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Gladstone Ports Corporation

Report for Western Basin Dredging and Disposal Project

Greenhouse Gas Assessment

September 2009

INFRASTRUCTURE | MINING & INDUSTRY | DEFENCE | PROPERTY & BUILDINGS | ENVIRONMENT

Contents

Table Index

Figure Index

Executive Summary

A greenhouse gas assessment was carried out to assess potential greenhouse gas (GHG) emissions from the construction of the Western Basin Dredging and Disposal Project (the Project), and the dredging operations that will supply the fill material. GHG emissions associated with the quarry, and operation of any industries that may build on the reclaimed area in future, are not included within the scope of this assessment, as it is anticipated that those activities will be addressed by separate studies.

The most recent estimates of annual greenhouse gas (GHG) emissions for the state of Queensland (DCC 2009b) was 181.6 Mt of carbon dioxide equivalent (CO_2-e), accounting for approximately 30.5% of the national greenhouse gas emissions for Australia. Of the Queensland contribution, 12.4 Mt is from the manufacturing and construction sector, and 18.9 Mt from the transport sector, with the remainder arising from stationary energy, energy industries and generation, industrial processes, fugitives, agriculture, land use change and waste.

Sources of GHG emissions including transportation of materials, on site equipment use, and dredging operations were investigated. Where appropriate information was available, an estimation of the GHG emissions from those components of the construction phase was carried out. The initial estimate of these emissions totalled approximately 300,600 t CO_2-e with almost 97% of these emissions being due to dredging activities (Figure 1). Consequently, the GHG emissions potentially being generated from the main sources during the construction phase of this Project could be expected to amount to approximately 0.17% of the annual baseline emissions for the state of Queensland. It should be noted that this estimation of emissions only covers significant sources for which a reasonable level of information was available.

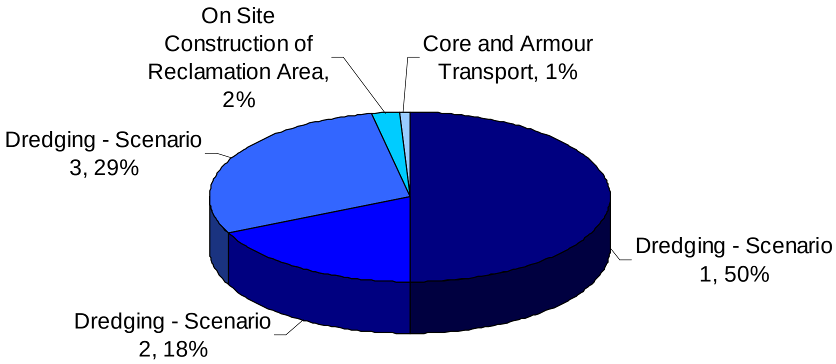

Figure 1 Significant Sources of Potential GHG Emissions from the Western Basin Dredging & Disposal Project

Several possible mitigation options for the construction phase of the Project are outlined. These included defining the most direct and efficient haulage route from the quarry to the Reclamation Area site, encouraging the use of newer, more efficient dredges and site equipment, encouraging efficient driving methods by the truck and machinery operators to reduce the amount of fuel used, and sourcing geotextile manufactured from recycled PET.

1. Introduction

The proposed Western Basin Reclamation Area is located immediately adjacent to the existing Fisherman's Landing reclamation and proposed 153 ha Fisherman's Landing Northern Expansion. The development will incorporate dredging associated with the deepening and widening of existing channels and swing basins, and the creation of new channels, swing basins and berth pockets. Dredged materials will be placed in the bunded reclamation which will create a land reserve to be used to service the new port facilities.

The objective of this Greenhouse Gas (GHG) assessment is to provide a qualitative investigation of potential greenhouse gas emissions associated with the development of the proposed Western Basin Reclamation Area, and to identify actions for mitigating or reducing these emissions. Where sufficient information is available regarding emission sources likely to be significant for this Project, a quantitative assessment of these emissions has been undertaken.

1.1 Scope

The scope of this assessment of potential GHG emissions is focused on the construction of the Western Basin Reclamation Area, and the dredging operations that will supply the fill material. GHG emissions associated with the quarry and operation of any industries that may build on the reclaimed land in future are not included within the scope of this assessment, as it is expected that those activities will be addressed by separate studies.

