NAR:MJH
58092/0/0
4 April 2025

100 RUNDLE MALL
ENGINEERING SERVICES

BESTEC provide details associated with the Engineering Services for inclusion within the planning submission:-

EXISTING SITE SERVICES

Fire Protection Services

Maintenance of existing Fire Protection Services active and passive systems to the retail component of the site will be maintained, the existing fire sprinkler/hydrant/smoke spill and detection systems are to remain functional.

Hydrant/fire sprinkler systems are serviced by a direct SA Water main dual pump/connection, the fire connections are from North Terrace, the fire pumps are in the basement, located along the Charles Street frontage, the fire pumps will be retained. The sprinkler/hydrant booster and fire control room are all accessed and located at ground level on the Charles Street frontage hence unimpeded access for SAMFS trucks. The fire control room will be relocated to suit the new configuration.

Hydraulic Services

Hydraulic service infrastructure is as follows, 3 sewer connections to the existing retail development are connected from the SA Water sewer main in Charles Street and 1 connection is from North Terrace.

Domestic water connection and meter is from the SA Water main in North Terrace and not impacted by the development.

Natural gas is connected to the Charles Street gas mains and metered from the Charles Street frontage.

Electrical Services

The existing SA Power Networks (SAPN) connection is via underground high voltage (HV) cabling from Fisher Place, with SAPN HV equipment located in the ground floor.

NBN/Telstra connection is from the Charles Street frontage and not impacted.

SERVICES IMPACT OF THE DEVELOPMENT

Mechanical Services

Chilled water and cooling towers associated with the retail areas are in a roof top plantroom on the Charles Street frontage and no impact from the development.

Heating hot water boilers and 2 air handling units subject to final site alignment could be impacted by the development and require repositioning, one air handler serves ground floor east and the second unit Level 3. These plant components will be repositioned within the existing roof top plant enclosure area.

No existing fire and life safety, smoke spill functionality is impacted by the development.

Fire Protection Services

Retention of the existing fire pump and tank alleviates the requirement for additional fire services connection to the SA Water infrastructure.

SERVICES IMPACT OF THE DEVELOPMENT (CONT.)

Hydraulic Services

A new sewer connection is proposed from the North Terrace sewer main to service the commercial component of the development, the food court will retain the current drainage to the internal sewer infrastructure.

A separate domestic water connection meter from the SA Water main in North Terrace is proposed for the development, the meter will be located within the footpath, a standard SA Water arrangement.

Natural gas is not proposed for the commercial component of the development, natural gas associated with the food court area will be connected to the existing Charles Street gas mains and metered from the Charles Street frontage. Hence no new connections are required

Electrical Services

The proposed and existing development will convert to a high voltage customer. As a High Voltage customer, on site transformers will be privately owned and can be positioned to suit the development (mid-level or roof plantroom) as their location does not require compliance with SA Power Networks Technical Standards. The existing ground floor SAPN Switchgear will be converted to suit HV application and reticulation and become a private asset.

The existing NBN/Telstra lead-in service is to be supplemented with an additional dedicated lead-in service to ensure compliance with PCA Premium Grade Requirements.

ENGINEERING SERVICES ASSOCIATED WITH THE DEVELOPMENT

Mechanical

- Air conditioning incorporating air cooled, cooling only, Variable Refrigerant Flow (VRF) type air conditioning systems within a combination of under ceiling type indoor units to serve the Lift Motor Rooms on Levels 18 and roof machine room. Condensing units to be located at roof plantroom level.
- Air conditioning incorporating air cooled, reverse cycle, 100% outside air type air conditioning unit to serve the End-of-Trip facility within Level 4. Units to be located within the services plantroom adjacent the EOT facility at Level 4.
- Air conditioning incorporating chilled and heating hot water air handling units to serve the office building levels 05 to 30 inclusive. Unit to be located within the level 4 and roof level plantroom. Units to be fitted with economy cycle and be selected for low temperature induction variable volume unit application to the internal zone and active chilled beams to the perimeter zones.
- Air conditioning incorporating chilled and heating hot water fan coil units to serve the ground floor lobby and void. Units to be located within the level 01 ceiling space.
- Air conditioning incorporating chilled and heating hot water fan coil units to serve the café retail at ground level. Units to be located within the level 01 ceiling space.
- Air conditioning incorporating chilled and heating hot water air handling units to serve the retail at level 2 and 3 Units to be located within the ceiling space.
- Kitchen exhaust systems incorporating proprietary modular kitchen exhaust treatment units (1-off) to serve food court retail tenancies.
- Reconnection of the Food Court air handling and exhaust systems.
- Underfloor hydronic heating systems to serve the ground level foyer.
- Combined return air and economy cycle relief aerofoil, axial fans associated with above air handling units.

