



ENVIRONMENTAL MONITORING REPORT, APRIL 2021

PARRAMATTA LIGHT RAIL INFRASTRUCTURE WORKS

27 April 2021

Parramatta
Connect

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1. Introduction

1.1. Background

Parramatta Light Rail Stage 1 ('Stage 1') will connect Westmead to Carlingford via Parramatta Central Business District (CBD) and Camellia. Stage 1 is expected to be operational in 2023.

Stage 1 will create new communities, connect great places and help both local residents and visitors move around and explore what the region has to offer. The route will link Parramatta's CBD and train station to a number of key locations, including the Westmead Precinct, the Parramatta North Growth Centre, the new Western Sydney Stadium, the Camellia Town Centre, the new Powerhouse Museum and Riverside Theatre arts and cultural precinct, the private and social housing redevelopment at Telopea, the Rosehill Gardens Racecourse and the three Western Sydney University campuses.

Key features of Stage 1 include:

- A new dual track light rail network of approximately twelve (12) kilometres in length, including approximately seven (7) kilometres within the existing road corridor and approximately five (5) kilometres within the existing Carlingford Line and Sandown Line, replacing current heavy rail services
- Sixteen (16) stops that are fully accessible and integrated into the urban environment including a terminus stop at each end of Westmead and Carlingford
- High frequency 'turn-up-and-go' services operating seven days a week from 5am to 1am. Weekday services will operate approximately every 7.5 minutes in the peak period between 7am and 7pm
- Modern and comfortable air-conditioned light rail vehicles, nominally 45 metres long and driver-operated, each carrying up to 300 passengers.
- Intermodal interchanges with existing public transport services at Westmead terminus, Parramatta CBD and the Carlingford terminus
- Creation of two light rail and pedestrian zones (no general vehicle access) within the Parramatta CBD along Church Street (generally between Market Street and Macquarie Street) and along Macquarie Street (generally between Horwood Place and Smith Street)
- A Stabling and Maintenance (SaM) Facility located in Camellia for light rail vehicles to be stabled, cleaned and maintained
- New bridge structures along the alignment including over James Ruse Drive and Clay Cliff Creek, Parramatta River (near the Cumberland Hospital), Kissing Point Road and Vineyard Creek, Rydalmere
- Alterations to the existing road network including line marking, additional traffic lanes and turning lanes, new traffic signals, and changes to traffic flows
- Relocation and protection of existing utilities
- Public domain and urban design works along the corridor and at Stop precincts
- Closure of the heavy rail line between Carlingford and Clyde
- Active transport corridors and additional urban design features along sections of the alignment and within Stop precincts
- Integration with the Opal Electronic Ticketing System (ETS)
- Real time information in light rail vehicles and at Stops via visual displays and audio.



1.1.1. Statutory Context

The Parramatta Light Rail is classified as Critical State Significant Infrastructure (CSSI) and was subject to environmental impact assessment under the *Environmental Planning and Assessment Act 1979* (EP&A Act). The EIS assessed impacts for Parramatta Light Rail Stage 1 (Westmead to Carlingford) including the light rail and associated road enabling works.

Stage 1 received Infrastructure Approval from the Minister for Planning under Section 5.19 of the EP&A Act on 29 May 2018 (Critical State Significant Infrastructure Application SSI-8285), subject to the conditions provided in the Instrument of Approval, specifically Schedule B – Ministerial Conditions of Approval.

The Infrastructure Approval was subsequently modified under Section 5.25 of the EP&A Act on 21 December 2018 and 25 January 2019.

The planning approval, modifications and related environmental assessment documents are located at: http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8285.

A Construction Environmental Management Plan (CEMP) has been prepared for the Parramatta Light Rail Package 4 – Infrastructure Works (Infrastructure Works). The purpose of the CEMP and associated Sub-plans is to address the requirements of the:

- Minister’s Conditions of Approval (CoA) SSI-8285
- Revised Environmental Mitigation and Management Measures (REMMMs)
- Environmental Performance Outcomes (EPOs)
- Applicable legislation and contractual requirements, including the PLR Stage 1 Infrastructure Contract Project Deed (ISD-17-6721).

The REMMMs and EPOs are listed in Parramatta Light Rail Stage 1 Westmead to Carlingford via Parramatta CBD and Camellia Environmental Impact Statement (the EIS), as amended by the Parramatta Light Rail (Stage 1) Westmead to Carlingford via Parramatta CBD and Camellia Submissions Report (incorporating Preferred Infrastructure Report) (March 2018) (the SPIR). The CEMP and associated Sub-plans were approved the Secretary on the 21 November 2019.

1.2. Scope

The scope of this report is to present monthly results of the inspection and monitoring programs outlined in the Infrastructure Works CEMP and associated Sub-plans, including the results of the construction monitoring programs referred to in Condition C9 of the Planning Infrastructure Approval.

Environmental inspections and monitoring are undertaken to:

- Validate the predicted impacts of the Infrastructure Works
- Measure the effectiveness of environmental controls
- Track progress against targets and objectives of the CEMP.

The monitoring requirements for nominated aspects are included in the relevant Sub-plans and summarised in **Table 1-1**.

Where relevant, data will be presented on a progressive basis (i.e. monthly summary) to identify trends.

The data of the monitoring programs will also be reviewed annually in the Annual Environment Report.



Table 1-1 Monthly Environmental Monitoring Reporting Requirements

CEMP or Sub-plan	Monitoring program	Distribution
Noise and Vibration Management Sub-plan	<ul style="list-style-type: none"> - Locations and descriptions of monitoring undertaken - Noise monitoring results - Summary of any exceedance of the nominated criteria - Corrective actions 	<ul style="list-style-type: none"> - City of Paramatta Council - Cumberland Council - EPA - NSW Health - TfNSW - IC - ER - AA - Made publicly available
Soil and Water Management Sub-plan	<ul style="list-style-type: none"> - Weather forecasts and observations - Water Quality (Turbidity) monitoring - Discharge and dewatering monitoring 	<ul style="list-style-type: none"> - City of Paramatta Council - Cumberland Council - EPA - DOI Water - TfNSW - IC - Made publicly available
Air Quality and Dust Management Sub-plan	<ul style="list-style-type: none"> - Weather observations - Dust deposition monitoring - Real time aerosol dust monitors - Asbestos fibre air monitoring 	<ul style="list-style-type: none"> - EPA - TfNSW - IC - Made publicly available
Grey-headed Flying-fox (GHFF) Construction Monitoring Program	<ul style="list-style-type: none"> - Weekly visual checks of GHFF camp during high risk periods (1 September to 31 January) 	<ul style="list-style-type: none"> - TfNSW



2. Site Activities

Table 2-1 provides a summary of the site activities for this reporting period (26 March 2021 to 25 April 2021).

Table 2-1 Site Activities During Reporting Period

Precinct	Site Activities
Westmead and North Parramatta	Westmead
	<ul style="list-style-type: none"> - Ongoing installation of stormwater, Combined Service Route, track and utilities - Commenced property adjustments, retaining walls - Commenced construction of the Drivers' Facilities
	Cumberland
	<ul style="list-style-type: none"> - Ongoing installation of stormwater, Combined Service Route, track and utilities - Utilities nearing completion - Bridge piling complete - Ongoing concrete pours for the bridge wing walls on abutments A and B
Parramatta CBD	North Parramatta
	<ul style="list-style-type: none"> - Ongoing installation of stormwater, Combined Service Route, track and utilities - Ongoing property adjustment works including retaining walls
	Area 2 West (CBD)
	<ul style="list-style-type: none"> - Ongoing utility and services installations on Church Street and Macquarie Street - Ongoing electrical and lighting works - Ongoing Multifunction Pole works - Ongoing civil works (tree pits, Combined Service Routes, footpaths) along Church Street and Macquarie Street - Drainage works along Church Street and Macquarie Street - Track works along Church Street and Macquarie Street - Phillip Street Intersection works completed (track install) - Paving commenced
Camellia and Carlingford line	Area 2 East (Smith Street to Arthur Street)
	<ul style="list-style-type: none"> - Utility and services installations on Macquarie Street, Charles Street, Harris Street, George Street, Purchase Street, Alfred Street - Ongoing installation of Multifunction Poles - Drainage works on Macquarie Street, Charles Street, Harris Street, George Street, Purchase Street, Alfred Street - Ongoing civil works (pavement, Combined Service Routes, road works) along Macquarie Street, George Street, Tramway Avenue - Track works along Macquarie Street - George Street underbore – tunnel boring machine tunnelling completed - Paving commenced
	Camellia
	<ul style="list-style-type: none"> - Arch Assembly at Tramway Avenue

**Precinct****Site Activities**

- James Ruse Drive Bridge track slab works
- Drainage works at drainage easement into Parramatta River
- Remediation works, lighting, overhead wire, Combined Service Route works and drainage works at 13a Grand Avenue
- Combined Service Route and Track slab at Sandown Line and Grand Avenue

Carlingford Line

- Vineyard Creek bridge concrete works and bridge deck installation
 - Camellia Bridge concrete works and bridge deck works
 - Combined Service Route works from Camellia to Dundas
 - Stormwater drainage works from Camellia to Carlingford
 - Active Transport Link works from Rydalmere to Carlingford
 - Overhead wire and lighting works from Camellia to Carlingford
 - Soft landscaping works from Telopea to Carlingford
-



3. Monitoring Results

Section 3 presents a summary of the environmental inspection and monitoring programs completed during the reporting period (26 March 2021 to 25 April 2021). Detailed monitoring results for each activity are presented in the appendices to this report.

