLM	Polarised Light Microscopy. As used for Fibre Identification and Trace Analysis according to AS 4964-2004.
SMF	Synthetic Mineral Fibre Detected. SMF may also refer to Man Made Vitreous Fibres. Identified in accordance with AS 4964-2004.
SRA	Sample Receipt Advice.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres (particularly asbestos) in a given sample matrix.
UK HSE HSG	United Kingdom, Health and Safety Executive, Health and Safety Guidance, publication.
UMF	Unidentified Mineral Fibre Detected. Fibrous minerals that are detected but have not been unequivocally identified by PLM with DS according the AS 4964-2004. May include (but not limited to) Actinolite, Anthophyllite or Tremolite asbestos.
WA DOH	Reference document for the NEPM. Government of Western Australia, *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia* (updated 2021), including Appendix Four: *Laboratory analysis*
Weighted Average	Combined average % w/w asbestos content of all asbestos-containing finds in the given aliquot or total soil sample (**$\%_{WA}$**).

Comments

Samples received were less than the nominal 500mL as recommended in Section 4.10 of the NEPM Schedule B1 - Guideline on Investigation Levels for Soil and Groundwater.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Asbestos Counter/Identifier:

Chamath JHM Annakkage	Senior Analyst-Asbestos

Authorised by:

Sayeed Abu	Senior Analyst-Asbestos



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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Accreditation Number 1261
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Attention: **Sarah Style**

Report **958609-S**
Project name TKS
Project ID 64152
Received Date Jan 25, 2023

Client Sample ID			**BH01_0.2_0.3**	**BH02_0.9_1**	**BH03_0.4_0.5**	**BH04_0.4_0.5**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**S23-Ja0040471**	**S23-Ja0040472**	**S23-Ja0040473**	**S23-Ja0040474**
Date Sampled			**Jan 24, 2023**	**Jan 24, 2023**	**Jan 24, 2023**	**Jan 24, 2023**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	-
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	-
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	-
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	-
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	-
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	-
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	-
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	-
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	84	87	80	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			BH01_0.2_0.3	BH02_0.9_1	BH03_0.4_0.5	BH04_0.4_0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23-Ja0040471	S23-Ja0040472	S23-Ja0040473	S23-Ja0040474
Date Sampled			Jan 24, 2023	Jan 24, 2023	Jan 24, 2023	Jan 24, 2023
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	96	93	90	98
p-Terphenyl-d14 (surr.)	1	%	95	90	77	93
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
4.4'-DDE	0.05	mg/kg	< 0.05	0.08	< 0.05	-
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Toxaphene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	0.08	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Dibutylchlorendate (surr.)	1	%	145	125	107	-
Tetrachloro-m-xylene (surr.)	1	%	80	73	70	-
Heavy Metals						
Arsenic	2	mg/kg	9.5	8.1	8.0	9.6
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	18	25	17	18
Copper	5	mg/kg	11	14	14	8.6
Lead	5	mg/kg	33	53	24	20
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	8.9	< 5
Zinc	5	mg/kg	40	80	55	39
% Moisture	1	%	30	16	24	22

Client Sample ID			BH01_0.2_0.3	BH02_0.9_1	BH03_0.4_0.5	BH04_0.4_0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23-Ja0040471	S23-Ja0040472	S23-Ja0040473	S23-Ja0040474
Date Sampled			Jan 24, 2023	Jan 24, 2023	Jan 24, 2023	Jan 24, 2023
Test/Reference	LOR	Unit				
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1221	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1232	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1242	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1248	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1254	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1260	0.1	mg/kg	-	< 0.1	-	-
Total PCB*	0.1	mg/kg	-	< 0.1	-	-
Dibutylchlorendate (surr.)	1	%	-	125	-	-
Tetrachloro-m-xylene (surr.)	1	%	-	73	-	-

Client Sample ID			BH05_0_0.1	BH06_0.2_0.3	BH06_0.4_0.5	BH07_0.2_0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23-Ja0040475	S23-Ja0040476	S23-Ja0040477	S23-Ja0040478
Date Sampled			Jan 24, 2023	Jan 24, 2023	Jan 24, 2023	Jan 24, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	-	< 20	-
TRH C10-C14	20	mg/kg	< 20	-	< 20	-
TRH C15-C28	50	mg/kg	< 50	-	< 50	-
TRH C29-C36	50	mg/kg	< 50	-	< 50	-
TRH C10-C36 (Total)	50	mg/kg	< 50	-	< 50	-
TRH C6-C10	20	mg/kg	< 20	-	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-	< 20	-
TRH >C10-C16	50	mg/kg	< 50	-	< 50	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	< 50	-
TRH >C16-C34	100	mg/kg	< 100	-	< 100	-
TRH >C34-C40	100	mg/kg	< 100	-	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	< 100	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	< 0.1	-
Toluene	0.1	mg/kg	< 0.1	-	< 0.1	-
Ethylbenzene	0.1	mg/kg	< 0.1	-	< 0.1	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-	< 0.2	-
o-Xylene	0.1	mg/kg	< 0.1	-	< 0.1	-
Xylenes - Total*	0.3	mg/kg	< 0.3	-	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	77	-	78	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	< 0.5	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			BH05_0_0.1	BH06_0.2_0.3	BH06_0.4_0.5	BH07_0.2_0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23-Ja0040475	S23-Ja0040476	S23-Ja0040477	S23-Ja0040478
Date Sampled			Jan 24, 2023	Jan 24, 2023	Jan 24, 2023	Jan 24, 2023
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	106	98	96	92
p-Terphenyl-d14 (surr.)	1	%	96	92	94	91
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	< 0.1	-
4.4'-DDD	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDT	0.05	mg/kg	< 0.05	-	< 0.05	-
a-HCH	0.05	mg/kg	< 0.05	-	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
b-HCH	0.05	mg/kg	< 0.05	-	< 0.05	-
d-HCH	0.05	mg/kg	< 0.05	-	< 0.05	-
Dieldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	-	< 0.05	-
g-HCH (Lindane)	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	< 0.05	-
Methoxychlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Toxaphene	0.5	mg/kg	< 0.5	-	< 0.5	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	-	< 0.1	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	-	< 0.1	-
Dibutylchlorendate (surr.)	1	%	101	-	132	-
Tetrachloro-m-xylene (surr.)	1	%	88	-	78	-
Heavy Metals						
Arsenic	2	mg/kg	8.7	180	110	7.0
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	12	13	11	10
Copper	5	mg/kg	15	10	7.6	8.1
Lead	5	mg/kg	45	61	20	17
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1

Client Sample ID			BH05_0_0.1	BH06_0.2_0.3	BH06_0.4_0.5	BH07_0.2_0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23-Ja0040475	S23-Ja0040476	S23-Ja0040477	S23-Ja0040478
Date Sampled			Jan 24, 2023	Jan 24, 2023	Jan 24, 2023	Jan 24, 2023
Test/Reference	LOR	Unit				
Heavy Metals						
Nickel	5	mg/kg	6.2	< 5	< 5	< 5
Zinc	5	mg/kg	41	17	10	< 5
% Moisture	1	%	24	25	23	23
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1221	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1232	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1242	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1248	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1254	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1260	0.1	mg/kg	-	-	< 0.1	-
Total PCB*	0.1	mg/kg	-	-	< 0.1	-
Dibutylchlorendate (surr.)	1	%	-	-	132	-
Tetrachloro-m-xylene (surr.)	1	%	-	-	78	-

Client Sample ID			BH08_0.2_0.3	BH09_0_0.1	BH10_0.4_0.5	BH11_0.2_0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23-Ja0040479	S23-Ja0040480	S23-Ja0040481	S23-Ja0040482
Date Sampled			Jan 24, 2023	Jan 24, 2023	Jan 24, 2023	Jan 24, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	-	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	-	< 20	< 20
TRH C15-C28	50	mg/kg	140	-	< 50	69
TRH C29-C36	50	mg/kg	95	-	< 50	78
TRH C10-C36 (Total)	50	mg/kg	235	-	< 50	147
TRH C6-C10	20	mg/kg	< 20	-	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	-	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	< 50	< 50
TRH >C16-C34	100	mg/kg	210	-	< 100	120
TRH >C34-C40	100	mg/kg	< 100	-	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	210	-	< 100	120
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	-	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	89	-	89	90
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5

Client Sample ID			BH08_0.2_0.3	BH09_0_0.1	BH10_0.4_0.5	BH11_0.2_0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23-Ja0040479	S23-Ja0040480	S23-Ja0040481	S23-Ja0040482
Date Sampled			Jan 24, 2023	Jan 24, 2023	Jan 24, 2023	Jan 24, 2023
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	4.6	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	4.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	4.6	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	0.6	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	2.8	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	3.1	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	1.9	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	3.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	2.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	3.1	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	0.6	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	2.4	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	1.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	1.2	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	5.7	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	29	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	119	103	98	93
p-Terphenyl-d14 (surr.)	1	%	105	97	96	81
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 1	-	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.5	-	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.5	-	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.5	-	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.5	-	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.5	-	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.5	-	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.5	-	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.5	-	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.5	-	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.5	-	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.5	-	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.5	-	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.5	-	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.5	-	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.5	-	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.5	-	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.5	-	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.5	-	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.5	-	< 0.05	< 0.05
Toxaphene	0.5	mg/kg	< 10	-	< 0.5	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.5	-	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.5	-	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 1	-	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 1	-	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	100	-	119	83
Tetrachloro-m-xylene (surr.)	1	%	91	-	81	73

Client Sample ID			BH08_0.2_0.3	BH09_0_0.1	BH10_0.4_0.5	BH11_0.2_0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23-Ja0040479	S23-Ja0040480	S23-Ja0040481	S23-Ja0040482
Date Sampled			Jan 24, 2023	Jan 24, 2023	Jan 24, 2023	Jan 24, 2023
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	< 2	5.7	< 2	3.7
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	7.0	17	< 5	9.0
Copper	5	mg/kg	36	6.3	< 5	8.0
Lead	5	mg/kg	< 5	20	< 5	11
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	92	< 5	< 5	< 5
Zinc	5	mg/kg	35	13	< 5	14
% Moisture	1	%	11	9.4	8.3	16
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	-	< 0.1	< 0.1
Aroclor-1221	0.1	mg/kg	-	-	< 0.1	< 0.1
Aroclor-1232	0.1	mg/kg	-	-	< 0.1	< 0.1
Aroclor-1242	0.1	mg/kg	-	-	< 0.1	< 0.1
Aroclor-1248	0.1	mg/kg	-	-	< 0.1	< 0.1
Aroclor-1254	0.1	mg/kg	-	-	< 0.1	< 0.1
Aroclor-1260	0.1	mg/kg	-	-	< 0.1	< 0.1
Total PCB*	0.1	mg/kg	-	-	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	119	83
Tetrachloro-m-xylene (surr.)	1	%	-	-	81	73

Client Sample ID			BH12_0_0.1	BH12_0.4_0.5	BH13_0_0.1	BH02_1.3_1.4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23-Ja0040483	S23-Ja0040484	S23-Ja0040485	S23-Ja0040492
Date Sampled			Jan 24, 2023	Jan 24, 2023	Jan 24, 2023	Jan 24, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	-	< 20	< 20	-
TRH C10-C14	20	mg/kg	-	< 20	< 20	-
TRH C15-C28	50	mg/kg	-	< 50	< 50	-
TRH C29-C36	50	mg/kg	-	< 50	< 50	-
TRH C10-C36 (Total)	50	mg/kg	-	< 50	< 50	-
TRH C6-C10	20	mg/kg	-	< 20	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	< 20	< 20	-
TRH >C10-C16	50	mg/kg	-	< 50	< 50	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	< 50	< 50	-
TRH >C16-C34	100	mg/kg	-	< 100	< 100	-
TRH >C34-C40	100	mg/kg	-	< 100	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	-	< 100	< 100	-
BTEX						
Benzene	0.1	mg/kg	-	< 0.1	< 0.1	-
Toluene	0.1	mg/kg	-	< 0.1	< 0.1	-
Ethylbenzene	0.1	mg/kg	-	< 0.1	< 0.1	-
m&p-Xylenes	0.2	mg/kg	-	< 0.2	< 0.2	-
o-Xylene	0.1	mg/kg	-	< 0.1	< 0.1	-
Xylenes - Total*	0.3	mg/kg	-	< 0.3	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	-	97	100	-

