

5 May 2021

Sri Sriramanan  
Transport for NSW  
Locked Bag 928  
North Sydney NSW 2059

Steve Lancken  
Independent Chair  
New M4 Air Quality Community  
Consultative Committee

Dear Sri and Steve,

## Subject: Six-monthly Audit of New M4 Motorway Ambient Air Quality Monitoring Requirements (Condition E8)

As you are no doubt aware the WestConnex New M4 Motorway (Motorway) received Planning Approval in February 2016 (State Significant Infrastructure No 6307) with construction commencing in March 2016. The Motorway was opened to traffic in July 2019 with Fulton Hogan and Egis Joint Venture responsible for its operations and maintenance.

Condition E8 of the Planning Approval requires the ambient air quality monitoring results must be subject to an independent audit at six-monthly intervals (or at a longer interval, if approved by the Planning Secretary). The auditor must be approved by the Secretary in consultation with the Environment Protection Authority and the Air Quality Community Consultative Committee (AQCCC), and the auditor's report must be directly provided to the Proponent and the AQCCC.

WolfPeak Pty Ltd (WolfPeak) and Northstar Air Quality Pty Ltd (Northstar) were approved by the Department of Planning, Infrastructure & Environment (DPIE) as the auditors under Condition E8 on 7 June 2019 (see Appendix C of the attached report).

The audit required under Condition E8 was carried out by Northstar, as it requires specialist technical knowledge of ambient air quality operating procedures and equipment used to acquire air monitoring, meteorological data and reporting.

Enclosed is the Northstar audit report (ref: 19.1024.DR6V3, dated 1 April 2021), which presents the DPIE methodology used, findings and recommendations from the third six-monthly audit carried out under Condition E8, covering the period from July to December 2020.

It should be noted that under Condition E8 the audit is not required to evaluate compliance with the ambient air quality limits / standards imposed under the Project Approval conditions. The audit report specifically evaluates whether the ambient air monitoring methodologies, meteorological data and reporting requirements comply with the requirements of Condition E8.

In summary, the audit found that there were no non-compliances with the requirements of Condition E8. There was a recommendation that the Monthly Data Reports carry an appropriate comment on the relationship between units expressed as ppm and pphm. This recommendation was also made in the previous two audits.

Should you require any further information or have any queries in relation to this audit, please do not hesitate to contact me on 0417 170 645 or [sfermio@wolfpeak.com.au](mailto:sfermio@wolfpeak.com.au)

Yours sincerely,



Steve Fermio  
Principal Environmental Auditor

## APPENDIX A – CONDITION E8 AUDIT REPORT

# northstar

## AIR QUALITY



This document has been prepared on behalf of **Wolfpeak** by:

Northstar Air Quality Pty Ltd,

Suite 1504, 275 Alfred Street, North Sydney, NSW 2060

[www.northstarairquality.com](http://www.northstarairquality.com) | Tel: +61 (02) 9071 8600

### WestConnex Stage 1 – M4 East

### External 6-Month Audit 3 – E8 (Jul-Dec 2020)

Addressee(s): Wolfpeak

Report Reference: 19.1024.DR6V3

Date: 1 April 2021

Report Status: Final

## Quality Control

Study	Status	Prepared by	Checked by	Authorised by
INTRODUCTION	Final	Northstar Air Quality	MD, SF, JH, CW	GCG
THE AUDIT PROCEDURE AND PROCESS	Final	Northstar Air Quality	MD, SF, JH, CW	GCG
SUMMARY OF AUDIT COMPLIANCE	Final	Northstar Air Quality	MD, SF, JH, CW	GCG
AUDIT TABLE (Appendix A)	Final	Northstar Air Quality	MD, SF, JH, CW	GCG

## Report Status

Northstar References		Report Status	Report Reference	Version
Year	Job Number	(Draft: Final)	(R <del>x</del> )	(V <del>x</del> )
19	1024	Final	R6	V1
Based upon the above, the specific reference for this version of the report is:				19.1024.FR6V1

## Final Authority

This report must be regarded as draft until the above study components have been each marked as final, and the document has been signed and dated below.



**G. Graham**

**1<sup>st</sup> March 2021**

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## 1. INTRODUCTION

The WestConnex New M4 Motorway is a largely in-tunnel link extending the existing M4 Motorway between Homebush and Haberfield via Concord. Construction of the project commenced in March 2016 and the motorway was opened to traffic in July 2019.

As prescribed under the conditions of Development Consent for State Significant Infrastructure (SSI) 6307 (Mod 5), the proponent is required to commission an independent audit of various environmental aspects associated with the operation of WestConnex Stage 1 – M4 East (the Project).

