10.1 Flood Questionnaire

A community consultation process was initiated to make the public aware of the floodplain management process and to obtain flood information for past events. This involved issuing a newspaper article and broadcasting information and interviews on a local radio and sending out newsletters and flood questionnaires to residents and landowners within the project area. These activities introduced the floodplain management program to the residents of the area, described the purpose of the questionnaire and provided the residents with contacts for their responses.

The questionnaire was prepared in consultation with Council to help identify flood issues in the modelling area and provide reliable flood information to assist in the calibration and validation phase of the hydrologic and hydraulic computer models.

The information that was requested by the questionnaire included:

- General information such as:
 - type of property
 - resident status at the property
 - how long the residents have lived at the property
 - contact details
- Specific flood Information such as:
 - whether the property has been flood affected in the past
 - which date(s) the property has been affected by floods
 - which parts of the property have been affected by floods and to what depth
 - how long the flooding lasted
 - where the water was flowing from and to
 - whether there were any floodmarks that confirm water levels for a given date and, if so, could surveyors take measurements
 - the velocity and depth when the peak of the flood was experienced with three qualitative options were given for the velocity including stationary, walking pace and running pace
 - whether there are any photographs or other records of the floods and whether SMEC would be permitted to make copies of this data for the purpose of this study
 - > any suggestions for resolving flood issues in the area, or other relevant comments.

The responses to the community survey were reviewed, with information of flooding effects that could be beneficial to calibration identified and extracted for use in modelling.

10.2 Summary of Responses to Flood Questionnaire

The responses to the flood questionnaire were summarised and information on floodmarks merged together with flood level information from Council's flood database and levels from other sources. These levels are presented in Tables 10.1 to 10.6 below. Of particular significance were observed floodmarks with the associated date of occurrence that could assist with the calibration of the hydrologic and hydraulic models. Most of the flood data obtained from the questionnaires and additional data searches were associated with the recent March 2011 event (a total of 44 responses related to this event). Other notable events included February 1971, March 1983, February 2010, February 2011, March 2011 and March 2012.

Additional events noted in the responses from the community questionnaires included:

• Feb 1898

- Feb 1991
- May 2011
- 92

Jan 1934Feb 1972

- Mar 1992
- 2000 (month not stated)
 Apr 2011
- 1974 (month not stated) Apr

- Feb 2012
- Apr 2012
 - May 2012

After collating the information from the community questionnaire, Caddey Searle & Jarman Consulting Surveyors was engaged for the survey of additional observed floodmarks. Data provided by the surveyors included:

- Floodmark reference identifier
- Date of event
- Coordinates (Easting and Northing)
- Level/ Elevation
- If the level provided was associated with the peak
- A description of the floodmark (for example, over window sills)
- A confidence rating
- Any additional remarks

The additional floodmarks obtained from the surveyors are also included in Tables 10.1-10.6.

10.3 Public Exhibition

The Bega and Brogo Rivers Flood Study Draft Report was placed on Public Exhibition during October 2013 and a number of submissions were received prior to the closing date. Amongst the submissions received were comments on the following:

- Effect of recent roadworks at Ravenswood St in Bega
- Emergency Response Planning

The submissions received have been considered in finalising the flood study and options to manage flood risk will be developed with the community and stakeholders as part of the Floodplain Risk Management Study and Plan.

