

URGENT REPAIRS TO SEAWALLS AT 1 & 2 DON STREET, BELONGIL

OFFSITE EROSION MANAGEMENT PLAN

Prepared By

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1. BACKGROUND

The existing erosion protection works at, and adjacent to, 1 and 2 Don Street have been damaged by erosion and wave action (Figure 1). These works have been in a state of chronic disrepair for some time. Interim protection works were implemented on either side of this property by BSC in about 2001 under consent orders to protect public lands from erosion. The interim walls are also in a poor state of repair.



Figure 1 Aerial of site (ICM 13/10/16)

The existing erosion protection works consist of concrete blocks and rock rubble along much of the seaward boundary of the subject property. The interim protection works on either side of the property were constructed by BSC using 1.5t sand bags and they were connected into the concrete block and rock protection works as shown in Figures 1 and 2. The property to the NW of the subject property is



the “old jetty” site, public lands owned by the State. Erosion has cut into this property exposing the NW boundary of the subject property to erosion should the interim wall fail. The property to the SE is Don Street, public land owned by BSC. Erosion has also cut into Don Street exposing the SE boundary of the subject property to erosion should the interim wall fail.

Works to repair the existing seawall structures protecting these properties are to be carried out in accordance with recent Supreme Court of NSW consent orders made 12/8/16.

This Management Plan is supplementary to the report “URGENT REPAIRS TO SEAWALLS AT 1 & 2 DON STREET, BELONGIL” prepared by ICM and dated 21/12/16.

2. REPAIR CONSTRUCTION METHOD STATEMENT

The proposed methodology is similar to the methodology used to investigate and repair sub-standard private and public seawalls along the Gold Coast.

Works to repair the existing seawall structures protecting these properties are to be carried out as anticipated by the recent Supreme Court of NSW consent orders made 12/8/16. The proposed method of carrying out the works is as follows:

- Pre-Construction
 - All approvals and notifications.
 - Safety fencing and signage is to be erected as per the drawing 003 to restrict public access to the work area.
 - Construction of a temporary construction track from the sealed section of Don Street along the southern boundary of 1 Don Street over the existing SFGC wall (covered with 1200gsm non-woven geotextile) onto the beach.
- Construction (5 days per week, 7am to 6pm. Estimated repair time 2 weeks)
 - Access onto the fenced area for equipment and materials will be by temporary construction track.
 - The works shall be carried out in 10 – 15m sections starting from the NW end.
 - The toe of the existing wall will be excavated with a 20-30t hydraulic excavator to about -1m AHD and re-profiled to the original stable slope of about 1V:1.5H with the repaired crest at +6m AHD.
 - The works are to have the rocks and rubble well interlocked and are to be tied smoothly into adjacent SFGC walls to the SE and NW.
 - The crest and toe of the works shall be tapered smoothly into the adjacent crest and toe without interference with the existing structures.
 - The wall is to be progressively surveyed and final “as constructed” drawings prepared.
- Post-Construction
 - The beach is to be groomed and left in a clean condition free from rock or rubble.
 - The access track is to be removed and the area impacted by the track revegetated and restored to the original condition.
 - The safety fencing is to be removed.



3. AVOIDANCE OF OFFSITE EROSION AND IMPACTS

The works have been designed to avoid adverse impacts on the beach or adjacent properties in accordance with Section 55M of the Coastal Protection Act that requires that:

- (a) *the works will not over the life of the works:*
 - (i) *unreasonably limit or be likely to unreasonably limit public access to or the use of a beach or headland, or*
 - (ii) *pose or be likely to pose a threat to public safety, and*
- (b) *satisfactory arrangements have been made (by conditions imposed on the consent) for the following for the life of the works:*
 - (i) *the restoration of a beach, or land adjacent to the beach, if any increased erosion of the beach or adjacent land is caused by the presence of the works,*
 - (ii) *the maintenance of the works.*

With reference to the above conditions:

Re (a)

- The estimated effective life of the walls is 30 years

Re (a) (i)

- The works will not over the life of the works unreasonably limit or be likely to unreasonably limit public access to or the use of a beach or headland as:
 - After the repair works, the beach will be groomed with a rubber-tyred front end shovel loader to restore a natural profile and remove any tyre marks from construction equipment.
 - The proposed works are to make safe the existing works by restacking of the wall to restore a stable slope without loose rocks that could be dislodged during erosion events.
 - The proposed works will make public access safer by moving dislodged rock from the base of the existing wall and replacing these on the repaired slope.
 - The completed repair works will improve public access along the beach.

Re(a) (ii);

- the works will not over the life of the works pose or be likely to pose a threat to public safety as:
 - The proposed repair works will improve public safety by restacking loose rock. Thus, the repair works will not “pose a threat to public safety”.

Re (b) (i);

- The repair works will not cause any increased erosion of the beach or adjacent land as:
 - The footprint of the repaired wall will be smaller and will not extend as far seaward.



- The repaired wall face will be less reflective during erosion events.
- The proposed repair works will also reduce the risk of erosion and a breakthrough of the Belongil Spit at this site that would result in damage to adjacent lands, the Old Jetty Site and Don Street, as well as Childe Street with the associated public infrastructure to westward of the subject property.
- As a result, any impacts on the beach and adjacent land will be the same, or less, than at present.

Re (b) (ii);

- the maintenance of the works;
 - The proposed repair works can and should be maintained by the landowners after each erosion event that impacts and causes damage to the wall.
 - The wall should be inspected after each erosion event that exposes the seaward face of the wall to wave action. This inspection should compare the condition of the wall to the “as repaired” condition after the proposed repairs. Specifically, the inspection should:
 - Identify any loose, broken or displaced rocks.
 - Any loose rocks should be repositioned to be in a well interlocked and stable orientation.
 - Any broken rocks shall be replaced by a sound unbroken rock of similar size as the broken rock and placed in a well interlocked and stable orientation.
 - Any displaced rocks should be removed and replaced in a similar position to the original position in a well interlocked and stable orientation.
 - Check the crest level and seaward slope angle. Any subsidence or slope adjustment should be repaired to the original “as repaired” condition.
 - Once repaired the walls will be able to resist damage from minor erosion events and wave impacts. Based on my observations of the behavior of the walls and records of erosion cycles over the past 25 years, the repaired walls should be able to cope with about a 1 in 10 year ARI storm without needing any significant maintenance.
 - Routine maintenance after the initial repairs will generally only involve replacement of any displaced rocks and this should will be able to be carried out from the top of the wall by a small excavator with access through the subject property. The estimated cost of routine maintenance for each property is about \$5,000 every 10 years, or \$15,000 over 30 years.
 - The routine maintenance will have no adverse impact on public beach access or safety.

4. SUMMARY

Urgent works are required to repair the existing works. The repairs will have positive benefits to the protection of the property, mitigate the need for emergency works and improve public safe use of the



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beach. There will be no adverse erosion impacts on the beach or adjacent compared to the present situation.