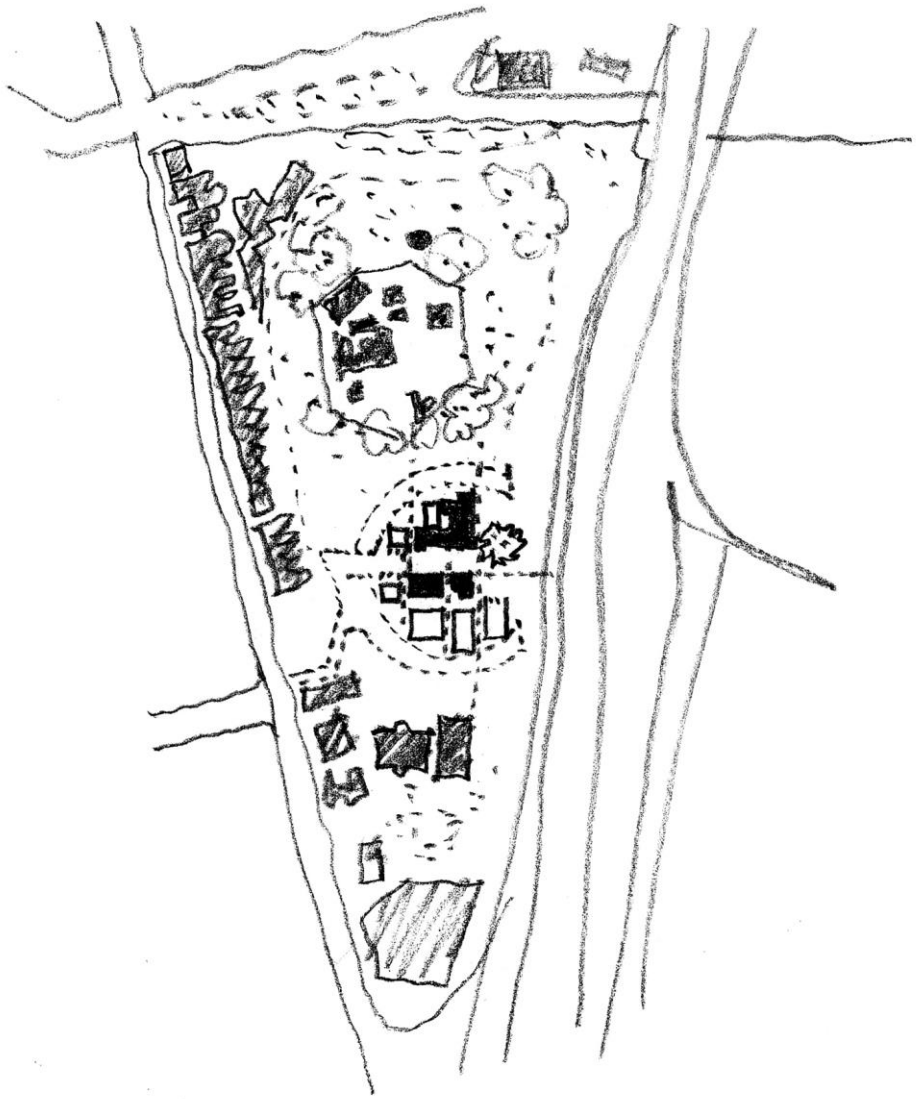
Fort Street Public School Infrastructure Management Plan

SSD 10340
Prepared by Johnstaff Projects
For Schools Infrastructure NSW
20th January 2020



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1. Document Purpose

This document has been prepared in relation to the development to date for the Fort Street Public School (FSPS). The purpose of the document is to provide input to the Secretary's Environmental Assessment Requirements (SEARs) for the preparation of an Environmental Impact Statement (EIS) for the proposed development.

SEARS requirement:

Prepare an Infrastructure Management Plan in consultation with relevant agencies, detailing information on the existing capacity and any augmentation and easement requirements of the development for the provision of utilities including staging of infrastructure.

2. Scope of Work

Approval is sought for the expansion of Fort Street Public School to accommodate a total of 550 primary school students. Specifically:

- Site preparation, demolition and excavation:
  - Site remediation.
  - Demolition of the southernmost school building, the garage and storage shed west and east of the Bureau of Meteorology Building (the Met/ the Met Building), and the toilet block adjoining the main school building.
  - Selective removal of various elements of the main school building, as well as minor and insignificant elements of the Bureau of Meteorology Building and the Messenger's Cottage to facilitate refurbishment and future use of these buildings.
  - Bulk excavation works to facilitate the new southern buildings and onsite detention.
  - Tree removal.
  - Installation of hydraulic and electrical services.
- Land use
  - Use of all buildings for the purpose of a school.
- Existing buildings
  - Retention, refurbishment and extension of the existing Fort Street Public School, including construction of a new roof and rooftop additions.
  - Retention and refurbishment of the Met Building and internal alterations and additions.
  - Retention and minor alterations and additions to the Messenger's Cottage.
- Construction of New buildings
  - Construction of one new building on the western part of the site for a staff room.
  - Construction of two new, interconnected school buildings on the southern third of the site.
  - Construction of a new communal hall and canteen building.
- Landscaping
  - Retention of the existing large fig tree.
  - Landscaping works throughout the site, including construction of a new amphitheatre, new central plaza, and a multi-purpose forecourt.
  - Landscaping of roof gardens on top of the new southern buildings, the existing Met Building..

- Other works
  -
  - Works to the existing entrance road, including alterations to the Bradfield Tunnel Services Building.
  - Modifications to existing pick-up / drop-off arrangements.
  - Provision of signage zones.
  - Provision of onsite detention water sensitive urban design measures.

3. Summary of Consultation

The following Consultants have inputted into the preparation of the FSPS development proposal:

- Bonacci Group, Civil Drainage Engineer
- Warren Smith and Partners, Hydraulics Engineer
- Wood and Grieve Stantec, Electrical, Communications and Security Engineers

The following Authorities have been consulted in the preparation of the FSPS development proposal:

- Sydney Water
- Jemena
- Ausgrid
- Telstra
- Sydney City Council

4. Civil Drainage

Bonacci Group produced a FSPS Concept Design for civil drainage systems on site.

An assessment of the stormwater quantity and quality requirements has been undertaken. Water quantity requirements have been determined by Sydney Water Water quality requirements were modelled using MUSIC software to demonstrate compliance with City of Sydney Council's requirements.

4.1 Existing 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 City of Sydney Council (Figure 1). There is a pit/pipe system identified in the diagram and the entire network appears to connect/discharge to a 300mm VCP stormwater line running along the Cahill Expressway.

It can be seen that there are also stormwater lines (375 mm and 525 mm concrete) that discharge into manhole-68 and then to the railway tunnel running east under the approach to the Harbour Bridge. It is assumed 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 this stormwater line.

