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3 May 2017

To Mr Marc Daley
Secretary
New South Wales Coastal Panel
59/61 Goulburn Street
SYDNEY NSW 2000

Dear Mr Daley

Application CP17-003 - 6B Childe Street, Byron Bay

We write in response to your letter of 21 April 2017.

In your letter you say "we again note that information in respect of a number of matters still remain outstanding". In our previous letter to you of 13 April 2017 we pointed out to you that all of the outstanding information had been provided to you. We have spoken to you by telephone.

1 Impact on Coastal Processes and Hazards

You say that the panel "requires an assessment on the impact that the proposed works will have on and from the coastal process and hazards". You suggest that "this information still remains outstanding".

We refer you to our last letter of 13 April, 2017 in which we said as follows:

> "*Details of the impacts of the coastal protection works on coastal processes and hazards as requested in item 5(b), (c) and (d) – we have already provided a description of the potential effect of coastal hazards and processes on the coastal protection works as requested in item 5(b), (c) and (d) in the letter of 14 March, 2017 and the application itself (see section 3 of the Offsite Erosion Management Plan prepared by ICM). It is incorrect to suggest that information remains outstanding in relation to this item. To this end, we provided information that was consistent with information contained in the WRL report – that report being an independent report commissioned by Byron Shire Council. Can you tell us why you feel that the question has not been answered?*
>
> *Note:*
>
> *In relation to questions 4 and 5, we note that the development subject of the application is repair to the existing rock wall. Section 79C of the Environmental Planning and Assessment Act directs attention to the activity "which is the subject of the development application". That activity is the repair of a rock wall which has been ordered by the Supreme Court to stay in place and which is in urgent need of repair. Section 55M specifically directs attention to whether there is any increased impact of the proposed development for which consent is sought under the Environmental Planning*

and Assessment Act 1977. There is no such impact caused by the repairs which are the subject of the Application."

We subsequently spoke to Mr Marc Daley by telephone after receipt of your letter. We understood from that conversation that the Panel has noted the intention to import rocks to the site for the purpose of the repair. The Panel is apparently concerned that the effect of those rocks being used in the repair has not been assessed at all in any of the material previously presented to the Panel in connection with this Application.

This is not correct. It has always been an element of the repairs that some rock would have to be imported in order to repair the wall.

This is set out clearly in the original application and the documents that accompanied it. It is also set out in our correspondence with the Panel. For ease of reference, we set out and refer to the following:

(1) Section 3 of the original off-site erosion management plan prepared by ICM which accompanied the application. All the information provided in the application and the material that accompanied it was prepared on the basis that the repairs involved re-assembling rocks which have fallen down and adding rock.

(2) Under cover of our letter of 14 March 2017 we enclosed further responses to questions from the Panel prepared by Angus Jackson of ICM dated 14 March 2017. We note the following:

- the document of Mr Jackson contained a cross section of the present wall and a cross section of the typical repair profile;
- that profile of the typical repaired wall was designed on the assumption that rock would be regathered from the beach and supplemented by additional rock as required;
- the fact that supplementation by additional rock was required was also clearly in that that document from ICM.

All the answers provided in that document by ICM addressed the proposed works involving repair by reassembling rocks and by adding rocks.

(3) Our letter of 13th April, 2017.

Accordingly, we want to assure the Panel that all of the material with which they have been provided has addressed the questions on the basis that there would be imported rock as well as rock gathered from the beach used in the repair. The Applicant has never deviated from dealing with all questions on that basis.

By way of further information we enclose a short supplementary report from International Coastal Management.

2 Impact of Coastal Hazards and Processes

In our last letter of 13 April, 2017 we wrote to you as follows:

> ***"Potential effect of coastal hazards and processes on the coastal protection works as requested in item 5(a)*** *– we have already provided an assessment of the potential effect of coastal hazards and processes on the coastal protection works as requested in item 5(a). See our response provided with the letter of 14 March 2017 and the application itself (see section 3 of the Offsite Erosion Management Plan prepared by ICM). Can you indicate why the Panel has not referred to this material? It is incorrect to suggest that information remains outstanding in relation to this item.*

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We provided information that was consistent with information contained in the WRL. Can you tell us why you feel the question has not been answered?"

In your letter you have noted our response "referencing the 2013 WLR Report" but point out that "the ICM proposed design is a different structure to those works exhibited in the WLR Report". The attached report from ICM also addresses this issue.

If there is any further information required by the Panel, please let us know.

Yours sincerely

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Encl

International
Coastal
Management

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Responses to NSW Coastal Panel letter of 21/4/17
Ref: DOC 17/237543

Re: Stewartville DA CP17-003 for Seawall Repairs at 6B Childe St, Belongil

TECHNICAL RESPONSES

CP; "the Coastal Panel notes the ICM proposed design is a different structure to those works exhibited in the WRL report."

