REPORT – Condition

D19-Architectural Treatments Local Roads

Project Name: WestConnex New M5

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Document Approval

Rev.	Date	Prepared by	Reviewed by	Recommended by	Approved by	Remarks
00	9/11/16	[redacted]				
01	8/12/06	[redacted]				
Signature:						

Details of Revision Amendments

Document Control

The Project Director is responsible for ensuring that this Report is reviewed and approved. The Support Services Director (SSD) is responsible for updating this Plan to reflect changes to the Project, legal and other requirements, as required.

Amendments

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

Revision Details

Revision	Details
00	Prepared for internal review
01	Update to address DPE comments

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EXECUTIVE SUMMMARY

This Report is a requirement of Condition D19 of the Ministers Conditions of Approval (MCoA) for Infrastructure Approval SSI-6788 (the Project Approval).

The Report is required to be submitted to the Secretary for the Secretary's approval where it will not be feasible and reasonable to install the operational noise mitigation measure/s (in this case operational architectural treatments) prior to commencement of construction works which would affect the identified receivers in the Local Roads area scope of work. This report addresses the compliance requirements of D19, includes feasible and reasonable justification and details of the temporary measures to be implemented while operational architectural treatments are being installed. Further this Report provides for an Installation Strategy as an additional mitigation measure for the earliest possible rollout of operational architectural treatments in the Local Roads area.

The scope of work associated with Local Roads is the upgrade and widening of three local roads, which include Campbell Road / Street, Euston Road and Gardeners Road, St Peters. Construction works on these local roads will be undertaken during standard construction hours. Works will be undertaken along the full length of each road for a period of up to 2 years. Each road is staged in half's which is associated with switching traffic from on side to the other for each road after each half is completed.

The Report finds it is not feasible or reasonable to complete installatation of all operational architectural treatments in full prior to construction works commencing on the Local Roads. The following are summary reasons as to why:

- Operational traffic noise models need to be finalised to identify the location of receivers who quality for treatment and to confirm the treatment package types. The design and all traffic data is required prior to finalising the identification of locations and types. This process takes approximately 6 - 8 months (April 2016 to November 2016).
- The timeline to install operational treatments at a property takes a number of weeks to complete and is largely dependant on the responsiveness of the home owners. To complete installation of treatments at all properties prior to scheduled construction is not possible as construction on Local Roads is scheduled to commence in December 2016.
- Construction is due to commence in December 2016 and delaying construction of Local Roads to enable full operational treatment installation would result in a program delay of 9-11 months. The impacts of delay ranges from extended community and environmental impacts to substantial commercial costs to the public.

The Report also includes details of the temporary measures that would be implemented to reduce construction noise impacts until operational measures are implemented. These measures include, but are not limited to, the following:

- Temporary noise barriers as provided for in the Temporary Noise Barrier Strategy (TNBS) for the Local Roads area under condition D20;
- Measures approved under the Construction Noise and Vibration Management Plan (CNVMP);
- An Installation Strategy which includes the following:
    - Early identification of treatment locations and types
    - Early consultation with affected receivers
    - Early targeted implementation of treatment installation program which targets full installation by July 17 rather than October 17
    - Weekly updates to the Department of Environment and Planning (DPE) and monthly auditing and review by the Environmental Representative (ER) on the progress of the Installation Strategy.

1. Introduction

1.1. Project Description

WestConnex is one the NSW Government's key infrastructure projects which aims to ease congestion, create jobs and connect communities. It is the largest integrated transport and urban revitalisation project in Australia.

The 33 kilometre project was a key recommendation of the State Infrastructure Strategy released in October 2012. It brings together a number of important road projects which together form a vital link in Sydney's Orbital Network. They include a widening of the M4 east of Parramatta, a duplication of the M5 East and new sections of motorway to provide a connection between the two key corridors.

Figure 1: WestConnex project map

WestConnex will support Sydney's long term growth and boost the city's economic productivity. It will:

- Provide quicker, more reliable trips between Western Sydney and the Port Botany/Sydney Airport precinct to support Sydney's urban freight task
- Help distribute traffic across the wider road network, removing bottlenecks and relieving congestion for local trips
- Provide better connections along the M4 and M5 corridors to cater for the forecast growth in employment and population along these routes
- Allow urban revitalisation and increase opportunities for active and public transport along and across Parramatta Road.

The WestConnex project includes a number of stages:

- Stage 1a – M4 Widening
- Stage 1b – M4 East
- Stage 2 – New M5
- Stage 3 – M4-M5 Link

In November 2015, the Sydney Motorway Corporation (SMC) awarded the CPB Dragados Samsung Joint Venture (CDS-JV) the contract for the design and construction of Stage 2 – New M5.

The New M5 will run from the existing M5 East corridor at Beverly Hills via a tunnel to St Peters, providing improved access to the airport, south Sydney and Port Botany precincts.

Key features of the New M5 include:

- New twin tunnels which are higher, wider and flatter, which will more than double capacity along the M5 East corridor and provide motorway access to north of Sydney Airport
- A new interchange at an industrial site at St Peters, which reduces the impact on nearby residential areas
- Connections from the interchange to key roads in the area, including Campbell Road/Street, Euston Road and across the canal to Bourke Road
- Widening of Campbell Road/Street and Euston Road through existing road widening reservations
- Western tunnel entry and exit points at Kingsgrove.

Stage 2 of WestConnex is being accelerated following an historic funding agreement signed by the Australian and New South Wales Governments in May 2014.

This has allowed work to start on the M5 - King Georges Road Interchange upgrade.

The duplication of the M5 East corridor will improve travel times and reliability for the 100,000 motorists which use this key route every day.

It will allow for improved movement of freight to and from the Port Botany area and provide an express route between Western Sydney and Sydney Airport once WestConnex is completed.

1.2. Scope

1.2.1. Local Roads Work Scope

The scope of works associated with Local Roads is principally the upgrade and widening of three main roads and some minor offshoot roads (refer to Figure 1).

These roads and their scheduled program date for construction commencement are:

1. Campbell Road / Street – December 2016
2. Euston Road – January 2017
3. Gardeners Road – February 2017

Figure 1: Local Roads Locations

1.2.2. Report Scope

Condition D19 of the Infrastructure Approval SSI-6788 (the Project Approval) relates to managing construction noise impacts at affected receivers but only for areas identified as requiring permanent noise mitigation measures to manage operational noise. Condition D19 reads as follows:

"The Proponent must implement operational noise mitigation measures (such as noise barriers or at-property architectural treatments) in areas where the documents referred to in conditions A2 (b) and A2(c) have identified the receivers would be subject to construction noise impacts and in areas where existing noise barriers are to be altered or removed prior to commencement of construction, where feasible and reasonable. Where this is not feasible and reasonable, the Proponent must submit to the Secretary for approval a report providing justification as to why along with details of the temporary measures that would be implemented to reduce construction noise impacts until such time that the operational noise mitigation measures are implemented.

The report must be provided to the Secretary prior to the commencement of construction works which would affect the identified receivers.

Nothing in this condition prevents the Proponent from submitting separate reports for separate areas of construction."

Condition D19 requires the submission of a “Report” to the Secretary for the Secretary’s approval where it will not be feasible and reasonable to install the operational noise mitigation measure/s prior to commencement of construction works which would affect the identified receivers. Further details of mitigation measures to reduce the construction noise need to be detailed should we be unable to implement the operational treatment.

This Report is in relation to the installation of operational architectural treatments in relation to Local Roads and constitutes a Report under condition D19 as operational architectural treatments cannot be feasibly or reasonably installed prior to construction commencement of local roads.

