



Section 2

EIS Project Alternatives

The respondent comments provided in this section have been collated from all stakeholder submission comments relating to EIS Section 2 Project Alternatives. Please refer to **Attachment A** for copies of all submissions received.

2.1 Coal Seam Gas Field

2.1.3 CSG Field Development Alternatives

Respondent Comment

Department of Environment and Resource Management requested clarity on whether additional pipelines will be required to transmit gas to the Santos Underground Gas Storage at Ballera and or Moomba, or other depleted fields, as noted in the EIS.

Santos Response

An additional pipeline is required along the existing pipeline route from Comet Ridge to Wallumbilla. The pipeline will be constructed within the existing ROW to transfer ramp up gas required for Train 1. This gas will be stored in existing depleted natural gas reservoirs within the Tenures.

Respondent Comment

Capricorn Conservation Council suggests to publish scenarios and production yields from CSG fields that will supply a second and third train. Location of additional fields (including estimated quantity of wells), and sustainability of production and supply should be included.

Santos Response

Due to the large area of the CSG fields and the ongoing nature of exploration and gas production, the full extent and location of the wells is not yet known and will gradually evolve over the life of the project. Consequently, it is not currently feasible to publish scenarios and production yields from the CSG fields that will supply all trains. EIS Section 3.4.2 includes a description of the possible sources of gas and the processes applicable to development of these sources.

2.1.5 Market Alternatives

Respondent Comment

Capricorn Conservation Council requested that a percentage (10-15%) of the LNG production be sold within Australia at a price that is competitive with other forms of energy such as coal and oil.

Santos Response

On 17 September 2009, the Queensland Government released a draft policy framework for the emerging liquefied natural gas (LNG) industry entitled "Blueprint for Queensland's LNG Industry". The purpose of the Blueprint is to provide the community with a clear understanding of the Government's plans to develop the coal seam gas to LNG export industry. The Blueprint is a comprehensive policy framework covering all aspects of policy which may affect the development of the industry, and includes measures to ensure the supply of domestic gas to Queensland homes and industry. The Blueprint outlined two domestic gas reservation policy options currently being considered by government.

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The first option was a Gas Reservation Policy whereby gas producers would be required to sell or make available to the domestic market the equivalent of between 10 % and 20 % of gas production.

The second option was a Prospective Gas Production Land Reserve, which involved:

- a) Holding back from the market certain prospective gas production areas in order to amalgamate/secure areas for orderly future use;
- b) Stricter application of the requirement that applicants demonstrate, during the assessment of applications for a petroleum lease or a potential commercial area (both of which halt automatic relinquishment), the appropriateness of the area sought for the proposed activities;
- c) Where more active management of relinquishment results in an area being handed back, the Government considering if it should then be put back out to the market with a condition that only be used to supply the domestic market; and
- d) Basing decisions to condition such leases for domestic use only on regular estimation of gas supply and demand, combined with market soundings of the availability of gas.

Each of these options were detailed in a Regulatory Impact Statement which was also released on 17 September 2009.

On 14 November 2009 the Queensland Government announced its decision to set aside future gas fields for future domestic supply if needed (second option) and its rejection of the option to require a percentage of gas from all fields to go to domestic supply (first option).

2.2 Gas Transmission Pipeline

Respondent Comment

Banana Shire Council (regarding road infrastructure issues) suggests the following be conducted:

- 1) *A dilapidation survey of all sealed and unsealed roads required to carry construction traffic, prior to and following use of the road by construction traffic;*
- 2) *Maintenance of the road during construction;*
- 3) *Reinstatement of the road infrastructure following construction to pre-existing condition or better; or:*
- 4) *A contribution paid towards the reinstatement of the road infrastructure in favour of the Banana Shire Council; and*
- 5) *A fee is proposed for the administration of road infrastructure and environmental complaints associated with the project. Road infrastructure includes: - the road surface & pavement, - embankments and cuttings - culverts, floodway's and table drains - guideposts, signage and line marking - grids & gates - erosion and sedimentation control measures - kerbing/channelling and stormwater network structures.*

Santos Response

Santos proposes to consult with Banana Shire Council in relation to the impacts of the GLNG Project on road infrastructure, including determining an appropriate contribution by Santos toward road maintenance, upgrade and restoration.

Respondent Comment

Banana Shire Council states that increases in traffic volumes may also introduce public concerns for noise, dust and other environmental issues along roadways. It requested provision and implementation of a strategy for the management of noise, dust, soil erosion and sedimentation during the project.

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Santos Response

Santos will implement appropriate mitigation measures to minimise the environmental impact of GLNG Project related traffic. These mitigation measures are provided in the revised project EMPs in **Attachment B**.

Santos will also work closely with the local councils and the DTMR to develop an appropriate transport strategy to ensure roads are maintained or upgraded appropriately.

Respondent Comment

Banana Shire Council requested the protection of all infrastructure services such as water supplies, sewerage and drainage during construction. Close communications with Council in high risk areas is paramount. Provision and implementation of a strategy for the management of damage to water supplies, sewerage and drainage infrastructure.

