SYNTHESIS OF SPECIALIST IMPACTS AS EXTRACTED FROM THE SPECIALIST REPORTS										
ISSUE	**DESCRIPTION OF IMPACT**	**NATURE OF IMPACT**	**SPATIAL SCALE (EXTENT)**	**TEMPORAL SCALE (DURATION)**	**CERTAINTY SCALE (PROBABILITY/ LIKELIHOOD)**	**SEVERITY / BENEFICIAL SCALE**	**SIGNIFICANCE PRE-MITIGATION**	**MITIGATION MEASURES**	**REVERSABILITY/ MITIGATION**	**SIGNIFICANCE POST-MITIGATION**
CONSTRUCTION PHASE										
DAMARA TERN IMPACT ASSESSMENT										
CONSTRUCTION DISTURBANCE TO DAMARA TERN COLONY (PHASE 1)	The negative impact of disturbance during construction of Phase 1 of the Gas Infrastructure on the Damara Tern colony is assessed to be Moderate, reducing to Low following successful implementation of mitigation measures. No cumulative impacts are rated for the Construction Phase. The No-Go Alternative prior to mitigation assessed the impact of past and future sand mining (assuming that the 35ha Coega Mining Right will be fully mined) as Moderate Negative. The impact is fully reversible by ceasing sand mining once the current 5ha Ngqura Sand Mine is exhausted (probably within the next 2 years) and not commencing with mining of the Coega Mining Right, resulting in a Low Negative impact after mitigation. However, this mitigation is very unlikely to be implemented and consequently the impact of the No-Go Alternative is considered to be Moderate Negative	**DIRECT**	**REGIONAL**	**SHORT-TERM**	**PROBABLE**	**MODERATE**	**MODERATE -**	• *The Phase 1 development within the Gas Hub (road loading facility, weighbridge, entrance gate, administrative offices, construction site offices and facilities) must be located in the north-west portion of the Gas Hub, as far from the Damara Tern colony as possible.* • *Ideally, to avoid some of the mitigation measures below, all Phase 1 construction activities east of the south-north pipeline corridor, located approximately 500m west of the Damara Tern colony, should take place outside of the Damara Tern breeding season, 1 October to end February.* • *During the Damara Tern breeding season, 1 October to end February, construction must take place only during daylight hours to take advantage of the unstable atmospheric conditions during the day to ameliorate noise and to prevent lights from vehicles, machinery and the construction site from disturbing the colony.* • *A noise reduction plan, approved by a Professional Engineer and a practitioner qualified in acoustics must be developed with the objective of ensuring that daytime noise levels attributable to construction activities do not exceed 50 dBA at the western boundary of the Damara Tern colony during the Damara Tern breeding season. The plan must detail how this will be measured, monitored and reported on.* • *Loud construction activities, especially those causing sudden loud noises (e.g. piling) must be scheduled for periods outside of the Damara Tern breeding season, 1 October to end February.* • *All construction vehicles and equipment must be well maintained and in good condition.* • *Construction staff should receive "noise sensitivity" training such as switching off vehicles and equipment when not in use.* • *During the Damara Tern breeding season 1 October to end February, the boundaries of the construction footprints closest to the Damara Tern colony (generally the southern and south-eastern boundaries) must be fenced off to prevent human access and disturbance and must be screened off to prevent visual disturbance (fence should be a minimum of 2m high with e.g. shade cloth able to withstand the strong winds). There must be no activity between the fence and the Damara Tern colony.* • *CDC's Standard Environmental Specifications for Construction must be strictly adhered to. These control most of the negative impacts associated with construction activities (e.g. minimise construction footprint, management of construction material, chemicals and equipment, dust control, waste management, provision and control of ablutions and dining areas, worker induction and toolbox talks)*	*ACHIEVABLE*	**LOW -**

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ISSUE	**DESCRIPTION OF IMPACT**	**NATURE OF IMPACT**	**SPATIAL SCALE (EXTENT)**	**TEMPORAL SCALE (DURATION)**	**CERTAINTY SCALE (PROBABILITY/ LIKELIHOOD)**	**SEVERITY / BENEFICIAL SCALE**	**SIGNIFICANCE PRE-MITIGATION**	**MITIGATION MEASURES**	**REVERSABILITY/ MITIGATION**	**SIGNIFICANCE POST-MITIGATION**
		CUMULATIVE	**NO IMPACT**							
		NO-GO	**REGIONAL**	**MEDIUM-TERM**	**PROBABLE**	**MODERATE**	**MODERATE -**		*ACHIEVABLE*	**LOW -**
CONSTRUCTION DISTURBANCE TO DAMARA TERN COLONY (PHASE 2)	The impact rating due to disturbance during construction of Phase 2 infrastructure is consequently based on the Phase 2 construction activities planned within the Gas Hub as these impacts will outweigh other developments further from the colony. Likely disturbance impacts include visual impacts, noise, lighting and movement of personnel and construction machinery. No cumulative impacts are rated for the Construction Phase. The No-Go Alternative prior to mitigation assessed the impact of past and future sand mining (assuming that the 35ha Coega Mining Right will be fully mined) as Moderate Negative. The impact is fully reversible by ceasing sand mining once the current 5ha Ngqura Sand Mine is exhausted (probably within the next 2 years) and not commencing with mining of the Coega Mining Right, resulting in a Low Negative impact after mitigation. However, this mitigation is very unlikely to be implemented and consequently the impact of the No-Go Alternative is considered to be Moderate Negative	**DIRECT**	**REGIONAL**	**SHORT-TERM**	**PROBABLE**	**SEVERE**	**HIGH-**	• *Ideally, to avoid some of the mitigation measures below, all Phase 2 construction activities east of the south-north pipeline corridor, located approximately 500m west of the Damara Tern colony, should take place outside of the Damara Tern breeding season, 1 October to end February. However, it is very unlikely that this will be possible with a project of this magnitude.* • *During the Damara Tern breeding season, 1 October to end February, construction must take place only during daylight hours to take advantage of the unstable atmospheric conditions during the day to ameliorate noise and to prevent lights from vehicles, machinery and the construction site from disturbing the colony.* • *A noise reduction plan, approved by a Professional Engineer and a practitioner qualified in acoustics must be developed with the objective of ensuring that daytime noise levels attributable to construction activities do not exceed 50 dBA at the boundaries of the Damara Tern colony during the Damara Tern breeding season. The plan must detail how this will be measured, monitored and reported on.* • *Loud construction activities, especially those causing sudden loud noises (e.g. piling) must be scheduled for periods outside of the Damara Tern breeding season, 1 October to end February* • *All construction vehicles and equipment must be well maintained and in good condition Construction staff should receive "noise sensitivity" training such as switching off vehicles and equipment when not in use* • *Fencing around the Gas Hub will contain human access and disturbance within the Gas Hub precinct. In addition, during the Damara Tern breeding season 1 October to end February, the south-eastern boundary of the Gas Hub and the west and east boundaries for a distance of at least 200m northwest of their junction with the south-eastern boundary, must be screened off to prevent visual disturbance to the Damara Tern colony (e.g. with shade cloth able to withstand the strong winds). Unfortunately, even a 3m high fence will not adequately screen construction of the larger components of the project* • *CDC's Standard Environmental Specifications for Construction must be strictly adhered to. These control most of the negative impacts associated with construction activities (e.g. minimise construction footprint, management of construction material, chemicals and equipment, dust control, waste management, provision and control of ablutions and*	*DIFFICULT*	**HIGH-**

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								dining areas, worker induction and toolbox talks).		
		CUMULATIVE	**NO IMPACTS**							
		NO-GO	**REGIONAL**	**MEDIUM-TERM**	**PROBABLE**	**MODERATE**	**MODERATE -**		*DIFFICULT*	**LOW -**
MARINE ECOLOGY IMPACT ASSESSMENT										
LOSS OF BENTHIC COMMUNITIES	The initial negative impacts are deemed of low intensity within the immediate vicinity of the LNG terminal and dredge disposal site. Furthermore, the negative impacts persist over the short-term only recolonization of unconsolidated sediments will be rapid and as the new structures and rock armouring will offer a new settling ground for hard bottom species and will be rapidly colonised *Cumulative impacts on the marine communities associated with the disturbed sediments are expected. Over the lifetime of the port, these impacts are likely to be of medium significance* No undue impacts are anticipated for the No-Go scenario	**DIRECT**	**LOCALISED**	**SHORT TERM**	**DEFINITE**	**SLIGHT**	**LOW -**	• *Fit deflector plates to discharges directed vertically downwards to modify the discharge to 45°.*	*EASILY ACHIEVABLE*	**LOW -**
		CUMULATIVE	**STUDY AREA**	**LONG TERM**	**DEFINITE**	**MODERATE**	**MODERATE -**		*DIFFICULT*	**MODERATE -**
		NO-GO	**NO IMPACT**							**LOW -**
REDUCED PHYSIOLOGICAL FUNCTIONING OF MARINE ORGANISMS (DUE TO TURBIDITY)	As dredging and construction activities relating to the offloading facilities will be confined to within the Port area, impacts on the adjacent Addo Elephant MPA and Algoa to Amathole EBSA are unlikely. Suspended sediment plumes generated during dumping of dredge spoil and installation of the gas and cryogenic pipelines would, however, overlap with the MPA and EBSA, but as impacts would be highly localised and ephemeral. *Cumulative impacts on water quality of medium significance can be expected over the medium to long term* No undue impacts are anticipated for the No-Go scenario	**DIRECT**	**LOCALISED**	**SHORT TERM**	**DEFINITE**	**SLIGHT**	**LOW -**	• *All dredging activities and associated environmental monitoring must be conducted in accordance with the conditions stipulated under the port expansion authorisation.* • *All contractors must have an approved Environmental Management Plan in place that ensures that environmental impacts are minimised as far as practicable possible; and* • *Manage suspended sediment plumes generated during dredging and construction of the LNG Terminal by the installation of silt curtains.*	*EASILY ACHIEVABLE*	**LOW -**
		CUMULATIVE	**STUDY AREA**	**LONG TERM**	**DEFINITE**	**MODERATE**	**MODERATE -**		*DIFFICULT*	**MODERATE -**
		NO-GO	**STUDY AREA**	**SHORT TERM**	**PROBABLE**	**SLIGHT**	**LOW -**		*DIFFICULT*	**LOW -**
MARINE CONTAMINATION (REBOLISATION)	Although elevated suspended sediment concentrations are an unavoidable consequence of dredging and construction activities, impacts can be kept to a minimum through responsible dredging and	**DIRECT**	**LOCALISED**	**SHORT TERM**	**UNLIKELY**	**SLIGHT**	**LOW -**	• *All dredging activities and associated environmental monitoring must be conducted in accordance with the conditions stipulated under the port expansion authorisation.*	*EASILY ACHIEVABLE*	**LOW -**