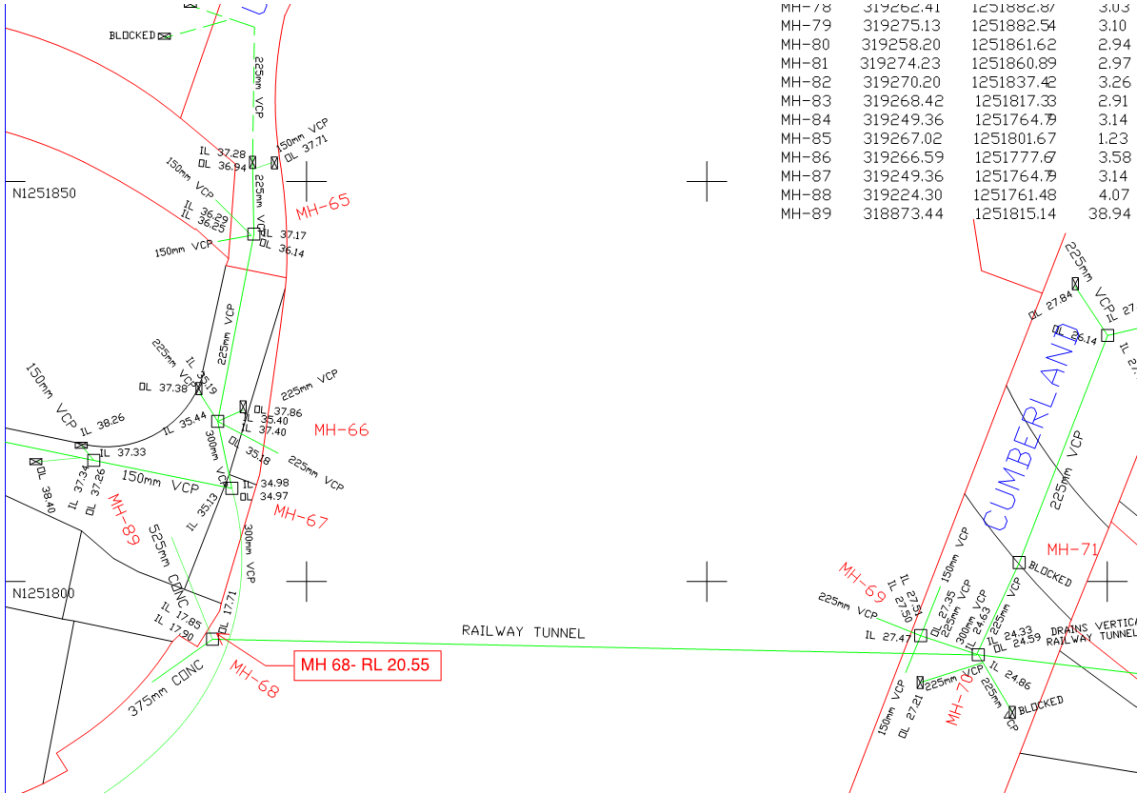


Figure 1 - Drainage Diagram (Supplied by Sydney City Council)

Detail survey has been undertaken by RPS on 15th July 2019 as shown in Figure 2. It is interpreted from the survey, Council Drainage Diagram and site investigation 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 assumed that the stormwater pit and pipe network along Cahill Expressway captures the flows generated from the entire existing site for 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, gas line, water main and electrical cable running through the site and under the accessway. Relocation and extension of the existing services may be required during construction.

No on-site detention tank 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.

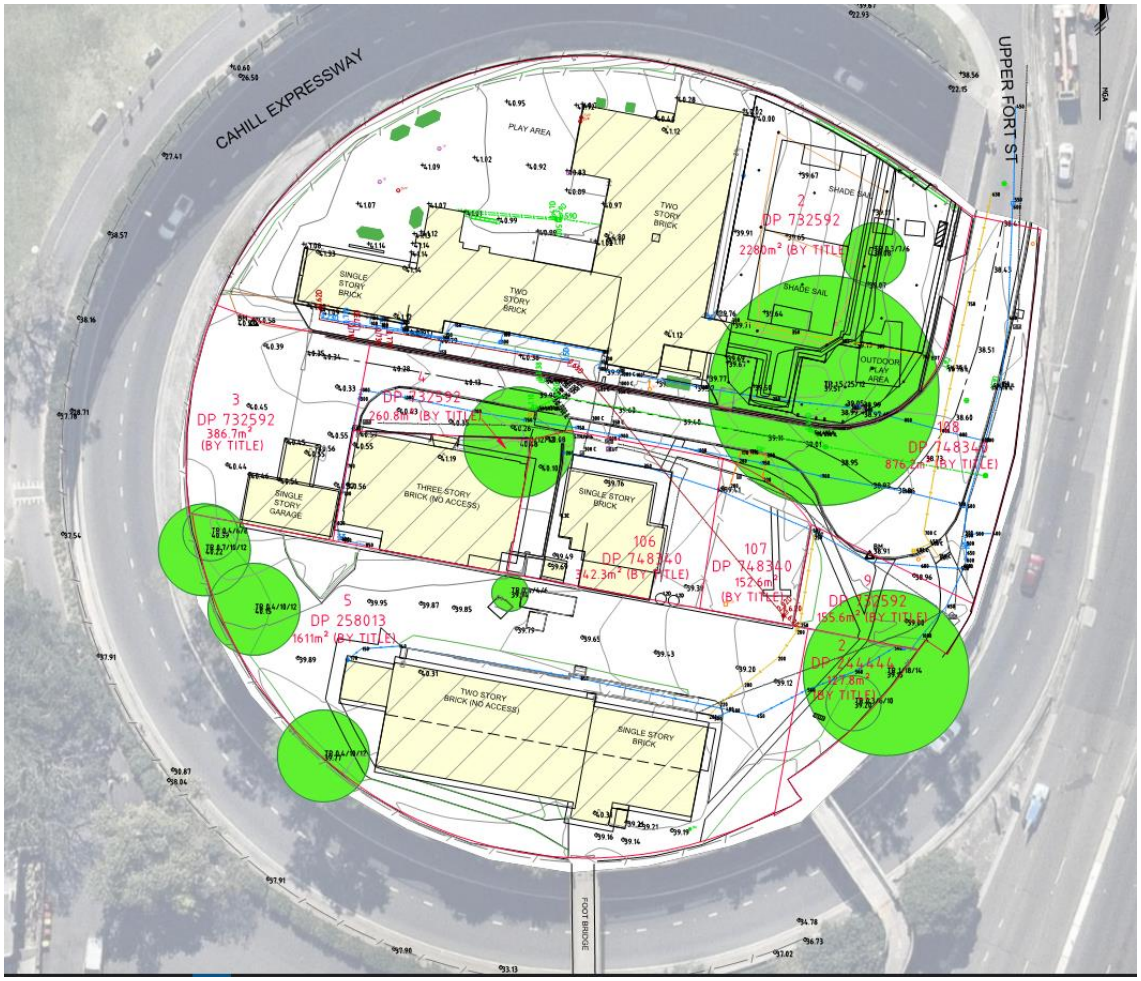


Figure 2 - Detail Survey (RPS 15/07/19)

4.2 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.

