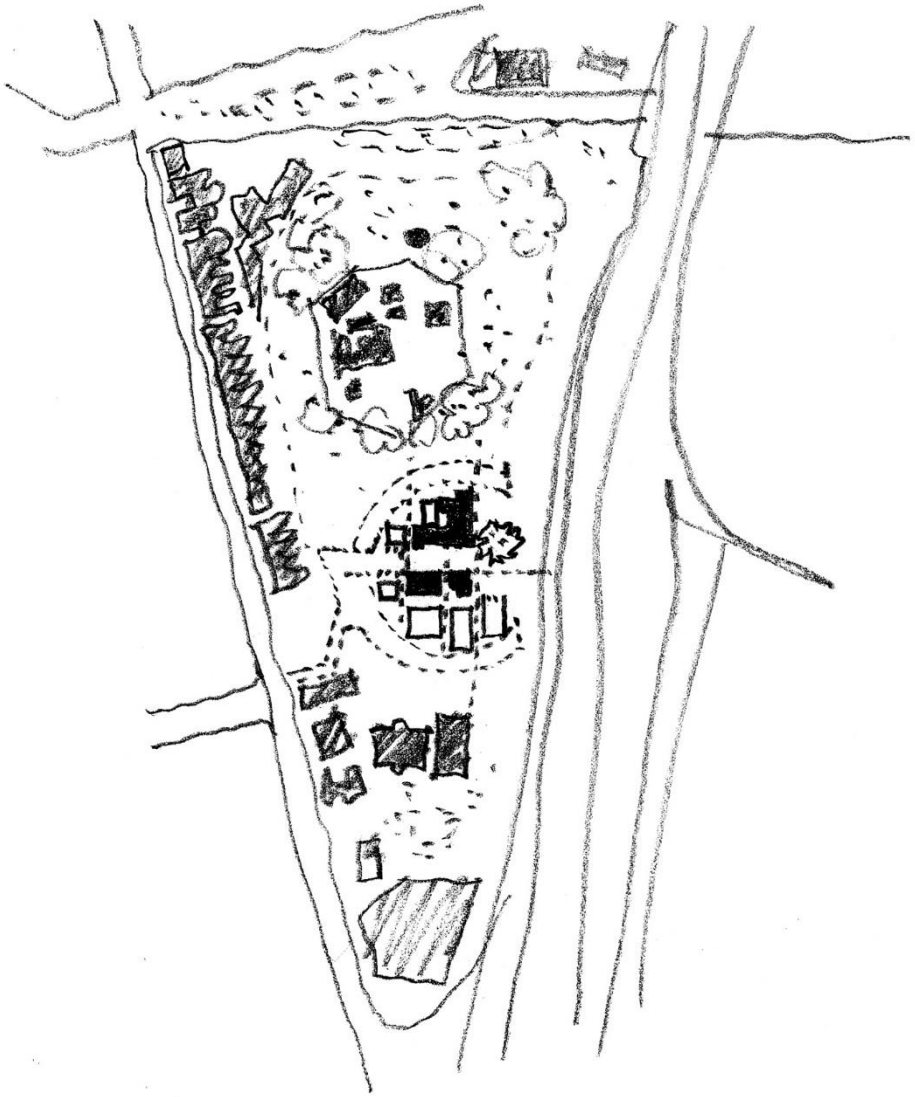
Fort Street Public School
Civil Design Report

SSD 10340
Prepared by Bonacci
For Schools Infrastructure NSW
18 December 2019



Proposed Fort Street Public School Redevelopment

Upper Fort Street, Millers Point, NSW

State Significant Development Application

Civil Design Report

Revision: 02

Bonacci Group (NSW) Pty Ltd
ABN 29 102 716 352
Level 6, 37 York Street
SYDNEY NSW 2000
Tel: +61 2 8247 8400
www.bonaccigroup.com

Project No.: 11543 01C
Date: 18th December 2019
Issued For: SSDA Design Report

Report Amendment Register

Rev. No.	Issue/Amendment	Author/Initials		Reviewer/Initials		Date
1	SSDA Report	Eve Wu	EW	Gehan De Silva	GDS	13/12/2019
2	Amended SSDA Report	Eve Wu	EW	Gehan De Silva	GDS	18/12/2019

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1. Introduction

Bonacci Group (NSW) Pty Ltd has been engaged by NSW Department of Education (DoE) to describe the civil engineering elements associated with the proposed Fort Street Public School redevelopment at Miller Point, NSW.

This State Significant Development Application (SSDA) Civil Design Report addresses the proposed civil engineering works related to the redevelopment of Fort Street Public School including the drainage network, water quality and water quantity control measures. Water quantity requirements have been determined by Sydney Water. Water quality requirements have been modelled using MUSIC software to demonstrate compliance with City of Sydney Council's relevant requirements.

2. Site Description

2.1. Location

The proposed development is located on the Upper Fort Street, Millers Point, NSW and within the City of Sydney Local Government Area. The majority of the site is bounded by the cutting for Cahill Expressway with access limited from the eastern boundary via Upper Fort Street. Refer to Figure 2-1 for a locality map of the proposed development.

Figure 2-1 Locality Map of the Site (Source: Nearmaps)

2.2. Topography and Drainage

The site slopes from the west at RL 40.89 to the site entrance on Upper Fort Street at RL 38.36 over 89 m which results in a gradient of approximately 2.8%.

The site comprises of five (5) existing buildings, a football court, a covered play area, parking spaces, footpath and access road from Upper Fort Street.

A drainage diagram was provided by Sydney City Council (Figure 2-2). It indicates that there is pit/pipe network within the site and the network appears to be connected and discharged to a 300mm VCP stormwater line running along the Cahill Expressway.

Other stormwater lines approximately 20 meters below the site ground level (375 mm and 525 mm concrete) appear to be connected to manhole-68, then to the railway tunnel running east under the approach to the Harbour Bridge. It is safe to assume that there is no existing site catchment contributing to this pipeline given the invert level (RL 17.71) is approximately 20m lower than the site ground levels and no pits within the site have been identified connecting to above stormwater line.

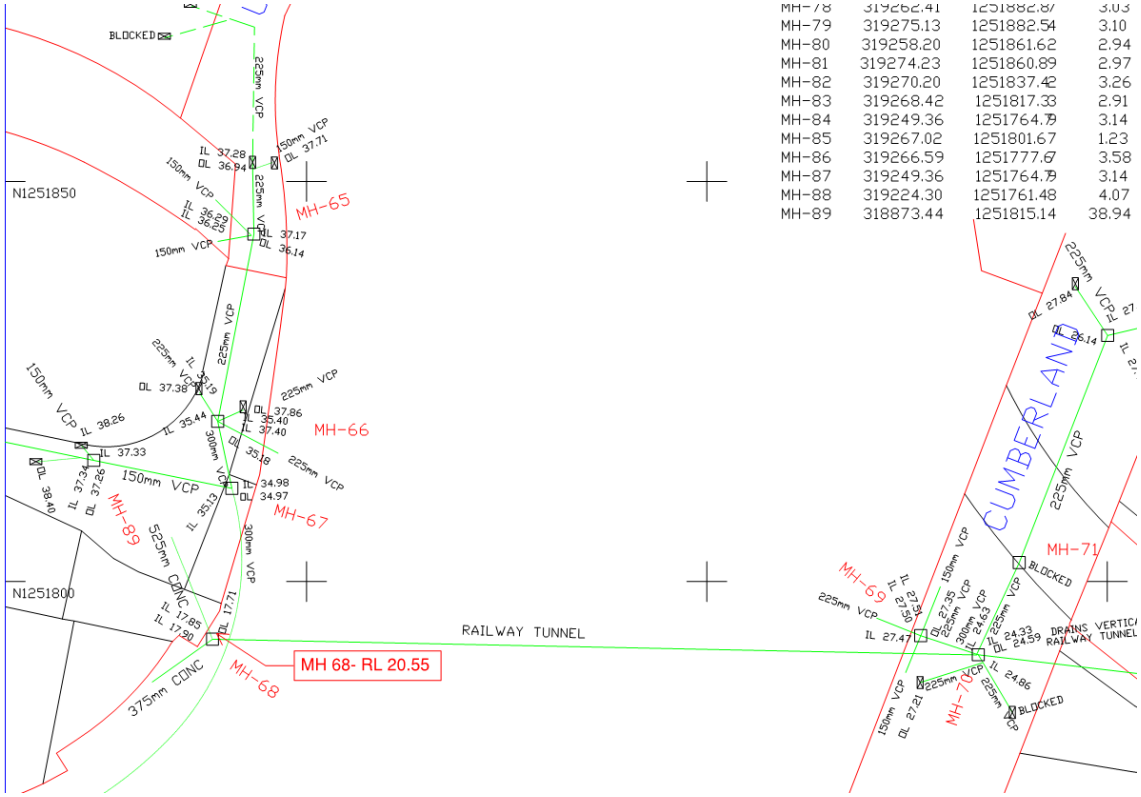


Figure 2-2 Drainage Diagram by Sydney City Council

Detail survey has been undertaken by RPS on 15th July 2019 as shown in Figure 2-3. It is interpreted from the survey and Council Drainage Diagram that overflow generated during major storm events overtops the kerbs on Upper Fort Street and flows to the kerb inlet pits on Cahill Expressway. Therefore, it is sensible to assume that the stormwater pit and pipe network along Cahill Expressway captures the flows generated from the entire existing site for both major and minor storm events.

A DBYD enquiry has been undertaken, the results show utilities including Jemena and Ausgrid are located outside the site boundary at Upper Fort Street and Cahill Expressway. Survey identifies existing assets including sewer lines, gas lines, water mains and electrical cables running through the site and under the accessway. Relocation and extension of the existing services may be required during construction.

No on-site detention structure or water quality treatment devices have been identified by the surveyor during site survey. The site survey shows existing rainwater tanks east of the existing single storey buildings.

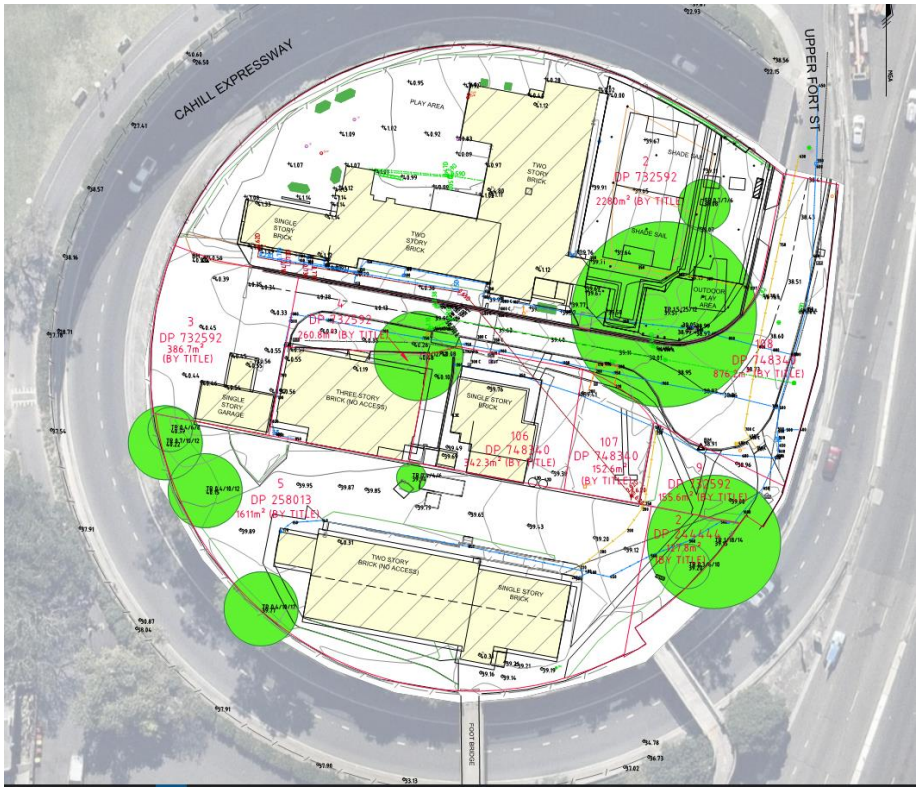


Figure 2-3 Detail Survey (RPS 15.07.2019)

2.3. Flooding

Based on the flood information from the City of Sydney and specifically flood report 'City Area Catchment Flood Study' by BMT WBM – October 2014, the site is not subject to flood inundation during the 100 ARI event. Please see Figure 2-4, 100 Year ARI flood map which is an extract from the BMT WBM report. However, it is noted the Cahill Expressway which runs along the perimeter of the site is flood affected during the 100 Year ARI event.

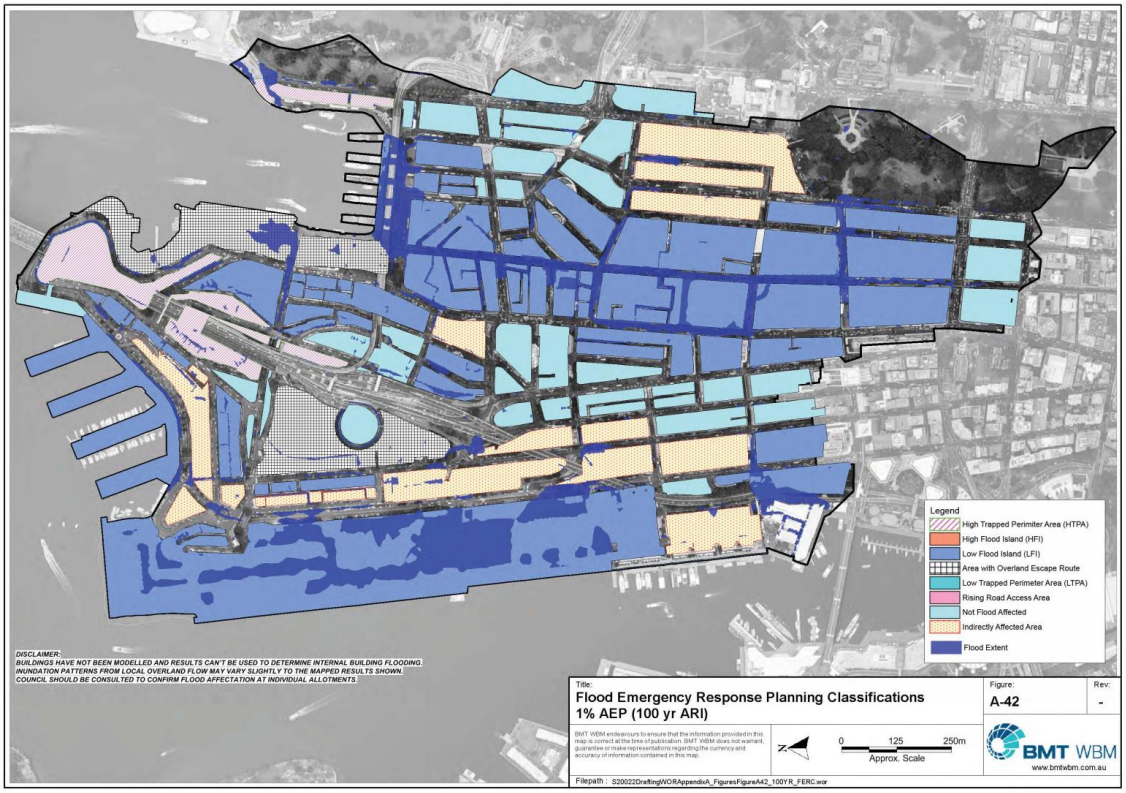


Figure 2-4 Flood Map (from City Area Catchment Flood Study by BMT WBM – October 2014)

2.4. Existing Documentation

The following existing documentations are referenced for the proposed design:

- Topography detailed survey by RPS dated 15th July 2019;
- Geotechnical investigation by JK Geotechnics for proposed school upgrade at fort street public school dated 29th June 2017. Ref: 30276Lrpt;
- City of Sydney Council drainage diagram survey.

3. Proposed Development

The proposed redevelopment consists of the demolition of an existing building and the construction of new buildings, additions to existing buildings and associated site infrastructure. The architectural site plan for the proposed redevelopment is shown in Figure 3-1 below.

