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Mr Paul Busmanis  
Manager - Engineering Works  
Ballina Shire Council  
PO Box 450  
BALLINA NSW 2478

6/28 Langston Place  
Epping NSW 2121  
PO Box 352  
Epping NSW 1710  
T : 02 9868 1966  
F : 02 9868 5759

[www.bewsher.com.au](http://www.bewsher.com.au)

Bewsher Consulting Pty Ltd  
ABN 24 312 540 210

By Email (only): [Paul.Busmanis@ballina.nsw.gov.au](mailto:Paul.Busmanis@ballina.nsw.gov.au)

Dear Paul

**POTENTIAL AMENDMENT OF BALLINA DCP TO ALLOW POLE-TYPE DWELLINGS  
ON ISOLATED RURAL LOTS IN THE LOWER RICHMOND RIVER  
REVIEW OF FLOODPLAIN RISK MANAGEMENT ISSUES**

Background

Council is currently reviewing its existing planning controls for new dwellings in isolated rural locations. The current controls were introduced following the preparation of the 2012 Ballina Floodplain Risk Management Study and Plan (**FRMS&P**) and require such dwellings to be constructed on a fill pad.

Commentary associated with a Notice of Motion at Council's meeting on 15 December 2016 stated that "*filling such sites can often be seen as excessive, disrupts the floodplain more broadly and is very costly*".

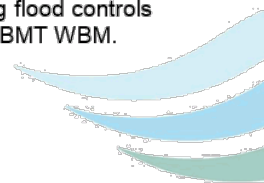
Accordingly it is understood that since that meeting, Council has been evaluating the merits of relaxing its existing controls to allow pole-type dwellings in lieu of requiring dwellings be constructed on fill pads. These pole-type dwellings have also been referred to as dwellings "*on stilts*" or as "*Queenslanders*" and for the purposes of this report, all three descriptions are considered to be synonymous.

In considering such an amendment Council should have regard to the two key issues of dwelling affordability and flood risk management, and also to a lesser extent, to other related environmental issues, e.g. changes to rural character.

As part of Council's evaluation, we have been commissioned to provide advice on flood risk management issues. This report provides our advice.

Our Credentials to Provide Flood Risk Advice

Over the last two or three decades Bewshers have provided strategic flood risk advice in almost all the NSW valleys with major flooding problems. This has included the preparation of over 20 major FRMS&Ps. As part of these studies the firm has drafted the floodplain controls in the DCPs for about 25 councils. This included drafting flood controls for Ballina Shire Council as part of the 2012 Ballina FRMS&P together with BMT WBM.



[Floodplain Management](#) • [Water Resources and Hydrology](#) • [Flood Risk Assessment](#)

As well as the preparation of these FRMS&Ps, the firm has provided expert flood risk advice in nearly 100 appeals to the NSW Land & Environment Court. These FRMS&Ps and Court appeals involved interpretation of the requirements of the NSW Floodplain Development Manual and the NSW Flood Prone Land Policy, both of which are critical to a local council's indemnity under s733 of the Local Government Act.

Accordingly we believe we are well placed to provide advice to Council which is consistent with NSW best practice for flood risk management, and upon which Council and its insurers can rely.

### Activities Undertaken in Preparing this Advice

In preparing this advice we:

- reviewed the 2012 Ballina FRMS&P, Ballina DCP 2012 and Ballina LEP 2012;
- reviewed some recent rural dwelling DAs where fill pads were viewed by applicants as 'problematic';
- attended a meeting on 16 February 2018 with key council staff including those associated with strategic planning, building surveyors, development assessment and flood risk management. At this meeting typical DAs were discussed and the potential difficulties and issues associated with both fill pads and pole-type dwellings were openly canvassed;
- also on 16 February 2018 whilst in Ballina we attended separate meetings with:
  - local SES controller and a staff member from the SES regional office. This meeting discussed the practical difficulties of accessing and/or rescuing persons who become isolated in the Lower Richmond floodplains, including the emergency management issues associated with both fill pads and pole-type dwellings;
  - three representatives from the Wardell Progress Association. (We understand the Association has been actively lobbying Council for amendment to the current dwelling controls);
  - a representative from Techton who is a building consultant for Stroud Homes, a key provider of new dwellings in the area; and
  - the Senior Team Leader from OEH's regional office with responsibilities for flood risk management. (OEH also attended the other meetings conducted in Ballina on 16 February 2018);
- liaised with staff from Tweed, Hastings and Port Stephens Councils. These Councils have similar floodplain characteristics, isolated rural dwellings and development pressures;
- liaised with the SES Regional Controller responsible for the Richmond River and the SES Head Office who set the SES' policies on isolation issues in rural floodplains.

