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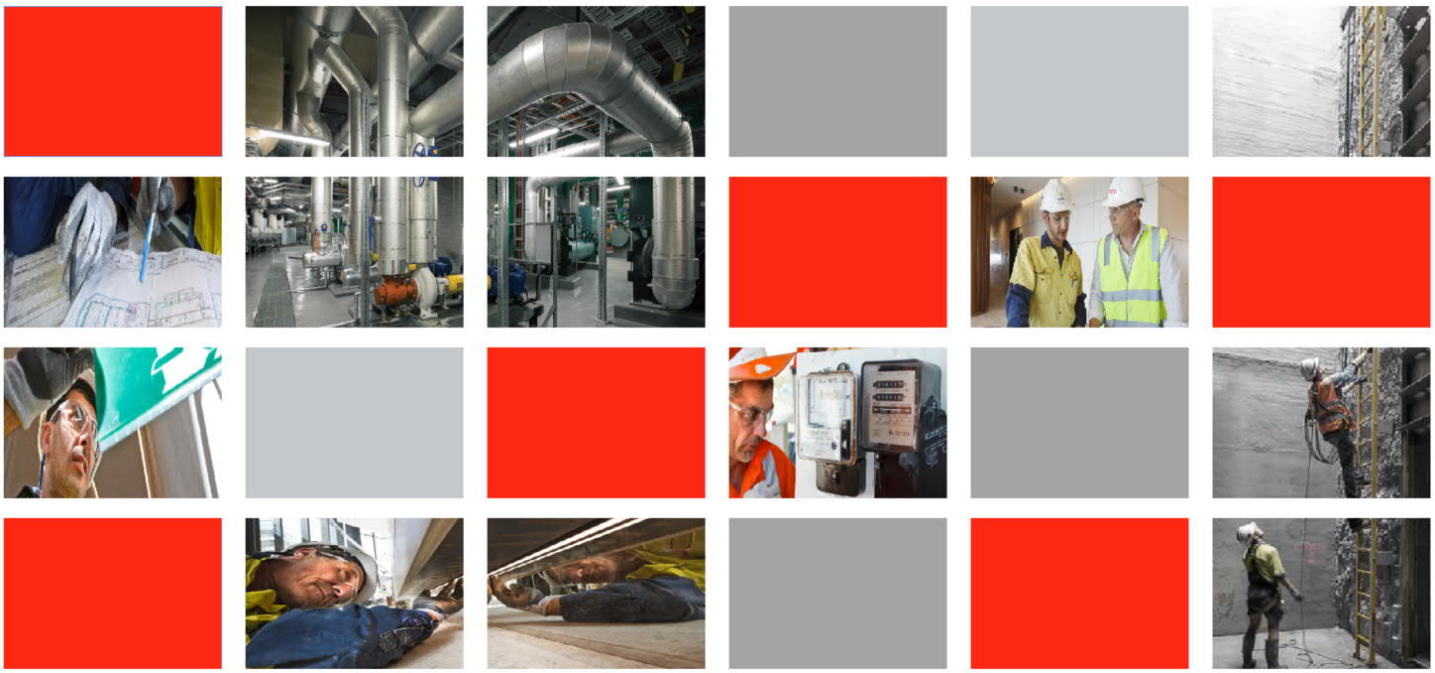
PREPARED FOR: NSW GOVERNMENT HEALTH INFRASTRUCTURE

INTEGRATED ASB (IASB) ADDITION
RANDWICK CAMPUS REDEVELOPMENT
SSDA REPORT
ELECTRICAL AND COMMUNICATION SERVICES



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GLOSSARY

AC	Alternating current
ASB	Acute Services Building
BDR	Building Distributor Room
IASB	Integrated Acute Services Building
ATS	Automatic transfer switch
CCTV	Closed Circuit Television
DAS	Distributed Antenna System
DB	Distribution board
DC	Direct current
DBYD	Dial Before You Dig
EV	Electric vehicle
MSB	Main switchboard
PA	Public address system
PDU	Power distribution unit
PFC	Power factor correction
PPE	Personal protective equipment
PV	Photovoltaic
SSDA	State Significant Development Application
LL	Lendlease
LLB	Lendlease Building
EOL	End of Life
CDR	Campus Distributor Room
FDR	Floor Distributor Room
SCH	Sydney Children Hospital
UPS	Uninterruptable Power Supply
UNSW	University of New South Wales

1.0 PROJECT DESCRIPTION

The Integrated ASB (IASB) Addition is the latest development proposed as part of the Randwick Campus Redevelopment (RCR). The core scope elements of the IASB Addition are:

- UNSW Eastern Extension (Base Building only)

- Associated modifications within the ASB

- Lowering of Hospital Road

- Landscaping

This report only applies to the UNSW Eastern Extension and Lowering of Hospital Road scope of works.

UNSW Eastern Extension is a 10 story extension of the Acute Services Building (ASB) to the east. It comprises a GFA of approximately 5,000sqm which is an approximate increase of 10% to the approved ASB. The UNSW Eastern Extension is planned to comprise the following levels and spaces:

- Level 00: Clinical Innovation and Research Space
- Level 01: Clinical Translational Lab Space
- Level 02: Clinical Translational Lab Space
- Level 03: Biomedical Engineering Innovation Space
- Level 04: Biomedical Engineering Innovation Space
- Level 05: Education and Research Space
- Level 06: Education and Research Space
- Level 07: Education and Research Space
- Level 08: Education and Research Space
- Level 09: Plant

Hospital Road is located adjacent on the east to the approved ASB. To enable the UNSW Eastern Extension, a section of Hospital Road is required to be lowered.

The extent of the project scope is shown on Figure 1 below:

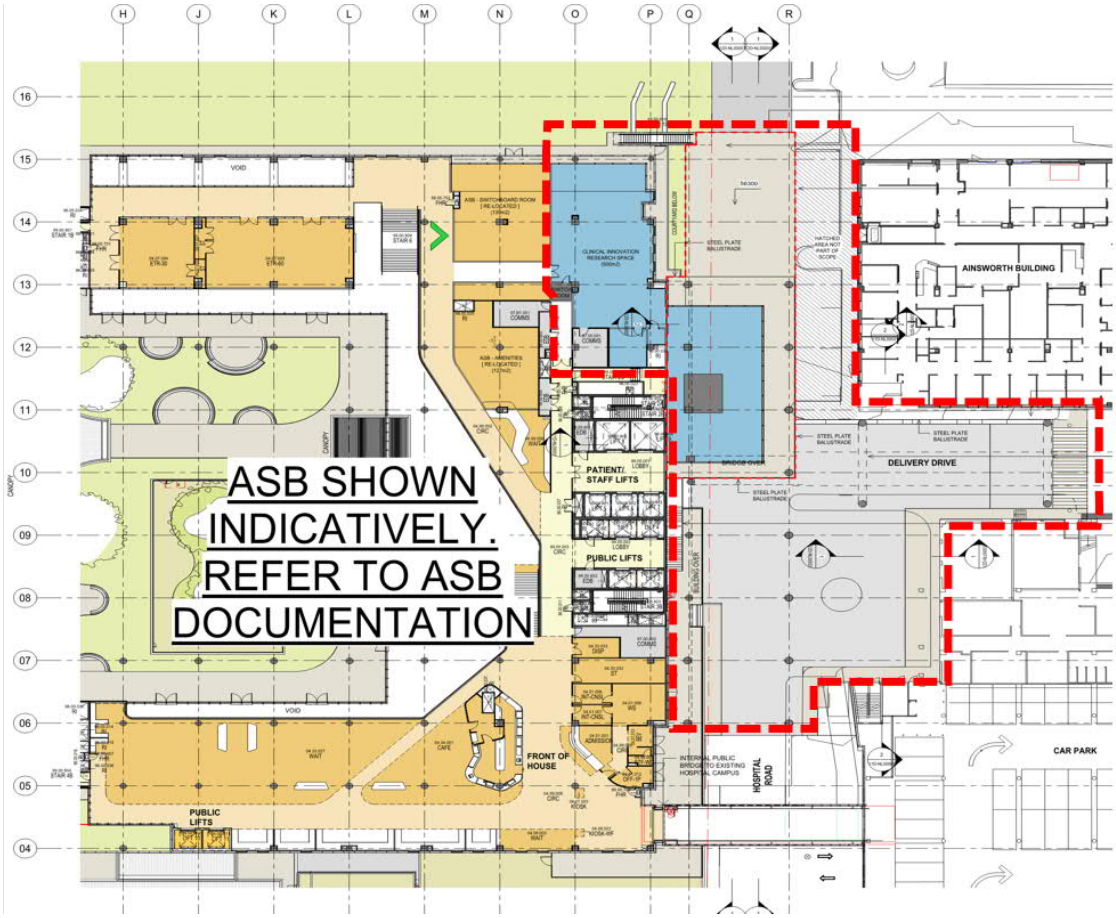


Figure 1. IASB Addition extents shown within red dotted line

2.0 INTRODUCTION / ROLES AND RESPONSIBILITIES

Fredon have been engaged by Lendlease (LLB) to provide a preliminary scope for the proposed IASB Addition.

2.1 SCOPE OF WORKS

3.1.1 UNSW EASTERN EXTENSION

- Provide Main Distribution Board, Distribution boards and associated submains as required
- Provide dedicated standby generator and associated switchgear and fuel system
- Provide lighting and associated lighting control
- Provide final subcircuits
- Provide data points for general data and other services

3.1.1 LOWERING OF HOSPITAL ROAD

The proposed scope of works includes design development and construction of the following Electrical and Communication services:

- Provide for new switchboard and submains to be supplied from the ASB building
- Provide a new communications rack and lead-in cable to be supplied from the ASB building
- Provide minimum power and lighting to the covered driveway to meet BCA requirements for the UNSW Eastern Extension (base building only)
- Provide lighting and power for the pedestrian deck
- Provide data points to wireless access points and CCTV cameras
- Provide temporary builders power and lighting.

2.2 BASIS OF THE REPORT

This Report provides general assumptions and allowances for the IASB Addition. It is based on the information provided to Fredon by various stakeholders and considers only the documents received from BVN, ACOR, C.M.S. Surveyors, Enstruct and DEP Consulting prior to the date of submission of this report.

Design will be based on the following assumptions:

- The IASB Addition project includes the first stage of the proposed lowering of Hospital Road, with the full extent to be completed along with future developments to the north of the ASB and the UNSW Eastern Extension (Base building only)
- Lighting for Lowering of Hospital Road covered areas and pedestrian deck will be designed to meet minimum requirements as per NCC 2019 (a.k.a. BCA) and AS/NZS 1680.0. Lighting for the UNSW Eastern Extension will be designed as per UNSW Design & Construction Requirements.

- Power supply and communications will be provided as an integrated solution for the approved ASB and the IASB addition.

2.3 RELEVANT HEALTH INFRASTRUCTIRE STANDARDS

- NSW Health Infrastructure Engineering Services Guidelines (ESG) –-August 2016
- NSW Health ICT Cabling Standard
- NSW Health Protecting People and Property

2.4 RELEVANT UNSW STANDARDS

- UNSW Design & Construction Requirements Section E.3 – Electrical Services - April 2018
- UNSW Design & Construction Requirements Section E.4 – UNSW Communications Services - August 2016
- UNSW Design & Construction Requirements Section F – Specific Area Requirements – December 2006

2.5 AUTHORITIES

- National Construction Code (NCC) – 2019 (excluding Section J)
- Service and Installation Rules of New South Wales - 2018
- Ausgrid

3.0 POWER SUPPLY

The UNSW Eastern Extension and the Lowering of Hospital Road will be supplied via the existing ASB infrastructure. The preliminary maximum demand calculations indicate that the currently proposed arrangement of two substations previously envisaged to cater the load of ASB will be able to offer enough spare capacity to accommodate IASB Addition's load. The currently proposed substations with the number and rating of their transformers indicated below:

- Substation 1 - (S.78770) – 3 x 1,500 kVA
- Substation 2 - (S.78769) – 2 x 1,500 kVA

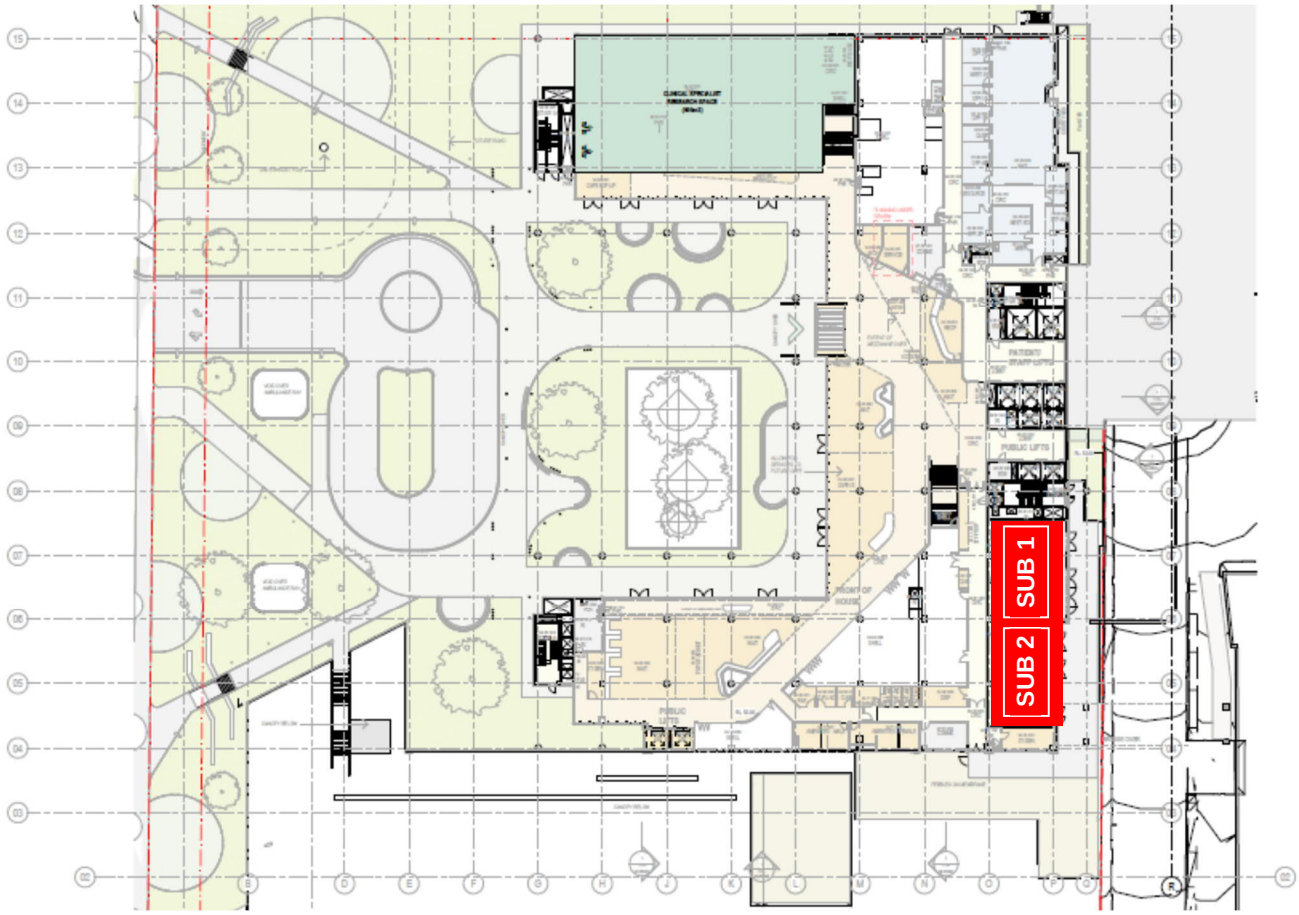


Figure 2. ASB substation locations on level B1.

3.1 UNSW EASTERN EXTENSION

The preliminary assessment of the impact of the on the UNSW Eastern Extension on the overall maximum demand indicates that UNSW Eastern Extension can be supplied via dedicated Main Distribution Board fed from one of the ASB Main switchboards.

Preliminary maximum demand assessment was undertaken based on AS/NZS 3000, data from other disciplines and relevant recent projects like UNSW Biological Sciences 1 and 2 located in adjacency.

Building loads are calculated based on the following principles:

- Lighting and power in all areas except plant rooms - 50 VA/m☐
- Lighting and power in plant rooms - 15 VA/m☐
- Mechanical load in all areas - 55 VA/m☐
- Essential/Non-Essential split for lighting and power - 50% / 50%
- Essential/Non-Essential split for mechanical services Levels 0-4 - 70% / 30%
- Essential/Non-Essential split for mechanical services Levels 5-9 - 40% / 60%

- Essential/Non-Essential split for lighting and power in plant rooms - 100% / 0%
- Critical supply – 60 kVA

3.1.1 MAXIMUM DEMAND

Total load of all UNSW Eastern Extension spaces including those in the ASB is assessed to be in order of **675 kVA** including 30% spare capacity as per UNSW Design and Construction requirements. Maximum demand is assessed to be in order of **975 A**. Maximum demand calculations for the UNSW Eastern Extension are provided in Appendix A.

This load will be catered by new 1000A rated Form 3b Main Distribution Board 'MDB-UNSW' fed from Substation 1 (S.78770). UNSW Eastern Extension electricity will be separately metered via dedicated authority meter.

Reactive power will be compensated by a dedicated PFC unit installed within the same switchroom.

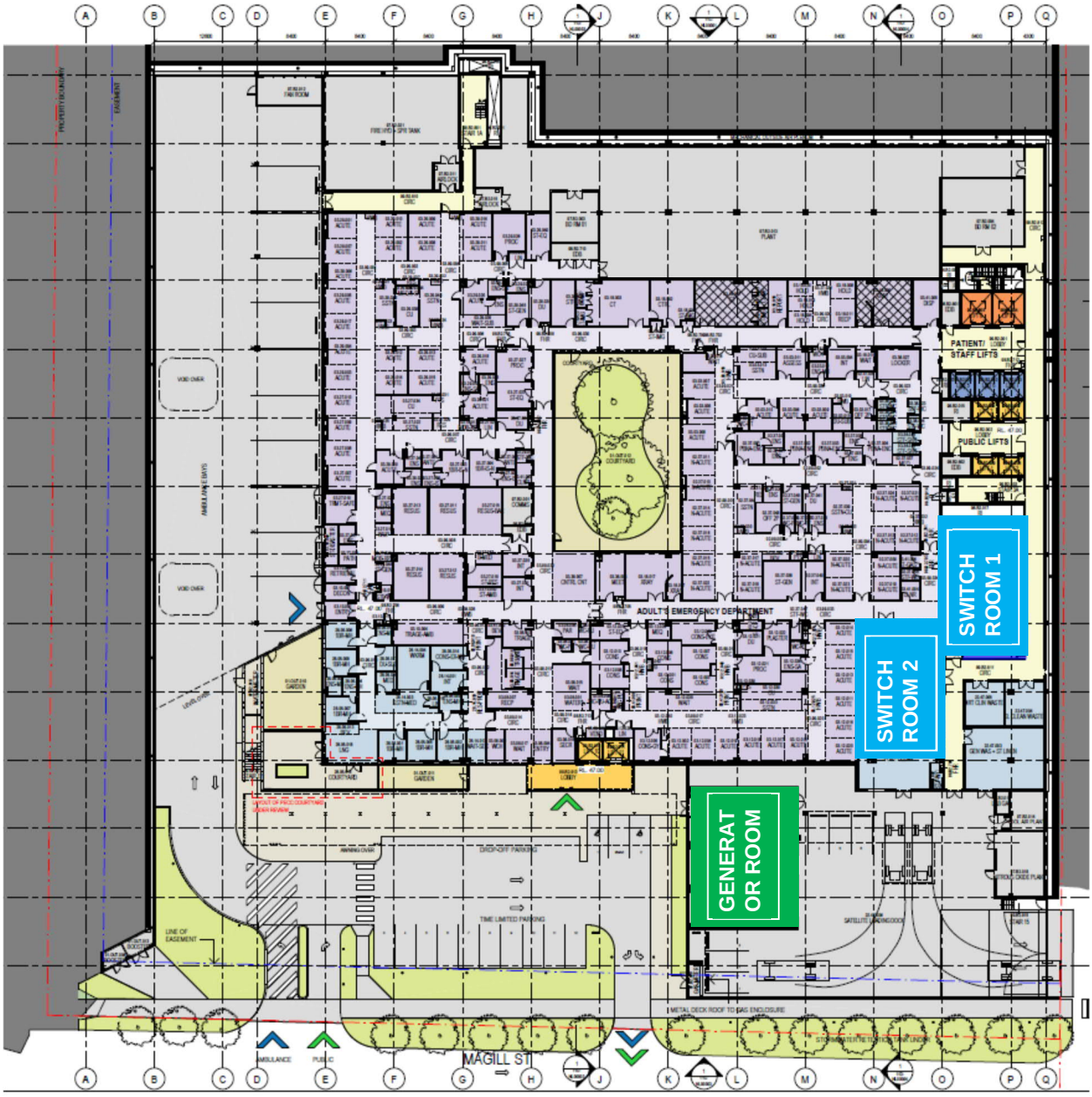


Figure 3. ASB Switchrooms and Generator room locations on level B2.

3.1.2 ESSENTIAL LOAD

The generator supply required to back up the UNSW Eastern Extension essential loads is calculated to be in order of **389 kVA / 348 kW** including 30% spare capacity as per UNSW Design and Construction requirements. This value was obtained from the overall maximum demand and taking into account the assumed split between essential and non-essential portions.

For the UNSW Eastern Extension Fredon proposes using a dedicated diesel generator with standby capacity of no less than 486 kVA / 435 kW to maintain utilisation equal or less than 80% as per manufacturer recommendations. The proposed generator is a standby generator rated at 500 kVA and located in the shared generator room. Fuel storage tank shall be sized for minimum of 12 hours running time when the generator is loaded at 100% as per the UNSW requirements.

The current bulk fuel tank for the hospital generators is 15,000 L and has been sized to provide 24-hour backup for the hospital generators. Further calculations were made to determine the current fuel consumption for the two generators at their respective loading. The required fuel for 24-hour period was calculated to be around 11,500 L, therefore the remainder of 3,500 L could be potentially used by the UNSW Eastern Extension. According to the 12-hour autonomy requirement and the actual load of 348 kW, a rough estimation shows that the UNSW Eastern Extension will need approximately 1,000 L to cover the 12-hour backup. Technically, the ASB and UNSW Eastern Extension will be able to maintain their required backup sharing the current fuel tank.

Generator will be equipped with catalytic converter to comply with the HI requirements as this requirement is valid for all generators within the generator room.

Generator room will be acoustically treated to maintain the sound pressure within the required limits as per the HI requirements

Load bank provision for regular generator testing is recommended as per the UNSW requirements. However, it is not mandatory when the generator is readily accessible. Fredon assumes that only load bank connection facilities will be required for temporary load bank connection. Therefore, no permanent load bank will be allowed for generator exercise or load adding.

3.1.3 CRITICAL LOAD

The expected critical load needed for the UNSW Eastern Extension critical loads is **60kVA** based on the assumption that critical loads will have similar profile with the other UNSW buildings which Fredon has worked on. This UPS sizing is expected to be conservative as the proposed communications rooms is unlikely to require this capacity.

The proposed 60 kVA UPS sizing is based on previous experience with UNSW Biological Sciences Stage 2. Fredon's assumption is that the critical loads in the UNSW Eastern Extension space will to communications, security and BMS systems and small portion for general power and lighting. It is assumed that the average rack load will be 3 kVA, therefore a typical four-rack communications room will require up to 12 kVA and a three-rack communications room will require 9 kVA. As per the above the total critical power demand required is expected to be in order of 45 kVA. The remainder up to 60 kVA is provisional for other critical power and lighting loads supply which may be required.

The UPS along with its the external battery will be located in the UNSW Eastern Extension Switchroom on Level 1 at the UNSW Eastern Extension. The external battery will be sized to provide 15-minute autonomy for the critical loads.

PV systems is not considered for this project as the building does not offer sufficient space do deploy a decent scale system due to roof shape and the presence of helipad landing.

3.2 LOWERING OF HOSPITAL ROAD

Power supply is proposed to be provided from the ASB building due to its proximity and available capacity. It is sized to cover the initial demand and not any future loads related to other buildings.

3.2.1 MAXIMUM DEMAND

The maximum demand for the lowering of Hospital Road scope is expected not to exceed 100A three phase. It will be supplied from a new switchboard rated as per the maximum demand assessment located within plant room 97.B2.013 on level B2. The new switchboard will be fed from the unmetered section of ASB Main switchboards and will have a dedicated authority meter. Private power meters will be provided at the new switchboard for separate metering of the lighting and general power loads as pet NCC requirements.

3.2.2 ESSENTIAL LOAD

No essential (Generator backup) supply is envisaged for the Lowering of Hospital Road scope.

3.2.3 CRITICAL LOAD

No critical (UPS backup) supply is envisaged for the Lowering of Hospital Road scope.

4.0 SUBMAINS AND DISTRIBUTION BOARDS

4.1 UNSW EASTERN EXTENSION

UNSW Eastern Extension will be supplied via Essential, Non-essential and Life safety (fire rated) submains.

Essential and no essential submains will be XLPE/PVC cables and all life safety services will be supplied through fire rated cables.

Proposed cable path is from the Switchroom 1 up to level B1 and horizontally across B1 to electrical riser 3. Vertically through riser 3 to level 1 and horizontally to UNSW Eastern Extension Switchroom 1 located within the UNSW Eastern Extension. Once submains reach the electrical switchroom at the extension, will then be reticulated vertically through the electrical riser in the stacking switchrooms.

All switchrooms and risers in the extension will be 2-hour fire rated to provide protection to the life safety service supplies. Doors opening to the protection of egress and shall be smoke sealed.

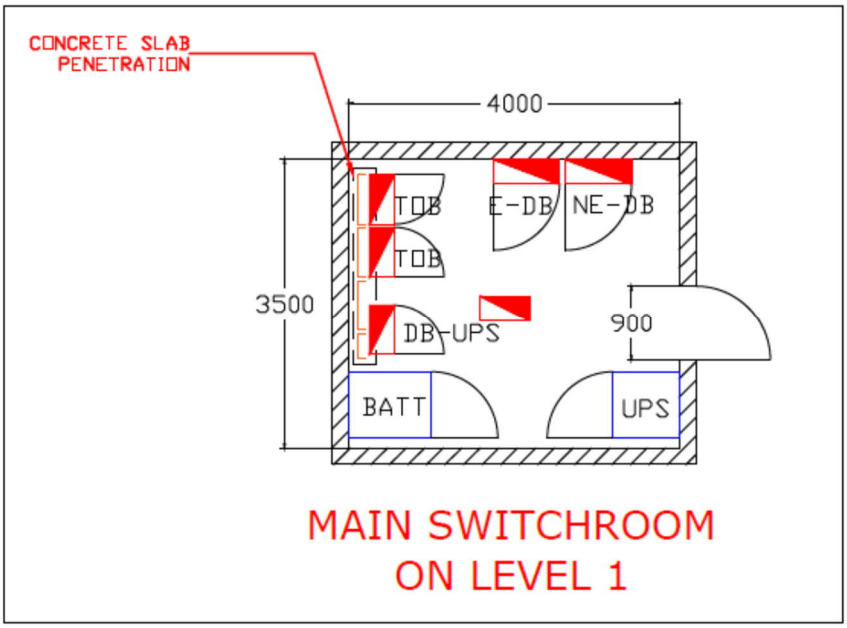


Figure 4. UNSW Eastern Extension *Switchroom on Level 1.*

Level 00 will be supplied via essential and non-essential and critical switchboards housed in a cupboard with 2-hours fire rating.

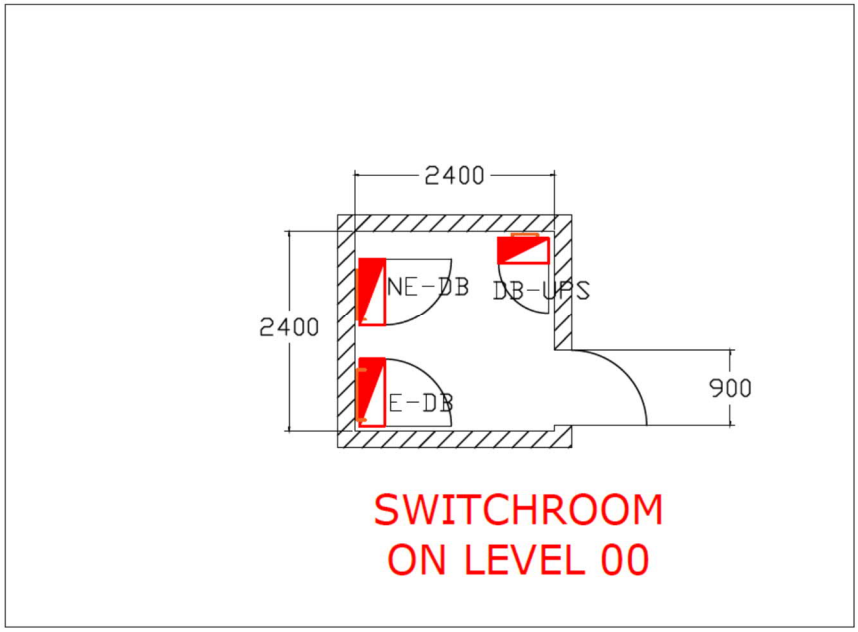


Figure 5. UNSW Eastern Extension *Switchroom on Level 00.*

Distribution boards providing supply to the UNSW Eastern Extension spaces will be fed from the new Main Switchboard via combined submains with tee-off boxes at the switchrooms on respective floors. There will be essential and non-essential switchboards at Level 00 to Level 8 fed from those tee-off boxes.

Critical submains will be reticulated via the same electrical riser from the UPS board on Level 1 to each floor where critical power is required.

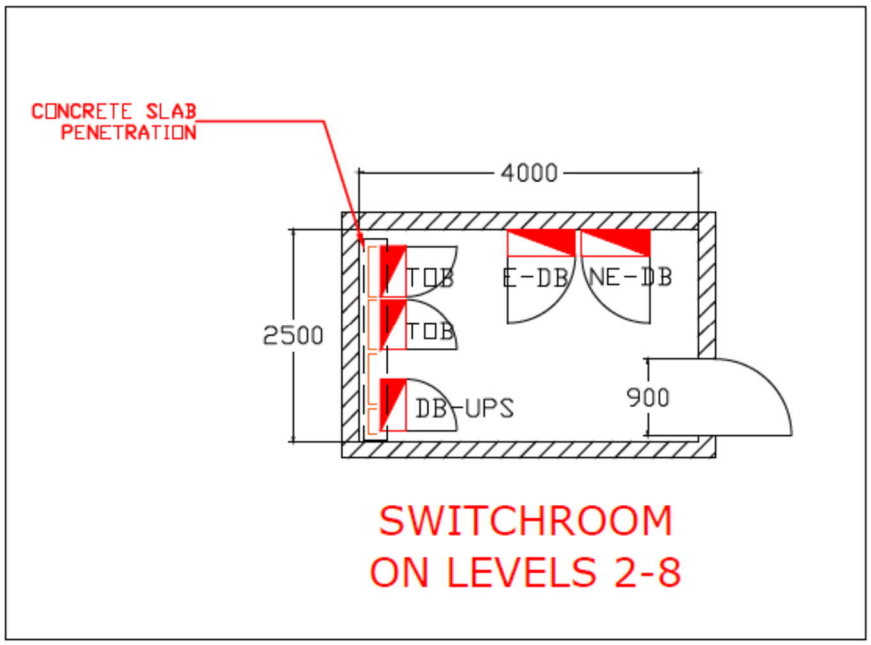


Figure 6. UNSW Eastern Extension *Switchrooms on Level 2-8.*

Essential and Non-essential distribution switchboards across the UNSW Eastern Extension will be of the of a panel board type with split chassis for lighting and power to facilitate separate metering as per NCC Section J requirements. Critical switchboards will be of a single chassis type catering only power loads.

Cable containment spare capacity of 50% as per UNSW Design and Construction Requirements may not be able to be satisfied due to spatial limitation within the ASB Risers. However, this will be further investigated when all loads and their configuration is precisely confirmed.

Distribution boards supplying wet labs will be provided with a shunt trip facility for safe isolation of the sub-circuits supplying the space should an emergency stop button be activated.

UNSW Eastern Extension sketches are provided in Appendix B.

4.1.1 METERING

Authority meter will be installed at Switchroom 1 on the consumer mains to the new UNSW Eastern Extension dedicated MSB which will separately meter UNSW Eastern Extension power consumption.

Private sub metering will be provided on consumer mains, submain and on the generator feed. Further metering will be provided at DB level to separately monitor lighting and power loads. All meters will be digital and capable to communicate via high level interface to facilitate easy detection of abnormal operation or significant changes in the demand. Devices will measure as a minimum:

- Line and phase voltage
- Currents in all phases
- Apparent, Active and Reactive power
- Power factor
- Total harmonic distortion THiD and THvD (MSB only)
- Maximum demand

A centralised purpose-made monitoring system will be deployed to record the electrical parameters at each point and raise alarms for abnormal operation of the equipment. The system will be capable to incorporate metering of other services such as gas, water etc.

The diesel generator fuel consumption will be metered and recorded by a fuel flow meter installed at the generator room. The meter will facilitate splitting the UNSW consumption from the ASB.

4.1.2 SUBCIRCUITS

Final sub circuits will generally be protected by combined residual current circuit breakers (RCBO) rated at 30mA leakage current and current rating for overload protection as per the circuit load. Breaking capacity will be selected depending on the fault level at the board where the switchgear is installed. Critical circuits for the communications equipment within communications rooms will be protected by 20A miniature circuit breakers without leakage current protection to avoid nuisance tripping.

All cables will be sized based on the load, earth fault loop impedance and considering a maximum voltage drop of 2% as per the UNSW Design and Construction Requirements.

Final subcircuits within the PC2 labs will have an emergency stop facility, isolating all circuits when the emergency push button is activated. GPO’s will be provided with different colour front plates as per the UNSW requirements.

4.1.3 EARTHING AND BONDING

Electrical equipment throughout the building will be earthed via the PE conductor of the respective cable supplying it. The conductive structures of the non-electrical devices and equipment like cable trays mechanical ducts pipework etc. will be bonded. Communication rooms will be provided with communications earth “clean earth” for functional and protection purposes as per AS/CA S009 and the UNSW Communications Services Design and Installation Standards. The Communications Earthing System (CES) will be connected to the Main Earth Terminal located at Switchroom 1.