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	construction practices. *Cumulatively, over the lifetime of the port, these impacts are likely to be of medium to high significance* No undue impacts are anticipated for the No-Go scenario	**CUMULATIVE**	**STUDY AREA**	**LONG TERM**	**PROBABLY**	**MODERATE**	**MODERATE -**		*DIFFICULT*	**MODERATE -**
		NO-GO	**NO IMPACT**							
DISTURBANCE OF MARINE FAUNA	The underwater noise generated by construction barges, dredgers and general construction noise is deemed to be of medium intensity but would remain localised to the port or just beyond and would persist over the short-term only The long term cumulative impacts of noise on marine organisms in the port are predicted to be of medium significance No undue impacts are anticipated for the No-Go scenario	**DIRECT**	**LOCALISED**	**SHORT TERM**	**DEFINITE**	**MODERATE**	**LOW -**	• *Restrict construction noise and vibration-generating activities to the absolute minimum required.*	*ACHIEVABLE*	**LOW -**
		CUMULATIVE	**STUDY AREA**	**SHORT TERM**	**PROBABLE**	**MODERATE**	**MODERATE -**		*DIFFICULT*	**MODERATE -**
		NO-GO	**NO IMPACT**							
WASTE DISCHARGES TO SEA	Dredging and construction activities, as well as operation of the LNGC and FSRU at the LNG terminal will result in a reduction of water quality from routine discharges to the sea from vessels. *Cumulative impacts resulting from port developments, vessel discharges and other anthropogenic sources in the Coega SEZ can be expected. Over the lifetime of the port, these impacts are likely to be of medium significance*	**DIRECT**	**LOCALISED**	**LONG-TERM**	**PROBABLE**	**SLIGHT**	**LOW -**	• *Implement a waste management system that addresses all wastes generated at the various sites, shorebased and marine. This should include:* *o Separation of wastes at source;* *o Recycling and re-use of wastes where possible;* *o Treatment of wastes at source (maceration of food wastes, compaction, incineration, treatment of sewage and oily water separation).* • *Implement leak detection and repair programmes for valves, flanges, fittings, seals, etc.; and* • *Use a low-toxicity biodegradable detergent for the cleaning of all deck spillages.*	*ACHIEVABLE*	**LOW -**
		CUMULATIVE	**LOCALISED**	**LONG-TERM**	**PROBABLE**	**MODERATE**	**MODERATE -**		*ACHIEVABLE*	**LOW -**
		NO-GO	**NO IMPACT**							
NOISE IMPACT ASSESSMENT										
NOISE AFFECTING NEARBY RECEPTORS	Construction noise from vehicles, equipment, machinery. Noise impacts from the construction and operation of the proposed Gas Infrastructure will be negligible. However, the cumulative levels show that several NSAs will be impacted by the noise that arises during the operational phase from all components of the project. *The no-go option will result in the continuation of mining activities within Zone 10 and the resultant noise impacts thereof.*	**DIRECT**	**LOCALISED**	**SHORT TERM**	**DEFINITE**	**MODERATE**	**LOW -**	• *All construction operations should only occur during daylight hours if possible.* • *No construction piling should occur at night where possible. Piling should only occur during the day to take advantage of unstable atmospheric conditions.* • *Construction staff should receive "noise sensitivity" training such as switching off vehicles when not in use, location of NSA's etc.* • *An ambient noise survey should be conducted at the noise sensitive receptors during the construction phase.*	*DIFFICULT*	**LOW -**
		CUMULATIVE	**NO IMPACT**							
		NO-GO	**STUDY AREA**	**MEDIUM TERM**	**DEFINITE**	**MODERATE**	**MODERATE -**		*DIFFICULT*	**MODERATE -**
TERRESTRIAL ECOLOGY IMPACT ASSESMENT										
LOSS OF INDIGENOUS VEGETATION	Due to the relatively small size of expected alteration (36,06 ha in total) and the small percentage loss (< 1%) of vegetation relative to remaining extent and combined	**DIRECT**	**LOCALISED**	**PERMANENT**	**DEFININTE**	**MODERATE**	**MODERATE -**	• *The clearance of approximately 32.06 ha of vegetation must be limited to that which is strictly necessary for the installation of the pipeline and construction of the hub site.* • *Laydown areas should be located within previously*	*ACHIEVABLE*	**LOW -**

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	with the ecological sensitivity of each vegetation type, this impact is rated moderate negative. Due to the relatively small percentage loss (< 1% in total) of vegetation expected from the proposed development, relative to the remaining extent of each vegetation type, this impact is rated low negative. The project area, particularly areas of St Francis Dune Thicket, is infested with A. cyclops while and sand mining is taking place on the dunes. This has resulted in the alteration of indigenous habitat. This, amongst other land uses in the SEZ, will likely continue to alter native habitat.	**CUMULATIVE**	**STUDY AREA**	**PERMANENT**	**DEFINITE**	**SLIGHT**	**LOW -**	*disturbed areas.* • *The Search & Rescue (S&R) of rare, endemic, or threatened plant species, prior to vegetation clearance, must be carried out in accordance with the Project Vegetation Specification (PVS), by a competent and qualified service provider.* • *The removal and stockpiling of topsoil must also be carried out in accordance with the PVS.* • *Employees must be prohibited from making fires and harvesting plants.* • *Existing access roads should be used as far as practically possible.* • *The Alien Vegetation Management Plan developed for the Coega SEZ must be implemented and managed to prevent the further spread of alien invasive species within Zone 10 of the Coega SEZ.*	*IRREVERSIBLE*	**N/A**
		NO-GO	**REGIONAL**	**LONG-TERM**	**DEFINITE**	**MODERATE**	**MODERATE -**		*IRREVERSIBLE*	**N/A**
LOSS OF SENSITIVE SPECIES HABITAT	Should construction activities encroach on these areas, the impact associated with the loss of sensitive habitat and/or SCC would be high. However, if the recommended mitigation measures and buffers are implemented, the impact on these areas would be low. Sand mining has already replaced sensitive habitat within the project area, including sections of Damara Tern habitat in Zone 10 of the SEZ. However, there will be no additional loss of sensitive habitat and/or species associated with the construction of the proposed development if they are treated as no-go areas. If the proposed development does not go ahead, the current impacts associated with sand mining and the infestation of invasive alien plants will continue to replace sensitive habitat in Zone 10. As such, the No-go Alternative is rated moderate negative.	**DIRECT INDIRECT**	**LOCALISED**	**PERMANENT**	**POSSBILE**	**SEVERE**	**HIGH -**	• *Areas delineated in the OSMP (2014) and habitat for SCC must be declared no-go areas; and* • *Construction vehicles and machinery used for the proposed development must not encroach into identified 'no-go' areas or areas outside the development footprint.*	*IRREVERSIBLE*	**HIGH -**
		CUMULATIVE	**NO IMPACT**							
		NO-GO	**REGIONAL**	**LONG-TERM**	**DEFINITE**	**MODERATE**	**MODERATE -**		*IRREVERSIBLE*	**MODERATE -**
LOSS OF PLANT SCC	Due to the high number of rare, endemic, or threatened species in the project area, the loss of SCC is rated high negative. SCC have likely already been lost because of existing land uses such as sand mining and alien plant infestation in the project area. As such, the potential loss of SCC associated with the proposed development would contribute to the further loss of SCC within the project area. However, if the mitigation measures outlined in this report are implemented and adhered to, this impact can be reduced to low negative. If the proposed development does not go ahead, the current impacts associated with sand mining and the infestation of invasive alien species in Zone 10 will continue to displace plants, including SCC. As such, the No-go Alternative is rated moderate negative.	**DIRECT INDIRECT**	**STUDY AREA**	**PERMANENT**	**POSSIBLE**	**SEVERE**	**HIGH -**	• *The development footprint (i.e., pipeline and hub site) must be micro-sited prior to construction. During micro siting attempts must be made to avoid as many SCC's as possible, and if this not possible, geophytes and succulent species need to be translocated and the seeds of other species collected for propagation in a nursery for use in rehabilitation activities;* • *No plants are to be removed, damaged, or disturbed outside of the extent of the development footprint nor vegetation planted;* • *The S&R of rare, endemic, or endangered species prior to vegetation clearance must be carried out in accordance with PVS, by a competent and qualified service provider;* • *Permits for the removal of plant species protected in terms of the Natal Nature Conservation Ordinance (No. 15 of 1974) must be obtained prior to vegetation clearance;* • *The removal and stockpiling of topsoil must also be carried out in accordance with the PVS; and* • *Construction vehicles and machinery must not encroach into identified 'no-go' areas or areas outside the development footprint.*	*ACHIEVABLE*	**MODERATE**
		CUMULATIVE	**REGIONAL**	**PERMANENT**	**POSSIBLE**	**MODERATE**	**MODERATE -**		*ACHIEVABLE*	**LOW -**

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		NO-GO	**REGIONAL**	**PERMANENT**	**POSSIBLE**	**MODERATE**	**MODERATE -**		*DIFFICULT*	**LOW -**
LOSS OF HERPETOFAUNA AND HABITAT	Sensitive Species 18 is restricted to Bonteveld vegetation and has a high risk of being affected by construction (and operation) activities. As such, this impact is rated high negative. The proposed development will likely exacerbate current impacts (e.g., road activity) on amphibians and reptiles within the project area and may exacerbate the loss of protected reptile species through increased poaching opportunities. The additional clearing of vegetation reduces habitat further, resulting in displacement. If the proposed development does not go ahead, the current impacts associated with other activities in the area, such as sand mining, also pose a threat to herpetofauna SCC. As such, the No-go Alternative is rated moderate negative.	**DIRECT INDIRECT**	**LOCALISED**	**LONG-TERM**	**POSSIBLE**	**SEVERE**	**HIGH -**	• *It is illegal to remove or kill amphibians and reptiles within the project area listed as either Schedule I or II on the PNCO unless the relevant permit is acquired;* • *All construction staff must be educated with regards to wildlife conservation, and all staff employed by the development must ensure that any amphibians or reptiles encountered during construction of the proposed development are not harmed or killed;* • *Amphibians and reptiles encountered must be allowed to move away from the construction area. In the event they need to be translocated, amphibians must be released in the same catchment areas while reptiles must be relocated to directly adjacent areas of the proposed development. No amphibian or reptile species may be removed off site without proper authorisation from the relevant authority;* • *A rescue plan must be developed to protect reptiles which could fall into construction pits;* • *The appointed ECO should be trained in snake handling and removal techniques;* • *Herpetofauna SCC that may die due to construction activities associated with the proposed development must be recorded (e.g., photographed and GPS coordinates taken) and reported to the appointed ECO and relevant authorities (i.e., EWT). Where needed, the carcass should be donated to SANBI;* • *All individuals, including construction workers must sign a register prior to accessing the construction site;* • *Construction workers must not be housed on site.* • *Speed restrictions (40 km per hour is recommended) must be implemented to reduce the chance of road kills, as well as to reduce the amount of dust caused by vehicle movement along the roads;* • *Unless in case of emergencies, driving of construction vehicles within the project area must be restricted to day-light hours;* • *Existing roads must be used as far as practically possible;* • *An S&R must be undertaken by a qualified herpetologist for SCC, particularly Sensitive Species 18. This must be in line with the CDC's Environmental Specifications relating to the translocation of wild animals;* • *The construction of infrastructure near permanent waterbodies must be avoided. Moreover, some amphibian species breed in temporary waterbodies, therefore it is recommended that construction activities take place outside of the wet and rainy season;* • *All reasonable and feasible measures should be implemented to reduce noise in ecologically sensitive areas; and* • *Construction vehicles and machinery must not encroach into identified 'no-go' areas or areas outside the development footprint.*	*ACHIEVABLE*	**MODERATE -**
		CUMULATIVE	**STUDY AREA**	**PERMANENT**	**POSSIBLE**	**MODERATE**	**MODERATE**		*ACHIEVABLE*	**MODERATE -**
		NO-GO	**STUDY AREA**	**PERMANENT**	**POSSIBLE**	**MODERATE**	**MODERATE**		*DIFFICULT*	**MODERATE -**

