16 ENVIRONMENTAL MANAGEMENT

16.1 Introduction and purpose

The Environmental Impact Assessment has established the potential significant effects associated with the Scheme and how these can be avoided, reduced or mitigated and how environmental enhancement can be provided. To ensure these measures are properly implemented and to ensure compliance with relevant legislation and the Scheme’s Environmental Management System (EMS) it is essential there is effective environmental management throughout the construction, operation and aftercare of the Scheme.

16.2 Environmental Management System (EMS)

The JV Team will operate a Scheme-specific Environmental Management System (EMS) in compliance with BS EN ISO 14001 and ISO 14004, and the requirements of Volume 10 of the DMRB.

16.3 Construction Environmental Management Plan (CEMP)

The Construction Environmental Management Plan (CEMP) would form the basis for environmental management of the Scheme. It would ensure that environmental issues are properly addressed initially through the construction phase and establishes the basis for ensuring environmental issues and commitments are dealt with during operation and aftercare of the Scheme. The draft contents of the Construction Environmental Management Plan (CEMP) is provided in ES Volume 3, Appendix L.1.

The CEMP would be a ‘live’ document that will be developed further during Key Stage 4 (leading up to public inquiry if one is required) and Key Stage 6 (during construction) in consultation with the Statutory Environmental Bodies (SEBs). Some of the licences, method statements and the draft Register of Commitments (ROC) that would form part of the CEMP have been developed already.

A draft ROC will be provided. This would be used to keep track of all the relevant Scheme commitments and to ensure they are fulfilled. The draft ROC lists relevant commitments from legislation and commitments made within this ES (principally taken from the mitigation sections of each topic chapter). It displays ownership of each commitment made and timescales in which they should be addressed. It would be developed further during Key Stages 4 and 6 and may include further commitments made from:

- The outcomes of consultation with the landowners, SEBs and other stakeholders,
- Findings of additional surveys or supplementary information,
- Commitments made during the public inquiry (should one be required).

The ROC would be implemented through the CEMP and the Environmental Landscape and Ecology Aftercare and Management Plan (ELEAMP).

16.4 Environmental Landscape and Ecology Aftercare and Management Plan

The Environmental Landscape and Ecology Aftercare and Management Plan would be implemented by the Contractor for 5 years following the completion of Environmental Design Works. The plan shall include the following:
• Protection, management and maintenance of existing retained vegetation;
• Protection, management and maintenance of new planting, and seeding;
• Protection, management and maintenance of ecological measures, including habitat and species protection measures;
• Habitat creation areas;
• Details of areas where Japanese Knotweed or other pernicious weeds may be buried for monitoring purposes;
• Summary schedule of activities and monitoring required including timetable;
• Procedure for monitoring compliance;
• Procedures for reporting on completion and establishment of measures during the aftercare period e.g. reporting programme, site inspections, involvement of NMTWRA, reporting on success and establishment.

16.5 Maintenance Environmental Management Plan

A Maintenance Environmental Management Plan (MEMP) setting out a proposed strategy for the future maintenance and management of all Environmental Areas (including landscape and ecological areas) would be prepared for the 10-year period commencing at the issue of the Maintenance Certificate.

The MEMP shall include, but shall not be limited to, the following:

• Strategies for the regular maintenance of all Environmental Areas;
• A timetable for the implementation of each regular maintenance operation during a typical 12-month period, together with an overall 10 year timetable showing any variation to the regular maintenance tasks during the period of the MEMP and with any 20 year objectives;
• A timetable showing the anticipated date at which the Environmental Function attributed to each Environmental Area would be achieved during the 20-year period of the MEMP. (Note: This shall include the date at which any existing Environmental Area has already achieved its Environmental Function during the Contract Period, together with any additional performance criteria over and above that contained within the relevant section of DMRB Volume 10);
• A timetable showing the regular monitoring requirements for each Environmental Area, including those in relation to habitats and species and/or water quality, as agreed with the relevant Statutory and Non-Statutory bodies (e.g. NRW);
• Any supporting information as considered appropriate by the Contractor including agreements made with third parties, (copy correspondence to be included); conclusions of the Environmental Performance Reports.

16.6 Environmental Master Plan

The environmental mitigation measures proposed within this ES are illustrated on the Environmental Masterplan (refer to Volume 2, Figure 16.1) and follow the ‘Functions’ and ‘Elements’ methodology as outlined in DMRB Volume 10, Section 0.16.1, 16.2, 16.3.

