

Lot 67 and 68 Myall Road, Garden Suburb

Building Services Report

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1 Introduction

As part of the NSW Government's commitment to increasing the supply of affordable housing, Landcom has pledged to deliver 1,800 affordable rental housing dwellings by 2029 under the Housing Accord. As part of this commitment, Landcom intend to deliver 69 affordable housing dwellings across two lots within the Landcom Garden Suburb Project site. Landcom is seeking to deliver the proposal as 'development without consent' through the State Environmental Planning Policy (Housing) 2021 (Housing SEPP) by way of a Review of Environmental Factors (REF) under Part 5 of the Environmental Planning and Assessment Act 1979.

This Building Services report has been prepared by Meinhardt to accompany the REF.

2 Project Background

Landcom's Garden Suburb Project has been subject to a Development Application (DA/1284/2013) which was approved by the Hunter and Central Coast Regional Planning Panel on 20 December 2020, subject to deferred commencement conditions. The DA comprises the subdivision of lands and allows for development on the site for 66 residential allotments, 3 super lots & 3 conservation lots plus roads, landscaping, on-site detention and remediation works. Physical works have commenced on the subdivision. Lot 67 and 68 are two of the identified super lots and have been allocated for affordable housing and form part of the Garden Suburb Affordable Housing Project.

The overall site has recently been considered as part of a planning proposal to change the zoning of the site as well as building height and lot size under the Lake Macquarie LEP 2014. This change was undertaken to standardise the development controls for the site and remove the impediments to the site from the outdated Lake Macquarie LEP 1984 that was applicable to most of the land. This REF, development plans and specialist reporting has been undertaken concurrently with the rezoning to expedite the delivery of affordable housing at the site.

3 Proposed Development

To meet Landcom's commitment under the Housing Accord, Landcom is seeking to develop Lot 67 and Lot 68 for the purpose of affordable housing. The proposal includes a mix of terrace housing and residential flat buildings as well as associated servicing and landscaping. This will deliver 69 affordable housing dwellings comprising the following with 8 dwellings design to be adaptable:

Lot 67: 36 Dwellings

- 1B = 18 Apt.
- 2B = 9 Apt + 5 Terraces
- 3B = 3 Apt + 1 Terrace

Lot 68: 33 Dwellings

- 1B = 15 Apt.
- 2B = 12 Terraces
- 3B = 6 Apt.

The proposal will comprise of four built forms including two residential flat buildings and two townhouse developments, with each lot containing one residential flat building and one row of townhouses. The residential flat buildings have been positioned to address Myall Road and will be three storeys in height. The townhouses will address Premier Street and are to be two storeys in height.

Vehicular access to the site will be via Premier Circuit to the south. Each lot will be serviced by a vehicular driveway and onsite parking via basement parking beneath the residential flat buildings. To support the dwellings, a total of 19 parking spaces at Lot 67 and 18 parking spaces at Lot 68 are being provided. Accessible parking has also been included as part of the proposal.

Pedestrian access to the site will be via Trophy Avenue and Premier Circuit. Internal pedestrian paths are located within each lot, connecting the dwellings to communal open space, car parking, waste facilities and the external pedestrian network.

Landcom will deliver the affordable housing, and it is understood it will be managed in the future by a Community Housing Provider (CHP). It is anticipated that the affordable housing project will be delivered in 2028.

The proposed development site is in the Lake Macquarie Local Government Area within the Garden Suburb masterplan.

4 Site Information

4.1 Overall Site

The site of the whole subdivision is located in Garden Suburb, within the Lake Macquarie LGA. The property details are:

9A, 69 and 82 Myall Road, Garden Suburb, legally described as:

- Lot 1 DP 1168657,
- Lot 10 DP 1011323, and
- Lot 50 DP 1301215.

The site is irregular in shape and comprises a total area of approximately 38.88ha. Myall Road intersects the overall site within its northwestern portion. To reflect this, the site has been divided into two precincts, the northern precinct and the southern precinct. The northern precinct comprises Lot 1 DP 1168657 and is the land situated to the north of Myall Road. The southern precinct comprises Lot 10 DP 1011323 and Lot 50 DP 1301215 and is the land situated to the south of Myall Road.

The proposed affordable housing project is located within the southern precinct within Lot 50 DP 1301215.

The southern precinct comprises a mix of vegetated land and land that has been cleared to facilitate the approved residential subdivision under DA/1284/2013. The precinct has an approximate size of 37.15ha. The site is bound by Myall Road to the north, existing residential properties to the south and west and a sports field, hostel/aged care, some undeveloped vegetated land and the Newcastle Inner City Bypass to the east. A watercourse traverses the southern boundary of the site from east to west. The watercourse forms one of the tributaries of Winding Creek. This area of the site slopes upward from the south-western corner, toward Myall Road.

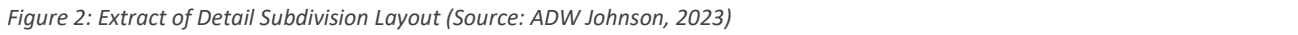
An aerial image illustrating the overall site and its features is included in Figure 1. The aerial image shows the recent site clearing in association with the approved residential subdivision.



