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URBAN DESIGN AND LANDSCAPE PLAN

CABRAMATTA LOOP

AUSTRALIAN RAIL
TRACK CORPORATION

18.10.2021

CABRAMATTA LOOP

AUSTRALIAN RAIL TRACK CORPORATION

Report Register

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The report has been reviewed and approved for issue in accordance with CCG Architects quality assurance policy and procedures.

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An aerial photograph of a large shipping yard or port area. Numerous shipping containers of various colors (blue, red, yellow, white, green, orange) are stacked in neat rows and piles. The containers are arranged in a grid-like pattern, with some areas showing more dense stacks than others. The ground is a light-colored, possibly paved or gravel surface. The overall scene depicts a busy logistics hub.

INTRODUCTION

01

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INTRODUCTION SUMMARY

Over the next 20 years, container rail freight volumes on Sydney's rail freight network are predicted to increase substantially. The major drivers of this increase will be population growth, economic growth (resulting in increases in freight movements over and above the rate of population growth) and growth in global community demand (Transport for NSW, 2018d). This will put more pressure on existing rail infrastructure, which includes the Southern Sydney Freight Line (SSFL).

The SSFL was commissioned in 2013 and is a 36 kilometre long single bi-directional track dedicated freight line located between Macarthur and Sefton, adjacent to the Main Southern Line in Sydney's south-western suburbs. The SSFL is managed and maintained by the Australian Rail Track Corporation (ARTC).

In 2015 ARTC prepared the Sydney Metropolitan Freight Strategy (ARTC, 2015) which considered existing rail freight capacity issues and identified priority actions to respond to rail freight demands on Sydney's rail freight network.

This strategy recommended a number of infrastructure projects to enhance the capacity of the freight network, including a passing loop at Warwick Farm and the duplication of the Botany Rail line. Based on the outcomes of this strategy in 2015, the then Department of Infrastructure and Regional Development made a recommendation to develop a rail loop aligned with the existing rail corridor between Cabramatta and Warwick Farm stations.

In May 2018, the Australian Prime Minister announced the Federal government's commitment to the Botany Rail Duplication Project, including the Cabramatta Loop Project, to the value of \$400 million. Consistent with this commitment ARTC will construct and operate a passing loop for up to 1,300 metre length trains on the SSFL between Cabramatta and Warwick Farm stations (the Cabramatta Loop Project).

The Cabramatta Loop Project allows freight trains to pass and provide additional rail freight capacity along the SSFL.

This Urban Design and Landscape Concept Report provides an urban design overview and outlines a series of design principles and guidelines that underlay the design for the Cabramatta Loop project.

The Urban Design and Landscape concept has been prepared to help drive an integrated urban response for high-quality public realm improvements and safety considerations in the communities in which the Cabramatta Loop Project operate.

In order to provide clarity, this Urban Design and Landscape Concept report will provide Urban Design and Landscape plans, sections and elevations.



Ref: Nearmaps 2019

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UDLP Structure

The Urban Design and Landscape Plan has been organised into the following chapters:

Project Summary

A short summary of the organisational vision for the project and the document structure.

Project Background

This chapter introduces the Cabramatta Loop Project. It outlines policy relevant to the landscape character and visual amenity within the Cabramatta Loop Project.

Design Principles

This chapter describes the underlying design principles for the Urban Design and Landscape treatments of the project

Urban Design Framework

This chapter includes overarching set of project values that define a place based approach to the analysis, the design of structural elements and the natural environment. The principles and objectives outlined provide a high-level response to the project requirements as articulated by the state government and Cabramatta Loop Project.

Project Analysis

This chapter tackles the local context and condition of the communities. It also brings into focus local considerations to areas which will be affected by the new construction works.

Urban Design Elements

A study of structural elements required for the project is detailed through a series of images from relevant precedent projects - this will assist in defining a benchmark for quality of spaces and the minimum design standard that need to be achieved.

Landscape Treatment

This chapter will detail the landscape treatments that will define the urban character and inform the design of the landscape.

Landscape Concept Design

The landscape design and overall design concept is defined in a series of plan drawings, sections, elevations and 3D images

Maintenance and Management

This section identifies urban design and landscape maintenance activities required to be undertaken for the scope of works until handover to relevant stakeholders.

Stakeholder Consultation Summary

This section identifies Stakeholder Consultation that has occurred in the preparation of the UDLP.

Purpose of this Plan

The relevance of this document is to provide an Urban Design and Landscape Plan which provide key requirements outlined below.

- Further develop the reference Landscape Design, aiming to minimise impacts on the visual amenity, urban design and landscape.
- To ensure a high quality design outcome, the document will analysis the existing landscape and urban design. Urban Design and Landscape Plan will outline design direction and proposed landscape design works to the areas which will be impacted by the new infrastructure works. This Urban Design and Landscape Plan demonstrates how improvements to streetscapes, pedestrian circulation and the public realm can be achieved through delivery of the new infrastructure work. This will ensure the landscape is enhanced and maintained for the benefit of future generations. The package will explore landscape analysis and assessment of visual amenity, environmental conservation, with consideration of the impact the project will have on the character of the surrounding Landscape.
- Consideration of relevant guidelines, legislation and policies with the relevant Council(s) and affected stakeholders. CCG Architects will aim to provide a detailed Urban Design and Landscape Plan that further develop the parameters defined within existing research documents listed on the Key Documents & References page. In addition to this, relevant councils and affected guidelines are also considered on this page.
- Consideration of achieving relevant credits under the Infrastructure Sustainability Councils of Australia's rating tool (v1.2). This design illustrated in the document achieves the required credits.

Policy Context

The Cabramatta Loop Project spans across two Local Government Areas, the Fairfield City Council to the North and the Liverpool City Council to the South

The following land use zones have been considered in the plan, sections and montages provide in this Urban Design and Landscape Plan for Fairfield Council:

- Zone E2 Environmental Conservation
- Zone RE2 Private Recreation
- Zone IN2 Light Industrial
- Zone R2 Low Density Residential
- Zone R3 Medium Density Residential

Some land in the Cabramatta Loop Project is subject to heritage conservation protection and areas adjacent to Cabramatta Creek are environmentally significant land under local planning instruments. These environmental sensitive areas refers to riparian lands and water courses.

Land use zones for Liverpool include:

- Zone RE1 Public Recreation
- Zone IN1 General Industry
- Zone R3 Medium Density Residential

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CONDITIONS OF APPROVAL

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Conditions of Approval

Condition Number	Requirements	How condition is met: refer to relevant section of UDLP
E44	<p>The Proponent must minimise the permanent loss of on-street car parking spaces. The selection of any location(s) to replace on-street parking must take into account the ability to provide landscaping to address visual amenity, limit increases in impervious surfaces and be undertaken in consultation with Council.</p> <p>The Proponent must consider any landscaping and urban design plans, endorsed by Council at or before the date of this approval, relevant to the selected location(s) in the design of the parking.</p>	<p>Refer to Section 05 Urban Design (p.35 & p.40) and Section 06 Landscape Design (p.46 & p.47)</p> <p>These sections illustrating how landscaping is used to address visual amenity</p>
E47	<p>All pedestrian and cyclist infrastructure impacted by the CSSI must:</p> <ul style="list-style-type: none"> • be replaced to a standard equal or better to that existing prior to impact; • include appropriate signage and wayfinding measures; and • be completed and ready for use before operation of the CSSI. 	<p>Refer to Section 03 Project Analysis (p.20) and Section 04 Design Summary (p.31)</p> <p>This section illustrate the inclusion of appropriate signage and wayfinding measures and how the impacted pedestrian and cyclist infrastructure will be improved compared to the existing</p>
E48	<p>The CSSI must deliver a net increase in trees. Replacement trees must target an increase in tree canopy and aim to enhance the relevant council's position in respect of the Sydney Green Grid. This condition does not apply to trees that are subject to a biodiversity offset.</p>	<p>Refer Section 06 Landscape Design, Tree Replacement & Planting (p.54).</p> <p>The section clarifies the approach how considerations have been made to provide and increase of canopy cover. The project does not require biodiversity offset</p>
E49	<p>Replacement Trees must:</p> <ol style="list-style-type: none"> 1. be located on public land and prioritised within 500m of the Construction Boundary in consultation with the relevant council 2. be provided no later than six (6) months following the commencement of operations 3. have a minimum pot size of 20L except where the plantings are consistent with the pot sizes specified in a relevant council's plans, programs, strategies for vegetation management, street planting, or open space landscaping, or as agreed by the relevant council(s). In area not subject to council plans, programs, strategies, pot sizes must be informed through consultation with the relevant councils. 	<p>Refer Section Landscape Design, Tree replacement and Planting Section (p.54).</p> <p>This section illustrates tree planting location to be 500m of the Construction Boundary, min pot size of 20L and be provided no later than six (6) months following the commencement of operations.</p>

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Conditions of Approval

Condition number	Requirements	How condition is met: refer to relevant section of UDLP
E52	The CSSI must be designed to address the good design outcomes in Better Placed and principles of Green Infrastructure and outcomes in draft Greener Places by the NSW Government Architect.	<p>Refer Section Project Background, Key Documents & References - this illustrates our review and implementation of good design outcomes in Better Placed and principles of Green Infrastructure and outcomes in draft Greener Places.</p> <p>The adopted principles will be described in detail in Section 04 Design Summary (p.29 & p.30 Design Principles)</p> <p><u>Better Placed</u></p> <p>We have designed the project with the following 'good design outcomes'</p> <ul style="list-style-type: none">• Better Fit,• Better performance,• Better for Community• Better for People.• Better Working,• Better Value• Better look and feel <p><u>Draft Greener Places</u></p> <p>We have designed the project with the following 'good design outcomes'</p> <ul style="list-style-type: none">• Integration• Connectivity• Participation <p><u>Integrating Green Infrastructure</u></p> <p>We have designed the project with the following 'good design outcomes':</p> <ul style="list-style-type: none">• resilience to extreme heat• mitigation of urban heat island effect• stormwater run-off reduction• Water and air quality improvement• carbon sequestration and storage• aesthetic amenity• Biodiversity and biophilia benefits,• encouragement of active transport place-making

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Conditions of Approval

	Requirements	How condition is met: refer to relevant section of UDLP
E53	<p>The UDLP must be prepared to inform the final design of the CSSI, in accordance with the project objectives, the commitments made in the documents listed in Condition A1, and the requirements of this approval.</p> <p>The UDLP does not apply to those elements, which for technical, engineering, or ecological requirements, or other requirements as agreed by the Planning Secretary, do not allow for alternative design outcomes.</p>	<p>Refer to Section 03 Project Analysis, Section 04 Design Summary, Section 05 Urban Design and Section 06 Landscape Design.</p> <p>These sections inform the final design of the CSSI.</p>
E54	<p>The UDLP must be prepared in consultation with relevant council(s). The UDLP must include, but not necessarily be limited to:</p> <ul style="list-style-type: none"> (a) an analysis of the good design outcomes in the context of the CSSI; (b) the urban design and landscape requirements of this approval, including but not limited to: <ul style="list-style-type: none"> (i) plantings; (ii) pedestrian and cyclist infrastructure required in accordance with Condition E48; and (iii) sustainability initiatives; (c) the design of the CSSI elements including their form, materials and detail; (d) the location of existing vegetation, areas of vegetation to be retained and proposed planting and seeding details, including the use of local indigenous species for re-vegetation activities; (e) the location of heritage items; (f) developed visuals, cross sections and plans showing the proposed design outcome; and (g) details of strategies to rehabilitate, regenerate or revegetate disturbed area and successfully establish and maintain the resulting new landscape. 	<p>Refer to Section 03 Project Analysis, Section 04 Design Summary, Section 05 Urban Design and Section 06 Landscape Design and Section 09 Stakeholder Consultation.</p> <p>A record of council consultation is provided in Section 09 Stakeholder Consultations from page 69 ff.</p>
E55	<p>The Proponent must submit the UDLP to the Planning Secretary for approval.</p> <p>Construction of permanent built works or landscaping that are the subject of the UDLP must not be commenced (in the area to which the UDLP applies) until the UDLP has been approved by the Planning Secretary.</p> <p>The UDLP, as approved by the Planning Secretary, must be implemented during construction and operation.</p>	<p>It will be ensured that no construction of permanent built works or landscaping that are the subject of the UDLP, will commence prior to approval of UDLP</p>
E56	<p>The ongoing maintenance of landscaping and works implemented as part of this approval will remain the Proponent's responsibility until satisfactory arrangements have been put in place for the transfer of the asset to the relevant authority, unless agreed by the Planning Secretary. Before the transfer of assets, the Proponent must maintain items and works to at least the design standards established in the UDLP.</p>	<p>Refer to Section 08 Maintenance and Management (p.65-p.68) for description of ongoing Maintenance that will be required prior to transfer of the asset to the relevant authority.</p>

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ISCA REQUIREMENT V1.2

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ISCA Requirement V1.2

The Urban Design and Landscape Plan, applies to this scope of works and as such the UDLP has considered achieved the required credits below.

Requirements - Level 1	Condition	How condition is met: refer to relevant section of UDLP
DL 1.1	A high standard of design should be reflection the UDLP which must be prepared for the project. If the UDLP was developed in the planning phase, that plan must be reviewed and updated by a suitably qualified multidisciplinary team to ensure it aligns with the requirements of this credit.	Refer Section Urban Design Elements, Refer Section Landscape Treatments, Refer Section Landscape Concept Design. The UDLP is classified as a high standard of design because of the overall documents contents
DL 1.1	If no UDLP exists, then one must be prepared by a suitable qualified professional with a planning or design qualification with a minimum of ten years experience	Refer to author of this document
DL 1.1	The preparation of the plan must involve the following tasks.Site Analysis,Vision, principles, objects and scope, Options and strategies, Urban and Landscape Design Plan,Procurement requirements.	Refer Section Project Analysis.
DL 1.1	A site analysis must identify key features that will influence the planning and Design of the infrastructure asset.Using the information from the general and local context analysis,local site context analysis,the project team must identify elements and of features that will be affected by the project. The site analysis must include a general context analysis,a local site context analysis and a site character analysis.	Refer Section Project Analysis.
DL 1.1	The project team must also apply a weighting or ranking to the identified impacts, in order to examine which impacts will be more or most significant.	Potential impacts and design resolution discussed in correspondence with design team over the lifespan of the project.The Project underwent a significant feasibility phase with the wider ARTC business unit and internal stakeholders prior to the commencement of the Reference Design which was then used as the basis of design for informing the EIS submission,and subsequent Tender submission from which the UDLP was developed. During the detailed design phase,multi-criteria analysis and weighting / ranking of impacts will be used to assess a number of options and to inform the final outcomes.
DL 1.1	Where impacts are more significant or the complexity of constraints and challenges is greater, more detailed analysis must be undertaken to establish how these will affect the fulfilment of the overall project vision and objectives.	Potential impacts and design resolution discussed in correspondence with design team over the lifespan of the project.
DL 1.1	The site analysis must provide the following: a synthesis of general and local site context findings, identifying constraints and opportunities.	Refer to section project analysis

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ISCA Requirement V1.2

The Urban Design and Landscape Plan, applies to this scope of works and as such the UDLP has considered achieved the required credits below.

Requirements - Level 1	Condition	How condition is met: refer to relevant section of UDLP
DL 1.1	A summary must also be provided on how the general and local context analysis will inform the planning and design process.	Refer Section Project Analysis
DL 1.1	The vision must be supported by a set of design principles which will guide and provide a focus for the design process. The design objectives must support the design vision and principles, demonstrate how the achievement of the objects will lead to the overall fulfilment of the design, vision and principles	Refer Section Design Summary
DL 1.1	The scope of project must be clearly defined.	Refer to pages 19 and 31
DL 1.1	The UDLP must also specify regular intervals for review through the project lifecycle.	The UDLP is one design package amongst approx. 20 other design packages. The Design Review Process is prescribed by ARTC to the Head Contractor, which will outline a series of stages at which the design will go through a series of formal reviews. Reviews will be undertaken by ARTC and will be interdependently verified. As the UDLP forms the basis for the Landscaping Design packages, these will go through at least 3 further formal design reviews through the project lifecycle where by the contents will be traced against the UDLP for compliance.
DL 1.2	Central responsibility for incorporation of urban and landscape design into the broader project design means that a person or persons must have specific accountability in relation to design making and management of UDLP.	Both ARTC and Contractors Design Manager will hold accountability to confirm that the scope and requirements for all multi-disciplinary design packages, including UDLP have been Incorporated in the IFC Design.
DL 1.3	A review must be undertaken by a suitable qualified professional to confirm the design and ongoing maintenance for the project's UDLP	Refer to Page 2 for details

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ISCA Requirement V1.2

The Urban Design and Landscape Plan, applies to this scope of works and as such the UDLP has considered achieved the required credits below.

Requirements - Level 2	Condition	How condition is met: refer to relevant section of UDLP
DL 2.1	An UDLP statement must be prepared and described how relevant stakeholders input has influenced the project design.	Refer Section Stakeholder Consultation Summary - ongoing The Stakeholder Consultation Summary will illustrates how each item has been considered and addressed.
DL 2.1	Information must be provided to make clear of any changes marked or rejected through design process.	Condition met. UDLP has a regular reviews over the lifespan of the project. - Ongoing
DL 2.1	The statement must include evidence or the community benefits anticipated to be generated by the UDLP	Refer to section Design Summary
Requirements - Level 3	Condition	How condition is met: refer to relevant section of UDLP
DL 3.1	The infrastructure must contribute a net increase in the permeability of its surrounding area for the benefit of the community An improvement in permeability should be demonstrated by an improved Link and Place Score or similar methodology which recognises the value of streets as movement conduits as well as destinations in their own right.	Refer Section Urban Design,Design Summary to illustrate the UDLP objectives of intention to create permeability. Refer Section Project Analysis which illustrates the existing permeability of its surrounding area. Refer Section Landscape Design illustrates the designed permeability of the UDLP.
DL 3.1	This benchmark may not be relevant for all projects. If this is the case,the project team must demonstrate permeability is not a material consideration. This maybe in the form of a statement or report.	Refer Section Urban Design,Design Summary to illustrate the UDLP objectives of intention to create permeability.



PROJECT BACKGROUND

02

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PROJECT BACKGROUND

The project site is located about 35 kilometres west of the Sydney CBD in the City of Fairfield and City of Liverpool local government areas (LGAs). In the project site, the boundary of the LGAs runs along Cabramatta Creek.

The project involves the construction and operation of a passing loop on the SSFL to enable freight trains, up to 1,300 metres long and travelling in either direction, to pass each other. The project will be partly located within the existing rail corridor between the Hume Highway and Cabramatta Road East road over bridges in the suburbs of Warwick Farm and Cabramatta. In addition, the project includes works in Broomfield Street and Jacque Osmond Reserve, adjacent to the rail corridor.

The project will operate as part of the SSFL and continue to be managed by ARTC. ARTC manages and maintains the SSFL as part of its rail network across five states. ARTC works with rail operators to provide access to rail for businesses and producers across Australia. Freight train services and rolling stock which utilise the ARTC network are currently, and would continue to be, owned and operated by a variety of operators.

The project include:

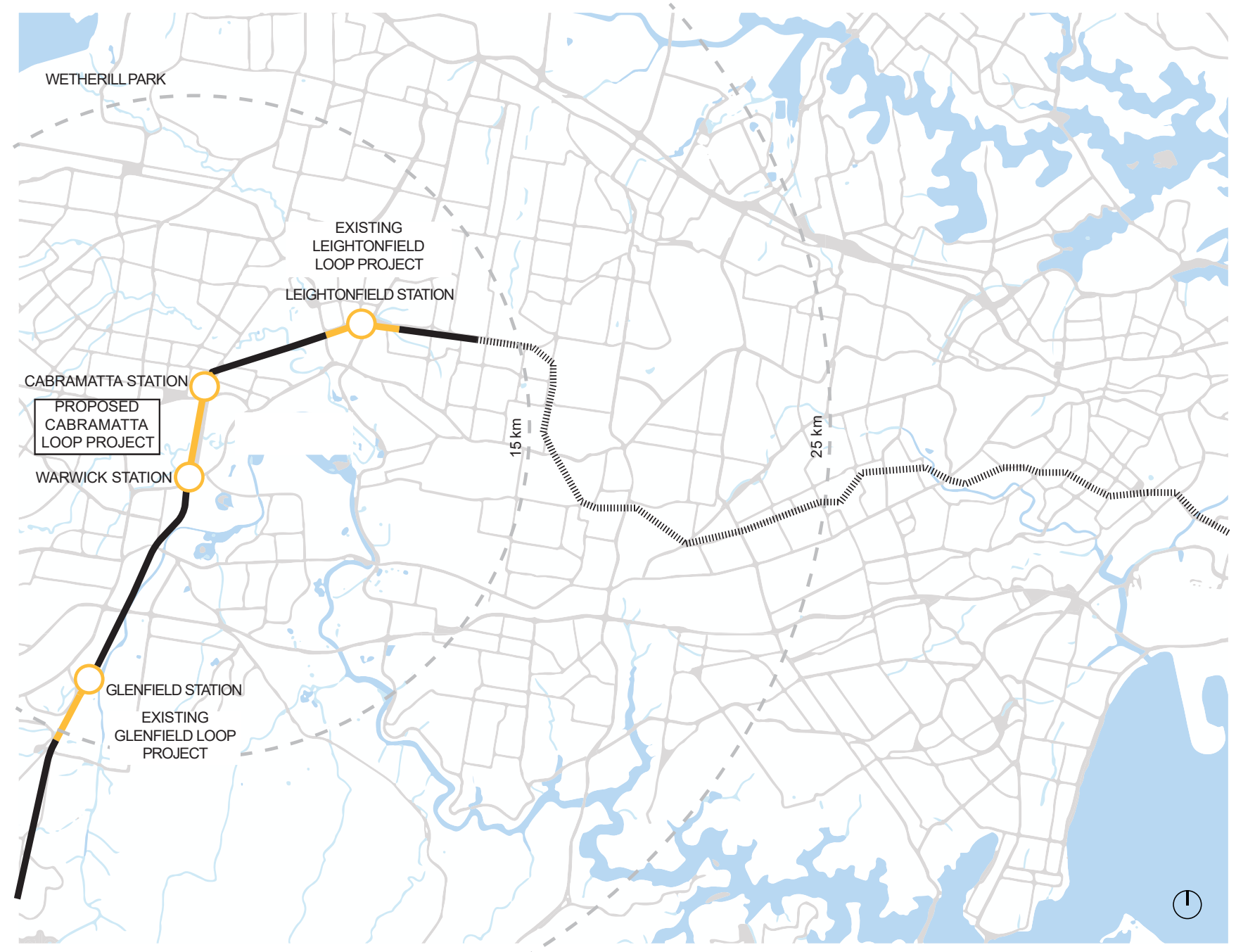
- new rail track – providing a 1.65 kilometre long section of new track adjacent to the existing track, with connections to the existing track at the northern and southern ends
- track realignment – moving about 550 metres of existing track sideways (slewing) to make room for the new track
- bridge works – constructing two new bridge structures adjacent to the existing rail bridges over Sussex Street and Cabramatta Creek
- road works – re-configuring Broomfield Street for a distance of about 680 metres between Sussex and Bridge streets.

Ancillary work would include communication, signalling and power upgrades, works to existing retaining and noise walls, drainage work and protecting/relocating utilities. In addition, minor works in the form of new signalling would be installed at a number of locations within the rail corridor.

Other treatments include the removal of trees, new fencing and lighting, embankment and retaining wall works and the installation of new trees.

Legend

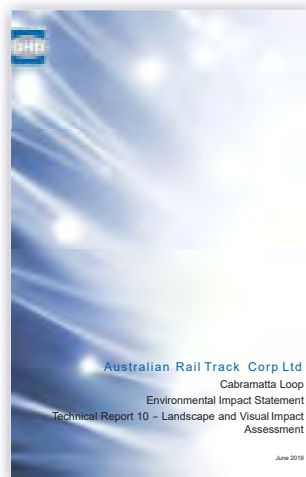
- Freight Rail Loops
- Southern Sydney Freight Line
- ||||| Port Botany Rail Line
- Freight Rail Stations



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Referenced Documents



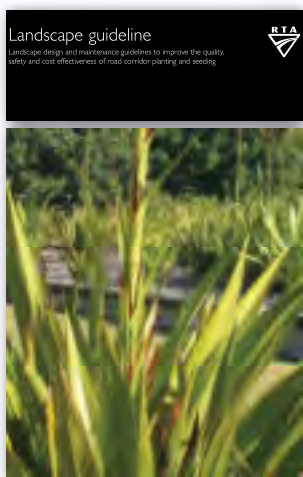
Landscape and Visual Assessment 2019



Environmental Impact Statement 2019



Beyond the Pavement 2009



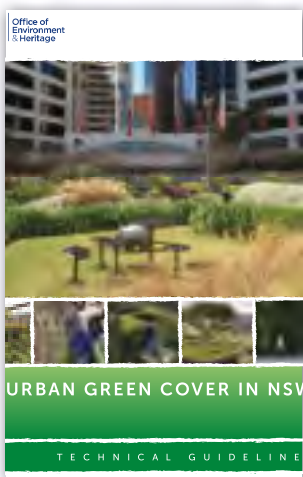
RTA Landscape Guidelines 2008



Guide to Road Design Part 6A 2008



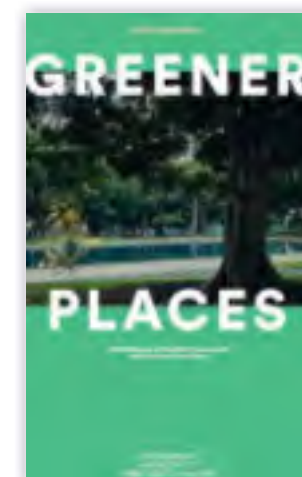
TfNSW Water Sensitive Urban Design Guidelines 2017



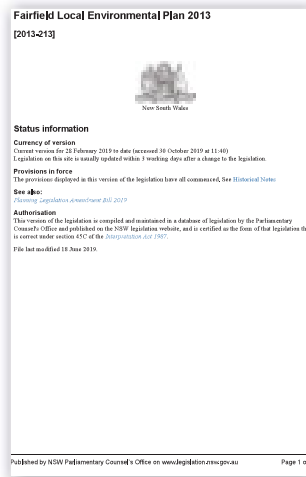
Liverpool CC Tree Management Policy 2016



Fairfield CC Urban Design Study 2018



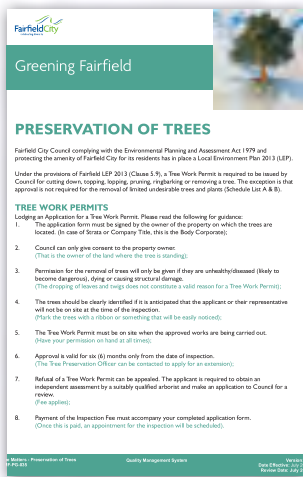
Integrating Green Infrastructure 2017



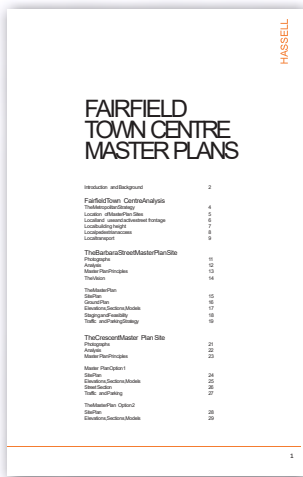
Fairfield CC Local Environmental Plan 2013



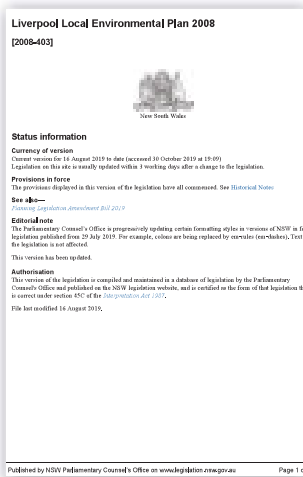
Fairfield CC Development Control Plan 2013



Fairfield Preservation of Trees 2013



Fairfield CC Town Centre Masterplan 2006



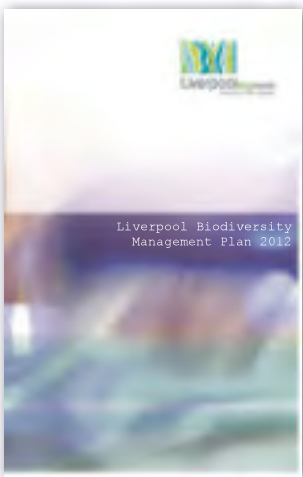
Liverpool CC Environmental Plan 2008



Liverpool CC Development Control Plan Part 1 & 4 2017



Liverpool CC Streetscape & Paving Guidelines 2005



Liverpool CC Biodiversity Plan 2012



Better Placed, NSW 2020

A wide-angle photograph of a busy container yard at sunset. The sky is filled with dramatic, dark clouds illuminated by the low sun, creating a warm orange and yellow glow. In the foreground, a blue container crane is positioned on a paved area. To its right, several long trains of flatcars are loaded with stacks of colorful shipping containers (blue, red, green, and yellow). In the background, more stacks of containers and several tall, slender light poles are visible. The overall scene conveys a sense of industrial activity and logistics.

