# Executive Summary

We acknowledge the Traditional Custodians of Country throughout Australia and abroad, and their continuing connection to culture, community, land, waters and sky. Specifically we acknowledge the Dharug people who have long cared for this Country. We also acknowledge their neighbours, the Dharawal, Gundungurra and Darkinjung peoples, and other groups who have connected and still connect with this place.

We pay our respect to Elders and Knowledge Holders past, present and future and express our gratitude for their continued sharing of knowledge and culture.

We pay respect to the First Nations peoples of the Western Sydney area, who have strived to retain and reclaim their cultures, languages, identities, and connections to Country despite colonial forces.

We recognise the valuable contribution made by First Nations peoples in Western Sydney to community, narratives, spaces and places.

We acknowledge that sovereignty was never ceded and these lands remain a contested space for many First Nations peoples.

Parklife Metro's design is inspired by the specific qualities of the Cumberland Plain landscape to establish intrinsic connection to place, people and communities of Western Sydney.

Connection to Country has been evolved into all aspects of the design, creating an approach that celebrates the unique qualities of place, but also the wider aspiration for Sydney's Western Parkland City to create a highly sustainable and liveable community with landscape and ecology embedded throughout all aspects of the design.

Stations are all situated within a 'green rail corridor' that connects through the Cumberland Plain landscape, following the alignment of creeks that define this area of Western Sydney. The stations contribute to the landscape setting rather than compete with it.

The above-ground station structures have an honesty in their expression, an unpretentious quality, with a warmth, scale and character that evokes the qualities of the traditional country station interpreted in a contemporary way.

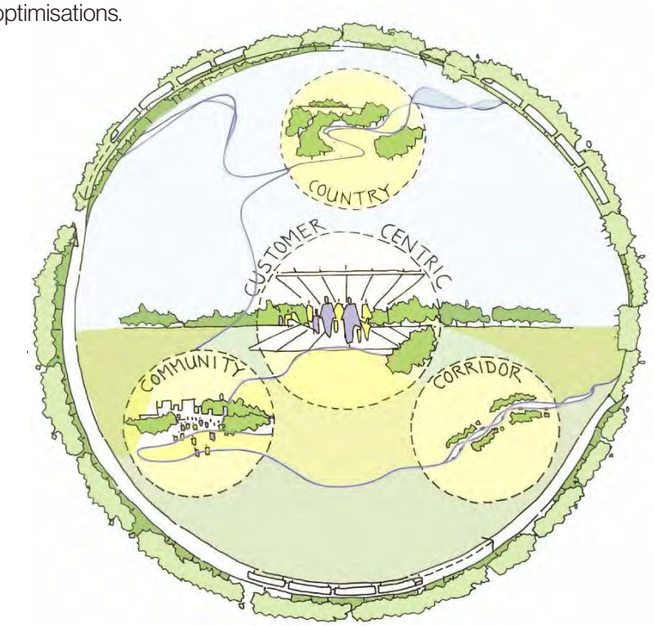
Below ground, station volumes are expressed as a continuation of the ground plane. The quality of these spaces provide a clear and legible series of spaces that seamlessly connect passengers from precinct to concourse and then to platform level, enhancing the passenger experience to provide a comfortable intuitive journey.

The designs demonstrate a unique approach to developing the stations and station precincts, embodying the spirit of Western Sydney to create a future legacy and catalyst for the continued evolution and growth of Sydney's Western Parkland City. The approach also provides a new benchmark in the design of metro stations that balances international thinking with appropriate scale using innovative, value for money solutions.

This Place, Urban Design and Corridor Landscape Plan (Stage 2 PUDCLP) has been developed with consideration of the architectural, landscape architectural and urban design principles and objectives outlined in the Sydney Metro – Western Sydney Airport Urban Design principles of the Project EIS.

Project elements are developed through an integrated design approach. This approach includes collaboration with the wider project design team including Designing with Country, engineering, environment and civil design; client and subject matter experts, Sydney Metro, the Design Review Panel, and key external stakeholders such as Councils. It encourages a continuous evolution and refinement of elements throughout the detailed design period.

The elements will, of necessity, receive further development during the remaining detailed design stage, arising from detailed engineering assessment, and construction optimisations.



# Place, Urban Design and Corridor Landscape Plan

This Place, Urban Design and Corridor Landscape Plan (Stage 2 PUDCLP) has been prepared to address the requirements of the Sydney Metro – Western Sydney Airport project approval SSI-10051 for the Stations,, Station precincts, Corridor, and Stabling and Maintenance Facility (SMF) as part of the Sydney Metro - Western Sydney Airport Stations, Systems, Trains, Operations and Maintenance (SSTOM) D&C contract.

This Stage 2 PUDCLP has been prepared by Parklife Metro D&C Joint Venture (the SSTOM D&C Contractor) on behalf of Sydney Metro.

Ministers Condition of Approval E77 requires that:

*A PUDCLP must be prepared to document and illustrate the permanent built works and landscape design of the project and how these works are to be maintained. The PUDCLP must be:*

- *Prepared by a suitably qualified and experienced person(s) in consultation with the community (including the affected landowners and businesses or a representative of the businesses), Western Parklands City Authority, Western Sydney Planning Partnership and relevant council(s);*
- *Reviewed by an independent and suitably qualified and experienced person nominated by the Design Review Panel (DRP);*
- *Submitted to the Planning Secretary prior to the construction of permanent built surface works and/or landscaping, excluding those elements which for ecological requirements, or technical requirements, or requirements as agreed by the Planning Secretary do not allow for alternate design outcomes; and*
- *Implemented during construction and operation of the project.*

*Note: The PUDCLP may be developed and considered in stages to facilitate design progression and construction. Any such staging and associated approval would need to facilitate a cohesive final design and not limit final design outcomes.*

## PUDCLP staging

The Condition notes that the PUDCLP may be submitted in stages to facilitate design progression and construction of the project and that any such staging and associated approval would need to facilitate a cohesive final design and not limit final design outcomes.

To enable Parklife Metro (PLM) to deliver the project in time to meet the NSW Government requirements it was necessary to stage the SSTOM PUDCLP to allow those activities that are critical to the delivery of the project to commence at the earliest possible time. The PUDCLP was developed in two stages being Stage 1 and Stage 2. The Stage 1 PUDCLP has already been submitted to DPHI. This document is the Stage 2 PUDCLP.

Compliance with Condition E77 and other relevant conditions of approval is detailed within the compliance matrix in Section 1.6 of this plan.

### PUDCLP - Stage 1

The Stage 1 PUDCLP covered the following SSTOM Project elements, namely:

- Stabling and Maintenance Facility; and
- Luddenham Station buildings.

### PUDCLP - Stage 2

This PUDCLP update (Stage 2) for the Project was developed for the remaining SSTOM Project elements, including the Stage 1 PUDCLP elements, namely:

- St Marys Station and Precinct
- Stabling and Maintenance Facility
  - » Minor changes to the SMF layout including the PWAY facility, with updated building visuals
- Orchard Hills Station and Precinct
- Luddenham Station and Precinct
  - » Station precinct layout updated and shown, with updated visuals
- Bradfield Station and Precinct
- Corridor; and
- Public Domain and Landscaping elements.

### On-airport project components

The CSSI approval is for all off-airport stations, precincts and buildings, and remaining rail infrastructure between St Marys and Elizabeth Drive.

Therefore, the Stage 2 PUDCLP excludes the SSTOM project elements that includes a section of the project alignment that falls within Western Sydney International Airport land, including Airport Business Park and Airport Terminal stations, and a section of rail infrastructure south of Elizabeth Drive.

### PUDCLP delivery packages

The following table outlines the project delivery packages and notes where PUDCLPs are required for the Sydney Metro - Western Sydney Airport (SMWSA) project:

Table i-1: Western Sydney Airport Sydney Metro Contracts

| Package | Scope | Contractor | PUDCLP |
|---|---|---|---|
| Station Boxes and Tunnelling (SBT) | Tunnels and station box excavations | CPB Ghella JV | No |
| Surface and Civil Alignment Works (SCAW) | Earthworks and viaducts | CPB United Infrastructure | Completed |
| Stations, Systems, Trains Operation and Maintenance (SSTOM) | Stations, precincts, corridor landscape, stabling and maintenance facility, trains, rail systems, operations and maintenance | Parklife D&C Joint Venture | Yes |

# Project overview

### Project overview

New metro rail will become the transport spine for Greater Western Sydney, connecting communities and travellers with the new Western Sydney International (Nancy-Bird Walton) Airport and the growing region.

The city-shaping project, from St Marys through to the new airport and Bradfield City, will provide a major economic stimulus for Western Sydney, supporting more than 14,000 jobs during construction for the NSW and national economies.

The 23 kilometre new railway will link residential areas with job hubs including the new Bradfield City, and connect travellers from the new airport to the rest of Sydney's public transport system.

Key operational features of the project include:

- approx. 4.3 kilometres of twin rail tunnels (generally located side by side) between St Marys (the northern extent of the project) and Orchard Hills
  - » a cut-and-cover tunnel around 350 metres long (including tunnel portal), transitioning to an in-cutting rail alignment south of the M4 Western Motorway at Orchard Hills
  - » approx. 10 kilometres of rail alignment between Orchard Hills and Western Sydney International, consisting of a combination of viaduct and surface rail alignment
  - » approx. two kilometres of surface rail alignment within Western Sydney International
- approx. 3.3 kilometres of twin rail tunnels (including tunnel portal) within Western Sydney International
- approx. three kilometres of twin rail tunnels between Western Sydney International and Bradfield City
- six new metro stations:
  - » our off-airport stations:
    - St Marys (providing interchange with the existing Sydney Trains suburban rail network)
    - Orchard Hills
    - Luddenham Road
    - Bradfield
  - » two on-airport stations:
    - Airport Business Park
    - Airport Terminal
- grade separation of the track alignment at key locations including:
  - » where the alignment interfaces with existing infrastructure such as the Great Western Highway, M4 Western Motorway, Lansdowne Road, Patons Lane, the Warragamba to Prospect Water Supply Pipelines, Luddenham Road, the future M12 Motorway, Elizabeth Drive, Derwent Road and Badgerys Creek Road
  - » crossings of Blaxland Creek, Cosgroves Creek, Badgerys Creek and other small waterways to provide flood immunity for the project
- modifications to the existing Sydney Trains station and rail infrastructure at St Marys (where required) to support interchange and customer transfer between the new metro station and the existing Sydney Trains suburban rail network
- a stabling and maintenance facility and operational control centre located to the south of Blaxland Creek and east of the proposed metro track
- new pedestrian, cycle, park-and-ride and kiss-and-ride facilities, public transport interchange infrastructure, road infrastructure and landscaping as part of the station precincts.

The project will also include:

- turnback track arrangements (turnbacks) at St Marys and Bradfield to allow trains to turn back and run in the opposite direction
- additional track stubs to the east of St Marys Station and south of Bradfield Station to allow for potential future extension of the line to the north and south respectively without impacting future metro operations
- an integrated tunnel ventilation system
- all operational systems and infrastructure such as crossovers, rail sidings, signaling, communications, overhead wiring, power supply, lighting, fencing, security and access tracks/paths
- retaining walls at required locations along the alignment
- environmental protection measures such as noise barriers (if required), on-site water detention, water quality treatment basins and other drainage works.

### Off-airport project components

The off-airport components of the project will include the track alignment and associated operational systems and infrastructure north and south of Western Sydney International, four Metro stations, the stabling and maintenance facility, two services facilities and a tunnel portal.

### On-airport project components

The on-airport components of the project will include the track alignment and associated operational systems and infrastructure within Western Sydney International, two Metro stations and a tunnel portal. The on-airport components are subject to approvals from the Commonwealth and are not dealt with in this report.

