

Topic Paper 8 - Air Quality and Noise

Baseline - Air Quality and Noise

Air Quality

1 Waste management and mineral extraction/processing sites in general can be a source of dust (e.g. PM10) emissions, and landfill is additionally a source of CO2 and methane. Nationally required assessments for dust pollution (PM10) include the consideration of fugitive dust from landfill sites and waste management centres.

2 Poor air quality can cause either a triggering of or an increase in the severity of respiratory problems, e.g. asthma. The region's wildlife, habitats and built environment can also be affected. Emissions are produced from a variety of sources, such as energy generators, waste, minerals, industry and agriculture, but the largest contribution to air quality issues in Dorset is from road transport derived emissions.

3 The National Air Quality Strategy (NAQS) sets objectives for nine main air pollutants to protect health. These are benzene, 1,3-butadiene, carbon monoxide, lead, nitrogen dioxide, polycyclic aromatic hydrocarbons (PAHs), ozone, particulates (PM10) and sulphur dioxide. According to the National Society for Clean Air and Environmental Protection, road traffic is responsible for 46% of total UK emissions of nitrogen oxides, 75% of carbon monoxide and 20% of carbon dioxide.

4 In terms of dust, emissions of fine particles (PM10) can also be a problem. Particles within this size range can cause both minor and serious health problems as well as discomfort to eyes, nose, mouth, respiratory tract and skin. These particles will travel further from source and thus impacts have the potential to be more widespread. Coarse dust is primarily a nuisance issue; once airborne it can travel away from the source and be deposited on property in the locality. Potential effects include a loss of amenity through deposition, covering of vegetation leaf surface thereby reducing net photosynthesis, changes in pH levels, creation of a surface film on still water bodies, and an increase in suspended and dissolved material in water courses. However, impacts are generally highly localised and will be largely determined by the presence of sensitive receptors within the vicinity of the facilities.

5 Dorset generally has good air quality and with improvements in vehicle technology this is expected to improve. However, assessments of air quality are regularly carried out and if these show that air quality is not at an acceptable standard then an air quality management area (AQMA) will be declared. This will explain why the AQMA has been declared, and what is being done to reduce the need for the AQMA designation. By working with other organisations an action plan can then be produced, the aim of which is to improve air quality within the area to achieve the objective.

6 There are five Air Quality Management Areas in Dorset (including Bournemouth and Poole). Two are in Dorset: Chideock village, and High East Street in Dorchester (West Dorset District Council 2010). The Borough of Poole has declared two AQMAs within a small areas of Commercial Road and Ashley Road and Bournemouth Borough Council has one AQMA on Wimborne Road.

7 It is unlikely that waste or minerals will have any direct impacts on the existing AQMAs. Impacts are more likely to come from increased levels of lorry traffic through or near to the AQMAs. This issue will be addressed generally through relevant AQMA action plans and other traffic management strategies. However, possible impacts will be taken in consideration at relevant stages of waste policy document preparation.

8 The county's closed landfill sites, the more recently filled sites and those containing high levels of household waste are closely monitored for the production of methane. Closed historic sites are not monitored. However, the Environment Agency maintain an interest in these sites because of their potential to release greenhouse gases.

9 Energy from waste plants can lead to emissions, however in modern facilities are closely monitored and controlled. Defra's report 'Review of the Environmental and Health effects of Waste Management: Municipal Solid Waste and Similar Wastes' found through an assessment of existing studies that there is no convincing link between energy from waste plans and adverse effects on health.

Noise

10 The quality of many of Dorset's communities, habitats and landscapes are dependent on relatively high levels of tranquillity, which may be threatened by waste sites, insensitive working and associated transportation. The effects of noise on local communities can vary. They include the sensation of loudness, interference with verbal communication, disturbance of work, leisure or sleep, or annoyance. Noise may also have effects on mental and physical health. Individual sensitivity to noise varies. The reaction of livestock and wildlife to noise varies from species to species.