This Report has been divided into two parts. Part 1 addresses the compliance requirements of D19. Part 1 of this Report specifically addresses the following:

- Feasible and reasonable justification.
- The temporary measures to be implemented while operational architectural treatments are installed.

Part 2 of this Report provides a strategy for the staged rollout of operational architectural treatments in the Local Roads area. Specifically Part 2 addresses the following:

- Stages to the process
- Consultation
- Program of installation

PART 1 – COMPLIANCE WITH D19

2. Feasible and Reasonable

The WestConnex New M5 Environmental Impact Statement (EIS) had identified a number of properties where noise modelling predicted the NSW Government's operational traffic noise goals could be exceeded (as set out in the Road Noise Policy (CECCW, 20211) and the Environmental Noise Management Manual (RTA, 2001). It is important to note that the model used for the EIS was based on a concept design which is considered to be only 15-20% complete of the final design. Further the EIS, based on incomplete design, listed a number properties that maybe eligible to receive architectural treatment subject to further investigation and evaluation. Approximately 138 properties (not including units / apartments) have been identified by the EIS within the Local Roads area to potentially be eligible for architectural treatment. Table 1 below and Appendix 1A provides the locations of these properties and in general lists them against their generally respective operational noise source. In summary the breakup between sources are as follows:

- Approximately 133 locations affected by Campbell Road / Street operation;
- Approximately 4 locations affected by Euston Road operation;
- Approximately 1 location affected by Gardeners Road operation.

Table 1: Properties listed in the EIS that may be eligible for treatment

Location of Operational Road	Properties / locations * that maybe affected by operational road and maybe eligible for operational treatment (Local Roads)
Campbell Road / Street	2, 4, 6, 8, 10, 12, 14, 16 ,18 , 20 , 22 , 24 , 26 , 28 , 30 , 32 and 34 Campbell Road Alexandria (17 locations)
	19, 21, 23, 25, 27, 29, 63-65 and 67 Campbell Street Alexandria (8 locations)
	53 Barwon Park Road St Peters (No treatment Required - Type 2 treatment undertaken as part of Development Consent for new structure - DA201200026)
	19, 21, 23 , 25 , 27 , 29 , 31 , 33 , 35 , 37 , 39 , 41 , 43, 45, 47, 49, 51 , 53 and 55 Lackey Street St Peters (19 locations)
	58 , 71, 73, 77, 79, 81, 83, 85, 87, 101 and 60-68 Hutchinson Street St Peters (11 locations)
	3, 5, 7, 9, 10,12, 11 , 13, 15, 16, 17, 19, 21, 22, 23, 24, 25 and 30 Brown Street St Peters (18 Locations)
	4, 6,7, 8, 9,10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 24, 26 and 29 Florence Street St Peters (20 Locations)
	1b, 4, 5, 6, 7, 8, 9, 11, 12, 13, 15, 16, 17, 18, 21, 23 and 31 St Peters Street St Peters (17 Locations)
	75, 77, 79, 81, 83, 85, 87, 89 and 91A-D Church Street St Peters (9 locations)
	159 Princes Highway St Peters (1 location)
	38, 44, 65, 67, 71, 73 and 75 Crown Street St Peters (7 locations)
	53, 31, 35, 47, 49 and 51 Barwon Park Road St Peters (6 locations)
Euston Road	93-103 and 125 Euston Road Alexandria (2 locations)
	220-230 and 288-302 Lawrence St Alexandria (2 locations)
Gardeners Road	8/635 Gardeners Road Mascot (1 location)

* Does not indicate individual units / apartments

The accurate determination of treatment locations and types are dependent upon the finalisation of the permanent design and then subsequently finalising the noise model whose outputs will be the identification of treatment locations and their respective types. In order to confirm the locations and types of treatment

(i.e. Type 1 or Type 2 treatments) various stages of design must be completed in a sequential order. There are 7 main stages to design / model process. Each of these stages are summarised in Table 2 which also includes their current status of implementation for the Project.

Table 2: Finalised Design and Model – Stages for identification of treatment location and type

No	Stage	Stage Completed (Yes / No)	Completion Date
1	Conduct site surveys and inspections where clarification is required and input into model	Yes	Commenced April 2016 and completed Sept 2016
2	Finalise vertical and horizontal road alignment including negotiation with adjacent local authorities		
3	Digitise road alignment surrounding topography and dwellings into the model		
4	Obtain RMS concurrence with model inputs parameters and interpretation of policy	Yes	Commenced Sept 2016 and completed Oct 2016
5	Run model results and compare with EIS results	No	Est. completion Nov 2016
6	Discuss results with RMS and agree any modifications to the model	No	Est. completion Dec 2016 / Jan 2017
7	Re-run the model and identify properties eligible for property treatments;	No	Est. completion Feb 2017 / March 2017

Once property locations and treatments are verified (as provided in table 2), the final stages of architectural installation needs to be completed. These stages include, in sequence, the following:

1. Negotiation with property owners on timing and availability of access to identify scope and complete treatments;
2. Issue scope to subcontractors to install treatments;
3. Commence and completed the physical installation process.

As provided in Table 1, the EIS listed a number of properties that may require architectural treatment. It is expected that a quantity of a similar size and nature will be identified on finalisation of the noise model. The timeframe required to complete steps 1 to 3 above have been presented in more detail under an optimistic 6 to 10 week program per property (refer to Appendix 2). In allowing 6-10 weeks, the following assumptions were made:

- The property owners responding to the initial letter in a timely manner.
- Allowance of one week to organise appropriate access and conduct the physical inspection of the premises (inspections take approximately 2 hrs.).
- One week to complete the report.
- Up to 6 weeks to source required materials and install the required treatment, dependant on requisite works and material lead time.

Although rolled out concurrently with other properties, the complete installation of treatments across the local roads area represents a significant undertaking in terms of time. The process in practice will be subject to the following time limiting factors:

- Late responses by property owners and agreeing access at the earliest convenient time. Based on dilapidation survey responses to date, less than 30% of property owners are responding.
- Agreement with the property owner on the treatments required.
- Agreed convenient access times to complete treatments.
- Treatment installation timeframes will be subject to amount of treatment required.
- Not all properties will be owner occupied and timeframes will be longer for those being rented / leased.

The installation of property treatments cannot be feasibly and reasonably be undertaken prior to construction commencement. The main reason will be the time required to complete the process and the resultant

substantial project delay and associated implications with such a lengthy delay. Table 3 and Figure 1 provides a summary of the time related impacts should construction not be able to commence prior to installing architectural operational treatments. The feasible and reasonable implications associated with delay include, but are not limited to, the following:

1. The staged process for design and finalisation for the noise model represents dates that go past the scheduled construction commencement date. This represents a 2-3 months delay should it be applied as a preconstruction condition (refer to table 3). The Project team has considered the installation of the current EIS listed properties prior to design and model completion however undertaking such a course of action provides for a number of unacceptable outcomes. These include:
    a. The properties listed in the EIS are indicative only and to use that list could be misleading to the public;
    b. Installation of measures at properties that did not require treatment and missing properties that did require treatment;
    c. Installation of the wrong type of treatment and inconveniencing the property owner by revisiting and installing additional controls.

