Client: DI-Lands

Lower Tweed River Dredging
Pollution Incident Response Management Plan

16-024
June 2017
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- Site Office/Work Shed (printed);
- Site Supervisors vehicle (printed);
- Dredge (Ruby K) (printed); and
- DI-Lands Website (electronic).
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1. INTRODUCTION

This Pollution Incident Response Management Plan (PIRMP) has been prepared in accordance with the requirements stated in the Protection of the Environmental Operations Act 1997 (POEO Act), the Environmental Legislation Amendment Act 2011 (POELA Act) and the Protection of the Environment Operations (General) Regulation 2009 (POEO (G) Regulation). The preparation of a PIRMP is a requirement for any Environmental Protection Licence (EPL) holder under section 153A of the POEO Act.

This PIRMP covers the Lower Tweed River Dredging project and covers the key actions to be implemented to minimise the potential of a pollution incident and the procedures to manage/respond if one occurs. The aims of this PIRMP are to:

- Ensure comprehensive and timely communication about a pollution incident to:
  - All personal on site;
  - Relevant DI-Lands personal;
  - Environmental Protection Authority;
  - Other relevant authorities specified in the Act (such as the local council, NSW Ministry of Health, WorkCover NSW, Fire and Rescue NSW, and DPI-Fisheries); and
  - People outside the project site who may be affected by the impacts of the pollution incident.
- Minimise and control the risk of a pollution incident at the project site by the identification of risks and the implementation of measures to minimise and manage those risks; and
- Ensure that this PIRMP is implemented properly by trained personal with responsibilities determined and assigned to the personal, and that the PIRMP is regularly tested for accuracy, currency and suitability for the project.

1.1 Background

Maintenance dredging of the boating navigation channel at five locations in the lower Tweed River estuary is proposed to be undertaken by the Department of Industry – Lands (DI - Lands) in 2017. The proposed works involve dredging the channels to varying target elevations between -2.0 and -3.5 m TRHD. Approximately 63,000 m³ is to be dredged from Terranora Inlet (areas A and B) and used to combat long-term beach erosion of Kingscliff Beach and an additional 29,700 m³ of material is to be side-cast to clear the navigation channel at three sites (C, D and E) between Fingal village and Barneys Point Bridge on the lower Tweed River. See Appendix 2 for dredge area locations. It is anticipated that the full project will be undertaken over a period of approximately 5-6 months.

Sediments from dredge areas A and B will be dredged utilising a cutter suction dredge (Ruby K) and transferred via pipeline to the dewatering operation to be established at Boyds Bay Bridge and Scotts Corner Park and slip lane at the site of the old tick gates at that location. Dewatering is to be undertaken by hydro-cyclone. Water discharged from the cyclone will be directed to a bund to be established on site, which will allow for the settlement of any fines and facilitate water quality monitoring prior to discharge of return water back to the estuary. See Appendix 2 for layout of dewatering area. Sand liberated from the cyclone will be loaded into trucks by an excavator. Trucks will utilise the slip lane for queuing and once loaded will travel approximately 13 km southwards to Kingscliff, where sand will be delivered to two locations for beach nourishment. Around 3,500 truck movements will be required.

The remainder of the dredge areas (areas C, D and E) will be cleared by side-casting. This component of the project is not subject to an Environmental Protection Licence but the same incident response procedures will apply where applicable. It is envisaged that dredging will be undertaken by suction dredge and pumped to the nominated nearby receiving locations before being discharged below water level. The discharge areas have been selected based on the surveyed depths, receiving capacity, distance from sensitive marine...
habitats and the relatively reduced likelihood (compared to other sites) of sand re-filling the dredged areas in the short-term.

1.2 Definition of a Pollution Incident

This PIRMP is to be implemented in the event of a pollution incident occurring during the Lower Tweed River Dredging Project. Under the POEO Act a pollution incident is defined as:

“an incident or set of circumstances during or as a consequence of which there is or is likely to be a leak, spill or other escape or deposit of a substance, as a result of which pollution has occurred, is occurring or is likely to occur. It includes an incident or set of circumstances in which a substance has been placed or disposed of on premises, but it does not include an incident or set of circumstances involving only the emission of any noise.”

A pollution incident is required to be notified to the relevant authorities if there is risk of material harm to the environment. Under the POEO Act this is defined as:

- “harm to the environment is material if:
  - It involves actual or potential harm to the health and safety of human beings or to ecosystems that is not trivial; or
  - It results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000 (or such other amount as is prescribed by the regulations), and
- Loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment.’

Any pollution incidents that occur during the project are to be reported immediately to the EPA, NSW Health, Fire and Rescue, WorkCover NSW, and Tweed Shire Council.

2. LEGISLATIVE REQUIREMENTS

The requirements for the PIRMP are set out in Part 5.7A of the POEO Act and Part 3A of the POEO (G) Regulation. In summary the following is required:

1. All environmental protection licence (EPL) holders must prepare a PIRMP (section 153A, POEO Act);
2. The PIRMP must include the information detailed in the POEO Act (section 153C) and in the form required by the POEO (G) Regulation (clause 98B);
3. The PIRMP must include the additional material outlined in the POEO (G) Regulation (clause 98C);
4. The PIRMP must be kept at the project site to which the EPL relates (section 153D, POEO Act) and available and accessible as outlined by the POEO (G) Regulation (clause 98D);
5. If a pollution incident occurs during the project so that material harm to the environment is caused or threatened, licensees must immediately implement the PIRMP (section 153F, POEO Act); and
6. The EPL licensees must test the plan in accordance with the POEO (G) Regulations (clause 98E).

