INFRASTRUCTURE MANAGEMENT PLAN

MOSMAN HIGH SCHOOL MAJOR UPGRADE

ELECTRICAL, COMMUNICATION AND HYDRAULIC SERVICES

JHA

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DOCUMENT CONTROL SHEET

Project Number	200453
Project Name	Mosman High School Major Upgrade
Description	Infrastructure Management Plan – Electrical, Communications and Hydraulic Services
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Revision History

Issued To	Revision and Date							
Christina Travers-Jones Multiplex	REV	0	1	3	4			
	DATE	27/1/2021	23/02/2021	12.03.2021	30.03.2021			
	REV							
	DATE							
	REV							
	DATE							
	REV							
	DATE							

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1 INTRODUCTION

JHA Engineers have been engaged by Multiplex to provide the design of Hydraulic, Electrical and Communications services for the proposed Mosman High School development located at 745 Military Road, Mosman.

The document is designed to achieve a summarised, succinct and coherent written description detailing information on the existing and proposed infrastructure, any augmentation and easement requirements for the development for the provision of utilities including staging of infrastructure. The document will also identify any potential impacts of the proposed construction and operation on the existing utility infrastructure and service provider assets, and demonstrate how these will be protected or impacts mitigated.

Development consent is sought for the following works:

- Demolition of Building B, Building C and part Building E;
- Removal of existing sports court and surrounding retaining walls and nominated trees;
- Construction of a new part 3/ part 4 storey building plus lift overrun and net enclosure to rooftop multi-court (Building G) on the corner of Military Road and Belmont Road providing:
- Administration and staff facilities;
- Multipurpose gym/hall;
- Library;
- Canteen facilities;
- General and senior learning units;
- Science learning unit;
- Health / PE and performing arts unit; and
- Learning and admin support unit.
- Associated landscaping works including new outdoor play areas, a rooftop play space and rooftop multi-purpose court; and
- Relocation of the main pedestrian entrance from Military Road to Belmont Road.

The document is not designed as a specification or bill of materials, nor is it intended to provide detail of the equipment, fitting or services selection.

This report should be read in conjunction with the Architectural design drawings and other consultant's design reports submitted as part of this application.

The following documentation has been considered for the preparation of this report:

- Architectural drawings prepared by Woods Bagot
- Infrastructure Management Plan – Hydraulic, Electrical and Communication Services by ACOR, MHS-SSDA-BS-IMP-R01

2 ELECTRICAL SERVICES

2.1 EXISTING ELECTRICAL SERVICES

2.1.1 ELECTRICAL POWER SUPPLY

Mosman High School is within the Ausgrid electrical distribution network. The school is connected to the Ausgrid network by a single overhead connection off Gladstone Avenue. Additionally, two Ausgrid substations are located within the council footpath off Belmont Road and Avenue Road which are adjacent to the school boundary. These Substations do not directly supply the school.

- Gladstone Avenue
  - Overhead Connection. Augrid Pole 28393 – to Private pole in school premise
  - Main switchboard located within building D adjacent to Private Pole
- Belmont Road
  - Substation No. 2131
- Avenue Road
  - Substation No. 35066

Figure 2.1(a) – Ausgrid GIS Network Diagram

2.1.2 SPARE CAPACITY

Based on ACOR's infrastructure management plan, ACOR had submitted a connection enquiry to Ausgrid to determine the available power supply spare capacity.

Ausgrid had advised that the existing electrical power supply to the site is at capacity. A new substation is required to accommodate the new proposed loads.

2.2 PROPOSED ELECTRICAL SERVICES

2.2.1 MAXIMUM DEMAND

JHA have assessed The Project floor yield, area, proposed use, and preliminary maximum demand prepared by ACOR and therefore carried out a maximum demand calculation to assess its impact to current infrastructure onsite.

2.2.1.1 THE PROJECT ELECTRICAL DEMAND

The proposed new building G will include admin/staff area, hall, general learning space, labs, library, rooftop outdoor learning space and Air-Conditioning to internal most spaces.

Based on past/recent projects of similar sites, the existing building will introduce new A/C installation or upgrade of existing system. Taking consideration of the above, below is the anticipated maximum demand for the site (existing + new buildings).

Table 3.1.1: Preliminary Maximum Demand

Level	Space	Area *(m²)*	Assumed General Lighting & Power Use *(VA/m²)*	Assumed Airconditioning Use *(VA/m²)*	Load *(kVA)*	Load per Phase *(A)*
Ground Floor	Admin, Hall	2825	40	0	113.00	156.94
Level 1	General Learning Space / Labs	1902	25	35	114.12	158.50
Level 2	General Learning Space	1505	25	35	90.30	125.42
	Staff Area	412	40	0	16.48	22.89
Level 3	Library	993	25	35	59.58	82.75
	Staff Area	446	40	0	17.84	24.78
	Outdoor Learning Space	550	10	0	5.50	7.64
Roof	Outdoor Learning Space	1110	10	0	11.10	15.42
					Sub-total	594.34
Existing School Demand (based on ACOR report)					240	333.33
Removal of existing Building B (based on ACOR report)					-140	-194.44
					Sub-total	138.89
Potential new A/C installation / upgrade in existing buildings						
Building A	2-storeys	718	0	35	25.13	34.9
Building D	2-storeys	3328	0	35	116.48	161.78
Building E	3-storeys	2474	0	35	86.59	120.26
					Sub-total	316.94
					Total	1050.17
					Total + 15% Spare (as per EFSG)	1207.70

This allowance is based on:

- Estimated Mechanical Loads (AS3000 only table C3. With full air-conditioning system in all student spaces – exclude Admin and Hall areas);
- LED lighting throughout. No stage lighting;
- General power provisions (circa 6-10 GPO's) for a typical classroom;
- Knowledge and experience of similar sites.
- EFSG requirements

Based on estimated load allowances and assumed air conditioned areas, we estimate the site maximum demand will be in the order of 1207.7 A/phase (incl. 15% spare capacity).

2.2.2 NEW KIOSK SUBSTATION AND NEW MAIN SWITCHBOARD

2.2.2.1 ESTABLISHMENT OF NEW KIOSK SUBSTATION AND NEW MAIN SWITCHBOARD

Based on preliminary maximum demand calculated for The Project and information from ACOR's report, our preliminary calculations confirm the existing electrical infrastructure as it stands will be insufficient for The Project.

A new 1000kVA kiosk substation and new main switchboard are proposed to be installed on site.

The new 1000kVA KL kiosk substation is proposed to be fused at 1600 Amps LV in a 1600 Amps LV panel with the SPD set at 1400 Amps at the new site MSB.

2.2.2.2 NEW KIOSK SUBSTATION

JHA have carried out a desktop study for a feasibility on the new substation locations.

There are numerous restrictions and easements required to be considered when locating a suitable location such as factoring a 5300mm x 3300mm easement for the kiosk substation arrangement, 3m fire separation restriction to non 2 hr. FR structures, 10m away from fire boosters, 6m to any ventilation openings). The configuration of substation explored are in the form of an outdoor KL Kiosk Substation or KK Kiosk Substation.

