Job Number @ Type here

Functional Specification Template

C7521 – Infrastructure Sustainability Requirements Options Analysis / Preliminary Evaluation Specification Addendum

June 2024

* To be used as a guide when compiling project-specific specifications.
* @ = project-specific detail required.
* For clauses / items not required – insert text “Not Required” in clause heading, do not delete clause.
* Delete this table when document finalised.

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# Infrastructure Sustainability – Introduction

This Functional Specification applies to the Department of Transport and Main Roads’ requirement for the Consultant’s prepared Options Analysis / Preliminary Evaluation to contribute to:

1. Sustainability assessment in accordance with the Queensland Government State Infrastructure Strategy by the Department of State Development and Infrastructure; and the Infrastructure Australia Assessment Framework.
2. Assessment Frameworks:
   1. [*Business Case Development Framework*](https://www.statedevelopment.qld.gov.au/industry/infrastructure/business-case-development-framework) (BCDF) – Department of State Development and Infrastructure
   2. [*Project Assessment Framework*](https://s3.treasury.qld.gov.au/files/paf-policy-overview.pdf) (PAF) – Queensland Treasury
   3. [*Infrastructure Proposal Development Policy*](https://www.statedevelopment.qld.gov.au/__data/assets/pdf_file/0031/56479/infrastructure-proposal-development-policy.pdf) (IPDP) – Department of State Development and Infrastructure
   4. [*Assessment Framework Stage 3*](https://www.infrastructureaustralia.gov.au/stage-3-developing-business-case) – Infrastructure Australia
3. The future achievement of a certified Infrastructure Sustainability Council (ISC) Infrastructure Sustainability (IS) v2.1 rating, independently verified by ISC for the Design and Construction phases.

The term “Preliminary Evaluation” will be used throughout this document to align with the Queensland Government's Project Assessment Framework terminology.

## Definition of terms

The terms used in this Preliminary Evaluation Functional Specification shall be as defined in Table 1.1.

Table 1.1 – Definitions

|  |  |
| --- | --- |
| Term | Definition |
| Consultant | Means the broader Design consulting team organisation(s), which includes the Sustainability Representative. |
| ISC | Means the Infrastructure Sustainability Council. |
| ISMP | Means the Infrastructure Sustainability Management Plan. |
| Rating Tool / Rating Scheme | Means ISC's Infrastructure Sustainability Rating Tool v2.1, details of which are available at the [Infrastructure Sustainability Council](https://www.iscouncil.org/) website. |
| SMART Targets | Targets that are Specific, Measurable, Achievable, Relevant, and Time-bound. These are referenced in several IS credits. |
| Sustainability Representative | Means the Consultant’s Infrastructure Sustainability Accredited Professional under ISC who must have a minimum of two years’ experience to lead the delivery of IS ratings on linear infrastructure projects. |
| Materiality Assessment | Means the Materiality Assessment, also sometimes referred to as the Weightings Assessment, in accordance with the IS Technical Manual, v2.1. |

## Reference documents

Reference documents in this Preliminary Evaluation Functional Specification are listed in Table 1.2 and provided as Appendices where indicated.

Table 1.2 – Infrastructure sustainability Preliminary Evaluation reference documentation

|  |  |  |
| --- | --- | --- |
| Appendix Reference | Title | Description |
| N/A | IS Technical Manual, v2.1 | Refer Clause 2.1  Infrastructure Sustainability Council’s Infrastructure Sustainability Technical Manual, Design & As Built, v2.1. |
| A | Guidance and policy information for infrastructure sustainability | Refer Clause 2.6  Links to supporting Queensland Government and Transport and Main Roads guidance and policy documents.  These are referenced throughout the document as superscripts in the following format: [Level X / DLX.X / other text]Appendix A reference. For example: Level 2⁴ª, DL1.1-DL2.3²ª |
| B | Infrastructure sustainability management plan outline | Refer Clause 3.1  Document template for the ISMP. |
| C | Guidance Note – Project sustainability objectives and targets | Refer Clause 3.1.2.2.2  Guidance on sustainability commitments and objectives that could be considered for the project. |
| D | Guidance Note – Infrastructure Sustainability Base Case Framework | Refer Clause 3.1.2.2.3  Guidance to determine appropriate project boundaries and business as usual assumptions for the submissions to ISC. |
| E | Guidance Note – Incorporating sustainability into project decision-making | Refer Clause 3.1.2.2.7  Guidance and a template for incorporating sustainability into decision making to address ISC requirements. |
| N/A | IS Scorecard, v2.1 | Refer Clause 3.1.4  Infrastructure Sustainability Council’s Infrastructure Sustainability Scorecard, v2.1. |

# Infrastructure sustainability in Preliminary Evaluation

## Context

As part of the Queensland Government’s commitment to ensuring the long term sustainability of infrastructure investment, this project, and all state government projects valued at more than $100 million, will be subject to a sustainability assessment. This is to be undertaken in accordance with the IS Rating Tool.

Further, Transport and Main Roads actively supports and strives to contribute to the State Government’s [objectives for the community](https://www.qld.gov.au/about/how-government-works/objectives-for-the-community). Transport and Main Roads set a clear sustainability direction for the project through the [*Environmental Sustainability Policy*](https://www.tmr.qld.gov.au/community-and-environment/environmental-management/environmental-sustainability-policy).

The terms in this Functional Specification shall be read in conjunction with those identified in the IS Technical Manual, v2.1. While the Preliminary Evaluation contract will not involve the formal registration of the project with ISC, the assessment and documentation undertaken is expected to set the project up for success in achieving a certified rating in subsequent contracts through the provision of supporting evidence.

The intent of the infrastructure sustainability assessment in the Preliminary Evaluation is to assess the proposed options in relation to infrastructure sustainability and identify potential strategies for the project to achieve infrastructure sustainability outcomes. The outputs of Preliminary Evaluation are carried forward through to Business Case for further development and investigation.