The key project features as described are indicative only and subject to design development in accordance with the process identified in Chapter 6 (Project development and alternatives) of the Environmental Impact Statement.

Key operational features of the project are shown on Figure 1-2.

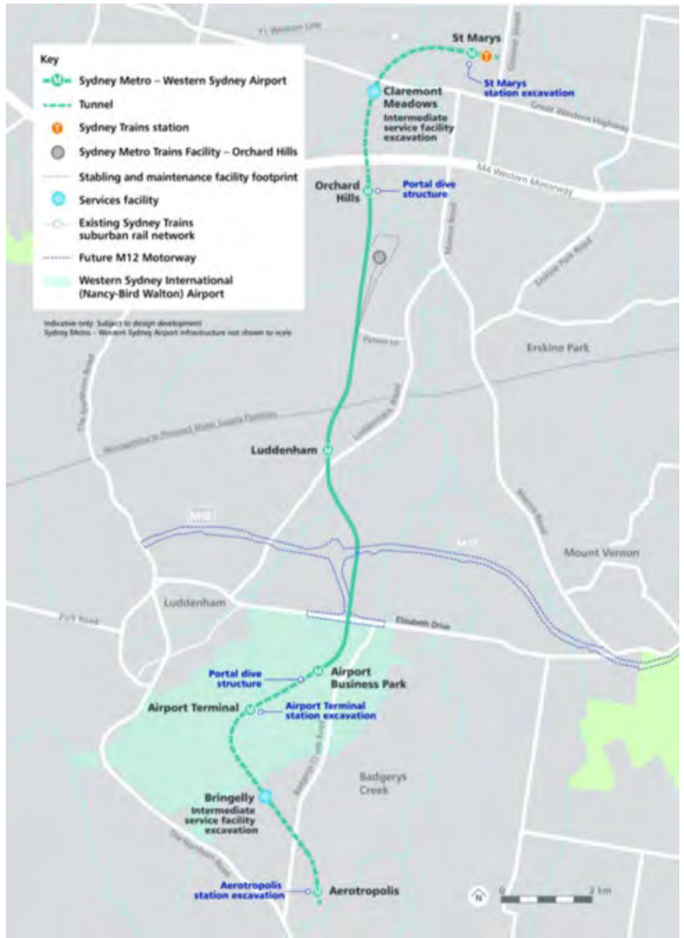



Figure i-1 Overview of the Project

## Structure of the report

This Stage 2 PUDCLP has been prepared by Parklife Metro on behalf of Sydney Metro to satisfy the Ministers Conditions of Approval E77 (SSI-10051). The key sections of the report are as follows:


### Introduction

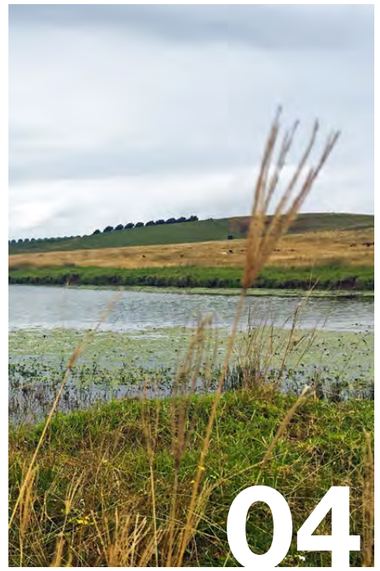
This section provides an outline of the purpose and scope of the Place, Urban Design and Corridor Landscape Plan (PUDCLP), a brief overview of the project and the standards and guidelines behind it, compliance with the Ministers Conditions of Approval (CoA) and Revised Environmental Management Measures (REMM), consultation during preparation of this Stage 2 PUDCLP and involvement of the Design Review Panel (DRP) that have informed the project's urban and landscape design solutions.


### Design objectives, principles, guidelines and standards

This section includes relevant guidelines and standards, land use changes, masterplans and initiatives, existing and proposed future local context and character, and transport and land use integration and system functionality.


### Vision and design approach

This section outlines the urban design vision, objectives and outcomes for the project, including the urban design and landscape design concept, architectural design concept, system wide design approach and service buildings design.




### Connection to Country

This section establishes the First Nations and non-Indigenous heritage and cultural values that have underpinned the project's design response with a commitment to embedding Connection with Country design principles.


### St Marys Station

This section outlines the design of permanent built elements including station design, station precinct plans and landscaping for St Marys Station (STM).


### Orchard Hills Station

This section outlines the design of permanent built elements including station design, station precinct plans and landscaping for Orchard Hills Station and precinct (OHE).

07

## Stabling and Maintenance Facility

This section outlines the design of permanent built elements including facility design and landscaping for the Stabling and Maintenance Facility (SMF).

08

## Luddenham Station

This section outlines the design of permanent built elements including station design, station precinct plans and landscaping for Luddenham Station and precinct (LDN).


09

## Bradfield Station

This section outlines the design of permanent built elements including station design, station precinct plans and landscaping for Bradfield Station and precinct (AEC).

10

## Corridor

This section outlines the design of the corridor scope of works, including boundaries and responsibilities across multiple projects, the overarching landscape design and ecological restoration approach, as well as the active transport corridor, bridges and fauna crossings.

11

## Public domain and landscaping elements

This section outlines the design approach and details for all project wide elements such as landscape design strategies, paving, furniture, seating, hostile vehicle mitigation, lighting and fencing.

A1

**Appendix A: Evidence of collaboration and consultation**

A2

**Appendix B: Consultation feedback**

A3

**Appendix C: DRP review**

A4

**Appendix D: Qualified and experienced Personnel**

A5

**Appendix E: Interchange Access Plans**

View east from Luddenham Road

# 01 Introduction

Transport for NSW's vision for Sydney Metro is 'Transforming Sydney with a new world class metro'.

Sydney Metro's mission is to deliver a world class, connected Metro, which will provide more choice to customers and opportunities for our communities now and in the future. Sydney Metro presents a unique opportunity to demonstrate an exemplary approach to integrated transport and land use planning. Quality architecture, good urban design and a user friendly and inter-connected transport system are critical to ensuring that Sydney Metro meets customer needs and expectations and maximises their city shaping potential and broader urban benefits.

The PUDCLP has been a design-led methodology, balancing agendas of aesthetic outcomes, quality, cost, time and maintenance, and builds on the Sydney Metro vision for transforming Sydney with a new world class Metro within the context of the changing landscape and land-use based around the Western Sydney International Airport and Bradfield City (formerly Aerotropolis Core).

## 01.1 Purpose of the Place, Urban Design and Corridor Landscape Plan

This plan has been prepared to document the Place, Urban Design and Corridor Landscape Plan (PUDCLP) for the Stations, Precincts, Corridor & Stabling and Maintenance Facility as part of the Sydney Metro - Western Sydney Airport Stations, Systems, Trains, Operations and Maintenance (SSTOM) component of the Sydney Metro – Western Sydney Airport project. The plan has been prepared to present an integrated urban and place making outcome to guide the design of the permanent built surface works and landscaping associated with the project.

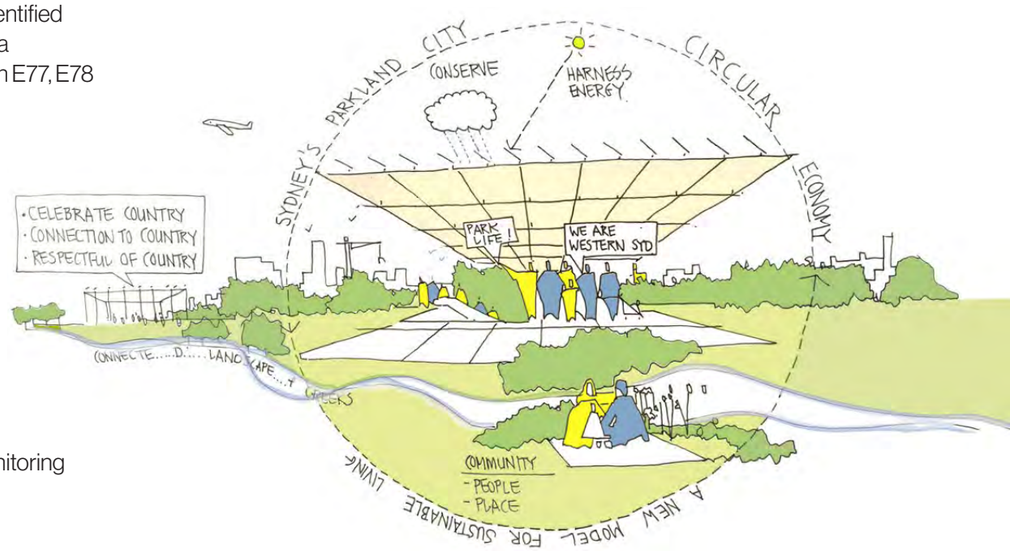
An integrated urban and place making outcome has been achieved through the consideration of existing and planned public domain and private developments adjacent to the project and consultation and collaboration with stakeholders.

The preparation of the PUDCLP is a requirement of Condition E77 of the Sydney Metro Western Sydney Airport SSI-10051 Conditions of Approval (CoA). Condition E77 allows the PUDCLP to be submitted in stages and, as identified in the project's Staging Report, staging of the project is represented on a construction stage basis. Consistent with the requirements of Condition E77, E78 and E79, this PUDCLP:

- documents and illustrates the design of permanent built works and landscape works
- plans for station precincts
- design of the permanent built elements, including stabling and maintenance
- details specific design objectives, principles and standards
- identifies landscaping and building design opportunities to mitigate visual impacts and minimise light spill
- describes the key design features
- outlines implementation of the plan, including maintenance and monitoring
- provides evidence of consultation.

The urban and landscape design is guided by and is compliant with the obligations stated in the Project Specification contained in the Project Deed between Parklife Metro (the SSTOM D&C Contractor) and Sydney Metro.

Project elements have been developed through an integrated urban design approach. This approach includes collaboration with the wider project design team including engineering, environment and road design; client and subject matter experts; key external stakeholders including Council. It encourages a continuous evolution and refinement of elements throughout the detailed design period. The elements will, of necessity, receive further development during the remaining detailed design stage, arising from detailed engineering assessment, and construction optimisations.



## 01.2 Summary scope of this PUDCLP

To enable Parklife Metro (PLM) to deliver the project in time to meet the NSW Government requirements it is necessary to stage this PUDCLP to allow those activities that are critical to the delivery of the project to commence at the earliest possible time. The PUDCLP has been developed in two stages being Stage 1 and Stage 2.

Stage 1 (previous PUDCLP) allows for the Stabling and Maintenance Facility and Luddenham Station buildings to commence permanent surface works prior to the finalisation of overall PUDCLP for the complete SSTOM project. This first stage PUDCLP was limited to the Stabling and Maintenance Facility (SMF) and the Luddenham Station buildings. The Luddenham precinct area was not included in this first stage document but is included in this Stage 2 PUDCLP.

Stage 2 (this PUDCLP) includes all off airport project elements of the SSTOM project including St Marys Station and Precinct, Orchard Hills Station and Precinct, Luddenham Station and Precinct, Bradfield Station and Precinct, SMF and the Corridor. As sufficient design information is available for other project areas now, this PUDCLP has been integrated with the previous project areas to create an all-encompassing Stage 2 PUDCLP that addresses the entirety of the project.

Table 01-1: Summary scope of the PUDCLP

| Version | Subject | Exhibition period |
|---|---|---|
| Stage 1: Interim SSTOM PUDCLP - Stabling & Maintenance Facility and Luddenham Station | Information available at the time of submission for:<br>• Stabling and Maintenance Facility (SMF)<br>• Luddenham Station building | November 2023 |
| **Stage 2: Overall SSTOM PUDCLP** | **Information available at the time of submission for:**<br>• **St Marys, Orchard Hills, Bradfield, Luddenham Station and Precincts**<br>• **Stabling and Maintenance Facility**<br>• **Corridor**<br>• **Landscaping.** | **August/September 2024** |

The requirement for additional revisions of the PUDCLP will be reviewed in consultation with the Department of Planning, Housing and Infrastructure (DPHI) following completion of all design stages.

