Interim Advice Note 84/10 Part 2

VOLUME 10	**ENVIRONMENTAL DESIGN AND MANAGEMENT**
SECTION 0	**HIGHWAYS AGENCY ENVIRONMENTAL INFORMATION SYSTEM – EnvIS**

PART 2

ENVIRONMENTAL INVENTORY

Contents

Chapter

Annex

1 INTRODUCTION

1.1 STRUCTURE OF THIS PART

This Part contains specific details on the environmental inventory. It includes details of what the environmental inventory consists of and the general process for collection and submission of related data. Part 1 should be read prior to using this Part, to ensure a minimum understanding of EnvIS is acquired.

Within the HA, Part 2 should be read by Project Managers, Network/Area/Route Performance Managers, Regional Environmental Advisors, Environmental Focal Points and Policy Advisors. It also provides a good overview of scope for GIS Specialists, Systems Analysts/Designers and Database Administrators.

For Service Providers, it should be read by Environmental Project Managers, Area Environmental Managers and Environmental Specialists. It also provides a good overview of scope for GIS Specialists, Systems Analysts/Designers and Database Administrators.

1.2 DEFINITION OF ENVIRONMENTAL INVENTORY

EnvIS environmental inventory provides the HA and Service Providers with an accurate and consistent approach to the recording of data relating to the characteristics of the Elements comprising the environment within and surrounding the strategic road network. This data relates to the Element's classification, status, geographic location, and other specific details about each Element such as the intended HA and environmental objective(s).

Further to this the environmental inventory establishes the baseline to which all environmental management information can be attached (See Part 3 for details of environmental management information).

2 WHAT IS EnvIS ENVIRONMENTAL INVENTORY?

The components of environmental inventory data to be recorded are summarised in Figure 2.1 and outlined below. A detailed discussion of these components is provided in the sections that follow.

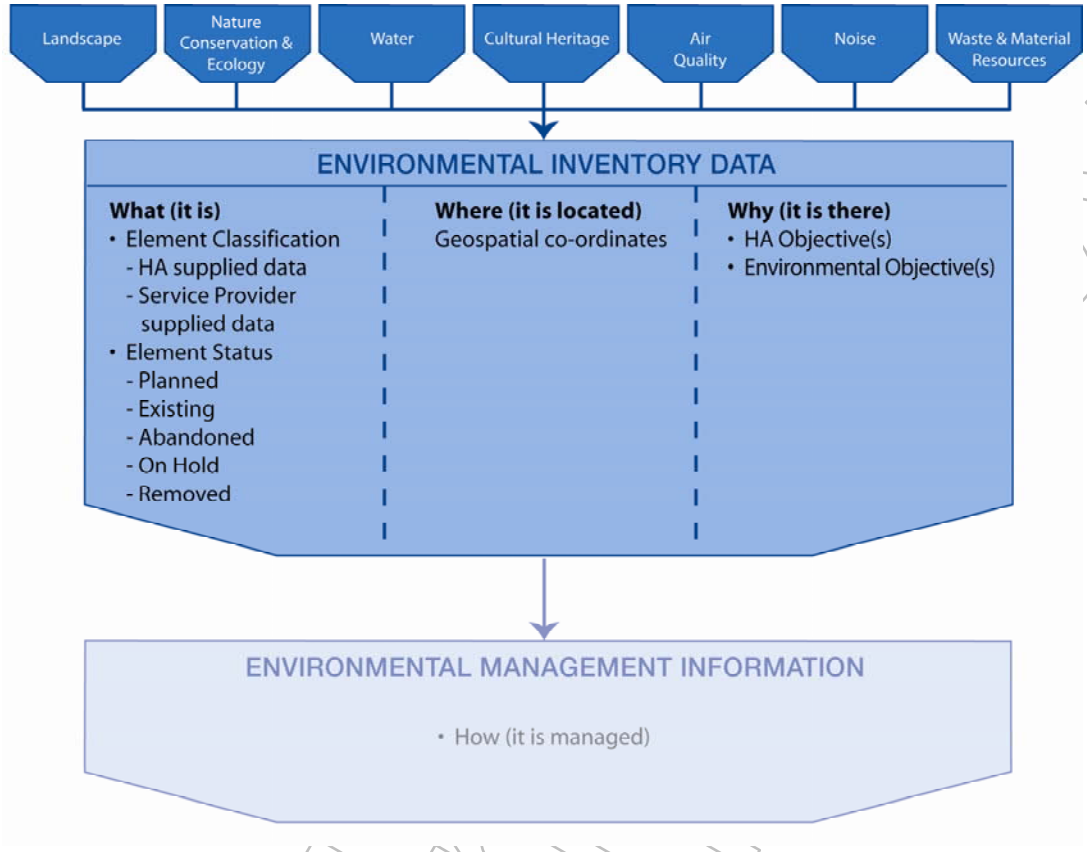

Figure 2.1: Types of Environmental Inventory Data

Environmental inventory data is provided by both the HA (e.g. national designations) and Service Providers. The majority of environmental inventory data within EnvIS includes the following:

- details of an Element's classification relating to environmental topics of:
  - landscape, nature conservation and ecology, water, cultural heritage, air quality, noise and waste and material resources.
- details of the status of each Element, recorded as;
  - planned, existing, abandoned, on hold or removed.
- details of an Element's specific geographic location; and
- details of an Element's intended objective, recorded as
  - HA objective(s); and
  - environmental objective(s).

2.1 ELEMENT CLASSIFICATION

The Element classification enables the characteristics of an Element, relating to the specified environmental topics, to be recorded and retrieved in the course of the EnvIS environmental management process. Further, the Element classification data establishes the baseline upon which other inventory (status, location and objectives) and subsequent environmental management information data is attached.

The Element classification is included in Annex A of this Part and details those Elements, with the exception of waste and material resources, on which the environmental inventory and environmental management information data is based.
The recording of environmental inventory data relating to waste and material resources requires a slightly different approach to that taken for the other environmental topics. The environmental inventory Element for waste and material resources is simply one defined polygon outlining either:

- the extent of the project; or
- the extent of the waste collection area for routine maintenance operations.

This approach enables the recording of a *single* waste and material resources Element, per project/ Network Area that can be viewed as being a 'container' that will hold both waste and material resources environmental management information data (see Part 3 for more details).

Some third party datasets and other HA supplied Elements will be sourced and updated by the HA centrally and made available to all Service Providers. Information relating to the remaining Elements must be recorded and submitted by Service Providers. All data will be provided in the standard format specified in Part 4.

2.2 ELEMENT STATUS

The recording of the status of an Element assists in identifying both the physical nature of the Element and the point that it has reached in its lifecycle. At any given time, the status of an Element must be submitted, by the Service Provider, as one of the following:

- *planned*; or
- *existing*;.

The recording of these status options is detailed below and summarised in Table 2.1 at the end of this section.

In addition, three other status options are used to identify the physical nature of an Element and its lifecycle stage, these being *on hold*, *abandoned,* and *removed* and are detailed below and summarised in Table 2.1 at the end of this section. The Service Provider is *not* required to submit environmental inventory data relating to any of these status options as this will be an automatic process based on the submission of relevant abandoned, on hold, or removed environmental management information data (see Part 3). Even though *abandoned*, *on hold* and *removed* (and in some scenarios *existing*) status options are to be updated by the HA, Service Providers should ensure that their local implementation of EnvIS accurately reflect *all* Element status changes.

Table 2.1 provides a summary of Element status options, including details of status change and whether the Service Provider is required to either submit environmental inventory data detailing the Element status or submit environmental management information data that will result in an automatic status change by the HA (See Part 3).

- ***Planned*** – those Elements that are *planned* (sometimes referred to as proposed) may be recorded in one of two ways:
  - Elements that do not currently exist but are *planned* based on the design components of a project including mitigation measures. The status of *planned* Elements must be recorded and submitted by Service Providers undertaking all scales of renewals and improvement projects; or
  - the characteristics of an *existing* Element are to be modified by an improvement project or maintenance works, the Service Provider must

submit new inventory data detailing the modified characteristics with the status of *planned*.

Note: All *planned* Elements will subsequently lead to either an *existing*, *on hold* or *abandoned* Element status.

In the scenario that an existing Element is to be modified and therefore inventory data is to be submitted with the status of *planned,* the Service Provider must submit removal environmental management information data, as detailed in Part 3, against the previous *existing* Element.

An example of the submission of a *planned* Element is provided in Part 4, Annex B, Example 1.

- ***Existing*** – those Elements that are *existing* are recorded in one of two ways:
  - as an outcome of *planned* Elements being implemented on the network. A *planned* Element status will become *existing* once the Element is constructed /implemented. The Service Provider is *not* required to submit this status as this will be an automatic process based on the submission of relevant environmental management information data (see Part 3 for more details).
  - as a result of surveys and/or studies, Elements not previously recorded on the system may be identified. If the characteristics of the Element *are not* to be modified as part of a project then the Service Provider must submit environmental inventory data detailing the Element status as *existing*.

Note: In the scenario that an *existing* Element not previously recorded is to be modified by an improvement project or maintenance works, the Service Provider is *only* required to submit new inventory data with the status of *planned*. There is not the requirement to submit inventory data with the status of *existing* and then submit *planned* Element status data and relevant environmental management information data.

It is important to note that not all Elements will require environmental management actions to be recorded and submitted. In the scenario where a *planned* Element is being implemented on the network for information only and requires no environmental management information data to be submitted, the Service Provider is required to submit new inventory data with the status of *existing* once the Element has been constructed/implemented.

An example of the submission of an *existing* Element is provided in Part 4, Annex B, Example 2.

- ***On Hold*** – *planned* Elements may occasionally be put *on hold* as a result of a change in the design of a project or some other unforeseen circumstances. *On hold* is only a temporary status to indicate that the Element is 'suspended' at the current time. The outcome status of the Element (i.e. whether the Element will be constructed/implemented or abandoned) will be dependant on any decision made. The Service Provider is *not* required to submit this status as this will be an automatic process based on the submission of relevant environmental management information data (see Part 3).

Note: *On hold* is only a temporary status for an Element which will require either a subsequent *planned* or *abandoned* (via the submission of relevant environmental management information data) status to be submitted (See Part 3).

An example of the submission of an *on hold* Element is provided in Part 4, Annex B, Example 4

- ***Abandoned*** – those Elements previously recorded as either *planned* or *on hold* may subsequently become *abandoned* as a result of a change in the design of a project or some other unforeseen circumstances. The Service Provider is *not* required to submit this status as this will be an automatic process based on the submission of relevant environmental management information data (see Part 3).

Note: An *abandoned* status for an Element can only result from a *planned* or *on hold* status.

An example of the submission of an *abandoned* Element is provided in Part 4, Annex B, Example 4

- ***Removed***– those Elements previously recorded as *existing* may subsequently become *removed* in one of two ways:
  - as part of the design, construction or maintenance of a project *existing* Elements, that have been previously recorded, may be required to be *removed* from within or surrounding the strategic road network.
  - as a result of the natural loss of an Element due to an accident, fire or disease etc.

In both cases the Service Provider is *not* required to submit this status as this will be an automatic process based on the submission of relevant environmental management information data (see Part 3).

Note: A *removed* Element status is recorded to identify the loss of, or modification to, an *existing* Element as the result of either, construction or maintenance of a project; or natural loss (e.g. hedges or woodland).

An example of the submission of a *removed* Element is provided in Part 4, Annex B, Example 3.

Table 2.1 – Environmental Element Status

Element Status	Responsibility	Origin	Outcome	Submission of Environmental Inventory Data Required To Change Element Status	Submission of Environmental Management Information Data Required Change To Element Status
Planned	Service Provider	On hold, Abandoned	Existing, On hold, Abandoned	Yes	No
Existing	Service Provider / HA	Planned	Planned, Removed	Yes (for Elements not previously identified on the strategic road network or those where no emi records are required to be submitted)	Yes (for Planned Elements now implemented)
Removed	Service Provider	Existing		No	Yes
On Hold	HA	Planned	Planned, Abandoned	No	Yes
Abandoned	HA	Planned, On hold	-	No	Yes

2.3 GEOGRAPHIC LOCATION

The Service Provider must record the geographically referenced spatial representation, in the form of points, polylines and polygons and in relation to the Ordnance Survey National Grid, when recording an Element

2.4 HIGHWAYS AGENCY OBJECTIVES

HA objectives are aligned with HA corporate documents such as the HA Business Plan and the HA Biodiversity Action Plan.

The descriptive text used for the HA objectives (Annex B of this Part) enables Service Providers to attach HA objectives to Elements, where appropriate, within and surrounding the strategic road network. The HA objective is intended to demonstrate how a particular Element may assist in supporting and achieving the HA environmental strategic aims as reported in the HA Business Plan.

It is possible that an Element may contribute to a number of HA objectives e.g. the implementation of a combined hedgerow and wall, could assist in demonstrating both noise and landscape objectives. These being to:

- reduce noise nuisance caused by road operation (vehicular movement); and
- reduce the adverse effects of strategic road traffic on the countryside.

In these cases the Service Provider must submit all relevant HA objectives (up to a maximum of three) appropriate to an Element.

An example where an Element is contributing to multiple objectives is provided in Part 4, Annex B, Example 5.

