Hastings Power Generation Project - Environmant and Human Health Risk Assessment

	Greenhouse gas emissions	Air emissions - not CO2e	Dust	Odour	Noise	Light	Visual Impact	Flora	Fauna	Introduced Species - flora/ biohazards	Introduced Species - Fauna	Ramsar Wetland	Cultural Heritage	Heritage	Traffic & transport	Land use and property	Socio-economic impacts	Geology & soils	Hydrology & water quality	Waste water	Stormwater	General Waste	Water Use	Hazardous Waste	Hazardous substances & Dangerous Goods	Fire & Explosion
Construction - Piping																										
Transportation of equipment to site	√	√	√	√	√		√			√					√		√									
Temporary workspace - marking, fencing	√	√	√					√		√			√	√		√		√								
Clear and grade	√	√	√		√		√	√	√				√	√	√			√			√					
Trenching and dewatering	√	√	√	√	√	√						√	√	√					√	√						
Pipe support construction, including concrete footings	√	√			√								√	√				√				√				
Pipe stringing, bending, welding and coating	√	√			√			√	√													√		√	√	
Pipe laying (above/below ground) and backfilling	√	√	√		√					√								√								
Testing and commissioning (hydrotesting offsite)		√		√		√						√							√	√			√	√	√	√
Clean-up and restoration			√		√					√					√			√				√	√			
Civil construction		√	√		√	√				√	√				√		√			√		√	√	√	√	√
Construction - Power Plant																										
Site selection							√						√	√		√	√									
Transportation of equipment to site	√	√		√	√		√			√					√		√									
Earthmoving - site levelling and clearing	√	√	√		√			√	√	√			√	√	√			√								
Excavation - laying concrete pad	√	√	√		√					√			√	√	√			√								
Stockpiling soil	√	√	√		√					√					√			√						√		
Installing gas turbine generators, fuel gas conditioning skids, instrument air compressors, stacks, including welding	√	√			√	√	√															√	√	√	√	
Install equipment rooms and electrical infrastructure	√	√			√																	√		√	√	
Install control rooms and security systems	√	√			√																	√		√	√	
Pre Commissioning and Commissioning	√	√		√	√							√							√	√	√	√	√	√	√	√
Civil construction						√				√	√				√		√		√	√	√	√	√			√
Construction - Emergency Situation																										
Heavy rainfall / storm												√														
Earthquake																										
Tidal damage / flooding												√														
Loss of containment - construction vehicles	√	√		√				√	√			√						√	√					√		√
Accident during construction activities																										
Bushfire	√	√	√	√				√	√																	√
Drought			√					√	√																	√
Operations - Piping																										
Normal operations	√																									
General maintenance	√																									
Operations - Power Plant																										
Normal operations	√	√	√	√	√	√	√		√		√				√				√	√	√	√	√	√	√	√
General maintenance	√	√			√	√									√		√		√	√	√	√	√	√	√	√
Turbine water washing (44 gallon drum, using of hepa filter very infrequent)				√															√	√	√		√			
Site / control room											√									√		√	√			
Fuel gas conditioning skid on line and standby	√	√																						√		
Rainwater management																					√					
Water/hydrocarbons sump / bunds				√																√	√					
Hydrocarbon liquids weathering point	√	√		√																						√
Operations - Emergency Situations																										

	Greenhouse gas emissions	Air emissions - not CO2e	Dust	Odour	Noise	Light	Visual Impact	Flora	Fauna	Introduced Species - flora/ biohazards	Introduced Species - Fauna	Ramsar Wetland	Cultural Heritage	Heritage	Traffic & transport	Land use and property	Socio-economic impacts	Geology & soils	Hydrology & water quality	Waste water	Stormwater	General Waste	Water Use	Hazardous Waste	Hazardous substances & Dangerous Goods	Fire & Explosion
Fluctuating ethane gas flow - venting and	√	√																								√
Emergency shutdowns - turbine water mist system pressurised by N2	√	√																								√
Equipment LOC	√	√		√														√	√	√				√		
Power arcing, transformer / electrical systems fire																										
Liquids drop out in fuel gas conditioning skid in winter due to heater failure (see below)	√	√		√																						
HP or shutdown of unit leading to excessive LIP flaring (P control no control link to LIP	√	√					√																			
Any other spills	√	√		√														√	√	√				√		
Heavy rainfall / storm																										
Earthquake																										
Tidal damage / flooding																										
Accident during operations																										
Bushfire	√	√	√					√	√																	√
Drought		√	√					√	√																	
Operations with H2S during MDEA shutdown at LIP		√		√																						
Cumulative Impacts																										
Operating Alongside MHF facility																									√	√
Stack heights - including impact on aviation							√								√		√									