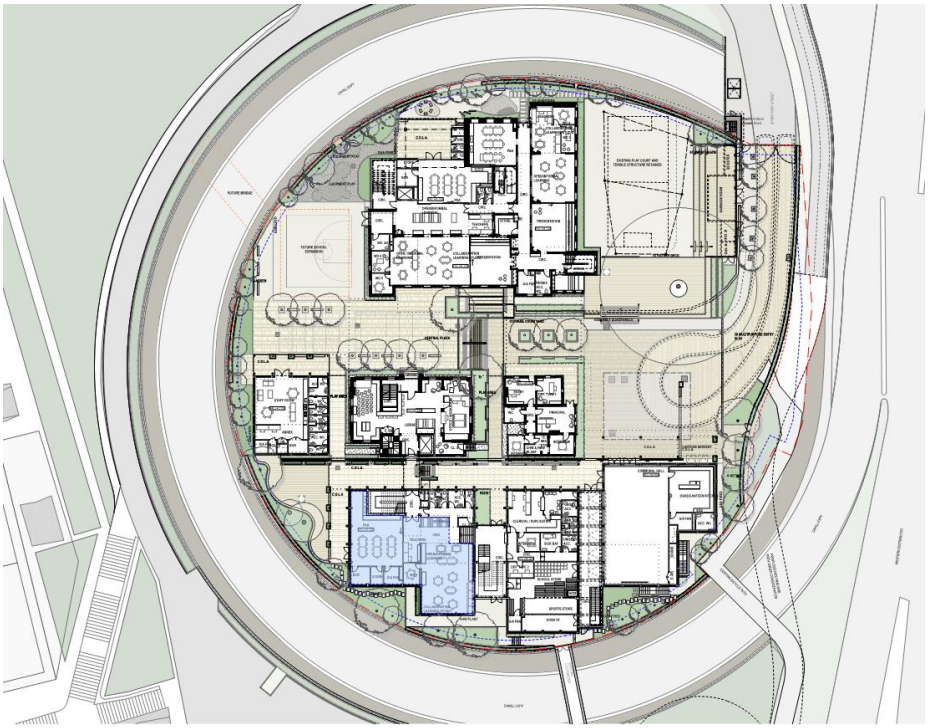


Figure 3-1 Proposed Plan – Ground (fjmt, 06.12.19)

3.1. Lot Consolidation

As shown in Figure 3-2 below, the Deposited Plan (DP) and lot boundaries information are extracted from detailed survey by RPS. There are 9 existing lots, at the time of producing this report, it is assumed all the lots have been consolidated except for lot 5 DP 258013.

Should lot 5 remain unconsolidated, separate stormwater systems including On-site Detention (OSD) tank, water quality control measures may be required on the lots depending on the lots size. Alternatively, one stormwater system could be utilised for the whole site when the right of access/easements are provided within lots accommodating the connections between the lots. This may need legal changes to the lot entitlements which should be discussed with appropriate legal and planning consultants.

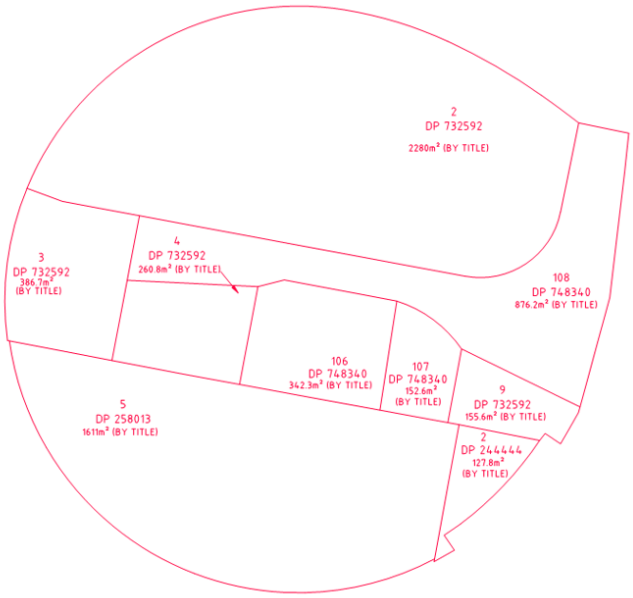


Figure 3-2 Lot Boundaries (Based on Survey by RPS 15.07.2019)

3.2. Water Quantity

Sydney City Council have advised that Sydney Water are to approve any additional discharge into the existing stormwater network. In accordance with *Sydney Water On-site Stormwater Detention Guide (2014)*, on-site detention tank is required for all education buildings or structures.

Sydney Water has been contacted and they advised that to determine the Permissible Site Discharge (PSD) and Site Storage Requirement (SSR), the total site area, pre-development and post development areas are required. Based on the architectural plan by fjmt dated 12th November 2019, the following information has been provided to Sydney Water:

- Total site area: 6200 m^2
- Pre-development impervious area: 4450 m^2
- Post development impervious area: 5204 m^2

Based on the above information, Sydney Water advised an OSD with minimum volume of 115 cubic meter is to be placed on site to limit the peak flows leaving the site and to a PSD of 207/s. Sydney Water further suggests the approval for the OSD would only be given as part of the Section 73 application for this development.

The architectural plan has been updated on 6th December 2019, however, the impermeable area has not been changed. Hence above advice of SSR and PSD from Sydney Water is still valid.

A hydrological model has been created using software DRAINS, the existing catchment (approximately 6670m^2) contributing to the existing point of discharge is shown in Figure 3-3. The existing catchment includes external upstream overland flowing into the drainage system within the site.

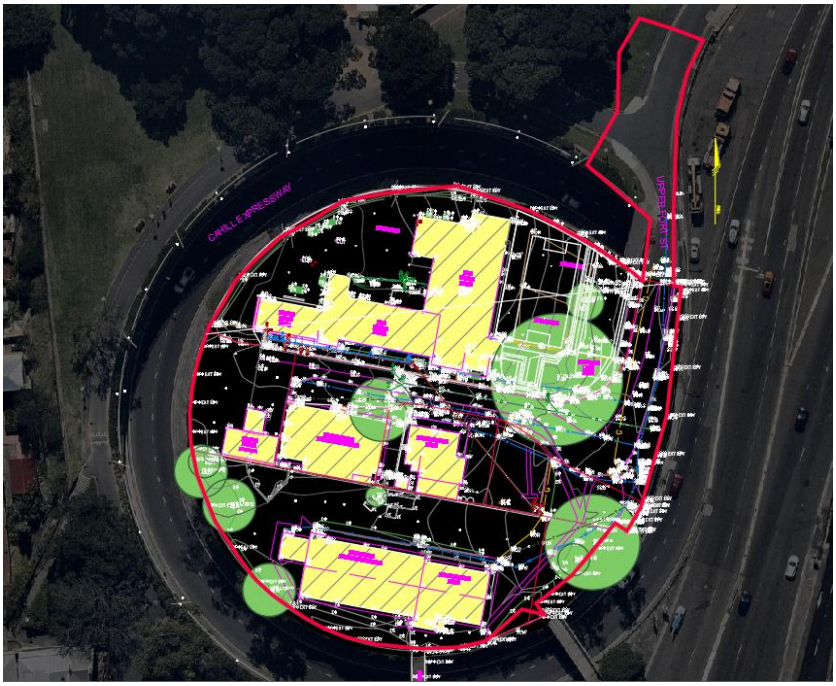


Figure 3-3 DRAINS Catchment – Pre-development (Based on Survey Details by RPS 15.07.2019)

The preliminary analysis of the existing and post development conditions has been undertaken using DRAINS software. The preliminary DRAINS modelling layout and results for the existing and post -development condition is as shown in Figure 3-4.

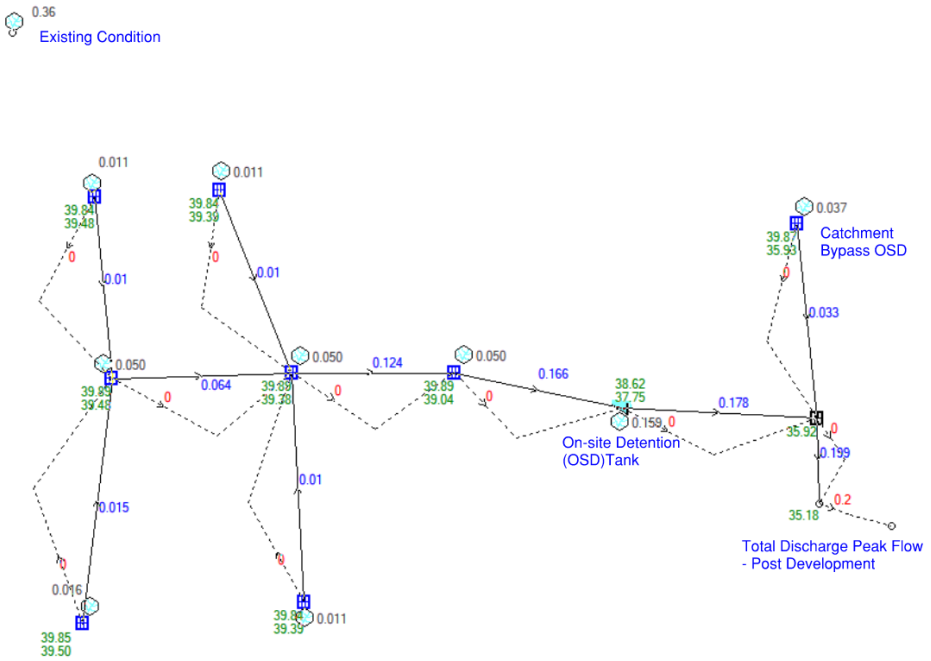


Figure 3-4 Preliminary DRAINS Layout and Results For 100 Year ARI Storm Events

As shown in Figure 3-4, the result for existing scenario during 100 year ARI storm event is 360L/s. Implementing an OSD with minimum Volume of 115 kL can reduce the peak flows generated from post development scenario to 200 L/s which complies with Sydney Water PSD requirement and also limit the post development peak flows to pre-development condition.

3.3. Water Quality

3.3.1. Water Quality Strategy

To protect the ecology of City of Sydney, it is expected that this development will be required to satisfy the water quality requirements of Sydney City Council. *Sydney City Council DCP 2012 Section 3* outlines that any development greater than 1000m^2 must undertake a stormwater quality assessment to demonstrate that the development will achieve the post development pollutant load standards indicated below (Figure 3-5):

(a) reduce the baseline annual pollutant load for litter and vegetation larger than 5mm by 90%;

(b) reduce the baseline annual pollutant load for total suspended solids by 85%;

(c) reduce the baseline annual pollutant load for total phosphorous by 65%; and

(d) reduce the baseline annual pollutant load for total nitrogen by 45%.

Figure 3-5 City of Sydney Pollution Reduction Target Rates (DCP 2012)

Most of the stormwater runoff originating from the driveway, landscape and hardstand areas is to be directed into stormfilter cartridges located inside the OSD tank after being treated by Enviropods. Part of the stormwater runoff from the driveway is bypassing the stormfilter cartridge treatments after Enviropods treatment, refer to Figure 3-6 for MUSIC modelling layout.

3.3.2. Water Quality Model

Water quality measures has been modelled using software MUSIC (version 6.3), the preliminary MUSIC layout is shown below in Figure 3-6. To be noted that the water quality modelling layout is preliminary, the catchment details are subject to change at a later stage.

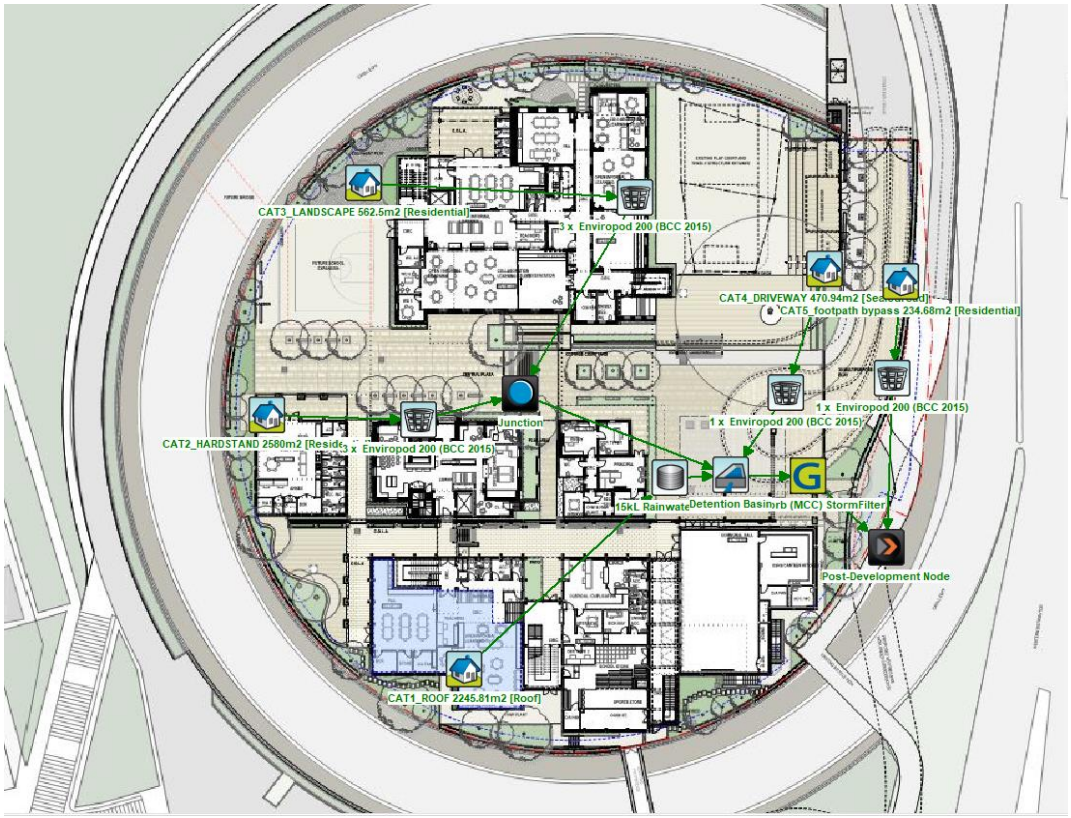
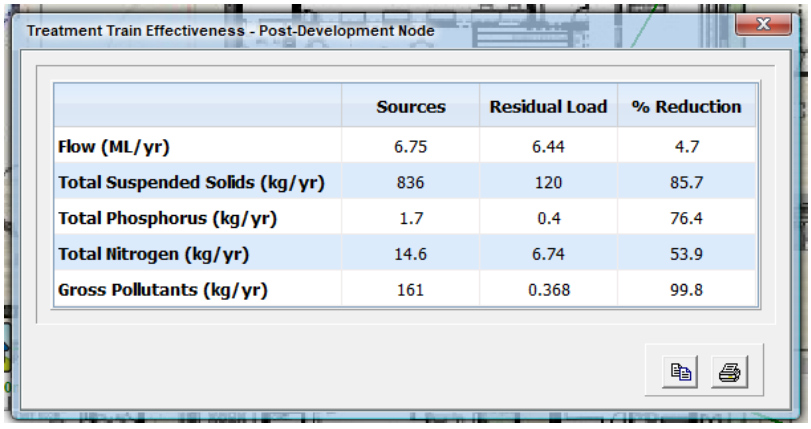


Figure 3-6 MUSIC Modelling Layout (Based on Architectural Plan Issued 06.12.2019)

3.3.3. Water Quality Results

The results of MUSIC modelling show that stormwater have been treated and the pollutant removal rate achieves pollutant reduction targets adopted by City of Sydney Council. The results from the MUSIC model are shown in Figure 3-7. MUSIC-link report is shown **in Appendix B**.



	Sources	Residual Load	% Reduction
Flow (ML/yr)	6.75	6.44	4.7
Total Suspended Solids (kg/yr)	836	120	85.7
Total Phosphorus (kg/yr)	1.7	0.4	76.4
Total Nitrogen (kg/yr)	14.6	6.74	53.9
Gross Pollutants (kg/yr)	161	0.368	99.8

Figure 3-7 MUSIC Modelling Results (Based on Architectural Plan Issued 06.12.2019)

3.3.4. Rainwater Tank

In accordance with City of Sydney DCP (2012), rainwater tanks are to be installed for all non-residential developments, including major alternations and additions that have access to roof form from which rainwater can be feasibly collected and pumped to appropriate end uses.

A rainwater tank has been modelled in MUSIC with the assumption that all roof water is to be directed into the rainwater tank via downpipes, and rainwater re-use is for outdoor use (irrigation) only. The rainwater sizing has not taken in account of hydraulic requirements, greenstar requirements, BASIX requirements or further requirements from Council.

Based on above assumptions, at least 15kL rainwater is required on site to meet 70% irrigation demand (sprinkler system). To be noted, the tank size is subject to change due to changes in landscape or architectural plans.