Figure 1: Aerial View of Site (Source: NearMap. Image Date 17.08.2025)

4.2 Affordable Housing Site

The affordable housing site is located within the northern portion of Lot 50 within the southern precinct. The proposal will be developed across Lots 67 and 68 as shown in blue on the extract of the masterplan in Figure 2. These sites have been cleared of vegetation to accommodate future development. The sites are located on the southern side of Myall Road and will be accessible from vehicle via proposed internal access roads that will service the approved subdivision. The sites slope upward, toward Myall Road.



5 Electrical Services

Scope

The electrical services will contain the following overall systems:

- Substation
- Mains
- Site main switchboard
- Sub mains
- Distribution boards
- Electricity distribution, reticulation and metering system
- General lighting system
- General power system
- Emergency and exit lighting system
- Telecommunications infrastructure for phones and broadband
- Access control and security system consisting of closed circuit television (CCTV)
- Free-to-air MATV system
- Intercom system

Design Standards

All designs shall comply with the following codes and standards and the client's brief:

- National Construction Code 2022
- Building Regulations
- All relevant Australian Standards and Codes
- Local Power Supply Authority requirements –
- NSW Supply and Installation Rules
- Local Council requirements – City of Newcastle Council
- BCA Consultant Report
- Basix Report requirements
- AS/NZS 3000 “Wiring Rules”
- AS/NZS 3008 “AS NZS 3008.1.1-1998 Electrical installations - Selection of cables”
- AS/NZS 1680.1 “Interior lighting: General principles and recommendations”
- AS/NZS 2293.1 “Emergency lighting and exit signs for buildings System design, installation and operation.”
- AS 1768:2021 “Lightning protection”
- AS/NZS 2201.1-2007 “Intruder alarm systems”
- AS/NZS 1158.3.1:2020 “Lighting for roads and public spaces Pedestrian area (Category P) lighting - Performance and design requirements.”
- AS/NZS 4282:2019 “Control of the obtrusive effects of outdoor lighting”

Electrical Supply

The maximum demand for this project has been calculated with 625kVA, so it is anticipated that a new kiosk substation will be required for this project. 24-hour access is required to the substation. Level 3 ASP designer will provide the substation dimensions and rating. It is currently proposed that the sub-station be located on the ground floor. The final location of the substation is to be coordinated between the level 3 ASP designer and the architect.

Two Incoming LV power cables from the new kiosk substation will be reticulated underground via UPVS conduit to the location of two main switchboard rooms located in the basement of Lot 67 and Lot 68.

Electrical Main Switchboard

The Main Switchboards will be located within 2-hour fire-rated Main Switch Rooms, each provided with two outward-opening egress doors and positioned as close as possible to the substation. The current proposed locations for the Main Switch Rooms are on each basement level.

Two Main Switchboards are proposed for this project. The main switchboards will be front access, floor mounted, top cable entry/exit, Form 3B construction, minimum to IP42 rated, and with fault level to power authority requirement and surge protection.

The fire-rated consumer mains will be reticulated from the substation to the main switchboards via underground conduits and a cable tray.

Submain protection will be provided by circuit breakers with adequate fault rating capacity to withstand the expected fault current. The circuit breakers will be selected to ensure full discrimination and will be sized based on the calculated maximum demand for each lot.

The main switchboards will consist of 3 sections:

- Essential section (safety services) – for safety equipment
- Metered section – serve public area and house services
- Un-metered section – apartments, EV charging system

Each section of the MSBs will have a minimum of 20% spare modules for future circuit breakers.

Authority Metering

Authority metering will be provided per respective authority's requirements. Each apartment and terrace will require a separate authority meter.

The authority metering panels for the apartments will be located on each building floor within the electrical riser cupboards. The authority metering panels for the terrace lots will be located in the Main Switch Rooms for each lot, while all other authority meters will be installed within the Main Switchboard Rooms.

Underground conduits shall be provided for power reticulation from the Main Switchboard (MSB) to the associated electrical pit. From each electrical pit, separate underground conduits shall be installed to supply power to the distribution board of each terrace lot.

Body corporate check metering will be provided to comply with NCC Section J requirements, covering

- Vertical transportation services
- Mechanical services
- Hydraulic services
- Common areas lighting and power
- Body corporate renewable energy generation system (solar photovoltaic)

These meters will be located within the Main Switchboards and House Distribution Boards.

Distribution Boards

House electrical distribution boards serving general lighting and power will be of 3-phase supply complete with split chassis – for lighting and power. They will be of Form 1 construction and IP42 rated. The House Distribution Boards will have 20% spare space.

Single-phase load centres will be provided to each apartment for electricity distribution within the apartment. The location of the apartment load centres will be coordinated with the Architect at the detail design stage.

The distribution boards will be constructed as follows:

- Form 1
- IP 42 rated
- Front connected
- Surge protection
- Energy meters (lighting and power)
- RCD protection to all outgoing sub-circuits per AS/NZS 3000 requirements
- Minimum of 25% spare capacity (Busbar ratings & Spare MCCB slots)
- Distribution boards will be housed in dedicated cupboard enclosures with lockable doors.

Submains

Submains will originate from the Main Switchboard of each building and will be reticulated to the following:

- The meter panels serving the apartments
- House light and power switchboards
- Mechanical services switchboards
- Hydraulic services equipment, control panels
- Fire service panels
- Lifts
- EV charging system switchboards

Submain cabling from each Main Switchboard within the buildings will be reticulated throughout the building to the respective electrical distribution boards and load centres.

Submain cabling will be run on a system of cable trays.

Submain cabling for fire and life safety-related services will be fire-rated cables with copper conductors, and submain cabling for other services will be XLPE/PVC and stranded copper cables.