PROJECT ANALYSIS

03

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The Site

The Project is located within two council areas Areas north of Cabramatta Creek are located within Fairfield City Council (FCC), and South of the creek is located within Liverpool City Council (LCC). The Cabramatta project extends from the junction of Broomfield Street and Bridge Street to the north to Peter Warren Car yard boundary and Warwick Street to the south.

An Environmental Impact Assessment was completed for the Cabramatta loop Project, which defines five Landscape Character Zones (LCZs) found throughout the project. These locations contain varied environments including; densely populated urban area, commercial business premises (car lot), open parklands, playing fields, waterways, shared footpath and road space.

The Project has been broken up into three discrete UDLP zones that describe the different landscape characteristics and land use context.

Zone 1 - Broomfield Street to Liverpool Street (FCC):

This zone is predominantly populated by buildings that are a mix of low to medium residential density dwellings and a mix of medium and high density commercial land uses.

Zone 2 - Bridges at Sussex Street and Cabramatta Creek (FCC&LCC)

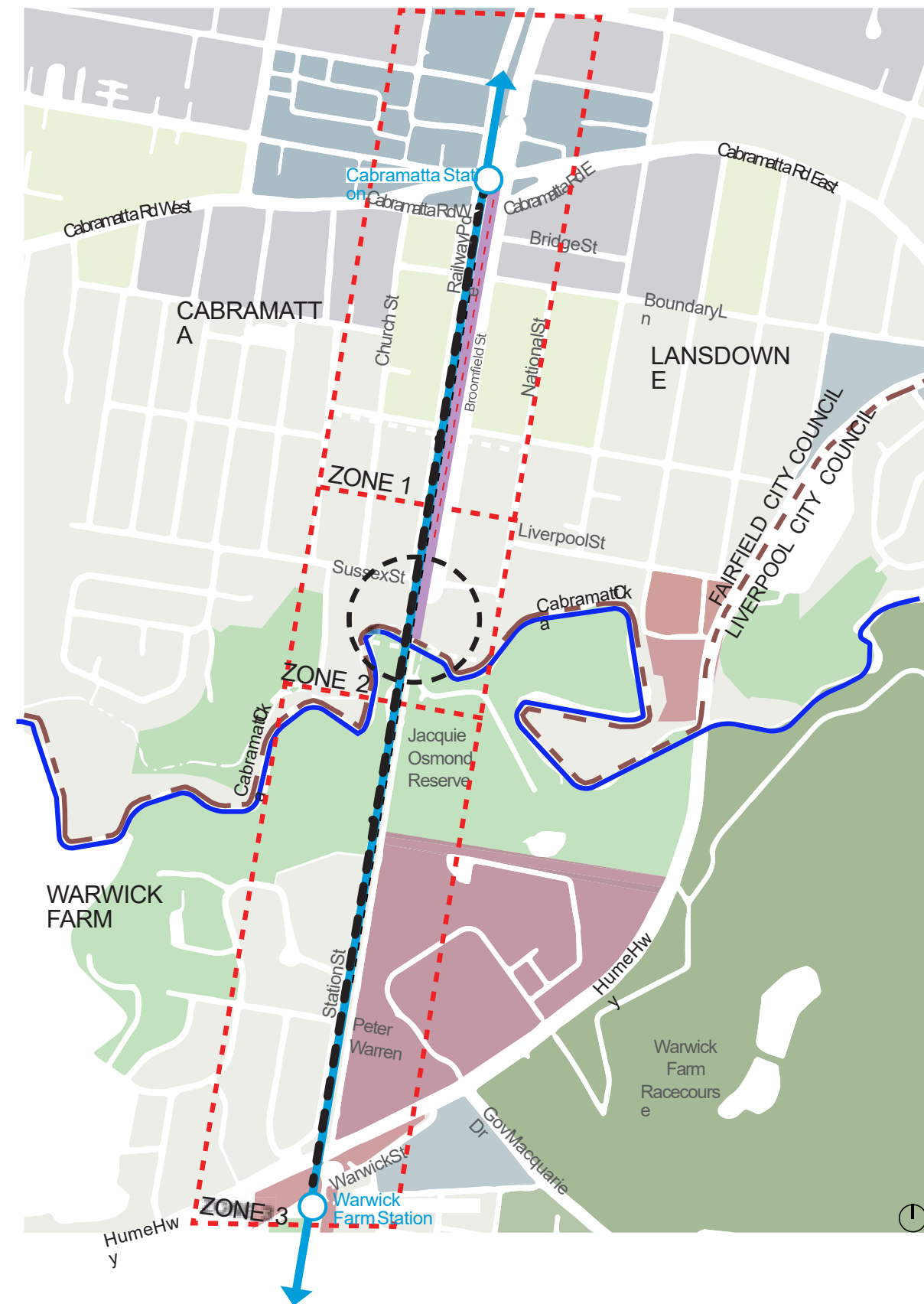
The northern areas consist of low density residential use with poor overall appearances due to poor maintenance treatment to the nature strips and properties. The southern area consist of public recreation and industrial uses with low density usage The Project contains significant Environments conservation protection zones which apply to the Cabramatta Creek

Zone 3 - Jacquie Osmond Reserve to Warwick Street (LCC)

This zone consist of a mix of land-uses, including industrial and rail use, low density and public recreation.

Legend / Land Use Map

-----	Town Centre	---	New Rail Track
●	Mixed Land use	---	Broomfield Street Car parking
●	Medium density Residential	---	Road upgrades & works
●	Low density Residential	()	New bridge
●	High density Residential	---	Track realignment
●	Public Recreation	---	Existing rail line
●	Private Recreation	---	Council boundary
●	Environmental Conservation		
●	Industrial		



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Pedestrian & Bicycles

The shared pedestrian footpath and cycle path, located on the western side of Broomfield street from part of the Parramatta to Liverpool Rail Trail Cycle-way. This shared path and the footpath on the eastern side of broomfield street will be reinstated as part of this project. The footpath on the eastern side will be improved compared to the existing condition, as it is currently not concreted along the whole length of the road, but will be following the completion of the project. The location where the shared path is crossing Bloomfield Street at the southern end will be relocated slightly north to allow a safer crossing of Broomfield Street. Appropriate Signage will be provided. The new pedestrian and cycle path will then continue east of Sussex Bridge and connect to the existing path south of the the Sussex Street bridge. This section illustrate how the impacted pedestrian and cyclist infrastructure will be improved compared to the existing.

There are bicycle storage facilities north of Cabramatta station, which are not part of this project and therefor will not be impacted.

Accessibility

Public space projects such as the Cabramatta Loop Project are required to meet access and mobility requirements in accordance with relevant Australian Standard AS1428. Therefor any works within the project scope will comply with those requirements.

Legend

Existing Pedestrian pathways

Existing Train line

Existing Bike Storage

Existing On Road Bike path

Existing Off Road Bike path

Relocated Bike and Pedestrian Shared path

Bike Route 01

Bike Route1,Chipping Norton Route Rail Trail

Bike Route 02

Bike Route 2, Parramatta to Liverpool Cycle way Trail

Bike Route 03

Bike Route 3, Cabramatta Creek Shared path

Prevailing Winds

Summer Sun Path

Winter Sun Path



CABRAMATTA LOOP

AUSTRALIAN RAIL TRACK CORPORATION

Landscape Character

The Cabramatta Loop Project and surrounding study area are located within the suburbs of Cabramatta and Warwick Farm, in western Sydney. The existing environment is distinctly urban in its setting with residential areas bordered by major roads.

The Hume Highway is located to the south of the project area, and Cabramatta Road is located to the north of the project area.

The existing landform is gently undulating with a high point in the north of the Cabramatta Loop Project along Cabramatta Road. The landform slopes gently down to Cabramatta Creek which runs east-west through the centre of the Cabramatta Loop Project, with the parklands and commercial area to the south of Jacquie Osmond Reserve on low lying land. The vegetation cover consists of established street trees within the surrounding residential areas.

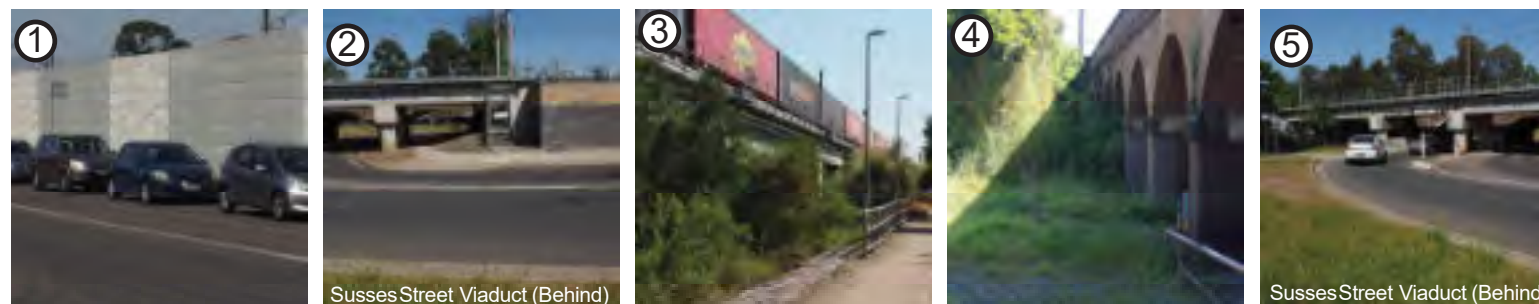
Heritage

The brick viaducts at Sussex Street and Cabramatta Creek have local historical significance as they were built to serve the upgrading and duplication of the Granville to Liverpool Railway line in the 1890s.

The two viaducts represent the earliest examples of brick arched viaducts built by NSW Railways from the 1890s using local building materials during the cost-cutting period of the 1890s depression. The viaducts are aesthetically distinctive and have landmark qualities because of their size, especially the structure over Cabramatta Creek which has 17 spans, the natural setting over the water course enhancing the setting. The viaduct over Cabramatta Creek is the longest brick 1890s viaduct on this section of the line and it is distinctive as it utilises sandstone for the arch imposts instead of the commonly used brick.

There are also the following items within/near the project site:

- Federation Cottage (local)-see map“6”
- Liverpool Railway Station Group (State)-see map“7”
- Villawood Railway Station Group (Local)-see map“8”



CABRAMATTA LOOP

AUSTRALIAN RAIL TRACK CORPORATION

Vegetation & Natural Systems

The majority of the Cabramatta Loop Project is located within the existing rail corridor, which has been historically cleared and modified and such has limited flora and fauna ecological value. There is no native vegetation within the project site. All native plants have been planted here.

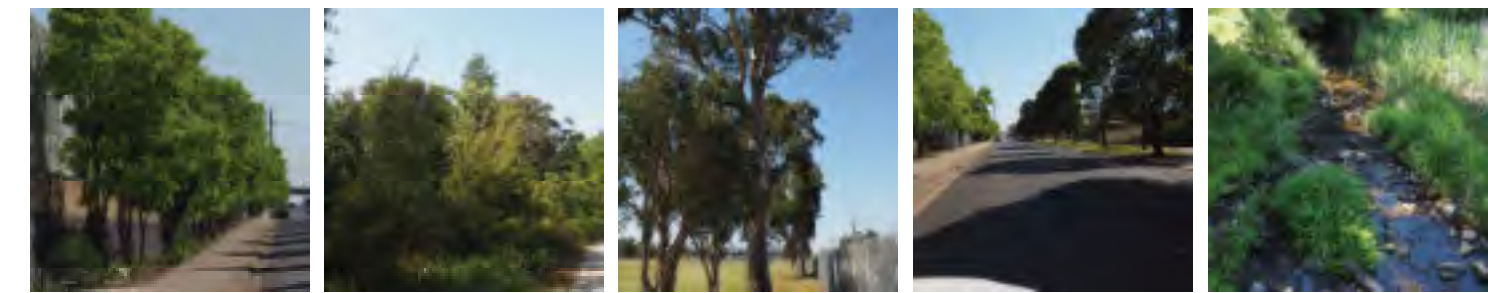
There are 3 existing ecological communities adjacent to the water course, and along the Cabramatta Loop Project. These ecological communities are categorised as vulnerable, and are listed under the Biodiversity Conservation Act2016.

The existing railway spans over an existing River-Flat Eucalypt Forest and Freshwater Wetlands along the Cabramatta Creek. The pink hatch is one of the few remnant ecological community clusters within the Cabramatta Loop Project that has greater than 10% canopy cover which will be retained.

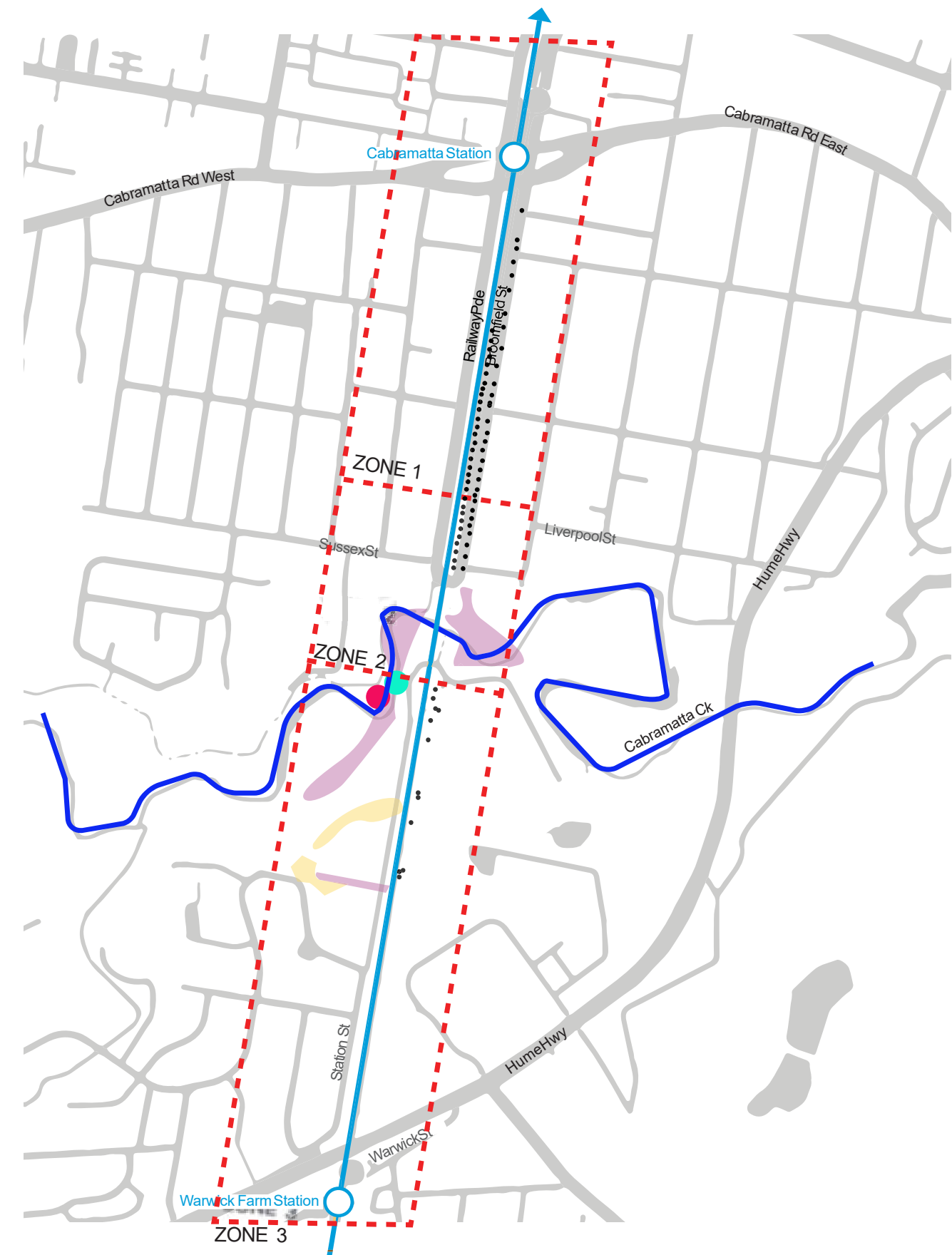
South of the Cabramatta Creek line are vulnerable *Acacia pubescens* species, while Jacquie Osmond Reserve is mostly open space with *Eucalyptus*, *Melaleuca* and *Acacia* species on the edges of the train line. There are also vulnerable species recorded in this area.

No trees earmarked for removal are remnant vegetation. Of the approximately 74 trees earmarked to be removed, 43 are planted indigenous to the Cabramatta Loop Project and remaining numbers are exotic specimens. Not all trees are outside the corridor (Jacquie Osmond majority inside existing corridor).

74 Trees (see diagram) are to be removed, predominantly on Broomfield Street are trees parallel to the railway, and are impacted by the expansion of the rail corridor (Cardno Survey). These street trees consist of *Lophostemon*, *Syzgium* and *Robina* species.



- Legend
- River-Flat Eucalypt Forest on Coastal Floodplains (EEC under the BC Act)
 - Eastern Freetail-bat (vulnerable species under the BC Act)
 - Grey-headed flying fox (vulnerable species under the BC and EPBC Acts)
 - Freshwater Wetlands on Coastal Floodplains (EEC under the BC Act)
 - Watercourse
 - Tree to be removed due to Cabramatta Loop Project (Cardno Survey)



CABRAMATTA LOOP

AUSTRALIAN RAIL TRACK CORPORATION

Existing Visual Environment

This section will analysis the existing visual environment of each Cabramatta Loop zones.

The existing visual environment across all the three zones predominantly consists of residential areas to the east. The densely vegetated Cabramatta Creek and sporting fields run east-west through Zone 2 (Centre) of the Cabramatta Loop Project. While Zone 1 (North) has predominately urban settings, Zone 3 is characterised by a light industrial/commercial area in the east and residential areas to the west.

Long vistas are created due to the topography within the Cabramatta Loop Project which leads to a varied visual environment. It consists of the Cabramatta Road overpass to vegetated ridge lines in the distance with the Creek forming the backdrop to the rail corridor as well as the residential setting.

Sensitive visual receivers in the Cabramatta Loop Project include residential properties along Broomfield and Sussex Street, users of Jacquie Osmond Reserve and pedestrians, road users and cyclists along Cabramatta Road. Visual impacts from the Cabramatta Loop project range from moderate-to-low to high-to-moderate.



CABRAMATTA LOOP

AUSTRALIAN RAIL TRACK CORPORATION

Existing Visual Environment

Zone 1 - Broomfield Street to Sussex Street

Broomfield Street has residential properties located to the East with road infrastructure being the dominant character. Pedestrian pathways are located adjacent an existing noisewall and rail bridges.

Trees along the street are located at the south end of Broomfield street, which break up the view of the noisewall. There is a significant lack of trees and planting on the northern end of Broomfield Street.

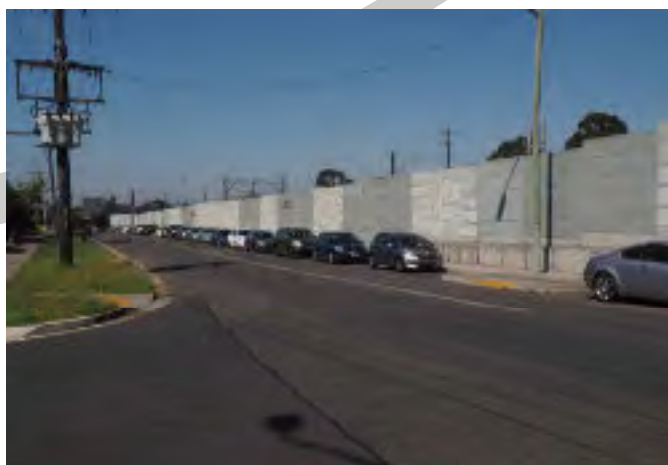
The existing visual impact on Broomfield Street will classify as high-to-moderate due to the lack of planting and screening of the noise wall on the northern end of Broomfield St (Refer to Technical Document 10-Landscape and Visual Impact Assess).



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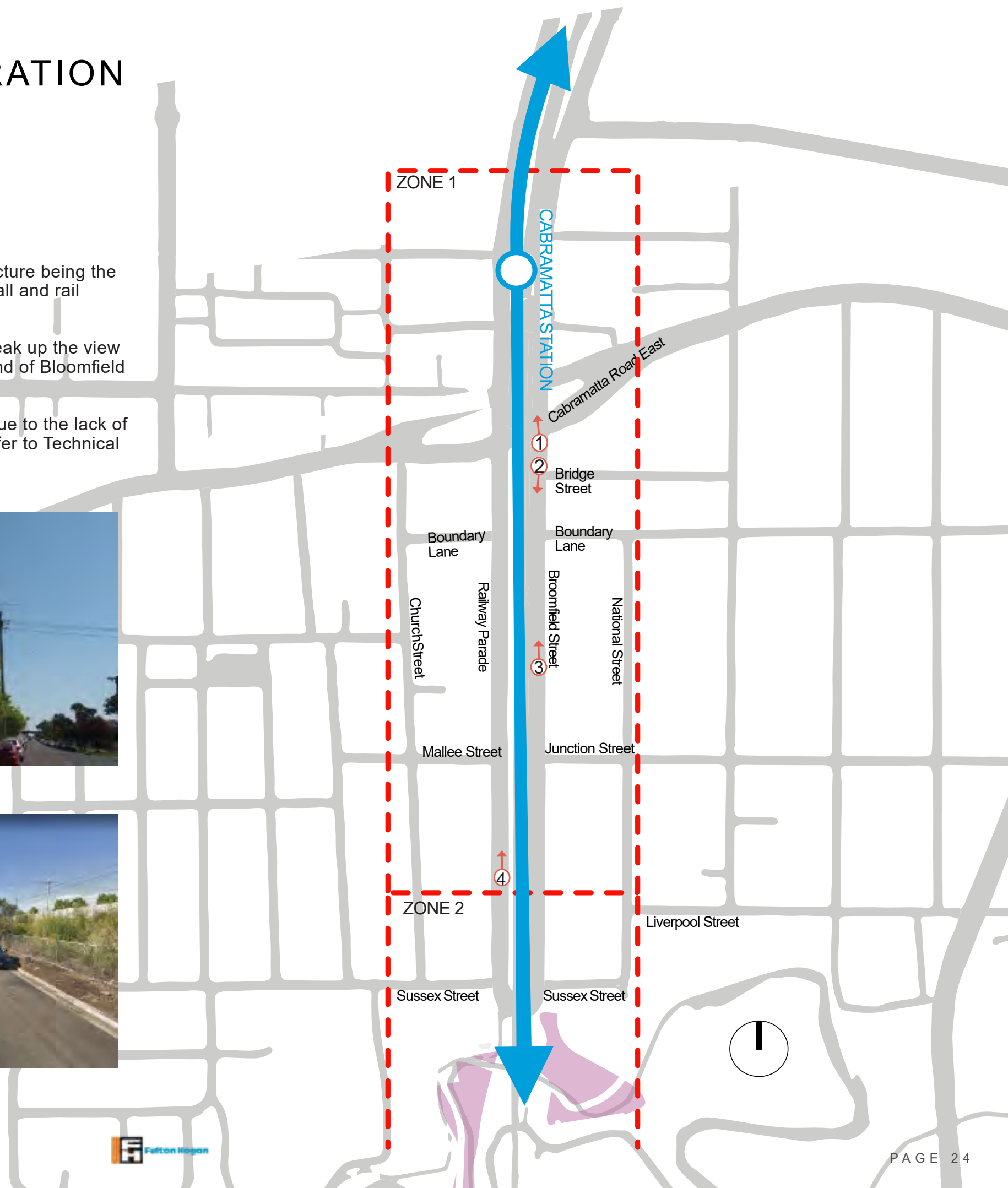
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CABRAMATTA LOOP

AUSTRALIAN RAIL TRACK CORPORATION

Existing Visual Environment

Zone 2 - Bridges at Sussex Street & Cabramatta Creek

The existing visual amenity on Sussex and Cabramatta Creek is dominated by the existing rail bridges. Jacqui Osmond Reserve softens the visual infrastructure as a result of the open space. There are also some significant mature trees located at the Sussex Stand Bridge interface, which help to reduce the impact of the rail corridor.

The existing surrounding buildings are mostly residential use which have a similar character and visual impact the Rail line. The existing visual impact for this Zone has been rated moderate-to-low.