## 01.3 Status of this PUDCLP

The information contained in this report is the latest available at the time of writing. The nature of the design process on a project of this scale is one that requires continuous development and refinement until the project is constructed. Notwithstanding this, the material herein provides a clear appreciation of the scale, nature and treatment of the facilities proposed and their interactions with the environment.

Where substantial changes to the design are made following the preparation of this PUDCLP, as determined in consultation with the DPHI, an updated PUDCLP would be prepared for submission to the Planning Secretary.

## 01.4 Qualified Persons

As required by Condition E77 (a), this PUDCLP has been prepared by suitably qualified and experienced persons:

Table 01-2: Qualified persons

| Name | Role | Qualifications |
|---|---|---|
| Julieanne Boustead Hassell | PUDCLP coordinator | B. Planning & Design, Melbourne University<br>MLA, Melbourne University |
| Anthony Charlesworth Hassell | Landscape Architecture team lead | BLA, University of New South Wales<br>MUrbDevDes, UNSW |
| Ewen Wright Hassell | Architecture project lead | Bachelor of Architecture (Hons), Victoria University of Wellington, New Zealand |
| Jason Cuffe Hassell | Landscape Architecture and Urban Design project lead | BLA (Hons) University of New South Wales |

CVs are included in Appendix D.

## 01.5 Environmental Impact Statement and Submissions Report

### Environmental Impact Statement

The Environmental Impact Statement (EIS) for the Project was prepared to address the Secretary's Environmental Assessment Requirements (SEARs) and the relevant provisions of Part 3 of Schedule 2 of the Environmental Planning and Assessment Regulation 2000 (NSW).

The EIS was prepared and finalised for the Sydney Metro – Western Sydney Airport project to assess the impacts of construction and operation of the Project. The EIS was placed on public exhibition between 21 October 2020 to 2 December 2020.

### Submissions Report

In April 2021, a Submissions Report, which considers submissions to the EIS made during the exhibition period was submitted to the Department of Planning, Housing and Infrastructure (DPHI).

The Revised Performance Outcomes (RPOs) from the Submissions Report, which are specific to urban design, are listed following along with a reference to where each relevant measure is addressed by the project or within this Plan.

The Revised Environmental Mitigation Measures (REMMs) from the Submissions Report, which are specific to urban design, are listed below also along with a reference to where each measure is addressed by the project or within this Plan.

## 01.5.1 Revised performance outcomes

Table 01-3: Revised Performance Outcomes

| SEARS desired performance outcome | Project performance outcome | Comment |
|---|---|---|
| **Design, place and movement** | | |
| Supporting the provision of successful places - the project is integrated with and enhances the environment where it is located, including improved accessibility and connectivity for communities | The Sydney Metro – Western Sydney Airport Design Guidelines and Design Quality Framework are implemented to deliver a rail corridor, stations and ancillary facilities that achieve the project vision and design objectives | The design builds on and integrates the design objectives, principles and guidelines developed during the EIS including the SMWSA Guidelines and Design Quality Framework. The urban and landscape design for the Project has considered and integrated the various objectives and principles of these documents. |
| | Design excellence is exhibited in the project to complement the anticipated character of the precincts in which the project is located | To meet Sydney Metro's vision to transform Western Sydney with a world-class Metro, Parklife Metro is committed to delivering design excellence in all built form and open space elements to complement the character of its location in Western Sydney. |
| | Accessibility and connectivity between future communities is supported by the project through opportunities to integrate with key project components such as stations | Parklife Metro continues to undertake significant engagement with the developers of known future developments which exist around the stations. This includes: Celestino (in the Luddenham Precinct), BDA (in the Bradfield City precinct) and WSACo (in the on airport areas). Where available, the masterplans and design for their works is being integrated and shown on our developing precinct designs to promote this connectivity and integration of the works. In a lot of cases the station developments are leading in terms of timeframe and as such PLM is providing flexibility in our design solutions to allow as many options as possible for integration by future developers. For the existing precincts such at St Marys, PLM continues to remain in consultation with Penrith City Council (PCC) and is considering their future town planning in the development of designs for the precincts. |
| | Within Western Sydney International, the project is integrated with and supports the outcomes and design objectives set out in the Airport Plan, future master plans for Western Sydney International and design guidelines for Western Sydney International | Parklife Metro has undertaken significant consultation with WSACo on integration of the station designs with the WSIA Airport Plan, WSIA Design Guidelines and the future plans of the airport developer. In addition to this PLM submits all designs to WSACo for review and approval as part of our design review process. The design carried out for the WSIA works has been shared with PLM and these designs are being incorporated into our design submissions as backgrounds to demonstrate this integration from a physical sense. |
| The project contributes to greener places through supporting the enhancement and provision of green infrastructure | The number of trees within the project area is increased at a ratio of 2:1 (for vegetation removal not subject to biodiversity offset); and tree canopy coverage is increased, using a range of local species to enhance canopy coverage, subject to the constraints on tree planting associated with safe airport operations | The provision of replacement trees is a key outcome of the project. The landscape design within this PUDCLP provides a net increase in the number of trees at a ratio of at least 2:1, except trees that are offset under Condition E4 (biodiversity credits).<br><br>A Tree Survey will be submitted with the final PUDCLP to DPHI subject to the timing of site access. It will indicate the number, type and location of any trees to be removed (except for trees that are offset under Condition E4) and the existing trees to be retained and protected. |
| **Transport** | | |
| Network connectivity, safety and efficiency of the transport system in the vicinity of the project are managed to minimise impacts The safety of transport system customers is maintained Impacts on network capacity and the level of service are effectively managed | Safe and efficient interchanges are provided between transport modes | The requirements for intermodal transport integration are clearly outlined within the SSTOM Particular Specification. This includes proximity and location in relation to the station as well as servicing and security requirements to ensure these interchange locations are appropriately provisioned either for initial service or as part of future upgrade by others. |
| | Transport interchange facilities provided at station precincts are designed in accordance with the modal access hierarchy | The intermodal transport requirements of the project are clearly outlined in the SSTOM Particular Specification, this includes the location, number and makeup of all interchange facilities. The Parklife Metro design achieves compliance with these design requirements. |
| | Each station and station plaza is provided with sufficient customer capacity to achieve a minimum Fruin's Level of Service C (for 2056 demand) | The Parklife Metro design accommodates the patronage, capacity and upgrade assumptions advised by the Sydney Metro planning documents and strives to achieve LoS C for all relevant areas within stations. |
| | Stations and interchanges are fully accessible and compliant with the Disability Discrimination Act 1992 (Cth) and the Disability Standards for Accessible Public Transport (Australian Government, 2002) | The Parklife Metro design is being evaluated by a specialist DDA consultant and the recommendations by this consultant to meet the requirements of the standard are being implemented. |

| SEARS desired performance outcome | Project performance outcome | Comment |
|---|---|---|
| Works are compatible with existing infrastructure and future transport corridors | The project is designed to be compatible with existing infrastructure and future transport corridors | The Parklife Metro design is cognisant of all existing infrastructure and makes the base provision for known future developments. |
| **Biodiversity** | | |
| The project design considers all feasible measures to avoid and minimise impacts on terrestrial and aquatic biodiversity | Culverts and bridges would be appropriately sized to maintain fauna habitat connectivity | Fauna connectivity has been integrated into SCAW design and is detailed in the SCAW PUDCLP. Where SSTOM are to construct bridges they have been designed to minimise disturbance and enhance connectivity. |
| | Maintain integrity and functionality of rail corridor fencing to minimise wildlife-train collision while providing opportunities for cross-corridor wildlife movement | The entire corridor fencing has been designed to exclude fauna whilst channelling fauna to designated fauna crossing structures such as dedicated fauna culverts and under viaducts and bridges. |
| | Re-establish native vegetation in accordance with the National Airports Safeguarding Framework Principles and Guidelines including Guideline C: Managing the Risk of Wildlife Strikes in the Vicinity of Airports (Australian Government, 2014) | The landscape design for the project has considered the relevant requirements and species lists under the Western Sydney Airport's Wildlife Management Plan and other relevant guidelines. An ecologist has been engaged to undertake a merit based assessment of the plant species used in the planting design for the SSTOM project in accordance with the requirements of OLV1. The outcomes of the assessment have been incorporated in the planting design presented in this PUDCLP. |
| **Non-Aboriginal Heritage** | | |
| The design, construction and operation of the project facilitates, to the greatest extent possible, the long term protection, conservation and management of the heritage significance of items of environmental heritage The design, construction and operation of the project avoids or minimises impacts, to the greatest extent possible, on the heritage significance of environmental heritage | The design of St Marys Station is sympathetic to retained and adjacent heritage items | The significance of the 'St Mary's Railway Station Group', including the retained Goods Shed within the station plaza, has been respectfully considered through the design and will be interpreted through onsite and digital interpretation implemented within the public domain. A Heritage Interpretation Plan detailing the interpretation elements for St Marys Station has been prepared.<br><br>The heritage elements will be protected through the construction phase through the implementation of the non-Indigenous Heritage Management Sub-plan. A Conservation Management Plan prepared for the station group provides policies for managing its identified significance through the operational phase of the metro station and into the future. |
| | The design of the project incorporates non-Aboriginal heritage interpretation | Heritage Interpretation Plans have been prepared for each station in accordance with the Sydney Metro Heritage Interpretation Strategy. Recommended non-Indigenous heritage interpretation elements being developed for the stations include signage with a complementary digital element (all stations), retained built form (St Marys), timelines (Bradfield), lighting design (Luddenham, Bradfield), inlays (Orchard Hills), historical images in perforated signs (Orchard Hills, Luddenham), as well as temporary elements such as hoarding artworks and historical images. Heritage interpretation proposals are currently at strategy stage only and are subject to funding availability. |
| **Aboriginal Heritage** | | |
| The design, construction and operation of the project facilitates, to the greatest extent possible, the long term protection, conservation and management of the heritage significance of items of Aboriginal objects and places The design, construction and operation of the project avoids or minimises impacts, to the greatest extent possible, on the heritage significance of Aboriginal objects and places | The design of the project incorporates Aboriginal heritage interpretation and Aboriginal cultural design principles in consultation with Aboriginal Knowledge Holders | Djinjama's inclusion and integration of what was shared both by the Connecting with Country Working Group, the Co-Design workshops, and Djinjama's own First Nations methodologies for design has informed the SSTOM design. Information available at the time of writing has been included. |

| SEARS desired performance outcome | Project performance outcome | Comment |
|---|---|---|
| **Sustainability, climate change and greenhouse gas** | | |
| The project reduces the NSW Government's operating costs and ensures the effective and efficient use of resources Conservation of natural resources is maximised. | The project achieves a minimum 'Design' and 'As built' rating score of Leading +75, using the Infrastructure Sustainability Council of Australia Infrastructure Sustainability Rating Scheme Version 1.2 or equivalent. Sustainability initiatives are incorporated into the planning, design and construction of the project.<br><br>Sustainability initiatives are incorporated into the planning, design and construction of the project.<br><br>100 per cent of the greenhouse gas emissions associated with consumption of electricity during operation are offset. | The project has been designed to achieve a minimum 'Design' and 'As built' rating score of Leading +75, using the Infrastructure Sustainability Council of Australia Infrastructure Sustainability Rating Scheme Version 1.2. Sustainability forms an integral part of the project vision and has been embedded in the design of the project to deliver sustainable social and environmental outcomes by minimising energy use and maximising sustainability.<br><br>Whilst Parklife Metro is not responsible for the purchase of energy during the operations phase, Sydney Metro has committed to the following initiatives to meet the target of 100% offset of operations phase greenhouse gas emissions:<br><br>• Purchase of green energy for all project electricity usage.<br>• Purchase of carbon offsets for any energy usage not derived from the main electrical supply.<br><br>In addition to the above, Parklife Metro is delivering on-site renewable energy generation (in the form of solar PV) which is capable of offsetting 10% of the operational Low Voltage energy usage of the project. Solar Panels will be located of the roofs of station and maintenance facility buildings (exclusive of Luddenham station due to interaction with the viaduct and overhead line equipment). Residual PV capacity will be located at ground level within the SMF site to ensure Parklife Metro's commitments can be met. |
| The project is designed, constructed and operated to be resilient to the future impacts of climate change | The project is designed to withstand known impacts associated with climate change to year 2100be | Rigorous assessments have been incorporated to ensure the new Metro line achieves adequate built-in resilience to the effects of climate change over its 120 years project design life and beyond. The assessment is consistent with the TfNSW Climate Risk Assessment Guidelines 2018 and compliant with IS Design & As-Built v1.2 Level 2 credit requirements for Climate Change Risk Assessment (Cli-1). The CCRA is used to identify and assess relevant climate risks to ensure the delivery of a resilient infrastructure. |
| Conservation of natural resources is maximised | The reuse of water is maximised, either on-site or offsite | The project has been designed to minimise the use of potable water (50%) by meeting the requirements of the Infrastructure Sustainability Council D&AB v1.2: Level 1.5 for credit Wat-2 'Replace potable water' and Green Star Buildings v1. |

