Bank Street Park
Blackwattle Bay / Tjerruing

SSD-53386706

Appendix X

Geotechnical Assessment (JK Geotechnics)

December 2023

REPORT TO

INFRASTRUCTURE NSW

ON

GEOTECHNICAL ASSESSMENT

FOR

PROPOSED BANK STREET PARK

AT

1A-19 BANK STREET, PYRMONT, NSW

Date: 28 November 2023
Ref: 36050BFrpt Rev1

JKGeotechnics
www.jkgeotechnics.com.au

T: +61 2 9888 5000
JK Geotechnics Pty Ltd
ABN 17 003 550 801

Report prepared by:

Owen Fraser
Associate | Geotechnical Engineer

Report reviewed by:

Paul Stubbs
Principal | Geotechnical Engineer

For and on behalf of
JK GEOTECHNICS
PO BOX 976
NORTH RYDE BC NSW 1670

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ATTACHMENTS

Appendix D: Borehole Logs from 2023 JBS&G Investigation

Report Explanation Notes

1 INTRODUCTION

The purpose of this report is to present the results of a geotechnical assessment to support a State Significant Development Application (SSDA) for a new waterfront public park within Blackwattle Bay, to be known as Bank Street Park (SSD-53386706). Bank Street Park is located at 1A-19 Bank Street, Pyrmont on the shoreline of Tjerruing Blackwattle Bay and adjacent areas of Blackwattle Bay. The location of the site is shown in Figure 1. The assessment was commissioned by Infrastructure NSW and was carried out in general accordance with our fee proposal, Ref: P58523S, dated 21 April 2023.

The purpose of the assessment was to obtain geotechnical information on the subsurface conditions, and to use this as a basis for providing comments and recommendations on site preparation, design parameters, footings and the Sydney Metro tunnel. The report is also to address components of Item 15 "*Ground and Water Conditions"* in accordance with the Secretary's Environmental Assessment Requirements (SEARs), Ref: SSD-53386706, dated 11 May 2023. We note that others will address salinity and acid sulphate soils and those items have not been included in this report.

2 BLACKWATTLE BAY PRECINCT

Bank Street Park forms part of the Blackwattle Bay Precinct, which is an area of predominantly government owned land located on the western edge of the Pyrmont Peninsula and adjoining the waters of Blackwattle Bay (Plate 1).

Plate 1 – Blackwattle Bay Precinct. Source: INSW

The precinct was rezoned in December 2022 to facilitate a new mixed-use community, providing for around 2,000 new residents and 5,600 new jobs and creating a vibrant 24/7 economy. Updated planning and land use controls were incorporated into the Sydney Local Environmental Plan 2012, along with site specific design guidance in the *Blackwattle Bay Design Guidelines.*

A critical part of the Blackwattle Bay Precinct is the high quality public domain which includes a series of parks and open spaces connected by a foreshore promenade. Bank Street Park will bring new active and passive recreation uses into a unique park environment, catering for both existing and future communities in the vicinity.

3 SITE LOCATION

Bank Street Park is located at 1A-19 Bank Street, Pyrmont NSW within the City of Sydney local government area (LGA) and includes harbour development in Blackwattle Bay. The site area is 1.9 hectares, including 0.7 hectares of harbour. The relevant lot and deposited plans and the respective ownership for the site are detailed in **Table 1** and shown in **Figure 2**.

Table 1 Summary of land title details of the site

Street address	Lot and Deposited Plan details	Ownership
1A Bank Street, Pyrmont NSW 2009	Lot 1 DP 85206 Lot 1 DP 188671	Transport for NSW
1-3 Bank Street, Pyrmont NSW 2009	Lots 1-2 DP 1089643 Lot 1 DP 439245	Infrastructure NSW
5 Bank Street, Pyrmont NSW 2009	Lot 20 DP 803159	Transport for NSW
7 Bank Street, Pyrmont NSW 2009	Lot 19 DP 803159	Transport for NSW
9 Bank Street, Pyrmont NSW 2009	Lot 21 DP 803159	Transport for NSW
11 Bank Street, Pyrmont NSW 2009	Lot 22 DP 803159	Transport for NSW
17-19 Bank Street, Pyrmont NSW 2009	Lots 5-6 DP 803160	Transport for NSW
Sydney Harbour	Lot 5 DP 1209992	Roads and Maritime Services (Transport for NSW)
Sydney Harbour	Lot 107 in DP 1076596	Transport for NSW
Part Bank Street road reserve	N/A	City of Sydney Council

Bank Street Park is located on Gadigal Land, one of the twenty-nine clans of the great Eora Nation. It adjoins the foreshores of Glebe to the west and Pyrmont Bridge Road and Wentworth Park to the south.

Figure 1 Site context map
The indicative site location is outlined in red.
Source: SixMaps with Architectus edits (2023)

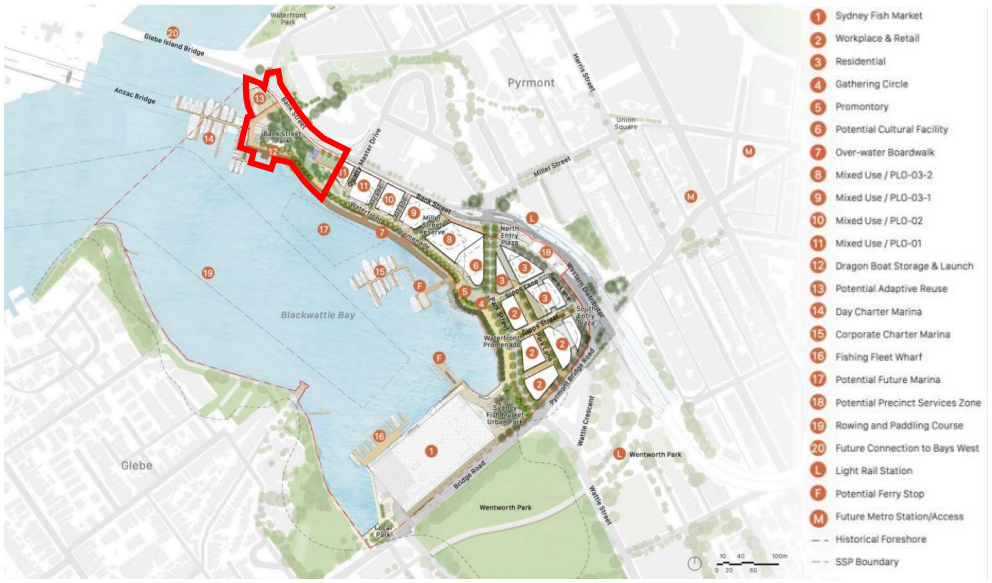


Figure 2 Bank Street Park site location within Blackwattle Bay State Significant Precinct
The indicative site location is outlined in red.
Source: Blackwattle Bay Design Guidelines with Architectus edits (2023)

4 PROPOSED DEVELOPMENT

Development consent is being sought for a *recreation area* for the primary purpose of a *public park*, comprising:

- Site preparation works, including tree removal, earthworks and remediation to facilitate the proposed use;
- Demolition of three existing buildings at 1-3 Bank Street;
- New and adapted facilities for community use, including:
  - New single storey building to accommodate flexible community space, café, and marina office/store facilities, with green roof and photovoltaics;
  - Adaptive reuse of Building D for public amenities, bin and other storage;
  - Boat launching ramp and pontoon for passive watercraft, including dragon boats and kayaks;
  - Boat storage building with change facilities for dragon boat users with publicly accessible rooftop deck;
- Public domain works, including:
  - 'Interpretation Garden' in existing building 'ruins' at 1-3 Bank Street;
  - Split level foreshore promenade;
  - Multi-purpose court with edge seating and partial fence;
  - Nature-based inclusive playspace for ages 2-12;
  - Fitness equipment;
  - Public plaza and grassed open space areas;
  - New tree plantings and planter beds;
  - Public art, wayfinding and interpretative signage, lighting, bike parking and seating;
- Harbour works including:
  - Overwater boardwalk;
  - Land/water interface works, including sandstone terracing into water and support structure, to improve marine habitat;
  - Demolition and construction of a new timber launching ramp for dragon boats;
  - Kayak/passive craft pontoon; and
  - Restoration, repair and alterations to the existing seawall for new stormwater outlets.
- Works to Bank Street road reserve, including:
  - Road space reallocation to provide separated cycleway;
  - Cycleway transition to Bank Street to continue south as part of future works;
  - Reinstatement of existing on-street parallel parking;
  - Tree planting;
  - Accessible parking space; and
  - Loading zone adjacent 1-3 Bank Street.

5 SEARS

This report has been prepared in response to the relevant requirements outlined within the Planning Secretary's Environmental Assessments Requirements (SEARs) issued on 11 May 2023 for application SSD-53386706. **Table 2** addresses the relevant SEARs requirements and provides a project response in relation to Item 15.

Table 2 Secretary's Environmental Assessments Requirements

Item	SEARs	Relevant report section(s)
15	**Ground and Water Conditions**	
	• Assess potential impacts on soil resources and related infrastructure and riparian lands on and near the site, including soil erosion, salinity, and acid sulfate soils.	Addressed by the environmental consultant in a separate report
	• The EIS must map features relevant to water and soils including acid sulfate soils, rivers, streams, wetlands, estuaries, groundwater and groundwater dependent ecosystems, and proposed intake and discharge locations.	Addressed by the environmental consultant in a separate report
	• The EIS must describe background conditions for any likely to be affected by the development, including existing surface and groundwater, hydrology, including volume, frequency and quality of discharges at proposed intake and discharge locations	See Section **8.2** for details. Groundwater not expected to be encountered.
	• Provide a Surface and Groundwater Impact Assessment that:	
	○ describes any works/activities that may intercept, extract, use, divert or receive surface water and/or groundwater. This includes the description of any development, activities or structures that will intercept, interfere with or remove groundwater, both temporary and permanent.	See Section **8.2** for details. Groundwater not expected to be encountered.
	○ details of the water balance including quantity, quality and source and take for the life of the project and post closure where applicable. This is to include water taken directly and indirectly, and the relevant water source where water entitlements are required to account for the water take. If the water is to be taken from an alternative source confirmation should be provided by the supplier that the appropriate volumes can be	See Section **8.2** for details. Groundwater not expected to be encountered.

Item	SEARs	Relevant report section(s)
	obtained. ○ details of Water Access Licences (WALs) held to account for any take of water where required, or demonstration that WALs can be obtained prior to take of water occurring. This should include an assessment of the current market depth where water entitlement is required to be purchased. Any exemptions or exclusions to requiring approvals or licenses under the Water Management Act 2000 should be detailed by the proponent. ○ assesses potential impacts on: ○ surface water resources (quality and quantity) including related infrastructure, hydrology, dependent ecosystems, drainage lines, downstream assets and watercourses. ○ groundwater resources in accordance with the *Groundwater Guidelines*. • Assess the impact on the Sydney Metro West substratum directly beneath the land including: ○ details of any proposed penetrative subsurface investigations (e.g. boreholes) 2m or deeper to be drilled within the first or second protection reserve ○ consideration of the Sydney Metro Underground Corridor Protection Guidelines and	Water Access Licenses not required as no aquifer interference activities to occur. Addressed by the environmental consultant in a separate report Addressed by the environmental consultant in a separate report No penetrative subsurface investigations proposed given geotechnical data already available across the site from previous investigations. See Section **8.6** for details. No impact to Sydney Metro expected.

6 ASSESSMENT PROCEDURE

The assessment comprised:

- A site walkover on 1 June 2023 by our Associate Geotechnical Engineer.
- A search of the JK Geotechnics project database to identify relevant geotechnical investigations completed nearby.
- A review of the draft JBS&G environmental report.
- A review of aerial photography and digital street view (NearMap and Google Earth).
- A review of the regional geology maps.

No subsurface investigations were carried out as part of this assessment.

7 RESULTS OF ASSESSMENT

7.1 Site Description

The subject site is located on the south-western corner of the Pyrmont peninsula, below the approach and eastern pylon of the ANZAC Bridge, on land sloping down to the south and south-west towards Blackwattle Bay. The also extends beyond the foreshore into the harbour. Refer to Section 3 above for lot and DP details.

Bank Street is located along the north-eastern side of the property, and has been excavated into the hillside, resulting in near vertical sandstone cliff faces on the northern side of the road. The subject site is a foreshore area bound to the north-east by Bank Street, and the 30m to 40m of the site closest to Bank Street is relatively level. This relatively level area is substantially gravel covered and contains carparking, boat storage and boat maintenance facilities associated with the Blackwattle Bay Dragon Boat Club at the eastern end, and a partially sealed compound at the western end.

The southern foreshore is formed by 1.0m concrete and 1.5m to 2.0m high sandstone block seawalls that appear to be in good condition. On the low side of the seawall, sandstone rubble appears to have been placed to provide erosion protection to the toe of the wall. Over the central and western portions of the seawall, there is a near level terrace of several metres width behind the seawall. It appears that the site has been levelled, and that the western end of the site has been reclaimed from Blackwattle Bay, probably during the construction of the ANZAC Bridge. Columns supporting the approach spans to the ANZAC Bridge are located toward the eastern end of the site, while the eastern pylon of the Bridge is located toward the western end of the site. A 1.8m high concrete block retaining wall is located around the northern and eastern (high) sides of this eastern pylon.

At approximately mid-length of the seawall, a metal framed plastic mesh covered boat ramp supported on concrete piers extends into Blackwattle Bay. An asphaltic concrete surfaced driveway leads from the top of the ramp to the previously described boat storage level.

Several trees were located along the eastern boundary and eastern end of the southern boundary.

The hydrographic survey supplied by UrbanGrowth NSW shows the bed level of Blackwattle Bay on the low side of the seawall to slope down to the south-west to a lowest level of -8m AHD within the nominated site boundaries.

To the north-west of the site is a dilapidated single storey brick warehouse, which appears to be associated with an electricity substation, with a 2m high sandstone block seawall along its south-western foreshore boundary. To the east of the site is a partially AC paved car parking area associated with the neighbouring commercial premises.

7.2 Subsurface Conditions

7.2.1 Previous Investigations

Based on our review of our database and project information, the following investigations have relevant geotechnical information at the subject site:

- JK Geotechnics carried out an on-shore and off-shore geotechnical investigations in 2015 and 2016 comprising of nineteen (19) cored boreholes extending to depths between 5.1m and 37.5m below existing surface levels. The borehole logs from this investigation have been attached as Appendix B. Sections of the boreholes generated during this investigation have also been provided as Appendix A.
- JK Geotechnics carried out an on-shore and off-shore geotechnical investigation in 2017 for the new fish market development comprising twenty-eight (28) cored boreholes. Three boreholes, BH26 to BH28, are relevant to the proposed development and these boreholes extended to termination depths between 8.5m and 13.0m. These borehole logs have been attached as Appendix C.
- JBS&G carried out an on-shore investigation in 2023 as part of the current development proposal and comprised sixteen (16) augered boreholes extending to refusal depths between 0.3m and 7.2m below existing surface levels. Whilst these boreholes have not been logged by a geotechnical engineer and are therefore lacking the usually required geotechnical information, the boreholes still provide useful information, primarily the depth to the top of bedrock. These borehole logs have been attached as Appendix D.

Reference should be made to the attached Figures 2 and 3 for the borehole location plan and rock contour plan. It should be noted that the rock contours are based on uniform gradients of the rock surface between points of known level; the actual surface may well comprise a series of steps and benches which should be taken into account when considering any future developments.

7.2.2 General Geology and Subsurface Conditions

The 1:100,000 Geological Series Sheet for Sydney 9130 shows the site to be underlain by Hawkesbury Sandstone. In general terms, the on-shore portion of the site is underlain by fill overlying sandstone bedrock, while the off-shore area contains both sands and clays over sandstone bedrock. Many of the boreholes closer to the shore have disclosed significant amounts of sandstone rubble of cobble and boulder size, within a matrix of clay and sand; this layer is assumed to be from the reclamation of the site with sandstone rubble being pushed into the bay, and at least some of the lower strength soil being displaced.

The subsurface conditions encountered during the investigations comprise five main units, including one unit, Unit 4, which is split into two sub-units, Units 4A and 4B. Some of the characteristic features of the materials encountered are described below. For further details of these strata, reference should be made to the attached borehole logs.

UNIT 1

Unit 1 comprises granular terrestrial fill, mostly sand and gravelly sand with varying proportions of silt, clay and sometimes sandstone cobbles. The fill was mostly moist, with the upper material usually being assessed as well compacted, but reducing to moderately or poorly compacted with depth. This unit had a maximum thickness of about 4.5m in the boreholes.

UNIT 2

Unit 2 comprises predominantly granular fill material present below the high tide level, often comprising clayey sand or gravelly sand, though in places comprises a significant proportion of sandstone cobbles and boulders with an infill of sand or clayey sand. This material was assessed to be poorly compacted, and likely comprises fill material pushed into the bay which has largely displaced the very soft clayey soil from the near shore area. These soils had a maximum thickness of about 9m in the boreholes.

UNIT 3

The recent marine deposits comprise silty clay of high plasticity with high and very high moisture contents and these have been termed Unit 3. These soils are of very soft strength and range in thickness to about 5m.

UNIT 4

Unit 4 is a less consistent unit comprising both sands and clays, and has been subdivided into two sub-units. Unit 4A comprises mostly silty sands and clayey sands which are of very loose or loose relative density, but with bands of very soft to stiff silty clay. In the boreholes more remote from the shore, this unit comprises predominantly clayey material. In the areas further offshore where there are considerable thicknesses of clay soils there seems to be an inversion in the strength profile with stiffer clays overlying softer clays; this may be due to desiccation effects during deposition where surface layers became exposed at some stage. Toward the base of Unit 4, the strength of the clayey soils often reduces, and is as low as very soft or soft strength in the lower several metres of the silty clay.

Unit 4B is a sub-unit within Unit 4 in which the sandy soils are generally of medium dense relative density, and the clays are of stiff or very stiff strength.

UNIT 5

Unit 5 comprises sandstone bedrock, and was encountered from depths ranging between 1.0m and 25.4m below the existing surface levels. The majority of the sandstone was of medium or high strength, though there were several boreholes where the sandstone was of much lower strength, such as BH5, and others where there were bands of lower strength rock between layers of medium or high strength sandstone, such as BH13 and BH18.

There were generally relatively few defects in the sandstone, and these comprised thin near horizontal bedding partings, clay seams and extremely weathered seams, as well as steeply inclined joints. There were also several boreholes where there were significantly more defects or clusters of defects such as BH5, BH15, BH16, BH17 and BH18. There were also significant core losses within the sandstone in several of the boreholes which usually represent extremely weathered seams eroded by the water flush. A number of igneous dykes are present within the locally vicinity, although none are known to intersect the subject site. Furthermore, whilst none of the boreholes appeared to encounter evidence of a dyke, these remains a residual risk that a dyke may be encountered during construction.

7.3 Laboratory Test Results

Soil (Unit 3)

The moisture content test results returned values as high as 80% in the very soft clays, with many results above 30%; moisture contents of this magnitude reflect the very low strength of these soils.

The Atterberg limits tests show the clayey soils are of high plasticity, with liquid limits ranging between 52% and 70%, with linear shrinkage values ranging between 13.5% and 17.0%.

The particle size distribution tests, including the hydrometer analysis, confirm the soils to range from silty clay, with up to 61% clay, to clayey sand and silty clayey sand.

The Emerson Class Number tests returned values of Class 1 or 2 for most of the samples tested with fresh water, indicating a high potential for dispersion/erosion. The results of the same samples tested in 'seawater' prepared in the laboratory returned values of Class 4, indicating a low to moderate dispersion potential for salt water environments.

Soil Aggression

The samples tested for soil aggression returned results comprising soil pH ranging between 6.3 and 8.3, with sulphate contents between 22 and 2,600mg/kg and chloride contents between 69 and 9,900mg/kg. The resistivity values varied between 140 and 2,900 ohm.cm. These values, and the presence of structures within the splash zone of seawater combine to produce a 'severe' exposure classification.

Rock

The point load strength test results correlated well with the field logging assessment of rock strength. Correlations from the point load strength index tests suggest the sandstone strength ranges up to about 48MPa, but with an average value of about 16MPa.

8 COMMENTS AND RECOMMENDATIONS

8.1 Site Preparation

The following subgrade preparation should be undertaken in any areas where new pavements will be constructed or minor earthworks are undertaken to regrade the site.

Any existing pavement should be removed from the area and disposed of. Any excavation to achieve the required subgrade level should then be readily achieved using conventional earthmoving equipment such as tracked excavators, though we note that the presence of oversize particles such as cobbles in the fill may cause some difficulties in scraping back to a smooth surface and result in a rough excavated surface.

The exposed surface should then be proof rolled using at least six passes of a 10 tonne minimum deadweight smooth drum roller, with the final two passes being completed in the presence of a geotechnical engineer. The purpose of the proof rolling is to improve the near surface compaction and to aid in the identification of any soft or heaving areas. Soft or heaving areas should be excavated to a depth of at least 0.7m below the proposed subgrade level, and will probably have to be replaced with a geogrid and crushed rock bridging layer; this bridging layer or other treatment should be detailed at the time of proof rolling so that it appropriately addresses the issue causing the heaving.

Following successful proof rolling, any fill required to achieve the subgrade level should be placed as engineered fill. Engineered fill should comprise a well graded, select granular material such as ripped or crushed sandstone with a maximum particle size not exceeding 75mm, and containing no organics or other deleterious substances. Any fill excavated from the site is likely to be suitable for reuse as engineered fill, subject to confirmation by a geotechnical engineer at the time of the works, provided any oversize material is removed such as by using a sieve bucket on an excavator.

Engineered fill should be placed in layers not exceeding 200mm loose thickness, and be compacted to a density of at least 98% of Standard Maximum Dry Density (SMDD). Clayey fill should preferably not be used as it is a more reactive material where there could be changes in moisture content, and it provides inferior support to structures and pavements than granular fill. However if clayey fill is used, it should be compacted to strictly between 98% and 102% of SMDD, at a moisture content with 2% of the Standard Optimum Moisture Content (SOMC).

In-situ density tests should be completed on each layer of fill to confirm the target density is being achieved. The frequency of tests should be completed in accordance with at least the minimum requirements specified

in Table 8.1 of AS3798-2007. If a higher level of quality assurance is required, then consideration should be given to adopting Level 1 inspection and testing in accordance with AS3798-2007.

8.2 Groundwater

Tidal groundwater is expected to present at the site and where bedrock is above sea level we also expect some groundwater seepage flows will occur at the soil-rock interface, particularly after periods of heavy rain. Whilst groundwater is not expected to be encountered during construction, seepage, if any, is expected to be satisfactorily controlled by a sump and pump system that discharges groundwater inflows to the Council stormwater system. Discharge to the bay may be subject to environmental considerations. In the long-term, groundwater is not expected to be encountered and therefore no long-term dewatering is expected.

8.3 Design Parameters

Our recommended design parameters for the soil and rock are provided in the attached Table 1, and these have been assessed from typical values for these types of materials, and also from correlations from the strength measurements taken during this investigation. If additional subsurface information becomes available, these parameters should be reviewed to confirm they are still appropriate.

The friction angle for the stiff and very stiff clays is relatively low as it takes into account the possibility of fissuring of the clays, as often happens in similar environments. Higher friction angles may be possible if an intensive investigation proves the absence of fissuring.

8.4 Footings

8.4.1 General

Due to the presence of uncontrolled fill, our preference for proposed structures are to designed as fully suspended and supported on footings that are uniformly founded into the underlying sandstone bedrock. However, if the proposed structures are relatively lightweight and flexible than alternative high level footings in the existing fill could be considered on a case by case basis.

