SYDNEY GATEWAY
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JOHN HOLLAND
SEYMOUR WHYTE

Environmental Monitoring Data

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Project Summary

The Sydney Gateway Road Project ('the Project') is a new direct high-capacity road connection linking the Sydney motorway network at St Peters interchange, where the M4 and M8 motorways meet, with Sydney Airport's domestic and international terminals and the Port Botany Precinct. John Holland Seymour Whyte have been contracted by Transport for New South Wales to design and construct the works for the Sydney Gateway Road Project. Figure 1 provides an overview of the Project.

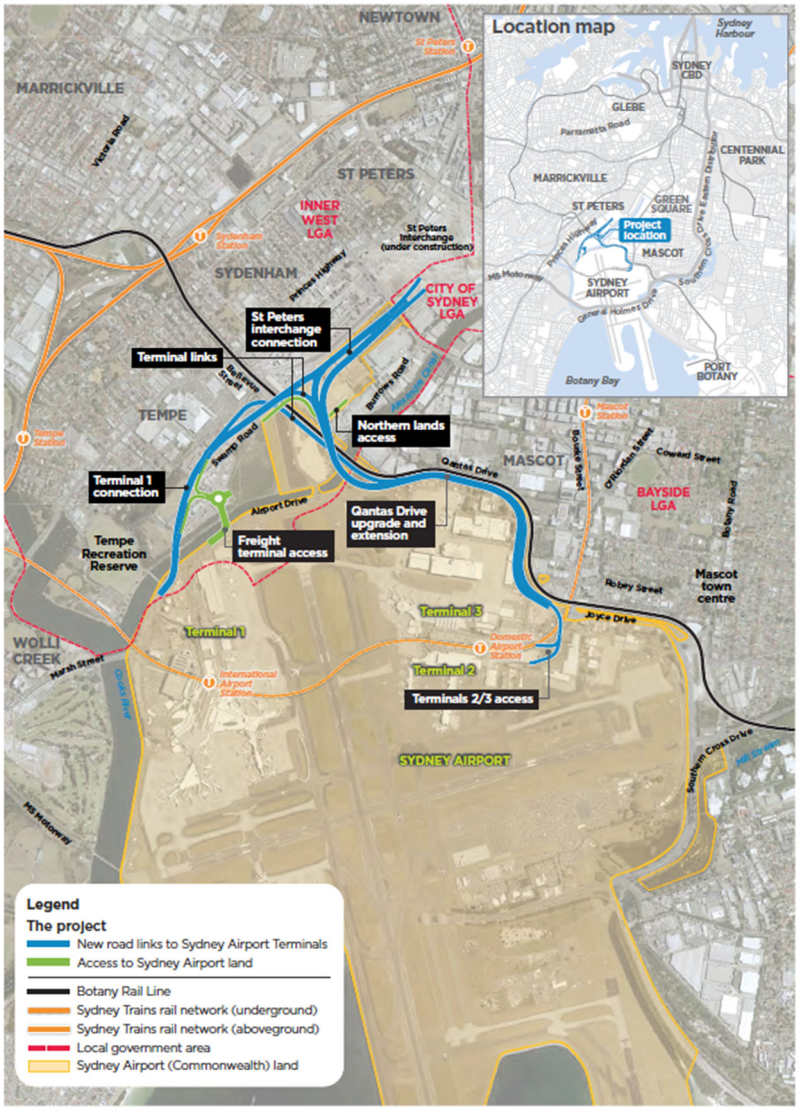

Figure 1: Project Overview

Environmental Protection Licence and Reporting Requirements

John Holland Pty Ltd obtained the Environment Protection Licence (EPL No. 21524) from the NSW Environment Protection Authority for the Project on behalf of the John Holland Seymour (JHSW) Joint Venture. The licence is for construction works relating Scheduled Activities as defined under Schedule 1 of the *Protection of the Environment Operations Act*, 1997 (POEO Act).

