Manual

Environmental Processes Manual

February 2023

Queensland
Government

Contents

Part A – Context and Connections

1   Introduction

This manual outlines the environmental process for transport infrastructure projects delivered by the Department of Transport and Main Roads.

Application of this process at all phases of project delivery supports Transport and Main Road's ability to:

- Meet our general environmental duty as required by the *Environmental Protection Act 1994*

- Demonstrate compliance with state and federal environmental legislation

- Manage the performance of our functions and operations in accordance with the *Transport Infrastructure Portfolio Governance Framework* (2017), and

- Deliver on the commitments of our *Environmental Sustainability Policy*.

The process outlined in this manual must be integrated into all phases of project delivery and is not the sole responsibility of environmental resources. Environmental management is a multi-disciplinary process. Inputs into environmental assessments are required from planners, designers, and project managers. The output of environmental assessments are provided back to the broader project team, including designers, structural engineers, geotechnical engineers, pavement engineers, project managers and contract administrators to consider in association with other project factors.

Figure 1 – Discipline inputs and outputs for environmental process
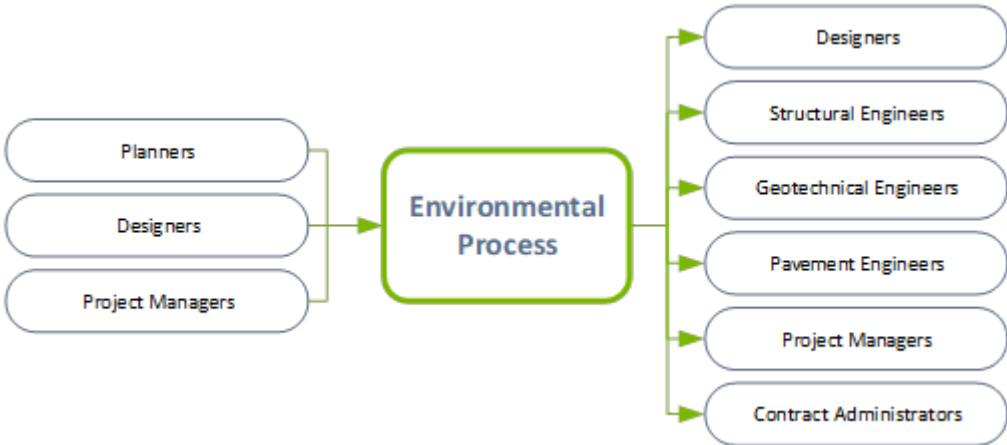
2   Our Environmental Process

2.1   Process Overview

Figure 2, shows at a broad level, the environmental process within Transport and Main Roads. This process is based on the Plan-Do-Check-Act (PDCA) Model in AS/NZS ISO 14001:2016 *Environmental Management Systems*, and is scalable and adaptable for any type of departmental project. As a project progresses through each phase of the project delivery life cycle, this process may need to be repeated several times. There is further information on the relationship between these steps and the project delivery phases in Section 3.2.

Figure 2 – Overview of Transport and Main Road's Environmental Process
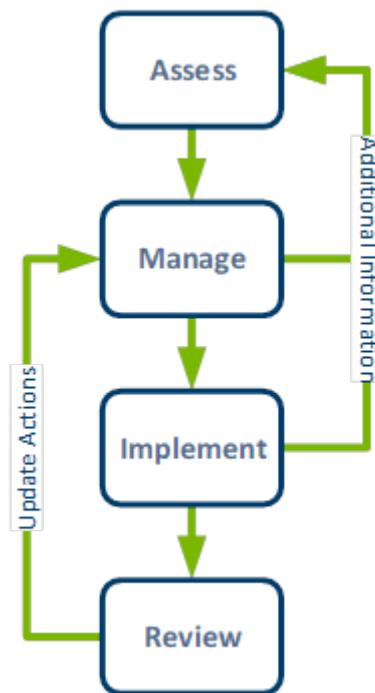
Sections 7, 8, 9, and 10 provide further details on each of these steps. Depending on the project delivery phase, each of the steps in the environmental process will be delivered through specific actions, supported by templates and accompanying guidance notes to ensure the project satisfies the relevant requirements. The actions and supporting templates are part of the department's Environmental Management System (EMS). Links to the templates and guidance notes are provided in Section 11 of this manual.

The environmental process should be started as early as possible to ensure early identification of impacts on project delivery time and cost, and to ensure relevant licences, permits and approvals are obtained in time. The assessment needs a suitable level of detail to ensure environmental impacts and legislation triggers are accurately identified.

2.2   Accountabilities and Responsibilities

Project Managers are responsible for ensuring the environmental process is implemented on their projects (refer Transport and Main Roads environmental accountabilities and responsibilities in the department's EMS). This means that they are responsible for:

- Effective management of environmental risks to ensure they are costed or managed to allow the project to proceed fulfilling its obligations in a legal and financially sustainable manner

- Engaging appropriate resources to deliver the actions of the relevant delivery phase

- Ensuring management measures are integrated into planning and design including obtaining relevant licences, permits and approvals, and included in contract documents to ensure implementation during construction

- Monitoring and reviewing environmental management performance and implementing appropriate corrective action where required, and

- Reporting environmental performance.

Project Managers are supported by Transport and Main Roads Environmental Officers. The Environmental Officer's role is to:

- Provide expert advice on environmental issues and risks

- Oversee the implementation of the environmental process, in particular the specific actions delivered at each phase of the project

- Monitor performance through audits / inspections, and

- Support the District / Region with training and awareness.

2.3 Environmental Process Delivery

Over the project delivery lifecycle, the environmental process is delivered by multiple individuals across multiple disciplines. Table 2.3 identifies the roles that are typically involved.

Table 2.3 – Roles involved in environmental process

Name of Role	Internal to TMR	External to TMR
Environmental Officer	X	
Environmental Advisor – typically part of a Concept or Design Contractor's team		X
Technical Discipline – person with specialist skills and knowledge of a Factor.	X	X
Project Manager	X	X
Designer	X	X
Contract Administrator	X	X
Environmental Representative		X

The Project Manager should engage the department's Environmental Officer for the project as early as possible to ensure timely advice and minimise impacts to project delivery schedule and costs. Section 7.1 discusses how to engage the department's Environmental Officer.

Section 3.3 discusses how external resources are engaged to deliver the environmental process. The Transport and Main Roads Environmental Officer should be involved throughout the project in an interface role. This will minimise communication breakdown between resources, resulting in poor environmental outcomes. The department's Environmental Officer can provide oversight, develop engagement briefs, review delivered work and provide advice on commitments being made to ensure that long term implications for Transport and Main Roads are identified and can be appropriately managed. For example, offset commitments often extend beyond the construction phase, and have implications for corridor management.

3 Integration with Transport Infrastructure Project Delivery

3.1 Investment Programs

Transport and Main Roads manages a large and diverse portfolio of transport infrastructure assets and delivers a significant investment of works for future transport infrastructure in Queensland. This Transport Infrastructure Portfolio (TIP) is delivered through Investment Programs which each have their own distinct governance, management and reporting arrangements.

Projects being delivered under the Investment Programs listed in Table 3.1, are required to follow the environmental process outlined in this manual. Despite the differences in how investment programs are delivered, the basic steps of the environmental process do not change.

If a project under another Investment Program is likely to have an impact to the environment, the environmental process outline in this manual can be followed. It is recommended that the Transport and Main Roads Environmental Officer is contacted to understand how the process may need to be adapted for the project.

Table 3.1 – Investment programs that should apply the environmental process

Program	Scope
Active Transport	• Investment in capital or supporting infrastructure for Active Transport (cycling, walking and other physically active ways of travelling that can be undertaken alone or combined with public transport or other modes). • Investment in projects and activities that deliver on strategic frameworks such as the Queensland Cycle Strategy and the Queensland Walking Strategy.
Bruce Highway Upgrades	All funded projects on the Bruce Highway, excluding: • Delivery of Bruce Highway Planning projects funded under the Transport System Planning Program Investment Program (TSPPIP) • Maintenance Preservation and Operations (MPO) projects, and • Complementary works, for example Wide Centreline Treatments funded from other investment programs.
Maritime Infrastructure	• Maritime network testing, maintenance and constructing (including QG Norfolk Services) • Boat harbour and ferry terminal infrastructure • Queensland on water aids to navigation network including network expansion and redesign • Recreational boating infrastructure and maintenance, and • Funding to local governments for boating infrastructure.
Maintenance Preservation and Environment	• Programmed maintenance • Surfacing treatments – Skid Resistance Management (E29) • Rehabilitation – Pavement Rehabilitation (E18); Bridge and Culvert Rehabilitation (E19), Batter Slope Management (E27) • Routine maintenance – Routine Maintenance (Sealed & Unsealed) (E15), Unsealed Road Resheeting (E16), Preventative Maintenance (Sealed) (E17) • Grids, guidance and delineation – Management of Grids (E7), Roadside Signing (E23), Roadside & Surface Delineation (E24) • Corridor management – Contaminated Areas (E1), Nature Conservation (E2), Degraded Areas (E3), Heritage Preservation (E4), Invasive Plants and Animals (E5), Fire Risk Management (E6), Road Traffic Noise Management (E9), and • Data collection (E70).
Natural Disaster Program	Eligible works to repair the transport network in Queensland following natural disasters activated under the Disaster Recovery Funding Arrangements.
National Land Transport Network Upgrades	Investment relating to capital upgrade to the road component of the NLTN (excluding franchised roads and the Bruce Highway), as defined by the National Land Transport Network determination 2014.

Program	Scope
Rail Infrastructure	Includes construction or upgrade of rail infrastructure on the rail network (including rollingstock, passing loops and so on).
State Road Network Upgrades	- Road infrastructure enhancements on the State Strategic, Regional and District Road Networks - Road capacity upgrades and overtaking lanes - Pavement strengthening and widening - Bridge and major culvert replacements - Realignments, deviations and bypasses - Interchanges and grade-separation State Road Network Upgrades Investment Program - Large scale intersection upgrades (not funded by Black Spot or Safer Road Sooner programs) - Flood immunity upgrades - Freight facilitation upgrades (for example, decoupling pads, heavy vehicle rest areas) - New and upgrades to noise barriers - Batter slope stability works, and - Sealing of unsealed roads.
Targeted Road Safety Program	Low-cost, high-benefit investments to deliver improvements on the road network to mitigate identified safety concerns.
Transport System Planning Program	Planning projects across all modes and all regions with projects ranging from strategic, state-wide planning through to business case development.

3.2   Integrated Project Management Framework

The Integrated Project Management Framework has been developed to assist in the delivery of transport infrastructure projects using a single integrated OnQ methodology, based on the latest, global best practice approach. This framework covers the OnQ and Queensland Project Assessment Framework (PAF) project management processes that support the delivery of transport infrastructure projects.

The OnQ methodology uses five phases to define the project lifecycle:

- *Planning*
- *Concept*
- *Development*
- *Implementation*, and
- *Finalisation*.

PAF is used across government to ensure a common, rigorous approach to assessing projects at critical stages in their lifecycle, from the initial assessment of the service required, through to delivery. These assessments are referred to as Gates and have templates for the deliverables required for each Gate. These templates are separate to the templates supporting the delivery of Transport and Main Road's environmental process though these may feed into the PAF deliverables. The alignment of the PAF Gates with the OnQ project phases is shown in Figure 3.2(a).

