

Chapter 7

Assessment Framework

This chapter provides an overview of the approach used in the Environment Effects Statement (EES) to identify and assess potential environmental effects of the Viva Energy Gas Terminal Project (the project). The assessment approach has been used across each of the EES technical studies to ensure a consistent approach is maintained throughout the assessment process.

The evaluation objectives provided in the scoping requirements issued by the Victorian Minister for Planning, along with relevant statutory approval requirements, have formed the basis of this assessment approach. The EES assessment approach has been further informed by issues raised during consultation activities and by matters identified through refinement of the project design.

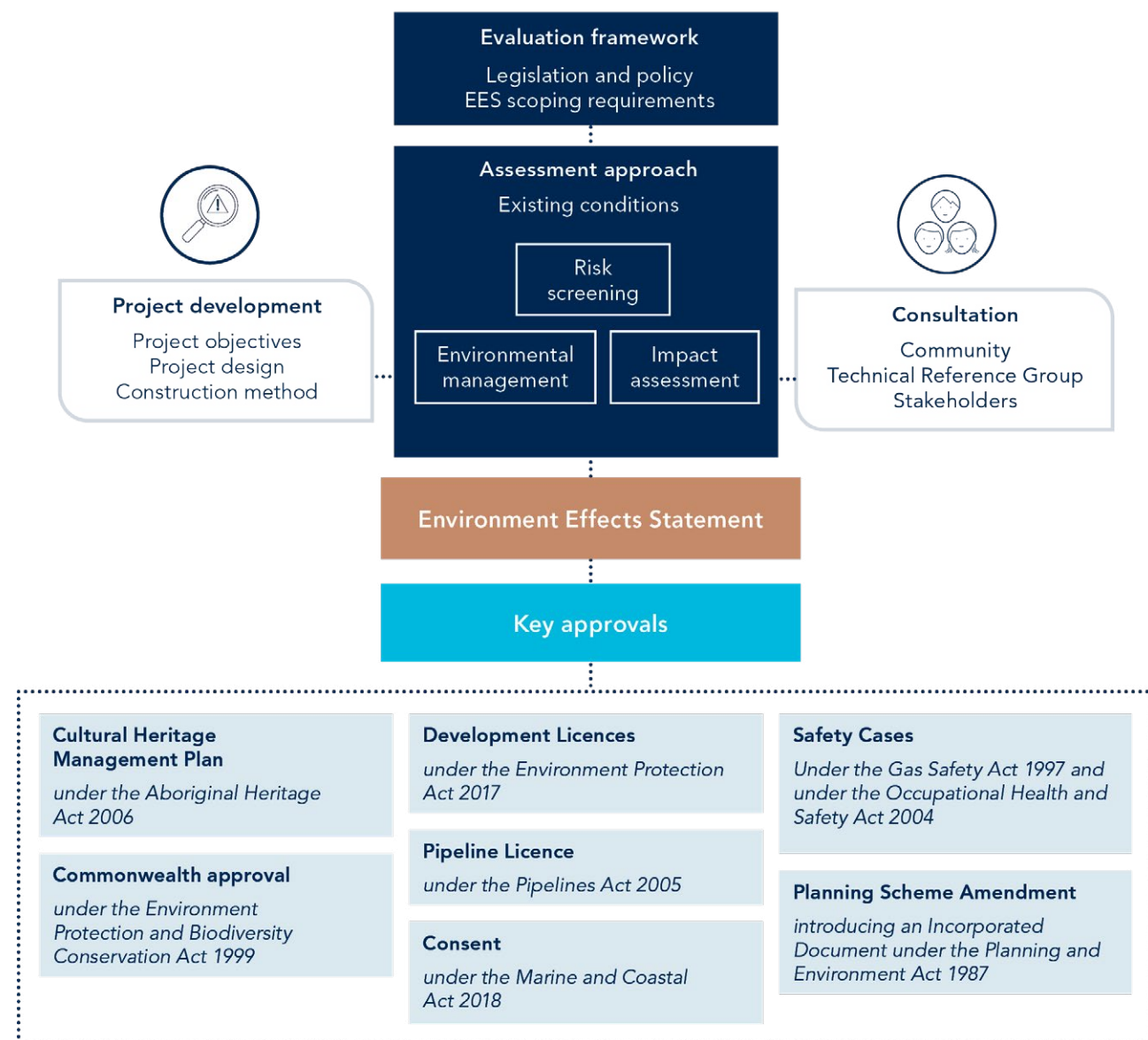


Figure 7-1 Assessment framework

An integrated assessment of potential environmental impacts was undertaken as part of the EES. The integrated assessment approach involved technical studies considering the findings of other studies, where applicable, to inform their impact assessments and ensuring that relationships between different studies were identified and the outcomes integrated. For example, the marine environment and water quality impact assessment considered potential food chain impacts which were then used to assess potential impacts on waders and waterbirds in the terrestrial ecology (including intertidal ecology) impact assessment.

The key components that form the assessment framework are the evaluation framework, assessment approach, project development and consultation. The relationship between these components that make up the assessment framework is shown in Figure 7-1.

7.1 Evaluation framework

The evaluation objectives established by the Victorian Minister for Planning in the EES scoping requirements are outlined in Table 7-1, along with the applicable legislation relevant to each objective. This is the regulatory framework that will inform the assessments undertaken in the EES. The relevant EES chapter and technical report that address each of the evaluation objectives is also shown in Table 7-1.

Key legislation and approvals required for the project are outlined in Chapter 5: *Legislative framework and approvals requirements*. A full list of applicable legislation, policy and guidelines relevant to the project is provided in EES Attachment III: *Legislation and policy report*.

Table 7-1 Evaluation objectives and corresponding legislation

Evaluation objectives	Applicable legislation	Relevant EES chapter, technical report or attachment
