

NOTICE OF MEETING



BYRON SHIRE FLOODPLAIN RISK MANAGEMENT COMMITTEE MEETING

A Byron Shire Floodplain Risk Management Committee Meeting of Byron Shire Council
will be held as follows:

Venue	Conference Room, Station Street, Mullumbimby
Date	Thursday, 29 November 2018
Time	11:30am

Phil Holloway
Director Infrastructure Services

I2018/2212
Distributed 22/11/18

CONFLICT OF INTERESTS

What is a “Conflict of Interests” - A conflict of interests can be of two types:

Pecuniary - an interest that a person has in a matter because of a reasonable likelihood or expectation of appreciable financial gain or loss to the person or another person with whom the person is associated.

Non-pecuniary – a private or personal interest that a Council official has that does not amount to a pecuniary interest as defined in the Local Government Act (eg. A friendship, membership of an association, society or trade union or involvement or interest in an activity and may include an interest of a financial nature).

Remoteness – a person does not have a pecuniary interest in a matter if the interest is so remote or insignificant that it could not reasonably be regarded as likely to influence any decision the person might make in relation to a matter or if the interest is of a kind specified in Section 448 of the Local Government Act.

Who has a Pecuniary Interest? - a person has a pecuniary interest in a matter if the pecuniary interest is the interest of the person, or another person with whom the person is associated (see below).

Relatives, Partners - a person is taken to have a pecuniary interest in a matter if:

- The person’s spouse or de facto partner or a relative of the person has a pecuniary interest in the matter, or
- The person, or a nominee, partners or employer of the person, is a member of a company or other body that has a pecuniary interest in the matter.

N.B. “Relative”, in relation to a person means any of the following:

(a) the parent, grandparent, brother, sister, uncle, aunt, nephew, niece, lineal descends or adopted child of the person or of the person’s spouse;

(b) the spouse or de facto partners of the person or of a person referred to in paragraph (a)

No Interest in the Matter - however, a person is not taken to have a pecuniary interest in a matter:

- If the person is unaware of the relevant pecuniary interest of the spouse, de facto partner, relative or company or other body, or
- Just because the person is a member of, or is employed by, the Council.
- Just because the person is a member of, or a delegate of the Council to, a company or other body that has a pecuniary interest in the matter provided that the person has no beneficial interest in any shares of the company or body.

Disclosure and participation in meetings

- A Councillor or a member of a Council Committee who has a pecuniary interest in any matter with which the Council is concerned and who is present at a meeting of the Council or Committee at which the matter is being considered must disclose the nature of the interest to the meeting as soon as practicable.
- The Councillor or member must not be present at, or in sight of, the meeting of the Council or Committee:
 - (a) at any time during which the matter is being considered or discussed by the Council or Committee, or
 - (b) at any time during which the Council or Committee is voting on any question in relation to the matter.

No Knowledge - a person does not breach this Clause if the person did not know and could not reasonably be expected to have known that the matter under consideration at the meeting was a matter in which he or she had a pecuniary interest.

Participation in Meetings Despite Pecuniary Interest (S 452 Act)

A Councillor is not prevented from taking part in the consideration or discussion of, or from voting on, any of the matters/questions detailed in Section 452 of the Local Government Act.

Non-pecuniary Interests - Must be disclosed in meetings.

There are a broad range of options available for managing conflicts & the option chosen will depend on an assessment of the circumstances of the matter, the nature of the interest and the significance of the issue being dealt with. Non-pecuniary conflicts of interests must be dealt with in at least one of the following ways:

- It may be appropriate that no action be taken where the potential for conflict is minimal. However, Councillors should consider providing an explanation of why they consider a conflict does not exist.
- Limit involvement if practical (eg. Participate in discussion but not in decision making or vice-versa). Care needs to be taken when exercising this option.
- Remove the source of the conflict (eg. Relinquishing or divesting the personal interest that creates the conflict)
- Have no involvement by absenting yourself from and not taking part in any debate or voting on the issue as if the provisions in S451 of the Local Government Act apply (particularly if you have a significant non-pecuniary interest)

RECORDING OF VOTING ON PLANNING MATTERS

Clause 375A of the Local Government Act 1993 – Recording of voting on planning matters

- (1) In this section, **planning decision** means a decision made in the exercise of a function of a council under the Environmental Planning and Assessment Act 1979:
 - (a) including a decision relating to a development application, an environmental planning instrument, a development control plan or a development contribution plan under that Act, but
 - (b) not including the making of an order under Division 2A of Part 6 of that Act.
- (2) The general manager is required to keep a register containing, for each planning decision made at a meeting of the council or a council committee, the names of the councillors who supported the decision and the names of any councillors who opposed (or are taken to have opposed) the decision.
- (3) For the purpose of maintaining the register, a division is required to be called whenever a motion for a planning decision is put at a meeting of the council or a council committee.
- (4) Each decision recorded in the register is to be described in the register or identified in a manner that enables the description to be obtained from another publicly available document, and is to include the information required by the regulations.
- (5) This section extends to a meeting that is closed to the public.

