DOCUMENT 50

Visual Lead Paint Clearance

Yarralumla Primary School

1 September 2019

Certificate of approval for issue of documents

Document Name	Lead Paint Clearance – Yarralumla Primary Gambarri Centre		
Date of Issue	11 September 2019	**Job Number**	T-01035
Client	ACT Property Group		

Sampling and Report Preparation	Reviewed	Approved
Robson Environmental Pty. Ltd.	Robson Environmental Pty. Ltd.	Robson Environmental Pty. Ltd.

1 Introduction

Robson Environmental Pty. Ltd. (Robson) undertook a visual lead clearance inspection following the removal of leaf litter, lead paint fragments and soil from garden beds suspected to be contaminated with lead paint fragments at the south end of Yarralumla Primary Gambarri Centre Building which was conducted between Saturday 31 August and Sunday 1 September 2019.

1.1 Objective

The purpose of the inspection was to assess the success of the precautionary removal of leaf litter, lead paint fragments, soil and associated debris from garden beds around the Gambarri Centre building owing to concerns regarding possible contamination with lead paint fragments.

1.2 Scope

The assessment consisted of a visual inspection of the soil in and around garden beds along the south end of the Gambarri Centre building.

2 Background

Lead (as lead carbonate) is found extensively in paints used in homes as well as in commercial and industrial buildings built before 1970 (Standards Australia, 2017).Lead from lead-containing paint may present health exposure risks if it becomes mobile in the environment or ingested.

3 Methods

The exterior perimeter ground surfaces and surrounding areas were visually inspected to ensure all leaf litter, lead paint fragments, soil and associated debris was completely removed.

4 Results

4.1 Visual Assessment

Visual assessments of the worksites on Saturday 31 August and Sunday 1 September 2019 following the leaf litter removal work did not identify any leaf litter or lead paint fragments on the ground surfaces or in the surrounding areas where the leaf litter had been removed.

Error! Reference source not found. to 8 show representative areas of the remediation works, demonstrating that no lead paint fragments remain after remediation works.

Figure 1: Ground surface after the remediation works in the garden bed at the south end of the Gambarri Centre entrance

Figure 2: Ground surface after the remediation works in the garden bed at the south end of the Gambarri Centre entrance

Figure 3: Ground surface after the remediation works in the garden bed at the south end of the Gambarri Centre entrance

Figure 4: Ground surface after the remediation works in the garden bed at the south end of the Gambarri Centre entrance

Figure 5: Ground surface after the remediation works in the garden bed at the south end of the Gambarri Centre entrance

Figure 6: Ground surface after the remediation works in the garden bed at the south end of the Gambarri Centre entrance

Figure 7: Ground surface after the remediation works in the garden bed at the south end of the Gambarri Centre entrance

Figure 8: Ground surface after the remediation works in the garden bed at the south end of the Gambarri Centre entrance

5 Conclusion and Recommendations

The visual lead paint clearance inspections undertaken for garden beds south of the Yarralumla Primary Gambarri Centre Building after remediation works on Saturday 31 August and Sunday 1 September 2019 was acceptable. There was no visual sign of leaf litter or lead paint fragments remaining on the ground surfaces, and these areas are now safe to be reoccupied.

It should be noted that it is impossible to conclude that all lead paint debris has been removed from the site, due to the likelihood of small particles remaining and extreme difficultly in removing all of these particles. Additional lead paint fragments may be present at depth and/or beyond the areas covered by this and other clearance certificates.

5.1 Recommendations

1. Workers conducting the repainting works should wear appropriate respiratory protection during the application of new paint, to provide protection against lead concentrations that are still adhered on to surfaces.
2. Workers should practice good personal hygiene practices following repainting works, including washing hands and face following the completion of the works and prior to eating, drinking or smoking.

6 Limitations

While Robson has taken all care to ensure that this report includes the most accurate information available, samples were taken at certain times on the day or days indicated within the report and Robson is unable to comment on conditions at other times. Any statement of expected conditions at other times should be taken as possible conditions only.

The report, including any risk assessment presented, is based on the information obtained by Robson at the time of sampling. Any variation in the environment, activities, methods, practices, products, or equipment used may change exposures to hazards, invalidating the presented risk assessment. Robson recommends that risks be re-assessed prior to making any changes to the aforementioned factors.

