

APPROVAL

WORKS APPROVAL

issued under Section 19B of the Environment Protection Act 1970

This works approval allows the occupier to construct works at the premises subject to the attached conditions.

OCCUPIER: CONNECTEAST PTY LTD (ACN 101 213 263)

REGISTERED ADDRESS: LEVEL 3, 88 RICKETTS RD, MOUNT WAVERLEY
VIC 3149

PREMISES ADDRESS: BETWEEN PARK & DEEP CREEK ROADS DONVALE
VIC 3111, KNOWN AS "THE EASTLINK TUNNELS"

APPROVAL NUMBER: WA59307

DATE OF ISSUE: 5TH SEPTEMBER 2006



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MAXWELL KEITH COSTELLO
MANAGER AUTHORITY DECISIONS

**Works
Description**

This approval applies to the ventilation and waste management systems for the Eastlink tunnels.

**Works
Approval
Objectives**

The works approval holder shall adopt the following objectives for the protection of the environment:

- meet environmental quality requirements for all segments of the environment. This includes meeting the general provisions of the *Environment Protection Act 1970*, State environment protection policies, and Industrial waste management policies. In particular,
 - ◆ *Industrial waste management policy (Prescribed Industrial Waste);*
 - ◆ *State environment protection policy (Waters of Victoria);*
 - ◆ *State environment protection policy (Groundwaters of Victoria);*
 - ◆ *State environment protection policy (Air Quality Management);*
 - ◆ *State environment protection policy (Noise from Commerce, Industry and Trade); and*
 - ◆ *State environment protection policy (Prevention and Management of Contamination Land)*
- operate in accordance with good environmental practice at all times; and
- take opportunities to minimise waste and continuously improve environmental performance.

**Works
Approval
Structure**

This approval consists of the following parts.

1. *General Conditions*
 - includes conditions relating the works to the application, and specifies a date for the expiry of the approval
2. *Works Conditions*
 - conditions which relate to construction of works necessary for protecting the environment
3. *Reporting Conditions*
 - conditions requiring the submission of technical reports to EPA
4. *Plan of Premises*
 - plan of the premises covered by this works approval

1 GENERAL CONDITIONS

- 1.1. The works must be constructed in accordance with the works approval application accepted on 31 March 2006 and additional information received in response to the notices issued on 9 June 2006 and 28 August 2006 pursuant to section 22 of the Environment Protection Act 1970 ("the application").
- 1.2. In the event of any inconsistency arising between the application and the conditions of this works approval the conditions of this works approval shall apply.
- 1.3. This works approval will expire:
 - a) on the issue of a licence relating to all works covered by the works approval; or
 - b) two years from the date of issue unless the works have been commenced by that date to the satisfaction of EPA.

2. WORKS CONDITIONS

AIR

- 2.1. The occupier must design and construct the ventilation system to collect and discharge all gaseous and particulate wastes generated within the Eastlink tunnels.
- 2.2. All gaseous and particulate wastes referred to in condition 2.1 must be discharged to atmosphere from the exhaust stacks described in the application except during an emergency incident as specified in condition 2.3.
- 2.3. The ventilation system must be designed and constructed to ensure efficient extraction of gaseous and particulate wastes from the tunnels during an emergency incident as described in the application.
- 2.4. The occupier must construct all exhaust stacks to discharge wastes so that:
 - a) the dimensions of each stack are as specified in the application;
 - b) the outlet of each stack will allow free vertical discharge of wastes;
 - c) each stack is clearly labelled as specified on the attached plan of the premises; and
 - d) provisions for sampling are included in accordance with EPA Publication No 440.1 "A guide to the Sampling and Analysis of Air emissions and Air Quality."
- 2.5. The occupier shall design and construct the ventilation system in such a manner that the concentration of carbon monoxide inside the tunnels does not exceed the limits specified in Table 1.

Carbon monoxide exposure	Concentration
Peak	150 ppm
Tunnel average for 15 minute exposure period	50 ppm
Tunnel average for continuous exposure in excess of two hours	25 ppm

Table 1: In-tunnel air quality limits

NOISE

- 2.6. The occupier must install tunnel exhaust fans and jet fans that do not exceed the design sound power levels specified in Table 2.