### Format of this Report

Our advice is set out in the remainder of this report. It is comprised of two parts:

- commentary on the various flood risk management issues; and
- our opinion on the appropriateness of amending Council's controls to allow pole-type dwellings.

**ADVICE**

**1. Commentary on Key Issues**

- (a) Affordability and Constructability – the additional burden of complying with the fill pad policy.
- (i) The cost of importing and placing fill is significant. This is apparently the key impetus behind the present consideration for relaxing the fill pad requirements.
  - (ii) Various estimates of the cost of the fill pad were provided to the reviewer ranging from a few \$10Ks to \$160K. Clearly the cost will vary depending on location, volume and depth of fill, source of fill and the proposed compaction. It would appear that typically an additional cost of about \$50K might be required to comply with the current policy, relative to the situation if pole-type dwellings were allowed.
  - (iii) The foundations and substructure of a dwelling on fill differ from a dwelling on poles. There are additional costs associated with the pole-type dwelling but apparently these additional costs are small relative to the cost of filling.
  - (iv) Settlement issues influence the design of dwellings in many rural areas because of the unconsolidated nature of the sub-surface (for both the pole-type and fill pad alternatives). In some cases a delay of 1-3 years may be necessary after placement of fill before dwelling construction can begin.
- (b) Obstruction to Floodplain Flows – dwellings on poles allow floodwaters to pass under and around dwellings whereas fill pads obstruct the passage of floodwaters.
- (i) This issue was investigated during the 2012 FRMS&P using BMT WBM's flood model, when the merits of fill pads were being assessed.
  - (ii) As part of this review in 2011/12 less than 100 rural lots with an existing 'dwelling entitlement' were identified. Because of the isolated nature of these lots and the typically slow and deep floodwaters, the modelling indicated that the impacts of allowing fill pads were not significant.
  - (iii) Consequently there would not be changes to the flood behaviour by constructing these rural dwellings on poles.
- (c) Access by Emergency Services Personnel during a Flood – because these dwellings can become surrounded by floodwaters, occupants who don't evacuate ahead of inundation are effectively 'trapped' and may require emergency assistance from the SES during floods.
- (i) This issue is a major concern of the SES.
  - (ii) Flood time access by boat or helicopter is inherently dangerous. Not only is the safety of dwelling occupants jeopardised, the lives of the SES personnel are also endangered.
  - (iii) SES' experience with numerous flood emergencies on NSW's northern rivers indicates that isolated dwelling occupants frequently require assistance and despite the best intentions, the occupants are often unprepared for the isolation and medical emergencies that may eventuate (e.g. stress-related medical incidents, depleted medical supplies, need to access hospital, etc).
  - (iv) Flood time access by boat or helicopter to a fill pad is considerably safer than access to a pole-type dwelling. This is a key reason why the SES does not support the proposed amendment.