The findings contained within this report are developed from the interpretation of the results of specific sampling methods used in accordance with generally accepted practices and standards, based on the current state of knowledge. To the best of Robson's knowledge, our assessment of the data represents a reasonable interpretation of the general conditions, and subsequent risk at the time of sampling. Should you have any questions or require further information please contact Robson Environmental.

7 References

- Standards Australia, 2017, AS/NZS4361.2-2017: *Guide to hazardous paint management, Part 2: Lead paint in residential, public and commercial buildings*, Standards Australia, Australia.
- U.S. Department of Housing and Urban Development 2012, *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing Second Edition*, Office of Health Homes and Lead Hazard Control, Washington, DC.

Visual Lead Paint Clearance

Yarralumla Primary School

7 September 2019

Certificate of approval for issue of documents

Document Name	Lead Paint Clearance – Yarralumla Primary Gambarri Centre		
Date of Issue	25 September 2019	Job Number	T-01035
Client	ACT Property Group		

Sampling and Report Preparation	Reviewed	Approved
[redacted]		
Robson Environmental Pty. Ltd.	Robson Environmental Pty. Ltd.	Robson Environmental Pty. Ltd.

1 Introduction

Robson Environmental Pty. Ltd. (Robson) undertook a visual lead clearance inspection following the removal of leaf litter, lead paint fragments and soil from garden beds suspected to be contaminated with lead paint fragments at the south end of Yarralumla Primary Gambarri Centre Building which was conducted on Saturday 7 September 2019.

1.1 Objective

The purpose of the inspection was to assess the success of the precautionary removal of leaf litter, lead paint fragments, soil and associated debris from garden beds around the Gambarri Centre building owing to concerns regarding possible contamination with lead paint fragments.

1.2 Scope

The assessment consisted of a visual inspection of the soil in and around garden beds along the surrounding the covered sandpit area at the western end entrance to the outdoor fenced play area of the Gambarri Centre building.

2 Background

Lead (as lead carbonate) is found extensively in paints used in homes as well as in commercial and industrial buildings built before 1970 (Standards Australia, 2017). Lead from lead-containing paint may present health exposure risks if it becomes mobile in the environment or ingested.

3 Methods

The exterior perimeter ground surfaces and surrounding areas were visually inspected to ensure all leaf litter, lead paint fragments, soil and associated debris was completely removed.

4 Results

4.1 Visual Assessment

Visual assessments of the worksites on Saturday 7 September 2019 following the leaf litter removal work did not identify any leaf litter or lead paint fragments on the ground surfaces or in the surrounding areas where the leaf litter had been removed.

Figure 1 to Figure 5 show representative areas of the remediation works, demonstrating that no lead paint fragments remain after remediation works.

Figure 1: Ground surface after the remediation works in the garden bed between sandpit and fence line at the outdoor play area of the Gambarri Centre

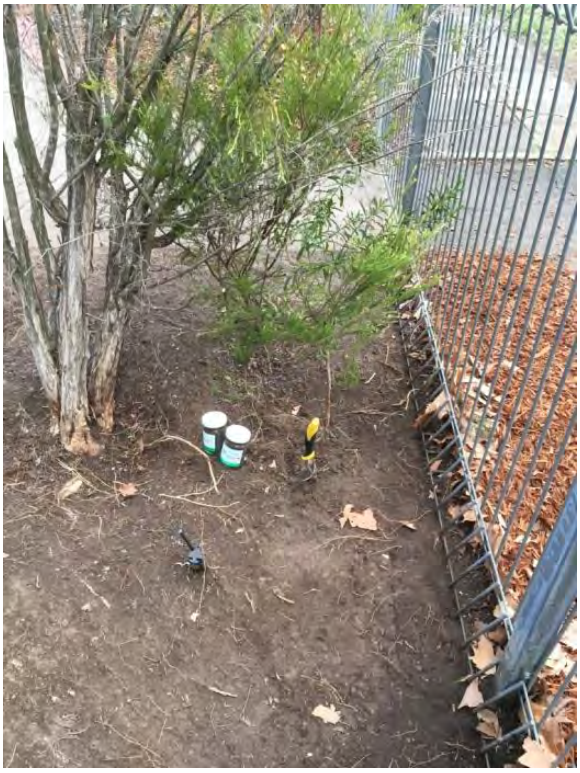

Figure 2 Ground surface after the remediation works in the garden bed between sandpit and fence line at the outdoor play area of the Gambarri Centre