Energy efficiency, security, affordability and safety To provide for safe and cost-effective augmentation of Victoria's natural gas supply having regard to projected demand and supply in context of the State's energy needs and climate policy	<i>Environment Effects Act 1978</i> (Vic) <i>Pipelines Act 2005</i> (Vic) <i>Occupational Health and Safety Act 2004</i> (Vic) <i>Gas Safety Act 1997</i> (Vic) <i>Climate Change Act 2017</i> (Vic) <ul style="list-style-type: none">– Victorian Renewable Energy Target of 50% by 2030– Victoria's Climate Change Strategy– Gas Substitution Roadmap <i>Port Management Act 1995</i> (Vic) <i>Marine Safety Act 2010</i> (Vic) <i>Dangerous Goods Act 1985</i> (Vic)	Chapter 2: <i>Project rationale</i> Chapter 12: <i>Safety</i> Technical Report N: <i>Safety, hazard and risk assessment</i> Attachment I: <i>Energy demand and market statement</i>

Evaluation objectives	Applicable legislation	Relevant EES chapter, technical report or attachment
	<i>Maritime Transport and Offshore Facilities Security Act 2003 (Cth)</i> (under which the Office of Transport Security requires a maritime security plan) <i>Navigation Act 2012 (Cth)</i> (and Australian Maritime Safety Authority marine orders) <i>Protection of the Sea (Civil Liability for Bunker Oil Pollution Damage) Act 2008 (Cth)</i>	
Biodiversity To avoid, minimise or offset potential adverse effects on native flora and fauna and their habitats, especially listed threatened or migratory species and listed threatened communities as well as on the marine environment, including intertidal and marine species and habitat values.	<i>Environment Effects Act 1978 (Vic)</i> <i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i> <i>Flora and Fauna Guarantee Act 1988 (Vic)</i> <i>Planning and Environment Act 1987 (Vic)</i> <i>Environment Protection Act 2017 (Vic)</i> <i>Marine and Coastal Act 2018 (Vic)</i> <i>Catchment and Land Protection Act 1994 (Vic)</i> <i>Pipelines Act 2005 (Vic)</i> <i>Fisheries Act 1995 (Vic)</i>	Chapter 10-1: <i>Terrestrial ecology</i> Chapter 8: <i>Marine environment</i> Attachment IV: <i>Matters of National Environmental Significance</i> Technical Report D: <i>Terrestrial ecology impact assessment</i> Technical Report A: <i>Marine ecology and water quality impact assessment</i>
Water and catchment values To minimise adverse effects on water (in particular wetland, estuarine, intertidal and marine) quality and movement, and the ecological character of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site.	<i>Environment Effects Act 1978 (Vic)</i> <i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i> <i>Marine and Coastal Act 2018 (Vic)</i> <i>Environment Protection Act 2017 (Vic)</i> <i>Water Act 1989 (Vic)</i> <i>Catchment and Land Protection Act 1994 (Vic)</i> <i>Pipelines Act 2005 (Vic)</i> <i>Biosecurity Act 2015 (Cth)</i> <i>Flora and Fauna Guarantee Act 1988 (Vic)</i> <i>Fisheries Act 1995 (Vic)</i>	Chapter 10-2: <i>Land and water values</i> Chapter 8: <i>Marine environment</i> Attachment IV: <i>Matters of National Environmental Significance</i> Technical Report A: <i>Marine ecology and water quality impact assessment</i> Technical Report E: <i>Surface water impact assessment</i> Technical Report F: <i>Groundwater impact assessment</i> Technical Report G: <i>Contamination and acid sulfate soils impact assessment</i>