For the proposed Community Café and Marina, the top of bedrock level is estimated to vary between RL-2m and RL3m with the bedrock deepening towards the Bay. For the proposed dragon boat store, bedrock is expected at between RL-3m and RL-1m, although may be deeper towards the southern extent. Based on these levels, high level pad and/or strip footings may be feasible if bedrock is sufficiently shallow, say less than 1m below finished level, which is likely only achievable over a small portion of the proposed Marina. If high level footings are not feasible, as expected for the most part, then piles will need to be adopted. For the subject site, we consider two pile types could be considered as follows:

- Cased Bored Piles: These piles combine conventional bored pile drilling techniques with the use of a heavy steel liner which is drilled down to the top of the bedrock profile using the same drill rig. The liner is typically installed progressively as the bored pile extends down through the soil profile. The liner is used to support the soil profile and keep the hole open so that the pile can be socketed into the bedrock profile. As the piles can be socketed into the bedrock profile, they are then able to transfer both lateral and vertical loads (compression and tension) through the bedrock socket length. Uncased bored piles are unlikely to be suitable over much of the site due to the groundwater ingress and risk of borehole collapse, however a trial pile could be undertaken on commencement to assess the feasibility. At the north-eastern edge of the site where rock is present at shallow depth then uncased piles may be suitable but we recommend a trial pile is drilled to assess the feasibility.
- Continuous Flight Auger Piles: Continuous flight auger (CFA) piles are installed using a hollow stemmed auger through which grout is pumped into the pile hole as the auger is extracted. As the auger flights extend the full length of the pile, the pile hole is fully supported at all times. However, due to limitations with this system, most CFA piling rigs are able to provide only limited crowd force to the auger head, and hence, a large CFA piling rig would be required to socket into the high strength bedrock profile.

Piers will be required to support the proposed harbour boardwalk that extends beyond the foreshore. Cased bored piers would be suitable for these piers. Alternatively, consideration could be given to driven piles, however the piles are unlikely to be able to penetrate into the better quality bedrock and therefore this would need to be considered in the pile design. Furthermore, the potential impact of vibrations generated during the driving process on nearby structures would need to be considered. Where vibration sensitive structures are present, we do not recommend driven piles. Whilst these piles could be founded on the sandstone bedrock, given the expected light loads of the boardwalk, if may be feasible to found these piles within the clays of stiff strength or better or sands of medium dense relative density or better, i.e. should be founded below any soft soils.

8.4.2 Footing on Bedrock

The sandstone bedrock encountered in each of the boreholes has been classified in accordance with "Foundations on Sandstone and Shale in the Sydney Region" by Pells, Mostyn and Walker, Australian Geomechanics, December 1998, with the classifications provided in the attached Table 2. The classification of the rock using this system is dependent upon the size of the pile, and so to allow this assessment a pile diameter of 0.6m has been assumed. If differing pile sizes are used, the designer should check the rock classification using the information provided in the borehole logs and Table 2. The designer must also note that there are several of the rock classifications followed by an asterisk (*); this denotes that within the depth of rock referenced, there are bands of lower quality rock, and so any piles founded in that strata and location should be assessed by the designer.

The ultimate shaft friction, ultimate allowable end bearing pressure, and serviceability end bearing pressure for each class of sandstone are provided in the following table. The lateral spring stiffness values for each of the strata is provided in the attached Table 1 based on a loaded area of 0.75m diameter. We note that the

serviceability parameters given are based on settlement of less than 1% of the pile diameter or footing width. The ultimate parameters may be used with limit state design methodology on the understanding that detailed settlement analysis of footings must also be carried out to assess likely settlements under these higher pressures. We note that the use of ultimate pressures can produce settlements up to 5% of the pile diameter or footing width. Differential settlements of about half the total settlements would be expected.

Sandstone Class	Ultimate Shaft Adhesion (kPa)	Ultimate End Bearing Pressure (kPa)	Serviceability End Bearing Pressure (kPa)
II/I	1,500	60,000	6,000
III	800	20,000	3,500
IV	350	4,000	2,000
V	150	2,000	1,000

All piles should be founded with a nominal socket of at least 0.3m into the appropriate class of rock. For the design of sockets into the rock, the shaft adhesion should be ignored within the 0.3m nominal socket. For the design of piles in uplift, shaft adhesions of half the shaft adhesions provided in the table above may be used. The shaft adhesion values assume that adequate socket roughness and cleanliness is maintained.

Where footings are founded within Class V or Class IV Rock, we consider that at least the initial stages of footing excavation should be inspected by a geotechnical engineer to confirm that a suitable founding stratum has been achieved. The requirements for further inspections can be decided at that time, and the frequency will depend on the level of 'sign-off' required.

Where footings are designed based on Class III bedrock parameters, targeted drilling of the additional boreholes at selected pile locations must be carried out and the drilling of all piles be inspected by a geotechnical engineer. Where footings are designed based on Class II bedrock parameters, we recommend that additional cored boreholes be drilled at a minimum of 50% of the pile locations and the drilling of all piles be inspected by a geotechnical engineer. The final extent of the boreholes should be determined once the footing layout has been determined.

8.4.3 Footings on Soil

The following recommendations for high level footings in fill assume that the performance of the structures can be monitored, and if differential settlement occurs, the structures can be jacked level and appropriate packing placed to regain an appropriate level. If such monitoring and maintenance will not be acceptable, then the structures should be supported on piles founded within the sandstone bedrock.

Structures on uncontrolled fill could be founded on the high level footings founded with an embedment of at least 0.5m below the surrounding surface level, where footings with a width of at least 0.5m may be designed for an allowable bearing pressure of 50kPa. Such footings would be expected to undergo elastic settlements of less than 10mm, though there could be additional long-term creep settlements occurring

within the fill and so the performance of these footings should be monitored and the structures relevelled as necessary.

The following table presents our recommended design parameters for piles founded within the soils. The pile design parameters for the clayey soils assumes the piles have an embedment into soil (excluding the very soft or soft Unit 3 marine sediment) of at least four pile diameters, and that there are at least three pile diameters of clay of the same or greater strength, or medium dense sand, both above and below the toe of the piles.

The pile design parameters for the sandy soils of at least loose strength are based upon a pile diameter of at least 0.6m, with an embedment of at least 3.6m, and with at least three pile diameters of loose or medium dense sand, or bedrock, below the pile toe.

The pile design parameters for the sandy soils of at least medium dense relative density are based upon a pile diameter of at least 0.6m, with an embedment of at least 4.8m, and with at least three pile diameters of medium dense sand or rock below the pile toe.

Soil Type	Consistency / Relative Density	Assumptions In Parameter Assessment	Pile Type	Ultimate Shaft Adhesion (kPa)	Ultimate End Bearing Pressure (kPa)	Serviceability End Bearing Pressure
Clay	Stiff (c_u>50kPa)	Assumes at least 3 pile diameters embedment into this strength of clay, at least 4 pile diameters embedment into soil and at least 3 pile diameters of this strength of soil below the pile toe	N/A	50	450	150
	Very Stiff (c_u>100kPa)		N/A	50	900	300
Sand	Loose	Pile diameter at least 0.6m, embedment at least 3.6m into soil, with at least 3 pile diameters of loose sand above and below the pile toe	Augered	5	800	250
			Driven	12	1,900	600
Sand	Medium Dense	Pile diameter at least 0.6m, embedment at least 3.6m into soil, with at least 3 pile diameters of loose sand above and below the pile toe	Augered	11	2,500	850
			Driven	22	4,300	1400

8.5 Pavement Design Parameters

New pavements will be required for the proposed development, typically comprising of footpaths but we also assume lightweight vehicles. The design of new pavements will depend on subgrade preparation, subgrade drainage, the nature and composition of fill excavated or imported to the site, as well as vehicle loadings and use. Various alternative types of construction could be used for the pavements. Concrete construction would undoubtedly be the best in areas where heavy vehicles maneuver. Flexible pavements may have a lower initial cost but maintenance will be higher. These factors should be considered when making the final choice.

Where the existing granular fill will provide the subgrade, the pavements could be provisionally designed for a CBR value of 5%, though it will be necessary at the time of construction to have soaked CBR tests completed on the subgrade to confirm the design value.

The pavement sections where imported fill is used to raise site levels by at least 0.5m may be designed on the basis of a four-day soaked CBR value of the imported fill material. However, further geotechnical advice must be sought as there would be the potential for differing pavement construction thicknesses depending on the quality of the fill being imported.

Concrete pavements should have a sub-base layer of at least 100mm thickness of crushed rock to latest revision of Transport for NSW QA specification 3051 unbound base material (or equivalent good quality and durable fine crushed rock) which is compacted using a heavy roller to at least 98% of Modified Maximum Dry Density (MMDD). Adequate moisture conditioning to within 2% of Modified Optimum Moisture Content (MOMC) should be provided during placement so as to reduce the potential for material breakdown during compaction. Concrete pavements should be designed with an effective shear transmission of all joints by way of either doweled or keyed joints.

8.6 Sydney Metro Tunnels

The future Sydney Metro tunnel extending from Westmead to The Bays will extend below the subject site and approximately parallel with the northern side of Anzac Bridge, as shown on the attached Figure 2. Furthermore the extent of the Sydney Metro substratum acquisition is shown in Plates 2 and 3 below. The substratum acquisition extends across the majority of the site, as highlighted yellow in Plate 2 below, and extends up to RL-28.55m, as highlighted yellow in Plate 3 below.

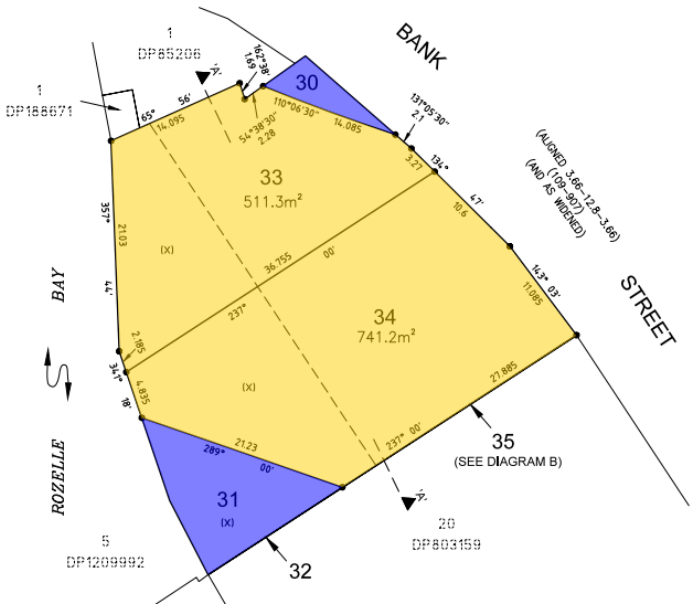


Plate 2 – Plan view of stratum acquisition for the Metro tunnel

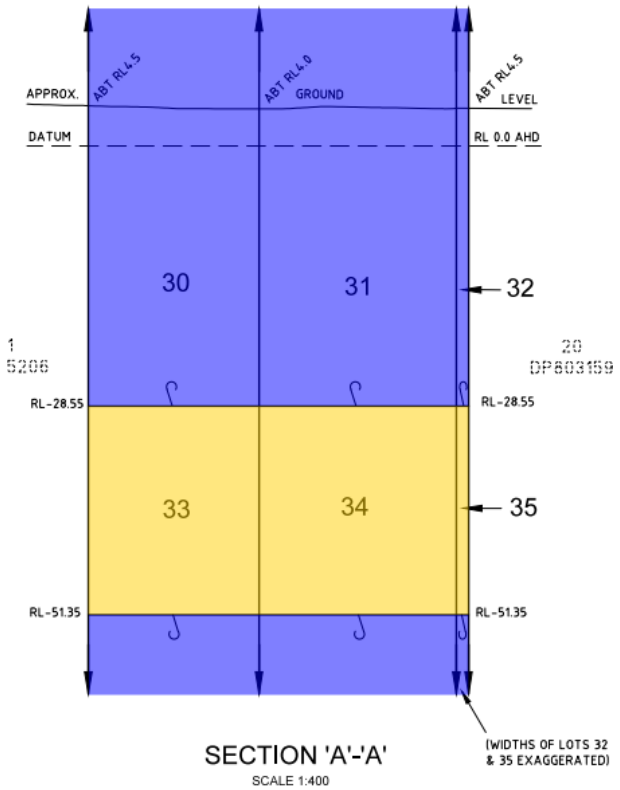
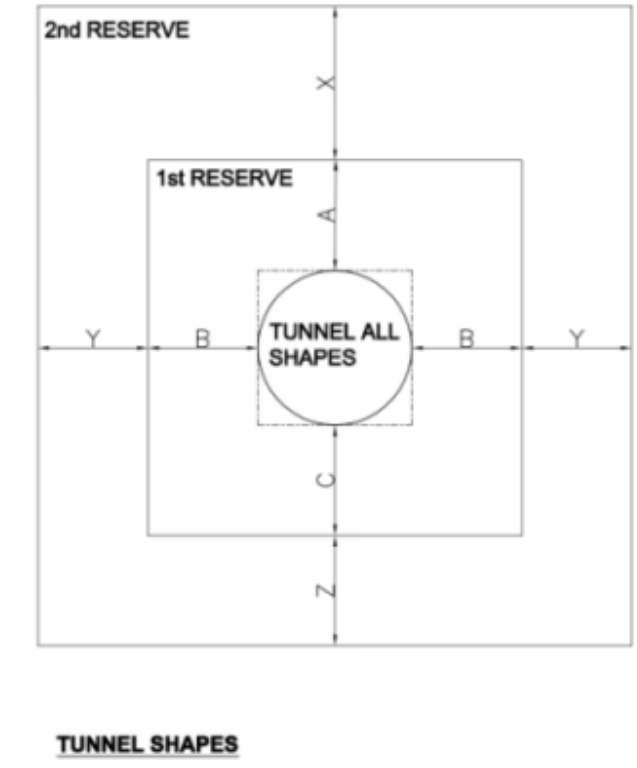


Plate 3 – Section view of stratum acquisition for the Metro tunnel

Based on the document "*Sydney Metro Underground Corridor Protection Technical Guidelines"* prepared by Sydney Metro dated April 2021, we understand the proposed Sydney Metro tunnel that will extend below the site likely consists of twin tunnels constructed using tunnel boring machines (TBM). The document provides the following to determine the first and second reserves of the tunnels, as shown in Plate 4.



	First reserve dimensions (m)
Top (A)	The greater of the following: • 5 m from the crown of tunnel or cavern or • Support zone based on 1/3* tunnel width plus 1 metre (1/3*W+1) or • Extent of Sydney Metro substratum above crown
Side (B)	The greater of the following: • 5 m from side wall of tunnel or cavern or • Lateral extent of Sydney Metro substratum
Bottom (C)	The greater of the following: • 5 m below the invert of the tunnel or cavern or • Extent of Sydney Metro substratum below invert

	Second reserve dimensions (m)
Top (A+X)	The greater of the following: • 1.5 x (W+H) or • A + 25 or • Where 'W' and 'H' are width and height of the existing rail tunnel
Side (B+Y)	The greater of the following: • W or • B + 25
Bottom (C+Z)	C + 1.5 x (W_n + H_n) Where 'W_n' and 'H_n' are width and height of new tunnel under the existing metro tunnel or cavern

Plate 4 – Excerpt taken from Sydney Metro Underground Corridor Protection Technical Guidelines, pg. 8.

Based on the available information, the first reserve extends to RL-28.55m, which is the extent of the Sydney Metro substratum above the tunnel crown. Furthermore, whilst the proposed tunnel diameter is unknown, the tunnel external diameter for previous Sydney Metro tunnels has typically been 7m. Based on this tunnel diameter, the second reserve extends for a distance of 21m. Therefore, in accordance with Technical Guidelines, the greater of the criteria is adopted, resulting in the second reserve extending approximately 25m beyond the first reserve, i.e. extends up to RL-3.55m.

There are two proposed structures (more specifically their piled footings) that may be within the second tunnel reserve; the Community Centre Café/Marina and the Dragon Boat Store. We note that no structures will be within the first tunnel reserve. The Marina has a proposed Finished Floor Level (FFL) at RL3.5m to RL4.26m and the Dragon Boat Store at RL2.5m. Based on the available subsurface data, at the location of these proposed structures, we are expecting relatively deep fill extending about 6m deep directly overlying sandstone bedrock. The sandstone bedrock is estimated to be at about RL-2m at its deepest point across the footprint of the proposed structures. Reference should be made to Appendix A which contains multiple sections intersecting the site graphically showing the subsurface conditions.

Given these subsurface conditions, the proposed structure will likely be supported on piles founded within the sandstone bedrock. As the structure is assumed to be relatively lightly loaded, we expect the piles will require minimal socket into the bedrock, say no more than 0.5m, resulting in a pile toe level at about RL-2.5m.

Based on the above assessment, piles supporting the proposed structures are expected to be founded outside the tunnel second reserve which was assessed to extend up to RL-3.55m. Notwithstanding, we recommend the above assessment is reviewed once structural drawings are available, in particular the footing design.

If upon review of the structural drawings it is determined that the development will encroach upon the second reserve, then the following table details the construction restrictions for developments in relation to the first and second reserves.

Table 4.5 Construction restrictions

Types of construction	First reserve	Second reserve
Excavation for basements, footings	Not allowed	• Excavations less than 2.0 m depth from surface level, assessment not required. • Excavation greater than 2.0 m depth, assessment required.
Shallow footings or pile foundations	Not allowed	Allowed, subject to load restrictions. Assessment required.
Tunnels and underground excavations	Not allowed	Allowed, subject to assessment.
Ground anchors	Not allowed	Allowed, subject to assessment.
Demolition of existing subsurface structures	Not allowed	Allowed, subject to assessment.
Penetrative subsurface investigations e.g. boreholes, instrumentation	Allowed away from support zone. Assessment required.	Allowed, subject to assessment (refer to Section 7.1 for requirements)

Plate 5 – Excerpt taken from Sydney Metro Underground Corridor Protection Technical Guidelines, pg. 11.

Based on the above table and the proposed development, we expect the following construction activities/restrictions:

- Excavation of 2m deep or greater may occur as part of the site remediation, however this will be carried out at the existing surface levels and therefore will occur above RL0m, and therefore not encroach within the second reserve with this activity.
- Shallow footings or pile foundations will be required for the structures. Given the presence of relatively good quality sandstone bedrock and the expected low structural loads, we anticipate any new footings will have negligible impact on the tunnel. Vice versa, if the tunnel; is constructed after the footings, we

expect the tunnel will have negligible impact provided it is designed and constructed in accordance with accepted engineering principles. However, as discussed above, we consider it unlikely piled footings will encroach into the second reserve.

- The remaining items in the above table in Plate 5 are not applicable to this development.

Please note, the SEARs document mentions a document titled "*Sydney Metro at Grade and Elevated Sections Guidelines"*, however given that only a tunnel will be present below the subject site, we do not consider this Guideline is applicable and therefore no further discussion is made on this document.

Clause 2.99 of The Transport and Infrastructure (T&I) SEPP sets out the matters to be considered when granting concurrence for excavation in, above, below or adjacent to rail corridors. As the application is State Significant Development, concurrence is not required (Clause 4.13 of the EP&A Act, and noting that Clause 2.99 of the T&I SEPP does not specify that concurrence is required for SSD). However, an assessment of the matters to be considered is provided below:

i. the safety or structural integrity of existing or proposed rail infrastructure facilities in the rail corridor, and;

ii. the safe and effective operation of existing or proposed rail infrastructure facilities in the rail corridor, and;

iii. what measures are proposed, or could reasonably be taken, to avoid or minimise those potential effects.

In our opinion, given the presence of high strength sandstone, the relatively lightly loaded footings that will have minimal penetration into the sandstone bedrock, as well as these footings being outside the second reserve of the tunnel, we consider the potential effects of the proposed development on the rail corridor to be negligible and therefore satisfy (i) and (ii) above. Given the expected negligible impact, further measures to avoid or minimise the potential effects is not considered warranted, beyond the typical measures taken during construction, such as review of structural drawings, inspection of piled footings by a geotechnical engineer, etc.

9 GENERAL COMMENTS

The recommendations presented in this report include specific issues to be addressed during the design and construction phase of the project. In the event that any of the advice presented in this report is not implemented, the general recommendations may become inapplicable and JK Geotechnics accept no responsibility whatsoever for the performance of the structure where recommendations are not implemented in full and properly tested, inspected and documented.

The long term successful performance of floor slabs and pavements is dependent on the satisfactory completion of the earthworks. In order to achieve this, the quality assurance program should not be limited to routine compaction density testing only. Other critical factors associated with the earthworks may include

subgrade preparation, selection of fill materials, control of moisture content and drainage, etc. The satisfactory control and assessment of these items may require judgment from an experienced engineer. Such judgment often cannot be made by a technician who may not have formal engineering qualifications and experience. In order to identify potential problems, we recommend that a pre-construction meeting be held so that all parties involved understand the earthworks requirements and potential difficulties. This meeting should clearly define the lines of communication and responsibility.

The subsurface conditions between the completed boreholes may be found to be different (or may be interpreted to be different) from those expected. Variation can also occur with groundwater conditions, especially after climatic changes. If such differences appear to exist, we recommend that you immediately contact this office.

This report provides advice on geotechnical aspects for the proposed civil and structural design. As part of the documentation stage of this project, Contract Documents and Specifications may be prepared based on our report. However, there may be design features we are not aware of or have not commented on for a variety of reasons. The designers should satisfy themselves that all the necessary advice has been obtained. If required, we could be commissioned to review the geotechnical aspects of contract documents to confirm the intent of our recommendations has been correctly implemented.

This report has been prepared for the particular project described and no responsibility is accepted for the use of any part of this report in any other context or for any other purpose. If there is any change in the proposed development described in this report then all recommendations should be reviewed. Copyright in this report is the property of JK Geotechnics. We have used a degree of care, skill and diligence normally exercised by consulting engineers in similar circumstances and locality. No other warranty expressed or implied is made or intended. Subject to payment of all fees due for the investigation, the client alone shall have a licence to use this report. The report shall not be reproduced except in full.

TABLE 1

DESIGN PARAMETERS

Unit	Soil Description	Soil Strength (Consistency/Relative Density)	Unit Weight γ_{total} (Kn/M^3)	Friction Angle, φ (°)	Undrained Cohesion / Undrained Shear Strength, c_u (kPa)	Effective Cohesion, c' (kPa)	Poisson's Ratio, v	Drained Elastic Modulus, E' (MPa)	Spring Stiffness, K_s (kPa/mm) (1)	Active Earth Pressure Coefficient, K_a (2)	Unconfined Compressive Strength, UCS (kPa)
Unit 1	**Terrestrial Granular Fill**	Moderately or Well Compacted	21	32	0	0	0.3	20	29	0.30	-
		Poorly Compacted	20	29	0	0	0.3	12	18	0.35	-
Unit 2	**Marine Fill**	Poorly or Moderately Compacted	20	28	0	0	0.3	12	18	0.36	-
Unit 3	**Marine Silty Clay**	Very Soft or Soft	14	14	1	1	0.4	0.2	0.3	0.61	2
Unit 4A	**Sands**	Very Loose	19	28	0	0	0.3	10	15	0.36	-
		Loose	19	30	0	0	0.3	12	18	0.33	-
	Clays	Very soft or soft	14	14	1	1	0.4	0.2	0.3	0.61	2
Unit 4B	**Sands**	Medium Dense	20	33	0	0	0.3	20-40	29	0.29	-
	Clays	Stiff	20	19	50	1	0.4	10	16	0.35	100
		Very Stiff	21	19	100	2	0.4	20	32	0.35	200
Unit 5	**Sandstone**	Extremely Low Strength	21	30	200	20	0.25	50	70	0.33	400
		Low Strength	22	30	1000	100	0.20	200	280	0	2000
		Medium or High Strength	23	35	3000	200	0.15	1000	1350	0	6000

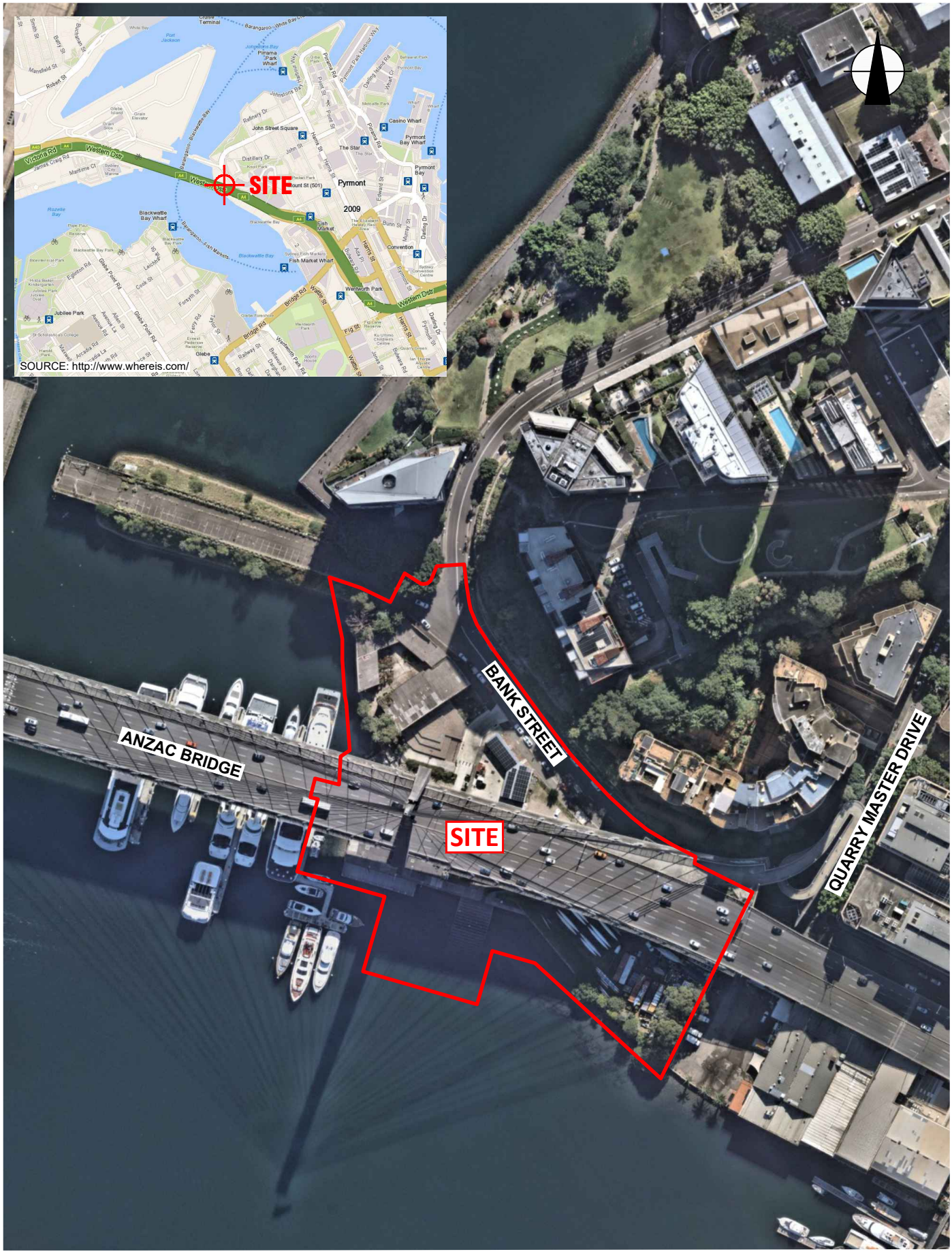
NOTES: 1 The spring stiffness is based upon a loaded area equivalent to a 0.75m diameter plate.