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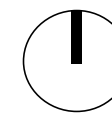
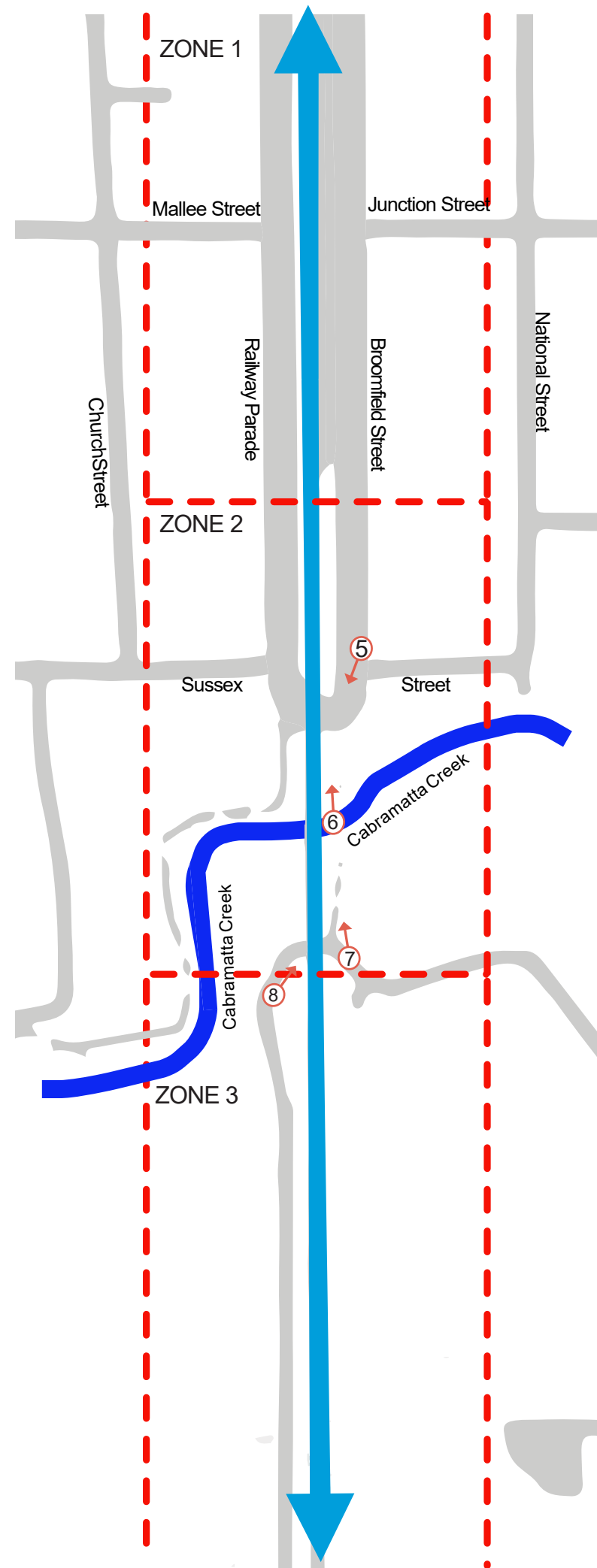
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CABRAMATTA LOOP

AUSTRALIAN RAIL TRACK CORPORATION

Existing Visual Environment

Zone 3-Jacquie Osmond Reserve to Warrick Street

The interface between the Cabramatta Loop Project rail line and Jacquie Osmond Reserve is framed by a dense screening of vegetation between the reserve and the rail line.

There are also several significant trees within this zone which help separate the visual impact of the rail corridor. Jacquie Osmond Reserve has a character of large open space.

The existing visual impact from the Warrick St carpark to Warwick Farm Station is high due to the limited screening from existing residential properties. Overall the visual impact from Warwick St is moderate to high and impact along Hume Highway low-to-moderate due to well screened existing vegetation.



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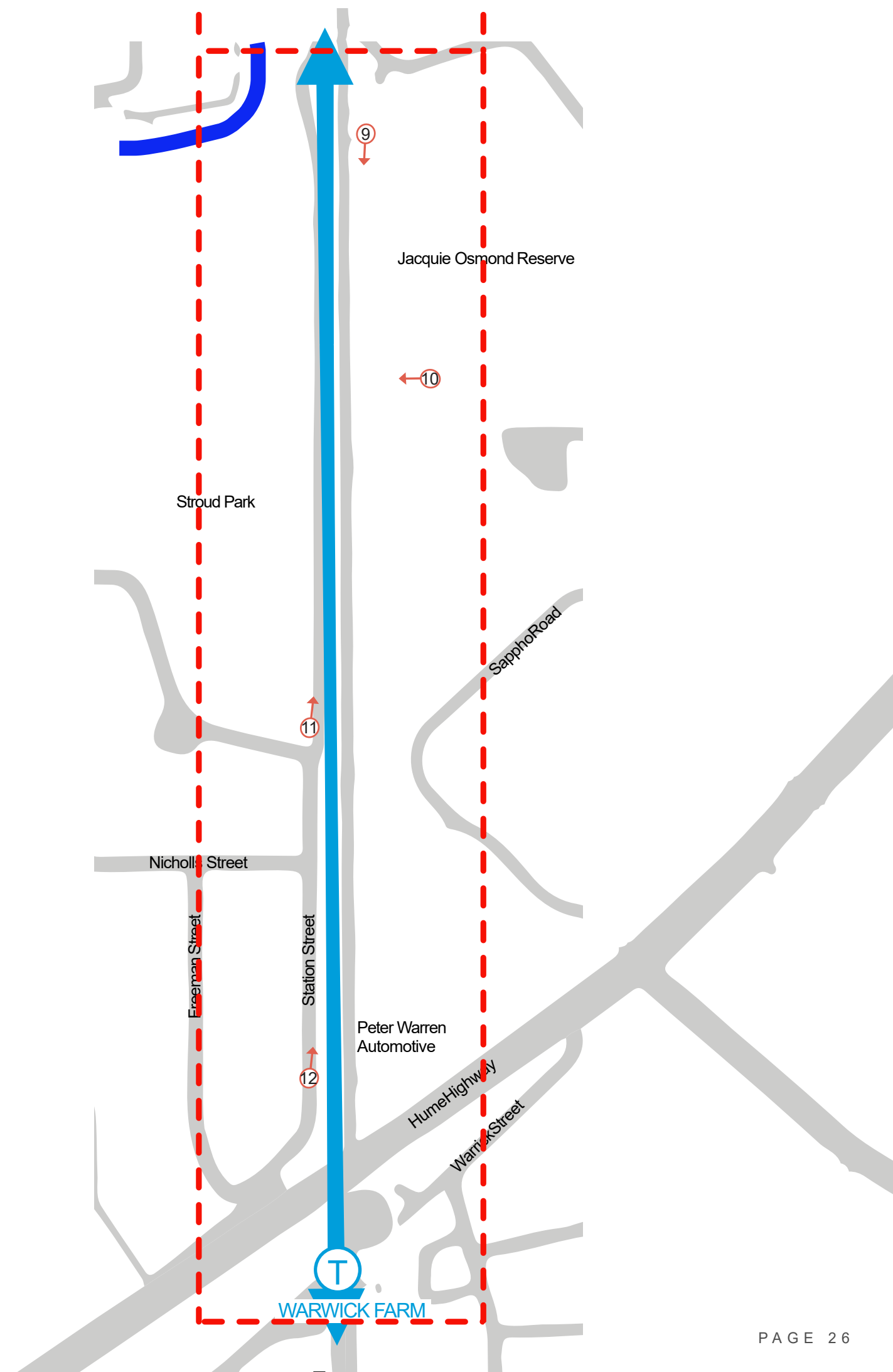
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CCG



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Fulton Hogan



A photograph of a shipping yard at sunset. In the foreground, a large orange container is partially visible. Behind it, a long row of various colored containers (blue, red, green) stretches into the distance. The sky is a deep blue with some light clouds. The text 'DESIGN SUMMARY' is overlaid in white, serif font on the right side of the image.

DESIGN SUMMARY

04

CABRAMATTA LOOP

AUSTRALIAN RAIL TRACK CORPORATION

DESIGN SUMMARY

The Urban Design Objectives are:

- Improvement of the physical and aesthetic amenity of the Rail Corridor for residents and the local community
- create a sense of design unity and consistency that reinforces, improves, and extends the social, physical and environmental character of the line.
- Implementation of Urban Design and landscape design improvements that are cost effective and suitable to the environment and have ongoing low maintenance demands.
- Creation of opportunities for the local communities to interact and contribute to the final built infrastructure where possible and practicable.
- Reinforcement of specific local identity of communities in and around the station precincts.
- ensure effective pedestrian and bicycle path connections to destinations
- ensure pedestrian and bicycle paths are accessible and serviceable
- ensure on-street parking contributes to pedestrian amenity and safety, by arranging kerbside and indented parking as part of a buffer zone between pedestrians and moving traffic.
- maintain a safe, inclusive, and serviceable movement network
- Increase canopy cover and vegetation to contribute towards Urban Cooling initiatives.

Urban Design Elements

The project contains the following Urban Design Elements:

Noise Walls and integrated Art

The existing Hebel wall and artwork will be re-used for the development and moved across so to accommodate the new rail corridor. The Artwork has been designed by a local Aboriginal Artist developed with community stakeholders at the time. Low level (up to 1m height) planting will be provided at the bottom of the noisewall in a 300mm wide landscaping strip.

Retaining Walls

New retaining walls will be provided with a rendered and painted finish along Broomfield street and low level (up to 1m height) planting will be provided at the bottom of the noisewall in a 300mm wide landscaping strip

Fencing

Chain link boundary fencing will be provided along the interface of the rail corridor and Jacquie Osmond Reserve in order to prohibit unauthorised access and reduce the risk of injury or death to the public. Fencing will be in accordance with RailCorp fencing standards

Materials & Finishes

The project will provide finishes that remain subtle within the landscape and aiming to blend the project into its surrounding settings. The finishes are of high quality, robust and durable to minimize maintenance and vandalism. All visible concrete finishes will be Class 2.

Landscape Treatments

Landscape treatment will be provided to the following areas:

Broomfield Street

Where possible soft landscaping treatment will be provided to enhance the overall streetscape and improve the resident and pedestrian experience. The noise walls have low groundcovers planting provided at the bottom of the noisewall in a 300mm wide landscaping strip, that will provide visual relief along the street elevation.

Trees will be planted along both side of Broomfield Street so to screen the noise walls and improve the amenity along the street. Evergreen Trees (Up to 12 meters in mature height) to the westside of

Broomfield street will provide shade to parked cars and users of the shared path. The Tree plantings will screen the noise wall and break up views of the full of the noise wall along Broomfield Street. Smaller evergreen trees (up to 3m in mature height) will be planted along the East side so not to interfere with the existing overhead power lines that run along the kerb edge of the verge to the street.

All street trees are to be carefully selected in accordance to *Sydney Water - Tree Planting guidelines* and in consideration of existing and proposed stormwater network and the species selected are not known to have invasive root systems. Root barriers will be provided to all tree planting to minimise any potential risk of infrastructure damage.

Low groundcovers will be planted in tree islands and new grass will be provided to the verge. Irrigation: It is recommended that a sub-surface drip irrigation is installed as part of landscaping works. This low cost and automatically operated system is vital to establishment and longevity of planting stock and will ensure the anticipated outcome is achieved.

Cabramatta Creek

No impact on the existing riparian zone along Cabramatta creek is proposed as part of the project. If a disturbance to this zone would occur during construction the works would be limited to creek rehabilitation to disturbed areas only. The rehabilitation works would be in line with best practice Water Sensitive Urban Design (WSUD) and would be undertaken by sub-consultants who are able to demonstrate experience in waterway rehabilitation. Design for this would be undertaken in close collaboration with Councils for agreement on the type of planting to be undertaken. Sourcing endemic species from the Councils nurseries would be a likely approach to species selection.

Jacquie Osmond Reserve

Landscaping works to the reserve would consist of a new 1:6 grade grassed embankment along the track interface with trees to be planted along embankment wherever possible. Due to the proximity to the rail corridor and potential safety risk of branch fall on to the Cabramatta Loop, it is proposed to use *Colombia maculata* (Spotted Gum) and *Eucalyptus tereticornis* (Forest Red Gum) tree species. This species will provide shade when mature and will minimise branch fall when properly maintained. Tree species selection to Council endorsement. This solution provides a grassed and shaded respite area for reserve users / spectators

Railway Pde

The Landscaping strategy for works along Railway Parade would involve providing landscaped blister islands located at regular intervals to break up the perpendicular parking arrangement. This will provide a visual relief and is consistent with the existing streetscape character for this side of Railway Parade.

Key Design Criteria

The Projects aims to achieve the following key design criteria:

- Fitting the rail corridor encroachment into the existing Broomfield Street corridor. -> The proposed design achieves this key design criteria.
- Maintain the number of existing on street parking spaces. -> The proposed design achieves this key design criteria.
- Maintain the playing schedule of the Jacquie Osmond Reserve Softball Facilities. -> The proposed design achieves this key design criteria.
- Noise protection of residents and surrounding properties. -> The proposed design achieves this key design criteria.

CABRAMATTA LOOP

AUSTRALIAN RAIL TRACK CORPORATION

DESIGN PRINCIPLES



The projects aims to Integrate green and grey infrastructure (green-grey) to create urban communities that deliver quality of life to residents and the community

The projects aims to integrate the works into the Urban environment.

In order to promote quality of life to residents and the community and active transport the proposed design provides a positive experience when walking and cycling along the shared path as the newly proposed trees on the west side of Broomfield Street provide shade and the landscaped noise wall improves the visual amenity along the shared walking and cycling path.

Provision of an active transport corridor will be also ensured by providing new wayfinding signage in order to promote greater awareness of the Parramatta to Liverpool Cycle Trail.



Ensure that access and connectivity are improved with the project. There is an opportunity to rationalise and improve bicycle and pedestrian routes. Providing a public domain that is legible, accessible and comfortable; making it is easy to navigate and reduce decisions.

The Cabramatta Loop Project has the opportunity to develop spaces for community and connection; improving the communities' interface with the rail corridor. Maximise opportunities for active transport connections.

Retain and maximise the accessibility, permeability and connectivity of adjoining existing and future communities for all users including



Projects are enriched by collaboration and a genuine desire to design with communities and their contemporary needs and aspirations.

Ensure an understanding of what the community needs and what makes them unique.

The Cabramatta Loop Project between Cabramatta Station and Warwick Farm Station interface with unique and important communities.

The Cabramatta Loop Project has consulted with local Councils to ensure a collaborative outcomes for these communities.



Cabramatta and Warwick Farm have the suburban contextual experience. It is important that we complement and build on this suburban narrative when selecting urban elements and materials.

The planting is to build on the already established landscape typologies and match into the existing suburban communities landscape.

Maximise opportunities for tree planting in areas that have had existing trees removed.

Revegetate the corridor where possible to improve the visual quality of adjacent residential and open space.

Protect creeks and creek banks by maximising tree retention and aligning shared pedestrian/ cycle paths in close proximity to the carriageway.



The objectives listed on page 28 which guide the delivery and operation of the proposal will contribute to its sustainability and the meeting of ESD principles. In addition to the objectives, the project has identified a broad range of mitigation measures to manage environmental impacts such as:

- sustainable procurement practices; minimising water use during construction
- considering opportunities for water reuse
- design to avoid and minimise impacts on the Grey-headed flying fox colony

The project endeavours to achieve a minimum 'Design' and 'As built' rating score of 65 rating using a market leading sustainability ratings tool, ISCA .

CABRAMATTA LOOP

AUSTRALIAN RAIL TRACK CORPORATION

DESIGN PRINCIPLES



Better for community
inclusive, connected and diverse

Accessible cities and towns make service delivery much more cost effective including health services, public transport and community facilities.

The proposal will provide new and upgraded pedestrian and cyclist infrastructure along Broomfield Street at Cabramatta.

During construction, around 80 full-time jobs would be created (with up to 220 during possession periods).

In addition it will provide freight benefits, like alleviate constraints on, and increase capacity of, metropolitan Sydney's freight rail network and improved reliability for freight customers.



Better for people
safe, comfortable and liveable

The Cabramatta Loop Project will improve the community interface with the rail corridor by providing appropriate urban design and landscape treatments to increase natural and passive surveillance.

Improved lighting and signage will promote safety and clearly demarcate public and private areas.

The maintenance and management of the public domain will provide a long term vision to the safety of the communities that interface to the rail corridor.

Maximise the visibility of foot paths and shared paths from adjoining areas for good surveillance, sight lines and ease of orientation.

Ensure adequate lighting of public places and footpaths for safe night-time travel. Ensure the landscaping makes places attractive, but does not provide unsafe environments for entrapment.



Better working
functional, efficient and fit for purpose

The Cabramatta Loop Project will reduce visual clutter and provide a cohesive and robust public domain, and therefore requires a range of urban design and landscape elements. Reduce visual clutter to ensure heritage and landmark features are legible.

The Cabramatta and Warwick Farm urban fabric has visual clutter and varied added to overtime. The Cabramatta Loop Project looks to combine urban elements to create a consistent and recessive precinct palette within the public domain.

Improving the physical, aesthetic and visual environment of the project site for residents and the local community:

- Use robust, high quality and durable materials that minimise opportunities for vandalism
- Provide simple finishes that remain subtle within the landscape



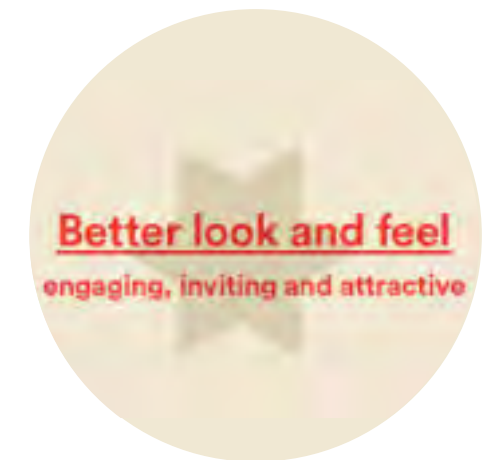
Better value
creating and adding value

The Cabramatta Loop Project will reduce visual clutter and provide a cohesive and robust public domain, and therefore requires a range of urban design and landscape elements. Reduce visual clutter to ensure heritage and landmark features are legible.

The Cabramatta and Warwick Farm urban fabric has visual clutter and varied added to overtime. The Cabramatta Loop Project looks to combine urban elements to create a consistent and recessive precinct palette within the public domain.

Improving the physical, aesthetic and visual environment of the project site for residents and the local community:

- Use robust, high quality and durable materials that minimise opportunities for vandalism
- Provide simple finishes that remain subtle within the landscape



Better look and feel
engaging, inviting and attractive

The new built environment with its tree lined Streetscape along Broomfield Street and screened rail corridor at JO Reserve will be welcoming and aesthetically pleasing, encouraging communities to use and enjoy.

The new visual environment therewith contributes to its surroundings and promote positive engagement. weather protection.

The project will provide finishes that remain subtle within the landscape and aiming to blend the project into its surrounding settings.

The finishes are of high quality and are robust and durable to minimise maintenance and vandalism.

CABRAMATTA LOOP

AUSTRALIAN RAIL TRACK CORPORATION

Design Innovations

- Additional trees and landscaping blisters on Broomfield St provide additional soft landscaping in form of trees to the west side of Broomfield Street so to improve streetscape and visual amenity along the street.
- The specified trees proposed to be planted on the eastern side of Broomfield Road have been specifically chosen to avoid any clashes with overhead under underground services. The trees on this side of the road mature at a max height of 3m, which will avoid any clashes with the existing overhead power lines that are proposed to be maintain. Likewise, the roots of the trees will not interfere with the underground services located along this side of Broomfield Street. This is a diversion from the UDLP reference design, as the reference design specified trees would have grown to a mature height of 10m on the Eastern Side of Broomfield Street and during maturing would have clashed with the overhead power lines, and the roots would have caused damaged to the underground services.

Integration of the works into the Urban environment

The realigned rail boundary and reconfigured roads along Broomfield Street and Sussex Street between Bridge Street and Railway Parade will maintain their integration into the surrounding road network and urban environment. The project will result in the loss of some parking on the western side of Broomfield Street, which will be made up by providing additional parking on Railway Parade. The proposed design has been developed to best conform with relevant Council and Australian Standards and involves optioneering based on minimum standards, to arrive at a solution that best matches the key drivers of the project. One of the overarching project drivers included fitting the rail corridor encroachment into the existing Broomfield St street corridor. In order to achieve this parallel parking to both sides of Broomfield street has been adopted with 3.1m wide traffic lanes. This is in line with the reference design.

In order to promote active transport the proposed design provides a positive experience when walking and cycling along the shared path as the newly proposed trees on the westside of Broomfield Street provide shade and the landscaped noise wall improves the visual amenity along the shared walking and cycling path. Provision of an active transport corridor will be also ensured by providing new wayfinding signage in order to promote greater awareness of the Parramatta to Liverpool Cycle Trail.

The areas around the new Underbridges at Sussex Street and Cabramatta Creek will be impacted by the new development and require better integration of access points and circulation pathways for pedestrians, which will help improve mobility and a provide improved urban connectivity outcome for the project. The pedestrian footpath and cycle path (shared path) is located on the western side of Broomfield Street and forms part of the Parramatta to Liverpool Rail Trail Cycleway. The shared path on the western side of Broomfield Street and the footpath on the eastern side of Broomfield Street will be reinstated as part of the project. The proposed design moves the pedestrian and cycle path crossing at the Sussex street Underbridge further north to provide a save crossing point with appropriate signage. The pedestrian and cycle path then continious east of the Bridge and connects to the existing path.

The footpath on the eastern side will be improved from the existing arrangement as it is currently not concreted along the length of the road but will be following the completion of the project. There are two existing bike storage facilities north of Cabramatta Station however these will not be impacted by the Project.





URBAN DESIGN

05

CABRAMATTA LOOP

AUSTRALIAN RAIL TRACK CORPORATION

Urban Design Elements

The project contains the following Urban Design Elements:

Noise Walls and integrated Art along Broomfield Street

The existing Hebel noise wall and artwork will be salvaged and re-installed so to accommodate the new rail corridor.

In the case that damage to the artwork is identified, the projects team will endeavour to restore the panels or manufacture similar items for replacement, to minimise the visual impact. Where existing hebel wall panels are damaged, provision for new compliant noise attenuation walls as per the existing hebel walls panel will be provided.

The Noise wall will be coated with anti vandal paint system.

Retaining Walls

The retaining walls with overlying noise walls at the Cabramatta Road underbridge and finish at the Sussex Street underbridge, adjacent to the Cabramatta Creek. The rail alignment begins in a cutting at Cabramatta Station and Broomfield Road transitions more steeply south away from Cabramatta Station than the rail line, the cutting transitions to be an embankment supported with boundary retaining walls of increasing height with overlying noise walls.

The retaining walls along Broomfield Street are to be recessive in nature and complement to Noise walls that sit on top of the retaining walls. Retaining Wall will be off form concrete finish. Low level (up to 1m height) planing will be provided at the bottom of the wall in a 300mm wide landscaping strip

Jacquie Osmond Reserve

Jacquie Osmond Reserve consists of a 1in6 grassed embankment along the rail corridor and chain link boundary fencing will be provided along the interface of the rail corridor.

Cabramatta Creek Bridge Abutment

The Cabramatta Creek Bridge is south of the Sussex Street Bridge. Abutments to these bridges will consist of either a continuation of the retaining wall with off-form reinforced concrete or be a spill through where possible to minimise graffiti canvas area.



Cabramatta Loop - Surrounding Area

Fencing

Chain link boundary fencing will be provided along the interface of the rail corridor and Jacquie Osmond Reserve in order to prohibit unauthorised access and reduce the risk of injury or death to the public. Fencing will be in accordance with RailCorp fencing standards

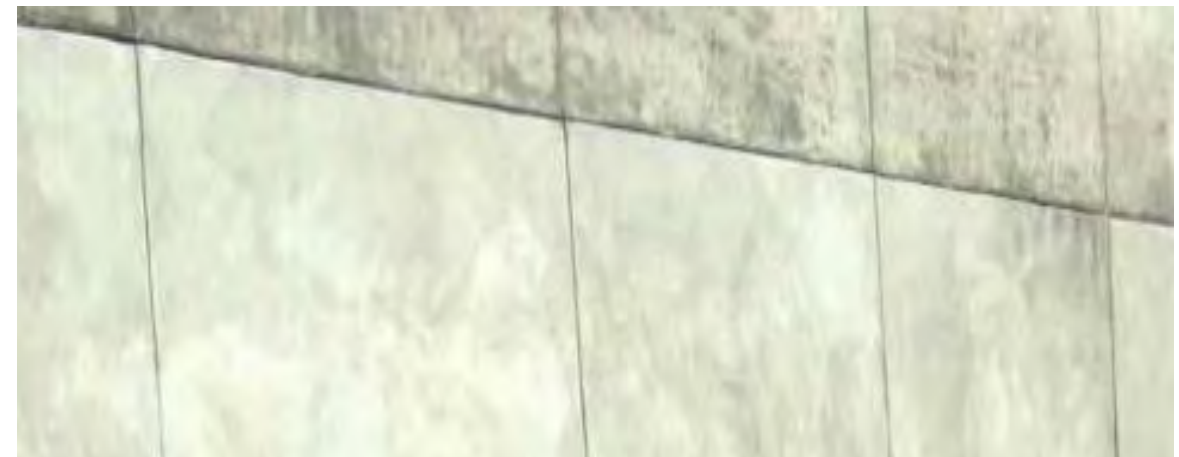


Materials & Finishes

The project will provide finishes that remain subtle within the landscape and aiming to blend the project into its surrounding settings. The finishes are of high quality and are robust and durable to minimize maintenance and vandalism. All visible concrete finishes will be Class 2.



Existing Retaining Wall



Proposed Concrete Retaining Wall

CABRAMATTA LOOP

AUSTRALIAN RAIL TRACK CORPORATION

Lighting

Lighting within the Cabramatta Loop Project is essential in providing a safe and legible public domain. All affected lighting will be upgraded to meet to current Australian Standards for Road, Cycle and Pedestrian Pathway luminance levels. Lighting will be replaced on Broomfield Street and any lighting on the bridge crossing Cabramatta Creek. Lighting within the project site will consider CPTED principles to ensure spaces such as the shared path are adequately illuminated. Lighting design has been developed separate to this UDLP in consultation with Endeavour Energy, Council and relevant stakeholders.

The design will aim to minimise light spill and managing residual night lighting impacts to surrounding properties. All lighting associated with the construction and operation of the CSSI must be consistent with the requirements of Australian Standard 4282-1997. Control of the obtrusive effects of outdoor lighting and relevant Australian Standards in the series AS/NZ1158– Lighting for Roads and Public Spaces. Lighting to provided in accordance with Australian Standards.

