



Infrastructure Management
Parramatta Eels
Centre of Excellence,
Kellyville Park

Revision	Date	Description	Author/s	Reviewer
P1	01/10/2021	Preliminary	LM	LM
0	28/02/2022	Final	LM	LM

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Contents

1	Executive Summary	4
2	Introduction	6
3	Services Design response to SEARs	12
4	Hydraulic Services	13
5	Fire Protection Services.....	15
6	Electrical Services.....	17

1 Executive Summary

1.1 Executive summary statement

The main utility services of Water, Gas, Sewer and Electrical infrastructure is being actively resolved for the project and the live enquiries are outlined in the following sections below.

Electricity – Authority Connections				
Item	Description	Notes	Actions	Recommendations / Status
2.1	Existing Substation (No.:54566)	Upgrade the existing substation		Upgraded to 760amps per phase 3 phase. *PTC received for the load increase, Feb 2022
2.2	Existing pillar	To remain		
2.3	Existing MSB	Upgrade existing MSB	Upgrade the existing MSB	
Communications				
Item	Existing Service	Notes	Actions	Recommendations / Status
2.4	Telstra exchange tower	Axicom has approved the design.	NIL	Communications contact person email: Vikash.Verma@team.telstra.com Paul.farrell@axicom.com.au
2.5	Existing incoming communication lead-in		Disconnect and removed the existing communications. New separate communication lead-in to be apply.	
Water				
Item	Existing Service	Notes	Actions	Recommendations / Status
3.1	Stone Mason Drive – 200mm DICL	New 65mm metered supply to building via new tapping	Application made to Sydney Water. Pressure and Flow is adequate to service project.	New tapping to be provided to new building.
3.2	Stone Mason Drive- 200mm OPVC	New 150 supply to serve Hydrant and non-potable services	Application made to Sydney Water. Pressure and Flow is adequate to service project.	New tapping to be provided to new building.
Sewer				
Item	Existing Service	Notes	Actions	Recommendations / Status
3.2	Kennedy Avenue	New 100mm mains on site to be combination of graded and pumped system	Application to be made to Sydney Water for connection	Section 73 ongoing, building plan approval ongoing (Asset protection report required – on going)

Gas				
Item	Existing Service	Notes	Actions	Recommendations / Status
3.3	210kPa medium pressure 110mm diameter main in Stone Mason Drive		New tapping to be made Application to Jemena for connection to be made pending final gas loads	Make new tapping. Size TBC subject to final gas load requirement

The information within this report has assumed optimal use of available site information whilst also considering the Building Code of Australia, relevant Australian Standards and Codes, client driven design guidance, best practice industry guidelines.

2 Introduction

2.1 Project Description

The proposed development will provide state of the art facilities which enable physical recreation opportunities in conjunction with improved facilities for staff, players and existing users of the site. The proposed development will be integrated with the existing recreational landscape of the site and complement the upgrades to the existing playing fields being undertaken by Council. The proposed development is defined as a Recreation facility (major), and includes the following components:

- Construction of high-performance Centre of Excellence in the north east of the site adjacent to Training Field 2:
 - Elite level gymnasium.
 - Medical and rehabilitation facilities.
 - Aquatic recovery and rehabilitation pools.
 - Lecture theatre and meeting rooms.
 - Player education and study areas.
 - Administration offices for the Parramatta Eels.
 - New female facilities including a dedicated female change room, cubicle toilets and showers.
 - Balcony and terrace area.
 - End of Trip Facilities and bicycle parking.
 - Refuse Area.
- Construction of a Community Facility, including a grandstand with approximately 1,500 seats in the centre of the site adjacent to the Main Playing Field 3:
 - Unisex change rooms and amenities.
 - Referee change room and amenities.
 - First Aid/Medical room.
 - Community gymnasium.
 - Café/kiosk.
 - Concourse terrace.
 - Multipurpose community function room with kitchen and amenities.
 - Refuse Area.
 - Bicycle parking.
- Solar arrays will be included on the roof of both the Centre of Excellence and Community Facility.
- Additional 40 car parking spaces for the proposed facility to operate in conjunction with existing at grade carparking already constructed by Council.
- Additional landscaping throughout the development footprint.
- Removal of a small number of trees internal to the site, however noting perimeter trees will be retained where not affected by the proposed building footprints.
- Hours of operation for the Centre of Excellence and Community Facility are 5:00am to 12:00am, however the following key times are likely:
 - Centre of Excellence: 7.00am - 7.00pm
 - Community Facility: 7.00am - 10.00pm

2.2 Overview

This Infrastructure Management Plan has been prepared by erbas™ on behalf of HB Arch for Parramatta Eels and Hills Shire Council (the applicant) in support of State Significant Development application (SSD-2445295) for Parramatta Eels Centre for Excellent and Community facility at Kellyville Park (the site).

