

**Updating and Screening Assessment 2006**  
Air Quality Assessment

Isle of Wight Council  
April 2006

# Executive Summary

An Updating and Screening Assessment (USA) has been performed for the seven UK criteria pollutants, for the Isle of Wight. The aim of this assessment is to determine whether there is potential for exceedences of any of the UK National objectives.

Since the last Updating and Screening Assessment, a Detailed Assessment of benzene and sulphur dioxide has been carried out and a Progress Report detailed concerns that exceedences of the nitrogen dioxide air quality objective may be occurring. No changes to industrial processes or other sources have occurred since 2003. An assessment of NO<sub>2</sub> and PM<sub>10</sub> concentrations at junctions has been carried out for the relevant objective years based on new traffic data.

The results of this USA indicate that a Detailed Assessment for NO<sub>2</sub> is required. This is due to the fact that exceedences of the 2005 NO<sub>2</sub> UK Air Quality Objective have been exceeded at two monitoring sites in the area over the last three years.

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# 1 Introduction

## 1.1 Summary of Review and Assessment since 2004.

The Isle of Wight Council has carried out Review and Assessment work since 2000, completing Stage 1 in April 2000. The following points summarise the last Updating and Screening Assessment (USA) from 2004, and the stages which have been undertaken since then.

### 1.1.1 2004

- **Updating and Screening Assessment, 2004** by AEA Technology. No AQMAs declared with possible exceptions for benzene and SO<sub>2</sub>. Therefore a Detailed Assessment was required for these pollutants in 2005.

### 1.1.2 2005

- **Detailed Assessment of Benzene and SO<sub>2</sub>, January 2005** by Faber Maunsell. No AQMAs to be declared, but further monitoring of benzene may be required.
- **Progress Report, February 2005.** 3 months monitoring of benzene to be carried out, results anticipated July 2006, to be included in Progress Report 2006. Nine NO<sub>x</sub> monitoring sites maintained until 2005. No possibility of exceedences at sites except at IW4 and IW8, therefore decision made to discontinue all except these two. Detailed Assessment of NO<sub>x</sub> may be necessary based on exceedences at two sites.
- **Progress Report Appraisal, March 2005.** Some new locations may be likely to exceed NO<sub>x</sub> objectives, so a Detailed Assessment may be required. Defra to be informed of decision.
- **Benzene Monitoring, October 2005** Results released and no exceedences likely in current situation and so no AQMA declared. With the view to major development on the IOW in the future years, further monitoring may be necessary. See Appendix C for results.

### 1.1.3 2006, Current Situation

Diffusion tube bias correction factors have previously been applied incorrectly to IW8. These therefore need to be checked to determine whether Air Quality Objectives have been exceeded at this location. If this is the case then exceedences may be occurring at additional locations. Monitoring at these locations would then be necessary and a Detailed Assessment for NO<sub>x</sub> would be required.

There are several proposed major developments proposed for the Isle of Wight. Two major developments include The East Cowes Project, which involves the demolition of several buildings to accommodate a proposed mixed use development and a second major development in the East Cowes/ Whippingham area. These proposed developments have the potential to impact upon traffic flows and new roads may need to be built, which could also impact upon air quality.

## 1.2 Information used to Support the Assessment

### 1.2.1 *Traffic Data*

Traffic data was supplied by the IOW Council and is included in Appendix A.

### 1.2.2 *Industrial Sources*

The Isle of Wight has 4 Part A Industrial Processes, these are included in Appendix B. A full list of the 53 Part B Industrial Processes can be found in the Stage 2 Report.

### 1.2.3 *Monitoring Data*

Monitoring data which has been collected since the last Updating and Screening Assessment is included in Appendices C and D. This includes nitrogen dioxide diffusion tube data and benzene diffusion tube data.

### 1.2.4 *Mapping*

The Ordnance Survey Mapping used in this assessment was reproduced from the Ordnance Survey Map with Permission of the Controller of Her Majesty's Stationery Office. The mapping was provided by the Isle of Wight Council © Crown Copyright Reserved License No.DWIG150.

## 1.3 Overview of Air Quality Legislation and Policy

### 1.3.1 *Overview of Recent Air Quality Legislation and Policy*

The provisions of Part IV of the Environment Act 1995 establish a national framework for air quality management, which requires all local authorities in England, Scotland and Wales to conduct local air quality reviews. Section 82(1) of the Act requires these reviews to include an assessment of the current air quality in the area and the predicted air quality in future years. Should the reviews indicate that the standards prescribed in the National Air Quality Strategy (NAQS) and the Addendum to the Strategy will not be met, the local authority is required to designate an Air Quality Management Area (AQMA). Action must then be taken at a local level to ensure that air quality in the area improves. This process is known as 'local air quality management'.

### 1.3.2 *The Phased Approach to Review and Assessment*

The second round of the review and assessment process has been split into two phases: an Updating and Screening Assessment and a Detailed Assessment.

The first phase, the Updating and Screening Assessment, has been designed to review the changes in air quality issues that have occurred within each local authority since the first round of review and assessment. These changes are assessed using appropriate screening methods. Therefore, it should cover:

- new monitoring data
- new objectives
- new sources of pollution
- significant changes to existing sources of pollution.

The Updating and Screening Assessment also re-examines locations and sources, e.g. road junctions, bus stations, domestic burning, fugitive sources, etc., that have been highlighted as issues during the previous round of review and assessment.

Where the Updating and Screening Assessment has identified a risk that an air quality objective may be exceeded, the local authority must undertake a Detailed Assessment. The aim of this assessment is to determine with as much certainty as is possible whether or not an air quality objective will be exceeded. If an exceedence is predicted, the local authority should designate an AQMA to cover the area of the exceedence.

### 1.3.3 *National Air Quality Strategy (NAQS)*

The NAQS identifies eight ambient air pollutants that have the potential to cause harm to human health. These pollutants are associated with local air quality problems, with the exception of ozone, which is instead considered to be a regional problem.

The Air Quality Regulations set standards for the seven pollutants that are associated with local air quality. These objectives aim to reduce the health impacts of the pollutants to negligible levels. The standards stated in the Air Quality Regulations are listed in Table 1.

The revised objectives for benzene, carbon monoxide and suspended particulate matter (PM<sub>10</sub>), as detailed in the 'Air Quality (England)(Amendment) Regulations 2002', are included.

Table 1: UK Objectives included in the Air Quality Regulations 2000 and (Amendment) Regulations 2002

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 µg/m <sup>3</sup> <i>All authorities</i>	running annual mean	31.12.2003
	5.0 µg/m <sup>3</sup> <i>Authorities in England and Wales only</i>	annual mean	31.12.2010
1,3-Butadiene	2.25 µg/m <sup>3</sup>	running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m <sup>3</sup> <i>Authorities in England, Wales and N. Ireland.</i>	maximum daily running 8-hour mean	31.12.2003
Lead	0.5 µg/m <sup>3</sup>	annual mean	31.12.2004
	0.25 µg/m <sup>3</sup>		31.12.2008
Nitrogen dioxide	200 µg/m <sup>3</sup> not to be exceeded more than 18 times a year	1 hour mean	31.12.2005
	40 µg/m <sup>3</sup>	annual mean	31.12.2005
Particles (PM <sub>10</sub> ) (gravimetric) <i>All authorities</i>	50 µg/m <sup>3</sup> not to be exceeded more than 35 times a year	24 hour mean	31.12.2004
	40 µg/m <sup>3</sup>	annual mean	31.12.2004
Particles (PM <sub>10</sub> ) (gravimetric) <i>Provisional objectives for England (not London) and Wales</i>	50 µg/m <sup>3</sup> not to be exceeded more than 7 times a year	24 hour mean	31.12.2010
	20 µg/m <sup>3</sup>	annual mean	31.12.2010
Sulphur dioxide	350 µg/m <sup>3</sup> not to be exceeded more than 24 times a year	1 hour mean	31.12.2004
	125 µg/m <sup>3</sup> not to be exceeded more than 3 times a year	24 hour mean	31.12.2004
	266 µg/m <sup>3</sup> not to be exceeded more than 35 times a year	15 minute mean	31.12.2005

## 2 Pollutant Checklist

**2.1 Carbon Monoxide**

Checklist Item (from Box 2.2)	Updating and Screening Assessment
<b>Monitoring Data</b> A) Monitoring data	Carbon monoxide is not monitored on the Isle of Wight
<b>Road Traffic-</b> B) Very busy roads or junctions in built-up areas	There are no very busy roads or junctions on the Isle of Wight (i.e. single carriageway roads where the AADT>80,000, or dual carriageway roads where the AADT>120,000, or motorways where the AADT>140,000). The busiest road in the authority is Medina Way which has an AADT of 34,334 (2005).
<b>Conclusion</b>	The assessment has indicated that the CO objective is unlikely to be exceeded at any location on the island, and therefore a Detailed Assessment for this pollutant will not be required.

