



Kintore Hydrogen Plant

Outline Construction Environmental Management Plan (CEMP)

Date: August 2024

Outline Construction Environmental Management Plan

Qualifications

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This report is also downloadable from the Kintore Hydrogen website at:
<https://www.kintorehydrogen.co.uk/>

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Summary

This document is the Outline Construction Environmental Management Plan for Kintore Hydrogen Plant. It provides general and topic-specific strategies, control measures and monitoring procedures to limit the potential adverse impacts from constructing the proposed plant, on the environment and the local community, as far as reasonably practicable.

1 Introduction

1.1 General

1.1.1 This document is an Outline Construction Environmental Management Plan (CEMP) for the Kintore Hydrogen Plant (the proposed development). The Outline CEMP accompanies the planning application in principle and the Environmental Impact Assessment Report (EIAR) made by Kintore Hydrogen Ltd (the applicant). The proposed development is described in Volume 2, Chapter 2: Project Description of the EIAR.

1.2 Purpose of the Outline CEMP

1.2.1 This Outline CEMP provides a framework of management measures that Kintore Hydrogen Ltd and its construction contractors will be required to adopt and implement for all construction activities associated with Kintore Hydrogen Plant. They include strategies and control measures for managing the potential environmental impacts of constructing the proposed hydrogen plant and limiting disturbance from construction activities as far as reasonably practicable. It focuses on the environmental aspects of the construction phase that may affect the interests of residents, businesses, the public and other environmental receptors near to the application site.

1.2.2 The term 'construction' in the Outline CEMP includes all site preparation, demolition, heavy goods vehicles (HGV) deliveries, waste removal, and all related engineering, construction and restoration activities as described in the EIAR.

1.2.3 This Outline CEMP has been prepared in conjunction with the EIAR with the aim of ensuring that general best practice measures are followed during construction and any likely significant effects that are reported in the EIAR will be avoided where possible or mitigated.

1.2.4 This Outline CEMP incorporates legislative requirements, current standards and best practice measures to define the standards of construction practice that contractors will be required to adopt and implement. However, compliance with this Outline CEMP will not absolve Kintore Hydrogen Ltd and its principal contractors or subcontractors from compliance with all legislation and byelaws relating to their construction activities.

1.3 Implementation of the Outline CEMP

Outline and Adopted CEMP

1.3.1 The Outline CEMP establishes the principles for managing environmental impacts during the construction process and sets out a framework of management measures. It is based on the design information available at the time of the submission.

1.3.2 The framework and principles of the Outline CEMP will be used to prepare a final CEMP which will be adopted by the applicant. The adopted CEMP will be prepared during the detailed design stage (post consent) to reflect more detailed design information (e.g. construction techniques) and site-specific control measures.

1.3.3 The adopted CEMP will be secured through an appropriately worded planning condition as part of a planning consent. Construction activities will not commence until the adopted CEMP has been agreed with Aberdeenshire Council.

1.3.4 The adopted CEMP will be incorporated into the contracts of the principal contractors for all construction works authorised by the planning application in principle. All principal contractors, subcontractors and their suppliers will be required to follow the relevant provisions of the adopted CEMP.

Status Post-Construction

1.3.5 The adopted CEMP will also be applicable to maintenance works undertaken during the post-construction phase, insofar as these involve construction activities to which the control measures are applicable.

Construction Method Statements

1.3.6 Prior to commencement of specific construction activities, the principal contractor may also develop specific construction method statements that will set out the construction operations to be undertaken (including construction methods and types of plant required), the associated environmental and health and safety issues and the appropriate measures. The activities requiring a CMS will be identified using a risk-based approach during detailed design.

Training

1.3.7 All construction staff employed on Kintore Hydrogen Plant will receive training on their responsibilities for minimising the risk to the environment and implementing the measures set out in the Adopted CEMP.

1.3.8 The principal contractors will ensure that contractors employ an appropriately qualified and experienced workforce. The principal contractors will also be responsible for identifying the training needs of their personnel to enable appropriate training to be

provided. The training will include site briefings and toolbox talks to equip the workforce with the necessary knowledge on health, safety and environmental topics, and the relevant environmental control measures pertinent to works to be carried out that day.

