## **Appendix to Chapter 5: Description of the Development – UWF Grid Connection**

## **Appendix 5.6: Description of the UWF Other Activities**

The data and descriptions in this appendix have informed the cumulative evaluations in the EIA Main Report.

## A5.6 -5.1 Introduction to Appendix 5.6

UWF Other Activities do not form part of the permission applications, however they do form part of the Whole UWF Project and therefore this description has been prepared to facilitate the cumulative evaluation.

This Description of UWF Other Activities has been prepared in the same format as the Description of Development chapters (Main EIA Report Chapter 5's) for the UWF Grid Connection, the UWF Related Works and the UWF Replacement Forestry in particular Sections 5.2, 5.3, 5.4 and 5.5.

For ease of cross referencing the number system used here is also the same, i.e. A5.6-**5.2**, A5.65-**5.3** etc. Figures and mapping are included at the end of this appendix.

The data and descriptions in this appendix have informed the environmental factor evaluations in the EIAR Main Report, in relation to the evaluation of cumulative effects of the subject development together with the other elements of the Whole UWF Project and with other existing or consented projects or activities.

UWF Other Activities are described in this appendix, in the following order:

Appendix 5.6 Sections	Section Heading	Relevant Individual Project Element
A5.6- <b>5.2</b>	Characteristics of UWF Other Activities including environmental protection measures	UWF Grid Connection
A5.6- <b>5.3</b>	Life Cycle Stages  The durations and timing, main activities, personnel and material requirements during construction, operation and decommissioning stages (relative to the Other Elements of the Whole UWF Project)	UWF Related Works UWF Replacement Forestry Upperchurch Windfarm
A5.6- <b>5.4</b>	The use of natural resources, emissions and production of wastes	
A5.6- <b>5.5</b>	Figures and Mapping	UWF Replacement Forestry
	Note: Section 5.6 of the EIAR Main Report Chapter 5 relates to Vulnerability to Major Accidents and Natural Disasters. As the UWF Other Activities do not relate to works or the development of lands or infrastructure, it is considered that their vulnerability to these events is not applicable.	

#### A5.6 -5.2 Characteristics of UWF Other Activities

UWF Other Activities include the following activities:

- Haul Route Activities;
- Overhead Line Activities;
- Upperchurch Hen Harrier Scheme; and
- Monitoring Activities.

#### **A5.6 -5.2.1** Purpose of UWF Other Activities

**Haul Route Activities** to facilitate the transportation of turbine components to the Upperchurch Windfarm site.

**Upperchurch Hen Harrier Scheme** to enhance and protect foraging habitat for hen harrier in the vicinity of Upperchurch Windfarm, in order to fulfil planning condition No.18, attaching to the consented Upperchurch Windfarm.

Monitoring Activities to monitor the Whole UWF Project for compliance with the environmental protection measures and mitigation measures detailed in the UWF 2013 EIS and 2013 RFI (including the Construction Environmental Management Plan for Upperchurch Windfarm and the Ecological Management Plan for Upperchurch Windfarm); Planning Conditions attaching to the already consented UWF; and measures in the 2018 UWF Grid Connection EIA Report, the 2018 UWF Related Works EIA Report and the 2018 UWF Replacement Forestry EIA Report and associated UWF Grid Connection Environmental Management Plan and UWF Related Works Environmental Management Plans. Monitoring will also involve the supervision and recording of key construction activities, and monitoring of progress of land reinstatement.

**Overhead Line Activities:** to correct the tension of the existing overhead line, following the installation of the UWF Grid Connection End Masts, so that the lines are held within predefined tension parameters and fibre wrapping to provide a communication link to the newly installed Mountphilips Substation.

#### A5.6 -5.2.2 Location and overview description of UWF Other Activities

The **Haul Route Activities** relate to the laying of matting over verges at up to 5 No. locations, removal of street furniture (mainly signposts) at 13 No. locations and the trimming of up to 960m of hedgerow/trees at up to 15 No. locations on the national and regional road network along the turbine component haul route between Foynes Port in Co Limerick and the junction of the R503 and R497 Regional Roads in Knockmaroe townland. Note: the Haul Route Activities are also referred to as Ancillary Haul Route Activities in this EIA Report.

The **Upperchurch Hen Harrier Scheme** is located in Knockcurraghbola Commons, Coumnageeha, Foilnaman, Knockmaroe and Grousehall townlands on a mixture of wet grassland and improved grassland between the Slievefelim to Silvermines SPA and the already consented Upperchurch Windfarm. Activities associated with the Scheme includes once off activities such as planting of hedgerows and trees; enhancement of riparian corridors and scrub/wood areas and the fencing off of watercourses and newly planted trees and shrubs. These activities will create new habitat and protect and enhance existing habitat.

The Scheme also includes long-term farm management practices such as management of rush coverage, livestock grazing and the control of the use of lime, fertilizers and burning of gorse, amongst others, which will result in the long term maintenance of hen harrier habitat. Nine local landowners are signed-up to the Scheme.

Overhead Line Activities are associated with the existing overhead 110kV line between Killonan ESBN Station (just east of Limerick City) and ESBN Angle Mast Structure No. 90 (2.3 km north of Mountphilips Substation). These activities will be carried out by ESBN or ESBN contractors. Activities include (a) resagging/correcting the tension using puller/tensioner machines at Angle and End Masts and stringing wheels at Intermediary Structures, and (b) Wrapping of the overhead line with fibre-optic cable (called fibre wrapping) using an aerial crawler fibre wrap machine.

Monitoring Activities relate to water quality monitoring; ecology surveys for habitats, vegetation, birds, bats, badgers; otters; invasive species monitoring; archaeological monitoring; reinstatement monitoring; Falling Weight Deflectometer confirmatory surveys of public road condition; noise and shadow flicker monitoring and reporting; monitoring, auditing, visual inspections and supervision during the Whole UWF Project preconstruction, construction and operational stages. Monitoring Activity locations relate to all works areas associated with the UWF Grid Connection, UWF Related Works, UWF Replacement Forestry and Upperchurch Windfarm locations.

#### Relevant Figures (contained at the end of this Appendix 5.6)

Figure OA 1: Location of UWF Other Activities on OSI Mapping

#### A5.6 -5.2.3 Characteristics of UWF Other Activities

#### A5.6 -5.2.3.1 Haul Route Activities

Haul Route Activities will be carried out on the public road network between Foynes Port in Co Limerick and the junction of the R503 and R497 Regional Roads in Knockmaroe townland.

The Haul Route Activities are located along the Upperchurch Windfarm turbine component haul route and will facilitate the transport of abnormal loads associated with the transport of turbine blades and towers to the windfarm through the laying of matting over verges at up to 5 No. locations, removal and replacement of street furniture (mainly signposts) at up to 13 No. locations and the trimming of up to 960m of hedgerow/trees at up to 15 No. locations, as outlined in Table 1.

The use of heavy duty geotextile matting will facilitate the delivery of the component without any requirement for excavation works and without causing any damage to the verge soils. The matting will provide sufficient carrying capacity to allow the trailers carrying the turbines components to pass.