Figure 3.2(a) – Alignment of OnQ and Major Project (PAF) deliverables with OnQ project phases (Integrated Project Management Framework)
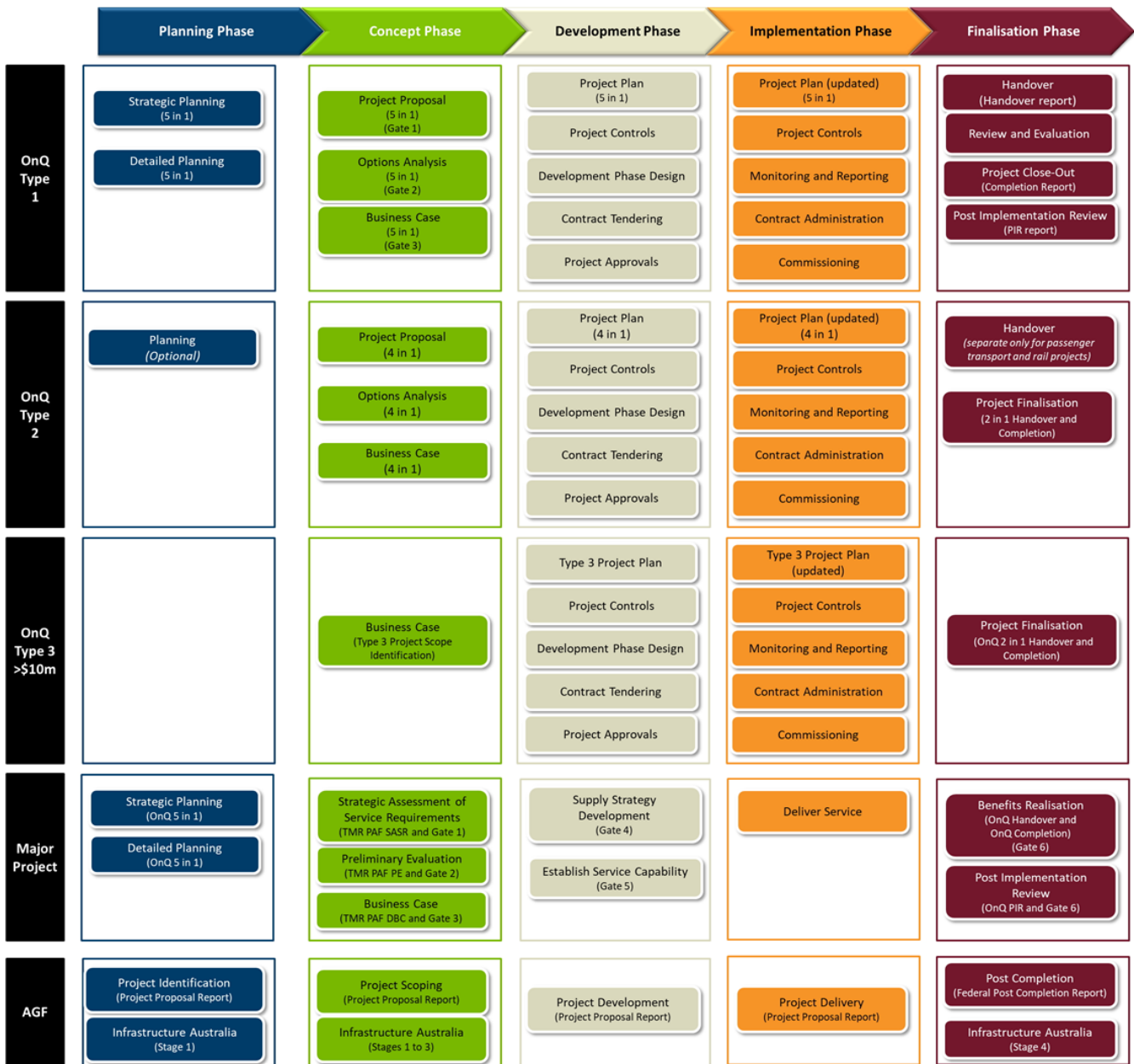
In each phase of the project delivery lifecycle the environmental process has a slightly different focus.

- In the *Concept Phase* the focus is on early identification of issues that will impact on the environment. In this phase, it is also important to identify the potential time and cost impacts to the project to deliver the recommended environmental management.

- In the *Development Phase* of the project, there may need to be more assessment but there is also a shift in focus to developing solutions to address the identified issues. Towards the end of the *Development Phase* there is a move towards management of issues that relate to the construction of infrastructure.

- In the *Implementation Phase* the focus is on managing the construction impacts, however this does need to be balanced with impacts that will be realised in the operation of the infrastructure that is being constructed. It is important that during the *Implementation Phase* that decisions are made that do not result in issues just being shifted to the operation of the assets.

The typical relationship between the project lifecycle and Transport and Main Road's environmental process is shown in Figure 3.2(b). In the diagram each project phase has a colour associated with it. This association has been used in other diagrams in the Manual. Generally, the environmental process does not start until the *Concept Phase*. This is because the *Planning Phase* of a project is focused on identifying transport related impacts that need to be addressed rather than looking at constraints to potential projects. The Assess step in the environmental process can start in the *Concept* or *Development Phase* of a project which is why it is shown as overlapping these phases in the diagram. The desktop assessment part of the *Assess* step should be commenced as early in the project lifecycle as possible to assist with early identification of risks.

The risk identification process is described in Section 4.

While the *Manage* step is shown as being within the *Development Phase* of the project there is a need for management in all project delivery phases. The *Manage* step focuses on the development of management actions and is described in more detail in Section 8.

Figure 3.2(b) – *Typical relationship between project life cycle and environmental process*

The sequential actions (or steps) that deliver the environmental process in the *Concept*, *Development* and *Implementation Phase* are show in Figure 3.2(c) and Figure 3.4(d). These sequential actions show where the environmental process must loop back through *Assess-Manage-Implement-Review* cycle as the project delivery lifecycle progresses. The background colour of the step is an indication of what project delivery phase the step occurs in. There is more information on each of the actions and supporting templates in later sections of the manual. These diagrams show the templates that should be used for all projects, and the templates which can be used as required. Some steps in the process do not have any templates developed.

The templates and other deliverables that support the environmental process can be adapted for each project to ensure that they meet the requirements for the project. Where there are departures from the process, actions and deliverables described in this manual, they should be documented in the project records.

Figure 3.2(c) – Environmental Process for Concept and Development Phases
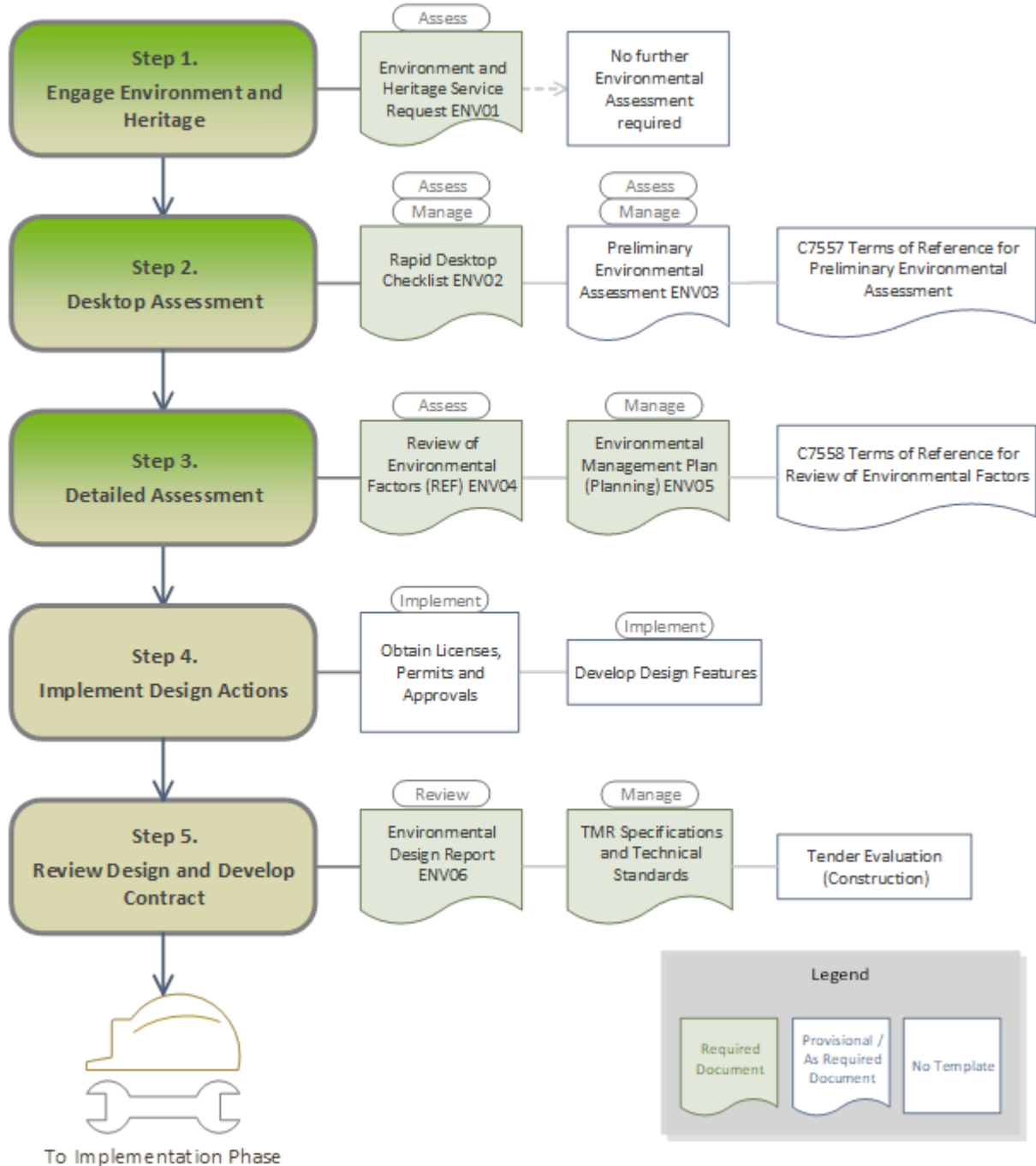
Figure 3.2(d) – Environmental process for Implementation Phase
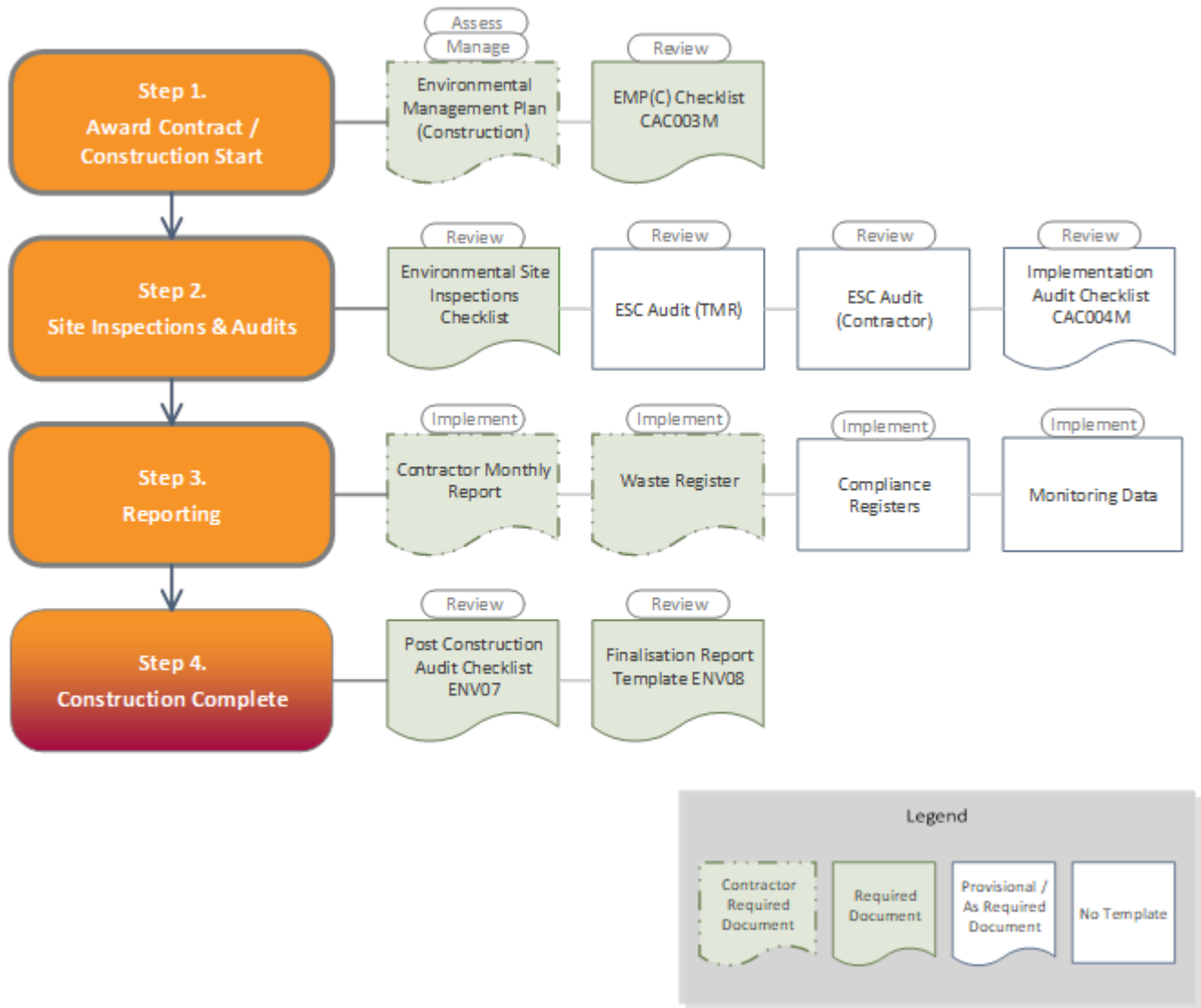
3.3   Procurement for External Delivery of Environmental Process

At all phases in the project delivery lifecycle, work on the project and on the environmental deliverables can be completed by staff internal to Transport and Main Roads or external to Transport and Main Roads. When work is delivered by an external resource, a Brief of Work is developed for this engagement. Generally, the format for a Brief of Work will be associated with the procurement method that is being used. Transport and Main Roads has a range of standard documents to prepare Briefs of Work for delivery of the environmental process during the *Concept*, *Development*, and *Implementation Phases* of the project. The documents used for *Concept* and *Development Phase* work are called Functional Specifications. The documents used for *Implementation Phase* work are called Technical Specifications.

