

From: [NSW Government](#)
To: [Flood Inquiry](#)
Subject: Floods Inquiry
Date: Saturday, 28 May 2022 11:44:52 AM
Attachments: [AMENDED - Dennis Watling Flood Mitigation-final draft.pdf](#)

Your details

| | |
|-------------------|----------------------|
| Title | Mr |
| First name | Dennis |
| Last name | Watling |
| Email | <input type="text"/> |
| Postcode | 2478 |

Submission details

| | |
|---|---|
| I am making this submission as | A resident in a flood-affected area |
| Submission type | I am making a personal submission |
| Organisation making the submission (if applicable) | Bare-Heart Innovations (personal business) |
| Your position in the organisation (if applicable) | Owner |
| Consent to make submission public | I give my consent for this submission to be made public |

Share your experience or tell your story

| | |
|-------------------|--|
| Your story | This project, if completed WILL ensure a safer future for Lismore and other smaller villages downstream, regarding flooding (both minor and major) |
|-------------------|--|

Terms of Reference (optional)

The Inquiry welcomes submissions that address the particular matters identified in its [Terms of Reference](#)

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|--|---|
| 1.1 Causes and contributing factors | Inundation due to unprecedented major weather event which showed the ineffectual flood mitigation currently in place. |
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| | |
|-------------------------------------|-------------|
| 1.2 Preparation and planning | As attached |
|-------------------------------------|-------------|

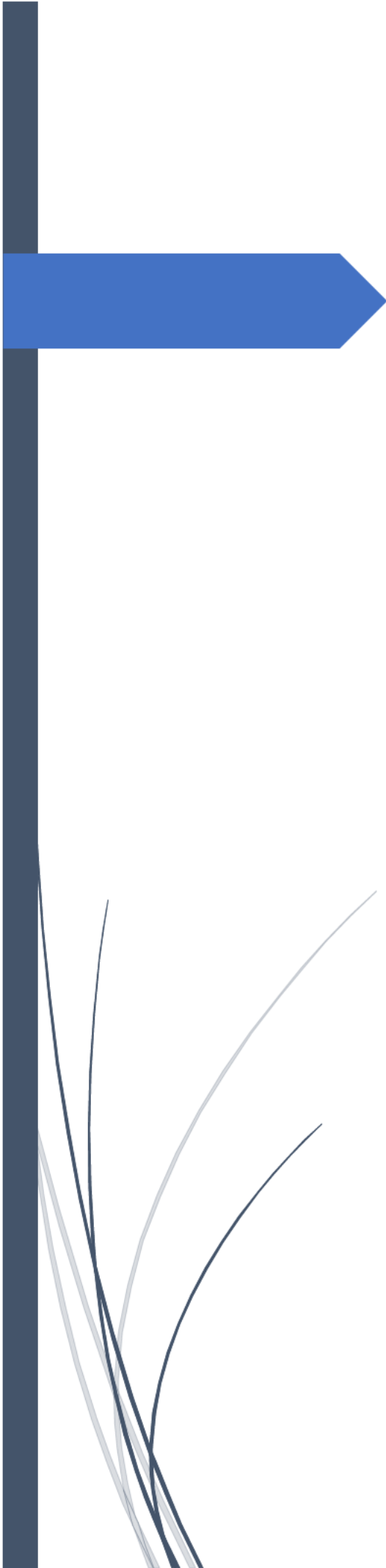
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|-------------------------------|-----|
| 1.3 Response to floods | n/a |
|-------------------------------|-----|

| | |
|--|-----|
| 1.4 Transition from incident response to recovery | n/a |
|--|-----|

| | |
|---------------------------------|--|
| 1.5 Recovery from floods | This project would prevent major flooding and loss of life/towns/businesses etc if managed correctly |
|---------------------------------|--|

Supporting documents or images

| | |
|---------------------|---|
| Attach files | <ul style="list-style-type: none">• AMENDED - Dennis Watling Flood Mitigation-final draft.pdf |
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Flood Diversion Mitigation Plan 2022 – Northern Rivers

Dennis Watling & Crystal Graham
BARE-HEART INNOVATIONS MOBILE:

Flood Diversion Mitigation Plan 2022 – Northern Rivers

Presentation to the Chair and NRJO

- Rainfall - increasing every year, at this stage nothing we can do about it.
- Flood Water Levels – increasing every 10 years to extreme heights (noted historian Dr Cook).
- National Disaster in the Northern Rivers – (Proclaimed by the Commonwealth in February of 2022).
- In the future - conclusion major floods are inevitable.