Wayfinding and Signage

The Project will assist with wayfinding by providing street trees, parking and planting along Broomfield Street that will helping to define the street character. New Signage will be installed in accordance with Australian Standards and local Government Authority requirements.

The Shared Path along Broomfield Street will provide way-finding within the Street Area and also connect to the wider precinct. The shared path and cycle way will have line marking and signage installed in accordance with Australian Standards.

The new noisewall and retaining wall along Broomfield Street will help to define the street character, which will assist with way-finding.

Railway Parade will have new parking and landscaping helping to define the street character, which will assist with way-finding. New Signage will be installed in accordance with Australian Standards and local Government Authority requirements.



Existing Broomfield Street



Signage Example to a Shared Path

CABRAMATTA LOOP

AUSTRALIAN RAIL TRACK CORPORATION

Broomfield Street

The project will result in the loss of some of the 162 existing parking spaces on Broomfield Street as a result of angled kerb parking converted to parallel parking on the western side of the street. Parallel parking will be provided to both sides of broomfield street, and in addition it is proposed to plant trees along both sides of the street. This is to provides shading and improve the streetscape, by breaking up the view of the noise wall all along the street.

There will be no permanent loss of on-street car parking spaces as the project will provide 162 car parking spaces upon completion, with the balance to be provided on Railway Parade. The proposed on-street parking design provide landscaping to address visual amenity and reduces impervious surfaces by providing tree islands along both sides of the street

Trees will be planted in regular sequence along both sides of Broomfield Street so to improve the streetscape and to interrupt the views of the noise wall.

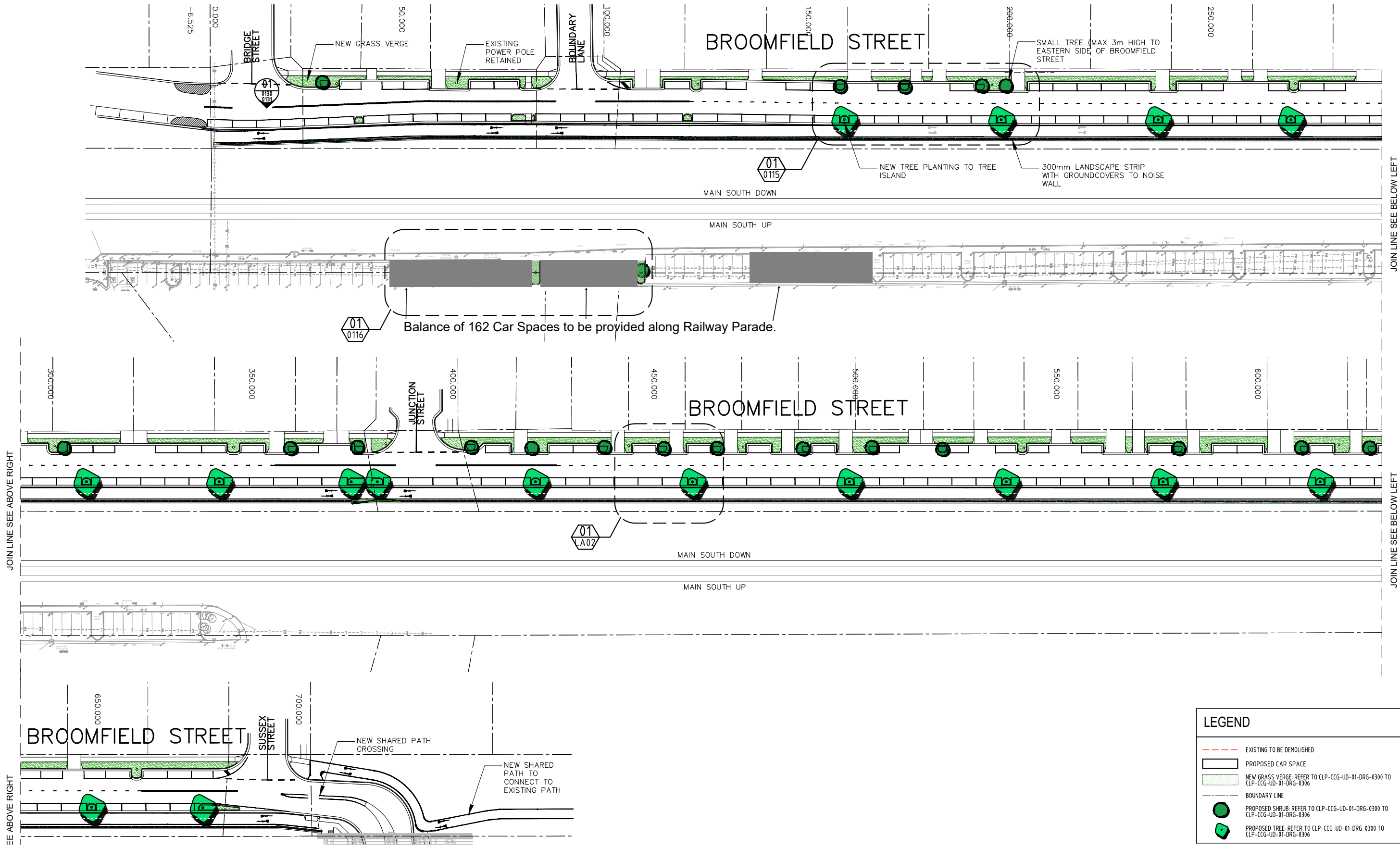
This parking solutions addresses the relevant conditions of approval which requires consideration of the ability to provide landscaping to address visual amenity and impervious surfaces.



Typical Plan Broomfield Street

CABRAMATTA LOOP

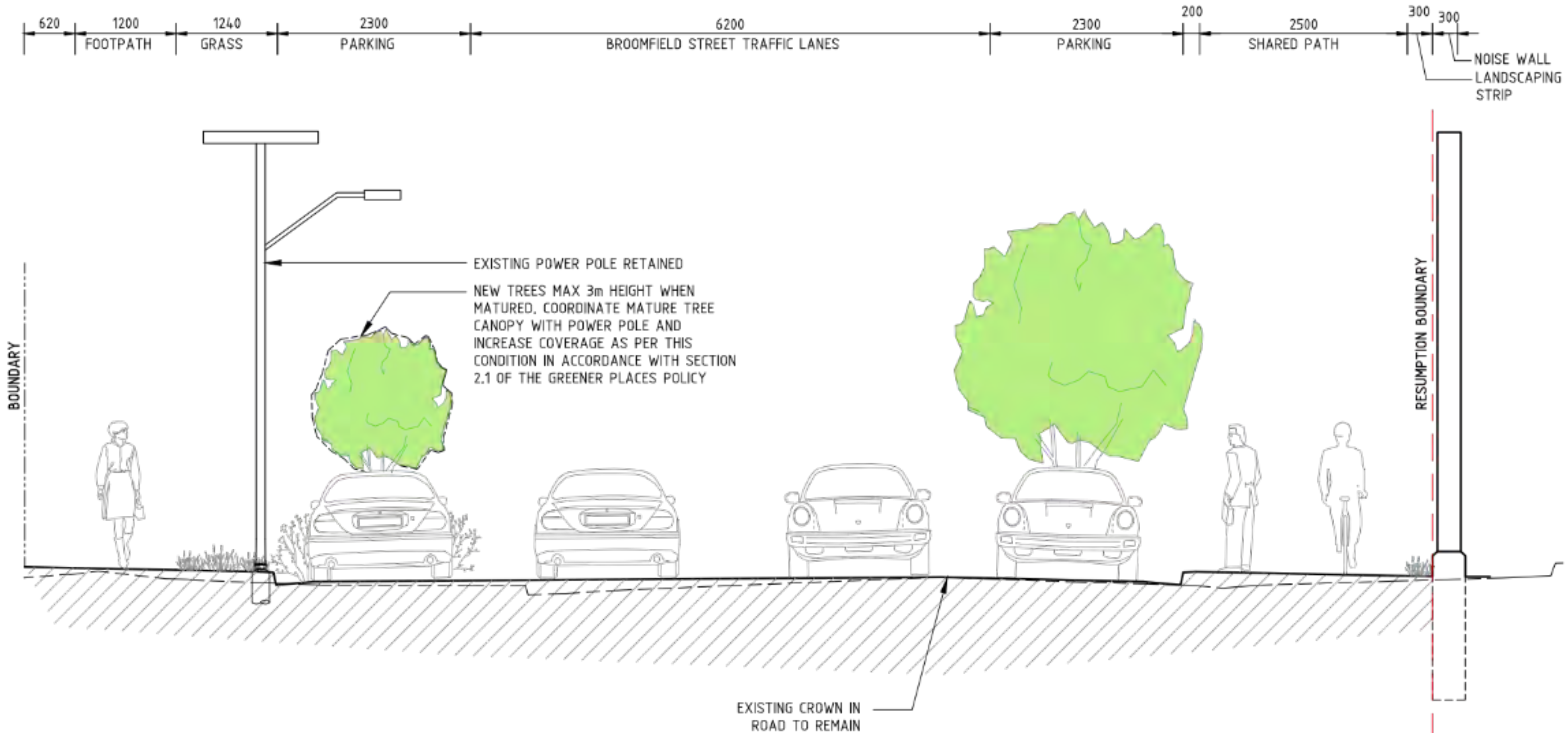
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Plan Broomfield Street / Railway Parade

CABRAMATTA LOOP

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Section - Broomfield Street

CABRAMATTA LOOP

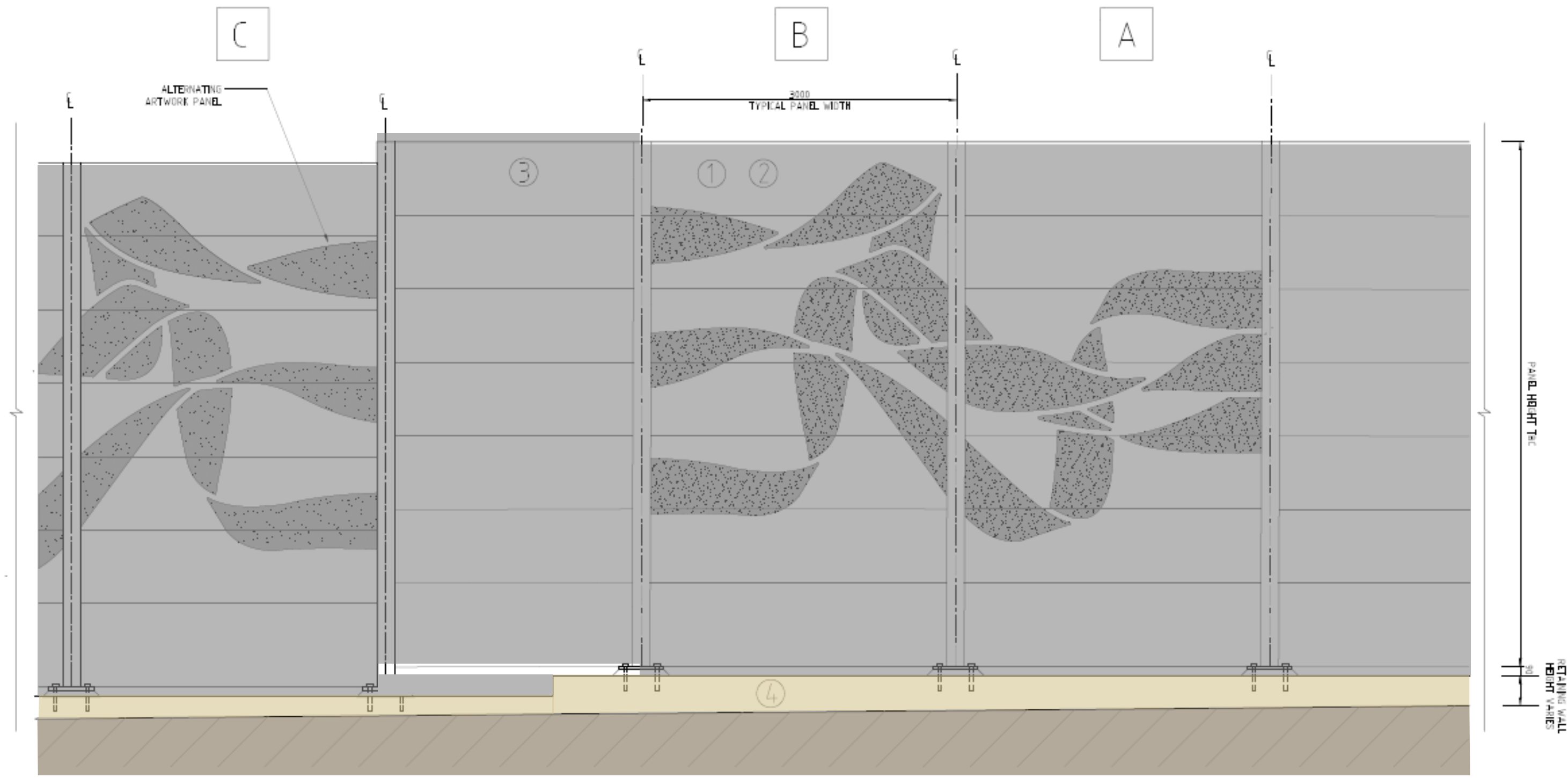
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Elevation - Broomfield Street

CABRAMATTA LOOP

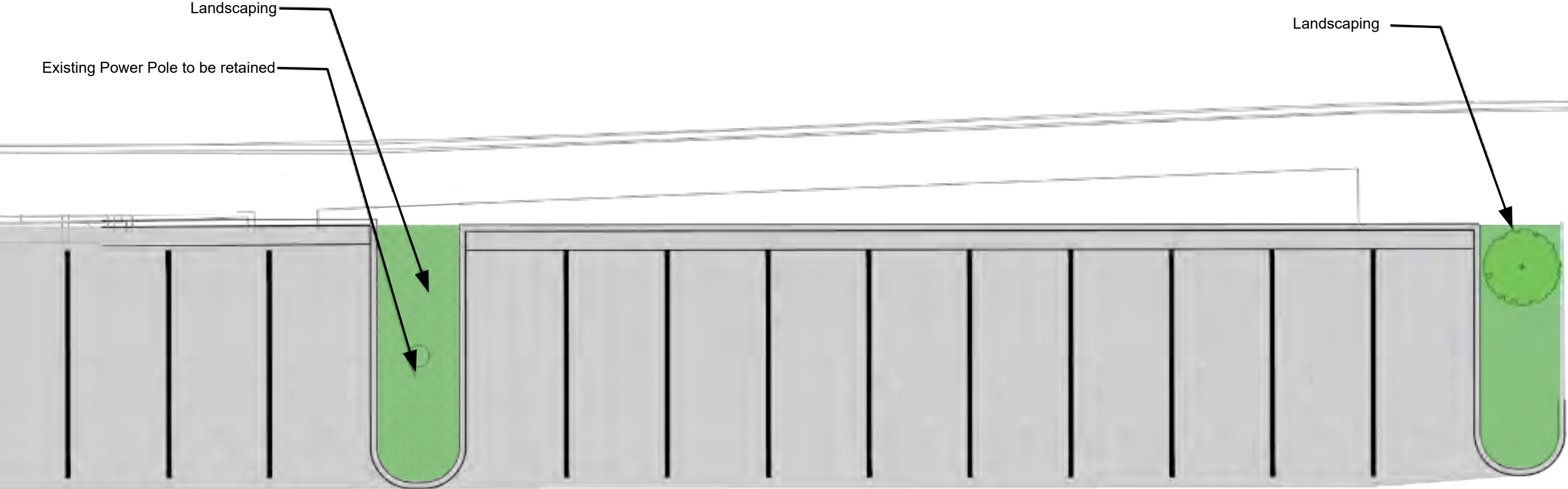
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Typical Elevation - Broomfield Street

CABRAMATTA LOOP

AUSTRALIAN RAIL TRACK CORPORATION



Railway Parade

The proposed works within Railway Parade consists of;

- The replacement of four parallel parking spaces located opposite the intersection with Boundary Lane with perpendicular parking spaces.
- The proposed design provides sufficient space to replace the parking which will be lost in Broomfield Street following completion of construction of the project.
- The final parking layout is to be confirmed.

The Landscaping strategy for works along Railway Parade would involve providing landscaped blister islands located at regular intervals to break up the perpendicular parking arrangement. This will provide a visual relief and is consistent with the existing streetscape character for this side of Railway Parade and therewith this parking solutions addresses the relevant conditions of approval which requires consideration of the ability to provide landscaping to address visual amenity and impervious surfaces.

LEGEND	
	EXISTING TO BE DEMOLISHED
	PROPOSED AREA OF WORK
	NEW GRASS VERGE REFER TO CLP-CCG-40-R1-DPA-4188 TO CLP-CCG-40-R1-DPA-4188
	PROPOSED SHRUB REFER TO CLP-CCG-40-R1-DPA-4188 TO CLP-CCG-40-R1-DPA-4188

Plan Railway Parade

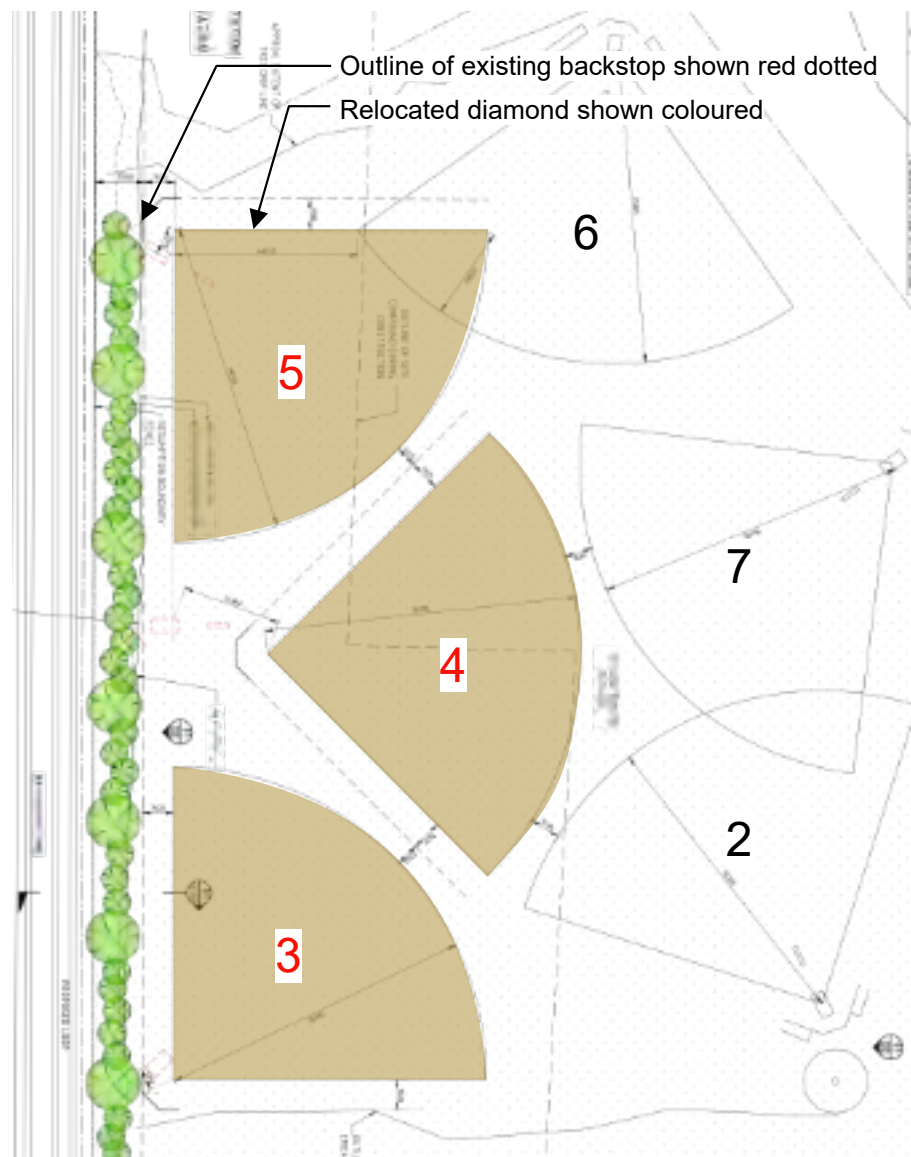
CABRAMATTA LOOP

AUSTRALIAN RAIL TRACK CORPORATION

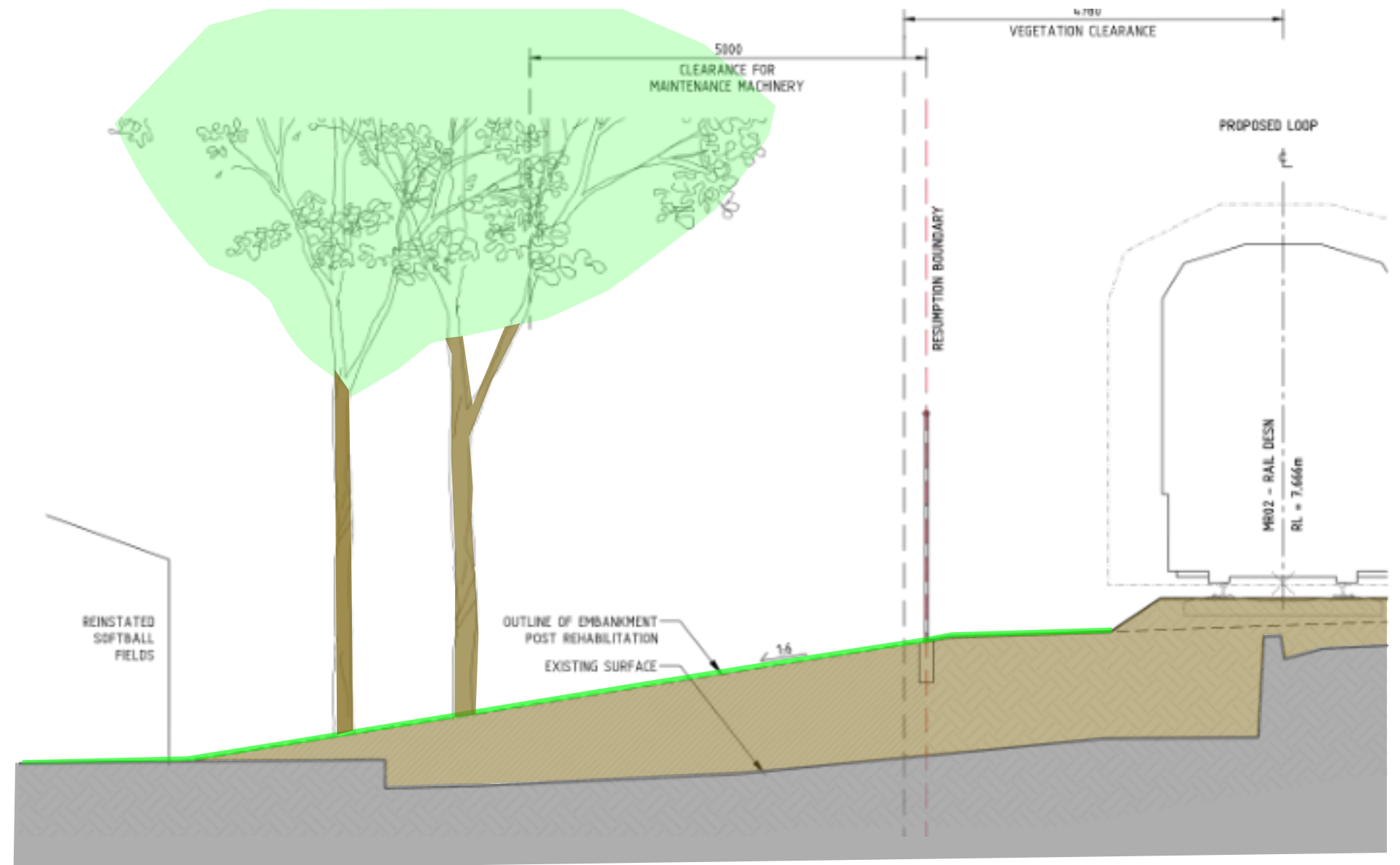
Jacque Osmond Reserve

The widening of the rail corridor to accommodate the Cabramatta Loop will result in a minor expansion into the western side of Jacque Osmond Reserve. As part of these works, the landscape design will incorporate the following landscape treatments to ensure consistency with the Reserve's local character:

- Grassed embankment proposed along track interface with Jacque Osmond Reserve at 1:6 grade for maintenance.
- Due to the proximity to the rail corridor and potential safety risk of branch fall on to the Cabramatta Loop it is proposed to use *Colombia Maculata* (Spotted Gum) and *Eucalyptus tereticornis* (Forest Red Gum) tree species. This species will provide shade when mature and will minimise branch fall when properly maintained. Trees are planted min 5m apart for maintenance access.
- Tree species selection to Council endorsement
- Provides a grassed and shaded respite area for reserve users / spectators
- A chain link fence is proposed along the boundary line between the Reserve and the rail corridor. Trees are planted 5m clear of this fence.



Plan Softball fields



Section Jacque Osmond Reserve

Softball Facilities

The partial acquisition of JO Reserve requires minor shifting of diamonds 3 and 5 east and a larger shift of diamond 4 so to minimise any overlap between diamonds 3 and 4. This will also result in a reduced overlap between diamonds 5 and 6. The design has been developed in accordance with the DPIE approved JOR Softball Fields Design Report (ARTC,2021).