Table 1: Description of Haul Route Activities

Activity ID	Description of the Haul Route Activity	
HA1	Removal of street furniture at T-Junction on N69 at Foynes Port, Co Limerick	
HA2	Removal of street furniture and laying of matting on the roundabout on the N69 at Clarina, near	
	Limerick City	
HA3	Removal of street furniture at roundabout on the N18, on the Dock Road at Bunlicky, Limerick	
HA4	Removal of street furniture at roundabout on the N18, on the Dock Road at Ballykeefe, Limerick	
HA5	Removal of street furniture and laying of matting on the verge at the M7 Exit 25 at Knockalton	
	Upper, near Nenagh, County Tipperary	
HA6	Removal of street furniture and laying of matting the roundabout at the M7 Exit 25/R498 at	
	Knockalton Upper, near Nenagh, County Tipperary	
HA7	Vegetation trimming of the roadside boundary on the R498 at Sallypark, Co. Tipperary	
HA8	Vegetation trimming of the roadside boundary on the R498 at Bigpark, Co. Tipperary	
HA9	Vegetation trimming of the roadside boundary on the R498 at Bigpark, Co. Tipperary	
HA10	Vegetation trimming of the roadside boundary on the R498 at Bigpark, Co. Tipperary	
HA11	Vegetation trimming of the roadside boundary on the R498 at Bigpark, Co. Tipperary	
HA12	Removal of street furniture and vegetation trimming on the R498 at Glennanoge, Co. Tipperary	
HA13	Removal of street furniture and laying of matting at the Killinane junction of the R498 with the R503	
	in Thurles	
HA14	Removal of street furniture at a roundabout on the R498 at Racecourse in Thurles	
HA15	Vegetation trimming of the roadside boundary on the R503 at Ballynahow, Co. Tipperary	
HA16	Vegetation trimming and laying of matting on the R503 at Ballynahow, Co. Tipperary	
HA17	Removal of street furniture and vegetation trimming on the R503 at Drumminnagleagh, Co.	
	Tipperary	
HA18	Removal of street furniture and vegetation trimming on the R503 at Rosmult, Co. Tipperary	
HA19	Removal of street furniture and vegetation trimming on the R503 at Ballyboy, Co. Tipperary	
HA20	Vegetation trimming of the roadside boundary on the R503 at Gortnaskehy, Co. Tipperary	
HA21	Removal of street furniture and vegetation trimming on the R497 at Knockduff, Co. Tipperary	
HA22	Vegetation trimming of the roadside boundary on the R497 at Knockmaroe, Co. Tipperary	
HA23	Removal of street furniture and vegetation trimming on the R497 and L2264-50 Knockmaroe, Co.	
	Tipperary	

#### Relevant Figures (contained at the end of this Appendix 5.6)

Figure OA 2: Haul Route Activities (8 maps)

#### A5.6 -5.2.3.2 Upperchurch Hen Harrier Scheme

As required by Condition No.18, the promoters of Upperchurch Windfarm will develop the Upperchurch Hen Harrier Scheme which, as detailed in the 2013 RFI will provide and enhance foraging habitat for hen harrier on agricultural grassland, in the vicinity of the Slievefelim to Silvermines SPA. Nine local landowners are signed-up to the Scheme covering 128 hectares and the participating landowners will be compensated for implementing a set of habitat improvement measures for foraging hen harrier on their lands. (*Note*: Upperchurch Windfarm is located outside the SPA).

#### Upperchurch Windfarm 2014 Grant of Permission (PL.22.243040) Condition No. 18:

- (a) The Ecological Management Plan submitted to the planning authority on the 21 day of November, 2013, shall be implemented in full. Details including timescale, and monitoring shall be agreed with the planning authority following consultation with the National parks and Wildlife service.
- (b) A timescale for the provision of the enhanced foraging areas including rush managements, the provision of additional hedgerows enclosures for native scrub and trees and measures by landowners in relation to spreading, burning, interference with drainage, retention of hedgerows, restrictions on use of poisons and new forestry plantation shall be agreed with the planning authority following consultation with the National parks and Wildlife service prior to the commencement of development works on the site.
- (c) A programme of on-going surveys and monitoring of the species in years 2 and 3 after the commencement of the operation of the turbines shall be submitted to, and agreed in writing with the planning authority, following consultation with the National parks, and prior to the commencement of development works on the site.

**Reason:** In the interest of the protection of the environment and the protection of the foraging habitat of the hen harrier species.

The Upperchurch Hen Harrier Scheme is based on the NPWS Hen Harrier Scheme for farmers. This scheme (NPWS Scheme) has now finished, however, the Upperchurch Hen Harrier Scheme will bring about a very similar scheme in the Upperchurch area, which is set out in detail in the Ecological Management Plan (EcMP), to be found in the 2013 RFI in the Reference Documents volume with the planning application.

Activities associated with the Upperchurch Hen Harrier Scheme includes once off activities such as planting of hedgerows and trees; enhancement of riparian corridors and scrub/wood areas and the fencing off of watercourses and newly planted trees and shrubs. These activities will create new habitat and protect and enhance existing habitat. The Scheme also includes long-term farm management practices such as management of rush coverage, livestock grazing and the control of the use of lime, fertilizers and burning of gorse, amongst others, which will result in the long term maintenance of hen harrier habitat. Training and development for those farmers involved will be conducted, and the success of the Scheme will be monitored throughout the lifetime of the associated Upperchurch Windfarm.

#### Relevant Figures (contained at the end of this Appendix 5.6)

Figure OA 3: Upperchurch Hen Harrier Scheme – Layout on Aerial Photography Mapping

#### A5.6 -5.2.3.3 Overhead Line Activities

Overhead line activities are associated with the existing overhead 110kV line between Killonan ESBN Station (just east of Limerick City) and ESBN Angle Mast Structure No. 90 (2.3 km north of Mountphilips Substation).

These activities will be carried out by ESBN or ESBN contractors.

Activities include will involve (a) re-sagging/correcting the tension, and (b) fibre-wrapping.

**Re-sagging**: The connection of Upperchurch Windfarm to the National Grid will cause a change in the configuration of the existing line between the new End Mast locations and the nearest Angle Masts, which will require line tension correction, or re-sagging, on 2 no. Sections:

- i) between ESBN Angle Mast Structure No. 78 (c.200m south of Mountphilips substation) to New Mountphilips End Mast No. 1 and
- ii) between New Mountphilips End Mast No. 2 and ESBN Angle Mast Structure No. 90 (2.3 km north of Mountphilips substation).

Re-sagging will be carried out using puller/tensioner machines at Angle and End Masts and stringing wheels at Intermediary Structures.

**Fibre-wrapping**: One of the conductors (wires) on the line between Killonan ESBN Station to Mountphilips Substation will also be wrapped with fibre optic cable, using an aerial crawler fibre wrap machine

The activities will be carried out according to industry standard method statements, including standard health & safety and environmental management systems.

#### Relevant Figures (contained at the end of this Appendix 5.6)

Figure OA 4: Overhead Line Activities – Layout on OSI Discovery Mapping

#### Watercourse crossings for UWF Other Activities – Overhead Line Activities

No watercourse crossings are required for Upperchurch Hen Harrier Scheme, Haul Route Activities or Monitoring Activities. The requirement for gaining access across watercourses relates to the Overhead Line Activities only.

A total of 11 water crossings are proposed for the overhead lines activities. Watercourse crossings WO1, WO2, WO3, WO4, WO5, WO6 were classified as FW4 due to their artificial man-made nature. Water crossings WO7, WO8, WO9, WO10 and WO11 were classified as FW2 due to the presence of fine sediments. Pole 86 is located in close proximity to the Ballykinlalee stream (EPA code: IE\_SH\_25B770660). Pole 2 is located approximately 20 metres south of the Groody River (EPA code: 1E\_SH\_25G050200). Table 4 outlines the watercourse crossings along the overhead lines activities.

Table 2: Watercourse crossings - Overhead Line Activities

Watercourse No	Watercourse Description	Watercourse habitat type	Existing crossing
WO1	c. 1 m wide, c. 1 m deep, standing water	FW4	Yes - 3 metres wide
WO2	c. 1 m wide, c. 1 m deep, ditch was almost dry approximately 40 metres east of the proposed crossing location	FW4	Yes - 3 metres wide
WO3	C. 2 m wide and 40 cm deep, peat (100), standing water	FW4	No
WO4	c. 50 cm wide, c. 5cm deep, mud (100) standing water	FW4	No
WO5	c. 1 metre wide, c. 2 metres deep, water flowing slowly	FW4	No
WO6	c. 1.5 metres wide, c. 30cm deep	FW4	No
WO7	c. 1 metre wide, c. 3cm deep Stone (60), silt and mud (40)	FW2	No
WO8	c. 1 metre wide, Sand (20), stone (50) and rock (30), fast flowing	FW2	No
WO9	c. 1.5 metres wide, c. 15cm deep, fast flowing, silt (80) and stone (20), fast flowing	FW2	No
WO10	c. 1.5 metres wide, c. 15cm, silt (70), pebble (10) and stone (20), fast flowing	FW2	3 meters wide
W011	c. 2.5 metres wide, c. 20cm deep, mud (100), slow flowing	FW2	3 meters wide

All watercourses will be crossed by clear span bridge or bog mats. The bog mats or bridges will be in place for maximum one day at any location. No instream works are required to successfully complete the Overhead Lines activities.