### 1.1 Scope of this Audit

Wolfpeak Pty Ltd (Wolfpeak) and Northstar Air Quality Pty Ltd (Northstar) have been approved by the Planning Secretary of the NSW Department of Planning, Industry and Environment (DPIE) to perform the audit of condition E8, which is replicated below:

#### *Ambient Air Quality — Monitoring*

**E8** *The Proponent must monitor (by sampling and obtaining results by analysis) the pollutants and parameters specified in Column 1 of Table 8 at the following locations as a minimum:*

- (a) two ground level receptors near the eastern ventilation outlet, at locations suitable for detecting any impact on air quality from the outlet;*
- (b) two ground level receptors near the western ventilation outlet, at locations suitable for detecting any impact on air quality from the outlet;*
- (c) one location along Parramatta Road, at a location suitable for detecting any impact on air quality along Parramatta Road; and*
- (d) one location, away from any of the locations at (a), (b) and (c), suitable for providing background ambient air quality reference data for the project area.*

*In selecting the monitoring locations, consideration is to be given to the desirability of like-to-like comparison of monitoring results to available pre-construction data, and the requirement in condition E46 for the independent team of experts to review the accuracy of predicted environmental outcomes discussed in the documents listed in conditions A2(b) and A2(c) .*

*All monitoring stations must be established subject to the land owner's and occupier's agreement. The Proponent must use the sampling method, units of measure, and sampling frequency specified in Table 8.*

*The Proponent must commence monitoring for at least twelve continuous months prior to operation. The locations are to be agreed to by the AQCCC. The Proponent must meet all operating costs associated with the stations.*

*The Proponent, following consultation with the AQCCC, must review the need for the continuation of the ambient monitoring stations after a period of two years from commencement of operation. Any recommendation to close the stations will require the approval of the Secretary in consultation with the EPA.*

*The establishment and operation of the stations is to be undertaken in accordance with recognised Australian standards and undertaken by an organisation accredited by NATA for this purpose and*

approved by the Secretary in consultation with the EPA and the AQCC. The quality of the monitoring results must be assured through a NATA accredited process prior to the data being considered as a basis for compliance/auditing purposes.

Monitoring results must be made publicly available and must be subject to an independent audit at six-monthly intervals (or at a longer interval, if approved by the Secretary). The auditor must be approved by the Secretary in consultation with the EPA and the AQCC, and the auditor's report must be directly provided to the Proponent and the AQCC.

Table 8 – Ambient Air Quality Monitoring Methodologies

Pollutant	Units of Measurement	Averaging Period	Frequency	Method <sup>1</sup>
NO	pphm	1-hour	Continuous	AM-12
NO <sub>2</sub>	pphm	1-hour	Continuous	AM-12
NO <sub>x</sub>	pphm	1-hour	Continuous	AM-12
PM <sub>10</sub>	µg/m <sup>3</sup>	24-hour	Continuous	AS3580.9.8-2008 <sup>2</sup>
PM <sub>2.5</sub> <sup>5</sup>	µg/m <sup>3</sup>	24-hour	Continuous	AS3580.9.13-2013 <sup>3</sup> or as otherwise agreed by the Secretary in consultation with the EPA
CO	ppm	1-hour, 8-hour	Continuous	AM-6
Parameter <sup>4</sup>	Units of Measurement	Averaging Period	Frequency	Method <sup>1</sup>
Wind Speed @ 10m	m/s	1-hour	Continuous	AM-2 & AM-4
Wind Direction @ 10m	°	1-hour	Continuous	AM-2 & AM-4
Sigma Theta @ 10m	°	1-hour	Continuous	AM-2 & AM-4
Temperature @ 2m	K	1-hour	Continuous	AM-4
Temperature @ 10m	K	1-hour	Continuous	AM-4
Other	Units of Measurement	Averaging Period	Frequency	Method <sup>1</sup>
Siting	NA	NA	NA	AM-1 & AM-4

Notes:

1. Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales (EPA, 2007) or as otherwise agreed to in writing by the Secretary in consultation with the EPA.
2. AS3580.9.8-2008, Methods for the Sampling and Analysis of Ambient Air – Determination of Suspended Particulate Matter – PM<sub>10</sub> Continuous Direct Mass Method using Tapered Element Oscillating Microbalance Analyser (Standards Australia, 2008).
3. AS 3580.9.13-2013, Methods for the Sampling and Analysis of Ambient Air – Determination of Suspended Particulate Matter – PM<sub>2.5</sub> Continuous Direct Mass Method using a Tapered Element Oscillating Microbalance Analyser (Standards Australia, 2013).
4. TBD - location for meteorological monitoring station(s) to be representative of weather conditions likely to occur in the vicinity of the northern and southern ventilation outlets.
5. Appropriately modified to include size selective inlet for PM<sub>2.5</sub> or as otherwise approved by the Secretary.



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## 1.2 Audit Period

This condition E8 audit report covers the following six-month period (inclusive):

- Audit start date: 1 July 2020
- Audit end date: 31 December 2020

It is acknowledged that there is a not insignificant time delay between the end of the audit period and the delivery of the audit report. This is due to the time required to collate continuous data (and analyse extracted samples if towards the end of the audit period), analyse and provide the reports to FHOEM, and then be made available from FHEOM for detailed review as part of the requirements of this audit report.

## 1.3 Audit Personnel

The audit has been performed by Gary Graham (Director, Northstar Air Quality) as part of the approved **Wolfpeak** audit team (see **Appendix C**).

A copy of the independent audit declaration form is included as **Appendix B**.

## 1.4 Limitations

This audit has been performed in accordance with the requirements stipulated by the Independent Audit Declaration Form (see **Appendix B**).