Santos Response

Santos will implement management plans requiring the use of approved procedures for construction to prevent damage to third party infrastructure and where open drainage systems are crossed they will be restored to original condition.

Respondent Comment

Banana Shire Council states that water for construction will not be available from Council's treated water supply. Recycled water will not be available from Council's sewerage treatment facilities. Arrangements for water for construction may need to be organised with the Department of Environment and Resource Management (DERM) or other like authorities.

Santos Response

Santos notes Banana Shire's position and will work closely with DERM to ensure that water for construction is sourced from appropriate sources.

2.2.1 Route Alignment Options

Respondent Comment

Central Highlands Regional Council states that there is a marked deviation at the point of the Arcadia escarpment between the proposed and the existing pipelines. The reason for this deviation can be inferred but Council did not find an explicit explanation in the EIS as to why the deviation was necessary. Given that the exact location of the escarpment crossing and techniques of construction are not yet known the Council would seek that the issues of erosion management, emergency access and visual blight be given high weightings in the determination of the pipeline route and method of construction of the pipeline.

Santos Response

The difference between the existing Jemena (Queensland Gas) pipeline and proposed gas transmission pipelines is due to:

- Different origins;

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- Different environmental constraints;
- The proposed alignment requiring significantly less clearing than if it were to follow the existing route;
- Placement of the gas transmission pipe alignment in the Arcadia Valley will enable future expansion of the collection system to inject gas further along the line; and
- Safe construction methods would not enable Santos to construct along side the existing line as it follows areas of ridgelines through and down the range.

Accordingly, Santos has selected a different route.

Erosion control and emergency access through this region will be a significant issue, and contractors will be required to provide management plans, which they will be audited against, prior to commencing construction.

The route down the range has been selected so that it will not be visible from any major roadways through the Arcadia Valley. In addition, major reinstatement works to stabilise the ROW will be conducted as part of the contractor key performance indicators. It is also consistent with the guidelines included in **Attachment E3**.

Respondent Comment

Department of Environment and Resource Management states that sufficient information should be provided to demonstrate the alignment of the pipeline and bridge cannot be located outside of the Marine Park.

Santos Response

The CPIC is flanked by the Marine Park to the north (boundaries overlap) and the GPC dredging to the south. To avoid interference with the Marine Park, the corridor would need to move further south, which would in turn impact on the dredging boundary. For safety reasons, it is not possible to dredge over a gas transmission pipeline.

The location of the CPIC currently would have no greater impact than if it were located 100 m to the south of the Marine Park boundary. Due to tidal movements, there will still be turbidity plumes moving through these areas during the dredging process. Once the pipeline is constructed and installed, there will be no further disruption to the marine environment, meaning this is a once-only disturbance.

Santos' preferred option for the GLNG Project is to access the site on Curtis Island by barge and ferry. Santos does not, at this time, support the construction of a bridge to Curtis Island as a preferred mode of transport for construction and operation of the LNG Project.

Respondent Comment

State Development Areas Implementation Branch noted that the alignment of the proposed gas transmission pipeline from Callide to the GSDA area and across to Curtis Island is currently the subject of a study to identify a common pipeline corridor. SDAIB expects that the GLNG Project would use the multi-user infrastructure corridor to accommodate its gas transmission pipeline and requests that the work undertaken to date should be recognised during route refinement for the GLNG Project and in any Supplementary EIS.

Santos Response

The CPIC is the shared infrastructure corridor for multiple proponents proposed by the Queensland Government between Callide and the proposed LNG facility sites on Curtis Island. It is comprised of the CPIC (CICSDA Section) Route and the CPIC (GSDA Section) Route. Although Santos prefers to utilise

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the CPIC, this depends on the Government's resumption of the underlying land and negotiation of access terms.

2.2.1.4 Alternative Deviations from Preferred Route

Respondent Comment

Gladstone Ports Corporation suggests regarding the Northern Alternative (CPIC (GSDA Section) Route), that a commitment is required for the pipeline to be routed through the northern alternative identified within the GSDA. The primary option within the GSDA introduces issues around the crossing of the mining leases to be developed by QER and as identified within this section is currently routed through the constricted Yarwun Neck. It is important that a coordinated approach is undertaken to minimise impacts on the development of the GSDA.

Santos Response

The CPIC is the shared infrastructure corridor for multiple proponents proposed by the Queensland Government between Callide and the proposed LNG facility sites on Curtis Island. It is comprised of the CPIC (CICSDA Section) Route and the CPIC (GSDA Section) Route. Although Santos prefers to utilise the CPIC, this depends on the Government's resumption of the underlying land and negotiation of access terms.

Since exhibition of the EIS, the alignment and proposal for the CPIC have been established to follow the northern option which includes a "land bridge" which passes over the least amount of oil shale reserve. This has been agreed in conjunction with QER and this will ensure the minimum "sterilisation" of potential reserves.