Application Number	SSD-24452965
Project Name	Eels Centre of Excellence and Community Sports Hub, Kellyville
Location	Kellyville Memorial Park, 8 Memorial Avenue, Kellyville Lot 60/DP 10702, Lot 1/DP 167535, Lot 10/DP 258947, Lot 123/DP 1113073 and Lot 1002/DP 1132811 within The Hills Shire Council Local Government Area
Applicant	Parramatta National Rugby League Club Limited
Date of Issue	18/08/2021

The report shows compliance with item 23 (Infrastructure and Utilities).

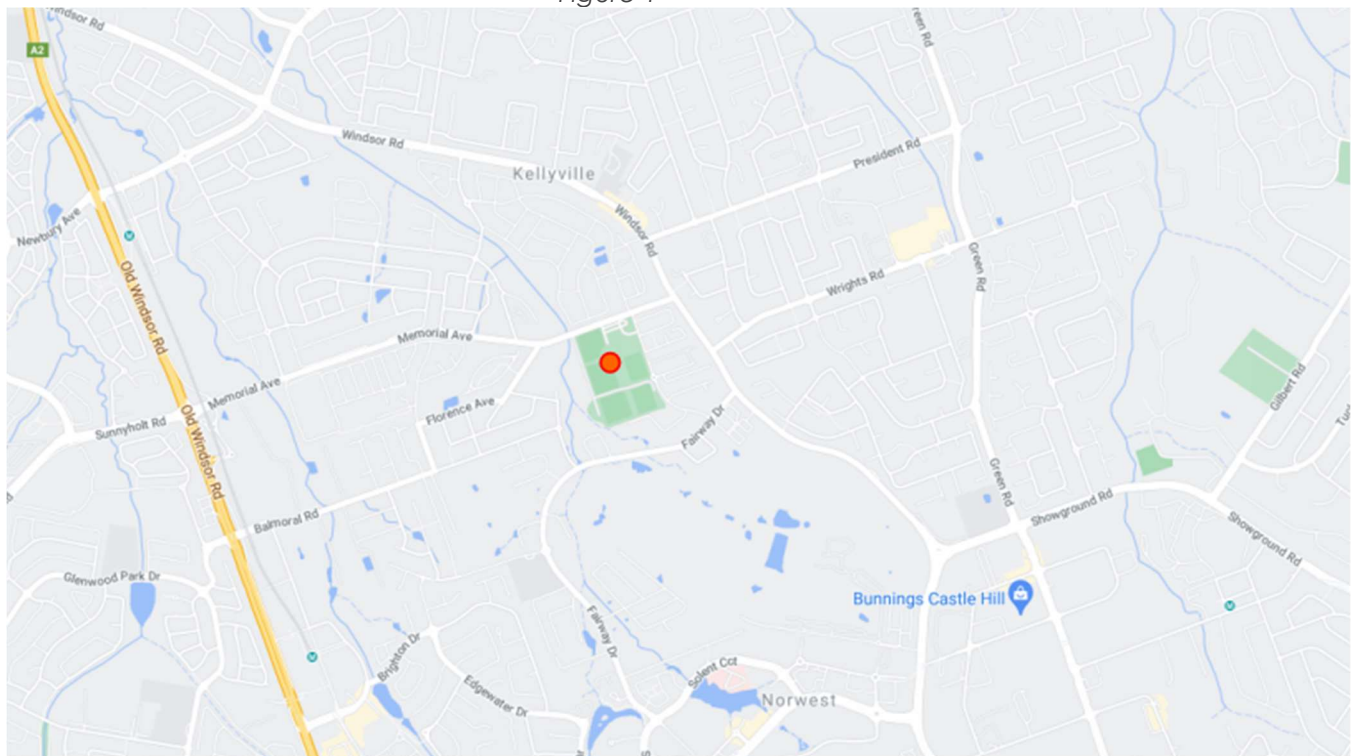
2.3 Site Description

The site is located at Kellyville Park, in the suburb of Kellyville, within The Hills Shire Local Government Area (LGA) situated towards its southwestern corner.