- (d) Concerns about Pole-Type Dwellings being Washed Away – concerns have been raised that pole-type dwellings might be significantly damaged or washed away if impacted by large floating debris during extreme floods.
- (i) This is a real concern given the potential damage that could occur if a dwelling was hit by a large tree or shipping container during a flood.
  - (ii) In the reviewer's opinion these flood debris loading constraints can usually be addressed through strengthening of the dwelling's supporting structure. If the pole-type dwellings were to be permitted it is anticipated that Council would require rigorous structural design and certification of adequacy by a structural engineer.
  - (iii) Whilst requirements for higher standards of structural integrity during floods would increase the cost of construction, in the experience of the reviewer these additional costs are unlikely to be prohibitive.
  - (iv) In the opinion of the reviewer, concerns about the structural integrity of pole-type houses can be addressed, and the structures can be designed and built to withstand all reasonable loads that might occur in most parts of the Lower Richmond floodplains.
- (e) SES' Policy on Isolation – the SES generally does not support any additional dwellings being constructed in hazardous floodplains where the dwellings could become surrounded by floodwaters and the occupants could become trapped. Their preference would be that Council not allow any future dwellings (either on fill pads or on poles). Nevertheless for the reasons noted above, dwellings on fill pads have less inherent risks than pole-type dwellings.
- (f) Flood Damages – the curtilage around the dwelling, which is a requirement for a fill pad, can provide a refuge area for stock, vehicles and other items of equipment that would otherwise be unavailable with a pole-type dwelling.
- (i) The refuge area created by a fill pad will reduce flood damages (except in extreme flood events when the pad is overtopped).
  - (ii) Where filling is required in order to provide an effluent disposal area adjacent to a pole-type dwelling, this area might be used as a refuge area (although of lower height and smaller area than provided by the curtilage around a dwelling constructed on a fill pad).
  - (iii) Overall the fill pad will lead to lower flood damage costs.
  - (iv) An extra flood damage risk exists with a pole-type dwelling if the under-floor area is used for storage of goods that could be damaged or washed away by floodwaters. These types of structures within other floodplains of the State have, on occasions, been enclosed or converted into habitable rooms without approval. Pole-type dwellings therefore present an additional compliance responsibility for Council so that flood damages are not increased.
- (g) S733 Indemnity Issues – Council should seek legal advice on this issue. Based on our experience as flood risk management practitioners, we make the following comments:
- (i) Because the existing fill pad policy was confirmed as part of the Ballina FRMS&P, the policy has already undergone community consultation and scrutiny by Council's flood committee and OEH. Further these activities and the preparation of the FRMS&P itself are key components of the flood risk

management process set out in the NSW Floodplain Development Manual. As Council's indemnity under s733 of the Local Government Act relies on it acting in accordance with the Manual, the existing fill policy has likely been prepared in a manner which would attract this indemnity.

- (ii) Should Council decide to change the policy and allow pole-type dwellings, it will likely be necessary to revise the FRMS&P and undertake consultation and other activities which were a precursor to the adoption of the fill pad policy. In the opinion of the reviewer it would be unwise for Council to pursue the proposed amendment to the fill pad policy without revising the FRMS&P and undertaking the associated activities referred to above.
  - (iii) This revision process might normally take 1-2 years but could possibly be expedited if the revisions were soundly based and well-supported by OEH and the SES. (As noted below, our review does not consider the proposed amendments to the fill policy to be consistent with good floodplain practice and accordingly the revision process would likely be protracted, particularly if it proceeded without SES and OEH support).
- (h) *Best Practice Considerations & Comparisons with Other Councils* – the commentary provided below is based on discussions with staff of Tweed, Port Stephens and Hastings Councils during the course of the review, and the reviewer's experience and knowledge of policies in other NSW councils with similar rural floodplains.
- (i) The 'high' and 'extreme' flood risk precincts which characterise much of the Lower Richmond are dangerous places during major floods. The NSW Floodplain Development Manual identifies these areas as unsuitable places for dwellings due to the flood risk.
  - (ii) The reviewer is unaware of any NSW council that would allow new dwelling entitlements to be created in these hazardous areas (i.e. through subdivision or rezoning).
  - (iii) The issue is more complicated when there are legacy dwelling entitlements which came into existence before the severity of the flood hazard was properly understood. In these situations there are social-economic consequences of sterilising the legacy entitlements. Consequently in the reviewer's experience the exercise of the entitlements is often only permitted under very special conditions (e.g. fill pads) which are onerous compared with the requirements for development in other areas where the flood hazard is not as severe.
  - (iv) In respects of the current floodplain development controls within the Tweed, Hastings and Port Stephens Councils, none would permit development with pole-type dwellings as envisaged in the proposed amendment. Each of these councils has taken a different approach to their controls which in part reflect their different floodplain characteristics and different history of the preparation of their controls. Development of pole-type houses in the Tweed is permitted however only in conjunction with the provision of a PMF refuge<sup>1</sup>.