## 01.5.2 Revised mitigation measures

Table 01-4: Revised Mitigation Measures

| Ref | Mitigation measure | Comment |
|---|---|---|
| **Transport – operation** | | |
| OT1 | Interchange access plans would be prepared, in consultation with the Traffic and Transport Liaison Group and relevant authorities including Western Parkland City Authority, to ensure adequate pedestrian and cycle facilities and other transport interchange infrastructure is provided at each station precinct. | Interchange Access Plans developed in consultation with the Traffic and Transport Liaison Group will be provided in Appendix E. |
| OT4 | An operational car parking strategy for St Marys would be prepared in consultation with Penrith City Council and Transport for NSW prior to commencement of operation. The strategy would include consideration of measures that could be implemented to address any parking impacts as a result of the project. | The SSTOM works are not required to include additional parking within the St Marys precinct. That said, existing parking serving the St Mays Sydney Trains station will remain in place, with pedestrian connection from the new station via the new Footbridge St Marys. |
| **Noise and vibration – operation** | | |
| ONV1 | An Operational Noise and Vibration Review would be prepared during design development to confirm the mitigation measures required to manage:<br>• airborne and ground-borne noise impacts from rail operations<br>• airborne noise impacts from the stabling and maintenance facility<br>• airborne noise impacts from fixed industrial sources, including stations and services facilities<br>The Operational Noise and Vibration Review would consider existing and potential future land use to establish Project NoiseTrigger Levels. The EPA would be consulted during preparation of the Operational Noise and Vibration Review. | As part of work undertaken in the ONVR it has been determined that a noise wall is required to assist in mitigating operational noise for the SMWSA Substation. The substation exists along the eastern site boundary of the Stabling and Maintenance Facility (refer figure 07-5 - item 5) and the noise wall is applied along the eastern fence line of the substation. In order to minimise the visual impact of the noise wall, it has been integrated as part of the substation security fencing so that the wall reads as an integrated feature of the substation compound. The surface mass of the noise wall will be 12kg/sqm and the absorptive requirements are NRC 0.90 for the side facing into the substation. Work on the ONVR will continue as the project design, testing and transition to operation is made and this will continue to be verified by that process. |
| **Biodiversity – operation** | | |
| OFF1 | Wildlife connectivity would be maintained (where possible) through the installation of viaduct/bridge structures designed in accordance with the following:<br>• height and width of the area under a bridge to be maximised for all species, noting a minimum height of approximately 3 metres of dry passage will provide connectivity for most terrestrial species<br>• bridges wide enough to encompass water flow, stream bank and riparian vegetation, preferably on both sides of the watercourse<br>• for small and medium sized mammals, provide fauna furniture as shelter (e.g. vegetation, logs, rocks, leaf-litter, refuge pipes, escape poles, roofing tiles, and roofing iron)<br>• height and carriageway separation designed to allow sufficient light and moisture to enhance growth of vegetation under the structure<br>• if used for multiple purposes (e.g. pathways or access roads) aim to provide the 3 metre of natural passage for fauna<br>• relocation or adjustment of the stream bed avoided where possible<br>• the structure to tie in with the natural hydrology of the surrounding habitat such that the width, depth and gradient of the watercourse are maintained in the structure<br>• consistent with the Policy and Guidelines for Fish Friendly Waterway Crossings (DPI (Fisheries NSW), 2013) | This requirement applies to the ATC bridges within the Corridor and has been addressed in the Corridor section of this PUDCLP. Refer to the SCAW PUDCLP for how this requirements has been addressed for the design of the viaduct and fauna crossings. |
| **Non-Aboriginal heritage – operation** | | |
| ONAH1 | Design development for the project would endeavour to minimise adverse impacts to heritage buildings, elements, fabric, and heritage significant settings and view lines that contribute to the overall heritage significance of heritage items | The approach to minimising impacts on heritage items is outlined in this PUDCLP, including details on consultation that has been undertaken with the DRP and Heritage Working Group in relation to the design, form and material of any built structures (if any) that are constructed in the vicinity of the heritage items. |

| Ref | Mitigation measure | Comment |
|---|---|---|
| ONAH2 | The architectural design for the project would take account local heritage context and be sympathetic to local heritage character. This would include using sympathetic building materials, colours and finishes. Design should aim to minimise visual impacts by ensuring that significant elements are not obstructed or overshadowed. Design should adhere to the Sydney Metro – Western Sydney Airport Design Guidelines. | The approach to minimising impacts on heritage items is outlined in this PUDCLP, including details on consultation that has been undertaken with the DRP and Heritage Working Group in relation to the design, form and material of any built structures (if any) that are constructed in the vicinity of the heritage items. The design of the stations and precincts adheres to the Sydney Metro - Western Sydney Airport Design Guidelines. |
| ONAH3 | Consultation with the Heritage Council and relevant stakeholders would occur for the design of works that have the potential to impact State significant items including for St Marys Railway Station. | Details on consultation that has been undertaken with the Heritage Council and relevant stakeholders for design works that have the potential to impact State significant items including St Marys Railway Station is included in this PUDCLP. |
| ONAH4 | A heritage interpretation strategy would be prepared for the project identifying key stories and interpretive opportunities related to non-Aboriginal heritage. The strategy would address historic and contemporary heritage and community values and would identify innovative and engaging opportunities for interpretation | Sydney Metro has prepared a Heritage Interpretation Strategy to meet ONAH4 and OAH1. Heritage Interpretation Plans have been prepared for each station in accordance with the SM Heritage Interpretation Strategy. The Heritage Interpretation Plans address the historic and contemporary heritage and community values and identify innovative and engaging opportunities for interpretation. |
| ONAH7 | An appropriately qualified and suitably experienced heritage architect would be engaged to provide input into design development at St Marys Station. | Urbis Heritage has been appointed to provide input into the design development at St Marys Station. |
| **Aboriginal heritage – construction** | | |
| AH13 | Measures to manage and protect the identified cultural values would be developed collaboratively through a consultation process with knowledge holders to inform construction planning and design development | The overall approach to the management and protection of cultural values is expressed within Section 01.5.1 covering both Indigenous and non-Indigenous heritage. The developed design has been supported through significant consultation with the Connecting with Country Working Group, First Nations community engagement and co-design workshops with Key Knowledge Holders (summarised in Section 04.3). In addition a full suite of Heritage Interpretation Plans has been developed for the project and consulted with the Sydney Metro Heritage Working Group. Summaries of the outcomes of these interpretations are included in each of the station sections within this PUDCLP. Consultation has taken place with the DRP and Connecting with Country Working Group to outline how aspects of both processes have been integrated into the design (refer Section 1.8, 1.9 and Appendix A). |
| **Sustainability, climate change and greenhouse gas – operation** | | |
| OSUS2 | Climate change risk treatments would be confirmed and incorporated during further design development | Climate change risk treatments have been incorporated into the design. |
| **Aboriginal heritage – operation** | | |
| OAH1 | A heritage interpretation strategy would be prepared for the project in consultation with Aboriginal knowledge holders. Aboriginal heritage interpretation would be developed with reference to the findings of the Aboriginal Cultural Heritage Assessment Report and Aboriginal Archaeological Report, to promote understanding and awareness of cultural heritage values. | Djinjama's inclusion and integration of what was shared both by the Connecting with Country Working Group, the Co-Design workshops, and Djinjama's own First Nations methodologies for design has informed the SSTOM design. |
| **Flooding, hydrology and water quality – operation** | | |
| OWQ2 | Drainage and water treatment design to be undertaken in accordance with Water Sensitive Urban Design requirements specified in local council, Transport for NSW and on-airport standards | The Water Sensitive Urban Design approach is outlined in Section 11 and the Station specific initiatives are included in the individual station chapters. |
| **Landscape and property – operation** | | |
| OLU2 | Sydney Metro would continue to consult with key stakeholders during design development of the station interchanges and precincts | Sydney Metro has consulted with key stakeholders during design development of the station interchanges and precincts and will continue to do so. |
| **Landscape and visual – operation** | | |
| OLV1 | The landscape design for the project would include consideration of appropriate species lists to minimise opportunities to attract wildlife at levels likely to present a hazard to aviation operations. The landscape design would have regard to relevant requirements and species lists under the Western Sydney Airport's Wildlife Management Plan and other relevant guidelines, including the National Airports Safeguarding Framework (Guideline C): Managing the Risk of Wildlife Strikes in the Vicinity of Airports (Australian Government, 2014) and Recommended Practices No. 1 – Standards for Aerodrome Bird/Wildlife Control (International Birdstrike Committee 2006) | The landscape design for the project has considered the relevant requirements and species lists under the Western Sydney Airport's Wildlife Management Plan and other relevant guidelines. An ecologist has been engaged to undertake a merit based assessment of the plant species used in the planting design for the SSTOM project in accordance with the requirements of OLV1. The outcomes of the assessment have been incorporated in the planting design presented in this PUDCLP. |