Table 10.1: Summary Responses for February 1971 Event

Flood Mark ID	Address	Source	Observed Depth (m)	Observed Flood Level (Affected Area ⁽¹⁾	Observed Confidence in Depth	Observed Confidence in Timing of Peak	Duration	Timing of Peak	Water Velocity (stationary, walking, running)	Flood Nature
ID1	5 Canning St, BEGA	CC/FQ/Survey	14.7m	14.62 mAHD	3	High	-	-	-	-	-
ID2	130 Upper St, BEGA	CC/FQ	2m		3	Med	-	-	-	-	-
ID3 ⁽²⁾	19 Canning St, BEGA	CC/FQ	10m		1	-	-	-	-	-	-
ID4 ⁽²⁾	1116 Tathra Rd, JELLAT JELLAT	CC/FQ	4m		3	Med	-	60 hrs	-	-	-
ID5	20 Ike Game Rd, KALARU	CC/FQ	0.45m		1,3	Low	-	-	-	-	-
ID6 ⁽²⁾	564 Tathra Rd, KALARU	CC/FQ/Survey	0.5m	12.93 mAHD	1	High	Low	2 days	-	running	roads
ID7	274 Carp St, BEGA	CC/FQ/Survey	0.1m	15.23 mAHD	1	Med	Low	3 hrs	am		-
ID8	21 Sharpe St, CANDELO	CC/FQ/Survey	1.2m	100.90 mAHD	3	-	-	-	-		-
ID9 ⁽³⁾	Lot 1 Canning St, BEGA	Council's FDB	-	14.59 mAHD							
ID10	1129 Tathra Rd, BEGA	CC/FQ/Survey		12.81 mAHD							
ID11	WAR&Ragaburra GS 219026	WP Report	12.52m	13.06 mAHD							
ID12	North end Wallagoot Rd nr Armstrong's N.bdy	Council's Plan SC17		12.87 mAHD							
ID13	South end Wallagoot Rd nr Armstrong's S.bdy	Council's Plan SC17		12.87 mAHD							
ID14	Lot Staffords gate (nr Brickworks)	Council's Plan SC17		12.89 mAHD							
ID15	Reg. Taylors W.B Garage Door	Council's Plan SC17		12.93 mAHD							
ID16	Russells Fibro Grage E. end Jellat Flat	Council's Plan SC17		12.88 mAHD							
ID17	Sliprail nr Alf. Watersons cottage at Benookd	Council's Plan SC17		12.67 mAHD							
ID18	Jelgowry Homestead	WP Report		12.87 mAHD							
ID19	Parberry Creek	WP Report		13.20 mAHD							
ID20	East end Tarraganda Bridge	WP Report		13.70 mAHD							
ID21	Bega Readycut, Tallaganda Rd	WP Report		13.73 mAHD							
ID22	North Bye Flood Gauge GS 219900	WP Report		15.48 mAHD							
ID23	Upstream of Wolumla Creek	WP Report	0.71m								
ID24	North End Hancocks Bridge	WP Report		2.85 mAHD							
ID25	North End Hancocks Bridge	WP Report		2.38 mAHD							
ID26	Bridge in Candelo Creek	WP Report		49.29 RL							
ID27	Tathra Road JELLAT JELLAT	WP Report		12.80 mAHD							
ID28	Tathra Road JELLAT JELLAT	WP Report		12.98 mAHD							
ID29	Tathra Road JELLAT JELLAT	WP Report		12.70 mAHD							
ID30	Tathra Road JELLAT JELLAT	WP Report		12.90 mAHD							
ID31	Bega River D/S Jellat Jellat Flats	WP Report		11.30 mAHD							

(1) 1 - Ground, 2- Garage/Shed, 3- Building, 4 - Other

(2) Noted as "1971 event"

(3) Floodlevel sourced from map of floodmarks provided by Council

(4) 1971 peaked due to debris build up on Hancock Bridge at Mogareeka which became a dam. Once the bridge collapsed from debris build-up, the flood receded.

