



**ENERGY FROM WASTE FACILITY  
NEW ENGLAND QUARRY LANDFILL**

**AIR QUALITY – TECHNICAL APPENDIX 7-2  
Traffic Emissions Assessment**



**January 2010  
SLR Ref: 402.0036.00350**



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## DRAWINGS

Drawing 7-2/1	DMRB Assessment Locations and Links
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## **1.0 INTRODUCTION**

This appendix presents the screening assessment of traffic emissions in relation to the development traffic resulting from the proposed development at New England Resource Recovery Centre. This assessment should be read in conjunction with Chapter 7 - Air Quality. Reference to the Traffic and Transportation Chapter has been made where appropriate. Sections 3 and 4 of this report contain the input values and assessment results respectively.

## **2.0 METHODOLOGY**

The assessment of potential impacts associated with development traffic has been carried out using the UK Design Manual for Roads and Bridges (DMRB) screening method v1.03c' methodology .The DMRB methodology facilitates the prediction of pollutant concentrations near to roads, as a result of vehicle emissions.

Predicted concentrations at receptors are made using an empirical relationship using different emission factors for different vehicle types. These emission factors change from year to year as the technology in the vehicle fleet improves. The DMRB output for NO<sub>x</sub> has been input into the NO<sub>x</sub>:NO<sub>2</sub> calculator<sup>1</sup> to derive NO<sub>2</sub> concentrations (released by [www.airquality.co.uk](http://www.airquality.co.uk)) based on the latest monitoring data study between 2003 and 2006.

### **2.1 Scenarios**

The data presented in the Traffic and Transportation assessment indicates that the construction traffic will not exceed the operational traffic either in numbers of HGV trips or overall traffic movements:

- Construction: 130 vehicle trips total, 80 HGV trips; and
- Operation: 357 vehicles trips total, 277 HGV trips.

On this basis, the operational phase represents the worst case from an air quality perspective and it is this phase which has been assessed.

### **2.2 Receptor Locations**

Receptor locations have been selected to represent the worst case locations with respect to the affected roads. Locations used in the traffic air quality assessment are presented in Drawing 7-1.

### **2.3 Background Values**

Background pollutant concentrations have been obtained from the National Air Quality Archive UK Background Air Pollution Maps. These 1km grid resolution maps are derived from 2006 background annual mean pollutant concentrations which are then projected to future years. The estimated annual mean background concentrations for the grid square containing the application site (259500, 54500) are as shown below for pollutants relevant to this assessment.

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<sup>1</sup> <http://www.airquality.co.uk/archive/laqm/tools.php>

**Table 2-1  
Relevant Estimated Annual Mean Background Concentrations**

<b>Pollutant</b>	<b>Predicted 2009 (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>Predicted 2013 (<math>\mu\text{g}/\text{m}^3</math>)</b>
NO <sub>2</sub>	7.43	6.78
NO <sub>x</sub>	8.29	7.40
PM <sub>10</sub>	15.46	15.23

It is likely that the facility will be constructed during the period 2011 until 2013 and open in late 2013 / early 2014. For purposes of assessment, 2014 provides the 'worst case' traffic data (additional growth factor) and 2013 the 'worst case' background air quality. On this basis it is this data which has been used (2013 backgrounds and 2014 traffic data) to provide a combined worst case assessment.

### 3.0 DMRB INPUT VALUES

All input data is shown on Drawing 7-1. In all cases, the distance to receptor is taken as 2m from the edge of the road (i.e. ½ road width + 2m).

**Table 3-1  
 Input data at Link 1**

	Distance to receptor (m)	Traffic Flows 24 Hour (AADT)	HDV Flows 24 Hour (AADT)	LDV %	HDV %	Average Speed (km/h)
<b>Baseline (2009)</b>	5.45	5715	368	93.6%	6.4%	48.3
<b>Projected Baseline</b>	5.45	5866	399	93.2%	6.8%	48.3
<b>With development</b>	5.45	5944	457	92.3%	7.7%	48.3

