



OUR REF: 4541

Gold Coast & Logan Office
76 Business Street
Yatala QLD 4207

15 June 2015

Wayne DiBartolo
c/- Pacific Reef Fisheries
Lot 1 Trent Road
ALVA 4807

Submitted via email: wayne@pacificreef.com.au

Dear Wayne,

**RE: COMPLIANCE WITH CONDITION 11 OF COMMONWEALTH DECISION NOTICE
EPBC 2001/402 IN RELATION TO ALVA BEACH AQUACULTURE EXPANSION**

Property: LOT 1, TRENT ROAD, ALVA (LOT 1 ON RP804106)

Please find below a response to the following condition outlined in the abovementioned decision notice issued by the Commonwealth of Australia on 19th August, 2003.

- 11 *Pacific Reef Fisheries (Australasia) Pty Ltd must ensure that an independent survey of channel cross sections of Little Alva Creek is conducted to the satisfaction of the Minister. This survey must include sediment composition analysis within the channel and in the depositional areas outside the channel to establish whether the ecosystem is being impacted by geomorphologic processes which may result from Aquaculture Waste discharge. A baseline survey is to be conducted prior to construction and further surveys are to be undertaken annually for 3 years following commencement of operations and a report submitted to the Minister within 3 months of each survey to allow an assessment of the impact of Aquaculture Waste discharge.*

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Quality
ISO 9001

Response

On the 1st and 2nd April, 2015, an ecologist and two surveyors from Gassman Development Perspectives (GDP) undertook site work to fulfill the requirements of this condition. This monitoring occasion represented the first of three (3) subsequent years of monitoring to be undertaken following the baseline data collected in April, 2014.

The same three (3) locations within Little Alva Creek and one (1) location in the depositional areas outside of Little Alva Creek were used as sites for this study, consistent with locations selected for the baseline study. These locations are shown in Figure 1.

Level datum on AHD_{DER} was established on the site and horizontal control base to ensure future readings were observed in the same locations.

At each site, detailed cross sections of the channel were surveyed by licensed and appropriately qualified surveyors. The results of these cross sections are also illustrated in Figure 1.

This data will be retained and illustrated on all future surveys to ensure an accurate representation.

Additionally, at each of these corresponding sites three (3) samples of benthic sediments were collected from across the channel, one from close to each bank and one from the middle of the channel. These samples were collected and sent to Australian Laboratory Supplies (ALS) for a particle size distribution analysis. The average values of these analyses were calculated and graphed. The graph for all sites is included in Figure 2 and data included in Appendix 1. A reference comparison from the baseline monitoring results is included in Figure 3.

Whilst some fluctuations can be observed between the two graphs, the general concentration of the bell curve is consistent with the previous years' results.

As discussed earlier in this letter, the results of this study represent the first of three years of data collected following the baseline collected in April 2014. It is intended that further surveys in this format will be undertaken annually for two (2) more years to ensure that no impacts to the Little Alva Creek system are attributable to the expansion of aquaculture operations at Pacific Reef Fisheries.

Yours faithfully,
GASSMAN DEVELOPMENT PERSPECTIVES



MARK SPEARS



LOCALITY

CREEK CROSSING 1

STATION	EASTING	NORTHING	LEVEL 2014	LEVEL 2015
A	551 027	7 847 419	0.78	0.52
B	551 018	7 847 422	-0.27	-0.25
C	551 016	7 847 425	-0.40	-0.58
D	551 013	7 847 425	-0.48	-0.28

CREEK CROSSING 2

STATION	EASTING	NORTHING	LEVEL 2014	LEVEL 2015
A	551 131	7 847 589	0.49	0.38
B	551 131	7 847 591	0.41	0.27
C	551 129	7 847 597	0.06	0.19
D	551 124	7 847 602	-0.30	-0.33
E	551 120	7 847 607	-0.42	-0.49
F	551 123	7 847 610	-0.43	-0.37
G	551 123	7 847 612	-0.44	-0.44
H	551 122	7 847 615	-0.21	-0.37