Ref					Impact / Risk Treatment	Residual Risk Analysis and Ranking								
	Activity	Aspect	Cause of Aspect	Impact or Risk	Controls (Preventative and Mitigative)		Consequence							
					A system, item of equipment, a person or a procedure that is used as a basis for managing environmental impacts and risks.	Likelihood	Duration	Size/Scale	Intensity	Irreplaceability	Vulnerability	Influence	Level	Risk Ranking
	Construction - Piping (less than 100 metres from LIP fence line to gas turbine generators)													
1	Transportation Site clearance Trenching Above ground installation Pipe laying Backfilling Site restoration	Greenhouse gas	Energy use, as fuel to operate plant and equipment, and as electricity consumed for site compounds Vegetation clearing — cleared vegetation would decay or burn to release CO2, with limited methane emissions if allowed to decay under anoxic conditions Emissions embodied in the materials used for construction, such as CO2 generated during cement manufacture, or energy consumed in steel production.	Negligible increase in greenhouse gases emitted as a result of : - vehicle use - land clearing - use of materials with high lifecycle emissions	Emission of greenhouse gases during construction would be managed through standard management measures, including: - adequate maintenance and efficient operation of all equipment - no unnecessary revving or idling of engines - staging works to minimise double handling (i.e. duplication of soil movements) - preservation of existing on-site vegetation and revegetation where feasible on completion of construction - preference to locally sourced materials, where possible	B	L	M	L	L	M	L	IV	4
2	Transportation Site clearance Trenching Above ground installation Pipe laying Backfilling Site restoration	Air quality	Air pollutants released through the operation of construction equipment and vehicles	The project has the potential to increase emissions to air	Emissions from construction equipment and vehicles would be unlikely to result in air quality impacts. Ozone depleting substances are not to be used on site. Vehicles and equipment to be regularly maintained in line with manufacturers specifications.	C	M	L	L	L	L	L	IV	4
3	Transportation Site clearance Trenching Backfilling Site restoration	Dust	Dust would be generated during construction from: - excavating soil for pipe supports foundations - soil handling, movement and storage - erosion of stockpiles and exposed areas onsite - handling, transfer and storage of materials - vehicle movements along internal unsealed access and haul roads.	Excavation required for the ethane piping/ piping supports within Project area is small . Soil movements will be minimal as a result. Release of dust could result in nuisance and/or health impact to the construction workforce, neighbouring communities and local flora and fauna. These impacts are expected to be negligible.	Install erosion and sediment control measures prior to commencing disturbance works Plan works to minimise the extent and duration an area remains exposed/unstabilised Soil loads to be covered when transported Utilise dust suppressants (i.e. water sprays) to control dust generation; as required. Disturbed areas are to be progressively stabilised as soon as practicable Promote ongoing awareness of best practice erosion management among all personnel involved with soil movement. Soil to be stockpiled at LIP in accordance with LIP procedures.	C	M	L	L	L	L	L	IV	4
4	Transportation Site clearance Trenching Above ground installation Pipe laying Backfilling Site restoration	Noise	Noise would be generated from vehicles and construction equipment	It is not expected that some noise levels during construction may exceed the adopted noise goals at sensitive receptors. Impacts are expected to be short term. Construction is expected to be completed in 6 months.	Implement the construction noise mitigation measures proposed in the Noise Impact Assessment Noise generating construction activities limited to 6am to 6pm, Monday to Saturday. Any works planned to be conducted outside of normal construction work hours must be approved by Construction Manager prior to conducting activity. Main road close to site is a gazetted road for oversize vehicles.	C	M	L	L	L	L	L	IV	4
5	Transportation Site clearance Trenching Backfilling Site restoration	Light emissions	Construction activities, equipment and traffic Use of light towers	Temporary lighting causes nuisance to community leading to receipt of complaints Disorientation of seabirds and migratory shorebirds	Only essential lighting is permitted and installed at a height and orientation that it ensures the lighting illuminates the area of the worksite. Lighting is to be switched off when not in use unless required for security purposes	D	L	L	L	M	M	M	III	4
6	Transportation Site clearance Trenching Backfilling Site restoration	Visual impact	Construction activities, equipment and traffic	Construction activities, equipment and traffic will be largely shielded from the community and road traffic on both Bayview Road and Long Island Drive. Transportation of equipment will be visible en-route.	Site is fully fenced with a dense border of vegetation at the entrance to the power plant from Bayview Road. Access to the site is from Bayview Road. Visibility is reduced from Long Island Drive by vegetation that grows along the road. Pipe and equipment delivery, will be the responsibility of the provider. Site traffic will conform with the Project's Traffic Management Plan (to be developed).	E	L	L	L	L	L	L	IV	4

Ref					Impact / Risk Treatment	Residual Risk Analysis and Ranking								
	Activity	Aspect	Cause of Aspect	Impact or Risk	Controls (Preventative and Mitigative)		Consequence							
					A system, item of equipment, a person or a procedure that is used as a basis for managing environmental impacts and risks.	Likelihood	Duration	Size/Scale	Intensity	Irreplaceability	Vulnerability	Influence	Level	Risk Ranking
	Construction - Piping (less than 100 metres from LIP fence line to gas turbine generators)													
7	Site clearance Trenching Above ground installation Site restoration	Flora and Fauna	Clearing of vegetation at project site fence line for pipeline installation	Minor vegetation removal is anticipated as part of the piping installation within the Project site.	Maintain high standards of housekeeping in material storage areas, around amenity facilities and around work sites No clearing of native vegetation is to occur without approval from the Project Manager Only suitably qualified personnel may handle/relocate wildlife where required The Construction HSE Mgr or Project Mgr must approve any disturbance to wildlife observed on site or disturbance to known wildlife habitat. Events of un-authorised clearing or injury to fauna as a result of project activities will be managed through the Construction HSE incident management procedure. Clearing footprints to be clearly marked prior to commencing activity Promote ongoing awareness of best practice flora and fauna management among all piping construction personnel	E	H	L	L	L	L	L	IV	4
8	Transportation Site clearance Trenching Above ground installation Pipe laying Backfilling Site restoration	Weeds and pests	Mobilisation and demobilisation of vehicles/ plant/ equipment, general earthworks, stockpiling, wash down of plant/ vehicles/ equipment, waste disposal	Potential for trucks to import biohazards that could impact native flora and fauna. Spread of noxious weeds resulting in decline of native flora and fauna habitat Introduction of vermin due to human activity Transportation to and from site is via a sealed road, trucks will not traverse agricultural land to access site.	Site area is cleared and lies within Esso owned land. No native endangered or at risk native flora or fauna species present in piping area. Site mess facilitites to allow for food storage as part of construction activities	E	M	L	L	L	L	L	IV	4
9	Site clearance Trenching Above ground installation Site restoration	Cultural heritage Heritage	Land clearance	No risks - cultural heritage assessment did not identify any sites or objects of significance.	All personnel involved with soil disturbance to receive basic awareness training in project cultural heritage and heritage legal and contractual requirements as part of site orientation. All actual and potential cultural heritage or historical artefacts found are to be barricaded and immediately reported to the Construction HSE Manager and COMPANY representative. All identified actual and potential cultural heritage significant areas or historical artefacts to be barricaded and have 'NO-GO-ZONE' signage in place.	E	L	L	L	M	M	M	III	4
10	Transportation Civil construction	Traffic and transport	Transport of equipment Construction workforce transportation	Bayview Road has a high level of traffic already (Vic Roads estimate 3,900 vehicles per day; including 232 trucks per day) The project would result in a small increase in traffic volumes along Bayview Road during construction.	Pipe and equipment delivery, will be the responsibility of the provider. Site traffic will conform with the Project's Traffic Management Plan (to be developed).	E	M	L	L	L	L	L	IV	4
11	Site selection	Land use and property	Construction of the pipe	No risks - piping will be installed within LIP and the Project site. No public or private land acquisition is required.	No mitigation	E	N/A	N/A	N/A	N/A	N/A	N/A	IV	4
12	Transportation Civil construction	Socio-economic impacts	Construction of the pipe	Economic benefits would be associated with local and regional expenditure on services as well as increased local expenditure from the construction workforce.	Stakeholder consultation programme has been developed and will be implemented over the life of the project.	E	N/A	N/A	N/A	N/A	N/A	N/A	IV	4
13	Site clearance Trenching Above ground installation Site restoration	Geology and soils	Soil movements as part of construction	Exposure of site personnel to soil contaminants/pathogens Transfer of contaminated soil to other locations Soil inversion and mixing of soil types.	Soil to be retained on Esso property and reused as far as practicable Soil testing results show no issues for Human Health but some localised samples exceeded the EIS criteria (category D), these areas will be stockpiled separately and retested prior to reuse or disposed of at an appropriate waste facility Soil stockpile management and testing as required in accordance with site procedures Construction personnel PPE as required when handling contaminated soils (as required by testing results)/dust masks as required Assessed as a human health risk	E	N/A	N/A	N/A	N/A	N/A	N/A	IV	4