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LOSS OF MAMMALS AND HABITAT	Construction activities associated with the proposed development (e.g., vegetation clearance, excavation of soil and the movement of construction vehicles) could result in wildlife mortalities through road kills or accidental killing, and/or cause the displacement of mammals via increased noise or air pollution. The addition of the proposed development may exacerbate current impacts on mammals within the project area due to existing developments (e.g., sand mining). This could exacerbate the loss of mammal SCC through increased poaching opportunities or road kills. However, mammals are relatively agile and can move away from construction areas to more suitable habitat. Therefore, the cumulative impact is rated low negative. If the proposed development does not go ahead, the current impacts associated with other activities in the area, such as sand mining, also pose a threat to mammal SCC. As such, the No-go Alternative is rated low negative.	**DIRECT**	**LOCALISED**	**PERMANENT**	**POSSIBLE**	**MODERATE**	**MODERATE -**	• *It is illegal to remove or kill mammals within the study area listed as either Schedule I or II on the PNCO unless the relevant permit is acquired;* • *All construction staff must be educated with regards to wildlife conservation, and all staff employed by the developer must ensure that any mammals encountered during construction of the proposed development are not harmed or killed;* • *Any mammals encountered must be allowed to move away from the construction area. The CDC's Environmental Specifications relating to the translocation of wild animals must be adhered to in the event mammal SCC need to be translocated;* • *Mammal SCC that may die due to construction activities associated with the proposed development must be recorded (e.g., photographed and GPS coordinates taken) and reported to the appointed ECO and relevant authorities (i.e., EWT). Where needed, the carcass should be donated to SANBI;* • *Speed restrictions (40 km per hour is recommended) must be implemented to reduce the chance of road kills, as well as to reduce the amount of dust caused by vehicle movement along the roads;* • *Unless in case of emergencies, driving of construction vehicles within the project area must be restricted to day-light hours;* • *Existing roads must be used as far as practically possible;* • *The construction of linear infrastructure near permanent waterbodies must be avoided;* • *All reasonable and feasible measures should be implemented to reduce noise in ecologically sensitive areas;* • *The CDC's Environmental Specifications relating to the translocation of wild animals must be adhered to; and* • *Construction vehicles and machinery must not encroach into identified 'no-go' areas or areas outside the development footprint.*	*ACHIEVABLE*	**LOW -**
		CUMULATIVE	**STUDY AREA**	**PERMANENT**	**POSSIBLE**	**SLIGHT**	**LOW -**		*IRREVERSIBLE*	**LOW -**
		NO-GO	**STUDY AREA**	**PERMANENT**	**POSSIBLE**	**MODERATE**	**LOW -**		*IRREVERSIBLE*	**LOW -**
LOSS OF CBA (OSMP)	Due to the relatively small size of the pipeline within the CBA (~0.14 ha) and the type of activity (i.e., linear), this impact is rated moderate negative. The added loss of 0.14 ha of CBA – IDZ due to the proposed pipeline will contribute to the cumulative loss of CBA – IDZ within the SEZ, which may affect long-term conservation commitments. However, as loss is minimal the cumulative impact is rated low negative The No-go alternative will not result in the loss of CBA - IDZ. However, it should be noted that current land uses such as alien plant infestation, sand mining, and roads in Zone 10 have encroached on CBA – IDZ, including Damara Tern Habitat. As such the No-go alternative is rated moderate negative.	**DIRECT INDIRECT**	**LOCALISED**	**PERMANENT**	**DEFINITE**	**MODERATE**	**MODERATE -**	• *The clearance of approximately 0.14 ha of Sundays Valley Thicket vegetation must be limited to that which is strictly necessary for the installation of the pipeline;* • *The S&R of rare, endemic, or threatened plant species, prior to vegetation clearance, must be carried out in accordance with the Project Vegetation Specification (PVS), by a competent and qualified service provider;* • *The removal and stockpiling of topsoil must also be carried out in accordance with the PVS;* • *Employees must be prohibited from making fires and harvesting plants.; and* • *Existing access roads should be used as far as practically possible.*	*ACHIEVABLE*	**LOW -**
		CUMULATIVE	**STUDY AREA**	**PERMANENT**	**DEFINITE**	**SLIGHT**	**LOW -**		*IRREVERSIBLE*	**LOW -**
		NO-GO	**STUDY AREA**	**PERMANENT**	**DEFINITE**	**MODERATE**	**MODERATE -**		*IRREVERSIBLE*	**LOW -**

SYNTHESIS OF SPECIALIST IMPACTS AS EXTRACTED FROM THE SPECIALIST REPORTS

ISSUE	DESCRIPTION OF IMPACT	NATURE OF IMPACT	SPATIAL SCALE (EXTENT)	TEMPORAL SCALE (DURATION)	CERTAINTY SCALE (PROBABILITY/ LIKELIHOOD)	SEVERITY / BENEFICIAL SCALE	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	REVERSABILITY/ MITIGATION	SIGNIFICANCE POST-MITIGATION
LOSS OF AQUATIC ESA	With the recommended 32m buffer around rivers and wetlands in the project area, combined with the relatively small footprint of the development (32.06 ha), it is unlikely that the proposed development will have a significant impact on nearby rivers and/or wetlands. As such, the significance of this impact is rated low negative. The construction of the proposed development will likely contribute to the cumulative loss of Aquatic ESA in the Coega SEZ. However, this loss is expected to be minimal (> 1 ha). As such, the cumulative impact is rated low negative. The No-go alternative will not result in the loss of Aquatic ESA. However, it should be noted that current land uses such as alien plant infestation and sand mining in Zone 10 will continue to degrade Aquatic ESA in the SEZ. As such the No-go alternative is rated moderate negative.	**DIRECT INDIRECT**	**LOCALISED**	**LONG TERM**	**DEFINITE**	**SLIGHT**	**LOW -**	• *The clearance of approximately 32.06 ha of vegetation must be limited to that which is strictly necessary for the installation of the pipeline and construction of the hub site;* • *Existing roads must be used as far as possible;* • *All exposed areas must be stabilised against erosion and rehabilitated, using appropriate indigenous vegetation; and* • *The affected areas should be monitored regularly for signs of erosion and remedial action must be taken at the first signs of erosion.*	*ACHIEVABLE*	**LOW -**
		CUMULATIVE	**LOCALISED**	**LONG TERM**	**DEFINITE**	**SLIGHT**	**LOW -**		*ACHIEVABLE*	**LOW -**
		NO-GO	**LOCALISED**	**LONG TERM**	**DEFINITE**	**MODERATE**	**MODERATE -**		*DIFFICULT*	**MODERATE -**
DISRUPTION OF ECOSYSTEM FUNCTION AND PROCESS	<u>Coastal Dune System:</u> ❖ Development within the coastal dune system will alter the natural dynamic processes characteristic of the coastal zone, including sediment dynamics and windblown sediment transport, ultimately resulting in the modification of the dune system and changes to the coastal sediment budget in the region. <u>Albany Thicket System:</u> ❖ Development within Bontveld and to a lesser extent Sundays Valley Thicket, may cause changes to fire dynamics (e.g., due to increased vehicular use and traffic in the Construction (and Operation) Phase and/or the proliferation of grasses in disturbed areas, amongst other factors. Disruption of ecosystem function and process due to habitat degradation and/or fragmentation has likely already occurred within the project area due to alien plant infestation, sand mining, and road activity, amongst other land uses. The construction of the proposed development may thus cause additional disruption(s). Under the No-go alternative, habitat degradation and/or fragmentation which could disrupt ecosystem dynamics will likely still occur because of other land uses such as sand mining. Under the No-go alternative the impact is therefore rated moderate negative.	**DIRECT INDIRECT**	**LOCALISED**	**LONG TERM**	**POSSBILE**	**MODERATE**	**MODERATE**	• *The clearance of approximately 32.06 ha of vegetation must be limited to that which is strictly necessary for the installation of the pipeline and construction of the hub site;* • *Existing roads must be used as far as possible;* • *All exposed areas must be stabilised against erosion and rehabilitated, using appropriate indigenous vegetation;* • *Laydown areas should be located within previously disturbed areas;* • *Employees must be prohibited from making fires; and* • *No livestock grazing must be allowed.*	*ACHIEVABLE*	**LOW -**
		CUMULATIVE	**STUDY AREA**	**LONG TERM**	**POSSBILE**	**MODERATE**	**MODERATE -**		*DIFFICULT*	**MODERATE -**
		NO-GO	**STUDY AREA**	**LONG TERM**	**DEFINITE**	**SLIGHT**	**MODERATE -**		*DIFFICULT*	**MODERATE -**
HABITAT FRAGMENTATION AND/OR DEGRADATION	During the Construction Phase, the loss of vegetation associated with the proposed development will coincide with the loss of faunal habitat, thereby reducing breeding and rearing locales. Faunal populations could become locally extinct or diminish in size. However, as the	**INDIRECT**	**LOCALISED**	**LONG TERM**	**PROBABLE**	**MODERATE**	**MODERATE -**	*Please refer to the mitigation measures relating to the Loss of Herpetofauna SCC as well as the Loss of Mammal SCC listed in this table.*	*ACHIEVABLE*	**LOW -**