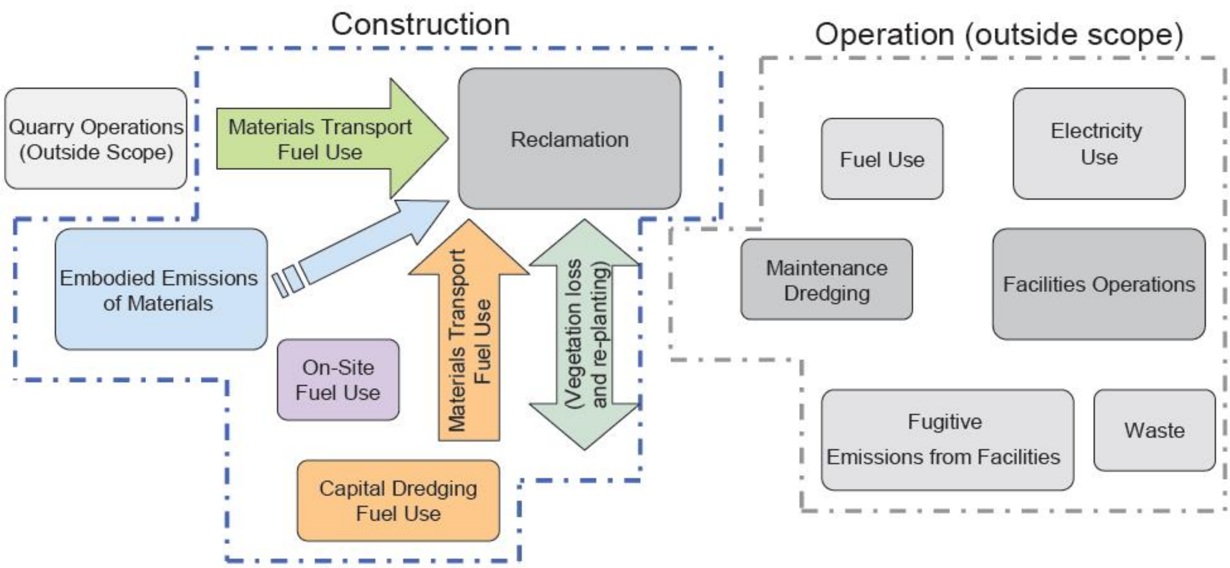

Figure 2 Project Boundaries

1.2 Methodology

The GHG assessment was undertaken using a methodology adapted from the GHG component of the Queensland Government's Guidelines for Climate Change Impact Assessment (EPA 2008). The main steps of the methodology are outlined below:

- Summarise the existing legislation and policies relevant to GHG emissions from this Project;
- Summarise the existing environment in regards to current levels of GHG emissions from the state of Queensland and relevant sectors, as well as from current activities at the site;
- Identify the main potential sources of GHG emissions from the construction of the reclamation bund and dredging activities and calculate approximate GHG emissions using factors and methodologies outlined in "National Greenhouse Accounts (NGA) Factors", published by the Australian Government's Department of Climate Change;
- Consider the following potential sources, as well as any other project specific sources identified:
  - Any stationary energy/electricity (e.g. electricity consumption; power generated via diesel generators);
  - Transport (diesel, petrol, LPG);
  - Construction activities;
  - Land use change (land clearing/revegetation); and
  - Waste (municipal solid waste, commercial, construction/demolition).
- Provide a qualitative description of how the emissions from the Project will affect the State's GHG emissions profile and qualify the likely GHG emissions impact of the Project without the inclusion of any mitigation measures, using the following impact levels (as defined by the Queensland EPA) :
  - **Significant:** Significant GHG emissions are likely to be generated from greenhouse intensive sources (i.e. fossil-fuel derived energy and fuel use).The proposal may significantly contribute to Queensland's overall GHG emission profile over its lifespan.
  - **Moderate:** The GHG emissions generated are likely to be moderate in comparison to the GHG emission level in the absence of the Project
  - **Limited:** The GHG emissions generated are likely to be limited in comparison to the GHG emission level in the absence of the Project
  - **Negative:** The proposal is likely to reduce GHG emissions.
- Investigate the potential for mitigation or reductions of these emissions.

1.3 Background on Greenhouse Gas Assessment

In 2007 the Intergovernmental Panel on Climate Change (IPCC) released its fourth assessment report which stated that warming of the climate system is now unequivocal and is very likely due to the observed increase in anthropogenic GHG concentrations in the atmosphere as a result of human activities (IPCC 2007).

