Sustainability Manual

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DEPARTMENT FOR INFRASTRUCTURE AND TRANSPORT

Government of South Australia
Department for Infrastructure and Transport

Contents

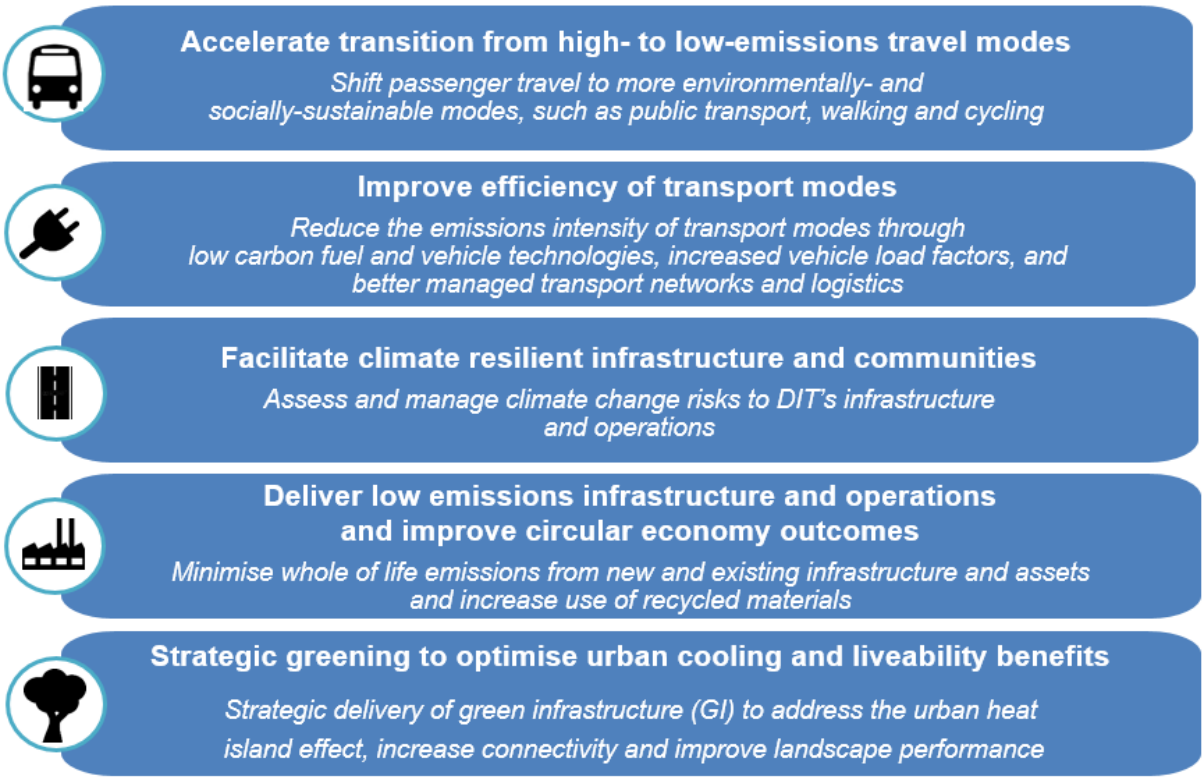
Change Log

Version	Date	Summary of changes
A	June 2019	
B	June 2019	Figure 1 (steps & tools) updated
C		Minor corrections
D	Oct 2019	Section 5.3 and Appendix 7 (Site Accommodation requirements) added
E	May 2020	Section 4.1 (contractor requirements for IS ratings) and 4.2 (aligning planning investigations with IS requirements) added, Section 5.1 (planning phase sustainability plan) updated, Table 6.1 (scope of proving phase GHG emissions estimates) updated, Appendix 4 (BAU assumptions) updated
F	Dec 2020	Figure 1 (steps & tools) updated, Table 3.1 (business requirements) updated, Section 6.2-6.4 (requirements for estimating water, waste and materials lifecycle impacts) removed, Section 10.1 (green infrastructure) updated
G	July 2021	Section 1 (sustainability commitment) updated, Section 3 (benefits realisation and business requirements) updated, New section 4 (determining project sustainability assessment requirements) added, Section 6 (requirements for sustainability plans) updated, Section 8 (Mandatory and Principal-nominated sustainability initiatives) updated, Section 9 (identifying and assessing sustainability initiatives) updated, Section 10 (sustainable procurement) updated, Section 11 (green infrastructure) updated, Section 12 (climate change risk assessment) added, Appendix 1 (key commitments) updated, Appendices 3-5 (sustainability plan templates) added, Appendix 6 (BAU assumptions) updated
H	August 2022	Section 7 (Estimating impacts) updated, Section 11 updated to include reference to Green Infrastructure Commitment, Appendix 2 (ESD Report template) updated, Appendix 5 (template for final sustainability plan) updated

1. Sustainability Commitment

The Department for Infrastructure and Transport is committed to delivering sustainable transport, infrastructure and programs in a manner that balances economic, environmental and social needs, and aligns with the department's Climate Change Priorities.

DIT Climate Change Priorities



Note: the department's Climate Change implementation plan establishes the actions the department will take to achieve these priorities, including several actions particularly relevant to the planning, delivery and maintenance of transport infrastructure. These are detailed in Appendix 1.

The department uses a variety of tools and processes to minimise the impacts of its activities on - and where practicable enhance - the environment, and deliver lasting benefits to the community. This Manual outlines the key tasks and tools to guide sustainable decision making throughout a project/program's planning, delivery and maintenance (summarised in Figure 1). It then describes specific requirements for investigating and implementing initiatives to deliver improved outcomes in the following **sustainability focus areas**:

- Greenhouse gas emissions reduction
- Circular economy
- Green Infrastructure
- Use of non-potable water
- Climate change resilience

Figure 1 Steps and tools applied through planning, design, delivery and maintenance phases to address sustainability risks and opportunities

PROJECT PHASE	RELEVANT STEPS/ TOOLS	SUSTAINABILITY MANUAL REFERENCE
Initiation Phase	**Business Requirements:** Ensure relevant sustainability objectives and outcomes are identified (including social, environmental and economic outcomes) and strategic context understood.	Part 2 & 3
	Benefits Identification: PPMF Module 4 requires preparation of a benefits map and management plan. Relevant Sustainability benefits and disbenefits should be identified.	Part 3
	GATE 0 – STRATEGIC ASSESSMENT: Check the initiatives' alignment with Government policy objectives, plans, internal and external programs. Does the initiative support Government's Climate Change commitments to: • Align transport planning with net zero emissions outcomes • Deliver low emission infrastructure and operations • Increase the use of public transport and active travel • Accelerate strategic urban greening • Assess and address climate change risk in government infrastructure decisions • Achieve Net Zero Emissions in South Australia by 2050	
Proving Phase	**Planning Study:** PC-PL1 (Framework for Planning Studies) includes requirements to: (a) Initially understand how GHG emissions may affect generation and selection of options. If there is scope to influence GHG emissions through option selection (ie if it is likely that there will a material difference between options' whole-of-life emissions impacts), then the following also apply: (b) Undertake a high level estimate of GHG emissions for each shortlisted option (c) Include GHG emissions as one of the criteria in the ranking and assessment methodology (used to select a short list of options from a long list, and to select a preferred concept design) (d) Undertake cost benefit analysis using ATAP guidelines (including monetisation of sustainability benefits/ disbenefits where possible). PC-PL2 (Planning Investigations) includes requirements to: (a) Assess the potential to incorporate Green Infrastructure into the asset and, subject to outcomes, undertake further assessment to map opportunities and constraints (b) Identify viable emission reduction and circular economy initiatives to be pursued in delivery (c) Assess climate change risks and adaptation options (d) Undertake environmental impact assessment (e) Undertake social, community and stakeholder investigations and consultation (f) Assess outcomes for Aboriginal People (g) Investigate economic development opportunities/ constraints (eg property values, tourism and opportunities for business/ industry and trade), as well as consideration of impacts on property owners/occupants (eg property viability, impact on livelihood).	Part 7 Part 9, 11 & 12
Pre-delivery Phase	**GATE 1 – FUNDING READINESS:** Check that option selection has been informed by triple-bottom line assessment, including whole-of-life greenhouse gas impacts, alignment with green infrastructure commitments and climate change risk assessment. Does the preferred option align with Government's Climate Change priorities?	
	Community engagement is guided by the DIT Community Engagement Toolkit, which draws on the 'Better Together: Principles of Engagement'.	
	Planning Phase Sustainability Plan: PC-PL1 includes a requirement to prepare a Planning Phase Sustainability Plan for the preferred concept design.	Part 6
	Land acquisition: PC-PL3 (Concept design development) requires concept plans to identify land acquisition requirements. Land acquisition requirements must take into account any relevant recommendations of the Green Infrastructure assessment (ie allow sufficient space to achieve project objectives for green infrastructure and open space/amenity)	Part 11
	Ecologically Sustainable Development Report: PC-PL1 requires preparation of an ESD report, to support the Public Works Committee submission (where required)	Part 6
	GATE 2 – MARKET READINESS: Check that procurement documents reflect DIT's Climate Change Action Plan commitments to: • include low carbon design and construction and circular economy outcomes as Key Result Areas (KRAs) in contracts for public works • include appropriate requirements for construction and operational emission reduction and use of materials with recycled content in Contract Specifications and Functional & Operational Requirements for public works Check that land acquisition plans and project estimates allow for the provision of green infrastructure (informed by green infrastructure concept plan).	

Procurement Phase

Contract requirements, KRAs and Incentives: Sustainability objectives, risks and opportunities identified in the planning stage should inform appropriate procurement actions, including input to EOI documents and tailored industry participation plan, contract scope and contract requirements (CSCR), functional and operational requirements, and Project Alliance Agreement (if relevant).

Part 8

Office of the Industry Advocate provides guidance and templates for addressing sustainability in Tailored Industry Participation Plans (TIPPs).

GATE 3 – INVESTMENT DECISION: Check that the procurement decision has taken into account tenderers' ability to achieve the projects sustainability objectives and deliver low emission infrastructure and operations.

Where tenderers have submitted a Sustainability Initiative Response, confirm which Contractor-nominated initiatives will be accepted and ensure these are incorporated into contract documents.

Delivery Phase

Detailed Design: PC-ST1 (Sustainability in Design) includes requirements for:
(a) obtaining an IS Rating (where applicable)
(b) preparing a preliminary and final design phase Sustainability Plan
(c) implementing mandatory, principal-nominated and contractor-nominated sustainability initiatives
(d) holding a sustainability workshop, and identifying and implementing additional sustainability initiatives (level 1 assessment only)
(e) estimating whole of life greenhouse gas emissions and achieving a minimum 10% reduction (level 1 assessment only)
(f) achieving circular economy outcomes
(g) assessing opportunities to reduce potable water use
(h) review and implement outputs of Green Infrastructure assessment (or undertake a Green Infrastructure assessment if one has not previously been undertaken)
(i) review and implement outputs of Climate change risk assessment (or undertake a Climate change risk assessment if one has not previously been undertaken)

Part 6, 7, 8, 9, 11, 12

PC-PM4 (Risk Management) includes a requirement to address climate change/ natural hazard risks in the Contract specific Risk Register. Climate change risks must be assessed and treated in accordance with the Department's Climate Change Adaptation Guideline

PR-LS-D1 (Landscape and Urban Design) includes requirements to achieve green infrastructure commitments and implement the Green Infrastructure concept plan (if applicable)

Part 11

PC-ENV3 (Environmental Design), PC-ENV4 – Noise Assessment and Treatment Implementation, RD-DK-D1 (Road Drainage) and PC-SI2 (Site Investigations) establish the requirements for assessing and managing environmental impacts including vegetation, fauna, air quality, noise, water quality and site contamination.

PC-H1 (Aboriginal Heritage & Native Title) includes requirements to avoid damage, disturbance to Aboriginal sites, objects or remains.
PC-H2 (Non-Aboriginal Heritage) includes requirements to assess and appropriately manage impacts to heritage listed sites

Construction: PC-ST2 (Sustainability in Construction) includes requirements for:
(a) obtaining an IS Rating (where applicable)
(b) preparing a preliminary and final construction phase Sustainability Plan
(c) implementing mandatory, principal-nominated and contractor-nominated sustainability initiatives
(d) identifying and implementing additional sustainability initiatives (level 1 assessment only)
(e) estimating whole of life greenhouse gas emissions and achieving a minimum 10% reduction (level 1 assessment only)
(f) achieving circular economy outcomes and reporting on recycled material use
(g) assessing and implementing opportunities to reduce potable water use
(h) sustainable site accommodation and equipment
(i) practising sustainable procurement (level 1 assessment only)
(j) implementing climate change risk treatments

Part 6, 7, 8, 9, 10, 11

Realisation Phase

PC-ENV1 (Environmental Management) and PC-ENV2 (Environmental Protection), establish the requirements for Contractors' environmental management systems and environmental protection/ mitigation measures.

GATE 4 – SERVICE READINESS: Check that any residual climate change risks and ongoing mitigation measures (eg increased frequency of clearing stormwater infrastructure) are included in the Residual Risk and Hazard Register, and incorporated into asset management programs/ schedule where appropriate

Handover: PC-CN2 (Asset Handover) requires the contractor to provide the asset owner with the Residual Risk and Hazard Register.

GATE 5 – BENEFIT REALISATION

2. Sustainability in options assessment and decision making

South Australia has committed to net zero emissions by 2050, with an interim goal of a 50% reduction on 2005 emissions levels by 2030. Transport is currently the largest source of emissions in the state. To avoid locking in future emissions, and facilitate a shift towards low emission forms of transport it is crucial that investment and design decisions are based on a robust triple bottom line assessment of options - both high level options (strategic options) and sub-options for delivery (project options). The department uses a tiered filtering approach, based on the Australian Transport Assessment and Planning Guidelines (Australian Government Department of Infrastructure and Regional Development) and the Infrastructure Australia Assessment Framework. This involves a strategic merit test, options assessment and cost benefit analysis.

2.1 Strategic Merit Test

The Strategic Merit Test must confirm that there is a clear link from strategy to project, i.e. the project is contributing to the department's and the State Government's broader vision, and complements other existing or planned projects/ programs.

To effectively consider an option's or initiative's alignment with goals, objectives and strategic priorities, the Strategic Merit Test must be based on a multi-criteria assessment. This must be undertaken by a multi-disciplinary team including the following as a minimum:

- Environmental experts
- Social/community experts
- Business case experts
- Infrastructure experts

For sustainable decision making, it is important that criteria are weighted equally across economic, social and environmental aspects. Appendix 1 provides a list of key sustainability commitments, obligations, and internal and external programs to consider when undertaking the Strategic Merit Test.

2.2 Options assessment

Some project options materially differ in terms of their whole of life greenhouse gas impacts. For example, the embodied and operational emissions of a tunnel over a 100 year design life are significantly greater than a surface road. Similarly, the enabled emissions (ie emissions of vehicles using the infrastructure) of different grade separation options (eg road over rail, rail over road) are likely to vary significantly by virtue of the impact of gradient on vehicle emissions.

Where there is scope to influence greenhouse gas emissions through option selection (ie if it is likely that there will a material difference between options' whole-of-life emissions impacts), a high level estimate of each shortlisted options' greenhouse gas emissions should be undertaken in accordance with part 7 of this Manual. The results should be used to inform options selection (ie by including relative greenhouse impact as one of the criteria in the ranking and assessment methodology).

Similarly, project options' scope/ potential to deliver urban greening outcomes and associated benefits to the community should be considered in options selection. Further information on green infrastructure is provided in part 11 of this Manual.

2.3 Cost benefit analysis

Cost benefit analyses undertaken for both the rapid and detailed appraisal must consider whole-of-life costs and benefits of the investment decision, including all material externalities arising from the option/ initiative.

Materiality should be considered on a cumulative basis, for example if a project produces a small amount of noise pollution but is located in an area already subject to high noise levels, this externality may still be material.

The Infrastructure Sustainability Rating Tool version 2.0 (ISCA 2018) identifies a number of externalities that may need to be considered when assessing infrastructure projects:

- Noise
- CO2-e emissions
- Human health impacts
- Air and water pollution
- Education and skills development
- Enhanced safety
- Aesthetics
- Productivity
- Biodiversity
- Land use changes and urban renewal
- Agglomeration economies

Where externalities are monetised, the source and rationale for the cost benchmarks must be explained and documented.

Distributional impacts

The impacts of a project are not always distributed evenly across society, i.e. some (demographic or geographic) groups may experience benefits while others may be negatively impacted.

Whilst it may be practical for the cost benefit analyses to focus on the net impacts of a project to the community as a whole, distributional impacts must be considered and addressed to ensure that the project doesn't disproportionately impact certain social groups, especially disadvantaged or vulnerable groups.

The Infrastructure Sustainability Rating Tool version 2.0 (ISCA 2018) provides examples of common distributional impacts:

- Access to employment and services
- Infrastructure user costs
- Safety impacts
- Employment opportunities
- Increased costs to access infrastructure/ services
- Physical accessibility
- Noise impacts
- Severance
- User benefits
- Business impacts

3. Benefits realisation and business requirements

The department's benefits framework sets out the key outcomes and benefits that it wants to achieve through investment in infrastructure, services and planning. It includes several sustainability-related benefits, which relate to the department's key areas of impact and influence, as well as broader Government direction and sustainability commitments (refer to Figure 3.1).