Respondent Comment

Gladstone Regional Council supports the further investigation of the northern pipeline alternative route (CPIC (GSDA Section) Route) to alleviate issues associated with multiple user location in the GSDA materials transportation corridor and of potential construction impacts upon the Yarwun community.

Santos Response

Santos will continue working with other proponents and the Queensland Government to develop a common pipeline corridor.

2.2.2 Construction Technique Alternatives

Respondent Comment

Capricorn Conservation Council requested moving the gas transmission pipeline crossing south and outside the Great Barrier Reef Marine Park. Use the HDD design option to place it under the sea floor. This is acknowledged as the most environmentally friendly option with a reduced 'subtidal disturbance footprint'.

Santos Response

The CPIC is flanked by Marine Park to the north (boundaries overlap) and the GPC dredging to the south. To avoid interference with the Marine Park, the corridor would need to move further south, which would in

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turn, impact on the dredging boundary. For safety reasons, it is not possible to dredge over a gas transmission pipeline

The location of the CPIC currently would have no greater impact than if it were located 100 m to the south of the Marine Park boundary. Once the pipeline is constructed and installed, there will be no further disruption to the marine environment, meaning this is a once only disturbance.

The underlying geology in Port Curtis between Friend Point and Laird Point is not conducive to HDD techniques because the gravel collapses back on the hole being drilled and compromises the drilling activity. Based on the increased risk of failure of the HDD activity, Santos does not plan to use HDD for this crossing. Santos will, during the FEED process, develop the most effective method for construction of the pipeline for this crossing and ensure minimal environmental impact.

2.2.3.2 Pipe Delivery

Respondent Comment

Gladstone Ports Corporation states, as is noted in this comparison option, utilising the rail for the delivery of pipe from the port to the construction site removes the need for up to 140 truck movements per day not only through the Gladstone community but also through the Calliope Township and the relatively high population in the links between the communities.

Santos Response

The utilisation of the rail out of Gladstone would keep trucks off the road in Gladstone; however discussions with Queensland Rail (QR) during the EIS Supplement phase has concluded that QR does not currently have capacity to transport pipe materials from Gladstone. As such, Santos is investigating alternative transport routes including the Calliope route. This is a designated road train route with the local community having already built supporting infrastructure to ensure the community benefits financially from services supporting the trucking community. Please refer to **Attachment C** for more details on the traffic options.

2.3 LNG Facility

2.3.1 Site Alternatives

Respondent Comment

Submitter number 1 states that during a Santos presentation on Saturday 26 July 2008 at South End (Curtis Island) the Santos representative was asked why Santos chose not to locate the LNG facility at the isolated Port Alma area on the mainland at the north end of Curtis Island.

Submitter number 1 states the Santos representative responded with: "Port Alma was considered but proved not to be economically viable. The land would have required extensive work and stabilisation to make suitable foundations for the LNG tanks. A lot of piling would be needed to stabilise the ground, especially for the LNG tanks. In addition, the channel is too narrow for LNG ships and extensive dredging would have been required. Santos was also offered a site on Wiggins Island but there was not enough land".

The Gladstone Ports Corporation is in any event planning to undertake a massive dredging program in Gladstone Harbour associated with LNG; hence it should not have been used as one of the reasons to exclude Port Alma.

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Since the above the Gladstone Ports Corporation has advised that Xstrata is proposing a major coal export terminal at Port Alma. This will require the dredging of the Port Alma shipping channel that could then be used by LNG shipping.

There was no mention that proximity to an explosives plant and/ or explosives export was a consideration in excluding Port Alma as the site for an LNG plant, and one is left with the impression that this was an explanation that was retrofitted to the arguments against Port Alma by the Queensland Government in an attempt to justify the industrial development of Curtis Island. This is particularly the case, given the proximity of the proposed LNG plant to the Gladstone explosives plant, and the knowledge that a cloud of vaporised LNG from an LNG plant or shipping incident could drift to this explosive plant before meeting an ignition source.

Whilst cost has been used by Santos as a justification for not locating at Port Alma, saving a corporation money is not an acceptable trade off for putting the safety and well being of the residents of Gladstone at risk.

The amount of additional money spent to put the LNG plant in an alternate location will be minuscule over the life of the LNG plant.

It is critical that the location of the LNG plant is correct. There can be no change once the plant is built.

We should not repeat past mistakes. With the benefit of hindsight we know that the Barney Point Coal Terminal should not have been located adjacent to a residential suburb, the RG Tanna Coal Terminal should not have been located adjacent to Gladstone Marina and a short distance from Gladstone residential areas, the Queensland Alumina Refinery should not have been located next to and downwind of Gladstone, and Boyne Island/Tannum Sands residential areas. Gladstone is paying the price for these errors through actual and potential damage to health, damage to property, and loss of amenity. A similar outcome is predictable from the planned location of LNG plants on Curtis Island.

It is submitted that the LNG plant be directed to an alternate location away from Gladstone.