Greenhouse gases are those gases in the earth's atmosphere that trap heat, allowing the temperature of the earth to be kept at a level that is necessary to maintain life. An increase in the levels of these gases in the atmosphere results in an increase in the amount of heat being trapped, leading to warming of the earth's surface. This is commonly referred to as the enhanced greenhouse effect. The three main greenhouse gases are carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O). Figure 3 demonstrates the increase in concentrations of CO_2 in the earth's atmosphere since 1750 in comparison to the concentrations experienced during the last 10000 years. This figure clearly shows that the levels of CO_2 in the earth's atmosphere have increased significantly in the last 200 years.

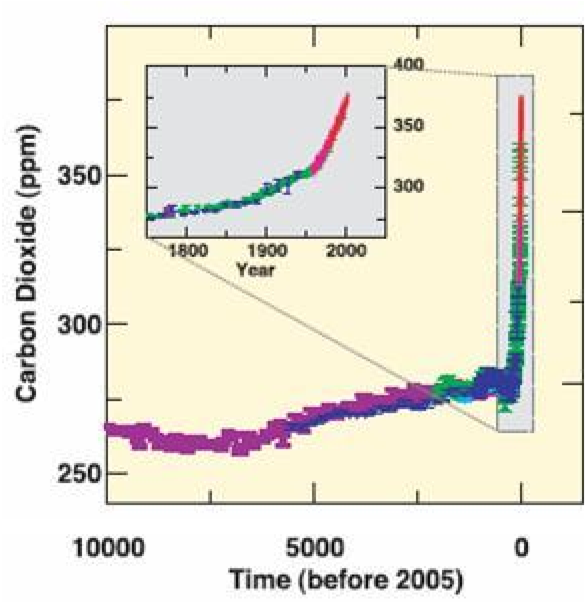

Figure 3 Changes in Carbon Dioxide Concentration over last 10000 years (IPCC 2007)

Increased awareness of the impacts of an enhanced greenhouse effect has resulted in many policies and strategies being developed to quantify and reduce the amounts of these gases being released into the earth's atmosphere.

- At the federal level, the Australian Government has made a commitment to reduce GHG emissions by 60% of 2000 levels by 2050, with a 5-25% reduction commitment for the period up to 2020. The methods of bringing these reductions about have been outlined in the white paper and draft legislation addressing Australia's Carbon Pollution Reduction Scheme (CPRS), as well as in updates announced on 6 May 2009. The Carbon Pollution Reduction Scheme Bill is currently before the Senate.
- The National Greenhouse and Energy Reporting (NGER) Act was introduced in 2007. This legislation requires corporations that control entities that emit more than 25 kilo tonnes of carbon dioxide equivalent ($CO_{2\text{-e}}$) of GHGs per annum, or are part of a corporate group that emits more than 125 kilo tonnes CO_2-e of GHG per annum, to register and report on their emissions of the greenhouse gasses (DCC 2008).
- The Energy Efficiency Opportunities (EEO) Act requires companies that use over 0.5 petajoules (PJ) of energy in a financial year to conduct energy efficiency assessments and report publicly on the outcomes. Reporting obligations for the Gladstone Port Corporation under the Energy Efficiency Opportunities Act 2006 have resulted in several initiatives being put in place for increasing energy efficiency. In addition to saving energy, these initiatives will also result in the reduction of greenhouse gas emissions by operations undertaken by the Gladstone Port Corporation. Initiatives currently under development include the design and implementation of a system for analysing energy usage and assessing improvement ideas, as well as working to ensure that energy efficiency clauses are included in all future equipment tender specifications.
- At a state level, the Queensland Government now requires that all cabinet submissions include a 'Climate Change Impact Statement (CCIS)'. The CCIS is required to assess the potential impacts *from* the proposal in terms of their contribution to the State's GHG emissions profile, taking into

account emissions mitigation measures; as well as an assessment of the impacts *to* the proposal from a changing climate(QOCC 2008).

- The Queensland government is also currently reviewing its *ClimateSmart 2050* climate change strategy. In relation to GHG reduction, this review will build on measures identified in the *ClimateSmart 2050* strategy, including initiatives to reduce GHG emissions in industry through energy efficiency measures.
- The Calliope Shire Planning Scheme 2007 has a desired environmental outcome of "improved efficiencies in design and construction in order to meet desired greenhouse emission targets".