This design provides the following improvements compared to the existing layout:

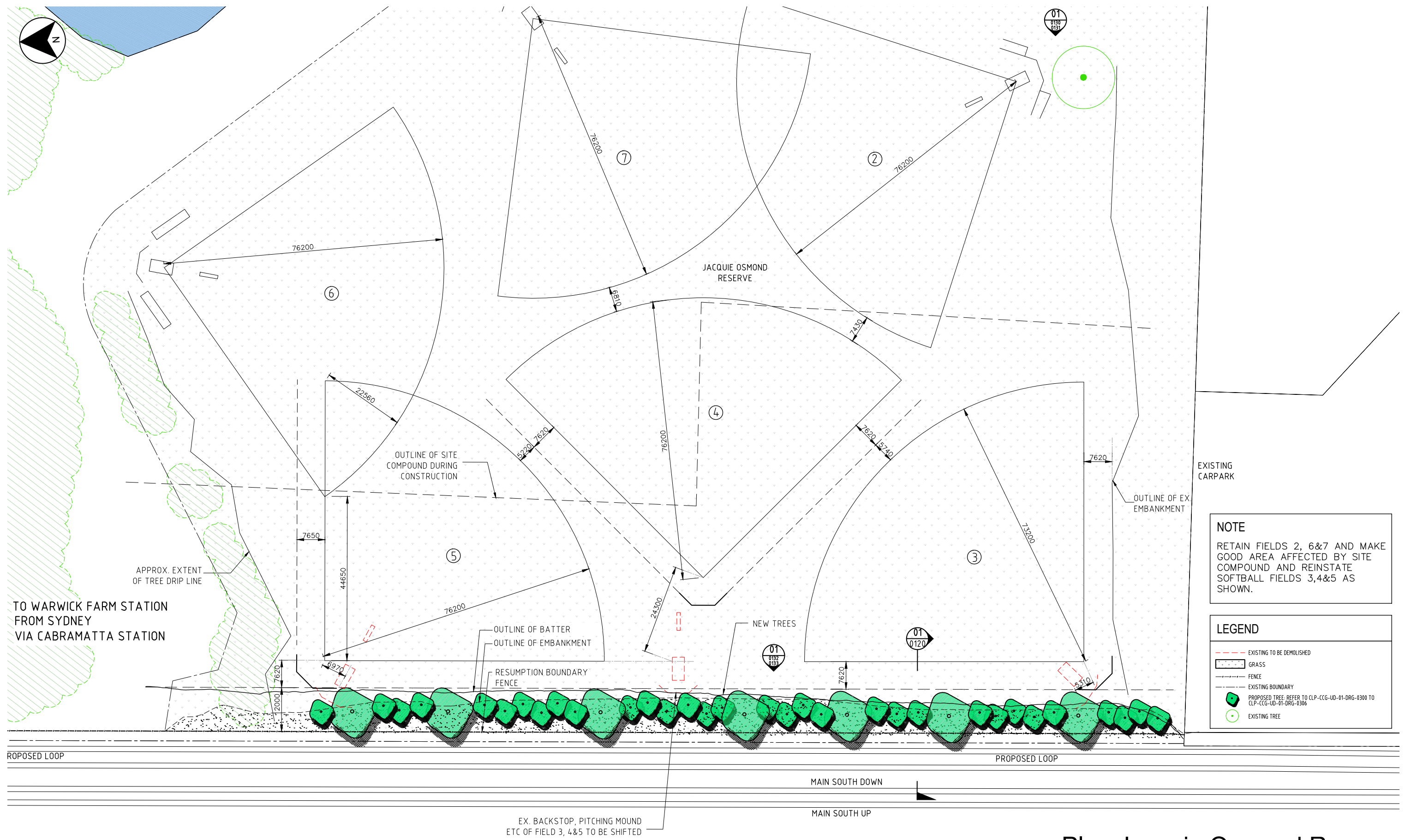
- Removal of the existing minor overlap between diamonds 3 and 4
- Removal of the existing overlap between diamonds 4 and 5
- Reducing the existing overlap between diamonds 5 and 6.

Reinstatement of the playing surface is proposed to be undertaken during demobilisation of the site compound in consultation with LCC and SDSA.

The proposed design for the reinstatement of diamond 3, 4 and 5 does not permanent impact the usability of the softball fields and aims to improve the current layout by removing or reducing current overlapping of softball fields.

CABRAMATTA LOOP

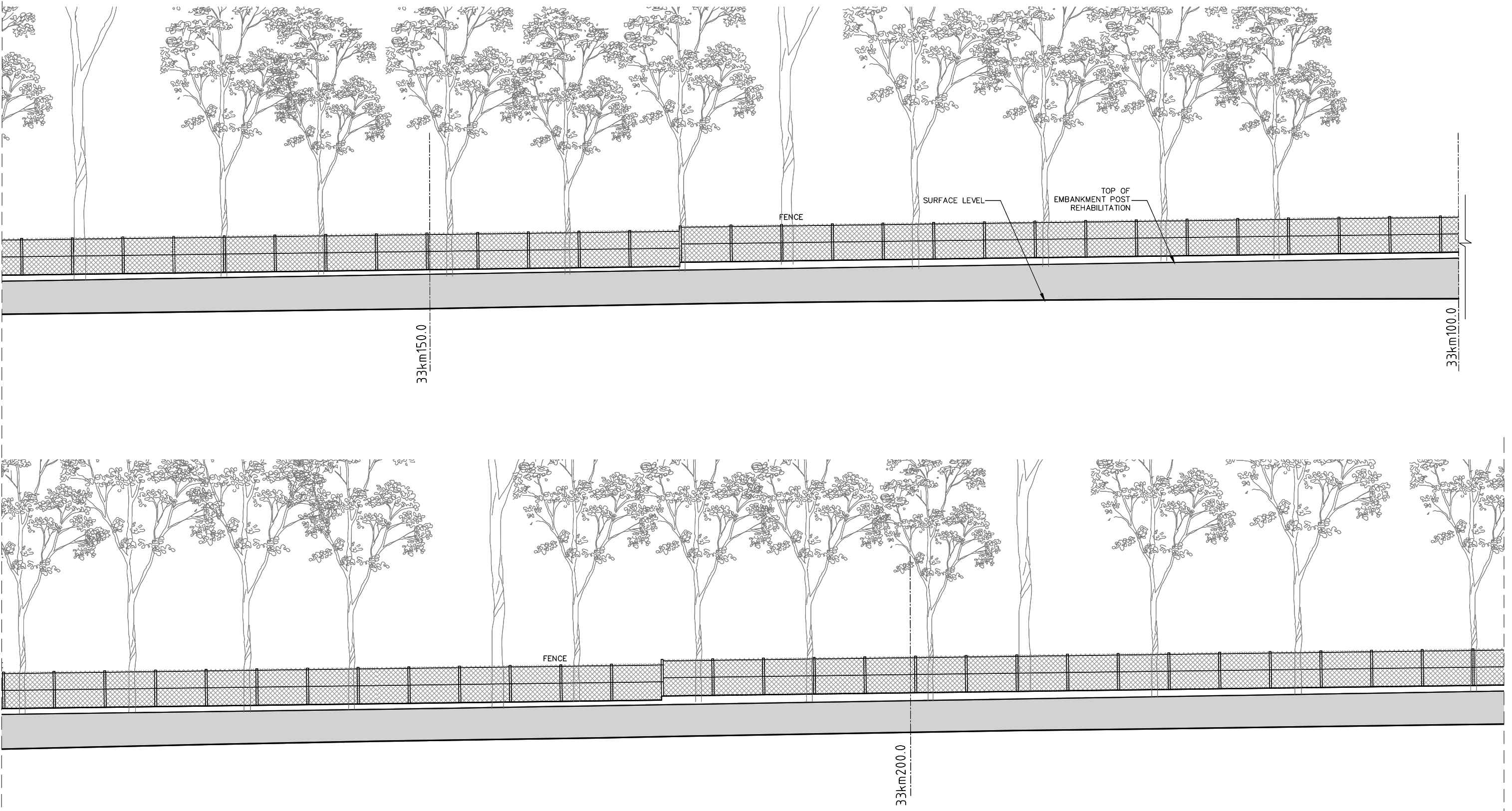
AUSTRALIAN RAIL TRACK CORPORATION



Plan Jacquie Osmond Reserve

CABRAMATTA LOOP

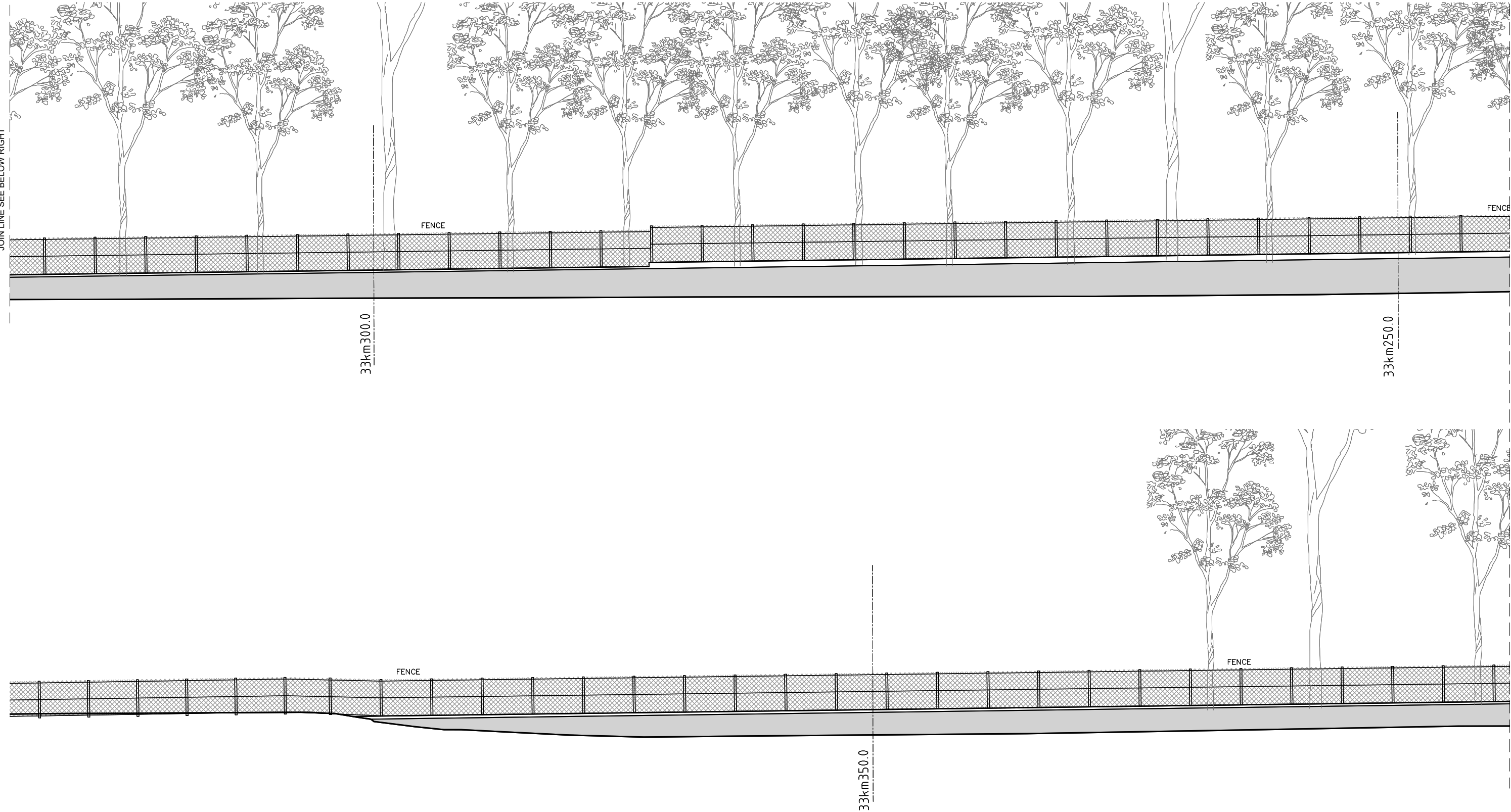
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Elevation Jacquie Osmond Reserve 1/2

CABRAMATTA LOOP

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Elevation Jacquie Osmond Reserve 2/2



LANDSCAPE DESIGN

06

CABRAMATTA LOOP

AUSTRALIAN RAIL TRACK CORPORATION

Landscape Treatments

Landscape treatment will be provided to the following areas:

Broomfield Street

Where possible soft landscaping treatment will be provided to enhance the overall streetscape and therewith improve the resident and pedestrian experience. The noise walls have low ground covers planing provided at the bottom of the noisewall in a 300mm wide landscaping strip, that will provide visual relief along the street elevation. A total of 36 Trees will be planted along both side of Broomfield Street so to screen the noise walls and improve the visual amenity along the street. Mature Trees to the westside of Broomfield street will provide shade to parked cars and users of the sharded path. They also help to screen the noise wall and break up views of the full extend of the noise wall along the street. Smaller up to 3m street will be planted along the East side so to not interfere with the existing overhead power lines along this side of the street. New grass will be provided to the verge. This design addresses the relevant conditions of approval which requires consideration of the ability to provide landscaping to address visual amenity and impervious surfaces.

Cabramatta Creak

No impact on the existing riparian zone along Cabramatta creek is proposed as part of the project. If a disturbance to this zone would occur during construction the works would be limited to creek rehabilitation to disturbed areas only. The rehabilitation works would be in line with best practice Water Sensitive Urban Design (WSUD) and would be undertaken by sub-consultants who are able to demonstrate experience in waterway rehabilitation. Design for this would be undertaken in close collaboration with Councils for agreement on the type of planting to be undertaken. Sourcing endemic species from the Councils nurseries would be a likely approach to species selection.

Jacque Osmond Reserve

Landscaping works to the reserve would consist of a new 1:6 grade grassed embankment along the track interface with 39 Trees to be planted along embankment wherever possible. Due to the proximity to the rail corridor and potential safety risk of branch fall on to the Cabramatta Loop it is proposed to use Colombia Maculata (Spotted Gum) and Eucalyptus tereticornis (Forest Red Gum) tree species. This species will provide shade when mature and will minimise branch fall when properly maintained. Tree species selection to Council endorsement. This solution provides a grassed and shaded respite area for reserve users / spectators.

Railway Pde

The Landscaping strategy for works along Railway Parade would involve providing landscaped blister islands located at regular intervals to break up the perpendicular parking arrangement. This will provide a visual relief and is consistent with the existing streetscape character for this side of Railway Parade. addresses the relevant conditions of approval which requires consideration of the ability to provide landscaping to address visual amenity and impervious surfaces.

Trees

The project required the removal of 74 trees. The project will deliver a net increase on trees by providing 75 new trees. All tree species selection to Council endorsement and all tree replacements will be provided within 6 month of commencement of operations. The project will be looking to maximise the opportunities to improve the visual amenity with the revegetation strategy.



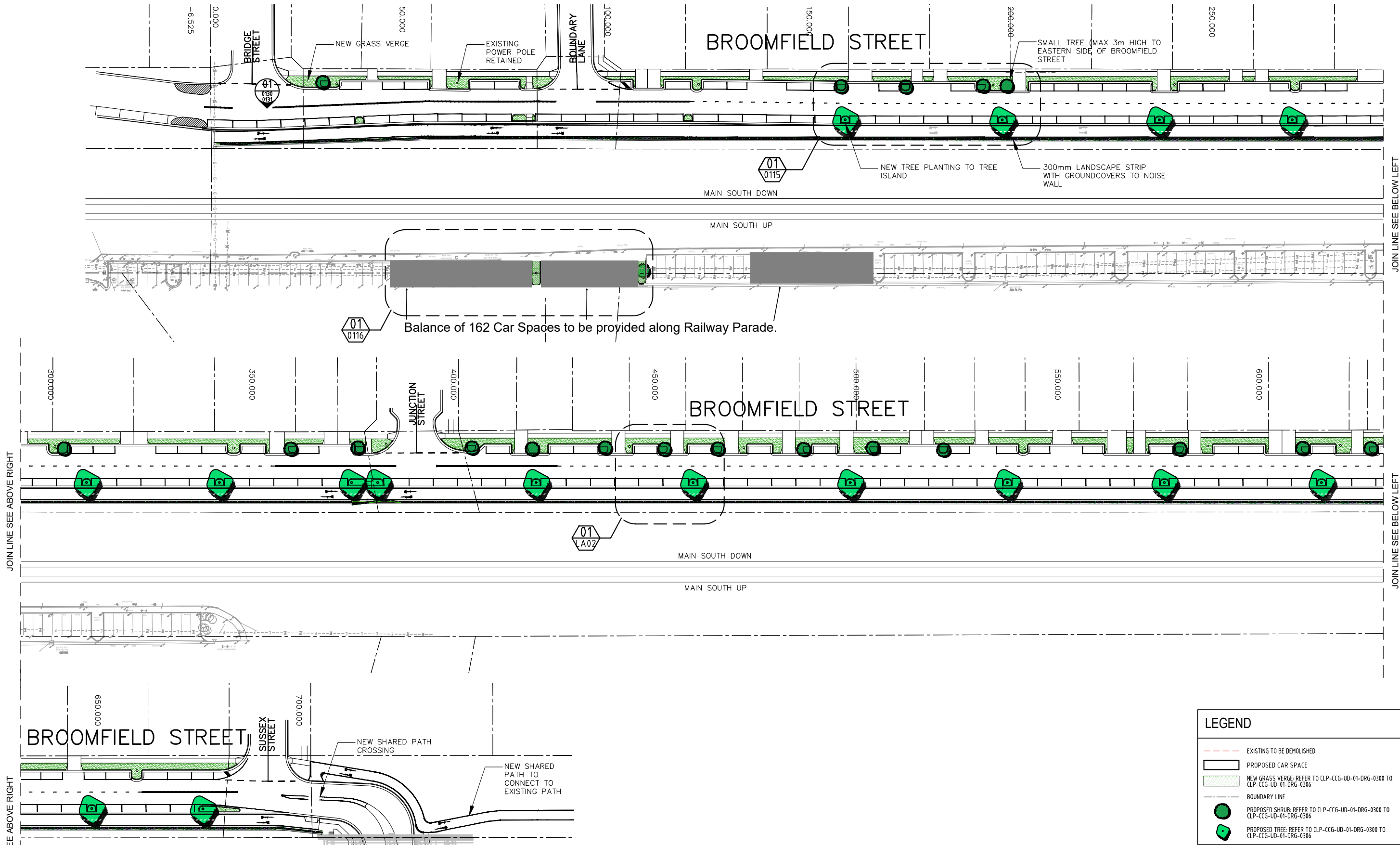
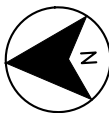
Cabramatta Creek



Existing View JO Reserve

CABRAMATTA LOOP

AUSTRALIAN RAIL TRACK CORPORATION

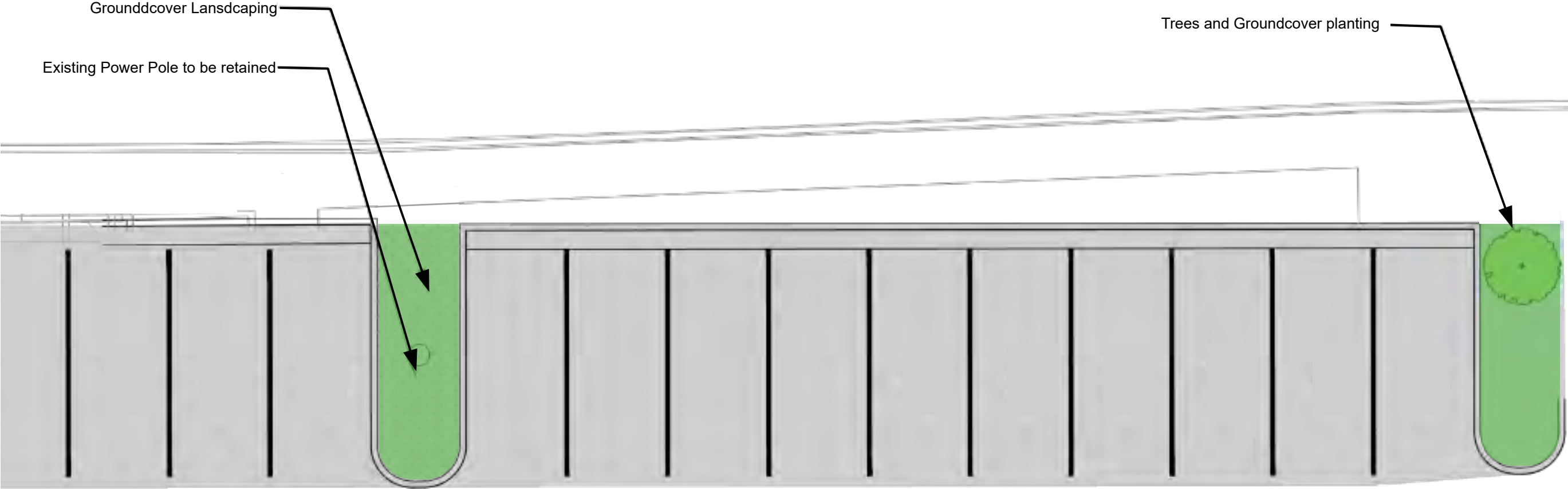


LEGEND	
	EXISTING TO BE DEMOLISHED
	PROPOSED CAR SPACE
	NEW GRASS VERGE: REFER TO CLP-CCG-UD-01-DRG-0300 TO CLP-CCG-UD-01-DRG-0306
	BOUNDARY LINE
	PROPOSED SHRUB: REFER TO CLP-CCG-UD-01-DRG-0300 TO CLP-CCG-UD-01-DRG-0306
	PROPOSED TREE: REFER TO CLP-CCG-UD-01-DRG-0300 TO CLP-CCG-UD-01-DRG-0306

Landscape Plan Broomfield Street

CABRAMATTA LOOP

AUSTRALIAN RAIL TRACK CORPORATION



PROPOSED PLANTING TREES



To Eastern side of Broomfield Street
Corymbia 'Baby Orange'
Flowering Gum
Mature Height: 3m

GROUNDCOVERS



Lomandra longifolia
Spiny Mat Rush
Mature Height: 0.6m

Railway Parade

The Landscaping strategy for works along Railway Parade would involve providing landscaped blister islands located at regular intervals to break up the perpendicular parking arrangement. This will provide a visual relief and is consistent with the existing streetscape character for this side of Railway Parade.

CABRAMATTA LOOP

AUSTRALIAN RAIL TRACK CORPORATION

PROPOSED PLANTING

TREES



To Western side of Broomfield Street

Tristaniopsis laurina
Water Gum
Mature Height: 12m



To Eastern side of Broomfield Street

Corymbia 'Baby Orange'
Flowering Gum
Mature Height: 3m

GROUNDCOVERS



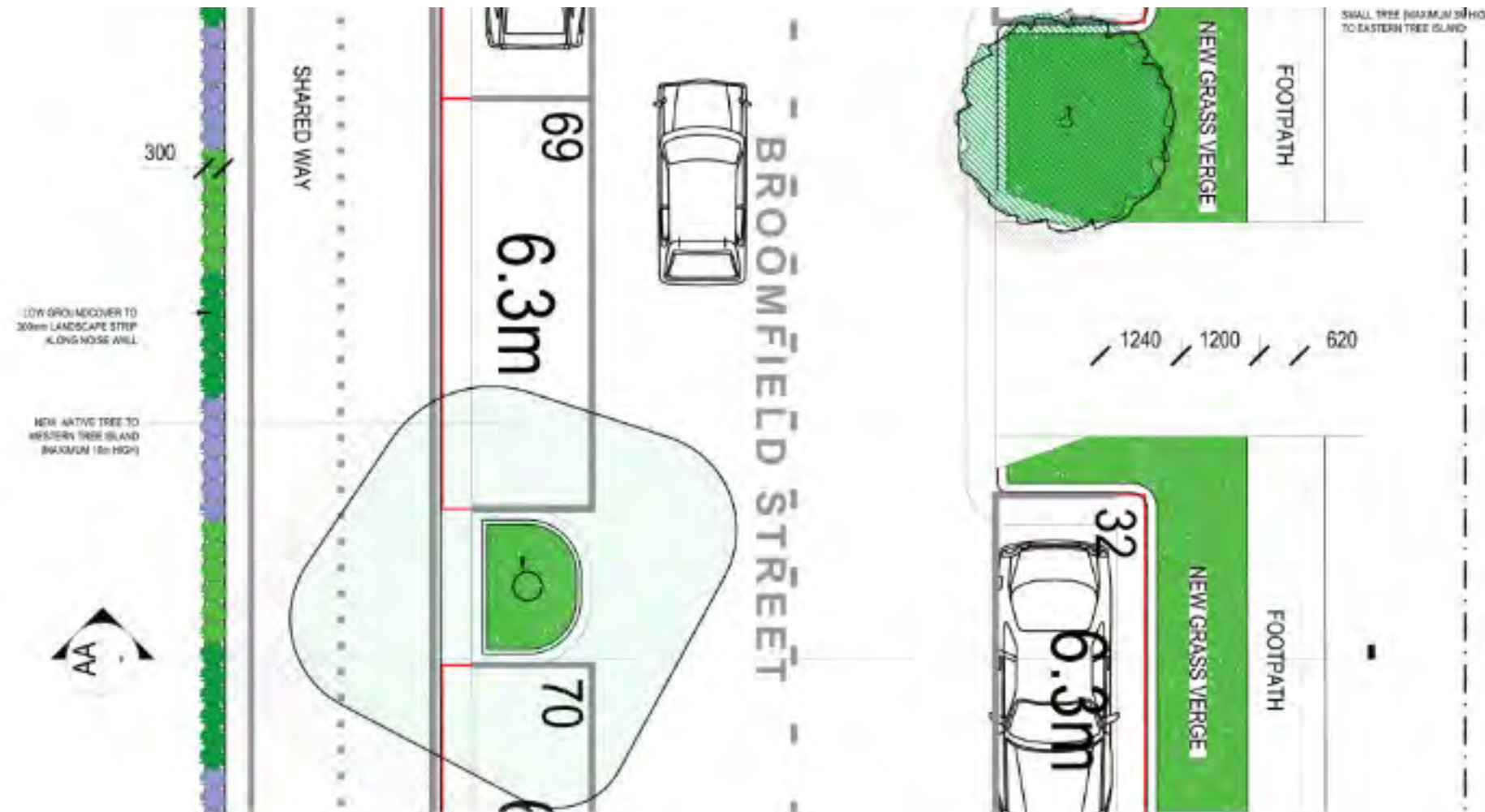
Lomandra longifolia
Spiny Mat Rush
Mature Height: 0.6m



Hibbertia diffusa
Wedge Guinea Flower
Mature Height: 0.3m



Pratia purpurascens
Purple pratie
Mature Height: 0.1m



Typ Landscape Plan Broomfield Street



Existing Noise wall Artwork



Landscape Section Broomfield Street

CABRAMATTA LOOP

AUSTRALIAN RAIL TRACK CORPORATION

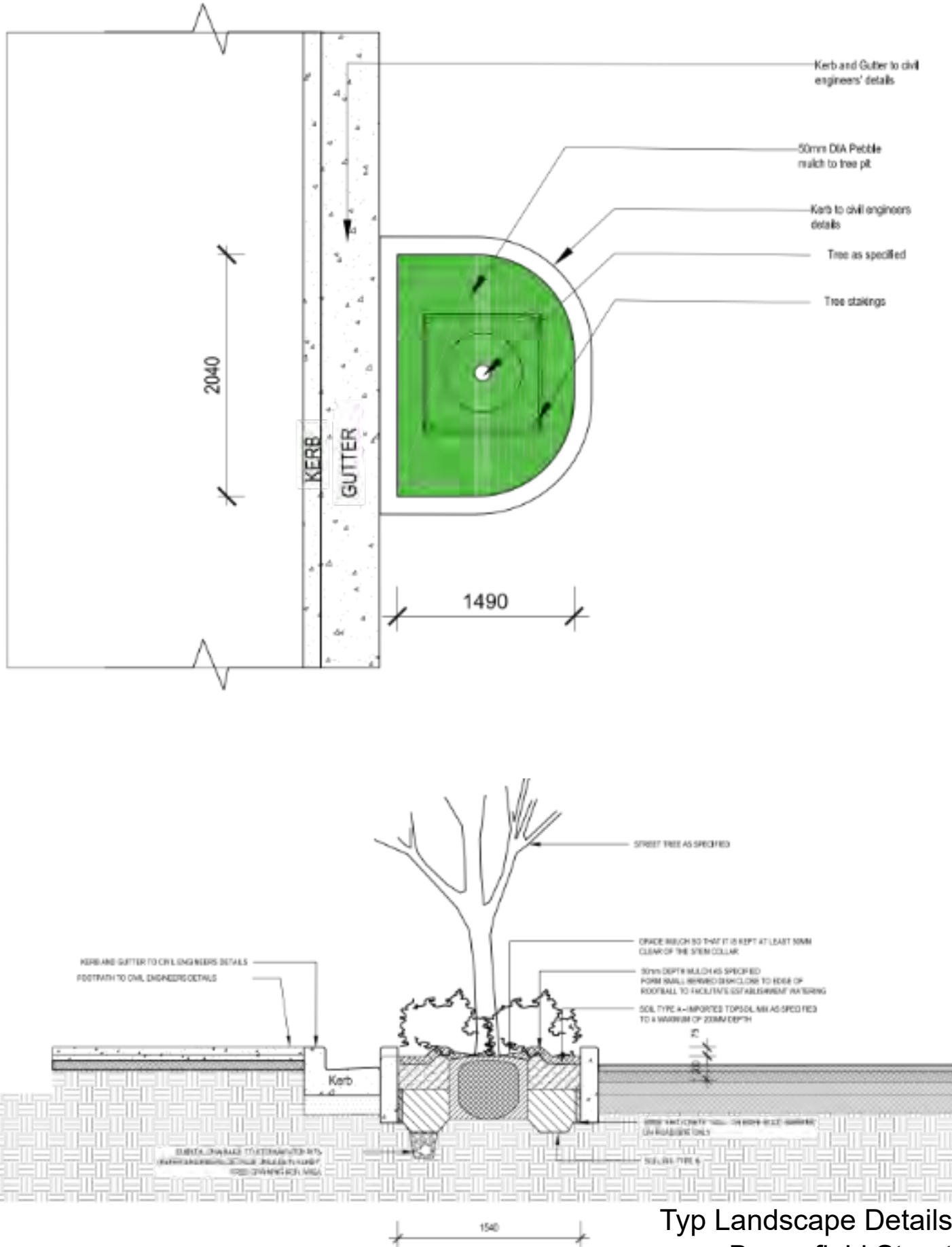
Indicative Plant list

BOTANICAL NAME	COMMON NAME	HEIGHT (m)	SPREAD (m)	POT SIZE	QUANTITY
TREES					
<i>Tristaniopsis laurina</i>	Spotted Gum	30	8	200L	19
<i>Corymbia 'Baby Orange'</i>	Black Peppermint	15	8	200L	17
GROUDCOVERS					
<i>Lomandra longifolia</i>	Spiny Mat Rush	0.6	1	200mm	290
<i>Hibbertia diffusa</i>	Wedge Guinea Flower	0.3	0.5	200mm	190
<i>Pratia purpurascens</i>	Purplish pratia	0.1	0.3	140mm	250

NOTE: Plant quantities on planting plan take precedence over quantities identified in this schedule.



