BROOKVALE OVAL REDEVELOPMENT

Centre of Excellence and Grandstand
Waste Management Plan

Prepared for:

Manly Warringah Sea Eagles

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PREPARED BY

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BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Manly Warringah Sea Eagles (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

DOCUMENT CONTROL

Reference	Date	Prepared	Checked	Authorised
630.12842-R03-v2.0	16 October 2019	Celine El-Khouri	Andrew Quinn	Andrew Quinn
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1 Introduction

1.1 Overview

SLR Consulting Australia Pty Ltd (SLR) has been engaged by Urbis Pty Ltd on behalf of Manly Warringah Sea Eagles (MWSE) (the Client) to prepare a waste management plan (WMP) in support of a State Significant Development Application (SSDA) to the Northern Beaches Council (Council), for the redevelopment at Brookvale Oval for a proposed Centre of Excellence and grandstand (the Project).

This WMP applies to the waste generated from the site preparation, construction and operational stages of the Project and has been prepared using architectural drawings supplied by the Client and attached in **Appendix A**.

1.2 Objectives

The objectives of this WMP are to:

- Identify potential wastes likely to be generated during the site preparation, construction works and operation of the Project.
- Provide advice on how identified wastes should be handled, processed, disposed of, re-used or recycled in accordance with Council requirements, relevant Australian codes and standards and better practice waste minimisation principles.
- Help implement safe and practical options for waste collection from the Project by Council and/or private waste servicing contractors.
- Encourage waste avoidance and minimisation through design, ordering and planning.

1.3 Review of WMP

This WMP is not a static document. It is a working document that requires review and updating to ensure ongoing suitability for the proposed on-going operations at the site.

This WMP will be reviewed and updated:

- To remain consistent with waste and landfill regulations and guidelines
- If changes are made to site waste and recycling management, or
- To take advantage of new technologies, innovations and methodologies for waste or recycling management.

Copies of the original WMP and its future versions should be retained by the building manager. Changes made to the WMP, as well as the reasons for the changes made, should be documented by the building manager as part of the review process

2 Project Description

2.1 Site Description

The Project is located on Pittwater Road, Brookvale and is zoned as a public recreation space under the Warringah Local Environmental Plan (LEP) 2011. The Project is shown in **Figure 1** below and is legally described as Lot 1 DP 784268, Lot 1 on DP 114027, Lot B on DP966128, and Lot 6 on DB 785409. The Project is proposed to be located at the northern end of the site and will utilise existing site access. An additional 10 parking spaces are proposed in addition to the existing parking arrangements on the westerns side of the stand.

Adapted from SIXmaps: https://maps.six.nsw.gov.au/

Figure 1 An aerial image of the Project

2.2 Proposed Project Operations

The proposal seeks development consent for a Centre of Excellence, a state-of-the-art facility to be used by professional sportsmen and women in conjunction with the community, and 3,000 covered seats to deliver an improved experience for spectators attending the site. The proposal will support the operations of the MWSE and ensure its viability into the future. The Project represents a significant investment into rugby league in the region, and is being jointly funded by the Federal Government, New South Wales State Government, and the MWSE. Once completed, the Project will:

- Consolidate the MWSE training and administration bases at one location.
- Provide improved training facilities for all players (from community to elite levels) to develop their skills as well as for professional players to have access to high performance training facilities.

- Provide spectators with additional covered seating that delivers the highest quality viewing and entertainment experience possible at MWSE home games.
- The proposed Centre of Excellence will have a footprint of approximately 1,800sqm, and spans over 2 levels.
- A cantilevered roof will extend over the seating area.

Construction works are anticipated to take place on the northern and western ends of the Project only.

2.3 Proposed Demolition and Construction

The proposed demolition and construction work for the Project is shown in the architectural drawings attached in **Appendix A**. The demolition work is specifically shown in the drawing titled 'Demolition Plan'. The demolition activities are anticipated to include the removal of following:

- Several small, single level buildings
- The boundary fence
- Several benches, and
- Sections of site hardstand.

Additionally, site preparation works are anticipated to prepare the foundations of the site for the construction work.

The construction activities are anticipated to include the following:

- A car parking area a north of the existing car parking area
- A grandstand at the northern end of the site
- A player access tunnel beneath the grandstand
- A two-storey building behind the grandstand containing sporting administration facilities, a rehabilitation aquatics area and a ticketing booth, and
- External amenities including rainwater collection, balance tanks, waste bin storage area, a pool plant and a substation.

Once the construction stage is complete, the Project will continue to operate as a sporting oval.

3 Better Practice for Waste Management and Recycling

3.1 Waste Management Hierarchy

This WMP has been prepared in line with the waste management hierarchy shown in **Figure 2**. The hierarchy summarises the objectives of the *Waste Avoidance and Resource Recovery Act 2001*.

The waste management hierarchy comprises the following principles, from most to least preferable:

- Waste **avoidance**, prevention or reduction of waste generation. Achievable through better design and purchasing choices.
- Waste **reuse**, reuse without substantially changing the form of the waste.
- Waste **recycling**, treatment of waste that is no longer usable in its current form to produce new products.
- Energy **recovery**, processing of residual waste materials to recover energy.
- Waste **treatment**, reduce potential environmental, health and safety risks.
- Waste **disposal**, in a manner that causes the least harm to the natural environment.

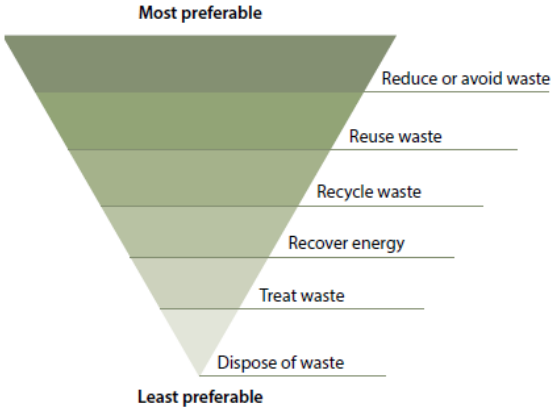


Image from NSW EPA (2014) NSW Waste Avoidance and Resource Recovery Strategy 2014-21.

Figure 2 Waste management hierarchy

3.2 Benefits of Adopting Better Practice

Adopting better practice principles in waste minimisation offers significant benefits for organisations, stakeholders and the wider community. Benefits from better practice waste minimisation include:

- Improved reputation of an organisation due to social and environmental responsibility.
- Lowered consumption of non-renewable resources.
- Reduced environmental impact, for example, pollution from materials manufacturing and waste treatment.
- Reduced expenses from lower waste disposal.
- Providing opportunities for additional revenue streams through beneficial reuse.

4 Waste Legislation and Guidance

The legislation and guidance outlined in **Table 1** below should be referred to during the operation of the Project.

Table 1 Legislation and guidance

Legislation and Guidance	Objectives
Council legislation and guidelines	
Warringah Local Environmental Plan 2011[1]	The Warringah Local Environmental Plan 2011 (LEP) provides the legal framework of the Warringah DCP 2011, including land use and development permitted in a set zone and was designed in accordance with the *Environmental Planning and Assessment Act 1979* section 33A. The LEP also contains provisions to conserve local heritage and protect sensitive land.
Warringah Development Control Plan 2011[2]	The Warringah Development Control Plan 2011 (DCP) applies to all development proposals in the former Warringah district of the Northern Beaches local government area. The DCP supports provision of the LEP planning controls by providing detailed planning and design guidelines and should be consulted in conjunction with the LEP. The DCP has been prepared in accordance with Division 3.6 of the *Environmental Planning and Assessment Act 1979* and Part 3 the Environmental Planning and Assessment Regulation 2000. The Warringah DCP references the Waste Management Guidelines 2016 for waste management provisions for a development.
Waste Management Guidelines 2016[3]	The Waste Management Guidelines 2016 provides waste management guidance for developments built in the former Warringah district of the Northern Beaches Council. It aims to encourage appropriate management of demolition and construction wastes, manage the negative impacts of waste collection and storage and promote principles of ecological sustainability. The sections of these guidelines applicable to the Development are Chapter 1 – Demolition, Chapter 2 – Construction and Chapter 5 – On-going waste management for non-residential developments.
State and National legislation and guidelines	
Building Code of Australia (BCA) and relevant Australian Standards	The BCA has the aim of achieving nationally consistent, minimum necessary standards of relevant health and safety, amenity and sustainability objectives efficiently.
Council of Australian Governments National Construction Code 2016	The National Construction Code 2016 sets the minimum requirements for the design, construction and performance of buildings throughout Australia.
NSW EPA's Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities 2012	These better practice guidelines present information on waste minimisation and resource recovery as well as information on commonly used waste management provisions. The guidelines also provide benchmarks for assessing waste production rates in Australia.
NSW EPA (2014) NSW Waste Avoidance and Resource Recovery Strategy 2014-21	The NSW Waste Avoidance and Resource Recovery Strategy 2014-21 is aimed at ultimately 'improving environment and community well-being by reducing the environmental impact of waste and using resources more efficiently' by presenting a framework intended to avoid and reduce waste generation, increase recycling, divert more waste from landfill, manage problem wastes better, reduce litter and reduce illegal dumping.

[1] https://legislation.nsw.gov.au/#/view/EPI/2011/649

[2] https://eservices.northernbeaches.nsw.gov.au/ePlanning/live/pages/plan/book.aspx?exhibit=DCP

[3] https://www.northernbeaches.nsw.gov.au/services/rubbish-and-recycling/building-waste

Legislation and Guidance	Objectives
NSW EPA Resource Recovery Orders and Resource Recovery Exemptions	The NSW EPA has issued a number of resource recovery orders and resource recovery exemptions under the POEO (Waste) Regulation 2014 for a range of wastes that may be recovered for beneficial re-use. These wastes typically include those from demolition and construction works, as well as ongoing wastes such as food waste. • Resource recovery orders present conditions which generators and processors of waste must meet to supply the waste material for beneficial re-use. • Resource recovery exemptions contain the conditions which consumers must meet to use waste for beneficial re-use.
NSW EPA's Waste Classification Guidelines 2014	The NSW EPA Waste Classification Guidelines assists waste generators to effectively manage, treat and dispose of waste to ensure the environmental and human health risks associated with waste are managed appropriately and in accordance with the *POEO Act 1997* and is associated regulations.
Protection of the Environment Operations Act (POEO) 1997 and *Amendment Act 2011*	The POEO Act 1997 and POEO Amendment Act 2011 are administered by the NSW EPA to enable the NSW Government to establish instruments for setting environmental standards, goals, protocols and guidelines. They outline the regulatory requirements for lawful disposal of wastes generated during the demolition, construction and operational phases of a development, as well as the system for licencing waste transport and disposal.
The Work Health and Safety Regulation 2011	The Work Health and Safety Regulation 2011 provide detailed actions and guidance associated with the topics discussed in The Work Health and Safety Act 2011. The primary aim of the regulation is to protect the health and safety of workers and ensure that risks are minimised in work environments. Workplaces are to ensure that they are compliant with the requirements specified in the regulations. The regulations discuss items such as actions that are prohibited or obligated in work environments, the requirements for obtaining licences and registrations, and the roles and responsibilities of staff in workplaces.
Waste Avoidance and Resource Recovery Act 2001	The *Waste Avoidance and Resource Recovery Act 2001* aims to promote waste avoidance and resource recovery and repeals the *Waste Minimisation and Management Act 1995*. Specific objectives of the *Waste Avoidance and Resource Recovery Act 2001* include: • encouraging efficient use of resources • minimising the consumption of natural resources and the final disposal of waste by encouraging the avoidance of waste and the reuse and recycling of waste • ensuring industry and the community share responsibility in reducing/dealing with waste, and • efficiently funding of waste and resource management planning, programs and service delivery. As of 2016, the addition to the Act of Part 5 defines the legislative framework for the 'Return and Earn Container Deposit Scheme' whereby selected beverage containers can be returned to State Government authorities for a monetary refund.

5 Site Preparation and Construction Waste and Recycling Management

5.1 Targets for Resource Recovery

Council's DCP advises that construction and demolition work in Council's region should contribute to the NSW state targets for construction and demolition waste. The NSW EPA (2014) *NSW Waste Avoidance and Resource Recovery Strategy 2014-21* advises developments contribute to the following target:

- 80% of total construction and demolition waste diverted for reuse and recycled, with receipts sufficient in demonstrating the achieved target.

It is anticipated that the waste minimisation measures in the following sections will assist the Project to meet these targets. Waste reporting and audits can be used to determine the actual percentage of wastes that are being, or have been, recycled during the site preparation and construction stages of the Project.

5.2 Waste Streams and Classifications

The demolition and construction activities are anticipated to generate the following broad waste streams:

- Demolition wastes as outlined in Section 5.3
- Construction waste as outlined in Section 5.5
- Plant maintenance waste, if applicable
- Packaging waste, and
- Work compound waste from on-site employees

A summary of likely waste types generated from demolition and construction activities, along with their waste classifications and proposed management methods are provided in **Table 2**. For further information on how to determine a waste's classification refer to the NSW EPA (2014) *Waste Classification Guidelines*[4]. Further information on managing site preparation and construction wastes is available from the NSW EPA website[5].

[4] Available online from https://www.epa.nsw.gov.au/your-environment/waste/classifying-waste/waste-classification-guidelines

[5] Available online from http://www.epa.nsw.gov.au/your-environment/waste/industrial-waste/construction-demolition

Table 2 Potential waste types, classifications and management methods

Waste Types	NSW EPA Waste Classification	Proposed Management Method
Demolition		
Green waste including timber, pine and particle board	General solid waste (non-putrescible) (garden waste)	Separated, some chipped and stored on-site for landscaping, remainder to landscape supplies or off-site recycling, stumps and large trees to landfill.
Clean fill	General solid waste (non-putrescible)	On-site re-use
Contaminated fill	To be classified subject to the results of testing	Capped and contained on-site. If required, to be taken off-site, treatment or disposal to landfill.
Excavated natural material (ENM) or virgin excavated natural material (VENM)	General solid waste (non-putrescible)	On-site re-use of topsoil for landscaping of the site, off-site beneficial re-use or send to landfill site.
Construction		
Sediment fencing, geotextile materials	General solid waste (non-putrescible)	Reuse at other sites where possible or disposal to landfill
Concrete	General solid waste (non-putrescible)	Off-site recycling for filling, levelling or road base
Bricks and pavers	General solid waste (non-putrescible)	Cleaned for reuse as footings, broken bricks for internal walls, crushed for landscaping or driveway use, off-site recycling
Gyprock or plasterboard	General solid waste (non-putrescible)	Off-site recycling or returned to supplier
Sand or soil	General solid waste (non-putrescible)	Off-site recycling
Metals such as fittings, appliances and bulk electrical cabling, including copper and aluminium	General solid waste (non-putrescible)	Off-site recycling at metal recycling compounds and remainder to landfill
Conduits and pipes	General solid waste (non-putrescible)	Off-site recycling
Timber	General solid waste (non-putrescible)	Off-site recycling; Chip for landscaping; Sell for firewood *Treated*: reused for formwork, bridging, blocking, propping or second-hand supplier *Untreated*: reused for floorboards, fencing, furniture, mulched second hand supplier, and remainder to landscape supplies.
Doors, windows, fittings	General solid waste (non-putrescible)	Off-site recycling at second hand supplier
Insulation material	General solid waste (non-putrescible)	Off-site disposal
Glass	General solid waste (non-putrescible)	Off-site recycling, glazing or aggregate for concrete production

Waste Types	NSW EPA Waste Classification	Proposed Management Method
Asbestos	Hazardous waste	Capped and contained on-site. If required to be taken off-site, disposal at a licenced landfill facility
Fluorescent light fittings and bulbs	Hazardous waste	Off-site recycling or disposal, contact *FluoroCycle* for more information[6]
Paint	Hazardous waste	Off-site recycling, Paintback collection[7] or disposal
Synthetic Rubber or carpet underlay	General solid waste (non-putrescible)	Off-site recycling, reprocessed for other uses
Ceramics including tiles	General solid waste (non-putrescible)	Off-site recycling
Carpet	General solid waste (non-putrescible)	Off-site recycling, disposal or reuse
Plant Maintenance		
Empty oil and other drums or containers, such as fuel, chemicals, paints, spill clean ups	Hazardous waste: Containers were previously used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and residues have not been removed by washing or vacuuming. General solid waste (non-putrescible): Containers have been cleaned by washing or vacuuming.	Transport to comply with the transport of Dangerous Goods Code applies in preparation for off-site recycling or disposal at licensed facility
Air filters and rags	General solid waste (non-putrescible)	Off-site disposal
Oil filters	Hazardous waste	Off-site recycling
Batteries	Hazardous waste	Off-site recycling, contact the Australian Battery Recycling Initiative[8] for more information
Packaging		
Packaging materials, including wood, plastic, including stretch wrap or LDPE, cardboard and metals	General solid waste (non-putrescible)	Off-site recycling
Wooden or plastic crates and pallets	General solid waste (non-putrescible)	Reused for similar projects, returned to suppliers, or off-site recycling. Contact *Business Recycling* for more information[9]
Work Compound and Associated Offices		
Food Waste	General solid (putrescible) waste	Compost on-site, off-site or dispose to landfill with general garbage

[6] Available online from http://www.fluorocycle.org.au/ or http://www.environment.gov.au/settlements/waste/lamp-mercury.html

[7] Available online from https://www.paintback.com.au/

[8] http://www.batteryrecycling.org.au/home

[9] Available online from http://businessrecycling.com.au/search/

Waste Types	NSW EPA Waste Classification	Proposed Management Method
Recyclable beverage containers, such as glass and plastic bottles, aluminium cans and steel cans	General solid waste (non-putrescible)	Co-mingled recycling at off-site licensed facility or at NSW container deposit scheme 'Return and Earn' facility[10]
Clean paper and cardboard	General solid waste (non-putrescible)	Paper and cardboard recycling at off-site licensed facility
General domestic waste generated by workers such as soiled paper and cardboard, food and polystyrene	General solid waste (non-putrescible) mixed with putrescible waste	Disposal at landfill

5.3 Site Preparation Waste Types and Quantities

As the site is predominantly vacant, site preparation waste is expected to primarily consist of green waste, excavated fill, soil and rock. From the architectural drawings attached in **Appendix A**, SLR understands that some excavation is anticipated to level the foundations of the site and for the installing of underground services such as a pool plant and a pump room. Communication from the Client[11] provides the cut and fill quantities for the Project. These are shown in **Table 3** below. SLR understands that the cut and fill quantities are based on preliminary analysis.