Client Sample ID			BH12_0_0.1	BH12_0.4_0.5	BH13_0_0.1	BH02_1.3_1.4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23-Ja0040483	S23-Ja0040484	S23-Ja0040485	S23-Ja0040492
Date Sampled			Jan 24, 2023	Jan 24, 2023	Jan 24, 2023	Jan 24, 2023
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	< 0.5	< 0.5	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	-
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	92	97	94	-
p-Terphenyl-d14 (surr.)	1	%	87	91	78	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	< 0.1	< 0.1	-
4.4'-DDD	0.05	mg/kg	-	< 0.05	< 0.05	-
4.4'-DDE	0.05	mg/kg	-	< 0.05	< 0.05	-
4.4'-DDT	0.05	mg/kg	-	< 0.05	< 0.05	-
a-HCH	0.05	mg/kg	-	< 0.05	< 0.05	-
Aldrin	0.05	mg/kg	-	< 0.05	< 0.05	-
b-HCH	0.05	mg/kg	-	< 0.05	< 0.05	-
d-HCH	0.05	mg/kg	-	< 0.05	< 0.05	-
Dieldrin	0.05	mg/kg	-	< 0.05	< 0.05	-
Endosulfan I	0.05	mg/kg	-	< 0.05	< 0.05	-
Endosulfan II	0.05	mg/kg	-	< 0.05	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	< 0.05	-
Endrin	0.05	mg/kg	-	< 0.05	< 0.05	-
Endrin aldehyde	0.05	mg/kg	-	< 0.05	< 0.05	-
Endrin ketone	0.05	mg/kg	-	< 0.05	< 0.05	-
g-HCH (Lindane)	0.05	mg/kg	-	< 0.05	< 0.05	-
Heptachlor	0.05	mg/kg	-	< 0.05	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	< 0.05	-
Methoxychlor	0.05	mg/kg	-	< 0.05	< 0.05	-
Toxaphene	0.5	mg/kg	-	< 0.5	< 0.5	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	< 0.05	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	< 0.05	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	< 0.1	< 0.1	-

Client Sample ID			BH12_0_0.1	BH12_0.4_0.5	BH13_0_0.1	BH02_1.3_1.4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S23-Ja0040483	S23-Ja0040484	S23-Ja0040485	S23-Ja0040492
Date Sampled			Jan 24, 2023	Jan 24, 2023	Jan 24, 2023	Jan 24, 2023
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	< 0.1	< 0.1	-
Dibutylchlorendate (surr.)	1	%	-	142	133	-
Tetrachloro-m-xylene (surr.)	1	%	-	85	83	-
Heavy Metals						
Arsenic	2	mg/kg	4.3	10	3.3	-
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	-
Chromium	5	mg/kg	6.8	20	8.8	-
Copper	5	mg/kg	19	26	11	-
Lead	5	mg/kg	23	61	18	-
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Nickel	5	mg/kg	9.7	12	9.2	-
Zinc	5	mg/kg	76	63	42	-
% Moisture	1	%	22	24	23	23
% Clay	1	%	-	-	-	45
Conductivity (1:5 aqueous extract at 25 °C as rec.)	10	uS/cm	-	-	-	84
pH (1:5 Aqueous extract at 25 °C as rec.)	0.1	pH Units	-	-	-	5.9
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1221	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1232	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1242	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1248	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1254	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1260	0.1	mg/kg	-	< 0.1	-	-
Total PCB*	0.1	mg/kg	-	< 0.1	-	-
Dibutylchlorendate (surr.)	1	%	-	142	-	-
Tetrachloro-m-xylene (surr.)	1	%	-	85	-	-
Cation Exchange Capacity						
Cation Exchange Capacity	0.05	meq/100g	-	-	-	12

Client Sample ID			BH12_1.2_1.3
Sample Matrix			Soil
Eurofins Sample No.			S23-Ja0040519
Date Sampled			Jan 24, 2023
Test/Reference	LOR	Unit	
% Moisture	1	%	25
% Clay	1	%	41
Conductivity (1:5 aqueous extract at 25 °C as rec.)	10	uS/cm	72
pH (1:5 Aqueous extract at 25 °C as rec.)	0.1	pH Units	5.3
Cation Exchange Capacity			
Cation Exchange Capacity	0.05	meq/100g	14

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
JBS&G Suite 2			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Jan 31, 2023	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Jan 31, 2023	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Jan 31, 2023	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Jan 31, 2023	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Polycyclic Aromatic Hydrocarbons	Sydney	Jan 31, 2023	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Organochlorine Pesticides	Sydney	Jan 31, 2023	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Metals M8	Sydney	Jan 31, 2023	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Polychlorinated Biphenyls	Sydney	Jan 31, 2023	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
% Moisture	Sydney	Jan 31, 2023	14 Days
- Method: LTM-GEN-7080 Moisture			
% Clay	Brisbane	Feb 02, 2023	14 Days
- Method: LTM-GEN-7040			
pH (1:5 Aqueous extract at 25 °C as rec.)	Sydney	Jan 31, 2023	7 Days
- Method: LTM-GEN-7090 pH by ISE			
Conductivity (1:5 aqueous extract at 25 °C as rec.)	Sydney	Jan 31, 2023	7 Days
- Method: LTM-INO-4030 Conductivity			
Cation Exchange Capacity	Melbourne	Feb 03, 2023	28 Days
- Method: LTM-MET-3060 Cation Exchange Capacity by bases & Exchangeable Sodium Percentage			

eurofins

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Received: Jan 25, 2023 5:45 PM
Due: Feb 1, 2023
Priority: 3 Day
Contact Name: Sarah Style

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						% Clay	Asbestos - WA guidelines	HOLD	pH (1:5 Aqueous extract at 25 °C as rec.)	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Metals M8	Moisture Set	Cation Exchange Capacity	Eurofins Suite B1	JBS&G Suite 2
Melbourne Laboratory - NATA # 1261 Site # 1254														X		
Sydney Laboratory - NATA # 1261 Site # 18217							X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794						X										
External Laboratory																
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**											
1	BH01_0.2_0.3	Jan 24, 2023		Soil	S23-Ja0040471		X			X	X	X	X		X	
2	BH02_0.9_1	Jan 24, 2023		Soil	S23-Ja0040472		X						X			X
3	BH03_0.4_0.5	Jan 24, 2023		Soil	S23-Ja0040473		X			X	X	X	X		X	
4	BH04_0.4_0.5	Jan 24, 2023		Soil	S23-Ja0040474					X		X	X			
5	BH05_0_0.1	Jan 24, 2023		Soil	S23-Ja0040475		X			X	X	X	X		X	
6	BH06_0.2_0.3	Jan 24, 2023		Soil	S23-Ja0040476					X		X	X			
7	BH06_0.4_0.5	Jan 24, 2023		Soil	S23-Ja0040477		X						X			X
8	BH07_0.2_0.3	Jan 24, 2023		Soil	S23-Ja0040478					X		X	X			
9	BH08_0.2_0.3	Jan 24, 2023		Soil	S23-Ja0040479		X			X	X	X	X		X	
10	BH09_0_0.1	Jan 24, 2023		Soil	S23-Ja0040480					X		X	X			
11	BH10_0.4_0.5	Jan 24, 2023		Soil	S23-Ja0040481		X						X			X

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Project Name: TKS
Project ID: 64152

Order No.:
Report #: 958609
Phone: 02 8245 0300
Fax:

Received: Jan 25, 2023 5:45 PM
Due: Feb 1, 2023
Priority: 3 Day
Contact Name: Sarah Style

Eurofins Analytical Services Manager : Andrew Black

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Melbourne Laboratory - NATA # 1261 Site # 1254														X		
Sydney Laboratory - NATA # 1261 Site # 18217							X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794						X										
12	BH11_0.2_0.3	Jan 24, 2023		Soil	S23-Ja0040482		X						X			X
13	BH12_0_0.1	Jan 24, 2023		Soil	S23-Ja0040483					X		X	X			
14	BH12_0.4_0.5	Jan 24, 2023		Soil	S23-Ja0040484								X			X
15	BH13_0_0.1	Jan 24, 2023		Soil	S23-Ja0040485		X			X	X	X	X		X	
16	BH01_0_0.1	Jan 24, 2023		Soil	S23-Ja0040486			X								
17	BH01_0.4_0.5	Jan 24, 2023		Soil	S23-Ja0040487			X								
18	BH01_0.7_0.8	Jan 24, 2023		Soil	S23-Ja0040488			X								
19	BH02_0_0.1	Jan 24, 2023		Soil	S23-Ja0040489			X								
20	BH02_0.2_0.3	Jan 24, 2023		Soil	S23-Ja0040490			X								
21	BH02_0.4_0.5	Jan 24, 2023		Soil	S23-Ja0040491			X								
22	BH02_1.3_1.4	Jan 24, 2023		Soil	S23-Ja0040492	X			X				X	X		
23	BH03_0_0.1	Jan 24, 2023		Soil	S23-Ja0040493			X								
24	BH03_0.2_0.3	Jan 24, 2023		Soil	S23-Ja0040494			X								
25	BH03_0.9_1	Jan 24, 2023		Soil	S23-Ja0040495			X								

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Melbourne Laboratory - NATA # 1261 Site # 1254														X		
Sydney Laboratory - NATA # 1261 Site # 18217							X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794						X										
26	BH04_0_0.1	Jan 24, 2023		Soil	S23-Ja0040496			X								
27	BH04_0.2_0.3	Jan 24, 2023		Soil	S23-Ja0040497			X								
28	BH04_0.6_0.7	Jan 24, 2023		Soil	S23-Ja0040498			X								
29	BH05_0.2_0.3	Jan 24, 2023		Soil	S23-Ja0040499			X								
30	BH05_0.4_0.5	Jan 24, 2023		Soil	S23-Ja0040500			X								
31	BH05_0.7_0.8	Jan 24, 2023		Soil	S23-Ja0040501			X								
32	BH06_0_0.1	Jan 24, 2023		Soil	S23-Ja0040502			X								
33	BH06_0.6_0.7	Jan 24, 2023		Soil	S23-Ja0040503			X								
34	BH07_0_0.1	Jan 24, 2023		Soil	S23-Ja0040504			X								
35	BH07_0.4_0.5	Jan 24, 2023		Soil	S23-Ja0040505			X								
36	BH08_0_0.1	Jan 24, 2023		Soil	S23-Ja0040506			X								
37	BH08_0.4_0.5	Jan 24, 2023		Soil	S23-Ja0040507			X								
38	BH08_0.8_0.9	Jan 24, 2023		Soil	S23-Ja0040508			X								
39	BH09_0.2_0.3	Jan 24, 2023		Soil	S23-Ja0040509			X								

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Melbourne Laboratory - NATA # 1261 Site # 1254														X		
Sydney Laboratory - NATA # 1261 Site # 18217							X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794						X										
40	BH09_0.4_0.5	Jan 24, 2023		Soil	S23-Ja0040510			X								
41	BH09_0.8_0.9	Jan 24, 2023		Soil	S23-Ja0040511			X								
42	BH10_0_0.1	Jan 24, 2023		Soil	S23-Ja0040512			X								
43	BH10_0.2_0.3	Jan 24, 2023		Soil	S23-Ja0040513			X								
44	BH10_0.8_0.9	Jan 24, 2023		Soil	S23-Ja0040514			X								
45	BH11_0_0.1	Jan 24, 2023		Soil	S23-Ja0040515			X								
46	BH11_0.4_0.5	Jan 24, 2023		Soil	S23-Ja0040516			X								
47	BH12_0.2_0.3	Jan 24, 2023		Soil	S23-Ja0040517			X								
48	BH12_0.9_1	Jan 24, 2023		Soil	S23-Ja0040518			X								
49	BH12_1.2_1.3	Jan 24, 2023		Soil	S23-Ja0040519	X		X	X				X	X		
50	BH13_0.2_0.3	Jan 24, 2023		Soil	S23-Ja0040520			X								
51	BH13_0.4_0.5	Jan 24, 2023		Soil	S23-Ja0040521			X								
52	BH13_0.8_0.9	Jan 24, 2023		Soil	S23-Ja0040522			X								
53	TS	Jan 24, 2023		Water	S23-Ja0040523			X								

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Melbourne Laboratory - NATA # 1261 Site # 1254														X		
Sydney Laboratory - NATA # 1261 Site # 18217							X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794						X										
54	TB	Jan 24, 2023		Water	S23-Ja0040524			X								
55	RINSATE	Jan 24, 2023		Water	S23-Ja0040525			X								
Test Counts						2	9	39	2	10	5	10	17	2	5	5