2. When point 1 is coupled with the installation period, the final installation of treatments as a preconstruction condition would represent a total minimum construction delay of approximately 9-11 months.
3. Consequential impacts from points 1 and 2 including:
    a. Localised and project wide prolonged environmental impacts including noise and dust impacts.
    b. Prolonged traffic and pedestrian impacts.
    c. The stand down and loss of project resources resulting in risk to further project delay.
    d. Government and contractor commercial impacts.
    e. Impacts on the community from prolonged construction resulting in community fatigue.

Table 3:

Operational Road Location	Noise Model Completion	Est Installation Completion*	Construction Date	Approx Delay (mnths)
Campbell Road / Street	Feb 2017	Oct 2017	Dec 2016	11 months
Euston Road	Feb 2017	Oct 2017	Jan 2017	10 months
Gardeners Road	Feb 2017	Oct 2017	Feb 2017	9 months

Figure 1: Indicative Timeline for noise model finalisation and installation of treatments – Minimum Delay Scenario

Stage	Item	Apr 16-Sept 16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	MONTH / YEAR
1	Conduct site surveys and inspections where clarification is required and input into model	1														
2	Finalise vertical and horizontal road alignment including negotiation with adjacent local authorities	2														
3	Digitise road alignment surrounding topography and dwellings into the model	3														
4	Obtain RMS concurrence with model inputs parameters and interpretation of policy		4													
5	Run model results and compare with EIS results			5												
6	Discuss results with RMS and agree any modifications to the model				6											
7	Re-run the model and identify properties eligible for property treatments;					7										
8	Notification to property owners to arrange commencement of Stage 1						8									
9	Stage 1 - Property Inspection and Evaluation *							9 (Approx 138 properties, 2-3 properties per day undertaking 5 days / week								
10	Stage 2 - Installation of Treatments **								10 Approx 138 properties, 4-5 property treatments / week (total of 28 weeks) and done at the same time Property Inspections							
	Current Construction Commencement Campbell Rd / St															9-11 mnths delay
	Current Construction Commencement Euston Rd															
	Current Construction Commencement Gardeners Rd															

Final Property Treated / Construction can commence (based on assmption that all properties to be treatyed prior to commecning Local Roads scope)

NB:

- Assumes Finalised model is the same number properties (138) in the EIS

3. Interim Noise Mitigation Measures

The project has considered a number of interim temporary noise mitigation measures as a result of construction works and the subsequent effects taking into account the progressive installation of the architectural treatments within the Local Roads area.

Several other conditions within the Planning Approval (the PA) take into account mitigation and management measures that address this issue. These include:

- Condition D20 provide for Temporary Noise Barrier Strategy (TNBS), and
- Condition D68 (b) for Construction Noise and Vibration Management Plan (CNVMP).

These are discussed in further detail below. Both D20 and D68 (b) require DPE approval prior to commencing construction works.

3.1. Campbell Road / Street Temporary Noise Barrier Strategy (TNBS)

The overall approach of the TNBS is to ensure that reasonable and feasible temporary noise barrier solutions are developed and implemented in accordance with CoA whilst specifically consulting with stakeholders and highly effected landowners to address their concerns.

A key component of the TNBS was the identification of sensitive receivers based on the proposed construction footprint. Sensitive receivers are detailed in the Construction Noise and Vibration Management Plan. Sensitive receivers are reviewed considering CoA D20 and specifically identified for consultation, especially landowners and residents directly adjacent to proposed temporary noise barriers.

Noise barriers have been strategically positioned to account for optimum acoustic performance, key considerations were also given to minimize the visual impact to residents.

Modelling and assessment of construction noise impacts have been determined using SoundPLAN v7.3 software, the modelling considers three different source heights to account for the different vehicle noise sources such as car exhaust/engine noise, tyre noise, truck engine noise, and high truck exhausts. A noise management schedule has been prepared for the site identifying the noise mitigation strategies that are to be incorporated into the site design to minimise noise impact where it may occur.

Barrier options have been developed considering a variety of acoustic ratings and noise wall performance levels, options have been subsequently matched to required Rw ratings determined from the modelling process. The TNBS focuses on reducing construction noise as far as for those along the boundary of the works. Targeting the boundary also enable those locations further out for the works to benefit from mitigation.

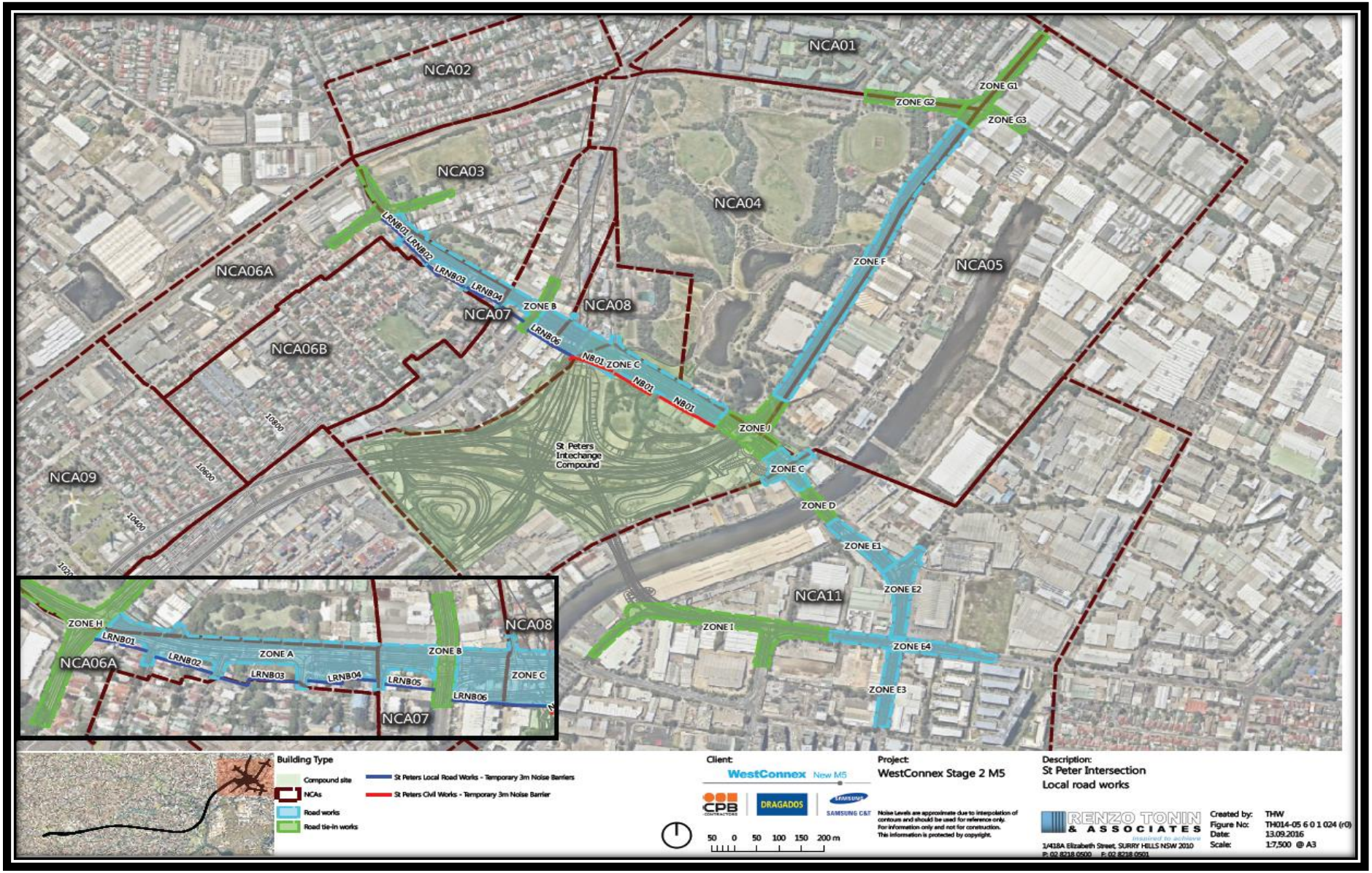
For Campbell Road / Street two types of noise barriers options will be used. These are longer term temporary noise barriers and temporary noise screens.