3.4. Drainage

The redevelopment will need to install a stormwater major/minor system. Pits and pipes will capture and convey run-off generated from minor storm events up to the 20 year average recurrence interval (ARI). It is likely the pit and pipe network will make connection to the existing 300mm VCP stormwater line running along the Cahill Expressway. It appears that this connects to the drainage into Cahill Expressway, which may be an RMS asset. Hence approval from RMS may be required.

Due to space constraints, an underground tank near the discharge point is proposed as a combination of OSD, rainwater tank and stormfilter cartridges. The preliminary stormwater layout is shown in Figure 3-8 and **Appendix C**,

Utilities (sewer, gas, electric etc.) near the proposed OSD location may require adjustment or relocation.

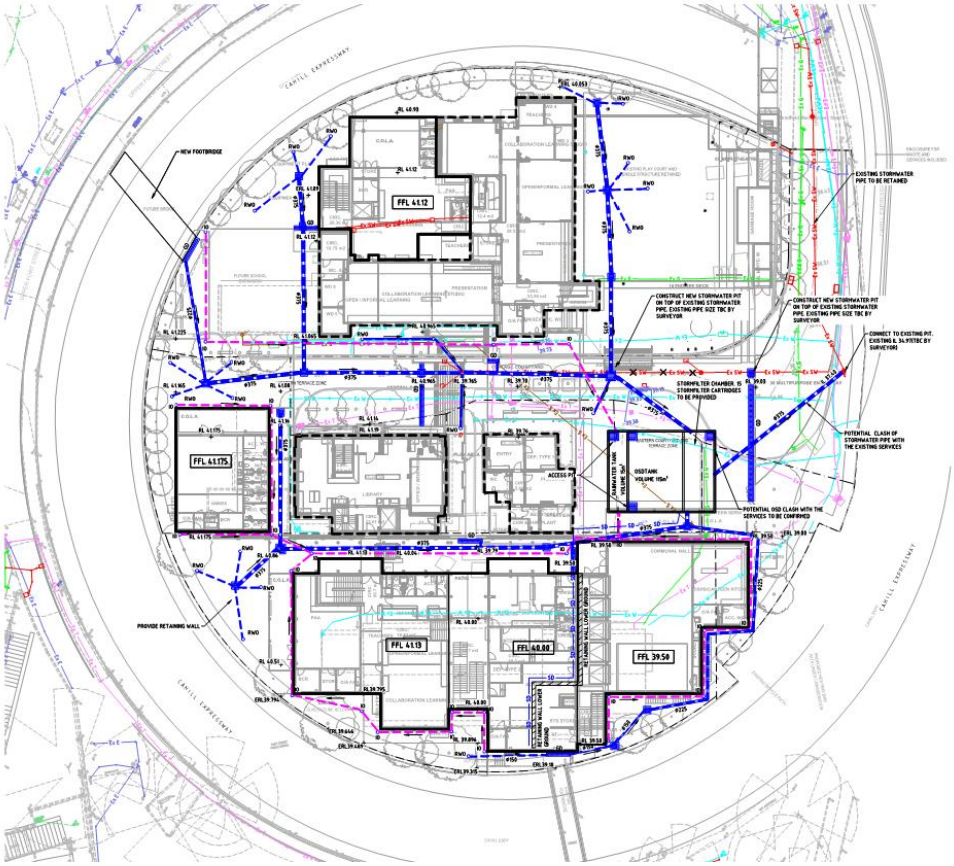


Figure 3-8 Schematic Stormwater Layout (Based on the architectural plans dated 06.12.19)

3.5. Erosion & Sediment Control (During Construction)

The erosion and sediment control measures for the site will be implemented during construction. The design of these measures is to be in accordance with the Landcom "Blue Book".

For erosion and sediment control of the site, the following measures are provided to minimise the risk of sediments laden runoff being discharged from the site:

- *A sediment fence/hoarding to be provided around the site*
- *Catch drain (or diversion bund) diverting external catchment away from site*
- *Temporary access to site with shaker pad*
- *An indicative stockpile area with sediment fence around it during construction. The stockpile must be located out of water flow paths (and be protected by earth banks/drains as required).*
- *Geotextile inlet pit filters or sandbags to be placed around existing stormwater pits.*
- *Water cart to spray excavated surfaces to reduce dust pollution.*

- *All disturbed areas are to be stabilised within 14 working days of the completion of earthworks. All disturbed areas are to be protected so that the land is permanently stabilised within six months.*

- *Sediment removed from any sediment trapping device shall be relocated where further pollution to downslope lands and waterways cannot occur.*

- *Water shall be prevented from entering the permanent drainage system unless it is sediment free. Drainage pits are to be protected in accordance with the final approved Sediment and Erosion Control Plan.*

- *Trapped sediment shall be removed immediately from areas subject to runoff or concentrated flow.*

- *Trapped sediment shall be removed where the capacity of sedimentation trapping devices fall below 60%.*

- *Revegetation schemes are to be adhered to and any grass coverings are kept healthy, including watering and mowing.*

Sediment and Erosion Control plans are shown in the SSDA Civil Design Plan in **Appendix C.**

4. COMPLIANCE WITH EDUCATION FACILITIES STANDARDS & GUIDELINES (EFSG)

There are no departures from EFSG in the Civil Design.

APPENDIX A – CORRESPONDENCE WITH SYDNEY WATER

Eve Wu

From: Stormwater <Stormwater@sydneywater.com.au>
Sent: Wednesday, 13 November 2019 10:48 AM
To: Eve Wu
Subject: RE: Fort Street Public School Redevelopment - Sydney Water OSD Requirements

Eve

The On-Site Detention requirements for the Fort Street Public School as per the given revised figures, are as follows:

- On Site Detention 115 cubic meter
- Permissible Site Discharge 207 L/s

The approval for the On-Site Detention would only be given as part of the Section 73 application for this development. The On-Site Detention is to be designed according to the above values and submitted to Sydney Water for approval with the Section 73 application. The following details are to be included in your submission for On Site Detention approval:

- Location of the On-Site Detention in relation to the development
- Location of the On-Site Detention in relation to overall stormwater network of the property
- Plan and Elevation of the On-Site Detention tank with all dimensions
- Orifice Plate calculations

Best Regards

Jeya Jeyadevan
Senior Capability Assessor
Liveable City Solutions
Sydney Water, Level 7, 1 Smith Street, Parramatta NSW 2150

Sydney WATER

Ph 02 8849 6118
Mob 0409 318 827
jeya.jeyadevan@sydneywater.com.au

From: Eve Wu <ewu@bonaccigroup.com>
Sent: Wednesday, 13 November 2019 10:29 AM
To: Stormwater <Stormwater@sydneywater.com.au>
Subject: RE: Fort Street Public School Redevelopment - Sydney Water OSD Requirements

Hi Jeya,

For the Fort Street Public School project, we have increased the impervious area. We have the following revised information to calculate PSD and SSR:

- Development address: Upper Fort St, Millers Point NSW
- Total site area: approximately 6200 m^2
- Existing pre-development impervious area: 4450 m^2
- Proposed post-development impervious area: 5204 m^2

Can you please give us an update on the PSD and SSR requirements soon? Thank you.

Regards,

Eve Wu
Civil Design Engineer

d: +61 2 8247 8419 **p:** +61 2 8247 8400
e: ewu@bonaccigroup.com
w: www.bonaccigroup.com
a: Level 6, 37 York Street, Sydney NSW 2000

From: Stormwater <Stormwater@sydneywater.com.au>
Sent: Wednesday, 21 August 2019 12:54 PM
To: Eve Wu <ewu@bonaccigroup.com>
Subject: RE: Fort Street Public School Redevelopment - Sydney Water OSD Requirements

Eve

The On-Site Detention requirements for the Fort Street Public School as per the given revised figures, are as follows:

- On Site Detention 119 cubic meter
- Permissible Site Discharge 210 L/s

The approval for the On-Site Detention would only be given as part of the Section 73 application for this development. The On-Site Detention is to be designed according to the above values and submitted to Sydney Water for approval with the Section 73 application. The following details are to be included in your submission for On Site Detention approval:

- Location of the On-Site Detention in relation to the development
- Location of the On-Site Detention in relation to overall stormwater network of the property
- Plan and Elevation of the On-Site Detention tank with all dimensions
- Orifice Plate calculations

Best Regards

Jeya Jeyadevan | **Senior Capability Assessor**
Liveable City Solutions | Sydney Water
Level 7, 1 Smith St Parramatta NSW 2150
PO Box 399 Parramatta NSW 2124
T 8849 6118 | **Mobile** 0409 318 827 | **Email**
jeya.jeyadevan@sydneywater.com.au
sydneywater.com.au

From: Eve Wu <ewu@bonaccigroup.com>
Sent: Wednesday, 21 August 2019 12:10 PM
To: Stormwater <Stormwater@sydneywater.com.au>
Subject: RE: Fort Street Public School Redevelopment - Sydney Water OSD Requirements

Hi,

Revised architectural plans have been provided for the Fort Street Public School. We have the following revised information to calculate PSD and SSR:

- Development address: Upper Fort St, Millers Point NSW
- Total site area: approximately 6341.5 m^2
- Existing pre-development impervious area: 4450 m^2
- Proposed post-development impervious area: 5146.8 m^2

Please let me know if above information is enough for PSD and SSR calculation.

Regards,

Eve Wu
Civil Design Engineer

d: +61 2 8247 8419 **p:** +61 2 8247 8400
e: ewu@bonaccigroup.com
w: www.bonaccigroup.com
a: Level 6, 37 York Street, Sydney NSW 2000

From: Stormwater <Stormwater@sydneywater.com.au>
Sent: Thursday, 11 July 2019 1:16 PM
To: Eve Wu <ewu@bonaccigroup.com>
Subject: Fort Street Public School Redevelopment - Sydney Water OSD Requirements

Hi Eve

The On-Site Detention requirements for the Fort Street Public School, are as follows:

- On Site Detention 115 cubic meter
- Permissible Site Discharge 207 L/s

The approval for the On-Site Detention would only be given as part of the Section 73 application for this development. The On-Site Detention is to be designed according to the above values and submitted to Sydney Water for approval with the Section 73 application. The following details are to be included in your submission for On Site Detention approval:

- Location of the On-Site Detention in relation to the development
- Location of the On-Site Detention in relation to overall stormwater network of the property
- Plan and Elevation of the On-Site Detention tank with all dimensions
- Orifice Plate calculations

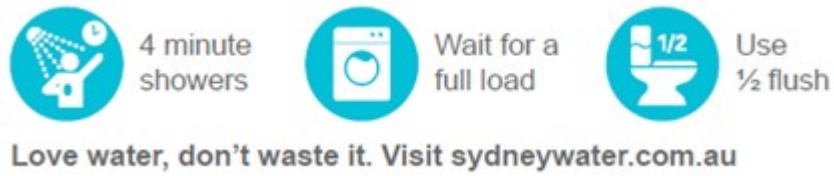
Cheers

Duncan

Duncan Laurie | Team Manager, Planning & Technical

City Growth & Development | Liveable Cities Solutions
1 Smith Street Parramatta
Mobile 0408 659 807
duncan.laurie@sydneywater.com.au

Sydney WATER



From: Eve Wu <ewu@bonaccigroup.com>
Sent: Tuesday, 9 July 2019 2:05 PM
To: Stormwater <Stormwater@sydneywater.com.au>
Subject: Fort Street Public School Redevelopment - Sydney Water OSD Requirements

Hi,

We are working on the Fort Street Public School redevelopment project for NSW Department of Education. We have the following information to calculate PSD and SSR:

- Development address: Upper Fort St, Millers Point NSW
- Total site area: approximately 6200 m^2
- Existing pre-development impervious area: 4450 m^2
- Proposed post-development impervious area: 4998.42 m^2

Please let me know if above information is enough for PSD and SSR calculation.

Regards,

Eve Wu
Civil Designer Engineer

d: +61 2 8247 8419 **p:** +61 2 8247 8400
e: ewu@bonaccigroup.com
w: www.bonaccigroup.com
a: Level 6, 37 York Street, Sydney NSW 2000

From: Eve Wu
Sent: Tuesday, 9 July 2019 10:27 AM
To: JEYA.JEYADEVAN@sydneywater.com.au
Cc: Amir Bagheri <abagheri@bonaccigroup.com>; Stephen Naughton <snaughton@bonaccigroup.com>
Subject: RE: Fort Street Public School Redevelopment - Sydney Water OSD Requirements

Hi Jeya,

Regarding the Fort Street Public School Redevelopment (see email below), we have the following information to calculate PSD and SSR:

- Development address: Upper Fort St, Millers Point NSW
- Total site area: approximately 6200 m^2
- Existing pre-development impervious area: 4450 m^2
- Proposed post-development impervious area: 4998.42 m^2

Please let me know if above information is enough for PSD and SSR calculation.

Regards,

Eve Wu
Civil Designer Engineer

d: +61 2 8247 8419 **p:** +61 2 8247 8400
e: ewu@bonaccigroup.com
w: www.bonaccigroup.com
a: Level 6, 37 York Street, Sydney NSW 2000

From: JEYADEVAN, JEYA <JEYA.JEYADEVAN@sydneywater.com.au>
Sent: Wednesday, 1 May 2019 9:31 AM
To: Stephen Naughton <snaughton@bonaccigroup.com>; Jacky Hu <jhu@bonaccigroup.com>
Cc: Amir Bagheri <abagheri@bonaccigroup.com>
Subject: RE: Fort Street Public School Redevelopment - Sydney Water OSD Requirements

Stephen,

On Site Detention is required for any new development at this location.

If the whole site is redeveloped then On Site Detention need to be provided for the whole site. You need to provide the following information to calculate the On Site Detention and Permissible Site Discharge:

- Total site area
- Pre development impervious area
- Post development impervious area

If you are only developing the portion of the site, then On Site Detention need to be provided for that portion of the development. You need to provide the following information to calculate the On Site Detention and Permissible Site Discharge:

- Portion of the site area that will be developed
- Pre development impervious area of the portion of the site that would be developed
- Post development impervious area of the portion of the site that would be developed

Best Regards

Sydney WATER

Jeya Jeyadevan | **Senior Capability Assessor**
Liveable City Solutions | Sydney Water
Level 7, 1 Smith St Parramatta NSW 2150
PO Box 399 Parramatta NSW 2124
T 8849 6118 | **Mobile** 0409 318 827 | **Email**
jeya.jeyadevan@sydneywater.com.au
sydneywater.com.au

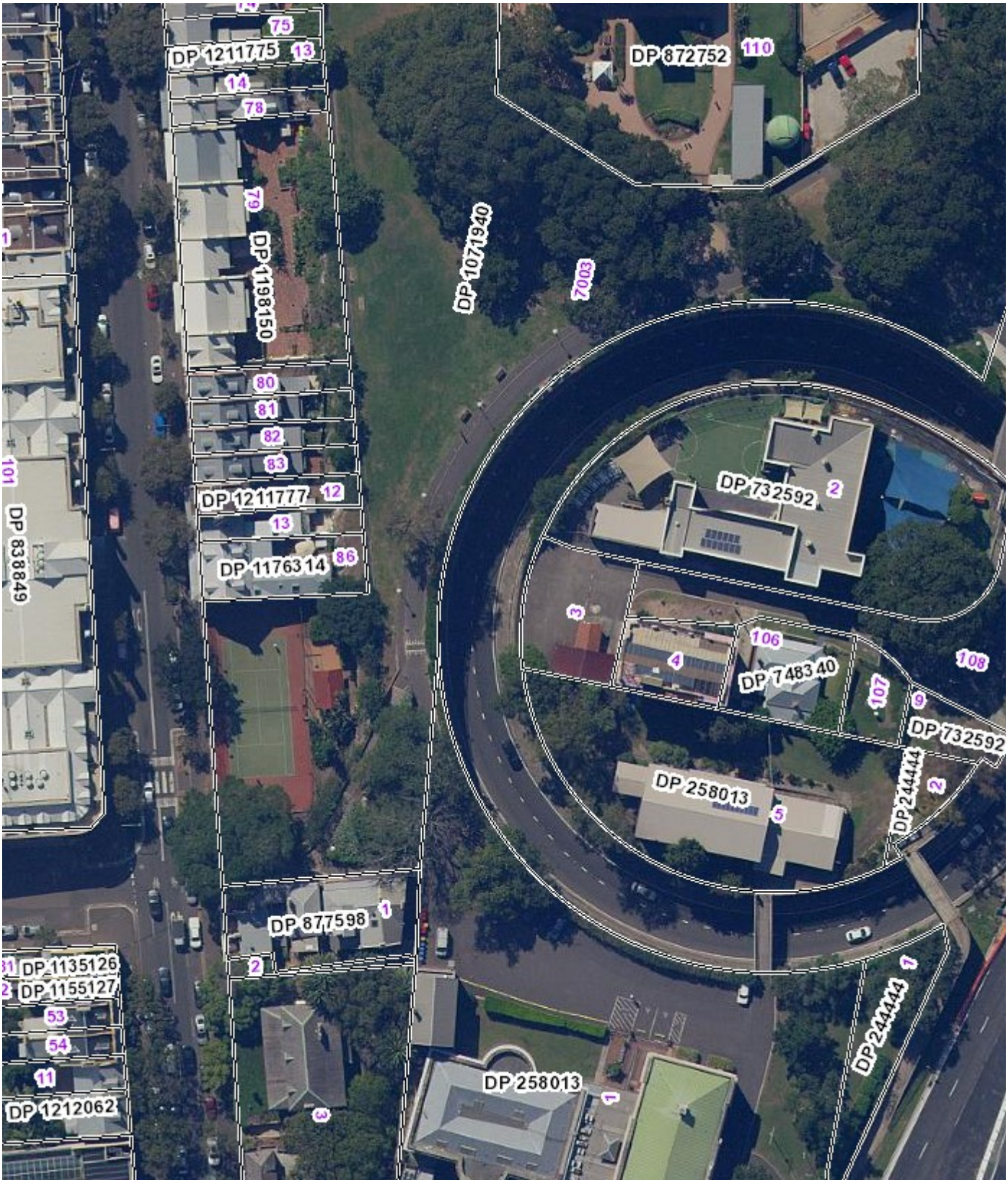
From: Stephen Naughton <snaughton@bonaccigroup.com>
Sent: Thursday, 18 April 2019 9:01 AM
To: JEYADEVAN, JEYA <JEYA.JEYADEVAN@sydneywater.com.au>; Jacky Hu <jhu@bonaccigroup.com>
Cc: Amir Bagheri <abagheri@bonaccigroup.com>
Subject: Fort Street Public School Redevelopment - Sydney Water OSD Requirements

Hi Jeya,
We are working on the Fort Street Public School redevelopment project for NSW Department of Education. There will be a new school built on the existing school site – existing buildings will be reused where possible, with additional buildings also being constructed. The site is bordered by the Cahill Expressway – there may be a proposal to partially cap the Cahill Expressway loop to provide more space for the school (utilise the area shown in the photo below).
We do not have an architectural layout yet, but I expect that there will potentially be an increase in impervious area. I have shown a screenshot of the site below (aerial photo plus map view showing site boundary).