The site is located in proximity to the Balmoral Road Sports Hub, less than 1km south west of the site. Further to this, the site is located approximately 3.5km north east of the Westlink M7 tollway.

The site's locational context is shown in **Figure 1** below.

Figure 1



Locational context of the site

The site comprises a dual allotment of land with a total area of 127,070m², and development of the Center of Excellence will occur within the northern allotment, having an area of 76,262m². The site is currently owned by Kellyville Council and it is legally described as Lot 1 DP167535 & Lot 60 DP10702. The site is bounded between Memorial Avenue to the North, Stone Mason Drive to the East, McKellar Court to the South and council parkland to the West. An aerial image of the site is shown in **Figure 2**.



Figure 2: Site aerial

2.4 Proposed Development

The proposal relates to a development application to facilitate the development of a Parramatta Eels Centre of Excellence at the Kellyville Park site. Specifically, the works that are proposed for the DA include:

- A two-storey Parramatta Eels centre of excellence consolidated administration and high-performance training centre, comprising a gymnasium, sports science and sports medicine facilities, business offices, player lounges, social spaces, a double height seating area, café and kitchen facilities, and retail stores.
- A two-storey community facility and grandstand area comprising of changing facilities, a community gym, a multi-purpose room, first aid centre, café and kitchen facilities and a retail tenancy;
- Two international Rugby League compliant fields 116m long x 68m wide;
- Two additional international compliant Rugby League main playing fields, 116m long x 68m wide, including grandstand seating.
- Associated car parking, landscaping and public domain works; and
- Extension and augmentation of services and infrastructure as required.

2.5 Purpose

This Infrastructure Management Plan has been provided as part of the State Significant Development (SSD) submission to,

1. Assess the impacts of the development on existing utility infrastructure and service provider assets surrounding the site;
2. Identify any infrastructure upgrades required off-site to facilitate the development and any arrangements to ensure that the upgrades will be implemented;
3. Provide an infrastructure delivery and staging plan, including a description of how infrastructure requirements would be co-ordinated, funded and delivered to facilitate the development.
4. Address the existing capacity of the site to service the proposed development and any extension or augmentation, property tenure or staging requirements for the provision of utilities, including arrangements for electrical network requirements, drinking water, waste water and re-cycled water and how the upgrades will be coordinated, funded and delivered on time and be maintained to facilitate the development
5. Identify the existing service infrastructure on the site or within the network which may be impacted by the construction and operation of the proposal and the measures to be implemented to address any impacts on this infrastructure.

2.6 Introductory information

The project is to be assessed under the NCC 2019 amdt.1 and is subject to ongoing assessments for compliance as design development is progressed. Below is a summary of the building classification in relation to NCC-BCA classifications by the building surveyor (Philip Chun's BCA markup received 26th August, 2021):

Area	Class
COE lower level – All areas except football department & sleeping area	9b
COE lower level – Football department	5
COE lower level – Sleeping area	3

COE upper level – All areas except Administration offices, Retail & FOH	9b
COE upper level – Administration offices	5
COE upper level – Retail & FOH	6

The proposed building has an effective height of 12.13m (less than 25m).

This report provides commentary to the extent of the statutory infrastructure available to the site for the project. The infrastructure and design strategies herein may change or be developed with further scope as the design progresses.

The consulted and/ or notified public authorities are as follows;

Electrical

Service Type	Authority	Application status	Application reference number	Comments
Communications	Telstra	In progress	N/A	Potential relocation of Telstra tower has been reviewed and is not required by Axicom. Axicom has approved the current design. Contact: Vikash.Verma@team.telstra.com paul.farrell@axicom.com.au
	NBNCo	No yet submit the application		Submit during the DD stage.
Electrical	Endeavour	Application lodged on 11 June '21	Endeavour Energy Ref: UCL10961	Application with Endeavour Energy lodged on 11 June '21. Endeavour Contact: Ravi Lal (02-98535626) Response from Endeavour Energy received on 29 June '21, asking for the engagement of a Level 3 ASP to prepare and provide an electrical design to Endeavour Energy in the form of a proposed method of supply. A fee proposal has been requested and obtained from AA Power Engineering (an ASP 3 consultant) and authorised to commence review in September 2021. Response is expected in October 2021 as to the capacity of the existing substation. New connection offer received by Endeavour Energy, no further works or fees required from the Authority, Feb 2022