(5) CC: Community Consultation , FQ: Flood Questionnaire, FDB: Flood Data Base

Table 10.2: Summary Responses for March 1983 Event

Flood	Address	Source	Observed	Observed Flood	Affected Area ⁽¹⁾	Observed	Observed	Duration	Timing of	Water Velocity	Flood Nature
Mark			Depth (m)	Level		Confidence in	Confidence in		Peak	(stationary,	
ID						Depth	Timing of Peak			walking, running)	
ID1	North End Hancocks Bridge	WP Report		2.83 mAHD							
ID2	East end Nth abutment Hancocks Bridge	WP Report		2.76 mAHD							
ID3	Buena Vista Entrance, East end Jellat Jellat Flats	WP Report		4.82 mAHD							
ID4	Bargo Lagoon SE side	WP Report		5.93 mAHD							
ID5	Bargo Lagoon SE side	WP Report		6.15 mAHD							
ID6	Reedy Swamp Farm	WP Report		3.99 mAHD							
ID7	Daisy Bank	WP Report		7.58 mAHD							
ID8	Kevin Russell's house "Jelgowry"	WP Report		4.52 mAHD							
ID9	WAR&Ragaburra GS 219026	WP Report		7.90 mAHD							
ID10	Parberry Creek	WP Report		7.83 mAHD							
ID11	East end Tarraganda Bdge	WP Report		6.92 mAHD							
ID12	Bega STW	WP Report		8.71 mAHD							
ID13	Old Boatshed (ruin)	WP Report		1.82 mAHD							
ID14	Headland South Side of Bega River	WP Report		2.75 mAHD							
ID15	Upstream of Wolumla Creek	WP Report		46.63 mAHD							
ID16	Tylers Creek Bridge	WP Report		47.42 mAHD							
ID17	Ryan D'Arcy Road	WP Report		49.19 mAHD							
ID18	Colombo Creek Confluence	WP Report		47.52 mAHD							
ID19	Greens Crossing	WP Report		51.57 mAHD							
ID20	Nobby Park Road	WP Report		47.26 mAHD							
ID21	Bemboka R & Nunnock R Confluence	WP Report		70.35 mAHD							
ID22	Old Bega Bridge Line, south side	WP Report		11.32 mAHD							
ID23	North End Hancocks Bridge	WP Report		2.83 mAHD							
ID24	East end Nth abutment Hancocks Bridge	WP Report		2.76 mAHD							
ID25	Buena Vista Entrance, East end Jellat Jellat Flats	WP Report		4.82 mAHD							
ID26	Reedy Swamp Road, BEGA RIVER	WP Report		7.58 mAHD							
ID27	Tathra Road, west of JELLAT JELLAT	WP Report		6.42 mAHD							
ID28	Bega River, JELLAT JELLAT FLATS	WP Report		5.39 mAHD							
ID29	Tathra Road, near JELLAT JELLAT WEIR	WP Report		4.82 mAHD							
ID30	Tathra Road, JELLAT JELLAT FLATS	WP Report		3.80 mAHD							
ID31	Bega River Upstream of Tathra Bridge	WP Report		2.56 mAHD							
ID32	Bega River Upstream of Tathra Bridge	WP Report		2.19 mAHD							
(1)	1 - Ground, 2- Garage/Shed, 3- Building, 4 – Other										

(1) 1 - Ground, 2- Garage/Shed, 3- Building, 4 – Other

Table 10.3: Summary Responses for February 2010 Event

Flood Mark ID	Address	Source	Observed Depth (m)	Observed Flood Level	Affected Area ⁽¹⁾	Observed Confidence in Depth	Observed Confidence in Timing of Peak	Duration	Timing of Peak	Water Velocity (stationary, walking, running)	Flood Nature
ID1	130 Lot Stafford Dr, KALARU	CC/FQ/Survey	2.5m	4.20 mAHD	1,2	High	Low	> 1 week	-	stationary	river
ID2	539 Reedy Swamp Rd, REEDY SWAMP	CC/FQ	1.22m		1	High	Med	96 hrs	10am/1000	running	roads
ID3	12622 Princes Highway, BROGO	CC/FQ	0.5m		1	High	Low	24 hrs	4pm/1600	walking	local creek
ID4	50 Russell Lane, KALARU	CC/FQ	5m		1	Low	-	-	-	running	roads
ID5	78 Darcy Lane, BEGA	CC/FQ/Survey	1m	5.28 mAHD	-	-	Med	36 hrs	7:30pm/1930	walking	local creek
ID6	132 Glen Oaks Rd, BEGA	CC/FQ	11m		1	Med	Med	72 hrs	7am/0700	running	roads
ID7	52 Gillcrest Rd, BUCKAJO	CC/FQ/Survey		19.48 mAHD							
ID9	98 Corridgeree Ln, TARRAGANDA	CC/FQ/Survey		13.32 mAHD							
ID10	Gauging Station at BEGA 219900	NoW		12.54 mAHD							
ID11	Gauging Station at BEGA 219410	MHL/OEH		2.04 mAHD							

(1) 1 - Ground, 2- Garage/Shed, 3- Building, 4 – Other

Table 10.4: Summary Responses for February 2011 Event

Flood Mark ID	Address	Source	Observed Depth (m)	Observed Flood Level	Affected Area ⁽¹⁾	Observed Confidence in Depth	Observed Confidence in Timing of Peak	Duration	Timing of Peak	Water Velocity (stationary, walking, running)	Flood Nature
ID1	PO BOX 185, BEGA	CC/FQ/Survey	4m	9.04 mAHD	1	Low	-	12 hrs	-	running	roads
ID2	58 Ike Game Rd, KALARU	CC/FQ/Survey	10m	7.66 mAHD	1	High	High	96 hrs	9am/0900	running	roads
ID3	1089 Greendale Rd, ANGLEDALE	CC/FQ	1m		1	High	Med	48 hrs	5pm/1700	running	roads
ID4	29 Corridgeree Lane, TARRAGANDA	CC/FQ	3m		1	High	Low	10 days	-	walking	local creek
ID5	132 Glen Oaks Rd, BEGA	CC/FQ	10m		1	Low	Med	72 hrs	am	running	roads
ID6	539 Reedy Swamp Rd, REEDY SWAMP	CC/FQ/Survey		8.97 mAHD							
ID7	74 Lake Cohen Dr,KALARU	CC/FQ/Survey		4.65 mAHD							
ID8	Gauging Station at BEGA 219900	NOW		6.87 mAHD							
ID9	Gauging Station at BEGA 219410	MHL/OEH		0.59 mAHD							