We have contacted City of Sydney who advised that we need to comply with all their DCP requirements for stormwater (Water Quality in this case) and that we should contact Sydney Water to check for any OSD requirements. City of Sydney have provided drainage plans (attached) which indicate that stormwater from the area (including the road) is conveyed in a railway tunnel (1.8m by 0.9m) to Cumberland Street and then into Circular Quay discharge.

Could you please advise of any requirements that Sydney Water may have for the project (with regard to Stormwater)?

Please give me a call if you need any further information.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DP 732592
DP 258013
5
DP 244444
2
DP 877598
1
2
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54
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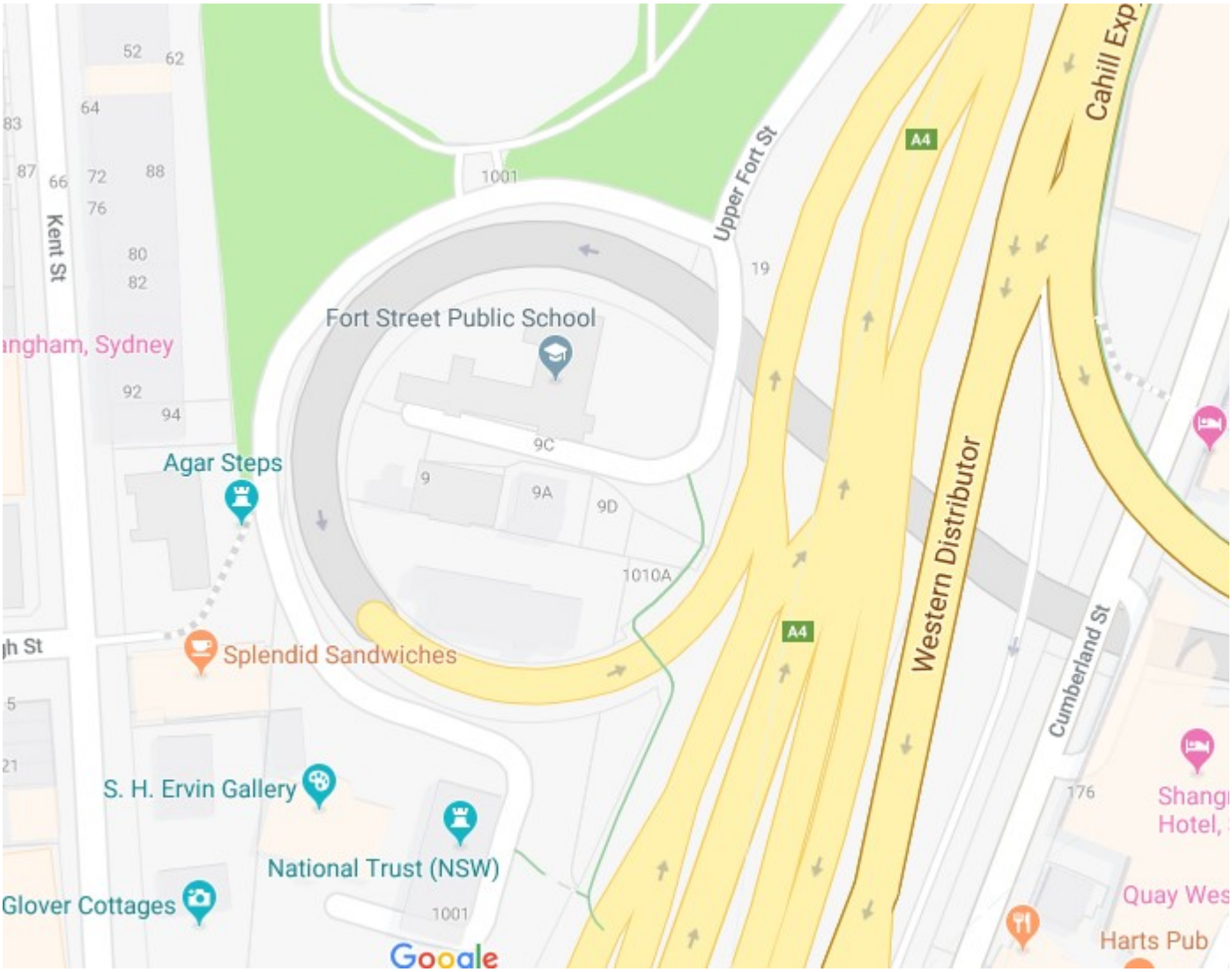
1


Fort Street Public School
Agar Steps
Splendid Sandwiches
S. H. Ervin Gallery
National Trust (NSW)
Glover Cottages
Kent St
Upper Fort St
Western Distributor
Cahill Exp
Cumberland St
A4
Harts Pub
Google

Regards,

Stephen Naughton
MIEAust CPEng NER RPEQ
Associate Director

d: +61 2 8247 8422 **p:** +61 2 8247 8400 **m:** 0403 172 338
e: snaughton@bonaccigroup.com
w: www.bonaccigroup.com
a: Level 6, 37 York Street, Sydney NSW 2000 Australia

APPENDIX B – MUSIC LINK REPORT

MUSIC-*link* Report

Project Details		Company Details	
Project:	Fort Street Public School Redevelopment	**Company:**	Bonacci
Report Export Date:	13/12/2019	**Contact:**	
Catchment Name:	191213 Fort St MUSIC	**Address:**	
Catchment Area:	0.614ha	**Phone:**	
Impervious Area*:	83.73%	**Email:**	
Rainfall Station:	66062 SYDNEY		
Modelling Time-step:	6 Minutes		
Modelling Period:	1/01/1982 - 31/12/1986 11:54:00 PM		
Mean Annual Rainfall:	1278mm		
Evapotranspiration:	1265mm		
MUSIC Version:	6.3.0		
MUSIC-link data Version:	6.32		
Study Area:	City of Sydney Sandy Soil		
Scenario:	City of Sydney Development		

* takes into account area from all source nodes that link to the chosen reporting node, excluding Import Data Nodes

Treatment Train Effectiveness		Treatment Nodes		Source Nodes	
Node: Post-Development Node	**Reduction**	**Node Type**	**Number**	**Node Type**	**Number**
Flow	4.66%	Rain Water Tank Node	1	Urban Source Node	5
TSS	85.7%	Detention Basin Node	1		
TP	76.4%	GPT Node	4		
TN	53.9%	Generic Node	1		
GP	99.8%				

Comments

MUSIC

Passing Parameters

Node Type	Node Name	Parameter	Min	Max	Actual
Detention	Detention Basin	% Reuse Demand Met	None	None	0
GPT	1 x Enviropod 200 (BCC 2015)	Hi-flow bypass rate (cum/sec)	None	99	0.02
GPT	1 x Enviropod 200 (BCC 2015)	Hi-flow bypass rate (cum/sec)	None	99	0.02
GPT	3 x Enviropod 200 (BCC 2015)	Hi-flow bypass rate (cum/sec)	None	99	0.06
GPT	3 x Enviropod 200 (BCC 2015)	Hi-flow bypass rate (cum/sec)	None	99	0.06
Post	Post-Development Node	% Load Reduction	None	None	4.66
Post	Post-Development Node	GP % Load Reduction	90	None	99.8
Post	Post-Development Node	TN % Load Reduction	45	None	53.9
Post	Post-Development Node	TP % Load Reduction	65	None	76.4
Post	Post-Development Node	TSS % Load Reduction	85	None	85.7
Rain	15kL Rainwater Tank	% Reuse Demand Met	None	None	78.65
Urban	CAT1_ROOF 2245.81m2	Area Impervious (ha)	None	None	0.225
Urban	CAT1_ROOF 2245.81m2	Area Pervious (ha)	None	None	0
Urban	CAT1_ROOF 2245.81m2	Total Area (ha)	None	None	0.225
Urban	CAT2_HARDSTAND 2580m2	Area Impervious (ha)	None	None	0.218
Urban	CAT2_HARDSTAND 2580m2	Area Pervious (ha)	None	None	0.039
Urban	CAT2_HARDSTAND 2580m2	Total Area (ha)	None	None	0.258
Urban	CAT3_LANDSCAPE 562.5m2	Area Impervious (ha)	None	None	0
Urban	CAT3_LANDSCAPE 562.5m2	Area Pervious (ha)	None	None	0.06
Urban	CAT3_LANDSCAPE 562.5m2	Total Area (ha)	None	None	0.06
Urban	CAT4_DRIVEWAY 470.94m2	Area Impervious (ha)	None	None	0.047
Urban	CAT4_DRIVEWAY 470.94m2	Area Pervious (ha)	None	None	0
Urban	CAT4_DRIVEWAY 470.94m2	Total Area (ha)	None	None	0.047
Urban	CAT5_footpath bypass 234.68m2	Area Impervious (ha)	None	None	0.024
Urban	CAT5_footpath bypass 234.68m2	Area Pervious (ha)	None	None	0
Urban	CAT5_footpath bypass 234.68m2	Total Area (ha)	None	None	0.024

Only certain parameters are reported when they pass validation

Failing Parameters

Node Type	Node Name	Parameter	Min	Max	Actual
Detention	Detention Basin	Evaporative Loss as % of PET	100	100	0
Detention	Detention Basin	Total Nitrogen - k (m/yr)	500	500	0
Detention	Detention Basin	Total Phosphorus - k (m/yr)	6000	6000	0
Detention	Detention Basin	Total Suspended Solids - k (m/yr)	8000	8000	0

Only certain parameters are reported when they pass validation

APPENDIX C – CIVIL SSDA DESIGN PLANS

11543 - FORT STREET PUBLIC SCHOOL OBSERVATORY HILL, NSW 2000

DRAWING REGISTER AND CONSTRUCTION NOTES - CIVIL & STORMWATER

DRAWING No.	DESCRIPTION
1154301C-C001	DRAWING REGISTER AND CONSTRUCTION NOTES
1154301C-C005	SEDIMENT AND EROSION CONTROL PLAN
1154301C-C007	SEDIMENT AND EROSION CONTROL DETAILS
1154301C-C010	BULK EARTHWORKS PLAN
1154301C-C015	BULK EARTHWORKS LONGITUDINAL SECTIONS SHEET 1
1154301C-C016	BULK EARTHWORKS LONGITUDINAL SECTIONS SHEET 2
1154301C-C017	BULK EARTHWORKS LONGITUDINAL SECTIONS SHEET 3
1154301C-C018	BULK EARTHWORKS LONGITUDINAL SECTIONS SHEET 4
1154301C-C030	SCHEMATIC STORMWATER PLAN
1154301C-C065	OSD TANK SECTION

GENERAL NOTES

G1 THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ARCHITECTURAL AND OTHER CONSULTANTS DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS OR SKETCHES AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE SUPERINTENDENT BEFORE PROCEEDING WITH WORK.

G2 MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE SPECIFICATION, CURRENT SAA CODES, BUILDING REGULATIONS AND THE REQUIREMENTS OF ANY OTHER RELEVANT STATUTORY AUTHORITIES.

G3 THESE DRAWINGS MUST NOT BE SCALED. ALL DIMENSIONS ARE IN METERS. ALL SET OUT DIMENSIONS AND LEVELS, INCLUDING THOSE SHOWN ON THESE DRAWINGS SHALL BE IN ACCORDANCE WITH THE ARCHITECT'S DRAWINGS AND VERIFIED ON SITE.

G4 ALL SETOUT AND DIMENSIONS OF THE STRUCTURE INCLUDING KERBS AND RETAINING WALLS, AND BULK EARTHWORKS MUST BE TAKEN FROM THE ARCHITECT'S DRAWINGS. SETOUT OF THE STORMWATER PITS BY OTHERS. CONTRACTOR TO CONFIRM SETOUT OF SERVICE TRENCHING INCLUDING SUBSOIL ON SITE.

G5 THE CONTRACTOR SHALL COMPLY WITH ALL REGULATIONS OF AUTHORITIES HAVING JURISDICTON OVER THE WORKS. REFER TO GEOTECHNICAL REPORT BY ..... PTY LTD DATED .....

G6 ALL DIMENSIONS AND REDUCED LEVELS MUST BE VERIFIED ON SITE BEFORE THE COMMENCEMENT OF ANY WORK.

G7 THE APPROVAL OF A SUBSTITUTION SHALL BE SOUGHT FROM THE SUPERINTENDENT BUT IS NOT AN AUTHORISATION OF A COST VARIATION. THE SUPERINTENDENT MUST APPROVE ANY COST VARIATION INVOLVED BEFORE ANY WORK STARTS.

G8 ALL LEVELS SHOWN ARE TO THE AUSTRALIAN HEIGHT DATUM.

G9 SERVICE INFORMATION SHOWN IS APPROXIMATE ONLY. PRIOR TO COMMENCEMENT OF ANY WORKS, THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND SERVICES AND COMPLY WITH ALL REQUIREMENTS OF THOSE AUTHORITIES.

G10 EXISTING SURFACE CONTOURS, WHERE SHOWN, ARE INTERPOLATED AND MAY NOT BE ACCURATE.

G11 UNLESS NOTED OTHERWISE, ALL VEGETATION SHALL BE STRIPPED TO A MINIMUM DEPTH OF 150mm UNDER ALL PROPOSED PAVEMENT AND BUILDING AREAS.

G12 MAKE SMOOTH CONNECTION WITH ALL EXISTING WORKS.

SITEWORKS NOTES

S1 PRIOR TO THE PLACEMENT OF ANY PAVEMENTS, BUILDINGS OR DRAINS THE EXPOSED SUBGRADE SHALL BE COMPACTED TO A MINIMUM OF 98% STANDARD COMPACTION IN ACCORDANCE WITH TEST 'E1.1' OF A.S. 1289 FOR THE TOP 300mm. ANY SOFT SPOTS SHALL BE REMOVED AND REPLACED WITH GRANULAR FILL TO THE ENGINEERS APPROVAL AND COMPACTED IN ACCORDANCE WITH THE COMPACTION REQUIREMENTS SET OUT BELOW. ON HIGHLY REACTIVE CLAY AREAS SITE EXCAVATED MATERIAL MAY BE USED WITH THE PRIOR AUTHORISATION OF THE ENGINEER.