## Infrastructure sustainability integration across project disciplines

While meeting the infrastructure sustainability deliverables, the consultant shall ensure that infrastructure sustainability requirements are considered within the broader context of the brief. This includes an interface with tasks being undertaken during the Preliminary Evaluation such as:

* Risk Management Plan and Risk Register
* Project Schedule
* Design Drawings and Reports and Basis of Design Report
* Communication and Engagement Plan
* Urban and Landscape Design Plan (as called by ISC) / Integrated Landscape Assessment (equivalent document in Transport and Main Roads)
* Draft Urban and Landscape Design Statement
* Preliminary Environmental Assessment
* Cultural Heritage Risk Assessment
* Social Impact Evaluation
* Significant project decisions
* Options Analysis and MCA
* Infrastructure / Project Procurement Plan
* Benefits Realisation Plan
* Investment Logic Map
* Monthly meetings

All applicable assessments and evidence should be documented sufficiently and in accordance with the requirements of the IS Technical Manual, v2.1 to enable their collation as evidence for future IS rating submissions to ISC.

## Strategic Assessment of Service Requirement sustainability assessment

|  |
| --- |
| Project Manager: Review / add / delete to reflect any sustainability assessment work that has already been completed. Mark this section as “not required” if no previous assessment was completed during SASR. |

Prior to the Preliminary Evaluation, work has commenced on the infrastructure sustainability assessment. The deliverables and assessments completed to date are:

* @ Type here for example:
* @ Type here Infrastructure Sustainability Management Plan (Planning) – ISMP(P)

## Principal retained infrastructure sustainability deliverables

Under this Contract, unless otherwise stated, the Principal will retain responsibility for delivering the actions and evidence as outlined within Table 2.4.

Table 2.4 – Principal retained responsibilities

|  |
| --- |
| Project Manager: delete / add relevant credits and requirements as applicable but note that removal of any items may put achievement of the future IS rating at risk. |

|  |  |  |
| --- | --- | --- |
| ISC Credit | Benchmark Level | Principal-retained Deliverable / Evidence |
| Sta-1 – Stakeholder Engagement Strategy | Level 2 | * Draft Community Engagement Plan * Draft First Nations / Indigenous Participation Plan * Social Impact Assessment (outsourced) |
| Her-1 – Heritage Protection and Enhancement | Level 2 | * Cultural Heritage Risk Assessment * Draft First Nations / Indigenous Participation Plan |
| @ Type here | @ Type here | @ Type here |

## Sustainability Representative

The Consultant must engage a Sustainability Representative for the Preliminary Evaluation contract whose sole focus is the delivery of sustainability on the project, with no shared responsibilities to other disciplines or requirements outside this Functional Specification. The Consultant must also ensure that sufficient resources are provided to address infrastructure sustainability and achieve the defined requirements in this Functional Specification. The Sustainability Representative must be embedded in the core project team, including regular attendance at project team meetings, and work directly with the senior management team regarding infrastructure sustainability to ensure sustainability is considered across all project decisions.

## Supporting information for infrastructure sustainability

Appendix A includes a suite of guidance materials and supporting documentation relating to infrastructure sustainability that the Consultant shall consider and/or reference where appropriate.

# Infrastructure sustainability deliverables and activities

This section outlines the deliverables that the Consultant shall produce as part of the Preliminary Evaluation infrastructure sustainability assessment, as well as minimum expectations for participating in and/or facilitating sustainability-related meetings and workshops to support the development of deliverables and the overall assessment.

A summary of all deliverables and activities is provided in Table 3. Where applicable, all deliverables are to be completed in accordance with the requirements of IS Technical Manual, v2.1. Recognising the ISMP(P) as an overarching deliverable, a column is provided to indicate each deliverable’s relationship to the ISMP(P) as follows:

* Appendix within the ISMP(P)
* Component within the body of the ISMP(P)
* Supporting activity undertaken as part of developing the ISMP(P)
* Reference only to the deliverable within the ISMP(P), where deliverable is expected to be produced separately

Table 3 – Preliminary Evaluation infrastructure sustainability deliverables and workshops

| Clause | Deliverable / Workshop | Format | Relationship to ISMP(P) |
| --- | --- | --- | --- |
| 3.1 | Infrastructure Sustainability Management Plan (Planning) (ISMP(P)) | Report | Primary deliverable |
| 3.1.1 | Compliance Register Monitoring Spreadsheet | Register | Appendix |
| 3.1.2.2 | Specified Preliminary Evaluation Activities | | |
| 3.1.2.2.1 | Pla-2: Urban and Landscape Design  Urban and Landscape Design Plan (ISC) / Integrated Landscape Assessment (Transport and Main Roads) | Report(s) | Reference |
| Draft Urban and Landscape Design Statement |
| Quantitative assessment of urban and landscape outcome areas |
| 3.1.2.2.2 | Lea-1: Integrating Sustainability  Sustainability objectives and targets | ISMP section | Component |
| Sustainability objectives and targets workshop | Workshop | Appendix |
| Endorsement of sustainability objectives and targets | Principal’s email confirmation of endorsement | Component |
| 3.1.2.2.3 | Lea-2: Risks and Opportunities  Sustainability opportunities / initiatives / innovations | Register | Appendix |
| Workshop(s) | Supporting activity |
| 3.1.2.2.4 | Sustainability risk assessment | Register and report(s) | Reference |
| 3.1.2.2.5 | Res-1: Climate and Natural Hazards Risk  Climate change and natural hazards risk assessment | Report | Reference |
| Workshop(s) | Supporting activity |
| 3.1.2.2.6 | Res-2: Resilience Planning  Resilience assessment | Report | Reference |
| Workshop(s) | Supporting activity |
| 3.1.2.2.7 | Ecn-1: Options Assessment and Significant Decisions  Decision making procedures and records | ISMP section | Component |
| Register and/or report(s) | Appendix |
| Workshop | Supporting activity |
| 3.1.2.2.8 | Ene-1: Energy Efficiency and Carbon Reductions, and  Rso-6: Material Life Cycle Impact Measurement and Management:  Greenhouse gas lifecycle emissions estimate | Report | Reference |
| 3.1.2.2.9 | Rso-1: Resource Strategy Development  Resource efficiency investigation | Report | Reference |
| 3.1.2.2.10 | Wat-1: Avoiding Water Use  Water demand assessment | Report | Reference |
| 3.1.2.2.11 | Env-1 to Env-3: Receiving Water Quality, Noise, and Vibration  Environmental considerations from stakeholder engagement | Report section(s) | Reference |
| 3.1.2.2.12 | Water quality modelling and assessment for design treatments | Report | Reference |
| 3.1.2.2.13 | Eco-1: Ecological Protection and Enhancement  Ecological impact assessment | Report | Reference |
| 3.1.2.2.14 | Sta-1, Sta-2: Stakeholder Engagement Strategy and Impacts,  Leg-1: Leaving a Lasting Legacy, and  Her-1: Heritage Protection and Enhancement:  Stakeholder documentation review and input | Report(s) | Reference |
| 3.1.3 | Materiality assessment | Completed ISC v2.1 Scorecard | Appendix |
| 3.1.4 | IS scorecard | Register | Appendix |
| 3.1.5 | Monthly sustainability progress meetings | Meeting minutes | Appendix |
| 3.2 | Inputs to project cost estimate | Cost estimate line item(s) | - |
| 3.3 | Preliminary Evaluation Sustainability Assessment Chapter / Inputs | Report section | - |

