Attachment B, Tabulated results

No.	Date	Time	Temperature (°C)	рН	Electrical Conductivity (mS/cm)	Visible Oil and Grease	Depth from TOC (m)
GW1	19/08/2020	3:22pm	21.8	8.11	2.51	No	6.45
GW2	19/08/2020	11:42am	17.2	7.94	0.97	No	1.45
GW3	19/08/2020	9:29am	N/A	N/A	N/A	N/A	Well Dry
GW4	19/08/2020	8:21am	20.8	7.94	2.64	No	8.40
GW5	19/08/2020	01:32pm	22.1	4.16	18.10	No	8.94
BH318	19/08/2020	12:36pm	20.2	7.16	3.95	No	6.54

GW2 Dissolved Metals results

Dissolved Metals	mg/L
Arsenic	0.002
Cadmium	<0.0001
Chromium	<0.001
Copper	0.009
Nickel	0.006
Lead	<0.001
Zinc	0.006
Mercury	<0.0001

Attachment C, Field sheets

Projec	et: A	PRB			Well Number: GW Purging Date: 18 /8 /2020 Sampling Date: 19 /8 /2020						
Proper	ty name/o	owner:			Purging Date: 18 /8 /2020						
Contac	t details:				Sampling Date: (9/8/2020						
Depth to	groundwa	ter from TC	DC (m): 6	.45	PVC Stickup (m):						
Well dep	th from TC	C (PVC) (r	n): 7	.90	Casing diameter (mm): 50mm						
				Pui	rging Information						
Purging of Microp O Bailer	ourge O	Grundfos Flowing	O 12V pur O Grab sa	.	$\pi = 3.14$ r = 0.5 x c	asing diam	me (m³) = neter (m) th to GW (r	P	lurged	dry	
Logger d	lownload:	@ YES	O NO		1 bore vol	ume (L):					
0111:		2.10			3 bore vol	umes (L):					
Start time		3:10			$1m^3 = 100$						
Finish tin	ne:	3:22			Purging de	epth:					
				Field R	esults W	hile Purgi	ing				
Time	Vol (L)	Temp. °C	EC (uS/cm)	TDS (g/L)	D %sat	O mg/L	рН	Redox (mV)	Colour/c turbic	S DANSE CONT. OF	
3:10		21.0			,,,,,,	9	7.7		slightly	turbid	
3:16		21.2					7.7		"	11	
3:22		21.6				i	7.7		u	"	
				*							
	CO ₂ (mg/	/L) = mL in	syringe x 10	=							
			pe within 0.1 perature with					y, salinity a	and dissolved ox	tygen	
				S	ampling D)etails					
Sampling	method (i	f different f	rom purging I		Bottles c	ollected:					
O Microp		Grundfos	O 12V pun	р	P						
O Bailer		Flowing	O Grab sar	mple							
Sampling		3:22			QA/QC d						
Other cor	mments an	d observat	ions (environ	mental/clin	natic condi	tions):					
Sampler's	s name:	Tom	Devel	nerst	Signature:						

Projec	et: P	PRB			Well Number: Gw 2					
Propert	ty name/o	owner:			Purging Date: $18/8/2020$ Sampling Date: $19/8/2020$					
Contac	t details:				Sampling Date: 19/8/2020					
Depth to	groundwa	ter from TC	OC (m): /	145	PVC Stickup (m):					
Well dep	th from TC	C (PVC) (r	n): 11	39	Casing dia	ameter (mr	m): 5	Jonn		
				Pui	rging Info	rmation				
Purging I						d bore volu	ıme (m³) =	πr²h	r 1	
O Microp		Grundfos	O 12V pur	.	$\pi = 3.14$ r = 0.5 x c	ooina dion	notor (m)	P	urged dry	
O Bailer	Ο	Flowing	O Grab sa	mple			th to GW (r		•	
Logger d	lownload:	o∕YES	O NO		1 bore vol					
					3 bore vol	umes (L):				
Start time	(1	: 21			$1m^3 = 100$	00L				
Finish tin	ne: //	:42			Purging d	epth:				
				Field R	esults W	hile Purg	ing			
Time	Vol	Temp.	EC	TDS	D	0	рН	Redox	Colour/odour/	
Tillie	(L)	°C	(uS/cm)	(g/L)	%sat	mg/L	p	(mV)	turbidity	
11:21		16.7					7.8		cleap	
11:29		16.9					7.8		clear	
11:36		17.1					7.9		ciear	
11:42		17.2					7.9		clear	
			syringe x 10					P. 71	and Bearing and account	
			oe within 0.1 perature with					ty, salinity a	and dissolved oxygen	
				S	Sampling [Details				
Sampling	g method (if different f	rom purging	method):	Bottles of	collected:				
O Microp	ourge O	Grundfos	12 √12V pur	np	/	/				
O Bailer	0	Flowing	O Grab sa	mple	<u> </u>					
Sampling	g time:	1) : 6	12		QA/QC details					
Other co	mments ar	nd observat	tions (enviror	nmental/clir	itions):					
Sampler'	s name	Tom	Dewh	urst	Signature:					
Jumpier	o namo.	, 0	000070		g					

Project: APRb Well Number: 623
Project: APRB Well Number: Cw3 Property name/owner: Purging Date: 18/8/2020
Contact details: Sampling Date:
Depth to groundwater from TOC (m): 7-6 PVC Stickup (m): 50 mm
Well depth from TOC (PVC) (m): 7 6 Casing diameter (mm):
Purging Information
Purging method: Calculated bore volume (m ³) = π r ² h
O Micropurge O Grundfos O 12V pump $\pi = 3.14$
O Bailer O Flowing O Grab sample r = 0.5 x casing diameter (m) h = well depth – depth to GW (m)
Logger download: O YES PMO 1 bore volume (L):
3 bore volumes (L):
Start time: $1m^3 = 1000L$
Finish time: Purging depth:
Field Results While Purging
Time Vol Temp. EC TDS DO pH Redox Colour/odour/
(L) °C (uS/cm) (g/L) %sat mg/L (mV) turbidity
AV MILL
CO ₂ (mg/L) = mL in syringe x 10 =
Measurements for pH should be within 0.1 pH units and measurements for conductivity, salinity and dissolved oxygen
should be within 10% and temperature within 0.5 °C before the well is sampled.
Sampling Details Sampling method (if different from puraing method): Bottles collected:
Sampling method (if different from purging method): O Micropurge O Grundfos O 12V pump Bottles collected:
O Bailer O Flowing O Grab sample
Sampling time: QA/QC details
Other comments and observations (environmental/climatic conditions):
112
No water
Sampler's name: Tom Dewling Signature:

Projec	t: Af	PRB			Well N	umber:	CC				
Propert	y name/o	owner:			Purging	Date:	18/8	1202	0		
Contact	t details:				Sampling Date: (9/8/2020						
Depth to	groundwa	iter from TC	OC (m): 12	.8	PVC Stickup (m):						
Well dep	th from TC	OC (PVC) (n	n):		Casing diameter (mm): 50 num						
				Pu	rging Info	rmation					
Purging r O Microp O Bailer	ourge O	Grundfos Flowing	⊙ 12V pur O Grab sa		$\pi = 3.14$ r = 0.5 x c	asing diam	me (m³) = neter (m) th to GW (r	{	Purged	dry	
Logger d	ownload:	Q/YES	O NO		1 bore vol	ume (L):					
					3 bore vol	umes (L):					
Start time		01			$1m^3 = 100$	00L					
Finish tim	ne: O	8:21			Purging d	epth:					
				Field R	esults W	hile Purg	ing				
Time	Vol (L)	Temp.	EC (uS/cm)	TDS (g/L)	D %sat		рН	Redox (mV)	Colour/oo turbidi		
9 004	(-)	19.4	(uo/oiii)	(9/2)	70541	mg/L	7.8	()		turbiol	
8:06		19.9					7.8		Slightly	11	
8:12		20.0					7.9		clear		
8:16		20.6					7-9		clear		
8:21		20.8					7.9		clear		
V ==(•				
	CO ₂ (mg	/L) = mL in	syringe x 10	=							
			e within 0.1 perature with					y, salinity	and dissolved oxy	/gen	
				5	Sampling E	Details					
Sampling O Microp		if different fi Grundfos	rom purging O 12V pun		Bottles c	ollected:					
O Bailer	0	Flowing	O Grab sa	mple							
Sampling	time:	8:21	aim		QA/QC d	letails					
Other cor	nments ar	nd observati	ions (environ	mental/clir	matic condi	tions):					
				,							
Sampler's	s name:	Tom	Dew	burst	Signature:						

Project: APRL Well Number: Cw5											
Propert	y name/o	wner:			Purging Date: /8/8/2020						
Contact	t details:				Sampling Date: 19/8/2020						
Depth to	groundwa	ter from TC	C (m): 8	.94	PVC Stickup (m):						
Well dep	th from TC	C (PVC) (n	n): //·	03	Casing diameter (mm): 50 mm						
				Pu	rging Info	rmation					
Purging r O Microp O Bailer	ourge O	Grundfos Flowing	⊙ 12V pur O Grab sa		$\pi = 3.14$ r = 0.5 x c	asing diar	ume (m³) = meter (m) oth to GW (r	Pa	nged	dry	
Logger d	ownload:	O YES	ONO		1 bore vol						
Start time	a· /	. 111			3 bore vol						
		: 14			1m ³ = 100						
Finish tim	ne: /	. 52		Field R	Purging de		ina				
	Vol	Temp.	EC	TDS	D			Redox	Colour/oc	lour/	
Time	(L)	°C	(uS/cm)	(g/L)	%sat	mg/L	рН	(mV)	turbidi	ty	
1:14		20.3					4.1		Slightly	turbe of	
1:18		20.9					4.2		110	11	
1:22		21.4					4.2		11	11	
1:28		21.9					4.2		11		
1:32		22.1					4.2		11	11	
										-	
			syringe x 10					te colinite	and discolved eve	ugon .	
			perature with					ty, Saillilly	and dissolved oxy	gen	
				5	Sampling E	Details					
Sampling O Microp	,	if different f	rom purging O 12V pun		Bottles c	ollected:					
O Bailer		Flowing	O Grab sa	mple							
Sampling	time: /	1:32			QA/QC d	letails					
Other cor	mments ar	nd observat	ions (enviror	mental/clir	matic condi	tions):					
Sampler's	s name:	Toan	Dewl	urst	Signature:						

Projec	t: Af	PRS			Well Number: BH318					
Propert	y name/o	owner:			Purging Date: 18/8/2020					
Contact	t details:				Sampling Date: (9/8/2020					
Depth to	groundwa	ter from TC	OC (m): 6	-54	PVC Stickup (m):					
Well dep	th from TC	C (PVC) (n	n): 13·	77	Casing dia	Casing diameter (mm): 50 mm				
				Pu	rging Information					
Purging r	method:				Calculated bore volume (m ³) = π r ² h					
O Micropurge O Grundfos O 12V pump				np	$\pi = 3.14$			P	urged dry	
O Bailer O Flowing O Grab sample						asing dian epth – dep	neter (m) th to GW (r			
Logger d	ownload:	O YES	O NO		1 bore vol			,		
					3 bore vol	lumes (L):				
Start time	e: ('	2:20			$1m^3 = 100$	OOL				
Finish tim	ne: 1	2:36	٥		Purging d	epth:				
				Field F	Results W	hile Purg	ing			
	Vol	Temp.	EC	TDS	D	0		Redox	Colour/odour/	
Time	(L)	°C	(uS/cm)	(g/L)	%sat	mg/L	pН	(mV)	turbidity	
12:20		18.9					7.4		clear Llear Clear	
12:26		19.3					7.4		Lleav	
12:31		19.7	-				7.4		clear	
12:36	,	20.2					7.4		clear	
	CO ₂ (mg	/L) = mL in	syringe x 10	=						
			oe within 0.1 perature with					y, salinity a	and dissolved oxygen	
				,	Sampling I	Details				
Sampling	method (if different f	rom purging	method):	Bottles of	collected:				
O Microp	ourge O	Grundfos	0-12V pun	np						
O Bailer	0	Flowing	O Grab sa	mple						
Sampling	time:	12:30			QA/QC	details				
Other cor	mments ar	nd observat	ions (environ	mental/cli	matic condi	itions):				
		<i>F</i>	1 1	-1	0:					
Sampler's	s name:	tom	Dewh	urs7	Signature					

