

5 Scoping

All departmental projects undergo environmental assessment and management to predict the level of impact and allow appropriate mitigation measures to be designed into the project. The Scoping process is the initial environmental assessment and management task required for all departmental projects.

The Scoping process analyses the risk level of the proposed scope of works and determines the level of future environmental assessment and input required, if any. The primary Work Management output of the Scoping process is the ESR.

The Scoping process is applicable to provide environmental input to a project from the project proposal through to the Business Case and project design brief (refer Table 4.1).

The Scoping process is commenced in the Link Study and Concept phase of projects.

Scoping can be an on-going process that is repeated or updated at key stages of the project lifecycle. Examples of where the Scoping is to be repeated or updated are:

- with the introduction of new information to the project
- if the project is resumed after a significant delay since the original scoping process was performed (as a minimum, the Scoping is repeated after 12 months delay).

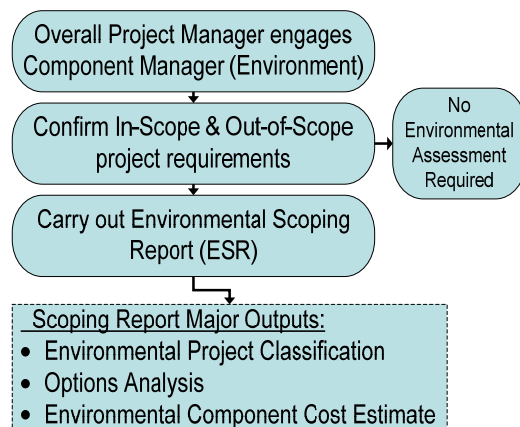
Typically the earliest project involvement for environmental processes to departmental projects will occur at the Concept phase (project formation and funding allocation in the department's QTRIP).

The Link Study (pre-project) scoping may occur on larger project proposals (refer Section 5.2.3).

In instances where an ESR is performed at multiple project phases, reference must be made to any issues identified in any earlier report(s).

The Scoping process is depicted in the below Figure 5.

Figure 5 - Environmental scoping report (ESR) process



The ESR can be prepared in any project phase to provide initial environmental assessment. For example, the Scoping process is applicable for:

- Link Study assessment (prior to the project formation in QTRIP) (refer Section 5.2.3).
- Project environmental issue identification and consideration prior to the project design stage.

Whilst not occurring in the Concept phase, the Scoping process is also applicable for:

- Input to Statement of Environmental Effects as part of an Environmental Management Plan (Maintenance) (refer Section 8.5.2).

- Environmental issue identification and consideration for Road Corridor Permit (refer Section 8.5.4).

Templates and guidelines for this process are provided in the departmental EMS.

5.1 The scoping process

Scoping is a necessary exercise for all projects, irrespective of whether the project is new construction or for an upgrade, maintenance or repair project.

The major outputs of the ESR are:

- Environmental Project Classification (refer Sections 3.1.2 and 5.2.6)
- Options Analysis (refer Section 5.2.7)
- Component Project Cost Estimate (Section 5.2.8)

5.2 Completing the environmental scoping report (ESR)

The process for completing the ESR is depicted in Figure 2.1.

The departmental EMS sets out the required documentation and tasks that the CM(E) must complete in order to effectively address the PM requirements, and also meet departmental requirements.

5.2.1 Scoping process initiation

The PM engages the services of a CM(E) to provide specialist environmental input to the overall project.

The Scoping process is initiated when the CM(E) is engaged to the overall project.

It is the responsibility of the CM(E) to manage and deliver the ESR.

If the ESR is prepared externally through an expert service provider under contract, the PM engages the CM(E) for input to the contractor brief.

5.2.2 Communicate project scope

It is imperative that the project scope is clearly communicated and documented so that the environmental component project response meets the requirements of the overall project.

Communicating the details of the project scope includes detailing what is included in-scope of the project, and also what is considered out-of-scope.

It is the responsibility of the PM to provide project details and request for service.

The CM(E) confirms the in-scope and out-of-scope information with the PM. Project scope must be confirmed and recorded in written form.

Project scope may change. It is the responsibility of the PM to continually communicate scope changes to the CM(E).

Once the project scope has been confirmed, environmental project classification can be determined through the ESR. A change in project scope may result in a change in environmental project classification level (refer Section 5.2.6).