The cable type and size will be selected to comply with AS3008 and AS/NZS 3000 requirements.

General Power

General Power Outlets (GPOs) will be provided to each apartment.

GPOs and cleaner outlets will be provided to public areas.

Dedicated power supply will be provided to mechanical services, hydraulic services, vertical transportation, and fire services.

The location of power outlets in each apartment will be determined in conjunction with the Architect and the Client.

Lighting and Lighting Control System

Interior and exterior lighting design is generally carried out based on the recommendations AS/NZS 1680, AS /NZS 1158.3.1, NCC Section J, and BASIX report. All luminaires will be of LED-type light fittings and will be controlled as follows:

- Basement car park light fittings will be provided with motion detectors. At the main car park entry, luminaires are set to be controlled by a digital time clock and PE cell controls
- Exterior lighting will be controlled by photoelectric (PE) cells and a digital time clock
- Corridor lighting will be controlled by motion detectors

A local light switch will control apartment lighting.

Lighting will be provided to all areas within the building that are part of this project.

The exact fitting locations and types of details will be determined in conjunction with the architect and client. The landscape lighting design will be coordinated with the landscape consultant.

Exit and Emergency Lights

Emergency lighting and exit signs will be provided in accordance with the mandatory requirements of AS/NZS 2293.

An exit and emergency lighting system with suitable testing facilities will be provided. Emergency and Exit lights will be LEDs.

Digital Master Antenna Television (MATV)

A digital free-to-air Master Antenna Television (MATV) system will be provided for each building. The system will comprise the following components:

- VHF/UHF high-gain antenna, suitable for digital TV
- Individual channel amplifiers
- Backbone cable and splitters
- Horizontal cabling and MATV outlets

MATV outlets will be provided to each apartment and communal areas (locations to be nominated by architect and client)

COMMUNICATIONS

Each building will have two main communications rooms located in the basement.

Fibre optic back bone cabling will be provided to the new development. The provider can be NBN or selected approved services provider.

The NBN works will comprise:

- In-ground white communications lead-in conduits will be provided from the property boundary to the Main Communications Rooms located in the basements of each building
- Each Main Communications Room shall accommodate a Building Fibre Device (BFD), such as a BUDI-1S, along with a Fibre Distribution Terminal (FDT).
- Communication riser cupboard on all floors for NBN backbone cables
- Communication cable trays and conduits shall be provided throughout the facilities, extending from the Main Communications Room in each building to the respective Splitter Distribution Terminals (SDTs) located within the communications riser cupboards. The SDTs shall distribute services to the Network Termination Devices (NTDs) within the apartments.
- Underground conduits shall be provided for fibre reticulation from the Fibre Distribution Terminal (FDT) located in the basement communications room to the communication pits, and from the pits to all terrace NTDs.
- Provision of access along the public corridors
- Provision of NTD enclosure in each apartment and terrace.
- Provision of 240V power supply as required

Apartment communications hub:

- Located in store cupboard within each apartment and terrace (final location to be confirmed with the architect)
- Containing apartment and terrace NBN devices mounted to meet NBN and Australian standards clearance requirements
- Data wall plates for patching to apartment and terrace data outlets. The horizontal cabling will be to Category 6A standard.

The following will be provided with Network Terminal Device (NTD):

- Security system
- Each lift
- Body corporate (if needed)
- Fire Indicator Panel

Body corporate structured cabling system:

- Main communication racks located in the main comms rooms in each building.
- Provide data outlets as required. The horizontal cabling will be to Category 6A standard.

Audio/Video Intercom

A two-way IP audio/video intercom system will be provided. This system shall interface with the security access control system.

Intercom door stations are to be located as follows:

- Residential Lobby entry doors
- Carpark entry
- Carpark level lift lobby

Intercom handsets are to be located as follows:

- Living room (one unit) in apartments
- Entry lobby

Security

A security access control system will be provided, consisting of headend equipment, a control panel, proximity card readers, electric door locks, field controllers, and associated operating software.

- Each residential unit owner will be provided with two (2) access cards or fobs. The access card will be programmed to allow occupants to access their floor level (only) and secure doors leading to communal areas. Additional access cards can be arranged subject to future Building Management agreements.
- Card reader will be located at main entrances, all doors separating the residential section of the building from the services area, all external doors, car park entrance, within each lift, and doors to common facilities
- An induction loop will be provided to allow cars to exit the basement carpark
- Reed switches will monitor external perimeter doors
- Interface with passenger lift control system.
- Interface with intercom system.
- Interface with security CCTV system

The security system will be interfaced to the FIP to release any secured doors in the path of egress.

The head end for the security system will be located in the communications room.

Provision of IP Closed Circuit Television (CCTV) system in the areas nominated by the client.

Lightning protection

Lightning protection assessment will be provided. The lightning protection system shall be in accordance with AS 1768.

6 Mechanical Services

Standards

- AS 1668.1 2015 Fire & Smoke Control in Buildings
- AS 1668.2 2012 Mechanical ventilation in Buildings
- AS 1668.4 2012 Natural Ventilation of Buildings
- NCC2022 National Construction Code
- ESD – Section J Requirements
- BASIX report

Design Criteria

Solar Gain Through Glass

All shading devices and glass details, as detailed in Architect's documentation and as per BASIX Report, shall be considered.

