

**1. REPORT OF THE NARROMINE FLOODPLAIN MANAGEMENT COMMITTEE**

The report to and minutes of the Narromine Floodplain Management Committee meeting held at the Narromine Shire Council Chambers, on 14 March 2018 are attached (**see Attachment No. 1**).

**RECOMMENDED**

That the report of the Narromine Floodplain Management Committee and the recommendations from the minutes of 14 March 2018 be adopted.

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**MINUTES OF THE NARROMINE FLOODPLAIN MANAGEMENT COMMITTEE MEETING HELD AT COUNCIL CHAMBERS ON WEDNESDAY 14 MARCH 2018**

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**PRESENT:** Narromine Shire Council: Cr Colin Hamilton (Chair from 11.26 am), Cr Rob McCutcheon, Mrs Jane Redden (General Manager), Mrs Kerrie Murphy (Director Infrastructure and Engineering Services), Mr Guy Marchant (Manager Health, Building and Environmental Services), Local Emergency Management Officer: Mr Graham Millgate; State Emergency Service: Mr David Monk; Office of Environment and Heritage: Mr Ivan Rivas Acosta; Community/Business Representatives: Mayor Cr Craig Davies, Mr George Mack, Mr Robert Heywood, Mr Tony Barlow, Mr Bob Treseder (from 10.08 am), Mr Jack Cooper; and Mrs Lesley-Ann Roberts (Minute Taker).

**1. WELCOME**

The General Manager advised the Committee that the Chairperson of the Floodplain Management Committee shall be a Councillor Representative and as a result, the Committee would need to re-elect a Chairperson.

With the absence of a Chair, the General Manager assumed the role of Chair and declared the meeting open at 10.01 am.

**2. APOLOGIES**

**RECOMMENDED** by consensus that the apologies of John Kauter and Mike Bennett be accepted.

**3. MINUTES OF THE PREVIOUS MEETING**

**RECOMMENDED** Cr McCutcheon/Jack Cooper that the minutes of the previous meeting held on 30 November 2017 be accepted as a true and accurate record of the meeting.

**4. BUSINESS ARISING FROM THE MINUTES**

**Item 6, Question and Answer, (e) Webb Siding Road and the railway line across a floodplain.**

George Mack queried whether a meeting had been held with the Local Member in December 2017? The General Manager advised that they had met with the Local Member and were advised that it is not the Local Members area of expertise and Council were advised to contact relevant people within ARTC; as such, Council are yet to determine the correct person to contact within ARTC in order to commence discussions.

Discussion was had regarding the parameters of the existing scope as approved by Office of Environment and Heritage. It was advised that any modifications that are required from this original scope would require an application and approval by OEH.

George Mack outlined that the Committee would be letting the community down if it did not consider the importance of the impact of the railway line in relation to water heights.

Ivan Rivas Acosta advised that further investigation would be required if proceeding outside the original scope of the current project.

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**MINUTES OF THE NARROMINE FLOODPLAIN MANAGEMENT COMMITTEE MEETING HELD AT  
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**4. BUSINESS ARISING FROM THE MINUTES Cont'd.**

The General Manager suggested a new application could be put to OEH in addition to the current project that is already in place.

Director, Infrastructure and Engineering Services advised that Webb Siding Road has been reviewed previously, however, options in this regard were outside the limitations of this project brief. Any further investigations would necessitate an additional study and modelling.

Ivan Rivas Acosta outlined that Council have a current plan that is, The Floodplain Risk Management Plan adopted by Council in 2009. In relation to the 2010 flood in Narromine, this Plan must be reviewed with previous and new information before any additional project grants will be considered.

Director, Infrastructure and Engineering Services advised that the premise of this Feasibility Study is *'the feasibility of a Narromine levee bank.'*

Director, Infrastructure and Engineering Services noted, the Peer Review was for a review of previous existing studies undertaken, in an effort to provide the Committee with an independent perspective, not to further investigate Webb Siding or the railway line.

General Manager advised if the feasibility study is changed to include Webb Siding, it would need to incorporate consultation with landholders to the south of Narromine.

It was noted, OEH applications are received from February through to March for project commencement on 1 July 2018. Council's current OEH project is in progress therefore, any new items or variations cannot be included in this current OEH project.

The following suggestions were outlined by OEH in relation to what can be done in relation to OEH funding:

- a) Submit a new project application to OEH prior to 28 March, 2018 for 2018/19 funding round and acquit current project and finalise the feasibility study.
- OR
- b) If unsuccessful for 2018/19 funding, provide an application to OEH prior to 31 March, 2019 for 2019/20 funding round.

**Craig Davies queried whether the current study had been finished as yet?**

It was advised not yet, as the outcome is based on the recommendation of the enclosed Report to the Floodplain Management Committee.

**George Mack objected as to the complexity of this process and why this is so?**

Director, Infrastructure and Engineering Services advised this is because, it is based on the agreed project scope under OEH funding and cannot be based on anecdotal evidence.

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Minutes of the Narromine Floodplain Management Committee Meeting held on 14 March 2018

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**MINUTES OF THE NARROMINE FLOODPLAIN MANAGEMENT COMMITTEE MEETING HELD AT  
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**4. BUSINESS ARISING FROM THE MINUTES Cont'd.**

Discussion was had regarding how 20% of a 1% AEP could be diverted with culverts, in accordance with a study that was done in 2000. Manager Health, Building and Environmental Services advised that Council cannot approach ARTC without sound evidence. That is, OEH will not supply funding without accurate evidence/science.

Discussion was had regarding ARTC undertaking their own flood study and agreed that it would be best for ARTC to liaise with Council in relation to flooding and information share.

It was noted that the ARTC Inland Rail Project would see the new railway line go across the existing railway line, across the highway and over the river.

It was further noted, the new railway line has to be at least 7.2 metres above the Mitchell Highway and will be an overpass (over the existing railway line as well).