Based on the architectural drawing 'Demolition Plan', SLR understands that a number of trees are to be removed as part of the demolition work for the Project. The management of the removal of trees from the site will be detailed in the arboreal impact assessment for the Project, being undertaken by Tree Management Strategies.

Table 3 Estimated bulk earthworks quantities (m^3)

Total Cut	Total Fill	Balance
2,145	3,670	1,500

Based on communication with the Client[12], SLR understands that the quantities listed in **Table 3** do not include the quantities required for the excavation of the underground services[13]. SLR recommends that a quantities survey be conducted by a qualified professional should further information on types and quantities of earthworks waste be required.

Care should be taken to minimise site disturbance and limit unnecessary excavation. All excavated spoil is to be classified by an appropriately experienced environmental consultant and separated into contaminated materials, if any, uncontaminated fill or Excavated Natural Material (ENM). Refer to **Section 5.8** for management of stockpiles. Uncontaminated fill or ENM should be retained on site and managed appropriately for beneficial re-use for filling earthworks. Excavated sandstone, if any, is to be sold for beneficial re-use. **Table 3** shows that there is a net input requirement for fill so no ENM is expected to be removed from the site. Communication with the Client[14] has confirmed that no fill is anticipated to be taken off-site.

[10] Available online from http://returnandearn.org.au/

[11] Email communication from Andrew Hobbs "FW: 630.12842 FW: Brookvale Oval - waste RFIs", dated 12 September 2019.

[12] Email communication from Andrew Hobbs "FW: 630.12842 FW: Brookvale Oval - waste RFIs", dated 12 September 2019.

[13] Email communication from Andrew Hobbs "FW: 630.12842 FW: Brookvale Oval - waste RFIs", dated 12 September 2019.

[14] Phone call with Andrew Hobbs, 15 October 2019

For contaminated material management, refer **Section 5.9** of this WMP.

5.4 Demolition Waste Types and Quantities

The anticipated demolition works for the Project are as specified in **Section 2.3** and as shown in the architectural drawing 'Demolition Plan' attached in **Appendix A**.

In the absence of relevant demolition waste generation rates in Council's DCP and information on exact dimensions, SLR is unable to calculate the anticipated waste quantities from the removal of the boundary fence, the benches and the sections of hardstand. Should further information on types and quantities of demolition waste be required, SLR recommends that a demolition quantities survey is undertaken by a qualified professional.

While Chapter 2 of Council's Waste Management Guidelines provides demolition waste generation rates, it requires information on exact dimensions, including heights of structures located on site. In absence of information on exact dimensions, SLR has adopted the demolition waste generation rates presented in Appendix A of The Hills Development Control Plan (DCP) 2012. By adopting the 'Office' demolition waste generation rate, SLR is able to estimate the waste quantities generated from the removal of the small, single level buildings located at the Project. These buildings are shown in the architectural drawing 'Demolition Plan' and have been labelled one to six in **Figure 3** below.

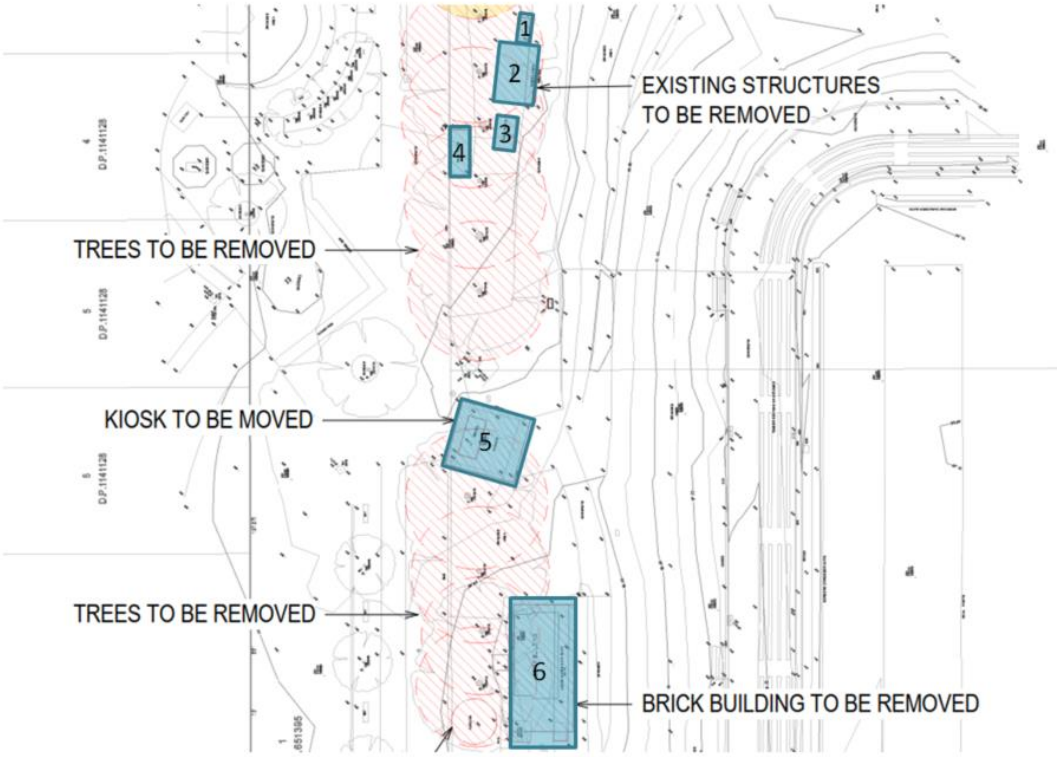


Figure 3 Building identification in demolition plan

The demolition waste generation rates used for the Project are provided in **Table 4**.

Table 4 Waste generation rates applied to the Project's demolition activities

Rate Type	Floor Area (m^2)	Waste types and quantities (tonnes)				
		Concrete	Brick	Timber or Gyprock	Metal	Other
Office	1,000	7,410	1485	124	29	155

The waste generation rates shown in **Table 4** and building numbers shown in **Figure 3** are used to estimate the quantities of demolition waste shown in **Table 5**. The floor areas shown in **Table 5** have been estimated using the architectural drawing 'Demolition Plan', attached in **Appendix A**, and identified as shown in **Figure 3**.

Table 5 Estimated types and quantities of demolition waste

Site Component	Area (m^2)	Waste types and quantities (tonnes)				
		Concrete	Brick	Timber	Metal	Other
Building 1	3	25	5	5	5	5
Building 2	24	180	40	5	5	5
Building 3	7	55	15	5	5	5
Building 4	10	75	15	5	5	5
Building 5	46	345	70	10	5	10
Building 6	81	600	120	10	5	15
Totals	**170**	**1,280**	**265**	**40**	**30**	**45**

Waste estimates have been rounded up to the nearest 5 tonnes.

5.5 Construction Waste Types and Quantities

The construction activities for the Project include the construction of the car parking area, a grandstand, a player access tunnel, a two-storey building and external amenities, as described in **Section 2.3.**

Based on Client communication, SLR understands that the Project is expected to have materials prefabricated off site and assembled on site[15]. Materials prefabricated off site are expected to include steel roof and sheeting which will be installed by mobile crane. Based on this, SLR anticipates that most construction work for the roof will be undertaken off-site and on-site construction waste generation is expected to be minimal, producing less than 1 m^3 of waste and recyclables weekly.

While Chapter 2 of Council's Waste Management Guidelines provides waste generation rates for the construction phase, it requires information on exact dimensions, including heights of structures located on site. In absence of information on exact dimensions, SLR has adopted the 'Office' waste generation rates from Appendix A of The Hills Development Control Plan (DCP) 2012.

In the absence of readily available published information for carpark and hardstand construction waste generation rates, SLR has developed 'Carpark' construction rates based on the 'Office' rates by:

- Removing timber, bricks and plasterboard as these materials are unlikely to be present in significant quantities in a modern carpark structure, and

[15] Email communication from Andrew Hobbs "FW: 630.12842 FW: Brookvale Oval - waste RFIs", dated 12 September 2019.

- Increasing the rates for concrete, metal, sand and soil and 'other', in proportion, to maintain the total tonnage per 1000 m^2 of construction.

The construction waste generation rates are shown in **Table 6** below.

Table 6 Waste generation rates applied to the Project's construction activities

Rate Type	Floor Area (m^2)	Waste types and quantities (tonnes)						
		Bricks	Concrete	Timber	Plasterboard	Sand and Soil	Metal	Other
Office	1,000	8.5	18.8	5.1	8.6	8.8	2.75	5
Carpark	1,000	--	30.6	--	--	14.3	4.5	8.1

The waste generation rates in **Table 6** are used to estimate the quantities of waste generated from the construction of the Project, provided in **Table 7**. The floor areas shown in **Table 7** have been estimated and named using the 'SITE PLAN' and 'AREA SCHEDULE' drawings provided in the architectural drawings, attached in **Appendix A**.

Table 7 Estimated types and quantities of construction waste

Site Component	Area (m^2)	Waste types and quantities (tonnes)						
		Bricks	Concrete	Timber	Plasterboard	Sand or Soil	Metal	Other
Rehabilitation Area	158	5	5	5	5	5	5	5
Physical Preparation Area 1	477	5	10	5	5	5	5	5
Property	65	5	5	5	5	5	5	5
Player's Comfort	328	5	10	5	5	5	5	5
Performance Analysis	37	5	5	5	5	5	5	5
Other Spaces	88	5	5	5	5	5	5	5
NRL Coaching	269	5	10	5	5	5	5	5
Membership & Community	153	5	5	5	5	5	5	5
Meeting Rooms	113	5	5	5	5	5	5	5
Medical and Rehabilitation	115	5	5	5	5	5	5	5
Marketing and Events	37	5	5	5	5	5	5	5
High Performance Staff	43	5	5	5	5	5	5	5
Football Operations	106	5	5	5	5	5	5	5
Finance and Administration	16	5	5	5	5	5	5	5
Executive	19	5	5	5	5	5	5	5
Corporate, Digital and Merchandise	56	5	5	5	5	5	5	5
Communications and Digital	54	5	5	5	5	5	5	5
Administration Specific Space	192	5	5	5	5	5	5	5
Women's Academy	29	5	5	5	5	5	5	5
Concourse	1,665	0	55	0	0	25	10	15
Plant Rooms	287	5	10	5	5	5	5	5
Service Rooms	758	10	15	5	10	10	5	5
External Services	107	5	5	5	5	5	5	5

Site Component	Area (m^2)	Waste types and quantities (tonnes)						
		Bricks	Concrete	Timber	Plasterboard	Sand or Soil	Metal	Other
Car Park	551	0	20	0	0	10	5	5
Total	**5,723**	**115**	**215**	**110**	**115**	**150**	**125**	**130**

Waste estimates have been rounded up to the nearest 5 tonnes.

From the architectural drawing 'GA PLAN – CONCOURSE LEVEL 00', SLR anticipates that construction work for landscaping purposes will be undertaken at the Project. Based on area estimations from the drawing 'AREA SCHEDULE', SLR anticipates that approximately 26 m^2 of the Project will be landscaped. Minor earthworks activities such as fill works may be required. As mentioned in **Section 5.3**, no fill is anticipated to be taken off site from the demolition and construction stage of the Project.

SLR has not provided estimates for the quantities of waste generated from the construction of the pool and spa to be located in the 'Rehabilitation Aquatics Area' and the stand and seating areas as these are subject to quantity surveys being undertaken by Rider Levett Bucknall for the Project. It is anticipated that the construction materials will be prefabricated off-site and brought on-site for assembly and hence the on-site construction waste generation from these activities is anticipated to be minimal. Better practice waste management however should still be practice and is discussed in the sections below.

5.6 Waste Avoidance

The building contractor, building designer or equivalent roles should follow better practice waste management, as indicated in **Section 3**, and the principles of Ecologically Sustainable Development. The following recommendations are derived from better practice waste management.

Recommendations for the building designer or equivalent role include:

- Using prefabricated components
- Avoiding printing where possible
- Using low formaldehyde wood products, post-consumer reused timber and/or Forest Stewardship Council certified timber
- Using fittings and furnishings that have been recycled, are made from or incorporate recycled materials and have been certified as sustainable or environmentally friendly by a recognised third-party certification scheme
- Reducing the use of polyvinyl chloride products
- Preferentially using paints, floor coverings and adhesives with low VOC (volatile organic compound) content
- Avoiding unsustainable timber imports including western red cedar, oregon, meranti, luan or merbau
- Selecting materials based on low embodied energy properties that suit the Project, such as recycled materials including recycled steel and glass-wool insulation, or concrete with slag and fly ash content
- Considering future changes in accommodation in building design
- Centralising wet areas together to minimise piping, and
- Designing for deconstruction rather than demolition.

Recommendations for the building contractor or equivalent role include:

- Applying practical building designs and construction techniques
- Minimising excavation works
- Investigating leased equipment and machinery rather than purchase and disposal
- Sorting and segregating site preparation and construction wastes to ensure efficient recycling of wastes
- Preferentially selecting building materials, fittings and furnishings, including structural framing, roofing and façade cladding, that have longer life and better re-use and recycling potential
- Storing wastes on-site appropriately to prevent cross-contamination and/or mixing of different waste types
- Considering future changes in accommodation in material selection
- Preferentially using materials which can be disassembled for reuse
- Reducing packaging waste by:
  - Returning packaging to suppliers where practicable to reduce waste further along the supply chain
  - Purchasing in bulk
  - Requesting cardboard or metal drums rather than plastics
  - Requesting metal straps rather than shrink wrap, and
  - Using returnable packaging such as pallets and reels.
- Arranging deliveries 'as needed' to mitigate degradation, weathering or moisture damage, and
- Ensure subcontractors are informed of and implement site waste minimisation and management procedures.