4.1.4 LIGHTNING AND SURGE PROTECTION

External lightning protection will be provided by extending the coverage of the ASB building. Down conductors will utilise the new structural elements of the UNSW Eastern Extension.

Internal lightning protection will be arranged with the installation of surge diverters at the MSB and some of the local DB's. Surge diverter at the MSB-04 will be rated at 100kA maximum current and those at local DBs supplying sensitive circuits will be rated at 40kA maximum current.

4.2 LOWERING OF HOSPITAL ROAD

All loads within the Lowering of Hospital Road will be fed from the dedicated switchboard located in ABS on Level 2. Lighting and power loads will be separately metered as per NCC requirements. Subcircuits will be sized based on their demands and type of load connected.

Lowering of Hospital Road sketches are provided in Appendix C.

5.0 HV POWER

HV Works are applicable to the relocation of the existing service located in the Hospital Road Lowering Scope. These works are outside the scope of the IASB Addition and are subject to approval by the relevant performing authority Ausgrid.

6.0 LIGHTING

6.1 UNSW EASTERN EXTENSION

Artificial lighting installation will be provided throughout the building to meet the requirements of UNSW Design and Construction requirements and the relevant Australia standards.

For this design stage only high level general requirements for the various spaces will be provided. The general strategy is to use high efficacy LED luminaires maintaining the required level of comfort for the occupants throughout the building.

UNSW Eastern Extension sketches are provided in Appendix B.

6.1.1 LIGHTNING LEVELS AND SPACES

Generally, the lighting will be provided to meet the illuminance as per the following principle, taking into account the Australian standard AS 1580, UNSW Design and Construction Guidelines - Section E.3.2 Lighting and based on previous experience with UNSW projects:

- Office and teaching spaces – 320 lux
- Laboratories – 600 lux
- Amenities – 200 lux
- Plant rooms – 200 lux
- Switchrooms – 200 lux
- Communications rooms – 500 lux
- Storages/cleaners rooms – 240 lux

The PC2 environment will be designed with PC2 compliant LED luminaires. All other areas will be designed using similar look normal type LED luminaires. Amenities, toilets and alike will generally be illuminated with LED downlights.

ASB exterior lighting will be modified to suit the new building contour.

6.1.2 LIGHTNING CONTROL

Dynalite lighting control system will be provided via DALI protocol for the specific areas where daylight harvesting is required, for the laboratories and for office and teaching spaces. Local lighting control panels and DALI motion/presence detectors will be provided within these spaces as required.

Other areas like corridors, storages, amenities plant rooms will be on simple switching and/or 230V AC motion sensors.

6.1.3 EMERGENCY LIGHTING AND EXIT SIGNAGE

Emergency luminaires and Exit signs will be provided as per NCC/BCA requirements and according to AS/NZS 2293. The PC2 environment will be covered by special PC2 compliant luminaires and the remainder will utilise standard commercial grade fittings.

A central DALI based emergency lighting monitoring system will be provided for the UNSW Eastern Extension which will be dedicated and separated from the ASB. This system will allow for central testing and reporting the condition of the emergency lighting throughout the UNSW Eastern Extension building.

6.2 LOWERING OF HOSPITAL ROAD

Lighting design for the lowered portion of Hospital Road will be based on the minimum requirements stated in the National Construction Code and AS/NZS 1680.0. The lighting will illuminate the space to 20 lux for safety movement only, driver adaptation lighting or any other type of lighting will not be provided at this stage.

Emergency lighting will not be provided within the covered driveway space as it is not required as per NCC clause E4.2 for storey with area less than 300m2.

The above ground area for the pedestrian deck will be designed to meet the requirements for category P3 as per AS1158.3.1. It will be illuminated by post top LED type luminaires and landscape lighting by up lights.

Lighting provisions to existing areas located to the east of Hospital Road, at the front of the Ainsworth Building and to the south of the covered driveway will remain unchanged. Only the new pedestrian crossing will be provided with new lighting to meet the code requirements. Existing post top luminaires will be relocated in close proximity to their current location.

Lighting control will be by photoelectric cell, timer and switches. Smart control and dimming will not be provided.

Lowering of Hospital Road sketches are provided in Appendix C.

7.0 COMMUNICATIONS

7.1 UNSW EASTERN EXTENSION

The ICT System will be integrated to the ASB at a single point at the Campus Distributor Room (CDR) located on Level 2 in the ASB. Interfacing point will be a single UNSW rack housed in the CDR. Lead-in cables will be reticulated between the CDR to the respective UNSW communications rooms throughout the Extension and the ASB.

ITC cabling will be provided as per the Australian standards and UNSW Communications Services Design and Infrastructure Standards. It worth noting that the UNSW integration into the ASB may require an infrastructure upgrade to accommodate the UNSW voice and data requirements.

UNSW Eastern Extension sketches are provided in Appendix B.

7.1.1 COMMUNICATION ROOMS

Communication rooms throughout the facility are envisaged to be with approximate dimensions of 3,500mm x 4,800mm accommodating four communication racks and security and BMS equipment. All communications rooms will have 3000mm clear height.

There will be total of four communication rooms, stacking located on levels 2, 5 and 8 of the UNSW Eastern Extension and one on Level 00. Levels 1, 3, 4, 6, 7 and 9 will not be provided with communications rooms or cupboard but will be served from one of the communications rooms on the other levels. The communications room on Level 2 will be the entry point to UNSW Eastern Extension from ASB.

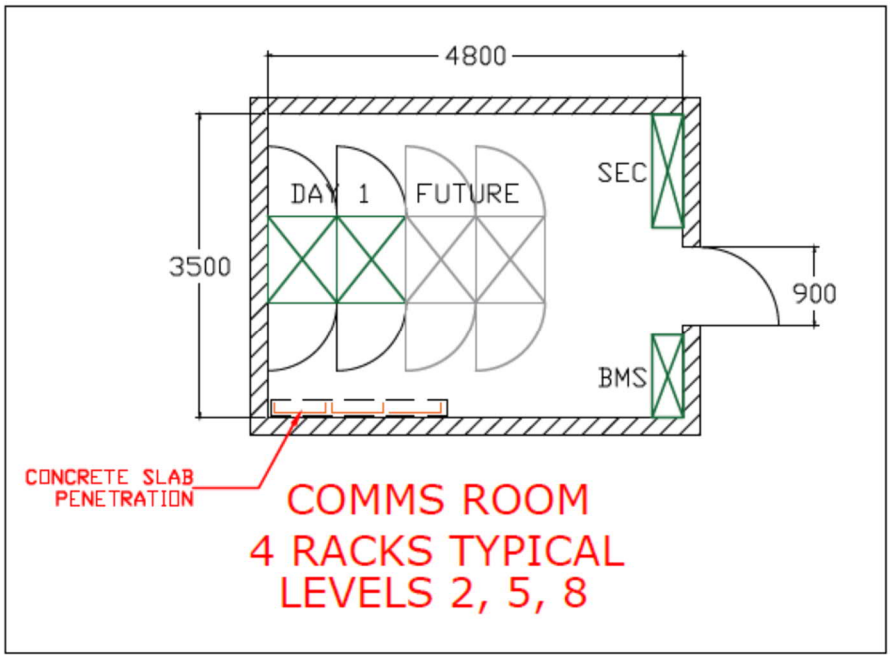


Figure 7. UNSW Eastern Extension *Communications Room Layout on Level 2, 5, 8.*

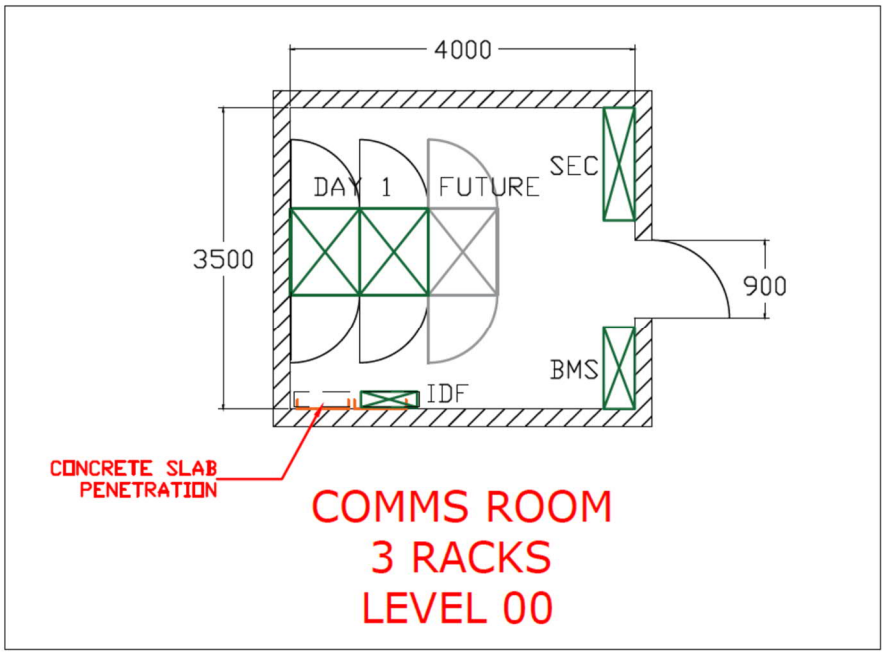


Figure 8. UNSW Eastern Extension *Communications Room Layout on level 00*

Level 00 in UNSW Eastern Extension and will be covered by a **single** rack in a communications cupboard. Same strategy will be adopted for the Clinical innovation research space on level 00 within the ASB.

On the levels where no Communications room or cupboard is provided a riser cupboard will be provided for vertical cabling which will be accessible throughout their entire length between slabs.

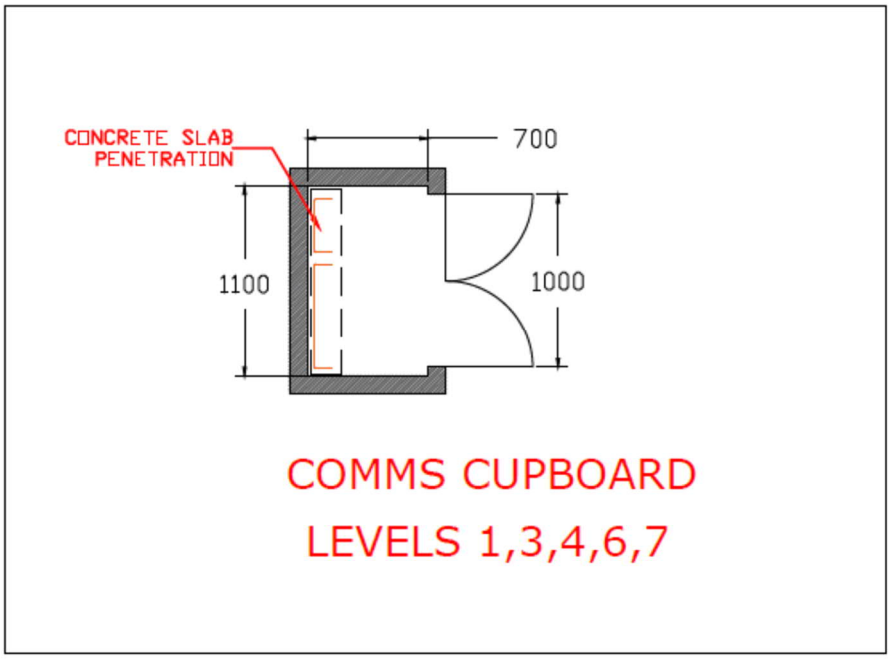


Figure 9. UNSW Eastern Extension *Typical Communications Riser Layout.*

Communications racks will be CRS 45RU 800x800mm arranged as per UNSW Communications Services Design and Installation Standards - Chapter 6.

7.1.2 DATA CABLES

Lead-in cable between the Campus distributor on Level 2 at ASB and the UNSW Eastern Extension Comms rooms on Level 2, 5 and 8 at the UNSW Eastern Extension will be 48 core yellow sheath OS2 fibre optic cable. It will terminate into a 48 core high density fibre optic break out tray installed in communications racks at the respective room. Backbone cables between the campus distributor and the communications rooms will be installed in a ring topology. However, the two cupboards containing racks on Level 00 will be connected off Communications room on Level 2 in a spur.

Horizontal cabling will be by Category 6A copper cables reticulated between the data outlets and the communications room serving the given space.

7.1.3 VOICE GRADE CABLES

Voice grade 250 pair lead-in cable will be installed between the Campus Distributor Room at ASB and the MDF installed at UNSW Eastern Extension Communications Room on level 2 in the UNSW Eastern Extension Building.

Backbone voice grade cables providing connectivity between the MDF and the IDF's at two other Communications rooms will be 100 pair Category 3 cables. The single rack Communications cupboards will be connected via 20 pair Category 3 cables.

7.1.4 OTHER COMMUNICATIONS SERVICES (BY OTHERS)

Other services including BMS, Security, CCTV, Fire etc. which may require data or telephone connection will be connected to the communications infrastructure at the respective UNSW Eastern Extension Communications room. Fredon is only providing the communications infrastructure, therefore this report does not provide description of how these services will operate.

For the IBC / DAS Fredon assumes that the existing infrastructure from the ASB will be extended to cover the UNSW Eastern Extension spaces and no dedicated DAS system will be installed for the university, thus no additional space or data connectivity for IBC/DAS will be required within the UNSW Eastern Extension.

7.2 LOWERING OF HOSPITAL ROAD

Communications services will be provided via a single communications rack installed in the Building Distributor Room BDR-2 located on level B2 of the ASB Building. Lead-in cables will be connected off the same Building Distributor where the rack is located. The rack will be provided with patch panels and fibre optic break out trays. All active equipment and UPS supplied and installed by others.

Communications cables will exit BDR-2 to the east and will reach the Hospital Road driveway through conduits installed between level B2 and B1 (new Hospital Road level).

Data outlets will be provided for Wireless Access Points (WAP) and CCTV cameras only. There will be 1 x data outlet for CCTV camera provided by others located within the covered driveway and 3 x data points for cameras provided by others at the pedestrian deck. There will be 2 data outlets for WAPs installed at the pedestrian deck to provide connectivity for smart devices. The area within the covered driveway will not be covered by the wireless network.

CCTV camera locations are subject to design by others. The wireless routers and CCTV cameras and any other active devices will be supplied and installed by others.

Services like PA, Hearing Augmentation, Mechanical, BMS, Traffic controls, DAS etc. will not be provided as part of the Lowering of the Hospital Road scope.

The current ASB Site wide Campus Reticulation Plan (Shown on Fredon's drawing RCR-FRE-ELSC-50-DRW- 22B-0006000 [C] dated 18/01/2019) indicates that one of the communication pathways linking the ASB and CDR 1 crosses Hospital Road opposite Building 1B. To avoid any future impacts to the IASB building we propose to re-route the pathway to cross Hospital

Road adjacent to grid 11. The crossing at grid 11 will be addressed via providing conduits at high level across the enclosed driveway. The entry cable pit will be relocated to the eastern side of Hospital Road.

Lowering of Hospital Road sketches are provided in Appendix C.

8.0 EXISTING INGROUND SERVICES

The Dial Before You Dig (DBYD) survey indicates that there may be existing LV electrical services in the area which will be affected by the lowering of Hospital Road scope of works.

Description of the relocation of existing Ausgrid assets is provided in DEP Consulting's concept drawings and not further explained in the current report.

There are four existing post top luminaires along Hospital Road which may potentially clash with the new road structure or with the new road level. These may need to be relocated to suit the new road arrangement.

ACOR's Feasibility Design shows additional communication services, however the type, size and ownership has not been confirmed by the DBYD survey.

The survey undertaken by C.M.S. Surveyors indicates a number of existing services of which, the type, size, ownership and criticality cannot be determined from the survey drawings and will require further investigation. Cleaned survey drawings showing Electrical and Communications services for the reduced scope area with the Fredon's mark-ups are provided as part of the Appendix C.

9.0 TEMPORARY BUILDERS POWER AND LIGHTING

Temporary builder's power and lighting will be provided across the area in scope to facilitate building works. It will be fed from the Temporary power MSB serving the ASB building construction

9.1 UNSW EASTERN EXTENSION

Temporary lighting will be provided to achieve 20 Lux average horizontal illuminance within the scope area for the designated access paths ONLY.

Temporary power will be distributed via local weatherproof Distribution Boards (DB) equipped with single phase and three phase power outlets. We intend to supplement supply coverage by utilising smaller auxiliary spider boards to cover each level to a radius of 25m.

One bubblers will be provided on every second level.

9.2 LOWERING OF HOSPITAL ROAD

Temporary builder's power and lighting will be provided for the scoped areas of the proposed development to facilitate building works. It will be fed from the Temporary power Main Switchboard (MSB) serving the ASB building during construction.

Temporary lighting will be provided at the ground level, covered driveway and at the pedestrian deck. Lighting will be designed to achieve 20 Lux average horizontal illuminance within the scoped areas for the designated access paths ONLY.

Temporary power will be distributed via local weatherproof Distribution Boards (DB) equipped with single phase and three phase power outlets. Each board will be located to cover 25m radius area.

APPENDIX A – UNSW EASTERN EXTENSION MAXIMUM DEMAND CALCULATIONS

MAXUMUM DEMAND ASSESSMENT

PROJECT: **PoW - UNSW Extension** **Revision: C**

Date: **21/12/2018** **Revision description: Level 00 extended 18/12/2018**

No.	Space / Floor	ASB Area (m²)	EXT Area (m²)	Total Area (m²)	L&P VA/m²	L&P total kVA	Ess %	L&P Ess, kVA	L&P Non-Ess, kVA	L&P P.F	Mechanical VA/m²	MECH Total, kVA	Ess %	MECH Ess, kVA	MECH Non-Ess, kVA	MECH P.F	ESS Load, kVA	ESS Load, kW	N-ESS Load, kVA	N-ESS Load, kW
1	Level B2	0	0	0	**50**	0	50%	0	0	0.95	55	0	0%	0	0	0.85	0	0	0	0
2	Level B1	0	0	0	**50**	0	50%	0	0	0.95	55	0	0%	0	0	0.85	0	0	0	0
3	Level 00	266	500	766	**50**	38	50%	19	19	0.95	55	42	70%	29	13	0.85	49	43	32	29
4	Level 01	0	630	630	**50**	32	50%	16	16	0.95	55	35	70%	24	10	0.85	40	36	26	24
5	Level 02	0	530	530	**50**	27	50%	13	13	0.95	55	29	70%	20	9	0.85	34	30	22	20
9	Level 02 Plant	0	100	100	**15**	2	100%	2	0	0.95	15	2	100%	2	0	0.85	3	3	0	0
6	Level 03	0	630	630	**50**	32	50%	16	16	0.95	55	35	70%	24	10	0.85	40	36	26	24
7	Level 04	0	670	670	**50**	34	50%	17	17	0.95	55	37	70%	26	11	0.85	43	38	28	25
8	Level 05	0	400	400	**50**	20	50%	10	10	0.95	55	22	40%	9	13	0.85	19	17	23	21
9	Level 05 Plant	0	250	250	**15**	4	100%	4	0	0.95	15	4	100%	4	0	0.85	8	7	0	0
10	Level 06	0	360	360	**50**	18	50%	9	9	0.95	55	20	40%	8	12	0.85	17	15	21	19
11	Level 07	0	360	360	**50**	18	50%	9	9	0.95	55	20	40%	8	12	0.85	17	15	21	19
12	Level 08	0	360	360	**50**	18	50%	9	9	0.95	55	20	40%	8	12	0.85	17	15	21	19
13	Level 09	0	0	0	**50**	0	50%	0	0	0.95	55	0	40%	0	0	0.85	0	0	0	0
14	Level 09 corridor	80	0	80	**15**	1	100%	1	0	0.95	15	1	100%	1	0	0.85	2	2	0	0
14	Level 09 Plant	0	400	400	**15**	6	100%	6	0	0.95	15	6	100%	6	0	0.85	12	11	0	0
		346	**5190**	**5536**		**248**						**271**		**169**	102.069	13.6	**299**	**267**	**220**	**199**

	Demand	Spare 30%	Equipment sizing
Total Essential load, kVA	299	90	389
Total Essential load, kW	267	80	348
Total Non-Essential Load, kVA	220	66	286
Total Non-Essential Load, kW	199	60	258
Total load, kVA	519	156	675
Total load, kW	466	140	606
Area	5536		
VA/m2	**94**		

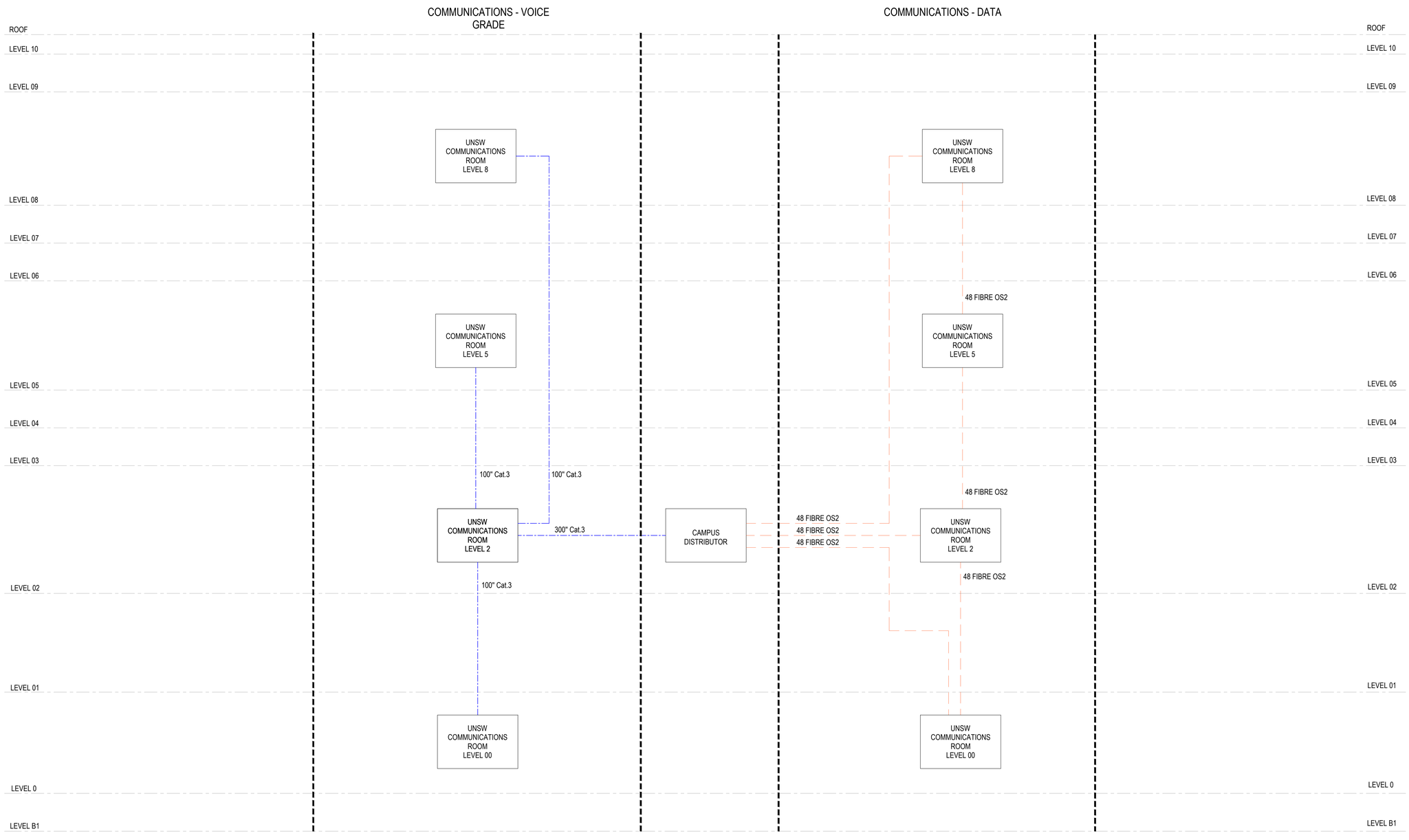
Substation capacity, kVA	**675**
MSB rating, A	**975**
Standby Generator rating (80% Util), kW	**435**
Standby Generator rating (80% Util), kVA	**486**

Notes:

1 VA/m2 assumed to be simillar to Biosciences Stage 1 and 2

2 Essential/Non-essential split assumed to be simillar to Biosciences Stage 1 and 2

APPENDIX B – UNSW EASTERN EXTENSION SKETCHES



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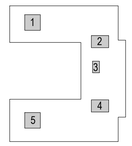

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ELECTRICAL SERVICES COMMUNICATIONS DISTRIBUTION DIAGRAM

DRWG - 00003

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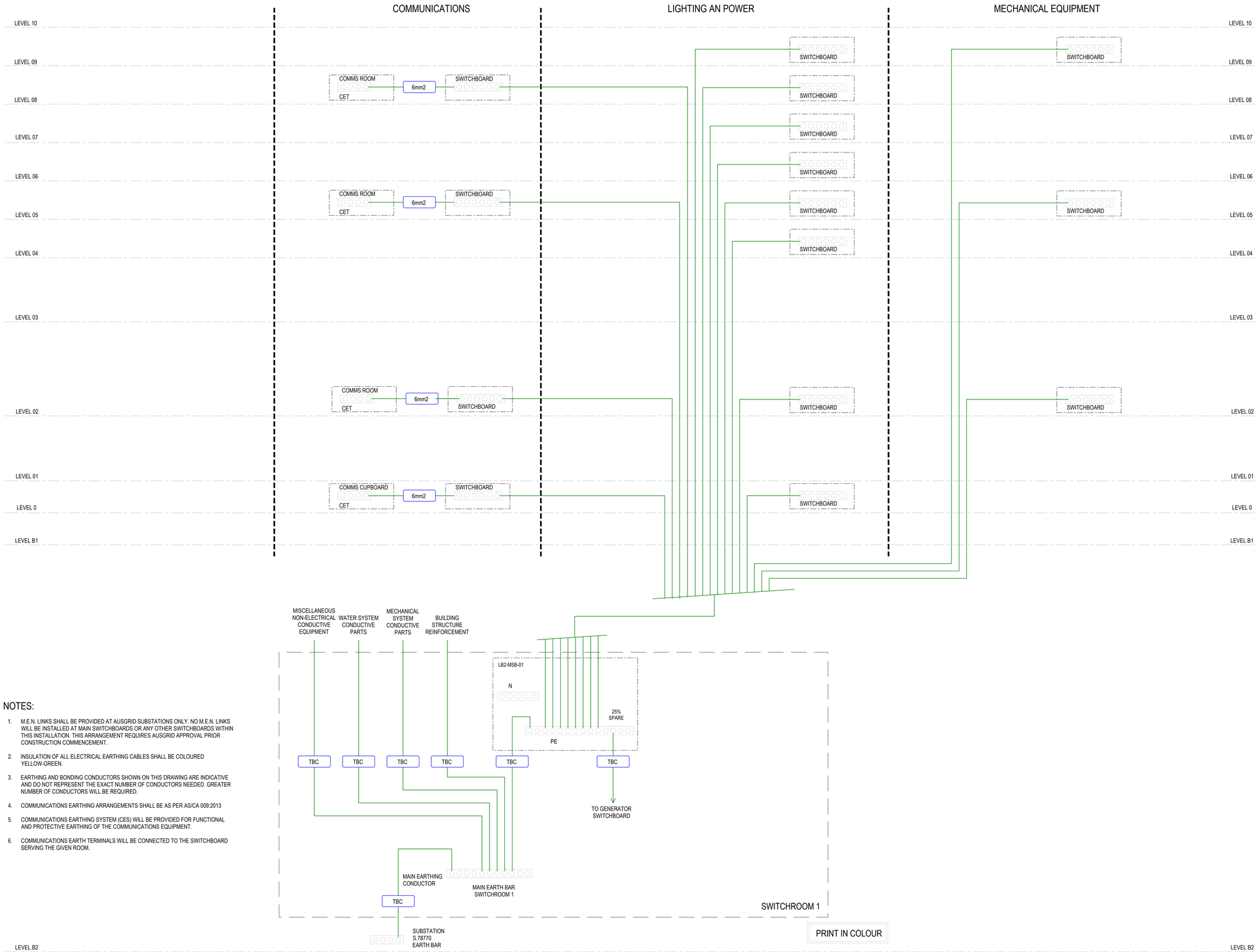

NOTES:

1. M.E.N. LINKS SHALL BE PROVIDED AT AUSGRID SUBSTATIONS ONLY. NO M.E.N. LINKS WILL BE INSTALLED AT MAIN SWITCHBOARDS OR ANY OTHER SWITCHBOARDS WITHIN THIS INSTALLATION. THIS ARRANGEMENT REQUIRES AUSGRID APPROVAL PRIOR CONSTRUCTION COMMENCEMENT.
2. INSULATION OF ALL ELECTRICAL EARTHING CABLES SHALL BE COLOURED YELLOW-GREEN.
3. EARTHING AND BONDING CONDUCTORS SHOWN ON THIS DRAWING ARE INDICATIVE AND DO NOT REPRESENT THE EXACT NUMBER OF CONDUCTORS NEEDED. GREATER NUMBER OF CONDUCTORS WILL BE REQUIRED.
4. COMMUNICATIONS EARTHING ARRANGEMENTS SHALL BE AS PER AS/CA 009:2013
5. COMMUNICATIONS EARTHING SYSTEM (CES) WILL BE PROVIDED FOR FUNCTIONAL AND PROTECTIVE EARTHING OF THE COMMUNICATIONS EQUIPMENT.
6. COMMUNICATIONS EARTH TERMINALS WILL BE CONNECTED TO THE SWITCHBOARD SERVING THE GIVEN ROOM.

