



**EPL 21347 POLLUTION
MONITORING REPORT,
AUGUST 2020**

PARRAMATTA LIGHT RAIL

Parramatta
Connect

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1. Introduction

1.1. Background

Parramatta Light Rail is one of the NSW Government's major infrastructure projects being delivered to serve a growing Sydney.

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.

In summary, the 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.

An overview of Parramatta Light Rail Stage 1 route is shown in Figure 1-1.

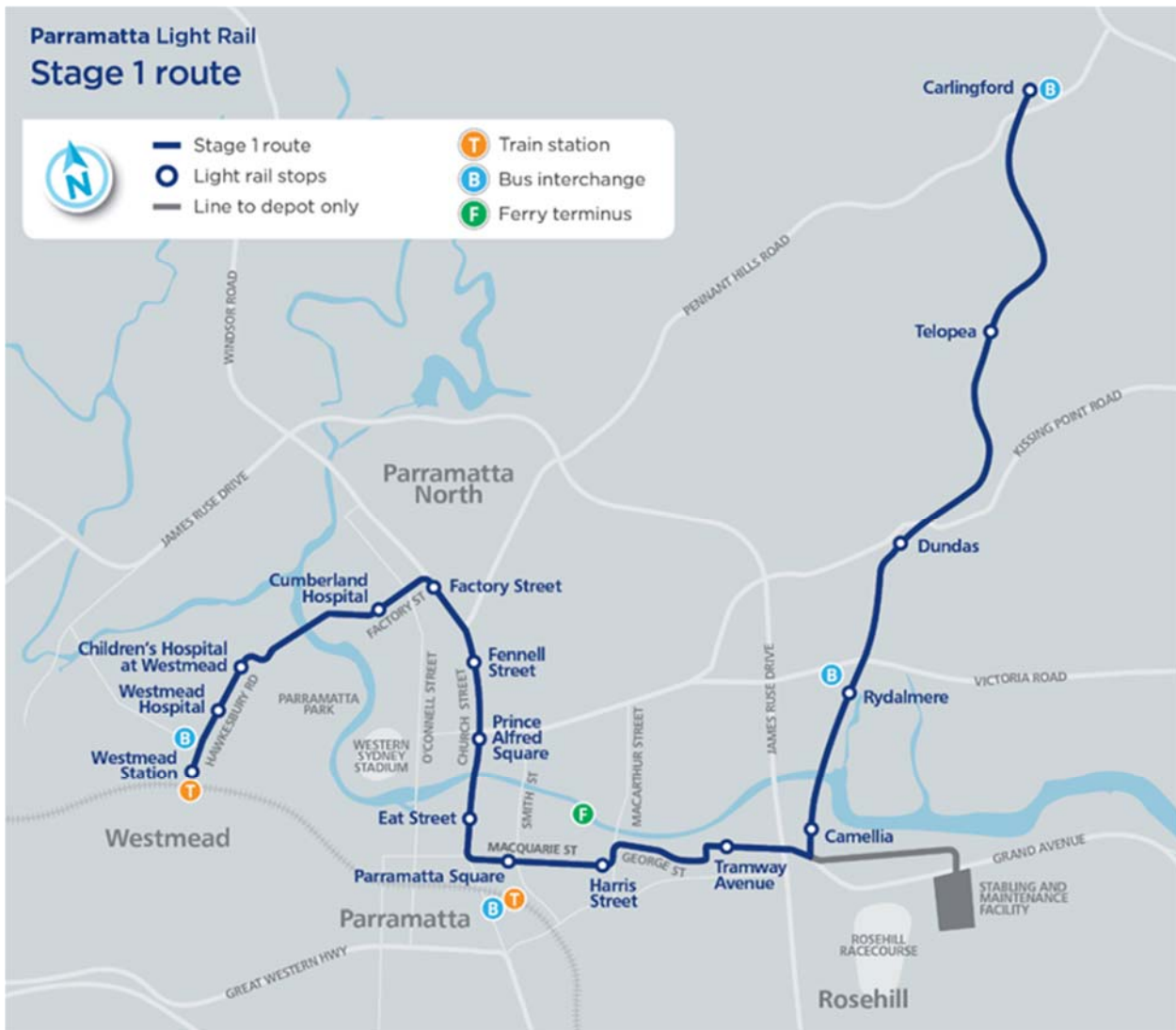


Figure 1-1 Parramatta Light Rail Stage 1 Route

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



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.

1.2.3 Stage 1 Delivery Strategy

Delivery of Stage 1 is achieved through the following five packages of work:

- **Enabling Works** (Package 1) – Local road network improvements including O’Connell Street and George Street (off-alignment)
- **Westmead Precinct Works** (Package 2) – Hawkesbury Road widening and demolition at Cumberland Hospital (east and west Campus)
- **Early Works** (Package 3) – Remediation of the Stabling and Maintenance (SaM) Facility
- **Infrastructure Works (Package 4) (the subject of this Report)** – Design and construction of civil works, public domain and light rail infrastructure up to road level/top of rail and to the top of the concrete slab at stops, including provision of utility services (excluding high-voltage power supply and cabling for rail systems), and decommissioning of the T6 Carlingford Line)
- **Supply, Operate and Maintain Works** (Package 5) – Design and construction of the light rail systems, high-voltage power supply and stops above slab level, the supply of light rail vehicles, and the design and construction of the SaM Facility, including all light rail operations, customer service and asset management.

Each package of work is to be delivered under separate contracts on behalf of the proponent Transport for NSW (TfNSW). While the packages will commence at different times under separate construction approvals, there will be periods during which the package works will overlap. The interactions between the packages are shown in **Figure 1-2**.

Parramatta Connect (the CPB Contractors and Downer EDI Works Joint Venture) has been engaged to deliver the Infrastructure Works. For construction, the Infrastructure Works are divided into portions and sub-portions, each of which is described in Table 1-1 together with significant environmental issues. The portions, light rail stops and precincts are depicted in **Figure 1-3**.