Figure 3 Ground surface after the remediation works in the garden bed at the between sandpit and fence line at the outdoor play area of the Gambarri Centre

Figure 4 Ground surface after the remediation works in the garden bed at the between sandpit and fence line at the outdoor play area of the Gambarri Centre

Figure 5 Ground surface after the remediation works in the garden bed at the between sandpit and fence line at the outdoor play area of the Gambarri Centre

5 Conclusion and Recommendations

The visual lead paint clearance inspections undertaken for garden beds west of the Yarralumla Primary Gambarri Centre Building after remediation works on Saturday 7 September 2019 was acceptable. There was no visual sign of leaf litter or lead paint fragments remaining on the ground surfaces, and these areas are now safe to be reoccupied.

It should be noted that it is impossible to conclude that all lead paint debris has been removed from the site, due to the likelihood of small particles remaining and extreme difficultly in removing all of these particles. Additional lead paint fragments may be present at depth and/or beyond the areas covered by this and other clearance certificates.

5.1 Recommendations

1. Workers conducting the repainting works should wear appropriate respiratory protection during the application of new paint, to provide protection against lead concentrations that are still adhered on to surfaces.
2. Workers should practice good personal hygiene practices following repainting works, including washing hands and face following the completion of the works and prior to eating, drinking or smoking.

6 Limitations

While Robson has taken all care to ensure that this report includes the most accurate information available, samples were taken at certain times on the day or days indicated within the report and Robson is unable to comment on conditions at other times. Any statement of expected conditions at other times should be taken as possible conditions only.

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The findings contained within this report are developed from the interpretation of the results of specific sampling methods used in accordance with generally accepted practices and standards, based on the current state of knowledge. To the best of Robson's knowledge, our assessment of the data represents a reasonable interpretation of the general conditions, and subsequent risk at the time of sampling. Should you have any questions or require further information please contact Robson Environmental.

7 References

- Standards Australia, 2017, AS/NZS4361.2-2017: *Guide to hazardous paint management, Part 2: Lead paint in residential, public and commercial buildings*, Standards Australia, Australia.
- U.S. Department of Housing and Urban Development 2012, *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing Second Edition*, Office of Health Homes and Lead Hazard Control, Washington, DC.

Airborne Lead Monitoring During Lead Paint Remediation

Yarralumla Primary and Preschool

August – September 2019

Certificate of approval for issue of documents

Document Name	Airborne Lead Monitoring During Lead Paint Remediation – Yarralumla Primary and Preschool		
Date of Issue	27 September 2019	**Job Number**	T01035
Client	ACT Property Group	**Client Reference**	WO 31266
Site Sampling and Report Preparation			
[redacted]			
Robson Environmental Pty. Ltd.		Robson Environmental Pty. Ltd.	
Reviewed		**Approved**	
[redacted]			
Robson Environmental Pty. Ltd.		Robson Environmental Pty. Ltd.	

1 Introduction

Robson Environmental Pty Ltd (Robson) undertook an assessment of airborne lead particulate during the removal of lead paint and removal of leaf litter suspected to be contaminated with lead paint fragments at Yarralumla Primary and Preschool during August and September 2019.

1.1 Objective

The purpose of the assessment was to measure airborne lead particulate during remediation works to assess whether the work itself was likely to present a risk to health from airborne lead dust exposure or spread lead paint contamination by dispersing lead particulate through the air.

1.2 Scope

The assessment consisted of static air monitoring to quantify airborne lead particulate concentrations during remediation works around the Gambarri Centre Building. The areas of assessment were:

- The Internal doorway and hallway leading into the Cleaner's Room on August 10 – 11, 2019;
- The garden beds to the south east of the Gambarri Centre Building and garden bed south east of the Gambarri Centre Music Room on August 17 – 18, 2019;
- The garden beds to the south end of the Gambarri Centre Building entrance on August 24, 2019;
- The garden beds to the south end of the Gambarri Centre Building entrance on August 31 – September 1, 2019; and
- The garden bed in the play area of the Gambarri Centre Building on September 7, 2019.