The licence describes monitoring and reporting requirements for the Works. The following report details environmental monitoring undertaken during this reporting month conducted in accordance with the EPL.

The EPL can be found by following the link below to the EPA's website: ViewPOEOLicence.aspx (nsw.gov.au)

Noise and Vibration Monitoring

Noise and vibration monitoring was undertaken during this reporting period. Table 1 contains the vibration monitoring data and Table 2 contains the noise monitoring results.

Vibration

Vibration monitoring was undertaken within Noise Catchment Area 02 (NCA_02) and Noise Catchment Area 03 (NCA_03), as part of the project's monitoring program. Results were recorded bellow the assessment criteria and deemed compliant.

Monitoring was conducted on the 6/09/22 in NCA_02 in response to a non-project related complaint. No vibration causing works were being undertaken at the time of the complaint and was validated through vibration monitoring. Results were recorded below the adopted structural damage criteria and human comfort criteria.

Noise

Noise monitoring was undertaken during the reporting period, all works were deemed compliant as the dominant noise source was determined to be caused by background noise sources, specifically local traffic, aircraft movements.

Discharge Water Quality Monitoring

Offsite discharge from the 10L/s WTP and the 30L/s WTP occurred during September 2022. The 10L/s WTP ceased operation during September and the 30L/s WTP commenced discharge during September. All discharges were compliant.

Landfill Gas and Gas Accumulation Monitoring

Landfill gas and gas accumulation monitoring was undertaken during the September 2022 monitoring period. Results are summarised in Table 4 below.

Table 1: Vibration Monitoring Data

Monitoring location	Monitoring Date	Attended or Continuous Monitoring	Measured VDV ($m/s^{1.75}$)	VDV Target ($m/s^{1.75}$)	VDV Compliant	Measured PPV (mm/s)	PPV Target (mm/s)	PPV Compliant	Comment
Routine Monitoring (4 Barden St Tempe)	06/09/2022 – 07/09/2022	Continuous	0.11	0.4	Yes	0.12	20	Yes	Works were monitored and found to be compliant with structural and human comfort criteria. No vibratory works were being undertaken during this monitoring period.
Ausgrid 11kv Cables - SB41 Box Culvert	08/09/2022 – 10/09/2022	Continuous	NA	NA	NA	0.87	20	Yes	Works were monitored and found to be below the maximum vibration allowance for underground cables.
Routine Monitoring (7 South St Tempe)	21/09/2022	Attended	0.10	0.4	NA	0.15	20	Yes	Works were monitored and found to be compliant with structural and human comfort criteria
Routine Monitoring (5 Wentworth St)	21/09/2022	Attended	0.33	0.4	Yes	0.5	20	Yes	Works were monitored and found to be compliant with structural and human comfort criteria
Routine Monitoring (1 Hart St Tempe)	21/09/2022	Attended	0.10	0.4	Yes	0.15	20	Yes	Works were monitored and found to be compliant with structural and human comfort criteria
Routine Monitoring (3 Smith St Tempe)	30/09/2022	Attended	0.10	0.4	Yes	0.15	20	Yes	Works were monitored and found to be compliant with structural and human comfort criteria
Routine Monitoring (2 Fanning St)	30/09/2022	Attended	0.10	0.4	Yes	0.15	20	Yes	Works were monitored and found to be compliant with structural and human comfort criteria
Routine Monitoring (4 Bellevue St Tempe)	30/09/2022	Attended	0.13	0.4	Yes	0.2	20	Yes	Works were monitored and found to be compliant with structural and human comfort criteria

Note:

1. VDV – Vibration Dose Value
2. PPV – Peak Particle

Table 2: Noise Monitoring Data

Monitoring Location (Noise-Catchment Area, Street, Suburb)	Monitoring Date	Attended or Continuous Monitoring	Parameter	Measured Value dB(A)	Goals / Targets dB(A)	Comments
NCA_03, 3 Fanning Street, Tempe	21/09/2022	Attended	LAeq 15min	64.8	52	Project works inaudible. Nearby construction works (not Project related) and traffic were the dominant noise source. Sydney Gateway works compliant.
NCA_03, 6 Smith Street, Tempe	21/09/2022	Attended	LAeq 15min	66.1	52	Project works inaudible. Nearby construction works (not Project related) and traffic were the dominant noise source. Sydney Gateway works compliant.
NCA_03, 4 Barden St, Tempe	21/09/2022	Attended	LAeq 15min	65.7	52	Project works inaudible. Nearby construction works (not Project related) and traffic were the dominant noise source. Sydney Gateway works compliant.
NCA_03, 6 Fanning St Tempe	30/09/2022	Attended	LAeq 15min	52.7	53	Traffic and aircraft were the dominant noise source. Sydney Gateway works compliant.
NCA_02, 3 Bellevue Street, St Peters	30/09/2022	Attended	LAeq 15min	68.2	74	Traffc, aircraft and building construction (unrelated to Gateway) were the dominant noise source. Sydney Gateway works compliant.
NCA_02, 3 Bellevue Street, St Peters	28/09/2022	Attended	LAeq 15min	52.7	53	. Monitoring was undertaken during site setup (cranage movement, excavators, hand tools). Results were influenced by local traffic and QUBE container yard. LAeq below NML, Sydney Gateway works compliant.
NCA_02, 3 Bellevue Street, St Peters	28/09/2022	Attended	LAeq 15min	56.6	53	Monitoring during piling operation. Spikes in Lmax attributed to activities in QUBE container yard. Sydney Gateway works compliant.
NCA_02, 3 Bellevue Street, St Peters	28/09/2022	Attended	LAeq 15min	52.8	53	Monitoring during piling operation. Results influenced by background noise from QUBE container yard and local traffic. LAeq recorded below NML, Sydney Gateway works compliant.

Note:

1. LAeq (15min) - The A-weighted equivalent continuous (energy average) A-weighted sound pressure level of the construction works under consideration over a 15-minute period and excludes other noise sources such as from industry, road, rail and the community.
2. dBA - Decibels using the A-weighted scale measured according to the frequency of the human ear

Table 3. WTP Discharge Monitoring Data

Analyte	Unit	limit	18/07/2022	18/07/2022	18/07/2022	19/07/2022	19/07/2022	19/07/2022	20/07/2022	01/08/2022	02/08/2022	04/08/2022	05/08/2022	08/08/2022	Comment
Ammonia	ug/l	1200	201	261	242	259	264	262	258	5	5	7	7	8	Compliant
Anthracene	ug/l	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Compliant
Arsenic (III)	ug/l	2.3	<1	<1	<1	<1	<1	<1	<1	2	2	<1	<1	<1	Compliant
Arsenic (V)	ug/l	4.5	<1	<1	<1	<1	<1	<1	<1	2	2	<1	<1	<1	Compliant
Barium (dissolved)	mg/l	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.001	Compliant
Benzo(a)pyrene	ug/l	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	Compliant
Boron	ug/l	5100	190	430	580	640	680	700	670	<50	<50	<50	<50	<50	Complaint
Cadmium (dissolved)	ug/l	5.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Compliant
Chromium (hexavalent	ug/l	20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	Compliant
Chromium (trivalent)	ug/l	49	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	Compliant
Cobalt (dissolved)	ug/l	14	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	Compliant
Copper (dissolved)	ug/l	3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	Compliant
Ethyl benzene	ug/l	110	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	Compliant
Fluoranthene	ug/l	1.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Compliant
Iron (dissolved)	ug/l	300	60	130	90	120	110	60	120	<50	<50	<50	<50	<50	Compliant
Lead (dissolved)	ug/l	6.6	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	Compliant
Manganese (dissolved)	ug/l	80	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	Compliant
Mercury (dissolved)	ug/l	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Compliant
m-Xylene	ug/l	100	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	Compliant
Naphthalene	ug/l	70	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	Compliant
Nickel (dissolved)	ug/l	70	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	Compliant