Where the project scope is sufficient to determine that nil likelihood or negligible environmental risk exists to the project, the CM(E) may document that the project can proceed without any further environmental assessment or management input (refer Section 3.1.3).

5.2.3 Strategic level scoping for link study³

Depending on the nature and scale of a proposed project, early input of environmental considerations to the strategic Link Study stage may be required. Input to this process typically warrants a broad level assessment of any environmental factors.

The primary objective of an ESR at the strategic Link Study stage is to highlight key environmental factors that may influence decision on the ultimate strategy. The ESR feeds into the overall route strategy report or link plan.

The Link Study stage occurs prior to the formation of a project in the department's QTRIP, and it therefore does not typically have detail beyond a proposed route alignment or general network strategy. Scoping of environmental factors is therefore based on identifying potential broad impacts and triggers to be considered. Additional detailed scoping and assessment will be required once a strategic level Link Study decision is reached and a project is formed in the QTRIP.

The departmental EMS contains templates and guidance to complete the ESR for the strategic Link Study review. An ESR template is provided for internal staff application, and also ESR proforma if external parties are engaged under contract to conduct the scoping exercise.

5.2.4 Scoping assessment

The level of detail required for an ESR is governed by project complexity, risk, and the level of certainty of the project proposal.

Often an ESR in the strategic Link Study stage or Concept Stage of a project will have a proposed option(s) with deliverable requirements however the design is still undetermined or uncertain.

The assessment detail of the ESR must therefore cater to the overall project requirements and provide a commensurate level of response to the project uncertainty.

The ESR will address the same key environmental areas irrespective of the level of assessment detail required for the project.

In addition to specific project considerations, the scoping exercise must also consider strategic issues, including related program works. For instance, if a project forms a single part of a larger program of works, the project should communicate and align with other related projects. Factors to consider include aesthetic or physical design integration, political (trans-boundary) issues, holistic program impacts, and avoiding contradictory recommendations.

The minimum content for environmental factors addressed in the ESR is:

- Water
 - Water Quality
 - Hydrology/hydraulics
- Flora
 - Vegetation clearing
 - Pest plants

³ The process for strategic level scoping may be applied to various strategic planning operations, including link studies, network planning studies, regional studies, and so on).

- Rare or Threatened Species
- Habitat Value (RE)
- Landscape Architecture / Rehabilitation
- Fauna
 - Rare and Threatened Species
 - Pest animals
 - Habitat and Habitat Connectivity
 - Fauna Sensitive Road Design (culverts, bridges and crossings)
 - Fish Habitat and Passage
- Soils and Topography
 - Contaminated land
 - Erosion and Sediment Control
 - Potential / Acid Sulphate Soils
 - Sodic Soils
 - Geomorphology
- Noise / Air Quality / Vibration
- Social and Political
 - External approval processes / triggers
 - Cultural heritage
 - Native Title
 - Significant Environmental Areas
 - Social and Economic issues
 - Land use and Planning

Not all external approval processes / triggers will be known at this stage. Furthermore, the project is changeable at the Link Study or Concept phase, and design or scope variations may arise.

5.2.4.1 Desktop scoping using electronic environmental datasets

The department manages electronic environmental data in a single database as its primary source of environmental information in Geographic Information System (GIS) format. It is based upon corporately managed and controlled electronic datasets and is a critical tool in conducting desktop scoping exercises for department projects.

The CM(E) performs a desktop scoping assessment and include the results in the ESR.

In the event that the ESR exercise is outsourced to an external consultant, the CM(E) must ensure that relevant search results from the electronic environmental datasets are provided to the consultant in the work package brief.

The use of departmental GIS systems for conducting desktop investigations is reliant upon access to GIS mapping tools such as the 'MapInfo' software. The database provides assessment tools such as 'MapInfo Workspaces' to conduct desktop assessment.

The database has been developed to provide a tool for accessing various sources of environmental information to inform the planning and design phases of department activities.

The database allows for displaying existing datasets and for the collection and display of data collected from field survey using the Road Corridor Environmental Assessment (RCEA) tool, (refer Section 6.9).

The department's database of electronic environmental datasets may include but is not limited to RCEA data, departmental infrastructure asset information with environmental relevance (for example, borrow and gravel pits, noise barriers and fauna crossings), Queensland government spatial data (from QGIS), and independent mapping layers and workspaces including Significant Environmental Areas (SEA) (refer Section 8.4), biodiversity and soils data, and mapping provided by external state and federal authorities.