2 The active earth pressure coefficient assumes a near level backslope.

TABLE 2

ROCK CLASSIFICATION SUMMARY

Borehole	Surface RL (mAHD)	Reduced Level (RL) of the Top of Rock Class (mAHD)				
		Class V	Class IV	Class III	Class II	Class I
1	4.4	0.4	-	-0.3	-	-
2	3.8	-1.3	-	-1.6	-	-
3	4.1	0.7	-	-0.1	-	-
4	4.8	3.6	2.0	0.8	-	-
5	-1.3	-13.7	-	-	-	-
6	-7.0	-17.9	-18.2	-	-19.2	-
7	-2.6	-17.7	-	-18.4	-18.9	-
8	-6.9	-15.5	-16.9	-	-	-19.0
9	-2.2	-15.9	-	-	-17.4	-
10	-4.9	-12.0	-	-13.1	-	-14.1
11	0.4	-3.1	-3.5*	-	-5.9	-
12	-0.7	-	-	-	-9.0	-
13	-5.2	-	-10.8	-8.5	-	-
14	-4.1	-	-6.9	-	-8.0	-9.0
15	-1.4	-	-3.8	-	-	-
16	-8.5	-	-33.9	-	-36.6	-
17	-5.9	-26.2	-	-	-27.4	-
18	-6.1	-	-16.1	-18.1*	-	-
19	-7.4	-27.7	-	-	-	-25.2
26		-13.77	-14.46	-14.69	-	-
27		-	-	-10.73	-12.68	-
28		-12.93	-	-15.11	-	-16.32



AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

This plan should be read in conjunction with the JK Geotechnics report.

Title: **SITE LOCATION PLAN**

Location: 1A-19 BANK STREET, PYRMONT, NSW

Report No: 36050BF

Figure No: 1

JKGeotechnics

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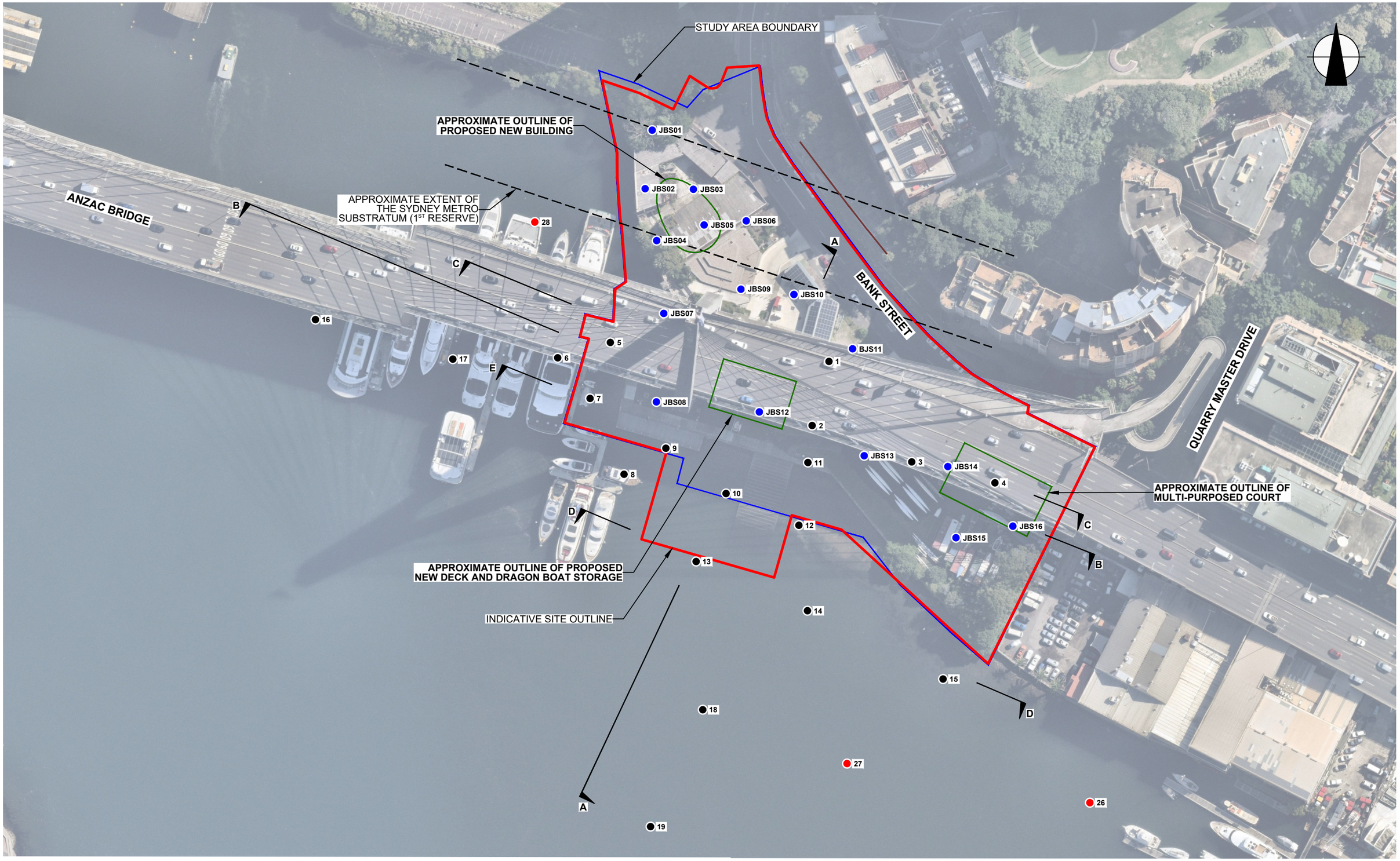

LEGEND

- PREVIOUS JKG BOREHOLE, REF 28974SP1
- PREVIOUS JKG BOREHOLE, REF 29245Srev2
- PREVIOUS 2023 CONTAMINATION INVESTIGATION BY JBS&G, PROJECT No. 64669

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

0 12.5 25 37.5 50 62.5

SCALE 1:1250 @A3 METRES

This plan should be read in conjunction with the JK Geotechnics report.

Title: **BOREHOLE LOCATION PLAN**

Location: 1A-19 BANK STREET, PYRMONT, NSW

Report No: 36050BF

Figure No: 2

JKGeotechnics

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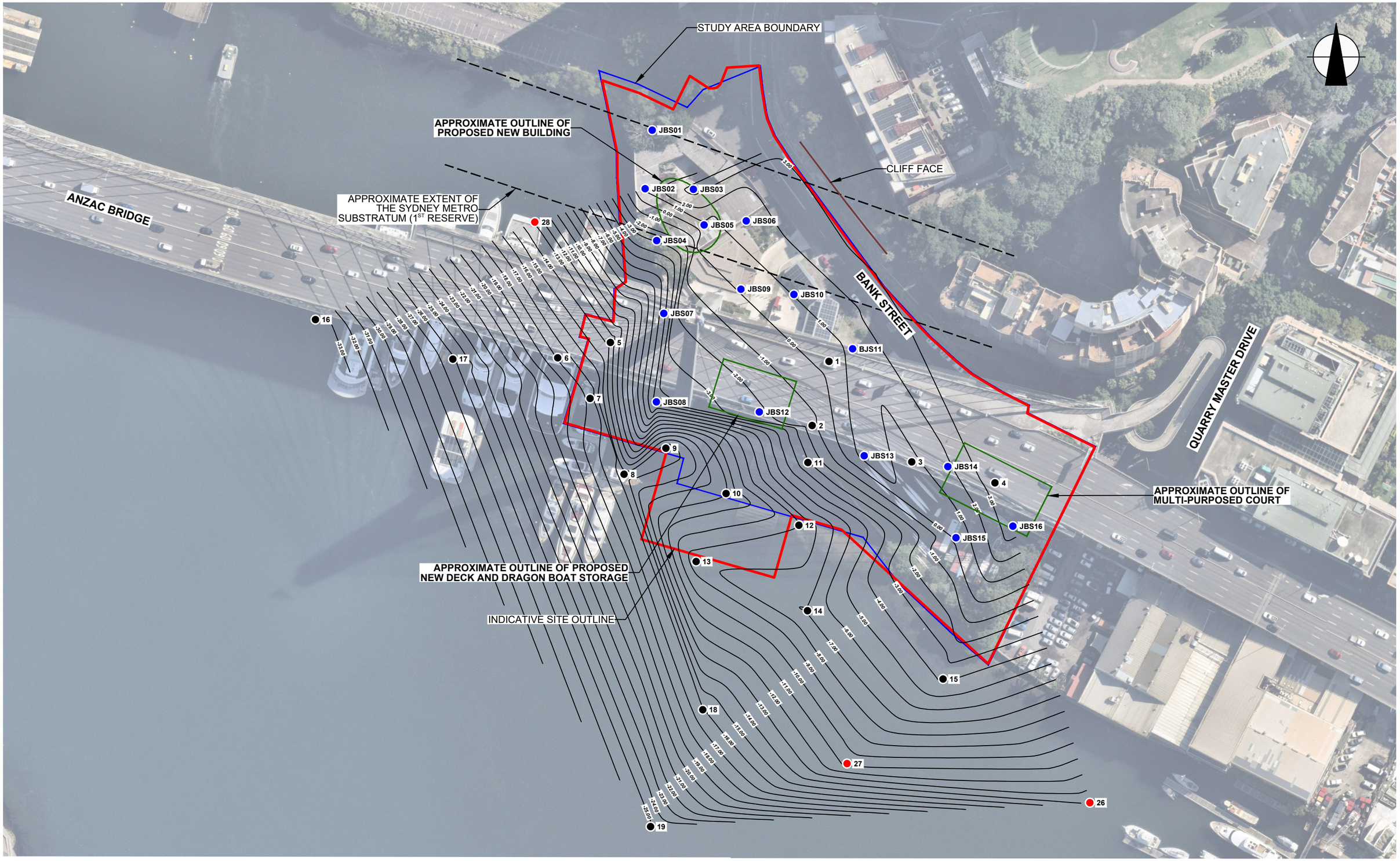

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- PREVIOUS JKG BOREHOLE, REF 28974SP1
- PREVIOUS JKG BOREHOLE, REF 29245Srev2
- PREVIOUS 2023 CONTAMINATION INVESTIGATION BY JBS&G, PROJECT No. 64669

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

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SCALE 1:1250 @A3 METRES

This plan should be read in conjunction with the JK Geotechnics report.

Title: **ROCK CONTOUR PLAN**

Location: 1A-19 BANK STREET, PYRMONT, NSW

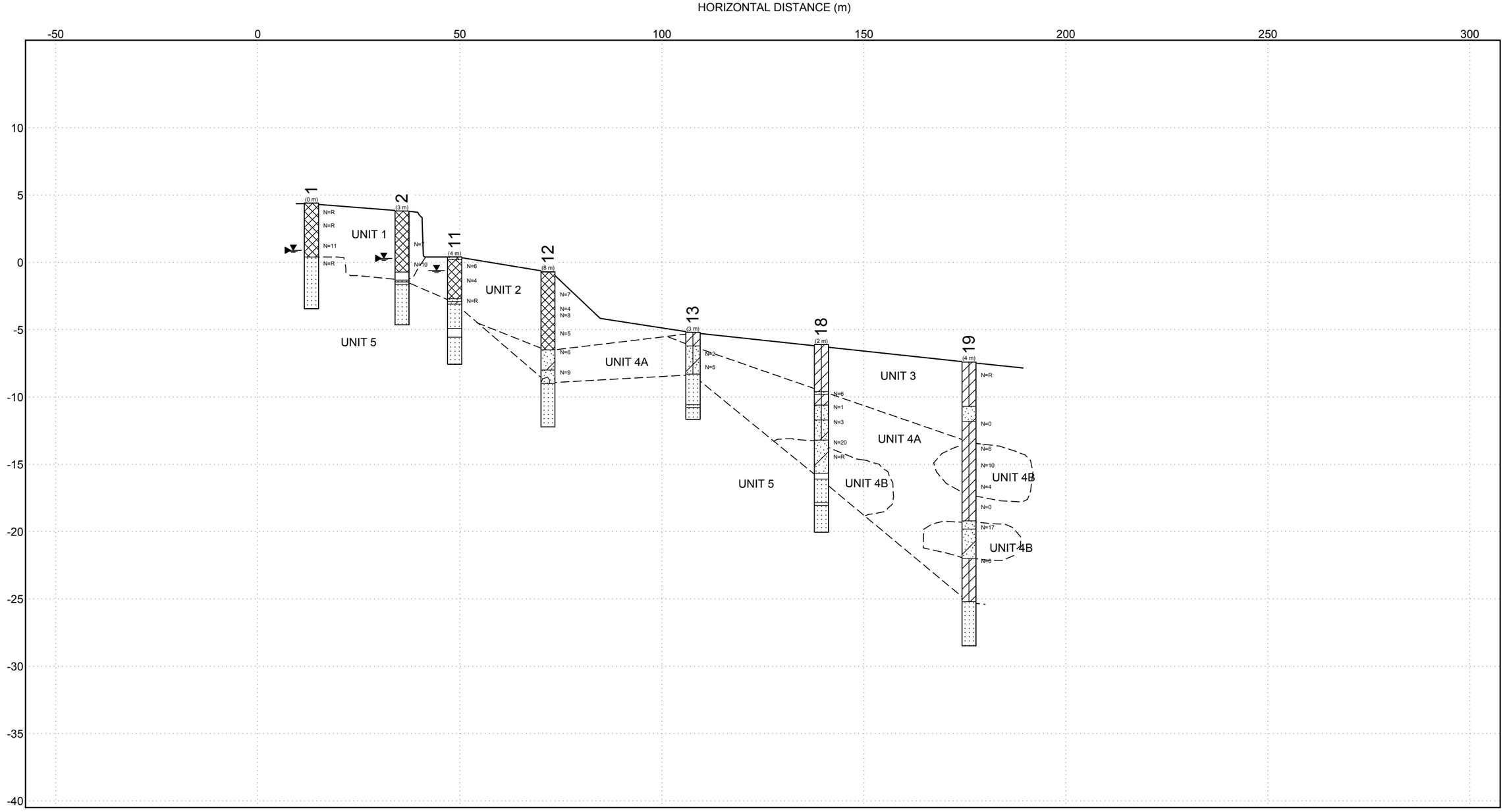
Report No: 36050BF

Figure No: 3

JKGeotechnics

PLOT DATE: 20/10/2023 9:23:00 AM DWG FILE: J:\6F GEOTECHNICAL JOBS\36000'S\36050BF PYRMONT\CAD\36050BF.DWG

APPENDIX A



NOTES:
- TO BE READ IN CONJUNCTION WITH THE TEXT OF THE REPORT
- UNIT BOUDARIES ARE APPROXIMATE
- EXAGGERATED VERTICAL SCALE

LEGEND

ASPHALTIC CONCRETE	CORE LOSS	SANDY CLAY	CONCRETE
CLAYEY SAND	GRAVELLY SAND	SILTY CLAY	FILL
CLAYEY SILTY SAND	SAND	SILTY SAND	SANDSTONE

No.	Amendment Description	Initials	Date

A3 Original | This sheet may be prepared using colour and may be incomplete if copied

Coordinate System: MGA94 Zone 56 | Height Datum: AHD

PREPARED BY
JK GEOTECHNICS - GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

DESIGNED: P.W.

REVIEWED: P.S.

JK Geotechnics

URBAN GROWTH NSW
BANK STREET COMMERCIAL WHARF
BANK STREET, PYRMONT, NSW
INFERRED GEOTECHNICAL SECTION A-A

SCALES

H 1:1000

V 1:300

JOB NUMBER
28974SP

FIGURE NUMBER
3

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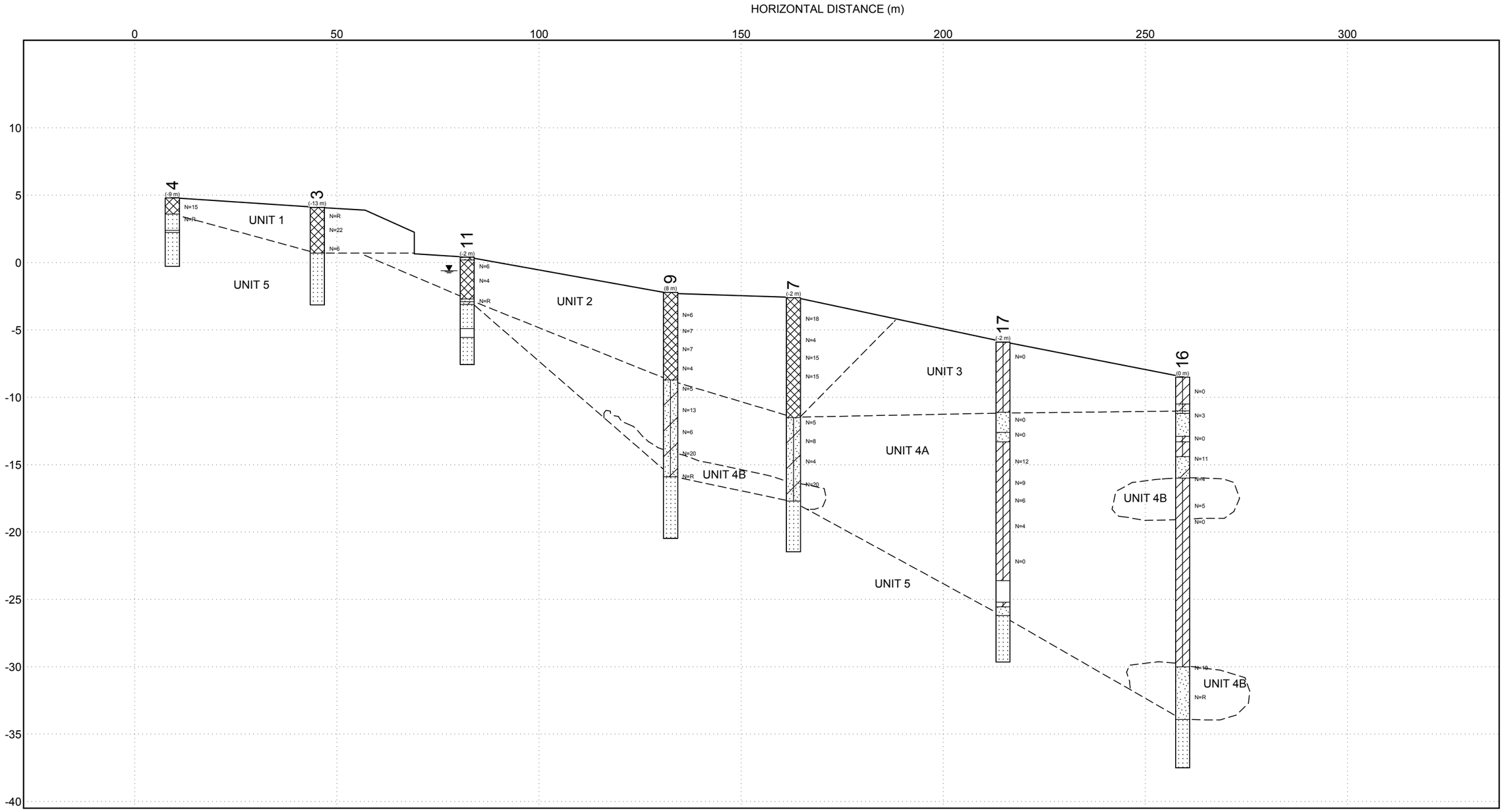

LEGEND

CLAYEY SAND	GRAVELLY SILTY CLAY	SANDY SILTY CLAY	CONCRETE
CLAYEY SILTY SAND	SAND	SILTY CLAY	FILL
CORE LOSS	SANDY CLAY	SILTY SAND	SANDSTONE

NOTES:

- TO BE READ IN CONJUNCTION WITH THE TEXT OF THE REPORT
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- EXAGGERATED VERTICAL SCALE

No.	Amendment Description	Initials	Date

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JK GEOTECHNICS - GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

DESIGNED: P.W.

REVIEWED: P.S.