The Service Provider must ensure that both *planned* and *existing* Elements, where appropriate, are assigned one or more HA Objectives that accurately describes the HA environmental strategic aims.

2.5 ENVIRONMENTAL OBJECTIVE

In order to design and manage the strategic road network towards achieving Government and HA environmental objectives there is a need to state the purpose of various Elements, as well as their physical nature, i.e. why they are there and what they are intended to achieve in environmental terms.. The environmental objective is defined as:

"the intended objective of an Environmental Element of the strategic road network in environmental terms."

The descriptive text used for environmental objectives (Annex C of this Part) enables Service Providers to attach environmental objectives, where appropriate, to the various Elements of the strategic road network that will adequately describe the expected result of that Element in terms of characteristics and performance. In this way environmental objectives assist in ensuring Elements are managed effectively to fulfil their medium and long term objectives.

The majority of *planned* or *existing* Elements within the strategic road network will have multiple objectives and therefore can be ascribed more than one. A matrix defining the Element and environmental objectives relationship is provided for guidance in Annex D of this Part.

Some Elements may have multiple objectives e.g. a noise barrier may be designed to achieve both visual screening and noise attenuation and species rich grassland can have landscape integration, visual amenity, and nature conservation and ecology objectives. In these cases the Service Provider must submit all relevant environmental objectives (up to a maximum of three) and decide on the primary, secondary and, if necessary, tertiary objectives in order to prioritise the design and / or maintenance of that Element.

An example where an Element is contributing to multiple objectives is provided in Part 4, Annex B, Example 5.

The Service Provider must ensure that both *planned* and *existing* Elements, where appropriate, are assigned one or more Environmental Objectives

3 COLLECTION AND SUBMISSION OF ENVIRONMENTAL INVENTORY DATA

3.1 GEOGRAPHIC SCOPE

The geographic scope of recording environmental inventory data may extend a considerable distance from the strategic road network, appropriate to cover potential environmental impacts. When determining the geographical scope of recording environmental inventory data the Designer is guided by the assessment procedures detailed in the relevant environmental topics within DMRB Volume 11 and will be determined by:

- specific characteristics of the project and of the *existing* Elements likely to be affected;
- *planned* Elements associated with design and mitigation as a result of the environmental assessment; and
- the information that may reasonably be gathered given current knowledge and assessment methods.

Recording of environmental inventory data at the *Planning and Design* stage is closely aligned with the environmental assessment carried out for improvement proposals. The Planning and Design stage of EnvIS is aligned to the PCF Development Phase. Prior to this stage a number of routes and alignment options may have been considered resulting in an announcement of the Preferred Route. The Designer must collect, record and submit environmental inventory data relating to Elements (*planned*, *existing* to be modified and *existing* not previously identified) associated with the Preferred Route. The Designer must refer to guidance contained in DMRB Volume 11 for the level of environmental inventory data required to be obtained during environmental assessments.

Recording of environmental inventory data at the *Construction* stage will be mainly determined by the geographic scope previously identified at the Planning and Design stage. The Construction stage of EnvIS is aligned to the PCF Construction Phase The exception to this will be where amendments to the proposed project, as a result of unforeseen circumstances, will have an environmental impact beyond that identified at the *Planning and Design* stage. The Designer must collect, record and submit environmental inventory data relating to Elements (*planned*, *existing* to be modified and *existing* not previously identified) in this scenario

Recording of environmental inventory data at the M*aintenance and Operation* stage will be consistent with the boundary associated with the Network Area or maintenance network. The Network Management Agent must collect, record and submit environmental inventory data relating to Elements within this boundary.

Note: The requirements outlined in Planning and Design and Construction, above, also apply, to Network Management Agents undertaking renewals or improvements works.

3.2 EnvIS ENVIRONMENTAL MANAGEMENT PROCESS & ENVIRONMENTAL INVENTORY

As discussed in Part 1, the EnvIS environmental management process provides the framework around which data is recorded and retrieved from EnvIS. It is aligned to the existing HA development process for Network Areas and projects, and specifically the following key stages:

- Planning and Design;
- Construction;
- Handover; and
- Maintenance and Operation.

Environmental inventory data relating to an Element must be submitted (input) and retrieved (output) at different stages in the EnvIS environmental management process. This process is summarised in Figure 2.2 and discussed in more detail in the sections that follow.

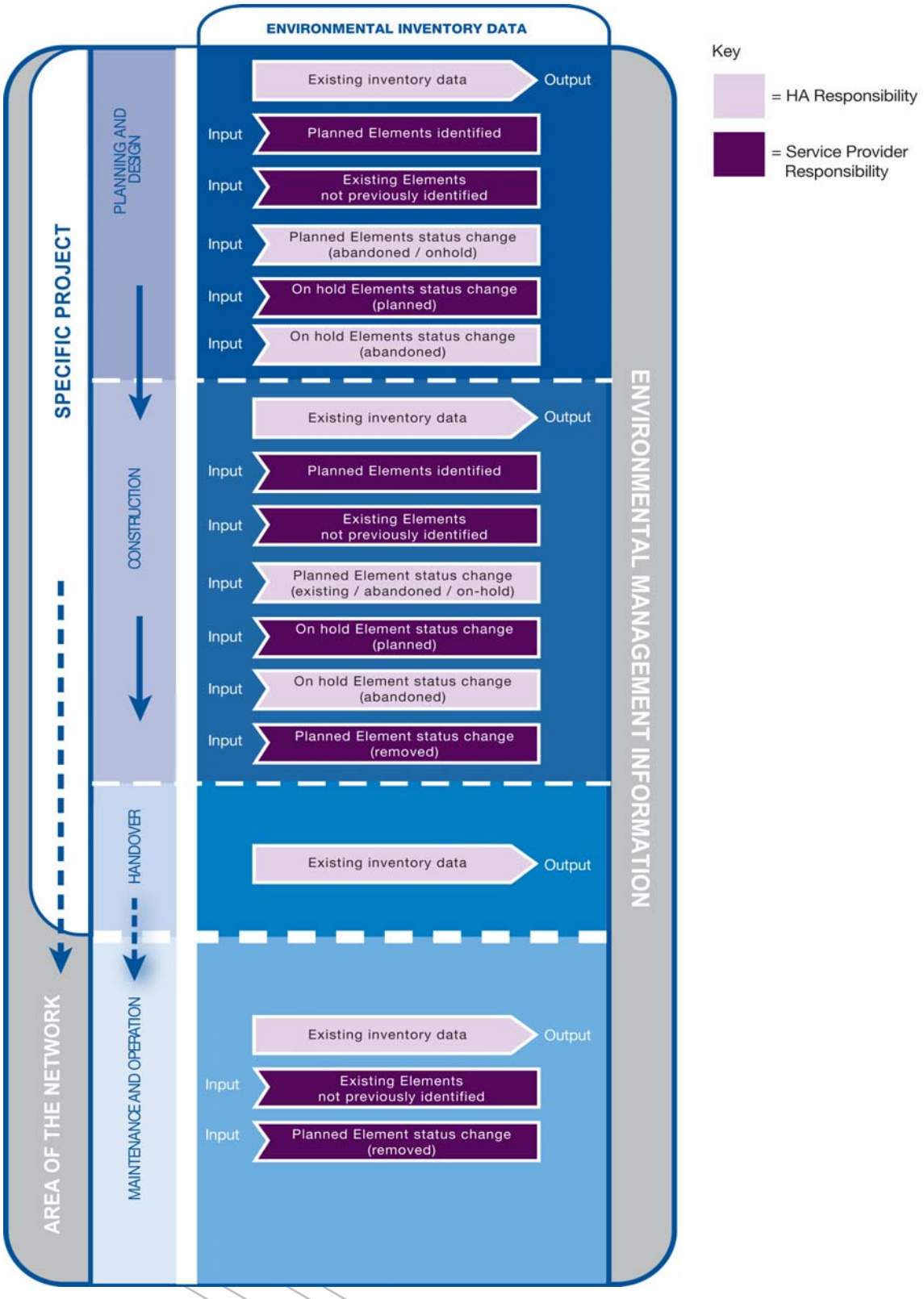

Figure 2.2: EnvIS Environmental Management Process and Environmental Inventory

3.2.1 Planning and Design

Data retrieval

- *Existing* inventory data required (both HA and Service Provider supplied data) must be identified and requested by the Designer, then extracted and exported from EnvIS by the HA (see Part 4). This will be used to assist in environmental assessment and to inform design and assessment of the project, the preparation of the Planning and Design environmental management information and the preparation of the Designer's Environmental Management Plan.

Data submission

- *Planned* Element classification and status must be submitted, by the Designer, as identified in the course of the environmental assessment. These will include both new Elements and *existing* Elements whose characteristics are to be modified. The intended HA and environment objectives of each Element must be submitted, where appropriate.
- *Existing* Elements not currently recorded in EnvIS, and identified as a result of, for example, studies and/or surveys, must be submitted by the Designer. The intended HA and environment objective(s) of each Element must be submitted, where appropriate.
- *Planned* Elements, whose status has changed to *abandoned* or *on hold* will be recorded, by the HA, upon the submission of valid environmental management information data.
- *On hold* Elements, whose status has changed to *planned* must be submitted by the Designer.
- *On hold* Elements, whose status has changed to *abandoned* will be recorded, by the HA, upon the submission of valid environmental management information data.

3.2.2 Construction

Data retrieval

- Existing inventory data, not identified at the planning and design stage, (both HA and Service Provider supplied data) must be requested by the Designer, then extracted and exported from EnvIS by the HA (see Part 4). Environmental inventory data will be used to assist the ongoing population of the Construction environmental management information requirements and inform the preparation of the Designer's Environmental Management Plan.

Data submission

- *Planned* Element classification and status must be submitted, by the Designer, as a result of amendments to the detailed design. These will include both new Elements and also *existing* Elements whose characteristics are to be modified. The intended HA and environment objective(s) of each Element must be submitted, where appropriate.
- *Existing* Elements not currently recorded in EnvIS, and identified as a result of, for example, surveys and/or watching briefs, must be submitted by the Designer. The intended HA and environment objective(s) of each Element must be submitted, where appropriate.
- *Existing* Elements, implemented on the network for information only and requiring no environmental management information data to be submitted, must be submitted by the Designer.
- *Planned* Elements, whose status has changed to *existing* (with the exception of the bullet above), *abandoned* or *on hold* will be recorded, by the HA, upon the submission of valid environmental management information data.

- *On hold* Elements, whose status has changed to *planned* must be submitted by the Designer.
- *On hold* Elements, whose status has changed to *abandoned* will be recorded, by the HA, upon the submission of valid environmental management information data.
- *Existing* Elements that no longer exist will be recorded as *removed*, by the HA, upon the submission of valid environmental information data.

3.2.3 Handover

*Data retrieva*l

- The most up to date environmental inventory data (both HA and Service Provider supplied data) for the project will be output from the system by the HA and provided to the Network Management Agent (see Part 4), to inform preparation of the Maintenance and Operation environmental management information and the preparation of the Network Management Agent's Environmental Management Plan.

3.2.4 Maintenance and Operation

Data retrieval

- Updated environmental inventory data required (HA supplied data) must be identified and requested by the Network Management Agent, then extracted and exported from EnvIS by the HA (see Part 4).

- New or updated environmental inventory data (HA supplied data) will be provided by the HA on an as and when basis.

Data submission

- *Existing* Elements not currently recorded in EnvIS, and identified as a result of, for example, studies and/or surveys, must be submitted by the Network Management Agent. The intended HA and environment objective(s) of each Element will be submitted, where appropriate.

- *Existing* Elements that no longer exist will be recorded as *removed*, by the HA, upon the submission of valid environmental information data.

3.3 TIMESCALES FOR DATA SUBMISSION

Environmental inventory data must be submitted by Service Providers, in accordance with the interface file specifications set out in Part 4. The frequency of environmental inventory data submission, to the HA, is to be in line with the timescales indicated below. A detailed discussion on the frequency of data submission is provided in Part 1.

Designers must submit environmental inventory data at the following three PCF milestones:

- Development Phase (Preliminary Design) - Environmental assessment/statement publication;
- Development Phase (Construction Preparation) - Detailed Design drawings; and
- Construction Phase (Construction) - As Built drawings.

Network Management Agent must submit environmental inventory data in accordance with the following frequencies:

- Quarterly submission (with the exception of waste and material resources) of changed data; and
- Annual submission, at the beginning of the financial year (April), of waste and material resources environmental inventory and emi data.

ANNEX A - EnvIS ENVIRONMENTAL ELEMENTS

This Annex presents and defines the Elements relating to the following classification types:

- Designations;
- Other Highways Agency Supplied Elements;
- Landscape;
- Nature Conservation and Ecology;
- Water Environment;
- Cultural Heritage;
- Air Quality; and
- Noise.

Note: The recording of environmental inventory data relating to waste and material resources requires a slightly different approach to that taken for the other environmental topics. The environmental inventory Element for waste and material resources is simply one defined polygon outlining either:

- the extent of the project; or
- the extent of the waste collection area for routine maintenance operations.

All of the Elements relating to designations (P.3) and other Highways Agency supplied Elements (P.4) will be sourced and updated by the HA centrally and made available to all Service Providers (as defined in Part 4).