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	Activity	Aspect	Cause of Aspect	Impact or Risk	Controls (Preventative and Mitigative)		Consequence							
					A system, item of equipment, a person or a procedure that is used as a basis for managing environmental impacts and risks.	Likelihood	Duration	Size/Scale	Intensity	Irreplaceability	Vulnerability	Influence	Level	Risk Ranking
	Construction - Piping (less than 100 metres from LIP fence line to gas turbine generators)													
14	Trench dewatering Hydrotesting Civil construction	Hydrology and water quality Stormwater Wastewater	Piping construction Hydrotesting	Construction activities have the potential to generate pollutants (from sediment discharge or contaminants) that could affect surface water quality. Increasing the possibility of algal blooms or viral infections such as E. Coli resulting from incorrect disposal of grey water leading to prosecution by relevant agencies. Other pollutants may include hydrocarbons and chemicals from spill and leakage, and general litter and gross pollutants. Potential for polluted water to leave site boundary and enter Westernport Bay Potential to breach Development Licence conditions Impacts to flora and fauna affected by water quality characteristics Impact on project relations with adjacent property owners or broader community. No open drains in vicinity of piping route.	System for handling grey water and sewage to be implemented. Contaminated water will be discharged to holding tank and disposed of at an approved waste facility An erosion and sediment control plan would be prepared and implemented. All dewatering activities to be supervised at all times. Project Mgr/HSE Mgr to approve any discharge of site water offsite. Have adequate drainage and flood control measures in place at all times. Promote ongoing awareness of best practice stormwater management among all personnel. Construction Contractor to develop site procedures to manage the handling, use, storage and disposal or hazardous substances; waste and refuelling / maintenance / servicing activities to prevent release of contaminants into the environment. Hydrotesting of pipe would occur prior to delivery. Any additional pressure testing of piping, if required, will be undertaken with inert gas.	D	M	L	L	M	M	M	III	4
15	Hydrotesting Site restoration Civil construction	Water use	General earthworks, road construction, hydro-testing, site temporary plumbing facilities, dust suppression, drinking water, site rehabilitation/ revegetation, vehicle/plant/equipment wash down, concrete washout, re-use of storm water/ grey water/ recycled water/ treated wash water, waste of water due to leakages of taps and other plumbing facilities.	Waste of natural resources Bad project relations resulting from actual or perceived wasteful water use practices. Increased financial costs associated with unnecessary use of more expensive water sources. Delays to construction program/ works due to insufficient availability of suitable water source.	All work activities on the project should actively seek opportunities to minimise water use/consumption during the planning phase of the activity Install water efficient appliances wherever practicable in kitchenette and bathroom facilities. Regularly inspect taps and fittings for drips and/or leaks Storm water captured/ponded on site to be reused for construction purposes through water carts wherever practicable Irrigation systems installed on site for revegetation and/or dust suppression will use either suitably treated recycled water or captured/ponded storm water wherever practicable. If hydrotesting performed on site, water left over from hydro-testing activities will be re-used on site. Where re-cycled or grey water is used on site, a risk assessment will be conducted to assess potential HSE and construction risks associated with the activity prior to use Where it is assessed to be necessary, appropriate water quality analysis will be carried out where there is potential for water to carry contaminants that may possess an unacceptable health or environmental risk. As far as reasonably practicable water used for washing bays will allow for waste water to be treated and reused. Subcontractors to risk assess water usage hazards associated with their activities and include mitigation measures in their EMP Promote ongoing awareness of best practice water management among all personnel	D	L	L	L	L	L	L	IV	4

Ref					Impact / Risk Treatment	Residual Risk Analysis and Ranking								
	Activity	Aspect	Cause of Aspect	Impact or Risk	Controls (Preventative and Mitigative)		Consequence							
					A system, item of equipment, a person or a procedure that is used as a basis for managing environmental impacts and risks.	Likelihood	Duration	Size/Scale	Intensity	Irreplaceability	Vulnerability	Influence	Level	Risk Ranking
	Construction - Piping (less than 100 metres from LIP fence line to gas turbine generators)													
16	Transportation Site clearance Trenching Above ground installation Pipe laying Backfilling Site restoration Civil Construction	Waste	Construction could generate various types of construction wastes.	Generation of excessive waste leading to increased resourcing and disposal costs. Potential contamination of land and or water with litter or hazardous substances Attraction of vermin to waste storage areas Create potential health risks to personnel on site Increased costs of disposing non-segregated waste Increased ecological footprint due to sending excessive quantities of waste to landfill rather than reusing and recycling materials Failure to fulfil obligations under the Environmental Protection Act 2017 potentially leading to prosecution Loss of amenity Impacts to wildlife Waste not able to be considered for secondary beneficial use. Worksite personnel adversely impacted by odour from decomposing waste. Industrial action as a result of verified complaints of vermin around the welfare areas by personnel at site. Non-compliance with Development Licence Potential to receive complaints if litter/ waste/ contaminants move off-site Incorrect disposal resulting in biological infection to waste handler.	A construction waste management plan is to be developed and implemented, which includes process for collection, segregation, storage and disposal. Promote ongoing awareness of best practice waste management among all personnel Only a suitably licenced waste transport contractor may remove waste from site. Surplus soil is to be minimised through cut and fill. Any material unsuitable for engineering purposes would be used in on-site landscaping to ensure no off-site disposal. Maintain records of all waste removed from site	E	M	L	L	L	L	L	IV	4
17	Above ground installation Pipe laying Hydrotesting Commissioning Civil construction	Hazardous substances	Concrete additives, refuelling and maintenance of plant/ vehicles/ equipment, application of paints/ protective spray coatings, cleaning agents, welding gas storage and use, generation of hazardous wastes, general storage and handling of hazardous substances.	Health and safety risks to personnel associated with using hazardous substances (e.g. skin irritations, inhalation of fumes, chemical splash in eyes etc.) Contamination of land and or water from spillages potentially causing pollution Potential off-site impacts to wildlife in the event of a large spill leaving site Potential off-site impacts to community leading to complaints Potential non-compliance with EPA publications 480 and 347 leading to potential breach of EPA Works approval. Increased potential fire risks Potential non-compliance with legislative requirements (e.g. Dangerous Goods (Storage and Handling) Regulations 2012.	Project to prepare and implement an Emergency Preparedness Plan All personnel to store and handle hazardous materials in accordance with this Construction EMP. All materials must be approved by the HSE Team prior to arriving on site and have an accompanying SDS Storage of hazardous materials to be compliant with the requirements of the EPA Bunding Guidelines (Publication number 347). Subcontractors storing/ handling hazardous substances on site must identify hazards and control measures as part of the EMP and SWMS documentation. Promote ongoing awareness of best practice hazardous substance management among all personnel through inductions, pre-starts, toolbox talks and training.	D	N/A	N/A	N/A	N/A	N/A	N/A	III	4
18	Above ground installation Pipe laying Hydrotesting Commissioning Civil construction	Fire and explosion	Potential for release of gas or fire during first gas/turning turbine	Initiation of bush fire, potential impact on flora and fauna, habitat loss, risk to personnel on site	Hydrotesting and leak testing prior to first gas firewater ringmain and hydrants available Site ERP developed Bushfire management plan Commissioning procedures	E	N/A	N/A	N/A	N/A	N/A	N/A	II	4