3.3.1   Consultants for Engineering Projects

The *Consultants for Engineering Projects Manual* (CFEP) addresses the specific requirements for consultants on engineering projects. During the *Concept* and *Development Phases*, where work is externally delivered, Functional Specifications are used to define the work. These Functional Specifications are generally prepared by the Project Manager with input from the project team, including the Environmental Officer.

Table 3.1.1 describes the Functional Specification document used in the different project delivery phases, and the typical environmental deliverables. The Project Manager should get agreement with the departmental Environmental Officer on what customisation is required to the Functional Specification for the project as there are several matters that need to be considered including:

- Environmental work completed to date and what needs to be completed for the project

- Impact of environmental constraints on project delivery

- Transport and Main Roads Environmental Officer availability

Table 3.1.1 – Functional Specifications

Phase	Document Name	Environmental Assessment and Management
Concept	C7521 *Options Analysis*	Environmental Management generally includes a desktop assessment. Depending on the types of options considered it may require a desktop assessment for each option or a single desktop assessment
	C7522 *Business Case*	Environmental Management may include the desktop assessment followed by a detailed assessment. If a previous desktop assessment has identified the environmental constraints have a high impact on project delivery then a detailed environmental assessment should be included.
Development	C7523 *Preliminary Design*	Environmental Management will either be a revision of previously completed work and completion of a detailed environmental assessment where one is not previously completed.
	C7524 *Detailed Design*	Environmental Management should be a review of previously completed work and implementation of the actions recommended for the design. Completion of detailed environmental assessment where a detailed environmental assessment has not been previously completed

In all the Functional Specifications, Section 2.3 Environmental Management, describes the work that is needed to meet the requirements of the *Environmental Process Manual*. The Functional Specifications and the associated Annexures both need to be customised for project needs. Within each of the Functional Specifications, there is an environmental management section, which should be updated for the requirements of the project. The customisation will include identification of previous reports and listing what deliverables need to be completed. The Functional Specifications do not describe the assessment method, this is covered by two Terms of Reference documents. This relationship is shown in Figure 3.1.1.

The purpose of the Terms of Reference is to describe the assessment method. One or both of the following documents may be referenced in the environmental management section of the Functional Specification:

- C7557 *Terms of Reference for the Preliminary Environmental Assessment*

- C7558 *Terms of Reference for Review of Environmental Factors*.

There is more information on C7557 in Section 7.2.1 and in GN005 C7557 ToR for PEA.

There is more information on C7558 in Section 7.3.1 and in GN006 C7558 ToR for REF.

Figure 3.1.1 – Relationship between Functional Specifications and Terms of Reference
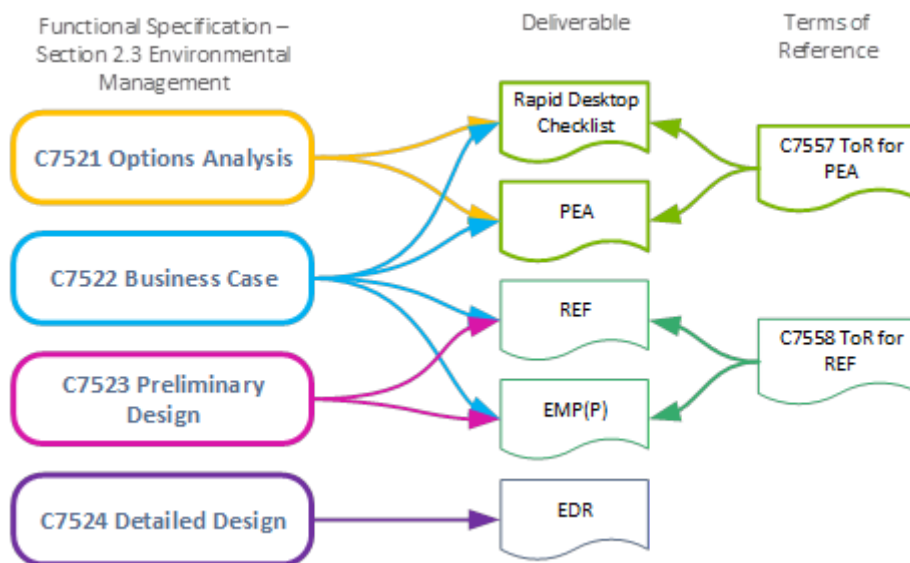
Noise, vibration, and air assessments are part of the assessment process but the requirements for these assessments are described in the relevant Functional Specification.

Cultural Heritage is not part of the assessment process. C7559 *Terms of Reference for Cultural Heritage Assessments* describes the requirements for Cultural Heritage assessments.

3.3.2 Transport and Main Roads Specifications

Depending on the specific contract type, Transport and Main Roads Specifications are used during the *Implementation Phase* of departmental projects to describe what should be done during construction and how it should be done. Section 3.4 lists the relevant contract types. Transport and Main Roads Specifications consist of up to three parts:

- Technical Specification (MRTS) - describes how we want the work done and the details of the work to be completed

- Measurement Specification (MRS) - describes the standard work items

- Annexure - describes the project specific requirements which customise the Technical Specification.

Table 3.3.2 identifies the Technical Specifications relevant to environmental management. The Measurement Specification and Annexure must also be considered.

Table 3.3.2 – Relevant Technical Specifications

Technical Specification	Environmental Management Relevance
MRTS01 *Introduction to Technical Specifications*	This Technical Specification contains definitions of terms and interpretation of clauses common to many Technical Specifications, and MRS01 is useful for understanding schedule of rates and work items.
MRTS02 *Provisions for Traffic*	This Technical Specification applies to the control of traffic during roadworks and describes the project specific requirements for control of all traffic through the roadworks site. This Technical Specification includes requirements for side-tracks so it is important to identify any conflicts with clauses that limit the extent of disturbance, including clauses in MRTS51 *Environmental Management* relevant to vegetation clearing.
MRTS04 *General Earthworks*	Site clearing and bulk earthworks is managed within MRTS04 *General Earthworks*. Management measures relating to vegetation clearing and acid sulphate soils are included in this specification but there is interaction with the environmental management requirements in MRTS51 *Environmental Management*.
MRTS15 *Noise Fences*	This Technical Specification applies to the design and construction of noise fences.
MRTS16 *Landscape and Revegetation Works*	This Technical Specification describes the permanent landscaping and revegetation requirements for a project
MRTS51 *Environmental Management*	This is the main Technical Specification for environmental management during construction. Some Environmental Factors (see Section 4.1 for definition) and specific management actions are described in other specifications.
MRTS52 *Erosion and Sediment Control*	The management of Erosion and Sediment Control (ESC) is typically covered by this Technical Specification.

A step-by-step guide for preparing MRTS Annexures is in GN011 MRTS Annexures.

3.3.3   Other Briefs of Work

There are situations where the Functional Specifications or Transport Main Roads Specifications are not suitable. This can happen where the work required is unique, such as delivery of project environmental offsets; or where these specifications are too broad, such as the need to get a flora survey or deliver noise barrier only projects. In these instances, project specific briefs will need to be developed. The format of these briefs will depend on how the work is being procured and what contract is being used.

3.4   Infrastructure delivery contracts

Transport and Main Roads uses a range of contracts for the delivery of infrastructure works and these are described in the *Transport Infrastructure Project Delivery System* (TIPDS) Volume 1 (Selection of Delivery Options). Each of the contract types and how environmental management is incorporated is described in Table 3.4(a). Each contract will include a Brief of Work which will either be one of the standard briefs or a project specific brief as described in Section 3.3.3. The delivery strategy for a transport infrastructure project is generally determined in the *Concept Phase*.

Table 3.4(a) – Infrastructure delivery contracts and environmental management sections

Contract	Environmental Management Documentation	Typical projects that use this Contract
First Response Emergency Works Contract (FREW)	Not included as emergency works are exempt from environmental assessment.	Projects that fix infrastructure after a declared disaster
Infrastructure Building and Construction Panel (IBCP) Contract	Functional Specification or project specific Brief of Work referencing C7557 and C7558 as required.	Projects that are in the Planning, Concept or Development Phase
Small Scale Minor Works Contract (SSMW)	No set section for environmental management, requires project specific brief. Can add sketches, drawings, and specifications to customise this contract.	Contract value is less than $80K
Minor Infrastructure Contract (MIC)	MRTS51 *Environmental Management* Technical Specification and Annexure. Other Technical Specifications such as MRTS52 *Erosion and Sediment Control* and MRTS16 *Landscape and Revegetation Works* used as required.	Simple low risk projects such as reseals, small intersections, landscaping, noise ameliorants
Transport Infrastructure Contract (TIC)	MRTS51 *Environmental Management* Technical Specification and Annexure. Other Technical Specifications such as MRTS52 *Erosion and Sediment Control* and MRTS16 *Landscape and Revegetation Works* used as required.	Infrastructure projects ranging in value and complexity
Road Asset Management Contract (RAMC)	RAMC Appendix L	Projects in south-east Queensland that are for asset management and maintenance services
Road Maintenance Performance Contract (RMPC)	RMPC *General Conditions of Contract* Section 10.5	Routine maintenance projects
Design and Construction (D&C) • TIC-DC • MIC-DC • Early Contractor Involvement (ECI) with Collaborative Project Agreement (CPA)	Scope of Work and Technical Criteria (SWTC) – project specific document that defines what is to be delivered and the standards to which the works must be designed and constructed. May reference MRTS.	Complex, high-value projects

It is possible to combine briefs of work and contracts in multiple ways, but the most common combinations are shown in Table 3.4(b).

Table 3.4(b) – Typical combination of brief of work and contract for a various project phases

Phase	Brief for environmental work	Contract
Concept	Section 2.3 of Functional Specification C7557 *Terms of Reference for Preliminary Environmental Assessment*	IBCP
Development	Section 2.3 of Functional Specification C7558 *Terms of Reference for Review of Environmental Factors*	IBCP
Implementation	Technical Specification: MRTS51 *Environmental Management* MRTS52 *Erosion and Sediment Control*	TIC and others
Design and Implementation	SWTC	D&C
Maintenance	RMPC *General Conditions of Contract* Section 10.5	RMPC

Where projects are to be delivered using a D&C Contract it is important that the *Assess* step in the environmental process is completed prior to the Business Case.

4   Risk Assessment

Transport and Main Road's *Risk Management Framework* provides guidance on risk management practices and processes. Risk appetite is a term used to describe the amount of risk which the Department of Transport and Main Roads considers to be acceptable in pursuit of its strategic and operational objectives. The department has a low risk appetite (risk averse) for damaging or polluting the environment. The department will choose options that preserve and protect the environment, including by reducing greenhouse emissions from Transport and Main Road's operations and throughout the transport system.

This section describes Environmental Factors and explores how Factor risk is identified and how the Factor risks are combined to determine the impact to project delivery.

4.1   Environmental Factor

The environmental process considers many parts of the natural and built environment (for example, water quality, fauna or noise). In Transport and Main Road's environmental process, each of these parts is referred to as an Environmental Factor. The list of Environmental Factors used by the department are in Table 4.1. Some Environmental Factors are further broken down into sub-factors and these are shown as the Level 2 Factors.