(1) 1 - Ground, 2- Garage/Shed, 3- Building, 4 – Other

Table 10.5: Summary Responses for March 2011 Event

Flood Mark ID	Address	Source	Observed Depth (m)	Observed Flood Level	Affected Area ⁽¹⁾	Observed Confidence in Depth	Observed Confidence in Timing of Peak	Duration	Timing of Peak	Water Velocity (stationary, walking, running)	Flood Nature
ID1	26 Nelson St, BEGA	CC/FQ/Survey	8.7m	14.15 mAHD	1,2,3	High	Med	-	10am/1000	stationary	river
ID2	130 Upper St, BEGA	CC/FQ/Survey	0.3m	14.15 mAHD	3	High	Med	6 hrs	9am/0900	stationary	river
ID3	130 Lot Stafford, KALARU	CC/FQ	4m		1,2.4	Med	Low	> 1 week	1pm/1300	stationary	river
ID4	539 Reedy Swamp Rd, REEDY SWAMP	CC/FQ	2.5m		1	High	High	48 hrs	4:30pm/1600	stationary	river
ID5	12622 Princes Hwy, BROGO	CC/FQ/Survey	1m	49.81 mAHD	1	Med	high	24 hrs	7am/ 0700	walking	local river
ID6	1116 Tathra Rd, JELLAT JELLAT	CC/FQ	0.76m		3	High	Med	24 hrs	11am/1100	stationary	river
ID7	1695 Sapphire Coast Dr, KALARU	CC/FQ/Survey	3m	9.82 mAHD	4	Med	Low	60 hrs	5pm/1700	stationary, walking	river, local creek
ID8	74 Old Wallago Rd, KALARU	CC/FQ/Survey	4m	9.85 mAHD	1	Med	Med	48 hrs	-	walking	local creek
ID9	19 Emma Rd, REEDY SWAMP	CC/FQ/Survey	0.7m	9.06 mAHD	4	Med	High	24 hrs	9:40am/0940	stationary	river
ID10	131 Ravenswood St, BEGA	CC/FQ/Survey	1.45 m	16.16 mAHD	1,2	High	Med	36 hrs	11:45pm,2345	running	roads
ID11 ⁽²⁾	Lot 2 Bridge St, BEGA	Council's FDB		13.83 mAHD							
ID12 ⁽²⁾	Lot23 Buckajo Rd, BEGA	Council's FDB		14.73 mAHD							
ID13 ⁽²⁾	Lot 2 West St, BEGA	Council's FDB		13.85 mAHD							
ID14 ⁽²⁾	Lot1, Angle St, BEGA	Council's FDB		14.75 mAHD							
ID15 ⁽²⁾	Lot 7 Kirkland Ave, BEGA	Council's FDB		14.09 mAHD							
ID16 ⁽²⁾	Lot 10 Nelson St, BEGA	Council's FDB		14.11 mAHD							
ID17 ⁽²⁾	Lo2 Carp St/ Princes Hwy, BEGA	Council's FDB		14.09 mAHD							
ID18 ⁽²⁾	Lot 1Gipps St, BEGA	Council's FDB		13.43 mAHD							
ID19 ⁽²⁾	Lot E Bega St, BEGA	Council's FDB		13.42 mAHD							
ID20 ⁽²⁾	Lot 3 East St, BEGA	Council's FDB		12.35 mAHD							
ID21 ⁽²⁾	Lot 13 Upper St. BEGA	Council's FDB		11.54 mAHD							
ID22 ⁽²⁾	Lot 5 Tathra Rd, BEGA	Council's FDB		11.55 mAHD							
ID23 ⁽²⁾	Lot 1 East St, BEGA	Council's FDB		11.57 mAHD							
ID24 ⁽²⁾	No 7 Charlotte St, BEGA	Council's FDB		16.13 mAHD							
ID25 ⁽²⁾	Grosse Creek Rd, upstream of BEGA	Council's FDB		17.89 mAHD							
ID26 ⁽²⁾	Tarraganda Rd, TARRAGANDA	Council's FDB		11.82 mAHD							
ID27 ⁽²⁾	Greendale Bridge, BROGO	Council's FDB		29.0 mAHD							
ID28 ⁽²⁾	Bridge at MOGAREEKA	Council's FDB		3.07 mAHD							
ID29	26 Springvale Cl, BEGA	CC/FQ/Survey		13.33 mAHD							
ID30	Daisy Hill Rd, BUCKAJO	CC/FQ/Survey		16.81mAHD							
ID31	1270 Bega Rd,CANDELO	CC/FQ/Survey		89.54 mAHD							
ID32	80 Darcy Ln, JELLAT JELLAT	CC/FQ/Survey		9.34 mAHD							
ID33	857 Tathra Rd, KALARU	CC/FQ/Survey		9.70 mAHD							
ID34	78 Darcy Ln,BEGA	CC/FQ/Survey		9.34 mAHD							
ID35	20 Ike Game Rd,KALARU	CC/FQ/Survey		9.89 mAHD							
ID36	2025 Snowy Mountains Hwy, MORANS CROSSING	CC/FQ/Survey		102.5 mAHD							
ID37	PO BOX 185, BEGA	CC/FQ/Survey		9.66 mAHD							
ID38	98 Corridgeree Ln, TARRAGANDA	CC/FQ/Survey		14.22 mAHD							