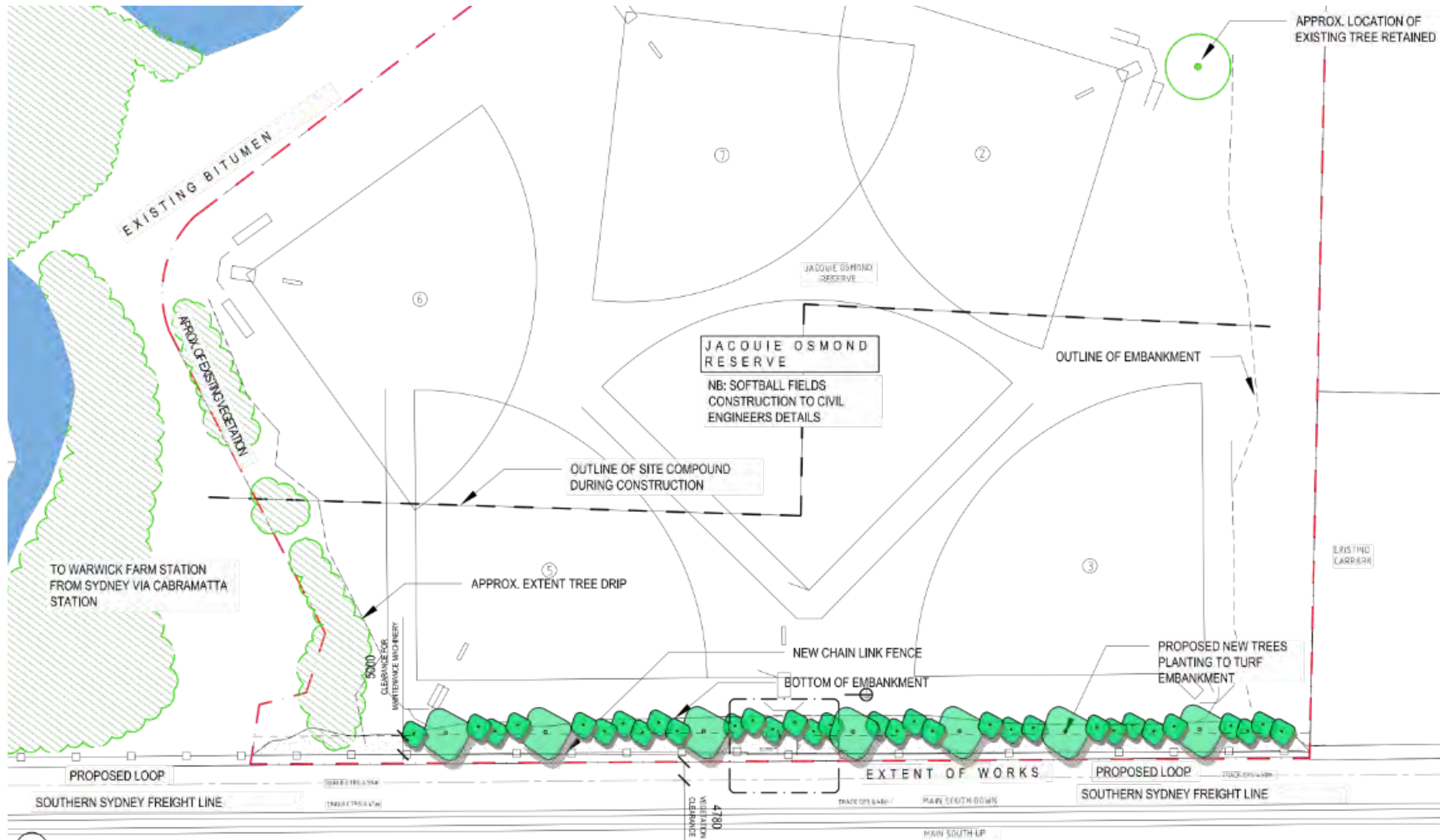
Existing Streetscape Broomfield Street



Typ Landscape Details
Broomfield Street

CABRAMATTA LOOP

AUSTRALIAN RAIL TRACK CORPORATION



Landscape Plan Jacquie Osmond Reserve

CABRAMATTA LOOP

AUSTRALIAN RAIL TRACK CORPORATION

Indicative Plant list

BOTANICAL NAME	COMMON NAME	HEIGHT (m)	SPREAD (m)	SIZE	QUANTITY
TREES					
<i>Corymbia maculata</i>	Spotted Gum	30	8	200L	19
<i>Eucalyptus nicholii</i>	Black Peppermint	15	8	200L	13
<i>Eucalyptus tereticornis</i>	Forest Red Gum	35	12	200L	7

PROPOSED TREES



Corymbia maculata
Spotted Gum



Eucalyptus nicholii
Willow peppermint



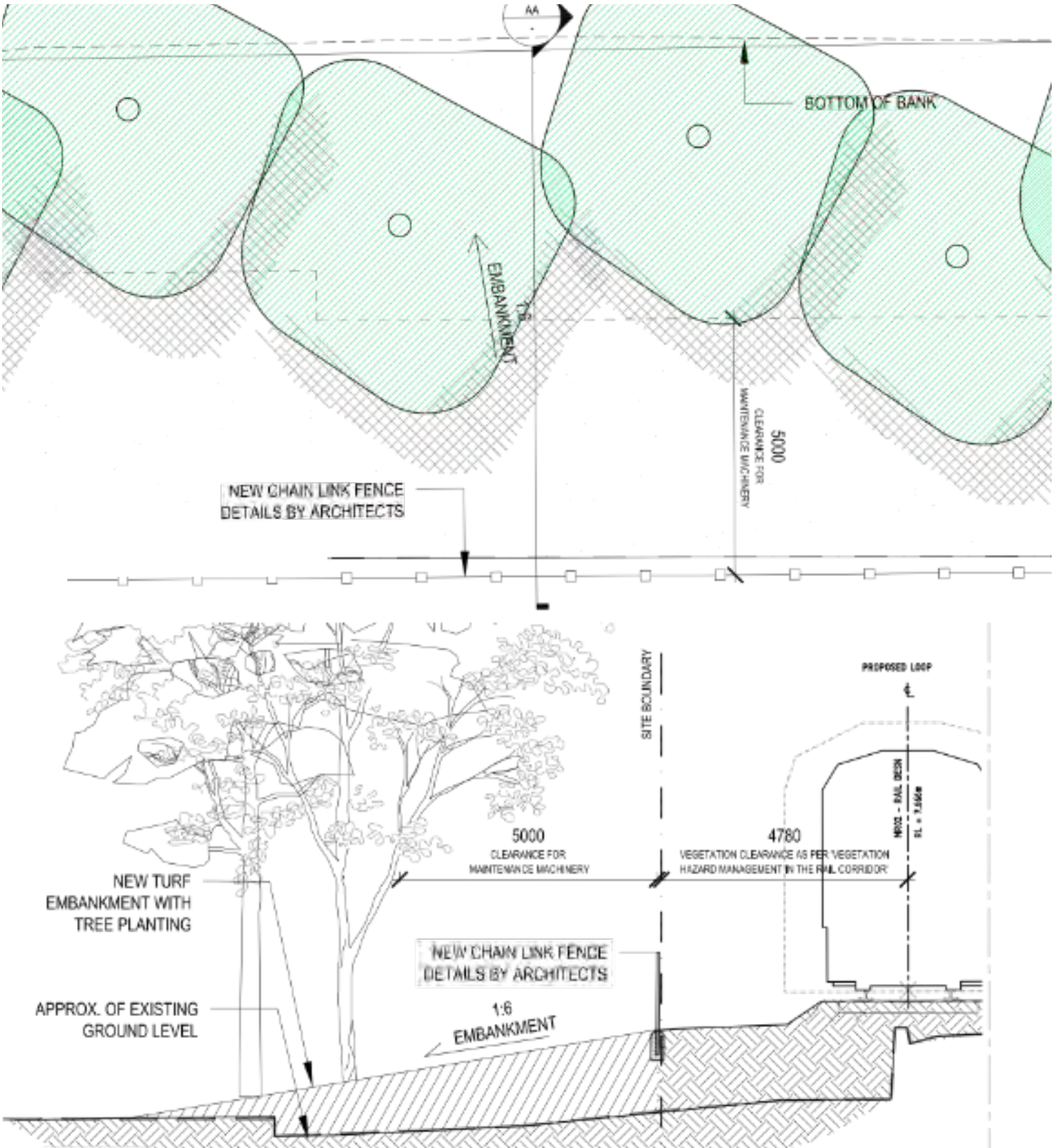
Eucalyptus tereticornis
Forest Red Gum



View existing JO Reserve



View proposed grassed embankment JO Reserve



Landscape Section Jacquie Osmond Reserve

CABRAMATTA LOOP

AUSTRALIAN RAIL TRACK CORPORATION

Indicative Plant List					
BOTANICAL NAME	COMMON NAME	HEIGHT (m)	SPREAD (m)	POT SIZE	QUANTITY
TREES					
<i>Tristania laurina</i>	Spotted Gum	30	8	200L	19
<i>Corymbia 'Baby Orange'</i>	Black Pepper Gum	15	8	200L	17
GROUNDCOVERS					
<i>Lomandra longifolia</i>	Spiny Mat Rush	0.6	7	200mm	390
<i>Hibbertia diffusa</i>	Wedge Guinea Flower	0.3	0.5	200mm	150
<i>Pratia purpurascens</i>	Purplish pratia	0.1	0.3	140mm	250

NOTE: Plant quantities on planting plan take precedence over quantities identified in this schedule.

PROPOSED PLANTING

TREES



To Western side of Broomfield Street
Tristania laurina
Water Gum
Mature Height: 12m



To Eastern side of Broomfield Street
Corymbia 'Baby Orange'
Flowering Gum
Mature Height: 3m

GROUNDCOVERS



Lomandra longifolia
Spiny Mat Rush
Mature Height: 0.6m



Hibbertia diffusa
Wedge Guinea Flower
Mature Height: 0.3m



Pratia purpurascens
Purplish pratia
Mature Height: 0.1m



Broomfield Street

Indicative Plant List					
BOTANICAL NAME	COMMON NAME	HEIGHT (m)	SPREAD (m)	SIZE	QUANTITY
TREES					
<i>Corymbia maculata</i>	Spotted Gum	30	8	200L	19
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<i>Eucalyptus tereticornis</i>	Forest Red Gum	35	12	200L	7

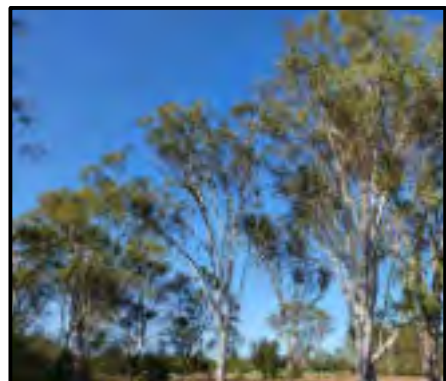
PROPOSED TREES



Corymbia maculata
Spotted Gum



Eucalyptus nicholii
Willow peppermint



Eucalyptus tereticornis
Forest Red Gum



JO Reserve

CABRAMATTA LOOP

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Tree Replacement

The objective is to minimise the loss of mature trees, remnant vegetation, significant landscapes and parkland wherever possible. Tree planting to support maximum canopy cover and provide comfort for pedestrians has been adopted throughout the project, as per councils request. Arrangement of tree planting has been avoided in areas where overhead power lines are located. The UDLP aims to reinstate trees where possible and use replacement of trees to soften the hard surfaces treatments.

Replacement street trees will be reinstated where practicable along the eastern side of Broomfield Street. The street trees along Broomfield Street will be planted in the road reserve, within the parking lane to the north of the Junction Street intersection, and within the grassed verge to the south of the Junction Street intersection. The western side of Broomfield Street will be treated with low level planting due to car parking restraints and reduced space to allow for tree planting. Increased canopy coverage will be provided by providing trees along both sides and the full length of Broomfield street, whereas the existing layout currently has trees concentrated towards the southern end of broomfield only.

The project required the removal of 74 trees. The project will deliver a net increase on trees by providing 75 new trees. All tree species selection to Council endorsement and all tree replacements will be provided within 6 month of commencement of operations. The project will be looking to maximise the opportunities to improve the visual amenity with the revegetation strategy.

Replacement Trees must:

- be located on public land and prioritised within 500m of the Construction Boundary in consultation with the relevant council
- be provided no later than six (6) months following the commencement of operations
- have a minimum pot size of 20L except where the plantings are consistent with the pot sizes specified in a relevant council's plans, programs, strategies for vegetation management, street planting, or open space landscaping, or as agreed by the relevant council(s).
- In areas not subject to council plans, programs, strategies, pot sizes must be informed through consultation with the relevant councils

Tree Planting

Through a consultation process, Councils are involved in the selection of preferred tree species to ensure that it is;

- Appropriate to scale and locality
- Low maintenance
- Hardy and drought tolerant
- Likelihood of successful establishment
- Located within 500m of construction boundary
- Provided no later than six (6) months following the commencement of operations
- Tree species selection to Council endorsement.
- Due to the proximity to the rail corridor and potential safety risk of branch fall on to the Cabramatta Loop it is proposed to use *Colombia Maculata* (Spotted Gum) and *Eucalyptus tereticornis* (Forest Red Gum) tree species. This species will provide shade when mature and will minimise branch fall when properly maintained. Trees are planted min 5m apart for maintenance access.
- A chain link fence is proposed along the boundary line between the JO Reserve and the rail



View existing JO Reserve



View existing JO Reserve

LANDSCAPE SPECIFICATION

CABRAMATTA LOOP

AUSTRALIAN RAIL TRACK CORPORATION

Landscape Specification

SOFT WORKS

GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide landscaped planting, as documented.

Performance

Plants: Grown to a standard that allows rapid establishment and growth to maturity.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General Requirements by others*

1.3 INTERPRETATION

Definitions

General: For the purposes of this work section the following definitions apply:

- Imported topsoil: Similar to local natural soil, suitable for the establishment and ongoing viability of the selected vegetation, free of weed propagates and of contaminants, and classified by texture to AS 4419 Appendix K Table K1, as follows:
 - . Fine: Clay loam, fine sandy clay loam, sandy clay loam, silty loam, loam.
 - . Medium: Sandy loam, fine sandy loam.
 - . Coarse: Sand, loamy sand.
- Plant establishment period: The period between the date of practical completion and the end of the defects liability period.
- Site topsoil: Natural soil, excavated from the site, that contains organic matter, supports plant life, conforms generally to the fine-to-medium texture classification to AS 4419 and is free from the following:
 - . Stones more than 25 mm diameter.
 - . Clay lumps more than 50 mm diameter.
 - . Weeds and tree roots.
 - . Sticks and rubbish.
 - . Material toxic to plants.

1.4 SUBMISSIONS

Products and materials

Supplier's data: Submit supplier's data including the following:

- Material source of supply for topsoil, filling, stone and filter fabrics.

Samples

General: Submit representative samples of each material, packed to prevent contamination and labelled to indicate source and content.

Bulk materials: At least 5 working days before bulk deliveries, submit a 1 kg sample of each type documented with required test results.

2 PRODUCTS

2.1 TOPSOIL

Standard

Site and imported topsoil: To AS 4419.

Potting mixes: To AS 3743.

Composts, soil conditioners and mulches: To AS 4454.

Imported topsoil

General: Provide imported topsoil, as documented.

Imported topsoil particle size table (% passing by mass)

Sieve aperture (mm)	Soil textures		
	Fine	Medium	Coarse
2.36	100	100	100
1.18	90 – 100	90 – 100	90 – 100
0.60	75 – 100	75 – 100	70 – 90
0.30	57 – 90	55 – 85	30 – 46
0.15	45 – 70	38 – 55	10 – 22
0.075	35 – 55	25 – 35	5 – 10
0.002		2 – 15	2 – 8

Imported topsoil nutrient level table

Nutrient	Unit	Sufficiency range
Nitrate-N (NO ₃)	mg/kg	> 25
Phosphate-P (PO ₄) – P tolerant	mg/kg	43 - 63
Phosphate-P (PO ₄) – P sensitive	mg/kg	< 28
Phosphate-P (PO ₄) – P very sensitive	mg/kg	< 6
Potassium (K)	mg/kg	178 - 388
Sulphate-S (SO ₄)	mg/kg	39 - 68
Calcium (Ca)	mg/kg	1200 - 2400
Magnesium (Mg)	mg/kg	134 - 289
Iron (Fe)	mg/kg	279 - 552
Manganese (Mn)	mg/kg	18 - 44
Zinc (Zn)	mg/kg	2.6 - 5.1
Copper (Cu)	mg/kg	4.5 - 6.3
Boron (B)	mg/kg	1.4 - 2.7

Method References

pH in H₂O (1:5), pH in CaCl₂ (1:5) and Electrical Conductivity (EC) by Rayment & Higginson (1992) method 4A2, 4B2, 3A1

Soluble Nitrate-N by APHA 4500

Soluble Chloride by Rayment and Lyons 2011 modified method 5A2

Extractable P by Mehlich 3 – ICP

Exchangeable cations – Ca, Mg, K, Na by Mehlich 3 – ICP

Extractable S by Mehlich 3 – ICP

Extractable trace elements (Fe, Mn, Zn, Cu, B) by Mehlich 3 – ICP

Site topsoil

General: do not use site topsoil

2.2 GRASS

Turf

Description: Cultivated turf of even thickness, free from weeds and other foreign matter.

Supplier: A specialist grower of cultivated turf.

CABRAMATTA LOOP

AUSTRALIAN RAIL TRACK CORPORATION

2.3 FERTILISER

General

Type: Proprietary fertilisers, delivered to the site in sealed bags marked to show manufacturer or supplier, weight, fertiliser type, N:P:K ratio, recommended uses and application rates.

Application rate: Vary the application rate to allow for the plant-available immediate fertilizer equivalence value of the soil conditioning compost.

2.4 PLANTS - GENERAL

Supply

Supply trees to AS 2303 and with the following properties:

- Stress: Free from stress resulting from inadequate watering, excessive shade or excessive sunlight experienced at any time during their development.
- Site environment: Grown and hardened off to suit anticipated site conditions at the time of delivery.
- Pests and disease: Free from attack by pests or disease.
- Native species with a history of attack by native pests: Restrict plant supply to those with evidence of previous attack to less than 15% of the foliage and make sure actively feeding insects are absent.

Labelling

General: To AS 2303 clause 4.2.1.

Label type: Remove all tags

Root system

Requirement: Supply plant material with a root system that is:

- Well proportioned in relation to the size of the plant material.
- Conducive to successful transplantation.
- Free of any indication of having been restricted or damaged.

Root inspection: If inspection is by the removal of soil test, such as investigative inspection, sample as follows:

- For > 100 samples: Inspect 1%.
- For < 100 samples: Inspect 1 sample.

Sample plants: Replace plants used in investigative inspection.

Rejection: Do not provide root bound stock.

3 EXECUTION

3.1 PREPARATION

Weed eradication

Herbicide: Eradicate weeds using environmentally acceptable methods, such as a non-residual glyphosate herbicide in any of its registered formulae, at the maximum application rate.

Manual weeding: Regularly remove weed growth by hand throughout grassed, planted and mulched areas. Remove weed growth from an area of 750 mm diameter around the base of the trees in grassed areas. Continue weeding throughout the course of the works and during the planting establishment period.

Vegetative spoil

Disposal: Remove vegetative spoil from site. Do not burn.

3.2 SUBSOIL

Ripping

General: Rip parallel to the final contours. Do not rip when the subsoil is wet or plastic. Do not rip within the dripline of trees and shrubs to be retained.

Ripping depths: Rip the subsoil to the following typical depths:

- Compacted subsoil: 300 mm.
- Heavily compacted clay subsoil: 450 mm.

Planting beds

Excavated: Excavate to reduce the subsoil level to at least 300 mm below finished design levels. Shape the subsoil to fall to subsoil drains, if required. Break up the subsoil to a further depth of 100 mm.

Unexcavated: Remove weeds, roots, rubbish and other debris. Reduce the planting bed level to 75 mm below finished design levels.

Cultivation

Cultivation depths (mm):

- Grassed areas (seeded, turf, strip turf, stolonized): 150mm
- Planting areas: 150mm

Services and roots: Do not disturb services or tree roots. If required, cultivate these areas by hand.

Cultivation: Cultivate manually within 300 mm of paths or structures. Remove stones exceeding 25 mm, clods of earth exceeding 50 mm, and weeds, rubbish or other deleterious material brought to the surface during cultivation. Trim the surface to design levels after cultivation.

Additives

General: Apply additives after ripping or cultivation and incorporate into the upper 100 mm layer of the subsoil as documented.

Gypsum: Incorporate at the rate of 0.25 kg/m².

3.3 TOPSOIL

Placing topsoil

Spreading: Spread the topsoil on the prepared subsoil and grade evenly, making allowances, if appropriate, for the following:

- Required finished levels and contours after light compaction.
 - Grassed areas finished flush with adjacent hard surfaces such as kerbs, paths and mowing strips.
- Steep batters: If using a chain drag, make sure there is no danger of batter disturbance.
- Finishing: Feather edges into adjoining undisturbed ground.

Consolidation

General: Compact lightly and uniformly in 150 mm layers. Avoid differential subsidence and excess compaction and produce a finished topsoil surface which has the following characteristics:

- Finished to design levels.
- Smooth and free from stones or lumps of soil.
- Graded to drain freely, without ponding, to catchment points.
- Graded evenly into adjoining ground surfaces.
- Ready for planting.

Topsoil depths

General: Spread topsoil to the following typical depths:

- Excavated planting areas:
 - . For organic mulch: 225 mm.
- Irrigated grassed areas generally: 150 mm.
- Irrigated grassed areas, heavy use (e.g. playing fields, playgrounds, and public parks): 200 mm.
- Non-irrigated grass areas: 100 mm.
- Earth mounds:
 - . Mass planted surfaces: 300 mm.
 - . Grassed surfaces: 100 mm.
- Top dressing: 10 mm.

3.4 TURFING

Supply

Elapsed time: Deliver the turf within 24 hours of cutting, and lay within 36 hours of cutting. Prevent turf from drying out between cutting and laying. If not laid within 36 hours of cutting, roll turf out on a flat surface with the grass up, and water as required to maintain a good condition.

CABRAMATTA LOOP

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Application

Method: Lay the turf as follows:

- Stretcher bond pattern with the joints staggered and close butted.
- Parallel with the long sides of level areas, and with contours on slopes.
- Finish flush, after tamping, with adjacent finished surfaces of ground, paving edging, or grass seeded areas.

Strip turf: Close butt the end joints and space the strips 300 mm apart. Lay top dressing between the turf strips. Finish with an even surface.

Tamping: Lightly tamp to an even surface immediately after laying. Do not use a roller.

Stabilising on steep slopes: Peg the turf to prevent downslope movement. Remove the pegs when the turf is established.

Watering

General: Water immediately after laying until the topsoil is moistened to its full depth. Maintain moisture to this depth.

Initial establishment

General: Maintain turfed areas until there is a dense continuous sward of healthy grass over the whole turfed area, evenly green and of a consistent height.

Failed turf: Lift failed turf and replace with new turf.

Levels: If levels have deviated from the design levels after placing and watering, lift turf and regrade topsoil to achieve design levels.

Top dressing: Mow the established turf and remove cuttings. Lightly top dress to a depth of 10 mm. Rub the dressing into the joints and correct any unevenness in the turf surface.

3.5 PLANTING

General

Plant location and spacing: If necessary to vary plant locations and spacings to avoid service lines, or to cover the area uniformly, or for other reasons, give notice.