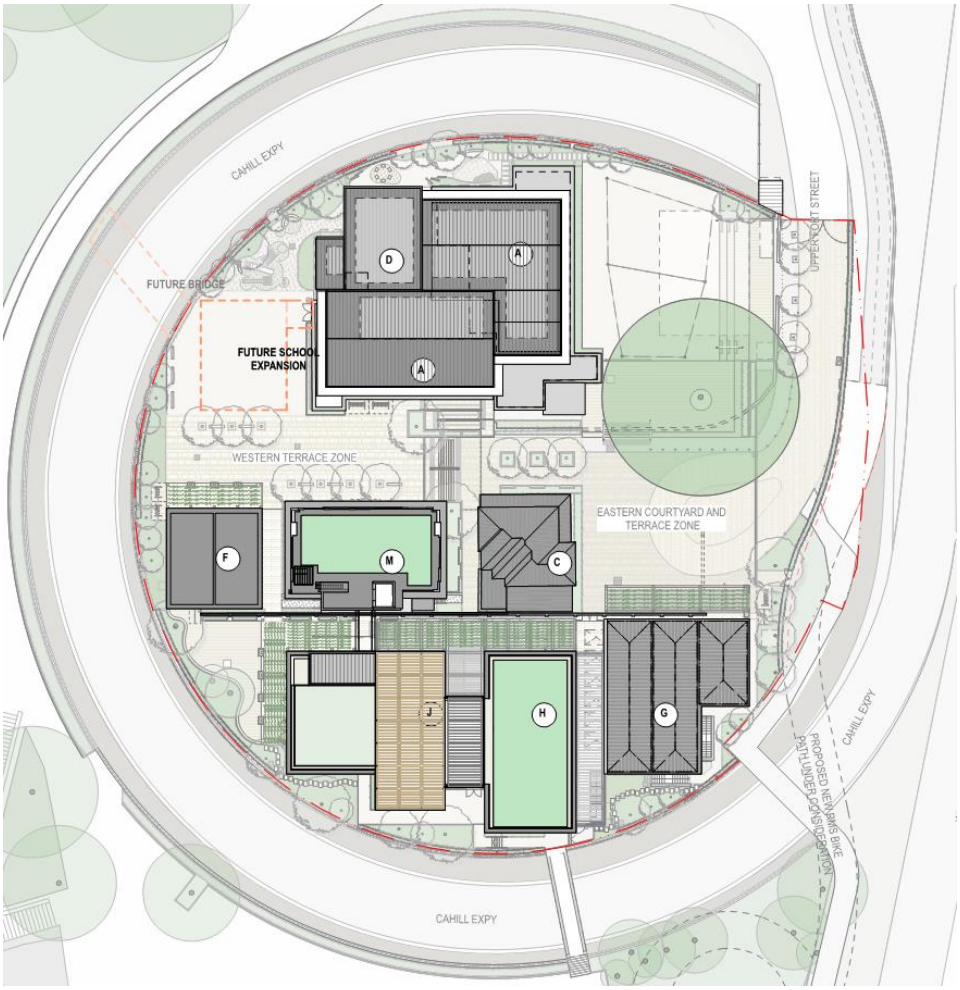


Figure 3 - Architectural Plan (FJMT Studio 4/9/19)

4.3 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 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.

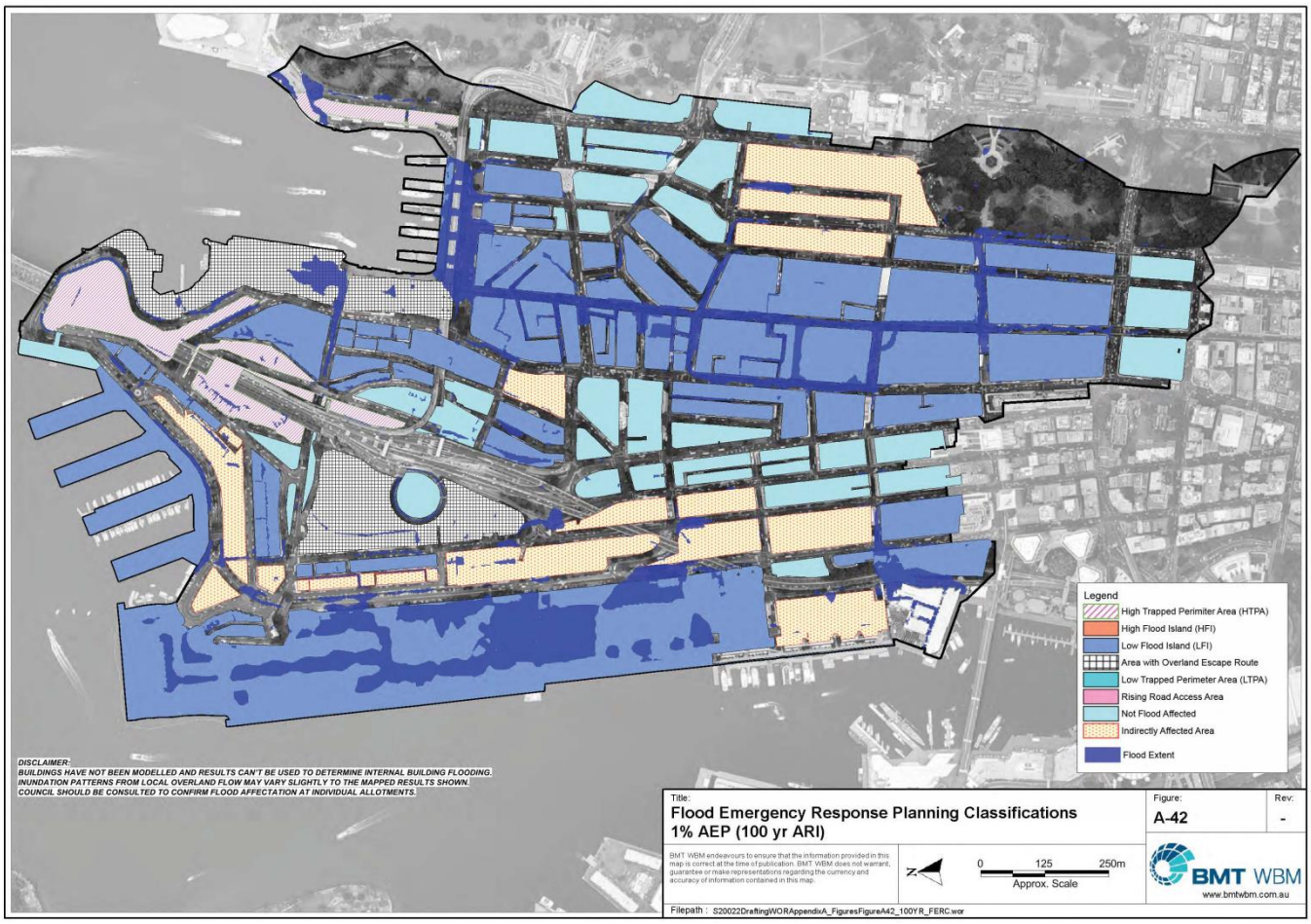


Figure 4 - Flood Map (from City Area Catchment Flood Study by BMT WBM - October 2014)

4.4 Lot Consolidation

As shown in Figure 5, the Deposited Plan (DP) and lot boundaries information are extracted from detailed survey by RPS. It can be seen that are nine (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 might need legal changes to the lot entitlements which should be discussed with appropriate legal and planning consultants.

