



Lendlease
Construction Soil and Water Management Plan

Fort Street Public School
Upper Fort Street, Observatory Hill
Millers Point, NSW

8 January 2021

59861/134281 (Rev 1)

JBS&G Australia Pty Ltd

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Abbreviations

Term	Definition
AHD	Australian Height Datum
CEMP	Construction Environmental management Plan
CSWMP	Construction Soil and Water Management Plan
DPIE	Department of Planning, Infrastructure and Environment
JBS&G	JBS&G Australia Pty Ltd
OSD	Onsite Stormwater Detention
PAH	Polycyclic Aromatic Hydrocarbons
RAP	Remedial Action Plan
SINSW	School Infrastructure New South Wales
TRH	Total Recoverable Hydrocarbon

1. Introduction

1.1 Introduction and Background

JBS&G Australia Pty Ltd (JBS&G) was engaged by Lendlease Building Pty Ltd (the client), to prepare a Construction Soil and Water Management Plan (CSWMP) for the proposed Fort Street Public School Development, located on Upper Fort Street, Observatory Hill, Millers Point, NSW (the site). The site location and site layout are presented on **Figures 1** and **2**, respectively. The site covers an area of approximately 6200 m².

Previous contamination investigation activities undertaken at the site identified the presence of fill material underlying the site reported to be impacted, chiefly with polycyclic aromatic hydrocarbon (PAH) and heavy metals. A remedial action plan (RAP) (JBS&G 2020¹) was subsequently prepared to document the procedures and standards to be followed in order to address the contamination impacts at the site, ensuring the protection of human health and the surrounding environment, such that the impact is remediated/managed in a manner as to make the site suitable for the proposed land use.

Lendlease has been appointed by School Infrastructure NSW (SINSW) as the principal contractor for the project delivery. By review of the development consent conditions (DPIE 2020²), it is understood that a Construction Environmental Management Plan (CEMP), including a CSWMP is required to be prepared for the project. Condition B21 stipulates the requisite aspects of the CSWMP which provided following.

“The Applicant must prepare a Construction Soil and Water Management Plan (CSWMP) and the plan must address, but not be limited to the following:

- 1. Be prepared by a suitably qualified expert, in consultation with Council;*
- 2. Describe all erosion and sediment controls to be implemented during construction, including as a minimum, measures in accordance with the publication Managing Urban Stormwater: Soils & Construction (4th edition, Landcom 2004) commonly referred to as the ‘Blue Book’;*
- 3. Provide a plan of how all construction works will be managed in a wet-weather events (i.e. storage of equipment, stabilisation of the Site);*
- 4. Detail all off-Site flows from the Site; and*
- 5. Describe the measures that must be implemented to manage stormwater and flood flows for small and large sized events, including, but not limited to 1 in 5-year ARI.”*

1.2 Objectives

The purpose of this CSWMP is to provide a description of the measures to be implemented to mitigate potential soil erosion and resulting water quality impacts on land and water resources within and beyond the site during demolition site redevelopment works. This CSWMP has been designed to ensure, via the implementation of a number of monitoring and management measures pertaining to the works, that the risks to the surrounding environment are negligible.

¹ JBS&G (2020) Remedial Action Plan – Fort Street Public School, Upper Fort Street, Millers Point, New South Wales. JBS&G Australia Pty Ltd

² DPIE (2020) SSD-10340 Development Consent. Issued under Section 4.38 of the Environmental Planning and Assessment Act 1979. Department of Planning, Industry and Environment dated 7 October 2020.

1.3 Requirements for Soil and Water Management Plan

This CSWMP has been developed in accordance with the following documents:

- *SSD-10340 Development Consent* (DPIE 2020);
- City of Sydney Development Control Plan (DCP) 2012 Section 3 – General Provisions³; and
- *Managing Urban Stormwater – Soils and Construction* (Landcom 2004⁴).

The CSWMP has been prepared to address the specific requirements of clause B21 (DPIE 2020). DPIE (2020) separately identifies the requirement for the applicant to prepare a CEMP, unexpected finds protocol for contamination, unexpected finds protocol for heritage, waste classification and validation for contaminated site media, construction traffic and pedestrian management sub-plan, construction noise and vibration management sub-plan, and a construction waste management sub-plan.

Where these sub-plans may intersect with works managed under this CSWMP, they will be identified and referenced herein.

1.4 Relevant Activities

Development plans for the site are provided in **Appendix B**. Activities which have the potential to generate soil, sediment, erosion and/or water during development are summarised following:

- Demolition of site structures and hardstand pavements;
- Installation of an onsite stormwater detention (OSD) drain, stormwater chamber and rainwater tank in the eastern portion of the site (**Appendix B**);
- Excavation and installation of a lower ground level basement in the southeast site portion (**Appendix B**);
- Excavation of lift wells underlying the proposed northern building and library (**Appendix B**); and
- Advancement of piles, foundations and/or other *in-situ* support structures (**Appendix B**);
- Installation of new *in-situ* services;
- Installation of soil and/or hardstand capping as required by the RAP (JBS&G 2020);
- Landscaping activities, including any removal of existing flora, preparation of surfaces, importation and placement of soils; and
- General site activities (dust control, vehicle washout, etc.).

³ No general or specific provisions for the management of soil and water management during construction are described in this DCP.

⁴ *Managing Urban Stormwater – Soils and Construction Volume 1, 4th Edition*, Landcom, March 2004.

1.5 Application and Responsibilities

The period of application is from the commencement of construction works until the cessation of works that have the potential to significantly disturb the site surface or site structures.

Construction works at the site will be undertaken under the guidance of the Principal Contactor (Lendlease, the client). The Principal Contactor will be responsible for the implementation of the majority of procedures provided in the CSWMP. It is noted that where the specific procedures are technical or complex in nature then the Principal Contactor may appoint appropriately qualified agents (i.e. competent person⁵/environmental consultants) to fulfil the requirements of the procedure or advise the appropriate implementation of the procedure.

A formal list of procedures is provided to the CSWMP based on an assessment of potential environmental emissions from anticipated site works required for the project. Specific responsibilities are nominated for the implementation of these procedures.

Prior to commencement of any activities listed in **Section 1.4**, the Principal Contractor, and relevant contractors and consultants, should refer to the Environmental Management Procedures presented in this plan. The list in **Section 1.4** is not intended to be exhaustive, an assessment should be made prior to the commencement of works by the Principal Contractor regarding whether those works are likely to involve the handling of soils (either site based or imported), amendment to hydrological site condition (e.g. hardstand removal), or introduction of construction related waters to the site.

1.6 Environmental Procedures

A number of environmental procedures have been provided in **Appendix A**. These procedures cover general site activities, as well as specific site activities.

These procedures must be followed to ensure the objectives of the CSWMP (Section 1.2) are achieved during the project.

The Principal Contractor should review the environmental procedures prior to the commencement of works on site, and consider these procedures in the development of safe work practices.

⁵ Competent Person means a person who has acquired through training, qualification or experience the knowledge and skills to carry out the task.

2. Summary of Site Condition

2.1 Site Location and Description

The site details are summarised in **Table 2.1**. A plan showing the location of the site is provided as **Figure 1**, and a plan showing the boundaries of the site is provided as **Figure 2**.

Table 2.1: Site Identification

Lots / DPs	Lot 2 of DP 244444 Lot 2, 3, 4 and 9 of DP 732592 Lot 106 of DP 748340 Lot 107 of DP 748340 Lot 108 of DP 748340 Lot 5 of DP 258013
Site Address	Upper Fort Street, Observatory Hill, Miller Point, NSW, 2000
Local Government Authority	City of Sydney
Site Area	Approximately 6,200 m ²
Approximate MGA Coordinates (MGA 56)	As shown on Figure 2
Site Zoning	Metropolitan Centre (B8)
Current Use	Education
Previous Use	Education
Proposed Use	Education

2.2 Site Condition

The following site inspection is abstracted from documentation recently prepared as JBS&G (2020). A detailed site inspection was undertaken on 4 June 2019, by one of JBS&G's trained and experienced field scientists.

The site was observed as a flat, spherical shaped parcel of land located approximately 800 m southwest of the Sydney Harbour Bridge. The site is situated at the top of Observatory Hill and is bound by a portion of the Cahill Expressway which is cut into the underlying sandstone, such that the site forms an 'island', as seen in **Figure 2**.

The site is accessed via a gated accessway from Upper Fort Street. Several structures exist at the site, including Building A and associated toilet block, a style cottage building, garage (materials storage), Building B (EEC Building) and the MET Building. A large portion of the site is covered by hardstand including asphalt, concrete and astro-turf areas such that access to underlying soils is limited. Grasses cover a lesser extent of the site, largely in the southern portion of the site and surrounding the MET Building and Cottage. Several trees and small shrubs are present within the southern portion of the site, and a large, old-growth tree is located immediately to the east of Building A. Playground areas including an astro-turf area, mini sports field (astro-turf) and a newly constructed raised timber decking are present within the northern portion of the site.

