

An architectural rendering of a modern building courtyard. The scene features a central green lawn area surrounded by paved walkways and lush landscaping, including large trees with purple blossoms and various shrubs. Several people are depicted in the courtyard, some sitting on low walls and others walking, adding a sense of scale and life to the space. The building's facade is visible on the left and right sides of the frame.

WSU - Lot 4 Redevelopment, Westmead 2145

DA DESIGN REPORT + DA DRAWINGS

DECEMBER 2016, REVISION 1

Prepared for

Combined Projects [Westmead] Pty Ltd
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Sydney NSW 2016 |
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Submission Status

Development Application - Landscape
13/12/2016

This statement should be read in conjunction with Scott Carver Landscape Planning Proposal drawings 2016070 LD DA, dated December 2016. Prepared by Scott Carver

This Design Report provides an explanation that verifies how the development addresses how design quality principles are achieved, and demonstrates, in terms of the DCP + Apartment Design Guidelines [ADG], how the objectives and relevant sections have been achieved.

Khian McIntyre = [Landscape Architect]
Charlie Robinson = [Associate / RLA 589B]

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Contents

1.0 INTRODUCTION + CONTEXT

1.1 Introduction + Context

1.2 Landscape Specifics + Compliance

2.0 VISION

2.1 Vision Statement

2.2 Vision

3.0 DESIGN OBJECTIVES+ ANALYSIS

3.1 Design Objectives + Analysis

3.2 Site Opportunities + Constraints [Contextual]

3.3 Access + Circulation

3.4 Activation + Programme

3.5 Open Space Strategy

4.0 MASTER PLAN

4.1 Master Plan + Design Objectives

4.2 Public Domain WSUD

4.3 Canopy Walk

4.4 Communal Rooftop Terrace

5.0 INDICATIVE PLANTING + MATERIALS PALETTE

5.1 Planting Palette

5.2 Materials Palette

6.0 APPENDICES - DA DRAWING SET

Introduction + Context





local context+

1.1 Introduction + Context

SITE OVERVIEW

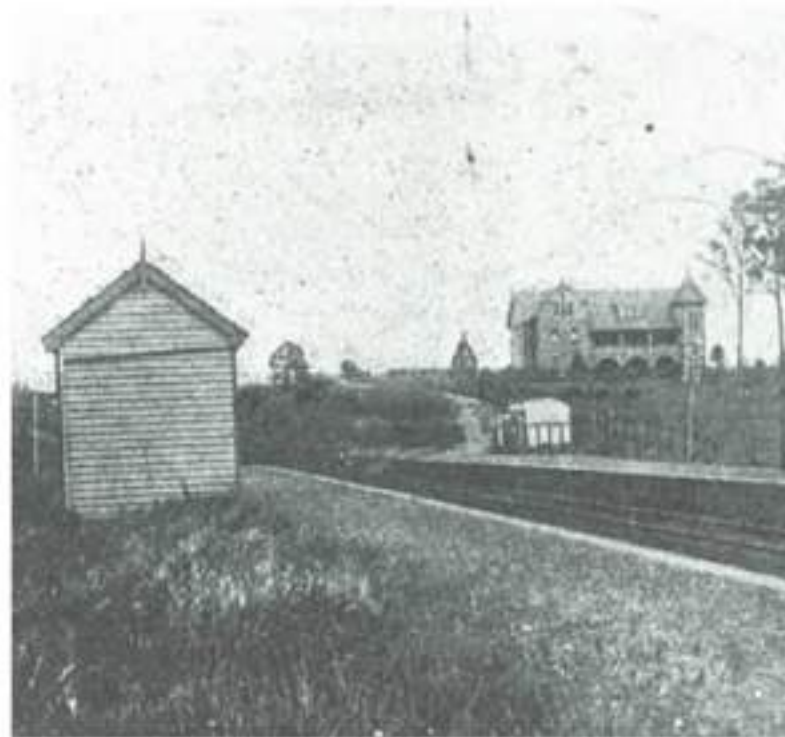
Combined Projects (Westmead) have been successful in acquiring land from the University of Western Sydney to carry out a residential development adjacent to Westmead Hospital and Railway Station which is known as Lot 4. Lot 4 comprises of 355 residential apartments including a streetscape treatment, communal landscape podium, communal rooftop terrace and adjacent threshold works. The community will be supported by quality open space, recreational amenities and community facilities. The development will enhance the Westmead region and will encourage community interaction.

The site has been identified by Scott Carver and Parramatta DCP as a 'Special Precinct' in that it lies on a key transport junction at Hawkesbury Road and Daray Road and is adjacent to Westmead Railway Station and proposed light rail works + planning.

DEVELOPMENT DESCRIPTION

The development application reflects the development as described below:

- (a) Lot 4 - 355 residential apartments
- (b) Extensive communal podium courtyard areas
- (c) Basement level car parking
- (d) Private shared zone between lot 4 and 3 with pedestrian pathways
- (e) Communal rooftop terrace
- (f) Open communal space and surrounding
- (g) Landscaping areas throughout the site.



1.2 Landscape Specifics + Compliance

APARTMENT DESIGN GUIDE (ADG)

The landscape design is compliant to the following Objectives in the ADG Design Principles and NSW Planning & Environment Apartment Design Guide

Part 3: 3C Public domain interface
Part 4: 4F Common circulation and spaces
Part 4: 4O Landscape Design
Part 4: 4P Planting on structures

ADG Principles: Landscape

Good design recognises that together landscape and buildings operate as an integrated and sustainable system, resulting in attractive developments with good amenity. A positive image and contextual fit of well designed developments is achieved by contributing to the landscape character of the streetscape and neighbourhood. Good landscape design enhances the development's environmental performance by retaining positive natural features which contribute to the local context, coordinating water and soil management, solar access, micro-climate, tree canopy, habitat values, and preserving green networks.

Good landscape design optimises usability, privacy and opportunities for social interaction, equitable access, respect for neighbours' amenity, provides for practical establishment and long term management as a result of a collaborative exploration of ideas and knowledge-sharing via strategic partnerships amongst peers and clients alike.

PUBLIC DOMAIN GUIDELINES - PARRAMATTA CITY COUNCIL [URBAN DESIGN UNIT] [JANUARY 2016]

Scott Carver recognises the public domain guidelines for Westmead Town Centre provided by Parramatta City Council. SC recognises the paving treatment in Westmead will also comprise high quality stone finishes and a relaxed blend of granite tones is proposed referencing the colour palette from the other town centres.

The following documentation has been prepared in reference with the following

- Public Domain Guidelines - Parramatta City Council - Westmead Town Centre [2016]
- Parramatta Development Control Plan 2011 - Part 4 - Westmead Special Precinct
- Parramatta Development Control Plan 2011 - Part 3
- Statement of Heritage Impact - Graham Brooks & Associates [2014]
- Westmead Campus Redevelopment Stage 1 Landscape DA Design Report - Tract [2014]
- Arboricultural Assessment Report, University Of Western Sydney (UWS) Westmead Precinct, 158-160 Hawkesbury Road, Westmead - Andrew Morton, Earthscape Horticultural Services [2016]
- Arboricultural Impact Assessment, Lot 4 158-160 Hawkesbury Road, Westmead - Hayden Coulter, The Ents Tree Consultancy [October 2016]

Scott Carver has recognised + incorporated the following objectives outlined in the Parramatta Development Control Plan 2011 Part 3.3.1 Landscaping:

- To conserve significant natural features of the site and contribute to effective management of biodiversity.
- To retain and provide for mature vegetation, particularly large and medium sized trees.
- To provide continuous vegetation corridors.
- To encourage the planting of indigenous, native and low water consumption plants and trees.
- To enhance the existing streetscape and promote a scale and density of planting that softens the visual impact of buildings.
- To provide privacy and amenity.
- To promote energy efficiency by enhancing both solar access and shade.
- To provide for the infiltration of water to the water table, minimise run-off and assist with stormwater management.
- To ensure developments make an equitable contribution to the landscape setting of the locality.

The following figures represent the development's landscape + open space compliance with Parramatta Council DCP Guidelines and ADG:

Communal Open Space

- Communal Open Area = 3,557.52 sqm = 54% [ADG min req. 25%]

Landscaped Area [DCP]

- Total Landscaped Area = 1073 sqm = 16.3%

Deep Soil Area [ADG Part 3E]

- Deep Soil Area = 856.44 sqm = 13% [ADG min req. 7%]

[Please note these are approximate figures. Refer To Architects Documentation 16001 DA 110 001]

Vision



2.1 Vision Statement

‘WSU - LOT 4’



cultural = community



ecological = haven



social = place

“ To create a new cultural +
ecological + social heart
engaging Westmead and its
diverse communities ”

2.2 Vision

community+

The landscape proposal is designed to complement the architecture of the development, while providing environmental amenity within an attractive setting. The design will provide and enhance the community's connection with their site and also with its history and significant heritage by creating spaces for people to congregate, meet and connect.

haven+

The landscape master plan seeks to draw from the sites existing ecology in particular the existing significant trees on site which will compliment the sites setting through the use of complimentary planting, materials and finishes. The proposed planting will have all year round colour, variation, and strong defined forms. The Landscape planting for the site will also contrast the existing native ecology in areas of heavy shade through mass + dense planting and sensory gardens creating an urban jungle for people to experience on an active basis. The landscape will consider the surrounding urban setting, while creating a high quality residential development and public domain interfaces.

place+

To create a high quality residential development appropriate to the local urban setting. The sense of place of the site will restore, reinforce and forge a new community identity and ownership. The intent is to design a quality series of private and public spaces, providing amenity for community connection, leisure, transportation links, and open spaces. These outcomes are achieved with a contemporary landscape setting that acknowledges the functional requirements of the site, while acknowledging the wider urban context.





vision+

Design Objectives + Analysis



3.1 Design Objectives + Analysis

LANDSCAPE OBJECTIVES / PRINCIPLES

The landscape master plan will address the following design objectives:

- Enhance the appearance and amenity of the proposed residential development by sensitively integrating architecture and landscape through effective site planning and landscape design.
- Create an identifiable residential development and public domain with range of inviting and safe accessible open spaces and linkages.
- Take forward the landscape principles and urban design principles established by the **Parramatta City Council DCP 2011 Part 4.3.4 - Westmead Strategic Precinct + Westmead Campus Redevelopment Stage 1 Landscape DA Design Report by Tract August 2014**.
- Establish a visually and environmentally sensitive landscape, complimentary to the architectural vision and greater urban setting, while providing high quality private spaces for residents and visitors.
- Capitalise on the location of the Westmead Precinct by creating an effective, safe, and inviting transportation node due its close proximity to Westmead Railway Station and adjacent T-Way bus network.
- Assimilate the development into the surrounding urban context through the development of an integrated and permeable landscape and open space environment

