






**SYDNEY METRO - WESTERN SYDNEY AIRPORT  
STATION BOXES AND TUNNELLING WORKS**

# Noise and Vibration Monitoring Report (October - April)

Sydney Metro Western Sydney Airport Station Boxes and Tunnelling Works

|                        |                                      |
|------------------------|--------------------------------------|
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## Document approval

| Rev        | Date     | Prepared by   | Reviewed by   | Approved by   |
|------------|----------|---|---|---|
| 00         | 08/06/23 | A. Hillany  | J. Cosier   | J. Slattery   |
| Signature: |          |  |  |  |

## Details of Revision Amendments

### Document Control

The Project Director is responsible for ensuring that this report is reviewed and approved. The Project Discipline Director is responsible for updating this plan to reflect changes to construction, legal and other requirements, as required.

### Amendments

Any revisions or amendments must be approved by the Project Director and/or client before being distributed/implemented.

### Revision Details

| Revision | Details  |
|----------|--|
| 00       | Compliance report for issue to SM and stakeholders |



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# 1. Introduction

## 1.1. Background

The Sydney Metro Western Sydney Airport will become the transport spine for Greater Western Sydney, connecting communities and travellers with the new Western Sydney International (Nancy-Bird Walton) Airport (referred to as Western Sydney International) and the growing region.

The Project forms part of the broader Sydney Metro network. It involves the construction and operation of a 23km new metro rail line that extends from the existing Sydney Trains suburban T1 Western Line (at St Marys) in the north and the Aerotropolis (at Bringelly) in the south. The alignment includes a combination of tunnels and civil structures, including viaduct, bridges, surface and open-cut troughs between the two tunnel sections.

The Sydney Metro Western Sydney Airport EIS was prepared in October 2020 to assess the impacts of construction and operation of the Project and was placed on public exhibition between 21 October 2020 and 2 December 2020. The Project was declared a Critical State Significant Infrastructure (CSSI) Project and is listed in Schedule 5 of *State Environmental Planning Policy (State and Regional Development)*.

The Sydney Metro Western Sydney Airport was approved by the Minister for Planning and Public Spaces on 23 July 2021 (SSI 10051) under section 5.19 of the *Environmental Planning and Assessment Act 1997* (EP&A Act).

The Project will be delivered through the following stages:

- **Advanced and Enabling Works (AEW)** – Site investigations, modification of the existing transport network, power and water supply for construction sites, utility and stormwater diversions and some demolition works.
- **Station Boxes and Tunnelling Works (SBT)** – delivered through the following sub-stages:
  - Preparatory Works (the subject of this Plan) – Including NSW (off-airport) demolition works, site levelling/grading, site access and parking, utility and temporary services works, erection of demountable buildings and noise barriers, tunnelling preparatory works and use of ancillary facilities including onsite parking.
  - Bulk Excavation and Tunnelling Works – Preparatory Works (works not completed prior to Final CEMP approval), bulk excavation, acoustic shed installation, tunnelling and cross passage installation.
- **Surface and Civil Alignment Works (SCAW)** – Construction of bridges and viaducts to cross floodplains, watercourses and existing and proposed permanent infrastructure.
- **Stations, Systems, Trains, Operations and Maintenance (SSTOM)**– Station design and fitout, testing and commissioning, and operation of the Western Sydney Airport metro service
- **Finalisation Auxiliary Works.**

Each package of work is to be delivered under separate contracts on behalf of the proponent Sydney Metro.





Figure 1: Overview of the Project



### 1.1.1. Station Boxes and Tunnelling Works

The CPB Ghella JV (CPBG) has been engaged to deliver the SBT Works. The SBT Works include the design and construction of:

- Two sections of twin tunnels with a total combined length of approximately 9.8km, including associated portal structures; Orchard Hills to St Marys and Western Sydney International (WSI) airport to the new Aerotropolis Station in NSW
- Excavations at either end to enable trains to turn back and stub tunnels to enable future extensions
- Station box excavations with temporary ground support for four stations at St Marys, Orchard Hills, Airport Terminal and Aerotropolis
- Excavations for two intermediate service facilities, one in each of the tunnel sections at Claremont and Bringelly.

Completed sections of the SBT Works, including established construction worksites, will be progressively handed over to Sydney Metro to enable follow-on contractors to commence works. The exception is the on-airport Precast Segment Storage Facility which will be decommissioned and hydroseeded following the completion of segment manufacture.