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Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-HCH	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-HCH	mg/kg	< 0.05			0.05	Pass	
d-HCH	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-HCH (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
Method Blank							
Conductivity (1:5 aqueous extract at 25 °C as rec.)	uS/cm	< 10			10	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Total PCB*	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Cation Exchange Capacity							
Cation Exchange Capacity	meq/100g	< 0.05			0.05	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	90			70-130	Pass	
TRH C10-C14	%	96			70-130	Pass	
TRH C6-C10	%	88			70-130	Pass	
TRH >C10-C16	%	90			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	102			70-130	Pass	
Toluene	%	105			70-130	Pass	
Ethylbenzene	%	93			70-130	Pass	
m&p-Xylenes	%	97			70-130	Pass	
o-Xylene	%	96			70-130	Pass	
Xylenes - Total*	%	97			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	99			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Acenaphthene	%	96			70-130	Pass	
Acenaphthylene	%	97			70-130	Pass	
Anthracene	%	96			70-130	Pass	
Benz(a)anthracene	%	85			70-130	Pass	
Benzo(a)pyrene	%	95			70-130	Pass	
Benzo(b&j)fluoranthene	%	87			70-130	Pass	
Benzo(g.h.i)perylene	%	100			70-130	Pass	
Benzo(k)fluoranthene	%	87			70-130	Pass	
Chrysene	%	85			70-130	Pass	
Dibenz(a.h)anthracene	%	83			70-130	Pass	
Fluoranthene	%	88			70-130	Pass	
Fluorene	%	96			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	82			70-130	Pass	
Naphthalene	%	94			70-130	Pass	
Phenanthrene	%	89			70-130	Pass	
Pyrene	%	88			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	97			70-130	Pass	
4.4'-DDD	%	101			70-130	Pass	
4.4'-DDE	%	98			70-130	Pass	
4.4'-DDT	%	91			70-130	Pass	
a-HCH	%	83			70-130	Pass	
Aldrin	%	97			70-130	Pass	
b-HCH	%	87			70-130	Pass	
d-HCH	%	78			70-130	Pass	
Dieldrin	%	86			70-130	Pass	
Endosulfan I	%	92			70-130	Pass	
Endosulfan II	%	85			70-130	Pass	
Endosulfan sulphate	%	88			70-130	Pass	
Endrin	%	81			70-130	Pass	
Endrin aldehyde	%	83			70-130	Pass	
Endrin ketone	%	90			70-130	Pass	
g-HCH (Lindane)	%	89			70-130	Pass	
Heptachlor	%	99			70-130	Pass	
Heptachlor epoxide	%	91			70-130	Pass	
Hexachlorobenzene	%	92			70-130	Pass	
Methoxychlor	%	130			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	120			80-120	Pass	
Cadmium	%	117			80-120	Pass	
Chromium	%	105			80-120	Pass	
Copper	%	104			80-120	Pass	
Lead	%	106			80-120	Pass	
Mercury	%	120			80-120	Pass	
Nickel	%	118			80-120	Pass	
Zinc	%	115			80-120	Pass	
LCS - % Recovery							
% Clay	%	125			70-130	Pass	
Conductivity (1:5 aqueous extract at 25 °C as rec.)	%	87			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1016	%	87			70-130	Pass	
Aroclor-1260	%	88			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	R23-Ja0023863	NCP	%	90			70-130	Pass	
TRH C10-C14	S23-Ja0037382	NCP	%	94			70-130	Pass	
TRH C6-C10	R23-Ja0023863	NCP	%	90			70-130	Pass	
TRH >C10-C16	S23-Ja0037382	NCP	%	88			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	R23-Ja0023863	NCP	%	95			70-130	Pass	
Toluene	R23-Ja0023863	NCP	%	98			70-130	Pass	
Ethylbenzene	R23-Ja0023863	NCP	%	87			70-130	Pass	
m&p-Xylenes	R23-Ja0023863	NCP	%	91			70-130	Pass	
o-Xylene	R23-Ja0023863	NCP	%	88			70-130	Pass	
Xylenes - Total*	R23-Ja0023863	NCP	%	90			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	R23-Ja0023863	NCP	%	84			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S23-Ja0040472	CP	%	89			70-130	Pass	
Acenaphthylene	S23-Ja0040472	CP	%	92			70-130	Pass	
Anthracene	S23-Ja0040472	CP	%	90			70-130	Pass	
Benz(a)anthracene	S23-Ja0040472	CP	%	80			70-130	Pass	
Benzo(a)pyrene	S23-Ja0040472	CP	%	90			70-130	Pass	
Benzo(b&j)fluoranthene	S23-Ja0040472	CP	%	80			70-130	Pass	
Benzo(g.h.i)perylene	S23-Ja0040472	CP	%	90			70-130	Pass	
Benzo(k)fluoranthene	S23-Ja0040472	CP	%	82			70-130	Pass	
Chrysene	S23-Ja0040472	CP	%	86			70-130	Pass	
Dibenz(a.h)anthracene	S23-Ja0040472	CP	%	75			70-130	Pass	
Fluoranthene	S23-Ja0040472	CP	%	82			70-130	Pass	
Fluorene	S23-Ja0040472	CP	%	88			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S23-Ja0040472	CP	%	75			70-130	Pass	
Naphthalene	S23-Ja0040472	CP	%	87			70-130	Pass	
Phenanthrene	S23-Ja0040472	CP	%	82			70-130	Pass	
Pyrene	S23-Ja0040472	CP	%	83			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S23-Ja0040472	CP	%	95			70-130	Pass	
4.4'-DDD	S23-Ja0040472	CP	%	97			70-130	Pass	
4.4'-DDE	S23-Ja0040472	CP	%	95			70-130	Pass	
4.4'-DDT	S23-Ja0040472	CP	%	85			70-130	Pass	
a-HCH	S23-Ja0040472	CP	%	81			70-130	Pass	
Aldrin	S23-Ja0040472	CP	%	95			70-130	Pass	
b-HCH	S23-Ja0040472	CP	%	81			70-130	Pass	
d-HCH	S23-Ja0040472	CP	%	77			70-130	Pass	
Dieldrin	S23-Ja0040472	CP	%	85			70-130	Pass	
Endosulfan I	S23-Ja0040472	CP	%	97			70-130	Pass	
Endosulfan sulphate	S23-Ja0040472	CP	%	86			70-130	Pass	
Endrin	S23-Ja0040472	CP	%	85			70-130	Pass	
Endrin ketone	S23-Ja0040472	CP	%	90			70-130	Pass	
g-HCH (Lindane)	S23-Ja0040472	CP	%	86			70-130	Pass	
Heptachlor	S23-Ja0040472	CP	%	97			70-130	Pass	
Heptachlor epoxide	S23-Ja0040472	CP	%	89			70-130	Pass	
Hexachlorobenzene	S23-Ja0040472	CP	%	90			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Methoxychlor	S23-Ja0040472	CP	%	118			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1016	S23-Ja0040472	CP	%	81			70-130	Pass	
Aroclor-1260	S23-Ja0040472	CP	%	90			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S23-Ja0040477	CP	%	90			70-130	Pass	
Acenaphthylene	S23-Ja0040477	CP	%	93			70-130	Pass	
Anthracene	S23-Ja0040477	CP	%	88			70-130	Pass	
Benz(a)anthracene	S23-Ja0040477	CP	%	77			70-130	Pass	
Benzo(a)pyrene	S23-Ja0040477	CP	%	89			70-130	Pass	
Benzo(b&j)fluoranthene	S23-Ja0040477	CP	%	77			70-130	Pass	
Benzo(g.h.i)perylene	S23-Ja0040477	CP	%	85			70-130	Pass	
Benzo(k)fluoranthene	S23-Ja0040477	CP	%	85			70-130	Pass	
Chrysene	S23-Ja0040477	CP	%	85			70-130	Pass	
Dibenz(a.h)anthracene	S23-Ja0040477	CP	%	71			70-130	Pass	
Fluoranthene	S23-Ja0040477	CP	%	83			70-130	Pass	
Fluorene	S23-Ja0040477	CP	%	88			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S23-Ja0040477	CP	%	71			70-130	Pass	
Naphthalene	S23-Ja0040477	CP	%	88			70-130	Pass	
Phenanthrene	S23-Ja0040477	CP	%	81			70-130	Pass	
Pyrene	S23-Ja0040477	CP	%	85			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S23-Ja0040477	CP	%	102			70-130	Pass	
4.4'-DDD	S23-Ja0040477	CP	%	108			70-130	Pass	
4.4'-DDE	S23-Ja0040477	CP	%	100			70-130	Pass	
4.4'-DDT	S23-Ja0040477	CP	%	102			70-130	Pass	
a-HCH	S23-Ja0040477	CP	%	87			70-130	Pass	
Aldrin	S23-Ja0040477	CP	%	101			70-130	Pass	
b-HCH	S23-Ja0040477	CP	%	86			70-130	Pass	
d-HCH	S23-Ja0040477	CP	%	81			70-130	Pass	
Dieldrin	S23-Ja0040477	CP	%	94			70-130	Pass	
Endosulfan I	S23-Ja0040477	CP	%	100			70-130	Pass	
Endosulfan II	S23-Ja0040477	CP	%	95			70-130	Pass	
Endosulfan sulphate	S23-Ja0040477	CP	%	94			70-130	Pass	
Endrin	S23-Ja0040477	CP	%	97			70-130	Pass	
Endrin aldehyde	S23-Ja0040477	CP	%	80			70-130	Pass	
Endrin ketone	S23-Ja0040477	CP	%	102			70-130	Pass	
g-HCH (Lindane)	S23-Ja0040477	CP	%	93			70-130	Pass	
Heptachlor	S23-Ja0040477	CP	%	103			70-130	Pass	
Heptachlor epoxide	S23-Ja0040477	CP	%	95			70-130	Pass	
Hexachlorobenzene	S23-Ja0040477	CP	%	96			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S23-Ja0040477	CP	%	104			75-125	Pass	
Cadmium	S23-Ja0040477	CP	%	109			75-125	Pass	
Chromium	S23-Ja0040477	CP	%	88			75-125	Pass	
Copper	S23-Ja0040477	CP	%	88			75-125	Pass	
Lead	S23-Ja0040477	CP	%	87			75-125	Pass	
Mercury	S23-Ja0040477	CP	%	103			75-125	Pass	
Nickel	S23-Ja0040477	CP	%	102			75-125	Pass	
Zinc	S23-Ja0040477	CP	%	97			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1016	S23-Ja0040477	CP	%	92			70-130	Pass	
Aroclor-1260	S23-Ja0040477	CP	%	97			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C10-C14	S23-Ja0031988	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S23-Ja0031988	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S23-Ja0031988	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C10-C16	S23-Ja0031988	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S23-Ja0031988	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S23-Ja0031988	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S23-Ja0040471	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S23-Ja0040471	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S23-Ja0040471	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S23-Ja0040471	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S23-Ja0040471	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S23-Ja0040471	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S23-Ja0040471	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S23-Ja0040471	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S23-Ja0040471	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S23-Ja0040471	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S23-Ja0040471	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S23-Ja0040471	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S23-Ja0040471	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S23-Ja0040471	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S23-Ja0040471	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S23-Ja0040471	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S23-Ja0040471	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S23-Ja0040471	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S23-Ja0040471	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S23-Ja0040471	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	S23-Ja0040471	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S23-Ja0040471	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	S23-Ja0040471	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	S23-Ja0040471	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S23-Ja0040471	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S23-Ja0040471	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S23-Ja0040471	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S23-Ja0040471	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S23-Ja0040471	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S23-Ja0040471	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S23-Ja0040471	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-HCH (Lindane)	S23-Ja0040471	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S23-Ja0040471	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S23-Ja0040471	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S23-Ja0040471	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S23-Ja0040471	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	S23-Ja0042980	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	S23-Ja0040471	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1221	S23-Ja0040471	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	S23-Ja0040471	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1242	S23-Ja0040471	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1248	S23-Ja0040471	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1254	S23-Ja0040471	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1260	S23-Ja0040471	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Total PCB*	S23-Ja0040471	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S23-Ja0040473	CP	mg/kg	8.0	8.1	<1	30%	Pass	
Cadmium	S23-Ja0040473	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S23-Ja0040473	CP	mg/kg	17	17	<1	30%	Pass	
Copper	S23-Ja0040473	CP	mg/kg	14	12	12	30%	Pass	
Lead	S23-Ja0040473	CP	mg/kg	24	26	6.1	30%	Pass	
Mercury	S23-Ja0040473	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S23-Ja0040473	CP	mg/kg	8.9	7.0	23	30%	Pass	
Zinc	S23-Ja0040473	CP	mg/kg	55	44	23	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S23-Ja0040474	CP	mg/kg	9.6	11	13	30%	Pass	
Cadmium	S23-Ja0040474	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S23-Ja0040474	CP	mg/kg	18	19	4.1	30%	Pass	
Copper	S23-Ja0040474	CP	mg/kg	8.6	7.7	12	30%	Pass	
Lead	S23-Ja0040474	CP	mg/kg	20	19	5.1	30%	Pass	
Mercury	S23-Ja0040474	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S23-Ja0040474	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S23-Ja0040474	CP	mg/kg	39	29	29	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S23-Ja0040476	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S23-Ja0040476	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S23-Ja0040476	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S23-Ja0040476	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S23-Ja0040476	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S23-Ja0040476	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S23-Ja0040476	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S23-Ja0040476	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S23-Ja0040476	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S23-Ja0040476	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S23-Ja0040476	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S23-Ja0040476	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S23-Ja0040476	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S23-Ja0040476	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S23-Ja0040476	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S23-Ja0040476	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S23-Ja0040476	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S23-Ja0040476	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S23-Ja0040476	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S23-Ja0040476	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	S23-Ja0040476	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S23-Ja0040476	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
b-HCH	S23-Ja0040476	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	S23-Ja0040476	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S23-Ja0040476	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S23-Ja0040476	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S23-Ja0040476	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S23-Ja0040476	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S23-Ja0040476	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S23-Ja0040476	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S23-Ja0040476	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-HCH (Lindane)	S23-Ja0040476	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S23-Ja0040476	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S23-Ja0040476	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S23-Ja0040476	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S23-Ja0040476	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	S23-Ja0040476	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1221	S23-Ja0040476	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	S23-Ja0040476	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1242	S23-Ja0040476	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1248	S23-Ja0040476	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1254	S23-Ja0040476	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1260	S23-Ja0040476	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Total PCB*	S23-Ja0040476	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	S23-Ja0040479	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C6-C10	S23-Ja0040479	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S23-Ja0040479	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S23-Ja0040479	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S23-Ja0040479	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S23-Ja0040479	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S23-Ja0040479	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S23-Ja0040479	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S23-Ja0040479	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S23-Ja0040480	CP	%	9.4	9.0	4.9	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S23-Ja0040492	CP	%	23	22	3.8	30%	Pass	
Duplicate									
Cation Exchange Capacity				Result 1	Result 2	RPD			
Cation Exchange Capacity	M23-Ja0047100	NCP	meq/100g	19	20	4.8	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Conductivity (1:5 aqueous extract at 25 °C as rec.)	S23-Ja0040519	CP	uS/cm	72	73	2.1	30%	Pass	
pH (1:5 Aqueous extract at 25 °C as rec.)	S23-Ja0040519	CP	pH Units	5.3	5.4	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised by:

Adam Bateup	Analytical Services Manager
Fang Yee Tan	Senior Analyst-Metal
Jonathon Angell	Senior Analyst-Inorganic
Mary Makarios	Senior Analyst-Metal
Roopesh Rangarajan	Senior Analyst-Organic
Roopesh Rangarajan	Senior Analyst-Volatile
Ryan Phillips	Senior Analyst-Inorganic
Sayeed Abu	Senior Analyst-Asbestos



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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Eurofins (1/3)

Chain of Custody

JBS&G

PROJECT NO.: 64152	LABORATORY BATCH NO.:
PROJECT NAME: TKS	SAMPLERS: A. CHEDIC
DATE NEEDED BY: STD TAT	QC LEVEL: NEPM (2013)

PHONE: Sydney 02 8245 0300 | Perth 08 9488 0100 | Brisbane 07 3112 2688 | Melbourne 03 9642 0599 | Adelaide 08 8431 7113

SEND REPORT & INVOICE TO: (1) adminnsw@jbsg.com.au; (2) SSTYLE.....@jbsg.com.au; (3) ACHEDIC.....@jbsg.com.au

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL: ALL ON ICE

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	JB2A	HM	PAH	TRH/BTEX	OCP	PCB	ASBESTOS	ECD PARAM	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES:
BH01 - 0-0.1	SOIL	24/01		J+B												
- 0.2-0.3																
- 0.4-0.5							X	X	X	X		X			X	
- 0.7-0.8																
BH02 - 0-0.1																
- 0.2-0.3																
- 0.4-0.5																
- 0.9-1.0						X									X	
- 1.3-1.4																
BH03 - 0-0.1																
- 0.2-0.3																
- 0.4-0.5							X	X	X	X		X			X	
- 0.9-1.0																
BH04 - 0-0.1																
- 0.2-0.3																
- 0.4-0.5							X	X								
- 0.6-0.7																
BH05 - 0-0.1							X	X	X	X		X			X	
- 0.2-0.3																

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: [illegible] DATE: 24/01/22	CONSIGNMENT NOTE NO.	NAME: Adam Bolton DATE: 25/1/22	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF: JBS&G	TRANSPORT CO.	OF: Eurofins	COOLER TEMP ..... deg C 6.4°
NAME: DATE:	CONSIGNMENT NOTE NO.	NAME: DATE:	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF:	TRANSPORT CO	OF:	COOLER TEMP ..... deg C 958609

Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Prsvd.; C = Sodium Hydroxide Prsvd; VC = Hydrochloric Acid Prsvd Vial; VS = Sulfuric Acid Prsvd Vial; S = Sulfuric Acid Prsvd; Z = Zinc Prsvd; E = EDTA Prsvd; ST = Sterile Bottle; O = Other

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Eurofins (2/3)

Chain of Custody

JBS&G

PROJECT NO.: 64152	LABORATORY BATCH NO.:
PROJECT NAME: TKS	SAMPLERS: A. CHEOK
DATE NEEDED BY: STD TAT	QC LEVEL: NEPM (2013)

PHONE: Sydney 02 8245 0300 | Perth 08 9488 0100 | Brisbane 07 3112 2688 | Melbourne 03 9642 0599 | Adelaide 08 8431 7113

SEND REPORT & INVOICE TO: (1) adminnsw@jbsg.com.au; (2) SSTYLE.....@jbsg.com.au; (3) ACHEOK.....@jbsg.com.au

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL: ALL ON ICE

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	JB2A	HM	PAH	TRH/BTEX	OCP	PCB	ASBESTOS	EQD PARAM	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES:
BH05 - 0.4-0.5	SOIL	24/01		J+B												
↓ - 0.7-0.8	↓	↓	↓	↓												
BH06 - 0-0.1																
- 0.2-0.3							X	X								
- 0.4-0.5						X									X	
↓ - 0.6-0.7																
BH07 - 0-0.1																
- 0.2-0.3							X	X								
↓ - 0.4-0.5		↓														
BH08 - 0-0.1		23/01														
- 0.2-0.3							X	X	X	X		X			X	
- 0.4-0.5																
↓ - 0.8-0.9																
BH09 - 0-0.1							X	X								
- 0.2-0.3																
- 0.4-0.5																
↓ - 0.8-0.9																
BH10 - 0-0.1																
- 0.2-0.3	↓	↓	↓	↓												

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: Alleen DATE: 24/01/23.	CONSIGNMENT NOTE NO.	NAME:	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF: JBS&G	TRANSPORT CO.	DATE: OF:	COOLER TEMP ..... deg C
NAME: DATE:	CONSIGNMENT NOTE NO.	NAME: DATE: OF:	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF:	TRANSPORT CO		COOLER TEMP ..... deg C 958605

Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Prsvd.; C = Sodium Hydroxide Prsvd; VC = Hydrochloric Acid Prsvd Vial; VS = Sulfuric Acid Prsvd Vial; S = Sulfuric Acid Prsvd; Z = Zinc Prsvd; E = EDTA Prsvd; ST = Sterile Bottle; O = Other

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Eurofins (3/3)

Chain of Custody

JBS&G

PROJECT NO.: 64152	LABORATORY BATCH NO.:
PROJECT NAME: TKS	SAMPLERS: A. CHEOK
DATE NEEDED BY: STD TAT	QC LEVEL: NEPM (2013)

PHONE: Sydney 02 8245 0300 | Perth 08 9488 0100 | Brisbane 07 3112 2688 | Melbourne 03 9642 0599 | Adelaide 08 8431 7113

SEND REPORT & INVOICE TO: (1) adminnsw@jbsg.com.au; (2) SSTYLE@jbsg.com.au; (3) ACHEOK@jbsg.com.au

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL: ALL ON ICE

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	JB2A	HM	PAH	TRH/BTEX	OCP	PCB	ASBESTOS	FGD PARAM	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES:
BH10 - 0.4-0.5	SOIL	23/01		J+B		X									X	
↓ - 0.8-0.9	↓	↓		↓												
BH11 - 0-0.1																
- 0.2-0.3						X									X	
- 0.4-0.5																
BH12 - 0-0.1							X	X								
- 0.2-0.3																
- 0.4-0.5						X									X	
- 0.9-1.0																
- 1.2-1.3																
BH13 - 0-0.1							X	X	X	X		X			X	
- 0.2-0.3																
- 0.4-0.5																
- 0.8-0.9	↓	↓		↓												
TS	WATER	24/01		VIALS												
TB	↓	↓		↓												
RINSATE	↓	↓		VIALS + HM + AMBER												

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: A. Cheok DATE: 24/01/23	CONSIGNMENT NOTE NO.	NAME:	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF: JBS&G	TRANSPORT CO.	DATE: OF:	COOLER TEMP ..... deg C
NAME: DATE:	CONSIGNMENT NOTE NO.	NAME: DATE:	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF:	TRANSPORT CO	OF:	COOLER TEMP ..... deg C 958609

Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Prsvd.; C = Sodium Hydroxide Prsvd; VC = Hydrochloric Acid Prsvd Vial; VS = Sulfuric Acid Prsvd Vial; S = Sulfuric Acid Prsvd; Z = Zinc Prsvd; E = EDTA Prsvd; ST = Sterile Bottle; O = Other

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From: Sarah Style <sstyle@jbsg.com.au>
Sent: Monday, 30 January 2023 4:32 PM
To: Andrew Black <AndrewBlack@eurofins.com>
Cc: Andrew Cheok <acheok@jbsg.com.au>
Subject: RE: Eurofins Sample Receipt Advice - Report 958609 : Site TKS (64152)

CAUTION: EXTERNAL EMAIL - Sent from an email domain that is not formally trusted by Eurofins.

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Hi Andrew,

Can we please get eco parameters (pH, CEC and %clay) added for samples BH02_1.3-1.4 and BH12_1.2-1.3?

Thanks,

Sarah

Sarah Style (née Gray) | Senior Project Manager| JBS&G
Gadigal Country | Level 1, 50 Margaret St, Sydney, NSW
T: 02 8245 0300 | M: 0405 625 748 | E: sgray@jbsg.com.au | W: jbsg.com.au | L: Conditions and Limitations

Exceptional Outcomes

From: AndrewBlack@eurofins.com <AndrewBlack@eurofins.com>
Sent: Monday, 30 January 2023 4:27 PM
To: Sarah Style <sstyle@jbsg.com.au>
Subject: Eurofins Sample Receipt Advice - Report 958609 : Site TKS (64152)

[EXTERNAL EMAIL]** Stop and think before opening attachments, clicking or responding.

Here you go Sarah and yes I can do that for you.

Kindest Regards,

Andrew Black
Analytical Services Manager

Eurofins | Environment Testing
Unit 7
7 Friesian Close
SANDGATE NSW 2304
AUSTRALIA
Phone: +61 299 008 490
Mobile: +61 410 220 750
Email: AndrewBlack@eurofins.com
Website:[http://]environment.eurofins.com.au
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www.eurofins.com.au EnviroSales@eurofins.com

Eurofins Environment Testing Australia Pty Ltd

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IANZ# 1327	IANZ# 1290

Sample Receipt Advice

Company name:	JBS & G Australia (NSW) P/L
Contact name:	Sarah Style
Project name:	TKS
Project ID:	64152
Turnaround time:	3 Day
Date/Time received	Jan 25, 2023 5:45 PM
Eurofins reference	958609

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	Sample Temperature of chilled sample on the batch as recorded by Eurofins Sample Receipt : 6.4 degrees Celsius.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
X	Split sample sent to requested external lab.
X	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Samples received by the laboratory after 5.30pm are deemed to have been received the following working day.