Evaluation objectives	Applicable legislation	Relevant EES chapter, technical report or attachment
Cultural heritage To avoid or minimise adverse effects on Aboriginal and historic cultural heritage	<i>Environment Effects Act 1978 (Vic)</i> <i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i> <i>Aboriginal Heritage Act 2006 (Vic)</i> <i>Heritage Act 2017 (Vic)</i> <i>Planning and Environment Act 1987 (Vic)</i> <i>Pipelines Act 2005 (Vic)</i>	Chapter 13: <i>Heritage</i> Technical Report O: <i>Aboriginal cultural heritage impact assessment</i> Technical Report P: <i>Historic heritage impact assessment</i>
Social, economic, amenity and land use To minimise potential adverse social, economic, amenity and land use effects at local and regional scales.	<i>Environment Effects Act 1978 (Vic)</i> <i>Planning and Environment Act 1987 (Vic)</i> <i>Environment Protection Act 2017 (Vic)</i> <i>Pipelines Act 2005 (Vic)</i> <i>Marine and Coastal Act 2018 (Vic)</i> <i>Road Management Act 2004 (Vic)</i> <i>Transport Integration Act 2010 (Vic)</i> <i>Road Safety Act 1986 (Vic)</i> <i>Catchment and Land Protection Act 1994 (Vic)</i>	Chapter 11: <i>Amenity and environmental quality</i> Technical Report H: <i>Air quality impact assessment</i> Technical Report I: <i>Noise and vibration impact assessment</i> Technical Report J: <i>Landscape and visual impact assessment</i> Technical Report K: <i>Transport impact assessment</i> Technical Report L: <i>Social and business impact assessment</i> Technical Report M: <i>Land use impact assessment</i>
Waste To minimise generation of wastes by or resulting from the project during construction and operation, including dredging and accounting for direct and indirect greenhouse gas emissions.	<i>Environment Effects Act 1978 (Vic)</i> <i>Environment Protection Act 2017 (Vic)</i> <i>Climate Change Act 2017 (Vic)</i> <i>Water Act 1989 (Vic)</i> <i>National Environment Protection Act 1994 (Cth)</i> <i>National Greenhouse and Energy Reporting Act 2007 (Cth)</i> <i>Protection of the Sea (Prevention of Pollution from Ships) Act 1983 (Cth)</i> <i>Pipelines Act 2005 (Vic)</i>	Chapter 8: <i>Marine environment</i> Chapter 9: <i>Greenhouse gas emissions</i> Chapter 10-2: <i>Land and water values</i> Technical Report B: <i>Dredged sediment disposal options assessment</i> Technical Report C: <i>Greenhouse gas impact assessment</i> Technical Report G: <i>Contamination and acid sulfate soils impact assessment</i>

7.2 Primary and secondary areas of assessment

Under Section 8B (5) of the *Environment Effects Act 1978* (Vic) ('Environment Effects Act') and the *Ministerial guidelines for assessment of environmental effects under the Environment Effects Act 1978* (Ministerial Guidelines), the Minister's decision identified primary and secondary requirements for assessment of potential impacts in the EES.