Plate 5: Water crossing WO3; FW4 Drainage Plate 6: Water crossing WO10; FW2 lowland depositing river

Illustrative Plates 5 - 6: Representative photographs of watercourse crossings within the study area

#### A5.6 -5.2.3.4 Characteristics of Monitoring Activities

Monitoring Activities will be carried out during the construction, operation and decommissioning stages. Monitoring relates to UWF Grid Connection, UWF Related Works, Upperchurch Windfarm, UWF Replacement Forestry and the UWF Other Activities, and includes the following:

- Inspections and maintenance of sediment and erosion control measures
- Water quality monitoring
- Hydrographic monitoring and reporting after rainfall events
- FWD and video survey of the local road network
- Preconstruction hen harrier, badger, otter, curlew, bat and marsh fritillary surveys
- Monitoring of pre-construction management of marsh fritillary habitat (UWF Related Works and Upperchurch Windfarm only)
- Archaeological monitoring of initial groundworks
- Supervision of the vegetative planting of the UWF Grid Connection Concealed Access Roads,
- Annual monitoring and assessment of re-vegetation and recovery success at construction works areas
- Annual hen harrier, badger and bat surveys, including fatality searches
- Invasive species monitoring
- On-going annual monitoring of the Upperchurch Hen Harrier Scheme
- Monitoring of compliance with planning condition No. 11 for Upperchurch Windfarm (operating windfarm noise)
- Monitoring of compliance with planning condition No. 12 for Upperchurch Windfarm (operating windfarm shadow flicker)
- Monitoring the implementation of and compliance with the environmental planning conditions and commitments in the 2013 EIS, 2013 RFI, including the EMP for the Upperchurch Windfarm
- Monitoring the implementation of and compliance with the environmental commitments (including the Surface Water, Traffic, Waste and Invasive Species Management Plans) in the UWF Grid Connection Environmental Management Plan and UWF Related Works Environmental Management Plan, and any additional requirements conditioned with a grant of planning permission.
- Monitoring the implementation of and compliance with the environmental protection measures set out in UWF Replacement Forestry EIA Report (Volume C2: EIAR Main Report: Chapter 5 and Volume C4: EIAR Appendices: Appendix 5.1 and Appendix 5.2) and any additional requirements conditioned with the afforestation license.
- Monitoring the implementation of and compliance with the environmental protection measures for UWF Other Activities set out in Section A5.6 -5.2.4 below. Monitoring compliance with these measures will be through the relevant UWF construction and operational stage Environmental Management Plans, the UWF Grid Connection Environmental Management Plan and the UWF Related Works Environmental Management Plan for example compliance with environmental protection measures which relate to Overhead Line Activities will be carried out through the UWF Grid Connection Environmental Management Plan.

These monitoring and survey activities will be carried out both prior to and during, the construction of Upperchurch Windfarm, UWF Related Works, UWF Grid Connection and prior to and during the planting of UWF Replacement Forestry. Monitoring activities also relate to the operational stage of the Elements, and to the decommissioning stage of the Upperchurch Windfarm and UWF Related Works where relevant.

## A5.6 -5.2.4 Environmental Protection Measures for UWF Other Activities

- Except with the approval of the National Parks and Wildlife Service: no activities will be carried out within 500 metres of an active hen harrier nest or nesting attempt; no activities will be carried out within 30m of an active main badger set or within 150m of an active otter holt.
- In order to prevent disturbance to breeding birds, tree trimming for Haul Route Activities will be conducted outside of the bird breeding season.
- Invasive Species monitoring in the form of confirmatory surveys will be carried out during the construction stage of the UWF Grid Connection, UWF Related Works and Upperchurch Windfarm to identify any infestations within or close to the relevant UWF Other Activity locations. Surveys will focus always on the activity location plus 7m and will be carried out ahead of any activities taking place. The measures included in the Invasive Species Management Plan for UWF Grid Connection and UWF Related Works will be implemented See Volume D of the planning applications for these Elements.
- To minimise disturbance or displacement to lands, landowners will be contacted ahead of activities taking place on their lands and personnel involved in Overhead Line Activities or the Upperchurch Hen Harrier Scheme will ensure that the lands are left in at least as good condition than before the activity began. Activities will be carried out with minimum interference to land or livestock.
- In order to protect water quality, Overhead Line Activities, Haul Route Activities and Upperchurch Hen Harrier Scheme activities which occur within 50m of a watercourse will be carried out during a dry spell of weather; a minimum buffer of 5m will be maintained between the activity and the watercourse where possible; straw bales will be placed between the activity location and the watercourse if there is a risk of sediment runoff from the activity (such as tree planting); all machinery or equipment used will be steam-cleaned before use at the location and checked for oil leaks prior to use; no refuelling of machinery or equipment will take place with 100m of a watercourse; access matting such as bog mats will be used in wet/boggy areas to provide access to vehicles, and any ground rutted by vehicles associated with UWF Other Activities will be repaired through loosening the compacted soil under any ruts with fork; any disturbed ground will be re-seeded immediately following the completion of the activity at a location.
- In order to avoid the spread of invasive species, any infestation of invasive species will be dealt with, throughout the construction stage, with comprehensive Best Practice measures as outlined in the Invasive Species Management Plan (see Tab 4 of the UWF Grid Connection Environmental Management Plan, appended to the EIA Report as Volume D). The Promoter of the UWF Grid Connection, Ecopower Developments Ltd, is also the Promoter of the Whole UWF Project, and as such will have full control over all construction practices for the works as the Promoter. Ecopower Developments is committed to implementing the Biosecurity Measures, which are described in the Invasive Species Management Plan, for all works and activities relating to the Whole UWF Project. These measures will also apply to any UWF Other Activities carried out during the operational or decommissioning stages.

These environmental protection measures will be implemented as part of the UWF Grid Connection, UWF Related Works and Upperchurch Windfarm and will be incorporated into their respective Environmental Management Plans. For example, measures listed above which are relevant to Overhead Line Activities will be monitored through the UWF Grid Connection Environmental Management Plan.

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#### **UWF Other Activities during Life Cycle Stages** A5.6 -5.3

## **A5.6 -5.3.1.1** Duration & Timing

Table 5-1: Duration and timing of the construction of the Upperchurch Windfarm

Activities	Duration	Timing of Activities
Haul Route Activities: Laying of Matting	15 mins per location 1 day to put down, and 1 day to take up	Prior to commencement of turbine component haulage
Haul Route Activities: Street furniture and signage removal and reinstatement	15 mins to 4 hours per location	Immediately prior to the arrival of turbine components at the location, with reinstatement after the passage of the turbine components.
Haul Route Activities: Tree Trimming along public road corridor	15 mins per location 1 day to carry out	In order to prevent disturbance to breeding birds, tree trimming will be conducted outside of the bird breeding season
Upperchurch Hen Harrier Scheme  – initial once-off activities	2 – 3 months	Trees and shrubs will be planted during the dormant period October to March, fencing around new plants will be carried out at the same time. A tractor will only be used during dry weather in the riparian area.
Upperchurch Hen Harrier Scheme – farming practices	On-going	None
Monitoring Activities Inspections and maintenance of sediment and erosion control measures	1hr – 1 week	6 months Post construction
Monitoring Activities  Monthly Water monitoring	6 hrs	1st year Post construction
Monitoring Activities  Hydrographic monitoring and reporting after rainfall events	6hr	3 years Post construction
Monitoring Activities  Monitoring and care of Concealed Access Roads during the establishment phase	3 hours per month	First 18 months post construction
Monitoring Activities  Annual monitoring and assessment of revegetation and recovery success	6 hrs	5 years Post construction
Monitoring Activities: Survey of invasive species locations	1 hour per location	Immediately prior to works in an area, and prior to the delivery of turbine components.
Monitoring Activities  Annual bird, badger and bat surveys	1hr – 2 weeks per survey	3 years Post construction

