

# Noise Insulation Program

Noise and Vibration Management Sub-plan

M4-M5 Link Mainline Tunnels

February 2018

THIS PAGE LEFT INTENTIONALLY BLANK

# Contents

<b>Contents</b> .....	<b>i</b>
Document control .....	ii
Approval and authorisation .....	ii
Version Control .....	ii
<b>Glossary/ Abbreviations</b> .....	<b>iii</b>
<b>1 Purpose</b> .....	<b>1</b>
<b>2 Environmental requirements</b> .....	<b>2</b>
2.1 Minister’s Conditions of Approval .....	2
<b>3 Scope of the Noise Insulation Program</b> .....	<b>4</b>
3.1 Properties eligible for treatment .....	4
3.2 At-property treatment packages .....	7
3.3 Process .....	7
3.4 Adequacy review .....	8
<b>4 Noise Insulation Program monitoring</b> .....	<b>10</b>
<b>5 Communication strategy</b> .....	<b>10</b>
5.1 Communication aims .....	10
5.2 Key messages .....	11
5.3 Communication and engagement tools .....	11
<b>6 Responsibilities for the noise insulation works</b> .....	<b>13</b>
<b>7 Insulation program limitations</b> .....	<b>13</b>
<b>8 Program review and amendment</b> .....	<b>13</b>

## Tables

Table 2-1: Minister’s Conditions of Approval .....	2
Table 3-1 Properties to be offered treatment under CoA E88.....	6
Table 3-2 Properties identified in Appendix E of the Approval that have been provided treatment under the Roads and Maritime NAP and are not subject of this Program.....	6
Table 3-3 At-property treatments offered by the Noise Insulation Program .....	7
Table 5-1 Noise treatment installation engagement process table .....	11

## Figures

Figure 3-1 Properties identified in Appendix E of the Approval – Construction Fatigue and Amenity – Mitigation .....	5
--	---

# Document control

## Approval and authorisation

<b>Title</b>	M4-M5 Link Mainline Tunnels Noise Insulation Program
<b>Document No/Ref</b>	M4M5-LSBJ-PRW-EN-MP01-PLN-0012-10
<b>Document Path</b>	

## Version Control

Revision	Date	Description
01	16 August 2018	For DPE Review
02	11 September 2018	Updated following DPE comment
03	3 October 2018	Updated following DPE comment
04	4 October 2018	Updated following SMC comment
05	13 November 2018	For DPE review
06	14 December 2018	Internal review
07	19 December 2018	For DPE review
08	22 January 2018	Internal Review
09	24 January 2019	For DPE review
10	15 February 2019	For DPE Approval

## Internal Review

	Name	Position	Date	Signed/Authorised
Originator(s)				
Review				
Authorised				

### Note:

Revision 07 Document Number has changed from M4M5-LSBJ-PRW-GEN-EV01-PLN-0013-01 (previous revision) to M4M5-LSBJ-PRW-EN-MP01-012-09.

## Glossary/ Abbreviations

Abbreviations	Expanded Text
AA	Acoustics Advisor
AIC	Acoustic Installation Coordinator
Approval, the	Conditions of Approval for WestConnex M4-M5 Link SSI 7485
BCA	Building Code of Australia
CCS	Community Communication Strategy
CEMP	Construction Environmental Management Plan
CoA	Conditions of Approval
CSSI	Critical State Significant Infrastructure
DECC	Department of Environment and Climate Change (now Office of Environment and Heritage)
DP	Deposited Plan
DPE	Department of Planning and Environment
EIS	Environmental Impact Statement
ER	Environmental Representative
ICNG	Interim Construction Noise Guideline (DECC 2009)
LSBJV	Lendlease Samsung Bouygues Joint Venture
NAP	Noise Abatement Program
NML	Noise Management Level
Project, the	M4-M5 Link Mainline Tunnels
Roads and Maritime	Roads and Maritime Services
SMC	Sydney Motorway Corporation
SP	Strata Plan
SSI	State Significant Infrastructure

# 1 Purpose

This Program is a requirement of Condition E89 of the Ministers Conditions of Approval (CoA) for Infrastructure Approval SSI-7485. The purpose of this program is to describe the scope and process for how Lendlease Samsung Bouygues Joint Venture (LSBJV) proposes to conduct at-property treatment at residential receivers during delivery of the M4-M5 Link Mainline Tunnels (the Project) in accordance with the relevant CoA E88, E89 and E90.

