



ENVIRONMENTAL MONITORING REPORT, JANUARY 2021

PARRAMATTA LIGHT RAIL INFRASTRUCTURE WORKS

5 February 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 January 2021.

Table 2-1 Site Activities During Reporting Period

Precinct	Site Activities
Westmead and North Parramatta	Westmead
	<ul style="list-style-type: none">– Ongoing utility installations– Ongoing drainage, Combined Service Route (CSR) and track/road pavement works
	Cumberland
	<ul style="list-style-type: none">– Ongoing utility installations– Ongoing drainage, CSR and track/road pavement works
Parramatta CBD	North Parramatta
	<ul style="list-style-type: none">– Track works at Grose St, Victoria Rd and Pennant Hills Rd intersection completed– Ongoing drainage, CSR and track/road pavement works
	Area 2 West (CBD)
	<ul style="list-style-type: none">– Ongoing utility installations on Church Street and Macquarie Street– Ongoing electrical and lighting works– Ongoing multifunction pole works– Ongoing civil works (such as tree pits, Combined Service Routes)– Drainage works along Church Street and Macquarie Street– Drainage works on Parramatta River foreshore– Track slab works (Church Street)– Footpath rectification works
Camellia and Carlingford line	Area 2 East (Smith Street to Arthur Street)
	<ul style="list-style-type: none">– Utility installations on Harris Street, Macquarie Street, George Street, Purchase Street, Arthur Street and Charles Street– Ongoing installation of multifunction poles– Drainage works at Tramway Avenue, George Street, Robin Thomas Reserve and Macquarie Street– Ongoing civil works (such as CSR, box out, kerbs, footpath) along Tramway Avenue, George Street and Macquarie Street– Track slab works (Macquarie Street)– Tree removal (corner George/Alfred)
	Camellia
	<ul style="list-style-type: none">– Arch assembly at Tramway Avenue– Stormwater drainage works at Arthur Street– Ongoing retaining wall works at Grand Avenue North– Ongoing utility works at Grand Avenue

**Precinct****Site Activities****Carlingford Line**

- Vineyard Creek Bridge formwork, reinforcement and concrete pour and deck installation.
 - Leamington Road Underpass formwork, reinforcement and concrete pour .
 - Adderton Road Overbridge / Active Transport Link excavation works.
 - CSR works from Dundas to Carlingford.
 - Retaining wall and stormwater drainage works from Rydalmere to Carlingford.
 - Formwork, reinforcement and concrete pour at Victoria Road and Adderton Road deflection walls.
 - ATL works from Telopea to Carlingford.
 - Overhead wire and lighting works from Telopea to Carlingford.
 - Utility works at Adderton Road and Winter Street.
-

3. Monitoring Results

Section 3 presents a summary of the environmental inspection and monitoring programs completed during the reporting period (26 December 2020 to 25 January 2021). Detailed monitoring results for each activity are presented in the appendices to this report.

3.1. Inspections

A total of four ER inspections, one AA inspection and two TfNSW inspections completed during the reporting period in addition to 25 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 January 2021

Date	Number of Inspections	Type	Actions	Closed in Time
28/12/2020	2	Internal Inspection	2	Yes
29/12/2020	1	ER Inspection	3	Yes
30/12/2020	2	Internal Inspection	0	N/A
4/02/2021	1	Internal Inspection	0	N/A
5/01/2021	1	ER Inspection	0	N/A
6/01/2021	6	Internal Inspection	2	Yes
11/01/2021	6	Internal Inspection	2	Yes
12/01/2021	1	Internal Inspection	6	Yes
12/01/2021	1	ER Inspection	11	Yes
12/01/2021	1	TfNSW Inspection	3	Yes
15/01/2021	1	AA Inspection	0	N/A
18/01/2021	6	Internal Inspection	3	Yes
19/01/2021	1	Internal Inspection	5	Yes
19/01/2021	1	ER Inspection	3	Yes
19/01/2021	1	TfNSW Inspection	5	Yes
20/01/2021	4	Internal Inspection	11	Yes
22/01/2021	1	Internal Inspection	0	N/A
Total	35	-	56	-



3.2. Weather

The total rainfall recorded during the reporting period was 70 mm with ten days exceeding one millimetre of rain. No rain events exceeded the 80th percentile (25.8mm) nor the 85th percentile (33.1mm).

During the reporting period, there were 29 days where the maximum wind gust recorded was greater than 25km/hr, one day where the maximum wind gust recorded was greater than 50km/hr and no days where the maximum wind gust recorded was greater than 60km/hr. There was a total of 11 days where wind speeds greater than 25km/hr were forecast and on each of those days, notifications were 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 January 2021 are presented in **Appendix A-1**.

Table 3-2 Weather Summary and Trigger Weather Events for January¹ 2021

Weather Event	Forecast	Observation
Minimum temperature	13°C	11.2°C
Maximum temperature	37°C	37°C
Total rainfall	64.8 mm	70 mm
Number of days with rain (>1mm)	10 days	13 days
>80 th percentile (25.8mm) rain events	No days	No days
Flood warning / events	No events	No events
>25km/hr wind ²	11 days	29 days
>50km/hr wind	No days	1 day
>60km/hr wind	No days	No days

¹Weather summary based on data from the 26 December 2020 to 25 January 2021 (31 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.

