MOTT MACDONALD

Kooroowall-undi (Peat Island) and Foreshore Development

Building Services Return Brief

Project:	Kooroowall-undi (Peat Island) and Foreshore Development: Tourist and Visitor Facility		
Our reference:	703702257	**Your reference:**	N/A
Prepared by:	David Yu Peter Reedy Theresa Ling	**Date:**	19 December 2024
Approved by:	Boon Soo	**Checked by:**	Zlatko Tomevski Zeek Meng
Subject:	Building Services Return Brief		

1 Introduction

1.1 Project Overview

Darkinjung Local Aboriginal Land Council is proposing the development of a tourist and visitor facility on western foreshore land of Mooney Mooney as shown in Figure 1. This Development Application (DA) seeks approval for a new tourism and visitor facility including cultural facility, café, jetty and caretakers' accommodation. This is part of an overall masterplan that includes accommodation as a future stage. The DA would involve the following proposed works:

- Adaptive reuse of the former Burrumbilla office/administration building into a information and education facility and caretakers accommodation
- Adaptive reuse of the former dairy and secondary store buildings as café with indoor and outdoor seating
- Guided walking tours of Peat Island and waterbased tours
- New jetty
- Vehicular access and car parking
- Stormwater and drainage works
- Construction of utility services
- Landscape works

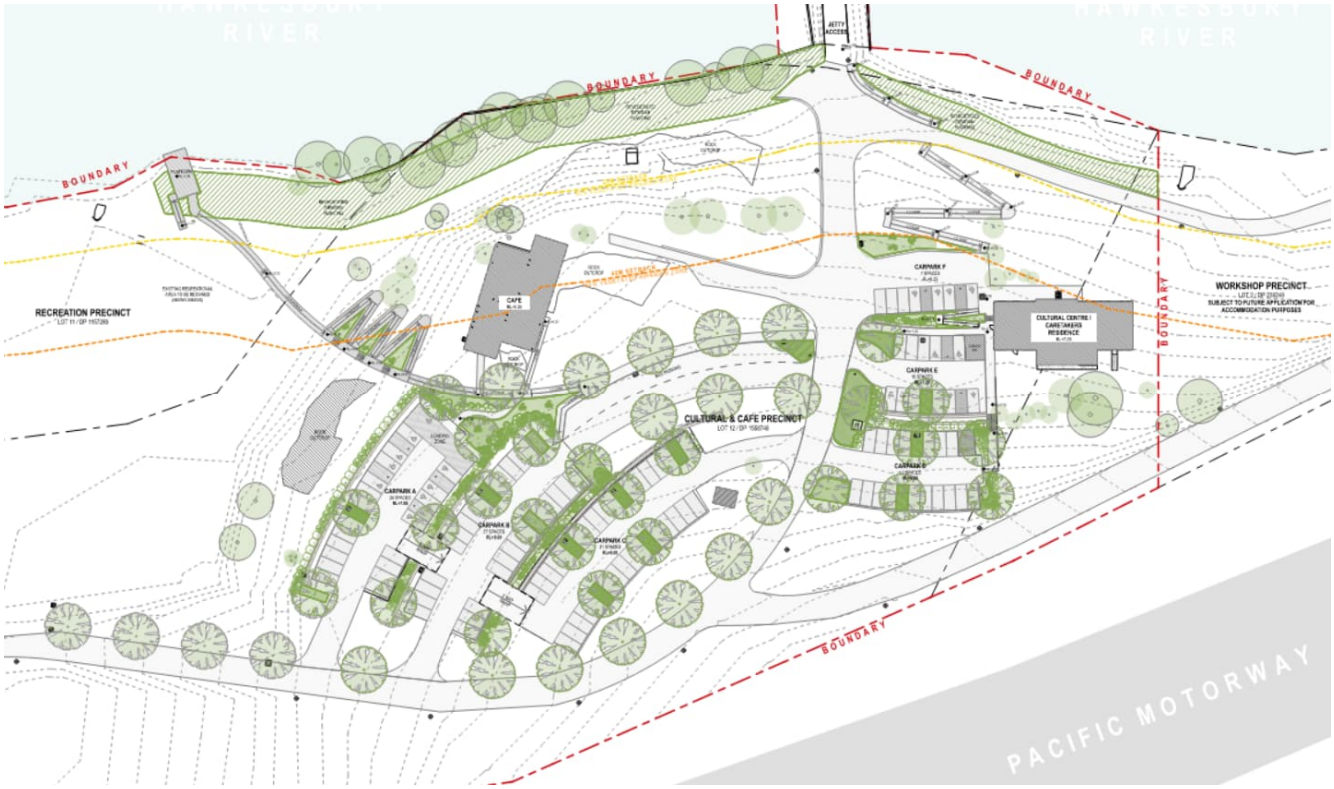

Figure 1: Development Site Plan

1.2 Scope of this Return Brief

This Return Brief sets out the proposed scope of works, excluded works, and design criteria for the Mooney Mooney Foreshore development. The spatial requirements for building services are included in Appendix A.

The document will include the following services:

- Mechanical Services,
- Electrical Services,
- Fire Protection Services, and
- Hydraulic Services.

Mott MacDonald design scope is limited to the building and does not include any elements in the public domain or outside of the building envelope/boundary. Further detail on included and excluded works can be found in the relevant sections.

1.3 Limitations of this Return Brief

The information provided in the Building Services Return Brief is based on our understanding of the project requirements and load estimates/calculations commensurate within the current stage of the design. The engineering information does not incorporate design development, detailed architectural drawings, detailed engineering design analysis, or a complete review of the spatial coordination requirements.

As the project develops during the preliminary, developed, and detailed design and documentation stages, the information contained herein will need be amended as required to reflect the direction of the design.

While every effort is made to cover the projects key requirements in this Return Brief, some of these may require further enhancement/development as the overall scheme develops. This report and the associated

documents should, therefore, be assessed with allowance made for appropriate contingencies when formulating overall scope or cost estimates.