Hydraulic

Service Type	Authority	Retailer	Application status	Comments
Gas	Jemena	TBC	Not lodged yet	Not ready for lodgement yet Pending final gas loads
Section 73	Sydney Water	-	Not yet lodged	Building plan approval underway SSDA conditions required prior to lodgement of Section 73
Pressure and flow	Sydney Water	-	Lodged	Pressure and flow suitable for development for both Potable and Non-potable water supplies
Sewer & Water Connection	Sydney Water	-	Not lodged yet	Not ready for lodgement yet Connection approval forms part of the Section 73
Inline pumping	Sydney Water	-	Not lodged yet	Not ready for lodgement yet
Fire dispensation	FRNSW	-	Not lodged yet	Not ready for lodgement yet

2.7 Limitations

The design approach for each of the building services disciplines is based upon preliminary planning solutions and layouts.

This report does not currently incorporate specific fire engineering solutions or identified constraints, which are yet to be determined by the project. Nor does it robustly consider the required fire services alternate solutions for the project.

This report does not incorporate any requirements of the project that may be imposed as part of any required development conditions resultant to this application.

The following methodology was used to develop the strategies herein;

- General commentary on the adequacy of plant and systems to meet a minimum performance requirement set out in the relevant standards and guidelines.
- Supply adequacy based on space standards recorded within the NCC (2019)

3 Services Design response to SEARs

The following table provides a summary response to the SEARs requirements for Carlingford West Public School.

Number	Initiated by	Comments	Response
23	SEARs	Assess of the impacts of the development on existing utility infrastructure and service provider assets surrounding the site.	Each of the major supplying utilities have been consulted for the development. There is no major infrastructure traversing the site requiring relocation as a consequence of current planning.
23	SEARs	Identify any infrastructure upgrades required off-site to facilitate the development and any arrangements to ensure that the upgrades will be implemented on time and be maintained.	Each of the supply authorities have processed the initial applications made as part of the development planning. A new electrical substation may be required and is in the planning process with an accredited ASP3 designer. The sewer and water supplies are adequate for the site and a further feasibility assessment is underway to anticipate the Section 73 application that will be required for the future planning conditions. Gas is currently connected to the site.
23	SEARs	Provide an infrastructure delivery and staging plan, including a description of how infrastructure requirements would be coordinated, funded and delivered to facilitate the development.	The reporting herein provide a description of how infrastructure requirements are be coordinated, funded and delivered to facilitate the development and also elaborates how the connections are anticipated to be executed for the project site.

4 Hydraulic Services

4.1 Scope of Services

The scope of works for hydraulic services for the proposed development will include the provision of the following major components:

- Domestic cold water supply.
- Domestic hot water system.
- Sanitary plumbing and drainage.
- Stormwater drainage.
- Rainwater harvesting system.
- Gas supply.

4.2 Proposed Services

4.2.1 Domestic Cold Water

Cold water services are available to the site. The water authority for the area is Sydney Water with an existing 200DICL main under Stone Mason Drive.

A new 100mm cold water tapping, backflow prevention device and meter assembly is proposed to serve the fire service and domestic cold-water requirements of the facility.

Pressure and flow results have yet to be received from Sydney Water. Fire tanks and pumps have been allowed for should the pressure and flow in the main be insufficient to serve the fire system.

All design to be compliant with AS3500.1.

4.2.2 Domestic Hot Water

Separate centralised gas hot water systems are proposed for the Centre of Excellence and Community Facilities. The hot water plant is to be a gas instantaneous manifolded system with storage (to be sized as designs progress). A hot water circulation loop in the ceiling space will move hot water to each wet area.

Thermostatic mixing valves (TMVs) will be provided to temper the hot water temperature down to 45°C at all locations where water will contact the skin, basins, baths, showers.

Chilled/boiling water unit (BWU) is proposed for tea points/kitchenettes/staff areas. Tapware will be fitted to/adjacent sinks with the heating/cooling units below the sink.

All design to be compliant with AS3500.1 and AS3500.4.

4.2.3 Sewer Infrastructure

An existing Sydney Water sewer drains runs between the existing cricket grounds and baseball diamond, parallel to Kennedy Avenue. Due to the existing invert of the sewer infrastructure and proposed levels of the new facilities, sewer will not be able to fall out of the site via gravity and sewer pumping will be required.

The sewer pump system is proposed to comprise of dual pumps to provide redundancy in the event of one pump failing. If both pumps fail, an interlocking system can be provided connecting the control panel to solenoid valves which can shut off the water supply to each building.

Grease interceptor traps will be required for the proposed kitchen areas in each building.