The Noise Insulation Program aims to reduce construction fatigue and improve amenity for residential receivers identified in Appendix E of the Conditions of Approval for WestConnex M4-M5 Link SSI-7485 (the Approval), excluding properties which have already been provided treatment via the Roads and Maritime Services (Roads and Maritime) Noise Abatement Program (NAP), through the installation of at-property treatment.

Pending property owner acceptance and access, at-property treatments are to be implemented in accordance with CoA E90, which requires that treatments at all receivers are to be installed within 6 months following construction that would affect the receiver and the implementation of the Noise Insulation Program (e.g. inspections, agreement of property treatment) for high priority receivers must be undertaken within 3 months from the commencement of construction that would affect the receiver. Refer to Section 3 for identification of high priority and remaining at-property treatments to be implemented.

## 2 Environmental requirements

### 2.1 Minister's Conditions of Approval

The CoA relevant to this program are listed Table 2-1 below. A cross reference is also included to indicate where the condition is addressed in this program or other Project management documents.

**Table 2-1: Minister's Conditions of Approval**

CoA No.	Condition Requirements	Document Reference
E88	<p>At receiver noise mitigation in the form of at-property treatment must be offered to the land owner for habitable living spaces, or other mitigation or management measures as agreed by the occupier, to residential properties identified in Appendix E. Mitigation must be offered prior to works commencing.</p> <p>This requirement does not apply if the sensitive receiver has been provided with noise mitigation under the RMS Noise Abatement Program or the <i>State Environment Planning Policy (Infrastructure) 2007</i> (clause 102(3)). The adequacy of at-property treatments will be reviewed where previous treatments have been installed as part of other SSI or CSSI projects.</p> <p><i>Note: This condition does not preclude the application of other noise and vibration mitigation and management measures.</i></p>	<p>Section 3</p> <p>Section 3.1</p> <p>Section 3.2</p> <p>Section 3.3</p> <p>Section 3.4</p>
E89	<p>A Noise Insulation Program must be prepared and implemented for the duration of the CSSI works for receivers at/to which the requirements of Conditions E87 and E88 apply. The Program must be incorporated into the Construction Noise and Vibration Management Sub-plan.</p> <p>The Noise Insulation Program must detail the following matters:</p>	<p>This Program</p>
	<p>(a) receivers eligible for the scheme;</p>	<p>Section 3.1</p> <p>Table 3-1</p>

CoA No.	Condition Requirements	Document Reference
	(b) the scope of the insulation package;	Section 3
	(c) responsibility for the noise insulation works;	Section 6
	(d) procedure and the terms of the noise insulation works;	Section 3
	(e) program monitoring; and	Section 4
	(f) program review and amendment.	Section 8
	The Noise Insulation Program must be endorsed by the AA.	-
E90	Receivers which are eligible for receiving treatment under the Noise Insulation Program required under Condition E89 must have treatment implemented within six (6) months following the commencement of construction which would affect the receiver. The implementation of the Noise Insulation Program must be prioritised based on the degree and duration of exceedance with high priority exceedances undertaken within three (3) months of the commencement of construction.	Section 3.1 Section 3.3



## 3 Scope of the Noise Insulation Program

### 3.1 Properties eligible for treatment

In accordance with CoA E88, Appendix E of the Approval identifies the residential properties that will be offered at-property treatment of habitable living spaces, or other mitigation or management measures as agreed by the occupier, by LSBJV during the delivery of the Project (refer to Figure 3-1 below). These properties are focused around Haberfield and Ashfield, where residents are anticipated to experience construction fatigue and reduced amenity due to the concurrent / enduring construction impacts of the M4 East and the Project.

Table 3-1 details the address of each residential property identified to be within the “Mitigation Zone” depicted in Appendix E of the Approval, excluding properties which have already been provided treatment via the Roads and Maritime Services (Roads and Maritime) Noise Abatement Program (NAP), that will be offered at-property treatment by LSBJV.

LSBJV issued a letter advising the properties in Appendix E that they are eligible for consideration in this strategy in 2018. Detailed consultation and appointments with these properties will commence in February 2019 and treatments will be implemented where property owners accept the offer.

Properties located within the boundary of Appendix E that are located along the northside of Wattle Street and immediately adjacent the Northcote Street site are the most at risk of enduring construction fatigue given their location and absence of operational noise walls installed by the M4 East project, such as those along the southern side of Wattle Street. For the purpose of the Noise Insulation Program, these receivers are considered ‘high priority’ and implementation of the program (e.g. inspections, agreement of property treatment) must be undertaken within 3 months of the commencement of construction that would affect the receiver.