Attachment D, Laboratory results



CERTIFICATE OF ANALYSIS

: EW2003788 Page : 1 of 2

Client : FULTON HOGAN PTY LTD Laboratory : Environmental Division NSW South Coast

: MR JAMES DIAMOND Contact Contact : Glenn Davies

Address : LEVEL 3 - 90 BOURKE ROAD Address : 1/19 Ralph Black Dr, North Wollongong 2500

ALEXANDRIA NSW, AUSTRALIA 2015 4/13 Geary Pl, North Nowra 2541

Australia NSW Australia

Telephone : +61 02 8346 9400 Telephone : 02 42253125 Date Samples Received Project : Albion Park Rail Bypass : 19-Aug-2020 15:57

Order number Date Analysis Commenced : 19-Aug-2020 C-O-C number Issue Date : 25-Aug-2020 14:07

Sampler



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

: 5

: EN/222

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

No. of samples received No. of samples analysed

Work Order

Site Quote number

Signatories
This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories Position Accreditation Category

Ankit Joshi Inorganic Chemist Sydney Inorganics, Smithfield, NSW Sydney Inorganics, Smithfield, NSW Ivan Taylor Analyst

Page : 2 of 2 Work Order : EW2003788

Client : FULTON HOGAN PTY LTD
Project : Albion Park Rail Bypass



General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key: CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

ø = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

Analytical work for this work order will be conducted at ALS Sydney.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)		Clie	ent sample ID	GW1	GW2	GW4	GW5	BH318
	CI	ient sampli	ng date / time	19-Aug-2020 00:00				
Compound	CAS Number	LOR	Unit	EW2003788-001	EW2003788-002	EW2003788-003	EW2003788-004	EW2003788-005
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value		0.01	pH Unit	8.11	7.94	7.94	4.17	7.40
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C		1	μS/cm	2510	977	2640	18100	3950
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L		0.002			
Cadmium	7440-43-9	0.0001	mg/L		<0.0001			
Chromium	7440-47-3	0.001	mg/L		<0.001			
Copper	7440-50-8	0.001	mg/L		0.009			
Nickel	7440-02-0	0.001	mg/L		0.006			
Lead	7439-92-1	0.001	mg/L		<0.001			
Zinc	7440-66-6	0.005	mg/L		0.009			
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L		<0.0001			

Groundwater Monitoring

Construction Event 8

The purpose of groundwater quality monitoring during the construction phase is to determine impacts resulting from construction of the project. (i.e. road construction). Other sources such as agricultural operations etc. will not be monitored but possibly referred to if contributing impacts are found. Potential impacts to groundwater from road construction activities will most likely result from spills, water extraction and PASS disturbance.

Date of Monitoring: 11th December 2020

Scope and Limitations

During the construction phase of the project, groundwater quality will be monitored at the same locations as the baseline-monitoring program. Groundwater quality will be monitored at six locations (i.e. GW1-GW5 and BH318).

This report presents the information collected during the monitoring event with some discussion on field observations and results with respect to conditions.

Field Programme

Groundwater sampling was undertaken at all groundwater monitoring wells in the third quarter of 2019; refer to Attachment A for monitoring well locations. This quarterly sampling event was conducted in accordance with the sampling program and protocols provided in:

- 2018, Baseline Monitoring Program Albion Park Rail Bypass;
- 2018 Appendix B4 Soil and Water Management Sub-plan Albion Park Rail bypass (Stage 2 Princes Motorway between Yallah and Oak Flats) Appendix B Construction water quality monitoring program

Water samples were submitted to a NATA certified testing laboratory (Australian Laboratory services (ALS)) to be analysed for:

- pH
- electrical conductivity
- temperature
- no visible oil and grease
- · dissolved metals for GW2 only, which is located in a PASS risk area

Groundwater levels were also measured at each groundwater monitoring wells.

Groundwater sampling results

Results for the water quality monitoring event are located as attachments at the end of this document, they are:

- Attachment A, Location maps
- · Attachment B, Tabulated results
- · Attachment C, Field sheets
- Attachment D, Laboratory results

Results summary

Q4 2020 results indicate that there are no impacts from construction activities however seasonal and climate impacts are affecting the groundwater across site. For the first time during the monitoring program GW3 was observed to have groundwater in the well. Monitoring against these results will occur in the next reporting period. There were three exceedances in metal concentrations in GW2 against the third quarter of 2020. Arsenic levels increased very slightly compared to Q3 202. Copper was stable with Q3 results however still consistent with levels found prior to construction commencing in the area. Nickel levels reduced compared to Q3 levels that are just above the nominated trigger level. Zinc levels had reduced to below trigger levels during Q4 2020. The concentrations were generally only marginally greater than the nominated trigger levels and associated laboratory reporting limits and are considered representative of natural groundwater quality variations rather than related to potential impacts from project construction works. GW4 Height has stabilised with Q3 heights.

