COMMUNITY CONSULTATION

- Summary of Questionnaire Responses
- Community Newsletter and Questionnaire October 2020



DISCUSSION PAPER

Community Consultation Summary - Urbenville



Project:	S20128 – Urbenville Flood Study
Prepared for:	Tenterfield Shire Council
Date and Rev:	11/12/2020 – Issue for Information
Prepared by:	Thomas Sigley
Reviewed:	Laura Baxter

1 INTRODUCTION

Effective community consultation and participation, through valuing the experiences and opinions of the community can improve the collaboration between Council and the community enabling the achievement of project outcomes that are satisfactory to all stakeholders.

Community Consultation is ongoing throughout the Flood Study project. The purpose of this Summary Paper is to summarise the consultation undertaken to date and how the findings will be incorporated into the Flood Study. This Summary Paper will be updated at key stages during the project following community consultation phases.

2 COMMUNITY CONSULTATION PROGRAM

The Community Consultation Program involves:

- **Project Website** A project website is being hosted at <u>https://www.bgeeng.com/floodstudies/urbenville</u> for the duration of the project. This provides the community with updates on the study progress, links to the community questionnaire and contacts to provide information and feedback.
- Community Newsletter a newsletter was mailed to 215 property owners in September 2020. A copy is included as Appendix A. The newsletter informed of the objectives of the Urbenville Flood Study and highlighted the study area. Tenterfield Council also posted notices on their website to link to the community newsletter and project website at https://www.tenterfield.nsw.gov.au/urbenville-and-woodenbong-flood-study
- Questionnaire a questionnaire accompanied the newsletter in September 2020 (copy provided in Appendix A). Residents were given until 31 October 2020 to respond. A copy of the questionnaire was also made available online. The findings of the questionnaire are useful to understand the community's experiences of past flooding, the level of flood awareness, highlight areas for flood mitigation and allow residents to provide flood information for use in calibration of the flood models. A project email address was also created to allow people to email photographs and addition information.



- **Community Information Sessions** two information sessions are planned. At each session community input will be invited through on the day questions and answers or feedback forms and via the project website.
 - Due to the restrictions of COVID the first will be undertaken online if required. The first session will describe the preliminary findings of and seek feedback on the flood modelling undertaken. It will also present how the results of the community questionnaire and other community feedback are being taken into account in the study.
 - A second community consultation will be undertaken during the public presentation of the Draft Flood Study at start of the Public Exhibition period. This will present further additional information such as flood hazard and emergency classification of communities.
- **Public Exhibition** the Flood Study will be placed on public exhibition for a period of at least 28 days to invite community feedback before Council adoption.

3 QUESTIONNAIRE FINDINGS

The questionnaire was mailed to property owners in and around the study area. A total number of 215 newsletters and questionnaires were mailed out. The purpose of the community questionnaire was to:

- Understand the level of flood affection and the numbers of people who have experienced flooding;
- Encourage the community to provide information about historic flooding which can be used in flood model calibration and understanding flood behaviour;
- Highlight areas where the community thinks flooding is a concern and requires management;
- Identify the level of flood awareness and the community perceptions on acceptable frequency of flooding.

3.1 Response Rate

A total of 2 responses were received online and 20 by mail. The total number of responses was 22 which equates to a 10.2% response rate. This was considered to be a reasonable response rate, given the size of Urbenville and the number of residents who reside there. Response rates to surveys such as this tend to be more skewed to those who have experienced or are concerned with flooding.

Two respondents requested to be contacted for further information. BG&E spoke to each resident and they provided some information over the telephone. They were also invited to send through additional information by email. At the time of collating community questionnaire findings and compiling this report, additional information from one of respondents had been received in the form of photos. An additional resident, who did not answer the questionnaire, also sent through photos of flooding in Urbenville. Photos can be found in Appendix B.

3.1.1 Who Responded?

Identifying where respondents live can indicate where flooding is of a greater concern to residents. Typically, those in more flood prone areas are more likely to respond and provide feedback. Understanding how long residents have resided in the area can also be beneficial in determining a level of flood awareness in relation to the community i.e. the longer a resident has lived in the area, the more likely they might have experienced flooding.



3.1.2 Property Classification

Figure 1 identifies the residence classification of respondents. 82% of responses received were from residential properties or a residence classified as 'home'. Responses to this question outline that it is home owners or occupiers who may tend to feel more affected by flooding issues than non-residential owners or occupiers. However, results may be skewed, due to a larger tendency for home owners or occupiers to respond to the questionnaire. Of the 3 respondents who indicated 'other', 2 classified the property as both a workplace and home. The remaining response came from Urbenville and District Bowling Club.



Figure 1: Classification of Residence.

3.1.3 How Long Have Respondents Lived in the Area

Figure 2 presents the period of time during which respondents have lived or worked in the area or at their residence. 23% of respondents had recently moved into the area within the last 5 years, with this group least likely to be aware of the existing flood risks or be aware if their property or workplace could be subject to inundation. 36% of respondents had resided in the area for more than 25 years, with 4 of these residing for longer than 35 years. This group are most likely to have experienced flooding in the area; however the only flood event identified by residents living in the area for over 25 years was the 1990 flood event.





Figure 2: Period of Time Respondents Have Lived in the Area.

3.2 Flood Awareness

Understanding the community's awareness of flood risk and their response allows for targeted flood awareness campaigns and can assist in flood emergency response planning.

3.2.1 Personal Property

The questionnaire asked respondents if they were aware if their property was flood affected and if it had flooded before. This type of question can often be skewed more towards a positive 'yes' response, as respondents who may respond are typically within flood prone areas or have been affected by flooding previously. People who have not experienced flood at their property have a greater tendency to not provide a response, as they feel the issue has not or will not affect them.



Figure 3: Number of Respondents Affected by Flooding

Figure 3 highlights that almost one third of respondents (32%) did not think their property was flood affected, suggesting that they had not experienced a flood at their residence. 27% of respondents nominated that



their property was flood affected and that it had flooded before, with a further 23% acknowledging that their property was flood affected but had not flooded before.

Of the 6 respondents who elected that their property was flood affected and had flooded before, 5 of these also recalled having to evacuate their residence at some time.

Results relating to flooding experiences, particularly isolation and/or evacuation are presented in Section 3.3.1 below.

3.2.2 Responding to Flooding

Questions asked were aimed to understand the level of flood awareness of the community in terms of emergency response behaviour. Respondents were asked outline if they believed they would know what to do in the event of a flood.