2.3 Surrounding Land-Use

The current land uses of adjacent properties or properties across adjacent roads are summarised below.

- North – Cahill Expressway, beyond which lies Sydney Observatory;
- East – Major road infrastructure including the Western Distributor and Cahill Expressway;
- South – Cahill Expressway, beyond which lies infrastructure including a fire station, National Trust, cafes and art gallery; and
- West – Cahill Expressway, beyond which lies residential housing and the Barangaroo Redevelopment Precinct.

2.4 Site Natural Setting

The environmental setting is detailed in JBS&G (2019) and summarised below.

Table 2.2: Summary of Environmental Characteristics

Environmental Aspect	Characteristics
Topography	Review of published regional topographic information obtained from the Photomaps tool hosted by Nearmap (2019 ⁶) indicates the site is generally flat, with the approximate elevation of 40 m Australian Height Datum (AHD). The site is situated atop Observatory Hill and as such, the surrounding land generally dips to the north, east and south, beyond the Cahill Expressway.
Meteorology	A review of average climatic data for the nearest Bureau of Meteorology monitoring location (Observatory Hill⁷) indicates the site is located within the following meteorological setting: • Average minimum temperatures vary from 8.1 °C in July to 18.9 °C in February; • Average maximum temperatures vary from 16.4 °C in July to 26.0 °C in January; • The average annual rainfall is approximately 1215.7 mm with rainfall greater than 1 mm occurring on an average of 100.0 days per year; and • Monthly rainfall varies from 67.8 mm in September to 133.2 mm in June.
Hydrology	The following provide a summary of the sites hydrological condition as of the drafting of this plan. Works to be completed in preparation for the development will change the hydrological condition of the site. Due to the site's topography and geographic isolation, precipitation falling in areas surrounding the site are not likely to influence the hydraulic condition of the site. At the site, precipitation is anticipated to fall onto buildings and precipitation falling on asphalted/paved areas will flow into engineered drainage lines and the local stormwater system. In areas unconfined by hardstand (e.g. garden beds, unpaved areas across the school grounds), rainfall is likely to penetrate soils and migrate to the water table where it may be released as seepage water on the Cahill Expressway, and/or flow into stormwater infrastructure in heavy rain events. The closest waterbody to the site is Sydney Harbour adjoining Barangaroo, located approximately 250m west of the site.
Geology and Soils	Based on the Sydney Geological Map⁸, the site is located in the vicinity of the Triassic aged Hawkesbury Sandstone, typically comprising medium to coarse-grained quartz sandstone with minor shale and laminate lenses. Observations of the exposed geology of the Cahill Expressway cutting made during the site inspection indicate that sandstone is present at relatively shallow depths beneath the site surface (i.e. within 2m below ground surface (m bgs), consistent with Curio (2019). During the site investigation, 18 boreholes were advanced across the site, in which fill overlying natural materials was encountered from beneath hardstand (0.15 m bgs) to 2.7 m bgs. Natural materials encountered were observed to comprise sandstone. Based on information provided on the NSW Environment and Heritage Soil and Land Information web application⁹, the site is situated in the Gympie Erosional environment – characterised by shallow to moderately deep (30-100 cm) yellow earths and earthy sands, on crests and inside of benches; shallow (<20 cm) siliceous sands on leading edges of benches; localised Gleyed Podzolic Soils and Yellow Podzolic Soils on shale lenses; shallow to moderately deep (<100 cm) siliceous sands and leached sands along drainage lines. Based on a review of the Salinity Potential Map of Sydney (DIPNR 2003), soils at the site are not considered to be saline.
Acid Sulfate Soils (ASS)	Review of the 1:25 000 scale <i>Prospect Paramatta Acid Sulfate Soil (ASS) Risk Map</i> (DLWC 1997 ¹⁰) indicates that the site is located within an area of 'no known or expected occurrences of acid sulfate soils (ASS) materials'. Based on review of geology maps, soil maps, site topography and site observations, it is unlikely that actual and/or potential acid sulfate soils would be present on-site. Based on the site's elevation, the reported geology, the ASS Risk Map classification and observations made during the intrusive investigations, as documented herein and in JK (2017), no further consideration for the assessment/management of acid sulfate soil is required.

⁶ 'Photomaps', Nearmap, Accessed 22 July 2019, Nearmap (2019) <https://www.nearmap.com.au/>

⁷ http://www.bom.gov.au/climate/averages/tables/cw_066062.shtml, Commonwealth of Australia, 2013 Bureau of Meteorology, Product IDCJCM0028 prepared on 22 July 2019 and accessed by JBS&G on 22 July 2019.

⁸ Sydney, 1:250,000 Geological Series Sheets S156-5, 3rd Edition, 1965

⁹ www.environment.nsw.gov.au/eSpadeWebApp (viewed 23 August 2016)

¹⁰ *Prospect Paramatta Acid Sulfate Soil Risk Map* (Edition 2), NSW Department of Land and Water Conservation (DLWC 1997)

Environmental Aspect	Characteristics
Hydrogeology	A total of thirty-eight registered groundwater wells fall within a 1.0 kilometre radius of site, and are located largely toward the northwest, west and southwest of the site. These wells were installed within the years 2008 – 2011 for water monitoring purposes and have reported drill depths between 3 and 17 metres below ground surface (m bgs). No data regarding standing surface water levels were reported within any of the wells.

2.5 Site Contamination Status

The RAP (JBS&G 2020) presents the contamination condition at the site. The contamination condition, as relevant to the controls required to be implemented to achieve the objectives of this plan, are summarised following:

- Soil at the site are generally impacted by the presence of heavy metals (principally lead, nickel and zinc), total recoverable hydrocarbons (TRHs), polycyclic aromatic hydrocarbons (PAHs) including benzo(a)pyrene and naphthalene. An isolated instance of chlordane in soil was identified at a single location at the site; and
- Groundwater was not encountered to depths of greater than 5 m below the current ground level. Given the preclusion of water infiltration over the majority of the site, depth to groundwater and absence of substantial soluble impacts to site soils, potential groundwater impacts were considered unlikely.

During site redevelopment it is anticipated that excavation works will intersect contaminated soils. Interaction with contaminated soils presents the potential for the generation of sediment, soil erosion and impacted construction waters. The requisite controls are presented as procedures to be adopted during the site works as summarised in environmental management procedures provided as **Appendix A**.

The health and safety controls associated with interaction between site personnel and these soils will require to be documented in a separate plan.

3. Environmental Criteria

3.1 Soil and Sediment Disposal

The RAP (JBS&G 2020) stipulates the requirements for the assessment and lawful disposal of soil and sediment from the site. These requirements shall be followed in any instance of site works which require disposal from the site of excess soil or sediment build up.

Refer to JBS&G (2020) for more details.

3.2 Water Disposal

3.2.1 Regulator Considerations

Prior to disposal to Council, or other stakeholder (e.g. Sydney Water), owned assets. Appropriate permissions and approvals are required to be obtained by the Principal Contractor. No further consideration of the approval process and/or requirements to obtain approvals are provided within this plan.

3.2.2 Water Quality Targets

All surface water collected within site structures requires to be tested prior to any discharge off-site.

Reference is made to the *Australian and New Zealand Water Quality Guidelines for Fresh and Marine Waters* (ANZGC, 2018) guidelines to establish a set of disposal criteria for the site. Site stormwater flows into Sydney Harbour, which is a marine water body at the relevant receiving site. **Table 3.1** presents the applicable criteria, based on the potential contaminants and conditions which may impact site water.

Table 3.1: Stormwater Disposal Criteria

Parameter Type	Analyte	Threshold Criteria
Physical Parameters	pH	6.5-8.5 (pH units) ^a
	Total Suspended Solids	50 mg/L
	Oils and Grease	No visible films or odours
	Litter	No visible litter
Metals and Metalloids	Arsenic (Total) (Filtered)	2.3 µg/L ^b
	Cadmium (Filtered)	5.5 µg/L
	Chromium (Total or VI) (Filtered)	0.4 µg/L ^c
	Chromium (III) (Filtered)	48.6 µg/L
	Copper (Filtered)	0.4 µg/L
	Lead (Filtered)	4.4 µg/L
	Mercury (Inorganic) (Filtered)	0.4 µg/L
	Nickel (Filtered)	70 µg/L
Polycyclic Aromatic Hydrocarbons	Zinc (Filtered)	15 µg/L
	Anthracene	0.1 µg/L ^b
	Benzo(a)pyrene	0.1 µg/L ^b
	Fluoranthene	1.0 µg/L ^b
	Naphthalene	70 µg/L
Aromatic Hydrocarbons	Phenanthrene	0.6 µg/L ^b
	Benzene	700 µg/L ^b
	Ethylbenzene	5 µg/L ^b
	m-xylene	75 µg/L ^b
	o-xylene	350 µg/L ^b
	Toluene	180 µg/L ^b

Note:

- pH range was adopted from Table 3.3.2 of ANZECC/ARMCANZ 'default trigger values for physical and chemical stressors for south-east Australia for slightly disturbed ecosystems' estuary waterbodies. The closest receiving aquatic environment is Sheas Creek, a freshwater/brackish environment.
- This is a low reliability trigger level.
- Trigger level applies to valence state (Cr VI). If exceeded, speciation of the subject sample may permit assessment against Cr III and Cr VI for direct comparison;

Prior to any off-site release of captured surface water, a suitably trained and experienced environmental consultant shall be engaged to confirm suitability of the site's water for off-site disposal in accordance with **CSWMP03 (Appendix A)**.