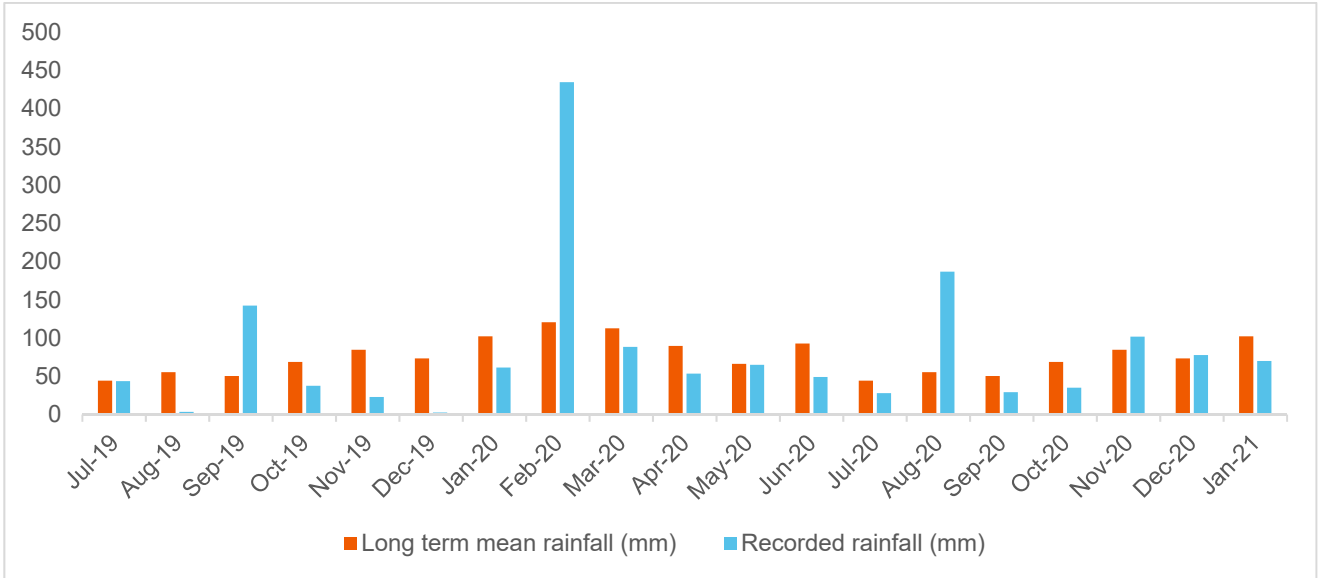


Figure 3-1 Monthly rainfall comparison

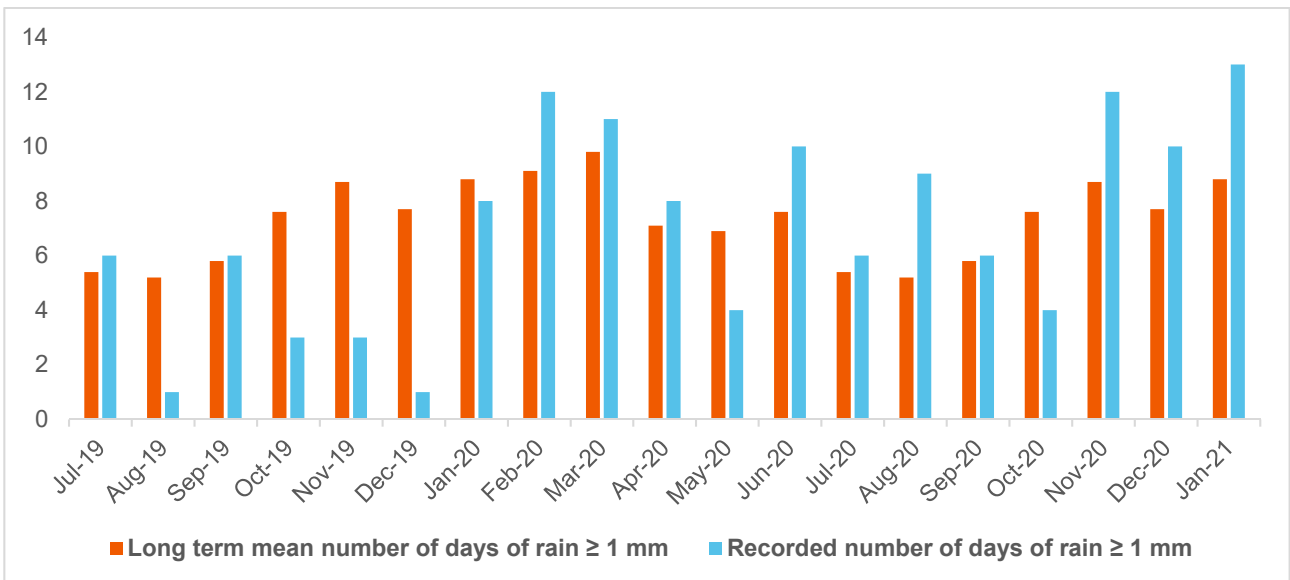


Figure 3-2 Monthly rain days comparison

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**. All recorded noise levels ($L_{Aeq15min}$) during the reporting period were below the predicted noise levels.

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**. All monitoring events were compliant with vibration targets.

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 January 2021

Date	Monitoring Location	Attended/Continuous	Description
8/01/2021	Dundas Shops	Attended	General construction
17/01/2021	163-171 Hawkesbury Rd	Attended	General construction
20/01/2021	137 Arthur St	Attended	General construction
20/01/2021	Meriton (Alex & Co)	Attended	General construction
20/01/2021	Meriton (Western Side)	Attended	General construction
21/01/2021	5 Hope St	Attended	Monthly ambient monitoring
21/01/2021	14 Dudley St	Attended	Monthly ambient monitoring
21/01/2021	22 Adderton Road	Attended	Monthly ambient monitoring
21/01/2021	89 Marshall Road	Attended	Monthly ambient monitoring
21/01/2021	Carlingford Station	Attended	Monthly ambient monitoring
21/01/2021	Dundas Station	Attended	Monthly ambient monitoring
21/01/2021	Teloopa Station	Attended	Monthly ambient 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 January 2021

Date	Monitoring Location	Attended/Continuous	Description
31/12/2020	Hawkesbury Rd	Attended	General construction
6/01/2021	211 Church Street (Worksite)	Attended	General Construction
6/01/2021	211 Church Street (Heritage Structure)	Attended	General Construction
7/01/2021	407 Church St	Attended	General construction
16/06/2020	Hawkesbury Road Westmead Institute for Medical Research (HAL incubators)	Continuous	General construction
16/06/2020	Hawkesbury Road Westmead Institute for Medical Research (Microscopy Labs)	Continuous	General construction
16/06/2020	Hawkesbury Road 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	4/12/2020 ¹
Noise Level Meter	00661732	19/05/2021
Noise Level Meter	00973275	26/11/2020
Vibration Monitor	BE14639	5/12/2020 ¹
Vibration Monitor	BE17441	16/07/2021

1. Noise monitor 00973277 and vibration monitor BE14639 were not in use during the reporting period.

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
		Brain Dynamics Centre



Organisation	Monitor Type	Location
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, wet weather monitoring for the quarter was undertaken as summarised in **Table 3-7** and detailed in **Table A-3-1**. This monitoring was undertaken during a 35 mm 9-day rainfall event. Water levels were low with a normal to fast flow at the time of sampling and overall there were little to no debris or leaf litter present. All results were within the water quality objectives, with the exception of three locations exceeding the ANZECC guidelines for pH. These exceedances included two upstream locations which were not impacted by Parramatta Connect works and one downstream location which was within 20% of the upstream result. As such, no further action was required.