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	development is linear in nature and there is sufficient suitable habitat surrounding the proposed servitude, this impact is rated moderate negative. Habitat degradation and/or fragmentation has already occurred within the project area due to alien plant infestation, sand mining, and road activity, amongst other land uses. The construction of the proposed development will thus cause additional habitat fragmentation and/or degradation. Under the No-go alternative, habitat degradation and/or fragmentation will still occur because of other land uses such as sand mining. Under the No-go alternative the impact is therefore rated moderate negative	**CUMULATIVE**	**STUDY AREA**	**LONG TERM**	**POSSIBLE**	**MODERATE**	**MODERATE -**		*DIFFICULT*	**MODERATE -**
		NO-GO	**STUDY AREA**	**LONG TERM**	**PROBABLE**	**MODERATE**	**MODERATE -**		*DIFFICULT*	**MODERATE -**
ESTABLISH-MENT AND/OR SPREAD OF ALIEN PLANT SPECIES	The removal of existing natural vegetation creates 'open' habitats which favours the establishment of undesirable vegetation in areas that are typically very difficult to eradicate and could pose a threat to surrounding ecosystems. Alien invasive species already present on site include *Acacia cyclops* (Rooikrans). Pockets of alien invasive vegetation, namely Acacia cyclops, has already established in the project area, particularly in St Francis Dune Thicket. Should construction of the proposed development take place, this could lead to the additional spread of alien invasive species in the project area, which would exacerbate the current and land use. As such, the cumulative impact is rated moderate negative. The site is already invaded with Acacia cyclops which has resulted in the alteration of habitat, particularly St Francis Dune Thicket. If the project does not go ahead, this infestation is still likely to spread. The current impact under the no-go alternative is therefore rated moderate negative.	**DIRECT INDIRECT**	**LOCALISED**	**LONG TERM**	**POSSIBLE**	**MODERATE**	**MODERATE -**	• *In line with the recommendations and management requirements outlined within the Coega OSMP, the following mitigation measures apply:* *The Alien Vegetation Management Plan developed for the Coega SEZ must be implemented and managed to prevent the further spread of alien invasive species within Zone 10 of the Coega SEZ.* *Any alien vegetation which establishes during the construction phase should be removed from site and disposed of at a registered waste disposal site.*	*ACHIEVABLE*	**LOW -**
		CUMULATIVE	**STUDY AREA**	**LONG TERM**	**POSSIBLE**	**MODERATE**	**MODERATE -**		*DIFFICULT*	**MODERATE -**
		NO-GO	**STUDY AREA**	**LONG TERM**	**POSSIBLE**	**MODERATE**			*DIFFICULT*	**MODERATE -**
TRAFFIC IMPACT ASSESSMENT										
INCREASED TRAFFIC VOLUMES	Additional vehicle trips generated by the proposed development (up to 323 and 34 additional trips during the AM and PM peak hours for the construction and operational scenarios respectively) will have minimal impact in terms of road capacity given the current low hourly volumes along the road links and at the affected intersections, and low trips generated by the proposed power plant. No cumulative impacts assessed for the construction period The No-Go option would not result in any impacts	**DIRECT INDIRECT**	**LOCALISED**	**SHORT TERM**	**DEFINITE**	**SLIGHT**	**LOW -**	• *Provide suitable traffic accommodation measures as part of construction contract to inform other road users of presence of construction related traffic* • *Traffic accommodation measures to be provided in terms of Chapter 13 of the South African Road Traffic Signs Manual* • *Measures to be provided subject to approval by the Engineer* • *Ensure construction traffic is confined to site area where possible* • *Minimise need for continuous construction traffic on Ring Road by confining construction traffic to the site* • *Ensure that vehicle loads are within legislated limits, i.e. maximum Gross vehicle mass of 56 000kg* • *Source relevant permits from the Eastern Cape Department of Transport should abnormal loads be required for transport of components* • *Provide suitable traffic accommodation measures as part of construction contract to inform other road users of presence of construction related traffic, including*	*EASILY ACHIEVABLE*	**LOW -**

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								speed restriction signage; and *Increased law enforcement protocols*		
		CUMULATIVE	**NO IMPACT**							
		NO-GO	**NO IMPACT**							
ADDITIONAL AXLE LOADING RESULTING IN DETERIORATION OF ROAD CONDITION	The Coega IDZ Demand Modelling Report indicates that all Class 2 roads would likely need to accommodate 7.5 million E80s per lane over a 20-year period. Given that the Ring Road is a class 2 road it has likely been designed for these volumes. As such the number of E80s generated by the power plant traffic relative to the maximum expected loading over the 20-year period is minimal The cumulative impact of all other known power plants will not impact significantly on the road pavements as their design has taken such volumes into account. The No-Go option would not result in any impacts	**DIRECT INDIRECT**	**LOCALISED**	**MEDIUM TERM**	**DEFINITE**	**SLIGHT**	**LOW -**	*Provide suitable traffic accommodation measures as part of construction contract to inform other road users of presence of construction related traffic* *Traffic accommodation measures to be provided in terms of Chapter 13 of the South African Road Traffic Signs Manual* *Measures to be provided subject to approval by the Engineer* *Ensure construction traffic is confined to site area where possible* *Minimise need for continuous construction traffic on Ring Road by confining construction traffic to the site* *Ensure that vehicle loads are within legislated limits, i.e. maximum Gross vehicle mass of 56 000kg* *Source relevant permits from the Eastern Cape Department of Transport should abnormal loads be required for transport of components* *Provide suitable traffic accommodation measures as part of construction contract to inform other road users of presence of construction related traffic, including speed restriction signage; and* *Increased law enforcement protocols*	*EASILY ACHIEVABLE*	**LOW -**
		CUMULATIVE	**LOCALISED**	**LONG TERM**	**DEFINITE**	**SLIGHT**	**LOW -**		*EASILY ACHIEVABLE*	**LOW -**
		NO-GO	**NO IMPACT**							
TRAFFIC SAFETY IMPACT DUE TO ADDITIONAL / HIGH-SPEED TRAFFIC	Safety issues may initially be a concern given low traffic volumes as traffic is likely to operate at high speeds in low traffic environments. *It is assumed that all proposed plants will be operational by 2030. As such, the TIA has assessed the cumulative operational traffic for the Zone 10 South and North power plants, the Zone 13 power plant and the Liquified Natural Gas terminal and distribution facility added to the latent volumes and the ENGIE Zone 13 plant and the escalated background traffic volumes for the 2030 development horizon* The No-Go option would not result in any impacts	**DIRECT INDIRECT**	**LOCALISED**	**LONG TERM**	**DEFINITE**	**SLIGHT**	**LOW -**	*Provide suitable traffic accommodation measures as part of construction contract to inform other road users of presence of construction related traffic* *Traffic accommodation measures to be provided in terms of Chapter 13 of the South African Road Traffic Signs Manual* *Measures to be provided subject to approval by the Engineer* *Ensure construction traffic is confined to site area where possible* *Minimise need for continuous construction traffic on Ring Road by confining construction traffic to the site* *Ensure that vehicle loads are within legislated limits, i.e. maximum Gross vehicle mass of 56 000kg* *Source relevant permits from the Eastern Cape Department of Transport should abnormal loads be required for transport of components* *Provide suitable traffic accommodation measures as part of construction contract to inform other road users of presence of construction related traffic, including speed restriction signage; and* *Increased law enforcement protocols*	*EASILY ACHIEVABLE*	**LOW -**
		CUMULATIVE	**LOCALISED**	**LONG TERM**	**DEFINITE**	**SLIGHT**	**LOW -**		*EASILY ACHIEVABLE*	**LOW -**
		NO-GO	**NO IMPACT**							

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SOCIO-ECONOMIC IMPACTS										
THE SOCIO-ECONOMIC IMPACTS RELATED TO THE PROPOSED GAS INFRASTRUCTURE WERE ASSESSED BY CES (THE EAP) USING INFORMATION FROM CDC, IN-HOUSE EXPERIENCE AND A SPECIALIST SOCIAL IMPACT ASSESSMENT WAS NOT CONDUCTED.										
JOB CREATION	The proposed Gas Infrastructure development may result in the direct creation of approximately 2000 temporary job opportunities (over a construction period of 3 years), of which 30% would be unskilled labour. Indirect job opportunities (industries that provide construction materials and services for the project) may also benefit as a result of the construction of the proposed development. The proposed Gas Infrastructure project will help to secure approximately 2,000 direct employment opportunities in the short term and 200 in the long term, and, cumulatively the overall CDC Gas to Power project could potentially result in a significant number of employment opportunities over the construction and operational phases of the project (assuming similar employment numbers for each power plant). The impact is anticipated to be realised over a number of years, as construction of the various components of the broader project is likely to be phased. As the relative timing of development of the various components of the overall project are not yet known, total employment numbers at any one time may vary widely. Increased economic activity is desirable, or even critical, in the context of high unemployment and low income levels. Together with all other productive economic activities in the region, energy production at the CDC Gas to Power project benefits the local and national community cumulatively	**DIRECT INDIRECT**	**STUDY AREA**	**SHORT TERM**	**DEFINITE**	**MODERATE**	**MODERATE +**	• *Maximise local employment (unskilled, semi- and skilled workers) as well as the number of local SMMEs and vendors. Set standards for local employment in the Contractor Services Management Plans;* • *Implement a fair and transparent employment process and employ a Community Employer Relations Officer for the duration of the construction period; and* • *Implement a SMME skills development programme (training on how to tender, understanding contracts, etc.) at least 4 months prior to inviting SMMEs to tender. The programme must not only assist local small businesses but also aim to do skills development for the local Municipality.*	*ACHIEVABLE*	**MODERATE +**
		CUMULATIVE	**REGIONAL**	**SHORT TERM**	**PROBABLE**	**MODERATE**	**MODERATE +**		*ACHIEVABLE*	**MODERATE +**
		NO-GO	**STUDY AREA**	**SHORT TERM**	**DEFINITE**	**SLIGHT**	**LOW -**		*ACHIEVABLE*	**LOW -**
ECONOMIC GROWTH	During construction, income to the government is expected to be marginally increased by taxes (VAT) paid by CDC/ the developer on locally procured goods and services. Investment in locally procured goods and services will also have a very limited indirect and induced effect on economic performance. CDC Estimates the Gas Infrastructure development to have a CapEx of approximately R2 billion, disbursed over a 36 month construction period, representing 0.6% of the GVA of R 111.3 billion for the NMBM in 2018, annually for 3 years – a significant short-term investment for a single project. Furthermore, taxes generated by local procurement will contribute a small but significant portion of national income The CDC estimates the total cost of construction (CapEx) to develop the entire Gas to Power projects at R8 billion. While the timing and duration of this disbursement is dependent on securing external investors, this would amount to a significant portion of the GVA, at both a local and national level.	**DIRECT INDIRECT**	**REGIONAL**	**SHORT TERM**	**PROBABLE**	**MODERATE**	**MODERATE +**	• *Maximise local employment (unskilled, semi- and skilled workers) as well as the number of local SMMEs and vendors. Set standards for local employment in the Contractor Services Management Plans;* • *Implement a fair and transparent employment process and employ a Community Employer Relations Officer for the duration of the construction period; and* • *Implement a SMME skills development programme (training on how to tender, understanding contracts, etc.) at least 4 months prior to inviting SMMEs to tender. The programme must not only assist local small businesses but also aim to do skills development for the local Municipality.*	*ACHIEVABLE*	**MODERATE +**
		CUMULATIVE	**REGIONAL**	**LONG-TERM**	**POSSIBLE**	**MODERATE**	**MODERATE +**		*ACHIEVABLE*	**MODERATE +**
		NO-GO	**REGIONAL**	**MEDIUM TERM**	**POSSIBLE**	**SLIGHT**	**LOW -**	•	*ACHIEVABLE*	**LOW -**