ENGINEERING SERVICES ASSOCIATED WITH THE DEVELOPMENT (CONT.)

Mechanical (Cont.)

- Stair pressurisation systems incorporating aerofoil, axial fans to serve stair 1 and stair 2. Fans to be located within the roof level plantroom.
- Tenant supplementary exhaust systems incorporating general and toilet exhaust aerofoil, axial fans in accordance with the Property Council of Australia (PCA) Grade Premium requirements. Fans to be located in the roof level plantroom.
- Tenant supplementary outside air preconditioning to PCA Premium grade volumes.
- Tenant supplementary exhaust systems incorporating kitchen exhaust roof mounted fans in accordance with the Property Council of Australia (PCA) Grade Premium requirements.
- Exhaust systems incorporating roof plantroom mounted fans to serve the base building toilets.
- Smoke spill systems incorporating roof plantroom mounted fans.
- Low temperature induction variable air volume units incorporating heating hot water coils to serve the office floors
- Chilled water plant incorporating water cooled chillers, buffer tanks, chilled water pumps located within the roof level plantroom. Chillers to incorporate air cooled polyvalent simultaneous heat/cool heat pumps for heating and light load cooling.
- Retail to utilise existing retail chiller and heating plant.
- Condenser water plant incorporating two cooling towers, condenser water pumps located within the roof level plantroom.
- Tenant supplementary condenser water plant incorporating two cooling tower, plate heat exchanger, primary and secondary condenser water pumps located within the roof level plantroom.

Electrical

- New HV Switchgear and transformers privately owned by the Landlord.
- New Proprietors and Tenant Main Switchboards Main Switchboard located within the ground floor.
- Submains and distribution switchgear and controlgear assemblies (SCA).
- Standby diesel generating sets incorporating above ground double skinned bulk fuel tank, above ground double skinned day tank, diesel supply and return fuel lines, vent pipes, automatic controls, attenuators & all ancillary equipment and power supplies to serve base building and tenant in accordance with PCA Premium Grade requirements.
- Multiple earthed neutral (MEN) earthing system and earthing of all systems throughout the complex.
- All metering and ancillary equipment for connection to the Energy Management System (refer to the Integrated Services Platform Specification) for metering of all energy and water inclusive of all electricity meters, cabling, software and commissioning.
- Cable pathways for reticulation of NBN cabling from the basement comms room up the building for each tenancy. Supply and installation to be in compliance with all NBN standards.
- Liaise with NBN to confirm all requirements.
- Submains and sub-metering for Mechanical, Hydraulic, Fire Protection, Vertical Transportation Services switchboards.

ENGINEERING SERVICES ASSOCIATED WITH THE DEVELOPMENT (CONT.)

Electrical (Cont.)