Table 3-7 Water Quality in Receiving Waters

Date	Type	Type of Results	Wet / Dry	Locations
14/01/2021	Monitoring during construction	Field	Wet	Parramatta River: PR1; PR3; PR4; PR5; PR6 Domain Creek: DC1 Clay Cliff Creek: CC1, CC2 Vineyard Creek: VY1; VY2 Subiaco Creek: SC1 A'becketts Creek: AC1, AC2

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 eight 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 will be 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. Results from the previous reporting period show that all locations 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

The 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, inclusive (**Table 3-9**). 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 must undertake additional inspections of the camp during bridge piling works (**Table 3-9**).

During the reporting period, no indicators of stress or abnormal behaviour were observed during inspections.



Table 3-9 Observations from Visual Monitoring

Date	Time	Weather Conditions	Works	Notification Triggers¹	Comments and Number of Monitoring Events²
30/12/2020	10:31	Rain at times	No Parramatta Connect activities	No	Calm – No movements.
06/01/2021	10:00	Cloudy with rain at times	Utility works, saw cutting for services installation	No	No movement observed at the camp.
12/01/2021	7:56 – 9:59	-	No Parramatta Connect activities	No	Narla Monitoring: six events. No disturbance identified.
13/01/2021	7:20 – 10:08	-	Hammering and non-Parramatta Connect activities	No	Narla Monitoring: three events. No disturbance identified.
14/01/2021	8:07 – 12:44	-	Construction noise, plant use, non-Parramatta Connect activities	No	Narla Monitoring: 11 events. None to small disturbance identified.
15/01/2021	8:03 – 14:54	-	Piling works and general construction	No	Narla Monitoring: 10 events. No disturbance identified.
18/01/2021	7:45 – 17:54	-	Piling works, drilling works and general construction	No	Narla Monitoring: 15 events. None to small disturbance identified.
19/01/2021	8:41 – 14:04	-	Piling works, crane movements and general construction	No	Narla Monitoring: 11 events. None to small disturbance identified.
20/01/2021	7:57 – 15:45	-	Piling works, general construction, non-Parramatta Connect activities	No	Narla Monitoring: 21 events. None to small disturbance identified.
21/01/2021	7:47 – 15:34	-	Piling works, jetting installation, hammering and non-Parramatta Connect activities	No	Narla Monitoring: 16 events. None to small disturbance identified.
22/01/2021	7:18 – 14:32	-	Piling works, jetting installation, hammering and non-Parramatta Connect activities	No	Narla Monitoring: 7 events. No disturbance identified.



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).

² A 'monitoring event' refers to a period of continuous monitoring in response to noise generating activities (irrespective of whether the noise is generated by Parramatta Connect works or third party activities).

3.7. Issues/incidents/non-compliance

Table 3-10 provides a summary of environmental compliance during the reporting period, including two non-compliances and one environmental incident.

Table 3-10 Issues/incidents/non-compliances

Date	Location	Description
12/01/2021	Macquarie Street	During an Environmental Representative inspection, it was identified that a sub-contractor had entered the Approved Project boundary at a location not identified on the ECM. A temporary kerb ramp had been constructed by the sub-contractor to allow for their vehicle movements directly into their work area rather than using the dedicated vehicle access gate.
13/01/2021	Trott Street	On two occasions (18 December 2020 and 7 January 2021), three vehicles accessed Trott Street to deliver materials to Church Street, North Parramatta. Trott Street is not an approved haulage route and as such, the events were reported as a non-compliance.
15/01/2021	George Street	Spoil spilled from the tail gate of a tipper onto George Street. The street sweeper was deployed and there was no loss of spoil to stormwater.



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						
26/12/2020	15.8	24.4	1.8	19.8	83	8	ESE	2
27/12/2020	15.5	31.8	7.2	18.5	97	8	NNW	4
28/12/2020	17.6	30.7	0	27	61	7	NW	2
29/12/2020	15.5	19.7	7.2	17	98	8	WNW	2
30/12/2020	16	22.5	11	18.4	99	8	SSW	7
31/12/2020	16.2	24.3	1.6	21.8	71	7	S	7
1/01/2021	16.6	21.2	3	19.2	81	8	E	4
2/01/2021	15.8	22.5	0.4	17.2	98	8	SSW	4
3/01/2021	16.2	27.3	1.4	20.6	98	8	E	2
4/01/2021	18	28	0.2	23.5	89	8	W	2
5/01/2021	17.2	29.8	9	22.5	85	5	W	6
6/01/2021	17.8	24.8	8	20.8	86	8	SW	2
7/01/2021	16.5	22.7	4.2	22	66	6	SSE	9
8/01/2021	15.4	22.4	7.2	19.2	76	7	SSE	7
9/01/2021	12.8	25.3	1.6	19.8	80	5	SW	6
10/01/2021	13.2	28.2	0	21.2	78	1	W	4
11/01/2021	15	29	0	22.7	74	5	NNE	6
12/01/2021	15.5	33	0	23.5	75	5	NW	6
13/01/2021	17	29	0	24.2	74	5	NE	4
14/01/2021	19	37	0	22.8	85	5	W	4
15/01/2021	20.2	30.2	0	22.7	81	7	SW	4
16/01/2021	16.6	28.8	0	19.5	47	0	W	22
17/01/2021	11.8	26	0	21.2	52	0	SW	7
18/01/2021	15.5	24.2	0	23.2	75	2	NW	7
19/01/2021	16.7	24	0	23.2	79	7	ESE	11
20/01/2021	15.8	22.3	1.4	18.3	82	8	W	4
21/01/2021	11.2	28.4	0	20.7	71	0	WSW	6
22/01/2021	15.4	35.8	0	24	71	0	NW	6
23/01/2021	20.5	33.3	0	27.2	72	4	ENE	4
24/01/2021	20.1	33.8	0	28	73	0	W	4
25/01/2021	19.5	36	0	27.5	67	5	W	2