Temporary noise screens (usually 2 meters in height, refer to figure 2) will be used along the northern boundaries of Campbell Street. Construction of temporary noise barriers along the northern boundary is not feasible as it would impact on third party land in addition to impacting public access to footpaths, property entrances and driveways. Further the works boundary on the northern side of Campbell St will be shifted regularly.

The indicative locations for the longer term temporary noise barriers (3 meters in height) are provided in figure 3. These barriers can be installed along the southern boundary of Campbell Street as they don't interfere with the ongoing construction of the permanent works.

Figure 2: Temporary noise screens

Figure 3: Indicative temporary Noise Barriers Campbell Street and Campbell Road



3.2. Construction Noise and Vibration Management Plan

The CNVMP details on site management and other mitigation requirements to manage construction noise. Mitigation measures are outlined in Section 6 of the CNVMP. The measures include but are not limited to the following mitigation measures:

- Allocation of responsibilities and duties to various construction personnel
- Site training and inductions
- Use quieter & less noise emitting construction methods where feasible & reasonable
- Plan traffic flow, parking & loading/unloading areas to minimise reversing movements within the site
- Where reasonable & feasible, use structures to shield residential receivers from noise
- Regular verification checks on the noise emissions of all plant and machinery used for the Project
- Restricting hours of operations where feasible and reasonable

The CNVMP was fully approved by DPE on 7th October 2016.

PART 2 – OPERATIONAL ARCHITECHURAL TREATMENTS – INSTALLATION STRATEGY

4. Background Information – Operational Noise Modelling and Architectural Treatment Types

4.1. Operational Noise Modelling

Noise predictions are based on a method developed by the UK Department of Environment entitled "Calculation of Road Traffic Noise (1988)" known as the CoRTN (1988) method. This method has been adapted to Australian conditions and extensively tested by the Australian Road Research Board and as a result it is recognised and accepted by the NSW EPA. The model predicts noise levels for steady flowing traffic and noise from high truck exhausts is also taken into account.

The noise prediction model takes into account:

- Traffic volume and heavy vehicle forecasts
- Vehicle speed
- Road gradient
- Location of the noise sources
- The differing source heights of cars and trucks (3-source heights used)
- Ground reference levels of the road and receivers
- Separation distances of the road to receivers
- Ground type between the road and receivers
- Angles of view of the road from the receiver's position
- Attenuation from barriers (natural and purpose built) and cuttings
- Reflections from barriers, cuttings, roadside structures etc.
- Corrections for low-noise road pavements
- Corrections for building facade reflections under Australian conditions

Finalisation of the permanent design is essential to noise model accuracy and the determination of treatment locations and types.

4.2. Architectural Treatment Types

There are two main types of architectural treatments available. The determination of the treatment is first through the finalised noise model. The treatment types are summarised in Table 4 below.

Table 4: Treatment Categories

Treatment Type	Sub Type	Scope of Treatment	Description of treatment
Type 1	Treatment 1A	Mechanical ventilation only	Where external noise levels are less than 5dB (A) above the external assessment criteria, the internal noise goals may be achieved with windows closed. If the internal noise goals can be achieved with windows closed, then mechanical ventilation should be considered to ensure fresh airflow inside the dwelling so to meet the requirements of the Building Code of Australia. It is important to ensure that mechanical ventilation does not provide a new noise leakage path into the dwelling and does not create a noise nuisance to neighbouring residential premises.
	Treatment 1B	Mechanical ventilation, sealing of wall vents and upgraded seals for windows and doors	Where external noise levels are less than 10dB (A) above the external assessment criteria, the internal noise goals may be achieved with windows closed and wall vents are sealed. Special acoustic grade seals may also need to be installed on windows and perimeter doors exposed to noise to enable the internal noise criteria to be achieved with windows and doors shut. If the internal noise goals can only be achieved with windows closed, then mechanical ventilation should be considered to ensure fresh airflow inside the dwelling so to meet the requirements of the Building Code of Australia.
Type 2	NA	Upgraded seals for windows and doors	Where the predicted external noise level exceeds the external assessment criteria by significantly more than 10dB (A), then upgraded windows and glazing and the provision of solid core doors would be required on the facades exposed to the noise, in addition to the mechanical ventilation, sealing of wall vents and acoustic seals for windows and doors described in Treatments 1A and 1B. Note that these upgrades are only suitable for masonry type buildings. It is unlikely that this degree of upgrade would provide significant benefits to light framed structures should there be no acoustic insulation in the walls.

5. Installation Strategy

5.1. Strategy

This Strategy, in addition to those temporary mitigation measures required during construction (refer to section 3), focuses on the installation of operational treatments as early as possible in order to further assist in the reduction of construction noise impacts.

In order to facilitate a faster design and noise modelling process, the following has been undertaken:

- Commencement of the detailed design process immediately after approval of the SSI;
- Early negotiation and finalisation of the alignment with local authorities;
- Fast tracking agreements for model inputs with stakeholders;
- Ongoing and regular meetings between stakeholders during the design and modelling process;

Further and post design and modelling the following will be undertaken:

- The commitment to undertake architectural treatment at all properties identified by the EIS (138 nominated properties) in parallel with finalising the noise model / treatment types / locations. Most of the 138 properties have already been verified in the finalised model completed in November. Additional properties identified will be undertaken in accordance with the process provided in Figure 3 of this Report
- Prioritising installation to those who are impacted first and in line with construction program (for example properties sharing a property boundary with the construction works). For example targeting the installation of type 2 treatments along Campbell Street and Campbell Road.
- Development and implementation of an effective consultation with property owners to agree fast access to assess properties and install treatments.
- The process for consultation with the identified 138 properties will commence in November 2016 and the installation of treatments commenced shortly afterwards in order to facilitate earlier implementation of treatments. This results in treatment installed up to 3 months earlier than anticipated (refer to Figure 4 Mitigated Timeline).

The flowchart provided in Appendix 3 is a diagrammatic representation of the overall installation process from initial contact with a property owner, through to the inspection of a property and installation of architectural treatment, if required.

The installation process is undertaken in two district phases which are overlapped with a consultation process. The consultation process is discussed in section 5.2 of this Report.