BYRON SHIRE COUNCIL
BYRON SHIRE FLOODPLAIN RISK MANAGEMENT COMMITTEE MEETING

BUSINESS OF MEETING

1. APOLOGIES

2. DECLARATIONS OF INTEREST – PECUNIARY AND NON-PECUNIARY

3. ADOPTION OF MINUTES FROM PREVIOUS MEETINGS

- 3.1 Byron Shire Floodplain Risk Management Committee Meeting held on 13 September 2018

4. STAFF REPORTS

Infrastructure Services

- 4.1 North Byron Floodplain Risk Management Study - Update.....5

ADOPTION OF MINUTES OF PREVIOUS MEETINGS

Committee Recommendation:

That the minutes of the Byron Shire Floodplain Risk Management Committee Meeting held on 13 September 2018 be confirmed.

The minutes of the meeting held on 13 September 2018 were noted, and the Committee Recommendations adopted by Council without changes, at the Ordinary Meeting held on 18 October 2018.

STAFF REPORTS - INFRASTRUCTURE SERVICES

Report No. 4.1 **North Byron Floodplain Risk Management Study - Update**

Directorate: Infrastructure Services

5 **Report Author:** James Flockton, Drain and Flood Engineer

File No: I2018/1954

Theme: Infrastructure Services
Emergency Services and Flood Management

10

Summary:

This report provides an update on the project for the North Byron Floodplain Risk Management Study and Plan and addresses a number of requests received by committee members following the last committee meeting.

15

RECOMMENDATION:

That the committee note the report.

20

Report

North Byron Flood Model Review Update

5 The Floodplain Management Committee (FMC) meeting organised for 1st November had to be postponed due to issues with the hydrological model established as part of the Flood Study.

10 During meeting 3 of the FMC it was agreed to adopt the ARR 1987 Flood Study model. Given the topographic changes and the addition of new structures in the hydraulic model, it was necessary to confirm that the results of the Flood Frequency Analysis (FFA) at the Durrumbul gauge could be reproduced by the updated models. Whilst attempting to model the design flood events it became apparent that there are more substantial issues with the flood study hydrological model (RAFTS) which limit the ability to match the FFA with these other catchment updates in place.

15 The primary issue identified is the impact of the storage basin modelled upstream of Williams Bridge. Following review of plan details for Williams Bridge and the topography upstream of Williams Bridge, it was found the dimensions for the basin modelled in the flood study hydrologic model is significantly over estimating the storage and restriction in the area and is not a true representation of the catchment. As this model was a calibrated model, a change of this scale requires significant rework and it is necessary to additionally revisit the manning's 'n' roughness coefficient, catchment slope and losses used for each subcatchment.

20 Preliminary investigation indicates that if the following revisions to the BMT RAFTS model upstream of the Durrumbul gauge are undertaken, the RAFTS model will be more representative of catchment conditions. Additionally calibration of the RAFTS and TULFOW modelling package to historical events and the Flood Frequency Analysis (FFA) at Durrumbul gauge will be possible:

- 25
1. removal of the Williams Bridge storage basin;
 - 30 2. revising the manning's 'n' roughness coefficient of each subcatchment, revising the catchment slope of each subcatchment, and
 3. revising losses.

35 The following works are proposed to be undertaken for the entire North Byron catchment to ensure the RAFTS model is more representative of catchment conditions and to recalibrate the RAFTS and TUFLOW modelling package:

- 40 a) Remove the Williams Bridge storage basin from the RAFTS model;
- b) Revise catchment slope in each subcatchment throughout the entire RAFTS model using the QGIS equal area slope tool;
- c) Revise the manning's n roughness coefficient in each subcatchment throughout the entire RAFTS model by undertaking a land use analysis and applying the weighted average roughness coefficient in each catchment;
- 45 d) Calibrate the modelling package to the March 2017 event;
- e) Verify the modelling packages to the January 2012 event (It has been assumed that this event would be reasonable but would be confirmed with Council when this work is undertaken);
- f) Provide calibration memo with accompanying figures, and
- 50 g) Calibrate the design events to the FFA at Durrumbul gauge.