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Andrew Black on phone : (+61) 2 9900 8490 or by email: AndrewBlack@eurofins.com

Results will be delivered electronically via email to Sarah Style - sstyle@jbsg.com.au.

Global Leader - Results you can trust

JBS & G Australia (NSW) P/L
Level 1, 50 Margaret St
Sydney
NSW 2000

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Attention: **Sarah Style**

Report **959301-W**
Project name TKS
Project ID 64152
Received Date Jan 30, 2023

Client Sample ID			**BH06**	**BH08**	**RINS**	**TS**
Sample Matrix			**Water**	**Water**	**Water**	**Trip Spike (liquid)**
Eurofins Sample No.			**S23-Ja0046344**	**S23-Ja0046345**	**S23-Ja0046346**	**S23-Ja0046347**
Date Sampled			**Jan 30, 2023**	**Jan 30, 2023**	**Jan 30, 2023**	**Jan 30, 2023**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	-
TRH C10-C14	0.05	mg/L	0.08	< 0.05	< 0.05	-
TRH C15-C28	0.1	mg/L	0.4	< 0.1	< 0.1	-
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH C10-C36 (Total)	0.1	mg/L	0.48	< 0.1	< 0.1	-
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	-
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	-
TRH >C10-C16	0.05	mg/L	0.06	< 0.05	< 0.05	-
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	0.06	< 0.05	< 0.05	-
TRH >C16-C34	0.1	mg/L	0.5	< 0.1	< 0.1	-
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH >C10-C40 (total)*	0.1	mg/L	0.56	< 0.1	< 0.1	-
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Ethylbenzene	0.001	mg/L	0.002	< 0.001	< 0.001	-
m&p-Xylenes	0.002	mg/L	0.007	< 0.002	< 0.002	-
o-Xylene	0.001	mg/L	0.003	< 0.001	< 0.001	-
Xylenes - Total*	0.003	mg/L	0.010	< 0.003	< 0.003	-
4-Bromofluorobenzene (surr.)	1	%	60	56	52	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
Polycyclic Aromatic Hydrocarbons (Trace level)						
Acenaphthene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Acenaphthylene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Anthracene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Benz(a)anthracene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Benzo(a)pyrene - low level	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Benzo(b&j)fluoranthene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Benzo(g.h.i)perylene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Benzo(k)fluoranthene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Chrysene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Dibenz(a.h)anthracene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Fluoranthene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-

Client Sample ID			BH06	BH08	RINS	TS
Sample Matrix			Water	Water	Water	Trip Spike (liquid)
Eurofins Sample No.			S23-Ja0046344	S23-Ja0046345	S23-Ja0046346	S23-Ja0046347
Date Sampled			Jan 30, 2023	Jan 30, 2023	Jan 30, 2023	Jan 30, 2023
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons (Trace level)						
Fluorene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Indeno(1.2.3-cd)pyrene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Naphthalene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Phenanthrene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Pyrene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
Total PAH*	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	-
2-Fluorobiphenyl (surr.)	1	%	79	77	90	-
p-Terphenyl-d14 (surr.)	1	%	91	93	85	-
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Cadmium (filtered)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	-
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	0.001	-
Copper (filtered)	0.001	mg/L	0.006	0.005	< 0.001	-
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	-
Nickel (filtered)	0.001	mg/L	0.001	0.011	< 0.001	-
Zinc (filtered)	0.005	mg/L	0.040	0.092	< 0.005	-
TRH C6-C10	1	%	-	-	-	92
Total Recoverable Hydrocarbons						
Naphthalene	1	%	-	-	-	120
TRH C6-C9	1	%	-	-	-	96
BTEX						
Benzene	1	%	-	-	-	120
Ethylbenzene	1	%	-	-	-	100
m&p-Xylenes	1	%	-	-	-	86
o-Xylene	1	%	-	-	-	86
Toluene	1	%	-	-	-	94
Xylenes - Total	1	%	-	-	-	86
4-Bromofluorobenzene (surr.)	1	%	-	-	-	76

Client Sample ID			TB
Sample Matrix			Trip Blank (liquid)
Eurofins Sample No.			S23-Ja0046348
Date Sampled			Jan 30, 2023
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	0.02	mg/L	< 0.02
TRH C6-C10	0.02	mg/L	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02
BTEX			
Benzene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
o-Xylene	0.001	mg/L	< 0.001

Client Sample ID			TB
Sample Matrix			Trip Blank (liquid)
Eurofins Sample No.			S23-Ja0046348
Date Sampled			Jan 30, 2023
Test/Reference	LOR	Unit	
BTEX			
Xylenes - Total*	0.003	mg/L	< 0.003
4-Bromofluorobenzene (surr.)	1	%	59
Naphthalene[N02]	0.01	mg/L	< 0.01

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Jan 31, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Jan 31, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Sydney	Jan 31, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Jan 31, 2023	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Eurofins Suite B1			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Jan 31, 2023	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons (Trace level)	Melbourne	Feb 03, 2023	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water (trace)			
Metals M8 filtered	Sydney	Jan 31, 2023	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

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Address: Level 1, 50 Margaret St
Sydney
NSW 2000

Project Name: TKS
Project ID: 64152

Order No.:
Report #: 959301
Phone: 02 8245 0300
Fax:

Received: Jan 30, 2023 6:48 PM
Due: Feb 3, 2023
Priority: 3 Day
Contact Name: Sarah Style

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Metals M8 filtered	Eurofins Suite B1	BTEXN and Volatile TRH	BTEXN and Volatile TRH	Polycyclic Aromatic Hydrocarbons (Trace level)
Melbourne Laboratory - NATA # 1261 Site # 1254										X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	BH06	Jan 30, 2023		Water	S23-Ja0046344	X	X			X
2	BH08	Jan 30, 2023		Water	S23-Ja0046345	X	X			X
3	RINS	Jan 30, 2023		Water	S23-Ja0046346	X	X			X
4	TS	Jan 30, 2023		Trip Spike (liquid)	S23-Ja0046347				X	
5	TB	Jan 30, 2023		Trip Blank (liquid)	S23-Ja0046348			X		
Test Counts						3	3	1	1	3

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Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons (Trace level)							
Acenaphthene	mg/L	< 0.00001			0.00001	Pass	
Acenaphthylene	mg/L	< 0.00001			0.00001	Pass	
Anthracene	mg/L	< 0.00001			0.00001	Pass	
Benz(a)anthracene	mg/L	< 0.00001			0.00001	Pass	
Benzo(a)pyrene - low level	mg/L	< 0.00001			0.00001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.00001			0.00001	Pass	
Benzo(g.h.i)perylene	mg/L	< 0.00001			0.00001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.00001			0.00001	Pass	
Chrysene	mg/L	< 0.00001			0.00001	Pass	
Dibenz(a.h)anthracene	mg/L	< 0.00001			0.00001	Pass	
Fluoranthene	mg/L	< 0.00001			0.00001	Pass	
Fluorene	mg/L	< 0.00001			0.00001	Pass	
Indeno(1.2.3-cd)pyrene	mg/L	< 0.00001			0.00001	Pass	
Naphthalene	mg/L	< 0.00001			0.00001	Pass	
Phenanthrene	mg/L	< 0.00001			0.00001	Pass	
Pyrene	mg/L	< 0.00001			0.00001	Pass	
Method Blank							
Heavy Metals							
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	73			70-130	Pass	
TRH C10-C14	%	107			70-130	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH C6-C10			%	70			70-130	Pass	
TRH >C10-C16			%	105			70-130	Pass	
LCS - % Recovery									
BTEX									
Benzene			%	105			70-130	Pass	
Toluene			%	97			70-130	Pass	
Ethylbenzene			%	103			70-130	Pass	
m&p-Xylenes			%	90			70-130	Pass	
o-Xylene			%	89			70-130	Pass	
Xylenes - Total*			%	90			70-130	Pass	
LCS - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions									
Naphthalene			%	104			70-130	Pass	
LCS - % Recovery									
Polycyclic Aromatic Hydrocarbons (Trace level)									
Acenaphthene			%	122			70-130	Pass	
Acenaphthylene			%	108			70-130	Pass	
Anthracene			%	92			70-130	Pass	
Benz(a)anthracene			%	115			70-130	Pass	
Benzo(a)pyrene - low level			%	123			70-130	Pass	
Benzo(b&j)fluoranthene			%	94			70-130	Pass	
Benzo(g.h.i)perylene			%	128			70-130	Pass	
Benzo(k)fluoranthene			%	111			70-130	Pass	
Chrysene			%	129			70-130	Pass	
Dibenz(a.h)anthracene			%	74			70-130	Pass	
Fluoranthene			%	87			70-130	Pass	
Fluorene			%	102			70-130	Pass	
Indeno(1.2.3-cd)pyrene			%	92			70-130	Pass	
Naphthalene			%	113			70-130	Pass	
Phenanthrene			%	98			70-130	Pass	
Pyrene			%	87			70-130	Pass	
LCS - % Recovery									
Heavy Metals									
Arsenic (filtered)			%	101			80-120	Pass	
Cadmium (filtered)			%	108			80-120	Pass	
Chromium (filtered)			%	111			80-120	Pass	
Copper (filtered)			%	112			80-120	Pass	
Lead (filtered)			%	111			80-120	Pass	
Mercury (filtered)			%	112			80-120	Pass	
Nickel (filtered)			%	110			80-120	Pass	
Zinc (filtered)			%	111			80-120	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C10-C14	S23-Ja0033375	NCP	%	71			70-130	Pass	
TRH >C10-C16	S23-Ja0033375	NCP	%	70			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons (Trace level)				Result 1					
Acenaphthene	M23-Ja0042506	NCP	%	97			70-130	Pass	
Acenaphthylene	M23-Ja0042506	NCP	%	91			70-130	Pass	
Anthracene	M23-Ja0042506	NCP	%	89			70-130	Pass	
Benz(a)anthracene	M23-Ja0042506	NCP	%	96			70-130	Pass	
Benzo(a)pyrene - low level	M23-Ja0042512	NCP	%	99			70-130	Pass	
Benzo(b&j)fluoranthene	M23-Ja0042506	NCP	%	125			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzo(g.h.i)perylene	M23-Ja0042506	NCP	%	94			70-130	Pass	
Benzo(k)fluoranthene	M23-Ja0042506	NCP	%	105			70-130	Pass	
Chrysene	M23-Ja0042506	NCP	%	114			70-130	Pass	
Dibenz(a.h)anthracene	M23-Ja0042506	NCP	%	122			70-130	Pass	
Fluoranthene	M23-Ja0042506	NCP	%	95			70-130	Pass	
Fluorene	M23-Ja0042506	NCP	%	95			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M23-Ja0042506	NCP	%	123			70-130	Pass	
Naphthalene	M23-Ja0042506	NCP	%	70			70-130	Pass	
Phenanthrene	M23-Ja0042506	NCP	%	97			70-130	Pass	
Pyrene	M23-Ja0042506	NCP	%	95			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	S23-Ja0046158	NCP	%	87			75-125	Pass	
Cadmium (filtered)	S23-Ja0046158	NCP	%	84			75-125	Pass	
Chromium (filtered)	R23-Ja0026304	NCP	%	100			75-125	Pass	
Copper (filtered)	R23-Ja0026304	NCP	%	98			75-125	Pass	
Lead (filtered)	R23-Ja0026304	NCP	%	102			75-125	Pass	
Mercury (filtered)	S23-Ja0046158	NCP	%	85			75-125	Pass	
Nickel (filtered)	R23-Ja0026304	NCP	%	98			75-125	Pass	
Zinc (filtered)	R23-Ja0026304	NCP	%	100			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	W23-Ja0040226	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	S23-Ja0037389	NCP	mg/L	1.2	1.1	2.6	30%	Pass	
TRH C15-C28	S23-Ja0037389	NCP	mg/L	0.7	0.8	10	30%	Pass	
TRH C29-C36	S23-Ja0037389	NCP	mg/L	0.1	0.2	28	30%	Pass	
TRH C6-C10	W23-Ja0040226	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH >C10-C16	S23-Ja0037389	NCP	mg/L	1.0	1.0	<1	30%	Pass	
TRH >C16-C34	S23-Ja0037389	NCP	mg/L	0.7	0.8	15	30%	Pass	
TRH >C34-C40	S23-Ja0037389	NCP	mg/L	< 0.1	0.1	23	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	W23-Ja0040226	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	W23-Ja0040226	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	W23-Ja0040226	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	W23-Ja0040226	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	W23-Ja0040226	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	W23-Ja0040226	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	W23-Ja0040226	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons (Trace level)				Result 1	Result 2	RPD			
Acenaphthene	M23-Fe0000954	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Acenaphthylene	M23-Fe0000954	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Anthracene	M23-Fe0000954	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Benz(a)anthracene	M23-Fe0000954	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Benzo(a)pyrene - low level	M23-Fe0000954	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Benzo(b&j)fluoranthene	M23-Fe0000954	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Benzo(g.h.i)perylene	M23-Fe0000954	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Benzo(k)fluoranthene	M23-Fe0000954	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Chrysene	M23-Fe0000954	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Dibenz(a.h)anthracene	M23-Fe0000954	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons (Trace level)				Result 1	Result 2	RPD			
Fluoranthene	M23-Fe0000954	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Fluorene	M23-Fe0000954	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M23-Fe0000954	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Naphthalene	M23-Fe0000954	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Phenanthrene	M23-Fe0000954	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Pyrene	M23-Fe0000954	NCP	mg/L	< 0.00001	< 0.00001	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	S23-Ja0046346	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium (filtered)	S23-Ja0046346	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	S23-Ja0046346	CP	mg/L	0.001	0.002	25	30%	Pass	
Copper (filtered)	S23-Ja0046346	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead (filtered)	S23-Ja0046346	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury (filtered)	S23-Ja0046346	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	S23-Ja0046346	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc (filtered)	S23-Ja0046346	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.