| Ref | Mitigation measure | Comment |
|---|---|---|
| OLV2 | Lighting at stations would be designed and operated in accordance with AS4282-2019 Control of the obtrusive effects of outdoor lighting and the National Airports Safeguarding Framework Guideline E: Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports (Australian Government, 2014) (where relevant) | Lighting at stations have been designed in accordance with AS4383-2019 and NASF Guideline E where relevant. |
| OLV3 | Opportunities to provide vegetation screening of the stabling and maintenance facility (from sensitive receivers such as Luddenham Road and the surrounding rural areas within the viewshed) would be investigated during design development. This would include investigating options for establishing screening vegetation as early in the construction phase as possible | Vegetation screening of the SMF has been included in the design of the landscape for the facility in Section 07. |
| OLV4 | Landscape screening would be provided along the corridor including restoring vegetation along the creeks to contain local views, in accordance with the Sydney Metro – Western Sydney Airport Design Guidelines, to minimise adverse visual impacts where feasible | The Corridor Landscape Master Plan in Section 10 incorporates landscape screening, including restoration vegetation along the creeks to contain local views, which has been developed in accordance with the Sydney Metro - Western Sydney Airport Design Guidelines. |
| OLV5 | Corridor services, including the combined services route would be designed to reduce visual clutter and minimise visual impact ensuring these structures have a low profile and do not obstruct views across the corridor | The corridor services including the combined services route, have been carefully designed to reduce visual clutter and minimise visual impact across the corridor. |
| OLV6 | Proposed engineering batters and water management measures would be designed to integrate with the existing landforms and natural features | Principles for the integration of the design of the batters and water management measures into the existing landforms and natural features for the SSTOM project are included in Section 11 of this PUDCLP. |
| OLV7 | The landscape design for the project would:<br>• incorporate salvaged native trees (including tree hollows and root balls), to enhance fauna habitat in suitable locations,including riparian corridors, where practicable<br>• use native species from the relevant native vegetation communities within the local area for tree planting programs | The Corridor landscape design is included in Section 10 of this PUDCLP and has been designed to incorporate salvaged native trees to enhance fauna habitat in accordance with the designs for the fauna crossings that were included in the SCAW PUDCLP.<br><br>The Corridor Landscape Master Plan planting approach has been developed to utilise native species from the relevant native vegetation communities. |
| **Hazard and risk – operation** | | |
| OHR2 | A Bushfire Management Plan would be prepared and implemented to manage current bushfire risk and identify response actions during operation of the project. The Plan would be prepared in consultation with the NSW Rural Fire Service and Western Sydney Airport. For project areas within Western Sydney International the Plan would be prepared having regard to the existing Western Sydney Airport Site at Badgerys Creek Bushfire Risk Management Plan. | Bushfire risks have been considered across the project through the design of buildings, public domain and the operations and management associated with each of the precincts.<br><br>In addition to the design considerations for bushfire that have been made in the developed design for the project, Parklife Metro will also comply with future Operational Environmental Management obligations outlined in Part D of the Instrument of Approval. This will be achieved by either compliance with condition D2 (on the basis of an Approved Environmental Management System ) or D1 (development of an Operational Environmental Management Plan) where the risk and management of Bushfire will be covered, Where relevant, consultation with RFS will be undertaken as part of this process. |
| OHR4 | The project would be designed to avoid pilot distraction and minimise the risk of headlight glare from metro trains where on surface rail alignment. This would include providing glare screens in those locations where the project creates an unacceptable risk of pilot distraction. | The design of the project alignment has been considered in the context of pilot distraction as follows:<br>• In critical areas adjacent the Airport terminal and runways the alignment remains underground including in the area closest to the airport site between the Terminal and Bradfield Station.<br>• In areas of surface alignment South of Luddenham Station CASA has been consulted on the potential impact of any rollingstock or alignment lighting within 6km of the Airport in accordance with the Airport Plan and no immediate concerns have been identified.<br>• Rollingstock lighting has been provided with beam angle oriented down along the tracks so as not to introduce unwanted upward light spill.<br>• As part of future stages of the project further verification will be undertaken on possible light spill from rollingstock or the surface alignment and if necessary glare shields will be installed in critical locations |

## 01.6 Conditions of Approval

On 23 July 2021, planning approval for the Project (SSI-10051) was received from the Minister for Planning and Public Spaces. The approval was subject to Conditions of Approval (CoA), with the conditions specific to this plan listed in the following table along with a reference to where each condition is addressed within this PUDCLP.

Table 01-5: Conditions of Approval specific to this plan

| Place, Urban Design and Corridor Landscape Plan | | | |
|---|---|---|---|
| **CoA** | **Requirement** | **Reference** | **How addressed?** |
| **General** | | | |
| A1 | The Proponent must carry out the CSSI in accordance with the terms of this approval and generally in accordance with:<br>(a) Sydney Metro – Western Sydney Airport Environmental Impact Statement dated 21 October 2020; and<br>(b) Sydney Metro – Western Sydney Airport Submissions Report submitted April 2021. | Section 01 | The CoA identify the key studies and their submission requirements. The PUDCLP is one of a number of reports to be developed during design and construction of the SSTOM works. |
| A6 | Where the terms of this approval require a document or monitoring program to be prepared, or a review to be undertaken, in consultation with identified parties, evidence of the consultation undertaken must be submitted to the Planning Secretary with the document. The evidence must include:<br><br>(a) documentation of the engagement with the party identified in the condition of approval that has occurred before submitting the document for approval;<br><br>(b) a log of the dates of engagement or attempted engagement with the identified party and a summary of the issues raised by them;<br><br>(c) documentation of the follow-up with the identified party(s) where feedback has not been provided to confirm that the party(s) has none or has failed to provide feedback after repeated requests;<br><br>NSW Government 16 Department of Planning, Industry and Environment Conditions of Approval for Sydney Metro – Western Sydney Airport (SSI 10051)<br><br>(d) outline of the issues raised by the identified party(s) and how they have been addressed; and<br><br>(e) a description of the outstanding issues raised by the identified party(s) and the reasons why they have not been addressed. | | The consultation process to date and outcomes for the SSTOM project are recorded in this Stage 2 SSTOM PUDCLP. The outcomes of the consultation on this PUDCLP will be included in Appendix B at the completion of the Stage 2 PUDCLP consultation period and will be included in the Final Stage 2 PUDCLP for submission to DPHI. |
| **Community information, consultation and involvement** | | | |
| B1 | **Community Communication**<br><br>The Overarching Community Communication Strategy as provided in the documents listed in Condition A1, or updated Strategy must be implemented for the duration of the work.<br>Should the Overarching Community Communication Strategy be updated, a copy must be provided to the Planning Secretary for information. | Section 01<br><br>Appendix A<br><br>Appendix B | Sydney Metro is responsible for the Overarching Community Communication Strategy. The consultation process to date and outcomes for the SSTOM project are recorded in this Stage 2 SSTOM PUDCLP. The outcomes of the consultation on this PUDCLP will be included in Appendix B at the completion of the Stage 2 PUDCLP consultation period and will be included in the Final Stage 2 PUDCLP for submission to DPHI. |

| Place, Urban Design and Corridor Landscape Plan | | | |
|---|---|---|---|
| **CoA** | **Requirement** | **Reference** | **How addressed?** |
| **Key Fish Habitat** | | | |
| E8 | The Proponent must minimise impacts to Key Fish Habitat (KFH) as defined in Policy and Guidelines for Fish Habitat Conservation and Management (DPI, 2013 update). Residual impacts to KFH, following the implementation of habitat rehabilitation or other environmental compensation measures, must be offset at a ratio of 2:1 habitat offset requirement in accordance with the Policy and Guidelines for Fish Habitat Conservation and Management (DPI, 2013 update) and in consultation with DPI Fisheries. | Section 10 | Primary works related to key fish habitat were undertaken by the SCAW contract. Readers should review the SCAW PUDCLP for management of this condition. The SSTOM works have introduced ATC bridges which span key waterway crossings adjacent the SMF and Luddenham station sites within the corridor allowing waterways to remain. |
| **Re-use of Timber** | | | |
| E12 | Prior to vegetation clearing, the Proponent must identify where it is practicable for the CSSI to reuse native trees and vegetation that are to be removed. If it is not possible for the CSSI to reuse removed native trees and vegetation, the Proponent must consult with the relevant council(s), NSW National Parks & Wildlife Service, Western Sydney Parklands Trust, Greater Sydney Local Land Services, Landcare groups, DPI Fisheries and any additional relevant government agencies to determine if:<br>(a) hollows, tree trunks (greater than 25-30 centimetres in diameter and 2-3 metres in length), mulch, bush rock and root balls salvaged from native vegetation impacted by the CSSI; and<br>(b) collected plant material, seeds and/or propagated plants from native vegetation impacted by the CSSI, could be used by others in habitat enhancement and rehabilitation work, before pursuing other disposal options. | Section 10 | The clearing of trees for the construction of the rail alignment within the corridor was undertaken by SCAW prior to the SSTOM works commencing. During the clearing and grubbing SCAW collected and stored separately any useful removed landscape materials for re-use in the project in fauna crossings, etc.<br><br>This collected and stored landscape material from SCAW has been reviewed by SSTOM and incorporated into the landscape design of the SSTOM project for use in the fauna crossings, etc.<br><br>At this stage of the project Parklife Metro does not have access to the nominated project site to undertake a tree survey and this access is not granted until significantly after the submission of this Stage 2 PUDCLP. As such, Parklife are not able to confirm if there are any existing trees or vegetation that need to be removed. However, surveys and consultation will be undertaken with the relevant authorities once site access is granted. It is noted that this will be undertaken prior to proceeding with construction works. |
| E13 | Revegetation and the provision of replacement trees must be informed by a Tree Survey undertaken during detailed design. The Tree Survey must identify the number, type and location of any trees to be removed, except for trees that are offset under Condition E4. The Tree Survey must be submitted to the Planning Secretary for information with the Place, Urban Design and Corridor Landscape Plan required under Condition E79.<br><br>Where trees are to be removed, the Proponent must provide a net increase in the number of replacement trees at a ratio of 2:1, except trees that are offset under Condition E4. Replacement trees must have a minimum pot size consistent with the relevant authority's plans / programs / strategies for vegetation management, street planting, or open space landscaping, or as agreed by the relevant authority(ies).<br><br>Note: For the purposes of this condition, the relevant authority is that State or local government authority that owns or manages the land on which the replacement trees will be planted. | | The provision of replacement trees is a key outcome of the project. The landscape design within this Stage 2 PUDCLP provides a net increase in the number of trees at a ratio of at least 2:1, except trees that are offset under Condition E4 (biodiversity credits).<br><br>A Tree Survey will be submitted with the final PUDCLP to DPHI subject of the timing of site access. It will indicate the number, type and location of any trees to be removed (except for trees that are offset under Condition E4) and the existing trees to be retained and protected.<br><br>At this stage of the project Parklife Metro does not have access to the nominated project site to undertake a tree survey. Once site access is granted, surveys and consultation will be undertaken with the relevant authorities, to confirm compliance with this condition. It is noted that this will be undertaken prior to proceeding with construction works. Parklife Metro will continue to monitor the timing of site access and will communicate status with DPHI on a regular basis as PUDCLP review progresses. |