- The Richmond River has:
 - a) 12 major creeks run into this river.
 - b) Numerous water courses flow into the river as well.

- The Wilsons River has:
 - a) 8 major creeks run into this river
 - b) Numerous water courses flow into this river as well.

- All these creeks and water courses running into the Upper Richmond and Upper Wilsons rivers run into the Richmond River.
- One exit at Ballina.
- In Conclusion two major rivers that are unable to handle excessive flood waters.

SOLUTION

- Two Rivers, Two Exits.

CONCEPT

1. Produce another flood water exit. This exit to be at least half that of the Ballina Bar exit through a channel.
2. The purpose of the channel is to have some control over the incoming and outgoing tides in times of flooding.
3. To remove at least half of the maximum flood waters.
4. Reduce extreme flood water levels. Now and into the future of the Richmond and Wilsons Rivers.
5. Reducing impacts on other shires indirectly.
6. Reducing death, property lost and hardships.

NORTHERN RIVERS FLOOD WATER DIVERSION & MITIGATION PLAN

1. SHIRES INVOLVED

Kyogle
Casino
Lismore
Ballina
Tweed
Clarence

2. Involving Richmond River and Wilsons Rivers

3. Objective of the Plan

- I. To divert flood waters of the Richmond and Wilsons Rivers at times of flooding.
- II. Not to interrupt the natural flow of either of the two rivers.
- III. Cause minimal damage to the Flora and Fauna of the native areas.
- IV. Flood waters to flow to the destination, the ocean.
- V. Not towns or low-lying agricultural areas.
- VI. To construct a spillway, with the utmost care taken not to inconvenience or impact those involved.

Construction of Spillway System:

- A. 2 x 100-metre-long spillways with 8 Tainte radial gates or 8 vertical lift gates
- B. 3 x 200 metre spillways with 16 Tainte radial gates or 16 vertical lift gates.
- C. A channel 200 metres wide, 5.5 metres high, sloping to 6.5 metres high and 11 kilometres long approx.
- D. A channel 210 metres wide, 5.5 metres high, sloping to 6.5 metres high and 7 kilometres long approx.
- E. 7 road bridges over said channel at least 4 bridges to carry 40 to 50 tonne vehicles.
- F. 1 overhead animal corridor in the Broadwater National Park.
- G. Access road either side of the channels.
- H. Access gates to both channels.
- I. 10 water hydrant access points along the access road at strategic points.
- J. Possibility for hydro-electric power station with exit points from a pit within the channel to flow to a pumping station.

Spillway Gates Positioning after Survey.

- A. Spillway at East Coraki
 - I. One on the Richmond River Eastern side.
 - II. One on the Wilsons River Eastern side.

- B. Both gates to be 100 metres in length consisting of a set of Tainte radial or vertical lift gates. Possible 10 or less gates 12 metres in length with at least 3.5 metres lift.
 - I. Concrete and steel uprights etc. As to damn spillway construction specifications.

- C. Spillway at Rileys Hill
 - I. One on the Richmond River south of Rileys Hill township, on the East side.
- D. Gates to be 200 metres in length consisting of a set of Tainte radial or vertical lift gates. Possible 18 or less gates 12 metres in length with at least 3.5 metres lift.
 - I. Concrete and steel uprights etc. As to damn spillway construction specifications.

- E. Spillway at Rileys Hill
 - I. One on the Richmond River south of Rileys Hill township, on the West side.

- F. Gates to be 200 metres in length consisting of a set of Tainte radial or vertical lift gates. Possible 18 or less gates 12 metres in length with at least 3.5 metres lift.

- G. Spillway at Broadwater Beach
 - I. Gates to be 200 metres in length consisting of a set of Tainte radial or vertical lift gates. Possible 18 or loess gates 12 metres in length with at least 3.5 metres lift.
 - II. The channel to taper in from 210 metres wide to 200 metres wide. At the same distance from the gates to the exit zone in the ocean.
 - III. All gates to be sealed on both sides to retain water both sides.