Fan sound power levels for design purposes (dB) ¹	Total Lin	Total (A)	Octave band centre frequency (Hz)							
			63	125	250	500	1k	2k	4k	8k
Tunnel exhaust fan	129	126	116	117	122	124	122	118	113	105
Jetfan forward	105	101	88	102	94	96	98	94	89	86
Jetfan reverse	112	103	93	111	103	97	98	93	90	87

Table 2: Tunnel exhaust fan and jet fan design sound power levels

Note 1: Sound power levels are listed from inlet or outlet. For combined inlet and outlet, add 3dB.

- 2.7. The occupier must install splitter silencers (intake and discharge) for the tunnel exhaust fans as designed and documented in the works approval application (Report 045-291/3, Annexure 'B1').
- 2.8. The occupier must construct features of the tunnels' ventilation buildings and stacks relevant to control of "breakout" noise as designed and documented in the works approval application (section 22 response, Attachment "B", B11).

WATER / LAND

- 2.9. The constructed works are to include provision for pumping water from the surface water sump to sewer under normal operating conditions.

MONITORING CONDITIONS

In-tunnel air quality monitoring

- 2.10. The occupier must install equipment to continuously and accurately monitor and record air quality inside the tunnels.
- 2.11. The equipment referred to in condition 2.10 must be capable of measuring the following parameters:
- air flow velocity;
 - visibility;
 - carbon monoxide;
 - .NO; and
 - temperature.
- 2.12. The equipment referred to in condition 2.10 must form part of the ventilation control system and be capable of providing information on in-tunnel air quality to the person(s) in control of the operation of the ventilation system.
- 2.13. The occupier must install a device capable of activating an audible and visible alarm that warns the operator whenever the in-tunnel air quality limits are likely to be breached.

Ventilation stacks monitoring

- 2.14. The occupier must install equipment to continuously and accurately monitor and record the emissions from each exhaust stack.
- 2.15. The equipment referred to in condition 2.14 must be capable of continuous measurement of the following parameters:
- a) NO;
 - b) NO₂;
 - c) carbon monoxide;
 - d) particles as PM₁₀ and PM_{2.5};
 - e) air flow velocity; and
 - f) temperature.
- 2.16. The equipment referred to in condition 2.14 must form part of the tunnels' control system and be capable of providing information on emissions from each exhaust stack to the person(s) in control of the operation of the tunnels.
- 2.17. The occupier must install a device capable of activating an audible and visible alarm that warns the operator whenever the operating limits for the waste discharged from the premises are likely to be breached.

Ground level ambient air quality monitoring program

- 2.18. The occupier must prepare a proposal for approval by EPA for an ambient air monitoring program to monitor the impact of emissions from the tunnels.
- 2.19. The ambient air monitoring program referred to in condition 2.18 must include a minimum of three ground level monitoring stations.
- 2.20. The monitoring program referred to in condition 2.18 must commence no later than within three months of the date of issue of this works approval, unless otherwise approved in writing by EPA.
- 2.21. The monitoring program referred to in condition 2.18 must include consideration of:
- a) suitable monitoring sites;
 - b) commencement date for monitoring;
 - c) method of measurement; and
 - d) provision of the ground level monitoring data to EPA in a format acceptable to EPA.
- 2.22. The monitoring program referred to in condition 2.18 must be capable of accurately measuring and recording the following parameters at frequencies to be agreed with EPA at all stations:
- a) carbon monoxide;
 - b) total oxides of nitrogen; and
 - c) particles as PM₁₀.

- 2.23. The monitoring program referred to in condition 2.18 must be capable of accurately measuring and recording at all times the following meteorological data:
- a) wind speed;
 - b) wind direction;
 - c) sigma theta; and
 - d) temperature.
- 2.24. The monitoring program referred to in condition 2.18 must be capable of accurately measuring and recording the following additional parameters for at least one monitoring station:
- a) particles as PM_{2.5};
 - b) validation method for PM_{2.5};
 - c) benzene;
 - d) xylene;
 - e) toluene;
 - f) 1,3-butadiene;
 - g) formaldehyde;
 - h) PAH (as BaP); and
 - i) solar radiation.