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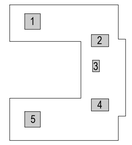

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DRWG - 00004

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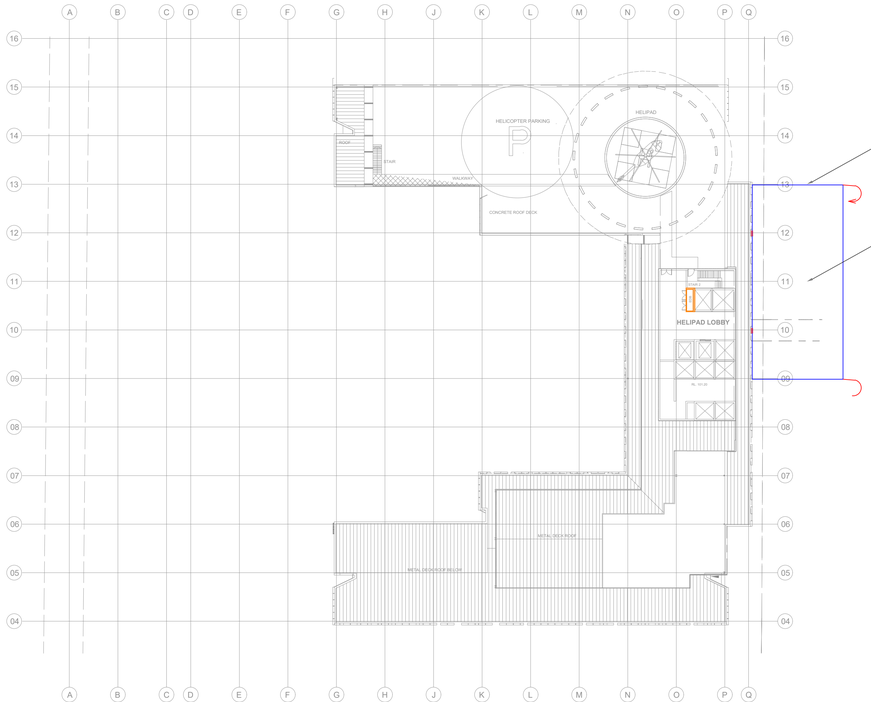

LEVEL 10

LEGEND

- HORIZONTAL AIR TERMINAL STRIP
- VERTICAL AIR TERMINAL STRIP
- 500mm HIGH VERTICAL FINIAL
- CONNECT ROOF TERMINATION NETWORK TO RE-BARS IN PERIMETER COLUMN

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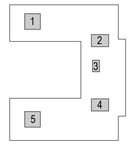

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LIGHTNING PROTECTION

DRWG - 00005

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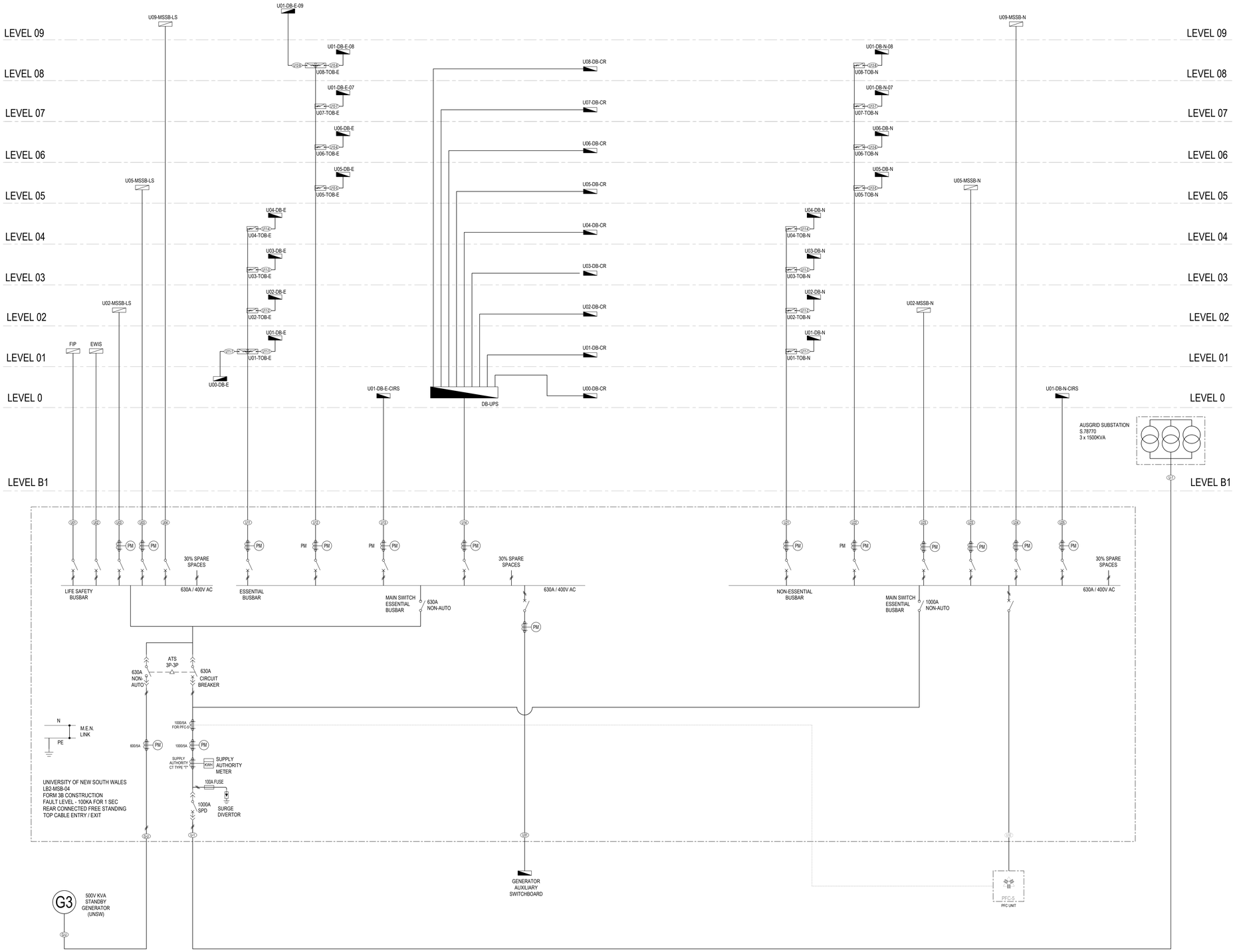

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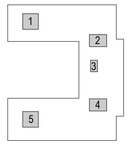

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MAIN SWITCHBOARD NO.4
SINGLE LINE DIAGRAM

DRWG - 00011

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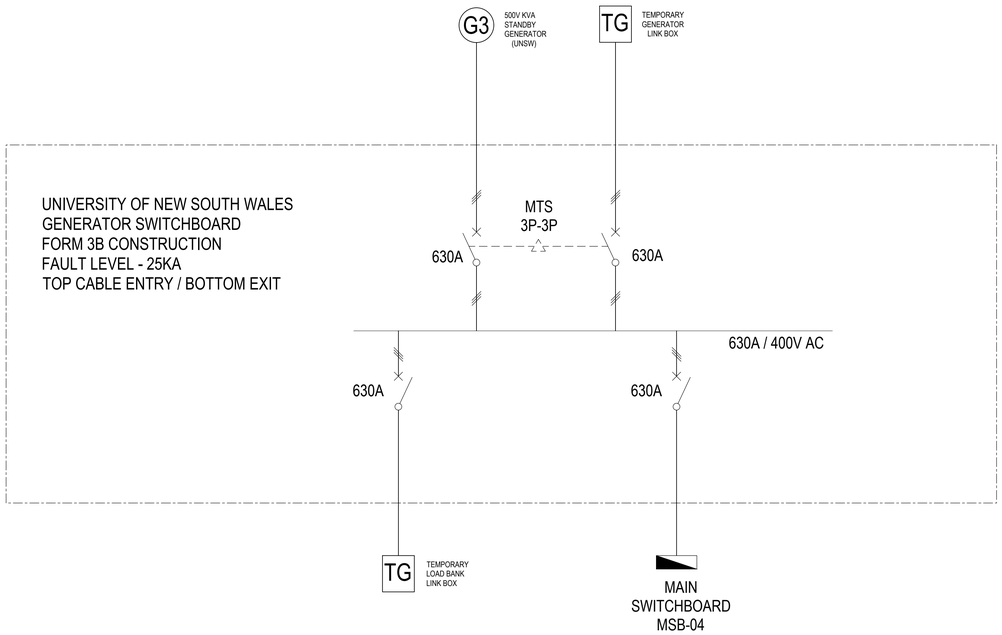

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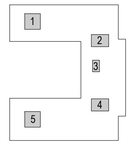

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ELECTRICAL SERVICES
GENERATOR SWITCHBOARD
SINGLE LINE DIAGRAM

DRWG - 00012

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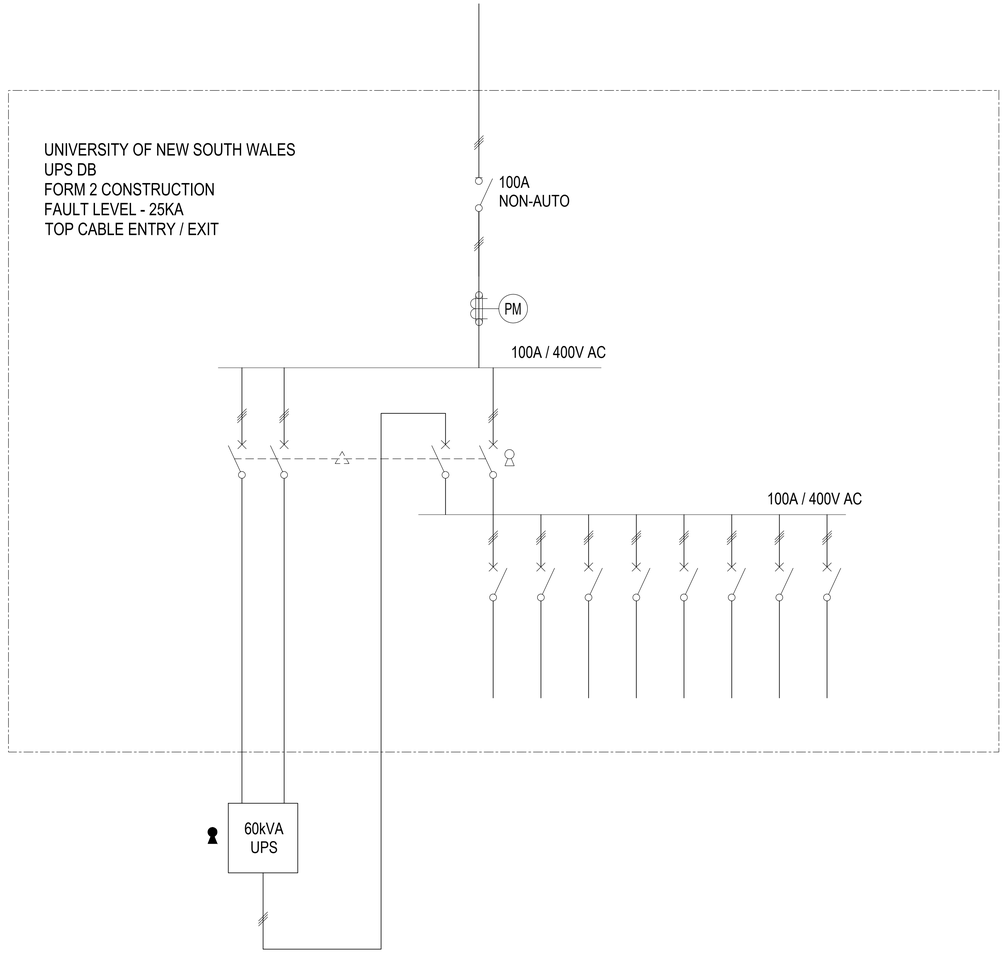

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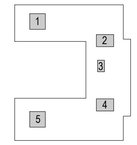

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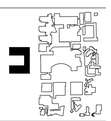
10C0045

DRAWING KEY



TRUE NORTH PROJECT NORTH

GRAPHIC SCALE
DO NOT SCALE

SCALE
N.T.S.@81 DO NOT SCALE

STATUS
CONCEPT

DRAWING
ELECTRICAL SERVICES
UPS SWITCHBOARD
SINGLE LINE DIAGRAM

DRWG - 00013

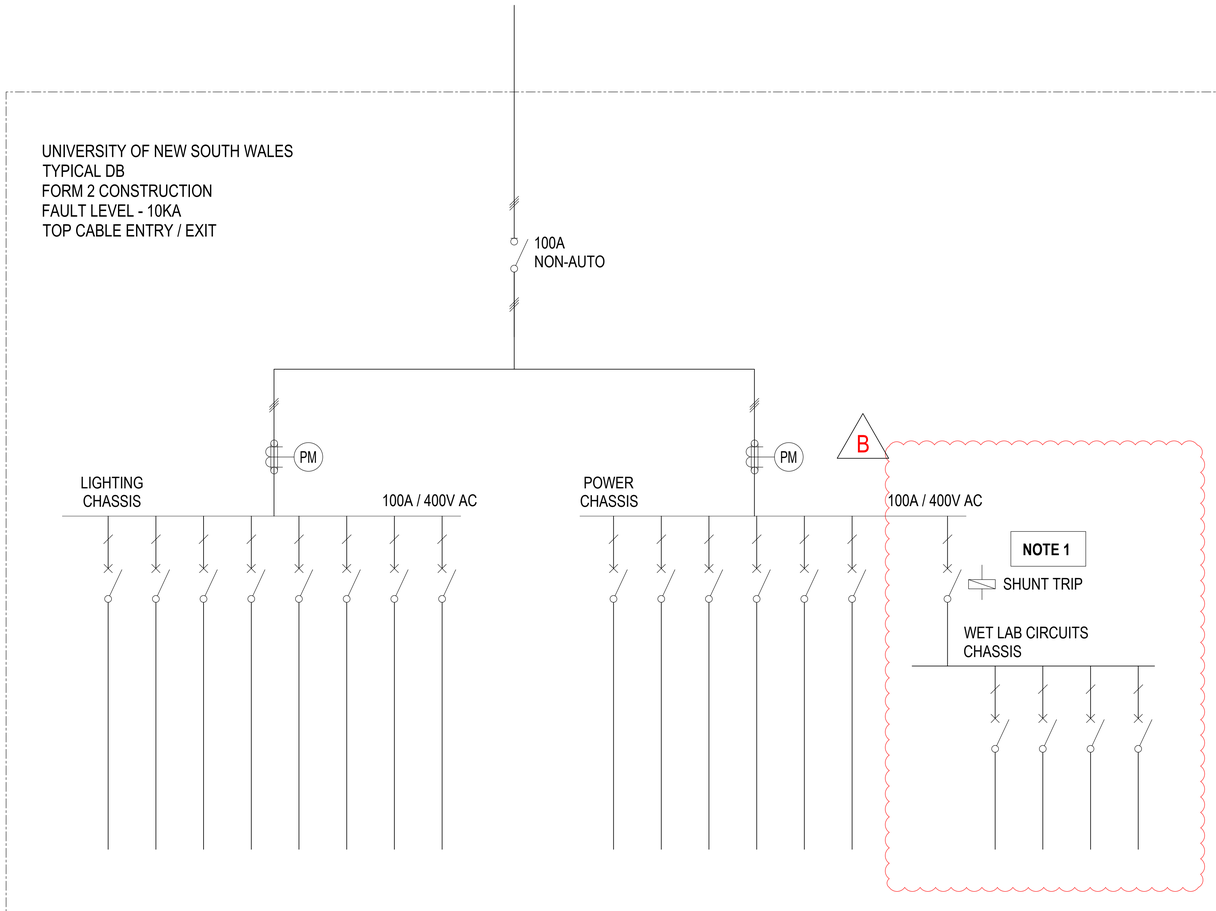
ISSUE D

NOTES:

1. BREAKER WITH A SHUNT TRIP WILL BE PROVIDED TO ISOLATE CIRCUITS TO THE WET LABS IN CASE OF EMERGENCY STOP BUTTON ACTIVATION. THIS ARRANGEMENT IS APPLICABLE FOR DISTRIBUTION BOARDS SUPPLYING WET LABS ONLY

B

UNIVERSITY OF NEW SOUTH WALES
TYPICAL DB
FORM 2 CONSTRUCTION
FAULT LEVEL - 10KA
TOP CABLE ENTRY / EXIT



FREDON
123 Wetherill Street, Silverwater N.S.W. 2128
TEL: 02 9475 9400 FAX: 02 9748 0940
ABN 003 361 297 Lic No. EC03588

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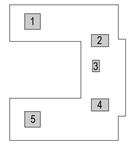
NOTE
CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCEMENT OF WORK OR PREPARATION OF SHOP DRAWINGS. DO NOT SCALE THIS DRAWING

ISSUE	DATE	FOR
A	21.12.18	FOR INFORMATION
B	21.01.19	FOR INFORMATION



RISER LAYOUT

PROJECT MANAGEMENT
PWC

CIVIL AND STRUCTURAL ENGINEERING
ENSTRUCT GROUP

MECHANICAL ENGINEERING
LEHR CONSULTANTS INTERNATIONAL

ELECTRICAL ENGINEERING
WOOD & GRIEVE ENGINEERS

HYDRAULIC ENGINEERING
ACOR CONSULTANTS

CONSTRUCTION MANAGER
lendlease

CLIENT
NSW GOVERNMENT Health Infrastructure

CLIENT NUMBER

PROJECT
RANDWICK CAMPUS REDEVELOPMENT
- ACUTE SERVICES BUILDING

FREDON PROJECT NUMBER
10C0045

DRAWING KEY

TRUE NORTH PROJECT NORTH

GRAPHIC SCALE
DO NOT SCALE

SCALE
N.T.S.@81 DO NOT SCALE

STATUS
CONCEPT

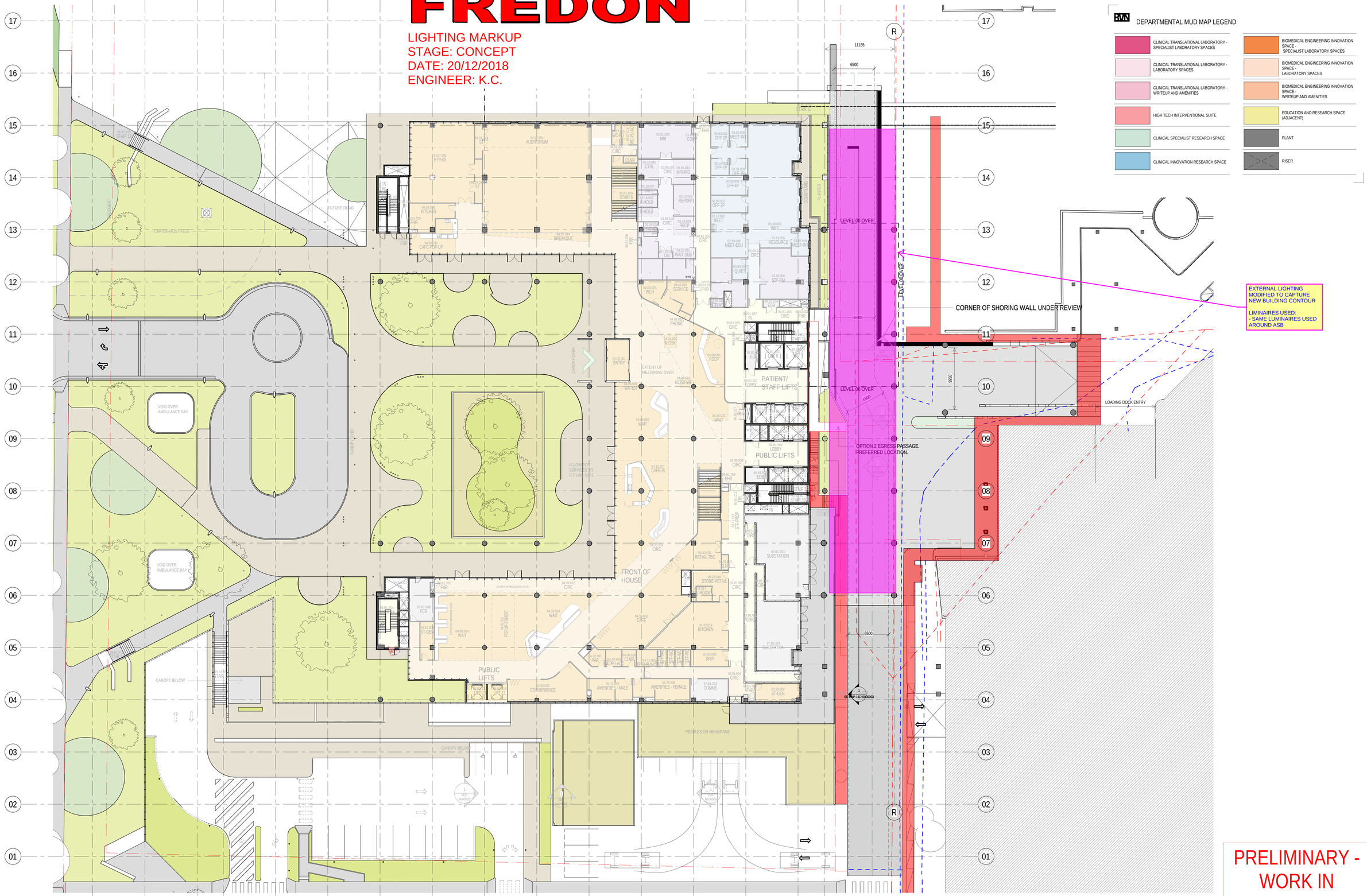
DRAWING
ELECTRICAL SERVICES
TYPICAL DB
SINGLE LINE DIAGRAM

DRWG - 00014

ISSUE D

FREDON

LIGHTING MARKUP
STAGE: CONCEPT
DATE: 20/12/2018
ENGINEER: K.C.



PRELIMINARY - WORK IN PROGRESS

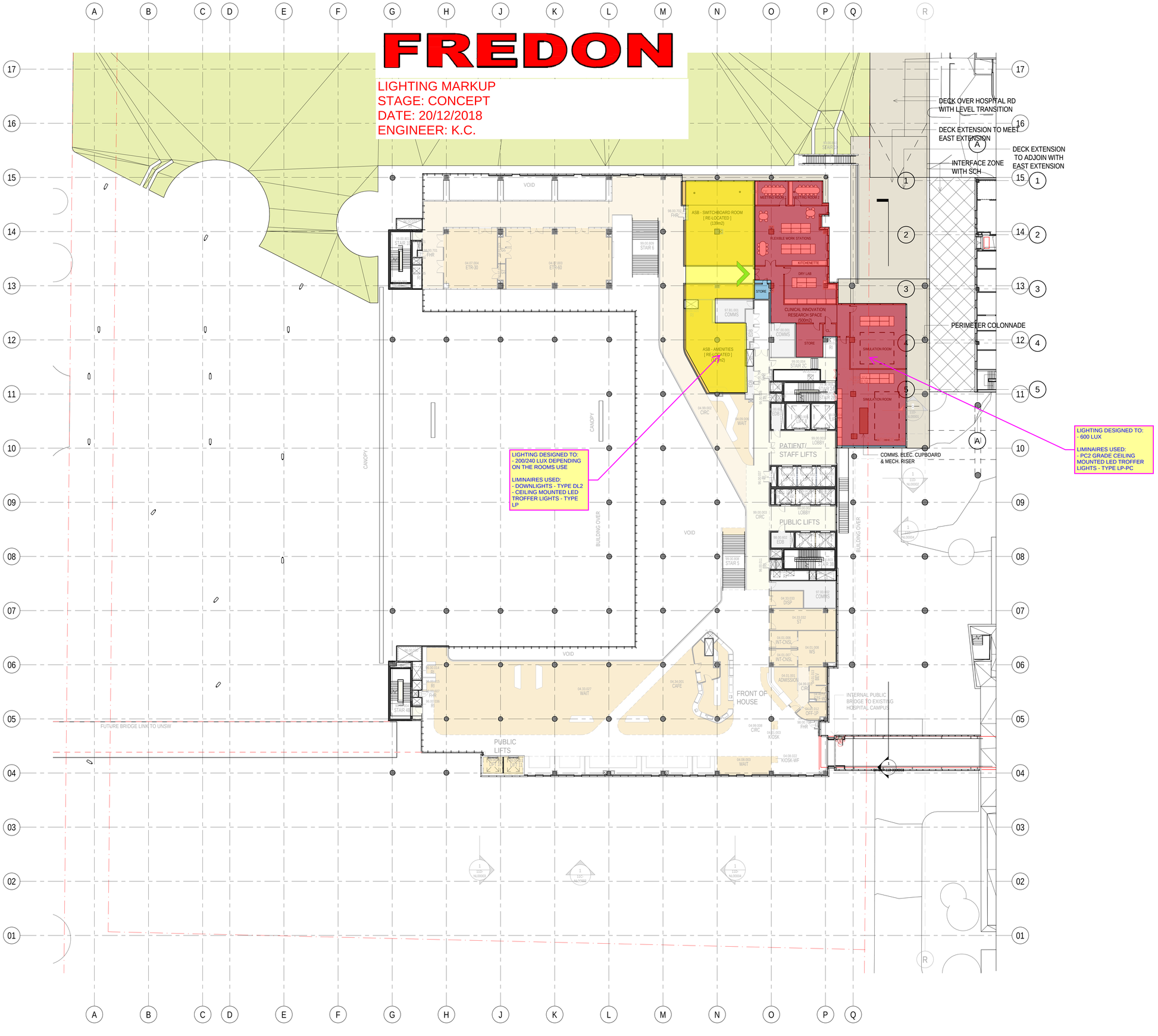
CLIENT	PROJECT	BVN PROJECT NUMBER
LEND LEASE	ASB/UNSW EAST INTEGRATION	s1606008

TRUE NORTH	PROJECT NORTH	GRAPHIC SCALE	SCALE	DRAWING
		0 4000 10000	As indicated@A0	LEVEL -01 - OPTION 03

DRAWING NUMBER	DATE	REVISION	ISSUE
AR-SK-EXP-11B-B100003	13.12.18	D	FOR INFORMATION

FREDON

LIGHTING MARKUP
STAGE: CONCEPT
DATE: 20/12/2018
ENGINEER: K.C.



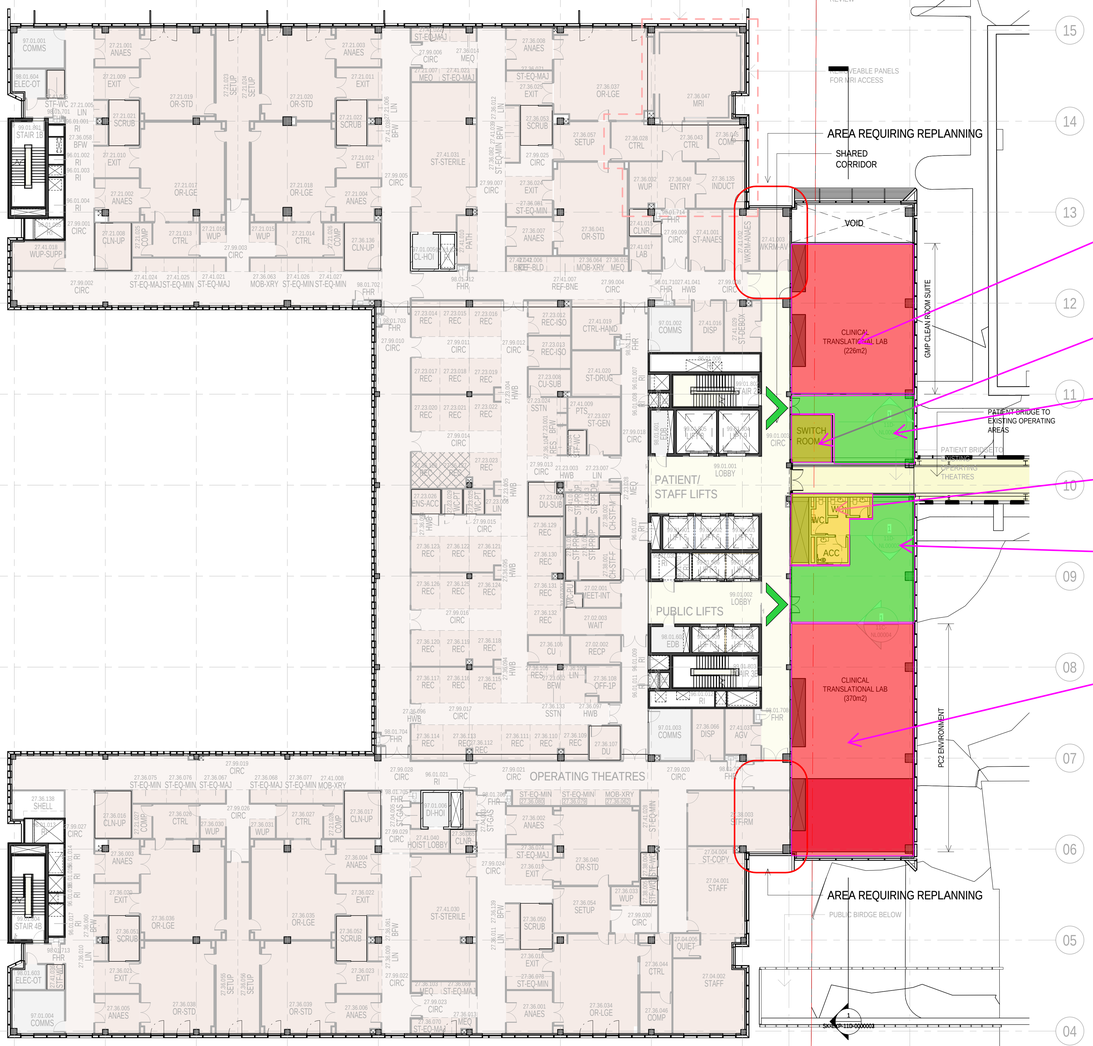
LEVEL 00

DRAFT TEST FIT
UNSW INTEGRATION
18.12.18

1:200 @ A0
BVN / TERROIR

FREDON

LIGHTING MARKUP
STAGE: CONCEPT
DATE: 20/12/2018
ENGINEER: K.C.



DEPARTMENTAL MUD MAP LEGEND

- CLINICAL TRANSLATIONAL LABORATORY - SPECIALIST LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - WRITEUP AND AMENITIES
- HIGH TECH INTERVENTIONAL SUITE
- CLINICAL SPECIALIST RESEARCH SPACE
- CLINICAL INNOVATION RESEARCH SPACE
- BIOMEDICAL ENGINEERING INNOVATION SPACE - SPECIALIST LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - WRITEUP AND AMENITIES
- EDUCATION AND RESEARCH SPACE (ADJACENT)
- PLANT
- RISER

LIGHTING DESIGNED TO:
- 600 LUX

LIMINAIRES USED:
- PC2 GRADE CEILING MOUNTED LED TROFFER LIGHTS - TYPE LP-PC

LIGHTING DESIGNED TO:
- 200 LUX

LIMINAIRES USED:
- DOWNLIGHTS - TYPE DL2
- CEILING MOUNTED LED TROFFER LIGHTS - TYPE LP

LIGHTING DESIGNED TO:
- 320 LUX

LIMINAIRES USED:
- CEILING MOUNTED LED TROFFER LIGHTS - TYPE LP

LIGHTING DESIGNED TO:
- 200/240 LUX DEPENDING ON THE ROOMS USE

LIMINAIRES USED:
- DOWNLIGHTS - TYPE DL2

LIGHTING DESIGNED TO:
- 320 LUX

LIMINAIRES USED:
- CEILING MOUNTED LED TROFFER LIGHTS - TYPE LP

LIGHTING DESIGNED TO:
- 600 LUX

LIMINAIRES USED:
- PC2 GRADE CEILING MOUNTED LED TROFFER LIGHTS - TYPE LP-PC

PRELIMINARY - WORK IN PROGRESS

CLIENT	PROJECT	BVN PROJECT NUMBER	TRUE NORTH	PROJECT NORTH	GRAPHIC SCALE	SCALE	DRAWING
LEND LEASE	ASB/UNSW EAST INTEGRATION	s1606008			0 4000 10000	As indicated@A0	LEVEL 01 - OPTION 03

DRAWING NUMBER	DATE	REVISION	ISSUE
AR-SK-EXP-11B-0100003	13.12.18	D	FOR INFORMATION

FREDON

LIGHTING MARKUP
STAGE: CONCEPT
DATE: 20/12/2018
ENGINEER: K.C.

DEPARTMENTAL MUD MAP LEGEND

- CLINICAL TRANSLATIONAL LABORATORY - SPECIALIST LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - WRITEUP AND AMENITIES
- HIGH TECH INTERVENTIONAL SUITE
- CLINICAL SPECIALIST RESEARCH SPACE
- CLINICAL INNOVATION RESEARCH SPACE
- BIOMEDICAL ENGINEERING INNOVATION SPACE - SPECIALIST LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - WRITEUP AND AMENITIES
- EDUCATION AND RESEARCH SPACE (ADJACENT)
- PLANT
- RISER

LIGHTING DESIGNED TO:
- 240 LUX

LIMINAIRES USED:
- CEILING MOUNTED LED TROFFER LIGHTS - TYPE W1 AND W1E

LIGHTING DESIGNED TO:
- 600 LUX

LIMINAIRES USED:
- PC2 GRADE CEILING MOUNTED LED TROFFER LIGHTS - TYPE LP-PC

LIGHTING DESIGNED TO:
- 600 LUX

LIMINAIRES USED:
- CEILING MOUNTED LED TROFFER LIGHTS - TYPE LP

LIGHTING DESIGNED TO:
- 200 LUX

LIMINAIRES USED:
- DOWNLIGHTS - TYPE DL2
- CEILING MOUNTED LED TROFFER LIGHTS - TYPE LP

LIGHTING DESIGNED TO:
- 500 LUX

LIMINAIRES USED:
- CEILING MOUNTED LED TROFFER LIGHTS - TYPE LP

LIGHTING DESIGNED TO:
- 320 LUX

LIMINAIRES USED:
- CEILING MOUNTED LED TROFFER LIGHTS - TYPE LP

LIGHTING DESIGNED TO:
- 600 LUX

LIMINAIRES USED:
- PC2 GRADE CEILING MOUNTED LED TROFFER LIGHTS - TYPE LP-PC

PRELIMINARY - WORK IN PROGRESS

CLIENT	PROJECT	BVN PROJECT NUMBER	TRUE NORTH	PROJECT NORTH	GRAPHIC SCALE	SCALE	DRAWING	DRAWING NUMBER	DATE	REVISION	ISSUE
LEND LEASE	ASB/UNSW EAST INTEGRATION	s1606008			0 4000 10000	As indicated@A0	LEVEL 02 - OPTION 03	AR-SK-EXP-11B-0200003	13.12.18	D	FOR INFORMATION

FREDON

LIGHTING MARKUP
STAGE: CONCEPT
DATE: 20/12/2018
ENGINEER: K.C.

DEPARTMENTAL MUD MAP LEGEND

- CLINICAL TRANSLATIONAL LABORATORY - SPECIALIST LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - WRITEUP AND AMENITIES
- HIGH TECH INTERVENTIONAL SUITE
- CLINICAL SPECIALIST RESEARCH SPACE
- CLINICAL INNOVATION RESEARCH SPACE
- BIOMEDICAL ENGINEERING INNOVATION SPACE - SPECIALIST LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - WRITEUP AND AMENITIES
- EDUCATION AND RESEARCH SPACE (ADJACENT)
- PLANT
- RISER

LIGHTING DESIGNED TO:
- 600 LUX

LIMINAIRES USED:
- PC2 GRADE CEILING MOUNTED LED TROFFER LIGHTS - TYPE LP-PC

LIGHTING DESIGNED TO:
- 200 LUX

LIMINAIRES USED:
- DOWNLIGHTS - TYPE DL2
- CEILING MOUNTED LED TROFFER LIGHTS - TYPE LP

LIGHTING DESIGNED TO:
- 320 LUX

LIMINAIRES USED:
- CEILING MOUNTED LED TROFFER LIGHTS - TYPE LP

LIGHTING DESIGNED TO:
- 200/240 LUX DEPENDING ON THE ROOMS USE

LIMINAIRES USED:
- DOWNLIGHTS - TYPE DL2

LIGHTING DESIGNED TO:
- 320 LUX

LIMINAIRES USED:
- CEILING MOUNTED LED TROFFER LIGHTS - TYPE LP

LIGHTING DESIGNED TO:
- 600 LUX

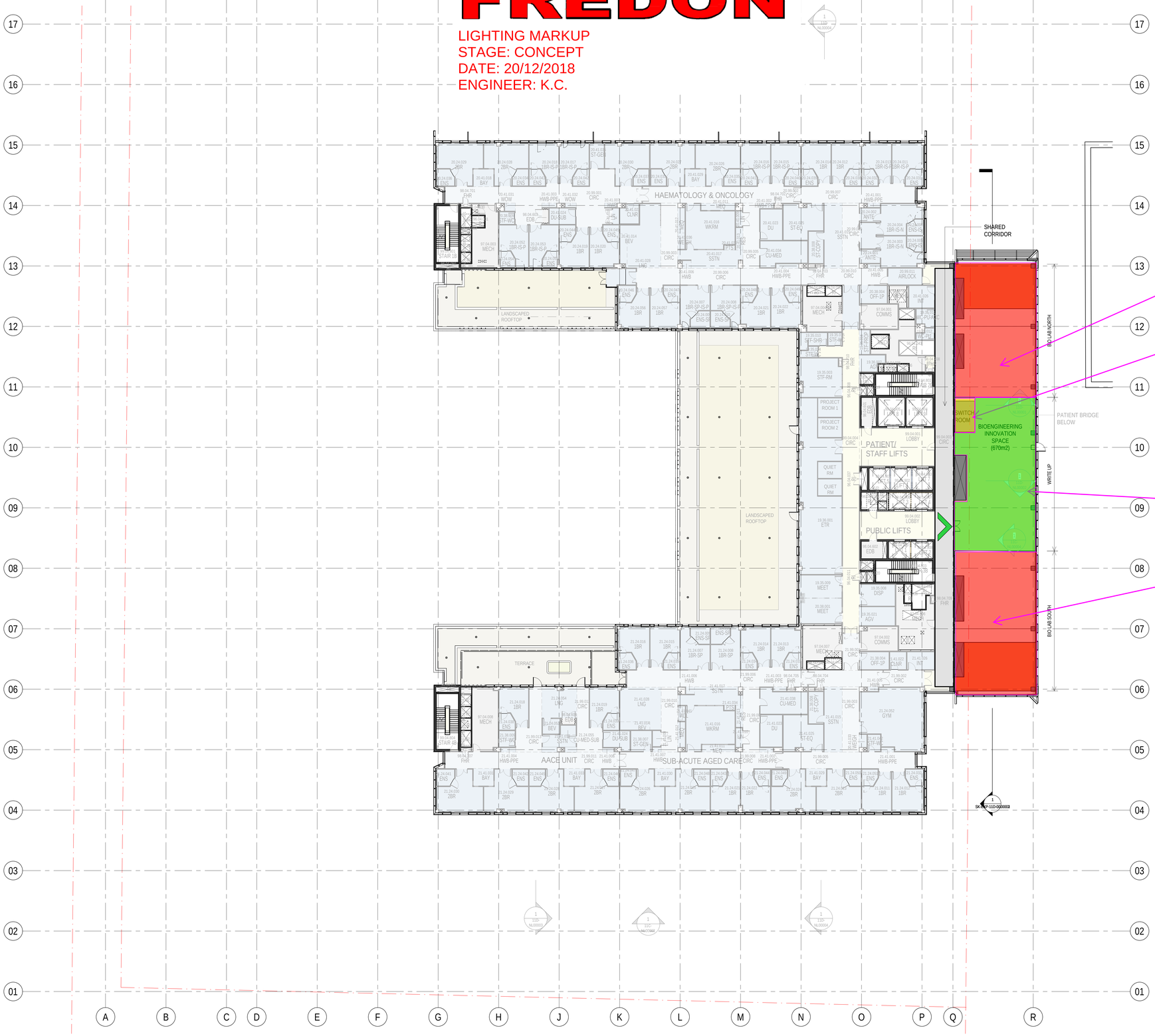
LIMINAIRES USED:
- PC2 GRADE CEILING MOUNTED LED TROFFER LIGHTS - TYPE LP-PC

PRELIMINARY - WORK IN PROGRESS

CLIENT	LEND LEASE
PROJECT	ASB/UNSW EAST INTEGRATION
BVN PROJECT NUMBER	s1606008
TRUE NORTH	
PROJECT NORTH	
GRAPHIC SCALE	0 4000 10000
SCALE	As indicated@A0
DRAWING	LEVEL 03 - OPTION 03
DRAWING NUMBER	AR-SK-EXP-11B-0300003
DATE	13.12.18
REVISION	D
ISSUE	FOR INFORMATION

FREDON

LIGHTING MARKUP
STAGE: CONCEPT
DATE: 20/12/2018
ENGINEER: K.C.