4. Limitations

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

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

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

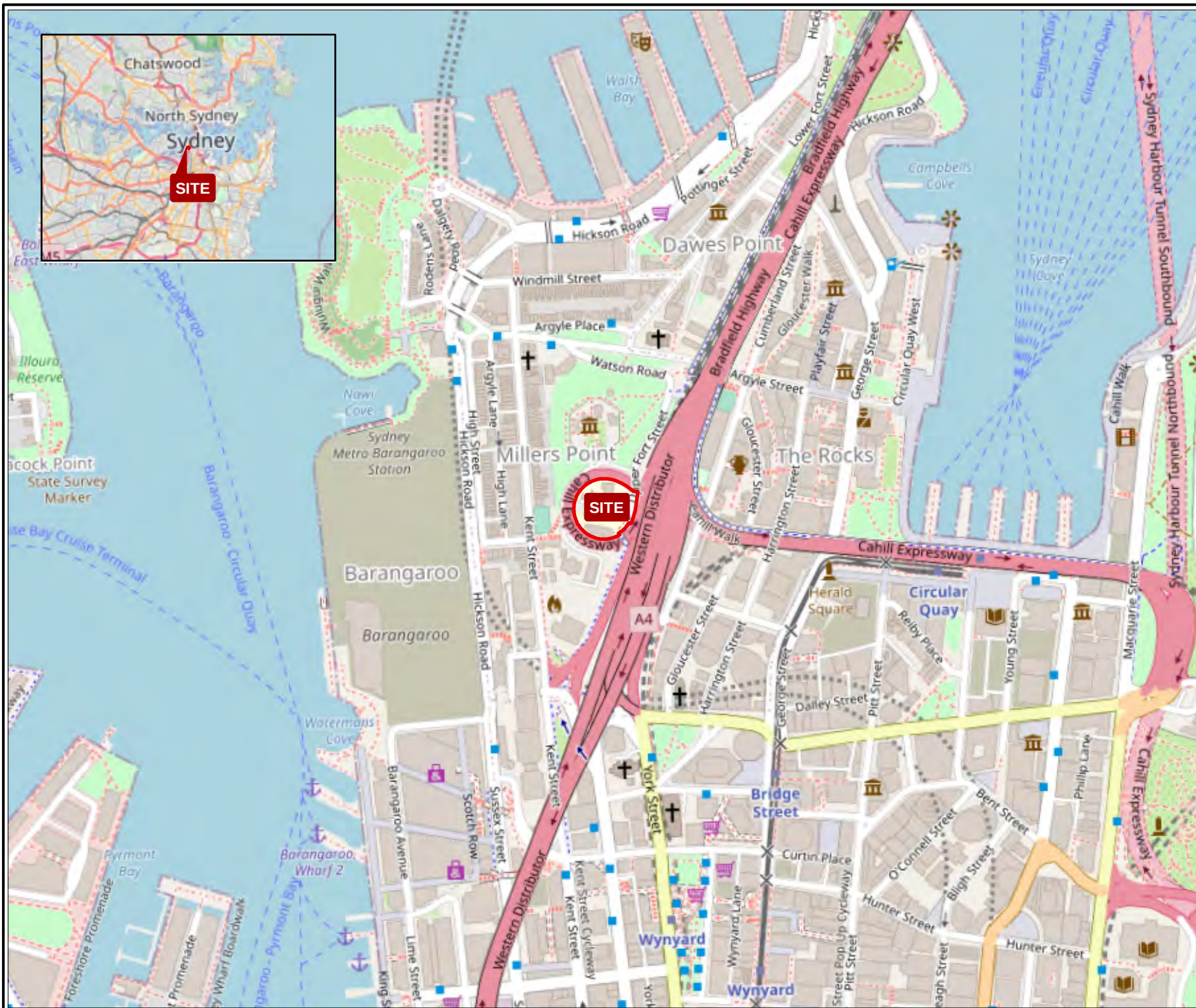
Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the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

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

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

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

Figures



Legend:
 Approximate Site Boundary



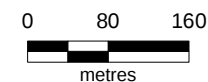
Job No: 59861

Client: Lend Lease

Version: R01 Rev 0 Date 3/12/2020

Drawn By: RF Checked By: RH

Scale 1:7,500



Coord. Sys. GDA 1994 MGA Zone 56

**Upper Fort Street, Observatory Hill
 Millers Point, NSW**

SITE LOCATION

FIGURE 1



Legend:

Approximate Site Boundary



Job No: 59861

Client: Lend Lease

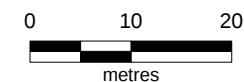
Version: R01 Rev 0

Date 3/12/2020

Drawn By: RF

Checked By: RH

Scale 1:750



Coord. Sys. GDA 1994 MGA Zone 56

**Upper Fort Street, Observatory Hill
Millers Point, NSW**

SITE LAYOUT

FIGURE 2

Appendix A Environmental Procedures

Construction Stage Stormwater Management - General		CSWMP01
Responsibility:	The Principal Contractor (refer to Section 1.5)	
Duration:	Entire Project	
Frequency:	Not Applicable	
Objective:	To ensure that all stormwater generated during the construction phase is directed toward and captured within the purposely designed stormwater infrastructure, mitigating the risk of potential for uncontrolled overland flows to offsite areas.	
Requirement A purposely designed system of stormwater management infrastructure is required to be installed to ensure that surface water flows generated during the project are appropriately controlled.		
Procedure A specialist sub-plan has been prepared by Strategic Environmental and Engineering Consulting (SEEC), which is presented in Appendix C . The plan details the general stormwater infrastructure requirements for two separate stages: • Stage 1 – Works commencement and demolition stage; • Stage 2 – Main works phase The requirements are summarised following. For detailed design consideration, the Principal Contractor should refer to Appendix C .		
Stage 1 – Works Commencement and Demolition Stage During the demolition phase, all existing stormwater infrastructure is to remain in place and functioning.		
Stage 2 - Main Works Phase During the main works phase (i.e. bulk earthworks, piling/foundation construction works, service installation, capping, landscaping and other general site activities following demolition), all onsite flows are to be directed into the nominated OSD Drains. <i>The OSD (temporary) is to be installed as the first stage of works in the main works phase, prior to removing the existing onsite stormwater system.</i> Off-site flows will be directed into the existing stormwater drainage (kerb and gutter, pits and pipes) along Upper Fort Street. Treated onsite water is to be pumped (as off-site water) into the existing stormwater system once the required water quality is achieved (refer to CSWMP03).		