Table 4.1 – Environmental Factors

Factor Level 1	Factor Level 2
Water	Surface Water
	Marine Water and Coastal Environments
	Ground Water
	Water Quality

Factor Level 1	Factor Level 2
Soil and Land	Contaminated Land
	High risk soils
	Topography and Landscape Features
	Construction Activities
Ecosystems and Habitats	Breeding Places
	Qld Waterway for Fish Passage
	Fish Habitat Areas
	Protected Ecosystems and Habitat State
	Protected Ecosystems and Habitat Commonwealth
	Wetlands
Fauna	Protected Fauna State
	Protected Fauna Commonwealth
Flora	Protected Flora State
	Protected Flora Commonwealth
Biosecurity matters	Biosecurity Zone
	Restricted and Prohibited Matters
	Other Biosecurity Matters
Air	Sensitive Receptors
	Earthworks
	Road traffic
Noise and Vibration	Sensitive receptors
	Night Works
	Road Traffic Noise Including heavy Vehicles
	Critical or Vulnerable Infrastructure
Amenity	Sensitive Receptors
	Night Works Lighting
	Temporary Access and Pedestrian Pathways
Resource Use and Waste	Storage of Materials
	Disposal of Materials
	Sourcing of Materials
	Energy Efficiency
Special Areas and Land Tenures	State Special Areas and Land Tenures
	Commonwealth Special Areas and Land Tenures
Offsets	
Climate change	Mitigation
	Adaptation and resilience

4.2   Factor Risk

In the environmental process, risk should be assessed during *Planning*, *Concept* or *Development Phases* as part of the *Assess* step. The Factor risk assessment uses the information from the assessment (desktop or detailed) and the current project scope. Determination Factor risk requires professional judgement as each Factor will include numerous impacts (or consequences) which will need to be considered.

The Factor risk should use the following risk statement:

> *'Risk of detrimental impacts in either construction or operation, on the Factor due to the project'.*

The Factor risk is determined from project specific consequence and likelihood as defined in the Transport and Main Roads Risk Assessment and Ratings Matrix. This risk is the unmitigated risk, that is, the risk prior to implementation of management measures.

The department has adopted the AS/NZS 4360:2000 standard on risk management as the basis of its department wide Risk Management Methodology. The Transport and Main Roads Risk Assessment and Ratings Matrix is published on the department's intranet. The Ratings Matrix includes consequence definitions for a variety of risk dimensions including:

* environmental

* reputational, and

* legal and compliance.

An extract of the consequence definitions for these risk dimensions in shown in Table 4.2(a).

Table 4.2(a) – Consequence definitions for selected risk dimensions (Transport and Main Roads Risk Matrix)

Consequence Levels	Risk Dimensions		
	Environmental	**Legal and Compliance**	**Media and Reputation**
Severe	Irreversible impact on the environment including ecosystems and air quality or community health impact that covers a wide area, or is of high intensity, and/or is difficult to contain. Irreversible impact to conservation areas or Endangered Vulnerable and Near Threatened species. Significant breach of legislation resulting in prosecution Potential for inquiry and widespread high-level public concern Ministerial Intervention	Major breach (non-compliance) with regulation/legislation that requires parliamentary inquiry	Significant and prolonged adverse community impact (months) Prolonged negative media attention (months) Campaign for change through media Irreparable loss of community confidence in the organisation Cabinet/ Executive level/ Whole of Government/ Ministerial intervention

Consequence Levels	Risk Dimensions		
	Environmental	Legal and Compliance	Media and Reputation
Major	Medium to long-term impact on the environment including ecosystems and air quality or community health impact that requires specific specialist actions to contain Major breach of environmental legislation (including restoration orders) Potential for high level public concern in a regional area D-G Intervention	Major breach (non-compliance) with legislation, regulation, policy or contract/agreement	Considerable adverse community impact and concerns (weeks) Significant negative media attention (weeks) Significant loss of community confidence in the organisation
Moderate	Temporary impact on the environment where the impacts are on a medium scale Breach of or non-compliance with environmental legislation Potential for moderate public concern	Non-compliance with legislation, regulation, policy or contract/agreement	Widespread community impacts and concerns (days) Significant negative media attention (days) Loss of community confidence in the organisation The impact will be of major interest to a number of external groups
Minor	Short-term impact on the environment limited to a small area and can be rectified using an existing process Non-compliance with environmental legislation not resulting in environmental harm but with minor potential environmental impact e.g. environmental nuisance	Minor non-compliance with legislation, regulation, policy or contract/agreement	Local community impacts and concerns Occasional once off negative media attention Loss of confidence in organisation is easily restored The impact will be of interest to small localised external groups
Insignificant	Minimal short-term effect on the environment Minor to no action required for management or containment Administrative breach of legislation that could not be anticipated or prevented with no environmental harm	Does not affect compliance with legislation, regulation, policy or contract/agreement	Individual concerns Minimal media attention No interest to external groups

It is important that the impacts from all phases of the project are considered in the determination of the Consequence for a Factor. While most impacts occur during construction, the completed infrastructure asset will also have operational impacts that should be included in the assessment.

When choosing the Consequence for a Factor, consideration needs to be given to the Likelihood of a given impact occurring. It is the combination of high Consequence and high Likelihood that results in high risk.

In general, environmental impacts that have a higher consequence will have a higher level of government regulation. There is a correlation between the type of approvals that are required for a Factor and the Transport and Main Roads defined consequence levels. This correlation is shown in Table 4.2(b) which shows the increasing complexity of approvals required for higher consequences.

Table 4.2(b) – Additional guide to consequence levels based on approval requirements

Consequence	Type of approval or management
Severe	Approval that requires offsets
Major	Approval
Moderate	Accepted Development Code

The following scenarios show the process of determining the impacts for a Factor then using professional judgement to determine the risk outcome.

Example Scenario 1 – Assessment of Risk for Fauna:

The project will involve clearing of previously disturbed areas with foraging habitat, an endangered regional ecosystem which is breeding habitat for a threatened species and clearing of a not-of-concern regional ecosystem which may contain breeding habitat for common species. The threatened species is moving through the project area and will have to cross the road to move between areas of breeding habitat.

Fauna Impacts	Project Phase	Consequence	Likelihood	Risk
Clearing vegetation, unlikely to be breeding places present due to previous disturbance	Implementation	Minor	Unlikely	Low
Clearing native vegetation, potential foraging and breeding habitat for common species	Implementation	Moderate	Possible	Medium
Breeding habitat for threatened species may be cleared	Implementation	Severe	Possible	High
Increase in road fatalities when moving between breeding habitat	Operation	Major	Almost certain	Extreme
Overall Result		Major	Almost certain	Extreme

In this example the operational impact of increased road fatalities represents the highest level of risk for the Factor, therefore that is what should be used to define the Factor risk. In this case, the highest Risk is not associated with the highest Consequence, which demonstrates the need to consider the likelihood of a given impact when determining the Factor risk.

Example Scenario 2 – Assessment of Risk for Noise and Vibration:

An existing intersection is being upgraded to increase its traffic capacity. Additional lanes are being added to the outside of the existing footprint but all work will be contained within the existing road corridor. The project is in a residential area with some commercial properties including a day-care centre.

Noise and Vibration Impacts	Project Phase	Consequence	Likelihood	Risk
Sensitive receptors disturbed by construction noise due to demolition of parts of existing roads and construction of new lanes	Implementation	Minor	Almost certain	Medium
Sensitive receptors disturbed by night works (for laying asphalt during construction).	Implementation	Minor	Likely	Medium
Sensitive receptors disturbed by vibration compaction during construction of new lanes	Implementation	Minor	Unlikely	Low
Sensitive receptors impacted as noise source (through traffic) will be located closer	Operation	Major	Almost certain	Extreme
Sensitive receptors impacted by overall increased in road noise associated with increased traffic volumes through the intersection	Operation	Moderate	Possible	Medium
Overall Result		Major	Almost certain	Extreme

In this example the operational impact due to the through lanes moving closer to sensitive receptors is highest level of risk for the Factor, therefore that is what should be used to define the Factor risk. In this case the highest Risk is associated with the highest Consequence. In this example the operational Risks are higher than the implementation Risks. This demonstrates the need to consider operational impacts in the assessments of projects.

After the Factor risk is identified, actions are then recommended to address the risk to reduce it as low as reasonable and practicable. Recommended actions can be for any phase of the project. Some typical management measures used on infrastructure projects are described in Table 4.2(c).

Table 4.2(c)   Examples of risk mitigation activities for project phases

Factor	Design	Implementation
Fauna	Realignment of a section to minimise impact to protected habitat. Inclusion of fauna infrastructure to minimise impact on fauna and promote connectivity during operation of the infrastructure	Temporary fauna exclusion fencing to keep fauna out of construction areas. Exclusion zones when fauna observed within construction impact areas.
Noise and Vibration	Noise modelling to determine impacts. Design of noise barriers	Restricted hours for construction. Exclusion zones for certain types of equipment

Environmental Factors can impact project delivery, specifically cost and time, due to legislative and Transport and Main Roads requirements. The combined assessment of Factor Risks can give an indication of the overall impact to project delivery which is discussed further in the next section.

4.3 Impact to Project Delivery

Figure 4.3(a) shows the relationship between the impact of the project on the environment, which in turn has repercussions for the management of the project. A project has consequences for the environment. The consequences of the project on the environment trigger environmental regulation. Environmental regulation creates constraints on the project. The concept of this relationship is referred to as the impact of the environmental constraints on project delivery.

Figure 4.3(a) – Consequence – Constraint relationship between Project and Environment
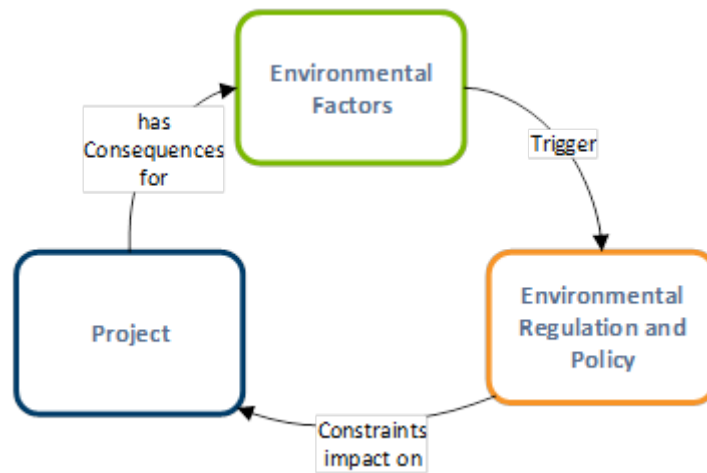
Higher levels of regulation result in higher impacts to the project delivery as time and resources are required to prepare approval documents and negotiate approval conditions.

The impact of the environmental constraints on project delivery is categorised as Low, Medium or High. This split is based on the point in the process where the cost and time impacts to the project can be reasonably estimated. Figure 4.3(b) shows how the environmental process differs based on the impact of the environmental constraints.

The impact of the environmental constraints to project delivery is initially determined using a desktop assessment which is described in Section 7.2.

- For projects categorised as Low, the desktop assessment is enough to determine the impacts, management actions required, and costs to the project.

- For projects categorised as Medium, the desktop assessment is enough to estimate the costs to the project however additional assessment is required early in the Design phase to determine the impacts and management actions.

- For projects categorised as High, the detailed assessment is necessary to determine future costs (which are likely to be significant) and to assess the impacts and management actions. This assessment should be completed prior to the Business Case to ensure that sufficient cost and time is allowed for environmental management in the design and implementation phases of the project.

For reporting purposes, the impact of environmental constraints on project delivery is recorded for all projects. Where the environmental process is not applicable to a project it is recorded as having negligible impact.

It should be noted, if a project is going to be delivered using a D&C contract then the detailed assessment should be completed prior to the business case regardless of the level of impact of the environmental constraints on project delivery.