All design to be compliant with AS3500.2.

4.2.4 Stormwater Drainage

Siphonic stormwater drainage to the roofed areas is proposed due to the large catchment areas for each building.

A portion of the roof stormwater can be collected to the rainwater tanks with the remaining to the inground civil infrastructure. A first flush diversion system is recommended to reduce dirt and debris entering the rainwater tanks.

Roof design to accommodate 1:100 year storm event with full overflow capacity.

4.2.5 Rainwater Harvesting System

An inground rainwater tank will be provided as required by ESD report for each building.

Stored rainwater from rainwater tanks can be treated and reticulated to toilets and landscaping areas as requested.

4.2.6 Gas Infrastructure

Gas services are available to the site. The gas authority for the area is Jemena and there is a 110mm medium pressure (210kPa) gas main located under Stone Mason Drive.

A new site gas tapping and meter assembly is proposed.

All gas load demands for hot water, cooking and mechanical plant shall be confirmed during detailed design phase.

5 Fire Protection Services

5.1 Scope of Services

The scope of works for fire protection services for the proposed development will include the provision of the following major components:

- Fire hydrants and hose reels.
- Portable fire extinguishers and blankets.
- Fire detection and occupant warning system.

5.2 Proposed Services

5.2.1 Fire Hydrants

Fire hydrants will be provided externally and be located a minimum of 10m away from any building to provide a compliant fire hydrant system to AS2419.1.

The current design proposal is to avoid having internal hydrants and to provide external hydrants only pending the provision of the pressure and flow of the street infrastructure.

Compliant hydrant coverage will be provided with 60m hose coverage from external hydrants with minimum 1m hose into the room. should the proposed location of external hydrant be unacceptable, either or both of the following options may be required:

- additional external fire hydrants
- provision of internal hydrants (note that internal hydrants have a 30m hose length only)

Dispensation from FRNSW may be required for external hydrants located 50m from any hardstand and if there's any pressure and coverage shortfall subject to final positioning of the fire hydrants.

A new fire hydrant booster assembly will be provided at the Kennedy Avenue carpark entrance.

5.2.2 Hose Reels

Fire hose reel will be provided to clause E1.4 of NCC2019. Fire hose reels are to be located max 4m away from an exit and will provide 36m hose coverage to all parts of the building with minimum 1m hose into the room.

5.2.1 Fire Extinguishers and Blankets

Fire extinguisher and Fire blankets to be provided to service the final design in accordance with AS2444.

5.2.2 Fire Detection and Occupant Warning

An analogue addressable fire detection control and indicating equipment (FDCIE) with external communication connection to monitoring by fire brigade is proposed for the new building.

Fire detection and occupant warning system will be designed to the requirements of AS1670.

The following interface is proposed for the FDCIE:

- Security system interface for release of electric locking devices to doors located along path of egress.
- Mechanical services switchboard interface for isolation of non-safety services plant and activation of smoke management systems.
- Building management system interface for notification of fire alarm.

5.3 Items To Be Further Discussed And/Or Addressed

- Final location of the fire hydrants
- Requirements of fire sprinklers, subject to fire engineering or building surveyor requirements
- Interfacing of fire alarms and site wide systems

Liaise and negotiate with the authority. Level 3 ASP consultant will be carried out the scope of authority upgrade design works now completed. Permission to Connection (PTC) letter received from Endeavour Energy, Feb 2022.



Figure 3.1: KIOSK along Stone Mason Drive



Figure 3.2: Existing electrical pillar along Stone Mason Drive(between the kiosk and Telstra Tower)

6.2.2 Existing main switch board

Existing main switchboard to be upgrade. Refer to drawing for detail.



Figure 3.3: Existing main switch board

6.2.3 Existing Telstra Tower



Figure 3.4: Telstra Tower

Existing Telstra to be removed and relocated to new proposed location. Refer to Axicom design drawing for detail.