Authorised by:

Andrew Black	Analytical Services Manager
Edward Lee	Senior Analyst-Organic
Mickael Ros	Senior Analyst-Metal
Roopesh Rangarajan	Senior Analyst-Organic
Roopesh Rangarajan	Senior Analyst-Volatile



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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Eurofins (1/1)

Chain of Custody

JBS&G

PROJECT NO.: 6H152
PROJECT NAME: TICS
DATE NEEDED BY:

LABORATORY BATCH NO.:
SAMPLERS: A. CHEOK
QC LEVEL: NEPM (2013)

PHONE: Sydney 02 8245 0300 | Perth 08 9488 0100 | Brisbane 07 3112 2688 | Melbourne 03 9642 0599 | Adelaide 08 8431 7113

SEND REPORT & INVOICE TO: (1) adminnsw@jbsg.com.au; (2) SSTYLE.....@jbsg.com.au; (3) ACHEOK.....@jbsg.com.au

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	HM	PAH (LOR)	TRH/BTEX	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES:
BH06	WATER	30/01		2 Ambers, 2 vials, 1 HM		X	X	X			
BH08	↓	↓		↓		X	X	X			
RINS						X	X	X			
TS				2 VIALS		~~X~~		X			
TB				↓		~~X~~		X			

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: DATE: 30/01/23 OF: JBS&G	CONSIGNMENT NOTE NO. TRANSPORT CO.	NAME: Lisa Zulic DATE: 30/1/23 6:48 pm OF: Eurofins	COOLER SEAL – Yes..... No ..... Intact ..... Broken ..... COOLER TEMP 3.0 deg C
NAME: DATE: OF:	CONSIGNMENT NOTE NO. TRANSPORT CO	NAME: DATE: OF:	COOLER SEAL – Yes..... No ..... Intact ..... Broken ..... COOLER TEMP ..... deg C

Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Prsvd.; C = Sodium Hydroxide Prsvd; VC = Hydrochloric Acid Prsvd Vial; VS = Sulfuric Acid Prsvd Vial; S = Sulfuric Acid Prsvd; Z = Zinc Prsvd; E = EDTA Prsvd; ST = Sterile Bottle; O = Other

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959301

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www.eurofins.com.au EnviroSales@eurofins.com

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ABN: 50 005 085 521

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NATA# 1261 Site# 1254	NATA# 1261 Site# 1254	NATA# 1261 Site# 18217		NATA# 1261 Site# 20794	NATA# 1261 Site# 25079

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NATA# 2377 Site# 2370

Eurofins Environment Testing NZ Ltd

NZBN: 9429046024954

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Penrose,	Rolleston,
Auckland 1061	Christchurch 7675
Tel: +64 9 526 45 51	Tel: 0800 856 450
IANZ# 1327	IANZ# 1290

Sample Receipt Advice

Company name:	JBS & G Australia (NSW) P/L
Contact name:	Sarah Style
Project name:	TKS
Project ID:	64152
Turnaround time:	3 Day
Date/Time received	Jan 30, 2023 6:48 PM
Eurofins reference	959301

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	Sample Temperature of chilled sample on the batch as recorded by Eurofins Sample Receipt : 3 degrees Celsius.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
✗	Split sample sent to requested external lab.
✗	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Samples received by the laboratory after 5.30pm are deemed to have been received the following working day.

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Andrew Black on phone : (+61) 2 9900 8490 or by email: AndrewBlack@eurofins.com

Results will be delivered electronically via email to Sarah Style - sstyle@jbsg.com.au.

JBS & G Australia (NSW) P/L
Level 1, 50 Margaret St
Sydney
NSW 2000

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **Sarah Style**

Report **961266-L**
Project name ADDITIONAL: TKS
Project ID ADDITIONAL: 64152
Received Date Feb 07, 2023

Client Sample ID			**BH06_0.2-0.3**	**BH08_0.2-0.3**
Sample Matrix			**US Leachate**	**US Leachate**
Eurofins Sample No.			**S23-Fe0013500**	**S23-Fe0013501**
Date Sampled			**Jan 24, 2023**	**Jan 23, 2023**
Test/Reference	LOR	Unit		
Heavy Metals				
Arsenic	0.01	mg/L	0.04	-
Nickel	0.01	mg/L	-	0.05
USA Leaching Procedure				
Leachate Fluid[C01]		comment	1.0	1.0
pH (initial)	0.1	pH Units	7.7	7.8
pH (off)	0.1	pH Units	5.1	5.2
pH (USA HCl addition)	0.1	pH Units	2.2	2.4
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene	0.001	mg/L	-	< 0.001

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Heavy Metals	Sydney	Feb 07, 2023	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
USA Leaching Procedure	Sydney	Feb 07, 2023	14 Days
- Method: LTM-GEN-7010 Leaching Procedure for Soils & Solid Wastes			
Polycyclic Aromatic Hydrocarbons	Sydney	Feb 07, 2023	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			

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email: EnviroSales@eurofins.com

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Rolleston,
Christchurch 7675
Tel: 0800 856 450
IANZ# 1290

Company Name: JBS & G Australia (NSW) P/L
Address: Level 1, 50 Margaret St
Sydney
NSW 2000

Project Name: ADDITIONAL: TKS
Project ID: ADDITIONAL: 64152

Order No.:
Report #: 961266
Phone: 02 8245 0300
Fax:

Received: Feb 7, 2023 12:07 PM
Due: Feb 14, 2023
Priority: 5 Day
Contact Name: Sarah Style

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Arsenic	Benzo(a)pyrene	Nickel	USA Leaching Procedure
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	BH06_0.2-0.3	Jan 24, 2023		US Leachate	S23-Fe0013500	X			X
2	BH08_0.2-0.3	Jan 23, 2023		US Leachate	S23-Fe0013501		X	X	X
Test Counts						1	1	1	2

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Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Method Blank									
Heavy Metals									
Arsenic			mg/L	< 0.01			0.01	Pass	
Nickel			mg/L	< 0.01			0.01	Pass	
LCS - % Recovery									
Heavy Metals									
Arsenic			%	95			80-120	Pass	
Nickel			%	89			80-120	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S23-Fe0010462	NCP	%	98			75-125	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Nickel	S23-Fe0010462	NCP	%	91			75-125	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Benzo(a)pyrene	S23-Fe0013577	NCP	%	91			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S23-Fe0014125	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Nickel	S23-Fe0014125	NCP	mg/L	0.03	0.04	3.0	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Benzo(a)pyrene	S23-Fe0013501	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
C01	Leachate Fluid Key: 1 - pH 5.0; 2 - pH 2.9; 3 - pH 9.2; 4 - Reagent (DI) water; 5 - Client sample, 6 - other

Authorised by:

Adam Bateup	Analytical Services Manager
Fang Yee Tan	Senior Analyst-Metal
Roopesh Rangarajan	Senior Analyst-Organic



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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FW: Eurofins Test Results - Report 958609 : Site TKS (64152)

Sarah Style <sstyle@jbsg.com.au>

Tue 2023-02-07 9:51 AM

To: Adam Bateup <AdamBateup@eurofins.com>

Cc: Andrew Cheok <acheok@jbsg.com.au>

8 attachments (3 MB)

TKS 64152.JBSG.958609.Chemistry2e.csv; TKS 64152.JBSG.958609.Sample2e.csv; 958609_data.csv; 958609_COC.pdf; 958609_sample_receipt_coc.pdf; 958609_summary.pdf; 958609-S_report.pdf; 958609-AID.pdf;

CAUTION: EXTERNAL EMAIL - Sent from an email domain that is not formally trusted by Eurofins.

Do not click on links or open attachments unless you recognise the sender and are certain that the content is safe.

Hi Adam,

Can I please get the following completed on STD TAT?

- BH06_0.2-0.3 (S23-Ja0040476) for Arsenic TCLP
- BH08_0.2-0.3 (S23-Ja0040479) for BaP TCLP and Nickel TCLP

Thanks,

Sarah

Sarah Style (née Gray) | Senior Project Manager| JBS&G
Gadigal Country | Level 1, 50 Margaret St, Sydney, NSW
T: 02 8245 0300 | M: 0405 625 748 | E: sgray@jbsg.com.au | W: jbsg.com.au | L: Conditions and Limitations

Exceptional Outcomes

From: EnviroSampleNSW@eurofins.com <EnviroSampleNSW@eurofins.com>
Sent: Monday, 6 February 2023 7:33 PM
To: Sarah Style <sstyle@jbsg.com.au>
Cc: Andrew Cheok <acheok@jbsg.com.au>
Subject: Eurofins Test Results - Report 958609 : Site TKS (64152)

[EXTERNAL EMAIL]** Stop and think before opening attachments, clicking or responding.*

Please find the attached reports

Kind regards,
Adam Bateup
Assistant Analytical Services Manager
My hours are 3 pm - 11 pm

Eurofins Environment Testing Australia Pty Ltd
179 Magowar Road
Girraween, NSW, 2145

Email: AdamBateup@eurofins.com
Website: www.eurofins.com/environmental-testing

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NATA# 1261 Site# 18217

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Tel: +61 2 4968 8448
NATA# 1261 Site# 25079

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Rolleston,
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IANZ# 1290

Sample Receipt Advice

Company name:	JBS & G Australia (NSW) P/L
Contact name:	Sarah Style
Project name:	ADDITIONAL: TKS
Project ID:	ADDITIONAL: 64152
Turnaround time:	5 Day
Date/Time received	Feb 7, 2023 12:07 PM
Eurofins reference	961266

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	Sample Temperature of chilled sample on the batch as recorded by Eurofins Sample Receipt : 6.4 degrees Celsius.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
✗	Split sample sent to requested external lab.
✗	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Andrew Black on phone : (+61) 2 9900 8490 or by email: AndrewBlack@eurofins.com

Results will be delivered electronically via email to Sarah Style - sstyle@jbsg.com.au.