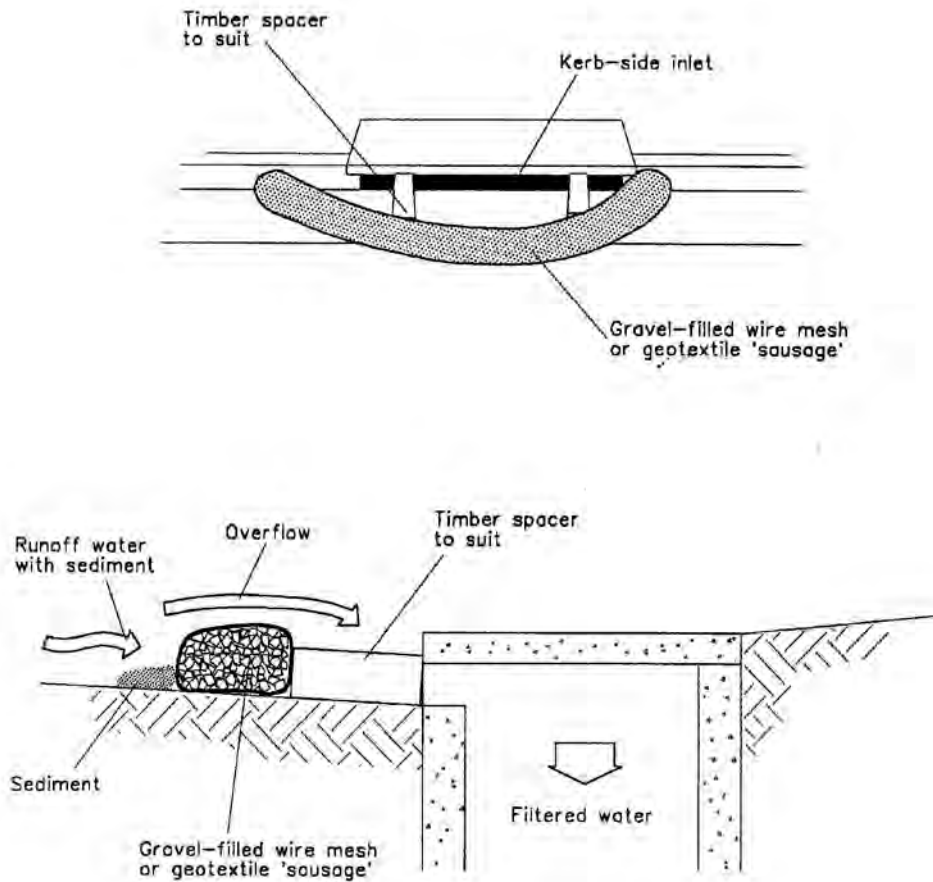
Construction Stage Stormwater Management – Excavation Dewater		CSWMP02
Responsibility:	The Principal Contractor (refer to Section 1.5)	
Duration:	Main Works Phase, following construction of the OSD until receipt of Occupation Certificate.	
Frequency:	As required.	
Objective:	To ensure that all stormwater generated during the construction phase is directed toward and captured within the purposely designed stormwater infrastructure, mitigating the risk of potential for uncontrolled overland flows to offsite areas.	
Requirement		
During bulk earthworks, it is not anticipated to encounter groundwater. However, there remains the potential to encounter perched water lenses (overlying relatively impermeable soil lenses) and for rainwater to accumulate in excavations following periods of heavy rainfall. This CSWMP will be applied during the ‘Main Works Phase’ as described in CSWMP01. No bulk earthwork, or generation of excavations, shall occur prior to the Main Works Phase, as required by CSWMP01.		
Procedure		
Where excavations are required to be dewatered to facilitate site works, an assessment of the water quality shall be undertaken on the basis of visual and olfactory observations by the Principal Contractor/competent person. Where excavation water does not exhibit any indicators of gross contamination, it shall be pumped into the OSD and subject to assessment, treatment and disposal in accordance with CSWMP03. Where excavation dewater is identified to exhibit indicators of gross contamination, it shall be managed under the UFP presented in the RAP (JBS&G 2020), which is provided as CSWMP06.		

Construction Stage Stormwater Management – OSD Assessment and Disposal		CSWMP03
Responsibility:	The Principal Contractor (refer to Section 1.5)	
Duration:	Main Works Phase, following construction of the temporary OSD until receipt of Occupation Certificate.	
Frequency:	Detailed below.	
Objective:	To ensure that all stormwater disposed from the site during construction works is appropriately assessed prior to treatment and/or disposal.	
Requirement		
Stormwater and/or excavation dewater which is captured within the OSD may be impacted by conditions and/or contaminants which make it unsuitable for disposal to stormwater. Water captured by the OSD is further required to be removed from the site during the construction phase to facilitate the development.		
It is required to be assessed and, where water is found to be impacted, remediate captured water prior to its disposal to stormwater assets. The water is required to be demonstrated as environmentally suitable for disposal from the site.		
Procedure		
<u>Frequency</u>		
Where discharge of stormwater from the OSD is required at inconsistent intervals (i.e. following rainfall events), the Principal Contractor shall arrange for testing of the accumulated water as required to facilitate disposal of the accumulated water.		
Where discharge of stormwater from the OSD is required at consistent intervals over a long period (i.e. during periods of extended rainfall), the Principal Contractor shall arrange for the testing of the accumulated water up to a maximum of twice per week.		
<u>Preliminary Assessment</u>		
The primary condition which would preclude the accumulated OSD water from being considered suitable for disposal to the offsite stormwater system is anticipated to be the presence of elevated suspended sediments and/or pH outside of the allowable ranges. Preliminary assessment can be undertaken using field screening methods, in accordance with the procedure presented following:		
1) A 500 mL sample of OSD water is to be collected in a clean glass or unpreserved plastic container at the point of discharge from the site (e.g. pump outlet), of from the centre of the OSD; 2) The sample of water shall be poured into a vertical transparency tube; 3) The depth of water column required to obscure the indicator at the bottom of the transparency tube should be recorded; 4) The pH of the water shall be measured using a calibrated field pH probe; and 5) The results are to be recorded by the Principal Contractor/competent person and kept for the duration of works.		
Where the water quality criteria are satisfied, the Principal Contractor/competent person shall proceed to sampling and laboratory analysis. Where exceedances of the criteria are identified, advice will be provided by the Environmental Consultant to the Principal Contractor regarding the most prudent course of action. This may be to proceed with sampling and laboratory analysis, or to treat the OSD water and subsequently reassess the water quality following treatment.		
<u>Laboratory Analysis and Formal Assessment of OSD Water</u>		
Following preliminary assessment, the Principal Contractor/competent person will undertake sampling of the OSD water for laboratory assessment. The sampling procedure shall be as follows:		
• The Principal Contractor/competent person shall collect samples of the OSD water at the point of discharge from the site (e.g. pump outlet), or from the centre of the OSD; • Samples shall be immediately filtered as necessary and transferred to laboratory prepared sample containers. The samples shall be preserved as required by the laboratory analytical methods, and transported to a laboratory under chain of custody conditions; • The samples shall be analysed at a laboratory which is National Associate of Testing Authorities (NATA) accredited for the analyses to be undertaken; ○ The samples shall be analysed for the following relevant contaminants and conditions: Total suspended solids (TSS); pH; Heavy metals (filtered .45 µm); TRH/BTEXN; and PAH (low levels).		
<i>The Principal Contractor/competent person shall arrange for laboratory analysis of water samples on ‘same day’ analyses, with written correspondence to be provided to the Principal Contractor within 24 hours of the sampling event. Formal assessment letter is to be provided within one week of the sampling event.</i>		

Construction Stage Stormwater Management – OSD Assessment and Disposal		CSWMP03
Responsibility:	The Principal Contractor (refer to Section 1.5)	
Duration:	Main Works Phase, following construction of the temporary OSD until receipt of Occupation Certificate.	
Frequency:	Detailed below.	
Objective:	To ensure that all stormwater disposed from the site during construction works is appropriately assessed prior to treatment and/or disposal.	
Where the Principal Contractor/competent person confirms that the OSD water is suitable for discharge to stormwater, the Principal Contractor is permitted to undertake disposal. Where the Principal Contractor/competent person confirms that the OSD water is unsuitable for discharge to stormwater, the Principal Contractor/competent person shall provide recommended actions to remediate the water to a quality which permits discharge to stormwater or recommend alternative disposal options. Indicative treatment options are presented in CSWMP04. Following assessment by the Principal Contractor/competent person, all efforts should be made to ensure that the quality of the OSD water does not materially change prior to its disposal. The Principal Contractor shall ensure that additional excavation pump out does not enter the OSD during the period following sampling and prior to discharge from the site.		

OSD Water Treatment		CSWMP04
Responsibility:	The Principal Contractor (refer to Section 1.5)	
Duration:	Main Works Phase, following construction of the OSD until receipt of Occupation Certificate.	
Frequency:	Upon identification of OSD water being unsuitable for disposal to stormwater.	
Objective:	To ensure that all stormwater identified as potentially unsuitable for discharge from the site is appropriately treated prior to disposal.	
Requirement		
It is required to assess and, where water is found to be impacted, remediate captured water prior to its disposal to stormwater assets. The water is required to be demonstrated as environmentally suitable for disposal from the site.		
Procedure		
Following implementation of CSWMP03 , treatment may be required to make the accumulated OSD water suitable for discharge to stormwater. Anticipated treatment procedures to resolve water quality issues may include:		
• pH adjustment via the addition of lime to raise the pH, or hydrogen chloride to reduce pH as appropriate; • Turbidity/total suspended solids: the use of granular activated carbon (GAC) filtration, flocculation and/or settlement of sediment via the use of a settlement waffle tank, application of alum, gypsum or commercially available flocculant or similar; and • Heavy metals: combination of pH adjustment and commercially available flocculant to reduce individual heavy metal concentrations slightly above acceptance standards.		
In the event that elevated levels of organic compounds are identified, consideration will be given to use of an on-site treatment plant to reduce contaminant concentrations to appropriate levels prior to analytical analysis and subsequent assessment for discharge.		