The following aspects of the development are specifically outside the scope of this Return Brief:

- Acoustics and vibration,
- Specialist lighting
- Physical security incl. security risk assessment,
- Electronic security systems including CCTV
- Temporary power,
- Audio Visual (AV),
- Civil, including inground stormwater,
- BCA / Fire Safety Engineering,
- Traffic Engineering,
- Building fitout works,
- Bushfire assessment,
- Relocation of infrastructure traversing the site to the island,
- HV & LV Substation Works (existing to be reused).

It is noted that this return brief has been completed in absence of formal BCA / Fire Safety Engineering advice. In particular, it has been assumed that no building in scope is a special fire protection purpose building as defined in the NCC.

1.4 Abbreviations

AV	Audio Visual
BCA	Building Code of Australia
BMS	Building Management System
CCC	Central Coast Council
CCTV	Closed Circuit Television
CCW	Condenser Water
CET	Central Earth Terminal
DB	Distribution Board
DCW	Domestic Cold Water
DHW	Domestic Hot Water
EMS	Energy Monitoring System
ESD	Ecologically Sustainable Development
EWIS	Emergency Warning and Intercommunication System
FDCIE	Fire Detection Control and Indicating Equipment
FEA	Fire Engineering Assessment
FEB	Fire Engineering Brief

FER	Fire Engineering Report
FH	Fire Hydrant
FHR	Fire Hose Reel
FIP	Fire Indicator Panel
FM	Facility Manager
FRL	Fire Resistance Level
HVAC	Heating Ventilation & Air Conditioning
ICT	Information and Communications Technologies
IFC	Issued for Construction
LED	Light Emitting Diode
MEN	Multiple Earthed Neutral
MEP	Mechanical, Electrical and Plumbing
MSB	Main Switchboard
MSSB	Mechanical Services Switchboard
NABERS	National Australian Built Environment Rating System
NBN	National Broadband Network
NFC	Near Field Communication
NLA	Net Lettable Area
NSW RFS	NSW Rural Fire Service
NTD	Network Termination Device
PCA	Property Council of Australia
RTD	Rapid Deployment Unit
UPS	Uninterruptible Power Supply
VSD	Variable Speed Drive
WAP	Wireless Access Points
WHS	Work and Health Safety

2 Building Services (general)

2.1 Access & Maintenance Strategy

All building services plant will be designed to allow effective and safe maintenance and replacement/removal of both minor and major plant. Further details can be found in the relevant sections of this report.

3 Mechanical Services

3.1 Included Works

The following systems are captured within this report:

- HVAC, and
- Cold-shell provisions for tenancies.

3.2 Excluded Works

- Tenancy design incl. kitchen hood selections

3.3 Compliance Standards and Codes

3.3.1 Legislation

- The mechanical services shall comply with all current Acts, Regulations, and Codes applicable to the installation including but not limited to the following:
- WHS Act and Legislation 2012,
- NSW Environment Protection Act 1997,
- NSW Environmental Planning and Assessment Regulation 2021,
- National Construction Code (NCC) 2022, and
- Minimum Energy Performance Standards (MEPS).

3.3.2 Authorities

Comply with the requirements of all authorities having jurisdiction over the installation including but not limited to the following:

- Environmental Protection Authority (EPA),
- SafeWork NSW, and
- Central Coast Development Control Plan (CCDCP).

3.3.3 Standards and Guidelines

AS 1170.4	Structural Design Actions Part 4: Earthquake actions in Australia
AS 1324	Air filters for use in general ventilation and air conditioning
	Part 1 Application, performance, and construction

	Part 2 Methods of test
AS 1345	Identification of the contents of pipes, conduits, and ducts
AS 1359	Rotating electrical machines – General requirements
	Part 5 Three-phase cage induction motors - High efficiency and minimum energy performance standards requirements
AS 1571	Copper –Seamless tubes for air conditioning and refrigeration
AS/NZS 1668	The use of ventilation and air conditioning in buildings
	Part 1 Fire and smoke control in multi-compartment buildings
	Part 2 Mechanical ventilation for acceptable indoor-air quality
	Part 4 Natural ventilation of buildings
AS 2067	Substations and high voltage installations exceeding 1kV a.c.
AS 2107	Acoustics – Recommended Design Sound Levels and Reverberation Times for Building Interiors
AS 2129	Flanges for pipes, valves and fittings
AS 2665	Smoke/Heat Venting Systems – Design, Installation and Commissioning
AS 2676	Guide to the installation, maintenance, testing and replacement of secondary batteries in building
	Part 2 Sealed cells
AS/NZS 3000	Electrical Installations
AS 3013	Electrical installations – Classification of the fire and mechanical performance of wiring system elements
AS 3439	Low-voltage switchgear and control gear assemblies
	Part 1 Type–tested and partially type–tested assemblies
AS 3500	Plumbing and drainage standard Part 1, 2 and 4
AS/NZS 3666	Air handling and water systems of buildings – Microbial control
	Part 1 Design, installation, and commissioning
	Part 2 Operation and Maintenance
AS 4254	Ductwork for air-handling systems in buildings
	Part 1 Flexible duct
	Part 2 Rigid duct
AS 4859	Thermal insulation materials for buildings
	Part 1 General criteria and technical provisions
AS/NZS 5149	Refrigerating systems and heat pumps – safety and environmental requirements
	Part 1 Definitions, classification and selection criteria

	Part 2 Design, construction, testing, marking and documentation
	Part 3 Installation site
	Part 4 Operation, maintenance, repair and recovery
AS 5601	Gas installations
HB32	Control of microbial growth in air handling and water systems if buildings

Sheet Metal and Air Conditioning Contractors National Association (SMACNA) guidelines

Australian Institute of Refrigeration Air Conditioning and Heating (AIRAH) design guidelines

Chartered Institution of Building Services Engineers (CIBSE) design guidelines

American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) design guidelines

National Environmental Balancing Bureau (NEBB)

Plant Access

AS 1657 Fixed platforms, walkways, stairways, and ladders – Design, construction, and installation (SAA Code for Fixed Platforms, Walkways, Stairways and Ladders)