Figure 4 highlights that the majority of people believe they are flood aware. 64% of respondents believed they would know what to do in the event of a flood and a further 27% indicated they 'think' they would know what to do.

Only 1 respondent indicated that they 'would not' know what to do if there was a flood. 1 respondent also did not provide an answer to this question.



Figure 4: Flood Awareness of Respondents

Although the results indicated a high awareness to act during a flood (91%) this question can be skewed as those who are aware, or are more interested in flooding may be more likely to respond. Similarly of the 14 respondents (64%) who believed they would know what to do in the event of a flood, only 5 had experienced a flood at their property. Additionally, a further 4 respondents (out of the 14) nominated that they did not think' their property was flood affected.

The results may point to a false sense of flood security particularly for those residents who have not experienced flooding but think that they were confident they would know what to do. This highlights the importance of the community consultation through the Flood Study program but also the importance of continued flood awareness and community flood education undertaken by Tenterfield Council and the NSW SES.

While people may believe they know what to do to respond to flooding, based on one or more experiences, the most commonly experienced flood events are typically not considered as rare or extreme events (to be confirmed through the Flood Study). Should a larger flood occur requiring a different response such as evacuation, people may believe that there is no need for evacuation based on their past experiences. This is



a challenge in flood emergency response management and the findings of the Flood Study will be able to assist in planning for and raising awareness of the community emergency response for larger floods.

3.3 Experience of Flooding

3.3.1 Evacuation and Isolation

Respondents were asked to outline if they had been evacuated or isolated during events of flooding. Again, this type of question can often be skewed more towards a positive 'yes' response, as respondents who may respond have typically been affected by flooding in some way.

Figure 5 highlights that half of respondents (50%) nominated that they (or other household members) had never been isolated or evacuated in the past due to flooding. The remaining 50% indicated that they (or other household members) had never experienced isolation or evacuation due to flooding.



Figure 5: Number of Respondents who have been Isolated or Evacuated from their Household

Of the 8 people who reported having been isolated or evacuated , 4 of those reported believed flooding was caused from local stormwater infrastructure or smaller creeks.

3.3.2 Tooloom Creek

The questionnaire asked respondents to acknowledge if they had ever experienced flooding from Tooloom Creek. This question served to focus on areas subject to mainstream flooding from Tooloom only, rather than localised stormwater flooding and the response of existing council owned pit and pipe infrastructure.

Figure 6 shows that approximately one third of respondents (14) believed they had observed flooding from Tooloom Creek. Of the 14 people reported having observed flooding from Tooloom Creek, 5 people reported flooding from Tooloom Creek had directly affected their property. 2 of these 5 were located in the area around Forest Parkway, just off Clarence Way (heading to Woodenbong).





Figure 6: Number of Respondents who have experienced flooding from Tooloom Creek.

A higher proportion of 'Yes' responses relates to the geographic location of Tooloom Creek which flows adjacent to approximately 30 properties, mostly in the northern half of the town. Approximately 10 of these 30 properties back directly onto Tooloom Creek.

3.3.3 Other Sources of flooding

The questionnaire asked respondents to acknowledge if they had ever experienced flooding from stormwater of smaller creeks. This question served to focus on areas subject to localised flooding, unrelated to Tooloom Creek including smaller local creeks and local council-owned stormwater infrastructure such as channels, pits and culverts.

Figure 7 highlights that over half the respondents (12) had experienced flooding at their property from local catchments. The area at the lower end of Urben and Welch Street as well as the area around Forest Park were mentioned on 3 and 2 occasions respectively.



Figure 7: Number of Respondents who have Experienced Flooding from Stormwater or Smaller Creeks



3.3.4 Historic Flooding

Respondents were also asked to provide specific commentary on historic flooding events. Results are summarised in Table 1. These areas are also shown in the mapping in Appendix C.

Repeated flooding (at the same location) was evident for this response. Flooding occurred on separate occasions at the following locations:

- Tooloom Creek (at the back of the shops);
- Forest Park entry (adjacent Tooloom Creek); and
- Flooding of property (17752 Clarence Way) paddocks, just north of Forest Parkway.

All 3 areas, concentrated on an area of Tooloom Creek just upstream of Tooloom Creek Bridge (located on Clarence Way, heading to Bonalbo)

Date/Year Observed	Number of Respondents	Comments
1990	1	• Tooloom Creek flooded at back of shops in 1990.
1999	1	 Tooloom Creek flooded at back of shops in 1999. Village cut off from town of Woodenbong
2006	1	 South eastern areas of Urbenville: Areas from bowling club through to lower flats as well as old timber saw mill
2008	1	 Residential Property- 17752 Clarence Way. Flooding breaks banks of creek line. 6 inches deep at the back of paddock in property. Comes about 1/8th of way up the paddock.
6th January 2008	1	 Flooding over the road at Forest Park entry on Clarence Way, adjacent to old sawmill and at bridge on way to Bonalbo.
16th February 2010	1	 Residential Property - 6 Urben Street. Flooding from kerb and gutter, flowing over driveway and running down the back. Depth gets to at least 5 inches. Refer Photograph 1 in Appendix B.
2011/12	1	 Residential Property - 17752 Clarence Way. Flooding breaks banks of creek line. 6 inches deep at the back of paddock in property. Comes about 1/8th of way up the paddock.
6th January 2013	1	• Flooding over the road at Forest Park entry on Clarence Way, adjacent to old sawmill and at bridge on way to Bonalbo.

Table 1: Summary of Flood Events where Dates were Provided



3.4 Flood Mitigation

3.4.1 Flooding of Other Areas

To understand the local community's priorities for flood mitigation, the questionnaire asked respondents to acknowledge any other areas within the Urbenville Flood Study which they thought flooding should be reduced. This question sought to identify if there were potential priority or 'problem' areas.

Figure 8 highlights that 10 respondents (45%) believed that other areas within the Urbenville Flood Study were problem areas subject to flooding.



Figure 8: Number of Respondents Who Believed there are Other Problem Areas Where Flooding Should be Reduced

3.4.2 Priority Areas

Respondents identified a number of 'priority areas' where they noted flooding. These are summarised in Table 2. These areas are also mapped in Appendix C.