Primary and secondary issues were identified by the Minister to inform the level of assessment required in the EES. The primary issues for assessment are considered to represent the potential impacts of most concern for the project that require detailed assessments in the EES. Secondary issues are considered to be potential impacts which may be of lesser significance for the EES as a result of aspects such as the type of infrastructure and operation proposed, and location of the project in an industrialised port setting. Notwithstanding, all secondary issues have been thoroughly examined in the EES.

Technical studies undertaken for the EES have been identified as either a primary or secondary area of assessment, with the level of assessment commensurate with the potential impacts. The level of detail of investigation for the EES technical studies is consistent with the approach set out in the scoping requirements and is also adequate to inform an assessment of the significance and acceptability of the project's potential environmental effects.

A full list of the primary and secondary areas of assessment for this project is provided in Chapter 1: *Introduction*.

7.3 Assessment approach

The EES assessment has used a systematic risk-based approach to ensure that potential environmental impacts were identified and avoided, mitigated or managed effectively to achieve outcomes consistent with the evaluation objectives. The impact assessment approach is shown in **Figure 7.2** and involved:

- Defining the project to a level sufficient to enable assessment of impacts
- Understanding the existing conditions of the project site and areas potentially impacted
- Identifying and assessing potential environmental impacts of the project

- Evaluating the effectiveness of mitigation measures to avoid, minimise or manage potential impacts.
- Following the development of the project description, 16 technical studies were undertaken to assess potential environmental impacts of the project. The impact assessment involved the following steps:
- Establishing the existing conditions including identifying environmental and social receptors that may be impacted (for example, the marine environment)
 - Identifying project elements or activities that may have an impact on environmental and/or social receptors (for example, the floating storage and regasification unit (FSRU) continuously moored at Refinery Pier)
 - Determining potential impact pathways between project elements/activities and environmental and social receptors (for example, seawater discharges into Corio Bay)
 - Assessing potential impacts (direct and indirect) using an integrated and systematic approach, including a risk screening to determine the level of assessment required for each impact
 - Developing avoidance, mitigation or management measures with a focus on ongoing refinement of the project to assist in mitigating impacts
 - Assessing potential residual impacts after mitigation measures are applied and evaluating the significance of residual impacts having regard to the magnitude, extent and duration of potential impacts and the relationships between different impacts. The efficacy of avoidance and mitigation was also evaluated
 - Assessing whether outcomes of the impact assessments are consistent with the EES evaluation objectives.

Where possible, changes or modifications to the project design or operation have been made to avoid an impact and remove the need for mitigation. Where changes to the project design or operation were not possible, additional mitigation measures have been recommended to minimise or manage impacts to achieve an outcome consistent with the evaluation objectives.

Aspects of project design and operation have also been influenced by new information emerging from stakeholder consultation and as a result of findings from the technical studies. Project refinement includes activities such as the consideration of project alternatives, changes to operational aspects,

relocation of project components, modification of project design and construction methodologies.

An Environmental Management Framework (EMF) has been developed outlining in a transparent manner all mitigation measures proposed by the proponent and clear accountabilities for managing environmental impacts during construction and operation. The EMF also includes proposed monitoring and contingency measures and approaches. The EMF for the project is outlined in Chapter 14: *Environmental Management Framework*.

Further detail on the impact assessment approach is provided in **Figure 7-2**.