- Stage 1 route of Parramatta Light Rail
- ▬ Enabling Works
- ▬ Westmead Precinct Works
- ▬ Early Works
- ▬ Infrastructure Works
- ▬ Supply, Operate and Maintain Works

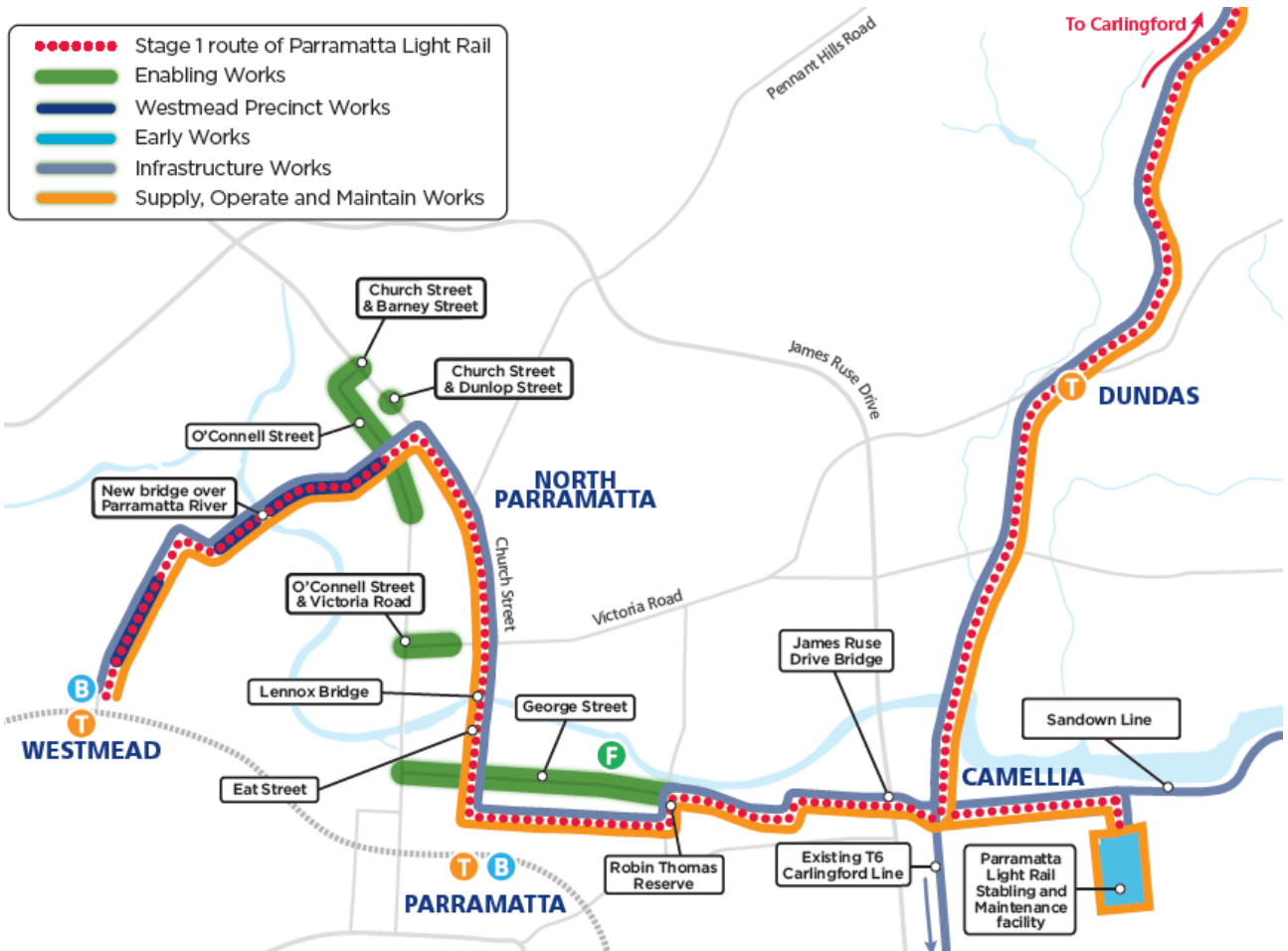


Figure 1-2 Parramatta Light Rail Stage 1 Delivery Strategy

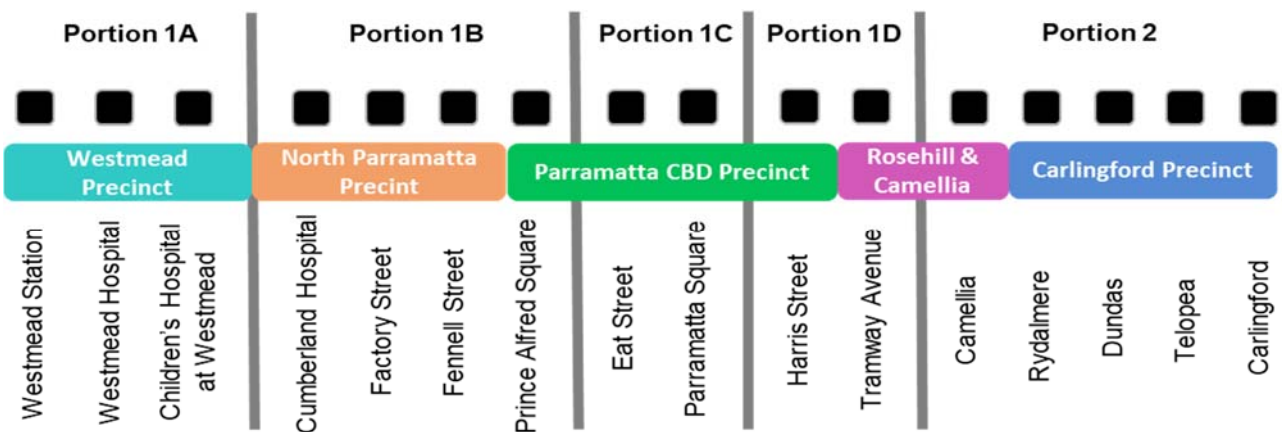


Figure 1-3 Infrastructure Works Portions, Precincts and Stations



1.2. Scope of this report

CPB Contractors Pty Limited have been issued an Environmental Protection Licence (EPL No. 21347) from the NSW Environment Protection Authority (EPA) for the Parramatta Light Rail Package 4 - Infrastructure Works on behalf of Parramatta Connect.