Planting conditions

Weather: Do not plant in unsuitable weather conditions, including extreme heat, cold, wind or rain. In other than sandy soils, suspend excavation when the soil is wet, or during frost periods.

Watering

Timing: Thoroughly water the plants before planting, immediately after planting, and as required to maintain growth rates free of stress.

Preparation

Individual plantings in grassed areas: Prepare for planting as follows:

- Excavate a hole twice the diameter of the root ball and at least 100 mm deeper than the root ball.
- Break up the base of the hole to a further depth of 100 mm.
- Loosen compacted sides of the hole to prevent confinement of root growth.

Placing

General: Place plants as follows:

- Remove the plant from the container with minimum disturbance to the root ball. Make sure that the root ball is moist.
- If required, root prune to make sure all circling roots have been either severed or aligned radially into the surrounding soil.
- Place the plant in its final position, in the centre of the hole and plumb, and with the topsoil level of the plant root ball level with the finished surface of the surrounding soil.

Backfilling

General: Backfill with topsoil mixture. Tamp lightly and water to eliminate air pockets. Make sure that topsoil is not placed over the top of the root ball, so the plant stem remains the same height above ground as it was in the container. Avoid mixing mulch with topsoil.

Watering basins for plants in grassed areas

Location: To each individual plant not located in irrigated grassed areas or naturally moist areas.

Watering basin: Construct around the base of each individual plant, consisting of a raised ring of soil capable of holding at least 10 L.

3.6 MULCHING

Placing mulch

General: Place mulch to the required depth and clear of plant stems, so that after settling it conforms to the following:

- Smooth and evenly graded between design surface levels.
- Flush with the surrounding finished levels.
- Sloped towards the base of plant stems in plantation bed.
- For gravel mulches: Not closer to the stem than 50 mm.

Extent: Provide mulch to 750 mm diameter to surrounds of plants planted in riplines and grassed areas.

Depths:

- Organic mulch: 75 mm.

Installation:

- In mass planted areas: Place after the preparation of the planting bed but before planting and other work.

Mulching schedule

Location	Mulch type	Depth (mm)	Stabilisation method
General garden beds	ANL Hortbark	75mm	Watering
Cabramatta Creek rehabilitation	ANL Leaf litter or subject to Ecological report	75mm	Watering

3.7 STAKES AND TIES

Stakes

Material: Hardwood, straight, free from knots or twists, pointed at one end.

Installation: Drive stake into the ground at least one third of its length, avoiding damage to the root system.

Stake sizes and quantities:

- For plants ≥ 2.5 m high: one 50 x 50 x 2400 mm stake per plant.

Ties

General: Provide ties fixed securely to the stakes, one tie at half the height of the main stem, others as necessary to stabilise the plant. Attach ties loosely so as not to restrict plant growth.

Tie types:

- For plants ≥ 2.5 m high: Two strands of 2.5 mm galvanized wire neatly twisted together, passed through reinforced rubber or plastic hose, and installed around stake and stem in a figure of eight pattern.

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4 SELECTIONS

4.1 TOPSOIL

Imported topsoil schedule

Property	PLANTING ON GROUND	RIPARIAN
Type	ANL general garden blend	ANL native garden blend
Product	ANL general garden blend	ANL native garden blend
Source	Australian native landscapes or approved equivalent.	Australian native landscapes or approved equivalent.

4.2 GRASSING

Turfing schedule

Property	General
Species or variety	Kikuyu
Minimum thickness	70mm
Turf roll size (mm)	1200mm
Mowing height (mm)	100mm

GARDEN EDGING

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide landscape edging, as documented.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General Requirements by others*

1.3 INSPECTION

Notice

Inspection: Give notice so inspection may be made of the following:

- Set out before starting construction.
- Geotextiles and subsurface drainage in place before backfilling.

2 PRODUCTS

2.1 EDGING

Sawn timber

Timber: H4 in ground treated pine

Edge Size: 100x50mm

Pegs: Hardwood

Pegs Size: 450x50x50mm

3 EXECUTION

3.1 GENERAL

Set-out

General: Set out the position of edging and mark the position of furniture.

Excavation

Extent: Excavate for foundations.

3.2 EDGING

Sawn timber

Installation: Set edgings flush with adjoining surfaces. Drive pegs into the ground at 1200 mm centres on the planting side of the edging and on both sides of joints between boards, with peg tops 15 mm below top of edging. Fix the pegs with galvanised nails, two per fixing.

Curving: Space the pegs to hold edging to a uniform curve. Reduce edging thickness to 15 mm if required for bending.

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LANDSCAPE MAINTENANCE

GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide plant establishment, as documented within the drawings

Period: The maintenance period shall commence at practical completion and continue for a period of 52 weeks

2 EXECUTION

2.1 GENERAL

Rubbish removal

Rubbish: Remove loose rubbish such as bottles, papers, and cigarette butts from the site. Execute this work regularly so that all areas are free from rubbish when observed at fortnightly intervals.

Leaf litter: Remove from all path and lawn areas.

2.2 PLANTING WORKS

Planting

Requirement: Make sure the general appearance and presentation of the landscape and the quality of plant material at date of practical completion is maintained for the planting establishment period.

Existing plant material: Maintain existing planting and grass within the landscape contract area as documented for the matching classifications of new grassland or planting.

Plant replacement: Replace failed, dead and/or damaged plants at maximum 3 weekly intervals as necessary throughout the plant establishment period.

Fertilising

Soil tests: Take samples from both planting beds and lawn areas and conduct tests.

Fertilising program: Base the program on soil testing results.

Application: Apply either an all purpose fertiliser or a 12 month slow release fertiliser, in two rows and cultivated into soil to a depth of 100 mm.

Program: September and March according to seasonal growth requirement.

N:P:K ratio: Balanced 10:4:6.

Rate: To the manufacturer's recommendation.

Sensitive native species: Apply appropriate dosage.

Insect and disease control

Period for treatment: Until the problem has been eliminated.

Chemical spray: Apply outside of normal working hours.

Stakes and ties

Generally: If plants are not self-supporting or if stakes are damaged, stake or restake the plants as follows:

- Drive three hardwood stakes placed diagonally with the first stake on the opposite side to the prevailing winds.
- Do not single stake large plants.

Removal: If plants are robust with well-developed systems and no longer require support, remove stakes and ties.

2.3 WEEDING

General

Requirement: Remove unwanted broadleaf plants and grasses considered invasive to the locality.

Program:

- Lawns: Quarterly, and as required to maintain the general lawn condition.
- Trees and shrubs: As required for planted, paved and mulched areas to be weed free when observed at fortnightly intervals.

Vigorous ground covers: Keep 200 mm clear from the base of any shrub or tree. Remove as follows:

- Small areas: By hand.
- Large areas: Proprietary herbicides.

Herbicide application: Apply as follows:

- To the manufacturer's instructions and Safety Data Sheets(SDS).
- When the weather is humid with moderate temperatures and maximum sunlight.
- When the ground has recommended soil moisture.
- Avoid windy days or if rain is likely to follow within 12 hours.

2.4 MULCHED SURFACES

General

Inspection: Fortnightly to determine mulch requirements.

Requirement: Maintain minimum depth as follows:

- 75 mm for organic mulch.

Remulching: Maintain the original ground levels around the base of plants.

2.5 WATERING

Establishment

Water quality:

- pH between 5.5 and 7.5.
- Total soluble salts less than 1000 mg/litre.
- No substances toxic to plant growth.

Watering program: Minimum 3 complete waterings, soaking to a depth of 150 mm at fortnightly intervals for the first 6 weeks of plant establishment irrespective of natural rainfall. Confirm soaked depth and record in the log book.

Water restrictions: Coordinate the water supply and conform to legislation and restrictions applying at the time.

Irrigation

Irrigation system program: Adjust to suit the following:

- The precipitation requirements of the individual zones/stations with regard to types of plants.
- The infiltration rate of the soil/medium and associated physical factors, seasons, evaporation, exposure, topography and local authority restrictions.
- Adjustment or shut down during and after periods of prolonged heavy rain.
- Water supply and watering regime of legislation and restrictions applying at the time.

Equipment maintenance:

- Check all components for proper operation.
- Repair or replace damaged components with parts from the same manufacturer.
- Flush any dirt or foreign matter from the system and clear all blockages.

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2.6 PAVING AND STRUCTURES

Drains

Maintenance: Inspect and clean all drainage structures and pit covers and maintain in working order.

Frequency: As required, so that all overflow drains are clear when observed at fortnightly intervals.

2.7 COMPLIANCE

Criteria

Generally: Plant establishment shall be deemed complete, subject to the following:

- Repairs to plant material are complete.
- Ground surfaces are covered with the documented treatment to the documented depths.
- Pests, disease, or nutrient deficiencies or toxicities are not evident.
- Organic and gravel mulched surfaces are in a weed free and tidy condition and to the documented depth.
- Vegetation is established and well formed.
- Plants have healthy root systems that have penetrated into the surrounding, undisturbed ground and are not able to be lifted out of the planting holes.
- Vegetation is not restricting essential sight lines and signage.
- All hard landscape works are installed and operating as documented.
- Litter collection and removal is complete.
- Mulch is removed from drainage and access areas.
- All non-conformance reports and defects notifications are complete.

A long train of colorful shipping containers (red, blue, orange, green, and yellow) is shown on tracks, receding into the distance under a dramatic sunset sky with orange and blue hues. The train is composed of many containers stacked on flatcars, and the tracks curve gently to the right.

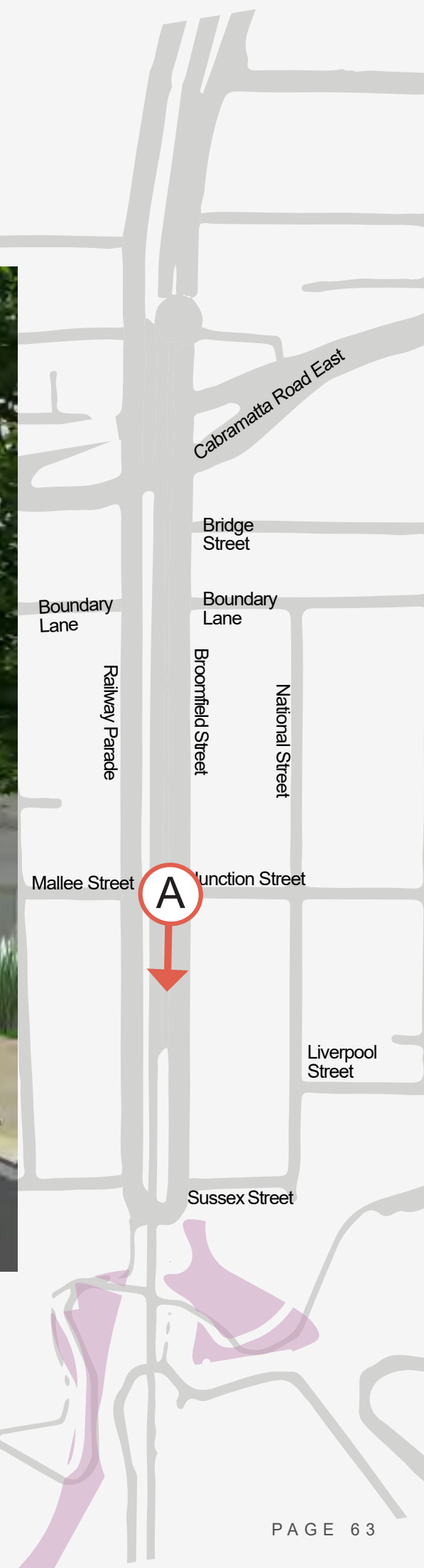
PHOTO MONTAGES

07

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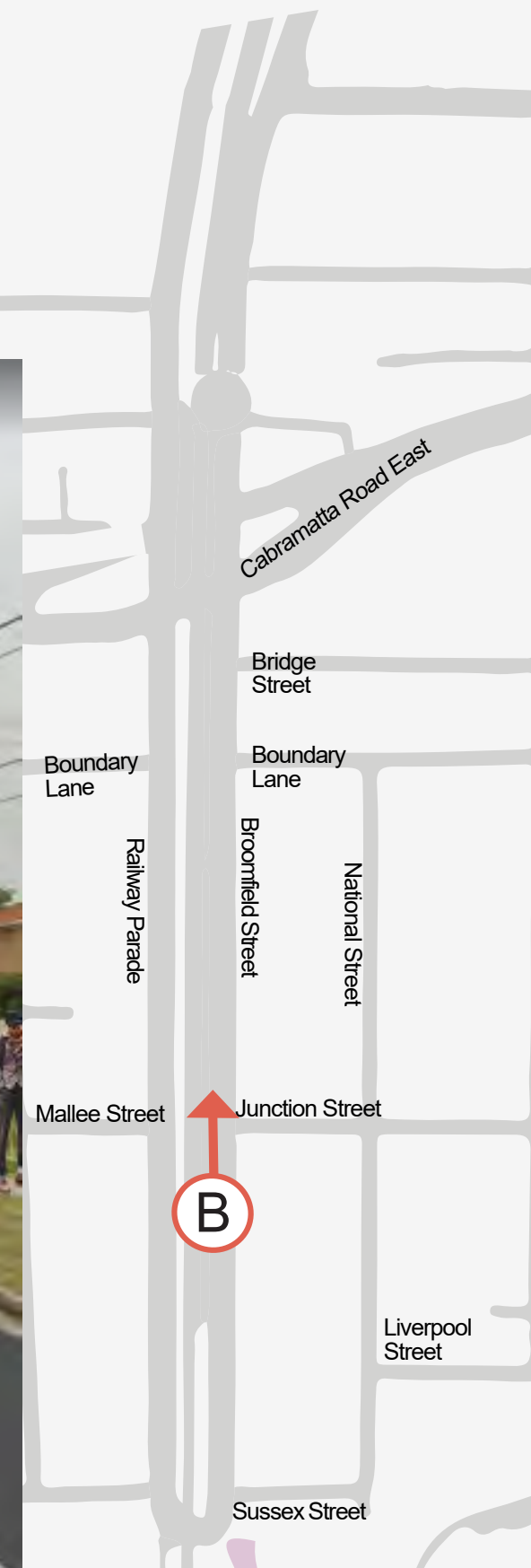
Photomontage A



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Photomontage B



A blurred night scene of railroad maintenance workers in orange safety gear working on tracks. The background shows yellow construction equipment and red safety lights. The foreground shows the detailed structure of the railroad tracks with wooden ties and metal fasteners.

MAINTENANCE AND MANAGEMENT

08

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Maintenance and Management

This section identifies urban design and landscape maintenance activities required to be undertaken for the scope of works until handover to relevant stakeholders.

The current project scope maintenance varies from mowing turf are as to actively irrigating street tree and planting by the use of a water truck.

The operations and maintenance manual will, when prepared, include the monitoring and maintenance procedures for the built elements and vegetation. This includes monitoring performance indicators, responsibilities, timing, duration and contingencies where the built urban design elements and landscape fail.

The documented monitoring and maintenance producers will cover, as a minimum, the requirements contained in the specification for 12 month. The specification covers standards and methods for all the normal tasks required for urban design/ landscape maintenance.

The scope of this works comprises:

Urban Design Elements

1. Noise Walls
2. Retaining Walls
3. Fencing
4. Lighting

Landscape Treatments

1. Trees and Planting
2. Turf
3. Re-vegetation

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Maintenance & Management

The maintenance and management has been considered to ensure the built elements and landscape treatment are maintained so they achieve the outcomes of each individual treatment. The maintenance and management is required for 12 month so that these design elements are kept safe and durable through there design life.

Summary table describing the actions/ tasks required and their time frames and frequency of activity:

Reporting on the Urban Design Elements and Landscape Treatments

- Report on 6-month basis.
- Urban Design and Landscape Plan will include maps, diagrams and photos outlining progress
- Photos to be taken at consistent viewpoints
- Urban Design and Landscape Plan will outline Cabramatta Loop Project works undertaken,
- vegetation growth, loss or replacements.
- Urban Design and Landscape Plan will provide recommendations for updates or amendments to strategies where required. This will include addressing deficiencies, problems, climatic conditions and successful completion of works

Maintenance actions	Tasks				
		Weekly	Monthly	Seasonal	As required
General					
Rubbish removal	Remove all roadside litter and debris from Cabramatta Loop Project Scope	✓			
Urban Design Elements					
1. Noise Walls					
Graffiti	Remove graffiti				✓
Damaged panels	Replace damaged panels				✓
2. Retaining Walls					
Graffiti	Remove graffiti				✓
Damaged panels	Replace damaged walls				✓
3. Fencing					
Graffiti	Remove graffiti				✓
Damaged panels	Replace damaged fencing				✓

Maintenance actions	Tasks	Frequency			
		Weekly	Monthly	Seasonal	As required
4. Lighting					
Graffiti	Remove graffiti				✓
Damaged panels	Replace damaged lighting and do testing to ensure compliance				✓
Landscape					
1. Trees and Planting					
Pruning	Pruning of vegetation for safety, maintaining driver			✓	
Treat noxious weeds, weed control sprays and hand weed as required to maintain planting areas. Spray to control pests and diseases				✓	
Top mulch up				✓	
Replace failed plantings with specified species and densities				✓	
Replace damaged tree guards and stakes				✓	
Report any incidence of plants stolen or destroyed by vandalism				✓	
2. Turf					
Treat noxious weeds, weed control sprays and hand weed as required to maintain planting areas. Spray to control pests and diseases				✓	
After Establishment period - Water Plants to maintain adequate Soil moisture availability during Establishment and to prevent plants from drying out		✓			

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Maintenance actions	Tasks				
		Weekly	Monthly	Seasonal	As required
3. Revegetation					
Tree Guards and stakes	Replace damaged tree guards and stakes				✓
Noxious weed control	Treatnoxious weeds, weed control spraysand hand weed as required -Regularlytidy and top up mulch and trim edges to preventspill over onto paved / grassed areas		✓		
Theftor Vandalism	Report any incidence of plants stolen or destroyed by vandalism				✓
Horticultural maintenance	Fertilise all plantings at specified rates				✓
Growth control	Brush cutting / Slashingof vegetation				✓
Watering	After Establishmentperiod - Water plants to maintain adequate soil moisture availability during establishment and to prevent plants from drying out.				✓

A yellow and blue double-decker locomotive is pulling a long train of multi-colored shipping containers. The locomotive has "NR" and "29" on its front. The containers are stacked high and come in various colors including orange, blue, white, and green. The scene is set outdoors on a gravel track under a cloudy sky.

STAKEHOLDER CONSULTATION

09

CABRAMATTA LOOP

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Stakeholder Consultation

This Urban Design and Landscaping Plan has been consulted with Fairfield City Council and Liverpool City Council. The comments below are a summary of comments received subsequent to the consultation meetings.

Stakeholder	Meeting Date	Stakeholder Comments	Response
Liverpool City Council	15.09.2021 - Council Letter dated 24.09.2021	Council support the proposed, Tree species to be planted in Jacquie Osmond Reserve, Turf species to be laid in Jacquie Osmond Reserve.	Noted. No further action
Liverpool City Council	15.09.2021 - Council Letter dated 24.09.202	The gradient is acceptable at 1:6 for the area beside the railway corridor in Jacquie Osmond Reserve.	Noted. No further action
Liverpool City Council	15.09.2021 - Council Letter dated 24.09.202	A minimum of 5m clearance between the chain link fencing and any new plantings for the access of machinery when maintaining Jacquie Osmond Reserve is required	Implemented in the design
Liverpool City Council	15.09.2021 - Council Letter dated 24.09.202	During the course of this project there are likely to be various opportunities for local businesses and local apprentice and trainees to be involved. The proponents are therefore encouraged to liaise with Council's Employment Officer, to assist with acquisition of local employees. Council is also interested to promote local business opportunities via its various communication channels and City Economy can also make the relevant connections to ensure successful local promotion of the project.	Noted. This is not captured within the UDLP, but will be addressed with the project team. No further action in UDLP.
Liverpool City Council	15.09.2021 - Council Letter dated 24.09.202	Jacqui Osmond Oval: <ul style="list-style-type: none"> Water/stormwater management plan management of the proposed embankment of JO Reserve is required. Is the water (treated) being discharged in the creek? Quality monitoring and management will be required. 	Operational water quality under the CoA E58 requires the project to design, construct and operate so as to maintain the NSW Water Quality Objectives where they were being achieved at the date of Planning Approval. Construction water is managed during the project delivery as per the CEMP. Civil design drawings will cover all stormwater design requirements to comply with the CoA E58, this is not covered within the UDLP. These drawings and designs will be presented to LCC once available.
Liverpool City Council	15.09.2021 - Council Letter dated 24.09.202	Jacqui Osmond Oval: <ul style="list-style-type: none"> Proposed layout of the softball diamonds to be consulted with Community and Recreation Outcomes from operational and competition feasibility perspectives. 	In accordance with Planning Approval Condition E31, the ARTC Softball Fields Design Report (Revision 0.0, dated 25 March 2021) was developed in consultation with LCC, SDSA and Bernera Zone Secondary Schools Sports Association; and approved by the Planning Secretary on 8 April 2021. The UDLP has adopted Option 1 as per the approved ARTC Softball Fields Design Report.

CABRAMATTA LOOP

AUSTRALIAN RAIL TRACK CORPORATION

Stakeholder	Meeting Date	Stakeholder Comments	Response
Liverpool City Council	15.09.2021 - Council Letter dated 24.09.202	<p>Cabramatta Creek:</p> <ul style="list-style-type: none"> Re revegetation along the Creek, do we have a confirmation on the ratio. Council recommended 3:1 revegetation ratio for every tree removed during construction works. 	<p>The project is committed to achieving the CoA, which requires an overall net increase of trees for the works.</p> <p>The project will be looking to maximise the opportunities to improve the visual amenity with the revegetation strategy.</p>
Liverpool City Council	15.09.2021 - Council Letter dated 24.09.202	<p>Cabramatta Creek:</p> <ul style="list-style-type: none"> Riparian Rehabilitation: Council has commenced a masterplan for Cabramatta Creek. Can we please request nomination of a representative from ARTC on the Creek Masterplan Project Working Group. 	Noted. No impact on the Riparian Zone is proposed, or documented within the UDLP.
Liverpool City Council	15.09.2021 - Council Letter dated 24.09.2021	<p>Through our community recreation team comments from the Southern Districts Softball Association are in relation to the diamond layouts for 3,4 & 5. The setting of diamonds 3 & 4 looked okay on the plan but diamond 5 been moved further in will impede on Diamond 6 more than it does already. We had previously asked in our submission to the ARTC if we could make diamond 5 into an indoor training area as we will lose the use of this diamond for softball games on the current plan. We note we thought that the layouts of reinstating the diamonds was still up for discussion and finalisation with us. We had previously measured up and looked at different layout options for fitting diamond 5 in but still didn't think we would have enough room.</p>	<p>In accordance with Planning Approval Condition E31, the ARTC Softball Fields Design Report (Revision 0.0, dated 25 March 2021) was developed in consultation with LCC, SDSA and Bernera Zone Secondary Schools Sports Association; and approved by the Planning Secretary on 8 April 2021. The UDLP has adopted Option 1 as per the approved ARTC Softball Fields Design Report.</p> <p>The previous submission by SDSA is noted in relation to the suggested indoor training facility due to the potential permanent loss of one diamond, however as per the Cabramatta Loop Project Submissions Report (February 2020) and the approved ARTC Softball Fields Design Report (Revision 0.0, dated 25 March 2021), the permanent loss of any diamonds is not anticipated.</p>
Liverpool City Council	15.09.2021- Minutes of meeting with LCC	Council queried the heritage impact of the project.	It was noted that heritage items noted within the UDLP are not impacted by the works, but are acknowledged to be within the project area.
Liverpool City Council	15.09.2021- Minutes of meeting with LCC	The design team confirmed the 1:6 batter on JO reserve will be turfed to allow for mowers, and is also intended for softball spectators. Council advised 2 metre clearance between trees was stated as required for mowers.	Noted, the design has allowed for 5m clearance between the trees.
Liverpool City Council	15.09.2021- Minutes of meeting with LCC	Council queried the tree replacements at JO Reserve and the design team confirmed that any tree being removed for construction is being replaced as part of the project.	Implemented in the design

CABRAMATTA LOOP

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Stakeholder	Meeting Date	Stakeholder Comments	Response
Fairfield City Council	17.09.2021- Minutes of meeting with FCC	Questions were raised over the change in parking on Railway Parade from parallel to reverse parking, and whether a Stop sign was required at the intersection with Boundary Lane.	The UDLP won't show traffic management. Any road safety consideration in the design will be covered in the relevant engineering drawings.
Fairfield City Council	17.09.2021- Minutes of meeting with FCC	Feedback was requested from FCC regarding the tree types selected along Broomfield St.	Council agreed to confirm tree selection to ensure they were suitable for the area and for maintenance as part of the review. Any requested changes of tree types will be implemented in the design.
Fairfield City Council	17.09.2021- Minutes of meeting with FCC	Council queried the location of a CCTV Pole on Broomfield Street and requested that proposed landscaping is not to interfere with line of sight for the CCTV camera	The Landscape Design has been updated to reflect this request and to ensure Landscaping does not interfere with CCTV.

CABRAMATTA LOOP

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ATTACHMENT A

EVIDENCE OF STAKEHOLDER CONSULTATION

Marc Oberhauser

From: FORMICHELLA, Nicolas <Nicolas.Formichella@fultonhogan.com.au>
Sent: Monday, 20 September 2021 6:07 PM
To: Kerrie Elliott; Scott Sidhom
Subject: FW: Cabramatta Loop - Liverpool Council UDLP Presentation - Meeting Minutes
Attachments: CLP-LCC-PM-01-AGN-0001_UDLP Presentation.pdf

Hi Kerrie and Scott,

See below and attached.

Regards,
Nic

Nicolas Formichella | Design Manager – Cabramatta Loop Project | **Fulton Hogan Construction Pty Ltd**
Level 3, 90 Bourke Road, Alexandria, NSW 2015
Phone +61 437 238 559 | Email: nicolas.formichella@fultonhogan.com.au | Web www.fultonhogan.com

From: FORMICHELLA, Nicolas
Sent: Monday, 20 September 2021 6:02 PM
To: 'Christopher Guthrie' <GuthrieC@liverpool.nsw.gov.au>; 'kelliot@liverpool.nsw.gov.au' <kelliot@liverpool.nsw.gov.au>; 'ssidhom@liverpool.nsw.gov.au' <ssidhom@liverpool.nsw.gov.au>; 'Matthew Taylor' <dmtaylor@taylorbrammer.com.au>; Vanessa Hoang <vhoang@taylorbrammer.com.au>; 'Marc Oberhauser' <MarcO@caldiscook.com>; 'Rhode Liang' <RLiang@ARTC.com.au>; 'Richard Tang' <RTang@ARTC.com.au>; 'Malcolm Clark' <MClark@ARTC.com.au>; LOEW, Melinda <Melinda.Loew@fultonhogan.com.au>
Cc: Cabramatta Loop - Fulton Hogan <CabramattaLoop@fultonhogan.com.au>; Jessica Spence <JSpence@ARTC.com.au>
Subject: Cabramatta Loop - Liverpool Council UDLP Presentation - Meeting Minutes

Hi All,

Please see attached minutes from last weeks' UDLP presentation meeting for the Cabramatta Loop Project.