S2 ALL FILL AND PAVEMENT MATERIALS SHALL BE COMPACTED IN ACCORDANCE WITH GEOTECHNICAL REPORT BY ..... PTY LTD DATED ..... MOISTURE CONTENT TO BE MAINTAINED AT +/- 2% OMC. MINIMUM COMPACTION REQUIREMENTS ARE DETAILED BELOW FOR (ALL REQUIREMENTS ARE TO VERIFIED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER):

- LANDSCAPED AREAS — 98% STD.
- FILL UNDER ANY FOOTINGS AND FLOOR SLABS FOR ANY STRUCTURE TO SUBGRADE LEVEL;
  - FINE CRUSHED ROCK — 98% STD.
  - SELECTED FILL WITHOUT CONSPICUOUS CLAY CONTENT — 98% STD.
- BUILDING BASECOURSE — 98% MOD
- FILL UNDER ROAD PAVEMENTS;
  - TO WITHIN 500mm OF FINISHED SUBGRADE LEVEL — 98% STD.
  - UP TO FINISHED SUBGRADE LEVEL — 98% STD.
- ROAD PAVEMENT MATERIALS;
  - SUB BASE — 98% MOD.
  - BASE COURSE — 98% MOD.

THE MAXIMUM COMPACTION IS TO BE NO GREAT THAN 4% ON TOP OF THE ABOVE MENTION VALUES.

S3 GRADE EVENLY BETWEEN FINISHED SURFACE SPOT LEVELS. FINISHED SURFACE CONTOURS ARE SHOWN FOR CLARITY. WHERE FINISHED SURFACE LEVELS ARE NOT SHOWN, THE SURFACE SHALL BE GRADED SMOOTHLY SO THAT IT WILL DRAIN AND MATCH ADJACENT SURFACES OR STRUCTURES.

S4 ALL DIMENSIONS GIVEN ARE TO FACE OF KERB, CENTER OF PIPE OR EXTERIOR FACE OF BUILDING UNLESS NOTED OTHERWISE.

S5 ANY STRUCTURES, PAVEMENTS OR SURFACES DAMAGED, DIRTIED OR MADE UNSERVICABLE DUE TO CONSTRUCTION WORK SHALL BE REINSTATED TO THE SATISFACTION OF THE ENGINEER.

S6 ANY FILL REQUIRED SHALL BE APPROVED BY THE ENGINEER / GEOTECHNICAL CONSULTANT

S7 CONTRACTOR IS TO ENSURE THAT ALL EXCAVATIONS ARE MAINTAINED IN A DRY CONDITION WITH NO WATER ALLOWED TO REMAIN IN THE EXCAVATIONS.

S8 ALL FINISHES AND COLOURS TO BE IN ACCORDANCE WITH ARCHITECTURAL SPECIFICATIONS.

S9 REFER TO STRUCTURAL DRAWINGS FOR CONCRETE, REINFORCEMENT AND RETAINING WALL DETAILS.

S10 GENERALLY FOR TRENCHING WORKS THE CONTRACTOR MUST:
A) COMPLY WITH THE GENERAL PROVISIONS OF PART 3.1 "MANAGING RISKS TO HEALTH AND SAFETY" OF NSW WORK AND HEALTH AND SAFETY REGULATION 2011

B) COMPLY PART 6.3 DIVISION 3 "EXCAVATION WORK" OF NSW WORK HEALTH AND SAFETY REGULATION NSW 2011

S11 PRIOR TO THE EXCAVATION OF ANY TRENCH DEEPER THAN 1.5 METRES THE CONTRACTOR MUST:
A) NOTIFY THE OCCUPATIONAL HEALTH AND SAFETY AUTHORITY ON THE APPROPRIATE FORM.

JOINTING NOTES

PEDESTRIAN FOOTPATH JOINTS

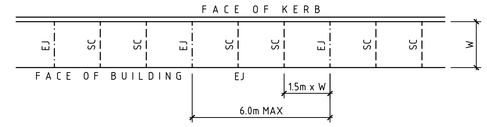
J1 EXPANSION JOINTS (EJ) ARE TO BE LOCATED WHERE POSSIBLE AT TANGENT POINTS OF CURVES AND ELSEWHERE AT 6m CENTRES.

J2 SAWCUT JOINTS (SC) ARE TO BE LOCATED AT A MAX 1.5m x WIDTH OF PAVEMENT. THE TIMING OF THE SAWCUT IS TO BE CONFIRMED BY THE CONTRACTOR ON SITE. SITE CONDITIONS WILL DETERMINE HOW MANY HOURS AFTER THE CONCRETE POUR BEFORE THE SAW CUTS ARE COMMENCED.

J3 WHERE POSSIBLE JOINTS SHOULD BE LOCATED TO MATCH KERBING AND / OR ADJACENT PAVEMENT JOINTS.

J4 PROVIDE 10mm WIDE FULL DEPTH EXPANSION JOINTS (EJ) BETWEEN BUILDINGS AND ALL CONCRETE OR UNIT PAVERS

J5 ALL PEDESTRIAN FOOTPATH JOINTINGS AS FOLLOWS (U.N.O.).



VEHICULAR PAVEMENT JOINTS

J6 ALL VEHICULAR PAVEMENTS TO BE JOINTED AS SHOWN ON DRAWINGS.

J7 LONGITUDINAL WARPING JOINTS (LWJ) SHOULD GENERALLY BE LOCATED AT A MAXIMUM OF 3m TO 4.5m MAX CENTERS. ALL LWJ's SHOULD BE TIED UP TO A MAXIMUM TOTAL WIDTH OF 30m.

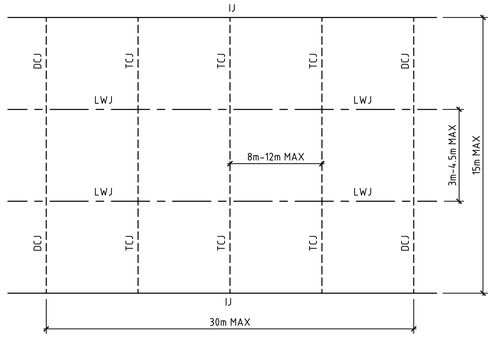
J8 TRANSVERSE CONTRACTION JOINTS (TCJ) SHOULD GENERALLY BE LOCATED AT A MAXIMUM OF 8m TO 12m MAX CENTERS. TCJ's CAN BE SPACED AT SUITABLE INTERVALS UP TO A RECOMMENDED MAXIMUM LENGTH OF 15m.

J9 TRANSVERSE DOWELLED CONSTRUCTION JOINTS (DCJ) TO BE PROVIDED FOR PLANNED INTERRUPTIONS SUCH AS AT THE END OF EACH DAY'S OPERATIONS (POUR BREAK), AT BLOCK OUTS FOR BRIDGES AND INTERSECTIONS OR FOR UNEXPECTED DELAYS WHEN THE SUSPENSION OF OPERATIONS IS LIKELY TO CREATE A JOINT.

J10 ISOLATION JOINTS WITH SUB-GRADE BEAM (IJ) TO BE PROVIDED AT INTERSECTIONS OR AT THE JUNCTION OF A POUR BREAK.

J11 ALL VEHICULAR PAVEMENTS TO BE JOINTED IN ACCORDANCE WITH AUSTROADS AGPT02-12 GUIDE TO PAVEMENT TECHNOLOGY PART 2 STRUCTURAL PAVEMENT DESIGN AND SUPPLEMENT AP-T36-06 PAVEMENT DESIGN FOR LIGHT TRAFFIC

J12 VEHICULAR PAVEMENT JOINTING AS FOLLOWS (U.N.O.)



KERBING NOTES

K1 ALL CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 32 MPa U.N.O.

K2 ALL KERBS, GUTTERS, DISH DRAINS AND CROSSINGS TO BE CONSTRUCTED ON 75mm GRANULAR BASECOURSE COMPACTED TO A MINIMUM 98% MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS1289 5.2.1.

K3 EXPANSION JOINTS (EJ) TO BE FORMED FROM 10mm COMPRESSIBLE CORK FILLER BOARD FOR THE FULL DEPTH OF THE SECTION AND CUT TO PROFILE. EXPANSION JOINTS TO BE LOCATED AT DRAINAGE PITS, ON TANGENT POINTS OF CURVES AND ELSEWHERE AT MAX 12m CENTRES EXCEPT FOR INTEGRAL KERBS WHERE THE EXPANSION JOINTS ARE TO MATCH THE JOINT LOCATIONS IN THE SLAB.

K4 WEAKENED PLANE JOINTS TO BE MIN 3mm WIDE AND LOCATED AT 3m CENTRES EXCEPT FOR INTEGRAL KERBS WHERE THE WEAKENED PLANE JOINTS ARE TO MATCH THE JOINT LOCATIONS IN THE SLAB.

K5 BROOMED FINISH TO ALL RAMPED AND VEHICULAR CROSSINGS. ALL OTHER KERBING OR DISH DRAINS TO BE STEEL FLOAT FINISHED.

K6 IN THE REPLACEMENT OF KERBS:-
- EXISTING ROAD PAVEMENT IS TO BE SAWCUT 900mm U.N.O. FROM THE LIP OF GUTTER. UPON COMPLETION OF THE NEW KERB AND GUTTER, NEW BASECOURSE AND SURFACE TO BE LAID 600mm WIDE U.N.O.
- EXISTING KERBS ARE TO BE COMPLETELY REMOVED WHERE NEW KERBS ARE SHOWN.

STORMWATER DRAINAGE NOTES

SW1 UNLESS NOTED OTHERWISE BY HYDRAULIC ENGINEERS DRAWINGS, ALL DOWNPIPES & GRATED INLETS SHALL BE CONNECTED TO PITS OR MAIN STORMWATER DRAINS WITH 150 DIA. UPVC PIPES LAID AT A MINIMUM GRADE OF 1 IN 100. FOR SYPHONIC ROOF DRAINAGE SYSTEMS ALL DOWNPIPES CONNECTION DRAIN SIZES TO BE CONNECTED INTO MAIN STORMWATER DRAINS SHALL BE IN ACCORDANCE WITH HYDRAULIC ENGINEERS DRAWINGS.

SW2 ALL MAIN STORMWATER DRAINS SHALL BE CONSTRUCTED USING MATERIALS AS SPECIFIED ON THE DRAWINGS IN ACCORDANCE WITH THE APPROPRIATE A.S. IF NOT SPECIFIED THEN CLASS 2 RRJ RCP SHALL BE USED FOR DIAMETERS > 225mm. SEWER CLASS SEH UPVC IN ACCORDANCE WITH AS1260 SHALL BE USED FOR Ø225mm OR SMALLER.

SW3 ALL PIPEWORK TO BE INSTALLED IN ACCORDANCE WITH AS3725 FOR RCP AND AS2032 FOR PVC. ALL BEDDING TO BE TYPE H2 UNLESS NOTED OTHERWISE.

SW4 FOR ALL PITS > 1.2m DEEP, STEP IRONS SHALL BE INSTALLED.

SW5 PRECAST PITS MAY BE USED EXTERNAL TO THE BUILDING SUBJECT TO APPROVAL BY BONACCI GROUP.

SW6 ENLARGERS, CONNECTIONS AND JUNCTIONS TO BE PREFABRICATED FITTINGS WHERE PIPES ARE LESS THAN 300 DIA.

SW7 WHERE SUBSOIL DRAINS PASS UNDER FLOOR SLABS AND VEHICULAR PAVEMENTS, UNSLOTTED uPVC SEWER GRADE PIPE IS TO BE USED.

SW8 GRATES AND COVERS SHALL CONFORM WITH AS 3996 AND AS 1428.1 FOR ACCESS REQUIREMENTS.

SW9 CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES ARE NOT TO BE REDUCED WITHOUT APPROVAL.

SW10 AT ALL TIMES DURING CONSTRUCTION OF STORMWATER PITS, ADEQUATE SAFETY PROCEDURES SHALL BE TAKEN TO ENSURE AGAINST THE POSSIBILITY OF PERSONNEL FALLING DOWN PITS.

SW11 ALL EXISTING STORMWATER DRAINAGE LINES AND PITS THAT ARE TO REMAIN ARE TO BE INSPECTED AND CLEANED. DURING THIS PROCESS ANY PART OF THE STORMWATER DRAINAGE SYSTEM THAT WARRANTS REPAIR SHALL BE REPORTED TO THE SUPERINTENDENT/ENGINEER FOR FURTHER DIRECTIONS.

Rev	Description	Date	By	App
P2	ISSUED FOR SSDA	13.12.19	JF	-
P1	ISSUED FOR 90% SD	14.11.19	PA	-

FORT STREET PUBLIC SCHOOL
OBSERVATORY HILL
SYDNEY NSW 2000

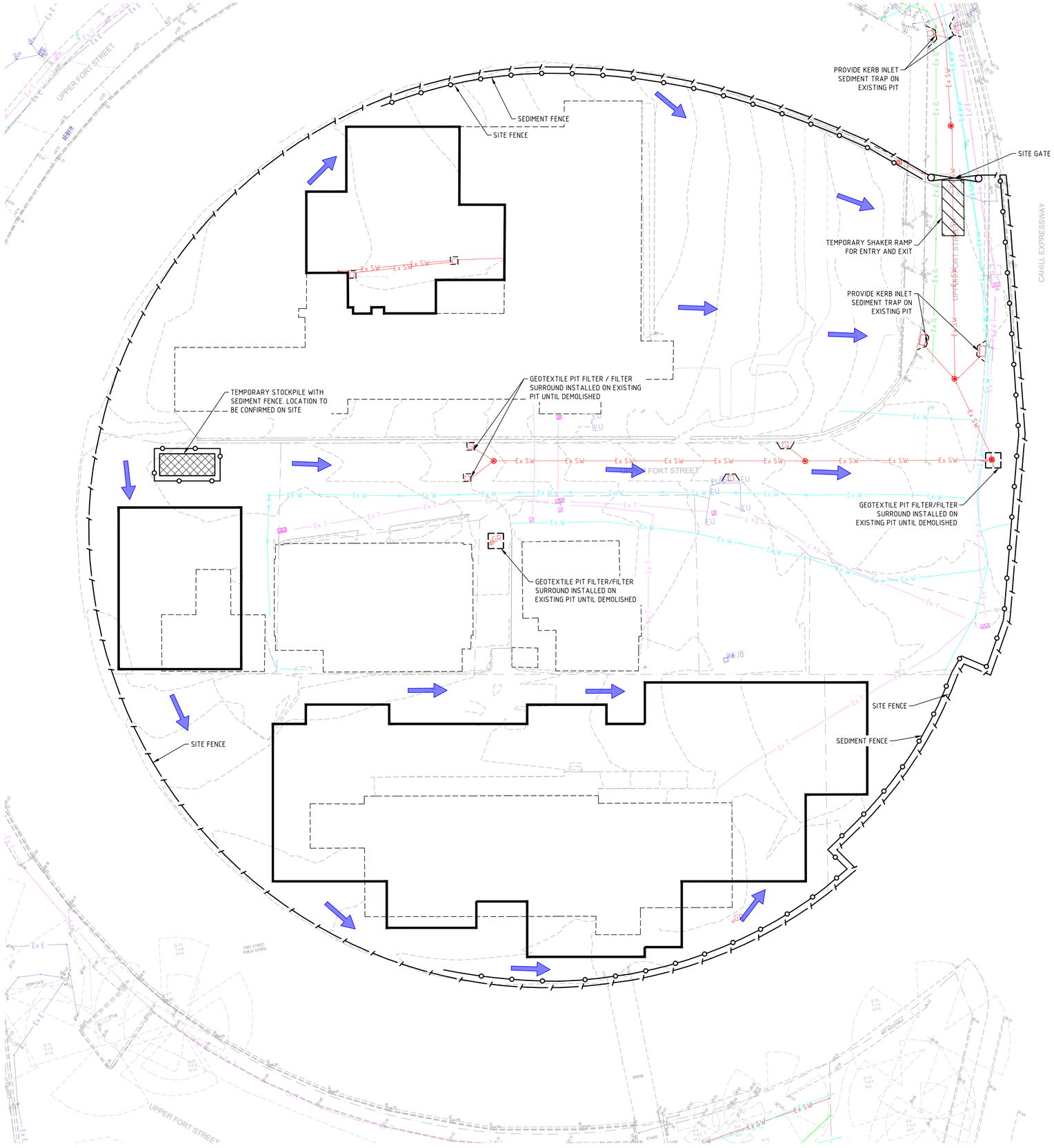
BONACCI

BONACCI GROUP (NSW) Pty Ltd
ABN 29 102 716 352
Consulting Engineers, Structural - Civil - Infrastructure
Level 6, 37 York Street, Sydney, NSW 2000 Australia
Tel: +61 2 8247 8400 Fax: +61 2 8247 8444
sydney@bonaccigroup.com
www.bonaccigroup.com

DRAWING REGISTER AND CONSTRUCTION NOTES

STATE SIGNIFICANCE DEVELOPMENT APPLICATION

Designed	PA	Project Director Approved	Date
Drawn	PA		North
Scale	-	Project Ref	Drawing No / Rev
Date	OCT 2019	11543 01	C001 / P2
Sheet	A1		



SEDIMENT AND EROSION CONTROL NOTES

1. IT HAS BEEN ASSUMED THAT HOARDINGS/SILT FENCING WILL BE PROVIDED TO THE STAGE BOUNDARY SUFFICIENT TO PREVENT SEDIMENT RUNOFF FROM LEAVING SITE (EXCEPT IN THE CASE OF ENTRY/EXIT LOCATIONS WHERE TEMPORARY CONSTRUCTION ENTRY/EXIT SEDIMENT TRAP ARE PROVIDED). IF THIS IS NOT THE CASE, PROVIDE SEDIMENT FENCE TO STANDARD DETAIL BELOW AS REQUIRED TO PREVENT SEDIMENT FROM LEAVING SITE, DIRECT RUNOFF TO SEDIMENT BASIN.
2. ALL SEDIMENT CONTROL MEASURES TO BE INSTALLED IN ACCORDANCE WITH LANDCOM MANAGING URBAN STORMWATER "BLUE BOOK".
3. SEDIMENT CONTROL FOR LANDSCAPED WORKS DOWNSTREAM OF THE BUILDING TO INCLUDE A SILTFENCE AND SANDBAGS AS REQUIRED. INSTALL BUND TO DIVERT UPSTREAM CATCHMENT AWAY FROM DISTURBED SOIL AREA.