3.1. Inspections

A total of four ER inspections, two AA inspections, one EPA inspection, one DPIE inspection and five TfNSW inspections were completed during the reporting period in addition to 30 internal inspections. It is noted that TfNSW also attends all ER inspections.

Table 3-1 provides a summary of the number of actions raised and closed within the agreed timeframe.

Table 3-1 Inspections for reporting period

Date	Number of Inspections	Type	Actions	Closed in Time
26/03/21	1	Internal Inspection	2	Yes
30/03/21	1	ER Inspection	5	Yes
30/03/21	1	TfNSW Inspection	4	Yes
31/03/21	3	Internal Inspection	8	Yes
31/03/21	1	AA Inspection	0	N/A
01/04/21	2	Internal Inspection	0	N/A
06/04/21	7	Internal Inspection	15	Yes
04/04/21	1	Internal Inspection	0	N/A
07/04/21	1	ER Inspection	4	Yes
07/04/21	1	TfNSW Inspection	2	Yes
08/04/21	1	AA Inspection	3	Yes
12/04/21	1	Internal Inspection	3	Yes
13/04/21	5	Internal Inspection	8	Yes
13/04/21	1	ER Inspection	3	Yes
13/04/21	2	TfNSW Inspection	7	Yes
14/04/21	1	Internal Inspection	2	Yes
14/04/21	1	EPA Inspection	2	Yes
15/04/21	3	Internal Inspection	7	Yes



Date	Number of Inspections	Type	Actions	Closed in Time
16/04/21	1	AA Inspection	1	Yes
19/04/21	1	Internal Inspection	4	Yes
20/04/21	4	Internal Inspection	7	Yes
20/04/21	1	ER Inspection	6	Yes
20/04/21	1	TfNSW Inspection	1	Yes
20/04/21	1	DPIE Inspection	1	Yes
22/04/21	1	Internal Inspection	4	Yes
Total	43	-	96	-

3.2. Weather

The total rainfall recorded during the reporting period was 7.6 mm with two days exceeding one millimetre of rain. No rain events exceeded the 80th percentile (25.8mm).

During the reporting period, there were 15 days where the maximum wind gust recorded was greater than 25km/hr and no days where the maximum wind gust recorded was greater than 50km/hr or 60km/hr. There was a total of one day where wind speeds greater than 25km/hr were forecast and, on that day, a notification was issued to the construction team to alert them of the strong winds forecast.

A summary of the weather observations and weather events during the reporting period of relevance to the Soil and Water Management Sub-plan and Air Quality Management Sub-Plan Trigger Action Response Plans (TARPs) are summarised in **Table 7-2**. A comparison between long term monthly means and recorded values can be found in **Figure 3-2**.

Detailed weather observation records for the reporting period are presented in **Appendix A-1**.

Table 3-2 Weather Summary and Trigger Weather Events for reporting period¹

Weather Event	Forecast	Observation
Minimum temperature	7.0°C	6.0°C
Maximum temperature	29°C	30.0°C
Total rainfall	36.6 mm	7.6 mm
Number of days with rain (>1mm)	5 days	2 days
>80 th percentile (25.8mm) rain events	No days	No days
>80 th percentile (33.1mm) rain events	No days	No days
Flood warning / events	None	None
>25km/hr wind ²	1 day	15 days



Weather Event	Forecast	Observation
>50km/hr wind	No days	No days
>60km/hr wind	No days	No days

¹Weather summary based on data from the 26 March 2021 to 25 April 2021 (30 days).

²Wind data from Sydney Olympic Park AWS (Archery Centre) {station 066212}. Weather data from Parramatta North (Masons Drive) {station 066124}.

Note: Red text indicates observation greater than forecast.

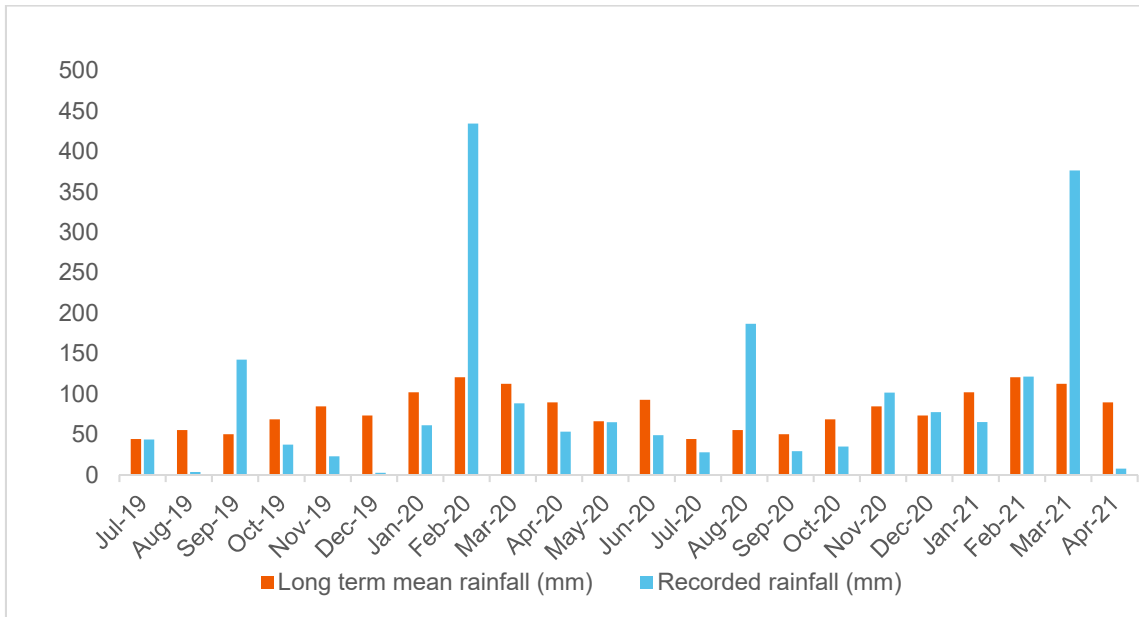


Figure 3-1 Monthly rainfall comparison

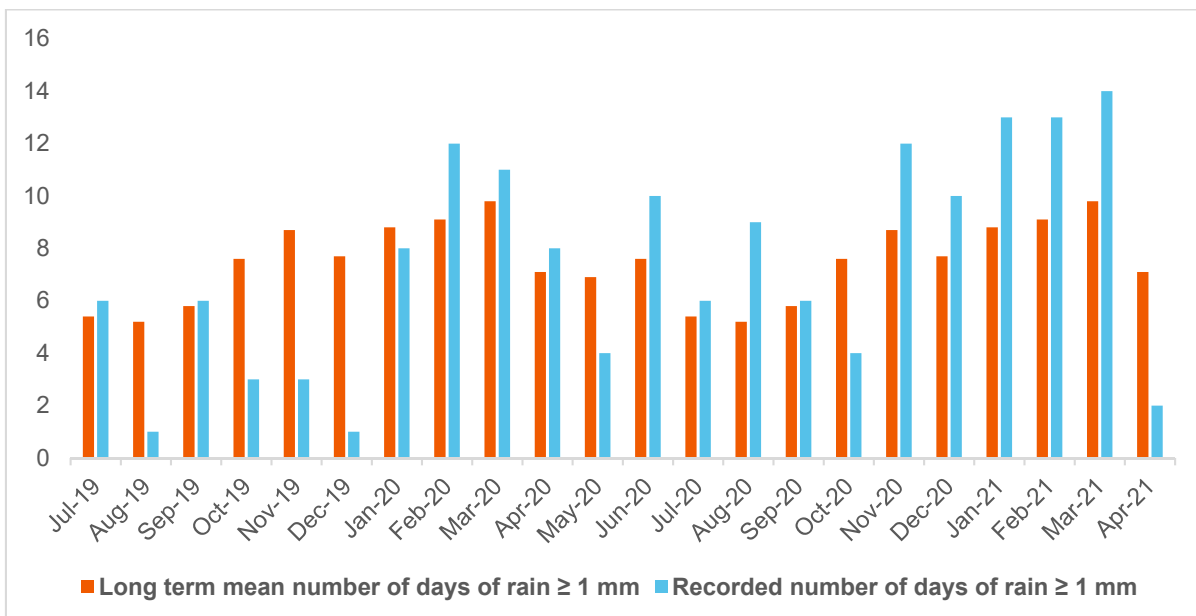




Figure 3-2 Monthly rain days comparison

3.3. Noise and Vibration

Table 3-3 provides a summary of noise monitoring events conducted during the reporting period. Detailed noise monitoring results and comments are presented in **Appendix A-2**. There were no exceedances of the predicted noise level ($L_{Aeq15min}$) during the reporting period.

Additional information on the hours of works, respite requirements and alternative accommodation is provided in the Noise and Vibration Management Sub-plan (Section 11.3).

Vibration monitoring events completed during the reporting period are summarised in **Table 3-4** and detailed results and comments are presented in **Appendix A-2**. Vibration monitoring undertaken during the reporting period was conducted by Renzo Tonin except for one event carried out by Parramatta Connect. All results were compliant. The Renzo Tonin report for monitoring carried out in Area 2 is still pending and as such these results are not included in **Table 3-4** and **Appendix A-2**.

All noise and vibration monitors used during the reporting period, together with current NATA calibration data, are provided in **Table 3-5**.

Continuous noise and vibration monitoring was undertaken during the reporting period at medical facilities in Westmead that have been identified as sensitive receivers. In consultation with the Health Administration Corporation, monitoring will be ongoing for 12 months. Locations of the noise and vibration monitors are provided in **Table 3-6**.