The following sections of this report summarise the current national and state GHG emission levels for sectors relevant to this Project, and identify the current sources of GHG emissions from the Project Area. The areas that are most likely to contribute to the overall GHG emissions from the dredging programs and construction of the Reclamation Area are then identified and methods by which these emissions can be reduced are highlighted.

1.4 Existing Conditions

The latest overview of GHG emissions estimates for Australia was published by the Department of Climate Change in June 2009. These estimates relate to data for the period from 1990 to 2007. The 2007 annual estimates for Australia, Queensland and for the sectors relevant to this Project are summarised in Table 1.

Table 1 2007 Annual GHG Emissions Estimates (DCC, 2009b)

	Australia	Queensland	
	Emissions (Mt)	Emissions (Mt)	% Contribution
Total Net Emissions	597.2	181.6	30.4%
Manufacturing and Construction	48.7	12.4	25.5%
Transport	78.8	18.9	24.0%

The site of the Western Basin Dredging and Disposal Project is currently below high water mark and is unallocated state land.

2. Sources of GHG from Construction Phase

The construction phase of this Project will include the building of the bund walls for the Reclamation Area and the dredging operations that will supply the fill material for the bund. The potential sources of GHG emissions from this construction phase are outlined in Figure 4.

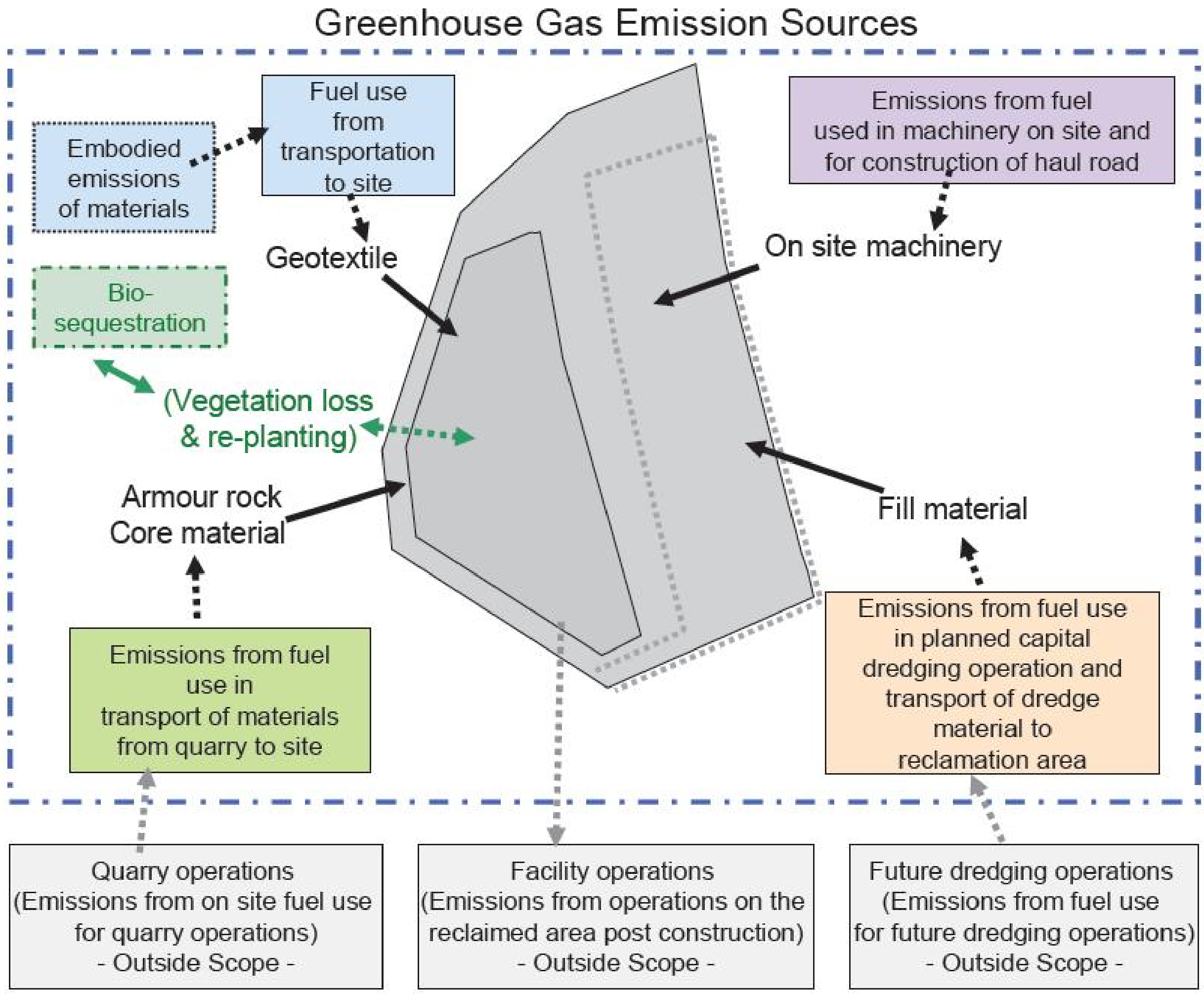

Figure 4 Potential GHG emission sources from construction of the Reclamation Area

Sources of GHG emissions from this phase of construction would be expected to arise from:

- Transportation of the bund armour and core material from the quarry to the Reclamation Area site;
- Embodied emissions from the manufacturing of the geotextile material;
- Diesel fuel consumption of the on-site machinery; and
- Fuel required for capital dredging programs that will fill the bund with dredged material.

2.1 Transportation

The rock armour and core material required for the construction of the bund walls will be sourced from a quarry approximately 5km from the Reclamation Area. The following assumptions were taken into account when calculating approximate GHG emissions from the transportation of materials from the quarry to the Reclamation Area site:

- Approximate volume of rock armour and core/fill material required for construction of the bund walls: 1,500,000 m^3;
- 7 Caterpillar 777 trucks are used to transport the quarried materials to the Reclamation Area;
- Estimate of fuel consumption for Caterpillar 777 truck: approximately 74 L/hr; and
- Emission factor for diesel fuel combustion: 2.7 tCO_2-e/kL (DCC 2009a).

Under these assumptions the amount of GHG emissions from the transportation of quarried material for the construction of the reclamation bund could be expected to be approximately 2,500 tCO_2-e. These calculations are very sensitive to the fuel consumption rates used. Considering that the fuel consumption rates for the truck type is approximate only, more detailed information would be required to accurately assess the potential GHG emissions associated with this aspect of the Project.