Submitter number 14 states that from the information they have read it appears the LNG industry did not choose Curtis Island but it was chosen for them.

Santos Response

The Queensland Government's strategic planning has identified Gladstone and the Curtis Island Industry Precinct as a preferred location for LNG development.

Site selection evaluations were undertaken as part of Santos' feasibility study into the possible development of a land-based LNG and export facility at a number of ports on the Queensland coast. Gladstone was selected as the preferred site based on social, environmental, economic and risk factors. Please refer to EIS Section 2.3.1 for further details as to the processes that were used in determining the location.

Respondent Comments

Wildlife Preservation Society of Queensland - Policy and Campaigns Manager states that the choice of Curtis Island and its environs is a concern. However it is noted that a range of alternatives have been considered. Wildlife Queensland would have preferred the plant to be located on the mainland.

Capricorn Conservation Council requests that Santos nominate other site alternatives which are located on the mainland (within the Gladstone State Development Area) and suggests shipping access could be facilitated through, for example, Fisherman's Landing Wharf or other. There are large amounts of unallocated land available on the mainland.

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Santos Response

Although there are other site alternatives, the Queensland Government's strategic planning has identified Gladstone and the Curtis Island Industry Precinct on Curtis Island as a preferred location of LNG development.

In addition, site selection evaluations were undertaken as part of Santos' feasibility study into the possible development of a land-based LNG and export facility at a number of ports on the Queensland coast. Gladstone was selected as the preferred site based on social, environmental, economic and risk factors. Please refer to EIS Section 2.3.1 for further details as to the processes that were used in determining the location.

2.3.1.1 Alternative Location within Queensland

Respondent Comment

Submitter number 43 states that the Gladstone and Calliope regions have a population which, for many years has been willing to accept and support heavy industry development. Unless Government and Industry identify, accept and fund appropriate infrastructure for the projected development of LNG (and other) industries, this community could rightly resent development. Conversely, with investment by Government and industry in infrastructure areas such as health, housing (aged care and affordable), social infrastructure (build and services), road, rail and environmental protection – indeed all facilities and services necessary to a fast growing community, this community will continue to facilitate industries which enhance this State and Nation's economic strength.

Santos Response

Santos will continue to work closely with Government and all other stakeholders to support infrastructure investments required for the GLNG Project. The EIS process has identified certain impacts on the community and the possible mitigation of those impacts including by the provision of additional services to the community is being implemented in parallel with the EIS process.

Respondent Comment

Submitter number 8 states the decision to allow the location of LNG plants in Gladstone Harbour instead of a more remote location, and the use of Gladstone Harbour for LNG bulk vessels, are not sustainable and must be reserved with LNG plants / shipping being directed to an alternate remote location.

Santos Response

Site selection evaluations for the GLNG Project were undertaken as part of Santos feasibility study into the possible development of a land-based LNG and export facility on the Queensland coast. Gladstone was selected as the preferred site based on social, environmental, economic and risk factors. In addition, the Queensland Government's strategic planning has identified Gladstone and the Curtis Island Industry Precinct on Curtis Island as a preferred location for LNG development in Queensland. Please refer to EIS Section 2.3.1 for further details.

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2.3.1.2 Alternative Sites within Gladstone

Respondent Comment

Submitter number 8 states that Santos has apparently selected Curtis Island ahead of Port Alma as the location for an LNG plant because Curtis Island is a cheaper option i.e. there is a perception that profits are being placed ahead of safety and amenity of the citizens of Gladstone. Queensland Government may have also directed the LNG plant to Curtis Island / Gladstone Harbour in preference to Port Alma to help justify further development of Government-owned foreshore land, rather than because Curtis Island was the most appropriate location.

Queensland Government and Santos have chosen to ignore that fact that the proposed Xstrata coal terminal at Port Alma will require a major dredge channel that could be used by LNG shipping without exposing Gladstone residents to the predictable outcomes of plant accidents or shipping accidents. Using the Port Alma dredged channel would also reduce the risk of serious shipping incidents due to its lower usage.

Queensland Government (QG) seems to be unaware of:

- The extensive piling installed for the new stockpiles at the 100 % Queensland Government owned RG Tanna Coal Terminal.*
- The foundation work required for the massive concrete grain silos at Auckland Point & the Auckland Point tank farm.*

It is submitted that the QG is unaware of the extensive piling that will be required for proposed Xstrata coal terminal at Port Alma.

It is submitted that Port Alma is a preferred site because it is a more remote and safer site.

The selection of Port Alma would prevent the industrialisation of a non industrialised sub tropical island and preserve this amenity for citizens.

The selection of Port Alma would reduce the need for significant dredging in the western basin of Gladstone Harbour and preserve the seagrass beds necessary for Gladstone Harbour's dugong population.

The selection of Port Alma would reduce the need for reclamation of Gladstone Harbour foreshore and the need to find places for the storage of the dredged material from Gladstone Harbour.