Discussion was had regarding 20% of a 1% AEP at Webb Siding and whether liaising with ARTC would be of benefit in relation to putting forward the installing of culverts at Webb Siding as part of the Inland Rail Project.

It was further noted, that it would need to be confirmed whether Inland Rail's project scope covers the impacts as to the flood levels in Narromine.

**The Committee provided their feedback, which is as follows:**

**Mayor Cr Davies:** Cr Davies outlined that the study ARTC are conducting will be site specific to where the new railway line will be established whereas Council's study should incorporate the effects of the levee height and culvert construction at Webb Siding.

**General Manager (NSC) and Ivan Rivas Acostas (OEH):** The General Manager and OEH representative concurred and suggested to the Committee that they could acquit the current OEH grant and submit a new application through OEH and by so doing, incorporate a new scope that the Committee are happy with. Costs could be reduced in the new scope but this is not guaranteed.

**Cr McCutcheon:** Cr McCutcheon queried whether liaising with OEH would be of benefit if the Committee decided to put forward a new OEH application?

**Ivan Rivas Acostas (OEH):** Ivan outlined that OEH have noted multiple delays with the current Narromine project therefore, there may be concern amongst the OEH grant unit if Council submits an additional application when the current project is still active.

**General Manager (NSC) and Manager Health, Building and Environmental Services:** The General Manager and Manager Health, Building and Environmental Services suggested to the Committee that Council close the current project and submit a new application to OEH inclusive of a new scope to include Webb Siding and additional aspects.

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Minutes of the Narromine Floodplain Management Committee Meeting held on 14 March 2018

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**MINUTES OF THE NARROMINE FLOODPLAIN MANAGEMENT COMMITTEE MEETING HELD AT COUNCIL CHAMBERS ON WEDNESDAY 14 MARCH 2018**

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**4. BUSINESS ARISING FROM THE MINUTES Cont'd.**

**Bob Treseder:** Bob outlined that the theoretical factors are guided by the experts; he was there to see the banks break in the original floods however, advised the importance of taking into account the experts' feedback.

**Tony Barlow:** Tony Barlow outlined the importance of noting the 20% of a 1% AEP and the water that went through the town via High Park and River Drive in the previous floods and the importance of Webb Siding being taken into account in the new study. He further noted that he was astounded that this had not been included previously.

**Cr Hamilton:** Cr Hamilton advised it is important to take into account the Committees' concerns however, the town may be vulnerable if we don't proceed.

Manager Health, Building and Environmental Services advised that the town is already vulnerable as is.

**Robert Heywood:** Decide on a recommendation based on facts to adequately communicate to the community and further if Council spend funds, then all facts need to be included. Robert Heywood supports a decision to stall the current project and start again through a new project.

**Jack Cooper:** Jack Cooper outlined that while not entirely happy with the levels he is supportive of starting over and taking into consideration all the factors. He further noted, Council would not be losing data but adding this to what is already available.

**Graham Millgate:** Graham Millgate advised that the Committee is on the right track to doing the best for the community at large. He further noted that in his opinion, ARTC would blowout the railway line if flooding did occur within Narromine.

**Cr Davies:** Cr Davies outlined that the result of these findings may see the levee reduced by 100mm however, it is imperative the Feasibility Study is finalised and the Committee as a whole moves forward.

**David Monk:** David Monk noted that State Emergency Service are an advisory to the Committee and would like the Committee to guarantee that a plan is in place that ensures the safety of the town, including its assets and people.

**RECOMMENDED** Robert Heywood/Cr Davies that Council discontinue the current process and apply for conditional funding from OEH to encompass a broader scope and investigate options for the existing railway line, for an unimpeded flow out on Webb Siding Road.

**George Mack left the meeting room at 11.23 am.**

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**MINUTES OF THE NARROMINE FLOODPLAIN MANAGEMENT COMMITTEE MEETING HELD AT COUNCIL CHAMBERS ON WEDNESDAY 14 MARCH 2018**

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**5. ELECTION OF A CHAIR**

The General Manager called for nominations.

Crs McCutcheon/Davies nominated Cr Hamilton as Chair; Cr Hamilton was duly elected as Chair and assumed the role of Chair at 11.26 am.

**6. REPORT TO FLOODPLAIN COMMITTEE**

It was noted, the Report will no longer need to be considered as it is now superfluous until a new application is submitted to OEH.

**7. NEXT MEETING**

The next meeting is to be advised and more information will become available following the OEH submission.

It was noted, the scope will first be developed and then circulated to the Committee.

It was noted, the Floodplain Management Committee Meeting Minutes from this meeting will first need to be ratified by Council before media releases and public notices can be issued to the community.

**Cr McCutcheon queried why the additional highway alignments presented in the Report to Floodplain Committee were not viable?**

Director Infrastructure and Engineering Services spoke to **Attachment No. 5** of her report and advised of the inundated depths of properties.

Discussion was had regarding the tender process that will follow the OEH application if successful and that OEH would have influence over the agreed consultants, due to their 6:1 provision ratio of funding.

**Robert Heywood queried Sky Park and new residential development applications and their freeboard requirements?**

It was advised to adhere to the guidelines under pre levee construction for any new residential development applications.

There being no further business the meeting closed at 11.47 am.

The minutes (pages 1- 6) were confirmed at a meeting held on 2018 and are a full and accurate record of the meeting held on 14 March 2018.

**CHAIR**

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**REPORT TO FLOODPLAIN MANAGEMENT COMMITTEE MEETING TO  
BE HELD AT NARROMINE SHIRE COUNCIL ON WEDNESDAY, 14 MARCH, 2018**

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## **1. REPORT ON ADDITIONAL ALIGNMENTS ALONG MITCHELL HIGHWAY**

### **Introduction**

The purpose of this report is to provide the Committee with the outcomes of investigations into additional alignments along the Mitchell Highway.