Other materials such as geotextile will also need to be transported to the Reclamation Area. Although the GHG emissions for the transport of these materials have not been calculated in this assessment, it is believed that they will be significantly less than those for the transportation of the rock armour and core material.

2.2 Embodied Emissions of Construction Materials

Generally, geotextile is placed on the inner face of the bund in order to minimise migration of fines within the dredged material through the bund. It is assumed that a non-woven polyester geotextile will be used for this Project. The potential emissions from the manufacture of the geotextile were considered in this GHG emissions assessment. The following assumptions were made to estimate the potential embodied emissions from the manufacture of this material.

- Polyethylene terephthalate used for the geotextile;
- Density of geotextile material: 1250kg/m^3;
- Emissions factor for Polyethylene terephthalate: 2.25kg CO2-e/kg (SimaPro 2008); and
- Total amount of material required: approximately 113,000m^2 (based on estimate for Fisherman's Landing).

Based on these assumptions, the potential embodied GHG emissions associated with the manufacture of the geotextile amount to approximately 300 tCO_2-e.

2.3 Diesel Fuel Consumption of the On-site Equipment

Additional emissions will arise from the use of on-site equipment during the construction of the reclamation and the haul road from the quarry. However, at this stage in the Project, emissions from these sources can only be estimated as insufficient information is available to quantify precise emissions. The following assumptions were made to estimate the potential GHG emissions associated with the construction of the bund walls:

- It is assumed that the following on site machinery will be used during the construction of the bund:
  - 2 Cat 992H loaders

– 1 Cat 140H grader
– 13KL water tanker
– 4 Cat 365 excavators
– 2 Cat D8T dozers
– 6 Lighting plants & gensets
– 2 Laser levellers and survey controls
– Small smooth drum roller (part time)
– 30t crane (bridgeworks - part time)
– Cat 815 paddfoot roller (part time)
– Minor equipment (part time)
– 4 Light vehicles - twin cabs & 4WD's
– 2 Service trucks
– Fuel truck
– 3t Job truck
– IT28 tool carrier
– 30t mobile yard crane

- It is assumed that the construction of the bund walls will take approximately 11 months, working twin, 8 hour shifts.
- In addition to the construction of the bund walls, the construction of the haul road, as well as the mobilisation of equipment and construction delays will bring the total construction time up to approximately 20 months.
- Total on site fuel use (excluding transport of quarry materials): 2,300 kL.
- Emission factor for diesel fuel combustion: 2.7 tCO_2-e/kL (DCC 2009a).

