

AMENDED ITEM



Item No: 5.2
Title: Notice of Motion - Playing Sandcastles at The Entrance Channel
Department: Councillor

9 June 2020 Ordinary Council Meeting

Reference: F2020/00039 - D13998446
Author: Bruce McLachlan, Councillor
Jilly Pilon, Councillor

Councillors McLachlan and Pilon have given notice that at the Ordinary Council Meeting to be held on 9 June 2020 they will move the following motion:

- 1 That Council notes the successful trial of the installation of a temporary sand berm training wall at The Entrance Channel.**
- 2 That Council acknowledges that prior to the recent storm damage the design success of increased scouring and assisted protection of infrastructure of the southern wall.**
- 3 That Council through the Chief Executive Officer now investigate a more permanent solution, including investigation of low cost removal geo tech sand bag training walls, as a possible option.**
- 4 That Council request the Chief Executive Officer provide a report on staff investigation s and findings and those investigations be also shared with the NSW appointed Expert Panel for Tuggerah Lakes.**

Councillors Note

Council staff are working under resolutions and approvals and cannot install any permanent structure to protect council assets without support of Council resolution or NSW State approvals.

Initial investigations via experienced coastal engineer reveal there may be a low cost solution with sand filled geo tech bags. These can be easily installed or removed, if necessary and are only fraction of cost of rock training walls.

Council needs to be proactive in seeking a solution to The Entrance Channel and Tuggerah Lakes, and to be a driving force in lobbying the NSW State Government for action and adequate funding.



Attachments

- | | | |
|---|---|-----------|
| 1 | CV - Angus Jackson - ICM | D14000313 |
| 2 | CEO Response - Notice of Motion - Playing Sandcastles at The Entrance Channel | D14011309 |

C.V. – ANGUS JACKSON

CHARTERED PROFESSIONAL ENGINEER

45 years experience as a qualified **Civil Engineer** (BE Uni of Qld)

38 years specialising in **Coastal and Marine Engineering**.

30 years as a **Registered Professional Engineer**

PRESENT POSITION:

Executive Engineer,

- International Coastal Management, Australia & UAE

Adjunct Research Fellow

- Griffith University, Gold Coast

PREVIOUS POSITIONS:

Principal Engineer; Ecocoast Environmental Consulting, Dubai

Principal Engineer; International Coastal Management, Australia

Director; Beaches, & Waterways; Gold Coast City Council,
Australia

Manager; Coastal & Marine Works; Gold Coast City Council, Australia

Special Projects Engineer; Gold Coast City Council, Australia

QUALIFICATIONS / CERTIFICATES:

B.E: Bachelor Engineering Degree (Civil); Uni. Of Qld, 1975

CPENG: Chartered Professional Engineer [R/N 78111]

FIE, Aust: Fellow Institution of Engineers, Australia [M/N 65795]

Member Society of Engineers - UAE [License 31230]

RPEQ: Registered Professional Engineer, Qld. [R/N 2876]

NPER 3: National Professional Engineers Register - Level 3

Misc; Total Quality Management Accreditation / Train the Trainer Accreditation / Diver –
Commercial, Scientific & Recreational / Small Vessel Coxwains Certification



CV–Angus JACKSON**KEY AREAS OF TECHNICAL EXPERIENCE AND EXPERTISE**

Over 120 technical papers have been published with over 800 citations.

https://www.researchgate.net/profile/Leslie_Jackson2/publications

<https://scholar.google.com.au/citations?user=iqsRDGMAAAAJ&hl=en>

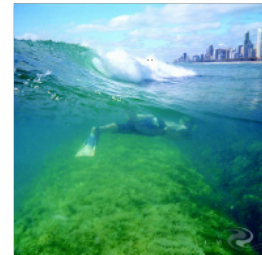
- Integrated coastal management feasibility studies, master planning, EIS and strategies
- Coastal processes, investigations and modelling [physical and numerical]
- Coastal works design and construction:
 - Coastal protection structures
 - Seawalls
 - Groynes
 - Training walls, bypassing and fluidisation
 - Reef breakwaters
 - Low crested structures
 - Toe structures for perched beaches
 - Dredging, sand bypass and fluidization systems
 - Public Facilities
 - Boardwalks
 - Beach accesses
 - Boat ramps
 - Safety
 - Multi-function reefs – fish / dive / coastal protection
 - Beach and nearshore nourishment
 - Dune stabilisation
- Marine design and construction:
 - Quay walls
 - Harbours
 - Reclamation
 - Piling
- Hydrographic survey methods and Interpretation
- Submarine pipelines design and construction
- Marina, moorings and berths - design and construction
- Waterway and canal maintenance
- Sand filled Geo-container research, design and construction
- Sea level rise impacts
- Estuary and catchment management
- Ocean effluent disposal
- Counter disaster mitigation and planning
- Expert witness