Table 3-3 Summary of Noise Monitoring for reporting period

Date	Monitoring Location	Attended/Continuous	Description
26/03/2021	262 Church Street	Attended	Excavation and Delivery
26/03/2021	262 Church Street	Attended	Excavation Operation
26/03/2021	262 Church Street	Attended	Backfilling
26/03/2021	262 Church Street	Attended	Excavation + Backfilling
8/04/2021	Carlingford Station	Attended	Saw Cutting
13/04/2021	Meriton (Bay Vista)	Attended	Hammering and Vac Truck
13/04/2021	Phillip Street Intersection – West Block	Attended	Vac Truck Utilities
13/04/2021	Phillip Lane	Attended	Hammering and Vac truck
15/04/2021	199 Hawkesbury Rd	Attended	Monthly Ambient Noise Monitoring
15/04/2021	Factory O’Connell Intersection	Attended	Monthly Ambient Noise Monitoring
15/04/2021	28 Railway Pde	Attended	Monthly Ambient Noise Monitoring
15/04/2021	Bunya building, Cumberland East	Attended	Monthly Ambient Noise Monitoring
15/04/2021	20 Station Street	Attended	Rock Hammering
19/04/2021	Grey-headed Flying Fox Camp	Attended	Grey-headed Flying Fox Noise Inspection
19/04/2021	14 Dudley Street	Attended	Monthly Ambient Noise Monitoring



Date	Monitoring Location	Attended/Continuous	Description
19/04/2021	22 Adderton Road	Attended	Monthly Ambient Noise Monitoring
19/04/2021	89 Marshall Road	Attended	Monthly Ambient Noise Monitoring
19/04/2021	Carlingford Station	Attended	Monthly Ambient Noise Monitoring
19/04/2021	Dundas Station	Attended	Monthly Ambient Noise Monitoring
19/04/2021	Telopea Station	Attended	Monthly Ambient Noise Monitoring
26/06/2020 -ongoing	Westmead Institute for Medical Research (Sleep Lab)	Continuous	General construction
26/06/2020 -ongoing	Westmead Institute for Medical Research (Brain Dynamics Centre)	Continuous	General construction
26/06/2020 -ongoing	Children's Medical Research Institute (Microscopy Labs)	Continuous	General construction
26/06/2020 -ongoing	Cumberland Hospital (Clinical psychology rooms)	Continuous	General construction

Table 3-4 Summary of Vibration Monitoring for reporting period

Date	Monitoring Location	Attended/Continuous	Description
1/04/2021	Gas Works Bridge	Attended	Monitored by Parramatta Connect: Hammering works
7/04/2021	Dundas Station	Attended	Monitored by Renzo Tonin: Excavator with bucket attachment and concrete saw
13/04/2021	Dundas Station	Attended	Monitored by Renzo Tonin: Excavator with 2.1T hammer attachment
14/04/2021	Dundas Station	Attended	Monitored by Renzo Tonin: Excavator with 1.2T & 2.1T hammer attachment
15/04/2021	Dundas Station	Attended	Monitored by Renzo Tonin: Excavator with 1.2T hammer attachment
16/04/2021	Dundas Station	Attended	Monitored by Renzo Tonin: Excavator with 1.2T hammer attachment
16/04/2021- 21/04/2021	Dundas Station	Continuous	Monitored by Renzo Tonin: Excavator with 1.2T hammer attachment
16/04/2021- 21/04/2021	Dundas Station	Continuous	Monitored by Renzo Tonin: Excavator with 1.2T hammer attachment



Date	Monitoring Location	Attended/Continuous	Description
26/06/2020	Westmead Institute for Medical Research (HAL incubators)	Continuous	General construction
26/06/2020	Westmead Institute for Medical Research (Microscopy Labs)	Continuous	General construction
26/06/2020	Children's Medical Research Institute (Microscopy Labs)	Continuous	General construction



Table 3-5 Noise and Vibration Monitors and NATA Calibration

Equipment	Serial Number	Calibration Date
Noise Level Meter	00973277	2/12/2021
Noise Level Meter	00661732	19/05/2021
Noise Level Meter	00973275	17/12/2021
Vibration Monitor	BE14639	10/02/2023
Vibration Monitor	BE17441	16/07/2021

Table 3-6 HAC Noise and Vibration Monitor Locations

Organisation	Monitor Type	Location
Westmead Institute for Medical Reach	Vibration Monitor	HAL incubators
		Microscopy Labs
	Noise Monitor	Sleep Lab
Children’s Medical Research Institute	Vibration Monitor	Microscopy Labs
	Noise Monitor	Labs (Level 1)
Cumberland Hospital	Noise Monitor	Clinical psychology rooms

Note: The calibration of the monitoring equipment is checked in the field before and after the noise measurement period per Standards Australia AS/IEC 60942:2004/IEC 60942:2003–Electroacoustic – Sound Calibrators.

3.4. Soil and Water

3.4.1. Water quality in receiving waters

A pre-construction investigation to establish water quality objectives for the project is included within the EIS Technical Paper 6 – Water Quality Assessment.

During the reporting period, quarterly dry weather monitoring was undertaken summarised in **Table 3-7** and detailed in **Table A-3-1**. Water levels were low to medium during the dry sampling. Overall there was a moderate amount of debris or leaf litter present. All results were within the water quality objectives during the reporting period.



Table 3-7 Water Quality in Receiving Waters

Date	Type	Type of Results	Wet / Dry	Locations
14/04/2021	Monitoring during construction	Laboratory	Dry	Parramatta River: PR1, PR2, PR3, PR4, PR5 and PR6 Clay Cliff Creek: CC1, CC2 Domain Creek: DC1 Vineyard Creek: VY1, VY2 Subiaco Creek: SC1 A'becketts Creek: AC1, AC2 VY3 was not accessible due to drainage works and unsafe access to water body.

Table 3-8 Water Monitor Calibration

Equipment ¹	Serial Number	Calibration Date
Water Quality Monitor	DV7F6E7J	21/08/2021

¹All equipment is calibrated by NATA standards.

3.4.2. Discharge and dewatering

There were four discharge events during the reporting period as presented in **Table A-3-2**. All events were compliant with discharge criteria.

3.5. Air Quality

3.5.1. Dust Deposition Monitoring

A dust deposition gauge was installed at 13A Grand Avenue in Camellia in December 2019 in advance of works which commenced at the beginning of February 2020. Baseline data indicated that the value of Total Insoluble Matter (TIM) was 3.9 g/m² before the commencement of construction activities at 13A Grand Avenue.

Additional dust gauges were progressively installed at Rydalmere Station, Dundas Station, Carlingford and Telopea in advance of large-scale earthworks.

From December 2020 onwards, results have been presented as Ash Content rather than TIM. This method involves burning the TIM in a furnace to rid the sample of combustible materials such as vegetative matter, coal and insects. The remaining non-combustible material is then weighed to provide a more accurate dust monitoring result.

Dust deposition results are summarised in **Table A-4-1** in **Appendix A-4**, noting that data is received one month in arrears. All results from the previous reporting period had a satisfactory level of ash content.

3.5.2. Asbestos Fibre Monitoring

Asbestos air monitoring is completed in accordance with the Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres [NOHSC: 3003(2005)], with NATA certification applying to all sample collection, handling and analytical procedures.



Asbestos Fibre Monitoring results are summarised in **Table A-4-2** in **Appendix A-4**. All reported results were satisfactory and conform with the minimum action level of <0.01 fibres /mL for control monitoring as outlined in Work, Health and Safety (2017) Regulation; and SafeWork NSW (2019) Code of Practice – How to Safely Remove Asbestos.

3.6. Flora and Fauna

3.6.1. Grey-Headed Flying Fox Monitoring

A Grey-Headed Flying Fox (GHFF) camp is located in Parramatta Park which lies approximately 150m from the project boundary at the nearest point.

Under Condition of Approval C9, a GHFF Construction Monitoring Program has been developed by TfNSW. The requirements of this Program have been reflected in the Flora and Fauna Management Sub-plan and include visual inspections on a weekly basis during the 'high risk' months of September to January. If distress is observed within the camp, immediate notification must be provided to TfNSW.

In addition, as required by the Environmental Work Method Statement for the Bridge Road Bridge, a trained ecologist from Narla Environmental was required to undertake additional inspections of the camp during bridge piling works (**Table 3-9**). As these works have concluded, it was determined that Narla monitoring was not required for the reporting period.

Visual inspections by Parramatta Connect resumed in place of the Narla monitoring. During the reporting period, no indicators of stress or abnormal behaviour were observed during inspections.



Table 3-9 Observations from Visual Monitoring of Grey Headed Flying Fox Camp

Date	Time	Works	Notification Triggers ¹	Comments
06/04/2021	8:00	Minimal activities on site	None	No works audible
12/04/2021	10:00	Track slab, Form-reo pour	None	No distress observed
19/04/2021	8:00	UTC-019, Track Form-reo pour, Stormwater, Bridge abutment	None	Attended noise monitoring was also carried out at 9:50: construction noise was sometimes audible however dominant noise source was the foxes

¹Notification triggers include: >50% of the roost takes flight for over 20 minutes, GHFF leaving the roost in daylight hours, unusual vocalisations, located on or 2m from the ground, panting, saliva spreading, adults moving away from young, GHFF injured or killed on site (including aborted foetuses).

3.7. Issues/incidents/non-compliance

There were no incidents or non-compliances during the reporting period.