1.4 The Proposed Development

- 1.4.1 Kintore Hydrogen Ltd proposes to develop a hydrogen production plant on land next to Kintore Substation in Aberdeenshire. The hydrogen plant would be a facility for the production of hydrogen from water by electrolysis using primarily renewable energy. This is sometimes called 'green hydrogen'.
- 1.4.2 The land within the application boundary can be divided into five parts:
- the main electrolysis plant site including temporary construction access and permanent access road;
 - the electrical connection from Kintore Substation to the electrolysis plant;
 - the underground hydrogen pipeline to a connection and blending point for export into National Gas's existing National Transmission System (NTS);
 - the water abstraction and discharge point, pumping and treatment station, and underground water pipelines to and from the River Don; and
 - the riparian and other habitat creation and enhancement area on the east bank of the River Don.
- 1.4.3 Further information about the proposed development is provided in Volume 2, Chapter 2: Project Description of the EIAR.

1.5 Structure of the Outline CEMP

- 1.5.1 This Outline CEMP follows the structure below:
- Section 2 – Construction Principles;
 - Section 3 – General Site Operations;
 - Section 4 – Roles and Responsibilities;
 - Section 5 – Management of Environmental Issues; and
 - Section 0 – References.

1.6 Associated Mitigation Plans

- 1.6.1 This Outline CEMP provides the overarching plan setting out the general principles for managing environmental impacts during the construction phase. Construction impacts will also be controlled through measures set out in the following standalone documents, which have either been prepared in outline for the planning application or would be prepared for approval by Aberdeenshire Council prior to construction:

- Construction Traffic Management Plan (CTMP)
- Construction Worker Travel Plan (CWTP)
- Abnormal Indivisible Load (AIL) Transport Plan (if required)
- Landscape Management Plan (outline landscape proposals accompany the planning application, in the Design Principles Statement)
- Biodiversity Enhancement and Management Plan (BEMP – Outline BEMP accompanies the planning application)
- Written Scheme of Investigation (WSI)
- Soil Management Plan
- Emergency Response Plan
- Lighting Principles Statement
- Invasive and non-native species (INNS) Management Plan
- Species Protection Plans (where required for works under NatureScot license)

2 Construction Principles

2.1 Construction Principles

- 2.1.1 Kintore Hydrogen Plant will be constructed in an environmentally sensitive manner and will meet the requirements of all relevant legislation, codes of practice and standards as identified in the EIAR, and any updates to legislation or standards adopted at the time of construction, to limit the adverse impacts on the local community and environment as far as reasonably practicable.
- 2.1.2 Opportunities to reduce emissions and embodied carbon during the construction process through the implementation of construction practices on site and the selection of materials will be considered where appropriate.
- 2.1.3 The appointed site manager and the associated management team will be responsible for the implementation of the CEMP provisions, for monitoring and for ensuring that the various construction contractors are in compliance with these requirements.
- 2.1.4 All principal contractors will be required to sign up to, and implement, the Considerate Contractors' Scheme (CCS). The scheme is a voluntary code of considerate practice which seeks to minimise disturbance caused by construction sites to the immediate neighbourhood.

2.2 Health and Safety Principles

- 2.2.1 Specific health and safety principles will be set and implemented as part of the construction of the hydrogen plant. These would ensure that the health and safety and welfare of employees are considered. Appropriate industry standards for health and safety will be applied and continuous actions will be taken to secure a high level of safety performance, where required.
- 2.2.2 Arrangements will be put in place for the discharge of all duties under the Construction (Design and Management) Regulations 2015¹.

3 General Site Operations

3.1 Construction Working Hours

Normal working hours

3.1.1 Normal construction working hours will be:

- Monday to Saturday: 08:00 – 18:00 hours; and
- No Sunday, bank holiday or night working, with certain expectations detailed below.

3.1.2 Up to an hour before and after the normal construction working hours, the contractors may undertake the following activities:

- Arrival and departure of the workforce at the site and movement around the main development site that does not require the use of plant;
- Site inspections and safety checks; and
- Site housekeeping that does not require the use of plant.

3.1.3 Deliveries to the main electrolysis plant site will only occur during the normal construction working hours unless otherwise agreed.

Activities outside core working hours

3.1.4 In certain circumstances, work may be undertaken outside of the normal construction working hours in order to maintain the construction programme or address particular logistical, construction or environmental constraints.

3.1.5 Non-noisy activities such as fit-out within buildings may be undertaken outside the normal working hours where these would not cause disturbance off-site.