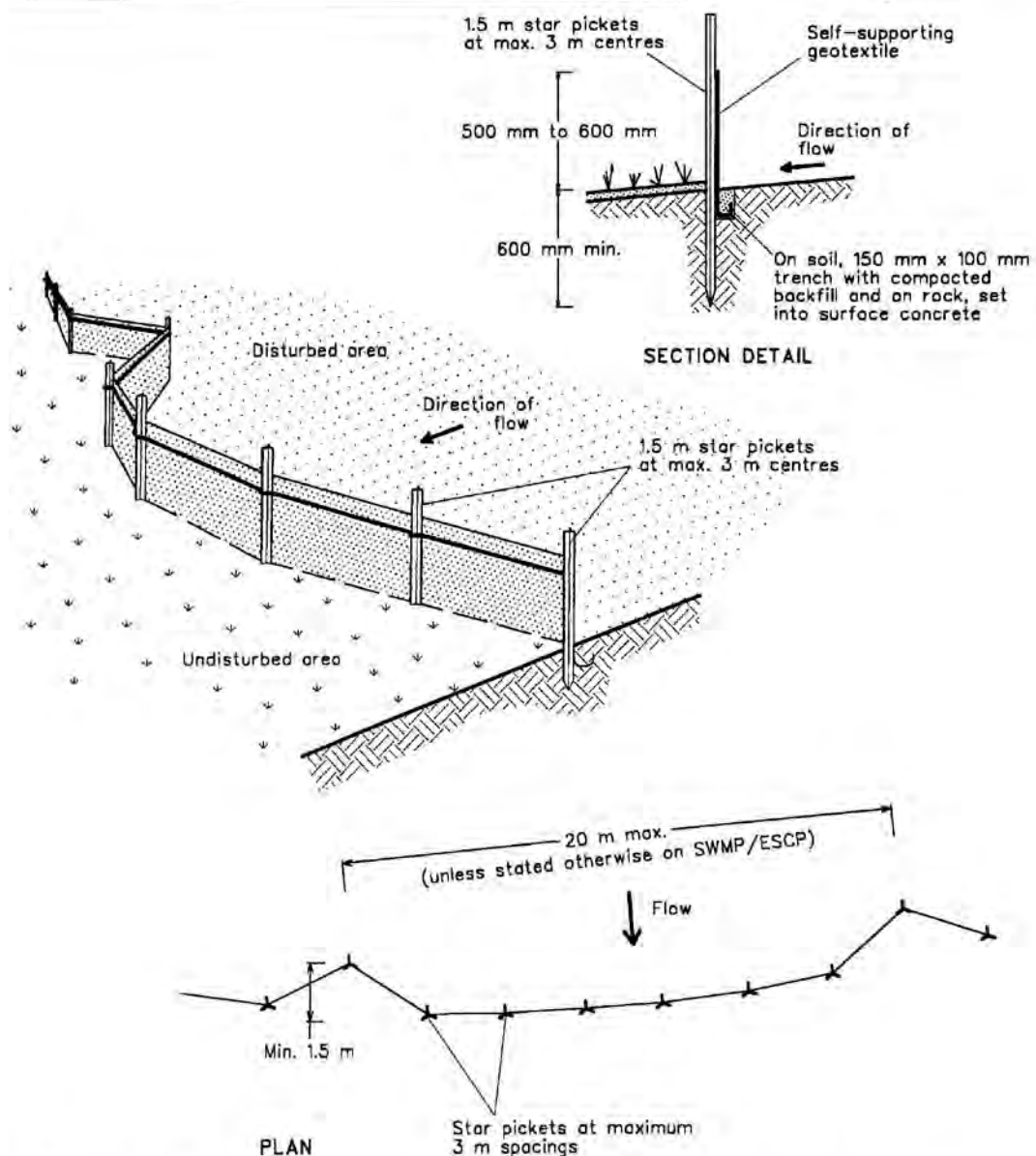
Sediment and Erosion Control		CSWMP05
Responsibility:	The Principal Contractor (refer to Section 1.5)	
Duration:	Entire Project	
Frequency:	As required.	
Objective:	To ensure that all stormwater identified as potentially unsuitable for discharge from the site is appropriately treated prior to disposal.	
Procedure		
<u>Equipment</u>		
The following general equipment will be required to allow construction of sediment control devices:		
• gravel filter sock(s); • sediment fencing; • stakes/star pickets; and/or • plastic or other material to cover soil stockpiles.		
<u>Sediment Control Devices – Stormwater Drains</u>		
During site demolition works, current stormwater drains located through the site are to be surrounded by gravel filter socks to preclude intrusion of substantial quantities of sediment during works. During the main works phase, the OSD will provide an additional sediment storage capacity of 40 m³. Reference CSWMP05-1 for a diagrammatic representation of stormwater drain gravel filter socks to be applied to all onsite stormwater inlets.		
<u>Sediment Control Devices – Stockpiles</u>		
Where possible, stockpiles will be placed upslope of open excavations, so all sediment from stockpiles is able to enter the open excavation. Stockpiles may be generated from bulk earthworks associated with the development. These shall be located away from stormwater inlets in controlled areas of the site. Reference CSWMP05-2 for a diagrammatic representation of sediment control devices to be established around soil stockpiles.		
<u>Stormwater Diversion</u>		
Where stockpiles are required to remain in place for a substantial period (>48 hours), controls shall be put in place to minimise the contact of stormwater flows with stockpiled materials. This shall include the use of stormwater diversion devices. Reference CSWMP05-3 for a diagrammatic representation of stormwater diversion devices to be established around soil stockpiles.		
<u>Staging of Works</u>		
Works shall be staged so as to minimise the quantity of stockpiled material at any one time.		
<u>Covering Stockpiles</u>		
Stockpiles that are in place for a substantial period (>48 hours) and are generating excessive sediment consequent of rainfall events or otherwise shall be covered.		



NOTE: This practice only to be used where specified in an approved SWMP/ESCP.

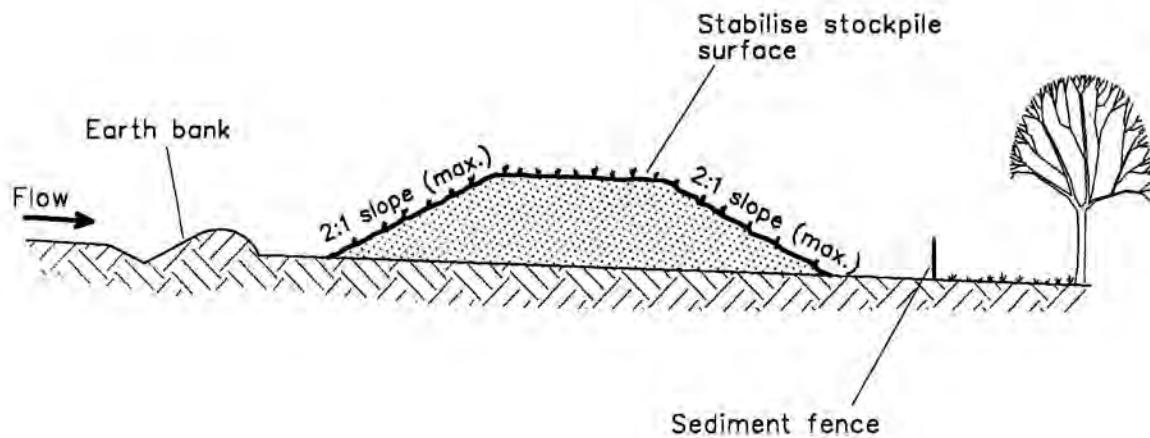
Construction Notes

1. Fabricate a sleeve made from geotextile or wire mesh longer than the length of the inlet pit.
2. Fill the sleeve with 25 mm to 50 mm gravel.
3. Form an elliptical cross-section about 150 mm high x 400 mm wide.
4. Place the filter at the opening of the kerb inlet leaving a 100 mm gap at the top to act as an emergency spillway.
5. Maintain the opening with spacer blocks.
6. Form a seal with the kerbing and prevent sediment bypassing the filter.
7. Fit to all kerb inlets at sag points.



Construction Notes

1. Construct sediment fence as close as possible to parallel to the contours of the site.
2. Drive 1.5 metre long star pickets into ground, 3 metres apart.
3. Dig a 150 mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
4. Backfill trench over base of fabric.
5. Fix self-supporting geotextile to upslope side of posts with wire ties or as recommended by geotextile manufacturer.
6. Join sections of fabric at a support post with a 150 mm overlap.