2.1 Relevant Legislation

- National Parks and Wildlife Act 1975;
- Fisheries Management Act 1994;
- Environmental Planning and Assessment Act 1979;
- Coastal Protection Act 1979;
- Crown Lands Act 1989;
- Work Health and Safety Act 2011; and
- Work Health and Safety Regulations 2011.
3. POLLUTION INCIDENT RESPONSE MANAGEMENT PLAN

3.1 PIRMP Structure

Table 1: PIRMP Structure and Legislative Requirements

<table>
<thead>
<tr>
<th>Clause</th>
<th>POEO Act Requirements</th>
<th>Relevant PIRMP Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>153 C (a)</td>
<td>“The procedures to be followed by the holder of the relevant environment protection licence, or the occupier of the relevant premises, in notifying a pollution incident to: (i) the owners or occupiers of premises in the vicinity of the premises to which the environment protection licence or the direction under section 153B relates, (ii) the local authority for the area in which the premises to which the environment protection licence or the direction under section 153B relates are located and any area affected, or potentially affected, by the pollution, and; (iii) any persons or authorities required to be notified by Part 5.7.”</td>
<td>Section 3.6 and 3.7</td>
</tr>
<tr>
<td>153 C (b)</td>
<td>“A detailed description of the action to be taken, immediately after a pollution incident, by the holder of the relevant environment protection licence, or the occupier of the relevant premises, to reduce or control any pollution.”</td>
<td>Section 3.7.2 and 3.7.3</td>
</tr>
<tr>
<td>153 C (c)</td>
<td>“The procedures to be followed for co-ordinating, with the authorities or persons that have been notified, any action taken in combating the pollution caused by the incident and, in particular, the persons through whom all communications are to be made.”</td>
<td>Section 3.5, 3.7.2 and 3.7.3</td>
</tr>
<tr>
<td>153 C (d)</td>
<td>“Any other matter required by the regulations.”</td>
<td>See clauses outlined below.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Clause</th>
<th>POEO (G) Regulation Requirements</th>
<th>Relevant PIRMP Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>98 C (1) (a)</td>
<td>“A description of the hazards to human health or the environment associated with the activity to which the licence relates (the relevant activity).”</td>
<td>Section 3.2 Appendix 1</td>
</tr>
<tr>
<td>98 C (1) (b)</td>
<td>“The likelihood of any such hazards occurring, including details of any condition or event that could, or would, increase that likelihood.”</td>
<td>Section 3.2 Appendix 1</td>
</tr>
<tr>
<td>98 C (1) (c)</td>
<td>“Details of the pre-emptive action to be taken to minimise or prevent any risk of harm to human health or the environment arising out of the relevant activity.”</td>
<td>Section 3.2 Appendix 1</td>
</tr>
<tr>
<td>98 C (1) (d)</td>
<td>“An inventory of potential pollutants on the premises or used in carrying out the relevant activity.”</td>
<td>Section 3.3</td>
</tr>
<tr>
<td>98 C (1) (e)</td>
<td>“The maximum quantity of any pollutant that is likely to be stored or held at particular locations or at or on the premises that the licence relates.”</td>
<td>Section 3.3</td>
</tr>
<tr>
<td>98 C (1) (f)</td>
<td>“A description of the safety equipment or other devices that are used to minimise the risks to human health or the environment and to contain or control a pollution incident.”</td>
<td>Section 3.4</td>
</tr>
<tr>
<td>98 C (1) (g)</td>
<td>“The names, position and 24-hour contact details of those key individuals who: (i) are responsible for activating the plan, and (ii) are authorised to notify relevant authorities under section 148 of the Act, and (iii) are responsible for managing the response to a pollution incident.”</td>
<td>Section 3.5</td>
</tr>
<tr>
<td>98 C (1) (h)</td>
<td>“The contact details of each relevant authority referred to in section 148 of the Act.”</td>
<td>Section 3.6</td>
</tr>
<tr>
<td>98 C (1) (i)</td>
<td>“Details of the mechanisms for providing early warnings and regular updates to the owners and occupiers of the premises in the vicinity of the premises to which the licence relates or where the scheduled activity is carried on.”</td>
<td>Section 3.6.2 and 3.6.3</td>
</tr>
<tr>
<td>98 C (1) (j)</td>
<td>“The arrangements for minimising the risk of harm to any persons who are on the premises or who are present where the scheduled activity is carried on.”</td>
<td>Section 3.7</td>
</tr>
<tr>
<td>98 C (1) (k)</td>
<td>“A detailed map (or set of maps) showing the location of the premises to which the licence relates, the surrounding area that is likely to be affected by a pollution incident, the location of potential pollutants on the premises and the location of any stormwater drains on the premises.”</td>
<td>Section 3.3 Appendix 2</td>
</tr>
</tbody>
</table>
3.2 Environmental Risk Assessment

An environmental risk assessment has been undertaken in order to meet the requirements of POEO (G) Regulation, clause 98C (1) (a-c). This assessment was completed for the Lower Tweed River Dredging Project and is displayed in Appendix 1. The assessment was prepared to:

- Describe the risk to the environment and human health as a result of the project;
- Document the potential of a risk/impact occurring;
- Outline the management and mitigation measures to be put in place to prevent a pollution incident; and
- Outline the pollution incident response measures.

3.3 Inventory of Potential Pollutants

The following section outlines the potential pollutants to be stored or located at the site as a result of the works. This includes all lubricants, fuels and other chemicals as well as pollutants in the form of sediment and anthropogenic noise and vibrations (Table 2 and Table 3). This majority of these potential pollutants are associated with the four key pieces of machinery to be utilised for the project. These are the dredge (Ruby K), ancillary vessel (Punt 1), hydro-cyclone booster pump and excavator. The indicative location of machinery, refuelling locations and designated discharge point (bund area) are displayed in Appendix 2.

Key locations to be noted:

- The dredge (Ruby K) will operate within the marked dredging areas A to E and refuel at the designated refuelling location via a work vessel. The refuelling procedures are displayed in Appendix 3;
- The land based booster pump and hydrocyclone will be located in the park area south of the bund;
- The excavator will be located south of the bund on the edge of Minjungbal Drive; and
- Dewatering discharge point will be located on the northern tip of the bund.