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including fatality searches		
Monitoring Activities On-going annual monitoring of the Upperchurch Hen Harrier Scheme	c. 5 days per survey	Operational Stage Annually monitoring and reporting to NPWS for the first five years, and then every 2 to 3 years from Yr6 onwards
Monitoring Activities  Monitoring compliance with planning conditions, EIS/EIAR/EMP commitments	Ongoing observations throughout the construction stage — carried out by the Environmental Clerk of Works and throughout the operational (and where relevant decommissioning) stage by the Environmental Manager	Entire Life Cycle
Monitoring Activities  Monitoring of compliance with planning condition No. 11 for Upperchurch Windfarm ( operating windfarm noise)	c.2 months	Report to be submitted within 6 months of commissioning of UWF
Monitoring Activities  Monitoring of compliance with planning condition No. 12 for Upperchurch Windfarm ( operating windfarm shadow flicker)	Ongoing by computer software	Report to be submitted within 12 months of commissioning of UWF
Overhead Line Activities Re-sagging/tensioning	2 'straights' and 11 structures	Following connection of Mountphilips substation.
Overhead Line Activities Fibre wrapping	1 day per 'straights' i.e. 17 days	Prior to connection of Mountphilips substation.

#### A5.6 -5.3.1.2 UWF Other Activities Personnel

In total c.50 personnel will be required to carry out the UWF Other Activities as per:

- Haul Route Activities will require a 3-man crew for each type of activity mat laying, street furniture removal and tree trimming.
- The **Upperchurch Hen Harrier Scheme** will be implemented by the 9 landowners involved in the Scheme.
- The **Monitoring Activities** will be carried out by c.16 individual expert engineering and environmental consultants.
- Overhead Line Activities will be carried out by small teams of up to 8 overhead linesmen for both resagging and fibre wrapping.

#### A5.5 -5.3.1.2.1 Welfare Facilities

The Upperchurch Windfarm construction stage Site Compound No. 1 and the operational stage site office containing welfare and canteen facilities will be available to personnel carrying out UWF Other Activities.

#### A5.6 -5.3.1.3 Activities

#### A5.5 -5.3.1.3.1 Haul Route Activities

Haul Route Activities will involve the following activities:

**Trimming of roadside vegetation** within the road corridor, using a tractor mounted hedge trimmer to trim any protruding vegetation along the haul route roadside hedgerows, where required. Flag men will control and manage traffic on both sides of the tractor.

Laying of matting by hand at roundabouts and verges. This will involve covering the relevant part of the verge along the public road corridor with heavy duty geotextile or rigid geocell material or aluminium or plastic matting, which will be secured in place. When the turbine component deliveries are complete the matting will be removed.

**Street furniture removal** will involve the following activities: Immediately prior to the passage of turbine components being delivered to the consented Upperchurch Windfarm, the street furniture will be removed from its sockets, and stored safely nearby. Immediately after the passage of the convoy, the street furniture will be refitted into its sockets as before. This will be done for every turbine component delivery that requires the road signage to be temporarily removed.

#### A5.5 -5.3.1.3.2 Upperchurch Hen Harrier Scheme Activities

#### **Initial Once-Off Activities**

- Planting of 2.2 hectares of tree and shrub species in scrub areas, improvement planting with suitable
  trees and shrub species along existing field boundary hedgerows, and planting of 2.8km of new
  hedgerows with native trees and shrubs, which will improve cover for hen harrier;
- Erection of 4.8km livestock-proof fencing on newly planted or improvement planting areas to prevent damage by livestock, which will improve hen harrier habitat quality;
- Attachment of fence markers to electric fences in the areas, which will improve visibility of electric fences to hen harrier; and
- Planting\_of 1.4km of woody scrub species along riparian corridors and fencing of watercourse corridors to prevent access to the watercourses by livestock, which will enhance the quality of riparian habitats.

#### **On-Going Farming Practices**

- Management of rush coverage with controlled grazing and rush cutting starting in year 3, and thereafter as required, to achieve 30 70% rush coverage in fields, which will improve cover for hen harrier;
- During the first 2 years of the Plan, stocking levels between 0.6 and 1.6 LU (livestock units) per hectare which will maintain the appropriate sward within fields and not allow excessive stands of scrub or rush to dominate. To be reviewed at the start of Year 3;

## Restrictions to farming practices

- No excavation of drains, which will allow improved grassland swards to revert back to wet grassland and more semi-natural grassland habitats;
- Limiting spreading of fertilizer and/or lime to every 4 − 5 years;
- No burning of gorse, scrub or heather to improve land cover;
- No removal of hedgerows, or new forestry plantation;

- No recreational off-roading with vehicles; and
- No use of poisons or stupefying baits.

#### **Educational Measures**

Hen harrier workshops will be delivered by the project ecologist at the initiation of the scheme to all landowners participating in the plan as well as those involved in the Upperchurch Windfarm development. The aim of the workshop will be to advise on the importance of the conservation of the hen harrier and the proper and full implementation of the Scheme, and to fully explain the measures and the restrictions set down in the Scheme.

#### Monitoring of the Scheme

The continual monitoring of the Hen Harrier scheme especially in the early years when measures are initiated, is crucial for the plan to be fully successful. Annual inspections will be carried out for the first 5 years of the scheme, by the project ecologist. The project ecologist shall assess the alternative habitats, raise any specific issues which need to be addressed and discuss with landowners any further measures required. A report will be prepared annually and submitted to National Parks and Wildlife Services for comment. Inspections and reporting will take place every 2 to 3 years from Year 6 onwards.

#### A5.5 -5.3.1.3.3 Overhead Line Activities

Overhead Line Activities will include the following activities;

- The Overhead Line Activities will be carried out during a planned outage of the overhead line.
- <u>Access</u>: The relevant sections of the Killonan to Nenagh overhead line are across open farmland and near Killonan, around the perimeter of an industrial estate. In order to gain access to the ESBN structures for ESBN contractor crews and equipment, the local public road network in the vicinity of the line will be used and from there they will gain access through private land, utilising existing private track or road, wherever possible. This access already exists at each location for line maintenance and no change to the established access is anticipated.
- Re-sagging: the intermediary ESBN Structure Nos. 79, and 80 to 89 will be climbed and fitted with stringing wheels, in order to facilitate the re-sagging activity. Puller/tensioner equipment will be positioned at the bases of Mountphilips End Mast No. 1 and No. 2 and Angle Mast ESBN Structure No. 78 and No. 90. The tension will be corrected on all 3 No. conductors (wires) between the structures, using the puller/tensioner equipment. Once the tension is corrected, the stringing wheels will be removed.
- <u>Fibre-wrapping</u>: 1 No. conductor (wire) on the overhead line between the Killonan Station and the new Mountphilips Substation will be wrapped with fibre-optic cable. Intermediary structures between angle masts, will be climbed and stringing wheels will be fitted. The aerial crawler fibre wrap machine will be set up at an Angle Mast structure and will wrap the wire as far as the next Angle Mast, where it will be set up once more for the next 'straight'. Following the fibre wrapping of the overhead line between Angle Masts, the intermediary structures will be climbed once more and the stringing wheels removed.