200 metre Broadwater Beach Bar exit construction

- I. North Wall 200 metres plus from high tide mark.
- II. South Wall 200 metres plus from high tide mark.
- III. Walls being 200 metres in width apart.

SAFETY

- I. Channel spillway and river surveillance cameras, 24/7 surveillance.
- II. Channel spillway and surrounding towns to have warning sirens, warning lights, electric signs (VMS boards) on roads and bridges.
- III. River closures of up and down streams of spillways.
- IV. Emergency rescue vehicles on standby always.
- V. A control master on standby always when spillways in operation.
- VI. PA systems on spillways and towns etc.
- VII. Emergency spillway shutdown procedure to be in place.
- VIII. Safety fences for spillway and channels.

ADVANTAGES

- I. Firebreak in Broadwater National Park.
- II. Water supply for fire fighters.
- III. Continual fresh water supply to local flora and fauna, including in times of draught.
- IV. Consistent fresh water supply for the agriculture industries.
- V. Drastically reducing flooding to all the surrounding areas.
- VI. Less extreme floods.
- VII. Rebuilding towns and businesses with confidence.
- VIII. Encouraging farmers with hope.
- IX. New construction and Business opportunities.
- X. Increasing in new housing.
- XI. More funding for insurance companies.
- XII. More insurance policies, less policy pay-outs, less claims, more clients etc.
- XIII. Decrease in flood victims, deaths and saving more lives/livelihoods.
- XIV. Construction of this project will increase permanent job opportunities throughout the region.

DISADVANTAGES

- I. Loss to some of the National Park's landscape.
- II. Closure of the Richmond and Wilsons Rivers at times during operation of the spillways.
- III. The initial costs of project now are large, but the cost will exceed this exponentially in the future.

POSSIBILITIES

- I. Construction of a hydro-power station (Appendix A) located at the Riley's Hill spillway.
- II. Fresh water supply from two major water reservoirs.
- III. Fresh water bottle supply business opportunity.
- IV. Water desalination plant.
- V. Sustainable water supply for farming and agriculture.
- VI. A village festival every two years for tourism enterprise.
- VII. Community expansion and housing developments.
- VIII. Construction of a Solar farm beside the channel 10 kms by 100 metres.
- IX. To acquisition land in the Northern Rivers area equal to said land used in the construction of the channel in the Broadwater National Park. There by establishing a Rainforest that could be utilised as a training facility for Parks and Wildlife.
- X. Solar electricity battery storage plant.