Figure 4.3(b) – Process difference based on impact of environmental constraints to project delivery
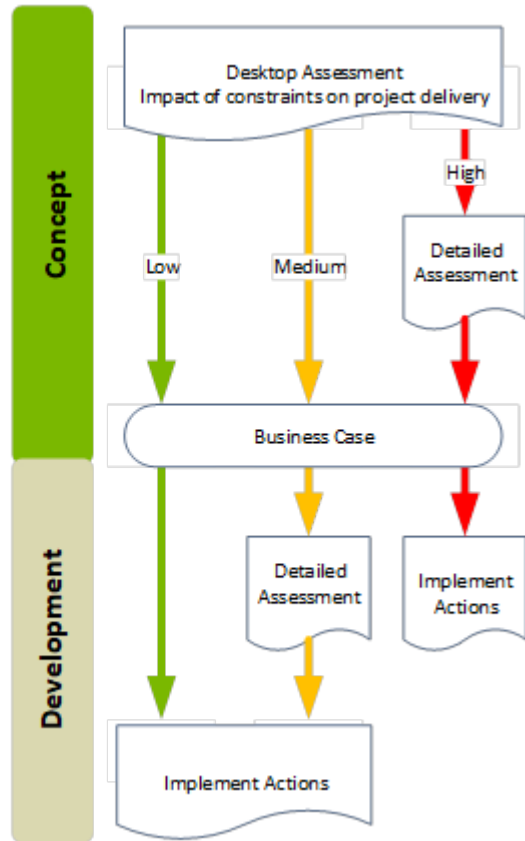
Desktop Assessment – See Section 7.2 for more information.

Detailed Assessment – See Section 7.3 for more information.

Implement Actions – See Section 9 for more information.

The impact of the environmental constraints on project delivery is determined from the Factor risk assessments. Each Factor risk is given a value in as shown in Table 4.3(a). The Factor risk values are summed and classified as show in Table 4.3(b).

Table 4.3(a) – Factor risk value

Level	Value
Low	1
Medium	2
High	3
Extreme	4

Table 4.3(b) – Impact to project delivery

Level	From	To
Low	12	18
Medium	19	29
High	30	44

Figure 4.3(c) shows examples of three fictional projects where the environmental constraints have Low, Medium, or High impact to project delivery. The pie charts show the distribution of Factor risk for each project with some notes on each project underneath. It is important that where the environmental constraints have a High impact to project delivery that detailed assessments are completed as early as possible so that the Factor risks can be better understood and managed.

Figure 4.3(c) – Example of Factor risk distribution for different levels of impact to project delivery
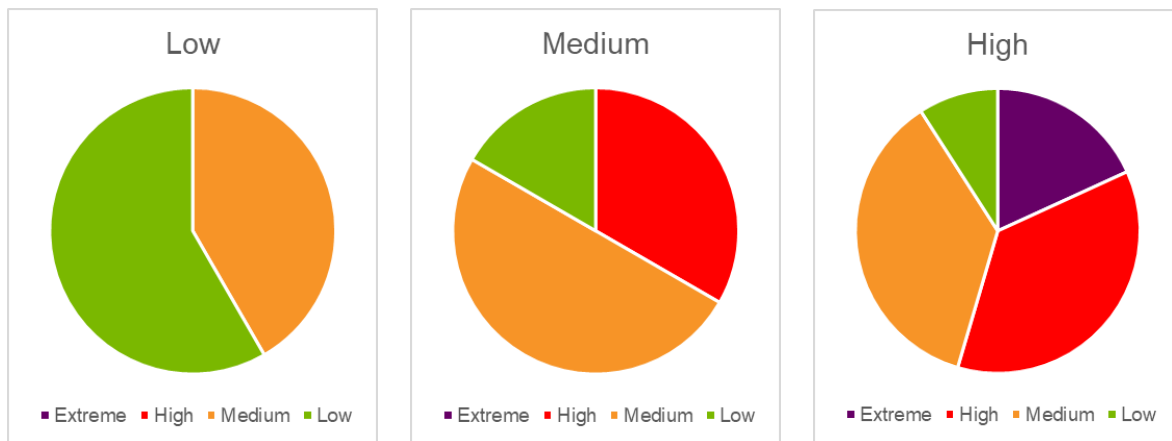
Some native vegetation and problem soils present.
Well understood solutions to issues.

Potential Develop Application for fish passage and Species Management Program for platypus.

Detailed assessment required for most factors.

Potential for Development Application and EPBC Referral.

Most factors require high-risk field assessment.

5   Legislation and Transport and Main Roads requirements

Transport and Main Roads has many legal obligations to consider the environment, including a General Environmental Duty to the environment as required by the *Environmental Protection Act 1994*.

Departmental activities associated with delivery of transport infrastructure projects frequently trigger externally administered environmental approval processes. Transport and Main Roads is legally bound to comply with the requirements of these external approvals. As a government agency, the department should actively assist other departments achieve the objects of their legislation.

The identification of the legislative requirements triggered by the project scope, and required actions, is a significant task. and to action those requirements accordingly. The desired outcome of this task is to minimise the harm to the environment and comply with legislative requirements in a manner and timing so as not to negatively impact on the project implementation.

The State Government and Transport and Main Roads also have many polices and strategic plans that encourage environmental management which is beyond just compliance with legislation.

5.1   Legislation RECAP

The Legislation Register for Environment, Cultural Heritage, Corridor Management And Public Utility Management (Legislation RECAP) has been developed by Transport and Main Roads to identify, communicate, and manage the environmental legislation requirements triggered by project activities. Triggers contain conditions, otherwise known as constraints, which must be complied with. Triggers may be in the form of:

- General Obligations

- Permits or Approvals

- Record Obligations, and/or

- Reporting Obligations

The Legislation RECAP has been established as the primary reference source for information about environmental legislation and policy that affects the department. The database is formally reviewed every 12 months, however it is also updated as required in response to legislative changes.

5.1.1   General Obligations

There are many general obligations that exist regardless of what activity is being undertaken or where it is being undertaken. These obligations include:

- General Environmental Duty – The law states that we must not carry out any activity that causes or is likely to cause environmental harm unless we have taken all reasonable and practicable measures to prevent or minimise the harm. Environmental harm is an unwanted, negative impact to any environmental value. Environmental harm is divided into three categories under legislation – nuisance (unreasonable impact), material harm, serious harm.

- Duty to Notify – All employees have a duty to notify their supervisors if they become aware of potential or actual environmental harm. In addition, Senior Management also have a responsibility for notifying the Administering Authority or material and serious environmental harm incidents. Where potential or actual environmental harm occurs on a project that is under construction this duty falls to the Contractor who has possession of the site.

This manual and the EMS help Transport and Main Roads to meet these general obligations by identifying activities that may cause harm and putting in place reasonable and practicable measures to prevent and minimise the harm.

5.1.2   Activity and location permits

Some activities trigger a permit or approval which authorises a certain action to occur, usually at a specific location and within a certain timeframe. Approvals are issued with conditions which must be complied with. Often, once works are complete, evidence must be provided to the Administering Authorities to prove you have met permit and approval conditions. Some permits and approvals are design related and should be obtained by Transport and Main Roads during the *Development Phase*. Others are construction related and are best left to the Contractor to obtain. If you do not comply with the conditions of a permit of approval, you will be carrying out an offence and the approval will no longer be valid.

Some common examples of permits and approvals:

- Project Specific Approvals – There are 2 types of project specific approvals to be aware of – Federal and State.

- State-wide Approvals – Transport and Main Roads may use state-wide approvals for activities such as tampering with protected animal breeding places.

- Self-assessable Codes – Compliance with self-assessable codes, which have conditions that must be met, such as the Accepted Development Requirements for Waterway Barrier Works. If works cannot comply with these conditions, an approval may be required.

Supporting information is necessary to identify potential impacts and is often provided to Administering Authorities during the approval process. Examples include detailed and targeted assessments, construction methodology, construction footprint, timing of construction and staging. It may be necessary to show how environmental impacts will be mitigated.

Meeting permit or approval conditions can have quite significant time and cost implications for projects, if not identified early. Some conditions also go beyond the construction project timeframes, and some will need to be delivered by the Contractor. Offsets may also be required as a condition of an approval.

5.1.3   Record Obligations

Some legislation requires Transport and Main Roads to record information. Examples include:

- Recording amounts of gravel taken from a quarry if the quarry material is state-owned

- Recording the amount of waste and types generated

- Volume of water taken from a watercourse during construction

Where these records are generated in the implementation phase the Contractor is required to collect the information and submit it to the department for record keeping.

5.1.4 Reporting Obligations

Some legislation requires Transport and Main Roads to notify the Administering Authority. There are often timeframes associated with reporting requirements, such as within 24 hrs of becoming aware of an incident. Some examples of reporting obligations are:

- Notifying when certain works are to start and when they have been completed (for example, installation of temporary waterway barriers or prior to taking water for construction from a watercourse.

- Reporting that environmental harm has occurred.

5.1.5 Exemptions

Some legislation also includes exemptions for certain entities or activities from requiring approvals or complying with other obligations. An exemption allows Transport and Main Roads to proceed with an activity or at a location without gaining approval or consent. However, these exemptions often have conditions which must be followed otherwise the exemption cannot be used. Exemptions could also be removed if we do not follow conditions. This would mean that all departmental projects would need to obtain an equivalent approval which would add time and cost to each project. It is important to note that if you use an exemption, you may still be required to get an approval for the same matter under a different piece of legislation. (For example, clearing native plants under Queensland legislation may trigger five or more different pieces of legislation including Commonwealth legislation).

5.2 Transport Infrastructure Act

The objectives of the *Transport Infrastructure Act 1994* (Qld) include the establishment of a regime that allows for, and encourages, effective integrated planning and efficient management of a system of transport infrastructure.

Under Section 9 of the Act, it expressly states that the Chief Executive of Transport and Main Roads is required to construct, maintain and operate transport infrastructure in a way that reduces adverse environmental impacts. This must be read in conjunction with the second part of the section which states it must also be designed to comply with standards and overall transport objectives to achieve efficiency, affordable quality, and cost effectiveness. In addition, Section 9A states that although operation and use of transport infrastructure may have a significant impact on environment it is often necessary for the community's environmental, social, and economic wellbeing as a beneficial asset and that the department should progressively reduce impacts to the extent practicable to do so.

This indicates that while addressing environmental impacts is important it cannot be considered in isolation.

5.3 State Infrastructure Strategy

The *State Infrastructure Strategy* (SIS) 2022 presents a clear vision of the Queensland Government's infrastructure requirements over the next two decades. It sets out our objectives for infrastructure and the priority actions that will drive the future we want for Queensland. It's also clear about the challenges and opportunities we'll face over this time. One of the four guiding principles for the SIS is to enhance sustainability and resilience. A priority action for the Transport chapter is to reduce transport infrastructure's environmental impact and whole-of-life greenhouse gas emissions.

5.4 Transport and Main Roads Strategic Plan

The *Transport and Main Roads Strategic Plan 2019–2023* (revised for 2022–23) is our direction setting document that supports our readiness to respond to the opportunities and challenges facing the department over the next 24 months and to ensure we are strategically positioned to achieve our vision and purpose of:

Creating a single integrated transport network accessible to everyone.

One of the strategic plan objectives is Sustainable; Create an environmentally, economically and socially sustainable transport system that supports liveable and prosperous communities.

5.5 Environmental Sustainability

The Transport and Main Roads *Environmental Sustainability Policy* sets a clear vision for environmentally sustainable management which aligns with our stakeholder expectations, including reducing our environmental footprint and building increased network resilience to climate change. Objectives from the policy that are relevant to this manual are:

- Adopt a best practice, cost-effective approach of 'avoid, minimise, mitigate and offset' to manage environmental impacts associated with all aspects of the department's activities to achieve the benefits of this policy and comply with legislative and policy requirements.

- Monitor, review and implement the department's environmental management system to ensure alignment with AS/NZ ISO 14001 and to improve environmental performance in all departmental plans and activities.

- Protect the environment by moving beyond compliance in encouraging innovative solutions to minimise the department's environmental footprint and embed environmentally sustainable practices in the ways we work.

5.6 Infrastructure Sustainability

It is a requirement of the *State Infrastructure Strategy*, that projects have a sustainability assessment. Currently the department uses the Infrastructure Sustainability (IS) rating scheme developed by the Infrastructure Sustainability Council to assess the sustainability of infrastructure projects. The IS rating scheme takes a 'triple-bottom-line' approach to assessing a project, that is it considers economic, environmental, and social factors in the assessment.

There is overlap in the processes, investigations and documentation that is required for the IS rating scheme and the environmental assessment process. The level of overlap is dependent on the scope of a project and the IS rating credits that the project intends to address. In general, the environmental assessment process addresses the lowest benchmark for the relevant IS rating credits and to achieve the highest benchmark for credits requires additional assessments.