Table 2:	'Priority'	Areas.
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Street/Location	Number of Respondents	Comment
Corner of Welch Street and Stephen Street	1	 Residential Property - 6 Welch Street. Access to home is blocked due to flooding, does not need to be flooding rain to do so. Inadequate/blocked storm water drainage on corner of Welch/Stephen Street and excess runoff down Welch Street.
Tooloom Creek Bridge (Clarence Way on way to Bonalbo)	1	 Tooloom Creek Bridge floods at times (when receiving heavy or flooding rain)
Urbenville Showground/Bowling Club/Forest Park	3	 Showground area becomes isolated during flooding Water over road at Forest Park turnoff Road blocked on Clarence Street at Showground Every flood that affects Urbenville affects the Bowling Club as Tooloom Creek floods and borders the Bowling Club premises and greens.
Clarence Way	5	 Clarence Way (heading to Woodenbong) can get cut off Gully near Forest park which crosses under Clarence Way



Street/Location	Number of Respondents	Comment
Tooloom Creek	3	 Tooloom Creek flooded at back of shops in 1990 and 1999. Village Cut off from Woodenbong. Wet seasons will see Tooloom Creek flood and cut off exit roads from Urbenville
Tooloom Street	3	 Residential Property - 25 Tooloom Street. Flood came part- way upstairs, washed away gardens and decking and damaged property under house (didn't reach door level). Occurred twice in 5 to 15 year period. People owning houses on lower side of Tooloom Street are in flood areas.
Beaury Street	2	 Residential Property - 1 Beaury Street. Tooloom Creek comes up and floods backyard by 12 inches or so. Town water from Beaury Street is funnelled into backyards/paddocks. Need for pipe, however water will still run into paddocks unless water is directed down to bridge (Tooloom Creek Bridge)
Old Saw Mill (Tooloom Road)	3	Tooloom Road at Old Saw Mill site gets blocked during floods
Needhams Creek (Tooloom Road)	1	 Needhams Creek came up about 9-10 feet almost to level of new bridge construction. Isolated for 2 weeks in 2020 when new Mulcahy Bridge was being constructed. Floodwater almost came up to level of new bridge.
Urben Street Drainage	3	 Residential Property - 49 Urben Street. Stormwater from roadside gutters seeps into house and floods bedrooms and runs through house. Roadside gutters need to be extended past property. Residential Property - 29 Urben Street. Drainage needs to be improved at lower end of Tooloom Street and Urben Street. Residential Property - 6 Urben Street. End of Urben Street has very poor drainage. Water extends over road and cannot drain away. Also comes in from kerbing, flows over driveway and runs down to back of property. Gets to approx. 5 inches deep. Refer Photograph 1 in Appendix B.

3.5 DATA FOR FLOOD MODEL CALIBRATION

Data that will be utilised for flood model calibration is summarised in Table 3. Where no time and dates are provided, the result of the flood modelling can be compared with the anecdotal evidence to validate the model performance.



Table 3: Calibration and Validation Data Summary

Date and Time	Location	Observation	Comment	Approach to flood model calibration
6th January 2008	Tooloom Road (at Old saw mill)	Water over road (no depth recorded)	 All exits from Urbenville blocked off due to water over road 	Review modelled flood behaviour against the anecdotal evidence
6th January 2008	Clarence Way (at Forest Park turnoff)	Water over road (no depth recorded)	 All exits from Urbenville blocked off due to water over road 	Review modelled flood behaviour against the anecdotal evidence
6th January 2008	Clarence Way (at bridge heading to Bonalbo)	Water over road (no depth recorded)	 All exits from Urbenville blocked off due to water over road 	Review modelled flood behaviour against the anecdotal evidence
16th February, 2010	6 Urben Street	5 inches of water in front yard	 Water comes in from kerbing on Urben Street and flows onto driveway before running down to the back. End of Urben Street has very poor drainage, water extends over road and cannot drain away 	Consider 2010 event for flood model validation. This can be supplemented by additional data which has been provided by Council.
2013	Tooloom Road (at Old saw mill)	Water over road (no depth recorded)	 All exits from Urbenville blocked off due to water over road 	Review modelled flood behaviour against the anecdotal evidence
2013	Clarence Way (at Forest Park turnoff)	Water over road (no depth recorded)	 All exits from Urbenville blocked off due to water over road 	Review modelled flood behaviour against the anecdotal evidence
2013	Clarence Way (at bridge heading to Bonalbo)	Water over road (no depth recorded)	 All exits from Urbenville blocked off due to water over road 	Review modelled flood behaviour against the anecdotal evidence
No date	1 Beaury Street	12 inches of water in backyard	• Tooloom Creek comes up and floods backyard by 12 inches 'or so'. Creek inundation covers half the height of fenceline.	Review modelled flood behaviour against the anecdotal evidence
No date	Tooloom Road Creek crossing (Needhams Creek)	Water level nearly to level of new bridge construction	 Needhams Creek/Tooloom Creek rose 9-10 feet almost to level of new bridge construction 	Review modelled flood behaviour against the anecdotal evidence

3.6 SUMMARY

- People believe they are generally aware of what they need to do during a flood, with results indicating that 91% of respondents nominating they would either be confident or 'think' they would be confident during a flood event. However, the experience of large and rare floods is limited.
- There is limited data available for calibration of the flood models from the community submissions.
- Key areas identified by the community as requiring flood mitigation or management include:
 - Roads leaving Urbenville:
 - Tooloom Road (at the old saw mill site)
 - Clarence Way (at the bridge heading to Bonalbo)



- Clarence Way (at turnoff to Forest Park)
- General Street drainage in town:
 - Welch Street/Stephen Street
 - Urben Street (particular lower south-western end)
 - Beaury Street (towards Tooloom Street intersection)
- Tooloom Street (properties that back onto Tooloom Creek floodplain)
- Needhams Creek crossing on Tooloom Road



Newsletter and Questionnaire – September 2020



URBENVILLE FLOOD STUDY

Tenterfield Shire and Kyogle Councils have engaged engineering consultant BG&E to develop a Flood Study for Urbenville. The study is being undertaken with financial and technical assistance from Council and Department of Planning, Industry and Environment (DPIE) through the NSW Government's Floodplain Management Program.

The Urbenville Flood Study will help us understand the likely flooding scenarios for the town of Urbenville including flooding from Tooloom Creek and from local catchments.

The Urbenville Flood Study will:

- Develop flood models based on historic data and statistical analysis
- Identify the areas of flood prone land to assist with flood planning and risk management
- Establish the likely flood risk and flood hazard for properties in the study area
- Develop flood mapping to assist in future planning and development
- Provide flood intelligence to the NSW SES to assist in flood emergency response

HOW CAN YOU HELP?

