



Dalfad Wind Farm

Technical Appendix 11.1: Outline Construction Environmental Management Plan (oCEMP)

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Basis of Report

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Table of Contents

1.0	Introduction	1
1.1	Background	1
1.2	Aims and Objectives.....	1
1.3	Site Setting.....	2
1.4	Project Description	3
2.0	Schedule of Mitigation and Implementation.....	4
2.1	Schedule of Mitigation	4
2.2	Implementation and Control	4
3.0	Roles and Responsibilities.....	5
3.1	Health and Safety.....	5
3.2	Construction Management Team	6
3.2.1	Environmental Manager	6
3.2.2	Planning Monitoring Officer	7
3.2.3	Resident Engineer.....	7
3.3	Principal Contractor.....	8
3.4	Site Personnel.....	9
3.5	Communication	9
4.0	Phasing	10
4.1	Construction	10
4.2	Post-Construction Reinstatement	12
5.0	General Construction Good Practice.....	14
5.1	Handling of Excavated Materials	14
5.2	Materials Storage	14
5.3	The Management and Movement of Concrete.....	15
5.3.1	Accidental Spillage	15
5.3.2	Vehicle Washing	15
5.3.3	Concrete Pouring for Turbine Foundations.....	15
5.4	Surplus and Waste Material	15
5.4.1	Introduction	15
5.4.2	Soils and Spoils.....	16
5.4.3	Hazardous and Other Wastes	16
5.4.4	Regulatory Compliance	17
5.5	Dust Mitigation	17
5.6	Noise Management	18
5.7	Site Lighting	19



5.8	Vehicle Storage	19
6.0	Pollution Prevention Measures	20
6.1	Environmental Incident Response Plan	20
6.2	Re-Fuelling of Vehicles, Plant and Machinery	21
6.3	Spillage	21
6.4	Other Storage.....	22
6.5	Prevention of Mud and Debris on Public Roads	22
6.6	Cement	22
6.7	Silt.....	22
6.8	Waste and Litter	22
6.9	Hydrocarbon Contamination	23
6.9.1	Vehicle Maintenance	23
6.9.2	Chemical Storage.....	23
7.0	Drainage and Surface Water Management	24
7.1	Introduction	24
7.2	Site Induction and Training.....	24
7.3	Site Drainage	24
7.4	Management of Sediment and Surface Waters	25
7.4.1	Sustainable Drainage Systems (SuDS).....	25
7.4.2	Location of Silt Traps.....	26
7.4.3	Location of Settlement Lagoons	26
7.4.4	Outflow Monitoring from Settlement Lagoons	27
7.4.5	Foul Drainage.....	27
7.5	Measures for Protecting Groundwater Receptors	27
8.0	Water Quality Monitoring and Contingency	28
8.1	Water Quality Monitoring	28
8.2	Laboratory Analysis.....	29
8.3	Monitoring	29
8.4	Environmental Manager WQMP Duties	30
8.5	Incident Response.....	30
9.0	Construction Phase	31
9.1	Introduction	31
9.2	Temporary Compounds.....	31
9.3	Transport Routes	32
9.4	Access Tracks.....	32
9.5	Turbine Foundations & Hardstandings	33



9.6	Crane Pads	33
9.7	Substation	33
9.8	Cable Layout	33
9.9	Soil Storage	34
9.10	Watercourses	34
9.10.1	General	34
9.10.2	Design Philosophy	35
9.10.3	Structural Design	36
9.10.4	Culverts	36
9.10.5	Relevant Mitigation	36
10.0	Pre-Construction Surveys, Protected Species and Monitoring	38
10.1	Pre-Construction Surveys	38
10.1.1	Water Quality Monitoring	38
10.1.2	Archaeology	38
10.1.3	Ecology	38
10.2	During and Post Construction	39
10.2.1	Species Protection Plan	39
10.2.2	Bird Protection Plan	40
10.2.3	Biodiversity Enhancement Management Plan	40
11.0	Reinstatement	42
12.0	References	43
12.1	Reference Documents	43

Tables in Text

Table 4-1: Indicative Construction Programme	11
Table 5-1: Common Construction Wastes	16
Table 5-2: Dust Mitigation Measures	18



Acronyms and Abbreviations

Acronym or Abbreviation	Meaning
AOD	Above Ordnance Datum
BEMP	Biodiversity Enhancement Management Plan
BMG	Biodiversity Management Group
CDM	Construction (Design and Management)
CEMP	Construction Environmental Management Plan
CIRIA	Construction Industry Research and Information Association
CMS	Construction method statement
CMT	Construction Management Team
EAC	East Ayrshire Council
EASR	Environmental Authorisations (Scotland) Regulations
ECOW	Ecological Clerk of Works
EIA	Environmental Impact Assessment
EIRP	Environmental Incident Response Plan
EPPP	Emergency Pollution Prevention Plan
EPS	European Protected Species
EQS	Environmental Quality Standards
GBR	General Binding Rule
GPP	Guidance for Pollution Prevention
GWDTE	Groundwater Dependent Terrestrial Ecosystems
HGV	Heavy Goods Vehicle
MW	Megawatt
NGR	National Grid Reference
NatureScot	Scottish Natural Heritage
PPE	Personal Protective Equipment
PIIP	Pollution Prevention and Incident Plan
PWS	Private Water Supply
QA	Quality Assurance
RAMS	Risk Assessment Method Statements
SAC	Special Area of Conservation
SEPA	Scottish Environment Protection Agency
SPA	Special Protection Area
SPP	Species Protection Plan
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage System



Acronym or Abbreviation	Meaning
SWMP	Site Waste Management Plan
TCC	Temporary Construction Compound
UK	United Kingdom
WMP	Waste Management Plan
WQMP	Water Quality Monitoring Plan



1.0 Introduction

1.1 Background

This document presents an outline Construction Environmental Management Plan (oCEMP), prepared by SLR Consulting Ltd (SLR) on behalf of Brockwell Energy Limited (hereafter referred to as the Applicant). This oCEMP sets out the principles and procedures for environmental management during the wind farm development of the proposed Dalfad Wind Farm (hereafter referred to as the Proposed Development or the Site).

Should consent be granted, this oCEMP will be revised and updated to a final version, which will be agreed upon with the East Ayrshire Council (EAC) through consultation and enforced as a planning condition. The construction contractor will use the finalised CEMP to ensure proper environmental management throughout the construction phase of the Proposed Development.

The oCEMP has been prepared to take account of Good Practice during Windfarm Construction (NatureScot, 2019), Guidelines for Onshore and Offshore Windfarms (RenewableUK, 2010) and Research and guidance on restoration and decommissioning of onshore windfarms (NatureScot, 2013) and outlines the construction activities methodology pertinent to the Environmental Impact Assessment (EIA).

Please refer to Chapter 11, Schedule of Mitigations, which should be read in conjunction with the CEMP.

The CEMP is a fluid document that will evolve during the different phases of the Proposed Development. As such it will be subject to ongoing review in order to:

- address relevant conditions required in the approved consent;
- ensure it reflects best practice at the time of construction;
- ensure it incorporates the findings of pre-construction site investigations;
- address changes resulting from the construction methods used by the contractor(s); and
- address unforeseen conditions encountered during construction.

1.2 Aims and Objectives

The CEMP will be maintained and updated on site and will also be augmented by associated design specifications and Construction (Design and Management) (CDM) 2015 Regulations documentation such as the Principal Contractor's Construction Phase Plan.

Where appropriate, the CEMP, or plans within the CEMP, will form part of the site induction which will be mandatory for all employees, contractors and visitors attending the Site. All employees and contractors will need to familiarise themselves with the relevant contents of the oCEMP and supporting appendices as directed.

Management practices and mitigation measures have been developed for those aspects of the construction works that could potentially affect the environment.

The objectives of the CEMP are to:

- outline the proposed mechanisms for ensuring the delivery of environmental measures to avoid or reduce environmental effects identified;



- ensure procedures are in place so that there is a prompt response to effects requiring remediation, including reporting and any additional mitigation measures required to prevent a recurrence;
- provide an outline of the content that will be supplied in the construction method statements and strategies that will be prepared in order to secure mitigation measures in relation to different design aspects of the Proposed Development;
- ensure compliance with legislation and identify where it will be necessary to obtain authorisation from relevant statutory bodies;
- ensure that appropriate Proposed Development monitoring and reporting will be in place;
- provide a framework for reporting, compliance auditing and inspection to ensure environmental aims will be met; and
- set out the Applicant's expectations to guide contractors on their requirements with regards to environmental commitments and environmental management.

1.3 Site Setting

Located approximately 4 km northeast of Cumnock and 28 km east of Ayr, the Site falls within the East Ayrshire Council (EAC) administrative area, as shown on **Figure 1.1** of the EIA Report.

The Site is situated in a predominantly rural environment, characterised by agricultural land, forestry and former coal mining sites with several remaining open mining voids in the local area, one of which is located within the Site. The northern section of the Site includes the former Dalfad Coal Mine and part of the former Duncanziemere Coal Mine. The coal in these areas was formerly mined using both opencast and underground methods.

Whilst the mining companies abandoned the Dalfad and Duncanziemere mining operations on the Site in 2013, leaving the sites derelict, the EAC worked with the landowners to undertake restoration work to "Make Safe, Make Good, Make New"¹.

In 2021, the Dalfad Coal Mine was identified by the EAC in their report titled, "Opencast Coal Mining in East Ayrshire – Completion of Restoration and Recovery Activity"² as being fully restored. Aftercare of the Dalfad Coal Mine is being carried out by the landowner and is being monitored by EAC. Whilst EAC's works have ensured a safe site and restoration works have been delivered by EAC and the current site owners, there remains significant opportunity to improve the restoration and ecology of the Site.

The Duncanziemere Coal Mine has undergone limited restoration works in association with the extraction of remaining coal reserves but the mine was identified by the EAC in their 2021 report as undergoing 'aftercare'. The Duncanziemere Coal Mine is still in need of restoration betterment.

An area of plantation conifer forestry is immediately adjacent to the east, and there are several small areas of new conifer plantations within the Site. There are a number of small

¹ East Ayrshire Council, 2013. "Opencast Mining in East Ayrshire –Steps to Recovery, Council". Available at <https://www.east-ayrshire.gov.uk/CouncilAndGovernment/About-the-Council/MinutesAgendasAndReports/OpencastCoalUpdate.aspx> [Accessed 17/08/2026]

² East Ayrshire Council, 2021. Report by the Chief Governance Officer and Head of Economic Growth. "Opencast Coal Mining in East Ayrshire – Completion of Restoration and Recovery Activity". Available at <https://www.east-ayrshire.gov.uk/CouncilAndGovernment/About-the-Council/MinutesAgendasAndReports/OpencastCoalUpdate.aspx>. [Accessed 17/08/2026]



and isolated areas of ancient woodland located within 5 km of the Site, three within the Site boundary and one immediately adjacent to the southeast of the Site.

There are a number of residential and commercial properties located within 5 km of the Site, with most being along the route of the A70 (which runs north-east to south-west) to the west of the Site.