**2.2 Benzene**

Checklist Item ( from Box 3.2 in TG(03))	Updating and Screening Assessment
<b>Monitoring Data</b> A) Monitoring data outside an AQMA	Following a Detailed Assessment in January 2005, benzene was monitored for three months during 2005 and no exceedences were predicted. No AQMA was declared, but further monitoring may be necessary as a result of future developments on the island. Monitoring data are presented in Appendix C.
B) Monitoring data within an AQMA	
<b>Road Traffic-</b> C) Very busy roads or junctions in built-up areas	There are no very busy roads or junctions on the Isle of Wight (i.e. single carriageway roads where the AADT>80,000, or dual carriageway roads where the AADT>120,000, or motorways where the AADT>140,000). The busiest road in the authority is Medina Way which has an AADT of 34,334 (2005).
<b>Industrial Sources</b> D) New industrial sources	There are no petroleum processes or other industrial processes that emit sufficient quantities of benzene on the Isle of Wight, nor have there been any changes since the previous USA to consider for the purpose of this assessment.
E) Industrial sources with substantially increased emissions, or new relevant exposure.	
<b>Other Sources</b> F) Petrol stations	There are no petrol filling stations with an annual throughput of more than 2 million litres per year, near to a busy road (>30,000 vehicles per day), and within 10m of a sensitive receptor.
G) Major fuel storage depots (petrol only)	The only major fuel depot within the authority is located at East Cowes and has a throughput of 50 million litres per annum. Monitoring using passive diffusion tubes at this location has shown that no exceedences of the objective are likely.
<b>Conclusion</b>	Monitoring data taken during 2005 following the Detailed Assessment has indicated that the benzene objectives are unlikely to be exceeded at any location on the island, including the major fuel depot, and no further action will be required.

## 2.3

**1,3-butadiene**

Checklist Item (from Box 4.2)	Updating and Screening Assessment
<b>Monitoring Data</b> A) Monitoring data	1,3-butadiene is not monitored on the Isle of Wight.
<b>Industrial Sources</b> B) New industrial sources	There are no new industrial processes within the Isle of Wight or within neighbouring authorities, nor are there any industrial sources with increased emissions, or new relevant exposure to consider for the purpose of this assessment.
C) Industrial sources with substantially increased emissions, or new relevant exposure.	
<b>Conclusion</b>	The assessment has indicated that the 1,3-butadiene objective is unlikely to be exceeded at any location on the island, and therefore a Detailed Assessment for this pollutant will not be required.

## 2.4

**Lead**

Checklist Item (from Box 5.1)	Updating and Screening Assessment
<b>Monitoring Data</b> A) Monitoring data	Lead is not monitored on the Isle of Wight.
<b>Industrial Sources</b> B) New industrial sources	There are no new industrial processes on the Isle of Wight, nor are there industrial sources with increased emissions, or new relevant exposure to consider for the purpose of this assessment.
C) Industrial sources with substantially increased emissions, or new relevant exposure.	
<b>Conclusion</b>	The assessment has indicated that the lead objectives are unlikely to be exceeded at any location on the island, and therefore a Detailed Assessment for this pollutant will not be required.

## 2.5

**Nitrogen Dioxide**

Checklist Item (from Box 6.2)	Updating and Screening Assessment
<b>Monitoring Data</b> A) Monitoring data from outside an AQMA	No AQMA has been declared on the Isle of Wight. In April 2005 the number of sites where nitrogen dioxide is monitored was reduced from nine to two, leaving sites IW4 and IW8. Exceedences were recorded at these two sites in 2003 and 2005 and at IW8 in 2004. Forecast concentrations to 2010 from 2005 results, predicted IW8 to still exceed the 2005 objective in 2010. Concentrations at the nearest property to IW4 were predicted to exceed the objective, but concentrations at the closest property to IW8 were predicted to be below the objective. A Detailed Assessment is recommended on the basis of these results. See Appendix D for further details.
B) Monitoring data within an AQMA	
<b>Road Traffic-</b> C) Narrow congested streets with residential properties close to the kerb	There has been no change since the previous USA; there are no narrow congested streets with residential properties close to the kerb where there is an AADT flow of above 10,000.



Checklist Item (from Box 6.2)	Updating and Screening Assessment
D) Junctions	The previous round of Review and Assessment did not assess any junctions, but locations with a combined AADT of over 10,000 and with relevant exposure within 10 m of the kerb have been identified. Twelve junctions were assessed using the DMRB Methodology and no exceedences of the objectives were predicted for 2005 or 2010. Concentrations of NO <sub>2</sub> were predicted to decrease between 2005 and 2010. See Appendix E.
E) Busy streets where people may spend 1 hour or more close to traffic	There has been no change since the previous USA; there are no busy streets where people may spend 1 hour or more close to traffic where there is an AADT flow of above 10,000.
F) Road with high flow of buses and/or HGVs	There has been no change since the previous USA; there are no roads with unusually high flows of buses and/or HGVs (i.e. greater than 25%)
G) New roads constructed or proposed since the previous round of R & A	There have been no new roads constructed or proposed since the previous USA.
H) Roads with significantly changed traffic flows, or new relevant exposure.	No roads with an AADT of >10,000 have shown a significant increase (>25%) in traffic flow. There is no new relevant exposure.
I) Bus stations	There are no bus stations on the Isle of Wight with relevant exposure within 10 m of the kerb.
<b>Industrial Sources</b> J) New industrial sources	There are no new industrial processes on the Isle of Wight or within neighbouring authorities, nor are there industrial sources with increased emissions, or new relevant exposure to consider for the purpose of this assessment.
K) Industrial sources with substantially increased emissions, or new relevant exposure.	
<b>Other Sources</b> L) Aircraft	There are two airfields on the Isle of Wight, both of which are used for recreational flights only. There are no commercial flights from these airfields. These airfields will not be considered further for the purpose of this assessment.
<b>Conclusion</b>	Exceedences at IW8 and IW4 have occurred in the past three years. It is therefore likely that exceedences could be occurring at other locations on the island. Further monitoring at sites where the public could be exposed to these levels is therefore recommended and a Detailed Assessment is required for this pollutant.

## 2.6

**Sulphur Dioxide**

Checklist Item (from Box 7.2)	Updating and Screening Assessment
<b>Monitoring Data</b> A) Monitoring data from outside an AQMA B) Monitoring data within an AQMA	Sulphur dioxide is not monitored on the Isle of Wight and no AQMA was declared following the Detailed Assessment in January 2005.
<b>Industrial Sources</b> C) New industrial sources D) Industrial sources with substantially increased emissions, or new relevant exposure.	There are no new industrial processes on the Isle of Wight or within neighbouring authorities, nor are there industrial sources with increased emissions, or new relevant exposure to consider for the purpose of this assessment.
<b>Domestic Sources</b> E) Areas of domestic coal burning	There are no known areas where significant domestic coal (or smokeless fuel) burning takes place.
<b>Boilers</b> F) Small boilers $>5\text{MW}_{(\text{thermal})}$	There are no known boilers of greater than 5MW that burn coal or oil on the island.
<b>Other Sources</b> G) Shipping H) Railway :Locomotives	<p>There are three car ferry terminals on the Isle of Wight with significant numbers of shipping movements per year (<math>&gt; 5000</math>) and there are relevant receptors within 1 km of the ports.</p> <p>There have been no changes since the last round of Review and Assessment and the Detailed Assessment in 2005 predicted that exceedences were not likely and that the impact of the ship emissions upon local receptors was not significant. No AQMA was declared.</p> <p>There is one preserved railway on the Island, operated by two small steam locomotives but there are no locations where diesel locomotives or steam locomotives are regularly stationary for 15 minutes where members of the public may be exposed.</p>
<b>Conclusion</b>	The assessment has indicated that the sulphur dioxide objectives are unlikely to be exceeded at any location on the island, and therefore a Detailed Assessment will not be required for this pollutant.

## 2.7

**PM<sub>10</sub>**

Checklist Item (from Box 8.4)	Updating and Screening Assessment
<b>Monitoring Data</b> A) Monitoring data from outside an AQMA B) Monitoring data within an AQMA	PM <sub>10</sub> is not monitored on the Isle of Wight and there is no AQMA on the island.