## 2. Opinion

- (a) Council's 2012 decision to allow construction of isolated rural dwellings, in high or extreme flood risk precincts on lots with a dwelling entitlement, was a concession. Judged against the standards of the NSW Floodplain Development

<sup>1</sup> PMF = probably maximum flood. This is meteorologically the largest flood that can possibly occur and has an annual exceedance probability of approximately 1 in 100,000 years.  
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Manual and the practice of other councils, these risks, which were only fully recognised and understood in 2012, would of themselves have precluded construction of new dwellings.

- (b) The decision to allow new dwellings on fill pads in these dangerous and isolated floodplain areas recognised that additional difficulties and costs would be incurred in development. This was seen at the time as a deterrent to further development (and it still is a deterrent).
- (c) The additional costs of providing fill pads are real and this reduces dwelling affordability. These additional costs however provide for some limited reduction in flood damages and limited improvement in flood safety risks during a major flood event. Nevertheless these flood risk reductions although small cannot be easily discounted because of the high and extreme hazards in large floods.
- (d) The SES is opposed to the proposed amendment. Their key concern is that the fill pad is a safer place for boat and helicopter access during emergencies when occupants remain in the dwelling, (having not previously evacuated ahead of inundation, which would be the safest course of action). Even with a fill pad, flood rescues by emergency service personnel are inherently dangerous although with a pole-type house, the SES consider them to be even more dangerous.
- (e) If Council decides to proceed with amendment to its DCP to allow pole-type dwellings, it will likely be necessary to obtain written support from OEH. Such support may not be forthcoming.
- (f) Despite the additional costs and imposts on development, the flood risks in these isolated rural lots are severe and accordingly any relaxation of the existing fill pad policy would increase risk and would, in the opinion of the reviewer, be contrary to NSW best practice and cannot be supported.
- (g) The existing fill pad policy was the outcome of the process outlined in the Manual. This process is foundational to Council's indemnity under s733 of the Local Government Act. Therefore before Council could relax the fill pad policy it would need to re-engage in the Manual's process and gauge the support of the community, industry experts, SES and OEH. In the opinion of the reviewer this process, if undertaken, is likely to become protracted and might not ever be finalised given the likely objections from the SES and a possible lack of support from OEH.
- (h) In the opinion of the reviewer, the proposed relaxation to allow pole-type dwellings is contrary to best practice. Further it would be inappropriate for Council to pursue the pole-type dwelling amendment to its DCP without first achieving endorsement from a revised FRMS&P prepared under the Manual's process. To do so might leave Council without the statutory indemnity it currently has in relation to the fill pad policy.

Yours sincerely



Drew Bewsher  
Director

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4<sup>th</sup> April 2018

Drew Bewsher  
e: drew@bewsher.com.au

**Re: Relaxing the Fill Pad Policy for Isolated Rural Dwellings in the Ballina LGA's Floodplains**

Dear Mr Bewsher

Thank you for the opportunity to comment on Council's investigations into *Relaxing the Fill Pad Policy for Isolated Rural Dwellings in the Ballina LGA's Floodplains*.

NSW State Emergency Service (NSW SES) has safety and risk to life concerns about the existing fill pad policy that Council has in place for rural isolated properties, however understands that the advice Council is seeking is not whether this policy should be abolished, but whether it should be relaxed to enable different types of development that are more affordable such as 'Queenslander' style homes (or 'pole homes').

NSW SES has considerable concern about the safety of occupants who remain in isolated rural properties during a flood, especially where that land is classified as a low flood island (i.e. subject to inundation in a large enough flood event).