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
26/12/2020	NE	33	16:29	Calm		NE	13
27/12/2020	ESE	28	14:48	NW	7	E	17
28/12/2020	SE	46	12:58	Calm		SE	26
29/12/2020	SSE	30	22:50	SSE	4	S	11
30/12/2020	ESE	30	10:58	SE	9	ESE	15
31/12/2020	SE	28	8:41	SSE	17	E	17
1/01/2021	SE	31	10:56	SE	11	SSE	13
2/01/2021	ESE	24	14:05	W	7	ESE	13
3/01/2021	E	22	13:53	Calm		E	11
4/01/2021	WNW	50	15:11	NW	6	NNE	6
5/01/2021	ESE	33	13:34	WNW	4	ESE	13
6/01/2021	SE	43	16:30	SSW	9	SE	24
7/01/2021	S	41	23:53	SSE	19	SE	20
8/01/2021	SE	39	8:52	SE	13	SE	19
9/01/2021	ESE	31	16:33	Calm		ENE	13
10/01/2021	ESE	28	13:20	NW	6	E	19
11/01/2021	ESE	31	13:41	NNE	6	E	15
12/01/2021	E	26	14:33	WNW	2	E	11
13/01/2021	ESE	35	15:42	N	6	E	13
14/01/2021	SSE	44	18:16	S	2	ESE	19
15/01/2021	WSW	43	22:23	SSE	4	ESE	22
16/01/2021	WSW	46	23:31	W	17	WSW	13
17/01/2021	E	35	15:22	WSW	13	E	17
18/01/2021	E	30	14:24	NNW	13	NW	7
19/01/2021	SSE	44	9:03	SSE	19	SSE	20
20/01/2021	SE	22	10:44	W	7	ESE	13
21/01/2021	E	33	13:18	WSW	6	E	17
22/01/2021	E	28	13:37	WNW	2	E	11
23/01/2021	E	31	13:37	E	6	ESE	22
24/01/2021	NE	31	16:09	N	2	E	20
25/01/2021	NE	33	18:18	E	7	E	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
08/01/2021	08:18	Standard Hours	Wheel Washing	Dundas Compound	Dundas Shops	55	73	V	72.1	62.7	-10.3	No	Construction noise clearly audible, construction noise is dominant source
17/01/2021	22:00	OOHW Period 1	Stormwater Install	Darcy Rd to Queens Rd	163-171 Hawkesbury Rd	48	100	-	68.2	59.8	-40.2	No	Construction noise audible at most times, construction noise clearly audible, construction noise is dominant noise source
20/01/2021	01:50	OOHW Period 2	Welding of Arch	Tramway Ave	137 Arthur Street	46	58	V	65.0	43.4	-14.6	No	Construction noise sometimes audible
20/01/2021	22:20	OOHW Period 2	Potholing and Hammering	Phillip St Intersection	Meriton (Western Side)	48	80	PN, V, RP	78.7	61.8	-18.2	No	Construction noise audible at most times
20/01/2021	22:40	OOHW Period 2	Potholing and Hammering	Phillip St Intersection	Meriton (Alex and Co)	48	80	PN, V, RP	80.6	63.3	-16.7	No	Construction noise sometimes audible
21/01/2021	-	Standard Hours	Ambient noise monitoring	Rosehill	5 Hope Street	53	70	-	81.7	66.9	-3.1	N/A	Construction noise inaudible; traffic dominant noise source
21/01/2021	16:35	Standard Hours	Excavation and Compaction	Rydalmere	14 Dudley Street	55	70	-	85.3	66.5	-3.5	No	Construction noise is dominant noise source
21/01/2021	15:42	Standard Hours	Drainage	Teloepa	22 Adderton Rd	56	60	-	79.2	57.9	-2.1	No	Construction noise audible at most times
21/01/2021	14:52	Standard Hours	Drainage	Teloepa	89 Marshall Rd	52	60	-	90.2	56.5	-3.5	No	Construction noise audible at most times
21/01/2021	14:29	Standard Hours	Retaining Wall Backfill	Carlingford	Carlingford Station	62	65	-	84.8	58.8	-6.2	No	Construction noise audible at most times
21/01/2021	16:00	Standard Hours	Ambient noise monitoring	Dundas	Dundas Station	55	55	-	75.2	53.6	-1.4	No	Construction noise sometimes audible
21/01/2021	-	Standard Hours	Combined Services Route	Teloepa	Teloepa Station	53	65	-	75.7	59.9	-5.1	No	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.
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	

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
- b) 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)	Recorded PVS (mm/s)	Exceedance of Target	Construction Vibration Exceedance	Comments
31/12/2020	11:01-11:20	Standard work hours	Compaction	Hawkesbury Rd, Queen's Rd	Footpath near Priceline pharmacy	25	- ¹	No	No	Compliant
6/01/2021	11:45-12:07	Standard work hours	Vibratory Rolling	UNE Heritage Building	211 Church Street (Worksite)	7.5	9.639	Yes	Yes	Given levels were exceeding the trigger values, additional monitoring to be undertaken directly at heritage building for more accurate results.
6/01/2021	12:15-13:03	Standard work hours	Vibratory Rolling	UNE Heritage Building	211 Church Street (Base of heritage structure)	7.5	2.171	No	No	This additional monitoring was undertaken due to exceedance at the worksite. No exceedance of trigger values was recorded at the building.
7/01/2021	9:30-9:45	Standard work hours	10T excavator with jackhammer operating	Corner of Church St, Grose St	407 Church Street	25	- ¹	No	No	Compliant with CNVIS criteria for the location 407 Church St
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 construction, a review is undertaken of works and plant/equipment or methodology is modified where necessary. No exceedances were attributed to PLR construction activities.
26/06/2020		Continuous monitoring	Hawkesbury Road works	Hawkesbury Road	Westmead Institute for Medical Research (Microscopy Labs)	0.1 mm/s	*	No	No	
26/06/2020		Continuous monitoring	Hawkesbury Road works	Hawkesbury Road	Children's Medical Research Institute (Microscopy Labs)	0.1 mm/s	*	No	No	

¹ The monitors used in these locations do not record PVS values, rather PPV. The PPV values are 4.8 mm/s for 31/12/2020 and 3.7 mm/s for 7/1/2021. Both of these values are compliant with CNVIS criteria.