The local community is the best source of information on the flooding issues. We are asking for information such as your experiences, photos and observations of flooding. A Community Information Session will be held at a later date to present the findings of the study.

Please take a few minutes to complete the attached questionnaire and return by reply-paid mail before 30 October 2020.

Alternatively you can complete the questionnaire online using the QR code or by visiting www.surveymonkey.com/r/UrbenvilleFloodStudy

If you have further information such as photographs these can be emailed to: UrbenvilleFloodStudy@bgeeng.com.

THE FLOODPLAIN RISK MANAGEMENT PROCESS



We Are Here The Study is being prepared in line with NSW Government Policy and the Floodplain Risk Management Process. Once complete, the findings of the Flood Study will enable the Council's to start to the next step in the Floodplain Risk Management process; that is consider measures to reduce impacts of flooding.





Planning,

Industry &

Environment



URBENVILLE FLOOD STUDY



STUDY AREA



CONTACT US

Project Website: www.bgeeng.com/FloodStudies/Urbenville

Email: UrbenvilleFloodStudy@bgeeng.com

Council: Melissa Blum m.blum@tenterfield.nsw.gov.au or 0439 118 312





Planning, Industry & Environment

URBENVILLE FLOOD STUDY QUESTIONNAIRE

Thank you for taking the time to answer this questionnaire. Your input provides useful information so that we can calibrate flood models to real-life flood data and helps us focus the study on areas and issues that are a priority to the community. Please return the questionnaire in the pre-paid envelope provided. Alternatively you can complete the questionnaire online: www.surveymonkey.com/r/UrbenvilleFloodStudy

Q1. Your Details

Name
Address
Email
Telephone
Is this a property a home

or workplace or other use?

Q2. How long have you lived/worked at this address?

0 to 5 years	5 to 15 years	15 to 25 years	More than 25 years	How Many? (if more than 25)

Q3. How long have you lived/worked in the area?

0 to 5 years	5 to 15 years	15 to 25 years	More than 25 years	How Many? (if more than 25)

Q4. Are you aware if your property is flood affected?

Yes, it has flooded	Yes, but it has not	I don't think it is	l don't know
before	flooded	flood affected	

Q5. Have you or members of your household been isolated or evacuated due to flooding?

Yes, Evacuated	Yes, Isolated	No, never

Please tick the box below.

All information provided will remain confidential and will only be used for the purpose of this study. Specific information on the respondents or their responses will not be made available or reported on.

Please provide you email or telephone number if you agree we can contact you in relation to this study.

Please write, "home", "workplace" or state use if other.

Please tick the box below.

Please tick the box below.

If you answered yes, you can provide further information at the end of this questionnaire, such as when this happened and for how long.





URBENVILLE FLOOD STUDY QUESTIONNAIRE

Q6. Have you ever experienced flooding from Tooloom Creek?

Yes, at this property	Yes, in the local area but my property was not affected	No, I have not observed flooding in the area

This question relates to flooding from the river only. This information helps us to calibrate the flood models to real-life data and to get more accurate outcomes.

If Yes, please provide additional details such as where you observed flooding and the date and time that you experienced flooding. If you can, say how deep the water was or how high did it get? How far did the water go into your property? Was there any damage? Additional space for you response is provided at the end of this questionnaire if you need. If you have photographs these can be emailed to <u>UrbenvilleFloodStudy@bgeeng.com</u>

Q7. Have you experienced flooding from stormwater or smaller creeks?

es, at this property	Yes, in the local area but my property was not affected	No, I have not observed flooding in the area

This question relates to flooding that is not from Tooloom Creek. This may be from the drainage channels in the town, local creeks or after heavy rainfall events.

If Yes, please provide additional details such as where you observed flooding and the date and time that you experienced flooding. If you can, say how deep the water was or how high did it get? How far did the water go into your property? Was there any damage? Additional space for you response is provided at the end of this questionnaire if you need. If you have photographs these can be emailed to <u>UrbenvilleFloodStudy@bgeeng.com</u>

Q8. Are there any areas within the Urbenville Study Area you think flooding should be reduced?

This question helps us to identify priority areas. The study area was shown on the second page.

Yes	No	I don't know / I have not been affected by flooding
If Yes, please state where		

URBENVILLE FLOOD STUDY QUESTIONNAIRE

Q9. If there was a flood, do you feel like you know what to do?					
Yes, I am confident I know what to do. I'll be fine	I think so, but I have not experienced flooding	I'm not sure. I'll wait until someone tells me	No, I don't know what to do	It doesn't matter, my property or local area does not flood	

The outcome of the Urbenville Flood Study will assist Tenterfield Shire Council, Kyogle Council, emergency services and the local community in understanding flood behaviour in the area so that flood damages and risk to life can be reduced.

Q10. Do you have any further information you think may help?					
Yes, please see below/attached	Yes, I will email some information	Yes, please contact me	No		

Photographs and records of previous flooding and rainfall are very useful to help us develop flood models which represent the real-life situations.

If Yes, please attach your feedback to this questionnaire, or email to <u>UrbenvilleFloodStudy@bgeeng.com</u>. If you email, please make sure to include your name and address so we can match your survey results with the information you have provided.

THANK YOU

Thank you for taking the time to answer this questionnaire. Your input is valuable to the outcomes of the Urbenville Flood Study.

Project Website: www.bgeeng.com/FloodStudies/Urbenville

Email: UrbenvilleFloodStudy@bgeeng.com

Council: Melissa Blum m.blum@tenterfield.nsw.gov.au or 0439 118 312





Planning, Industry & Environment

Historic Flooding – Photographs





Photograph 1: 31 Tooloom Street, 2nd May, 2015.





Location: Tooloom Street, property address unknown Supplied by: Craig Vermeulen Date and Time Taken: 2nd May, 2015 – 11:42am Comments: No comment

Photograph 2: 31 Tooloom Street, 2nd May 2015.





Location: Tooloom Street, looking south Supplied by: Craig Vermeulen Date and Time Taken: 31st March, 2017 – 1:04pm Comments: Tooloom Street, looking south. 25, 29, 31 and 33 Tooloom Street

Photograph 3: Tooloom Street, 31st March 2017.