The IS rating credits that overlap with the environmental assessment process are described in C7558 *Terms of Reference for Review of Environmental Factors*.

There is more information on Infrastructure Sustainability and Climate Change on the departmental intranet.

6   Other relevant environmental manuals, standards, and systems

In addition to legislative obligations and requirements, the department also has internal standards, guidelines and procedures that need to be adhered to. This manual works in conjunction with those other departmental manuals, standards, guidelines and systems. Other Transport and Main Roads documents that provide environmental guidance include the technical publications listed in Table 6.

Table 6 – Summary of other Transport and Main Roads documents related to environmental assessment and management

Name	Description
Cultural Heritage Process Manual	This manual provides internal direction on: • statutory obligations • engagement with Indigenous people • roles and responsibilities • managing projects by incorporating processes for Indigenous cultural heritage into project management • entering agreements with Indigenous parties • processes to adopt for use in development projects.
Fauna Sensitive Road Design Manual (Vol 1)	This volume discusses the potential impacts of transport infrastructure on fauna. It includes a brief theoretical background to animal behaviour and the function of vegetated corridors to help the reader understand the challenges faced when designing infrastructure that is to accommodate fauna movement. Also included in this volume is a review of practices used in road designs to facilitate fauna movement.
Fauna Sensitive Road Design Manual (Vol 2)	The aim of this manual is to provide guidelines for preferred practices to reduce or eliminate the impact of road infrastructure on fauna. Specifically, this manual outlines preferred practices and provides recommendations to achieve fauna sensitive road design.
Road Drainage Manual	The Road Drainage Manual provides guidance in relation to the planning, design, construction, maintenance and operation of road drainage structures in all urban and rural environments for main roads in Queensland. One of the key aspects of the manual is the integration of environmental considerations with the hydraulic aspects of road drainage.
Road Landscape Manual	This manual aims to facilitate the understanding of, and procedures associated with, the assessment, design and management of roads as they affect the Queensland landscape.
Road Maintenance Code of Practice for the Wet Tropics World Heritage Area	This Code of Practice outlines requirements necessary to achieve best practice road maintenance that minimises negative environmental impacts on the Wet Tropics World Heritage Area.
Road Planning and Design Manual	The purpose of this manual is to set the policy and framework for the planning and design of new and upgraded roads in Queensland. It is an agreed set of corporate standards that includes consideration of local circumstances. This manual refers to environmental assessment and management processes in Transport and Main Roads policy and manuals, as well as external influences and legislative requirements.
Road Traffic Air Quality Management Manual	The purpose of this manual is to provide guidance for the assessment and management of the impact of air pollutants from road traffic.
Roads in Rainforests: Best Practice Guidelines for planning, design and management	This document provides a set of principles and supporting guidelines for implementing best practice planning, design and management for ecologically sustainable roads within rainforests throughout Queensland. The intention of these Guidelines is to describe the particular aspects of rainforest environments that are unique and thus require particular consideration when designing and constructing roads in these habitats

Name	Description
Roads in the Wet Tropics Manual	The goal of this manual is to improve the performance and management of road corridors within the wet tropics region by using current information and the latest technology in such a way that accounts for the costs and benefits to the environment, community, and economy. It assists in the implementation of best practice in the development and ongoing operation of roads in the wet-tropics region of North Queensland.
Transport Noise Management Code of Practice	The purpose of this Code of Practice is to provide guidance and instruction for the assessment, design and management of the impact of rail and road traffic noise and vibration for operation and construction

Part B – Detailed Environmental Process

7   Assess

The purpose of the Assess step is to undertake a risk-based assessment of:

- The environmental factors that may be impacted by the project

- The potential impacts on the project from the environmental legislation, and

- Evaluate the application of environmental sustainability policy objectives to the project.

The Assess step is made up of three parts, the Service Request, Desktop Assessment and Detailed Assessment. Each of these parts is described in more detail in the following sections. The level of assessment that is required is dependent on the scope of work that is described in the Service Request. As a minimum, all projects should have a Service Request to demonstrate that environmental impacts have been considered for the project. The types of projects that typically require no further assessment are:

- Routine maintenance (Element 15, Element 16 and Element 17 in Maintenance Preservation and Environment Investment Program)

- Safety projects that only include line marking or signs

- Projects that have a small footprint or where most of the work is within the existing infrastructure footprint may only require a desktop assessment. The types of projects that typically only require a desktop assessment are:

  – Programmed maintenance

  – Small Safety projects

- Projects that are a large extension of the existing infrastructure footprint will generally require a detailed assessment.

7.1   Service Request

The purpose of the Environment and Cultural Heritage Service Request form is to prompt Project Managers to provide sufficient information to engage Environmental and Cultural Heritage Officers to start the assessment process. This can be used to start the assessment process at any stage of the project where responsibility for delivery of the assessment has changed. For example, it can be used to engage an Officer to provide support during Implementation Phase where they may not have any involvement for delivery during Design.

It is the responsibility of Project Managers to ensure that the environmental assessment is completed, and this includes engaging internal resources to start the process.

This form can be used as evidence that no environmental assessment is required for the project as it includes a description of the project scope. Projects that require no further assessment also have a negligible impact to project delivery. The date of that decision and the negligible impact to project delivery should be recorded in the environmental reporting spreadsheet for the District.

Each District has different business rules for who the Service Request should be sent to. Project Managers must follow the local advice for submission of Environment and Cultural Heritage Service Requests.

The Environment and Cultural Heritage Service Request is an important prompt for the scope of work that needs to be included in the environmental assessment and management process. The scope should include all ancillary work that is required in the construction of the project and in the operation of the completed asset. When ancillary works are not included in the initial scope of works there is a risk of project delays and additional costs due to assessments being conducted late in the project delivery cycle.

7.2   Desktop Assessment

The purpose of the desktop assessment is to determine the impact to project delivery of the environmental constraints and what level of environmental assessment is required for the project. For projects with a low impact to project delivery, the Rapid Desktop Checklist and Preliminary Environmental Assessment (PEA) is sufficient to determine, and document required management actions.

The desktop assessment uses published and Transport and Main Roads environmental datasets to identify potential impacts, likely approvals and recommend management actions. The desktop assessment process is show in Figure 7.2.

Figure 7.2 – Desktop assessment process

The desktop assessment uses the following templates:

- Rapid Desktop Checklist

- Preliminary Environmental Assessment (PEA)

The Rapid Desktop Checklist is a list of datasets that should be used in the desktop assessment. Transport and Main Roads Environmental Officer should review this list and add any relevant local datasets as required. The Rapid Desktop Checklist also records the Factor risk assessment for the desktop assessment. The Rapid Desktop Checklist can be used as a standalone document or can be attached as an appendix to the PEA.

The PEA is a summary of the desktop assessment completed in the Rapid Desktop Checklist. It also includes recommendations for future management and anticipated costs for the preconstruction phase of the project.

A step-by-step guide to the use of these templates is outlined in *GN001 Desktop Assessment*.

If the desktop assessment is completed externally, the brief of work should reference C7557 *Terms of Reference (ToR) for Preliminary Environmental Assessment*. The use of C7557 within the Functional Specifications for various project deliverables is discussed in Section 3.3.1. There is a step-by-step guide for external delivery of the desktop assessment in *GN005 C7557 ToR for PEA*.

7.2.1 C7557 Terms of Reference for the Preliminary Environmental Assessment

The purpose of the C7557 *Term of Reference for Preliminary Environmental Assessment* is to standardise the external delivery of environmental assessments. However, this is also a useful reference to use for internal delivery of the PEA.

It is recommended that the desktop assessment is only delivered externally after discussion with a Transport and Main Roads Environmental Officer about the project and it is confirmed that external delivery is the recommendation of the Transport and Main Roads Environmental Officer.

Generally, C7557 is used with the Functional Specifications C7521 *Options Analysis* and C7522 *Business Case*.

A step-by-step guide to the use of the Terms of Reference is in *GN005 C7557 ToR for PEA*.

7.3 Detailed Assessment

The purpose of the detailed assessment is to identify the environmental Factors present and determine the impacts. The detailed environmental assessment is recorded in the Review of Environmental Factors (REF). The level of detail applied in the detailed assessment is risk-based. The different levels of assessment are described in C7558 *Terms of Reference for Review of Environmental Factors*. The recommended level of assessment should have been determined in the desktop assessment and been detailed in the Annexure to the relevant Functional Specification. The detailed environmental assessment should provide enough information to make recommendations for detailed design and contract preparation through the Environmental Management Plan (Planning).

Figure 7.3 – Detailed assessment process
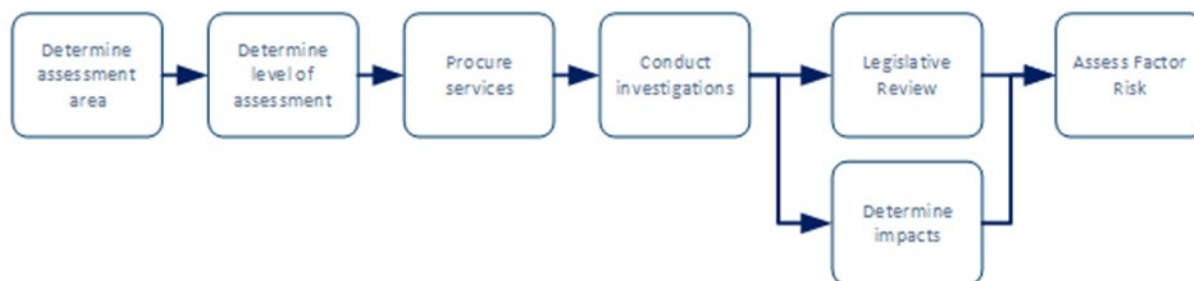
For projects where the desktop assessment identified that the environmental assessment had a high impact to project delivery, the detailed environmental assessment should be prepared prior to the Business Case. Doing this ensures that major constraints on the project are identified and avoided or acknowledge and budget/contingency allocated. Failure to do this can result in substantial costs and delays in later stages of the project.

The process for undertaking a detailed environmental assessment is to:

- Conduct investigations using the methods described in C7558 *Terms of Reference for Review of Environmental Factors*

- Assess the potential impacts from the works and asset operation on the environmental Factor, consider potential consequences for the project and asset relating to environmental Factor and evaluate the Factor risk in relation to the unmitigated impact

- Assess legislative requirements and approval triggers based on Factors identified, and

- Assess applicability of policy objectives to the project.

In response to the REF, an Environmental Management Plan (Planning) will include recommended mitigation measures and strategies related to environmental impacts, legislative requirements, and policy objectives. See Section 8.1 for more information on the EMP(P).

Step by step instructions for the use of the REF template are in *GN002 Review of Environmental Factor*.

7.3.1   C7558 Terms of Reference for Review of Environmental Factors

The purpose of the C7558 *Review of Environmental Factors* (REF) is to standardise the external delivery of environmental assessments. Generally, C7558 is used in the Functional Specifications C7522 *Business Case* and C7523 *Preliminary Design* and C7524 *Detailed Design*. However, C7558 can be used with other procurement and contract arrangements to prepare all the REF or just part of the detailed assessments that are required.

A step-by-step guide to the use of the Terms of Reference is in *GN006 C7558 ToR for REF*.

8   Manage

When the impacts of a project have been established, the actions required to manage those impacts needs to be determined. Often the required actions are complicated, co-dependant and must be delivered by numerous disciplines. It is important that the actions required are appropriate to the impacts identified and that the actions reduce the risk to as low as possible.

It is necessary to manage the impact of the project in all project phases. While most impacts occur during the projects' *Implementation phase*, there can be on ground impacts in other phases due to early works, and management impacts in all project phases. In major projects there can often be a need to treat early works (such as geotechnical investigations) as a mini project with a separate assessment document and management plan. Where this is necessary, simplified versions of the templates and documents described in this manual can be used to produce something which is fit for purpose. For early works such as geotechnical investigations or service relocations a simplified version of an Environmental Management Plan (Construction) will be sufficient to manage the work.

In any project phase there needs to be a plan of action, and this is the purpose of the Environmental Management Plan. All management plans need to clearly link actions to an impact and identify who is responsible for the action. When developing management actions, the following hierarchy of controls must be applied; avoid, minimise, mitigate, and offset. Management actions need to address the need for legal compliance and relevant policy or strategies.