Figure 3: Mitigated timeline

Stage	Item	MONTH / YEAR: Apr 16-Sept 16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17
1	Conduct site surveys and inspections where clarification is required and input into model	1													
2	Finalise vertical and horizontal road alignment including negotiation with adjacent local authorities	2													
3	Digitise road alignment surrounding topography and dwellings into the model	3													
4	Obtain RMS concurrence with model inputs parameters and interpretation of policy		4												
5	Run model results and compare with EIS results			5											
6	Discuss results with RMS and agree any modifications to the model				6										
7	Re-run the model and identify properties eligible for property treatments;					7	Model finalised to confirm remaining properties								
8	Notification to property owners (138 both confirmed and not confirmed) to arrange commencement of Stage 1			8											
9	Stage 1 - Property Inspection and Evaluation				9 (Approx 138 properties, 2-3 properties per day undertaking 5 days / week										
10	Stage 2 - Installation of Treatments					10 Approx 138 properties, 4-5 property treatments / week (total of 28 weeks) and done at the same time Property Inspections									

NB:

- **Model completed in November has confirmed most of the 138 properties needed treatment**
- **138 properties will be notified and process commenced November 16 (includes confirmed prooperties and non-confirmed)**
- **Assumes Finalised model is the same number properties (138) in the EIS**

5.2. Process for installation

5.2.1. Stage 1 - Property Inspection and Verification

- An experienced property consultant conducting a visual inspection of the property. The inspection will be carried out during daytime hours from Monday to Saturday at a time convenient to the property owner or tenant.
- The inspection focuses on the materials used to construct the building, as well as the location of rooms and living areas and other acoustic features. These include wall and floor coverings, methods and types of construction, aspects of features such as ceilings, windows, doors and any ventilation (vent locations, air-conditioning etc.).
- CDS-JV and the consultant will maintain an acoustic inspection register. The register will record:
    - property information including street address, lot and DP/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
    - inspection completion date
    - details of the assessment report is discussed with the property owner
    - date and program details for the treatment to be undertaken, if required

5.2.2. Stage 2 - Installation of Treatments

The installation of treatment generally takes several weeks to complete and could involve:

- Sealing of wall vents and upgrading windows and doors seals.
- Installing ventilation such as fans to maintain the flow of fresh air when windows and doors are closed.
- Upgrading of windows and doors.

The CDS-JV has developed a well-coordinated, targeted and timely communication approach to support the planning, delivery and monitoring of this program. The approach covers stakeholder identification, key messages, potential issues and mitigation measures.

For some stakeholders, the inspection letters will be their first contact with the New M5 project team. Establishing effective, responsive engagement during this communication will help establish the foundation for ongoing and proactive community engagement across the life of the project.

5.3. Property Owner Consultation Process

As previously discussed there is a commitment to undertake EIS nominated property treatment areas (138 nominated properties) in parallel with finalising the noise model / treatment types / locations. Most of the 138 properties have been verified in the finalised model completed in November. The process for consultation with 138 properties will commence in November 2016 and the installation of treatments commenced shortly afterwards in order to facilitate earlier implementation of treatments.

The communication and engagement approach relates specifically to the implementation of the requirements of Condition D19 (at property treatment).

5.3.1. Notification and Installation timeframes

Appendix 2 provides an indicative timeline ranging from letters to be sent to property owners, through to three rounds of contact with property owners to encourage registration and finally, the conduct of the inspection, report preparation, negotiation with the property owner and implementation of treatment. The Notification and installation period is approximately 6- 10 weeks once the property has been verified as requiring operational architectural treatment.

5.3.2. Communication Aims

The main communication aims in this strategy are:

- raise awareness of the New M5 project and an understanding of the purpose of inspection
- encourage uptake of inspection
- explain the process including terms and conditions, obligations and limitations and inspection procedures
- provide stakeholders with a central point of contact with the CDS-JV project team

5.3.3. Key Messages

The key messages in this strategy are:

- All properties identified within the EIS and noise assessment reports may be eligible for an acoustic assessment.
- The location and treatment type is dependent upon finalization of the permanent noise model
- The acoustic assessment is free, around two hours to complete, and is undertaken by experienced property inspection consultants.
- If a property is assessed as needing architectural treatment, such treatment will be provided at no cost to the owner and as soon as possible installed at the owner's premises.

5.3.4. 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 the CDS-JV and pre-existing project materials – that will target individual information needs.

All communication materials will be available in printed and electronic formats, with electronic formats uploaded onto the WestConnex website where appropriate. Draft copies of the notification letters, noise reduction treatment for properties fact sheet and the property inspection and treatment acceptance process are provided in Appendices 4 to 6. Table 5 provides for a series of communication and engagement tools to be used.

Table 5: *Communication and engagement tools/activities*

Tool	Purpose	Distribution channel
Inspection offer letters 1 and 2	• Advice to property owners of their eligibility for an inspection, encourage registration, provide contacts for follow-up information or enquiries. • Follow up letter to remind and encourage registration	Addressed mail, sent to property owners' address. Project email and phone number provided for enquiries and registrations
Noise reduction treatment for properties fact sheet	• Answer commonly asked questions, prompt property owners to consider the benefits of the inspection and potential treatment	Distributed with inspection letters. Used by community team and inspection consultant when talking to stakeholders. Available on WestConnex website.
Doorknock and/or phone contact	• Targeted contact with property owners who have not responded to previous contact.	CDS-JV to make direct contact via door-knock or phone Project email and phone number provided for enquiries and registrations

5.4. Installation Program

5.4.1. Staging

CDS-JV has commenced the installation process for operational architectural treatment as described under sections 5.1 and 5.2 of this report. The process of installation commenced early to enable CDS-JV's the best efforts to install the operational mitigation measures which provide supplemental support / mitigation to those construction mitigation measures identified in section 3 of this Report

The installation process commenced in November 2016 and will be undertaken in two overlapping stages. Stage A targeted locations which where decided to be unchanged my modelling from the EIS. These locations were front line impacted properties for those locations where construction was due to commence in December 2016. This involved 38 properties Campbell Road / Street.

The next stage, Stage B, commenced at the beginning of December 2016. Stage B targets the remaining properties identified in the EIS / finalised model.

Included and assessed as part of the installation process under Stage A and B is the identification of properties within those stages already treated. A number of locations will have already been treated as part of the construction requirements for Aircarft noise exposure. An example of pre-treatment was identified at 53 Barwon Park Road, St Peters. This location had already undergone Type 2 treatment as part of the Development Consent for the new structure.

In summary the program for installation and timing for each stage can be summarised as follows:

- Stage A – 38 properties Campbell Road / Street – November 2016 to March 2017
- Stage B – Remaining properties – December 2016 to July 2017

5.4.2. Ongoing Monitoring and Reporting

CDS-JV will maintain ongoing monitoring and reporting requirements during the installation process. The installation progress will be provided in updates to DPE on a weekly basis and will be reported upon by the ER on a monthly basis.

The update to DPE will include the following information relevant to the 2 staged installation process provided in section 5.2 and the consultation process under section 5.3 of this report:

- Stage 1 including:
    - Letters provided including:
        - Number responded to and accepted
        - Numbers declined
    - Inspections and Reports including:
        - Number of inspections undertaken and outstanding
        - Property reports completed including agreed and not agreed
- Stage 2 including:
    - Installation of treatments completed, commenced and to be completed
    - Locations identified and confirmed as being already treated by alternative methods / requirements