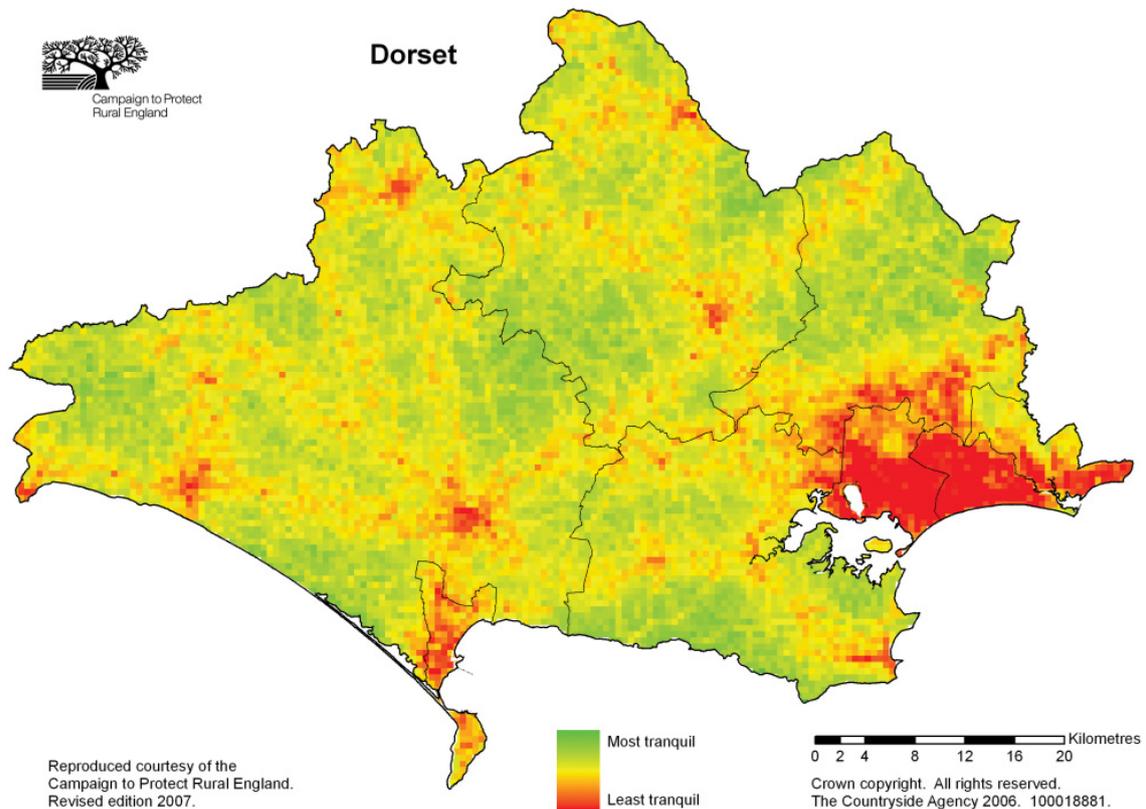
11 In addition to blasting, noise from surface mineral operations arises from engines used to power both static and mobile plant, tipping and processing of material, vehicle movements and the erection, maintenance and movement of plant. The timing, frequency and duration of particular activities may attract more complaints from the public than others, particularly at night or in the evening. Tonal noises such as audible reversing alarms, squealing of dry caterpillar tracks, whistles and sirens and the operation of certain equipment may be particularly annoying. Earthmoving operations to strip soil, form baffle mounds and soil/overburden mounds, the body slap of empty vehicles and plant start-up noise can also give cause for complaint.

12 Noise from waste sites arises from engines used to power both static and mobile plant, tipping and processing of material, vehicle movements and the erection, maintenance and movement of plant. The timing, frequency and duration of particular activities may attract more complaints from the public than others, particularly at night or in the evening. Tonal noises such as audible reversing alarms, squealing of dry caterpillar tracks, whistles and sirens and the operation of certain equipment may be particularly annoying.

13 The quality of much of Dorset's environment relies on relatively high levels of tranquillity, which may be threatened by inappropriately sited waste sites and transportation. All these factors will be taken into account in preparation of the Waste Plan, particularly in preparation of development management policies and during site selection.

14 In 2007 the Campaign To Protect Rural England (CPRE) published its national tranquillity map, taking into account topography, to show how likely each locality was to make people feel tranquil. Each 500m by 500m square of England has been given a tranquillity score, based on 44 different factors which add to or detract from people's feelings of tranquillity. Dark, star-filled night skies are an important aspect of the experience of tranquillity – but our fast-growing use of outdoor light is blotting out the stars. In 2000, the South West had only 20% of its truly dark skies left. Tranquillity mapping for Dorset is shown in Figure 1.