Information relating to the remaining Elements (P.5-41) must to be recorded by Service Providers. These Elements, presented in this Annex, directly correlate to those requested within Part 4 Annex A – EnvIS Interface File Specifications.

EnvIS ENVIRONMENTAL ELEMENTS – HA SUPPLIED DESIGNATIONS

Designations	
Landscape	
Area of Outstanding Natural Beauty (AONB)	National Park
Nature Conservation and Ecology	
Ancient Woodland	Sites of Special Scientific Interest (SSSI)
Local Nature Reserve (LNR)	Special Area of Conservation (SAC)
National Nature Reserve (NNR)	Special Protection Area (SPA)
Ramsar Site	

EnvIS ENVIRONMENTAL ELEMENTS – OTHER HA SUPPLIED ELEMENTS

Other HA Supplied Elements	
Air Quality Monitoring Data	
Air Quality Management Area (AQMA)	
Landscape Categorisations	
Environmental Stewardship Agreements	Heritage Coast
Character Areas	

EnvIS ENVIRONMENTAL ELEMENTS – LANDSCAPE

Landscape	
Grassland	
Amenity Grass Areas	Open Grassland
Grass Reinforced Walls	Rock and Scree
Grassland with Bulbs	Species Rich (or conservation) Grassland
Heath and Moorland	
Native Vegetation	
High Forest	Shrubs with Intermittent Trees
Individual Trees	Tree Preservation Order (TPO)
Linear Belts of Trees and Shrubs	Veteran Tree
Scattered Trees	Woodland
Scrub	Woodland Edge
Shrubs	
Ornamental Vegetation	
Amenity Trees and Shrubs	Offsite Planting
Climbers or Trailers	Ornamental Shrubs
Groundcover	
Native Hedgerows	
Combined Hedgerow and Wall	
Historically Important Hedgerow	Native Species Hedgerows
Native Hedgerows with Trees	Native Species Hedgerows (Managed)
Ornamental Hedgerows	
Ornamental Species Hedgerows	
Earthworks	
Earthworks returned to Agricultural use	Strengthened Earthworks
False Cuttings	
Water Bodies	
Banks and Ditches	Reed Beds
Marsh and Wet Grassland	Water Bodies and Associated Plants
Hard Landscape	
Block Walls	Railings
Brick Walls	Art
Dry Stone Walls	Gateway Features
Stone Walls	Paving
Highway Boundary Fences	Street Furniture
Accessibility	
Bridleways	Pedestrian Route
Cycle Route	

EnvIS ENVIRONMENTAL ELEMENTS – NATURE CONSERVATION AND ECOLGY

Nature Conservation and Ecology	
Habitats	
Phase 1 Habitat (JNCC)	Local BAP Habitat
UK BAP Habitat	Wildlife Corridor
HA BAP Habitat	
Species	
Species Record and Pest Classification (Taxon Look up)	HASAP
Species Latin Name	Local SAP
Survey Season Start	(Other) Species of Conservation Interest
Survey Season End	Citation
UKSAP	
Wildlife Features	
Breeding Site	Nesting Site
Commuting Route	Nursery Site
Foraging Site/Area	Over Wintering Site
Hibernation Site	Spawning Site
Migration / Dispersal Route	Terrestrial Site
Wildlife Observation	
Anecdotal	Sighting
Call	Sign
Road Kill	Observation Date
Wildlife Barrier	
Antidazzle Fencing	Livestockproof Fencing
Badgerproof Fencing	Newt / Amphibianproof Fencing
Combined Fencing	Otterproof Fencing
Deerproof Fencing	Rabbitproof Fencing
Electric Fencing	Reptileproof Fencing
Wildlife Underpass Structures	
Amphibian Tunnel	Combined Tunnel
Badger Tunnel	Otter Ledge
Wildlife Overpass Structures	
Badger Bridge	Green / Wildlife Bridge
Bat Bridge	Livestock Bridge
Deer Bridge	Squirrel Bridge
Dormouse Bridge	Wildlife Warning Posts
Wildlife Housing	
Artificial Badger Sett	Dormouse Box / Tube
Artificial Otter Holt	Frog / Toad Box
Artificial Refuge	Hedgehog House
Bat Box	Insect Box
Bird Box	

EnvIS ENVIRONMENTAL ELEMENTS – WATER

Water	
Output Highway Drainage Point Items	
Outfall	Soakaway
Treatment Highway Drainage Point Items	
Catchpit	Interceptor
Gully (sump or pot)	
Output Highway Drainage Continuous Sub- surface Items	
Culvert	Land Drainage
Output Highway Drainage Continuous Surface Channel Items	
Grip (lined or unlined)	Piped Grip
Combined (Output/Treatment) Highway Drainage Continuous Surface Channel Items	
Ditch (lined or unlined)	
Output Highway Drainage Continuous Surface and Sub-surface Channels and Drain Items	
Counterfort Drain	Informal Drain
Combined (Output/Treatment) Continuous Surface and Sub-surface Channels and Drain Items	
Combined Surface and Groundwater Filter Drains	Narrow Filter Drain
Filter Drain	
Combined (Output/Treatment) Highway Drainage Continuous Surface Channel Items	
Swales and Grassed Channels (lined or unlined)	
Treatment Highway Drainage Regional Items	
Detention Pond	Sedimentation Pond
Pollution Containment Pond/Tank	
Combined (Output/Treatment) Highway Drainage Regional Items	
Infiltration Basin	Wetland
Retention Pond	
Other Outputs/Inputs	
Catchment Area	Water Sources Third Party Discharges
Depot and other discharges (Consented or Unconsented)	
Surface Water Receptor – Freshwater	
Canal	Main River
Lake/Pond	Ordinary Water Course
Surface Water Receptor – Freshwater Classification	
EC Fisheries Designation – Salmonid / Cyprinid Fishery	GQA – Nutrients
GQA – Aesthetics	River Ecosystem Classification
GQA – Biology	Lake/Pond – OECD Classification
GQA – Chemistry	
Surface Water Receptor – Tidal Water	
Coastal	Estuarine
Surface Water Receptor – Tidal Water Classification	
Estuarine Water Quality Standards	
Surface Water Abstractions	
Highways Agency Abstractions	Third Party Abstractions
Ground Water Receptor – Aquifer Classification	
Major Aquifer	Non-Aquifer
Minor Aquifer	Soil Vulnerability Classification

Ground Water Receptor – Source Protection	
Zone I	Zone III
Zone II	Zone IV

Ground Water Abstractions	
Highways Agency Abstractions	Third Party Abstractions
Floodplain Receptor	
River	Flood Likelihood
Tidal	

EnvIS ENVIRONMENTAL ELEMENTS – CULTURAL HERITAGE

Cultural Heritage	
Protection Grade	Period
Listed Grade	Authority
Grade Number	Creator
Local HER	Owner
Short Description	Other party
Feature Class	Site Name
Monument Type	Bibliography
Monument Class	Event Type
Monument Form	Event Code

EnvIS ENVIRONMENTAL ELEMENTS – AIR QUALITY

Air Quality	
Road Data	
Road layout – HA	Road type – Category C
	Traffic Data Year
Road Layout - TfL	AADT
	Road Speed (mph)
Road Layout – Local Highways Authority	HDV %
Road type – Category A	
Road type – Category B	
Air Quality Management	
AQMA Start Date	Borderline AQMA
AQMA – Pollutant - NO_2	Expected Start Date
AQMA – Pollutant - PM_{10}	

EnvIS ENVIRONMENTAL ELEMENTS – NOISE

Noise	
Noise Data	
Road Surface Segment – Quieter Surfacing	Road Surface Segment – Concrete
Road Surface Segment – Other	Sensitive Receptors
Noise Screening	
Noise Bund	Height (m)
Noise Barrier – Absorptive	Length (m)
Noise Barrier – Reflective	Width at Base (m)
Noise Barrier Material	

EnvIS ENVIRONMENTAL ELEMENTS DEFINITIONS DESIGNATIONS

Designations or 'designated sites' are areas afforded statutory protection through their inclusion in Acts of Parliament, EU Legislation or International Agreements. The UK has a responsibility to ensure the conservation and enhancement of habitats and species in both a national and international context.

LANDSCAPE

Area of Outstanding Natural Beauty (AONB)

AONBs are designated solely for their fine landscape quality of national importance, for the purpose of conserving and enhancing their natural beauty. AONBs in England are designated by Natural England and confirmed by the Secretary of State. Local AONB partnerships are formed to conserve and manage the areas, led by local authorities supported by a range of key organisations. The partnerships are responsible for the management and conservation of these areas.

National Park

An area designated under the National Parks and Access to the Countryside Act 1949 for the purpose of conserving and enhancing the natural beauty, wildlife and cultural heritage of the area.

The Norfolk and Suffolk Broads enjoy equivalent status and protection to National Parks, but with powers tailored to suit their special circumstances. The area is administered by the Broads Authority which publishes a management plan.

NATURE CONSERVATION AND ECOLOGY

Ancient Woodland

Sites that have been continuously wooded since AD1600 in England and Wales, AD1750 in Scotland and AD1830 in Northern Ireland. Some of these woodlands may be primary (i.e. remnants of prehistoric woodlands) and others will have arisen as secondary woodland on ground previously cleared.

Local Nature Reserve (LNR)

Reserves that are declared by the local authority under the National Parks and Access to the Countryside Act 1949 with wildlife or geological features that are of local significance.

National Nature Reserve (NNR)

Nature reserves declared by the statutory body under the National Parks and Access to the Countryside Act 1949. They contain some of the most important natural and semi-natural terrestrial and coastal eco-systems in the UK.

Ramsar Site

Wetlands designated by the Contracting Parties (countries that are Member States to the Ramsar Convention (Ramsar, Iran, 1971) for inclusion in the List of Wetlands of International Importance because they meet one or more of the Ramsar Criteria adopted by the Conference of the Parties. www.ramsar.org. Under the Convention the UK Government is committed to the protection and wise use of these wetlands within its territory, as stated in Planning Policy Guidance Note 9, Nature Conservation, and in the Government Policy

Site of Special Scientific Interest (SSSI)

An area of land notified under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000) as being of special conservation interest. Sites represent areas of national significance for wildlife and geology in England, Wales and Scotland.

Special Area of Conservation (SAC)
Sites in the UK designated for the protection of habitats and/or species listed on Annex I and II (respectively) of the Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora. In the UK the Directive has been transposed into national law by means of the Conservation (Natural Habitats, & c.) Regulations 1994 (as amended).

Special Protection Area (SPA)
Sites established to protect rare or vulnerable bird species listed on Annex I of the Council Directive 79/409/EEC on the conservation of wild birds. The statutory basis for site protection in the UK is provided by various pieces of national legislation; in particular, the Wildlife and Countryside Act 1981 (as amended) and the Conservation (Natural Habitats, & c.) Regulations 1994 (as amended). Together with Special Areas of Conservation (SACs) designated under the Habitats Directive. SPAs make up the European network of protected areas known as Natura 2000.

EnvIS ENVIRONMENTAL ELEMENTS DEFINITIONS – OTHER HA SUPPLIED ELEMENTS

AIR QUALITY MONITORING DATA

Air Quality Management Area (AQMA)

An area designated by the relevant Local Authority by means of an order under Section 83 of the Environment Act 1995.

LANDSCAPE CATEGORISATIONS

Registered Common Land

Common land comprises some 549,000 hectares of land registered under the 1965 Commons Registration Act. This is equal to approximately 4% of the total land area of England and Wales. Ownership could be private or public, but legally recognised rights exist which enable certain people to use the land (commoners rights). The Commons Act 2006 has set in place a mechanism for the creation of Commons Councils to help with their management.

Environmental Stewardship Agreements

Environmental Stewardship is an agri-environment scheme which provides funding to farmers and other land managers in England who deliver effective environmental management on their land. In terms of Landscape, its primary objective is to maintain and enhance landscape quality and character.
The scheme is intended to build on the recognised success of the Environmental Sensitive Areas scheme and the Countryside Stewardship Scheme and where ESAs existed prior to 2005, agreements will remain in place. The new ESS and previous ESAs cover some 10% of agricultural land.

Heritage Coast

Heritage Coasts are stretches of coast of particular scenic quality which are recommended special attention by Natural England. They are a non-statutory designation formed by agreement between NE and Local Authorities. Most fall within AONBs, whereby their strategic management is overseen by the AONB partnership.

Character Areas

In 1996 the former Countryside Commission and English Nature, with support from English Heritage, produced The Character of England Map. This map combines English Nature's Natural Areas and the former Countryside Commission's Countryside Character Areas into a map of 159 Joint Character Areas (JCAs) for the whole of England. The Countryside Agency published a set of eight regional volumes describing the 159 JCAs.
The JCAs are a widely recognised national spatial framework, used for a range of applications, from targeting of Defra's Environmental Stewardship scheme to forming part of the data gathered for Landscape Character Assessments.
In addition to this national classification, Local Authorities produce Landscape Character Assessments which are used to help define landscape and planning policies at a regional/county and district level.

EnvIS ENVIRONMENTAL ELEMENTS DEFINITIONS – LANDSCAPE

GRASSLAND

Amenity Grass Areas
Grass species appropriate to the location and intensive maintenance regime, the sward of which may be of even grade, and uniformly coloured to cover at least 95% of the relevant area, and contain a maximum of 10% herb species, and no scrub.