| Place, Urban Design and Corridor Landscape Plan | | | |
|---|---|---|---|
| **CoA** | **Requirement** | **Reference** | **How addressed?** |
| **Watercourse Crossings** | | | |
| E14 | The Proponent must design the watercourse crossings and the east-west regional corridor (Patons Lane) crossing to achieve the following objectives: | | |
| | (a) design of viaducts to retain and minimise clearing/disturbance of native vegetation and maximise native plant growth under the structures,<br>(i) maintain and/or improve riparian/terrestrial connectivity under the viaduct and bridge structures to maximise the corridor function;<br>(ii) maximise the viaduct and bridge structures span over the riparian corridor and/or remnant native vegetation whichever is the widest;<br>(iii) minimise the clearing/disturbance of native vegetation and native riparian vegetation; and<br>(iv) maximise light and moisture penetration under the viaduct and bridge structures to support native plant growth; | Section 10 | Primary works related to design of watercourse crossings and east-west corridor movements for the viaduct were undertaken by the SCAW contract. Readers should review the SCAW PUDCLP for management of this condition. The SSTOM works have introduced ATC bridges which span key waterway crossings adjacent the SMF and Luddenham station sites within the corridor allowing waterways to remain. The SSTOM works have also integrated the SCAW fauna crossing designs into the Corridor Landscape Master Plan. |
| | (b) design of culverts and other crossings incorporate the following into the design to provide for movement of aquatic and terrestrial fauna,<br>(i) elevated "dry" cells to encourage terrestrial movement, and recessed "wet" cells to facilitate the movement of aquatic fauna;<br>(ii) maximise light penetration into the culvert structures;<br>(iii) a naturalised base along the bed of the culvert; and 'fauna furniture' (such as rocks, logs, ropes and ledges) to facilitate fauna movement to maintain connectivity and provide fauna passage; | Section 10 | Primary works related to design of culverts and other crossings for the movement of aquatic and terrestrial fauna were undertaken by the SCAW contract. Readers should review the SCAW PUDCLP for management of this condition. The SSTOM works have integrated the SCAW fauna crossing designs into the Corridor Landscape Master Plan. |
| | (c) design of scour protection using natural solutions such as the revegetation of banks with local native species; and | Section 10 | This requirement applies to the ATC bridges within the Corridor and has been addressed in the corridor section of this Stage 2 PUDCLP. Refer to the SCAW PUDCLP for how this requirements has been addressed for the design of the viaduct. |
| | (d) details of remnant native vegetation including riparian vegetation. | Section 10 | This requirement applies to the riparian vegetation adjacent to the ATC bridges within the corridor and has been addressed in the Corridor section of this Stage 2 PUDCLP. It outlines how the impacts have been limited, the rehabilitation of impacted areas and plant mixes. Refer to the SCAW PUDCLP for how this requirements has been addressed for the design of the viaduct. |
| | The Proponent must consult with DPIE EES, DPI Fisheries and engage suitably qualified experts in fauna crossing design to achieve the outcomes of this condition.<br>Note: These design objectives must form part of the Place, Urban Design and Corridor Landscape Plan required under Condition E79. | Section 10 | Primary works related to fauna crossing design and consultation were undertaken by the SCAW contract. Readers whould review the SCAW PUDCLP for management of this condition. The SSTOM works have integrated the SCAW fauna crossing designs into the Corridor Landscape Master Plan. |
| E15 | The CSSI must be designed and constructed with the objective of not exceeding the flood impacts presented in the documents listed in Condition A1 or the flood impact criteria in Table 5, whichever is greater, within and in the vicinity of the CSSI for all flood events up to and including the one (1) per cent Annual Exceedance Probability (AEP) flood event.<br><br>Measures identified in the documents listed in Condition A1 to limit flooding impacts or measures that achieve the same outcome must be incorporated into the detailed design of the CSSI. | Section 02 | The measures identified in the Environmental Impact Statement (EIS) have been incorporated into the detailed design of the CSSI to limit flooding impacts. The CSSI has been designed in accordance with the project performance outcomes for flooding as well as the mitigation measures identified in the EIS. |

| Place, Urban Design and Corridor Landscape Plan | | | |
|---|---|---|---|
| **CoA** | **Requirement** | **Reference** | **How addressed?** |
| **Noise Mitigation - Operational Noise and Vibration Mitigation Measures** | | | |
| E58 | The Proponent must prepare an Operational Noise and Vibration Review (ONVR) to confirm noise and vibration mitigation measures that would be implemented for the Operation of the CSS I for the ultimate service. The ONVR must be prepared as part of the iterative design development and in consultation with the EPA, relevant council(s), other relevant stakeholders and must:<br><br>(a) identify appropriate Operational noise and vibration objectives and levels for surrounding development, including existing and potential future (as known at the time of ONVR preparation) sensitive land use(s);<br><br>(b) confirm the operational noise and vibration predictions based on the expected final design Confirmation must be based on an appropriately calibrated noise model;<br><br>(c) identify sensitive landuses that are predicted to exceed:<br><br>(i) noise criteria setout in the Rail Infrastructure Noise Guideline (EPA, 2013), Noise Policy for Industry (EPA, 2017); and<br><br>(ii) vibration goals for human exposure for existing sensitive land use(s), as presented in Assessing Vibration: a Technical Guideline (DECC, 2006);<br><br>(d) identify all noise and vibration mitigation measures including location, type and timing of mitigation measures, with a focus on: (i) source control and design;<br><br>(ii) at the receiver (if relevant); and<br><br>(iii) 'best practice' achievable noise and vibration outcome for each activity;<br><br>describe how the final suite of mitigation measures will achieve:<br><br>(i) the noise criteria outlined in the Rail Infrastructure Noise Guideline (EPA, 2013) and Noise Policy for Industry (EPA, 2017); and<br><br>(ii) vibration goals for human exposure for existing sensitive land use(s), as presented in Assessing Vibration: a Technical Guideline (DECC, 2006);<br><br>(f) include a consultation strategy to seek feedback from directly affected landowners on the noise and vibration mitigation measures being offered;<br><br>(g) include procedures for operational noise and vibration complaints management, including investigation and monitoring (subject to complainant agreement).<br><br>The ONVR must be verified by an independent acoustic expert and submitted to the Planning Secretary for approval before the implementation of any operational noise mitigation measures. The Proponent must implement the identified noise and vibration control measures and make the ONVR publicly available.<br><br>Note - The design or noise barriers and the like must be undertaken in consultation with the relevant stakeholders, including affected landowners and businesses (or a representative of a business), Western Parklands City Authority and relevant council(s) as part of the Place, Urban Design and Corridor Landscape Plan required under Condition E79. | | As part of work undertaken in the ONVR it has been determined that there is no requirement to introduce noise walls for mitigation of the effects of noise and vibration. Work on the ONVR will continue as the project design, testing and transition to operation is made and this will continue to be verified by that process. |

| Place, Urban Design and Corridor Landscape Plan | | | |
|---|---|---|---|
| **CoA** | **Requirement** | **Reference** | **How addressed?** |
| **Place, Urban Design And Visual Amenity** | | | |
| **Design Requirements and Strategic Context** | | | |
| E63 | The CSSI must be designed with consideration of: | | |
| | a) the design objectives, principles and guidelines identified in documents listed in Condition A1; | Section 02<br>Section 03 | The design builds on and integrates the SM design objectives, principles and guidelines developed during the EIS and listed in Condition A1. |
| | (b) the principles and objectives of the draft Connecting with Country Framework; | Section 04 | Djinjama's inclusion and integration of what was shared both by the Connecting with Country Working Group, the Co-Design workshops, and Djinjama's own First Nations methodologies for design has informed the SSTOM design. |
| | (c) relevant land use changes, masterplans and initiatives, where this information is known and/or available; | Section 05, 06, 08, 09 | The relevant land use changes, masterplans and initiatives have been summarised in this Stage 2 PUDCLP to the extent that they are available. |
| | (d) existing and proposed future local context and character; and | Section 05, 06, 07, 08, 09 | The existing and proposed future local context and character has been summarised in this Stage 2 PUDCLP to the extent that they are available. |
| | (e) transport and land use integration and system functionality in the context of precincts, to the extent it is known and/or defined. | Section 02 | The transport and land use integration has been summarised in this Stage 2 PUDCLP to the extent that they are available. |
| | Responses to items (a) – (e) must be reviewed by the Design Review Panel (DRP) to inform the design of permanent built works and landscape design of the CSSI. The outcome of the DRP review must be provided to the Planning Secretary prior to the submission of the Place, Urban Design and Corridor Landscape Plan (PUDCLP).<br><br>Note: In accordance with Condition A10 and Condition A16, the requirements of this condition can be staged | Section 01<br>Appendix C | Design development has involved an iterative process of seeking advice and recommendations from the DRP at key design stages. The outcome of the DRP reviews will be provided to the Planning Secretary in the Final PUDCLP submission to DPHI. |
| **Design Guidance and Standards - Lighting and Security** | | | |
| E64 | The CSSI must be constructed and operated with the objective of minimising light spill to surrounding properties. All lighting associated with the CSSI must be consistent with the requirements of: | Section 05, 06, 07, 08, 09 | The requirements of CoA E64 have been integrated into the design of the precinct lighting for SMF and the design of the lighting elements in Section 06. Parklife Metro's lighting design for the stations and surrounding precincts will be progressed to integrate with the developing station precincts, LGA streets and neighbouring (of future developments). The design of lighting is generally driven by the Particular Specification requirements which mandate compliance with a range of relevant Australian Standards including the AS1158 series, local council requirements as well as elements of the Airport Plan. These standards provide guidance on management of the obtrusive effects of external lighting which will be complied with as part of the design. |
| | a) ASINZS 4282:2019 Control of the obtrusive effects of outdoor lighting, relevant Australian Standards in the series ASINZS 1158 - Lighting for Roads and Public Spaces; | Section 05, 06, 07, 08, 09 | The requirements of CoA E64 have been integrated into the design of the precinct lighting for SMF and the stations. |
| | b) NASF Guideline E: Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports; and | Section 11 | The requirements of NASF Guideline E have been integrated into the design of the planting where applicable. |
| | c) NASF Guideline C: Managing the risk of wildlife strikes in the vicinity of airports. | Section 11 | The requirements of NASF Guideline C have been integrated into the design of the planting where applicable. |
| | Mitigation measures must be provided to manage residual night lighting impacts to protect properties adjoining or adjacent to the CSSI, in consultation with affected landowners. | Section 05, 06, 07, 08, 09 | The requirements of CoA E64 have been integrated into the design of the precinct lighting for SMF and the design of the lighting elements at the stations in this Stage 2 PUDCLP. |

| Place, Urban Design and Corridor Landscape Plan | | | |
|---|---|---|---|
| **CoA** | **Requirement** | **Reference** | **How addressed?** |
| **Design Guidance and Standards - Active Transport** | | | |
| E65 | Designs must have regard to the Movement and Place Framework relevant guidance including the Walking Space Guide: Towards Pedestrian Comfort and Safety (TfNSW, 2020) and the Cycleway Design Toolbox: Designing for Cycling and Micromobility (TfNSW, 2020). | Section 05, 06, 08, 09<br><br>Appendix E | The requirements of the Movement and Place Framework have been integrated into the design of the Stations where applicable. This Stage 2 PUDCLP includes the Interchange Access Plans (IAP) in Appendix E, which are documents that outlines the transport requirements and principles that are applied to the station precincts, facilitating good access for all modes of transport.<br><br>The IAPs address the broad transport and access requirements outlined in relevant standards and guidelines referenced as part of the IAP. The framework embedded within the IAP demonstrates how the relevant features of the design comply with the requirements set out in the Movement and Place Framework and referenced guidelines. |
| E66 | Active transport facilities must be designed, constructed and/or rectified in accordance with the Guide to Road Design Part 6A: Paths for Walking and Cycling (Austroads, 2017) and relevant Australian Standards (AS) such as AS 1428.1-2009 Design for access and mobility. The active transport links must also incorporate relevant Crime Prevention Through Environmental Design principles. | Section 05, 06, 08, 09<br><br>Appendix E | The requirements of the Guide to Road Design Part 6A and the relevant Australian Standards have been integrated into the design of the active transport facilities at Stations. The Interchange Access Plans (IAP) in Appendix E provide further detail on the transport requirements and principles that are applied to the station precincts.. |
| **Operation of the Design Review Process** | | | |
| E75 | DRP advice and recommendations, as issued by the Panel, and the Proponent's response to each recommendation must be included when submitting the final PUDCLP to the Planning Secretary for information. | Section 01<br><br>Appendix C | The design has been regularly reviewed by the DRP. The DRP advice and recommendations and responses will be included in Appendix C of the Final Stage 2 PUDCLP submitted to DPHI for information. |
| **Place, Urban Design and Corridor Landscape Plan** | | | |
| E77 | A PUDCLP must be prepared to document and illustrate the permanent built works and landscape design of the CSSI and how these works are to be maintained. The PUDCLP must be: | | This Stage 2 PUDCLP |
| | (a) prepared by a suitably qualified and experienced person(s) in consultation with the community (including the affected landowners and businesses or a representative of the businesses), Western Parklands City Authority, Western Sydney Planning Partnership and relevant council(s); | Section 01<br><br>Appendix A<br><br>Appendix D | This Stage 2 PUDCLP has been prepared by suitably qualified and experienced persons.<br><br>The consultation process to date and outcomes for the SSTOM project are recorded in this Stage 2 PUDCLP. The outcomes of the consultation on this Stage 2 PUDCLP will be included in Appendix B at the completion of the PUDCLP consultation period and included in the Final PUDCLP for submission to DPHI. |
| | (b) reviewed by an independent and suitably qualified and experienced person nominated by the DRP; | Section 01 | This Stage 2 PUDCLP will be reviewed by an independent and suitably qualified and experienced person nominated by the DRP, prior to the Final Stage 2 PUDCLP submission to DPHI. |
| | (c) submitted to the Planning Secretary prior to the construction of permanent built surface works and/or landscaping, excluding those elements which for ecological requirements, or technical requirements, or requirements as agreed by the Planning Secretary do not allow for alternate design outcomes; and | Section 01 | The Final Stage 2 PUDCLP will be submitted to DPHI prior to the construction of permanent built surface works and/or landscaping, except for Luddenham Station Building and Stabling and Maintenance Facility which were included in the Stage 1 PUDCLP that has been submitted to DPHI. |
| | (d) implemented during construction and operation of the CSSI. | Section 01 | This Stage 2 PUDCLP will be implemented during the construction and operation phase of the Project. |
| | Note: The PUDCLP may be developed and considered in stages to facilitate design progression and construction. Any such staging and associated approval would need to facilitate a cohesive final design and not limit final design outcomes. | Section 01 | The conditions allow for the staging of the PUDCLP to facilitate design progression and construction. In line with the above, the SSTOM PUDCLP is being delivered in two stages.<br><br>A Stage 1 SSTOM PUDCLP dealt only with the Luddenham Station Building and Stabling and Maintenance Facility components of the SSTOM project. This Stage 2 PUDCLP incorporates all the stations, precincts, and corridor works into a single PUDCLP, including the Luddenham Station Building and Stabling and Maintenance Facility from the Stage 1 PUDCLP.<br><br>The requirement for additional revisions of the SSTOM PUDCLPs will be reviewed in consultation with DPHI following completion of all design stages. |