Solar Gain Through Building Fabric

All building fabric to comply with BASIX Report and as detailed in Architect's documentation shall be taken into account.

Outside Air and People Density

Residential Apartments

Outside air will be provided to apartment units via openable windows / balcony doors as detailed in Architect's documentation and as per BCA.

People density will be based on the following:

- 1 Bedroom apartment 2 people
- 2 Bedroom apartment 3 people
- 3 Bedroom Apartment 4 people

Ground Main Lobby

Outside air will be provided via openable door as detailed in Architect's documentation and as per BCA.

People densities will be based on the architectural layouts in all other areas.

Exhaust Air and Make Up Outside Air

Exhaust air will be provided to garbage areas, pump room, kitchen areas, bathroom areas and laundry areas etc. as per AS 1668: Part 2. Supply air make up will only be provided if codes dictate. Carpark, main switch room and communication room to be naturally ventilated as per 1668.4.

Air Conditioning and Ventilation Systems Provisions

The following air conditioning and ventilation systems are proposed:

Area	System Description
Apartments	Air Conditioning – Residential Units Apartment air conditioning areas will be provided for the living room area only. The outdoor units will be located on the balconies and ground floor for the terraces. Toilet Exhaust Each unit bathroom(s) and laundry will be served by a dedicated exhaust system. The exhaust fan to be installed in the ceiling void of the bathroom and discharged horizontally over the apartment's façade in most cases. Kitchen Exhaust Each hood will be served by a dedicated exhaust system incorporating rigid ductwork. The exhaust fan to be installed in the ceiling void of the kitchen and discharged horizontally over the apartment's façade in most cases.
Car Park	The car parks will be a combination of natural and mechanical ventilation. Lot 68 shall have a mechanical supply only system and air will be drawn in from a louvre on the façade and supplied to the car park space. Air will be relieved via full height louvres above the ground level. Lot 67 will be a mechanical exhaust system with make up air coming from louvres at the façade and exhaust air being ducted via a shaft to discharge at the roof level.
Stair pressurisation	Stair pressurisation will not be required according to BCA.
Other Systems	Residential Lobby Ventilation As residential lobby is open to the environment, it shall be naturally ventilated. Garbage Rooms Ventilation Each bin room area will be naturally ventilated. Each bulky waste area shall be provided with fan assisted exhaust ventilation. There will be no garbage chute or on floor bin cupboards provided within the development Storeroom / Storage Areas Ventilation Storerooms will be provided with natural ventilation. Storage Areas within car parks will be served by car park ventilation considering cages, not partitions, enclose the storage areas. Plant rooms / public areas Natural Ventilation Fire pump room, communication room, and rainwater filtration & pump room will have a natural ventilation louvre. Lobby is to be naturally ventilated as well. Miscellaneous equipment Room Ventilation Switch rooms will be provided with supply ventilation. The air will be filtered and drawn into via a louvre and ducted to the space.

Noise Levels

The design interior noise will be as per Table 1 of AS2107 for “Recommended Design sound Level – Maximum” and / or as per Acoustic Consultant’s advice.

Controls

Air Conditioning

Residential

A wall-mounted unit shall be allowed for in the living room. The VRF air conditioning shall be controlled via a localised controller. The local controller in the space can control the temperature with the space and enable the unit to be either programmed to come on via a timer or via on/off switch.

Bathroom and Laundry Exhaust

The bathroom and laundry exhaust fan shall be interlocked with the bathroom light switch and shall run when the light is activated with run off timer, and with the laundry wall mounted fan on/off switch when the switch is in the on position.

Car Park Mechanical Ventilation

The mechanical fans shall be operator via a carbon monoxide system. The system shall monitor the carbon monoxide via a wall mounted sensor and shall turn on fans when the set level of carbon monoxide is detected.

General Ventilation

Supply and exhaust fans shall have a time clock and shall run as programmed.

7 Fire Protection Services

Scope of Works

The fire protection services will contain the following systems:

- Water supply for fire services including tanks and pumps
- Automatic fire sprinkler systems;
- Fire hydrants;
- Automatic fire alarm and detection systems;
- Emergency warning and intercommunication system;
- Portable fire extinguishers; and
- Interfaces with other services including smoke management systems/security locks etc.

Design Standards

- Building Code of Australia NCC;
- Relevant Australian Standards
 - AS 1670.1: Fire Detection & Alarm systems;
 - AS 1670.4: Emergency Warning and Intercom Systems
 - AS 1851: Maintenance of Fire Protection Systems
 - AS 2118: Automatic Fire Sprinkler Systems;
 - AS 2304: Water storage tanks for fire protection systems
 - AS 2419: Fire Hydrant installations;
 - AS 2441: Installation of Fire Hose Reels;
 - AS 2444: Portable Fire Extinguishers & Fire Blankets;
 - AS 2941: Fixed fire protection installations – Pump set systems
- NSW Supply and Installation Rules
- Council requirements
- **Water Authority Requirements – Sydney Water**
- Fire and Rescue NSW;
- BCA Consultant report; and
- Fire Safety Engineers report.

Description of the systems

Subject to confirmation by the Fire Engineering Consultants and BCA Consultant the fire protection systems will be designed in accordance with the BCA 2022 deem to satisfy provisions, unless noted otherwise.

Deviations from the BCA and Australian Standards will be incorporated in the design, if there are alternative solutions nominated on an approved Fire Engineering Report (FER).