### 1.1.2. Site List

CPBG has eight Project sites, five of which are in NSW under the CSSI 10051 and the other three are on Commonwealth land under the Airport Plan. The Airport Plan sites are greyed out in the below table. The CSSI sites are north and south of the Commonwealth airport site.

Table 1: SBT Worksite overview

| Jurisdiction           | Worksite                       | Abbreviation |
|------------------------|--------------------------------|--------------|
| NSW (north of Airport) | St Marys                       | STM          |
| NSW (north of Airport) | Claremont Meadows              | CMF          |
| NSW (north of Airport) | Orchard Hills                  | OHE          |
| On-Airport             | Airport Portal Dive Structure  | APB          |
| On-Airport             | Airport Terminal and TBM shaft | ATL          |
| On-Airport             | Primary Spoil Reveal           | FS01         |
| NSW (south of Airport) | Bringelly                      | BSF          |
| NSW (south of Airport) | Aerotropolis                   | AEC          |

## 1.2. Purpose of this report

The purpose of this report is to present results of the Noise and Vibration Monitoring Program outlined in the SBT Construction Environmental Management Plan (CEMP) and Construction Noise and Vibration Management Sub-plan, including the results of the construction monitoring programs referred to in Condition C13 of the Infrastructure Approval.



The Noise and Vibration Monitoring Report has been prepared to address Minister’s Condition of Approval (CoA) C22 of the Infrastructure Approval (refer to Table 1-1). This report will be provided to the relevant regulatory authorities as detailed in the relevant Sub-plan (refer to Table 1-2).

Environmental monitoring is undertaken to:

- Validate the predicted impacts of the Infrastructure Works
- Measure the effectiveness of environmental controls in minimising and managing environmental impacts
- Demonstrate compliance with relevant stakeholder conditions

The monitoring requirements for nominated aspects are included in the relevant environmental management sub-plans and summarised in Table 1-1.

Table 2: Environmental Monitoring Reporting Requirements

| CEMP or Sub-plan                        | Monitoring Program                     | Report                                | Distribution | Schedule (during construction) |
|---|--|---------------------------------------|--------------|--------------------------------|
| Noise and Vibration Management Sub-Plan | Noise and Vibration Monitoring Program | Noise and Vibration Monitoring Report | EPA, DPE     | Semi-annual                    |

### 1.3. On-site Activity

All station box and service facility sites have been established with the support services at all sites almost complete. This has been achieved progressively from Project construction commencement as the sites have been established. During November 2022, the Bringelly Service Facility was the first site to be established with Aerotropolis being the last site in February 2023.

The progress of construction at each site has followed the general process of site establishment and clearing, contamination management, ERSED installation and development, excavations, piling, station box and service facility construction, TBM construction and support development and tunnelling. WTPs are installed at all sites but are only just coming on-line, with commissioning of all WTPs expected by end of June. Tunnelling has not yet commenced in the north of the Project. In the south of the Project, tunnelling is commencing on-airport.

### 1.4. Monthly Construction Updates

#### 1.4.1. October

This month has seen a focus on the commencement of piling as well as continued efforts on-site establishment and hard stand construction. Piling rigs are now working at St Marys, Claremont, Orchard Hills, Airport Business Park and Bringelly. Site office construction has also continued with compounds now delivered to St Marys (complete), Claremont (complete), Orchard Hills (fit-out ongoing), Airport Business Park (delivery commenced), Bringelly (complete) and Aerotropolis (fit-out to commence). The CEMP approval was achieved. Contamination Documentation – RAP was submitted for St Marys on 24 Oct 22; Claremont on 7 Oct 22; Bringelly on 5 Oct 22.