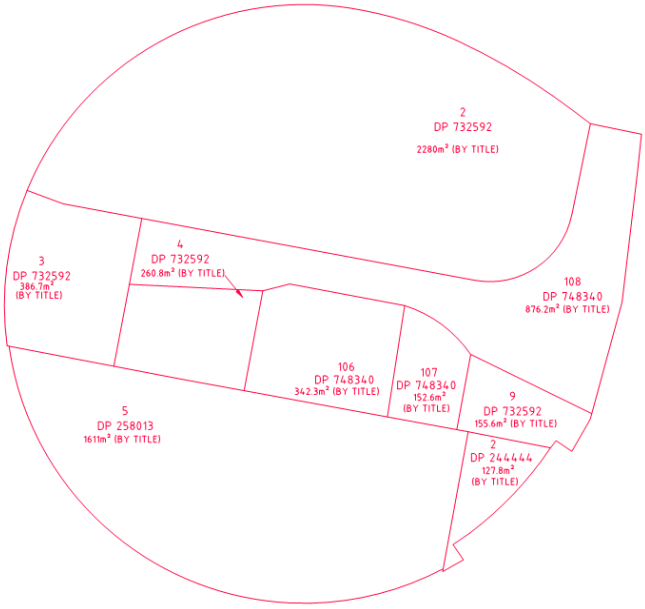


Figure 5 - Lot Boundaries

4.5 Water Quality

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, they advise that to determine the Permissible Site Discharge (PSD) and Site Storage Requirement (SSR), the total site area, pre-development and post development impervious areas are required. Based on the architectural plan option 3A dated 12th December 2019, the following information has been provided to Sydney Water:

- Total site area: 6200.5m^2
- Pre-development impervious area: 4450m^2
- Post development impervious area: 5204m^2

Based on the above information, Sydney Water advised an OSD with minimum volume of 115m3 is to be placed on site to limit the peak flows leaving the site and (with a Permissible Site Discharge of 207L/s). Sydney Water further suggests the approval for the OSD would only be given as part of the Section 73 application for this development.

A hydrological model has been created using DRAINS software, the existing catchment (approximately 6670m2) contributing to the existing point of discharge is shown in Figure 6. The existing catchment includes external upstream overland flowing into the drainage system within the site.

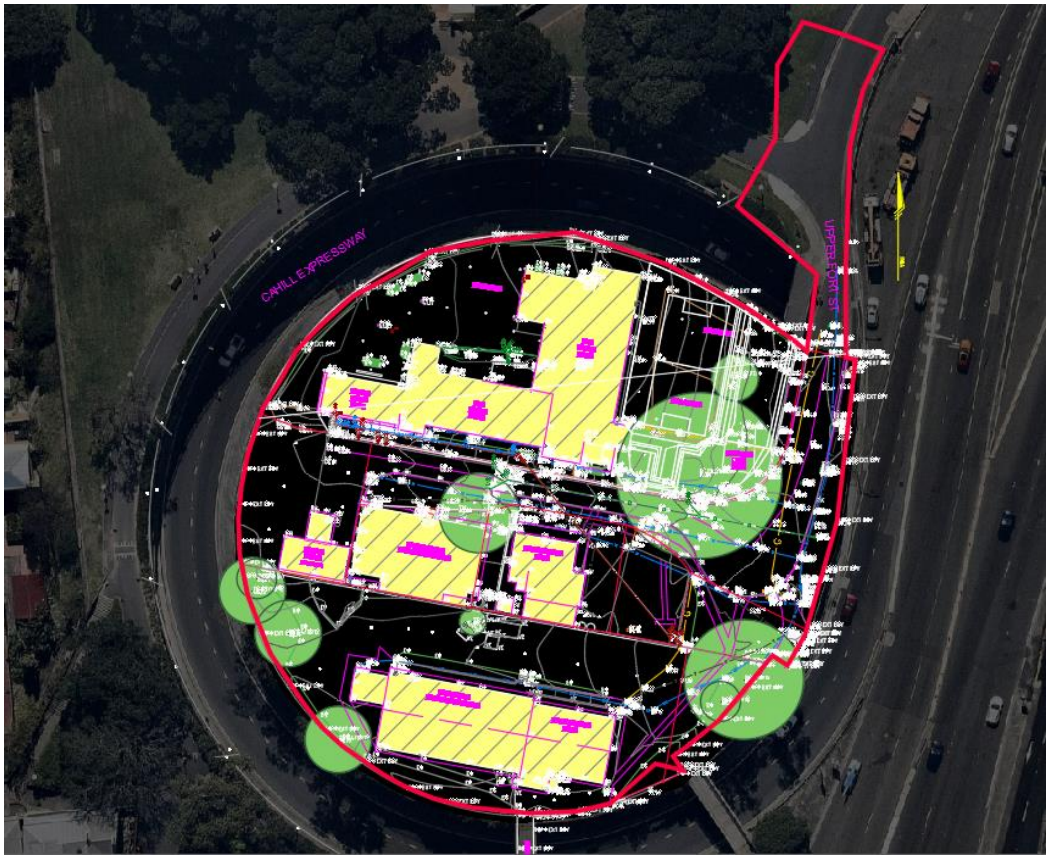


Figure 6- DRAINS Catchment - Pre-development

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 7.

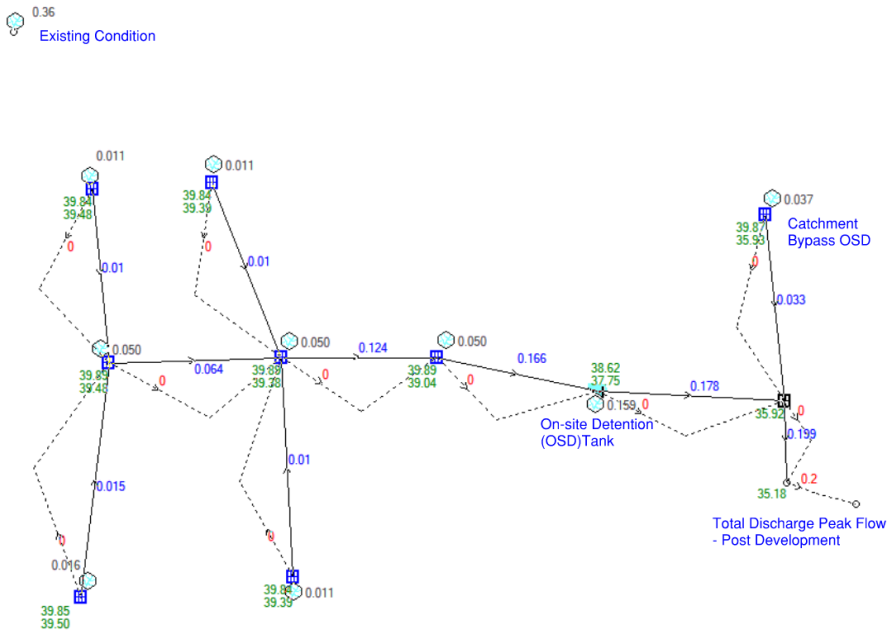


Figure 7- Preliminary DRAINS Layout and Results For 100 Year ARI Storm Events

4.6 As shown in Figure 7, the result for existing scenario during 100 Year ARI storm event is 360L/s. Implementing an OSD with minimum Volume of 115kL can reduce the peak flows generated from post development scenario to 200 L/s which complies with Sydney Water PSD requirement and also limited the post development peak flows to pre-development condition. Water Quality

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 1000m2 must undertake a stormwater quality assessment to demonstrate that the development will achieve the post development pollutant load standards indicated below (8):

(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 8 - City of Sydney Pollution Reduction Target Rates (DCP2012)

Most of the stormwater runoff originating from the driveway, landscape and hardstand areas is to be directed into storm filter cartridges located inside the OSD tank after being treated by Enviropods. Part of the stormwater runoff from the driveway is bypassing the storm filter cartridge treatment after Enviropds treatment, refer to Figure 9 for MUSIC modelling layout.,

Water quality measures has been modelled using software MUSIC (version 6.3), the preliminary MUSIC layout is shown below in Figure 9. It is noted that the water quality modelling layout is preliminary, the catchment details are subject to change in later stage.