2 Methods

Air sampling for airborne lead was conducted in accordance with AS3640 *Workplace atmospheres – Method for sampling and gravimetric determination of inhalable dust* (2009). Static air samples were collected from locations within the remediation area. The full details of sampling are given in Table 1.

Sampling was conducted using IOM inhalable dust sampling heads containing a mixed cellulose ester membrane MCE-225-1930 filter (25mm). Flow rates were set at 2L/min and were checked prior to and after sample collection using a calibrated rotameter. Validation blanks were also analysed. All samples were individually sealed and sent under Chain of Custody (COC) documentation to

Table 1: Airborne lead sampling details

Sample Number	Date	Location	Sample Time (mins)	Volume (L)
T01035 – Pb48	10/8/19	Internal entry door	472	944
T01035 – Pb49	10/8/19	Hallway leading into room	471	942
T01035 – Pb50	10/8/19	Field Blank		
T01035 – Pb51	11/8/19	Internal entry door	412	824
T01035 – Pb52	11/8/19	Hallway leading into room	412	824

Sample Number	Date	Location	Sample Time (mins)	Volume (L)
T01035 – Pb53	11/8/19	Field Blank		
T01035 – Pb54	17/8/19	Exterior Pre south west end to removal area	386	772
T01035 – Pb55	17/8/19	Exterior Pre central west to removal area	386	772
T01035 – Pb56	17/8/19	Exterior Pre central east to removal area	386	772
T01035 – Pb57	17/8/19	Exterior Pre south east end to removal area	388	776
T01035 – Pb58	17/8/19	Field Blank		
T01035 – Pb59	18/8/19	Exterior Gambarri south west garden bed to entrance	449	898
T01035 – Pb60	18/8/19	Exterior Pre south west to removal area	443	886
T01035 – Pb61	18/8/19	Exterior Pre central to removal area	442	884
T01035 – Pb62	18/8/19	Exterior South east to removal area	441	882
T01035 – Pb63	18/8/19	Field Blank		
T01035 – Pb64	24/8/19	On pole east of removal area	408	816
T01035 – Pb65	24/8/19	On tree south of removal area	405	810
T01035 – Pb66	24/8/19	On tree west of removal area	398	796
T01035 – Pb67	24/8/19	Field Blank		
T01035 – Pb68	31/8/19	On pole east of removal area	640	1280
T01035 – Pb69	31/8/19	On tree south of removal area	639	1278
T01035 – Pb70	31/8/19	On tree west of removal area	636	1272
T01035 – Pb71	31/8/19	Field Blank		
T01035 – Pb72	1/9/19	On pole east of removal area	560	1120
T01035 – Pb73	1/9/19	On tree south of removal area	559	1118
T01035 – Pb74	1/9/19	On tree west of removal area	558	1116
T01035 – Pb75	1/9/19	Field Blank		
T01035 – Pb76	7/9/19	On fence west of removal area	495	990
T01035 – Pb77	7/9/19	On top of bin north of removal area	501	1002
T01035 – Pb78	7/9/19	On bucket middle of sandpit east of removal area	504	1008
T01035 – Pb79	7/9/19	Field Blank		

3 Results and Discussion

3.1 Observations

Visual inspections were conducted at the completion of each job and visual clearance reports were issued.

PPE was worn by workers throughout leaf litter suspected to be contaminated with lead paint fragments. Appropriate warning signs and barrier were also erected at the perimeter of the removal areas. All waste was removed and disposed of using plastic double bags or by waste bins.

3.2 Static Air Sampling

No lead particulate was detected in any air sample taking during remediation works at concentrations exceeding the detection limit, as shown in summary in Table 1. The full sampling results are attached at Appendix 1 and laboratory results are attached at Appendix 2.