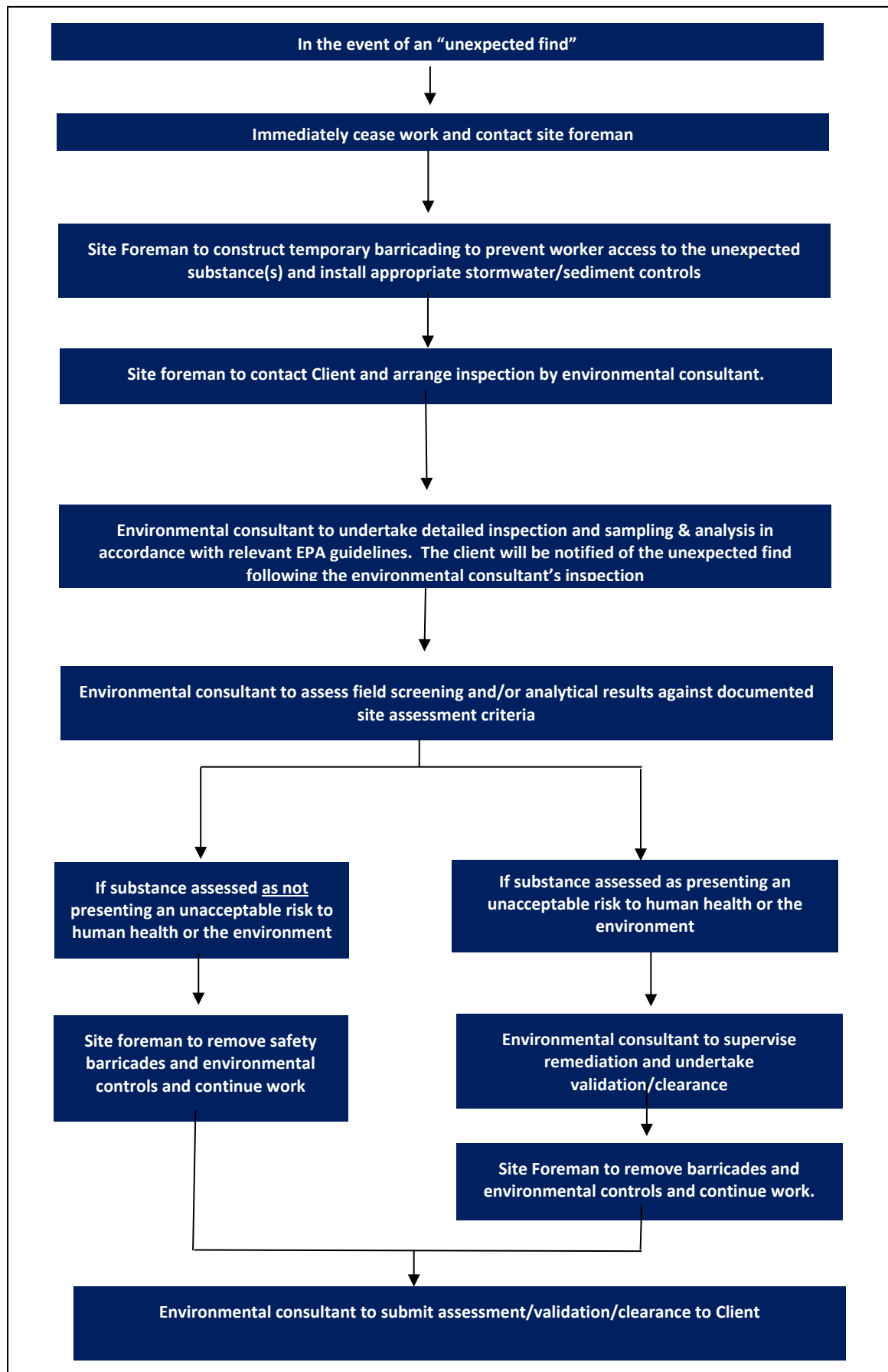


Construction Notes

1. Locate stockpile at least 5 metres from existing vegetation, concentrated water flows, roads and hazard areas.
2. Construct on the contour as a low, flat, elongated mound.
3. Where there is sufficient area topsoil stockpiles shall be less than 2 metres in height.
4. Rehabilitate in accordance with the SWMP/ESCP.
5. Construct earth bank (Standard Drawing 5-2) on the upslope side to divert run off around the stockpile and a sediment fence (Standard Drawing 6-7) 1 to 2 metres downslope of stockpile.

Unexpected Finds		CSWMP06
Responsibility:	The Principal Contractor (refer to Section 1.5)	
Duration:	Entire Project	
Frequency:	As required.	
Objective:	TO ensure the ongoing achievement of the objectives stated in Section 1.2 , where latent conditions are encountered which may require specific controls not otherwise captured by this CSWMP.	
Requirement		
The possibility exists for hazards that have not been identified to date to be present within fill materials or underlying existing pavements/building on the site. These hazards may present novel conditions which require to be addressed to ensure that the continuation of site works is completed in a manner which achieves the objectives stated in Section 1.2. An example of such a condition would be the identification of previously unknown contaminants within site soils and/or excavation dewater.		
Procedure		
The procedure has been abstracted for the RAP, as relevant to potential soil and water management at the site. The nature of hazards which may be present and which may be discovered at the site are generally detectable through visual or olfactory means, for example: • Hydrocarbon impacted materials (visible/odorous); and/or • Drums, waste pits, former pipework or USTs (visible); and/or • Oily Ash and/or oily slag contaminated soils/fill materials (visible/odorous); and/or • Tarry like impacted soil/fill material (visible/odorous); and/or • Potential chlorinated hydrocarbon impact (sweet odour soils). As a precautionary measure to ensure the protection of the workforce and surrounding community, should any of the abovementioned substances (or any other unexpected potentially hazardous substance) be identified, the procedure summarised in Figure CSWMP06-1 is to be followed, as shown on the following page.		

Figure CSWMP06-1 - Unexpected Finds Protocol



Non-Compliances with CSWMP		CSWMP07
Responsibility:	The Principal Contractor (refer to Section 1.5)	
Duration:	Entire Project	
Frequency:	Upon identification of non-compliance with the CSWMP	
Objective:	To identify the cause of the non-compliance is identified and to review procedures, controls and responsibilities to ensure that the potential for further non-compliances is minimised.	
Procedure		
Non-compliances with the intent and procedures of this plan may occur during the implementation of the CSWMP. Such non-compliances may include events such as failure to assess stormwater prior to discharge from the site, failure to appropriately contain stockpiled soils, etc. Where a non-compliance is identified by a responsible organisation, they shall inform the affected organisations of the non-compliance in writing. Where a non-compliance with the CSWMP is identified by another organisation (in the activities of an alternate organisation), then they shall have the responsibility of informing the non-complying party in writing of the non-compliance. The non-complying party will be required to rectify the non-conformity as soon as possible, as per the requirements of the relevant procedure(s) where non-compliance has occurred. The non-compliance shall be detailed as per the requirements of CSWMP08 Incident Reporting to record the incident and to inform relevant follow up / review actions. Detail of the action taken to rectify the non-compliance shall be provided to each of the affected organisations in writing. Where a non-compliance cannot be rectified, then the CSWMP will require to be reviewed as per the requirements of CSWMP09 CSWMP Review.		

|

Incident Reporting		CSWMP08
Responsibility:	The Responsible Person (refer to Section 1.5)	
Duration:	Entire Project	
Frequency:	Upon identification of non-compliance with the CSWMP	
Objective:	To ensure the CSWMP is implemented as intended.	
Procedure		
The Principal Contractor shall facilitate the completion of environmental incident forms for any environmental incident that occurs on the site. The responsible person, as nominated by the head contractor, shall review all incident forms. Parramatta City Council shall be notified of any incidents requiring emergency response within 24 hours of that incident. The environmental incident form is provided as Form 8-1.		

INCIDENT INVESTIGATION SUMMARY

The summary below provides the details of the incident and the corrective and preventative actions implemented following the investigation of the incident.

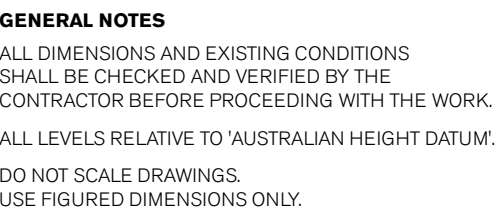
Project No.		Project Name		WorkSafe Notification No.		
Brief description of what happened						
First Aid Injury/illness: ☐	MTI: ☐	LTI: ☐	Near miss: ☐	Environment: ☐	Community: ☐	Property Damage: ☐
Date of the incident		Time of Incident				
Exact location of incident						
What corrective actions were implemented immediately following the incident?						
What preventative actions have been or are going to be implemented to minimise this type of incident?						

Report	Name	Position	Signature	Date
Completion				
Review				
Approval	Ross Trethewy	Head of Environment, Health & Safety		

Record Keeping		CSWMP09
Responsibility:	The Responsible Person (refer to Section 1.5)	
Duration:	Entire Project	
Frequency:	As required	
Objective:	Records of the implementation of the CSWMP require to be retained.	
Procedure		
The Responsible Person shall be responsible for the maintenance of all documents relating to the implementation of the CSWMP. This shall include any additional assessment undertaken, registers for the maintenance of the CSWMP (site inspection forms, revised plans, <i>etc.</i>) and any relevant correspondence between the Responsible Person, Contractors, environmental consultant and/or any other party. All records shall be retained by the Responsible Person throughout the time of implementation of the CSWMP. In the event that the role of Responsible Person is transferred from one organisation to another, control of all relevant (historical and current) documents will be transferred for safe keeping to the current Responsible Person.		