The settlement of Cronberry is located approximately 1.5 km to the west of the Site and Lugar is approximately 3 km west of the Site. Muirkirk is approximately 6.5 km to the northeast of the Site. Access to the Site will be gained from the A70 via an existing access point to the former Dalfad Coal Mine.

1.4 Project Description

The Proposed Development will comprise up to 14 turbines resulting in an overall generating capacity of approximately 80 MW – enough to power around 84,400 homes annually with clean, low-cost electricity. A 40 MW battery energy storage system (BESS) will also be included, meaning the Proposed Development will have a maximum installed capacity of around 120 MW.

In addition to the turbines and BESS, the Proposed Development will include the following ancillary infrastructure:

- Turbine foundations;
- Crane hardstands;
- A vehicular site entrance;
- Internal access track network;
- Watercourse crossings;
- Transformers and underground cables; and
- Onsite substation / switchgear building.

Temporary infrastructure required for construction will include:

- Three construction compounds;
- Crane assist pads;
- Blade laydown supports;
- Boom supports;
- Laydown areas; and
- A concrete batching plant.



2.0 Schedule of Mitigation and Implementation

2.1 Schedule of Mitigation

The EIA Report will outline various mitigation measures aimed at offsetting the potential impacts of the Proposed Development.

For each mitigation measure that will be identified, the EIA Report will detail the specific mechanism by which it is to be adopted, implemented, or enforced, as well as the timeframe within which the mitigation measure is to be carried out.

It will be mandatory for these mitigation measures to be implemented either before or during the construction phase of the Proposed Development.

The Schedule of Mitigation is set out in Chapter 11 of the EIA Report.

2.2 Implementation and Control

Compliance with the CEMP is the key control measure required during construction to ensure mitigation is appropriately addressed. The CEMP documents the principles and processes to be followed to implement all relevant agreed environmental mitigation.

The Principal Contractor (the main construction contractor responsible for undertaking and / or coordinating all construction activities for the Site) will be required to prepare a series of method statements in accordance with the Schedule of Mitigation. These method statements will detail how the contractor intends to implement the mitigation set out in the CEMP and will be integrated with their detailed Construction Method Statements.

If any significant changes are required to the Schedule of Commitments due to changing environmental sensitivities, results of pre-construction surveys, unforeseen events or for any other reason, these will be discussed and agreed with the Planning Authority and relevant statutory bodies in advance of any amended works being carried out. The Schedule of Commitments will be revised with any approved changes required resulting from the discussions with the Planning Authority and relevant statutory bodies. Any such agreed revisions will require to be submitted to and receive the written approval of the Planning Authority prior to being implemented.



3.0 Roles and Responsibilities

During construction there will be key responsibilities for the Applicant (or alternative future developer, if different), the Principal Contractor and their teams. Establishing roles and responsibilities in relation to construction will be important in order to ensure the successful construction of the Proposed Development, including the implementation of the CEMP. The personnel who will implement, monitor and respond to the CEMP will be the Applicant's construction team and the Principal Contractor.

3.1 Health and Safety

The construction works will be undertaken in accordance with primary health and safety legislation, namely:

- Health and Safety at Work Act 1974; and
- Construction (Design and Management) (CDM) Regulations 2015.

The construction works for the Proposed Development will fall under the CDM Regulations 2015. As such, the Principal Contractor will provide a Construction Phase (Health and Safety) Plan in accordance with the CDM regulations. This plan will include (but not be limited to) a construction programme, emergency procedures, site layouts and fire plans, method statements and details of the proposed induction programme. This induction programme will include both the Principal Contractor's site-specific rules as well as the Applicant's requirements and will include instructions to all staff regarding the Emergency Pollution Prevention Plan (EPPP) and relevant procedures.

An induction will be required for all personnel on Site (including permanent and temporary staff and any contractors or subcontractors), site visitors, client representatives or other third parties. The inductions will be documented.

All site activities will follow a safe system of work, with specific tasks having Risk Assessment Method Statements (RAMS) detailing:

- how the task will be carried out;
- identifying potential hazards and evaluating the risk on the basis of how likely hazards are to occur and what the consequences could be in the event of an incident;
- mitigation measures to be implemented to reduce the risks of the task, which will follow the Hierarchy of Controls in the following order, with elimination being the most effective and PPE being the least effective:
 - Elimination – physically remove the hazard;
 - Substitution – replace the hazard;
 - Engineering controls – isolate people from the hazard;
 - Administrative controls – implement safe systems of work;
 - PPE – protect the worker with equipment.

RAMS will be recorded, monitored and reviewed at appropriate intervals. If works change in a manner not anticipated by the RAMS, works will be stopped until the risk can be appropriately evaluated.



Plant operators and construction staff will be trained by the Principal Contractor with regard to spill prevention/mitigation measures and procedures and in the use of relevant mitigation material (e.g. spill kits).

Staff and subcontractors employed by the Principal Contractor will be trained and have to prove relevant certification for any plant, vehicle or use of specialist equipment such as electrical and hot works.

3.2 Construction Management Team

The Applicant will appoint a Construction Management Team (CMT), led by a Construction Manager. The team will include, as a minimum, a Resident Engineer, an Environmental Manager, and a Planning Monitoring Officer (PMO).

Prior to the appointment of a Principal Contractor, the Applicant will own the CEMP, and the document will become uncontrolled if printed.

It will be the Construction Management Team's responsibility to ensure that the Principal Contractor adheres to and complies with the principles of the CEMP and their Method Statements. This will likely be the responsibility of the Resident Engineer, the Environmental Manager and the Construction Manager. The team is also responsible for:

- regular liaison with the Principal Contractor's Site Manager;
- maintaining environmental risk registers;
- communicating with regulators and consultees such as SEPA, NatureScot and EAC regarding any changes that need to be made to the CEMP including the Schedule of Mitigation and
- ensuring that any required changes are approved and updated within the CEMP.

The Construction Manager, Resident Engineer and Environmental Manager will have the power to stop works at any stage should it be deemed necessary, i.e. if there were risks posed to environmental receptors from construction that could not be mitigated immediately.

3.2.1 Environmental Manager

An Environmental Manager, who will incorporate the role of an Ecological Clerk of Works (ECoW) and additional environmental duties as noted below, will be appointed during the period of construction and post-construction restoration. The appointment of the Environmental Manager will be approved by EAC.

The purpose of the Environmental Manager will be to provide environmental advice and monitor compliance, not implement measures. The Environmental Manager will have a number of different tasks to carry out during construction and prior to the outset of each construction phase. The Environmental Manager will be required to keep an active register of all issues that arise during the works and report as required to the Construction Manager, EAC, NatureScot and SEPA.

The Environmental Manager will have sufficient powers to:

- oversee construction work and identify where mitigation measures are required;
- authorise temporary stoppage of works if required; and
- to review working methods and advise whether alternative or more appropriate working methods require to be adopted.

The Environmental Manager will undertake the following activities:



- work with the Principal Contractor to induct all Site personnel with regards to key environmental sensitivities and mitigation measures to be applied during construction. Toolbox talks will be given by the Environmental Manager throughout the construction period in the event that additional unforeseen issues arise that require alternative working methods;
- undertaking Site walkovers, review and contribute to the implementation of the Surface Water Management Plan with reference to water quality protection and appropriate locations for fuel and oil stores;
- inspecting working areas to monitor for compliance with the CEMP;
- advise on, and provide written approval of, micro-siting of wind turbines and other infrastructure;
- undertaking water quality monitoring;
- providing advice on sediment and drainage management;
- communicating with all Site personnel regarding environmental issues and mitigation measures;
- overseeing the need for any necessary licenses regarding protected species to be obtained, if required, and facilitating the implementation of any licensable works with the support of suitably qualified and experienced Ecologists;
- undertaking pre-construction checks for protected and notable species and overseeing the implementation of associated mitigation measures, as set out in the SPP;
- reporting to the Construction Manager any incidents of non-compliance with the Environmental Manager Works at the earliest opportunity and advising temporary stoppage of works where any breach is identified;
- documenting and reporting any environmental issues and incidents, as required, to the Applicant, EAC and other relevant consultees, such as NatureScot and SEPA if required; and
- submitting monthly reports to the Planning Authority summarising the works undertaken on the Site.

All works will be undertaken in accordance with the SEPA guidance documents (Pollution Prevention Guidelines and Guidance for Pollution Prevention, see references for full list) and Prevention of Pollution from Civil Engineering Contracts [SEPA, Version 2, June 2006]. In addition, the appointed contractor will be familiar with and take due regard to the other related guidance documents as listed in Section 12.

3.2.2 Planning Monitoring Officer

3.2.2.1 A Planning Monitoring Officer will be appointed by the Applicant to monitor compliance of the Proposed Development with the planning conditions requirements during construction should consent be granted. The Planning Monitoring Officer will report to both the Applicant and EAC and will liaise closely with both parties to help rectify any potential issues that may arise.

3.2.3 Resident Engineer

The Applicant will appoint a Resident Engineer for the construction of the Proposed Development. The Resident Engineer will provide support to the Construction Management



Team and have day to day responsibility for monitoring the Proposed Development onsite on behalf of the Construction Manager.

The Resident Engineer will have a wide range of duties including but not limited to:

- overseeing construction works to ensure conformance with the specification, monitoring quality and progress and most importantly ensure that health, safety and the environment is given a high priority at all times. The Resident Engineer will effectively be the Applicant's eyes and ears on the Site and will report directly to the Construction Manager;
- authority to stop the construction works in the case of a health and safety, environmental or quality issue. This applies when delays may lead to increased risk or damage;
- daily visual inspections of working areas to identify possible construction issues from a quality, environmental, programme and safety perspective. Any issues will be raised directly with the contractor;
- working closely with the Environmental Manager to ensure that ecological and environmental requirements dictated by the CEMP, best practice and the planning conditions are adhered to by the works contractors;
- reviewing construction related documents from all contractors – including method statements and risk assessments and providing comments directly onsite to the Principal Contractor; and
- reporting all environmental or health and safety incidents and near misses to the Construction Manager in a form and timescale required by the Construction Management Team.

3.3 Principal Contractor

The Principal Contractor will be required to comply with and regularly review the CEMP throughout the construction period. This will include being aware of any changes or updates to the CEMP following the identification of any new environmental sensitivity or any Proposed Development changes. These changes will be controlled and implemented by the Applicant Construction Management Team, as required.

The Principal Contractor and their team (including any sub-contractors) will be responsible for:

- undertaking their duties in accordance with CDM 2015;
- liaising with the Applicant Construction Management Team;
- completing the construction of the Proposed Development in a manner which complies with all relevant laws, rules and regulations;
- acquiring licenses and permits as necessary for their works;
- ensuring that all method statements in line with the principles set out in the CEMP have been provided;
- planning, managing, monitoring and coordinating all pertinent activities relating to construction;
- liaising with and providing justification to the regulators and consultees such as SEPA, NatureScot and EAC if any significant changes are required from the Schedule of Commitments;



- developing and implementing a Pollution Prevention and Incident Plan (PPIP) and ensuring that all personnel (including sub-consultants and sub-contractors) understand and are aware of procedures to be undertaken should an environmental incident occur. This will sit as an additional appendix in the CEMP;
- ensuring that all personnel receive training and are aware of the potential for damage to environmental receptors and procedures required to be implemented to avoid, minimise and mitigate against such damage;
- verifying the competence and resources of all personnel working on the Proposed Development and any sub-consultants and sub-contractors that are engaged on the Proposed Development; and
- implementing the Schedule of Mitigation.