Further, receivers located on the upper floors of the apartment buildings at 115 Alt Street, Ashfield and 124 Bland Street, Ashfield are also at risk of enduring construction fatigue as they are located above the height of the proposed temporary noise wall at the Parramatta West civil site. These receivers are also considered high priority.

All property treatments regardless of priority will be implemented within six months of the commencement of construction where these receivers have been affected.

Receivers are considered “affected”, when construction noise levels greater than the ‘noise affected’ NML as defined in the ICNG, as a result of the Project’s construction activities.

All timeframes are dependent upon landowner’s acceptance of the offer for treatment within the timeframe outlined in Section 5.3 and reasonable access being provided in order for LSBJV to implement the treatments within the desired timeframes.

### M4-M5 Link Mainline Tunnels

Figure 3-1 Properties to be offered treatment under CoA E88

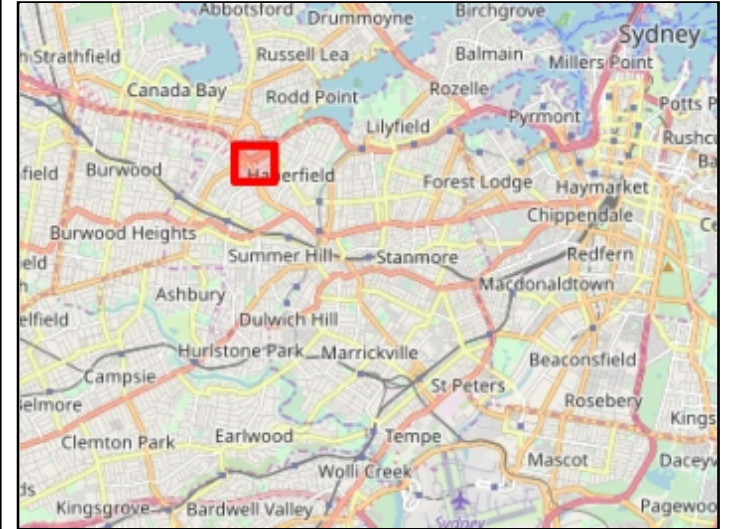
#### Legend

-  Ancillary Facilities
-  CoA Appendix E: Construction Fatigue and Amenity Mitigation
-  Properties treated by M4 East (Adequacy Review)
-  Properties treated under the RMS NAP (no further treatment)
-  High Priority implementation properties
-  Remaining Property Treatments
-  Properties owned by RMS



Units on Level 2 of 115 Alt Street are considered high priority properties

Units on Level 2 of 124 Bland Street are considered high priority properties



**Table 3-1 Properties to be offered treatment under CoA E88**

Street	Street number
High priority implementation of at-property treatment	
Wolseley Street, Haberfield	5
Northcote Street, Haberfield	5, 6
Wattle Street, Haberfield	18, 20, 22, 24, 26, 34, 36A, 40, 44
Alt Street, Ashfield	29/115, 30/115, 31/115, 32/115, 33/115, 34/115
Bland Street, Haberfield	6/124, 7/124, 8/124
Remaining property treatments	
Walker Avenue, Haberfield	1, 3, 5, 5A, 7, 7A, 9, 11, 13, 15, 17, 19, 21, 24, 26, 28, 30, 32, 34
Alt Street, Ashfield	5/115, 6/115, 7/115, 8/115, 9/115, 10/115, 17/115, 18/115, 19/115, 20/115, 21/115, 22/115, 117, 119, 126, 128
Alt Street, Haberfield	137, 1/139, 2/139, 3/139, 142
Bland Street, Ashfield	1/124, 2/124, 3/124, 4/124, 5/124,
Bland Street, Haberfield	135, 136, 137, 138
Parramatta Road, Ashfield	300

In accordance with CoA E88, the adequacy of at-property treatments previously installed by other Critical State Significant Infrastructure (CSSI) and State Significant Infrastructure (SSI) projects; such as WestConnex M4 East will be reviewed during implementation of the Project's Noise Insulation Program. This is discussed further in Section 3.4

A number of residential properties within those identified in Appendix E of the Approval have previously been provided with noise mitigation under the Roads and Maritime NAP (refer to Table 3-2). In accordance with CoA E88, the requirement for LSBJV to offer at-property treatment to these properties does not apply and they will not be addressed in this Program.