5.7 Re-use, Recycling and Disposal

Effective management of construction materials and C&D waste, including options for reuse and recycling where applicable and practicable, will be conducted. Only wastes that cannot be cost effectively reused or recycled are to be sent to landfill or appropriate disposal facilities.

Refer to **Table 2** for an outline of the proposed reuse, recycling and disposal methods for potential site preparation and construction waste streams generated by the Project.

In accordance with best practice waste management and Council's Waste Management Guidelines, the following specific procedures should be implemented:

- Facilitate on-site source separation to ensure efficient recycling, as outlined in **Section 5.8.1**
- Where source separation is utilised, materials are to be kept uncontaminated to guarantee the highest possible re-use value
- Facilitate re-use of materials on-site
- Assess excavation spoil for contamination status and beneficial re-use

- Dispose of all asbestos, hazardous and intractable wastes in accordance with SafeWork NSW and NSW EPA requirements
- Retain used crates for storage purposes unless damaged
- Provide separate waste bins for recyclable and non-recyclable general wastes
- Concrete will be reused for filling, levelling or road base or recycled off-site
- Tiles and bricks will be reused or crushed for landscaping and driveways
- Steel will be recycled off-site, and all other metals will be recycled where economically viable
- Framing timber will be reused as fencing, furniture, mulch or recycled off-site at second-hand timber suppliers
- Windows, doors and joinery will be recycled off-site at second-hand suppliers, where possible
- All glass that can be economically recycled will be recycled
- All solid waste timber, brick, concrete, rock that cannot be reused or recycled will be taken to an appropriate facility for treatment to recover further resources or for disposal to landfill in an approved manner
- Deliver batteries to drop off-site recycling facility, and
- Provide sufficient space for storage of garden waste and other waste materials on-site.

5.8 Waste Segregation, Storage and Servicing

5.8.1 Waste Segregation and Storage

Waste materials produced from site preparation and construction activities are to be separated at the source and stored separately on-site. It is anticipated that the Project will provide enough space on-site for separate storage, for example, separate skip bins or appropriately managed stockpiles, of the following waste types:

- Bricks, concrete and scrap metal
- Metal and steel, in a condition suitable for recycling at metal recycling facilities
- Timber
- Glass
- Hardstand rubble
- Uncontaminated excavation spoil, if present
- Contaminated excavation spoil, if present
- Hazardous waste, if present
- Paper and cardboard
- General co-mingled recycling waste, and
- Non-recyclable general waste.

If there is insufficient space on-site for full segregation of waste types, the site manager, or equivalent role, should consult with the waste and recycling collection contractor to confirm which waste types may be co-mingled prior to removal from the site.

5.8.2 Waste Storage Areas

Waste storage areas will be accessible and allow sufficient space for storage and servicing requirements. The storage areas will also be flexible in order to cater for change of use throughout the project. Where space is restricted, dedicated stockpile areas are to be delineated on the site, with regular transfers to dedicated skip bins for sorting.

All waste placed in skips or bins for disposal or recycling will be adequately contained to ensure that the waste does not fall, blow, wash or otherwise escape from the site. Waste containers and storage areas are to be kept clean and in a good state of repair.

In accordance with better practice waste management and Council's Waste Management Guidelines, areas designated for waste storage should:

- Allow unimpeded access by site personnel and waste disposal contractors
- Take into account environmental factors which could potentially cause an impact to the waste storage, such as slope, drainage and the location of watercourses and native vegetation
- Allow sufficient space for the storage of garden waste and other waste materials on-site, as based off the estimated waste quantity calculations
- Employ adequate environmental management controls to prevent off-site migration of waste materials and contamination from the waste. For example, consideration of slope, drainage, proximity relative to waterways, stormwater outlets and vegetation
- Consider visual amenity, safety and accessibility in their selection, and
- Not present hazards to human health or the environment.

5.8.3 Waste Servicing and Record Keeping

The Site Manager or equivalent role is to:

- Arrange for suitable waste collection contractors to remove any construction waste from site
- Ensure waste bins are not filled beyond recommended filling levels
- Ensure that all bins and loads of waste materials leaving site are covered
- Maintain waste disposal documentation detailing, at a minimum:
  - Descriptions and estimated amounts of all waste materials removed from site
  - Details of the waste and recycling collection contractors and facilities receiving the waste and recyclables
  - Records of waste and recycling collection vehicle movements, for example, date and time of loads removed, licence plate of collection vehicles, tip dockets from receiving facility, and
  - Waste classification documentation for materials disposed to off-site recycling or landfill facilities.

- Ensure lawful waste disposal records are readily accessible for inspection by regulatory authorities such as Council, SafeWork NSW or NSW EPA
- Ensure waste disposal is to suitably licensed facilities lawfully able to accept the material
- Remove waste during hours approved by Council.

If skips and bins are reaching capacity, removal and replacement should be organised as soon as possible. All site generated building waste collected in the skips and bins will leave the site and be deposited in the approved site lawfully able to accept them.

5.9 Contaminated and Hazardous Wastes

SLR understands that the management of contaminated and hazardous material including asbestos, is addressed in the Asbestos Management Plan being prepared for the Project by JK Environmental. Refer to the Asbestos Management Plan for further information on contaminated and hazardous material management.

All asbestos and other hazardous waste must be handled according to appropriate legislation and regulation including the Work Health and Safety Regulation 2011.

5.10 Signage

For best practice, standard signage is to be posted in all waste storage and collection areas. All waste containers should be labelled correctly and clearly to identify stored materials.

Signs approved by the NSW EPA for labelling of waste materials are available online[16] and should be used where applicable. A selection of signs prepared by NSW EPA is provided in **Figure 4.**

Figure 4 Examples of NSW EPA labels for waste skips and bins

5.11 Site Inductions

All staff, including sub-contractors and labourers, employed during the site preparation and construction phases of the Project must undergo induction training regarding waste management for the Project

Induction training is to cover, as a minimum, an outline of the WMP including:

16 NSW EPA approved waste materials signage https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/business-government-recycling/standard-recycling-signs

- Legal obligations and targets,
- Emergency response procedures on-site,
- Waste priorities and opportunities for reduction, reuse and recycling,
- Waste storage locations and separation of waste,
- Procedures for suspected contaminated and hazardous wastes,
- Waste related signage,
- The implications of poor waste management practices, and
- Responsibilities and reporting, including identification of personnel responsible for waste management and individual responsibilities.

It is the responsibility of the site manager or building contractor or equivalent role to notify Council of the appointment of waste removal, transport or disposal contractors.

5.12 Monitoring and Reporting

The following monitoring practices are to be undertaken to improve demolition and construction waste management and to obtain accurate waste generation figures:

1. Conduct waste audits of current projects where feasible.
2. Note waste generated and disposal methods.
3. Look at past waste disposal receipts.
4. Record this information to track waste avoidance, reuse and recycling performance and to help in waste estimations for future waste management plans.

Records of waste volumes recycled, reused or contractor removed are to be maintained. Additionally, it is recommended that dockets or receipts verifying recycling and disposal in accordance with this WMP are kept and presented to regulatory bodies when required.

Daily visual inspections of waste storage areas will be undertaken by site personnel and inspection checklists and logs recorded for reporting to the site manager or equivalent role on a weekly basis or as required. These inspections will be used to identify and rectify any resource and waste management issues.

Waste audits are to be carried out by the building contractor or equivalent role to gauge the effectiveness and efficiency of waste segregation procedures and recycling and reuse initiatives. Where audits show that the above procedures are not carried out effectively, additional staff training will be undertaken and signage re-examined.

5.13 Roles and Responsibilities

All personnel have a responsibility for their own environmental performance and compliance with all legislation. It will be the responsibility of the site manager, or equivalent role, to implement the WMP, and the responsibility of employees and subcontractors to ensure that they comply with the management plan at all times.

Suggested roles and responsibilities for waste management at the site are provided in **Table 8**. Where possible, a construction environmental manager, or equivalent role, should be appointed for the site preparation and construction work. An equivalent construction environmental manager role is defined to be a person dedicated to overseeing the environmental compliance and performance of a development. Where a construction environmental manager is not appointed, responsibilities in **Table 8** for the construction environmental manager will become those of the site manager.

Table 8 Suggested roles and responsibilities for site preparation and construction waste management

Role	Responsibilities
Site Manager	• Ensuring plant and equipment are well maintained • Ordering only the required amount of materials • Keeping materials segregated to maximise reuse and recycling • Ensuring that waste sorting and storage areas are maintained in a tidy and functional state and do no present hazards to human health or the environment • Ensure hazardous or contaminated materials are appropriately managed and disposed • Ensure site records and documentation is kept and is complete • Ensure this WMP are implemented, and • Liaise with Council and regulatory authorities as required.
Construction Environmental Manager or equivalent	• Ensuring staff and contractors are aware of site requirements for waste management • Establishing separate skips and stockpiles and recycling bins for effective waste segregation and recycling purposes • Developing or identifying, and using, local commercial opportunities for re-use of materials where re-use on-site is impractical • Facilitate correct waste collection • Engage suitable waste collection and disposal contractors • Approval of off-site waste disposal locations and checking licensing requirements • Arranging for the assessment of potentially hazardous or contaminated materials • Arranging for appropriate contaminated waste management and approval of off-site waste transport, disposal locations and checking licensing requirements • Monitor and maintain site environmental controls and • Monitoring, inspection and reporting requirements.

Daily visual inspections of waste storage areas may be delegated to other on-site staff. All contractors will be responsible for ensuring that their work complies with the WMP through the project induction and contract engagement process. It is the responsibility of the site manager to notify the relevant regulatory authorities of the appointment of waste removal, transport or disposal contractors.

6 Ongoing Waste and Recycling Management

6.1 Targets for Resource Recovery

The waste management performance of each new development should contribute to the overall NSW State targets for recycling outlined in the *NSW Waste Avoidance and Resource Recovery Strategy 2014-21*. The targets include increasing waste diverted from landfill to 75% and recycling 70% of commercial, industrial and municipal solid waste[17]. Each commercial and industrial development can contribute to this NSW State target through an effective waste management plan.

It is anticipated that the waste minimisation measures in the following sections will assist the Development to achieve this recycling rate. Waste reporting and audits can be used to determine the actual percentage of wastes that are being or have been recycled during operation.

6.2 Waste Streams and Classifications

The operation of the Project is anticipated to generate the following broad waste streams:

- General waste and commingled recyclables
- Food and organic waste
- Minor clinical wastes
- Bulk packaging wastes, including polystyrene and cardboard boxes
- Bulky waste items, such as furniture, gym equipment and e-waste, and
- Plant and general maintenance wastes.

Potential waste types, classifications, and management methods are provided in **Table 9**. For further information on how to determine a waste's classification, refer to the NSW EPA (2014) Waste Classification Guidelines[18]. Recycling drop off locations and contacts can be found on https://businessrecycling.com.au/ for each waste type.

[17] https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/wastestrategy/140876-warr-strategy-14-21.pdf?la=en&hash=EC6685E6624995242B0538B18C2E80C0CA2E51B3

[18] Available online from https://www.epa.nsw.gov.au/your-environment/waste/classifying-waste/waste-classification-guidelines

Table 9 Potential operational waste types, classifications and management methods

Waste Types	NSW EPA Classification	Proposed Management Method
Clean office paper	General solid (non-putrescible) waste	Paper recycling at off-site licensed facility
Cardboard including bulky cardboard boxes	General solid (non-putrescible) waste	Cardboard recycling at off-site licensed facility
Recyclable beverage containers, glass and plastic bottles, aluminium cans, steel cans	General solid (non-putrescible) waste	NSW container deposit scheme 'Return and Earn'; container recycling at off-site licensed facility
Food waste	General solid (putrescible) waste	Compost on or off-site or dispose to landfill with general garbage
Batteries	Hazardous waste	Off-site recycling, alternatively contact the Australian Battery Recycling Initiative for more information
Mobile Phones	Hazardous waste	Off-site recycling through the Mobile Muster program. Contact Mobile Muster for more information
Bulky polystyrene	General solid (non-putrescible) waste	Off-site recycling or disposal at landfill
Furniture	General solid (non-putrescible) waste	Off-site reuse or disposal to landfill
E-waste	Hazardous waste	Off-site recycling
Printer toners and ink cartridges	Hazardous waste	Off-site recycling, free disposal box or bags and pickup service exists for printer toners and ink cartridges
General garbage, including non-recyclable plastics	General solid (putrescible and non-putrescible) waste	Disposal at landfill
Spent smoke detectors[19]	General solid (non-putrescible) waste, or Hazardous waste (some commercial varieties)	Off-site disposal at licensed facility
Glass, other than containers	General solid (non-putrescible) waste	Off-site recycling
Light bulbs and fluorescent tubes	Hazardous waste	Off-site recycling or disposal, contact FluoroCycle for more information
Air-conditioning parts and filters	General solid (non-putrescible) waste	Off-site recycling or disposal to landfill

[19] The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) require that when more than 10 smoke alarms (particularly americium-241 sources) are collected for bulk disposal they must be treated as radioactive waste and the requirements of the National Health and Medical Research Council's Code of practice for the near-surface disposal of radioactive waste in Australia (1992) must be met.

Empty oil or paint drums, chemical containers	Hazardous waste if containers used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and residues have not been removed by washing or vacuuming. General solid (non-putrescible) waste if containers cleaned by washing or vacuuming.	Transport to comply with the transport of Dangerous Goods Code applies in preparation for off-site recycling or disposal at licensed facility.
Garden organics - lawn mowing, tree branches, hedge cuttings, leaves	General solid (non-putrescible) waste	Reuse on-site or contractor removal for recycling at licenced facility
Clinical waste such as sharps, body fluids and pharmaceutical medicines	Special waste	Contractor removal for disposal at licenced facility

6.3 Estimated Ongoing Waste Types and Quantities

6.3.1 Waste Generation at the Existing Site

Based on communication with the Client[20], SLR understands that the waste currently generated at the Project is collected after each sporting event. This collection frequency anticipated to continue for the Project, with waste and recyclables being generated at each sporting event and being collected afterwards.

In email communication[21], Council provided results of an audit that was undertaken on the waste currently generated at each sporting event at the site. Council specified that the waste is primarily generated from the items bought at the kiosk located on site. Based on the audit results undertaken by Council, the maximum recorded quantity of general waste collected after a sporting event is 173 L. SLR will use this value to account for the waste generated by the spectators at each sporting event.

In email communication[22], SLR was informed by the Client that the proposed grandstand seating is located on an area that is already used by spectators. Hence spectator capacity is not anticipated to increase and the existing amount of waste that is generated at the site will be used when calculating the waste that will be generated by spectators at the Project.

6.3.2 Waste Generation at the Project

SLR anticipates that the majority of the waste that will be generated at the Project will be generated in the two storey building to be built on site.

To calculate the additional operational waste generation quantities at the Project, SLR has adopted the 'Office' operational waste generation rate provided in Council's Waste Management Guidelines Chapter 5, shown below:

- Office: 10 L of waste and 10 L of recyclables per 100 m^2 of floor area per day

[20] Email communication from Andrew Hobbs "FW: Brookvale Oval waste generation", dated 23 September 2019.

[21] Email communication from Andrew Hobbs "FW: Brookvale Oval waste generation", dated 23 September 2019.

[22] Email communication from Glenn Scott "RE: Brookvale Oval waste generation", dated 23 September 2019.

The estimated quantities of operational waste and recyclables generated by the Project at each sporting event are shown in **Table 10**. Operational waste generation quantities from the medical and rehabilitation centre have not been included as this primarily constitutes clinical wastes, which are handled separately and are discussed in **Section 6.3.3**.

Quantities shown in **Table 10** are based on:

- The floor areas as presented on the architectural drawings shown in **Appendix A**
- The maximum quantity of existing waste based on Council's audit data, as shown in **Section 6.3.1**
- The waste and recyclables generation rate for 'Office' listed above
- The storage area is for the storage of waste per sporting event only, with a maximum storage capacity of one day, and
- General recyclables consisting of approximately 60% paper and cardboard, and 40% other recyclables[23].