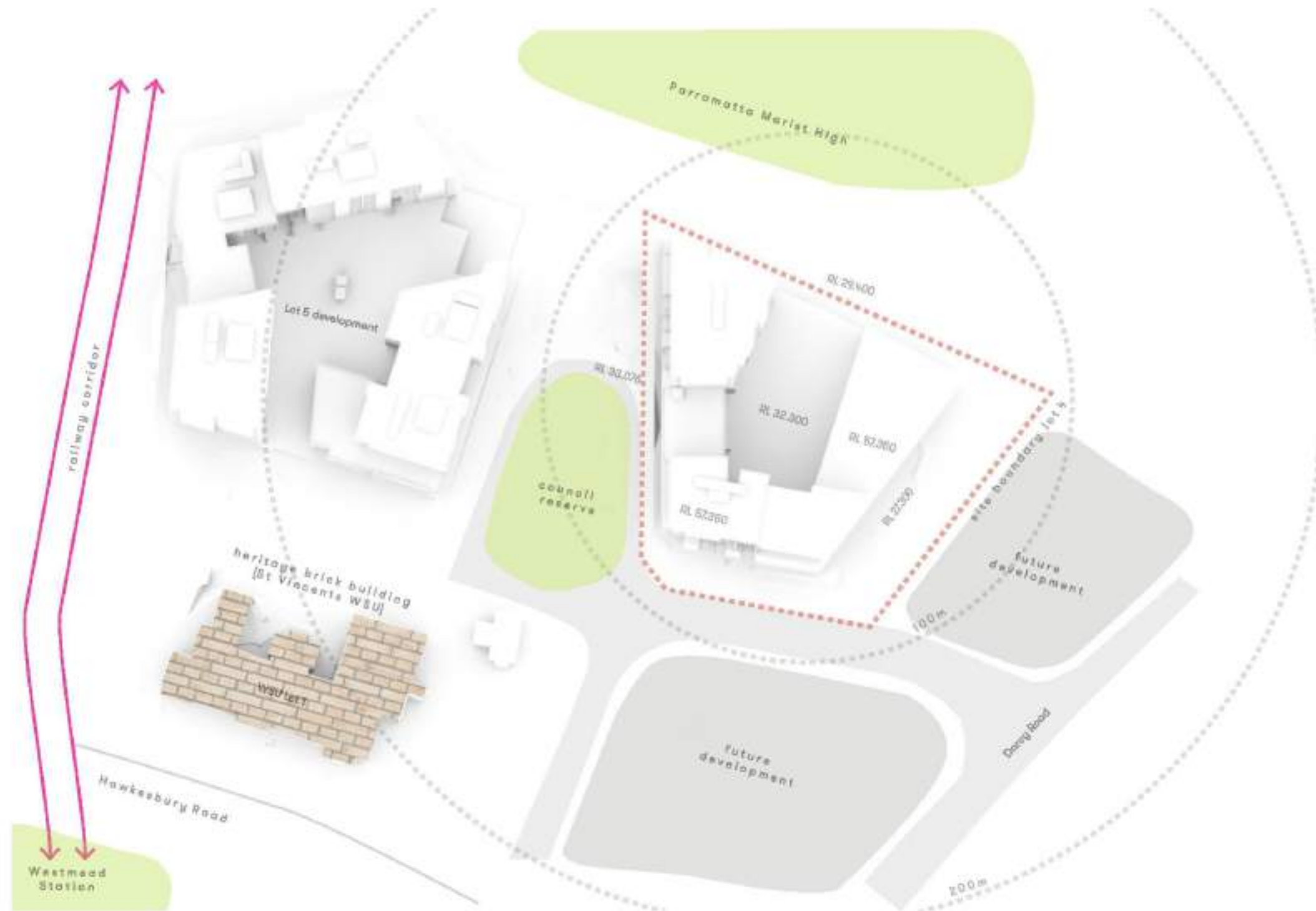
- Incorporate water sensitive urban design principles and environmentally sensitive design to create a low maintenance, environmentally sensitive landscape that has a distinctive tree canopy with diverse low shrub groundcover and expanses of lawn.
- Create a large variety of high quality public open spaces which can accommodate a range of active and passive recreational and social activities.
- Ensure accessibility for all within a safe and secure urban domain whilst accommodating a range of passive recreational and social activities within the public domain.

The landscape design for the site incorporates water sensitive design principles and environmentally sensitive design such as a WSUD rain gardens to create a low maintenance, environmentally sensitive landscape that has a distinctive tree canopy with diverse low shrub groundcover under with lawn expanses.

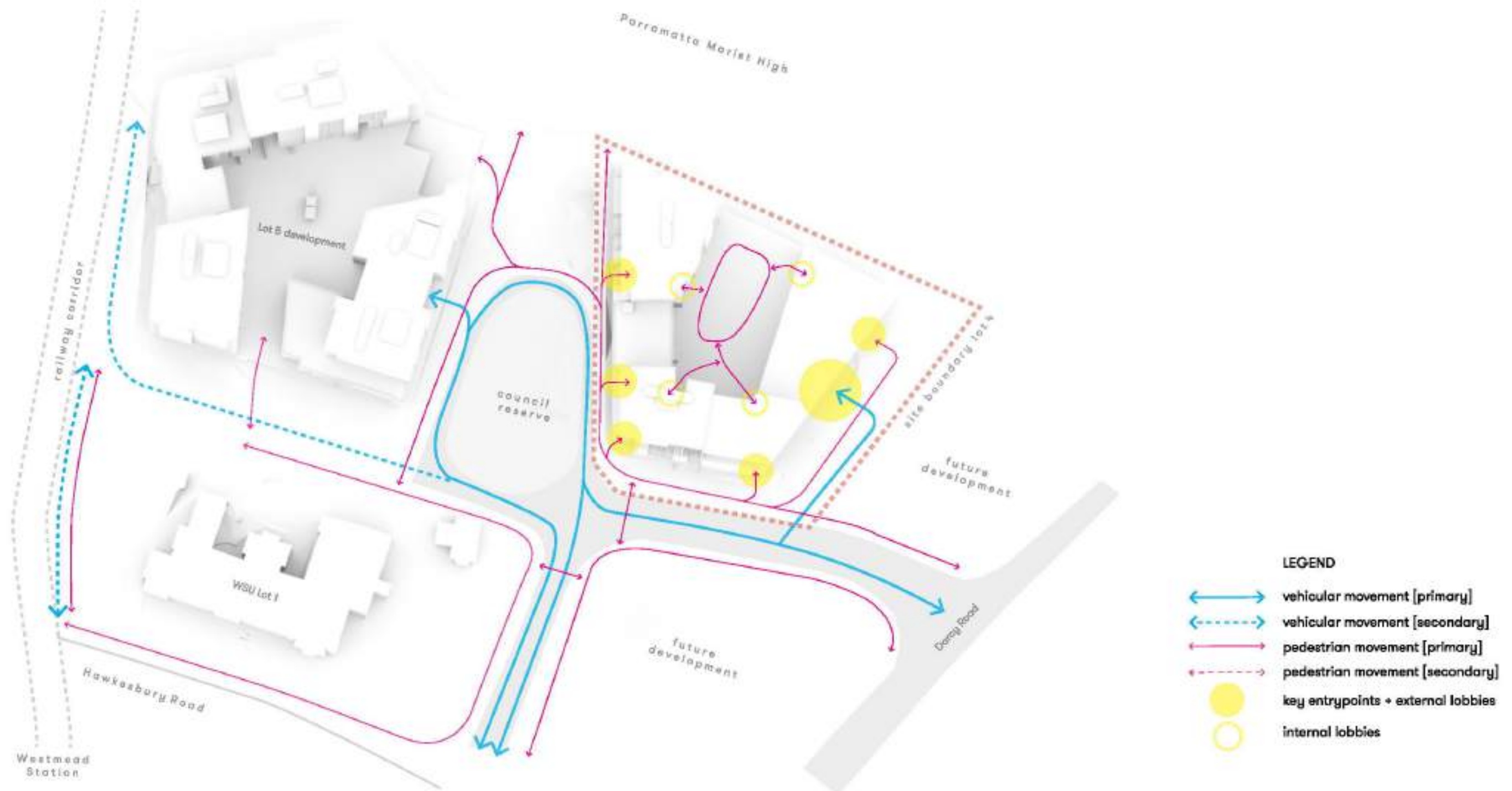
The Landscape planting for the site will have a extensive native canopy and compliment the existing **Parramatta City Council DCP 2011 Part 3 - Landscape**. The Landscape planting for the site will have a minimum of 70% of indigenous / water sensitive planting species where appropriate solar access is available.



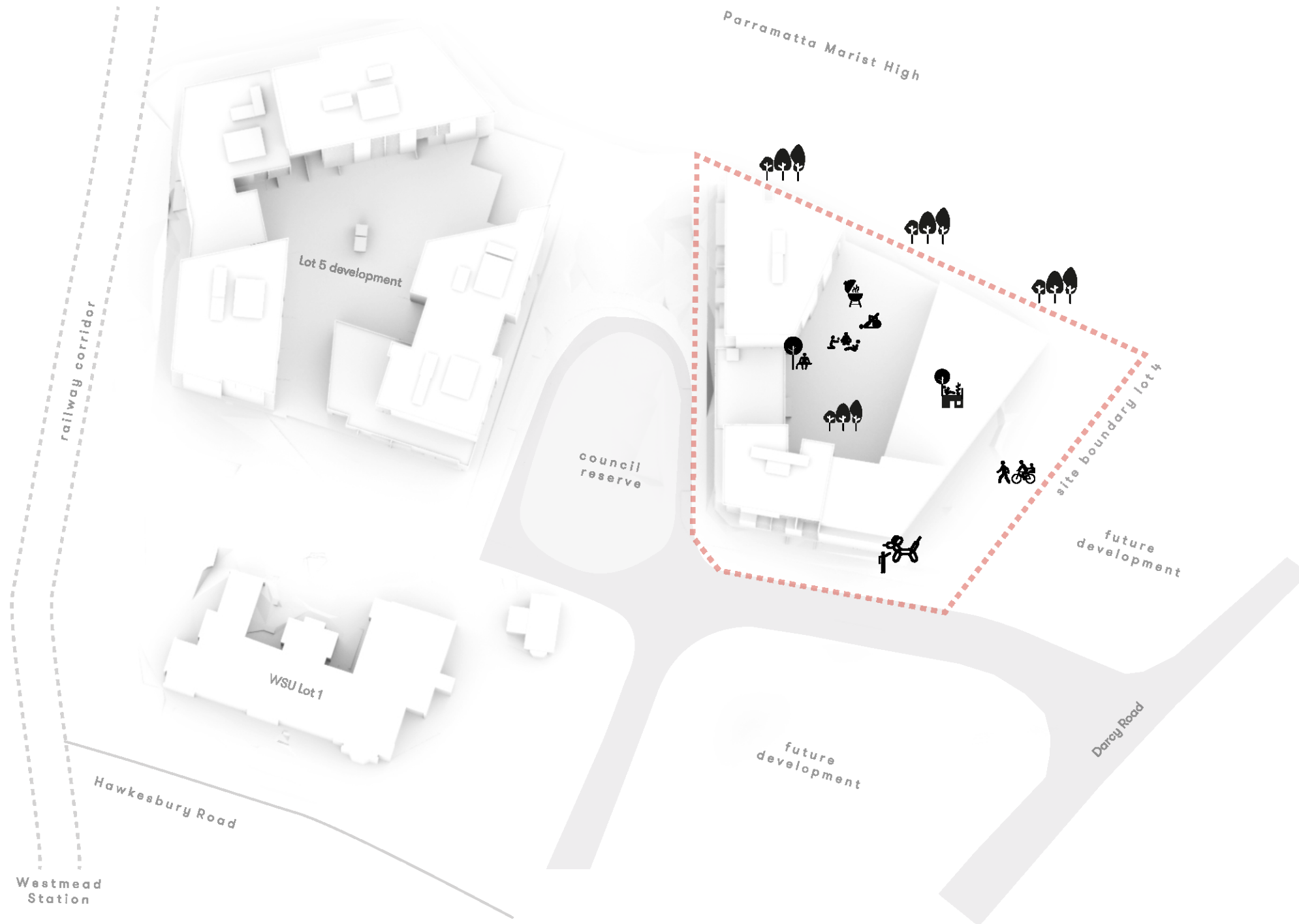
3.2 Site Opportunities + Constraints [contextual]



3.3 Access + Circulation



3.4 Activation + Programme



LEGEND

-  'jungle' mass planting + path
-  communal 'break out' space
-  passive green space
-  bbq / outdoor dining area
-  passive open space
-  shared zone
-  public art
-  kick about lawn
-  communal rooftop terrace

3.5 Open Space Strategy



Master plan





LOT 3

1. Mass planted interface of native understorey and canopy planting to create visual separation between the proposed development and the adjacent school.
2. Line of Magnolia street trees to separate pedestrian and vehicular traffic
3. Shared streetscape environment which transitions from Lot 4 to Lot 3 with breakout spaces provided at lobby entries. Permeable paving to maximise water infiltration.
4. Public artwork to be incorporated into main pedestrian and vehicular sightlines at the corner of the proposed development

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Master plan



4.1 Master Plan + Design Objectives

DESIGN INTENT - WHY?

The design is intended to bring the proposed community together and engage them with the original story of place. The heritage component of this project allows the new community to have common ground and reignite the sense of place within Westmead.

AMENITIES PROVIDED - HOW?

A key design feature of the landscape and open space is to place an emphasis on the community through the placement of swimming pools, BBQ areas and communal open spaces both on groundfloor podium and rooftop terrace to give residents the opportunity to engage and congregate with each other and form their own community.

DESIGN OUTCOME - WHAT?

The following amenities, open spaces + community gathering spaces have been provided to achieve our vision:

- Large landscape communal podium with breakout spaces, sensory mass planting and seating areas
- Pool and lounge deck areas with BBQ facilities and outdoor dining amenity
- Community Room with inside / outside breakout spaces for community gatherings and functions
- Rooftop Terrace for additional open space with amenity for passive recreation and outdoor dining including BBQ
- Forecourt plaza area with feature grove for congregation around key lobby entries and for public open space



BASIX CALCULATIONS

Communal Podium

- 1036m² of communal open space
- 337m² raised planters
- 181m² turfed areas
- 518m² permeable surfaces

Ground Floor / Lower Ground Floor / Public Domain

- 2092m² total area
- 900m² planters (deep soil)
- 173m² raised planters

Rooftop Terrace

- 563m² of communal open space
- 225m² raised planters

4.2 Public Domain

OVERVIEW / DESIGN INTENT

The proposed shared streetscape which results in a more seamless transition from Lot 4 to Lot 3, slowing down traffic and allowing pedestrians and cyclists to commute in a comfortable and friendly environment to the proposed developments. An avenue of Magnolia trees and public art strengthen this connection.