## 1.4.2. November

This month has seen a focus on the commencement of piling as well as continued efforts on-site establishment and hard stand construction. Piling rigs are now working at St Marys, Orchard Hills, Airport Business Park, Airport Terminal, Bringelly and Aerotropolis. The piling is complete at Claremont. Site office construction has also continued with compounds now delivered to St Marys (complete), Claremont (complete), Orchard Hills (fit-out ongoing), Airport Business Park (office complete, amenities ongoing), Bringelly (complete) and Aerotropolis (complete). Contamination Documentation – RAP was submitted for ABP Dive on 27 Oct 22; Airport Terminal Station on 27 Oct 22; RAP resubmitted for Aerotropolis on 21 Nov 22

## 1.4.3. December and January

January has been a month of restart and then continued efforts as the project progresses on several fronts. Piling has continued at STM, OHE, ATL and AEC with a total of 1044 of 1861 piles completed. Site establishment works have continued particularly at Orchard Hills and Airport Business Park where a large number of Civil works have been undertaken in preparation for TBM Delivery. Capping beam construction continues across the project and box excavation has also commenced at STM, CMF, OHE and has continued at ABP. The first Anchor contractor has been mobilised to OHE and Rix has now mobilised to ABP. Segment deliveries are starting to ramp up this month's deliveries have commenced with the OSOM deliveries scheduled to commence the first week of Feb 23.

## 1.4.4. March

The southern TBM launch date is approaching and ABP is completely transformed this month with the 2 TBMs delivered to the site. The dive excavation at the portal is complete and the gantries have commenced being lowered onto the slab. The overhead steel structure to support the gantry cranes has been erected and the conveyor system has continued installation. TBM ancillary systems including WTPs, compressor stations, grout plants and water-cooling towers have continued to be installed. At Orchard Hills works have continued similar to ABP with both TBM's delivered and being assembled and ancillary facilities being installed. The two service shafts have continued excavation. The station boxes are in excavation mode with all these sites (STM, ATL, AEC) in shotcrete, ground anchor and excavation cycles.

## 1.4.5. April

Setup continues at ABP for tunnelling with the thrust frame installed this week. Ancillary services have also continued with the grout plant at ATL commissioned. Across the job piling is ending with 2 weeks remaining at STM and OHE. Box excavation has continued, and all sites are in full excavation, anchor support mode. FS01 is now taking material from ATL and ABP.





## 1.5. Monitoring

Noise monitoring is a requirement of both the CSSI 10051 approval and EPL 21672. Monitoring is required:

- To validate the noise predictions for works undertaken outside of the standard construction hours as per the DNVIS;
- As a result of noise and vibration complaints; or
- As otherwise directed.

Results of monitoring will be used for:

- The evaluation of performance relative to legal, regulatory, contract, permit, licence and other commitments
- The prompt identification and correction of incidents or possible incidents
- Providing feedback on approval documents ; and
- Providing the basis of internal and external reporting.

There have only been 1 complaint to the Project in regard to noise. This was at St Marys and in regard to a truck using air brakes between Glossop Street and St Marys. No monitoring occurred as a result of the complaint due to its nature, but the haulage contractor was tool-boxed on the use of air brakes.

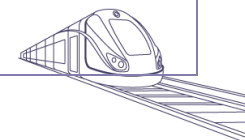
Results of monitoring since October are presented below. Any anomalous readings or exceedances are identified within the Comments column of the tables.