- General power supplies for Mechanical, Electrical, Hydraulic and Fire Protection Services equipment as required.
- General and specialist power provision throughout.
- General illumination in accordance with Australian Standard 1680 - Interior Lighting as a minimum requirement, generally comprising LED linear luminaires to general office areas, LED extrusions and recessed LED downlights to amenities, corridors and other nominated areas and feature lighting to ground floor and lift lobbies. Surface mounted LED battens to plant areas and stairs.
- External lighting to building façades, soffits and balconies.
- Supply, install, test and commission a fully functioning Automatic Lighting Control System throughout the facility.
- Supply and install building obstacle lighting by medium intensity steady red lighting during the hours of darkness at the highest point of the building.
- Monitored exit and emergency lighting powered by local emergency battery packs throughout in accordance with the Building Code of Australia and Australian/New Zealand Standard 2293.1 - Emergency evacuation lighting for buildings - System design, installation and operation.
- Integrated voice and data cabling system including backbone cabling, racks, cross connect wall frames, termination and patch panels, patch cords, Category 6A horizontal cabling and outlets.
- Master antennae television (MATV) system distributing to multi-switches within the risers.
- Free standing 60kVA Uninterruptible Power Supply (UPS) system inclusive of extended battery cabinets, bypass switch and cable reticulation to serve base building infrastructure.
- Supply and installation of a roof mounted 99kW grid connected photovoltaic (PV) power systems with monitoring facilities and integration with the EMS.
- Electronic security management system incorporating access control, intruder detection and intercommunications systems.
- Lightning protection via a system of roof terminations, façade integration, down conductors and earth terminations providing protection of the installation against the effects of lightning strike, integrated with the existing carpark structure.

Vertical Transportation Services

A lift analysis has been undertaken utilising modelling software, the resultant analysis indicates a total of 12 passenger lifts are required and a shared goods/passenger lift, lift 10 will be a through car configuration and be associated with goods transportation and waste removal for the office. A new retail lift will be included.

- 6 lifts serving basement, ground to level 17 inclusive.
- 5 lifts serving basement, ground to levels 18 to 30 inclusive.
- 1 lift serving basement to Level 31 (plantroom).
- 1 lift serving basement to Level 3 retail.

Escalators associated with the retail component of the development to transport customers to and from Lower Ground ,Ground, Level 1 and Level 2.

ENGINEERING SERVICES ASSOCIATED WITH THE DEVELOPMENT (CONT.)

Hydraulics

Incorporation of the following:-

- Electric heated domestic hot water plant.
- Domestic hot and cold water pump pressure set.
- Recycled/rainwater water pressure pump set.
- Domestic cold water transfer pump set.
- Recycled/rainwater water transfer pump set.
- Mains water storage tanks.
- Recycled/rainwater water storage tanks.
- Sanitary fixtures ,tapware and associated fittings as scheduled in this specification.
- Domestic cold water reticulation system.
- Domestic hot and mixed (tempered) water reticulation system.
- Recycled/rainwater water reticulation system.
- Natural gas reticulation from the existing gas reticulation to serve the food court tenancies.
- Pulse output meters, pressure control devices and all valves and fittings required for the completion of the works.
- Backflow prevention devices.
- External sewer drainage.
- Internal soil drainage and vent.
- Grease waste drainage and grease arrestor.
- Conventional gravity downpipe system.
- Conventional overflow system.
- Piping systems associated with the above systems.

Fire Protection

Incorporation of the following:-

- Dual diesel driven fire pumps serving the combined fire sprinkler and fire hydrant system located at Level 4.
- Pressure reducing stations.
- 2 off 45,000 litres effective capacity water storage tanks for firefighting at Level 4.
- Combined fire sprinkler, hydrant and hose reel system.
- Automatic fire sprinkler system.

ENGINEERING SERVICES ASSOCIATED WITH THE DEVELOPMENT (CONT.)

Fire Protection (Cont.)

- Internal fire services flow test pipework.
- Portable fire extinguishers.
- Fire Indicator Panel (FIP) and associated control and alarm system.
- Automatic fire detection and alarm system.
- Smoke detection system.
- Emergency Warning and Intercommunication System (EWIS).
- Master Emergency Control Panel (MECP).
- Warden intercom points.
- Manual call points.
- Fire alarm interfacing to the food court gas solenoid valves for shutdown in sprinkler activation.
- Alarm Signalling Equipment (ASE) to transmit a “wet” and/or “dry” fire alarm transmission to the SAMFS.