CREEK CROSSING 3

STATION	EASTING	NORTHING	LEVEL 2014	LEVEL 2015
A	551 232	7 847 547	0.41	0.49
B	551 233	7 847 547	0.46	0.57
C	551 240	7 847 549	-0.30	-0.57
D	551 240	7 847 555	-0.46	-0.54
E	551 238	7 847 560	-0.50	-0.45

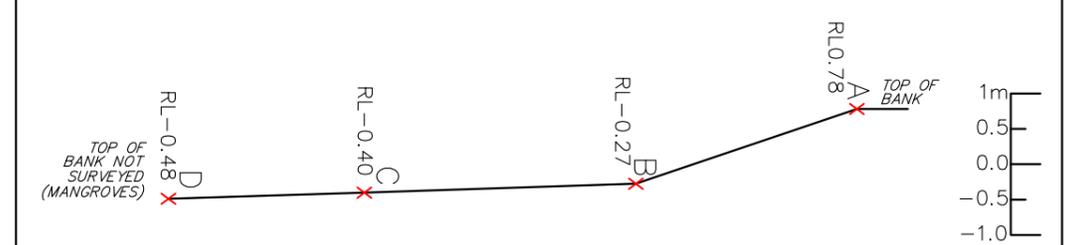
CREEK CROSSING 4

STATION	EASTING	NORTHING	LEVEL 2014	LEVEL 2015
A	551 398.970	7 847 540.753	-0.34	-0.66
B	551 395.235	7 847 545.630	-0.19	-0.60
C	551 393.542	7 847 550.153	0.02	-0.34
D	551 389.816	7 847 552.786	0.09	-0.12
E	551 384.481	7 847 555.371	0.28	0.70
F	551 382.176	7 847 555.816	0.28	0.81
G	551 384.308	7 847 563.826	0.37	0.06
H	551 382.970	7 847 567.858	0.40	0.06
I	551 380.294	7 847 569.610	0.37	0.25

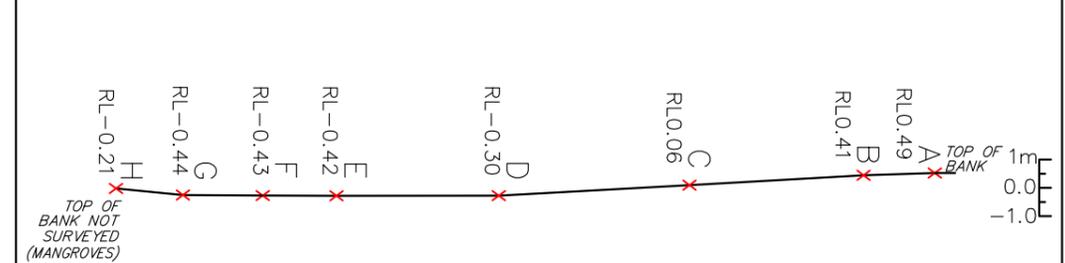
SPOT LEVELS

STATION	EASTING	NORTHING	LEVEL 2014	LEVEL 2015
1	551 441	7 847 615	0.02	-0.03
2	551 441	7 847 622	0.08	-0.22
3	551 494	7 847 631	-0.30	-0.19
4	551 510	7 847 608	-0.36	-0.30

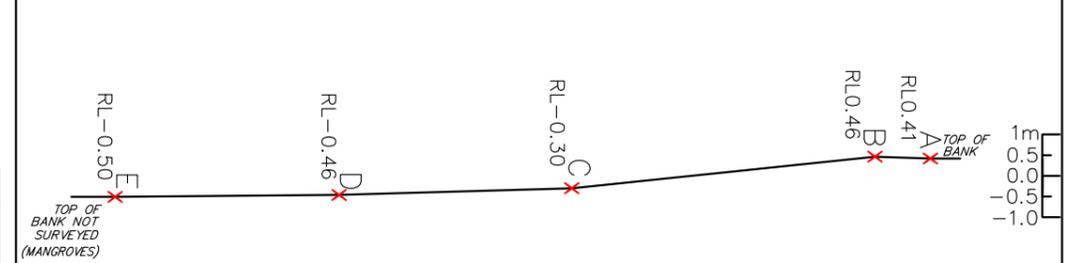
TYPICAL CROSS SECTION – CREEK CROSSING 1
Scale As Shown (2014 Levels Illustrated)