JK Geotechnics

URBAN GROWTH NSW
BANK STREET COMMERCIAL WHARF
BANK STREET, PYRMONT, NSW
INFERRED GEOTECHNICAL SECTION B-B

SCALES

H 1:1000

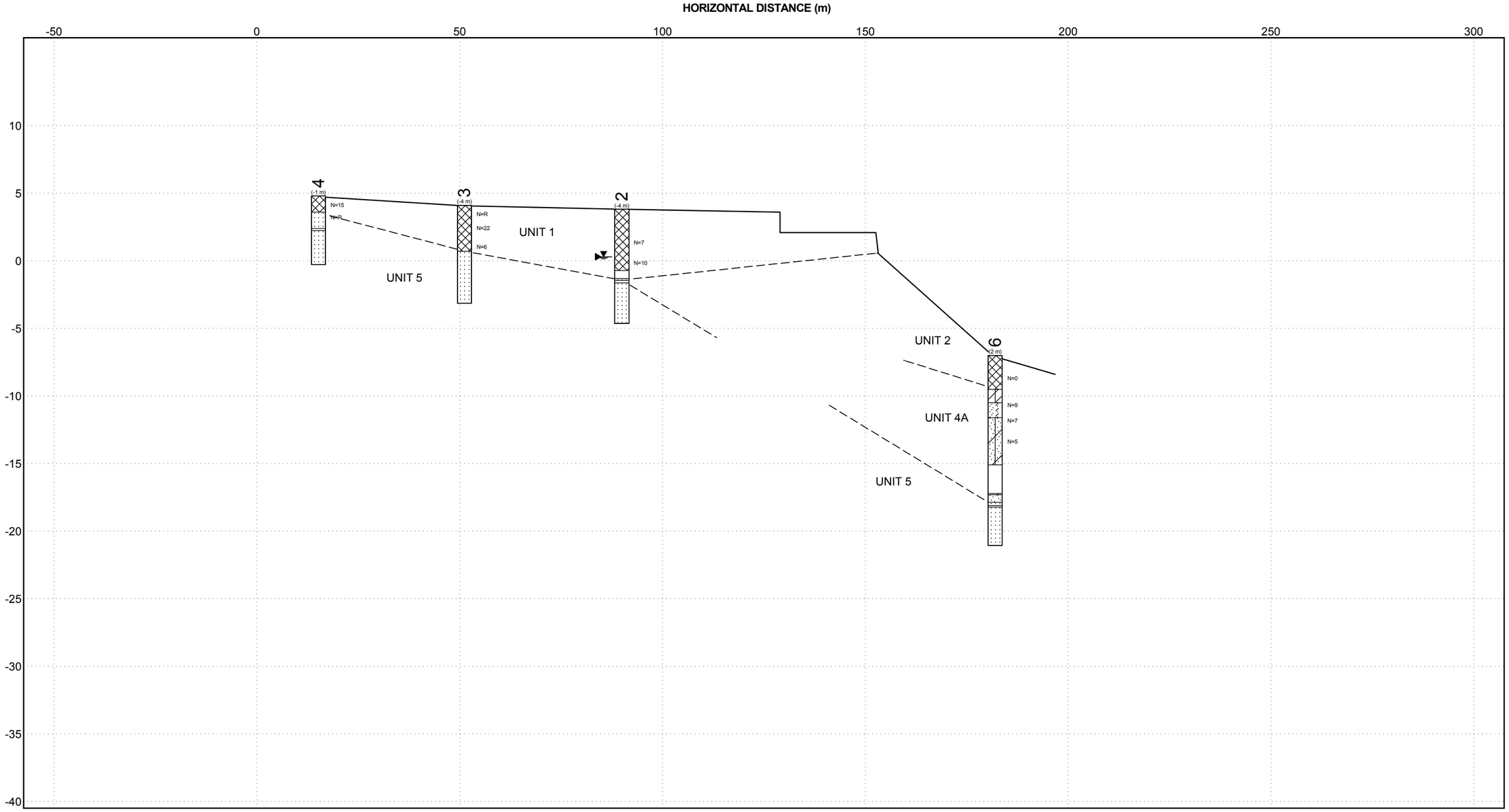
V 1:300

JOB NUMBER

28974SP

FIGURE NUMBER

4



LEGEND

- CLAYEY SAND
- SANDY CLAY
- SANDSTONE
- CLAYEY SILTY SAND
- SILTY CLAY
- CORE LOSS
- FILL

NOTES:

- TO BE READ IN CONJUNCTION WITH THE TEXT OF THE REPORT
- UNIT BOUNDARIES ARE APPROXIMATE
- EXAGGERATED VERTICAL SCALE

No.	Amendment Description	Initials	Date

A3 Original | This sheet may be prepared using colour and may be incomplete if copied

Coordinate System: MGA94 Zone 56 | Height Datum: AHD

PREPARED BY
JK GEOTECHNICS - GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

DESIGNED: P.W.

REVIEWED: P.S.

JK Geotechnics

URBAN GROWTH NSW
BANK STREET COMMERCIAL WHARF
BANK STREET, PYRMONT, NSW
INFERRED GEOTECHNICAL SECTION C-C

SCALES

H 1:1000

V 1:300

JOB NUMBER
28974SP

FIGURE NUMBER
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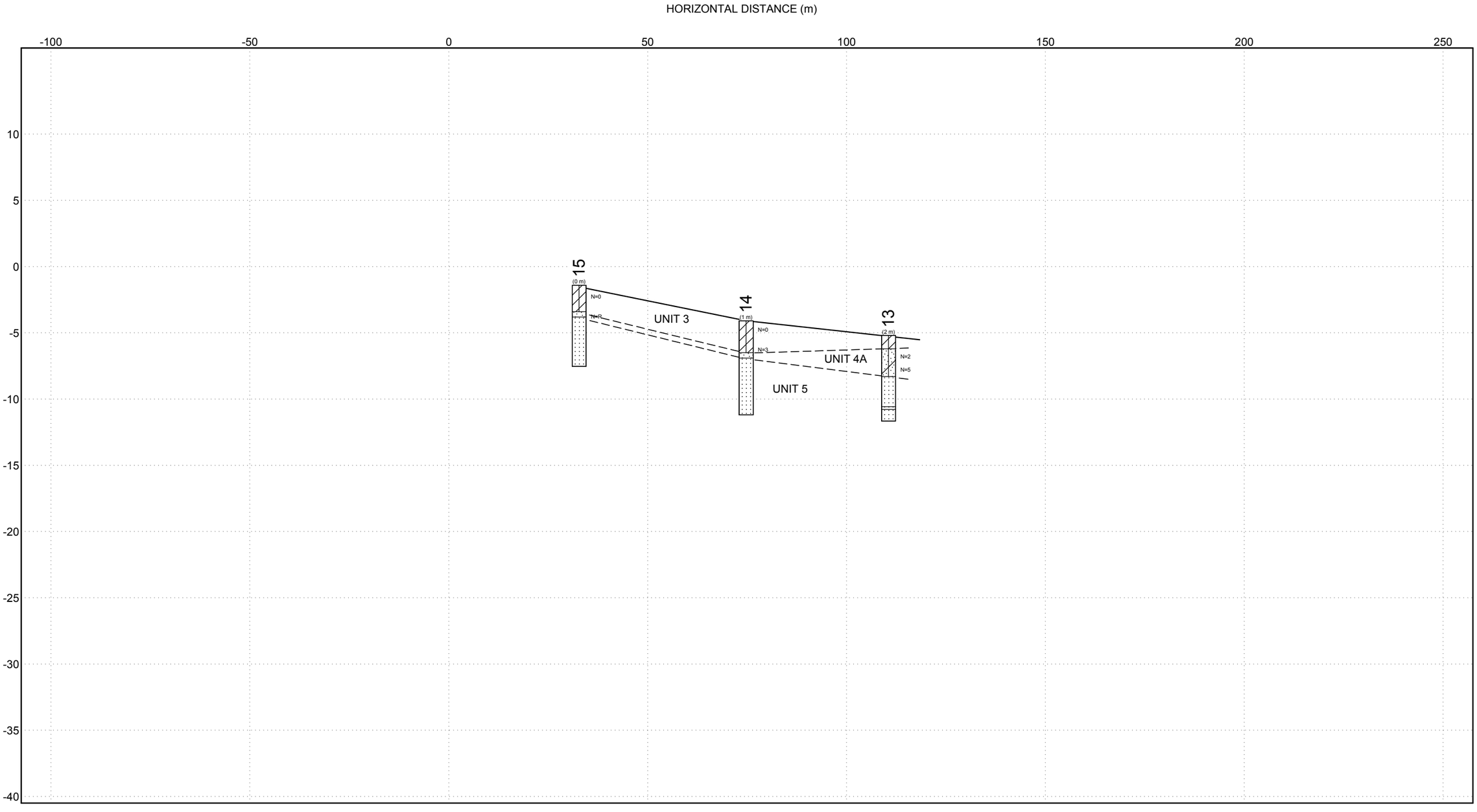

LEGEND

- CLAYEY SILTY SAND
- SILTY CLAY
- CORE LOSS
- SANDSTONE
- GRAVELLY SAND

NOTES:

- TO BE READ IN CONJUNCTION WITH THE TEXT OF THE REPORT
- UNIT BOUNDARIES ARE APPROXIMATE
- EXAGGERATED VERTICAL SCALE

No.	Amendment Description	Initials	Date

A3 Original | This sheet may be prepared using colour and may be incomplete if copied | Coordinate System: MGA94 Zone 56 | Height Datum: AHD

PREPARED BY
JK GEOTECHNICS - GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

DESIGNED: P.W.

REVIEWED: P.S.

JK Geotechnics

URBAN GROWTH NSW
BANK STREET COMMERCIAL WHARF
BANK STREET, PYRMONT, NSW
INFERRED GEOTECHNICAL SECTION D-D

SCALES

H 1:1000

V 1:300

JOB NUMBER
28974SP

FIGURE NUMBER
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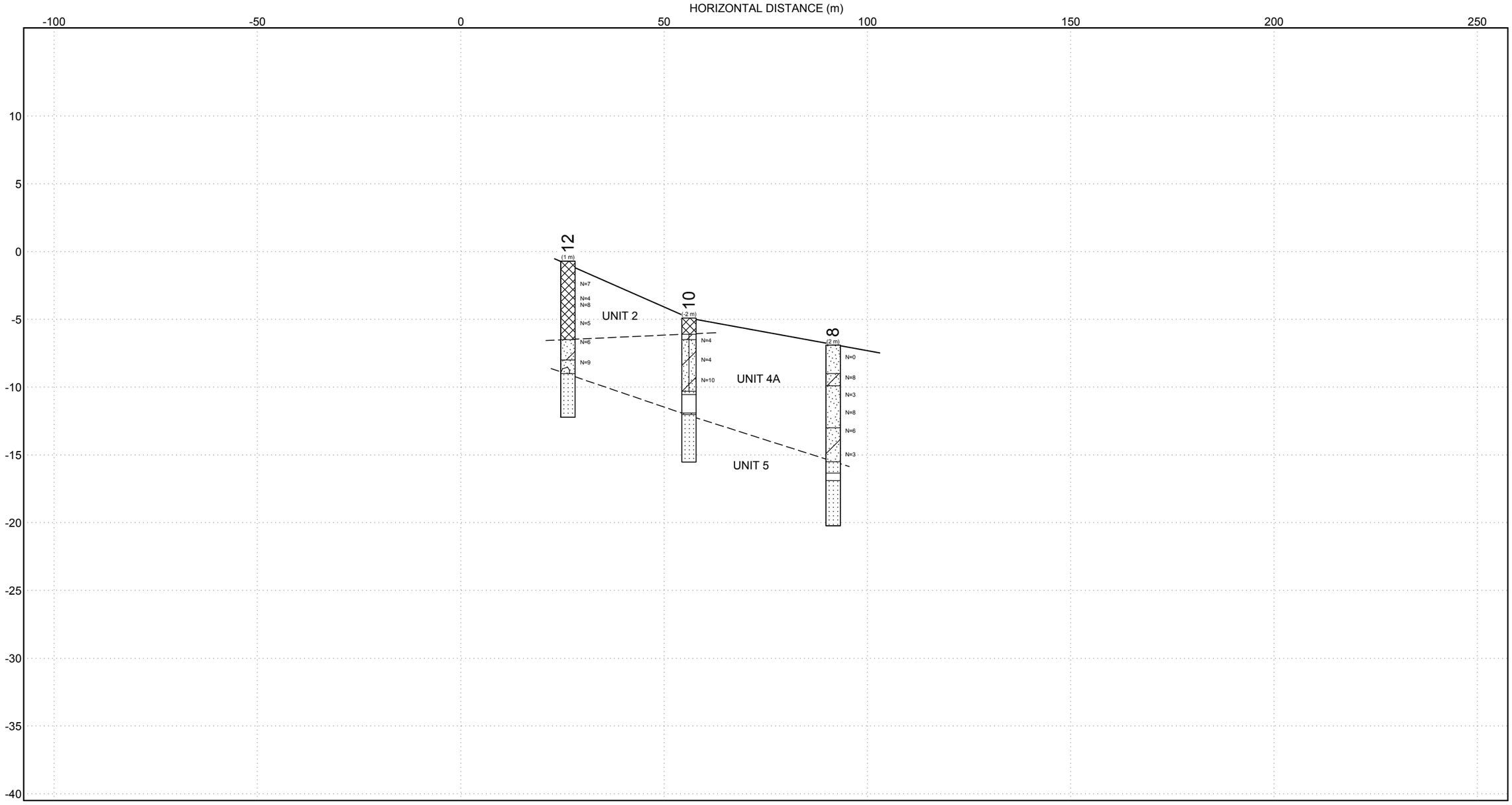

LEGEND

- CLAYEY SAND
- CLAYEY SILTY SAND
- CORE LOSS
- GRAVELLY SAND
- SAND
- SILTY CLAY
- SILTY SAND
- FILL
- SANDSTONE

NOTES:

- TO BE READ IN CONJUNCTION WITH THE TEXT OF THE REPORT
- UNIT BOUNDARIES ARE APPROXIMATE
- EXAGGERATED VERTICAL SCALE

No.	Amendment Description	Initials	Date

A3 Original | This sheet may be prepared using colour and may be incomplete if copied

Coordinate System: MGA94 Zone 56 | Height Datum: AHD

PREPARED BY
JK GEOTECHNICS - GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

DESIGNED: P.W.

REVIEWED: P.S.

JK Geotechnics

URBAN GROWTH NSW
BANK STREET COMMERCIAL WHARF
BANK STREET, PYRMONT, NSW
INFERRED GEOTECHNICAL SECTION E-E

SCALES

H 1:1000

V 1:300

JOB NUMBER
28974SP

FIGURE NUMBER
7

APPENDIX B

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 1
1 / 2

EASTING: 332402.7
NORTHING: 6250820.9

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** SPIRAL AUGER **R.L. Surface:** 4.4 m
Date: 14/12/15 **Datum:** AHD
Plant Type: JK350 **Logged/Checked By:** A.B./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
									-	ASPHALTIC CONCRETE: 15mm.t	D			
										FILL: Sand, fine to coarse grained, grey brown, with fine to medium grained igneous gravel.	M			APPPEARS MODERATELY TO WELL COMPACTED
				■	N=SPT 11/ 150mm REFUSAL	4				FILL: Silty gravelly sand, fine grained, dark brown grey, fine to coarse grained igneous and sandstone gravel, with ceramic fragments.				
							1			FILL: Silty sand, fine to medium grained, black, trace of slag.				
				■	N > 20 14,15,5/ 50mm REFUSAL	3				FILL: Sand, fine to coarse grained, brown, with fine to coarse grained sandstone gravel, trace of sandstone cobbles and clay.				
						2								
				■	N = 11 3,2,9	2								
▼ ON COMPLETION OF AUGERING							3							
						1				FILL; Clayey sand, fine to medium grained, dark grey.	W			
							4			SANDSTONE: fine to medium grained, light grey.	XW	EL		
				■	N=SPT 8/ 80mm REFUSAL	0					DW	H		HIGH 'TC' BIT RESISTANCE
										REFER TO CORED BOREHOLE LOG				
							5							
						-1								
							6							
						-2								

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 1 **2 / 2**

EASTING: 332402.7
NORTHING: 6250820.9

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Core Size:** NMLC **R.L. Surface:** 4.4 m
Date: 14/12/15 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK350 **Bearing:** N/A **Logged/Checked By:** A.B./P.W.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ EL -0.03, VL -0.1, L -0.3, M -1, H -3, VH -10, EH	DEFECT DETAILS DEFECT SPACING (mm) 500, 300, 100, 50, 30, 10 DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
		0			START CORING AT 4.66m				
0% RETURN	RECOVERY = 100%	-1	5		SANDSTONE: fine to medium grained, brown, bedded at 5-15°.	DW	H		(5.19m) J, 20°, P, S (5.47m) J, 90°, P, S
		-2	6		SANDSTONE: fine to medium grained, brown and red brown, bedded at 5-15°.				(6.16m) J, 90°, P, S
		-3	7		SANDSTONE: fine to medium grained, orange brown and red brown, bedded at 5-15°.				(6.73m) Be, 5°, P, R, IS (7.78m) CS, 0°, 3 mm.t
		-4	8		END OF BOREHOLE AT 7.83 m				
		-5	9						
		-6	10						


JK Geotechnics
Client: UrbanGrowth NSW
Project: Proposed Promenade Facility
Location: Bank Street, Pyrmont, NSW
Date: Drilled on 14 December 2015
SCALE (CM)
JOB No. 28974SP BH1 START CORING AT 4.66m
4
5
6
7
EOBH AT 7.83

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GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 2
1 / 2

EASTING: 332398.8
NORTHING: 6250798.7

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** SPIRAL AUGER **R.L. Surface:** 3.8 m
Date: 14/12/15 **Datum:** AHD
Plant Type: JK350 **Logged/Checked By:** A.B./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
ON COMPLETION OF AUGERING					Nc = 16, 12, 8	3	1			FILL: Gravelly sand, fine to coarse grained, grey brown, concrete fragments and crushed igneous rock, with silt and sandstone cobbles.	D			GRAVEL COVER APPEARS WELL COMPACTED
						2	2			FILL: Silty sand, fine to medium grained, dark grey.				
					N = 7 3,4,3	1	3			FILL: Clayey sand, fine to coarse grained, orange brown, trace of sandstone gravel.	M			APPEARS MODERATELY COMPACTED
					N = 10 3,4,6	0	4			FILL: Gravelly sand, fine to coarse grained, orange brown and dark grey, with sandstone gravel.	W			SUSPECTED SANDSTONE BOULDER
						-1	5			REFER TO CORED BOREHOLE LOG				
						-2	6							
						-3								

JK_LIB_CURRENT - V8.00.GLB Log J & K AUGERHOLE - MASTER 28974SP PYRMONT.GPJ <<DrawingFile>> 19/05/2017 11:03 Produced by gINT Professional, Developed by Datgel

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GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 2
2 / 2

EASTING: 332398.8
NORTHING: 6250798.7

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP | **Core Size:** NMLC | **R.L. Surface:** 3.8 m
Date: 14/12/15 | **Inclination:** VERTICAL | **Datum:** AHD
Plant Type: JK350 | **Bearing:** N/A | **Logged/Checked By:** A.B./P.W.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ EL .03 VL .1 L .3 M 1 H 3 VH 10 EH	DEFECT DETAILS DEFECT SPACING (mm) 500 300 100 50 30 10 DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
					START CORING AT 4.52m				
	RECOVERY = 19%	-1	5		CORE LOSS 0.60m				
					SANDSTONE: fine to medium grained, red brown.	DW	H		
					CORE LOSS 0.17m				
	RECOVERY = 95%	-2	6		SANDSTONE: fine to medium grained, red brown, bedded at 10-20°.	DW	M		
					SANDSTONE: fine to medium grained, orange brown and red brown, with light grey bands, bedded at 5-20°.				
		-3	7		SANDSTONE: fine to medium grained, orange brown, with brown bands, bedded at 10-20°.				(6.30m) Be, 10°, P, R, IS (6.60m) CS, 15°, 4 mm.t
					as above, but bedded at 5-15°.				(7.57m) CS, 20°, 7 mm.t
		-4	8		SANDSTONE: fine to coarse grained, red brown and orange brown, bedded at 5-15°.		H		(8.15m) Be, 10°, P, R, IS
		-5	9		END OF BOREHOLE AT 8.44 m				
		-6	10						
		-7							


JK Geotechnics
Client: UrbanGrowth NSW
Project: Proposed Promenade Facility
Location: Bank Street, Pyrmont, NSW
Date: Drilled on 14 December 2015
SCALE (CM)
JOB No. 28974SP BH2 START CORING AT 4.52m
5
CORE LOSS: 0.6m
CORE LOSS: 0.17m
6
7
8
END OF BH2 AT 8.44m

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GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 3
1 / 2

EASTING: 332435.5
NORTHING: 6250786.1

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** SPIRAL AUGER **R.L. Surface:** 4.1 m
Date: 15/12/15 **Datum:** AHD
Plant Type: JK350 **Logged/Checked By:** A.B./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING					N=SPT 15/ 40mm REFUSAL	4				FILL: Silty gravelly sand, fine to coarse grained, grey brown, fine to coarse grained igneous and sandstone gravel, with ceramic fragments, trace of concrete fragments and ash.	D			
											M			APPEARS WELL COMPACTED
						3	1			FILL: Silty sand, fine to coarse grained, grey, with fine to medium grained igneous and sandstone gravel.				
										FILL: Silty sand, fine to coarse grained, dark grey, with fine to medium grained igneous gravel, trace of slag.				
					N = 22 8,10,12	2	2			FILL: Sand, fine to medium grained, grey brown and brown, with fine to coarse grained sandstone and igneous gravel, trace of ash and clay.				APPEARS POORLY COMPACTED
										FILL: Clayey silty sand, fine to medium grained, brown and grey, with fine to medium grained sandstone gravel, trace of ash.				
					N = 6 3,3,3	1	3							
						0	4		-	SANDSTONE: fine to medium grained, light grey and brown.	XW	EL		VERY LOW 'TC' BIT RESISTANCE
											DW	VL		LOW RESISTANCE
						-1	5			REFER TO CORED BOREHOLE LOG				
						-2	6							

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 3 **2 / 2**

EASTING: 332435.5
NORTHING: 6250786.1

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Core Size:** NMLC **R.L. Surface:** 4.1 m
Date: 15/12/15 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK350 **Bearing:** N/A **Logged/Checked By:** A.B./P.W.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION (Rock Type, grain characteristics, colour, structure, minor components.)	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ (EL 0.03, VL 0.1, L 0.3, M 1, H 3, VH 10, EH)	DEFECT SPACING (mm) (500, 300, 100, 50, 30, 10)	DEFECT DETAILS DESCRIPTION Specific	DEFECT DETAILS DESCRIPTION General
		1									
		0	4		START CORING AT 4.18m						
100% RETURN	RECOVERY = 100%	-1	5		SANDSTONE: fine to medium grained, light grey, bedded at 0-10°.	SW	M				
		-2	6				H				
		-3	7		SANDSTONE: fine to medium grained, light grey, with grey bands, bedded at 0-10°.					(6.99m) CS, 0°, 20 mm.t	
					as above, but fine to coarse grained, bedded at 10-15°.					(7.14m) XWS, 5°, 1 mm.t	
		-4	8		END OF BOREHOLE AT 7.24 m						
		-5	9								


JK Geotechnics
Client: UrbanGrowth NSW
Project: Proposed Promenade Facility
Location: Bank Street, Pyrmont, NSW
Date: Drilled on 15 December 2015
SCALE (CM)
JOB No. 28974SP BH3 START CORING AT 4.18m
4
5
6
7
END OF BH3 AT 7.24m

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GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 4
1 / 2

EASTING: 332468.8
NORTHING: 6250772.2

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** SPIRAL AUGER **R.L. Surface:** 4.8 m
Date: 15/12/15 **Datum:** AHD
Plant Type: JK350 **Logged/Checked By:** A.B./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING										FILL: Silty gravelly sand, fine to coarse grained, grey brown, fine to coarse grained igneous and sandstone gravel, with ceramic fragments, trace of igneous and sandstone cobbles.	D			APPEARS WELL COMPACTED
											M			
				■	N = 15 8,7,8	4	1			FILL: Silty sand, fine to medium grained, dark grey, with fine to coarse grained igneous and sandstone gravel, trace of fine to medium grained ironstone gravel, slag and ash.				
									-	SANDSTONE: fine to medium grained, light grey, with iron indurated bands.	XW - DW	EL - VL		
				▬	N=SPT 12/ 20mm REFUSAL						DW	H		HIGH 'TC' BIT RESISTANCE
						3	2			REFER TO CORED BOREHOLE LOG				
						2	3							
						1	4							
						0	5							
						-1	6							
						-2								

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 4 **2 / 2**

EASTING: 332468.8
NORTHING: 6250772.2

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Core Size:** NMLC **R.L. Surface:** 4.8 m
Date: 15/12/15 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK350 **Bearing:** N/A **Logged/Checked By:** A.B./P.W.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ (EL .03, VL .1, L .3, M 1, H 3, VH 10, EH)	DEFECT SPACING (mm) (500, 300, 100, 50, 30, 10)	DEFECT DETAILS DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
					START CORING AT 1.63m					
100% RETURN	RECOVERY = 76%	3	2		SANDSTONE: fine to medium grained, red brown and orange brown, bedded at 0-10°.	DW	H			(2.20m) Be, 0°, P, S
					CORE LOSS 0.15m					
		2	3		SANDSTONE: fine to medium grained, red brown, bedded at 0-10°.	DW	L - M			(2.65m) CS, 0°, 150 mm.t
	RECOVERY = 100%				SANDSTONE: fine to medium grained, light grey, bedded at 0-5°.	SW	M			(3.17m) J, 90°, P, S
		1	4		as above, but orange brown.					(4.02m) XWS, 0°, 16 mm.t
	RECOVERY = 100%				SANDSTONE: fine to coarse grained, red brown and light grey, with fine to medium grained quartz inclusions.					(4.18m) J, 50°, P, R (4.21m) CS, 0°, 1-3mm.t
		0	5		SANDSTONE: fine to coarse grained, light grey, bedded at 0-5°.					
					END OF BOREHOLE AT 5.09 m					
		-1	6							
		-2	7							
		-3								