Any additional cost to Santos from the selection of Port Alma would be minuscule over the life of the project and should be incurred to ensure the project is sustainable.

It is submitted that the selection of Port Alma would correct the current perception of the Queensland Government and major industry apparently colluding to put corporate profits ahead of the safety and amenity for residents of Gladstone.

Santos Response

The Queensland Government's strategic planning has identified Gladstone and the Curtis Island Industry Precinct as a preferred location for LNG development.

In addition, site selection evaluations were undertaken as part of Santos' feasibility study into the possible development of a land-based LNG and export facility at a number of ports on the Queensland coast. Gladstone was selected as the preferred site based on social, environmental, economic and risk factors. Please refer to EIS Section 2.3.1 for further details.

Please note that the new RG Tanna Coal Terminal at Gladstone and Xstrata coal terminal at Port Alma are not part of the GLNG Project. However, the assessment of the impact of various new developments proposed for Gladstone is considered in the assessment of cumulative impacts. The revised assessment

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of the cumulative impacts since the publication of the EIS is included in **Attachment J**. To the extent the referred projects are relevant they have been assessed in **Attachment J**.

2.3.2 Construction Options

Respondent Comment

Gladstone Ports Corporation states that the indecision over the type of construction to be utilised for the LNG facility has a significant impact on the workforce to be employed during the initial construction phase. For stick build the workforce is nominated at 3,000 personnel and for modular construction this reduces to 2,000 personnel.

Santos Response

Base case for the EIS is stick build and accordingly the assessment of the impact used this base case. This is a worst case scenario in terms of environmental and social impact as a modularised plant would require fewer workers and would have lower environmental impacts. The final type of construction is yet to be determined and is subject to finalising the FEED; however it is likely to be a combination of stick build and modular design.

Respondent Comment

Gladstone Ports Corporation states that there is a significant flow-on effect from this decision to areas such as community facilities in Gladstone and issues around the development of a workers camp on the island or the mainland and the transportation of personnel to and from the site. Both daily commuter impacts and impacts at the time of changeover of workforce in the camp needs to be considered.

Santos Response

Further transportation and social assessments have been conducted in August and September 2009. For results from these assessments please refer to **Attachments C** and **F6** where appropriate mitigation measures have been suggested.

Respondent Comment

Gladstone Ports Corporation states that commitment should be made as to the type of construction or approvals conditions around a review of the respective socio-economic and transport impacts of the final decision.

Santos Response

Conditions will be imposed under various statutory approvals. It is expected that these will include conditions related to socio-economic and transport impacts of the project. Santos will comply with these conditions.

2.3.4 Access Options

Respondent Comment

Capricorn Conservation Council supports the 'no bridge' option.

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[Santos Response](#)

Santos notes the Council's position.

2.3.4.2 Barge/Ferry Option

[Respondent Comment](#)

Gladstone Ports Corporation states that the consideration of the alternative sites in Table 2.3.6 needs to give further consideration to the availability of the existing facilities within the Gladstone Marina for both marine traffic and land traffic to support the options associated with either of the two construction methodologies.

[Santos Response](#)

Santos has assessed the options and believes it is appropriate to use the marina facilities, particularly in the very early stages of mobilisation. Santos acknowledges the need to consider sites other than Gladstone Marina. **Attachment L** discusses the manner in which Santos might utilise these alternative sites and the impacts arising from using them.

[Respondent Comment](#)

Gladstone Ports Corporation states that the option for Fisherman's Landing needs to account for the potential construction activities for both LNG Ltd and the development of the bunded area for dredged material disposal, both of which would occur in parallel to the construction timeframes under consideration by GLNG.

[Santos Response](#)

Santos will work in collaboration with proponents and Gladstone Ports Corporation conducting dredging or construction activity in the Port at the same time as Santos. In **Attachment L**, Santos has assumed that the use of Fisherman's Landing will be for the first six months of construction and a more permanent site will be used.

2.3.6 Power Supply Alternatives

[Respondent Comment](#)

Capricorn Conservation Council states that if Santos intends to self-generate power using gas-fired generation units for one train, it should be done for all three proposed trains. This would produce significantly lower greenhouse gas (GHG) emissions, and assist Queensland in reaching any GHG abatement targets in the future.

[Santos Response](#)

Santos' proposal is to self-generate power using gas turbine alternators (GTA's) to produce the power for the LNG facility. The facility is being designed to be self-sufficient for up to three trains.

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Respondent Comment

Capricorn Conservation Council suggests nominating a fuel source for LNG carriers.

Santos Response

Bunker fuel is likely to be sourced from Gladstone and other ports.

2.3.7 Construction Workforce Accommodation Alternatives

Respondent Comment

Submitter number 1 states that it is proposed for the LNG construction workforce (some thousands of construction workers) will be confined to and accommodated on the LNG lease on Curtis Island.

It is proposed that this workforce will work 10 days on / 4 days off, and will be confined to the LNG lease while on Curtis Island.