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					A system, item of equipment, a person or a procedure that is used as a basis for managing environmental impacts and risks.		Duration	Size/Scale	Intensity	Irreplaceability	Vulnerability	Influence	Level	
	Construction - Power Plant													
19	Transportation Site clearance Excavation Equipment installation	Greenhouse gas	Energy use, as fuel to operate plant and equipment, and as electricity consumed for site compounds Vegetation clearing — cleared vegetation would decay or burn to release CO2, with limited methane emissions if allowed to decay under anoxic conditions Emissions embodied in the materials used for construction, such as CO2 generated during cement manufacture, or energy consumed in steel production.	Increase in greenhouse gases emitted as a result of : - vehicle use - land clearing - minimal as land has already been cleared - use of materials with high lifecycle emissions	Undertake a Greenhouse Gas study Emission of greenhouse gases during construction would be managed through standard management measures, including: - adequate maintenance and efficient operation of all equipment - no unnecessary revving or idling of engines - staging works to minimise double handling (i.e. duplication of soil movements) - preservation of existing on-site vegetation and revegetation where feasible on completion of construction - preference to locally sourced materials, where possible	B	L	M	L	L	M	L	IV	4
20	Transportation Site clearance Excavation Equipment installation	Air quality	Air pollutants released through the operation of construction equipment and vehicles	The project has the potential to increase emissions to air	Emissions from construction equipment and vehicles would be unlikely to result in air quality impacts. Ozone depleting substances are not to be used on site. Vehicles and equipment to be regularly maintained in line with manufacturers specifications.	C	L	L	L	L	L	L	IV	4
21	Transportation Site clearance Excavation	Dust	Dust would be generated during construction from: - erosion of stockpiles and exposed areas onsite - handling, transfer and storage of materials - heavy earthwork operations such as excavation - removal of vegetation, re-contouring of land - vehicle movements along internal unsealed access and haul roads.	Release of dust could result in nuisance and/or health impact to the construction workforce, neighbouring communities and local flora and fauna. These impacts should be negligible.	Stockpiling of soil would occur on Esso owned land. Stockpile management would be according LIP procedures. Install erosion and sediment control measures prior to commencing disturbance works Plan works to minimise the extent and duration of area that remains exposed/unstabilised Disturbed areas are to be progressively stabilised as soon as practicable Erosion management covered in site induction for all personnel involved in soil disturbance. Soil loads to be covered when transported Utilise dust suppressants (i.e. water sprays) to control dust generation as required.	C	M	L	L	L	L	L	IV	4
22	Transportation Site clearance Excavation Equipment installation	Noise	Noise would be generated from vehicles and construction equipment	It is not expected that noise levels during construction would exceed the adopted noise goals at some sensitive receptors. Impacts at any one location would be short term. Construction is expected to be completed in 6 months.	Implement the construction noise mitigation measure proposed in the Noise Impact Assessment Where possible construction activities should be limited to 6am to 6pm, Monday to Saturday. Any works planned to be conducted outside of normal work hours must be approved by Construction Manager prior to conducting activity.	C	M	L	L	L	L	L	IV	4
23	Transportation Site clearance Excavation Equipment installation	Light emissions	Construction activities, equipment and traffic Use of light towers	Temporary lighting causes nuisance to community leading to receipt of complaints Disorientation of seabirds and migratory shorebirds	Addition lighting associated with Project is negligible in comparison to existing lighting associated with LIP & TLF & current site Meet lighting standard for background lighting Only essential lighting is permitted and installed at a height and orientation that it ensures the lighting illuminates the area of the worksite. Lighting is to be switched off when not in use unless required for swecurity purposes	D	L	L	L	M	M	M	III	4
24	Transportation Site clearance Excavation Equipment installation	Visual impact	Construction activities, equipment and traffic	Construction activities, equipment and traffic will be largly shielded from the community and road traffic on both Bayview Road and Long Island Drive. Transportation of equipment will be visible on-route.	Site is fully fenced with a dense border of vegetation at the entrance to the power plant from Bayview Road. Access to the site from Bayview Road. Visibility is reduced from Long Island Drive by vegetation that grows along the road. Road transport will conform with the Project's Traffic Management Plan (to be developed), to ensure that truck movements impact the community as little as possible.	E	L	L	L	L	L	L	IV	4
25	Site clearance Excavation	Flora and Fauna	Tree clearance is not anticipated	Negligible impact is anticipated on the biodiversity on site. Site is next to LIP an existing industrial facility.	Clearing footprints to be clearly marked prior to commencing activity Promote ongoing awareness of best practice flora and fauna management among all personnel involved in land clearing operations	E	L	L	L	L	L	L	IV	4
26	Site clearance Excavation	Weeds and pests	Mobilisation and demobilisation of vehicles/ plant/ equipment, importing fill/ quarry material, clearing and grubbing, general earthworks, stockpiling, wash down of plant/ vehicles/ equipment, waste disposal	Potential for trucks to import biohazards that could impact native flora and fauna. Spread of noxious weeds resulting in decline of native flora and fauna habitat Introduction of vermin due to human activity	Area is cleared and lies within Esso owned land. No native endangered or at risk native flora or fauna species is present in area. Site mess facilitites to allow for food storage as part of construction activities	E	M	L	L	L	L	L	IV	4