Figure 1 Dorset Tranquil Areas



15 The Campaign for the Protection of Rural England have built on work carried out earlier by the Countryside Commission, and have published a series of maps showing the erosion of tranquillity across England, and the increase of 'intrusion'. These intrusion maps show the countryside which is close enough to towns and cities and major infrastructure such as roads, airports and power stations to be significantly disturbed by visual and noise intrusion. The areas of intrusion shown depend on the distances from various disturbing factors.

16 Researchers created new maps for 2007 which, compared with maps for the 1960s and 1990s, show how noise and visual intrusion now blights much more of the countryside. The maps allow us accurately to calculate the areas affected. In only 15 years nearly 10% more of England is now suffering from significant intrusion. 50% of England is now classed as disturbed up from 41% in the early 1990s and 26% in the early 1960s ⁽¹⁾.

17 The distance over which the countryside is disturbed varies from factor to factor. Below is the list of distances from sources of disturbance we have used to define areas of noise and visual intrusion:

Within 3 km of

- very high disturbance roads including most major motorways and A roads with over 75000 vehicles daily
- the edge of large towns (e.g. size of Southampton, Liverpool)

1 CPRE (2007) *Developing An Intrusion Map of England*

- power stations;

Within 2 km of

- high disturbance roads including sections of some motorways and many urban A roads with 25,000 to 75,000 vehicles daily;
- of the edge of smaller and medium sized towns;

Within 1 km of

- medium disturbance roads including many urban A roads and some rural A roads with 10,000 to 25,000 vehicles daily;
- the published noise contour for airports;

Within 0.5 km of

- relatively low disturbance roads including many rural A roads with 5,000 to 10,000 vehicles daily;
- settlements of 2,500 to 4,000 people;
- mainline railways,
- major power lines, active windfarms;
- active mines and quarries.