CSWMP Review		CSWMP10
Responsibility:	Responsible Person (See Section 1.5)	
Duration:	Entire Project	
Frequency:	As required in response to revisions to supporting documents or in response to non-compliances with CSWMP	
Objective:	The CSWMP requires review to ensure its continued appropriateness to be used on the site	
Procedure		
A review of the CSWMP shall be undertaken yearly by an appropriately qualified contractor/consultant in conjunction with the Responsible Person in response to a non-compliance with the CSWMP. This review shall consider: - Any non-compliances with the CSWMP that have been unable to be resolved; - Where an incident is reported as occurring under the control of CSWMP as per CSWMP09 Incident Reporting; - Practicalities and efficiencies of management measures and whether there are more effective ways to improve environmental compliance; - Any changes in state or national environmental protection legislation or guidelines that impact any part of the CSWMP; or - Any proposed changes in land-use of the site or adjoining sites which may impact upon exposure pathways. In the event that Principal Contractor (Section 1.5) cease to be recognised as the Responsible Person, a complete review of the CSWMP document and compliance measures will be necessary to identify suitable replacement CSWMP compliance mechanisms. In addition, where a review identifies items which are required to be modified, or added to the CSWMP, then a revision of the CSWMP shall be prepared by a suitably qualified person.		

Appendix B Proposed Site Development Plans



— • — SITE BOUNDARY

NOTE:
- FURNITURE SHOWN INDICATIVELY. SUBJECT TO
FURTHER CONSULTATION AND COORDINATION

FUTURE SCOPE

COLD SHELL

- Envelope and superstructure including structural floors and walls, facades, roofs, etc.
- Essential circulation elements including required stairs, lifts, fire isolated passages, etc.
- Irreversible fire isolation measures to services and detection, sprinklering, to facilitate minimum egress requirements, etc.
- Essential services infrastructure including in-ground and/or encased trunking pathways and risers to facilitate future brief functions.

Section J NCC requirements where not subject to future alteration due to fitout requirements.

- All internal non-essential walls, suspended ceilings, linings and finishes.
- All Fitout, Furnishings and Equipment (FFE), lights, hydraulic fixtures, ICT, etc.
- Services from trunk reticulation paths to FFE installations
- Essential life safety measures to satisfy fitout requirements.

fjmt studio architecture interiors landscape urban community
sydney melbourne uk
level 5, 70 King Street t +61 2 9251 7077 w fjmtstudio.com

General Arrangement Plans

Proposed Plan - Lower Ground 1

scale	1:200 @ A1	first issued	23/9/19
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project code	sheet no.	revision
FSS	DA-2001	SSDA.01



GENERAL NOTES

- ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR BEFORE PROCEEDING WITH THE WORK.
- ALL LEVELS RELATIVE TO 'AUSTRALIAN HEIGHT DATUM'.
- DO NOT SCALE DRAWINGS.
- USE FIGURED DIMENSIONS ONLY.

legend

- SITE BOUNDARY

NOTE:

FURNITURE SHOWN INDICATIVELY. SUBJECT TO FURTHER CONSULTATION AND COORDINATION

FUTURE SCOPE

COLD SHELL

COLD SHELL Inclusions:

- Envelope and superstructure including structural floors and walls, facades, roofs, etc.
- Essential circulation elements including required stairs, lifts, fire isolated passages, etc.
- Irreversible fire isolation measures to services and detection, sprinklering, to facilitate minimum egress requirements, etc.
- Essential services infrastructure including in-ground and/or encased trunking pathways and risers to facilitate future briefed functions.
- Section J NCC requirements where not subject to future alteration due to fitout requirements.

COLD SHELL Exclusions:

- All internal non-essential walls, suspended ceilings, linings and finishes.
- All Fitout, Furnishings and Equipment (FFE), lights, hydraulic fixtures, ICT, etc.
- Services from trunk reticulation paths to FFE installations
- Essential life safety measures to satisfy fitout requirements.

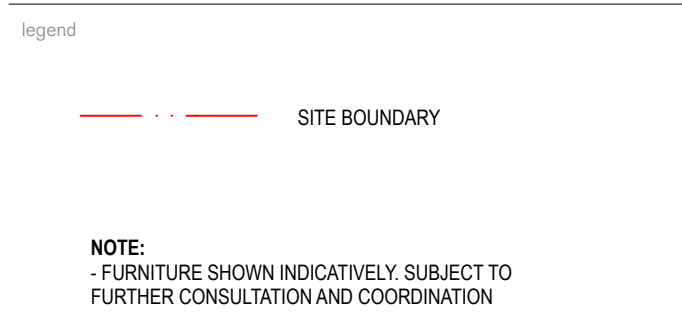
SSDA	01	6/12/19	State Significance Development Application	DB	DB
rev	date	name		by	chk

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project
Fort Street Public School
Observatory Hill
Sydney NSW 2000

title
General Arrangement Plans
Proposed Plan - Ground

scale	1:200 @ A1	first issued	23/9/19
project code	FSS	sheet no.	DA-2002
		revision	SSDA.01



 FUTURE SCOPE

 COLD SHELL

COLD SHELL Inclusions:

- Envelope and superstructure including structural floors and walls, facades, roofs, etc.
- Essential circulation elements including required stairs, lifts, fire isolated passages, etc.
- Irreversible fire isolation measures to services and detection, sprinklering, to facilitate minimum egress requirements, etc.
- Essential services infrastructure including in-ground and/or encased trunking pathways and risers to facilitate future briefed functions.
- Section J NCC requirements where not subject to future alteration due to fitout requirements.

COLD SHELL Exclusions:

- All internal non-essential walls, suspended ceilings, linings and finishes.
- All Fitout, Furnishings and Equipment (FFE), lights, hydraulic fixtures, ICT, etc.
- Services from trunk reticulation paths to FFE installations
- Essential life safety measures to satisfy fitout requirements.

SSDA 01	6/12/19	State Significance Development Application	DB	DB
rev	date	name	by	chk

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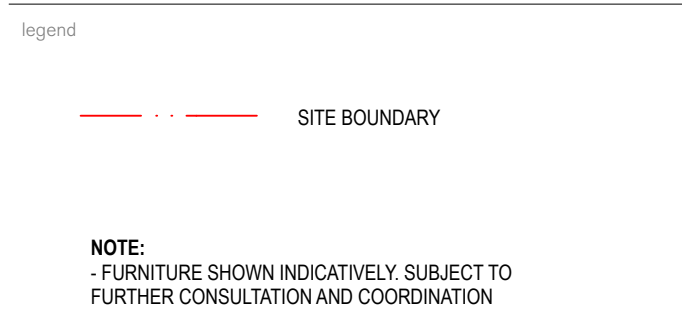
project
Fort Street Public School
Observatory Hill
Sydney NSW 2000

General Arrangement Plans

Proposed Plan - Level 1

scale	1:200 @ A1	first issued	23/9/19
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project code	sheet no.	revision
FSS	DA-2003	SSDA.01



FUTURE SCOPE

COLD SHELL

COLD SHELL Inclusions:

- Envelope and superstructure including structural floors and walls, facades, roofs, etc.
- Essential circulation elements including required stairs, lifts, fire isolated passages, etc.
- Irreversible fire isolation measures to services and detection, sprinklering, to facilitate minimum egress requirements, etc.
- Essential services infrastructure including in-ground and/or encased trunking pathways and risers to facilitate future brief functions.
- Section J NCC requirements where not subject to future alteration due to fitout requirements.

COLD SHELL Exclusions:

- All internal non-essential walls, suspended ceilings, linings and finishes.
- All Fitout, Furnishings and Equipment (FFE), lights, hydraulic fixtures, ICT, etc.
- Services from trunk reticulation paths to FFE installations
- Essential life safety measures to satisfy fitout requirements.

SSDA 01	6/12/19	State Significance Development Application	DB	DB
rev	date	name	by	chk

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project
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Observatory Hill
Sydney NSW 2000

title

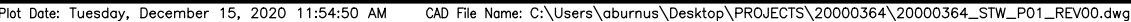
General Arrangement Plans
Proposed Plan - Level 2

scale	1:200 @ A1	first issued	23/9/19
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project code	sheet no.	revision
FSS	DA-2004	SSDA.01

Appendix C Construction Stage Stormwater Layout Plan

REV	DATE	DES.	DRN.	APP.	
00	15/12/20	A.T.	A.T.	J.M.A.	FINAL
A	27/11/20	A.T.	A.T.	J.M.A.	DRAFT ISSUE



FORT STREET
PUBLIC SCHOOL

ALL ON-SITE FLOWS TO
DRAIN INTO THE OSD
STRUCTURES

THE PERMANENT BELOW GROUND OSD STRUCTURE IS TO BE INSTALLED AS THE FIRST STAGE OF THE BULK EARTHWORKS AND PRIOR TO REMOVING THE EXISTING ON-SITE STORMWATER SYSTEM. AT LEAST 40m³ OF THE PERMANENT OSD IS BE ALLOCATED FOR SEDIMENT STORAGE. THE REQUIRED OSD VOLUME (104m³) IS TO BE PROVIDED IN ADDITION TO THIS SEDIMENT VOLUME WITHIN THIS PERMANENT STRUCTURE AND ADDITIONAL TEMPORARY OSD STRUCTURE(S). ENSURE ACCUMULATED SEDIMENT DOES NOT INCREASE ABOVE 40m³ AT ANY TIME - CLEAN OUT AS NECESSARY TO ENSURE THIS.