3.4 Site Personnel

All Site personnel, including all members of the Applicant and Principal Contractor's teams, all sub-contractors and sub-consultants are required to:

- attend all inductions and Site-specific training including toolbox talks carried out by the Environmental Manager; and
- implement control measures throughout the Site, as required.

3.5 Communication

Prior to the commencement of construction, the Applicant will set up a community liaison strategy. The objective of the community liaison activity will be to keep the community informed of progress of construction of the Proposed Development. The community liaison strategy will be designed to establish processes to keep the community informed, reviewing incidents that have occurred and how these have been resolved and discussing the forthcoming programme of work. The Applicant will start to liaise through the Community Council prior to any construction starting on Site and communication will be maintained on a regular basis, i.e. monthly, until construction is complete, and the Proposed Development is operational. The Applicant will provide contact details to the Community Council of:

- the Resident Engineer – who will be on Site for the majority of the construction phase;
- the Applicant's Construction Manager; and
- the Applicant's Public Relations Officer.

Any resident who has a question regarding the construction of the Proposed Development will be directed to one of these contacts. All questions will be logged and responded to within a specified number of days.

Once construction has started, the Applicant will provide details of any construction activity that will impact on the local community, such as deliveries.

Careful monitoring of any complaints received, including recording details of the location of the affected party, time of the disturbance and nature of the issue will assist with managing the works to reduce the likelihood of further incidents.



4.0 Phasing

4.1 Construction

The construction works will be completed within a timeframe to be agreed upon between the Applicant and relevant parties. Construction activities will take place during hours that will also be established through mutual agreement, from Monday to Friday, and on Saturdays. While Sunday work is typically not anticipated, certain activities, such as abnormal load deliveries, concrete deliveries during foundation pours, and the lifting of turbine components, may occur outside the specified hours. However, these activities will not be conducted without prior approval from EAC.

The Principal Contractor will keep local residents informed about the proposed working schedule, including the times and duration of any abnormally noisy activity that may cause concern.

The following phases will be taken into consideration for the construction works:

- Phase 1 – Site set-up:
 - access road improvements and reinstatement
 - site compound set-up, including installation of welfare facilities;
- Phase 2 – Construction:
 - construction of access tracks;
 - construction of turbine foundations and crane hardstandings;
 - installation of wind farm cabling;
- Phase 3 – Commissioning:
 - turbine delivery and erection;
 - grid connection;
 - wind farm commissioning;
 - turbine and wind farm reliability run;
- Phase 4 – Demobilisation:
 - take-over;
 - snagging; and
 - decommissioning of temporary compound / structures and restoration of all construction temporary works elements.

An indicative construction programme is shown in **Table 4-1** for information. This is a typical indication of programme based on similar sites. A detailed construction programme will be provided by the Principal Contractor as p

art of the CEMP and the Construction Phase Plan.



Table 4-1: Indicative Construction Programme

Month	Mobili-sation	Site Entrance & Access Tracks	Crane Hardstands	Turbine Foundations	Substation	Cable Installation	Turbine Deliveries	Turbine Erection	Testing Commissioning & Energisation	Demobilisation & Operational Take Over
1										
2										
3										
4										
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4.2 Post-Construction Reinstatement

Good practice techniques for vegetation and habitat reinstatement will be adopted and implemented on areas subject to disturbance during construction as soon as practicable.

The following reinstatement works will be considered:

- re-use of turves;
- re-use of topsoil/peat where appropriate; and
- reseeding with appropriate species.

For clarity, the following are definitions for the different soil make-up of the natural ground between the surface and bedrock (from top down):

a) Vegetation:

This is typically plant matter that can be removed/stripped above the ground level (i.e. does not include roots/topsoil). This can vary depending on the nature of the vegetation encountered on site.

b) Turf/Turves:

This is typically a layer of matted earth formed by grass and plant roots. The matted earth layer will normally be 30-50mm thick.

c) Topsoil:

The upper layer of soil usually containing significantly more organic matter than is found in lower layers. This can vary in depth but is typically 200mm thick. This can be excavated with the turf and depends on whether the turf is required elsewhere, or the topsoil needs to exclude the turf.

d) Superficial Soils:

This is a generic term used for all material between topsoil and rockhead. This can vary in depth and content throughout the depth profile at any location.

e) Peat

f) Peat is an organic soil formed from the partial decomposition of vegetation under waterlogged conditions. It typically contains a high proportion of organic matter and can vary significantly in depth across the Site.

g) Peat Turves

Peat turves are intact blocks of peat, including associated vegetation and root structure, that are carefully excavated, stored and reinstated to facilitate habitat restoration and promote re-establishment of pre-construction vegetation communities.

h) Acrotelm

The acrotelm is the upper, biologically active layer of peat, generally comprising living vegetation and recently decomposed organic material. This layer is typically subject to fluctuations in water level and supports most root growth and ecological activity within the peat profile.



i) Catotelm

The catotelm is the deeper, permanently waterlogged layer of peat located beneath the acrotelm. It comprises more highly decomposed organic material and is characterised by low biological activity and long-term carbon storage.

j) Weathered Rock

This is a layer that may exist above rockhead that is neither rock nor superficial material but a mixture of both. It can be mostly fractured rockhead as a result of physical and chemical weathering processes. When excavated it may have elements of fractured rock and superficial material as the boundary can be difficult to distinguish.

In some cases, this can provide suitable engineering material for the construction of foundations, embankments, tracks, etc.

k) Bedrock:

This is a naturally occurring solid aggregate of minerals which lies beneath the superficial soils.



5.0 General Construction Good Practice

5.1 Handling of Excavated Materials

The construction of tracks, turbine foundations and crane hardstanding areas as well as the establishment of the construction compound will require the stripping and excavation of soil and its reuse or temporary storage. Excavations will generate material comprising peat, soil and rock. Soils and peat will be used for reinstatement works associated with access tracks, cable trenches, turbine foundations, crane hardstands and the temporary construction compound. The upper vegetated turves (where available) will be stored and be used to dress infrastructure edges and to be replaced on areas which have been temporarily stripped in line with the principles established in the Peat Management Plan.

Excavated material will be used as soon as practicable and as close as possible to the area it was excavated from; however, some temporary storage may be required. Soils in areas taken for temporary use will ideally be stockpiled close to the excavation location.

5.2 Materials Storage

Granular, non-organic material required to be stored temporarily will be compacted to reduce the potential for erosion and transfer of sediment and stockpiled in designated areas at least 50 m from a watercourse. Temporary stockpiles will be appropriately sited away from marshy grassland, bog or heath, where possible, with the locations agreed in advance with the Environmental Manager.

Where soils cannot be transferred immediately to an appropriate restoration area, short-term storage will be required. In this case, the following good practice will apply:

- soil will be stored around the turbine perimeters at a sufficient distance from the cut face of excavations to prevent overburden induced failure;
- local gullies, diffuse drainage lines (or very wet ground) and locally steep slopes will be avoided for storage;
- stored upper turves (incorporating vegetation) will be reinstated adjacent to similar habitats as advised by the Environmental Manager;
- monitoring of stockpiles/excavation areas will occur during and following rainfall events; and
- if material is stockpiled on a slope, silt fences will be utilised to reduce sediment transport in accordance with CIRIA guidance C532. Additional measures may also be necessary to control flow of water and sediment transport on Site in accordance with this guidance.

Material excavated during new and upgraded access track construction will be stored adjacent to the track and granular, non-organic material compacted in order to limit instability and erosion potential. Peat will not be allowed to dry out, through rewetting and monitored irrigation.

Silt fences will be employed in combination with the measures described in 'CIRIA Control of Water Pollution from Construction Sites. Guidance for consultants and contractors (C532)' where required to minimise sediment levels in run-off.



5.3 The Management and Movement of Concrete

5.3.1 Accidental Spillage

Appropriately sized spill kit(s) will be provided and maintained at suitable locations across the active areas of the Site, such as the proposed batching plant, and all vehicles, including plant, will carry a spill kit. These will contain materials such as absorbent granules and pads, absorbent booms and collection bags. These are designed to halt the spread of spillages and will be deployed as necessary should a spillage occur within the construction site.

In the event of any spillage or pollution of any watercourse, the emergency spill procedures as described in the PPIP will be implemented immediately (refer to section 6.1 Pollution Prevention and Incident Plan).

A speed limit of 15 mph will apply for vehicles onsite and will be monitored and enforced by the Principal Contractor. Maximum vehicle load capacities will not be exceeded.

5.3.2 Vehicle Washing

There will be a wash-out facility within the construction compound consisting of a sump overlain with a geosynthetic membrane. The geosynthetic membrane will filter out the concrete fines leaving water to pass through to the sump. The sump water will either be pumped to a licenced carrier and taken offsite for approved disposal, or it will be discharged to surrounding vegetated surfaces where such discharge meets the requirements of NatureScot and SEPA. No washing of concrete-associated vehicles will be undertaken outside the wash out facility, and the area will be signposted, with all site contractors informed of the locations.

5.3.3 Concrete Pouring for Turbine Foundations

To prevent pollution, it is important that all concrete pours are planned, and specific procedures adopted in accordance with Construction Industry Research and Information Association (CIRIA) C532 Control of water pollution from construction sites: guidance for consultants and contractors. These procedures will include:

- ensuring that all excavations are sufficiently dewatered before concrete pours begin and that dewatering continues while the concrete cures. Construction good practice will be followed to ensure that fresh concrete is isolated from the dewatering system;
- ensuring that covers are available for freshly placed concrete to avoid the surface of the concrete washing away during heavy precipitation; and
- perimeter drains with silt traps.

The excavated area will be backfilled with compacted layers of graded material from the original excavation, where this is suitable, and capped with peat or soil. The finished surface around the base of the turbine, will be capped with crushed aggregate providing a walkway to allow for safe personnel access.

5.4 Surplus and Waste Material

5.4.1 Introduction

Initiated as part of the Defra Red Tape Challenge, aiming to reduce bureaucracy for business, the Site Waste Management Plans Regulations 2008 (SWMP) were repealed on 01 December 2013. However, it has been adopted as good practice to produce a SWMP for large-scale construction sites and to append to planning applications and, as such, are recommended to be adopted in this project.



The SWMP will detail how all waste materials will be managed, including the management and definition of excavated materials.

The Principal Contractor will take all reasonable steps to ensure that all waste from the Site is dealt with in accordance with the requirements under the Environmental Protection (Duty of Care) Regulations 1991 (and amendments) and that materials will be handled efficiently and waste managed appropriately.