Table 2: Inventory of Possible Pollutants Associated with Machinery

<table>
<thead>
<tr>
<th>Vessel / equipment</th>
<th>Fuel capacity</th>
<th>Lubricants/ Hydraulic fluid</th>
<th>Coolant</th>
<th>Degreaser</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ruby K</td>
<td>5,000L</td>
<td>Engine oil 15W40 - 40L WD40–5L</td>
<td>Hydraulic oil Bartrans 68 – 500L</td>
<td>20L</td>
</tr>
<tr>
<td>Punt 1</td>
<td>20L</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>Hydrocyclone Booster pump</td>
<td>1,000L</td>
<td>Engine Oil 15W40 – 55L</td>
<td>Nil</td>
<td>60L</td>
</tr>
<tr>
<td>Excavator</td>
<td>400L</td>
<td>Gear oil – 10L</td>
<td>Hydraulic Oil – 200L</td>
<td>40L</td>
</tr>
</tbody>
</table>

Table 3: Additional Possible Pollutants on Site

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Location</th>
<th>Maximum Quantity or Regulation Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>Within the dredging footprint, dewatering area and its surrounding waterbody.</td>
<td>6.5 – 8.5</td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>Within the dredging footprint, dewatering area and its surrounding waterbody.</td>
<td>50 mg/L TSS at monitoring point/project boundary in accordance with EPA Guidelines. Maximum dredge discharge rate – 500m³/hr (water and sediment)</td>
</tr>
</tbody>
</table>

**Anthropogenic**

| Smoke & Fumes       | Entire vessel, all machinery and refuelling areas. | N/A |
| Fire               | Entire vessel, all machinery and refuelling areas. | N/A |
| Noise & Vibrations  | Entire vessel, all machinery and refuelling areas. | N/A |
| Odour              | Dewatering area.                                   | N/A |

3.4 Safety Equipment

The following section outlines the safety equipment that will be located on site throughout the duration of the projects as per the requirements of the POEO (G) Regulation, clause 98C (1) (f).

All vessels, including dredge, utilised for the project will carry all required safety equipment as per the National Standard for Commercial Vessels (NSCV) and the Safety Management System (SMS) or Vessel Management Plan (VMP) for each vessel. The Safety Data Sheet (SDS) relating to dredge operation will be located in the port side cupboard in the wheel house of dredge Ruby K.

All PPE and additional first aid equipment will be located on site as required by the WHS Project Management Plan.

In addition to these requirements the following spill kits will be located on site.
Table 4: Inventory of Safety Equipment on Site

<table>
<thead>
<tr>
<th>Spill Kit location</th>
<th>Number of spill kits</th>
<th>Spill Kit Contents</th>
</tr>
</thead>
</table>
| Dredge                    | 1                    | Floating booms
Hydrocarbon absorbent pads
Oil dispersant                                                             |
| Dewatering site           | 1                    | Floating booms
Hydrocarbon absorbent pads
240L Marine Wheelie Bin Spill Kit, which includes:
1 x 240L Yellow Polyethylene Wheelie Bin
100 x Meltblown Oil-Only Pads (500 x 400mm)
4 x Marine Oil-Only Absorbent Booms (3m x 125mm)
3 x SpillBoss P85 Granular Absorbent (30L Bag)
8 x Biodegradable Waste Disposal Bags
8 x Black Cable Ties
2 x Pairs PVC Gloves
1 x Red Plastic Security Tag
1 x Laminated Instructions |
| Punt 1                    | 1                    | Floating booms
Hydrocarbon absorbent pads
Oil dispersant                                                             |
| Dewatering Site box       | 1                    | SpillMax Oil & Fuel Drum Spill Kit
1 x 60L Transport Drum
1 x SpillMax Natura-Sorb Floor Sweep 5kg
2 x SpillMax Mini Booms (Dia 75mm x 1.2mL)
15 x SpillMax Pads 400gsm (480mm x 430mm)
15 x SpillMax Wipes 200gsm (500mm x 400mm)
1 x Nitrile Gloves
2 x SpillMax Contaminated Waste Disposal Bag & Tie                         |
| Ute                       | 1                    | SpillMax Oil & Fuel Vehicle Spill Kit
1 x Vehicle Spill Kit Bag
2 x SpillMax Mini Booms (Dia 75mm x 1.2mL)
20 x SpillMax Pads 400gsm (480mm x 430mm)
10 x SpillMax Wipes 200gsm (500mm x 400mm)
1 x Nitrile Gloves
2 x SpillMax Contaminated Waste Disposal Bag & Tie                         |
3.5 Roles and Responsibilities

This section lists the personal responsible for the project, their contact details and relevant roles. This has been completed in accordance with the requirements of POEO (G) Regulation, clause 98C (1) (g).

Table 5: Site Contact Details

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
<th>Contact details</th>
<th>Overall responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dave Hopper (DI-Lands)</td>
<td>Project Manager</td>
<td>(02) 65913564 0439 306 980 <a href="mailto:dave.hopper@crownland.nsw.gov.au">dave.hopper@crownland.nsw.gov.au</a></td>
<td>Manager of the entire dredging project.</td>
</tr>
<tr>
<td>Andrew Cochran (Dredging Solutions)</td>
<td>Dredging Manager Dewatering site manager Hydrocyclone operator Site Compliance manager</td>
<td>0424 102 525 <a href="mailto:a.cochran@dredgingsolutions.com.au">a.cochran@dredgingsolutions.com.au</a></td>
<td>Dredge project management Quality, WHS and Environmental Compliance on site</td>
</tr>
<tr>
<td>Darren Marshall (Dredging Solutions)</td>
<td>Site Supervisor Dredge Operator</td>
<td>0457 336 942</td>
<td>Daily operations on Site, Induction and training of personal and dredge operations.</td>
</tr>
<tr>
<td>Jane Brett (Dredging Solutions)</td>
<td>WHS, Quality and Environment Compliance Manager</td>
<td>(02) 9634 1712 0431 947 607 <a href="mailto:j.brett@dredgingsolutions.com.au">j.brett@dredgingsolutions.com.au</a></td>
<td>Preparation of WHS, Quality, and Environmental project documentation. Contract compliance.</td>
</tr>
</tbody>
</table>