The project/ program must be assessed to check whether it will move the department closer towards or further away from its sustainability-related benefits. Any negative impacts must be carefully considered to ensure the full value of the program is recognised or remediation steps are put in place.

Infrastructure projects may present opportunities to deliver co-benefits to the community - for example, where boundary adjustment/ land acquisition results in previously developed land becoming available for public open space/ greening (one of the outcomes sought in the Government's Climate Change Action Plan). In order to ensure these benefits are realised, it is important to include them in the project's benefits register and business requirements.

Figure 3.1 Key sustainability-related benefits in the Department's Benefits Framework

Business Requirements are used to identify what outcomes will be achieved by the project and broadly what outputs will be required. Business requirements provide the foundation from which further project details are developed, including Technical, Operational and Functional Requirements.

As such, to ensure all sustainability problems and opportunities are appropriately addressed, it is critical to define the desired sustainability outcomes in the Business Requirements.

Table 3.1 provides examples of sustainability-focussed business requirements, however the outcomes will depend on the priorities and opportunities presented by the individual project.

Table 3.2 Examples of Sustainability-focussed Business Requirements

Strategic Objective

Showcase best practice sustainable infrastructure design and construction by minimising whole of life greenhouse gas emissions and optimising use of recycled materials

Transport Outcomes

Active travel	Improve connectivity to adjoining cycle and pedestrian corridors, wayfinding, public spaces, and the local street network anticipating for future Developments in the area
	Cycling and walking facilities are to be separated (where practical) from the arterial road traffic
	Provision of green infrastructure adjacent pedestrian and cycling facilities to provide shade, cooling and improved comfort for users
	Bicycle facilities, including storage, are provided for more seamless bike to train transfers
	Enhanced and effective inter-modal connections for all commuters to public transport, including pedestrians, cyclists and cars

Strong Communities Outcomes

Place	Recognise, respect and preserve the Aboriginal cultural and heritage values present
	Recognise, respect and preserve Non-Aboriginal heritage values
Land Acquisition	Minimise impacts to local residents and businesses
	Land acquired for the project contributes to the project objectives and residual land utilised to contribute to project outcomes
	Exploit opportunities created through the land acquisition process to deliver increased green infrastructure, achieving the green infrastructure objectives, desired characteristics and canopy cover targets defined for the project
Public Realm	Minimise, and where practical avoid, impacts to amenity vegetation and Regulated and Regulated Significant trees through considered design and construction methodology.
	Maximise opportunities for greening within the project precinct, including by retaining surplus land parcels for provision of green infrastructure, such that the project results in a net increase in canopy cover in the project precinct (based on expected cover when species reach maturity)
	Achieve a net 20% increase in canopy cover in the project precinct (based on expected cover when species reach maturity)
	Retain and provide amenity trees and vegetation to maintain and enhance the character of the area
	Provide visual screening/ an amenity buffer to adjoining land uses
	When determining the alignment of new property boundaries, provide sufficient verge width to enable large street trees, appropriate for the scale of the carriageway, to be planted in the road reserve in compliance with any offset requirements
	Mitigate project impacts to surrounding communities and the environment (e.g. from construction and operational noise and vibration, spilled light, air and water pollution)
	Improve conditions for surrounding communities and the environment (e.g. from noise vibration, spilled light, air and water pollution)
Connectivity and wayfinding	Passenger routes (all modes) are legible and clearly defined through intuitive wayfinding and directional signage
	Attractive connectivity pathways which maximise opportunity for amenity, shade and weather protection.
	Severance is minimised and connectivity improved
Commercial	Optimise development opportunities for lease or re-sale of surplus land, without compromising the ability to deliver increased green infrastructure
Equitable	Equitable and accessible to all, following principles of universal design

Aboriginal Engagement, Reconciliation and Employment Outcomes

Engagement	Engagement with Aboriginal and Traditional Owners that improves the relationship with the department and fosters participation and collaboration
Reconciliation	Integrate Aboriginal cultural elements and recognition into the project scope
Employment and training	Implement targets for Aboriginal employment and training that seek to stretch and expand existing employment capacity

Guiding Principles - Sustainability

Circular Economy	Maximise use of products / materials that incorporate recycled content
Climate Change	Minimise Greenhouse gas emissions associated with the construction and operation of the asset
	Infrastructure that is designed to be resilient to future climate change impacts
	Infrastructure that facilitates future transition to low carbon technologies
	Provision is made for future electric vehicle charging infrastructure in carparks (eg sufficient switchboard capacity, conduits)
	Best practice Active Transport infrastructure must be included in all projects to encourage low carbon emitting transport options
	Utilise local recycled water schemes for operational water requirements where feasible
	Employ Water Sustainable Urban Design (WSUD) principles to manage stormwater runoff and mitigate against urban heat
Local Economy	Locally sourced or fabricated materials to support the local economy and minimise transport (where practical)

4. Determining Project Sustainability Assessment Requirements

All transport infrastructure projects delivered by the department are subject to sustainability requirements. The level of assessment undertaken for a project should be commensurate with the project's value and the ability to materially influence emissions outcomes. The level of assessment should be determined during a project's planning study, having regard to the criteria below, and documented within the project's Full Planning Study Report (Task 9, as per PC-PL1).

Infrastructure Sustainability (IS) Rating

- Use of the IS rating tool will be considered on a case-by-case basis where the project Capital cost is > $200m and none of the following apply:
  a) the design duration is less than 12 months;
  b) the procurement model is construct only;
  c) the project scope is to complete systems upgrades (eg rail electrification, signals upgrades, EV charging network)
- Planning phase sustainability plan must be prepared for preferred concept, having regard to additional considerations and requirements for projects that will undergo an IS rating.
- The delivery contract will specify a minimum rating or score that must be achieved.
- The Contractor is required to comply with the requirements in Section 5 of this manual.

Level 1 sustainability assessment

- Required where:
  a) the project will not be registered for an IS Rating; and
  b) the estimated project Capital cost is ≥$100 million; and/or

c) the project incorporates a grade separation and/or a tunnel structure.

- Planning phase sustainability plan must be prepared for preferred concept
- Delivery phase involves completion of all design and construction sustainability tasks (as per PC-ST1 and PC-ST2)

Level 2 sustainability assessment

- Required where the project will not be registered for an IS Rating and does not trigger a level 1 assessment.
- Planning phase sustainability plan not required
- Delivery phase involves completion of a limited number of design and construction sustainability tasks (as per PC-ST1 and PC-ST2).

5. Requirements for projects undergoing IS Ratings

The Infrastructure Sustainability Council of Australia (ISCA) is a member based, not-for-profit industry council established with the objective of advancing sustainability outcomes in infrastructure. The primary method to achieve this objective is through the development and application of the Infrastructure Sustainability (IS) rating scheme.

Whilst the majority of the sustainability aspects covered by the IS rating scheme are addressed by the department's Master Specification and project management framework, the rating scheme provides a more robust sustainability assessment, third party verification and benchmarking against other projects. The level of assessment and documentation required means the scheme is best suited to large projects. Part 4 of this Manual outlines the factors the department considers in determining whether a project will be registered for an IS Design and As Built rating.

For projects undergoing an IS rating, the contract will specify a minimum rating or score that must be achieved.

For all projects undergoing an IS rating, the Contractor is required to undertake the following tasks in accordance with the current version of the IS Technical Manual:

- Register the project with ISCA for the required IS rating;
- Undertake a kick-off workshop with ISCA and representatives from DIT and the project team;
- Undertake or review a Materiality Assessment and seek verification from ISCA;
- Prepare a Base Case Proposal for the project utilising the 10% Concept Design (or other design agreed with the Principal) and seek verification from ISCA;
- Register any potential innovations with ISCA;
- Complete the IS rating tool scorecard in accordance with the requirements of the current IS Technical Manual;
- Unless otherwise agreed in writing with the Principal, obtain the required rating within 3 months of:
  - completion of 100% design (for a design rating)
  - project completion (for an as-built rating)

The Contractor must provide an experienced Sustainability Manager for the duration of the design phase (at least until documentation is submitted for the Round 2 IS Design rating).

The Sustainability Manager must be directly responsible to the Contractor's senior management and must be responsible for (as a minimum):

- administering the IS Rating process and preparing rating submissions on behalf of the project team;

- encouraging and supporting the project team to identify and act on opportunities to improve the sustainability of the project, including assessing the feasibility and driving implementation of new ideas or technologies;
- ensuring sustainability considerations are integrated into project decision making processes;
- keeping the Principal informed of progress against Mandatory, Principal-nominated and Contractor-nominated sustainability initiatives.

These duties shall take precedence over any other activity undertaken by the Sustainability Manager. The Sustainability Manager must be an Infrastructure Sustainability Accredited Professional.

The Contractor must, on a six-monthly basis following the project kick-off meeting and until the final rating is received, submit Sustainability Progress Reports to the Principal. Sustainability Progress reports must include, as a minimum, an updated scorecard/ credit pathway showing the target level and score for each credit (current at the time of preparing the progress report), any barriers/ risks to achieving the target level/ score and how these will be managed.

5.1 Aligning planning investigations with IS requirements

Many IS credits allow investigations undertaken during the planning phase to be submitted as evidence for the design rating, provided they meet the specific credit requirements. Where it is intended to register a project for an IS Design and As Built rating, the Planning Investigations and/or Concept Design development should be undertaken in such a way that facilitates the achievement of the relevant IS Design credits, and avoids the need for re-work during the design phase.

For example a climate change risk assessment undertaken during Planning Investigations could be submitted as part of the IS Design rating, as long as it satisfies the Res-2 credit requirements (ie it has been undertaken by a multi-disciplinary team, with the involvement of a suitably qualified person with minimum 3 years' experience in natural hazard and/or climate change treatments options and treatments). In order to ensure these requirements can be satisfied for the Design rating, attendance lists of those involved in the risk assessment should be kept, along with the CV of the suitably qualified person.

If planning investigations are undertaken without having regard to IS credit requirements, there is a risk that work will have to be re-done, or credits forfeited.

Table 4.1 below provides an overview of the data and evidence requirements for a number of IS Design rating credits which may be relevant for the planning phase. Contractors should have regard to these when commissioning or undertaking Planning Investigations/ Concept design development to increase the probability that outputs can be used for the Design rating without the need for re-work.

Table 4.1 Considerations for planning phase investigations to align with IS Design rating requirements (v2.0)

Greenhouse gas estimates
• Approach to estimating energy use & carbon emissions should align as far as practical with Ene-1. • IS Materials calculator should be used to estimate materials embodied emissions.
Vegetation survey/ ecology assessment and risk management (Eco-1)
• Ideally should be done by a suitably qualified professional with: - Tertiary qualifications including ecology, natural resource management, environmental management or environmental science; - A minimum of five (5) years' experience in the relevant field; and

- Professional industry certification and/ or accreditation obtained through the EIANZ, Ecological Consultants Association of NSW or under the *Biodiversity Conservation Act 2016* (NSW), where relevant. CV should be retained
• Should ensure the assessment considers: - potential impacts on *ecological features and processes* that are known or likely to be present - cumulative impacts – ensure we're considering the effects of stage 1 in the context of future development (stage 2 + Aldinga rail + land use change)
• Advice should include: - whether the proposed ameliorative measures would achieve a no net loss or net gain ecological outcome (if not, what additional measures would be required?) - identification of any opportunities to be considered during the design phase or implemented during future construction phases to enhance ecological features and values
Green Infrastructure (Gre-1)
• The Green Infrastructure Assessment should: - involve a context analysis (ie, a review of the relevant plans, strategies and programs which set the strategic framework for the project and the network of green spaces into which the project will be integrated), - identify the key physical and social features that will influence the planning and design of green infrastructure elements - contain green infrastructure targets addressing biodiversity, community connectivity and visual impact - be prepared by a suitably qualified and experienced landscape architect in collaboration with a suitably qualified multi-disciplinary team with expertise in the various ecosystem services provided by green infrastructure (for example, a civil engineer with expertise in water sensitive urban design. CVs should be retained.
Urban and Landscape Design (Pla-2)
• If a site analysis is undertaken, it should include a general context analysis, a local site context analysis, and a site characteristics analysis, which captures information required in Pla-2.
• If urban design options and strategies are prepared during the planning phase, they should respond to the site analysis, as well as the people and place principles set out in the Australian Urban Design Protocol and any other urban design principles adopted for the project.
• If a Landscape & Urban Design plan is prepared during the planning phase, it should contain the information required in Pla-2 and should be prepared by a person with a planning, design, landscape architecture or urban design qualification with a minimum of 10 years' experience. CV should be retained
Risk Assessment (Lea-2)
• Risk assessment should include direct governance, economic, environmental and social risks and opportunities (including risks associated with not pursuing an opportunity).
• Ensure the risk and opportunity criteria used to evaluate the significance of risks and opportunities is recorded and provided
Climate change risk assessment (Res-2)

• Ensure the following impacts are considered (or justification provided as to why they were not): Air temperature, Humidity, Sea surface temperature, Precipitation, Sea level rise, Wind and hail, Bushfire, Coastal inundation, Cyclones/storms, Flooding, Heatwave, Drought.
• Ensure the adopted climate change projection, including year and data source, is provided.
• Ensure the climate change risk assessment gives consideration to any local government natural hazard/climate change management plans (also a requirement of DITs climate change guideline)
• The climate change risk assessment should be done by a suitably qualified person (with at least 3 years of experience in natural hazard and/or climate change treatments options and treatments). Ensure a CV of this professional/s is provided.
• Ensure the name, company and role title of each person participating in the risk assessment process is recorded and provided.
Noise (Env-2)
• Ensure the baseline assessment considers existing long-term noise impacts that may be affecting human health (Compliance with the RTNG should satisfy the remaining requirements in relation to establishing a baseline)
Air Quality (Env-4)
• If a baseline study is undertaken during the planning phase, concentrations of the following pollutants (in addition to NO_2, PM_{10}, $PM_{2.5}$ and CO) would ideally be recorded (depending on cost implications): SO2, O3, TSP, VOCs, PAH, Deposited Dust, Pb, HF and Odour (where relevant)
• CV should be retained
Water quality (Env-1)
• If baseline studies are undertaken during the planning phase, these should be undertaken by a suitably qualified professional with at least five years' experience in environmental management and/or Environmental Impact Assessments, or equivalent. • CV should be retained
Heritage (Her-1)
• In reviewing literature related to the study area and identifying cultural heritage places, ensure the study goes beyond just a review of the local, state & contributory items. Should also include identification of existing built, natural, tangible or intangible heritage assets (such as the way the site is used, its cultural values, the important activities/festivals/ceremonies). Community and key stakeholder's values should be identified and integrated into the heritage assessment.
• The assessment of the effects of the proposal on cultural heritage sites should ideally be conducted in accordance with the latest version of the Burra Charter guidelines and include community and key stakeholder values including access to sites and community use.
• The heritage assessment should identify how much acceptable change can be undertaken to existing heritage values.
• If the heritage assessment reveals that heritage assets (or parts thereof) are not already listed on a local, state or national overlay or register for protection, the assessment should include recommendations as to whether they should be nominated.
• If stakeholder engagement includes discussion of heritage places/values, record how the community and stakeholder input has been incorporated into the heritage assessment.

6. Sustainability Plans and Progress Reports

Where required in the contract, a Preliminary and/or Final Sustainability Plan must be prepared for all project phases, to:

- provide an early indication of the most significant sustainability risks and opportunities for the project (through estimation of impacts);
- identify strategies and opportunities to mitigate sustainability risks/ improve sustainability outcomes;
- document the findings and outcomes of investigations/evaluation, including costs/ benefits, potential barriers to implementation, how the initiatives will or have been evaluated, and justification for decisions to implement or not implement identified initiatives; and
- inform cost estimates, budget and program decisions.

Sustainability Plans and Progress Reports must follow the templates provided in Appendix 3-5 and must be submitted to the Principal in accordance with Table 6.1.

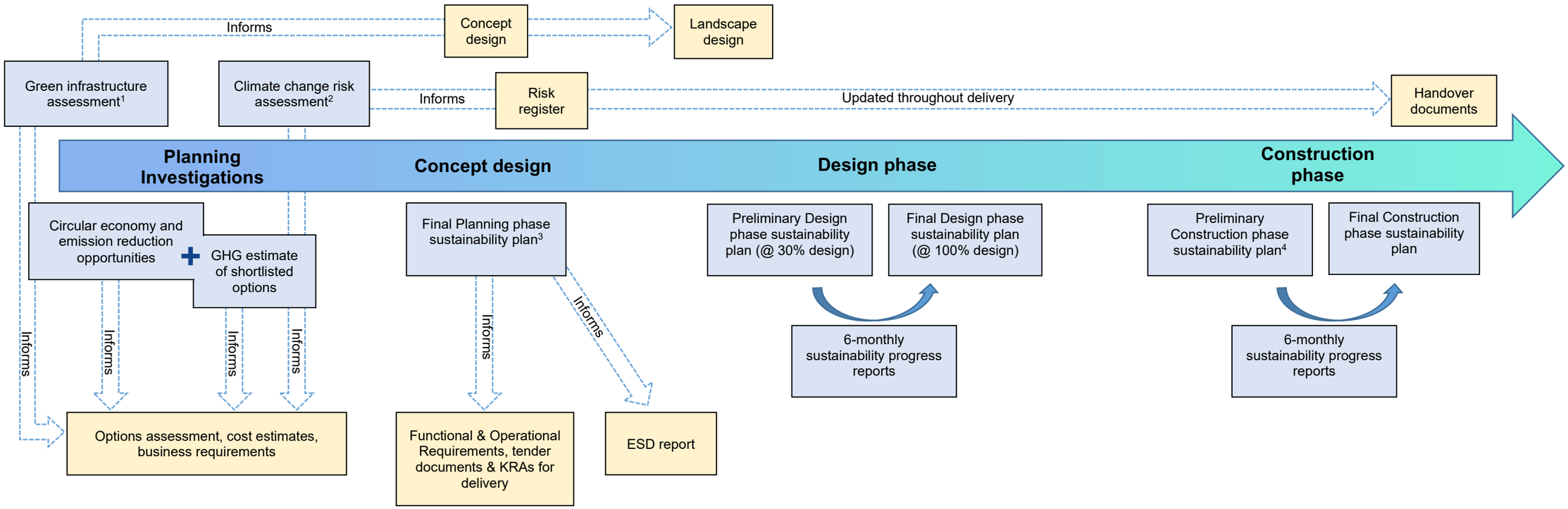
All sustainability deliverables required throughout the planning and delivery of transport infrastructure projects are shown in Figure 6.2 along with the key documents they influence/ inform.