This approach recognises the sensitive environment on Curtis Island (that includes regionally significant ecosystems and has listed habitat for species protected under the EPBC and Native Fauna Act), and the lack of roads on Curtis Island.

The proposed approach is not realistic. It is foreseeable that some members of the LNG construction workforce will take their four wheel drive vehicles to the remote Curtis Island township of South End, and will put in their own roads with consequent potential to significantly degrade the fragile environment that exists in many areas of Curtis Island.

It is submitted that a construction workforce should not be accommodated on Curtis Island.

Santos Response

Santos prefers to locate a construction accommodation facility (CAF) on Curtis Island for the following reasons:

- Reduction in health and safety risks to workers by commuting daily;
- Reduction in potential transportation impacts;
- Reduction in the potential for negative social impacts;
- Creation of a smaller project footprint;
- Reduction in the impact on the Gladstone accommodation market;
- Management of the workforce; and
- Reduction in the daily transportation costs.

During construction of the LNG facility, construction worker movements will be restricted while on the site or when accommodated in the CAF on Curtis Island to minimise the impact of workers on Curtis Island. Once construction of the LNG facility is complete the CAF will be decommissioned, removed from site and the site rehabilitated in accordance with any regulatory requirements.

As stated in EIS Section 2.3.7:

- *....."the workforce would be tightly managed. The accommodation facility would be located within the fenced perimeter of the LNG facility and areas such as South End would be made a 'restricted area'. Workers 'on roster' would not be able to leave the facility to visit South End.";* and
- *....."To address community concerns, Santos will actively monitor social issues through its local Community Engagement team presence in Gladstone, and continue to proactively communicate with Curtis Island residents in regard to their concerns. In terms of specifically addressing worker access*

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to South End, Santos will liaise with the construction contractor to ensure appropriate behavioural provisions and locational restrictions are built into worker contracts. Breaches of these conditions will result in disciplinary action or dismissal”.

Note that as part of the further development of Santos' accommodation strategy, it is proposed to house a proportion of the workforce in Gladstone and a proportion on Curtis Island. Refer to **Attachment F6** for further details.

Respondent Comment

Queensland Department of Infrastructure and Planning states that the EIS argues that the provision of on site accommodation is an ancillary use of the Industrial Precinct of the GSDA. Further advice should be sought from the department's State Development Areas Implementation Branch in relation to this assertion and any assessment under the development scheme for the GSDA.

Santos Response

Please refer to EIS Section 8.11.5.11. This section outlines why Santos believes the CAF is ancillary to the uses outlined in Schedules 7 and 9 of the GSDA. The CAF proposed by the EPC contractor is designed for minimal environmental disruption and to be within the footprint of the LNG facility. However, the construction and operation of the CAF is subject to the material change of use (planning) application.

Respondent Comment

Queensland Department of Infrastructure and Planning states they are concerned that any CAF on Curtis Island would provide a catalyst for further residential development on Curtis Island.

Santos Response

The CAF proposed for Curtis Island will be located on Santos' LNG facility site and will be a temporary facility only. Once construction of the LNG facility is complete the CAF will be decommissioned, removed from site and the site rehabilitated in accordance with any regulatory requirements.

Respondent Comment

Gladstone Regional Council states that the findings and assumption of the EIS rely greatly upon the use of a Construction Accommodation Facility (CAF) on-site at Curtis Island. There is very little detail in the EIS regarding the CAF and its impacts and infrastructure demands. On this basis Council considers that the Coordinator-General should not consider this facility as an ancillary use to the LNG project. Furthermore, it is understood that the development's position to date in relation to construction accommodation facilities is that they will not be permitted within the GSDA. Council's view is that should there be a CAF, it should be located on the mainland. The proponent should note that there are existing sites with approvals in place for workers accommodation on the mainland (within the Calliope area). It should also be noted that in the past Council has promoted the development of such a facility in the Aldoga Precinct of the GSDA.

Gladstone Regional Council also states that it has not attempted to pre-empt what might be the infrastructure impacts of the CAF on Curtis Island, only to highlight that it appears to have been left out of the EIS. Given that there are known vector issues in this area (Curtis Island and the Narrows); the establishment of construction accommodation in this location is not considered suitable.

Little information is provided on the final use of the construction accommodation. Again no detail is provided on the built form of the use or what its potential future uses might be.

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Santos Response

The existence of mainland sites are noted, however Santos prefers to locate a CAF on Curtis Island for the following reasons:

- Reduction in health and safety risks to workers by commuting daily;
- Reduction in potential transportation impacts;
- Reduction in the potential for negative social impacts;
- Creation of a smaller project footprint;
- Reduction in the impact on the Gladstone accommodation market;
- Management of the workforce; and
- Reduction in the daily transportation costs.

Santos will continue to explore alternative accommodation options, however at this time the CAF on Curtis Island is still preferred for imported workers.

Note that as part of the further development of Santos' accommodation strategy, it is proposed to house a proportion of the workforce in Gladstone and a proportion on Curtis Island. Refer to **Attachment F6** for further details.