Table 10 Estimated quantities of operator waste and recyclables

Location	Area (m^2)	General waste (L/day)	Paper and Cardboard Recyclables (L/day)	Other Recyclables (L/day)
Existing Spectator Waste	-	173	-	-
Physical Preparation Area 1	477	50	30	20
Rehabilitation Area	159	20	10	10
Performance Analysis	37	5	5	5
NRL Coaching	256	30	20	15
Membership and Community	137	15	10	10
Meeting Rooms	113	15	10	5
Marketing and Events	37	5	5	5
High Performance Staff	43	5	5	5
Football Operations	106	15	10	5
Finance and Administration	16	5	5	5
Executive	19	5	5	5
Corporate, Digital and Sales	56	10	5	5
Communications and Digital	124	15	10	5
Women's Academy	29	5	5	5
Total	**1,609**	**373**	**135**	**105**

Waste quantities rounded up to the nearest 5 tonnes.

Scheduled waste audits can be undertaken approximately one month into the operational phase of the Project to quantify actual waste generation rates generated by the Project. The assessment of generated waste volumes will be influenced by management and employee attitude to recycling and disposal, and the adequacy of signage and education provided.

[23] https://www.epa.nsw.gov.au/~/media/EPA/Corporate%20Site/resources/warrlocal/140442-audits-2011.ashx

6.3.3 Additional Operational Waste

In addition to the estimated quantities of waste and recyclables listed in **Table 10**, the Project is anticipated to produce:

- Minimal quantities of wastes from clinical activities at the medical and rehabilitation area and doping room, and
- Cardboard packaging waste from sporting equipment.

The majority of waste from the medical facilities located at the Project is anticipated to include items such as taping and first aid products and is considered to be general solid waste and can be disposed of in the general waste stream.

Waste that cannot be disposed of in the general waste stream and is considered clinical waste is anticipated to be minor, with less than 50 L of clinical waste expected to be generated per week. Clinical waste will be handled in accordance with appropriate legislation and regulations, including the Work Health and Safety Regulation 2011. An appropriately licensed special waste contractor should be engaged to remove all clinical waste generated at the medical facilities located at the Project.

Packaging waste for sporting equipment will be returned to the supplier.

6.4 Waste Storage Area

6.4.1 Waste Storage Area Size

The waste and recycling storage area must be large enough to adequately store all quantities of operational waste and recyclables between collections. This storage area must service the entire Project and all visitors and staff.

The estimated number of bins required for storage of operational waste and recyclables generated by the Project is shown in **Table 11** and is based on:

- The estimated quantities of operational waste and recyclables as shown in **Table 10**
- The bin dimensions outlined in Council's Waste Management Guidelines Appendix A, and
- A collection frequency after each sporting event with a maximum capacity for one day's storage.

To allow for ready movement of bins into and out of the bin storage area, the bin storage area will provide a floor area of at least 150% of the total minimum bin GFA. This was also considered in **Table 11** and can also act as a contingency in the event of spikes in waste generation.

Table 11 Minimum number of bins and storage area required for daily operational waste

Location	Bins required			Total number of bins	Recommended Storage Area (m^2)
	Garbage	Paper and Cardboard Recyclables	Recyclable Containers		
Waste storage area	2 x 240 L	1 x 240 L	1 x 240 L	4	5

Review of the 'GA PLAN – CONCOURSE LEVEL 00', attached in **Appendix A**, indicates there is approximately 8.8 m^2 allocated to the waste storage area, which is adequate to store the estimated quantities of operational waste and recyclables, as shown in **Table 11**, in between collections and also provide enough additional storage space for storage of an additional collection bins if required.

SLR notes that the recommended storage area identified in **Table 11** does not include consideration for the storage of bulky and hazardous waste. For the additional storage space for bulky and hazardous waste, refer to **Section 6.8**.

6.4.2 Waste Storage Area Location

The proposed location of the waste storage area is at the north western corner of the Project and is highlighted in red in **Figure 5** below. The waste storage area is to be accessed from the existing vehicle entry located adjacent to the waste storage area.

The proposed waste storage area is located outdoor and to be surrounded by a screen that will be used as a barrier between the waste storage area and the rest of the landscaping area that it is located on. The location of the screen will be adjustable to allow for increasing the storage area of the bins, if necessary.

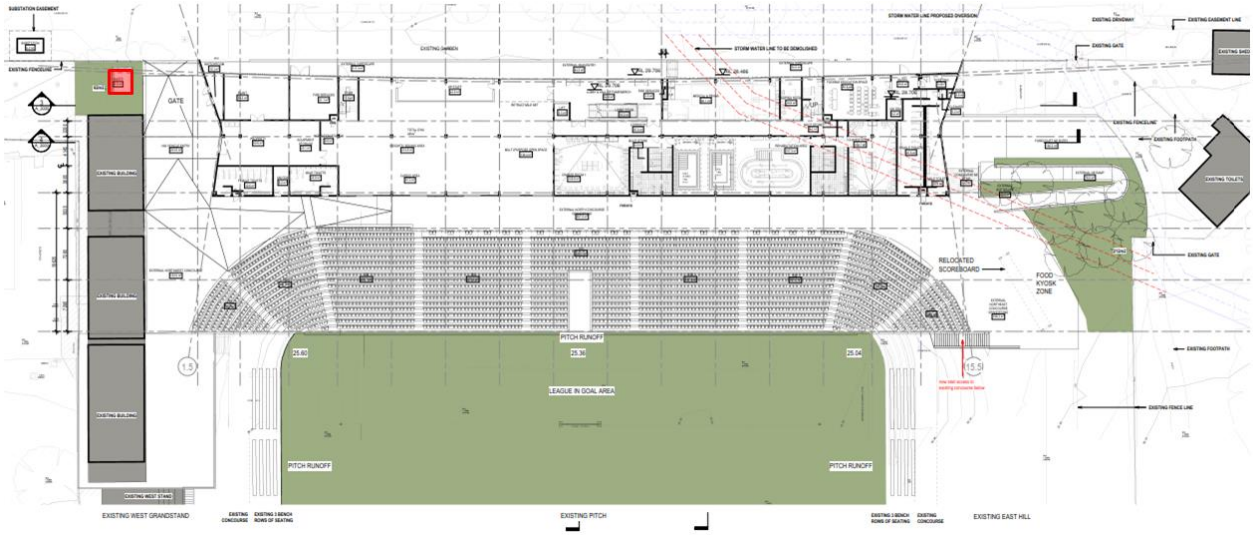


Figure 5 Proposed waste storage area

In accordance with Council's Waste Management Guidelines, the waste storage area must comply with the following location requirements:

- Be no closer than 3 m^2 to a given building entrance
- Be void of any stormwater or waste water entry points
- Be entirely in the site boundary
- Preserve visual amenity through landscaping, and
- Not be visible to the public.

6.4.3 Waste Storage Area Features

In accordance with Council's Waste Management Guidelines, the waste storage area is to have the following features:

- Designated space to accommodate waste, recycling containers, crates, pallets and other reusable items
- Be clear of any service and utilities infrastructure
- Be easily kept clean and tidy at all times
- Comply with the BCA, related Australian Standards and legislation, and
- Be graded and drained to a drainage system approved by Sydney Water.

6.5 Waste Servicing

It is anticipated that the waste and recycling bins will be collected at the end of each sporting event. As shown in **Figure 5**, the waste storage area is anticipated to be outdoors and serviced directly by the waste collection vehicle.

In accordance with better practice waste management, it is recommended that the following measures are undertaken:

- Waste collection vehicles should have convenient access to waste collection areas
- Waste collection vehicles should be able to enter and exit the Project in a forward direction, and
- A valid waste and recycling collection contract is recommended to demonstrate disposal at a waste facility lawfully able to accept the waste and the recyclables when the private waste contractor is engaged. Written evidence of the valid contract is recommended to be kept on-site.

An architectural drawing showing a preliminary vehicle swept path assessment undertaken for the Project by Taylor Thomson Whitting Pty Ltd is attached in **Appendix B.** The drawing shows that a waste collection vehicle is able to enter and exit the Project in a forward direction.

Based on communication with the Client[24], SLR understands that the swept path analysis shows that a large heavy vehicle will be able to access the site, however will have limited mobility. Private waste contractors offer a range of waste collection vehicle sizes and if requested by the Client, may be able to access the site with a smaller waste collection vehicle more suitable for site access.

The ability and compliance of the waste collection vehicle to access the Project is to be confirmed by the waste collection contractor and a traffic specialist professional.

6.6 Litter Management

For the health and safety of staff and visitors, careful consideration should be given to litter management at the Project. Good practice litter management is encouraged to reduce the impact of the Project on the surrounding environment, increase amenity for visitors and staff and minimise the likelihood of vermin and flies.

Good practice litter management controls include the following:

- The use of water refillers and bubblers to discourage the use of single use plastic water bottles

[24] Email communication from Andrew Hobbs "630.12842 FW: Brookvale Oval - waste RFIs", dated 12 September 2019

- The use of clear signage throughout the Project to label bins, direct visitors and staff to bin locations and encourage them to manage and dispose of their waste in an appropriate way. Signage is further discussed in **Section 6.10.**
- Training of employees and contractors on litter management issues and controls
- Placement of litter bins on site based on foot traffic flow
- Regular litter collection and collection when seen on-site
- Cultivating a culture of positive attitudes towards litter reduction
- Using accessible communication platforms, including distributing e-newsletters, texts, messages on invoices to inform visitors of the Project's commitment to the environment, and
- Promotion or sale of branded reusable items, such as Keep Cups and reusable bottles, to discourage the use of single-use plastic cups and bottles.

6.7 Waste Avoidance, Reuse and Recycling

6.7.1 Waste Avoidance

Waste avoidance measures include:

- Returning packaging materials like cardboard to the suppliers through the services of the supplier delivery trucks, allowing the reduction of waste further along the supply chain
- Providing durable cups, mugs, crockery and cutlery rather than disposable items in places such as the kitchen used by staff
- Presenting all waste reduction initiatives to staff and visitors as part of their induction program
- Purchasing bulk materials which use recycled materials, such as recycled food packaging
- Avoiding the use of single use packets or containers being used at the Project
- Selling drinks in recyclable PET bottles or cups only
- Providing paper straws
- Printing programmes for events at the Project on recycled paper or distributing digital copies
- Printing visitor tickets and receipts on recycled paper, and
- Leasing equipment and machinery rather than outright purchase and disposal.

6.7.2 Reuse

Possible re-use opportunities include:

- Establishing in-house systems to transport products in re-useable packaging, and
- Paper recycling trays provided in office areas for scrap paper reuse and recycling

6.7.3 Recycling

Additional recycling opportunities include:

- Collecting and recycling e-wastes

- Plastic stretch wrapping and general soft plastics collection with a baler for ease of recycling
- Printer toners and ink cartridges, if purchased, to be collected in allocated bins for appropriate contractor recycling
- Development of 'buy recycled' purchasing policy, and
- Providing separate recycling collections within each of the administration and office spaces, the medical and rehabilitation room and in public spaces for example, paper, plastics, cans and glass.

6.8 Bulky and Hazardous Wastes

In accordance with Council's Waste Management Guidelines, an area is to be provided in the Project site for the storage of reusable items. Additionally, in accordance with better practice waste management, it is recommended that a storage area is provided for large, bulky or hazardous wastes that cannot be disposed of in the general waste or recyclable streams. This includes items such as reusable or broken pallets, furniture, monitors, disused equipment and other bulky waste.

SLR recommends that the size of the Project's reusable item and bulky waste storage area should be not less than 8 m^2. The storage and collection of the bulky waste is recommended to be undertaken as currently occurs at the Project.

The Project's management may consider organising a separate casual collection service for as required, to remove bulky waste items, or engaging a contractor to collect and transport these items for reuse, recycling or disposal.

6.9 Communication Strategies

Education and communication on waste management initiatives and measures should be clearly conveyed to building managers, staff, visitors and cleaners on a regular basis. This assists in overcoming the transient nature of contractors, staff and visitors. Benefits of providing this communication include:

- Improved satisfaction with services
- Increased ability and willingness to participate in recycling
- Improved amenity and safety
- Improved knowledge and awareness through standardisation of services
- Increased awareness or achievement of environmental goals and targets
- Reduced contamination of recyclables stream which can incur a collection contractor penalty fee
- Increased recovery of recyclables and organics material, if implemented, and
- Greater contribution to state-wide targets for waste reduction and resource recovery.

To realise these benefits, the following communication strategies is recommended for each facility manager:

- Use consistent signage and colour coding throughout the Project, as detailed in **Section 6.10**
- Ensure all visitors and staff are informed of correct waste separation and management procedures
- Provide directional signage to show locations and routes to waste storage areas

- Repair signs and labels promptly to avoid a breakdown in communication
- Clearly label general and comingled waste bins to ensure no cross contamination and to identify the types of waste that may be disposed of in each bin, and
- Educate all visitors, staff and contractors associated with the Project, ensuring they adhere to this WMP.

6.10 Signage

Signs which clearly identify waste management procedures and provisions to contractors, visitors, staff and visitors should be distributed around the Project.

The design and use of safety signs for waste rooms and enclosures should comply with Australian Standard *AS 1319 Safety Signs for the Occupational Environment* and clearly describe the types of materials designated for each bin.

Colour-coded and labelled bin lids are necessary for identifying bins and the Australian Standard *AS 4123.7-2006 (R2017) Mobile waste containers Part 7: Colours, markings, and designation requirements* provides recommendations for the designated colours for waste bins depending on the type of waste the bins are to receive. The colours anticipated to apply to ongoing waste generated by the Project are:

- Blue: Paper and cardboard
- Yellow: Recyclables other than paper and cardboard
- Red: General waste
- Green: Food waste and garden organics

All bin signage should also follow the NSW EPA's standard signage[25].

Additionally, key signage considerations are:

- Clear and correct labelling on all waste and recycling bins, indicating the correct type or types of waste that can be placed into a given bin, as shown in **Figure 4**
- Signposts and directions to location of waste storage areas, including the composting facilities on-site, as per Council's DCP
- Clear signage in all waste storage areas to instruct users how to correctly separate waste and recycling
- Maintaining a consistent style colour scheme and system for signs throughout the Project, and
- Emergency contact information for reporting issues associated with waste or recycling management.

[25] NSW EPA waste signs/posters http://www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm

Figure 6 An example of bin labels that may be used for operational waste

6.11 Monitoring and Reporting

Monitoring is recommended to ensure waste and recycling management arrangements and provisions for the Project are functional; practical and are maintained to the standard outlined in this plan, at a minimum.

Visual assessments of bins and bin storage areas should be conducted by the building manager, at minimum:

- Weekly, in the first two months of operation to ensure the waste management system is sufficient for the operation, and
- Every six months, to ensure waste is being managed to the standards outlined in this document.

In addition, audits are to be conducted on a half-yearly basis to ensure WMP provisions are maintained.

Quantities of waste and recyclables associated with disposal of waste and recyclables, including dockets, receipts and other physical records should be recorded by the building manager. This is to allow reviews of the waste management arrangements and provisions at the site over time. Records of waste disposal should also be available to regulatory authorities such as the NSW Environmental Protection Authority and SafeWork NSW, upon request.

Any deficiencies identified in the waste management system, including, but not limited to, unexpected waste quantities, is to be rectified by the building manager as soon as it is practical. Where audits show that recycling is not carried out effectively, management should carry out additional staff training, signage re-examination and reviews of the waste management system where the audit or other reviewing body has deemed necessary. If this waste management plan no longer sufficiently meets the needs of the Project, review and updates to maintain suitability must be undertaken.