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#### A5.5 -5.3.1.3.4 Monitoring Activities

Monitoring Activities will involve the following activities:

- Pre-construction confirmatory surveys of public road condition,
- Pre-construction confirmatory ecological surveys of habitats, hen harrier, curlew, bats, badgers, otters and marsh fritillary;
- Pre-construction management of Marsh Fritillary (butterfly) habitat
- Construction stage collection of water samples and monitoring of water quality, archaeology, invasive species, monitoring of works, monitoring of vegetation of Concealed Access Roads, monitoring of reinstatement of lands and
- Monitoring and auditing of compliance with the UWF Construction Environmental Management Plan, UWF Ecological Management Plan, UWF Grid Connection Environmental Management Plan, and UWF Related Works Environmental Management Plan;
- Early operational UWF monitoring to include adherence to the UWF Ecological Management Plan; the
  UWF Surface Water Management Plan including inspections and maintenance of sediment and erosion
  control measures and water sampling; hydrographic monitoring and reporting after rainfall events,
  monitoring and assessment of re-vegetation and recovery success; bird surveys; fatality survey for
  badger and bat. In addition, compliance with planning conditions for UWF in relation to noise and
  shadow flicker requires that results of monitoring be submitted and agreed with the planning authority.
- Monitoring of the Upperchurch Hen Harrier Scheme annually in Years 1 to 5 and thereafter every 2 or 3 years, and associated reporting to NPWS.

## A5.6 -5.3.1.4 Use of Equipment and Tools

The main equipment and tools which will be required are listed in

Table 5-2 Equipment and tools

Equipment	Tools	
Haul Route Activities	- hand tools	
<ul> <li>tractor with mounted hedge trimmers</li> </ul>		
Upperchurch Hen Harrier Scheme	- spades	
<ul> <li>tractor will pole driver attached</li> </ul>	- slash hooks	
- tractors for rush cutting and land cover	- hand tools	
management		
Monitoring Activities	- bat detectors	
- FWD survey machine	- cameras	
	- containers	
	- noise monitoring equipment	
Overhead Line Activities	- Stringing wheels	
- Puller/Tensioner	- Chains/hand tools	
- Teleporter		
- Fibre wrap crawler		
- Crew cab 4X4		
- Van		
- Climbing and Electrical Safety Equipment		

#### A5.6 -5.3.1.5 Use of Hydrocarbons

Very small volumes of hydrocarbons will be used during UWF Other Activities and will be limited to the diesel or petrol fuel and mechanical oils used by vehicles and machinery.

#### A5.6 -5.3.1.6 Other Facilities - Fuel Storage & Tool Storage

There will be no requirement for either fuel or tool storage.

## A5.6 -5.3.2 Imported Materials

The materials, which will be brought onto the UWF Other Activities areas, are listed in Table 5-3 along with details of the quantity and likely source of the materials.

Table 5-3: Quantities, type and source of construction materials

Materials	Quantity	Likely Source of Materials
Geotextile material / matting	1 No. load	Nenagh, Co Tipperary / Cork
Native trees and shrubs and peat for topdressing Concealed Access Roads (if required)	2 No. loads	Established nurseries in Ireland or Scotland
Wooden posts, fencing wire	7 No. loads	Arrabawn Co-Op, Reiska
Fibre optic cable spools/cassettes	14.7km on 17 drums	EU Region

## A5.6 -5.4 UWF Other Activities: Use of Natural Resources, Emissions and Waste

#### A5.6 -5.4.1 UWF Other Activities: Use of Natural Resources

#### A5.6 -5.4.1.1 Use of Resources: Land

No requirement for lands or change of use of lands due to the UWF Other Activities.

#### A5.6 -5.4.1.2 Use of Resources: Water

All water requirements for welfare facilities will be supplied at the temporary construction stage compound associated with the Upperchurch Windfarm during the construction stage and at the Upperchurch Windfarm site office during the operational (and if relevant decommissioning) stages. Bottled drinking water will be carried with personnel.

#### A5.6 -5.4.1.3 Use of Resources: Soils

Haul Route Activities: No excavation or other disturbance of soils are required.

<u>Upperchurch Hen Harrier Scheme</u>: any initial planting will be carried out by hand using spades, small localised patches of disturbed soil will occur at the sapling tree root areas.

Monitoring Activities: No excavation or other disturbance of soils are required.

Overhead Line Activities: No mechanical excavations are required.

#### A5.6 -5.4.1.4 Use of Resources: Biodiversity

<u>Haul Route Activities</u>: Up to 960m of roadside boundary hedges/treelines will be trimmed, outside of the general bird breeding season.

<u>Upperchurch Hen Harrier Scheme</u>: in total, 2.2ha of trees, 1.4km of riparian habitat and 2.8km of new hedgerow will be enhanced or created during initial activities. In total 128 hectares of agricultural lands will be management for the benefit of hen harrier, protecting foraging habitat in the vicinity of the Slievefelim to Silvermines SPA.

Monitoring Activities: monitoring and auditing will ensure compliance with the Environmental Management Plans and Ecological Management Plans for Upperchurch Windfarm, UWF Grid Connection, UWF Related Works and with the environmental protection measures for UWF Replacement Forestry and UWF Other Activities; monitoring will include confirmatory surveys for birds, mammals and invertebrates, surveys for invasive species, the reinstatement of lands at felling locations and construction works areas, monitoring of construction works, monitoring of the planting of heather and grasses in the UWF Grid Connection Concealed Access Roads; monitoring the development of hen harrier foraging habitat under the Upperchurch Hen Harrier Scheme, the timing of works and the implementation of environmental protection measures, all of which will protect biodiversity in the area.

<u>Overhead Line Activities:</u> The activities will be carried out according to electrical industry standard method statements, including standard health & safety and environmental management systems and adherence to guidelines set by IFI for water quality protection, all of which will protect biodiversity in the area.

#### A5.6 -5.4.2 UWF Other Activities: Emissions

Dust will not arise, due to the absence of mechanical excavation of and storage of soils.

**Vehicle Exhausts Fumes** will be emitted by vehicles and machinery during planting and some monitoring activities but the amounts will be negligible.

**Noise:** Machinery and vehicles which will be used during planting and monitoring activities will emit noise during their operation, but the levels will be negligible.

**Vibration:** FWD survey of the public road network will emit low levels of vibration, but the levels will be negligible.

Light: No light emissions will occur.

**Electromagnetic Radiation**: No emissions of electromagnetic radiation will occur.

#### A5.6 -5.4.3 UWF Other Activities: Waste

**Waste Water:** No waste water will occur at UWF Other Activities locations. Toilet facilities at the temporary construction stage compound associated with the Upperchurch Windfarm during the construction stage and at the Upperchurch Windfarm site office during the operational (and if relevant decommissioning) stages will be available to personnel involved in UWF Other Activities.

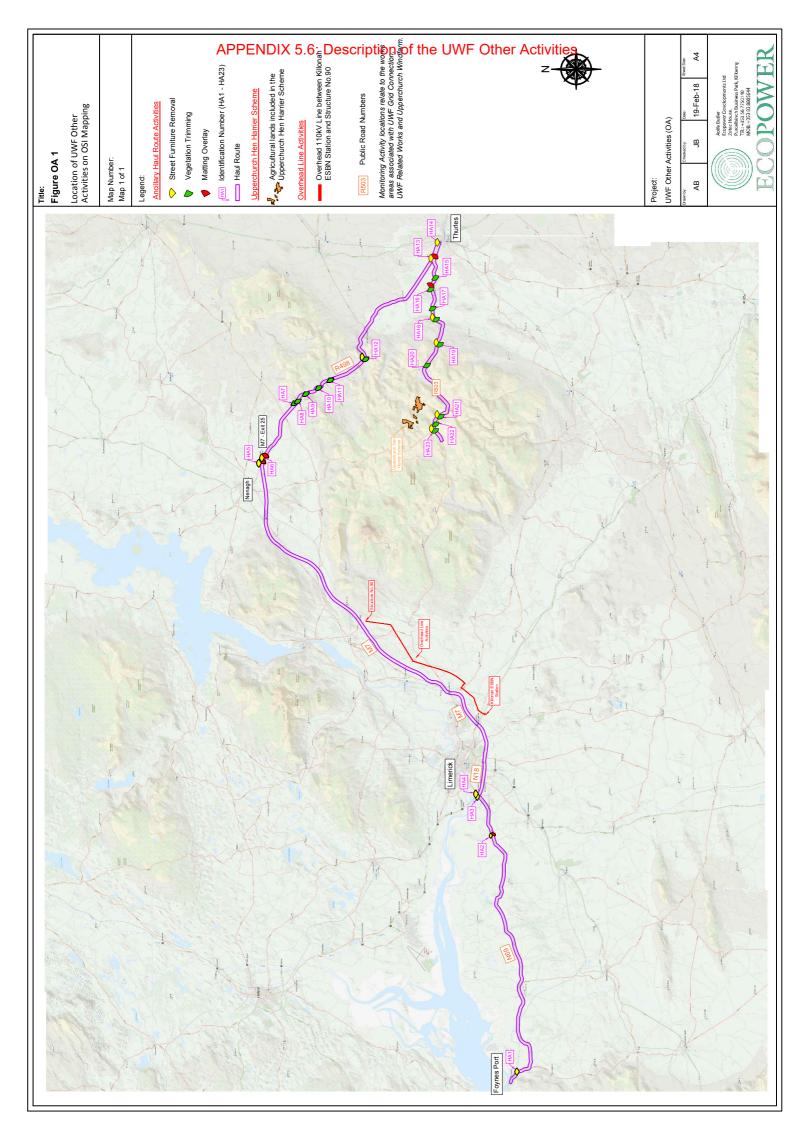
**General Waste:** such as excess geotextile material and packaging, will be generated in very small quantities. This waste will be removed from the activity location and stored at a designated area at the the temporary construction stage compound associated with the Upperchurch Windfarm during the construction stage and at the Upperchurch Windfarm site office during the operational (and if relevant decommissioning) stages. General waste will be collected by an appropriately licensed operator.