Table 1: Summary of results from airborne lead sampling during remediation works

Date	Remediation and sampling location	Lead detected in samples	Maximum possible concentration of lead in air
10-11/08/2019	Cleaner's Room walls Lead paint removal	None <1 µg/filter	0.001 – 0.002 mg/m³
17-18/08/2019	Leaf litter removal from garden beds at the south east end of Gambarri Centre Building	None <1 µg/filter	0.001 – 0.002 mg/m³
24/08/2019	Leaf litter removal from garden beds at the south end of the Gambarri Centre Building entrance	None <1 µg/filter	0.001 – 0.002 mg/m³
31/08-01/09/2019	Leaf litter removal from garden beds at the south end of the Gambarri Centre Building entrance	None <1 µg/filter	0.001 – 0.002 mg/m³
07/09/2019	Leaf litter removal from the garden beds in the play area of the Gambarri Centre Building	None <1 µg/filter	0.001 – 0.002 mg/m³

These results demonstrate that the amount of lead particulate in the air during these remediation works is very low, lower than the detection limit. While comparison to workplace exposure standards is not appropriate, as these samples were collected in static locations rather than as personal samples, for context the 8 hour time-weighted average exposure standard for lead particulate is 0.05mg/m^3 (Safe Work Australia, 2018). The maximum possible concentration of lead particulate in these air samples (calculated at the detection limit) is less than 4% of this level, and is probably actually much lower than this.

These results indicated that the risk to health, and the likelihood of lead particulate contamination having been spread through the air and to the environment (e.g. soil surface) during this remediation work is negligible.

4 Conclusions

The results of sampling for airborne lead particulate during removal of lead paint and removal of leaf litter from garden beds suspected to be contaminated with lead paint flakes at Yarralumla Primary

and Preschool during August and September 2019 did not detect airborne lead in any sample at a level above the detection limit. As such, there is not expected to be a risk to health from airborne lead dust exposure from these works, and the work is not expected to have spread lead paint contamination by dispersing lead particulate through the air.

5 Limitations

While Robson has taken all care to ensure that this report includes the most accurate information available, samples were taken at certain times on the day or days indicated within the report and Robson is unable to comment on conditions at other times. Any statement of expected conditions at other times should be taken as possible conditions only.

The report, including any risk assessment presented, is based on the information obtained by Robson at the time of sampling. Any variation in the environment, activities, methods, practices, products, or equipment used may change exposures to hazards, invalidating the presented risk assessment. Robson recommends that risks be re-assessed prior to making any changes to the aforementioned factors.

The findings contained within this report are developed from the interpretation of the results of specific sampling methods used in accordance with generally accepted practices and standards, based on the current state of knowledge. To the best of Robson's knowledge, our assessment of the data represents a reasonable interpretation of the general conditions, and subsequent risk at the time of sampling. Should you have any questions or require further information please contact Robson Environmental.

6 References

- Safe Work Australia, 2018, *Workplace Exposure Standards for Airborne Contaminants*, Safe Work Australia, Australia
- Standards Australia, 2009, *Method for sampling and gravimetric determination of inhalable dust* AS3640 Workplace atmospheres, Standards Australia

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Appendix 1 Blank corrected airborne lead concentrations during remediation works

Sample No.	Date	Sample Location	Lead detected (µg/filter)	Maximum possible air concentration (mg/m³)
T01035 – Pb48	10/8/19	Internal entry door	<1	<0.001
T01035 – Pb49	10/8/19	Hallway leading into room	<1	<0.001
T01035 – Pb51	11/8/19	Internal entry door	<1	<0.001
T01035 – Pb52	11/8/19	Hallway leading into room	<1	<0.001
T01035 – Pb54	17/8/19	Exterior Pre South West end to removal area	<1	<0.001
T01035 – Pb55	17/8/19	Exterior Pre Central West to removal area	<1	<0.001
T01035 – Pb56	17/8/19	Exterior Pre Central East to removal area	<1	<0.001
T01035 – Pb57	17/8/19	Exterior Pre South East end to removal area	<1	<0.001
T01035 – Pb59	18/8/19	Exterior Gambarri South West garden bed to entrance	<1	<0.001
T01035 – Pb60	18/8/19	Exterior Pre South West to removal area	<1	<0.001
T01035 – Pb61	18/8/19	Exterior Pre Central to removal area	<1	<0.001
T01035 – Pb62	18/8/19	Exterior South East to removal area	<1	<0.001
T01035 – Pb64	24/8/19	On pole East of removal area	<1	<0.001
T01035 – Pb65	24/8/19	On tree South of removal area	<1	<0.001
T01035 – Pb66	24/8/19	On tree West of removal area	<1	<0.001
T01035 – Pb68	31/8/19	On pole East of removal area	<1	<0.001
T01035 – Pb69	31/8/19	On tree South of removal area	<1	<0.001
T01035 – Pb70	31/8/19	On tree West of removal area	<1	<0.001
T01035 – Pb72	1/9/19	On pole East of removal area	<1	<0.001
T01035 – Pb73	1/9/19	On tree South of removal area	<1	<0.001
T01035 – Pb74	1/9/19	On tree West of removal area	<1	<0.001
T01035 – Pb76	7/9/19	On fence West of removal area	<1	<0.001
T01035 – Pb77	7/9/19	On top of bin North of removal area	<1	<0.001
T01035 – Pb78	7/9/19	On bucket middle of sandpit East of removal area	<1	<0.001