Ref					Impact / Risk Treatment	Residual Risk Analysis and Ranking								
	Activity	Aspect	Cause of Aspect	Impact or Risk	Controls (Preventative and Mitigative)	Likelihood	Consequence							Risk Ranking
					A system, item of equipment, a person or a procedure that is used as a basis for managing environmental impacts and risks.		Duration	Size/Scale	Intensity	Irreplaceability	Vulnerability	Influence	Level	
	Construction - Power Plant													
27	Site clearance Excavation	Cultural heritage Heritage	Land clearance	No risks -Cultural heritage assessment did not identify any sites or objects of significance.	All personnel involved in soil disturbance to receive basic awareness training in project cultural heritage and heritage legal and contractual requirements as part of site Orientation. All actual and potential cultural heritage or historical artefacts found are to be barricaded and immediately reported to the Construction HSE Manager and COMPANY representative. All identified actual and potential cultural heritage significant areas or historical artefacts to be barricaded and have 'NO-GO-ZONE' signage in place.	E	L	L	L	M	M	M	III	4
28	Transportation Civil construction	Traffic and transport	Transport of equipment Construction workforce transportation	The project would result in increased traffic volumes along Bayview Road during construction. The turbines would have specific transportation requirements due to their size and would require significant planning and coordination.	Road close to site is gazatted for heavy haulage A Traffic Management Plan for the site would be developed and implemented. A specialist heavy equipment transport contractor with specific experience in lifting and transporting this type of equipment would be engaged for the transport of the gas turbines.	E	M	L	L	L	L	L	IV	4
29	Site selection	Land use and property	Site construction	No risks - project site on Esso owned land, previously used for industrial purposes. No public or private land acquisition is required.	No mitigation	E	N/A	N/A	N/A	N/A	N/A	N/A	IV	4
30	Site selection Transportation Civil construction	Socio-economic impacts	Site construction	Economic benefits would be associated with local and regional expenditure on services as well as increased local expenditure from the construction workforce.	Stakeholder consultation programme has been developed and will be implemented over the life of the project.	E	N/A	N/A	N/A	N/A	N/A	N/A	IV	4
31	Site clearance Excavation	Geology and soils	Soil movements as part of construction	Exposure of site personnel to soil contaminants/pathogens Transfer of contaminated soil to other locations Soil inversion and mixing of soil types.	Soil to be retained on site and reused as far as practicable. If not reused will be disposed of in an appropriate waste facility (Category D soils) Previous contaminated soil testing report low levels of contaminants. Recent soil testing results show no issues for Human Health but some localised samples exceeded the EIS criteria (Category D soils), these areas will be stockpiled separately and retested prior to reuse Contaminated soil testing prior to start of activity Soil stockpile management and testing as required in accordance with site procedures Construction personnel PPE as required when handling contaminated soils (as required by testing results)/dust masks as required Assessed as a human health risk	E	N/A	N/A	N/A	N/A	N/A	N/A	IV	4
32	Excavation Commissioning	Hydrology and water quality Stormwater Wastewater	Site construction Commissioning	Construction activities have the potential to generate pollutants that could affect surface water quality. Increasing the possibility of algal blooms or viral infections such as E. coli resulting from incorrect disposal of grey water, leading to prosecution by relevant agencies. Other pollutants may include hydrocarbons and chemicals from spoil and leakage, and general litter and gross pollutants. Potential for polluted water to leave site boundary Impacts to flora and fauna affected by water quality characteristics Impact on project relations with adjacent property owners or broader community. Current drainage channel drains to Westernport Bay.	Project design to include stormwater, grey water and sewage management to prevent the release of site contaminants into Westernport Bay. An erosion and sediment control plan would be prepared and implemented. All dewatering activities to be supervised at all times. Project Mgr/HSE Mgr to approve any discharge of site water offsite. Contractors to risk assess stormwater management hazards associated with their activities and include mitigation measures in the Construction EMP and have adequate drainage and flood control measures in place at all times. Construction Contractor to develop site procedures to manage the handling, use, storage and disposal or hazardous substances; waste and refuelling / maintenance / servicing activities to prevent release of contaminants into the environment.	D	M	L	L	M	M	M	III	4
33	Excavation Commissioning Civil construction	Water use	General earthworks, road construction, hydro-testing, site temporary plumbing facilities, dust suppression, drinking water, site rehabilitation/ revegetation, vehicle/plant/equipment wash down, concrete washout, re-use of storm water/ grey water/ recycled water/ treated wash water, waste of water due to leakages of taps and other plumbing facilities.	Waste of natural resources Bad project relations resulting from actual or perceived wasteful water use practices. Increased financial costs associated with unnecessary use of more expensive water sources. Delays to construction program/ works due to insufficient availability of suitable water source.	All work activities on the project should actively seek opportunities to minimise water use/consumption during the planning phase of the activity Install water efficient appliances wherever practicable in kitchenette and bathroom facilities. Regularly inspect taps and fittings for drips and/or leaks Storm water captured/ponded on site to be reused for construction purposes wherever practicable Irrigation systems installed on site for revegetation and/or dust suppression will use either suitably treated recycled water or captured/ponded storm water wherever practicable. Where re-cycled or grey water is used on site, a risk assessment will be conducted to assess potential HSE and construction risks associated with the activity prior to use Where it is assessed to be necessary, appropriate water quality analysis will be carried out where there is potential for water to carry contaminants that may possess an unacceptable health or environmental risk. As far as reasonably practicable water used for washing bays will allow for waste water to be treated and reused.	D	L	L	L	L	L	L	IV	4

