

Deicorp Projects (Tallawong Station)  
Pty Ltd

## Tallawong Station Precinct South

Development Application -  
Sustainability Report

Final Issue | 7 May 2020

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 272000-00

Arup  
Arup Pty Ltd ABN 18 000 966 165



**Arup**  
Level 10 201 Kent Street  
PO Box 76 Millers Point  
Sydney 2000  
Australia  
[www.arup.com](http://www.arup.com)

# ARUP

# Document Verification

# ARUP

<b>Job title</b>		Tallawong Station Precinct South		<b>Job number</b>	
				272000-00	
<b>Document title</b>		Development Application - Sustainability Report		<b>File reference</b>	
<b>Document ref</b>					
<b>Revision</b>	<b>Date</b>	<b>Filename</b>	DA Sustainability Report_01 11032020.docx		
Draft 1	13 Mar 2020	<b>Description</b>	First draft		
			Prepared by	Checked by	Approved by
		Name	Jonathan Bills	Linda Slechta	Roger Swinbourne
		Signature			
Final	17 Apr 2020	<b>Filename</b>	DA Sustainability Report Final 4.docx		
		<b>Description</b>	Final Issue		
			Prepared by	Checked by	Approved by
		Name	Jonathan Bills	Linda Slechta	Roger Swinbourne
Signature					
	07 May 2020	<b>Filename</b>	DA Sustainability Report Final 5.docx		
		<b>Description</b>	Final Issue - Update		
			Prepared by	Checked by	Approved by
		Name	Jonathan Bills	Linda Slechta	Roger Swinbourne
Signature					

Issue Document Verification with Document



# Contents

---

	Page
<b>Executive Summary</b>	<b>1</b>
<b>1 Introduction</b>	<b>2</b>
1.1 Approvals pathway	3
<b>2 Policy Context</b>	<b>4</b>
2.1 State Environmental Planning Policies (SEPP's)	4
2.2 Sydney region plans	4
2.3 Local Planning Controls	5
2.4 Previous approvals	6
<b>3 Sustainability Response</b>	<b>6</b>
<b>4 Sustainability Framework</b>	<b>8</b>
<b>5 Conclusion</b>	<b>15</b>

## Executive Summary

---

This DA sustainability report describes the current sustainability actions that have been achieved and/or embedded within the design, construction and operation of the Tallawong Station South development. These actions have been undertaken as a commitment to the future environmental and social value realised within the Tallawong development.

These initiatives have also drawn from and respond to the sustainability requirements described in:

- Planning Secretary's Environmental Assessment Requirements (SEARs)
- Regional policies; the Greater Sydney Commission, State Environmental Planning Policies (SEPPs)
- Blacktown Council Planning Controls
- The Landcom, Sydney Metro / Deicorp joint commitments

This report details the sustainability initiatives and demonstrates design responses that integrate principles of ecologically sustainable development (ESD). To demonstrate this, the plan has adopted a sustainability framework to ensure the approach drives the broader principles of sustainability as well as demonstrating outcomes for building performance, energy efficiency, water sensitive urban design, waste management, innovation, and a variety of other positive social, environmental and economic outcomes.

# 1 Introduction

Tallawong Station South (referred to as ‘Tallawong’ in this report), of which the boundary will be confirmed by Deicorp at a later date, is situated between Cudgegong Road, Tallawong Road, Schofields Road and the Metro Northwest corridor, and comprises of 70,424m<sup>2</sup> of land. The Tallawong development will deliver 987 residential units, and 9000m<sup>2</sup> of commercial and retail space. The project area for Tallawong is shown in Figure 1.

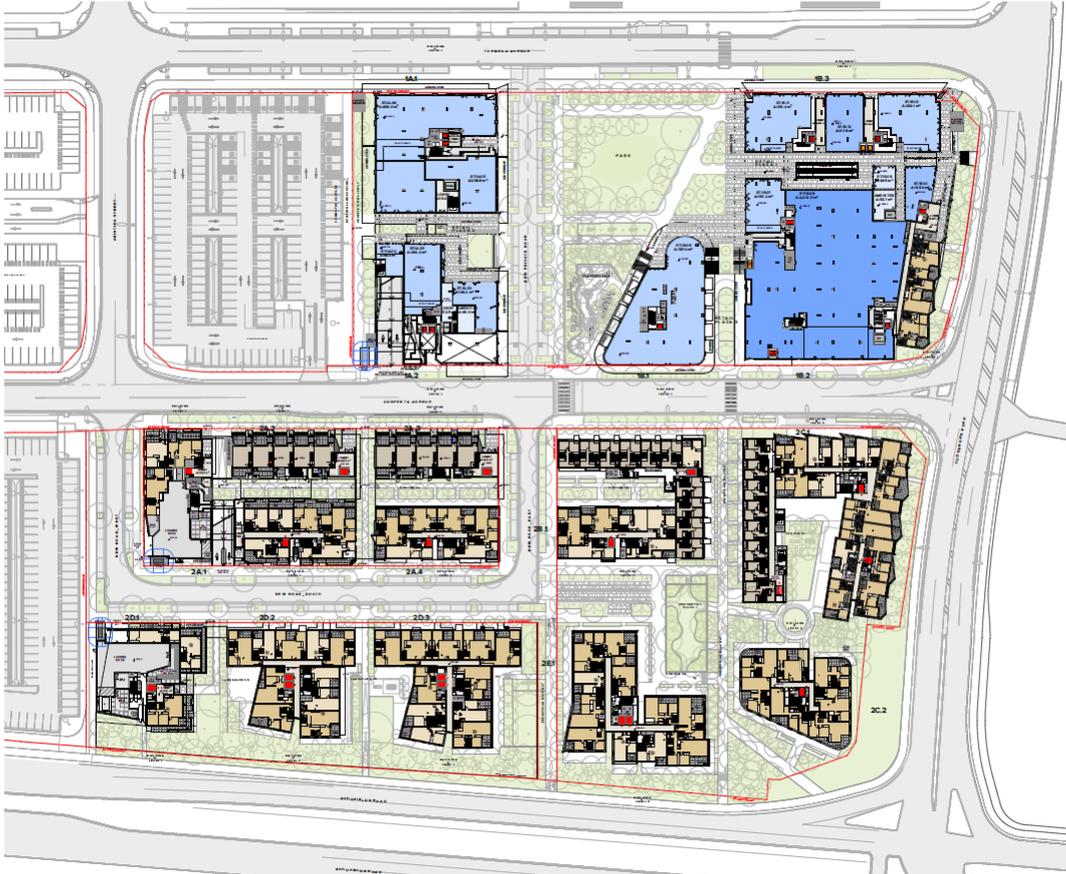


Figure 1 - Tallawong Project Boundary

The Tallawong development has aimed to integrate a variety of sustainability initiatives outlined in regional policies, local planning policies, SEARs and commitments of Landcom, Sydney Metro and Deicorp. This draws from the sustainability actions identified within the concept approval and develops up implementation details appropriate to this stage of design. The chosen framework shows consistency in the use of Green Star Communities framework to describe actions.

Currently, a number of sustainable initiatives have been achieved or integrated into the design, construction and operation of Tallawong to advance the social, environmental and economic performance of the area. These actions are described and illustrated in depth in section 5 of this report, and the approach to the SEARs requirements are addressed specifically below in Table 1.

## 1.1 Approvals pathway

Under Development Consent SSD 9063, the Minister for Planning identifies that development that has a capital investment value over a specific amount is declared to be State Significant Development (SSD) for the purposes of the EP&A Act. The proposed stages of development exceed this amount and are therefore considered SSD.