Appropriate waste management, disposal and waste carrier documentation and licences will be obtained (e.g. complete waste transfer notes prior to waste leaving site, ensure all waste carriers have a valid waste carrier's registration certificate, ensure wastes are disposed of at a correctly licensed site, complete notification for hazardous waste to SEPA).

Waste streams will include wastes generated by plant, machinery and construction workers over the period of the works, for example waste oils, sewage, refuse (paper, carton, plastic etc.), wooden pallets, waste batteries, fluorescent tubes etc.

5.4.2 Soils and Spoils

It is planned that any materials excavated on the Site during the construction works will be stored on the Site, ideally close to the excavation location, and re-used where it is appropriate to do so. As such, offsite disposal of this material is not anticipated.

5.4.3 Hazardous and Other Wastes

Table 5-1 lists some of the waste types that may be generated during the construction works. Although some waste types may be generated in locations other than the construction compound, such waste materials will be stored within the construction compound only. Waste materials generated outside the construction compound will be taken to the compound on a daily basis to be managed thereafter.

Table 5-1: Common Construction Wastes

EW Code	Description
13 01 10*	Used mineral hydraulic oil (non-chlorinated)
13 02 05*	Waste engine, gear or lube oil (non-chlorinated)
13 02 08*	Other waste engine, gear or lube oil
16 01 07*	Oil filters
20 01 23*	Discarded equipment containing CFCs e.g. waste fridges
16 06 01*	Lead batteries
16 07 08*	Oily waste from transport and storage tanks
16 10 01*	Hazardous liquid wastes to be treated off-site
20 01 21*	Fluorescent tubes and other mercury-containing waste
20 01 33*	Hazardous batteries and accumulators that are collected separately
15 02 02*	Absorbents, filter materials, wiping cloths, clothing contaminated by dangerous substances
15 01 01	Cardboard or paper packaging
15 01 02	Plastic packaging e.g. toner and ink cartridges, polythene sheeting
15 01 03	Wooden packaging e.g. timber pallets



EWC Code	Description
15 01 04	Metallic packaging e.g. drink cans, paint tins
16 01 03	Tyres
16 01 15	Antifreeze fluids that do not contain dangerous substances e.g. Coolants
16 01 17	Ferrous metal from vehicles e.g. car parts
16 02 14	Non-hazardous waste electricals e.g. washing machines, power tools
16 05 05	Gases in pressure containers i.e. gas cylinders
17 01 01	Concrete
17 02 01	Wood from construction or demolition e.g. timber trusses, supports, frames, doors
17 04 11	Cables that do not contain dangerous substances e.g. electric cabling
20 01 01	Paper and card similar to that from households e.g. office paper, junk mail
20 01 30	Non-hazardous detergent e.g. flushing agent/universal cleaner
20 01 39	Separately collected plastics e.g. plastic containers, bottles
20 03 01	Mixed waste similar to that from households e.g. mixed office, kitchen and general waste
20 03 04	Septic tank sludge

*Denotes Hazardous Waste, as categorised by the European Waste Catalogue.

Foul water from the onsite facilities at the construction compound will be removed from Site by an appropriately licensed contractor (see also Section 7.4.5).

5.4.4 Regulatory Compliance

Waste will be transferred to a licensed waste management site or site with a waste exemption. The Principal Contractor will check that the site is licensed and that the licence permits the site to take the type and quantity of waste involved. Copies of the waste management licence or waste exemption license will be held on file.

A 'Waste Transfer Note' must be completed by all parties involved and must be retained for a period of two years. Sub-contractors excavating and hauling waste offsite must complete their own Waste Transfer Notes and copy them to the Principal Contractor. It is not necessary to have a Waste Transfer Note for each load of waste, and a Waste Transfer Note can be issued weekly or monthly as a season ticket.

It will be the responsibility of the Principal Contractor to ensure that other parties involved in the transport, storage and disposal of waste are legally entitled to carry out their duties.

5.5 Dust Mitigation

Good practice measures as listed in **Table 5-2** will be adopted during construction to control the generation and dispersion of dust such that significant impacts on neighbouring habitats should not occur. The hierarchy for mitigation will be prevention – suppression – containment.



Table 5-2: Dust Mitigation Measures

Task	Mitigation Measures
Excavation and Earthworks	- working areas will be stripped as required in order to minimise exposed areas; - during excavation works drop heights will be minimised to control the fall of materials reducing dust escape; and - temporary cover may be provided for earthworks if necessary and completed earthworks and other exposed areas will be covered with topsoil and re-vegetated as soon as it is practical in order to stabilise surfaces.
Stockpiling of loose materials	- ensure that stockpiles exist for the shortest possible time; - material stockpiles will be low mounds without steep sides or sharp changes in shape; - material stockpiles will be located away from the Site boundary, sensitive receptors, watercourses and surface drains; and - material stockpiles will be sited to account for the predominant wind direction and the location of sensitive receptors.
Track works/ traffic movements	- water bowsers will be available onsite and utilised for dust suppression where required; - daily visual inspections will be undertaken to assess need for use of water bowsers; and - vehicle loads to be covered.

5.6 Noise Management

The sources of construction noise are temporary and vary both in location and their duration as the different elements of the Proposed Development are constructed, and arise primarily through the operation of large items of plant and equipment such as bulldozers, diesel generators, vibration plates, concrete mixer trucks, rollers etc. Noise also arises due to the temporary increase in construction traffic near the Site. The level of noise varies depending on the different elements of the Proposed Development being constructed.

BS 5228-1:2009 'Noise control on construction and open sites; Part 1 – Noise' is identified as being suitable for the purpose of giving guidance on appropriate methods for minimising noise from construction activities.

For all activities, measures will be taken to reduce noise levels with due regard to practicality and cost as per the concept of 'best practicable means' as defined in Section 72 of the Control of Pollution Act 1974.

Noise will be managed through the application of Best Practicable Means and a combination of construction and operational controls. During construction, measures will include the use of appropriately maintained plant and equipment, careful siting of noise-generating activities, the use of screening and temporary acoustic barriers where practicable, location-specific controls for overhead line works near residential receptors, and community liaison procedures including the investigation of noise complaints. During operation, wind turbine noise will be controlled through site-specific noise limits and an operational noise management strategy, while the BESS, substation and associated infrastructure will be subject to detailed acoustic design measures to ensure compliance with BS 4142 noise criteria. All relevant controls and monitoring requirements will be secured through planning conditions where appropriate.



5.7 Site Lighting

Temporary site lighting may be required for specific activities to ensure safe working conditions, during periods of limited natural light but will be carried out within the limits of the permissible working hours. It is intended the type of lighting will be non-intrusive and specifically designed to negate or minimise any effect to local properties and any other environmental considerations.

Given the proposed size and scope of the development, and location in Scotland, it is most likely that the construction timetable will require elements of the works to be undertaken during periods of the year when natural daylight is limited.

The use of artificial lighting may therefore be required in order to facilitate the works, such as vehicle and plant headlights; construction and compound lighting; office complex lighting; and localised floodlights/mobile lighting units. There will be fewer requirements for artificial lighting in the summer months when natural lighting will be present during normal working hours. While there are no pre-existing localised industrial lighting restrictions on the Site, the Applicant acknowledges the site's location within the Transition Zone of the Galloway Forest Dark Sky Park.

To mitigate light pollution and spill, where practical, lighting will be kept to a minimum and will be limited to working areas only and will comply with health and safety requirements. Lighting will be down lit and linked to timers and movement sensors so that light spill is kept to a minimum. Any issues identified with regards to limiting the lighting levels, either the lux values, or the time/duration of the lighting will be taken into consideration as part of the developed construction method statement.

5.8 Vehicle Storage

Appropriate areas will be provided adjacent to or within the Site compound to allow staff and visitor vehicles to be parked. In addition, appropriate provisions will be made for the layover of HGV traffic to ensure that the adjacent road always remains clear and available for use. The track design incorporates spurs and crane hardstanding, which, from time to time, could be required to temporarily store vehicles, i.e., as waiting areas.



6.0 Pollution Prevention Measures

6.1 Environmental Incident Response Plan

The Principal Contractor will be responsible for developing and implementing an Environmental Incident Response Plan (EIRP). The EIRP will provide reference to procedures to be followed in the event of a specific incident. In general, if an environmental incident was to occur, the following will take place immediately:

- mitigation will be implemented to stop or reduce impacts from the incident;
- if these are ineffective, work in the area will cease immediately;
- if necessary, monitoring will be undertaken to identify the source of the incident;
- work will only recommence once it is considered that it will not continue to adversely impact sensitive environmental receptors; and
- provision of a full report by the Principal Contractor and separately by the Environmental Manager to the Applicant following an incident occurring.

The Environmental Incident Response Plan will reflect site-specific conditions/issues. The Principal Contractor will submit the detailed Plan to the Applicant for approval prior to any construction works commencing onsite. The Plan will provide:

- a summary of local environmental sensitivities, e.g. environmentally designated areas, protected species or habitats and high amenity areas;
- an outline of the construction works and appropriate references to other environmental plans and construction method statements;
- an inventory of stored materials and emergency response spill kits;
- details on training requirements, evidence of training of site staff / plant operators in emergency response procedures including inclusion of Environmental Incident and Response training in Site inductions and toolbox talks; and key staff contacts for environmental management and emergency response;
- detailed procedures to be taken in the event of an incident or emergency (including procedures for positioning and movement of plant) and identification of relevant personnel who will be responsible for implementing such procedures; and
- contact telephone numbers for the emergency services and SEPA Pollution Hotline (0800 80 70 60).

A plan of the Site will also be provided, detailing:

- all areas of potential pollution sources including the locations of car parks, delivery and fuel / chemical storage areas, oil separator equipment, excavations, and any other high-risk areas that could give rise to pollution;
- the location of potential sensitive environmental receptors, including sensitive habitats or species, surface watercourses, drains or culverts where pollution may travel to; and
- the location of spill kits and other pollution control or emergency response equipment.

The procedures for responding to a major pollution incident will be a regular topic at onsite toolbox talks and management meetings in order to ensure that the incident response plan is fully understood by all personnel, and that all involved know their role in it. Any lessons



learnt from any response to real incidents will be fed back into the plan to ensure that best practice is followed.

The EIRP will be developed referencing relevant guidance, including but not limited to:

- CIRIA (2015) Environmental good practice on site guide (fourth edition) (C741);
- CIRIA (2006) Control of water pollution from linear construction projects. Site guide (C649);
- DEFRA (2011 as amended in 2018) Code of practice for the sustainable use of soils on construction sites;
- Forest Research (2019) Practical guide: Managing Forest operations to protect the water environment;
- SEPA (2021) Sector Specific Guidance: Water Run-Off from Construction Sites Supporting Guidance (WAT-SG-75); and
- SEPA (2010 Second edition) Engineering in the water environment: good practice guide River crossings.