**Table 3-2 Properties identified in Appendix E of the Approval that have been provided treatment under the Roads and Maritime NAP and are not subject of this Program.**

Street	Street number
Wattle Street, Haberfield	6-12, 14, 16, 26A, 28, 30, 32, 36, 38, 42, 46, 48, 50, 52, 54, 56, 58
Ramsay Street, Haberfield	1/166, 2/166, 3/166, 4/166

## 3.2 At-property treatments

Analysis will be undertaken by an acoustician to determine which facades are considered noise affected by construction noise at each property. Noise affected receivers identified in Table 3-1 will be offered at-property treatments. At-property treatments will be installed if, during an inspection, it can be confirmed that there are 'habitable zones' as defined by the BCA along noise affected facades. This will depend on individual building layout, orientation of each residence.

Acoustic treatments are only required for rooms deemed habitable (such as bedrooms and living spaces). Rooms that are not habitable (such as wardrobes, hallways, laundries, bathrooms and kitchens that do not adjoin an open plan living area) are not eligible for acoustic treatment.

A short report will be provided to the owner outlining the inspection outcomes, and a plan of affected rooms and the mitigation measures on offer, including location at-property treatment.

The at-property treatments available are presented in Table 3-3.

**Table 3-3 At-property treatments offered by the Noise Insulation Program**

At-property treatments
Mechanical ventilation (e.g. 240v Aeropac systems), door, wall vent and windows seals, acoustic curtains and the provision of secondary glazing system (where a second window pane is installed within an existing window frame, providing additional noise attenuation).

Where installation of a treatments requires mechanical ventilation in order to be installed to meet BCA standards this will be offered to property owners.

Where at-property treatment packages cannot be installed at the property, LSBJV will investigate the provision of other treatment options (refer to Section 3.3).

Should owners not accept at-property treatment, LSBJV will continue to consult with the occupier of the property to determine other appropriate mitigation measures that may be suitable, such as noise cancelling headphones.

As outlined in the Roads and Maritime Noise Mitigation Guideline (Roads and Maritime 2015), financial compensation will not be offered in lieu of undertaking treatments.

## 3.3 Process

1. LSBJV will appoint a suitability qualified person who is experienced in the installation of at-property noise treatments; the Acoustic Installation Coordinator (AIC).
2. The LSBJV Public Liaison Team will attempt to confirm property ownership information from registers such as CoreLogic and from tenants during doorknocks where possible. However, these mechanisms may not result in clear ownership information, as such LSBJV will continue to work in good faith.
3. The LSBJV Interface Manager will liaise with the M4 East project to align treatment approach.
4. The LSBJV Public Liaison Team will make contact with all property owners/occupiers and strata managers (for unit blocks) eligible for treatment from February 2019. Refer to Section 5 for details of the engagement process.
5. Where the property owner/occupiers has indicated they would accept the offer of at-property treatment during the engagement process outlined in Section 5, the AIC will conduct a visual inspection of the property. The inspection would be carried out during daytime hours from Monday to Saturday at a time convenient to the property owner. The property owner will need to arrange LSBJV's access to the property if it is tenanted.

The inspection will focus on the existing features of the property that are relevant to the implementation of at-property treatment, such as:

- Condition of existing windows and doors
- The presence and condition of existing door and window seals
- The presence of fresh air ventilation
- The identification of a suitable location for the installation of mechanical ventilation
- The location of rooms and living areas.

The inspection would also assess the constructability and feasibility of installing the treatment package; including any safety considerations.

6. The AIC will maintain a Noise Insulation Program inspection register. The register will record:
  - Property information including street address, lot and Deposited Plan (DP) / Strata Plan (SP) numbers, project area
  - Property owner details including name, and if possible phone number and email
  - Details of tenant if property is leased
  - Dates, times and methods of contact
  - Any reasons why owner refuses the offer of an inspection or treatment
  - Inspection completion date
  - Details of the property, such as:
    - Condition and description of existing windows/doors/seals
    - List of identified habitable rooms
  - Details of the property inspections findings (including relevant parameters which may prevent implementation of the treatment package)
  - Details of the assessment report discussed with the property owner
  - Date and program details for the treatment to be carried out, if required.
7. Where the AIC identifies that the at-property treatment package cannot be installed at the property, due to safety or constructability constraints (such as poor condition or unsuitable existing windows and doors or no suitable location for mechanical ventilation), LSBJV will investigate the provision of other treatment options.
8. For those owners who accept treatment, and the property inspection confirms that treatments can be implemented, LSBJV will:
  - a. Prioritise the implementation of the Noise Insulation Program (e.g. inspections, agreement of property treatment) for high priority receivers within the first 3 months; and
  - b. Complete all installations within six months.
9. Should owners not accept at-property treatment, LSBJV will continue to consult with the occupier of the property to determine other appropriate mitigation measures that may be suitable, such as noise cancelling headphones.