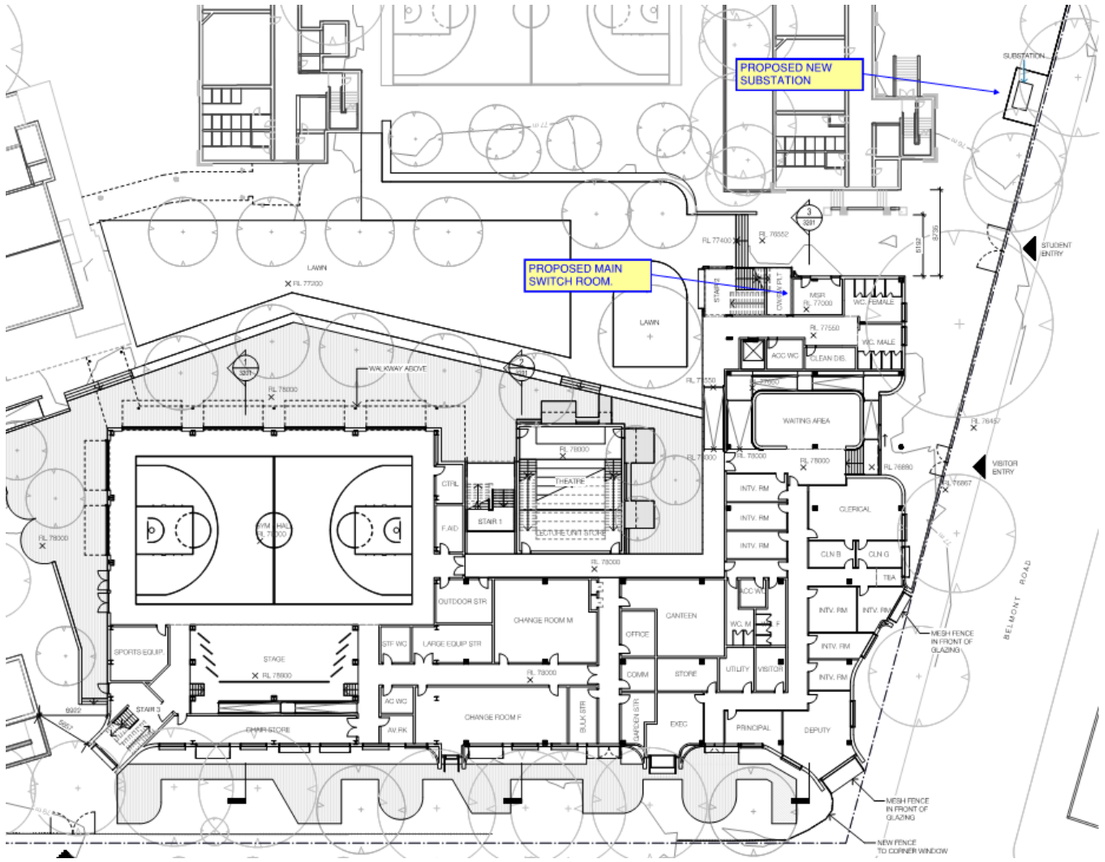
Based on the requirements above, JHA have proposed 2 location options for the new KL kiosk substation.

2.2.2.3 SUPPLY OPTIONS

JHA Electrical carried out a high level feasibility study on potential supply options subject to available space and negotiations with Ausgrid. An application for connection for Mosman High School additional load needs to be submitted to Ausgrid for formal review and approval.

	Supply Options to Mosman High School	Ausgrid Approval Conditions	Notes
	Install 1 x 1000kVA Kiosk substations on Belmont Rd (Refer to Appendix for spatial requirements)	This option is compliant with Ausgrid requirements.	Advantages: - Less trenching works (existing HV cables along proposed new substation location); - Dedicated power supply to Mosman high school; - Total power supply capacity up to 1440A/phase; Disadvantages: - Potential loss of partial existing carpark space; - The new substation will be visible from street; notification to neighbours across the street is required prior to approval from Ausgrid for the new substation; Note that the overhead power lines along Belmont Rd may need to be diverted underground for site access.

Figure 3.2(a) – Proposed new Kiosk substation and new MSB location



In summary below, once the application is submitted, a lead time of 3-4 weeks is typically expected for a response back from Ausgrid.

Responsibility	Actions	Estimated Time Frame	Comments
JHA	To prepare the maximum demand calculation for the new building	0.5 week	Preliminary estimate calculated, however will require Mechanical strategy /loads from Mechanical consultant to finalize.
JHA (W-B/Multiplex/JHA)	Agree on the preferred substation options	TBC	
JHA	JHA to submits Application For Connection (AFC) for additional load to Ausgrid	1 week	
Ausgrid	Ausgrid to Review network arrangements and submit network connection offer	3 weeks	Ausgrid will take up to 3 weeks to review the application and issue the permission to connect letter
JHA	ASP3 design + Ausgrid Certification process A copy of the Kiosk Substation Spatial Requirement is appended at the rear of this report	6 months	ASP3 design + Ausgrid Certification process

Once the new Kiosk substation and site main switchboard are energised, the existing power supply from Gladstone Ave will be disconnected and existing site main switchboard will be treated as a main distribution board to minimise power supply disruption to existing retaining building.

2.3 EXISTING TELECOMMUNICATIONS SERVICES

2.3.1 TELECOMMUNICATIONS INCOMING SERVICES

Mosman High School is serviced by multiple communication networks. The following lists the school's communication services and respective incoming locations.

- Optus Connection from:
  - Gladstone Ave to Building B – Underground fibre service
  - Gladstone Ave to Building D – Underground fibre service
  - Belmont Road to Building B – Overhead fibre service
- Telstra Connection from:
  - Gladstone Ave to Building D – Underground copper service
  - Military Road to Building B – Underground fibre service
  - Avenue Road to Building A – Underground copper service

Figure 4.1(a) – Telstra Connection: Lead-in Copper from DBYD (Left) and Lead-in Fibre from DBYD (Right)

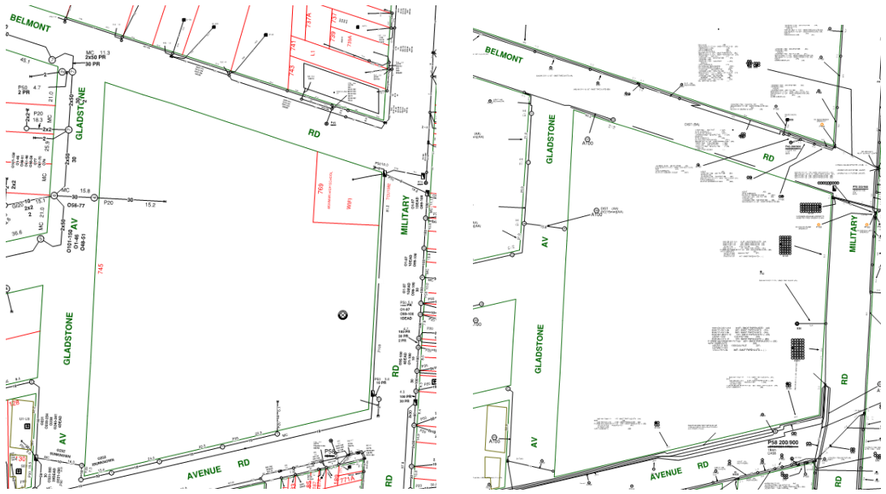
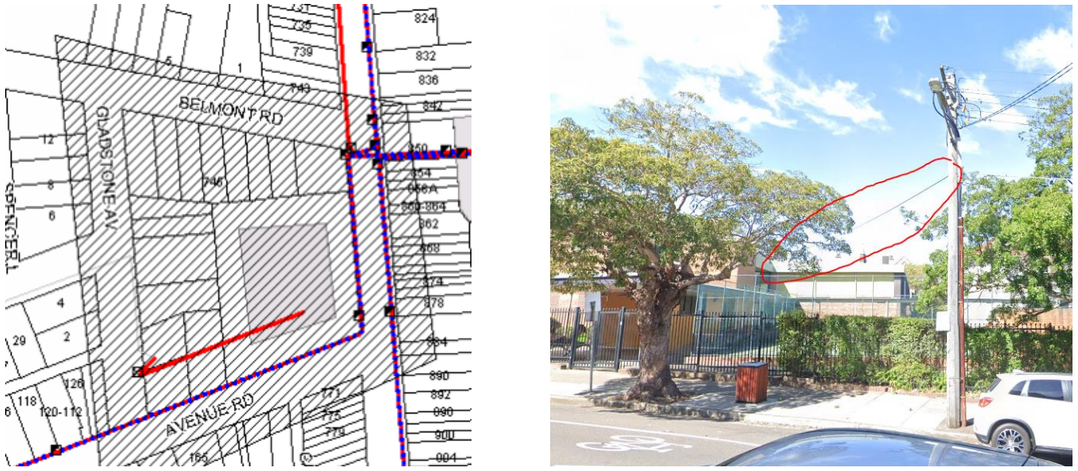


Figure 4.1(b) – Optus Connection: Underground service from DYBD (Left) and Overhead service (Right)



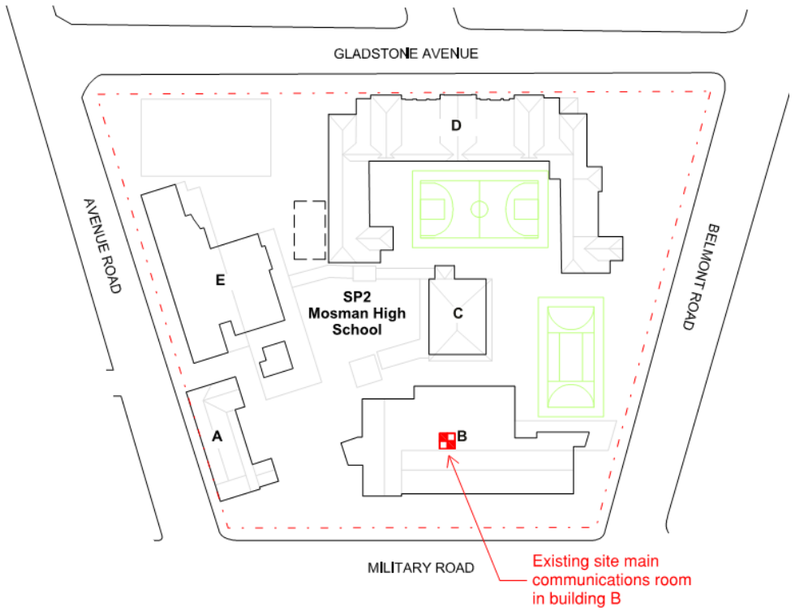
2.3.2 EXISTING SITE COMMS INFRASTRUCTURE

2.3.2.1 CAMPUS DISTRIBUTOR

The existing site main communications room is located within Building B. As Building B will be demolished and replaced new building G development, a new site main communications room is required to be built prior to the demolition of Building B to keep the school connectivity in existing retaining building live.