GW1: All levels remained consistent and were below limit of recording or within nominated guidelines with no impact from construction

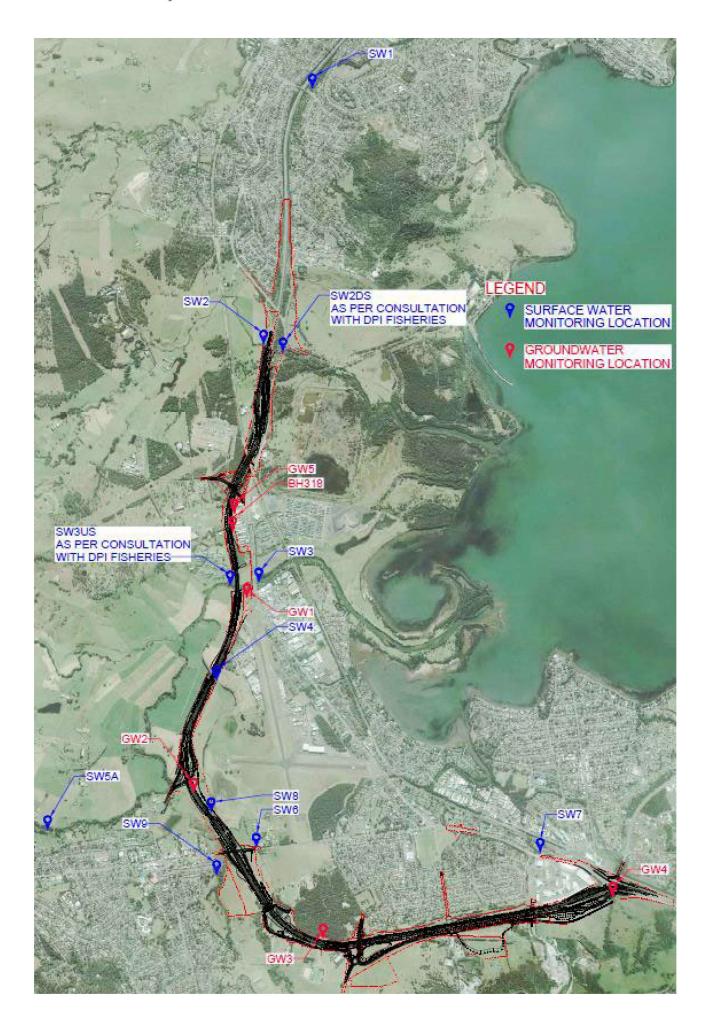
GW2: As stated above there were three exceedances in metal concentrations which were representative of natural groundwater quality variations.

GW3: First time during the monitoring program GW3 was able to be sampled. Monitoring against these results will occur in the next reporting period

GW4: All levels were below limit of recording or within nominated guidelines with no impact from construction. Height has stabilised in comparison to the last quarter.

GW5: All levels were below limit of recording or within nominated guidelines with no impact from construction.

BH318: All levels were below limit of recording or within nominated guidelines with no impact from construction.



Attachment B, Tabulated results

No.	Date	Time	Temperature (°C)	рН	Electrical Conductivity (mS/cm)	Visible Oil and Grease	Depth from TOC (m)
GW1	11/12/2020	1:31pm	22.4	7.97	2.51	No	5.90
GW2	11/12/2020	10:39am	19.8	7.85	1.26	No	2.82
GW3	11/12/2020	10:01am	19.3	7.88	16.9	N/A	2.30
GW4	11/12/2020	9:21am	20.8	7.96	2.68	No	12.01
GW5	11/12/2020	12:20pm	20.1	4.23	21.7	No	7.84
BH318	11/12/2020	11:45am	20.2	7.48	5.29	No	6.93

GW2 Dissolved Metals results

Dissolved Metals	mg/L
Arsenic	0.003
Cadmium	<0.0001
Chromium	<0.001
Copper	0.009
Nickel	0.004
Lead	<0.001
Zinc	<0.005
Mercury	<0.0001

Attachment C, Field sheets

Proje	ct: AF	PRL			Well Number: Cul					
Proper	ty name/	owner:			Purging Date: 10/12/2020					
Contac	t details:				Sampling Date: ///2/2020					
Depth to	groundwa	ater from TC		5.90	PVC Stickup (m):					
Well dep	oth from TC	OC (PVC) (r	m): 7	.9	Casing diameter (mm): 50 may					
				Pu	rging Information					
	method:		. /			d bore volu	ume (m³) =	π r ² h		
O Micropurge O Grundfos O 12V pump O Bailer O Flowing O Grab sample					$\pi = 3.14$ $r = 0.5 \times 6$	casing dian	neter (m)	Pur	ged dry	
O Baller		Flowing	O Grab sa	impie			th to GW (i)	
Logger	download:	O YES	O NO		1 bore vol	lume (L):				
01 11		1.10	0		3 bore vol	lumes (L):				
Start tim	e:	1:10	pm		$1m^3 = 100$	OOL				
Finish tir	ne:	1:31	pm		Purging d	epth:				
				Field R	esults W	hile Purg	ing			
Time	Vol (L)	Temp.	EC (uS/cm)	TDS (g/L)	D 0/ 4		pН	Redox (mV)	Colour/odour/ turbidity	
1:10	(-)	20.6	(uo/ciii)	(9/-/	%sat	mg/L	7.8	(IIIV)	. 1	
1:14		20.9					7.8		slightly turb	
1:20		21.3					7.9		(1 10	
1:26		21.9					7-9		11 11	
1:31		22.4					8.0		10 11	
		ĺ								
	CO ₂ (mg	/L) = mL in	syringe x 10	=						
	-							y, salinity a	and dissolved oxygen	
should be	e within 10	% and temp	perature with	in 0.5 °C b	efore the w	vell is sam	pled.			
				·	Sampling D					
			rom purging I		Bottles c	ollected:				
O Microp O Bailer	-	Grundfos Flowing	O 12V pur O Grab sar			I				
Sampling		1:31	O Glab sai	пріє	QA/QC details					
			ons (environ	mental/clin						
Julier 601	milono ali	ia obacivali	CHVIIOH	ciitai/Giii	natio condi					
								,		
Sampler's	s name: 7	om.	Denhu	rst	Signature:					