The EPL applies to the works approved under the Infrastructure Approval SSI-8285 associated with the delivery of Parramatta Light Rail Stage 1 Infrastructure Works (Package 4) under the operational control of Parramatta Connect. The EPL does not apply to other Parramatta Light Rail Stage 1 works packages.

This EPL Pollution Monitoring Report provides the results of all pollution monitoring required to be measured or monitored by the licensee of EPL 21347 as required by Section 66 of the *Protection of the Environment Operations Act 1997 (POEO Act)* and with reference to EPA Publication *Requirements for publishing pollution monitoring data* (Environment Protection Authority, 2013).

Table 1-1 provides a summary of the EPL 21347 details.

Table 1-1 Licence details

Licence Details	
Number:	21347
Copy of License	https://apps.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=177484&SYSUID=1&LICID=21347
Anniversary Date	03-January
Licensee	CPB Contractors Pty Limited
Premises	Parramatta Light Rail Stage 1 – Westmead to Carlingford, Package 4 Parramatta NSW 2123
Scheduled Activity	Railway activities - railway infrastructure construction



2. Reporting Requirements

Under the *POEO Act*, holders of environment protection licences (licensees) must publish or make pollution monitoring data available to members of the public.

The *POEO Act* Section 66 requires

“66 Conditions requiring monitoring, certification or provision of information, and related offences

(1) **Monitoring** The conditions of a licence may require—

- (a) monitoring by the holder of the licence of the activity or work authorised, required or controlled by the licence, including with respect to—
 - (i) the operation or maintenance of premises or plant, and
 - (ii) discharges from premises, and
 - (iii) relevant ambient conditions prevailing on or outside premises,and
 - (iv) anything required by the conditions of the licence, and
- (b) the provision and maintenance of appropriate measuring and recording devices for the purposes of that monitoring, and
- (c) the analysis, reporting and retention of monitoring data.

(2) **False or misleading information** A holder of a licence who supplies information, or on whose behalf information is supplied, to the appropriate regulatory authority under the conditions of the licence is guilty of an offence if the information is false or misleading in a material respect.”

The primary objective of the pollution monitoring reporting requirements is that members of the public have access to the results of all pollution monitoring (which a licence specifies must be carried out) in a way that is meaningful to them. Data for the Parramatta Light Rail Infrastructure Works is presented on a monthly sampling period.

The monitoring data that must be published and/or made available on request is any data that is obtained as a result of a monitoring condition on a licence that relates to air, water (surface or groundwater), noise and/or land pollution. The data to be published or provided is limited to data that relates to pollutants generated, discharged or emitted from the licensed premises.

The data is provided in tabular format that is easy for the general public to understand. Tables definitively display raw data values, while graphs and charts are useful for overviews and visualisation of long-term trends. Raw data will be provided upon request.

An upfront note will be included on the licensee’s website or in this report to explain why any data may appear to be missing because there is no discharge or the level of pollutant being below the detection level of the measurement instrument.

It is possible from time to time that incorrect data may be published in good faith. As soon as practicable after the licensee becomes aware that the published pollution monitoring data is incorrect or misleading, licensees must then publish a correction log to correct this data that is incorrect or misleading (refer to **Section 4**).



Table 2-1 provides a summary of the pollution monitoring requirements of EPL 21347.

Table 2-1 EPL 21347 Pollution Monitoring Requirements

EPL Condition	Requirement	Report Reference
M1.1	Monitor and record hourly temperature, humidity, wind velocity and rainfall	Section 3.1 Appendix A-1
L4.8	Monitoring to validate the noise predictions for works undertaken outside of the standard construction hours as per the construction noise impact assessment	Section 3.2 Appendix A-2
M4.2	Noise monitoring of noise and vibration complaints	Section 3.2 Appendix A-2
M3.3	Noise and vibration monitoring as directed by an authorised officer of the EPA	Section 3.2 Appendix A-2
P1	Discharge of pollutants to water from nominated discharge points	Section 3.3 Appendix A-3
L2.4	Discharge from sediment basins solely as a result of rainfall measured as a result of rainfall exceeding the rainfall depth value	Section 3.3 Appendix A-3

3. Monitoring

Section 3 present a summary of the monitoring programs completed in the reporting period from 26 July 2020 to 25 August 2020.

Detailed monitoring results for each program are presented in the Appendices.

3.1. Meteorological Data

The total rainfall during the reporting period was 186.8 mm with 9 days with >1mm of rain with two days exceeding the 80th percentile (25.8mm) and one day exceeding the 85th percentile (33.1mm).

During the reporting period, there were 19 days where the maximum wind gust recorded was greater than 25km/hr and seven days where the maximum wind gust recorded was greater than 50km/hr. There was a total of 26 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 3-2**. A comparison between long term monthly means and recorded values can be found in **Figure 3-2**.

Detailed weather observation records for August 2020 are presented in **Appendix A-1**.

Table 3-1 Weather Summary and Trigger Weather Events for August 2020

Weather event	Forecast	Observation
Minimum temperature	3°C	3.2°C
Maximum temperature	23°C	22.4°C
Total rainfall	201.6mm	186.8mm
Number of days with rain (>1mm)	7 days	9 days
>80 th percentile (25.8mm) rain events	0	2 events
>85 th percentile (33.1mm) rain events	2	1 event
Flood warning / events	0	0 events
>25km/hr wind ²	4 days	19 days
>50km/hr wind	3 days	7 days

1. Weather summary based on data from the 26th of July to 25th August (31 days).

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

Note: Red text in Observation column indicates observation greater than forecast.