6.3 Proposed Services

6.3.1 Electrical Distributor Infrastructure

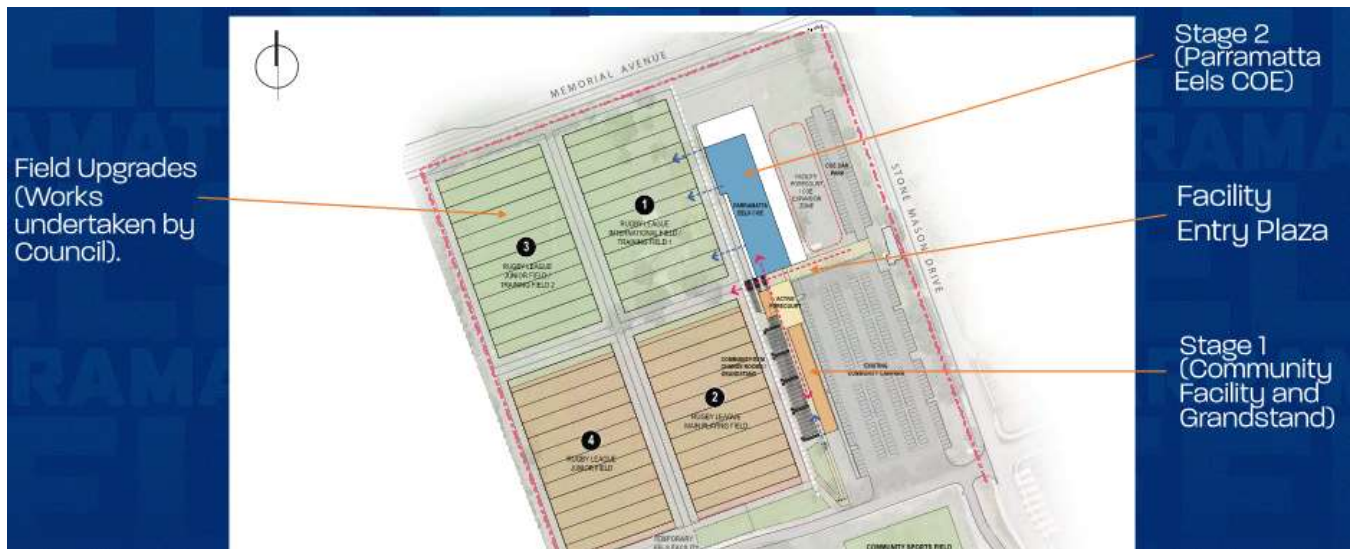


Figure 3.5: Concept Design of Parramatta Eels

Based on the development masterplan, the Electrical infrastructure will be upgraded. Below imaged is the electrical infrastructure of the site.

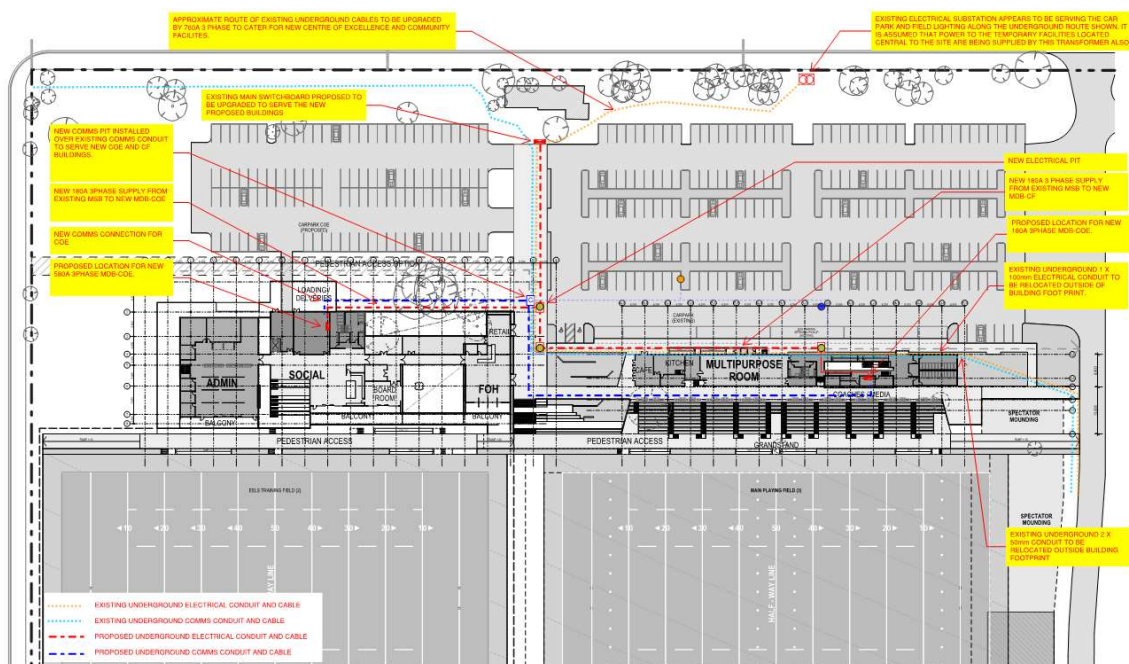


Figure 3.6: Site Infrastructure considerations

Kiosk Requirements

Existing kiosk located along Stone Mason Drive to be upgraded. Refer to Level 3 ASP consultant authority upgrade design work drawings for detail, once made available in latter design phases. New development requires a total demand of ~760 amps per phase three phase. * refer to PTC connection offer letter received Feb 2022.