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	The No-Go option will result in the loss of direct and indirect economic growth opportunities that will be generated during the construction period.									
OPERATIONAL PHASE										
AIR QUALITY IMPACT ASSESSMENT										
IMPACT ON AMBIENT SO2, NO2 AND PM10 CONCENTRATIONS	The predicted ambient concentrations of SO2, NO2, CO and PM10 emissions from the Gas Infrastructure Project are very low and the intensity is rated as irrelevant For SO2, NO2 and PM10, the extent of the potential impact is small and limited to the SEZ. The cumulative effect in the SEZ will therefore be very small or negligible The No-Go option will not impact air quality within the Coega SEZ further	**DIRECT**	**LOCALISED**	**LONG-TERM**	**UNLIKELY**	**SLIGHT**	**LOW -**		*EASILY ACHIEVABLE*	**LOW -**
		CUMULATIVE	**LOCALISED**	**LONG-TERM**	**UNLIKELY**	**SLIGHT**	**LOW -**		*EASILY ACHIEVABLE*	**LOW -**
		NO-GO	**NO IMPACT**							
IMPACT ON AMBIENT CO CONCENTRATIONS DURING OPERATION	The consequence of the potential impact is therefore very low for SO2, NO2, CO and PM10 and irrelevant for benzene. The intensity is very low, so air quality impacts are improbable. The significance rating is therefore considered insignificant for SO2, NO2, CO and PM10 For CO and benzene the predicted cumulative concentrations are very low and the extent of any potential impact is regarded as irrelevant. The No-Go option will not impact air quality within the Coega SEZ further	**DIRECT**	**LOCALISED**	**LONG-TERM**	**UNLIKELY**	**SLIGHT**	**LOW -**		*EASILY ACHIEVABLE*	**LOW -**
		CUMULATIVE	**LOCALISED**	**LONG-TERM**	**UNLIKELY**	**SLIGHT**	**LOW -**		*EASILY ACHIEVABLE*	**LOW -**
		NO-GO	**NO IMPACT**							
CLIMATE CHANGE IMPACT ASSESSMENT										
IMPACT ON CLIMATE CHANGE (GHG EMISSION)	The Scope 1 and Scope 2 emissions were summarised into the following categories: Tanker Berthing and Deberthing; and LNG Regasification. With an assumed project life span of 30 years10, this amounts to 26 million tCO2e throughout the lifespan of the Gas Distribution Infrastructure project. These emissions are related to a total annual throughput of 16.9 million m3 of LNG per year. The Scope 1 and Scope 2 emissions equate to 0.56% of South Africa's carbon budget The upstream Scope 3 emissions (from natural gas extraction, transport, processing and liquefication) amount to a total of 8.0 million tCO2e per annum. The most significant portion of Scope 3 emissions, and of the entire project, is the downstream Scope 3 emissions which are 19.6 million tCO2e per annum, which are related to the combustion of the imported LNG for various processes, including, but not limited to, the combustion emissions arising from the three proposed	**DIRECT**	**NATIONAL**	**LONG-TERM**	**DEFINITE**	**SLIGHT**	**LOW -**	• *The LNG to be sourced from nearby suppliers, to reduce upstream transport emissions;* • *The LNG to be sourced from responsible suppliers, reducing emissions associated with extraction and upstream processing of the LNG; and* • *Use of good quality equipment to reduce the amount of LNG that vaporizes and escapes as fugitive emissions.*	*DIIFICULT*	**LOW -**
		INDRECT	**INTERNATIONAL**	**LONG TERM**	**DEFINITE**	**SEVERE**	**VERY HIGH -**		*DIFFICULT*	**VERY HIGH -**

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	CDC gas-to-power plants. For the climate change impact assessment (in terms of the Thabametsi case judgement), greenhouse gas emissions are quantified to determine the impact of a project on climate change. Since the project impact on climate change (the project's greenhouse gas emissions) cannot be directly linked to local impacts, it is not possible to determine / quantify cumulative impacts associated with other Gas to Power projects within a 30 km radius of the site. The CCIA did however consider the cumulative nature of climate change, by contextualising impact in terms of the global carbon budget, and on a national level by using the South African carbon budget. The No-Go option is not expected to impact upon climate change in any significant manner	**CUMULATIVE**	**N/A**							
		NO-GO	**NO IMPACT**							
RISK AND VULNERABILITY OF THE PROJECT TO CLIMATE CHANGE	The Gas Distribution Infrastructure is sensitive to upstream disturbances as a result of Climate Change impacting the reliability of supply of LNG. In terms of the project's vulnerability to climate change, the assessment considers climate change trends impacting both the project and its context. The granularity of this component of the climate change impact assessment relates to a broader area, indicating existing project or contextual risks which could be exacerbated. The No-Go option would result in no impacts as the proposed infrastructure would not exist, and therefore could not be impacted.	**DIRECT**	**LOCALISED**	**LONG TERM**	**UNLIKELY**	**MODERATE**	**LOW -**	• *The designs of infrastructure and processes must consider the potential impact of extreme weather events such as severe storms/storm surge, severe winds, extreme heat, heavy rains, and flooding impacts. The corrosive nature of maritime climate on infrastructure and equipment must be taken into account in design and maintenance;* • *The designs for the piping must account for increasing ambient temperatures as well as an increased frequency of very hot days and the associated material fatigue;* • *Safety protocols must take into consideration the impacts of climate change on construction and operations. This includes the introduction of disaster management policies, as well as onsite employee training, specifically for risk management of extreme weather events;* • *Design of an on-site stormwater drainage system, and implementation of a stormwater management plan;* • *Improve storm water drainage capacity to minimise flood occurrences onsite and the associated contamination occurrences; and* • *Use a closed-loop water system for the Gas Infrastructure to minimise water losses to evaporation, and reduce water consumption.*	*ACHIEVABLE*	**LOW -**
		CUMULATIVE	**N/A**							
		NO-GO	**NO IMPACT**							
DAMARA TERN IMPACT ASSESSMENT										

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DISTURBANCE TO DAMARA TERN COLONY (PHASE 1)	The negative impact of disturbance during operations of Phase 1 of the Gas Infrastructure on the Damara Tern colony is assessed to be Moderate, reducing to Low following successful implementation of mitigation measures The cumulative impact of disturbance on the Damara Tern colony, comprising noise, the presence of large physical structures, lighting and general disturbance caused by human activities, vehicle and equipment movements at the two Zone 10 Power Plants and Gas Hub during the operational phase of the Integrated Gas to Power Project is assessed Disturbance impacts on the Damara Tern colony during the operational phase of the Integrated Zone 10 Gas to Power Facilities due to noise, the visual intrusion and physical presence of the two Power Plants and Gas Hub with associated lights, movement of vehicles, machinery and people are assessed to be High Negative. The Residual Impacts after implementation of on-site mitigation measures are assessed to remain High Negative as mitigation will be very difficult and the physical presence and size of the proposed Zone 10 Gas to Power Facilities cannot be mitigated The No-Go Alternative prior to mitigation assessed the impact of past and future sand mining (assuming that the 35ha Coega Mining Right will be fully mined) as Moderate Negative. The impact is fully reversible by ceasing sand mining once the current 5ha Ngqura Sand Mine is exhausted (probably within the next 2 years) and not commencing with mining of the Coega Mining Right, resulting in a Low Negative impact after mitigation. However, this mitigation is very unlikely to be implemented and consequently the impact of the No-Go Alternative is considered to be Moderate Negative	**DIRECT**	**REGIONAL**	**LONG TERM**	**PROBABLE**	**MODERATE**	**MODERATE -**	• *Phase 1 of the Gas Hub (the road loading facility) must be fenced off to contain human access and disturbance within the facility. The south east boundary (closest to the Damara Tern colony) must be sufficiently high (e.g. 3m) and screened off (ideally with a wall) to prevent visual disturbance to the colony, especially from vehicle headlights. Ideally the road loading facility should operate during daylight hours only (during the Damara Tern breeding season, 1 October to end February) to minimise disturbance to the colony from vehicle headlights;* • *Planned maintenance of the gas pipelines east of the south-north corridor must not take place during the Damara Tern breeding season, 1 October to end February. If emergency repairs or inspections are required during the Damara Tern breeding season they should be undertaken during daylight hours and the work site should be screened off (e.g. high fence, shadecloth), in a similar manner to that required by the construction phase mitigation; and* • *CDC's Operational Safety, Health and Environmental Management Plan for the Coega SEZ must be complied with. This management plan is applicable to all tenants and governs the management, monitoring and reporting requirements for most operational activities (e.g. environmental awareness, waste, storm-water, waste- water, air quality management, noise control, pollution control, management of hazardous substances, emergency preparedness, visual impacts, alien vegetation management, species of conservation concern, problem animal control, resource management).*	*ACHIEVABLE*	**LOW -**
		CUMULATIVE	**REGIONAL**	**LONG TERM**	**PROBABLE**	**SEVERE**	**HIGH -**		*VERY DIFFICULT*	**HIGH -**
		NO-GO	**REGIONAL**	**MEDIUM TERM**	**PROBABLE**	**MODERATE**	**MODERATE -**		*ACHIEVABLE*	**LOW -**
CONSTRUCTION DISTURBANCE TO DAMARA TERN COLONY (PHASE 2)	The negative impact of disturbance during operations of Phase 2 of the Gas Infrastructure on the Damara Tern colony is assessed to be High. The close proximity of the Damara Tern colony and the size of the infrastructure means that the impacts will be difficult to mitigate and the impact remains High Negative after mitigation The cumulative impact of disturbance on the Damara Tern colony, comprising noise, the presence of large physical structures, lighting and general disturbance caused by human activities, vehicle and equipment movements at the two Zone 10 Power Plants and Gas	**DIRECT**	**REGIONAL**	**LONG TERM**	**PROBABLE**	**SEVERE**	**HIGH -**	• *The Gas Hub must be fenced off to contain human activities within the Gas Hub precinct. The south east boundary (closest to the Damara Tern colony) and the west and east boundaries for a distance of at least 200m northwest of their junction with the south-eastern boundary, must be screened off to prevent visual disturbance to the Damara Tern colony (ideally with a wall). Unfortunately, even a 5m high wall will not adequately screen the larger components of the project;* • *Planned maintenance of the gas pipelines east of the south-north corridor must not take place during the Damara Tern breeding season, 1 October to end*	*VERY DIFFICULT*	**HIGH -**