AMENITIES PROVIDED:

- Shared Street with flush kerbs and permeable paving to maximise water infiltration and minimise hard surface runoff.
- Formalised entry into the communal podium and proposed Lot 4 development
- Proposed seating under shaded canopies within building forecourt
- Public art incorporated into main pedestrian and vehicular sightlines at the corner of the proposed development
- Raised planters located above OSD basin



4.3 Canopy Walk

OVERVIEW / DESIGN INTENT

The communal landscape podium aims to create a series of spaces for relaxation, contemplation and engagement with the soft lush landscape which surrounds each space in a dense lush jungle like manner. The planting palette adapts to areas which receive extensive solar to those which are covered in partial to full shade. The denseness of the planting with the insitu concrete walls make this landscape podium quite sculptural and allows residents to experience this notion through a wayfinding process, through meandering natural pathways.

AMENITIES PROVIDED:

- Lush, dense jungle like planting for relaxation + contemplation
- Bespoke arbour with BBQ + outdoor dining amenities
- Open lawn areas providing an opportunity for active and passive recreation
- Secluded gathering areas to create a sense of intimacy
- Curvilinear Seating + lighting throughout podium for amenity + CEPTED under shaded tree canopies.



4.4 Communal Rooftop Terrace

OVERVIEW / DESIGN INTENT

The communal rooftop terrace is an offering for residents who wish to meet and engage in a passive and secluded environment. The rooftop terrace provides an outdoor BBQ and dining space with feature planting and shade canopy. In addition there are multiple raised timber pods which act as lounge spaces to make the most of the northern aspect where residents can enjoy their afternoon sun. The form also reciprocates that of the podium making it quite a sculptural landscape feature in the development.

AMENITIES PROVIDED:

- Feature lounge deck with BBQ + outdoor dining amenities
- Raised timber pod lounge areas with seating walls
- Seated concrete walls with lighting and feature planting to the edge of rooftop to provide amenity against wind and sun exposure
- Astro turf area for passive recreation
- Raised timber deck with furniture to maximise views



Indicative Planting + Materials Palette



5.1 Planting Palette

LANDSCAPE SPECIFICS

The plant palette used for the site should reinforce all the themes as previously discussed. The environmental theme requires that the planting palette draw from the existing local vegetation communities.

In general;

Street trees should respond to the street hierarchy and **Council's street tree list Parramatta Council DCP + Public Domain Guidelines + Westmead Town Centre Public Domain Guidelines.**

The following list outlines the signature planting for the site and has been established with reference to the **Parramatta Council DCP + Landscape Technical Guidelines**

OBJECTIVES:

To increase the number of indigenous species planted in Parramatta City Council

To eliminate the use of noxious weeds or potentially invasive species in developments

To use plants in such a way to foster energy efficient development that relies on passive energy principles for heating and cooling

To reduce maintenance and water consumption through appropriate species selection

to create buffer zones and add to existing areas of remnant vegetation with locally indigenous species

To increase the number of trees planted in the city to provide, shade, habitat, aesthetic improvements and dust control

The proposed planting will have all year round colour, variation, and strong defined forms

The landscape design for the site incorporates water sensitive design principles and environmentally sensitive design such as a WSUD shrubs + groundcovers to create a low maintenance, environmentally sensitive landscape that has a distinctive tree canopy with diverse low shrub groundcover under with lawn expanses.

The Landscape planting for the site will have a minimum of 70% of indigenous / water sensitive planting species where appropriate solar access is available.



Planting Palette

Public Domain / Ground Floor / Lower Ground Floor

Botanic Name	Common Name	Native/ Exotic	Size
Trees			
<i>Corymbia citriodora</i>	Lemon Scented Gum	Native	200L
<i>Corymbia maculata</i>	Spotted Gum	Native	200L
<i>Lagerstroemia indica natchez</i>	White Crape Myrtle	Exotic	400L
<i>Magnolia grandiflora 'Exmouth'</i>	Bull Bay Magnolia	Exotic	100L
<i>Tristania laurina</i>	Water Gum	Native	200L
<i>Waterhousea floribunda 'Green avenue'</i>	Weeping Lilly Pilly	Native	100L
Shrubs and Grasses			
<i>Dianella caerulea</i>	Blue Flax Lily	Native	150mm
<i>Lomandra longifolia 'verdoy'</i>	Mat-rush	Native	150mm
<i>Lomandra hyetrix</i>	Mat-rush	Native	150mm
<i>Phorinia 'red robin'</i>	Red robin	Native	300mm
<i>Poa labillardieri 'Eskdale'</i>	Tussock Grass	Native	150mm
<i>Westringia fruticosa</i>	Coastal Rosemary	Native	200mm



Magnolia exmouth



Waterhousea floribunda



Dianella caerulea



Lomandra longifolia 'verdoy'

Building D2 Rooftop - Level 6

Accents			
<i>Agave attenuata</i>	Fox Tail Agave	Exotic	150mm
<i>Phormium tenax 'Pink Ribbon'</i>	New Zealand Flax	Exotic	150mm
Low Shrubs & Ground Covers			
<i>Carpobrotus glaucescens</i>	Pig-face	Native	140mm
<i>Senecio Mandraliscae</i>	Blue Chalk Sticks	Exotic	140mm



Phormium tenax 'Pink'



Senecio Mandraliscae

Communal Rooftop Terrace - Level 8

Trees			
<i>Citrus x meyeri</i>	Meyer lemon	Exotic	100L
<i>Magnolia grandiflora 'Little Gem'</i>	Magnolia 'Little Gem'	Native	100L
<i>Plumeria rubra acutifolia</i>	Frangipani	Exotic	100L
<i>Tristania laurina</i>	Water Gum	Native	100L
Low Shrubs & Ground Covers			
<i>Agave attenuata</i>	Fox Tail Agave	Exotic	150mm
<i>Anigozanthos hybrid 'Gold Velvet'</i>	Kangaroo Paw 'Gold Velvet'	Native	150mm
<i>Banksia ericifolia</i>	Heath-leaved Banksia	Native	300mm
<i>Carpobrotus Menziesii</i>	Pigface	Native	150mm
<i>Cistus monspeliensis</i>	Rockrose	Exotic	150mm
<i>Dianella caerulea</i>	Blue Flax-lily	Native	150mm
<i>Grevillea rosmarinifolia</i>	Crimson Villaea	Native	300mm
<i>Ricinocarpus pinifolius</i>	Wedding Bush	Native	150mm
<i>Syzygium australe 'Pinnacle'</i>	Lilly Pilly	Native	300mm



Magnolia grandiflora 'Little Gem'



Tristania laurina



Anigozanthos hybrid 'Gold Velvet'



Syzygium australe

Communal Podium

Botanic Name	Common Name	Native/ Exotic	Size
Trees			
<i>Angophora costata</i>	Smooth-barked Apple	Native	45L
<i>Cupaniopsis anacardioides</i>	Tuckeroo	Native	200L
<i>Elaeocarpus reticulatus</i>	Blue Berry Ash	Native	100L
<i>Backhousia myrtifolia</i>	Cinnamon Myrtle	Native	45L
<i>Gleditsia triacanthos</i>	Honey Locust	Native	200L
<i>Jacaranda mimosifolia</i>	Fern Tree	Exotic	200L
<i>Lophostemon confertus</i>	Brush Box	Native	45L
<i>Syzygium luehmannii</i>	Small Leaved Lilly Pilly	Native	45L
<i>Tristania laurina</i>	Water Gum	Native	100L
<i>Waterhousea floribunda 'Green avenue'</i>	Weeping Lilly Pilly	Native	45L
Shrubs and Grasses			
<i>Acmena smithii 'DOW 30'</i>	Acmena Sublime	Native	300mm
<i>Adiantum aethiopicum</i>	Maiden Hair fern	Native	150mm
<i>Alternanthera dentata</i>	Ruby Leaf Alternanthera	Exotic	200mm
<i>Asplenium australasicum</i>	Birds Nest Fern	Native	200mm
<i>Bambusa textilis</i>	Slender Weaver bamboo	Exotic	150mm
<i>Boronia floribunda</i>	Pink Boronia	Native	Exotic
<i>Clivia minata</i>	Clivia lily	Exotic	Exotic
<i>Correa alba</i>	White Correa	Native	150mm
<i>Cyathea cooperi</i>	Rough Tree Fern	Native	300mm
<i>Cycas revoluta</i>	Cycad	Exotic	200mm
<i>Dianella caerulea var caerulea</i>	Blue flax lily	Native	150mm
<i>Grevillea linearifolia</i>	White spider flower	Native	150mm
<i>Grevillea 'Poorinda Royal Mantle'</i>	Prostrate Grevillea	Native	150mm
<i>Liriope 'Evergreen Giant'</i>	Evergreen Giant	Exotic	150mm
<i>Lomandra longifolia</i>	Mat Rush	Native	200mm
<i>Philodendron xanadu</i>	Xanadu	Exotic	150mm
<i>Poa</i>	Tussock grass	Native	150mm
<i>Syzygium australe 'Pinnacle'</i>	Lilly Pilly	Native	150mm
<i>Westringia fruticosa</i>	Coastal Rosemary	Native	200mm
Climbers and Ground Covers			
<i>Dichondra repens</i>	Kidney Weed	Native	150mm
<i>Hardenbergia violacea</i>	False sarsaparilla	Native	200mm
<i>Pandora pandorana</i>	Wonga wonga vine	Native	150mm
<i>Trachelospermum jasminoides</i>	Star Jasmine	Exotic	200mm



Elaeocarpus reticulatus



Jacaranda mimosifolia



Acmena smithii



Clivia minata



Cycas revoluta



Philodendron xanadu



Dichondra repens



Pandora pandorana

5.2 Materials Palette

In consultation with Council The material palette has been prepared in conjunction with the following appendices

Parramatta City Council DCP 2011 Part 3 + 4: Communal open space and landscape + Westmead Special Precinct

Parramatta City Council Landscape Technical Guidelines:

Parramatta City Council Public Domain Guidelines; Section 5.2.4 Westmead Town Centre

A fundamental premise of the landscape master plan is the selection of materials for the public domain. For the Westmead site materials such as concrete paving, stone and timber are recommended as they reflect the regional and cultural setting

Materials should be selected to provide consistency throughout the development as well as to bring out the cultural values enriching the themes of open spaces.

The material selection should be culturally sensitive throughout the public domain. The combination of grasses, trees and shrubs, as well as rock, sandstone, and timber should be explored and integrated into the public realm.

The material selection should reflect on going consultations with Heritage and council representatives

The Public Domain materiality will develop in accordance with and respect the principles outlined in the

Parramatta City Council Public Domain Guidelines

Materials should be enduring and robust, have a low carbon footprint and be low maintenance.

The fundamental objectives of the proposed materiality is to:

- Design for Pedestrian Priority
- Emphasise and Enhance Activation
- Improve Public Domain Quality

PUBLIC DOMAIN GUIDELINES

Parramatta City Council – Urban Design Unit

JANUARY 2016



Extract from Parramatta City Council Public Domain Guidelines

Materials Palette

Materials + Finishes + Furniture

ITEM	FINISH
Wall type 1: Insitu off white formed concrete walls, 500mm wide x 450mm high with LED strip lighting + timber cladding	White concrete off formed class 2
Wall type 2: Insitu off white formed concrete walls, 200mm wide	White concrete off formed class 2
Wall type 3: Bespoke precast concrete wall, 200mm - 500 mm wide	White concrete off formed class 2
Paving Type 1: Concrete paver "Dark Grey" 600 x 300 x 60mm (note: to match existing public domain paving)	Exfoliated. Laid in stretcherbond. To council standards.
Paving Type 2: Permeable paving 'Arctic White' 200 x 100 x 60mm.	Exfoliated. Laid in stretcherbond. To council standards
Paving Type 3: Large format steppers. 2000 x 500 x 40mm precast concrete.	Exfoliated. Laid in stretcherbond. To council standards.
Paving Type 4: Sawn stone flagging - random dimension (minimum to be 300mm)	To Council standards
Paving Type 5: Napean River Gravel - 10mm	Crushed River Gravel
Paving Type 6: Decomposed granite paving - grey colour	Crushed granite paving
Paving Type 7: Large format steppers. 1000 x 300 x 30mm precast pavers.	Exfoliated. Laid in stretcherbond. To council standards.
Paving Type 8: Concrete paver mix "Dark Grey and Mid Grey" 300 x 300 x 30mm.	Exfoliated. Laid in stretcherbond.
Seating Type 1: Seat proprietary item	Street Furniture Australia - Concourse 3 Seater
Seating Wall (SW): Minimum 500mm wide x 450mm high hardwood timber cladding to insitu concrete wall.	White concrete off formed class 2
Timber Decking	Modwood Timber Decking
Podium Bollard (with LED light)	Street Furniture Australia "Light LED Bollard"



Wall Type 1



Wall Type 2



Wall Type 3



Paving Type 1



Paving Type 2



Paving Type 3



Paving Type 5



Paving Type 6



Paving Type 7



Timber decking



Seat Type 1

The material palette has been prepared in conjunction with the following appendices:

Parramatta DCP 2012: Part 3 - Landscape

Westmead Town Centre Public Domain Guidelines

Stage 1 Approved DA Landscape Report [TRACT]

A fundamental premise of the landscape master plan is the selection of materials for the public domain. For WSU Lot 5 site materials such as concrete paving, stone and timber are recommended as they reflect the regional and cultural setting.