Checklist Item (from Box 8.4)	Updating and Screening Assessment
<b>Road Traffic-</b> C) Busy roads or junctions in Scotland	N/A
D) Junctions	The previous round of Review and Assessment did not assess any junctions, but locations with a combined AADT of over 10,000 and with relevant exposure within 10 m of the kerb have been identified. Twelve junctions were assessed using the DMRB Methodology and no exceedences of the 2004 PM <sub>10</sub> objective were predicted for 2005. Exceedences of the 2010 objective were predicted at six of the twelve junctions but it should be noted that this objective is provisional. See Appendix E.
E) Roads with high flow if buses and/or HGVs	There has been no change since the previous round of assessment; there are no roads with unusually high flows of buses and/or HGVs (i.e. greater than 20%)
F) New roads constructed or proposed since last round of R&A	There have been no new roads constructed or proposed since the previous round of Review and Assessment.
G) Roads with significantly changed traffic flows, or new relevant exposure	No roads with an AADT of >10,000 have shown a significant increase (>25%) in traffic flow. There is no new relevant exposure.
H) Roads close to the objective during the second round of R&A	There were no roads close to the objective during the second round of Review and Assessment (the greatest number of daily exceedences predicted in 2004, at a sensitive receptor, was 8).
<b>Industrial Sources</b> I) New industrial sources	There are no new industrial processes on the Isle of Wight or within neighbouring authorities, nor are there industrial sources with increased emissions, or new relevant exposure to consider for the purpose of this assessment.
J) Industrial sources with substantially increased emissions, or new relevant exposure.	
<b>Domestic Sources</b> K) Areas of domestic fuel burning	There are no known areas where significant domestic solid fuel burning takes place.
<b>Other Sources</b> L) Quarries/ landfill / opencast coal / handling of dusty cargo at ports etc	There are ten areas of quarrying activity on the Isle of Wight, but these have not changed since their assessment in the Stage 2 Review.
M) Poultry Farms	There are no poultry farms on the island where it is thought likely that emissions of PM <sub>10</sub> could contribute to exceedences of the PM <sub>10</sub> objectives.
N) Aircraft	There are two airfields on the Isle of Wight, both of which are used for recreational flights only. There are no commercial flights from these airfields. These airfields will not be considered further for the purpose of this assessment.
<b>Conclusion</b>	The assessment has indicated that the PM <sub>10</sub> objectives are unlikely to be exceeded at any location on the island, and therefore a Detailed Assessment will not be required for this pollutant.

## 3 Conclusions

The criteria for each of the seven pollutants has been assessed according to the guidance contained within LAQM.TG(03), and its January 2006 update. It is concluded that the national air quality objectives for carbon monoxide, benzene, 1-3-butadiene, lead, sulphur dioxide and PM<sub>10</sub> are unlikely to be exceeded at any location on the Isle of Wight and therefore a Detailed Assessment of these pollutants will not be required. Monitoring of nitrogen dioxide on the island has revealed exceedences at two diffusion tube sites in 2005. Concentrations at one site are forecast to still exceed objectives in 2010. Therefore a Detailed Assessment of nitrogen dioxide is required.

## Appendix A: Traffic Data

Table 2: Traffic Data

Town	Road	Date of Count	Total	No. Flows
Newport	Medina Way	05/08/2002	32660	2
Newport	Horsebridge Hill	06/08/2001	25776	2
Lake	Lake Hill	28/07/2003	23088	2
Newport	Fairlee Road	06/08/2001	21848	2
Newport	Blackwater Road	11/08/2003	21136	2
Wootton	Eleanors Grove	20/08/2001	19676	2
Apse Heath	Newport Road	05/08/2002	17409	2
Wootton	Lushington Hill	07/10/2002	15990	2
East Cowes	Whippingham Road	20/08/2001	15484	2
Ryde	Quarr Hill	14/07/2003	14446	2
Lake	Newport Road	12/05/2003	14440	2
Newport	Carisbrooke Road	29/07/2001	13886	2
Brading	Brading Road	19/08/2002	13863	2
Newport	Forest Road	23/06/2003	13035	2
Whippingham	Main Road	31/05/2003	12348	2
Sandown	Broadway	01/04/2002	12283	2
Newport	Forest Road	20/08/2001	11979	2
Ryde	St Johns Hill	18/05/2001	11740	2
Newport	Fairlee Road	09/07/2001	11450	1
Newport	Cross Lane	21/05/2001	10439	1
Shanklin	Sandown Road	02/12/2002	9920	2
Ryde	Green Street	01/10/2001	9883	2
Newport	Blackwater Road	30/06/2003	9749	1
Wootton	High Street	30/06/2003	9710	1
Ryde	Binstead Hill	09/06/2003	9417	1
Ryde	Ashey Downs Road	08/09/2003	9205	2
Godshill	Newport Road	05/08/2002	9055	2
Shalfleet	Yarmouth Road	20/08/2001	8887	2
St Helens	Station Road	12/08/2002	8192	2
Lake	Newport Road	13/01/2003	7905	1
Lake	Newport Road	06/01/2003	7774	1
Wroxall	St Johns Road	18/08/2003	7461	2
Newport	Staplers Road	09/06/2003	7268	1
Freshwater	Newport Road	04/08/2003	7202	2
Yarmouth	Tennyson Road	10/09/2001	7062	2
Godshill	Newport Road	04/11/2002	6734	2
Brading	High Street	16/06/2003	6613	1
Ryde	St Johns Road	03/02/2003	6594	1
Brading	New Road	08/07/2002	6509	1
Shanklin	Bonchurch Road	13/08/2001	6500	2
Brading	Beaper Shute	01/04/2002	6452	1
Shanklin	Victoria Avenue	28/07/2003	6415	2
St Helens	Carpenters Road	14/07/2003	6364	2
Wootton	Briddlesford Road	05/08/2002	6344	2
Apse Heath	Newport Road	08/07/2002	6296	1
Freshwater	Newport Road	14/07/2003	6079	2
Ryde	Great Preston Road	23/09/2002	5974	2
Arreton	Hale Common	17/03/2003	5965	1
Shanklin	Old Village	26/05/2002	5957	2
Arreton	Main Road	11/02/2002	5947	1
Northwood	Nodes Road	02/04/2001	5925	2
Wootton	Lushington Hill	21/05/2001	5796	1
Wootton	Fishbourne Lane	18/08/2003	5725	2
Brading	High Street	27/05/2002	5547	1
Ryde	St Johns Road	19/11/2001	5251	1

Town	Road	Date of Count	Total	No. Flows
Totland	The Broadway	11/06/2001	5162	2
Shanklin	Victoria Avenue	23/09/2002	5102	2
Havenstreet	Main Road	19/08/2002	5099	2
Totland	Colwell Road	25/08/2003	5013	2
Sandown	Perowne Way	24/09/2001	4927	2
Ryde	Pellhurst Road	14/07/2003	4907	2
Sandown	Culver Parade	09/06/2003	4898	2
Yarmouth	Bouldnor Road	13/01/2003	4852	2
Brading	Brading Down Road	18/08/2003	4843	2
Ryde	Stroudwood Road	19/08/2002	4603	2
St Helens	Carpenters Road	04/11/2002	4578	2
Brading	Beaper Shute	08/04/2002	4498	1
Freshwater	Tennyson Road	27/08/2001	4492	1
Ryde	East Hill Road	29/04/2002	4393	1
Bembridge	Embankment Road	03/02/2003	4238	2
Wootton	Park Road	25/06/2001	4233	2
Cowes	Baring Road	22/01/2002	4210	2
Cowes	Mill Hill Road	14/07/2003	4159	2
Havenstreet	Main Road	19/08/2002	3949	2
Freshwater	Military Road	13/08/2001	3938	2
East Cowes	Victoria Grove	30/06/2003	3913	2
Freshwater	The Avenue	13/01/2003	3882	2
Shalfleet	Watchingwell	05/08/2002	3811	1
Ventnor	Albert Street	18/06/2001	3755	1
Ryde	Ashey Road	04/02/2002	3747	2
Cowes	Mill Hill Road	11/06/2001	3594	2
Ryde	St Thomas Street	08/03/2003	3571	2
Newport	Shide Road	29/10/2001	3496	2
East Cowes	York Avenue	12/05/2003	3483	1
Whitwell	Ventnor Road	28/07/2003	3427	2
Ventnor	St Boniface Road	29/07/2002	3346	2
Ryde	High Street	13/05/2002	3309	1
Newport	Clatterford Road	15/10/2001	3283	2
Calbourne	Main Road	15/10/2001	3283	2
Ventnor	Upper Gills Cliff Road	13/08/2001	3274	2
Shanklin	Brook Road	28/04/2003	3270	2
Gurnard	Main Road	09/07/2001	3169	2
Ventnor	Leeson Road	11/02/2002	3064	2
Freshwater	Military Road	03/06/2002	2972	2
Cowes	Rolls Hill	05/08/2002	2954	2
Newchurch	Main Road	08/04/2002	2847	2
Newport	Bowcombe Road	14/07/2003	2758	2
Newport	Crocker Street	19/02/2001	2708	1
Shanklin	Victoria Avenue	25/11/2002	2684	1
Newport	Bowcombe Road	17/02/2003	2668	2
Ryde	Upton Road	11/11/2002	2644	2
Yarmouth	Yarmouth Road	12/03/2001	2597	1
Ryde	High Park Road	18/03/2002	2559	2
Newport	Whitcombe Road	09/11/2002	2524	2
Niton	Chatfield Road	28/07/2003	2485	2
Whitwell	High Street	30/04/2001	2434	2
Niton	Undercliff Drive	28/07/2003	2350	2
Niton	Chatfield Road	05/11/2001	2304	2
Northwood	Pallance Road	28/04/2003	2299	2
Ryde	Warwick Street	22/01/2001	2242	1
Newport	Furrlongs	15/10/2001	2153	2
Rookley	Niton Road	22/01/2001	2134	2
Ryde	Harding Road	28/10/2002	1981	2
Havenstreet	Main Road	23/07/2001	1977	1
Gurnard	Worsley Road	16/12/2002	1915	2