3.1.6 Abnormal loads or construction plant delivery may also be undertaken outside normal working hours if this is necessary for safe movement and to minimise disruption to the local road network.

3.1.7 Activities outside of the normal working hours will be agreed with Aberdeenshire Council Environmental in consultation with relevant stakeholders as required.

3.2 Good Housekeeping

3.2.1 A good housekeeping policy will be applied to the construction areas at all times. As far as reasonably practicable the following principles will be applied:

- All working areas will be kept in a clean and tidy condition;

- Adequate welfare facilities will be provided for construction staff;
- Smoking areas at site offices/compounds or work sites will be equipped with containers for smoking wastes – these will not be located at the boundary of working areas or adjacent to neighbouring land;
- Wheel washing facilities will be cleaned frequently;
- Open fires will be prohibited at all times;
- All necessary measures will be taken to minimise the risk of fire and the contractor will comply with the requirements of the local fire authority;
- Waste from the construction areas will be stored securely to prevent wind blow; and
- Waste (particularly food waste) will be removed from the welfare facilities on a daily basis.

3.3 Site Induction

3.3.1 The construction of the proposed development will require all personnel working on site to have a site induction that includes an environmental protection and good practice component. Prior to commencing work on site, personnel will have attended the site induction.

3.3.2 Site inductions will include reference to compliance with relevant planning / license conditions; environmental requirements and contacts for queries; site-specific environmental sensitivities (such as areas with buffers to prevent disturbance); waste management arrangements; water and wastewater management; fuel, oil and chemical management; spill contingency and environmental emergency response; and procedure for reporting of incidents and complaints. More specific information will be provided to staff according to their role.

3.4 Construction Working Areas and Laydown

3.4.1 The main construction working and laydown areas will be within the main electrolysis plant site plus satellite compounds for construction of pipeline routes, gas connection and water intake/outfall. Satellite construction working areas, site compounds and laydown areas will be managed in the same way as the main electrolysis plant site, i.e. in line with the adopted CEMP.

3.5 Site Security, Screening and Fencing

3.5.1 The construction compound(s) will be secured to minimise the opportunity for unauthorised entry. All working areas will be fenced off from members of the public and to prevent animals from straying onto the construction areas.

- 3.5.2 All boundary fences/screens will be maintained in a tidy condition throughout the construction period to ensure they are fit for purpose.
- 3.5.3 Where possible, access to construction areas will be limited to specified entry points and personnel entries/exits will be recorded for security and health and safety purposes. Security will be provided to prevent unauthorised entry to the site. Site gates will be closed and locked when there is no site activity and appropriate security measures will be implemented.
- 3.5.4 All temporary screening and fencing will be removed as soon as reasonably practicable after completion of the construction works.

3.6 Construction Lighting

- 3.6.1 External lighting of the main development site will be designed and positioned to manage emissions from artificial light in accordance with good practice, whilst maintaining safety and security obligations.
- 3.6.2 Site lighting will be positioned and directed to minimise nuisance to residents and minimise skyglow, so far as reasonably practicable. Measures will also be implemented to avoid or minimise lighting spillage impacts on ecological resources, including nocturnal species.
- 3.6.3 Lighting during construction will take into account the requirements set out in BS EN 12464-2:2014². Lighting units will be designed to minimise illumination outside the construction works area (e.g. will be directional, task orientated and where possible, fully shielded). This will be in line with the principles set out in the Lighting Principles Statement accompanying the planning application.
- 3.6.4 As construction lighting will be temporary and typically only fixed for the duration of works in a particular area, or provided by mobile plant, a separate lighting design or strategy for the construction stage is not proposed to be approved as a pre-commencement requirement. It is proposed that the Principal Contractor will develop construction lighting designs as part of the Method Statements for each aspect of works, under the overall control of the adopted Construction Environmental Management Plan.

3.7 Pest Control

- 3.7.1 The risk of pest/vermin infestation will be reduced by ensuring any putrescible waste is stored appropriately and collected daily from the construction areas, and effective preventative pest control measures are implemented. Any pest infestation will be dealt with promptly and notified to Aberdeenshire Council as soon as practicable.