All mitigation measures have been ascribed the purpose or Environmental ‘Function’ and the nature or Landscape or Environmental ‘Element’. These are described as follows:
Environmental Functions

The codes identify the objectives to the various features of the highway estate. This includes the ability, when appropriate, to ascribe highway and structural elements an environmental function that would inform its design and influence maintenance techniques.

Landscape Elements

The codes describe the core Elements of the ‘soft estate’ such as grass, planting, wetland, hedges. It also contains provision for inclusion of ‘hard’ landscape features, such as decorative railings, feature paving materials, where these are there for specific landscape reasons.

Environmental Elements

The codes describe non-landscape features, enabling the description of such ‘elements’ as Noise Attenuation measures, Water Quality controls, Protected Species, and legislated elements such as Injurious Weeds and Pests. Many of these elements interact closely with landscape functions and elements. In addition to the Environmental Functions and Elements the Environmental Masterplan includes Planning and Policy features which takes account of the relevant planning constraints.

16.7 Roles and Responsibilities

16.7.1 Environmental Coordinator

The Contractor’s Environmental Co-ordinator shall have a prominent role in the project delivery and co-ordinate the activities of the environmental specialists through the Environmental Assessment process and be responsible for the production and update of:

- The Environmental Statement;
- The Environmental Proposal Plans;
- The Assessments of Implications on European Sites (AIES) (if appropriate);
- Licences and consents (where relevant);
- The Construction Environmental Management Plan (CEMP) including its ongoing review and update throughout the contract period;
- Environmental elements of the Register of Commitments (ROC);
- Environmental elements of the Specification for Highways Works Appendices;
- The Maintenance Environmental Management Plan (MEMP).

The Environmental Coordinator shall:

- Be a full-time member of the Designers site staff. He shall spend at least one full (7.5 hour) day on site every week during Key Stage 6 and shall be supported by the Environmental Clerk of Works (ECOW).
16.7.2 Environmental Clerk of Works

The Environmental Clerk of Works shall support the Environmental Co-ordinator during construction and after care. He / she is the Environmental Coordinator’s representative on site and is responsible for overseeing construction activities to ensure all environmental commitments are met and compliance with the conditions of all licences and permits. He / she shall be a member of the Designer’s site staff, be based on site full time and shall:

- Have the authority to direct members of the Contractor’s site staff on environmental issues.
- Not be replaced except with the written approval of the Welsh Government.
- Be familiar with the process of highway design, construction, and supervision.
- Be experienced in environmental site supervision and have an appropriate level of knowledge of good industry practice.
- Undertake site inspections where necessary.
- Be responsible for ensuring all relevant licences, consents and method statements are in place prior to construction activities.
- Be responsible for maintaining and updating the CEMP and the environmental elements of the ROC.
- Shall promote awareness of the SWMP, identifying opportunities to improve waste management on site and monitoring performance.
- Be responsible for overseeing and auditing the implementation of the CEMP and environmental mitigation measures on site during KS6.
- Be responsible for identifying training needs and providing environmental training including inductions, tool box talks etc. for the Contractor’s site staff.
- Be able to demonstrate an understanding of the relevant environmental and ecological legislation and requirements for consents and licences and the constraints that they impose upon the operation and timing of works.
- Ensure consistency and compliance with legislation, policy and guidance during the construction period.
- Monitor construction activities to ensure that identified and appropriate control measures are effective and in compliance with the CEMP.
- Manage the environmental monitoring programme and review of the routine reports.
- Provide advice and assistance to site personnel on environmental matters.
- Undertake monitoring when required.
- Ensure correct procedures are followed in the event of an environmental incident.
- Assist the site foreman in maintaining environmental records.
- Dissemination of waste reduction and waste management procedures to all relevant personnel on site.

16.7.3 Site Foreman

- The site foreman will report on environmental activities to the site environmental representative and will be responsible for the following:
- Implement and maintain environmental controls on site.
- Attend to any spills or environmental incident that may occur on site.
- Report any activity that has resulted, or has the potential to result, in an environmental incident immediately to the site environmental representative / environmental manager;
- Complete daily environmental log; and
• Maintain waste register and ensure correct waste management procedures are being implemented.
Retained vegetation to provide connectivity to bat landscape

Woodland to guide wildlife

Woodland to link into existing vegetation and provide visual screening

Woodland planting to link into existing vegetation and provide visual screening

Planting native species hedge for landscape and habitat connectivity

Woodland planting to link into existing vegetation and provide visual screening

Planting native species hedge for landscape and habitat connectivity

Woodland to link into existing vegetation and provide visual screening

Retained vegetation to provide connectivity to bat landscape
Environmental Functions