Fire Penetrations

AS 1530	Methods for fire tests on building materials, components, and structures
AS 4072	Components for the protection of openings in fire resistant separating elements

3.4 Design Criteria

Mechanical services will be designed as per the following criteria:

Table 3.1: Mechanical Provisions

Criteria	Performance	Comments
Air-conditioned areas	Bedrooms Office areas Cultural Centre Living areas Café dining areas	
Mechanically ventilated areas	Toilets Bathrooms Laundry Kitchens All plant rooms, mechanically or naturally ventilated, unless otherwise specified	
Ambient Design Conditions	Summer: 31.6°C DB/21.6°C WB, full sol ar load Winter: 6.4°C	External design conditions are based on 2021 climatic data for Sydney Terrey Hills (WMO: 947590). 2% cumulative frequency of occurrence values used for cooling. 99% cumulative frequency of occurrence values used for heating. These are typical for general comfort air conditioning applications. A further 2°C climate change factor is applied to the peak summer condition

Criteria	Performance	Comments
Indoor Design Conditions – Summer	22.5 ± 1.5°C DB, 55% RH, no humidity control	Where air conditioning is provided
Indoor Design Conditions - Winter	22.5 ± 1.5°C DB, 55% RH, no humidity control	Where air conditioning is provided

The Air Conditioning systems will be designed to meet the proposed Internal Design Conditions with simultaneous occurrence of internal loads as defined in the Internal Load Allowances and ambient conditions as defined under the Ambient Design Conditions.

- **Internal Design Conditions** including acceptable temperature and humidity criteria and operating hours associated with the mechanical services systems,
- **Internal Load allowances** including equipment loads, lighting loads, occupancy rates and outside air ventilation rates, and
- **Ambient Design Conditions** detailing design peak summer and ambient winter temperatures for which the air conditioning systems will be designed to meet the Internal Design Conditions and extreme ambient conditions for which the systems will be specified to remain operational.

The above design criteria are a matter of client choice and can have a significant bearing on occupant comfort together with capital and operating costs associated with the air conditioning systems.

Table 3.2: Internal Load Allowance

Space Type	Design Equipment Load (W/m^2)	Design Lighting Load (W/m^2)	Design Occupancy (m^2/person)	Minimum Outdoor Air (L/s)
Bedrooms	10	10	2 persons	10 per person
Office areas	15	4.5	Office – 3 persons Reception / Office – 4 persons Office kitchen – 2 persons (estimated per architectural layout)	10 per person
Cultural Centre	15	10	1.5	10 per person
Living areas	15	10	5	10 per person
Café dining areas	10	10	1	10 per person

3.5 Air Conditioning Systems

3.5.1 Air conditioning strategy

The building will be provided with split type reverse cycle VRF fan coil units where air conditioning is required. The following locations will be provided with individual systems:

- Caretaker's residence
- Cultural Centre including office areas
- Café

Outside air will be provided by natural ventilation whenever possible. Where not possible, independent filtered outside air ventilation systems will be provided.

3.6 Mechanical Ventilation Systems

Where applicable, the mechanical services will include ventilation systems to ensure compliance with the NCC and AS1668.2 and will consist of supply and exhaust air fans, ceiling fans, ductwork, grilles, diffusers, louvres, dampers, insulation, electrical, controls and the like to form complete systems.

3.6.1 Mechanical ventilation strategy – Cultural Centre Building

Areas that will be provided with such systems include:

- Exhaust air systems for laundries, bathrooms and non-commercial kitchen range hoods

3.6.2 Mechanical ventilation strategy – Cafe Building

Areas that will be provided with such systems include:

- Exhaust air systems for bathrooms
- Louvre connection for outside air and relief air
- Capped kitchen exhaust air duct/riser connections and spatial allowance for the exhaust fan will be provided.

4 Electrical Services

4.1 Included Works

The following systems are captured within this report:

- Electrical Low Voltage Supply
- Authority electrical metering and tenant submetering
- Low voltage aerial power reticulation
- Power connections to buildings
- Switchboards
- External Lighting
- Cold-shell provisions for buildings and tenancies.

4.2 Excluded Works

The following systems are not detailed within this report:

- Relocation of services supplying the island (high voltage power lines, communications pits and the external Fire Indicator Panel out-building) that traverse the site
- Internal fitout of building services.

4.3 Compliance Standards and Codes

4.3.1 Legislation

The electrical services shall comply with all current Acts, Regulations, and Codes applicable to the installation including but not limited to the following:

- WHS Act and Legislation 2012
- NSW Environment Protection Act 1997
- NSW Environmental Planning and Assessment Regulation 2021
- National Construction Code (NCC) 2022
- Minimum Energy Performance Standards (MEPS).

4.3.2 Authorities

Compliance with the requirements of all Authorities having jurisdiction over the installation including but not limited to the following:

- Ausgrid
- Telstra / NBN
- Environmental Protection Authority (EPA),
- SafeWork NSW, and
- Central Coast Development Control Plan (CCDCP).

4.3.3 Standards and Guidelines

AS 1428	Design for access and mobility
AS 4072	Components for the protection of openings in fire-resistant separating elements
AS 4282	Control of the obtrusive effects of outdoor lighting
AS/NZS 1158	External public space lighting
AS/NZS 1680	Interior and workplace lighting
AS/NZS 1768	Lightning protection
AS/NZS 2053	Conduits and fittings for electrical installations
AS/NZS 2293	Emergency escape lighting and exit signs for buildings
AS/NZS 3000	Australian/New Zealand wiring rules
AS/NZS 3008	Selection of cables
AS/NZS 3010	Electrical installations – generating sets
AS/NZS 3011	Electrical installations – Secondary batteries installed in buildings
AS/NZS 3013	Electrical Installations – Classification of the fire and mechanical performance of wiring systems
AS/NZS 61439.1:2016	Low voltage switchgear and control gear assemblies
AS/NZS 61000	Electromagnetic compatibility
AS1530	Methods for fire tests on building materials, components, and structures
NCC	Nation Construction Code (BCA) 2022