Water Comes in over drueway, and cleads front lapping the house 6 Mabenville Photo take 16/2/2010 4.11 AM Much Complaining For Senterfield Council has occussed Location: 6 Urben Street, Urbenville Supplied by: Jennifer Taylor Date and Time Taken: 16th February 2010, 4:11AM Comments: Water comes in over driveway and floods frontyard – lapping at the house.

Photograph 4: Front Yard of 6 Urben Street, 16th February 2020.







Photograph 7: Looking north up Welch Street (Urbenville Public School on right)

Location: 6 Welch Street, Urbenville

Supplied by: Marcus McSweeny

Date and Time Taken: No date provided

Comments: Photos were taken (corner of Stephen and Welch Streets) after a thunderstorm. Only about 20mm of rain caused this amount of runoff. Obviously flooding rain creates much more runoff.

Photograph 5 to 7: Front yard of 6 Welch Street.





Location: Stephen and Welch Street, Urbenville

Supplied by: Marcus McSweeny

Date and Time Taken: No date provided

Comments: Photos were taken (corner of Stephen and Welch Streets) after a thunderstorm. Only about 20mm of rain caused this amount of runoff. Obviously flooding rain creates much more runoff.

Photograph 8 and 9: Stephen and Welch Street, local stormwater pits and culverts.



Mapping





440000

450000

Disclaimer This map is current at the time of publication and has been prepared, in part, from unverified data and information (Data) supplied by other parties. Whilst BG&E takes due care in providing its services, BG&E accepts no liability for any loss or damage suffered which is caused by any inaccuracy in the design or drawing which has resulted from the use of any unverified, inaccurate or misleading Data supplied by other parties.
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Legend

Urbenville

6850000

Location of questionnaire responses

- Has experienced flooding at property
- Has not experienced flooding at property



DATUM GDA 2000 MGA Zone 56



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Urbenville Priority Areas



DATUM GDA 2000 MGA Zone 56

DISCUSSION PAPER

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 It will also present how the results of the community questionnaire and other community feedback are being taken into account in the study.
 - A second community consultation will be undertaken during the public presentation of the Draft Flood Study at start of the Public Exhibition period. This will present further additional information such as flood hazard and emergency classification of communities.
- **Public Exhibition** the Flood Study will be placed on public exhibition for a period of at least 28 days to invite community feedback before Council adoption.

3 QUESTIONNAIRE FINDINGS

The questionnaire was mailed to property owners in and around the study area. A total number of 309 newsletters and questionnaires were mailed out. The purpose of the community questionnaire was to:

- Understand the level of flood affection and the numbers of people who have experienced flooding;
- Encourage the community to provide information about historic flooding which can be used in flood model calibration and understanding flood behaviour;
- Highlight areas where the community thinks flooding is a concern and requires management;
- Identify the level of flood awareness and the community perceptions on acceptable frequency of flooding.

3.1 Response Rate

A total of 3 responses were received online and 23 by mail. The total number of responses was 26 which equates to an 8.4% response rate. This was considered to be a reasonable response rate, given the size of Woodenbong and the number of residents who reside there. Response rates to surveys such as this tend to be more skewed to those who have experienced or are concerned with flooding.

One respondent requested to be contacted for further information. BG&E spoke to each resident and they provided some information over the telephone. They were also invited to send through additional information by email. At the time of collating community questionnaire findings and compiling this report, additional information had not yet been received.

3.1.1 Who Responded?

Identifying where respondents live can indicate where flooding is of a greater concern to residents. Typically, those in more flood prone areas are more likely to respond and provide feedback. Understanding how long residents have resided in the area can also be beneficial in determining a level of flood awareness in relation to the community i.e. the longer a resident has lived in the area, the more likely they might have experienced flooding.

3.1.2 Property Classification

Figure 1 identifies the residence classification of respondents. 85% of responses received were from residential properties or a residence classified as 'home'. Responses to this question outline that it is home



owners or occupiers who may tend to feel more affected by flooding issues than non-residential owners or occupiers. However, it is worth mentioning that results may be skewed, due to a larger tendency for home owners or occupiers to respond to the questionnaire. All 3 respondents who indicated 'other' classified the property as both a workplace and home.



Figure 1: Classification of Residence

3.1.3 How Long Have Respondents Lived in the Area

Figure 2 presents the period of time during which respondents have lived or worked in the area or at their residence. 15% of respondents had recently moved into the area within the last 5 years, with this group least likely to be aware of the existing flood risks or be aware if their property or workplace could be subject to inundation. 38% of respondents had resided in the area for more than 25 years, with 6 of these residing for longer than 35 years. This group are most likely to have experienced flooding in the area. However; flood events noted by the residents were limited to 2010, 2016 or 2017.



Figure 2: Period of Time Respondents Have Lived in the Area



3.2 Flood Awareness

Understanding the community's awareness of flood risk and their response allows for targeted flood awareness campaigns and can assist in flood emergency response planning.

3.2.1 Personal Property

The questionnaire asked respondents if they were aware if their property was flood affected and if it had flooded before. This type of question can often be skewed more towards a positive 'yes' response, as respondents who may respond are typically within flood prone areas or have been affected by flooding previously. People who have not experienced flood at their property have a greater tendency to not provide a response, as they feel the issue has not or will not affect them.

Figure 3 highlights that over half the respondents (54%) did not think their property was flood affected, suggesting that they had not experienced a flood at their residence. 15% of respondents nominated that their property was flood affected and that it had flooded before, with a further 23% acknowledging that their property was flood affected but had not flooded before.



Figure 3: Number of Respondents Affected by Flooding

Of the 4 respondents who elected that the property was flood affected and had flooded before, 3 of these had been isolated due to flooding, whilst the other had been evacuated.

Of the 3 who were isolated, 2 resided on Richmond Street and referenced flooding along Bonalbo Lane and at the back of their property. The 1 respondent who indicated that they were evacuated, resided along Grahams Creek, although a property address was not provided.

Although 5 out of the 14 respondents indicated that they thought their property was not affected by flooding, these residents (or other household members) reported having been isolated due to flooding at some point. This suggests that although their property remained unaffected during flooding events, nearby accessways (roads, paths etc.) could have been obscured from floodwater and blocked, causing them to be 'isolated'.

Results relating to flooding experiences, particularly isolation and/or evacuation are presented in Section 3.3.1 below.



3.2.2 Responding to Flooding

Questions asked within this section of the questionnaire were aimed to understand the level of flood awareness of the community in terms of emergency response behaviour. Respondents were asked outline if they believed they would know what to do in the event of a flood.