## Infrastructure Sustainability Management Plan (Planning) (ISMP(P))

The intent of the Infrastructure Sustainability Management Plan (Planning) (ISMP(P)) is that it provides a living document of SMART infrastructure sustainability objectives and targets, management measures, and evidence requirements identified for the project. On its own, it is a primary piece of evidence for the Lea-1 credit, but it also serves as an overarching deliverable documenting the project’s approach to all other credits within the IS Rating Scheme.

The Consultant shall develop an ISMP(P) in accordance with the template in Appendix B and the requirements of the IS Technical Manual, v2.1, unless an alternate structure is approved by the Project Manager.

The Consultant shall maintain the continuity of intent of previous plans, studies and assessments (including those outlined in Clause 2.3) when developing their ISMP(P) and include enough additional actions to set the project up for success in achieving a certified IS v2.1 rating in future phases.

The ISMP(P) shall be:

1. submitted in draft to the Principal for a direction as to its suitability within six weeks of the Preliminary Evaluation Start Date.
2. formally reviewed and updated prior to completion of the Preliminary Evaluation phase to capture the latest decisions and targets as they evolve through the contract.

|  |
| --- |
| Project Manager: include delivery milestone timing. |

This must be completed by @ Type here.

In addition to a final PDF copy with all included appendices, the Consultant shall include a native format version (i.e., a Word (.docx) format) of the primary ISMP document to support handover into the next phase.

### Compliance Register Monitoring Spreadsheet

Upon completion of the Preliminary Evaluation phase, the Consultant shall provide a Compliance Register Monitoring Spreadsheet as an Appendix to the ISMP(P). A template for the Spreadsheet is included as part of the ISMP template in Appendix B. The Spreadsheet is intended to serve as an index to the overall sustainability assessment package of deliverables, facilitating handover to future project phases by enabling relevant information to be easily located.

The Spreadsheet shall identify the documents where each of the requirements in Clause 3 of this Functional Specification, and requirements under the targeted credits and levels within the Consultant’s IS scorecard (Clause 3.1.4), are addressed. Where there are any recommendations for key items to be resolved at the beginning of the next phase, these shall also be identified in the Spreadsheet.

The Consultant may also use the Spreadsheet throughout the contract to track progress against contractual commitments and targeted credits, and responsibilities / timing for implementation of actions. However, evidence of this ongoing use is not required as part of the final deliverable.

### Sustainability targets and requirements

#### Background

In addition to the requirement to achieve an IS rating for infrastructure projects, there are several sustainability-related priorities driven by various levels of government that cascade down to Transport and Main Roads infrastructure projects. Transport and Main Roads have identified a list of overall IS Design rating targets for projects to demonstrate their alignment with these priorities, which are presented in two categories within Table 3.1.2.2 as follows:

1. Design Rating Minimum Requirement

Achievement of these credit requirements (whole levels or sublevel DLX.X requirements as specified) will be directly supported by mandatory process- or outcome-based requirements and targets in government priorities and standards. All projects are required to include these as part of their IS rating pathway.

1. Design Rating Stretch Targets

These credit targets directly align with non-mandatory government objectives, and therefore are not compulsory, but should be included within the project’s IS rating pathway.

Key documents that have informed the above requirements and targets are listed in Appendix A. For each requirement and target listed in Table 3.1.2.2, superscript citations are provided in the following format to indicate the primary source document in Appendix A:

General format = [Level X]Appendix A reference / [DLX.X]Appendix A reference

Examples = Level 2⁴ª, DL1.1-DL2.3²ª

It is emphasised that these requirements and targets are for the future Design rating – they are not Preliminary Evaluation requirements in themselves. They are presented for information and reference in this document to indicate the Department’s overall project sustainability and IS rating objectives. For Preliminary Evaluation specifically, prescriptive activities have been developed and outlined in Clause 3.1.2.2 to support the future achievement of the overall Design rating requirements and targets.

#### Specified Preliminary Evaluation Activities

To maximise the project’s chance of success in future achievement of both the Design Rating Minimum Requirements and Stretch Targets, the Consultant shall deliver the Specified Preliminary Evaluation Activities outlined throughout this section, as summarised in Table 3.1.2.2.

The outputs of Preliminary Evaluation are carried forward through to Business Case for further development and investigation.

The Consultant is not expected to produce separate deliverables for each individual requirement. The Consultant is encouraged to combine deliverables, and integrate requirements into existing project deliverables, where they feel it is appropriate to do so and as agreed with the Principal.