JK Geotechnics
Client: UrbanGrowth NSW
Project: Proposed Promenade Facility
Location: Bank Street, Pyrmont, NSW
Date: Drilled on 15 December 2015
SCALE (CM)
JOB No. 28974SP BH4 START · CORING AT 1.63m
1
2
CORE LOSS
0.15m
3
4
5
END OF BH AT 5.09m

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GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 5
1 / 3

EASTING: 332326.4
NORTHING: 6250827.6

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** CASING ADVANCER **R.L. Surface:** -1.3 m
Date: 11/12/15 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
					N = 43 16,16,27	-2 -3	1 2			FILL: Clayey sand, fine to coarse grained, light grey, with weathered sandstone boulders and cobbles.	W	-		RESISTANCE ON CASING ADVANCER
						-4 -5 -6 -7 -8	3 4 5 6			REFER TO CORED BOREHOLE LOG				HIGH RESISTANCE ON CASING ADVANCER

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GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 5
2 / 3

EASTING: 332326.4
NORTHING: 6250827.6

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP | **Core Size:** NMLC | **R.L. Surface:** -1.3 m
Date: 11/12/15 | **Inclination:** VERTICAL | **Datum:** AHD
Plant Type: JK305 | **Bearing:** N/A | **Logged/Checked By:** H.W./P.W.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ EL .03 VL .1 L .3 M 1 H 3 VH 10 EH	DEFECT DETAILS DEFECT SPACING (mm) 500 300 100 50 30 10 DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
					START CORING AT 2.65m				
	RECOVERY = 18%	-4	3		CORE LOSS 2.53m				
		-5	4						
		-6	5						
		-7			FILL: Sandstone gravel, cobbles and boulders, light grey and red brown.	DW	M		
	RECOVERY = 5%		6		CORE LOSS 2.85m				
		-8	7						
		-9	8						
		-10			FILL: Sandstone gravel, cobbles and boulders, light grey and red brown.	DW	M		
					CORE LOSS 2.90m				

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 5 3 / 3

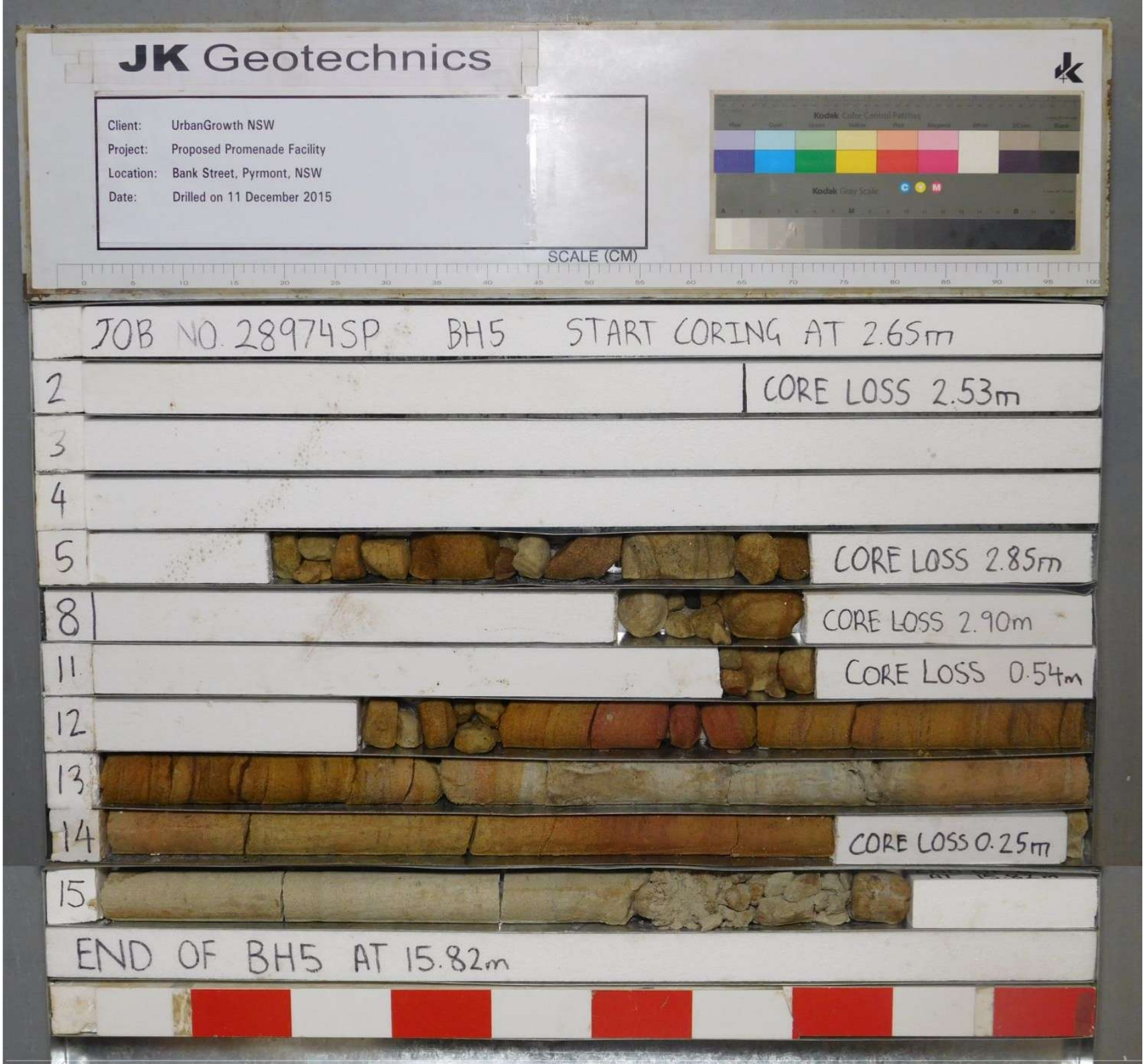
EASTING: 332326.4
NORTHING: 6250827.6

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Core Size:** NMLC **R.L. Surface:** -1.3 m
Date: 11/12/15 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK305 **Bearing:** N/A **Logged/Checked By:** H.W./P.W.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION (Rock Type, grain characteristics, colour, structure, minor components.)	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ (EL -0.03, VL -0.1, L -0.3, M -1, H -3, VH -10, EH)	DEFECT DETAILS: DEFECT SPACING (mm) (500, 300, 100, 50, 30, 10)	DEFECT DETAILS: DESCRIPTION (Type, inclination, thickness, planarity, roughness, coating.) Specific / General
	RECOVERY = 5%	-11	10		CORE LOSS 2.90m *(continued)*					
		-12	11							
		-13	12		FILL: Sandstone cobbles and boulders, light grey and red brown.	DW	M			
					CORE LOSS 0.54m					
					FILL: Sandstone cobbles and boulders, light grey and orange brown.	DW	M			
	RECOVERY = 82%	-14	13		SANDSTONE: fine to coarse grained, orange brown and red brown, bedded at 5-15°.	DW	M			
					as above, but light grey.		L			(13.34m) J, 30°, P, R
		-15				XW	EL			
			14		as above, but light grey, yellow brown and red brown, bedded at 5-15°.	DW	L			
		-16			CORE LOSS 0.25m					
	RECOVERY = 76%		15		SANDSTONE: fine to medium grained, light grey.	DW	L			
		-17				XW	EL			
					END OF BOREHOLE AT 15.82 m					

JK_LIB_CURRENT - V8.00.GLB Log J & K CORED BOREHOLE - MASTER 28974SP PYRMONT.GPJ <<DrawingFile>> 19/05/2017 11:04 Produced by gINT Professional. Developed by Datgel


JK Geotechnics
Client: UrbanGrowth NSW
Project: Proposed Promenade Facility
Location: Bank Street, Pyrmont, NSW
Date: Drilled on 11 December 2015
SCALE (CM)
JOB NO. 28974SP BH5 START CORING AT 2.65m
2
CORE LOSS 2.53m
3
4
5
CORE LOSS 2.85m
8
CORE LOSS 2.90m
11
CORE LOSS 0.54m
12
13
14
CORE LOSS 0.25m
15
END OF BH5 AT 15.82m

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GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 6
1 / 3

EASTING: 332309.5
NORTHING: 6250821.9

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** CASING ADVANCER **R.L. Surface:** -7 m
Date: 10/12/15 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						-7				FILL: Silty clay, medium plasticity, dark grey, with fine to medium grained sandstone gravel, trace of cobbles and boulders.	W			NOTE: LOGGING TO 2.5m BASED UPON LIMITED SAMPLE RETURN
				■	N=0 1,0,0	-8	1							
						-9	2		CH	SILTY CLAY: high plasticity, light grey and yellow brown.	MC>PL	St - VSt		MARINE
		■				-10	3			as above, but with sand.			100 200 190	
				■	N = 9 3,4,5	-11	4		CL / SC	SANDY CLAY/CLAYEY SAND: fine to medium grained, medium plasticity, light grey and yellow brown, with red brown iron indurated pockets.	W / MC>PL	L / VSt	300 110 220	PROBABLY RESIDUAL
				■	N = 7 3,3,4	-12	5		SC	SILTY CLAYEY SAND: fine to coarse grained, light grey and yellow brown, trace of medium grained sandstone gravel.		L		
				■	N = 5 2,2,3	-13	6							

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 6
2 / 3

EASTING: 332309.5
NORTHING: 6250821.9

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** CASING ADVANCER **R.L. Surface:** -7 m
Date: 10/12/15 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						-15	8		SC	SILTY CLAYEY SAND: fine to coarse grained, light grey and yellow brown, with bands of hard clay, trace of medium grained sandstone gravel.	W	(L - MD)		RESISTANCE ON CASING ADVANCER
										REFER TO CORED BOREHOLE LOG				
						-16	9							
						-17	10							
						-18	11							
						-19	12							
						-20	13							

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 6 **3 / 3**

EASTING: 332309.5
NORTHING: 6250821.9

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Core Size:** NMLC **R.L. Surface:** -7 m
Date: 10/12/15 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK305 **Bearing:** N/A **Logged/Checked By:** H.W./P.W.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION (Rock Type, grain characteristics, colour, structure, minor components.)	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ (EL 0.03, VL 0.1, L 0.3, M 1, H 3, VH 10, EH)	DEFECT SPACING (mm) (500, 300, 100, 50, 30, 10)	DEFECT DETAILS: DESCRIPTION (Type, inclination, thickness, planarity, roughness, coating.) Specific / General
					START CORING AT 8.10m					
					CORE LOSS 2.12m					
	RECOVERY = 29%	-16	9							
		-17	10							
					SANDY CLAY: high plasticity, light grey and red brown.	MC>PL	St			(10.25m) HP TESTING; 140,150kPa
					CLAYEY SAND: fine to coarse grained, grey.	M	(MD)			
		-18	11		SANDSTONE: fine to medium grained, red brown.	XW	EL			
					CORE LOSS 0.12m					
	RECOVERY = 96%				SANDSTONE: fine to medium grained, orange and red brown, bedded at 0-10°.	DW	M			
					as above, but orange brown, red brown and light grey, bedded at 5-15°.					(11.65m) XWS, 0°, 40 mm.t (11.67m) J, 40°, P, R (11.72m) J, 70°, P, R (12.03m) XWS, 15°, 2 mm.t
		-19	12							
		-20	13		as above, but light grey, with occasional dark grey laminae, bedded at 5-15°.	SW				(13.05m) XWS, 0°, 1 mm.t (13.06m) XWS, 0°, 2 mm.t
							H			
		-21	14		END OF BOREHOLE AT 14.05 m					

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JK Geotechnics
Client: UrbanGrowth NSW
Project: Proposed Promenade Facility
Location: Bank Street, Pyrmont, NSW
Date: Drilled on 10 December 2015
SCALE (CM)
JOB NO. 28974SP BH6 START CORING AT 8.10m
8
CORE LOSS 2.12m
9
10
11
CORE LOSS 0.12m
12
13
14
END OF BH AT 14.05m

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 7
1 / 4

EASTING: 332319.4
NORTHING: 6250808.6

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** CASING ADVANCER **R.L. Surface:** -2.6 m
Date: 11/12/15 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						-2.6	0			FILL: Sandstone cobbles, fine to medium grained, light grey, in clayey sand matrix.	W			
						-3								RESISTANCE OF CASING ADVANCER
							1							
				■	N = 18 4,3,15	-4								SMALL SPT SAMPLE
							2							RESISTANCE ON CASING BOULDERS AND COBBLES
						-5								
				■	N = 4 4,2,2		3			FILL: Sand, fine to coarse grained, light grey, with medium to coarse grained sandstone gravel.				APPEARS POORLY COMPACTED
						-6				FILL: Sandstone boulders and cobbles, in a clayey sand matrix.				
							4							LOW RESISTANCE ON CASING ADVANCER
				■	N = 15 3,5,10	-7				FILL: Sand, fine to coarse grained, light grey, with medium to coarse grained sandstone gravel, trace of silt fines.				APPEARS MODERATELY COMPACTED
							5			as above, but with sandstone cobbles an boulders.				BANDS OF RESISTANCE ON CASING ADVANCER
						-8								
				■	N = 15 12,8,7		6			FILL: Gravelly sand, fine to coarse grained, grey, fine to coarse grained sandstone gravel, trace of clay and silt fines.				
						-9				FILL: Sandstone boulders and cobbles in a clayey sand matrix.				RESISTANCE OF CASING ADVANCER

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JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 7
2 / 4

EASTING: 332319.4
NORTHING: 6250808.6

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** CASING ADVANCER **R.L. Surface:** -2.6 m
Date: 11/12/15 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						-10	8			FILL: Sandstone boulders and cobbles in a clayey sand matrix.	W			HIGH CASING RESISTANCE 0.4m BAND OF RESISTANCE ON CASING ADVANCER
				■	N = 5 3,2,3	-11	9		SC	SILTY CLAYEY SAND: fine to coarse grained, yellow brown.	W	L		DROP OFF IN CASING ADVANCER RESISTANCE
				■	N = 8 5,4,4	-12	10			as above, but red brown and yellow brown.				
				■	N = 4 4,2,2	-13	11			as above, but grey.				
				■	N = 20 4,10,10	-14	12			as above, but light grey.		MD		
						-15	13							
						-16								

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 7
3 / 4

EASTING: 332319.4
NORTHING: 6250808.6

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** CASING ADVANCER **R.L. Surface:** -2.6 m
Date: 11/12/15 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
				■		-17	15		SC	SILTY CLAYEY SAND: fine to coarse grained, light grey.	W	MD		
						-18			-	SANDSTONE: fine to medium grained, red brown.	DW	(M)		RESISTANCE ON CASING ADVANCER
						-19	16			REFER TO CORED BOREHOLE LOG				
						-20	17							
						-21	18							
						-22	19							
						-23	20							

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 7
4 / 4

EASTING: 332319.4
NORTHING: 6250808.6

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP | **Core Size:** NMLC | **R.L. Surface:** -2.6 m
Date: 11/12/15 | **Inclination:** VERTICAL | **Datum:** AHD
Plant Type: JK305 | **Bearing:** N/A | **Logged/Checked By:** H.W./P.W.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ EL .03 VL .1 L .3 M 1 H 3 VH 10 EH	DEFECT DETAILS DEFECT SPACING (mm) 500 300 100 50 30 10	DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
		-18			START CORING AT 15.79m					
	RECOVERY = 100%	-19	16		SANDSTONE: fine to medium grained, red brown, orange brown and light grey, bedded at 0-10°.	DW	H			(15.89m) J, 90°, Un, R
							M			(16.34m) XWS, 15°, 5 mm.t
		-20	17		SANDSTONE: fine to medium grained, light grey, with dark grey laminae, bedded at 5-15°.	SW				(17.25m) CS, 0°, 1 mm.t
							H			(17.39m) CS, 0°, 1 mm.t
		-21	18							
		-22	19		END OF BOREHOLE AT 18.87 m					
		-23	20							
		-24	21							


JK Geotechnics
Client: UrbanGrowth NSW
Project: Proposed Promenade Facility
Location: Bank Street, Pyrmont, NSW
Date: Drilled on 11 December 2015
SCALE (CM)
JOB NO. 28974SP BH7 START CORING AT 15.79m
15
16
17
18
END OF BH AT 18.87m

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 8
1 / 3

EASTING: 332331.9
NORTHING: 6250781.7

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** CASING ADVANCER **R.L. Surface:** -6.9 m
Date: 16/12/15 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						-7			SP	SAND: fine to medium grained, grey, with clay and silt fines.	W	VL		MARINE
					N=0 1,0,0	-8	1							LITTLE SAMPLE IN SPT
				■	N = 8 2,4,4	-9	2		SC	CLAYEY SAND: fine to coarse grained, yellow brown, with silt.		L		
						-10	3		SP	SAND: fine to medium grained, grey and brown.		VL		LITTLE SAMPLE IN SPT
					N = 3 1,2,1	-11	4							
				■	N = 8 6,5,3	-12	5			SAND: fine to medium grained, grey and brown, with shells, trace of fine to medium grained ironstone gravel.		L		
							6							
				■	N = 6 1,3,3	-13			SC	CLAYEY SAND: fine to coarse grained, grey.				

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 8
2 / 3

EASTING: 332331.9
NORTHING: 6250781.7

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** CASING ADVANCER **R.L. Surface:** -6.9 m
Date: 16/12/15 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						-14			SC	CLAYEY SAND: fine to coarse grained, grey.	W	L		
					N = 3 3,1,2	-15	8			as above, but with medium to coarse grained sandstone gravel.		VL		
						-16	9		-	SANDSTONE: fine to coarse grained, yellow brown, with XW bands.	DW	M		BANDED RESISTANCE ON CASING ADVANCER
						-17	10			REFER TO CORED BOREHOLE LOG				
						-18	11							
						-19	12							
						-20	13							

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 8 **3 / 3**

EASTING: 332331.9
NORTHING: 6250781.7

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Core Size:** NMLC **R.L. Surface:** -6.9 m
Date: 16/12/15 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK305 **Bearing:** N/A **Logged/Checked By:** H.W./P.W.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ EL -0.03, VL -0.1, L -0.3, M -1, H -3, VH -10, EH	DEFECT SPACING (mm) 500, 300, 100, 50, 30, 10	DEFECT DETAILS DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
		-15								
		-16	9		START CORING AT 9.30m					
					SANDSTONE: fine to coarse grained, orange brown.	XW	EL			
					CORE LOSS 0.54m					
	RECOVERY = 82%	-17	10		SANDSTONE: fine to coarse grained, orange brown, bedded at 5-15°.	DW	M			(10.16m) Be, 0°, P, R (10.29m) Be, 0 - 10°, Un, R, XW INFILL (10.35m) Be, 10°, P, R
		-18	11		as above, but with fine to medium grained quartz inclusions.					
		-19	12		SANDSTONE: fine to medium grained, light grey, with occasional dark grey laminae, bedded at 5-15°.	SW	H			(12.07m) XWS, 10°, 50 mm.t
	RECOVERY = 100%	-20	13			FR				
		-21	14		END OF BOREHOLE AT 13.32 m					

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JK Geotechnics
Client: UrbanGrowth NSW
Project: Proposed Promenade Facility
Location: Bank Street, Pyrmont, NSW
Date: 16 December 2015
SCALE (CM)
JOB NO. 28974SP BH8 START CORING AT 9.30m
9
CORE LOSS 0.54m
10
11
12
13
END OF BH AT 13.32m

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 9
1 / 4

EASTING: 332345.8
NORTHING: 6250790.4

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** CASING ADVANCER **R.L. Surface:** -2.2 m
Date: 14/12/15 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						-3	1			FILL: Clayey sand, fine to medium grained, dark grey.	W			
										as above, but with boulders.				CASING ADVANCER RESISTANCE
				■	N = 6 3,2,4	-4	2			FILL: Gravelly sand, fine to coarse grained, light grey, fine to coarse grained sandstone gravel and cobbles, trace of boulders, with silt.		VL - L		CASING ADVANCER RESISTANCE (BOULDER)
				■	N = 7 4,4,3	-5	3							
					N = 7 6,4,3	-6	4							NO RETURN FROM SPT SPLIT TUBE
				■	N = 4 11,2,2	-7	5			FILL: Gravelly silty sand, fine to coarse grained, light grey, fine to coarse grained sandstone gravel.				
						-8	6							
						-9			SC	SILTY CLAYEY SAND: fine to coarse grained, yellow brown and grey.	W	L		

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 9
2 / 4

EASTING: 332345.8
NORTHING: 6250790.4

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** CASING ADVANCER **R.L. Surface:** -2.2 m
Date: 14/12/15 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
				■	N = 5 2,2,3				SC	SILTY CLAYEY SAND: fine to coarse grained, yellow brown and grey.	W	L		
				■	N = 13 2,4,9	-10	8			as above, but light grey and red brown.		MD		
				■	N = 6 3,2,4	-11	9			as above, but yellow brown and red brown.		L		
				■	N = 20 9,11,9	-12	10			CLAYEY SAND: fine to medium grained, yellow brown, red brown and light grey.		MD		
				■	N > 33 10,24,9/ 50mm REFUSAL	-13	11							CASING ADVANCER RESISTANCE NO RESISTANCE
				■		-14	12							
				■		-15	13							
				■		-16			-	SANDSTONE: fine to medium grained, light grey and yellow brown, with iron	(XW)	(EL)		

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GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 9
3 / 4

EASTING: 332345.8
NORTHING: 6250790.4

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** CASING ADVANCER **R.L. Surface:** -2.2 m
Date: 14/12/15 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
									-	indurated bands. SANDSTONE: fine to medium grained, light grey and yellow brown, with iron indurated bands.	(XW)	(EL)		
						-17	15				(DW)	(M)		HIGH RESISTANCE AND CASING ADVANCER
										REFER TO CORED BOREHOLE LOG				
						-18	16							
						-19	17							
						-20	18							
						-21	19							
						-22	20							
						-23								

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GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 9 **4 / 4**

EASTING: 332345.8
NORTHING: 6250790.4

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Core Size:** NMLC **R.L. Surface:** -2.2 m
Date: 14/12/15 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK305 **Bearing:** N/A **Logged/Checked By:** H.W./P.W.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ EL 0.03 VL 0.1 L 0.3 M 1 H 3 VH 10 EH	DEFECT DETAILS DEFECT SPACING (mm) 500 300 100 50 30 10	DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
		-17	15		START CORING AT 15.20m					
	RECOVERY = 100%	-18 -19 -20	16 17 18		SANDSTONE: fine to coarse grained, light grey, with dark grey laminae, bedded at 10-15°, and occasional fine to medium grained quartz gravel inclusions and pockets of dark grey fine grained inclusions.	SW	H			(17.52m) Be, 0°, 1mm.t, P, R, CLAY COATING (17.72m) J, 60°, Un, R, XW INFILL 5mm.t (17.78m) CS, 5°, 1 mm.t
					SANDSTONE: fine to medium grained, light grey, with dark grey laminae, bedded at 10°.		M - H			
		-21 -22 -23	19 20		END OF BOREHOLE AT 18.26 m					


JK Geotechnics
Client: UrbanGrowth NSW
Project: Proposed Promenade Facility
Location: Bank Street, Pyrmont, NSW
Date: Drilled on 14 December 2015
SCALE (CM)
JOB NO 28974SP BH 9 START CORING AT 15.20m
15
16
17
18
END OF BH AT 18.26m

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 10
1 / 2

EASTING: 332366.9
NORTHING: 6250774.7

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** CASING ADVANCER **R.L. Surface:** -4.9 m
Date: 18/12/15 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						-5				FILL: Sandstone boulders and cobbles in a silty sand matrix.	W			CASING ADVANCER RESISTANCE
							1							RESISTANCE DROP OFF
						-6								CASING ADVANCER RESISTANCE
									CH	SILTY CLAY: high plasticity, dark grey, with shells, sand and organic fibres.	MC>PL	VS		RESISTANCE DROP OFF
					N = 4 2,2,2				SC	SILTY CLAYEY SAND: fine to coarse grained, yellow brown.	W	VL - L		
						-7	2							
					N = 4 2,2,2	-8	3			as above, but with coarse grained indurated sandstone gravel.				
						-9	4							
					N = 10 3,4,6					SILTY CLAYEY SAND: fine to coarse grained, light grey and red brown, trace of medium to coarse grained quartz and ironstone gravel and sandy clay bands.		L	140 190 140	
						-10	5		-	SANDSTONE: fine to medium grained, red brown.	DW	H		HIGH RESISTANCE ON CASING ADVANCER
										REFER TO CORED BOREHOLE LOG				
						-11	6							

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GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 10 **2 / 2**