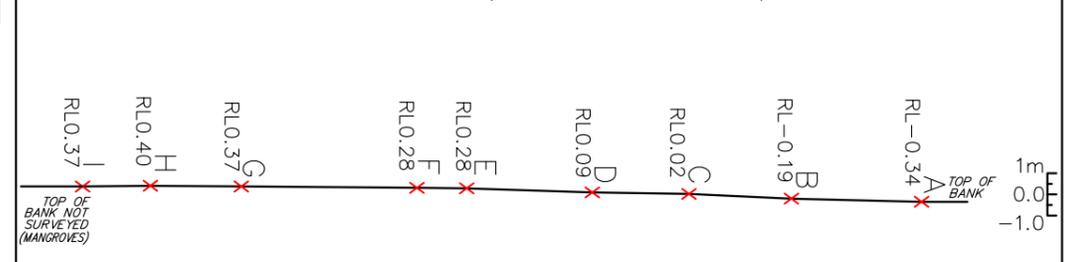
TYPICAL CROSS SECTION – CREEK CROSSING 2
Scale As Shown (2014 Levels Illustrated)



TYPICAL CROSS SECTION – CREEK CROSSING 3
Scale As Shown (2014 Levels Illustrated)



TYPICAL CROSS SECTION – CREEK CROSSING 4
Scale As Shown (2014 Levels Illustrated)