Project: APR6	Well Number: Cew 2					
Property name/owner:	Purging Date: 10/12/2020					
Contact details:	Sampling Date: // /12/2020					
Depth to groundwater from TOC (m): 2. 82	PVC Stickup (m):					
Well depth from TOC (PVC) (m): 114 39	Casing diameter (mm):	50m			
Pi	rging Information					
Purging method:		Calculated bore volume (m ³) = π r ² h				
O Micropurge O Grundfos 12V pump	Calculated bore volume (m³) = π r² h π = 3.14 r = 0.5 x casing diameter (m) h = well depth – depth to GW (m)					
O Bailer O Flowing O Grab sample	h = well depth – depth to GW (m)					
Logger download: O YES O NO	1 bore volume (L):					
	3 bore volumes (L):				
Start time: /O:09	1m ³ = 1000L					
Finish time: / 0 > 3 9	Purging depth:					
Field	Results While Pu	rging				
Time Vol Temp. EC TDS	DO	рН	Redox	Colour/odour/		
(L) °C (uS/cm) (g/L)	%sat mg/L	70	(mV)	turbidity		
10:09 18.8		7.8		clear		
10:16 19:1	-	7.8		clear		
		79		11 11		
10:30 19.7		7.9		. 11 11		
10.31		421				
				,		
CO ₂ (mg/L) = mL in syringe x 10 =						
Measurements for pH should be within 0.1 pH units	and measurements f	or conductivi	ty, salinity a	and dissolved oxygen		
should be within 10% and temperature within 0.5 °C						
	Sampling Details					
Sampling method (if different from purging method):	Bottles collected:					
O Micropurge O Grundfos O 12V pump	/					
O Bailer O Flowing O Grab sample	1					
Sampling time: 10:39	QA/QC details					
Other comments and observations (environmental/c	limatic conditions):					
Sampler's name: Tom Dewhyrst	Signature:					

Property Contact	/ name/o	wner.								
Contact		WIICI.			Purging Date: 10/12/2020					
Contact details:					Sampling Date: 11/12/2020					
Depth to (groundwa	ter from TC	OC (m): 2	30	PVC Stick	up (m):	•			
Well dept	h from TO	C (PVC) (n	n): 7.	6	Casing dia	meter (mr	n):	50 mm		
				Pui	rging Info	rmation				
Purging method: O Micropurge O Grundfos O 12V pump O Bailer O Flowing O Grab sample				Calculated bore volume (m³) = π r² h π = 3.14 r = 0.5 x casing diameter (m) h = well depth – depth to GW (m)						
Logger do	ownload:	O YES	O NO		1 bore volu	ume (L):				
	0				3 bore volu	umes (L):				
Start time		51			$1m^3 = 1000$	0L				
Finish tim	e: 10	:01			Purging de	epth:				
				Field R	esults Wh	nile Purg	ing		I	
Time	Vol	Temp.	EC	TDS	DO		рН	Redox	Colour/odour/ turbidity	
	(L)	°C	(uS/cm)	(g/L)	%sat	mg/L	20	(mV)		
7:51		18.9					7.9		Slightly	7
7:56		19.2		v			7.9			11
0:01		19-3					7-1		10	//
				31						
			7							
	CO ₂ (ma	/I.) = ml in	syringe x 10	1=						
	nents for p	oH should b		pH units a				ty, salinity	and dissolved c	oxygen
				5	Sampling D	etails				
Sampling	method (if different f	rom purging	method):	Bottles co	ollected:				
O Microp	urge O	Grundfos	O 12V pur			1				
O Bailer	O Bailer O Flowing O Grab sample									
Sampling		10:0	•		QA/QC d					
Other con	nments ar	nd observat	ions (enviror	nmental/clir	matic condit	tions):				
		*								-
Sampler's	none e	Tom	Dewhi	ivet	Signature:					

Project: APR5	Well Number: СいЧ					
Property name/owner:	Purging Date: 10/12/2020					
Contact details:	Sampling Date: (1/12/2020					
Depth to groundwater from TOC (m): 12 01 F	PVC Stickup (m):					
Well depth from TOC (PVC) (m): 30.03	Casing diameter (mm):					
Purç	ging Information					
Purging method:	Calculated bore volume (m ³) = π r ² h					
o more parge	π = 3.14 Purged					
O Ballet O Howling O Grap cample	$\pi = 3.14$ $r = 0.5 \times \text{casing diameter (m)}$ h = well depth - depth to GW (m)					
	1 bore volume (L):					
01.11	3 bore volumes (L):					
0 0 1	1m ³ = 1000L					
Finish time: 9:2	Purging depth:					
Field Re	esults While Purging					
Time Vol Temp. EC TDS	DO Redox Colour/odour/					
(L) °C (uS/cm) (g/L)	%sat mg/L (mV) turbidity					
8:57 19.1	7't Slightly turble					
9:02 19.3	7-8					
9:07 19.5	7.8 clear					
9:12 19.8	7.8 clear					
9:16 20.1	7.8 ckar					
9:21 20.8	7.9 clear					
CO ₂ (mg/L) = mL in syringe x 10 =						
	d measurements for conductivity, salinity and dissolved oxygen					
should be within 10% and temperature within 0.5 °C be						
Sa	ampling Details					
Sampling method (if different from purging method):	Bottles collected:					
O Micropurge O Grundfos O 12V pump	1					
O Bailer O Flowing O Grab sample						
Sampling time: 9.21 QA/QC details						
Other comments and observations (environmental/climatic conditions):						
,						
,						
	,					
Sampler's name: Tom Dewhyst s	Signature:					

Project: APR6	*	Well Number: 205						
Property name/owner:		Purging	Date:	10/12	120	20		
Contact details:		Samplin	Sampling Date: 11 12/2020					
Depth to groundwater from TOC	(m): 7.8°	PVC Stick	kup (m):					
Well depth from TOC (PVC) (m):	1103	Casing di	ameter (mi	m): 50	Duran			
	urging Info	ormation						
Purging method: O Micropurge O Grundfos	Calculate π = 3.14	d bore volu	ume (m³) =	π r² h	Purged	dry		
, ,	O 12V pump O Grab sample	1	casing dian	neter (m)		J		
		h = well d	epth – dep	th to GW (r	n)			
Logger download: O YES	O NO	1 bore vo						
Start time: 11:5%			lumes (L):				W.	
:0 0-			1m ³ = 1000L Purging depth:					
Finish time: 12.20	et. D			·lm ar				
		Results W	oo	Ing	Deden	Colour	a danud	
Time Vol Temp. (L) °C	EC TDS (uS/cm) (g/L)	%sat	mg/L	рН	Redox (mV)	Colour/ turbi	5	
11:58 19.6	(3-7)	70341	mg/L	42		slightly	turbid	
12:03 19.8				4.2		<i>y</i>		
12:07 19.9				4.2				
12:13 20:1				4.2				
12:20 20.1				4.2				
CO ₂ (mg/L) = mL in sy								
Measurements for pH should be should be within 10% and tempe					ty, salinity	and dissolved o	oxygen	
		Sampling	Details					
Sampling method (if different from	m purging method)	Bottles	collected:					
O Micropurge O Grundfos	O 12V pump							
O Bailer O Flowing	O Grab sample							
	Sampling time: QA/QC details							
Other comments and observation	ns (environmental/o	limatic cond	itions):					
,								
Sampler's name: Tom)en hurst	Signature	:					