SPILLWAY SYSTEMS & OPERATIONS

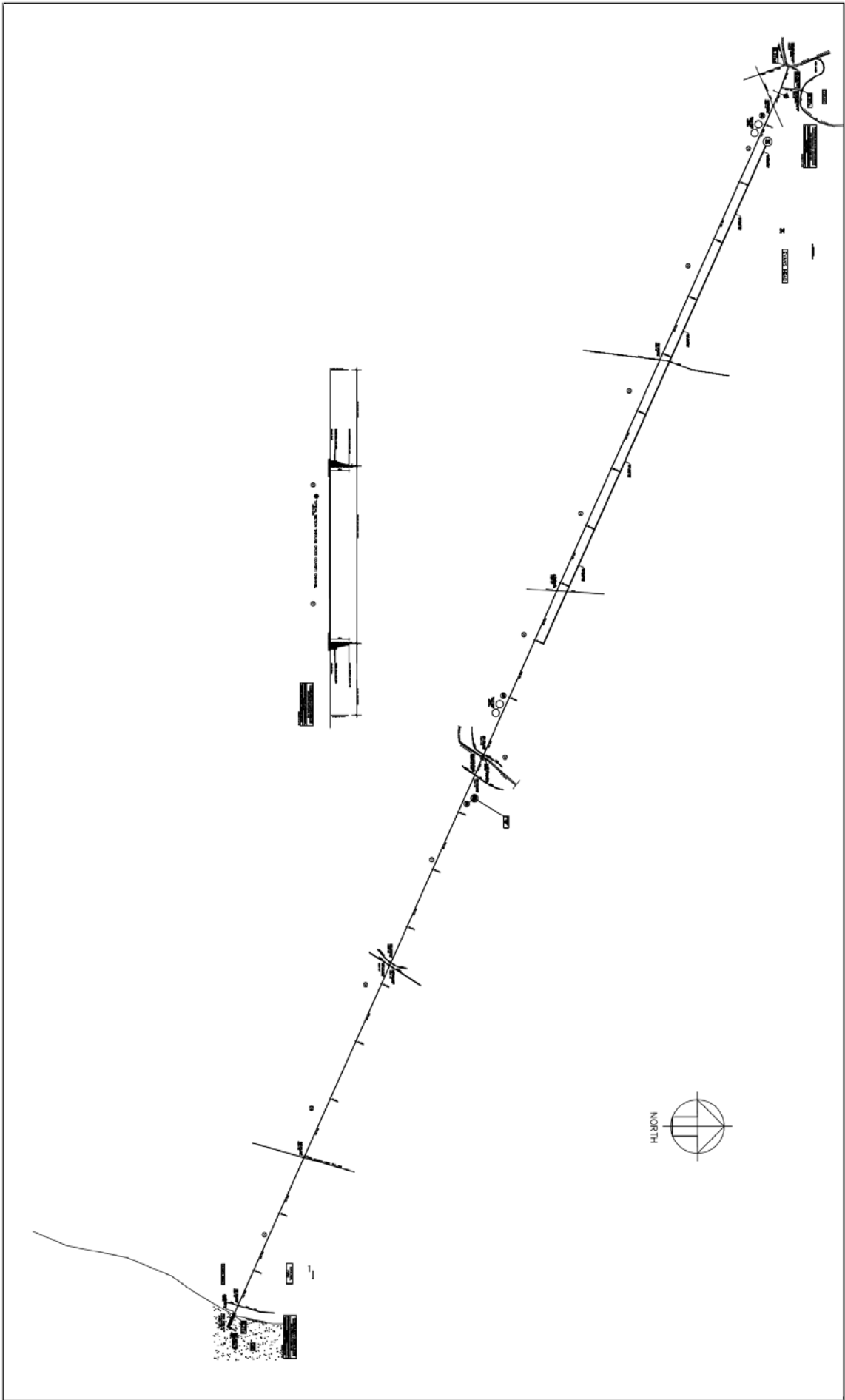
1. Warning of potential flood.
2. All stand-by personnel to assess the situation and implement operational procedures.
3. Spillway to be placed in operational mode and prechecks completed.
4. All actions to be signed off by operational manager and standby spillway master.
5. There are several operation modes available.

AN EXAMPLE OF A FULL FLOOD OPERATION OF THE SPILLWAY:

1. Spillway gate No.1 opens allowing tidal water to flow into Riley's Hill channel. Once adequate water is in the channel to maintain a constant flow. Spillway gate No.2 at Broadwater Beach is open and flow is monitored into the Pacific Ocean.
2. Spillway gate No.3 can then be opened allowing tidal water to flow into Richmond River, Coraki channel. Once adequate water is in the channel and maintains a constant flow, allows Spillway gate No.5 at Kilgin to be opened. This allows channel water from Coraki to Kilgin to cross the Richmond River and continue to flow into Riley's Hill Channel and onto Broadwater Spillway Bar exit into the Pacific Ocean.
3. Spillway gate No.4 can be opened for tidal water from the Wilson's River into the combined channels. (This gate No.4 can be opened at the same time as gate No.3, which will be decided by the Operational Manager). This adds to the direct flow of water to the Broadwater Bar exit Pacific Ocean.
4. Once adequate tidal water is flowing Gates can be raised and lowered as assessed by the Operational Manager.
5. TWO RIVERS, TWO EXITS.

POSSIBILITIES

1. Gates open from low tide to high tide allowing approximately 2 metres of tidal water.
2. Gates can open to a maximum of 3.5 to 4 metres in height, this allows for 2 metres of tidal water and 1.5 meters of flood water to flow from the Wilsons River and Richmond River into the Channels, and directly to the Broadwater Bar, Pacific Ocean. The Richmond River will continuously flow with a minimum flood water.



The enclosed information regarding the planning and designs of the Flood Mitigation and Diversion is and shall always remain the intellectual property of Bare-Heart Innovations.

Dennis Watling & Crystal Graham
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