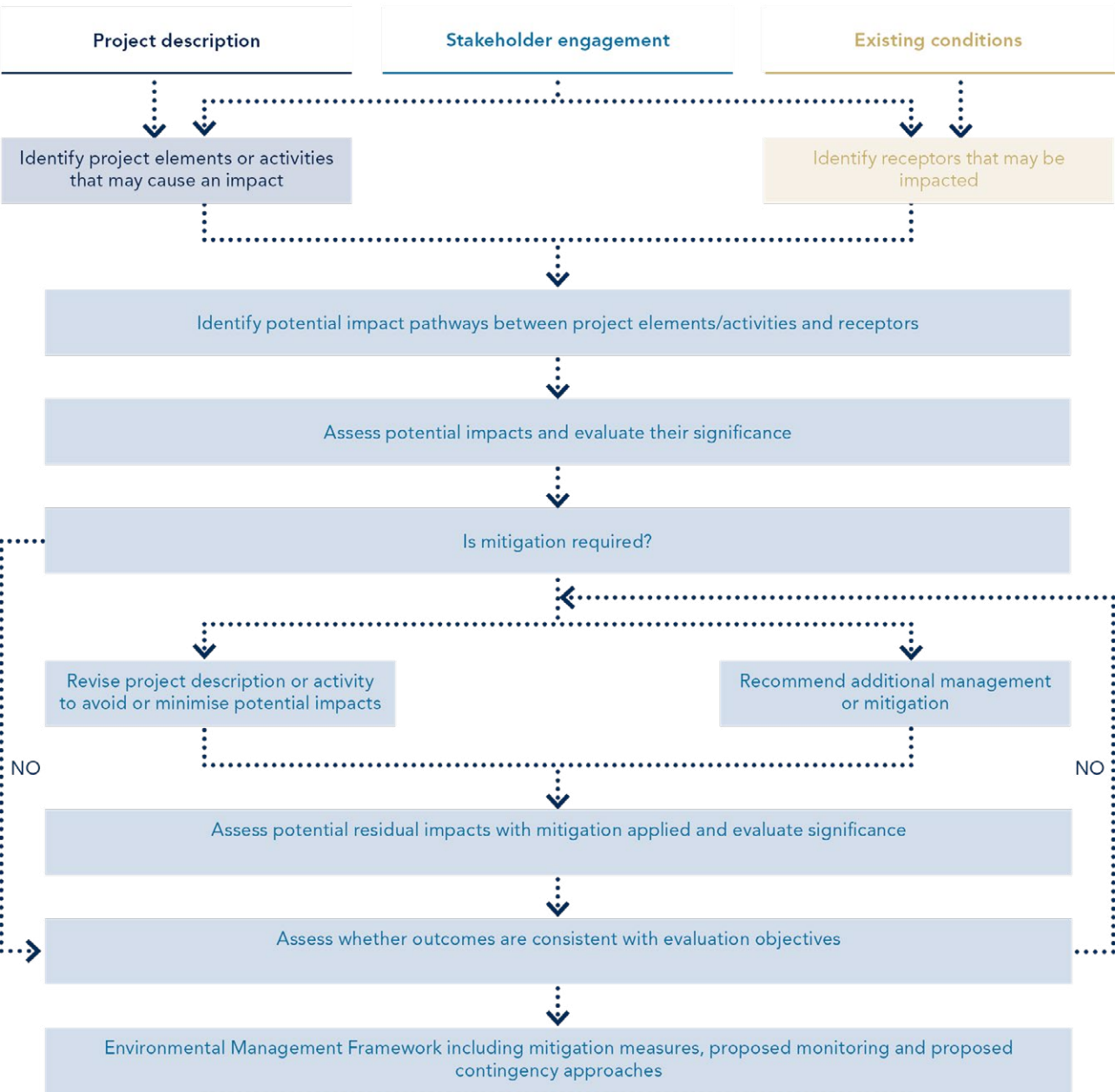


Figure 7-2 Impact assessment approach

7.4 Existing conditions

An existing conditions assessment identifies and evaluates the current condition of the environment. Existing conditions assessments have been undertaken for each technical study in the EES to identify the environmental context for the project and to provide baseline conditions to be used for the impact assessments. These collectively provide the environmental context for the project.

The existing conditions assessments involved identifying and characterising the existing conditions of the project site and surrounds including identifying receptors (potential values that may be impacted), assets, values and uses that are considered significant and could be affected by the project.

Each technical study has considered the area in which potential effects from the project could occur and generate impacts on existing receptors. This is referred to as the ‘study area’. The study area for each technical study varies in its extent as environmental conditions, sensitive receptors and significant existing assets will differ between each technical discipline. For some technical studies, the ‘study area’ is larger than the defined ‘project area’. For example, the study area for the terrestrial ecology technical study encompassed a broader area to consider the potential for habitat fragmentation impacts on terrestrial species and their broader environment.