The audit has been performed upon, and is limited to, the information and data provided.

## 2. THE AUDIT PROCEDURE AND PROCESS

### 2.1 Audit Process

The audit process involved the following:

- A review of the procedures and methods implemented by the air quality monitoring teams; and,
- A review of reports produced over the audit period.

### 2.2 Audit Procedure

The procedure followed during the audit was derived from NSW Department of Planning and Environment (2018) Independent Audit – Post Approval Requirements (PAR) (DPE 2018). The requirements for an audit are prescribed in Section 2.2 of the PAR:

*The Audit Table must set out the following information for each requirement to be complied with (compliance requirement):*

1. *a unique identification number;*
2. *the exact wording of the compliance requirement;*
3. *a blank column to record the evidence used to assess and determine whether each requirement has been complied with;*
4. *a blank column for commentary on findings and recommendations; and*
5. *a blank column for recording the status of compliance.*

The methodology adopted in this audit has followed this guidance. An additional column 'recommendations / actions' has been included to discuss remedial actions and/or recommendations where necessary, as required under Section 4.2.4 of the guidance.

For each condition, a unique identification number (UIN) has been assigned. As this is the E8 audit 3, each UIN has been labelled as **E8-3-*n*** where *n* is the sequential number in this report. Reference to UINs in previous E8 reports adopt the same nomenclature as **E8-1-*n*** for E24 audit 1 and **E8-2-*n*** for E24 audit 2.

In some instances, a condition audit may result in a number of recommendations (see **Section 3.2**). If this eventuates, the recommendations will adopt the relevant UIN with a sequential letter suffix (a, b, c etc) to differentiate those recommendations.

## 2.3 Evaluation of Compliance

Compliance has been evaluated in accordance with Table 2 of the PAR using the descriptors outlined in **Table 1** (DPE, 2018).

**Table 1** Compliance status descriptors

Status	Description
Compliant	The auditor has collected sufficient verifiable evidence to demonstrate that all elements of the requirement have been complied with within the scope of the audit.
Non-compliant	The auditor has determined that one or more specific elements of the conditions or requirements have not been complied with within the scope of the audit.
Not triggered	A requirement has an activation or timing trigger that has not been met at the time when the audit is undertaken, therefore an assessment of compliance is not relevant.

## 2.4 Audit Compliance Table

The audit compliance table is presented as **Appendix A** of this report.

### 3. SUMMARY OF AUDIT COMPLIANCE

**Appendix A** presents the complete audit compliance table. A summary of audit compliance is presented below:

**Table 2** Summary of audit compliance status

Compliance Status	Number
Compliant	16
Non-compliant	0
Not triggered	2
Blank	0
<b>Total</b>	<b>18</b>

#### 3.1 Identified Non-Compliances

Reference should be made to **Appendix A** for details of any identified audit non-compliances.

As required by the guidance, each observation carries a unique identifier, and the following non-compliances have been identified: **none**

Additionally, where relevant, suggested actions / recommendations have been provided to address various observations, regardless of compliance status.

### 3.2 Recommendations

The following recommendations are provided in this current or previous Condition E8 Audit Reports. Each recommendation is assigned an identified (R#) for ease of referencing.

**Table 3 Implementation of recommendations**

No.	Recommendation	Implementation	Implementation
E8-1-8 E8-2-8 E8-3-8	It is recommended that the monthly Ambient Validation Reports include an appropriate clarification relating to the relationship between units expressed as (i) parts per hundred million (pphm) [ $1 \times 10^{-8}$ ] as required to comply with the requirement with Table 8 of Condition E8 and (ii) parts per million (ppm) [ $1 \times 10^{-6}$ ] as reported in the reports. The relationship between the two units is acknowledged and does not result in a different conclusion that presented in the Ambient Validation Reports, but the addition of an appropriate statement would be required for strict compliance.	None	Recommendation only

## APPENDIX A – Audit Compliance Table

UIN	Condition E8 Requirement	Evidence	Audit Findings	Compliance Status	Recommendations and Actions
E8-3-1.	The Proponent must monitor (by sampling and obtaining results by analysis) the pollutants and parameters specified in Column 1 of Table 8...	<ul style="list-style-type: none"> <li>• ACOEM Asset Management System (AMS)</li> <li>• ACOEM laboratory manual (ref 0297, dated 13 May 2019)</li> <li>• Ecotech Ambient Air Quality and Weather Monitoring Validated Reports:               <ul style="list-style-type: none"> <li>– DAT16096 (14 Aug 20) 1-31 Jul 20</li> <li>– DAT16205 (15 Sep 20) 1-31 Aug 20</li> <li>– DAT16300 (15 Oct 20) 1-30 Sep 20</li> <li>– DAT16410 (13 Nov 20) 1-31 Oct 20</li> <li>– DAT16518 (15 Dec 20) 1-30 Nov 20</li> <li>– DAT16623 (15 Jan 21) 1-31 Dec 20</li> </ul> </li> </ul>	The suite of measurements at each of the six AQMS is compliant with Column 1 of Table 8.	Compliant	None
E8-3-2.	... at the following locations as a minimum: (a) two ground level receptors near the eastern ventilation outlet, at locations suitable for detecting any impact on air quality from the outlet;	<ul style="list-style-type: none"> <li>• Ecotech station siting audit report (EMS 0401) – siting compliance with AS/NZS 3580.1.1 2016               <ul style="list-style-type: none"> <li>– Haberfield School (ID 501184) 04/11/2020</li> <li>– Ramsay Street (ID 501183) 03/11/2020</li> </ul> </li> <li>• ANE (2019) Independent verification: Approval Condition E8 (M4 Tunnel East)</li> <li>• Site Visit conducted by Northstar on 8 March 2021 (photographs presented in Appendix D)</li> </ul>	Siting reports confirm location close to the eastern ventilation outlet.	Compliant	None