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 5.5-8.5 ²	Elec. Conduct. (µS/cm) LR ¹ : 125-2200 ² E: None	Turbidity (NTU) 6-50 ²	Comments and Observations
PR1	Parramatta River	Upstream	Wet	14/01/2021	9:50	8.81	328	3.5	Sunny weather, no rubbish, water was clear, moderate leaf litter. Exceedance of ANZECC Guideline Trigger Value for pH noted; location is upstream and not affected by Parramatta Connect works.
DC1	Domain Creek	N/A	Wet	14/01/2021	10:15	7.64	274	0	Sunny weather, no rubbish, water was clear, minimal leaf litter however there was lots of vegetation present.
PR3	Parramatta River	Upstream	Wet	14/01/2021	10:40	8.45	284	5	Sunny weather, minimal rubbish, water was slightly turbid, moderate amount of leaf litter.
PR4	Parramatta River	Downstream	Wet	14/01/2021	11:20	9.06	303	4.1	Sunny weather, no rubbish, clear water, no leaf litter. Exceedance of ANZECC Guideline Trigger Value for pH noted; downstream result (PR4) was within 20% of the upstream result (PR3).
PR5	Parramatta River	Upstream	Wet	14/01/2021	11:45	7.92	31900	0	Sunny weather, 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.
CC1	Clay Cliff Creek	Upstream	Wet	14/01/2021	13:55	8.63	19400	4	Sunny weather, moderate amount of rubbish, clear water, moderate leaf litter. CC1 is noted to be an estuarine environment and as such there is not a trigger value for electrical conductivity. Exceedance of ANZECC Guideline Trigger Value for pH noted; location is upstream and not affected by Parramatta Connect works.
CC2	Clay Cliff Creek	Downstream	Wet	14/01/2021	13:40	8.13	21600	0	Sunny weather, large amount of rubbish, clear water, minimal leaf litter. Multiple shopping trolleys present in water body. CC2 is noted to be an estuarine environment and as such there is not a trigger value for electrical conductivity.
VY2	Vineyard Creek	Downstream	Wet	14/01/2021	14:25	7.82	577	6.3	Sunny weather, no rubbish, clear water, minimal leaf litter.
VY1	Vineyard Creek	Upstream	Wet	14/01/2021	14:28	7.83	537	5.4	Sunny weather, no rubbish, clear water, substantial leaf litter. Water level for this site was extremely low.
PR6	Parramatta River	Downstream	Wet	14/01/2021	14:46	7.94	32400	1.9	Sunny weather, minimal rubbish, water was clear, minimal leaf litter. PR6 is noted to be an estuarine environment and as such there is not a trigger value for electrical conductivity.
SC1	Subiaco Creek	N/A	Wet	14/01/2021	15:02	7.49	26400	0	Sunny weather, no rubbish, clear water, minimal leaf litter. SC1 is noted to be an estuarine environment and as such there is not a trigger value for electrical conductivity.
AC1	A'becketts Creek	Upstream	Wet	14/01/2021	15:20	7.89	20200	7.6	Sunny weather, moderate amount of rubbish, water was slightly turbid, moderate amount of leaf litter. 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	Wet	14/01/2021	15:29	8.48	10700	3.7	Sunny weather, large amount of rubbish, clear water, moderate amount of leaf litter. AC2 is noted to be an estuarine environment and as such there is not a trigger value for electrical conductivity.

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

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
A1.42	Basins and settling containers	Stormwater inlet	13/01/2021	DW-A1-024	Not visible	7	0	Discharge from Sydney Water main
A1.42	Basins and settling containers	Stormwater inlet	14/01/2021	DW-A1-025	Not visible	8.48	10	Discharge from Sydney Water main
A1.10	Basins and settling containers	Stormwater inlet	14/01/2021	DW-A1-026	Not visible	8.48	10	Discharge from Sydney Water main
A3.3	Basins and settling containers	Stormwater inlet	5/01/2021	DW-A3-023	Not visible	8.09	41	Discharge from Sydney Water main
A3.3	Basins and settling containers	Stormwater inlet	8/01/2021	DW-A3-024	Not visible	7.5	25.9	Discharge from Sydney Water main
A3.3	Basins and settling containers	Stormwater inlet	12/01/2021	DW-A3-025	Not visible	6.71	45.3	Discharge from Sydney Water main



A3.3	Basins and settling containers	Stormwater inlet	14/01/2021	DW-A3-026	Not visible	7.35	45.2	Discharge from Sydney Water main
A3.3	Basins and settling containers	Stormwater inlet	20/01/2021	DW-A3-027	Not visible	6.62	32.5	Discharge from Sydney Water main



A-4 Air Quality Monitoring Results

Table A-4-1 Summary of Dust Deposition Data

Date	Monitoring Location	Ash Content g/m ² /month
December	13a Grand Avenue	0.2
December	Rydalmere Station	3.7
December	Dundas Station	0.8
December	Telopea	1.7
December	Carlingford	0.1