SYNTHESIS OF SPECIALIST IMPACTS AS EXTRACTED FROM THE SPECIALIST REPORTS										
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	Hub during the operational phase of the Integrated Gas to Power Project is assessed Disturbance impacts on the Damara Tern colony during the operational phase of the Integrated Zone 10 Gas to Power Facilities due to noise, the visual intrusion and physical presence of the two Power Plants and Gas Hub with associated lights, movement of vehicles, machinery and people are assessed to be High Negative. The Residual Impacts after implementation of on-site mitigation measures are assessed to remain High Negative as mitigation will be very difficult and the physical presence and size of the proposed Zone 10 Gas to Power Facilities cannot be mitigated The No-Go Alternative prior to mitigation assessed the impact of past and future sand mining (assuming that the 35ha Coega Mining Right will be fully mined) as Moderate Negative. The impact is fully reversible by ceasing sand mining once the current 5ha Ngqura Sand Mine is exhausted (probably within the next 2 years) and not commencing with mining of the Coega Mining Right, resulting in a Low Negative impact after mitigation. However, this mitigation is very unlikely to be implemented and consequently the impact of the No-Go Alternative is considered to be Moderate Negative	**CUMULATIVE**	**REGIONAL**	**LONG TERM**	**PROBABLE**	**SEVERE**	**HIGH -**	*February. If emergency repairs or inspections are required during the Damara Tern breeding season they should be undertaken during daylight hours and the work site should be screened off (e.g. high fence, shadecloth), in a similar manner to that required by the construction phase mitigation;* • *CDC's Operational Safety, Health and Environmental Management Plan for the Coega SEZ must be complied with. This management plan is applicable to all tenants and governs the management, monitoring and reporting requirements for most operational activities (e.g. environmental awareness, waste, storm-water, waste-water, air quality management, noise control, pollution control, management of hazardous substances, emergency preparedness, visual impacts, alien vegetation management, species of conservation concern, problem animal control, resource management).*	*VERY DIFFICULT*	**HIGH -**
		NO-GO	**REGIONAL**	**MEDIUM TERM**	**PROBABLE**	**MODERATE**	**MODERATE -**		*ACHIEVABLE*	**LOW -**
IMPACTS TO DAMARA TERNS DUE TO DUNEFIELD SAND STARVATION	No direct/indirect impacts assessed of any significance The Cumulative Impact of reduced sand transport into the dunefield, thereby reducing the area of habitat available for Damara Tern breeding is assessed to be High reducing to Moderate after mitigation The no-go option would result in the continuation of mining within the Zone 10 mining right area and the loss of an estimated additional 15% of the dune system's sand resource.	**DIRECT**	**NO IMPACT**							
		NO-GO CUMULATIVEE	**REGIONAL**	**LONG TERM**	**PROBABLE**	**SEVERE**	**HIGH -**		*ACHIEVABLE*	**MODERATE -**
MARINE IMPACT ASSESSMENT										
LOSS OF BENTHIC COMMUNITIES	The initial negative impacts are deemed of low intensity within the immediate vicinity of the LNG terminal and dredge disposal site.. The impact is therefore assessed to be of very low significance both without and with mitigation Cumulative impacts during operation are considered low intensity and locally contained. The No-Go option would result in no impacts occurring.	**DIRECT**	**LOCALISED**	**SHORT TERM**	**DEFINITE**	**SLIGHT**	**LOW -**	• *Fit deflector plates to discharges directed vertically downwards to modify the discharge to 45°* • *Design intakes to minimise entrainment or impingement by reducing the average intake velocity to about 0.1 to 0.15 m/s. This is comparable to background currents in the oceans, and will allow mobile organisms to swim away from the intake under these flow conditions (UNEP 2008)* • *Optimise operating modes in the open-loop system as far as possible to reduce impacts, or use closed-loop systems in recruitment areas or during periods when abundances of eggs and larvae are seasonally high* • *Undertake an entrainment study to more accurately determine the potential impacts of impingement and entrainment on communities within the Port of Ngqura* • *Consider water conservation opportunities for LNG facility cooling systems (e.g. air cooled heat exchangers in place of water cooled heat exchangers and*	*ACHIEVABLE*	**LOW -**
		CUMULATIVE	**STUDY AREA**	**LONG TERM**	**POSSIBLE**	**MODERATE**	**MODERATE -**		*DIFFICULT*	**MODERATE -**

SYNTHESIS OF SPECIALIST IMPACTS AS EXTRACTED FROM THE SPECIALIST REPORTS										
ISSUE	DESCRIPTION OF IMPACT	NATURE OF IMPACT	SPATIAL SCALE (EXTENT)	TEMPORAL SCALE (DURATION)	CERTAINTY SCALE (PROBABILITY/ LIKELIHOOD)	SEVERITY / BENEFICIAL SCALE	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	REVERSABILITY/ MITIGATION	SIGNIFICANCE POST-MITIGATION
								opportunities for the integration of cold water discharges with other proximate industrial or power plant facilities). The selection of the preferred system should balance environmental benefits and safety implications of the proposed choice • *Discharge cooling or cold water to surface waters in a location that will allow maximum mixing and dilution of the thermal plume to ensure that the temperature is within 3 °C of ambient temperature at the edge of the mixing zone or within 100 meters of the discharge point* • *The LNGCs must have a Ballast Water Management Plan in place* • *Ballast water exchange must be done at least 200 nautical miles from the nearest land in waters of at least 200 m deep; the absolute minimum being 50 nautical miles from the nearest land* • *Ensure that routine cleaning of ballast tanks to remove sediments is carried out, where practicable, in mid-ocean or under controlled arrangements in port or dry dock, in accordance with the provisions of the ship's Ballast Water Management Plan* • *Use filtration procedures during loading of ballast in order to avoid the uptake of potentially harmful aquatic organisms, pathogens and sediment that may contain such organisms* • *Optimise operating modes in the open-loop system as far as possible to reduce impacts, or use closed-loop systems whenever practicable.* • *Use multi-port discharges and adjust discharge rate to facilitate enhanced mixing with the receiving water body* • *Ports should discharge horizontally or within -45° of horizontal to maximise dilution and avoid erosion of the sediments where the jet hits the seabed* • *Neutralise NaOCl with SMBS prior to discharge to ensure that the most conservative international guideline value (<2 µg/ℓ) for residual chlorine at the point of discharge is met* • *Blend the brine with the cooling/heating water prior to release* • *Implement closed-loop systems whenever practicable* • *Implement the principle of mechanical cleaning of the entire system as part of regular annual maintenance of the FSRU in preference to the use of a biocide.* • *Reduce lighting in non-essential areas.* • *Use of guards to direct lights to areas requiring lighting* • *Avoid direct light in water, exept during safety inspections* • *Low light mounting where possible* • *Use of long wavelength lights that are less intense for nocturnal animals* • *Compile a lighting plan that identifies specific measures that could be implemented to minimize or avoid impacts associated with operational night-time lighting on avian species, fish species, and marine mammals* • *Implement a waste management system that addresses all wastes generated at the various sites, shorebased and marine. This should include:*		

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								• *Separation of wastes at source;* • *Recycling and re-use of wastes where possible;* • *Treatment of wastes at source (maceration of food wastes, compaction, incineration, treatment of sewage and oily water separation).* • *Implement leak detection and repair programmes for valves, flanges, fittings, seals, etc.* • *Use a low-toxicity biodegradable detergent for the cleaning of all deck spillages* • *All construction activities in the coastal zone must be managed according to a strictly enforced Environmental Management Plan* • *Prepare an emergency response plan covering recommended measures to prevent and respond to LNG spills* • *The hypochlorite generation unit must be suitably bunded to prevent and spills from the plant entering the marine environment* • *Ensure that vessel speed is kept below 10 knots when underway in Algoa Bay.* • *The vessel operators should keep a constant watch for slow-swimming large pelagic fish, marine mammals and turtles in the path of the vessel* • *Ensure that all project-associated vessels have an oil spill contingency plan in place.* • *As far as possible, and whenever the sea state permits, attempt to control and contain the spill at sea with suitable recovery techniques to reduce the spatial and temporal impact of the spill.* • *Ensure adequate resources are provided to collect and transport oiled birds to a cleaning station.* • *Refueling is to take place only under controlled conditions within the port.*		
		NO-GO	**NO IMPACT**							
REDUCED PHYSIOLOGICAL FUNCTIONING OF MARINE ORGANISMS	Impacts are considered to be highly localised and ephemeral, and therefore the impact is assessed to be of very low significance both without and with mitigation Although increased suspended sediment concentrations assessed are ephemeral, when taken in combination with capital and maintenance dredging operations, cumulative impacts on water quality of medium significance can be expected over the medium to long term. The No-Go option will likely not reduce the regular movement of maritime traffic and the impact is therefore the no-go option is rated similar to the direct impacts assessed above.	**DIRECT**	**LOCALISED**	**SHORT TERM**	**DEFINITE**	**SLIGHT**	**LOW -**	*Same as above*	*ACHIEVABLE*	**LOW -**
		NO-GO / CUMULATIVE	**STUDY AREA**	**LONG TERM**	**POSSIBLE**	**MODERATE**	**MODERATE -**	*Same as above*	*DIFFICULT*	**MODERATE -**
DISTURBANCE TO MARINE FAUNA	changes and avoidance of feeding and/or breeding areas in fish, seabirds, seals, turtles and cetaceans due to underwater noise from the LNGCs and FSRU. The long term cumulative impacts of noise on marine organisms in the port are therefore predicted to be of medium significance	**DIRECT**	**LOCALISED**	**LONG TERM**	**POSSIBLE**	**SLIGHT**	**LOW -**	*Same as above*	*ACHIEVABLE*	**LOW -**
		NO-GO / CUMULATIVE	**DIRECT**	**DIRECT**	**DIRECT**	**DIRECT**	**MODERATE -**	*Same as above*	*DIFFICULT*	**MODERATE -**