18 The maps are shown below.

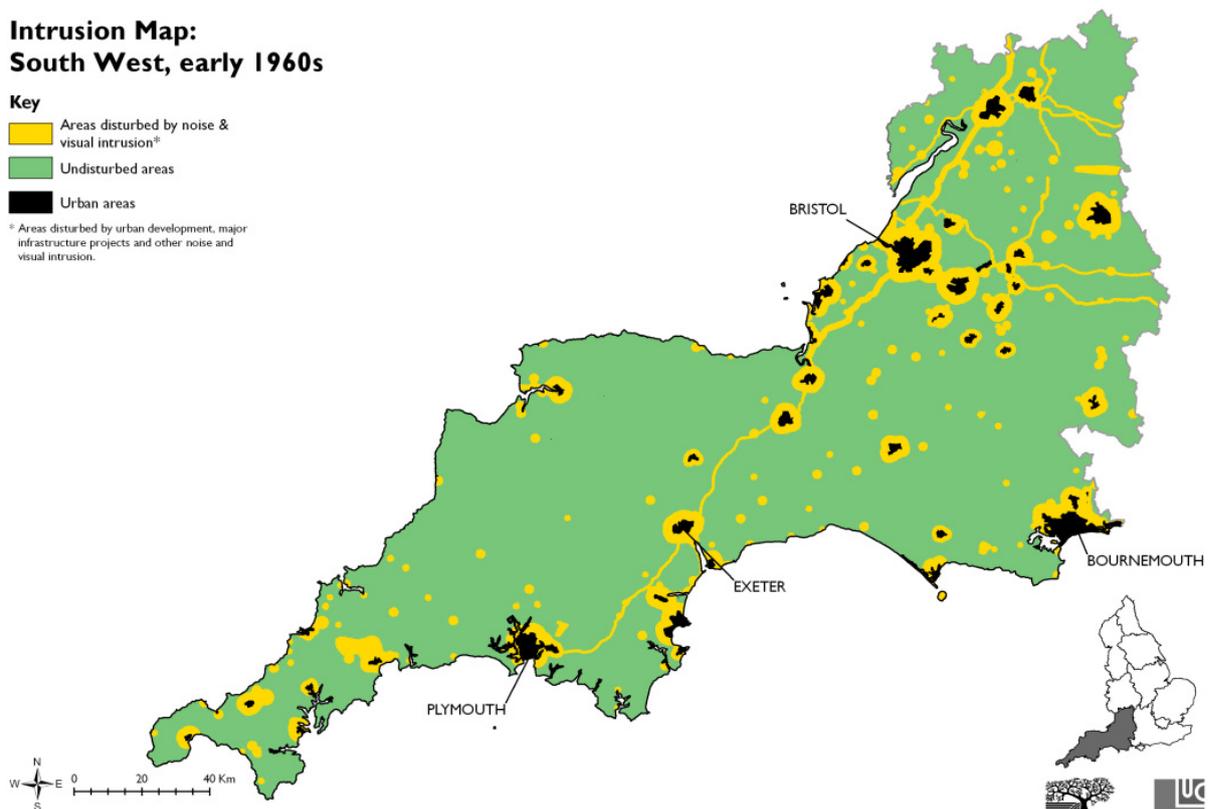
Figure 2 Intrusion Map 1960s

**Intrusion Map:
South West, early 1960s**

Key

- Areas disturbed by noise & visual intrusion¹
- Undisturbed areas
- Urban areas

¹ Areas disturbed by urban development, major infrastructure projects and other noise and visual intrusion.



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Figure 3 Intrusion Map 1990s

**Intrusion Map:
South West, early 1990s**

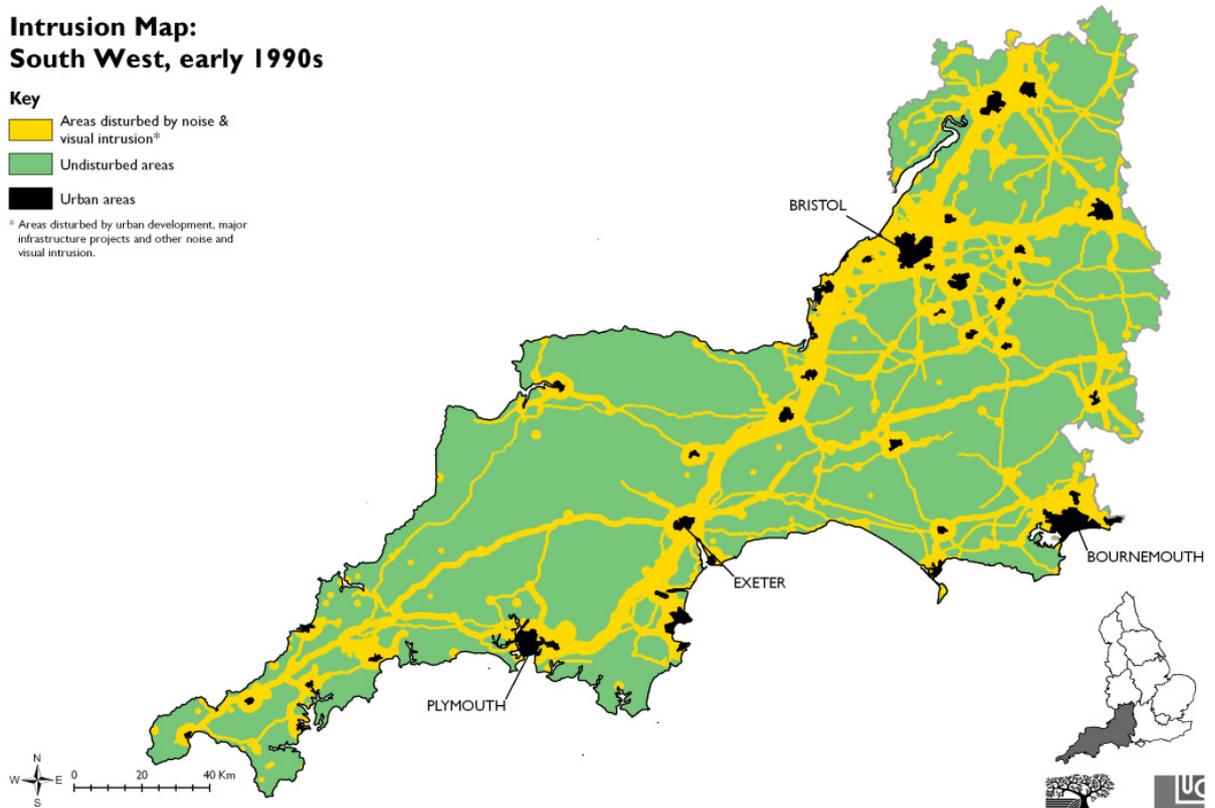
Key

 Areas disturbed by noise & visual intrusion²

 Undisturbed areas

 Urban areas

² Areas disturbed by urban development, major infrastructure projects and other noise and visual intrusion.