4.3.4 Design Criteria

Electrical services are to be designed as per the following criteria:

Table 4.1: Electrical Provisions

Item	Standards	Criteria
Supply Conditions	Service and Installation Rules of NSW Ausgrid Regulations	● Supplied from existing Ausgrid pole mounted substation at the northern end of the site ● 400/230V nominal ● 50Hz ● Applications to be made to Ausgrid for new / altered connections.
Metering	NSW Installation Rules AS/NZS 3000 Wiring Rules	● Existing main Supply Authority metering at the northern end of the site in cabinet adjacent to generator to be re-used ● New sub-metering to be installed within switchboards to each

Item	Standards	Criteria
		refurbished building and external lighting distribution board
Generator Supply	AS/NZS 3000 Wiring Rules	● Existing generator at the northern end of the site is not required to be utilised for the Visitors Centre development ● Existing LV generator distribution cabling to remain in place, isolated and made good
Low Voltage Reticulation	AS/NZS 3000 Wiring Rules AS/NZS 3008	● Existing LV power pole and wiring systems to be modified and extended to suite proposed site works ● Insulated Aerial Bundled Cabling (ABC) network and timber poles to be extended and to match the existing. ●
Building Power Connections	AS/NZS 3000 Wiring Rules AS/NZS 3008	● Existing aerial T-off and fused supply to Cultural Building to remain. Existing generator supply to be isolated and made good ● New aerial T-off and fused supply to be provided to café / dining building ● New aerial T-off and fused supply to be provided to external lighting switchboard cabinet. ●
Switchboards	AS/NZS 3000 AS/NZS 61439.1	● Replacement switchboard required to Visitor Building ● New switchboards required for café and external lighting system. ● Switchboards to comply with the following: ● Form 2 construction ● Minimum IP rating IP42 (internal) and IP56 for (external) ● Smoke seal integrated into switchboards where required by NCC ● 25% spare electrical capacity ● 30% spare physical capacity ● Local maintenance isolator and incoming protection is required ● Fault interruption capacity for circuit breakers to minimum 6kA or as per system requirements, whichever is greater (provide incoming protection fuses) ● Balance connected load at chassis (Lighting and Power) of each switchboard. ● Protection discrimination. ● Energy monitoring metering: Direct or CT type and installed in local switchboards. ● In built surge protection

Item	Standards	Criteria
Submains and Final Sub-circuits	AS/NZS 3000 AS/NZS 3008	• Total LV system voltage drop <5% • Submain reticulation generally to be extended from the existing LV arial network (note – any underground cabling reticulation will probably require excavation through rock) • Sub-circuit final cabling to be minimum 2.5mm2 copper stranded • All sub-circuits to be protected by separate combination MCB / 30mA RCDs • Cabling is to be sized and spaced to avoid de-rating factors
Lighting	AS/NZS 1680 – Interior Lighting AS/NZS 1158- Exterior Lighting	• Long life, energy saving luminaires with LED technology • Depreciation factor of 0.8 for clean air-conditioned areas, 0.7 for clean non air-conditioned areas, and 0.6 for dirty areas. • Photocell / Timer Control of external lighting • All existing external pole lighting to be upgraded.
Exit and Emergency Lighting	AS/NZS 2293	• LED type with long life batteries and switchboard mounted test switches.
Lightning Protection	AS/NZS 1768	• Risk assessment and design to AS/NZS 1768.
Telecommunications	Telstra Requirements NBN Standards AS/CA S008 Requirements for Customer Cabling Products AS/CA S009 Installation Requirements for Customer Cabling (wiring rules)	• Connection of refurbished building to the NBN network. • Make applications to NBN. • Utilise existing site reticulation where available and supplement network cabling as necessary.

4.4 Electrical Supply & Maximum Demand

The foreshore area is powered by an existing pole mounted substation adjacent to the cluster of buildings at the northern end of the site. Information was not available at the time of writing this report, but it is considered that the capacity of the pole mounted transformer would exceed 200KVA based on its physical size.

All buildings at the northern end of the site appear to be decommissioned. Therefore, it is considered that the existing substation has more than ample capacity to supply the converted Visitor Centre, Café buildings and external lighting requirements.

Detailed maximum demands are to be calculated based on the building fitouts and submitted to Ausgrid in an “Application for Supply”. A spare capacity allowance of 30% should be provided to each building for future load increases.

An existing generator is also located adjacent to the substation at the northern end of the site. The condition and capacity of the generator is unknown. It appears that the generator has not been operated for a considered length of time and would need major servicing. It is considered that the Visitor Centre and Café is

not a critical facility and would not require a backup generator supply. It is suggested that the generator supply aerial cabling distributed throughout the site be isolated and retained for future possible use.

4.5 Metering

The low voltage aerial supply reticulated throughout the site appears to be centrally metered by the Supply Authority equipment in a cabinet located adjacent to the generator set at the northern end of the foreshore. The meters could not be accessed at the time of the inspection but are anticipated to be operational as they currently power the Administration Building and site lighting. The metering installation will need to be inspection for a condition assessment and to ensure their compliance with current Supply Authority requirements. Upgrades may be necessary, but any required works would likely be minimal.

There is a requirement to sub-meter the separate buildings and exterior lighting of the development. Due to the topology of the existing aerial low voltage poles/wires network, central submetering at the existing site substation main switchboard will not be possible. Sub-metring will have to be located in each of the distribution boards service the Visitor Center, Café and external lighting cabinet. Each sub-meter location will have to be manually read. Alternately, the submeters could be networked to an Energy Management System (EMS) to facilitate remote reading of the sub-meters.

4.6 Low Voltage Reticulation

Low voltage power distribution for the foreshore area originates from the pole mounted substation at the northern end of the site and is distributed via and existing pole & wire aerial system. The existing power poles and insulated Aerial Bundled Cabling (ABC) are in good condition. It is considered that this reticulation can be retained to service the new development (subject to capacity calculations during detailed design).