6.12 Roles and Responsibilities

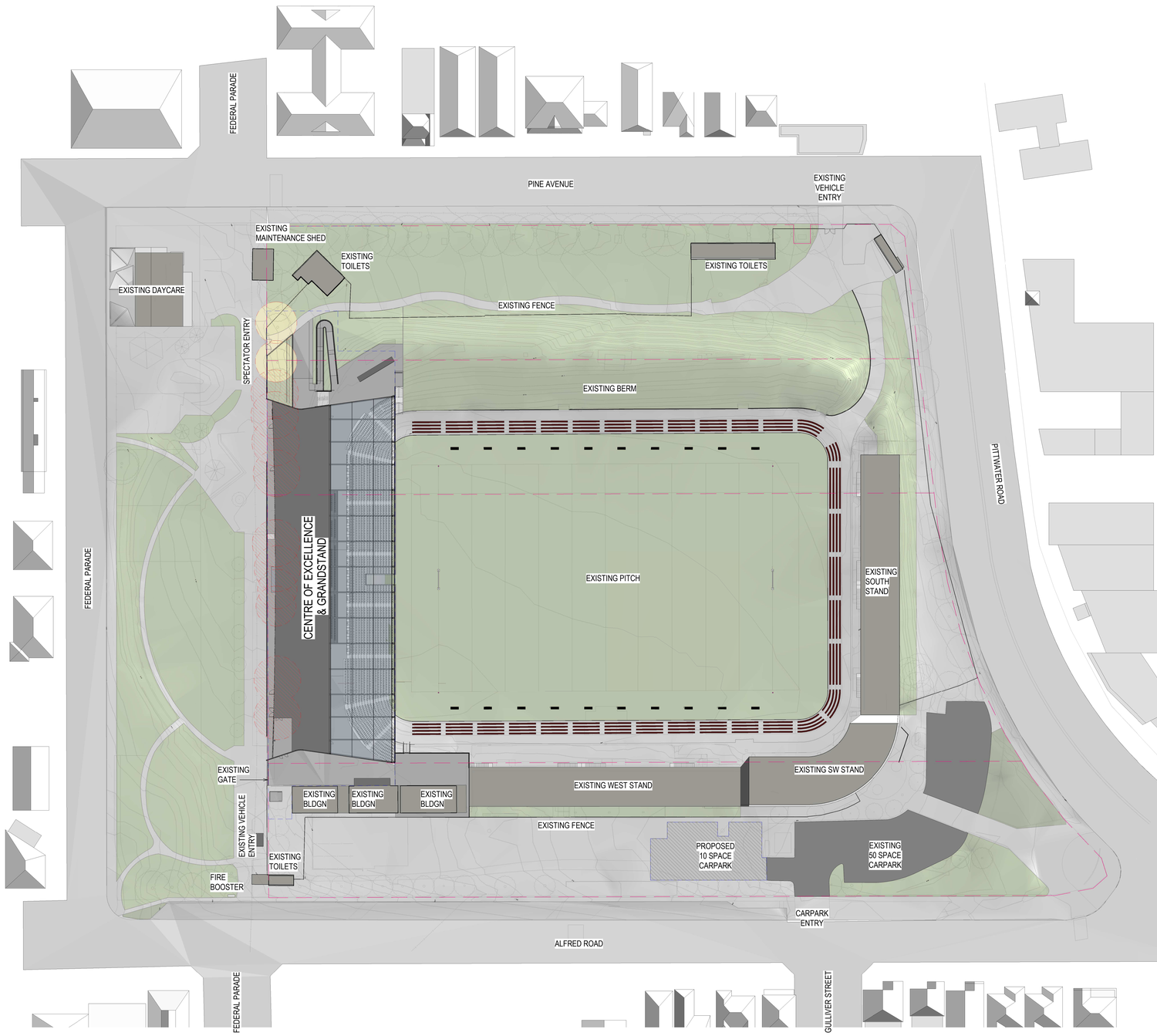
It is the responsibility of the building manager to implement this WMP and a responsibility of all visitors and staff to follow the waste management procedures set out by the WMP. SLR recommends that all subcontractors enlisted by the Client are to have roles and responsibilities identified and the Project's waste management system clearly explained. A summary of recommended roles and responsibilities are provided in **Table 12**.

Table 12 Delegated waste-related roles and responsibilities for the Project

Responsible Person	General Tasks
Building managers	Ensure the WMP is implemented throughout the life of the operation.
	Update the WMP as needed to ensure the plan remains applicable to the site.
	Undertake liaison and management of waste and recycling collections with Council, contractors and any relevant authorities.
	Regularly conduct waste audits to review system performance and identify any additional materials that could be recovered.
	Manage any complaints and non-compliances reported through waste audits and other sources.
	Ensure all monitoring and audit results are well documented and conducted as specified in this WMP.
	Conduct regular waste sorting, physical condition and cleanliness inspections of bins, waste storage rooms and all other waste management equipment for functionality, hygiene and safety.
	Organise cleaning and maintenance requirements for waste management equipment as required
	Ensure waste and recycling storage rooms are kept tidy.
	Monitor bins to ensure no overfilling occurs and manage unexpected waste quantities to mitigate waste overflow in storage areas
	Ensure effective signage, communication and education is provided to alert visitors, employees, site management staff and cleaners about the provisions of this WMP and waste management equipment use requirements.
	Monitor and maintain signage to ensure it remains clean, clear and applicable.
	Manage ongoing education on correct source separation and waste management at least every three months.
	Ensure that regular cleaning and daily transfer of bins is correctly being undertaken by the cleaners.
	Ensure all waste compactors and balers, if obtained, are maintained and operational.
	Ultimately responsible for the management of all waste management equipment, cleaning requirements, waste transfer and collection arrangements.
Cleaners and caretakers	Transfer general waste, recyclables, cardboard waste and hazardous waste to centralised waste and recycling collection rooms on a daily basis or as required.
	Maintain and operate compactors and balers, if obtained, and ensure no overfilling occurs.
	Cleaning of all bins and waste and recycling rooms as per the direction of the building manager, or equivalent role.
	Monitor bins to ensure no overfilling occurs.
	Ensure bins and waste storage areas are kept tidy and clean.
	Compliance with the provisions of this WMP.
Visitors and staff	Adhere to all waste management directions as given by the building manager.

APPENDIX A

Architectural Drawings

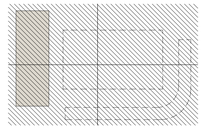


1 A_2000 PRECINCT SITE PLAN
1 : 500

SITE LEGEND

- SITE BOUNDARY
- EXTENT OF BUILDING WORKS
- TREE SUBJECT TO STORMWATER DIVERSION STRATEGY
- TREE TO BE REMOVED

REFERENCE MAP



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PROJECT
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DRAWING TITLE
SITE PLAN

STATUS
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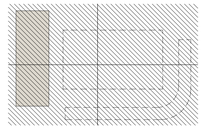
1 DEMOLITION PLAN
A_2000 1 : 500

DEMOLITION LEGEND

- SITE BOUNDARY
- EXTENT OF BUILDING WORKS
- TREE SUBJECT TO STORMWATER DIVERSION STRATEGY
- DEMOLITION

REFERENCE MAP



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DRAWING TITLE
DEMOLITION PLAN

STATUS
SCHEMATIC DESIGN + DA

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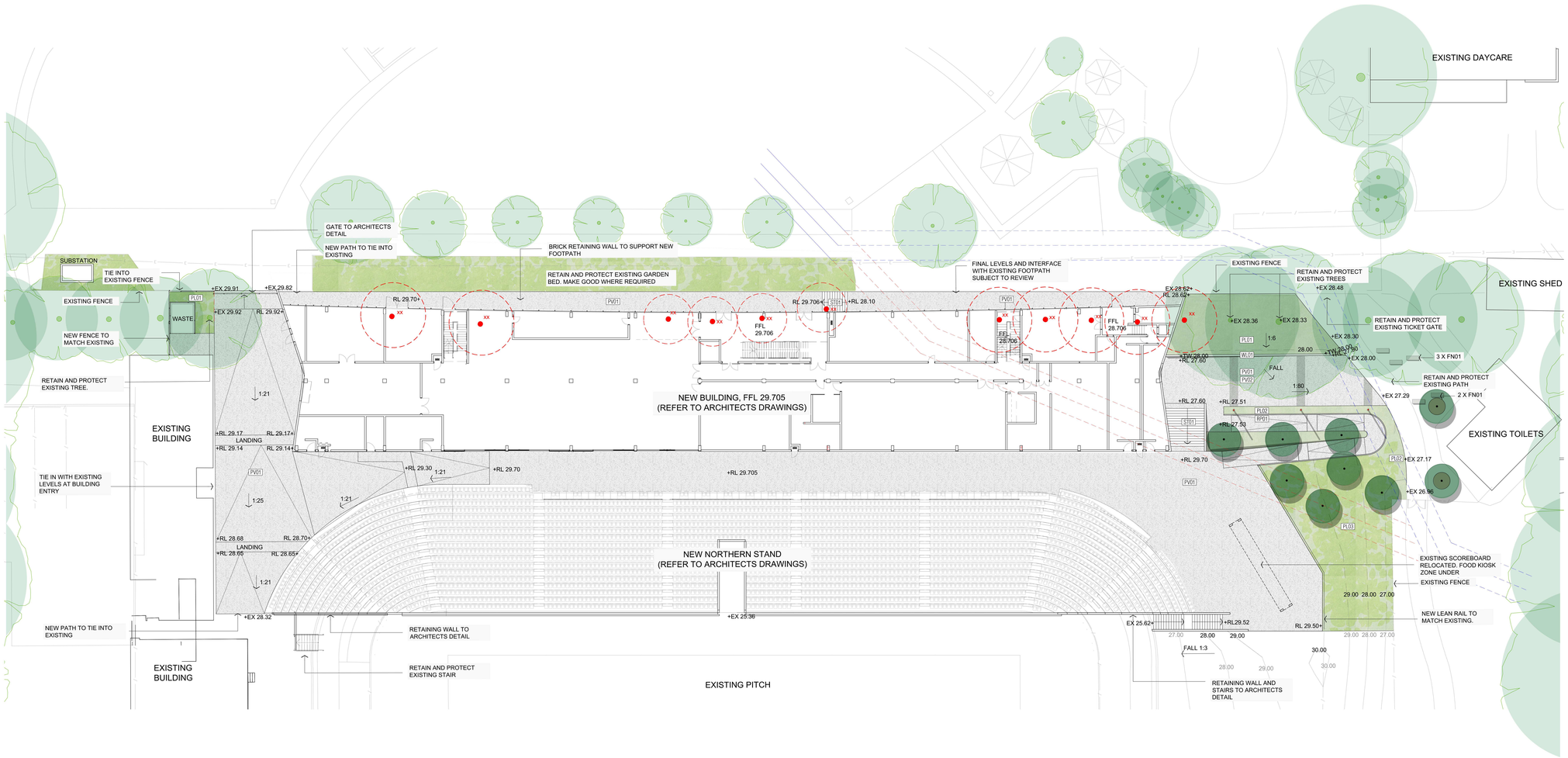


LEGEND

SITE AND LEVELS

REF.	SYMBOL	DESCRIPTION
N/A		EXTENT OF WORKS BOUNDARY
N/A	+RL13.50	FINISHED GROUND LEVEL (PROPOSED)
N/A	+EX13.50	FINISHED GROUND LEVEL (EXISTING)
N/A	+TW13.50	TOP OF WALL

PAVEMENTS

PV01	INSITU CONCRETE PAVING COLOUR/ FINISH: GREY/ BROOM FINISH
PV02	INSITU CONCRETE PAVING COLOUR/ FINISH: GREY WITH EXPOSED AGGREGATE/ WASHED FINISH

WALLS

W.01	BRICK RETAINING WALL COLOUR/ FINISH: MATCH ARCHITECTURAL FACADE

PLANTING (TREES)

REF.	SYMBOL	DESCRIPTION
	xx	EXISTING TREE TO BE DEMOLISHED. REFER TO ARBORIST PLAN FOR SPECIES AND LOCATION
		EXISTING TREE RETAIN AND PROTECT
		NEW TREE

PLANTING

PL.01	PLANTING MIX 01 REFER TO PLANTING SCHEDULE FOR SPECIES TYPE
PL.02	PLANTING MIX 02 REFER TO PLANTING SCHEDULE FOR SPECIES TYPE

FURNITURE

FN01	PRECAST CONCRETE SEAT WITH TIMBER SLATS DIMENSIONS: 430MM X 500X 1500MM FINISH: CLASS 2 PRODUCT: FLINDERS RANGE SUPPLIER: QUATRO OR EQUIVALENT

STAIRS AND RAMPS

ST01	INSITU CONCRETE STAIR COLOUR/ FINISH: GREY/ BROOM FINISHED
RP01	INSITU CONCRETE RAMP WITH BRICK RETAINING WALL UNDER COLOUR/ FINISH: GREY/ BROOM FINISHED

LIGHTING

	POST TOP LIGHT FINISH: GREY POWDERCOAT SIZE: 8M TALL

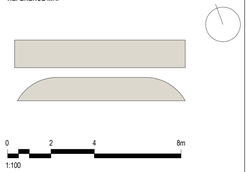
PLANTING SCHEDULE

BOTANICAL NAME	COMMON NAME	SIZE	SPACING (/M2)	MATURE SIZE (HEIGHT X WIDTH)	% OF MIX	QUANTITY
TREES						
Lophostemon confertus	Brush Box	1000L	AS SHOWN	15M X 15M	N/A	9
PLANTING MIX 01 (350m2)						
Dianella 'Cassa Blue'	Paroo Lily	140MM	6	400MM x 400MM	35%	735
Liriope 'Evergreen Giant'	Liriope	140MM	6	600MM x 400MM	40%	840
Lomandra 'Tanika'	Dwarf Mat Rush	140MM	6	600MM x 400MM	25%	525
PLANTING MIX 02 (75m2)						
Lomandra 'Tanika'	Dwarf Mat Rush	140MM	6	600MM x 400MM	20%	90
Doryanthese excelsa	Gymea Lily	300MM	2	2000MM x 2000MM	5%	23
Carpobrotus glaucescens	Pig Face	140MM	8	600MM x 400MM	30%	135
Myoporum 'Yareena'	Creeping boobialla	140MM	8	100MM x 10MM	15%	68
Westringia 'Mundi'	Coastal Rosemary	300MM	6	1500MM x 500MM	30%	135

NOTES

_AS PER THE NORTHERN BEACHES COUNCIL LANDSCAPED AND OPEN SPACE BUSHLAND SETTING MAP THE PROJECT SITE IS NOT SUBJECT TO MINIMUM PLANTING REQUIREMENTS. THE PROJECT SITE INCLUDES A TOTAL OF 450M2 OF NEW PLANTING AREA WITH MINIMUM DEPTHS OF 450MM. 9 X 1000L LOPHOSTEMON CONFERTUS WILL BE INSTALLED AS PART OF THE PROJECT WORKS WITH MINIMUM SOIL DEPTHS OF 1200MM.
_FINAL TREE AND PLANTING SPECIES, MIXES, QUANTITIES AND LOCATIONS TO BE CONFIRMED POST DEVELOPMENT APPLICATION
_ALL PLANTING ZONES TO INCLUDE:
_SUBSOIL IRRIGATION
_75MM MULCH ZONES