The existing network topology is a **star topology**.

Figure 4.2(a) – Existing Site Main Communications Room Indicative Location



2.4 PROPOSED TELECOMMUNICATIONS SERVICES

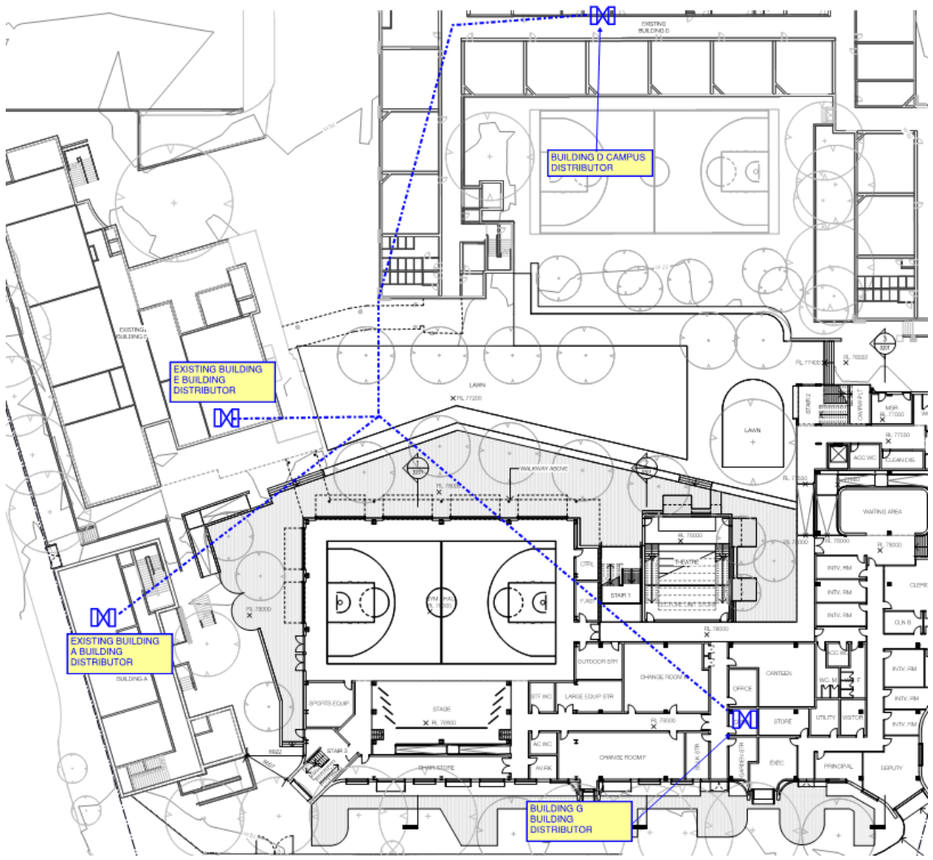
2.4.1 TELECOMMUNICATIONS EARLY ENABLING WORKS

Due to existing site main communications room currently located within demolition zone, a new site main communications room is proposed to be built in existing Building D. The new site main communications room location has taken consideration of potential future development (Building D has been listed as heritage building – main communications room will have minimum impact should other buildings will be demolished and rebuilt).

JHA proposed a sequence of early works to be carried prior to the disconnection of existing main communications room as following:

- Establish new main communication room as part of Building D refurbishment scope.
- Establish new fibre connection off Gladstone Avenue to the new main communication room within Building D. (Lead-in fibre reticulation pathway to be coordinated and approved by Telstra / Optus / NBN (final provider subject to school's approval).
- Divert lead-in copper from Gladstone Avenue to the new main distribution frame in new main communications room.
- Establish new fibre connections from new main communications room to Buildings A, E and new demountables.
- Install new security head end equipment in new main communications room. (Department of Education School Security Unit has specified new security system to be implemented to new/ refurbishment site).
- Reconnect public address in new communications room.
- Disconnect existing Telstra and Optus connection to school as part of Building B demolition stage.

Figure 6.1(a) – Proposed Communications Site Reticulation Pathway



2.4.2 CAMPUS DISTRIBUTOR / BUILDING DISTRIBUTOR

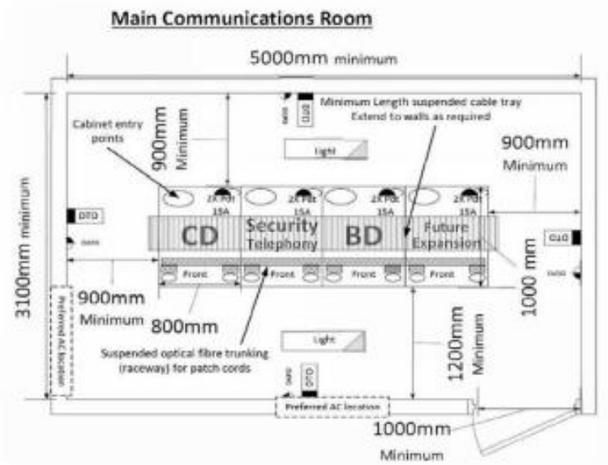
2.4.2.1 CAMPUS DISTRIBUTOR

A new campus distributor (4-off communications racks) will be installed in the new site main communications room in Building D. The campus distributor shall be served via a new fibre lead-in cable from Gladstone Avenue (final provider TBC).

The Main communication room shall be sized to house 3 cabinets as per the EFSG, based on the arrangement and size of the cabinet, the proposed size of the main communication room is: 5m (W) x 3.1m (D). Refer to figure below for details.

The campus distributor shall then feed all other Building Distributors throughout the school via the school backbone fibre.

Figure 5.2(a) –Site Main Communications Room Spatial Requirement

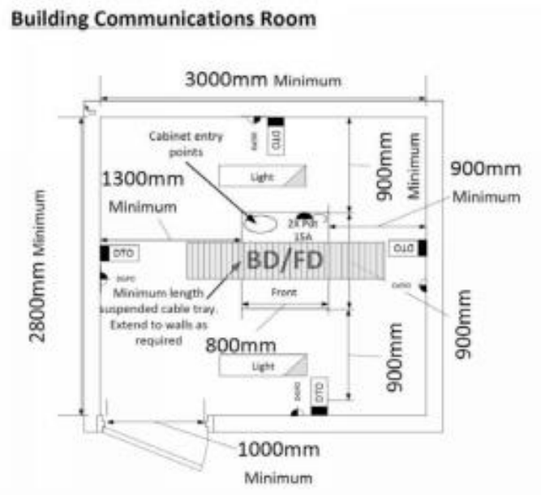


2.4.2.2 BUILDING DISTRIBUTOR

According to Education NSW Structured Cabling System Specification, multi-level building requires minimum 1-off building communications room per level. The building communications room shall be located centrally with a 70m radius cabling length requirement (additional building communications room shall be provided if cabling length exceeds 70m radius).

The building communications room shall be sized to house 2 cabinets as per the EFSG, based on the arrangement and size of the cabinet, the proposed size of the building communications room is: 3m (W) x 2.8m (D). Refer to figure below for details.