CV–Angus JACKSON**RECENT MAJOR PROJECTS:**

A range of projects and research has been carried out in Australia and overseas. These include:

- Coastal Management Master Planning / Impact Assessment Studies / Detailed design
 - Gold Coast 3 Point Plan for Coastal Protection
 - Seawalls
 - Narrowneck Reef performance review and maintenance plan
 - Dredging
 - Backpassing
 - Future vision
 - Gold Coast Offshore Deepwater Dive Attraction:
 - Site studies and recommendations
 - Propose Built Dive Structure Concept Design
 - R&D into dive site attributes
 - Qatar, Beach protection works and harbour facilities.
 - Um al Quwain Fishing Harbour design and supervision
 - Sheraton Sharjah, UAE, safe swimming area
 - Master planning of 2 island resorts in Maldives
 - World Islands of “Australia” and “Siberia” in Arabian Gulf off Dubai
 - Uber luxury island of Nurai off Abu Dhabi – moorings, walls, groynes, reefs, toes & nourishment
 - Island development off Jumeirah, Dubai
 - Al Yasat Ali Island beach improvements, Qatar
 - Northern Gold Coast Beach Protection Strategy
 - Beach nourishment
 - From estuary [1.1Mm³]
 - From building sites [~80,000m³ / yr]
 - Reef breakwater at Narrowneck – sand filled geotextile containers
 - Sand backpassing from Nerang bypass system
 - Public access and boardwalks
 - Dune restoration and stabilisation
 - Seawalls
 - Palm Beach- Beach Protection Strategy
 - Beach nourishment
 - From offshore [370,000m³]
 - From estuary [~40,000m³ / yr]
 - Reef breakwaters (3) – sand filled geotextile containers
 - Groynes (4) – rock existing
 - Public access and boardwalks
 - Dune restoration and stabilisation
 - Seawalls
 - Management of Currumbin Creek entrance and estuary
 - Noosa Beach Restoration Strategy
 - Beach nourishment from offshore and estuary
 - Structures - Reef breakwater, existing groynes & seawalls
 - Elliot Heads Erosion Protection Strategy
 - Seawall – sand filled geotextile containers
 - Groyne – sand filled geotextile containers
 - Byron Bay CMP [preliminary]
 - Sand nourishment
 - Seawalls
 - Groyne
 - Reef breakwaters [2]
- Rock Wall Design
 - Gold Coast seawall design review and certification
 - Breakwater for fishing harbour at Um al Quwain, UAE.
 - Breakwater for beach protection at Sharjah, UAE
- Dredging / Sand Bypassing [design and project management]



CV–Angus JACKSON

- Nearshore nourishment trials and implementation
- Dredging of sand from Tweed R entrance for sand bypassing, navigation and beach nourishment of Southern Gold Coast beaches [ongoing, 1990 – present; ~5Mm³]
- Maintenance dredging of sand from Port Hacking and nearshore nourishment of Cronulla Beach [-90,000m³]
- Terranora Inlet navigation dredging
- Mooloolaba Entrance bypass dredging
- Evans R entrance bypass dredging
- Clarence R navigation dredging
- Coffs Harbour navigation dredging
- Canal management/dredging strategies; Gold Coast
- Feasibility study, costing and tender for bypassing at Capbreton, France
- Sand bypass tender by dredging for Tweed R entrance
- Feasibility study and trial for fluidisation of Currumbin Creek entrance
- River diversion for Gold Coast Entertainment Centre
 - Dredging of new channels and closure of old channels
 - Boardwalks
 - Revetment walls
 - Public boat ramp
- Noosa R and Spit – design and approvals for protection works
- Erosion protection strategy for Oyster Cove Resort, Qld
- Reclamation trial at Port of Brisbane using mega sand filled containers filled with silts.
- Reclamation feasibility study for Port of Gisborne using mega sand filled containers
- Reef design for beach improvement and protection, Carlsbad, California
- City du Surf Project Advisor, Biarritz, France
- Multi-functional reefs using geo-containers.
- Southport Yacht Club
 - Marina redevelopment options, design & construction supervision.
 - Superyacht Berths
 - Swing Moorings
 - Sheet pile wall repairs
- Feasibility study for coastal protection along French Riviera using submerged geo-container reef breakwaters
- Condition survey of retaining walls and safety ladders along boardwalk, Lake Burley Griffin
- Condition survey of Appel Park wharf for Gold Coast City Council
- Design of recreational boating facilities for Qld Depart. of Transport & Brisbane City Council
- Design of seawall and submarine seawater intake pipeline; Hualien, Taiwan
- Design & construction of sea defenses and beach improvements using mega geo-containers for an island resort. Abu Dhabi, UAE
- R&D [AusIndustry]
 - Sand filled geotextile structures for coastal protection and amenity
 - Seawalls and groynes
 - Stability
 - Construction methods
 - Durability
 - Reef breakwaters
 - Design formulae for salient size prediction, storm cut & stability
 - Marine ecology
 - Recreational amenity – surfing, diving & fishing
 - Construction methods
 - Durability
 - Artificial dive reefs and structures