### 1.1.1 Planning Secretary's Environmental Assessment Requirements (SEARs)

The approval for the project is being evaluated by the NSW State Government Department of Planning and Environment and is required to demonstrate alignment with the Secretary's Environmental Assessment Requirements (SEAR's). The following SEAR's relate specifically to the sustainability requirements.

Table 1 – Response to the SEARs Requirements

SEARs Requirement
Detail how ESD principles (as defined in clause 7(4) of Schedule 2 of the <i>EP&amp;A Regulation 2000</i> ) will be incorporated in the design, construction and ongoing operation of the development
Include a framework for how the proposed development will reflect national best practice sustainable building principles to improve environmental performance, including energy and water efficient design and technology, use of renewable energy and best practice in waste management strategy including any opportunity for food scraps/composting strategies
Detail how sustainable stormwater management including water sensitive urban design measures will be implemented and incorporated into the design of the development
Identify impacts on surface and ground water sources, watercourses, riparian land, and groundwater dependent ecosystems, measures proposed to reduce and mitigate these impacts, and proposed surface and groundwater monitoring activities and methodologies
Demonstrate sufficient waste and recycling management facilities and storage holding areas for servicing. A Sustainability Strategy for the development should be prepared.

This report covers off many of the elements of the SEARs above and where it does not it summarises and directs to other technical reports. The reference table connecting to how these have been addressed in this report can be seen in Appendix 1.

## 2 Policy Context

---

This section provides an outline of relevant project policy and planning requirements for consideration in the context of Tallawong Sustainability. It recognises that the SEARs are the primary consideration but has drawn reference and consideration of the other state and local policy context where appropriate.

### 2.1 State Environmental Planning Policies (SEPP's)

Relevant SEPPs that relate to the Tallawong development include;

- Sydney Region Growth Centres (Area 20 Precinct Plan)
- North West Growth Centre Maps
- Building Sustainability Index (BASIX) State Environmental Planning Policy

### 2.2 Sydney region plans

The strategic policy context for the project includes the Greater Sydney Commission 'Our Greater Sydney 2056, Central City District Plan'. The Greater Sydney Commission (GCC) has developed a number of sustainability objectives for the Central City District in which Tallawong resides. Those specifically relating to sustainability include:

- *Planning Priority C13*: Protecting and improving the health and enjoyment of the Districts Waterways
- *Planning Priority C15*: protecting and enhancing bushland, biodiversity and scenic and cultural landscapes
- *Planning Priority C16*: Increasing urban tree canopy cover and delivering Green Grid connections
- *Planning Priority C17*: Delivering high quality open space
- *Planning Priority C18*: Better managing rural areas
- *Planning Priority C19*: Reducing carbon emissions and managing energy, water and waste effectively
- *Planning Priority C20*: Adapting to the impacts of urban and natural hazards and climate change

## 2.3 Local Planning Controls

### Blacktown City Council Growth Centre Precincts DCP

The Blacktown City Council Growth Centre Precincts DCP details the following sustainability objectives and controls relevant to the site:

#### **Objectives:**

- a. To improve energy efficiency through the design and siting of buildings;
- b. To ensure that developments are environmentally sustainable in terms of energy and water use, and management of waste and discharge.
- c. To encourage the utilisation of materials and construction techniques with low energy inputs in their production for construction energy systems.

#### **Controls**

1. A Site Water Management Plan must be prepared in accordance with Appendix F.
2. Development Applications are required to demonstrate consideration of:
  - measures that will reduce waste and conserve water through water recycling;
  - measures to minimise run-off and stormwater generation;
  - implementing total water cycle management by including measures that reduce consumption of potable water for non-potable uses, minimise site run-off and promote stormwater re-use;
  - utilising recycled materials and renewable building resources;
  - promoting biological diversity through appropriate retention, planting and maintenance of indigenous flora of the area;
  - implementing a waste management strategy that promotes the overall reduction of waste levels;
  - and promoting the achievement of the 60 percent waste reduction target for New South Wales; and
  - implementing energy conservation measures that include reducing energy consumption and increasing inherent energy efficiency through design and materials selection and adopting energy management plans.
3. Development Applications are required to demonstrate that consideration has been given to promoting ecologically sustainable transport by complementing and reinforcing the development and use of the existing and planned integrated public transport, pedestrian and cycling networks servicing the site.
4. Roof stormwater should be collected in tanks or street level reticulation which would serve as a retention system. The water in the retention system would be available for use for non-potable uses such as the watering of landscaped areas and use in toilet and hot water systems.
5. Consideration should be given to the feasibility of any measures to substitute grid-source power with environmentally sustainable alternatives such as tri-generation (green transformers), co-generation (i.e. recovery of waste energy) or photovoltaics.
6. New commercial buildings must achieve a minimum 4-star Green Star rating from the Green Building Council of Australia. Refer to the 'Green Star – Office As Built v3 Technical Manual'.
7. New industrial and light industrial buildings must achieve a minimum 4-star Green Star rating from the Green Building Council of Australia from such time that an Industrial Tool has been adopted.
8. Development shall incorporate water efficient fixtures such as taps, showerheads, and toilets. The fixtures must be rated to at least AAA under the National Water Conservation Rating and Labelling Scheme. Where the building or development is water intensive (i.e. high-water user), specific water conservation objectives must be resolved with Council.
9. Appropriate use of energy efficient materials during construction is to be demonstrated.
10. Development should incorporate energy efficient hot water systems, air-conditioning, lighting and lighting control systems

## 2.4 Previous approvals

### North West Rail Link (Sydney Metro) EIS (1 & 2)

This Environmental Impact Statement set out the strategic planning conditions for the Cudgegong Road Station Precinct South (now Tallawong) which called out the precinct for its State Significant Infrastructure (SSI) planning status for approval under the stations, rail infrastructure and systems planning approval. North West Rail Link EIS 2 assessed impacts for the Cudgegong Road station and surrounding area including the proposed Town Centre site. These conditions are to be upheld in Cudgegong Road Station Precinct South planning approvals and so are referenced for consistency in this report.

### Tallawong Station Precinct South - Concept Approval

A sustainability report was previously developed as a part of the concept approval, outlining potential sustainable delivery strategies and governance frameworks. Green Star Communities was presented as the preferred framework to plan for sustainability at the master planning response as it considers the attributes of the planning, design and construction of large-scale precinct developments. This current DA response has developed from the original concept approval and applied Green Star Communities framework to demonstrate response to sustainability objectives.

## 3 Sustainability Response

---

The ESD elements of the SEARs requires the Environment Impact Statement (EIS) to *detail how ESD principles will be incorporated in the design, construction and ongoing operation of the development.*

The ESD principles as defined in the EP&A Regulation are stated as follows, along with sustainability initiatives which will be incorporated into the design. These strategies are further discussed in Section 5 below.

1. ***The precautionary principle*** – where if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

**Alignment** – through the environmental impact statement and the sustainability strategy the development has sought to understand of the environmental impacts and benefits of the development. The design has responded to include or not preclude consideration of both to known and unknown impacts. were to include and not preclude. Examples of this are in the efficient resource use, in terms of responsibly sourced materials, minimising potable water use and maximising energy efficiencies.

2. ***Inter-generational equity*** - where the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.

**Alignment** – the sustainability response in the design has drawn consideration of future environmental and social need and has responded in the provision of private and public domain that maintains flexibility and adaptability to future needs. Some examples of this is in the provision of communal open spaces, pedestrian links for public transport options, significant investment in green infrastructure, provision of active transport connections, quality public domain, play areas, liveable housing and inclusion of affordable housing.

