
**VOLUME 10 ENVIRONMENTAL
DESIGN AND
MANAGEMENT
SECTION 0 ENVIRONMENTAL
OBJECTIVES**

PART 4

HA 89/01

ENVIRONMENTAL ELEMENTS

SUMMARY

This Advice Note describes the environmental elements that contribute to the delivery of non-landscape environmental objectives for Highways.

INSTRUCTIONS FOR USE

This is a new document to be incorporated into the manual.

1. Insert HA 89/01 into Volume 10, Section 0.
2. Archive this sheet as appropriate.

Note: A quarterly index with a full set of Volume Contents Pages is available separately from The Stationery Office Ltd.



THE HIGHWAYS AGENCY



**THE SCOTTISH EXECUTIVE DEVELOPMENT
DEPARTMENT**



**THE NATIONAL ASSEMBLY FOR WALES
CYNULLIAD CENEDLAETHOL CYMRU**



THE DEPARTMENT FOR REGIONAL DEVELOPMENT*

Environmental Elements

* A Government Department in Northern Ireland

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REGISTRATION OF AMENDMENTS

Amend No	Page No	Signature & Date of incorporation of amendments	Amend No	Page No	Signature & Date of incorporation of amendments

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Contents

Chapter

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2. Water (E2)
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1.0 INTRODUCTION

- Environmental Elements are those features that are relevant to achieving the non-landscape Environmental Objectives in respect of Auditory Amenity, Water Quality, and Nature Conservation/Biodiversity.
- Cultural Heritage Features are included under the Planning/Policy codes, whilst Air Quality has not been currently included as a sub-division, as its performance cannot readily be influenced by environmental design, but is primarily affected by traffic flows, speeds, and vehicle emission standards.
- For scheme-specific purposes, the designer may wish to subdivide elements, such as noise surface types, to achieve specific performance requirements.
- Recording the location of existing features will be an ongoing process, with the Managing Agent recording them within the Environmental Database as-and-when they are identified, or installed as improvements.
- For Improvement Schemes each Element will need to be accompanied by text describing its Performance Requirements.

Ref	Dataset	Core Data	As-and-When
E1.1	Noise-Reducing Surface		●
E1.2	Noise Barrier-Built Elements		●
E1.3	Noise-Reducing Earthworks		●

E2.1	Water Pollution Control Measures		●
E2.2	Surface-Water Outfalls	●	
E2.3	Soakaways		●

E3.1	Protected Species	●	
E3.2	Ecological Protection Measures	●	

E4.1	Injurious Weeds	●	●
E4.2	Legislated Pests		●

1.1 NOISE-REDUCING SURFACE (E1.1)

- "Road surfaces which generate lower levels of traffic noise than conventional hot rolled asphalt. Includes thin bituminous products such as SMA, exposed aggregate (whisper) concrete, and porous asphalt."

1.1.1 KEY NOTES

- Need to state which properties/area to be covered.
- May reduce driver stress by reducing spray, especially if porous.
- Can be subdivided by type, eg:
 - E1.11 Thin surfacing
 - E1.12 Porous asphalt

1.2 NOISE BARRIER-BUILT ELEMENTS (E1.2)

- "Fences, walls, or other built elements capable of mitigating adverse impact of traffic noise, and designed using materials and form appropriate to the surroundings."