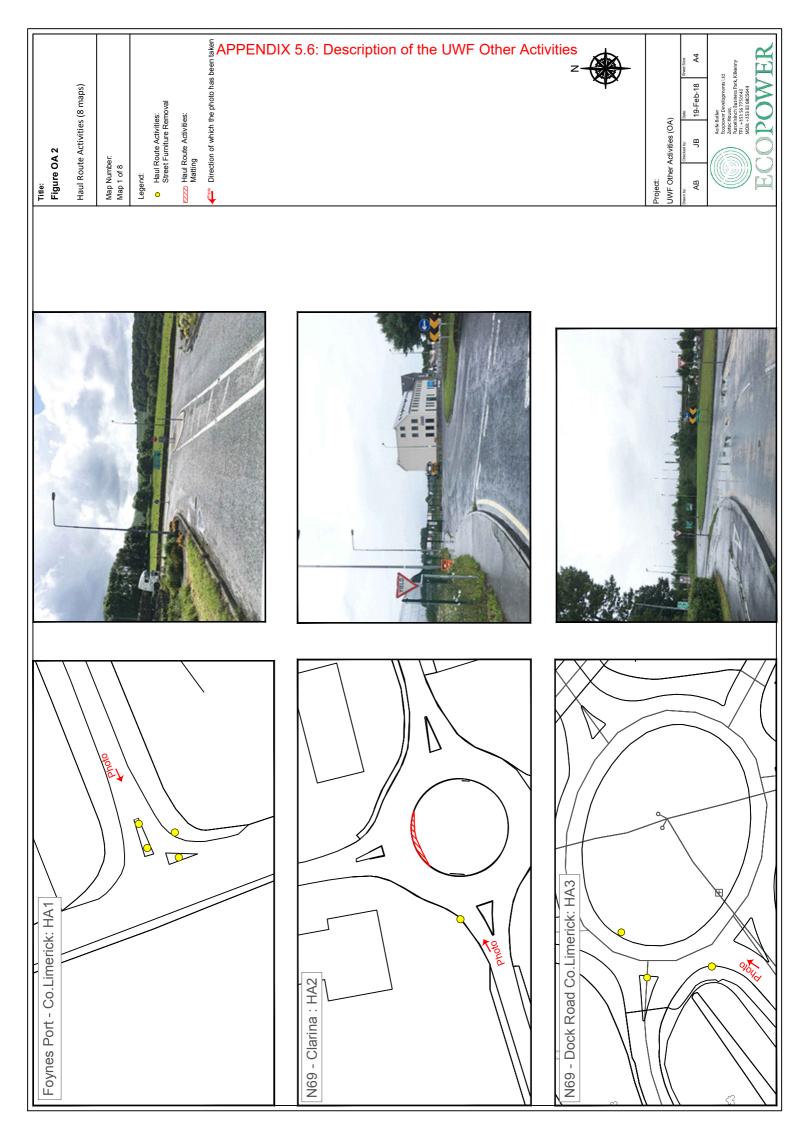
Chemical waste: No chemical wastes are expected.

With the exception of Overhead Line Activities, the wastes from UWF Other Activities will be managed under the construction stage Waste Management Plans for the consented Upperchurch Windfarm as relevant. During the operational stage, waste related to UWF Other Activities will be managed under the Upperchurch Windfarm's **Waste Management Plan**. Overhead line activities will be managed by the System owner (ESBN) who will have their own waste management commitments and plans.

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## A5.6 -5.5 Figures and Mapping





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Haul Route Activities:
 Street Furniture Removal

Matting Matting

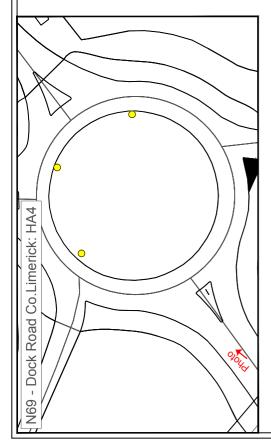
Haul Route Activities (8 maps)