The fire protection systems will include:

Water Supply

- Lot 68 site will be provided with a single water supply which will be served by a combined fire hydrant and sprinkler tank capacity of 50,000L. The tank shall have an automatic infill supply of 7.5L/s from the town's main. The tank shall be split by a dividing wall so that 50% of the capacity remains during maintenance. The tank shall be a 900mm x 900mm access panel for each tank, this shall be located in the slab above. All tank overflows/sludge valves and associated equipment shall be included in the design.
- Lot 67 site will be provided with a single water supply which will be served by a combined fire hydrant and sprinkler tank capacity of 50,000L. The tank shall have an automatic infill supply of 7.5L/s from the town's main. The tank shall be split by a dividing wall so that 50% of the capacity remains during maintenance. The tank shall be a 900mm x 900mm access panel for each tank, this shall be located in the slab above. All tank overflows/sludge valves and associated equipment shall be included in the design.
- The Hunter water town's main services will be provided through water junction located at the south side provide by the subdivision designed by ADW Johnson on 25/09/2023 - Water - 240268(2)-WAT 001 to 004(OA) rev and Will also serve the feed Booster for the brigade pumping appliance.

Automatic Fire Sprinkler System

- The combined automatic fire sprinkler and hydrant system complying with AS2118.6-2012 will be provided for the Lot 67 and Lot 68 site and connected to the water supply via water supply tanks as well as 2 x diesel pump.
- To the requirements of the NCC, Building Surveyor and Fire Engineer and to the requirements of AS 2118.1/AS2118.6 as follows:
 - Carpark: Ordinary Hazard 2 (1 sprinkler per 12m², 12 sprinklers @ 1L/s) 12L/s
 - Residential: For apartments and their adjoining corridors, to the requirements of AS 2118 and in accordance with BCA Consultant and Fire Engineer requirements.

Fire Hydrant System

- The Fire Hydrants will extend throughout the building premises.
- The design of the hydrant system shall be in accordance with the NCC and AS2419.1-2021
- Hydrant flow rate at the booster will be 20L/s
- Apartment floor area to be covered by 40m length internal hydrants. Hose runs to allow for partitioning and other obstructions.
- Terraces floor area to be covered. By 70m length external hydrants.
- A four feed hydrants and booster assemblies will be provided to this development and shall be connected from the existing town's main supply located on front of building.
- NOTE: Fire hose reels to be installed in the carpark area. They are part of the hydraulic services and supplied by metered domestic cold water.

Automatic Fire Detection System

- Fire alarm and detection system will be provided in accordance with relevant standards, authority requirements.
- The entire floor areas, plant rooms and basement carpark will be served by an analogue addressable type of fire detection system to AS 1670.1 with Fire Indicator Panel (FIP) located on Ground Floor. The system will be connected to the monitoring company service provider via an Alarm Signalling Equipment (ASE).

- The fire detection & alarm system will be interfaced with emergency warning and intercom system purposes (SSEP) with interface controls for mechanical system, security system and other systems as required at fire mode.
- Smoke alarms will be provided within the sole occupancy units as per Specification E2.2a of the BCA or as per BCA Consultants requirements.

Occupant Warning System

- The Occupant warning system will extend to the carpark, common areas outside the sole occupancy units and plant rooms. Requirement for speakers internal to the SOUs shall be clarified within the final Fire Engineering Report.
- Audio or/and visual alarms will be provided to suit the environment as required.

Emergency warning and intercom systems

- Warning and intercom points shall be located throughout the building as per AS1670.4-2018.
- MCP points shall be located throughout the building complying with AS1670.4-2018

Portable Fire Extinguishers and Fire Blankets

- The portable fire extinguishers will extend throughout the premises.
- Portable fire extinguishers will be provided in compliance with the BCA and Australian Standard AS 2444, throughout the premises.
- Generally, they shall be provided within all hose reel cupboards, close to electrical switchboards and within plantrooms to enable building personnel to provide rapid 'first aid' response to a fire.

8 Hydraulic Services

Scope

The scope of the hydraulic services will comprise the following:

- Codes and standards
- Incoming services
- Sanitary Plumbing
- Sanitary ware and tapware
- Sanitary Drainage
- Hot and Cold Services
- Fire Hose Reel
- Landscape & Irrigation Supply

The Hydraulic installation will be designed in accordance with the following:

The hydraulic services will be designed to comply with Australian Standards, Water and Gas Supply Authorities', Council Regulations, Building Code of Australia, and BASIX requirements.

- AS 3500.1 Water service
- AS 3500.2 Sanitary Plumbing and drainage
- AS 3500.3 Stormwater drainage
- AS 3500.4 Heated water services
- AS 2441 Fire hose reels
- Building Code of Australia
- NSW Supply and Installation Rules
- Council requirements
- Water Authority requirements – Hunter Water
- BASIX requirements.
- Landcom Requirements