Table 6.1 Timing for submission of Sustainability Plans and Sustainability Progress Reports

Project Phase	Preliminary Sustainability Plan	Interim	Final Sustainability Plan
Planning phase	n/a	n/a	Upon completion of the planning study
Design phase	30% design	Sustainability Progress Reports must be submitted on a six-monthly basis unless otherwise agreed by the Principal	100% design
Construction phase	Within 1 month of Contract Award[1]		At the time of submitting as built drawings and information
Maintenance phase	Within 1 month of Contract Award		6 months prior to completion of the Maintenance program

[1] Construction phase Preliminary Sustainability Plans are only required for Construct-only contracts.

Figure 6.2 Sustainability deliverables required throughout the planning and delivery of transport infrastructure projects, and the key documents that they influence/ inform



NOTES

[1] only required for projects in Metropolitan Adelaide or townships, where an opportunity/ need to incorporate Green Infrastructure has been identified (in accordance with PC-PL2 and DIT Sustainability manual part 11)

[2] requirement for climate change risk assessment determined in accordance with PC-PL2 and DIT Climate Change Adaptation guideline)

[3] only required for projects that will undergo Level 1 assessment or ISCA rating

[4] only required for construct only contracts. For D&C contracts, the contractor can just update the sustainability initiatives register to include any additional construction initiatives identified

Sustainability deliverable

Other deliverable

6.1 Planning phase

Note that projects subject to level 2 sustainability assessment are not required to complete a Planning Phase Sustainability Plan.

Only a Final Sustainability Plan is required for the planning phase, as required by PC-PL1 (Task 9). This must provide a summary of the most significant sustainability impacts and opportunities associated with the project, and must include:

- High level estimates of whole of life greenhouse gas emissions of the preferred concept design, prepared in accordance with DIT Sustainability Manual part 7;
- Outcomes of the following tasks undertaken as part of the Planning Investigations (as applicable):
  - Circular Economy assessment;
  - Climate Change Screening and Risk Assessment;
  - Green Infrastructure Assessment;
- Recommended Principal-nominated sustainability initiatives for the design and construction of the asset, prepared in accordance with DIT Sustainability Manual part 8.1.

A template is provided in Appendix 3.

Where Planning phase tasks include developing a Concept design to Reference design stage, and the Principal has confirmed that the project will be registered for an IS Design rating, the Sustainability Plan must include the following additional components:

- Draft IS rating pathway (including undertaking a limited materiality assessment);
- Recommended design to be chosen for the Base Case;
- Quantification of energy and materials use during construction by estimators to ensure appropriate data available for Design / As-built rating;
- Draft Resource Efficiency Strategy including targets.

6.2 Design, construction and maintenance phase

Note that projects undergoing an IS Rating are not required to complete a Design or Construction phase Sustainability Plan. The IS Rating requirements apply instead of (not in addition to) these requirements.

The **Preliminary Sustainability Plan** is prepared early in each project phase to show where the key sustainability impacts lie, and identify the opportunities that the project team intends to investigate/ implement to mitigate the impacts and achieve the required reduction in whole-of-life greenhouse gas emissions, and mandatory and principal-nominated sustainability initiatives.

Where a Preliminary Sustainability Plan is required in the contract, this must conform to the template provided in Appendix 4.

Throughout the works, as opportunities are identified, investigated and assessed, information on the status of initiatives and progress towards the emissions reduction requirement is reported via a 6-monthly **Sustainability Progress Report**. As a minimum, the Sustainability Progress Report must include:

- an indication of current status for the emission reduction requirement (e.g. on-track to being achieved with proposed initiatives, additional initiatives still required to achieve minimum requirement)
- an up-to-date register of sustainability initiatives (including new initiatives that have been identified since preparation of the preliminary sustainability plan), indicating current status of investigations/assessment & next steps

- An update on progress towards achieving the green infrastructure objectives, characteristics and canopy cover targets that apply to the project/ asset (if applicable).

Note that Sustainability Progress Reports may be included in Alliance Monthly Reports (if applicable), but must also be issued to the department's Principal Sustainability Advisor.

At the end of each project phase a **Final Sustainability Plan** is submitted, which includes final details of all sustainability initiatives identified and investigated by the project team as well as details of which opportunities were/ were not implemented and the rationale. The Final Sustainability Plan will form part of handover documentation between project phases.

Where a Final Sustainability Plan is required in the contract, this must conform to the template provided in Appendix 5.

Where an initiative is to be implemented, it is crucial that this is reflected in the final design drawings, so that it is clear to construction contractors and suppliers. See below examples. The sustainability initiatives register submitted with the final design-phase sustainability plan should confirm that initiatives are shown in the drawings.

Examples of sustainability initiatives reflected in design drawings

PAVEMENT WORK SCHEDULE - FP2

NEW FDA PAVEMENT

DCBR = 3%, N_{DT} = 5.4 X10^5 HVAGs, 20 YEAR DESIGN LIFE, DESIGN SPEED = 30KM/H, LDF = 1, PR = 90%

DESIGN LEVEL OF LOWER SURFACE OF COURSE IN RELATION TO FINISHED DESIGN LEVELS (MM)	LEVEL TOLERANCE (MM)	NOMINAL COMPACTED THICKNESS (MM)	LAYER	MATERIAL	RELEVANT MASTER SPECIFICATION AND ADDITIONAL REQUIREMENTS
0	+5,-0 (K&G) ±5 (ELSEWHERE)				
-40	±10	40	WEARING COURSE	AC10M (A5E) 10% RAP [2,3]	AS PER DIT SPECIFICATION RD-BP-S2 AND RD-BP-C3 REFER GN (8, 10, 12) AND PCN (1, 4, 8)
-80	±10	40	LEVELLING COURSE	AC10M (A5E) 10% RAP [2,3]	AS PER DIT SPECIFICATION RD-BP-S2 AND RD-BP-C3 REFER GN (8, 10, 12) AND PCN (1, 4, 8)
-160	+0, -10	80	BASE COURSE	AC14M (C320) 30% RAP [2,3]	AS PER DIT SPECIFICATION RD-BP-S2 AND RD-BP-C3 REFER GN (10, 11, 12) AND PCN (2, 3, 4, 8)
-335	+0, -20	175	SUBBASE	PM2/20RG (CLASS 2)[4]	AS PER DIT SPECIFICATION RD-PV-S1 AND RD-PV-C1
MINIMUM TOTAL PAVEMENT DEPTH			SUBGRADE	DESIGN CBR3%	AS PER DIT SPECIFICATION RD-EW-C1. SUBGRADE TREATMENT / COMPACTION TO BE COMPLETED TO PASS PROOF ROLL AND ACHIEVE MINIMUM 98% MDD STD COMPACTION (EARTHWORKS NOTE 15) REFER TO EN14 ON SHEET 2404

NOTES:

1. FOR GENERAL NOTES (GN), PAVEMENT CONSTUCTION NOTES (PCN) AND LEGENDS, REFER SHEETS 2402 TO 2406.
2. LOWER RAP CONTENT MAY BE ACCEPTABLE SUBJECT TO APPROVAL BY THE ALLIANCE SUSTAINABILITY MANAGER.
3. ALL ASPHALT MIXES ARE TO USE WARM MIX ASPHALT CONFORMING WITH THE DIT SPECIFICATION RD-BP-S2 AND RD-BP-C3. WHERE CONDITIONS DO NOT PERMIT THE PLACEMENT OR USE OF A WARM MIX ASPHALT, THE CONTRACTOR IS TO SEEK FORMAL APPROVAL FROM THE ALLIANCE SUSTAINABILITY MANAGER FOR USE OF THE EQUIVALENT HOT MIX ASPHALT CONFORMING WITH THE DIT SPECIFICATION RD-BP-S2 AND RD-BP-C3.
4. ALL CLASS 2 AND 3 GRANULAR PAVEMENTS ARE TO USE RECYCLED MATERIAL IN ACCORDANCE WITH DIT SPECIFICATION RD-PV-S1 AND RD-PV-C1. WHERE CONDITIONS DO NOT PERMIT THE PLACEMENT OR USE OF RECYCLED PAVEMENT MIX, THE CONTRACTOR IS TO SEEK FORMAL APPROVAL FROM THE ALLIANCE SUSTAINABILITY MANAGER FOR USE OF THE EQUIVALENT VIRGIN GRANULAR PAVEMENT MIX CONFORMING WITH THE DIT SPECIFICATION RD-PV-S1 AND RD-PV-C1.

CONCRETE

C1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATION AND THE AUSTRALIAN STANDARD BRIDGE DESIGN CODE AS5100.5

C2. UNO, CONCRETE CLASS AND COVERS FOR INDIVIDUAL ELEMENTS SHALL BE AS PER THE FOLLOWING:

ELEMENT	CONCRETE GRADE	REQUIRED COVER (mm)	MINIMUM PORTLAND CEMENT REPLACEMENT LEVEL
PIERS	S40	45	50%
BEARING PLINTHS	S50	40	N/A
BLINDING	N25	N/A	N/A
CFA PILES	S40	90	30%
BORED PILES	S40	90	30%
IN SITU CONCRETE RAMP	S40	45	30%
RAMP ON GROUND	S40	45	30%
IN SITU RETAINING HEADWALL	S40	45	30%
LIFT FOOTINGS	S40	45	30%
LIFT PRECAST PANELS	S50	35	30%
PILE CAPS	S40	45	50%
POLE FOOTING (BORED PILE)	S40	75	30%
RETAINING WALL PRECAST PANELS	S40	35	30%
ALL OTHER PRECAST ELEMENTS (ABOVE GROUNDWATER WATER)	S50	30	30%
MASS CONCRETE	N40	N/A	N/A

6.3 ESD report for Public Works Committee and Cabinet submissions

Where required in the contract, in accordance with Task 9 of a planning study (PC-PL1), an Ecologically Sustainable Development (ESD) report must be prepared for the purpose of complying with requirements of Cabinet and the Public Works Committee (PWC) of Parliament.

In line with section 16A of the *Parliamentary Committees Act 1991*, all public works with a capital value greater than $4 million must be considered by the Public Works Committee (PWC) of Parliament.

Premier and Cabinet Circular PC 015 requires that submissions to PWC demonstrate how the work incorporates ESD initiatives and associated matters. The ESD section of the submission must identify the key ESD risks, opportunities and initiatives associated with the project, and proposed strategies that will be implemented to manage or realise them. As of December 2021, DIT's ESD system has been endorsed by the Department for Environment and Water (DEW). No separate ESD Acquittal is required from DEW prior to PWC report submissions.

A standard ESD report template is provided in Appendix 2.

7. Estimating impacts

Estimating greenhouse gas (GHG) emissions across the life of the asset or maintenance program allows the project team to understand where the biggest impacts are. This information can then be used to help set appropriate minimum requirements and focus efforts on areas of greatest impact.

Estimates are generally required for all infrastructure projects requiring Level 1 assessment (refer to Part 4 of this Manual).

The boundary of the estimate will vary depending on when it is being undertaken in the asset lifecycle. The minimum requirements for each phase are shown in Table 7.1. Operational impacts shall be calculated over the forecast useful life of the asset, unless valid reasons are provided to justify a different period. Any alternative period must be clearly recorded in the Sustainability Plan.

Estimates made during the planning phase will be high level estimates. However, these early estimates still provide an understanding of the relative impacts and implications of different options or materials, which can aid in decision making.

The level of detail should be sufficient to allow project teams to identify activities/ design options with high impacts and focus efforts on reducing impacts from these activities/ options.

Table 7.1 Project phase requirements for impact estimates

Project phase	**Boundary of impact estimate**	**When to prepare estimate(s)**
Early Planning (Proving phase)	GHG impacts associated with construction, operation, major maintenance activities[2] *and use* of the asset over its forecast useful life[3].	1. Must be based on shortlisted Concept designs and submitted with the Planning Study Report
Planning (Pre-delivery phase)	GHG impacts associated with construction, operation and major maintenance activities[2] of the asset over its forecast useful life	1. Must be based on the preferred concept design and submitted with Final Sustainability Plan.
Design	GHG Impacts associated with construction, operation and major maintenance activities[2] of the asset over its forecast useful life	1. Preliminary design estimate: - must be based on the project's Reference design unless agreed otherwise with DIT - must be prepared prior to the sustainability workshop and provided to workshop participants unless agreed otherwise with DIT 2. Final design estimate must be based on and submitted upon completion of 100% design
Construction	GHG Impacts associated with construction of the asset	1. Preliminary construction estimate[4]: - may be based on final design estimate prepared in the design phase (if still relevant and suficiently detailed) - must be prepared prior to the sustainability workshop and provided to workshop participants 2. Final construction estimate must be based on and submitted with as built drawings and information
Maintenance (only applicable to	Impacts associated with the maintenance of the asset (for the duration of the maintenance contract)	1. Preliminary maintenance estimate must be prepared prior to the sustainability workshop and provided to workshop participants

[2] Major maintenance activities include pavement rehab and asset replacement

[3] High-level estimates are prepared for shortlisted options to enable comparison of the relative impact of each option and inform selection of preferred option. GHG emissions estimates prepared during the early planning phase must include scope 3 emissions of third party vehicles using the infrastructure as well as embodied and operational emissions.

[4] Only required for construct-only contracts

maintenance contracts)		2. Final maintenance estimate must be submitted with the final Sustainability Plan (6 months prior to completion of the Maintenance program)

Reference design estimates and preliminary design, construction and maintenance estimates must be based on 'business as usual' materials, technologies, construction and operation practices, which reflect standard practice for DIT. Several business as usual assumptions are provided in Appendix 4.

7.1 Estimating greenhouse gas emissions

Estimates must be expressed in tCO2-e and shall cover Scope 1, Scope 2 and the following Scope 3 emissions as a minimum:

(a) Embodied emissions of purchased materials (eg quarry products, concrete, asphalt, steel);

(b) The extraction, production and transportation of purchased fuels;

(c) The transportation of purchased materials;

(d) Emissions attributable to the electricity lost in delivery in the transmission and distribution network;

(e) Net vegetation loss/ gain; and

(f) Combustion of fuel in third party vehicles using the infrastructure (only required for early planning phase estimates)

The approach to estimating emissions must be consistent with the current version of the Climate Active Carbon Neutral Standard for Precincts (particularly Section 3), whereby embodied emissions are to be included in the whole-of-life greenhouse gas emissions estimates.

Estimates of embodied emissions must be prepared using the current version of the Infrastructure Sustainability Council of Australia (ISCA) Materials Calculator or other suitable lifecycle assessment tool. Any alternative lifecycle assessment tool must utilise lifecycle data sourced from the Australasian Life Cycle Inventory Database (AusLCI) and/or current Environmental Product Declarations that conform to standard EN 15804.

8. Mandatory Sustainability Initiatives and Principal-nominated Sustainability Initiatives

Master Specification parts PC-PL1 and PC-PL2 contain a number of Mandatory Sustainability Initiatives which must be implemented on all projects. In addition to these mandatory initiatives, the department may specify project-specific Principal-nominated Sustainability initiatives in the contract requirements for design and construction (particularly for projects undergoing level 1 assessment or IS rating). Principal-nominated initiatives will differ depending on the risks and opportunities presented by a particular project, and are based on a planning phase assessment and recommendations regarding what initiatives are viable and what reductions are considered achievable for that project. Principal-nominated sustainability initiatives may target emission reduction, potable water use, diversion of waste from landfill, use of recycled materials, climate resilience or urban greening.

8.1 Recommending Principal-nominated Sustainability Initiatives

For projects which will undergo Level 1 sustainability assessment or which will be registered for an IS Design & As Built Rating, the planning phase sustainability plan must include recommended Principal-nominated Sustainability Initiatives to be applied to the design and construction of the asset. These must be based on an assessment of key sustainability impacts and opportunities for the project,

informed by a high-level estimate of whole-of-life GHG emissions as well as the opportunities identified in the green infrastructure assessment and the Climate Change Risk Assessment.

Recommended Principal-nominated sustainability initiatives must be reflective of the nature and scale of opportunities presented by the project and must be based on credible evidence of the benefit/ impact that can realistically be achieved.