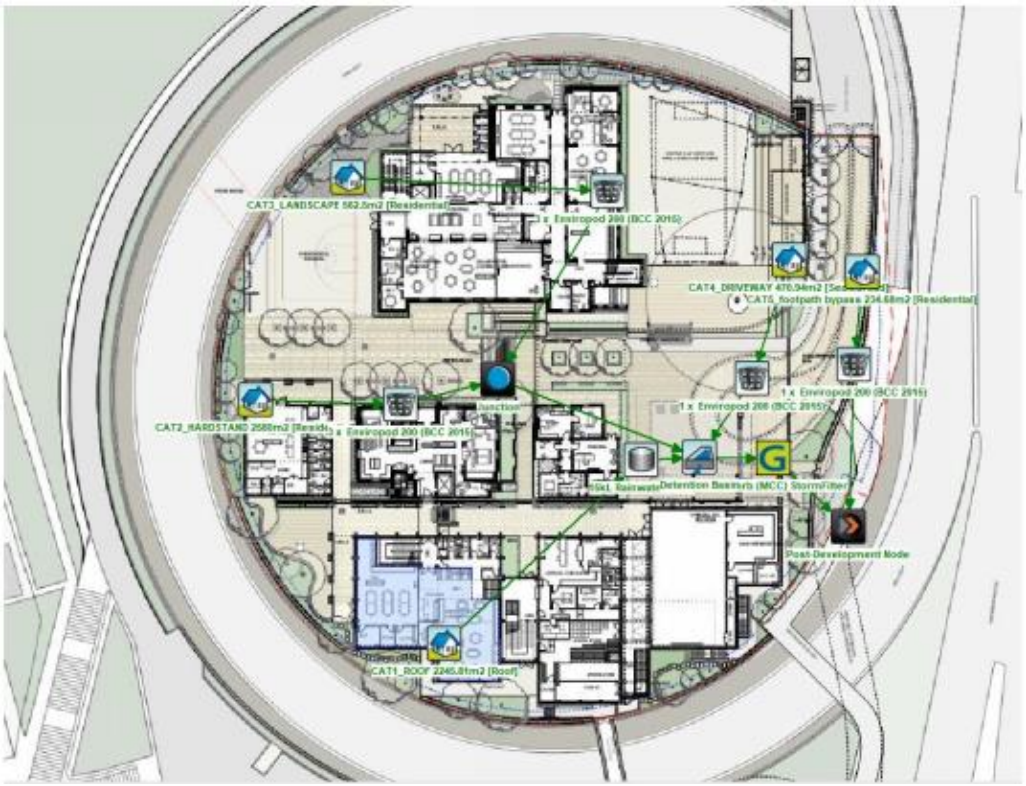
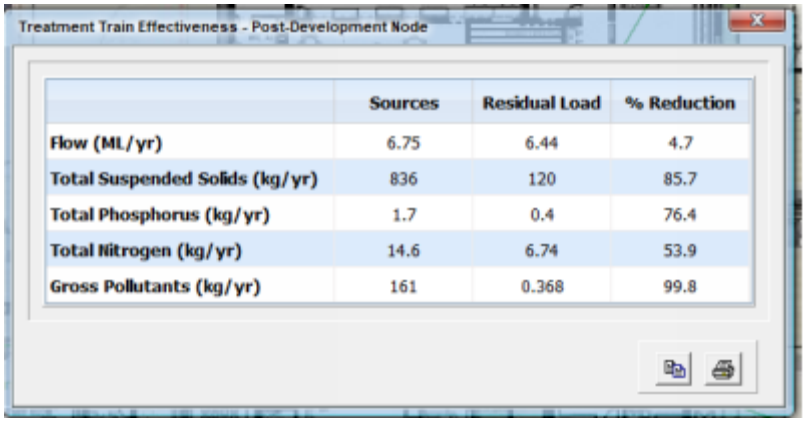


Figure9 - MUSIC Modelling Layout

The results of MUSIC modelling show that the 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 10.



	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 10 - MUSIC Modelling Results (based on Architectural Plan issued 06/12/2019)

4.7 Rainwater Tanks

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 plumbed to appropriate end uses.

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 tank sizing has not taken 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). It is noted, the tank size is subject to change due to changes in landscape or architectural plans.

4.8 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 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 in the Cahill Expressway, which may be RMS asset. 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 storm filter cartridges. The preliminary stormwater layout is shown in Figure 11.

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

Figure 11 - Preliminary Stormwater Layout (Based on the architectural plans dated 06.12.19)

4.9 Sediment and Erosion 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 sediment 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 stablished 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.

5. Hydraulics

5.1 General

Warren Smith & Partners (WS+P) has been engaged by Schools Infrastructure NSW to prepare a town planning Utility Services Report for the proposed development works at the Fort Street Public School.

The Fort Street Public School Campus (“the site”) is located at Observatory Hill, Upper Fort Street, Millers Point NSW 2000 and is shown in Figure 12 (approximate site location identified in red).

Figure 12 - Aerial View of Property Boundary (Source: Google Maps)

This section of the report aims to address the following general SEARS condition;.; “Prepare an Integrated Water Management Plan detailing any proposed alternative water supplies, proposed alternative water supplies, proposed end uses of potable and non-potable water”.

This section of the report will address the main objectives on the condition through mention of water efficient fittings and fixtures, rainwater harvesting and reuse. They hydraulic scope does not extend to water sensitive urban design and hence this aspect of the SEARS condition will not be addressed in this report.

5.2 Demolition

Demolition of existing buildings will take place to enable space for the proposed developments.

5.3 Demand Calculations

5.3.3 Water Supply Demand Calculations

Please note that the School currently has 200 students and approximately 10 FTE staff. It is proposed to increase the number of students and staff to 550 and 37 respectively.

The assumption used in determining the average daily potable water demands for the proposed additional student population of 400 was sourced from the Sydney Water table, “Average Daily Water Use by Property Type” and is presented in Table 1 below. Please refer to Schedule 1 (attached at the end of this report) for the Sydney Water table.

Where possible, potable water usage will be reduced by using low flow taps and sanitary fixtures, which typically provide the following flow rates:

- Shower 9.0L/min
- Basin 4.5L/min
- Sink 4.5/min

We expect Sydney Water to have historical data of the existing site (200 students and 10 staff) of which they can use to assess the effect of the additional 400 students and 30 staff load on existing infrastructure and ultimately provide advice on the proposed connection location and if any required amplifications or upgrades are required.

Table 1 - Average Daily Water Demand

Classification	Metric Unit	Average Demand (L/Metric Unit/Day)
Special Use - School	Student	20
Special Use – School	Staff (Same as Student)	20

Please refer to Table 2 below for the average daily water demand calculation.