Some poles and cabling may have to be relocated to suit the new roadway and car parking arrangements. The existing aerial system will also have to be extended to service the new roadway and car park lighting. Car park and roadway lighting can be installed to these power distribution poles.

The café building and external lighting cabinet will require new fused take-offs from the low voltage aerial supply system.

It is suggested that the existing aerial power distribution concept be retained for the site to avoid the excavation of rock for underground conduiting.

4.7 Switchboards

The existing externally mounted switchboards on the Administration Building are nearing the end of their reliable service life and should be replaced as part of the upgrade works for the Visitor Center facility. The replacement switchboard can be located in a new external cupboard or internal cupboard as noted on the services drawings. The existing aerial attachment point for power to the building can be retained and it would be advantageous to locate the new building switchboard near this location if possible.

The existing Administration building appears to contain a dual supply from the mains as well as the existing site generator. The Visitor Centre would be a considered a non-critical facility so the existing generator supply could be isolated and left unused.

Electric vehicle charging stations (if required) can be powered from the new Visitor Center switchboard and sub-metered if necessary.

Existing power provisions to the café/dinning buildings are dilapidated and will require complete replacement. It appears that the existing buildings were supplied from a small underground service originating grom a nearby power pole. A new aerial supply will be required from this power pole to the building and terminated into a new wall mounted switchboard, as indicated on the electrical services drawings.

The existing external lighting to the site comprises pole mounted fluorescent lighting tapped off from the existing aerial power pole network. The existing external lighting is in poor condition and will require replacement with new LED pole mounted lighting. The external lighting arrangement will also have to be expanded to the new roads, car parks and pathways. It is recommended that a new external weatherproof lighting cabinet be established as indicated on the services drawings.

All new external lighting would be distributed from this central lighting cabinet location by new separate aerial cabling circuits attached to the power poles. Existing old lighting circuits would be disconnected and made good. The new proposed arrangement will allow all the external lighting to be separately sub-metered from the new lighting cabinet.

4.8 Telecommunications

The site contains an existing Telstra pit and conduit network that was used to distribute telephone services to the island and foreshore buildings. The condition of the network is unknown.

Application will have to be made to NBN to upgrade the network with NBN facilities.

It is likely that the existing pit and conduit system to the Visitor Centre building can be reused if it is in serviceable condition. New lines will have to be installed from the existing network to the café building.

4.9 Other Existing Services

Other services traverse the foreshore to service the island, the cluster of building to the north and the Visitor Centre site. These services include:

- 11KV High Voltage (HV) aerial power lines
- Fire Indicator Panel outbuilding and cabling reticulation
- Telecommunications cable reticulation and pits.

Relocating these services work involve major infrastructure works. It is recommended that these services be left in situ and the proposed new roads and car parking facilities be arrangement to avoid clashes with these services.

5 Fire Protection Services

5.1 Included Works

The following systems are captured within this report:

- Smoke alarm system,
- Fire hose reels, and
- Portable fire extinguishers and fire blankets.

5.2 Excluded Works

The following systems are captured within this report:

- Fire hydrant system,
- Fire sprinkler system,
- Fire detection system,
- Emergency warning and intercommunication system (EWIS),
- Deluge sprinkler system,
- Gas suppression system, and
- Development and justification of performance solutions.

5.3 Compliance Standard and Codes

The fire services will be designed in accordance with the current version of the following standards, codes, and guidelines:

NCC 2022	National Construction Code
AS 2444	Portable fire extinguishers and fire blankets – Selection and location
AS 2441	Installation of fire hose reels
AS 3786	Smoke alarms using scattered light, transmitted light or ionization (ISO 12239:2021, MOD)
AS 3500.1	Plumbing and drainage part 1 - Water services

5.4 Design Criteria

It is noted that the site (including the area to the North which is outside the scope of this return brief) is currently provided with external fire hydrants and fire hose reels throughout, as well as a Master Fire Indicator Panel serving the entire site. It was also observed on site that the current administration building is provided with fire sprinklers.

Based on the following assumptions, it is understood that the new buildings do not require fire hydrants, hose reels or fire sprinklers:

- Cultural Centre – mixed use NCC Class 9b and Class 4, building height < 25m, building floor area < 500m^2

- Cafe – mixed use NCC Class 6, building height < 25m, building floor area < 500m²

However, as the provisions may be part of a larger site fire protection strategy, it is recommended that this be reviewed at a later stage. As it is expected that any potential hydrant requirement could be fulfilled by external hydrants, impacts on spatial planning due to any potential need for fire hydrants or sprinklers are envisaged to be minimal.

5.5 Smoke Alarm System

A smoke alarm system will be provided to Class 4 parts of the Cultural Centre. The smoke alarm system will be designed in accordance with NCC 2022 Specification S20C3.

5.6 Fire Hose Reels

As internal fire hydrants are not installed and no building exceeds 500m², internal hydrants are not required. As advised by the Jetty designer, a fire hose reel is required at the Jetty. Water supply to hose reel will be fed from new water main connected to the existing site water main. Minimum pressure and flow rate to fire hose reel is 220 kPa and 0.33l/, in accordance with the requirements of AS 2441.

5.7 Portable Fire Extinguishers and Blankets

Portable fire extinguishers and fire blankets to satisfy the requirements of the Building Code of Australia, NSW Rural Fire Service, and the local authorities shall throughout the development in accordance with the requirements of the AS 2444-2001 standard and BCA Clause E1D14.

6 Hydraulic Services

6.1 Included Works

The following systems are captured within this report:

- Domestic cold water reticulation system,
- Domestic hot water reticulation system,
- Non-potable cold water reticulation system,
- Gas system,
- Sanitary drainage system,
- Trade waste drainage system, and
- Rainwater drainage system.

6.2 Excluded Works

The following systems are not within the scope of this report:

- Café tenancy fitout
- Sitewide stormwater drainage system,
- Sitewide sewer drainage system,
- Sitewide water system,
- Authority utility connections
- Application for adjustment, amplification, extension, or diversion of any authority asset.