Grass Reinforced Walls
Reinforced, vegetated earth structures, commonly used for improvements where landtake is limited.

Grassland with Bulbs
Bulbs dispersed in naturalistic drift covering 30-50% of the relevant area, with grass and herb species covering the remainder area.
This Element may also define bulbs within woody vegetation, e.g. bluebells, colchicum
Bulbs should be of native origin and appropriate to existing natural and semi-natural vegetation.
The extent of the relevant area is the part planted with bulbs and thus needing varied maintenance, with the remaining area classified under the relevant Element.

Heath and Moorland
Grass, herb and scrub species appropriate to the heath or moorland location or as exist already on site with species composition and diversity capable of being maintained by an average of one cut per year or less.

Open Grassland
Areas of grass and herb species appropriate to the soil conditions and location or as already exist on site.

Rock and Scree
Rock and scree colonised by grass, herb and scrub species. In addition Rock and scree sites are likely to hold reptile species.

Species Rich (or conservation) Grassland
Grass and herb species appropriate to the location or as exists already on site with a species composition and diversity capable of being maintained by an average of one cut per year or less, or that through appropriate management will be encouraged to develop biodiversity interest over time.

NATIVE VEGETATION

High Forest
Tree species appropriate to the location or as exist already on site with a species composition, age and structural diversity forming or clearly capable of forming layered forest.

Individual Trees
Tree species appropriate to the location or as exist on site identifiable as individual trees separate from other woody vegetation.

Linear Belts of Trees and Shrubs
Tree and shrub species appropriate to the location or as exist already on site in linear belts too narrow to be considered woodland and more substantial than a hedgerow.

Scattered Trees
Tree and shrub species appropriate to the location or as exist already on site appropriately dispersed and forming or capable of forming scattered groups. The tree and shrub cover shall be composed of individual trees or groups too small to be considered woodland.

Scrub
Vegetation generated by self-sown trees and shrubs.

Key notes
Brambles and climbers may need to be regarded as scrub in visual or management terms. Undesirable scrub to be classified as open grassland, i.e. performance needs control/removal.

Shrubs
Shrub species appropriate to the location or as exist already on site.

Shrubs with Intermittent Trees
Shrubs and tree species appropriate to the location or as already exist on site with individual trees or groups of trees dispersed throughout the relevant area.

Tree Preservation Order (TPO)
An order made by the local planning authority in respect of trees or woodlands. The principal effect of a TPO is to prohibit the cutting down, uprooting, topping, lopping, wilful damage, or wilful destruction of trees without the Local Planning Authorities consent. All trees in Conservation Areas are protected as if by TPO.

Veteran Tree
A tree that is of interest biologically, culturally or aesthetically because of its age, size or condition.

Woodland
Vegetation dominated by tree and shrub species appropriate to the location or as exist already on site with a species composition, age and structural diversity forming or clearly capable of forming identifiable tree, shrub and field layers.

Woodland Edge
Vegetation dominated by tree and shrub species appropriate to the location or as exist already on site with a species composition, age and structural diversity forming or clearly capable of forming a stable and visually appropriate edge to the woodland.

ORNAMENTAL VEGETATION
Amenity Trees and Shrubs
Areas containing non-native tree species/cultivars, which may also include native trees and shrubs where appropriate, with a composition to meet the area's Environmental Objective, and where the transition from rural to urban renders their use appropriate.

Key notes
Use where amenity species incorporated as 'highlights' on the urban fringe or where urban tree planting is 'en-masse' rather than individual trees.

Climbers or Trailers
Climbing plants appropriate to the location or as exist on site.

Groundcover
May include shrubs and/or herbaceous plants, normally maximum 600 mm in height, for visibility or safety/personal security.

Offsite Planting
Planting provided offsite for the benefit of the landowner, under Section 253 of the Highways Act 1980. This planting is maintained by the Highways Agency for 3 years and is then returned to the landowner for ongoing maintenance for 25 years from planting.

Ornamental Shrubs
Ornamental shrub species appropriate to the location or as exist already on site.

NATIVE HEDGEROWS
Combined Hedgerow and Wall
Cornish Hedge and Devon Bank are examples of combined hedgerow and wall.

Historically Important Hedgerow
In England and Wales the Hedgerow Regulations 1997 are intended to protect important countryside hedges from destruction or damage. To qualify, a hedgerow must be at least 30 years old and meet at least one of eight criteria, which identify hedgerows of particular archaeological, historical, wildlife and landscape value.

Native Hedgerows with Trees
Shrub and occasional tree species appropriate to the location or as exist already on site with intermittent standard trees.

Native Species Hedgerows
Shrub or tree species appropriate to the location or as exist already on site managed as informal hedgerows with cyclical laying or management as appropriate.

Native Species Hedgerows (Managed)
Shrub or tree species appropriate to the location or as exist already on site trimmed to a constant height and width appropriate to the location.

Key notes
In special circumstances, hedges may be laid in the local style at appropriate intervals.

ORNAMENTAL HEDGEROWS
Ornamental Species Hedgerows
Shrub or tree species appropriate to the location or as exist already on site trimmed to specific shape.

EARTHWORKS
Earthworks returned to Agricultural use
All graded out slopes, either cut or fill where the previous landform was altered.

Key notes
The full extent of regraded earthworks shall be recorded even where the eventual owner is not the Highways Agency, so that in the event of future widening or new proposals, it will be known that the area is not natural ground (e.g. avoiding the need for archaeological assessment).

False Cuttings
Artificial earthworks designed to screen views of a road or cutting.

Key notes
The height and gradient of the slopes facing towards and away from the road shall be recorded.

Strengthened Earthworks
Placed or insitu soil or other material, the stability of which has been improved by and including without limitation, inclusions in the form of tensile reinforcement acting through interface friction, bearing or other means, e.g. reinforced soil, soil nailing or by external support such as gabions.

WATER BODIES
Banks and Ditches
Grass, herb and woody species appropriate to the location or as exist already on site with a species composition and diversity capable of being maintained by one cut per year or less.

Key notes
This Element is used to describe vegetative features associated with open water courses.

Marsh and Wet Grassland
Grass and herb species appropriate to the location or as already exist on site with a species composition and diversity capable of being maintained by the drainage regime at that location.

Reed Beds
Wetland species appropriate to the location or as exist already on site with reed species covering 85%-100% of the relevant areas, maintained to perform the stated Objective(s).

Water Bodies and Associated Plants
Open water areas, wetland species appropriate to the location or as exist already within the highway estate.

Key notes
Water features that have been designed entirely to promote Environmental Interests.

HARD LANDSCAPE
Walls
Free-standing or retaining walls that have an important visual or screening objective.

Key notes
Walls may be block, brick, dry stone or stone and may incorporate planting

Fences
Free-standing fences of timber or other materials.

Key notes
Includes railings and highway boundary fences, where these are selected for environmental reasons, in addition to their engineering function.

Art
Features which have a visual value which is distinct from their function.

Gateway Features
Features provided to mark the entrance to a settlement or designated area where these have a visual amenity value over and above their purpose to inform.

Paving
Hard ground surfaces.

Key notes
Includes reinforced glass.

Street Furniture
Individual items provided for amenity purposes.

Key notes
Includes seats, litter bins and other functional Elements.
Non-functional Elements are recorded as “Art”.

ACCESSIBILITY
All Elements included to assist non-motorised users.

Key notes
Divided into sub-sets for bridleways, cycle and pedestrian route.

EnvIS ENVIRONMENTAL ELEMENTS DEFINITIONS – NATURE CONSERVATION AND ECOLOGY

HABITAT

Phase 1 Habitat Survey (JNCC)
A standardised system for classifying and mapping wildlife habitats in all parts of Great Britain. The classification originated in the 1970's for mapping terrestrial and freshwater habitats on large scale strategic surveys. After the passing of the Wildlife and Countryside Act 1981, the system was modified and extended for use in mapping habitats on SSSIs.

UK BAP Habitat
Nationally and internationally important habitats listed in the UK Biodiversity Action Plan. This includes broad habitat statements and Priority Habitat Action Plans.

The UK BAP is the Government's response to the Convention on Biological Diversity signed at the 1992 Rio Earth Summit. It describes the UK's biological resources and commits a detailed plan for the protection of these resources.

HA BAP Habitat
Habitats of conservation concern included in the Highway Agency's Biodiversity Action Plan (HA BAP).

The HA BAP prescribes the Highways Agency's role in the conservation and enhancement of biodiversity in England within the context of its other objectives and responsibilities. In order to reflect the national scope but localised management structure of the HA, the Action Plans in the HA BAP refer to relevant national, regional and local Habitat Action Plans.

Local BAP Habitat
Habitats listed on local Biodiversity Action Plans.

Each Local Biodiversity Action Plan works on the basis of partnership to identify local priorities and to determine the contribution they can make to the delivery of the national Habitat Action Plan targets. Often, but not always, LBAPs conform to county boundary.

Wildlife Corridor
Linear-shaped area or feature of value to wildlife – particularly for facilitating movement across a landscape. This may be a water feature, field boundary or linear series of woodlands or grasslands, for example.

SPECIES

Species Record and Pest Classification (Taxon Look up)
A comprehensive list of all species covering Great Britain. The information is available through a Taxon look up table managed by JNCC.

In the situation that a species is located but cannot be identified e.g. road kill or a specific type of bat, the Service Provider is to record the species as 'Unspecified'. The recording of a species as 'Unspecified' should be regarded as the exception to the rule.

In addition to the recording of protected species there is a requirement to record injurious weeds and pests.

The Weeds Act 1959 specifies five injurious weeds: Ragwort, Spear Thistle, Creeping or Field Thistle, Broad Leaved Dock and Curled Dock. These are species that can cause a detrimental effect to people, animals and livestock, and farmland. Other weeds

Rhododendron, Australian Swamp Stonecrop, Parrot's Feather, Floating Pennywort and Gorse are subject to control by statutory and non statutory bodies.

A number of pests: Brown Rat, Brown-Tail Moth, Fallow Deer, Muntjac, Rabbit, Red Deer, Roe Deer, Sika Deer and Wild Boar, have been identified by the HA as causing hazard and damage to the HA network.

Species Latin Name
The Latin names for individual species are written using a system termed "binomial nomenclature". Each species is identified by a combination of "two names": its genus name and its specific epithet. The value of the binomial nomenclature system is that every species can be unambiguously identified with just two words and the same name can be used all over the world.

Survey Season Start / End
There are ideal, suitable and unsuitable periods for the surveying of flora and fauna. Each species or group of species requires a different surveying period. The close season start and end dates define when surveying should not be carried out.

UK SAP Species
Nationally and internationally important species listed in the UK Biodiversity Action Plan which have either a Priority Species Action Plan or are included in a Grouped Species Action Plan.

The UK BAP is the Government's response to the Convention on Biological Diversity signed at the 1992 Rio Earth Summit. It describes the UK's biological resources and commits a detailed plan for the protection of these resources.

HA SAP Species
Species included in the Highway Agency's Biodiversity Action Plan which have a Species Action Plan.

The HA BAP prescribes the Highways Agency's role in the conservation and enhancement of biodiversity in England within the context of its other objectives and responsibilities. In order to reflect the national scope but localised management structure of the HA, the Action Plans in the HA BAP refer to relevant national, regional and local Species Action Plans.

Local SAP Species
Species listed on local Biodiversity Action Plans.

Each Local Biodiversity Action Plan works on the basis of partnership to identify local priorities and to determine the contribution they can make to the delivery of the national Species Action Plan targets. Often, but not always, LBAPs conform to county boundary.

(Other) Species of Conservation Interest
Species included on published lists or schedules detailing their conservation status to highlight rapid population declines, but which are not protected by legislation and are not included in the UK, HA or local Biodiversity Action Plans.

Citation
A document explaining the special interest of a designated site, the habitats and species it contains and identifies the boundaries and permitted activities on it. The citation is one of the legal documents that forms part of the notification package.

WILDLIFE FEATURES

Breeding Site
An area, habitat or feature used by an animal for any stage of reproductive activity including courtship and parental care.

Commuting Route
A route used by an animal on a regular basis to move between key areas within its range.

Foraging Site/Area
An area used by species to hunt or search for food.

Hibernation Site
A place or feature which is suitable for an animal to hibernate. The characteristics of the sites vary depending on the requirements of the animal, but temperature, humidity and lack of disturbance are key attributes.

Migration / Dispersal Route
An area used by an animal or population during regular, usually seasonal, movement to and from a given area.

Nesting Site
A place of shelter constructed by an animal for the purpose of rearing young.

Nursery Site
A site selected by species that has favourable conditions for rearing young.

Over Wintering Site
A site occupied by migratory species during winter months.

Spawning Site
An aquatic environment in which a female will lay her eggs to be fertilized by a male.

Terrestrial Site
Habitat on land that is required within the range of a species associated with a water body, such as invertebrates, amphibians, water vole and otters. This includes linear features used for dispersal and as seasonal migratory routes.

Key notes
Applies to mammals, birds, reptiles, amphibians, fish and invertebrates.