Table 2 - Average Daily Water Demand Increase Calculation

Total	Average Demand (L/Metric Unit/Day)	Total Average Daily Water Demand (kL)
400 (Students)	20	8
30 (Staff)	20	0.6

The following flows for the entire site have also been calculated:

- Probable simultaneous demand – 1.78L/sec (subject to architectural development)
- Fire flow for hydrants – 20 L/sec
- Fire flow for sprinklers and drenchers – TBC – BCA Certifier & Fire Safety Engineer required to address heritage scope and building proximity on site

5.3.4 Sewer Discharge Calculations

To determine the average daily sewer discharge for the proposed development, an estimate of the daily sewer discharge in terms of Litres/Day has been made by adopting information derived by the NSW Water Directorate. Where the standard equivalent tenement figures suggest that a 60% water to sewer discharge factor is appropriate. Refer to Table 3 below for this calculation.

We expect Sydney Water to have any existing sewer load information of their assets which they can utilise to determine any required amplifications and upgrades to existing infrastructure because of the load induced by the additional 400 students and 30 staff.

Table 3 - Sewer Discharge Calculation

Classification	Unit	Average Demand (60% of Water Average Demand) L/Metric Unit/Day)
Special Use – School	Student	12
Special Use – School	Staff	12

Please refer to Table 4 below for the Average Daily Sewer Discharge calculation.

Table 4 - EP Calculation

Total Students/Staff	Average Demand (60% of Water Average Demand) (L/Metric Unit/Day)	Total Average Daily Sewer Discharge (kL)
400	12	4.8
30	12	0.36

5.3.5 Gas Demand Calculations

Table 5 shows the approximate natural gas demands across each building on site for both the hydraulic and mechanical services.

The mechanical load estimations for gas consumption across each building are based on previous advice received from the mechanical consultant. However, WS+P has recently requested that the mechanical consultant re-confirm the building loads.

It is expected that the hydraulic load estimates will vary slightly as areas requiring the provision of heated water services (gas fired instantaneous burners) are further defined during schematic design.

Table 5 - Estimated Hydraulic & Mechanical Gas Loads

Building	Mechanical Gas Load (MJ/hr)	Hot Water Heating Load (MJ/hr)
A & D	445	615
E	50	410
C	30	410
M	125	410
F	25	410
G	70	615
H	90	615
J	145	1845

Total	980 MJ/hr	5330 MJ/hr

5.4 Connections

5.4.1 Water

It is proposed that connection is made to the Sydney Water DN150 CICL water main in Upper Fort Street as shown in Figure13 - Location of the Sydney Water Utility (Water) Main(s).

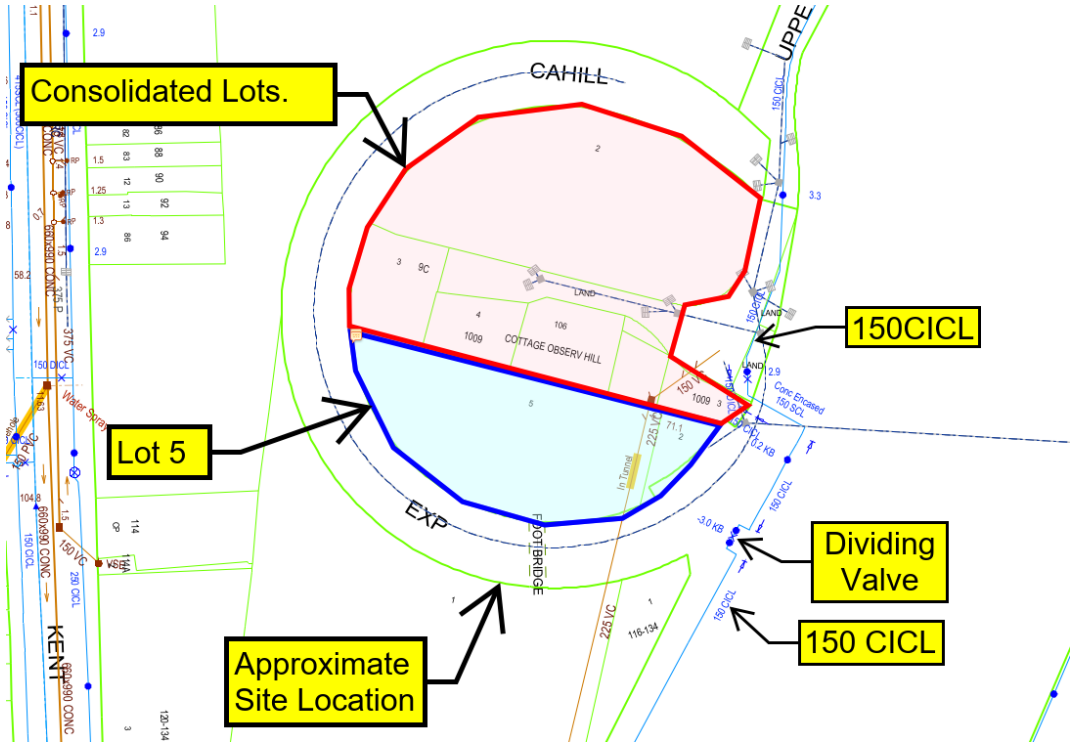


Figure13 - Location of the Sydney Water Utility (Water) Main(s)

WS+P have lodged multiple pressure and flow enquiries and a Section 73 Feasibility application to Sydney Water to assess the capacity of the system. The advice received from all applications made have been included in Appendix 1 – Sydney Water Table.

The main was observed to have sufficient flows and eliminated the requirement for a 288kL fire buffer tank. However, a set of pumps would be required on both the incoming drinking water and fire hydrant supplies to achieve the required pressures in each system.

The consolidation of all the land lots except for Lot 5 will require two separate (metered) drinking water connections to comply with the Sydney Water Network Utility Operator Guidelines. Additionally, each connection will require its own backflow prevention device to protect the potable water main..

It is proposed that both connections to the main are made in Upper Fort Street.

5.4.2 Sewer

There is an existing 150mm diameter Sydney Water vitrified clay (VC) sewer main that extends from Upper Fort Street across the site to a sewer man hole (SMH) as shown in Figure 14 - Location of Sydney Water Utility (Sewer) Main(s). This service then extends south across the Cahill Expressway as a 225mm diameter VC pipe.

The consolidation of all land lots except for Lot 5 will require further input from an accredited Water Services Coordinator to understand all the associated requirements with the proposed sewer design. The proposal is to install a new sewer manhole near the southern site boundary to supply Lot 5 and disuse the existing sewer line and manhole north from this point. A new sewer line will be laid along the eastern border at the required depth to another new sewer manhole which will supply the newly consolidated (northern) lot. This has been illustrated in the most recent hydraulic services Concept Design drawings.