3. ***Conservation of biological diversity and ecological integrity*** – where conservation of biological diversity and ecological integrity should be a fundamental consideration

**Alignment** – the site and surrounds has been previously disturbed and does not contain any significant biodiversity values. Nonetheless, conservation of biological diversity and ecological integrity will be maintained to equal or greater condition than the existing level.

4. ***Improved valuation, pricing and incentive mechanisms*** – where environmental factors should be included in the valuation of assets and services

**Alignment** – As Deicorp and Bridgehousing have a long term interest in the development through maintaining some ownership of the residential, retail, commercial and public domain and have therefore taken a long term view to project value. The proposal has considered consider a whole of life approach and maximise opportunities through innovative approaches to the public domain quality as well as the inclusion of sustainable technologies and renewable energy.

Design has been developed with due consideration to the short- and long-term effects of economic and social impacts to the Tallawong area and immediate surrounds, including future developments within the area.

Specific sustainability initiatives addressing these principles are provided in detail in Section 5 below.

## 4 Sustainability Framework

---

A variety of sustainability initiatives and ESD principles have been adopted and incorporated into the design, construction and ongoing operation of the development, while achieving the outcomes specified in the underlying sustainability policies. This has occurred primarily using two distinct sustainability drivers:

- The vision set by Landcom, Sydney Metro and Deicorp to deliver a variety of exemplar sustainability outcomes for the development to deliver long term environmental and social outcomes
- The application of the Green Star Communities as a framework for achieving sustainable social, environmental and economic outcomes and the targeting for a 5 Star Rating.

As such, the Tallawong development set out to achieve sustainability outcomes that were beyond a business as usual approach. A variety of sustainability initiatives and design elements were incorporated into the decision making and embedded into the development to advance the social, environmental and economic performance of the precinct. In addition, the project has been designed to comply, and seek, a 5-star Green Star Communities certification. This will be registered with the GBCA at the time of DA submission.

Table 2 outlines in detail some of the sustainability initiatives that have been achieved and / or embedded into the development to ensure that the design, construction and operation of Tallawong reflects positive social, environmental and economic outcomes.

A graphic of the proposed masterplan highlighting a number of sustainability initiatives incorporated throughout the development is provided in Figure 2.

Table 2 - Tallawong Sustainability Actions

Theme	Initiative	Actions / Response
Governance	Site Planning, Layout and Urban Design	The DRP1- DRP4 presentations ensured that a comprehensive design review process occurred for the Tallawong development. This process allows for the planning and layout to be aligned with the design intent. A comprehensive urban design process was implemented and ensured a variety of sustainability outcomes could be met.
	Climate Adaptation + Community Resilience	<p>Landcom has provided a detailed climate risk assessment in the <i>Landcom - Climate and Community Resilience - Tallawong Precinct</i>.</p> <p>Tallawong has been designed with future climate conditions in mind. To provide protection from the sun canopy cover is provided along streets and throughout the central publically accessible park. These vegetated areas provide refuge from the heat, and in the park allow outdoor activities on hotter days. Lighter building colours have been selected on external walls and rooftops to reduce thermal heat build-up. Rooftops feature significant soil and planting areas to reduce thermal gain. Mechanical exhaust is located on rooftops, avoiding the output of warm air to habitable areas. In accordance with the ADG, units achieve cross ventilation, providing fresh air and cooling breezes to residents.</p> <p>All collaboration has been done with other consultants, for more details refer to the final architectural and landscape package</p>
	Stakeholder Engagement	<p>Deicorp has engaged with Blacktown City Council and with local civic leaders to ensure the Interim Activation plan is effective in meeting the needs of the local community. The strategy includes;</p> <ul style="list-style-type: none"> <li>Working with Council to identify key local community groups and organisations that could benefit from the facilities being developed</li> <li>Meeting with key civic leaders including local MPs to advise them of the development program, lodgement of DAs and planned facilities. We are seeking the input of these civic leaders to help with the engagement of key local groups and organisations</li> <li>Developing a stakeholder matrix of local service clubs, and organisations as well as local school communities to invite their use and participation in the activation program</li> <li>Working with key agency stakeholders such as Sydney Metro and Landcom to support their existing engagement programs and aid future engagement opportunities</li> </ul> <p>A website has been created to provide local residents the opportunity to see the project scope and to learn about the facilities being developed for community use. It has currently been launched and will allow 2 weeks for public comments.</p> <p>This consultation was advertised in local papers, as well as through letterbox deliveries to more than 7,000 households and through targeted social media campaigns.</p>

Theme	Initiative	Actions / Response
		<p>The process of engaging and consulting with the local community will help refine and improve the delivery of the activation area to best reflect the views of local residents.</p>
Liveability	<p>Recreation &amp; Active Lifestyles</p>	<p>Tallawong has been developed as a walkable village centre with a Metro at the door.</p> <p>The precinct employs a pedestrian-priority approach to the planning and design of the public domain and new roads. The public domain and retail strategies are anchored around the private park and Metro plaza, with active edges engaging the key pedestrian movement corridors.</p> <p>Each road or movement corridor is designed as a response to its location and interface, with local roads and neighbourhood streets activated with dwelling entries and courtyards, public seating and planted areas.</p> <p>The design enhances the health and wellbeing of communal living through the creation of a series of shared urban backyard.</p> <p>A private park provides a generously sized playground for local children (Refer to Appendix A3).</p> <p>A private park has a range of active spaces that can be used by the public (Refer to Appendix A3).</p> <p>All habitable buildings are within 400m of the private parks</p>
	<p>Community Groups and Development, Community Events</p>	<p>Developing a sense of community, participation and integration is central to the development. The following initiatives have been proposed;</p> <p>Green Spaces</p> <ul style="list-style-type: none"> <li>• exercise groups / classes</li> <li>• outdoor activities</li> <li>• outdoor events</li> </ul> <p>Community Information</p> <ul style="list-style-type: none"> <li>• local area information</li> <li>• ‘what’s on’ community calendar</li> </ul> <p>Amenities</p> <ul style="list-style-type: none"> <li>• children’s play area</li> <li>• green spaces.</li> </ul> <p>In addition, to permanently activate the development, and in particular the ground plane and public domain, a range of retail, commercial and community uses is proposed that support and complement each other on an array of amenities and services for residents, visitors and Metro users. This includes;</p> <ul style="list-style-type: none"> <li>• Site 1 B is proposed to include a supermarket sleeved with specialty retail and lobbies for the residential apartments above</li> <li>• Site 1a will accommodate uses such as Health and Fitness Centre, Pharmacy and Medical Centre as well as lobbies for the residential apartments above</li> </ul>
	<p>Building Landscape</p>	<p>Diversity in urban form, types and heights to improve the building landscape, visibility, visual appear, and amenity.</p>