Based on these assumptions, the potential GHG emissions produced from the combustion of fuel used in the on-site machinery would be in the order of 6700 tCO_2-e. This figure is only an estimate and could vary greatly depending on the number and size of machinery used, and the timing for the various construction stages.

It should be noted that approximately one third of the bund wall included in these calculations will be built as part of the Fisherman's Landing Northern Expansion Project that has previously been assessed. With this in mind, the additional GHG emissions from the construction of the Western Basin bund walls will be significantly reduced.

2.4 Filling of the Bund with Dredged Material

Dredging operations will be carried out to provide safe and efficient access to the existing and proposed port facilities in the harbour. These dredging operations and the delivery of the dredge material to the Reclamation Area will account for the majority of the GHG emissions from the construction of the Reclamation Area. These emissions will arise from the fuel used to power the dredge and associated work boats, and the machinery that will be required to carry out the phase of work. It is estimated that approximately 36 million cubic metres of dredge material will be produced during the capital dredging operations outlined below in Table 2. The dredged material from these operations will be disposed of in the Reclamation Area. Future maintenance dredging programs that may also dispose of dredge material in the Western Basin Reclamation Area have not been included in this assessment.

Table 2 Capital Dredging Operations Summary

Stage 1A	**Volume/Capacity** **16.0 million m^3**	**Potential Length and Timing of Dredging:** mid 2011 – 2013 (2 – 2.5 years)	
1A North China Bay Industry Precinct	Assumed Equipment	Production Rate (m^3/hr)	Fuel Consumption
◗ Clinton Bypass Wedge	Large TSHD, 450m^3/hr Bed Leveller	450 -	110g/kWh 62.5L/hr
◗ Clinton Bypass Channel	Large TSHD Bed Leveller	800 -	110g/kWh 62.5L/hr
◗ Western Basin South	Large TSHD Bed Leveller	740 -	110g/kWh 62.5L/hr
◗ Western Basin North	Large CSD Work Boat Dozer	1,120 - -	194g/kWh 50 L/hr 65 L/hr
◗ Western Basin Middle	Large CSD Work Boat Dozer	1,120	194g/kWh 50 L/hr 65 L/hr
Potential GHG emissions: 137,000 tCO_2-e			

Stage 1B - 1	**Volume/Capacity** **1.5 million m^3**	**Potential Length and Timing of Dredging:** mid 2011 – 2013 (dredged concurrently with Stage 1A)	
1B Fisherman's Landing LNG – Stage 1	Assumed Equipment	Production Rate (m^3/hr)	Fuel Consumption
◗ Targine Channel – Stage 1	Large TSHD Bed Leveller	890 -	110g/kWh 62.5L/hr
◗ Fisherman's Landing Swing Basin – Stage 1	Large TSHD Bed Leveller	620 -	110g/kWh 62.5L/hr
Potential GHG emissions: 13,000 tCO2-e			

Stage 1B - Full	Volume/Capacity 4.6 million m^3	Potential Length and Timing of Dredging: mid 2011 – 2013 (dredged concurrently with Stage 1A)	
1B Fisherman's Landing LNG – Full	Assumed Equipment	Production Rate (m^3/hr)	Fuel Consumption
◗ Targine Channel – Full	Large TSHD Bed Leveller	890 -	110g/kWh 62.5L/hr
◗ Fisherman's Landing Swing Basin – Full	Large TSHD Bed Leveller	620 -	110g/kWh 62.5L/hr
Potential GHG emissions: 40,000 tCO_2-e			

Stage 2	Volume/Capacity 4.5 million m^3	Potential Length and Timing of Dredging: 2014 (follows after Stage 1A and 1B)	
2 Laird Point	Assumed Equipment	Production Rate (m^3/hr)	Fuel Consumption
◗ Laird Point	Medium CSD Work Boat Dozer	520 - -	208 g/kWh 50 L/hr 65 L/hr
Potential GHG emissions: 15,000 tCO_2-e			

Stage 3	Volume/Capacity 5.5 million m^3	Potential Length and Timing of Dredging: Unknown (will be staged over a number of years)	
3 Fisherman's Landing Development	Assumed Equipment	Production Rate (m^3/hr)	Fuel Consumption
◗ Fisherman's Landing	Large CSD Work Boat Dozer	1,080 - -	194g/kWh 50 L/hr 65 L/hr
Potential GHG emissions: 50,000 tCO_2-e			