Appendices

A-1 Weather Observations

Table A-1-1 Weather Observations: Parramatta North (Masons Drive) {station 066124}.

Date	Temperatures		Rain mm	Temp °C	RH %	9:00 AM		
	Min	Max				Cld 8th	Dir	Spd km/h
	°C	°C						
26/03/2021	12.2	25	0.6	18.5	81	0	NW	6
27/03/2021	12.5	27.7	0	20	72	0	NW	2
28/03/2021	13	26	0	19	74	2	W	4
29/03/2021	12.8	25.3	0	19	72	0	W	4
30/03/2021	14.4	22.8	0	17.5	69	7	SW	6
31/03/2021	13	24.3	0	17.6	61	3	SSW	4
1/04/2021	13.3	25.5	1.2	18.5	76	3	WSW	4
2/04/2021	13.8	26.5	0	18.8	90	3	W	2
3/04/2021	14	26.3	0	18	95	0	W	2
4/04/2021	13.8	30	0	20	85	1	WSW	4
5/04/2021	15.2	27.2	0	23	76	3	SW	6
6/04/2021	16.5	26.5	0	23.8	79	5	SW	4
7/04/2021	16.6	25.2	0.2	19.7	97	7	W	2
8/04/2021	16.4	25.8	5	20.5	95	4	NNW	4
9/04/2021	15.2	28.7	0	23.5	66	5	NW	6
10/04/2021	14.8	23.8	0.6	16	84	7	WSW	4
11/04/2021	11.5	18.8	0	16.3	37	2	SW	26
12/04/2021	6	20.7	0	14.8	46	0	WSW	11
13/04/2021	7.5	23	0	15	66	0	NW	6
14/04/2021	11.5	27.8	0	21.8	41	4	W	4
15/04/2021	12.2	26.2	0	19.4	52	0	W	6
16/04/2021	11	22.3	0	18	36	4	SW	6
17/04/2021	12	18.3	0	18	62	8	Calm	
18/04/2021	8.8	22.2	0	14.5	83	0	W	6
19/04/2021	8.8	24.3	0	14.2	87	0	WSW	2
20/04/2021	8.9	22.5	0	17.5	57	4	NW	6
21/04/2021	12.8	21.6	0	16.5	51	0	SSW	9
22/04/2021	6.2	20.5	0	14.6	58	0	W	4
23/04/2021	6.3	21	0	16	55	0	NW	6
24/04/2021	6	22.8	0	15.2	56	2	NW	4
25/04/2021	6.8	22.3	0	15.4	67	2	WSW	6



Table A-1-2 Wind Observations: Sydney Olympic Park AWS (Archery Centre) {station 066212}.

Date	Maximum Wind Gusts			9:00 AM		3:00 PM	
	Direction	Speed	Time	Direction	Speed	Direction	Speed
		km/h	local		km/h		km/h
26/03/2021	SE	24	14:13	W	6	SE	15
27/03/2021	NW	22	12:38	NW	7	WNW	7
28/03/2021	ESE	24	15:45	WNW	6	SSE	13
29/03/2021	SSE	28	15:44	W	6	E	11
30/03/2021	SE	31	16:56	SSW	7	SSE	15
31/03/2021	SSE	33	12:12	WNW	7	S	11
1/04/2021	ESE	22	16:12	W	6	E	11
2/04/2021	ESE	24	14:19	W	7	E	13
3/04/2021	NE	24	17:31	WNW	7	NE	7
4/04/2021	NE	20	16:25	WNW	9	E	9
5/04/2021	SSE	30	16:12	SSE	9	SSE	17
6/04/2021	E	31	13:44	Calm		SE	17
7/04/2021	SE	30	14:53	WNW	4	SE	17
8/04/2021	ESE	22	12:33	NNW	2	ESE	11
9/04/2021	SSE	43	17:58	WNW	9	WNW	11
10/04/2021	WNW	33	13:34	WNW	9	WNW	17
11/04/2021	WNW	48	9:35	WNW	24	WSW	17
12/04/2021	W	26	9:37	WSW	11	ESE	17
13/04/2021	NE	26	17:12	WNW	7	NNW	9
14/04/2021	NW	35	11:30	NW	13	NW	9
15/04/2021	NW	22	10:25	NW	9	WNW	7
16/04/2021	SSE	33	14:40	WSW	9	SE	22
17/04/2021	NNW	13	16:18	Calm		NW	7
18/04/2021	E	20	16:05	NW	11	E	9
19/04/2021	NNE	19	13:09	WNW	9	NNW	6
20/04/2021	W	24	11:03	WNW	9	N	7
21/04/2021	WSW	33	8:41	SW	17	SE	9
22/04/2021	SSW	31	15:11	WNW	7	SW	15
23/04/2021	W	31	11:12	NW	6	WSW	9
24/04/2021	NW	24	12:51	NW	6	NW	6
25/04/2021	SSE	26	14:27	WNW	9	ESE	17

Notes:

Blue text indicates a rain event greater than 1mm of rain.

The orange text indicates a rain event greater than the 80th percentile of 25.8mm, and a wind speed of greater than 25km/hr

Red text indicates a rain event greater than the 85th percentile of 33.1mm, and a wind speed greater than 50km/hr.

* Data was unavailable.

A-2 Noise and Vibration Monitoring Results

Table A-2-1 Noise Monitoring Results

Date	Time	Works Period	Construction Activity	Activity Location	Monitoring Location	NML (dBA)	Predicted (dBA)	Additional Mitigation Measures	L _{Amax}	Recorded L _{eq, 15min} (dBA)	Exceedance of Predicted (dBA)	Exceedance of Predicted	Comments
26/03/2021	13:16	Standard Hours	Excavation and Delivery	Church Street	262 Church Street	70	85	Project Notification	86.5	69.7	-15.3	No	Construction noise audible at most times.
26/03/2021	12:57	Standard Hours	Excavation Operation	George/Church Street Intersection	262 Church Street	70	85	Project Notification	93.9	69.7	-15.3	No	Construction noise audible at most times.
26/03/2021	13:53	Standard Hours	Backfilling	Church/George Intersection South	262 Church Street	70	85	-	89.0	69.3	-15.7	No	Construction noise audible at most times.
26/03/2021	13:35	Standard Hours	Excavation and Backfilling	South George/Church Intersection	262 Church Street	70	85	Project Notification	85.8	69.7	-15.3	No	Construction noise audible at most times.
8/04/2021	8:10	Standard Hours	Saw Cutting	Carlingford Station	Carlingford Station	70	92	-	85.8	75.6	-14.4	No	Construction noise is dominant noise source.
13/04/2021	22:01	OOHW Period 2	Hammering and Vac Truck	Phillip Street Intersection	Meriton (Bay Vista)	48	83	Project Notification, Verification Monitoring, Respite Period, Specific Notification	82.8	60.9	-22.1	No	Construction noise audible at most times.
13/04/2021	21:23	OOHW Period 1	Vac Truck Utilities	Phillip Street Intersection – West Block	Phillip Street Intersection – West Block	84 ¹	84	-	91.0	82.6	-1.4	No	People walking past talking at 84dB.
13/04/2021	22:25	OOHW Period 2	Hammering and Vac Truck	Phillip Street Intersection – West Block	Phillip Lane	48	84	Project Notification, Verification Monitoring, Respite Period, Specific Notification	81.8	65.7	-18.3	No	Construction noise sometimes audible.
15/04/2021	9:00	Standard Hours	Monthly Ambient Noise Monitoring	Darcy Road	199 Hawkesbury Rd	59	100	-	72	59	-41	No	Construction noise sometimes audible.
15/04/2021	10:00	Standard Hours	Monthly Ambient Noise Monitoring	Factory Street	Factory O'Connell Intersection	52	100	-	70	64	-36	No	Construction noise clearly audible.
15/04/2021	8:00	Standard Hours	Monthly Ambient Noise Monitoring	28 Railway Parade	8-12 Alexandra Avenue	59	58	-	68	50	-8	No	Construction noise clearly audible.
15/04/2021	9:30	Standard Hours	Monthly Ambient Noise Monitoring	Bunya	Bunya building, Cumberland East	65	100	-	98	51	-49	No	Construction noise clearly audible.
15/04/2021	8:03	Standard Hours	Rock Hammering	Dundas Station	20 Station Street	55	81	Verification Monitoring	95.9	70.9	-9.1	No	Impulsive construction noise audible.
19/04/2021	9:50	Standard Hours	Grey-headed Flying Fox noise inspection	Cumberland Campus	Grey-headed Flying Fox Camp	-	-	-	63.1	55.1	-	-	No distress observed. Grey Headed Flying Fox camp were the dominant noise source.
19/04/2021	15:47	Standard Hours	Monthly Ambient Noise Monitoring	Rydalmere Station	14 Dudley Street	55	65	-	84.6	63.1	-1.9	No	Construction noise sometimes audible. Traffic near monitor was the dominant noise source.