3.6 Contact Details

3.6.1 Relevant Authorities

The following section lists the relevant authorities to be contacted in the event of a pollution or safety incident. This has been completed in order is to meet the requirements of POEO (G) Regulation, clause 98C (1) (h). It is a requirement that any pollution incidents be reported immediately to the EPA, NSW Health, Fire and Rescue, WorkCover NSW, and Tweed Shire Council by the site supervisors or another responsible person. The responsible manager will assume all responsibility for responding to and documenting the pollution incident.

Table 6: Relevant Regulatory Authorities Contact Details

<table>
<thead>
<tr>
<th>Authority</th>
<th>Contact</th>
<th>Contact Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Protection Authority (EPA)</td>
<td>To be contacted immediately.</td>
<td>131 555</td>
</tr>
<tr>
<td>Department of Primary Industry (DI-Lands)</td>
<td>Environmental Officer (Dave Hopper) – Key Contact Principal Environmental Officer</td>
<td>(02) 65913564 0439 306 980</td>
</tr>
<tr>
<td>NSW Fire and Rescue, Police, and Ambulance</td>
<td>To be contacted immediately if there is immediate threat to human health or property.</td>
<td>000</td>
</tr>
<tr>
<td>NSW Maritime</td>
<td>Boating Safety Officer (Tweed Heads)</td>
<td>137 788</td>
</tr>
<tr>
<td>NSW Ministry of Health</td>
<td>Ministry of Health</td>
<td>(02) 9391 9000</td>
</tr>
<tr>
<td>WorkCover NSW</td>
<td>Incident Notification Hotline</td>
<td>131 050</td>
</tr>
<tr>
<td>Tweed Shire Council</td>
<td>Assistance with additional resources and notification of the public if required.</td>
<td>(02) 6670 2400</td>
</tr>
</tbody>
</table>
3.6.2 Details of Key Receptors

This section outlines potential key receptors of the Lower Tweed River Dredging Project and pollution incidents.

Table 7: Key Receptors

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Contact</th>
<th>Contact Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department of Primary Industry (DI-Lands)</td>
<td>Environmental Officer (Dave Hopper) – Key Contact</td>
<td>(02) 65913564 0439 306 980</td>
</tr>
<tr>
<td></td>
<td>Assistance with notification of the public through the Public Relations personnel of DI-Lands.</td>
<td></td>
</tr>
<tr>
<td>Ad-hoc users of public land.</td>
<td>Project Manager; Tweed Shire Council – assistance with notification of the park users if necessary</td>
<td>0439 306 980 02 6670 2400</td>
</tr>
<tr>
<td>Aboriginal Land Council</td>
<td>Leweena Williams, CEO</td>
<td>07 5536 9832</td>
</tr>
</tbody>
</table>

3.6.3 Communication with Neighbours and the Local Community

This section outlines the procedure to be followed relating to communication with owners and occupiers of the premises in the vicinity of the pollution incident/project site as per clause 98C (1) (i) of the POEO (G) Regulation.

In the event of a pollution incident occurring at the project site the responsible DI-Lands Project Manager will organise for the owners and occupiers of the premises likely to be impacted by the event to be contacted directly. If the event is likely to impact the broader community, emergency services and Tweed Shire Council standard communication procedures will be utilised to inform the community and the media. Public relations personnel of DI-Lands will be contacted by the responsible DI-Lands Project Manager to initiate the development and implementation of a communications plan for the incident.

3.7 Reducing Risk of Environmental Harm

An environmental risk assessment has been completed for the Lower Tweed River Dredging Project (Appendix 1). This was utilised to identify potential pollution incidents (environmental impacts) and identify appropriate management and mitigation measure to minimise or remove these potential risks.

Under Part 5 of the Environmental Planning and Assessment (EP&A) Act, 1979, DI-Lands is the determining authority for the proposed works, which must examine and take into account to the fullest extent possible all matters which are likely to affect the environment if the activity goes ahead. DI-Lands will be responsible for all operations and associated activities undertaken on site unless delegated by DI-Lands to the dredging contractor. Only authorised personal and contractors (authorised by DI-Lands or dredging contractor) are to be engaged in the site operations.

All personal engaged for the project will undertake a site/work induction prior to commencing any work on site. This induction will cover all safety procedures associated with the site and covered in the WHS Project Management Plan, familiarisation with the PIRMP, management and mitigation measure to minimise pollution incidents and actions to be implemented during and following a pollution incident. All personal will be informed of muster stations, emergency evacuation assembly points and procedures, site signage, designated no go areas and required PPE for site.

In the case of an evacuation the supervisor will notify all personal on site to evacuate to the assembly points. No personal shall leave the assembly points unless instructed to do so by the supervisor or due to safety concerns. All incidents including First Aid treatment is to be documented according to the WHS Project Management Plan.
3.7.1 Actions to Minimise and Pollution Incident

The environmental risk assessment displayed in Appendix 1: list the potential pollution incidents for the Lower Tweed River Dredging Project. For all identified risks a number of management and mitigation measures have been listed. There are some general management and mitigation measures, some are listed in the projects REF, to be implemented to minimise the potential for a pollution incident, these include:

- Development and implementation of a Construction Environmental Management Plan (CEMP);
- Development and implementation of Skill Contingency Plan;
- Regular inspection and maintenance of machinery utilised;
- Regular inspection of the site including the dewatering area for construction or environmental issues;
- Regular environmental monitoring of all discharges to ensure compliance with EPA guidelines and requirements stipulated in the EPL;
- Correct storage and waste management throughout the works; and
- Training and induction of all personal (This also includes personal being encouraged to flag any issues they may observe during operations that may require review and improvements).