ICM acknowledge that there are some differences between the Manfred St seawall and the seawall to be repaired at 6B Childe Street. Any significant differences have been taken into consideration in our views and responses to queries.

ICM engineers have extensive expertise and experience with the design, construction, condition survey and repair of seawalls. In particular:

- With respect to the nearby Manfred Street structure constructed by BSC, ICM has
  - monitored and assessed the performance of the interim sand bag wall constructed by BSC in about 2001
  - reviewed the 2013 WRL design report for a rock seawall to replace the sandbag wall,
  - reviewed the 2014 LGES construction drawings,
  - prepared tie-in design details for the adjacent walls,
  - supervised and certified the construction in 2015, and
  - monitored the performance in the June 2016 erosion event.
- With reference to the seawall at 6B Childe St, ICM has:
  - provided the detailed construction design drawings in 1999
  - supervised the construction in 1999
  - monitored the performance of the wall in storm events in the 18 years since construction
  - assessed the structural condition in 2016
  - prepared repair drawings in 2016/17

The existing structure at 6B Child Street is part of the continuous seawall wall designed and constructed in about 1999 to protect the private properties to NW of Manfred Street from intermittent storm erosion events. The 2015 BSC rock sea wall constructed to protect Manfred

Street and the adjacent private wall to the NW connects into the 1999 sea wall. There is now a continuous rock seawall from the northern flank of the northern most private property on Belongil spit to the rock protection at the Old Jetty Site (State lands). With the natural sandstone outcrops at the southern end of the Old Jetty site and southward from Border Street with the BSC sandbag walls at Border Street and don Street, there is now effectively a continuous protection structure (natural and artificial) between the SLSC to the south of Jonson Street and the northern most private property on Belongil Spit.

The wall alignment along Belong Spit is landward of normal high water and acts as a terminal seawall that not only protects public and private beachfront properties and infrastructure during major erosion events but also provides environmental benefits as it mitigates the risk of a breakthrough of Belongil Spit that, if allowed to occur, would have large adverse impacts on Belongil Creek and the Belongil wetlands.

The Belongil walls have generally been constructed with primary armour rocks with a standard grading of 1.5-5t. The existing wall at 6B was designed using a combination of well proven and robust empirical and theoretical design methods at the time and the design has stood the test of time. The wall is now in need of routine repair after 18 years of service. The rock sizes and gradings used in the original 1999 design were:

- Primary armour: 1.5 - 5t with M_{50} = 3.25t
- Secondary armour: 100-500kg with M_{50} = 300kg

The existing structure has proven to be adequate over the life to date of about 18 years. The works are repair using existing rocks and similar rock sizes to make up the minor deficit. As a check, during the repair design, ICM recalculated the theoretical design rock sizes on the wall using Van der Meer formulae as per CIRCA (2007) with the up to date design data from WRL 2013 modified slightly for this site and a design life of about 30 years with maintenance as required; estimated at 10 yearly intervals). The future conditions will depend on the coastal management plan and mitigation of impacts caused by the Jonson Street structures. Repair, using similar size rock to existing, is a practical approach for an existing structure that has proven to be adequate in service. The adopted design conditions based on the extensive theoretical calculations by WRL (2013) at the structure for the design check were:

Adopted Design Conditions at Structure			
Design Event		50	year ARI
Design interval between maintenance		10	year
Wave height at structure	H_S	2.50	m
	$H_{2\%}$	3.50	m
Critical wave period	T_{cr}	*13.0*	*sec*

The design check indicates the following theoretical rock sizes:

Adopted Boulder Weight & Grade (t)			
		Primary	Secondary
M_{15}		1.62	0.16
Adopted M_{50}		**3.00**	**0.30**
M_{85}		4.37	0.44

This compares well with the typical rock sizes in the existing structure and other structures along Belongil. Seawall design is not exact and there are uncertainties in the various inputs and, as a design check, it has been previously noted that these armour sizes are similar to the Manfred St wall rock design sizes (WRL 2013).

CP; "The Coastal Panel also notes the proposed works represents a substantial increase over and above what is currently in-situ, as evidenced by the intent to import rock to site to give effect to the proposed design.

The proposed repair works ARE NOT A SUBSTANTIAL INCREASE. The repairs restore the wall back to its original profile ($45m^3/m$) and the top up volume of about $2.5m^3/m$ is only about 6%.

CP; "The Panel requires an assessment on the impact that the proposed works will have on and from the physical coastal processes and hazards. It is noted that this information still remains outstanding."

We have provided assessment that there will be NO incremental impacts of the repair works. This also was the finding of WRL in 2013 in their assessment of the downdrift impacts of the Manfred St wall and we have referenced WRL 2013.

International
Coastal
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ACN: 010 927 796

Signed

Leslie Angus Jackson

CPEng (National Engineers Register, Institution of Engineers Australia), RPEQ 2876

Date: 1/5/17

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