## 2. Monthly Noise data

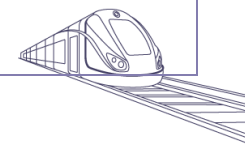
### 2.1. October 2022

| Date       | Time    | Works Period | Construction Activity | Activity Location       | Monitoring Location              | NML (dBA) | Predicted (dBA) | Additional Mitigation Measures | Recorded L <sub>eq, 15min</sub> (dBA) | L <sub>Amax</sub> | Exceedance of Predicted (dBA) | Exceedance of Predicted | Comments   |
|------------|---------|--------------|-----------------------|-------------------------|----------------------------------|-----------|-----------------|--------------------------------|---------------------------------------|-------------------|-------------------------------|-------------------------|--|
| 11/10/2022 | 10:31am | Standard     | Earthworks            | SBT Site (St Marys)     | 3 Station St, St Marys           | 47        | 80              | LB, M                          | 61.1                                  | 80.7              | -18.9                         | No                      | Verification noise monitoring.   |
| 11/10/2022 | 11:00am | Standard     | Earthworks            | SBT Site (St Marys)     | 31 Phillip St, St Marys          | 47        | 80              | LB, M                          | 66.5                                  | 79.0              | -13.5                         | No                      | Verification noise monitoring. Road traffic noise was the dominant noise source. |
| 11/10/2022 | 11:37am | Standard     | Earthworks            | SBT Site (Claremont)    | Cnr GWH and Gipps St, Claremont  | 47        | N/A             | M                              | 64.2                                  | 78.0              | N/A                           | N/A                     | Background noise monitoring.   |
| 12/10/2022 | 12:14pm | Standard     | Piling                | SBT Site (Claremont)    | 8 Dolphin Close, Claremont       | 47        | 59              | LB, M                          | 50.2                                  | 70.4              | -8.8                          | No                      | Verification noise monitoring.   |
| 12/10/2022 | 11:53am | Standard     | Piling                | SBT Site (Claremont)    | Within construction site         | 47        | N/A             | M                              | 72.0                                  | 87.7              | N/A                           | N/A                     | Background noise monitoring and spot check.                                      |
| 25/10/2022 | 02:20pm | Standard     | Piling                | SBT Site (Bringelly)    | 38 Derwent Rd, Bringelly         | 48        | N/A             | M                              | 52.9                                  | 66.3              | N/A                           | N/A                     | Background noise monitoring.   |
| 28/10/2022 | 01:05pm | Standard     | Earthworks            | SBT Site (Aerotropolis) | 145 Badgerys Creel Rd, Bringelly | 48        | N/A             | M                              | 52.1                                  | 70.2              | 6.1                           | N/A                     | Background noise monitoring.   |
| 30/10/2022 | 10:15pm | Night        | Utility works         | SBT Site (St Marys)     | 3 Station St, St Marys           | 41        | 80              | LB, M, SN                      | 62.5                                  | 83.0              | -17.5                         | No                      | Verification noise monitoring.   |
| 30/10/2022 | 10:48pm | Night        | Utility works         | SBT Site (St Marys)     | 31 Phillip St, St Marys          | 41        | 76              | LB, M, SN                      | 71.4                                  | 92.1              | -4.6                          | No                      | Verification noise monitoring.   |



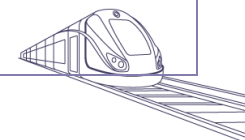
## 2.2. November 2022

| Date       | Time    | Works Period | Construction Activity                 | Activity Location       | Monitoring Location                | NML (dBA) | Predicted (dBA) | Additional Mitigation Measures | Recorded $L_{eq, 15min}$ (dBA) | L <sub>Amax</sub> | Exceedance of Predicted (dBA) | Exceedance of Predicted | Comments   |
|------------|---------|--------------|---------------------------------------|-------------------------|------------------------------------|-----------|-----------------|--------------------------------|--------------------------------|-------------------|-------------------------------|-------------------------|--|
| 9/11/2022  | 8:00am  | Standard     | Minimal Works. Background noise check | SBT Site (St Marys)     | Within construction site, St Marys | 47        | N/A             | N/A                            | 58.7                           | 78.0              | N/A                           | N/A                     | Background noise verification monitoring. Minimal construction activities, extraneous noise was the dominant noise source. |
| 17/11/2022 | 10:00am | Standard     | Piling                                | SBT Site (Aerotropolis) | 135 Badgerys Creek Road, Bringelly | 45        | 69.5            | LB, M, SN                      | 65.2                           | 74.8              | -4.3                          | No                      | Verification noise monitoring. Road traffic noise was the dominant noise source.   |



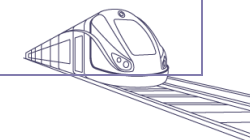
### 2.3. December 2022

| Date       | Time    | Works Period | Construction Activity   | Activity Location | Monitoring Location              | NML (dBA) | Predicted (dBA) | Additional Mitigation Measures | Recorded $L_{eq, 15min}$ (dBA) | L <sub>Amax</sub> | Exceedance of Predicted (dBA) | Exceedance of Predicted | Comments   |
|------------|---------|--------------|-------------------------|-------------------|----------------------------------|-----------|-----------------|--------------------------------|--------------------------------|-------------------|-------------------------------|-------------------------|--|
| 09/12/2022 | 2:57pm  | Standard     | Piling and Capping Beam | SBT St Marys      | 2 Station Street                 | 47        | 64              | LB, M, SN                      | 55.1                           | 70.3              | -8.9                          | No                      | Verification noise monitoring. Construction activities were dominant noise source. |
| 10/12/2022 | 2:20pm  | OOHW 1       | Concrete Pours          | SBT St Marys      | 2 Station Street                 | 42        | 57              | LB, M                          | 52.3                           | 69.9              | -4.7                          | No                      | Verification noise monitoring. Construction activities were dominant noise source. |
| 20/12/2022 | 11:45am | Standard     | Minor Earthworks        | SBT Orchard Hills | 95 Kent Road, Orchard Hills      | 54        | 73              | LB, M, SN                      | 65                             | 83.1              | -8                            | No                      | Verification noise monitoring. Construction activities were dominant noise source. |
| 20/12/2022 | 12:00pm | Standard     | Minor Earthworks        | SBT Orchard Hills | 16 Lansdowne Road, Orchard Hills | 54        | 66              | LB, M, SN                      | 56.9                           | 79                | -9.1                          | Yes                     | Verification noise monitoring. Construction activities were dominant noise source. |