Table 3.1.2.2 – Specified Preliminary Evaluation Activities

| Theme | Credit | Specified Preliminary Evaluation Activity | Design Rating Minimum Requirement  Format = [DLX.X]Appendix A reference | Design Rating Stretch Target  Format = [Credit Level]Appendix A reference |
| --- | --- | --- | --- | --- |
| Governance | Pla-2: Urban and Landscape Design | Clause 3.1.2.2.1 | - | Level 3⁴ª |
| Lea-1: Integrating Sustainability | Clause 3.1.2.2.2 | - | Level 1⁶ª |
| Lea-2: Risks and Opportunities | Clause 3.1.2.2.3  Clause 3.1.2.2.4 | - | Level 1⁶ª |
| Lea-3: Knowledge Sharing | None for Preliminary Evaluation. | - | Level 3⁴ᵇ |
| Spr-1: Sustainable Procurement Strategy | None for Preliminary Evaluation. | - | Level 3¹ᵇ |
| Spr-2: Supplier Assessment and Selection | None for Preliminary Evaluation. | DL1.1⁷ª | Level 2⁴ᵇ |
| Spr-3: Contract and Supplier Management | None for Preliminary Evaluation. | - | Level 2¹ᵇ |
| Res-1: Climate and Natural Hazards Risks | Clause 3.1.2.2.5  Clause 3.1.2.2.11 | DL1.1-DL2.3²ª | Level 2⁴ª |
| Res-2: Resilience Planning | Clause 3.1.2.2.6 | DL1.1-DL1.4²ª | Level 1⁴ª |
| Economic | Ecn-1: Options Assessment and Significant Decisions | Clause 3.1.2.2.3 (Lea-2)  Clause 3.1.2.2.7 (Ecn-1) | - | Level 1⁴ª |
| Environment | Ene-1: Energy Efficiency and Carbon Reductions | Clause 3.1.2.2.3 (Lea-2)  Clause 3.1.2.2.7 (Ecn-1)  Clause 3.1.2.2.8 (Ene-1) | DL1.1²ᵇ | DL1.1-DL1.2, and target 15% reduction under DL1.3³ª |
| Rso-1: Resource Strategy Development | Clause 3.1.2.2.3 (Lea-2)  Clause 3.1.2.2.7 (Ecn-1)  Clause 3.1.2.2.7 (Ecn-1) | - | Level 2⁴ᵇ |
| Rso-4: Resource Recovery and Management | Clause 3.1.2.2.3 (Lea-2) | DL2.2¹ᵇ | Level 3¹ᵇ |
| Environment | Rso-6: Material Life Cycle Impact Measurement and Management | Clause 3.1.2.2.3 (Lea-2)  Clause 3.1.2.2.7 (Ecn-1)  Clause 3.1.2.2.8 (Rso-6) | DL1.1²ᵇ | DL1.1, and target 15% reduction under DL1.2³ª |
| Rso-7: Sustainability Labelled Products and Supply Chains | None for Preliminary Evaluation. | - | Level 2¹ᵇ |
| Wat-1: Avoiding Water Use | Clause 3.1.2.2.3 (Lea-2)  Clause 3.1.2.2.7 (Ecn-1) | DL1.1²ª | DL1.1-DL1.2, and maximise % reduction under DL1.3²ª |
| Env-1: Receiving Water Quality | Clause 3.1.2.2.9  Clause 3.1.2.2.11 | DL1.3, DL1.4⁴ᵈ | Level 2²ª |
| Env-2: Noise | Clause 3.1.2.2.11 | - | Level 2²ª |
| Env-3: Vibration | Clause 3.1.2.2.11 | - | Level 2²ª |
| Eco-1: Ecological Protection and Enhancement | Clause 3.1.2.2.10 | DL1.1-DL1.4¹ª | Level 1¹ª |
| Social | Sta-1: Stakeholder Engagement Strategy | Clause 3.1.2.2.11 | - | Level 2¹ª |
| Sta-2: Stakeholder Engagement and Impacts | - | Level 2¹ª |
| Leg-1: Leaving a Lasting Legacy | - | Level 3⁴ª |
| Her-1: Heritage Protection and Enhancement | - | Level 2⁴ª |
| Wfs-1: Jobs, Skills and Workforce Planning | None for Preliminary Evaluation. | Level 1⁷ª | Level 1⁷ª |
| Wfs-3: Diversity and Inclusion | None for Preliminary Evaluation. | DL1.1, DL1.2⁷ª | Level 2⁷ª |

##### Urban and landscape design plan, statement, and assessment

|  |  |  |
| --- | --- | --- |
| Credit | Design Rating Minimum Required Outcome | Design Rating Stretch Target |
| Pla-2 | - | Level 3⁴ª |

The Consultant shall prepare an Urban and Landscape Design Plan (ISC) / Integrated Landscape Assessment (equivalent document in Transport and Main Roads) and Draft Urban and Landscape Design Statement in accordance with DL1.1 and DL2.1 under Pla-2. Compliance shall be demonstrated in the form of a table within the plan that identifies how and where the criteria have been addressed.

As part of the plan, Consultant shall also provide qualitative assessment of the urban and landscape outcome areas identified in Pla-2 DL3.1, including addressing the following:

* Commentary comparing and contrasting between Preliminary Evaluation options to identify which is best placed to demonstrate net improvement in at least two urban and landscape outcome areas.
* Identification of assumptions and features in the current Preliminary Evaluation option(s) upon which the assessment is relying.
* Gap analysis to identify specific further opportunities and initiatives to achieve net improvement in outcome areas, and high-level, indicative order-of-magnitude costs associated with implementing these.

Projects may wish to refer to guidance in the Beyond the Pavement – Urban Design Policy Procedures and Design Principles (Transport for New South Wales).

##### Sustainability objectives and targets

|  |  |  |
| --- | --- | --- |
| Credit | Design Rating Minimum Required Outcome | Design Rating Stretch Target |
| Lea-1 | - | Level 1⁶ª |

The Consultant shall develop project-specific sustainability objectives and targets for inclusion in the ISMP(P) based on the outcomes of the Materiality Assessment (Clause 3.1.3), collaboration with the Principal and project team (e.g., sustainability initiatives workshop in Clause 3.1.2.2.3), the guidance note in Appendix C, and requirements under DL1.1 in Lea-1.

The Consultant shall seek endorsement of the proposed infrastructure sustainability objectives and targets from the Principal.

##### Sustainability opportunities / initiatives / innovations

|  |  |  |
| --- | --- | --- |
| Credit | Design Rating Minimum Required Outcome | Design Rating Stretch Target |
| Lea-2 | - | Level 1⁶ª |

The Consultant shall facilitate an internal infrastructure sustainability workshop with members from both the Principal and Consultant team to inform development and updates of the ISMP(P) and:

* raise awareness of infrastructure sustainability and the key areas of opportunity and constraint in relation to the project,
* discuss and assign roles and responsibilities for sustainability assessment,
* incorporation within other contract deliverables,
* discuss and confirm or establish the project specific sustainability SMART objectives and targets (Clause 3.1.2.2.2), and
* identify potential infrastructure sustainability strategies, actions, opportunities, initiatives, and innovations that would assist the project to achieve positive quadruple bottom line (governance, economic, environmental, and social) outcomes over the life of the asset and a certified IS v2.1 rating.