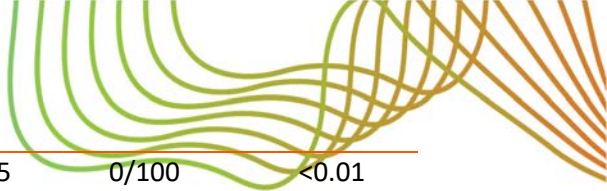


Table A-4-2 Summary of Asbestos Fibre Monitoring

Report Number	Date	Location	Start time	End time	Result (Fibres/Fields)	Result (Fibres/mL)
AMR132	4-Jan	RETAINING WALL 1 AREA, EASTERN BOUNDARY APPROXIMATELY 30M SOUTH OF MIDDLE GATE	8:30	15:09	0/100	< 0.01
AMR132	4-Jan	RETAINING WALL 1 AREA, EASTERN BOUNDARY APPROXIMATELY 60M SOUTH OF MIDDLE GATE	8:31	15:10	0/100	< 0.01
AMR132	4-Jan	RETAINING WALL 1 AREA, EASTERN BOUNDARY APPROXIMATELY 90M SOUTH OF MIDDLE GATE	8:32	15:11	0/100	< 0.01
AMR132	4-Jan	SOUTHERN END OF CAMELLIA ALIGNMENT, EASTERN CORNER	10:26	15:12	0/100	< 0.01
AMR132	4-Jan	SOUTHERN END OF CAMELLIA ALIGNMENT, WESTERN CORNER	10:27	15:13	1/100	< 0.01
AMR132	4-Jan	RETAINING WALL 1 AREA, WESTERN BOUNDARY AT SOUTHERN GATE	10:28	15:14	0/100	< 0.01
AMR133	4-Jan	CHURCH ST/VICTORIA RD INTERSECTION, SOUTH OF INTERSECTION, NORTHERN BOUNDARY	7:35	15:45	0/100	< 0.01
AMR133	4-Jan	EASTERN BOUNDARY	7:40	15:46	1/100	< 0.01
AMR133	4-Jan	SOUTHERN BOUNDARY	7:45	15:47	0/100	< 0.01
AMR133	4-Jan	WESTERN BOUNDARY	7:50	15:48	0/100	< 0.01
AMR134	5-Jan	RETAINING WALL 1, EASTERN BOUNDARY, SOUTHERN END OF RETAINING WALL	7:07	15:07	0/100	<0.01
AMR134	5-Jan	SOUTHERN END OF CAMELLIA ALIGNMENT, SOUTHEAST CORNER OF AREA	7:08	15:08	0/100	<0.01
AMR134	5-Jan	SOUTHERN END OF CAMELLIA ALIGNMENT, SOUTHWEST CORNER OF AREA	7:09	15:09	0/100	<0.01
AMR134	5-Jan	RETAINING WALL 1, WESTERN BOUNDARY OF SOUTHERN GATE	7:10	15:10	0/100	<0.01
AMR134	5-Jan	STOCKPILE AREA, EASTERN GATE	8:50	15:11	1/100	<0.01
AMR134	5-Jan	STOCKPILE AREA, WESTERN GATE	8:51	15:12	0/100	<0.01
AMR134	5-Jan	RETAINING WALL 1, NORTHERN GATE, EASTERN BOUNDARY	9:06	15:02	0/100	<0.01
AMR134	5-Jan	RETAINING WALL 1, NORTHERN GATE, WESTERN BOUNDARY	9:07	14:58	0/100	<0.01

AMR134	5-Jan	RETAINING WALL 1, APPROXIMATELY 50M SOUTH OF NORTHERN GATE, EASTERN BOUNDARY	9:08	14:59	2/100	<0.01
AMR134	5-Jan	RETAINING WALL 1, MIDDLE GATE, EASTERN BOUNDARY	9:09	15:00	2/100	<0.01
AMR135	5-Jan	CORNER OF FENNEL, CHURCH ST AT SOUTHERN END OF WORK AREA	8:21	15:26	0/100	<0.01
AMR135	5-Jan	CHURCH ST, EASTERN BOUNDARY, APPROXIMATELY 30M, NORTH OF FENNEL ST	8:22	15:27	1/100	<0.01
AMR135	5-Jan	CHURCH ST, EASTERN BOUNDARY, APPROXIMATELY 60M, NORTH OF FENNEL ST	8:23	15:28	0/100	<0.01
AMR135	5-Jan	CHURCH ST, EASTERN BOUNDARY, APPROXIMATELY 90M, NORTH OF FENNEL ST	8:24	15:29	0/100	<0.01
AMR136	6-Jan	RETAINING WALL 1, EASTERN BOUNDARY, MIDDLE GATE	7:29	14:49	1/100	<0.01
AMR136	6-Jan	RETAINING WALL 1, EASTERN BOUNDARY, APPROXIMATELY 70M NORTH OF MIDDLE GATE	7:30	14:50	0/100	<0.01
AMR136	6-Jan	RETAINING WALL 1, EASTERN BOUNDARY, NORTHERN GATE	7:31	14:51	0/100	<0.01
AMR136	6-Jan	RETAINING WALL 1, WESTERN BOUNDARY, NORTHERN GATE	7:32	14:52	0/100	<0.01
AMR136	6-Jan	STOCKPILE AREA, EASTERN GATE	7:47	14:57	0/100	<0.01
AMR136	6-Jan	STOCKPILE AREA, WESTERN GATE	7:48	14:58	0.5/100	<0.01
AMR137	7-Jan	RETAINING WALL 1, EASTERN BOUNDARY, MIDDLE GATE	7:08	15:28	0/100	<0.01
AMR137	7-Jan	RETAINING WALL 1, EASTERN BOUNDARY, 40M NORTH OF MIDDLE GATE	7:09	15:28	0/100	<0.01
AMR137	7-Jan	RETAINING WALL 1, EASTERN BOUNDARY, NORTHERN GATE	7:10	15:27	0/100	<0.01
AMR137	7-Jan	RETAINING WALL 1, WESTERN BOUNDARY, NORTHERN GATE	7:11	15:26	0/100	<0.01
AMR137	7-Jan	STOCKPILE AREA, EASTERN GATE	7:05	15:22	0/100	<0.01
AMR137	7-Jan	STOCKPILE AREA, WESTERN GATE	7:04	15:21	0/100	<0.01
AMR138	8-Jan	AREA 3 - GRAND AVE STOCKPILE AREA ENTRY GATE	7:18	16:04	0/100	<0.01
AMR138	8-Jan	AREA 3 - GRAND AVE STOCKPILE AREA NORTH FENCE	7:20	16:02	0/100	<0.01
AMR138	8-Jan	AREA 3 - RETAINING WALL 1, SE	7:30	15:45	0/100	<0.01
AMR138	8-Jan	AREA 3 - RETAINING WALL 1, MIDDLE GATE	7:32	15:47	0/100	<0.01
AMR138	8-Jan	AREA 3 - RETAINING WALL 1, NW	7:36	15:32	0/100	<0.01