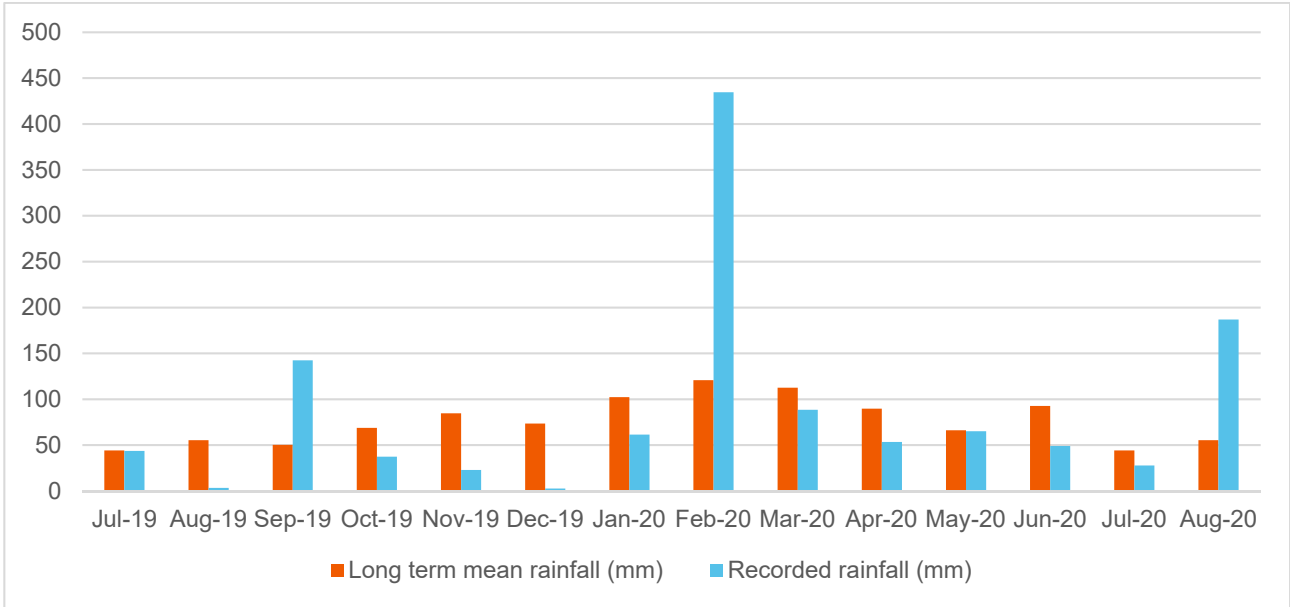


Figure 3-1 Monthly rainfall comparison

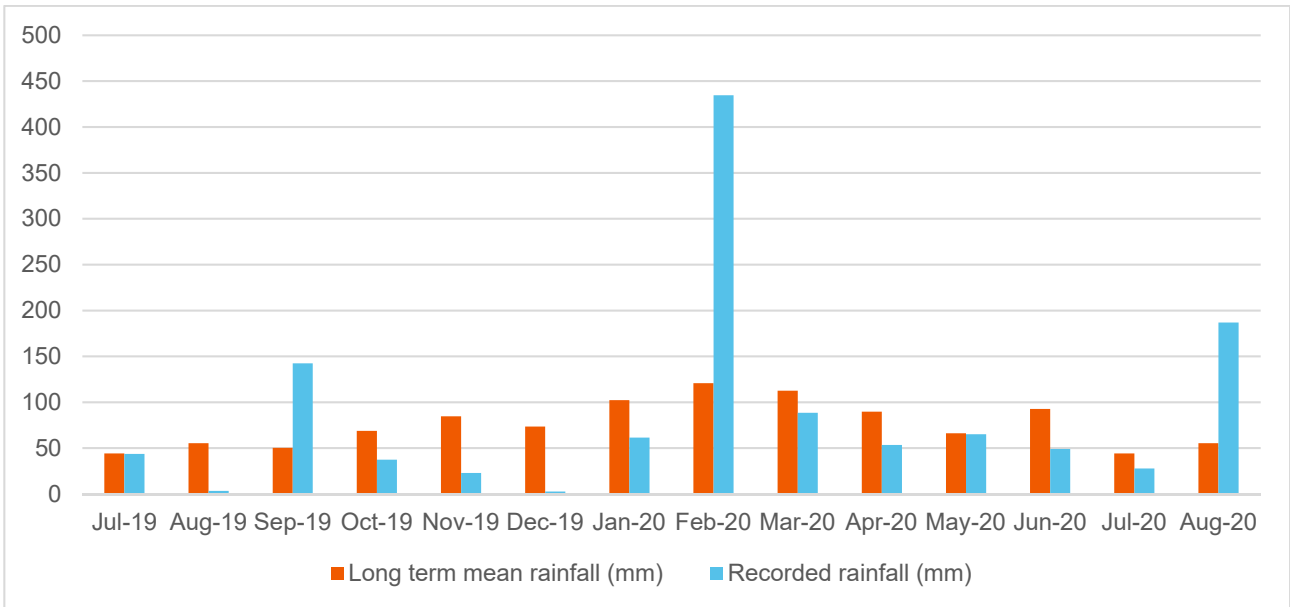


Figure 3-2 Monthly rain days comparison



3.2. Noise and Vibration

Noise monitoring is a requirement of the following conditions of EPL 21347:

- L4.8 Monitoring to validate the noise predictions for works undertaken outside of the standard construction hours as per the construction noise impact assessment
- M4.2 Noise monitoring following noise and vibration complaints
- M3.3 Noise and vibration monitoring as directed by an authorised officer of the EPA.

Table 3-3 provides a summary of noise monitoring events completed during the reporting period. Detailed noise monitoring results and comments are presented in **Appendix A-2**.

Continue 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 twelve months. Locations of the noise and vibration monitors are provided in **Table 3-4**.