Figure 5.2(b) –Building Communications Room Spatial Requirement



3 HYDARULIC SERVICES

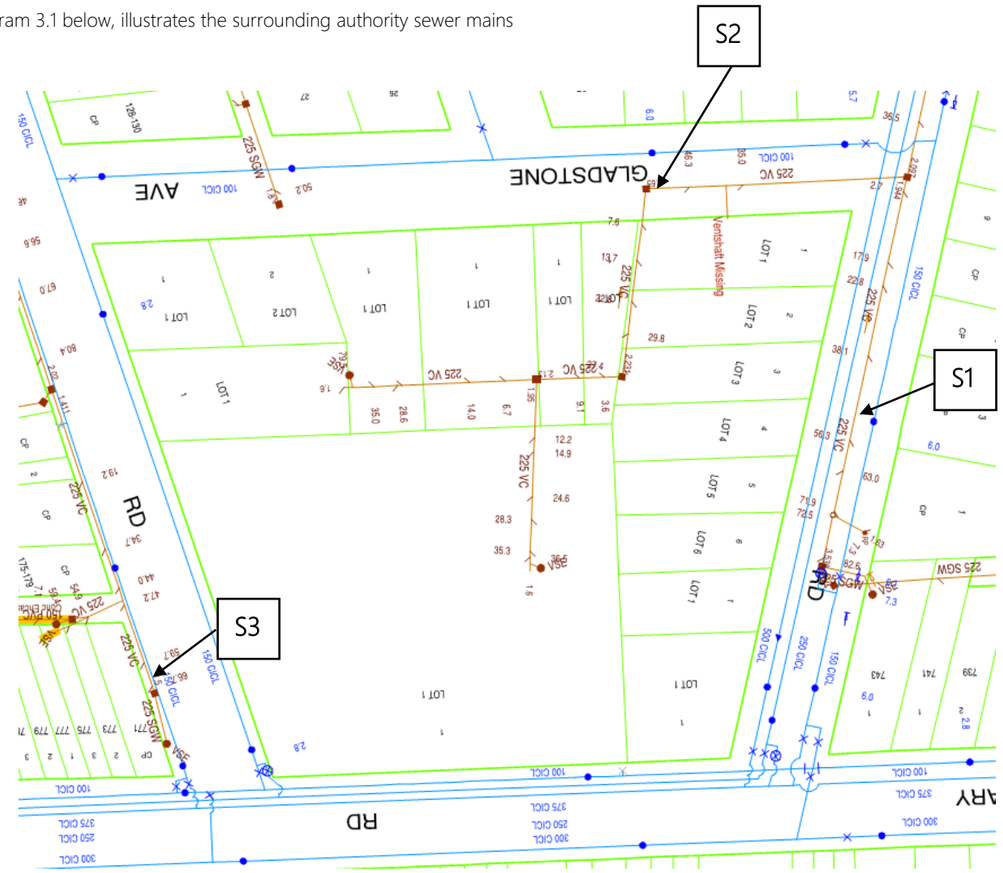
3.1 EXISTING HYDRAULIC SERVICES

3.1.1 SEWER DRAINAGE

The Mosman High School precinct is surrounded by the following sewerage infrastructure for possible connection to the site:

- S1 – 225mm VC pipeline in Belmont Road
- S2 – 225mm VC pipeline in Gladstone Avenue
- S3 – 225mm VC pipeline in Avenue Road

Diagram 3.1 below, illustrates the surrounding authority sewer mains



Sewer Infrastructure Map

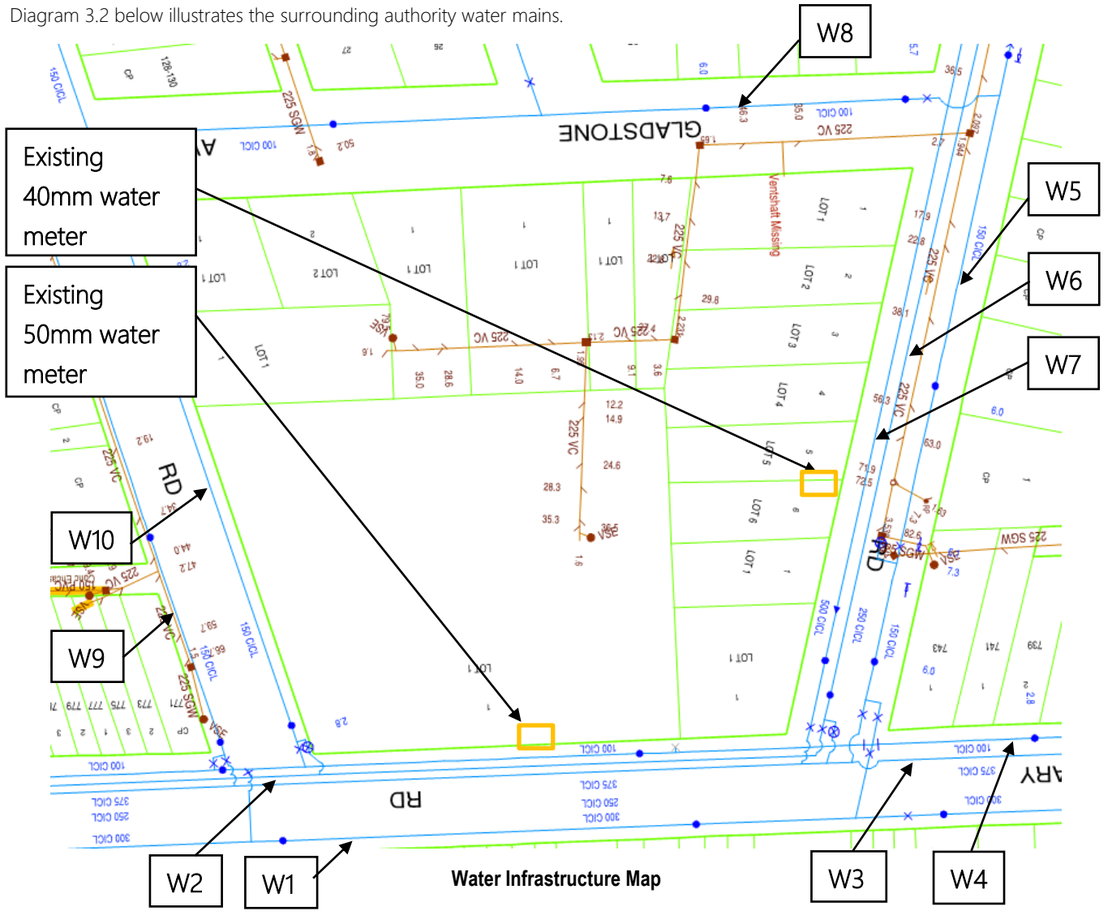
3.1.2 POTABLE WATER

The Mosman High School precinct has frontage to the following authority water mains:

- W1: 300mm CICL water main in Military Road
- W2: 250mm CICL water main in Military Road
- W3: 375mm CICL water main in Military Road
- W4: 100mm CICL water main in Military Road
- W5: 150mm CICL water main in Belmont Road
- W6: 250mm CICL water main in Belmont Road
- W7: 500mm CICL water main in Belmont Road
- W8: 100mm CICL water main in Gladstone Avenue
- W9: 150mm CICL water main in Avenue Road
- W10: 150mm CICL water main in Avenue Road

The pressure test results for the 150mm CICL water main in Belmont Road can be found in the appendice of this report obtained from the Stage 1 SSD by Acor.

Diagram 3.2 below illustrates the surrounding authority water mains.



Water Infrastructure Map

There are two known water meters located on the site:

- 1x 50mm metered connection complete with backflow protection device, in Military Road
- 1x 40mm metered connection with no backflow prevention device, in Belmont Road

3.1.3 GAS SERVICES

The Mosman High School precinct has frontage to the following authority gas mains:

- G1: 110mm NY gas main in Military Road
- G2: 110mm NY gas main in Belmont Road
- G3: 32mm NY gas main in Gladstone Avenue
- G4: 75mm NY gas main in Avenue Road

There are three known gas meters located on the site:

- GM1: metered gas supply from G1 supplying Block D.
- GM2: 21m^3/hr meter and regulator supplied from G4 extending to Block E.
- GM3: 21m^3/hr meter and regulator supplied from G3 extending to Block G.

Diagram 3.3 below illustrates the surrounding authority gas mains.