Town	Road	Date of Count	Total	No. Flows
Newport	West Street	12/02/2001	1865	1
Ryde	Well Street	19/11/2001	1727	2
Brading	Coach Lane	31/03/2003	1712	2
Freshwater	Copse Lane	28/04/2003	1686	2
Freshwater	Copse Lane	28/04/2003	1664	2
Cowes	Medina Road	28/04/2003	1656	2
Newport	Sylvan Drive	10/06/2002	1651	2
Brighstone	New Road	09/04/2001	1588	2
Lake	James Avenue	16/09/2002	1579	2
Ryde	Bullen Road	02/04/2001	1561	2
Ventnor	Belgrave Road	17/03/2003	1514	2
Yarmouth	James Street	31/03/2003	1399	1
Brook	Brook Village Road	10/03/2003	1290	2
Ventnor	Grove Road	28/04/2003	1261	2
Gurnard	Solent View Road	20/01/2003	1202	2
Porchfield	Bunts Hill	14/10/2002	1196	2
Chillerton	Main Road	22/04/2002	1185	2
Ryde	Mayfield Road	05/02/2001	1168	2
St Helens	Latimer Road	24/09/2001	1164	2
Gurnard	Church Road	20/01/2003	1126	2
Newport	Watergate Road	21/01/2002	1124	2
Chale	Chale Street	11/11/2002	1098	2
Newchurch	Newchurch Shute	30/04/2001	1041	1
Chillerton	Main Road	22/04/2002	1024	2
Newport	Castle Road	12/03/2001	1012	1
Niton	Undercliff Drive	10/03/2003	985	2
Calbourne	Elm Lane	18/08/2003	974	2
Gurnard	Marsh Road	07/04/2003	923	2
Gurnard	Rew Street	07/04/2003	836	2
Chillerton	Main Road	22/04/2002	754	2
Brighstone	Hunnyhill	12/11/2001	659	2
Whippingham	Alverstone Road	18/08/2003	649	2
Brading	Upper Adgestone Road	20/08/2001	626	2
Ventnor	Dudley Road	23/09/2002	577	1
Newport	Sandy Lane	03/12/2001	574	2
Gurnard	Lower Church Road	09/12/2002	550	2
Shalfleet	Main Road	14/10/2002	536	2
Freshwater	Blackbridge Road	14/01/2002	514	2
Godshill	Southford Lane	11/03/2002	506	2
Newport	Sandy Lane	03/12/2001	499	2
Newport	Alvington Manor View	07/04/2003	435	2
Newport	Church Lane	09/07/2001	369	2
Gurnard	Avenue Road	09/12/2002	368	2
Wootton	Brocks Copse Road	18/02/2002	366	2
Bembridge	Crossway	10/03/2003	320	2
Newport	Elm Grove	03/09/2001	304	1
Porchfield	New Road	15/10/2001	298	2
Ventnor	Gloucester Road	22/07/2002	293	2
Gurnard	Tilbury Road	09/12/2002	284	2
Newport	Bowcombe Business Park	24/02/2003	266	2
Godshill	Lessland Lane	31/03/2003	260	2
Seaview	Oakhill Road	15/01/2001	248	2

Table 3: Additional Traffic Data

Town	Road Name	Flow 2005	Road Type
Thorness	Rolls Hill,	1,866	C
Newport	Fairlee Road,	15,129	A
East Cowes	Whippingham Road,	12,575	A

<b>Town</b>	<b>Road Name</b>	<b>Flow 2005</b>	<b>Road Type</b>
Wootton	Eleanors Grove	15,856	A
Rowborough	Brading Road	9,667	A
Lake	Lake Hill	20,193	A
Apse Heath	Newport Road	15,326	A
Shanklin	Victoria Avenue	6,010	A
Luccombe	Bonchurch Road	5,530	A
Freshwater	Military Road	1,777	A
Totland	Colwell Road	4,439	A
Shalfleet	Yarmouth Road	6,749	A
Newport	Forest Road	9,807	A
Newport	Horsebridge Hill	22,919	A
Newport	Blackwater Road	19,173	A
Newport	Medina Way	30,933	A
Wootton	Briddlesford Road	4,221	C
Godshill	Newport Road	7,951	A
Ashey	Ashey Downs Road	9,285	C
Afton	Newport Road	4,339	B
Bowcombe	Bowcombe Road	2,664	B



## Appendix B: Industrial Authorised Processes

Table 4: Industrial Authorised Processes

Operator Name	Authorisation No.	Site Address	Process Type
Innogy PLC	AF7169	Cowes Gt Power Station Kingston Road East Cowes Isle of Wight PO32 6JF	Combustion Processes
Contract Heat and Power Ltd	AF8092	Forest Park Forest Road Newport Isle of Wight PO30 5YS	Combustion Processes
GKN Westland Aerospace (Holdings) Ltd	AO0504	Maresfield Works Maresfield Road East Cowes Isle of Wight PO32 6AF	Inorganic Chemical Processes
Island Waste Services Ltd	ISL012/10203	Bridlesford Road Downend Newport	Landfill sites and waste transfer solutions.

## Appendix C: Benzene Monitoring Results

The results from 3 months of monitoring in 2005 using BTEX passive diffusion tubes are presented in Table 5. This monitoring was undertaken after a Detailed Assessment predicted that there could be exceedences at some locations on the island.

The locations of the tubes were chosen to be as close as possible to the area shown on the modelling study to have the highest concentrations of benzene, close to the Kingston Petrol Storage Terminal. One tube was therefore placed within the Petrol Terminal compound, close to the road-tanker filling stations and the Vapour Recovery Unit (Site 3, SZ50389459). The other two were placed, one at either end of a building within a secure compound belonging to Transco (Sites 1 & 2, SZ50379450 & SZ50389449).

No exceedences of the Air Quality Objective were measured and the Isle of Wight Council has therefore concluded that no AQMA needs to be declared.

Table 5: Benzene Monitoring Results

	<b>Benzene</b>	<b>Toluene</b>	<b>Ethylbenzene</b>	<b>m + p-Xylene</b>	<b>o-Xylene</b>
<b>April</b>					
Site 1	0.8	5.7	5.1	9.4	4.3
Site 2	0.7	5.2	2.7	5.0	2.2
Site 3	1.0	9.4	3.3	7.0	3.0
<b>May</b>					
Site 1	0.6	5.9	0.6	1.3	0.5
Site 2	0.6	6.4	0.6	1.4	0.5
Site 3	0.8	12.3	1.2	3.3	1.3
<b>June</b>					
Site 1	0.7	8.1	0.6	1.4	0.6
Site 2	0.7	7.8	0.8	2.1	0.6
Site 3	1.0	11.2	1.5	4.5	1.7

All results are in  $\mu\text{g}/\text{m}^3$

## Appendix D: Nitrogen Dioxide Diffusion Tube Results

Results of diffusion tube monitoring from 2003, 2004 and 2005 are presented in Tables 6, 7 and 8. Details of the monitoring locations are presented in Figure 1.