Ref					Impact / Risk Treatment	Residual Risk Analysis and Ranking								
	Activity	Aspect	Cause of Aspect	Impact or Risk	Controls (Preventative and Mitigative)	Likelihood	Consequence							Risk Ranking
					A system, item of equipment, a person or a procedure that is used as a basis for managing environmental impacts and risks.		Duration	Size/Scale	Intensity	Irreplaceability	Vulnerability	Influence	Level	
	Construction - Power Plant													
34	Site clearance Excavation Equipment installation	Waste	Construction could generate various types of construction wastes.	Generation of excessive waste leading to increased resourcing and disposal costs. Potential contamination of land and or water with litter or hazardous substances Attraction of vermin to waste storage areas Create potential health risks to personnel on site Increased costs of disposing non-segregated waste Increased ecological footprint due to sending excessive quantities of waste to landfill rather than reusing and recycling materials Failure to fulfil obligations under the Environmental Protection Act 2017 potentially leading to prosecution Loss of amenity Impacts to wildlife	A construction waste management plan is to be developed and implemented, which includes process for collection, segregation, storage and disposal. Promote ongoing awareness of best practice waste management among all personnel Only a suitably licenced waste transport contractor may remove waste from site. Surplus soil is to be minimised through cut and fill. Any material unsuitable for engineering purposes would be used in on-site landscaping to ensure no off-site disposal. Maintain records of all waste removed from site	E	M	L	L	L	L	L	IV	4
35	Equipment installation Commissioning Civil construction	Hazardous substances	Concrete additives, refuelling and maintenance of plant/ vehicles/ equipment, application of paints/ protective spray coatings, cleaning agents, welding gas storage and use, generation of hazardous wastes, general storage and handling of hazardous substances.	Health and safety risks to personnel associated with using hazardous substances (e.g. skin irritations, inhalation of fumes, chemical splash in eyes etc.) Contamination of land and or water from spillages potentially causing pollution Potential off-site impacts to wildlife in the event of a large spill leaving site Potential off-site impacts to community leading to complaints Potential non-compliance with EPA publications 480 and 347 leading to potential breach of EPA Works approval. Increased potential fire risks	Project to prepare and implement an Emergency Preparedness Plan All personnel to store and handle hazardous materials in accordance with this Construction EMP. All materials must be approved by the HSE Team prior to arriving on site and have an SDS Storage of hazardous materials to be compliant with the requirements of the EPA Liquid Storage and Handling Guidelines (Publication number 1698). and DG guidelines Subcontractors storing/ handling hazardous substances on site must identify hazards and control measures as part of the EMP Promote ongoing awareness of best practice hazardous substance management among all personnel through inductions, pre-starts, toolbox talks and training.	D	N/A	N/A	N/A	N/A	N/A	N/A	III	4
36	Equipment installation Commissioning Civil construction	Fire and explosion	Potential for release of gas or fire during first gas/trurning turbine	Initiation of bush fire, potential impact on flora and fauna, habitat loss, risk to personnel on site	FAT for turbines and transformers Firewater ringmain and hydrants available, new fire hoses and reels to be installed. Fire suppression system installed on gas turbines Fire protection system installed on transformer - high voltage protection relays Gas detection system installed at air inlet and enclosures Site ERP developed Bushfire management plan Commissioning procedures	E	N/A	N/A	N/A	N/A	N/A	N/A	II	4

Ref					Impact / Risk Treatment	Residual Risk Analysis and Ranking								
	Activity	Aspect	Cause of Aspect	Impact or Risk	Controls (Preventative and Mitigative)		Consequence							
					A system, item of equipment, a person or a procedure that is used as a basis for managing environmental impacts and risks.	Likelihood	Duration	Size/Scale	Intensity	Irreplaceability	Vulnerability	Influence	Level	Risk Ranking
	Construction - Emergency Situations													
37	Bushfire	Greenhouse gas Air Quality Dust	Burning of vegetation and other flammables releases CO2, particulates and other air contaminants	Increase in greenhouse gases emitted Reduction in air quality	Identify bushfire risks at the site. Develop and implement a Bushfire Management Plan.	B	L	M	L	L	L	L	IV	4
38	Bushfire Drought Natural events	Flora and fauna	Clearing for bushfire management	Disturbance to State or Federal listed vegetation: - Damp Sands Herb-rich Woodlands (EVC 3) Loss of habitat (Disturbance to State or Federal listed native fauna) Disturbance to non-listed native fauna habitat or flora	Tree clearing minimised & as advised under bushfire management requirements for planning scheme Landscape value not significantly altered due to (anticipated) removal of a number of trees due to surrounding existing land use Environmental offsets as required under planning scheme clause 52.17 may be applied	B	H	L	L	L	L	L	IV	4
39	Hydrocarbon spills	Water quality flora and fauna soil air emissions fire and explosion	Spillage of lubes/oils from powered equipment/trucks/when commissioning turbine generators/transformers etc	Oils/lubes contaminate soils, leaching into waterways and bay impacting aquatic life and contaminating soil	Localised bunding around areas where there is a potential for leak of chemicals , oil spills management, absorbent materials located on site for use in the event of a spill, drainage to creek will be bunded/blocked during construction activities to inhibit spill movement into local waterways	E	M	L	L	M	M	M	III	4
40	Bushfire Loss of containment	Fire and Explosion	Welding, sparks, ignite bushfire	Initiation of bush fire, potential impact on flora and fauna, habitat loss, risk to personnel on site	firewater ringmain and hydrants available Site ERP developed Bushfire management plan Welding procedures Construction activities under PTW	E	N/A	N/A	N/A	N/A	N/A	N/A	I	3
41	Wet weather Flooding High tides	Water quality Flora and fauna Soil	Uncontrolled release of contaminants into the environment	Oils/lubes contaminate soils, leaching into waterways and bay impacting aquatic life and contaminating soil	Localised bunding , oil spills management, absorbent materials located on site for use in the event of a spill, drainage to creek will be bunded/blocked during construction activities to inhibit spill movement into local waterways	E	M	L	L	M	M	M	III	4

Ref					Impact / Risk Treatment	Residual Risk Analysis and Ranking								
	Activity	Aspect	Cause of Aspect	Impact or Risk	Controls (Preventative and Mitigative)		Consequence							
					A system, item of equipment, a person or a procedure that is used as a basis for managing environmental impacts and risks.	Likelihood	Duration	Size/Scale	Intensity	Irreplaceability	Vulnerability	Influence	Level	Risk Ranking
	Operations - Piping													
42	Normal operations General maintenance	Greenhouse gas	Gas leaks along the piping could contribute to emissions of greenhouse gases Release of fugitive gases when opening equipment for filter changeout, maintenance etc Liquids weathering vent Periodic venting of gas to vent on turbine trip	Increase in greenhouse gases	The piping has been designed for a loss rate of <0.05% (the Australian average) Implementation of industry practices would minimise greenhouse gas emissions. Site maintenance including torquing of flanges to correct rating, work in accordance with WMM Use of gaskets, fittings etc in accordance with Manufacturers recommendations,Esso specifications Training and competency Work under PTW with isolation and purging	B	M	M	L	L	M	L	IV	4