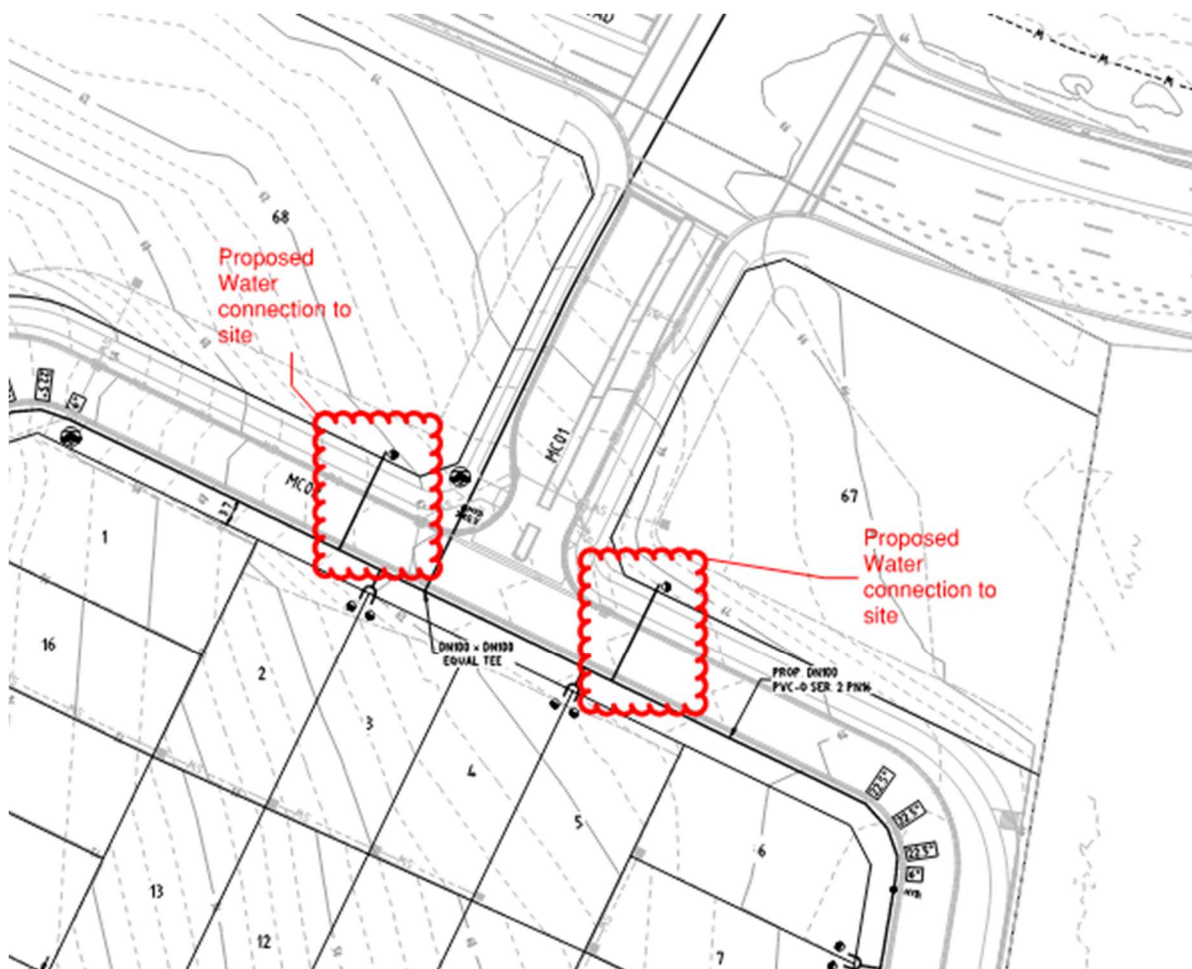
Incoming Services

Incoming services will be designed to suit site-specific requirements.

Domestic Water Supply

For the proposed buildings, Domestic water services supply connected to Hunter Water's (100 mm water main) – located in Myall Road Subject to Hunter water Section 50 approval,

Lot 67 and 68 will be connected to water junction located at the south side provide by the subdivision designed by ADW Johnson on 25/09/2023 - Water - 240268(2)-WAT 001 to 004(OA) rev A



The site will be independently serviced with appropriate metering (for Domestic water to the apartments. located in Road MC 02. Water supply will be connected via Tee Connection with isolation valve, Subject to Hunter Water Section 50 (Hunter Water requirements).

Two Master Water meters set (one for each lot for Domestic water services) will be located in the master water meter room at the proposed building, including testable RPZD after the master water meter (Backflow prevention Device to be provided to Domestic meter). Water meter to be at a maximum distance of 3 meters from building boundary.

Individual sub water meter (Domestic water) will be required for the residential floors as well as for common area and irrigation.

New branch lines from the water supply main, to groups of fixtures or other user groups, including take-offs for landscape watering, will all be provided with stop valves for easy shut off and maintenance and back flow prevention if required.

- Roof rainwater downpipe to be collected on ground level and discharged to rainwater storage tank to civil consultant's requirements.
- Rainwater reuse tank size to be determined by BASIX requirements.
- Balconies and landscape rainwater downpipe to be collected on ground level and discharged to stormwater system to civil consultant's requirements

All landscape area will be provided with hose taps connected to rainwater harvest for irrigation by the landscape consultant.

Isolation valves are to be provided to each group of fixtures or other user groups as will provide for easy shut off and maintenance.

Rainwater Harvest Supply

The rainwater harvest shall be connected to a feed the following as per BASIX requirements:

- Watering lawns, gardens and parks

2X50mm SV and solenoid valves to be provide for Automatic irrigation system to be provide by landscape architect

2X 20mm hose tap to be provided to each terrace.

Rainwater Harvest is NOT suitable for:

- Drinking
- Cooking or kitchen purposes
- Personal washing such as baths, showers and hand basins
- Household cleaning

A domestic water and water meter including backflow prevention for backup to rainwater harvest

Domestic water shall be used for rainwater tank swap over.