THE EXISTING CONCRETE PERIMETER WALL IS TO CONTAIN AND DIRECT ALL ON-SITE FLOWS INTO THE OSD STRUCTURES. IF THERE ARE ANY BREAKS WITHIN THIS WALL OR SECTIONS WHERE THE FREEBOARD IS LESS THAN 200mm, TEMPORARY IMPERMEABLE BUNDS/DIVERSIONS ARE TO BE PROVIDED TO ENSURE ALL ON-SITE WATER IS CONTAINED ON-SITE. THIS WALL MUST REMAIN IN PLACE FOR THE DURATION OF CONSTRUCTION.

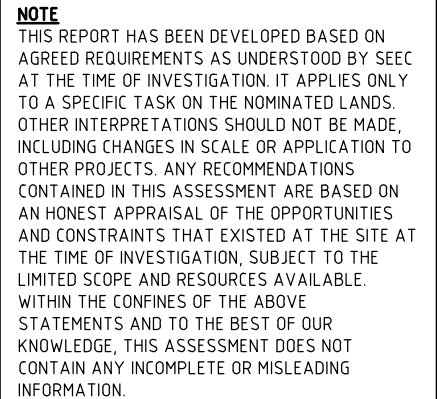
ADDITIONAL TEMPORARY CONSTRUCTION STAGE
OSD STRUCTURE(S) ARE TO BE PROVIDED TO
SUPPLEMENT THE PERMANENT OSD STRUCTURE TO
ENSURE THE REQUIRED TOTAL OSD VOLUME IS
PROVIDED. THE LOCATIONS AND NUMBER OF THESE
DEVICES CAN BE LEFT TO THE DISCRETION OF THE
CONSTRUCTION TEAM AS LONG AS SUFFICIENT
VOLUME IS PROVIDED PROPORTIONALLY WITH THE
CONTRIBUTING CATCHMENT AREA.

THE EXISTING STORMWATER SYSTEM (KERB AND GUTTER, PITS AND PIPES) WITHIN THE SITE ENTRY AREA ALONG UPPER FORT STREET IS TO REMAIN IN PLACE DURING THE MAIN CONSTRUCTION WORK TO TAKE OFF-SITE OVERFLOWS FROM THE OSD AND RUNOFF FROM UPPER FORT STREET.

OVERFLOWS FROM THE OSD TO BE DIRECTED VIA THE EXISTING KERB AND GUTTER INTO THE EXISTING STORMWATER PIT/S ALONG UPPER FORT STREET.

	SITE BOUNDARY
	EXISTING CONCRETE PERIMETER WALL
	EXISTING STORMWATER PITS (NOT ALL PITS ARE SHOWN - ONLY THOSE RELEVANT TO OFF-SITE FLOWS)
	ON-SITE DIVERSION DRAIN [1]
	OFF-SITE WATER FLOW
	ON-SITE WATER FLOW
	ON-SITE DETENTION (OSD) BASIN [1]
	ADDITIONAL CONSTRUCTION STAGE ON-SITE DETENTION (OSD) -INDICATIVE LOCATION [1]
	EXISTING GROUND SURFACES (ROAD PAVEMENT, FOOTPATH AND GRASS VERGE) TO REMAIN STABLE AND CLEAN

[1] - DETAILED DESIGN NOT INCLUDED WITHIN THIS PLAN. THIS IS TO BE COMPLETED PRIOR TO CONSTRUCTION WORKS COMMENCING.



ALL STORMWATER ON SITE DETENTION (OSD) CALCULATIONS HAVE BEEN UNDERTAKEN USING THE URBAN DRAINAGE DESIGN SOFTWARE 'DRAINS'.

- DURING THE INITIAL DEMOLITION WORKS, ALL EXISTING STORMWATER IS TO REMAIN IN PLACE AND FUNCTIONING TO TAKE OFF-SITE FLOWS.
- DURING THE MAIN CONSTRUCTION STAGE WORKS (I.E. BULK EARTHWORKS) ALL ON-SITE FLOWS ARE TO BE DIRECTED INTO THE NOMINATED OSD STRUCTURES. THESE OSD STRUCTURES ARE TO BE INSTALLED AS THE FIRST STAGE OF THE BULK EARTHWORKS AND PRIOR TO REMOVING THE EXISTING ON-SITE STORMWATER SYSTEM. OFF-SITE OVERFLOWS WILL BE DIRECTED INTO THE EXISTING STORMWATER DRAINAGE (KERB AND GUTTER, PITS AND PIPES) ALONG UPPER FORT STREET. TREATED ON-SITE WATER IS TO BE PUMPED (AS OFF-SITE WATER) INTO THE EXISTING STORMWATER SYSTEM ONCE THE REQUIRED WATER QUALITY IS ACHIEVED (REFER TO THE CSWMSP BY JBS&G).
- APPROPRIATE EROSION AND SEDIMENT CONTROL IS TO BE PROVIDED DURING ALL STAGES AS NOMINATED WITHIN THE JBS&G CONSTRUCTION SOIL AND WATER MANAGEMENT PLAN (CSWMSP).

ON-SITE DETENTION CALCULATIONS ARE FOR THE MAIN CONSTRUCTION STAGE WORKS ONLY (SPECIFICALLY BULK EARTHWORKS). DURING OTHER CONSTRUCTION STAGES OF WORKS ALL STORMWATER FLOWS WILL DRAIN OFF-SITE VIA THE EXISTING/FUTURE STORMWATER SYSTEM.

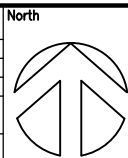
TOTAL SITE AREA = 6,183 m²
 MAIN CONSTRUCTION AREA = 5,725 m²
 AREA DRAINING TO OSD = 5,725 m² (I.E. 100% OF MAIN CONSTRUCTION AREA)
 AREA NOT DRAINING TO OSD = 458 m² (THIS AREA IS THE SITE ENTRY AREA (ALONG UPPER FORT STREET) CONSISTING OF PAVED DRIVEWAY, FOOTPATH AND GRASS VERGE SURFACES. DRAINAGE IN THIS AREA WILL REMAIN UNCHANGED FROM THE CURRENT SITE CONDITIONS WITH RUNOFF DIRECTED INTO THE EXISTING STORMWATER SYSTEM. ALL SURFACES HERE ARE TO REMAIN STABLE AND UNDISTURBED).

% IMPERVIOUS AREA PRE-DEVELOPMENT	= 74.2%
% IMPERVIOUS AREA DURING CONSTRUCTION	= 100%

OFFSITE FLOW PRE-DEVELOPMENT	= 0.181 m ³ /s (5 YR ARI)
OFFSITE FLOW POST-DEVELOPMENT	= 0.155 m ³ /s (5 YR ARI)
OFFSITE FLOW PRE-DEVELOPMENT	= 0.338 m ³ /s (100 YR ARI)
OFFSITE FLOW POST-DEVELOPMENT	= 0.323 m ³ /s (100 YR ARI)

REQUIRED OSD STORAGE = 104 m³
(THE OSD STORAGE VOLUME IS TO BE PROVIDED WITHIN THE PROPOSED PERMANENT BELOW GROUND OSD STRUCTURE AND WITHIN ADDITIONAL CONSTRUCTION STAGE OSD STRUCTURES. THE OSD VOLUME IS TO BE PROVIDED IN ADDITION TO THE NOMINATED SEDIMENT STORAGE VOLUME (40m³) AT ALL TIMES. THEREFORE, AT LEAST 144m³ OF STORAGE VOLUME IS TO BE PROVIDED).

REV	DATE	DES.	DRN.	APP.	REVISION DETAILS	DRAWING STATUS	
						DESIGN BY	A.T.
						DRAWN BY	A.T.
						FINAL APPROVAL	J.M.A. / B.J.
						SCALE:	1:500
						(on A3 Original)	
00	15/12/20	A.T.	A.T.	J.M.A.	FINAL	FINAL	
A	27/11/20	A.T.	A.T.	J.M.A.	DRAFT ISSUE		



CLIENT

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PROJECT TITLE	CONSTRUCTION STAGE STORMWATER FORT STREET PUBLIC SCHOOL OBSERVATORY HILL
---------------	---

DRAWING TITLE	CONSTRUCTION STAGE STORMWATER LAYOUT PLAN
---------------	---

PROJECT NO.	SUB-PR NO.	DRAWING NO.	REV
20000364	P01	STW01	00

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Document Status

Rev No.	Author	Reviewer	Approved for Issue		
		Name	Name	Signature	Date
A	Rohan Hammond	Matthew Parkinson	Matthew Parkinson	Draft for client review	7 December 2020
0	Daniel Denaro	Matthew Parkinson	Matthew Parkinson		21 December 2020
1	Daniel Denaro	Matthew Parkinson	Matthew Parkinson		8 January 2021