Ref					Impact / Risk Treatment	Residual Risk Analysis and Ranking								
	Activity	Aspect	Cause of Aspect	Impact or Risk	Controls (Preventative and Mitigative)		Consequence							
					A system, item of equipment, a person or a procedure that is used as a basis for managing environmental impacts and risks.	Likelihood	Duration	Size/Scale	Intensity	Irreplaceability	Vulnerability	Influence	Level	Risk Ranking
	Operations - Power Plant													
43	Normal operations General maintenance	Greenhouse gas	Energy use, as fuel to operate plant and equipment, and as electricity consumed for site compounds Release of emissions as part of normal operation, from the combustion of ethane gas	The project would produce greenhouse gases, with associated potential climate change impacts. It should be noted that GHG emissions from gas-fired power are lower than those generated in the formation and disposal of plastics (the current use of ethane gas) (2.83 t CO2/ t ethane verses 3.44 t CO2/ t ethane)	Efficient operation of the power plant, including ensuring appropriate maintenance would reduce gas consumption for the equivalent power output. Ethane gas power generation offsetting GHG emissions from other higher GHG producing fossil fuel power sources (e.g coal - emissions intensity almost double). Minimise venting as far as practicable. Identify methods to smooth out product flows and gas pressures to the gas turbine, if possible. WHRU to be assessed	B	H	M	L	L	M	M	III	2
44	Normal operations General maintenance	Air quality	The project would generate pollutants, including Nox, SO2, PM and CO	Human health impacts from Nox CO partculates	Continuous monitoring, remotely, to maximise efficiency and reliability Ethane is a clean and efficient fuel Minimise the use of pilot light, as far as practicable Conduct operations in accordance with EPA Operations Licence. Gas turbines to use dry low Nox technology and during normal operating mode would be expected to achieve 25 ppm. Regular maintenance of equipment in line with manufacturers specifications. Monitoring of emissions via CEMS, maintaining records and reporting (NGER, EPA)	C	L	L	L	L	L	L	IV	4
45	Normal operations General maintenance	Odour	Odours may occur from hydrocarbons and waste handling operations	Odour emissions are anticipated to be localised and low level. No offsite odour releases expected	Maintain good house keeping standards. No noticable offsite odours Maintenance to maintain equipment	E	N/A	N/A	M	N/A	N/A	N/A	II	4
46	Normal operations General maintenance	Noise	3 turbines running 24/7	Noise impact -disturbance to local fauna, occupational health issues, impact for local residential population	Turbines are provided in enclosures specified to reduce noise levels to < 85dBA 1m distance from source Noise study has confirmed that impact on local neighbours low Distance to nearest house is 700m Local fauna habituated to industrial noise as proximate to LIP operations Turbines in enclosures, support designed to dampen any induced vibration	D	L	L	L	L	L	L	IV	4
47	Normal operations General maintenance	Light	Power generation is a 24-hour operation. Site lighting will be present.	Lighting can cause nuisance to community leading to receipt of complaints Disorientation of seabirds and migratory shorebirds	Only essential lighting is permitted and installed at a height and orientation that it ensures the lighting illuminates the area of the worksite. Lighting is to be switched off when not in use/required	D	M	L	L	M	M	M	III	4
48	Normal operations	Visual impact	3 stacks 11 metres tall	Site stacks will not exceed the height of LIP stacks or nearby sheds, and so will not cause a visual intrusion.	Site is fully fenced with vegetation growing on most fence lines. Site will not be visible from main entrance to site due to shed height	E	L	L	L	L	L	L	IV	4
49	Normal operations General maintenance	Traffic and transportation	Operations workforce transportation Vehicles would occassionally deliver and remove hazardous materials to and from site, along with waste materials and drinking water.	Traffic volumes during operations are not expected to have a significant impact upon traffic patterns or sensitive receptors.	Parking on site for site personnel and visitors.	E	M	L	L	L	L	L	IV	4

Ref					Impact / Risk Treatment	Residual Risk Analysis and Ranking								
	Activity	Aspect	Cause of Aspect	Impact or Risk	Controls (Preventative and Mitigative)		Consequence							
					A system, item of equipment, a person or a procedure that is used as a basis for managing environmental impacts and risks.	Likelihood	Duration	Size/Scale	Intensity	Irreplaceability	Vulnerability	Influence	Level	Risk Ranking
	Operations - Power Plant													
50	Normal operations General maintenance	Hydrology and water quality Waste water Stormwater	Development of the power plant will alter the drainage characteristics of the site (due to the increased area of impermeable surface).	Increased potential for impacts on water quality. Site activities would generate wastewater and stormwater runoff, which could make its way through drainage channels to Westernport Bay. Site is not prone to flooding ?. However, an increase in the proportion of hard surfaces on the site would lead to increase volume of stormwater runoff, which could impact the hydrology of drainage channels on site.	A stormwater management system would be developed during the detailed design phase. This would be developed to ensure no discharges of wastewater from the site occur, or contaminated stormwater runoff. Particular attention will be given to the provision of safe overland flow paths across the site, especially through areas that currently drain to Westernport. Measure to prevent erosion and scour of any diversion channel or stormwater discharge point would also be incorporated. Equipment bunded. Contaminated waters to be collected and transported to registered hazardous waster disposal facility.	D	M	L	L	M	M	M	III	4
51	Normal operations General maintenance	Water use	General operatings and maintenance activities	Waste of natural resources Bad project relations resulting from actual or perceived wasteful water use practices. Increased financial costs associated with unnecessary use of more expensive water sources.	Turbine emissions control uses dry low NOX All work activities on the project should actively seek opportunities to minimise water use/consumption during the planning phase of the activity Install water efficient appliances wherever practicable in kitchenette and bathroom facilities. Regularly inspect taps and fittings for drips and/or leaks Storm water captured/ponded on site to be reused wherever practicable Irrigation systems installed on site for landscaping will use either suitably treated recycled water or captured/ponded storm water wherever practicable. Where it is assessed to be necessary, appropriate water quality analysis will be carried out where there is potential for water to carry contaminants that may possess an unacceptable health or environmental risk. As far as reasonably practicable water used for washing bays will allow for waste water to be treated and reused. Promote ongoing awareness of best practice water management among all personnel	E	L	L	L	L	L	L	IV	4
52	Normal operations General maintenance	Waste Introduced fauna species	General operatings and maintenance activities	If managed poorly, could lead to offsite contamination, uncontrolled disposal and attraction of vermin.	A waste management plan is to be developed and implemented, which includes process for collection, segregation, storage and disposal. Promote ongoing awareness of best practice waste management among all personnel Only a suitably licenced waste transport contractor may remove waste from site. Maintain records of all waste removed from site	E	L	L	L	L	L	L	IV	4
53	Normal operations General maintenance	Hazardous substances	Refuelling and maintenance of plant/ vehicles/ equipment, application of paints/ protective spray coatings, cleaning agents, generation of hazardous wastes, general storage and handling of hazardous substances.	Health and safety risks to personnel associated with using hazardous substances (e.g. skin irritations, inhalation of fumes, chemical splash in eyes etc.) Contamination of land and or water from spillages potentially causing pollution Potential off-site impacts to wildlife in the event of a large spill leaving site Potential off-site impacts to community leading to complaints Increased potential fire risks Potential non-compliance with legislative requirements (e.g. Dangerous	Project to prepare and implement an Emergency Preparedness Plan All personnel to store and handle hazardous materials in accordance with this site procedures (to be developed). All materials must be approved by the HSE Team prior to arriving on site Storage of hazardous materials to be compliant with the requirements of the EPA Liquid Storage and Handling Guidelines (Publication number 1698). and DG guidelines Promote ongoing awareness of best practice hazardous substance management among all personnel through inductions, pre-starts, toolbox talks and training.	D	N/A	N/A	N/A	N/A	N/A	N/A	III	4
54	Normal operations General maintenance	Fire and explosion	Potential for release of gas or fire	Initiation of bush fire, potential impact on flora and fauna, habitat loss, risk to personnel on site	FAT for turbines and transformers Firewater ringmain and hydrants available, new fire hoses and reels to be installed. Fire suppression system installed on gas turbines Fire protection system installed on transformer - high voltage protection relays Gas detection system installed at air inlet and enclosures Site ERP developed Bushfire management plan Commissioning procedures	E	N/A	N/A	N/A	N/A	N/A	N/A	II	4