In addition:

(d) for projects undergoing level 1 assessment, they must include a recommended minimum percentage reduction in whole of life greenhouse gas emissions (noting that the default requirement in Master Specification part PC-PL1 is a 10% reduction, compared to the project's base case);

(e) for projects that are going to be registered for an IS Design & As Built Rating, they must include a recommended minimum IS Design rating and As Built rating, and suggested minimum levels to be achieved for individual credits.

8.2 Use of Incentives and Key Result Areas

Defining Key Result Areas (KRAs) in a project contract can be an effective means of driving project performance above and beyond minimum requirements in those respective areas. Progress and performance in KRAs is typically reported on monthly to the project leadership team, and good performance can be encouraged and rewarded through the use of financial incentives.

The department has committed to including low carbon design and construction and circular economy outcomes as Key Result Areas in contracts for public works[5].

In addition to recommended Principal-nominated sustainability initiatives, Planning phase sustainability plans may include recommended KRAs and Key Performance Indicators (KPIs) such as:

- Reduction in the project's whole-of-life energy-use GHG emissions (measured in units t CO2-e)
- Reduction in the project's materials lifecycle impacts (measured in units t CO2-e)
- Circular economy outcomes through use of recycled materials.
- Completion of sustainability plans and progress reports.

9. Identifying and investigating initiatives to reduce GHG emissions, waste, water and materials' lifecycle impacts

Project teams may be required to identify and investigate additional initiatives (beyond the Mandatory sustainability initiatives and Principal-nominated sustaianbility initiatives) throughout the project's delivery phase, and present the outcomes of the investigations (including the decision to implement) in the Sustainability Progress Report and/or Final Sustainability Plan. Where this is the case, decisions must be based on triple-bottom line assessment, as described in section 9.1.

9.1 Triple-bottom line assessment of sustainability initiatives

To ensure robust and balanced assessment of sustainability initiatives, the following information (as a minimum) must be obtained and used (through MCA or similar) to inform decisions on viability and implementation of initiatives:

Environmental

- Estimated reduction in GHG emissions / mains water consumption / waste generation / virgin material use / climate change risk (as relevant);

[5] SA Government Climate Change Action Plan 2021-25: Implementation Schedule

- Will implementation of the initiative hinder achievement of other sustainability objectives?

Economic

- Likely positive/ negative impacts on local industry participation
- Alignment with Government's objective to grow a climate smart economy by supporting climate smart businesses and developing a more circular economy

Social

- Community perception / Opportunity for positive or negative PR

Technical

- Any anticipated time or resource impacts on the design and construction program;
- Any implications for durability;
- Availability of products/materials (as relevant);

The environmental, economic, social and technical merits/ risks of each initiative, compared to BAU, must be thoroughly considered and documented in the Sustainability Progress Report and/or Final Sustainability Plan, along with:

- the decision whether to implement the sustainability initiative;
- justification for decisions not to implement the sustainability initiative;
- a description of the decision making process and tool used to undertake triple-bottom-line assessment of the sustainability initiative.

This information may be presented in the sustainability initiatives register (refer to Sustainability Plan templates in Appendix 4 & 5).

There is no minimum number of sustainability initiatives (beyond the Principal-nominated and Mandatory sustainability initiatives) that must be investigated or implemented by the project team – it will vary between projects. However, it is expected that initiatives are investigated for all significant impacts. The time allocated to investigating initiatives should also be proportionate to the scale of the impact. For example, if the largest sources of greenhouse emissions are from the use of concrete and steel, then there should be more focus on investigating strategies to reduce emissions from these materials than from other, less significant sources.

Note: Examples of GHG reduction initiatives that have been implemented on recent road, tunnel and rail projects in Australia and overseas can be found in the 'Review of Emissions Reduction Opportunities' (available on DIT website). Detailed life cycle investigations have also been completed for alternative noise wall materials which can deliver reduced greenhouse gas emissions and satisfy DITs Master Specification requirements (available here).

9.2 Applying the waste hierarchy to achieve circular economy outcomes

The principles of the waste hierarchy must be applied to all DIT projects. The following (or similar) process must be employed:

(a) list all the major material/ product categories in the proposed asset/ program

(b) identify opportunities for avoided demand;

(c) identify which elements of the asset/ program offer potential to incorporate/ substitute recycled materials (this includes supplementary cementitious materials as a replacement for Portland Cement);

(d) identify possible sources/ suppliers of recycled materials and/or materials which have lower environmental impacts across their life cycle compared with competing materials/products;

(e) assess viability[6] and whole of life costs and benefits to inform decisions on the optimum type(s) and amount(s) of recycled materials/products to be used;

(f) apply procurement levers to preference suppliers of materials/products with high recycled content and/or those with lower environmental impacts across their life cycle compared with competing materials/ products;

(g) Identify waste streams that will be generated by the project/ program;

(h) Investigate opportunities to recycle these materials;

(i) Where recycling is possible, put measures in place to ensure waste streams are kept separate;

(j) Dispose of surplus material to appropriate resource recovery facilities.

10. Sustainable procurement

Sustainable procurement is *'procurement that has the most positive environmental, social and economic impacts possible over the entire life cycle'* (ISO 20400:2017 Sustainable Procurement – Guidance). Given the large spends involved in infrastructure projects, there are significant opportunities to leverage more sustainable outcomes through procurement processes. The achievement of many sustainability requirements is dependent on proactive engagement of suppliers, whether it is for environmental or social outcomes.

Environmental sustainability outcomes may include (among other things) reduction in greenhouse gas emissions, potable water use, waste and materials' lifecycle impacts. Social sustainability outcomes include:

- **Local employment creation, skills development and opportunities for disadvantaged members of the community.**

  This is largely addressed via the Office of the Industry Advocate's Industry Participation Policy.

- **Community engagement and the opportunity for projects/assets to deliver wider community outcomes/ benefits.**

  The department's approach to community engagement is underpinned by the SA Government's 'Better Together: Principles of Engagement', which draws on resources from the International Association for Public Participation (IAP2). It is focused on genuine, pro-active engagement with communities to better inform the department's decision making processes. Guidance and resources are provided in the DIT Community Engagement Toolkit (accessible via intranet site for SA State Govt staff only).

- **Labour conditions, human rights and fair operating practices, including upstream supply chain impacts of goods and services.**

  The department expects all of its contractors to demonstrate due diligence in managing adverse sustainability impacts throughout the supply chain (regardless of whether they are required to report under the Modern Slavery Act (2018)). Such supply chain risks may include

[6] Viability assessment to include consideration of:
- proximity (ie how close is the project to the source of recycled material compared with traditional materials, and what is the impact in terms of cost and CO2-e associated with haulage)
- whether the recycled material achieves equivalent performance (or what design modifications are required in order to achieve equivalent performance)
- any implications for durability (and the impact in terms of whole of life CO2-e emissions)
- market readiness (do few/ most/ all contractors have capability to deliver the product/ material)

- Human rights: (e.g. economic, cultural, civil and political rights, discrimination and vulnerable groups)
- Labour practices (e.g. employment relationships, conditions of work)
- Fair operating practices (e.g. anti-corruption, fair competition, respect for property rights);
- Consumer issues (e.g. fair marketing, factual and unbiased information, fair contractual practices).

10.1 Formal commitment

Suppliers/ Contractors may be requested to provide evidence of a formal commitment to address sustainability risks and opportunities in their supply chain. Such a commitment must:

- be approved by senior management (e.g. Project manager, procurement director, Alliance leadership team);
- be included in the project/ asset management framework.

10.2 Risk Assessment

Suppliers/ Contractors may be requested to undertake a risk/opportunity assessment and implement appropriate procurement actions to mitigate/realise material[7] risks/ opportunities. The risk and opportunity assessment must address environmental and social sustainability risks/ opportunities, and be provided to the Principal and reviewed and updated annually.

10.3 Inclusion of specific sustainability requirements in supplier prequalification, specifications and evaluation

Where material sustainability risks and opportunities have been identified in the risk assessment, appropriate procurement actions must be implemented to mitigate material sustainability risks and realise sustainability opportunities. Box 10.1 provides suggested questions to be incorporated into subcontractor/ supplier prequalification, specifications and evaluations (depending on the nature of the goods/services being procured).

Box 10.1 Suggested questions for inclusion in subcontractor/ supplier prequalification, specifications and evaluation to mitigate/ realise material social sustainability risks/ opportunities in the supply chain

- Are your products certified under any accredited Product Stewardship Schemes?
- Please provide your organisation's Corporate Social Responsibility (CSR) statement or equivalent.
- Has your organization made a public commitment to reduce its carbon footprint? Please provide details of your organization's emission reduction targets or strategy to reduce the greenhouse gas emissions generated from your operations.

[7] Material' sustainability risks and opportunities are the most significant risks or opportunities for the project/asset and in its supply chain. Materiality may be influenced by:

- the emissions footprint of the goods or services being procured;
- the availability of alternative products/ services with lower environmental impacts (eg lower emissions, higher recycled content);
- the origin of the good/service (e.g., is it coming from a country with known human rights violations or a high proportion of migrant workers?);
- the location of the project/asset (e.g., are there opportunities to use the procurement to positively impact areas communities with high rates of unemployment/ address local skills shortages?);
- expenditure on the good/service (generally the greater the amount of spend, the greater the risk); and
- ability to influence (as above, the greater the spend the more leverage you may have over your suppliers to influence their practices).

- Please specify the % post-consumer recycled content in your products
- Are your products certified under the ACRS' Sustainable Constructional Steels Scheme?
- Are you able to provide Environmental Product Declaration(s), or credible information on the embodied (cradle to gate) emissions of your products?
- Please provide information on your capability to supply concrete with high rates of Portland Cement replacement (>40%), or alternative products which can deliver an equivalent reduction in embodied greenhouse gas emissions.
- Are you a member of the Australian Steel Institute's Environmental Sustainability Charter?
- Have you reviewed the sustainability impacts of your supply chain? e.g. has your company published a statement under the Modern Slavery Act 2018? If not, how does your organisation ensure appropriate social and environmental standards are adhered to?
- Which labour standards have been adhered to during the extraction of raw materials and throughout the manufacturing process?
- Has your organisation ever received a penalty or notice from the Fair Work Ombudsman or been in breach of the SA8000 standard for socially responsible employment practices, or similar?

10.4 Sustainable site accommodation

Site accommodation not only has an environmental impact, but can also impact the well-being and productivity of its occupants. Appendix 7 lists a suite of requirements for more sustainable site facilities.

Where the contract requires site accommodation to be in accordance with this section of the Sustainability Manual, the contractor must implement a minimum of 50% of the requirements listed at Appendix 7.

11. Green Infrastructure

Green Infrastructure refers to both natural and engineered ecological systems (eg trees and other landscaped areas, stormwater detention basins, wetlands etc) that deliver a range of ecosystem services and community benefits, such as:

- reduction in stormwater run-off
- water and air quality improvement
- mitigation of urban heat island effect
- community resilience to extreme heat
- shade/ respite for pedestrians and cyclists
- improved liveability and amenity
- improved community health and wellbeing
- increased property values (for adjacent landowners)
- increased habitat/ biodiversity
- reduced demand on downstream drainage infrastructure
- carbon sequestration

One of the key objectives in the Government's Climate Change Action Plan is to accelerate urban greening to reduce urban heat, create habitat for wildlife, and improve liveability and amenity. In response to this objective, DIT has committed to *'Identify and pursue feasible opportunities to expand Green Infrastructure (including water sensitive urban design) on public land, focusing on priority areas identified by Green Adelaide, corridors which provide for active travel, and new infrastructure projects'.*

To deliver on this commitment, DIT recognises the need for green infrastructure to form part of planning and design thinking from the outset of a project, to ensure appropriate services, space allocation, funding and maintenance regimes are considered, and the benefits to the community can be realised.

For projects in the Adelaide metropolitan area and townships, planning investigations should include an assessment of the opportunity and need to incorporate Green Infrastructure into the asset. In determining the opportunity/ need for Green Infrastructure, the Contractor must consider:

- Does the project involve land acquisition/ boundary realignment? This can present valuable opportunities to deliver expanded green infrastructure (and associated community benefits) - for example by utilising surplus acquired land for greening and/or WSUD, or by providing sufficient width in the road corridor to allow for large canopy trees
- Will the project result in a significant increase in impervious area? Statewide WSUD performance principles and targets apply to projects that contribute to increased stormwater runoff, meaning green infrastructure/WSUD will likely need to form part of the design solution
- Does the project include any pedestrian/cycling infrastructure, or present an opportunity to improve the amenity of existing pedestrian/ cycling infrastructure? Provision of green infrastructure (in the form of shade trees) is an important adaptation response to improve amenity and attractiveness of active travel in an increasingly hot climate.

Where an opportunity/ need to incorporate Green Infrastructure has been identified, the Contractor must assess and document Green Infrastructure opportunities and constraints in a Green Infrastructure Assessment. The Green Infrastructure Assessment must include the following, as a minimum:

(a) Identify the **priority objectives** and **desired characteristics** for green infrastructure across the project area. These may vary across the project area depending on the anticipated uses, however they must be developed to achieve the department's commitments for increased canopy cover, liveability, biodiversity sensitive urban design and water sensitive urban design (as set out in the department's *Green Infrastructure Commitment*).

(b) Confirm **canopy cover target(s)** to be applied to the project. In line with the department's *Green Infrastructure Commitment*, the default target is at least a 20% increase in canopy cover (measured at maturity), however:

- If there is potential to deliver >20% increase in canopy cover, this option should be presented.
- If the project area already has high levels of canopy cover (>30%), and it is deemed impractical to achieve a further increase in canopy cover, a target of no net loss of canopy cover is considered acceptable.
- If the project area has low levels of canopy cover (<30%) and if it is deemed impractical to achieve a 20% increase in canopy cover within the project area, opportunities to partially meet the target off-site must be presented.

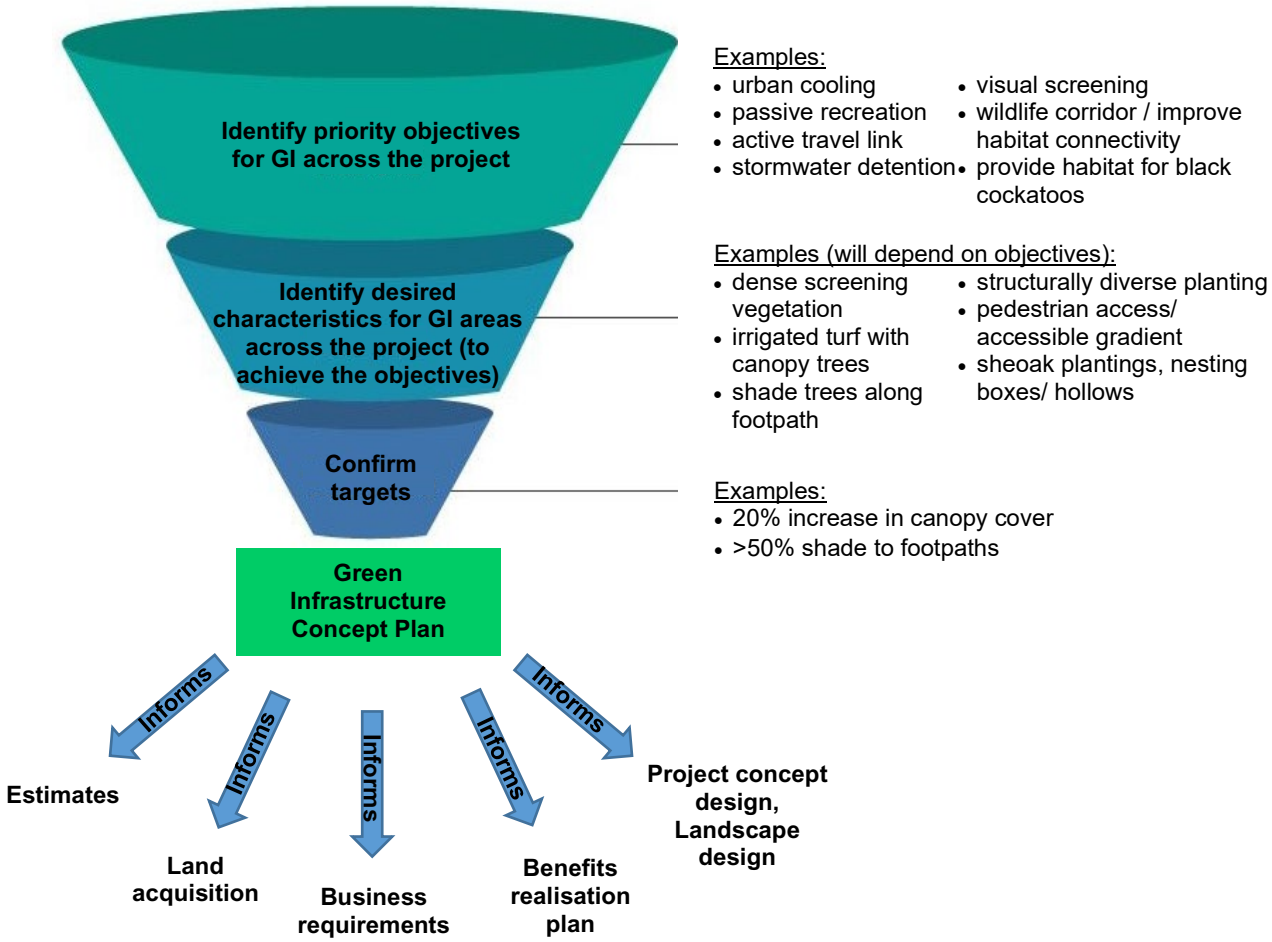
Output: Green Infrastructure Concept Plan showing the types and approximate extent of green infrastructure envisaged across the project (taking into account anticipated land acquisition/ boundary realignment and having regard to the likely location of services and approximate space required to achieve WSUD policy targets). Concept plan to be annotated to explain the objectives/ desired characteristics of green infrastructure across the project, and the canopy cover target(s).