Table 6: Nitrogen Dioxide Diffusion Tube Results, 2003

Tube Ref	NO <sub>2</sub> /µg/m <sup>3</sup>													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average	Bias Corrected Average
IW1	18.6	30.1	16.5	14.6	5.8	10.1	5.7	14.2	13.8	20.0	17.8	19.4	15.5	16.8
IW2	19.1	28.9	24.7		6.7	11.8	5.7	18.5	16.6	19.2	8.5	21.4	16.5	17.8
IW3	21.6	36.0	37.1	33.6	19.6	27.3	24.6	32.7	31.0	27.8	15.6	31.4	28.2	30.4
IW4	34.6	43.7	38.9	38.4	40.6	53.3	48.6	43.2	48.8	39.2	37.0	27.4	41.1	44.4
IW5	17.6	27.7	37.7	31.1	20.5	26.7	19.4	21.8	17.8	27.0	10.7	26.4	23.7	25.6
IW6	15.6	24.8	20.0	20.7	9.4	11.2		15.6		21.5	15.6	20.9	17.5	19.0
IW7	10.0	23.6	17.7	14.0	7.6	7.1	5.7	10.4	5.7	14.5	6.4	14.5	11.4	12.4
IW8	30.1	50.2	48.9	60.4	38.8	50.3	52.1	34.1		37.6	14.2	37.9	41.3	44.6
IW9	14.5	26.0	18.3	21.9	11.6	20.1	16.6	27.0	18.4	18.4	10.6	20.0	18.6	20.1

Table 7: Nitrogen Dioxide Diffusion Tube Results, 2004

Tube Ref	NO <sub>2</sub> /µg/m <sup>3</sup>													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average	Bias Corrected Average
IW1	12.4	15.4	13.0	14.2	12.8	7.3	7.3	7.3		11.5	14.8	18.2	12.2	13.4
IW2	13.6		16.6	16.9	14.4	8.5	9.2			10.8	16.4		13.3	14.6
IW3	24.8	29.6	24.4	25.2	19.7	18.4	24.8	19.4		24.5		29.3	24.0	26.4
IW4	38.3	40.2	38.2	41.2	44.4	29.5	39.0	0.3		38.3	42.9	42.9	35.9	39.5
IW5	23.0	27.2	19.3	20.1	23.4	21.0	20.2	17.7		20.0	23.8	22.8	21.7	23.8
IW6	15.3	24.8	18.5		15.1	10.1	10.1	7.9		12.2	19.1		14.8	16.3
IW7	12.4	17.2	13.5	13.3	11.6	8.2	7.3	7.2		8.6	12.3	14.5	11.5	12.6
IW8	33.0	48.5	35.6	33.9	48.3	39.6	39.9	39.8			37.8		39.6	43.6
IW9	17.1	25.4	19.6	22.0	22.3	15.0	16.5	16.9		15.0	22.7	20.0	19.3	21.3

Table 8: Nitrogen Dioxide Diffusion Tube Results, 2005

Tube Ref	NO <sub>2</sub> / µg/m <sup>3</sup>															
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Av.	Bias Corrected Av.	Seasonal+ Bias Corrected. Av	2010 Forecast Concentration
IW1			16.2													
IW2			16.4													
IW3		34.9	27.7													
IW4	39.3	41.6	39.6		35.1	31.6	39.7	37.6	37.1	42.4	41.5	39.9	38.7	45.6		39.9
IW5	20.9	24.3	26.0													
IW6	15.2	20.7	20.4													
IW7	10.9	14.2														
IW8		45.2	41.5			45.2	39.0		35.7	36.1	40.1		40.4	47.7	48.2	42.2
IW9	17.0	21.5	21.5													

Tube IW8 has been seasonally adjusted to tube IW4.

The monitoring results from 2003 and 2004 and 2005 show exceedences at sites IW4 and IW8 in 2003 and 2005 and at IW8 in 2004. The forecast concentrations for 2010 suggest that at IW8 there may still be an exceedence in 2010. The diffusion tubes IW4 and IW8 are situated on lampposts near properties. Therefore concentrations of NO<sub>2</sub> at the closest sensitive receptor are lower than the kerbside monitoring sites. Calculation of NO<sub>2</sub> dispersion away from the kerb can be calculated by applying the following factors to the NO<sub>2</sub> concentration:

Table 9: Dispersion Factors

Distance	Dispersion Factor
2 to 5 m	0.95
5 to 10 m	0.90
10 to 20 m	0.75

IW4 is located 10 metres away from the closest property. Therefore, as a worst case scenario, concentrations of NO<sub>2</sub> at the property in 2005 would be  $45.6 \mu\text{g}/\text{m}^3 \times 0.90 = 41.0 \mu\text{g}/\text{m}^3$ .

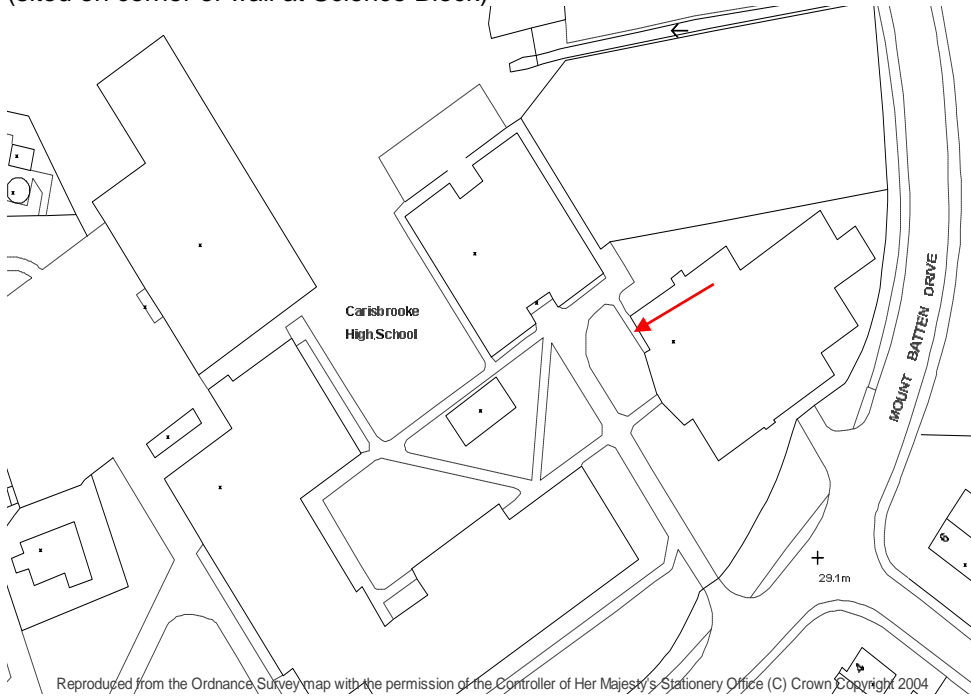
This is still an exceedence of the 2005 NO<sub>2</sub> objective.

IW8 is located 14 metres away from the closest property. Therefore, concentrations at this property are likely to be:

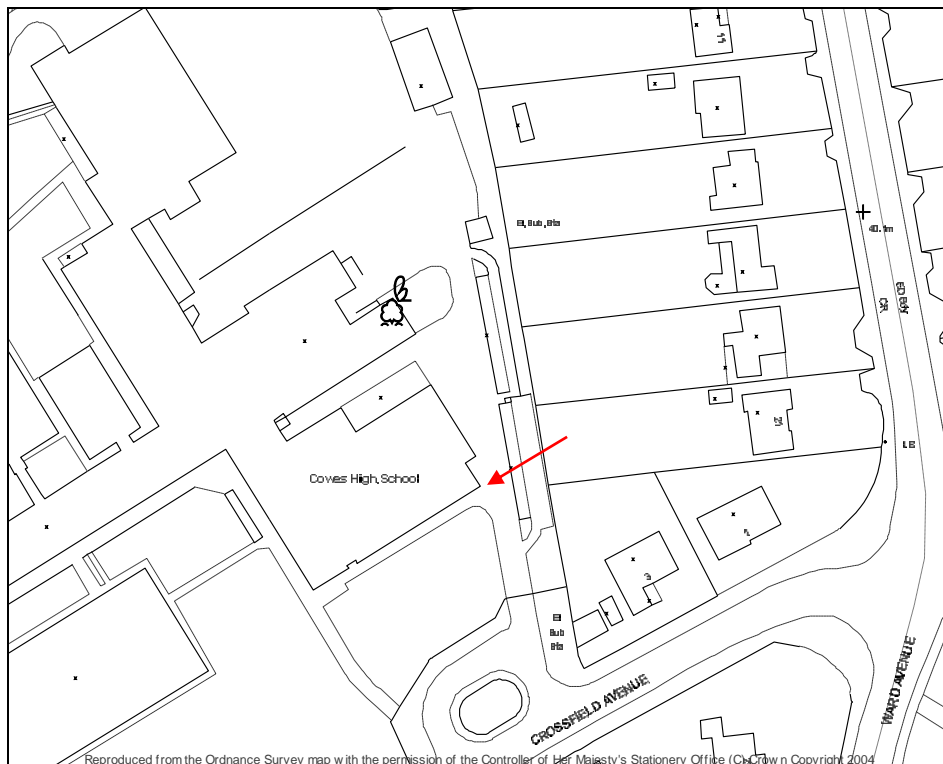
$48.2 \mu\text{g}/\text{m}^3 \times 0.75 = 36.2 \mu\text{g}/\text{m}^3$ . Therefore, an exceedence of the annual mean NO<sub>2</sub> objective is not predicted at the closest property.