BVN DEPARTMENTAL MUD MAP LEGEND

- CLINICAL TRANSLATIONAL LABORATORY - SPECIALIST LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - WRITEUP AND AMENITIES
- HIGH TECH INTERVENTIONAL SUITE
- CLINICAL SPECIALIST RESEARCH SPACE
- CLINICAL INNOVATION RESEARCH SPACE
- BIOMEDICAL ENGINEERING INNOVATION SPACE - SPECIALIST LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - WRITEUP AND AMENITIES
- EDUCATION AND RESEARCH SPACE (ADJACENT)
- PLANT
- RISER

LIGHTING DESIGNED TO:
- 600 LUX

LIMINAIRES USED:
- PC2 GRADE CEILING MOUNTED LED TROFFER LIGHTS - TYPE LP-PC

LIGHTING DESIGNED TO:
- 200 LUX

LIMINAIRES USED:
- CEILING MOUNTED LED TROFFER LIGHTS - TYPE LP

LIGHTING DESIGNED TO:
- 320 LUX

LIMINAIRES USED:
- CEILING MOUNTED LED TROFFER LIGHTS - TYPE LP

LIGHTING DESIGNED TO:
- 600 LUX

LIMINAIRES USED:
- PC2 GRADE CEILING MOUNTED LED TROFFER LIGHTS - TYPE LP-PC

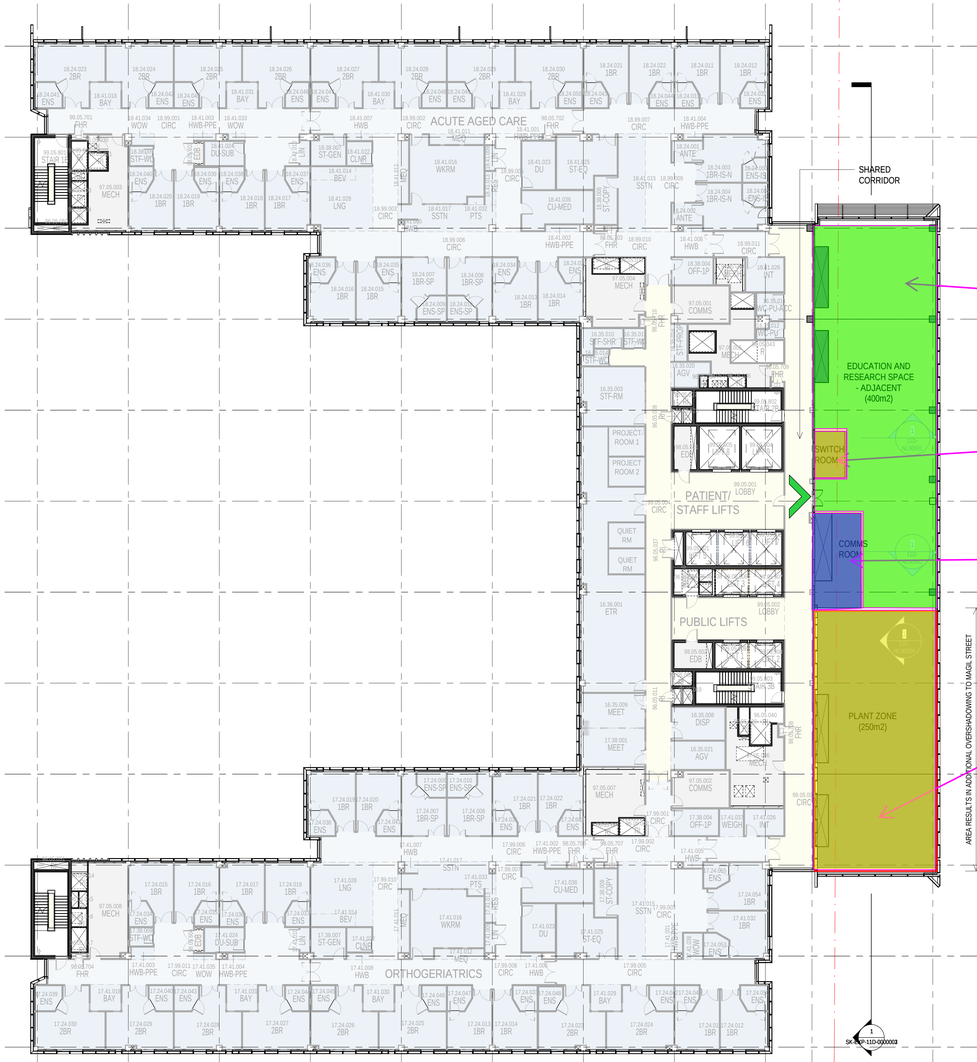
PRELIMINARY - WORK IN PROGRESS

CLIENT	PROJECT	BVN PROJECT NUMBER	TRUE NORTH	PROJECT NORTH	GRAPHIC SCALE	SCALE	DRAWING
LEND LEASE	ASB/UNSW EAST INTEGRATION	s1606008			0 4000 10000	As indicated@A0	LEVEL 04 - OPTION 03

DRAWING NUMBER	DATE	REVISION	ISSUE
AR-SK-EXP-11B-0400003	13.12.18	D	FOR INFORMATION

FREDON

LIGHTING MARKUP
STAGE: CONCEPT
DATE: 20/12/2018
ENGINEER: K.C.



DEPARTMENTAL MUD MAP LEGEND

- CLINICAL TRANSLATIONAL LABORATORY - SPECIALIST LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - WRITEUP AND AMENITIES
- HIGH TECH INTERVENTIONAL SUITE
- CLINICAL SPECIALIST RESEARCH SPACE
- CLINICAL INNOVATION RESEARCH SPACE
- BIOMEDICAL ENGINEERING INNOVATION SPACE - SPECIALIST LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - WRITEUP AND AMENITIES
- EDUCATION AND RESEARCH SPACE (ADJACENT)
- PLANT
- RISER

PLANT AREA RESULTS IN ADDITIONAL OVERSHADOWING TO MAGILL STREET

LIGHTING DESIGNED TO:
- 320 LUX

LIMINAIRES USED:
- CEILING MOUNTED LED TROFFER LIGHTS - TYPE LP

LIGHTING DESIGNED TO:
- 200 LUX

LIMINAIRES USED:
- CEILING MOUNTED LED TROFFER LIGHTS - TYPE LP

LIGHTING DESIGNED TO:
- 500 LUX

LIMINAIRES USED:
- CEILING MOUNTED LED TROFFER LIGHTS - TYPE LP

LIGHTING DESIGNED TO:
- 240 LUX

LIMINAIRES USED:
- CEILING MOUNTED LED TROFFER LIGHTS - TYPE W1 AND W1E

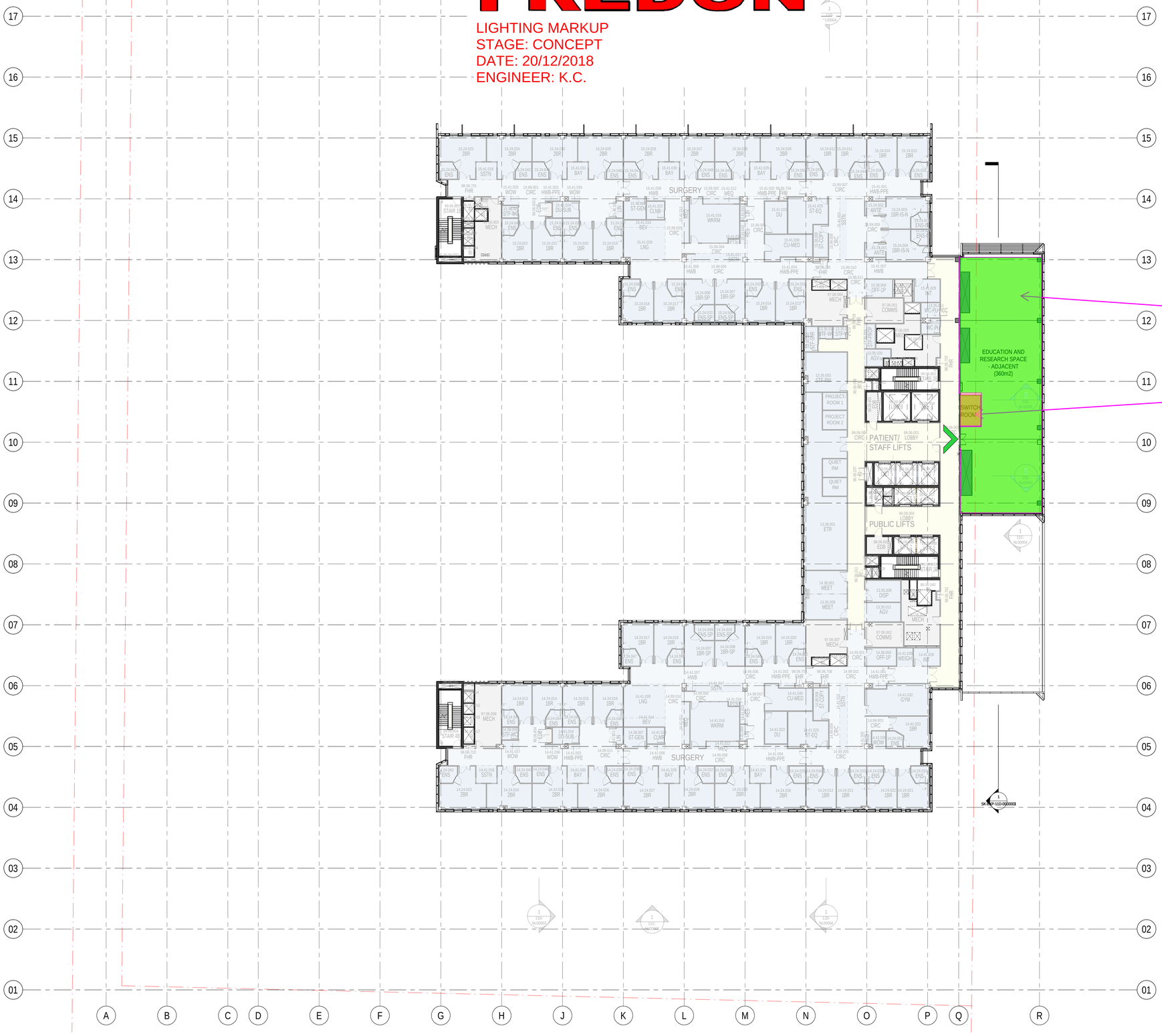
PRELIMINARY - WORK IN PROGRESS

CLIENT	PROJECT	BVN PROJECT NUMBER	TRUE NORTH	PROJECT NORTH	GRAPHIC SCALE	SCALE	DRAWING
LEND LEASE	ASB/UNSW EAST INTEGRATION	s1606008			0 4000 10000	As indicated@A0	LEVEL 05 - OPTION 03

DRAWING NUMBER	DATE	REVISION	ISSUE
AR-SK-EXP-11B-0500003	13.12.18	D	FOR INFORMATION

FREDON

LIGHTING MARKUP
STAGE: CONCEPT
DATE: 20/12/2018
ENGINEER: K.C.



LIGHTING DESIGNED TO:
- 320 LUX

LIMINAIRES USED:
- CEILING MOUNTED LED TROFFER LIGHTS - TYPE LP

LIGHTING DESIGNED TO:
- 200 LUX

LIMINAIRES USED:
- CEILING MOUNTED LED TROFFER LIGHTS - TYPE LP

DEPARTMENTAL MUD MAP LEGEND

- CLINICAL TRANSLATIONAL LABORATORY - SPECIALIST LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - WRITEUP AND AMENITIES
- HIGH TECH INTERVENTIONAL SUITE
- CLINICAL SPECIALIST RESEARCH SPACE
- CLINICAL INNOVATION RESEARCH SPACE
- BIOMEDICAL ENGINEERING INNOVATION SPACE - SPECIALIST LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - WRITEUP AND AMENITIES
- EDUCATION AND RESEARCH SPACE (ADJACENT)
- PLANT
- RISER

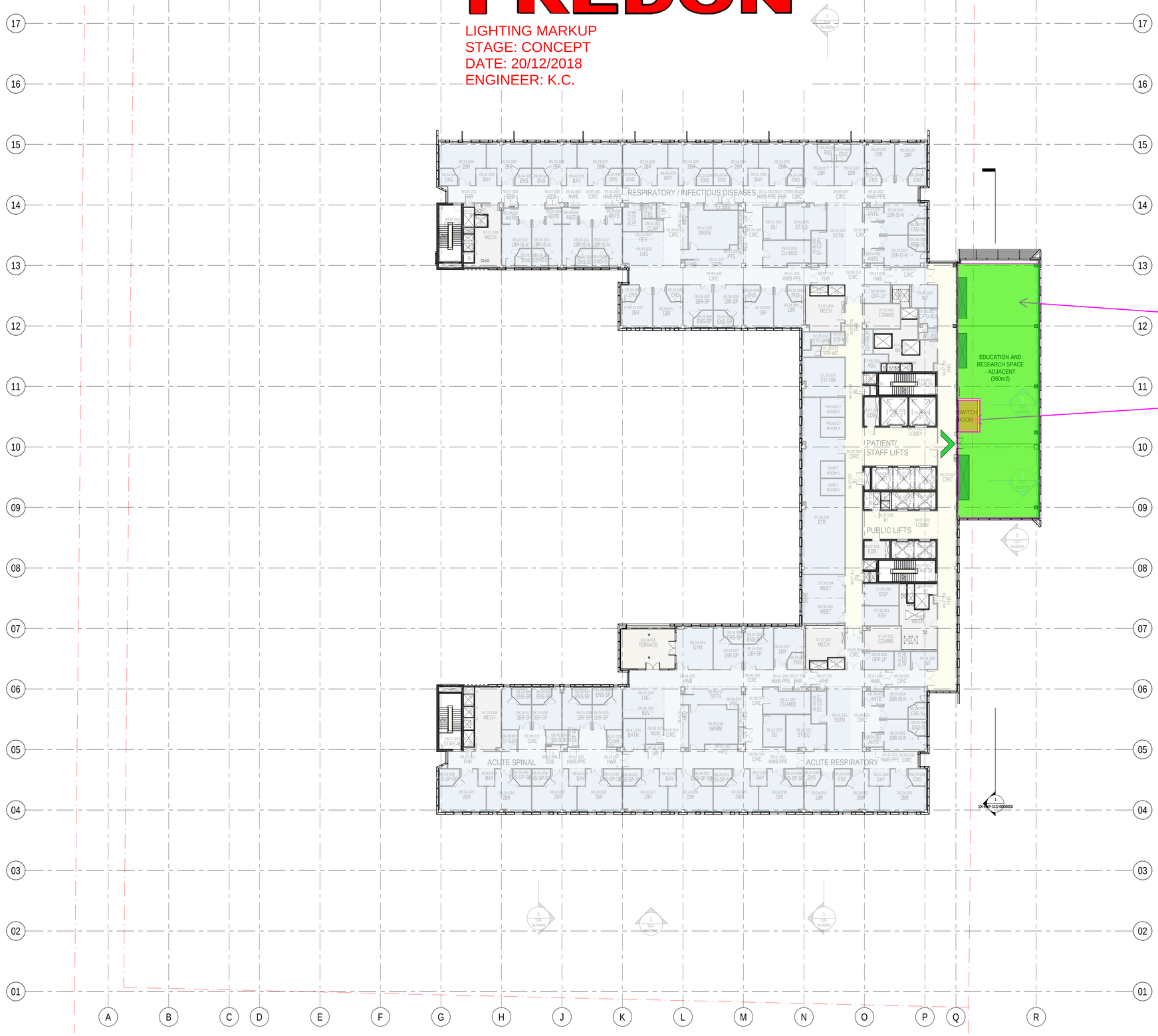
PRELIMINARY - WORK IN PROGRESS

CLIENT	PROJECT	BVN PROJECT NUMBER	TRUE NORTH	PROJECT NORTH	GRAPHIC SCALE	SCALE	DRAWING
LEND LEASE	ASB/UNSW EAST INTEGRATION	s1606008			0 4000 10000	As indicated@A0	LEVEL 06 - OPTION 03

DRAWING NUMBER	DATE	REVISION	ISSUE
AR-SK-EXP-11B-0600003	13.12.18	D	FOR INFORMATION

FREDON

LIGHTING MARKUP
STAGE: CONCEPT
DATE: 20/12/2018
ENGINEER: K.C.



DEPARTMENTAL MUD MAP LEGEND

- CLINICAL TRANSLATIONAL LABORATORY - SPECIALIST LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - WRITEUP AND AMENITIES
- HIGH TECH INTERVENTIONAL SUITE
- CLINICAL SPECIALIST RESEARCH SPACE
- CLINICAL INNOVATION RESEARCH SPACE
- BIOMEDICAL ENGINEERING INNOVATION SPACE - SPECIALIST LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - WRITEUP AND AMENITIES
- EDUCATION AND RESEARCH SPACE (ADJACENT)
- PLANT
- RISER

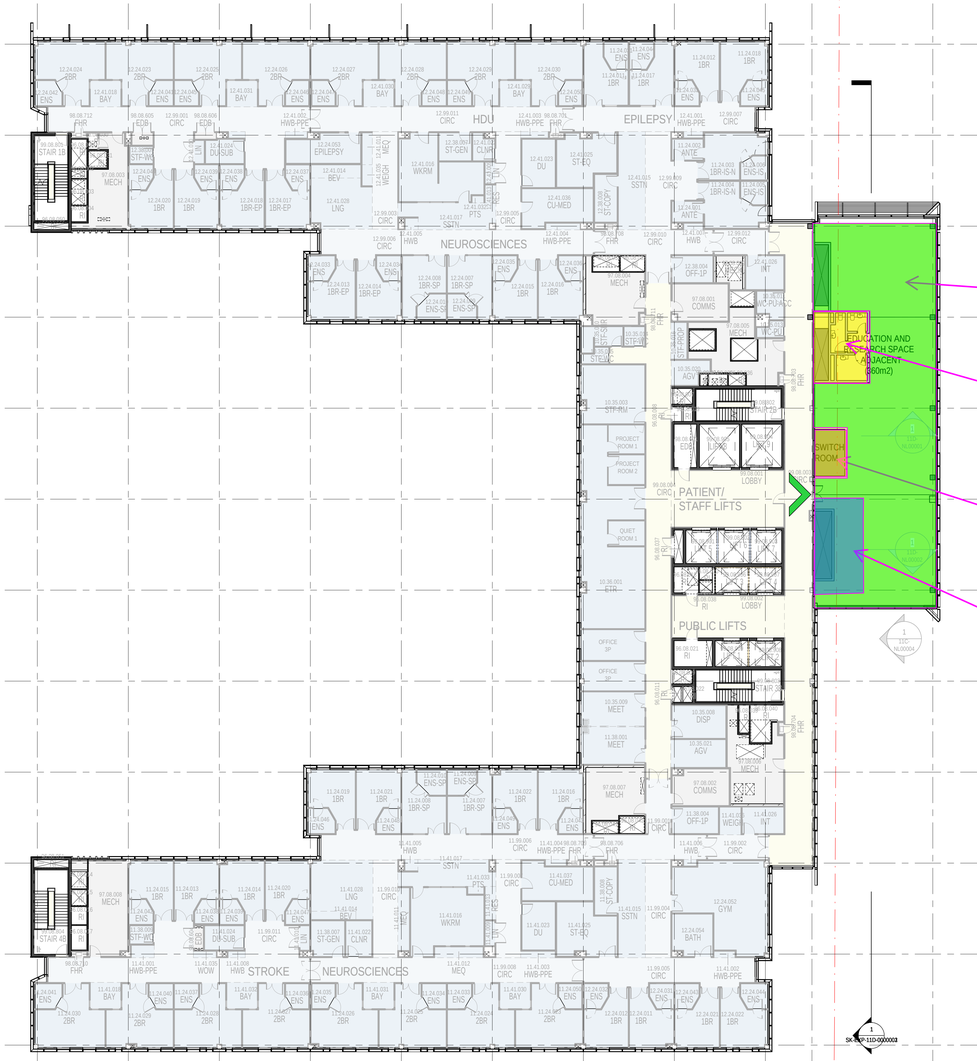
PRELIMINARY - WORK IN PROGRESS

CLIENT	PROJECT	BVN PROJECT NUMBER	TRUE NORTH	PROJECT NORTH	GRAPHIC SCALE	SCALE	DRAWING
LEND LEASE	ASB/UNSW EAST INTEGRATION	s1606008			0 4000 10000	As indicated@A0	LEVEL 07 - OPTION 03

DRAWING NUMBER	DATE	REVISION	ISSUE
AR-SK-EXP-11B-0700003	13.12.18	D	FOR INFORMATION

FREDON

LIGHTING MARKUP
STAGE: CONCEPT
DATE: 20/12/2018
ENGINEER: K.C.



DEPARTMENTAL MUD MAP LEGEND

- CLINICAL TRANSLATIONAL LABORATORY - SPECIALIST LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - WRITEUP AND AMENITIES
- HIGH TECH INTERVENTIONAL SUITE
- CLINICAL SPECIALIST RESEARCH SPACE
- CLINICAL INNOVATION RESEARCH SPACE
- BIOMEDICAL ENGINEERING INNOVATION SPACE - SPECIALIST LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - WRITEUP AND AMENITIES
- EDUCATION AND RESEARCH SPACE (ADJACENT)
- PLANT
- RISER

LIGHTING DESIGNED TO:
- 320 LUX

LIMINAIRES USED:
- CEILING MOUNTED LED TROFFER LIGHTS - TYPE LP

LIGHTING DESIGNED TO:
- 200/240 LUX DEPENDING ON ROOMS USE

LIMINAIRES USED:
- CEILING MOUNTED LED TROFFER LIGHTS - TYPE LP

LIGHTING DESIGNED TO:
- 200 LUX

LIMINAIRES USED:
- CEILING MOUNTED LED TROFFER LIGHTS - TYPE LP

LIGHTING DESIGNED TO:
- 500 LUX

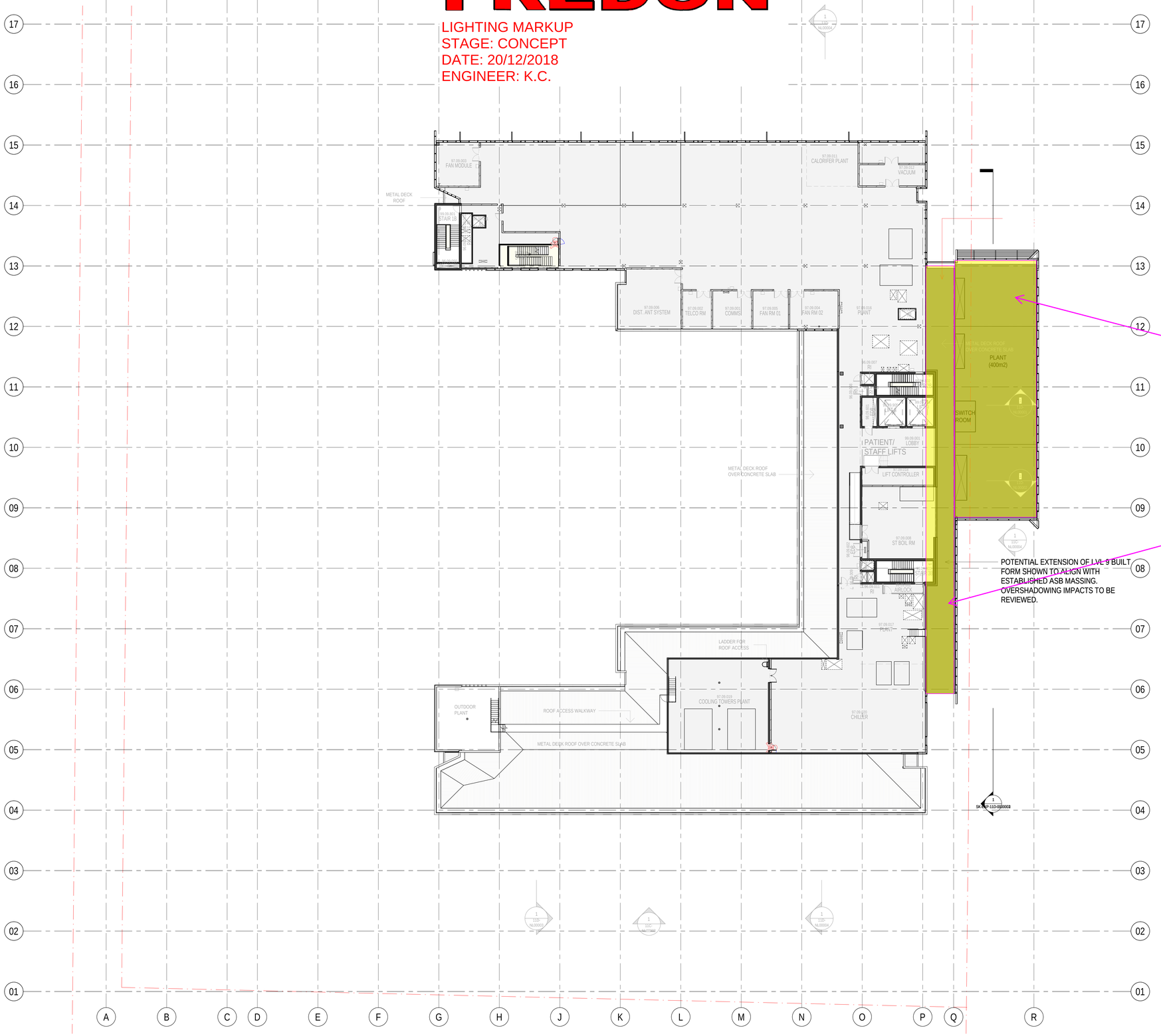
LIMINAIRES USED:
- CEILING MOUNTED LED TROFFER LIGHTS - TYPE LP

PRELIMINARY - WORK IN PROGRESS

CLIENT: LEND LEASE
PROJECT: ASB/UNSW EAST INTEGRATION
BVN PROJECT NUMBER: s1606008
TRUE NORTH | PROJECT NORTH | GRAPHIC SCALE: 0 2000 5000
SCALE: As indicated@A0
DRAWING: LEVEL 08 - OPTION 03
DRAWING NUMBER: AR-SK-EXP-11B-0800003
DATE: 13.12.18
REVISION: D
ISSUE: FOR INFORMATION

FREDON

LIGHTING MARKUP
STAGE: CONCEPT
DATE: 20/12/2018
ENGINEER: K.C.



DEPARTMENTAL MUD MAP LEGEND

- CLINICAL TRANSLATIONAL LABORATORY - SPECIALIST LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - WRITEUP AND AMENITIES
- HIGH TECH INTERVENTIONAL SUITE
- CLINICAL SPECIALIST RESEARCH SPACE
- CLINICAL INNOVATION RESEARCH SPACE
- BIOMEDICAL ENGINEERING INNOVATION SPACE - SPECIALIST LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - WRITEUP AND AMENITIES
- EDUCATION AND RESEARCH SPACE (ADJACENT)
- PLANT
- RISER

OVERSHADOWING IMPACTS OF SOUTHERN EXTENSION TO PLANT AREA TO BE REVIEWED.

LIGHTING DESIGNED TO:
- 40 LUX

LIMINAIRES USED:
- WALL/POLE MOUNTED LED TROFFER LIGHTS - TYPE W1 AND W1E

LIGHTING DESIGNED TO:
- 40 LUX

LIMINAIRES USED:
- CEILING / WALL MOUNTED LED TROFFER LIGHTS - TYPE W1 AND W1E

POTENTIAL EXTENSION OF LVL 9 BUILT FORM SHOWN TO ALIGN WITH ESTABLISHED ASB MASSING. OVERSHADOWING IMPACTS TO BE REVIEWED.

PRELIMINARY - WORK IN PROGRESS

CLIENT	PROJECT	BVN PROJECT NUMBER
LEND LEASE	ASB/UNSW EAST INTEGRATION	s1606008

TRUE NORTH | PROJECT NORTH | GRAPHIC SCALE 0 4000 10000

SCALE	DRAWING	DRAWING NUMBER	DATE	REVISION	ISSUE
As indicated@A0	LEVEL 09 - OPTION 03	AR-SK-EXP-11B-0900003	13.12.18	D	FOR INFORMATION

FREDON

ELECTRICAL AND COMMUNICATIONS MARKUP
STAGE: CONCEPT
DATE: 21/12/2018
ENGINEER: K.C.

DEPARTMENTAL MUD MAP LEGEND

- CLINICAL TRANSLATIONAL LABORATORY - SPECIALIST LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - WRITEUP AND AMENITIES
- HIGH TECH INTERVENTIONAL SUITE
- CLINICAL SPECIALIST RESEARCH SPACE
- CLINICAL INNOVATION RESEARCH SPACE
- BIOMEDICAL ENGINEERING INNOVATION SPACE - SPECIALIST LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - WRITEUP AND AMENITIES
- EDUCATION AND RESEARCH SPACE (ADJACENT)
- PLANT
- RISER

CORNER OF SHORING WALL UNDER REVIEW

ELECTRICAL RISER

ELECTRICAL RISER TO SWITCHROOM 1 ON BELEB B2

OPTION 2 EGRESS PASSAGE. PREFERRED LOCATION.

LOADING DOCK ENTRY

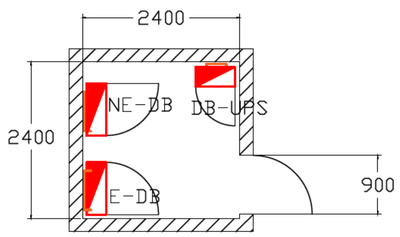
LEVEL 00 OVER

PRELIMINARY - WORK IN PROGRESS

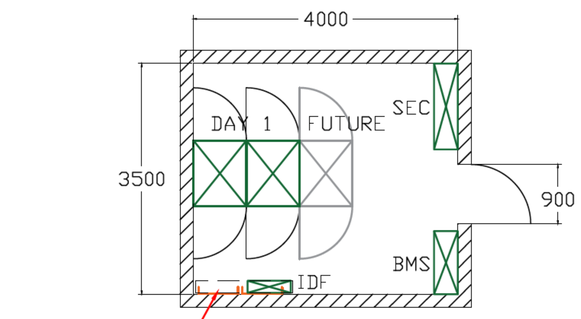
CLIENT	PROJECT	BVN PROJECT NUMBER	TRUE NORTH / PROJECT NORTH / GRAPHIC SCALE 0 4000 10000	SCALE	DRAWING	
LEND LEASE	ASB/UNSW EAST INTEGRATION	s1606008		As indicated@A0	LEVEL -01 - OPTION 03	

DRAWING NUMBER	DATE	REVISION	ISSUE
AR-SK-EXP-11B-B100003	13.12.18	D	FOR INFORMATION

ELECTRICAL AND COMMUNICATIONS MARKUP
STAGE: CONCEPT
DATE: 17/12/2018
ENGINEER: K.C.



SWITCHROOM
ON LEVEL 00



COMMS ROOM
3 RACKS
LEVEL 00

DECK OVER HOSPITAL RD WITH LEVEL TRANSITION

DECK EXTENSION TO MEET EAST EXTENSION

DECK EXTENSION TO ADJOIN WITH EAST EXTENSION

INTERFACE ZONE WITH SCH

PERIMETER COLONNADE

ELECTRICAL SWITCHROOM (SEE DETAIL)

DIMENSIONS 2400x2400mm
- 2HR FIRE RATED SEALED DOORS.
- DOOR DIMENSIONS MINIMUM 2200x900mm

ELECTRICAL SUIBMAINS PATHWAY. PENETRATION TO THE LEVAL AVOVE REQUIRED.