Note: where the Green Infrastructure Assessment is being undertaken during the detailed design phase instead of the planning phase, the information required in the Green Infrastructure Concept Plan may instead be presented in landscape drawings.

(c) Identify the anticipated benefits of the green infrastructure to adjacent landowners/ occupants, the broader community and the environment (see above for examples)

Output: list of anticipated benefits that the project can deliver through the provision of green infrastructure (for inclusion in the project's benefits register).

Green Infrastructure Assessment process and outcomes



(d) Identify actions required to ensure opportunities and priority objectives for green infrastructure are realised on the project, including as relevant:

- project-specific outcomes to be incorporated in key project documents (eg business requirements, functional and operational requirements and/or benefits register)
- recommendations for land acquisition/ disposal plans and cost estimates to ensure adequate land is acquired/ retained for green infrastructure and adequate budget is allowed to achieve desired objectives

Output: list of recommended actions to be implemented by project team to ensure priority objectives for green infrastructure are realised.

12. Climate Change Risk Assessments

An important design and maintenance consideration for the Department's assets is resilience to future climate conditions. Designing a climate resilient project assists local communities to become more resilient to shocks and stresses by maintaining a safe, operational transport corridor.

Master Specification PC-PL2 'Planning Investigations' and the Department's Climate Change Adaptation Guideline establish the requirements for undertaking a climate change risk assessment during the planning phase.

During detailed design and construction, PC-PM4 requires climate change risks to be recorded in a Contract specific Risk Register, and PC-ST1 and PC-ST2 include a requirement to demonstrate that appropriate risk treatments have been incorporated into the design, residual risks entered in the project risk register and any relevant treatments documented in the project's handover documents.

Appendix 1: Key DIT and SA Government sustainability commitments, obligations, and programs

Emissions reduction

- Net zero greenhouse emissions in SA by 2050 and 50% reduction on 2005 levels by 2030 (SA Government Climate Change Action Plan (CCAP) 2021-25)
- Action 5.6: Deliver low emissions infrastructure and operations (CCAP – DIT action)
  - *Outcome sought: Minimised whole of life emissions from new and existing infrastructure, and increased use of materials with recycled content in infrastructure projects*
  - Sub-action 5.6.1: Include appropriate requirements for construction and operational emission reduction and use of materials with recycled content in Contract Specifications and Functional & Operational Requirements for public works and building leases (CCAP - DIT implementation plan)
  - Sub-action 5.6.2: Include low carbon design and construction and circular economy outcomes as Key Result Areas (KRAs) in contracts for public works (CCAP - DIT implementation plan)
- Action 4.5: Align transport planning with net zero emissions outcomes (CCAP – DIT action)
  - *Outcome sought: Investment in transport infrastructure solutions that contribute and respond to future low or zero emission mobility*
- Action 7.2: Explore and implement additional climate smart procurement reforms (CCAP)
  - *Outcome sought: Through its procurement activity, DIT supports the Governments climate change objectives and fosters a viable local market for climate smart products and services*
- Action 4.3: Investigate mechanisms to reduce the emissions intensity of freight and heavy vehicle transport (CCAP – DIT action)

Public transport and active travel

- Action 4.7: Develop and deliver an active travel and mobility program for Greater Adelaide (CCAP – DIT action)
  - *Outcome sought: A shift in passenger travel from high to low emission travel modes, with associated health and wellbeing benefits*
  - Sub-action 4.7.1: Encourage active travel to public transport nodes by improving station amenity, bicycle parking and active travel connections (CCAP - DIT implementation plan)
  - Sub-action 4.7.2: Encourage more people riding and walking by improving the strategic cycling network (CCAP - DIT implementation plan)
- Action 4.6: Drive increased patronage of public transport through delivery of services that are more efficient, integrated and customer-focused (CCAP – DIT Action)
  - *Outcome sought: A shift in passenger travel from high to low emission travel modes*
  - Sub-action 4.6.1: Deliver Government's public transport reform agenda for more efficient, integrated, customer-focussed public transport services (CCAP - DIT implementation plan)
  - Sub-action 4.6.2: Investigate and where feasible, implement on demand responsive transport services as part of an integrated transport solution (CCAP - DIT implementation plan)
- Increase the share of work trips made by active transport modes by 25% by 2045 (30 year plan for Greater Adelaide)
- Maintain, extend and improve Adelaide's Bikedirect network, including the development of greenways (30 year plan for Greater Adelaide)

- 5.10.2 Identify and pursue feasible opportunities to expand GI (including water sensitive urban design) on public land, focusing on priority areas identified by Green Adelaide, corridors which provide for active travel, and new infrastructure projects
- 5.12 Assess and address climate change risk in government infrastructure decisions, risk assessment and audit processes
- *Outcome: Climate change risks to assets and programs assessed and managed appropriately*

Climate change adaptation

- Action 5.12: Assess and address climate change risk in government infrastructure decisions, risk assessment and audit processes (CCAP)
  - *Outcome sought: Climate change risks to assets and programs assessed and managed appropriately*
  - Sub-action 5.12.1: Embed across-government agreed climate change projections and scenarios into decision-making and risk assessment and audit processes (CCAP - DIT implementation plan)
- Minimise the department's whole-of-life asset costs by planning, designing and maintaining assets to avoid future maintenance, repair, re-engineering and/or replacement costs associated with more frequent and severe extreme climatic events (DPTI Climate change adaptation strategy)

Green Infrastructure (including water sensitive urban design)

- Sub-action 5.10.2: Identify and pursue feasible opportunities to expand GI (including water sensitive urban design) on public land, focusing on priority areas identified by Green Adelaide, corridors which provide for active travel, and new infrastructure projects (CCAP - DIT implementation plan)
- Deliver a 20% increase in canopy cover on departmental managed land by 2045 (measured from the 2018/19 baseline) (DIT Green Infrastructure Commitment)
- Provide shade trees to improve amenity for pedestrians, cyclists and public transport customers, targeting ≥50% canopy cover over footpaths and bikeways (DIT Green Infrastructure Commitment)
- Implement WSUD on infrastructure projects to achieve the state WSUD policy performance targets for water quality, peak flow and flood risk (DIT Green Infrastructure Commitment)
- Minimise impacts to existing natural ecosystems to maintain ecological value and preferentially retain mature trees including Regulated and Significant trees (DIT Green Infrastructure Commitment)
- Identify and pursue opportunities to improve biodiversity, fauna habitat and connectivity through landscape design and species selection (DIT Green Infrastructure Commitment)
- Minimum 50% of new landscape plantings need to be local native species suited to local conditions (DIT Green Infrastructure Commitment)
- Reduce demand on mains water supply from new development through the introduction of water-sensitive urban design (30 year plan for Greater Adelaide)
- Minimise the discharge of stormwater, pollution and nutrients to freshwater, coastal and marine environments through the adoption of appropriate water-sensitive urban design (WSUD) policies and targets (30 year plan for Greater Adelaide)
- Achieve the following minimum reductions in total pollutant load, compared with that in untreated stormwater runoff, from the development part of the site: 80% total suspended solids, 60% total phosphorus, 45% total nitrogen, 90% litter/ gross pollutants (SA WSUD Policy)
- Manage the rate of runoff discharged from development sites so that it does not exceed the pre-urban development 1 year ARI peak flow (SA WSUD Policy)

- Manage runoff from development sites such that the capacity of the existing drainage system is not exceeded and there is no increase in the 5 year and 100 year ARI peak flow, compared to existing conditions (SA WSUD Policy)
- Support the enhancement of the urban biodiversity of metropolitan Adelaide through a connected and diverse network of green infrastructure. (30 year plan for Greater Adelaide)
- Protect 115,000 hectares (13% of Greater Adelaide) of existing natural areas identified as areas of high environmental significance (shown in Map D19, (30 year plan for Greater Adelaide)

Circular Economy/ Waste

- 95% diversion of construction and demolition waste by 2025* (SA Waste Strategy 2020-25)

** Metropolitan Area only. Targets for non-metropolitan areas are set in Regional Waste Management Plans*

Land use planning

- Incorporate greenways in all transit-oriented developments and along major transit corridors (30 year plan for Greater Adelaide)
- 60% of all new housing in metropolitan Adelaide will be built within close proximity to quality public transport (rail, tram, O'Bahn and bus) by 2045 (30 year plan for Greater Adelaide)
- Increase the percentage of residents living in walkable neighbourhoods in metropolitan Adelaide by 25% by 2045 (30 year plan for Greater Adelaide)
- Locate more than 50% of Greater Adelaide's net dwellings growth and about 35% of Greater Adelaide's new jobs in transit corridors. (30 year plan for Greater Adelaide)

Internal and external programs to consider:

- Does the project present any opportunities for improved cycling/ walking infrastructure? Are there potential links with the Greenways Program?
- Does the project support travel behaviour change?
- Are there any local Council structure plans, economic development strategies, placemaking objectives that can be realised through the project?
- Is the project consistent with (or can it facilitate/enhance) plans/ precinct requirements for 14 transit oriented developments (Map D5 in 30 year plan)?
- Is the project consistent with (or can it facilitate/enhance) plans to designate 24 transit corridors serving areas of high regeneration potential (30 year plan)?
- Is the project consistent with (or can it facilitate/enhance) the planned coastal linear park from Sellicks Beach to North Haven (30 year plan)?
- Are there opportunities to contribute to/ take advantage of a third party water reuse scheme/ WSUD infrastructure?

Appendix 2: Suggested format for ESD Report

Project Title

1 Introduction

This Ecological Sustainable Development (ESD) Report has been prepared to demonstrate how a proposed project incorporates sustainable development initiatives and associated matters as per the requirements of Premier and Cabinet Circular 015.

1.1 Project Title

Project name

1.2 Project Description

- Provide a description of the location of the proposed project.
- Provide a description of the project, including the project rationale and scope.
- Outline the proposed timing for the planning, design and construction of the project.

1.3 Limitations

This ESD Report has been prepared in the planning phase. There may be some changes to the scope of works, and therefore the ESD impacts, as the design is further developed and finalised. The following sections have been completed based on the project information available at the time of preparing this report.

2 Ecological Sustainable Development Assessment

The following provides a summary of the key environmental and sustainability aspects relating to this project:

ESD Assessment	**ESD Contribution*** [Enhancing, Neutral, Reducing]
Instructions for completing the ESD Assessment: *(1) Delete this row from the table before finalising* *(2) This document should provide a high-level overview of ESD measures proposed for the project. The detailed environment and sustainability measures are provided in the EHIA Report and Sustainability Plan and do not need to be provided in this document.* *(3) Where options exist select the most appropriate text related to the project* *(4) DO NOT EDIT THE TEXT EXCEPT WHERE THERE IS AN OPTION TO DO SO (e.g. will be/likely be).* This text is shown in blue. Do not leave multiple options or contradictory statements.* *(5) DO NOT ALTER OR ADD TEXT WITHOUT THE APPROVAL of the Technical Services Principal Advisor responsible for the environment or sustainability aspects (i.e. (1) Aboriginal Heritage/Native Title; (2) Sustainability (GHG, Circular Economy, Climate Change, Green Infrastructure); (3) Contamination; (4) Environment (Vegetation, Fauna, Noise, Air Quality, Non-Aboriginal Heritage))* *(6) Ensure no comments, blue text or highlighting/highlighted text remains upon finalisation. PDF format preferred.* *(7) DIT Project Manager is to review and approve.the ESD Report as part of drafting PPWC submission.* ** it is expected that the majority of the text will be appropriate for projects that underwent planning and design prior to the June 2021 Master Specification update. However, slight variations may be necessary in some cases to account for differences in the Master Specification requirements/ tasks that applied to these projects.*	
Greenhouse Gas Emissions and Resource Use *ESD Objective: Minimising the contribution to Greenhouse Gas Emissions and contributing to a more circular economy*	

X project options were shortlisted. Planning investigations determined that the shortlisted options are unlikely to be materially different in terms of whole-of-life GHG impacts, and as such emissions estimates were not prepared or used to inform option selection. OR High level estimates of GHG emissions were prepared for shortlisted options: • Option X: • Option Y: • Option Z: Relative GHG impact was included in the assessment and ranking of project options. Option X was selected as the preferred option.	Enhancing Neutral Reducing
A Planning Phase Sustainability Plan will not be prepared for the project as it will not be registered for an IS rating and does not meet the criteria for a Level 1 assessment. OR A Planning Phase Sustainability Plan has been prepared for the project. Whole of life GHG emissions are estimated to be XXXX. The most significant sources of emissions are: • XXXX • XXXX • XXXX The following emission reduction and circular economy opportunities have been identified: • XXXX • XXXX	Neutral

Design and construction of the project will be subject to a level 1/ level 2 sustainability assessment OR IS Rating. The project will be required to:
• model whole of life GHG emissions for both the reference and final design and demonstrate a ≥10% reduction *(only required for level 1 assessment)*
• investigate the following mandatory sustainability initiatives (as applicable) and implement where viable: *(required for level 1 and level 2 assessment – delete any initiatives that are not applicable to the project)*
  ○ ≥30% Portland cement replacement and increased recycled content in concrete elements
  ○ Warm mix asphalt
  ○ Increased levels of recycled asphalt planings
  ▪ up to 100% for footpaths/ cycle paths and temporary pavements (eg site compounds)
  ▪ >20%-50% for deep lift asphalt
  ○ In-situ cold recycling of asphalt
  ○ In-situ hot recycling of asphalt
  ○ Up to 100% recycled crushed concrete (with supplementary materials) as a substitute for virgin quarried granular materials
  ○ Crumb rubber as a substitute for polymer modified binders in spray seals
  ○ Recycled glass aggregate as a substitute for sand in asphalt (2.5% in wearing and 10% in other layers)
  ○ Use of alternatives to concrete for noise walls, that deliver reductions in embodied carbon and increased recycled content
	Enhancing

○ Substitute at least 2 diesel technologies in the construction phase with solar/hybrid/electric solutions (eg solar powered lighting towers, hybrid construction plant and site vehicles) • optimise use of recycled materials and apply the principles of the waste hierarchy, • hold a sustainability workshop *(only required for level 1 assessment)* • identify, assess and implement (where viable) additional sustainability initiatives *(only required for level 1 assessment)* • assess opportunities to reduce potable water use *(required for level 1 and level 2 assessment)* in accordance with DIT Master Specification part PC-ST1, PC-ST2 (accessed from the Master Specification 'Project Controls' site) and DIT Sustainability Manual (accessed from the Environment Standards & Guidelines site). OR achieve a Design and As Built score of XX *(required for IS rating).*	
The project will be required to implement the following Principal nominated sustainability initiatives (in addition to Mandatory sustainability initiatives): *(only include if Principal nominate initiatives are proposed)* • XXXX • XXXX	Enhancing
Legislative Approvals/Requirements: • N/A	
Climate Change *ESD Objective: Ensure the project has considered climate risk*	
In accordance with the screening criteria in the DIT Climate Change Adaptation Guideline (accessed from the Environment Standards & Guidelines site), this project does not trigger the need for a full Climate Change Risk Assessment. Climate change risk assessments previously undertaken for projects of a similar nature will be used as a basis to identify applicable risks and appropriate mitigation measures. OR A Climate Change Risk Assessment has been/ will be undertaken in accordance with DIT Climate Change Adaptation Guideline (accessed from the Environment Standards & Guidelines site). The following high and extreme risks were identified: *(delete if climate change risk assessment is yet to be undertaken)* • XXXX • XXXX The project is required to include applicable climate change risks in the project risk register and ensure they are treated such that no high or extreme residual risks remain.	Enhancing
Legislative Approvals/Requirements: • N/A	

Green Infrastructure *ESD Objective: Identify and implement viable opportunities to deliver increased green infrastructure on infrastructure projects*	
As the project is not within Metropolitan Adelaide or a rural township / does not present any opportunities to incorporate green infrastructure into the asset, no green infrastructure assessment will be/ has been undertaken. OR	Neutral
A green infrastructure assessment will be undertaken to identify the priority objectives and desired characteristics for green infrastructure across the project area, confirm canopy cover target(s) to be applied to the project (noting the default target of 20% increase in canopy cover (measured at maturity)), and identify actions required to ensure opportunities and priority objectives for green infrastructure are realised. The outputs of the green infrastructure assessment will be used to inform business requirements, land acquisition/ disposal decisions, project estimates and landscape drawings. OR A green infrastructure assessment has been undertaken to identify the priority objectives and desired characteristics for green infrastructure across the project area, to confirm canopy cover target(s) to be applied to the project, and identify actions required to ensure opportunities and priority objectives for green infrastructure are realised. The project will be required to deliver landscaping such that canopy cover across the project site (measured at maturity) is increased by XX % compared to existing. The project will be required to develop the landscape design having regard to the outputs of the green infrastructure assessment.	Enhancing
Legislative Approvals/Requirements: • N/A	
Aboriginal Heritage *ESD Objective: Preservation of Cultural Heritage*	
The project is located within the lands of several/the XXXX and XXXX Traditional Owners.	Neutral
A check of the Register of Aboriginal Sites and Objects administered by the Department of the Premier and Cabinet, Aboriginal Affairs and Reconciliation (DPC-AAR) will be undertaken for the project area. OR A check of the Register of Aboriginal Sites and Objects administered by the Department of Premier and Cabinet, Aboriginal Affairs and Reconciliation (DPC-AAR) was undertaken for the project area. AND	Neutral