3.8 Clearance of Site and Reinstatement on Completion

- 3.8.1 The construction compound(s) will be cleared on completion of construction works and all plant, temporary buildings or vehicles will be removed.
- 3.8.2 The exception to this will be the construction access junction from the B977 to the electrolysis plant site, which will not be removed (as it could be required for maintenance access in future) but will be closed to use on completion of construction.
- 3.8.3 Land above the pipeline and electricity cable routes and in the areas of temporary working compounds and haul routes will be restored to its pre-development condition upon completion. This will include restoring agricultural land, hedgerows and tracks/roadways as applicable.
- 3.8.4 If works are delivered in phases, temporary construction compounds will be removed on completion of construction work associated with that phase unless otherwise approved by Aberdeenshire Council.

3.9 Emergency Planning Procedures

- 3.9.1 Emergency procedures will be developed by the principal contractor for the proposed development taking into account the anticipated hazards and the conditions at each work site.
- 3.9.2 The procedures will be documented in an Emergency Response Plan and will include emergency pollution control measures (based on Scottish Environment Protection Agency guidelines where appropriate), fire and site evacuation, and spill prevention control procedures and instructions to workforce. The Plan will include pro-active management practices to ensure that any pollution that may occur is minimised, controlled, reported to relevant parties/personnel and remediated.
- 3.9.3 The Emergency Response Plan will also contain emergency phone numbers and the method of notifying Aberdeenshire Council and statutory authorities. The procedures will be displayed at the main development site and other work sites where appropriate, and site staff will be required to follow them at all times.

3.10 Stakeholder Engagement

- 3.10.1 The applicant will take a proactive approach to communication with local residents and businesses that may be affected by the construction of Kintore Hydrogen Plant. The applicant in cooperation with the principal contractor will develop a stakeholder engagement plan to set out what engagement with the local community shall be undertaken prior to work commencing on site. A stakeholder engagement plan will form part of the adopted CEMP.

3.10.2 Advance notice will be given of any construction works which could restrict access for residents/local businesses and, where practicable, an alternative access will be established.

3.10.3 Occupiers of nearby properties will be informed of any particularly noisy construction activities and their duration, and of any potential evening and night time works. Notice boards on the perimeter fencing will display telephone and email contacts for enquiries and receipt of complaints, and the name of the persons who should be contacted. All complaints arising from the construction activities will be investigated to:

- identify the cause of the complaint;
- identify and implement appropriate mitigation measures in a timely manner; and
- record the complaint, and any measures taken, and make the complaints log available to the local authority when requested.

appropriate to direct people towards routes around the works areas, in consultation with landowners outside the application boundary.

3.11 Public Access, Core Paths and Recreational Routes

3.11.1 Construction work will be managed to ensure the safety of the public using core paths, other recreational routes and those exercising the freedom to roam across land.

3.11.2 It is anticipated that the construction corridor for the water pipeline route, and construction access to it, will cross at least one core path section between Kintore and Kinellar. During construction work, the following measures will be implemented (with details to be agreed with Aberdeenshire Council in the adopted CEMP):

- a safe public crossing over the pipeline trench will be provided to maintain core path connectivity;
- signage and marshals will be employed to manage public access at crossing location(s) safely, which will include pausing work with machinery where needed;
- a banksman will be employed at all locations where construction traffic is entering/exiting the public road network where this coincides with a core path route; and
- Aberdeenshire Council will be informed in advance of the timing of pipeline construction works in the vicinity of core path sections.

3.11.3 Following construction, the water pipeline route and temporary construction access and haul routes will be restored to the existing landuse.

3.11.4 In addition to core paths, members of the public may exercise the freedom to roam and use other recreational routes in the vicinity of temporary or permanent construction works. For safety, public access to the areas of works will be restricted with clear signage and fencing. Good practice measures as set out in the Scottish Outdoor Access Code for Landowners³ will be followed, which will include using signs where

4 Roles and Responsibilities

4.1 Project team

4.1.1 While the key roles for the construction project team will not be assigned until the construction stage, the environmental roles required to implement the CEMP are set out in the sections below. The applicant and the principal contractor will agree the appointment of these roles.

Site Manager

4.1.2 The Site Manager has overall responsibility for the site and will be responsible for maintaining the CEMP and systems as a working document; ensuring environmental standards are adhered to and monitoring compliance during construction; carrying out regular monitoring and inspections of construction work activities; and undertaking staff induction courses on environmental issues.