Figure 1: Nitrogen Dioxide Diffusion Tube Locations

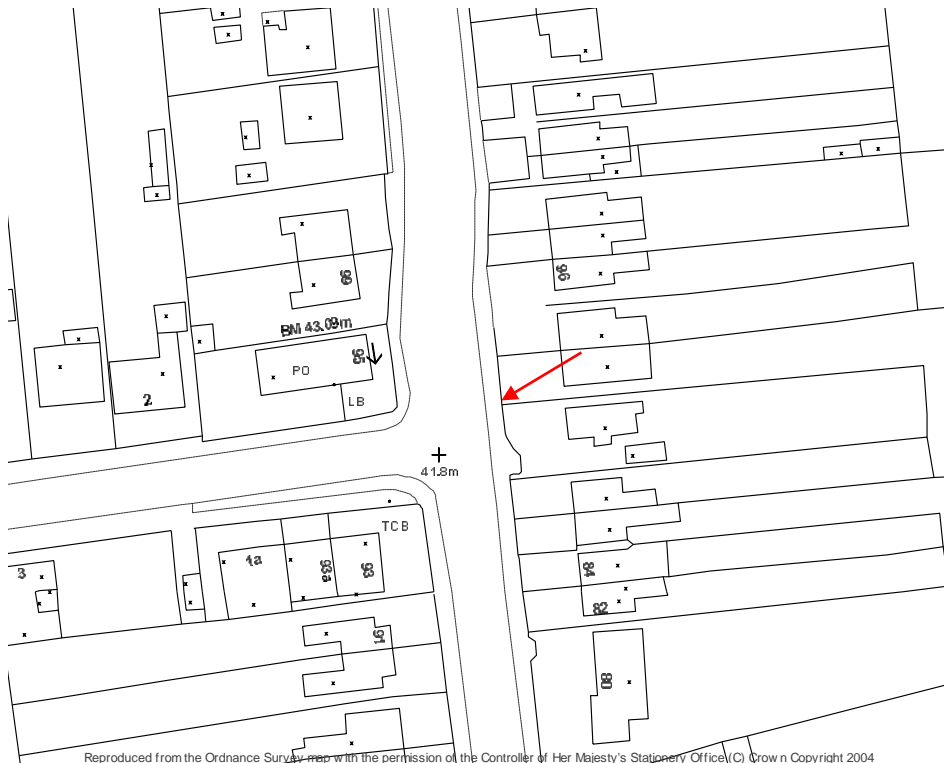
**IOW 01** Carisbrooke High School **NGR SZ 48636 88882**  
 (sited on corner of wall at Science Block)



**IOW 02** Cowes High School **NGR SZ 49023 96283**  
 (sited on fence at top of basketball court)

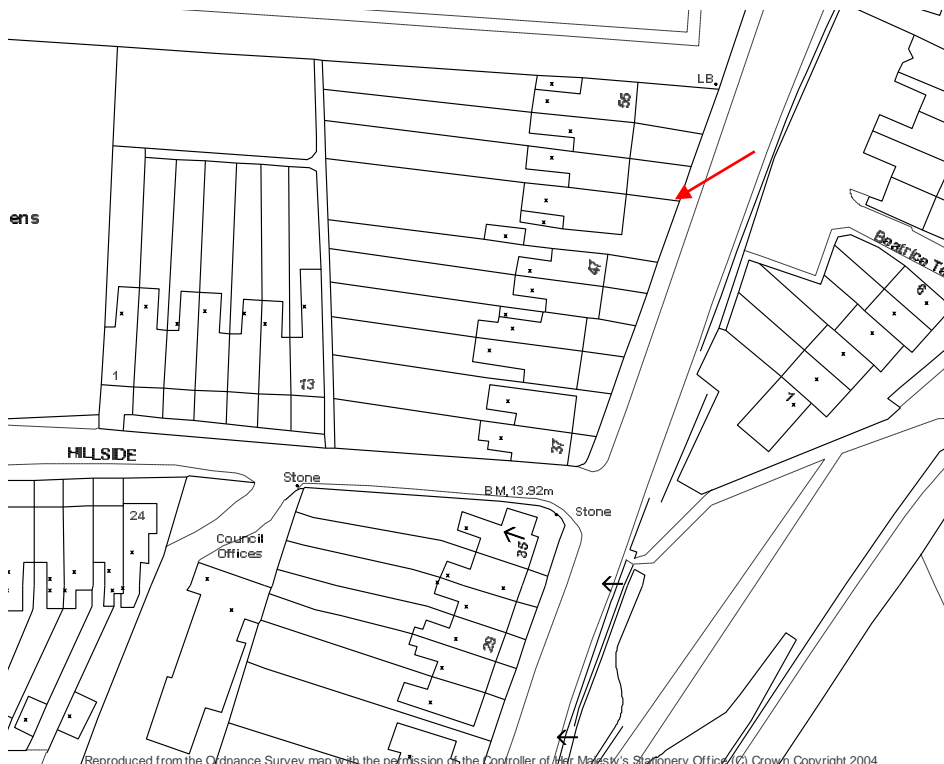


**IOW 03** 92 Horsebridge Hill Newport **NGR 49201 91530**  
 (sited on lamp post outside 92 on footpath)



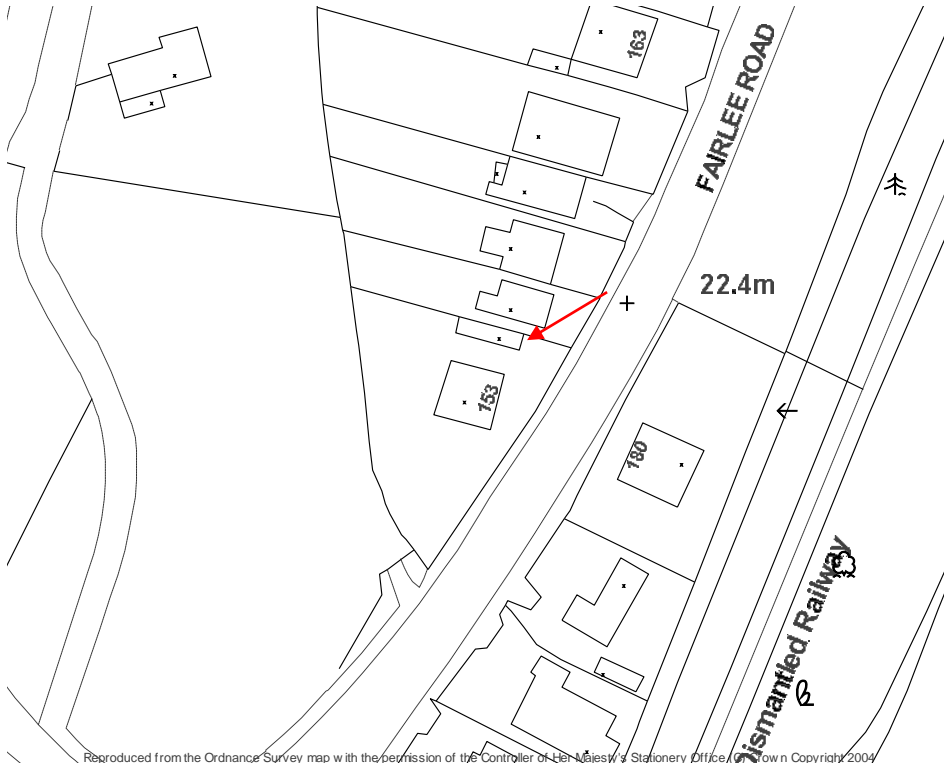
Reproduced from the Ordnance Survey map with the permission of the Controller of Her Majesty's Stationery Office (C) Crown Copyright 2004