Templates for management plans for the design and implementation phase of projects, the maintenance of roads and the management of the road corridor is summarised in Table 8. The relationship between these documents is shown in Figure 8. Actions are progressed from the EMP(Planning) to the EMP(Construction) through the contract. Issues that are outstanding at the end of a project are transferred to the EMP(Maintenance) or to an Element Management Plan through the handover report.

Table 8 – Environmental Management Plans for project phases

Typical Project Phase or Use	Name of management plan template	Abbreviation
Concept or *Development*	Environmental Management Plan (Planning)	EMP(P)
Implementation for new roads or upgrade projects Simplified for early works	Environmental Management Plan (Construction)	EMP(C)
Implementation for road maintenance projects	Environmental Management Plan (Maintenance)	EMP(M)
Implementation for corridor management projects	Element Management Plan	

Figure 8 – Relationship between Environmental Management Plans (EMP)
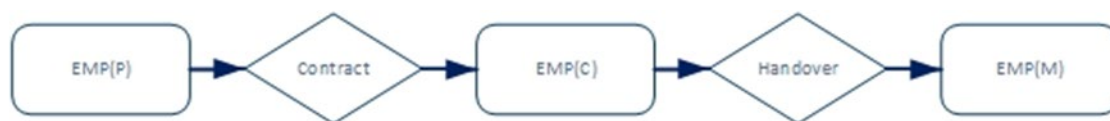
8.1 Environmental Management Plan (Planning)

The purpose of the Environmental Management Plan (Planning) (EMP(P)) is to be the plan of action for managing the impacts that were identified in the REF. The EMP(P) should also include relevant recommendations from the Cultural Heritage assessment and other reports that cover environmental factors (such a noise and vibration assessments). The EMP(P) does not present final decisions on management. It presents an input to design, project management, contract documentation and other technical disciplines. The EMP(P) should be prepared as soon as the REF is finalised. Where the EMP(P) is prepared by an external resource it needs to be reviewed by the Transport and Main Roads Environmental Officer prior to acceptance by the Project Manager. The EMP(P) is a plan of action, and as such it should be reviewed and updated when the plan needs to change. Triggers for a review of the EMP(P) include receival of an environmental approval or completion of additional environmental assessments where these events occur during the *Concept* or *Development Phase*.

The actions described in the EMP(P) should reduce the risks identified in the REF. Where the Factor risk was identified as low, it is acceptable for the EMP(P) to only include actions for annexure clauses.

Step by step instructions in the use of the EMP(P) template are in *GN003 Environmental Management Plan (Planning)*.

8.2 Contract

The Contractor is given responsibility and direction for actions that happen in the Implementation Phase through the contract. As discussed in Section 3.4, the department uses a variety of contract types and it is expected that the type of contract that will be used on the project will be known when the EMP(P) is developed. There should be recommendations for the contract in the EMP(P). There is guidance for the preparation of the MRTS51 *Environmental Management* Annexure in *GN011 MRTS Annexures*. It is highly recommended that an internal environmental resource is used to review the contract documents prior to tendering. The benefits of using an internal resource are:

- Knowledge of departmental contracts in particular knowledge of MRTS51 *Environmental Management* and MRTS52 *Erosion and Sediment Control*.

- Knowledge of the environmental assessment and management documents.

- Knowledge of requirements, agreements, and exemptions specific to Transport and Main Roads projects.

8.3 Environmental Management Plan (Construction)

The Environmental Management Plan (Construction) (EMP(C)) is the primary document for the Contractor to manage the environmental risks during the construction of the project. The EMP(C) explains in detail the measures to be undertaken to manage the environmental Factors of the project and explains in detail the means for addressing the department's administrative requirements. In preparing the EMP(C), the Contractor needs to review the information on the existing environment and the construction method to determine the impacts that will need to be managed. The Contractor may need to do additional assessments to assist in the preparation of the EMP(C). Some examples of situations where additional assessments are required are:

- Establishment of ancillary areas such as stockpile pads and site offices

- Establishing baseline value for monitoring

- To assist with Soil Disposal Permits.

During the implementation phase of the project there are different levels of project management. There is the Contractor's management team who have direct control and responsibility for the delivery of the project and there is the Contract Administrator who has responsibility for ensuring the Contractor meets the contract requirements. The Contract Administrator reports to the Project Manager who still has overall responsibility for the delivery of the project.

MRTS51 *Environmental Management* includes a hold point for the Contract Administrator to assess the suitability of the EMP(C). The Contractor Administration System (CAS) has a checklist for reviewing the suitability of the EMP(C). The Contract Administrator will generally request the Environmental Officer to perform this check. There is a guide for the use of this template in *GN007 CAC003M EMP(C) Checklist*. This checklist is based on the requirements for the EMP(C) that are described in MRTS51 *Environmental Management*.

8.4 Environmental Management Plan (Maintenance)

The purpose of the Environmental Management Plan (Maintenance) (EMP(M)) is to be the plan of action for managing the impacts of maintenance activities. Unlike other EMP's, at the time when the EMP(M) is prepared, the types maintenance activities and locations will only be generally known. For this reason, the EMP(M) will often be structured in a way for site specific plans to be prepared when activity and location details are known.

In general, maintenance projects will have low Factor Risks and there will be a low impact of the environmental constraints on project delivery, however there are exceptions to this, and it should never be assumed that a maintenance project is low risk. The service request described in Section 7.1 and the desktop assessment process described in Section 7.2 should be used to document the environmental assessment for maintenance projects.

9 Implement

The purpose of this step is to do the actions which have been described in the respective environmental management plan. It is implementation of the actions which address the impacts and reduces the risk. Generally, this is the part of the process where other disciplines become involved. For projects that are in the *Concept* or *Development Phase* this will be disciplines such as designers, structural engineers, geotechnical engineers, pavement engineers and project managers. For projects that are in the *Implementation Phase*, this will be disciplines such as Contract Administrators, Contractor Project Managers, construction supervisors, machine operators and general labourers.

9.1 During Development Phase

During the *Development Phase* the implement step is where design features are developed. While there will be recommended design features described in documents prepared in previous steps, the designer may need to adjustment and compromise on proposed actions to address other needs and impacts. Ultimately is the responsibility of the Project Manager to make decisions on the design that balances all the needs of the project. It is highly recommended that an internal environmental resource is consulted when making decisions on design changes that are substantially different to what is recommended in the management plan. The benefits of consulting an internal resource are:

- Their knowledge of the legislation triggers and exemptions that are specific to Transport and Main Roads.

- Their understanding of potential impacts of design changes for construction of the project and operation of the asset.

- Their knowledge and understanding of how design elements are supporting government and departmental objectives in relation to environmental sustainability.

It is crucial during the *Development Phase* that any changes to the project scope that occur are reviewed against the project scope that the assessment was based on. Any substantial changes to the project scope will trigger the need to do further assessment and revise the management plan.

The implement step in the *Development Phase* often requires a significant amount of co-ordination with numerous disciplines. Typically, the specialist disciplines (as identified from the list of Technical Disciplines for Project Management) that overlap with the environmental process are:

- Cultural Heritage

- Geotechnical, including earthworks

- Hydraulics

- Landscaping, and

- Noise and Air.

These disciplines will generally be conducting assessments and recommending actions separate to the environmental process but there will be instances where the recommended action for the environmental process will be to incorporate environmental needs into these specialist assessments and recommendations.

Other manuals that have overlap with the implementation step in the *Development Phase* are listed in Table 6.

9.2   *During Implementation Phase*

During the *Implementation Phase* the responsibility for completing the actions described in the EMP(C) is with the Contractor. The Contractor will generally have an Environmental Representative who will provide advice and monitor the implementation of the EMP(C) however they will rarely be the person doing the required actions. Rather all parts of the Contractor workforce will have tasks that are part of the actions described in the EMP(C).

It is a requirement of the contract that the Contractor takes the action described in their EMP(C). There are provisions in the contract for Transport and Main Roads to audit the Contractor to confirm that this is happening as described in Section 10.4. It is also a requirement of the contract that the Contract performs regular inspections as described in Section 10.2.

Where the contract references MRTS51 *Environmental Management* the Contractor is required to collect certain types of data, for example waste quantities, and provide this data to the department at the time specified in the contract. Often this data is required to demonstrate compliance with approvals or policy objectives, so it is vital that the data is collected and supplied to the department as it is stated in the Contract.

It is the responsibility of the Contract Administrator to enforce the contractor's responsibilities under the contract. For this reason, all communication with the Contractor must go through the Contract Administrator. It is highly recommended that the Contract Administrator uses an internal environmental resource to assist them with their responsibilities. The benefits in using an internal environmental resource as part of the Contract Administration team are:

- Knowledge and understanding of MRTS51 *Environmental Management* and MRTS52 *Erosion and Sediment Control* including understanding of the annexure clauses for a given project.

- Understanding of potential impacts to the environment during the operation of the asset that may result from changes to the design or construction method during implementation.

10   Review

The purpose of reviewing the implementation of actions is to ensure that the actions have been done correctly and to determine if the actions were effective at managing the relevant impacts and risks. As shown in Figure 3.2(c) and Figure 3.2(d), there are multiple places in the overall process where reviews are done.

10.1 *Environmental Design Report*

The Environmental Design Report (EDR) is a check that the recommendations from the EMP(P) have been implemented. The EDR is an audit for the *Development phase* of the project so it should be prepared near the end of the detailed design to document what has been completed rather than what is intended to be completed. For each design action, the EDR should describe if it has been fully implemented, partially implemented, or not implemented. There should be evidence for the completion of each design action such as design drawings, contract clauses and project approvals. It is important that the EDR includes justification where a recommendation is partially or not implemented.

In general, the Designer or Project Manager will have the primary responsibility for implementing the requirements of the EMP(P) so they should prepare the EDR. However, there are some Districts where the Transport and Main Roads Environmental Officer will prepare the EDR. In any case, the person most responsible for implementing the actions should prepare the EDR as they will have knowledge of what has been completed.

Ultimately it is the responsibility of the Project Manager to ensure the EDR is completed and that it is reviewed by a Transport and Main Roads Environmental Officer.

Step by step instructions in the use of the EDR template are in *GN004 Environmental Design Report*.

10.2 Environmental inspections and monitoring

During the *Implementation Phase* of projects routine inspections and monitoring is used to confirm that actions are being taken and that they are effective.

It is the responsibility of the Contractor to adhere to the inspections and monitoring described in the approved EMP(C).

The EMP(C) should include the inspection checklist which will be used by the Contractor to record regular inspections.

Routine inspections may also be conducted by the Transport and Main Roads Environmental Officer or the Contractor's Environmental Resource, and this can be recorded on the Environmental Site Inspections Checklist on the EMS.

Where inspections and monitoring identify deficiencies or failures incident management processes may be triggered (Section 10.3).

10.3 Incidents

Incidents are a failure to follow actions required by the environmental management process. Incidents can occur at any phase of the project. Incidents can be identified following an uncontrolled event like rainfall or can be identified from review such as inspection or audit.

The requirements for incident management and recording during implementation are described in MRTS51 *Environmental Management* and should also be covered by the EMP(C).

Incidents during the implementation phase may also be contractual non-conformances. CAS is a separate but related system to the environmental management process. For this reason, it may be necessary to follow non-conformance procedures as well as environmental incident management procedures.

All incidents must be recorded in the current Transport and Main Roads incident management system. See the EMS for procedures on how to enter incidents in this system.

10.4 Audits

There are several types of audits that should be conducted during the *Implementation Phase* of the project. These include:

- Contractor Audits – required to maintain certification of Contractor EMS.
- Implementation Audits - Departmental audits of the implementation of the contract and relevant specifications.

- Erosion and Sediment Control Audits – audits performed by a third party and organised by the Contractor against the contract and the ESCP.

- Post Construction Audit – Departmental audit at the completion of the project to check for outstanding issues.

The timing of Contractor audits must be described in their EMP(C).

10.4.1 Contractor Audits

Contractors are required to have a certified AS/NZ ISO 14001 *Environmental Management System* to be pre-qualified for most construction contracts. To maintain this certification Contractors must conduct audits and monitor their Environmental Management System. The department has no specific requirements for Contractors to audit themselves other than to maintain their certification. It is the responsibility of the Contractor to determine their audit schedule which will meet this requirement.

10.4.2 Implementation Audit

The most important function of an audit is to identify how things could be done better. No system is perfect and infrastructure projects are complicated to deliver with competing and often conflicting issues to manage. The purpose of the audit is not to punish failure. It is to identify and understand failure and work out the best way to fix it.