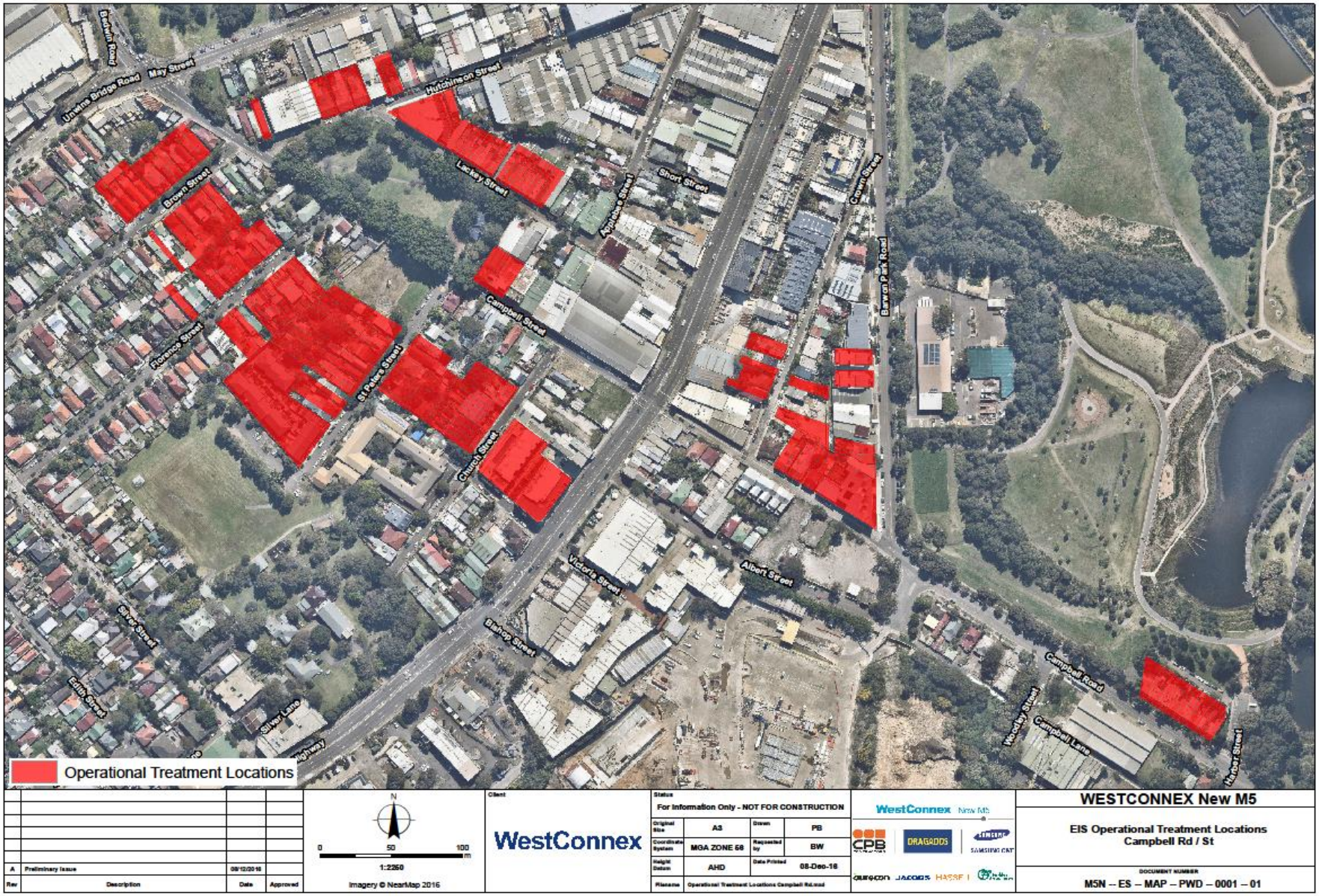
5.4.3. Installation program limitations

The parts of the installation processes have been mitigated as much as possible by CDS-JV. The timeframes for installation of both Stages A and B are subject to timeframes influenced by the property owner. Installation is therefore subject but not limited to the following:

- The property owners responding to the initial letter or subsequent letters in a timely manner.

- Allowance of one week to organise appropriate access and conduct the physical inspection of the premises (inspections take approximately 2 hrs.).
- One week to complete and undertake reviews and checks of the report.
- Requisite works and material lead times.
- Late responses by property owners and agreeing access at the earliest convenient time. Based on dilapidation survey responses to date, less than 30% of property owners are responding.
- Agreement with the property owner on the treatments required.
- Agreed convenient access times to complete treatments.
- Amount of treatment required. Each structure could require very different treatments
- Not all properties will be owner occupied and timeframes will be longer for those being rented / leased.

Appendix 1: Location of Operational Treatments Local Roads - EIS


Operational Treatment Locations
Bedwin Road
May Street
Underw Bridge Road
Hutchinson Street
Brown Street
Lackey Street
Agincourt Street
Short Street
Crown Street
Barwon Park Road
Florence Street
Campbell Street
St Peters Street
Church Street
Victoria Street
Albert Street
Silver Street
Bishop Street
Campbell Road
Campbell Lane
Woodby Street
Hurser Street
Silver Lane
Scully Street
For Information Only - NOT FOR CONSTRUCTION
WestConnex
WESTCONNEX New M5
EIS Operational Treatment Locations
Campbell Rd / St
M5N – ES – MAP – PWD – 0001 – 01
MGA ZONE 56
AHD
A3
PB
BW
08-Dec-16
1:2250
Imagery © NearMap 2016
A Preliminary Issue 09/12/2016

Rev	Description	Date	Approved
A	Preliminary Issue	08/12/2016	

Client: WestConnex

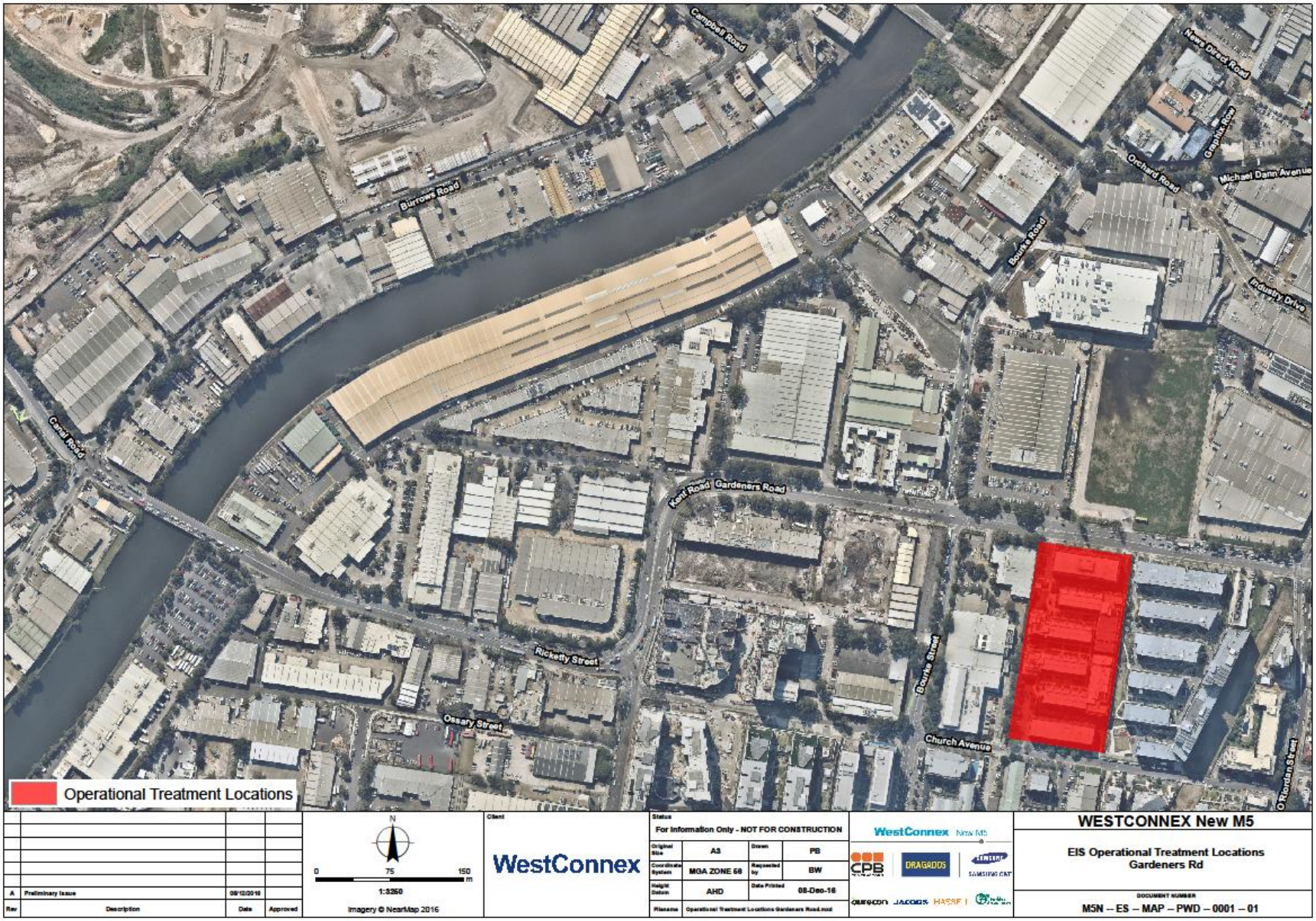
Status: For Information Only - NOT FOR CONSTRUCTION