Cabling infrastructure

New inground main consumer cabling from the kiosk to the MSB to be installed. Refer to drawing for detail. 2-off new inground submain cable from the MSB to MDB. Refer to drawing

for detail. New electrical pits as indicative on drawing.

6.3.2 Main Switchboard

New outdoor main switch board (MSB) located along Stone Mason Drive (middle of the site-side of Facility Entry Plaza/ Between stage 1 "Community Facility and Grandstand" and stage 2 "Parramatta Eels COE"). Final location to be determined on site.

6.3.3 Distribution Boards

2-off main distribution boards to be installed for each stage (1-off MDB for stage 1 "Community Facility and Grandstand" and 1-off MDB for stage 2 "Parramatta Eels COE")

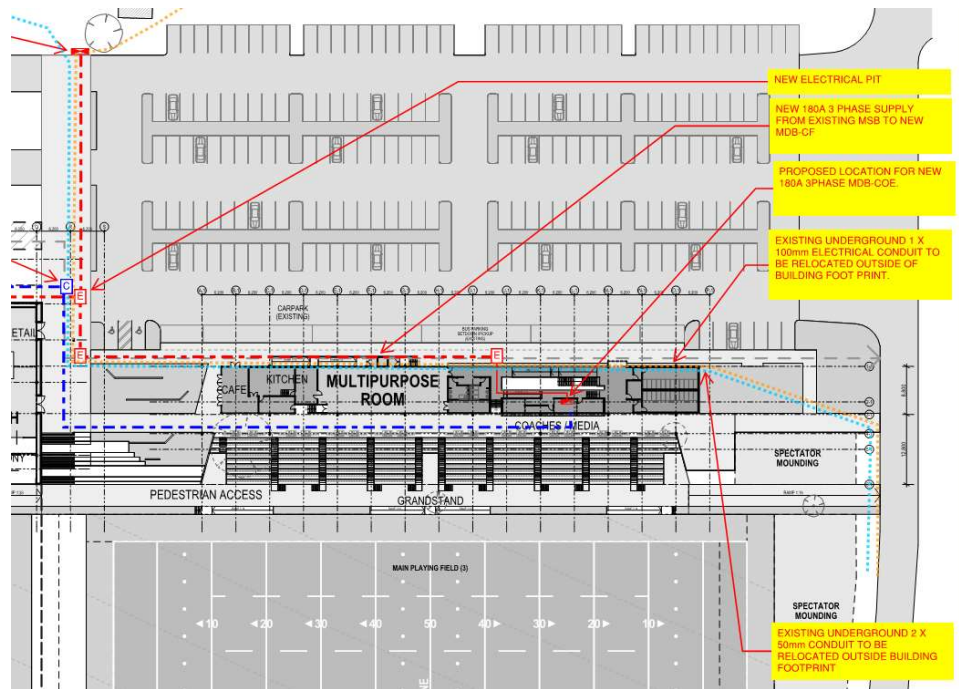


Figure 3.7: Stage 1 Cable routes and preliminary capacities

Stage 1 "Community Facility and Grandstand"

- New main distribution board (MDB) to be installed in proposed location, wired back to the MSB
- New adjustable ~180 amps 3 phase MCB
- Additional distribution board will be provided for areas such as kitchen, café and specialist areas. All additional distribution board will be wired back to the MDB.