This should include opportunities that align with the following focus areas:

* + Energy and carbon emissions reduction opportunities (Ene-1 DL1.2)
  + Resource efficiency opportunities (Rso-1 DL1.2)
  + Opportunities for beneficial reuse of resource outputs (i.e., waste) (Rso-4 DL2.1)
  + Water use avoidance and reduction opportunities (Wat-1 DL1.2)
  + Alternative (non-potable) water source options (Wat-2 DL1.1)
  + Innovations that may qualify under an IS innovation category (Inn-1)

To support specific government sustainability objectives, the Department highlights the following for the Consultant to consider as part of the opportunities identification process where appropriate and relevant. Superscript citations are provided to indicate the source document for the initiative in Appendix A:

* + Construction process carbon reduction measures listed in Table 1 of the journal paper, [Holistic Review of Construction Process Carbon-Reduction Measures](https://www.mdpi.com/2075-5309/13/7/1780)³ª.
  + Provision of EV charging infrastructure⁴ª.
  + Opportunities to re-use waste materials, particularly in earthworks and drainage applications⁴ª.
  + Opportunities to use crumbed rubber⁴ª.
  + Market development, research and reporting on waste and circular economy opportunities to understand business barriers, including innovative solutions and materials1b. This includes opportunities to partner with industry to identify and realise circular economy opportunities.
  + Accessibility and inclusion in design, including co-design opportunities, in accordance with the Guiding Principles in Transport and Main Roads’ [*Accessibility and Inclusion Strategy*](https://www.tmr.qld.gov.au/about-us/our-organisation/accessibility-and-inclusion/accessibility-and-inclusion-strategy/introduction/guiding-principles) and the [*Disability Standards for Accessible Public Transport*](https://www.tmr.qld.gov.au/travel-and-transport/disability-access-and-mobility/accessible-public-transport-standards)⁴ª.
  + Catering to new transport modes (e.g., personal mobility devices and connected vehicles)⁴ª.
  + For projects in rural and remote areas, provision of recreation trails⁴ª.
  + Options to temporarily relocate vegetation for future reinstatement, rather than permanent clearing and revegetation¹ª.

The Consultant shall produce a sustainability initiatives register as an output of the internal sustainability initiatives workshop and include this as an Appendix within the ISMP(P). The sustainability initiatives listed should not include those concepts considered business as usual as defined by the Base Case Framework in Appendix D.

The Consultant is expected to review and update the register in consultation with the project team prior to the end of Preliminary Evaluation phase to refine and identify any additional initiatives.

In addition to a final PDF copy, the Consultant shall include a native format version (i.e., an Excel (.xlsx) format) of the document to support handover into the next phase.

##### Sustainability risk assessment

|  |  |  |
| --- | --- | --- |
| Credit | Design Rating Minimum Required Outcome | Design Rating Stretch Target |
| Lea-2 | - | Level 1⁶ª |

The Consultant shall ensure that project risk analysis and management addresses the risk assessment requirements of Lea-2 Level 1 (i.e., identification and implementation of treatment options does not need to be considered at this stage). This shall include identification of potential treatment options for all extreme, very high or high (or equivalent rating scale) risks, although confirmation of implementation is not required for Preliminary Evaluation. This process is expected to be integrated into overall project risk assessment, and the Consultant shall reference the relevant documentation (e.g., project risk register and report(s)) in the ISMP(P).

As part of this, projects should record potential risks in supply chain availability for sustainable materials, and energy and water resources, and opportunities to invest in regional development, where appropriate for the project.

##### Climate change and natural hazards risk assessment

|  |  |  |
| --- | --- | --- |
| Credit | Design Rating Minimum Required Outcome | Design Rating Stretch Target |
| Res-1 | DL1.1-DL2.3²ª | Level 2⁴ª |

The Consultant shall identify and assess climate change and natural hazards risks as part of a multidisciplinary process in accordance with Transport and Main Roads’ guidance and templates in [*Climate change technical publications*](https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Climate-change)*,* the [Road planning and design manual - 2nd edition](https://www.tmr.qld.gov.au/business-industry/technical-standards-publications/road-planning-and-design-manual-2nd-edition), Vol 3, Part 5, as well as requirements under Res-1 DL1.1-DL2.3. This shall include identification of potential treatment options for all extreme and high priority risks, although confirmation of implementation and residual (post-treatment) risk assessment is not required for Preliminary Evaluation.

The outcomes of the assessment shall be documented in a report. In addition to a final PDF copy with all included appendices, the Consultant shall include native format versions (i.e., Word (.docx) and Excel (.xlsx) formats) of the documents to support handover into the next phase.

##### Resilience assessment

|  |  |  |
| --- | --- | --- |
| Credit | Design Rating Minimum Required Outcome | Design Rating Stretch Target |
| Res-2 | DL1.1-DL1.4²ª | Level 1⁴ª |

The Consultant shall undertake a resilience assessment as part of a multidisciplinary process to consider shocks and stresses likely to impact the asset functionality, services and interconnected systems, in accordance with Res-2 DL1.1-DL1.4. This shall include identification of potential treatment options for shocks and stresses deemed likely to impact the identified asset, although confirmation of implementation is not required for Preliminary Evaluation.

The outcomes of the assessment shall be documented in a report (Resilience Plan). In addition to a final PDF copy with all included appendices, the Consultant shall include native format versions (i.e., Word (.docx) and Excel (.xlsx) formats) of the documents to support handover into the next phase. Note: acknowledging the overlap between assessments for climate change / natural hazards and resilience (Res-1 and Res-2), this assessment may be combined into a single report along with the climate change and natural hazards risk assessment (Clause 3.1.2.2.5).