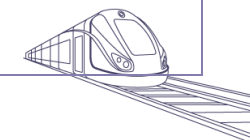
## 2.4. January 2023

| Date       | Time   | Works Period | Construction Activity      | Activity Location            | Monitoring Location                              | NML (dBA) | Predicted (dBA) | Additional Mitigation Measures | Recorded $L_{\text{aeq}, 15\text{min}}$ (dBA) | $L_{\text{Amax}}$ | $L_{\text{Amin}}$ | Exceedance of Predicted (dBA) | Exceedance of Predicted | Comments   |
|------------|--------|--------------|----------------------------|------------------------------|--|-----------|-----------------|--------------------------------|---|-------------------|-------------------|-------------------------------|-------------------------|--|
| 12/01/2023 | 6:30pm | OOHW1        | Concrete Pours             | SBT Site (St Marys)          | 2 Station Street, St Marys                       | 42        | 65              | LB, M, RO, SN                  | 61.5  | 88.8              | 45.7              | -3.5                          | No                      | Verification noise monitoring. Extraneous noise was the dominant noise at the beginning of the test due to the use of a leaf blower by a resident. |
| 13/01/2023 | 9:02am | Standard     | Piling and Excavation      | SBT Site (St Marys)          | 2 Station Street, St Marys                       | 47        | 54              | LB                             | 53.7  | 67.1              | 42.8              | -0.3                          | No                      | Verification noise monitoring. Construction noise was the dominant noise source.   |
| 13/01/2023 | 9:38am | Standard     | Piling and Excavation      | SBT Site (St Marys)          | 2B Chesham Street, St Marys                      | 47        | 66              | LB                             | 52.3  | 72.5              | 47.2              | -13.7                         | No                      | Verification noise monitoring. Construction noise was the dominant noise source.   |
| 23/01/2023 | 3:44pm | Standard     | Shaft Excavation           | SBT Site (Claremont Meadows) | On Site  | 47        | N/A             | LB, M, SN                      | 68.9  | 82.2              | 57.3              | N/A                           | No                      | Verification noise monitoring. Construction noise was the dominant noise source.   |
| 23/01/2023 | 3:18pm | Standard     | Shaft Excavation           | SBT Site (Claremont Meadows) | 7 Dolphin Close/ Gipps Street, Claremont Meadows | 47        | 67              | LB, M, SN                      | 71.6  | 95                | 53.6              | 4.6                           | Yes                     | Verification noise monitoring. Extraneous traffic noise was the dominant noise source.   |
| 23/01/2023 | 6:37pm | OOHW1        | Telehandler and Hand Tools | SBT Site (St Marys)          | 2B Chesham Street, St Marys                      | 42        | 44              | LB, M                          | 50.1  | 68                | 35.9              | 6.1                           | Yes                     | Verification noise monitoring. Extraneous noise (traffic and trains) was the dominant noise source.  |

