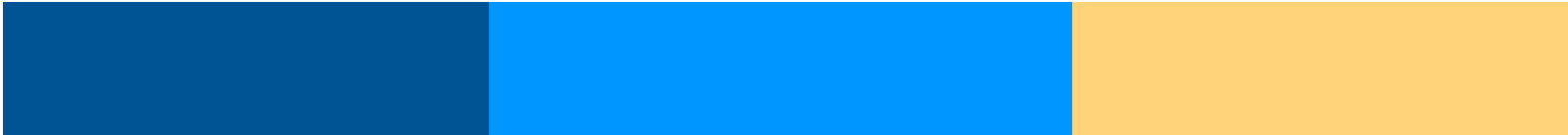


Dredging Material Placement Services



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Dredging in Coastal Environments

The process of dredging in coastal environment generates dredge spoil, which is commonly delivered to two types of destinations (i.e. offshore seabed placement or land based dredge disposal material facilities). The process of dredging and transferring the dredge material to land is generally via a dredge pipeline, but can also be via a backhoe dredge. The process of 'fluidising' the seabed to allow for hydraulic pumping to an onshore facility brings inherent challenges and requires careful consideration.



AMA has vast expertise to help support proponents during the early stages of land based reclamation facility development. We are acutely aware of the engineering and environmental 'pinch points' and fundamental requirements for such undertakings. Examples include due diligence on site selection, with important aspects such as location zoning, permitting, environmental consideration (particularly acid sulfate soils, receiving environment ecological and abiotic conditions, hydrodynamics, etc.). Also of paramount importance is the engineering approach for constructing the bund walls and the overall engineering design based on the hydraulic loads.



During the process of pumping material into the land based facility, due diligence needs to be exercised to define the hydraulic pathways and residence times necessary for achieving efficient retention of suspended solids. Important aspects like dredge pump flow rates, cell design within the facility, flow pathway and ultimately the discharge point where water is released back into the environment need to be defined prior to use. The ultimate aim is to allow for enough time and the flow pathway to 'drop' out the suspended solid load so it is retained in the facility.

Of critical importance is the ability for return discharge water to meet environmental approval conditions, which are commonly turbidity and pH related. The specific conditions will ultimately depend on the nature of the dredge material and its chemical characteristics. From a land based perspective, particularly in South East Queensland, the presence of acid sulfate soils will have a significant influence on the permitting conditions and may require the development of a suitably designed Acid Sulfate Soil Management Plan (ASSMP). Commonly associated with an ASSMP is the need for treatment using lime mixing with specific site and plant requirements.



AMA has demonstrated experience in all of these aspects and understands not only the land based facility requirement, but also the broader marine system and legislated permitting conditions. We can provide clients with oversight and ensure that the land based facility is managed to maximise the potential for compliance, whilst also minimising the potential for environmental harm.



Relevant Projects Undertaken by AMA Directors

Burnett Heads Boat Harbour Capital Works Dredging (2017/18)

AMA Directors led the delivery of 300,000 m³ dredge project and installed a 1.5km pipeline to the Port of Bundaberg Reclamation Area. AMA managed the dredge material flow and all compliance conditions. AMA installed the weir box in the bund wall and lifted some of the bund walls to improve the facilities capacity and efficiency and monitored water quality surrounding this facility.

Maritime and Port Authority of Singapore (2015)

AMA Director, Dr Spooner was engaged in a specialist consultancy role for the Environmental Management and Monitoring Plan (EMMP). The EMMP has been guiding Capital Dredging Works of a large-scale reclamation for expansion of the Tuas Port since 2015, with work expected to be complete in 2023. Dr Spooner was on site in Singapore leading the team during the initial setup phase. The Tuas Port Development Project is an ambitious project aiming to introduce additional berthing facilities to Singapore. A staggering 54million m³ of dredging needs to be undertaken to achieve this objective.

Western Basin Dredging Project (2013/15)

AMA Director, Dr Spooner was the Environmental Lead overseeing the dredging and reclamation for the Gladstone Ports Corporation (GPC) Channel Development Project. This role involved overseeing the environmental conditions for the works, including the reclamation legal point of discharge. The fill process, flow pathways and need for intervention was all part of successfully delivering the works for GPC. Acid sulfate soil management (permitting & site based investigations and treatment) was also a key part of the role.

Apollo Bay Dredging Project (2018)

AMA Director, Dr Cohen supervised all of the technical pre-works for dredging and disposal of dredge material from within the Harbour. AMA also completed the dredging and subtidal disposal of dredge spoil material in a dedicated location within the Harbour.

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