### **Background**

The Floodplain Management Committee met on 30 November, 2017 and resolved *'that the Committee seek a variation from OEH to investigate further alignment along the highway towards Trangie.'*

Due to the work undertaken previously by Lyall and Associates, in regards to the Peer Review, being under expended, it was determined that a variation of the grant was not necessary as the costs for this investigation could be absorbed in the previous variation granted. The work was commenced in late 2017 and was finalised in mid-February, 2018.

### **Discussion/Comments**

There were two (2) additional alignments investigated to ensure that all avenues had been explored and to reduce the chance of further delays.

These alignments were:

- **Option E** – This option went from the old treatment plant, crossed the Warren Road, and headed straight out the Mitchell Highway, towards Trangie (**see Attachment 1**).
- **Option F** – This option went from the old treatment plant, crossed the Warren Road, then around the back of the Peppercorn Motel and out the Mitchell Highway, towards Trangie (**see Attachment 2**).

**Attachment 3** shows **Option B**, which is the original route adopted by the Floodplain Management Committee at their meeting held on 12 August, 2013.

Survey levels were taken on all properties indicated in **Attachment 4** to determine both above ground flooding and above floor flooding of properties and a comparison of the inundation depths along alignments B, E and F, with that of flooding with no levee is shown in **Attachment 5**. For the ease of the Committee, the total properties inundated by above ground and above floor flooding, as well as average increase in depth have been collated in this Table.

It can be seen in **Attachment 5** that with no levee, a total of 153 properties will have above ground flooding and 34 properties will have above floor flooding. The number of properties include additional Lots created in stages 4, 5, 6 and 7 of Skypark (an additional 37 in total).

**Option B** reduces the above ground flooding of properties to 53 and above floor flooding of properties to 29.

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**REPORT TO FLOODPLAIN MANAGEMENT COMMITTEE MEETING TO  
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**1. REPORT ON ADDITIONAL ALIGNMENTS ALONG MITCHELL HIGHWAY Cont'd.**

**Option E** increases the number of properties with above ground flooding to 124 and reduces the number of above floor flooding of properties to 29.

**Option F** increases the number of properties with above ground flooding to 124 and reduces the number of above floor flooding of properties to 30.

The number of properties with above floor flooding is comparable with regards to the three (3) options, with the above ground flooding differing greatly between **Option B** and that of **Options E** and **F**.

The number of properties inundated has largely remained the same, with some having a reduced inundation and some with an increased inundation.

It would appear that the Option with the minimal impact is **Option B**, for the following reasons:

- a) Protection of Aerodrome which is a critical piece of infrastructure, especially, in the event of a flood;
- b) Protection of existing Skypark residences as well as the additional 27 Lots created in Stages 5, 6 and 7 (which will commence in the next financial year);
- c) Protection of the hangar development which will be located on the western side of the Aerodrome;
- d) Protection of the Narromine Aviation Museum, Aeroclub and Narromine Caravan Park which facilitates visitors to the town.
- e) Protection of the Peppercorn Motel and Golf Course (and club house). The Golf Club and Clubhouse would not be protected in options E and F. None of the above would be protected with option F with the Peppercorn Motel being protected in **Option E**.

Discussions with a representative of OEH has indicated that there is agreeance in recommending **Option B** as the preferred alignment.

It is anticipated that there will be some angst from residents who are located outside the alignment of the levee. However, protocols will be developed and appropriate actions will occur in accordance with the Consequence Management Plan of Council's Local Emergency Management Plan, 2015.

Once the alignment has been finalised, Phases A to D of the Feasibility Study can be finalised and the community can be consulted. This will be undertaken, with assistance from SMEC.

After the consultation has taken place, milestones for the grant can be claimed and the finalised component of the Feasibility Study can be presented to Council, for the purposes on making a decision whether to proceed with construction of a levee along with the chosen alignment.

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Director, Infrastructure and Engineering Services Report to the Floodplain Management Committee Meeting of 14 March, 2018

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**REPORT TO FLOODPLAIN MANAGEMENT COMMITTEE MEETING TO  
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**1. REPORT ON ADDITIONAL ALIGNMENTS ALONG MITCHELL HIGHWAY Cont'd.**

With this decision finalised, and in the event that Council chooses to construct a levee, further grant funding will be sought for the completion of the final 2 stages of the Feasibility Study, being EIS and detailed design. This work will require a further tender process to be undertaken.