6.2 Re-Fuelling of Vehicles, Plant and Machinery

Vehicle re-fuelling will take place either within the compound at a dedicated impermeable refuelling pad or by mobile double bunded bowsters at their place of work. The refuelling pad will have an impermeable base and bund with a capacity of 110% with sumps provided such that they do not drain directly into the surface water drains. Where practicable, drainage from the compound will be passed through oil interceptors prior to discharge. Refuelling will be carried out using an approved mobile fuel bowser with a suitable pump and hose. Absorbent material (spill kits) will be available onsite with dedicated kits adjacent to watercourses and will be deployed to contain drips and small spillages. Waste oil and /or other contaminants from interceptors and used spill kits will be disposed of in accordance with GPP 8 Safe storage and disposal of used oils.

All other fuels, oils and potential contaminants, as well as waste oils, will be stored within the Site compounds in secure, fit for purpose containers within bunded containment as appropriate and in accordance with SEPA guidance (GPP 2: Above ground oil storage tanks, January 2018). All drums and barrels will be fitted with flow control taps. All drums and barrels will be correctly labelled. The bunded containment will have a capacity of 110% of the volume to be stored and will have impervious, secured walls and base. Maintenance of mobile plant will take place within the construction compound only and will comply with SEPA PPG 7 (The safe operation of refuelling facilities, July 2011).

There will be no fuel storage outside the compound. Plant will be maintained in good operational order and any fuel/oil leaks recorded for attention. Absorbent pads/granules in the case of an accidental leak/spillage will be available at the temporary construction compound.

Refuelling procedures and risk assessments and method statements will be provided by the Principal Contractor to the Applicant for approval prior to work commencing.

6.3 Spillage

In the event of any spillage or pollution of any watercourse the emergency spill procedures as described in the EIRP will be implemented immediately. Procedures will be adhered to for storage of fuels and other potentially contaminative materials in line with the Water Environment (Oil Storage) (Scotland) Regulations 2006, to minimise the potential for accidental spillage.



6.4 Other Storage

Stockpiles for stone material for the construction of tracks will be kept to designated storage areas and transported to works areas as and when required. There are no known areas suitable for borrow pits on the Site.

Stripped topsoil/superficial soil will be stockpiled in a suitable location away from the area of movement of heavy vehicles, machinery and equipment, to minimise compaction of soil. Stockpiling of excavated material will be managed such that the potential contamination of down slope water supplies and/or natural drainage systems is mitigated / minimised.

Low mounded stockpiles will be formed from excavated material, adjacent to access tracks, turbine areas and compound areas, away from open drains.

6.5 Prevention of Mud and Debris on Public Roads

Plant and wheel washing facilities and road sweepers will be provided as required to prevent mud and deposits from being transferred from Site onto the public highway.

Plant and wheel washing, where provided, will be located within a designated hardstanding at least 10 m from the nearest watercourse or surface water drain. Runoff from the facilities will be captured within a purpose designed system for recycling and re-use where possible within the Site. Settled solids will be regularly removed and disposed of by an appropriately licensed contractor. This facility will be located and designed in consultation with SEPA and EAC.

Open backed lorries or tippers delivering material to Site or removing material from the Site will be sheeted where there is a risk of loose or deleterious material being deposited on the local public road network.

6.6 Cement

Given the limited number of turbines, importing concrete to the site may be more cost-effective than establishing an onsite concrete batching plant. The concrete will be delivered in ready-mix form, ensuring quality and consistency. Stored materials, such as cement, will be handled appropriately and kept protected from the elements during transport and installation.

Any bagged cement will be stored within a soil bunded area on pallets above the ground and covered with secured plastic sheeting to minimise the risk of wind-blown cement and uncontrolled washout occurring.

Any spilled cement will be removed by shovelling/excavator and suitably disposed of offsite.

As there are no borrow pits on Site, then ready-mixed concrete will be brought onto the construction site from an offsite source for use as required.

6.7 Silt

Silt-laden surface water runoff could be expected from any areas of recently exposed soil or rock and from access tracks and hardstandings. There will be no discharge or disposal of any such runoff directly into any river, stream or drainage ditch. Further detail on the control of silt entrained in surface water runoff will be contained within the Surface Water Management Plan.

6.8 Waste and Litter

Waste and materials for recycling will be stored at the construction compound. Section 5.4 details principles for waste minimisation, recycling and disposal of waste streams. A



separate Site Waste Management Plan will be prepared by the Principal Contractor in order to document waste movement and amounts of different waste streams generated. Further detail on this plan is found under Section 5.4.

With respect to the control of litter on Site, all such waste will be collected and stored within sealed containers within the construction compound and serviced by a registered waste carrier. No disposal of litter will be permitted at other locations. This will be a point of emphasis within the Site induction to all Site personnel.

6.9 Hydrocarbon Contamination

6.9.1 Vehicle Maintenance

As noted in Section 5, plant and machinery will be regularly maintained to ensure that the potential for fuel or oil leaks/spillages is minimised. All maintenance will be conducted on suitable absorbent spill pads to minimise the potential for groundwater and surface water pollution. All machinery will be equipped with drip pans to contain minor fuel spillage or equipment leakages. All vehicles and machinery will carry a spill kit.

6.9.2 Chemical Storage

All fuels, oils and other chemicals will be stored in the construction compound in secure, fit for purpose containers within bunded containment as appropriate and in accordance with SEPA guidance. The bunded containment will have a capacity of 110% of the volume to be stored and will have impervious, secured walls and base.

The bunded area will be within the construction compound and will be underlain by an impermeable ground membrane layer to reduce the potential pathways for contaminants to enter watercourses and groundwater.



7.0 Drainage and Surface Water Management

7.1 Introduction

Control of water is of great importance during construction to prevent exposed soils eroding and silting up surrounding drainage channels and downstream watercourses. It is essential that the works have little or no impact on the existing hydrology in order to minimise potential impact on ecology and environmental quality of the surrounding area.

The following principles are intended to demonstrate measures that could be used across the Site to adequately protect hydrological and related resources. Detailed proposals for such measures will be developed and documented by the Principal Contractor prior to construction and will provide the same or greater protection for the water environment as those described in this document. The measures are proportionate to the risk and where greater risk is highlighted at specific locations prior to construction, specific measures will be agreed for those locations.

Legislation and Guidance that have informed the drainage and surface water management proposals includes those listed in Section 6.1, as well as:

- GPP 4 Treatment and disposal of wastewater where there is no connection to the public foul sewer.

7.2 Site Induction and Training

All employees and contractors will undergo a Site induction to ensure that they are familiar with the Site rules prior to any work commencing on Site. In addition, the Principal Contractor will ensure that all operatives and contractors responsible for handling fuel, oil, concrete or cement or other potential pollutants undergo a thorough induction programme with respect to the relevant proposed pollution control measures. The relevant programme will include, as a minimum, the following:

- waste management;
- emergency response procedures;
- materials management;
- habitat and species protection,
- surface water management;
- potential sources of pollution and their effects on the environment;
- requirements of the contract and legislation with respect to pollution;
- the Principal Contractor's pollution avoidance plan;
- traffic management and routing, including areas where access is not permitted; and
- training in the use of pollution control equipment.

7.3 Site Drainage

During the construction phase of the Proposed Development, measures will be adopted in order to prevent silt, chemicals and/or other contaminants from being washed into existing watercourses. Areas exposed due to the removal of vegetation are more susceptible to erosion during heavy rainfall, so areas will be reinstated as soon as possible to minimise this effect.



Measures will include specific guidance in relation to drainage (and control of pollution to the water environment) around the following aspects of Site infrastructure:

- access tracks;
- turbine foundations;
- watercourse crossings; and
- hardstanding areas and buildings (including crane hardstandings, construction compound and associated infrastructure).

The appropriate methodologies to cover water control and the means of drainage from all hard surfaces and structures within the Site are described in the following sections.

Ditches will remain in place to convey surface water flows during the operational life of the wind farm.

7.4 Management of Sediment and Surface Waters

Good practice construction techniques will be adopted for the management of sediment and surface water run-off generated during the construction phase of the Proposed Development. Sustainable Drainage Systems (SuDS) will be used where applicable.

Drainage from the Site will include elements of SuDS design. SuDS replicate natural drainage patterns and have several benefits:

- SuDS will attenuate run-off, thus reducing peak flow and any flooding issues that might arise downstream;
- SuDS will treat run-off, which can reduce sediment and pollutant volumes in run-off before discharging back into the water environment; and
- SuDS measures, such as lagoons or retention ponds, correctly implemented will produce suitable environments for wildlife.

In addition, a wet weather protocol will be developed and implemented by the Principal Contractor to manage activities during periods of heavy and prolonged precipitation. The protocol will be approved by EAC in consultation with SEPA.

Heavy or prolonged rainfall during construction and operation could lead to sediment transport or vegetation causing blockage to infrastructure drainage channels or watercourse crossing structures. Regular monitoring and prompt maintenance of these assets will ensure that the drainage system continues to function as designed.

7.4.1 Sustainable Drainage Systems (SuDS)

During drainage design it is highly encouraged that runoff pollutants, such as silt, are treated within the development, such that the surrounding environment is not harmed, and local drainage connections are not overloaded. SuDS are a sustainable method of reducing the quantity and improving the quality of runoff into local water courses and connecting drainage network systems. They are inspired by natural systems and aim to improve the local amenity and biodiversity.

SuDS are desirable and easily constructible at a large scale for wind farms. Additionally, wind farm sites usually have established vegetation which can act as a form of SuDS, naturally intercepting pollutants and allowing for slow infiltration. Thus, the use of SuDS for wind farm sites can assist in reducing the risk of polluting the local environment and/or overwhelming drainage systems to a non-significant level. There are several forms of SuDS, however the methods mentioned below are those considered more suitable for wind farm developments:



- Permeable surfaces such as gravelled areas, drain water through voids within the gravel, into the soil below. The access tracks to the wind turbines will be constructed using porous materials, encouraging a natural and slow infiltration process.
- Filter strips are a method of source control constructed by sloping a gentle strip of ground for runoff to flow over. Considering wind farms are usually naturally hilly, runoff will flow down the hillside, and the vegetation will intercept the pollutants such as silt, whereas the water will infiltrate slowly into the soil below. Filter strips are typically constructed between the upland development/access tracks and the watercourses at the bottom of the development. However, it is noted that filter strips are not suitable for use at steep sites.
- Swales are a source control and a method of deterring runoff from accumulating into one large drainage area. Swales are typically broad but shallow and can be created by excavating a small trench alongside the source of runoff, for example access tracks. Swales assist water into a storage or discharge system to reduce flood risk and encourage slow infiltration. Additionally, as pollutants will become captured in the top layer of the soil, it is possible for an impervious lining to be constructed under this layer. It is best practice that swales are designed to be dry during dry weather as this strengthens their pollutant eradication potential.
- Silt fences, which are constructed using a closely woven synthetic geotextile material, are a quick and easy form of SuDS which can be used from the construction stage. They can be established along the leading runoff routes, intercepting high runoff flows and pollutants. Silt fences have high capabilities of intercepting the mass of pollutants during the construction stage, with further use of acting as temporary check dams if required, for example within swales.
- Settlement lagoons are a form of retention ponds except that water is retained permanently. Ponds attract wildlife and can be a form of local amenity. A pond could be constructed down slope of a wind farm site by constructing a depression within the soil where water from the drainage network and runoff collects. Ponds reduce flood risk while encouraging slow infiltration into the soil below.
- Wetlands are an extended form of ponds – providing further amenity and biodiversity.