Materials should be selected to provide consistency throughout the development as well as to bring out the cultural values enriching the themes of open spaces.

The material selection should be culturally sensitive throughout the public domain. The combination of grasses, trees and shrubs, as well as rock, sandstone, and timber should be explored and integrated into the public realm.

The material selection should reflect on going consultations with council representatives

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Appendices: DA Drawing Set



WSU LOT 4, WESTMEAD
158 - 164 Hawkesbury Road, 2a Darcy Road
WESTMEAD NSW 2145

LANDSCAPE - DEVELOPMENT APPLICATION

LANDSCAPE DRAWING REGISTER		
SHEET	SHEET NAME	REVISION
LD-DA000	COVER SHEET	A
LD-DA100	TREE MANAGEMENT PLAN	A
LD-DA101	GENERAL ARRANGEMENT PLAN	A
LD-DA102	GROUND FLOOR / LOWER GROUND FLOOR DETAIL PLAN 1	A
LD-DA103	GROUND FLOOR / LOWER GROUND FLOOR DETAIL PLAN 2	A
LD-DA104	BUILDING D2 - LEVEL 6 ROOF TOP PLAN	A
LD-DA105	LEVEL 8 - ROOFTOP TERRACE	A
LD-DA200	GROUND FLOOR SECTION AA	A
LD-DA201	GROUND FLOOR SECTION BB	A
LD-DA202	GROUND FLOOR SECTION CC	A
LD-DA203	LEVEL 8 - ROOFTOP TERRACE SECTIONS	A

* PLEASE NOTE PLANS TO BE READ IN CONJUNCTION WITH THE FOLLOWING DA
DESIGN REPORT PREPARED BY SCOTT CARVER

20160070-LR-DA000 LANDSCAPE DA DESIGN REPORT

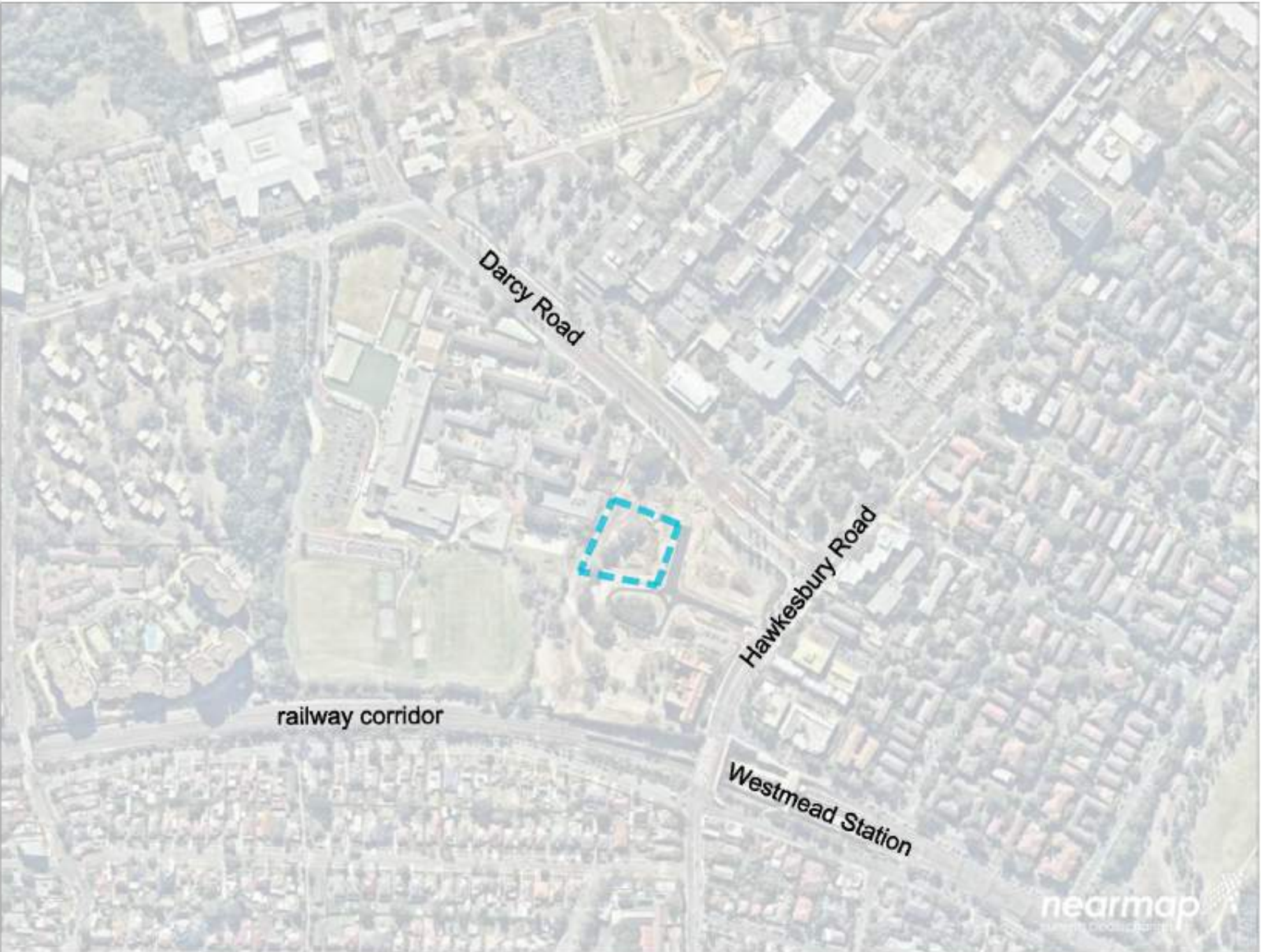
Status:DEVELOPMENT APPLICATION

Nom. Architect: Charlie Robinson RLA #5898

File: 20160070-LD-DA100 [1].DWG

Print Date: 20 DECEMBER 2016

Rev. Description Date
A DEVELOPMENT APPLICATION 20.12.2016



Regional Context Map

Site Reference N.T.S



Local Context Map

Site Reference N.T.S



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hello@scottcarver.com.au
www.scottcarver.com.au

WSU - LOT 4
Project
Client
COMBINED PROJECTS (WESTMEAD) PTY LTD

COVER SHEET

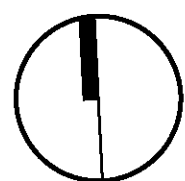
Reference No. 20160070
Discipline LD
Drawing No. DA000
Rev. A

LEGEND:

- Extent of Works
- Site Boundary
- Basement Extents
- Existing tree to be retained and protected (Significant Trees Numbered as per Arborists Report)
- Existing trees to be removed
- Proposed trees
- Tree Protection Zone [TPZ] (TPZ extents as per Arborists Report)
- Structural Root Zone [SRZ] (SRZ extents as per Arborists Report)

General Notes:

Plans to be read in conjunction with the following reports / documentation
- Arboricultural Impact Assessment report by Hayden Coulter - The Ents Tree Consultancy October 2016
- Parramatta DCP, Westmead Special Precinct DCP and Parramatta & Westmead Public Domain Guidelines.
Survey - Whelan Insites [RPS Group] Feb-March 2015



LEGEND:

- Extent of Works
- Site Boundary
- Basement Extents
- Existing tree to be retained and protected (Significant Trees Numbered as per Arborists Report)
- Proposed trees
- Planter areas steel edge to unrestrained edges
- RPA Raised planter area 450mm min with max 1:3 graded mounding to achieve depth
- TU Turf - Soft Leaf Buffalo Turf. To council standards
- P1 Paving type 1: Concrete Paver 'Dark Grey' 600 x 300 x 50mm. Finish: extruded Laid in stretcherbond. Selection to match adjacent existing paving. Sub base to councils standards
- P2 Paving Type 2: Permeable paving 'Artic White' 200 x 100 x 50 To Council Standards. Sub base to councils standards
- P3 Paving Type 3: Large format stepping: 2000 x 500 x 40mm precast concrete
- P4 Paving Type 4: Sawm sandstone flagging-random dimension (minimum to be 200mm)
- P5 Paving Type 5: Nepean river gravel - 10mm
- P6 Paving Type 6: Decomposed granite paving - grey colour
- W1 Wall Type 1: Wall type 2: Insitu off white formed concrete walls, 500mm wide x 450mm high grade 2 finish
- W2 Wall type 2: Insitu off white formed concrete walls, 200mm wide grade 2 finish
- PER Pergola Structure - timber frame with stainless steel trellis for climbers
- S1 Seat type 1: Proprietary item
- S2 Seat type 2: Timber seating element to be fixed to wall
- LP Light Pole to engineers documentation and to council standards
- UL Uplighting to engineers documentation and to council standards
- TD Timber deck
- TA Tactiles
- B Boltard with lighting
- Steps + handrails to AS 1428.1 compliance

General Notes:

- Plans to be read in conjunction with the following reports/Documentation
 - Arboricultural Impact Assessment report by Hayden Coulter - The Ends Tree Consultancy October 2016
- Survey - Whelan Insitu [RPS Group] Feb-March 2015. For site levels and architectural information refer to Civil and Architects drawings respectively. For courtyard and overflow drainage refer to Hydraulic engineers drawings
- Trees to be retained and are subject to tree protection & management in accordance with relevant Australian standards
- External Lighting and electrical: refer to engineers details
- Contractor to protect all landscape works during construction including but not exclusive to existing verge
- Levels general: contractor to ensure positive drainage to all pavements, turf and planter areas, install subsoil drainage to planter areas as required
- ALL PUBLIC DOMAIN WORKS IN ACCORDANCE WITH Parramatta City Council DCP / Westmead Special Precinct DCP & Westmead Town Centre Public Domain Guidelines / Parramatta City Council Public Domain Guidelines



LEGEND:

- Extent of Works
- Site Boundary
- Basement Extents
- Proposed nominal design levels: refer to engineers drawings
- Proposed trees
- RPA Raised planter area with steel edge to unrestrained edges 150mm min with max 1:3 graded mounding to achieve depth.
- P9 Paving Type 9: Decorative gravel - minimum depth 100mm

General Notes:
Plans to be read in conjunction with the following reports/Documentation:
• Arboricultural Impact Assessment report by Hayden Coulter - The Ents Tree Consultancy July 2016

Survey - Whelan Insite (RPS Group) Feb-March 2015. For Site levels and architectural information refer to Civil and Architects drawings respectively. For courtyard and overflow drainage refer to Hydraulic engineers drawings.

Trees to be retained and are subject to tree protection & management in accordance with relevant Australian standards.

External Lighting and electrical: refer to engineers details.

Contractor to protect all landscape works during construction including but not exclusive to existing verge.

Levels general: contractor to ensure positive drainage to all pavements, turf and planter areas. install subsoil drainage to planter areas as required.