SEDIMENT CONTROL CONDITIONS

1. SEDIMENT FENCES WILL BE INSTALLED AS SHOWN AND ELSEWHERE AT THE DISCRETION OF THE SITE MANAGER TO CONTAIN COARSER SEDIMENT FRACTIONS INCLUDING AGGREGATED FINES) AS NEAR AS POSSIBLE TO THEIR SOURCE.
2. SEDIMENT REMOVED FROM ANY TRAPPING DEVICE WILL BE RELOCATED WHERE FURTHER POLLUTION TO DOWNSLOPE LANDS & WATERWAYS CANNOT OCCUR.
3. STOCKPILES WILL BE PLACED WHERE SHOWN ON DRAWING OR ELSEWHERE AT THE DISCRETION OF THE SITE MANAGER AND NOT WITHIN 5m OF HAZARD AREAS INCLUDING LIKELY AREAS OF HIGH VELOCITY FLOWS SUCH AS WATERWAYS, PAVED AREAS & DRIVEWAYS.
4. WATER WILL BE PREVENTED FROM DIRECTLY ENTERING THE PERMANENT DRAINAGE SYSTEM WITH INLET FILTERS (SEE DETAILS) UNLESS IT IS SEDIMENT FREE.
5. TEMPORARY SEDIMENT TRAPS WILL BE RETAINED UNTIL AFTER THE LANDS THEY ARE PROTECTING ARE COMPLETELY REHABILITATED.
6. CONTRACTOR TO DESIGN/SIZE/CONSTRUCT TEMPORARY SEDIMENT BASIN, WATER SHOULD BE ALLOWED TO SETTLE BEFORE DISCHARGE. CONTRACTOR MUST VERIFY THAT WATER QUALITY MEETS AUTHORITIES REQUIREMENTS PRIOR TO DISCHARGE . ACCUMULATED SEDIMENT SHOULD THEN BE REMOVED & DISPOSED OF IN ACCORDANCE WITH ENVIRONMENTAL MANAGEMENT PROCEDURES.

SITE INSPECTION & MAINTENANCE CONDITIONS

THE SITE MANAGER WILL INSPECT THE SITE AT LEAST WEEKLY AND WILL:

1. ENSURE THAT DRAINS OPERATE PROPERLY & TO EFFECT ANY NECESSARY REPAIRS
2. REMOVE SPILLED SAND OR OTHER MATERIALS FROM HAZARD AREAS, INCLUDING LANDS CLOSER THAN 5m FROM AREAS OF LIKELY CONCENTRATED OR HIGH VELOCITY FLOWS ESPECIALLY WATERWAYS & PAVED AREAS.
3. REMOVE TRAPPED SEDIMENT WHENEVER LESS THAN DESIGN CAPACITY REMAINS WITHIN THE STRUCTURE
4. ENSURE REHABILITATED LANDS HAVE EFFECTIVELY REDUCED THE EROSION HAZARD AND TO INITIATE UPGRADING OR REPAIR AS APPROPRIATE.
5. CONSTRUCT ADDITIONAL EROSION AND/OR SEDIMENT CONTROL WORKS AS MIGHT BECOME NECESSARY TO ENSURE THE DESIRED PROTECTION IS GIVEN TO DOWNSLOPE LANDS AND WATERWAYS.
6. MAINTAIN EROSION & SEDIMENT CONTROL MEASURES IN A FULLY FUNCTIONING CONDITION UNTIL ALL EARTHWORK ACTIVITIES ARE COMPLETED AND THE SITE IS REHABILITATED.
7. REMOVE TEMPORARY SOIL CONSERVATION STRUCTURES AS THE LAST ACTIVITY IN THE REHABILITATION PROGRAM.

AS PART OF THE STATUTORY 'DILIGENCE OF CARE' RESPONSIBILITIES, THE SITE MANAGER WILL KEEP A LOGBOOK MAKING ENTRIES AT LEAST WEEKLY, IMMEDIATELY BEFORE FORECAST RAIN AND AFTER RAINFALL.
ENTRIES WILL INCLUDE:

1. THE VOLUME & INTENSITY OF ANY RAINFALL EVENTS
2. THE CONDITION OF ANY SOIL & WATER MANAGEMENT WORKS
3. THE CONDITION OF VEGETATION & ANY NEED TO IRRIGATE
4. THE NEED FOR DUST PREVENTION STRATEGIES
5. ANY REMEDIAL WORKS TO BE UNDERTAKEN

THE BOOK WILL BE KEPT ONSITE & MADE AVAILABLE TO ANY AUTHORISED PERSON ON REQUEST. IT WILL BE GIVEN TO THE PROJECT MANAGER AT THE CONCLUSION OF WORKS.

LEGEND

- SITE BOUNDARY
- EXISTING CONTOUR
- EX SW — EXISTING STORMWATER LINE
- EX W — EX WATER MAIN
- EX G — EX GAS LINE
- EX T — EX TELECOMMUNICATIONS/ TELSTRA LINE
- SITE FENCE
- SEDIMENT FENCE
- TEMPORARY SHAKER RAMP FOR ENTRY/EXIT
- TEMPORARY STOCKPILE (LOCATION TBC ON-SITE)
- GEOTEXTILE PIT FILTER / FILTER SURROUND INSTALLED ON EXISTING PIT
- SANDBAGS INSTALLED ON EXISTING PIT
- EXISTING OVERLAND FLOW
- PROPOSED GROUND FLOOR BUILDING OUTLINE
- EXISTING BUILDING OUTLINE

Rev	Description	Date	By	App
P4	ISSUED FOR SSDA	13.12.19	JF	-
P3	ISSUED FOR 90% SD	14.11.19	PA	-
P2	PRELIMINARY ISSUE	16.10.19	PA	-
P1	PRELIMINARY ISSUE	15.10.19	PA	-

FORT STREET PUBLIC SCHOOL
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SYDNEY NSW 2000

BONACCI GROUP (NSW) Pty Ltd
ABN 29 102 716 352
Consulting Engineers, Structural - Civil - Infrastructure
Level 6, 37 York Street, Sydney, NSW 2000 Australia
Tel: +61 2 8247 8400 Fax: +61 2 8247 8444
sydney@bonaccigroup.com
www.bonaccigroup.com

SEDIMENT AND EROSION CONTROL PLAN

STATE SIGNIFICANCE DEVELOPMENT APPLICATION

Designed	PA	Project Director Approved	Date
Drawn	PA		
Scale	1:200		North
Date	OCT 2019	Project Ref	Drawing No / Rev
Sheet	A1	11543 01	C005 P4

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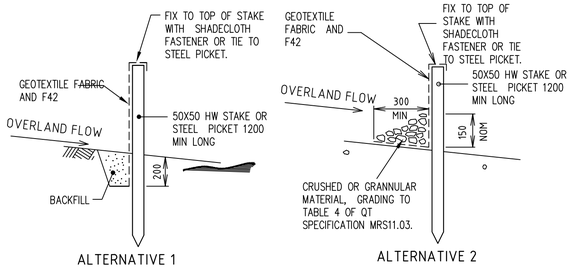
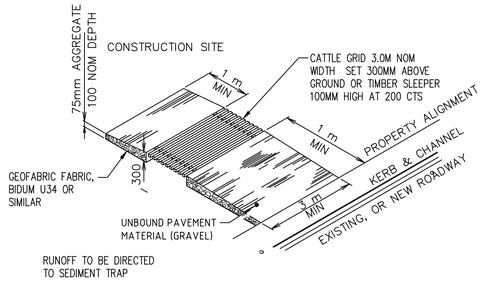
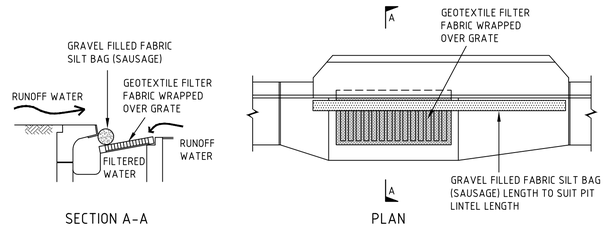




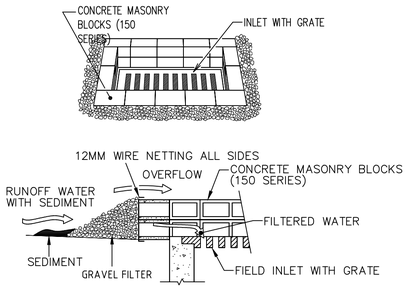
TEMPORARY CONSTRUCTION VEHICLE ENTRY/EXIT SEDIMENT TRAP

NOT TO SCALE



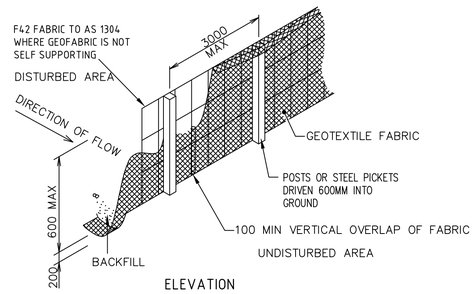
KERB INLET SEDIMENT TRAP

NOT TO SCALE



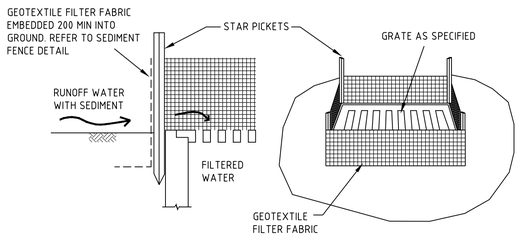
FIELD INLET SEDIMENT TRAP

NOT TO SCALE



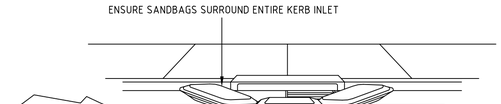
SEDIMENT FENCE

NOT TO SCALE



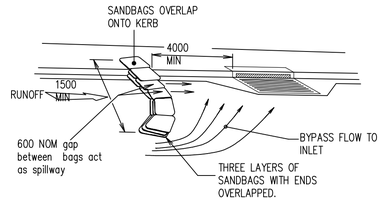
GEOTEXTILE PIT FILTER

NOT TO SCALE



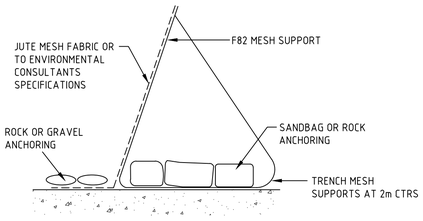
SANDBAG KERB INLET SEDIMENT TRAP

NOT TO SCALE



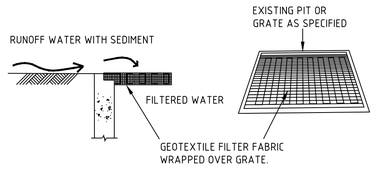
ON GRADE KERB INLET SEDIMENT TRAP

NOT TO SCALE



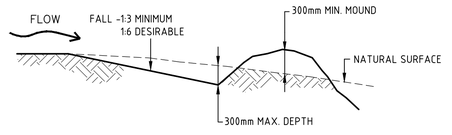
ALTERNATIVE SEDIMENT FENCE

NOT TO SCALE



ALTERNATIVE GEOTEXTILE PIT FILTER 2

NOT TO SCALE



CATCH DRAIN

NOT TO SCALE

ALTERNATIVE SEDIMENT FENCE NOTES

1. INSTALL THIS TYPE OF SEDIMENT FENCE WHEN USE OF SUPPORT POSTS IS NOT DESIRABLE OR NOT POSSIBLE. SUCH CONDITIONS MIGHT APPLY, FOR EXAMPLE, WHERE APPROVAL IS GRANTED FROM THE APPROPRIATE AUTHORITIES TO PLACE THESE FENCES IN HIGHLY SENSITIVE ESTUARINE AREAS.
2. USE BENT TRENCH MESH TO SUPPORT THE F82 WELDED MESH FACING AS SHOWN ON THE DRAWING ABOVE. ATTACH THE JUTE MESH TO THE WELDED MESH FACING USING UV-RESISTANT CABLE TIES.
3. STABILISE THE WHOLE STRUCTURE WITH SANDBAG OR ROCK ANCHORING OVER THE TRENCH MESH AND THE LEADING EDGE OF THE JUTE MESH. THE ANCHORING SHOULD BE SUFFICIENTLY LARGE TO ENSURE STABILITY OF THE STRUCTURE IN THE DESIGN STORM EVENT, USUALLY THE 10 YEAR EVENT.

Rev	Description	Date	By	App
P3	ISSUED FOR SSDA	13.12.19	JF	-
P2	ISSUED FOR 90% SD	14.11.19	PA	-
P1	PRELIMINARY ISSUE	15.10.19	PA	-

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ABN 29 102 716 352
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sydney@bonaccigroup.com
www.bonaccigroup.com

SEDIMENT AND EROSION CONTROL DETAILS

STATE SIGNIFICANCE DEVELOPMENT APPLICATION

Designed	P A
Drawn	P A
Scale	NOTED
Date	OCT 2019
Sheet	A1

Project Director Approved — Date — North

Project Ref: 11543 01 — Drawing No: C007 — Rev: P3

File: G:\Job\11543\03 WIP\02 Civil\01 CAD\01 Autocad\Fort St Public School\Issued\Dwg\11543\01C-C007-SEDIMENT AND EROSION CONTROL DETAILS-CAD[P3].dwg Plotted: 13.12.19 at 2:19 PM By: Jonathan Franco

THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED

LEGEND

- SITE BOUNDARY
- BEL 40.00 — FINISHED BULK EXCAVATION LEVEL
- 48.50 — EXISTING ROCK CONTOURS
- SHORING WALL

BULK EARTHWORK DEPTH RANGE SCHEDULE

Lower_value		Upper_value	Colour
-10000	to	-.8	2
-.8	to	-.7	2
-.7	to	-.6	2
-.6	to	-.5	2
-.5	to	-.4	2
-.4	to	-.3	2
-.3	to	-.2	2
-.2	to	-.1	2
-.1	to	0	2
0	to	0.1	2
0.1	to	0.2	2
0.2	to	0.3	2
0.3	to	0.4	2
0.4	to	0.5	2
0.5	to	0.6	2
0.6	to	0.7	2
0.7	to	0.8	2
0.8	to	0.9	2
0.9	to	1.0	2
1.0	to	1.1	2
1.1	to	1.2	2
1.2	to	1.3	2
1.3	to	1.4	2
1.4	to	1.5	2
1.5	to	1000	2

TOTAL CUT VOLUME = 1,802m³
TOTAL FILL VOLUME = 616m³

DIAL BEFORE YOU DIG www.1100.com.au
The Essential First Step

ALL EXISTING PROPERTY SERVICES' LOCATIONS AND DEPTHS ARE APPROXIMATE AND MUST BE VERIFIED ON SITE.
THE CONTRACTOR SHOULD SUPPLY PRECISE LOCATIONS AND DEPTHS TO THE ENGINEER FOR REVIEW PRIOR TO ANY WORKS THAT MAY AFFECT THESE SERVICES.

WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES SHOWN ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE.

EXCAVATION NOTES

E1 VOLUMES ARE APPROXIMATE ONLY AND DO NOT INCORPORATE BULKING FACTORS AND OVER EXCAVATION. VOLUMES HAVE BEEN CALCULATED BETWEEN EXISTING SURFACE LEVELS AND BULK EARTHWORKS LEVELS.

E2 GROUND WATER SEEPAGE MAY OCCUR IN EXCAVATED AREAS. DE-WATERING MAY BE REQUIRED IN THIS INSTANCE.

E3 THIS DRAWING ONLY DETAILS EXCAVATION ASSOCIATED WITH THE BUILDING SLAB (IGNORING STRUCTURAL FOOTINGS, BEAMS AND COLUMNS).

E4 THE EXCAVATED MATERIAL IS TO BE TEMPORARILY STOCKPILED WITHIN THE LANDSCAPED AREAS (TO BE CONFIRMED ON-SITE) AND RE-USED AS LANDSCAPING SOIL BUILD-UP IN ACCORDANCE WITH LANDSCAPE ARCHITECTS SPECIFICATIONS.

E5 REFER TO ARBORIST REPORT FOR TREE PROTECTION MEASURES IF REQUIRED.

E6 500mm ZONE OFFSET FROM BUILDING HAS BEEN ALLOWED FOR FORM WORK AND SCAFFOLDING WHERE SPECIFIED UNO.

E7 PROVIDE EXCAVATION BATTERS AS FOLLOWS:
- MAX 1 IN 1 FOR TEMPORARY BATTERS
- VERTICAL EXCAVATION IN HIGH STRENGTH ROCK

GEOTECH TO CONFIRM BATTER ACCEPTABILITY DURING CONSTRUCTIONS.

E8 DETAILED EXCAVATION AT SETDOWNS, SERVICE TRENCHING AND GROUND BEAMS ARE NOT SHOWN FOR CLARITY

Rev	Description	Date	By	App
P4	ISSUED FOR SSDA	19.12.19	JF	-
P3	ISSUED FOR SSDA	13.12.19	JF	-
P2	ISSUED FOR 90% SD	14.11.19	PA	-
P1	PRELIMINARY ISSUE	03.10.19	JF	-

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BONACCI

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sydney@bonaccigroup.com
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BULK EARTHWORK PLAN

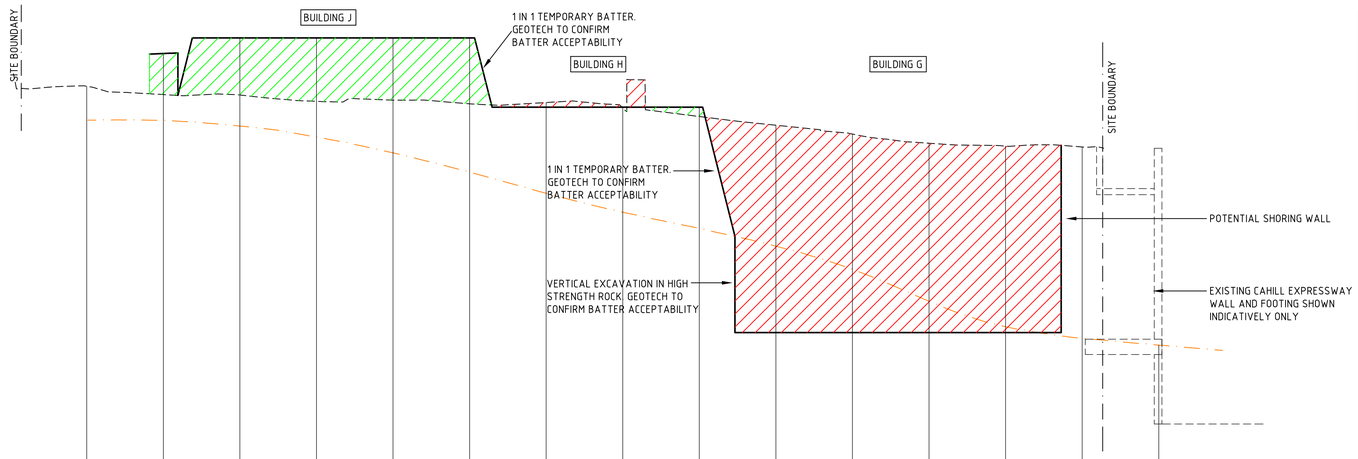
STATE SIGNIFICANCE DEVELOPMENT APPLICATION

Designed	JF	Project Director Approved	Date
Drawn	JF		
Scale	1:200		
Date	OCT 2019		
Sheet	A1		

North

Project Ref	Drawing No	Rev
11543 01	C010	P4

File: G:\job\11543\03 WIP\02 Civil\01 CAD\01 Autocad\Fort St Public School\Issued\Dwg\1154301C-C010-BULK EARTHWORKS PLAN-CAD[P4].dwg
Plotted: 19.12.19 at 12:06 PM By: Jonathan Franco



NOTES

1. SITE SURVEY SUPPLIED BY RPS GROUP DRAWING No. PR133183 Fort Street Public School-DET-C DATED 15.07.2019.
2. EXISTING SERVICES ARE INTERPOLATED FROM SITE SURVEY SUPPLIED BY RPS GROUP DRAWING No. PR143159-SERVICES-001-A DATED 25.03.219
3. ROCK LEVELS ARE INTERPOLATED FROM BOREHOLE LOGS SUPPLIED BY JK GEOTECHNICS GEOTECNICAL AND ENVIRONMENTAL ENGINEERS REF No. 30276Lrpt, DATED 29TH JUNE 2017

LEGEND

CUT FROM EXISTING SURFACE TO BULK EARTHWORK LEVEL

FILL FROM EXISTING SURFACE TO BULK EARTHWORK LEVEL

DESIGN GRADELINE

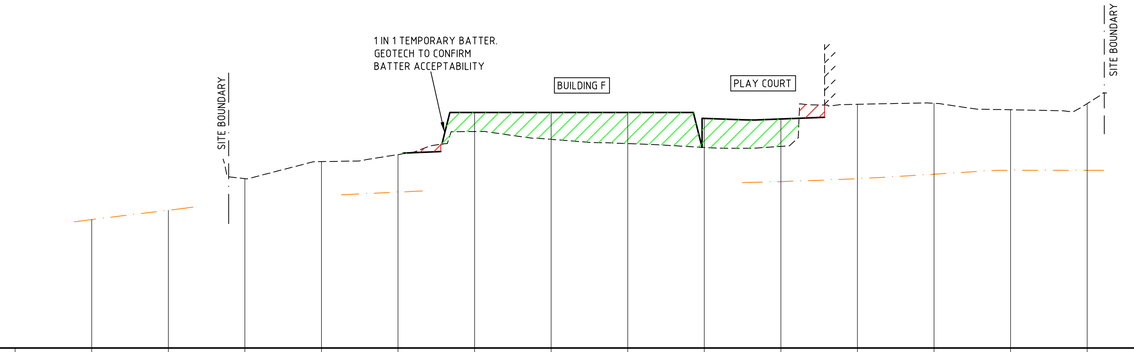
HORIZONTAL GEOMETRY

DATUM 33.7

SC03																					
BULK EARTHWORKS SURFACE					40.645	40.900	40.900	40.900	40.900	39.770	39.770	39.770	36.090	36.090	36.090	36.090					
EXISTING ROCK SURFACE					39.551	39.461	39.281	39.024	38.709	38.364	38.055	37.791	37.501	37.121	36.602	36.185	35.994	35.887			
EXISTING SURFACE				40.111	39.975	39.968	39.865	39.884	39.824	39.845	39.757	39.617	39.475	39.331	39.181	39.135	39.119				
CHAINAGES	0.000	5.000	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000	55.000	60.000	65.000	70.000	75.000	80.000	85.000	90.000	95.000	95.206

1 in 200 HORIZONTAL
1 in 50 VERTICAL

SC03 LONGITUDINAL SECTION



DESIGN GRADELINE

HORIZONTAL GEOMETRY

DATUM 37.1

SC04																					
BULK EARTHWORKS SURFACE									40.945	40.945	40.945	40.849	40.838								
EXISTING ROCK SURFACE				39.196	39.348			39.645					39.817	39.864	39.937	40.000	40.000				
EXISTING SURFACE						39.865	40.143	40.257	40.634	40.506	40.437	40.374	40.392	41.079	41.095	40.989	41.089				
CHAINAGES	0.000	5.000	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000	55.000	60.000	65.000	70.000	75.000	80.000	85.000	90.000	95.000	100.000	103.828

1 in 200 HORIZONTAL
1 in 50 VERTICAL

SC04 LONGITUDINAL SECTION

Rev	Description	Date	By	App
P4	ISSUED FOR SSDA	19.12.19	JF	-
P3	ISSUED FOR SSDA	13.12.19	JF	-
P2	ISSUED FOR 90% SD	14.11.19	PA	-
P1	PRELIMINARY ISSUE	03.10.19	JF	-

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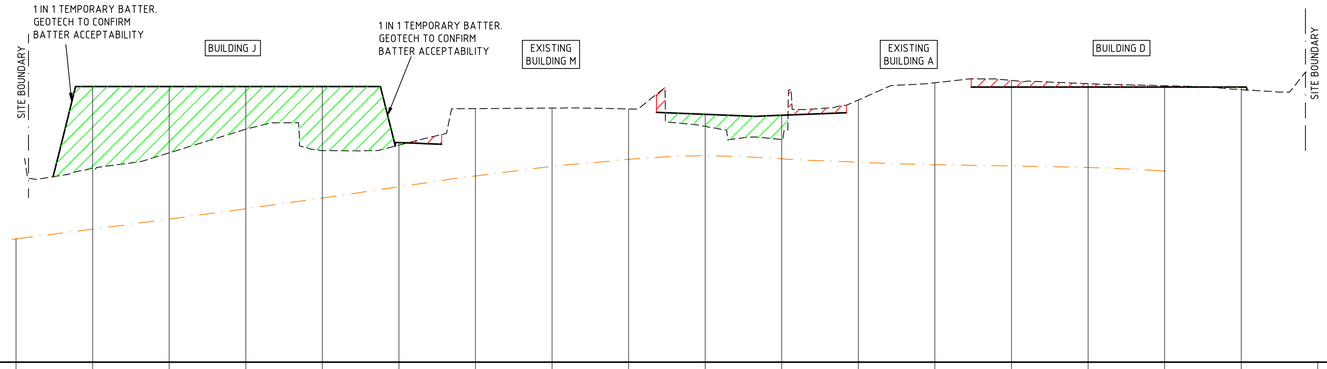
sydney@bonaccigroup.com
www.bonaccigroup.com

BULK EARTHWORK LONGITUDINAL SECTIONS SHEET 2

STATE SIGNIFICANCE DEVELOPMENT APPLICATION

Designed	JF	Project Director Approved	Date
Drawn	JF		
Scale	AS SHOWN	Project Ref	Drawing No / Rev
Date	OCT 2019	11543 01	C016 P4
Sheet	A1		

North



NOTES

1. SITE SURVEY SUPPLIED BY RPS GROUP DRAWING No. PR133183 Fort Street Public School-DET-C DATED 15.07.2019.
2. EXISTING SERVICES ARE INTERPOLATED FROM SITE SURVEY SUPPLIED BY RPS GROUP DRAWING No. PR143159-SERVICES-001-A DATED 25.03.219
3. ROCK LEVELS ARE INTERPOLATED FROM BOREHOLE LOGS SUPPLIED BY JK GEOTECHNICS GEOTECNICAL AND ENVIRONMENTAL ENGINEERS REF No. 30276Lrpt, DATED 29TH JUNE 2017

LEGEND

CUT FROM EXISTING SURFACE TO BULK EARTHWORK LEVEL

FILL FROM EXISTING SURFACE TO BULK EARTHWORK LEVEL

DESIGN GRADELINE

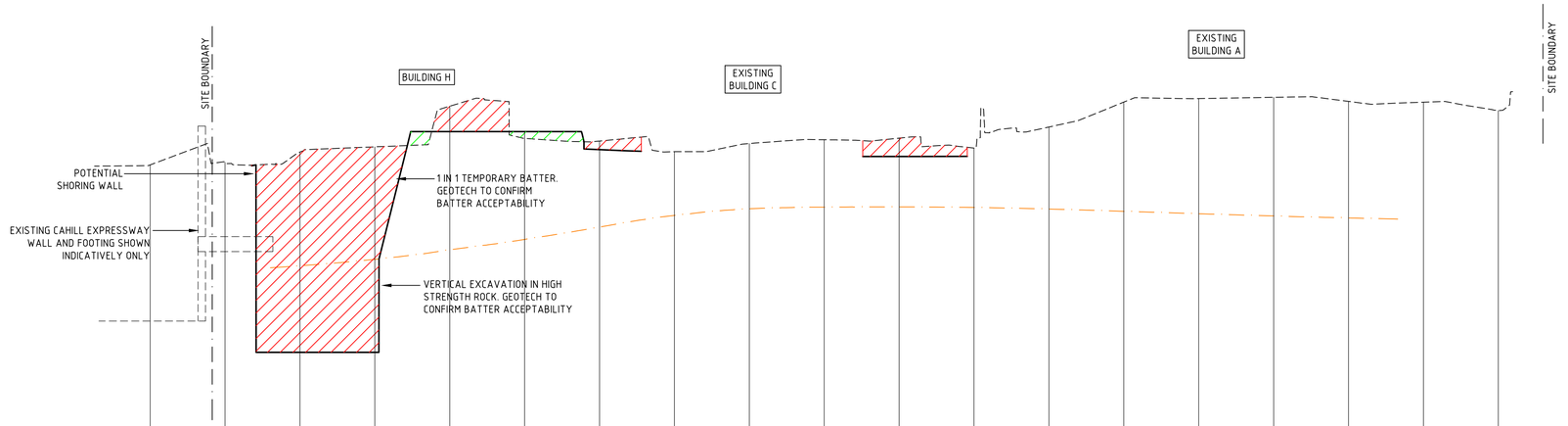
HORIZONTAL GEOMETRY

DATUM 36.4

SC05																						
BULK EARTHWORKS SURFACE				40.900	40.900	40.900	40.900	39.984				40.445	40.430			40.890	40.890	40.890	40.890			
EXISTING ROCK SURFACE			38.414	38.571	38.736	38.905	39.079	39.262	39.439	39.597	39.712	39.769	39.719	39.666	39.623	39.602	39.577	39.521				
EXISTING SURFACE				39.564	39.817	40.203	39.854	39.943	40.538	40.548	40.534	40.248	40.034	40.679	40.960	40.998	40.946	40.913	40.848			
CHAINAGES	0.000	5.000	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000	55.000	60.000	65.000	70.000	75.000	80.000	85.000	90.000	95.000	100.000	103.828

1 in 200 HORIZONTAL
1 in 50 VERTICAL

SC05 LONGITUDINAL SECTION



DESIGN GRADELINE

HORIZONTAL GEOMETRY

DATUM 34.0

SC06																						
BULK EARTHWORKS SURFACE				36.090	36.090	39.770	39.770	39.468				39.356										
EXISTING ROCK SURFACE				37.533	37.640	37.800	37.973	38.177	38.373	38.482	38.510	38.514	38.505	38.478	38.441	38.401	38.363	38.330				
EXISTING SURFACE		39.214	39.258	39.429	39.515	40.193	39.656	39.612	39.435	39.570	39.634	39.661	39.495	39.846	40.261	40.319	40.340	40.273	40.259	40.122		
CHAINAGES	0.000	5.000	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000	55.000	60.000	65.000	70.000	75.000	80.000	85.000	90.000	95.000	100.000	103.828

1 in 200 HORIZONTAL
1 in 50 VERTICAL

SC06 LONGITUDINAL SECTION

Rev	Description	Date	By	App
P4	ISSUED FOR SSDA	19.12.19	JF	-
P3	ISSUED FOR SSDA	13.12.19	JF	-
P2	ISSUED FOR 90% SD	14.11.19	PA	-
P1	PRELIMINARY ISSUE	03.10.19	JF	-