### **3.4 Adequacy review**

In accordance with CoA E88, the adequacy of at-property treatments previously installed by other Critical State Significant Infrastructure (CSSI) and State Significant Infrastructure (SSI) projects; such as WestConnex M4 East will be reviewed during implementation of the Project's Noise Insulation Program.

Review of adequacy would involve the identification of at-property treatments previously provided by the M4 East project, and comparison against those offered by the Noise Insulation Program. Where previously provided at-property treatments are determined to offer similar or better insulation treatment than those offered by the Noise Insulation Program, this would be recorded in the property report and no further at-property treatments will be required, otherwise the process detailed within this Program will continue.

Table 3-4 outlines the residential properties within Appendix E of the Approval that have previously been offered treatment by the M4 East project. LSBJV will confirm if the below properties have actually had treatments installed. The adequacy of these treatments will be assessed as detailed above. If no treatments have been installed or the treatments are not adequate then these properties will be offered treatment under this Program.

**Table 3-4 Residential properties within Appendix E of the Approval, previously offered treatment by the M4 East project**

Street	Street number
Wattle Street, Haberfield	18, 20, 24, 26, 34, 40, 44
Walker Avenue, Haberfield	26, 30

## 4 Noise Insulation Program monitoring

LSBJV will maintain ongoing monitoring and reporting requirements during the installation process. The installation progress will be provided in updates to the Acoustics Advisor (AA) on a fortnightly basis and will be reported upon by the Environmental Representative (ER) on a monthly basis.

The update to the AA will include the following information relevant to the installation process;

- Doorknock numbers and number of letters issued including:
  - Numbers responded to and accepted
  - Numbers declined and no response.
- Inspections and reports including:
  - Number of inspections carried out and outstanding and where access has been denied despite a confirmed booking
  - Property reports completed including agreed and not agreed
  - Installation of treatments completed, commenced and to be completed
  - Property details such as habitable room list and the condition of existing windows/doors/seals
- Dates for the commencement of high priority at-property treatment implementation
- Trigger dates for commencement of the remaining property treatments
- Locations identified and confirmed as being already treated by alternative methods/requirements
- Safety aspects and other challenges faced which may put the delivery timeframe at risk.

In addition, as part of continuous improvement, the AA and AIC will investigate any Program-related complaints from property owners who have received at-property treatments via the Noise Insulation Program. The investigation will review the implementation of the at-property treatment and identify any opportunities for improvement within the scope of the Noise Insulation Program. Where the investigation finds that the at-property treatment products are faulty or the installation is not satisfactory, rectification works will be carried out within six weeks, subject to property access.

## 5 Communication strategy

### 5.1 Communication aims

The main communication aims in this strategy are:

- Raise awareness of the Project and to provide details about the offer of at-receiver treatment to property owners
- Determine what mitigation (if any) have been previously offered and provided by other projects such as M4 East
- Encourage uptake of treatment and inspection
- Explain the process including terms and conditions, obligations and limitations and inspection procedures
- Provide stakeholders with a central point of contact with the LSBJV Project Team.

## 5.2 Key messages

The key messages in this strategy are:

- All eligible residential properties (refer to Table 3-1) will be offered at-property treatment
- At-property treatment is being offered to minimise the impact of construction noise impacts, construction fatigue and to improve amenity of identified residential receivers, during construction activities
- The property inspection is free, takes around two hours to complete, and is carried out by suitably qualified person who is experienced in the installation of at-property noise treatments
- At-property treatments will be implemented at no cost to the owner and will be installed as soon as practicable at the identified residential properties.

## 5.3 Communication and engagement tools

A range of communication materials will be used to support stakeholder engagement in this strategy. Stakeholders will be given information packs – comprising materials developed by LSBJV and pre-existing project materials – that will target individual information needs.

All communication materials will be available in printed and electronic formats (translations provided as required), with electronic formats uploaded onto the project website where appropriate. Table 5-1 provides for a series of communication and engagement tools to be used.