6.3 Compliance Standards and Codes

The hydraulic services will be designed in accordance with the current version of the following standards, codes, and guidelines:

AS/NZS 3500.1:2021 Plumbing and Drainage Part 1: Water Services

AS/NZS 3500.2:2021 Plumbing and Drainage Part 2: Sanitary Plumbing and Drainage

AS/NZS 3500.3:2021 Plumbing and Drainage Part 3: Stormwater Drainage

AS/NZS 3500.4:2021 Plumbing and Drainage Part 4: Heated Water Services

AS/NZS 5601.1:2022 Gas Installation

The systems will be designed and installed to conform with/to the approval of:

- Central Coast Council
- NSW Rural Fire Service (NSW RFS),
- Fire Engineering Report (FER),
- BCA Report,
- National Construction Code (NCC/BCA),
- Any other authorities having jurisdiction.

6.4 Design Criteria

Criteria	Performance
Cold water	AS/NZS 3500.1:2021
Fixture operational pressures	250-500kPa. Provide pressure-reducing valves where necessary
Flow velocities	Maximum velocity - 1.6m/s
Backflow protection	Any potential cross-connection and backflow risks shall be treated in accordance with AS 3500.1 and Central Coast Council requirements
Water Meters	Provide pulse-type water meters for domestic cold water supplies as specified
Hot Water	AS/NZS 3500.4
Fixture operational pressures	250-500kPa. Provide pressure-reducing valves where necessary
Flow velocities	Maximum hot water flow velocity - 1.2m/s Maximum hot water return velocity - 1.0m/s
Heated Water Temperature	Commercial kitchen - 60ºC Accessible amenities - 43.5ºC Amenities - 50°C Cleaner's sinks - 50°C
Efficiency	Provide insulation for all hot/tempered water pipework as specified.
System Expansion	Provision for expansion loops to all hot water pipework in accordance with AS3500.4:2021
Hot water branches	Hot water branches shall be limited to a maximum length of 12m
Sewer Drainage	AS/NZS 3500.2:2021
Trade waste drainage	In accordance with the requirements of Central Coast Council Trade Waste policy and AS3500.2:2021
Rainwater Drainage	AS/NZS 3500.3:2021
Rainfall intensity	1% AEP, 5min duration – 262mm/hr 5% AEP, 5min duration – 200mm/hr

6.5 Domestic Cold Water System

6.5.1 Café Building

A new incoming water main will be extended to the building from existing site potable water main. Water submeter will be provided monitor café water consumption.

Domestic cold-water supply is provided to serve all sanitary fixtures and equipment in public toilets, commercial kitchen and hose taps.

The isolation valves shall be positioned in readily accessible positions for maintenance purposes.

A backflow prevention device (RPZD) will be provided for high-hazard areas, specifically grease arrestor and sewer pumping system as required by AS 3500.1.

Main stop valves for each group of fixtures and isolation valves for individual fixtures and tapware will be provided to allow isolation for maintenance without undue effect on the other fixtures. Pressure-reducing valves are installed to safeguard against overpressure when it is required.

6.5.2 Cultural Centre Building

New incoming water main will be extended from the existing site potable water main to the building. Domestic cold-water supply is provided to serve cultural centre and caretaker accommodation sanitary fixtures and equipment.

The isolation valves shall be positioned in readily accessible positions for maintenance purposes.

Two water submeters will be provided, to culture centre and caretaker accommodation.

6.6 Domestic Hot Water System

6.6.1 Café Building

Domestic hot water system consists of hot water storage tank, thermostatic mixing valves, isolation valves will be provided to public toilet basins and commercial kitchen. Two water submeters will be provided, to public toilets and commercial kitchen.

6.6.2 Cultural Centre Building

Domestic hot water system consists of hot water storage tank, thermostatic mixing valves, isolation valves will be provided to basins, showers, kitchen sinks, laundry sink and dishwasher. Two water submeters will be provided, to cultural centre and caretaker accommodation.

6.7 Gas System

6.7.1 Café Building

Gas system will be provided if there is insufficient electrical supply to site. LPG gas bottles will be provided, and gas will reticulate commercial kitchen.PG gas bottles are to be located externally in accordance to AS 5601.1

6.7.2 Cultural Centre Building

Gas will not be provided to cultural centre.

6.8 Sewer Drainage System

6.8.1 Café Building

A gravity sewer drainage system will be provided to serve all sanitary fixtures in public toilet,commercial kitchen, domestic hot water tank temperature relief valve discharge and outdoor air conditioning units condensate discharge.

The sewer drainage system will consist of all in-ground sewer pipework, vents and inground sewer pump out pit and pumps.

6.8.2 Cultural Centre Building

A gravity sewer drainage system will be provided to serve all sanitary fixtures in cultural centre, caretaker residence, domestic hot water tank temperature relief valve discharge and outdoor air conditioning units condensate discharge.

The sewer drainage system will consist of all in-ground sewer pipework and vents. Sewer will connect to existing sewer drainage the existing building is connected to.

6.9 Trade Waste Drainage System

6.9.1 Café Building

A gravity trade waste system will be provided to all sanitary fixtures in commercial kitchen that is considered as trade waste. The trade waste drainage system will consist of all in-ground pipework, vents and inground grease arrestor. The grease arrestor will be located external inground and accessible by liquid trade waste truck hose.

6.9.2 Cultural Centre Building

No requirement for trade waste.

6.10 Rainwater Drainage System

6.10.1 Café Building

Rainwater drainage systems will be provided to collect rainfall run-off from the Café's roof.

Rainwater will be directed by guttering, downpipes, and drains to the civil stormwater drainage system located externally in accordance with requirements of the local authority, the NCC and Australian standards.

6.10.2 Cultural Centre Building

There is no requirement for new roof drainage system. This is based on the assumptions that the existing roof will remain, the existing gutter and downpipes are in good conditions.