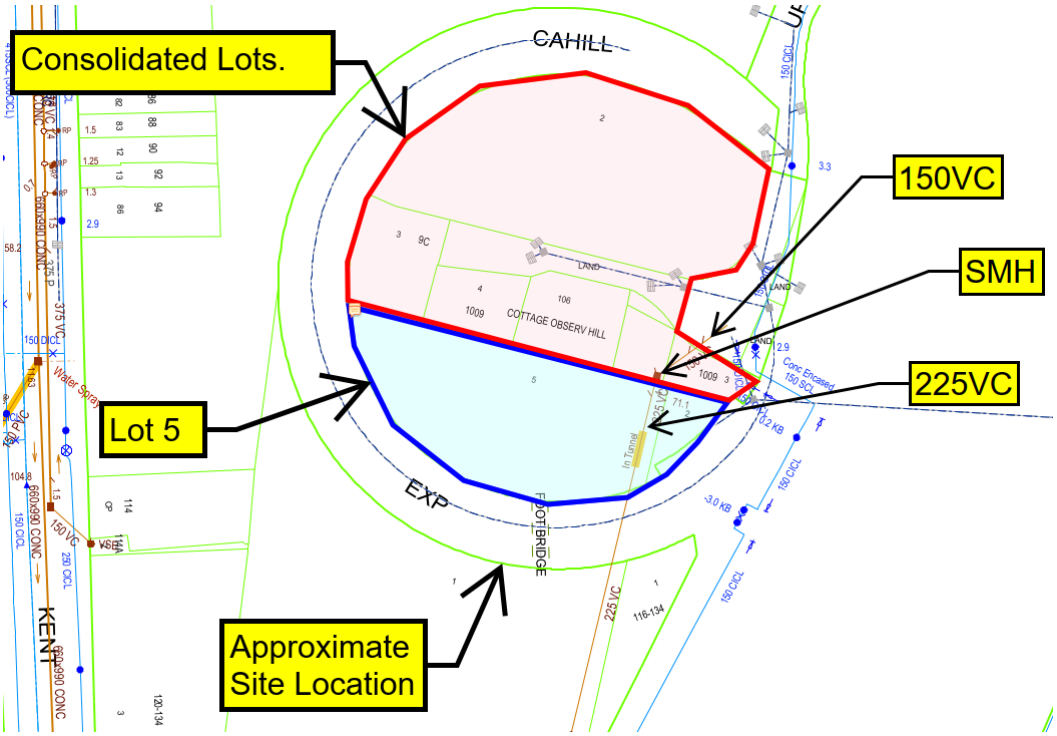


Figure 14 - Location of Sydney Water Utility (Sewer) Main(s)

5.4.3 Gas

There is an existing 75mm diameter 7 kPa Jemena utility main located in Upper Fort Street which looks to extend across the Cahill Expressway where it becomes a 50mm 7 kPa service. From here it extends to a property south of the site where it terminates as shown in Figure 15.

Based on the location of this utility main, WS+P assumes that there will be no requirement for any diversions as it does not look to conflict with any of the proposed developments.

As mentioned in the Concept Design report, it is difficult to assess the available capacity in the natural gas main as Jemena do not offer a formal feasibility process.

Due to the relatively small natural gas demands estimated in Section 5.3.5, WS+P believes there will be sufficient available capacity in the main. In addition, WS+P will attempt to gain unofficial confirmation from Jemena during the Schematic Design phase.

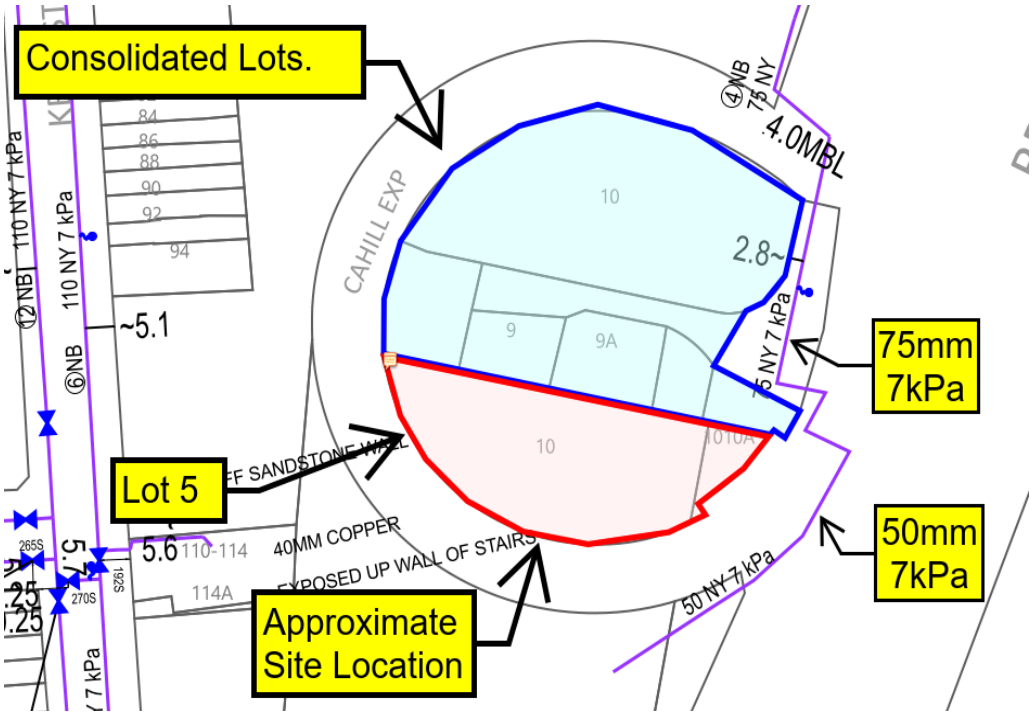


Figure 15 - Location of the Jemena Utility (Natural Gas) Main(s)

6. Electrical, Communications and Security

Wood and Grieve Stantec produced a FSPS Concept Design for electrical, communications and security systems on site. The following is a summary of that Concept Design.

6.1 Existing Electrical

The power supply to the site is currently an overhead supply, reticulated around Upper Fort St. Figure 16 below shows the low voltage (LV) cabling and connection points.

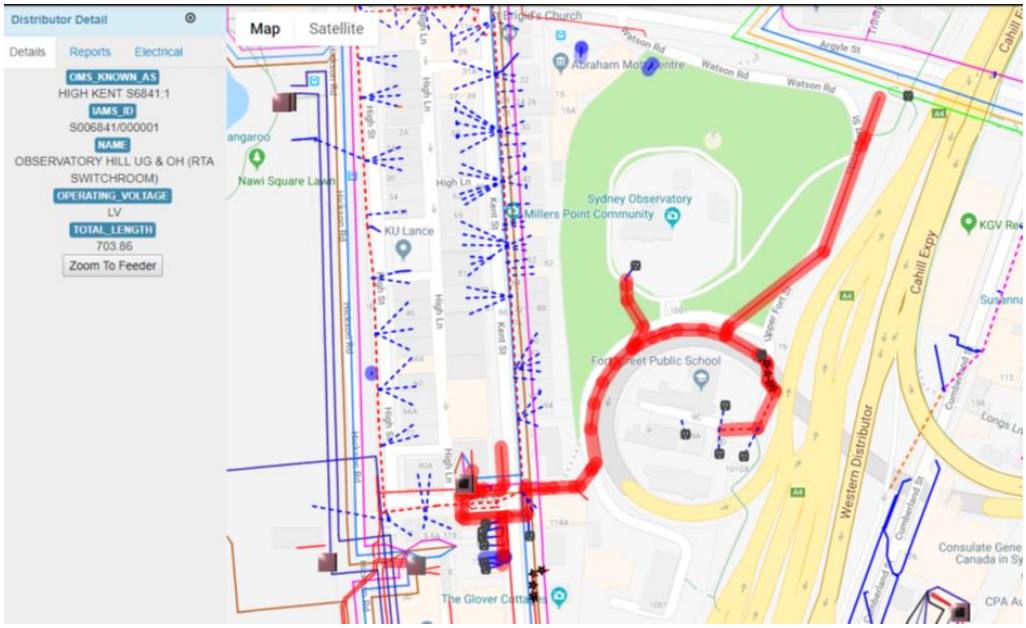


Figure 16 - Low Voltage (LV) cabling and connection points

The power supply originates at the substation within the building at the corner of Kent St and High St. It reticulates underground to along upper Fort St to a power pole, where the cable transitions to an above ground overhead supply to the buildings as shown in the diagram.