Date	Time	Works Period	Construction Activity	Activity Location	Monitoring Location	NML Predicted (dBA)	Predicted (dBA)	Additional Mitigation Measures	L _{Amax}	Recorded L _{eq, 15min} (dBA)	Exceedance of Predicted (dBA)	Exceedance of Predicted	Comments
19/04/2021	14:54	Standard Hours	Monthly Ambient Noise Monitoring	Teloepa	22 Adderton Road	56	70	-	81.5	67.4	-2.6	No	Construction noise audible at most times. Traffic near monitor was the dominant noise source.
19/04/2021	13:40	Standard Hours	Monthly Ambient Noise Monitoring	Teloepa	89 Marshall Road	52	55	-	64	47.1	-7.9	No	Construction noise sometimes audible.
19/04/2021	13:10	Standard Hours	Monthly Ambient Noise Monitoring	Carlingford Station	Lloyds Avenue	62	65	-	79.6	62.4	-2.6	No	Construction noise inaudible. Dominant noise source was traffic.
19/04/2021	15:20	Standard Hours	Monthly Ambient Noise Monitoring	Dundas Station	Dundas Station	55	75	-	89.1	65.7	-9.3	No	Construction noise clearly audible.
19/04/2021	14:15	Standard Hours	Monthly Ambient Noise Monitoring	Teloepa Station	Teloepa Station	53	70	-	83.8	65.8	-4.2	Yes	Construction noise audible at most times.
26/06/2020 - ongoing	Continuous monitoring	Construction works	Hawkesbury Road works	Westmead Institute for Medical Research (Sleep Lab)	65	*	*	*	*	*	*	No	Activities are reviewed in response to exceedance alerts. Where the exceedance is attributed to construction, a review is undertaken of works and plant/equipment or methodology is modified where necessary. No exceedances were attributed to Parramatta Connect construction activities. Continuous monitoring values are available on request.
26/06/2020 - ongoing	Continuous monitoring	Construction works	Hawkesbury Road works	Westmead Institute for Medical Research (Brain Dynamics Centre)	65	*	*	*	*	*	*	No	
26/06/2020 - ongoing	Continuous monitoring	Construction works	Hawkesbury Road works	Children's Medical Research Institute (Microscopy Labs)	65	*	*	*	*	*	*	No	
26/06/2020 - ongoing	Continuous monitoring	Construction works	Cumberland Hospital	Cumberland Hospital (Clinical psychology rooms)	55	*	*	*	*	*	*	No	

¹Sound Pressure Level (SPL) used instead of NML

Notes:

Standard hours:

- a) All areas excluding Eat Street and Camellia – Monday to Friday 7:00 am to 7:00 pm. Saturday 8:00 am to 6:00 pm
- b) Eat Street (Church Street between Palmer Street and George Street) – Monday to Friday 7:00 am to 6:00 pm. Saturday 8:00 am to 12:00 pm
- c) Camellia, Rosehill and Rydalmere (east of James Ruse Drive to Victoria Road) – 24 hours a day and seven days a week provided that sensitive receivers are not affected by noise levels of greater than 5 dBA above the rating background level at any residence

OOHW Period 1 is defined as:

- a) 6:00pm to 10:00pm (evenings) Monday to Saturday
- b) 7:00am to 8:00am and 1:00pm to 10:00pm (day & evening) Saturday and
- c) 8:00am to 6:00pm Sunday and public holidays (days).

OOHW Period 2 is defined as:

- a) 10:00pm to 7:00am (nights) Monday to Saturday and 6:00pm to 8:00am (nights) Sundays and public holidays.

Additional Mitigation Measures

- PN = Project Notification
- V = Verification Monitoring
- RP = Respite Period
- AA = Alternate Accommodation
- SN = Specific Notification / individual briefing or phone call
- DR = Duration Reduction
- RO = Project Specific Respite Offer

Table A-2-2 Vibration Monitoring Results

Date	Time	Works Period	Construction Activity	Activity Location	Monitoring Location	Trigger Value (mm/s)	95 th Percentile PPV (mm/s)	Maximum PPV (mm/s)	Exceedance of Target	Construction Vibration Exceedance	Comments
01/04/2021	10:00 – 17:11	Standard work hours	Hammering works	Queen's Wharf Reserve, George Street Under bore	Gas Works Bridge	7.5	-	5.572	No	No	Monitored by Parramatta Connect: compliant
07/04/2021	9:38 – 12:10	Standard work hours	Excavator with bucket attachment and concrete saw	Dundas Station	Dundas Station disabled toilet	5	1.31	4.13	No	No	Monitored by Renzo Tonin: compliant
13/04/2021	8:42 – 10:00	Standard work hours	Excavator with 2.1T hammer attachment	Dundas Station	Dundas Station disabled toilet	5	3.68	4.18	No	No	Monitored by Renzo Tonin: compliant
14/04/2021	8:32 – 17:22	Standard work hours	Excavator with 1.2T & 2.1T hammer attachment	Dundas Station	Dundas Station disabled toilet	5	5.61 (2.1T hammer attachment), 4.03 (1.2T hammer attachment)	6.56 (2.1T hammer attachment), 4.32 (1.2T hammer attachment)	Yes	No	Monitored by Renzo Tonin: On commencement of works, the 2.1T hammer attachment exceeded the trigger value. Works ceased and the 2.1T hammer was replaced with a 1.2T hammer. Monitoring recommenced and compliance was achieved (maximum PPV of 4.32 mm/s).
15/04/2021	8:27 – 17:31	Standard work hours	Excavator with 1.2T hammer attachment	Dundas Station	Dundas Station disabled toilet	5	4.80	5.24	Yes	No	Monitored by Renzo Tonin: The maximum PPV value of 5.24 mm/s was recorded during the start-up operation of rock hammering at the bottom of the trench. After the first initial hit, the vibration levels were below 5 mm/s (as can be seen from the 95th percentile PPV value of 4.80 mm/s). In accordance with DIN4150-3:2016-12, this start-up operation exceedance is permitted as it is short-term in nature.
16/04/2021	8:18 – 11:00	Standard work hours	Excavator with 1.2T hammer attachment	Dundas Station	Dundas Station disabled toilet	5	3.06	5.49	Yes	No	Monitored by Renzo Tonin: The maximum PPV value of 5.49 mm/s was during the start-up operation of rock hammering at the bottom of the trench. After the first initial hit, the vibration levels were below 5 mm/s (as can be seen from the 95th percentile PPV value of 3.06 mm/s). In accordance with DIN4150-3:2016-12, this start-up operation exceedance is permitted as it is only short-term.
16/04/2021 – 21/04/2021	Continuous monitoring		Excavator with 1.2T hammer attachment	Dundas Station	Dundas Station toilet	5	-	-	No	No	Monitored by Renzo Tonin: compliant
16/04/2021 – 21/04/2021	Continuous monitoring		Excavator with 1.2T hammer attachment	Dundas Station	Dundas Station seating area	5	-	-	No	No	Monitored by Renzo Tonin: compliant
26/06/2020	Continuous monitoring	Hawkesbury Road works	Hawkesbury Road	Westmead Institute for Medical Research (HAL incubators)		0.1 mm/s	*		No	No	Activities are reviewed in response to exceedance alerts. Where the exceedance is attributed to

26/06/2020	Continuous monitoring	Hawkesbury Road works	Hawkesbury Road	Westmead Institute for Medical Research (Microscopy Labs)	0.1 mm/s	*	No	No	construction, a review is undertaken of works and plant/equipment or methodology is modified where necessary.
26/06/2020	Continuous monitoring	Hawkesbury Road works	Hawkesbury Road	Children's Medical Research Institute (Microscopy Labs)	0.1 mm/s	*	No	No	No exceedances were attributed to PLR construction activities. Continuous monitoring values are available on request.

A-3 Water Sampling and Discharge Results

Table A-3-1 Water Quality Monitoring - Comments and observations

Location	Waterway	Upstream/ Downstream of Works	Type ³	Date	Time	pH	Elec. Conduct. (µS/cm)	Turbidity (NTU)	Comments and Observations
						5.5-8.5 ²	LR ¹ : 125– 2200 ² E: None	6-50 ²	
AC1	A'becketts Creek	Upstream	Dry	14/04/2021	9:45	8	17700	5	Sunny weather, large amount of rubbish, moderate turbidity, moderate leaf litter and vegetation, water body looked murky. AC1 is noted to be an estuarine environment and as such there is not a trigger value for electrical conductivity.
AC2	A'becketts Creek	Downstream	Dry	14/04/2021	10:05	8.01	17500	4	Sunny weather, large amount of rubbish, moderate turbidity, large amount of leaf litter and vegetation, water body looked murky. AC2 is noted to be an estuarine environment and as such there is not a trigger value for electrical conductivity.
CC1	Clay Cliff Creek	Upstream	Dry	14/04/2021	11:45	8.16	15900	4.7	Sunny weather, moderate amount of rubbish including trolley, clear water, moderate amount of leaf litter. CC1 is noted to be an estuarine environment and as such there is not a trigger value for electrical conductivity.
CC2	Clay Cliff Creek	Downstream	Dry	14/04/2021	12:10	8.08	21100	4	Clear sky, moderate amount of rubbish including trolleys, clear water, moderate leaf litter. CC2 is noted to be an estuarine environment and as such there is not a trigger value for electrical conductivity.
DC1	Domain Creek	Upstream	Dry	14/04/2021	14:40	8.27	476	5	Clear sky, no rubbish, clear water, extremely large amount of vegetation and small amount of leaf litter.
PR1	Parramatta River	Upstream	Dry	14/04/2021	13:50	8.15	1130	24.7	Sunny weather, no rubbish, moderately turbid, minimal leaf litter, water body looked more turbid than sample.
PR2	Parramatta River	Downstream	Dry	14/04/2021	14:15	8	550	32.3	Sunny weather, no rubbish, moderately turbid, minimal leaf litter, water body looked more turbid than sample.
PR3	Parramatta River	Upstream	Dry	14/04/2021	15:00	8	476	6.7	Sunny weather, no rubbish, minimal leaf litter, clear water.
PR4	Parramatta River	Downstream	Dry	14/04/2021	15:35	7.94	467	7.2	Sunny weather, no rubbish, no leaf litter, clear water.
PR5	Parramatta River	Upstream	Dry	14/04/2021	12:30	7.94	33900	2.3	Clear sky, no rubbish, clear water, no leaf litter. PR5 is noted to be an estuarine environment and as such there is not a trigger value for electrical conductivity.
PR6	Parramatta River	Downstream	Dry	14/04/2021	7:40	7.88	32200	3.8	Sunny weather, some rubbish including a deodorant can, clear water, minimal leaf litter, water body looked slightly soapy. PR6 is noted to be an estuarine environment and as such there is not a trigger value for electrical conductivity.
SC1	Subiaco Creek	Upstream	Dry	14/04/2021	9:05	7.85	34500	2.3	Sunny weather, no rubbish, clear water, moderate leaf litter, soapy looking bubbles in water body. SC1 is noted to be an estuarine environment and as such there is not a trigger value for electrical conductivity.
VY1	Vineyard Creek	Upstream	Dry	14/04/2021	8:00	8.04	1170	10.1	Sunny weather, minimal rubbish, slightly turbid, large amount of leaf litter.
VY2	Vineyard Creek	Downstream	Dry	14/04/2021	8:15	8.09	707	9.3	Sunny weather, no rubbish, slightly turbid, minimal leaf litter and moderate vegetation present.
VY3	Vineyard Creek	Downstream	Dry	14/04/2021	-	-	-	-	Site access was not possible at time of sampling due to drainage works and unsafe access to water body.