7.4.2 Location of Silt Traps

Silt traps will be utilised to trap and filter sediment-laden run-off (in very small quantities) from isolated areas of excavation works at the Proposed Development. They will be installed to assist in water flow management to minimise the risk of water reaching drainage ditches during times that water is at risk of becoming silt/ sediment laden. They can also be used in a well-designed water control system across slopes where the water is directed to grassy locations and/ or sediment lagoons/ silt busters. The use of silt traps/ fences needs to be carefully planned as they are easily overwhelmed. Management and regular monitoring of the effectiveness of silt trap/ fences is paramount.

Silt traps will be sited to avoid slopes with a gradient greater than 1 in 20. Silt traps will also be installed on the side of tracks adjacent to watercourse crossings to avoid sediment being transferred into the wider hydrological system.

7.4.3 Location of Settlement Lagoons

All settlement lagoons will be actively managed, with regular inspections and removal of silt build up to control water levels and ensure that any run-off is contained, especially during times of rainfall. If required to achieve the necessary quality of the final run-off, further



measures could include increasing the number and/ or depth of lagoons, the use of sequential lagoons and the use of silt busters.

7.4.4 Outflow Monitoring from Settlement Lagoons

Settlement lagoon outflow will be regularly inspected, and discharge may be pumped, when required, for maintenance purposes. Any pumping activities will be supervised and authorised by the Principal Contractor and Site Environmental Manager.

Treated water will be discharged with care in accordance with the following principles:

- Water to be discharged in planar sheet flow way rather than as a single point discharge in order to slow and spread the flow and minimise potential scour;
- Use of many small/mid diameter outlets, rather than collecting larger volumes of drainage flows to discharge to a smaller number of larger capacity outlet points;
- not allowing direct, contaminated ditch discharge into watercourses, lochs and sensitive wetlands or grasslands; and
- not diverting natural flows, unless under prior agreement with SEPA and EAC.

7.4.5 Foul Drainage

Foul water from the onsite facilities at the construction compound will be removed from Site by an appropriately licensed contractor.

7.5 Measures for Protecting Groundwater Receptors

No potential GWDTE are known to be within the Site, with all waters being surface fed. It is important to note that even if the Site area is not sustained by groundwater and does not fall under the potential high and moderate GWDTE, special measures and safeguards may be required to maintain the existing surface water flow paths. This is crucial to ensure that the incident rainfall can continue to sustain the habitats in the area



8.0 Water Quality Monitoring and Contingency

8.1 Water Quality Monitoring

Water quality monitoring during the construction phase will be undertaken for the surface water catchments that serve the Site, to ensure that none of the tributaries of the main channels are carrying pollutants or suspended solids. Monitoring will be carried out at a specified frequency on these catchments.

With regard to the protection of the water environment the following risks will be addressed:

- siltation of watercourses;
- discolouration of raw water;
- potential pollution from construction traffic due to diesel spillage or similar;
- alteration of raw water quality resulting from imported track construction material;
- excavation and earthworks;
- use of large quantities of concrete; and
- construction compound and associated drainage/foul drainage and diesel spill issues.

The Principal Contractor will compile a monitoring and maintenance plan for the drainage system and surface water runs for use by the Environmental Manager which will as a minimum include:

- visual monitoring/inspections; and
- During site works, including water crossing construction works, the relevant drainage/surface water runs potentially being impacted by these works will be inspected daily by the Environmental Manager while works are ongoing in this area.

A Water Quality Monitoring Plan (WQMP) will be developed to form part of the Construction Method Statement (CMS), which will be submitted to the appropriate planning authorities and bodies such as SEPA prior to construction and development. The WQMP will be implemented to monitor surface water quality, fish populations and macroinvertebrate community prior to, during and post-construction. A robust baseline of water quality in surface watercourses/drainage channels downstream of construction works will be established prior to construction commencing and used as a benchmark of water quality for the construction phase monitoring.

The purpose of the WQMP is to:

- ensure that the commitments put forward in the EIA Report are fulfilled with regards to identified ground and surface water receptors;
- provide a specification for monitoring prior to, during and after construction;
- provide a record of water quality across the Site that can be compared to rainfall and Site activities;
- provide reassurance of the effectiveness of pollution prevention measures installed to protect surface watercourses throughout the construction period; and
- provide data to identify any potential pollution incidents, and to inform a structured approach to manage and control such incidents.



The WQMP will outline details for the monitoring of surface watercourses down gradient of works areas including watercourse crossings, access tracks, and turbine foundations and at control sites (up gradient of works areas), and will include:

- indicative monitoring locations;
- frequency of monitoring prior to, during and after construction;
- parameters for field hydrochemistry testing and laboratory analysis including as a minimum pH, electrical conductivity, suspended solids, dissolved metals, nutrients and hydrocarbons;
- sampling and analysis protocols;
- relevant environmental quality standards (EQS);
- responsibilities for monitoring – it is expected that the ECoW will be responsible for daily monitoring of watercourses particularly around active works areas and watercourse crossings. Further monitoring on a less frequent basis (i.e. monthly) may be done by an external party;
- procedures to be followed in the event of an environmental incident; and
- recording and communicating of results.

In the event that a private water supply could potentially be affected by the development, Private Water Supply (PWS) Action Plan will be developed and will include details regarding all water monitoring and reporting, pollution incident reporting and emergency mitigation measures to address a temporary or permanent material change in either the quality or quantity of an existing private water supply. The PWS Action Plan will include as a minimum:

- the provision of an emergency hotline telephone number for householders so that they can contact the project with any concern regarding water quality or quantity;
- the contact details of householders downgradient of work areas to alert in the event of a pollution incident;
- the provision of an alternative water supply, if required, during any periods of PWS disruption; and/or
- to supply affected properties with filters for particulate removal.

8.2 Laboratory Analysis

This monitoring will involve laboratory analysis of water samples taken at agreed locations across the Site and will continue throughout the construction phase and immediately following construction.

8.3 Monitoring

Monitoring will be used to allow a rapid response to any pollution incident as well as assess the impact of good practice or remedial measures. Monitoring frequency will increase during the construction phase if remedial measures to improve water quality will be required.

The performance of the good practice measures will be kept under constant review by the water monitoring schedule, based on a comparison of data taken during the construction phase with a baseline data set, sampled prior to the construction period and through the observance of any trends in water quality change over time.



8.4 Environmental Manager WQMP Duties

In addition to the monitoring and analysis, it is proposed that regular watercourse inspections (frequency depending on nature and proximity of works to the watercourse) will be undertaken by the Environmental Manager in areas selected in the field and where construction is taking place. As daily inspection points, they will be readily accessible points close to infrastructure.

The regular inspections will include, but not be limited to:

- regular visual inspection of the sediment control structures and oil interceptors;
- investigation of problem areas (e.g., those causing silty run-off) to try to establish the cause and locate the source;
- management of the Principal Contractor to comply with method statement activities;
- development of a clear line of communication with Site staff to address issues promptly;
- prioritisation of issues so that Site staff know how to react to incidents; and
- regular hydrological reporting - daily records and monthly reports.

8.5 Incident Response

Drainage networks provide a conduit for rapid transport of silty water and potential contamination from surface spills of fuels/oils, concrete or chemicals. A pollution incident will include any discharge to the drainage network that could potentially cause environmental damage. Examples of pollution incidents include:

- fuel drips or spills during refuelling;
- leaking plant or equipment;
- leaks from fuel or chemical containers;
- contaminated water or sediment/silt entering a watercourse or drainage network;
- windblown dust and waste;
- excess silt deposition in drainage ditches, channels and culverts following heavy rainfall events;
- operational failures of pumps and pipelines; and
- failures of treatment or sediment controls.

The Principal Contractor will be required to prepare a Pollution Prevention and Incident Plan (ref Section 6.1) which will provide emergency response contacts, reporting procedures, and procedures for dealing with all potential pollution incidents during the construction of the wind farm.



9.0 Construction Phase

9.1 Introduction

This section describes in more detail the key components of construction and the impact they may have on the environment.

As the CEMP and CMS will be developed into and through construction (acting as live documents), the contractor must comply with conditions resulting from the planning consent.

9.2 Temporary Compounds

The construction project involves building three Temporary Construction Compound/s (TCC). It is currently proposed that the first compound will be located near the site entrance adjacent to the A70, the second - 1.2km southwest near the existing track transversely cutting across the Site and the final compound located to the south of the Site, next to the proposed substation. It is anticipated that the construction compounds will include:

- temporary modular building(s) to be used as security and site offices;
- welfare facilities;
- parking for construction staff, visitors and construction vehicles;
- laydown areas for the storage of large items;
- secure storage for tools, small parts and oils;
- waste storage facilities;
- a receiving area for incoming vehicles; and
- a sealed bunded area where fuel and oil storage tanks will be situated, to prevent potential contamination.

Welfare facilities will be provided for the duration of the construction period in accordance with the Construction (Design and Management) Regulations 2015. Facilities for waste management, refuelling, power, water supply and chemical/material storage will be provided.

Where and when compound lighting is required, it will be designed to minimise light pollution to the surrounding area. All lights will face inwards.

The compound will be built by stripping topsoil and regrading, then laying geotextile and an imported stone layer. The stripped topsoil will be stored adjacent to the compound in a linear bund typically no greater than 2m in elevation. Superficial soil will be stripped and stored separately from the topsoil. This will be stored in a similar manner to the topsoil but will depend on the volume which is required to be excavated.

It is proposed that uncontaminated surface run-off from the compound is accommodated in a swale or soakaway which will be constructed as a perimeter ditch to avoid contamination of watercourses should there be a spillage and from fines washout. All other run-off from the Site will follow natural drainage patterns and newly installed drainage routes.

The compound area will be reinstated at the end of the construction period. Reinstatement will involve removal of the imported material and underlying geotextile. The exposed substrate will be gently ripped and the stored superficial soil and topsoil replaced. The surface will be re-seeded as required using the same seed mix as that used for the reinstatement of track verges (in consultation with NatureScot).



Alternatively, if the ground conditions permit, all inert materials, such as the imported stone, could be retained, and the stored superficial soil and topsoil replaced. This area will be kept on record and could be used as the temporary construction compound during the decommissioning phase.

9.3 Transport Routes

Both construction workers and materials needed for the construction works will be delivered to the Site using pre-established transport routes.

The Proposed Development will be accessed from an existing priority junction (with a ghost island right turn lane) on the section of the A70 between Lugar and its junction with the B743. This access was used when the Site was used as an opencast site and is therefore suitable for use by standard HGVs. This route will be established and surveyed to document existing road conditions prior to construction commencement, ensuring any road damage from construction traffic can be identified and rectified post-project completion.