WILDLIFE OBSERVATION
An incidental record received by the HA from a credible source, but not part of a survey or detailed study. An observation may be:

Anecdotal
A report of a species that has not been substantiated by a professional ecologist or recognised expert.

Call
A record of a species based on an audible recognition of its vocalisation/activity.

Road Kill
An animal killed on, or next to, the road as a result of a collision.

Sighting

A visual observation by a professional ecologist, recognised expert or other reliable source.

Sign
Evidence indicating the presence of a species at the locality, although the animal was absent or hidden at the time of the survey. Signs include: prints, faeces, hairs/ feathers, nests and foraging activity etc.

Observation Date
Date of a given observation.

WILDLIFE BARRIER
Structure designed to restrict the movement of species between habitats. Barriers include Antidazzle Fencing, Deerproof Fencing, Rabbitproof Fencing, Reptileproof Fencing, Badgerproof Fencing, Newt / Amphibianproof Fencing, Livestockproof Fencing (Sheep, Goats, Cattle and Horses), Electric Fencing (large scale stock farming), Otterproof Fencing, and Combined Fencing (e.g. newt/badger/deer).

WILDLIFE UNDERPASS STRUCTURES
Structure designed to facilitate the safe movement of species between habitats. Examples of underpasses include Badger Tunnels, Amphibian Tunnels, Otter Ledges and Combined Tunnel (e.g. badger/otter or deer/cattle).

WILDLIFE OVERPASS STRUCTURES
Structure designed to facilitate the safe movement of species between habitats that would otherwise be inhibited by a barrier in the landscape, such as a road. The structure will be designed to meet the specific requirements for a species or address particular problems in an area. A range of names and terms are given to these various structures, often based on their purpose. Examples of overpasses include Green / Wildlife Bridges, Bat Bridges, Deer Bridges, Badger Bridges, Livestock Bridge (Sheep, Goats, Cattle and Horses), Dormouse Rope Bridge, Squirrel Bridge and Wildlife Warning Post.

WILDLIFE HOUSING
Purpose built features to accommodate wildlife. Often such measures are used to mitigate for the loss of breeding or rest sites used by wildlife, or to enhance the value of an area for a particular species. Examples of wildlife housing include Artificial Badger Setts, Artificial Otter Holt, Dormouse Boxes / Tubes, Bat Boxes, Bird Boxes (kestrel, barn owl, and garden birds), Artificial Refuge (Amphibians / Reptiles), Frog / Toad Box, Hedgehog House and Insect Boxes.

EnvIS ENVIRONMENTAL ELEMENTS DEFINITIONS – WATER

Note: For all Highway Drainage Items refer to DMRB Volume 4 Section 2 Part 4. HD 43/04 Drainage Data Management System for Highways (HADDMS). Drainage items definitions are taken from HADDMS. This may include additional notes for clarity.

OUTPUT HIGHWAY DRAINAGE POINT ITEMS

HA roads drainage system items occurring at definable point locations on the drainage network.

Outfall
The point where one drainage system discharges to a watercourse.

Soakaway
This may be an underground pit, usually filled with large aggregate, or a chamber that enables water to soak into the ground. A soakaway may also be a length of porous pipeline with a granular surround or a rubble filled trench (exfiltration ditch).

Key notes
These (above) point items may include devices for the control of flow and/or pollutants, for example sluice gates, penstocks or flapvalves. Reference should be made to HD43/04 (Section 5.14) for a full list of flow control devices

TREATMENT HIGHWAY DRAINAGE POINT ITEMS

Treatment items defined at a single point**.**

Gully
A chamber at the side of the road connected to a drainage system to receive surface water and to trap debris. The chamber is usually surmounted by a surface grating. A gully may incorporate a sump to retain sediment.

Catchpit
A pit in a drainage system whose base lies below the level of the outgoing invert. It prevents silt or solid material from moving downstream.

Interceptor
A structure placed where surface water enters the drainage system with a similar function to that of a catch pit. A petrol and oil interceptor is a gravity separator which uses the difference between the specific gravity of water and fuel/oil to trap the latter.

Key notes
These point items may include devices for the control of flow and/or pollutants. (Refer. HD43/04 Section 5.14, as above)

OUTPUT HIGHWAY DRAINAGE CONTINUOUS SUB SURFACE ITEMS

Continuous (i.e. linear) drainage items that generally transfer flow below the ground.

Culvert
An enclosed conduit, usually a large pipe, for conveying a watercourse or ditch drain, below the carriageway or adjacent ground.

Land Drainage
Pipework installed for the purpose of removing groundwater.

OUTPUT HIGHWAY DRAINAGE CONTINUOUS SURFACE CHANNEL ITEMS
Continuous (i.e. linear) drainage items that generally transfer flow above the ground (along the surface of the item).

Grip
A shallow trench situated across the verge of a road, to lead surface water away from the carriageway. May be lined or unlined (may be lined or unlined).

Piped Grip
A piped conduit across the verge of the road to lead surface water away from the carriageway

COMBINED (OUTPUT/TREATMENT) HIGHWAY DRAINAGE CONTINUOUS SURFACE CHANNEL ITEMS

Ditch
A trench, generally parallel to the carriageway. May be lined or unlined.

Key notes
May incorporate structures for the control of flow and/or pollutants.

OUTPUT HIGHWAY DRAINAGE CONTINUOUS SURFACE AND SUB SURFACE CHANNELS AND DRAIN ITEMS

Continuous (i.e. linear) drainage items that generally transfer flow both above and below the ground.

Counterfort Drain
A field drain, other than a filter drain running parallel to a carriageway, surrounded by granular material such as gravel. Includes herringbone and intercepting drains.

Informal Drain
Also known as “over the edge drainage” where surface water flows off the carriageway and across the verge to a drainage system – usually a ditch.

COMBINED (OUTPUT/TREATMENT) HIGHWAY DRAINAGE CONTINUOUS SURFACE AND SUB SURFACE CHANNELS AND DRAIN ITEMS

Filter Drain
A field drain, usually running parallel and adjacent to a carriageway, surrounded by granular material, within which may be laid porous or perforated pipe.

Narrow Filter Drain
An edge of pavement subsurface drain that comprises filter material and a carrier pipe.

Combined Surface and Groundwater Filter Drains
Also known as French Drains, these comprise a perforated or porous carrier pipe surrounded by bedding material within a trench filled with filter material. The surface of the drain may be topped with a range of materials or exposed filter material. The system drains both surface and sub-surface water.

COMBINED (OUTPUT/TREATMENT) HIGHWAY DRAINAGE CONTINUOUS SURFACE CHANNEL ITEMS

Linear items in the drainage network that provide treatment processes throughout their length, but that may also discharge into the environment.

Swales and Grassed Channels
Swales are wide shallow grassed channels normally located adjacent to carriageways but often separated by a section of verge. Swales provide flood attenuation and provide entrapment and filtration of suspended (silt etc.) load contaminants and some biological action on dissolved contaminants.

Grassed Channels are of similar dimensions to concrete channels, but generally narrower than swales and are located at the edge of the pavement. Grassed channels provide entrapment and filtration of suspended (silt etc.) load contaminants. Biological action on dissolved contaminants may occur but more limited than with swales.

Both may be lined or unlined.

Key notes
May incorporate structures for the control of flow and/or pollutants.

TREATMENT HIGHWAY DRAINAGE REGIONAL ITEMS

Treatment and mitigation processes within the drainage network.

Detention Pond
Provides temporary storage of run-off following heavy rainfall and discharges it later from highway drainage systems to a different system. A detention pond is designed to be dry for extended periods.

May be lined or unlined and may incorporate structures for the control of flow and/or pollutants.

Pollution Containment Pond/Tank
This is a device or an area located immediately upstream of the outlet from a drainage system to a watercourse. Having a minimum volume of $20m^3$ it should incorporate a shut off mechanism. Its purpose is to contain spillages of potentially polluting liquids.

Sedimentation Pond
Sedimentation ponds provide some degree of water treatment by allowing sediment to settle out.

May be lined or unlined and may incorporate structures for the control of flow and/or pollutants.

COMBINED (OUTPUT/TREATMENT) HIGHWAY DRAINAGE REGIONAL ITEMS
HA roads drainage system items occurring over a defined aerial location on the drainage network that provide treatment but that also discharge into the environment.

Infiltration Basin
Infiltration basins are designed to retain storm water flows and allow the water to percolate through a filter layer which may typically comprise porous material, such as gravel. Discharges into ground. May incorporate structures for the control of flow and/or pollutants.

Will provide some degree of treatment through settlement, retention and physico/chemical and (potentially) micro-biological processes.

Retention Pond
A retention pond allows water to be held for long periods. It may allow for the controlled release of water and in some instances water is allowed to seep into permeable banks or gravel. Will retain some water at all times.

May be lined or unlined and may incorporate structures for the control of flow and/or pollutants.

Wetland
(Constructed) wetlands are areas that are permanently saturated by surface water or groundwater. They are able to support aquatic and/or semi-aquatic vegetation.

May be lined or unlined and may incorporate structures for the control of flow and/or pollutants.

Storm water retention period may be maximised to optimise biological treatment processes. May include by-pass channels, be lined or unlined and may incorporate other structures (e.g. oil interceptors, penstocks, sluice gates etc.) for the control of pollutants entering the wetland.

OTHER OUTPUTS/INPUTS

Catchment Area
Catchment area of highway drainage system (i.e. that catchment area that serves definable "output items" of drainage system or that affects defined water bodies (e.g. reach of a river).

Depot and other discharges (Consented or Unconsented)
Discharges from HA maintenance depots and other points. May be consented or unconsented; to foul sewer, to surface water or to groundwater.

Water Sources Third Party Discharges
Discharges into the HA drainage system by a third party. Information should include name of third party.

SURFACE WATER RECEPTOR – FRESHWATER

Canal
Canals are artificial waterways or artificially improved rivers used for travel, shipping, or irrigation. (Note: the Water Framework Directive (WFD) will classify canals and other inland water ways as artificial water bodies).

Lake / Pond
Lakes are naturally occurring or artificially created standing water bodies. Ponds are smaller water bodies, both natural and artificial. There appears to be no defined distinction between lakes and ponds, although the lake "typology" developed to meet WFD objectives has extracted all standing water bodies of >0.5Ha in area.

Main River
Usually larger streams and rivers, but also includes smaller watercourses of strategic drainage importance. A main river is defined as a watercourse shown as such on a main river map (held by the Environment Agency), and can include any structure or appliance for controlling or regulating the flow of water in, or out of the main river. EA powers to carry out

flood defence works apply to main rivers only. Main rivers are designated by Defra and by the Welsh Assembly Government.

Ordinary Water Course
An ordinary watercourse is every river, stream, ditch, drain, cut, dyke, sluice, sewer (other than public sewer) and passage through which water flows which does not form part of a main river. On ordinary watercourses, the local authority and, where relevant, IDBs have similar permissive powers as the Agency has on main rivers. Following a Defra ruling in 2003, the EA have responsibility for Critical Ordinary Watercourses.

SURFACE WATER RECEPTOR – FRESHWATER CLASSIFICATION

EC Fisheries Designation
The EC Freshwater Fish Directive (78/659/EEC) was adopted in 1978. It requires that certain designated stretches of water (rivers, lakes or reservoirs) meet quality standards that should enable fish to live or breed in the designated water, although this will also depend on physical conditions.
The Directive identifies two categories of water - those suitable for salmonid fish and those suitable for cyprinid fish and sets different standards for these. There are two types of standards within each water category:

Imperative (I) values - these are standards that must be met if the stretch is to pass the Directive (for the stretch to be 'compliant'). Values have been set for dissolved oxygen, pH, non-ionised ammonia, total ammonium, total residual chlorine, zinc and (for thermal discharges) temperature.

Guideline (G) values - these are quality standards that should be achieved where possible. Values have been set here for other chemical parameters, such as copper, biochemical oxygen demand and suspended solids.

EC Fisheries Designation - salmonid fishery
Salmonid fish (salmon and trout) - these are generally fast flowing stretches of river that have a high oxygen content and a low level of nutrients.

EC Fisheries Designation - cyprinid fishery
Cyprinid fish (coarse fish - carp, tench, barbel, rudd, roach) - these are slower flowing waters, that often flow through lowlands.

GQA Classification Scheme
The GQA scheme is the EA's national method for classifying water quality in rivers and canals. Water quality is assessed using four separate methods: aesthetics, biology, chemistry and nutrients. The scheme is applied to "stretches" which are sub-divisions of the watercourse, each with its own water quality monitoring site.

GQA – Aesthetics
Based on sampling of 452 sites (selected because they are popular sites with visitors) in November and December 2000. Aesthetic quality is assessed by surveying sites for things which spoil the look and smell of rivers: the amount and type of litter, oil, scum, foam, sewage fungus, colour and odour. Both the water surface and the banks where there is public access are considered.

Each site is given a grade from 1 to 4 which describe its overall aesthetic quality in the following way:

Grade 1: Good
Grade 2: Fair
Grade 3: Poor
Grade 4: Bad

GQA – Biology

Based on the sampling of about 6000 sites, sampled twice during survey years, usually in the spring and the autumn. Between 1990 and 2000, surveys were carried out every five years. From 2002 onwards a three-year rolling sampling programme is being used. Macro-invertebrates (small animals that can be seen with the naked eye) found in samples are identified and the range of species found is compared with the range that would be expected in the river if it was not polluted or physically damaged. This takes account of natural differences expected due to different types of geology and flow, for example. One of six grades is allocated to each river length, as shown in the table below.