EASTING: 332366.9
NORTHING: 6250774.7

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Core Size:** NMLC **R.L. Surface:** -4.9 m
Date: 18/12/15 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK305 **Bearing:** N/A **Logged/Checked By:** H.W./P.W.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION (Rock Type, grain characteristics, colour, structure, minor components.)	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ (EL, VL, L, M, H, VH, EH)	DEFECT SPACING (mm)	DEFECT DETAILS: DESCRIPTION (Type, inclination, thickness, planarity, roughness, coating.) Specific / General
		-10			START CORING AT 5.59m					
	RECOVERY = 53%	-11	6		SANDSTONE: fine to medium grained, red brown.	DW	H			
					CORE LOSS 1.35m					
		-12	7		CLAYEY SAND: fine to coarse grained, light grey and yellow brown, trace of fine to medium grained quartz gravel.	W	L			
						DW	L			
		-13	8		SANDSTONE: fine to coarse grained, red and orange brown and light grey, bedded at 0-10°.					(7.37m) XWS, 15°, 30 mm.t (7.79m) XWS, 25°, 30 mm.t (7.88m) XWS, 30°, 30 mm.t (8.10m) XWS, 5°, 10 mm.t
							M			
	RECOVERY = 100%	-14	9		SANDSTONE: fine to coarse grained, light grey and yellow brown, with dark grey laminae, bedded at 0-10°.					(8.68m) J, 35°, Un, IRONSTAINED (8.73m) HEALED J, 60°, Un (8.75m) Be, 0°, P, S, IRONSTAINED (8.79m) J, 55°, P, R, IRONSTAINED (8.84m) CS, 0°, 8 mm.t (9.13m) CS, 0°, 8 mm.t
							H			
		-15	10			SW				
		-16	11		END OF BOREHOLE AT 10.63 m					


JK Geotechnics
Client: UrbanGrowth NSW
Project: Proposed Promenade Facility
Location: Bank Street, Pyrmont, NSW
Date: 18 December 2015
SCALE (CM)
JOB NO. 28974SP
BH10
START CORING AT 5.59m
5
CORE LOSS 1.35m
6
7
8
9
10
END OF BH AT 10.63m

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 11
1 / 2

EASTING: 332396.8
NORTHING: 6250785.7

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** SPIRAL AUGER **R.L. Surface:** 0.4 m
Date: 13/1/16 **Datum:** AHD
Plant Type: JK250 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
										CONCRETE: 200mm.t				NO OBSERVED REINFORCEMENT
				■		0			-	FILL: Sand, fine to medium grained, brown, with fine to medium grained sandstone gravel.	W	-		APPEARS POORLY COMPACTED
▼ ON COMPLETION OF CORING				■	N = 6 2,4,2		1							
						-1				FILL: Clayey sand, fine to medium grained, yellow brown, with fine to coare grained sandstone gravel.				
				■	N = 4 4,3,1		2							
						-2				FILL: Clayey sand, fine to coarse grained, grey and yellow brown, with fine to coarse grained sandstone gravel.				
							3							
				■	N > 2 0,0,2/ 50mm REFUSAL	-3			SC	CLAYEY SAND: fine to coarse grained, dark grey, with shells.	W	VL		
									CL	SANDY CLAY: medium plasticity, dark grey, with shells.	MC>PL	VS		
									-	SANDSTONE: fine to coarse grained.	(DW)	(L)		BANDED MODERATE 'TC' BIT RESISTANCE
														MODERATE TO HIGH RESISTANCE
							4			REFER TO CORED BOREHOLE LOG				
						-4								
							5							
						-5								
							6							
						-6								

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 11 **2 / 2**

EASTING: 332396.8
NORTHING: 6250785.7

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Core Size:** NMLC **R.L. Surface:** 0.4 m
Date: 13/1/16 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK250 **Bearing:** N/A **Logged/Checked By:** H.W./P.W.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ (EL .03, VL .1, L .3, M 1, H 3, VH 10, EH)	DEFECT DETAILS DEFECT SPACING (mm) (500, 300, 100, 50, 30, 10)	DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
		-3			START CORING AT 3.93m					
	RECOVERY = 78%	-4	4		SANDSTONE: medium to coarse grained, red brown, bedded at 0-5°.	DW	M			(4.10m) Be, 10°, P, R (4.44m) Be, 0°, P, R, IS (4.52m) XWS, 5°, 10 mm.t
		-5	5		CORE LOSS 0.67m					(4.94m) Be, 0°, P, R, IS (5.17m) XWS, 5°, 20 mm.t (5.19m) CS, 0°, 30 mm.t (5.25m) CS, 0°, 1 mm.t
	RECOVERY = 100%	-6	6		SANDSTONE: medium to coarse grained, red brown. SANDSTONE: fine to coarse grained, yellow brown and light grey, cross bedded at 20°. as above, but bedded at 0-10°, trace of fine grained quartz gravel.	DW SW	L M M - H			(6.04m) CS, 0°, 1 mm.t (6.08m) CS, 0°, 1 mm.t (6.21m) CS, 20°, 1 mm.t (6.30m) CS, 20°, 1 mm.t
		-7	7							(6.96m) Be, 0°, P, S, IS
		-8	8		END OF BOREHOLE AT 7.96 m					
		-9	9							


JK Geotechnics
Client: UrbanGrowth NSW
Project: Proposed Promenade Facility
Location: Bank Street, Pyrmont, NSW
Date: 13 January 2016
Kodak Color Control Patches
Kodak Gray Scale
SCALE (CM)
JOB NO. 28974SP BH11 START CORING AT 3.93m
4
5
CORE LOSS 0.67m
6
7
END OF BH AT 7.96m

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 12
1 / 3

EASTING: 332394.2
NORTHING: 6250762.4

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** CASING ADVANCER **R.L. Surface:** -0.7 m
Date: 11/1/16 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						-0.7	0			FILL: Sandstone boulders in sandy clay matrix.	W			
						-1	1							BANDED RESISTANCE
														30mm BAND OF RESISTANCE ON CASING ADVANCER
						-2	2			FILL: Sandy gravel, fine to coarse grained sandstone gravel, grey, with sandstone cobbles and boulders.				30mm BAND OF RESISTANCE ON CASING ADVANCER
					N = 7 1,2,5									
					N = 4 2,2,2	-3	3							30mm BAND OF RESISTANCE ON CASING ADVANCER
					N = 8 2,4,4	-4	4			FILL: Sandstone boulders and cobbles, with fine grained sand, yellow brown and light grey.				1.0m OF RESISTANCE ON CASING ADVANCER
					N = 5 3,3,2	-5	5			FILL: Sandy gravel, fine to coarse grained, light grey and grey, with sandstone cobbles and clay fines.				
					N = 6 1,2,4	-6	6		SC	CLAYEY SAND: fine to coarse grained, yellow and red brown, trace of fine to medium grained quartz and ironstone gravel.	W	L		CASING ADVANCER RESISTANCE
						-7								

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 12
2 / 3

EASTING: 332394.2
NORTHING: 6250762.4

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** CASING ADVANCER **R.L. Surface:** -0.7 m
Date: 11/1/16 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						-8			SC	CLAYEY SAND: fine to coarse grained, yellow and red brown, trace of fine to medium grained quartz and ironstone gravel.	W	L		CASING ADVANCER RESISTANCE
				■	N = 9 2,4,5				SW	GRAVELLY SAND: medium to coarse grained, yellow brown, medium to coarse grained ironstone and sandstone gravel, with clay fines.				
						-9	8		-	SANDSTONE: medium to coarse grained, light yellow brown.	(DW)	(M)		
						-10	9			REFER TO CORED BOREHOLE LOG				
						-11	10							
						-12	11							
						-13	12							
						-14	13							

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GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 12 **3 / 3**

EASTING: 332394.2
NORTHING: 6250762.4

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Core Size:** NMLC **R.L. Surface:** -0.7 m
Date: 11/1/16 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK305 **Bearing:** N/A **Logged/Checked By:** H.W./P.W.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ (EL .03, VL .1, L .3, M 1, H 3, VH 10, EH)	DEFECT SPACING (mm) (500, 300, 100, 50, 30, 10)	DEFECT DETAILS: DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
		-9			START CORING AT 8.51m					
	RECOVERY = 100%	-10	9		SANDSTONE: medium to coarse grained, light orange brown, cross bedded at 20°.	DW	M			(8.52m) FRACTURED IRON INDURATED BAND, 60mm.t (8.58m) XWS, 20°, 2 mm.t
		-11	10		SANDSTONE: medium to coarse grained, light grey, with dark grey laminae, bedded at 10-20°.	SW	H			(9.78m) J, 70°, P, R (10.13m) CS, 5°, 1 mm.t
		-12	11			XW	EL			(11.00m) J, 70°, P, R
					END OF BOREHOLE AT 11.53 m					
		-13	12							
		-14	13							
		-15	14							


JK Geotechnics
Client: UrbanGrowth NSW
Project: Proposed Promenade Facility
Location: Bank Street, Pyrmont, NSW
Date: 11 January 2016
SCALE (CM)
JOB NO. 289745P BH12 START CORING AT 8.51m
8
9
10
11
END OF BH AT 11.53m

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GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 13
1 / 2

EASTING: 332379.2
NORTHING: 6250729.4

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** CASING ADVANCER **R.L. Surface:** -5.2 m
Date: 18/12/15 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						-6	1		CL	SILTY CLAY: medium plasticity, dark grey, with bands of sand and shells.	MC>>PL	VS		
					N = 2 2,1,1	-7	2		SC	SILTY CLAYEY SAND: fine to medium grained, yellow brown, trace of fine to medium grained ironstone and quartz gravel and shells.	W	VL		
					N = 5 3,2,3	-8	3			as above, but without gravel and shells.		L		
									-	SANDSTONE: fine to medium grained, light grey and yellow brown.	(DW)	(M)		CASING ADVANCER RESISTANCE
						-9	4			REFER TO CORED BOREHOLE LOG				
						-10	5							
						-11	6							
						-12								

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 13 **2 / 2**

EASTING: 332379.2
NORTHING: 6250729.4

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Core Size:** NMLC **R.L. Surface:** -5.2 m
Date: 18/12/15 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK305 **Bearing:** N/A **Logged/Checked By:** H.W./P.W.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ EL .03 VL .1 L .3 M 1 H 3 VH 10 EH	DEFECT DETAILS DEFECT SPACING (mm) 500 300 100 50 30 10	DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
		-8	3		START CORING AT 3.28m					
	RECOVERY = 93%	-9	4		SANDSTONE: fine to medium grained, light grey, red and yellow brown, bedded at 5-15°.	DW	M			(3.31m) J, 35°, Un, R
		-10	5		as above, but light grey and red brown.	XW	EL			(4.65m) XWS, 15°, 5 mm.t (4.67m) XWS, 0°, 5 mm.t
					as above, but with very low strength bands.	DW	L			(5.34m) XWS, 0°, 30 mm.t
					CORE LOSS 0.20m					(5.57m) XWS, 0°, 10 mm.t
		-11	6		SANDSTONE: fine to coarse grained, light grey, red brown and brown, bedded at 0-5°.	DW	M			(6.05m) XWS, 5°, 5 mm.t (6.20m) Be, 0°, Un, R, IS (6.21m) FRACTURED SEAM, 0°. 10mm.t
		-12	7		END OF BOREHOLE AT 6.45 m					
		-13	8							
		-14								


JK Geotechnics
Client: UrbanGrowth NSW
Project: Proposed Promenade Facility
Location: Bank Street, Pyrmont, NSW
Date: 18 December 2015
SCALE (CM)
JOB NO. 28974SP BH13 START CORING AT 3.28m
3
4
5
CORE LOSS 0.2m
6
END OF BH AT 6.45m

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 14
1 / 2

EASTING: 332413.5
NORTHING: 6250719

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** CASING ADVANCER **R.L. Surface:** -4.1 m
Date: 15/12/15 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						-4.1			CH	SILTY CLAY: high plasticity, grey, trace of shells and ash gravel.	MC>PL	VS		
				■	N=0 0,0,0	-5	1							SPT SUNK UNDER WEIGHT OF RODS ALONE
				■	N = 3 1,2,1	-6	2		SP / GP	SHELLS in sandy matrix, fine to medium grained, yellow brown.	W	VL		REFUSAL OF U50 ON SHELLS
						-7	3			SANDSTONE: fine to coarse grained, light grey and red brown.	(DW)	(M)		RESISTANCE ON CASING ADVANCER
						-8	4			REFER TO CORED BOREHOLE LOG				
						-9	5							
						-10	6							
						-11								

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 14 **2 / 2**

EASTING: 332413.5
NORTHING: 6250719

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Core Size:** NMLC **R.L. Surface:** -4.1 m
Date: 15/12/15 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK305 **Bearing:** N/A **Logged/Checked By:** H.W./P.W.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ EL -0.03 VL -0.1 L -0.3 M -1 H -3 VH -10 EH	DEFECT SPACING (mm) 500 300 100 50 30 10	DEFECT DETAILS DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
		-7	3		START CORING AT 3.50m					
	RECOVERY = 100%	-8	4		SANDSTONE: fine to coarse grained, light grey and red brown, bedded at 0-5°.	DW	M			(3.64m) Be, 0°, P, R, IS (3.80m) Be, 0°, P, R (3.84m) Be, 0°, P, R, IS
					as above, but light grey, with grey laminae, bedded at 5-10°.	SW				
		-9	5		as above, but cross bedded at 20°.					(4.88m) Be, 0°, P, S
					SANDSTONE: fine to coarse grained, light grey, bedded at 0-10°.		H			
		-10	6							
	RECOVERY = 100%	-11	7		as above, but with grey laminae, cross bedded at 25°.					
		-12	8		END OF BOREHOLE AT 7.09 m					
		-13								


JK Geotechnics
Client: UrbanGrowth NSW
Project: Proposed Promenade Facility
Location: Bank Street, Pyrmont, NSW
Date: Drilled on 15 December 2015
SCALE (CM)
JOB NO. 28974SP BH14 START CORING AT 3.50m
3
4
5
6
7
END OF BH AT 7.09m

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 15
1 / 2

EASTING: 332453.4
NORTHING: 6250705.9

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** CASING ADVANCER **R.L. Surface:** -1.4 m
Date: 15/12/15 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						-1.4			CH	SILTY CLAY: high plasticity, grey, with shells and timber fragments.	MC>PL	VS		
					N=0 0,0,0	-2	1							SPT SUNK 1.2m UNDER WEIGHT OF HAMMER
						-3	2		SP	SHELLS in sandy matrix, fine to medium grained, yellow brown.	W	L		
					N=SPT 6/ 150mm REFUSAL	-4	3		-	SANDSTONE: fine to coarse grained, yellow brown.	DW	M		RESISTANCE ON CASING ADVANCER
						-5	4			REFER TO CORED BOREHOLE LOG				
						-6	5							
						-7	6							
						-8								

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 15 **2 / 2**

EASTING: 332453.4
NORTHING: 6250705.9

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Core Size:** NMLC **R.L. Surface:** -1.4 m
Date: 15/12/15 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK305 **Bearing:** N/A **Logged/Checked By:** H.W./P.W.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ EL 0.03 VL 0.1 L 0.3 M 1 H 3 VH 10 EH	DEFECT DETAILS DEFECT SPACING (mm) 500 300 100 50 30 10 DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
		-4	3		START CORING AT 3.10m				
	RECOVERY = 100%	-5	4		SANDSTONE: fine to coarse grained, orange brown, bedded at 15-20°.	DW	M		(3.17m) Be, 15°, P, R (3.33m) Be, 15°, P, R (3.44m) Be, 20°, P, R (4.09m) Be, 5 - 10°, Un, R, XW INFILL 1mm.t (4.14m) XWS, 20°, 10 mm.t, R (4.30m) XWS, 20°, 10 mm.t (4.61m) XWS, 20°, 20 mm.t
		-6	5						
		-7	6		SANDSTONE: fine to coarse grained, red brown, bedded at 0-10°.				(5.40m) J, 15 - 90°, Un, R, WITH CLAY AND XW INFILL 5mm.t (5.46m) J, 50 - 90°, Un, R, WITH CLAY AND XW INFILL 5-20mm.t (5.78m) XWS, 5°, 8 mm.t
		-8	7		END OF BOREHOLE AT 6.13 m				
		-9	8						
		-10							


JK Geotechnics
Client: UrbanGrowth NSW
Project: Proposed Promenade Facility
Location: Bank Street, Pyrmont, NSW
Date: Drilled on 15 December 2015
SCALE (CM)
JOB NO. 28974SP BH15 START CORING AT 3.10m
3
4
5
6
END OF BH AT 6.13m

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 16
1 / 5

EASTING: 332226.2
NORTHING: 6250832.8

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** CASING ADVANCER **R.L. Surface:** -8.5 m
Date: 22/12/15 TO 23/12/15 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						-8.5			CH	SILTY CLAY: high plasticity, grey, with shell bands.	MC>>PL	VS		
				■	N=0 0,0,0	-9	1							SPT SUNK 1.0m UNDER ROD WEIGHT
						-10							<10 <10 <10	
			■				2			SANDY SILTY CLAY: high plasticity, grey, with shells and timber fragments and fine to medium grained clayey sand bands.				
						-11							<10 <10	
									SM	SILTY SAND: fine to medium grained, grey, with clay fines and shells.	W	VL		
				■	N = 3 1,2,1		3		SP	SAND: fine to medium grained, grey, with silt fines and shells.				
						-12								
							4							
				■	N=0 0,0,0	-13			CH	SILTY CLAY: high plasticity, grey brown, with shell and sand.	MC>>PL	VS	10 10 10	SPT SUNK 1.0m UNDER ROD WEIGHT
							5			as above, but without shells and sand.		S	30 30 40	
						-14								
				■	N = 11 6,5,6		6		SC	CLAYEY SAND: fine to medium grained, grey.	W	MD		
						-15								

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 16
2 / 5

EASTING: 332226.2
NORTHING: 6250832.8

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** CASING ADVANCER **R.L. Surface:** -8.5 m
Date: 22/12/15 TO 23/12/15 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
									SC	CLAYEY SAND: fine to medium grained, grey. *(continued)*	W	VL		
				■	N = 4 0,1,3	-16			CH	SILTY CLAY: high plasticity, dark grey, trace of sand.	MC>PL	VSt	200 220 240	CASING ADVANCER RESISTANCE
							8							
		■				-17								
							9						200 220	
				■	N = 5 2,3,2	-18				SILTY CLAY: high plasticity, dark grey.		St	140 130 140	
							10							
				■	N=0 0,0,0	-19				SILTY CLAY: high plasticity, dark grey, with occasional thin bands of fine to medium grained sand.		F	50 50 70	SPT SUNK 0.45m UNDER ROD WEIGHT
							11							
						-20								
							12							
		■				-21								HAND SHEAR VANE PEAK 40kPa
							13							
						-22								

JK_LIB_CURRENT - V8.00.GLB Log J & K AUGERHOLE - MASTER 28974SP PYRMONT.GPJ <<DrawingFile>> 19/05/2017 11:06 Produced by gINT Professional, Developed by Datgel

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 16
3 / 5

EASTING: 332226.2
NORTHING: 6250832.8

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** CASING ADVANCER **R.L. Surface:** -8.5 m
Date: 22/12/15 TO 23/12/15 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						-23	15		CH	SILTY CLAY: high plasticity, dark grey, with occasional thin bands of fine to medium grained sand. *(continued)*	MC>PL	F		
										SILTY CLAY: high plasticity, light grey, trace of fine to medium grained sand.			80 90	HAND SHEAR VANE PEAK 47kPa
						-24	16							
						-25	17			as above, but with occasional bands of fine to medium grained, light grey sand.		St	120	HAND SHEAR VANE PEAK 78kPa
						-26	18							
						-27	19					VSt	310 310 320	
						-28	20							
						-29								

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 16
4 / 5

EASTING: 332226.2
NORTHING: 6250832.8

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** CASING ADVANCER **R.L. Surface:** -8.5 m
Date: 22/12/15 TO 23/12/15 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
									CH	as above, but with occasional bands of fine to medium grained, light grey sand. *(continued)*	MC>PL	VSt		
				■	N = 19 8,10,9	-30	22		SP	SAND: fine to coarse grained, grey, trace of fine to medium grained sandstone gravel.	W	MD		
				■	N > 20 14,20/ 100mm REFUSAL	-31	23							
						-32	24			as above, but with bands of timber fragments.				
						-33	25							
						-34			-	SANDSTONE: fine to medium grained, light grey.	(DW - SW)	(M - H)		HIGH CASING ADVANCER RESISTANCE
						-35	26			REFER TO CORED BOREHOLE LOG				
						-36	27							

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GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 16 **5 / 5**

EASTING: 332226.2
NORTHING: 6250832.8

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Core Size:** NMLC **R.L. Surface:** -8.5 m
Date: 22/12/15 TO 23/12/15 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK305 **Bearing:** N/A **Logged/Checked By:** H.W./P.W.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ EL .03 VL .1 L .3 M 1 H 3 VH 10 EH	DEFECT SPACING (mm) 500 300 100 50 30 10	DEFECT DETAILS DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
		-34			START CORING AT 25.95m					
	RECOVERY = 100%	-35	26		SANDSTONE: fine to medium grained, light grey and brown, bedded at 5-15°.	SW	H			
					as above, but with grey laminae, bedded at 20°		M			(26.68m) XWS, 0°, 15 mm.t (26.72m) J, 55°, Un, R, XW INFILL 10mm.t
		-36	27		SANDSTONE: fine to medium grained, light grey and yellow brown, bedded at 0-5°.					(27.00m) Be, 10°, Un, R (27.59m) J, 25°, P, R (27.61m) J, 45°, P, R (27.65m) J, 50°, P, R (27.69m) XWS, 0°, 15 mm.t (27.89m) J, 25°, P, R (27.97m) J, 65°, P, R (28.00m) J, 40°, P, R
		-37	28		as above, but bedded at 10-15°.		H			(28.84m) CS, 10°, 1 mm.t (28.91m) XWS, 5°, 25 mm.t
			29		END OF BOREHOLE AT 29.00 m					
		-38								
			30							
		-39								
			31							
		-40								


JK Geotechnics
Client: UrbanGrowth NSW
Project: Proposed Promenade Facility
Location: Bank Street, Pyrmont, NSW
Date: 22-23 December 2015
SCALE (CM)
JOB NO. 28974SP BH16 START CORING AT 25.95m
26
27
28
END OF BH AT 29.00m

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 17
1 / 4

EASTING: 332269.5
NORTHING: 6250822.6

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** CASING ADVANCER **R.L. Surface:** -5.9 m
Date: 17/12/15 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						-6			CH	SILTY CLAY: high plasticity, grey, with sandy bands.	MC>>PL	VS		
					N=SPT 0,0,0/ mm REFUSAL	-7	1							SPT SUNK UNDER WEIGHT OF RODS
						-8	2			as above, but with shells.				U50 SUNK UNDER OWN WEIGHT
														HAND SHEAR VANE PEAK 1kPa
						-9	3							
														U50 SUNK UNDER OWN WEIGHT
						-10	4							HAND SHEAR VANE PEAK 1kPa
						-11	5		SP	SAND: fine to coarse grained, grey.	W	VL		
					N=0 1,0,0		6							SPT PENETRATED 1.0m UNDER 1 BLOW
						-12								
					N=0 0,0,0				SC	CLAYEY SAND: fine to medium grained, yellow brown.				SPT SUNK 0.7m UNDER WEIGHT OF HAMMER

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GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 17
2 / 4

EASTING: 332269.5
NORTHING: 6250822.6

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** CASING ADVANCER **R.L. Surface:** -5.9 m
Date: 17/12/15 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						-13			SC	CLAYEY SAND: fine to medium grained, yellow brown. *(continued)*	W	VL		
									CH	SILTY CLAY: high plasticity, grey and yellow brown.	MC>PL	St - VSt		RESISTANCE ON CASING ADVANCER
						-14	8							
					N = 12 3,5,7								310 160 260	
						-15	9							
						-16	10							
					N = 9 3,4,5					SILTY CLAY: high plasticity, grey and dark grey, with bands of sandy clay.			120 160 240	
						-17	11							0.2m BAND OF RESISTANCE ON CASING ADVANCER
					N = 6 2,3,3					SILTY CLAY: high plasticity, dark grey, with bands of very stiff grey silty clay.		St	120 70 290	
						-18	12							
						-19	13							
					N = 4 2,2,2					SILTY CLAY: high plasticity, dark grey, with timber fragments.	MC>>PL	S	20 30 30	