UIN	Condition E8 Requirement	Evidence	Audit Findings	Compliance Status	Recommendations and Actions
E8-3-3.	<p>... at the following locations as a minimum:</p> <p>(b) two ground level receptors near the western ventilation outlet, at locations suitable for detecting any impact on air quality from the outlet;</p>	<ul style="list-style-type: none"> <li>• Ecotech station siting audit report (EMS 0401) – siting compliance with AS/NZS 3580.1.1 2016               <ul style="list-style-type: none"> <li>– Allen Street (ID 501179) 05/01/2021</li> <li>– Powells Creek (ID 501180) 16/11/2020</li> </ul> </li> <li>• ANE (2019) Independent verification: Approval Condition E8 (M4 Tunnel East)</li> <li>• Site Visit conducted by Northstar on 16 March 2021 (see Appendix D)</li> </ul>	<p>Siting reports confirm location close to the western ventilation outlet.</p>	Compliant	None
E8-3-4.	<p>... at the following locations as a minimum:</p> <p>(c) one location along Parramatta Road, at a location suitable for detecting any impact on air quality along Parramatta Road; and</p>	<ul style="list-style-type: none"> <li>• Ecotech station siting audit report (EMS 0401) – siting compliance with AS/NZS 3580.1.1 2016               <ul style="list-style-type: none"> <li>– Cintra Park (ID 501182) 26/03/2020 (replacing Concord Oval)</li> </ul> </li> <li>• ANE (2019) Independent verification: Approval Condition E8 (M4 Tunnel East)</li> <li>• Site Visit conducted by Northstar on 16 March 2021 (see Appendix D)</li> </ul>	<p>Cintra Park (ID 501182) commenced monitoring on 25 Mar 20.</p> <p>Siting reports for (a) Concord Oval and (b) Cintra Park confirm both locations are classified as a peak monitoring station, noting Cintra Park has replaced Concord Oval.</p>	Compliant	None
E8-3-5.	<p>... at the following locations as a minimum:</p> <p>(d) one location, away from any of the locations at (a), (b) and (c), suitable for providing background ambient air quality reference data for the project area.</p>	<ul style="list-style-type: none"> <li>• Ecotech station siting audit report (EMS 0401) – siting compliance with AS/NZS 3580.1.1 2016               <ul style="list-style-type: none"> <li>– St Lukes Park (ID 501181) 11/11/2020</li> </ul> </li> <li>• ANE (2019) Independent verification: Approval Condition E8 (M4 Tunnel East)</li> <li>• Site Visit conducted by Northstar on 8 March 2021 (see Appendix D)</li> </ul>	<p>Siting reports confirm location as a representative background monitoring location.</p>	Compliant	None



UIN	Condition E8 Requirement	Evidence	Audit Findings	Compliance Status	Recommendations and Actions
E8-3-6.	In selecting the monitoring locations, consideration is to be given to the desirability of like-to-like comparison of monitoring results to available pre-construction data, and the requirement in condition E46 for the independent team of experts to review the accuracy of predicted environmental outcomes discussed in the documents listed in conditions A2(b) and A2(c)...	<ul style="list-style-type: none"> <li>• Ecotech station siting audit report (EMS 0401) – siting compliance with AS/NZS 3580.1.1 2016               <ul style="list-style-type: none"> <li>– All AQMS</li> </ul> </li> <li>• ANE (2019) Independent verification: Approval Condition E8 (M4 Tunnel East)</li> <li>• Site Visit conducted by Northstar on 8 March 2021 (see Appendix D)</li> </ul>	Siting generally compliant with AS/NZS 3580.1.1 2016 and requirements (see Condition E24 audit report, ref 3).	Compliant	
E8-3-7.	... All monitoring stations must be established subject to the land owner’s and occupier’s agreement...	<ul style="list-style-type: none"> <li>• Northstar 6-Month Audit 1 – Condition E8 report</li> <li>• ANE (April 2019) Independent Verification Approval Condition E8</li> </ul>	The monitoring stations have been located and operated at the locations reviewed and approved by the AQCC.	Compliant	None