Heavy Goods Vehicle (HGV) movements will be carefully planned to minimise disruption to nearby communities and road infrastructure. Primary construction materials and turbine components will be transported in coordination with local authorities. To manage the safe movement of large vehicles, necessary traffic measures such as signage, temporary passing areas, and escorts will be implemented along the designated path to the construction site.

In addition, efforts will be made to limit the frequency and impact of vehicle movements during peak traffic times, reducing congestion and maintaining road safety. Temporary construction compound and laydown areas will also be established on-site to facilitate material storage and reduce the need for continuous transport, further minimising the effect on local traffic.

9.4 Access Tracks

The new access tracks have been designed with a running surface width of approximately 5 m to accommodate the safe movement of construction vehicles, including abnormal indivisible load (AIL) vehicles. Wider sections will be provided at corners where necessary to allow for safe turning. Gradients will generally be kept shallower than 10% to facilitate access for large specialist vehicles required for both the transport and installation of turbine components. The design also ensures safe manoeuvrability of construction plant and vehicles throughout the site.

On-site signage will be strategically placed to clearly mark vehicle routes and designated areas, facilitating efficient and safe management of construction traffic. This signage will direct drivers to appropriate access points, storage areas, and work zones, while promoting adherence to speed limits and safe driving practices. Strict protocols will be enforced to manage vehicle movements across the Site, especially in areas where sensitive habitats or protected species are present.

Environmental considerations have been central to the access track design, with efforts made to minimise the overall track length to reduce environmental effects, material use, and construction time. The alignment of the tracks has been carefully planned to reduce land take and to avoid areas of deeper peat and important habitats (specifically those on peat, such as modified bog) as far as practicably possible. These measures aim to limit the environmental footprint while supporting the functionality of the Proposed Development.

In the event that deep peat is unavoidable, floating track construction may be utilised, which would see the implementation of a suitable geogrid to evenly spread loads, filled with stone (well-graded, angular crushed rock aggregate).



9.5 Turbine Foundations & Hardstandings

The turbines for the Proposed Development will have a tip height of up to 200 meters and a generating capacity of approximately 6 MW per turbine, depending on the final model selected. These turbines will be supported by reinforced concrete foundations, typically excavated to a depth up to 3.5 meters, although the exact depth may vary based on ground conditions and topography at each turbine location. Adjacent to each turbine base, crane hardstandings will be established to support installation and maintenance activities. These crane pads will remain in place for the operational life of the project, allowing for ongoing maintenance and potential component replacement as required.

As there are no borrow pits found on Site, stone and ready-mix concrete will be required to be imported. Additionally, any temporary hardstanding areas used during construction will be fully reinstated upon completion of the Development.

9.6 Crane Pads

Crane pads will be required to allow installation and removal of the turbine components. Location and orientation will be optimised to make best use of the existing topography, prevailing wind conditions (to enable safe lifting) and the chosen erection procedure. Additionally, the crane pad orientation will take account of environmental constraints. As with access tracks, topsoil and superficial soil will be removed wherever possible and stored separately adjacent to the removal area for later reinstatement up to the edge of the hardstanding.

The area will be set out to the required dimensions and excavated to a suitable formation. Coarse rock fill will then be placed and compacted in layers using compaction equipment. Geotextile and / or geogrids may be used depending on the suitability of the underlying strata. The final surface will be formed from selected granular material and trimmed to allow surface water run-off to drainage ditches. The crane pad will remain in-situ for the operational life of the Proposed Development.

9.7 Substation

The turbines will be linked through underground cabling to the proposed Development substation. Specific grid connection details will be developed at detailed design stage.

9.8 Cable Layout

The cable layout for the Proposed Development will involve underground cabling that connects each turbine to the Development substation on Site. The cables will be laid in trenches alongside the access tracks wherever feasible, minimising disturbance to the ground and reducing the environmental impact. Cables will be carefully installed with sand surrounds within the trench, ensuring protection and stability, and backfilled using the original soil and vegetation.

The exact cable layout, along with the construction methods, will be detailed within the updated CEMP, ensuring that all necessary precautions are in place to avoid impacts on sensitive areas and habitats. The design will incorporate measures to manage drainage and protect watercourses, particularly in areas where cables need to cross such features.



9.9 Soil Storage

Superficial soils will be excavated and stored temporarily. It is anticipated that most of the soil resources within areas directly affected by construction activities will be able to be stored and reinstated as close as possible to where they were excavated in accordance with best practice; so that the Site will be restored with minimal movement of material from its original location.

At turbine foundations, topsoil will be stripped keeping the top 200mm of turf intact. This material will be stored adjacent to the base working area and will be limited in height to 2m to minimise the risk of overheating. Superficial soil will then be stripped and stored, keeping this material separate from the topsoil.

Following excavation of the turbine foundation area and construction of the foundation (concrete/reinforced steel), the area will be backfilled with spoil. The area will be reinstated using the retained topsoil/turf where appropriate materials are available. Where required, a gravel area will be left around the tower base for access. Reinstatement at turbine foundations will begin as soon as possible after foundation and plinth installation is complete.

The risk of water pollution from excavation works in terms of sediment loss will be prevented / mitigated by the following measures:

- careful location of turbine bases and track line to minimise excavation where applicable;
- stripped topsoil/superficial soil will not be stored adjacent or in close proximity to watercourses, where a construction area requiring soil stripping is close to a watercourse the soil will be stored a suitable distance from the watercourse;
- soil will be stored in accordance with best practice in order to remain intact as the soil will be essential to the site reinstatement;
- where turf requires excavation for track construction an excavator will lift turf and place it to the side leaving space between the edge of the track and the embankment to be constructed. The excavator will then lift out the soil and will place it to the side of the proposed track. The soil stored by the side of the access track will be graded by an excavator and the turves will be replaced by the excavator over the graded soil beside the track. The timescale for this operation is short, and the methodology has been successfully applied at other wind farms; and
- excavated soil will not be placed onto water reservoirs or placed where it will block established surface or drainage channels.

9.10 Watercourses

9.10.1 General

As part of the design mitigation, all wind turbines and associated infrastructure have been sited outside the 50m watercourse buffer zone, wherever possible. This has been done in response to several site constraints, including but not limited to landscape, ecology, and access. The aim is to ensure that all Proposed Development remains at a safe distance from nearby watercourses.

Tracks have been routed to minimise any crossing of the watercourses, where possible. However, if track crossings are required, then these will be designed and constructed appropriately.



The Contractor is responsible for liaising with and obtaining from SEPA all relevant consents, licenses and authorisations relating to construction of the watercourse crossings at the Site.

All construction works on the Site, and specifically construction works to be undertaken within and in the vicinity of the watercourses, will be completed in compliance with current legislation and best practice as detailed within this document.

The Environmental Manager will be consulted on all watercourse crossing works. Surveys by the Environmental Manager will be carried out immediately prior to construction of the crossing to identify areas of ecological interest and more specifically, mammal and fish activity in watercourses to ensure that adequate mitigation is built into the design.

9.10.2 Design Philosophy

The Environmental Authorisation (Scotland) Regulations, 2018 require to meet a set of outlined General Binding Rules (GBR). For each applicable GBR, if the conditions of the rule are satisfied, then no notification, application or permit is required. However, if any condition of a rule is not achievable, then SEPA must be notified, and liaised with to determine the appropriate action.

General good practice in watercourse crossing design is detailed below:

- where appropriate, the watercourse will be routed through culverts appropriately sized and designed not to impede the flow of water and will allow safe passage for wildlife, such as fish, water voles, otters etc. (i.e. the crossings will have a capacity well in excess of the design flow);
- when installing culverts, care will be taken to ensure that the construction does not pose a permanent obstruction to migrating species of fish, or riparian mammals (i.e. the crossing will make provision for fish and wildlife migration);
- culverts will be sized so that they do not interfere with the bed of the stream during construction, (i.e. the crossing will leave the watercourse in as natural condition as possible);
- culverts with a single orifice will be used in preference to a series of smaller culverts that may be more likely to become blocked with flotsam and create erosion (i.e. the crossing will not constrict the channel);
- ease and speed of construction are important to minimise disruption to the watercourse and surrounding habitat;
- designed for the life of the project;
- low maintenance; and
- visually in keeping with the surroundings.

In accordance with EASR guidance, the watercourse crossing will be designed on a case-by-case basis to be appropriate for the width of watercourse being crossed, and the prevailing ecological and hydrological situation (i.e. the “sensitivity” of the watercourse). A number of factors, both environmental and engineering will influence the selection of structure type and the design of the crossing.

The river crossing will be designed to convey a minimum 1 in 200 years plus climate change return period flood event and individually sized and designed to suit the specific requirements and constraints of its location.



The watercourse crossing will include splash boards and run-off diversion measures to prevent direct siltation of watercourses.

9.10.3 Structural Design

Design of a watercourse crossing needs to consider:

- bearing capacity of foundations (and variability of capacity);
- design loadings; and
- design options such as bridges or culverts.

9.10.4 Culverts

To minimise physical disruption to the water environment, a hierarchy of solutions will be applied to the selection, design, and installation of all watercourse crossings across the Site. The preferred design option will be the one that sits highest in the following hierarchy, with lower-tier options only utilised where significant engineering, terrain, or safety constraints prevent the use of preferred structures:

- **Tier 1: Clear-Span Bridges (Preferred Option):** For all major, active, or ecologically sensitive watercourses, bank-to-bank clear-span structures will be used. These structures completely avoid the riverbed and banks, ensuring zero constriction of the channel, maintaining natural hydrological flow paths, and preventing any obstruction to migrating fish or riparian mammals.
- **Tier 2: Bottomless Arch Culverts:** Where a clear-span bridge is technically or logistically unfeasible for medium-to-large watercourses, an oversized bottomless arch culvert will be deployed. This approach ensures that the natural substrate of the stream bed remains fully intact and undisturbed, preserving the baseline ecological and morphological conditions of the watercourse.
- **Tier 3: Oversized Pipe or Box Culverts:** Traditional closed-footprint pipe or box culverts (including corrugated steel systems) are restricted to the lowest tier of the hierarchy. These will only be utilised for minor, low-sensitivity channels, artificial drainage ditches, or non-perennial watercourses. Where used, they will be significantly oversized (with a capacity well in excess of the 1-in-200-year plus climate change return period flood event) and partially buried/embedded below the natural bed level to allow a natural substrate layer to accumulate inside.

In accordance with the selected design, locally sourced natural stone headwalls will be provided at the upstream and downstream inlets where necessary to protect and stabilise the track embankment. To mitigate erosion and avoid artificial hardening of the channel, bank protection immediately outside the structural footprint will rely on soft bio-engineering techniques (e.g., coir matting, willow spiling, or seeded geotextiles) as much as possible to maintain a natural, functional riparian corridor.