Theme	Initiative	Actions / Response																				
	Building Performance	Deicorp has committed to achieve BASIX and Liveable Housing Design compliance.  In addition to compliant building performance for non-residential buildings, Deicorp have committed to obtaining a 5-Star NABERS energy and water commitment agreement for any commercial area which is >1000m2.																				
	Enhancing Community Culture, Placemaking	Placemaking across the development has taken a multi-faceted approach with the intention of promoting community health happiness and well-being.  In the future, there is potential for the residents to use the roof top for the communal food production garden and engage with their neighbours to create a sense of community and local culture  Refer to the final landscape package for further details																				
	Local Food Production & Access to Fresh Food	Local retail will provide access to fresh food via a shopping centre and other food outlets. This will also be accompanied by food markets.																				
	Design for Safety	The nature of the development, being highly walkable, with a number of public and pocket parks, cycle ways etc. allows passive surveillance and a sense of safety.																				
Economic	Residential Affordability	Affordable housing will be provided and managed by Bridge Housing. All affordable housing will meet Silver Level Standards. The proportion of affordable housing provided will be follows; <table border="1" data-bbox="507 1120 1359 1406"> <thead> <tr> <th>Unit Type</th> <th>Total no. Units</th> <th>Affordable Housing Units</th> <th>% of total units</th> </tr> </thead> <tbody> <tr> <td>1-Bed</td> <td>252</td> <td>15</td> <td>6.0</td> </tr> <tr> <td>2-Bed</td> <td>682</td> <td>30</td> <td>4.4</td> </tr> <tr> <td>3-Bed</td> <td>53</td> <td>5</td> <td>9.4</td> </tr> <tr> <td>Total</td> <td>987</td> <td>50</td> <td>5.1</td> </tr> </tbody> </table>	Unit Type	Total no. Units	Affordable Housing Units	% of total units	1-Bed	252	15	6.0	2-Bed	682	30	4.4	3-Bed	53	5	9.4	Total	987	50	5.1
	Unit Type	Total no. Units	Affordable Housing Units	% of total units																		
	1-Bed	252	15	6.0																		
2-Bed	682	30	4.4																			
3-Bed	53	5	9.4																			
Total	987	50	5.1																			
Retail, Services, Culture & Workplace	The precinct will deliver a network of services that encourage and facilitate community interaction and connections including employment, opportunities, green spaces and a public domain, fresh food, and retail outlets  The design of the commercial and retail spaces provides for long-term flexibility of tenants over time to meet the changing needs and wants of the community, incorporating suitable sizes, heights and access to amenity.  The new retail centre will also provide new jobs to the local community and stimulates the local economy.																					
Higher Education Facilities & Skills Development	The Ponds High School, Riverbank Public School and The Ponds School are within approximately 1km of the proposed development. The Ponds School provides care for students with moderate or severe intellectual disabilities.  The proximity to the train station also means there is easy accessibility to higher educational facilities e.g. universities TAFE.																					

Theme	Initiative	Actions / Response
		There is the possibility of a future child care centre within the development which can help foster skills growth.
	Residential Incentives	Deicorp has engaged an embedded network consultant and are investigating opportunities for the development.
Environmental	Water Sensitive Urban Design	<p>Refer to Appendix A2 for additional WSUD strategy information</p> <p><b>Sustainability and WSUD initiatives</b></p> <ul style="list-style-type: none"> <li>Utilising a large rainwater tank under the proposed park to re-use water for irrigation, improving water quality and reducing the soil erosion index</li> <li>Wherever possible utilising bio-retention details rather than costly and heavily engineering structural water quality devices (e.g. cartridge filters)</li> <li>Coordinating overland flow paths with key landscaped corridors allowing for passive irrigation of private areas and improving overall amenity</li> <li>Rain gardens within the park (subject to coordination with the rainwater tank)</li> </ul> <p>Refer to the final civil and stormwater package for more detail</p>
	Reducing Greenhouse Gas Emissions	<p>The development has committed to producing 5% of the project's energy demand (upon completion) for onsite renewable energy sources. Currently this is planned to be met entirely by fixed solar photovoltaics (PV). Following calculations by the project consultants, the solar PV system required to meet the 5% predicted energy demand is a 314kWp system, which requires an area of 1,884m<sup>2</sup>.</p> <p>The total solar PV area provided will be 2,664m<sup>2</sup>, demonstrating that sufficient area has been set aside for the solar PV system to generate 5% of the project's energy demand (upon completion). This additional area provided will enable the expansion of the solar array to meet any future carbon neutrality goals.</p> <p>Refer to Appendix A2 for the proposed solar panel design areas</p> <p>The develop will include Electric Vehicle charging points, with the number of spaces being approximately 10% of the total number of residential parking spaces provided in the project. This is to be detailed further in the CC documentation. This will encourage the uptake and use of EV cars and raise awareness to the community about the benefits of using a potentially renewable energy source over fossil fuels.</p>
	Site Decontamination	Minor contamination exists onsite and this will be addressed appropriately.
	Biodiversity Enhancement	<p>Deicorp have engaged Eco Logical Australia to develop a Biodiversity Management Plan. Eco Logical Australia are generally happy with the current landscape design and will be addressed at a later stage.</p> <p>Local Cumberland Plain plant species will be used in combination with other species to improve the ecology and biodiversity of the landscape.</p>

Theme	Initiative	Actions / Response
	Building Materials	<p>The project has committed to sourcing <math>\geq 95\%</math> of timber for construction from Forest Stewardship Council Certified (FSC) sources (or equivalent certified source);</p> <p>To ensure that the building material supply chain does not engage in modern slavery practices, Deicorp will embed clauses into its contracts to ensure their supply chain does not engage in modern slavery practices.</p>
	Construction and Demolition Waste	<p>The project has committed to diverting <math>\geq 95\%</math> of construction waste from landfill, and maximise the reuse and recycling of materials on-site where considered appropriate. In order to achieve the target of 95%, a detailed construction and demolition waste diversion plan has been prepared in the waste and resource recovery report which is done by the waste consultant.</p> <p>For additional information, refer to construction waste management report prepared by construction management consultant, and the final notification from the excavation contractor</p>
	Operational Waste	<p>The developments operational waste diversion targets from landfill will be 70% for both residential and commercial waste. For further information, refer to section 2.3 in the waste and resource recovery report.</p> <p>Waste and recycling are collected via loading docks. The loading dock designs allow for holding of waste bins, recycling bins and residential bulky waste within the building at street level. The docks provide efficient operation and collection, allowing trucks to enter and exit in a forward direction. The loading docks are integrated into the architecture to achieve good streetscape presentation. For Site 1 loading docks are hidden within the basement. To aid streetscape presentation on Site 2 apartments are sleeved around loading dock areas. Acoustic impacts have been addressed through building layout and acoustic construction solutions. Loading dock entrances are positioned to minimize visual impact and designed with consideration of local traffic conditions.</p>
	Minimising the Urban Heat Island Effect	<p>A large area of vegetation and shaded areas will span the project site, with current calculation showing that 50.6% of the site is covered by landscaping and pergolas, and areas directly south of vertical building elements at the summer solstice (as per Green Star Communities calculations). In addition to this, the project team are considering the selection of roofing materials and colours to help mitigate the urban heat island effects in the area.</p> <p>Please refer to Appendix A5 for Heat Island Effect Area Calculations</p>