UIN	Condition E8 Requirement	Evidence	Audit Findings	Compliance Status	Recommendations and Actions															
E8-3-8.	...The Proponent must use the sampling method, units of measure, and sampling frequency specified in Table 8...	<ul style="list-style-type: none"> <li>• ACOEM Asset Management System (AMS)</li> <li>• ACOEM laboratory manual (ref 0297, dated 13 May 2019)</li> <li>• Ecotech station siting audit report (EMS 0401) – siting compliance with AS/NZS 3580.1.1 2016               <ul style="list-style-type: none"> <li>– All AQMS</li> </ul> </li> </ul>	<p>The sampling methods used are summarised below.</p> <table border="1" data-bbox="1223 368 1608 572"> <thead> <tr> <th>Pollutant</th> <th>Benchmark</th> <th>Employed method</th> </tr> </thead> <tbody> <tr> <td>NO, NO<sub>2</sub>, NO<sub>x</sub></td> <td>AM-12 (AS3580.5.1)</td> <td>AS3580.5.1</td> </tr> <tr> <td>PM<sub>10</sub></td> <td>AS3580.9.8</td> <td>AS3580.9.8</td> </tr> <tr> <td>PM<sub>2.5</sub></td> <td>AS3580.9.13</td> <td>AS3580.9.12</td> </tr> <tr> <td>CO</td> <td>AM-6 (AS3580.7.1)</td> <td>AS3580.7.1</td> </tr> </tbody> </table> <p>The derogation from the specified test method for PM<sub>2.5</sub> is agreed with the department on 8<sup>th</sup> Sept 2017.</p> <p>The installed monitoring scope at each AQMS is as follows: NO, NO<sub>2</sub>, NO<sub>x</sub>, CO, PM<sub>2.5</sub>, PM<sub>10</sub></p> <p>Table 8 specifies the units of measurement for NO, NO<sub>2</sub> and NO<sub>x</sub> as pphm (parts per hundred million [1x10<sup>-8</sup>]). The ACOEM Monthly Data Reports present all measurement data as ppm (parts per million [1x10<sup>-6</sup>]). Strictly, the units of measurement reported are inconsistent with those specified in Table 8 although it is acknowledged that the two volumetric units are multiples of each other, expressed in terms of orders.</p>	Pollutant	Benchmark	Employed method	NO, NO <sub>2</sub> , NO <sub>x</sub>	AM-12 (AS3580.5.1)	AS3580.5.1	PM <sub>10</sub>	AS3580.9.8	AS3580.9.8	PM <sub>2.5</sub>	AS3580.9.13	AS3580.9.12	CO	AM-6 (AS3580.7.1)	AS3580.7.1	Compliant	[a] It is recommended that the Monthly Data Reports carry an appropriate comment on the relationship between units expressed as ppm and pphm.
Pollutant	Benchmark	Employed method																		
NO, NO <sub>2</sub> , NO <sub>x</sub>	AM-12 (AS3580.5.1)	AS3580.5.1																		
PM <sub>10</sub>	AS3580.9.8	AS3580.9.8																		
PM <sub>2.5</sub>	AS3580.9.13	AS3580.9.12																		
CO	AM-6 (AS3580.7.1)	AS3580.7.1																		

UIN	Condition E8 Requirement	Evidence	Audit Findings	Compliance Status	Recommendations and Actions
E8-3-9.	...The Proponent must commence monitoring for at least twelve continuous months prior to operation...	<ul style="list-style-type: none"> <li>None required – as this relates to pre-operations managed by the D&amp;C contract (CSJ), this is not covered by this audit</li> </ul>	None	Not triggered (not covered by this audit)	None
E8-3-10.	...The locations are to be agreed to by the AQCCC...	<ul style="list-style-type: none"> <li>WestConnex (Dec 2018) WestConnex M4 East Ambient air quality goal protocol – Condition E10</li> </ul>	<p>Section 1.3 states: <i>"In accordance with condition E10, the Ambient Air Quality Goal Protocol must be prepared in consultation with the WestConnex M4 East Air Quality Community Consultative Committee (AQCCC). The AQCCC were consulted during the preparation of this document. A document titled 'Consultation for the M4 East Ambient Air Quality Goal Protocol' has been prepared separately to this document to provide detail relating to the consultation received and where feedback has been addressed within this Ambient Air Quality Goal Protocol."</i></p>	Compliant	None

UIN	Condition E8 Requirement	Evidence	Audit Findings	Compliance Status	Recommendations and Actions
E8-3-11.	The Proponent must meet all operating costs associated with the stations...	<ul style="list-style-type: none"> <li>O_M Deed Schedule 15 (ref: MNE/236403518.17 p130-131)</li> <li>Tax Invoice INV-569493 (Dec 2020-Jan 2021) from Ecotech to FHEOM</li> </ul>	<p>The excerpt from the O&amp;M Deed outlines the approval requirements.</p> <p>The costs are essentially paid for by WCX.</p> <p>The proponent is meeting all operating costs.</p>	Compliant	None
E8-3-12.	The Proponent, following consultation with the AQCCC, must review the need for the continuation of the ambient monitoring stations after a period of two years from commencement of operation. Any recommendation to close the stations will require the approval of the Secretary in consultation with the EPA.	Not triggered	Not triggered	Not triggered	None
E8-3-13.	The establishment ... of the stations is to be undertaken in accordance with recognised Australian standards...	<ul style="list-style-type: none"> <li>As [E8-3-2] to [E8-3-5].</li> </ul>	As [E8-3-2] to [E8-3-5].	Compliant	None