Projec	et: A	PRO			Well No	umber:	BH	318		
Proper	ty name/o	wner:			Purging Date: 10/12/2020					
Contac	t details:				Sampling Date: 1(/12/2020					
Depth to	groundwa	ter from TC	OC (m):	.93	PVC Stickup (m):					
Well dep	th from TC	C (PVC) (r	n): 13.7	7	Casing dia	ameter (mr	n): 50	D mm		
	Pi					rmation				
Purging					Calculated bore volume (m ³) = π r ² h					
	O Micropurge O Grundfos O 12V pump O Bailer O Flowing O Grab sample				200 2	Calculated bore volume (m³) = π r² h π = 3.14 r = 0.5 x casing diameter (m)				
O Bailer	O	Flowing	O Grab sa	mpie			th to GW (n	n)		
Logger o	lownload:	O YES	ONO		1 bore vol	lume (L):				
					3 bore vol	umes (L):				
Start tim	e: //	30			1m ³ = 100	00L				
Finish tir	ne:	45			Purging d	epth:				
				Field F	Results W	hile Purg	ing			
Time	Vol	Temp.	EC	TDS	D	0	pН	Redox	Colour/odour/	
11.0	(L)	°C	(uS/cm)	(g/L)	%sat	mg/L	7.4	(mV)	turbidity	
11:30		18.4					75		elear	
11:36		18.7					7.5		clear	
11:45		18.7					7.5		deav	
(10-1)		101					7 0			
									9	
				-						
	CO ₂ (mg	/ L) = mL in	syringe x 10	=						
1			pe within 0.1					y, salinity a	and dissolved oxygen	
Siloula b	e within 10	70 and term	perature witi		Sampling I		picu.			
Sampling	a method (if different t	rom purging			collected:				
O Micro		Grundfos	⊙ 12V pur			M				
O Bailer	0	Flowing	O Grab sa	mple	50	10				
Sampling	Sampling time: //:45 QA/QC details									
Other co	mments ar	nd observat	tions (enviror	mental/cli	matic condi	itions):				
			On it	ct	0'. '					
Sampler	's name:	10m	Dewh	MVSI	Signature					

Attachment D, Laboratory results



CERTIFICATE OF ANALYSIS

: EW2005667 Page : 1 of 4

Client : FULTON HOGAN PTY LTD Laboratory : Environmental Division NSW South Coast

: MR JAMES DIAMOND Contact Contact : Glenn Davies

Address Address : LEVEL 3 90 BOURKE ROAD : 1/19 Ralph Black Dr, North Wollongong 2500

ALEXANDRIA NSW, AUSTRALIA 2015 4/13 Geary Pl, North Nowra 2541

Australia NSW Australia Telephone : +61 02 8346 9400 Telephone : 02 42253125

Date Samples Received Project : Albion Park Rail Bypass : 11-Dec-2020 15:38 Order number Date Analysis Commenced : 11-Dec-2020

C-O-C number Issue Date : 21-Dec-2020 19:07

Sampler : TOM DEWHURST Site Quote number : EN/222



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

: 6

- General Comments
- Analytical Results

No. of samples received No. of samples analysed

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Work Order

Signatories
This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories Position Accreditation Category

Sydney Inorganics, Smithfield, NSW Ankit Joshi Inorganic Chemist Sydney Inorganics, Smithfield, NSW Wisam Marassa Inorganics Coordinator

Page : 2 of 4 Work Order : EW2005667

Client : FULTON HOGAN PTY LTD
Project : Albion Park Rail Bypass



General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key: CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society. LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

ø = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

Analytical work for this work order will be conducted at ALS Sydney.

Page Work Order Client Project

: 3 of 4 ; EW2005667 : FULTON HOGAN PTY LTD ; Albion Park Rail Bypass



Analytical Results

tharytical Nesalts								
Gub-Matrix: WATER (Matrix: WATER)			Sample ID	GW1	GW2	GW3	GW4	GW5
		Sampli	ng date / time	11-Dec-2020 13:31	11-Dec-2020 10:39	11-Dec-2020 10:01	11-Dec-2020 09:21	11-Dec-2020 09:21
Compound	CAS Number	LOR	Unit	EW2005667-001	EW2005667-002	EW2005667-003	EW2005667-004	EW2005667-005
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value		0.01	pH Unit	7.97	7.85	7.88	7.96	4.23
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C		1	μS/cm	2800	1260	16900	2680	21700
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L		0.003			
Cadmium	7440-43-9	0.0001	mg/L		<0.0001			
Chromium	7440-47-3	0.001	mg/L		<0.001			
Copper	7440-50-8	0.001	mg/L		0.009			
Nickel	7440-02-0	0.001	mg/L		0.004			
Lead	7439-92-1	0.001	mg/L		<0.001			
Zinc	7440-66-6	0.005	mg/L		<0.005			
Iron	7439-89-6	0.05	mg/L		3.83			
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L		<0.0001			