Table 3-2 Summary of noise monitoring August 2020

Date	Monitoring Location	Description
31/07/2020	200 George St	Site set up
31/07/2020	1 Noller Parade	Site set up
31/07/2020	200 George St	Site set up
31/07/2020	1 Noller Parade	Site set up
31/07/2020	1 Noller Parade/ 200 George St	Site set up
4/08/2020	244 Church St	Saw cutting
4/08/2020	286 Church St	Saw cutting
4/08/2020	281 Church St	Saw cutting
5/08/2020	325-327 Church St	Jackhammering
5/08/2020	330 Church St	Jackhammering
11/08/2020	263 Church St	Jackhammering
12/08/2020	318 Church St	Vac + pilling
12/08/2020	318 Church St	Pilling, vac truck + pilling
12/08/2020	318 Church St	Pilling
13/08/2020	295 Church St	Concrete pour
13/08/2020	295 Church St	Concrete pour + vac truck



Date	Monitoring Location	Description
17/08/2020	1/459 Church St	Jackhammering
20/08/2020	219-221 Church St	Jackhammering
20/08/2020	224 Church St	Jackhammering
20/08/2020	Westmead Institute for Medical Research (Sleep Lab)	Continuous monitoring
20/08/2020	Westmead Institute for Medical Research (Brain Dynamics Centre)	Continuous monitoring
26/06/2020	Children's Medical Research Institute (Microscopy Labs)	Continuous monitoring
26/06/2020	Cumberland Hospital (Clinical psychology rooms)	Continuous monitoring

Table 3-4 HAC Noise Monitor Locations

Monitor Type	Organisation	Location
Westmead Institute for Medical Reach Noise Monitor		Sleep Lab
		Brain Dynamics Centre
Children's Medical Research Institute Noise Monitor		Labs (Level 1)
Cumberland Hospital	Noise Monitor	Clinical psychology rooms

3.3. Discharge to water

The EPL discharge criteria apply to the sediment basins and settling containers identified and located in the document titled "Parramatta Light Rail Package 4 Discharge Point Register" and maintained on electronic file EF19/29672. The active basins and discharge points during the reporting period are summarised in **Table A-3-1**.

Table A-3-2 provides a summary of the discharges by Parramatta Connect at the current active monitoring/discharge point or utilisation area that complied with condition L2.1. There was one discharge from a location point during the reporting period.

Table A-3-3 provides a summary of discharge events that occurred solely as a result of rainfall measured at the premises exceeding the design rainfall depth value for the corresponding discharge point. There were no discharge events as a result of rainfall exceeding the designed water depth value during the reporting period.



4. Correction log

It is possible from time to time that incorrect data be get published in good faith.

As soon as practicable after the licensee becomes aware that the published pollution monitoring data is incorrect or misleading, licensees must then publish a correction log to correct this data that is incorrect or misleading.

There are no matters included in the correction log for this reporting period.



Appendices

A-1 Weather Observations

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

Date	Temps		Rain	Temp	RH	9:00 AM		
	Min	Max				Cld	Dir	Spd
	°C	°C	mm	%	8th			
26/07/2020	9	15.5	5.6	13	99	8	SW	2
27/07/2020	11.8	16.3	97	15.3	97	8	SSW	19
28/07/2020	12	18.3	18	14.8	97	7	SW	6
29/07/2020	7.6	20	0	14	78	2	SW	2
30/07/2020	4.6	18.4	0	11.6	88			
31/07/2020	6	17.7	0	12	71	0	WSW	4
1/08/2020	4	20	0	10.8	86	0	NW	2
2/08/2020	5.4	21	0	10.4	78	3	SW	4
3/08/2020	4.6	21.8	0	10.2	90	6	WNW	4
4/08/2020	8.2	21.5	0	15.4	60	1	N	15
5/08/2020	3.8	17.8	0	10	62	0	NNW	15
6/08/2020	3.2	16.2	0	9.5	68	2	W	4
7/08/2020	6.2	14.8	0	10.7	86	8	NE	2
8/08/2020	10	16.1	19	13.5	97	3	WSW	2
9/08/2020	5.8	15.7	6.4	11.8	76	5	W	6
10/08/2020	7.6	16.3	30	15.2	66	5	SE	37
11/08/2020	9.3	17.4	3.4	12.5	82	7	W	2
12/08/2020	7.8	18	0	11.6	97	8	W	2
13/08/2020	7.8	22.4	0	15.5	79	0	NW	2
14/08/2020	8	17.5	0	13.6	84	8	W	4
15/08/2020	11	19.2	6	14.5	94	0	NNW	4
16/08/2020	10.8	20	1.4	14.6	72	4	W	6
17/08/2020	7.5	20	0	14.8	74	0	W	6
18/08/2020	9.1	20.5	0	14.7	71	5	NNW	6
19/08/2020	7.7	21.4	0	16.5	65	0	N	7
20/08/2020	9	18	0	14.5	59	0	W	30
21/08/2020	8.7	18.5	0	14.5	62	2	W	9
22/08/2020	7.5	15	0	12	65	4	NW	15
23/08/2020	7.2	16.7	0	13.5	58	0	SW	19
24/08/2020	3.8	18.3	0	12	59	0	W	9
25/08/2020	1.7	16.5	0	11	64	1	WSW	7



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

Date	Max Wind Gust			9:00 AM		3:00 PM	
	Dir	Spd	Time	Dir	Spd	Dir	Spd
		km/h	local		km/h		km/h
26/07/2020	SE	46	19:45	*	Calm	SE	6
27/07/2020	SSW	44	1:29	WSW	13	WSW	13
28/07/2020	SW	37	14:12	WSW	7	SW	13
29/07/2020	E	24	14:16	W	7	SE	11
30/07/2020	SSE	31	15:25	WNW	9	SSE	17
31/07/2020	SSW	19	9:04	W	6	SSE	6
1/08/2020	NNW	24	11:52	NW	6	NW	4
2/08/2020	NW	17	10:52	NW	9	ENE	4
3/08/2020	NNW	19	14:59	NW	11	NNW	9
4/08/2020	NW	39	15:17	*	Calm	WNW	11
5/08/2020	WNW	33	14:38	NNW	17	WNW	19
6/08/2020	WNW	31	0:04	NW	13	ESE	13
7/08/2020	E	15	13:55	NW	4	WNW	2
8/08/2020	NNW	26	12:30	NW	13	WNW	6
9/08/2020	NW	50	18:53	NW	11	W	15
10/08/2020	SE	56	13:09	SSE	26	S	20
11/08/2020	SW	20	2:59	WSW	7	N	4
12/08/2020	NNW	20	11:53	*	Calm	*	Calm
13/08/2020	NW	24	12:15	*	Calm	WSW	7
14/08/2020	NW	15	9:38	WNW	6	*	Calm
15/08/2020	WNW	39	12:04	WNW	9	W	19
16/08/2020	WNW	44	16:08	WNW	15	W	22
17/08/2020	WNW	35	10:24	NW	11	W	11
18/08/2020	WNW	39	12:23	NW	15	NW	6
19/08/2020	NW	61	15:08	N	15	WNW	24
20/08/2020	WNW	54	14:35	NW	17	WNW	24
21/08/2020	WNW	57	13:33	NW	19	WNW	22
22/08/2020	NW	50	14:47	NW	15	WNW	24
23/08/2020	NW	56	12:53	WNW	15	WNW	20
24/08/2020	WNW	30	8:44	W	13	W	9
25/08/2020	SSE	22	14:20	W	7	SSE	13