UIN	Condition E8 Requirement	Evidence	Audit Findings	Compliance Status	Recommendations and Actions
E8-3-14.	The ... operation of the stations is to be undertaken in accordance with recognised Australian standards...	<ul style="list-style-type: none"> <li>• ACOEM Asset Management System (AMS)</li> <li>• ACOEM laboratory manual (ref 0297, dated 13 May 2019)</li> <li>• Ecotech Ambient Air Quality and Weather Monitoring Validated Reports:               <ul style="list-style-type: none"> <li>– DAT16096 (14 Aug 20) 1-31 Jul 20</li> <li>– DAT16205 (15 Sep 20) 1-31 Aug 20</li> <li>– DAT16300 (15 Oct 20) 1-30 Sep 20</li> <li>– DAT16410 (13 Nov 20) 1-31 Oct 20</li> <li>– DAT16518 (15 Dec 20) 1-30 Nov 20</li> <li>– DAT16623 (15 Jan 21) 1-31 Dec 20</li> </ul> </li> </ul>	<p>The monitoring methods are consistent with the requirements of Column 5 of Table 8 in E8, noting the DPIE agreed derogation for the use of beta attenuation techniques for the measurement of PM<sub>2.5</sub>.</p> <p>The Ecotech (ACOEM Group) monthly monitoring reports reproduce the monitoring methodologies, which are consistent with those requirements.</p>	Compliant	None

UIN	Condition E8 Requirement	Evidence	Audit Findings	Compliance Status	Recommendations and Actions
E8-3-15.	... and undertaken by an organisation accredited by NATA for this purpose and approved by the Secretary in consultation with the EPA and the AQCC.	<ul style="list-style-type: none"> <li>• ACOEM Asset Management System (AMS).</li> <li>• ACOEM laboratory manual (ref 0297, dated 13 May 2019)</li> <li>• Ecotech Ambient Air Quality and Weather Monitoring Validated Reports:               <ul style="list-style-type: none"> <li>– DAT16096 (14 Aug 20) 1-31 Jul 20</li> <li>– DAT16205 (15 Sep 20) 1-31 Aug 20</li> <li>– DAT16300 (15 Oct 20) 1-30 Sep 20</li> <li>– DAT16410 (13 Nov 20) 1-31 Oct 20</li> <li>– DAT16518 (15 Dec 20) 1-30 Nov 20</li> <li>– DAT16623 (15 Jan 21) 1-31 Dec 20</li> </ul> </li> <li>• Approval by EPA</li> <li>• WestConnex (Dec 2018) WestConnex M4 East Ambient air quality goal protocol – Condition E10</li> </ul>	<ul style="list-style-type: none"> <li>• The monitoring reports are prepared and issued by Ecotech (ACOEM Group), which is accredited for compliance with ISO/IEC 17025 – Testing. The NATA Accreditation number is 14184, which is clearly displayed on the monthly “ambient air quality and weather monitoring systems report”.</li> <li>• A search of the online NATA accredited facilities database<sup>(a)</sup> confirms Accreditation 14184 is current.</li> <li>• A search of the scope of Accreditation under 14184 (Testing)<sup>(b)</sup> confirms that the suite of measurements listed under Column 1 of Table 8 are included within the NATA Scope of Accreditation.</li> </ul> <p>Notes            (a) (<a href="https://www.nata.com.au/accredited-facility">https://www.nata.com.au/accredited-facility</a>)            (b) (<a href="https://www.nata.com.au/entity_scope/?AccNo=14184&amp;q1=axt&amp;str=&amp;&amp;AccNo=14184">https://www.nata.com.au/entity_scope/?AccNo=14184&amp;q1=axt&amp;str=&amp;&amp;AccNo=14184</a>)</p>	Compliant	None