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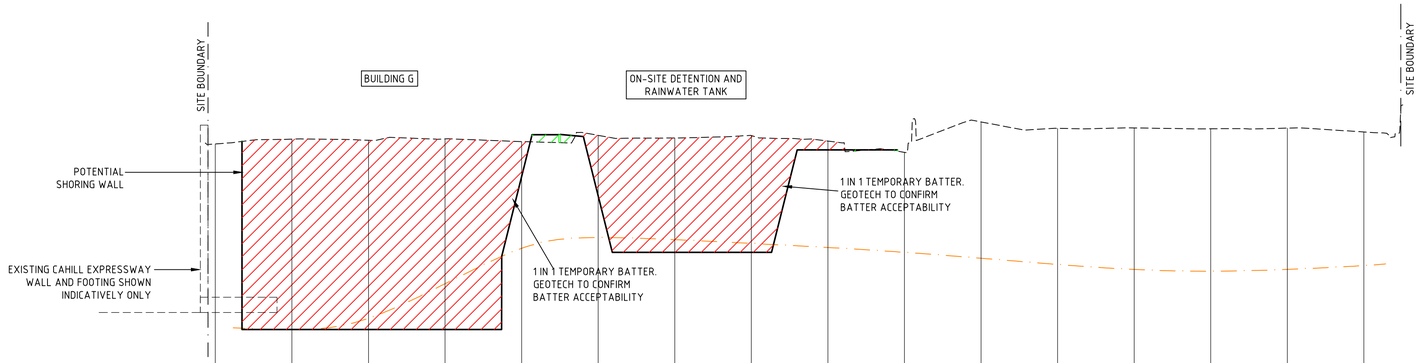
BULK EARTHWORK LONGITUDINAL SECTIONS SHEET 3

STATE SIGNIFICANCE DEVELOPMENT APPLICATION

Designed	JF	Project Director Approved	Date
Drawn	JF		North
Scale	AS SHOWN	Project Ref	Drawing No / Rev
Date	OCT 2019	11543 01	C017 P4
Sheet	A1		

File: G:\Job\11543\03 WIP\02 Civil\01 CAD\01 Autocad\Fort St Public School\Issued\Dwg\11543101C-C017-BULK EARTHWORKS LONGITUDINAL SECTIONS SHEET 3.C_A1(P4).dwg Plotted: 19.12.19 at 12:07 PM By: Jonathan Franco



NOTES

1. SITE SURVEY SUPPLIED BY RPS GROUP DRAWING No. PR133183 Fort Street Public School-DET-C DATED 15.07.2019.
2. EXISTING SERVICES ARE INTERPOLATED FROM SITE SURVEY SUPPLIED BY RPS GROUP DRAWING No. PR143159-SERVICES-001-A DATED 25.03.219
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LEGEND

CUT FROM EXISTING SURFACE TO BULK EARTHWORK LEVEL

FILL FROM EXISTING SURFACE TO BULK EARTHWORK LEVEL

DESIGN GRADELINE

HORIZONTAL GEOMETRY

DATUM 34.0

SC07																						
BULK EARTHWORKS SURFACE					36.090	36.090	36.090	38.588	38.272	37.350	37.350	39.022										
EXISTING ROCK SURFACE					36.086	36.271	36.837	37.415	37.591	37.556	37.495	37.428	37.348	37.253	37.151	37.070	37.041	37.071	37.133			
EXISTING SURFACE				39.119	39.197	39.178	39.201	39.158	39.259	39.216	39.256	39.166	38.981	39.478	39.373	39.380	39.366	39.377	39.314			
CHAINAGES	0.000	5.000	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000	55.000	60.000	65.000	70.000	75.000	80.000	85.000	90.000	95.000	100.000	103.828

1 in 200 HORIZONTAL
1 in 50 VERTICAL

SC07 LONGITUDINAL SECTION

Rev	Description	Date	By	App
P4	ISSUED FOR SSDA	19.12.19	JF	-
P3	ISSUED FOR SSDA	13.12.19	JF	-
P2	ISSUED FOR 90% SD	14.11.19	PA	-
P1	PRELIMINARY ISSUE	03.10.19	JF	-

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BULK EARTHWORK
LONGITUDINAL SECTIONS
SHEET 4

STATE SIGNIFICANCE DEVELOPMENT APPLICATION

Designed	JF	Project Director Approved	Date
Drawn	JF		
Scale	AS SHOWN		
Date	OCT 2019	Project Ref	Drawing No / Rev
Sheet	A1	11543 01	C018 P4

North

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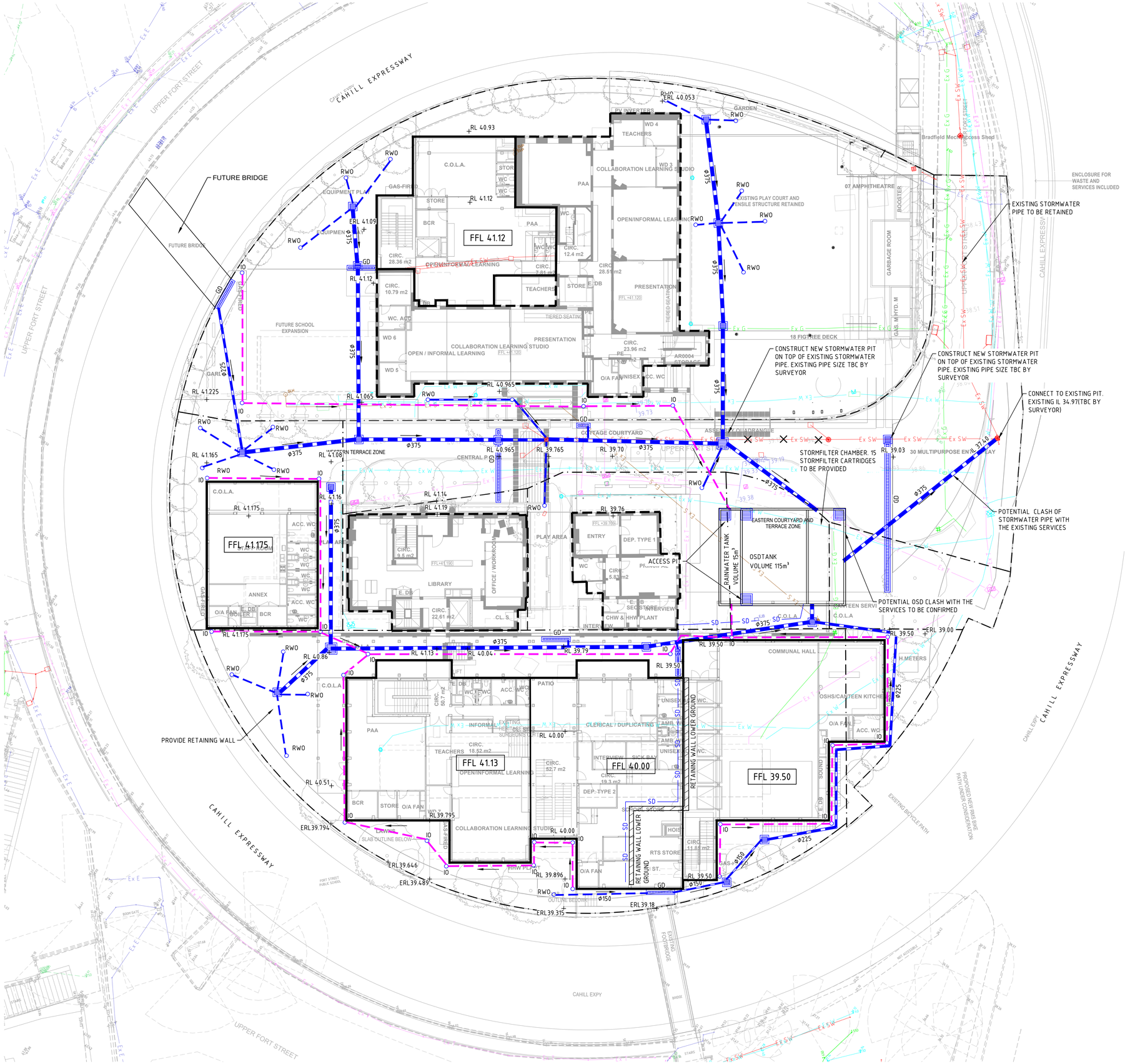


LEGEND

- SITE BOUNDARY
- EX SW — EXISTING STORMWATER LINE TO BE DEMOLISHED
- EX SW — EXISTING STORMWATER LINE
- EX S — EX SEWER LINE
- EX W — EX WATER MAIN
- EX G — EX GAS LINE
- EX T — EX TELECOMMUNICATIONS/ TELSTRA LINE
- EX E — EX ELECTRICAL LINE
- PROPOSED STORMWATER PIT
- STORMWATER LINE
- ROOFWATER LINE TO RAINWATER TANK
- RWO — RAINWATER OUTLET
- IO — INSPECTION OPENING
- GD — GRATED DRAIN
- SD — SUBSOIL DRAIN
- ERL 7.25 / + — EXISTING FINISHED SURFACE LEVEL
- RL 7.50 / + — PROPOSED FINISHED SURFACE LEVEL

GENERAL NOTES

G1 ALL DP LOCATION TO BE COORDINATED WITH ARCHITECT AND HERITAGE ENGINEER

G2 ALL EXISTING SW PIPE SIZE AND INVERTS TO BE SURVEYED AND CONFIRMED PRIOR TO DETAILED DESIGN

G3 ANY STORMWATER PIPE RUNNING UNDER BUILDING STRUCTURES SHALL BE CONCRETE ENCASED IN ACCORDANCE WITH RELEVANT BCA REQUIREMENTS

G4 OSD VOLUME AND STORMFILTER CARTRIDGE NUMBERS ARE PRELIMINARY. TO BE CONFIRMED AT DETAILED DESIGN

G5 PROIVDE SUBSOIL DRAINS IN LANDSCAPE AREAS

G6 SUBSOIL DRAIN BEHIND THE RETAINING WALL TO BE INSTALLED ABOVE ROCK LAYER

G7 STORMWATER LINE AT CLOSE PROXIMITY TO THE BUILDINGS ARE TO BE PROTECTED IF WITHIN THE BUILDING FOUNDATION ZONE OF INFLUENCE

Rev	Description	Date	By	App
P4	ISSUED FOR SSDA	13.12.19	JF	-
P3	ISSUED FOR 90% SD	14.11.19	PA	-
P2	PRELIMINARY ISSUE	15.10.19	PA	-
P1	PRELIMINARY ISSUE	10.10.19	PA	-

FORT STREET PUBLIC SCHOOL
OBSERVATORY HILL
SYDNEY NSW 2000

BONACCI

BONACCI GROUP (NSW) Pty Ltd
ABN 29 102 716 352
Consulting Engineers, Structural - Civil - Infrastructure
Level 6, 37 York Street, Sydney, NSW 2000 Australia
Tel: +61 2 8247 8400 Fax: +61 2 8247 8444
sydney@bonaccigroup.com
www.bonaccigroup.com

STORMWATER PLAN

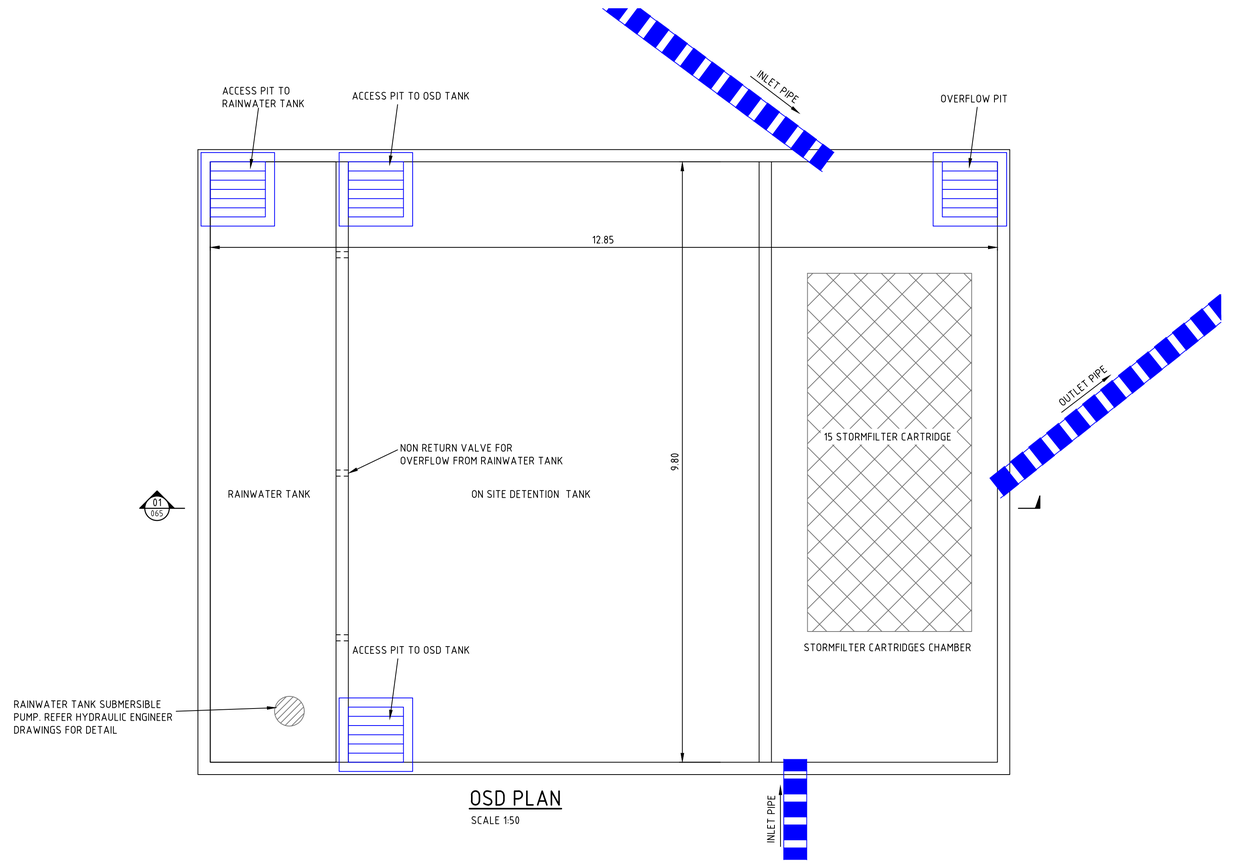
STATE SIGNIFICANCE DEVELOPMENT APPLICATION

Designed	EW
Drawn	PA
Scale	1:200
Date	OCT 2019
Sheet	A1

Project Director Approved | Date | North

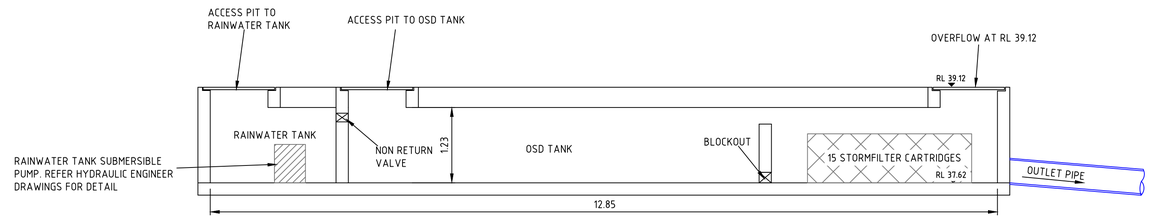
Project Ref: 11543 01 | Drawing No: C030 | Rev: P4

File: G:\Job\11543\03 WIP\02 Civil\01 CAD\01 Autocad\Fort St Public School\Issued\Dwg\1154301C-C030-STORMWATER PLAN-CAD[P4].dwg
Plotted: 13.12.19 at 2:25 PM By: Jonathan Franco



OSD PLAN

SCALE 1:50



OSD SECTION 01

SCALE 1:50

Rev	Description	Date	By	App
P2	ISSUED FOR SSDA	13.12.19	JF	-
P1	ISSUED FOR 90 % SD	14.11.19	PA	-

FORT STREET PUBLIC SCHOOL
OBSERVATORY HILL
SYDNEY NSW 2000

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Level 6, 37 York Street, Sydney, NSW 2000 Australia
Tel: +61 2 8247 8400 Fax: +61 2 8247 8444
sydney@bonaccigroup.com
www.bonaccigroup.com

OSD TANK SECTION

STATE SIGNIFICANCE DEVELOPMENT APPLICATION

Designed	EW
Drawn	PA
Scale	1:50
Date	OCT 2019
Sheet	A1

Project Director Approved | Date | North

Project Ref: 11543 01 | Drawing No: C065 | Rev: P2

File: G:\Job\11543\03 WIP\02 Civil\01 CAD\01 Autocad\Fort St Public School\Issued\Dwg\11543\01C-C065-OSD TANK SECTION-CAD[P2].dwg
Plotted: 13.12.19 at 2:39 PM By: Jonathan Franco