AMR138	8-Jan	AREA 3 - RETAINING WALL 1, NORTH EXTENT	7:38	15:34	0/100	<0.01
AMR139	11-Jan	STOCKPILE AREA, EASTERN GATE	7:31	16:01	0/100	<0.01
AMR139	11-Jan	DRIVEWAY (S)	7:32	16:02	0/100	<0.01
AMR139	11-Jan	RETAINING WALL 1, EASTERN BOUNDARY AT MIDDLE GATE	7:34	15:58	0/100	<0.01
AMR139	11-Jan	RETAINING WALL 1, EASTERN BOUNDARY APPROXIMATELY 40M NORTH OF MIDDLE GATE	7:35	15:57	0/100	<0.01
AMR139	11-Jan	RETAINING WALL 1, EASTERN BOUNDARY AT NORTHERN GATE	7:37	15:56	0/100	<0.01
AMR139	11-Jan	RETAINING WALL 1, WESTERN BOUNDARY AT NORTHERN GATE	7:34	15:55	0/100	<0.01
AMR140	11-Jan	STOCKPILE AREA, EASTERN GATE	7:09	16:02	0/100	<0.01
AMR140	11-Jan	EXCAVATOR CAB, IN STOCKPILE AREA	7:10	16:01	8/100	<0.01
AMR140	11-Jan	STOCKPILE AREA, WESTERN GATE	7:11	16:00	0/100	<0.01
AMR140	11-Jan	RETAINING WALL 1 FILL AREA, EASTERN BOUNDARY, MIDDLE GATE	7:12	15:59	0/100	<0.01
AMR140	11-Jan	RETAINING WALL 1 FILL AREA, EASTERN BOUNDARY, 40M NORTH OF MIDDLE GATE	7:13	15:58	0/100	<0.01
AMR140	11-Jan	RETAINING WALL 1 FILL AREA, EASTERN BOUNDARY, NORTHERN GATE	7:14	15:57	0/100	<0.01
AMR141	11-Jan	CHURCH ST, APPROXIMATELY 10M NORTH OF FENNELL ST	8:26	15:42	0/100	<0.01
AMR141	11-Jan	CHURCH ST, APPROXIMATELY 30M NORTH OF FENNELL ST	8:27	15:43	0/100	<0.01
AMR141	11-Jan	CHURCH ST, APPROXIMATELY 60M NORTH OF FENNELL ST	8:28	15:44	0/100	<0.01
AMR141	11-Jan	CHURCH ST, APPROXIMATELY 90M NORTH OF FENNELL ST	8:29	-	VOID	VOID
AMR142	12-Jan	CHURCH ST AT FENNELL ST	11:56	15:36	0/100	<0.01
AMR142	12-Jan	CHURCH ST APPROXIMATELY 20M NORTH OF FENNELL ST	11:57	15:37	0/100	<0.01
AMR142	12-Jan	CHURCH ST APPROXIMATELY 60M NORTH OF FENNELL ST	11:58	15:38	0/100	<0.01
AMR142	12-Jan	CHURCH ST APPROXIMATELY 90M NORTH OF FENNELL ST	11:59	15:39	0/100	<0.01
AMR143	13-Jan	STOCKPILE AREA, EASTERN GATE	7:21	16:10	0/100	<0.01
AMR143	13-Jan	STOCKPILE AREA, WESTERN GATE	7:22	16:09	0/100	<0.01
AMR143	13-Jan	RETAINING WALL 1, EASTERN BOUNDARY, AT MIDDLE GATE	7:23	16:08	0/100	<0.01
AMR143	13-Jan	RETAINING WALL 1, EASTERN BOUNDARY, APPROXIMATELY 40M, NORTH OF MIDDLE GATE	7:24	16:07	0/100	<0.01
AMR143	13-Jan	RETAINING WALL 1, EASTERN BOUNDARY, AT NORTHERN GATE	7:25	16:06	0/100	<0.01
AMR143	13-Jan	RETAINING WALL 1, WESTERN BOUNDARY, AT NORTHERN GATE	7:26	16:05	0/100	<0.01



AMR144	13-Jan	CHURCH ST AND FENNEL ST INTERSECTION	6:22	15:45	0/100	<0.01
AMR144	13-Jan	CHURCH ST, APPROXIMATELY 30M NORTH OF FENNEL ST	6:21	15:44	0/100	<0.01
AMR144	13-Jan	CHURCH ST, APPROXIMATELY 60M NORTH OF FENNEL ST	6:20	15:43	0/100	<0.01
AMR144	13-Jan	CHURCH ST, APPROXIMATELY 90M NORTH OF FENNEL ST	6:19	15:42	0/100	<0.01
AMR145	14-Jan	STOCKPILE AREA, EASTERN GATE	7:26	15:48	0/100	<0.01
AMR145	14-Jan	STOCKPILE AREA, WESTERN GATE	7:27	15:49	0/100	<0.01
AMR145	14-Jan	RETAINING WALL 1, EASTERN BOUNDARY APPROX 60M SOUTH OF MIDDLE GATE	7:28	15:50	0/100	<0.01
AMR145	14-Jan	RETAINING WALL 1, EASTERN BOUNDARY APPROX 20M SOUTH OF MIDDLE GATE	7:29	15:51	0/100	<0.01
AMR145	14-Jan	CEMENT PLANT BOUNDARY FENCE APPROX 60M SOUTH OF MIDDLE GATE	7:30	15:52	0/100	<0.01
AMR145	14-Jan	CEMENT PLANT BOUNDARY FENCE APPROX 40M SOUTH OF MIDDLE GATE	7:31	15:53	0/100	<0.01
AMR145	14-Jan	OPPOSITE MIDDLE GATE ON ADJACENT PROPERTY WALL	7:32	15:54	0/100	<0.01
AMR145	14-Jan	APPROX 20M NORTH OF MIDDLE GATE AT ADJACENT PROPERTY BOUNDARY	7:33	15:55	0/100	<0.01
AMR145	14-Jan	RETAINING WALL 1, EASTERN BOUNDARY APPROX 10M NORTH OF MIDDLE GATE	7:34	15:56	0/100	<0.01
AMR145	14-Jan	RETAINING WALL 1, EASTERN BOUNDARY APPROX 40M NORTH OF MIDDLE GATE	7:35	15:57	0/100	<0.01
AMR146	14-Jan	CHURCH ST AND FENNEL ST	6:16	15:36	0/100	<0.01
AMR146	14-Jan	CHURCH ST APPROX 30M NORTH OF FENNEL ST	6:17	15:37	0/100	<0.01
AMR146	14-Jan	CHURCH ST APPROX 60M NORTH OF FENNEL ST	6:18	15:38	0/100	<0.01
AMR146	14-Jan	CHURCH ST APPROX 90M NORTH OF FENNEL ST	6:19	15:19	0/100	<0.01