Noise Barrier

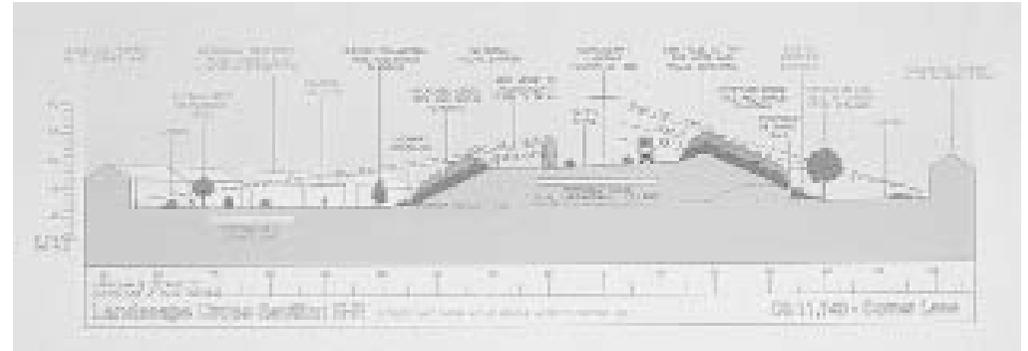
Noise Barrier

1.2.1 KEY NOTES

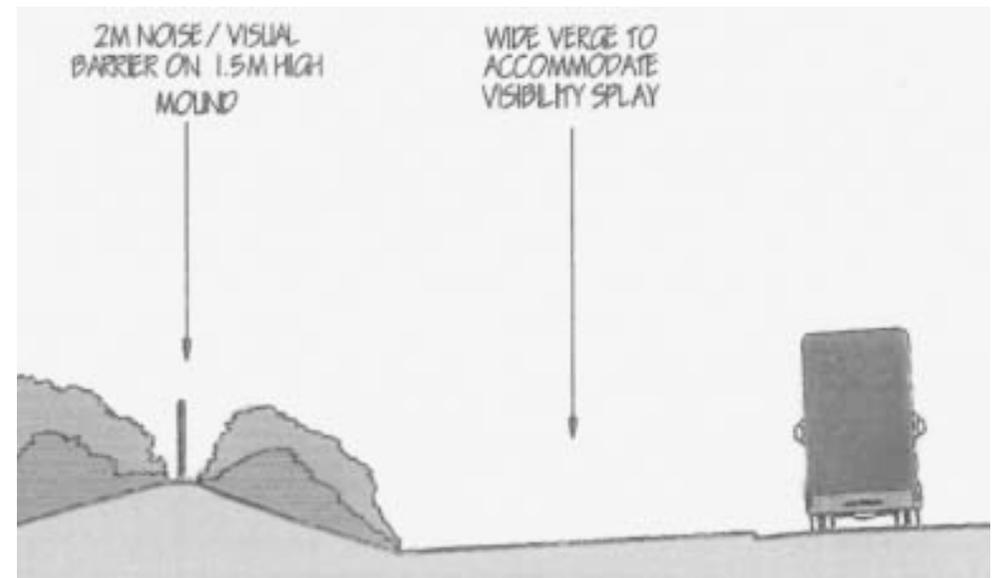
- Codes can be subdivided by type (eg materials, height and visual screen).
- Height, length and location or intended noise reduction at a specified location may be stated.
- May also provide visual screening of the road and traffic.
- Refer to Environmental Barriers Advice Note.

1.3 NOISE REDUCING EARTHWORKS (E1.3)

- "Ground-modelling, existing landform features, or adjustments to vertical alignment which reduce the level of traffic noise at affected locations."



Wigan cross-section In this example the mounding provides Auditory Amenity (EFG) as its Primary Function, whilst the planting provides Secondary Functions of Visual Screening (EFA) and Visual Amenity (EFE) for residents



M60 Contract 3 Where landtake is constrained, a combination of mounding and barriers may be the most effective option



A55 Conwy tunnel approach *Deep cutting combined with raised mounding attenuates noise levels for adjacent properties*

1.3.1 KEY NOTES

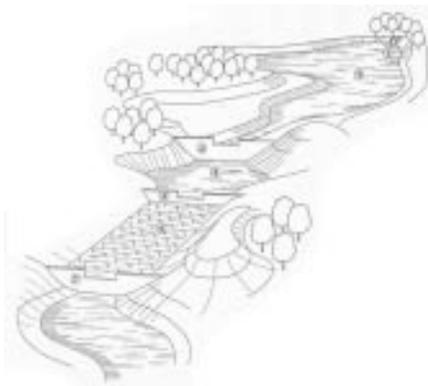
- Bunds, road in cutting, use of adjacent landform.
- 'illustrative' cross-sections may be required for landscape treatments and modelling.
- May be used in combination with barriers/surfacing, or as alternative.

2.1 WATER POLLUTION CONTROL MEASURES (E2.1)

- “Hard or soft discrete measures intended to protect receiving watercourses and groundwaters from unacceptable impacts from pollutants contained in surface water runoff and from the effects of spillages.”