**Table 3-2  
 Input data at Link 2**

	Distance to receptor	Traffic Flows 24 Hour (AADT)	HDV Flows 24 Hour (AADT)	LDV %	HDV %	Average Speed (km/h)
<b>Baseline (2009)</b>	5.70	7726	611	92.1%	7.9%	48.3
<b>Projected Baseline</b>	5.70	7928	664	91.6%	8.4%	48.3
<b>With development</b>	5.70	8007	722	91.0%	9.0%	48.3

**Table 3-3  
 Input data at Link 3**

	Distance to receptor	Traffic Flows 24 Hour (AADT)	HDV Flows 24 Hour (AADT)	LDV %	HDV %	Average Speed (km/h)
<b>Baseline (2009)</b>	5.95	12818	877	93.2%	6.8%	48.3
<b>Projected Baseline</b>	5.95	13156	953	92.8%	7.2%	48.3
<b>With development</b>	5.95	13257	1034	92.2%	7.8%	48.3

**Table 3-4**  
**Input data at Link 4**

	<b>Distance to receptor</b>	<b>Traffic Flows 24 Hour (AADT)</b>	<b>HDV Flows 24 Hour (AADT)</b>	<b>LDV %</b>	<b>HDV %</b>	<b>Average Speed (km/h)</b>
<b>Baseline (2009)</b>	6.25	14881	820	94.5%	5.5%	32.2
<b>Projected Baseline</b>	6.25	15274	891	94.2%	5.8%	32.2
<b>With development</b>	6.25	15274	891	94.2%	5.8%	32.2

**4.0 DMRB ASSESSMENT RESULTS**

**Table 4-1  
 Predicted NO<sub>2</sub> and PM<sub>10</sub> Concentrations at Link 1 Receptor (µg/m<sup>3</sup>)**

Scenario	NO <sub>2</sub> Road Increment	NO <sub>2</sub> Total	PM <sub>10</sub> Road Increment	PM <sub>10</sub> Total	No Days > 50
Baseline (2009)	3.45	10.88	0.68	16.14	0.36
Projected Baseline	2.70	9.48	0.50	15.73	0.24
With Development	2.90	9.68	0.52	15.75	0.24
Increase With development	0.20	0.20	0.02	0.02	0.01

**Table 4-2  
 Predicted NO<sub>2</sub> and PM<sub>10</sub> Concentrations at Link 2 Receptor (µg/m<sup>3</sup>)**

Scenario	NO <sub>2</sub> Road Increment	NO <sub>2</sub> Total	PM <sub>10</sub> Road Increment	PM <sub>10</sub> Total	No Days > 50
Baseline (2009)	5.15	12.58	0.99	16.45	0.48
Projected Baseline	3.99	10.77	0.70	15.93	0.30
With Development	4.17	10.95	0.72	15.95	0.30
Increase With development	0.18	0.18	0.02	0.02	0.00

**Table 4-3  
 Predicted NO<sub>2</sub> and PM<sub>10</sub> Concentrations at Link 3 Receptor (µg/m<sup>3</sup>)**

Scenario	NO <sub>2</sub> Road Increment	NO <sub>2</sub> Total	PM <sub>10</sub> Road Increment	PM <sub>10</sub> Total	No Days > 50
Baseline (2009)	7.73	15.16	1.55	17.01	0.75
Projected Baseline	6.06	12.84	1.12	16.35	0.44
With Development	6.33	13.11	1.15	16.38	0.45
Increase With development	0.27	0.27	0.03	0.03	0.01

**Table 4-4**  
**Predicted NO<sub>2</sub> and PM<sub>10</sub> Concentrations at Link 4 Receptor (µg/m<sup>3</sup>)**

<b>Scenario</b>	<b>NO<sub>2</sub> Road Increment</b>	<b>NO<sub>2</sub> Total</b>	<b>PM<sub>10</sub> Road Increment</b>	<b>PM<sub>10</sub> Total</b>	<b>No Days &gt; 50</b>
Baseline (2009)	8.83	16.26	2.11	17.57	1.09
Projected Baseline	6.87	13.65	1.54	16.77	0.62
With Development	6.87	13.65	1.54	16.77	0.62
Increase With development	0.00	0.00	0.00	0.00	0.00