The site is situated in the Ausgrid triplex network. The triplex network is made up of 3 x 11kV feeders which allow an N-1 redundancy for the Sydney CBD. This means that nay one of the 3 feeders may be de-energised or isolated for a significant amount of time.

6.2 Demand

At the master planning stage of the project, the power supply to the site is estimated through a square meter rate formula, derived from AS 3000 and the EFSG. The maximum demand figure is calculated to be 433A.

6.3 Connectivity

Each building on site is provided with a main connection/main switchboard. The following table provides connection details for each building:

Building	Connection	Feed
PS Building	Incoming 70mm² power supply cable feeding a bi-directional meter.	The board has a 100A main switch and a chassis which supplies the distribution boards and mechanical units within the building.
Messengers Cottage	The size of the mains cable is unknown, the main switch on the MSB is 80A.	Only MSB serving the building.

Building B	63A main switch MSB	The MSB is the only electrical board for the building. The MSB is also connected to the PV inverters to supply solar power to the building.
MET Building	Does not have power connected to the building.	No feeds as the building is vacant.

6.4 Proposed Electrical

The existing LV Network will need to be augmented. This involves relocating the existing 2 services on S6841 distributors #5 onto distributor #1. Noting that the school is currently connected to distributor #1. From there the cable of distributor #5 would need to be physically extended to the school. This augmentation will include new LV cabling, conduits and trenching for new LV supply up Kent St and post Watson Rd to follow the services path into the site.

An investigation would be required on the feasibility of the above proposal as a fault study would need to be carried out, any existing paper lead cable on the distributor may have to be replaced, utilising existing spare asbestos conduits may not be feasible or recommended, and the staging of the load transfer would require transferring the school load off distributor #1 before the other services from distributor #5 could be transferred onto it due to capacity issues.

A new site main switchboard will be required, as the site will be one or two consolidated lots when the power application is made, in order to provide the site with one power supply. This site main switchboard will then feed other building main distribution boards around the site whether they be new, refurbished or existing. The new site main switchboard maybe external not far from the substation or within a dedicated room with authority access.

It is proposed that the development will have onsite power generation. This will be in the form of photovoltaic panels connected to a power inverter to supply power at each building distribution board. At the concept design phase of the project it is projected to have roof space for up to 70kW of panels.

Included with this onsite power generation is battery storage to ensure the ongoing reliability of the power supply to the site to augment the 400A obtained by Ausgrid. There is potential that the time of the peak air conditioning load will coincide with the maximum amount of power produced from the PV system and the maximum power draw from the grid will remain under 400A.

6.5 Existing Communications

The existing communications infrastructure is fed from Upper Fort St. Telstra has assets which traverse Upper Fort St, however the authority plans do not show the reticulation through to the site.

Existing communications pits are located within the school site opposite to the Messengers Cottage containing fibre optic cabling providing the lead in to the Fort St PS Admin CD. The site campus distributor is within the Fort St PS building, on the ground floor office opposite the MSB location.

There is also a cable path from Messengers Cottage to Building B, reticulated in conduit overhead between the buildings.

6.6 Proposed Communications

Along the pathway of Upper Fort St there are the communications pits, these reticulate along the path on the outer circumference of the road. This pathway is proposed to be retained if possible, or if this road is to be modified to suit the site design, the communications lead in can be reticulated through a new services pathway.

New incoming communications cabling and pits following the same services path from Kent St will be required as the existing pit network is unlikely to be suitable. Cabling will lead to a new main communications room (MCR).

As the existing communications infrastructure on site is not compliant with the EFSG, a new main comms room will be required in one of the buildings (preferably a new building on site within the library block).

New communications cabling will be reticulated from this new main communications room to the various buildings throughout the site.

6.7 Security

Surveillance shall be provided in the form of CCTV cameras in selected areas to maximise security of staff and students while maintaining student privacy and will be developed during the detailed design phase. Key areas for CCTV coverage include the administration/reception area and site perimeter.

Separate CCTV cameras shall be provided to selected areas with no connection to the school's surveillance network in accordance with the requirements of DG65.10.

6.8 Demolition

Several redundant electrical and communication services shall be removed as part of these works. The extent of services to be demolished shall be investigated and established. Any equipment designated to remain shall be identified and secured against damage.

The heritage requirements of the project shall be considered when establishing the services to be demolished.

APPENDIX 1 SYDNEY WATER TABLE

"AVERAGE DAILY WATER USE BY PROPERTY TYPE"

Development Type	Development Sub-Type	Key Metric	Metric Unit	Average Demand (L/Metric Unit / Day)
Residential	Single Lot Torrens	Dwelling	Each dwelling	623.00
	Flats Torrens	Net Floor Area	Square Meter	2.36
	High Rise Units	Net Floor Area	Square Meter	3.34
	Single Lot Community	Dwelling	Each dwelling	623.00
Mixed	Residential / Commercial	Combined Floor Area	Each dwelling / Square Meter	Use separate rates for each component
	Commercial / Industrial	Combined Floor Area	Square Meter	Use separate rates for each component
Commercial	Aged Accom - Self Care	Net Floor Area	Square Meter	2.50
	Aged Accom - Hostel	Bed	Each bed	271.00
	Aged Accom - Full Care	Bed	Each bed	271.00
	Childcare	Net Floor Area	Square Meter	3.60
	Hotel / motel / serviced apartments	Room	Each room	359.94
	Office	Net Floor Area	Square Meter	2.27
	Shopping Centre	Net Floor Area	Square Meter	3.00
	Laundry / Dry Cleaner	Net Floor Area	Square Meter	10.50
	Café / Fast Food / Butcher / Deli	Net Floor Area	Square Meter	2.48
	Retail Units	Net Floor Area	Square Meter	2.48
	Medical / Veterinary	Net Floor Area	Square Meter	2.48
	Mechanical Repair	Net Floor Areas	Square Meter	2.48
	Car / Boat Sales	Net Floor Area	Square Meter	2.48
	Car Wash	Net Floor Area	Square Meter	9.40
	Club	Net Floor Area	Square Meter	3.77

Development Type	Development Sub-Type	Key Metric	Metric Unit	Average Demand (L/Metric Unit / Day)
Industrial	Heavy Process		As required	
	Chemical Manufacturing		As required	
	Printing Manufacturing		As required	
	Beverage Manufacturing		As required	
	Light Factory Unit	Developed floor area	Square Meter	2.82
	Warehousing	Developed floor area	Square Meter	2.82
	Transport / Bus Depot	Site area	Square Meter	0.91
Special Uses	University	Student	Each student	20.00
	School	Student	Each student	20.00
	Hospital	Bed	Each bed	271.00
	Religious assembles	Developed floor area	Square Meter	1.30
	Government Depot	Site area	Square Meter	0.91
	Community Centre / Library	Floor area	Square Meter	1.84
	Sport Fields with Amenities		As required	
	Park & Reserves		As required	
	Services - Police / Ambulance etc.	Floor area	Square Meter	1.40