COMMS ROOM (SEE DETAIL)

DIMENSIONS 3500x4000mm
- 3000mm CLEAR HEIGHT
- ACCESSIBLE THROUGH ENTIRE HEIGHT
- SMOKE SEALED DOORS
- PENETRATION TO THE LEVEL ABOVE

ELECTRICAL RISER

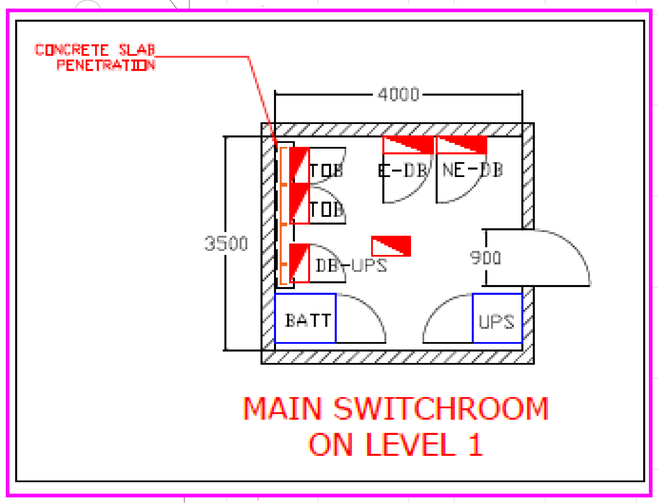
LEVEL 00

DRAFT TEST FIT
UNSW INTEGRATION
18.12.18

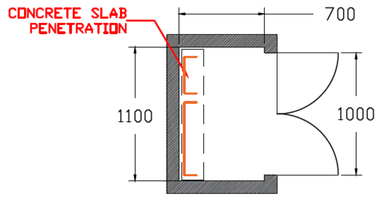
1:200 @ A0
BVN / TERROIR

FREDON

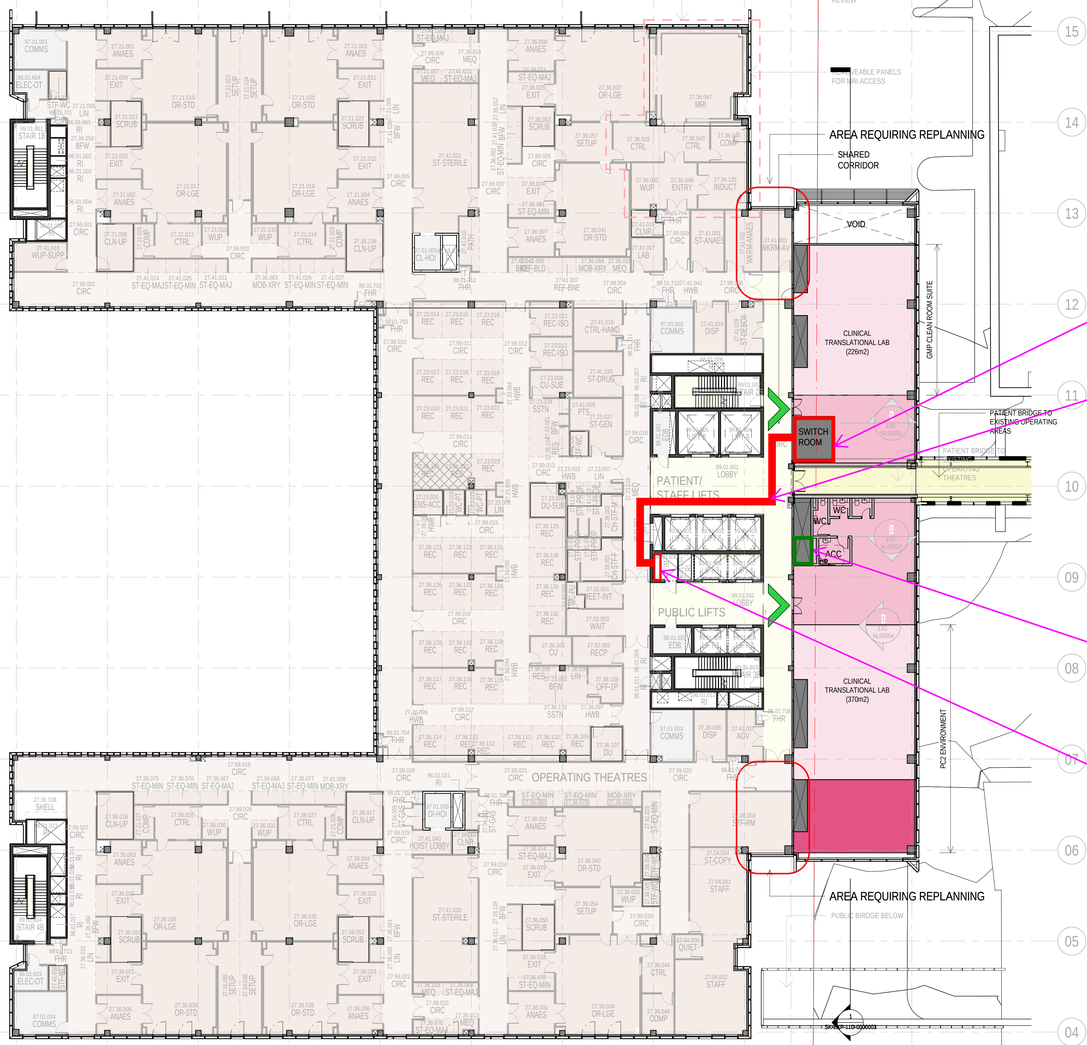
ELECTRICAL AND COMMUNICATIONS MARKUP
STAGE: CONCEPT
DATE: 17/12/2018
ENGINEER: K.C.



MAIN SWITCHROOM
ON LEVEL 1



COMMS CUPBOARD
LEVELS 1,3,4,6,7



MAIN SWITCHROOM
(SEE DETAIL)

DIMENSIONS 3500x4000mm
- 2HR FIRE RATED SEALED DOORS.
- DOOR OPENING TO DIRECTION OF EGRESS
- DOOR DIMENSIONS MINIMUM 2200x900mm

SUBMAINS PATHWAY

3 X 600X100mm CABLE LADDERS

COMMS CUPBOARD
(SEE DETAIL)

DIMENSIONS 1100x700mm
- 3000mm CLEAR HEIGHT
- ACCESSIBLE THROUGH ENTIRE HEIGHT
- SMOKE SEALED DOORS
- CENTRAL LOCATION ON THE FLOOR

ELECTRICAL RISER

DIMENSIONS 2400x500mm
- 2HR FIRE RATED
- SMOKE SEALED DOORS.

DEPARTMENTAL MUD MAP LEGEND

- CLINICAL TRANSLATIONAL LABORATORY - SPECIALIST LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - WRITEUP AND AMENITIES
- HIGH TECH INTERVENTIONAL SUITE
- CLINICAL SPECIALIST RESEARCH SPACE
- CLINICAL INNOVATION RESEARCH SPACE
- BIOMEDICAL ENGINEERING INNOVATION SPACE - SPECIALIST LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - WRITEUP AND AMENITIES
- EDUCATION AND RESEARCH SPACE (ADJACENT)
- PLANT
- RISER

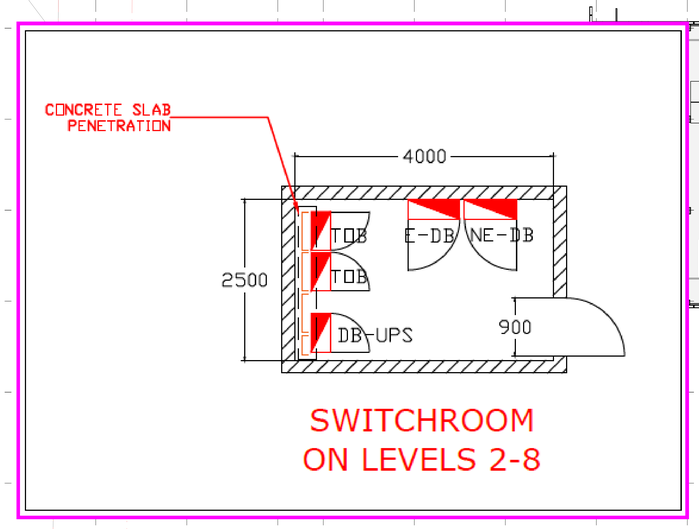
PRELIMINARY - WORK IN PROGRESS

CLIENT	PROJECT	BVN PROJECT NUMBER	TRUE NORTH	PROJECT NORTH	GRAPHIC SCALE	SCALE	DRAWING
LEND LEASE	ASB/UNSW EAST INTEGRATION	s1606008			0 4000 10000	As indicated@A0	LEVEL 01 - OPTION 03

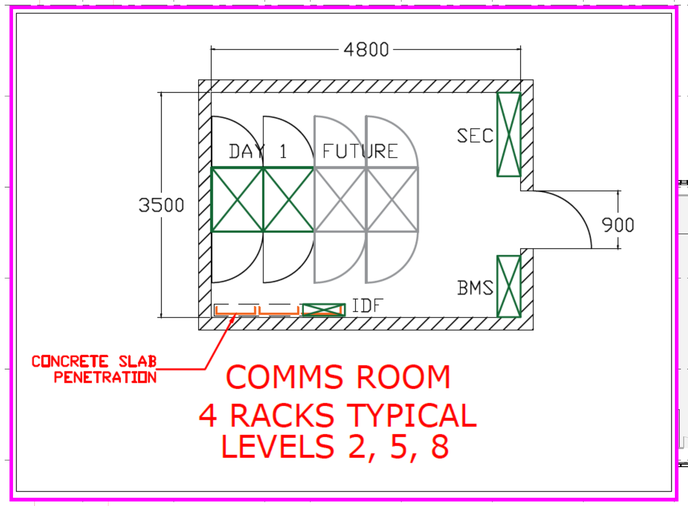
DRAWING NUMBER	DATE	REVISION	ISSUE
AR-SK-EXP-11B-0100003	13.12.18	D	FOR INFORMATION

FREDON

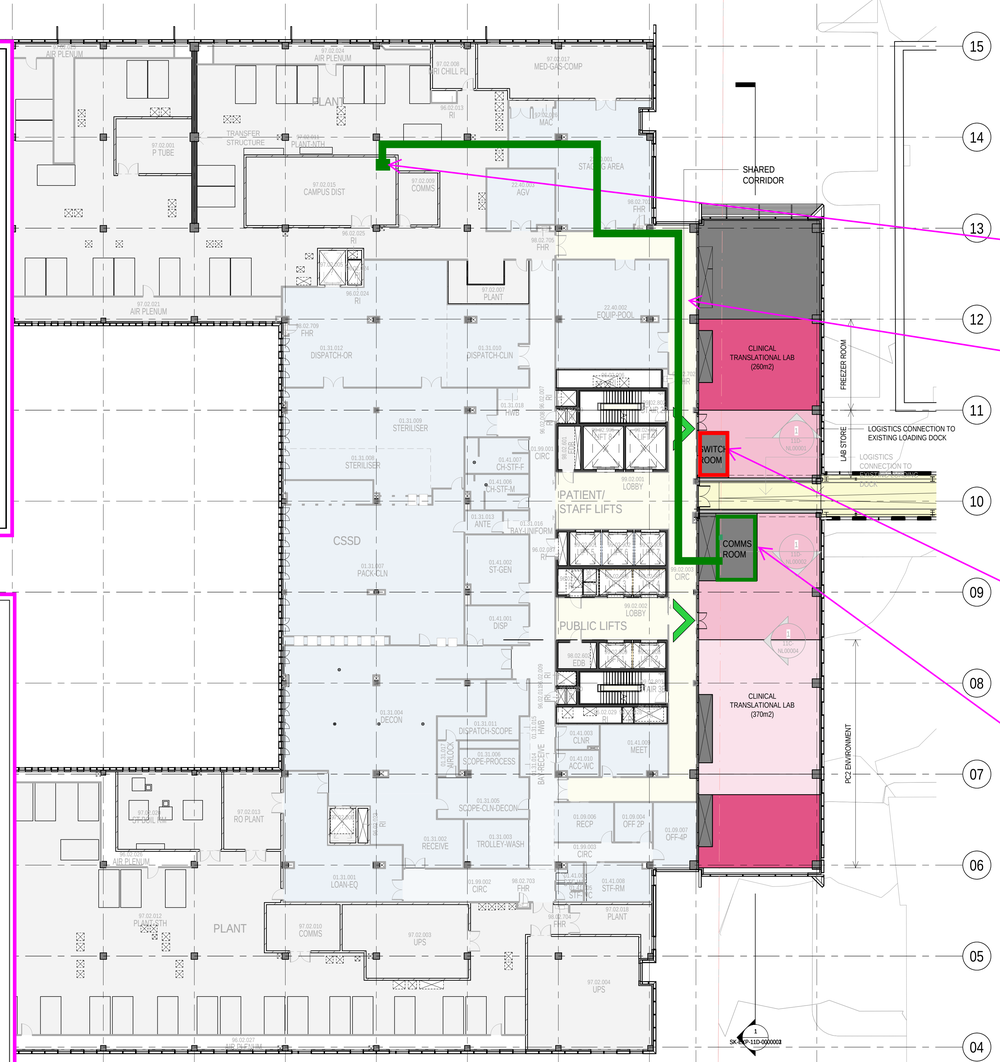
ELECTRICAL AND COMMUNICATIONS MARKUP
STAGE: CONCEPT
DATE: 17/12/2018
ENGINEER: K.C.



SWITCHROOM
ON LEVELS 2-8



COMMS ROOM
4 RACKS TYPICAL
LEVELS 2, 5, 8



NEW UNSW DEDICATED RACK IN CAMPUS DISTRIBUTOR ROOM

LEAD-IN CABLE PATHWAY

SWITCHROOM
(SEE DETAIL)

DIMENSIONS 2500x4000mm
- STACKING WITH THE SWITCHROOM BELOW
- 2HR FIRE RATED SEALED DOORS.
- DOOR OPENING TO DIRECTION OF EGRESS
- DOOR DIMENSIONS MINIMUM 2200x900mm

COMMS ROOM
(SEE DETAIL)

DIMENSIONS 3500x4800mm
- STACKING WITH THE COMMS ROOM/CUPBOARD BELOW
- 3000mm CLEAR HEIGHT
- ACCESSIBLE THROUGH ENTIRE HEIGHT
- SMOKE SEALED DOORS
- CENTRAL LOCATION ON THE FLOOR

DEPARTMENTAL MUD MAP LEGEND

- CLINICAL TRANSLATIONAL LABORATORY - SPECIALIST LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - WRITEUP AND AMENITIES
- HIGH TECH INTERVENTIONAL SUITE
- CLINICAL SPECIALIST RESEARCH SPACE
- CLINICAL INNOVATION RESEARCH SPACE
- BIOMEDICAL ENGINEERING INNOVATION SPACE - SPECIALIST LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - WRITEUP AND AMENITIES
- EDUCATION AND RESEARCH SPACE (ADJACENT)
- PLANT
- RISER

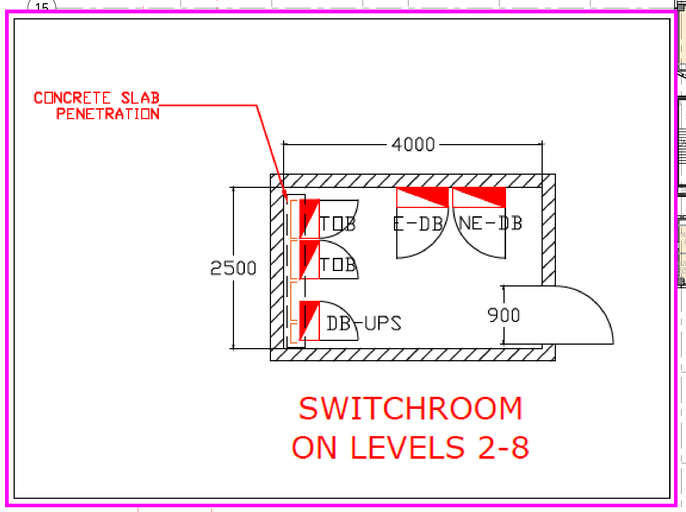
PRELIMINARY - WORK IN PROGRESS

CLIENT	PROJECT	BVN PROJECT NUMBER	TRUE NORTH	PROJECT NORTH	GRAPHIC SCALE	SCALE	DRAWING
LEND LEASE	ASB/UNSW EAST INTEGRATION	s1606008			0 4000 10000	As indicated@A0	LEVEL 02 - OPTION 03

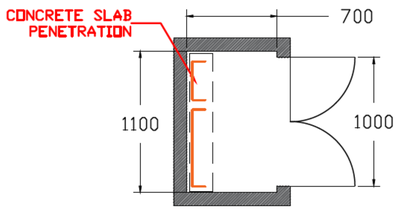
DRAWING NUMBER	DATE	REVISION	ISSUE
AR-SK-EXP-11B-0200003	13.12.18	D	FOR INFORMATION

FREDON

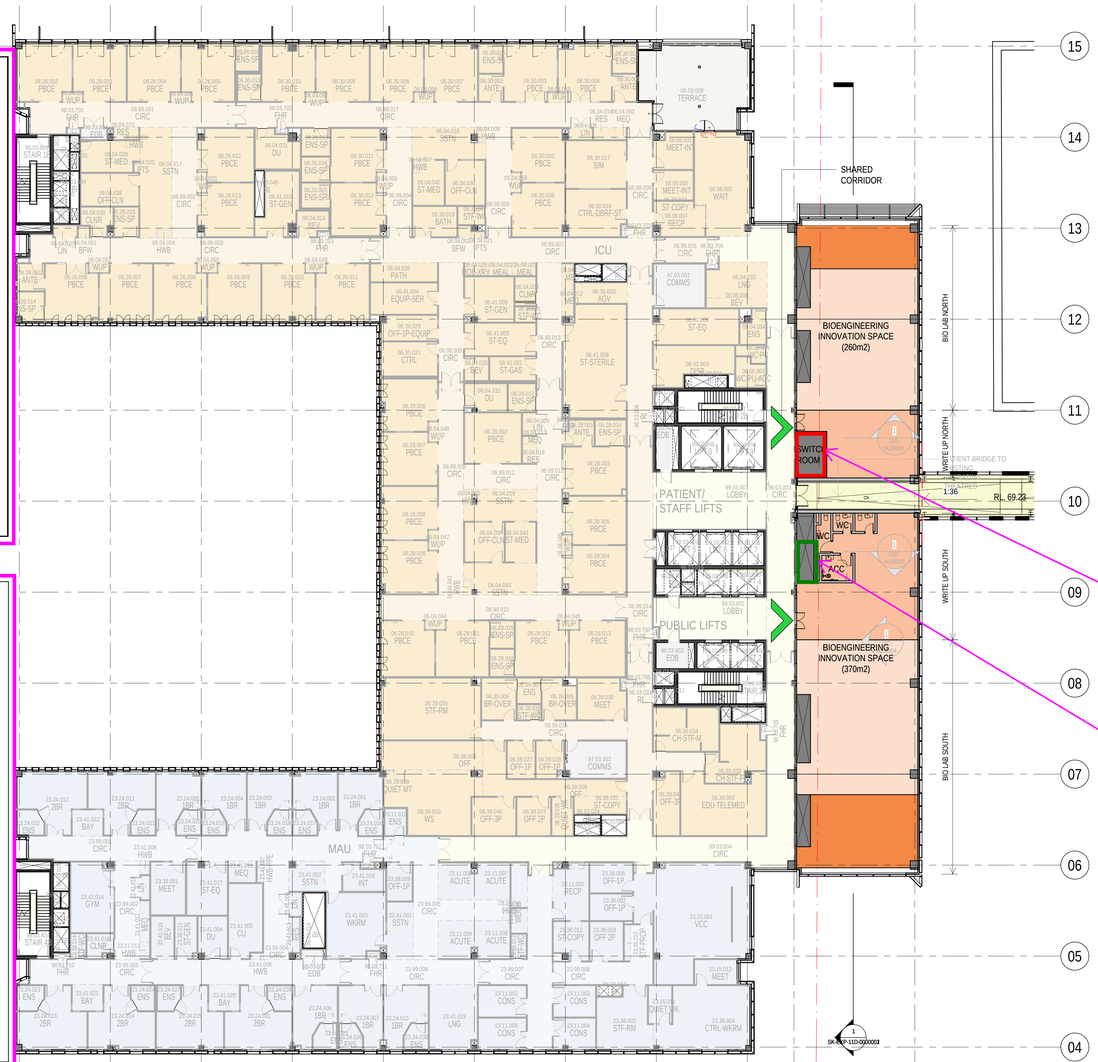
ELECTRICAL AND COMMUNICATIONS MARKUP
STAGE: CONCEPT
DATE: 17/12/2018
ENGINEER: K.C.



SWITCHROOM
ON LEVELS 2-8



COMMS CUPBOARD
LEVELS 1,3,4,6,7



SWITCHROOM
(SEE DETAIL)

DIMENSIONS 2500x4000mm
- STACKING WITH THE SWITCHROOM BELOW
- 2HR FIRE RATED SEALED DOORS.
- DOOR OPENING TO DIRECTION OF EGRESS
- DOOR DIMENSIONS MINIMUM 2200x900mm

COMMS CUPBOARD
(SEE DETAIL)

DIMENSIONS 1100x700mm
- STACKING WITH THE COMMS ROOM/CUPBOARD BELOW
- 3000mm CLEAR HEIGHT
- ACCESSIBLE THROUGH ENTIRE HEIGHT
- SMOKE SEALED DOORS
- CENTRAL LOCATION ON THE FLOOR

DEPARTMENTAL MUD MAP LEGEND

- CLINICAL TRANSLATIONAL LABORATORY - SPECIALIST LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - WRITEUP AND AMENITIES
- HIGH TECH INTERVENTIONAL SUITE
- CLINICAL SPECIALIST RESEARCH SPACE
- CLINICAL INNOVATION RESEARCH SPACE
- BIOMEDICAL ENGINEERING INNOVATION SPACE - SPECIALIST LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - WRITEUP AND AMENITIES
- EDUCATION AND RESEARCH SPACE (ADJACENT)
- PLANT
- RISER

PRELIMINARY - WORK IN PROGRESS

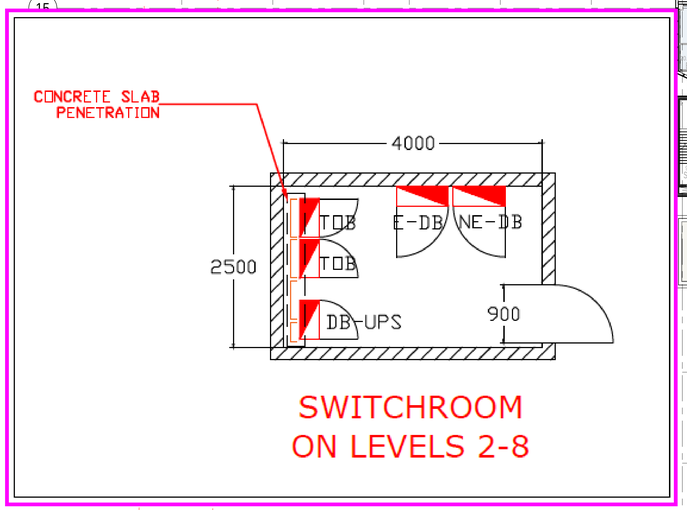
CLIENT	PROJECT	BVN PROJECT NUMBER
LEND LEASE	ASB/UNSW EAST INTEGRATION	s1606008

TRUE NORTH	PROJECT NORTH	GRAPHIC SCALE	SCALE	DRAWING
		0 4000 10000	As indicated@A0	LEVEL 03 - OPTION 03

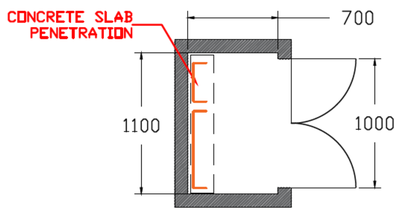
DRAWING NUMBER	DATE	REVISION	ISSUE
AR-SK-EXP-11B-0300003	13.12.18	D	FOR INFORMATION

FREDON

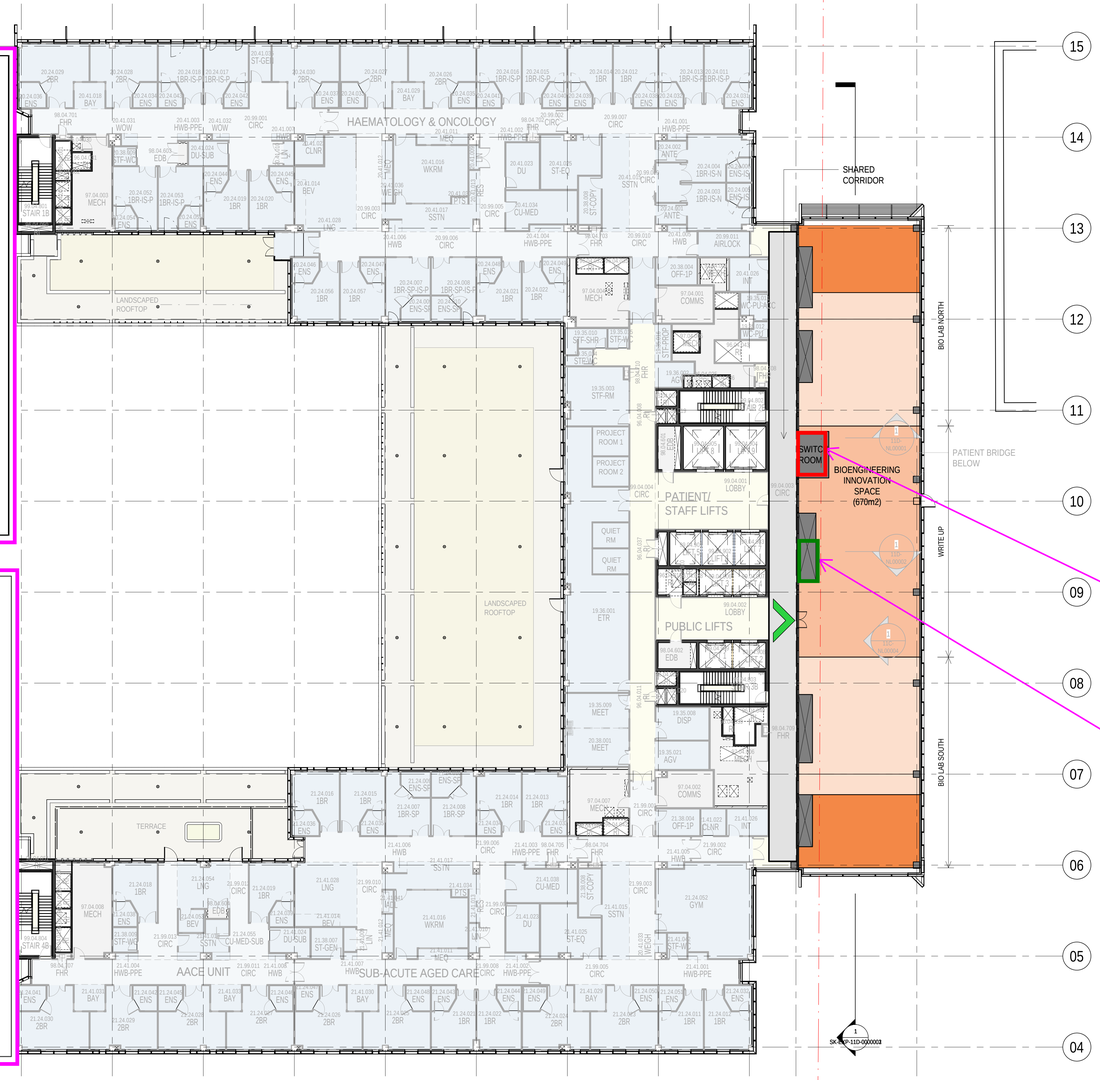
ELECTRICAL AND COMMUNICATIONS MARKUP
STAGE: CONCEPT
DATE: 17/12/2018
ENGINEER: K.C.



SWITCHROOM
ON LEVELS 2-8



COMMS CUPBOARD
LEVELS 1,3,4,6,7



SWITCHROOM
(SEE DETAIL)

DIMENSIONS 2500x4000mm
- STACKING WITH THE SWITCHROOM BELOW
- 2HR FIRE RATED SEALED DOORS.
- DOOR OPENING TO DIRECTION OF EGRESS
- DOOR DIMENSIONS MINIMUM 2200x900mm

COMMS CUPBOARD
(SEE DETAIL)

DIMENSIONS 1100x700mm
- STACKING WITH THE COMMS ROOM/CUPBOARD BELOW
- 3000mm CLEAR HEIGHT
- ACCESSIBLE THROUGH ENTIRE HEIGHT
- SMOKE SEALED DOORS
- CENTRAL LOCATION ON THE FLOOR

DEPARTMENTAL MUD MAP LEGEND

- CLINICAL TRANSLATIONAL LABORATORY - SPECIALIST LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - WRITEUP AND AMENITIES
- HIGH TECH INTERVENTIONAL SUITE
- CLINICAL SPECIALIST RESEARCH SPACE
- CLINICAL INNOVATION RESEARCH SPACE
- BIOMEDICAL ENGINEERING INNOVATION SPACE - SPECIALIST LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - WRITEUP AND AMENITIES
- EDUCATION AND RESEARCH SPACE (ADJACENT)
- PLANT
- RISER

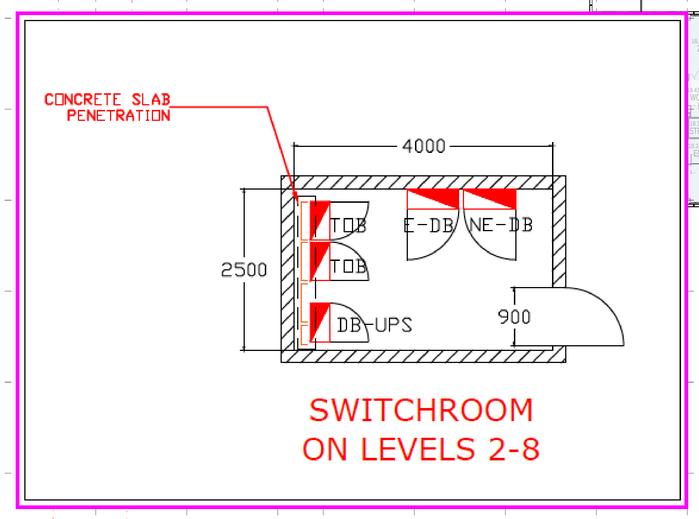
PRELIMINARY - WORK IN PROGRESS

CLIENT	PROJECT	BVN PROJECT NUMBER	TRUE NORTH	PROJECT NORTH	GRAPHIC SCALE	SCALE	DRAWING
LEND LEASE	ASB/UNSW EAST INTEGRATION	s1606008			0 4000 10000	As indicated@A0	LEVEL 04 - OPTION 03

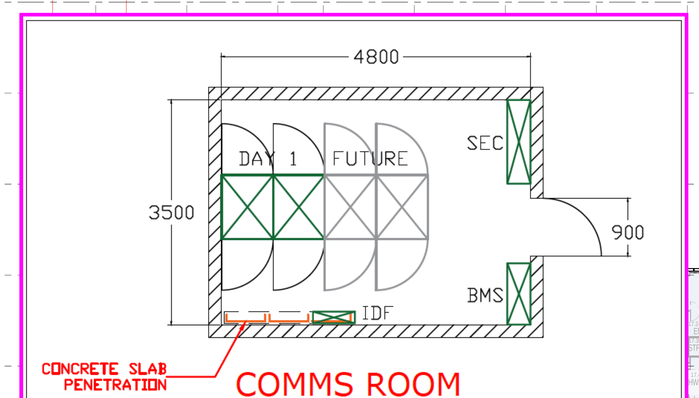
DRAWING NUMBER	DATE	REVISION	ISSUE
AR-SK-EXP-11B-0400003	13.12.18	D	FOR INFORMATION

FREDON

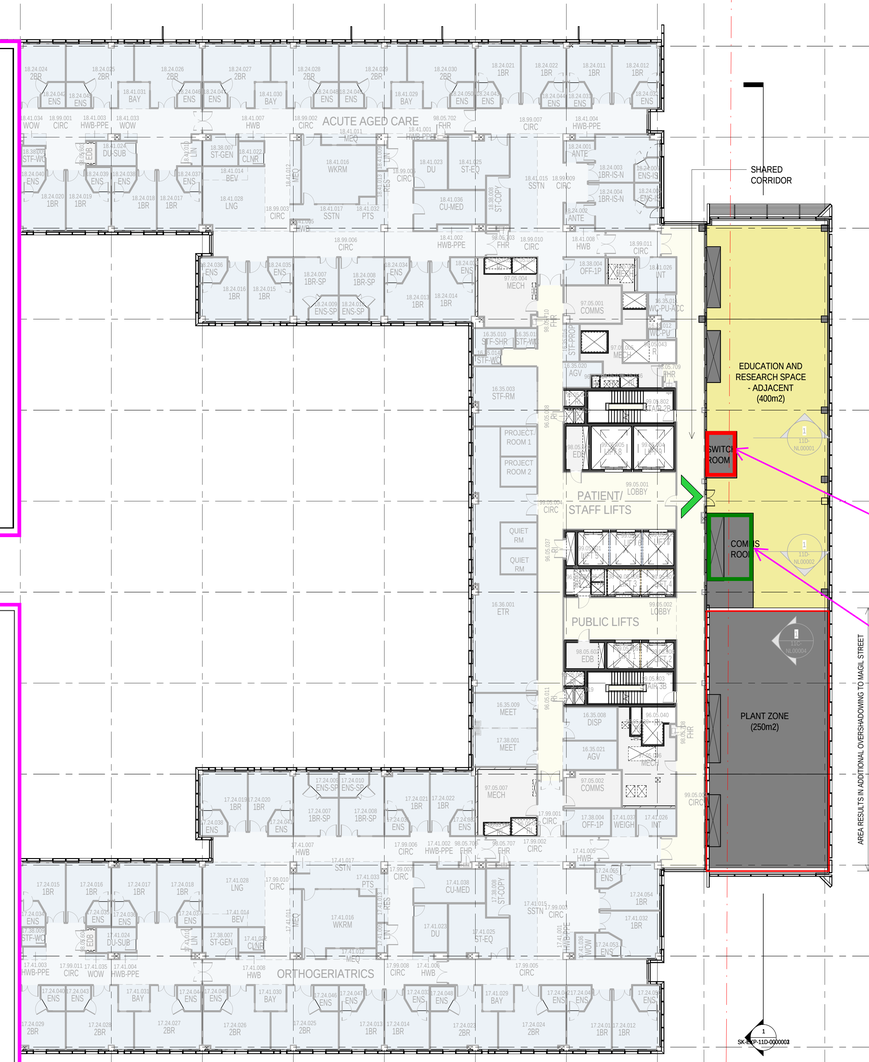
ELECTRICAL AND COMMUNICATIONS MARKUP
STAGE: CONCEPT
DATE: 17/12/2018
ENGINEER: K.C.