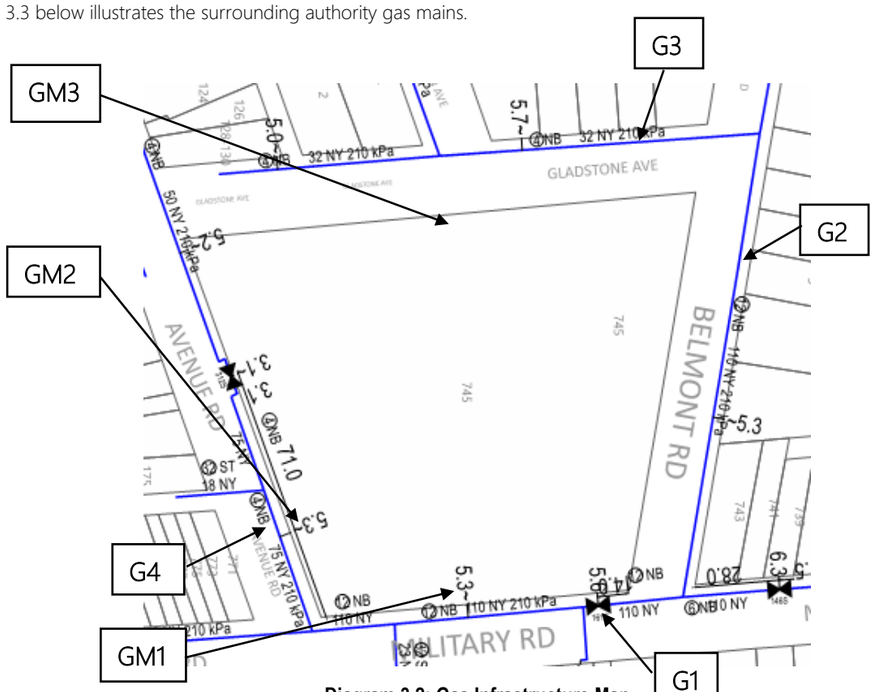


Diagram 3.2: Gas Infrastructure Map

3.2 PROPOSED HYDRAULIC SERVICES

3.2.1 SEWER DRAINAGE & TRADE WASTE

3.2.1.1 CONNECTION POINT

The existing 225mm VC sewer main located in Belmont Road in the eastern side of the site is envisaged to be of sufficient capacity for the proposed development. The site has an existing connection to this authority sewer main, which terminates within the eastern side of the site. In order to confirm if this sewer main has sufficient capacity to accommodate the increase of load from the proposed development, a section 73 application will be lodged to Sydney Water once development approval is obtained.

Although it is not envisaged that any works will be required for the sewer main located in Gladstone Avenue for this proposed development, the new buiding does not encroach

It is envisaged that a grease arrestor will be required as a pre-treatment device for the grease discharged from the proposed canteen in the new building.

Diagram 4.1 illustrates the proposed sewer connection point.

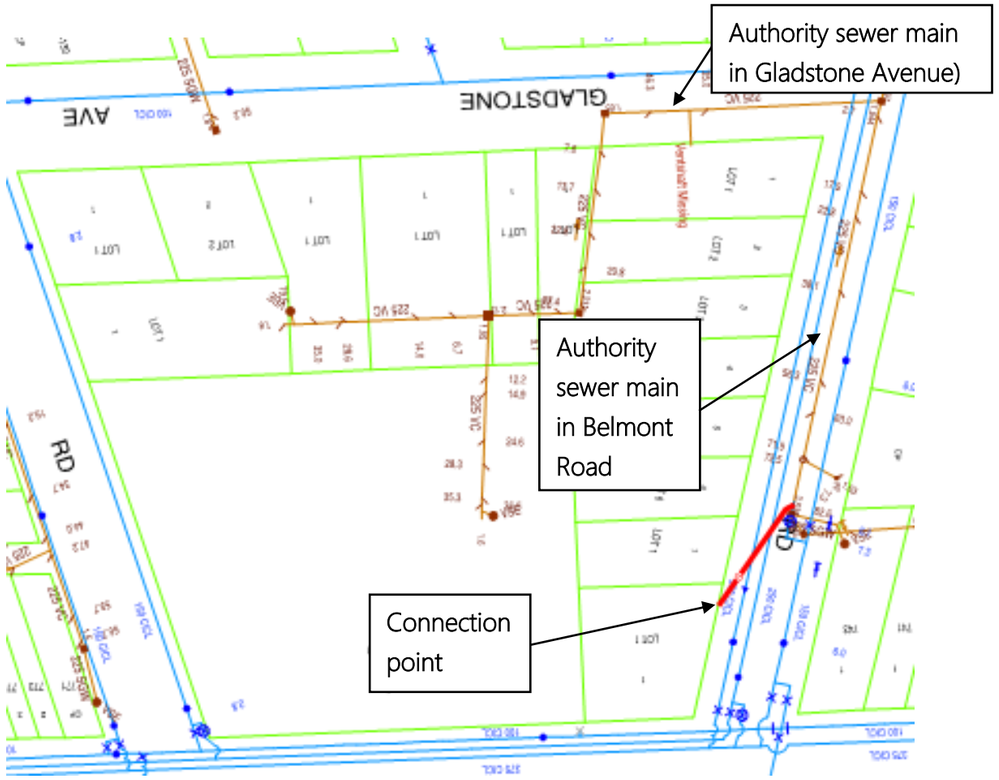


Diagram 4.1: Sewer Connection Point

3.2.1.2 LOAD ESTIMATION

The existing Building G is currently served by an existing 150mm sewer connection in Belmont Road, and it is the only building that is discharging into it. At a 1% grade, this pipeline has a maximum capacity of 855 fixture units.

The proposed development is estimated to have a total of 307 fixture units. Therefore, it is proposed the reuse of this existing 150mm sewer connection in Belmont Road, which has sufficient capacity to cater for the new building. A new sewer sideline extension may be required pending the Section 73 applcaiton.

As mentioned above, if it is assessed that it is not possible to reach this sewer connection by gravity due to long distances, it may be required to use the sewer connection on Gladstone Avenue for the furthest parts of the new building, if required.

3.2.2 WATER SUPPLY

3.2.2.1 CONNECTION POINTS

It is understood that the DN50 metered connection supplies only the fixtures and fittings within Building 'G', while the DN40 metered connection supplies the fixtures for the remaining buildings on the site.

With the increase in overall size to Building 'G', it is proposed to upgrade the DN40 water meter located in Belmont Road to a DN50 size, divert the in ground services to outside the new building's footprint and reconnect the services to supply the fixtures both in the new building and in the remaining buildings on the site.

In doing this, the DN50 water meter located in Military Road is envisaged to be disconnected and removed from site, with the downstream services from this meter reconnected to the upgraded DN50 metered supply from Belmont Road. All redundant pipework shall be disconnected, sealed and removed from site in accordance with AS3500.

Fire hydrants will be required to provide coverage for the proposed development and based on Sydney Water pressure and flow inquiry, a fire hydrant booster assembly and a fire hydrant pump set will be required. The proposed location for the booster assembly and pump set is as shown in the diagram below.

Diagram 4.2 illustrates proposed domestic cold water connection lines to the proposed development.

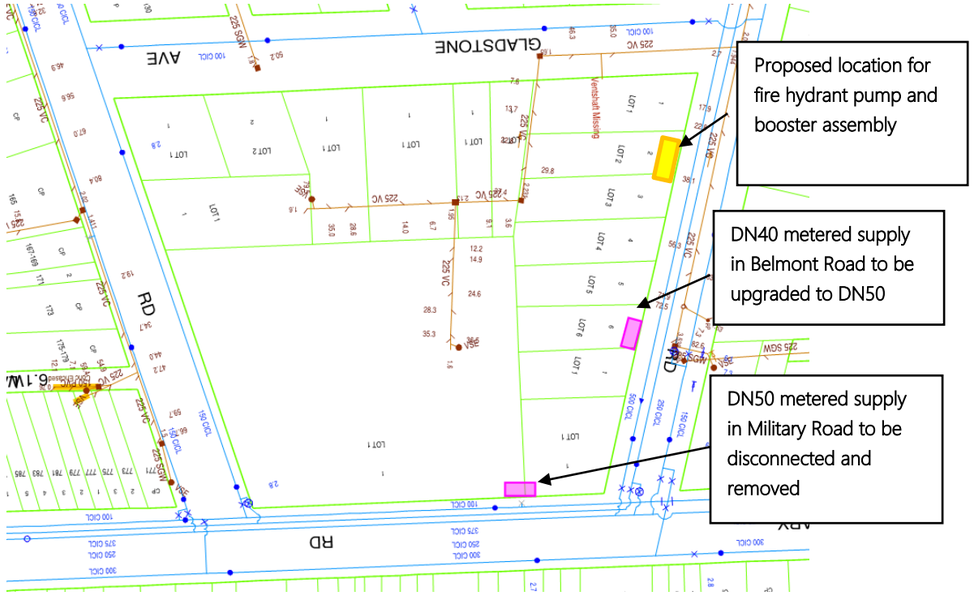


Diagram 4.2: Potable Water Connection Point

3.2.2.2 LOAD ESTIMATION – POTABLE WATER

The site is currently served by 2 water connections. A 40mm water meter is located in Belmont Road and a 50mm water meter is located in Military Road. As mentioned above, it is proposed that the 40mm water meter is upgraded to 50mm, so that it can supply the entire site (new and existing buildings).