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Certificate of Analysis

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NATA Accredited
Accreditation Number 1261
Site Number 18217

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JBS & G Australia (NSW) P/L
Level 1, 50 Margaret St
Sydney
NSW 2000

Attention:	Sarah Style
Report	990155-AID
Project Name	NORTH PARRAMATTA
Project ID	64152
Received Date	May 16, 2023
Date Reported	May 23, 2023

Methodology:

Asbestos Fibre Identification	Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques. *NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.*
Unknown Mineral Fibres	Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity. *NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.*
Subsampling Soil Samples	The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) is employed. *NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis, in accordance with AS 4964-2004.*
Bonded asbestos-containing material (ACM)	The material is first examined and any fibres isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination.The resultant material is then further examined in accordance with AS 4964 - 2004. *NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.*
Limit of Reporting	The performance limitation of the AS 4964 (2004) method for non-homogeneous samples is around 0.1 g/kg (equivalent to 0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis, this is considered to be at the nominal reporting limit of 0.01% (w/w). The NEPM screening level of 0.001% (w/w) is intended as an on-site determination, not a laboratory Limit of Reporting (LOR), per se. Examination of a large sample size (e.g. 500 mL) may improve the likelihood of detecting asbestos, particularly AF, to aid assessment against the NEPM criteria. Gravimetric determinations to this level of accuracy are outside of AS 4964 and hence NATA Accreditation does not cover the performance of this service (non-NATA results shown with an asterisk). *NOTE: NATA News March 2014, p.7, states in relation to AS 4964: "This is a qualitative method with a nominal reporting limit of 0.01 % " and that currently in Australia "there is no validated method available for the quantification of asbestos".This report is consistent with the analytical procedures and reporting recommendations in the NEPM and the WA DoH.*

Project Name NORTH PARRAMATTA
Project ID 64152
Date Sampled May 16, 2023
Report 990155-AID

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
BH14_0.2-0.3	23-My0040506	May 16, 2023	Approximate Sample 609g Sample consisted of: Brown coarse-grained clayey sandy soil, bitumen and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
BH15_0-0.1	23-My0040507	May 16, 2023	Approximate Sample 554g Sample consisted of: Brown coarse-grained clayey sandy soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	May 17, 2023	Indefinite

eurofins

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Company Name: JBS & G Australia (NSW) P/L
Address: Level 1, 50 Margaret St
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Project Name: NORTH PARRAMATTA
Project ID: 64152

Order No.:
Report #: 990155
Phone: 02 8245 0300
Fax:

Received: May 16, 2023 4:15 PM
Due: May 23, 2023
Priority: 5 Day
Contact Name: Sarah Style

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - WA guidelines	HOLD	Moisture Set	JBS&G Suite 2
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	BH14_0.2-0.3	May 16, 2023		Soil	S23-My0040506	X		X	X
2	BH15_0-0.1	May 16, 2023		Soil	S23-My0040507	X		X	X
3	BH14_0-0.1	May 16, 2023		Soil	S23-My0040508		X		
4	BH15_0.2-0.3	May 16, 2023		Soil	S23-My0040509		X		
Test Counts						2	2	2	2

Internal Quality Control Review and Glossary General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with the colour **blue** indicates data provided by customer that may have an impact on the results.
5. This report replaces any interim results previously issued.

Holding Times

Please refer to the most recent version of the 'Sample Preservation and Container Guide' for holding times (QS3001).
If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported. Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w:	Percentage weight-for-weight basis, e.g. of asbestos in asbestos-containing finds in soil samples (**% w/w**)
F/fld	Airborne fibre filter loading as Fibres (**N**) per Fields counted (**n**)
F/mL	Airborne fibre reported concentration as Fibres per millilitre of air drawn over the sampler membrane (**C**)
g, kg	Mass, e.g. of whole sample (**M**) or asbestos-containing find within the sample (**m**)
g/kg	Concentration in grams per kilogram
L, mL	Volume, e.g. of air as measured in AFM (**V** = **r** x **t**)
L/min	Airborne fibre sampling Flowrate as litres per minute of air drawn over the sampler membrane (**r**)
min	Time (**t**), e.g. of air sample collection period

Calculations

Airborne Fibre Concentration: $C = \left(\frac{A}{a}\right) \times \left(\frac{N}{n}\right) \times \left(\frac{1}{r}\right) \times \left(\frac{1}{t}\right) = K \times \left(\frac{N}{n}\right) \times \left(\frac{1}{V}\right)$

Asbestos Content (as asbestos): $\%\, w/w = \frac{(m \times P_A)}{M}$

Weighted Average (of asbestos): $\%_{WA} = \sum \frac{(m \times P_A)_x}{x}$

Terms

%asbestos	Estimated percentage of asbestos in a given matrix. May be derived from knowledge or experience of the material, informed by HSG264 *Appendix 2*, else assumed to be 15% in accordance with WA DOH *Appendix 2* (**P_A**).
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded (non-friable) condition. For the purposes of the NEPM and WA DOH, ACM corresponds to material larger than 7 mm x 7 mm.
AF	Asbestos Fines. Asbestos contamination within a soil sample, as defined by WA DOH. Includes loose fibre bundles and small pieces of friable and non-friable material such as asbestos cement fragments mixed with soil. Considered under the NEPM as equivalent to “non-bonded / friable”.
AFM	Airborne Fibre Monitoring, e.g. by the MFM.
Amosite	Amosite Asbestos Detected. Amosite may also refer to Fibrous Grunerite or Brown Asbestos. Identified in accordance with AS 4964-2004.
AS	Australian Standard.
Asbestos Content (as asbestos)	Total % w/w asbestos content in asbestos-containing finds in a soil sample (**% w/w)**.
Chrysotile	Chrysotile Asbestos Detected. Chrysotile may also refer to Fibrous Serpentine or White Asbestos. Identified in accordance with AS 4964-2004.
COC	Chain of Custody.
Crocidolite	Crocidolite Asbestos Detected. Crocidolite may also refer to Fibrous Riebeckite or Blue Asbestos. Identified in accordance with AS 4964-2004.
Dry	Sample is dried by heating prior to analysis.
DS	Dispersion Staining. Technique required for Unequivocal Identification of asbestos fibres by PLM.
FA	Fibrous Asbestos. Asbestos containing material that is wholly or in part friable, including materials with higher asbestos content with a propensity to become friable with handling, and any material that was previously non-friable and in a severely degraded condition. For the purposes of the NEPM and WA DOH, FA generally corresponds to material larger than 7 mm x 7 mm, although FA may be more difficult to visibly distinguish and may be assessed as AF.
Fibre Count	Total of all fibres (whether asbestos or not) meeting the counting criteria set out in the NOHSC:3003
Fibre ID	Fibre Identification. Unequivocal identification of asbestos fibres according to AS 4964-2004. Includes Chrysotile, Amosite (Grunerite) or Crocidolite asbestos.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory’s remit to assess degree of friability.
HSG248	UK HSE HSG248, *Asbestos: The Analysts Guide*, 2nd Edition (2021).
HSG264	UK HSE HSG264, *Asbestos: The Survey Guide* (2012).
ISO (also ISO/IEC)	International Organization for Standardization / International Electrotechnical Commission.
K Factor	Microscope constant (**K**) as derived from the effective filter area of the given AFM membrane used for collecting the sample (**A**) and the projected eyepiece graticule area of the specific microscope used for the analysis (**a**).
LOR	Limit of Reporting.
MFM (also NOHSC:3003)	Membrane Filter Method. As described by the Australian Government National Occupational Health and Safety Commission, *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres*, 2nd Edition [NOHSC:3003(2005)].
NEPM (also ASC NEPM)	National Environment Protection (Assessment of Site Contamination) Measure, (2013, as amended).
Organic	Organic Fibres Detected. Organic may refer to Natural or Man-Made Polymeric Fibres. Identified in accordance with AS 4964-2004.
PCM	Phase Contrast Microscopy. As used for Fibre Counting according to the MFM.
PLM	Polarised Light Microscopy. As used for Fibre Identification and Trace Analysis according to AS 4964-2004.
Sampling	Unless otherwise stated Eurofins are not responsible for sampling equipment or the sampling process.
SMF	Synthetic Mineral Fibre Detected. SMF may also refer to Man Made Vitreous Fibres. Identified in accordance with AS 4964-2004.
SRA	Sample Receipt Advice.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres (particularly asbestos) in a given sample matrix.
UK HSE HSG	United Kingdom, Health and Safety Executive, Health and Safety Guidance, publication.
UMF	Unidentified Mineral Fibre Detected. Fibrous minerals that are detected but have not been unequivocally identified by PLM with DS according the AS 4964-2004. May include (but not limited to) Actinolite, Anthophyllite or Tremolite asbestos.
WA DOH	Reference document for the NEPM. Government of Western Australia, *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia* (updated 2021), including Appendix Four: *Laboratory analysis*
Weighted Average	Combined average % w/w asbestos content of all asbestos-containing finds in the given aliquot or total soil sample (**$\%_{WA}$**).

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Asbestos Counter/Identifier:

Sayeed Abu	Senior Analyst-Asbestos

Authorised by:

Laxman Dias	Senior Analyst-Asbestos



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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JBS & G Australia (NSW) P/L
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NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention: **Sarah Style**

Report **990155-S**
Project name NORTH PARRAMATTA
Project ID 64152
Received Date May 16, 2023

Client Sample ID			**BH14_0.2-0.3**	**BH15_0-0.1**
Sample Matrix			**Soil**	**Soil**
Eurofins Sample No.			**S23-My0040506**	**S23-My0040507**
Date Sampled			**May 16, 2023**	**May 16, 2023**
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons				
TRH C6-C9	20	mg/kg	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50
TRH C29-C36	50	mg/kg	68	< 50
TRH C10-C36 (Total)	50	mg/kg	68	< 50
TRH C6-C10	20	mg/kg	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100
TRH >C34-C40	100	mg/kg	130	< 100
TRH >C10-C40 (total)*	100	mg/kg	130	< 100
BTEX				
Benzene	0.1	mg/kg	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	94	95
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5

Client Sample ID			BH14_0.2-0.3	BH15_0-0.1
Sample Matrix			Soil	Soil
Eurofins Sample No.			S23-My0040506	S23-My0040507
Date Sampled			May 16, 2023	May 16, 2023
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	107	93
p-Terphenyl-d14 (surr.)	1	%	111	102
Organochlorine Pesticides				
Chlordanes - Total	0.1	mg/kg	< 1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.5	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.5	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.5	< 0.05
a-HCH	0.05	mg/kg	< 0.5	< 0.05
Aldrin	0.05	mg/kg	< 0.5	< 0.05
b-HCH	0.05	mg/kg	< 0.5	< 0.05
d-HCH	0.05	mg/kg	< 0.5	< 0.05
Dieldrin	0.05	mg/kg	< 0.5	< 0.05
Endosulfan I	0.05	mg/kg	< 0.5	< 0.05
Endosulfan II	0.05	mg/kg	< 0.5	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.5	< 0.05
Endrin	0.05	mg/kg	< 0.5	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.5	< 0.05
Endrin ketone	0.05	mg/kg	< 0.5	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.5	< 0.05
Heptachlor	0.05	mg/kg	< 0.5	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.5	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.5	< 0.05
Methoxychlor	0.05	mg/kg	< 0.5	< 0.05
Toxaphene	0.5	mg/kg	< 10	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.5	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.5	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 1	< 0.1
Dibutylchlorendate (surr.)	1	%	80	125
Tetrachloro-m-xylene (surr.)	1	%	92	90
Polychlorinated Biphenyls				
Aroclor-1016	0.1	mg/kg	< 1	< 0.1
Aroclor-1221	0.1	mg/kg	< 1	< 0.1
Aroclor-1232	0.1	mg/kg	< 1	< 0.1
Aroclor-1242	0.1	mg/kg	< 1	< 0.1
Aroclor-1248	0.1	mg/kg	< 1	< 0.1
Aroclor-1254	0.1	mg/kg	< 1	< 0.1
Aroclor-1260	0.1	mg/kg	< 1	< 0.1
Total PCB*	0.1	mg/kg	< 1	< 0.1
Dibutylchlorendate (surr.)	1	%	80	125
Tetrachloro-m-xylene (surr.)	1	%	92	90

Client Sample ID			BH14_0.2-0.3	BH15_0-0.1
Sample Matrix			Soil	Soil
Eurofins Sample No.			S23-My0040506	S23-My0040507
Date Sampled			May 16, 2023	May 16, 2023
Test/Reference	LOR	Unit		
Heavy Metals				
Arsenic	2	mg/kg	4.9	9.0
Cadmium	0.4	mg/kg	< 0.4	< 0.4
Chromium	5	mg/kg	15	14
Copper	5	mg/kg	23	19
Lead	5	mg/kg	22	27
Mercury	0.1	mg/kg	< 0.1	< 0.1
Nickel	5	mg/kg	24	7.0
Zinc	5	mg/kg	32	28
Sample Properties				
% Moisture	1	%	14	18

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
JBS&G Suite 2			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	May 19, 2023	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 19, 2023	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	May 19, 2023	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	May 19, 2023	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Polycyclic Aromatic Hydrocarbons	Sydney	May 19, 2023	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Organochlorine Pesticides	Sydney	May 19, 2023	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Polychlorinated Biphenyls	Sydney	May 19, 2023	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Metals M8	Sydney	May 19, 2023	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Sydney	May 17, 2023	14 Days
- Method: LTM-GEN-7080 Moisture			