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Figure 4 Intrusion Map 2007

**Intrusion Map:
South West, 2007**

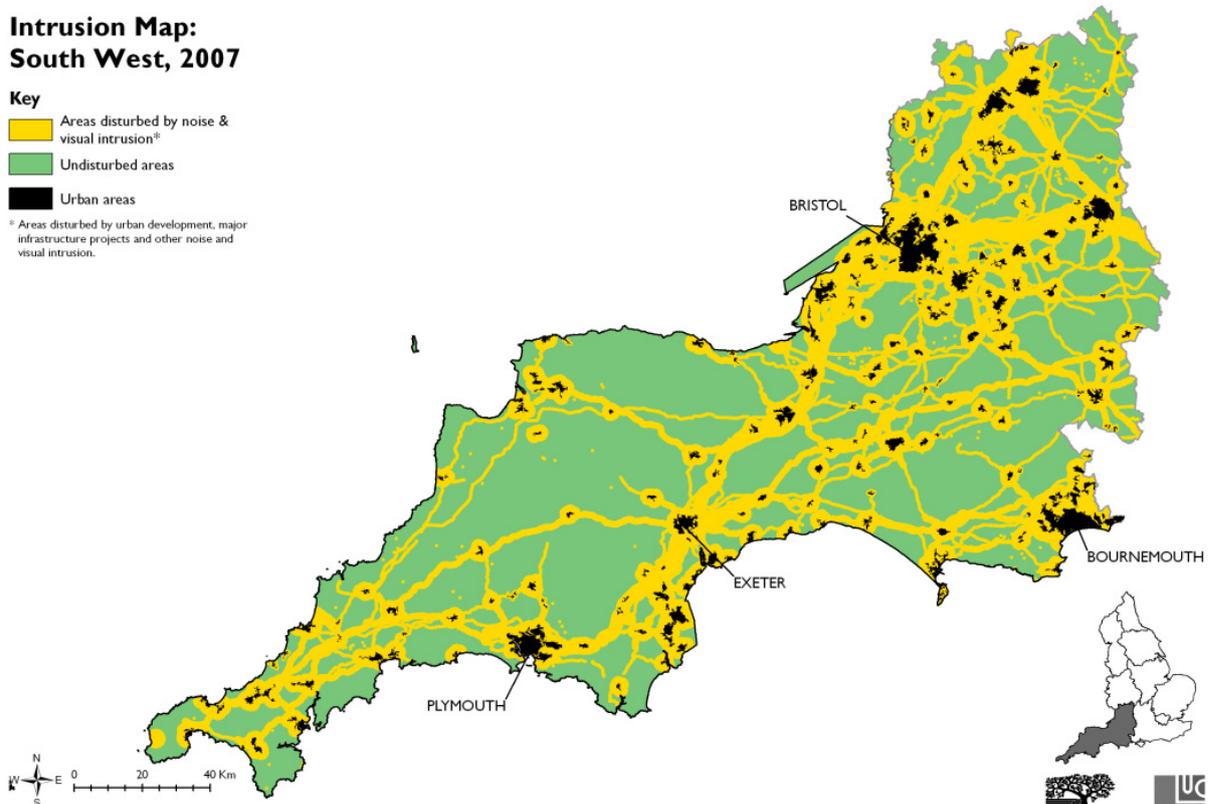
Key

 Areas disturbed by noise & visual intrusion²

 Undisturbed areas

 Urban areas

² Areas disturbed by urban development, major infrastructure projects and other noise and visual intrusion.



This map is based on data from 2001 to mid-2007.
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Campaign to Protect Rural England

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Summary of relevant policy documents - Air Quality and Noise

N.B. More detail on these and other policy documents is included at the end of this topic paper.