Figure 4 highlights that 62% of respondents believed they would know what to do in the event of a flood. A further 12% indicated they 'think' they would know what to do, however had not previously experienced flooding. 23% of respondents indicated that knowing how to respond to flooding "did not matter" as their property or local area did not flood. This group is a particular concern as these may be people who have not yet experienced flooding and are unaware of the actual risk.



Figure 4: Flood Awareness of Respondents

Although the results indicated a high awareness to act during a flood (74%) this question can be skewed as those who are aware, or are more interested in flooding may be more likely to respond. Of the 16 respondents (62%) who believed they would know what to do in the event of a flood, only 3 had experienced a flood at their property or in the local area.

Of the 6 respondents (23%) who indicated they their flood awareness 'doesn't matter' as their property or local area does not flood, 5 nominated that they 'didn't think' their property was flood affected. What was also surprising was that 4 of these respondents had lived in the area for periods greater than 30 years, whilst the other 2 had only lived there for 0 to 5 years.

The results may point to a false sense of flood security, particularly for those residents who have not experienced flooding but think that they were confident they would know what to do. This highlights the importance of the community consultation through the Flood Study program but also the importance of continued flood awareness and community flood education undertaken by Tenterfield Shire and Kyogle Councils and the NSW SES.

While people may believe they know what to do to respond to flooding, the findings of the questionnaire show that few to no residents have experienced rare to extreme flooding. Should a larger flood occur requiring a different response such as evacuation, people may believe that there is no need for evacuation based on their past experiences. This is a challenge in flood emergency response management and the findings of the Flood Study will be able to assist in planning for and raising awareness of the community emergency response for larger floods.



3.3 Experience of Flooding

3.3.1 Evacuation and Isolation

Respondents were asked to outline if they had been evacuated or isolated during events of flooding. Again, this type of question can often be skewed more towards a positive 'yes' response, as respondents who may respond have typically been affected by flooding in some way.

Figure 5 highlights that 42% of respondents nominated that they (or other household members) had been isolated or evacuated in the past due to flooding. The remaining 58% indicated that they (or other household members) had never experienced isolation or evacuation due to flooding.



Figure 5: Number of Respondents who have been Isolated or Evacuated from their Household

Of the 10 people who reported having been isolated during flooding the following was found:

• 5 of those reported believed flooding was caused from local stormwater infrastructure or smaller creeks.

3.3.2 Tooloom Creek

The questionnaire asked respondents to acknowledge if they had ever experienced flooding from Tooloom Creek. This question served to focus on areas subject to mainstream flooding from Tooloom Creek only, rather than localised stormwater flooding and the response of existing council owned pit and pipe infrastructure.

Figure 6 highlights that 62% of respondents elected that they had never experienced flooding from Tooloom Creek. Of the 10 people reported having observed flooding from Tooloom Creek, only 1 reported that flooding from Tooloom Creek had directly affected their property, residing at Lot 77 Recreation Road, with photos provided in Appendix B.





Figure 6: Number of Respondents who have experienced flooding from Tooloom Creek

3.3.3 Other Sources of flooding

The questionnaire asked respondents to acknowledge if they had ever experienced flooding from stormwater of smaller creeks. This question served to focus on areas subject to localised flooding, unrelated to Tooloom Creek including smaller local creeks and local council-owned stormwater infrastructure such as channels, pits and culverts.

Figure 7 highlights that only 5 respondents experienced flooding at their property from local catchments, with a further 10 electing they have experienced flooding in their local area, but not at their property. This equated to approximately 58% of respondents experiencing flooding at their property or in local area.



Figure 7: Number of Respondents who have Experienced Flooding from Stormwater or Smaller Creeks

Of the 5 respondents who had experienced flooding at their property, 3 mentioned to the paddock area behind properties along Richmond Street (backing onto Bonalbo Lane).

10 respondents indicated they had experienced flooding in the area (but not at their property). Responses to this question appeared to focus in on 2 main areas:

• Woodenbong Showground, campground/caravan park and swimming pool.



• Lindsay Creek Road creek crossing (Black Gully) and Mount Lindsay Road (east of town) creek crossings (subsidiary Black Gully creek).

3.3.4 Historic Flooding

Respondents were also asked to provide specific commentary on historic flooding events including dates of flooding and flood depths and locations. Results are summarised in Table 1.

Timestamped responses (providing specific dates or times) were limited. 2 respondents made reference to the 2010 storm event and noted to:

- Flooding at residential properties that backed onto Bonalbo Lane (25-33 Richmond Street) and surround paddocks.
- Overtopping of Lindsay and Grahams Creek banks.

A respondent also made mention to a flood event which occurred in April 2016 (or 2017 – cannot recount exact year) involving isolation 'on the other side of town'.

Date/Year Observed	Number of Respondents	Comments
2010	2	 29 Richmond Street (at back of property that fronts Bonalbo Lane) - After heavy rain properties on lower eastern side of 25-33 Richmond Street are substantially flooded. Floodwater levels have reached backsteps and house footings
		 Floodwater from a substantial rural catchment flows along a natural farmland gully and onto a paddock beside Bonalbo Lane.
		 Bonalbo Lane - Original watercourse used to be on the far eastern side of the paddocks. However gully has become blocked or filled in, causing the main flood watercourse to flow diagonally across the paddock, then across Bonalbo Lane just below Dalmorton St, and then into backyards at 25, 27, 29, 31 and 33 Richmond Street.
		 Stormwater runoff from Dalmorton Street joints watercourse draining onto paddock or into Bonalbo Lane.
		• Residential Property - Lot 77, Recreation Road. Water came over the banks of creeks (Lindsay and Grahams Creek) and inundated lower paddock
April 2016 (or 2017 – cannot remember)	1	 Residential Property - 31 Lindsay Street, Woodenbong. Isolated on other side of town

Table 1: Summary of Flood Events where Dates were Provided

3.4 Flood Mitigation

3.4.1 Flooding of Other Areas

To understand the local community's priorities for flood mitigation, the questionnaire asked respondents to acknowledge any other areas within the Woodenbong Flood Study which they thought flooding should be reduced. This question sought to identify if there were potential priority or problem areas.

Figure 8 highlights that 11 respondents (42%) believed there are areas within the Woodenbong Flood Study were problem areas subject to flooding.