**IOW 04 51 Fairlee Road Newport NGR SZ 50378 89557**  
(sited on sign/lamp post outside 51 on footpath)

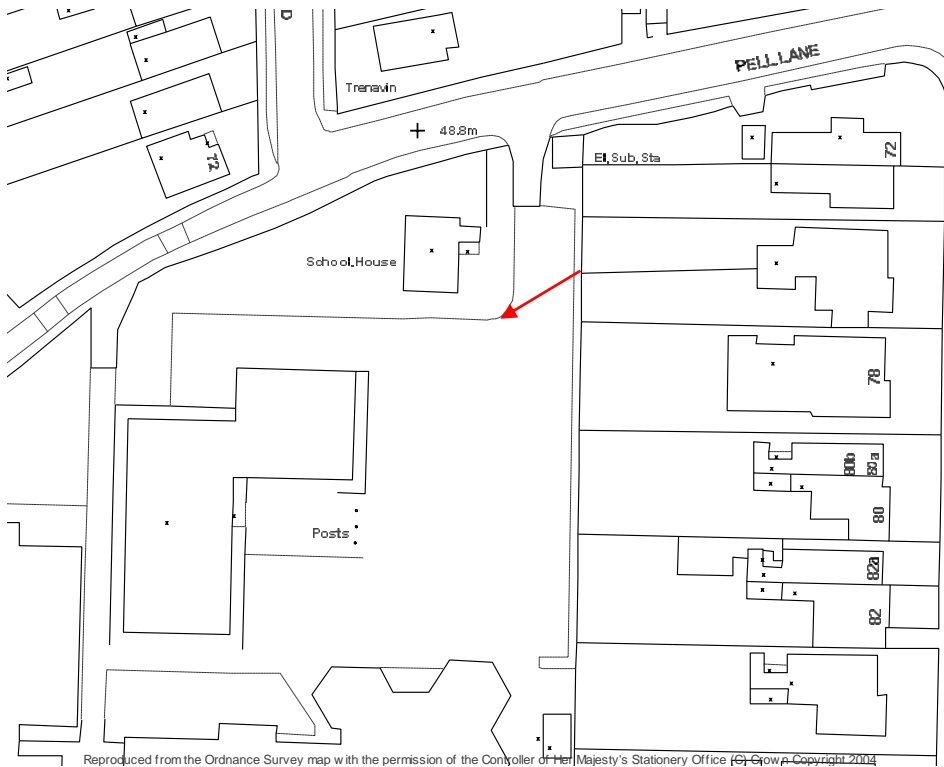


Reproduced from the Ordnance Survey map with the permission of the Controller of Her Majesty's Stationery Office (C) Crown Copyright 2004

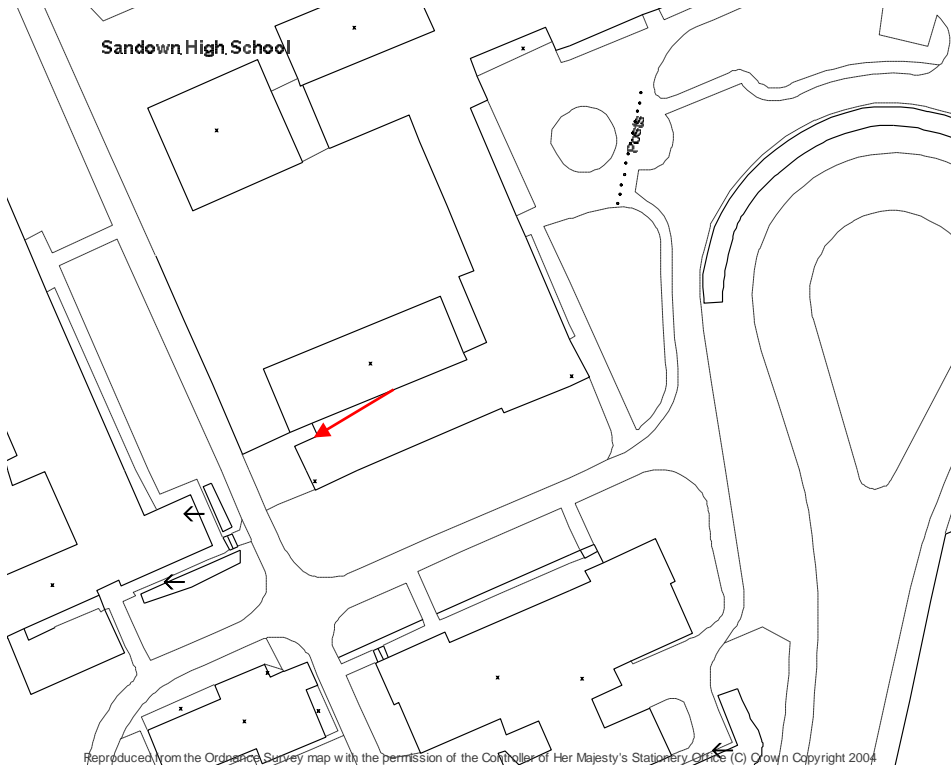
**IOW 05** 153 Fairlee Road Newport **NGR SZ 50838 90293**  
(sited on front of garage at side of house)



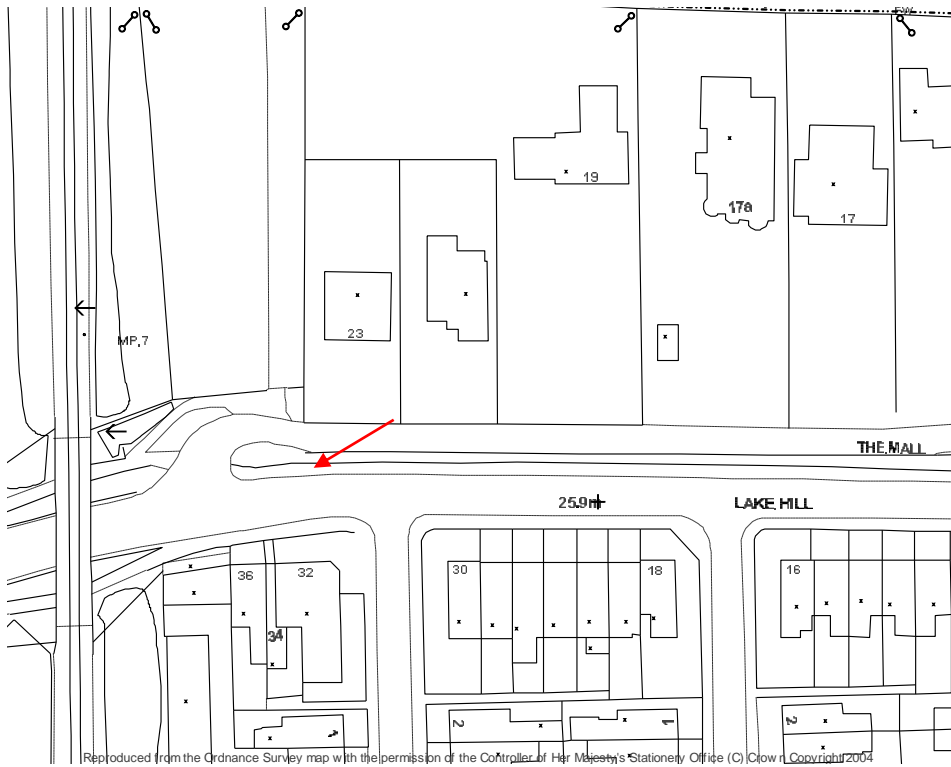
**IOW 06** Ryde High School **NGR SZ 58499 91916**  
(sited on lamp post at entrance to car park rear of 78 Pellhurst Road)