UIN	Condition E8 Requirement	Evidence	Audit Findings	Compliance Status	Recommendations and Actions
E8-3-16.	The quality of the monitoring results must be assured through a NATA accredited process prior to the data being considered as a basis for compliance/auditing purposes.	<ul style="list-style-type: none"> <li>• ACOEM Asset Management System (AMS)</li> <li>• ACOEM laboratory manual (ref 0297, dated 13 May 2019)</li> <li>• Ecotech Ambient Air Quality and Weather Monitoring Validated Reports:               <ul style="list-style-type: none"> <li>– DAT16096 (14 Aug 20) 1-31 Jul 20</li> <li>– DAT16205 (15 Sep 20) 1-31 Aug 20</li> <li>– DAT16300 (15 Oct 20) 1-30 Sep 20</li> <li>– DAT16410 (13 Nov 20) 1-31 Oct 20</li> <li>– DAT16518 (15 Dec 20) 1-30 Nov 20</li> <li>– DAT16623 (15 Jan 21) 1-31 Dec 20</li> </ul> </li> </ul>	Ecotech is Accredited under NATA (Accreditation No 14184). The reports carry the NATA Accreditation logo and notifications.	Compliant	None
E8-3-17.	Monitoring results must be made publicly available and must be subject to an independent audit at six-monthly intervals (or at a longer interval, if approved by the Secretary).	<ul style="list-style-type: none"> <li>• ACOEM laboratory manual (ref 0297, dated 13 May 2019)</li> <li>• Ambient Raw Data Files (01/07/20-31/12/20)</li> <li>• Ecotech Ambient Air Quality and Weather Monitoring Validated Reports:               <ul style="list-style-type: none"> <li>– DAT16096 (14 Aug 20) 1-31 Jul 20</li> <li>– DAT16205 (15 Sep 20) 1-31 Aug 20</li> <li>– DAT16300 (15 Oct 20) 1-30 Sep 20</li> <li>– DAT16410 (13 Nov 20) 1-31 Oct 20</li> <li>– DAT16518 (15 Dec 20) 1-30 Nov 20</li> <li>– DAT16623 (15 Jan 21) 1-31 Dec 20</li> </ul> </li> </ul>	The laboratory manual and validated data reports describe the process followed for data capture and storage, including daily data storage, access via the Ecotech 'Airodis' software and compilation at the Environmental Reporting Services (ERS) in Melbourne. Non-validated data capture rates are reviewed daily to identify any equipment or communication errors. 5-min data collected during faults or maintenance activities are flagged and excluded	Compliant	

UIN	Condition E8 Requirement	Evidence	Audit Findings	Compliance Status	Recommendations and Actions
		<ul style="list-style-type: none"> <li>NATA Surveillance Audit Report (3-4 Sept 2020)</li> </ul>	<p>from the validated data files. The excluded data is presented in the monthly validated data spreadsheet file as a “valid data exception report”. The above procedure has been audited from the raw data files and comparison of the summary statistics generated with the validated data reports, including data verification and data capture, and transposition of data to the Validation Reports.</p> <p>As per the ACOEM laboratory manual (ref 0297, dated 13 May 2019), data capture of 75 % was adopted as the threshold for valid data capture between 5-minute data to 1-hour data to 24-hour data.</p> <p>The audit reviewed the flagged data exceptions, the data capture protocol, the calibration data, invalid data (as reported in the Validated Reports) and cross check with data files and the derived summary statistics. Minor discrepancies were noted, but not sufficiently to alter the summary statistics. This comparative audit</p>		




UIN	Condition E8 Requirement	Evidence	Audit Findings	Compliance Status	Recommendations and Actions
			<p>compared favourably (i.e. consistent with) with the Ambient Validation Reports.</p> <p>The NATA Surveillance Audit Report (ref: 72119) conducted on 3-4 Sept 2020 provides a summary of identified non-conformances, minor non-conformances and observations during the surveillance audit / inspection, the purpose of which is to monitor the facilities continuing fulfillment of ISO/IEC 17025 and the applicable NATA accreditation for the scope of accreditation. The audit <i>"included a complete review of the facility's management system together with a review of records relating to activities performed by its scope of accreditation."</i></p> <p>The scope includes<sup>1</sup>: management system staffing, including training and supervision methods, including validation/verification quality control, proficiency testing, equipment, including calibration, recording and</p>		

<sup>1</sup> <https://www.nata.com.au/accreditation-information/how-to-become-accredited>

UIN	Condition E8 Requirement	Evidence	Audit Findings	Compliance Status	Recommendations and Actions
			<p>reporting of results, the physical environment in which the activities are performed.</p> <p>The audit of the NATA surveillance audit report did not identify any issues relating to the scope of this M4 East audit report.</p>		
E8-3-18.	<p>The auditor must be approved by the Secretary in consultation with the EPA and the AQCCC, and the auditor's report must be directly provided to the Proponent and the AQCCC.</p>	<ul style="list-style-type: none"> <li>Letter of Approval (Appendix B)</li> </ul>	As documented	Compliant	None