ALL PUBLIC DOMAIN WORKS IN ACCORDANCE WITH Parramatta City Council DCP / Westmead Special Precinct DCP & Westmead Town Centre Public Domain Guidelines / Parramatta City Council Public Domain Guidelines



LEGEND:

- +400 Proposed nominal design levels
 - Proposed trees with mounding
 - RPA Raised planter area
 - 1.8m High glass balustrade edge
 - RPA Raised planter area 450mm min with max 1:3 graded mounding to achieve depth.
 - W2 Wall type 2: Insitu off white formed concrete walls, 200mm wide grade 2 finish
 - W3 Wall Type 3: Bespoke precast concrete wall, High grade class 2 finish
 - SW Seat Wall: Minimum 500mm wide hardwood timber cladding to insitu concrete wall - grade 2 finish
 - P4 Paving Type 4: Sawn sandstone flagging-random dimension (minimum to be 200mm)
 - P5 Paving Type 5: Nepean river gravel -10mm
 - P7 Paving Type 7: Large format pavers 1000 x 300 x 30mm precast concrete
 - P8 Paving Type 8: Concrete Paver mix Dark Grey and Mid Grey 300 x 300 x 30mm Finish: exfoliated
 - TD Modwood timber decking placed on 20mm pedestals
 - AT Artificial Turf
 - PER Galvanised Steel Structure with stainless steel trellis for climbers
 - U. Up-lighting to engineers documentation and to council standards
- Landscape plan to be read in conjunction with the Architectural and Engineers drawings.





Feature tree planting of Jacaranda
mimosa to create visual interest to
the central lawn area.

Informal groups of screening and shade
trees such as Cupanopsis, Gleditsia,
Tristanopsis and Waterhousea.

Outdoor sun lounge area with Bespoke
arbor and outdoor kitchen area for small
gatherings for residents and their friends.

Mass planting to northern boundary
(shown in the background) including
Corymbia citrifolia, Corymbia
mucronata and Angophora costata to
maximise deep soil area and provide
screening for residents.

Secluded gathering areas. A quiet
and private space for residents to
relax individually or in small groups.





INDICATIVE BASEMENT EXTENTS

BUILDING E1 LOBBY

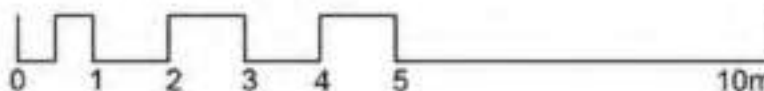
+32.300

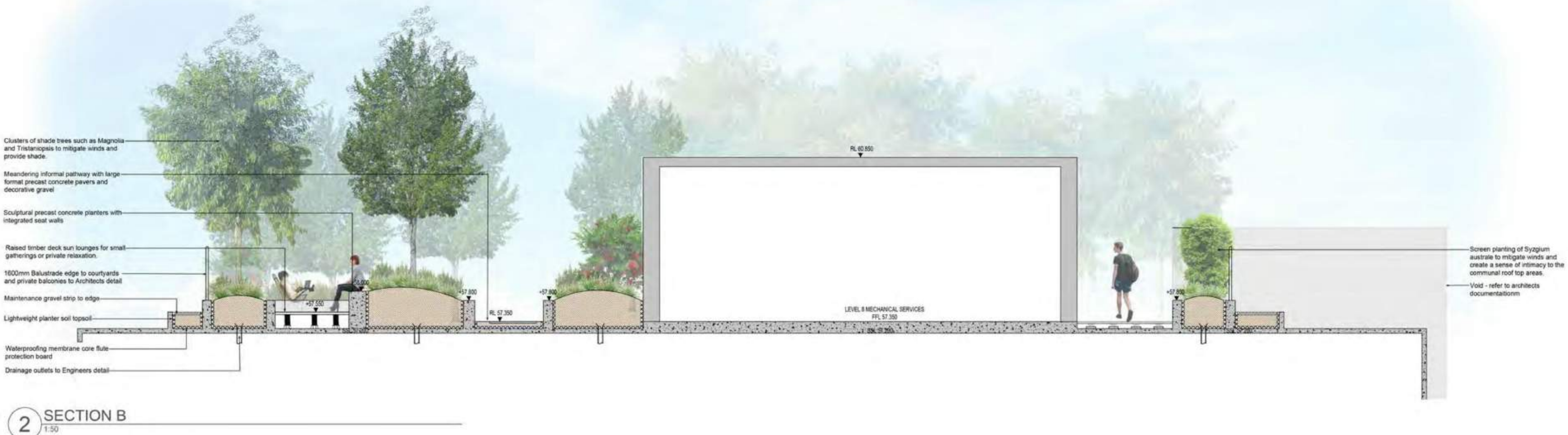
+33.171

+33.600

SITE BOUNDARY

1 : 100 @ A1





WSU - LOT 4

DARCY 7 HAWKESBURY ROAD WESTMEAD

CIVIL WORKS

LEGEND

CIVIL DRAINAGE SYMBOLS

STW	STORMWATER DRAINAGE PIPE
	STORMWATER DRAINAGE CHANNEL
SS	SUB SOIL DRAINAGE WITH CLEAN OUT
SSRM	SUB SOIL RISING MAIN
EB-LF	EARTH BANK LOW FLOW
EB-HF	EARTH BANK HIGH FLOW
EM	EXCAVATED MATERIAL
FLUME	FLUME
DD	DIVERSION DRAIN
	DIVERSION DRAIN
OFD	OVERFLOW PATH
OFD	OVERFLOW DRAIN
CLD	CONCRETE LINED DRAIN
RLD	ROCK LINED DRAIN
TD	TABLE DRAIN
V DRAIN (L)	V DRAIN (L)
V DRAIN (R)	V DRAIN (R)
SWALE or SPEED HUMP	SWALE or SPEED HUMP
OVERLAND FLOW DIRECTIONAL ARROW	OVERLAND FLOW DIRECTIONAL ARROW
OVERLAND FLOW PATH	OVERLAND FLOW PATH
DOWN PIPE	DOWN PIPE
PAVED AREA DRAIN	PAVED AREA DRAIN
	DROP TO OR RISE FROM
	RISE TO OR DROP FROM
	TEE DROP
	TEE RISE
	VERTICAL RISER IN DRAINAGE
	FLOW DIRECTIONAL ARROWS ON ALL PIPING SERVICES
	PIPELINE TERMINATED WITH BLANK FLANGE
	PIPELINE PLUGGED OFF
	CLEAROUT
F.P.	FLUSHING POINT
	NEW PIPE
	RISER
	SERVICE
	SIZE
	DROPPER

CIVIL ABBREVIATIONS

BWL	DRAINAGE LEVELS
IL	BOTTOM WATER LEVEL
OL	INVERT LEVEL
SL	OBVERT LEVEL
TWL	SURFACE LEVEL
	TOP WATER LEVEL
	GRATES & COVERS
LD	LIGHT DUTY CLASS 'B'
MD	MEDIUM DUTY CLASS 'C'
HD	HEAVY DUTY CLASS 'D'
EHD	EXTRA HEAVY DUTY CLASS 'E'
MP	MULTI PART COVER OR GRATE
	PITS
CDS	CDS TECHNOLOGIES
DCP	DISCHARGE CONTROL PIT
DGGP	DOUBLE GRATED GULLY PIT (CAST IRON)
GPT	GROSS POLLUTANT TRAP
JP	JUNCTION PIT
KEP	KERB ENTRY PIT
KEU	KERB ENTRY UNIT
MPC	MULTI PART COVER
MPG	MULTI PART GRATE
SGGP	SINGLE GRATED GULLY PIT (GMS)
SWP	STORMWATER PIT
	DRAINAGE LINES
SS	SUBSOIL DRAINAGE
STRW	STORMWATER RISING MAIN
STW	STORMWATER DRAIN
GO	AGEGRATED DRAIN
OLD	OPEN LINED DRAIN
OLD	OPEN UNLINED DRAIN
	FEATURES
CO	CLEAROUT
DP	DOWN PIPE
FP	FLUSHING POINT
IO	INSPECTION OPENING
OF	GUTTER OVERFLOW PIPE
RO	RAINWATER OUTLET
DTU	DRAINAGE TURNUP
OSD	ONSITE DETENTION
PSD	PERMISSIBLE SITE DISCHARGE
OPF	OVERFLOW PATH
SWMP	STORM WATER MANAGEMENT PLAN
ESCP	EROSION & SEDIMENT CONTROL PLAN

OSD ABOVE GROUND
KEP - KERB ENTRY PIT
DOUBLE GRATED GULLY PIT
JUNCTION PIT WITH COVER
SURFACE INLET PIT (FLUSH/RAISED)
SURFACE INLET PIT (DEPRESSED)
GRATED TRENCH DRAIN

EROSION & SEDIMENTATION SYMBOLS

B	FENCES
	BARRIER FENCE
X	SEDIMENT FENCE
	SILT FENCE ON LEVEL
	SILT FENCE ON GRADE
W	WIND FENCE
	BANKS
	DIVERSION CHANNEL/BANK
	LEVEL SPREADER
EB	EARTH BANK
EBLF	EARTH BANK LOW FLOW
EBHF	EARTH BANK HIGH FLOW
EM	EXCAVATED MATERIAL
	TRAPS
	GEOTEXTILE SEDIMENT TRAP
	CHECK DAMS (STRAW BALE OR ROCK)
	CONCRETE ENERGY DISSIPATOR
	STABILISED CONSTRUCTION SITE
	VEHICLE ENTRY/EXIT GRID
	SEDIMENT TRAP
	GEOTEXTILE FILTER BAGS OR SOCK

SURVEY & MAPPING SYMBOLS

	PROPERTY BOUNDARY
	EASEMENT
	FENCE OFF BOUNDARY
	FENCE ALONG BOUNDARY
	FENCE ON BOUNDARY
	STATE BOUNDARY
X	COUNTY BOUNDARY
	PARISH BOUNDARY
+++	SHIRE/MUNICIPAL BOUNDARY
P	NATIONAL PARK BOUNDARY
R	STATE RECREATION BOUNDARY
:	STATE FOREST BOUNDARY
*	TELSTRA EXCHANGE BOUNDARY

GENERAL ABBREVIATIONS

CTS	CENTERS
C	CENTRE LINE
DIA	DIAMETER
DMR	DEPARTMENT OF MAIN ROADS
DWG	DRAWING
EX.	EXISTING
GALV	GALVANIZED
HD GALV	HOT DIPED GALVANIZED
ID	INTERNAL DIAMETER
L.O.C.	LIMIT OF CONTRACT
MAX	MAXIMUM
MIN	MINIMUM
NB	NOMINAL BORE
N.I.C.	NOT IN CONTRACT
No.	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
OD	OUTSIDE DIAMETER
REV	REVISION
RTA	ROADS AND TRAFFIC AUTHORITY
SQ	SQUARE
SRA	STATE RAIL AUTHORITY
STD	STANDARD
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL

LEVELS ABBREVIATIONS

CL	CEILING LEVEL
FFL	FINISHED FLOOR LEVEL
FGL	FINISHED GROUND LEVEL
GL	EXISTING GROUND LEVEL
HL	HIGH LEVEL
HP	HIGH POINT
LL	LOW LEVEL
ML	MID LEVEL
NS	NATURAL SURFACE LEVEL
PL	PLATFORM LEVEL
RL	REDUCED LEVEL
US	UNDER SIDE
USFL	UNDERSIDE FLOOR

SURVEY ABBREVIATIONS

AHD	AUSTRALIAN HEIGHT DATUM
BK	BOTTOM OF KERB
BM	BENCH MARK
CL	CENTRE LINE
D.E.	DRAINAGE EASEMENT
DH&W	DRILL HOLE & WING
FD	FOUND
INV	INVERT
K & G	KERB & GUTTER
R.O.W.	RIGHT OF CARRIAGEWAY
SSM	STATE SURVEY MARK
TK	TOP OF KERB

RL 165.40 PROPOSED SURFACE LEVEL

DRAFTING SYMBOLS

AMENDMENT No.
SCALE BARS
SCALE 1:200
SCALE 1:200

SECTION SYMBOL
SECTION No.
REFERENCE DRAWING

SERVICES & UTILITIES SYMBOLS

A	AIR
C	CABLES
D	DRAINS
E	ELECTRICAL
LV	LOW VOLTAGE
HV	HIGH VOLTAGE
V	TRANSMISSION POWER LINES
EFF	COMMON EFFLUENT
ERM	EFFLUENT RISING MAIN
F	FUEL
G	GAS
G(HP)	GAS HIGH PRESSURE
G(MP)	GAS MEDIUM PRESSURE
G(LP)	GAS LOW PRESSURE
GAS	GAS
NG	NATURAL GAS
H	HYDRAULIC POWER
I	IRRIGATION
RTA	RTA ROADS & TRAFFIC AUTHORITY
SRA	SRA STATE RAIL SERVICE
S	SEWER
SRM	SEWER RISING MAIN
T	TELECOMMUNICATIONS TELSTRA
OF	OPTICAL FIBRE OF
SMOF	OPTICAL FIBRE CABLE SMOF
OP	OPTUS
OCC	OVERHEAD COMMUNICATION CABLE
W	WATER
WRM	WATER RISING MAIN
MS	MISCELLANEOUS SERVICE
X	X
Y	Y
Z	Z

NOTE:-
'e' ON SERVICE LINE REPRESENTS EXISTING SERVICE OR THE USE OF LOWER CASE LETTER.
'x' ON SERVICE LINE REPRESENTS SERVICE TO BE ABANDONED.