3. REPORTING CONDITIONS

General conditions

- 3.1. The occupier must advise EPA in writing when the works are completed so that an inspection of the completed works can be made.
- 3.2. Prior to the commissioning of the works, the occupier must submit a report to EPA which includes the following:
 - a) a description of how pollution control equipment to treat road tunnel particulate and gaseous emissions discharged from the tunnels will be retrofitted, if this is required by EPA in the future;
 - b) a description of how the operation of the ventilation control system will meet the requirements of conditions 2.10, 2.11, 2.13, 2.14, 2.15 and 2.16;
 - c) the results of ambient air quality monitoring conducted under the program referred to in condition 2.18; and
 - d) a description of how the results of continuous in-stack monitoring will be communicated to the community.

Monitoring

- 3.3. The occupier must submit plans and specifications of the equipment required by conditions 2.10 and 2.14 to EPA for approval within six months of the issue of this works approval.
- 3.4. Within 30 days of issue of this works approval, the occupier must submit a report to EPA for approval detailing the monitoring program referred to in condition 2.18 and all associated equipment.
- 3.5. The ground level ambient air quality data collected pursuant to the monitoring program referred to in condition 2.18 must be made available upon request from any Authorized Officer of the Environment Protection Authority.
- 3.6. Where applicable, the occupier must ensure that the results of the monitoring program referred to in condition 2.18 are submitted to EPA in a NATA endorsed test report unless prior agreement to do otherwise has been obtained from EPA.
- 3.7. The reports referred to in condition 3.2 and 3.6 must be signed by the occupier, or by an officer authorised by the occupier for this purpose.

Environment Improvement Plan

- 3.8. Three months prior to the commissioning of works, the occupier must submit to EPA for approval an Environment Improvement Plan (EIP) which is consistent with EPA publication No 739 "*Guidelines for the Preparation of Environment Improvement Plans*".
- 3.9. The EIP referred to in condition 3.8 must be signed by the occupier or by an officer authorised by the occupier for this purpose.
- 3.10. The EIP referred to in condition 3.8 must include but not be limited to specific consideration of:
 - a) Environment Policy;
 - b) site operations;

- c) staffing and company structure – roles and responsibilities;
- d) sensitive environments;
- e) environmental impacts;
- f) environmental objectives;
- g) a program to monitor the hydrology and quality of surface and groundwater, including triggers for action and commensurate management approaches to minimise the impact on the Mullum Mullum Creek;
- h) procedure for the management of groundwater captured in the tunnels;
- i) procedure for the management of water captured in the surface water sump within the tunnels;
- j) procedure for the management of water captured in the wastewater sump in the tunnels;
- k) procedure for the management and disposal of sediment and other waste collected in the sumps or in the tunnels;
- l) tunnels operation procedure addressing the situation where in-stack monitoring shows a trend towards possible breach of operating limits;
- m) tunnels operation procedure addressing the situation where in-tunnel monitoring shows a trend towards a possible breach of operating limits;
- n) ambient air quality monitoring program;
- o) inspection procedures;
- p) record keeping procedures;
- q) community liaison process;
- r) reporting and monitoring of compliance with the EIP;
- s) EIP review process;
- t) contingency and emergency procedures;
- u) a timetable for a review of best practice and Maximum Extent Achievable at the site as part of the continuous improvement program;
- v) provisions for reporting on energy consumption and greenhouse gas emissions;
- w) employee training;
- x) complaint response;
- y) incident reporting procedure, which details the circumstances under which the occupier is to notify EPA of any spills, leaks or non-routine discharges to the environment;
- z) a procedure for controlling noise when accessing each tunnel's exhaust fan room via the roadway access hatch so that excessive noise at the residents is prevented; and
- aa) an inspection and maintenance schedule for the noise control equipment.

4. PLAN OF PREMISES