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Project Name: NORTH PARRAMATTA
Project ID: 64152

Order No.:
Report #: 990155
Phone: 02 8245 0300
Fax:

Received: May 16, 2023 4:15 PM
Due: May 23, 2023
Priority: 5 Day
Contact Name: Sarah Style

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - WA guidelines	HOLD	Moisture Set	JBS&G Suite 2
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	BH14_0.2-0.3	May 16, 2023		Soil	S23-My0040506	X		X	X
2	BH15_0-0.1	May 16, 2023		Soil	S23-My0040507	X		X	X
3	BH14_0-0.1	May 16, 2023		Soil	S23-My0040508		X		
4	BH15_0.2-0.3	May 16, 2023		Soil	S23-My0040509		X		
Test Counts						2	2	2	2

eurofins | Environment Testing

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-HCH	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-HCH	mg/kg	< 0.05			0.05	Pass	
d-HCH	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-HCH (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Total PCB*	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	103			70-130	Pass	
TRH C10-C14	%	78			70-130	Pass	
TRH C6-C10	%	103			70-130	Pass	
TRH >C10-C16	%	84			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	108			70-130	Pass	
Toluene	%	100			70-130	Pass	
Ethylbenzene	%	104			70-130	Pass	
m&p-Xylenes	%	111			70-130	Pass	
o-Xylene	%	118			70-130	Pass	
Xylenes - Total*	%	114			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	110			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	99			70-130	Pass	
Acenaphthylene	%	97			70-130	Pass	
Anthracene	%	95			70-130	Pass	
Benz(a)anthracene	%	105			70-130	Pass	
Benzo(a)pyrene	%	98			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzo(b&j)fluoranthene	%	97			70-130	Pass	
Benzo(g.h.i)perylene	%	94			70-130	Pass	
Benzo(k)fluoranthene	%	99			70-130	Pass	
Chrysene	%	94			70-130	Pass	
Dibenz(a.h)anthracene	%	94			70-130	Pass	
Fluoranthene	%	96			70-130	Pass	
Fluorene	%	95			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	95			70-130	Pass	
Naphthalene	%	93			70-130	Pass	
Phenanthrene	%	97			70-130	Pass	
Pyrene	%	96			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	88			70-130	Pass	
4.4'-DDD	%	102			70-130	Pass	
4.4'-DDE	%	89			70-130	Pass	
4.4'-DDT	%	95			70-130	Pass	
a-HCH	%	82			70-130	Pass	
Aldrin	%	92			70-130	Pass	
b-HCH	%	84			70-130	Pass	
d-HCH	%	87			70-130	Pass	
Dieldrin	%	85			70-130	Pass	
Endosulfan I	%	87			70-130	Pass	
Endosulfan II	%	85			70-130	Pass	
Endosulfan sulphate	%	93			70-130	Pass	
Endrin	%	100			70-130	Pass	
Endrin aldehyde	%	95			70-130	Pass	
Endrin ketone	%	94			70-130	Pass	
g-HCH (Lindane)	%	89			70-130	Pass	
Heptachlor	%	92			70-130	Pass	
Heptachlor epoxide	%	85			70-130	Pass	
Hexachlorobenzene	%	85			70-130	Pass	
Methoxychlor	%	88			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1016	%	92			70-130	Pass	
Aroclor-1260	%	93			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	101			80-120	Pass	
Cadmium	%	104			80-120	Pass	
Chromium	%	94			80-120	Pass	
Copper	%	108			80-120	Pass	
Lead	%	111			80-120	Pass	
Mercury	%	111			80-120	Pass	
Nickel	%	110			80-120	Pass	
Zinc	%	108			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	S23-My0041765	NCP	%	97			70-130	Pass	
TRH C10-C14	S23-My0038686	NCP	%	100			70-130	Pass	
TRH C6-C10	S23-My0041765	NCP	%	98			70-130	Pass	
TRH >C10-C16	S23-My0038686	NCP	%	102			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
BTEX				Result 1					
Benzene	S23-My0041765	NCP	%	104			70-130	Pass	
Toluene	S23-My0041765	NCP	%	101			70-130	Pass	
Ethylbenzene	S23-My0041765	NCP	%	98			70-130	Pass	
m&p-Xylenes	S23-My0041765	NCP	%	106			70-130	Pass	
o-Xylene	S23-My0041765	NCP	%	111			70-130	Pass	
Xylenes - Total*	S23-My0041765	NCP	%	107			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S23-My0041765	NCP	%	92			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S23-My0041010	NCP	%	87			70-130	Pass	
Acenaphthylene	S23-My0041010	NCP	%	87			70-130	Pass	
Anthracene	S23-My0041010	NCP	%	85			70-130	Pass	
Benz(a)anthracene	S23-My0041010	NCP	%	103			70-130	Pass	
Benzo(a)pyrene	S23-My0041010	NCP	%	93			70-130	Pass	
Benzo(b&j)fluoranthene	S23-My0041010	NCP	%	92			70-130	Pass	
Benzo(g.h.i)perylene	S23-My0041010	NCP	%	100			70-130	Pass	
Benzo(k)fluoranthene	S23-My0041010	NCP	%	93			70-130	Pass	
Chrysene	S23-My0041010	NCP	%	91			70-130	Pass	
Dibenz(a.h)anthracene	S23-My0041010	NCP	%	99			70-130	Pass	
Fluoranthene	S23-My0041010	NCP	%	88			70-130	Pass	
Fluorene	S23-My0041010	NCP	%	87			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S23-My0041010	NCP	%	97			70-130	Pass	
Naphthalene	S23-My0041010	NCP	%	84			70-130	Pass	
Phenanthrene	S23-My0041010	NCP	%	87			70-130	Pass	
Pyrene	S23-My0041010	NCP	%	92			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S23-My0041010	NCP	%	79			70-130	Pass	
4.4'-DDD	S23-My0041010	NCP	%	97			70-130	Pass	
4.4'-DDE	S23-My0041010	NCP	%	81			70-130	Pass	
4.4'-DDT	S23-My0041010	NCP	%	84			70-130	Pass	
a-HCH	S23-My0041010	NCP	%	79			70-130	Pass	
Aldrin	S23-My0041010	NCP	%	76			70-130	Pass	
b-HCH	S23-My0041010	NCP	%	77			70-130	Pass	
d-HCH	S23-My0041010	NCP	%	76			70-130	Pass	
Dieldrin	S23-My0041010	NCP	%	76			70-130	Pass	
Endosulfan I	S23-My0041010	NCP	%	79			70-130	Pass	
Endosulfan II	S23-My0041010	NCP	%	76			70-130	Pass	
Endosulfan sulphate	S23-My0041010	NCP	%	82			70-130	Pass	
Endrin	S23-My0041010	NCP	%	93			70-130	Pass	
Endrin aldehyde	S23-My0041010	NCP	%	81			70-130	Pass	
Endrin ketone	S23-My0041010	NCP	%	83			70-130	Pass	
g-HCH (Lindane)	S23-My0041010	NCP	%	80			70-130	Pass	
Heptachlor	S23-My0041010	NCP	%	85			70-130	Pass	
Heptachlor epoxide	S23-My0041010	NCP	%	76			70-130	Pass	
Hexachlorobenzene	S23-My0041010	NCP	%	78			70-130	Pass	
Methoxychlor	S23-My0041010	NCP	%	85			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1016	S23-My0041010	NCP	%	84			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Aroclor-1260	S23-My0041010	NCP	%	80			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S23-My0038686	NCP	%	79			75-125	Pass	
Cadmium	S23-My0038686	NCP	%	103			75-125	Pass	
Chromium	S23-My0039813	NCP	%	77			75-125	Pass	
Copper	S23-My0039813	NCP	%	84			75-125	Pass	
Lead	S23-My0038686	NCP	%	88			75-125	Pass	
Mercury	S23-My0039813	NCP	%	94			75-125	Pass	
Nickel	S23-My0038686	NCP	%	103			75-125	Pass	
Zinc	S23-My0039813	NCP	%	83			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	S23-My0042194	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S23-My0039821	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S23-My0039821	NCP	mg/kg	83	84	2.2	30%	Pass	
TRH C29-C36	S23-My0039821	NCP	mg/kg	220	230	3.8	30%	Pass	
TRH C6-C10	S23-My0042194	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S23-My0039821	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S23-My0039821	NCP	mg/kg	230	240	3.7	30%	Pass	
TRH >C34-C40	S23-My0039821	NCP	mg/kg	160	160	3.4	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S23-My0042194	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S23-My0042194	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S23-My0042194	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S23-My0042194	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S23-My0042194	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S23-My0042194	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S23-My0042194	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S23-My0040506	CP	mg/kg	4.9	6.5	28	30%	Pass	
Cadmium	S23-My0040506	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S23-My0040506	CP	mg/kg	15	17	10	30%	Pass	
Copper	S23-My0040506	CP	mg/kg	23	24	6.6	30%	Pass	
Lead	S23-My0040506	CP	mg/kg	22	23	6.2	30%	Pass	
Mercury	S23-My0040506	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S23-My0040506	CP	mg/kg	24	24	<1	30%	Pass	
Zinc	S23-My0040506	CP	mg/kg	32	37	15	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	S23-My0039891	NCP	%	11	12	9.7	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised by:

Andrew Black	Analytical Services Manager
Mickael Ros	Senior Analyst-Metal
Roopesh Rangarajan	Senior Analyst-Volatile
Roopesh Rangarajan	Senior Analyst-Organic
Laxman Dias	Senior Analyst-Asbestos



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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CHAIN OF CUSTODY

JBS&G

PROJECT NO.: 64152
PROJECT NAME: North Parramatta
DATE NEEDED BY: STD TAT
LABORATORY BATCH NO.:
SAMPLERS: S.Style
QC LEVEL: NEPM (2013)
PHONE: Sydney: 02 8245 0300 | Perth: 08 9488 0100 | Brisbane: 07 3112 2688
SEND REPORT & INVOICE TO: **(1) adminnsw@jbsg.com.au; (2) sstyle@jbsg.com.au**

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	JB2A	HOLD	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES:
BH14_0-0.1	Soil	16/5		Tub ice			x			
_0.2-0.3	↓	↓		↓		x				
BH15_0-0.1						x				
_0.2-0.3							x			

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: Sarah Style DATE: 16/05/2023 OF: JBS&G	CONSIGNMENT NOTE NO. TRANSPORT CO.	NAME: DATE: 16/5/23 OF: Eurofins 4:15pm	COOLER SEAL – Yes..... No ..... Intact ..... Broken ..... COOLER TEMP 0.9 deg C
NAME: DATE: OF:	CONSIGNMENT NOTE NO. TRANSPORT CO	NAME: DATE: OF:	COOLER SEAL – Yes..... No ..... Intact ..... Broken ..... COOLER TEMP ..... deg C

Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Prsvd.; C = Sodium Hydroxide Prsvd; VC = Hydrochloric Acid Prsvd Vial; VS = Sulfuric Acid Prsvd Vial; S = Sulfuric Acid Prsvd; Z = Zinc Prsvd; E = EDTA Prsvd; ST = Sterile Bottle; O = Other

IMSO FormsO13 – Chain of Custody – Generic

990155

eurofins | Environment Testing

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Sample Receipt Advice

Company name:	JBS & G Australia (NSW) P/L
Contact name:	Sarah Style
Project name:	NORTH PARRAMATTA
Project ID:	64152
Turnaround time:	5 Day
Date/Time received	May 16, 2023 4:15 PM
Eurofins reference	990155

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	Sample Temperature of chilled sample on the batch as recorded by Eurofins Sample Receipt : .9 degrees Celsius.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
✗	Split sample sent to requested external lab.
✗	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Andrew Black on phone : (+61) 2 9900 8490 or by email: AndrewBlack@eurofins.com

Results will be delivered electronically via email to Sarah Style - sstyle@jbsg.com.au.

Global Leader - Results you can trust

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2	1 x Electronic	TSA	11/10/2023

Document Status

Rev No.	Author	Reviewer	Approved for Issue		
		Name	Name	Signature	Date
A	Sarah Style	Matthew Bennett	Matthew Bennett	Draft for client review	29/03/2023
0	Sarah Style	John De Martin	John De Martin		5/06/2023
1	Sarah Style	John De Martin	John De Martin		2/08/2023
2	Sarah Style	John De Martin	John De Martin		11/10/2023