It should be noted that the CAF will be decommission and removed from the island once construction is complete.

Respondent Comment

Gladstone Regional Council states a further aspect worthy of consideration in relation to the CAF is that that there will be very little benefit to the local economy from such a facility. Small businesses in the area are likely to be excluded from serving the CAF and therefore not be a part of the economic benefits of the project. Council considers that general support staff (e.g. local cooks, cleaners, maintenance etc.) for the CAF should be sourced locally ('locally buy' contracts) so there are benefits for local businesses. This will be difficult if it is located on Curtis Island.

Santos Response

Santos has further refined its accommodation strategy, with consideration being given to one third of the construction workforce being housed in Gladstone (including support workers), and two thirds in the CAF on Curtis Island. Refer to **Attachment F6** for details. Santos believes this addresses to some extent all council's concerns. Santos will continue to consult with council in regard to its accommodation strategies.

Respondent Comment

State Development Areas Implementation Branch requests the proponent to further investigate accommodation options including:

- *To seek an alternative location for the CAF outside the GSDA; and*
- *Opportunities to coordinate accommodation needs with other industry proponents.*

Santos Response

Santos prefers to locate a construction accommodation facility (CAF) on Curtis Island for the following reasons:

- Reduction in health and safety risks to workers by commuting daily;

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- Reduction in potential transportation impacts;
- Reduction in the potential for negative social impacts;
- Creation of a smaller project footprint;
- Reduction in the impact on the Gladstone accommodation market;
- Management of the workforce; and
- Reduction in the daily transportation costs.

During construction of the LNG facility, construction worker movements will be restricted while on the site or when accommodated in the CAF on Curtis Island to minimise the impact of workers on Curtis Island. Once construction of the LNG facility is complete the CAF will be decommissioned, removed from site and the site rehabilitated in accordance with any regulatory requirements.

Santos has further refined its accommodation strategy, with consideration being given to one third of the construction workforce being housed in Gladstone (including support workers), and two thirds in the CAF. Refer to **Attachment F6** for details. Refer to EIS Section 2.3.7 for additional information on Construction Workforce Accommodation Alternatives.

Respondent Comment

State Development Areas Implementation Branch states that it is understood that the position of Santos is supported by consultant studies and advised, but this information was not included in the EIS as the information's being treated as commercial in confidence. These studies should be made available to the SDAIB should an application be lodged.

Santos Response

Refer to **Attachment C** for an updated Traffic and Transportation report.

Respondent Comment

State Development Areas Implementation Branch states that the workforce accommodation is not considered to be a complimentary or compatible land use with industry and is not consistent with the GSDA development scheme. With reference to Schedule 7 and Schedule 9 of the GSDA development scheme, workers accommodation would be a use that is considered likely to compromise the purpose of the land use designation within Curtis Island Industry Precinct (CIIP).

Developing workers accommodation within the CIIP would constrain surrounding land as temporary accommodation would be considered a sensitive receptor, which would require other industry to provide separation distances and potentially restrict hours of operation. As the Department is working with other LNG proponents seeking to locate significant projects on Curtis Island, potentially the allowance of incompatible land uses such as workers accommodation could sterilise large portions of the CIIP land dedicated to industrial land uses of regional, State or national significance. Broadly, the SDAIB recognises that this isolation may have some negative impact on Curtis Island from an environmental perspective within the adjoining Environment Management Precinct.

Santos Response

Please refer to EIS Section 8.11.5.11. This section outlines why Santos believe the CAF is ancillary to the uses outlined in Schedules 7 and 9 of the GSDA. The CAF proposed by the EPC contractor is designed for minimal, temporary, environmental disruption and to be within the footprint of the LNG facility. However, the construction and operation of the CAF is subject to the material change of use (planning) application.

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2.3.9 Dredged Material Management Alternatives

Respondent Comment

Gladstone Ports Corporation states that the options considered for on shore displacement should be reviewed and the impacts on other developments noted. The option for disposal at Laird Point impacts significantly on the site nominated for APLNG.

The greater percentage of the site is impacted by unconsolidated material that would require a significant period from placement use for industrial purpose due primarily the depth of which the material is placed and the associated need to dewater the site for consolidation.

Santos Response

The GLNG EIS stated that:

- The Queensland Government and the GPC are presently reviewing the dredged material management plan for Port Curtis to plan for the long term dredging and dredged material disposal that may be required to provide safe and efficient access to existing and proposed port facilities in the harbour for the foreseeable future. The plan considers dredging and dredged material disposal required for industrial and port related projects currently proposed for Gladstone. As part of the plan, the GPC is considering a single dredged material disposal area which will be large enough to accommodate the combined dredged material from all of these projects in a manner which is consistent with GPC's long term port development objectives;
- The GPC and the Queensland Government proposes to undertake an environmental assessment of the overall plan and to obtain the necessary approvals before adopting and implementing the plan. If the plan is approved, the dredging and the associated dredged material placement for the GLNG Project will be undertaken in accordance with the plan provided the timing of the approval is consistent with the GLNG Project requirements; and
- If for some reason, the GPC's strategic dredging and disposal project is delayed or does not proceed, a plan specific to the GLNG Project has been prepared to manage the project's dredge material. The EIS Section 2.3.9 identified a range of sites on and around Curtis Island for the potential location of a dredge material placement facility, with the emphasis being on land-based placement and the containment of fine material. Laird Point was put forward as the proposed site because of its smaller footprint due to wall heights; reduced visual amenity impact and greater distance from seagrass meadows (as compared to Boatshed Point site). The Laird Point site was assessed in EIS Section 8.17.