1. ANZECC Waterway types: Fresh water (PR1, PR2, PR3, PR4, VY1 and VY2); E: Estuarine (CC1, CC2, AC1, AC2, PR5, PR6 and SC1).

2. Trigger values were established by Parramatta Connect within the Pre-Construction Sampling (Baseline Review) Water Quality Monitoring Report (PLR1INF-CPBD-ALL-WA-RPT-000003). Red text indicates values outside of the baseline trigger values.

3. Charles Street Weir separates Parramatta River from up and downstream.

Table A-3-2 Discharge Water Quality

Discharge monitoring Point ID	Type of Monitoring Point	Type of Discharge Point	Date	Discharge Permit #	Oil and Grease (Not visible)	pH (6.5 - 8.5)	Turbidity (NTU)	Comments
A3.3	Basins and settling containers	Creek	26/03/2021	DW-A3-031	Not visible	7.61	24.1	Discharge into watercourse/creek
A1.10	Basins and settling containers	Stormwater	15/04/2021	DW-A1-037	Not visible	8.48	10	Discharge into watercourse/creek, reused for dust suppression depending on practicability
A3.3	Basins and settling containers	Creek	6/04/2021	DW-A3-032	Not visible	8.3	3.8	Discharge into watercourse/creek
N/A	Basins and settling containers	Re-use	19/04/2021	DW-A3-033	Not visible	8.14	82 ¹	Reused for dust suppression

¹TSS value was measured rather than turbidity.



A-4 Air Quality Monitoring Results

Table A-4-1 Summary of Dust Deposition Data (Ash Content)

Date	Monitoring Location	Ash Content g/m ² /month
March	13a Grand Avenue	0.2
March	Rydalmere Station	3.9
March	Dundas Station	1.5
March	Telopea	1.2
March	Carlingford	1.8



Table A-4-2 Summary of Asbestos Fibre Monitoring

Report Number	Date	Location	Start time	End time	Result (Fibres/Fields)	Result (Fibres/mL)
AMR205	26-Mar	CAMELLIA JUNCTION, WEST BOUNDARY 20M NORTH OF WESTERN GATE	7:31	15:25	0/100	<0.01
AMR205	26-Mar	CAMELLIA JUNCTION, SOUTH BOUNDARY 30M EAST OF WEST GATE	7:32	15:24	0/100	<0.01
AMR205	26-Mar	CAMELLIA JUNCTION, EAST BOUNDARY AT EAST GATE	7:33	15:23	0/100	<0.01
AMR205	26-Mar	RETAINING WALL 1, EAST BOUNDARY, APPROX 50M SOUTH OF MIDDLE GATE	7:34	15:22	0/100	<0.01
AMR205	26-Mar	RETAINING WALL 1, EAST BOUNDARY, AT MIDDLE GATE	7:35	15:21	0/100	<0.01
AMR205	26-Mar	RETAINING WALL 1, EAST BOUNDARY, APPROX 50M NORTH OF MIDDLE GATE	7:36	15:20	0/100	<0.01
AMR205	26-Mar	RETAINING WALL 1, EAST BOUNDARY AT NORTH GATE	7:37	15:19	0/100	<0.01
AMR206	27-Mar	RETAINING WALL 1, APPROX 50M SOUTH OF MIDDLE GATE, EAST BOUNDARY	7:04	12:47	0/100	<0.01
AMR206	27-Mar	RETAINING WALL 1, MIDDLE GATE, WEST BOUNDARY	7:05	12:48	0/100	<0.01
AMR206	27-Mar	RETAINING WALL 1, APPROX 50M NORTH OF MIDDLE GATE, EAST BOUNDARY	7:06	12:49	0/100	<0.01
AMR206	27-Mar	RETAINING WALL 1, NORTH BOUNDARY, NORTH GATE, EAST BOUNDARY	7:07	12:50	0/100	<0.01
AMR207	29-Mar	CAMELLIA JUNCTION, WEST BOUNDARY, APPROX 30M NORTH OF SW CORNER	7:23	15:55	0.5/100	<0.01
AMR207	29-Mar	CAMELLIA JUNCTION, SOUTH BOUNDARY, APPROX 30M EAST OF SW CORNER	7:24	15:56	0/100	<0.01
AMR207	29-Mar	CAMELLIA JUNCTION, EAST BOUNDARY, APPROX 10M NORTH OF SE CORNER	7:25	15:57	0/100	<0.01

AMR207	29-Mar	RETAINING WALL, EAST BOUNDARY APPROX 50M SOUTH OF MIDDLE GATE	7:26	15:58	0/100	<0.01
AMR207	29-Mar	RETAINING WALL 1, EAST BOUNDARY APPROX 50M SOUTH OF MIDDLE GATE	7:27	15:59	0/100	<0.01
AMR207	29-Mar	RETAINING WALL 1, EAST BOUNDARY AT MIDDLE GATE	7:28	16:00	0/100	<0.01
AMR207	29-Mar	RETAINING WALL 1, EAST BOUNDARY APPROX 50M NORTH OF MIDDLE GATE	7:29	16:01	0/100	<0.01
AMR208	30-Mar	CAMELLIA JUNCTION, WEST BOUNDARY, APPROX 30M NORTH OF SW CORNER	7:57	15:55	0/100	<0.01
AMR208	30-Mar	CAMELLIA JUNCTION, SOUTH BOUNDARY APPROX 20M EAST OF SW CORNER	7:58	15:54	0/100	<0.01
AMR208	30-Mar	CAMELLIA JUNCTION, EAST BOUNDARY AT SE CORNER	7:59	15:53	0/100	<0.01
AMR208	30-Mar	CAMELLIA JUNCTION, EAST BOUNDARY APPROX 40M, NORTH OF SE CORNER	8:00	15:52	0/100	<0.01
AMR208	30-Mar	RETAINING WALL 1, EAST BOUNDARY, APPROX 50M SOUTH OF MIDDLE GATE	8:01	15:51	0/100	<0.01
AMR208	30-Mar	RETAINING WALL 1, EAST BOUNDARY AT MIDDLE GATE	8:02	15:50	0/100	<0.01
AMR208	30-Mar	RETAINING WALL 1, EAST BOUNDARY APPROX 50M NORTH OF MIDDLE GATE	8:03	15:49	0/100	<0.01
AMR209	31-Mar	CAMELLIA JUNCTION, EAST BOUNDARY, SE GATE	7:09	16:07	0/100	<0.01
AMR209	31-Mar	CAMELLIA JUNCTION, EAST BOUNDARY APPROX 30M NORTH OF SE GATE	7:10	16:08	0/100	<0.01
AMR209	31-Mar	CAMELLIA JUNCTION, EAST BOUNDARY APPROX 60M NORTH OF SE BOUNDARY	7:11	16:09	0/100	<0.01
AMR209	31-Mar	RETAINING WALL 1, APPROX 50M SOUTH OF MIDDLE GATE	7:12	16:10	0/100	<0.01
AMR209	31-Mar	RETAINING WALL 1, AT MIDDLE GATE	7:13	16:11	0/100	<0.01
AMR209	31-Mar	RETAINING WALL, APPROX 50M NORTH OF MIDDLE GATE	7:14	16:12	0/100	<0.01