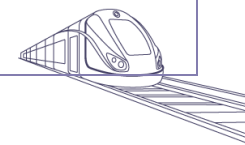


## 2.5. February 2023

| Date       | Time    | Works Period | Construction Activity   | Activity Location           | Monitoring Location                | NML (dBA) | Predicted (dBA) | Additional Mitigation Measures | Recorded Leq, 15min (dBA) | L <sub>Amx</sub> | L <sub>Amin</sub> | Exceedance of Predicted (dBA) | Exceedance of Predicted | Comments  |
|------------|---------|--------------|-------------------------|-----------------------------|------------------------------------|-----------|-----------------|--------------------------------|---------------------------|------------------|-------------------|-------------------------------|-------------------------|---|
| 01/02/2023 | 9:30pm  | OOHW1        | Asphalting Works        | SBT Orchard Hills           | 40 Lansdowne Road, Orchard Hills   | 49        | 85              | LB, M, SN, IB, PV, RO          | 63.5                      | 75.9             | 58.5              | -21.5                         | No                      | Verification noise monitoring. Local traffic and individuals talking caused dramatic increases in noise levels during this monitoring event.  |
| 01/02/2023 | 10:15pm | OOHW2        | Asphalting Works        | SBT Orchard Hills           | 40 Lansdowne Road, Orchard Hills   | 46        | 85              | LB, M, SN, IB, PV, RO          | 65.5                      | 91.8             | 59.7              | -19.5                         | No                      | Verification noise monitoring.  |
| 09/02/2023 | 1:30pm  | Standard     | Hand tools within shaft | SBT Claremont Meadows shaft | SBT Site Claremont Meadows         | 47        | N/A             | LB, M, RO                      | 71.1                      | 84.1             | 77.3              | N/A                           | N/A                     | Verification noise monitoring. Construction noise was the dominant noise source.  |
| 09/02/2023 | 2:30pm  | Standard     | Hand tools within shaft | SBT Claremont Meadows shaft | Gipps Street, Claremont Meadows    | 47        | N/A             | LB, M, RO                      | 71.6                      | 89.8             | 65.2              | N/A                           | N/A                     | Verification noise monitoring. Local traffic and birds were found to be the dominant noise source. Construction activities were inaudible during this monitoring event.   |
| 09/02/2023 | 2:50pm  | Standard     | Hand tools within shaft | SBT Claremont Meadows shaft | 1 Dolphin Close, Claremont Meadows | 47        | N/A             | LB, M, RO                      | 50.2                      | 79.5             | 39.6              | N/A                           | N/A                     | Verification noise monitoring. Local traffic, residential activities, and birds were found to be the dominant noise sources. Construction activities were almost entirely inaudible during this monitoring event. |

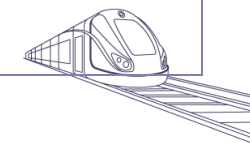


|            |        |       |   |                   |                             |    |    |    |      |      |      |     |     |  |
|------------|--------|-------|---|-------------------|-----------------------------|----|----|----|------|------|------|-----|-----|--|
| 13/02/2023 | 6:25pm | OOHW1 | TBM Crane installation                              | SBT Orchard Hills | 77 Kent Road, Orchard Hills | 49 | 49 | LB | 54.3 | 76.5 | 45.1 | 5.3 | Yes | Verification noise monitoring. Overhead planes, and birds were found to be the dominant noise sources. Construction activities were inaudible during this monitoring event.          |
| 15/02/2023 | 6:45pm | OOHW1 | TBM Assembly, Concrete pour, Station box excavation | SBT Orchard Hills | 77 Kent Road, Orchard Hills | 49 | 49 | LB | 53   | 72.9 | 45.2 | 4.0 | Yes | Verification noise monitoring. Traffic, overhead planes, and birds were found to be the dominant noise sources. Construction activities were inaudible during this monitoring event. |
| 27/02/2023 | 6:15pm | OOHW1 | TBM Assembly, Station box excavation                | SBT Orchard Hills | 83 Kent Road, Orchard Hills | 49 | 48 | LB | 48.7 | 67.9 | 39.8 | 0.7 | Yes | Verification noise monitoring. Traffic, overhead planes, and birds were found to be the dominant noise sources. Construction activities were inaudible during this monitoring event. |