SYNTHESIS OF SPECIALIST IMPACTS AS EXTRACTED FROM THE SPECIALIST REPORTS

ISSUE	DESCRIPTION OF IMPACT	NATURE OF IMPACT	SPATIAL SCALE (EXTENT)	TEMPORAL SCALE (DURATION)	CERTAINTY SCALE (PROBABILITY/ LIKELIHOOD)	SEVERITY / BENEFICIAL SCALE	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	REVERSABILITY/ MITIGATION	SIGNIFICANCE POST-MITIGATION
CREATION OF ARTIFICIAL SUBSTRATA	The creation of artificial hard substrata through the placement of revetments and rock armour, and the installation of piles is thus deemed to be of low intensity. The impact can be considered positive as the developing successional biofouling communities would serve as a food source for reef-associated fish and invertebrate species thereby potentially enhancing the biodiversity and abundance in the port Any developments within the port that require the installation of hard structures will have a cumulative impact on the availability of hard substrata for colonisation by marine organisms. The long term cumulative impacts are, however, expected to be of low significance.	**DIRECT**	**LOCALISED**	**SHORT TERM**	**DEFINITE**	**MODERATE**	**LOW +-**	*Same as above*	*ACHIEVABLE*	**LOW +**
		NO-GO / CUMULATIVE	**LOCALISED**	**LONG TERM**	**DEFINITE**	**SLIGHT**	**LOW +-**	*Same as above*	*ACHIEVABLE*	**LOW +**
INTAKE OF LARGE VOLUMES OF SEAWATER FROM THE PORT	The impingement and entrainment of marine organisms through the intake of large volumes of seawater by the LNGC and FSRU for ballasting and heating and cooling of onboard processes is deemed to potentially be of medium intensity. The effect will be highly localised but would continue over the medium- (FSRU and LNGC) to long-term (LNGC only) and is assessed to be of medium significance With the proposed development of multiple gas-to-power projects within the port and in the Coega CDC large volumes of seawater will be required for both cooling and regasification. Any impingement and entrainment effects will therefore be cumulative, potentially extending over the long term. The No-Go option would result in no impacts occurring.	**DIRECT**	**LOCALISED**	**LONG TERM**	**DEFINITE**	**MODERATE**	**MODARATE -**	*Same as above*	*ACHIEVABLE*	**LOW -**
		CUMULATIVE	**STUDY AREA**	**LONG TERM**	**PROBABLE**	**MDOERATE-SEVERE**	**MODERATE -**		*DIFFICULT*	**MODERATE -**
		NO-GO	**NO IMPACT**							
INTRODUCTION AND SPREAD OF MARINE ALIEN INVASIVE SPECIES	Based on the results of modelling studies from elsewhere, the discharge of thermal effluents from the FSRU moored at the proposed LNG terminal in the Port of Ngqura would be of low intensity and remain localised to within 100 m of the vessel and to within the port. The negative impacts would, however, persist over the medium-term (assuming the FSRU operations are replaced by land-based LNG storage and re-gasification facilities within 15 years). A modelling study undertaken by PRDW (2020) for anticipated thermal discharges in the Coega marine pipeline servitude ascertained that water quality guideline targets with respect to temperature were met within 300 m of the proposed discharge location to the east of the breakwater. There would therefore be no overlap of the thermal plumes from the FSRU moored at the LNG terminal within the Port, with the thermal discharges from the power-plant outfalls to the east of the breakwater and within the Addo Elephant MPA and Algoa Bay to Amathole EBSA. If the thermal plumes are limited to within 100 m of the discharge point, there will also unlikely be cumulative impacts between the thermal discharges from the FSRU and proposed Engie FSU to be situated a few 100 m south along the breakwater. Cumulative impacts of thermal discharges are thus not	**DIRECT**	**REGIONAL**	**LONG TERM**	**POSSIBLE**	**MODERATE**	**MODERATE -**	*Same as above*	*ACHIEVABLE*	**LOW -**
		CUMULATIVE	**REGIONAL**	**LONG TERM**	**POSSIBLE**	**MODERATE**	**MODERATE -**		*DIFFICULT*	**MODERATE -**
		NO-GO	**NO IMPACTS**							

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	expected. The No-Go option would result in no impacts occurring.									
DISCHARGE OF H IGH VOLUMES OF THERMAL EFFLUENT	The discharge of thermal effluents from the FSRU moored at the proposed LNG terminal in the Port of Ngqura would be of low intensity and remain localised to within 100 m of the vessel and to within the port. The negative impacts would, however, persist over the medium-term (assuming the FSRU operations are replaced by land-based LNG storage and re-gasification facilities within 15 years). If the thermal plumes are limited to within 100 m of the discharge point, there will also unlikely be cumulative impacts between the thermal discharges from the FSRU and proposed Engie FSU to be situated a few 100 m south along the breakwater. Cumulative impacts of thermal discharges are thus not expected	**DIRECT**	**LOCALISED**	**MEDIUM TERM**	**PROBABLE**	**SLIGHT**	**LOW -**	*Same as above*	*ACHIEVABLE*	**LOW -**
		CUMULATIVE	**NO IMPACT**							
		NO-GO	**NO IMPACT**							
DISCHARGE OF CO-POLLUTANTS (BIOCIDE, METALS AND SALINITY)	The release of trace amounts of chlorine, aluminium and copper in the thermal discharges, and the discharge of small volumes of brine from the onboard desalination plant is considered to be of low intensity and remain highly localised to within a few 10s of metres of the vessel and to within the port. Any impacts would, however, persist over the long-term. No long term cumulative impacts on marine organisms are expected as effluents will comply with water quality guidelines The No-Go option would result in no impacts occurring.	**DIRECT**	**LOCALISED**	**LONG TERM**	**UNLIKELY**	**SLIGHT**	**LOW -**	*Same as above*	*ACHIEVABLE*	**LOW -**
		CUMULATIVE	**NO IMPACTS**							
		NO-GO	**NO IMPACTS**							
INCREASE IN AMBIENT LIGHTING	The intensity of the impact of an increase in ambient lighting at the LNG terminal is considered low, with effects remaining localised. The impact would, however, endure over the life-time of the terminal No long term cumulative impacts on marine organisms are expected relative to the ambient light levels in the Coega SEZ. The No-Go option would result in no impacts occurring.	**DIRECT**	**LOCALISED**	**LONG TERM**	**UNLIKELY**	**SLIGHT**	**LOW -**	*Same as above*	*ACHIEVABLE*	**LOW -**
		CUMULATIVE	**NO IMPACT**							
		NO-GO	**NO IMPACT**							
WASTE DISCHARGES TO SEA	The impacts associated with normal waste discharges from construction activities, the LNG vessels and the LNG terminal are deemed to be of low intensity and would remain localised. Although pollutant levels in the waters of the Port of Ngqura are currently low, compromised water quality within the port over the long-term due to cumulative impacts resulting from port developments, vessel discharges and other anthropogenic sources in the Coega SEZ can be expected. Over the lifetime of the port, these impacts are likely to be of medium significance. The No-Go option would result in no impacts occurring.	**DIRECT**	**LOCALISED**	**LONG TERM**	**PROBABLE**	**SLIGHT**	**LOW -**	*Same as above*	*ACHIEVABLE*	**LOW -**
		CUMULATIVE	**STUDY AREA**	**LONG TERM**	**PROBABLE**	**MODERATE**	**MODERATE -**	*Same as above*	*DIFFICULT*	**MODERATE -**
		NO-GO	**NO IMPACT**							

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ACCIDENTAL SPILLS OF LNG AND/OR HYPOCHLORITE	The impacts associated accidental spills are deemed to be of low-medium intensity and would remain localised. The impacts would persist over the short-term only. No long term cumulative impacts on marine organisms are expected relative to the ambient light levels in the Coega SEZ. The No-Go option would result in no impacts occurring.	**DIRECT**	**LOCALISED**	**SHORT TERM**	**UNLIKELY**	**SLIGHT**	**LOW -**	*Same as above*	*ACHIEVABLE*	**LOW -**
		CUMULATIVE	**NO IMPACT**							
		NO-GO	**NO IMPACT**							
FAUNAL STRIKES WITH LNGCS AND DREDGERS	As project-associated vessels will be travelling at low speeds the likelihood of a vessel strike is very low improbable). However, should strikes occur, the impacts would be of high intensity for individuals but of LOW intensity for the population as a whole No long term cumulative impacts on marine organisms are expected relative to the ambient light levels in the Coega SEZ. The No-Go option would result in no impacts occurring.	**DIRECT**	**LOCALISED**	**SHORT TERM**	**UNLIKELY**	**SLIGHT**	**LOW -**	*Same as above*	*ACHIEVABLE*	**LOW -**
		CUMULATIVE	**NO IMPACT**							
		NO-GO	**NO IMPACT**							
DIESEL SPILLAGE	In the case of marine diesel, which evaporates relatively quickly, the impact would only persist over the short-term and would likely remain localised but would be of medium intensity. A precautionary approach is adopted and the worst-case scenario of a heavy fuel oil spill outside of the port boundary is assumed in the assessment No long term cumulative impacts on marine organisms are expected relative to the ambient light levels in the Coega SEZ. The No-Go option would result in no impacts occurring.	**DIRECT**	**REGIONAL**	**LONG TERM**	**UNLIKELY**	**SEVERE**	**HIGH -**	*Same as above*	*ACHIEVABLE*	**LOW -**
		CUMULATIVE	**NO IMPACT**							
		NO-GO	**NO IMPACT**							
SAFETY RISK ASSESSMENT										
LOSS OF CONTAINMENT OF LNG DURING OPERATION OF FSRUs	The impact is rated to have a high consequence rating, but low probability of occurring, resulting in a medium significance rating (with and without mitigation), with medium confidence (due to uncertainties in rating of impacts resulting from risks). Leaks or spills of LNG and / or natural gas from various components of the Gas Infrastructure (LNGC, FSRU, pipelines, onshore storage tanks, etc.), as well as from other developments in the area, may result in fires and explosions, which may have fatal consequences. The No-Go option will not result in any impacts related to loss of containment of LNG.	**DIRECT**	**LOCALISED**	**LONG TERM**	**UNLIKELY**	**SEVERE**	**MODERATE -**	• *Installation and maintenance of monitoring instrumentation including detection and emergency shut-down facilities*	*ACHIEVABLE*	**LOW -**
		CUMULATIVE	**NONE ASSESSED**							