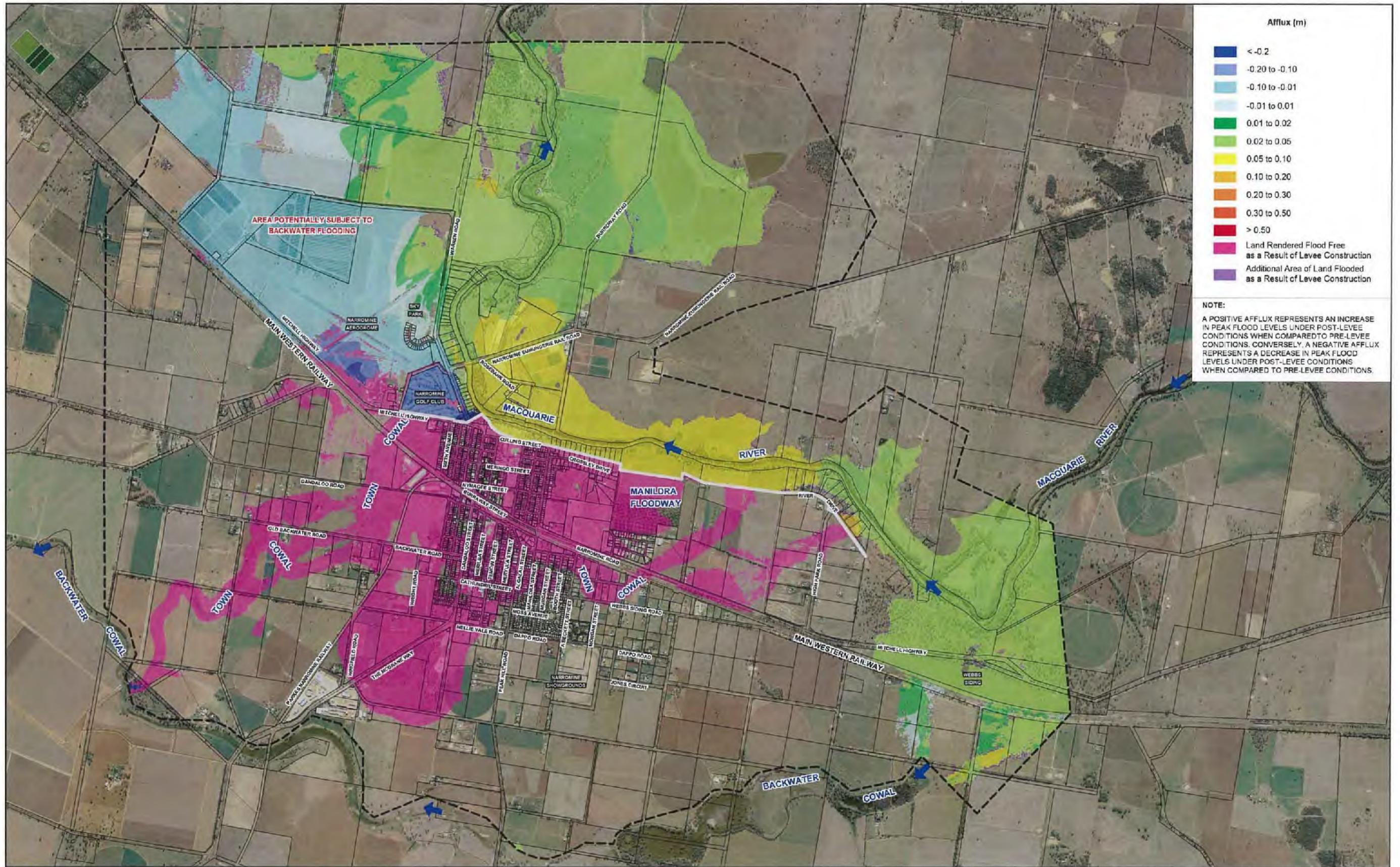
On completion of this work, further funding will be sought for the construction of the levee along this alignment.

There will also be additional work undertaken with land acquisitions and registrations of plans along the route of the levee.

**RECOMMENDATION**

1. That Option B be the recommended alignment for the proposed levee.
2. That protocols be put into place to assist residents outside the levee.

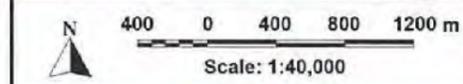
Kerrie Murphy  
**Director, Infrastructure and Engineering Services**



**Afflux (m)**

- <math>< -0.2</math>
- 0.20 to -0.10
- 0.10 to -0.01
- 0.01 to 0.01
- 0.01 to 0.02
- 0.02 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.30
- 0.30 to 0.50
- > 0.50
- Land Rendered Flood Free as a Result of Levee Construction
- Additional Area of Land Flooded as a Result of Levee Construction

**NOTE:**  
 A POSITIVE AFFLUX REPRESENTS AN INCREASE IN PEAK FLOOD LEVELS UNDER POST-LEVEE CONDITIONS WHEN COMPARED TO PRE-LEVEE CONDITIONS. CONVERSELY, A NEGATIVE AFFLUX REPRESENTS A DECREASE IN PEAK FLOOD LEVELS UNDER POST-LEVEE CONDITIONS WHEN COMPARED TO PRE-LEVEE CONDITIONS.