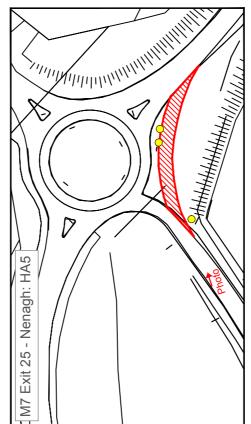
Map Number: Map 2 of 8

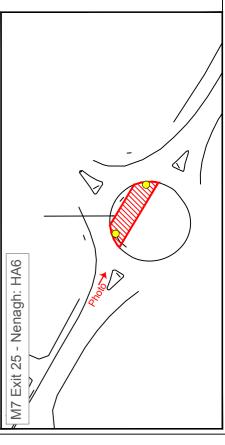
Figure OA 2

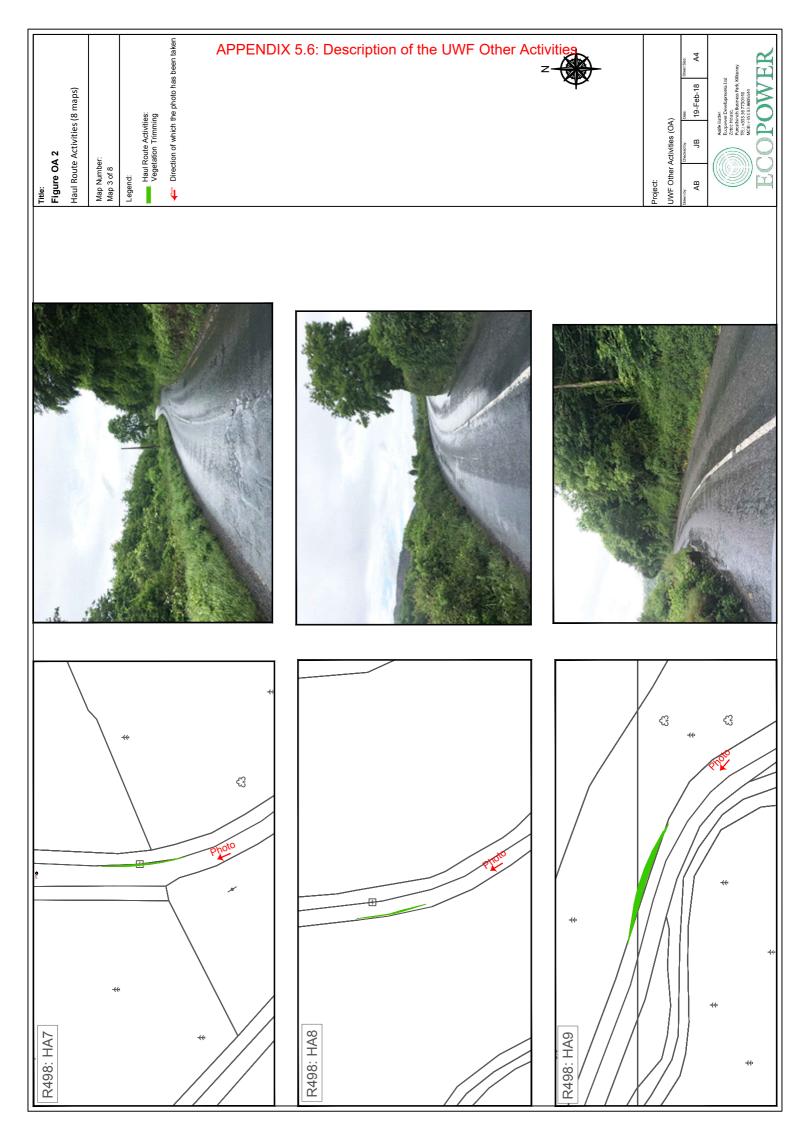


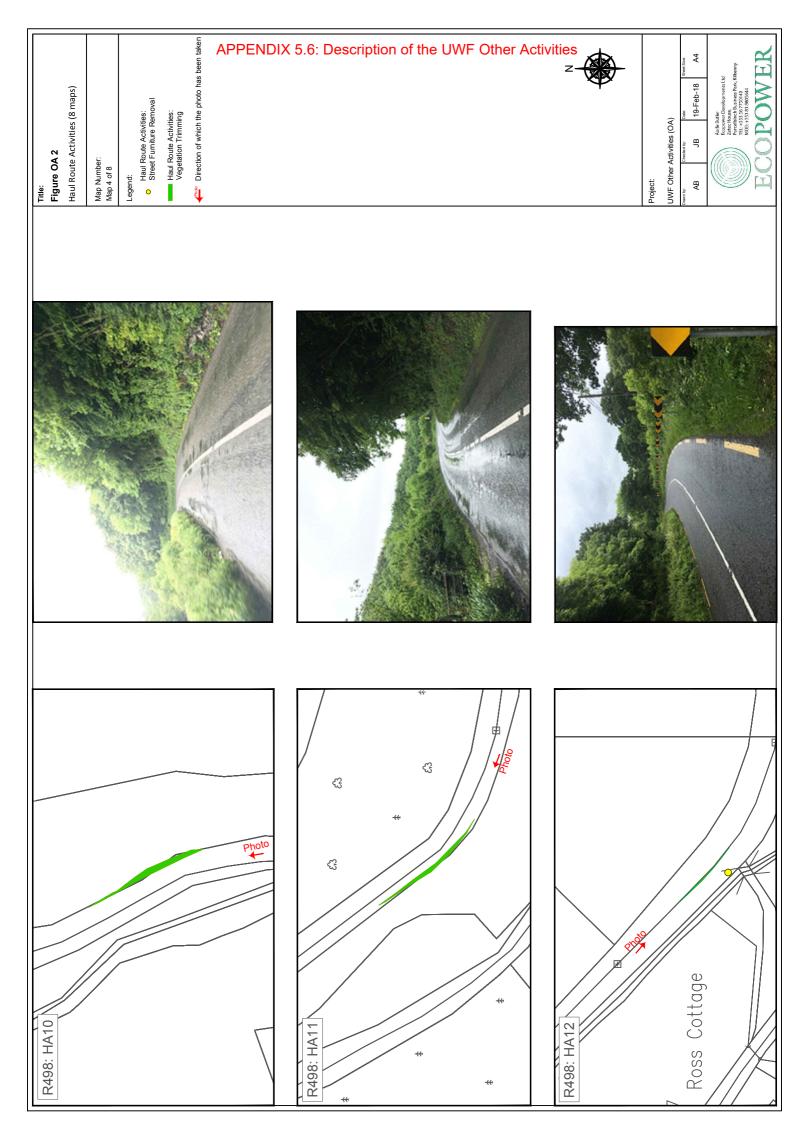