DI-Lands and Dredging Solutions will implement all measures to ensure a pollution incident does not occur. However, in a scenario where a pollution incident is inevitable, the DI-Lands Project Manager will contact all relevant authorities and stakeholders immediately to provide as much for warning a possible.

3.7.2 Actions during and Pollution Incident

In the event of a pollution incident DI-Lands Project Manager or the designated responsible person (assigned by DI-Lands) must immediately contact the relevant regulatory authorities listed in Table 6 as per section 148 of the POEO Act.

The person on site who has identified the pollution incident is to immediately contact the Site Supervisor or Project Manager. The Site Supervisor or Project Manager is responsible for contacting or arranging contact with the relevant regulatory authorities listed in Table 6.

The person contacting the authorities and reporting the incident should provide the following information:

- Their name and contact details;
- The location of the pollution incident or emergency;
- The nature of the pollution incident or emergency (i.e. fire, medical emergency, oil spill); and
- Details of any assistance required.

The steps listed below will be followed during or immediately after a pollution incident or emergency

a) Identify the immediate cause of the incident and implement immediate prevention measures (i.e. in the event of a fire during refuelling press the emergency shut-off button if safe to do so);

b) Immediately contact and inform the Site Supervisor or Project Manager;

c) Identify that there are no injured personal as a result of the incident, ensure their immediate safety and apply First Aid as required;

d) Contact relevant regulatory authorities listed in Table 6;

e) If safe and viable to do so, implement immediate suppression measures to prevent further impacts from the pollution incident;

f) Assist and cooperate with all emergency agencies that attend the incident;

g) The Responsible Manager, designated by DI-Lands Project Manager, to assume control of the incident;

h) The Responsible Manager to consult with all relevant authorities and determine if specialist assistance is required;

i) The Responsible Manager is to document the incident and coordinate the incident response plan;
j) The Responsible Manager is to communicate with DI-Lands Public Relation Department to develop an appropriate communications plan.

3.7.3 Actions following a Pollution Incident

In the event of a pollution incident the Responsible Manager will coordinate a detailed incident investigation and produce an associated report which will be sent to the relevant regulatory authorities. The Responsible Manager is to complete an Incident Notification form as per the NSW Trade & Investment Health & Safety reporting requirements (https://healthandsafety.trade.nsw.gov.au/incident.aspx).

The PIRMP is to be reviewed and tested within one month following the pollution incident. All findings from this review and the incident investigation are to be passed onto all site personal and the necessary additional training/induction administered. DI-Lands and the dredge contractor will continue to consult with the relevant authorities with the goal of preventing any further incidents.

3.8 Staff Training

This section details the training that all personal will receive as per the requirements of POEO (G) Regulations, clause 98C (1) (m).

All personal engaged for the project will complete a site specific induction prior to undertaking any work on site. This will be in accordance with the WHS Project Management Plan and it is the responsibility of the Site Supervisor to ensure this is completed and documented. This induction will ensure that all personal are aware of the risks/hazards and the management and mitigation measure being implemented on site. All personal working on site must provide the Site Supervisor with the relevant qualification required which will be recorded and copies held on site. The Site Supervisor is responsible for ensuring all personal are adequately trained and qualified to operate plant machinery.

Daily toolbox meeting will be conducted by the Site Supervisor or designated person, involving all personal on site, to inform of any identified risks or new management and mitigation measures to be implemented.

4. AVAILABILITY OF PIRMP

In accordance with the requirements of the POEO (G) Regulations, clause 98D, copies of the PIRMP will be available at the following locations:

- Office of the Manager of Coastal Infrastructure;
- The site office/work shed;
- The Site Supervisors vehicle;
- The dredge (Ruby K); and
- DI-Lands Website

5. TESTING OF PIRMP

In accordance with the requirements of the POEO (G) Regulations, clause 98E the PIRMP will be tested routinely at least once every 12 months or within one month following a pollution incident on site. The test will be carried out in such a manner as to ensure that all information included in the PIRMP is up-to-date, relevant and accurate, and the plan is capable of being implemented in a workable and effective manner.

This PIRMP will be routinely tested by:

- Conducting and incident response and evacuation drill at the site. This will be based on a possible scenario selected by the Site Supervisor and will be followed by a toolbox meeting on the effectiveness of the drill;
- A drill will be conducted simulating the communication process with the relevant regulatory authorities and stakeholders to be undertaken during an incident response; and
- At least one drill should be undertaken during the first month of operation.

All drills and reviews of the PIRMP will be documented by the Site Supervisor.
APPENDIX 1: ENVIRONMENTAL RISK ASSESSMENT

The following risk assessment was undertaken by Hydrosphere Consulting on behalf of DI-Lands and relates to the task/activities to be undertaken as part of the Lower Tweed River Dredging Project. This initial assessment was undertaken on the 28th of June 2017 referring to the following documentation:

- Project Brief and Technical Specifications;
- Review of Environmental Factors (REF);
- Protection of the Environmental Operations Act 1997;
- Environmental Legislation Amendment Act 2011;
- Protection of the Environment Operations (General) Regulation 2009;
- Environmental Planning and Assessment Act 1979;
- Coastal Protection Act 1979
- Crown Lands Act 1989
- National Parks and Wildlife Act 1975;
- Fisheries Management Act 1994;
  - Dredging and reclamation permit and harm vegetation permit and under Division 3 and 4 of the Act respectively;
- Work Health and Safety Act 2011;
- Work Health and Safety Regulations 2011;
- NSW Government – Environmental Management Systems Guidelines;
- National Standard for Commercial Vessels (NSCV).
## Risk Assessment