Original Size	A3	Drawn	PB
Coordinate System	MGA ZONE 56	Requested by	BW
Height Datum	AHD	Date Printed	08-Dec-16
Filename	Operational Treatment Locations Euston Road.mxd		

WestConnex New M5

EIS Operational Treatment Locations
Euston Rd

DOCUMENT NUMBER
M5N – ES – MAP – PWD – 0001 – 01

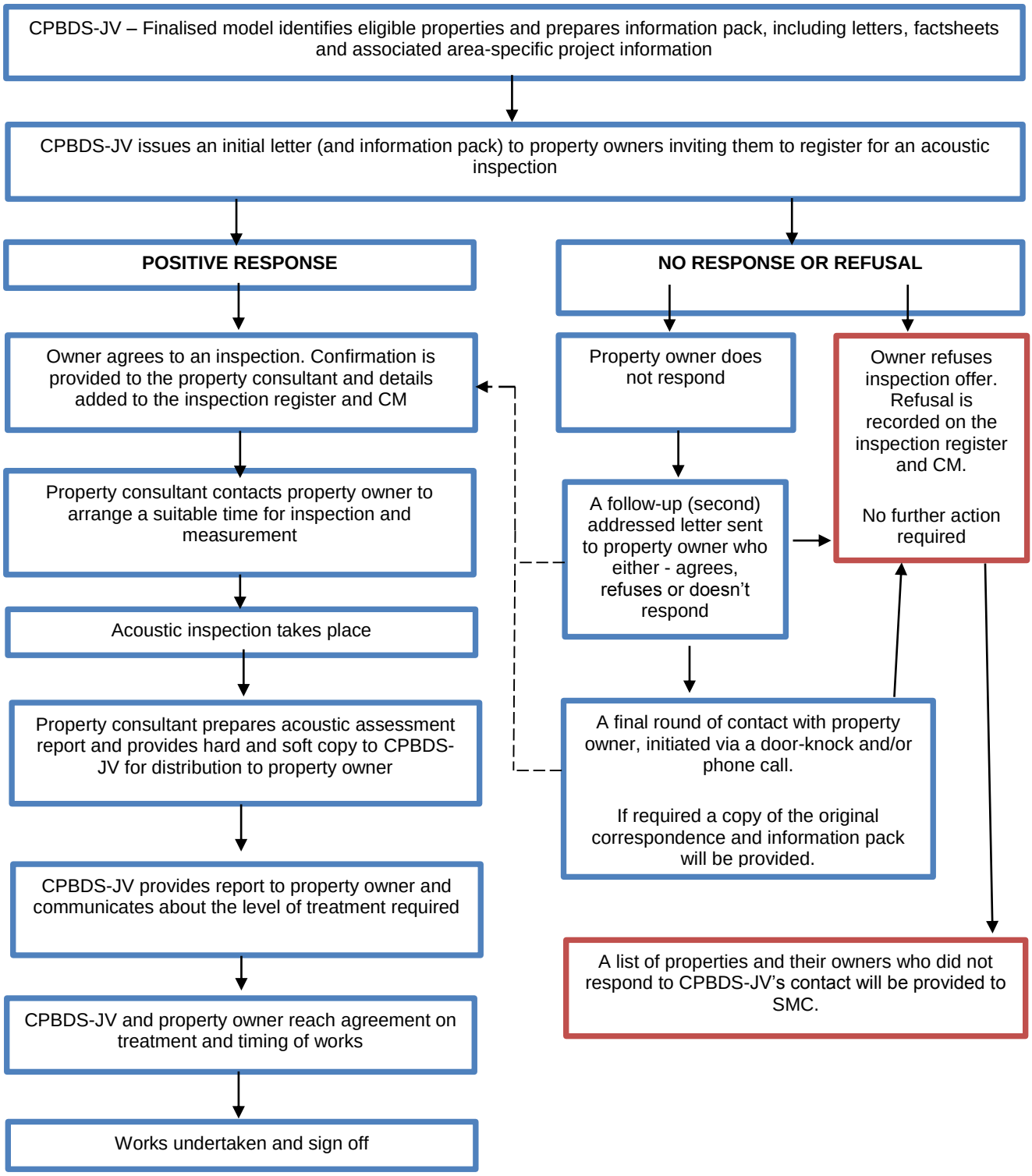

Campbell Road
News Direct Road
Gagnon Row
Orchard Road
Michael Dann Avenue
Burrows Road
Bourke Road
Industry Drive
Canal Road
Kent Road
Gardeners Road
Ricketty Street
Bourke Street
Ossary Street
Church Avenue
O'Riordan Street
Operational Treatment Locations
A Preliminary Issue 08/12/2016
Rev Description Date Approved
N
0 75 150 m
1:3250
Imagery © NearMap 2016
Client
WestConnex
Status
For Information Only - NOT FOR CONSTRUCTION
Original Size A3
Drawn PB
Coordinate System MGA ZONE 56
Requested by BW
Height Datum AHD
Date Printed 08-Dec-16
Filename Operational Treatment Locations Gardeners Road.mxd
WestConnex New M5
EIS Operational Treatment Locations
Gardeners Rd
DOCUMENT NUMBER
M5N – ES – MAP – PWD – 0001 – 01

Appendix 2: Acoustic inspection and treatment timeline (per location) *

Item no	Activity	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8	Wk9	Wk10
1	Post out letter round 1										
2	Post out letter round 2 (after 7 working days of 1st letter)										
3	Round 3 - contact owners by phone and doorknock (after 7 working days of 2nd letter)										
4	Acoustic inspection										
5	Report preparation										
6	Agreement with property owner										
7	Treatment installed										

*Locations will be done concurrently

Appendix 3: Acoustic inspection and treatment – stakeholder engagement flowchart


CPBDS-JV – Finalised model identifies eligible properties and prepares information pack, including letters, factsheets and associated area-specific project information
CPBDS-JV issues an initial letter (and information pack) to property owners inviting them to register for an acoustic inspection
POSITIVE RESPONSE
NO RESPONSE OR REFUSAL
Owner agrees to an inspection. Confirmation is provided to the property consultant and details added to the inspection register and CM
Property consultant contacts property owner to arrange a suitable time for inspection and measurement
Acoustic inspection takes place
Property consultant prepares acoustic assessment report and provides hard and soft copy to CPBDS-JV for distribution to property owner
CPBDS-JV provides report to property owner and communicates about the level of treatment required
CPBDS-JV and property owner reach agreement on treatment and timing of works
Works undertaken and sign off
Property owner does not respond
Owner refuses inspection offer. Refusal is recorded on the inspection register and CM.
No further action required
A follow-up (second) addressed letter sent to property owner who either - agrees, refuses or doesn't respond
A final round of contact with property owner, initiated via a door-knock and/or phone call.
If required a copy of the original correspondence and information pack will be provided.
A list of properties and their owners who did not respond to CPBDS-JV's contact will be provided to SMC.