The maximum flow rate for this 50mm pipe is 2.8l/s, which equates 420 loading units.

The existing site load has been calculated to be 1.1l/s, which equates to 110 loading units.

It is estimated that the new building will contribute to a total site load of approximately 211 loading units, which equates to 1.85l/s which allows for 50% spare capacity. It is then envisaged that the 50mm water connection has sufficient capacity to serve the entire site.

3.2.3 GAS SUPPLY

The site is currently served by multiple gas meters and are proposed to be retained in the existing arrangement.

It is proposed the gas meter currently serving the existing Block G will be modified and potentially upgraded to supply the new Block G gas appliances.

At this stage, it is envisaged that the existing gas authority (Jemena) mains have sufficient capacity for the additional load, and potential upgrade of the meter assembly may be required.

All works regarding the existing natural gas pipework shall be confirmed once the total load has been determined.

4 APPENDIX

4.1 PFI OF 150MM WATER MAIN IN BELMONT ROAD

Statement of Available Pressure and Flow

Sydney WATER

Jamie-Lee MacDonald
24 Falcon Street
Crows Nest, NSW 2065

Attention: Jamie-Lee MacDonald Date: 22/01/2020

Pressure & Flow Application Number: 790073
Your Pressure Inquiry Dated: 2020-01-07
Property Address: Military Road, Mosman, NSW 2088

The expected maximum and minimum pressures available in the water main given below relate to modelled existing demand conditions, either with or without extra flows for emergency fire fighting, and are not to be construed as availability for normal domestic supply for any proposed development.

ASSUMED CONNECTION DETAILS

Street Name: Belmont Road	Side of Street: North
Distance & Direction from Nearest Cross Street	15 metres West from Military Road
Approximate Ground Level (AHD):	78 metres
Nominal Size of Water Main (DN):	150 mm Target point as per sketch provided – Test Location One

EXPECTED WATER MAIN PRESSURES AT CONNECTION POINT

Normal Supply Conditions	
Maximum Pressure	52 metre head
Minimum Pressure	28 metre head

WITH PROPERTY FIRE PREVENTION SYSTEM DEMANDS	Flow l/s	Pressure head m
Fire Hose Reel Installations (Two hose reels simultaneously)	0.66	28
Fire Hydrant / Sprinkler Installations (Pressure expected to be maintained for 95% of the time)	5 10 15 20 26 30 40 50	38 37 37 37 36 36 34 33
Fire Installations based on peak demand (Pressure expected to be maintained with flows combined with peak demand in the water main)	5 10 15 20 26 30 40 50	28 27 27 27 26 25 24 23
Maximum Permissible Flow	52	22

(Please refer to reverse side for Notes)

For any further inquiries regarding this application please email :

swtapin@sydneywater.com.au

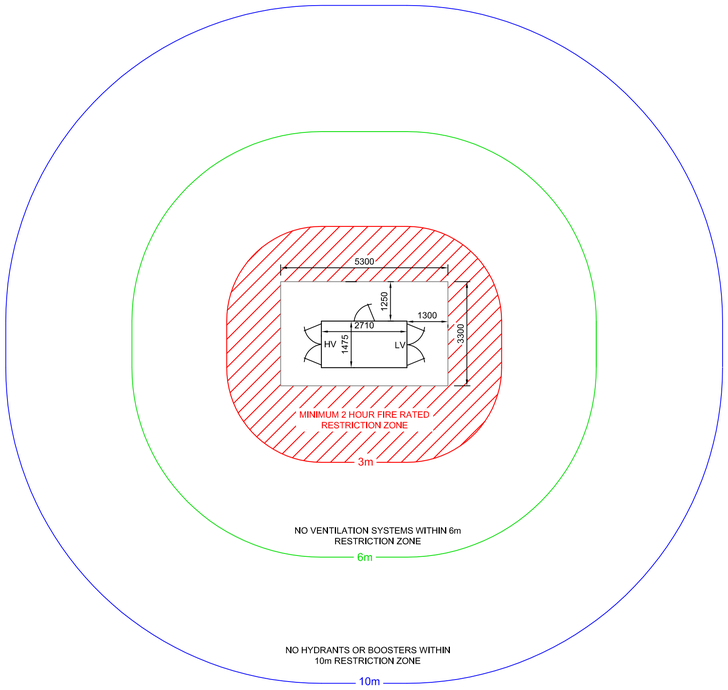
Sydney Water Corporation ABN 49 776 225 038
1 Smith St Parramatta 2150 | PO Box 399 Parramatta 2124 | DX 14 Sydney | T 13 20 92 | www.sydneywater.com.au
Delivering essential and sustainable water services for the benefit of the community

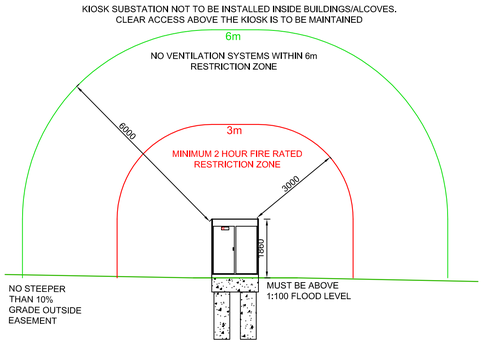
4.2 AUSGRID SUBSTATION SPATIAL – SINGLE L TYPE KIOSK

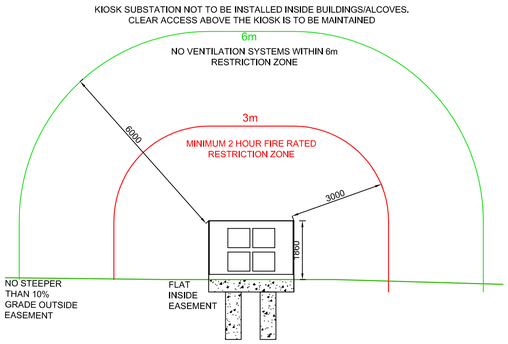
4.3 PROPOSED SUBSTATION LOCATION

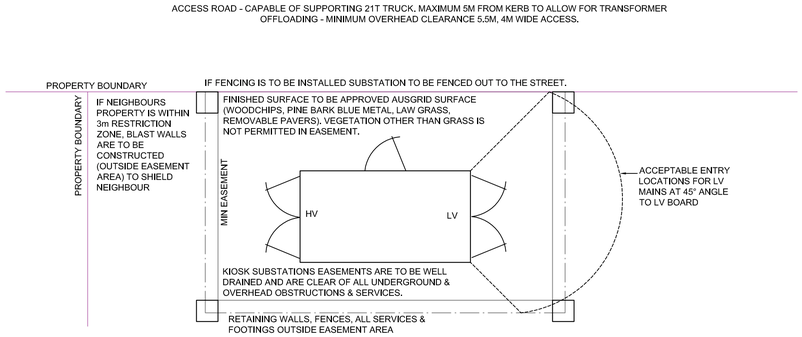
4.4 PROPOSED COMMUNICATIONS SITE RETICULATION PLAN

APPENDIX 4.2 - AUSGRID SUBSTATION SPATIALS - SINGLE L TYPE KIOSK









SUBSTATION ACCESS

KIOSK SUBSTATION MUST HAVE UNIMPEDED ACCESS FOR AUSGRID PERSONNEL AND VEHICLES, DIRECTLY FROM A PUBLIC STREET, FOR 24 HOURS PER DAY, DAYS PER WEEK.

ACCESS FROM THE PUBLIC ROAD TO THE SUBSTATION SITE MUST NOT BE FENCED OR ENCLOSED, UNLESS APPROVAL IS GIVEN IN WRITING BY AUSGRID AND THE CONDITIONS LISTED IN THE APPROVAL ARE COMPLIED WITH ON AN ONGOING BASIS BY THE SITE OWNER / CUSTOMER.