Initial results are positive, however, further work is continuing by WMA Water. The following is the current timeline for work moving forward between now and the first committee meeting in 2019:

Task	Date Completed
Remove Williams Bridge Storage basin from RAFTS model	Mid Nov-18
Revise catchment slope and mannings for each subcatchment	Mid Nov-18
Calibrate model to March 2017 Event	Mid Dec-18
Calibrate model to January 2012 event	Early Jan-19
Calibrate the design events to the FFA at Durrumbul Gauge	End Jan -19
Brunswick Heads and Mullumbimy DRAINS Models Built and Trunk drainage options	Early Feb-19
Provide calibration memo	End Jan -19
Run full suite of design events and map	End Jan -19
Initial mitigation runs	End Jan -19
Damages Assessment for Design Events	February

BMT Flood Model

5 The following comments were received from a committee member:

A request has been received to consider the option of *Council and the state funding agents pursuing BMT for the cost of improving the model. The cost of the lost years need not be pursued but should also be recognised.*

10 *If authorities are not willing to pursue BMT, then they should at least take that company off the list of consultants eligible for such Studies.*

15 Staff have investigated options for this. It is understood that Council would need to spend at least the variation cost in legal fees to come near to getting any money back with no guarantee of success.

\$5,000 would provide a review and advice to determine if we had a case and whether it's worth pursuing.

20 The variation is \$17,000, for which an order has been raised. Council should get 2/3 funding from state government, therefore, in theory it should cost Council \$6,000, excluding any consideration of cost associated with lost time.

25 Whilst the situation is very frustrating the staff consider that an argument from the former consultant, BMT, could be that their modellers investigated ways of managing flows in the location and came to the conclusion that a detention basin was the best way forward. This was used and calibration was successful and accepted. It is not unusual for modellers to use different methods to manage catchment issues. This is a typical case of differing opinions between modellers."

At the time staff, the committee and Council adopted BMT's recommendations about the basin even though it was an unusual solution, especially with the calibration problems the project was experiencing. Council were trying hard to get the calibration complete. WMA's modellers may have more, better or different skills and have been able to figure the issues out without a basin, where BMT couldn't or possibly didn't investigate this option. It would be a very hard case, to prove BMT were negligent and for the costs involved it is considered there is no overall benefit to Council in pursuing this line of action.

We also can't really take them off a list for this reason alone. However, their performance and pst results will be considered for future tender and quote assessments.

Now the issue has surfaced, we must find a solution. The calibration results are unlikely to dramatically improve, but model stability may and there is an overarching need to be fully confident of the model. We can be much more confident of the model following this peer review and re-calibration.

New Brighton Flooding

Discussion about historical flooding in New Brighton has been requested, specifically around the closing of ocean outlets in this area, which has the potential to impact flood levels at Ocean Shores, New Brighton and South Golden Beach. Billinudgel could also see some impacts.

The committee will likely be aware of the website http://www.brunswickvalley.com.au/flood-history/current_updates.htm and ideally should be familiar with the content within this website, particular the history timeline.

Whilst this website provides facts on historical actions of Council and community, it does not necessarily provide the full story on all action. It is noted that staff did not live in the area when these events occurred, therefore, all comments relate to documents which have been reviewed. It is also noted that staff do not have access to all possible documents or the resources to fully review all the documents pertaining to this issue.

Council staff or Councillors would be accepting enormous personal liability if they were to recommend the creation of ocean outlets without the idea going through a scientific and environmental investigative and approvals process. This is the main reason why community requests have not resulted in the outlets being created. Council cannot simply undertake this type of work in the dunes based purely on a request.

The 2005 Floodplain Development Manual is the legislation in NSW that provides methods for Council to follow in the management of floodplains. This document provides a prescribed process for flood floodplain management, which includes the development of a flood study, risk management study and finally management plan, in that order. Once a mitigation option is recommended within an adopted Floodplain Management Plan it is acceptable for staff to proceed with the mitigation works as funding permits. There is no conspiracy, simply a process that Council must follow.

The image below, and there are other similar examples, show ocean outlets existed pre-development and may have continued to exist through the early development process of Ocean Shores.



The existence of ocean outlets is not questioned by staff. The appropriateness of recreating them is questioned and needs investigating further before they could be recommended.

5 Reference has been made to a letter from Council dated 25 June 1991, that states “*significant reduction of 254mm at Golden Beach and 354mm at South Ocean Shores*”, however, the letter continues to note that “*the outlet on its own did not make anywhere near the difference*”. It appears from the letter that this impact resulted from a combination of an ocean outlet and dredging of the
10 creek to 2.5m (presumably this is depth). It was also modelled using the 1987 Mothers Day flood event, rather than a design event.

15 The 2016 calibration results from the 1987 Mothers Day flood calibration process show ocean levels in the Brunswick River mouth of around 1m AHD (low levels), however, the calibration notes that the level recorder did not record flood levels in this location during the flood, therefore, the actual ocean levels are unknown. However, the nearest observed water level at Orana Road bridge in Marshalls Creek shows a peak water level of 2.1m (between a 20 to 50 year event). The Mother’s Day event has limited data available so it is hard to fully understand what data was used to model the mitigation option of ocean outlets. For example there is no rainfall data for the
20 Marshalls Creek catchment from this event.