NSW SES supports changes in policies that reduce the risk to life. The proposed changes to the existing fill pad policy appears to increase the risk to life in Ballina LGA. The provision of a fill pad, although not ideal, provides a better environment for rescue than would a 'Queenslander' or 'pole' home. The relaxation of the fill pad policy may compromise the ability for rescuers to ensure the safety of occupants if they require rescue from their rural isolated dwelling.

NSW SES primary response strategy to protect life is evacuation from a hazardous area to an area away from the hazard (i.e. to a safe area outside of the floodplain with sufficient infrastructure to accommodate evacuees). A deliberate strategy to encourage people to remain in place surrounded by flood water increases the risk to life rather than enabling a well-coordinated and safe evacuation.

Where emergency services, such as the NSW SES, know that people are surrounded by flood water, they will be obligated to continually monitor the situation until the flood waters dissipate. In this situation there may be a need to rescue occupants who have not evacuated in time.



**STATE HEADQUARTERS**

93 - 99 Burelli Street, Wollongong 2500  
PO Box 6126, Wollongong NSW 2500  
P (02) 4251 6111  
F (02) 4251 6190  
[www.ses.nsw.gov.au](http://www.ses.nsw.gov.au)  
ABN: 88 712 649 015



Thank you for the opportunity to comment on Council's investigations into *Relaxing the Fill Pad Policy for Isolated Rural Dwellings in the Ballina LGA's Floodplains*. Please contact Marcus Morgan on (02) 4251 6665 or [marcus.morgan@ses.nsw.gov.au](mailto:marcus.morgan@ses.nsw.gov.au) if you wish to discuss any of the matters raised in this correspondence.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Nicole Hogan', is positioned above the typed name.

Nicole Hogan  
Assistant Commissioner  
Director Emergency Management  
**NSW State Emergency Service**

Cc: Mark Somers, Region Controller, Richmond Tweed Region  
Wayne Pettit, Deputy Region Controller, Richmond Tweed Region;  
Planning Coordinator (land use risk management)  
Planning and Research Officer

[www.ses.nsw.gov.au](http://www.ses.nsw.gov.au)





Mr Paul Busmanis  
Manager – Engineering Works  
Ballina Shire Council  
PO Box 450  
BALLINA NSW 2478

Dear Paul

**POTENTIAL AMENDMENT OF BALLINA DCP TO ALLOW POLE-TYPE DWELLINGS ON ISOLATED RURAL LOTS IN THE LOWER RICHMOND RIVER**

Council recently sought advice from Bewsher Consulting Pty Ltd (the consultant) regarding the potential for amendment of the Ballina DCP to allow pole-type dwellings on isolated rural lots, and has requested written comments from the Office of Environment and Heritage (OEH).

Much of the Lower Richmond floodplain is classified as 'high' and 'extreme' flood risk precincts typically characterised by slow and deep floodwaters. Good flood risk management practice is to not allow any form of new residential development in these areas because of this risk. This is supported by the NSW Floodplain Development Manual which identifies these areas as unsuitable places for dwellings.

Council's current policy, however, permits limited dwellings to be built on fill pads and only those under legacy dwelling entitlements. The development of this policy has gone through a rigorous floodplain management planning process as outlined in the manual and now forms a component of council's DCP. OEH believes this policy is soundly based and that council may have indemnity under s733 of the Local Government Act.

OEH validates the consultant's advice to council. On balance OEH does not consider amendment of the Ballina DCP to allow pole-type dwellings on isolated rural lots to be good floodplain management practice.

Should you wish to discuss this letter further please contact me on (02) 8289 6312 or [toong.chin@environment.nsw.gov.au](mailto:toong.chin@environment.nsw.gov.au).

Yours faithfully

A handwritten signature in blue ink, appearing to read 'Toong Chin', with the date '18/4/18' written below it.

**TOONG CHIN**  
**Senior Team Leader**  
**Water Floodplain & Coast (North East)**

PO Box 856 Alstonville 2477  
NSW Centre for Tropical Horticulture  
494 Bruxner Highway Alstonville 2477  
Tel: (02) 6627 0200 Fax: (02) 6627 0250  
ABN 30 841 387 271  
[www.environment.nsw.gov.au](http://www.environment.nsw.gov.au)