**Lyall & Associates**

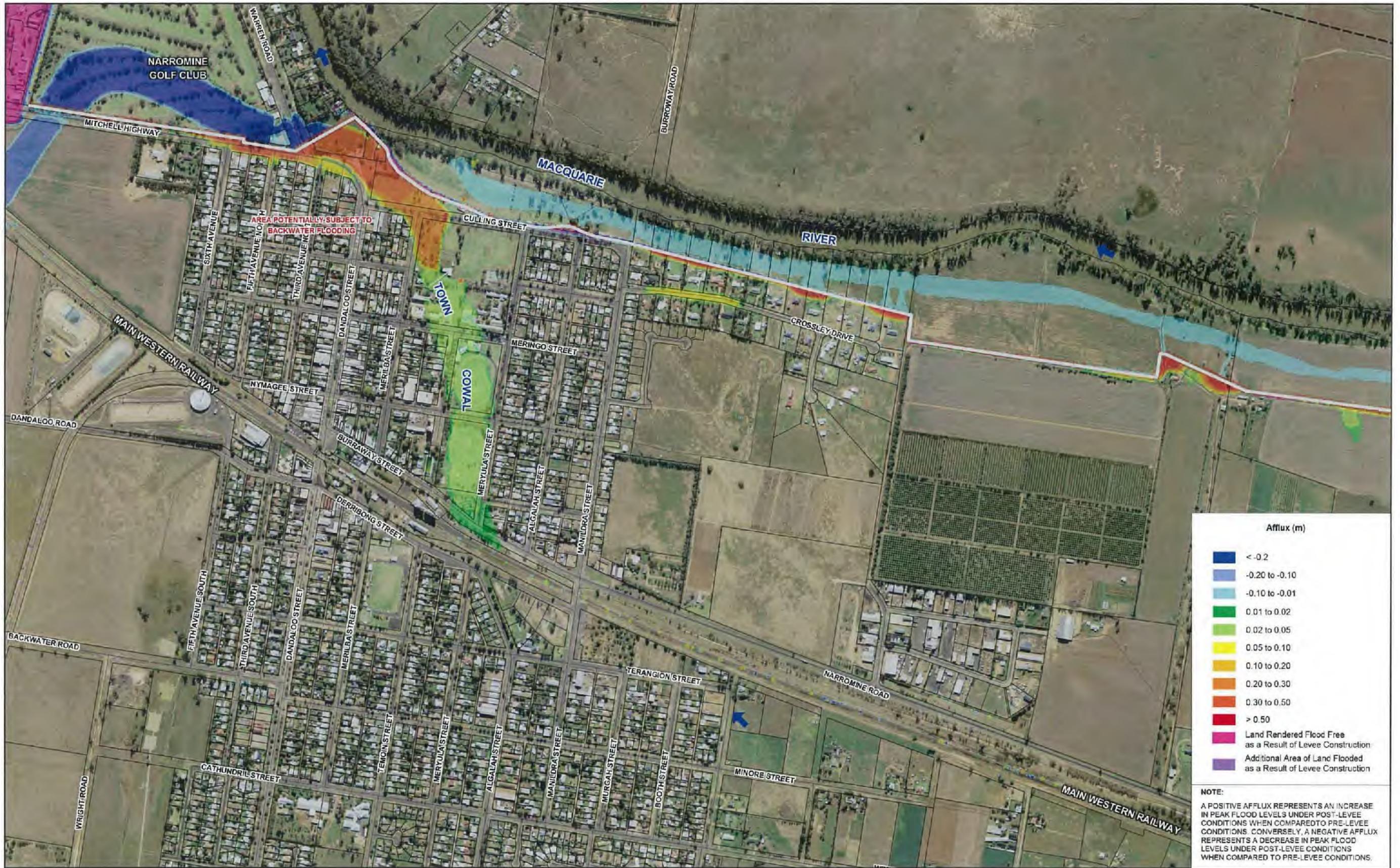
**NOTE:**  
 THE TUFLOW MODEL RESULTS SHOWN ON THIS FIGURE ARE NOT TO BE USED FOR PURPOSES OTHER THAN THE ASSESSMENT OF LEVEE OPTIONS. FOR EXAMPLE, THEY ARE NOT TO BE USED FOR SETTING MINIMUM FLOOR LEVEL REQUIREMENTS WITHIN NARROMINE OR DETERMINING THE EXACT EXTENT OF FLOOD AFFECTED LAND FOR PLANNING PURPOSES.

**LEGEND**

- Two-Dimensional Model Boundary
- Levee Route

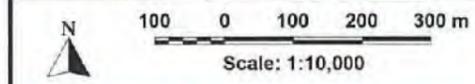
**NARROMINE RIVER BANK LEVEL FEASIBILITY STUDY**

Figure 6  
 IMPACT OF LEVEE OPTION E ON MAIN STREAM FLOOD BEHAVIOUR  
 1% AEP



Afflux (m)	
Dark Blue	< -0.2
Blue	-0.20 to -0.10
Light Blue	-0.10 to -0.01
Green	0.01 to 0.02
Light Green	0.02 to 0.05
Yellow	0.05 to 0.10
Orange	0.10 to 0.20
Red-Orange	0.20 to 0.30
Red	0.30 to 0.50
Dark Red	> 0.50
Pink	Land Rendered Flood Free as a Result of Levee Construction
Purple	Additional Area of Land Flooded as a Result of Levee Construction

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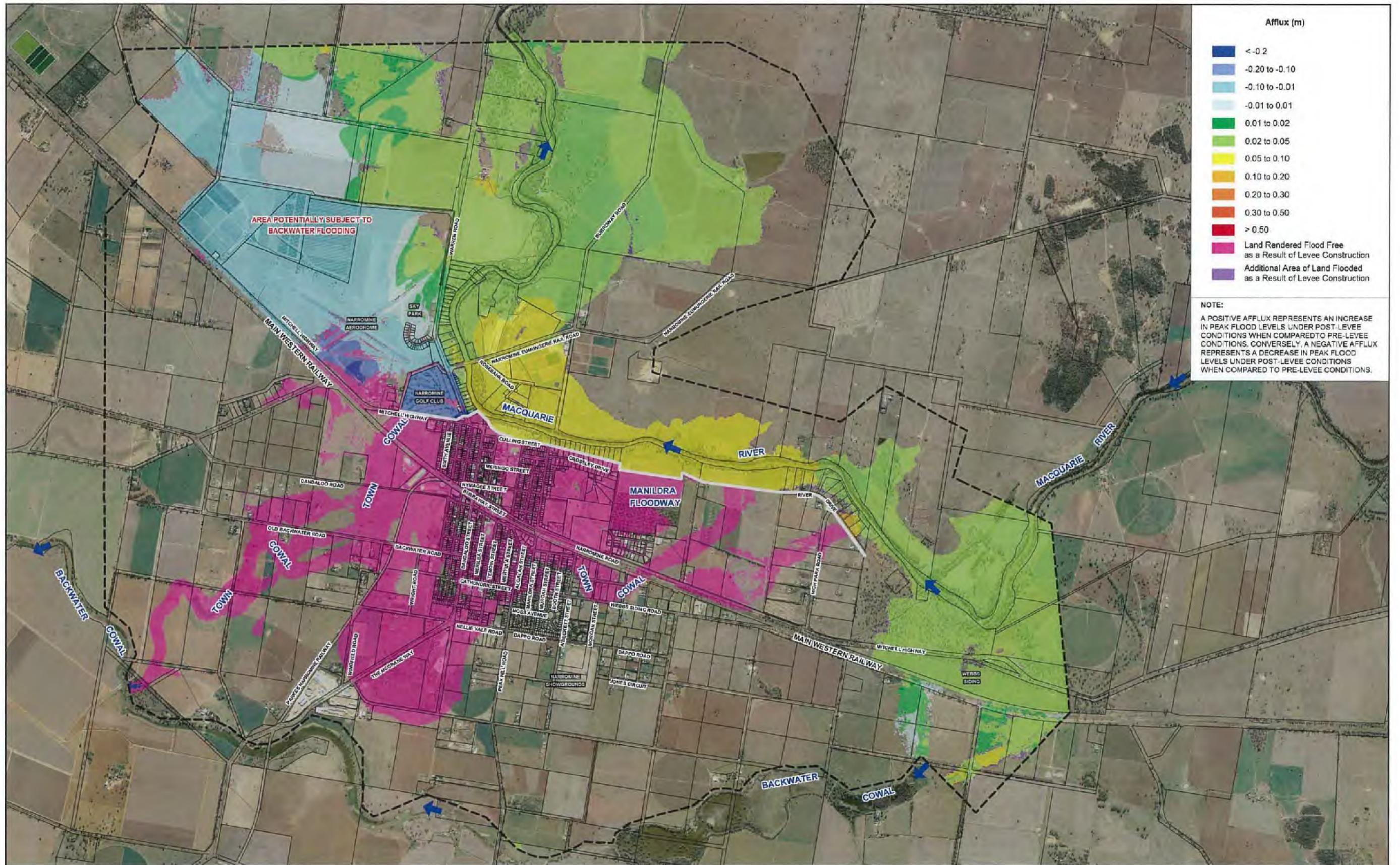
**Lyll & Associates**