The results indicate that the following registered site is/sites are located in proximity to the project area: • XXXX • XXXX OR The results indicate that there are no registered or reported Aboriginal Sites, Objects and Ancestral Remains within the project area. As such, the project will not require a S21 and S23 application under the *Aboriginal Heritage Act 1988*.	
The detailed design development will endeavour to avoid 'damage, disturbance and interference' to the known Aboriginal Sites, Objects and Remains. Where this is not possible, appropriate legislative approval will be obtained where required. OR The project footprint and design will be modified to avoid '*damage, disturbance or interference*' to this site/sites. As such, a Section 21 and 23 application under the *Aboriginal Heritage Act 1988* will not be required (refer below). OR The project footprint and design is considered likely to '*damage, disturb or interfere*' with this site/sites. As such, a Section 21 and 23 application under the *Aboriginal Heritage Act 1988* will be required (refer below).	Neutral Reducing
An assessment of the risk of encountering previously unknown and unrecorded Aboriginal heritage sites on this project will be undertaken. OR An assessment of the risk of encountering previously unknown and unrecorded Aboriginal heritage sites on this project has been undertaken. This assessment indicates that the risks are considered Low/Moderate/High. WHERE HIGH RISK INCLUDE: Given the high risk, tailored heritage management measures to ensure compliance with the *Aboriginal Heritage Act 1988* will be required. These measures may include a cultural heritage survey with the Traditional Owners, the development of a Cultural Heritage Management Plan or monitoring of specific areas.	Neutral (Low) Reducing (Moderate) Reducing (High)
The detailed design development will work to avoid or minimise works occurring in previously undisturbed surfaces to further reduce the risk of inadvertent damage to Aboriginal Sites, Objects and Remains. Where this is not possible, tailored heritage measures may be applied to reduce the risks further.	Neutral

Discovery Protocols will be utilised should an inadvertent discoveries be made on this project.	Neutral
Legislative Approvals/Requirements: *Aboriginal Heritage Act 1988* (AH Act) • All work associated with this project will be undertaken in compliance with the *Aboriginal Heritage Act 1988*. AND • Section 21 and Section 23 applications under the *Aboriginal Heritage Act 1988* will not be required. OR The Department will ensure that consultation with **TOs** occurs. The outcome of this consultation will inform the need for Section 23 authorisation in accordance with the Aboriginal Heritage Act 1988. OR An application for the following sections under the *Aboriginal Heritage Act 1988* will be/likely be required: • Section 21 - Excavating sites, objects or remains • Section 23 – Damage etc to sites, objects or remains • Approving authority: Minister for Aboriginal Affairs and Reconciliation	
Native Title *ESD Objective: Compliance with Native title legislative requirements and preservation of land where Native Title continues to exist.*	
An assessment of mapping information provided by the National Native Title Tribunal will be undertaken. OR An assessment of mapping information provided by the National Native Title Tribunal has been undertaken and determined that: • Currently there is no Native Title Claim or Determination over the project area, as such there are no native title implications for the proposed project. OR (FOR KAURNA NT AREA ONLY) • The project area lies within the Kaurna Peoples Native Title Claim Area (SAD6001/2000) which was determined in March 2018. • An Indigenous Land Use Agreement (ILUA) exists between the Kaurna People and the State Government and applies when certain activities occur on land where Native Title remains. • The project is located on a parcel of land where Native Title has been extinguished and there are no further Native Title implications. AND • CSO advice will be sought to determine if this project needs to address any requirements under the Indigenous Land Use Agreement. OR • If required, CSO advice will be sought to determine the notification requirements and procedures that will apply to the proposed project. OR • CSO advice has/has not been sought for this project. OR	Neutral

- The project area lies within the XXXXXXXX Native Title Claim Area (XXXXXXXXX). This application has yet to be determined, as such there are currently no native title implications for the proposed project.

OR

- The project area lies within the XXXXXXXX Native Title Claim Area (XXXXXXXXX) which was determined on XX XXXX 20XX.
- An Indigenous Land Use Agreement (ILUA) exists between the XXXXXXXXX and the XXXXXXXXXXXXXXXXX and applies when certain activities occur on land where native title remains.
- Native Title does not exist over the project area, as such there are no native title implications for the proposed project.

OR

- The project area lies within the XXXXXXXX Native Title Claim Area (XXXXXXXXX) which was determined on XX XXXX 20XX.
- There are no Indigenous Land Use Agreements (ILUA) that apply to the project area.
- Native Title does not exist over the project area, as such there are no native title implications for the proposed project.

OR

- The project area lies within the XXXXXXXX Native Title Claim Area (XXXXXXXXX) which was determined on XX XXXX 20XX.
- An Indigenous Land Use Agreement (ILUA) exists between the XXXXXXXXX and the XXXXXXXXXXXXXXXXX and applies when certain activities occur on land where native title remains.
- The detailed design development will endeavour to avoid interacting with parcels of land where native title continues to exist. Where this is not possible, advice from the Crown Solicitors Office (CSO) will be sought.

OR

- The project area lies within the XXXXXXXX Native Title Claim Area (XXXXXXXXX) which was determined on XX XXXX 20XX.
- An Indigenous Land Use Agreement (ILUA) exists between the XXXXXXXXX and the XXXXXXXXXXXXXXXXX and applies when certain activities occur on land where native title remains.
- The project area does include land where native title does exist/co-exists /exclusively/non-exclusively. As such, CSO advice has will be/has been sought to determine the notification requirements and procedures that will apply to the proposed project.

Legislative Approvals/Requirements:

Native Title Act 1993 (Commonwealth)

- Under the Act notices must be given or agreements reached where native title may exist.
- An assessment must be undertaken to determine whether native title may still exist over the area affected by the project and if so the correct processes to be followed under the NTA.

AND

- There is no Native Title Claim or Determination on the parcels of land affected by the project.

OR

- Native title has been extinguished on the parcels of land affected by the project and no further action is required.

OR

- Native Title has not been extinguished and further advice has been/will be sought from the Crown Solicitors Office.

AND/OR • CSO advice will be sought to determine if this project needs to address any requirements under the Indigenous Land Use Agreement. AND/OR • If there are Native Title implications for the project and/or an Indigenous Land Use Agreement/s exists within the project area, further advice will be sought from the CSO. *Native Title Act 1994 (South Australia)* • Compliance with the Commonwealth legislation addresses requirements under this Act and no further action is required	
Non-Aboriginal Heritage *ESD Objective: Preservation of cultural heritage*	
A Non-Aboriginal heritage assessment has been undertaken to determine Heritage listed places within the vicinity of the project. AND The project will have no direct impacts on Commonwealth; State or Local Heritage listed places. AND/OR There will/may be direct impacts to the following Commonwealth heritage listed places: • XXXX – impacts to structure and/or property • XXXX – impacts to structure and/or property AND/OR There will/may be direct impacts to State heritage listed places: • XXXX – impacts to structure and/or property • XXXX – impacts to structure and/or property AND/OR There will/may be direct impacts to Local heritage listed places: • XXXX – impacts to structure and/or property • XXXX – impacts to structure and/or property	Neutral Neutral Reducing Reducing Reducing
MARINE PROJECTS ONLY All heritage places and underwater shipwrecks were considered to be sufficiently separated from the project area such that direct impacts would be unlikely.	Neutral
The detailed design development will work to minimise impacts to the above heritage listed places. Where this is not possible, appropriate legislative approval will be obtained where required.	Neutral
Where there are impacts to the property on which a State heritage listed place exists, an assessment on the effect of the works on the heritage value of the place will be undertaken.	Neutral
A Construction Noise and Vibration Management Plan will be implemented to manage any indirect impacts (e.g. vibration) to heritage listed places adjacent to the works, but not directly impacted.	Neutral
Legislative Approvals/Requirements: *Planning, Development and Infrastructure Act 2016* (PDI Act): • Development Approval for impacts to State Heritage Places will not be required as they are not affected. OR • Development Approval for affecting a State Heritage Place will be/likely to be/unlikely to be required.	

AND/OR • Development Approval for affecting a Local heritage listed place is not required as roadworks undertaken by the Crown does not meet the definition of Development under the PDI Act. OR • Development Approval for affecting a Local Heritage listed place will be/likely be required. AND • Approving Authority: Minister for Planning and Local Government **MARINE JETTY MAINTENANCE PROJECTS ONLY** • Project works comprise maintenance works commissioned by the Department on a non heritage listed jetty structure and are exempt for requiring Development Approval under the PDI Act *Heritage Places Act 1993*: • There are no anticipated impacts to Heritage listed Places OR *MARINE PROJECTS ONLY** • All heritage places and underwater shipwrecks were considered to be sufficiently separated from the project area such that direct impacts would be unlikely. AND • If there is potential to find non-Aboriginal Heritage artefacts during construction, authorisations may be required. • Approving Authority: South Australian Heritage Council *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act):* • There are no anticipated significant impacts to any Matters of National Environmental Significance under *the Environment Protection and Biodiversity Conservation* Act 1999 (EPBC Act). • A referral under the *EPBC Act* will not be required. OR • The project may have a significant impact on a Matter of Environmental Significance related to World Heritage places and a referral will/may be submitted to determine if the project is considered a controlled action and if there are further assessment and approval processes required under the Act. • Approving authority: Minister for the Environment (Federal)	
Vegetation and Fauna *ESD Objective: Protection of biodiversity*	
The project site is located within an area covered by the: • *Native Vegetation Act 1991* • *Planning, Development and Infrastructure Act 2016*	Neutral
A vegetation survey *and/or fauna survey has been/will be* undertaken.	Neutral
The project may/will require clearance of a combination of native vegetation, amenity vegetation, Regulated and Significant trees and weeds to accommodate the works. OR Vegetation will not be impacted by the project	Reducing Neutral

Removal of vegetation will be minimised through detailed design development, where possible, and remaining areas of important vegetation will be protected during construction. The extent of vegetation removal will be determined during the detailed design phase.	Neutral
There are no anticipated significant impacts to any Matters of National Environmental Significance under the EPBC Act. OR A risk assessment will be undertaken to determine if there are likely to be significant impacts to any Matters of National Environmental Significance under the EPBC Act. OR An EPBC Act referral will be submitted to determine if the project is considered a controlled action under the EPBC Act.	Neutral
Approvals for vegetation removal will be sought, and offsets made, in accordance with the Department's Vegetation Removal Policy, and relevant legislation.	Enhancing

Legislative Approvals/Requirements:

Native Vegetation Act 1991:

- Approval to clear native vegetation will not be required.

OR

- Approval for clearance of native vegetation will be/likely be/may be required.
- Approving authority: Native Vegetation Council or delegate

AND/OR

Environment Protection and Biodiversity Conservation Act *1999 (EPBC Act):*

- There are no anticipated significant impacts to any Matters of National Environmental Significance under the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).*
- A referral under the *EPBC Act* will not be required.

OR

- The project may impact Matters of National Environmental Significance under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). Subject to the outcome of the ecological and significant impact assessments, a referral under the EPBC Act may be required.

OR

- The project may have a significant impact on a Matter of Environmental Significance related to vegetation and fauna and a referral will be submitted to determine if the project is considered a controlled action and if there are further assessment and approval processes required under the E*PBC Act*.
- Approving authority: Minister for the Environment (Federal)

AND/OR

Planning, Development and Infrastructure Act 2016 (PDI Act):

- Development Approval for tree damaging activities to Regulated/Significant trees will not be required.

OR

- Development Approval for tree damaging activities to Regulated/Significant trees will not be required as exemptions under the PDI Act apply.

AND/OR

- Approval for tree damaging activities to Regulated/Significant trees will be/likely be required where an exemption under the PDI Act does not apply.
- Approving Authority: Minister for Planning

AND

Landscape South Australia Act 2019 • The Contractor will be required to manage Declared Plants (if encountered) in accordance with the *Landscape South Australia Act 2019*.	
Water *ESD Objective: Protection of water quality*	
The project *will follow the existing alignment and* will pass over the following waterways: • XXXX • XXXX OR The project will occur over waterways/marine waters. OR The project is located adjacent the marine environment. OR There are no watercourses or drainage infrastructure within or near the project area.	Neutral
There it is potential for pollution during both the construction and operational phases of the project. A Water Quality Risk Assessment will be undertaken during detailed design to identify potential impacts to water quality, as well as measures to prevent, manage and mitigate the impacts.	Neutral
A water affecting activity risk assessment will determine whether a Water Affecting Activity Permit (WAAP) is required for the works. OR Based on the distance to the closest watercourse and/or the scope of the works, the project is not considered to be undertaking a water affecting activity.	Neutral
Subject to the design and construction methodology, an authorisation may be required for Earthworks Drainage and/or Dredging in accordance with the Environment Protection Act 1993	Neutral
Development of a Soil Erosion and Drainage Management Plan (SEDMP) to protect water quality during construction. (*NB Change to "Access, Screening and Containment Management Plan" for marine projects)*.	Neutral
Legislative Approvals/Requirements: *Environment Protection Act 1993*: • An authorisation for Earthworks Drainage and/or Dredging will be/may be required for the works. • Approving Authority: Environment Protection Authority. OR • An authorisation for Earthworks Drainage and/or Dredging is not expected to be required for the works. *Landscape South Australia Act 2019*: • A permit to undertake Water Affecting Activities is not expected to be required for the works. OR • A permit to undertake Water Affecting Activities will be/may be required for the works. AND • The Contractor will be required to manage Declared Plants (if encountered) in accordance with the Landscapes SA Act 2019. AND	

• Approving Authority: relevant Landscape Board.	
Noise *ESD Objective: Reduction in Transport and Construction Noise Impacts*	
A preliminary noise assessment has been/will be undertaken in accordance with the Department's Road Traffic Noise Guidelines (RTNG). The outcome of the assessment will/has determined if the RTNG will apply to the project and if so, the need for noise mitigation OR has determined that noise assessment and mitigation is not required.	Neutral
Should/As the RTNG apply to the project, mitigating legacy transport noise issues on the existing road network immediately adjacent to the works will be implemented where required by the RTNG.	Enhancing
Further detailed assessment will be undertaken during the detailed design development to confirm the level and extent of noise treatments required.	Neutral
Potential impacts to marine fauna (from noise) have been assessed as low/medium/high risk. *(Marine projects only)*	Neutral
Construction of the project is likely to create noise and may impact nearby sensitive receivers. Noise levels will vary depending on the construction methodology, equipment and materials used as well as the duration of the works. OR There are no sensitive receivers likely to be impacted by noise generated during construction of the project.	Reducing Neutral
Night works may be needed to expedite the construction program, particularly when those works affect the local road network.	Neutral
A Construction Noise and Vibration Management Plan will be developed and implemented to manage construction noise and vibration and its effects on nearby sensitive receptors and structures.	Neutral
Legislative Approvals/Requirements: *Environment Protection Act 1993 (EP Act):* • The RTNG is the Department's response to meeting the General Environmental Duty under the *EP Act* and approvals are not required. OR (for Rail Projects) • The Department will comply with the requirements of the EPA's Guideline for the Assessment of Noise from Rail Infrastructure and approvals are not required.	
Air quality *ESD Objective: Reduction in Transport and Construction Air Quality Impacts*	
A preliminary air quality assessment has been/will be undertaken in accordance with the Department's Air Quality Impact Assessment Guideline. The outcome of the assessment will/has determined if the Guideline will apply to the project and if further assessment is required. OR has determined that further assessment is not required.	Neutral
The project will help to improve air quality through reducing existing traffic congestion and providing improvements to traffic flow, compared to the current situation	Enhancing
Construction of the project is likely to increase or generate air emissions during construction.	Reducing

Air quality impact mitigation measures, including dust control, will be included in the Contractor's Environment Management Plan to be implemented in construction (*NB Change to "Access, Screening and Containment Management Plan" for works over water)*.	Neutral
Legislative Approvals/Requirements: *Environment Protection Act 1993 (EP Act):* • The Air Quality Impact Assessment Guideline is the Department's response to meeting the General Environmental Duty under the *EP Act* and approvals are not required.	
Contamination *ESD Objective: Management of Land Degradation and Contamination*	
A high-level desktop contamination assessment has been/will be undertaken in accordance with the National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) (ASC NEPM) and the SA EPA Guidelines for the Assessment and Remediation of Site Contamination (2018). The outcome of the assessment will/has determined if further assessment is required.	Neutral
Protocols will be implements to protect water quality during construction through erosion control.	Neutral
A Contamination Remediation Management Plan (CRMP) will be/has been prepared by an appropriately qualified site contamination contractor to address the excavation, handling, remediation, transport, stockpiling and reuse/disposal of contaminated media (including soil, water). Thereby ensuring contaminates are not mobilised or spread as a result of works and contaminated material or sites are managed to avoid impacts.	Neutral / Enhancing (if remediation)
The CRMP will promote beneficial re-use of material on- or off-site, where appropriate.	Enhancing
Protocols will be implemented during construction to ensure that no potentially contaminating activities are undertaken on previously un-impacted/undisturbed areas without appropriate mitigation and management strategies in place.	Neutral
Legislative Approvals/Requirements: *Environment Protection Act 1993 (EP Act):* • Compliance with Environment Protection Authority's (EPA) *Guideline for the Assessment and Remediation of Site Contamination (2018)* is the Department's response to meeting the General Environmental Duty under the *EP Act* and approvals are not required.	