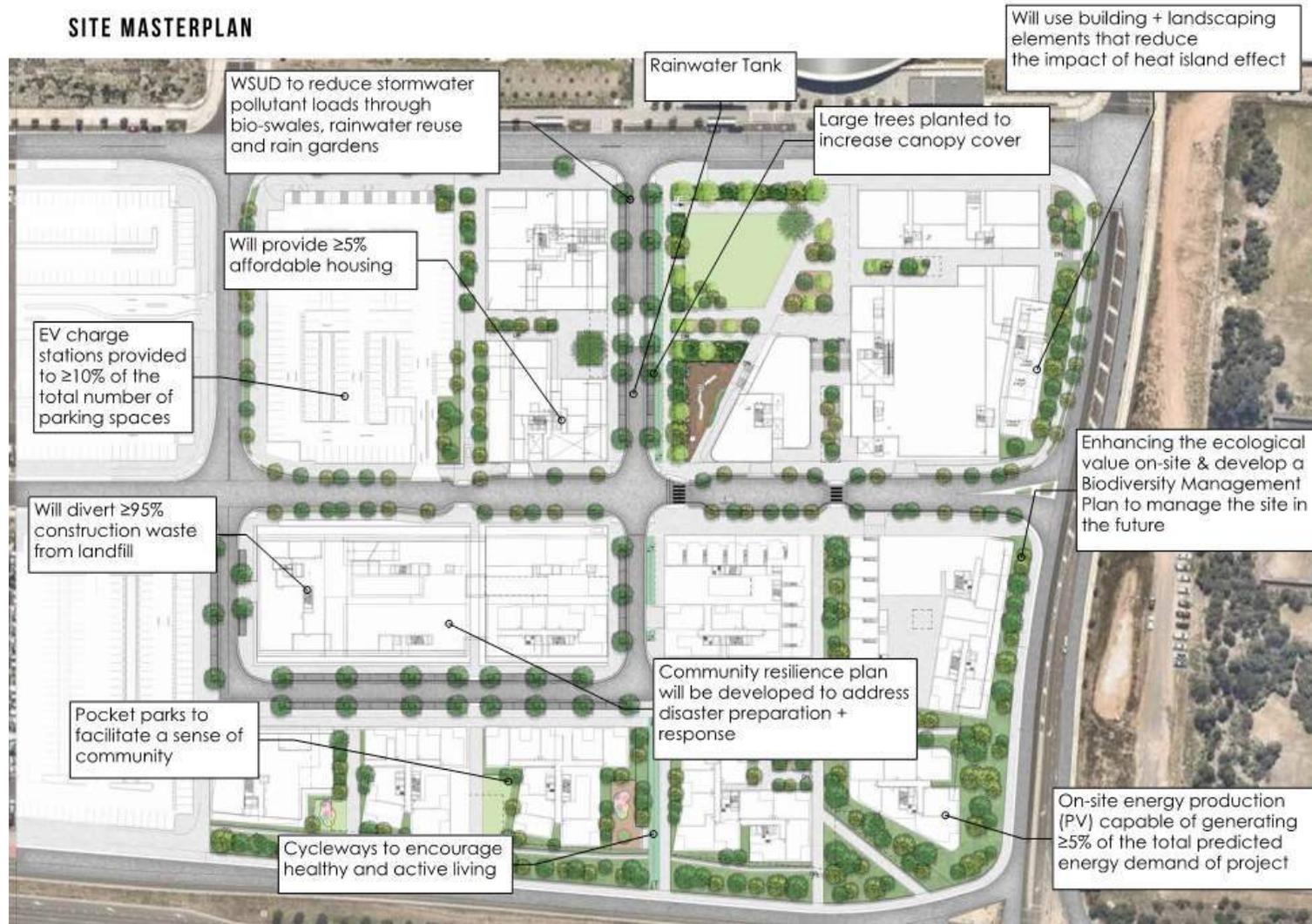


Figure 2 - Tallawong Sustainability Initiative Examples

## 5 Conclusion

---

A wide-ranging list of sustainability initiatives have been achieved and/or emended within the design, construction and operation of the Tallawong Station South development. These initiatives respond to a variety of sustainability requirements outlined in the SEARs, regional and local planning controls, and joint commitments between Landcom, Sydney Metro and Deicorp.

The adoption of a sustainability framework to drive best-practice sustainability outcome illustrates a commitment to achieving ecologically sustainable development and realising the social and environmental value of the development. These achievements include (but not limited to);

- A robust site planning, layout and urban design strategy
- Climate adaptation and community resilience
- Encouraging recreation and active lifestyles
- Community development initiatives
- Residential affordability and social housing
- Building performance
- Local food production and access to fresh food
- Design for safety
- Water sensitive urban design
- Reducing greenhouse gas emissions
- Biodiversity enhancement
- Minimising operational, construction and demolition waste
- Minimising the urban heat island effect

## A1 SEARs response

The following table provides a quick reference to where the SEAR's have been addressed.

Table 3 – Response to the SEARs Requirements

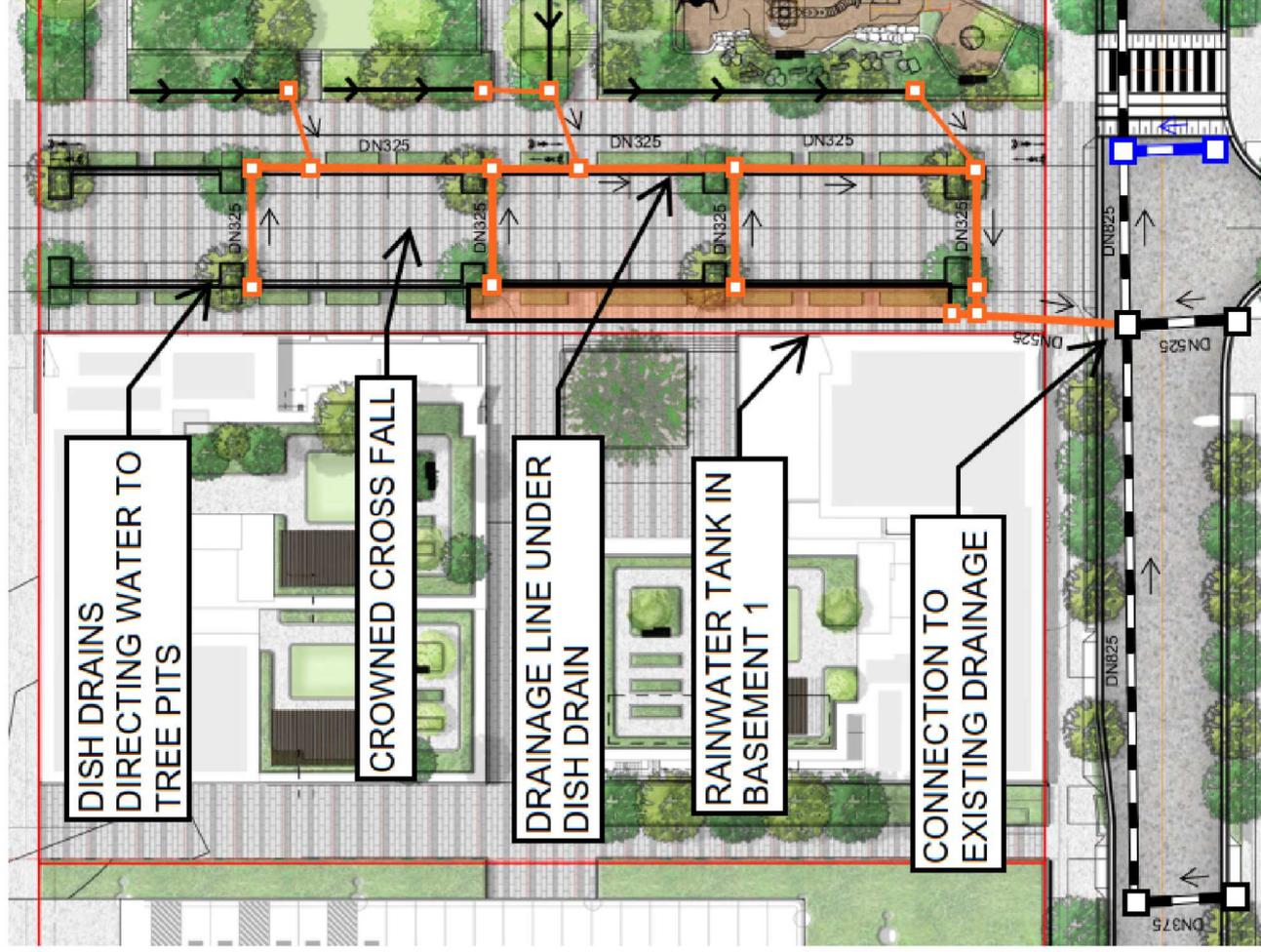
SEARs Requirement	Reference
Detail how ESD principles (as defined in clause 7(4) of Schedule 2 of the <i>EP&amp;A Regulation 2000</i> ) will be incorporated in the design, construction and ongoing operation of the development	Refer to section 3 and section 4 of this report.
Include a framework for how the proposed development will reflect national best practice sustainable building principles to improve environmental performance, including energy and water efficient design and technology, use of renewable energy and best practice in waste management strategy including any opportunity for food scraps/composting strategies	Best practices sustainable building principles achieved through; <ul style="list-style-type: none"> <li>Design to comply, and eventually receive, a Green Star Communities rating</li> </ul> Refer to Section 5. Operational Waste
Detail how sustainable stormwater management including water sensitive urban design measures will be implemented and incorporated into the design of the development	Refer to Section 5. WSUD – WSUD Strategy
Identify impacts on surface and ground water sources, watercourses, riparian land, and groundwater dependent ecosystems, measures proposed to reduce and mitigate these impacts, and proposed surface and groundwater monitoring activities and methodologies	Refer to Section 5. WSUD – SEARs response
Demonstrate sufficient waste and recycling management facilities and storage holding areas for servicing. A Sustainability Strategy for the development should be prepared.	Refer to Section 5. Operational Waste