A. Building Services Spatial Requirements

EXISTING BUILDING SWITCHBOARD, SURGE PROTECTION AND GENERATOR LOAD SHED CONTROL ENCLOSURES. REPLACE WITH 1.2m x 0.4m x 2m(D) EXTERNAL OR INTERNAL CUPBOARD IN SIMILAR LOCATION

8,800 CULTURAL CENTRE | 5,550 RECEPTION / OFFICE | 3,700 OFFICE | 3,700 BED 2 | 3,705 DINING

EXTERNAL POWER AERIAL CONNECTIONS TO BUILDING EVES TO REMAIN

EXISTING CONCRETE PATH

1.5m x 1.2m FENCED OFF AREA FOR AIR CONDITIONING OUTDOOR UNIT

NEW EXTERNAL NBN ENCLOSURE 0.1m x 0.1m x 0.15m(H)

1.5m x 0.8m FENCED OFF AREA FOR AIR CONDITIONING OUTDOOR UNIT

PLANTROOM / RISER LEGEND

- FIRE PROTECTION
- MECHANICAL
- HYDRAULIC
- LV ELECTRICAL
- PLANTROOM / RISER ENCLOSURE
- RISER BOOT (AT HIGH LEVEL ONLY)
- FIRE RATED CONSTRUCTION
- SMOKE RATED CONSTRUCTION
- ACCESS / MAINTENANCE

CULTURAL CENTRE VNL 87m²

3,630 RECEPTION / OFFICE

RECEPTION / OFFICE VNL

OFFICE CPT

2,545 WC

2,650 KITCHEN

2,400 ACC WC

WC CT

ACC WC CT

3,450 BED 2

4,250 BED 1

4,350 DINING

1,400

1,200 LDY

4,050 KITCHEN

4,150 LIVING

2,750 BATH

F WC

STAFF OUTDOOR AREA CONC

STAFF WC VNL

DOMESTIC COLD AND HOT WATER SUBMETERS TO CARETAKER AND CULTURAL CENTRE

ELECTRIC HOT WATER STORAGE TANK AND HOT WATER RETURN PUMP 1.2m x 0.8m x 2m(H)

EXISTING ENTRY RAMP

CONNECT TO INCOMING WATER MAIN. REFER TO SITE INFRASTRUCTURE PLAN

WALL MOUNTED COMMUNICATIONS CABINET 0.6m x 0.4m x 0.45m(H)

* IF CLIENT REQUIRES ADDITIONAL EQUIPMENT CAPACITY, e.g. TO CONTAIN SERVERS, CCTV RECOVER, SECURITY SYSTEM, AUDIO VISUAL EQUIPMENT ETC:
0.6m x 0.6m x 1.2m(H) FREE STANDING (OR CUPBOARD ENCLOSED) COMMS CABINET REQUIRED

2,050 | 900 WC

8,800 CULTURAL CENTRE | 3,050 ACC WC | 3,300 KITCHEN | 2,710 OFFICE | 3,645 STAFF WC | 3,125 KITCHEN | 4,275 LIVING

REPLACEMENT TV ANTENNA ON ROOF AND POSSIBLE PAY TV DISH IF REQUIRED

EXISTING WALLS TO REMAIN

NEW WALLS

PRELIMINARY DEVELOPMENT APPLICATION

MOTT MACDONALD

Project Title	Peel Island Development - Mooney Mooney
Sketch Title	703102257 Building Services Spatial Sketch
Sketch No.	1
Date	13/12/2024
Rev	C
Author	DY/PR/TL
Checker	BS
Reason for Issue	Spatial Planning

CKDS

Architecture | Planning | Interiors

NEWCASTLE
Level 3, 23 Watt St (P.O. Box 668)
Newcastle NSW 2300
P 02 4929 1643

CENTRAL COAST
1/28 Adelaide St (P.O. Box 4400)
East Gosford NSW 2250
P 02 4321 0503

www.ckds.com.au
E admin@ckds.com.au
ABN 12 129 231 258
Nominated Architects: Caine King NSW ARB 7974 / Stuart Campbell NSW ARB 7545

North Point

Mooney Mooney Foreshore Development
project # 24108
Pacific Highway,
MOONEY MOONEY, NSW 2083

Cultural Centre Floor Plan
drawing # DA-110-001 | issue 01
1:100 @ A3 | 29/11/2024

NEW INCOMING ELECTRICAL AND COMMS SUPPLY FROM EXISTING LOW VOLTAGE POLE NEAR ROAD EITHER AERIAL SUPPLY OR UNDERGROUND CONDUITS EXCAVATED THROUGH ROCK

CONNECT TO PUMPOUT LINE REFER TO SITE INFRASTRUCTURE PLAN

NEW EXTERNAL NBN ENCLOSURE
0.1m x 0.1m x 0.15m(H)

NEW AMENITIES ADDITION

1.5m x 0.8m FENCED OFF AREA FOR AIR CONDITIONING OUTDOOR UNIT

NEW EXTERNAL STEEL POSTS TO SUPPORT ROOF OVER

NEW WALL MOUNTED ELECTRICAL DISTRIBUTION CUPBOARD WITH HINGED LOCKABLE COVER. EITHER MOUNTED INTERNALLY OR EXTERNALLY (WEATHERPROOF).
LOCATION TO SUIT ARCHITECTURAL LAYOUT
0.6m x 0.2m x 0.8m(H)

PROPOSED PATH

NEW STEEL POSTS TO SUPPORT ROOF OVER

SEWER PUMPOUT
1m DIAMETER

CONTROL PANEL

1,350
1,600
12,227
900
900
6,127
1,827
1,402
6,425
890
6,125
11,925
9,108

WC
CT

ACC WC
CT

DINING
EPX
55m²

COURTYARD
PV
65m²

ROCK OUTCROP

DECK
TDB
95m²

SINK
DW
SS BENCH
ST
DRY STORE
SS BENCH
FRY
SS BENCH
CT / O
KITCHEN
EPX
55m²
COOL ROOM
SS BENCH
F
1,000.00 mm
1,000.00 mm

LP GAS CYLINDERS
2m x 0.6m x 1.4m(H)
1m MINIMUM DISTANCE FROM DOOR AS REQUIRED BY AS5601

HOT WATER STORAGE TANK AND HOT WATER RETURN PUMP
1.2m x 1m x 2m(H)
1m MINIMUM DISTANCE FROM DOOR AS REQUIRED BY AS5601

NEW HEBEL INTERNAL SKIN TO EXISTING WALL. RENDER FINISH.