On 18 August 2009 (since the EIS was prepared), the Queensland Government and Australia Pacific LNG announced Laird Point on Curtis Island as the site for Australia Pacific LNG's proposed LNG Plant. This site is the same area proposed for the dredge material placement facility at Laird Point for the GLNG Project.

Santos recognises the conflict in proposed land use of the site for the APLNG Plant and the proposed DMPF at Laird Point. If the site was used for the DMPF, it is unlikely that the site would be able to be used for the construction of an LNG Plant in the short to medium term. Whilst the site may be able to be used over the longer term for a facility with the implementation of suitable engineering works, it is not likely that this would meet the time frame requirements for the APLNG Plant.

Despite the announcement by the Queensland Government and APLNG, it is not a foregone conclusion that the site will ultimately be used for the construction of an LNG Plant as the development of the site, as for all proponents currently, will depend on a range of factors. For example, it is recognised that at some point in the future there may be consolidation of the LNG projects in the Gladstone area and that not all currently proposed LNG projects are likely to proceed. If this occurs, it is possible that the Laird Point site may not be required for the construction of an LNG Plant in the short to medium term.

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Further, in the event that the GPC proposal to use Fisherman's Landing reclamation area for the disposal of the dredge material does not proceed or is delayed, Laird Point remains a viable standalone option for disposal of dredge material arising from the GLNG Project, and the only viable alternative dredge material disposal site at this time, for the LNG industry.

On this basis, GLNG seeks approval of the DMPF at Laird Point subject to the following two conditions:

- The CG being satisfied that the site is not required for another LNG Plant in the short to medium term; and
- The CG being satisfied that the dredge material placement facilities at Fisherman's Landing are not available to be utilised within the time required to commence construction of the GLNG.

GLNG recognises that an approval to dispose of dredge material at Laird Point would require a material change of use decision by the Coordinator General.

Santos notes that the Laird Point area is already designated for commercial/industrial purposes and would currently require a considerable amount of fill prior to commercial/industrial use.

Results of further investigations relating to the proposed DMPF at Laird Point in response to EIS submissions are provided in **Attachment G**.

Respondent Comment

Gladstone Ports Corporation states that the valley on Curtis Island option impacts on the preferred corridor nominated for access for the LNG Industry Precinct. This corridor is being designed to accommodate the gas pipelines, services and transport infrastructure associated with the proposed industries on Curtis Island. It should also be noted that issues identified in above point regarding the timeframes for dredging material to consolidate also relates to this site.

Santos Response

The Laird Point site is preferred by Santos over the Valley area on Curtis Island. As acknowledged in Table 2.3.11 in EIS Section 2, the disadvantages associated with using the Valley area on Curtis Island as a dredge material disposal site include the introduction of marine water and sediments to a terrestrial environment, risk of groundwater impact, loss of terrestrial vegetation, and the inconsistency of this use with GSDA's planning for the provision of an infrastructure corridor to service the proposed industry precinct on Curtis Island.

Respondent Comment

Gladstone Ports Corporation states that it should be further noted for the disadvantages identified by Santos for the Offshore Disposal option, that the dredging would require 100 % deployment of Trailing Suction Hopper Dredgers and that to undertake efficient dredging these units rely heavily on overflow dredging which results in significant plume generation when compared with Cutter Suction Dredgers. The increased marine traffic associated with offshore disposal needs also to be considered with respect to current marine traffic operations and interaction with constriction related marine traffic.

Santos Response

As stated in EIS Section 2.3.9, offshore disposal has been dismissed as a viable option by Santos for the GLNG Project. As stated in the EIS, the National Ocean Disposal Guidelines for Dredge Material requires that all alternatives should be considered before offshore disposal is selected (i.e. it is an option of last resort).

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If GPC's strategic dredging and disposal project for the Western Basin is approved, the dredging and the associated dredged material placement for the GLNG Project will be undertaken in accordance with the GPC project provided the timing of the approval is consistent with the GLNG Project requirements. If for some reason, the GPC's strategic dredging and disposal project is delayed or does not proceed, Laird Point has been put forward by Santos as an option to specifically manage the GLNG Project's dredge material.

Santos also notes that Cutter Suction Dredges are proposed to be used to carry out the capital dredging works required for the GLNG Project.