The departmental EMS contains information and links to the environmental datasets and desktop assessment tools.

The procedure for conducting a desktop environmental assessment using the environmental datasets is located in the departmental EMS.

Section 6.9 gives guidance to entering data into departmental GIS systems using the RCEA.

5.2.5 Environmental project classification

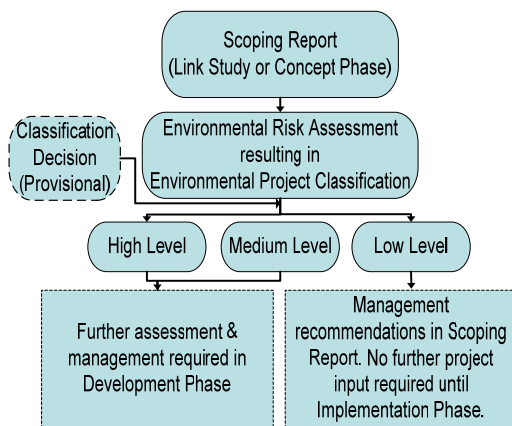
Scoping is used to identify and highlight key environmental factors for consideration in the project. The level of detail of the subsequent assessment and management of these environmental factors is governed by the classification level of the project (High, Medium or Low Level assessment).

The outcome of the Environmental Project Classification (refer Section 3.1.2) determines whether the environmental component project is High Level, Medium Level or Low Level.

If the environmental component project response is determined to be High Level, further detailed investigation may be required in the Link Study or Concept Phase for input to the Business Case (refer Section 5.4). Further detailed investigation will also be required in the Development Phase.

If the environmental component project response is determined to be Medium Level, further detailed investigation is required in the Development phase.

If the environmental component project response is determined to be Low Level, the management recommendations are entered in the ESR for input to detailed design (refer Section 6.5) and contract documentation (refer Section 6.5.3) as required. No further environmental input to the project is required until the project Implementation Phase (refer Figure 5.2.5).

Figure 5.2.5 - Outcome of the environmental project classification

The environmental processes described in this manual are designed to be flexible to actual project requirements. Therefore if the CM(E) considers that additional environmental assessment or environmental management response is appropriate for a Low Level project, then the processes described in Chapters 6 and 7 may be applied. In such an instance however, the Environmental Project Classification may need to be reconsidered.

The environmental project classification into High, Medium and Low Level categories must always be determined on a case-by-case basis, and is achieved by completing either the:

- a) Environmental Risk Assessment, or
- b) Environmental Risk Assessment AND a Classification Decision.

The environmental project classification does not require the approval or agreement of the PM however consultation and communication between the PM and the CM(E) will ensure that the detail of component response is commensurate to the overall project requirements.

Environmental project classification occurs once a CM(E) is engaged to the project by the PM, and the project scope has been determined.

It is the responsibility of the CM(E) to determine the environmental project classification decision in writing and on file.

At any stage of the environmental component project's life, the project classification level may need to be adjusted with the emergence or development of project information (for example, project scope changes).

5.2.5.1 Environmental risk assessment

The environmental project classification is based upon the findings of the Environmental Risk Assessment of the ESR template.

The Environmental Risk Assessment must be completed with consideration of all environmental elements listed in Section 5.2.4 of this manual, as well as external approval processes as described in Section 5.2.9.

The Environmental Risk Assessment must be completed to a description level that adequately describes the risk.

The risk level and description detail of each environmental element may be determined by either:

- a) Application of a risk assessment decision process rating likelihood and consequence, OR

- b) Sound professional judgement of an Environmental Officer experienced in environmental assessment.

The Corporate Form M4213 offers a spreadsheet table for analysing risk based on likelihood and consequence. This form may be used in conjunction with the Project Manager's Risk Management Guidelines as guidance for determining the project assessment level with a High, Medium, or Low Level project classification.

Any procedure on the departmental EMS that applies a risk assessment decision process rating likelihood and consequence may also be applied in the environmental risk assessment process (for example, a procedure for environmental risk assessment in the ESR template).

The sound professional judgement of an experienced Environmental Officer is also considered acceptable for determining the impact level of identified environmental factors.

The use of sound professional judgement is encouraged for uncomplicated project issues or where previously completed projects can be used as guidance, comparison or precedent.