WATER & SEWER ABBREVIATIONS

BT	BOUNDARY TRAP
GM	GRAVITY MAIN
HYD	HYDRANT
IO	INSPECTION OUTLET
LH	LAMP HOLE
MH	MAINTENANCE HOLE
MS	MAINTENANCE SHAFT
PS	PUMP STATION
RM	RISING MAIN
SV	STOP VALVE
SWW	SYDNEY WATER WATERMAIN
WM	WATER METER

WATER & SEWER SYMBOLOGY

PROPOSED SYDNEY WATER SEWER
FUTURE SYDNEY WATER SEWER
EXISTING SYDNEY WATER SEWER
EXISTING SYDNEY WATER SEWER
EXISTING SYDNEY WATER SEWER TO BE DISUSED.

MATERIALS

Br	BRASS
CI	CAST IRON
CICL	CAST IRON CEMENT LINED
CONC	CONCRETE
CP	CHROMIUM PLATED
CU	COPPER
DICL	DUCTILE IRON CEMENT LINED
FRC	FIBRE REINFORCED CEMENT
GMS	GALVANISED MILD STEEL
MS	MILD STEEL
NY	NYLON
PE	POLYETHYLENE
RC	REINFORCED CONCRETE
RCP	REINFORCED CONCRETE PIPE
RHS	RECTANGULAR HOLLOW SECTION
SS	STAINLESS STEEL

CATCHMENT SYMBOLS

PIT CATCHMENT
LINE CATCHMENT
MAJOR CATCHMENT
SUB CATCHMENT
LIMIT OF CATCHMENT

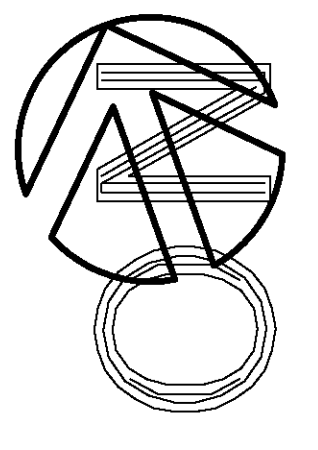
CATCHMENT ABBREVIATIONS

P()	PAVED CATCHMENT AREA
R()	ROOFED CATCHMENT AREA
A()	LANDSCAPE CATCHMENT AREA
T()	TERRACE CATCHMENT AREA
ARI	AVERAGE RECURRENCE INTERVAL
CA	CATCHMENT AREA
Ha	HECTARE
L/s	LITRES PER SECOND (VELOCITY)
m/s	METRES PER SECOND (VELOCITY)
CUMEC	CUBIC METRES PER SECOND
Q	QUANTITY OF FLOW

DRAWING LIST

	SCALE
C01	COVER SHEET & LEGEND
C02	SPECIFICATION NOTES
C03	BULK EARTHWORKS PLAN
C04	INTERNAL ROADWAY & PATHWAY PLAN

THE ABOVE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE PROJECT SPECIFICATION, ARCHITECTURAL, STRUCTURAL, CIVIL, MECHANICAL, ELECTRICAL ENGINEERING AND HYDRAULIC SPECIFICATION



ARCHITECTURAL

CLIENT

DEL CORP
Pty Limited

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Email: admin@nleapl.com.au
Neil Lowry & Associates Pty Ltd ABN 72 101 872 584

PROJECT

WSU LOT 4
DARCY ROAD &
HAWKESBURY ROAD
WESTMEAD

DRAWING

CIVIL WORKS
COVER SHEET & LEGEND

DRAWN	DESIGNED	CHECKED
NL	NL	NL
DATE		
DEC 16		
PROJECT	DWG No.	REV
0789	C01	A
STATUS		SCALE
DA ISSUE		NTS

NOTES

GENERAL

- G1. DESIGN HEREIN HAS BEEN PREPARED BY NEIL LOWRY & ASSOCIATES HYDRAULIC & CIVIL ENGINEERS SUITE 3.09, 7-9 GIBBONS STREET, REDFERN TEL:- 02 9526 7922, FAX:- (02) 9526 7944
- G2. THE DRAWINGS HEREIN SHALL BE READ AS REQUIRED IN CONJUNCTION WITH ARCHITECTURAL DRAWINGS BY TURNER ARCHITECTS PTY LTD Phone: (02) 8668 0000 FAX:- (02) 8668 0088
- G3. ALL DIMENSIONS IN MILLIMETRES UNO. REDUCED LEVELS AND CHAINAGES ARE IN METRES. DO NOT SCALE DRAWINGS. USE FIGURED DIMENSIONS.
- G4. THE PROPOSED WORKS DETAILED HEREIN SHALL BE CONSTRUCTED TO THE REQUIREMENTS OF COUNCIL GENERALLY AS DETAILED HEREUNDER.
- G5. ALL EXISTING SERVICES SHALL BE VERIFIED FOR DEPTH AND HORIZONTAL POSITION BY PHYSICAL MEANS PRIOR TO EXCAVATION. ANY DISCREPANCIES SHALL BE BROUGHT FORTHWITH TO THE PROJECT MANAGER'S ATTENTION.

SUB-SOIL DRAINAGE MATERIALS:

- SS1. PIPES & FITTINGS FOR SUBSOIL DRAINAGE SHALL BE SLOTTED POLYVINYL CHLORIDE (PVC) WITH SOLVENT WELDED JOINTS, MIN. 150mm DIAMETER.
- SS2. ALL SUBSOIL DRAINAGE & DETAILS REFER TO STORMWATER & SUBSOIL DRAINAGE DRAWINGS BY N. LOWRY & ASSOCIATES PTY LTD

GEOTECHNICAL REPORT

REFERENCE SHALL BE MADE TO THE GEOTECHNICAL REPORT BY COFFEY GEOSCIENCES Pty Ltd "PROPOSED DEVELOPMENT, STAGE 2 STEEL RIVER INDUSTRIAL DRIVE, MAYFIELD WEST. REPORT No. N09973/02-AB, 9 AUG 2006

CONCRETE WORKS

- C1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS3600, THE SAA STANDARDS CITED IN AS3600, THE DRAWINGS AND THE SPECIFICATION.
- C2. ALL CONCRETE SHALL BE 80mm MOMINAL SLUMP, 20mm MAXIMUM AGGREGATE WITH NO ADMIXTURES OR FLY ASH, UNLESS OTHERWISE APPROVED.
- ALL CONCRETE WORK IN CONTACT WITH SEWER TO HAVE TYPE SL PORTLAND CEMENT, OTHERWISE TYPE A CEMENT FOR BRIDGE WORKS, A MAXIMUM 56 DAYS SHRINKAGE OF 600 MICROSTRAIN, A MINIMUM CEMENT CONTENT 350kg/m3 AND MAXIMUM WATER:CEMENT RATIO OF 0.40
- C3. STRENGTH GRADE OF CONCRETE SHALL BE : 25 MPa (KERBS, EDGE STRIPS & CONCRETE ENCASEMENT), 4.25 MPa FLEXUAL STRENGTH FOR RIGID CONCRETE PAVEMENTS AT 80mm SLUMP, 20mm MAXIMUM AGGREGATE SIZE, AND 32 MPa ELSEWHERE.
- C4. CONSTRUCTION JOINTS SHALL BE PROPERLY FORMED AND USED ONLY WHERE SHOWN OR APPROVED.
- GENERALLY FOR HAND PLACED KERB & GUTTER 6mm THICK APPROVED BITUMINOUS MASTIC JOINTING MATERIAL SHALL BE PROVIDED AT INTERVALS NOT EXCEEDING 6m. FOR MACHINE PLACED KERB & GUTTER 6mm THICK APPROVED BITUMINOUS MASTIC JOINTING MATERIAL SHALL BE PROVIDED AT INTERVALS NOT EXCEEDING 12m & GUILLOTINED DUMMY GROOVED JOINTS, 25mm IN DEPTH, SHALL BE FORMED EVERY 3m OF GUTTER. JOINTS ARE ALSO REQUIRED AT EACH END OF GUTTER CROSSING AND GULLY PITS. JOINTS SHALL BE SET VERTICAL AND SQUARE TO THE KERB.
- C5. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY AND IS NOT NECESSARILY SHOWN IN TRUE PROJECTION.
- C6. WELDING OR SPLICES IN REINFORCEMENT SHALL BE USED ONLY IN POSITIONS APPROVED BY THE ENGINEER.
- C7. CONCRETE CURING SHALL BE IN ACCORDANCE WITH AS3600. CURING SHALL BE COMMENCED WITHIN TWO HOURS OF FINISHING OPERATIONS AND SHALL BE CONTINUED FOR A MINIMUM OF SEVEN DAYS BY AN APPROVED PROPRIETARY COMPOUND OR BY KEEPING CONTINUOUSLY WET.
- C8. FORMWORK SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH AS3610. FORMWORK SHALL NOT BE STRIPPED NOR PROPS REMOVED WITHOUT APPROVAL.
- C9. FABRIC LAP DETAILS SHALL BE IN ACCORDANCE WITH FIG.13.2.4 OF AS3600.
- C10. HOOKS, LAPS AND BENDS SHALL BE IN ACCORDANCE WITH AS3600 UNO.
- C11. ALL CHEMICAL ANCHORS SHALL BE EITHER 'CHEMSET' BY "RAMSET" WITH THE GLASS CAPSULE SYSTEM INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS
- HILTI HVU ADHESIVE ANCHOR WITH FOIL CAPSULE SYSTEM INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS INSTRUCTION. ALL CHEMICAL ANCHORS SHALL BE HOT DIPPED GALVANIZED AND BE MIN M16 DIA. U.N.O.

EXCAVATION BATTERS:

- SGE8. ALL TEMPORARY BATTERS CUT IN CLAY SUBSTRATE SHALL BE 1 HORIZ : 1 VERT.
- ALL LONG TERM EXPOSED BATTERS CUT IN CLAY SUBSTRATE SHALL BE 2 HORIZ : 1 VERT.
- ALL DETENTION BASIN BATTERS IN CLAY SUBSTRATE SHALL BE 3 HORIZ : 1 VERT.
- ALL DETENTION BASIN BATTERS IN ROCK SUBSTRATE SHALL BE NEAR VERTICAL.
- SGE9. GEOTECHNICAL TESTING IS TO BE UNDERTAKEN TO AT LEAST LEVEL 1 CONTROL OF FILL COMPACTION STANDARD, AS DEFINED IN AS. 3738 AS FOLLOWS
- FOR GENERAL FILL OR CUT AREAS OVER THE AREA PROVIDE ONE (1) TEST PER 200mm LAYER, OVER AN AREA NOT GREATER THAN 500 m².
- FOR GENERAL FILL AREAS IN CONCENTRATED AREAS ADJACENT TO AND BEHIND THE STRUCTURE AND ADJACENT TO AND BEHIND RETAINING WALLS PROVIDE ONE (1) TEST PER 200mm LAYER, OVER AN AREA NOT GREATER THAN 50m².
- SUBMIT ALL GEOTECHNICAL TEST RESULTS TO WARREN SMITH & PARTNERS FOR REVIEW PRIOR TO CONTINUATION WITH SUBSEQUENT SECTION OF WORK.

GENERAL EARTHWORKS, SITEWORKS & FILLING: FILLING:

- SGE1. THESE CLAUSES SHALL BE READ IN CONJUNCTION WITH "REPORT ON GEOTECHNICAL INVESTIGATION BY GEOTECHNIQUE PTY LTD REPORT No. 10280/2-AA DATED 4 JUNE 04 PH 02 4722 2700 FAX: 02 4722 2777
- SGE2. STRIP ALL TOPSOIL AND UNDERLYING FILL AND STOCKPILE TOPSOIL FOR LATER REUSE FOR LANDSCAPING PURPOSES.
- SGE3. NEW FILL REQUIRED TO REINSTATE CUT LEVELS TO PROPOSED BENCHING LEVELS SHALL BE SOURCED FROM OTHER PARTS OF THE EXCAVATION AS SELECT FILL OR IMPORTED FILL AS SPECIFIED BELOW IN SGE 4 AND SGE 5.
- SGE4. SELECT FILL SHALL CONSIST OF LOCALLY DERIVED OR CUT NATURAL CLAYS.
- SGE5. IMPORTED FILL SHALL CONSIST OF RIPPED SANDSTONE OR SHALE OR SIMILAR MATERIAL WITH MAXIMUM PARTICLE SIZE NOT GREATER THAN 120mm AND A MOISTURE CONTENT WITHIN 2-3% OF STANDARD OPTIMUM.
- SGE6. ALL FILL (COHESIVE SOIL) SHALL BE PLACED IN LAYERS OF 200mm MAXIMUM THICKNESS, COMPACTED BY MACHINE ROLLING TO ACHIEVE A DRY DENSITY RATIO OF NOT LESS THAN 98% STANDARD MAXIMUM AT A CORRESPONDING MOISTURE CONTENT WITHIN 2-3% OF STANDARD OPTIMUM.
- SGE7. IN AREAS WHERE HIGH IMPACT ROLLING IS USED TEST EACH FINAL LAYER OF NOT GREATER THAN 300mm TO 400mm TO ACHIEVE A DRY DENSITY RATIO OF NOT LESS THAN 98% STANDARD MAXIMUM AT A CORRESPONDING MOISTURE CONTENT WITHIN 2-3% OF STANDARD OPTIMUM.