**IOW 07 Sandown High School**      **NGR SZ 58960 84503**  
(sited on wall at corner of Science Block)

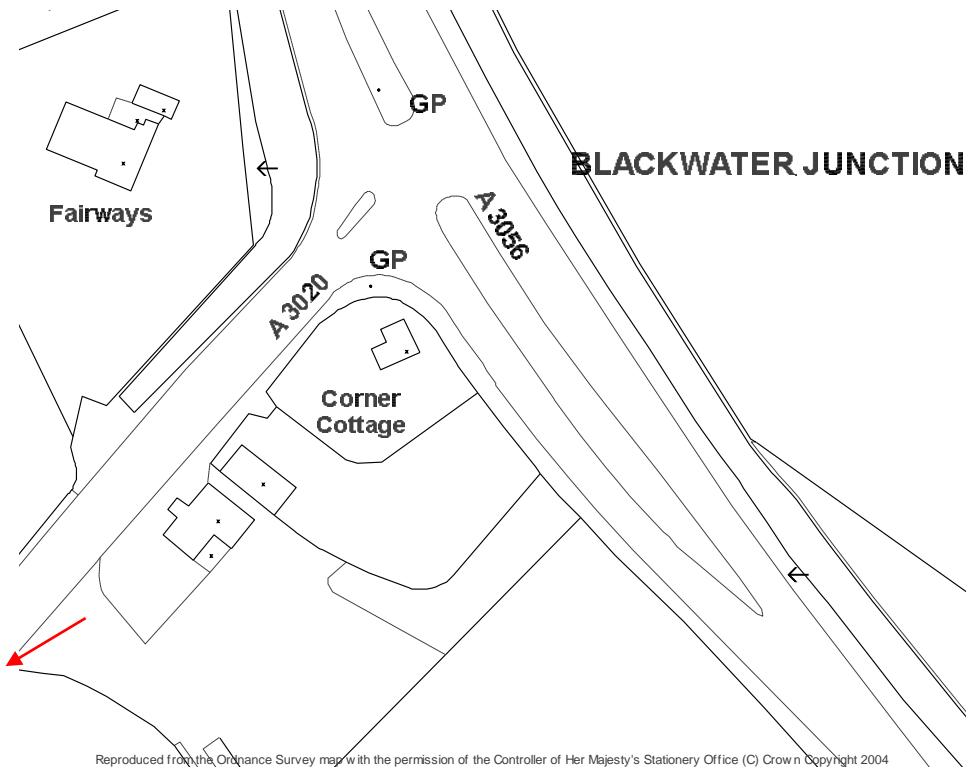


**IOW 08 Lake Hill Lake**      **NGR SZ 59112 83738**  
(sited on sign post opposite 32 Lake Hill)





**IOW 09 Blackwater Junction**      **NGR SZ 50690 86373**  
(sited on 40 mph sign below car park from Farm shop towards the hollow)



\*NGR = National Grid Reference.

## Appendix E: DMRB Assessment of Junctions

A DMRB assessment of nine junctions where the AADT exceeded 10,000, and a receptor is located ten metres from the kerb was carried out where possible, traffic data permitting. The last Updating and Screening assessment stated that no junctions fitting these criteria were met and so the roads used in the previous assessment were not re-assessed.

The input data are presented in Tables 10 and 11, and the results are displayed in Tables 12 and 13. Traffic data were supplied by the Isle of Wight Council and has been factored using a Total Traffic Central growth factor of 1.69% between 2001 and 2006, and 1.53% between 2006 and 2010. Background concentrations were taken from a 1km by 1km square centred on the grid reference shown (See Table 11). As no HGV data were available, 4 % HGV was assumed throughout as a worst case scenario. A 10 kph traffic speed was assumed for each junction.

Table 10: Input Data for DMRB Assessment

Junction	Road 1	Road 2	AADT 2005		AADT 2010		Type		Distance to Road Centre 1	Distance to Road centre 2
							Road 1	Road 2		
1	Fairlee Rd	Staplers Rd	23363	7516	25245	8121	A	B	10.3	17.5
2	Staplers Rd	Cross Lane	7516	8037	8121	8648	B	B	14.9	16.1
3	Castle Rd	Carisbrooke Rd	1082	14849	1169	16045	B	B	10.5	8.2
4	Whippingham Rd	Alverstone Rd	16558	694	17892	750	A	B	9.6	15.9
5	Carpenters Rd	Station Rd	6805	8614	7354	9309	B	B	10.1	16.3
6	New Road	High Street	6845	6838	7396	7389	A	A	10.3	14.7
7	Sandown Rd	Newport Rd	10431	18307	11272	10849	A	A	10.3	14.7
8	High Street	Victoria Av.	10431	6634	7389	5642	A	B	4.4	5.1
9	Brading Rd	Carpenters Rd	9540	5471	10308	5912	A	B	12	14
10	Horsebridge Hill	Nodes Rd	22919	5925	24766	6402	A	B	15	20
11	Newport Rd	St Johns Rd	7951	7461	8592	8062	A	B	14	16
12	Newport Rd	Niton Rd	7951	2134	8592	2306	A	B	11	17

Table 11: Background Concentrations

Grid Reference		Junction	2005			2010		
			NO <sub>x</sub>	NO <sub>2</sub>	PM <sub>10</sub>	NO <sub>x</sub>	NO <sub>2</sub>	PM <sub>10</sub>
450500	89500	1	19.2	16.1	20.5	16.1	12.6	18.9
450500	89500	2	19.2	16.1	20.5	16.1	12.6	18.9
449500	88500	3	15.8	12.3	19.5	13.0	10.2	17.9
451500	93500	4	12.2	9.6	18.2	10.3	8.1	16.8
462500	88500	5	11.5	9.0	18.1	9.9	7.8	16.6
460500	87500	6	11.6	9.1	18.2	10.0	7.8	16.7
458500	83500	7	12.8	10.0	18.3	10.9	8.5	16.9
458500	81500	8	11.8	9.2	18.0	10.1	7.9	16.5
460500	88500	9	11.6	9.1	18.1	10.0	7.8	16.7
448500	93500	10	12.6	9.9	18.6	10.6	8.3	17.2
455500	81500	11	10.2	8.0	17.6	8.9	6.9	16.3
450500	84500	12	10.4	8.1	17.9	8.6	6.8	16.5

Table 12: 2005 DMRB Results

Receptor number	Name		NO <sub>2</sub> *	PM <sub>10</sub>	
	Road 1	Road 2	Annual mean mg/m <sup>3</sup>	Annual mean mg/m <sup>3</sup>	Days >50mg/m <sup>3</sup>
1	Fairlee Road	Staplers Road	29.1	29.3	25.1
2	Staplers Road	Cross Lane	23.1	24.6	11.5
3	Castle Road	Carisbrooke Road	20.9	24.7	11.6
4	Whippingham Road	Alverstone Road	19.8	24.5	11.2
5	Carpenters Road	Station Road	16.7	22.5	7.1
6	New Road	High Street	17.6	23.2	8.5
7	Sandown Road	Newport Road	24.2	27.9	20.3
8	High Street	Victoria Avenue	20.2	24.8	11.9
9	Brading Road, Rowborough	Carpenters Road	17.7	23.1	8.4
10	Horsebridge Hill, Newport	Nodes Road	21.5	26.0	14.9
11	Newport Road, Godshill	Saint Johns Road	16.2	22.3	6.9
12	Newport Road, Godshill	Niton Road	14.6	21.5	5.4

Table 13: 2010 DMRB Results

Receptor number	Name		NO <sub>2</sub> * Annual mean mg/m <sup>3</sup>	PM <sub>10</sub>	
	Road 1	Road 2		Annual mean mg/m <sup>3</sup>	Days >50mg/m <sup>3</sup>
1	Fairlee Road	Staplers Road	22.4	24.0	10.2
2	Staplers Road	Cross Lane	18.0	21.5	5.4
3	Castle Road	Carisbrooke Road	16.7	21.0	4.7
4	Whippingham Road	Alverstone Road	15.6	20.4	3.9
5	Carpenters Road	Station Road	13.7	19.3	2.6
6	New Road	High Street	14.3	19.7	3.0
7	Sandown Road	Newport Road	17.5	21.4	5.3
8	High Street	Victoria Avenue	14.2	19.4	2.7
9	Brading Road, Rowborough	Carpenters Road	14.4	19.7	3.1
10	Horsebridge Hill, Newport	Nodes Road	17.0	21.5	5.5
11	Newport Road, Godshill	Saint Johns Road	13.2	19.2	2.5
12	Newport Road, Godshill	Niton Road	11.7	18.6	1.9

Prepared by: .....  
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Environmental Scientist

Approved by: .....  
Gareth Collins  
Principal Environmental Scientist

### Updating and Screening Assessment 2006

Rev No	Comments	Date
1		

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Telephone: 0870 905 0906 Fax: 020 8663 6723 Website: <http://www.fabermaunsell.com>

Job No 47694IBEE

Reference EN

Date Created April 2006

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