There are instructions for using the audit template in *GN008 CAC004M Implementation Audit Checklist*.

This template can be used for auditing projects during the implementation phase. It is a Key Performance Indicator (KPI) of the EMS that projects that have environmental constraints with a medium or high impact to project delivery have at least one implementation audit.

This audit can be conducted at any time during the implementation phase, but it is recommended that an audit is conducted within the first three months of the project (during clearing and bulk earthworks) as this often represents the highest risk period for environmental impacts. Auditing early also provides an opportunity to check record keeping that is only submitted at the end of the project.

If the project extends over several years an implementation audit should be conducted annually.

This is not the same as an ISO 14001 audit or an audit of the Contractor's EMP. The Contractor should be conducting their own ISO 14001 and EMP(C) Audits to maintain their ISO 14001 certification.

10.4.3 Erosion and Sediment Control Audits

Erosion and Sediment Control Audits may be conducted by the department or the Contractor. The contract will state if the Contractor must conduct Erosion and Sediment Control Audits.

Transport and Main Roads may audit Erosion and Sediment Control Plans on a project as part of wet season preparation activities. There are currently no templates for this type of audit.

Where required, the Contractor must organise for Erosion and Sediment Control audits, and they must be completed by an Appropriately Qualified Person. The results are reported to the Contractor and the department. Deficiencies identified in these audits need to be recorded as incidents where they represent a significant risk or if they are minor issues that are reoccurring.

10.4.4 Post Construction Audit

The purpose of the post construction audit is to check for any issues before the Contractor demobilises from the site. This is an opportunity to remind the Contractor of things they must do before they leave the site. It is also an opportunity to reflect on how the project has gone and how we could improve. This audit is supporting documentation to the Finalisation Report (Section 10.5). In is recommended that the audit is conducted when all drainage and surface stabilisation has been finished. Ideally it should happen two months before the Contractor fully demobilises from the site.

There are instructions for using the audit template in *GN009 Post Construction Audit Checklist*.

10.5 *Finalisation report*

The purpose of the Finalisation Report is to summarise the results of the Post Construction Audit. This document is not part of CAS but will include information for the defects list in the CAL024M *Certificate of Practical Completion* and CAF009M *Maintenance Report*.

Step by step instructions in the use of the Finalisation Report Template are in *GN010 Finalisation Report Template*.

11 References and Links

NOTE: This list has links to the department's intranet that are only available to departmental employees.

Name	Publication link
Consultants for Engineering Projects Manual	https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Consultants-for-engineering-projects
C7521 Options Analysis	
C7521 Annexure to Options Analysis Specification	
C7522 Business Case	
C7522 Annexure to Business Case Specification	
C7523 Preliminary Design	
C7523 Annexure to Preliminary Design Specification	
C7524 Detailed Design	
C7524 Annexure to Detailed Design Specification	
C7557 Terms of Reference for Preliminary Environmental Assessment	
C7558 Terms of Reference for Review of Environmental Factors	
C7559 Terms of Reference for Cultural Heritage Assessment	
Contract Administration System (CAS)	https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Contract-administration-system

Name	Publication link
CAC003M - Environmental Management Plan Review Checklist	https://www.tmr.qld.gov.au/business-industry/technical-standards-publications/contract-administration-system/cas-standard-checklist
CAC004M - Environmental Management	
CAC005M - Erosion and Sediment Control	
CAC031M - Landscape and Revegetation Works - Establishment and Monitoring	
CAF009M - Maintenance Report	https://www.tmr.qld.gov.au/business-industry/technical-standards-publications/contract-administration-system/cas-tic-standard-forms
CAL024M - Re: Certificate of Practical Completion - Clause 42.5	https://www.tmr.qld.gov.au/business-industry/technical-standards-publications/contract-administration-system/cas-tic-standard-letters
CAL054 - Notice of Environmental Compliance Audit	
Cultural Heritage Process Manual	https://www.tmr.qld.gov.au/Community-and-environment/Indigenous-programs/Protecting-cultural-heritage/Cultural-heritage-policy-and-manual
ENV01 Environment & Heritage Service Request	https://intranet.tmr.qld.gov.au/corp/ems/Documents/Forms/AllItems.aspx
ENV02 Rapid Desktop Checklist Template	
ENV03 Preliminary Environmental Assessment Template	
ENV04 Review of Environmental Factors Template	
ENV05 Environmental Management Plan (Planning) Template	
ENV06 Environmental Design Report Template	
ENV07 Post Construction Audit Checklist	
ENV08 Finalisation Report Template	
Environment and Cultural Heritage Reference Library	https://tmrqld.sharepoint.com/teams/TMREnvironmentCulturalHeritage
Environmental Performance Report	https://tmrqld.sharepoint.com/teams/TMREnvironmentReporting
Environmental Sustainability Policy	https://www.tmr.qld.gov.au/Community-and-environment/Environmental-management/Environmental-sustainability-policy
Fauna Sensitive Road Design Manual (Vol 1)	https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Fauna-sensitive-road-design-volume-1
Fauna Sensitive Road Design Manual (Vol 2)	https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Fauna-Sensitive-Road-Design-Volume-2
Legislation Register for Environent, Cultural Heritage, Corridor Management and Public Utility Management (Legislation RECAP)	https://intranet.tmr.qld.gov.au/sites/pdo-elr/Pages/default.aspx

Name	Publication link
Project Management in Transport and Main Roads	https://intranet.tmr.qld.gov.au/corp/pmi/Proj-mgt/PM/Pages/default.aspx
Road Drainage Manual	https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Road-drainage-manual
Road Landscape Manual	https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Road-landscape-manual
Road Maintenance Code of Practice for the Wet Tropics World Heritage Area	https://www.wettropics.gov.au/site/user-assets/docs/Info%20Sheets%20/Guideline%209c-%20Field%20Guide%20Road%20Maintenance%20COP3.pdf
Road Planning and Design Manual	https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Road-planning-and-design-manual-2nd-edition
Road Traffic Air Quality Management Manual	https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Road-traffic-air-quality-management-manual
Roads in Rainforests: Best Practice Guidelines for planning, design and management	https://researchonline.jcu.edu.au/12113/1/goosem_guidelines.pdf
Roads in the Wet Tropics Manual	https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Roads-in-the-wet-tropics-manual
Technical Disciplines – Project Management	https://intranet.tmr.qld.gov.au/corp/pmi/Proj-mgt/PM/Pages/Technical_Disciplines.aspx
Technical Publications	https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications
Transport and Main Roads Environmental Accountabilities & Responsibilities	https://intranet.tmr.qld.gov.au/corp/ems/Documents/Forms/AllItems.aspx
Transport and Main Roads Environmental Management System (EMS)	
Transport and Main Roads Risk Assessment and Ratings Matrix	https://intranet.tmr.qld.gov.au/corp/tmr/Documents/Forms/AllItems.aspx
Transport and Main Road's Investment Programs	https://intranet.tmr.qld.gov.au/teams/tipp/Pages/investment-programs.aspx
Transport Infrastructure Portfolio Governance Framework	https://intranet.tmr.qld.gov.au/teams/tipp/portfolioManagement/Forms/AllItems.aspx
Transport Infrastructure Project Delivery System	https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/TIPDS
Transport Noise Management Code of Practice	https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Transport-noise-management-code-of-practice
WIN (Work Improvement Note) Guidance	https://intranet.tmr.qld.gov.au/corp/ems/Documents/Forms/AllItems.aspx
Transport and Main Roads Risk Management Framework	https://intranet.tmr.qld.gov.au/corp/tmr/Pages/Risk-management-framework-and-policy.aspx
Infrastructure Sustainability and Climate Change	https://intranet.tmr.qld.gov.au/sites/pdoconnectpmd/Pages/Sustainability-Home-Page.aspx
GN001 Desktop Assessment	https://intranet.tmr.qld.gov.au/corp/ems/Documents/Forms/AllItems.aspx
GN002 Review of Environmental Factors	
GN003 Environmental Management Plan (Planning)	

Name	Publication link
GN004 Environmental Design Report	
GN005 C7557 Terms of Reference for Preliminary Environmental Assessment	
GN006 C7558 Terms of Reference for Review of Environmental Factors	
GN007 CAC003M EMP(C) Checklist	
GN008 CAC004M Implementation Audit Checklist	
GN009 Post Construction Audit Checklist	
GN010 Finalisation Report Template	
GN011 MRTS Annexures	

12   Glossary and abbreviations

Term	Definition
Activity	an element of work performed during a project. An activity normally has an estimate of duration, cost and resource requirement. Activities are normally subdivided into tasks (see task). Each project phase is composed of several activities. (Source: OnQ)
Administering Authority	an Authority with legislative jurisdiction
Administrator	shall be as stated in Clause 1 of Annexure MRTS01.1 with the role as defined in the Contract. Where not stated, the Administrator shall be: • the "Superintendent" as stated in the Contract for the following contracts: – Road Construction Contract – Roadworks Performance Contract, and – Minor Works Contract • the "Principal's Representative" as stated in the Contract for the following contracts: – Design and Construct Contract – Design, Construct and Maintain Contract, and – Alliance Contract (Source: MRTS01 *Introduction to Technical Specifications*)
Approval	means any permit, authority, licence, self-assessable code, statutory exemption with conditions, protocol, agreement or plan, or other statutory instrument with conditions.
AS/NZ Standard	Australia/New Zealand Standard
Brief of Work	document or collection of documents that describe the scope, technical requirements, and outputs for an activity
CAS	Contract Administration System

Term	Definition
Constraint	issue that impacts on project delivery
Contract Administrator	see Administrator
Contractor	means an external business providing an expert professional service under the conditions of a contract. Contractor includes a Local Government, Queensland Department of Transport and Main Roads Service Delivery Unit, or Joint Venture (including only Local Government(s) and/or Queensland Department of Transport and Main Roads Service Delivery Unit(s)). (Part definition from RMPC *Volume 1 – Sole Invitee*)
DMS	Document Management System
ECH	Environment and Cultural Heritage
EDR	Environmental Design Report
EMP	Environmental Management Plan
EMP(C)	Environmental Management Plan (Construction)
EMP(P)	Environmental Management Plan (Planning)
EMS	Environmental Management System
Environment	Includes: • ecosystems and their constituent parts, including people and communities, and • all natural and physical resources, and • the qualities and characteristics of locations, places and areas, however large or small, that contribute to their biological diversity and integrity, intrinsic or attributed scientific value or interest, amenity, harmony and sense of community, and • the social, economic, aesthetic and cultural conditions that affect, or are affected by, things mentioned in paragraphs (a) to (c)." (Source: *Environmental Protection Act 1994*)
EO	means Transport and Main Roads Environmental Officer from a dedicated environment team
EPBC	*Environmental Protection and Biodiversity Conservation Act*
ESCP	Erosion and Sediment Control Plan
Factors	parts of the natural and built environment that are included in Transport and Main Roads environmental assessment process
Functional Specification	Describes the design / work elements (including for example, Schedule Items and the Schedule of Fees) that comprise the consultant services e.g. Environmental Management, Hydraulic Analysis, and so on (*Consultants for Engineering Projects Manual*)
Gate	an assessment and approval step, similar to a hold point, in the Queensland Project Assessment Framework
IS	Infrastructure Sustainability
Issue	a problem that needs to be managed by the environmental process
KPI	Key Performance Indicator

Term	Definition
Legislation RECAP	Legislation Register for Environment, Cultural Heritage, Corridor Management And Public Utility Management
MRTS	Transport and Main Roads Technical Specification
PEA	Preliminary Environmental Assessment
Practical Completion	the stage in the execution of the work under the Contract where the Works are able to be handed over to the Principal
Project	a temporary endeavour undertaken to create a unique product, service or result. (Source: OnQ)
Project Manager	the person responsible for managing a project and achieving its objectives. Manages all activities necessary to deliver the project or services to the required quality standard and within the time and cost constraints agreed to with the project sponsor or program manager. However, this role will depend on the type and nature of project being undertaken and may include the entire project from start to finish or a phase of the project (Source: OnQ).
QLD	Queensland
REF	Review of Environmental Factors
SIS	State Infrastructure Strategy
ToR	Terms of Reference
Transport Infrastructure	Includes: air, busway, light rail, miscellaneous, public marine, rail or road transport infrastructure; and transport infrastructure relating to ports; and other rail infrastructure; and active transport infrastructure (Source: *Transport Infrastructure Act 1994*)