The existing conditions for each technical study are outlined in Chapters 8 to 13 and detailed in EES Technical Reports A to P.

7.5 Risk screening

A risk-based screening approach has been used for the EES assessment in accordance with the requirements outlined in the ‘Ministerial guidelines for assessment of Environmental Effects under the Environment Effects Act 1978’ (page 14). The risk screening is undertaken to ensure that the level of investigation conducted in each technical study is adequate to inform an assessment of the significance and acceptability of the project’s potential environmental impacts.

An environmental, social and economic issues risk screening tool was used to prioritise and focus the proposed investigations, assessments and approaches to avoiding, minimising or managing potential impacts. The issue screening process involved an evaluation of the potential environmental, social and economic issues

associated with the project based on the information collected through a series of initial assessments undertaken into the potential effects of the project.

A risk screening workshop was conducted involving technical specialists, engineers and designers and Viva Energy staff familiar with the existing refinery site and operations. Technical inputs to the risk workshop included inputs from specialists with experience on similar projects.

The purpose of the issues screening tool was to assist in identifying:

- Significant issues, uncertainties and/or potential impacts that require more detailed characterisation and/or assessment within the EES
- Matters or potential impacts considered to be already well understood or less significant.

Outcomes of the initial risk screening were provided to the Minister for Planning in the proposed study program for the EES put forward by the proponent and formed one input to development of the scoping requirements issued by the Minister.

The EES has undertaken a risk-based, integrated assessment of the project’s potential environmental impacts which has resulted in design and operational modifications to the project during the design and EES process. Where potential impacts were not able to be totally avoided, detailed mitigation and management measures have been identified, committed to by the proponent, and outlined in detail in this EES.

7.5.1 Methodology

A high, medium, or low screening value was assigned to potential issues to determine the level of assessment required to identify and investigate impacts.

Each potential issue was given a score (1, 2 or 3) against the categories of:

- Community and stakeholder interest
- Significance of assets, values and uses
- Potential impact (spatial, temporal and severity).

The scores were added together, and the total score or the highest score across the three contributing categories was used to give a ‘screening value’ of high, medium or low which gave an indication of the level of assessment required. Note that the higher screening value of the two options was selected. This worst-case approach was adopted to ensure that issues identified were adequately investigated in the EES. Issues that were assigned a screening value of high or medium required detailed assessment in the EES at a level commensurate with their potential level of impact.

Issues that were assigned a screening value of low were proposed to be documented and managed with some investigation and assessment in the EES at a level commensurate with their potential level of impact.

This preliminary screening process did not eliminate potential impacts from investigation or assessment, rather, it provided a mechanism to determine the level of assessment required. For example, certain marine ecology issues were assigned a medium or high risk in the initial screening due to uncertainty and required an extended period of field monitoring and extensive modelling to understand the potential impacts and develop effective mitigation measures to manage impacts.

The EES process included assessments that responded to the scoping requirements and involved additional empirical research, as well as engagement with key regulators and community stakeholders to agree on the scope of assessment. Detailed technical work was undertaken to confirm the extent and severity of potential impacts and to explore ways of avoiding, minimising or managing impacts.

The issues screening process involved the following tasks:

- Review of relevant legislation and policy
- Review of existing characterisation and impact assessment reports and available information
- Review of information arising from stakeholder consultation undertaken to date to identify stakeholder issues
- Identification of the potential interactions between the project components and key environmental assets, values and uses.

7.5.2 Criteria and consequence ratings

Risks, issues and potential impact pathways were identified for both construction and operation of the project. **Table 7-2** defines the criteria and consequence ratings for each of the three categories that have been used to inform the issues screening. The sum of the scores against each of the three categories, or the highest score across the three categories, gives the ‘screening value’.

The screening values are then used to determine the level of assessment required as shown in **Table 7-3**. The key issues identified from the risk screening process for the project, and the screening value score for each issue, are provided in EES Technical Reports A to P.