SWITCHROOM
ON LEVELS 2-8



COMMS ROOM
4 RACKS TYPICAL
LEVELS 2, 5, 8



SWITCHROOM
(SEE DETAIL)

DIMENSIONS 2500x4000mm
- STACKING WITH THE SWITCHROOM BELOW
- 2HR FIRE RATED SEALED DOORS.
- DOOR OPENING TO DIRECTION OF EGRESS
- DOOR DIMENSIONS MINIMUM 2200x900mm

COMMS ROOM
(SEE DETAIL)

DIMENSIONS 3500x4800mm
- STACKING WITH THE COMMS ROOM/CUPBOARD BELOW
- 3000mm CLEAR HEIGHT
- ACCESSIBLE THROUGH ENTIRE HEIGHT
- SMOKE SEALED DOORS
- CENTRAL LOCATION ON THE FLOOR

DEPARTMENTAL MUD MAP LEGEND

- CLINICAL TRANSLATIONAL LABORATORY - SPECIALIST LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - WRITEUP AND AMENITIES
- HIGH TECH INTERVENTIONAL SUITE
- CLINICAL SPECIALIST RESEARCH SPACE
- CLINICAL INNOVATION RESEARCH SPACE
- BIOMEDICAL ENGINEERING INNOVATION SPACE - SPECIALIST LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - WRITEUP AND AMENITIES
- EDUCATION AND RESEARCH SPACE (ADJACENT)
- PLANT
- RISER

PLANT AREA RESULTS IN ADDITIONAL OVERSHADOWING TO MAGILL STREET

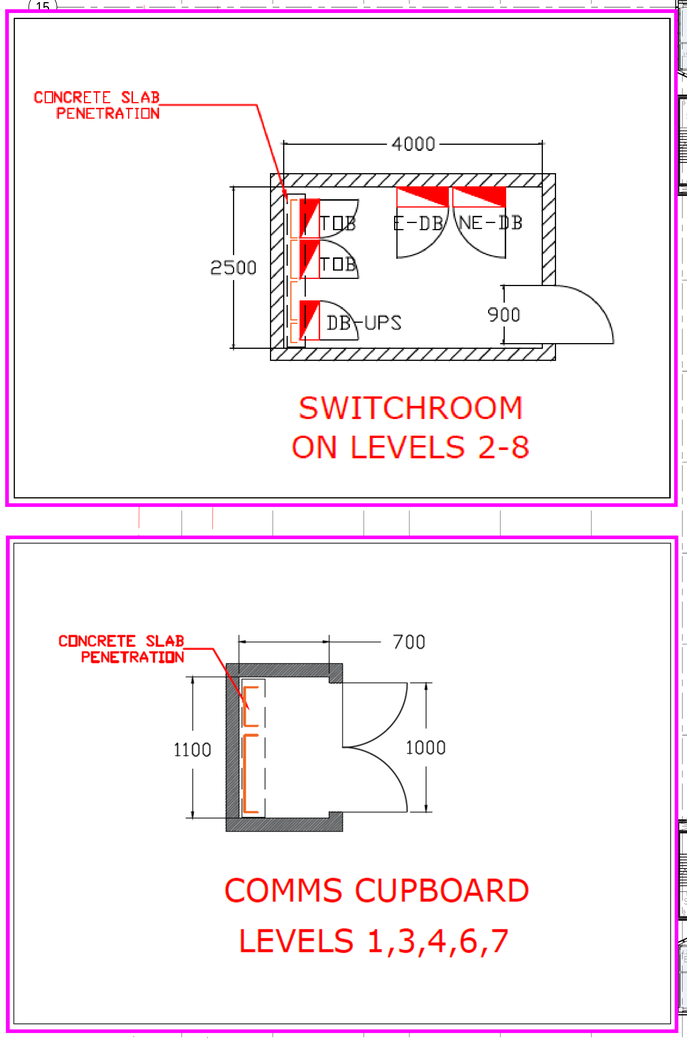
PRELIMINARY - WORK IN PROGRESS

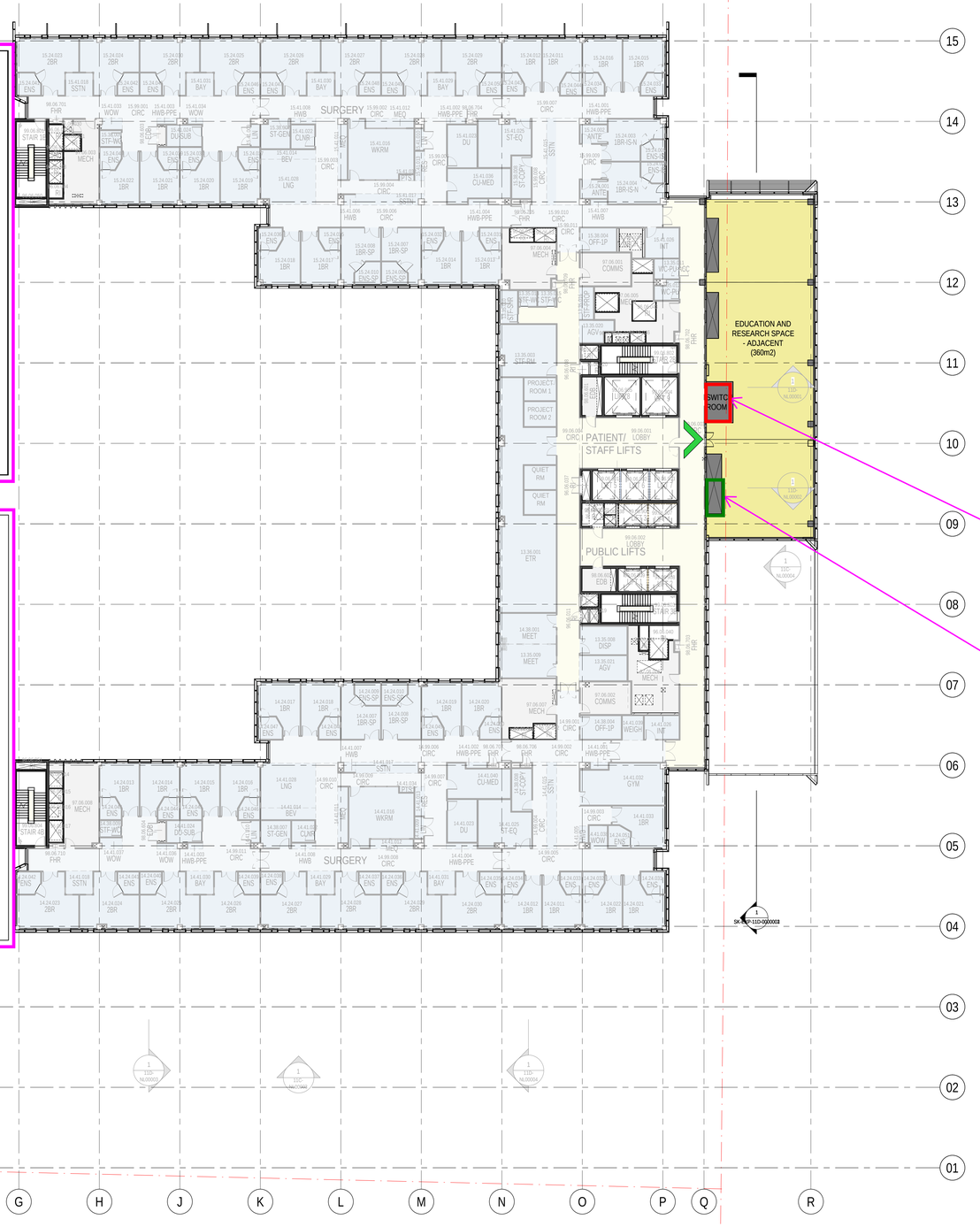
CLIENT	PROJECT	BVN PROJECT NUMBER	TRUE NORTH	PROJECT NORTH	GRAPHIC SCALE	SCALE	DRAWING
LEND LEASE	ASB/UNSW EAST INTEGRATION	s1606008			0 4000 10000	As indicated@A0	LEVEL 05 - OPTION 03

DRAWING NUMBER	DATE	REVISION	ISSUE
AR-SK-EXP-11B-0500003	13.12.18	D	FOR INFORMATION

FREDON

ELECTRICAL AND COMMUNICATIONS MARKUP
STAGE: CONCEPT
DATE: 17/12/2018
ENGINEER: K.C.





BVN DEPARTMENTAL MUD MAP LEGEND

- CLINICAL TRANSLATIONAL LABORATORY - SPECIALIST LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - WRITEUP AND AMENITIES
- HIGH TECH INTERVENTIONAL SUITE
- CLINICAL SPECIALIST RESEARCH SPACE
- CLINICAL INNOVATION RESEARCH SPACE
- BIOMEDICAL ENGINEERING INNOVATION SPACE - SPECIALIST LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - WRITEUP AND AMENITIES
- EDUCATION AND RESEARCH SPACE (ADJACENT)
- PLANT
- RISER

SWITCHROOM
(SEE DETAIL)

DIMENSIONS 2500x4000mm
- STACKING WITH THE SWITCHROOM BELOW
- 2HR FIRE RATED SEALED DOORS.
- DOOR OPENING TO DIRECTION OF EGRESS
- DOOR DIMENSIONS MINIMUM 2200x900mm

COMMS CUPBOARD
(SEE DETAIL)

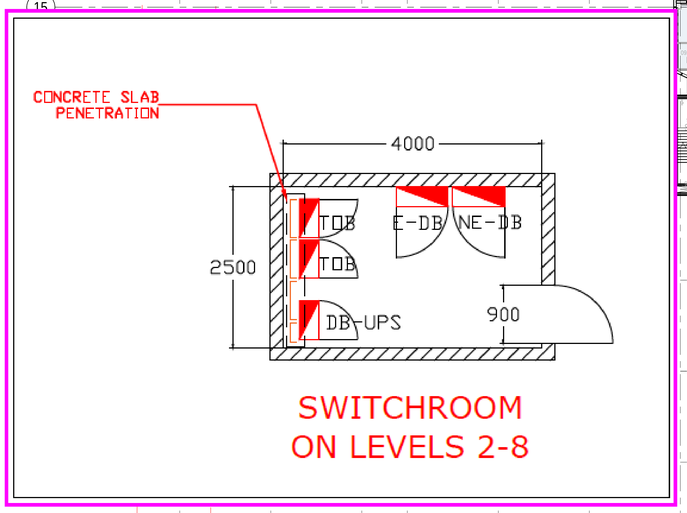
DIMENSIONS 1100x700mm
- STACKING WITH THE COMMS ROOM/CUPBOARD BELOW
- 3000mm CLEAR HEIGHT
- ACCESSIBLE THROUGH ENTIRE HEIGHT
- SMOKE SEALED DOORS
- CENTRAL LOCATION ON THE FLOOR

PRELIMINARY - WORK IN PROGRESS

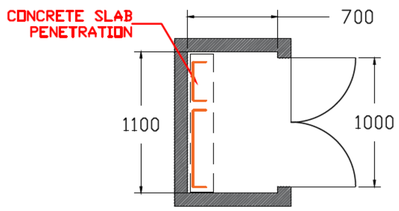
CLIENT	PROJECT	BVN PROJECT NUMBER	TRUE NORTH	PROJECT NORTH	GRAPHIC SCALE	SCALE	DRAWING	DRAWING NUMBER	DATE	REVISION	ISSUE
LEND LEASE	ASB/UNSW EAST INTEGRATION	s1606008			0 4000 10000	As indicated@A0	LEVEL 06 - OPTION 03	AR-SK-EXP-11B-0600003	13.12.18	D	FOR INFORMATION

FREDON

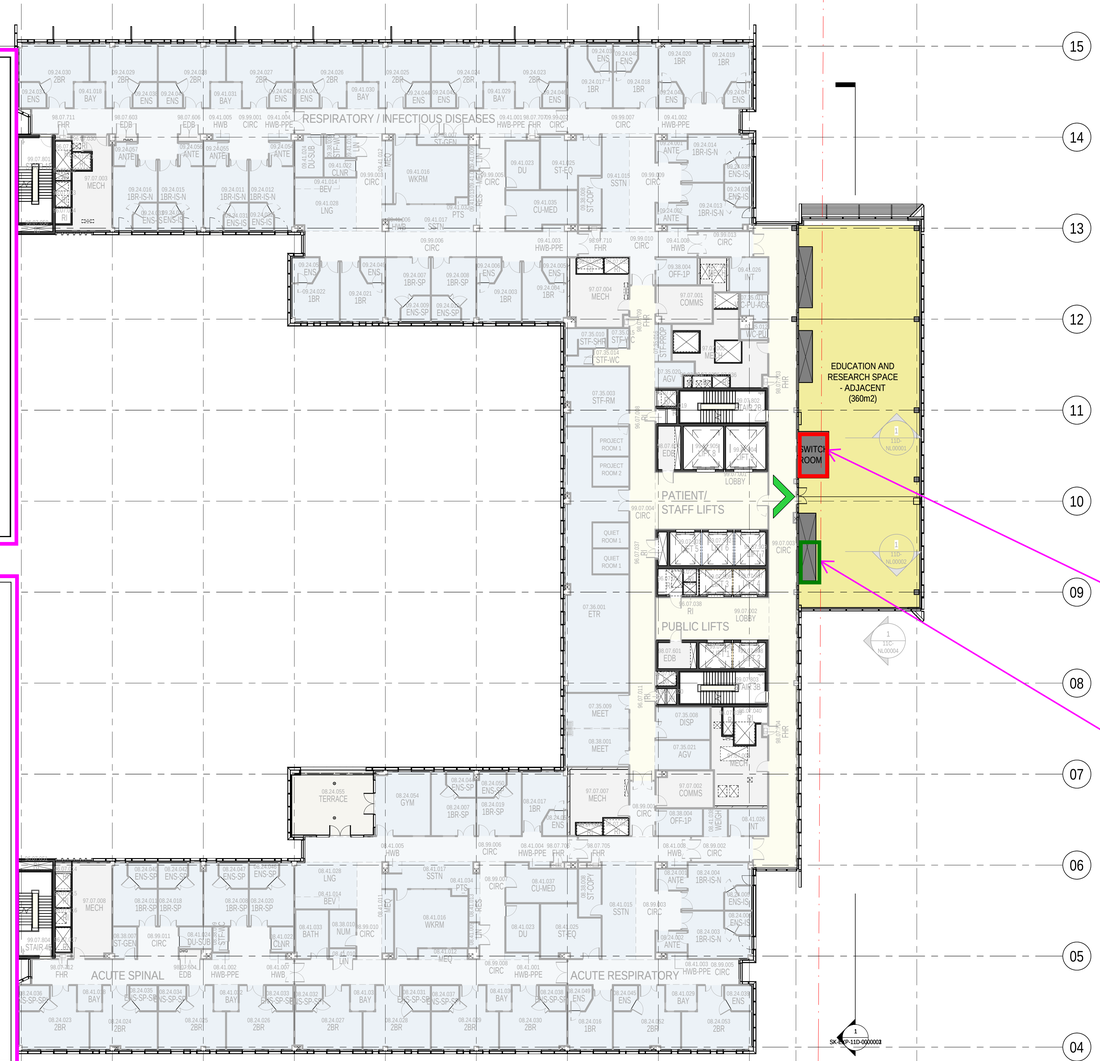
ELECTRICAL AND COMMUNICATIONS MARKUP
STAGE: CONCEPT
DATE: 17/12/2018
ENGINEER: K.C.



SWITCHROOM ON LEVELS 2-8



COMMS CUPBOARD LEVELS 1,3,4,6,7



SWITCHROOM
(SEE DETAIL)

DIMENSIONS 2500x4000mm
- STACKING WITH THE SWITCHROOM BELOW
- 2HR FIRE RATED SEALED DOORS.
- DOOR OPENING TO DIRECTION OF EGRESS
- DOOR DIMENSIONS MINIMUM 2200x900mm

COMMS CUPBOARD
(SEE DETAIL)

DIMENSIONS 1100x700mm
- STACKING WITH THE COMMS ROOM/CUPBOARD BELOW
- 3000mm CLEAR HEIGHT
- ACCESSIBLE THROUGH ENTIRE HEIGHT
- SMOKE SEALED DOORS
- CENTRAL LOCATION ON THE FLOOR

DEPARTMENTAL MUD MAP LEGEND

- CLINICAL TRANSLATIONAL LABORATORY - SPECIALIST LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - WRITEUP AND AMENITIES
- HIGH TECH INTERVENTIONAL SUITE
- CLINICAL SPECIALIST RESEARCH SPACE
- CLINICAL INNOVATION RESEARCH SPACE
- BIOMEDICAL ENGINEERING INNOVATION SPACE - SPECIALIST LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - WRITEUP AND AMENITIES
- EDUCATION AND RESEARCH SPACE (ADJACENT)
- PLANT
- RISER

PRELIMINARY - WORK IN PROGRESS

CLIENT	PROJECT	BVN PROJECT NUMBER
LEND LEASE	ASB/UNSW EAST INTEGRATION	s1606008

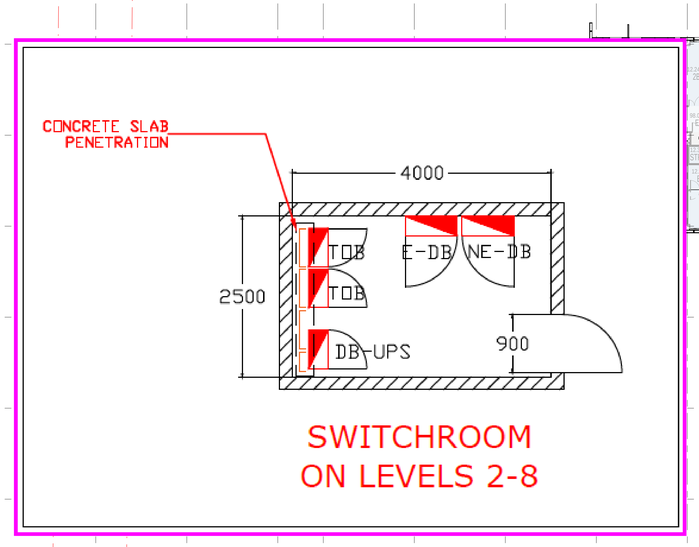
TRUE NORTH | PROJECT NORTH | GRAPHIC SCALE 0 4000 10000

SCALE	DRAWING
As indicated@A0	LEVEL 07 - OPTION 03

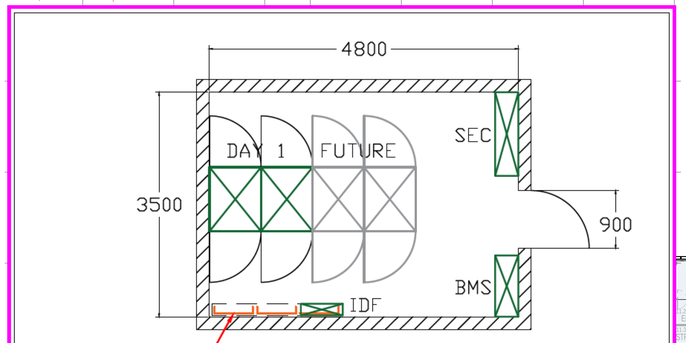
DRAWING NUMBER	DATE	REVISION	ISSUE
AR-SK-EXP-11B-0700003	13.12.18	D	FOR INFORMATION

FREDON

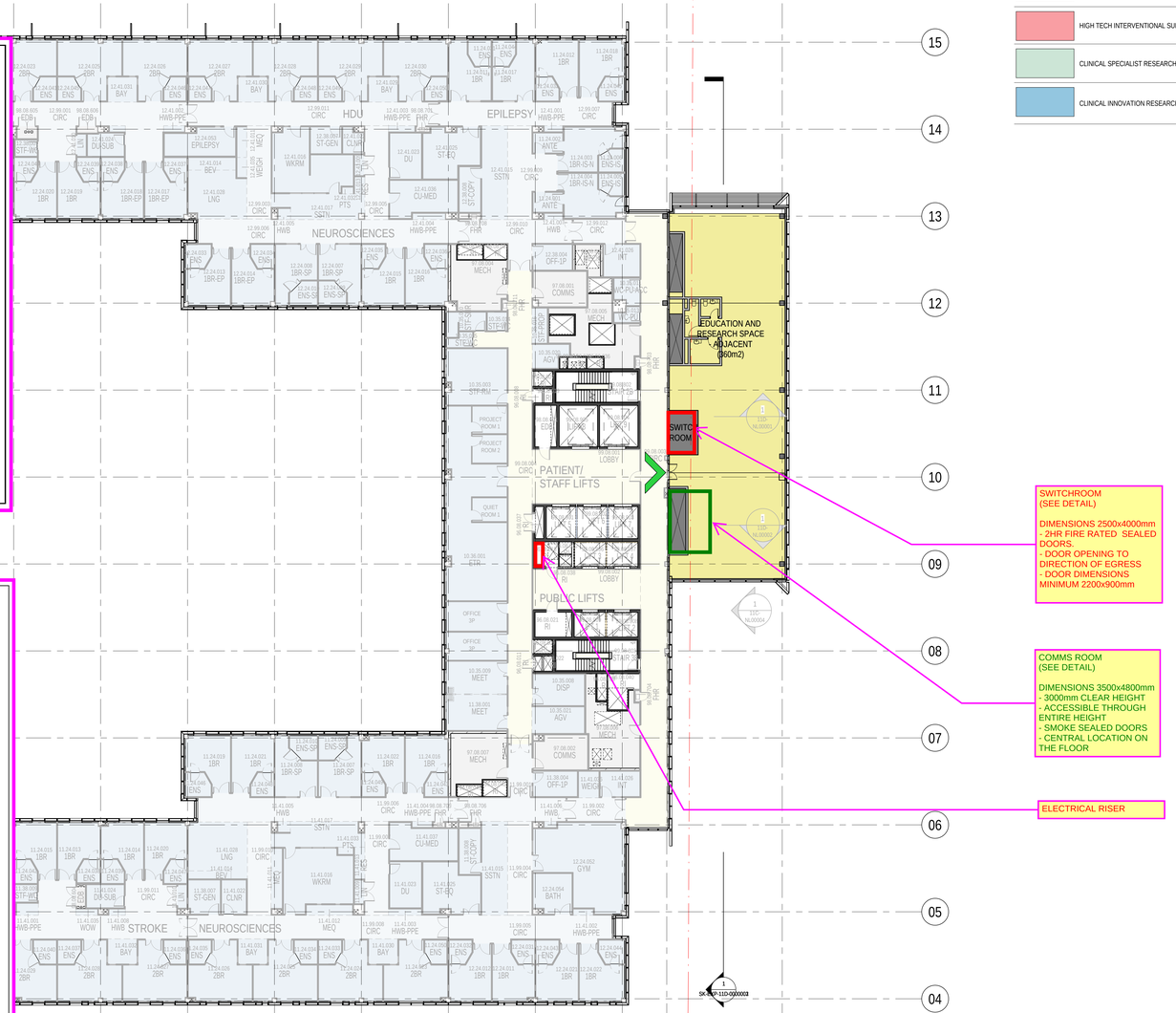
ELECTRICAL AND COMMUNICATIONS MARKUP
STAGE: CONCEPT
DATE: 17/12/2018
ENGINEER: K.C.



SWITCHROOM
ON LEVELS 2-8



COMMS ROOM
4 RACKS TYPICAL
LEVELS 2, 5, 8



SWITCHROOM
(SEE DETAIL)

DIMENSIONS 2500x4000mm
- 2HR FIRE RATED SEALED DOORS.
- DOOR OPENING TO DIRECTION OF EGRESS
- DOOR DIMENSIONS MINIMUM 2200x900mm

COMMS ROOM
(SEE DETAIL)

DIMENSIONS 3500x4800mm
- 3000mm CLEAR HEIGHT
- ACCESSIBLE THROUGH ENTIRE HEIGHT
- SMOKE SEALED DOORS
- CENTRAL LOCATION ON THE FLOOR

ELECTRICAL RISER

DEPARTMENTAL MUD MAP LEGEND

- CLINICAL TRANSLATIONAL LABORATORY - SPECIALIST LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - WRITEUP AND AMENITIES
- HIGH TECH INTERVENTIONAL SUITE
- CLINICAL SPECIALIST RESEARCH SPACE
- CLINICAL INNOVATION RESEARCH SPACE
- BIOMEDICAL ENGINEERING INNOVATION SPACE - SPECIALIST LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - LABORATORY SPACES
- BIOMEDICAL ENGINEERING INNOVATION SPACE - WRITEUP AND AMENITIES
- EDUCATION AND RESEARCH SPACE (ADJACENT)
- PLANT
- RISER

PRELIMINARY - WORK IN PROGRESS

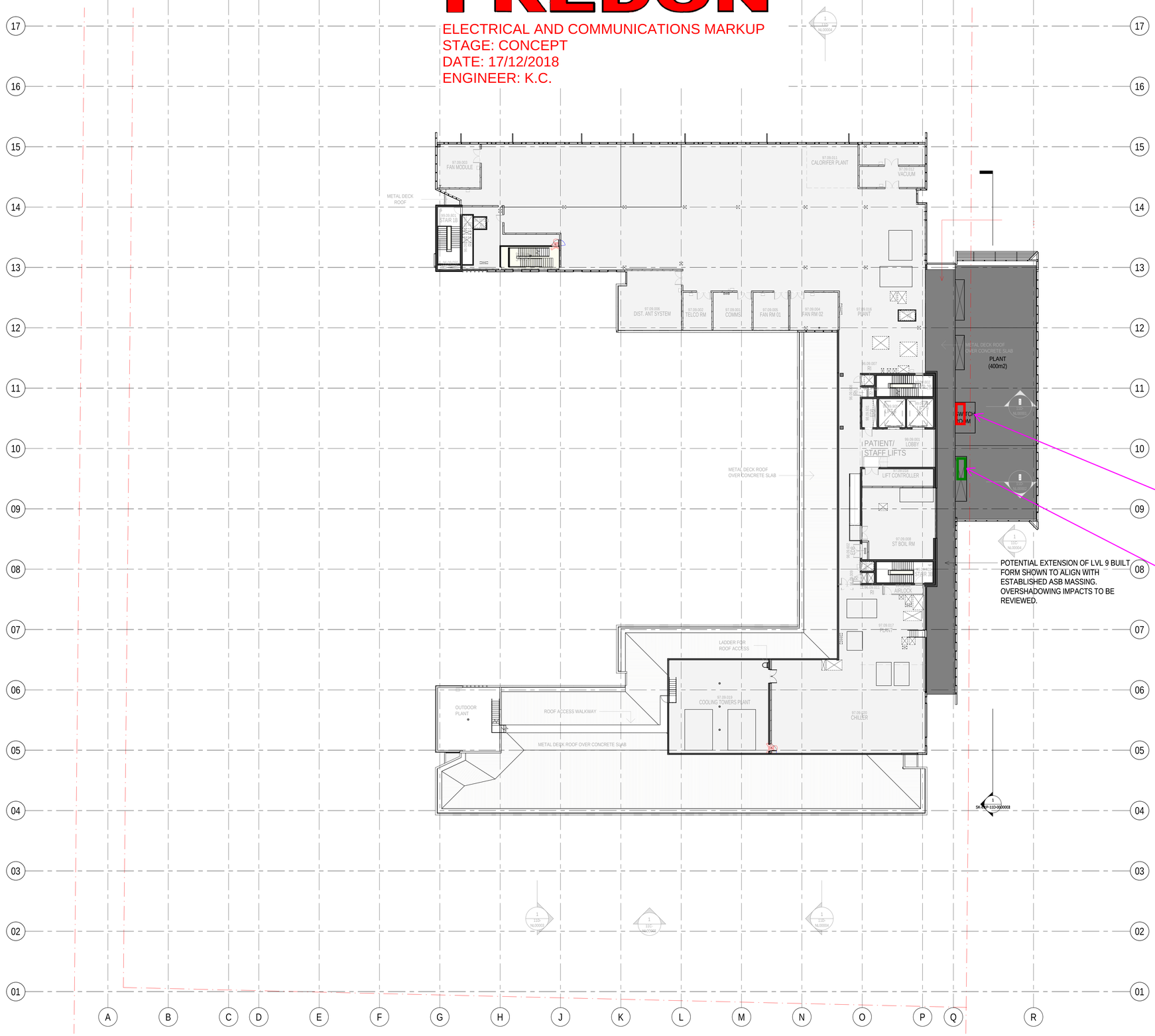
CLIENT	PROJECT	BVN PROJECT NUMBER
LEND LEASE	ASB/UNSW EAST INTEGRATION	s1606008

TRUE NORTH	PROJECT NORTH	GRAPHIC SCALE	SCALE	DRAWING
		0 2000 5000	As indicated@A0	LEVEL 08 - OPTION 03

DRAWING NUMBER	DATE	REVISION	ISSUE
AR-SK-EXP-11B-0800003	13.12.18	D	FOR INFORMATION

FREDON

ELECTRICAL AND COMMUNICATIONS MARKUP
STAGE: CONCEPT
DATE: 17/12/2018
ENGINEER: K.C.



DEPARTMENTAL MUD MAP LEGEND

- CLINICAL TRANSLATIONAL LABORATORY - SPECIALIST LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - LABORATORY SPACES
- CLINICAL TRANSLATIONAL LABORATORY - WRITEUP AND AMENITIES
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- BIOMEDICAL ENGINEERING INNOVATION SPACE - WRITEUP AND AMENITIES
- EDUCATION AND RESEARCH SPACE (ADJACENT)
- PLANT
- RISER

OVERSHADOWING IMPACTS OF SOUTHERN EXTENSION TO PLANT AREA TO BE REVIEWED.

ELECTRICAL RISER FOR MECHANICAL SERVICES SUBMAINS

PENETRATION AT CONCRETE SLAB BELOW 1300x200mm

COMMUNICATIONS RISER

PENETRATION AT CONCRETE SLAB BELOW 700x150mm

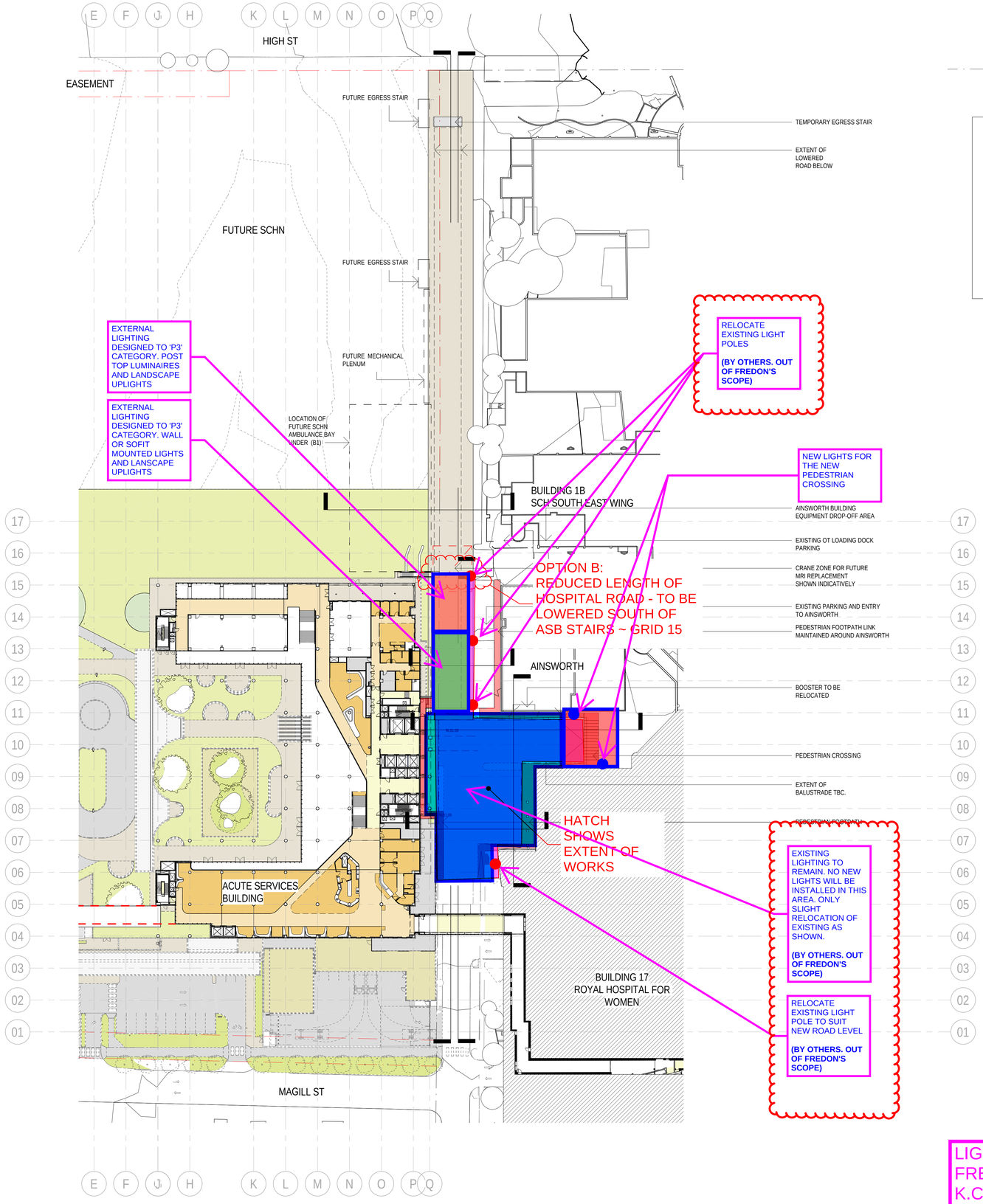
POTENTIAL EXTENSION OF LVL 9 BUILT FORM SHOWN TO ALIGN WITH ESTABLISHED ASB MASSING. OVERSHADOWING IMPACTS TO BE REVIEWED.

PRELIMINARY - WORK IN PROGRESS

CLIENT	PROJECT	BVN PROJECT NUMBER	TRUE NORTH	PROJECT NORTH	GRAPHIC SCALE	SCALE	DRAWING
LEND LEASE	ASB/UNSW EAST INTEGRATION	s1606008			0 4000 10000	As indicated@A0	LEVEL 09 - OPTION 03

DRAWING NUMBER	DATE	REVISION	ISSUE
AR-SK-EXP-11B-0900003	13.12.18	D	FOR INFORMATION

APPENDIX C – LOWERING OF HOSPITAL ROAD EASTERN EXTENSION SKETCHES



1. LANDSCAPE INTERFACE TO EAST OF NEW DECK AND ROAD NOT PART OF SCOPE
2. ALL DRAWINGS ARE PRELIMINARY AND SUBJECT TO FUTURE DEVELOPMENT
3. LANDSCAPE TO PUBLIC DECK NOT PART OF SCOPE

KEY: BALUSTRADES

EXISTING STEEL PALISADE BALUSTRADE

NEW STEEL PALISADE BALUSTRADE

NOTE:
BALUSTRADE NORTH OF GRID 11. TO PEDESTRIAN DECK NOT SHOWN, SUBJECT TO FUTURE DESIGN.