Flood Mark ID	Address	Source	Observed Depth (m)	Observed Flood Level	Affected Area ⁽¹⁾	Observed Confidence in Depth	Observed Confidence in Timing of Peak	Duration	Timing of Peak	Water Velocity (stationary, walking, running)	Flood Nature
ID39	1089 Greendale Rd, ANGLEDALE	CC/FQ/Survey		23.25 mAHD							-
ID40	Owner not known	CC/FQ/Survey		11.81 mAHD							
ID41	Owner not known	CC/FQ/Survey		16.09 mAHD							
ID42	Gauging Station at BEGA 219900	NOW		14.18 mAHD							
ID43	Gauging Station at BEGA 219410	MHL/OEH		2.98 mAHD							
ID44	21 Sharpe St,CANDELO	CC/FQ/Survey		99.76 mAHD							

(1) 1 - Ground, 2- Garage/Shed, 3- Building, 4 – Other

(2) Floodlevel sourced from map of floodmarks

Table 10.6: Summary Responses for March 2012 Event

Flood Mark ID	Address	Source	Observed Depth (m)	Observed Flood Level	Affected Area ⁽¹⁾	Observed Confidence in Depth	Observed Confidence in Timing of Peak	Duration	Timing of Peak	Water Velocity (stationary, walking, running)	Flood Nature
ID1	PO BOX 185, BEGA	CC/FQ	4m		1	Low	-	48 hrs	-	running	roads
ID2	58 Ike Game Rd, KALARU	CC/FQ	8m		1	High	Low	72 hrs	12am/2400	running	roads
ID3	71 Gilchrist Dr, BUCKAJO	CC/FQ	5m		1	Low	Low	3 hrs	-	running	roads
ID4	1089 Greendale Rd, ANGLEDALE	CC/FQ	1m		1	High	Med	24 hrs	11am/ 1100		-
ID5	130 Lot Stafford Dr, KALARU	CC/FQ	1m		1	Low	Low	< 1 week	-	stationary	river
ID6	539 Reedy Swamp Rd, REEDY SWAMP	CC/FQ	0.61m		1	High	Low	48 hrs	8am/0800	running	roads
ID7	558 Reedy Swamp Rd, REEDY SWAMP	CC/FQ	7m		1	Med	Med	96 hrs	9am/0900	running	roads
ID8	17 Sharpe St, CANDELO	CC/FQ	2m		4	High	High	24 hrs	1am/0100	running	roads
ID9	132 Glen oaks Rd, BROGO	CC/FQ	10m		1	Med	Med	72 hrs	pm	walking	local creek
ID10	40 Darcy Ln, JELLAT JELLAT	CC/FQ/Survey		7.78 mAHD							
ID11	Gauging Station at BEGA 219900	NOW		12.28 mAHD							
ID12	Gauging Station at BEGA 219410	MHL/OEH		1.65 mAHD							

(1) 1 - Ground, 2- Garage/Shed, 3- Building, 4 – Other