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**LEGEND**  
 - - - - - Two-Dimensional Model Boundary  
 ————— Levee Route

**NARROMINE RIVER BANK LEVEE FEASIBILITY STUDY**

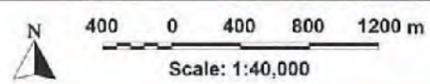
Figure 7  
IMPACT OF LEVEE OPTION E ON LOCAL CATCHMENT FLOOD BEHAVIOUR  
1% AEP



**Afflux (m)**

- <math>< -0.2</math>
- 0.20 to -0.10
- 0.10 to -0.01
- 0.01 to 0.01
- 0.01 to 0.02
- 0.02 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.30
- 0.30 to 0.50
- > 0.50
- Land Rendered Flood Free as a Result of Levee Construction
- Additional Area of Land Flooded as a Result of Levee Construction

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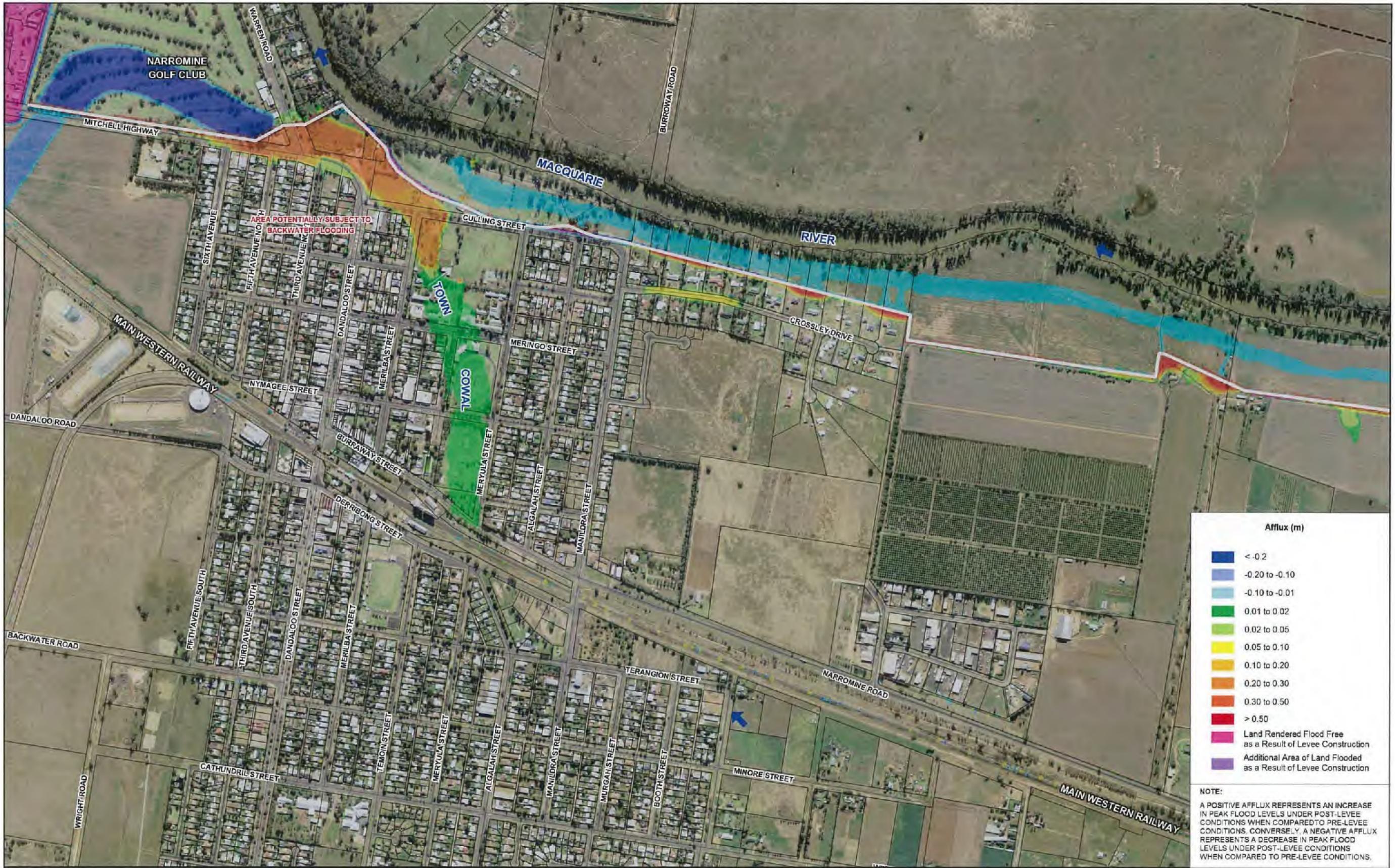