| Place, Urban Design and Corridor Landscape Plan | | | |
|---|---|---|---|
| **CoA** | **Requirement** | **Reference** | **How addressed?** |
| **Place, Urban Design and Corridor Landscape Plan - Documentation** | | | |
| E78 | The PUDCLP must document how the following matters have been considered in the design and landscaping of the project: | | |
| | (a) the requirements of Conditions E63 to E65, and | This table | Refer to the relevant Condition within this table to identify how these matters have been considered in the design of the Project. |
| | (b) advice and recommendations from the DRP. | Section 01<br><br>Appendix C | A summary of the dates of the DRP meetings and the issues raised by the DRP at these meetings is contained in Section 01. A record of the DRP comments is contained in Appendix C. |
| E79 | The PUDCLP must include descriptions and visualisations (as appropriate) of: | | |
| | (a) design of the permanent built elements of the CSSI, including stabling and maintenance and ancillary facilities, service facilities and tunnel portals; | Section 05, 06, 07, 08, 09 | Descriptions and visualisations of the stations, corridor and SMF are included in this Stage 2 PUDCLP. |
| | (b) plans for station precincts including but not limited to:<br>(i) justification of the spatial scope of each station precinct plan;<br>(ii) provision for public art and heritage interpretation installations;<br>(iii) placemaking opportunities, having regard to placemaking initiatives in Western Sydney Aerotropolis planning documents;<br>(iv) interchange access plans developed in consultation with the Traffic and Transport Liaison Group;<br>(v) active transport connections and end of trip facilities, design of pedestrian and cycle access, facilities and fixtures;<br>(vi) design of commuter car parking elements, where relevant; | Section 05, 06, 07, 08, 09<br><br>Appendix E | Plans for all station precincts and corridor are included in this Stage 2 PUDCLP.<br><br>Interchange Access Plans developed in consultation with the Traffic and Transportation Liaison Group are provided in Appendix E – Interchange Access Plans.. |
| | (c) landscaping and building design opportunities to mitigate visual impacts and minimise light spill on the nearby residences; | Section 05, 06, 07, 08, 09 | Strategies for mitigating visual impacts of the stations and facilities and minimising light spill on the nearby residences are outlined in this Stage 2 PUDCLP. |
| | (d) the design of watercourse crossings and east-west corridor movements to give to effect of Condition E14; | Section 10 | Primary works related to design of watercourse crossings and east-west corridor movements for the rail corridor were undertaken by the SCAW contract. Readers should review the SCAW PUDCLP for management of this condition. The SSTOM works have introduced bridges which span key waterway crossings adjacent the SMF and Luddenham station sites within the corridor allowing waterways to remain. The SSTOM works have also integrated the SCAW fauna crossing designs into the Corridor Landscape Master Plan. |
| | (e) landscaping: | Section 11 | The system wide approach to the landscape design for the stations, SMF and corridor is outlined in this PUDCLP. |
| | (i) landscape plan, hard and soft elements, for the corridor and the station precincts; | Section 05, 06, 07, 08, 09 | Landscape plans for all station precincts and corridor are included in these sections of the PUDCLP. |
| | (ii) use of native species from the relevant native vegetation community (or communities), where identified as appropriate; | Section 11 | Plant species selection will use native species from the relevant native vegetation community where appropriate. |
| | (iii) water sensitive urban design initiatives | Section 05, 06, 08, 09, 11 | The water sensitive urban design initiatives (WSUD) for the stations, SMF and corridor are outlined in Section 11 of this PUDCLP. WSUD initiatives for each of the station precincts are included in the relevant station section. |

| Place, Urban Design and Corridor Landscape Plan | | | |
|---|---|---|---|
| **CoA** | **Requirement** | **Reference** | **How addressed?** |
| | (vii) management and routine maintenance standards and regimes for design elements and landscaping work (including weed management) to ensure the success of the design; | Section 11 | The management and routine maintenance standards and regimes for the design elements and landscaping work are included in this PUDCLP. |
| | (viii) measures to prevent wildlife strike risk in proximity to Western Sydney International Airport; | Section 10 | Measures to prevent wildlife strike risk in proximity to WSIA have been integrated into the design of the planting where applicable. |
| | (f) details of strategies to rehabilitate, regenerate or revegetate disturbed areas, where relevant; | Section 10 | The strategies to be used to rehabilitate, regenerate or revegetated disturbed areas is included in the corridor section of the PUDCLP. |
| | (g) management and routine maintenance standards and regimes for design elements and landscaping work (including weed management) to ensure the success of the design; | Section 11 | The management and routine maintenance standards and regimes for the design elements and landscaping work are included in this PUDCLP. |
| | (h) operational maintenance standards; and | Section 11 | The operational maintenance standards are included within this PUDCLP. |
| | (i) the timing and responsibilities for implementation of elements included within the PUDCLP. | Section 01 | The timing and responsibilities for implementation of the urban elements is included within this PUDCLP. |
| **Road Traffic and Safety** | | | |
| E117 (d) | Supplementary analysis and modelling as required by TfNSW and/or the Traffic and Transport Liaison Group(s) must be undertaken to demonstrate that construction and operational traffic can be managed to minimise disruption to traffic network operations, including changes to and the management of pedestrian, bicycle and public transport networks, public transport services, and pedestrian and cyclist movements. Revised traffic management measures must be incorporated into the CTMP.<br><br>Permanent road works included in the CSSI must be designed, constructed and operated with the objective of integrating with existing and proposed road and related transport networks and minimising adverse changes to the safety, efficiency and, accessibility of the network. Design and assessment of related traffic, parking, pedestrian and cycle accessibility impacts and changes shall be undertaken:<br><br>(d) to, where possible and appropriate, retain or reinstate parking in St Marys; | Appendix E | The SSTOM works are not required to include additional parking within the St Marys precinct. That said, existing parking serving the St Mays Sydney Trains station will remain in place, with pedestrian connection from the new station via the new footbridge at St Marys. |
| **Property Access** | | | |
| E113 | Any property access physically affected by the CSSI must be reinstated to at least an equivalent standard, unless otherwise agreed by the landowner or occupier. Property access must be reinstated within one (1) month of the work that physically affected the access is completed or in any other timeframe agreed with the landowner or occupier. | | Suitable processes will be followed to ensure that property access affected by the CCSI will be reinstated to at least an equivalent standard within 1 month of the work being completed or any other timeframe agreed with the landowner or occupier. |
| **Warragamba to Prospect Water Supply Pipeline** | | | |
| E121 | The proponent must consult with WaterNSW regarding design, construction and operational management where the proposal interacts with the Warragamba to Prospect Water Supply Pipeline, and ensure that proposed construction and operational agreements are consistent with the "Guidelines for Development Adjacent to the Upper Canal and Warragamba Pipelines" and implement all practical measures to protect the Warragamba to Prospect Water Supply Pipelines infrastructure, or as otherwise agreed to by WaterNSW. | | The SSTOM design does not impact the area around the Warragamba pipeline on the basis that the alignment is on viaduct in this location and is to be delivered by proceeding contractors (SCAW). Regardless, WaterNSW has reviewed the developed corridor design and provided a statement saying "WaterNSW - No Comments". |

## 01.7 Design development process

The design for the Sydney Metro - Western Sydney Airport project has developed from an initial scoping design through to the detailed design (Refer to flow chart below). At each stage a range of consultation and stakeholder engagement activities have occurred.

Figure 01-1: Design development process

**Scoping and definition design**

- Includes station locations, vertical alignment, tunnels and viaducts
- Community and stakeholder feedback received as part of consultation and engagement activities in 2019 and 2020, including EIS and separate stakeholder briefings.

→

**Reference (Concept) design**

- Aligns with design described in the EIS and provides basis for public domain plans
- Aligns with SMWSA Design Guidelines
- Design Advisory Panel involved in design review.

↓

**Detailed design (Stage 1)**

- Builds on Reference (Concept) design
- Connecting with Country, heritage interpretation strategy and public art plan prepared
- Stakeholder liaison and formal feedback on plans
- Design Review Panel involved in design review, including design requirements and strategic context.

→

**Detailed design (Stage 2 & 3)**

- Builds on Stage 1 design
- Aligns with this PUDCLP
- Community and stakeholder feedback received; independent review; advice and recommendations from Design Review Panel included in this PUDCLP.

This PUDCLP draws upon the design work that occurred prior to obtaining planning approval (i.e. during the scoping, definition and reference design) for context, and then details the design work and associated consultation activities that have occurred since planning approval was obtained (i.e. during the concept and detailed design stage).

It is noted that this PUDCLP relates to all design components of the SSTOM project that are subject to the project approval SSI-10051. The approval and design of any development on residual land or over station development component is subject to that relevant planning approval and associated design process.

## 01.8 Collaboration and consultation

This Stage 2 SSTOM PUDCLP and a series of illustrative plan drawings have been prepared for the purposes of presentation and public display.

This Plan will be exhibited for consultation with relevant Councils, the community and affected landowners and businesses. Following this consultation period feedback received will be reviewed and included in the Final Stage 2 SSTOM PUDCLP as required.

### 01.8.1 Consultation during preparation of this PUDCLP

At the time of the release of the PUDCLP for public display, stakeholder consultation had been undertaken with a range of stakeholders on the following dates.

Table 01-6: Consultation register

| Consultation during preparation of this PUDCLP | |
|---|---|
| **Stakeholder** | **Date** |
| Penrith City Council (Parklife Metro and PCC Design Coordination Meeting) | 04/03/2023<br>23/05/2023<br>28/06/2023<br>26/07/2023<br>23/08/2023<br>27/09/2023<br>14/12/2023<br>19/12/2023<br>24/01/2024<br>22/02/2024<br>28/02/2024<br>27/03/2024<br>24/04/2024 |
| Connecting with Country Working Group (CwC) | 10/02/2023<br>10/03/2023<br>12/05/2023<br>17/05/2024<br>21/06/2024 |
| Celestino (Luddenham Urban Design and Placemaking Meeting) | 02/03/2023<br>22/06/2023 |
| Bradfield Development Authority (BDA) | 16/02/2023<br>23/03/2023<br>17/05/2023<br>23/05/2023<br>07/06/2023<br>14/06/2023<br>21/06/2023<br>01/02/2024<br>07/02/2024<br>15/02/2024<br>21/02/2024<br>03/04/2024<br>17/04/2024<br>01/05/2024 |
| Public Art Working Group (PAWG) | 31/01/2024<br>28/02/2024<br>13/03/2024<br>20/03/2024<br>27/03/2024<br>10/04/2024<br>08/02/2024<br>08/05/2024<br>22/05/2024<br>05/06/2024 |
| Traffic and Transport Liason Group | 07/12/2023<br>18/04/2024<br>09/05/2024<br>09/05/2024 |
| Heritage Working Group | 19/06/2024 |

## 01.9 Design Review Panel and Design Review

### 01.9.1 Design Review Panel

In accordance with Condition E67, Sydney Metro established an independent Design Review Panel (DRP) to provide advice and recommendations during the CSSI's design development, to facilitate quality design and place outcomes.