RESTORATION:

- RES1. RESTORE ALL TRAFFIC AREAS TO PRE EXISTING CONDITION.
- RES2. FOR ALL SURFACES OTHER THAN IN TRAFFIC AREAS RESTORE DISTURBED SURFACES TO PRE-EXISTING CONDITIONS AND COMPACT AS SPECIFIED.
- RES3. RESTORE ALL AUTHORITY OWNED AREAS TO COUNCIL STANDARDS

ROAD WORKS, DRIVEWAYS & CARPARKS

- R1. ALLOW FOR LEVEL 2 TESTING AND SUB-GRADE CONDITIONS & PAVEMENT THICKNESS TO BE VERIFIED BY GEOTECHNICAL CONSULTANT AFTER INSPECTION OF PRELIMINARY BOXING.
- R2. ALLOW FOR ANY SUB-GRADE REPLACEMENT WORK TO BE DETERMINED AS REQUIRED BY GEOTECHNICAL CONSULTANT AT THE TIME OF PAVEMENT CONSTRUCTION.
- R3. MINIMUM DRY DENSITY RATIOS (AS 1289 3.4.1-1993) TO BE: BASECOURSE 98% MODIFIED SUB-BASE 95% MODIFIED SUB-GRADE 100% STANDARD SUB-GRADE REPLACEMENT100% STANDARD
- R4. PAVEMENT MATERIALS TO COMPLY WITH RTA SPECIFICATION No. 3051 OR SIMILAR AS APPROVED BY GEOTECHNICAL CONSULTANT.
- R5. PROVIDE (1) TEST FOR EACH LAYER NOT EXCEEDING 250mm THICK BEING BASECOURSE, SUB-BASE & SUB-GRADE OVER AN AREA NOT GREATER THAN 500m²
- R6. SUBMIT ALL GEOTECHNICAL TEST RESULTS TO WARREN SMITH & PARTNERS FOR REVIEW PRIOR TO CONTINUATION WITH SUBSEQUENT SECTION OF WORK.

APPROVALS

- A1. THE AS CONSTRUCTED WORKS SHALL BE INSPECTED BY DESIGN CONSULTANT. MINIMUM 48 HOURS NOTICE SHALL APPLY TO ALL INSPECTIONS.
- A2. THE DESIGN PLANS HEREIN ARE SUBJECT TO COUNCIL APPROVAL PRIOR TO CONSTRUCTION. OBTAIN EXPRESS (WRITTEN) ADVICE TO PROCEED FROM PROJECT MANAGER PRIOR TO COMMENCEMENT.
- A3. SUBMIT WORK-AS-EXECUTED DRAWINGS IN CIVILCAD OR DXF DIGITAL FORMAT AND HARD COPY FORMAT. VERIFY ALL CONSTRUCTION WORKS SHOWN HEREON.
- A4. CERTIFY THAT THE AS CONSTRUCTED SYSTEM HAS BEEN BUILT IN ACCORDANCE WITH THE APPROVED PLANS ISSUED FOR CONSTRUCTION.

ROAD SIGNS & LINE MARKING

- RS1. ALL SIGNS AND LINEMARKING SHALL BE TO ROADS & TRAFFIC AUTHORITY STANDARDS AND SPECIFICATIONS AND AS.1742, MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES
- RS2. ALL LINEMARKING SHALL BE AUGMENTED BY RETROREFLECTIVE RAISED PAVEMENT MARKERS (RRPMs) AND ALL SHALL BE TO AS 1742.2 - 1994 AND AS 1742.2 /AMDT 1/1997-10-05
- RS3. ALL ROAD SIGNS AND POSTS SHALL BE TO AS 1742.2 - 1994 AND AS 1742.2 /AMDT 1/1997-10-05

COUNCIL STANDARDS

LGA 1. THE DRAWINGS HEREIN SHALL BE READ IN CONJUNCTION WITH COUNCIL'S STANDARDS & SPECIFICATIONS WHICH SHALL OVERRIDE SPECIAL DETAILS SHOWN ON THE DRAWINGS.

TRAFFIC NOTE:

1. A TRAFFIC CONTROL PLAN IS TO BE PREPARED BY AN ACCREDITED RTA TRAFFIC CONTROLLER AND SUBMITTED TO COUNCIL. THIS TRAFFIC PLAN IS TO BE CERTIFIED BY AND IMPLEMENTED TO THE SATISFACTION OF AN ACCREDITED RTA TRAFFIC CONTROLLER
2. ALL TRAFFIC CONTROL WORKS SHALL ONLY BE CARRIED OUT BY ACCREDITED RTA TRAFFIC CONTROLLERS.

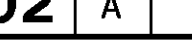
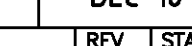
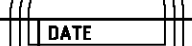
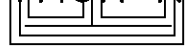
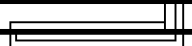
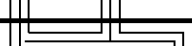
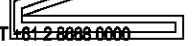
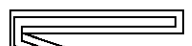
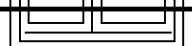
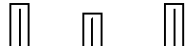
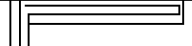
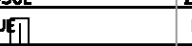
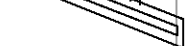
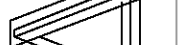
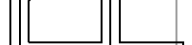
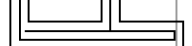
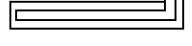
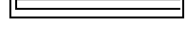
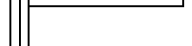
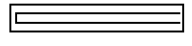
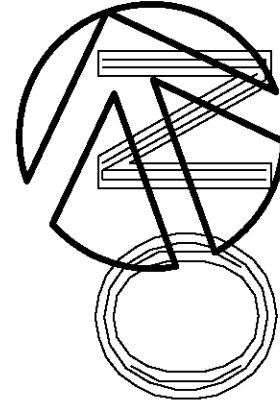
REINFORCED CONCRETE

1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS3600, THE SAA STANDARDS CITED IN AS3600, THE DRAWINGS AND THE SPECIFICATION.
2. ALL CONCRETE SHALL BE 80mm SLUMP, 20mm MAXIMUM AGGREGATE WITH NO ADMIXTURES OR FLY ASH, UNLESS APPROVED BY THE ENGINEER. ALL CONCRETE TO HAVE TYPE SL PORTLAND CEMENT WITH NO FLY ASH.
3. CONSTRUCTION JOINTS SHALL BE PROPERLY FORMED AND USED ONLY WHERE SHOWN OR APPROVED BY THE ENGINEER.
4. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY AND IS NOT NECESSARILY SHOWN IN TRUE PROJECTION.
5. WELDING OR SPLICES IN REINFORCEMENT SHALL BE USED ONLY IN POSITIONS APPROVED BY THE ENGINEER.
6. CONCRETE CURING SHALL BE IN ACCORDANCE WITH AS3600. CURING SHALL BE COMMENCED WITHIN TWO HOURS OF FINISHING OPERATIONS AND SHALL BE CONTINUED FOR A MINIMUM OF SEVEN DAYS BY AN APPROVED PROPRIETARY COMPOUND OR BY KEEPING CONTINUOUSLY WET.
7. FORMWORK SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH AS3610. FORMWORK SHALL NOT BE STRIPPED NOR PROPS REMOVED WITHOUT THE APPROVAL OF THE ENGINEER.
8. FABRIC LAP DETAILS SHALL BE IN ACCORDANCE WITH DRAWINGS
9. HOOKS, LAPS AND BENDS SHALL BE IN ACCORDANCE WITH AS3600 UNO.
10. THE CONCRETE STRENGTH SHALL COMPLY WITH THE FOLLOWING:

ELEMENT	MIN CEMENT CONTENT (kg/m³)	SLUMP (mm)	NOM MAX AGGREGATE SIZE (mm)	GRADE DESIGNATION (Mpa)
REINFORCED CONCRETE	360	80	20	SL32
MASS CONCRETE	260	80	20	N20
PILES	360	80	20	N40

11. NO PENETRATIONS, RECESSES OR CHASES OTHER THAN THOSE SHOWN ON THE DRAWINGS SHALL BE MADE IN CONCRETE MEMBERS
12. ALL EDGES TO HAVE 20mm CHAMFERS, WHERE VISIBLE IN THE FINISHED WORK.

ALL CHEMICAL ANCHORS SHALL BE EITHER 'CHEMSET' BY "RAMSET" WITH THE GLASS CAPSULE SYSTEM INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS OR HILTI HVU ADHESIVE ANCHOR WITH FOIL CAPSULE SYSTEM INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS INSTRUCTION. ALL CHEMICAL ANCHORS SHALL BE HOT DIPPED GALVANIZED AND BE MIN M16 DIA. U.N.O.



200

150

100

50

0

A1 SHEET

LEGEND

BUILDING FOOT PRINT

NO CUT / NO FILL LINE

STABILISED NEAR VERTICAL CUT FACE AT 12V : 1H

TOP OF BATTER CUT OR FILL BATTER TOE OF BATTER PERMANENT 1V : 2H

TEMPORARY BATTER FACE AT 1V : 1H

REINFORCED CONC BLOCK RETAINING WALL

PL = EARTHWORKS PLATFORM LEVEL

FFL = FINISHED FLOOR LEVEL

The diagram is a detailed bulk earthworks plan for Lot 4 B4 Carpark. It shows the layout of the carpark with 71 spaces, a bulk platform level at RL 16.40, and various setbacks and boundaries. The plan includes a grid system with letters A through T and numbers 1 through 22. Key features include: Lot 4 B4 Carpark (A: 2,659.68sqm, 71 spaces, RL 16.700), Bulk Platform Level (RL 16.40), 6M Landscape Setback, 2M Setback, Site Boundary, Right of Access (6m), and various setbacks and boundaries. The plan also shows the location of Lot 3 and Lot 5, and the location of the Bulk Platform Level. The plan includes a legend for building foot print, no cut / no fill line, stabilised near vertical cut face, top of batter cut or fill batter, toe of batter permanent 1v : 2h, temporary batter face at 1v : 1h, reinforced conc block retaining wall, and earthworks platform level. The plan also includes a scale bar and a north arrow.

LOT 3

Right of access (6m)

BULK PLATFORM LEVEL
RL16.40

Lot 4 B4 Carpark
A: 2,659.68sqm
71 spaces
RL 16.700

2M SETBACK
SITE BOUNDARY

APPLICATIO

A	DEVELOPMENT APPLICATION ISSUE	20.12.16	NL	NL
No.	REVISION/ISSUE	DATE	BY	CHECKED

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PROJECT
**WSU LOT 4
DARCY ROAD &
HAWKESBURY ROAD
WESTMEAD**

DRAWING
**CIVIL WORKS
BULK EARTHWORKS PLAN**

DRAWN	DESIGNED	CHECKED	DATE	SCALE
NL	NL	NL	DEC-16	1:200@A1
PROJECT	DWG No.	REV	STATUS	
0789	C03	A	DA ISSUE	

CONCRETE PAVING JOINT NOTES

THIS DRAWING IS ONLY INDICATIVE OF THE GENERAL JOINT DETAILS FOR TOP REINFORCED PAVING SLABS.

THE PAVEMENT THICKNESS, MATERIALS USED & CONCRETE MIX DESIGN, GRADE, FINISH & REINFORCEMENT WILL VARY FOR DIFFERENT AREAS.

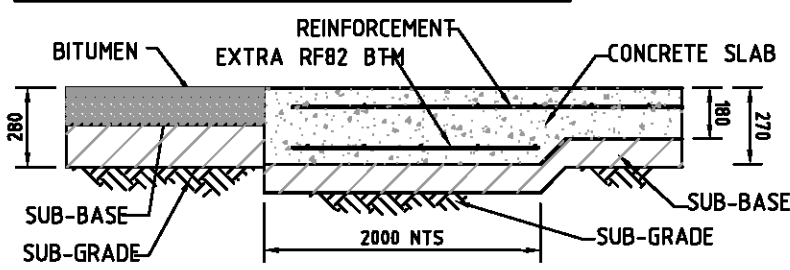
REFER TO THE PAVEMENT PLAN & DETAILS FOR SPECIFIC AREAS & THEIR THICKNESS DETAILS, JOINT LOCATION & TYPE.