Appendix 2 Laboratory Reports

[redacted]

[redacted]

CERTIFICATE OF ANALYSIS 223707

Client Details	
Client	Robson Environmental Pty Ltd
Attention	Results Email
Address	PO Box 112, Fyshwick, ACT, 2609

Sample Details	
Your Reference	**T01035**
Number of Samples	6 filter
Date samples received	13/08/2019
Date completed instructions received	13/08/2019

Analysis Details
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details	
Date results requested by	14/08/2019
Date of Issue	14/08/2019
NATA Accreditation Number [redacted] This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***	

Results Approved By

[redacted]

Authorised By

[redacted]

[redacted]

Revision No R00

NATA ACCREDITED FOR TECHNICAL COMPETENCE

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Client Reference: T01035

Lead on filter						
Our Reference		223707-1	223707-2	223707-3	223707-4	223707-5
Your Reference	UNITS	Pb48	Pb49	Pb50	Pb51	Pb52
Date Sampled		10/08/2019	10/08/2019	10/08/2019	11/08/2019	11/08/2019
Type of sample		filter	filter	filter	filter	filter
Date prepared	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Date analysed	-	14/08/2019	14/08/2019	14/08/2019	14/08/2019	14/08/2019
Lead	µg/filter	<1	<1	<1	<1	<1

Lead on filter		
Our Reference		223707-6
Your Reference	UNITS	Pb53
Date Sampled		11/08/2019
Type of sample		filter
Date prepared	-	14/08/2019
Date analysed	-	14/08/2019
Lead	µg/filter	<1

Client Reference: T01035

Method ID	Methodology Summary
Metals-006	Determination of various metals on filters by ICP-AES/MS and or CV/AAS.

Client Reference: T01035

QUALITY CONTROL: Lead on filter						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			14/08/2019					14/08/2019	
Date analysed	-			14/08/2019					14/08/2019	
Lead	µg/filter	1	Metals-006	<1					89	

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Client Reference: T01035

Result Definitions	
NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions	
Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Client Reference: T01035

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

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CERTIFICATE OF ANALYSIS 224232

Client Details	
Client	Robson Environmental Pty Ltd
Attention	
Address	PO Box 112, Fyshwick, ACT, 2609

Sample Details	
Your Reference	**T01035, Yarralumla Primary School**
Number of Samples	10 filter
Date samples received	20/08/2019
Date completed instructions received	20/08/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details	
Date results requested by	21/08/2019
Date of Issue	21/08/2019
NATA Accreditation Number	This document shall not be reproduced except in full.
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Results Approved By

Authorised By

Revision No R00

NATA ACCREDITED FOR TECHNICAL COMPETENCE

Client Reference: T01035, Yarralumla Primary School

Lead on filter						
Our Reference		224232-1	224232-2	224232-3	224232-4	224232-5
Your Reference	UNITS	Pb54	Pb55	Pb56	Pb57	Pb58
Type of sample		filter	filter	filter	filter	filter
Date prepared	-	20/08/2019	20/08/2019	20/08/2019	20/08/2019	20/08/2019
Date analysed	-	20/08/2019	20/08/2019	20/08/2019	20/08/2019	20/08/2019
Lead	µg/filter	<1	<1	<1	<1	<1

Lead on filter						
Our Reference		224232-6	224232-7	224232-8	224232-9	224232-10
Your Reference	UNITS	Pb59	Pb60	Pb61	Pb62	Pb63
Type of sample		filter	filter	filter	filter	filter
Date prepared	-	20/08/2019	20/08/2019	20/08/2019	20/08/2019	20/08/2019
Date analysed	-	20/08/2019	20/08/2019	20/08/2019	20/08/2019	20/08/2019
Lead	µg/filter	<1	<1	<1	<1	<1

Client Reference: T01035, Yarralumla Primary School

Method ID	Methodology Summary
Metals-006	Determination of various metals on filters by ICP-AES/MS and or CV/AAS.