- Water Quality
- Auditory Amenity
- Visual Amenity
- Nature Conservation & Biodiversity
- Enhancing the Built Environment
- Landscape Integration
- Visual Screening
- Water Quality
- Auditory Amenity
- Visual Amenity
- Nature Conservation & Biodiversity
- Enhancing the Built Environment
- Landscape Integration
- Visual Screening

Key:
- Highway
- Auditory Amenity
- Visual Amenity
- Vehicle restraint system
- Attenuation Pond
- Footpath and side stockproof fencing
- Raw fencing
- Existing Woodland
- Existing Hedgerow
- Native Woodland
- Native Woodland Edge
- Retained existing vegetation to be within Welsh Heritage Groves
- Proposed Native Hedgerow
- Individual Trees
- Areas of species-rich grassland (EFB/EFD - LE1.3) excluding visibility splays with verges, roundabouts and highway/amenity grass.
- Areas of rock with retained soils
- Retained existing vegetation to be within Welsh Heritage Groves
- Attenuation Pond
- Retained existing vegetation to be within Welsh Heritage Groves
- Proposed Native Hedgerow
- Individual Trees

Legend:
- Category A Trees to be protected.
- Vehicle restraint system
- Attenuation Pond
- Existing Public Right Of Way
- Existing National Cycle Network
- Existing Public Right Of Way
- Scheduled Ancient Monument
- Private Means Of Access
- Listed Building
- Landscape Integration
- Visual Amenity
- Water Quality
- Nature Conservation & Biodiversity
- Enhancing the Built Environment
- Landscape Integration
- Visual Screening
- Water Quality
- Auditory Amenity
- Visual Amenity
- Nature Conservation & Biodiversity
- Enhancing the Built Environment
- Landscape Integration
- Visual Screening

Notations:
1. This black & white drawing should not be amended by hand.
2. All dimensions in metres unless otherwise stated.

Figure 16.1f

ENVIRONMENTAL MASTER PLAN (a-i)

Ty Glyn, Canol Y Dre, Ruthin Denbighshire

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LE 1.2 - Grassland with Bulbs
LE 1.1 - Amenity Grass Areas

LANDSCAPE ELEMENTS
- Individual Trees
- Scattered groups of individual trees
- Scattered groups of individual trees

ENVIRONMENTAL FUNCTIONS
- Water Quality
- Auditory Amenity
- Visual Amenity
- Nature Conservation & Biodiversity
- Landscape Integration
- Visual Screening

Nurseries
Kent

EFE LE 5.1
Scattered groups of individual trees

EFB LE 2.1
Woodland planting to link into existing vegetation

EFH LE 2.1 LE 6.3
Attenuation Ponds

S115A
2.6m Underbridge

BONTNEWYDD BYPASS
MASTER PLAN (a-i)

ENVIROMENTAL MASTERS PLAN (a-i)

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Table:
- Category A Trees to be protected.
- Existing Public Right Of Way
- Proposed Native Hedgerow
- Natural Woodland
- Native Woodland Edge
- Retained existing vegetation to be within Welsh Government ownership
- Scheduled Ancien Monument
- Vehicle restraint system
- Attenuation Pond
- Existing Woodland
- Existing Hedgerow
- Native Woodland
- Native Woodland Edge

Figure 16.1g

Container Number:
Date:
Designed:

Site/Project:
Ty Glyn, Canol Y Dre, Ruthin Denbighshire

Final:

NOTES
1. THIS IS A C.A.D. DRAWING AND SHOULD NOT BE AMENDED BY HAND
2. ALL DIMENSIONS IN METRES UNLESS OTHERWISE STATED

EMK

This is a C.A.D. drawing, and should not be amended by hand. All dimensions in metres unless otherwise stated.
LE 1.2 - Grassland with Bulbs

LE 1.1 - Amenity Grass Areas

LE 1.0 Grassland

LANDSCAPE ELEMENTS

EFH

EFG

EFF

EFD

EFB

EFA

ENVIRONMENTAL FUNCTIONS

- Water Quality
- Auditory Amenity
- Heritage
- Visual Amenity
- Nature Conservation & Biodiversity
- Enhancing the Built Environment
- Landscape Integration
- Visual Screening

EFA/EFB link into existing visual screening and provide woodland planting to

EFD

Otter fencing

EFA/EFD Planing native species hedge for landscape and habitat connectivity

EFA/EFD 4.3

EFB/EFD 2.1

Woodland planting to link into existing vegetation and provide visual screening

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Woodland planting to link into existing vegetation and habitat connectivity

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