Page Work Order Client Project

4 of 4 EW2005667 FULTON HOGAN PTY LTD Albion Park Rail Bypass



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	BH318	 	
		Sampli	ng date / time	11-Dec-2020 11:45	 	
Compound	CAS Number	LOR	Unit	EW2005667-006	 	
				Result	 	
EA005P: pH by PC Titrator						
pH Value		0.01	pH Unit	7.48	 	
EA010P: Conductivity by PC Titrator						
Electrical Conductivity @ 25°C		1	μS/cm	5290	 	



Annexure D Noise Monitoring Results



Noise monitoring results – July 2020

EPA ID#	LOCATION DESCRIPTION	Date	L(A) _{eq(15min)}	Comments
2	L1 - 20 Westwood Drive, Blackbutt	23/07/2020	56	No construction noises audible at time of monitoring.
3	L2 - 78 Jarrah Way, Albion Park Rail	21/07/2020	59	Construction noises audible: Hammer (48-55), Dozer (48- 54) and Squawker (46-48)
4	L3 - 17 Gumnut Street, Albion Park Rail	21/07/2020	61	Street sweeper (51-73) most dominant construction noise source during monitoring. Other noise sources dogs barking (50-57), airplanes (48-56) and builder in a neighbouring house (53-56)
5	L4 - 152 Croome Road, Albion Park	21/07/2020	68	No construction noises audible at time of monitoring. Most dominant noise source traffic on Croome Rd (50-81).
6	L5 - 59 Burdekin Drive, Albion Park	23/07/2020	63	No construction noises audible at time of monitoring. Most dominant noise source traffic on Burdekin Dr (53-77).
7	L6 - 25 Fraser Crescent, Albion Park	23/07/2020	52	No construction noises audible at time of monitoring. Most dominant noise source birds (42-53) and airplanes (52-68).
8	L7 - 52 Tongarra Road, Abion Park	23/07/2020	76	No construction noises audible at time of monitoring. Most dominant noise source traffic on Croome Rd (60-88)
9	L8 - 24 Terry Street, Albion Park	23/07/2020	73	No construction noises audible at time of monitoring. Most dominant noise source traffic on Terry St (55-81)
10	L9 - 42 Larkins Lane, Yallah	24/07/2020	53	Cut 1 SMZ and drainage blanket placement. 2x graders 4x truck and dogs on turnaround (only 1 circuit recorded) 50-56dB. Tail slap register at 67dB. Highway traffic (48-52dB)
11	L10 - 4 Semillon Place, Mount Brown	23/07/2020	57	No construction audible at time of monitoring. Traffic along Princes HWY (52-63) most dominant noise source.



Noise monitoring results - August 2020

EPA ID#	LOCATION DESCRIPTION	Date	L(A) _{eq(15min)}	Comments
2	L1 - 20 Westwood Drive, Blackbutt	26/08/2020	52	Hammers (44-47) audible at time of monitoring. Most dominant noise source, traffic (48-60).
3	L2 - 78 Jarrah Way, Albion Park Rail	21/08/2020	51	Construction noises audible: Hammer (47-52), Moxie (49- 55) and Squawker (48-50)
4	L3 - 17 Gumnut Street, Albion Park Rail	3/08/2020	49	Barrier removal (39-53) only construction noise audible. Dogs barking (48-70) most dominant noise source.
5	L4 - 152 Croome Road, Albion Park	21/08/2020	71	Tracking machine on bridge 12 (44-47) only construction noise audible. Most dominant noise is traffic on Croome Rd (52-81).
6	L5 - 59 Burdekin Drive, Albion Park	21/08/2020	62	No construction noises audible at time of monitoring. Most dominant noise source traffic on Burdekin Dr (49-80).
7	L6 - 25 Fraser Crescent, Albion Park	21/08/2020	64	No construction noises audible at time of monitoring. Most dominant noise source was a tractor slashing grass in reserve (50-78).
8	L7 - 52 Tongarra Road, Abion Park	27/08/2020	74	No construction noises audible at time of monitoring. Most dominant noise source traffic on Tongarra Rd (49-82)
9	L8 - 24 Terry Street, Albion Park	26/08/2020	73	Dozer (53-62) audible at time of monitoring. Traffic (60-87) most dominant noise source.
10	L9 - 42 Larkins Lane, Yallah	31/08/2020	56	Drainage works in Cut 1, Excavator (54-56)dBA, Grader idling inaudible. Noise from traffic on Highway dominant noise source
11	L10 - 4 Semillon Place, Mount Brown	27/08/2020	58	No construction audible at time of monitoring. Traffic along Princes HWY (54-66) most dominant noise source.



Noise monitoring results – September 2020

EPA ID#	LOCATION	Date	L(A) _{eq(15min)}	Comments
2	L1 - 20 Westwood Drive, Blackbutt	17/09/2020	51	No construction noises audible at time of monitoring. Most dominant noise sources: birds (38-47) and traffic (42-52)
3	L2 - 78 Jarrah Way, Albion Park Rail	17/09/2020	44	No construction noises audible at time of monitoring. Most dominant noise sources: birds (44-49 and traffic (47-54)
4	L3 - 17 Gumnut Street, Albion Park Rail	16/09/2020	56	Construction noises audible: Long Reach Excavator (50-73) and Crew Truck (56-66)
5	L4 - 152 Croome Road, Albion Park	15/09/2020	69	No construction audible at time of monitoring. Most dominant noise source: Traffic on Croome Rd (48-82)
6	L5 - 59 Burdekin Drive, Albion Park	16/09/2020	59	No construction noises audible at time of monitoring. Most dominant noise source traffic on Burdekin Dr (50-76).
7	L6 - 25 Fraser Crescent, Albion Park	17/09/2020	53	No construction noises audible at time of monitoring. Most dominant noise source was a traffic (44-51) and birds (40-51). Squawker (38-41) was the only construction noise audible.
8	L7 - 52 Tongarra Road, Abion Park	15/09/2020	74	No construction audible at time of monitoring. Most dominant noise source: Traffic on Tongarra Rd (50-84)
9	L8 - 24 Terry Street, Albion Park	16/09/2020	71	Construction noises audible: Excavator (46-55). Most dominant noise source: Traffic on Terry St (53-84)
10	L9 - 42 Larkins Lane, Yallah	29/09/2020	60	Construction noises audible: Dozer (52-54). Most dominant noise source: Traffic on Princes HWY (52-59)
11	L10 - 4 Semillon Place, Mount Brown	18/09/2020	61	No construction audible at time of monitoring. Traffic along Princes HWY (55-69) most dominant noise source.