## APPENDIX B - Independent Audit Declaration Form

<b>Independent Audit Declaration Form</b>	
Project Name	M4 East Motorway
Consent Number	SSI 6307
Description of Project	A new multi-lane road link from Homebush Bay Drive at Homebush to Parramatta Road and Wattle Street (City West Link) at Haberfield
Project Address	Land in the suburbs of Sydney Olympic Park, Homebush West, Homebush, North Strathfield, Strathfield, Concord, Burwood, Croydon, Ashfield and Haberfield.
Proponent	Roads and Maritime Services
Title of Audit	Independent Audit of Condition E8
Date	Approval: 11 Sept 2016. Audit: Performed during March 2021 covering the audit period from Jul to Dec 2020
<p>I declare that I have undertaken the Independent Audit and prepared the contents of the attached Independent Audit Report and to the best of my knowledge:</p> <ul style="list-style-type: none"> <li>– the audit has been undertaken in accordance with relevant condition(s) of consent and the Independent Audit Post Approval Requirements (Department 2018);</li> <li>– the findings of the audit are reported truthfully, accurately and completely;</li> <li>– I have exercised due diligence and professional judgement in conducting the audit;</li> <li>– I have acted professionally, objectively and in an unbiased manner;</li> <li>– I am not related to any proponent, owner or operator of the project neither as an employer, business partner, employee, or by sharing a common employer, having a contractual arrangement outside the audit, or by relationship as spouse, partner, sibling, parent, or child;</li> <li>– I do not have any pecuniary interest in the audited project, including where there is a reasonable likelihood or expectation of financial gain or loss to me or spouse, partner, sibling, parent, or child;</li> <li>– neither I nor my employer have provided consultancy services for the audited project that were subject to this audit except as otherwise declared to the Department prior to the audit; and</li> <li>– I have not accepted, nor intend to accept any inducement, commission, gift or any other benefit (apart from payment for auditing services) from any proponent, owner or operator of the project, their employees or any interested party. I have not knowingly allowed, nor intend to allow my colleagues to do so</li> </ul>	
<p>Notes:</p> <p>a) Under section 10.6 of the Environmental Planning and Assessment Act 1979 a person must not include false or misleading information (or provide information for inclusion in) in a report of monitoring data or an audit report produced to the Minister in connection with an audit if the person knows that the information is false or misleading in a material respect. The proponent of an approved project must not fail to include information in (or provide information for inclusion in) a report of monitoring data or an audit report produced to the Minister in connection with an audit if the person knows that the information is materially relevant to the monitoring or audit. The maximum penalty is, in the case of a corporation, \$1 million and for an individual, \$250,000; and</p> <p>b) The Crimes Act 1900 contains other offences relating to false and misleading information: section 307B (giving false or misleading information – maximum penalty 2 years imprisonment or 200 penalty units, or both)</p>	
Name of Auditor	Gary Graham
Signature	
Qualification	BSc(hons), MSc, CSci, CEnc, CAQP
Company	Northstar Air Quality Pty Ltd
Company Address	Suite 1504, 275 Alfred Street, North Sydney, NSW 2060

## APPENDIX C - Department Approval



Planning &  
Environment

Planning Services  
Infrastructure Management  
Contact: Jessica Sanders  
Email: [Jessica.sanders@planning.nsw.gov.au](mailto:Jessica.sanders@planning.nsw.gov.au)

Our Ref: SSI 6307

Mr Andrew McKindlay  
Project Director WestConnex  
Roads and Maritime Services  
Locked Bag 928  
NORTH SYDNEY NSW 2059

BY EMAIL ONLY: [Peter.morrall@rms.nsw.gov.au](mailto:Peter.morrall@rms.nsw.gov.au)

Dear Mr McKindlay

**Approval of nominations required by conditions E8, E24 and E46**

**WestConnex M4 East (SSI 6307)**

I refer to your submission dated 15 February 2019 and additional correspondence requesting approval of the nominees for air quality specialist roles under the conditions of approval listed in Table 1 attached.

I note the following in relation to your request:

- The submission included evidence of consultation with the Environment Protection Authority and Air Quality Community Consultative Committee (required by conditions E8 and E46);
- Curriculum vitae were provided for the nominees, showing they are appropriately qualified
- The submission from WolfPeak stated that the nominated team is independent from Fulton Hogan Egis, Sydney Motorway Corporation and Roads and Maritime Services (in relation to the M4 East Project).

Accordingly, I approve the nominees in accordance with the conditions detailed in Table 1 attached. If you have any questions, please contact Jessica Sanders on the details listed above.

Yours sincerely



Erica van den Honert  
**Director, Infrastructure Management**  
As delegate of the Planning Secretary

Copied to: [Rebecca.WalkerEdwards@westconnex.com.au](mailto:Rebecca.WalkerEdwards@westconnex.com.au), [David.Kelly@westconnex.com.au](mailto:David.Kelly@westconnex.com.au)

**Table 1 RMS Nominations of independent air quality specialists for SSI-6307**

Condition	Summary of relevant conditions of approval*	Approved Nominee(s)
E8	Requires the Secretary to approve an independent auditor (in consultation with the EPA and AQCC). The results of ambient air quality monitoring will be the subject of the audits which will take place on a six-monthly basis	Auditors and specialists from WolfPeak: <ul style="list-style-type: none"> <li>• Steve Fermio (Lead Auditor)</li> <li>• Derek Low (Assistant Auditor)</li> <li>• Gary Graham (Air Quality)</li> <li>• Jason Berrigan (Biodiversity)</li> <li>• Tim Stubbs (Hydrology)</li> <li>• Hadi Khairuddin (Noise &amp; vibration)</li> </ul>
E24	Requires the Secretary to approve an external auditor (in consultation with the EPA and AQCC) to conduct an audit of the air quality monitoring (in tunnel and external) at six-monthly intervals.	
E46	Requires the Secretary to approve a suitably qualified, experienced independent team of experts to undertake an independent environmental audit within 12 months of the commencement of operation in accordance with the requirements listed in condition E46.	

Department of Planning &amp; Environment

 320 Pitt Street Sydney NSW 2000 | GPO Box 39 Sydney NSW 2001 | T 02 9274 6111 | [www.planning.nsw.gov.au](http://www.planning.nsw.gov.au)

## APPENDIX D – Site Inspection Photos

### Allen St



### Cintra Park





### Haberfield Public School



### Powells Creek



### Ramsay St



St Lukes