LIGHTING MARKUP - LAYOUT (REDUCED SCOPE)

LIGHTING MARKUP
FREDON
K.C.
22/07/2019

PRELIMINARY ISSUE 23/11/18

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NSW GOVERNMENT Health Infrastructure

HEALTH INFRASTRUCTURE
CLIENT NUMBER

130487
PROJECT
RANDWICK CAMPUS REDEVELOPMENT
BARKER ST
RANDWICK NSW 2031
AUSTRALIA
BVN PROJECT NUMBER

s1606008
DRAWING KEY

TRUE NORTH PROJECT NORTH

GRAPHIC SCALE
0 10000 25000
SCALE
1 : 500@B1 DO NOT SCALE
STATUS

SCHEMATIC DESIGN
DRAWING

HOSPITAL ROAD WORKS - LEVEL 00 PLAN

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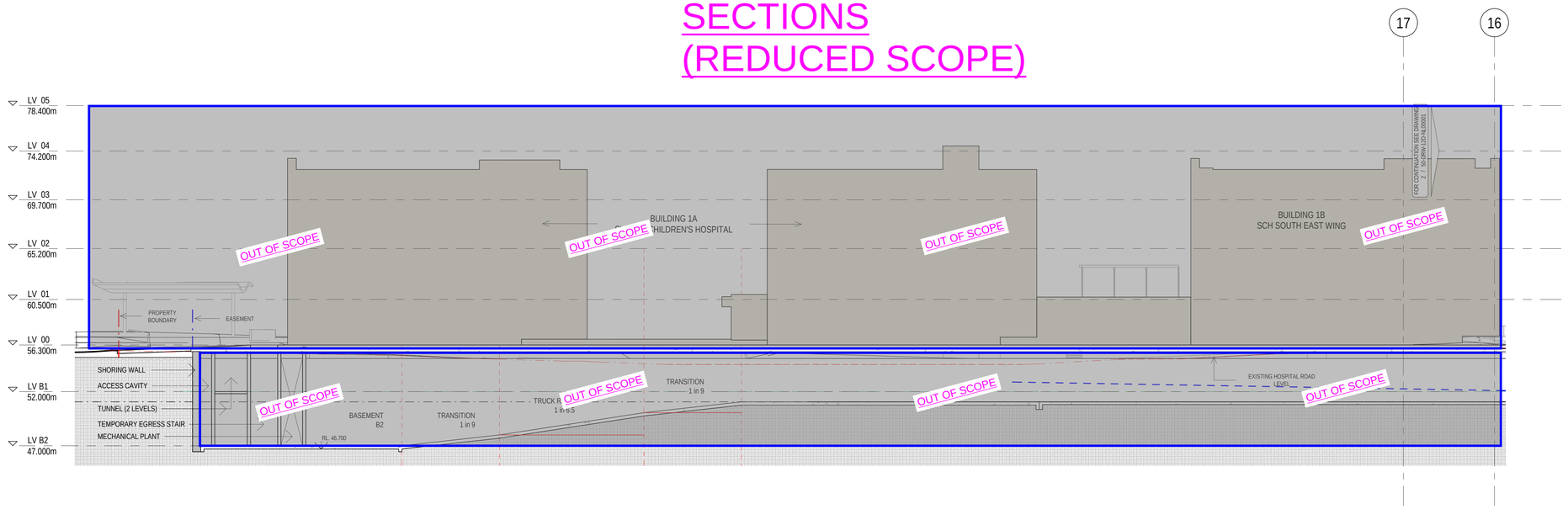
LIGHTING MARKUP - SECTIONS (REDUCED SCOPE)



1 01B-1200001 HOSPITAL ROAD - LONG SECTION_CHILDRENS, AINSWORTH + WOMENS WEST ELEVATION - North end
1 : 200

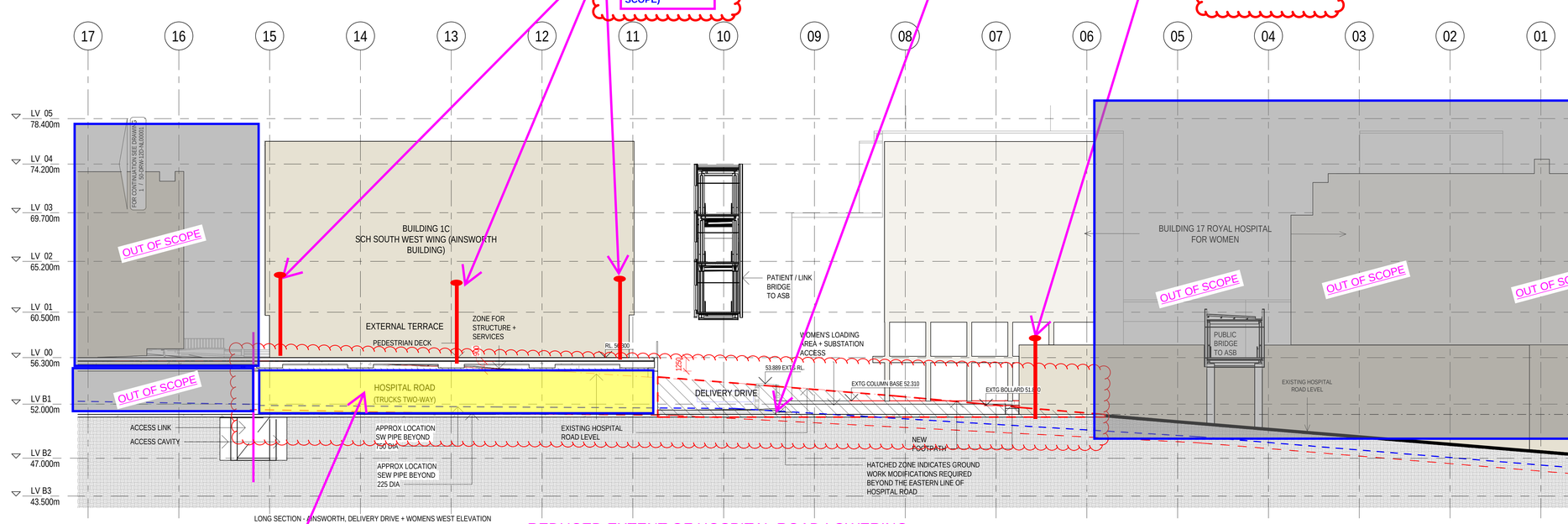
EXISTING LIGHT POLE WILL BE RELOCATED VERTICALLY TO SUIT NEW ROAD LEVEL.

(BY OTHERS. OUT OF FREDON'S SCOPE)

EXISTING LIGHTING TO REMAIN. NO NEW LIGHTS WILL BE PROVIDED IN THIS AREA

RELOCATE EXISTING LIGHT POLE TO THE NEW LEVEL.

(BY OTHERS. OUT OF FREDON'S SCOPE)



REDUCED EXTENT OF HOSPITAL ROAD LOWERING

2 01B-1200001 HOSPITAL ROAD - LONG SECTION_CHILDRENS, AINSWORTH + WOMENS WEST ELEVATION - South end
1 : 200

DRIVEWAY LIGHTING DESIGNED TO MINIMUM REQUIREMENTS OF 20 LUX FOR SAFE MOVEMENT AS PER NCC (BCA) AND AS1680.0. NO EMERGENCY LIGHTING WILL BE PROVIDED
LUMINAIRES:
LED BATTENS

LIGHTING MARKUP
FREDON
K.C.
22/07/2019

PRELIMINARY ISSUE 23/11/18

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BARKER ST
RANDWICK NSW 2031
AUSTRALIA
BVN PROJECT NUMBER

s1606008
DRAWING KEY

TRUE NORTH PROJECT NORTH

GRAPHIC SCALE
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SCALE

1 : 200@B1 DO NOT SCALE
STATUS

SCHEMATIC DESIGN
DRAWING

HOSPITAL ROAD WORKS - SECTIONS - SHEET 2

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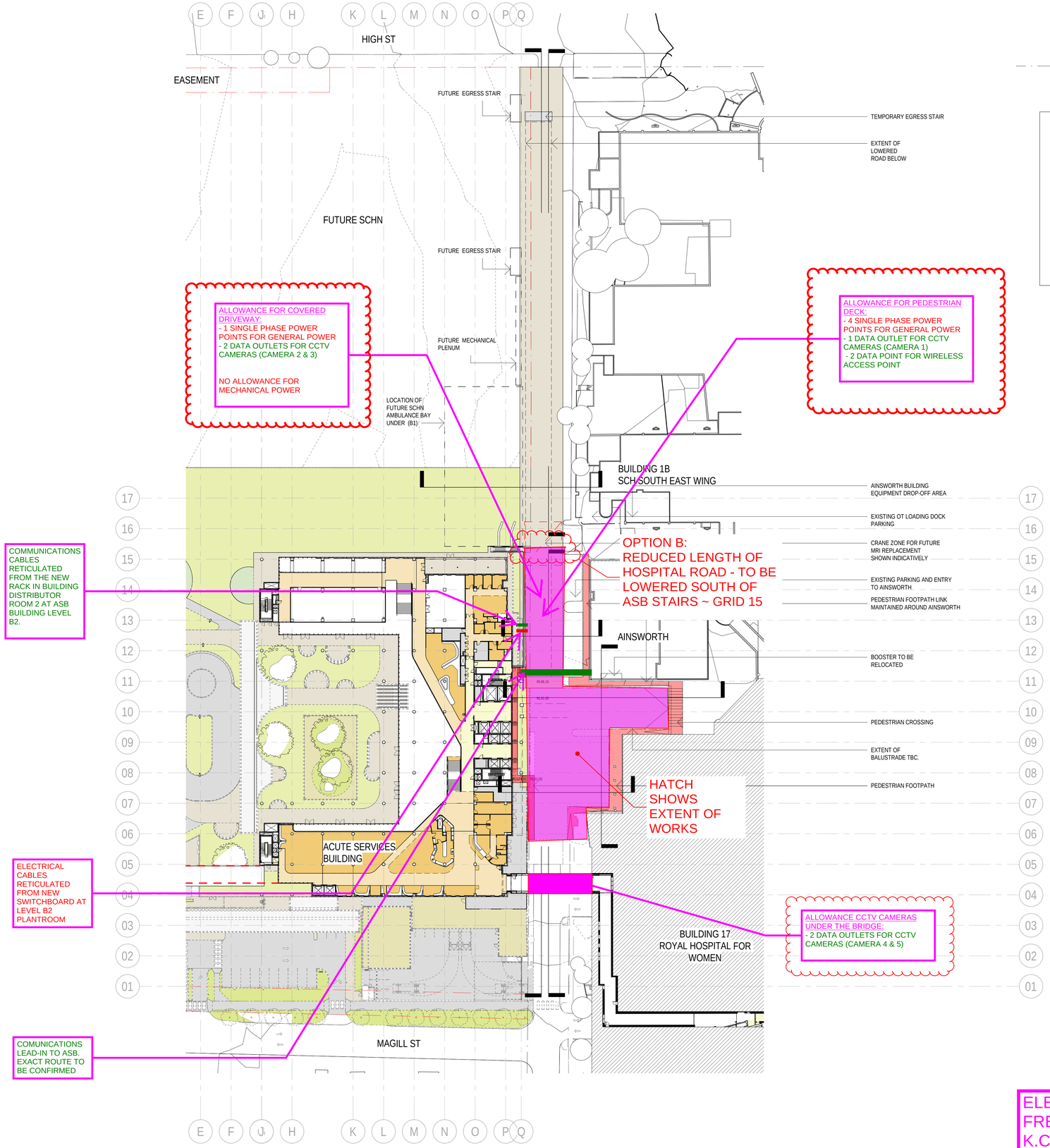

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NEW STEEL PALISADE BALUSTRADE

NOTE:
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POWER AND COMMS MARKUP - LAYOUT (REDUCED SCOPE)

ELECTRICAL AND COMMS MARKUP
FREDON
K.C.
22/07/2019

PRELIMINARY ISSUE 23/11/18

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RANDWICK NSW 2031
AUSTRALIA
BVN PROJECT NUMBER

s1606008
DRAWING KEY

TRUE NORTH PROJECT NORTH

GRAPHIC SCALE
0 10000 25000
SCALE
1 : 500@B1 DO NOT SCALE
STATUS
SCHEMATIC DESIGN
DRAWING

HOSPITAL ROAD WORKS - LEVEL 00 PLAN

RCR-BVN-ARC-00-DRW-10B-0000001 ISSUE A

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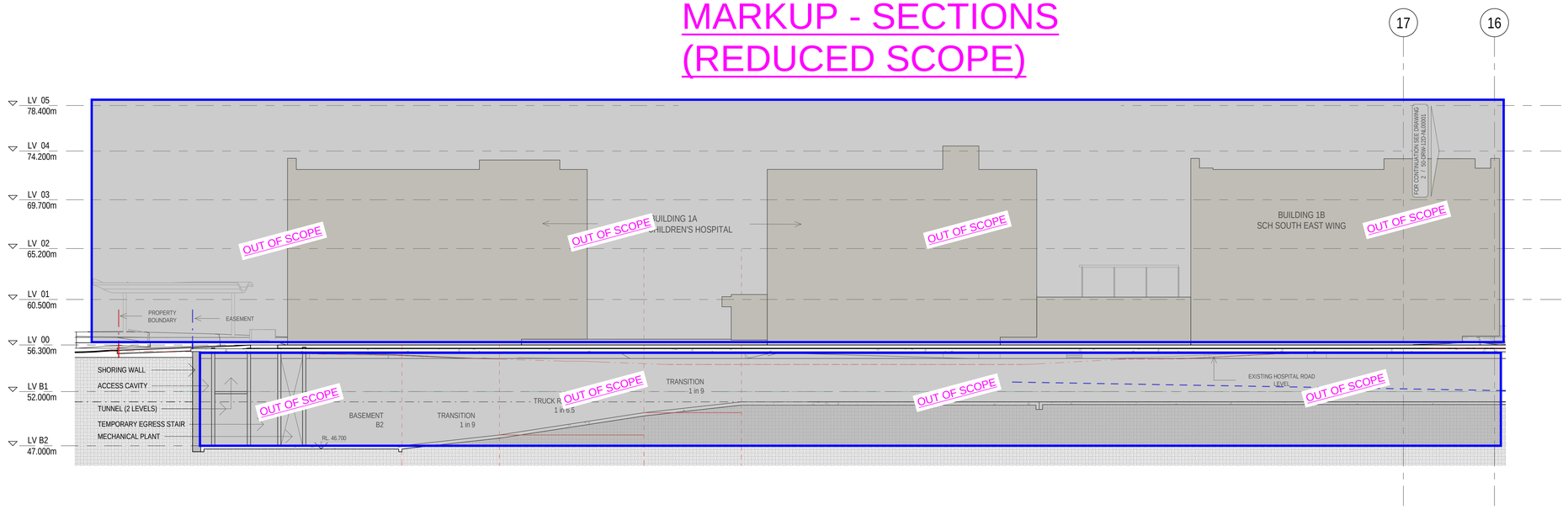
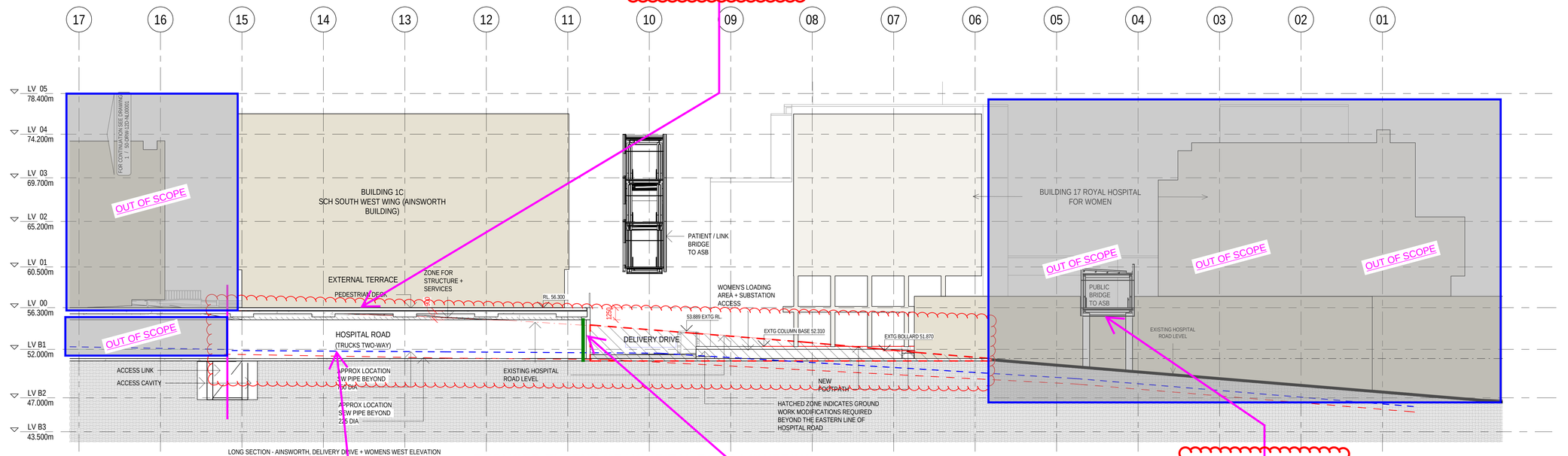
POWER AND COMMS MARKUP - SECTIONS (REDUCED SCOPE)



1 / 01B-1200001 HOSPITAL ROAD - LONG SECTION_CHILDRENS, AINSWORTH + WOMENS WEST ELEVATION - North end
1 : 200

ALLOWANCE FOR PEDESTRIAN DECK:
- 4 SINGLE PHASE POWER POINTS FOR GENERAL POWER
- 1 DATA OUTLET FOR CCTV CAMERA (CAMERA 1)
- 2 DATA POINT FOR WIRELESS ACCESS POINT



REDUCED EXTENT OF HOSPITAL ROAD LOWERING

2 / 01B-1200001 HOSPITAL ROAD - LONG SECTION_CHILDRENS, AINSWORTH + WOMENS WEST ELEVATION - South end
1 : 200

ALLOWANCE FOR COVERED DRIVEWAY:
- 1 SINGLE PHASE POWER POINTS FOR GENERAL POWER
- 2 DATA OUTLETS FOR CCTV CAMERAS (CAMERA 2 & 3)

NO ALLOWANCE FOR MECHANICAL POWER

RE-ROUTING OF ASB COMMUNICATIONS LEAD-IN

ALLOWANCE CCTV CAMERAS UNDER THE BRIDGE:
- 2 DATA OUTLETS FOR CCTV CAMERAS (CAMERA 4 & 5)

ELECTRICAL AND COMMS MARKUP
FREDON
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22/07/2019

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GRAPHIC SCALE
0 4000 10000
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STATUS
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DRAWING

HOSPITAL ROAD WORKS - SECTIONS - SHEET 2

RCR-BVN-ARC-00-DRW-	ISSUE
12D-NL00001	A

NOTES:

1. ALL PATIENT AREAS ARE TO BE WIRED AS BODY OR CARDIAC PROTECTED AREAS IN ACCORDANCE WITH BOTH AS/NZS 3003:2018 AND AS/NZS 3000:2018.
2. ALL ITEMS MOUNTED ON MEDICAL SERVICES PANEL ARE PROVIDED BY MSP SUB-CONTRACTOR. PLEASE REFER TO MEDICAL SERVICES PANEL DELINEATION MATRIX FOR SUB-CONTRACTOR RESPONSIBILITY.
3. NOTE NOT USED.
4. EACH COMMUNICATIONS RACK MUST BE PROVIDED WITH TWO SOURCES OF SUPPLY. A UPS BACKED SUPPLY FROM THE DISTRIBUTION BOARD WITHIN THE COMMUNICATIONS ROOM AND AN ESSENTIAL SUPPLY FROM THE ESSENTIAL DISTRIBUTION BOARD WITHIN ITS FIRE COMPARTMENT.
5. ALL BODY PROTECTED AREAS ARE TO BE PROVIDED WITH A CLEANERS SOCKET OUTLET WITHIN 15M OF THE PATIENT AREA. FOR CARDIAC PROTECTED AREAS, AT LEAST ONE CLEANER'S OUTLET SHALL BE PROVIDED WITHIN EACH PATIENT AREA. CLEANER'S OUTLETS SHALL BE BEIGE COLOURED AND CLEARLY LABELLED "CLEANING PURPOSES ONLY" AS SPECIFIED IN AS/NZS 3003.
6. ALL SOCKET OUTLETS ARE TO BE CLEARLY LABELLED WITH EITHER THE DISTRIBUTION BOARD NAME/NUMBER AND CIRCUIT BREAKER OR RCD THEY ARE FED FROM. BE COLOURED RED FOR ESSENTIAL SUPPLY, BLUE FOR UPS SUPPLY, AND WHITE FOR NORMAL SUPPLY. ALL OUTLETS WITHIN BODY OR CARDIAC PROTECTED AREAS ARE REQUIRED TO HAVE TO HAVE AN AMBER POWER AVAILABLE INDICATOR LIGHT AND BE LABELLED "RCD PROTECTED" IN ACCORDANCE WITH AS/NZS 3003.
7. A MAXIMUM 12 POINTS PER CIRCUIT WITHIN PATIENT AREAS.
8. ALL RCD'S USED A LPD'S SHALL BE READILY ACCESSIBLE, BE TYPE 1, RATED AT 10MA RESIDUAL CURRENT, HAVE A MAXIMUM TRIPPING TIME OF 40MS AND NOT BE LOCATED WITHIN 500MM OF ANY WALL MOUNTED LIGHT SWITCH.
9. INSTALLATION MUST ADHERE TO NSW HEALTH ENGINEERING SERVICES GUIDELINES.
10. ALL MEDICAL EQUIPMENT SHALL BE INSTALLED AS PER MANUFACTURER'S GUIDELINES.
11. 30% OF POWER IN PATIENT AND CLINICAL AREAS TO BE GENERATOR BACKED.
12. REFER TO DRAWING RCR-FRE-ELSC-50-DRW-01A-0000002 ELECTRICAL LEGEND FOR SYMBOL DETAILS.
13. ALL UPS OUTLETS WITHIN A
14. PROVIDE ADEQUATE MECHANICAL PROTECTION TO NON RCD PROTECTED SEGMENTS OF POWER CABLING.
15. FINAL LOCATION OF ACCESSORIES TO BE AS SET OUT IN SPECIFIC ROOM LAYOUT SHEETS. WARM SHELLS ARE INDICATED - WARM SHELL
16. COLD SHELLS ARE INDICATED - COLD SHELL
17. NOT BODY PROTECTED AREAS.
18. LUMINAIRES AND SOCKET OUTLETS WITHIN MENTAL HEALTH FACILITIES ARE TO BE TAMPER PROOF
19. AND SHOULD BE FITTED WITH SAFETY SHUTTERS.

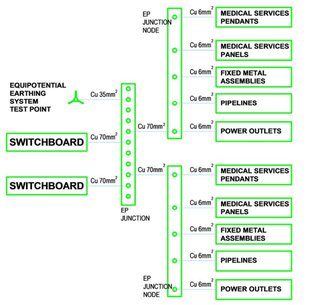

FIGURE 1 - TYPICAL DETAIL EQUIPOTENTIAL BONDING IN CARDIAC-PROTECTED AREAS

REFER NOTES 18 & 19

ASB WORKS MARKUP - LAYOUT (REDUCED SCOPE)

ASB WORKS MARKUP
FREDON
K.C.
22/07/2019

MSSB-LS-B2-NORTH
MSSB-NE-B2-NORTH
32A
TRIPLEX COLD WATER PRESSURE SET
B2-DB-E-02A (160)
CRITICAL CARE TRANSFER SWITCH
B2-DB-E-02B (160-A)
NEW SUBMAIN FROM MSB-01
B2-DB-N-02
B2-DB-E-02A
B2-DB-E-02B
B2-DB-CSUPS-01
B2-DB-N-01
B2-DB-E-01A
B2-DB-E-01B
B2-DB-E-BDR2 (053)
NEW COMMS RACK FOR THE DRIVEWAY
B2-DB-N-04
B2-DB-E-04A
B2-DB-E-04B
X-RAY 02 FUTURE
WARM SHELL
CT-02 FUTURE
WARM SHELL
BEDPAN WASHER
B2-DB-E-01A (150)
B2-DB-E-01B (150-A)
B2-DB-N-01 (113)
CONTINUATION - REFER TO RCR-FRE-ELSC-50-DRW -12B-B211000
CONTINUATION - REFER TO RCR-FRE-ELSC-50-DRW -12B-B241000
ON SERVICES PANEL
15
14
13
12
11
10
09
08
J
K
L
M
N
O
P
Q

FINAL SUBCIRCUITS TO POWER AND LIGHTING AT DRIVEWAY AND PEDESTRIAN DECK

HOTIZONTAL PENETRATION AND HORIZONTAL CONDUITS, ELBOWS AND VERTICAL CONDUITS TO LEVEL B1 DRIVEWAY CONDUITS:
- 3 X 100mm ELECTRICAL CONDUITS
- 1 X 100mm COMMS CONDUIT

COMMS CABLES TO DATA POINTS AT DRIVEWAY AND PEDESTRIAN DECK

FREDON
123 Wetherill Street, Silverwater N.S.W. 2128
TEL: 02 9476 9600 FAX: 02 9748 0940
ACN 003 361 297 Lic No. EC035368

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ELECTRICAL ENGINEERING
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lendlease

CLIENT
NSW GOVERNMENT Health Infrastructure

HEALTH INFRASTRUCTURE

CLIENT NUMBER
130487

PROJECT
RANDWICK CAMPUS REDEVELOPMENT - ACUTE SERVICES BUILDING

BARKER ST
RANDWICK NSW 2031
AUSTRALIA

FREDON PROJECT NUMBER
10C0045

DRAWING KEY

TRUE NORTH PROJECT NORTH

GRAPHIC SCALE

SCALE
As indicated@B1 DO NOT SCALE

STATUS
FOR INFORMATION

DRAWING
LEVEL B2 ZONE 2 POWER LAYOUT

RCR-FRE-ELSC-50-DRW -12B-B221000 ISSUE C

C:\Users\mmpavt\Documents\RCR-FRE-ELSC-50-RVT-ALL0000_mmpavt.rvt 14/08/2019 9:16:12 PM

NOTES:

1. ALL PATIENT AREAS ARE TO BE WIRED AS BODY OR CARDIAC PROTECTED AREAS IN ACCORDANCE WITH BOTH AS/NZS 3003:2018 AND AS/NZS 3000:2018.
2. ALL ITEMS MOUNTED ON MEDICAL SERVICES PANEL ARE PROVIDED BY MSP SUB-CONTRACTOR. PLEASE REFER TO MEDICAL SERVICES PANEL DELINEATION MATRIX FOR SUB-CONTRACTOR RESPONSIBILITY.
3. NOTE NOT USED.
4. EACH COMMUNICATIONS RACK MUST BE PROVIDED WITH TWO SOURCES OF SUPPLY. A UPS BACKED SUPPLY FROM THE DISTRIBUTION BOARD WITHIN THE COMMUNICATIONS ROOM AND AN ESSENTIAL SUPPLY FROM THE ESSENTIAL DISTRIBUTION BOARD WITHIN ITS FIRE COMPARTMENT.
5. ALL BODY PROTECTED AREAS ARE TO BE PROVIDED WITH A CLEANERS SOCKET OUTLET WITHIN 15M OF THE PATIENT AREA. FOR CARDIAC PROTECTED AREAS, AT LEAST ONE CLEANER'S OUTLET SHALL BE PROVIDED WITHIN EACH PATIENT AREA. CLEANER'S OUTLETS SHALL BE BEIGE COLOURED AND CLEARLY LABELLED "CLEANING PURPOSES ONLY" AS SPECIFIED IN AS/NZS 3003.
6. ALL SOCKET OUTLETS ARE TO BE CLEARLY LABELLED WITH EITHER THE DISTRIBUTION BOARD NAME/NUMBER AND CIRCUIT BREAKER OR RCD THEY ARE FED FROM. BE COLOURED RED FOR ESSENTIAL SUPPLY, BLUE FOR UPS SUPPLY, AND WHITE FOR NORMAL SUPPLY. ALL OUTLETS WITHIN BODY OR CARDIAC PROTECTED AREAS ARE REQUIRED TO HAVE TO HAVE AN AMBER POWER AVAILABLE INDICATOR LIGHT AND BE LABELLED "RCD PROTECTED" IN ACCORDANCE WITH AS/NZS 3003.
7. A MAXIMUM 12 POINTS PER CIRCUIT WITHIN PATIENT AREAS.
8. ALL RCD'S USED A LPD'S SHALL BE READILY ACCESSIBLE, BE TYPE 1, RATED AT 10MA RESIDUAL CURRENT, HAVE A MAXIMUM TRIPPING TIME OF 40MS AND NOT BE LOCATED WITHIN 500MM OF ANY WALL MOUNTED LIGHT SWITCH.
9. INSTALLATION MUST ADHERE TO NSW HEALTH ENGINEERING SERVICES GUIDELINES.
10. ALL MEDICAL EQUIPMENT SHALL BE INSTALLED AS PER MANUFACTURER'S GUIDELINES.
11. 30% OF POWER IN PATIENT AND CLINICAL AREAS TO BE GENERATOR BACKED.
12. REFER TO DRAWING RCR-FRE-ELSC-50-DRW-01A-0000002 ELECTRICAL LEGEND FOR SYMBOL DETAILS.
13. ALL UPS OUTLETS WITHIN A
14. PROVIDE ADEQUATE MECHANICAL PROTECTION TO NON RCD PROTECTED SEGMENTS OF POWER CABLING.
15. FINAL LOCATION OF ACCESSORIES TO BE AS SET OUT IN SPECIFIC ROOM LAYOUT SHEETS. WARM SHELLS ARE INDICATED - [illegible]
16. COLD SHELLS ARE INDICATED - [illegible]
17. NOT BODY PROTECTED AREAS.
18. LUMINAIRES AND SOCKET OUTLETS WITHIN MENTAL HEALTH FACILITIES ARE TO BE TAMPER PROOF
19. AND SHOULD BE FITTED WITH SAFETY SHUTTERS.