Title: CEO Response - Notice of Motion - Playing Sandcastles at The Entrance Channel

Department: Environment and Planning

9 June 2020 Ordinary Council Meeting

Reference: F2020/00039 - D14011309

Author: Ben Fullagar, Section Manager, Coastal Protection

Manager: Luke Sulkowski, Unit Manager, Environmental Management

Executive: Scott Cox, Director Environment and Planning



Summary

This report provides a response to Item 5.2 - Notice of Motion – Playing Sandcastles at The Entrance Channel.

Motion:

- 1 That Council notes the successful trial of the installation of a temporary sand berm training wall at The Entrance Channel.**
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- 3 That Council through the Chief Executive Officer now investigate a more permanent solution, including investigation of low cost removal geo tech sand bag training walls, as a possible option.**
- 4 That Council request the Chief Executive Officer provide a report on staff investigations and findings and those investigations be also shared with the NSW appointed Expert Panel for Tuggerah Lakes.**

Staff Comments:

Under the NSW Government's Coastal Reforms Package, Council is required to develop Coastal Management Programs (CMPs) by the end of 2021 to replace existing Coastal Zone Management Plans and Estuary Management Plans. Prior to finalisation of the CMP, scoping studies need to be undertaken. A scoping study is currently being developed by Royal Haskoning DHV (RHDHV) for the Open Coast and Coastal Lagoon areas of the Central Coast with a budget of \$70,000 (50% or up to \$35,000 grant funding contribution coming from the NSW Government Coast and Estuary grant program). Staff are also currently undertaking the scoping study for Tuggerah Lakes Estuary using in-house resources. The NSW Government's Expert Panel for Tuggerah Lakes has recently commenced investigating water quality issues, with their recommendations expected at the end of the year.

A separate engagement with Manly Hydraulics Laboratory (MHL), at a budgeted project cost of \$150,000 will also be investigating catchment and oceanic flood behaviour and potential interim sand berm management options and opening procedures at The Entrance.

As part of the development of the CMP a range of issues and options, including potential permanent works, will be considered for management of The Entrance channel. Staff are familiar with geotextile sand containers and have used them successfully in a seawall at Ettalong Point, where the majority of the wall is now buried with sand. Geotextile sand containers are not necessarily a low-cost option or a temporary option (staff note information accompanying the Notice of Motion suggested approximate cost for design and construction of a geotextile sand container structure was estimated at \$325,000 however the scope of these works is not clear). In many cases these structures can cost just as much as rock walls and have been known to last up to 17 years. It is recommended that detailed investigations or designs of sand bag walls or similar at The Entrance be deferred until the recommendations of the expert panel are provided and the action plan for the new Coastal Management Program has been completed.

Under the existing Tuggerah Lakes Estuary Management Plan and the Wyong Beaches Coastal Zone Management Plan the adopted actions for The Entrance are to continue with the current practice of periodic dredging of the shoals and sand nourishment of beaches as required. The combination of coastal and estuarine processes at The Entrance channel are complex and need to be appropriately considered with the community using the Coastal Management Program framework. Under the Coastal Management Act the use of sandbags at The Entrance for longer than 90 days would require development consent (from the Regional Planning Panel) with an application requiring sufficient supporting environmental assessment.

If Council were to resolve for staff to consider this option further, with a view to progressing to detailed design and approvals, then this work could be undertaken through engagement of a suitably qualified coastal engineering consultancy at an estimated cost of \$50,000.

Alternative Option

If Council wish to pursue detailed investigations and approval immediately, then a budget of \$50,000 would be required. This option is not recommended.

Staff Recommendation:

It is recommended that detailed investigations or designs of sand bag walls or similar at The Entrance be deferred until the recommendations of the expert panel are provided and the action plan for the new Coastal Management Program has been completed.

Attachments

Nil.