Appendix 4: Initial letter to property owners

(Printed on CPBDS-JV, WestConnex New M5 letterhead)

[Publish Date]

[Address line 1]

[Address line 2]

[Address line 3]

Dear [Title] [last name]

[Subject]

The WestConnex motorway is Australia's largest transport infrastructure project, linking Sydney's west and south-west with the city, airport and port. This project will ease congestion, create jobs and connect communities.

The NSW Government has selected the CPB Contractors Dragados Samsung Joint Venture (CPBDS-JV) to deliver the New M5 between Kingsgrove and St Peters. We would like to offer you an acoustic inspection of your property. There is no cost to you for the inspection and there is no obligation for you to agree to the acoustic inspection. We would like to use the results of the inspection to help us determine potential noise impacts to your property from both construction and operation of the New M5.

The acoustic inspection involves:

A property consultant conducting a visual inspection of your premises.

The inspection focuses on the materials used to construct your building, as well as the location of rooms and living areas and other acoustic features. These include wall and floor coverings, methods and types of constructions, aspects of features such as ceilings, windows, doors and any ventilation (vent locations, air-conditioning etc).

While there is no obligation for you to agree to an acoustic inspection, the result of the inspection will help us determine the extent of potential noise impacts to you from the construction and operation of the New M5.

We have engaged an experienced property consultant to complete the inspection. The inspection generally takes about two hours and needs to be done during daylight hours. All inspectors will carry photographic identification.

What do you need to do?

If you would like an acoustic inspection, please contact us on xxxxx or email acousticsurvey@newm5.com.au to register your interest. We will arrange for the property consultant to contact you to arrange a convenient time to undertake the inspection.

If you are a tenant, please contact your managing agent or landlord to make sure they agree to participate.

We have included general information about noise reduction treatment for properties. Should you require any further information please call toll free 1800 660 248 and ask to speak to a member of the NewM5 community engagement team.

Yours sincerely

xxxxxxxxx
CPB Contractors Dragados Samsung

WestConnex New M5

Enc:

Noise reduction treatment fact sheet

Appendix 5: Follow up letter to property owners

[Publish Date]

[Address line 1]
[Address line 2]
[Address line 3]

Dear Sir/Madam

Eligibility for individual noise treatment

Work is underway on WestConnex which involves widening and extending the M4 and M5 and joining them to create a free-flowing motorway network.

The CPB Contractors, Dragados and Samsung Joint Venture (CPBDS-JV) has been selected to deliver the New M5 from St Peters to Beverly Hills. While we build this vital transport infrastructure, we will have thorough measures in place to minimise construction and operational impacts.

We recently sent you a letter regarding the inspection of your property for potential noise reduction treatment. Your property may be eligible for individual noise treatment and we would like to offer you an acoustic inspection at no cost to you.

To carry out this on-site inspection, an experienced property consultant will document the materials used to construct your building, as well as the location of rooms and other acoustic features. These include wall and floor coverings, methods and types of constructions, aspects of features such as ceilings, windows, doors and any ventilation (vent locations, air-conditioning etc).

The inspection generally takes about two hours and needs to be done during daylight hours. The attached fact sheet contains more information about the noise reduction treatment process.

We have appointed property consultants to undertake the inspections. All inspectors will carry photographic identification. There is no obligation for you to agree to an acoustic inspection.

What do you need to do?

If you would like to accept the free acoustic inspection, please contact the New M5 Community Team on 1800 660 248 or email info@newm5.com.au to register your interest. We will arrange for our consultants to contact you to arrange a convenient time to undertake the inspection.

If you are a tenant, please provide this letter to your managing agent or landlord to make sure they agree to participate.

If you have any questions about the New M5, please call 1800 660 248 (24 hours) and ask to speak to a member of the New M5 community engagement team.

Yours sincerely
xxxxxxxxxxxxxxxxxxxxxxx
CPB Contractors Dragados Samsung
WestConnex New M5

Enc:

Noise reduction treatment for properties fact sheet

Appendix 6: Noise reduction treatment for properties fact sheet

NOISE REDUCTION TREATMENT FACT SHEET

Property owners considered adversely affected by noise during construction or at completion of the WestConnex New M5 project are being offered noise reduction treatments to mitigate the increased level of noise they are likely to experience. CPBDS-JV will carry out the work at no cost to eligible property owners.

What is noise reduction treatment?

'Treatment' or 'architectural treatment' is the term used to describe the type of work involved in making a property more soundproof from noise.

What architectural treatments may be offered?

An architectural treatment is designed to reduce construction/traffic noise levels experienced inside the home by installing one or all of the following:

- **Architectural treatment type 1** – may involve fresh air ventilation, sealing of wall vents or upgraded window and door seals. This type of treatment is for properties where impacts are predicted to be relatively minor.
- **Architectural treatment type 2** – may involve additional upgrade of windows and doors. This type of treatment may be offered to properties predicted to experience impacts greater than that for architectural treatment type 1.

Why is treatment for noise reduction being offered?

The WestConnex New M5 EIS identified homes that may potentially be eligible for architectural treatments, which are designed to reduce the levels of traffic noise from a new motorway.

As part of the WestConnex New M5 EIS, noise and vibration investigations were carried out and assessed against noise criteria set by The Office of Environment and Heritage (OEH). Further noise and vibration investigations were carried out to predict noise from construction activities.

Homes that are potentially eligible for noise mitigation treatment are predicted to experience construction/traffic noise levels that may exceed the noise criteria for the construction/operation of the New M5.

How will I know what kind of architectural treatment my home is eligible for?

Your home was identified as potentially eligible when noise investigations were done for the EIS or when noise investigations were carried out for construction.

To determine what kind of treatment your home is eligible for we need to carry out an inspection.

The inspection includes:

- Recording the location of rooms and living areas next to the areas affected by traffic noise above the 'noise criteria' which will be considered for architectural treatment.
- Checking what noise reduction measures are already in place. If your home already has measures that reduce noise such as air-conditioning or double glazing, your home may not be eligible for architectural treatment.

Please note an inspection must take place before we can decide if your home is suitable for an architectural treatment and what kind of treatment that will be.

Who will manage the architectural treatment process?

CPBDS-JV personnel and/or subcontractors will undertake the home inspections and manage the architectural treatment process.

What happens during the home inspection?

CPBDS-JV personnel and/or subcontractors will inspect your home and prepare a plan that shows where rooms are in relation to the motorway. Details of any existing noise reduction treatments will be recorded.

The inspection visit will take about two hours.

When will you let me know if my home is eligible for treatment?

We will write to you after your home is inspected. Further information will be sent to you if your property is eligible.

If your home is not eligible we will explain to you why you are not being offered an architectural treatment.

Design

The look and style of your property will not dramatically change. We will consult with you on the options and work to ensure your preferences are incorporated into either architectural treatment Type 1 or architectural treatment Type 2.

If your property is heritage listed, changes will be developed that are in keeping with the building's heritage.

Treatment work

Acoustic work generally takes several weeks to complete, depending on the type of treatment.