REFERENCE MAP



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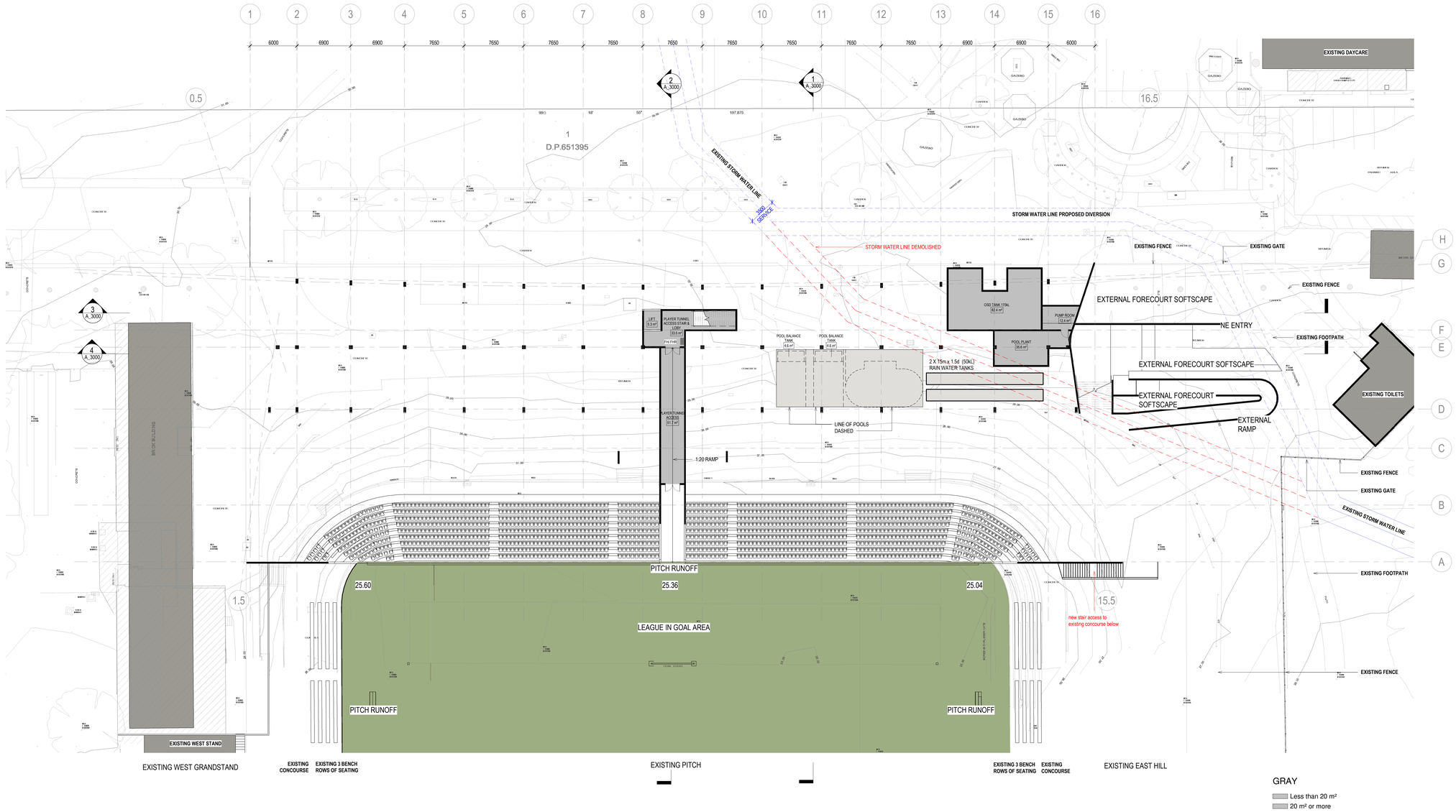

1 A_2000 **B00 LOWER GROUND**
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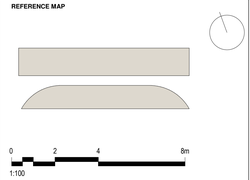

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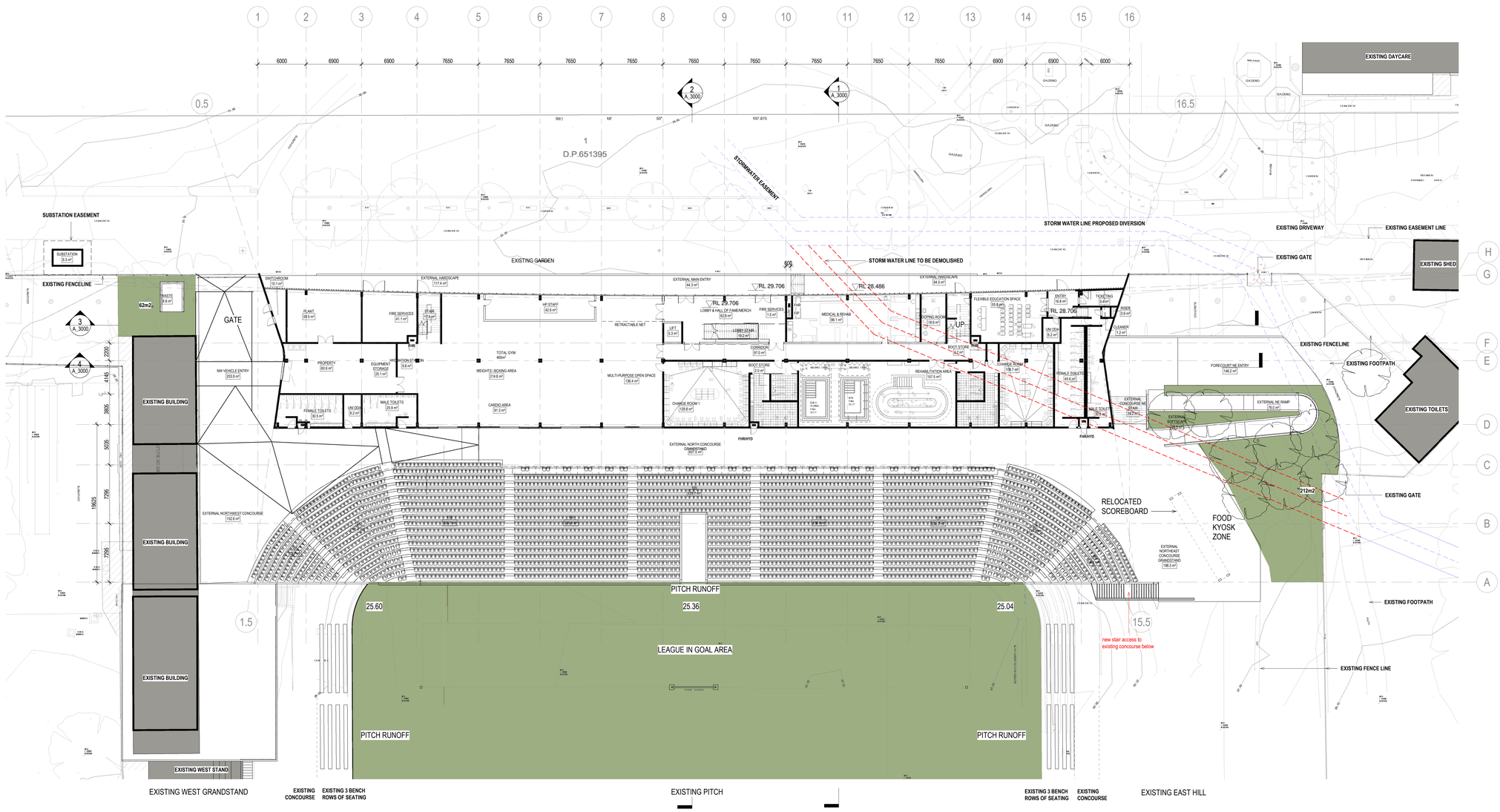

1 CONCOURSE LEVEL 00
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DRAWING TITLE
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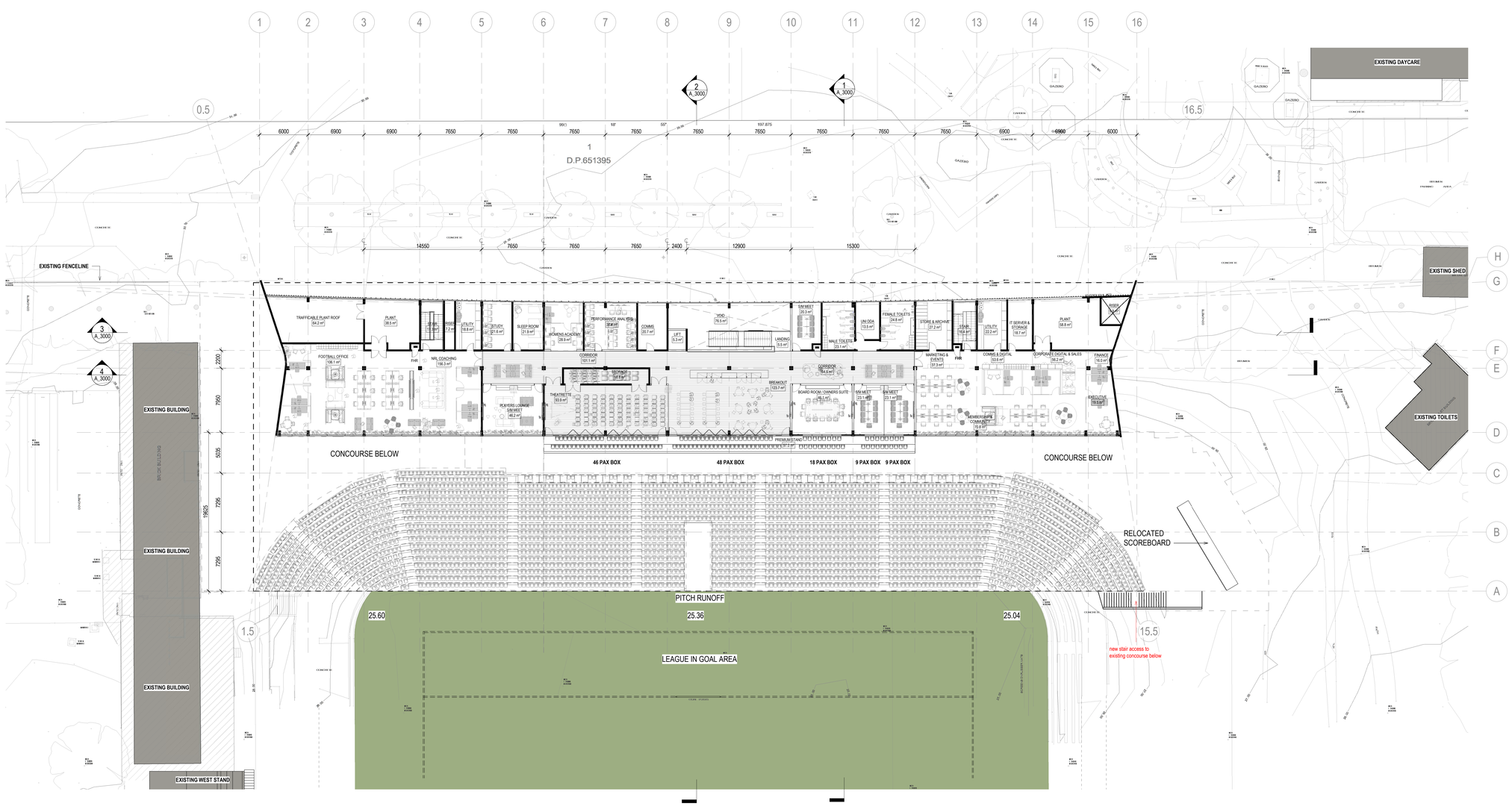

1 UPPER LEVEL 01
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REFERENCE MAP

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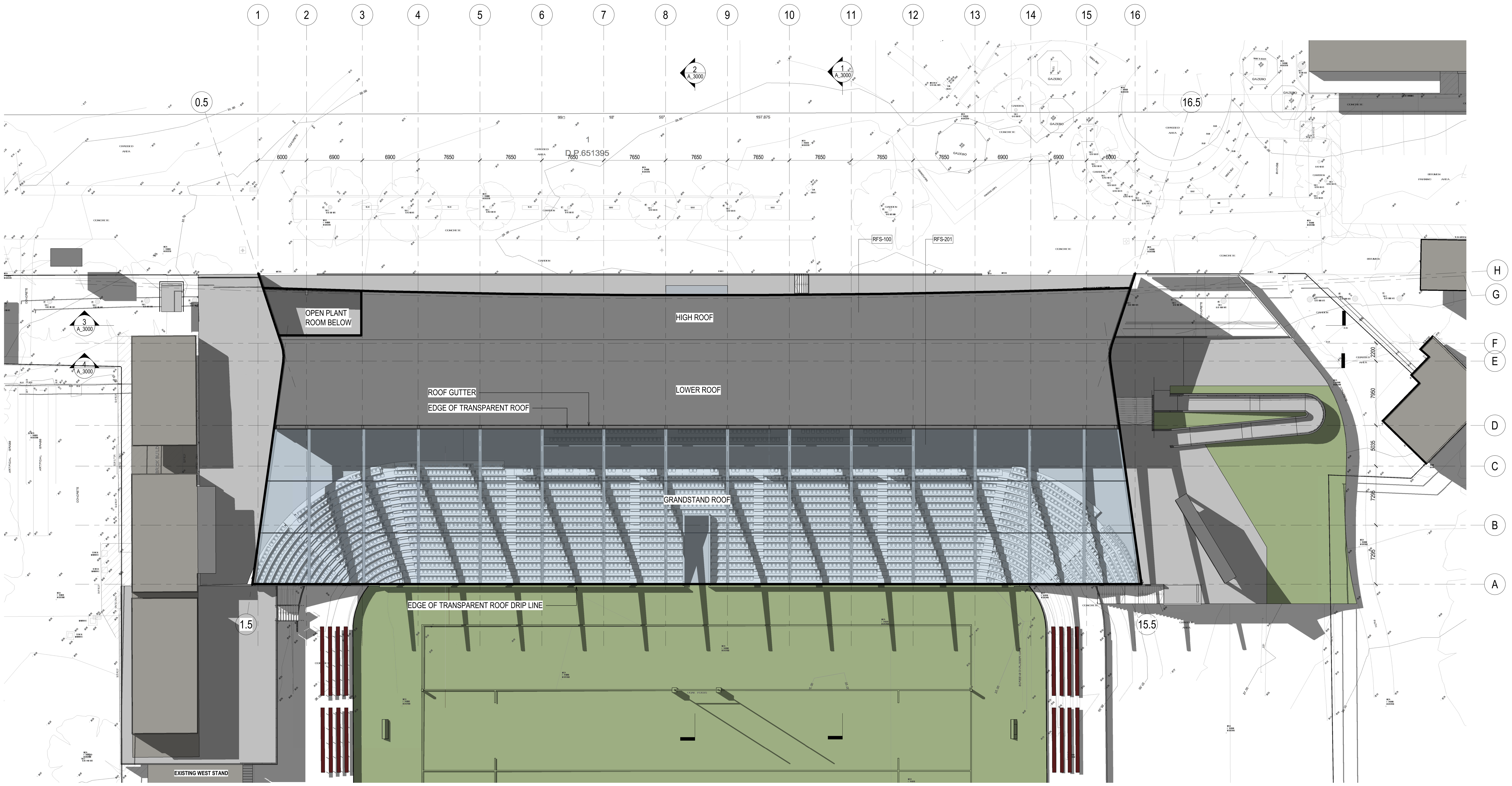
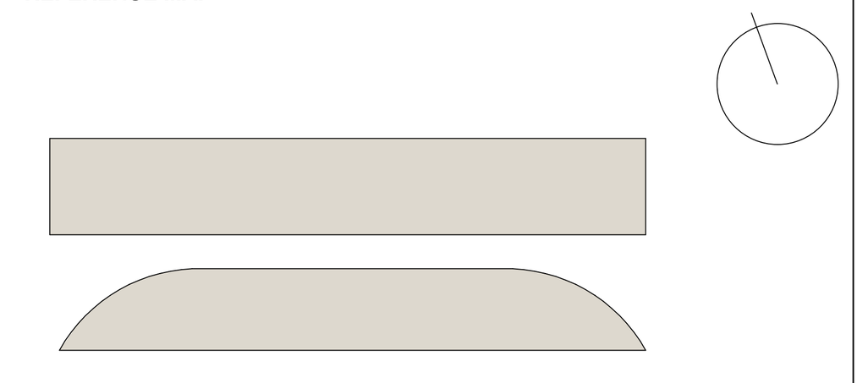


1 ROOF LEVEL
A_2000 1 : 200



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ARCHITECT / INTERIOR DESIGN / LANDSCAPE ARCHITECT

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Nominated Architects NSW: Tony Grist 5350 Glenn Scott 6842 Ross de la Motte 7398