WHERE THE SUBSTATION EASEMENT IS NOT SITED ALONG STREET FRONTAGE, THE FOLLOWING IS REQUIRED:

RIGHT OF CARRIAGEWAY
A HEAVY TRUCK WITH A VEHICLE-MOUTED CRANE IS NEED TO INSTALL OR REMOVE THE KIOSK SUBSTATION AND EQUIPMENT. THE SURFACE OF THE RIGHT OF CARRIAGEWAY SHOULD BE CAPABLE OF WITHSTANDING A PEAR-AXLE GROUP OR OUTRIGGER LOADING OF 21 TONNES, WITH THE LOADING ON ANY ONE PAD BEING UP TO 15 TONNES, OR A FRANNA CRANE (OVERALL LOADING WITH TRANSFORMER IS 25 TONNES SPREAD ACROSS THE TWO AXLES).
ACCESS ROUTES MUST BE SUITABLE UNDER ALL WEATHER CONDITIONS AND CONSTRUCTED TO WITHSTAND THE LOADING. THE ACCESS ROUTE SHOULD BE A MINIMUM OF 4.5m WIDE, HAVE A MINIMUM OF 4m HEADROOM AND BE CONTINUOUS FROM THE PROPERTY BOUNDARY TO THE SUBSTATION SITE.
THE SURFACE GRADE SHOULD NOT EXCEED 1:8 ALONG THE ROW AND 1:20 IN THE TRANSFORMER HANDLING AREA.

CABLE EASEMENT
A CABLE EASEMENT IS GENERALLY CLEAR OF OTHER CONSTRUCTION AND IS REQUIRED FOR THE INSTALLATION AND FUTURE MAINTENANCE OF MAINS ASSOCIATED WITH SUBSTATIONS. THE WIDTH OF A CABLE EASEMENT IS NORMALLY 4.5m FOR UNDERGROUND CABLES. THIS CAN BE REDUCED TO 2m WHERE ONLY ONE OR TWO CABLES ARE INSTALLED, AND ARE WITHIN OR ADJACENT TO GROUND PERMITTED ACCESS TO THE CABLES (e.g. RIGHT OF CARRIAGEWAY)

SUBSTATION SITE

IT IS ESSENTIAL TO LOCATE KIOSK SUBSTATIONS IN AREAS THAT ARE WELL DRAINED AND ARE CLEAR OF UNDERGROUND OR OVERHEAD OBSTRUCTIONS.

THE FINISHED SURFACE OF THE SUBSTATION EASEMENT IS TO BE ON OF THE FOLLOWING: WOODCHIPS, PINE BARK BLUE METAL, LAW GRASS, REMOVABLE PAVERS OR DECORATIVE GRAVEL TO A DEPTH OF 120mm.

TREES SHRUBS OR PLANTS, OTHER THAN LAW GRASS ARE NOT ALLOWED IN SUBSTATION EASEMENT. WATERING SYSTEMS MUST NOT BE INSTALLED WITHIN THE SUBSTATION EASEMENT OR DESIGNATED PERSONNEL ROUTES.

ANY SCREENING VEGETATION MUST BE OUTSIDE THE EASEMENT AND MUST NOT INTERFERE WITH ACCESS TO THE SUBSTATION FOR BOTH PERSONNEL AND EQUIPMENT.

SUBSTATION EASEMENT AREA TO BE MADE FLAT AND BATTER EXTERNAL TO EASEMENT TO BE NO GREATER THAN 1:4

SUBSTATION SITE MUST BE ABOVE 1IN 100 YEAR(OR LESS) FLOOD LEVEL.

SUBSTATION PIERS

REFER TO AUSGRID DRAWING 151572 FOR STANDARD PIER ARRANGEMENT.

THE TOTAL WEIGHT OF THE SUBSTATION IS 7350kg

THE BEARING OF THE PIERS IS TO HAVE A CAPACITY OF 300kPa.

IF STANDARD PIERS DOES NOT SATISFY STRUCTURAL REQUIREMENT SETOUT IN 151572 A NON STANDARD STRUCTURAL DESIGN AND CERTIFICATION WILL BE REQUIRED BY A STRUCTURAL ENGINEER

SUBSTATION SEGREGATION

KIOSK SUBSTATIONS ARE NOT TO BE INSTALLED WITHIN BUILDINGS, ON BUILDING ROOFS, IN CHAMBERS OR IN COVERED PARKING AREAS OR GARAGES.

A CLEAR 6m (MEASURED BY SHORTEST STRING LINE) MUST BE MAINTAINED BETWEEN THE KIOSK HOUSING AND ANY BUILDING AIR INTAKE OR EXHAUST OPENINGS. THIS APPLIES IRRESPECTIVE OF WHETHER THE BUILDING DUCTED VENTILATION SYSTEM IS MECHANICAL OR NATURAL AND IRRESPECTIVE OF WHETHER OR NOT FIRE DAMPERS ARE INSTALLED IN THE DUCTS. NOTE: AUSGRID DOES NOT REGARD OPENABLE WINDOWS, THAT PROVIDE NATURAL VENTILATION TO ONE BUILDING COMPARTMENT ONLY, AS A BUILDING VENTILATION SYSTEM OPENING.

A CLEAR 3m MUST BE MAINTAINED BETWEEN THE KIOSK HOUSING AND ANY NON-FIRE RATED OPTION OF A BUILDING. ANY OPTION OF A BUILDING WITHIN 3m IN ANY DIRECTION FROM THE SUBSTATION HOUSING IS REQUIRED TO HAVE A FIRE RESISTANCE LEVEL (FRL) OF NOT LESS THAN 120/120/120.

A CLEAR 3m MUST BE MAINTAINED BETWEEN THE KIOSK HOUSING AND ANY OPENABLE OR FIXED WINDOW(S) OR GLASS BLOCKWORK OR SIMILAR, IRRESPECTIVE OF THEIR FIRE RATING, UNLESS THEY ARE SHELTERED BY A NON-IGNITABLE BLASTING RESISTING BARRIER.

A CLEAR 3m MUST BE MAINTAINED BETWEEN THE SUBSTATION HOUSING AND ANY GAS METER, REGULATOR OR EXPOSED GAS PIPE WORK, UNLESS THEY ARE PROTECTED BY A NON-IGNITABLE BLAST-RESISTING BARRIER.

A CLEAR 10m (min.) MUST BE MAINTAINED BETWEEN THE SUBSTATION AND EXTERNAL FIRE HYDRANTS OR BOOSTER ASSEMBLIES.

THE KIOSK SUBSTATION IS TO BE LOCATED AT CERTAIN min. DISTANCE FROM COMMUNICATIONS PITS & MEN EARTHED OBJECTS. THE MINIMUM SEPARATION TO BE CONFIRMED AFTER CONDUCTED AN EARTHING DESIGN - SUBJECT TO AUSGRID APPROVAL.

REVISIONS / AMENDMENTS

Rev	Date	Description	Verified
1	09.10.13	FOR INFORMATION	B.B.
2	04.04.14	KIOSK HEIGHTS UPDATED	B.B.
3	12.11.14	GRADE OUTSIDE EASEMENT UPDATED	B.B.
4	28.05.15	SUBSTATION SITE NOTE UPDATED	R.P.