AMR209	31-Mar	RETAINING WALL 1, AT NORTHERN GATE	7:15	16:13	0/100	<0.01
AMR210	1-Apr	13A GRAND AVE - E SITE BOUNDARY	7:17	15:25	0/100	<0.01
AMR210	1-Apr	13A GRAND AVE - S BOUNDARY OF WORKS	7:18	15:23	0/100	<0.01
AMR210	1-Apr	13A GRAND AVE - W SITE BOUNDARY	7:22	15:21	0/100	<0.01
AMR210	1-Apr	13A GRAND AVE - N BOUNDARY OF WORKS	7:24	15:20	0/100	<0.01
AMR210	1-Apr	11B DRAINAGE EASEMENT W BOUNDARY OF WORKS	7:25	15:15	0/100	<0.01
AMR210	1-Apr	11B DRAINAGE EASEMENT N BOUNDARY OF WORKS	7:27	15:12	0/100	<0.01
AMR210	1-Apr	11B DRAINAGE EASEMENT S BOUNDARY OF WORKS	7:28	15:11	0/100	<0.01
AMR210	1-Apr	11B DRAINAGE EASEMENT E BOUNDARY OF WORKS	7:29	15:10	0/100	<0.01
AMR212	6-Apr	13A GRAND AVE - NORTH BOUNDARY	7:45	14:04	0/100	<0.01
AMR212	6-Apr	13A GRAND AVE - EAST BOUNDARY	7:46	14:05	0/100	<0.01
AMR212	6-Apr	13A GRAND AVE - SOUTH BOUNDARY	7:47	14:06	0/100	<0.01
AMR212	6-Apr	13A GRAND AVE - WEST BOUNDARY	7:48	14:07	0/100	<0.01
AMR213	7-Apr	13A GRAND AVE - S OF BOUNDARY OF WORKS	7:28	14:42	0/100	<0.01
AMR213	7-Apr	13 A GRAND AVE - E BOUNDARY OF SITE	7:30	14:43	0/100	<0.01
AMR213	7-Apr	14 A GRAND AVE - N BOUNDARY OF SITE	7:32	14:45	0/100	<0.01
AMR213	7-Apr	15 A GRAND AVE - W BOUNDARY OF SITE	7:35	14:46	0/100	<0.01
AMR214	6-Apr	FACTORY ST - NORTH BOUNDARY OF WORKS	9:05	14:34	0/100	<0.01
AMR214	6-Apr	FACTORY ST - EAST BOUNDARY OF WORKS	9:06	14:35	0/100	<0.01
AMR214	6-Apr	FACTORY ST - WEST BOUNDARY OF WORKS	9:07	14:36	0/100	<0.01
AMR215	8-Apr	CAMELLIA JUNCTION, SW CORNER	7:19	16:02	0/100	<0.01
AMR215	8-Apr	CAMELLIA JUNCTION, APPROX 30M EAST OF SW CORNER	7:20	16:01	0/100	<0.01
AMR215	8-Apr	CAMELLIA JUNCTION, SE CORNER	7:21	16:00	0/100	<0.01
AMR215	8-Apr	CAMELLIA JUNCTION, APPROX 30M NORTH OF SE CORNER	7:22	15:59	0/100	<0.01
AMR216	9-Apr	13A GRAND AVE - S BOUNDARY OF WORKS	7:41	14:45	0/100	<0.01
AMR216	9-Apr	13A GRAND AVE - E BOUNDARY OF WORKS	7:43	14:46	0/100	<0.01

AMR216	9-Apr	13A GRAND AVE - N BOUNDARY OF WORKS	7:45	14:47	0/100	<0.01
AMR216	9-Apr	13A GRAND AVE - W BOUNDARY OF WORKS	7:47	14:48	0/100	<0.01
AMR216	9-Apr	11B DRAINAGE EASEMENT - S BOUNDARY OF WORKS	7:50	14:50	0/100	<0.01
AMR216	9-Apr	11B DRAINAGE EASEMENT - W BOUNDARY OF WORKS	7:51	14:51	0/100	<0.01
AMR216	9-Apr	11B DRAINAGE EASEMENT - N BOUNDARY OF WORKS	7:52	14:52	0/100	<0.01
AMR216	9-Apr	11B DRAINAGE EASEMENT - E BOUNDARY OF WORKS	7:53	14:53	0/100	<0.01
AMR217	7-Apr	FACTORY ST - EAST OF EXCAVATION	7:43	14:31	0/100	<0.01
AMR217	7-Apr	FACTORY ST - SOUTH OF EXCAVATION	7:45	14:32	0/100	<0.01
AMR217	7-Apr	FACTORY ST - NORTH OF EXCAVATION	7:46	14:33	0/100	<0.01
AMR218	10-Apr	TRAMWAY AVE, SW CORNER, APPROX 10M EAST OF ACM STOCKPILE	7:24	12:08	2/100	<0.01
AMR218	10-Apr	TRAMWAY AVE, SW CORNER, APPROX 10M NORTH OF ACM STOCKPILE	7:25	14:09	0/100	<0.01
AMR218	10-Apr	TRAMWAY AVE, SW CORNER, APPROX 10M WEST OF ACM STOCKPILE	7:26	14:10	1/100	<0.01
AMR218	10-Apr	CAMELLIA JUNCTION, SOUTH BOUNDARY, APPROX 30M WEST OF SE CORNER	7:41	11:55	0/100	<0.01
AMR218	10-Apr	CAMELLIA JUNCTION, SE CORNER	7:42	11:54	0/100	<0.01
AMR218	10-Apr	CAMELLIA JUNCTIO, EAST BOUNDARY APPROX 20M NORTH OF SE CORNER	7:43	11:53	0/100	<0.01
AMR218	10-Apr	CAMELLIA JUNCTION EAST BOUNDARY APPROX 50M NORTH OF SE CORNER	7:44	11:52	0/100	<0.01
AMR219	11-Apr	CAMELLIA JUNCTION, SOUTH BOUNDARY, APPROX 30M WEST OF SE CORNER	7:27	13:32	0/100	<0.01
AMR219	11-Apr	CAMELLIA JUNCTION, SE CORNER	7:28	13:31	0/100	<0.01
AMR219	11-Apr	CAMELLIA JUNCTION, EAST BOUNDARY APPROX 20M NORTH OF SE CORNER	7:29	13:30	0/100	<0.01

AMR219	11-Apr	CAMELLIA JUNCTION, EAST BOUNDARY APPROX 50M NORTH OF SE CORNER	7:30	13:29	1.5/100	<0.01
AMR220	12-Apr	CAMELLIA JUNCTION, SOUTH BOUNDARY, APPROX 30M WEST OF SE CORNER	7:18	15:23	0/100	<0.01
AMR220	12-Apr	CAMELLIA JUNCTION, SE CORNER	7:19	15:24	0/100	<0.01
AMR220	12-Apr	CAMELLIA JUNCTION, EAST BOUNDARY APPROX 20M NORTH OF SE CORNER	7:20	15:25	0/100	<0.01
AMR220	12-Apr	CAMELLIA JUNCTION, EAST BOUNDARY APPROX 50M NORTH OF SE CORNER	7:21	15:26	0/100	<0.01
AMR220	12-Apr	OVERPASS STOCKPILE AREA, EAST GATE	7:22	15:27	0/100	<0.01
AMR221	13-Apr	13 A GRAND AVE - S BOUNDARY OF WORKS	7:25	14:45	2/100	<0.01
AMR221	13-Apr	13 A GRAND AVE - E SITE BOUNDARY	7:26	14:46	2/100	<0.01
AMR221	13-Apr	13 A GRAND AVE - N BOUNDARY OF WORKS	7:29	14:47	1/100	<0.01
AMR221	13-Apr	13 A GRAND AVE - W SITE BOUNDARY	7:30	14:49	0/100	<0.01
AMR221	13-Apr	11 B DRAINAGE EASEMENT - S BOUNDARY OF EXECUTION	7:36	14:51	0/100	<0.01
AMR221	13-Apr	11 B DRAINAGE EASEMENT - W BOUNDARY OF EXECUTION	7:37	14:52	0/100	<0.01
AMR221	13-Apr	11 B DRAINAGE EASEMENT - N BOUNDARY OF EXECUTION	7:39	14:53	0/100	<0.01
AMR221	13-Apr	11 B DRAINAGE EASEMENT - E BOUNDARY OF EXECUTION	7:40	14:54	0/100	<0.01
AMR222	14-Apr	CAMELLIA JUNCTION, WEST BOUNDARY APPROX 60M NORTH OF SW CORNER	7:43	15:50	0/100	<0.01
AMR222	14-Apr	CAMELLIA JUNCTION, SW CORNER	7:44	15:49	0/100	<0.01
AMR222	14-Apr	CAMELLIA JUNCTION, SOUTH BOUNDARY APPROX 30M EAST OF SW CORNER	7:45	15:48	0/100	<0.01