9.10.5 Relevant Mitigation

The following is a summary of the relevant mitigation measures and general good practice associated with the development of watercourse crossing:

- appropriate care will be given to the construction of the crossing and all loose materials left from construction will be collected and disposed of accordingly;



- site track crossings will be constructed with granular materials, which will limit the production of surface runoff and the direct discharge of sediment into the watercourse;
- the methods of drainage proposed for the site tracks prevent the significant discharge of surface runoff and suspended solids into the watercourse adjacent to the tracks. This is owing to the runoff being collected within the upslope ditch, the presence of peat dams and culverts at appropriate intervals so as to limit longitudinal flow and the discharging of water to the downslope ground. There will therefore be no long runs of ditches that directly discharge into the watercourse;
- the watercourse crossing will be designed to avoid disruption and / or habitat loss to aquatic systems or to affect free passage of fish; and
- minimum buffer strip of 50m should be kept free from development from the top of the banks of any watercourse/waterbody.



10.0 Pre-Construction Surveys, Protected Species and Monitoring

10.1 Pre-Construction Surveys

Prior to the commencement of the construction of the Proposed Development, detailed site investigations will be undertaken to inform the designers/engineers of the development components. Preconstruction habitat and protected/ notable birds/mammal surveys will be required to inform appropriate management and protection plans. Additional surveys for protected species will be undertaken by the ECoW in line with the locations and programme of works. Survey outcomes will inform the designers/engineers in selecting appropriate working methods.

10.1.1 Water Quality Monitoring

Prior to the works commencing, baseline water quality monitoring will be undertaken by an appropriately qualified and experienced independent consultant to establish the water quality prior to any interference from the works.

This will be undertaken in accordance with the proposed water quality monitoring developed by the Principal Contractor and as detailed within Section 8.0.

This water quality monitoring is to be agreed and reviewed by the Applicant in advance of the works commencing to ensure that the conditions during the monitoring and the testing undertaken are representative and allow a suitable baseline to be established.

10.1.2 Archaeology

The Site has undergone a comprehensive assessment to identify any archaeological features that may be present. Whilst there are no designated heritage assets within the Site boundary, several non-designated heritage assets are recorded within the Site. Furthermore, a number of designated heritage assets are recorded within 5km of the Site, including Scheduled Monuments, Listed Buildings, and Conservation Areas. To ensure that any heritage assets have been appropriately documented, a detailed archaeological walkover survey was carried out as part of the development process.

Where necessary, a qualified archaeologist will be employed to carry out a watching brief on any ground breaking works on specified heritage assets. Furthermore, a working protocol will be implemented to account for any further mitigation works required should unrecorded archaeological features be identified. The precise scope of works will be agreed with EAC.

10.1.3 Ecology

In terms of ecological considerations, the Site does not contain any statutory ecological designations, however the following should be noted and taken into consideration:

- Muirkirk and North Lowther Uplands SPA / Garpel Water SSSI lie immediately adjacent to the Development on the east border.
- Muirkirk and North Lowther Uplands SPA / Muirkirk Uplands SSSI / Greenock Mains SSSI lie to the west / north of the Development, circa 500m away at the closest point.
- Airds Moss SAC / Airds Moss RSPB Reserve lie west / north of the Development, circa 300m away at its closest point.



The Development is located within the Galloway and Southern Ayrshire Biosphere Reserve, which emphasises the importance of maintaining biodiversity and promoting a balanced relationship between people and nature.

Baseline ecological surveys have been conducted to establish the presence of protected species and habitats within the Site. These surveys have identified various habitats, including blanket/modified bogs, natural woodland, marshy grassland and improved grassland, which are essential for local wildlife. Special attention will be given to mitigating any potential impacts on sensitive habitats and species during the construction and operational phases of the project.

To enhance biodiversity, the development will incorporate measures such as habitat restoration and the establishment of buffer zones around sensitive areas. Ongoing monitoring will be implemented to assess the ecological impacts of the development, with adaptive management strategies in place to address any unforeseen issues. This proactive approach will ensure that the project aligns with best practices in environmental stewardship while preserving the Site's ecological integrity.

10.2 During and Post Construction

10.2.1 Species Protection Plan

A Species Protection Plan (SPP) will be produced for agreement with EAC, in consultation with NatureScot, to ensure all reasonable protection measures are undertaken with regard to protected species and the habitat which they rely upon for the Proposed Development.

The aim of the SPP is to ensure all reasonable precautions are taken to safeguard protected species from disturbance, injury and death and to protect any structure, place or habitat, which any such protected species uses for growth, breeding, resting, shelter or protection during the construction and operation of the Proposed Development (with emphasis on the construction phase).

Good practice measures to protect sensitive ecological receptors during the construction phase will be implemented, including the erection of temporary protective fencing demarcating the working footprint, to be monitored and supervised by the Environmental Manager with advice on remedial actions where necessary.

The aim of the SPP will be fulfilled by adopting the following objectives throughout the construction of the Proposed Development:

- objective A – Implement a monitoring and protection plan for protected species;
- objective B – Follow an approved procedure if a sensitive ecological receptor is suspected/identified; and
- objective C – Ensure adequate education and awareness of site personnel.

The Environmental Manager will have the specific remit of monitoring compliance with the SPP during the construction phase and report any breaches to the Construction Project Management Team. The Environmental Manager's role will involve direct monitoring of all activities on the Site to the extent the Environmental Manager considers this to be required, and/or training of nominated personnel to carry these out in a manner likely to minimise the potential for impact on the protected species. The Environmental Manager will also agree changes to construction operations to prevent breaches of the SPP.



10.2.2 Bird Protection Plan

A Bird Disturbance Management Plan (BDMP) will be implemented during construction of the Proposed Development and will form part of the CEMP. The BDMP will detail measures to ensure legal compliance and safeguard breeding birds known to be in the area and will include species-specific guidance. The BDMP shall include pre-construction surveys and good practice measures during construction. Pre-construction surveys will be undertaken to check for any new breeding bird activity in the vicinity of the construction works. The ECoW will oversee the implementation of the above measures. The BDMP would be prepared and implemented for the Proposed Development following consent. The BDMP would detail all good practice and species-specific measures to be implemented during the construction, decommissioning and where relevant during the operation of the Proposed Development, to enable legislative compliance and safeguard all wild and sensitive bird species including those listed on Schedule 1, A1 and 1A of the Wildlife and Countryside Act 1981. The BDMP would be informed by information obtained during baseline studies, pre-commencement surveys, consultation with third-party recording groups (as necessary) and would require the implementation of suitable working restrictions defined in consultation with NatureScot and industry good practice applicable at the time.

The BDMP would also continue throughout the operational period of the Proposed development and ensure the adoption of measures to enable legislative compliance with regards any recorded active nest sites.

In line with Chapter 11, Schedule of Mitigations, the BDMP shall include species-specific restriction to ensure legislative compliance and avoid (or otherwise minimise) the disturbance to:

- Roosting/wintering hen harrier
- Breeding/roosting peregrine falcon
- Breeding/roosting red kite
- Breeding/roosting waders, with particular reference to golden plover, lapwing, curlew and ringed plover

10.2.3 Biodiversity Enhancement Management Plan

A Biodiversity Enhancement Management Plan (BEMP) will be implemented which will look to establish habitat restoration/enhancement and species conservation management measures that are proposed as part of the Proposed Development, to restore degraded habitats, create new habitats of biodiversity value, and strengthen nature networks.

The BEMP would aim to achieve significant biodiversity enhancement as a direct result of the Proposed Development over its operational lifetime, in line with objectives outlined in National Planning Framework 4.

In line with Chapter 11, Schedule of Mitigations, the BEMP shall include the following measures:

- Avoidance of planting within 750m of the hen harrier roost
- Provision and enhancement of habitats for breeding/roosting waders
- Regular checking and removal of any livestock carcasses within the turbine array to minimise risk to birds of collision with turbine blades.

The final BEMP would be agreed with East Ayrshire Council (EAC) in consultation with NatureScot and any other relevant stakeholders (as deemed necessary) prior to the commencement of construction of the Proposed Development.



A Biodiversity Management Group (BMG) would oversee and monitor the implementation of the agreed BEMP. The BMG should include representatives from EAC, NatureScot, the landowners, and the Applicant.



11.0 Reinstatement

Reinstatement will be undertaken either by re-use of onsite vegetation and organic soil and peat using turf/clodding methods, or by re-seeding using species compositions designed to mimic natural succession in the locale, subject to consideration of commitments made in the HMP. Proposed methods will be finally agreed upon and confirmed with EAC/NatureScot following the appointment of the Principal Contractor. If necessary, biodegradable geotextiles may be used with suitable nurse seed mixes to stabilise the peat and with the longer-term aim of restoring heather cover. If seeding is required, appropriate native species (ideally of local provenance) will be used. If required and practical, deer may be excluded from localised areas of disturbed peat or replanting to increase the speed of vegetation recovery.

During the construction of the infrastructure elements, the vegetated layer will be stripped over the area of the excavation and stored locally with the growing side up. The remaining organic topsoil and subsoils will be excavated down to formation level or a suitable stratum and again will be stored local to the point of excavation but will remain segregated to avoid mixing of materials.

For all reinstated areas, immediate aftercare provision will include an inspection of reinstated areas following the completion of the reinstatement work at each location. In addition, the operator will arrange for regular maintenance visits to be made to the Site and for visual monitoring the success of the re-vegetation.

Erosion processes on embankments and cuttings will be mitigated by appropriate design, including suitable gradients and stabilisation measures, which will also enable effective regeneration of vegetation or establishment of areas which are reseeded. Sediment traps will be required in the early years following construction until natural regeneration is / reseeded areas are established. Should significant erosion or sedimentation, which is not expected, take place at any location it will be addressed by re-grading. Any disturbed ground situated along the edges of tracks will be reinstated to match the adjoining ground as soon as practicable to avoid unsightly scarring of the landscape, particularly along the main access track.

The progression of vegetation recovery and survival in restored areas will be monitored to ensure satisfactory development and to allow early identification of any remedial measures required.



12.0 References

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 - PPG1 Understanding your environmental responsibilities – good environmental practices: PPG 1, July 2013
 - GPP2 Above Ground Oil Storage Tanks: GPP 2, January 2018
 - PPG3 Use and design of oil separators in surface water drainage systems: PPG 3, April 2006
 - GPP4 Treatment and disposal of wastewater where there is no connection to the public sewer: GPP 4, November 2017
 - GPP5 Works and maintenance in or near water: GPP 5, January 2017
 - PPG6 Working at Construction and Demolition Sites: PPG6, 2012
 - PPG7 Safe Storage – The safe operation of refuelling facilities: PPG 7, July 2011
 - GPP 8 Safe storage and disposal of used oils: GPP 8, July 2017



- GPP21 Pollution incident response planning: GPP 21, July 2017
- PPG26 Safe Storage – drums and intermediate bulk containers: PPG 26, March 2011
- Technical Flood Risk Guidance for stakeholders (section 4.3) [SEPA, 24/4/11].
- Good Practice during Windfarm Construction, Version 4, September 2019
- Scottish Renewables and Scottish Environment Protection Agency Guidance
- Environmental Authorisation (Scotland) Regulations, 2018





Making Sustainability Happen