Stage 4	Volume/Capacity 3.9 million m^3	Potential Length and Timing of Dredging: Unknown (will be staged over a number of years)	
4 Hamilton Point	Assumed Equipment	Production Rate (m^3/hr)	Fuel Consumption
◗ Hamilton Point North	Large CSD Work Boat Dozer	1,120 - -	194g/kWh 50 L/hr 65 L/hr
◗ Hamilton Point South	Large CSD Work Boat Dozer	980 - -	194g/kWh 50 L/hr 65 L/hr
Potential GHG emissions: 36,000 tCO_2-e			

*TSHD – Trailing Suction Hopper Dredge, CSD – Cutter Suction Dredge

Depending on the methods and type of dredge used to carry out the dredging operation, and the distance of the dredged areas from the Reclamation Area site, the GHG emissions from this phase of construction could vary significantly. For the purposes of this assessment, the estimate was based on the following additional assumptions:

- Work boat used for approximately 20% of operation time to move CSD ground anchors;
- Work boat suing approximately 50L of fuel per hour of operation (Ding 1999);
- Dozer used for ten hours during each CSD operational day;
- Bed leveller used for 50% of the TSHD hours for 12 hour days;
- Emission factor for diesel fuel combustion: 2.7 tCO_{2-e}/kL (DCC 2009a).
- Emission factor for fuel oil combustion: 2.9 tCO_{2-e}/kL (DCC 2009a).

Based on these assumptions, the potential quantity of GHG emissions from the capital dredging operations could be expected to amount to approximately 291,000 tCO_2-e. A more detailed estimate of GHG emissions from the dredging operations will be possible when the dredging plans have been finalised.

2.5 Construction GHG Emissions Summary

Taking into account the estimate of GHG emissions from the transportation of the bund armour, core material, the embodied emissions of the geotextile, the diesel consumption of on site machinery and filling of the bund with dredged material, the total GHG emissions from the construction phase of the Western Basin Dredging and Disposal Project are estimated at approximately 300,500 tCO_2-e. Table 3 and Figure 5 summarise the breakdown of the potential main GHG emissions sources from this Project. It is clear that the use of fuel for the capital dredging operations will be the most significant source of GHG emissions for this Project.

Table 3 Estimate of GHG emissions from main sources during construction phase

GHG emissions source	Approximate estimate of GHG emissions
Transport of materials	2,500 tCO_2-e
Embodied emissions of geotextile	300 tCO_2-e
On site machinery (at Reclamation Area)	6,700 tCO_2-e
Dredging	291,000 tCO_2-e
Total	**300,500 tCO_2-e**

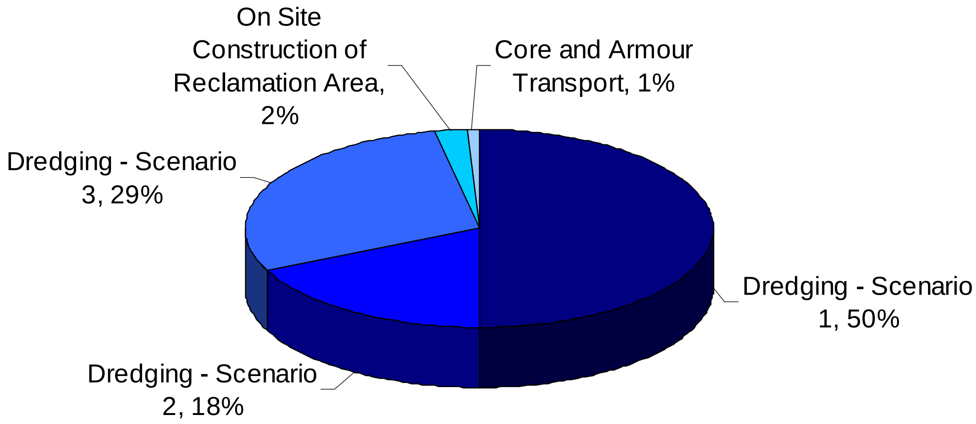

Figure 5 Estimate of GHG emissions from main sources during construction phase

3. Assessment of GHG Impact of Proposal

When compared with the annual baseline emissions for the state of Queensland, the GHG emissions potentially being generated from the main sources during the construction phase of this Project could be expected to be approximately 0.17% of Queensland's annual emissions. It should be noted that the quantitative estimation of emissions only covers sources deemed to be significant, and for which a reasonable level of information was available. These estimates are based on the information available at the time of this assessment and the assumptions noted in each section of this report. A more complete GHG emissions assessment could be performed when more detailed information is available.