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BOREHOLE LOG

Borehole No. 17
3 / 4

EASTING: 332269.5
NORTHING: 6250822.6

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** CASING ADVANCER **R.L. Surface:** -5.9 m
Date: 17/12/15 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						-20			CH	SILTY CLAY: high plasticity, dark grey, with timber fragments. *(continued)*	MC>>PL	S		
							15							
						-21								
							16							
					N=0 0,0,0	-22				SILTY CLAY: high plasticity, dark grey, with shells.				SPT SUNK 1.6m UNDER HAMMER WEIGHT
							17						30 30 40	
						-23								
							18			REFER TO CORED BOREHOLE LOG				
						-24								
							19							
						-25								
							20							
						-26								

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GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 17 **4 / 4**

EASTING: 332269.5
NORTHING: 6250822.6

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Core Size:** NMLC **R.L. Surface:** -5.9 m
Date: 17/12/15 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK305 **Bearing:** N/A **Logged/Checked By:** H.W./P.W.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION (Rock Type, grain characteristics, colour, structure, minor components.)	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ (EL -0.03, VL -0.1, L -0.3, M -1, H -3, VH -10, EH)	DEFECT DETAILS: DEFECT SPACING (mm) (500, 300, 100, 50, 30, 10)	DEFECT DETAILS: DESCRIPTION (Type, inclination, thickness, planarity, roughness, coating.) Specific / General
		-23			START CORING AT 17.70m					
	RECOVERY = 0%	-24	18		CORE LOSS 1.60m					
		-25	19							
	RECOVERY = 100%	-26	20		SILTY CLAY: high plasticity, dark grey.	MC>PL	S - F			(19.30m) HP; 50,50,60kPa (19.55m) HP; 80,80kPa
					CLAYEY SAND: fine to medium grained, light grey.	W	(L)			(19.70m) HP; 90,90,90kPa
					SANDSTONE: fine to medium grained, light grey.	XW	EL			
						DW	M			(20.63m) XWS, 0°, 90 mm.t (20.80m) XWS, 10°, 70 mm.t (20.90m) J, 80°, P, R (20.92m) XWS, 0°, 30 mm.t
		-27	21				L			(21.09m) XWS, 30°, 110 mm.t
	RECOVERY = 100%				as above, but with occasional grey and dark grey laminae, bedded at 15-25°.	SW				(21.34m) XWS, 10°, 30 mm.t
		-28	22				H			
		-29	23		SANDSTONE: fine to medium grained, light grey, bedded at 5-15°.					(23.00m) CS, 20°, 1 mm.t (23.31m) XWS, 0°, 10 mm.t
					END OF BOREHOLE AT 23.75 m					


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Client: UrbanGrowth NSW
Project: Proposed Promenade Facility
Location: Bank Street, Pyrmont, NSW
Date: 17 December 2015
SCALE (CM)
JOB NO:28974SP
BH17 - START CORING AT 17.70m
19
CORE LOSS FROM 17.70 to 19.30m
2.6m
20
21
22
23
END OF BH AT 23.75m

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GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 18
1 / 3

EASTING: 332369.5
NORTHING: 6250699.1

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** CASING ADVANCER **R.L. Surface:** -6.1 m
Date: 21/12/15 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						-6.1			CH	SILTY CLAY: high plasticity, dark grey, trace of shells.	MC>>PL	VS		
						-7	1							U50 SUNK 1.7m UNDER ROD WEIGHT ALONE
						-8	2							
						-9	3						<10 <10 <10	U50 SUNK 1.0m UNDER ROD WEIGHT ALONE
					N = 6 2,3,3	-9.7			SC	SILTY CLAYEY SAND: fine to coarse grained, grey.	W	VL		
						-10	4		CH	SILTY CLAY: high plasticity, light grey and red brown.	MC>PL	St - VSt	180 190 210	
					N = 1 1,1,0	-10.7			SM	SILTY SAND: fine to coarse grained, light grey, with bands of clayey sand.	W	VL	180 190 210	
						-11	5							
					N = 3 2,0,3	-11.7			SC / SM	SILTY CLAYEY SAND: fine to coarse grained, light grey.				
						-12	6							
						-13								

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 18
2 / 3

EASTING: 332369.5
NORTHING: 6250699.1

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** CASING ADVANCER **R.L. Surface:** -6.1 m
Date: 21/12/15 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
					N = 20 8,12,8	-14	8		SC	SILTY CLAYEY SAND: as above CLAYEY SAND: fine to coarse grained, brown and red brown, trace of iron indurated bands.	W	MD		
					N=SPT 11/ 50mm REFUSAL	-15	9			as above, but with bands of sandy silty clay, medium plasticity, light grey.				CASING ADVANCER RESISTANCE
						-16	10			REFER TO CORED BOREHOLE LOG				
						-17	11							
						-18	12							
						-19	13							
						-20								

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GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 18 **3 / 3**

EASTING: 332369.5
NORTHING: 6250699.1

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Core Size:** NMLC **R.L. Surface:** -6.1 m
Date: 21/12/15 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK305 **Bearing:** N/A **Logged/Checked By:** H.W./P.W.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ (EL -0.03, VL -0.1, L -0.3, M -1, H -3, VH -10, EH)	DEFECT DETAILS DEFECT SPACING (mm) (500, 300, 100, 50, 30, 10)	DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
					START CORING AT 9.56m					
		-16	10		CORE LOSS 0.44m					
	RECOVERY = 80%	-17	11		SANDSTONE: fine to coarse grained, yellow brown and light grey, bedded at 5-15°.	DW	M L			(10.03m) CS, 0°, 1 mm.t (10.07m) CS, 0°, 1 mm.t (10.52m) Be, 10°, P, R, IS (10.54m) Be, 5°, P, R, IS (10.76m) Be, 0 - 5°, Un, R, IS (10.82m) XWS, 10°, 5 mm.t (11.15m) XWS, 0°, 3 mm.t
					as above, but with fine to medium grained quartz gravel inclusions.					(11.46m) J, 35°, P, R (11.49m) J, 45°, P, R (11.62m) J, 50° (11.69m) XWS, 5°, 2 mm.t
		-18	12		CORE LOSS 0.20m					
	RECOVERY = 91%	-19	13		SANDSTONE: fine to coarse grained, yellow brown and light grey, bedded at 0-10°.	DW	M			~~(11.95m) CS, 20°, 30 mm.t~~ (12.27m) XWS, 0°, 15 mm.t (12.34m) XWS, 0°, 3 mm.t (12.94m) XWS, 0 - 15°, 1 mm.t (13.11m) XWS, 0 - 5°, 5 mm.t (13.19m) XWS, 15°, 5 mm.t (13.28m) XWS, 0°, 25 mm.t (13.29m) J, SUBVERTICAL, P, R,
						XW - DW DW	EL - VL M			(13.83m) XWS, 20°, 25 mm.t, IS
		-20	14		END OF BOREHOLE AT 13.95 m					
		-21	15							
		-22								


JK Geotechnics
Client: UrbanGrowth NSW
Project: Proposed Promenade Facility
Location: Bank Street, Pyrmont, NSW
Date: 21 December 2015
SCALE (CM)
JOB NO: 28974SP
BH18
START CORING AT 9.56m
9
CORE LOSS 0.44m
10
11
CORE LOSS 0.2m
12
13
END OF BH AT 13.95m

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 19
1 / 4

EASTING: 332360.8
NORTHING: 6250663.6

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** CASING ADVANCER **R.L. Surface:** -7.4 m
Date: 8/1/16 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						-7.4	0		CH	SILTY CLAY: high plasticity, dark grey.	MC>>PL	VS		
					0,0,0	-8	1							SPT SUNK 1.5m UNDER ROD WEIGHT
						-9	2							
						-10	3						<10 <10	
						-11	4		SC	CLAYEY SAND: fine to medium grained, brown.	W	VL - L		
					N=0 0,0,0	-12	5		CH	SILTY CLAY: high plasticity, dark grey, with bands of fine to medium grained, brown sand.	MC>>PL	VS	20 20 20	SPT SUNK 0.6m UNDER ROD WEIGHT
						-13	6			SILTY CLAY: high plast4icity, grey, with fien to medium grained, grey silty sand bands, and very soft silty clay, medium plasticity, dark grey.	MC>PL	F	90 90	HAND SHEAR VANE PEAK = 30kPa
					N = 6 4,3,3	-14						St	150 190 150	

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GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 19
2 / 4

EASTING: 332360.8
NORTHING: 6250663.6

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** CASING ADVANCER **R.L. Surface:** -7.4 m
Date: 8/1/16 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
									CH	SILTY CLAY: high plasticity, grey.	MC>PL	VSt		CASING ADVANCER RESISTANCE
				■	N = 10 2,5,5	-15	8						220 280 260	
						-16	9					St		
				■	N = 4 1,2,2	-17	10						110 110 120	
						-18	11			SILTY CLAY: high plasticity, grey, trace of timber fragments.		S	40 50 50	SPT SUNK UNDER ROD WEIGHT ALONE
				■	N=0 0,0,0	-19								
							12		SP	SAND: medium to coarse grained, light grey and grey.	W	MD		
				■	N = 17 4,10,7	-20	13		SC	CLAYEY SAND: fine to medium grained, dark grey.				
						-21								

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GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 19
3 / 4

EASTING: 332360.8
NORTHING: 6250663.6

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP **Method:** CASING ADVANCER **R.L. Surface:** -7.4 m
Date: 8/1/16 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** H.W./P.W.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
									SC	CLAYEY SAND: fine to medium grained, dark grey. *(continued)*	W	MD		
				■	N=0 0,0,0	-22	15		CH	SILTY CLAY: high plasticity, grey, with thin bands of fine to medium grained sand.	MC>PL	S	40 50 50	SPT SUNK 0.6m UNDER ROD WEIGHT
		■				-23	16							
						-24	17							HAND SHEAR VANE PEAK = 24kPa
						-25	18		-	SANDSTONE: fine to medium grained, light grey.	(FR)	(H)		CASING ADVANCER RESISTANCE
										REFER TO CORED BOREHOLE LOG				
						-26	19							
						-27	20							
						-28								

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 19
4 / 4

EASTING: 332360.8
NORTHING: 6250663.6

Client: URBAN GROWTH NSW
Project: BANK STREET COMMERCIAL WHARF
Location: BANK STREET, PYRMONT, NSW

Job No.: 28974SP | **Core Size:** NMLC | **R.L. Surface:** -7.4 m
Date: 8/1/16 | **Inclination:** VERTICAL | **Datum:** AHD
Plant Type: JK305 | **Bearing:** N/A | **Logged/Checked By:** H.W./P.W.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$: EL -0.03, VL -0.1, L -0.3, M -1, H -3, VH -10, EH	DEFECT DETAILS: DEFECT SPACING (mm): 500, 300, 100, 50, 30, 10	DESCRIPTION: Type, inclination, thickness, planarity, roughness, coating. Specific / General
		-25	18		START CORING AT 18.01m					
	RECOVERY = 100%	-26	19		SANDSTONE: fine to medium grained, light grey.	FR	H			
		-27	20		as above, but with grey laminae, cross bedded at 20°.					
		-28	21		SANDSTONE: fine to medium grained, brown and light grey, cross bedded at 20°, with fine to medium grained shale and quartz gravel inclusions.	SW				(20.33m) XWS, 10°, 40 mm.t (20.44m) XWS, 10°, 3 mm.t (20.45m) Be, 20°, P, R (20.85m) XWS, 0°, 140 mm.t
		-29	22		END OF BOREHOLE AT 21.08 m					
		-30	23							
		-31								


JK Geotechnics
Client: UrbanGrowth NSW
Project: Proposed Promenade Facility
Location: Bank Street, Pyrmont, NSW
Date: 8 January 2016
SCALE (CM)
JOB NO. 289745P BH19 START CORING AT 18.01m
18
19
20
21
END OF BH AT 21.08m

APPENDIX C

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 26
1 / 3

EASTING: 332499
NORTHING: 6250667

Client: URBANGROWTH NSW
Project: THE BAYS MARKET DISTRICT
Location: BLACKWATTLE BAY, PYRMONT, NSW

Job No.: 29245S **Method:** CASING ADVANCER **R.L. Surface:** -4.57 m
Date: 16/2/17 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** M.S./O.F./P.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						-4.57			CL	SILTY SANDY CLAY: high plasticity, dark grey, black and grey, trace of ash.	MC>PL	(VS)		ORGANIC/SULFUR ODOUR
	■				N = 2 4,1,1	-5	1							
						-6								
	■			■	N = 5 2,2,3	-7	2		CH	SANDY CLAY: high plasticity, light grey mottled red ad yellow brown, with bands of clayey sand.		VSt	260 320 340	
				■	N = 3 2,1,2	-8	3		SC	CLAYEY SAND: fine to medium grained, light grey mottled red and yellow brown.	W	L		
				■	N = 4 1,2,2	-9	4							
						-10	5							
				■	N = 8 1,2,6	-11	6							

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JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 26
2 / 3

EASTING: 332499
NORTHING: 6250667

Client: URBANGROWTH NSW
Project: THE BAYS MARKET DISTRICT
Location: BLACKWATTLE BAY, PYRMONT, NSW

Job No.: 29245S **Method:** CASING ADVANCER **R.L. Surface:** -4.57 m
Date: 16/2/17 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** M.S./O.F./P.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						-12	8		SC	CLAYEY SAND: fine to medium grained, light grey mottled red and yellow brown. *(continued)*	W	L		
				■	N = 10 4,5,5	-13	9			as above, but light brown and red brown.		MD		
				■	N=SPT 3/ 80mm REFUSAL	-14	10			REFER TO CORED BOREHOLE LOG				
						-15	11							
						-16	12							
						-17	13							
						-18								

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 26 **3 / 3**

EASTING: 332499
NORTHING: 6250667

Client: URBANGROWTH NSW
Project: THE BAYS MARKET DISTRICT
Location: BLACKWATTLE BAY, PYRMONT, NSW

Job No.: 29245S **Core Size:** NMLC **R.L. Surface:** -4.57 m
Date: 16/2/17 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK305 **Bearing:** N/A **Logged/Checked By:** M.S./O.F./P.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ EL 0.03 VL 0.1 L 0.3 M 1 H 3 VH 10 EH	DEFECT DETAILS DEFECT SPACING (mm) 500 300 100 50 30 10	DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
		-13	9		START CORING AT 9.20m					
		-14			SANDSTONE: fine to medium grained, yellow brown mottled red brown and light grey.	DW	M			(9.30m) Be, 5°, P, R (9.49m) CS, 5°, 30 mm.t
					CORE LOSS 0.37m					
			10		SANDSTONE: fine to medium grained, yellow brown, with fine to medium grained quartz inclusions.	DW	L			(9.95m) J, 90°, P, R
		-15			as above, but light grey, with dark grey shale lenses.	SW	M			(10.12m) XWS, 5°, 5 mm.t (10.13m) J, 90°, Un, R
		-16	11							
			12				H			
		-17			Shale band 0.12mt.		M			(12.20m) CS, 0°, 5 mm.t (12.30m) XWS, 0°, 30 mm.t
					END OF BOREHOLE AT 12.50 m					
		-18	13							
		-19	14							

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JK Geotechnics
JOB NO: 292455
BH26
START CORING AT: 9.20m
9
CORE LOSS: 0.37m
10
11
12
FINISH AT: 12.50m

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 27
1 / 2

EASTING: 332415
NORTHING: 6250682

Client: URBANGROWTH NSW
Project: THE BAYS MARKET DISTRICT
Location: BLACKWATTLE BAY, PYRMONT, NSW

Job No.: 29245S **Method:** CASING ADVANCER **R.L. Surface:** -5.35 m
Date: 16/2/17 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** M.S./O.F./P.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	■					-6	1		CH	SILTY CLAY: high plasticity, dark grey, with fine grained sand, trace of shell fragments.	MC>PL	(VS)		
	■			■	N = 2 0,0,2	-7	2		SC	CLAYEY SAND: fine to medium grained, yellow brown mottled brown.	W	VL		
				■	N = 11 3,5,6	-8	3			as above, but light grey mottled red and yellow brown, trace of shell fragments.		MD		
				■	N = 10 3,4,6	-9	4							
						-10	5							
						-11	6			REFER TO CORED BOREHOLE LOG				
						-12								

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 27 **2 / 2**

EASTING: 332415
NORTHING: 6250682

Client: URBANGROWTH NSW
Project: THE BAYS MARKET DISTRICT
Location: BLACKWATTLE BAY, PYRMONT, NSW

Job No.: 29245S **Core Size:** NMLC **R.L. Surface:** -5.35 m
Date: 16/2/17 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK305 **Bearing:** N/A **Logged/Checked By:** M.S./O.F./P.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ (EL -0.03, VL -0.1, L -0.3, M -1, H -3, VH -10, EH)	DEFECT DETAILS: DEFECT SPACING (mm) (500, 300, 100, 50, 30, 10)	DEFECT DETAILS: DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
					START CORING AT 5.38m					
		-11	6		SANDSTONE: fine to medium grained, brown, red brown and light brown, bedded at 0-30°.	SW	M			(6.10m) Be, 20°, P, R
		-12	7							(7.29m) J, 35°, Un, R
		-13	8				M - H			
		-14			END OF BOREHOLE AT 8.48 m					
		-15	9							
		-16	10							
		-17	11							


JK Geotechnics
JOB NO: 292455
BH27
START CORING AT: 5.38m
5
6
7
8
FINISH AT 8.48m

JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 28
1 / 3

EASTING: 332311
NORTHING: 6250870

Client: URBANGROWTH NSW
Project: THE BAYS MARKET DISTRICT
Location: BLACKWATTLE BAY, PYRMONT, NSW

Job No.: 29245S **Method:** CASING ADVANCER **R.L. Surface:** -4.92 m
Date: 17/2/17 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** M.S./O.F./P.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						-5				FILL: Gravel, fine to coarse grained coal, dark grey, trace of sand and shell fragments.	W			
					N = 1 1,1,0	-6	1							
					N=0 0,0,0	-7	2		CL-CH	SILTY CLAY: medium to high plasticity, dark grey, trace of shell fragments.	MC>PL	VS	10 20 30	SPT SANK 450mm UNDER WEIGHT OF HAMMER ALONE
					N=0 0,0,0	-8	3		CH	as above, but grey, trace of fine to medium grained sand.		VS - S	20 40 30	SPT SANK 450mm UNDER WEIGHT OF HAMMER ALONE
					N = 5 2,2,3	-9	4							
						-10	5		SC	as above, but with fine to medium grained sand. CLAYEY SAND: fine to medium grained, grey brown and yellow brown.	W	L		
					N = 6 2,2,4	-11	6			as above, but brown.				

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GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 28
2 / 3

EASTING: 332311
NORTHING: 6250870

Client: URBANGROWTH NSW
Project: THE BAYS MARKET DISTRICT
Location: BLACKWATTLE BAY, PYRMONT, NSW

Job No.: 29245S **Method:** CASING ADVANCER **R.L. Surface:** -4.92 m
Date: 17/2/17 **Datum:** AHD
Plant Type: JK305 **Logged/Checked By:** M.S./O.F./P.S.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						-12			SC	CLAYEY SAND: fine to medium grained, brown.	W	L		
					N=SPT 9/ 60mm REFUSAL	-13	8			REFER TO CORED BOREHOLE LOG				
						-14	9							
						-15	10							
						-16	11							
						-17	12							
						-18	13							

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JK Geotechnics
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 28 **3 / 3**

EASTING: 332311
NORTHING: 6250870

Client: URBANGROWTH NSW
Project: THE BAYS MARKET DISTRICT
Location: BLACKWATTLE BAY, PYRMONT, NSW

Job No.: 29245S **Core Size:** NMLC **R.L. Surface:** -4.92 m
Date: 17/2/17 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK305 **Bearing:** N/A **Logged/Checked By:** M.S./O.F./P.S.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ EL .03 VL .1 L .3 M 1 H 3 VH 10 EH	DEFECT SPACING (mm) 500 300 100 50 30 10	DEFECT DETAILS DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
		-12			START CORING AT 8.01m					
		-13	8		SANDSTONE: fine to medium grained, yellow brown and light brown.	DW	VL			(8.01m) J, 60°, P, R (8.06m) J, 60°, P, R (8.12m) J, 50°, P, R (8.16m) J, 50°, P, R
					as above, but light grey, red and yellow brown.					(8.57m) J, 45°, Un, R (8.58m) J, 70°, P, R (8.67m) J, 60°, P, R
		-14	9		CORE LOSS 0.78m					
					SANDSTONE: fine to medium grained, brown.	XW	EL			
		-15	10		as above, but light grey red brown, bedded at 0-40°.					(10.20m) J, 50°, P, R
						SW	M			
		-16	11							(10.93m) Be, 0°, P, R
		-17	12		as above, but light grey, with dark laminae and lenses, bedded at 0-20°.	FR	H			
		-18	13		END OF BOREHOLE AT 13.02 m					

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JK Geotechnics
JOB NO: 292455
BH28
START CORING AT: 8.01m
8
9
CORE LOSS: 0.78m
10
11
12
13
FINISH AT 13.02m

APPENDIX D

SOIL BOREHOLE BH01

PROJECT NUMBER 64669	**DRILLING COMPANY**	**EASTING** N/A
PROJECT NAME Bank St DSI April 2023	**DRILLING DATE** 13-Apr-23	**NORTHING** N/A
CLIENT	**DRILL RIG** N/A	**COORD SYS** GDA94_MGA_zone_54
ADDRESS Banks St, Pyrmont, NSW	**DRILLING METHOD** Hand Auger	**COORD SOURCE**
	DIAMETER	**LOGGED BY** MN/KA

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
HA				Fill	Fill - Silty SAND, dark brown, heterogeneous, damp, medium sand loose, with inclusions of sandstone	DP	BH01_0.00-0.10	1.2	10L AQ at 0.0-0.4 m. Asbestos sample collected at 0.0-0.4 m. No asbestos, odour or staining observed.
							BH01_0.30-0.40	1.2	
		0.5			Termination Depth at: 0.40 m.				End of hole @ 0.4.Refusal on potential concrete or sandstone
		1							
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							

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SOIL BOREHOLE BH02

PROJECT NUMBER 64669	**DRILLING COMPANY**	**EASTING** N/A
PROJECT NAME Bank St DSI April 2023	**DRILLING DATE** 14-Apr-23	**NORTHING** N/A
CLIENT	**DRILL RIG** N/A	**COORD SYS** GDA94_MGA_zone_54
ADDRESS Banks St, Pyrmont, NSW	**DRILLING METHOD** Hand Auger	**COORD SOURCE**
	DIAMETER	**LOGGED BY** MN/KA

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
CC				Concrete	Fill - CONCRETE				
HA		0.5		Fill	Fill - Silty gravelly SAND, dark brown, heterogeneous, damp, medium sand loose, with inclusions of sandstone, concrete and sea shells	DP	BH02_0.20-0.30	1.8	10L AQ at 0.2-1.0 m. Asbestos sample collected at 0.2-1.0 m. No asbestos, odour or staining observed.
							BH02_0.50-0.60	1.6	
		1					BH02_0.90-1.00	1.5	
					Termination Depth at: 1.00 m.				End of hole @ 1.0 m
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							

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SOIL BOREHOLE BH03

PROJECT NUMBER 64669	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME Bank St DSI April 2023	**DRILLING DATE** 13-Apr-23	**NORTHING** N/A
CLIENT	**DRILL RIG** Geoprobe	**COORD SYS** GDA94_MGA_zone_54
ADDRESS Banks St, Pyrmont, NSW	**DRILLING METHOD** Push tube/Solid Flight Auger	**COORD SOURCE**
	DIAMETER	**LOGGED BY** MN/KA

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
CC				Concrete	Fill - CONCRETE				
PT / SFA		0.5		Fill	Fill - Sandy GRAVEL, black, heterogeneous, dry, poorly graded, medium gravel, angular, loose, with inclusions of coal and ash	DR	BH03_0.10-0.20	4.8	10L AQ at 0.1-1.1 m and 1.1-1.5 m. Asbestos samples collected at 0.1-1.1 m and 1.1-1.5 m. No asbestos, odour or staining observed.
		1					BH03_0.50-0.60	4.5	
		1.5					BH03_0.90-1.00	5.2	
				Sandstone	Natural - SANDSTONE, grey/yellow/brown, homogenous, dry, well graded, coarse sand medium dense	DR			No asbestos, odour or staining observed.
		2					BH03_1.90-2.00	4.7	
					Termination Depth at: 2.00 m.				End of hole @ 2.0 m. Refusal on sandstone.
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							