Ref					Impact / Risk Treatment	Residual Risk Analysis and Ranking								
	Activity	Aspect	Cause of Aspect	Impact or Risk	Controls (Preventative and Mitigative)		Consequence							
					A system, item of equipment, a person or a procedure that is used as a basis for managing environmental impacts and risks.	Likelihood	Duration	Size/Scale	Intensity	Irreplaceability	Vulnerability	Influence	Level	Risk Ranking
	Operation - Emergency Situations													
55	Bushfire	Greenhouse gas Air quality	Burning of vegetation and other flammables releases CO2, particulates and other air contaminants	Increase in greenhouse gases emitted Reduction in air quality	Identify bushfire risks at the site. Develop and implement a Bushfire Management Plan.	E	N/A	N/A	M	N/A	N/A	N/A	II	4
56	Outside of normal operating conditions Loss of containment hydrocarbon spills / releases	Greenhouse gas Air quality	Release of hydrocarbon through pilot flame or result of hydrocarbon weathering, as a result of ethane gas supply pressures and flowrates being outside of normal operating conditions	Increase in greenhouse gases emitted Reduction in air quality	Efficient operation of the power plant, including ensuring appropriate maintenance would reduce gas consumption for the equivalent power output, thus reducing GHG emissions. Minimise the use of pilot light, as far as practicable, and minimise venting as far as practicable. Identify methods to smooth out product flows and gas pressures to the gas turbine, if possible.	B	H	M	L	L	M	M	III	2
57	Outside of normal operating conditions Loss of containment Hydrocarbon spills / releases	Odour	Release of hydrocarbons, poorly stored waste materials and liquid wastes	Worksite personnel adversely impacted by odor from the decomposing waste. Release of VOCs to atmosphere	Development and implementation of Emergency Response Plan Development and implementation of Waste Management Plan	E	N/A	N/A	M	N/A	N/A	N/A	II	4
58	Unscheduled flaring at LIP	Visual impact socio-economic	Excess ethane production, or process upsets sent to flare	Light pollution Community complaints Non-conformance with licence conditions	Design purpose is to minimise venting and flaring, whilst ensuring adequate safety levels Modifications to LIP to smooth out daily production fluctuations Installation of 3 gas turbines (capacity to allow for system to process ethane gas fluctuations)	E	N/A	N/A	M	N/A	N/A	N/A	II	4
59	Bushfire	Flora and fauna	Destruction of vegetation and other flammables	Disturbance to State or Federal listed vegetation: - Damp Sands Herb-rich Woodlands (EVC 3) Loss of habitat (Disturbance to State or Federal listed native fauna) Disturbance to non-listed native fauna habitat or flora	Tree clearing minimised & as advised under bushfire management requirements for planning scheme Landscape value not significantly altered due to (anticipated) removal of a number of trees due to surrounding existing land use Environmental offsets as required under planning scheme	E	N/A	N/A	M	N/A	N/A	N/A	II	4
60	Loss of containment hydrocarbon spills / releases	Soil Hydrology & water quality Waste water Hazardous substances	Spillage of lubes/oils from powered equipment/trucks/when commissioning turbine generators/transformers etc	Oils/lubes contaminate soils, leaching into waterways and bay impacting aquatic life and contaminating soil	Localised bunding , oil spills management, absorbent materials located on site for use in the event of a spill, drainage to creek will be bunded/blocked during construction activities to inhibit spill movement into local waterways	E	N/A	N/A	M	N/A	N/A	N/A	II	4
61	Wet weather Flooding / extreme tides	Hydrology & water quality Flora and fauna Soil	Uncontrolled release of contaminants into the environment	Oils/lubes contaminate soils, leaching into waterways and bay impacting aquatic life and contaminating soil	Localised bunding , oil spills management, absorbent materials located on site for use in the event of a spill, drainage to creek will bebunded/blocked during construction activities to inhibit spill movement into local waterways	E	N/A	N/A	M	N/A	N/A	N/A	II	4

Ref					Impact / Risk Treatment	Residual Risk Analysis and Ranking								
	Activity	Aspect	Cause of Aspect	Impact or Risk	Controls (Preventative and Mitigative)		Consequence							
					A system, item of equipment, a person or a procedure that is used as a basis for managing environmental impacts and risks.	Likelihood	Duration	Size/Scale	Intensity	Irreplaceability	Vulnerability	Influence	Level	Risk Ranking
	Operation - Cumulative Impacts													
62	Operating next to a MHF facility	Fire & explosions	Locating a gas-fired power plant next to a major hazard facility	In the event of a catastrophic loss of containment or fire and explosion, impacts could spread to power plant	Isolation values on ethane piping at LIP and power plant ends. ERP	E	N/A	N/A	N/A	N/A	N/A	N/A	II	4
63	Stack	socio-economic	Height of stack	Height could interfer with other beneficial users	Stack height is 11 m, will not cause a navigation impact to light aircraft, existing building is 30m high	D	L	L	L	L	L	L	IV	4
64	Operating next to other industrial facilities	Air quality	Release of air pollutants as a result to normal and emergency situations	Site emissions combined with existing pollution levels have the potential to impact human health, flora and fauna. Air modelling demonstrate that ambient air quality is within ERS levels, no impact anticipated	Gas turbine generators designed to meet 25 ppm Nox and CO. Air emissions modelling has taken account of LIP emissions and HGP	C	L	L	L	L	L	L	IV	4
65	Operating next to other industrial facilities	Noise	Noise from site with high background noise could result in unacceptable noise levels at sensitive receptors	Noise modelling has shown that noise levels at sensitive receptor will be within ERS acceptance criteria, despite existing industrial noise in area	Gas turbine generators designed to meet 85 dBA at 1m. Sound attenuation installed on gas turbines during factory build will ensure no noise levels above acceptance criteria at sensitive receptors.	D	L	L	L	L	L	L	IV	4
66	Operating next to other industrial facilities	Light	Light emissions from site could add to existing lighting from neighbouring industry	Night lighting could increase to cause impact upon bird behaviours in Western Port	No lights installed above 10m Facility is fully fenced with trees growing along fence-line, minimising the light spill from site	D	M	L	L	M	M	M	III	4