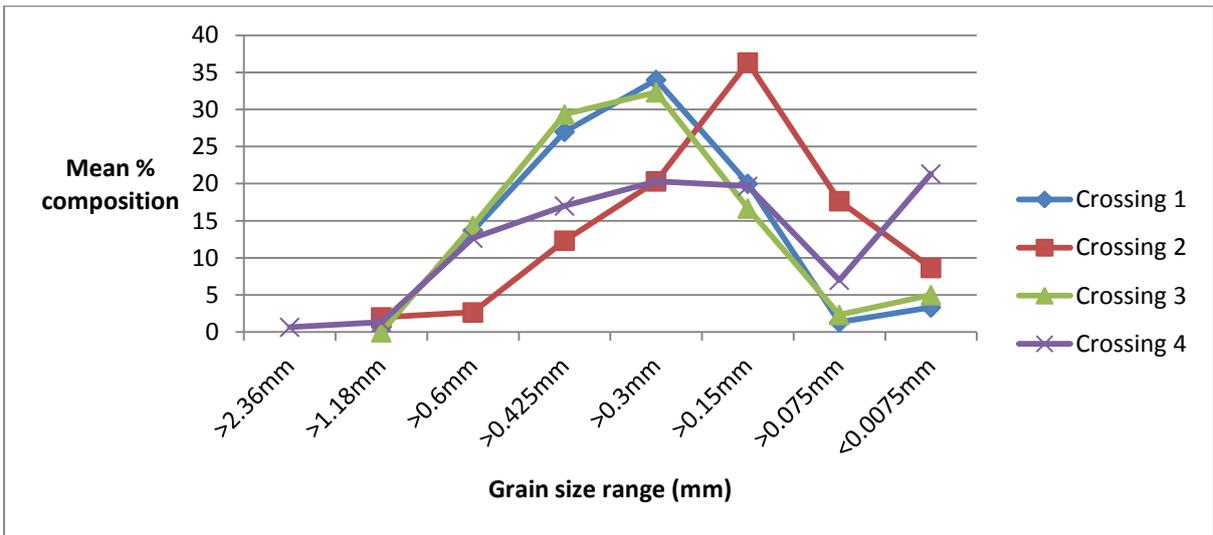


Figure 2 – Mean grain size distribution for creek crossings

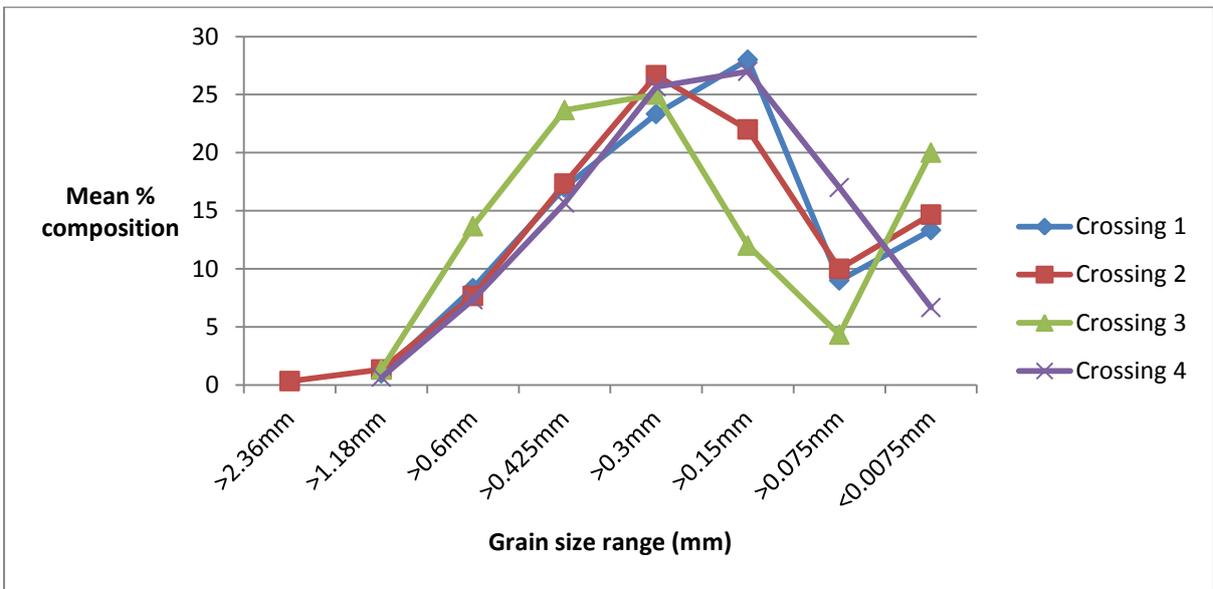


Figure 3 – Mean grain size distribution for creek crossings (comparison from baseline monitoring undertaken in April 2014)

Appendix 1 – Data used for particle size distribution

	Crossing 1a	Crossing 1b	Crossing 1c	Ave	Crossing 2a	Crossing 2b	Crossing 2c	Ave	Crossing 3a	Crossing 3b	Crossing 3c	Ave	Crossing 4a	Crossing 4b	Crossing 4c	Ave
>2.36mm					0	0	1	0.333333333								
>1.18mm	0	1	2	1	0	2	2	1.333333333	0	1	3	1.333333333	1	1	0	0.666666667
>0.6mm	1	6	18	8.333333333	4	13	6	7.666666667	10	22	9	13.666666667	8	8	6	7.333333333
>0.425mm	1	22	28	17	17	23	12	17.333333333	25	34	12	23.666666667	17	15	15	15.666666667
>0.3mm	7	38	25	23.333333333	32	27	21	26.666666667	34	28	13	25	28	23	26	25.666666667
>0.15mm	49	19	16	28	25	19	22	22	17	8	11	12	26	26	29	27
>0.075mm	18	6	3	9	13	3	14	10	4	4	5	4.333333333	16	17	18	17
<0.0075mm	24	8	8	13.333333333	9	13	22	14.666666667	10	3	47	20	4	10	6	6.666666667
	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
+75µm	94	97			93	90	91		98	98	98		96	98	98	
+150µm	90	94			54	60	60		97	97	97		95	96	97	
+300µm	64	69			28	32	31		74	66	76		71	73	78	
+425µm	37	42			13	14	14		39	27	44		37	38	45	
+600µm	17	19			4	4	4		10	7	15		14	13	19	
+1180µm	2	3			<1	<1	<1		<1	<1	1		2	1	2	
+2.36mm	<1	<1			<1	<1	<1		<1	<1	<1		<1	<1	<1	