## A2 Water Sensitive Urban Design

---

# 5a. WATER SENSITIVE URBAN DESIGN - PRIVATE ROAD

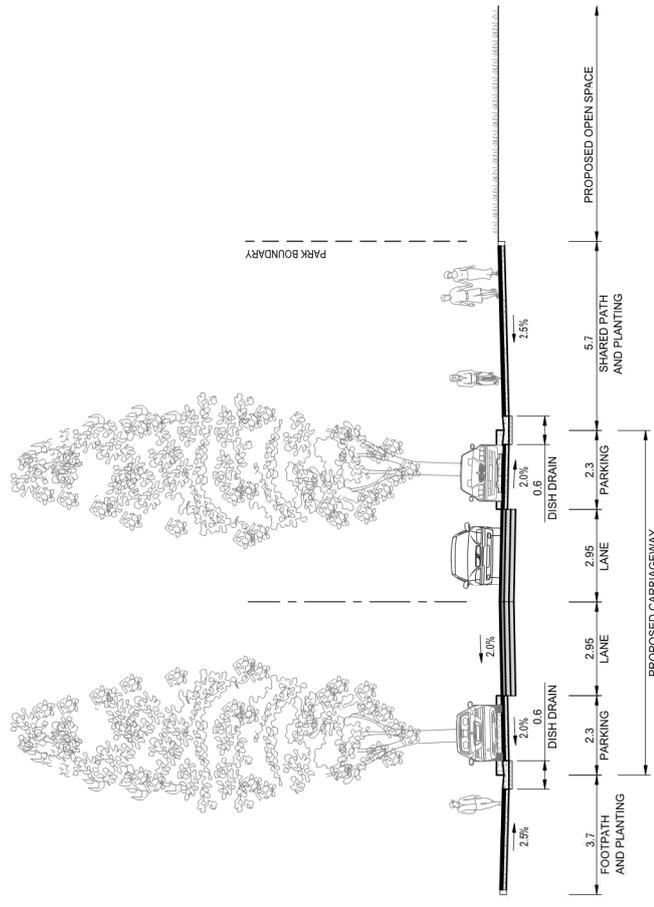
PUBLIC PARK STUDIES



The private road has been revised to feature a 2% crown with stormwater being directed to two dish drains either side of the road.

These dish drains direct water into each street tree bio-retention with a pit downstream of each tree to capture bypass flows.

These stormwater lines then connect to the outlet of the proposed rainwater storage tank.



## 5b. WATER SENSITIVE URBAN DESIGN

PRECINCT WIDE

The current Water Sensitive Urban Design strategy is split between the private and public network.

- Public Roads and Footpaths drain to the regional bio-retention basin
- Private lots are treated on-lot through a combination of a large water tank and filtration devices

A summary of the current treatment proportions are contained below:

Treatment Node	Source Flows (ML/yr)
Rainwater Tanks	25
Street Trees	3
GPT (Humeguard)	23
Jellyfish (Humes)	26

It is noted that a number of the devices are linked so that some flows from the rainwater tank and street trees will also pass through the Gross Pollutant Trap (GPT) and Jellyfish filters which are located at the downstream portion of each site.

The rainwater tank has been sized to irrigate all the greenspace located within Site 1 however it will feature a potable water backup to account for any periods without rainfall. The estimated irrigation demand is summarised below:

- Available Volume **315 kL**
- Annual Irrigation Demand **853 kL/year**

We have also explored areas for informal "soft system" areas which while not included within the Water Quality Treatment calculations provide areas for water to enter the soil, particularly on Site 2.