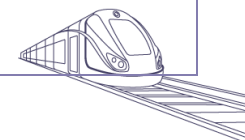
## 2.6. March 2023

| Date      | Time    | Works Period   | Construction Activity | Activity Location              | Monitoring Location                | NML (dBA) | Predicted (dBA) | Additional Mitigation Measures | Recorded L <sub>eq, 15min</sub> (dBA) | L <sub>Amx</sub> | L <sub>Amin</sub> | Exceedance of Predicted (dBA) | Exceedance of Predicted | Comments  |
|-----------|---------|----------------|-----------------------|--------------------------------|------------------------------------|-----------|-----------------|--------------------------------|---------------------------------------|------------------|-------------------|-------------------------------|-------------------------|---|
| 3/03/2023 | 11:21am | Day (Standard) | Shaft Excavation      | SBT Bringelly Service Facility | 45 Derwent Road, Bringelly         | 45        | 56              | LB                             | 57.5                                  | 70.7             | 47.1              | 1.5                           | Yes                     | Verification noise monitoring. Construction was the dominant noise source during this monitoring event.   |
| 3/03/2023 | 11:50am | Day (Standard) | Shaft Excavation      | SBT Bringelly Service Facility | 47 Derwent Road, Bringelly         | 45        | 56              | LB                             | 53.4                                  | 76.7             | 38.2              | -2.6                          | No                      | Verification noise monitoring. Local traffic was found to be the dominant noise source during this monitoring event.  |
| 3/03/2023 | 12:24pm | Day (Standard) | Shaft Excavation      | SBT Bringelly Service Facility | 38 Derwent Road, Bringelly         | 45        | 56              | LB                             | 58.8                                  | 83.3             | 31.7              | 2.8                           | Yes                     | Verification noise monitoring. Extraneous noise was found to be the dominant noise source. Construction activities were inaudible during this monitoring event.                         |
| 6/03/2023 | 8:50pm  | OOHW1          | Anchor Stressing      | SBT St Marys                   | 1b Chesham Street                  | 47        | 47              | LB                             | 47.9                                  | 63.1             | 40.7              | 0.9                           | Yes                     | Verification noise monitoring. Extraneous noise was found to be the dominant noise source. Construction activities were inaudible during this monitoring event.                         |
| 6/03/2023 | 9:15pm  | OOHW1          | Anchor Stressing      | SBT St Marys                   | On-Site Next to hoarding, St Marys | 47        | 47              | LB                             | 50.9                                  | 72               | 45.1              | N/A                           | N/A                     | Verification noise monitoring. On-site monitoring causes for the recorded L <sub>eq 15 min</sub> to be subtracted by 10dB. It is necessary to consider solid barrier (on-site hoarding) |

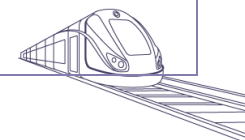




|            |        |       |                             |                                |                                    |    |    |                       |      |      |      |       |    |   |
|------------|--------|-------|-----------------------------|--------------------------------|------------------------------------|----|----|-----------------------|------|------|------|-------|----|---|
| 10/03/2023 | 6:20pm | OOHW1 | TBM Assembly                | SBT Orchard Hills              | 83 Kent Road, Orchard Hills        | 49 | 49 | LB, M, IB, PC, RO, SN | 43.7 | 63.9 | -    | -5.3  | No | Verification noise monitoring. Local traffic (Kent Road) was found to be the dominant noise source during this monitoring event. Construction activities were inaudible at the sensitive receiver during this monitoring event. |
| 10/03/2023 | 6:20pm | OOHW1 | TBM Assembly                | SBT Orchard Hills              | 83 Kent Road, Orchard Hills        | 49 | 49 | LB, M, IB, PC, RO, SN | 41.8 | 70.8 | 43.1 | -7.2  | No | Verification noise monitoring. Local traffic (Kent Road) was found to be the dominant noise source during this monitoring event. Construction activities were inaudible at the sensitive receiver during this monitoring event. |
| 12/03/2023 | 6:15pm | OOHW1 | Bridge works – Lansdowne Rd | SBT Orchard Hills              | 40 Lansdowne Road, Orchard Hills   | 49 | 44 | LB, M, IB, PC, RO, SN | 41.1 | 67.9 | 39.7 | -2.9  | No | Verification noise monitoring. Construction activities were inaudible at the sensitive receiver during this monitoring event.   |
| 13/03/2023 | 6:15pm | OOHW1 | Shaft Excavation            | SBT Claremont Meadows Facility | 1 Dolphin Close, Claremont Meadows | 42 | 67 | LB, M                 | 59.3 | -    | 38.3 | -7.7  | No | Instrument error. The noise monitor failed 6 minutes into the monitoring event. The final reading was unable to be recorded.  |
| 13/03/2023 | 6:30pm | OOHW1 | No work                     | SBT Claremont Meadows Facility | 1 Dolphin Close, Claremont Meadows | 42 | 67 | LB, M                 | 53.4 | 78   | 38.1 | -13.6 | No | Verification noise monitoring. A measure of background noise without construction.  |