AMR147	15-Jan	CHURCH ST AND FENNEL ST	6:22	15:18	0/100	<0.01
AMR147	15-Jan	CHURCH ST APPROXIMATELY 30M NORTH OF FENNEL ST	6:23	15:19	1/100	<0.01
AMR147	15-Jan	CHURCH ST APPROXIMATELY 60M NORTH OF FENNEL ST	6:24	15:20	1/100	<0.01
AMR147	15-Jan	CHURCH ST APPROXIMATELY 90M NORTH OF FENNEL ST	6:25	15:21	0/100	<0.01
AMR148	18-Jan	STOCKPILE AREA, EASTERN GATE	7:11	15:30	0/100	<0.01
AMR148	18-Jan	STOCKPILE AREA, WESTERN GATE	7:12	15:29	0/100	<0.01
AMR148	18-Jan	RETAINING WALL 1, EASTERN BOUNDARY NORTHERN GATE	7:15	15:28	0/100	<0.01
AMR148	18-Jan	RETAINING WALL 1, WESTERN BOUNDARY, NORTHERN GATE	7:16	15:27	0/100	<0.01
AMR148	18-Jan	RETAINING WALL 1, EASTERN BOUNDARY, APPROX 30M SOUTH OF NORTHERN GATE	7:17	15:26	0/100	<0.01
AMR149	18-Jan	CHURCH AND FENNEL ST, NE CORNER	7:34	15:56	0/100	<0.01
AMR149	18-Jan	CHURCH AND FENNEL ST, SE CORNER	7:35	15:55	0/100	<0.01
AMR149	18-Jan	CHURCH AND FENNEL ST, SW CORNER	7:36	15:54	0/100	<0.01
AMR149	18-Jan	CHURCH AND FENNEL ST, NW CORNER	7:37	15:53	0/100	<0.01
AMR150	19-Jan	CHURCH AND FENNEL ST, NW CORNER	7:12	17:16	0/100	<0.01
AMR150	19-Jan	CHURCH AND FENNEL ST, NE CORNER	7:13	17:17	0/100	<0.01
AMR150	19-Jan	CHURCH AND FENNEL ST, SE CORNER	7:14	17:18	0/100	<0.01
AMR150	19-Jan	CHURCH AND FENNEL ST, SW CORNER	7:15	17:19	0/100	<0.01
AMR151	20-Jan	RETAINING WALL 1, EASTERN BOUNDARY, AT OF NORTHERN GATE	7:38	16:06	0/100	<0.01
AMR151	20-Jan	RETAINING WALL 1, WESTERN BOUNDARY, OPPOSITE NORTHERN GATE	7:39	16:07	0/100	<0.01
AMR151	20-Jan	RETAINING WALL 1, EASTERN BOUNDARY, APPROX. 50M SOUTH OF NORTHERN GATE	7:40	16:08	0/100	<0.01
AMR151	20-Jan	RETAINING WALL 1, WESTERN BOUNDARY, APPROX. 50M OF NORTHERN GATE	7:41	16:09	0/100	<0.01
AMR151	20-Jan	SOUTH OF RETAINING WALL 1 AREA, EASTERN BOUNDARY, OPPOSITE SOUTHERN GATE	7:42	16:10	0/100	<0.01
AMR151	20-Jan	SOUTH OF RETAINING WALL 1 AREA, SOUTH EAST CORNER	7:43	16:11	0/100	<0.01

AMR151	20-Jan	SOUTH OF RETAINING WALL 1 AREA, SOUTH WEST CORNER	7:44	16:12	0/100	<0.01
AMR151	20-Jan	SOUTH OF RETAINING WALL 1 AREA, AT SOUTHERN GATE	7:45	16:13	0/100	<0.01
AMR152	20-Jan	CHURCH & FENNELL ST, NW CORNER	7:07	15:31	0/100	<0.01
AMR152	20-Jan	CHURCH & FENNELL ST, NE CORNER	7:08	15:32	0/100	<0.01
AMR152	20-Jan	CHURCH & FENNELL ST, SE CORNER	7:09	15:33	0/100	<0.01
AMR152	20-Jan	CHURCH & FENNELL ST, SW CORNER	7:10	15:34	0/100	<0.01
AMR153	21-Jan	SOUTH OF RETAINING WALL 1, WESTERN BOUNDARY AT SOUTHERN GATE	7:18	16:17	0/100	<0.01
AMR153	21-Jan	SOUTH OF RETAINING WALL 1, SOUTHERN BOUNDARY	7:19	16:16	0/100	<0.01
AMR153	21-Jan	SOUTH OF RETAINING WALL 1, EASTERN BOUNDARY APPROX 30M NORTH OF MIDDLE GATE	7:20	16:15	0/100	<0.01
AMR153	21-Jan	SOUTH OF RETAINING WALL 1, EASTERN BOUNDARY APPROX 20M NORTH OF MIDDLE GATE	7:23	16:10	0/100	<0.01
AMR153	21-Jan	RETAINING WALL 1, WESTERN BOUNDARY APPROX 50M NORTH OF MIDDLE GATE	7:24	16:11	0/100	<0.01
AMR153	21-Jan	RETAINING WALL 1M EASTERN BOUNDARY AT NORTHERN GATE	7:25	16:12	0/100	<0.01
AMR154	21-Jan	HAROLD ST NR CHURCH ST, SW CORNER	8:24	15:31	0/100	<0.01
AMR154	21-Jan	HAROLD ST NR CHURCH ST, NW CORNER	8:25	15:32	0/100	<0.01
AMR154	21-Jan	CHURCH ST APPROX 10M NORTH OF HAROLD ST, WESTERN BOUNDARY	8:26	15:33	0/100	<0.01
AMR155	22-Jan	SOUTH OF RETAINING WALL 1, SOUTHERN GATE WESTERN BOUNDARY	7:12	16:15	0/100	<0.01
AMR155	22-Jan	SOUTH OF RETAINING WALL 1, SOUTHERN BOUNDARY	7:13	16:16	0/100	<0.01
AMR155	22-Jan	SOUTH OF RETAINING WALL 1 EASTERN BOUNDARY	7:14	16:17	0/100	<0.01
AMR155	22-Jan	RETAINING WALL 1, EASTERN BOUNDARY AT MIDDLE GATE	7:08	16:20	0/100	<0.01
AMR155	22-Jan	RETAINING WALL 1, EASTERN BOUNDARY APPROX 50M NORTH OF MIDDLE GATE	7:09	16:21	0/100	<0.01
AMR155	22-Jan	RETAINING WALL 1, EASTERN BOUNDARY, NORTHERN GATE	7:10	16:22	0/100	<0.01
AMR155	22-Jan	STOCKPILE AREA, EASTERN GATE	7:17	16:23	0/100	<0.01