CLIENT

ARCHITECT

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PROJECT

TITLE

AUSGRID MINIMUM REQUIREMENTS

TYPE 'L' KIOSK SUBSTATION
SINGLE SUBSTATION

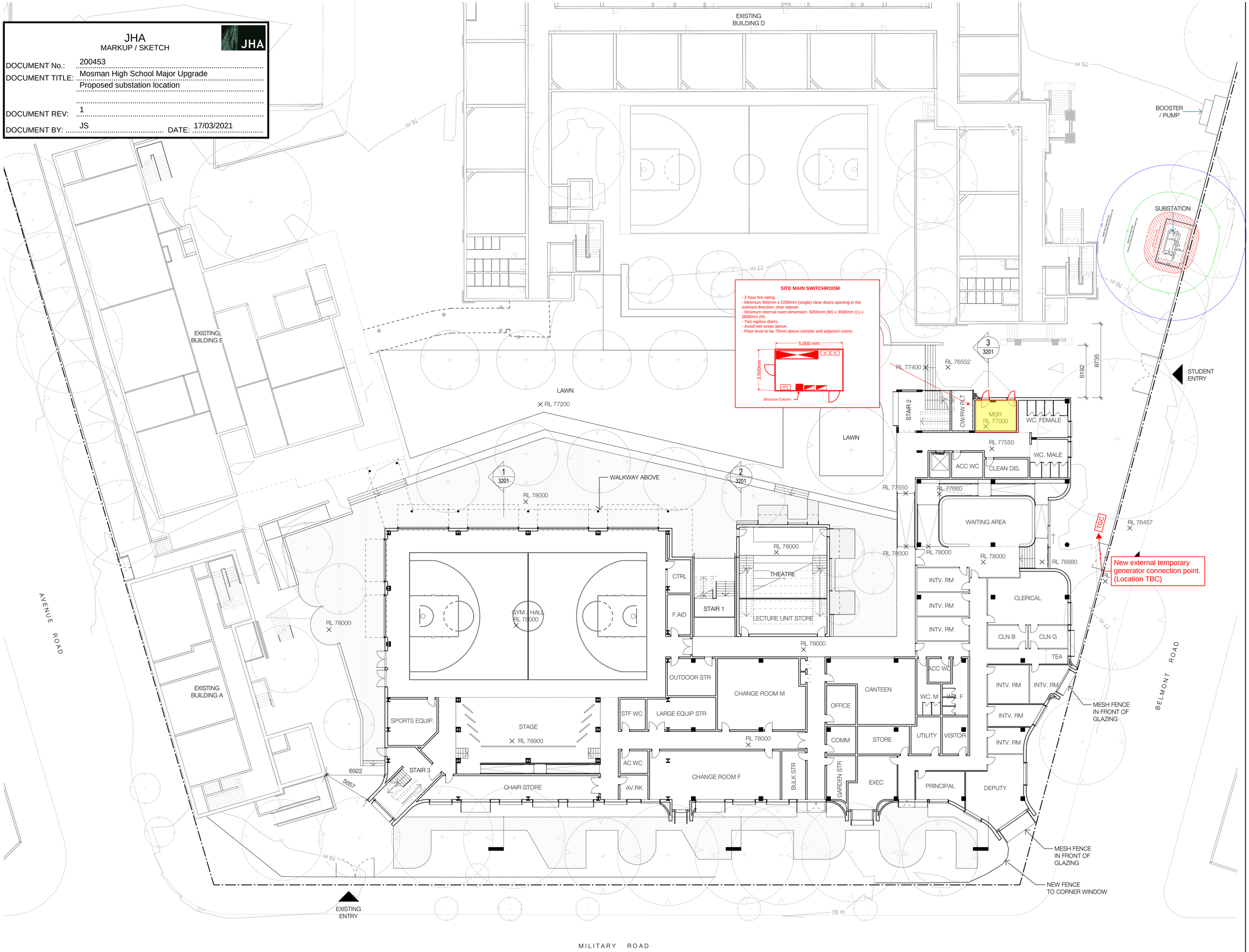
FOR INFORMATION
NOT TO BE USED FOR CONSTRUCTION

DRAWN	CHECKED	APPROVED	SCALE	CREATED
BB	BB	SM	NTS	MAY 15

JOB No.	DRAWING No.	REV
	L3-02	4

JHA
MARKUP / SKETCH

DOCUMENT No.: 200453
DOCUMENT TITLE: Mosman High School Major Upgrade
Proposed substation location
DOCUMENT REV: 1
DOCUMENT BY: JS DATE: 17/03/2021



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#	Status	Description	Date

Notes

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Project
MOSMAN HIGH SCHOOL

Client
SCHOOL INFRASTRUCTURE NSW

Issuer
MULTIPLEX
W–B™
WOODS BAGOT

Project number 121468
Size check 25mm
Checked Checker
Approved Approver
Sheet size A1
Scale 1 : 200

Sheet title
GROUND FLOOR PLAN

Sheet number DA-2201
Revision
Status PRELIMINARY

Date generated 10/03/2021 9:49:09 PM C:\Users\sydzxl\Documents\Autodesk\Revit\RAC2020\121468_Mosman High_Central_R20_zie.liu.rvt

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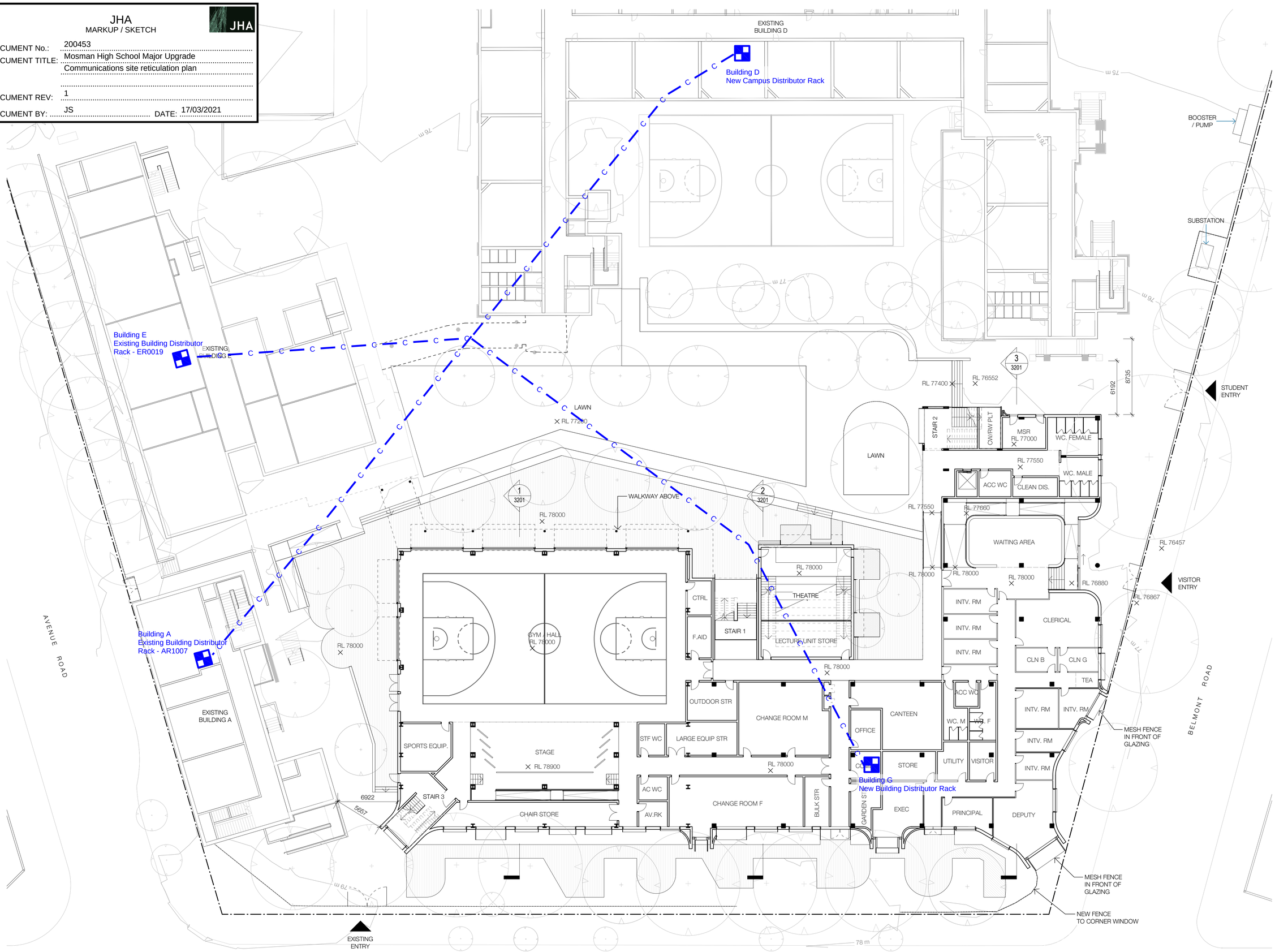
MARKUP / SKETCH

DOCUMENT No.: 200453
DOCUMENT TITLE: Mosman High School Major Upgrade
Communications site reticulation plan
DOCUMENT REV: 1
DOCUMENT BY: JS DATE: 17/03/2021



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Client
SCHOOL INFRASTRUCTURE NSW

Issuer
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Project number 121468
Size check 25mm
Checked Checker
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Sheet size A1
Scale 1 : 200

Sheet title
GROUND FLOOR PLAN

Sheet number DA-2201
Revision
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