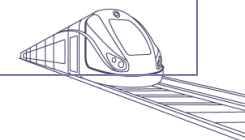


|            |        |       |                  |                                |                                    |    |    |       |      |      |      |       |    |   |
|------------|--------|-------|------------------|--------------------------------|------------------------------------|----|----|-------|------|------|------|-------|----|---|
| 13/03/2023 | 6:45pm | OOHW1 | Shaft Excavation | SBT Claremont Meadows Facility | 1 Dolphin Close, Claremont Meadows | 42 | 67 | LB, M | 48.5 | 69   | 38.1 | -18.5 | No | Verification noise monitoring. Extraneous noise was found to be the dominant noise source. Construction activities were inaudible during this monitoring event. |
| 13/03/2023 | 7:15pm | OOHW1 | Shaft Excavation | SBT Claremont Meadows Facility | 1 Dolphin Close, Claremont Meadows | 42 | 67 | LB, M | 52.3 | 74   | 35.7 | -14.7 | No | Verification noise monitoring. Extraneous noise was found to be the dominant noise source. Construction activities were inaudible during this monitoring event. |
| 13/03/2023 | 7:45pm | OOHW1 | No work          | SBT Claremont Meadows Facility | 1 Dolphin Close, Claremont Meadows | 42 | 67 | LB, M | 45.2 | 64.5 | 29.8 | -21.8 | No | Verification noise monitoring. A measure of background noise without construction.  |
| 13/03/2023 | 8:00pm | OOHW1 | Shaft Excavation | SBT Claremont Meadows Facility | 1 Dolphin Close, Claremont Meadows | 42 | 67 | LB, M | 45.2 | 67.6 | 27.4 | -21.8 | No | Verification noise monitoring. Extraneous noise was found to be the dominant noise source. Construction activities were inaudible during this monitoring event. |



## 2.7. April 2023

| Date       | Time    | Works Period   | Construction Activity | Activity Location     | Monitoring Location               | NML (dBA) | Predicted (dBA) | Additional Mitigation Measures | Recorded $L_{eq, 15min}$ (dBA) | $L_{Amax}$ | $L_{Amin}$ | Exceedance of Predicted (dBA) | Exceedance of Predicted | Comments   |
|------------|---------|----------------|-----------------------|-----------------------|-----------------------------------|-----------|-----------------|--------------------------------|--------------------------------|------------|------------|-------------------------------|-------------------------|--|
| 11/04/2023 | 6:15pm  | OOHW1          | TBM Assembly          | SBT Orchard Hills     | 77 Kent Road, Orchard Hills       | 49        | 49              | LB                             | 42.5                           | 67.2       | 33.2       | -6.5                          | No                      | Verification noise monitoring. Extraneous noise was found to be the dominant noise source. Construction activities were inaudible during this monitoring event.  |
| 14/04/2023 | 1:50pm  | Day (Standard) | Anchor Drilling       | SBT Claremont Meadows | On-site (Inside Hoarding)         | 47        | N/A             | -                              | 55.9                           | 66.1       | 51.6       | N/A                           | N/A                     | Verification noise monitoring. On-site monitoring causes for the recorded $L_{eq, 15min}$ to be subtracted by 10dB. It is necessary to consider solid barrier (on-site hoarding)                                   |
| 14/04/2023 | 3:35pm  | Day (Standard) | Anchor Drilling       | SBT Claremont Meadows | 2 Picnic Place, Claremont Meadows | 47        | 47              | -                              | 48.9                           | 64.9       | 41.1       | 1.9                           | Yes                     | Verification noise monitoring. Extraneous noise was found to be the dominant noise source during this monitoring event. Exceedances were caused by local traffic, aircraft, and the local communities' activities. |
| 28/04/2023 | 10:33am | Day (Standard) | Shaft Excavation      | SBT Bringelly         | 49 Lansdown Road, Bringelly       | 45        | 56              | -                              | 57.1                           | 86.5       | 45.2       | 1.1                           | Yes                     | Verification noise monitoring. Construction works were the main source of noise during this monitoring event. Exceedances were caused due to local traffic, and birds chirping.                                    |



## 3. Additional Mitigation Measures

### Additional Mitigation Measures

LB = Letter box drops

M = Monitoring

SN = Specific Notification

RO = Project Specific Respite Offer

IB = Individual Briefing

PC = Phone Calls and Emails

AA = Alternate Accommodation

**OOHW1** is defined as:

- a. 8:00am to 6:00pm Sunday and public holidays (days).

**OOHW2** 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.