Sub-water meters will be provided on each residential floor in a cabinet located in common area,

Natural Gas Service

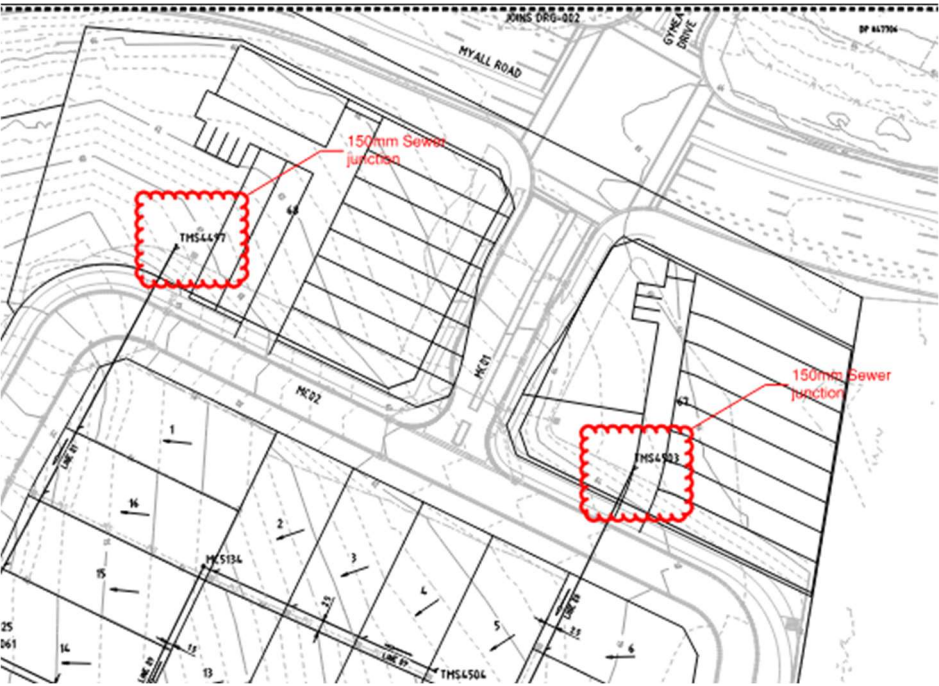
Not Required for this project

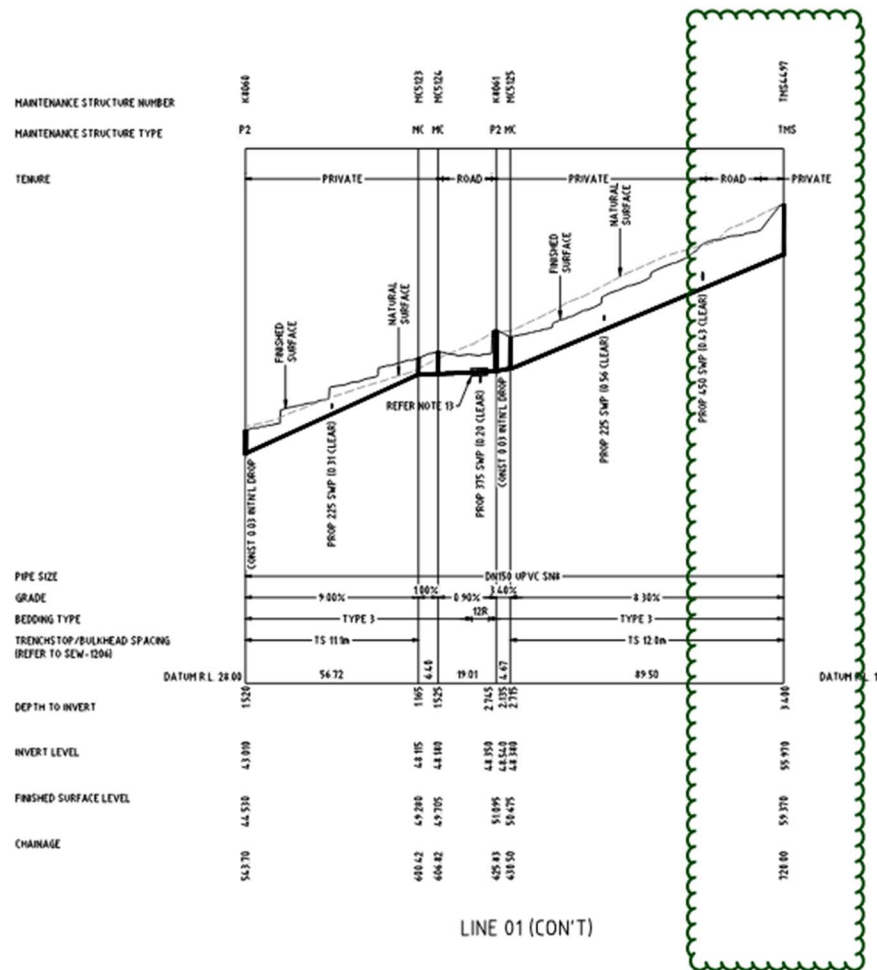
Sewer Drainage and Connection to Hunter Water Mains