For instances where a risk level determination is likely to be complex, or an Environmental Officer requires guidance to decide the risk level, the use of a formalised risk assessment decision process has hierarchical preference over the use of professional judgement.

The Environmental Risk Assessment process may be used to determine the environmental project classification level to any departmental project.

It is the responsibility of the CM(E) to determine the project classification decision in the ESR template.

The department's EMS contains the ESR template, along with accompanying guidance for its correct application.

5.2.5.2 Classification decision

The ESR template enables a classification decision to be substantiated based on the Environmental Risk Assessment.

A Classification Decision by the responsible owner and/or party of the environmental component project may also be provided to substantiate a project classification. The use of a Classification Decision must be done in conjunction with the Environmental Risk Assessment.

The Classification Decision enables an authorised component project representative to document a decision on a project classification level.

The Classification Decision provision is not required to be used to successfully complete the Environmental Risk Assessment.

The agreement and authority of the responsible owner and/or party of the environmental component project (line manager, Regional Director, or qualified senior professional) is considered sufficient grounds for determining project assessment level, and also for determining the impact level of identified environmental factors.

The intended application of the Classification Decision is for projects that are complex, politically sensitive, have elements that are difficult to quantify risk for, or have an Environmental Risk Assessment outcome that is borderline between classification levels.

Even with the application of the Classification Decision, the Environmental Risk Assessment must be completed with consideration of all environmental elements listed in Section 5.2.4 of this manual.

The CM(E) determines when to apply the Classification Decision to the project.

It is the responsibility of the CM(E) to identify and engage the responsible owner and / or party of the environmental component project to complete the Classification Decision process.

The CM(E) completes the Environmental Risk Assessment prior to application or consideration of the Classification Decision.

5.2.6 Project approval triggers - scoping

The ESR must identify potential or likely external approval processes that will be triggered by the proposed project.

Sufficient time and funding must be allowed for in the project schedule and budget for necessary permits and approvals to be obtained from external assessment and regulatory bodies.

During the scoping exercise, the CM(E) identifies potential approval triggers based on project activities and project location.

Whilst not all triggers will be known at this stage, the CM(E) must make recommendations to the PM through identifying the relevant project triggers in the ESR based on the activities and location of the project.

Project triggers are also discussed in Section 6.2.3 of this manual.

The departmental EMS provides guidance and templates for identifying potential or likely external assessment processes.

5.2.7 Options analysis

Depending on project scale, the scoping task may include a component options analysis which contributes to the overall project options analysis. A High or Medium level project may require the environmental component to assess a number of alternative project outcomes in terms of environmental impact.

This options analysis of the environmental component contributes towards the overall project options analysis. The environmental component recommendation is considered by the PM in the ultimate options outcome.

Options analysis is usually initiated by the PM.

The environmental component options analysis response addresses all project options and will identify a preferred option based on environmental considerations only.

The ESR templates contain provision for including options analysis in the assessment of both High and Medium Level projects.

Low Level projects are unlikely to have the requirement for options analysis however where options analysis is required they may be assessed in the same manner as for a Medium Level project.

For more information regarding the departmental standard for conducting component options analysis, refer to the Component Options Analysis guidance on the OnQ Project Management Framework.

5.2.8 Component project cost estimate

In accordance with OnQ component project methodology, project cost estimates are a required deliverable of the environmental project component. In the environmental Scoping stage, the cost estimate of the environmental component builds into the overall project cost and the development of the project Business Case.

In accordance with the department's *Project Cost Estimating Manual*, estimates prepared from the Business Case forward are required to have a 90% confidence level of not being exceeded. Estimates prepared before the Business Case, including the project proposal and options analysis, should not be expressed with any percentage likelihood of not being exceeded. Indicative performance standards aim for pre Business Case estimates of an 85% confidence level with the constraint that they are necessarily developed on poor or negligible information that must be viewed against relevant background information.

Therefore the environmental component project must provide as accurate a cost estimate as possible using the available information.

This manual divides the environmental component project cost estimate into two response requirements:

- Administrative (resource time and effort, and associated costs)
- Project Work Items (costs that need to be factored into project design and construction)

The environmental component project will only be able to provide estimated cost figures for Administrative costs.

The environmental component project will not be able to provide estimated cost figures for Project Work Items due to (portions of) those costs being an externality to environmental processes. For example, the cost of an environmental mitigation strategy could depend on factors such as material costs.