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		NO-GO	**NO IMPACT**							
LOSS OF CONTAINMENT OF LNG DURING OPERATION OF LNG & GAS HUB	The impact is rated to have a high consequence rating, but low probability of occurring, resulting in a medium significance rating (reduced to very low with mitigation), with medium confidence (due to uncertainties in rating of impacts resulting from risks). Leaks or spills of LNG and / or natural gas from various components of the Gas Infrastructure (LNGC, FSRU, pipelines, onshore storage tanks, etc.), as well as from other developments in the area, may result in fires and explosions, which may have fatal consequences. The No-Go option will not result in any impacts related to loss of containment of LNG.	**DIRECT**	**LOCALISED**	**LONG TERM**	**UNLIKELY**	**SEVERE**	**MODERATE -**	*Installation and maintenance of monitoring instrumentation including detection and emergency shut-down facilities.*	*ACHIEVABLE*	**LOW -**
		CUMULATIVE	**NONE ASSESSED**							
		NO-GO	**NO IMPACT**							
TERRESTRIAL ECOLOGY IMPACT ASSESSMENT										
ESTABLISHMENT AND/OR SPREAD OF ALIEN PLANT SPECIES	Failure to rehabilitate and monitor the establishment of Alien Plant Species during the Construction (and Operation) Phase) could lead to the establishment and spread of Alien Plant Species. Alien plant species such as *Acacia cyclops* have already established in the project area, particularly within the St Francis Dune Thicket vegetation type. Therefore, should the operation of the proposed development led to the further spread of alien invasive species in the project area, the invasion by alien species could be exacerbated . Alien invasive plants have already established within the project area. Under the No-go alternative these species are likely to continue multiplying if left unchecked. The current No-go alternative is therefore rated moderate negative	**DIRECT**	**STUDY AREA**	**LONG TERM**	**POSSIBLE**	**MODERATE -**	**MODERATE -**	*The priority biodiversity areas delineated by the Coega OSMP, including the Ecological Support Area and the Secondary Dune have been classified as HIGH sensitivity and the strict management/mitigation measures as specified in the approved OSMP (2014) and Section 8.1 of this report must be applied to development in or near these areas;* *The Alien Vegetation Management Plan developed for the Coega SEZ must be implemented and managed to prevent the further spread of alien invasive species within Zone 10 of the Coega SEZ. This requires active management and maintenance;* *A comprehensive Rehabilitation Plan must be compiled and implemented. Only indigenous plant species typical of the local vegetation should be used for rehabilitation purposes. This requires active management and maintenance; and* *An Erosion Management Plan must be developed prior to the commencement of construction activities to mitigate the unnecessary loss of topsoil and runoff. This requires active management and maintenance.*	*ACHIEVABLE*	**LOW -**
		CUMULATIVE	**STUDY AREA**	**LONG TERM**	**PROBABLE**	**MODERATE -**	**MODERATE -**		**N/A**	
		NO-GO	**STUDY AREA**	**LONG TERM**	**PROBABLE**	**MODERATE -**	**MODERATE -**		**N/A**	
DISTURBANCE AND/OR DEATH OF FAUNAL SCC	Operational activities associated with the proposed development such as vehicular movement are likely to disturb faunal species (e.g., sensitive species 18) using the affected areas. This could result in the movement of faunal species away from the affected areas and/or the loss of faunal species. Slow-moving species such as tortoises and snakes are particularly susceptible to road kills. As such, this impact is rated moderate negative Operational activities associated with the proposed development such as vehicular movement are likely to increase the disturbance of faunal species caused by existing developments and activities within the project area. As such, this impact is rated moderate negative. Existing developments and activities within the project area will continue to disturb faunal species within the project area, even in the absence of the proposed development. The no-go alternative therefore is rated moderate negative.	**DIRECT**	**STUDY AREA**	**LONG TERM**	**POSSIBLE**	**MODERATE -**	**MODERATE -**		*ACHIEVABLE*	**LOW -**
		CUMULATIVE	**STUDY AREA**	**LONG TERM**	**PROBABLE**	**MODERATE**	**MODERATE -**		**N/A**	

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		NO-GO							**N/A**	
TRAFFIC IMPACT ASSESSMENT										
INCREASED TRAFFIC VOLUMES	Additional vehicle trips generated by the proposed development (up to 323 and 34 additional trips during the AM and PM peak hours for the construction and operational scenarios respectively) will have minimal impact in terms of road capacity given the current low hourly volumes along the road links and at the affected intersections, and low trips generated by the proposed power plant. It is assumed that all proposed plants will be operational by 2030. As such, the TIA has assessed the cumulative operational traffic for the Zone 10 South and North power plants, the Zone 13 power plant and the Liquified Natural Gas terminal and distribution facility added to the latent volumes and the ENGIE Zone 13 plant and the escalated background traffic volumes for the 2030 development horizon The No-Go option would not result in any impacts	**DIRECT**	**LCOALISED**	**SHORT TERM**	**DEFEINITE**	**SLIGHT**	**LOW -**	• *Suitable warning traffic signage be provided to ensure safe operation along access roads; and* • *Ongoing enforcement along access roads.*	*EASILY ACHIEVABLE*	**LOW -**
		CUMULATIVE	**LOCALISED**	**LONG TERM**	**DEFINITE**	**SLIGHT**	**LOW -**		*EASILY ACHIEVABLE*	**LOW -**
		NO-GO	**NO IMPACT**							
ADDITIONAL AXLE LOADING RESULTING IN DETERIORATION OF ROAD CONDITION	The Coega IDZ Demand Modelling Report indicates that all Class 2 roads would likely need to accommodate 7.5 million E80s per lane over a 20-year period. Given that the Ring Road is a class 2 road it has likely been designed for these volumes. As such the number of E80s generated by the power plant traffic relative to the maximum expected loading over the 20-year period is minimal The cumulative impact of all other known power plants will not impact significantly on the road pavements as their design has taken such volumes into account. The No-Go option would not result in any impacts	**DIRECT**	**LCOALISED**	**MEDIUM TERM**	**DEFEINITE**	**SLIGHT**	**LOW -**	• *Suitable warning traffic signage be provided to ensure safe operation along access roads; and* • *Ongoing enforcement along access roads*	*EASILY ACHIEVABLE*	**LOW -**
		CUMULATIVE	**NO IMPACT**							
		NO-GO	**NO IMPACT**							
TRAFFIC SAFETY IMPACT DUE TO ADDITIONAL / HIGH-SPEED TRAFFIC	Safety issues may initially be a concern given low traffic volumes as traffic is likely to operate at high speeds in low traffic environments. *It is assumed that all proposed plants will be operational by 2030. As such, the TIA has assessed the cumulative operational traffic for the Zone 10 South and North power plants, the Zone 13 power plant and the Liquified Natural Gas terminal and distribution facility added to the latent volumes and the ENGIE Zone 13 plant and the escalated background traffic volumes for the 2030 development horizon* The No-Go option would not result in any impacts	**DIRECT**	**LCOALISED**	**MEDIUM TERM**	**PROBABLE**	**SLIGHT**	**LOW -**	• *Suitable warning traffic signage be provided to ensure safe operation along access roads; and* • *Ongoing enforcement along access roads*	*EASILY ACHIEVABLE*	**LOW -**
		CUMULATIVE	**LCOALISED**	**SHORT TERM**	**PROBABLE**	**SLIGHT**	**LOW -**		*EASILY ACHIEVABLE*	**LOW -**
		NO-GO								
SOCIO-ECONOMIC IMPACT ASSESSMENT										

SYNTHESIS OF SPECIALIST IMPACTS AS EXTRACTED FROM THE SPECIALIST REPORTS

ISSUE	DESCRIPTION OF IMPACT	NATURE OF IMPACT	SPATIAL SCALE (EXTENT)	TEMPORAL SCALE (DURATION)	CERTAINTY SCALE (PROBABILITY/ LIKELIHOOD)	SEVERITY / BENEFICIAL SCALE	SIGNIFICANCE PRE-MITIGATION	MITIGATION MEASURES	REVERSABILITY/ MITIGATION	SIGNIFICANCE POST-MITIGATION
JOB CREATION	It is estimated that during the operational phase, approximately 200 long-term skilled and unskilled personnel will be required which will in turn create employment opportunities for local labour Cumulatively the overall CDC Gas to Power project could potentially result in a significant number of employment opportunities over the operational phases of the project. The No-Go option will result in the opportunity cost of job creation for approximately 200 permanent employees	**DIRECT**	**MUNICIPAL**	**MEDIUM TERM**	**DEFINITE**	**MODERATE**	**MODERATE +**	• *Maximise local employment (unskilled, semi- and skilled workers) as well as the number of local SMMEs and vendors. Set standards for local employment in the Contractor Services Management Plans;* • *Implement a fair and transparent employment process and employ a Community Employer Relations Officer for the duration of the construction period; and* • *Implement a SMME skills development programme (training on how to tender, understanding contracts, etc.) at least 4 months prior to inviting SMMEs to tender. The programme must not only assist local small businesses but also aim to do skills development for the local Municipality.*	*EASILY ACHIEVABLE*	**MODERATE +**
		CUMULATIVE	**MUNICIPAL**	**LONG TERM**	**DEFINITE**	**BENEFICIAL**	**MODERATE +**		*ACHIEVABLE*	**HIGH +**
		NO-GO	**MUNICIPAL**	**MEDIUM-TERM**	**PROBABLE**	**MODERATE**	**MODERATE -**		*ACHIEVABLE*	**LOW -**
GROWTH OF THE LOCAL, REGIONAL AND PROVINCIAL ECONOMIES	Taxes generated by local procurement will contribute a small but significant portion of national income. Increased economic activity is desirable, or even critical, in the context of high unemployment and low income levels. Together with all other productive economic activities in the region, energy production at the CDC Gas to Power project benefits the local and national community cumulatively The No-Go option will result in the opportunity cost of growth of the local, provincial and national economy	**DIRECT**	**REGIONAL**	**MEDIUM TERM**	**PROBABLE**	**MODERATE**	**MODERATE +**		*ACHIEVABLE*	**MODERATE +**
		CUMULATIVE	**NATIONAL**	**LONG TERM**	**PROBABLE**	**MODERATE**	**MODERATE +**		*ACHIEVABLE*	**HIGH +**
		NO-GO	**REGIONAL**	**MEDIUM TERM**	**POSSIBLE**	**MODERATE**	**MODERATE -**		*ACHIEVABLE*	**LOW -**
CONTRIBUTION TO INCREASED ENERGY SECURITY	The energy generated by the project will be fed into the national energy grid and will contribute to energy security both directly, and indirectly by allowing for increased uptake of energy from renewable energy projects. The main purpose of the proposed CDC Gas-to-Power project is to provide electricity into the national electricity grid whereby contributing to cover the increasing demand of electricity in the country. The energy generated by the project will be fed into the national energy grid and will contribute to energy security both directly, and indirectly by allowing for increased uptake of energy from renewable energy projects. This could have significant economic benefits for downstream users, in terms of decreased incidence of power outages due to load-shedding. The No-Go option would result in the continuation of the current energy security issues	**DIRECT**	**REGIONAL**	**LONG TERM**	**DEFINITE**	**BENEFICIAL**	**HIGH -**		*ACHIEVABLE*	**HIGH -**
		CUMULATIVE	**NATIONAL**	**LONG TERM**	**PROBABLE**	**BENEFICIAL**	**HIGH -**		*ACHIEVABLE*	**HIGH -**
		NO-GO	**REGIONAL**	**MEDIUM TERM**	**PROBABLE**	**SEVERE**	**HIGH -**		*ACHIEVABLE*	**MODERATE -**