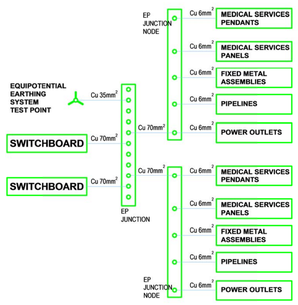
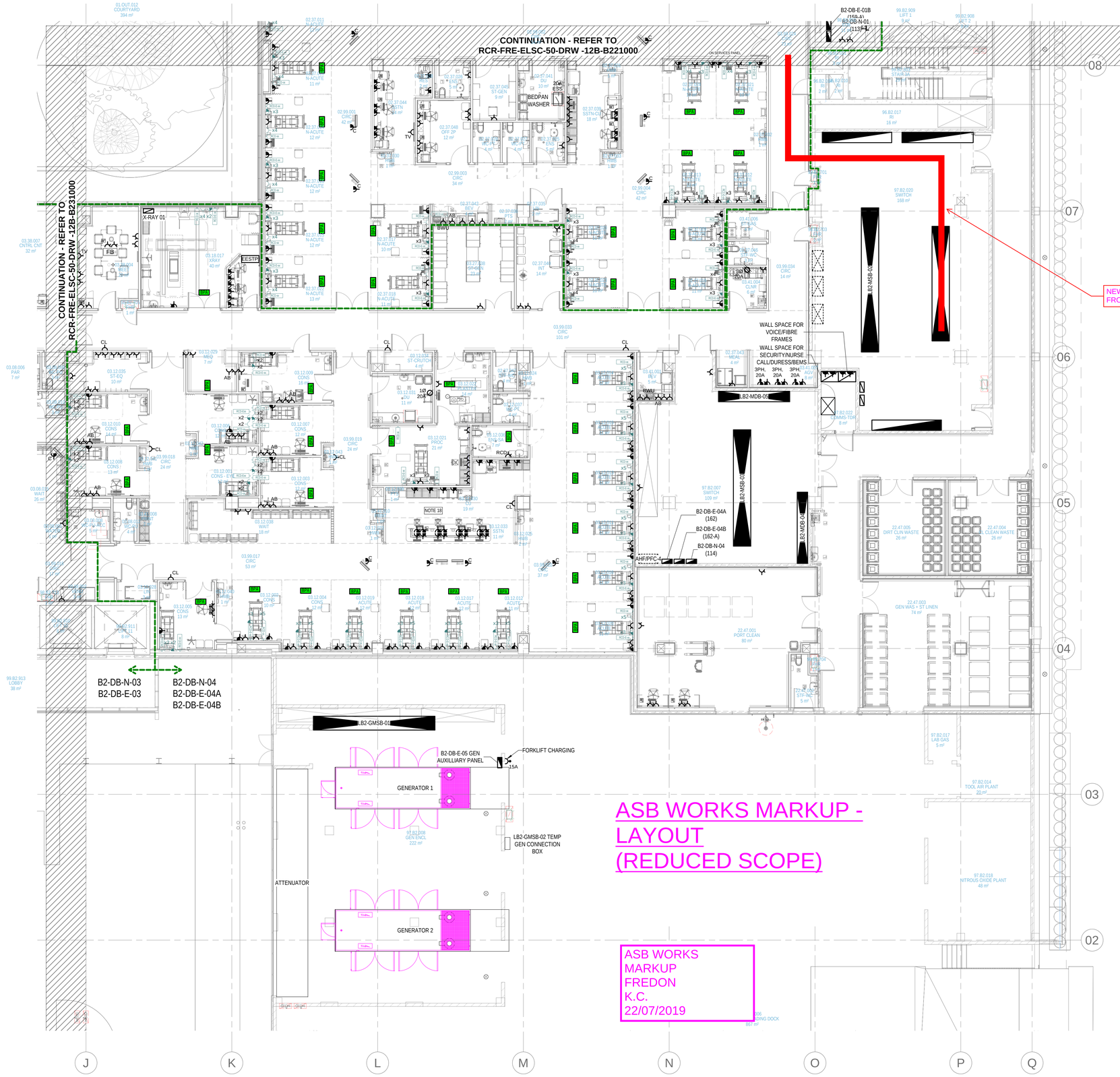


FIGURE 1 - TYPICAL DETAIL EQUIPOTENTIAL BONDING IN CARDIAC-PROTECTED AREAS

REFER NOTES 18 & 19


CONTINUATION - REFER TO RCR-FRE-ELSC-50-DRW -12B-B221000
CONTINUATION - REFER TO RCR-FRE-ELSC-50-DRW -12B-B231000
B2-DB-E-01B (100A) B2-DB-N-01 (113)
NEW SUBMAIN FROM MSB-01
B2-MSB-01
B2-MSB-05
B2-MSB-06
B2-MDB-05
B2-MDB-04
WALL SPACE FOR VOICE/FIBRE FRAMES
WALL SPACE FOR SECURITY/NURSE CALL/DURESS/BEMS
3PH, 20A
B2-DB-E-04A (162)
B2-DB-E-04B (162-A)
B2-DB-N-04 (114)
AHF/PFC-4
B2-DB-N-03
B2-DB-E-03
B2-DB-N-04
B2-DB-E-04A
B2-DB-E-04B
LB2-GMSB-01
B2-DB-E-05 GEN AUXILLIARY PANEL
FORKLIFT CHARGING
15A
GENERATOR 1
GENERATOR 2
LB2-GMSB-02 TEMP GEN CONNECTION BOX
ATTENUATOR
ASB WORKS MARKUP - LAYOUT (REDUCED SCOPE)
ASB WORKS MARKUP FREDON K.C. 22/07/2019
01.OUT.012 COURTYARD 394 m²
02.37.011 N-ACUTE 11 m²
02.37.044 ISTN 16 m²
02.37.045 ST-GEN 9 m²
02.37.046 OFF 2P 12 m²
02.37.047 DU 10 m²
02.37.048 SSTN-CL 18 m²
02.99.001 CIRC 42 m²
02.99.003 CIRC 34 m²
02.99.004 CIRC 42 m²
02.37.042 SEC 10 m²
02.37.043 N-ACUTE 10 m²
02.37.038 N-ACUTE 13 m²
02.37.018 N-ACUTE 11 m²
02.37.040 INT 14 m²
03.38.001 CNTRL CNT 32 m²
03.18.017 XRAY 40 m²
03.99.033 CIRC 101 m²
03.99.034 CIRC 14 m²
03.08.006 PAR 7 m²
03.12.029 MED 7 m²
03.12.035 ST-EQ 10 m²
03.12.009 CONS 16 m²
03.12.032 ST-CRUTCH 4 m²
03.12.031 ACU 11 m²
03.12.021 PROC 21 m²
03.12.030 19 m²
03.12.033 SSTN 11 m²
03.12.025 4 m²
03.12.010 CONS 14 m²
03.12.008 CONS 13 m²
03.12.001 CONS - ISOL 12 m²
03.12.007 CONS 12 m²
03.12.003 CONS 12 m²
03.99.018 CIRC 24 m²
03.99.019 CIRC 24 m²
03.08.005 WAIT 26 m²
03.12.028 WAIT 19 m²
03.08.003 WC - PUB 4 m²
03.08.004 WC - PUB 5 m²
03.99.017 CIRC 53 m²
03.12.000 CONS 10 m²
03.12.004 CONS 12 m²
03.12.019 ACUTE 12 m²
03.12.018 ACUTE 12 m²
03.12.017 ACUTE 12 m²
03.12.012 ACUTE 11 m²
03.12.005 CONS 13 m²
03.12.911 CLNR 11 8 m²
03.99.911 CIRC 37 m²
03.99.911 CIRC 37 m²
99.B2.913 LOBBY 38 m²
97.B2.020 SWITCH 168 m²
97.B2.007 SWITCH 109 m²
97.B2.022 SWMS-TOR 8 m²
97.B2.008 GEN ENCL 222 m²
97.B2.014 TOOL AIR PLANT 20 m²
97.B2.018 NITROUS OXIDE PLANT 48 m²
97.B2.017 LAB GAS 5 m²
22.47.005 DIRT CLN WASTE 26 m²
22.47.004 CL CLEAN WASTE 26 m²
22.47.003 GEN WAS + ST LINEN 74 m²
22.47.001 PORT CLEAN 80 m²
22.47.002 STR-NC 5 m²
99.B2.909 LIFT 1 9 AC
99.B2.908 LIFT 2
96.B2.016 2 m²
96.B2.017 RI 16 m²
96.B2.018 2 m²
03.41.006 CLEAN 6 m²
03.41.004 CLNR 6 m²
03.41.001 REV 4 m²
03.41.003 AGV 8 m²
03.07.045 MEAL 4 m²
03.07.044 4 m²
03.99.030 CIRC 37 m²
03.99.031 CIRC 37 m²
03.99.032 CIRC 37 m²
03.99.035 CIRC 37 m²
03.99.036 CIRC 37 m²
03.99.037 CIRC 37 m²
03.99.038 CIRC 37 m²
03.99.039 CIRC 37 m²
03.99.040 CIRC 37 m²
03.99.041 CIRC 37 m²
03.99.042 CIRC 37 m²
03.99.043 CIRC 37 m²
03.99.044 CIRC 37 m²

EXISTING UNDERGROUND ELECTRICAL AND COMMUNICATIONS SERVICES MARKUP - LAYOUT (REDUCED SCOPE)

ADJOINTS SHEET 21

0 1 2 5
Scale in Meters

PIT #01 AUDIT
1x EXISTING BLUE FIBRE
1x EXISTING LV CABLE

PIT #02 AUDIT
1x EXISTING BLUE FIBRE
No. x EXISTING LV CABLES

PIT #03 AUDIT
1x EXISTING BLUE FIBRE
1x EXISTING LV CABLE

POLE NEAR PIT #3
1x EXISTING LV CABLE

COMMS ASSETS REMAIN UNCLEAR AS TO WHO THEY BELONG TO AND WHAT AREAS THEY ARE SERVING

EXCLUDED FROM THE SCOPE ASSUMED TO BE UNAFFECTED FROM THE CONSTRUCTION WORKS

INDICATIVE SCOPE BOUNARY

EXISTING POST TOP LUMINAIRES AND ASSOCIATED WIRING WILL BE RELOCATED

(BY OTHERS. OUT OF FREDON'S SCOPE)

ALL LV ELECTRICAL CABLES OTHER THAT THESE SERVING THE LIGHT POLES TO BE REMOVED.

(BY OTHERS. OUT OF FREDON'S SCOPE)

AUSGRID ASSETS WILL BE RELOCATED **BY OTHERS** AS PER DEP CONSULTING DESIGN

(BY OTHERS. OUT OF FREDON'S SCOPE)

EXISTING COMMS CABLE (1 X FO CABLE) WILL BE DIVERTED FROM THE EDGE OF AINSWORTH BUILDING AND EXTENDED SOUTH TO THE SCOPE OF WORKS BOUNDARY. 3 X NEW COMMS PITS AND 3 X 100mm CONDUITS WILL BE PROVIDED TO MAINTAIN THE EXISTING INFRASTRUCTURE PATHWAY

EXISTING UNDERGROUND ELECTRICAL AND COMMUNICATIONS SERVICES MARKUP
FREDON
K.C.
22/07/2019

Electricity / COMMS Asset Ø50 PVC , 2020 PVC & Direct Buried (Apx. Dpt. 470-1000mm)
UNKNOWN Asset (Apx. Dpt. 800mm)
Empty, Full of Dirt,Unable to Flexi
COMMS Asset,100Ø PVC (Apx. Dpt. 470-1000mm)
COMMS Asset,100Ø PVC (Apx. Dpt. 450-1300mm)
COMMS Asset,100Ø PVC Empty, EOT, Flexi Stuck (Apx. Dpt. 550-1000mm)
COMMS Asset,100Ø PVC Empty, EOT (Apx. Dpt. 550-1000mm)
ELECTRICITY Asset (Apx. Dpt. 350mm)
AUSGRID ELECTRICITY Asset 2X2100Ø PVC Aprx. Dpt. 800-1200mm
COMMS Asset, Empty 100Ø PVC(Apx. Dpt. 470-1000mm)
ELECTRICITY Asset 50Ø PVC(Apx. Dpt. 200-350mm)
Vertical Junction
UTO Parked Car
COMMS Asset, EOT, Flexi Stuck 100Ø PVC(Apx. Dpt. 250-750mm)
COMMS Asset 100Ø PVC(Apx. Dpt. 250-750mm)
ELECTRICITY Asset 100Ø PVC(Apx. Dpt. 250-500mm)
COMMS Asset 100Ø PVC (Apx. Dpt. 320mm)
ELECTRICITY Asset
COMMS Asset 100Ø PVC(Apx. Dpt. 520-900mm)
ELECTRICITY Asset 4X1 20Ø PVC(Apx. Dpt. 350-450mm)
ELECTRICITY Asset 2X1 100Ø PVC(Apx. Dpt. 520-800mm)
AUSGRID ELECTRICITY Asset 2X100Ø PVC Aprx. Dpt. 900-2000mm
AUSGRID ELECTRICITY Asset 4X100Ø PVC Aprx. Dpt. 900-2000mm
Vertical Junction with Perforated Pipe
Fuel Tank Lid
SW H11
SW H8
GAT
SERVICE CAGE
BASEMENT WALL
PIPE
ROOM
Hospital Rd
ADJOINTS SHEET 22
ADJOINTS SHEET 06
ccessible Area
cessible Area

Electronic Sub-surface U
e Utility (S
es betwee
(as per AS
nt points
ystem (Util
are indic
ines regar
conduits a

Storm Water assets are lids, etc.) and QL-B between pits. Storm Water pipes have been shown where connectivity could be proven using sonde, dye test or CCTV. In some areas, it's impossible to work out the alignments as the sonde/ CCTV Camera get stuck. For full information of Sewer & Drainage Investigation, please refer to D13999-DR-01.

Kerb outlets are not shown in this drawing.

Potholing is recommended to confirm the depth & position of all utilities located.

For QL-Y & QL-Z, Potholing is required to confirm the position and depth.

connections are shown on this plan.

p has been generated for design purposes only. It needs to be printed in color and at the ize noted in the top right of the page. Failure to do this will void all information indicated.

Between the kerb and boundary on the western side of Hospital Rd was inaccessible due to construction site ace. Utilities shown in this area are from a previous QL-B SUI Survey (D13034-UT-1).

t 28 for the various Scope of Works carried out.

1	HOSPITAL ROAD UPDATED	6/11/18

DURKIN LEGEND

A3

WR Water Main - Recycled
EH Electric House Connection (EY)
EU Electric Line Underground (EU)
EZ Electric Line Underground - Digitised
T Telstra - Telephone Line
TH Telstra - Telephone Line - House Connection
TZ Telstra - Telephone Line - Digitised
OU Optical Fibre (OU)
OZ Optical Fibre - Digitised
UTT Unable To Trace
UTL Unable To Lift
EOT End Of Trace
EMH Electricity Cable Manhole
Street Light Pole
Power & Street Light Pole
EJB Electrical Junction Box
TSC Traffic Signal Controller
Telstra Concrete Pit
TDP Telstra Distribution Pillar
OFP Optic Fibre Pit
Drainage Flow Direction
Sewer Flow Direction
Scope of Works
Quality Level (as per AS-5488-2018)
FOD Full Of Debris
UTO Unable To Open

Quality Levels of Sub-Surface Utility Investigation (SUI) AS 5488-2013
(Reproduced with permission from SAI Global under licence number 1610-c097)

Quality Level A (QL-A): Quality level A is the highest quality level and consists of the positive identification of the attribute and location of a subsurface utility at a point, to an absolute spatial position in three dimensions. It is the only quality level that defines a subsurface utility as 'validated'. Where the whole line segment, cannot be verified by line of sight, quality level A shall not be attributed to the line segment between validated points. The vertical information for this locating method is to the top or shallowest part of the located service.
Horizontal and Vertical Tolerance: -/+ 50mm

Quality Level B (QL-B): Quality level B provides relative subsurface feature location in three dimensions. The minimum requirement for quality level B is relative spatial position.
Information is collected by designating the horizontal and vertical location of underground utilities by using electromagnetic pipe and cable locators, sondes or flexi-trace, ground penetrating radar and acoustic pulse equipment.
Horizontal Tolerance: -/+ 300 mm
Vertical Tolerance: -/+ 500 mm

Quality Level C (QL-C): Quality level C is described as a surface feature correlation or an interpretation of the approximate location and attributes of a subsurface utility asset using a combination of existing records (and/or anecdotal evidence) and a site survey of visible evidence. The minimum requirement for quality level C is relative spatial position.
Information is collected by correlating the survey of visible utility surface features such as marker plates or water hydrants and acquired dial-before-you-dig plans to "draw" a string which shows the approximate position of services.
Horizontal Tolerance of Surface Features: -/+ 300 mm

Quality Level D (QL-D): Quality level D is the lowest of the four quality levels. The attribute information and metadata of a subsurface utility can be compiled from any, or a combination of the following:
(a) Existing records.
(b) Cursory site inspection.
(c) Anecdotal evidence.

Quality Level-X (QL-X) Electronically located with Ground Penetrating Radar or other electronic locating techniques not compliant with AS5488. Estimated positional tolerance is +/-300mm in plan, +/-500mm in depth (high confidence level).

Quality Level Y (QL-Y) Electronically located but with reduced confidence in plan position/depth (medium confidence level).

Quality Level Z (QL-Z) Electronically located with low confidence level in plan position/depth (low confidence level).

DRAWING STATUS
FOR INFORMATION

C.M.S. Surveyors Pty Limited
ACN: 096 240 201
2/99A South Creek Road, Dee Why NSW 2099
Telephone: (02) 9971 4802
E-mail: info@cmssurveyors.com.au

DURKIN Construction Pty Ltd
3/50-52 Derby Street
Silverwater NSW 2128
Ph (02) 9712 0306
Fax (02) 9712 0308
www.durkinconstruction.com.au

CLIENT
LENDLEASE

Project Title: Utility & Drainage Survey at:
RANDWICK REDEVELOPMENT

DRAWING DETAIL
UNDERGROUND SERVICES PLAN

LOCATED BY:	MR/DC		
SURVEYED BY:	GM/KS/GL/GC	DATE	09-07-2018
DRAFTED BY:	DRD/LR		
CHECKED BY:	MR/JM/MH	SCALE	NTS 1:250
APPROVED BY:	MH		

DRAWING NUMBER: ST-50-DRW-SERVICES.DWG
SHEET NUMBER: 04 of 22
REVISION: 4

PIT #04 AUDIT
2x EXISTING BLUE FIBRES
2x EXISTING BLACK COMMS
1x EXISTING LV CABLE

PIT #05 AUDIT
2x EXISTING BLUE FIBRES
2x EXISTING BLACK COMMS
1x EXISTING LV CABLE

PIT #06 AUDIT
2x EXISTING BLUE FIBRES
2x EXISTING BLACK COMMS
1x EXISTING LV CABLE

AUSGRID ASSETS WILL BE RELOCATED AS PER DEP CONSULTING DESIGN

(BY OTHERS. NOT PART OF FREDON'S SCOPE)

EXISTING COMMS CABLE (1 X FO CABLE) WILL BE DIVERTED FROM THE EDGE OF AINSWORTH BUILDING AND EXTENDED SOUTH TO THE SCOPE OF WORKS BOUNDARY. 3 X NEW COMMS PITS AND 3 X 100mm CONDUITS WILL BE PROVIDED TO MAINTAIN THE EXISTING INFRASTRUCTURE PATHWAY

ALL LV ELECTRICAL CABLES OTHER THAN THESE SERVING THE LIGHT POLES TO BE REMOVED.

INDICATIVE SCOPE BOUNARY

THIS LIGHT ASSUMED NOT TO BE AFFECTED BY THE CURRENT SCOPE

ADJOINTS SHEET 04

ADJOINTS SHEET 06

ADJOINTS SHEET 25

ADJOINTS SHEET 26

ADJOINTS SHEET 27

Hospital Rd

AUSGRID ELECTRICITY Asset
100 100Ø PVC Aprx. Dpt. 750-1050mm

AUSGRID ELECTRICITY Asset
6x100Ø PVC Aprx. Dpt. 900-1500mm

COMMS Asset,100Ø PVC
(Apx. Dpt. 520-1200mm)

ELECTRICITY & COMMS Asset
50Ø PVC, 2Ø20 PVC & Direct Buried
Aprx. Dpt. 520-750mm

AUSGRID ELECTRICITY Asset
6x100Ø PVC(Apx. Dpt. 900-1500mm)

ELECTRICITY & COMMS Asset
50Ø PVC, 2Ø20 PVC & Direct Buried
Aprx. Dpt. 200-700mm

UNKNOWN Asset
Ø80 & Ø100 CI(Apx. Dpt. 650-740mm)

UNKNOWN Asset
(Apx. Dpt. 500mm)

UNKNOWN Asset
(Apx. Dpt. 500mm)

UNKNOWN Asset
(Apx. Dpt. 500-600mm)

ELECTRICITY Asset
Aprx. Dpt. 100mm

ELECTRICITY & COMMS Asset
50Ø PVC, 2Ø20 PVC & Direct Buried
Aprx. Dpt. 600-900mm

COMMS Asset, EOT, Empty
100Ø PVC
(Apx. Dpt. 1000-1200mm)

GAS Asset
(Apx. Dpt. 600-900mm)

UNKNOWN Asset
Ø80&100Ø CI
(Apx. Dpt. 550-900mm)

ELECTRICITY Asset
Aprx. Dpt. 100mm

ELECTRICITY Asset

Electronic Sub-surface Utility Information (SUI) detection techniques such as EM & GPR are influenced by Sub-Surface Utility (SSU) type & ground conditions. Best practice detection rates are 80-90% and depth accuracy ranges between +/- 300mm for 90% of readings with significant outliers for the remainder.

Quality levels (as per AS-**5488-2013**) are mentioned for each point. Please note that Quality Levels may vary for different points of a string. Please see the definitions of the Quality Levels for more information.

Co-ordinate System (Utilities and Aerial): MGA: Zone 56 Vertical Datum: AHD

Telstra depths are indicative and to be used for design purposes only.
Telstra Guidelir
Telstra pipes, c

Storm Water as
lids, etc.) and C
sonde, dye test
get stuck. For fu

Kerb outlets are

Potholing is rec

For QL-Y & QL-Z

Not all propert

This utility map
specific page si

Between the kerb and boundary on the western side of Hospital Rd was inaccessible due to construction site hoarding in place. Utilities shown in this area are from a previous QL-B SUI Survey (D13034-UT-1).

Refer to Sheet 28 for the various Scope of Works carried out.

EXISTING UNDERGROUND ELECTRICAL AND COMMUNICATIONS SERVICES MARKUP - LAYOUT (REDUCED SCOPE)

EXISTING UNDERGROUND ELECTRICAL AND COMMUNICATIONS SERVICES MARKUP
FREDON
K.C.
22/07/2019

1	HOSPITAL ROAD UPDATED	6/11/18

DURKIN LEGEND

A3

WR Water Main - Recycled
EH Electric House Connection (EY)
EU Electric Line Underground (EU)
EZ Electric Line Underground (Highway)
Street Light Pole
EJB Electrical Junction Box
TSC Traffic Signal Controller
Telstra Concrete Pit
TDP Telstra Distribution Pillar
OFP Optic Fibre Pit
Drainage Flow Direction
Sewer Flow Direction
Scope of Works
Quality Level (as per AS-5488-2018)
FOD Full Of Debris
UTO Unable To Open

Quality Levels of Sub-Surface Utility Investigation (SUI) AS 5488-2013
(Reproduced with permission from SAI Global under licence number 1610-c097)

Quality Level A (QL-A): Quality level A is the highest quality level and consists of the positive identification of the attribute and location of a subsurface utility at a point to an absolute spatial position in three dimensions. It is the only quality level that defines a subsurface utility as 'validated'. Where the whole line segment, cannot be verified by line of sight, quality level A shall not be attributed to the line segment between validated points. The vertical information for this locating method is to the top or shallowest part of the located service.
Horizontal and Vertical Tolerance: -/+ 50mm

Quality Level B (QL-B): Quality level B provides relative subsurface feature location in three dimensions. The minimum requirement for quality level B is relative spatial position.
Information is collected by designating the horizontal and vertical location of underground utilities by using electromagnetic pipe and cable locators, sondes or flexi-trace, ground penetrating radar and acoustic pulse equipment.
Horizontal Tolerance: -/+ 300 mm
Vertical Tolerance: -/+ 500 mm

Quality Level C (QL-C): Quality level C is described as a surface feature correlation or an interpretation of the approximate location and attributes of a subsurface utility asset using a combination of existing records (and/or anecdotal evidence) and a site survey of visible evidence. The minimum requirement for quality level C is relative spatial position.
Information is collected by correlating the survey of visible utility surface features such as marker plates or water hydrants and acquired dial-before-you-dig plans to "draw" a string which shows the approximate position of services.
Horizontal Tolerance of Surface Features: -/+ 300 mm

Quality Level D (QL-D): Quality level D is the lowest of the four quality levels. The attribute information and metadata of a subsurface utility can be compiled from any, or a combination of the following:
(a) Existing records.
(b) Cursory site inspection.
(c) Anecdotal evidence.

Quality Level X (QL-X) Electronically located with Ground Penetrating Radar or other electronic locating techniques not compliant with AS5488. Estimated positional tolerance is +/-300mm in plan, +/-500mm in depth (high confidence level).

Quality Level Y (QL-Y) Electronically located but with reduced confidence in plan position/depth (medium confidence level).

Quality Level Z (QL-Z) Electronically located with low confidence level in plan position/depth (low confidence level).

DRAWING STATUS
FOR INFORMATION

C.M.S. Surveyors Pty Limited
ACN: 096 240 201
299A South Creek Road, Dee Why NSW 2099
Telephone: (02) 9971 4802
E-mail: info@cmssurveyors.com.au

DURKIN Construction Pty Ltd
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Silverwater NSW 2128
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Fax (02) 9712 0308
www.durkinconstruction.com.au

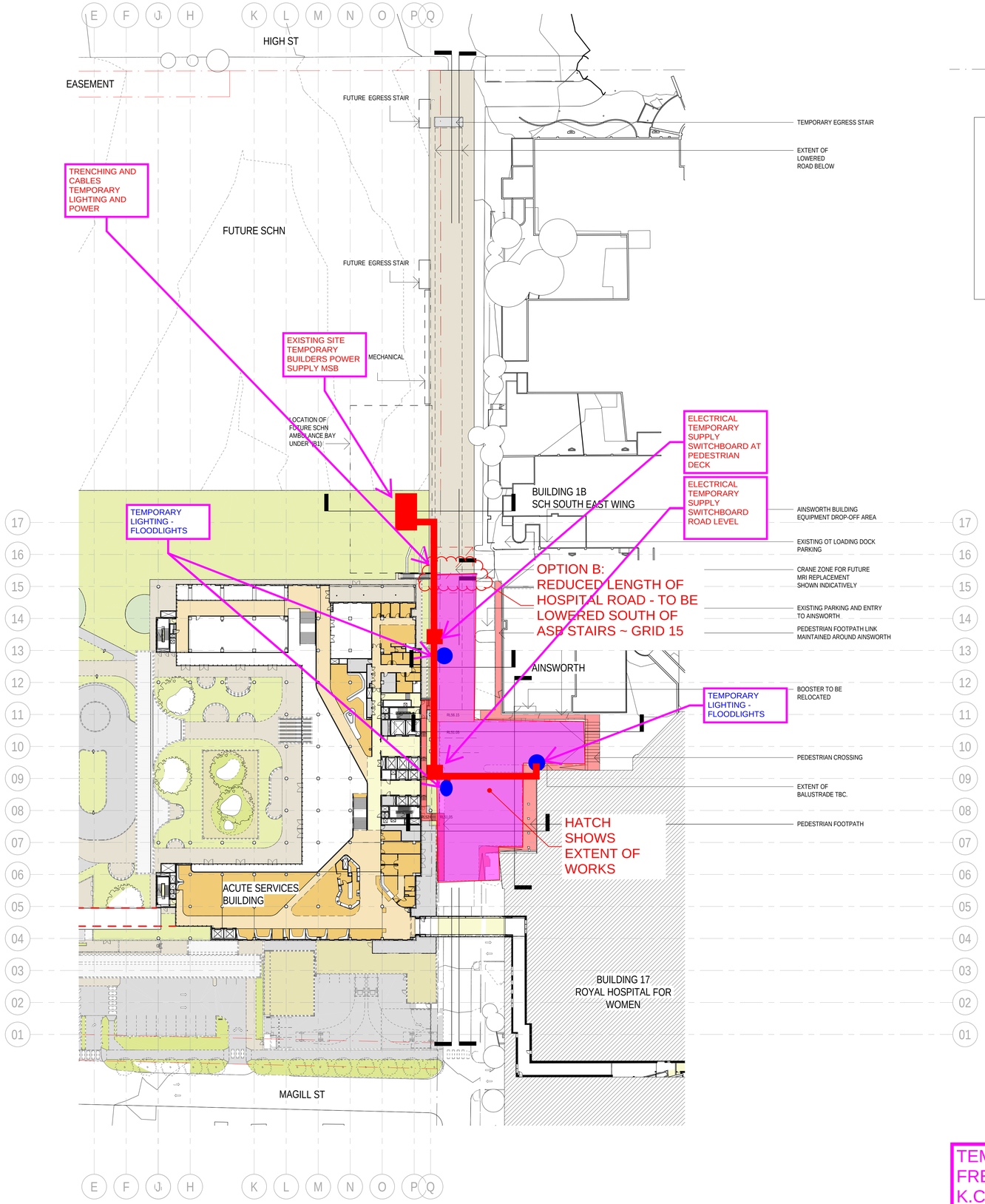
CLIENT
LENDLEASE

Project Title: Utility & Drainage Survey at:
RANDWICK REDEVELOPMENT

DRAWING DETAIL
UNDERGROUND SERVICES PLAN

LOCATED BY:	MR/DC		
SURVEYED BY:	GM/KS/GL/GC	DATE	09-07-2018
DRAFTED BY:	DRD/LR		
CHECKED BY:	MR/JM/MH	SCALE	NTS 1:250
APPROVED BY:	MH		

DRAWING NUMBER: RCR-CMS-ST-50-DRW-SERVICES.DWG
SHEET NUMBER: 04/ 06/ 22
REVISION: 4



1. LANDSCAPE INTERFACE TO EAST OF NEW DECK AND ROAD NOT PART OF SCOPE
2. ALL DRAWINGS ARE PRELIMINARY AND SUBJECT TO FUTURE DEVELOPMENT
3. LANDSCAPE TO PUBLIC DECK NOT PART OF SCOPE

KEY: BALUSTRADES

EXISTING STEEL PALISADE BALUSTRADE

NEW STEEL PALISADE BALUSTRADE

NOTE:
BALUSTRADE NORTH OF GRID 11. TO PEDESTRIAN DECK NOT SHOWN, SUBJECT TO FUTURE DESIGN.

TEMPORARY BUILDERS LIGHTING AND POWER MARKUP - LAYOUT (REDUCED SCOPE)

NOTES:

1. TEMPORARY LIGHTING AND POWER WILL BE FED FROM THE SITE TEMPORARY BUILDER SUPPLY SWITCHBOARD.

2. TEMPORARY LIGHTING WILL BE DESIGNED TO 20 LUX

TEMPORARY LIGHTING AND POWER MARKUP
FREDON
K.C.
06/12/2018

PRELIMINARY ISSUE 23/11/18

BVN TERROIR

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ISSUE	DATE	FOR
A	23/11/18	FOR INFORMATION

PROJECT MANAGEMENT
AURECON

CIVIL AND STRUCTURAL ENGINEERING
ENSTRUCT GROUP

MECHANICAL ENGINEERING
LEHR CONSULTANTS INTERNATIONAL

ELECTRICAL ENGINEERING
AECOM AUSTRALIA

HYDRAULIC ENGINEERING
ACOR CONSULTANTS

CONSULTANT
PROJECT MANAGER
TEL 09 5555 5555 fax 04 6666 6666
CLIENT

NSW GOVERNMENT Health Infrastructure

HEALTH INFRASTRUCTURE
CLIENT NUMBER

130487
PROJECT
RANDWICK CAMPUS REDEVELOPMENT
BARKER ST
RANDWICK NSW 2031
AUSTRALIA
BVN PROJECT NUMBER

s1606008
DRAWING KEY

TRUE NORTH PROJECT NORTH

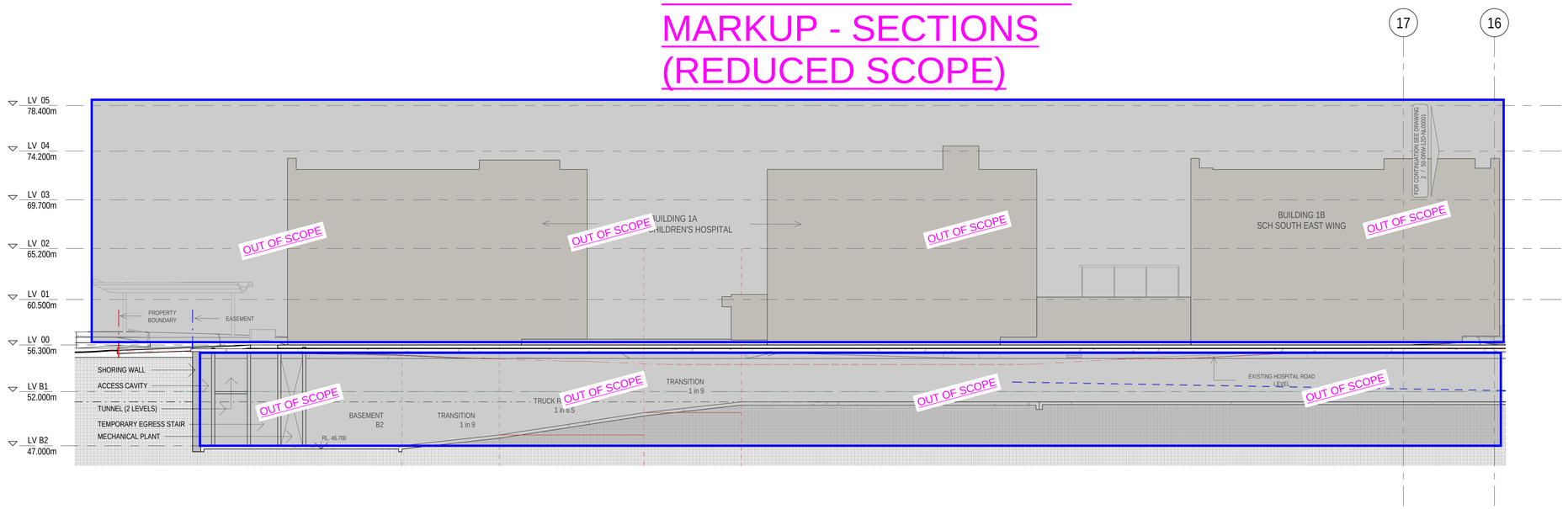
GRAPHIC SCALE
0 10000 25000
SCALE
1 : 500@B1 DO NOT SCALE
STATUS

SCHEMATIC DESIGN
DRAWING

HOSPITAL ROAD WORKS - LEVEL 00 PLAN

RCR-BVN-ARC-00-DRW-10B-0000001 ISSUE A

TEMPORARY BUILDERS LIGHTING AND POWER MARKUP - SECTIONS (REDUCED SCOPE)

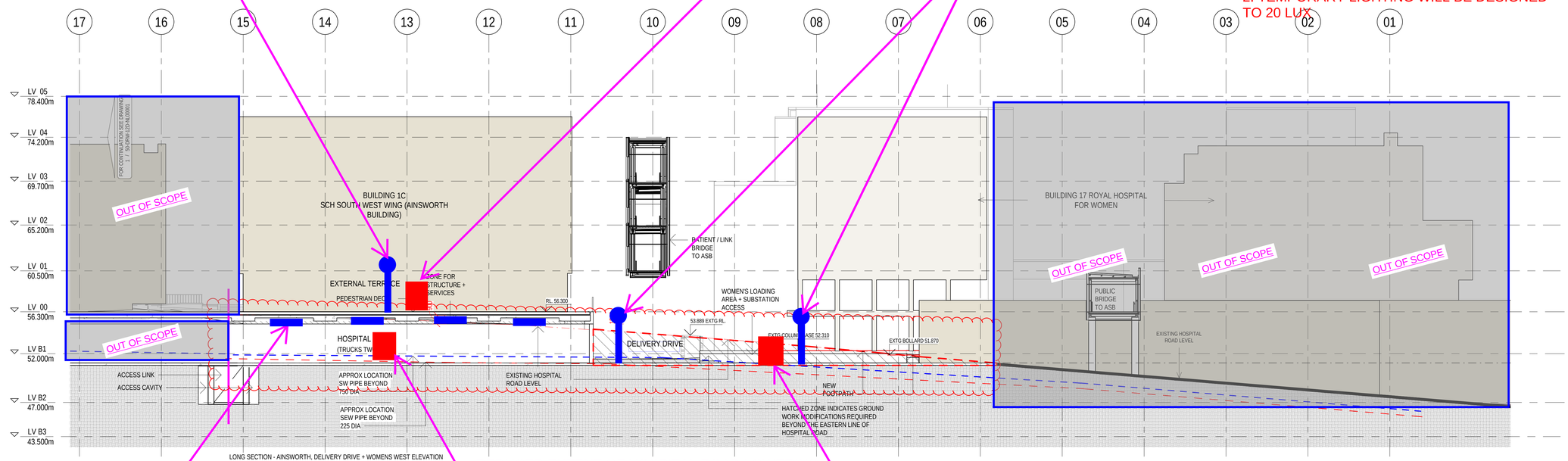


1 / 01B-1200001 HOSPITAL ROAD - LONG SECTION_CHILDRENS, AINSWORTH + WOMENS WEST ELEVATION - North end
1 : 200

TEMPORARY LIGHTING - FLOODLIGHTS

ELECTRICAL TEMPORARY SUPPLY SWITCHBOARD AT PEDESTRIAN DECK

TEMPORARY LIGHTING - FLOODLIGHTS



LONG SECTION - AINSWORTH, DELIVERY DRIVE + WOMENS WEST ELEVATION

REDUCED EXTENT OF HOSPITAL ROAD LOWERING

2 / 01B-1200001 HOSPITAL ROAD - LONG SECTION_CHILDRENS, AINSWORTH + WOMENS WEST ELEVATION - South end
1 : 200

TEMPORARY LIGHTING - BATTENS/FLOODLIGHTS

ELECTRICAL TEMPORARY SUPPLY SWITCHBOARD AT COVERED DRIVEWAY

ELECTRICAL TEMPORARY SUPPLY SWITCHBOARD ROAD LEVEL

NOTE:

1. TEMPORARY LIGHTING AND POWER WILL BE FED FROM THE SITE TEMPORARY BUILDER SUPPLY SWITCHBOARD.

2. TEMPORARY LIGHTING WILL BE DESIGNED TO 20 LUX

TEMPORARY LIGHTING AND POWER MARKUP
FREDON
K.C.
06/12/2018

PRELIMINARY ISSUE 23/11/18

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DRAWING

HOSPITAL ROAD WORKS - SECTIONS - SHEET 2

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