Noise monitoring results – October 2020

EPA ID#	LOCATION	Date	L(A) _{eq(15min)}	Comments
2	L1 - 20 Westwood Drive, Blackbutt	12/10/2020	58	No construction noises audible at time of monitoring. Most dominant noise sources: birds (39-45) and traffic (43-54)
3	L2 - 78 Jarrah Way, Albion Park Rail	12/10/2020	55	Construction noises audible: Hammer (49-54), and Squawker (48-50)
4	L3 - 17 Gumnut Street, Albion Park Rail	12/10/2020	55	No construction noises audible at time of monitoring. Dogs barking (48-58) and traffic (51-64) most dominant noise sources
5	L4 - 152 Croome Road, Albion Park	12/10/2020	54	No construction audible at time of monitoring. Most dominant noise source: Traffic on Croome Rd (50-89)
6	L5 - 59 Burdekin Drive, Albion Park	12/10/2020	45	No construction noises audible at time of monitoring. Most dominant noise source traffic on Burdekin Dr (46-77).
7	L6 - 25 Fraser Crescent, Albion Park	12/10/2020	45	No construction noises audible at time of monitoring. Most dominant noise source was a traffic (43-53) and birds (40-49).
8	L7 - 52 Tongarra Road, Abion Park	12/10/2020	62	No construction audible at time of monitoring. Most dominant noise source: Traffic on Tongarra Rd (52-87)
9	L8 - 24 Terry Street, Albion Park	12/10/2020	62	No construction audible. Most dominant noise source Traffic on Terry St (55-88)
10	L9 - 42 Larkins Lane, Yallah	12/10/2020	62	Construction noise audible: squaker (49-53)
11	L10 - 4 Semillon Place, Mount Brown	12/10/2020	57	No construction audible at time of monitoring. Traffic along Princes HWY (52-68) most dominant noise source.



Noise monitoring results – November 2020

EPA ID#	LOCATION	Date	L(A) _{eq (15min)}	Comments
2	L1 - 20 Westwood Drive, Blackbutt	11/11/2020	56	Construction noise audible; hammering (46-52). Most dominant noise source; Traffic (44-74)
3	L2 - 78 Jarrah Way, Albion Park Rail	11/11/2020	59	Construction noises audible: Hammering (54-63) and squawker (50-53)
4	L3 - 17 Gumnut Street, Albion Park Rail	11/11/2020	52	Construction noises audible: 4 inch pump (48-50) and HydroMulcher filling up water (49-54)
5	L4 - 152 Croome Road, Albion Park	12/11/2020	72	No construction audible at time of monitoring. Most dominant noise source: Traffic on Croome Rd (50-81)
6	L5 - 59 Burdekin Drive, Albion Park	11/11/2020	59	No construction at time of monitoring. Most dominant noise source: Traffic on Burdekin Dr (56-80)
7	L6 - 25 Fraser Crescent, Albion Park	11/11/2020	51	No construction at time of monitoring. Most dominant noise source: Traffic on Frasers Cr (52-60)
8	L7 - 52 Tongarra Road, Abion Park	11/11/2020	74	No construction audible at time of monitoring. Most dominant noise source: Traffic on Tongarra Rd (52-85)
9	L8 - 24 Terry Street, Albion Park	13/11/2020	74	Construction noise audible: Trencher (50-53). Most dominant noise source: Traffic on Terry St (53-86)
10	L9 - 42 Larkins Lane, Yallah	13/11/2020	63	Construction noise audible: 5 tonne excavator hammering (55-66).
11	L10 - 4 Semillon Place, Mount Brown	27/11/2020	71	No construction audible at time of monitoring. Traffic along Princes HWY (53-76) and insects (63-69) most dominant noise source.



Noise monitoring results – December 2020

EPA ID#	LOCATION	Date	L(A) _{eq (15min)}	Comments
2	L1 - 20 Westwood Drive, Blackbutt	10/12/2020	55	No construction noises audible at time of monitoring. Most dominant noise sources: dogs barking (58-65) and traffic (50-54)
3	L2 - 78 Jarrah Way, Albion Park Rail	10/12/2020	57	Construction noises audible: Hammering (44-48) and 20T Excavator (43-50)
4	L3 - 17 Gumnut Street, Albion Park Rail	10/12/2020	50	Construction noises audible: Moxies (44-55). Most dominant noise sources birds (41-50) and traffic (44-52)
5	L4 - 152 Croome Road, Albion Park	10/12/2020	72	No construction audible at time of monitoring. Most dominant noise source: Traffic on Croome Rd (44-82)
6	L5 - 59 Burdekin Drive, Albion Park	10/12/2020	58	No construction at time of monitoring. Most dominant noise source: Traffic on Burdekin Dr (46-78)
7	L6 - 25 Fraser Crescent, Albion Park	10/12/2020	50	No construction at time of monitoring. Most dominant noise source: Birds (35-56)
8	L7 - 52 Tongarra Road, Abion Park	10/12/2020	73	Construction audible at time of monitoring: Vac truck (43-51) Most dominant noise source: Traffic on Tongarra Rd (60-83)
9	L8 - 24 Terry Street, Albion Park	10/12/2020	76	No construction audible at time of monitoring. Most dominant noise source: Traffic on Terry St (45-91) and Cicadas (50-66)
10	L9 - 42 Larkins Lane, Yallah	10/12/2020	60	Construction noise audible: 5 tonne excavator (44-56) and squawker (42-49). Most dominant noise sources: Princes HWY (50-56) and cicadas (45-56)
11	L10 - 4 Semillon Place, Mount Brown	10/12/2020	58	No construction audible at time of monitoring. Traffic along Princes HWY (65-68) and insects (54-66) most dominant noise source.