Classification	Description
A – Very good	Biology similar to that expected for an unpolluted river
B – Good	Biology is a little short of an unpolluted river
C – Fairly good	Biology worse than expected for unpolluted river
D – Fair	A range of pollution tolerant species present
E –Poor	Biology restricted to pollution tolerant species
F – Bad	Biology limited to a small number of species very tolerant of pollution

GQA - Chemistry

Samples from canals and rivers are taken monthly over a 3 year period. Samples are analysed for indicators of organic pollution- ammonia (NH_4-N), biochemical oxygen demand (BOD) and dissolved oxygen (DO). The results for a site are averaged and percentiles are calculated. These are compared with limits set for each of the six grades shown and a grade is assigned to the length of river (based on the lowest grade from any of the three determinants). The grades characteristics are described below (see also DMRB11.3.10).

Grade/ Quality	DO %Sat 10%tile	BOD mg/l	NH_4-N MgN/l 90%tile	Typical characteristics
A - Very good	80	2.5	0.25	All abstractions. Very good salmonid fisheries. Cyprinid fisheries. Natural ecosystems
B - Good	70	4	0.6	All abstractions. Salmonid fisheries. Cyprinid fisheries Ecosystems at or close to natural.
C - Fairly good	60	6	1.3	Potable supply after advanced treatment. Other abstractions. Good cyprinid fisheries. Natural ecosystems, or those corresponding to good cyprinid fisheries
D - Fair	50	8	2.5	Potable supply after advanced treatment. Other abstractions. Fair cyprinid fisheries. Impacted ecosystems.
E - Poor	20	15	9.0	Low grade abstraction for industry. Fish absent or sporadically present, vulnerable to pollution. Impoverished ecosystems
F – Bad	<20	>15	>9.0	Very polluted rivers which may cause nuisance. Severely restricted ecosystems.

GQA – Nutrients

Sampling periodicity as per GQA Chemistry. Samples are analysed for nitrate and orthophosphate. A grade is assigned for each of these nutrients according to the tables below. There are no set ‘good’ or ‘bad’ concentrations for nutrients in rivers in the way that we describe chemical and biological quality. Rivers in different parts of the country have naturally different concentrations of nutrients. ‘Very low’ nutrient concentrations, for example,

are not necessarily good or bad; the classifications merely state that concentrations in this river are very low relative to other rivers.

Classification for Phosphate	Grade limit (mgP/l) Average	Description
1	0.02	Very low
2	0.06	Low
3	0.1	Moderate
4	0.2	High
5	1.0	Very high
6	>1.0	Excessively high
Classification for Nitrate	Grade limit (mg NO_3/l) Average	Description
1	5	Very low
2	10	Low
3	20	Moderately low
4	30	Moderate
5	40	High
6	>40	Very high

River Ecosystem Classification
These define River Quality Objectives (RQOs) established under the Surface Water (Rivers Ecosystem Classification) regulations 1994 and provide parameter concentrations for each river class. RQOs are also related to GQA classifications. The different classes are defined as RE1 –RE5. Further information on the measured limits for each class (based on dissolved oxygen, Biochemical Oxygen Demand, total ammonia, dissolved ammonia, pH, dissolved copper and total zinc concentrations) is provided in DMRB11.3.10 and on the EA website.

Lake/Pond – OECD Classification
A classification scheme based on the trophic status of standing waters developed by the OECD and based on the concentrations of total phosphorous in lakes and the typical algal abundance associated with these concentrations. This is split into three main trophic classes with two boundary classes, as defined below:

Classification	Total P	Chloro-phyll a		Transp. Secchi disk depth		Description
	mean µg/l	mean µg/l	max µg/l	mean µg/l	Max µg/l	
Ultra – oligotrophic	<4	<1.0	<2.5	>12	>6	extreme nutrient deficiency
Oligotrophic	<10	<2.5	<8.0	>6	>3	nutrient poor
Mesotrophic	10- 35	2.5 – 8.0	8 -25	6-3	3-1.5	slightly to moderately enriched
Eutrophic	35- 100	8.0- 25	25-75	3-1.5	1.5-0.7	Excessively enriched
Hypertrophic	>100	>25	<75	<1.5	<0.7	Extreme eutrophication

SURFACE WATER RECEPTOR – TIDAL WATER

Coastal
For the purposes of the EnvIS, coastal waters are defined as those tidal waters, immediately adjacent to the shoreline. Coastal waters are defined, in accordance with WFD, as extending from the coastline (Mean High Water) or seaward limit of adjacent transitional water, to 1nm seaward of the UK Territorial Baseline (provided by the UK Hydrographic Office).

Coastal waters are not currently classified by the EA, although a scheme is being developed for WFD.
The quality of coastal waters may be classified according to the EC Bathing Water Directive (76/160/EEC) although this classification is limited to those bathing waters monitored by the EA (just under 500 in 2004). Bathing waters are monitored for total coliform bacteria, faecal

coliform bacteria and faecal streptococci. These are then classified as excellent, good or poor according to the ranges of data identified.

Estuarine
EN defines estuaries as:
"a *semi-enclosed coastal body of water which has a free connection to the open sea and within which sea water is measurably diluted with fresh water derived from land drainage" (Pritchard 1952) or;*

"an inlet of the sea reaching into a river valley as far as the upper limit of tidal rise" (Fairbridge 1980).

Under WFD "typology" these will be defined as transitional waters: surface waters that are partly saline in character. Upper estuarine regions are tidal but freshwater will be included (in the transitional waters "typology") as part of the lower reaches of river water bodies and typed accordingly. The land-ward limits of transitional water bodies are determined by the chloride content.

SURFACE WATER RECEPTOR – TIDAL WATER CLASSIFICATION

Estuarine Water Quality Standards
Estuaries in England and Wales were classified every five years as good, fair, poor or bad based on biological quality (presence of fish species), aesthetic quality (based on, e.g. sewage derived litter) and water quality (dissolved oxygen). A new classification scheme is being developed for WFD and re-classification of data will commence in 2006.

SURFACE WATER ABSTRACTIONS

Highways Agency Abstractions
Location of surface water abstractions – made for Highways Agency depots etc. May be licensed (abstractions> $20m^3$/day) or unlicensed (<$20m^3$/day).

Third Party Abstractions
Surface water abstractions by third parties 2 km upstream or 5 km downstream from HA property/highway.

GROUND WATER RECEPTOR – AQUIFER CLASSIFICATION

Major Aquifer
Highly permeable formations usually with known or probable presence of significant fracturing. Highly productive strata of regional importance, often used for large potable abstractions.

Minor Aquifer
Fractured or potentially fractured but with high intergranular permeability . Generally only support locally important abstractions. Variably porous/permeable but without significant fracturing. Generally only support locally important abstractions.
Non-Aquifer
Formations with negligible permeability. These only support very minor abstractions, if any.

Soil Vulnerability Classification
This is fully defined in the EA PPPG. A summary description is given below:

There are three classes, in two cases further split into sub –classes as follows:

Class description

Class/ description	Sub class/ description
Soils of high leaching potential (H) – little ability to attenuate diffuse source pollutants	H1 – soils that readily transmit liquid discharge – shallow or subject to by-pass flow
	H2 – deep, permeable coarse textured soils, rapidly drained
	H3 – coarse textured or moderately shallow soils with some attenuation capacity due to organic or clay content
Soils of intermediate leaching potential (I) – moderate ability to attenuate diffuse source pollutants	I1 – soils which can possibly transmit a wide range of pollutants
	I2 – soils unlikely to transmit adsorbed pollutants but can transmit weakly adsorbed pollutants or liquid discharges
Soils of low leaching potential (L) - liquids unlikely to penetrate due to horizontal water movement or high attenuation capacity	

Key notes
Only applies to major and minor aquifers.

GROUND WATER RECEPTOR – SOURCE PROTECTION
As defined in the EA PPPG. The policy also provides acceptability matrices which define discharges and other activities that are acceptable, limited or unacceptable in each zone. These responses are:
Response 1 (R1) - Prohibit/object in principle

R2 - presumption against
R3 - consent to discharge
R4 – no objection subject to standard conditions
R5 No objection

For further information, refer DMRB 11.3.10 or EA PPPG

Zone I
Inner Source Protection Zone – for protection from effects of human activity that may have an immediate effect on the source. Defined by 50 day travel time to source and minimum 50m radius.

Zone II
Outer Source Protection - defined by 400 day travel time.

Zone III
Source Catchment - complete catchment area of a groundwater source.

Zone IV
Zone of Special Interest - may be defined and highlights areas where known local conditions mean that potentially polluting activities could impact on a groundwater source even though the area is outside the normal catchment of that source.

GROUND WATER ABSTRACTIONS

Highways Agency Abstractions
Location of ground water abstractions – made for Highways Agency depots etc. May be licensed (abstractions> $20m^3$/day) or unlicensed (<$20m^3$/day).

Third Party Abstractions
Ground water abstractions by third parties 2 km upstream or 5 km downstream from HA property/highway.

FLOODPLAIN RECEPTOR
Floodplains are flat lying areas adjacent to a watercourse, tidal lengths of a river or the sea where water flows in times of flood or would flow but for the presence of flood defences where they exist. For the purposes of the EnvIS these areas are defined as those areas shown by the EA Flood Map - as shown on the EA website.

Planning Policy Statement 25 (PPS25) requires all planning applications to apply a sequential approach to the minimisation of flood risk. The Flood Zones are the starting point for the sequential approach. Zones 2 and 3 are shown on the Environment Agency Flood Map, with Flood Zone 1 being all the land falling outside Zones 2 and 3. These Flood Zones refer to the probability of sea and river flooding only, ignoring the presence of existing defences.

Functional Floodplain (Zone 3a)
PPS 25 defines the Functional Flood Plain (Zone 3a) as follows: "This zone comprises land where water has to flow or be stored in times of flood. Strategic Flood Risk Assessments (SFRAs) should identify this Flood Zone (land which would flood with an annual probability of 1 in 20 (5%) or greater in any year or is designed to flood in an extreme (0.1%) flood, or at another probability to be agreed between the LPA and the Environment Agency, including water conveyance routes)".

Zone 1 (Low Probability)
These are those areas not defined as Zones 2 or 3 by the EA indicative flood maps. PPS 25 defines Zone 1 Low Probability as follows: "This zone comprises land assessed as having a less than 1 in 1000 annual probability of river or sea flooding in any year (<0.1%)." These areas may however be subject to a flood recorded on the road surface – perhaps the result of poor drainage beneath the road or sensitivity to drainage channel maintenance.

Key notes
If Zone 1 (Low probability), date of flooding is required.

River
Refer to EA website Flood Map that shows the river flood plain in a number of mapped zones – as below.

Mapped Zone	Description
Dark blue	Area that could be flooded (if no defences) by a flood that has a 1% (1in 100) or greater chance of happening each year. Defined in PPS 25 as Flood Zone 3a – high probability
Light blue	Additional extent of an extreme flood with up to a 0.1% (1 in 1000) chance of happening each year. Defined in PPS 25 as Flood Zone 2 – Medium Probability
Hatched areas	Show areas benefiting from flood defences - i.e. those areas that would flood in a 1% (1 in 100) event if the defences were not present.

Tidal
Refer to EA website Flood Map that shows the tidal flood plain in a number of mapped zones. These are defined as above (i.e. as for rivers) but with the dark blue zone (Flood Zone 3a) representing areas that would flood under a 0.5% (1 in 200) flood and the hatched zones represented those areas defended from that 0.5% flood. Note that the definition for Light blue mapped areas (Flood Zone 2) is the same as for Rivers.

Flood likelihood

Within each of the mapped zones described above, both for riverine and tidal flood areas, the EA defines flood likelihood at particular locations (including for the influence of flood defence, predicted flood levels and ground levels). The likelihood is defined on the following basis:

Significant	the chance of flooding in any year is greater than 1.3% (1 in 75)
Moderate	the chance of flooding in any year is 1.3% (1 in 75) or less , but greater than 0.5% (1 in 200)
Low	the chance of flooding in any year is 0.5% (1 in 200) or less

EnvIS ENVIRONMENTAL ELEMENTS DEFINITIONS – CULTURAL HERITAGE

Protection Grade
This refers to the Monument Protected Status, with the appropriate associated Monument Protection Grade, listed below:

- Historic Wreck
- Listed Building
- Non Designated
- Parks and Gardens of Special Historic Interest
- Register of Historic Battlefields
- Scheduled Ancient Monument
- World Heritage Site
- Listed Building beyond 100m of HA boundary

Listed Grade
Listed Building, Listed Building beyond 100m of HA boundary,
or Park and Garden of Special Historic Interest reference code.

Grade Number
Unique reference code relating to a Listed Building, Listed Building beyond 100m of HA boundary,
, Park or Garden of Historic Interest, Scheduled Ancient Monument or World Heritage Site.

Local HER
Local HER (Historic Environment Record) monument number

Short Description
Short description of the site.