AMR222	14-Apr	CAMELLIA JUNCTION, SE CORNER	7:46	15:47	0/100	<0.01
AMR222	14-Apr	CAMELLIA JUNCTION, EAST BOUNDARY APPROX 30M EAST OF SE CORNER	7:47	15:46	0/100	<0.01
AMR222	14-Apr	CAMELLIA JUNCTION, EAST BOUNDARY APPROX 60M NORTH OF SE CORNER	7:48	15:45	0/100	<0.01
AMR222	14-Apr	OVERPASS STOCKPILE AREA, EAST GATE	7:49	15:44	0/100	<0.01
AMR223	15-Apr	13A GRAND AVE - S BOUNDARY OF WORKS	7:11	14:38	0/100	<0.01
AMR223	15-Apr	13A GRAND AVE - E SITE BOUNDARY	7:14	14:39	0/100	<0.01
AMR223	15-Apr	13A GRAND AVE - N BOUNDARY OF WORKS	7:16	14:41	0/100	<0.01
AMR223	15-Apr	13A GRAND AVE - W SITE BOUNDARY	7:17	14:42	0/100	<0.01
AMR223	15-Apr	11B DRAINAGE EASEMENT - S BOUNDARY OF WORKS	7:20	14:45	0/100	<0.01
AMR223	15-Apr	11B DRAINAGE EASEMENT - W BOUNDARY OF WORKS	7:23	14:46	0/100	<0.01
AMR223	15-Apr	11B DRAINAGE EASEMENT - N BOUNDARY OF WORKS	7:24	14:47	0/100	<0.01
AMR223	15-Apr	11B DRAINAGE EASEMENT - E BOUNDARY OF WORKS	7:25	14:48	0/100	<0.01
AMR224	16-Apr	13 A GRAND AVE - S BOUNDARY OF WORKS	7:23	14:42	0/100	<0.01
AMR224	16-Apr	13 A GRAND AVE - E SITE BOUNDARY	7:25	14:43	0/100	<0.01
AMR224	16-Apr	14 A GRAND AVE - N BOUNDARY OF WORKS	7:26	14:44	0/100	<0.01
AMR224	16-Apr	14 A GRAND AVE - W SITE BOUNDARY	7:27	14:45	0/100	<0.01
AMR224	16-Apr	11 B DRAINAGE EASEMENT - S BOUNDARY OF WORKS	7:36	14:48	0/100	<0.01
AMR224	16-Apr	12 B DRAINAGE EASEMENT - W BOUNDARY OF WORKS	7:38	14:49	0/100	<0.01
AMR224	16-Apr	13 B DRAINAGE EASEMENT - N BOUNDARY OF WORKS	7:39	14:50	0/100	<0.01
AMR224	16-Apr	14 B DRAINAGE EASEMENT - E BOUNDARY OF WORKS	7:40	14:51	0/100	<0.01
AMR225	17-Apr	OVERPASS STOCKPILE - EAST GATE	7:15	14:40	0/100	<0.01
AMR225	17-Apr	CAMELLIA JUNCTION - WEST BOUNDARY	7:16	14:41	0/100	<0.01



AMR225	17-Apr	CAMELLIA JUNCTION - SW CORNER	7:17	14:42	0/100	<0.01
AMR225	17-Apr	CAMELLIA JUNCTION - SOUTH BOUNDARY	7:18	14:43	0/100	<0.01
AMR225	17-Apr	CAMELLIA JUNCTION - SW CORNER	7:19	14:44	0/100	<0.01
AMR225	17-Apr	CAMELLIA JUNCTION - NW CORNER	7:20	14:45	1/100	<0.01
AMR225	17-Apr	CAMELLIA - APPROX 50M NORTH OF JAMES HARDIE BRIDGE	7:25	14:50	4/100	<0.01
AMR226	19-Apr	CAMELLIA JUNCTION, EAST BOUNDARY, APPROX 20M NORTH OF SE GATE	7:38	15:53	0/100	<0.01
AMR226	19-Apr	CAMELLIA JUNCTION, ADJACENT TO START OF SYDNY WATER ACCESS ROAD	7:39	15:52	0/100	<0.01
AMR226	19-Apr	CAMELLIA JUNCTION, SOUTHERN BOUNDARY APPROX 50M WEST OF SE GATE	7:40	15:51	0/100	<0.01
AMR226	19-Apr	OVERPASS AREA, EASTERN GATE	7:41	15:50	0/100	<0.01
AMR226	19-Apr	OVERPASS AREA, INTERNAL FENCE, BETWEEN EAST AND WEST GATE	7:42	15:49	0/100	<0.01
AMR226	19-Apr	OVERPASS AREA, INTERNAL FENCE, ADJACENT WESTERN BOUNDARY	7:43	15:48	0/100	<0.01
AMR226	19-Apr	GRAND AVE NORTH, ATTACHED TO CEMENT RAMP APPROX 70M WEST OF CAMELLIA JUNCTION	7:44	15:47	0/100	<0.01
AMR226	19-Apr	GRAND AVE NORTH, ATTACHED TO CEMENT RAMP APPROX 50M WEST OF CAMELLIA JUNCTION	7:45	15:46	0/100	<0.01
AMR226	19-Apr	GRAND AVE NORTH, ATTACHED TO CEMENT RAMP APPROX 90M WEST OF CAMELLIA JUNCTION	7:46	15:46	0/100	<0.01
AMR227	20-Apr	OVERPASS AREA, INTERIOR FENCE, ADJACENT TO WEST BOUNDARY	7:25	15:49	0/100	<0.01
AMR227	20-Apr	OVERPASS AREA, INTERIOR FENCE, BETWEEN EAST AND WEST GATE	7:26	15:50	0/100	<0.01

AMR227	20-Apr	OVERPASS AREA, INTERIOR FENCE, EAST BOUNDARY	7:27	15:51	0/100	<0.01
AMR227	20-Apr	CAMELLIA JUNCTION, SOUTH BOUNDARY, APPROX 40M WEST OF SE GATE	7:29	15:52	0/100	<0.01
AMR227	20-Apr	CAMELLIA JUNCTION, EAST BOUNDARY, APPROX 10M NORTH OF SE GATE	7:30	15:53	0/100	<0.01
AMR227	20-Apr	CAMELLIA JUNCTION, NE CORNER, ADJACENT TO START OF RETAINING WALL 3A	7:31	15:54	0/100	<0.01
AMR227	20-Apr	CAMELLIA JUNCTION, WEST BOUNDARY, ADJACENT TO START OF RETAINING WALL 1	7:32	15:55	0/100	<0.01
AMR227	20-Apr	RETAINING WALL 1, EASTERN BOUNDARY, AT MIDDLE GATE	10:48	16:00	0/100	<0.01
AMR227	20-Apr	RETAINING WALL 1, WEST BOUNDARY, OPPOSITE MIDDLE GATE	10:49	16:01	0/100	<0.01
AMR227	20-Apr	RETAINING WALL 1, WEST BOUNDARY, APPROX 30M NORTH OF MIDDLE GATE	10:50	16:02	0/100	<0.01
AMR227	20-Apr	RETAINING WALL 1, EAST BOUNDARY APPROX 30M NORTH OF MIDDLE GATE	10:51	16:03	0/100	<0.01
AMR228	21-Apr	OVERPASS AREA, INTERNAL FENCING NEAR NORTHERN BOUNDARY	7:20	15:13	0/100	<0.01
AMR228	21-Apr	OVERPASS AREA, INTERNAL FENCING NEAR EASTERN BOUNDARY	7:21	15:14	0/100	<0.01
AMR228	21-Apr	OVERPASS AREA, INTERNAL FENCING NEAR WESTERN BOUNDARY	7:22	15:15	0/100	<0.01
AMR228	21-Apr	CAMELLIA JUNCTION, SOUTHERN BOUNDARY ATTACHED TO FENCE	7:23	15:16	1.5/100	<0.01
AMR228	21-Apr	CAMELLIA JUNCTION, WESTERN BOUNDARY ATTACHED TO FENCE ADJACENT DRIVEWAY	7:24	15:19	0/100	<0.01
AMR228	21-Apr	CAMELLIA JUNCTION, EASTERN BOUNDARY ATTACHED TO NORTHERN SECTION OF FENCE	7:25	15:20	0/100	<0.01
AMR228	21-Apr	CAMELLIA JUNCTION, EASTERN BOUNDARY ATTACHED TO SOUTHERN SECTION OF FENCE	7:25	15:21	0/100	<0.01

AMR228	21-Apr	RETAINING WALL 1, ATTACHED TO FENCING ON EASTERN SIDE ADJACENT MIDDLE GATE	7:37	15:22	1/100	<0.01
AMR228	21-Apr	RETAINING WALL 1, 20M NORTH OF MIDDLE GATE, ATTACHED TO FENCE ON EAST BOUNDARY	7:41	15:23	0/100	<0.01
AMR228	21-Apr	RETAINING WALL 1, 40M NORTH OF MIDDLE GATE, ATTACHED TO METAL POLE ON WEST BOUNDARY	7:42	15:24	0/100	<0.01
AMR228	21-Apr	RETAINING WALL 1, 60M NORTH OF MIDDLE GATE, ATTACHED TO METAL POLE ON WEST BOUNDARY	7:44	15:25	0/100	<0.01
AMR229	22-Apr	CAMELLIA JUNCTION, SOUTH BOUNDARY APPROX 30M WEST OF SE GATE	7:11	15:59	0/100	<0.01
AMR229	22-Apr	CAMELLIA JUNCTION, EAST BOUNDARY APPROX 10M NORTH OF SE GATE	7:12	15:56	0/100	<0.01
AMR229	22-Apr	CAMELLIA JUNCTION, EAST BOUNDARY ADJ TO START OF RETAINING WALL 3	7:13	15:55	0/100	<0.01
AMR229	22-Apr	RETAINING WALL 1, EAST BOUNDARY AT MIDDLE GATE	7:17	15:52	0/100	<0.01
AMR229	22-Apr	RETAINING WALL 1, EAST BOUNDARY APPROXM 40M NORTH OF EAST GATE	7:18	15:51	0/100	<0.01
AMR229	22-Apr	RETAINING WALL 1, WEST BOUNDARY AT MIDDLE GATE	7:19	15:50	0/100	<0.01
AMR229	22-Apr	RETAINING WALL 1, WEST BOUNDARY APPROX 40 NORTH OF MIDDLE GATE	7:20	15:49	0/100	<0.01
AMR230	23-Apr	NORTH CORNER	7:09	14:49	1/100	<0.01
AMR230	23-Apr	SOUTH WEST CORNER NEAR DECON SHED	7:11	14:47	0/100	<0.01
AMR230	23-Apr	SOUTH EAST CORNER	7:13	14:43	0/100	<0.01
AMR230	23-Apr	NORTH WEST CORNER, NEAR BLUEBUILDING AND GATE	7:17	15:20	0/100	<0.01
AMR231	24-Apr	NORTH WEST CORNER NEAR BLUE BUILDING	7:07	14:40	0/100	<0.01