##### Decision making procedures and records

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| --- | --- | --- |
| Credit | Design Rating Minimum Required Outcome | Design Rating Stretch Target |
| Ecn-1 | - | Level 1⁴ª |

The Consultant shall facilitate a multidisciplinary decision-making governance workshop aimed at establishing the following procedures for decision-making in accordance with Ecn-1 Level 1:

* Parameters and thresholds for defining a decision (options assessment) as “significant”.
* A minimum set of core criteria for formal multi-criteria analysis (MCA), which the project shall aim to apply to all “significant” decisions.
* The core criteria for MCA shall include at least one criterion for each of the following:
  + outward impacts from the project to the environment
  + outward impacts from the project to society (i.e., local community stakeholders)
  + outward impacts from the project to the economy (i.e., local businesses and supply chain – not to be confused with project / asset financial impacts)
  + monetised whole-of-life cost impact (i.e., project / asset financial impacts).

The project may introduce additional criteria for specific decisions as needed, but the intent is to ensure all “significant” decisions are assessed including consideration of environmental, social, economic, and financial impacts.

* Communication protocols for ensuring the appropriate team members are alerted to, and will be able to participate in, “significant” decision assessments arising on the project.

At minimum, workshop participants shall include members of the team with decision-making authority (including the Principal’s Project Manager and the Consultant’s Project Manager), and key technical disciplines whose scope of work are most likely to impact, or be impacted by, project decisions (e.g., structural, pavement, civil, geotechnical, environment).

The agreed project decision-making procedures shall be minuted as a project record for IS rating evidence and then documented within the ISMP(P).

At a minimum, the Consultant shall apply the agreed procedures to initiatives in the following categories (as identified through the Lea-2 sustainability opportunities identification process in Clause 3.1.2.2.3):

* Energy and carbon emissions reduction opportunities (Ene-1 DL1.2).
* Resource efficiency opportunities (Rso-1 DL1.2).
* Opportunities for beneficial reuse of resource outputs (i.e., waste) (Rso-4 DL2.1).
* Water use avoidance and reduction opportunities (Wat-1 DL1.2).
* Alternative (non-potable) water source options (Wat-2 DL1.1).

Evidence of decision-making processes being applied shall be provided as an Appendix to the ISMP(P). For example:

* Minutes from the decision-making governance workshop.
* Decision register, demonstrating application of the agreed procedures to identify which decisions are “significant”.
* Records for assessment of any “significant” decisions as per the agreed procedures, e.g., MCA spreadsheets, reports.

Appendix B provides guidance and a template for the above to address ISC requirements (Consultant is not required to use these and may opt to develop / use their own).

##### Greenhouse gas lifecycle emissions estimate

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| --- | --- | --- |
| Credit | Design Rating Minimum Required Outcome | Design Rating Stretch Target |
| Ene-1 | DL1.1²ᵇ | DL1.1-DL1.2, and target 15%\* reduction under DL1.3³ª |
| Rso-6 | DL1.1²ᵇ | DL1.1, and target 15%\* reduction under DL1.2³ª |

|  |
| --- |
| \*Target of 15% reduction or revised for specific project context.  Project Manager to review and revise % target with consideration of project context. Ensure corresponding targets in Table 3.1.2.2 are also updated accordingly. |

To support final Preliminary Evaluation reporting, the Consultant shall develop an IS “Actual Case” estimate of lifecycle greenhouse gas emissions for each of the final preferred Preliminary Evaluation options being submitted under the relevant assessment framework (as per Clause 1b), as well as a “do nothing” option (note the “do nothing” option is sometimes referred to as a “Base Case”, but is not to be confused with the IS definition of “Base Case” which is establishment of a business-as usual footprint / reference design for energy, carbon, materials and water). Calculations are to be done at order-of-magnitude and may use rules-of-thumb to only focus on the most pertinent costs and benefits (noting that level of detail can vary significantly with level of design).

The emissions scope and metrics of the estimate shall adopt the principles of DL1.1 in Ene-1 and Rso-6, and be in accordance with the Infrastructure Australia [*Guide to assessing greenhouse gas emissions*](https://www.infrastructureaustralia.gov.au/publications/guide-assessing-greenhouse-gas-emissions), and any other current departmental guidance as agreed between the Principal and Consultant. Note this is to be undertaken regardless of whether the project is seeking submission to Infrastructure Australia, as it is also intended to support the department’s broader goals in understanding project carbon footprints.

The Consultant shall produce a report to document the methodology, assumptions, and outcomes of the estimate.

##### Water quality modelling and assessment for design treatments

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| --- | --- | --- |
| Credit | Design Rating Minimum Required Outcome | Design Rating Stretch Target |
| Env-1 | DL1.3, DL1.4⁴ᵈ | Level 2²ª |

In accordance with operation phase requirements under Env-1 Level 2, the Consultant shall undertake high-level quantitative assessments (i.e., using rules-of-thumb, sizing curves, and generic calculations as opposed to modelling software such as MUSIC or TUFLOW) of the following:

1. Operational receiving water quality impacts to determine how the project can demonstrate no adverse impact on receiving water environmental values.
2. For projects that discharge to freshwater environments (i.e., where stream geomorphology is shaped by catchment runoff, unlike tidal or constructed / lined environments), peak stormwater flow assessment to determine how the project can demonstrate no increase in peak stormwater flows for up to a 2-year ARI event.

The purpose of the assessment is to confirm if design treatments are feasible given physical site constraints such as levels, grades, and available space. The assessment shall also include the following:

* Where multiple Preliminary Evaluation options are being prepared, commentary comparing and contrasting between options to identify which is best placed to achieve “no adverse impacts” and “no increase in peak stormwater flows”.
* Identification of assumptions and features in the current Preliminary Evaluation option(s) upon which the assessment is relying.
* Gap analysis to identify specific opportunities and initiatives to meet or exceed the requirements for “no adverse impacts” and “no increase in peak stormwater flows”, and high-level, indicative order-of-magnitude costs associated with implementing these. This shall include identifying and allocating feasible space provisions for pre-treatment, edge treatments, access requirements, pollutant offsets and appropriate contingency for unexpected future constraints.

