Guideline for preparing a high level sand management plan

Context and background

The Seaway ebb tide delta and the southern Broadwater are significant sand resource stores of strategic importance to the State and Gold Coast communities. Much of the Gold Coast’s ocean beaches and foreshores are community assets fringed by urban development and have been subject to substantial modification, embellishment and maintenance activities designed, in part, to ensure the amenity provided to the community and visitors is maintained. The ocean beaches of the Gold Coast are internationally renowned and a particularly important part of the City’s lifestyle infrastructure and tourism offer.

The ocean beaches are highly dynamic due to high energy from waves and tides. They are all Crown Reserves under the care and management of Council with an extended history of management. Most recently Council has prepared the Ocean Beaches Strategy which outlines the objectives to manage this asset into the future.

Approval was obtained by Council in 2010 for the deposition of dredged sand off Surfers Paradise and Main Beach extending from the A line, to -9 m AHD and up to 1 km offshore allowing ocean going vessels to nourish the beach system. This approval was developed in consultation with the State and allows for natural variation in beach profile due to storm events and an additional volume of sand for climate change and sea level rise estimates. The Northern Beaches Sand Replenishment Project Approval, including the nourishment envelope, is available in the Virtual Data Room.

At the same time, Maritime Safety Queensland obtained a permit allowing the Seaway ebb tide delta to be dredged to -10m AHD for navigation and coastal management purposes. The area of this permit is shown by the “Dredge Area Boundary” in the Seaway Channel Survey 23 January 2013 Plan Number DO3-114 provided in the Virtual Data Room. While it has never been anticipated that the entire delta would be dredged to this level, it provides a sufficient envelope and flexibility for government to respond to navigation safety needs (such as shoaling) and source sand from the delta for ocean beach nourishment.

As identified by the Surfing Assessment (available in the Virtual Virtual Data Room) the Seaway ebb tide delta plays an important role in the wave characteristics at The Other Side surf break and forms an impact and sand resource management consideration when dredging is proposed at the delta.

Another approval exists for deposition of dredged sand by ocean going vessels off-shore at South Stradbroke Island. The Gold Coast Waterways Authority also manages the Seaway Sand Bypass System which pumps sand captured at the southern Seaway training wall northwards onto South Stradbroke Island’s beach to maintain the northerly longshore drift of sand along the coastline.

Broadwater foreshores are less dynamic than the ocean beaches; however, the Broadwater is a complex environment subject to strong tidal currents and waves created by wind, boating and other sources. These dynamic conditions can result in scour holes, erosion and sand deposition along foreshores and within navigation channels.
The Broadwater foreshores, roughly bounded to the north and south by the Coomera and Nerang Rivers, are largely Crown Reserves under the care and management of Council. In addition to their high recreational amenity, foreshores provide protection for adjacent public infrastructure, including revetment walls, roads and other services, and ecological value and interaction.

In the Broadwater, localised foreshore nourishment may be a preferable use of dredged sand due to both beneficial community outcomes and avoided costs from transporting dredged sand long distances. If dredged resources exceed Broadwater foreshore nourishment needs, then ocean beach nourishment or offshore deposition (e.g. to the north of the Seaway) are likely to be the most preferable option.

In situ channel management options, including bed-levelling and side-casting, may also minimise costs and may be appropriate management approaches, subject to the nature and scale of maintenance works required.

Other principles to guide the consideration and identification of foreshore nourishment opportunities within the Project Site include:

- A required fixed protection line or single point of truth from which to nourish. For the Broadwater this will typically be the registered property boundary or other fixed survey line.
- Nourishment areas are erosion prone and inherently sacrificial in nature; nourishment does not create new or permanent land assets.
- Nourishment activities should protect and, where possible, enhance environmental values. Profile designs in some areas could be used to create conditions conducive to supporting certain benthic communities or promote colonisation.
- Nourishment of areas with seagrasses or other vegetation must be undertaken in a sensitive and sustainable manner. Mitigation for the recent Southport Broadwater Parklands project evidences good potential for successful habitat creation.
- Profiles should be sufficient to address the impacts of climate change, storm surge, sea level rise, boating activities, hydrodynamic processes and wave action.

**Preparing a high level sand management plan**

**Executive summary**

Summarise the sand management approach for the Project including the expected quantity and intended use of sand dredged for capital works and annualised maintenance works.

**Introduction**

Describe the nature of the site and extent of the project’s proposed Tidal Works. Describe the approach to Tidal Works and sustainable sand resource management including beneficial reuse of sand and the project’s viability considerations and assumptions (aligning with figures provided in the business case). Clearly identify where knowledge of site conditions has been taken into account in the design of the project and approach to sand management to maximise project viability without the commercial sale of dredged sand resources. This may include clear design decisions to optimise flows and minimise likely maintenance dredging requirements.

**Capital tidal works**

Describe the project’s proposed capital Tidal Works including modification to existing Navigation Channels, creation of new privately managed access channels and internal waterways (such as marinas and canals) connecting the development to the Navigation Channel network.

It is the State’s view that any proposed modifications to the existing Navigation Channel network (as detailed in the Virtual Data Room) by the Project will be Returned Works.
The cruise ship swing basin and navigation channel will be located within a future Port Authority boundary and will form Returned Works with proposed maintenance standards/requirements and funding arrangements for the Port Authority to be clearly identified by the Proponent in their submission (this shall be consistent with the operating model and business case information submitted).

All other connecting channels, canals or marinas within the Project shall be Development Works. To assist Proponent’s estimation work, a Recent Navigation Channel Survey has been provided in the Virtual Data Room.

A clear outline of how capital Tidal Works are proposed to be staged shall be provided including sequencing of waterway or delta dredging and the proposed use of dredged sand which may include property modification or creation through reclamation, and/or beach and foreshore nourishment. Land that is modified or reclaimed within the Project Site may be developed or used for community and recreational purposes consistent with the Project Brief. Under no circumstance shall proposals rely on the sale of dredged sand resources.

Consideration should be given to the scale and nature of dredging works, intended dredging methodology, suitability of dredged material for beneficial reuse (contaminants such as coffee rock may need to be addressed within the site), and potential synergies or opportunities associated with other regional dredging projects such as those of the Gold Coast City Council, the Gold Coast Waterways Authority or the Queensland Government.

**Maintenance tidal works**

Identification of the proposed maintenance dredging approach within the Project Site shall be provided including those areas that are proposed to be Returned Works (e.g Navigation Channels) and those that are proposed to be Development Works (e.g canals, marinas and connections to the Navigation Channel network). As noted above, Proponent’s must indicate their maintenance standards/requirements and the proposed arrangements for funding the returned works component that will reside with the Port Authority. Consideration will be required for how maintenance dredging within Development Works will be managed, particularly for marinas.

Opportunities for ocean beach and foreshore nourishment should be identified in the context of expected maintenance dredging volumes (which should be annualised and identified for maintenance work within the Broadwater and any ocean channels). Under no circumstance shall dredged sand resources be sold for commercial purposes.

Flexibility in the implementation of coastal dredging and nourishment campaigns is needed to address priority sand management issues on the Gold Coast and this will form a key consideration in the context of the Proponent’s suggested maintenance approach to beneficial reuse.