<table>
<thead>
<tr>
<th>Ref no.</th>
<th>Task/Activity</th>
<th>Hazard</th>
<th>Risk Descriptions</th>
<th>Initial Risk Rating</th>
<th>Proposed Risk Controls</th>
<th>Type of Risk Control</th>
<th>Residual Risk Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mobilisation and deployment of dredge, vessels, vehicles and plant machinery.</td>
<td>The ramp utilised for launching vessels. The area where plant machinery will be operating - the dewatering/bund area and the beach nourishment areas</td>
<td>Oil or fuel spills during mobilisation and deployment. Change in site conditions since the previous day impacting the operation of the machinery. Injury to personal during mobilisation/deployment.</td>
<td>High</td>
<td>Refuelling of all machinery to occur offsite away from any watercourse at a designated location or at the designated refuelling location following the refuelling procedure (Appendix 2 and 3). Spill skits to be located at all refuelling sites, mobilisation and deployment locations and carried by designated vehicles and vessels, including the dredge. Spill Contingency Plan to be developed and implemented prior to commencement of the project Inspection of operational areas prior to the commencement of works each day.</td>
<td>Levels 2, 3 and 4</td>
<td>Low</td>
</tr>
<tr>
<td>2</td>
<td>Beginning of daily operations</td>
<td>Dredging and plant equipment</td>
<td>Oil or fuel spills. Equipment failure.</td>
<td>Moderate</td>
<td>All Equipment to be inspected daily. Daily pre-start equipment checklists to be completed and all faults identified fixed prior to commencement of works.</td>
<td>Level 3 and 4</td>
<td>Low</td>
</tr>
<tr>
<td>3</td>
<td>Dredge operations</td>
<td>Dredging refuelling equipment</td>
<td>Oil or fuel spill during operations or refuelling.</td>
<td>High</td>
<td>Refuelling to be undertaken in accordance with the refuelling procedures at the designated refuelling locations (Appendix 2 and 3). Spill Contingency Plan to be developed and implemented prior to commencement of the project and a copy kept on the dredge. Spill kits to be carried by the dredge, ancillary vessel and located at the designated refuelling locations. Personal to be familiar with Spill Contingency Plan and</td>
<td>Levels 3, 4 and 5</td>
<td>Low</td>
</tr>
<tr>
<td>Ref no.</td>
<td>Task/Activity</td>
<td>Hazard</td>
<td>Risk Descriptions</td>
<td>Initial Risk Rating</td>
<td>Proposed Risk Controls</td>
<td>Type of Risk Control</td>
<td>Residual Risk Rating</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>trained in spill kit operation.</td>
<td></td>
<td>JSEA to be completed for the refuelling procedure and reviewed by all personal involved.</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Refuelling to only occur at the designated areas by qualified personal (minimum of two personal required).</td>
<td></td>
<td>All refuelling equipment (i.e. hoses, connections and pumps) to be inspected for faults prior to refuelling.</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Drip trays and chemical absorbent mats are to be deployed during refuelling at points of connects to capture any spills or leaks.</td>
<td></td>
<td>Spill emergencies are to be managed according to the Vessels Management Plan and the Spill Contingency Plan. The Master of the vessel to be informed immediately of any spills.</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Emergency shutdown procedures to be discussed and understood by all personal involved.</td>
<td></td>
<td>Vessel refuelling procedures will be discussed and agreed upon between the dredge and the refuelling vessel or truck prior to commencement.</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>Proper safe manual handling produces to be implemented when moving refuelling equipment.</td>
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</tr>
<tr>
<td>Ref no.</td>
<td>Task/Activity</td>
<td>Hazard</td>
<td>Risk Descriptions</td>
<td>Initial Risk Rating</td>
<td>Proposed Risk Controls</td>
<td>Type of Risk Control</td>
<td>Residual Risk Rating</td>
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</tr>
<tr>
<td>4</td>
<td>Dredge operations</td>
<td>Dredging refuelling equipment</td>
<td>Fire during operations or refuelling.</td>
<td>High</td>
<td>Refuelling to only occur at the designated areas by qualified personal where appropriate fire counter measures are located. All refuelling equipment (i.e. hoses, connections and pumps) to be inspected for faults prior to refuelling. Appropriate in-date fire extinguishers to be carried by all vessels and plant machinery involved. Fire emergencies are to be managed according the Vessels or Machinery Management Plan. The Master of the vessel to be informed immediately of any fires. Emergency shutdown procedures to be discussed and understood by all personal involved. First aid kits to be carried by all vessels and plant machinery.</td>
<td>Levels 3, 4 and 5.</td>
<td>Moderate</td>
</tr>
<tr>
<td>Ref no.</td>
<td>Task/Activity</td>
<td>Hazard</td>
<td>Risk Descriptions</td>
<td>Initial Risk Rating</td>
<td>Proposed Risk Controls</td>
<td>Type of Risk Control</td>
<td>Residual Risk Rating</td>
</tr>
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</tr>
<tr>
<td>5</td>
<td>Dredge operations</td>
<td>Dredging equipment</td>
<td>Equipment failure resulting in uncontained and uncontrollable sediment spill into the waterway. Increased total suspended soils or pH of the water column.</td>
<td>Very High</td>
<td>Spill Contingency Plan to be developed and implemented prior to commencement of the project and a copy kept on the dredge. Spill kit and silt booms to be carried at a minimum by the dredge and ancillary vessel. Personal to be familiar with Spill Contingency Plan and trained in spill kit and silt boom operation. Emergency stop procedures to be discussed and understood by all personal involved. Sediment spills to be reported to the Master immediately and all required agencies as listed in the PIRMP. Management and mitigation measures outlined in the REF to be implemented.</td>
<td>Levels 3, 4 and 5.</td>
<td>Moderate</td>
</tr>
<tr>
<td>6</td>
<td>Dredge and plant operations</td>
<td>Dredging and plant equipment</td>
<td>Noise, Vibrations, Smoke, Odour or Fumes – impact on personal and surrounding community</td>
<td>High</td>
<td>Equipment to be serviced regularly and prior to commencing the project. Personal to wear appropriate hearing protection. Operations to be limited to the approved working hours and within the approved project area.</td>
<td>Levels 3, 4 and 5.</td>
<td>Low</td>
</tr>
<tr>
<td>7</td>
<td>Dredge and plant operations</td>
<td>Repair and maintenance of dredging and plant equipment</td>
<td>Oil or fuels spills</td>
<td>High</td>
<td>All equipment to be isolated prior to any repairs or maintenance. Containment equipment (i.e. drip trays and chemical absorbent mats) to be deployed where required.</td>
<td>Levels 3, 4 and 5.</td>
<td>Low</td>
</tr>
<tr>
<td>Ref no.</td>
<td>Task/Activity</td>
<td>Hazard</td>
<td>Risk Descriptions</td>
<td>Initial Risk Rating</td>
<td>Proposed Risk Controls</td>
<td>Type of Risk Control</td>
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</tr>
<tr>
<td>---------</td>
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<td>---------------------</td>
</tr>
<tr>
<td>8</td>
<td>Transfer of sediment to dewatering area or trucks.</td>
<td>Equipment failure (i.e. pipeline break or split)</td>
<td>Uncontained and uncontrollable sediment spill into the waterway. Increased total suspended soils or pH of the water column.</td>
<td>High</td>
<td>As per activity number 5 listed above.</td>
<td>Levels 3, 4 and 5</td>
<td>Moderate</td>
</tr>
<tr>
<td>9</td>
<td>Dewatering operations</td>
<td>Equipment failure (i.e. failure of bund wall) or discharge of bund water that does not meet regulations.</td>
<td>Uncontained and uncontrollable sediment spill into the waterway. Increased total suspended soils or pH of the water column.</td>
<td>Very High</td>
<td>As per activity number 5 listed above. Bund structured to be inspected daily of any potential construction or environmental issues. Dewatering procedures to be developed and implemented. Regular environmental monitoring of discharge point to ensure compliance with EPA guidelines and requirements stipulated in the EPL; Discharge to cease if environmental parameters are not met.</td>
<td>Levels 3, 4 and 5</td>
<td>Moderate</td>
</tr>
<tr>
<td>10</td>
<td>General onsite activities</td>
<td>Disturbed work areas</td>
<td>Erosion of works and anthropogenic waste generation.</td>
<td>High</td>
<td>A Waste Management Plan and a Sediment and Erosion Management Plan to be developed and implemented prior to project commencement. Management and mitigation measures outlined in the REF to be implemented.</td>
<td>Levels 3, 4 and 5</td>
<td>Moderate</td>
</tr>
</tbody>
</table>
## Risk Matrix