##### Ecological impact assessment

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| --- | --- | --- |
| Credit | Design Rating Minimum Required Outcome | Design Rating Stretch Target |
| Eco-1 | DL1.1-DL1.4¹ª | Level 1¹ª |

The Consultant shall undertake quantitative assessment of ecological values and impacts to determine how the project can demonstrate no quantifiable ecological loss, in accordance with Eco-1 Level 1, and potentially improve ecological value. The assessment shall be undertaken in accordance with the [C7557 *Terms of Reference for Preliminary Environmental Assessment*](https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Consultants-for-engineering-projects). The assessment shall also include the following:

* Where multiple Preliminary Evaluation options are being prepared, commentary comparing and contrasting between options to identify which is best placed to minimise impacts and improve ecological value.
* Identification of assumptions and features in the current Preliminary Evaluation option(s) upon which the assessment is relying.
* Gap analysis to identify specific opportunities and initiatives for further improvement to achieve no net loss and/or achieve net ecological gain, and high-level, indicative order-of-magnitude costs associated with implementing these.

##### Stakeholder documentation review and input

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| --- | --- | --- |
| Credit | Design Rating Minimum Required Outcome | Design Rating Stretch Target |
| Sta-1 | - | Level 2¹ª |
| Sta-2 | - | Level 2¹ª |
| Leg-1 | - | Level 3⁴ª |
| Her-1 | - | Level 2⁴ª |
| Res-1 | DL1.1-DL2.3²ª | Level 2⁴ª |
| Env-1 | DL1.3, DL1.4⁴ᵈ | Level 2²ª |
| Env-2 | - | Level 2²ª |
| Env-3 | - | Level 2²ª |

In collaboration with the Principal or nominated representative (refer Clause 2.4), the Consultant shall contribute to the development of the Community Engagement Plan, and available heritage assessment and consultation documentation, to ensure they are sufficient to support potential future achievement of the following credits / credit criteria:

* Sta-1 and Sta-2 – Level 2
* Her-1 – Level 2
* Leg-1 – Level 3
* Env-1 to Env-3 – DL2.1
* Res-1 – DL2.4

This includes, but is not limited to, ensuring the following are addressed in relevant documents:

* Document content requirements outlined under each credit.
* Schedules for future progress reviews, reporting, workshops, and other process requirements (acknowledging that during Preliminary Evaluation there may be uncertainty around timing for future project phases, these schedules can be included as placeholders with more high-level indicative timing / frequency).
* Identification of potential topics / issues for which the project could seek stakeholder input, including:
  + High priority stakeholder issues (Sta-1, Sta-2 and Leg-1)
  + Heritage and cultural values (Her-1)
  + Environmental impacts and mitigations (Env-1 to Env-3), and
  + Climate and natural hazard risks and treatment options (Res-1).
* Identification of potential forums and other mechanisms to seek stakeholder input on the nominated topics / issues.

### Materiality assessment

The Consultant shall undertake a Materiality Assessment by completing the assessment tool in the ISC IS v2.1 scorecard. This shall be attached as an Appendix to the ISMP(P) with key outcomes discussed in the relevant section of the ISMP(P) and used to guide the development of objectives and targets (Clause 3.1.2.2.2). Note this is a preliminary exercise and does not require submission to ISC for verification during Preliminary Evaluation.

Where multiple Preliminary Evaluation options are being prepared, only one Materiality Assessment is required. However, discussion should highlight any key assumptions and points of difference between project options that may result in significant differences to materiality.

### IS scorecard

The Consultant shall produce an IS scorecard to document a proposed pathway for the project to achieve a certified v2.1 IS rating, identifying target credits and levels (including stretch targets), as well as any credits scoped out via the Materiality Assessment (Clause 3.1.3).

The scorecard shall identify the risk level (low, medium, high / stretch) for each of the targeted credit levels, indicating which items may require application of additional strategies and measures to achieve the targeted credit outcome and the overall v2.1 rating.

As a minimum, the scorecard shall reflect the Design Rating Minimum Requirements and Stretch Targets listed in Table 3.1.2.2. However, the Consultant is encouraged to identify any and all additional targets that may be feasible and appropriate for the project, balancing effort and value for money; not from a points perspective but in achieving holistic sustainability outcomes, ensuring that there is also sufficient buffer of at least 5 points in the overall points targeted to achieve a certified v2.1 rating.

## Inputs to project cost estimate

The Consultant shall incorporate costs associated with infrastructure sustainability into the Preliminary Evaluation cost estimate to ensure there is a budget allocated for delivering sustainability in future phases. The costs shall include as a minimum:

* Costs for the development and implementation of an Infrastructure Sustainability Management Plan (Design).
* Costs required to implement sustainability initiatives contributing towards the targeted v2.1 certified rating. This shall consider, as relevant to initiatives and recommendations identified in the ISMP(P):
  + Costs for additional land acquisitions and design features required to enhance sustainability outcomes (for example, water quality, ecology, offsets, urban and landscape design, and climate and natural hazards resilience) (if not already captured in other items).
  + Costs associated with procurement of products that may be over and above the BAU requirements (for example, lower carbon products and products with sustainability certifications).

The Consultant shall provide separate line items, for example where dedicated cost analysis has already been undertaken on specific initiatives (as per Clause 3.1.2.2.7) and/or to distinguish between different Preliminary Evaluation options.

* ISC fees for registration, ongoing support, verification, and certification for the Design and As Built ratings.
* Order-of-magnitude (e.g., nearest $100k) sustainability consultant fees for future Business Case, Design and Construction stages.

## Preliminary Evaluation Sustainability Assessment chapter / inputs

|  |
| --- |
| Project Manager: edit the text as needed to suit project requirements. Note that there are significant differences in sustainability assessment requirements between the State and Federal frameworks, which can result in major scope and fee impacts if the incorrect option is nominated:   * Infrastructure Australia’s *Assessment Framework Stage 2* – **applies to all projects seeking >$250M federal funding**. * Queensland Government Department of State Development and Infrastructure’s *Business Case Development Framework* – all other projects. |

The Consultant shall prepare the Sustainability Assessment chapter / inputs for the Preliminary Evaluation in accordance with the @ Type here [Infrastructure Australia’s Assessment Framework Stage 2 / Queensland Government Department of State Development and Infrastructure’s Business Case Development Framework].

# Payment

|  |
| --- |
| Project Manager: include the associated Item No. for infrastructure sustainability. |

The Lump Sum for Item No. PE @ Type here XX Infrastructure Sustainability shall include all works specified in this Functional Specification – Preliminary Evaluation.