Feature Class
Provides a method of categorising cultural heritage Elements to assist the Service Provider in assigning an appropriate management/maintenance response. The character of cultural heritage Elements, and their situations, varies widely, and management proposals will also vary depending upon the form, material, extent, survival and vulnerability of the Element. Five broad cultural heritage Element categories have been defined:

Buried material
Earthworks
Findspot
Historic landscape
Industrial
Palaeoenvironmental
Standing structure
Underwater

Monument Type
Includes both architectural terms and archaeological monument types. There are currently four thesauri for monument types that cover most Cultural Heritage Features likely to be encountered:

Defence of Britain Thesaurus
Thesaurus of Monument Types
English Heritage Thesaurus of Maritime Craft Types
English Heritage Historic Aircraft Thesaurus

Monument Class
Refers to English Heritage's National Monuments Record Thesaurus, according to which there are 18 classes of monument as follows:

Agriculture and Subsistence
Civil
Commemorative
Commercial
Communications
Defence
Domestic
Education
Gardens Parks and Urban Spaces
Health and Welfare
Industrial
Maritime
Monument – by form
Recreational
Religious, Ritual and Funerary
Transport
Unassigned
Water supply and drainage

See http://www.english-heritage.org.uk/thesaurus/mon_types/default.htm

Monument Form
Refers to English Heritage's National Monument Record Thesaurus covering the existing physical remains of a monument, or the means by which a monument has been identified where no physical remains exist. There are 30 forms of monument as follows.

Architectural Component
Artefact Scatter
Botanical Feature
Building
Conjectural Evidence
Cropmark
Demolished Building
Destroyed Monument
Documentary Evidence
Earthwork
Enhanced Natural Feature
Extant Building
Find
Levelled Earthwork
Marine Geophysical Evidence
Modified Surface
Moved Building
Moved Structure
Natural Feature
Oral Evidence
Placename Evidence
Ruined Building
Stratified Find
Structure
Submerged Monument

Subterranean Feature
Sub Surface Deposit
Uncertain Feature
Vessel Structure
Wreckage

Period
Recoded as defined DMRB Volume 11, Section 3, part 2 Cultural Heritage.
See.http://www.standardsforhighways.co.uk/dmrb/vol11/section3.htm

Prehistoric
- Early Prehistoric
- Later Prehistoric
- Prehistoric or Roman

Palaeolithic
- Lower Palaeolithic
- Middle Palaeolithic
- Upper Palaeolithic

The general term 'Palaeolithic' covers the whole of the period before and during the last ice age, that is, prior to about 10,000 years ago. 'Prehistoric' covers the period between the retreat of the ice and the coming of the Romans (between 10,000 and 2,000 years ago). The 'Prehistoric or Roman' category is for use where Roman or earlier periods are evident but more precision is not possible.

Mesolithic
- Early Mesolithic
- Late Mesolithic (7000-4000 BC)

Neolithic
- Early Neolithic (4000-3000)
- Middle Neolithic (3500 - 2700 BC)
- Late Neolithic (3000 - 2200 BC)

Bronze Age
- Early Bronze Age (2500 - 1500 BC)
- Middle Bronze Age (1500 - 1000 BC)
- Late Bronze Age (1000 - 700 BC)

Iron Age
- Early Iron Age (800 - 400 BC)
- Middle Iron Age (400 - 100 BC)
- Later Iron Age (100 BC - AD 43)

Roman (AD 43 - 410)

Early Medieval or later
- Early Medieval (AD 410 -1066)
- Medieval (AD 1066 - 1540)
- Post Medieval (AD 1540 - 1901)
- 16th Century
- 17th Century
- 18th Century

Modern (AD 1901 to present)
- 19th Century
- 20th Century
- World War I (1914 – 1918)

World War II (1938 – 1945)
Post War (1945 – present)

Authority
Name and contact details of the statutory authority or curator.

Creator
Full name of person/organisation responsible for dataset creation.

Owner
Name and contact details of the land owner.

Other Party
Record any 3rd party interest in the Cultural Heritage Feature by any other non partner group or society.

Site Name
Address of the site or common name.

Bibliography
Source reference information.

Event Type
Identifies the event from which the record originated, which may include:

Aerial photograph
Archaeological site investigation
Auger/borehole survey
Chemical soil survey
Detailed excavation
Documentary source
Geophysical survey
Metal detector survey
Other
Remote sensing
Topographical survey
Walkover survey
Watching brief

Event Code
Any associated event code applied by the local authority or archaeological investigator.

EnvIS ENVIRONMENTAL ELEMENTS DEFINITIONS – AIR QUALITY

ROAD DATA

Road Layout
A section of road, generally corresponding to a link in the main traffic model used for the local area.

Road Layout – HA
A “trunk road” or motorway under the control of the Highways Agency, i.e. managed by an Agent of the HA.

Road Layout - Transport for London (TfL)
TfL Street Management is responsible for 580km of London's most important roads, the Red Routes. This includes all roads within Greater London which would otherwise be part of the Trunk network.

Road Layout - Local Highway Authority
Roads managed by the Local Highway Authority, which is the County Council in areas with two-tier local government and the Unitary Authority elsewhere.

Road Type - Category A
All Motorways or A-roads (DMRB Volume 11 Section 3 Part 1 Chapter 3).

Road Type - Category B
Urban roads which are neither motorways nor A-roads (DMRB Volume 11 Section 3 Part 1 Chapter 3)

Road Type - Category C
Other roads (DMRB Volume 11 Section 3 Part 1 Chapter 3)

Traffic Data Year
Year of data monitoring / collection.

AADT
Annual Average Daily Traffic. The average traffic per 24-hour period over the course of a year, including weekends.

Road Speed (mph)
The speed of traffic on the road segment under free flow conditions.

% HDV
The percentage of vehicles on the road which are classed as “Heavy Duty”, i.e. gross weight greater than 3.5 tonnes (DMRB Volume 11 Section 3 Part 1 Chapter 3).

AIR QUALITY
The process of managing air quality as implemented by Local Authorities under Part IV of the Environment Act 1995. Where two-tier local government applies, this is the District Council.

AQMA Start Date
The date on which the AQMA was designated.

AQMA – Pollutant
Each AQMA is designated due to exceedences of standards by one or more pollutants. NO2 and PM10 are the two pollutants for which road traffic may be a significant contributor to the designation.

Borderline AQMA
An area not designated under Section 83 of the Environment Act 1995, where air quality levels are close to the relevant standards or objectives and where the Local Authority believes there is a potential for standards or objectives to be exceeded in the future.

Expected Start Date
The date at which the Local Authority has estimated it might be necessary to designate an AQMA covering an area identified as a potential AQMA.

EnvIS ENVIRONMENTAL ELEMENTS DEFINITIONS – NOISE

NOISE DATA

Road Surface Segment – Quieter
Quieter road surface as identified in HA KPI. Refer to relevant standards for definitions.

Road Surface Segment - Concrete
Concrete road surface as identified in HA KPI. Refer to relevant standards for definitions.

Road Surface Segment - Other
Refer to relevant standards for definitions.

Sensitive Receptors within 300m of the road
Houses, plus "areas which are especially sensitive to noise or vibration - for example, schools, hospitals, home for the deaf, blind or for Aged Persons, laboratories containing sensitive instruments, heritage buildings and outdoor areas commonly used by people where ambient noise levels are currently believed to be below 50 dB(A)" (DMRB Volume 11 Section 3 Part 7 Chapter 8).

NOISE SCREENING
A physical barrier which reduces the noise level at sensitive receptor(s) by obstructing the transmission of sound.

Noise Bund
A noise screen in the form of a bund, false cutting or other landscape feature.

Height (m)
Height of the top of the screen relative to road level.

Length (m)
Length of noise screen (measured parallel to the road which it is screening).

Width at Base (m)
Width of the bund where the artificial bund meets the natural land surface.

Noise Barrier
A barrier in which is designed to either absorb or dissipate noise, or reflect noise back away from a particular group of receptors

Height (m)
Height of the top of the screen relative to road level.

Length (m)
Length of noise screen (measured parallel to the road which it is screening).

Width at Base (m)
Width of the barrier where the barrier meets the natural land surface.

Noise Barrier Material
A noise screen in the form of a fence, wall or other thin barrier. Timber, concrete, steel, polycarbonate are the main materials used for noise barriers. "Other/mixed" is available as another option.

ANNEX B - HIGHWAYS AGENCY OBJECTIVE

Environmental Topic	Highways Agency Objective
Landscape	Reduce the adverse effects of strategic road traffic on the countryside
Landscape	Protect and enhance the landscape character and quality of an area when designing new roads or improving existing roads
Nature Conservation and Ecology	Safeguard and enhance known populations and potentially suitable habitats for HA BAP protected species/habitat
Nature Conservation and Ecology	Safeguard and enhance known populations and potentially suitable habitats for other species/habitats of conservation interest
Nature Conservation and Ecology	Develop a greater knowledge of the location, distribution and movement etc of protected species/habitat
Water	Manage drainage on the network
Water	Reduce impact of network on watercourses, groundwater and flooding
Cultural Heritage	Protect and enhance the historic environment
Air Quality	Reduce emissions caused by road construction / maintenance activities
Air Quality	Reduce emissions caused by road operation (vehicular movement)
Noise	Reduce noise nuisance caused by road operation (vehicular movement)
Noise	Reduce noise nuisance caused by road construction / maintenance activities
Material Resources and Waste	Reduce the use of primary materials
Material Resources and Waste	Increase the re-use of materials
Material Resources and Waste	Increase the use of recycled and secondary materials
Material Resources and Waste	Reduce the production of waste, especially hazardous waste

ANNEX C – ENVIRONMENTAL OBJECTIVES

Environmental Objective	Definition
Landscape Integration	Integrate the strategic road with the character of the surrounding landscape by maintaining the matrix of local vegetation patterns, blending with local landform and softening views of the strategic road, its infrastructure and its traffic.
Visual Screening	Mitigation against adverse visual impacts by screening views of the strategic road and associated infrastructure from properties and public viewpoints, including rights of way and public open space.
Visual Amenity	Maintain interest, variety and an acceptable visual appearance for both road users and adjacent public viewers by creating / maintaining views to the wider landscape, providing seasonal variation and creating a 'sense of place' via landmark features, either plant species, landform / geology, the design and materials used for structures and furniture, and the special arrangements.
Auditory Amenity	Reduce the adverse noise impact of highway traffic or construction on adjacent properties or publicly accessible areas by providing and maintaining measures to reduce noise pollution.
Nature Conservation and Ecology	Protect, manage and enhance the nature conservation value of the highway estate and integrate with and protect adjacent habitats and locations containing protected species, or other locally important species or habitats.
Enhancing the Built Environment	Enhance the landscape and built Elements of the highway with surrounding features, to reflect the scale, character and materials of the local townscape or community through which the highway passes. The needs and amenity of the public living / working in or utilising areas within or adjacent to the highway, including pedestrians, cyclists and those using public transport and local facilities.
Protect Cultural Heritage	Conserve and enhance the physical nature and appearance and setting of existing features within and adjacent to the highway, where they are afforded statutory protection, or make a material contribution to the quality and character of the local area.
Manage Water Quality	To undertake and maintain appropriate measures to mitigate impacts on local water courses, groundwater and other areas sensitive to runoff of pollutants from the strategic road network.
Manage Drainage	To undertake and maintain appropriate measures, to minimise impacts on areas sensitive to flooding or hydrological changes, arising from highway construction, operation and maintenance.
Manage Air Quality	Implement measures to reduce air emissions and improve air quality, during highway construction, maintenance and operation.
Manage Material Usage	To minimise the production of waste, particularly hazardous waste, and maximise the reuse and recycling of waste.