Table 1 Key messages from relevant policy

| Policy Documents | Relevance to Waste and Minerals Plans |
|--|---|
| <p>Key International Policy</p> <ul style="list-style-type: none"> European Air Quality Framework Directive (96/62/EC) | <ul style="list-style-type: none"> Policy guidance identifies that both air quality and noise can impact on local communities. The waste and minerals plans will need to include policy coverage of this topic, minimising and mitigating impacts to local communities and others particularly from noise resulting from waste and minerals operations. It should not be necessary to control the pollution aspects of a waste management facility where the facility requires a permit from the pollution control authority. |
| <p>Key National Policy</p> <ul style="list-style-type: none"> National Planning Policy Framework | |
| <p>Key Local Policy</p> <ul style="list-style-type: none"> Bournemouth, Dorset and Poole Waste Local Plan 2006 | |

Potential impacts relating to waste and minerals sites

- Effect of dust on ecology and agriculture.
- Effect of dust and noise on health and amenity of local residents.
- Emissions from waste sites.
- Emissions from traffic associated with waste and minerals sites
- Reduction in extent of tranquil areas
- Noise from waste sites and transportation
- Noise from mineral working and transportation
- Emissions from plant associated with minerals sites, e.g. roadstone coating plants.

Issues

- The needs for waste management facilities, minerals operators and society's requirements for minerals to be reconciled with the need to protect human health, environmental quality and local amenity.
- Contribute to meeting the requirements of the European Air Quality Framework Directive (96/62/EC) and its daughter directives, regarding specific atmospheric pollutants.
- Consider the interaction of air, water and land pollution when assessing waste and minerals operations.
- Consider the impact of dust from minerals extraction, processing and waste sites and transportation as an air quality issue.
- Consider noise as an issue in terms of health, environmental quality and local amenity.
- Maintain and, where possible, improve air quality by limiting minerals and waste-related traffic growth and congestion, particularly road borne traffic and in AQMA's. The significance of minerals operations on air quality will depend on location. Transportation of minerals by road is increasingly likely to be an air quality issue due to congestion.
- Air quality in Dorset is generally good, but specific areas face problems (principally traffic-related).
- The distribution (number and location) of waste facilities throughout Dorset - significance of impacts can depend on location
- Consideration to decreasing the number and journey length of movements of waste and the use of sustainable transportation (rail, water etc)
- Minerals development and waste sites should have regard to the contribution of tranquillity to local amenity and Dorset's distinctive environment. Waste and minerals planning should avoid eroding tranquillity in vulnerable or sensitive areas.
- The impact of moving waste management up the waste hierarchy - diverting waste away from landfill

Suggested Sustainability Objectives

To protect and improve air quality and reduce the impacts of noise

...and Broad Indicators

"To what extent does the strategic option, objective, strategy or policy..."

- Adversely affect air quality, including through transportation, particularly in Air Quality Management Areas?
- Increase the likelihood of higher levels of dust in the air?
- Increase the likelihood of higher levels of noise and impact on sensitive receptors

Relevant Policy Documents: Air Quality and Noise

Table 2

| |
|---|
| <p>Directive 1996/62/EC on Ambient Air Quality and Management, along with daughter directives 99/30/EC, 2000/69/EC, 2002/3/EC & 2004/107/EC</p> <p>Sets a framework for how the UK must monitor and report ambient levels of air pollutants.</p> <p>The daughter directives introduce new air quality standards for previously unregulated air pollutants including sulphur dioxide, nitrogen dioxide, particulate matter, lead, ozone, benzene, carbon monoxide, polyaromatic hydrocarbons, cadmium, arsenic, nickel and mercury.</p> <p>Implications:</p> <p>The Waste and Mineral Sites Plans must consider how the plan will influence local air quality and seek to minimise the impact of relevant development on air quality.</p> |
| <p>The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2007)</p> <p>This Strategy aims to improve and protect ambient air quality in the UK in the medium-term, to protect people’s health and the environment without imposing unacceptable economic or social costs.</p> <p>Implications:</p> <p>The Waste and Mineral Sites Plans should consider any potential emissions from the main pollutants to air quality which are set out in the Strategy.</p> |
| <p>Directive 2006/21/EC Management of Waste from Extractive Industries</p> <p>This Directive applies to waste resulting from the extraction, treatment and storage of mineral resources and the working of quarries. Waste covered by this Directive no longer falls within the scope of Directive 1999/31/EC on the landfill of waste. This particular extractive waste must be managed in specialised facilities in compliance with specific rules. In accordance with Directive 2004/35/EC, operators of such facilities are subject to liability in respect of environmental damage caused by their operation. Member States shall take every precaution to limit risks to public health and the environment related to the operation of extractive waste processing facilities, inter alia by applying the concept of “best available techniques”.</p> <p>Implications:</p> <p>The Mineral Sites Plans should take the requirements of this Directive into consideration when considering any detail of the working of a mineral site.</p> |