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MANLY WARRINGAH SEA EAGLES

PROJECT
BROOKVALE OVAL REDEVELOPMENT CENTRE OF EXCELLENCE AND GRANDSTAND

DRAWING TITLE
GA PLAN - ROOF PLAN

STATUS
SCHEMATIC DESIGN + DA

SCALE @ A0	DRAWN	REVIEWED	APPROVED
1 : 200	RP	FG	GS

PROJECT NUMBER	DRAWING NUMBER	REV
014340	A_1003	J

Original Sheet Size A0 - 841 x 1189mm

BOR GFA AREA SCHEDULE

Department	Name	Areas Area
ACADEMY & WOMENS		
ACADEMY & WOMENS	WOMENS ACADEMY	29 m²
ACADEMY & WOMENS: 1		29 m²
ADMIN SPECIFIC SPACE		
ADMIN SPECIFIC SPACE	BREAKOUT	124 m²
ADMIN SPECIFIC SPACE	UTILITY	19 m²
ADMIN SPECIFIC SPACE	STORE & ARCHIVE	27 m²
ADMIN SPECIFIC SPACE	UTILITY	22 m²
ADMIN SPECIFIC SPACE: 4		192 m²
COMMUNICATIONS & DIGITAL		
COMMUNICATIONS & DIGITAL	COMMS & DIGITAL	54 m²
COMMUNICATIONS & DIGITAL: 1		54 m²
CORPORATE, DIGITAL & MECHANDISE		
CORPORATE, DIGITAL & MECHANDISE	CORPORATE DIGITAL & SALES	56 m²
CORPORATE, DIGITAL & MECHANDISE: 1		56 m²
EXECUTIVE		
EXECUTIVE	EXECUTIVE	19 m²
EXECUTIVE: 1		19 m²
FINANCE & ADMINISTRATION		
FINANCE & ADMINISTRATION	FINANCE	16 m²
FINANCE & ADMINISTRATION: 1		16 m²
FOOTBALL OPERATIONS		
FOOTBALL OPERATIONS	FOOTBALL OFFICE	106 m²
FOOTBALL OPERATIONS: 1		106 m²
HIGH PERFORMANCE STAFF		
HIGH PERFORMANCE STAFF	HP STAFF	43 m²
HIGH PERFORMANCE STAFF: 1		43 m²
LANDSCAPE		
LANDSCAPE	EXTERNAL SOFTSCAPE	26 m²
LANDSCAPE: 1		26 m²
MARKETING & EVENTS		
MARKETING & EVENTS	MARKETING & EVENTS	37 m²
MARKETING & EVENTS: 1		37 m²
MEDICAL & REHABILITATION		
MEDICAL & REHABILITATION	MEDICAL & REHAB	96 m²
MEDICAL & REHABILITATION	DOPING ROOM	19 m²
MEDICAL & REHABILITATION: 2		115 m²
MEETING ROOMS		
MEETING ROOMS	BOARD ROOM / OWNERS SUITE	46 m²
MEETING ROOMS	S/M MEET	23 m²
MEETING ROOMS	S/M MEET	23 m²
MEETING ROOMS	S/M MEET	20 m²
MEETING ROOMS: 4		113 m²
MEMBERSHIP & COMMUNITY		
MEMBERSHIP & COMMUNITY	FLEXIBLE EDUCATION SPACE	56 m²
MEMBERSHIP & COMMUNITY	MEMBERSHIP & COMMUNITY	71 m²
MEMBERSHIP & COMMUNITY	TICKETING	9 m²
MEMBERSHIP & COMMUNITY	ENTRY	17 m²
MEMBERSHIP & COMMUNITY: 4		153 m²
NRL COACHING		
NRL COACHING	NRL COACHING	156 m²
NRL COACHING	STORAGE	19 m²
NRL COACHING	THEATRETTE	94 m²
NRL COACHING: 3		269 m²
OTHER SPACES		
OTHER SPACES	IT SERVER & STORAGE	19 m²
OTHER SPACES	LOBBY & HALL OF FAME/MERCH	63 m²
OTHER SPACES	CLEANER	1 m²
OTHER SPACES	LANDING	5 m²
OTHER SPACES: 4		88 m²
PERFORMANCE ANALYSIS		
PERFORMANCE ANALYSIS	PERFORMANCE ANALYSIS	37 m²
PERFORMANCE ANALYSIS: 1		37 m²
PHYSICAL PREPARATION AREA 1		
PHYSICAL PREPARATION AREA 1	WEIGHTS / BOXING AREA	215 m²
PHYSICAL PREPARATION AREA 1	MULTI-PURPOSE OPEN SPACE	136 m²
PHYSICAL PREPARATION AREA 1	HYDRATION STATION	10 m²
PHYSICAL PREPARATION AREA 1	EQUIPMENT STORAGE	25 m²
PHYSICAL PREPARATION AREA 1	CARDIO AREA	91 m²
PHYSICAL PREPARATION AREA 1: 5		477 m²
PLAYERS COMFORT		
PLAYERS COMFORT	CHANGE ROOM 1	130 m²
PLAYERS COMFORT	CHANGE ROOM 2	109 m²
PLAYERS COMFORT	SLEEP ROOM	22 m²
PLAYERS COMFORT	STUDY	22 m²
PLAYERS COMFORT	PLAYERS LOUNGE S/M MEET	46 m²
PLAYERS COMFORT: 5		328 m²
PROPERTY		
PROPERTY	PROPERTY	61 m²
PROPERTY	BOOT STORE	2 m²
PROPERTY	BOOT STORE	3 m²
PROPERTY: 3		65 m²
REHABILITATION AREA		
REHABILITATION AREA	REHABILITATION AREA	158 m²
REHABILITATION AREA: 1		158 m²
Grand total: 45		2381 m²

BOR PLANT AREA SCHEDULE

Department	Name	Areas Area
B00 LOWER GROUND		
PLANT		
PLANT	POOL PLANT	36 m²
PLANT	PUMP ROOM	12 m²
		48 m²
L00 GROUND		
PLANT		
PLANT	FIRE SERVICES	41 m²
PLANT	PLANT	60 m²
PLANT	SWITCHROOM	10 m²
		111 m²
L01 LEVEL 1		
PLANT		
PLANT	COMMS	21 m²
PLANT	PLANT	59 m²
PLANT	PLANT	38 m²
PLANT	RISER	10 m²
		128 m²
Grand total: 9		287 m²

BOR SERVICE AREA SCHEDULE

Department	Name	Areas Area
B00 LOWER GROUND		
SERVICE		
SERVICE	LIFT	5 m²
SERVICE	PLAYER TUNNEL ACCESS	52 m²
SERVICE	PLAYER TUNNEL ACCESS	29 m²
SERVICE	PLAYER TUNNEL ACCESS STAIR & LOBY	34 m²
		120 m²
L00 GROUND		
SERVICE		
SERVICE	CORRIDOR	97 m²
SERVICE	FEMALE TOILETS	46 m²
SERVICE	FEMALE TOILETS	30 m²
SERVICE	FIRE SERVICES	2 m²
SERVICE	LIFT	5 m²
SERVICE	LOBBY STAIR	19 m²
SERVICE	MALE TOILETS	31 m²
SERVICE	MALE TOILETS	26 m²
SERVICE	RISER	1 m²
SERVICE	STAIR	18 m²
SERVICE	UNI DDA	8 m²
SERVICE	UNI DDA	6 m²
		288 m²
L01 LEVEL 1		
SERVICE		
SERVICE	CORRIDOR	64 m²
SERVICE	CORRIDOR	101 m²
SERVICE	FEMALE TOILETS	25 m²
SERVICE	LIFT	5 m²
SERVICE	MALE TOILETS	23 m²
SERVICE	RISER	7 m²
SERVICE	STAIR	17 m²
SERVICE	STAIR	16 m²
SERVICE	UNI DDA	13 m²
SERVICE	VOID	77 m²
		350 m²
Grand total: 26		758 m²

BOR EXTERNAL SERVICES AREA SCHEDULE

Department	Name	Areas Area
EXTERNAL SERVICES	SUBSTATION	6 m²
EXTERNAL SERVICES	POOL BALANCE TANK	5 m²
EXTERNAL SERVICES	POOL BALANCE TANK	5 m²
EXTERNAL SERVICES	OSD TANK 170kL	82 m²
EXTERNAL SERVICES	WASTE	9 m²
Grand total: 5		107 m²

BOR ROOF AREA SCHEDULE

Department	Name	Areas Area
L02 ROOF		
ROOF		
ROOF	ROOF	1586 m²
ROOF	TRAFFICABLE PLANT ROOF	64 m²
		1650 m²
Grand total: 2		1650 m²

BOR CONCOURSE AREA SCHEDULE

Department	Name	Areas Area
L00 GROUND		
CONCOURSE		
CONCOURSE	EXTERNAL CONCOURSE NE STAIR	24 m²
CONCOURSE	EXTERNAL HARDSCAPE	117 m²
CONCOURSE	EXTERNAL HARDSCAPE	94 m²
CONCOURSE	EXTERNAL MAIN ENTRY	44 m²
CONCOURSE	EXTERNAL NE RAMP	76 m²
CONCOURSE	EXTERNAL NORTH CONCOURSE GRANDSTAND	607 m²
CONCOURSE	EXTERNAL NORTHEAST CONCOURSE GRANDSTAND	198 m²
CONCOURSE	EXTERNAL NORTHWEST CONCOURSE	153 m²
CONCOURSE	FORECOURT NE ENTRY	146 m²
CONCOURSE	NW VEHICLE ENTRY	204 m²
		1665 m²
Grand total: 10		1665 m²

BOR PREMIUM PRODUCT AREA SCHEDULE

Department	Name	Areas Area
L01 LEVEL 1		
PREMIUM SEATING		
PREMIUM SEATING	PREMIUM STAND	97 m²
		97 m²
Grand total: 1		97 m²

BOR SERVICE GRANDSTAND SCHEDULE

Department	Name	Areas Area
L00 GROUND		
STAND		
STAND	101	55 m²
STAND	102	141 m²
STAND	103	206 m²
STAND	104	230 m²
STAND	105	230 m²
STAND	106	230 m²
STAND	107	206 m²
STAND	108	141 m²
STAND	109	57 m²
		1496 m²
Grand total: 9		1496 m²

Seatcount Schedule

Seating Bay	Count	Comments
101	111	GA
102	289	GA
103	448	GA
104	462	GA
105	382	GA
106	462	GA
107	407	GA
108	290	GA
109	111	GA
PRUA	38	GA
TOTAL SEATS	3000	

Premium Product Seatcount Schedule

Seating Bay	Count	Comments
201	135	BOX
TOTAL SEATS	135	

TOTAL GA 3000
TOTAL VIP 135
TOTAL 3135

BOR GBA AREA SCHEDULE

Department	Name	Areas Area
ACADEMY & WOMENS		
ACADEMY & WOMENS	WOMENS ACADEMY	29 m²
ACADEMY & WOMENS		29 m²
ADMIN SPECIFIC SPACE		
ADMIN SPECIFIC SPACE	BREAKOUT	124 m²
ADMIN SPECIFIC SPACE	UTILITY	19 m²
ADMIN SPECIFIC SPACE	STORE & ARCHIVE	27 m²
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ADMIN SPECIFIC SPACE		192 m²
COMMUNICATIONS & DIGITAL		
COMMUNICATIONS & DIGITAL	COMMS & DIGITAL	54 m²
COMMUNICATIONS & DIGITAL		54 m²
CORPORATE, DIGITAL & MECHANDISE		
CORPORATE, DIGITAL & MECHANDISE	CORPORATE DIGITAL & SALES	56 m²
CORPORATE, DIGITAL & MECHANDISE		56 m²
EXECUTIVE		
EXECUTIVE	EXECUTIVE	19 m²
EXECUTIVE		19 m²
FINANCE & ADMINISTRATION		
FINANCE & ADMINISTRATION	FINANCE	16 m²
FINANCE & ADMINISTRATION		16 m²
FOOTBALL OPERATIONS		
FOOTBALL OPERATIONS	FOOTBALL OFFICE	106 m²
FOOTBALL OPERATIONS		106 m²
HIGH PERFORMANCE STAFF		
HIGH PERFORMANCE STAFF	HP STAFF	43 m²
HIGH PERFORMANCE STAFF		43 m²
LANDSCAPE		
LANDSCAPE	EXTERNAL SOFTSCAPE	26 m²
LANDSCAPE		26 m²
MARKETING & EVENTS		
MARKETING & EVENTS	MARKETING & EVENTS	37 m²
MARKETING & EVENTS		37 m²
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MEDICAL & REHABILITATION	MEDICAL & REHAB	96 m²
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MEETING ROOMS	S/M MEET	23 m²
MEETING ROOMS	S/M MEET	20 m²
MEETING ROOMS		113 m²
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MEMBERSHIP & COMMUNITY	MEMBERSHIP & COMMUNITY	71 m²
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OTHER SPACES		88 m²

BOR GBA AREA SCHEDULE

Department	Name	Areas Area
PERFORMANCE ANALYSIS		
PERFORMANCE ANALYSIS	PERFORMANCE ANALYSIS	37 m²
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PHYSICAL PREPARATION AREA 1		477 m²
PLANT		
PLANT	FIRE SERVICES	41 m²
PLANT	SWITCHROOM	10 m²
PLANT	PLANT	60 m²
PLANT	COMMS	21 m²
PLANT	PLANT	59 m²
PLANT	PLANT	38 m²
PLANT	POOL PLANT	36 m²
PLANT	PUMP ROOM	12 m²
PLANT	RISER	10 m²
PLANT		287 m²
PLAYERS COMFORT		
PLAYERS COMFORT	CHANGE ROOM 1	130 m²
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PLAYERS COMFORT	STUDY	22 m²
PLAYERS COMFORT	PLAYERS LOUNGE S/M MEET	46 m²
PLAYERS COMFORT		328 m²
PREMIUM SEATING		
PREMIUM SEATING	PREMIUM STAND	97 m²
PREMIUM SEATING		97 m²
PROPERTY		
PROPERTY	PROPERTY	61 m²
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PROPERTY		65 m²
REHABILITATION AREA		
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SERVICE		
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SERVICE	LOBBY STAIR	19 m²
SERVICE	CORRIDOR	97 m²
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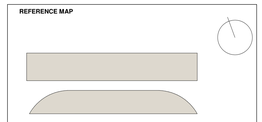
SERVICE	FEMALE TOILETS	25 m²
SERVICE	UNI DDA	6 m²
SERVICE	RISER	7 m²
SERVICE	UNI DDA	13 m²
SERVICE	FIRE SERVICES	2 m²
SERVICE	RISER	1 m²
SERVICE		758 m²
***SUBTOTAL GROSS GFA:**		**3686m2**
***GRAND TOTAL GROSS GBA:**		**3933m2**

NOTE:
*EXCLUDES TANKS & EXTERIOR WORKS

REFERENCE MAP



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MANLY WARRINGAH SEA EAGLES

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CENTRE OF EXCELLENCE AND GRANDSTAND

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AREA SCHEDULE

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SCHEMATIC DESIGN + DA

SCALE @ A0	DRAWN	REVIEWED	APPROVED
	RP	FG	GS

PROJECT NUMBER	DRAWING NUMBER	REV
014340	A_6000	H

Original Sheet Size A0 - 841 x 1189mm

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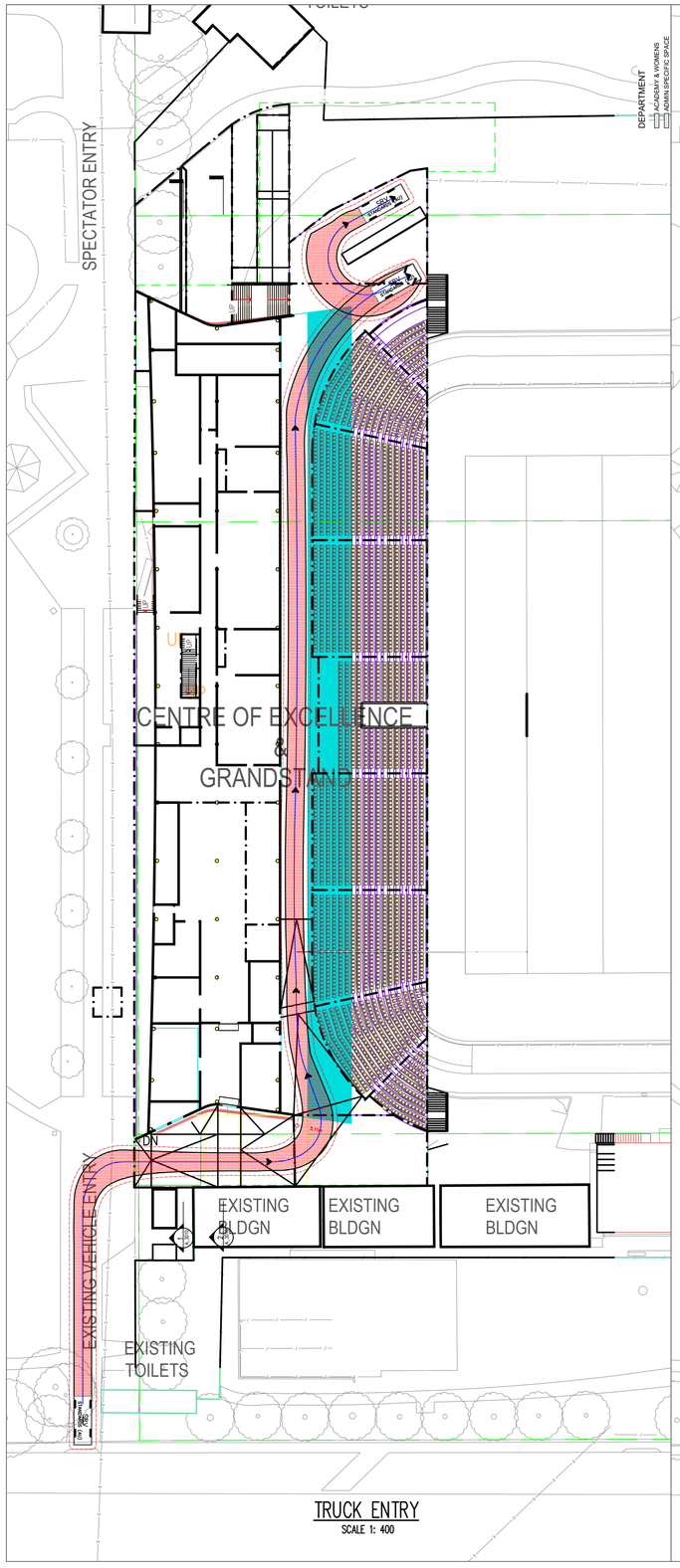
APPENDIX B