Balancing pond *Balancing pond for stormwater control and filtration*



A5 Tamworth *Highway run-off controlled by weirs, filter beds and outfalls to alternative flows and reduce pollution*

2.1.1 KEY NOTES

- Features should be identified by type (eg vegetated pond, oil separator, sedimentation tank).
- Spillage containment and control measures should be separately identified, noting when they perform a dual pollution treatment and containment function (eg a treatment pond with outlet control can provide substantial sacrificial containment).
- It should be noted if the measures protect particularly sensitive features, such as an SSSI (P1.1) or high quality water course (P6.1).
- Maintenance regimes for vegetative systems should be devised to have the minimum effect on flora and fauna, subject to preserving the full efficiency of the system, and to provide the necessary protection to any protected species that may be present.

2.2 SURFACE WATER OUTFALLS (E2.2)

- “A device whereby highway run-off is transferred from the highway drainage system to the receiving waters.”



Outfalls

2.2.1 KEY NOTES

- Construction details such as the size of pipe or channel and headwall construction should be recorded.
- Height of invert above average watercourse levels may be recorded.
- Any protection measures such as trash guards or scour protection may be recorded.
- If there is a specified discharge flow limit this should be recorded.

2.3 SOAKAWAYS (E2.3)

- "A device whereby highway run-off is transferred from the highway drainage system to dispersal into the ground."



Soakaway

2.3.1 KEY NOTES

- Type of soakaway should be recorded (eg chamber, borehole, infiltration basin).
- Classification of groundwater below soakaway should be recorded (eg outer source protection zone, minor aquifer).
- If there is a specified discharge flow limit this should be recorded.

CHAPTER 3 NATURE CONSERVATION AND BIODIVERSITY (E3)

3.1 PROTECTED SPECIES (E3.1)

- "The location where protected species as defined by the relevant legislation can be found."



Barn Owls *Barn Owls*

3.1.1 KEY NOTES

- Information on species should only be distributed on a need to know basis.
- For species which are using a particular habitat area, this area should be defined.
- When revisions to the list of protected species in legislation are made information should be revised accordingly.



Badger sett *Badgers*



A500 Culvert *Native freshwater crayfish are a protected species and are particularly vulnerable to pollution, sedimentation and general deterioration in water quality*

CHAPTER 3 NATURE CONSERVATION AND BIODIVERSITY (E3)

3.2 ECOLOGICAL PROTECTION MEASURES (E3.2)

- “Features or measures intended to protect or enhance the viability of existing or proposed species habitats found in an area from the potential impact of the highway, including its operation and maintenance.”



Badger tunnel *This structure extends the badger tunnel protection over the highway drainage ditch to safer habitat, alerting maintenance operators to the Element’*



Protective Mound *This mounding not only screens the SSSI, but provides a deterrent to the protected species from traversing the carriageway*

3.2.1 KEY NOTES

- Code to be used to specify contract or management requirements for non-botanical or off-site elements. Botanical habitats on site covered by LE’s.
- Measures to include those that protect the factors which support species and habitats.
- Areas needed to support the full range of species requirements (eg feeding, breeding, roosting) will also need to be recorded as part of the protection measures.
- Physical elements may include fences or ditches, deer reflectors, tunnels, underpasses, areas of habitat recreation and translocation, earthworks, soils and drainage measures.

4.1 INJURIOUS WEEDS (E4.1)

- “Landowners are required by legislation to control noxious weeds (as defined by the relevant legislation) on their land. These species can harm livestock and affect agricultural crops, and can invade and degrade areas of nature conservation interest.”



Ragwort *Ragwort - a national problem*

4.2 LEGISLATED PESTS (E4.2)

- “Known locations containing, or regular presence, of legislated pests, including rabbits, rats, or other pests/diseases as notified by the relevant Statutory Advisor from time to time, such as Beetle epidemics, that require control measures or eradication to comply with legislation or statutory notices regarding treatment of infestations, including the prevention of colonisation of, or damage to, adjacent property or crops.”

4.2.1 KEY NOTES

- Need to clarify HA's stance on Crown Immunity.
- Chemical control of pests needs careful consideration to ensure beneficial or protected wildlife will not be affected.
- Rabbits can undermine the stability of highway earthworks, as well as damaging the adjacent crops.
- Accumulation of household refuse on highway land may lead to rat infestations needing remedial action.
- Action to control pests may need to be undertaken with adjacent landowners.

5. ENQUIRIES

All technical enquiries or comments on this Advice Note should be sent in writing as appropriate to:

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