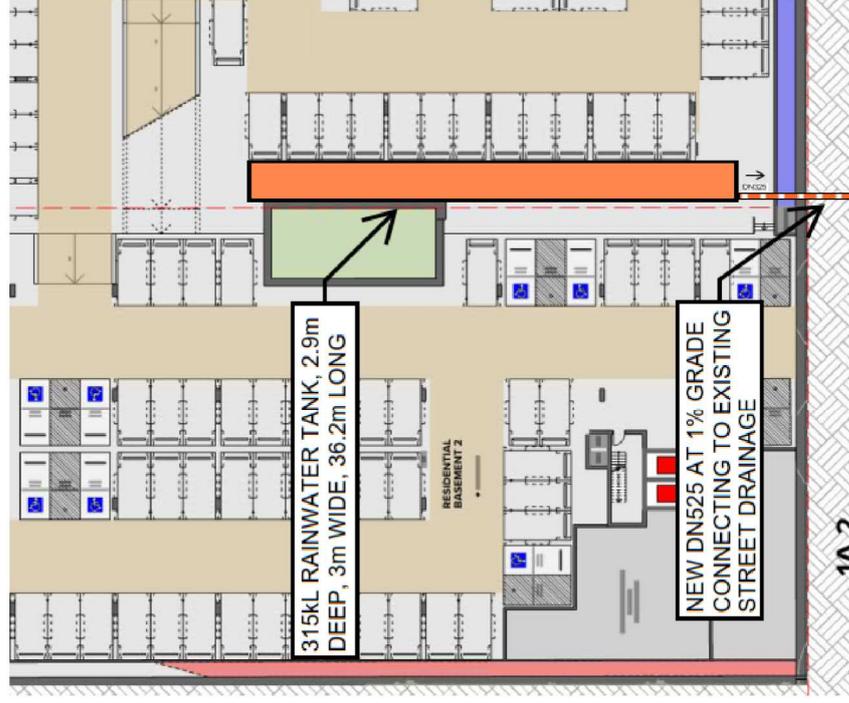
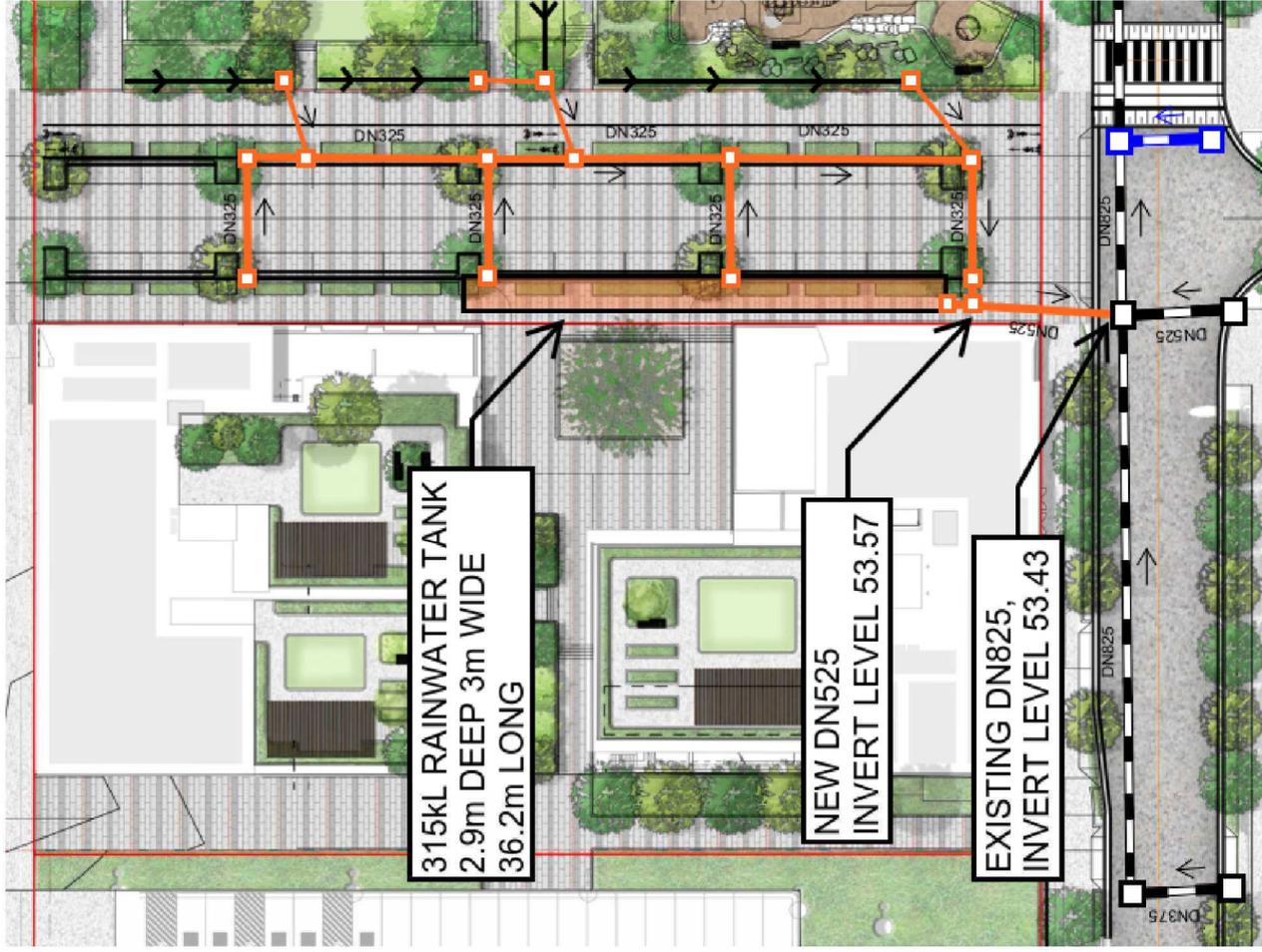


# 6. UNDERGROUND WATER STORAGE

PUBLIC PARK STUDIES

The rainwater tank has been coordinated with Basement 1 and discharges into the existing street drainage network at a grade of 1%.

1.5m depth over the tank is maintained with a riser at the southern end to discharge the tank into the stormwater system.