Table 7-2 Issues screening criteria and consequence ratings

Rating	Community and stakeholder interest	Significance of assets, values and uses	Potential impact (spatial, temporal and severity)
1	Low interest and perceived impact	Locally significant asset, value or use	Potential for localised, temporary impact
2	Some interest and targeted perceived impacts	Regionally significant asset, value or use	Potential for significant temporary, or localised permanent impact
3	Broad community and stakeholder interest or impacts	State or nationally significant asset, value or use	Potential for significant permanent impact

Table 7-3 Issue investigation categories

Screening score	Screening value	Potential consequences	Complexity of mitigation	Level of assessment
7, 8 or 9 or the highest rating across any one of the three contributing categories is 3	High	Potential for elevated, longer term impacts, significant assets or values may be affected with enduring changes. Considers both impacts and benefits, or Issue may not be well defined and insufficient information is available for the impact assessment, or High level of community interest.	Stringent management measures may be required	Detailed assessment required
4, 5 or 6 or the highest rating across any one of the three contributing categories is 2	Medium	Potential for moderate level impacts, significant assets or values may be affected over an extended time frame with some resultant changes. Considers both impacts and benefits, or Issue may be moderately understood, and some information is available, however more is required for the impact assessment, or Medium level of community interest.	Standard management measures are available that can be adopted with some modification	Moderate assessment required
3 or the highest rating across any one of the three contributing categories is 1	Low	Potential for short term and localised impact. Asset or values may be temporarily affected but recovery expected, or Issue is well understood and there is enough information available for the impact assessment, or Low level of community interest.	Standard management measures are available.	Some assessment required

7.6 Impact assessment

An impact is considered a change to any environmental or social asset, value, or land use as a result of the construction and/or operation of the project. The nature and extent of potential impacts identified was measured against the baseline conditions identified in the existing conditions assessment.

Each technical study has undertaken an environmental impact assessment based on the defined area of study. This involved an assessment of the nature and extent of identified impacts that the project may have on the existing environment. The impact assessment was informed by the issues identified in the risk screening process. Impacts that were identified in the risk screening and assigned a screening value of high or medium, required more detailed consideration in the impact assessments of each technical study than impacts assigned a screening value of low.

The following factors were taken into consideration when determining the significance of potential environmental impacts of the projects:

- Existing environmental conditions
- The relationship between project elements/ activities and environmental and social receptors
- Magnitude, extent, and duration of impacts on the environment
- The relationship between different impacts on the environment and potential cumulative impacts
- The likely effectiveness of mitigation measures to avoid, minimise and manage adverse impacts
- Standards set by statutory requirements and environmental approvals
- The policies and guidelines that are applicable to the project
- Community and stakeholder expectations
- The principles of ecologically sustainable development as defined in the Ministerial guidelines for assessment of environmental effects (DSE 2006)
- Whether impacts are consistent with the EES evaluation objectives.

The impact assessment process is iterative, as shown in **Figure 7-2**. Where a potential impact is identified, the first step in the assessment process is to modify the project design or operation where possible to avoid identified impacts. Where the project was not able to be modified and impacts were unavoidable, mitigation measures were developed to reduce or minimise potential impacts. This process was

iterative and continued during the EES development until impacts were reduced to as low as practicably possible. Following this, the residual impacts were assessed with mitigation applied, and evaluated on their significance with regard to magnitude, extent, and duration of the potential impact.

The significance of residual impacts was also evaluated with regard to relationships between different impacts and across different technical studies as part of the integrated assessment approach. Technical studies considered the findings of other studies, where applicable, to inform their impact assessments and ensure that relationships between different studies were identified and the outcomes integrated. For example, the assessment of potential social impacts was informed by studies such as noise and traffic where the level of potential nuisance and disruption to the community were considered. Mitigation measures developed for technical studies were cross-referenced and applied to other technical studies where relevant.

The impact assessments for each of the technical studies undertaken for the EES are summarised in Chapters 8 to 13 and detailed in EES Technical Reports A to P.