ANNEX D, ENVIRONMENTAL ELEMENT / ENVIRONMENTAL OBJECTIVES MATRIX

Environmental Objective Relationship - Landscape		Environmental Objectives									
		Landscape integration	Visual screening	Visual amenity	Auditory amenity	Nature Conservation and Ecology	Enhancing the Built Environment	Protect Cultural Heritage	Manage Water Quality	Manage Drainage	Manage Air Quality
Environmental Element	***Grassland***										
	Amenity Grass Areas	♦		♦			♦				
	Grass Reinforced Walls	♦	♦	♦	♦	♦	♦				
	Grassland with Bulbs	♦		♦		♦	♦				
	Heath and Moorland	♦		♦		♦					
	Open Grassland	♦		♦		♦					
	Rock and Scree	♦		♦		♦					
	Species Rich Grassland	♦		♦		♦					
	Native Vegetation										
	High Forest	♦	♦	♦		♦					
	Individual Trees	♦	♦	♦		♦	♦				
	Linear Belts of Trees and Shrubs	♦	♦	♦		♦					
	Scattered Trees	♦	♦	♦		♦	♦				
	Scrub	♦				♦					
	Shrubs	♦	♦	♦		♦					
	Shrubs with Intermittent Trees	♦	♦	♦		♦					
	Veteran Tree			♦		♦	♦	♦			
	Woodland	♦	♦	♦		♦					
	Woodland edge	♦	♦	♦		♦					
	Ornamental Vegetation										
	Amenity Trees and Shrubs	♦	♦	♦			♦				
	Climbers or Trailers	♦	♦	♦		♦	♦				
	Groundcover	♦		♦		♦	♦				
	Off Site Planting	♦	♦	♦		♦	♦				
	Ornamental Shrubs	♦	♦	♦			♦				
	Native Hedgerows										
	Combined Hedgerow and Wall	♦	♦	♦	♦	♦					
	Historically Important Hedgerow	♦	♦	♦	♦	♦		♦			
	Native Species Hedgerows with Trees	♦	♦	♦	♦	♦					
	Native Species Hedgerows	♦	♦	♦	♦	♦					
	Native Species Hedges (Managed)	♦	♦	♦	♦	♦					
	Ornamental Hedgerows										
	Ornamental Species Hedgerows	♦	♦	♦	♦		♦				
	Earthworks										
	Earthworks returned to Agricultural use	♦									
	False Cuttings	♦	♦	♦							
	Strengthened Earthworks	♦									

Environmental Objective Relationship - Landscape		Environmental Objectives									
		Landscape integration	Visual screening	Visual amenity	Auditory amenity	Nature Conservation and Ecology	Enhancing the Built Environment	Protect Cultural Heritage	Manage Water Quality	Manage Drainage	Manage Air Quality
Environmental Element	***Water Bodies***										
	Banks and Ditches								♦		
	Marsh and Wet Grassland	♦		♦		♦			♦		
	Reed Beds	♦		♦		♦			♦		
	Water Bodies and Associated Plants	♦		♦		♦			♦		
	Hard Landscape										
	Block Walls		♦	♦	♦		♦				
	Brick Walls	♦	♦	♦	♦		♦				
	Dry Stone Walls	♦	♦	♦	♦	♦	♦				
	Stone Walls	♦	♦	♦	♦	♦	♦				
	Highways Boundary Fences	♦	♦	♦	♦		♦				
	Railings	♦	♦	♦	♦		♦				
	Art			♦							
	Gateway Features			♦							
	Paving	♦		♦			♦				
	Street Furniture			♦			♦				

Environmental Element	Environmental Objective Relationship - Nature Conservation and Ecology	Environmental Objectives									
		Landscape integration	Visual screening	Visual amenity	Auditory amenity	Nature Conservation and Ecology	Enhancing the Built Environment	Protect Cultural Heritage	Manage Water Quality	Manage Drainage	Manage Air Quality
	Habitats										
	Phase 1 Habitat Survey (JNCC)	♦				♦					
	Wildlife Corridor	♦		♦		♦					
	Species										
	Species Latin Name					♦					
	Wildlife Features										
	Breeding Site					♦					
	Commuting Route					♦					
	Foraging Site / Area					♦					
	Hibernation Site					♦					
	Migration / Dispersal Route					♦					
	Nesting Site					♦					
	Nursery Site					♦					
	Over Wintering Site					♦					
	Spawning Site					♦					
	Terrestrial Site					♦					
	Wildlife Barrier										
	Antidazzle Fencing					♦					
	Badgerproof Fencing					♦					
	Combined Fencing					♦					
	Deerproof Fencing					♦					
	Electric Fencing					♦					
	Livestockproof Fencing					♦					
	Newt / Amphibianproof Fencing					♦					
	Otterproof Fencing					♦					
	Rabbitproof Fencing					♦					
	Wildlife Underpass Structures										
	Amphibian Tunnel					♦					
	Combined Tunnel					♦					
	Badger Tunnel					♦					
	Otter Ledge					♦					

Environmental Objective Relationship - Nature Conservation and Ecology		Environmental Objectives									
		Landscape integration	Visual screening	Visual amenity	Auditory amenity	Nature Conservation and Ecology	Enhancing the Built Environment	Protect Cultural Heritage	Manage Water Quality	Manage Drainage	Manage Air Quality
Environmental Element	***Wildlife Overpass Structures***										
	Badger Bridge					♦	♦				
	Bat Bridge					♦	♦				
	Deer Bridge					♦	♦				
	Dormouse Bridge					♦					
	Green / Wildlife Bridge	♦		♦		♦	♦				
	Livestock Bridge					♦	♦				
	Squirrel Bridge					♦					
	Wildlife Housing										
	Artificial Badger Sett					♦					
	Artificial Otter Holt					♦					
	Artificial Refuge					♦					
	Bat Box					♦					
	Bird box					♦					
	Dormouse Box / Tube					♦					
	Frog / Toad Box					♦					
	Hedgehog House					♦					
	Insect Box					♦					

	Environmental Objective Relationship - Water	Environmental Objectives									
		Landscape integration	Visual screening	Visual amenity	Auditory amenity	Nature Conservation and Ecology	Enhancing the built environment	Protect Cultural Heritage	Manage Water quality	Manage Drainage	Manage Air Quality
Environmental Element	***Output Highway Drainage Point Items***										
	Outfall								♦	♦	
	Soakaway								♦	♦	
	Treatment Highway Drainage Point Items										
	Catchpit								♦		
	Gully (sump or pot)								♦		
	Interceptor								♦		
	Output Highway Drainage Continuous Sub- surface Items										
	Culvert									♦	
	Land Drainage									♦	
	Output Highway Drainage Continuous Surface Channel Items										
	Grip									♦	
	Piped Grip									♦	
	Combined (Output/Treatment) Highway Drainage Continuous Surface Channel Items										
	Ditch								♦	♦	
	Output Highway Drainage Continuous Surface and Sub-surface Channels and Drain Items										
	Counterfort Drain									♦	
	Informal Drain									♦	
	Combined (Output/Treatment) Highway Drainage Continuous Surface and Sub-surface Channels and Drain Items										
	Combined Surface and Groundwater Filter Drain								♦	♦	
	Filter Drain								♦	♦	
	Narrow Filter Drain									♦	
	Combined (Output/Treatment) Highway Drainage Continuous Surface Channel Items										
	Swales and Grassed Channels			♦					♦	♦	

	Environmental Objective Relationship - Water	Environmental Objectives									
		Landscape integration	Visual screening	Visual amenity	Auditory amenity	Nature Conservation and Ecology	Enhancing the built environment	Protect Cultural Heritage	Manage Water quality	Manage Drainage	Manage Air Quality
Environmental Element	***Treatment Highway Drainage Regional Items***										
	Detention Pond								♦	♦	
	Pollution Containment Pond / Tank								♦	♦	
	Sedimentation Pond								♦	♦	
	Combined (Output/Treatment) Highway Drainage Regional Items										
	Infiltration Basin								♦	♦	
	Retention Pond								♦	♦	
	Wetland								♦	♦	
	Other Outputs/Inputs										
	Catchment Area									♦	
	Depot and other discharges								♦	♦	
	Water Sources Third Party Discharges								♦	♦	
	Surface Water Receptor – Freshwater										
	Canal								♦	♦	
	Lake / Pond								♦	♦	
	Main River								♦	♦	
	Ordinary Water Course								♦	♦	
	Surface Water Receptor - Tidal Water										
	Coastal								♦		
	Estuarine								♦	♦	
	Groundwater Receptor – Aquifer Classification										
	Major Aquifer								♦		
	Minor Aquifer								♦		
	Non Aquifer								♦		
	Floodplain Receptor										
	River									♦	
	Tidal									♦	

Environmental Objective Relationship - Cultural Heritage		Environmental Objectives									
		Landscape integration	Visual screening	Visual amenity	Auditory amenity	Nature Conservation and Ecology	Enhancing the Built Environment	Protect Cultural Heritage	Manage Water Quality	Manage Drainage	Manage Air Quality
Environmental Element	Register of Historic Battlefields	♦						♦			
	Historic Wreck							♦			
	Listed Building			♦				♦			
	Parks and Gardens of Special Historic Interest	♦		♦				♦			
	Scheduled Monument (SM)			♦				♦			
	World Heritage Site			♦				♦			
	Non Designated	♦		♦				♦			

Environmental Objective relationship - Noise

		Environmental Objectives									
		Landscape integration	Visual screening	Visual amenity	Auditory amenity	Nature Conservation and Ecology	Enhancing the Built Environment	Protect Cultural Heritage	Manage Water Quality	Manage Drainage	Manage Air Quality
Environmental Element	***Noise Screening***										
	Noise bund		♦	♦	♦						
	Noise barrier - Absorptive		♦	♦	♦						
	Noise barrier - Reflective		♦	♦	♦						

ANNEX E IAN 84/10 PART 2 ENVIRONMENTAL INVENTORY IN ENGLISH DBFO SCHEMES

When used on the M25 DBFO Scheme, this IAN 84/10 PART 2 is to be amended as follows:

Para No.	Description
All occurrences	All references to 'Highway's Agency' or 'HA' are references to the 'Department' unless otherwise stated
1.1	Delete "Service Providers" and insert "service providers" Delete "Environmental Project Managers, Area Environmental Managers and Environmental Specialists" and insert "all appropriate staff, in particular environment specialists"
1.2	Delete "Service Providers" and insert "service providers" Delete "HA and environmental objective(s)" and insert "Department's environmental objective(s)"
2	Delete "Service Providers" and insert "service providers"
2.4	Delete "HA" and insert "Highways Agency" at all occurrences Delete "Service Providers" and insert "service providers"
2.5	Delete "Service Providers" and insert "service providers" at the first occurrence
3.1	Delete ", The Network Management Agent" and insert "The DBFO Co" Delete ", to Network Management Agents" and insert "when"
3.2.1	Delete "by the HA" and insert "by the Highways Agency" Delete "HA and" and insert "Department's" at both occurrences
3.2.2	Delete "by the HA" and insert "by the Highways Agency" Delete "HA and" and insert "Department's" at both occurrences
3.2.3	Delete "Network Management Agent" and insert " DBFO Co" Delete "Network Management Agent's" and insert "DBFO Co's"
3.2.4 Data retrieval	Delete "the Network Management Agent" and insert "the DBFO Co" Delete "by the HA" and insert "by the Highways Agency" at the first occurrence
3.2.4 Data submission	Delete "the Network Management Agent" and insert "the DBFO Co" Delete "HA and" and insert "Department's"
3.3	Delete "Service Providers" and insert "the DBFO Co" Delete "Network Management Agent" and insert "The DBFO Co"
Annex A	
EnvIS ENVIRONMENTAL ELEMENTS	Delete "all Service Providers" and insert "all service providers" Delete "by Service Providers" and insert "by the DBFO Co"

Para No.	Description
EnvIS ENVIRONMENTAL ELEMENTS Water Other Outputs /Inputs	In “Other Outputs /Inputs - Depot and other discharges” delete “HA”
EnvIS ENVIRONMENTAL ELEMENTS DEFINITIONS – AIR QUALITY	At ‘Road Layout – HA’ delete current entry and insert “Road Layout – HA A “Trunk road” or motorway managed by an agent of the HA.”
Annex B	Retain annex title and column heading, and ignore “All occurrences” amendment.

When used on all other English DBFO Schemes, this IAN is to be amended as follows:

Para No.	Description
All occurrences	All references to "Service Provider" or "Service Providers" or "SP" or "Highways Agency Service Providers" are references to the "DBFO Co" unless otherwise stated.
All occurrences	All references to 'Highway's Agency' or 'HA' are references to the 'Department' unless otherwise stated
1.1	Delete "Service Providers" and insert "service providers" Delete "Environmental Project Managers, Area Environmental Managers and Environmental Specialists" and insert "all appropriate staff, in particular environment specialists"
1.2	Delete "Service Providers" and insert "service providers" Delete "HA and environmental objective(s)" and insert "Department's environmental objective(s)"
2	Delete "Service Providers" and insert "service providers"
2.4	Delete "HA" and insert "Highways Agency" at all occurrences Delete "Service Providers" and insert "service providers"
2.5	Delete "Service Providers" and insert "service providers" at the first occurrence
3.1	Delete ", The Network Management Agent" and insert "The DBFO Co" Delete ", to Network Management Agents" and insert "when"
3.2.1	Delete "by the HA" and insert "by the Highways Agency" Delete "HA and" and insert "Department's" at both occurrences
3.2.2	Delete "by the HA" and insert "by the Highways Agency" Delete "HA and" and insert "Department's" at both occurrences
3.2.3	Delete "Network Management Agent" and insert " DBFO Co" Delete "Network Management Agent's" and insert "DBFO Co's"
3.2.4 Data retrieval	Delete "the Network Management Agent" and insert "the DBFO Co" Delete "by the HA" and insert "by the Highways Agency" at the first occurrence
3.2.4 Data submission	Delete "the Network Management Agent" and insert "the DBFO Co" Delete "HA and" and insert "Department's"
3.3	Delete "Service Providers" and insert "the DBFO Co" Delete "Network Management Agent" and insert "The DBFO Co"
Annex A	
EnvIS ENVIRONMENTAL ELEMENTS	Delete "all Service Providers" and insert "all service providers" Delete "by Service Providers" and insert "by the DBFO Co"

Para No.	Description
EnvIS ENVIRONMENTAL ELEMENTS Water Other Outputs /Inputs	In “Other Outputs /Inputs - Depot and other discharges” delete “HA”
EnvIS ENVIRONMENTAL ELEMENTS DEFINITIONS – AIR QUALITY	At ‘Road Layout – HA’ delete current entry and insert “Road Layout – HA A “Trunk road” or motorway managed by an agent of the HA.”
Annex B	Retain annex title and column heading, and ignore “All occurrences” amendment.