**LEGEND**

- Two-Dimensional Model Boundary
- Levee Route

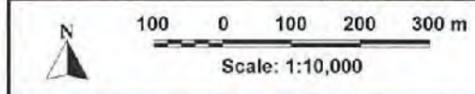
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**NARROMINE RIVER BANK LEVEE FEASIBILITY STUDY**



Afflux (m)	
[Dark Blue]	< -0.2
[Light Blue]	-0.20 to -0.10
[Cyan]	-0.10 to -0.01
[Green]	0.01 to 0.02
[Light Green]	0.02 to 0.05
[Yellow]	0.05 to 0.10
[Orange]	0.10 to 0.20
[Red-Orange]	0.20 to 0.30
[Red]	0.30 to 0.50
[Dark Red]	> 0.50
[Pink]	Land Rendered Flood Free as a Result of Levee Construction
[Purple]	Additional Area of Land Flooded as a Result of Levee Construction

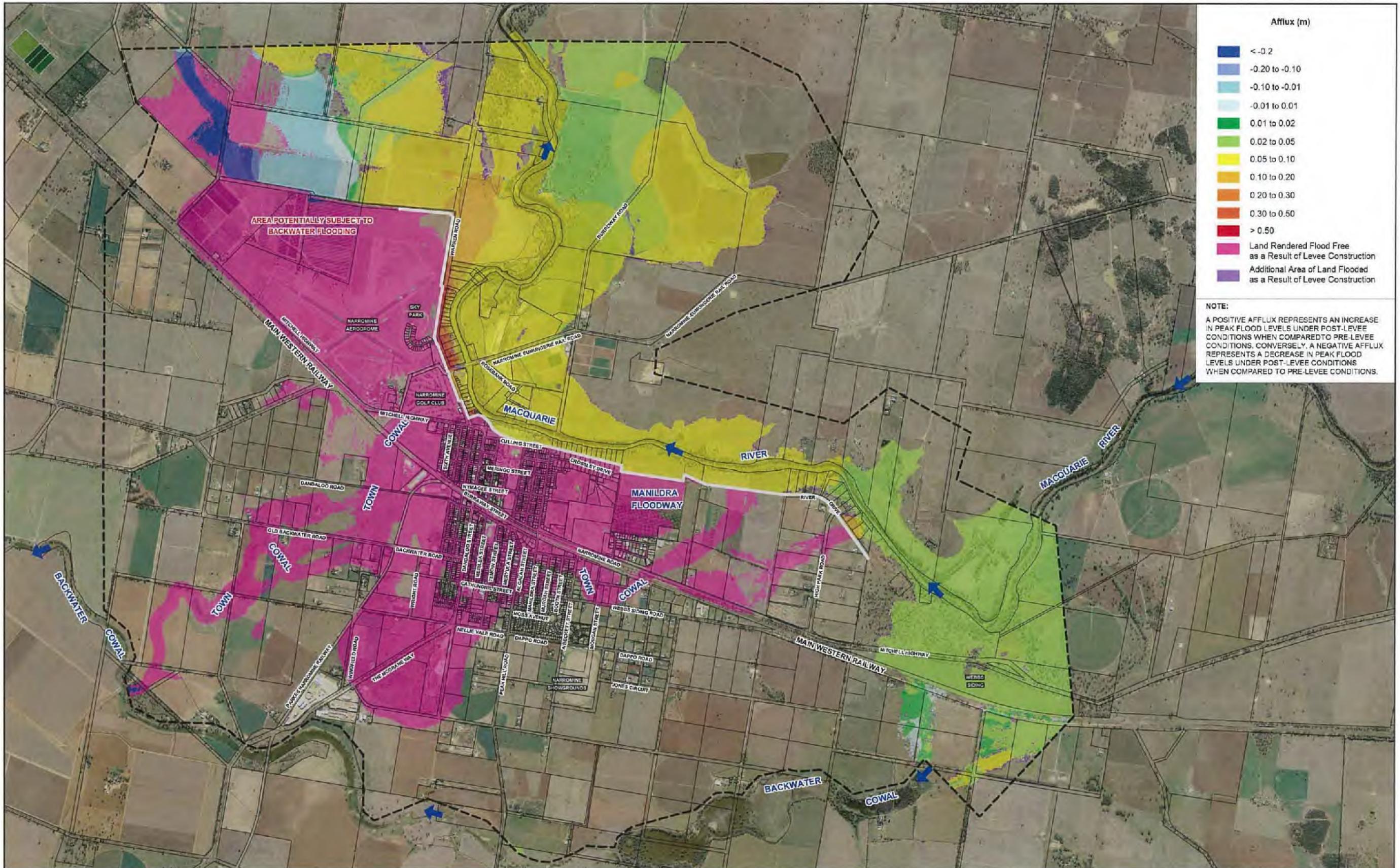
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**LEGEND**  
 - - - - - Two-Dimensional Model Boundary  
 = = = = = Levee Route

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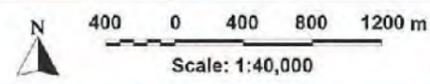
**NARROMINE RIVER BANK LEVEE FEASIBILITY STUDY**