Client Reference: T01035, Yarralumla Primary School

QUALITY CONTROL: Lead on filter						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			20/08/2019					20/08/2019	
Date analysed	-			20/08/2019					20/08/2019	
Lead	µg/filter	1	Metals-006	<1					102	

Client Reference: T01035, Yarralumla Primary School

Result Definitions	
NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions	
Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Client Reference: T01035, Yarralumla Primary School

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, [redacted] are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the [redacted] COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Robson ENVIRONMENTAL

CERTIFICATE OF ANALYSIS 224865

Client Details

Client	Robson Environmental Pty Ltd
Attention	
Address	PO Box 112, Fyshwick, ACT, 2609

Sample Details

Your Reference	**T01035, Yarralumla Primary School**
Number of Samples	4 Filter
Date samples received	28/08/2019
Date completed instructions received	28/08/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	04/09/2019
Date of Issue	30/08/2019

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Results Approved By

Authorised By

Revision No R00

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Client Reference: T01035, Yarralumla Primary School

Lead on filter					
Our Reference		224865-1	224865-2	224865-3	224865-4
Your Reference	UNITS	Pb64	Pb65	Pb66	Pb67
Date Sampled		24/08/2019	24/08/2019	24/08/2019	24/08/2019
Type of sample		Filter	Filter	Filter	Filter
Date prepared	-	29/08/2019	29/08/2019	29/08/2019	29/08/2019
Date analysed	-	29/08/2019	29/08/2019	29/08/2019	29/08/2019
Lead	µg/filter	<1	<1	<1	<1

Client Reference: T01035, Yarralumla Primary School

Method ID	Methodology Summary
Metals-006	Determination of various metals on filters by ICP-AES/MS and or CV/AAS.

Client Reference: T01035, Yarralumla Primary School

QUALITY CONTROL: Lead on filter						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			29/08/2019					29/08/2019	
Date analysed	-			29/08/2019					29/08/2019	
Lead	µg/filter	1	Metals-006	<1					99	

Client Reference: T01035, Yarralumla Primary School

Result Definitions	
NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions	
Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Client Reference: T01035, Yarralumla Primary School

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

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For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

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When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

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Robson ENVIRONMENTAL

CERTIFICATE OF ANALYSIS 225767

Client Details	
Client	Robson Environmental Pty Ltd
Attention	Results Email
Address	PO Box 112, Fyshwick, ACT, 2609

Sample Details	
Your Reference	**T01035 - Yarralumla Primary School**
Number of Samples	8 filter
Date samples received	10/09/2019
Date completed instructions received	10/09/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details	
Date results requested by	11/09/2019
Date of Issue	11/09/2019

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Client Reference: T01035 - Yarralumla Primary School

Lead on filter						
Our Reference		225767-1	225767-2	225767-3	225767-4	225767-5
Your Reference	UNITS	Pb68	Pb69	Pb70	Pb71	Pb72
Date Sampled		31/08/2019	31/08/2019	31/08/2019	31/08/2019	01/09/2019
Type of sample		filter	filter	filter	filter	filter
Date prepared	-	11/09/2019	11/09/2019	11/09/2019	11/09/2019	11/09/2019
Date analysed	-	11/09/2019	11/09/2019	11/09/2019	11/09/2019	11/09/2019
Lead	µg/filter	<1	<1	<1	<1	<1

Lead on filter				
Our Reference		225767-6	225767-7	225767-8
Your Reference	UNITS	Pb73	Pb74	Pb75
Date Sampled		01/09/2019	01/09/2019	01/09/2019
Type of sample		filter	filter	filter
Date prepared	-	11/09/2019	11/09/2019	11/09/2019
Date analysed	-	11/09/2019	11/09/2019	11/09/2019
Lead	µg/filter	<1	<1	<1

Client Reference: T01035 - Yarralumla Primary School

Method ID	Methodology Summary
Metals-006	Determination of various metals on filters by ICP-AES/MS and or CV/AAS.