Vehicle Swept Path Assessment



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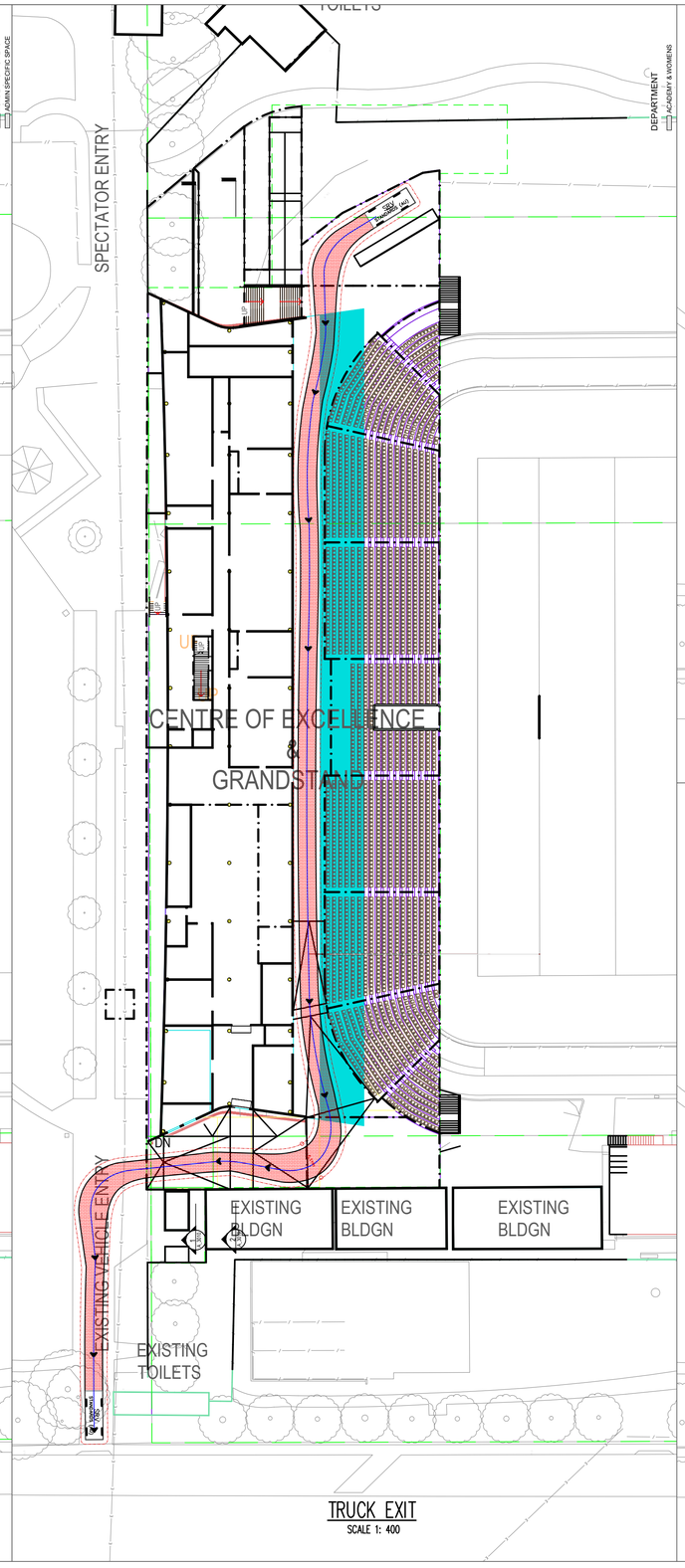

TRUCK EXIT
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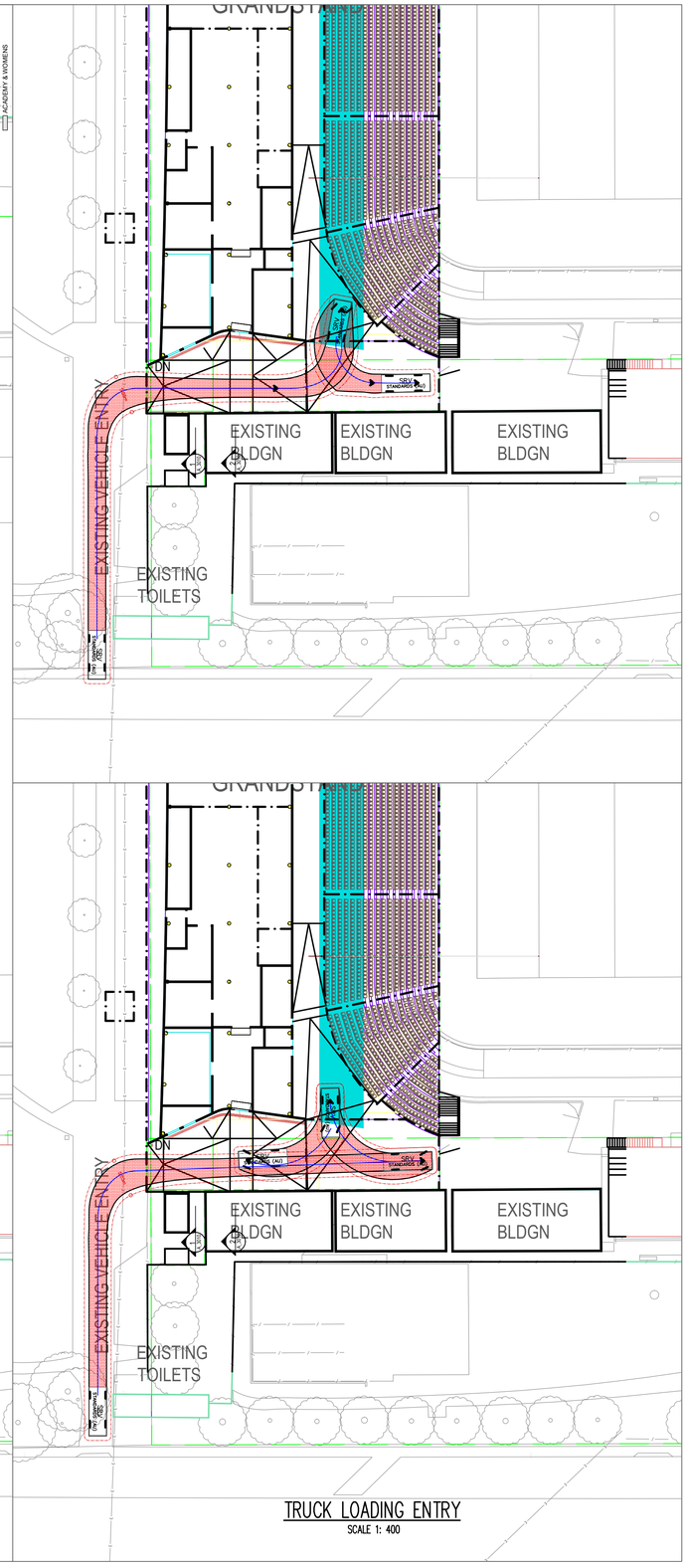
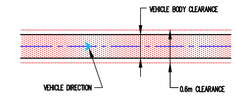
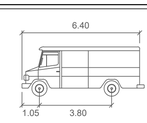


TRUCK LOADING ENTRY
SCALE 1: 400

SWEPT PATH LEGEND:



NOTE: 600mm CLEARANCE IN ACCORDANCE WITH AS2890.2



SRV

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Lock to Lock Time	: 6.0
Steering Angle	: 38.0

PRELIMINARY

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A1 0 1 2 3 4 5 6 7 8 9 10

Rev	Description	Eng	Draft	Date
P2	PRELIMINARY	SA	NB	30.08.19
P1	PRELIMINARY	SA	NB	29.08.19

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SYDNEY, NSW 2000

T: 02 9101 2000
E: sydney@hassellstudio.com

Traffic Engineer
TTW Structural Civil Traffic Façade
612 9439 7288 | 48 Chandos Street St Leonards NSW 2065

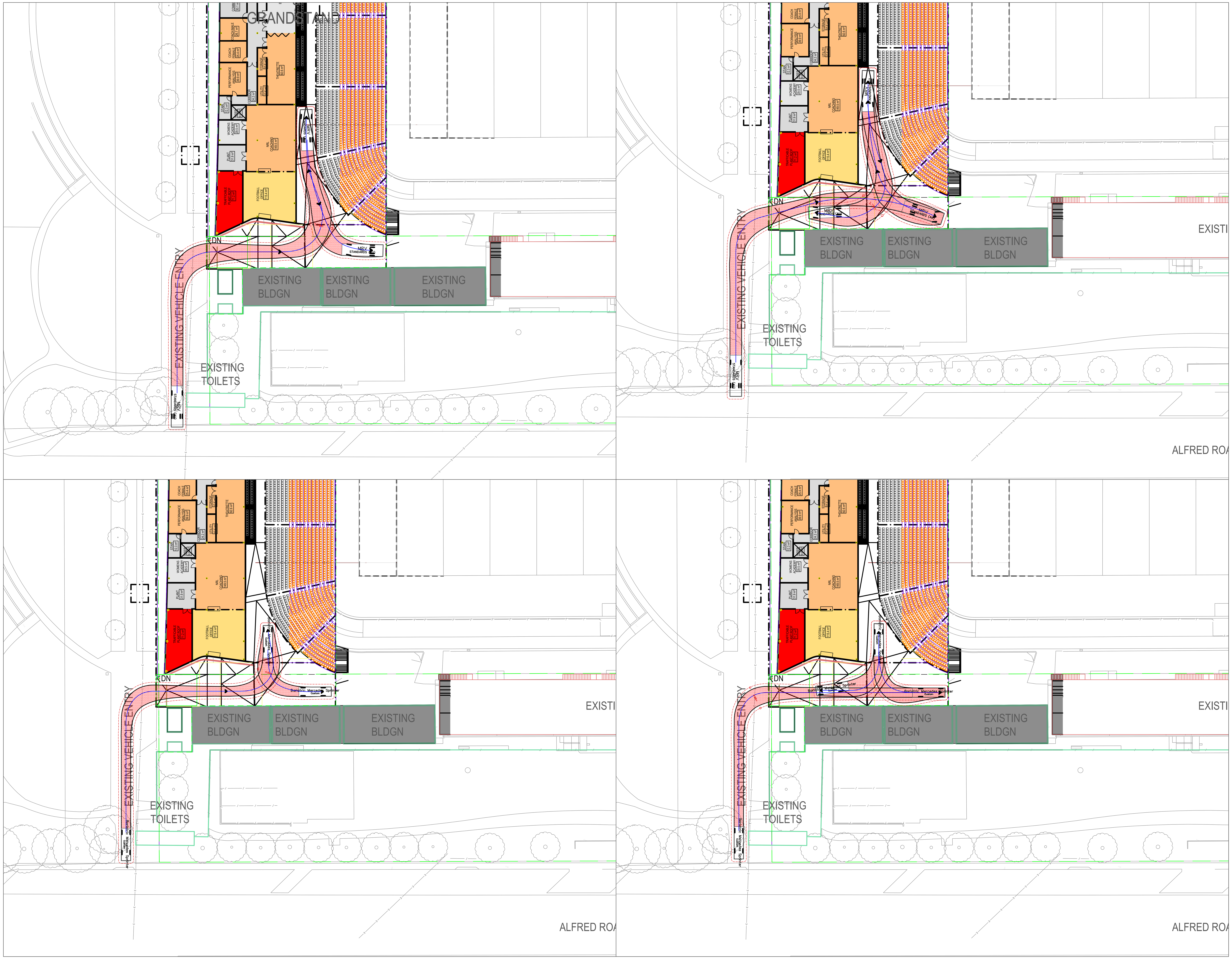
Project
LOTTOLAND REDEVELOPMENT

Sheet Subject
PRELIMINARY SWEPT PATH ASSESSMENT

Scale : A1	Drawn	Authorised
1:400	NB	-

Job No	Drawing No	Revision
191326	SK01	P2

Plot File Created: Aug 30, 2019 - 4:13pm



TRUCK LOADING
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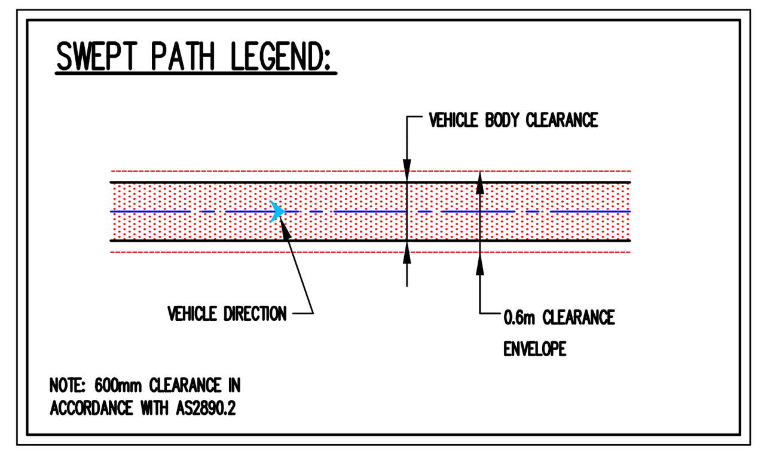

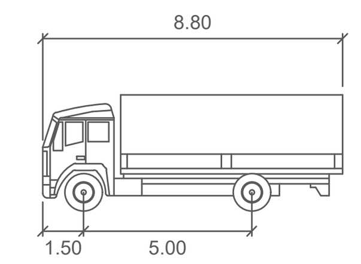

MRV

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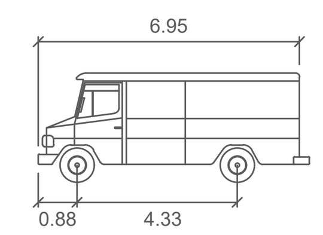
Steering Angle	: 34.0



Bariatric Mercedes Sprinter

	meters
Width	: 1.99
Track	: 1.99
Lock to Lock Time	: 6.0
Steering Angle	: 38.2

AMBULANCE ENTRY AND EXIT
SCALE 1: 400

PRELIMINARY

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A1 0 1 2 3 4 5 6 7 8 9 10

Rev	Description	Eng	Draft	Date
P2	PRELIMINARY	SA	NB	30.08.19
P1	PRELIMINARY	SA	NB	29.08.19

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LOTTOLAND REDEVELOPMENT

Sheet Subject
PRELIMINARY SWEPT PATH ASSESSMENT

Scale : A1	Drawn	Authorised
1:400	NB	-

Job No	Drawing No	Revision
191326	SK02	P2

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