INGROUND GREASE ARRESTOR
3m x 1.2m x 2m(DEEP)

WATER METER WITH BACKFLOW PREVENTION
1.4m x 0.4m x 0.5m(H)

CONNECT TO INCOMING WATER MAIN. REFER TO SITE INFRASTRUCTURE PLAN

EXISTING WALLS TO REMAIN
NEW WALLS

KITCHEN LEGEND:

CT / 0	8 BURNER COOKTOP WITH OVEN UNDER
FRY	DEEP FRYER
DW	COMERCIAL DISHWASHER
F	FRIDGE

PLANTROOM / RISER LEGEND

- FIRE PROTECTION
- MECHANICAL
- HYDRAULIC
- LV ELECTRICAL
- PLANTROOM / RISER ENCLOSURE
- RISER BOOT (AT HIGH LEVEL ONLY)
- FIRE RATED CONSTRUCTION
- SMOKE RATED CONSTRUCTION
- ACCESS / MAINTENANCE

PRELIMINARY DEVELOPMENT APPLICATION

MOTT MACDONALD

Project Title	Peat Island Development - Mooney Mooney		
Sketch Title	703102257 Building Services Spatial Sketch		
Sketch No.	1		
Date	13/12/2024	Rev	C
Author	DY/PR/TL	Checker	BS
Reason for Issue	Spatial Planning		

CKDS

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Mooney Mooney Foreshore Development
project # 24108
Pacific Highway,
MOONEY MOONEY, NSW 2083

Cafe Floor Plan
drawing # DA-110-002
issue 01
1:100 @ A3
29/11/2024

B. Site Services Plan

LEGEND

- SITE BOUNDARY
- CADASTRAL BOUNDARY
- RIPARIAN CORRIDOR BOUNDARY
- PROPOSED SURFACE / KERB INLET PIT
- PROPOSED DRAINAGE PIPE
- PROPOSED RAINGARDEN
- E(D) — UNDER GROUND ELECTRICAL (QL D)
- PP, STAY, SL — POWER POLE / STAY POLE / STREET LIGHT
- EPIT — ELECTRICAL PIT
- COMM(D) — UNDER GROUND COMMS CABLE (QL D)
- TEL — COMMS PIT
- W(B) — WATER MAIN (QL D)
- SV, TAP, HYD — STOP VALVE / WATER TAP / HYDRANT
- W — WATER TAPPING BAND
- S(D) — UNDERGROUND SEWER LINE
- SMH — SEWER MANHOLE
- DRAINAGE LINE AND INLET PIT
- HEADWALL

GENERAL NOTES

1. NEW SERVICES CONNECTION SHOWN ARE INDICATIVE ONLY. THE FINAL SERVICES ROUTE TO BE DETERMINED IN THE DETAILED DESIGN STAGE
2. LOCATION OF SHOWN EXISTING SEWER AND POTABLE WATER ARE INDICATIVE ONLY AND EXACT LOCATION OF THE EXISTING SEWER AND POTABLE WATER ARE SUBJECT TO FURTHER SITE SURVEY INVESTIGATION WORKS TO BE COMPLETED IN THE DETAILED DESIGN STAGE

CAFE BUILDING WATER SUBMETER

CONNECT TO EXISTING SITE WATER MAIN

CULTURAL CENTRE BUILDING WATER SUBMETERS

TO EXISTING SEWER PUMP STATION

EXISTING ELECTRICAL INFRASTRUCTURE LOCATED AT THE NORTHERN END OF THE SITE AND INCLUDES POLE MOUNTED SUBSTATION, GENERATOR AND MAIN SUPPLY AUTHORITY METERING. SERVICES ARE DISTRIBUTED THROUGHOUT THE SITE BY A POLE AND WIRE AERIAL SYSTEM, IN GOOD CONDITION.

ELECTRIC VEHICLE DUAL CHARGING STATION PEDESTAL (LOCATION TO SUITE)

NEW WEATHERPROOF ELECTRICAL ENCLOSURE FOR ROAD LIGHTING, CAR PARK LIGHTING AND JETTY LIGHTING SWITCHBOARD AND SUB-METERING EQUIPMENT EITHER MOUNTED TO ELECTRICAL POLE: (600w x 600h x 250d) OR FREE STANDING CABINET: (600w x 1200h x 250d)

NEW CAR-PARK AND ROADWAY POLE LIGHTING THROUGHOUT. LIGHT POLES TO INCLUDE CCTV CAMERAS IF REQUIRED. EXTEND EXISTING POLE AND AERIAL CABLING SYSTEM.

UPGRADED BOOM GATE, INTERCOM AND CCTV EQUIPMENT

DEVELOPMENT APPLICATION

MOTT MACDONALD
Level 10, 383 Kent Street
Sydney, NSW 2000
Australia
NSW 1230, Australia
PO Box Q1678, QVB Sydney
T +61 (0)2 9098 6800
W www.mottmac.com

Rev	Date	Description	Ch'k'd	App'd
01	13.12.24	ISSUE FOR DEVELOPMENT APPICATION	FK	BS

SCALE 1:500 (0, 25m, 50m)

CLIENT
DARKINJUNG LOCAL ABORIGINAL LAND COUNCIL
168 PACIFIC HWY, WATANOBBI
NSW, 2259
e: darkinjung@dlalc.org.au

TITLE
PEAT ISLAND FORESHORE DEVELOPMENT
1 PEATS FERRY RD, MOONEY MOONEY
COMBINED SERVICES PLAN

DRAWING INFORMATION

Drawn:	J. O	Revision:	01
Designed:	M. SMITH	Status:	DA
Checked:	F. KAZEMI	Security:	STD
Approved:	B. SOO		

DRAWING NUMBER
MMD-102257-C-DR-01-DA-0900

ISO A1 594mm x 841mm

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