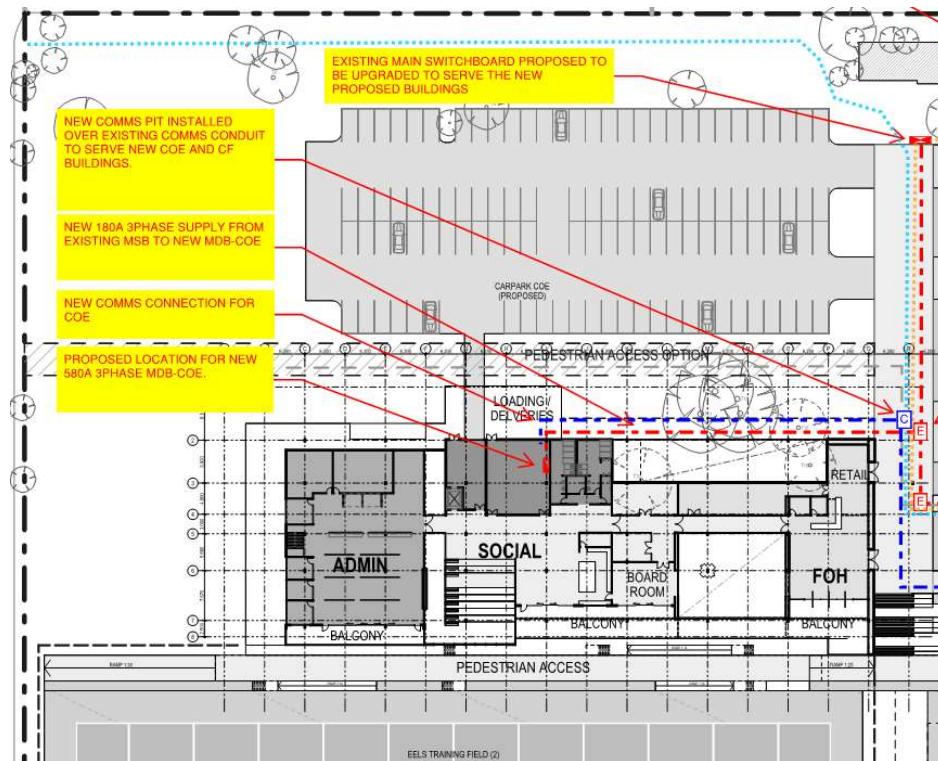


Figure 3.8: Stage 2 Cable routes and preliminary capacities

Stage 2 “Parramatta Eels COE”

- New main distribution board (MDB) to be installed in proposed location, wired back to the MSB
- New adjustable ~580 amps 3 phase MCB
- Additional distribution board will be provided for areas such as kitchen, café and specialist areas. All additional distribution board will be wired back to the MDB.

▪ Communications Service Provider Infrastructure – NBN Co and Telstra

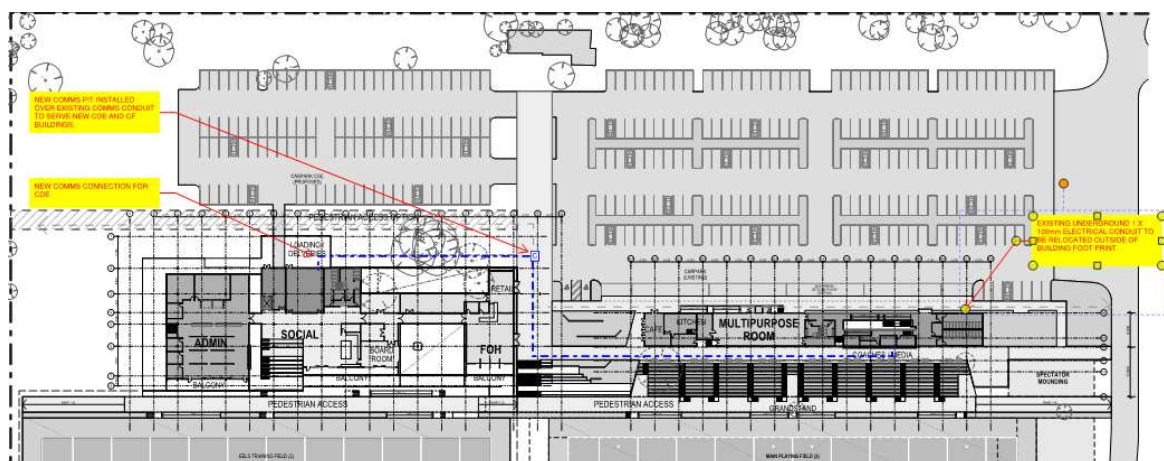


Figure 3.9: Stage 2 Cable routes

Separated new incoming communications (NBNCo and Telstra) for the site (stage 1 and stage 2). Refer to the drawing for detail.

Telstra/NBNCo lead-in cables connected from the communications pit along Memorial Avenue via underground white conduits and pits (Telstra/NBNCo approved).

Cabling and communications outlets (passive only) will be installed throughout the building.
Refer to drawing for detail.

The active equipment will be provided by client/ICT.

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