25 It is best practice to use an envelope of design events and not use only a historic event to model mitigation options. Usually the envelope uses an ocean dominated event and then a catchment dominated event for each design event. The worst results of each are then used as the peak flood levels produced by the mitigation option. Different design events will be used, but as a minimum, a small (10 year) and large (100 year) event will be modelled to understand the mitigation provided by the option being modelled.

30 The above assessment may have used a catchment dominated event and low ocean levels. This would likely result in reductions in flood levels due to the dredging and ocean outlet combined with low ocean levels. An ocean dominated event is unlikely to have produced this result. Therefore, it is hard to compare this result with the adopted results in the Marshalls Creek Floodplain Management Plan 1996.

35 The Marshalls Creek Floodplain Management Plan 1996 is the most recent report prepared and adopted by Council that investigated ocean outlets as a mitigation measure. Page 92 of this report

concludes that *“construction of the ocean outlets is considered to be relatively ineffectual, due to the small number of houses protected and impracticable due to the management and operational requirements.”*

- 5 Matters relating to past Council decisions and issues of responsibility and liability are an extremely complex area that would require considerable staff resources to investigate substantially. For example most of the relevant documents are stored in an old document management system which few staff can use and most of those docs are on microfiche.
- 10 Such an investigation may not even produce a conclusive answer or provide anything constructive moving forward. There can be no certainty the a court challenge would achieve a conclusive answer in relation to identifying liability let alone where any liability may rest.

- 15 Staff recognise that Ocean Shores, New Brighton , Billinudgel and South Golden Beach have flooding problems, as do others areas of the shire and that the residents of these areas deserve an appropriate mitigation solution if one is feasible. The North Byron Floodplain Risk Management Study process will investigate solutions and viable mitigation options will be recommended for adoption in the Floodplain Management Plan. Any options must go through a rigorous and open review process to ensure they are an appropriate mitigation option before they can be
- 20 recommended for adoption.

- As previously explained to the committee, the details and value of historical records could be argued for days and the true facts never obtained and understood for certain. However, we do have the catchment in its current state and state of the art flood modelling software to investigate
- 25 mitigation options. This will allow us to model the ocean outlets as a possible mitigation option and make informed decisions on the best mitigation options available to the community moving forward.

- 30 The mitigation options could also include a combined run of ocean outlet and creek dredging if the committee request this to be investigated.

Sea Level Rise Language

- 35 Discussion regarding the language used around Sea Level Rise (SLR) has been requested.

To consider switching the language around SLR from one based on years into the future and thus dependent on time estimates of rise to one based on the actual rise.

- 40 The background to this request is as follows:

The nebulous nature of discussion on SLR is not assisted by the variations in the time predictions of the rises. They will continue to vary, as predictions must.

- 45 *Society would be better served by determining its actions and strategies on the basis of "when the ocean reaches 0.5m above its level in the year 2000" or "1.0m above" or "2.0m above" etc. It would then be a separate debate as to when that happens.*

- 50 *It is also not important when that happens. Important is the fact that it will happen. Strategies and actions would then be triggered by sea levels and not by the clock.*

The Intergovernmental Panel on Climate Change (IPCC) has always and continues to use a time basis for future predictions in climate change, including sea level rise.

- 55 NSW flood planning uses 'years' to show flood event size, although there is a likelihood that this will change to a percentage probability in the future.

The community is generally used to and understand the use of years for predicting when likely amounts of change will occur.

- 5 Understanding when a level of change is likely to occur is important when planning future development and for protecting existing development. It helps us understand how much time we are likely to have to form any change that is required.

- 10 Another example is SLR amounts beyond 2100 have generally not been predicted by IPCC, although it is generally accepted that it will likely continue beyond this time, but to what level has not been accepted. Larger increases are possible and should not be ignored.

- 15 Council does have limited ability to sterilise land from development due to potential SLR beyond 2100 because 100 years is typically used as a planning horizon. Therefore, understanding potential change between current day and 2100 is important for residential planning. Planning for existing and future residential areas is the main reason we are completing the North Byron Floodplain Risk Management Study and Plan.

- 20 Therefore, changing the language used around when a predicted change is likely to occur is not recommended. However, using amount of change to trigger actions has merit and can be used as the North Byron Floodplain Risk Management Study and Plan progresses.

Financial Implications

- 25 The variation for the model improvements has created the need to increase the project budget and apply for a grant variation. This will occur as part of the December 2018 Quarterly Review.

Statutory and Policy Compliance Implications

- 30 None.