### Table 8: Measures of consequences of failure

<table>
<thead>
<tr>
<th>Factor</th>
<th>Catastrophic</th>
<th>Major</th>
<th>Moderate</th>
<th>Minor</th>
<th>Insignificant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental</td>
<td>Catastrophic environmental damage that violates laws and regulations. Impact is permanent.</td>
<td>Serious environmental damage that violates laws and regulations. Impact not completely reversible.</td>
<td>Environmental impact/damage that extends outside the project area. Impacts reversible.</td>
<td>Environmental impact within the project area that is immediately containable and easily remediated.</td>
<td>Minor localised impact within the project area that can be remediated.</td>
</tr>
<tr>
<td>Health &amp; Safety</td>
<td>Loss of life or permanent disability.</td>
<td>Serious injury resulting in hospitalisation and substantial time off work.</td>
<td>Medical treatment required, may or may not require hospitalisation. Time off work or restricted duties.</td>
<td>First aid required.</td>
<td>Not likely to injury of illness.</td>
</tr>
</tbody>
</table>

### Table 9: Likelihood rating table

<table>
<thead>
<tr>
<th>Likelihood</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rare</td>
<td>May occur only in exceptional circumstances</td>
</tr>
<tr>
<td>Unlikely</td>
<td>Could occur at some point</td>
</tr>
<tr>
<td>Possible</td>
<td>Might occur at some point</td>
</tr>
<tr>
<td>Likely</td>
<td>Will probably occur in most circumstances</td>
</tr>
<tr>
<td>Almost certain</td>
<td>Expected to occur in most circumstances</td>
</tr>
</tbody>
</table>
Table 10: Risk priority rating table

<table>
<thead>
<tr>
<th>Likelihood</th>
<th>Consequence</th>
<th>Insignificant</th>
<th>Minor</th>
<th>Moderate</th>
<th>Major</th>
<th>Catastrophic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rare</td>
<td>L</td>
<td>L</td>
<td>M</td>
<td>M</td>
<td>H</td>
<td></td>
</tr>
<tr>
<td>Unlikely</td>
<td>L</td>
<td>L</td>
<td>M</td>
<td>M</td>
<td>H</td>
<td></td>
</tr>
<tr>
<td>Possible</td>
<td>L</td>
<td>M</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td></td>
</tr>
<tr>
<td>Likely</td>
<td>M</td>
<td>M</td>
<td>H</td>
<td>H</td>
<td>VH</td>
<td></td>
</tr>
<tr>
<td>Almost Certain</td>
<td>M</td>
<td>H</td>
<td>H</td>
<td>VH</td>
<td>VH</td>
<td></td>
</tr>
</tbody>
</table>