Directive 2008/1/EC concerning integrated pollution prevention and control (the IPPC Directive)

Pollution Prevention and Control Act 1999

Environmental Permitting Regulations 2008

Pollution from industry is controlled under a number of EC directives, one of the most

important is the Integrated Pollution Prevention and Control Directive (IPPC). This Directive

("the IPPC Directive") requires industrial and agricultural activities with a high pollution

potential to have a permit. This permit can only be issued if certain environmental conditions

are met so that the companies themselves bear responsibility for preventing and reducing

any pollution they may cause. Integrated pollution prevention and control can be as new

existing industrial and agricultural activities with a high pollution potential, as defined in

Annex I to the Directive (energy industries, production and processing of metals, mineral

industry, chemical industry, waste management, livestock farming, etc.).

The EU Noise Directive is implemented in the UK by the Environmental Noise Regulations.

Amongst their provisions, they require the production of noise mapping to determine exposure

to environmental noise, and the adoption of noise action plans which should respond to the

identification of noise issues and effects, managing and reducing them where necessary.

Implications:

The Waste and Mineral Sites Plans should consider the implications of their policies and measures on environmental noise levels.

National Planning Policy Framework

The National Planning Policy Framework (NPPF) was published on 27 March 2012. It sets out the Government's planning policies for England and how these are expected to be applied to protect the environment and to promote sustainable growth.

The NPPF states that the planning system should contribute to and enhance the natural and local environment, including by preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution.

It states that planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. In terms of noise, planning policies and decisions should aim to avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development.

Implications:

The policy guidance contained within the NPPF will be fundamental to the preparation of the Waste/Mineral Sites Plans.

RPG10: Regional Planning Guidance for the South West (GOSW: 2001) and Draft Regional Spatial Strategy for the South West 2006-2026 (SWRA: 2006)

Under powers provided through the Localism Act (2011), the Secretary of State has revoked the Regional Planning Guidance and Draft Regional Strategy documents. However, the evidence underpinning the Draft Regional Spatial Strategy will remain an important consideration for the Waste and Mineral Sites Plans.

Our Environment: Our Future – the Regional Strategy for the South West Environment 2004-2014 (SWRA, 2004)

The purpose of the strategy is to generate awareness of the importance of the South West environment, identify priorities for protecting and enhancing the environment and to provide a framework for action in the South West. Aims include:

- Protect and improve the quality of our air, soils and water

Implications:

This document will be taken into consideration in the preparation of the Waste and Mineral Sites Plans.

1995 Environment Act

The 1995 Environment Act requires (among other things) that local authorities (any unitary or district authority) to review air quality and to assess whether the air quality standards and objectives, set out by the National Air Quality Strategy, are being achieved. A local authority, for any area where the air quality standards are not being met, will then be obliged to issue an order designating an air quality management area.

Implications:

The Waste and Mineral Sites Plans should take existing Air Quality Management Areas (AQMAs) into consideration, and their policies and proposals should as far as possible not exacerbate any AQMAs.

Position Statement: Air Quality (Environment Agency 2005)

The Position Statement outlines where the EA stands on air quality issues and the solutions called for. The Statement proposes that:

- Local authorities develop non-statutory Air Quality Strategies.
- The EU set clear targets and timescales to reduce acidification and deposition of nutrient nitrogen.
- Transport and development planning play an effective part in improving air quality.
- The Government make- a fuller assessment of the effect of the growth in air transport and associated infrastructure on local air quality.
- Concerted action in Europe is required to reduce the trans-boundary transport of ozone, sulphur and nitrogen compounds.

- Inclusion of vegetation protection objectives within the Local Air Quality Management regime.
- New whole-farm measures that promote better soil, water and air management to minimise the release and impact of ammonia.
- Operators to prevent, minimise or contain odour.
- Joint working to develop standards for protection of people and the environment from air-borne pollutants.

Implications:

This document will be taken into consideration in the preparation of the Waste and Mineral Sites Plans.