Some technical studies have been subject to independent peer review where independent specialists were engaged to verify that the work is technically sound, conclusions are supported, and the technical study clearly covers the relevant matters identified in scoping requirements and Ministerial Guidelines. Selecting technical studies for independent peer review is the responsibility of the proponent; however, the process of determining whether a technical study requires peer review was undertaken in consultation with the EES Technical Reference Group (TRG) convened by DELWP. The proponent has considered the key issues that have emerged during the assessments, the complexity of the assessment and the feedback of the TRG in selecting the technical studies that require peer review.

7.7 Assessing cumulative impacts

Cumulative impacts are impacts that arise from the effect of multiple actions or impacts. When considered together, cumulative impacts can have a different and/or more substantial impact than one single action or impact assessed on its own.

Cumulative impacts can arise when other development activities, or concurrent activities associated with a project occur, resulting in successive, incremental, and/or combined effects. The degree to which another development could

interact with the construction and/or operation of the project would depend on its scale, location and/or timing of construction.

Potential cumulative impacts have been addressed through the environmental impact assessment process in each technical study where relevant. The scope of projects considered as part of the cumulative impact assessment was tailored for each technical discipline.

7.8 Consultation

Viva Energy recognises the importance of stakeholder engagement and consultation, and the value it brings to the planning, design, construction and operational phases of infrastructure projects, including the management of community expectations and considerations of various stakeholders. Viva Energy is committed to proactively engaging and consulting with all affected stakeholders throughout the life of the project to ensure there is a thorough understanding of the project scope, any potential impacts and to ensure there is a transparent feedback process.

Viva Energy has a single integrated project consultation plan to satisfy the requirements under both the 'Ministerial guidelines for assessment of Environmental Effects under the Environment Effects Act 1978' and the *Pipelines Act 2005*.

In June 2020, Viva Energy announced their plan for the Gas Terminal Project as part of the Geelong Energy Hub concept in the media, with information material available on the Viva Energy website.

Viva Energy commenced preliminary consultation and engagement activities for the project in October 2019 and continued throughout the EES phase. Key consultation activities that have been undertaken to date include:

- Government and business briefings
- Meetings with government agencies, regulators, key stakeholders, affected landowners and community representatives
- Business and industry forums
- Online information and feedback forms
- Advertisements in local newspapers for community information sessions
- Mail drops to local residents
- Ongoing communications with neighbours and local stakeholders
- Community information sessions and events
- A comprehensive program of public engagement was undertaken to keep the community informed about project progress, seek input on project design and development, and identify and respond to stakeholder and community concerns

Viva Energy implemented:

- A process where stakeholders were informed about the project and associated investigations and technical studies
- A program which encouraged participation and allowed stakeholders the opportunity for input
- A process which gave stakeholders the opportunity to provide feedback on the EES.

During the EES process, local council and relevant government agencies were engaged through the EES TRG. The TRG provided advice to the project team on key issues and concerns from their respective areas of interest.

Stakeholder feedback was collected, recorded, and considered as part of the ongoing development and refinement of the project design and implementation. Communications with project stakeholders are recorded in a consultation management database.

Chapter 6: *Stakeholder and community engagement* provides further information on the consultation undertaken for the project.

7.9 Environmental Management Framework

Development of the EMF was guided by the scoping requirements, relevant legislation, policy, and guidelines including the statutory approvals and consents that would be required. The EMF and associated mitigation measures was informed by the impact assessments and technical studies completed for the EES.

The EMF contains a complete list of the mitigation measures proposed by, and committed to, by Viva Energy to address specific issues and mitigate potential adverse effects of the project. These mitigation measures represent the environmental commitments made by Viva Energy. The relevant statutory approvals and requirements for the project will give statutory effect to these mitigation measures if regulatory authorities wish to include these measures as part of their statutory approval conditions.

The EMF is provided in Chapter 14 for consideration by regulatory authorities. The EMF includes clear accountabilities for managing and monitoring environmental effects and safety risks associated with the construction and operation phases of the project to achieve acceptable environmental and safety outcomes.

The EMF also describes the baseline environmental conditions to be used to monitor and evaluate the residual environmental effects of the project, as well as the efficacy of applied environmental management and contingency measures.