Table 11: Risk priority definitions

<table>
<thead>
<tr>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>L = Low Risk</td>
<td>All personal are to be inducted into the JSEA requirements. Weekly review of the safety measures for the activity is required.</td>
</tr>
<tr>
<td>M = Moderate Risk</td>
<td>Hazards to be identified and discussed prior to any activity occurring and at every toolbox meeting (to be undertaken every morning). All personal are to be inducted into the JSEA requirements. All safety measures and equipment identified are to be implemented and in place prior to the commencement of any activities.</td>
</tr>
<tr>
<td>H = High Risk</td>
<td>Immediate action required to control the risk. Cease work, take plant machinery out of service or stop activity. Employ management/mitigation measures to reduce the risk before undertaking the activity.</td>
</tr>
<tr>
<td>VH = Very High Risk</td>
<td>Task is not to be undertaken. Appropriate management/mitigation measures to be developed and implemented to lower the risk of the activity before it can be undertaken.</td>
</tr>
</tbody>
</table>
Table 12: Hierarchy of Controls to minimise or eliminate risks

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – Elimination</td>
<td>The risk is removed entirely.</td>
</tr>
<tr>
<td>2 – Substitution</td>
<td>The activity associated with the risk is replaced in order to minimise or remove the risk.</td>
</tr>
<tr>
<td>3 – Engineering Controls</td>
<td>The risk is isolated or minimised via engineering controls.</td>
</tr>
<tr>
<td>4 – Administrative Controls</td>
<td>Exposure to the risk is isolated via administrative measures.</td>
</tr>
<tr>
<td>5 – Personal Protection Equipment (PPE)</td>
<td>PPE are utilised to provide protection from the risk.</td>
</tr>
</tbody>
</table>
APPENDIX 2:  PROJECT AREA AND EQUIPMENT LOCATIONS
Notes:

1. Existing surface elevations are based on hydrographic survey undertaken Nov 2014 by the Office of Environment & Heritage, 2015 and Feb 2016 by GPS & Hydrographic Surveys.
2. Vertical Datum: All elevations relative to Tweed River Hydro Datum (TRHD) which is 0.860m below AHD.
3. Horizontal Datum: MGA-89.
4. Aerial photography from May 2016. Supplied by NSW DI - Lands
5. Dredging targets and indicative volumes below:

<table>
<thead>
<tr>
<th>Area</th>
<th>Description (target elevation)</th>
<th>Indicative Volume [m³]</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Foyters Jetty (-2.0m)</td>
<td>4,542</td>
</tr>
<tr>
<td>B</td>
<td>Terranora Inlet Channel (-3.5m)</td>
<td>58,000</td>
</tr>
<tr>
<td>C</td>
<td>Lower Tweed opp. Ukerabah Is (-2.5m)</td>
<td>5,661</td>
</tr>
<tr>
<td>D</td>
<td>Lower Tweed near Fingal (-2.5m)</td>
<td>7,746</td>
</tr>
<tr>
<td>E</td>
<td>Downstream of Barneys Point (-2.5m)</td>
<td>16,300</td>
</tr>
</tbody>
</table>

Bed Elevation (m):

- Shallower than -1.5
- -1.5 to -2.5
- -2.5 to -3.5
- Deeper than -3.5

Figure 1: Dredge area locations
Figure 2: Dewatering but layout and indicative machinery locations.
APPENDIX 3: REFUELLING PROCEDURES
Procedure: Refuelling the Dredge and Booster

Purpose:
This document describes the procedure for the refuelling of the dredge and booster pump.

Responsibility:
It is the responsibility of all crew to comply with the following procedure when refuelling dredge vessels and booster pumps.

Training requirements:
Work boat drivers and dredge master must hold a current Recreational Boating Licence as a minimum.

Detailed Information:
Fuel is transported to the dredge and booster pump in a fully welded aluminium tank, which is placed inside the work boat. The work boat has sufficient freeboard capacity to contain any spill or fuel tank failure.

Procedure:
When refuelling, these basic steps should be followed as a minimum:

- Bring work boat alongside the dredge vessel or boost pump.
- Ensure that the distance between the workboat and dredge / booster pump is the shortest possible.
- Ensure the workboat is securely tied up, bow and stern, before refuelling
- Ensure that all engines have been turned off and there are no signs of leaks from the fuel tanks.
- Visually inspect the refuelling hose for any damage. If defective use the spare.
- No smoking or naked flame during all refuelling operations
- Have fire extinguishers (suitable for oil fires) available nearby
- Spill kits will be maintained on the dredge at all times and regular checks undertaken to ensure they are stocked with appropriate materials.

Dredge Refuelling
The following specific steps are applicable to refuelling the dredge vessel:

- Only refuel the dredge in calm sea conditions, typically early morning
- The amount of fuel transported to the dredge is not to exceed 90% of the fuel required
  IMPORTANT: The fuel tank in the work boat is not to be filled above 90% capacity (1,300 L)
- Inlet hose is to be secured to the filler pipe with the supplied lanyard before filling valve is opened.
Commence pumping (low pressure rotary hand pump) and check pump seals, hoses and filling point for leaks. If any leaks are detected stop pumping immediately. Repair, replace or rectify issue before continuing.

Watch the dredge fuel sight glass during filling. Stop filling at 90% full.

Back pump to clear fill hose of fuel

Close fuel line filler valve. Replace filler cap

Coil up the hose and secure to pump.

Booster Pump:

The following specific steps are applicable to refuelling the booster pump:

- Connect fuel pump hose to booster filling hose. Secure with safety lanyard
- Remove booster filler cap
- Insert hose into tank and secure with retaining lanyard
- Open the (3) fuel supply valves
- Commence pumping
- Check all hoses, connections, pump seals and fill points for leaks. If any leaks are detected stop pumping immediately. Repair, replace or rectify issues before continuing.
- Visually monitor fuel level. Stop pumping when tank is 90% full.
- Progressively lift fuel hose to drain fuel back to supply tank while back pumping to empty fuel filling line.
- Close (3) service valves
- Remove filler hose from booster tank. Replace filler cap.
- Coil and secure hoses.