

#### 4.7.1 Waste Minimisation and Management Plan

This WMMP identifies the waste generated by the dredging process, the type and volume of waste, nominated reuse of the waste and reuse potential of the waste.

| Material                               | Quantity                           | Method          |                  |          | Destination                                                                                                                                                                                                                          |
|----------------------------------------|------------------------------------|-----------------|------------------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                        | estimated volume                   | recycle on site | recycle off site | disposal |                                                                                                                                                                                                                                      |
| finest                                 | 3000 tonnes per annum              |                 | yes              |          | Stockpiled fines collected and transported to approved properties for land fill after appropriate treatment in accordance with the approved Acid Sulfate Soils Management Plan                                                       |
| water slurry                           | 120,000 litres per annum           | yes             |                  |          | Water slurry collected from the sieving process is pumped into the holding tank and then transferred across to the sedimentation trench on Pig Island where it is filtered via the sedimentation trench, back into the river system. |
| spilt diesel                           | 20 litres approx per annum         |                 | yes              |          | contained in bund where tank is sited and collected by recycle tanker for refinement and reuse by fuel recycler                                                                                                                      |
| used oils                              | 2500 litres                        |                 | yes              |          | collected by recycle tanker for refinement and reuse                                                                                                                                                                                 |
| motor parts                            | 10 m <sup>2</sup> approx per annum |                 | yes              |          | scrap metal                                                                                                                                                                                                                          |
| packaging containers cardboard /timber | varies                             |                 |                  | yes      | to waste transfer station                                                                                                                                                                                                            |
| office paper                           | varies                             |                 | yes              |          | to recycle depots                                                                                                                                                                                                                    |
| Mixed bulky wastes (from won sediment) | varies                             |                 |                  | yes      | to waste transfer station                                                                                                                                                                                                            |
| Shells                                 | varies                             | yes             |                  |          | Mixed into products produced onsite                                                                                                                                                                                                  |

#### 4.7.2 Waste Generated by the Dredging Process

Waste generated by the dredging of the river bed to win the sediment, to produce into coarse river sand, can be divided into two groups, one, large debris including timber particles, shells, mass produced objects (carbonates) and two, fine particles being less than 300 microns suspended in the water residue creating a slurry.

The current operation involves the use of a floating dredge pump to extract sediment material from the bed of the Shoalhaven River which is then pumped across to the southern bank of the river. Once the sediment is at the processing plant, on the southern side of the river, the coarse river sand is processed and separated from the other particles by use of a "cyclone" sieving system which separates the coarse material, from the fine material and captures the sand fractions

The fine material (waste materials) is suspended in the water slurry which is generated when the sand fractions are separated out of the sediment. The fines are collected and stored in a holding tank, along with the water they are suspended in, and then pumped across to Burraga Island.

Once across to Burraga Island the fines and water are pumped into an approved sedimentation trench, which is roughly 850 metres in length, located on the southern side, towards the western end, of the island. The sedimentation trench leads to an overflow sediment dam located at the western end of the island.

The sedimentation trench allows the water to still and the fine sediments to settle out in the trench. Over a period of time the water seeps out of the trench through the existing alluvial material and back into the river. The fines settle on the base of the trench and once every six months the fines are cleaned out of the trench by an excavator and stockpiled along the northern side of the trench parallel to the riverbank and flow. Once the fines have dried out, they are transported off the island. These methods of waste disposal have been adopted and implemented in accordance with the Controlled Activity Approval dated 25 January 2012 issued by the Department of Primary Industries - Office of Water at Nowra (approval number 10 ERM2012/0075). In addition to the currently approved use for the waste fines it is proposed that subject to approval of RA21/1000 a portion be used to create Stock Refuge Mounds on Burraga Island, as shown on the Martens' plan (PS03-K330, rev C).

The Controlled Activity Approval conditions the way the fines are to be cleaned out of the trench and the quantity of fines that can be stockpiled on the northern side of the sedimentation trench. When the first section (eastern 475m) of the trench is cleaned out (approximately every six months) no more than 1000 cubic metres is allowed to be stockpiled for removal. When the second part of the trench, down to the overflow sediment dam, is cleaned out no more than 2000 cubic metres are allowed to be stockpiled on site. The cleaning of the trench will occur in approximately six month intervals, the first section of the trench every six months and then the second section of the trench as well as the sedimentation dam every 3 years.

The height of the stockpile material stored on the site will range between 0.25 metres and 0.5 metres (6 and 36 month intervals).

On the mainland the coarse river sand won from the dredged material, via the "cyclone" system, is stockpiled in dedicated areas for delivery. Any water generated from the sieving of the material via the "cyclone" system, other than the water pumped across to Burraga Island with the fines, is collected in a surface dam located in the north east of the site. The water collected in the dam is pumped into the holding tank, where the fines are collected, and pumped across to the sedimentation trenches on Burraga Island.

The larger objects dredged from the river bed (bottles, shoes, etc) are caught in the coarse sieve, stockpiled and set aside for removal to land based transfer stations. These objects are stored away from the sand stockpiles.

Shell remains are also collected from the dredging process which are collected and used in mixes made on site for land fill and garden material medium. These shells are mixed with coarse material not suitable for construction purposes.

The end use for the fines (by-product waste), generated in the winning of the coarse river sand from the dredged material, once settled and dried, is for land fill purposes. At present the waste by- product is used for land fill purposes at approved sites (currently being used for Livestock Flood Refugee Mounds). The current application (RA21/1000) seeks approval for use of a portion of these fines to create Stock Refuge Mounds on Burraga Island, as shown on the Martens' plan (PS03-K330, rev C).

Before the fines can be used for land fill they need to be treated to ensure that they are neutral to alkaline in content. The fines tend to be acidic and accordingly an Acid Sulphate Soils Management Plan (ASSMP) has been prepared to firstly treat the fines and secondly to guide how they are placed on specific sites. The ASSMP prepared has been approved by Shoalhaven City Council for specific sites within the Shoalhaven Area, generally within the Lower Shoalhaven Flood Plains, and any variation to these sites require subsequent approvals to be obtained.

#### 4.7.3 Machine and Mechanical Generated Waste

Waste generated by the machines, motors and other plant used in the dredging process is collected and stored on site away from the working plant. These materials include oils, replaced mechanical parts, disused plant, etc and are disposed of via recycle centres and outlets. The mechanical parts and disused plant are sold as scrap metal, oils are collected and supplied to recycle centres for re manufacture and re use.