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 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
31/07/2020	20:57	OOHW Period 1	Site set up	Noller Pde/George St	200 George St	45	68	PN, V, RP	72.9	54.9	-13.1	No	Construction noise is dominant noise source Site set up included construction of ATF fences, traffic control, noise barriers and blankets.
31/07/2020	21:16	OOHW Period 1	Site set up	Noller Pde/George St	1 Noller Parade	45	79	PN, V, RP	66.0	48.8	-30.2	No	Construction noise is sometimes audible 1:30 into monitoring loud car exhaust on Victoria Rd (70dB). Main noise is vehicle noise from Vic Rd and cockatoos (47dB). 5:40 mins into monitoring fire engines in background.
31/07/2020	21:46	OOHW Period 1	Site set up	Noller Pde/George St	200 George St	45	84	PN, V, RP	74.5	68.8	-15.2	No	Construction noise is dominant noise source Saw cutting 68-71dB. Saw cutting continuous throughout monitoring.
31/07/2020	21:16	OOHW Period 1	Site set up	Noller Pde/George St	1 Noller Parade	39	95	PN, V, RP	48.5	56.2	-38.8	No	Construction noise is sometimes audible Saw cutting 60-63dB. Saw cutting off 48-49dB. 10 mins into monitoring cars passing and people walking.
31/07/2020	22:32	OOHW Period 2	Site set up	Noller Pde/George St	1 Noller Parade/ 200 George St	39	68	PN, V, RP	78.9	62.8	-5.2	No	Construction noise is dominant noise source 5 mins into monitoring, truck reversing with squawker. 6 mins into monitoring, truck loading out. 12:35 mins into monitoring, scraping road with bucket.
4/08/2020	14:59	Standard Hours	Saw cutting	244 Church St	244 Church St	70	94	PN, V	96.9	87.8	-6.3	No	Construction noise is dominant noise source Monitoring the baseline levels for noise blanket scenario.
4/08/2020	16:22	Standard Hours	Saw cutting	286 Church St	286 Church St	70	94	PN, V	90.9	82.7	-11.3	No	Construction noise is dominant noise source
4/08/2020	16:40	Standard Hours	Saw cutting	255 Church St	281 Church St	70	90	PN, V	83.9	73.2	-16.8	No	Construction noise is audible at most times Noise without construction works 73dB. Traffic light noise constant. Noise from cars waiting at the stop light with no works 73dB. Work noise with no cars waiting at the traffic lights 72.5dB. 10 mins into monitoring works stopped and monitoring was discontinued.
5/08/2020	8:55	Standard Hours	Jackhammering	337 Church St	325-327 Church St	70	93	PN, V	90.3	73.4	-19.6	No	Construction noise is audible at most times Hammering stopped 12 min into monitoring and monitoring discontinued.
5/08/2020	8:31	Standard Hours	Jackhammering	327 Church St	330 Church St	70	93	PN, V, SN	89.3	76	-17	No	Construction noise is audible at most times Jackhammering stopped 8 mins into monitoring for 3 mins.
11/08/2020	12:36	Standard Hours	Jackhammering	263 Church St	263 Church St	70	97	PN, V	94.2	83.9	-13.1	No	Construction noise is clearly audible Original jackhammering 85dB (20m away). 3 min into monitoring: 2 nd jackhammer start (90dB) 10 m away from monitoring location.
12/08/2020	11:38	Standard Hours	Vac + pilling	318 Church St	318 Church St	70	96	PN, V	103	77.3	-12.7	No	Construction noise is clearly audible Vac truck 74dB. 78-80dB – 14 mins into monitoring pilling began. 86dB pilled put into place.
12/08/2020	11:55	Standard Hours	Pilling, vac truck + pilling	318 Church St	318 Church St	70	96	PN, V	103	79.5	-16.5	No	Construction noise is clearly audible 102dB pilling bang. 74dB with vac truck running (no pilling). 6:30 mins into monitoring, jackhammering begins (80dB) and occurs for 1 min. 8 mins into monitoring jackhammering begins again (80-84dB), 40m from monitoring location. Whacker packer begins 11:30 mins into monitoring starts 10m from monitoring (85dB).