RAINWATER TANK IN BASEMENT 1

## A3 Solar Panel Areas

---



## A4 Landscape Design

---

# SITE MASTERPLAN

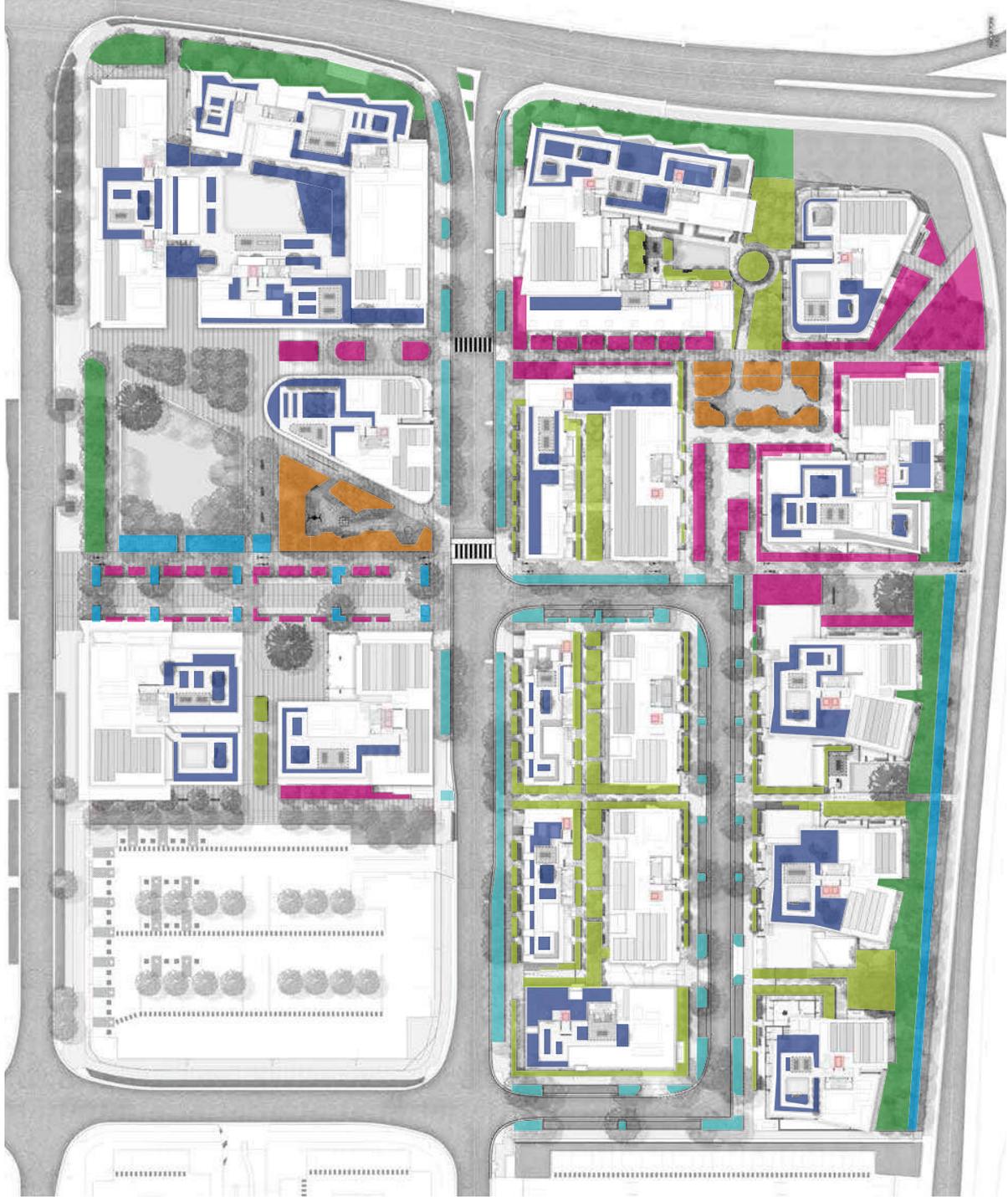


SCALE: 1:1000@A3

# UNDERSTORY PLANTING ZONE PLAN

## UNDERSTORY PLANTING ZONES

- GARDEN PLAZA/PLAYSPACE
- WSUD
- BUFFER PLANTING
- NORTH-WEST CONNECTION
- STREETSCAPE PLANTING
- GREEN LANE
- ROOFTOP



# PAVING MATERIAL PALETTE | PRIVATE GROUND LEVELS

## MATERIALS

CONCRETE PAVING - COMBINATION OF INSITU WITH FEATURE UNIT PAVER BANDS



CONCRETE PAVING



90X90X30 COBBLE SETTS



SOIL BOND GRAVEL



ROSEHILL TYP SOFTFALL



300MM THICK ANI SOFTFALL MULCH



# KEY LANDSCAPE SPACES



KEY

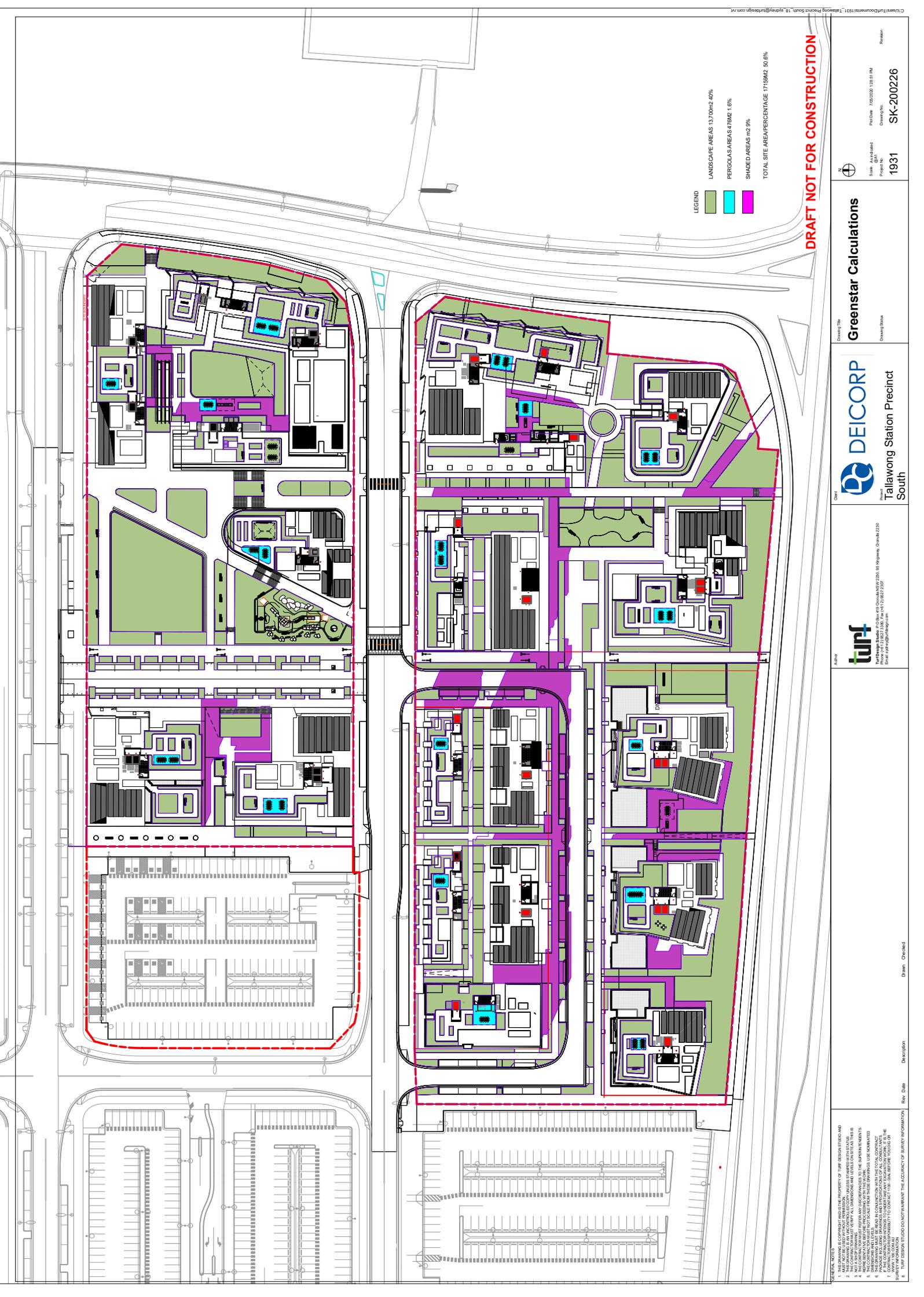
- Tallawong Green
- Themeda Entry Plaza
- Western Plaza
- Lower Plaza
- Southern Plaza
- Schofields Rd Entry
- Pocket Park/Doorstep Play
- Western Interface



SCALE: 1:1000

## A5 Heat Island Effect Area Calculation

---



LEGEND

- LANDSCAPED AREAS 13,700m<sup>2</sup> 40%
- PERGOLAS AREA 4,784m<sup>2</sup> 6%
- SHADED AREAS 102m<sup>2</sup> 0.3%
- TOTAL SITE AREA PERCENTAGE 171,594m<sup>2</sup> 59.6%

**DRAFT NOT FOR CONSTRUCTION**

1. THIS DRAWING IS THE PROPERTY OF THE DESIGNER AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF THE DESIGNER.

2. THIS DRAWING IS A PRELIMINARY DESIGN AND IS NOT TO BE USED FOR CONSTRUCTION OR FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN PERMISSION OF THE DESIGNER.

3. THE DESIGNER HAS CONDUCTED VISUAL VERIFICATION OF THE SITE AND HAS FOUND IT TO BE SUITABLE FOR THE PROPOSED DEVELOPMENT.

4. THE DESIGNER HAS CONDUCTED VISUAL VERIFICATION OF THE SITE AND HAS FOUND IT TO BE SUITABLE FOR THE PROPOSED DEVELOPMENT.

5. THE DESIGNER HAS CONDUCTED VISUAL VERIFICATION OF THE SITE AND HAS FOUND IT TO BE SUITABLE FOR THE PROPOSED DEVELOPMENT.

6. THE DESIGNER HAS CONDUCTED VISUAL VERIFICATION OF THE SITE AND HAS FOUND IT TO BE SUITABLE FOR THE PROPOSED DEVELOPMENT.

7. THE DESIGNER HAS CONDUCTED VISUAL VERIFICATION OF THE SITE AND HAS FOUND IT TO BE SUITABLE FOR THE PROPOSED DEVELOPMENT.

8. THE DESIGNER HAS CONDUCTED VISUAL VERIFICATION OF THE SITE AND HAS FOUND IT TO BE SUITABLE FOR THE PROPOSED DEVELOPMENT.

Description	Rev	Date	Checked

**turf**  
 Turf & Landscaping  
 10/100 The Esplanade, Suite 101, North Sydney, NSW 1585  
 Phone: (61) 2 9377 1300 Fax: (61) 2 9377 2200  
 Email: info@turf.com.au

**DEICORP**  
 Tallawong Station Precinct  
 South

**Greenstar Calculations**

Scale: As Shown  
 Project No: 1931  
 Drawing No: SK-200226  
 Date: 17/02/2023 10:51 PM  
 Author: [Name]  
 Designer: [Name]  
 Checker: [Name]  
 Reviewer: [Name]