Figure 8: Number of Respondents Who Believed there are Areas Where Flooding Should be Reduced

3.4.2 Priority Areas

Respondents identified a number of 'priority areas' where they noted flooding. These are summarised in Table 2 and on the mapping in Appendix C.

Street/Location	Number of Respondents	Comment
Woodenbong Caravan Park/Camping ground/Baths	6	 Flooding in Woodenbong Caravan Park Flooding in Woodenbong Caravan Park and showgrounds Tooloom Creek overflows in major floods and inundates campground, recreational facilities around the town baths and sports oval. Knee deep, slow flowing and for short periods (approx. 2 hours). Flooding of Showground during 2010 flood event Flooding of bridge near Woodenbong Swimming Pool
Richmond Street (properties backing onto Bonalbo Lane)	3	 After heavy rain properties on lower eastern side of 25-33 Richmond Street are substantially flooded. Floodwater levels have reached backsteps and house footings. Residential Property - 31 Richmond Street. Depth of water in yards up to 500mm during 2010 event. Levee needs to be raised by 1m and made longer to reduce flooding of yards on Richmond Street Black Gully Culvert on Lindsay Creek Road is sometimes flooded to about 1m over the road (for less than 2 hours). Gully is fed from another gully on Bonalbo Street and one on the eastern side of town. Flood markers required on Mount Lindsay Road and Lindsay Creek Road.
Mount Lindsay Road (Culvert under Mount Lindsay Road/Richmond Street intersection)	2	 Gully Flooded adjacent to transfer facility entrance. Unable to give dates, but occasions have been many. Flooding is a minor inconvenience to Woodenbong Residents. Water depth markers on areas that flood on Mount Lindsay Road would suffice.
Dalmorton Street	2	 Poor street drainage Stormwater runoff from Dalmorton Street joints watercourse draining onto paddock or into Bonalbo Lane.





Street/Location	Number of Respondents	Comment
Clarence Way	2	 Residential Property - 18222 Clarence Way. Often get water over Clarence Way near the corner of address. Elooding issues. Clarence Way between Urbenville and Woodenborg
Crahams Crook	2	Flooding of Crohome Crock processing
Grandins Creek	2	 Flooding of Granams Creek crossing Desidential Property Descention Dead (no address) Water come up
		 Residential Property - Recreation Road (no address), water came up over banks (Grahams and Lindsay Creek) and flooded lower paddocks

3.5 DATA FOR FLOOD MODEL CALIBRATION

Data that will be utilised for flood model calibration is summarised in Table 3. Where no time and dates are provided, the result of the flood modelling can be compared with the anecdotal evidence to validate the model performance.

Date and Time	Location	Observation	Comment	Approach to flood model calibration / validation
No	Black Gully	Flooded to depths of	For less than 2 hours.	Review modelled
Date	Culvert (located	'about' 1m over the		flood behaviour
	on Lindsay Creek	road.		against the
	Road)			anecdotal evidence
No	31 Richmond	500mm depth of	Every major downpour over a short	Review modelled
date	Street	water in backyard	period. Water backs up and unable	flood behaviour
			to flow away and crosses over a	against the
			small levee.	anecdotal evidence
No	Mount Lindsay	Knee deep, slow	Tooloom Creek overflows in major	Review modelled
date	Road	following water for	floods to inundate the	flood behaviour
		short periods ('maybe	campground, recreational facilities	against the
		2 hours")	around the town baths and sports	anecdotal evidence
			oval.	

Table 3:	Calibration	and	Validation	Data	Summarv

3.6 SUMMARY

- People believe they are generally aware of what they need to do during a flood but the survey responses indicate that further community education on preparing for flooding and evacuation would be beneficial, particularly for larger floods.
- The population within the Woodenbong Flood Study area believe they are generally flood aware, despite only 3 of these 'flood aware' respondents nominating that they had experienced flooding at their property or in the local area.
- There is limited data available for calibration of the flood models from the community submissions.
- Key areas identified by the community as requiring flood mitigation or management include:
 - Black Gully Culvert (located on Lindsay Creek Road)
 - Residential properties along Richmond Street (particularly 25 to 33 Richmond Street backyards)
 - Mount Lindsay Road at Tooloom Creek crossing (near Woodenbong recreational facilities; Caravan Park, Camping ground, Baths/pools and Showground.



Mount Lindsay Road creek crossing (near Richmond Street intersection) and upstream catchment.



Newsletter and Questionnaire – September 2020



WOODENBONG FLOOD STUDY

Tenterfield Shire and Kyogle Councils have engaged engineering consultant BG&E to develop a Flood Study for Woodenbong. The study is being undertaken with financial and technical assistance from Council and Department of Planning, Industry and Environment (DPIE) through the NSW Government's Floodplain Management Program.

The Woodenbong Flood Study will help us understand the likely flooding scenarios for the town of Woodenbong including flooding from Tooloom Creek and Boomi Creek and runoff from local catchments.

The Woodenbong Flood Study will:

- Develop flood models based on historic data and statistical analysis
- Identify the areas of flood prone land to assist with flood planning and risk management
- Establish the likely flood risk and flood hazard for properties in the study area
- Develop flood mapping to assist in future planning and development
- Provide flood intelligence to the NSW SES to assist in flood emergency response

HOW CAN YOU HELP?

The local community is the best source of information on the flooding issues. We are asking for information such as your experiences, photos and observations of flooding. A Community Information Session will be held at a later date to present the findings of the study.

Please take a few minutes to complete the attached questionnaire and return by reply-paid mail before 30 October 2020.

Alternatively you can complete the questionnaire online using the QR code or by visiting www.surveymonkey.com/r/WoodenbongFloodStudy.



If you have further information such as photographs these can be emailed to: WoodenbongFloodStudy@bgeeng.com.

THE FLOODPLAIN RISK MANAGEMENT PROCESS



We Are Here

The Study is being prepared in line with NSW Government Policy and the Floodplain Risk Management Process. Once complete, the findings of the Flood Study will enable the Council's to start to the next step in the Floodplain Risk Management process; that is consider measures to reduce impacts of flooding.