3.1 Potential GHG Mitigation Options

Methods for reducing GHG emissions are generally based on the following themes:

- **Avoid:** Identify where and how GHG emissions associated with the proposal can be avoided.
- **Reduce:** Identify where behaviour or processes can be modified to achieve GHG emission reductions.
- **Switch:** Identify where fuel and energy source switching can be used to reduce GHG emissions.

The following mitigation options could be employed during the appropriate phase of the Project in order to reduce the quantity of GHG emissions arising from the Project. Although the GHG emissions resulting from the dredging phase of the Project are by far the largest source, reductions achieved in all components of the Project will be important in reducing the overall GHG emissions.

3.1.1 Transportation Mitigation Options

- The source of the core and rock armour material is very close to the site and therefore the potential GHG emissions from this phase of the construction have already been minimised.
- In terms of defining the haulage route from the quarry to the Reclamation Area site, choosing the most direct route possible will result in further reductions in GHG emissions through reduced fuel usage. For example, even reducing the length of the haul road by half a kilometre has the potential to **reduce** GHG emissions from this phase of the Project by around 5%.
- The driving methods employed by the drivers operating the trucks will also impact on the amount of fuel used and therefore **reduce** the GHG emissions associated with the transportation of the quarried materials to the site. Studies have shown that implementing smoother driving practices can result in fuel savings of between 5 and 10% (OECD 2001). A 10% savings in fuel used for transport during the construction phase of this Project could equate to around 88,000 Litres, or 255 tCO_2-e.
- Options to **reduce** any possible congestion associated with the filling and emptying of the trucks at the quarry and Reclamation Area should also be implemented to avoid trucks spending more time on each trip than is necessary. Measures that could be implemented on the quarry and reclamation site include single direction loop roads in and out of the sites that allow trucks to enter and leave without unnecessary manoeuvring, and procedures to encourage drivers to turn off engines when any significant delays are experienced along the route.
- Investigating the potential to **switch** to the use of bio-fuels for the transport vehicles.

3.1.2 Embodied Emissions of Construction Materials Mitigation Options

- Sourcing polyester geotextile manufactured from recycled PET would significantly **reduce** the amount of embodied emissions in the geotextile material used for the Reclamation Area (Geofabrics Australasia 2009).

3.1.3 Reclamation Area Construction Site Mitigation Options

- Choosing the most suitable site equipment that can carry out the required tasks with the most efficient fuel consumption rates will result in **reduced** GHG emissions from on-site equipment fuel use.
- Implementing fuel saving initiatives on site such as efficient driving practices (OECD 2001).
- Investigating the potential to **switch** to the use of bio-fuels for the onsite machinery.

3.1.4 Dredging Mitigation Options

The dredging programs that will be carried out to fill the Western Basin Reclamation Area are required for various capital works in the surrounding area. These dredging projects will be required regardless of the presence of the Western Basin Reclamation Area. Therefore, the presence of the Reclamation Area for the disposal of the dredge material may reduce the need for dredgers to travel further distances. This would reduce the fuel use and possible GHG emissions as a result of the dredging activities.

- By designing the dredging operation to reduce overall fuel use, the GHG emissions from the dredging and transportation of the dredge material will be minimised.
- By scheduling the dredging programs so that the same dredgers can be used on each operation, fuel use associated with the potential mobilisation of the dredgers will be reduced.
- Selecting newer dredges with more efficient engines if possible will also result in significant reductions in GHG emissions through fuel savings.

3.1.5 Other Mitigation Options:

- Some actions that are proposed to protect vegetation on and around the site will contribute towards offsetting greenhouse gas emissions. For example, setting the Reclamation Area back from the foreshore to allow for maintenance of the mangrove communities and maintaining the final decant pond as a wetland.
- Vegetation of the Reclamation Area could contribute to offsetting of GHG emissions for the Project.
- Carrying out any additional fuel and energy savings measures identified in the Gladstone Port Corporation Energy Efficiency Opportunity assessments, such as the implementation of a system for analysing energy usage, as well as working to ensure that energy efficiency clauses are included in all equipment tender specifications will also contribute to reducing the potential GHG emissions associated with this Project.

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