12/08/2020	12:16	Standard Hours	Pilling	318 Church St	318 Church St	70	96	PN, V	108.9	82	-14	No	Construction noise is clearly audible Pilling bang 101dB. Jackhammer in background 76-85dB 40m away. 2:30 mins into monitoring people yelling 85dB. Pilling 82dB 5 mins into monitoring. Pilling bang 104dB.
13/08/2020	12:19	Standard Hours	Concrete pour	295 Church St	295 Church St	70	82	PN, V	90.8	73.9	-34.1	No	Construction noise is clearly audible Concrete pour 74dB stops 4:30 into monitoring for 6:30 mins.
13/08/2020	11:55	Standard Hours	Concrete pour + vac truck	295 Church St	295 Church St	70	82	PN, V	95.7	80.7	-27.3	No	Construction noise is dominant noise source Vac truck 84dB stops 8:30 into monitoring. Concrete pour begins 8:30 into monitoring 77dB and stops 11 mins into monitoring.
17/08/2020	22:10	OOHW Period 2	Jackhammering	Albert St & Church St corner	1/459 Church St	50	61	PN, V, SN	62.3	41.7	-8.3	No	Construction noise is dominant noise source
20/08/2020	9:23	Standard Hours	Jackhammering	240 Church St	219-221 Church St	70	96	PN, V	96	96.6	-14.4	No	Construction noise is dominant noise source 9 mins into monitoring hammering stops for 2 mins.
20/08/2020	9:23	Standard Hours	Jackhammering	240 Church St	224 Church St	70	96	PN, V	101.8	90.5	-5.5	No	Construction noise is dominant noise source Hammering 88-94dB.
26/06/2020	Continuous monitoring	Construction works	Hawkesbury Road works	Westmead Institute for Medical Research (Sleep Lab)		40	*	*	*	*	*	No	No comment
26/06/2020	Continuous monitoring	Construction works	Hawkesbury Road works	Westmead Institute for Medical Research (Brain Dynamics Centre)		60	*	*	*	*	*	No	No comment
26/06/2020	Continuous monitoring	Construction works	Hawkesbury Road works	Children's Medical Research Institute (Microscopy Labs)		60	*	*	*	*	*	No	No comment
26/06/2020	Continuous monitoring	Construction works	Cumberland Hospital	Cumberland Hospital (Clinical psychology rooms)		60	*	*	*	*	*	No	No comment

Notes:

Standard hours:

- 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
- 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)
- 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:

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

OOHW Period 2 is defined as:

- 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

A-3 Discharge to water





Table A-3-1 Parramatta Light Rail Package 4 Discharge Point Register (electronic file EF19/29672) (Rev 8, submitted 12th of August 2020)

ID	Construction Status	Easting	Northing	AMG Zone	Reference System	Description of location of discharge point	Catchment name	Name of nearest waters	Direct discharge to waters	Total catchment area of basin (hectares)	Basin size (operational) m3	Blue Book Criteria	Location description	Date added	Revision Added
A2.01	Active	315250	6256918	56	MGA	Existing stormwater pit on Church St, 40m north of the Phillip St intersection	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	24/02/2020	Rev 1
A2.02	Active	315231	6256879	56	MGA	Existing stormwater pit on the northwest corner of the intersection of Phillip St and Church St	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	24/02/2020	Rev 1
A2.03	Active	315229	6256871	56	MGA	Existing stormwater pit on the southwest corner of the intersection of Phillip St & Church St	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	16/03/2020	Rev 2
A2.04	Active	315204	6256552	56	MGA	Existing stormwater pit on Macquarie Street, near United Lane	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	27/04/2020	Rev 04
A2.05	Active	315211	6256550	56	MGA	Existing stormwater pit on Macquarie Street, near United Lane	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	27/04/2020	Rev 04
A2.06	Active	315266	6256546	56	MGA	Existing stormwater pit on Horwood Place (West), near Macquarie Street	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	27/04/2020	Rev 04
A2.07	Active	315277	6256543	56	MGA	Existing stormwater pit on Horwood Place (East), near Macquarie Street	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	27/04/2020	Rev 04
A2.08	Active	315315	6256514	56	MGA	Existing stormwater pit on Macquarie Street, near Leigh Memorial Church and Civic Place	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	27/04/2020	Rev 04
A2.09	Active	315404	6256506	56	MGA	Existing stormwater pit on Macquarie Street, East of Smith Street intersection	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	27/04/2020	Rev 04
A2.10	Active	315433	6256477	56	MGA	Existing stormwater pit at the intersection of Macquarie Street and Smith Street (South West corner)	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	27/04/2020	Rev 04
A2.11	Active	315516	6256504	56	MGA	Existing stormwater pit at the north end of Barrack Lane	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	27/04/2020	Rev 04
A2.12	Active	315692	6256429	56	MGA	Existing Stormwater pit on Macquarie Street at Charles Street intersection (North-West corner)	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	27/04/2020	Rev 04
A2.13	Active	315685	6256422	56	MGA	Existing Stormwater pit on Macquarie Street at Charles Street intersection (South-West corner)	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	27/04/2020	Rev 04
A2.14	Active	316007	6256445	56	MGA	Existing stormwater pit on eastern side of Harris Street. Opposite Albion Hotel.	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	28/05/2020	Rev 05
A2.15	Active	316004	6256435	56	MGA	Existing stormwater pit on eastern side of Harris Street. Opposite Albion Hotel exit driveway.	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	28/05/2020	Rev 05
A2.15	Active	316000	6256418	56	MGA	Existing stormwater pit on eastern side of Harris Street. Opposite Albion Hotel carpark.	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	28/05/2020	Rev 05
A2.15	Active	315980	6256389	56	MGA	Existing stormwater pit on western side of Harris Street. South of Albion Hotel entry driveway.	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	28/05/2020	Rev 05
A2.15	Active	315989	6256383	56	MGA	Existing stormwater pit on eastern side of Harris Street. Opposite empty corner lot.	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	28/05/2020	Rev 05