Please let me know if you have any further queries.

Regards,

Nicolas Formichella | Design Manager – Cabramatta Loop Project | **Fulton Hogan Construction Pty Ltd**
Level 3, 90 Bourke Road, Alexandria, NSW 2015
Phone +61 437 238 559 | Email: nicolas.formichella@fultonhogan.com.au | Web www.fultonhogan.com

Meeting Date: 15.09.2021

Meeting Time: 9:30am – 10:45am

Location: Microsoft Teams

Christopher Guthrie (LCC) CG

Nic Formichella (FH) NF

Kerrie Elliot (LCC) KE

Dillon Smith (FH) DS

Scott Sidhom (LCC) SS

Melinda Loew (FH) ML

Vanessa Hoang (TB) VH

Rhode Liang (ARTC) RL

Matthew Taylor (TB) MT

Richard Tang (ARTC) RT

Marc Oberhauser (CCG) MO

Malcolm Clark (ARTC) MC

Recorded by: NF

Marc Oberhauser

From: Kerrie Elliott <ElliottK@liverpool.nsw.gov.au>
Sent: Friday, 24 September 2021 4:02 PM
To: FORMICHELLA, Nicolas
Subject: Comments on UDLP
Attachments: Fulton Hogan.docx

CAUTION: This email is from outside our organisation. Do not click links or attachments unless you recognise the sender email address and know the content is safe. [[Click here to report this email as spam.](#)]

Hi Nic,
Comments attached. Will be in touch next week.
Have a great weekend.

Warm regards
Kerrie

Kerrie Elliott
Business Liaison Officer
ACEcD



02 8711 7802 | 0439 842 560 | ElliottK@liverpool.nsw.gov.au

Customer Service: 1300 36 2170 | 35 Scott Street Liverpool, NSW 2170, Australia



www.liverpool.nsw.gov.au



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Fulton Hogan
Cabramatta Loop Project
Nicolas Formichella

Dear Nic,

Re: Urban Design Plan for Council review

Thank you for the opportunity comment on the Urban and Landscaping design plan (UDLP) submitted earlier this month. The plans have been reviewed by various departments and the softball association and the following are comments for your consideration.

During the course of this project there are likely to be various opportunities for local businesses and local apprentice and trainees to be involved.

The proponents are therefore encouraged to liaise with Council's Employment Officer, to assist with acquisition of local employees. Council is also interested to promote local business opportunities via its various communication channels and City Economy can also make the relevant connections to ensure successful local promotion of the project.

City presentation support the proposed, Tree species to be planted in Jacquie Osmond Reserve, Turf species to be laid in Jacquie Osmond Reserve. The gradient is acceptable at 1:6 for the area beside the railway corridor in Jacquie Osmond Reserve. A minimum of 5m clearance between the chain link fencing and any new plantings for the access of machinery when maintaining Jacquie Osmond Reserve is required

Community Planning notes the following:

- Jacqui Osmond Oval:
 - Water/stormwater management plan management of the proposed embankment of JO Reserve is required. Is the water (treated) being discharged in the creek? Quality monitoring and management will be required.
 - Proposed layout of the softball diamonds to be consulted with Community and Recreation Outcomes from operational and competition feasibility perspectives.
- Cabramatta Creek:
 - Re revegetation along the Creek, do we have a confirmation on the ratio. Council recommended 3:1 revegetation ratio for every tree removed during construction works.
 - Riparian Rehabilitation: Council has commenced a masterplan for Cabramatta Creek. Can we please request nomination of a representative from ARTC on the Creek Masterplan Project Working Group.

Through our community recreation team comments from the Southern Districts Softball Association are in relation to the diamond layouts for 3,4 & 5. The setting of diamonds 3 & 4 looked okay on the plan but diamond 5 been moved further in will impede on Diamond 6 more than it does already.

We note we thought that the layouts of reinstating the diamonds was still up for discussion and finalisation with us. We had previously measured up and looked at different layout options for fitting diamond 5 in but still didn't think we would have enough room.

We had previously asked in our submission to the ARTC if we could make diamond 5 into an indoor training area as we will lose the use of this diamond for softball games on the current plan.

Given the last comments from the Softball Association please advice a suitable time for further discussion.

Yours sincerely

Kerrie Elliott
Business Liaison Officer

If you do not understand this letter/application, please ring the Telephone Interpreter Service (131 450) and ask them to contact Council (1300 362 170). Office hours are 8.30 am to 5.00 pm, Monday to Friday.

ARABIC

إذا لم تستطع فهم هذا الطلب ، الرجاء الاتصال بخدمة الترجمة الهاتفية على رقم 131 450 واسألهم أن يتصلوا بالبلدية على رقم 1300 362 170 . دوام ساعات العمل هي من الساعة 8.30 صباحاً إلى 5.00 بعد الظهر من الاثنين إلى الجمعة.

CHINESE

如您看不懂此信 / 申請書，請打電話給「電話翻譯服務台」(131 450)，請他們聯絡市政廳(市政廳電話 1300 362 170)。市政廳辦公時間：星期一至星期五，上午八時三十分至下午五時。

CROATIAN

Ako ne razumijete ovo pismo/aplikaciju, molimo nazovite Službu prevodilaca i tumača (Translating and Interpreting Service - na broj 131 450) i zamolite ih da nazovu Općinu (na 1300 362 170). Radno vrijeme je od 8.30 ujutro do 5.00 popodne, od ponedjeljka do petka.

GERMAN

Wenn Sie diesen Brief/Antrag nicht verstehen können, rufen Sie bitte den Telefon Dolmetscher Dienst (Telephone Interpreter Service) (131 450) an und lassen Sie sich vom Personal mit dem Gemeinderat (Council) in Verbindung setzen (1300 362 170). Geschäftsstunden sind von 8:30 bis 17:00 Uhr, montags bis freitags.

GREEK

Αν δεν καταλαβαίνετε αυτή την επιστολή/αίτηση, σας παρακαλούμε να τηλεφωνήσετε στην Τηλεφωνική Υπηρεσία Διερμηνέων (131 450) και να τους ζητήσετε να επικοινωνήσουν με το Δημοτικό Συμβούλιο (1300 362 170). Τα γραφεία του είναι ανοιχτά από τις 8.30π.μ. μέχρι τις 5.00μ.μ. από Δευτέρα μέχρι και Παρασκευή.

HINDI

अगर आप इस पत्र/आवेदन को पढ़कर समझ नहीं पा रहे हैं तो कृपया टेलीफोन संवाद-सहायक सेवा (131 450) को फोन करें और उनसे काउंसिल (1300 362 170) से संपर्क करने को कहें। कार्यालय का समय सोमवार से शुक्रवार तक प्रातः ८:३० बजे से सायं ५:०० तक है।

ITALIAN

Se non comprendi questa lettera/questo modulo di domanda, telefona al Servizio traduzioni e interpreti al numero 131 450 chiedendo di essere messo in contatto con il Comune (telefono 1300 362 170). Orario d'ufficio: ore 8.30 -17.00, dal lunedì al venerdì.

KHMER

បើលោកអ្នកមិនយល់ពីអត្ថន័យឬការប្រតិបត្តិនេះទេ សូមទូរស័ព្ទទៅសេវាបកប្រែភាសាភាសាខ្មែរ (លេខ 131 450) ហើយស្នើសុំឱ្យគេទាក់ទងសាលាក្រុង (លេខ 1300 362 170)។ ពេលម៉ោងធ្វើការគឺម៉ោង 8 កន្លះព្រឹកដល់ម៉ោង 5 ល្ងាច ពីថ្ងៃចន្ទដល់ថ្ងៃសុក្រ

MACEDONIAN

Ako ne go razbirate ova pismo/aplikacija, ve molime da se javite vo Telefonската преведувачка служба на 131 450 и замолете ги да стапат во контакт со Општината на 1300 362 170. Работното време е од 8.30 часот наутро до 5.00 часот попладне од понеделник до петок.

MALTESE

Jekk ma tifhimx din l-ittra/applikazzjoni, jekk jogħġbok ċempel lis-Servizz ta' l-Interpretu bit-Telefon (131 450) u itlobhom jikkuntattjaw il-Kunsill (1300 362 170). Il-hinijiet ta' l-Uffiċċju huma mit-8.30a.m. sal-5.00p.m., mit-Tnejn sal-Ġimgħa.

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Jeśli nie rozumiesz treści niniejszego pisma/podania, zadzwoń do Telefonicznego Biura Tłumaczy (Telephone Interpreter Service) pod numer 131 450 i poproś o telefoniczne skontaktowanie się z Radą Miejską pod numerem 1300 362 170. Godziny urzędowania: 08.30-17.00 od poniedziałku do piątku.

SERBIAN

Ako ne razumete ovo pismo/aplikaciju, molimo vas da nazovete Telefonsku prevodilačku službu (131 450) i zamolite ih da kontaktiraju Opštinu (1300 362 170). Radno vreme je od 8.30 ujutro do 5.00 popodne, od ponedeljka do petka.

SPANISH

Si Ud. no entiende esta carta/solicitud, por favor llame al Servicio Telefónico de Intérpretes (131 450) y pídale que llamen a la Municipalidad (Council) al 1300 362 170. Las horas de oficina son de 8:30 am a 5:00 pm, de lunes a viernes.

TURKISH

Bu mektubu veya müracaatı anlayamazsanız, lütfen Telefon Tercüme Servisi'ne (131 450) telefon ederek Belediye ile (1300 362 170) ilişkiye geçmelerini isteyiniz. Çalışma saatleri Pazartesi - Cuma günleri arasında sabah saat 8:30 ile akşam 5:00 arasındır.

VIETNAMESE

Nếu không hiểu thư/đơn này, xin Quý Vị gọi cho Telephone Interpreter Service (Dịch Vụ Thông Dịch Qua Điện Thoại), số 131 450, và nhờ họ liên lạc với Council (Hội Đồng), số 1300 362 170. Giờ làm việc là 8 giờ 30 sáng đến 5 giờ 00 chiều, Thứ Hai đến Thứ Sáu.

Marc Oberhauser

From: FORMICHELLA, Nicolas <Nicolas.Formichella@fultonhogan.com.au>
Sent: Friday, 15 October 2021 5:42 PM
To: Kerrie Elliott
Cc: Marc Oberhauser; Hadi Johan; LOEW, Melinda; Scott Sidhom; Jessica Spence; Rhode Liang; Richard Tang; Christopher Guthrie
Subject: RE: Comments on UDLP
Attachments: Response to LCC UDLP Comments.pdf

Hi Kerrie,

Please find attached responses to your comments from the UDLP review, as provided in your correspondence below.

Further to our previous discussions, not all the comments provided were applicable to the UDLP specifically, but we have responded to provide context to how they have been or will be addressed otherwise.

Please note, there will be opportunity to further review the relevant design drawings impacting the Liverpool City Council for the project, and I will be in touch early next week to provide an update on the documents we will be providing over the coming month, and to set up some additional presentation meetings.

Please contact me if you have any other queries.

Regards,

Nicolas Formichella | Design Manager – Cabramatta Loop Project | **Fulton Hogan Construction Pty Ltd**
Level 3, 90 Bourke Road, Alexandria, NSW 2015
Phone +61 437 238 559 | Email: nicolas.formichella@fultonhogan.com.au | Web www.fultonhogan.com

From: Kerrie Elliott <ElliottK@liverpool.nsw.gov.au>
Sent: Friday, 24 September 2021 4:02 PM
To: FORMICHELLA, Nicolas <Nicolas.Formichella@fultonhogan.com.au>
Subject: Comments on UDLP

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Hi Nic,
Comments attached. Will be in touch next week.
Have a great weekend.

Warm regards
Kerrie

Kerrie Elliott

Business Liaison Officer
ACEcD



02 8711 7802 | 0439 842 560 | ElliottK@liverpool.nsw.gov.au

Customer Service: 1300 36 2170 | 35 Scott Street Liverpool, NSW 2170, Australia



www.liverpool.nsw.gov.au



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Item	Liverpool City Council Comment	Fulton Hogan Response	Update to UDLP
1	Council support the proposed, Tree species to be planted in Jacquie Osmond Reserve, Turf species to be laid in Jacquie Osmond Reserve.	Noted. No further action.	Not required
2	The gradient is acceptable at 1:6 for the area beside the railway corridor in Jacquie Osmond Reserve.	Noted. No further action.	Not Required
3	A minimum of 5m clearance between the chain link fencing and any new plantings for the access of machinery when maintaining Jacquie Osmond Reserve is required	This will be adopted within the design.	5m clearance between fencing and new plantings to be adopted.
4	During the course of this project there are likely to be various opportunities for local businesses and local apprentice and trainees to be involved. The proponents are therefore encouraged to liaise with Council's Employment Officer, to assist with acquisition of local employees. Council is also interested to remote local business opportunities via its various communication channels and City Economy can also make the relevant connections to ensure successful local promotion of the project.	Noted. This is not captured within the UDLP, but will be addressed with the project team. No further action in UDLP.	Not required.
5	Jacquie Osmond Oval: Water/stormwater management plan management of the proposed embankment of JO Reserve is required. Is the water (treated) being discharged in the creek? Quality monitoring and management will be required.	Operational water quality under the CoA E58 requires the project to design, construct and operate so as to maintain the NSW Water Quality Objectives where they were being achieved at the date of Planning Approval. Construction water is managed during the project delivery as per the CEMP. Civil design drawings will cover all stormwater design requirements to comply with the CoA E58, this is not covered within the UDLP. These drawings and designs will be presented to LCC once available.	Not required.

6	Jacque Osmond Oval: Proposed layout of the softball diamonds to be consulted with Community and Recreation Outcomes from operational and competition feasibility perspectives.	In accordance with Planning Approval Condition E31, the ARTC Softball Fields Design Report (Revision 0.0, dated 25 March 2021) was developed in consultation with LCC, SDSA and Bernera Zone Secondary Schools Sports Association; and approved by the Planning Secretary on 8 April 2021. The UDLP has adopted Option 1 as per the approved ARTC Softball Fields Design Report.	Not Required
7	Cabramatta Creek: Re revegetation along the Creek, do we have a confirmation on the ratio. Council recommended 3:1 revegetation ratio for every tree removed during construction works.	The project is committed to achieving the CoA, which requires an overall net increase of trees for the works. The project will be looking to maximise the opportunities to improve the visual amenity with the revegetation strategy.	Not Required
8	Cabramatta Creek: Riparian Rehabilitation: Council has commenced a masterplan for Cabramatta Creek. Can we please request nomination of a representative from ARTC on the Creek Masterplan Project Working Group.	Noted. No impact on the Riparian Zone is proposed, or documented within the UDLP.	Not Required
9	Through our community recreation team comments from the Southern Districts Softball Association are in relation to the diamond layouts for 3,4 & 5. The setting of diamonds 3 & 4 looked okay on the plan but diamond 5 been moved further in will impede on Diamond 6 more than it does already. We had previously asked in our submission to the ARTC if we could make diamond 5 into an indoor training area as we will lose the use of this diamond for softball games on the current plan. We note we thought that the layouts of reinstating the diamonds was still up for discussion and finalisation with us. We had previously measured up and looked at different layout options for fitting diamond 5 in but still didn't think we would have enough room.	<p>In accordance with Planning Approval Condition E31, the ARTC Softball Fields Design Report (Revision 0.0, dated 25 March 2021) was developed in consultation with LCC, SDSA and Bernera Zone Secondary Schools Sports Association; and approved by the Planning Secretary on 8 April 2021. The UDLP has adopted Option 1 as per the approved ARTC Softball Fields Design Report.</p> <p>The previous submission by SDSA is noted in relation to the suggested indoor training facility due to the potential permanent loss of one diamond, however as per the Cabramatta Loop Project Submissions Report (February 2020) and the approved ARTC Softball Fields Design Report (Revision 0.0, dated 25 March 2021), the permanent loss of any diamonds is not anticipated.</p>	Not Required

Marc Oberhauser

From: FORMICHELLA, Nicolas <Nicolas.Formichella@fultonhogan.com.au>
Sent: Tuesday, 19 October 2021 5:00 PM
To: Scott Sidhom; Kerrie Elliott
Cc: Marc Oberhauser; Hadi Johan; LOEW, Melinda; Jessica Spence; Rhode Liang; Richard Tang; Christopher Guthrie; Christine Deaner; Aditi Karande; Cabramatta Loop - Fulton Hogan
Subject: RE: Comments on UDLP

Hi Scott,

The project is required to ensure that there is a net gain in trees, with no specific replacement ratio / offset. Although there is no ratio requirement for the tree replacements, I can confirm that our proposed landscape design achieves the following outcome for Jacquie Osmond Reserve within the Liverpool City Council area.

- 12 trees removed
- 39 trees planted

This exceeds a revegetation ratio of 3:1.

I trust this should close out your query.

Regards,
Nic

Nicolas Formichella | Design Manager – Cabramatta Loop Project | **Fulton Hogan Construction Pty Ltd**
Level 3, 90 Bourke Road, Alexandria, NSW 2015
Phone +61 437 238 559 | Email: nicolas.formichella@fultonhogan.com.au | Web www.fultonhogan.com

From: Scott Sidhom <SidhomS@liverpool.nsw.gov.au>
Sent: Tuesday, 19 October 2021 10:33 AM
To: FORMICHELLA, Nicolas <Nicolas.Formichella@fultonhogan.com.au>; Kerrie Elliott <ElliottK@liverpool.nsw.gov.au>
Cc: Marc Oberhauser <MarcO@caldiscook.com>; Hadi Johan <HJohan@ARTC.com.au>; LOEW, Melinda <Melinda.Loew@fultonhogan.com.au>; Jessica Spence <JSpence@artc.com.au>; Rhode Liang <RLiang@ARTC.com.au>; Richard Tang <RTang@ARTC.com.au>; Christopher Guthrie <GuthrieC@liverpool.nsw.gov.au>; Christine Deaner <DeanerC@liverpool.nsw.gov.au>; Aditi Karande <KarandeA@liverpool.nsw.gov.au>
Subject: Re: Comments on UDLP

Hi Nic,

Thanks for sending though the attached responses, to the questions raised in our meeting.

Regarding the re-vegetation along Cabramatta Creek, can you please confirm whether the 3:1 re-vegetation ratio for every tree removed during construction works, is being achieved?

Regards,

Scott Sidhom
Coordinator City Design and Public Domain



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From: FORMICHELLA, Nicolas <Nicolas.Formichella@fultonhogan.com.au>

Sent: Friday, 15 October 2021 5:42 PM

To: Kerrie Elliott <ElliottK@liverpool.nsw.gov.au>

Cc: Marc Oberhauser <MarcO@caldiscook.com>; Hadi Johan <HJohan@ARTC.com.au>; LOEW, Melinda <Melinda.Loew@fultonhogan.com.au>; Scott Sidhom <SidhomS@liverpool.nsw.gov.au>; Jessica Spence <JSpence@artc.com.au>; Rhode Liang <RLiang@ARTC.com.au>; Richard Tang <RTang@ARTC.com.au>; Christopher Guthrie <GuthrieC@liverpool.nsw.gov.au>

Subject: RE: Comments on UDLP

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Please contact me if you have any other queries.

Regards,

Nicolas Formichella | Design Manager – Cabramatta Loop Project | **Fulton Hogan Construction Pty Ltd**

Level 3, 90 Bourke Road, Alexandria, NSW 2015

Phone +61 437 238 559 | Email: nicolas.formichella@fultonhogan.com.au | Web www.fultonhogan.com

From: Kerrie Elliott <ElliottK@liverpool.nsw.gov.au>

Sent: Friday, 24 September 2021 4:02 PM

To: FORMICHELLA, Nicolas <Nicolas.Formichella@fultonhogan.com.au>

Subject: Comments on UDLP

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Hi Nic,
Comments attached. Will be in touch next week.
Have a great weekend.

Warm regards
Kerrie

Kerrie Elliott
Business Liaison Officer
ACEcD



02 8711 7802 | 0439 842 560 | ElliottK@liverpool.nsw.gov.au

Customer Service: 1300 36 2170 | 35 Scott Street Liverpool, NSW 2170, Australia



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Marc Oberhauser

From: Alison Mortimer <AMortimer@fairfieldcity.nsw.gov.au>
Sent: Thursday, 30 September 2021 11:35 AM
To: FORMICHELLA, Nicolas
Subject: FW: Cabramatta Loop Project - Fairfield Council UDLP and Local Roads Consultation - Meeting Minutes
Attachments: CLP-FCC-PM-01-AGN-0001_UDLP Presentation.pdf

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Morning Nicolas

As per discussion with Christian last Friday and yourself this morning, the minutes are agreed.

We have taken further internal advice and do not need to brief Councillors at this time.

At this time we believe that it is appropriate to progress the UDLP to Planning.

Further fine-tuning in terms of tree species and levels for vehicular crossing etc. can be followed up as part of the site works.

Regards

Alison Mortimer
Manager City Assets
City Assets and Operations
PO Box 21, Fairfield NSW 1860
P 9725 0106 |

www.fairfieldcity.nsw.gov.au
mail@fairfieldcity.nsw.gov.au



*We acknowledge the Cabrogal of the Darug Nation who are the Traditional Custodians of this Land.
We also pay our respect to the Elders both past, present and emerging of the Darug Nation.*



From: FORMICHELLA, Nicolas <Nicolas.Formichella@fultonhogan.com.au>

Sent: Tuesday, 21 September 2021 7:05 PM

To: LOEW, Melinda <Melinda.Loew@fultonhogan.com.au>; Marc Oberhauser <MarcO@caldiscook.com>; David Tabrett <David.Tabrett@kbr.com>; Malcolm Clark <MClark@ARTC.com.au>; Richard Tang <RTang@ARTC.com.au>; Matthew Taylor <dmtaylor@taylorbrammer.com.au>; Rhode Liang <RLiang@ARTC.com.au>; MICHIE, James <James.Michie@fultonhogan.com.au>; Alison Mortimer <AMortimer@fairfieldcity.nsw.gov.au>; Burak Turgutoglu <BTurgutoglu@fairfieldcity.nsw.gov.au>; Chris Brown <CBrown@fairfieldcity.nsw.gov.au>; Philip Saverimuttu <PSaverimuttu@fairfieldcity.nsw.gov.au>; Hadi Johan <HJohan@ARTC.com.au>; David Tabrett <David.Tabrett@kbr.com>; Victor Lim <Victor.Lim@kbr.com>; REYNOLDS, Christian <Christian.Reynolds@fultonhogan.com.au>

Cc: GEORGE, Peter <Peter.George@fultonhogan.com.au>; Cabramatta Loop - Fulton Hogan <CabramattaLoop@fultonhogan.com.au>; Jessica Spence <JSpence@ARTC.com.au>

Subject: Cabramatta Loop Project - Fairfield Council UDLP and Local Roads Consultation - Meeting Minutes

All,

Please find attached the meeting minutes from the Fairfield City Council UDLP and local road works presentation.

Please note that the roll plot showing the road works and civil works will be sent separately due to the file size.

Any queries please let me know.

Thanks,

Nic

Nicolas Formichella | Design Manager – Cabramatta Loop Project | **Fulton Hogan Construction Pty Ltd**

Level 3, 90 Bourke Road, Alexandria, NSW 2015

Phone +61 437 238 559 | Email: nicolas.formichella@fultonhogan.com.au | Web www.fultonhogan.com

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CLP – Fairfield City Council - UDLP Consultation

Meeting Date: 17.09.2021

Meeting Time 2:00pm to 3:00pm

Location: Microsoft Teams

Attendees

Alison Mortimer (FCC) AM

Nicolas Formichella (FH) NF

Burak Turgutoglu (FCC) BT

James Michie (FH) JM

Chris Brown (FCC) CB

Melinda Leow (FH) ML

Philip Saverumuttu (FCC) PS

Victor Lim (KBR) VL

Marc Oberhauser (CCG) MO

David Tabrett (KBR) DT

Hadi Johan (ARTC) HJ

Joel Abbott (KBR) JA

Rhode Liang (ARTC) RL

Vanessa Hoang (TB) VH

Malcolm Clarke (MC) MC

Matthew Taylor (TB) MT

Christian Reynolds (FH) CR

Item No.	Comment	Action (date raised)	Due Date
1	UDLP Presentation		
a)	<ul style="list-style-type: none"> Meeting called to present the Urban Design and Landscaping Plan (UDLP) issued to FCC for review on September 8. MO presented the urban design features of the UDLP MT presented the landscaping features of the UDLP Key focus of the FCC was the Broomfield St planting, car park layout and the Railway Parade parking layout. 	Note Note	
b)	<ul style="list-style-type: none"> Questions were raised over the change in parking on Railway Parade from parallel to reverse parking, and whether a Stop sign was required at the intersection with Boundary Lane. DT confirmed that road safety audits are proposed for each stage of the design and will inform the appropriate treatment at the intersection. DT advised, the UDLP won't show traffic management they will be covered in the engineering drawings. 	Note	
c)	<ul style="list-style-type: none"> AM stated that the councillor review of the UDLP was not as critical and may not be required, since the green wall / climbing plants are no longer proposed for the noise walls. 	Note	
d)	<ul style="list-style-type: none"> MT advised that the design of trees staggered on either side of the road is intended to soften the views of the street 	Note	
e)	<ul style="list-style-type: none"> MT questioned whether there was any further feedback from FCC regarding the tree types selected along Broomfield St. CB agreed to confirm tree selection to ensure they were suitable for the area and for maintenance as part of the review. 	Note CB	22.09.21
2	Engineering and Local Roads Design Presentation		
a)	<ul style="list-style-type: none"> DT from KBR presented the status of the local roads, drainage and engineering design on a roll plot. 	Note	
b)	<ul style="list-style-type: none"> Confirmed the methodology for determining the base case of car spaces on the roll plot. DT confirmed that the illegal parking behaviour observed on Broomfield St at the corner of Sussex Street, has not been included in the base count of car spaces. AM agreed on approach. 162 car space have been identified to be provided as part of the final parking arrangement. 	Note	
c)	<ul style="list-style-type: none"> DT provided an overview of the proposed drainage design, and confirmed that the design solution meets the criteria to not worsen the drainage performance of the area, consistent with the conditions of approval. Drainage alignment proposed is considered the most effective drainage solution. 	Note	

Recorded by: NF
Meeting Closed: 3:05pm