Therefore, rather than providing a cost estimate figure, the response requirement for Project Work Items is to identify factors to be costed into a project, and provide detailed explanation and justification of those costs. Further advice is provided by the CM(E) to capable cost estimators where required.

The cost estimate provided in the ESR captures both Administrative and Project Work Item cost estimate information.

It is the responsibility of the CM(E) to provide cost estimate information relating to the environmental component project.

It is the responsibility of the PM to consider the cost estimate information when preparing the project Business Case.

It is the responsibility of the PM to ascertain the actual cost estimate (figure) of Project Work Items of the environmental component project, based on communication with, and information provided by, the CM(E).

Detailed cost estimate is described in Section 6.3.

5.2.9 Environmental scoping report (ESR) management recommendations

In instances where the Environmental Risk Assessment (Section 5.2.5) results in a Low Level project classification, the management recommendations are entered in the ESR for input to detailed design

(Section 6.5) and contract documentation (Section 6.5.3) as required. No further environmental input to the project is required until the project Implementation Phase.

The ESR template contains provision to specify management recommendations for Low Level projects.

It is the responsibility of the CM(E) to provide management recommendations to environmental risks identified in the ESR for Low Level projects.

It is the responsibility of the PM to respond to the environmental management recommendations.

Sections 6.5.3 and 6.6 of this manual describe the process for incorporating environmental management recommendations into contract documentation and the tendering process.

In instances where the Environmental Risk Assessment (refer Section 5.2.5) results in a Medium or High Level project classification, the factors requiring further detailed environmental assessment are highlighted in the ESR. These environmental factors must undergo further detailed environmental assessment prior to construction occurring in the Implementation Phase.

Environmental assessment performed in the Concept phase is applied in the development of the project's concept design, and also in forming the Business Case (refer Section 5.4).

If the project is to be delivered by a Design and Construct contract (refer Section 4.2), the environmental assessment outcomes from the Concept phase are applied in the development of the Tender documentation (refer Section 6.5.3).

5.3 Environmental management plan (site investigation) – EMP(SI)

During the Concept phase of the project, it may be necessary to perform 'Site Investigation' activities. These are information gathering exercises that can inform the project design and scope definition.

Site Investigation activities have the potential to impact on the environment and require appropriate assessment and management.

Common examples of Site Investigation activities requiring environmental management planning include:

- Site Surveying (sightline clearing)
- Geotechnical analysis (for example, bore hole sampling)
- Waterway analysis (including flow diversion to inspect culverts and bridges)
- Vegetation clearing associated with site investigation activities (including Public Utility Plant location).

These Site Investigation activities occur on the project site prior to commencement of construction activities, and are therefore not performed by the project Contractor or managed under the project EMP(C) (refer Section 7.2).

Site Investigation activities are managed through the development and implementation of the Environmental Management Plan (Site Investigation), or EMP(SI).

It is the responsibility of the PM to inform the CM(E) of Site Investigation activities planned or required for the project site in the Concept phase.

It is the responsibility of the CM(E) to identify Site Investigation activities in the ESR.

It is the responsibility of the PM to develop the EMP(SI) and provide management recommendations for Site Investigation activities.

The PM communicates with the CM(E) and other project component areas associated with the Site Investigation activities to ensure that management recommendations are in accordance with recognised standards for the activity.

The department's EMS contains the template and associated procedure for developing the EMP(SI).

5.4 Input to business case

The findings of the finalised ESR will be used by the PM to compile the Business Case. If the environmental project classification from the ESR is High level, further detailed investigation in the Concept phase such as a Review of Environmental Factors (REF) (refer Section 6.2.3) and an Environmental Management Plan (Planning) (EMP(P)) (refer Section 6.2.4) may also be used by the PM to input to the Business Case.

For infrastructure projects, the content of the Business Case is used to develop the project design brief and concept design.

The PM submits the Business Case (or project design brief or concept design) to the CM(E) for review and comment.

It is the responsibility of the PM to notify the CM(E) of any scope or project design changes made after the ESR submission.

It is the responsibility of the CM(E) to ensure that the environmental factors identified in the ESR have been incorporated into the Business Case (or project design brief or concept design).

Any changes to project design or scope must be investigated by the CM(E) to ensure that any additional environmental impacts are addressed, prior to Business Case (or project design brief or concept design) approval. Project design or scope changes must be recorded in writing and addressed through the best suited formal (written) means, including email or a revised ESR.