Planning, Industry & Environment





WOODENBONG FLOOD STUDY



STUDY AREA



The Study Area will focus on flooding of the township but will also consider flooding between Woodenbong and Urbenville and the Muli Muli Community

CONTACT US

Project Website: www.bgeeng.com/FloodStudies/Woodenbong

Email: WoodenbongFloodStudy@bgeeng.com

Council: Melissa Blum m.blum@tenterfield.nsw.gov.au or 0439 118 312





Planning, Industry & Environment

WOODENBONG FLOOD STUD QUESTIONNAIRE

Thank you for taking the time to answer this questionnaire. Your input provides useful information so that we can calibrate flood models to real-life flood data and helps us focus the study on areas and issues that are a priority to the community. Please return the questionnaire in the pre-paid envelope provided. Alternatively you can complete the questionnaire online: www.surveymonkey.com\r\WooodenbongFloodStudy

Q1. Your Details

Name Address Email Telephone Is this a property a home

or workplace or other use?

Q2. How long have you lived/worked at this address?					
0 to 5 years	5 to 15 years	15 to 25 years	More than 25 years	How Many? (if more than 25)	

Q3. How long have you lived/worked in the area?

0 to 5 years	5 to 15 years	15 to 25 years	More than 25 years	How Many? (if more than 25)

Q4. Are you aware if your property is flood affected?

Yes, it has flooded	Yes, but it has not	I don't think it is	l don't know	
before	flooded	flood affected		

Q5. Have you or members of your household been isolated or evacuated due to flooding?

Yes, Evacuated	Yes, Isolated	No, never

Please tick the box below.

If you answered yes, you can provide further information at the end of this questionnaire, such as when this happened and for how long.

All information provided will remain confidential and will only be used for the purpose of this study. Specific information on the respondents or their responses will not be made available or reported on.

Please provide you email or telephone number if you agree we can contact you in relation to this study.

lease tick the box below.

Please tick the box below.



WOODENBONG FLOOD STUDY QUESTIONNAIRE

Q6. Have you ever experienced flooding from Tooloom Creek?

Yes, at this property	Yes, in the local area but my property was not affected	No, I have not observed flooding in the area	

This question relates to flooding from the river only. This information helps us to calibrate the flood models to real-life data and to get more accurate outcomes.

If Yes, please provide additional details such as where you observed flooding and the date and time that you experienced flooding. If you can, say how deep the water was or how high did it get? How far did the water go into your property? Was there any damage? Additional space for you response is provided at the end of this questionnaire if you need. If you have photographs these can be emailed to <u>WoodenbongFloodStudy@bgeeng.com</u>

Q7. Have you experienced flooding from stormwater or smaller creeks?

Yes, at this property	Yes, in the local area but my property was not affected	No, I have not observed flooding in the area	

This question relates to flooding that is not from Tooloom Creek. This may be from the drainage channels in the town, local creeks or after heavy rainfall events.

If Yes, please provide additional details such as where you observed flooding and the date and time that you experienced flooding. If you can, say how deep the water was or how high did it get? How far did the water go into your property? Was there any damage? Additional space for you response is provided at the end of this questionnaire if you need. If you have photographs these can be emailed to <u>WoodenbongFloodStudy@bgeeng.com</u>

Q8. Are there any areas within the Woodenbong Study Area you think flooding should be reduced?

This question helps us to identify priority areas. The study area was shown on the second page.

Yes	No	I don't know / I have not been affected by flooding
If Yes, please state where		

WOODENBONG FLOOD STUDY QUESTIONNAIRE

Q9. If there was a flood, do you feel like you know what to do?					
Yes, I am confident I know what to do. I'll be fine	I think so, but I have not experienced flooding	No, I don't know what to do	It doesn't matter, my property or local area does not flood		

The outcome of the Woodenbong Flood Study will assist Kyogle Council, emergency services and the local community in understanding flood behaviour in the area so that flood damages and risk to life can be reduced.

Q10. Do you have any further information you think may help?				
Yes, please see below/attached	Yes, I will email some information	Yes, please contact me	No	

Photographs and records of previous flooding and rainfall are very useful to help us develop flood models which represent the real-life situations.

If Yes, please attach your feedback to this questionnaire, or email to <u>WoodenbongFloodStudy@bgeeng.com</u>. If you email, please make sure to include your name and address so we can match your survey results with the information you have provided.

THANK YOU

Thank you for taking the time to answer this questionnaire. Your input is valuable to the outcomes of the Woodenbong Flood Study.

Project Website: www.bgeeng.com/FloodStudies/Woodenbong

Email: WoodenbongFloodStudy@bgeeng.com

Council: Melissa Blum m.blum@tenterfield.nsw.gov.au or 0439 118 312





Planning, Industry & Environment

Historic Flooding – Photographs









Photographs 2 to 5: 29 Richmond Street Backyard and Garage Inundation, December 2010.





Photographs 6 to 8: Lot 77, Recreation Flood Property Flooding, 2010.





Photograph 9: Flooding near convergence of Lindsay Creek/Grahams Creek with Tooloom Creek

Location: Residential Property - Lot 77, Recreation Road, Woodenbong

Supplied by: Kim Robertson and Dean Jeffrey

Date and Time Taken: During 2010 Floods

Comments: Photo shows flooding of Lindsay Creek/Grahams Creek where they merge at the bottom of the block and flow together to form Tooloom Creek. The flooding comes from the convergence of 3 water systems within 200-300 metres of each forming a huge volume of water.

Photograph 9: Flooding at convergence of Lindsay Creek and Graham Creek, 2010.



Mapping





Disclaimer This map is current at the time of publication and has been prepared, in part, from unverified data and information (Data) supplied by other parties. Whilst BG&E takes due care in providing its services, BG&E accepts no liability for any loss or damage suffered which is caused by any inaccuracy in the design or drawing which has resulted from the use of any unverified, inaccurate or misleading Data supplied by other parties. \\bge.int\dfs\Syd\Projects\BGE\SYD\S20128\100 Draw\QGIS\Figures\Woodenbong Flood Study.qgz



Legend

6860000

Woodenbong

Location of questionnaire responses

- Has experienced flooding at property
- Has not experienced flooding at property



DATUM GDA 2000 MGA Zone 56



Disclaimer This map is current at the time of publication and has been prepared, in part, from unverified data and information (Data) supplied by other parties. Whilst BG&E takes due care in providing its services, BG&E accepts no liability for any loss or damage suffered which is caused by any inaccuracy in the design or drawing which has resulted from the use of any unverified, inaccurate or misleading Data supplied by other parties.





Woodenbong

Priority Areas

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Woodenbong Flood Study					
Figure C2 – Location of Priority Areas					

DATUM GDA 2000 MGA Zone 56