** An assessment of how elements of a project is enhancing sustainability (positive impacts), maintaining the status quo or a neutral position or moving away from or reducing a sustainable outcome (adverse impacts)*

3 Environment and heritage management during construction

The Department will engage a Contractor for the delivery of the project. The Contractor will be required to work under the environmental, heritage and sustainability requirements of the Department's Master Specification.

The Contractor will develop and implement a Contractor's Environmental Management Plan (CEMP) that addresses key environment and heritage aspects for the project and mitigation measures to be implemented during construction.

The CEMP will:

- be specific to the project site and the activities being undertaken;

- identify and implement the mitigation measures and commitments identified as part of any environmental authorisations;
- identify and implement the mitigation measures associated with the construction methodology;
- be compliant with relevant environmental legislation; and
- ensure the environmental risks associated with the project are properly managed.

Where required, additional sub-plans as checked below will be included in the CEMP:

☐ Cultural Heritage Management Plan

☐ Soil Erosion and Drainage Management Plan

☐ Construction Noise and Vibration Management Plan

☐ Contamination Remediation Management Plan

☐ Other…

Appendix 3: Template for Planning Phase Sustainability Plan

[Project name]: Planning Phase Sustainability Plan

[Date]

This preliminary sustainability plan has been prepared in accordance with Master Specification Part PC-PL1, to:

- ensure sustainability risks and opportunities are included in the planning phase Project Risk Register to: enable these to be addressed in detailed design;
- provide recommendations for [Principal-nominated sustainability initiatives / minimum IS credit levels and overall IS rating score] for inclusion in the tender/ contract documents to drive sustainable outcomes for the project; and
- maximise likelihood of achievement of the department's sustainability objectives (contained in Master Specification PC-ST1 and PC-ST2).

1. Greenhouse Gas Emissions Impacts

1.1. Methodology

High level estimates of whole of life greenhouse gas emissions associated with construction, maintenance and operation of the asset were completed using [explain methodology, assumptions, limitations, exclusions]

1.2. Construction and maintenance GHG emissions

The assessment of construction phase GHG emissions is summarised in Table [X]. These preliminary results indicate that a total of XX,XXX tCO2-e will be generated from construction of the preferred concept design. The majority of these emissions (XX%) are attributed to [material use].

Key contributors to the construction phase carbon footprint are shown in Figure [X].

Table [X]: Construction and maintenance GHG emissions by source.

	Construction		Maintenance[8] (over total design life)		Combined construction & maintenance (over total design life)	
Source of emissions	Sum of emissions (t CO2-e)	Percentage contribution (%)	Sum of emissions (t CO2-e)	Percentage contribution (%)	Sum of emissions (t CO2-e)	Percentage contribution (%)
Materials use						
Haulage						
Plant fuel use						
TOTAL						

[8] Maintenance estimates need only include major maintenance activities, eg pavement rehab, asset replacement

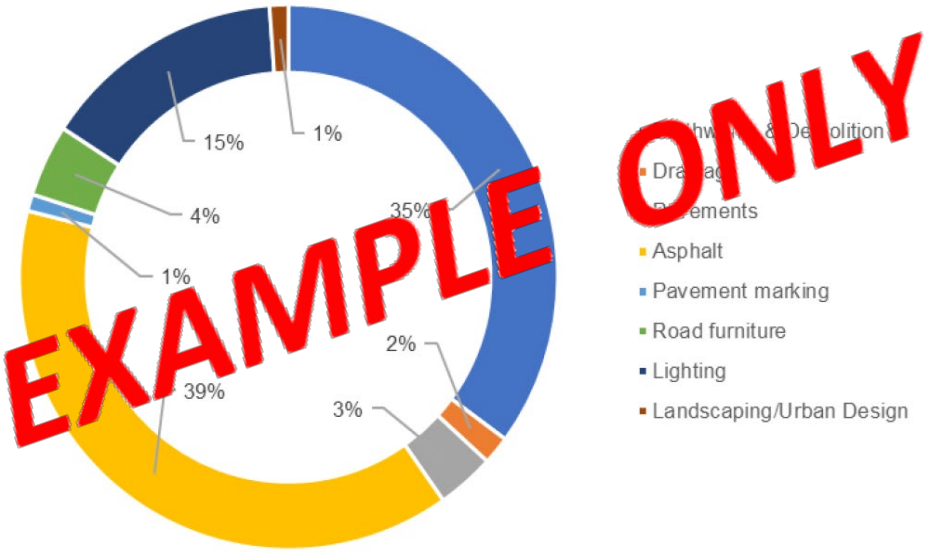


Figure [X]: GHG emissions by construction aspect from materials and construction plant.

1.3. Operational emissions

The assessment of operational phase GHG emissions is summarised in Table [X]. These preliminary results indicate that a total of XX,XXX tCO2-e will be generated from operation of the preferred concept design. The majority of these emissions (XX%) are attributed to [tunnel ventilation].

Note that 'enabled' emissions from third-party users' fuel consumption has been excluded from the assessment, per the department's Sustainability Manual part 7.

Table [X]: Operational GHG emissions by source.

Source of emissions	Sum of emissions (t CO2-e)	Percentage contribution (%)
Tunnel ventilation		
Road and tunnel maintenance activities		
Road and footpath lighting		
Traffic signals and ITS		
TOTAL		

2. GHG Reduction Opportunities

We have identified a number of opportunities which could be further investigated and eventually implemented to reduce the project's carbon footprint. Some of the compelling emission reduction opportunities (considering cost, ease of implementation and co-benefits) are provided in Table [X].

Table [X]: Summary of key emission reduction opportunities

Project scope item	Significance of carbon footprint	BAU approach	Reduction opportunity	Comments regarding potential scale of emission reduction opportunity, examples of implementation, any cost and program implications, co-benefits (eg circular economy outcomes)

[Provide additional details as relevant]

3. Circular economy opportunities

A Circular economy assessment was undertaken as part of the planning investigations, in accordance with the requirements of Master Specification Part PC-PL2.

The major categories of materials/ products that will be used in the project, and their potential to incorporate/ substitute recycled materials are shown below:

Material / product	Is there potential to incorporate/ substitute recycled materials/ products? (detail upper limits/ conditions as relevant)	Possible sources/ suppliers of recycled materials/ products	Preliminary assessment of viability / recommendation to pursue

4. Climate change risks and mitigation measures

A climate change risk assessment was undertaken as part of the planning investigations, in accordance with the requirements of Master Specification Part PC-PL2. [Explain where the full climate change risk assessment has been documented (eg within the Planning Study, EHIAR)].

[X] high and extreme risks were identified. These have been included in the Project Risk Register, and are summarised in Table [X], along with proposed mitigation measures.

Table [X]: High and extreme climate change risks and proposed mitigation measures

Risk ID	Risk description	Risk rating	Proposed mitigation measure	Residual risk rating

5. Green Infrastructure Assessment (if applicable)

A Green Infrastructure assessment was undertaken as part of the planning investigations, in accordance with the requirements of Master Specification Part PC-PL2.

[Describe the green infrastructure objectives, desired characteristics and canopy cover targets identified in the Green Infrastructure Assessment OR provide the Green Infrastructure Concept Plan as an attachment.]

[List the recommended actions to be implemented by project team to ensure priority objectives for green infrastructure are realised.]

6. Recommended Principal-nominated Sustainability Initiatives

Based on our assessment of the key sources of emissions for the project, the potential GHG reduction opportunities that are considered most applicable and/or cost effective, and other potential opportunities identified (eg through the Climate change risk assessment, green infrastructure assessment and assessment of circular economy opportunities) to achieve the department's sustainability objectives, the following Principal-nominated Sustainability Initiatives are recommended for inclusion in the contract documents for detailed design and construction:

- [Provide suggested Principal-nominated sustainability initiatives (or IS rating score and minimum levels to be achieved for individual credits), in accordance with part 8.1 of the department's Sustainability Manual]

7. Recommended Key Result Areas and incentives (optional)

[Provide recommendations regarding Key Result Areas, performance indicators and incentives]

Appendix 4: Template for Preliminary Sustainability Plan (Design & Construction Phase)

[Project name]: Preliminary Sustainability Plan

[Date]

This preliminary sustainability plan has been prepared in accordance with Master Specification Part [PC-ST1 / PC-ST2]. It meets the requirements for a Level [1 / 2] assessment.

1. Sustainability Workshop (Level 1 assessment only)

A sustainability workshop was held on [date] to identify and confirm sustainability initiatives to be further investigated and/or implemented for the contract. The workshop was attended by:

- [list all Contractors' personnel, Principal's personnel and other relevant stakeholders who attended the workshop]

2. Sustainability Initiatives

The following Sustainability Initiatives have been nominated or identified for the project:

3.1 Principal-nominated sustainability initiatives

- [list Principal-nominated sustainability initiatives as detailed in the Contract requirements]

3.2 Mandatory sustainability initiatives

- [list mandatory sustainability initiatives that apply to the contract (from Master Specification part PC-PL1 or PC-PL2 as relevant]

3.3 Contractor-nominated sustainability initiatives

- [list any Contractor-nominated sustainability initiatives included in the Contractor's tender submission (unless excluded by the Principal)]
- [list any sustainability initiatives that have been identified in accordance with Master Specification part PC-PL1 (clause 5) or Master Specification part PC-PL2 (clause 7), including and design/ construction phase sustainability initiatives identified in the planning phase sustainability plan]

These initiatives are presented in the Initiatives Register contained in Attachment 1, which will be updated throughout the project to reflect progress, implementation status and next steps.

3.4 Triple-bottom-line assessment and decision-making (Level 1 assessment only)

[Describe the decision making process/ tool that will be used to undertake triple-bottom-line assessment of sustainability initiatives to determine whether they will be implemented].

3. Whole of life greenhouse gas emission reduction (Level 1 assessment only)

4.1 Approach

[Describe the approach to developing the base case emissions estimate, including (as required in Master Specification part PC-PL1 clause 6):

- the reference design used,
- business-as-usual assumptions adopted,
- the methodology to account for data not available for the base case,
- how scope change will be managed, and
- a list of exclusions.]

4.2 Base case emissions estimate (include as much information as possible at the time of preparing the preliminary sustainability plan)

[Present the whole of life greenhouse gas emissions estimate for the base case. Include pie-charts (or similar) to show:

- the relative contribution of construction, maintenance & operational emissions to the overall whole of life emissions footprint
- the relative contribution of scope 1 & 2 greenhouse gas emissions compared with scope 3 emissions
- the relative contribution of different construction materials to the scope 3 emissions from materials use]

Table [X]: Total whole of life GHG emissions by source.

Source of emissions	Construction emissions (t CO2-e)	Maintenance emissions* (t CO2-e)	Operational emissions (t CO2-e)	Percentage contribution (%)
Materials use				
Haulage				
Plant fuel use				
Tunnel ventilation				
Road and footpath lighting				
Traffic signals and ITS				
etc				
TOTAL				

** Maintenance estimates need only include major maintenance activities, eg pavement rehab, asset replacement*

Table [X]: Materials emissions

	Construction		Maintenance		Total
	Quantity (t)	Emissions (t CO2-e)	Quantity (t)	Emissions (t CO2-e)	Percentage contribution (%)
Asphalt					
Concrete					

Aggregate					
Steel					
etc					
TOTAL					

4. Circular economy

The major categories of materials/ products that will be used in the project, and their potential to incorporate/ substitute recycled materials are shown below:

Material / product	Is there potential to incorporate/ substitute recycled materials/ products?	Possible sources/ suppliers of recycled materials/ products	Included in sustainability initiative register?

* provide justification for opportunities not included in the sustainability initiatives register

[Describe the procurement mechanisms that have or will be used to preference suppliers of materials/ products with high recycled content and/or those with lower environmental impacts across their life cycle compared with competing materials/ products.]

The main waste streams that will be generated by the project and the potential for re-use/ recycling are shown below:

Material / product	Is there potential to re-use the material/ product?	Is there potential to recycle the product?	Included in sustainability initiative register?*

* provide justification for opportunities not included in the sustainability initiatives register

5. Potable water use

[Describe the situation with regard to non-potable water sources (eg is there a recycled water network in proximity of the project?), and any relevant information (current at the time of developing the Plan) regarding feasibility of connecting to the network for operational use (eg irrigation) or using recycled water or rainwater for the construction phase. Include possible actions to minimise use of potable water for construction and/or operational use in the sustainability initiative register.]

6. Green infrastructure (if applicable)

The following green infrastructure objectives, desired characteristics and canopy cover targets have been identified for the project:

- [list the green infrastructure objectives, desired characteristics and canopy cover target from the Green Infrastructure Assessment (if one has been undertaken) and/or business requirements OR provide the Green Infrastructure Concept Plan as an attachment.]
- [list the actions that were recommended in the Green Infrastructure Assessment to ensure realisation of priority objectives for green infrastructure, and comment on whether/ how these have/ will be implemented.]
- [Confirm that the green infrastructure objectives, desired characteristics and targets form part of the landscape design brief. Provide any relevant information regarding progress/ next steps]

7. Climate change resilience

The following high or extreme risks have been identified in the climate change risk assessment:

Risk	Risk rating	Proposed mitigation/ adaptation measure	Updated risk rating

[Confirm that all high or extreme risks will be mitigated, if applicable]

8. Sustainable site accommodation and equipment (only required for construction phase sustainability plan)

The following table demonstrates the path to compliance with Master Specification part PC-PL2 clause 5, ie, 50% of the sustainable site facility requirements have or will be achieved:

Requirement		Status *A = Achieved* *P = Proposed to be achieved* *N = not proposed to be achieved*
1	Insulation in walls = R2.0 for new facilities, R1.8 for existing facilities, R2.5 for facilities built on site	
2	Insulation in ceilings = R3.0	

3	Low VOC paints where applicable for all internal surfaces	
4	Low VOC adhesives and sealants throughout	
5	Low VOC carpets, and / or use of recycled carpet where applied	
6	LED lighting	
7	Provide effective lighting control to eliminate the energy consumption from lighting during inactive periods. Acceptable control methods are sensors, timers, master control switches or equivalent	
8	Chain of custody FSC or AFS timber throughout	
9	Door closers on all external doors (to air-conditioned spaces)	
10	Weather seals at all doors and windows (to air-conditioned spaces)	
11	Use of blinds, tinting or external shading for all windows to office spaces	
12	Provide effective air conditioning control to eliminate the energy consumption from air conditioning during inactive periods. Acceptable control methods are sensors, timers, master control switches or equivalent	
13	A deconstruction plan of the site facilities and amenities, or a product stewardship policy by supplier/manufacturer that demonstrates end-of-life treatment of the site facility	
14	Push button taps with aerators (to be 3.5L/min or less) to ablution blocks hand basins.	
15	Toilets to be 3/4.5L dual flush and shower heads to be 7.5L/min.	
16	Building Manufacturers to operate an accredited ISO 14001 Environmental Management System	
17	Solar PV and/ or Greenpower for site office/ compound	
18	Low formaldehyde joinery and / or recycled FF&E	
19	Rainwater collection/reuse	
20	FSC timber for all temporary uses – e.g. stairs, decks and covered walkways	
21	Minimum 4-star energy rated fridges	
22	Minimum 5-star energy rated TVs	
23	Minimum 4-star energy rated dishwashers	
24	Sub-metering of electricity and water (monitoring site and site office / amenities separately)	
25	Elimination of single-use crockery and cutlery	
26	Paper, bottle, plastic (co-mingle) and printer cartridge recycling	
27	Bike racks to facilities area	
28	a waste disposal system which separates food waste, recycling, and co-mingled waste	
29	use of re-used or recycled products in place of virgin materials for wheel stops	

The following table demonstrates the path to compliance with Master Specification part PC-PL2 clause 5 to reduce the environmental and community/ workforce health impacts of vehicles, plant and equipment:

Measure	Status *A = Achieved*

		P = Proposed to be achieved *N = not proposed to be achieved**
1	purchasing or hiring mobile non-road diesel plant and equipment that complies with highest practicable EU or US EPA emissions standards (for plant over 19kW)	
2	requiring sub-contractors to provide information on the emissions standards of the mobile non-road diesel plant and equipment they propose to use on site, and applying a weighting for air emission standards (in conjunction with other environmental considerations) in tender selection processes (for plant over 19kW). *(Only required for Level 1 assessments)*	
3	ensuring engines are correctly repaired and regularly serviced to ensure efficiency and to prevent / minimise spills and leaks	
4	restricting unnecessary idling time of vehicles, plant and equipment	
5	improving an engine's emission performance by fitting it with an anti-pollution control device	
6	ensuring fuel conforms with relevant quality standards	
7	locating plant and equipment away from sensitive populations such as schools, hospitals, and / or using lowest emission equipment near these areas	
8	locating plant and equipment away from residential areas	
9	restricting site access to essential vehicles and machinery only	
10	avoiding onsite use of diesel or petrol powered generators by substituting for / or combination of mains, renewables or battery powered options	

* provide justification for measures not proposed to be achieved

9. Sustainable procurement (Level 1 assessment only - only required for construction phase sustainability plan)

[Provide/ attach the commitment to address sustainability risks and opportunities in the supply chain]

[Describe the approach that will be taken to identify material sustainability risks and opportunities in the project's supply chains, and any procurement actions that have been taken (at the time of developing this plan) to mitigate these risks/ realise these opportunities, in accordance with part 10 of the Sustainability Manual].