The responsibilities of the Design Review Panel include providing advice and recommendations for consideration in the development of the Project, provide advice on the application of Sydney Metro – Western Sydney Airport Submissions Report – Design Guidelines to key design elements in relation to place making, architecture, heritage, urban and landscape design and artistic aspects of the Project.

Responses to these items have been reviewed by the DRP to inform the design of permanent built works and landscape design of the project. The outcome of the DRP reviews will be provided to the Planning Secretary in the Final PUDCLP submission to DPHI.

### 01.9.2 Design Review Panel sessions

At the time of the release of the PUDCLP for public display, DRP sessions had been undertaken on the following dates:

Table 01-7: Design Review Panel sessions

- DRP 11 - 1/12/2022
- DRP 12 - 23/02/2023
- DRP 13 - 9/03/2023
- DRP 14 - 23/03/2023
- DRP 15 - 6/04/2023
- DRP 16 - 20/04/2023
- DRP 17 - 4/05/2023
- DRP 18 - 24/05/2023
- DRP 19 - 1/06/2023
- DRP 20 - 15/6/2023
- DRP 21 - 29/6/2023
- DRP 22 - 13/07/2023
- DRP 23 - 27/07/2023
- DRP 24 - 10/08/2023
- DRP 25 - 24/08/2023
- DRP 26 - N/A
- DRP 27 - 07/09/2023
- DRP 28 - 21/09/2023
- DRP 29 - 05/10/2023
- DRP 32 - 02/11/2023
- DRP 33 - 16/11/2023
- DRP 34 - 30/11/2023
- DRP 35 - 14/12/2023
- DRP 36 - 01/02/2024
- DRP 38 - 29/02/2024
- DRP 39 - 28/03/2024
- DRP 40 - 18/04/2024
- DRP 41 - 02/05/2024
- DRP 42 - 30/05/2024

### 01.9.3 Design review process

Design development has involved an iterative process of seeking advice and recommendations from the DRP at key design stages. Following is a list of DRP discussion topics as relevant to this PUDCLP.

Table 01-8: Design Review Panel register

| DRP session | Agenda items |
|---|---|
| DRP 11 | • SMF<br>• Linewide design<br>• Precinct, Station and Landscape Design - AEC, LDN, OHE, STM. |
| DRP 12 | • LDN - Draft masterplan, options for eastern façade and maintenance, canopy design<br>• AEC - Draft masterplan, precinct and OSD, canopy and facade. |
| DRP 13 | • Landscape narrative<br>• OHE - Precinct, canopy and facade, strut design<br>• AEH - Design studies. |
| DRP 14 | • STM - Precinct, canopy and facade, hostile vehicle mitigation boundary. |
| DRP 15 | • SMF - Landscape strategy, buildings, public domain elements<br>• Corridor - Scope definition<br>• Services buildings. |
| DRP 16 | • LDN - Masterplan, precinct, station structure<br>• AEH - Precinct, lifts, viaduct, soffit design, service buildings. |
| DRP 17 | • OHE - Precinct, canopy and facade, service buildings |
| DRP 18 | • STM - Principles and Values from Country, materials and colour, canopy and facade, hostile vehicle mitigation building edge, balustrade study, service buildings |
| DRP 19 | • SMF - Precinct, carpark strategy, shade study, maintenance, roof access, OCC facade, sustainability, landscape, buildings<br>• Corridor - Design principles, context, alignment, lighting, bridges. |
| DRP 20 | • STM - Precinct<br>• LDN - Precinct, service buildings<br>• AEH - Precinct, service buildings. |
| DRP 21 | • OHE - Precinct, service buildings<br>• LDN - Station. |
| DRP 22 | • AEC - Station concourse building design, service building design<br>• STM - Bicycle store, concourse services integration, underground spaces, service building design. |
| DRP 23 | • System wide - Precinct Vision and Identity, Paving and Paths, Seating and Urban Elements, Lighting, Water Features, HVM, Planting<br>• STM - Precinct and Plaza Updates<br>• OHE - Precinct and Plaza Updates. |
| DRP 24 | • AEH - Updated canopy, Integration with OSD, Bicycle store, Services buildings<br>• STM - Bicycle store, Services buildings<br>• System wide - Colour<br>• LDN - Precinct and plaza updates. |
| DRP 25 | • LDN - Plaza updates<br>• AEH - Plaza Updates<br>• OHE - Service building. |
| DRP 27 | • OHE - Family of canopies, Canopy updates, PV provision, bike store, retail POD<br>• System wide - Facade design update, public furniture. |
| DRP 28 | • SMF - Precinct, water, materiality, services, fencing, carparking, OCC, central courtyard<br>• LDN - Egress stairs, fencing<br>• Corridor - Corridor Landscape Master Plan, Security fence planting, ATC access and maintenance, flood design, grading, rest stops, pavement, lighting, bridges. |
| DRP 29 | • AEC - Canopy structural update, canopy awning, bike store update<br>• LDN - Precinct, current canopy design, bike store/ egress stair design, structural development, FOH Amenities Layout Development, service building<br>• STM - Precinct. |

| DRP session | Agenda items |
|---|---|
| DRP 32 | • Linewide – Station facades, glare studies, bike storage facilities and retail.<br>• STM – Roof structure.<br>• OHE – Station precinct design, landscaping design, access. |
| DRP 33 | • Linewide - public art update.<br>• STM - Footbridge and northern plaza design, bike storage access, materials and colours. |
| DRP 34 | • Linewide – Shade provision in stations.<br>• LDN - Station precinct and plaza update, landscape design, drainage, bike storage.<br>• STM – Precinct design, plaza layout, landscaping.<br>• AEC – Pod 1 service building awning and façade treatments, bicycle storage facility. |
| DRP 35 | • Linewide – Sustainability, heritage and interpretation, roads and drainage design, HVM, bicycle facilities, steel detailing and services integration.<br>• SMF – Precinct/architecture, solar panels, stockpiles.<br>• LDN – Changes to the road network.<br>• AEC – Pod 1 service building architecture.<br>• FSM – Materials and detailing, structural requirements, architecture |
| DRP 36 | • Linewide – Bike storage, lighting, traffic engineering, coordination with civil design.<br>• STM – Precinct design (bus shelters).<br>• OHE – Precinct design (bollards and private vehicle access). |
| DRP 37 | • General DRP comments register progress |
| DRP 38 | • Linewide – Traffic engineering and road design, pedestrian network, drainage design.<br>• STM – Lot boundaries, increasing street trees.<br>• OHE – Western Laneway alignment, vehicle access, Precinct Road 8 alignment.<br>• AEC – Road design. |
| DRP 39 | • Linewide – Planting, landscape and tree canopy.<br>• STM – Precinct design (retaining walls, Goods Shed detail).<br>• AEC – Precinct design (HVM location and bollards).<br>• LDN – Security, fencing and barriers, maintenance access and agrees, HVM. |
| DRP 40 | • Open comment status review. |
| DRP 41 | • Precinct close out. |
| DRP 42 | • Art<br>• Heritage<br>• Connecting with Country. |
| DRP 44 | • Connecting with Country<br>• Public Art<br>• Sustainability and Precinct. |

## 01.10 Implementation

In accordance with Condition E79, the timing and responsibility for implementation of the elements covered by this PUDCLP are described below.

### 01.10.1 Management and maintenance for built elements

Prior to the commencement of operation of the Project an Operations and Maintenance Manual will be developed which provides detailed procedures for the monitoring and maintenance of built elements throughout the Project.

### 01.10.2 Timing of access, landscape and open space initiatives

Landscape installation works will occur progressively throughout the project as project areas and work sites become available.

The majority of landscaping installation works are expected to commence in 2026, and will be on-going until project completion. Timing for construction of station buildings and precincts is anticipated as shown in the following table (subject to change).

Table 01-9: Planned timing for landscaping

| Element | Planned Timing (Subject to Change) | Responsibility |
|---|---|---|
| Stabling and Maintenance Facility | Station Q4 2024 | D&C |
| | Precinct Q2 2026 | D&C |
| | Operations Q2 2027 | O&M |
| St Marys Station and Precinct | Station Q4 2024 | D&C |
| | Precinct Q2 2026 | D&C |
| | Operations Q2 2027 | O&M |
| Orchard Hills Station and Precinct | Station Q4 2024 | D&C |
| | Precinct Q2 2026 | D&C |
| | Operations Q2 2027 | O&M |
| Luddenham Station and Precinct | Station Q4 2024 | D&C |
| | Precinct Q2 2026 | D&C |
| | Operations Q2 2027 | O&M |
| Bradfield Station and Precinct | Station Q4 2024 | D&C |
| | Precinct Q2 2026 | D&C |
| | Operations Q2 2027 | O&M |
| Corridor | Q4 2024 - Q1 2025 | D&C |

### 01.10.3 Management and maintenance of landscape works

The landscaping has been designed to optimise long-term maintenance. In order to assist with the resilience of the project landscape solution both passive and active irrigation is provided to assist in supporting the success of the design. This materialises in the following forms:

- Water Sensitive Urban Design features such as:
  - » Water distributed to areas below the viaducts following passive use of landform to create meandering swales
  - » Gravel infiltration trenches to detail runoff
  - » Lining of trenches with geotextile where sodic soils are present to mitigate erosion
  - » The use of plant species that require minimal irrigation
  - » Conveyance of drainage to paved areas to adjacent landscape
- Active irrigation to planting areas that exist over built station structures
- Active irrigation to planting pits in Station Plazas and Interchange zones around the station precincts
- Where active irrigation is provided, it will be supplied using recycled water sources to aid in the sustainability aspirations of the project

Landscape maintenance will be continuous throughout operation of the project. The operator will be responsible for maintaining the landscaping in their licensed maintenance area to a high standard of health and appearance.

The following horticultural practices shall be carried out to ensure the success of the design.

- Watering: generally ensure that all planting is receiving sufficient water noting the provision of both passive and active irrigation. This includes routine maintenance of irrigation equipment.
- Weed and pest control: eradicate grass and weeds from within planted area manually or with approved weedicides and insecticides and remove from site to an authorised waste management facility and use measures to prevent reinfestation
- Monitoring all plants and trees for pest and disease on a regular basis
- Fertilising as appropriate to the species
- Replacement of plants: replace dead or stolen plants and to ensure minimum densities are maintained
- Re-mulch as necessary to maintain mulched areas to the specified depths
- Litter and debris: ensure that the site is kept clean, free of litter, and general debris at all times
- Periodic reduction of biomass in the corridor to help maintain biodiversity / variety of ground layer herbaceous species
- Pruning of vegetation for safety with regards to operations of rail line, safety of public domain and CPTED surveillance
- Lawn mowing in places where grasses are provided.

Prior to the beginning of railway operations the Parklife Metro operator will produce an Operational Landscape Maintenance Plan which will be informed by the design routine maintenance standards.

Existing site photo, Luddenham Road. Image courtesy of Djinjama.