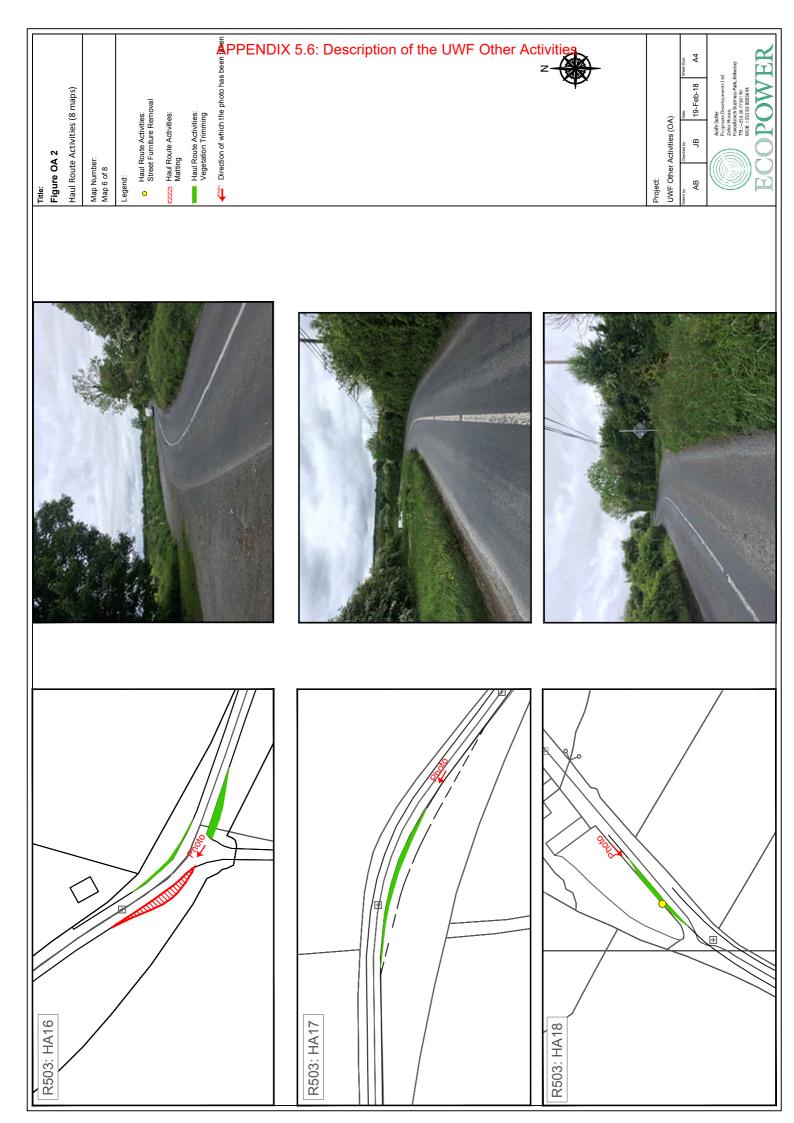


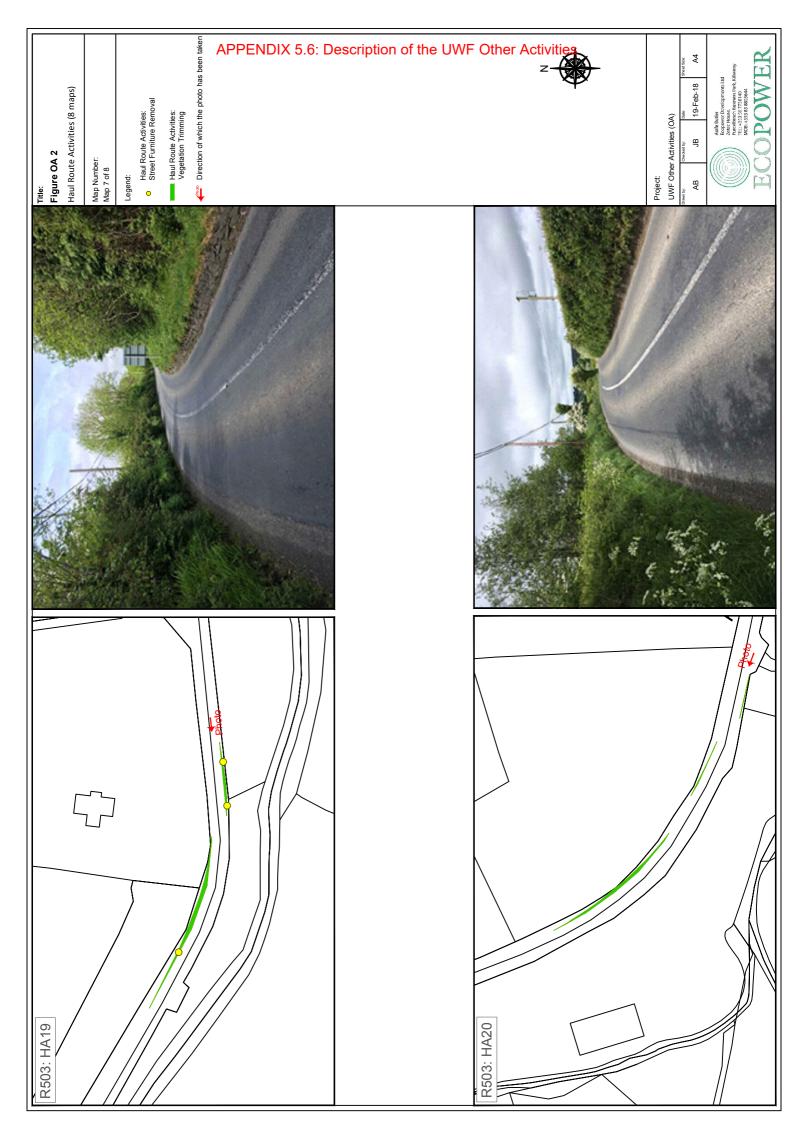




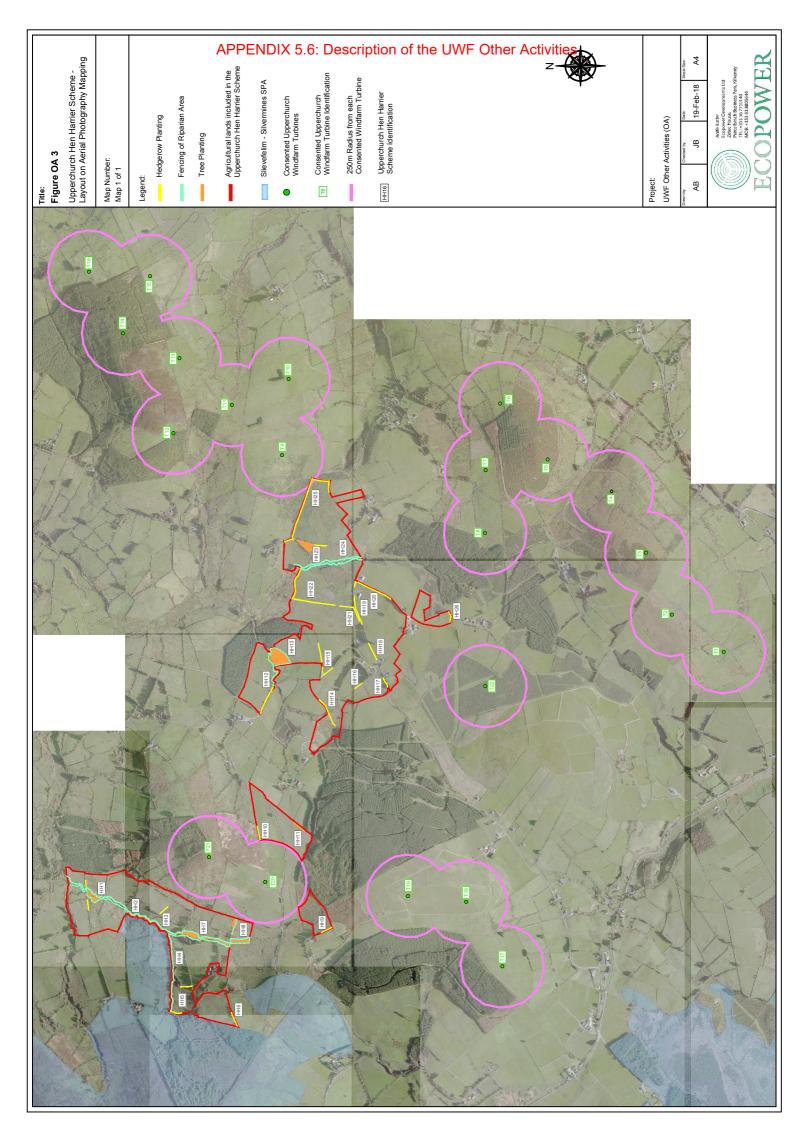


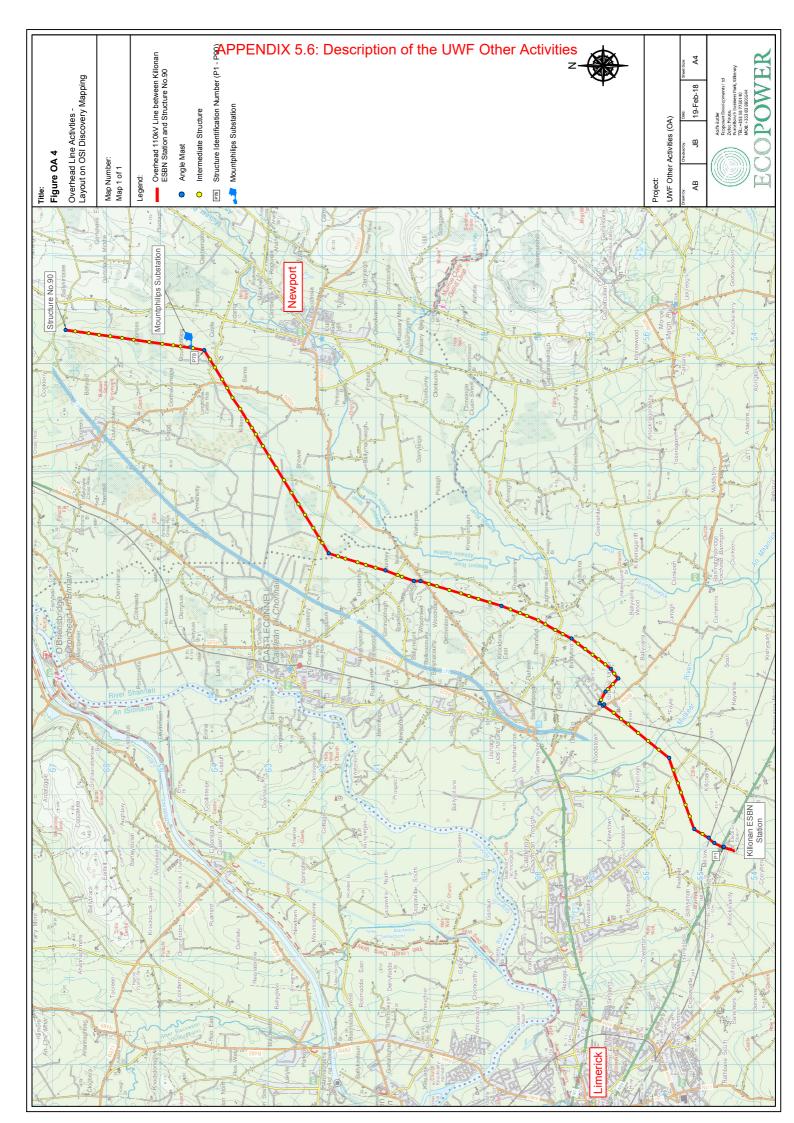












## APPENDIX 5.6: Description of the UWF Other Activities