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SOIL BOREHOLE BH03A

PROJECT NUMBER 64669	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME Bank St DSI April 2023	**DRILLING DATE** 14-Apr-23	**NORTHING** N/A
CLIENT	**DRILL RIG** Geoprobe	**COORD SYS** GDA94_MGA_zone_54
ADDRESS Banks St, Pyrmont, NSW	**DRILLING METHOD** Push tube/Solid Flight Auger	**COORD SOURCE**
	DIAMETER	**LOGGED BY** MN/KA

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
CC				Concrete	Fill - CONCRETE				
PT / SFA		0.5		Fill	Fill - Sandy GRAVEL, dark brown/black, heterogeneous, dry, poorly graded, medium gravel, angular, loose, with inclusions of coal and ash	DR	BH03A_0.20-0.30	2.3	10L AQ at 0.1-0.8 m. No asbestos, odour or staining observed.
							BH03A_0.50-0.60	2.1	
		1		Sandstone	Natural - SANDSTONE, white/yellow, homogenous, dry, coarse sand medium dense	DR			No asbestos, odour or staining observed.
		1.5							
		2							
		2.5							
		3							
		3.5			Termination Depth at: 3.20 m.				End of hole @ 3.2 m
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							

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SOIL BOREHOLE BH04

PROJECT NUMBER 64669
PROJECT NAME Bank St DSI April 2023
CLIENT
ADDRESS Banks St, Pyrmont, NSW

DRILLING COMPANY Terratest
DRILLING DATE 13-Apr-23
DRILL RIG Geoprobe
DRILLING METHOD Push tube/Solid Flight Auger
DIAMETER

EASTING N/A
NORTHING N/A
COORD SYS GDA94_MGA_zone_54
COORD SOURCE
LOGGED BY MN/KA

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
CC				Concrete	Fill - CONCRETE				
PT / SFA		0.5		Fill	Fill - Sandy GRAVEL, grey, heterogeneous, dry, poorly graded, fine gravel, sub-angular, loose	DR	BH04_0.50-0.60	1.7	No asbestos, odour or staining observed. Voids within the borehole leading to limited material and no returns
		1					BH04_0.90-1.00	1.5	
				Fill	Fill - Gravelly SAND, dark brown/black, heterogeneous, damp, medium sand loose	DP			
		1.5		Fill	Fill - SANDSTONE, brown/grey, heterogeneous, damp, medium sand dense	DP	BH04_1.50-1.60	0.7	
		2					BH04_1.90-2.00	0.8	
		2.5							
		3		SG	Natural - Gravelly SAND, brown/red, homogenous, saturated, coarse sand dense	S	BH04_2.90-3.00	0.5	
		3.5							
		4							
		4.5							
		5							
		5.5							
		6					BH04_5.90-6.00	0.3	
					Termination Depth at: 6.00 m.				End of hole @ 6.0 m
		6.5							
		7							

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SOIL BOREHOLE BH05

PROJECT NUMBER 64669	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME Bank St DSI April 2023	**DRILLING DATE** 13-Apr-23	**NORTHING** N/A
CLIENT	**DRILL RIG** Geoprobe	**COORD SYS** GDA94_MGA_zone_54
ADDRESS Banks St, Pyrmont, NSW	**DRILLING METHOD** Push tube/Solid Flight Auger	**COORD SOURCE**
	DIAMETER	**LOGGED BY** MN/KA

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
CC				Concrete	Fill - CONCRETE				
PT / SFA		0.5		Fill	Fill - Gravelly SAND, dark brown, heterogeneous, damp, medium sand loose, with inclusions of ash and coal	DP	BH05_0.20-0.30	0.5	10L AQ at 0.2-1.2 m, 1.2-2.2 m and 2.2-3.2 m. Asbestos samples collected at 0.2-1.2 m, 1.2-2.2 m and 2.2-3.2 m. No asbestos, odour or staining observed.
		1					BH05_0.50-0.60	1.1	
		1.5					BH05_0.90-1.00	1.5	
		2					BH05_2.00-2.10	1.8	
		2.5							
		3							
		3.5		Sandstone	Natural - SANDSTONE, yellow/white, homogenous, damp, coarse sand medium dense	DP			No asbestos, odour or staining observed.
		4					BH05_4.10-4.20	1.4	
		4.5			Termination Depth at: 4.20 m.				End of hole @ 4.2 m. Refusal on sandstone
		5							
		5.5							
		6							
		6.5							
		7							

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SOIL BOREHOLE BH06

PROJECT NUMBER 64669	**DRILLING COMPANY**	**EASTING** N/A
PROJECT NAME Bank St DSI April 2023	**DRILLING DATE** 05-May-23	**NORTHING** N/A
CLIENT	**DRILL RIG** N/A	**COORD SYS** GDA94_MGA_zone_54
ADDRESS Banks St, Pyrmont, NSW	**DRILLING METHOD** Hand Auger	**COORD SOURCE**
	DIAMETER	**LOGGED BY** MN/KA

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
HA		0.5		Fill	Fill - Silty SAND, dark brown, heterogeneous, damp, loose, with inclusions of wood, gravel and clay clumps	DP	BH06_0.00-0.10	0.9	10L AQ at 0.0-0.3 m. Asbestos sample collected at 0.0-0.3 m. No asbestos, odour or staining observed.
							BH06_0.20-0.30	1.9	
				Fill	Fill - Gravelly SAND, brown, heterogeneous, damp, loose, with inclusions of clay clumps	DP	BH06_0.30-0.40	1	
				Fill	Fill - Gravelly SAND, light brown, heterogeneous, damp, loose, with inclusions of sandstone and clay clumps	DP	BH06_0.50-0.60	2.5	No asbestos, odour or staining observed.
		1					BH06_0.90-1.00	1.2	10L AQ at 0.5-1.0 m. Asbestos sample collected at 0.5-1.0 m. No asbestos, odour or staining observed.
					Termination Depth at: 1.00 m.				End of hole @ 1.0 m
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							

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SOIL BOREHOLE BH07

PROJECT NUMBER 64669	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME Bank St DSI April 2023	**DRILLING DATE** 05-May-23	**NORTHING** N/A
CLIENT	**DRILL RIG** Geoprobe	**COORD SYS** GDA94_MGA_zone_54
ADDRESS Banks St, Pyrmont, NSW	**DRILLING METHOD** Push tube/Solid Flight Auger	**COORD SOURCE**
	DIAMETER	**LOGGED BY** MN/KA

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
PT / SFA		0		Fill	Fill - Gravelly silty SAND, brown, heterogeneous, damp, loose, with inclusions of ash and coal	DP	BH07_0.00-0.10	2.5	10L AQ at 0.0-1.0 m and 1.0-1.5 m. Asbestos samples collected at 0.0-1.0 m and 1.0-1.5 m. No asbestos, odour or staining observed.
							BH07_0.20-0.30	2.8	
		0.5					BH07_0.50-0.60	5.5	
		1					BH07_0.90-1.00	4.1	
		1.5		Fill	Fill - Sandy CLAY, dark brown/black, heterogeneous, damp, medium plasticity with inclusions of sandstone and concrete	DP			10L AQ at 1.5-2.5 m, 2.5-3.5 m and 3.5-4.5 m. Asbestos samples collected at 1.5-2.5 m, 2.5-3.5 m and 3.5-4.5 m. No asbestos, odour or staining observed.
		2					BH07_2.00-2.10	2.9	
		2.5							
		3					BH07_3.00-3.10	1.8	
		3.5							
		4					BH07_4.00-4.10	1.7	
		4.5		Fill	Fill - Sandy CLAY, dark brown/black, heterogeneous, wet, high plasticity with inclusions of sandstone and concrete	W			
		5					BH07_5.00-5.10	0.8	
		5.5					BH07_5.40-5.50	0.8	
					Termination Depth at: 5.50 m.				End of hole @ 5.5 m. Refusal on concrete.
		6							
		6.5							
		7							

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SOIL BOREHOLE BH08

PROJECT NUMBER 64669	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME Bank St DSI April 2023	**DRILLING DATE** 05-May-23	**NORTHING** N/A
CLIENT	**DRILL RIG** Geoprobe	**COORD SYS** GDA94_MGA_zone_54
ADDRESS Banks St, Pyrmont, NSW	**DRILLING METHOD** Push tube/Solid Flight Auger	**COORD SOURCE**
	DIAMETER	**LOGGED BY** MN/KA

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
PT / SFA		0.5 1 1.5		Fill	Fill - Gravelly silty SAND, brown, heterogeneous, damp, loose, with inclusions of ash and coal	DP	BH08_0.00-0.10 BH08_0.20-0.30 BH08_0.50-0.60 BH08_0.90-1.00	2.4 4.3 4.1 3.2	10L AQ at 0.0-1.0 m and 1.0-1.5 m. Asbestos samples collected at 0.0-1.0 m and 1.0-1.5 m. No asbestos, odour or staining observed.
		2 2.5 3 3.5 4		Fill	Fill - Sandy CLAY, dark brown, heterogeneous, wet, medium plasticity, soft	W	BH08_2.00-2.10 BH08_3.00-3.10 BH08_4.00-4.10	2.5 1.8 1.5	10L AQ at 2.5-3.5 m and 3.5-4.5 m. Asbestos samples collected at 2.5-3.5 m and 3.5-4.5 m. No asbestos, odour or staining observed.
		4.5 5 5.5 6		Fill	Fill - Clayey SAND, dark brown, heterogeneous, saturated, with inclusions of gravel, concrete and 10 cm ash layer at 5 m depth	S	BH08_5.00-5.10	1.5	No asbestos, odour or staining observed.
		6 6.5 7		Sandstone	Rock - SANDSTONE, light brown to red, homogenous, saturated, dense	S	BH08_6.00-6.10 BH08_7.00-7.10	1.2 1.2	No asbestos, odour or staining observed.
					Termination Depth at: 7.20 m.				End of hole @ 7.2 m

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SOIL BOREHOLE BH09

PROJECT NUMBER 64669
PROJECT NAME Bank St DSI April 2023
CLIENT
ADDRESS Banks St, Pyrmont, NSW

DRILLING COMPANY
DRILLING DATE 05-May-23
DRILL RIG N/A
DRILLING METHOD Hand Auger
DIAMETER

EASTING N/A
NORTHING N/A
COORD SYS GDA94_MGA_zone_54
COORD SOURCE
LOGGED BY MN/KA

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
HA				Fill	Fill - Sandy GRAVEL, brown, heterogeneous, dry, loose	DR	BH09_0.00-0.10 BH09_0.20-0.30	20.8 22	10L AQ at 0.0-0.3 m. Asbestos sample collected at 0.0-0.3 m. No asbestos, odour or staining observed. At 0.2 m broke though the geofabric
		0.5			Termination Depth at: 0.30 m.				End of hole @ 0.3 m. Refusal on sandstone. Borehole had to be terminated due to the multiple services around
		1							
		1.5							
		2							
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							

SOIL BOREHOLE BH11

PROJECT NUMBER 64669	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME Bank St DSI April 2023	**DRILLING DATE** 13-Apr-23	**NORTHING** N/A
CLIENT	**DRILL RIG** Geoprobe	**COORD SYS** GDA94_MGA_zone_54
ADDRESS Banks St, Pyrmont, NSW	**DRILLING METHOD** Push tube/Solid Flight Auger	**COORD SOURCE**
	DIAMETER	**LOGGED BY** MN/KA

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
PT / SFA		0.5		Fill	Fill - Gravelly SAND, brown/grey, heterogeneous, dry, coarse sand, angular, loose, with inclusions of sandstone and gypsum	DR	BH11_0.00-0.10	1.5	10L AQ at 0.0-0.8 m. Asbestos sample collected at 0.0-0.8 m. No asbestos, odour or staining observed.
							BH11_0.20-0.30	1.1	
		1		Fill	Fill - ASH, black, heterogeneous, dry, with inclusions of coal	DR	BH11_0.80-0.90	1.5	10L AQ at 0.8-1.0 m. Asbestos sample collected at 0.8-1.0 m. No asbestos, odour or staining observed.
				Fill	Fill - SANDSTONE, grey/yellow, heterogeneous, dry, medium sand dense	DR	BH11_1.00-1.10	1.1	
		1.5		Fill	Fill - Clayey SAND, brown/grey, heterogeneous, dry, fine sand loose, with inclusions of crushed sandstone	DR	BH11_1.50-1.60	1.5	No asbestos, odour or staining observed.
		2		Fill	Fill - Sandy CLAY, light brown, heterogeneous, damp, medium plasticity, soft	DP	BH11_1.90-2.00	1.8	
				Fill	Fill - Clayey SAND, brown, heterogeneous, damp, medium sand loose	DR			10L AQ at 2.0-2.5 m. Asbestos sample collected at 2.0-2.5 m. No asbestos, odour or staining observed.
		2.5							
		3		Sandstone	Natural - SANDSTONE, grey/brownish red, homogenous, damp, medium sand medium dense	DP	BH11_2.90-3.00	1.8	No asbestos, odour or staining observed.
							BH11_3.00-3.10	1.8	
		3.5							
		4					BH11_3.90-4.00	1.2	
		4.5							
		5					BH11_4.90-5.00	1.1	
		5.5							
		6					BH11_5.90-6.00	0.7	
					Termination Depth at: 6.00 m.				End of hole @ 6.0 m
		6.5							
		7							

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SOIL BOREHOLE BH12

PROJECT NUMBER 64669	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME Bank St DSI April 2023	**DRILLING DATE** 05-May-23	**NORTHING** N/A
CLIENT	**DRILL RIG** Geoprobe	**COORD SYS** GDA94_MGA_zone_54
ADDRESS Banks St, Pyrmont, NSW	**DRILLING METHOD** Push tube/Solid Flight Auger	**COORD SOURCE**
	DIAMETER	**LOGGED BY** MN/KA

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
CC				Concrete	Fill - CONCRETE				
PT / SFA		0.5		Fill	Fill - Sandy GRAVEL, brown/grey, heterogeneous, dry, loose, with inclusions of sandstone and bricks	DR	BH12_0.20-0.30	2.3	No asbestos, odour or staining observed.
							BH12_0.50-0.60	1.8	
				Fill	Fill - Silty SAND, grey/yellow, heterogeneous, damp, loose, with inclusions of ash and gravel	DP	BH12_0.70-0.80	1.8	No asbestos, odour or staining observed.
		1		Fill	Fill - Silty sandy CLAY, yellow/grey/white, heterogeneous, damp, non-plastic, firm, with inclusions of sandstone, gravel and ash	DP	BH12_0.90-1.00	2.5	No asbestos, odour or staining observed.
		1.5		Fill	Fill - SILT, white/grey, heterogeneous, dry, loose, and layers of silty sand grey/brown with inclusions of ash, coal and gravel	DR	BH12_1.40-1.50	2.4	10 L AQ at 1.2-1.7 m. Asbestos sample collected at 1.2-1.7 m. No asbestos, odour or staining observed.
		2		Fill	Fill - Silty SAND, red/brown, heterogeneous, damp, loose, with inclusions of ash and gravel	DP	BH12_1.70-1.80	2.1	
		2.5					BH12_2.40-2.50	2.5	10 L AQ at 1.7-2.7 m. Asbestos sample collected at 1.7-2.7 m. No asbestos, odour or staining observed.
		3							
		3.5		Sandstone	SANDSTONE, brown, homogenous, damp, dense	DP	BH12_3.50-3.60	1.4	No asbestos, odour or staining observed.
		4							
		4.5					BH12_4.60-4.70	1.1	
		5		SW	Natural - SAND, black, homogenous, wet, loose, with inclusions of chunks of wood	W	BH12_5.00-5.10	0.8	No asbestos, odour or staining observed.
		5.5		SW	Natural - Clayey gravelly SAND, brown, homogenous, wet, loose	W			No asbestos, odour or staining observed.
		6					BH12_5.90-6.00	0.5	
					Termination Depth at: 6.00 m.				End of hole @ 6.0 m
		6.5							
		7							

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SOIL BOREHOLE BH13

PROJECT NUMBER 64669	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME Bank St DSI April 2023	**DRILLING DATE** 13-Apr-23	**NORTHING** N/A
CLIENT	**DRILL RIG** Geoprobe	**COORD SYS** GDA94_MGA_zone_54
ADDRESS Banks St, Pyrmont, NSW	**DRILLING METHOD** Push tube/Solid Flight Auger	**COORD SOURCE**
	DIAMETER	**LOGGED BY** MN/KA

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
PT / SFA		0.5		Fill	Fill - Gravelly SAND, brown/grey, heterogeneous, damp, poorly graded, medium sand dense, with inclusions of slag and gypsum	DP	BH13_0.00-0.10	1.5	10L AQ at 0.0-0.9 m. Asbestos sample collected at 0.0-0.9 m. No asbestos, odour or staining observed.
							BH13_0.20-0.30	1.2	
							BH13_0.50-0.60	0.8	
		1		Fill	Fill - ASH, black, heterogeneous, damp, with inclusions of coal	DP			No asbestos, odour or staining observed.
				Fill	Fill - SANDSTONE, yellow/grey, heterogeneous, damp, medium sand dense	DP	BH13_1.10-1.20	1.4	
		1.5		Fill	Fill - CLAY, brownish grey, heterogeneous, damp, low plasticity, firm, with inclusions of sandstone and slag	DP	BH13_1.50-1.60	2.5	10L AQ at 1.1-1.4 m. Asbestos sample collected at 1.1-1.4 m. No asbestos, odour or staining observed.
		2		Fill	Fill - Clayey SAND, brown, heterogeneous, damp, loose	DP	BH13_2.00-2.10	1.9	10L AQ at 1.4-1.7 m. Asbestos sample collected at 1.4-1.7 m. No asbestos, odour or staining observed.
		2.5		Sandstone	Natural - SANDSTONE, light brown/light grey/yellow, homogenous, dry, fine sand	DR			10L AQ at 1.7-2.5 m. Asbestos sample collected at 1.7-2.5 m. No asbestos, odour or staining observed.
		3					BH13_3.00-3.10	1.7	
		3.5							No asbestos, odour or staining observed.
		4					BH13_4.00-4.10	1.6	
		4.5							
		5							
		5.5			Termination Depth at: 5.50 m.				End of hole @ 5.5 m. Refusal on sandstone.
		6							
		6.5							
		7							

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SOIL BOREHOLE BH14

PROJECT NUMBER 64669
PROJECT NAME Bank St DSI April 2023
CLIENT
ADDRESS Banks St, Pyrmont, NSW

DRILLING COMPANY Terratest
DRILLING DATE 14-Apr-23
DRILL RIG Geoprobe
DRILLING METHOD Push tube/Solid Flight Auger
DIAMETER

EASTING N/A
NORTHING N/A
COORD SYS GDA94_MGA_zone_54
COORD SOURCE
LOGGED BY MN/KA

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
PT / SFA		0.5		Fill	Fill - Gravelly SAND, grey, heterogeneous, dry, poorly graded, coarse sand, angular, loose	DR	BH14_0.00-0.10	0.8	10L AQ at 0.0-0.6 m. Asbestos sample collected at 0.0-0.6 m. No asbestos, odour or staining observed.
							BH14_0.50-0.60	0.8	
		1		Fill	Fill - Clayey SAND, brown/grey, heterogeneous, dry, medium dense, with inclusions of sandstone	DR	BH14_0.90-1.00	1.1	10L AQ at 0.6-1.6 m. Asbestos sample collected at 0.6-1.6 m. No asbestos, odour or staining observed.
		1.5					BH14_1.50-1.60	0.9	
		2		CL-ML-SM	Natural - Sandy silty CLAY, light brown/grey, homogenous, dry, low plasticity, firm	DR	BH14_1.90-2.00	0.6	No asbestos, odour or staining observed.
		2.5		Sandstone	Rock - Weathered SANDSTONE, light brown/red, homogenous, dry, medium sand	DR			No asbestos, odour or staining observed.
		3					BH14_2.90-3.00	0.7	
				Sandstone	Rock - SANDSTONE, light brown/red, homogenous, dry, medium sand	DR			No asbestos, odour or staining observed.
		3.5					BH14_3.40-3.50	0.6	
					Termination Depth at: 3.50 m.				End of hole @ 3.5 m. Refusal on sandstone.
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							

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SOIL BOREHOLE BH15

PROJECT NUMBER 64669	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME Bank St DSI April 2023	**DRILLING DATE** 13-Apr-23	**NORTHING** N/A
CLIENT	**DRILL RIG** Geoprobe	**COORD SYS** GDA94_MGA_zone_54
ADDRESS Banks St, Pyrmont, NSW	**DRILLING METHOD** Push tube/Solid Flight Auger	**COORD SOURCE**
	DIAMETER	**LOGGED BY** MN/KA

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
PT / SFA		0.5		Fill	Fill - Gravelly SAND, brown, heterogeneous, dry, angular, medium dense, with inclusions of slag and ash	DR	BH15_0.00-0.10	1.1	10L AQ at 0.0-1.0 m. Asbestos sample collected at 0.0-1.0 m. No asbestos, odour or staining observed.
							BH15_0.20-0.30	0.8	
							BH15_0.50-0.60	0.8	
		1					BH15_0.90-1.00	1.2	10L AQ at 1.0-1.5 m. Asbestos sample collected at 1.0-1.5 m. No asbestos, odour or staining observed.
				Fill	Fill - Sandy CLAY, dark brown, heterogeneous, damp, non-plastic, firm, with inclusions of sandstone and gravel	DP	BH15_1.40-1.50	1.9	
		1.5		Fill	Fill - Gravelly SAND, dark brown, heterogeneous, damp, medium sand loose, with inclusions of ash and slag at 3.0 m and 3.5 m	DP			10L AQ at 1.5-2.5 m and 2.5-3.5 m. Asbestos samples collected at 1.5-2.5 m and 2.5-3.5 m. No asbestos, odour or staining observed.
		2							
		2.5					BH15_2.40-2.50	2.8	
		3							
		3.5							
		4		SC	Natural - Weathered clayey SAND, light brown/light grey, homogenous, damp, fine sand loose	DP	BH15_3.90-4.00	3.1	No asbestos, odour or staining observed.
		4.5					BH15_4.50-4.60	2.8	
				Sandstone	Rock - SANDSTONE, light grey	DP			No asbestos, odour or staining observed.
		5					BH15_4.90-5.00	1.8	
		5.5							
					Termination Depth at: 5.60 m.				End of hole @ 5.6 m. SFA refused on sandstone.
		6							
		6.5							
		7							

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SOIL BOREHOLE BH16

PROJECT NUMBER 64669	**DRILLING COMPANY** Terratest	**EASTING** N/A
PROJECT NAME Bank St DSI April 2023	**DRILLING DATE** 13-Apr-23	**NORTHING** N/A
CLIENT	**DRILL RIG** Geoprobe	**COORD SYS** GDA94_MGA_zone_54
ADDRESS Banks St, Pyrmont, NSW	**DRILLING METHOD** Push tube/Solid Flight Auger	**COORD SOURCE**
	DIAMETER	**LOGGED BY** MN/KA

COMMENTS

Drilling Method	Water (m bgl)	Depth (m bgl)	Graphic Log	Lithological Class	Lithological Description	Moisture	Samples	PID	Additional Observations
PT / SFA		0.5		Fill	Fill - Sandy GRAVEL, dark brown, heterogeneous, damp, medium gravel, angular, loose, with inclusions of slag, sandstone and clay	DP	BH16_0.00-0.10	38	10L AQ at 0.0-0.8 m. Asbestos sample collected at 0.0-0.8 m. Hydrocarbon odour observed. No asbestos or staining observed.
							BH16_0.20-0.30	47	
		1		Fill	Fill - ASH, black, heterogeneous, damp, with inclusions of coal	DP	BH16_0.80-0.90	51	10L AQ at 0.8-1.0 m. Asbestos sample collected at 0.8-1.0 m. Hydrocarbon odour observed. No asbestos or staining observed.
		1.5		Sandstone	Rock - SANDSTONE, light grey, homogenous, dry, very dense	DR	BH16_1.00-1.10	31	
		2					BH16_1.90-2.00	14.5	Hydrocarbon odour observed. No asbestos or staining observed.
					Termination Depth at: 2.00 m.				End of hole @ 2.0 m. Refusal on sandstone.
		2.5							
		3							
		3.5							
		4							
		4.5							
		5							
		5.5							
		6							
		6.5							
		7							

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