READ THIS DRAWING IN CONJUNCTION WITH THE GENERAL SPECIFICATIONS & NOTES.

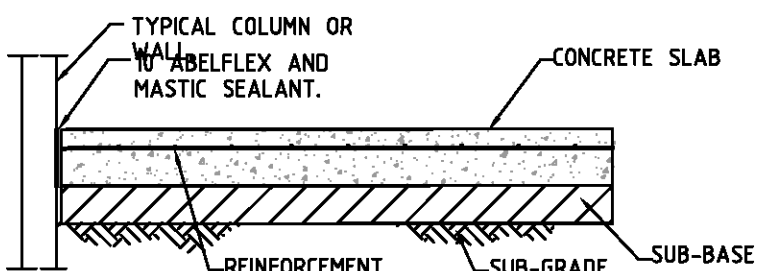
SAWN PANELS NOT TO EXCEED A RATIO OF LENGTH TO WIDTH OF 1.5 TO 1

DOWEL DIMENSIONS FOR CONCRETE PAVEMENTS

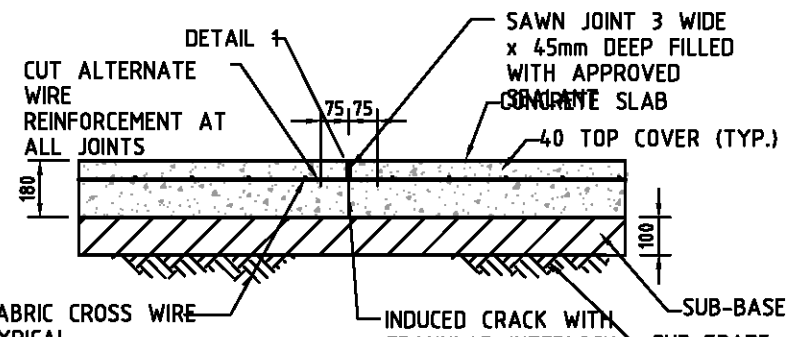
SLAB THICKNESS (mm)	DOWEL DIAMETER (mm)	DOWEL LENGTH (mm)
100	12	250
125	16	300
150	20	350
175	20	350
200	24	350
225	28	400
250	32	500



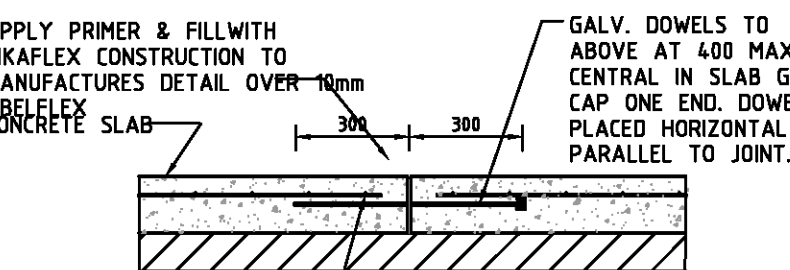
CONCRETE EDGE THICKENING DETAIL



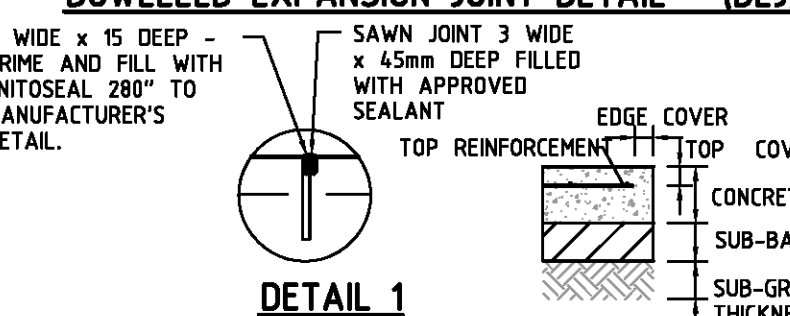
ISOLATION JOINT DETAIL (IJ)



SAWN CONTRACTION JOINT DETAIL - (SJ)



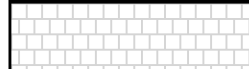
DOWELLED EXPANSION JOINT DETAIL - (DEJ)



PAVING JOINT TYPES	
IJ ISOLATION JOINT	
SJ SAWCUT JOINT	
DEJ DOWELLED EXPANSION JOINT	

LEGEND

PAVED AREAS AS NOMINATED



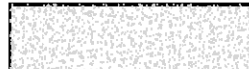
• 600 X 300 PAVES OVER 150mm CONCRETE WITH RFB2 MESH PLACED CENTRALLY ON COMPACTED GRANULAR FILL

PEDESTRIAN FOOTPATH



• 75mm REINFORCED INSITU CONCRETE PAVEMENT WITH F22 MESH PLACED CENTRALLY WITH 100L JOINTS EVERY 1.2m AND EXPANSION JOINTS EVERY 6m

COUNCIL VEHICULAR CROSSING



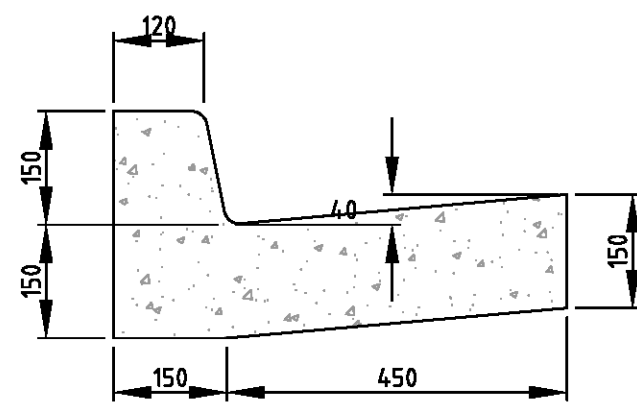
• 150mm REINFORCED CONCRETE RFB2 MESH, 40mm TOP COVER

PERMEABLE PAVED AREAS AS NOMINATED



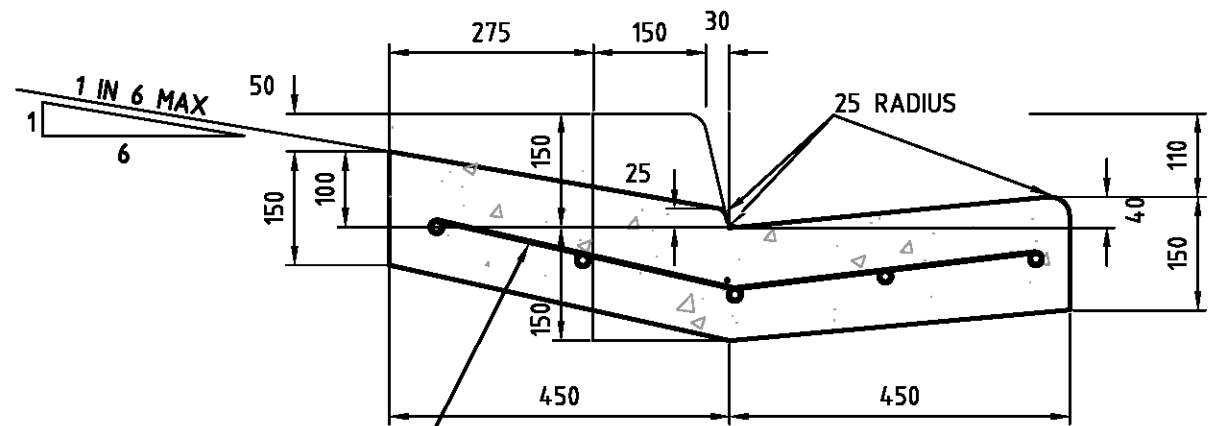
• PERMEABLE PAVES PLACED CENTRALLY ON COMPACTED GRANULAR FILL

• COMPACTED SUBGRADE



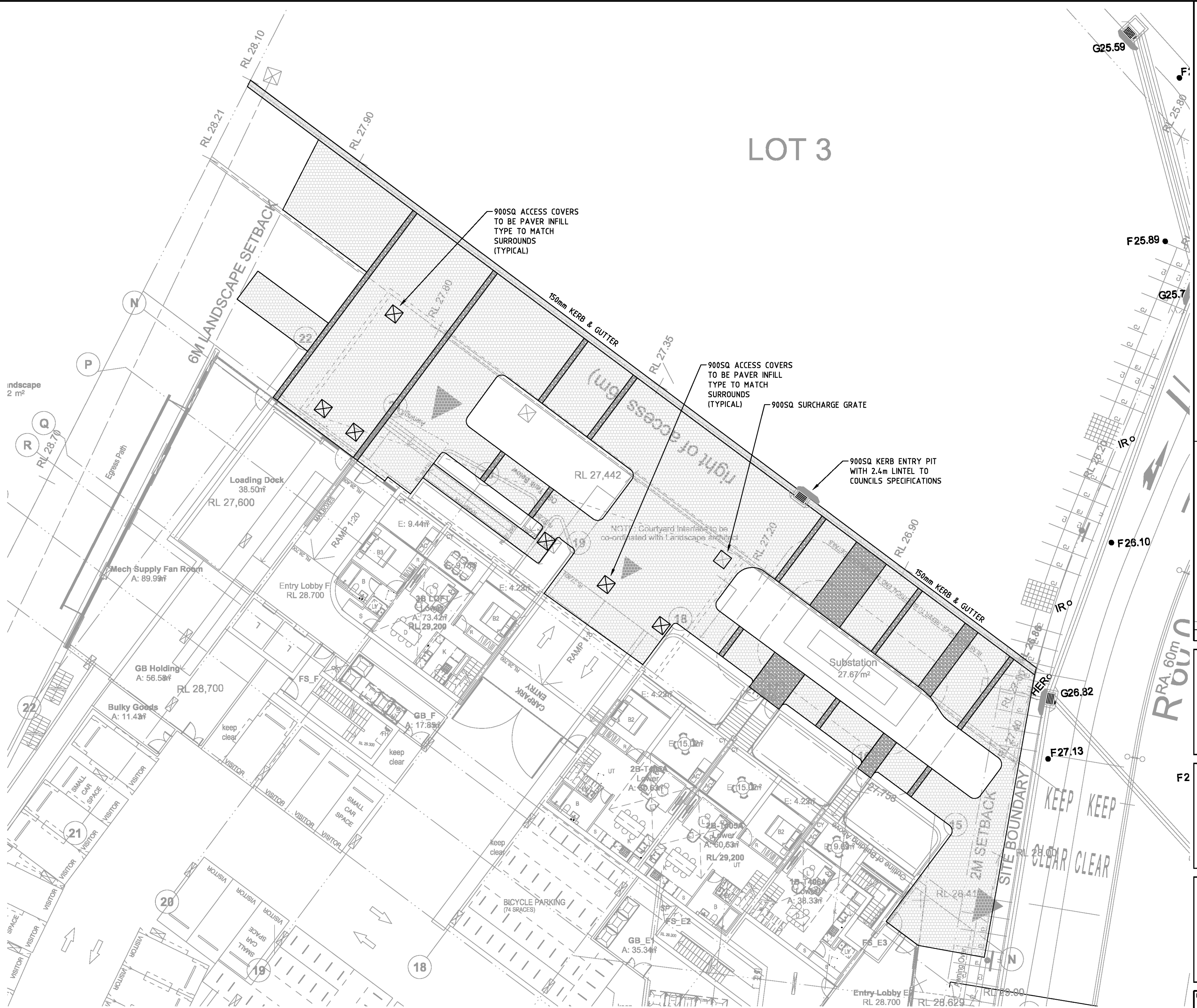
UPRIGHT KERB DETAIL

SCALE 1:10



SECTION
HEAVY DUTY GUTTER CROSSING

LOT 3



No.	REVISION/ISSUE	DATE	BY	CHECKED
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Neil Lowry & Associates Pty Ltd ABN 72 101 872 584

PROJECT

**WSU LOT 4
DARCY ROAD &
HAWKESBURY ROAD
WESTMEAD**

DRAWING

**CIVIL WORKS
INTERNAL DRIVEWAYS &
PATHWAY PLAN**

DRAWN	DESIGNED	CHECKED
NL	NL	NL

DATE	SCALE
DEC-16	1:150

PROJECT	DWG No.	REV	STATUS
0789	C04	A	DA ISSUE