**Afflux (m)**

- < -0.2
- -0.20 to -0.10
- -0.10 to -0.01
- -0.01 to 0.01
- 0.01 to 0.02
- 0.02 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.30
- 0.30 to 0.50
- > 0.50
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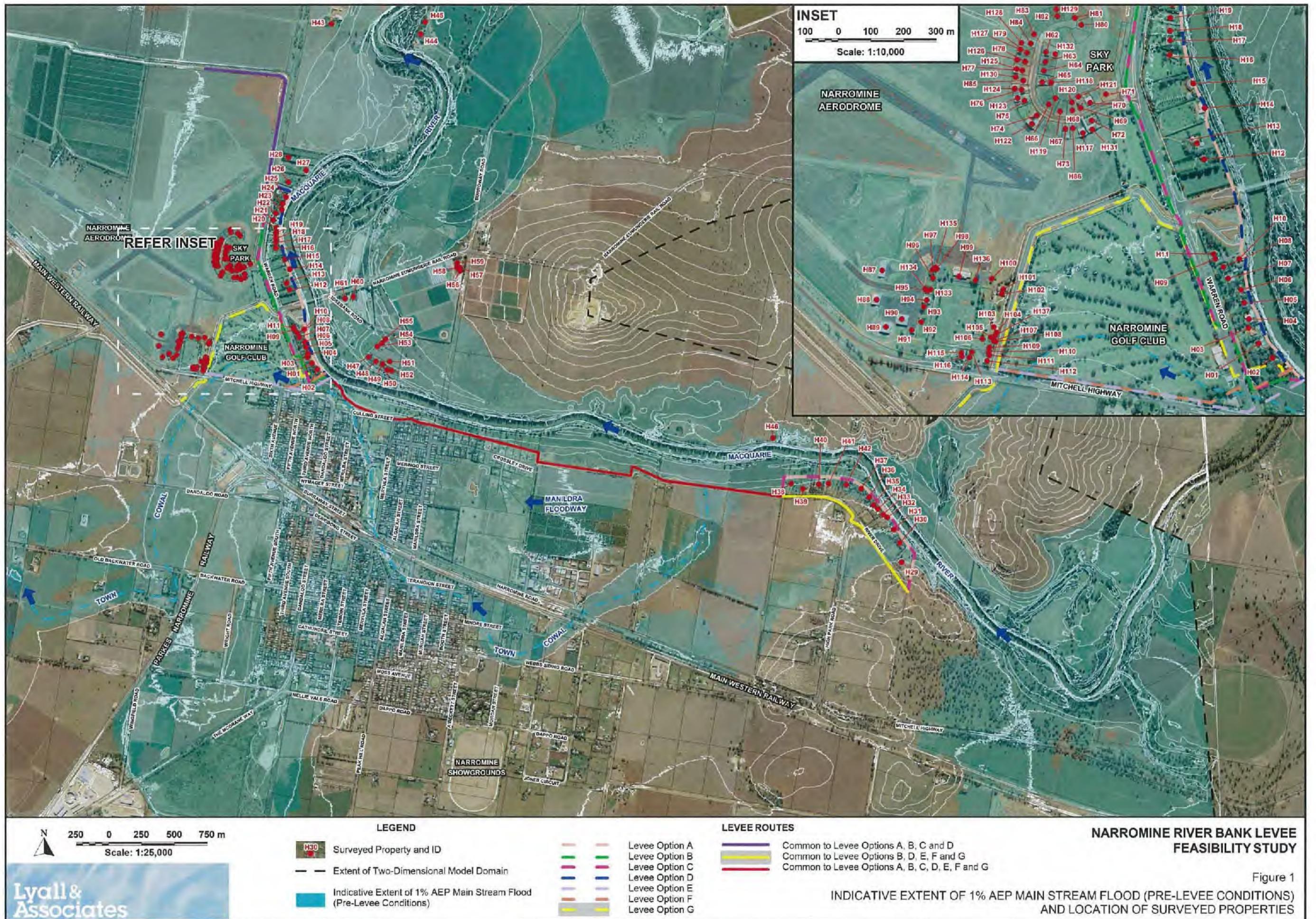


**LEGEND**

- Two-Dimensional Model Boundary
- Levee Route

**NARROMINE RIVER BANK LEVEE FEASIBILITY STUDY**

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## Attachment No. 5

Information Extracted from Table B1														
			Bowden Fletcher Drive	Burroway Road	Eumingerie Road	Macquarie View Road	Mitchell Highway	River Drive	Rosebank Road	Warren Road	Total Properties	Properties Flooded	Average Increase In Depth	Median Increase in Depth
	Properties		41	2	6	1	35	14	9	29	137			
<b>No Levee</b>														
	Above Ground Flooding													
	Properties		77	2	2	1	27	11	9	24		153		
	Average Depth		120	280	455	180	170	400	350	370			209	170
	Above Floor Flooding													
	Properties		5	1	2	0	11	8	0	7		34		
	Average Depth		100	10	260		100	360		220			193	130
<b>Option B Does not protect River Drive or Warren Road</b>														
	Above Ground Flooding													
	Properties		0	2	2	1	0	11	9	28		53		
	Increased Depth			50	70	60		50	65	130			95.8	70
	Above Floor Flooding													
	Properties		0	1	2	1	0	9	0	16		29		
	Increased Depth			50	70	20		50		90			72.4	70
<b>Option E Along Mitchell Hwy not protecting the motel</b>														
	Above Ground Flooding													
	Properties		72	2	2	1	0	11	9	27		124		
	Increased Depth		-10	40	60	50		50	60	40			13.7	30
	Above Floor Flooding													
	Properties		4	1	2	1	0	9	0	12		29		
	Increased Depth		-30	40	60	10		50		30			29.7	40
<b>Option F Along Mitchell Hwy protecting the motel</b>														
	Above Ground Flooding													
	Properties		72	2	2	1	0	11	9	27		124		
	Increased Depth		-10	40	60	50		50	60	40			13.7	30
	Above Floor Flooding													
	Properties		4	1	2	1	0	9	0	12		29		
	Increased Depth		-30	40	60	10		50		30			29.7	40
<b>Option G Around the golf course</b>														
	Above Ground Flooding													
	Properties		71	2	2	1	0	11	9	27		123		
	Increased Depth		-10	40	60	50		50	55	45			14.6	40
	Above Floor Flooding													
	Properties		4	1	2	1	0	9	0	13		30		
	Increased Depth		-30	40	60	10		50		40			34	40