A2.15	Active	315975	6256365	56	MGA	Existing stormwater pit on western side of Harris St. Just north of intersection with Macquarie Street.	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	28/05/2020	Rev 05
A2.15	Active	315984	6256361	56	MGA	Existing stormwater pit on eastern side of Harris Street. Opposite Northern footpath of Macquarie Street.	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	28/05/2020	Rev 05
A2.15	Active	315984	6256344	56	MGA	Existing stormwater pit on eastern side of Harris Street. In pedestrian crossing of Harris Street.	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	28/05/2020	Rev 05
A2.15	Active	315970	6256347	56	MGA	Existing stormwater pit on eastern side of Harris Street. In pedestrian crossing of Harris Street.	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	28/05/2020	Rev 05
A2.15	Active	315969	6256344	56	MGA	Existing stormwater pit on eastern side of Harris Street. Just south of pedestrian crossing of Harris Street.	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	28/05/2020	Rev 05
A2.15	Active	315948	6256282	56	MGA	Existing stormwater pit at intersection of Hassall Street and Harris Street. On northern side of Hassall Street.	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	28/05/2020	Rev 05
A2.15	Active	315848	6256392	56	MGA	Existing stormwater pit on northern side of Macquarie Street. Just east of Argus Lane.	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	28/05/2020	Rev 05
A2.15	Active	315841	6256383	56	MGA	Existing stormwater pit on southern side of Macquarie Street. Opposite Argus Lane.	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	28/05/2020	Rev 05
A2.15	Active	315826	6256386	56	MGA	Existing stormwater pit on southern side of Macquarie Street. Opposite Endeavour Energy building.	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	28/05/2020	Rev 05
A2.15	Active	315820	6256388	56	MGA	Existing stormwater pit on southern side of Macquarie Street. Opposite Endeavour Energy building.	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	28/05/2020	Rev 05
A2.15	Active	315828	6256396	56	MGA	Existing stormwater pit on northern side of Macquarie Street. In front of Endeavour Energy building.	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	28/05/2020	Rev 05
A2.15	Active	315796	6256393	56	MGA	Existing stormwater pit on southern side of Macquarie Street. In front of 187 Macquarie Street.	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	28/05/2020	Rev 05
A2.15	Active	315773	6256398	56	MGA	Existing stormwater pit on southern side of Macquarie Street. In front of 183 Macquarie Street.	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	28/05/2020	Rev 05
A2.15	Active	315776	6256408	56	MGA	Existing stormwater pit on southern side of Macquarie Street. In front of driveway for 128-138 Macquarie Street.	Parramatta River	Parramatta River	No	N/A	N/A	N/A	N/A	28/05/2020	Rev 05
A3.18	Active	317220	6256123	56	MGA	Discharges into existing stormwater line at Sandown Lane flowing towards Parramatta River.	Parramatta River	Parramatta River	Yes	N/A	N/A	N/A	Connection of new drainage to existing stormwater	24/02/2020	Rev 2
A3.19	Active	317845	6256065	56	MGA	Discharges into existing stormwater line at Sandown Lane flowing towards Parramatta River.	Parramatta River	Parramatta River	Yes	N/A	N/A	N/A	Connection of new drainage to existing stormwater	24/02/2020	Rev 2
A3.21	Active	317837	6255954	56	MGA	Discharge into local stormwater system at Grand Avenue	Parramatta River	Parramatta River	Yes	N/A	N/A	N/A	Discharge into existing drainage	18/06/2020	Rev 6
A3.3	Active	317527	6257074	56	MGA	On eastern side of rail corridor adjacent to WSU. Discharges into Vineyard Creek.	Parramatta River	Vineyard Creek	Yes	N/A	N/A	N/A	Outlet headwall for new drainage	24/02/2020	Rev 2

A3.4	Active	317518	6257093	56	MGA	On western side of rail corridor adjacent to WSU. Discharges into Vineyard Creek.	Parramatta River	Vineyard Creek	Yes	N/A	N/A	N/A	Outlet headwall for new drainage	24/02/2020	Rev 2
A3.20	Active	316821	625304	56	MGA	Discharge into Clay Cliff Creek at Camellia / Parramatta, which flows towards Parramatta River	Parramatta River	Clay Cliff Creek	Yes	N/A	N/A	N/A	Discharge into existing creek	8/04/2020	Rev 3
A3.21	Active	317837	6255954	56	MGA	Discharge into local stormwater system at Grand Avenue	Parramatta River	Parramatta River	Yes	N/A	N/A	N/A	Discharge into existing drainage	18/06/2020	Rev06
A3.22	Active	318547	6258704	56	MGA	Discharge into local stormwater system at Adderton Road, Telopea	Parramatta River	Vineyard Creek	Yes	N/A	N/A	Yes	Discharge into stormwater	29/07/2020	Rev07
A3.23	Active	317610	6257192	56	MGA	Discharge into local stormwater system at Brodie Street, Rydalmere	Parramatta River	Vineyard Creek	Yes	N/A	744	Yes	Discharge into stormwater	12/08/2020	Rev08
A3.24	Active	318526	6258711	56	MGA	Discharge into local stormwater system at Adderton Road, Telopea	Parramatta River	Subiaco Creek	Yes	N/A	N/A	Yes	Discharge into stormwater	12/08/2020	Rev08
A3.25	Active	319050	6260064	56	MGA	Discharge into local stormwater system at Kenny Place, Carlingford	Parramatta River	The Ponds Creek	Yes	N/A	N/A	Yes	Discharge into stormwater	12/08/2020	Rev08

Table A-3-2 Discharge water quality

Discharge monitoring Point ID	P1.2 Identification Number	Type of Monitoring Point	Type of Discharge Point	Date	Rainfall Event	Comments
A3.20	1	Basins and settling containers	Stormwater inlet	19/05/2020	Nil	Discharge into Clay Cliff Creek at Camellia / Parramatta, which flows towards Parramatta River
A3.22	1	Basins and settling containers	Stormwater inlet	29/07/2020	Nil	Discharge from sediment basin
A3.22	1	Basins and settling containers	Stormwater inlet	12/08/2020	Nil	Discharge from Pedestrian Holding Pond
A3.4	1	Basins and settling containers	Stormwater inlet	14/08/2020	Nil	Discharge from sediment basin
A.25	1	Basins and settling containers	Stormwater inlet	14/08/2020	Nil	Discharge from sediment basin
A3.22	1	Basins and settling containers	Stormwater inlet	17/08/2020	Nil	Discharge from sediment basin
A2.09, A2.11, A2.12, A2.29	1	Basins and settling containers	Stormwater inlet	14/08/2020	Nil	Discharge from water filled barriers (filled with potable water)
A2.12, A2.07	1	Basins and settling containers	Stormwater inlet	6/08/2020	Nil	Discharge from stormwater pit

Table A-3-3 Discharge occurs solely as a result of rainfall measured at the premises exceeding the design rainfall depth value

Nil