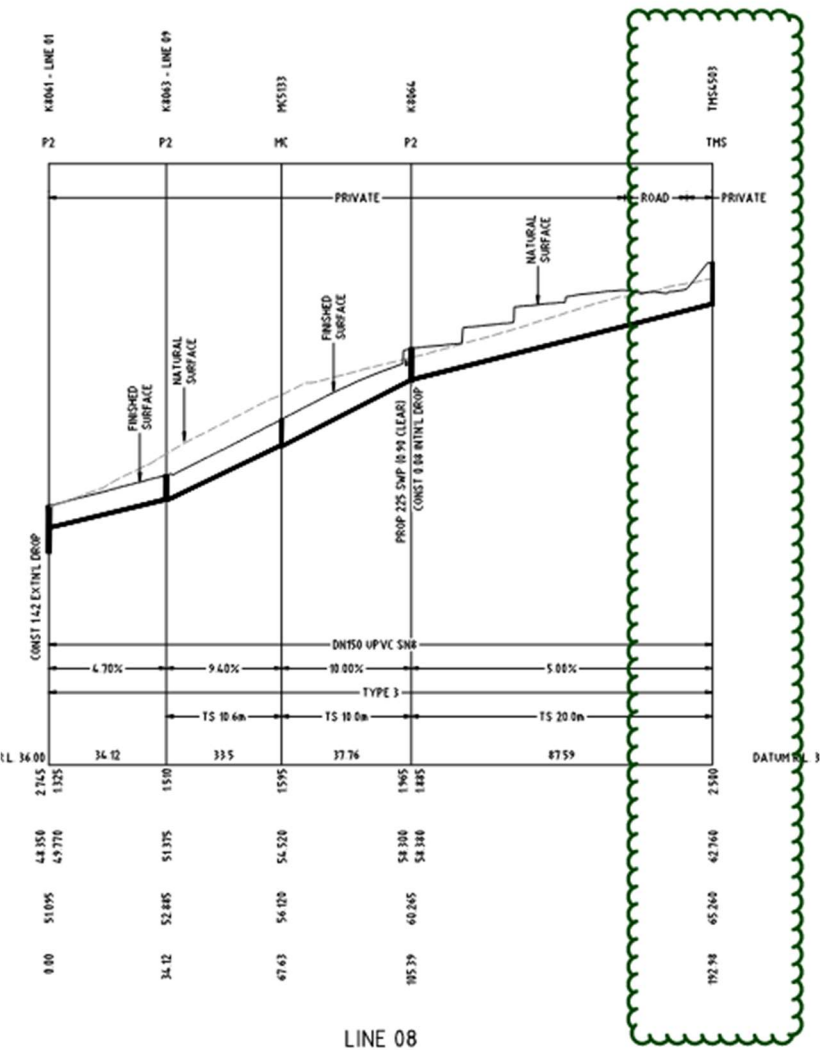
Subject to Hunter water Section 50 approval,

Lot 68 will be connected to 150mm sewer junction located at the south side with design invert level 55.970 provide by the subdivision designed by ADW Johnson on 12/09/2023 rev A

And Lot 67 will be connected to 150mm sewer junction located at the south side with design invert level 62.760 provide by the subdivision, designed by ADW Johnson on 12/09/2023 rev A







Extension of the 150mm sewer junction will be required [Sydney Water coordinator](#) to provide the design and approval from Sydney Water

Sanitary drainage will be provided from sewer drainage and will be connecting all the stack work together and discharging thereafter to Sydney Water's sewer system.

Basement sewer drainage will drain to a 1200X1200 precast sewer pump out pit as a gravity system will not work for the entire sewer system, we will implement a gravity system wherever possible.

Access to the in-ground sewer pump out pit will be required.

Sanitary Drainage

Sanitary drainage is provided from the underside of the ground floor, connecting all the stack work together, and discharging to the street sewer system where possible.

Sanitary Plumbing

Sanitary plumbing will be provided with a fully vented modified system of stacks and relief vents for all wet areas. Vents to be terminated to atmosphere above roof level.

Sanitaryware and Tapware

Sanitaryware will generally be vitreous China white in colour. Tapware will generally be chrome plated brass with loose jumper valves. Sanitaryware and tapware to be scheduled by the Architect and to comply with BASIX.

Hot Services

Hot water system for residential floors in the building will be provided via Induvial Electrical boost hot water unit to be provided to each Villa/Terrace and to be located as indicated in the architecture drawings, For:

- One-bedroom appartement = 80L
- Tow bedroom apartment = 125L
- Three-bedroom apartment = 160L.

Each apartment will be provided with temperature control to reduce temperature to 50- and 42-degrees C. All showers to be high flow rate output.

Isolation valves are to be provided to each group of fixtures or other user groups as will provide for easy shut off and maintenance.

All standard apartments to be provided with Temperature control located in the hydraulic service risers Tempering valves are to be set at 50°C outlet temperature.

All disable apartments will be provided with Thermostatic Mixing Valves (TMV) to deliver hot water at 42c to comply with the code. TMV will be located inside hydraulic service risers.

Typical heat pump hot water unit for Villa/townhouse

Central hot water sloar with electrecal boost system for the appartmetes buildings
layout by Rheem for apartment building

Fire Hose Reel

Fire Hose Reel will be designed in accordance with AS2441-2005 and BCA Clause E1.4. and to be provided in the Basement car park, plant room areas only.

Rain Water Tank

Rainwater tanks for each lot sized in accordance with the BASIX report, The CIVIL engineer will document Rainwater tank and water shall be harvested Via submersible dual pumps, filtration and UV system, to be reticulated for irrigation.