Nitrate + nitrite (oxidised nitrogen)	ug/l	15	<2	3	2	<2	<2	<2	6	8	5	<2	6	7	Compliant
Nitrogen (total)	ug/l	300	200	250	200	270	260	260	270	<10	<10	10	<10	<10	Compliant
o-Xylene	ug/l	470	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	Complaint
Perfluorooctane sulphonate (PFOS)	ug/l	0.13	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Compliant
Perfluorooctanoic acid (PFOA)	ug/l	220	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	Compliant
pH	pH	7-8.5	7.54	7.86	7.92	7.95	7.92	7.83	7.86	7.27	7.2	7.51	7.45	7.45	Compliant
Phenanthrene	ug/l	2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Compliant
Phosphorus (total)	ug/l	30	6	7	7	21	22	22	21	28	25	22	18	16	Compliant
p-Xylene	ug/l	250	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	Compliant
TPH C10-C36 Fraction	ug/l	600	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	Compliant
TPH C6-C9 Fraction	ug/l	150	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	Compliant
Turbidity	NTU	10	0.5	0.4	0.3	0.4	0.4	0.6	1	0.3	0.3	1	1.1	1.6	Compliant
Zinc (dissolved)	ug/l	23	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	Compliant

Table 4: Landfill Gas Monitoring Results (27 September 2022)

EPA identification no.	Type of Monitoring Point*	Methane Limit	Results (Stabilised)%	Comment
GW1A	Landfill Gas Monitoring[1]	1%v/v	0	Compliant
GW2	Landfill Gas Monitoring[1]	1%v/v	0	Compliant
GW3	Landfill Gas Monitoring[1]	1%v/v	0	Compliant
GW4A	Landfill Gas Monitoring[1]	1%v/v	0	Compliant
GW5A	Landfill Gas Monitoring[1]	1%v/v	0	Compliant
GW6A	Landfill Gas Monitoring[1]	1%v/v	0	Compliant
GW7	Landfill Gas Monitoring[1]	1%v/v	-	Destroyed unable to be sampled
GW8	Landfill Gas Monitoring[1]	1%v/v	-	Destroyed unable to be sampled
GW9	Landfill Gas Monitoring[1]	1%v/v	0	Compliant
GW9A	Landfill Gas Monitoring[2]	N/A	-	Monitoring well inaccessible
GW11A	Landfill Gas Monitoring[1]	1%v/v	0	Compliant
GW12	Landfill Gas Monitoring[2]	1%v/v	-	Destroyed unable to be sampled
GW13	Landfill Gas Monitoring[1]	1%v/v	-	Destroyed unable to be sampled
GW14	Landfill Gas Monitoring[2]	N/A	6.5	Compliant
GW16	Landfill Gas Monitoring[1]	1%v/v	0	Compliant
GW17	Landfill Gas Monitoring[1]	1%v/v	0	Compliant
GW19A	Landfill Gas Monitoring[1]	1%v/v	0	Compliant
GW22s	Landfill Gas Monitoring[1]	1%v/v	0	Compliant
JHSW-LFG02	Landfill Gas Monitoring[1]	1%v/v	0	Compliant
OSA1	Gas Accumulation Monitoring[3]	500ppm	<3	Compliant
OSA2	Gas Accumulation Monitoring[3]	500ppm	<3	Compliant
OSA3	Gas Accumulation Monitoring[3]	500ppm	<3	Compliant
C3 Site Compound	Gas Accumulation Monitoring[4]	500ppm	<3	Compliant

1. Outside the passive interception and venting trench
2. Inside the passive interception and venting trench
3. Gas accumulation monitoring within buildings located outside of the landfill boundary
4. Gas accumulation monitoring within buildings located onsite