Attachment 1 - [Project name] Sustainability Initiatives Register

[Date]

Initiative category *(Mandatory, Principal-nominated, Contractor-nominated)*	**Sustainability initiative** *(description)*	**Anticipated benefits/ risks/ impacts/ constraints[1]**				**Priority rating**	**Current status** *(initiative will be implemented / will not be implemented / under evaluation)[2]*	**Next steps** *(eg describe any actions required to obtain information on benefits/ risks/constraints, complete triple-bottom-line assessment, seek approval (if required), ensure initiative is shown in drawings etc)*
		Environmental	**Economic**	**Social**	**Technical**			

[1] Information should address the minimum requirements outlined in Sustainability Manual part 9

[2] Justification must be provided for decisions not to implement sustainability initiatives

Appendix 5: Template for Final Sustainability Plan (Design & Construction Phase)

[Project name]: Final Sustainability Plan

[Date]

This final sustainability plan has been prepared in accordance with Master Specification Part [PC-ST1 / PC-ST2]. It meets the requirements for a Level [1 / 2] assessment.

1. Sustainability Workshop (Level 1 assessment only)

A sustainability workshop was held on [date] to identify and confirm sustainability initiatives to be further investigated and/or implemented for the contract. The workshop was attended by:

- [list all Contractors' personnel, Principal's personnel and other relevant stakeholders who attended the workshop]

2. Sustainability Initiatives

The following Sustainability Initiatives have been nominated or identified for the project:

3.1 Principal-nominated sustainability initiatives

- [list Principal-nominated sustainability initiatives as detailed in the Contract requirements]

3.2 Mandatory sustainability initiatives

- [list mandatory sustainability initiatives that apply to the contract (from Master Specification part PC-PL1 or PC-PL2 as relevant]

3.3 Contractor-nominated sustainability initiatives

- [list any Contractor-nominated sustainability initiatives included in the Contractor's tender submission (unless excluded by the Principal)]
- [list any sustainability initiatives that have been identified in accordance with Master Specification part PC-PL1 (clause 5) or Master Specification part PC-PL2 (clause 7), including and design/ construction phase sustainability initiatives identified in the planning phase sustainability plan]

These initiatives are presented in the Initiatives Register contained in Attachment 1, which has been updated to reflect the outcomes of investigations and final implementation status.

3.4 Triple-bottom-line assessment and decision-making (Level 1 assessment only)

[Describe the decision making process/ tool that was used to undertake triple-bottom-line assessment of sustainability initiatives to determine whether they were implemented].

3. Whole of life greenhouse gas emission reduction (Level 1 assessment only)

4.1 Approach

[Describe the approach used to developing the base case emissions estimate, including (as required in Master Specification part PC-PL1 clause 6):

- the reference design used,
- business-as-usual assumptions adopted,
- the methodology to account for data not available for the base case,
- how scope change was managed, and
- a list of exclusions.]

4.2 Base case emissions estimate

[Present the whole of life greenhouse gas emissions estimate for the base case. Include pie-charts (or similar) to show:

- the relative contribution of construction vs operational emissions to the overall whole of life emissions footprint
- the relative contribution of scope 1 & 2 greenhouse gas emissions compared with scope 3 emissions
- the relative contribution of different construction materials to the scope 3 emissions from materials use]

4.3 Final design emissions estimate

[Present the whole of life greenhouse gas emissions estimate for the final design. Include pie-charts (or similar) to show:

- the relative contribution of construction vs operational emissions to the overall whole of life emissions footprint
- the relative contribution of scope 1 & 2 greenhouse gas emissions compared with scope 3 emissions
- the relative contribution of different construction materials to the scope 3 emissions from materials use

Describe the total emissions reduction achieved for scope 1 and 2 emissions and scope 3 emissions associated with materials use, and summarise how the emissions reduction has been achieved. Provide justification for all emission sources for which the final design is found to result in an increase or decrease in whole of life greenhouse gas emissions.

Table [X]: Base case and final estimate of whole of life GHG emissions

Emission source	Base case emission estimate (t CO2-e)	Final design emission estimate (t CO2-e)	Reduction in emissions achieved (t CO2-e)	Percentage reduction in emissions (%)
Materials use				
Haulage				
Plant fuel use				
Tunnel ventilation				
Road and footpath lighting				
Traffic signals and ITS				
etc				
TOTAL				

4. Circular economy

The major categories of materials/ products used in the project, their potential to incorporate/ substitute recycled materials, and the extent to which recycled materials/products were used is shown in the table below:

Material / product	Potential to incorporate/ substitute recycled materials/ products?	Sources/ suppliers of recycled materials/ products	Included in sustainability initiative register?*	Outcome (to what extent were recycled materials/ products used?)

* provide justification for opportunities not included in the sustainability initiatives register

[Describe the procurement mechanisms that were used to preference suppliers of materials/ products with high recycled content and/or those with lower environmental impacts across their life cycle compared with competing materials/ products.]

The main waste streams that were generated from the project, the potential for re-use/ recycling and the extent to which waste materials/ products were recycled is shown in the table below:

Material / product	Is there potential to re-use the material/ product?	Is there potential to recycle the product?	Included in sustainability initiative register?*	Outcome (to what extent were recycled materials/ products used?)

* provide justification for opportunities not included in the sustainability initiatives register

5.1 Recycled materials record (only required for construction phase final sustainability plan)

Material category	Amount of recycled material received on the project (tonnes) and the source of	Amount of site-won material reused on the project	Amount of material removed from the site for recycling (and destination)	Amount of material removed from the site for disposal to landfill

	the recycled material			
Steel				
Masonry (including concrete)				
Soil/ fill				
Plastic				
Glass				
Rubber crumb				
Pavement material				

5. Potable water use

- [Describe the investigations and actions undertaken to assess feasibility of using non-potable water sources for construction and/or operation.
- Describe the extent to which non-potable water was/ will be used during construction and/or operation of the asset, including justification for the final approach.]

6. Green infrastructure (if applicable)

The following green infrastructure objectives, desired characteristics and canopy cover targets were identified for the project:

- [list the green infrastructure objectives, desired characteristics and canopy cover target from the Green Infrastructure Assessment (if undertaken) and/or business requirements OR provide the Green Infrastructure Concept Plan as an attachment.]

[Describe how the green infrastructure objectives, desired characteristics and targets have/ will be achieved. Provide justification if any of the objectives, desired characteristics or targets will not be achieved.]

7. Climate change resilience

The following table describes the high or extreme risks that were identified in the climate change risk assessment and/or throughout the project, and the current risk status.

Risk	Risk rating	Proposed mitigation/ adaptation measure	Has the mitigation/ adaptation measure been implemented?	Updated risk rating

8. Sustainable site accommodation and equipment (only required for construction phase sustainability plan)

The following table demonstrates how the requirements of Master Specification part PC-PL2 clause 5 have been achieved (ie, 50% of the sustainable site facility requirements implemented):

Requirement		Status *A = Achieved* *N = Not achieved*
1	Insulation in walls = R2.0 for new facilities, R1.8 for existing facilities, R2.5 for facilities built on site	
2	Insulation in ceilings = R3.0	
3	Low VOC paints where applicable for all internal surfaces	
4	Low VOC adhesives and sealants throughout	
5	Low VOC carpets, and / or use of recycled carpet where applied	
6	LED lighting	
7	Provide effective lighting control to eliminate the energy consumption from lighting during inactive periods. Acceptable control methods are sensors, timers, master control switches or equivalent	
8	Chain of custody FSC or AFS timber throughout	
9	Door closers on all external doors (to air-conditioned spaces)	
10	Weather seals at all doors and windows (to air-conditioned spaces)	
11	Use of blinds, tinting or external shading for all windows to office spaces	
12	Provide effective air conditioning control to eliminate the energy consumption from air conditioning during inactive periods. Acceptable control methods are sensors, timers, master control switches or equivalent	
13	A deconstruction plan of the site facilities and amenities, or a product stewardship policy by supplier/manufacturer that demonstrates end-of-life treatment of the site facility	
14	Push button taps with aerators (to be 3.5L/min or less) to ablution blocks hand basins.	
15	Toilets to be 3/4.5L dual flush and shower heads to be 7.5L/min.	
16	Building Manufacturers to operate an accredited ISO 14001 Environmental Management System	
17	Solar PV and/ or Greenpower for site office/ compound	
18	Low formaldehyde joinery and / or recycled FF&E	
19	Rainwater collection/reuse	
20	FSC timber for all temporary uses – e.g. stairs, decks and covered walkways	
21	Minimum 4-star energy rated fridges	
22	Minimum 5-star energy rated TVs	
23	Minimum 4-star energy rated dishwashers	

24	Sub-metering of electricity and water (monitoring site and site office / amenities separately)	
25	Elimination of single-use crockery and cutlery	
26	Paper, bottle, plastic (co-mingle) and printer cartridge recycling	
27	Bike racks to facilities area	
28	a waste disposal system which separates food waste, recycling, and co-mingled waste	
29	use of re-used or recycled products in place of virgin materials for wheel stops	

The following table demonstrates the actions taken to reduce the environmental and community/ workforce health impacts of vehicles, plant and equipment (per Master Specification part PC-PL2 clause 5):

Measure		Status *A = Achieved* *N = Not achieved**
1	purchasing or hiring mobile non-road diesel plant and equipment that complies with highest practicable EU or US EPA emissions standards (for plant over 19kW)	
2	requiring sub-contractors to provide information on the emissions standards of the mobile non-road diesel plant and equipment they propose to use on site, and applying a weighting for air emission standards (in conjunction with other environmental considerations) in tender selection processes (for plant over 19kW). *(Only required for Level 1 assessments)*	
3	ensuring engines are correctly repaired and regularly serviced to ensure efficiency and to prevent / minimise spills and leaks	
4	restricting unnecessary idling time of vehicles, plant and equipment	
5	improving an engine's emission performance by fitting it with an anti-pollution control device	
6	ensuring fuel conforms with relevant quality standards	
7	locating plant and equipment away from sensitive populations such as schools, hospitals, and / or using lowest emission equipment near these areas	
8	locating plant and equipment away from residential areas	
9	restricting site access to essential vehicles and machinery only	
10	avoiding onsite use of diesel or petrol powered generators by substituting for / or combination of mains, renewables or battery powered options	

* provide justification for measures not achieved

9. Sustainable procurement (Level 1 assessment only - only required for construction phase sustainability plan)

[Provide/ attach the commitment to address sustainability risks and opportunities in the supply chain]

The following approach was taken to identify material sustainability risks and opportunities in the project's supply chains:

[Describe the approach to risk/opportunity identification].

The table below shows the risks and opportunities identified in the project's supply chains, and the procurement actions taken to mitigate these risks/ realise these opportunities (in accordance with part 10 of the Sustainability Manual):

Risk / opportunity	Procurement measure(s) taken to mitigate risk / realise opportunity

[Project name] Sustainability Initiatives Register: [Date]

Initiative category *(Mandatory, Principal-nominated, Contractor-nominated)*	**Sustainability initiative** *(description)*	**Anticipated benefits/ risks/ impacts/ constraints[1]**				**Priority rating**	**Current status** *(initiative implemented / not implemented[2]. In the final design phase sustainability plan this can include confirmation that the initiative has been shown in the 100% drawings)*	**Next steps** *(describe any outstanding actions, eg for the final design-phase sustainability plan this may include recommended actions for tender stage, such as use of tender schedules for recycled content, Portland cement replacement etc)*
		Environmental	**Economic**	**Social**	**Technical**			

[1] Information should address the minimum requirements outlined in Sustainability Manual part 9

[2] Justification must be provided for decisions not to implement sustainability initiatives

Appendix 6: Business as Usual Assumptions

<table>
<tr><th>Aspect</th><th>Business as usual assumptions</th></tr>
<tr><td>Concrete</td><td>Ordinary Portland Cement replacement as follows:
<table>
<tr><th>Exposure Classification</th><th>Concrete Strength Grade (MPa)</th><th>Portland cement replacement level</th></tr>
<tr><td>B1</td><td>32</td><td>30%</td></tr>
<tr><td>B1</td><td>40</td><td>30%</td></tr>
<tr><td>B2</td><td>40</td><td>30%</td></tr>
<tr><td>B2</td><td>50</td><td>30%</td></tr>
<tr><td>C1</td><td>50</td><td>40%</td></tr>
<tr><td>C2</td><td>50</td><td>70%</td></tr>
</table>
0% recycled sand or aggregates in concrete</td></tr>
<tr><td>Electricity (design and construction)</td><td>100% grid supplied electricity for design and construction offices
100% grid supplied electricity for construction activities
0% Green Power</td></tr>
<tr><td>Fuel</td><td>Diesel construction and maintenance plant.
Diesel powered mobile lighting towers and variable message boards
0% biodiesel or alternative fuels used in construction plant, generators and light vehicles for design, construction and maintenance.</td></tr>
<tr><td>Haulage</td><td>Haulage distances for all materials represent the average for three identified potential suppliers</td></tr>
<tr><td>Pavement maintenance</td><td>Pavement rehabilitation required every 25 years. Thickness of new asphalt is 150 mm, except 60 mm for road bridges
Crack sealing required every 10 years and applied to 20% of all pavement. Thickness of crack/new asphalt is 15 mm</td></tr>
<tr><td>Concrete maintenance</td><td>Concrete rehabilitation required for kerbs, drains and secondary pavement every 50 years.
100% of volume requires replacement</td></tr>
<tr><td>Asphalt</td><td>Hot mix asphalt
Polymer modified binders used in wearing and levelling course
Up to 30% RAP in all layers except wearing course (up to 10%)
Asphalt planings taken back to asphalt plant for incorporation into new asphalt (ie no in-situ recycling)
0% recycled soft plastic
0% crumbed rubber (derived from recycled tyres)
0% manufactured or reprocessed sand or aggregates.</td></tr>
<tr><td>Spray seal</td><td>0% by mass of crumbed rubber (derived from recycled tyres)</td></tr>
<tr><td>Granular pavement materials</td><td>0% manufactured or reprocessed sand or aggregates</td></tr>
<tr><td>Construction and demolition waste</td><td>90% diversion of construction and demolition waste from landfill (Metropolitan Adelaide)
70% diversion of construction and demolition waste from landfill (non-Metropolitan Adelaide)</td></tr>
</table>

Noise barriers	Constructed from reinforced concrete with 30% Portland cement replacement
Drainage pipes and culverts	Reinforced concrete with 30% Portland cement replacement
Supply of signs, station/ road furniture and public realm elements (eg bollards, wheel stops, lawn edging etc)	0% reuse 0% recycled content
Railway sleepers	Concrete, 0% recycled content
Water	100% mains water for all construction and operational uses.
Vegetation loss/ gain	New and replacement planting in accordance with DIT vegetation removal policy and project landscaping/ urban design requirements.

Appendix 7: Sustainable Site Facility Requirements

1. Insulation in walls = R2.0 for new facilities, R1.8 for existing facilities, R2.5 for facilities built on site
2. Insulation in ceilings = R3.0
3. Low VOC paints where applicable for all internal surfaces
4. Low VOC adhesives and sealants throughout
5. Low VOC carpets, and / or use of recycled carpet where applied
6. LED lighting
7. Provide effective lighting control to eliminate the energy consumption from lighting during inactive periods. Acceptable control methods are sensors, timers, master control switches or equivalent
8. Chain of custody FSC or AFS timber throughout
9. Door closers on all external doors (to air-conditioned spaces)
10. Weather seals at all doors and windows (to air-conditioned spaces)
11. Use of blinds, tinting or external shading for all windows to office spaces
12. Provide effective air conditioning control to eliminate the energy consumption from air conditioning during inactive periods. Acceptable control methods are sensors, timers, master control switches or equivalent
13. A deconstruction plan of the site facilities and amenities, or a product stewardship policy by supplier/manufacturer that demonstrates end-of-life treatment of the site facility
14. Push button taps with aerators (to be 3.5L/min or less) to ablution blocks hand basins.
15. Toilets to be 3/4.5L dual flush and shower heads to be 7.5L/min.
16. Building Manufacturers to operate an accredited ISO 14001 Environmental Management System
17. Solar PV and/ or Greenpower for site office/ compound
18. Low formaldehyde joinery and / or recycled FF&E
19. Rainwater collection/reuse
20. FSC timber for all temporary uses – e.g. stairs, decks and covered walkways
21. Minimum 4-Star Energy Rated fridges
22. Minimum 5-Star Energy Rated TVs
23. Minimum 4-Star Energy Rated dishwashers
24. Sub-metering of electricity and water (monitoring site and site office / amenities separately)
25. Elimination of single-use crockery and cutlery
26. Paper, bottle, plastic (co-mingle) and printer cartridge recycling
27. Bike racks to facilities area
28. a waste disposal system which separates food waste, recycling, and co-mingled waste
29. use of re-used or recycled products in place of virgin materials for wheel stops