Costs for preparing the Preliminary Evaluation Sustainability Assessment chapter / inputs are to be captured under Item No. PE @ Type here XX.

# Appendix A: Guidance and policy information for infrastructure sustainability

Table A – Guidance and Policy Documents

These are referenced throughout the document in the following format:

General format = [Level X]Appendix A reference / [DLX.X]Appendix A reference / [other text]Appendix A reference

Examples = Level 2⁴ª, DL1.1-DL2.3²ª

| Department | Title |
| --- | --- |
| Australian Government | |
| 1. Department of Climate Change, Energy, the Environment and Water | 1. [*Nature Positive Plan, National Environmental Standards, and EPBC Act Reforms*](https://www.dcceew.gov.au/environment/epbc/publications/nature-positive-plan) 2. [*National Waste Policy*](https://www.dcceew.gov.au/environment/protection/waste/how-we-manage-waste/national-waste-policy) 3. [*Reef 2050 Plan*](https://www.awe.gov.au/parks-heritage/great-barrier-reef/long-term-sustainability-plan) |
| 1. Infrastructure Australia | 1. [*Assessment Framework Stages 2 and 3*](https://www.infrastructureaustralia.gov.au/publications/assessment-framework) 2. [*Guide to assessing greenhouse gas emissions*](https://www.infrastructureaustralia.gov.au/publications/guide-assessing-greenhouse-gas-emissions) 3. [*Innovate Reconciliation Action Plan*](https://www.infrastructureaustralia.gov.au/reconciliation-action-plan) 4. [*Valuing emissions for economic analysis*](https://www.infrastructureaustralia.gov.au/valuing-emissions-economic-analysis) |
| 1. Department of Infrastructure, Transport, Regional Development, Communications and the Arts | 1. [*Infrastructure Policy Statement*](https://www.infrastructure.gov.au/department/media/publications/infrastructure-policy-statement#:~:text=The%20Infrastructure%20Policy%20Statement%20defines,to%20deliver%20its%20policy%20objectives.) 2. [*Australian Transport Assessment and Planning Parameter values*](https://www.atap.gov.au/parameter-values/index) |
| Queensland Government | |
| 1. Department of State Development and Infrastructure | 1. [*State Infrastructure Strategy 2022-2042*](https://www.statedevelopment.qld.gov.au/industry/infrastructure/state-infrastructure-strategy) 2. [*Reducing Government Infrastructure Emissions Roadmap – Discussion Paper*](https://d15k2d11r6t6rl.cloudfront.net/public/users/Integrators/BeeProAgency/36861_8601/reducing-government-infrastructure-emissions-roadmap-discussion-paper.pdf) 3. [*Business Case Development Framework*](https://www.statedevelopment.qld.gov.au/industry/infrastructure/business-case-development-framework) 4. [*State Planning Policy*](https://planning.statedevelopment.qld.gov.au/planning-framework/plan-making/state-planning/state-planning-policy) |
| 1. Department of Environment and Science | 1. [*Waste Management and Resource Recovery Strategy for Queensland*](https://www.qld.gov.au/environment/circular-economy-waste-reduction/strategy-plans/strategy) 2. [*Climate Change Adaptation Strategy 2017-2030*](https://www.qld.gov.au/environment/climate/climate-change/adapting/strategy) 3. [*Conserving Nature – a Biodiversity Conservation Strategy for Queensland*](https://www.qld.gov.au/environment/plants-animals/biodiversity/strategy) 4. [*Biocondition Assessment Framework*](https://www.qld.gov.au/environment/plants-animals/biodiversity/biocondition) |
| 1. Department of Transport and Main Roads | 1. [*Environmental Sustainability Policy*](https://www.tmr.qld.gov.au/community-and-environment/environmental-management/environmental-sustainability-policy) 2. [*Climate change technical publications*](https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Climate-change) 3. [*Road planning and design manual - 2nd edition, Vol 3, Part 5*](https://www.tmr.qld.gov.au/business-industry/technical-standards-publications/road-planning-and-design-manual-2nd-edition) 4. [*Accessibility and inclusion strategy*](https://www.tmr.qld.gov.au/about-us/our-organisation/accessibility-and-inclusion/accessibility-and-inclusion-strategy/strategy) 5. [*Disability Standards for Accessible Public Transport*](https://www.tmr.qld.gov.au/travel-and-transport/disability-access-and-mobility/accessible-public-transport-standards) 6. *Net zero emissions transport roadmap (to be released)* 7. [*Waste 2 Resource Strategy*](https://www.tmr.qld.gov.au/community-and-environment/environmental-management/land/waste-management) |
| 1. Department of Energy and Public Works | 1. [*Queensland Procurement Strategy*](https://www.forgov.qld.gov.au/finance-and-procurement/procurement/procurement-resources/search-for-procurement-policies-resources-tools-and-templates/queensland-procurement-strategy-2023) 2. [*Ethical Supplier Mandate*](https://www.forgov.qld.gov.au/finance-and-procurement/procurement/procurement-resources/search-for-procurement-policies-resources-tools-and-templates/ethical-supplier-mandate) |
| 1. Department of Treaty, Aboriginal and Torres Strait Islander Partnerships, Communities and the Arts | 1. [*Queensland Indigenous (Aboriginal and Torres Strait Islander) Procurement Policy*](https://www.dsdsatsip.qld.gov.au/our-work/aboriginal-torres-strait-islander-partnerships/business-economic-development/queensland-indigenous-procurement-policy) |
| Other guidance | |
| 1. N/A – Journal paper from Arogundade S, Dulaimi M, Ajayi S | [*Holistic Review of Construction Process Carbon-Reduction Measures: A Systematic Literature Review Approach*](https://www.mdpi.com/2075-5309/13/7/1780) |
| 1. Transport for New South Wales | [*Beyond the Pavement – Urban Design Policy Procedures and Design Principles*](https://www.transport.nsw.gov.au/system/files/media/documents/2022/beyond-the-pavement-policy-2020.pdf) |

# Appendix B: Infrastructure sustainability management plan outline

# Appendix C: Guidance Note – Project sustainability objectives and targets

# Appendix D: Guidance Note – Infrastructure Sustainability Base Case Framework

# Appendix E: Guidance Note – Incorporating sustainability into project decision making