**Table 5-1 Noise treatment installation engagement process table**

Engagement tool	Activity	Timeframe
Doorknock	<ul style="list-style-type: none"> <li>• Introduce Project</li> <li>• Advice to property owners of their eligibility for treatment and the offer of visual inspection by AIC</li> <li>• Noise Treatment Installation Letter of Offer 1 provided with first contact or left in letter box</li> <li>• Details of LSBJV points of contact (1800 Hotline) encouraging a response</li> </ul>	Initial contact February 2019
Letter to strata management for units	<ul style="list-style-type: none"> <li>• Introduce Project</li> <li>• Advise that a number of units in complex are eligible for treatment and visual inspection by AIC</li> <li>• Details of LSBJV points of contact (1800 Hotline) encouraging a response</li> </ul>	Initial contact February 2019



Engagement tool	Activity	Timeframe
Noise Treatment Installation Letter of Offer 2	<ul style="list-style-type: none"> <li>• Letter sent via Registered Mail</li> <li>• Reminder of the offer and encourage property owner to make contact</li> <li>• Include conditions stating if the offer is not responded to, or not accepted, that project construction works will progress as per program.</li> </ul>	Two weeks after first letter and doorknock
Doorknock 2	<ul style="list-style-type: none"> <li>• Direct contact with property owners who have not responded previously to letters of offer</li> <li>• LSBJV to provide email and phone points of contact</li> <li>• Inform property owners this is the last opportunity to accept the offer of noise treatment installation before construction commences</li> </ul>	<p>Two weeks after second letter of offer sent</p> <p>If there is no response within two weeks of the doorknock, it will be assumed that the property owner does not wish to accept the treatment and project works will progress as programmed.</p> <p>In the case of strata properties this timeframe will be one month</p>
Inspection Phone call	<ul style="list-style-type: none"> <li>• Visual inspection by the AIC of properties who have agreed to at-property treatment installation</li> </ul>	-
Treatment Installation Letter and phone call	<ul style="list-style-type: none"> <li>• Scheduled installation of at-property treatments</li> </ul>	Scheduled to be completed within six months following the commencement of construction which would affect the receiver.

An approach for implementing treatment at eligible properties for property owners who initially declined, only accepted part of the treatment offer or did not respond within the above timeframes will remain open for construction period of the Project. However, it is noted that the installation timeframes will be outside the requirements of CoA E90.

In these instances, a high priority property, will have their initial or additional at-property treatment packages prioritised within three months of the acceptance of the offer. The remaining properties will have their initial or additional at-property treatment packages implemented within six months of the acceptance of the offer.

## 6 Responsibilities for the noise insulation works

LSBJV will be responsible for the project management and installation of the noise insulation works. The LSBJV Public Liaison Team will co-ordinate access and liaise with property owners and occupiers. The AIC, who is experienced in the installation of at-property noise treatments, will co-ordinate the sub-contractors involved with installation of the noise insulation treatment.

LSBJV will be responsible for ensuring at-property treatments have been installed in accordance with the BCA and have been completed to an acceptable standard via close-out inspection, undertaken by the AIC.

## 7 Insulation program limitations

Achievement of installation program targets will be dependent on:

- The property owners responding to LSBJV doorknock, initial letter and subsequent letters and the final letter in a timely manner
- Agreement with the property owner on offered treatments is required
- Similarly, once the treatments design has been finalised, owners of residential properties must either approve or decline the offer within two weeks. If there is no response within two weeks of the design being provided, it will be assumed that the property owner does not wish to accept the offer of treatment and project works will progress as programmed. In the case of strata properties this timeframe will be extended to one month
- During the installation of the treatments LSBJV will require “reasonable” access to the properties. Access will need to be provided within two weeks of the acceptance of the offer and remain available for LSBJV at a later date should it be required
- Safety of LSBJV personnel is paramount, as such where at-property treatments cannot be installed in a safe manner, the at-treatment offer will be reviewed by LSBJV
- LSBJV is not responsible for Roads and Maritime NAP installations
- LSBJV is not responsible for paying for electricity to run the ventilation systems
- LSBJV is not responsible for M4 East at-property treatments that may have already been installed, other than reviewing adequacy as outlined in Section 3.4.

## 8 Program review and amendment

This Strategy forms part of the Construction Environmental Management Plan (CEMP), as such is subject to the management review process as described in Section 3.12 of the CEMP. In addition, the LSBJV Public Liaison and Environmental Teams are responsible for updating this program to reflect lesson learnt and changes required as identified during Program delivery.

Revisions of the Noise Insulation Program will be determined in consultation with the AA and approved by DPE.