Environmental Co-ordinator

4.1.3 The Environmental Co-ordinator will be responsible for the interface between the environmental specialists and engineers. They will have the primary responsibility for managing environmental issues through construction and post-construction monitoring and for obtaining the relevant licenses and consents.

Clerk of Works

4.1.4 The Clerk of Works will be responsible for overseeing construction activities to ensure all environmental commitments are met and compliance with the conditions of all licences and permits.

Ecological Clerk of Works

4.1.5 The Ecological Clerk of Works (ECoW) will report on ecological matters and will be responsible for undertaking preconstruction surveys and monitoring. The EcoW will review results of protected species surveys prior to the commencement of works in different areas and will contribute to the preparation of method statements in conjunction with the principal contractors, where appropriate.

Specialist Contractors

4.1.6 Appropriately qualified and licenced specialist contractors will be appointed with responsibility for specific matters such as archaeological investigation / watching brief, protected species translocation or invasive species management.

5 Management of Environmental Issues

5.1 Landscape and Visual

Objectives

- 5.1.1 Construction works will be carried out in such a way to ensure that disturbance to landscape character and visual receptors (identified in EIAR Volume 2, Chapter 6: Landscape and Visual Impact Assessment) is controlled.

Management measures

- 5.1.2 Existing vegetation within the development area will be retained throughout construction as shown on the Planning Parameters Plan and in the Landscape Management Plan within the Design Principles Statement.
- 5.1.3 If the proposed development is constructed in phases, the new landscape planting (shown in the Landscape Management Plan) will be implemented in the first phase of development to maximise the visual screening afforded to subsequent phases of works as the planting becomes established.
- 5.1.4 Trenchless techniques such as horizontal directional drilling will be employed where required for pipeline and electrical export cable crossings of existing woodland or important hedgerows, to avoid their loss. The adopted CEMP will set out all locations where trenchless techniques are required and the method adopted.
- 5.1.5 Landscapes temporarily impacted by the construction works will be restored following completion of construction.

5.2 Archaeology and Cultural Heritage

Objectives

- 5.2.1 To minimise the impact of construction works on buried archaeology, heritage assets and their setting.

Management measures

- 5.2.2 A professionally qualified archaeological contractor would be appointed to act as an Archaeological Clerk of Works (ACoW) where required during the development works (enabling works and construction phase). The role of the ACoW would be to provide advice to the appointed principal contractor where there is a possibility of intersecting with identified heritage assets. Where necessary, the ACoW will also undertake other

activities, such as archaeological monitoring of topsoil stripping operation in areas previously agreed with the Aberdeenshire Council Archaeology Service (ACAS).

- 5.2.3 The activities of the ACoW would be carried out according to the scope of work and terms specified under a Written Scheme of Investigation (WSI) approved by ACAS. These arrangements would require unexpected discoveries to be assessed by the ACoW and dealt with appropriately and would make clear the legal responsibilities placed upon those who make unexpected discoveries of archaeological significance (such as building remains, human remains, artefacts, etc). These arrangements would be explained in toolbox talks presented by the ACoW.
- 5.2.4 A WSI will be prepared for approval by ACAS prior to construction.
- 5.2.5 Construction work (including temporary compounds) will avoid physical impact to the Scheduled Monuments 'South Leylodge Steading, stone circle 110 m W of' (SM 12350) and 'Aberdeenshire Canal, remains of, S of Dalwearie' (SM 7675). A suitable buffer from the works area to avoid impact will be advised by the ACoW and demarcated on site with fencing during the works.
- 5.2.6 The landscape planting and ecological management of the electrolysis plant site, including the northern area around Dewsford Burn, will retain and will avoid landscape planting which impacts the possible burial cairn which lies in the proposed landscaping and ecology areas.

5.3 Ecology and Biodiversity

Objectives

- 5.3.1 To minimise the impact of construction works on protected species and designated sites and to minimise the loss of nature conservation features such as hedgerows and mature trees.
- 5.3.2 It should be noted that the mitigation and management measures set out in this Outline CEMP (which implement the recommended mitigation specified in Volume 2, Chapter 8: Ecology and Biodiversity of the EIAR following assessment of impacts) prevail in the case of any conflict with initial mitigation or management measures that were identified as potentially required in ecology surveys reported in Volume 3 of the EIAR.

General management measures

- 5.3.3 The measures in a Biodiversity Enhancement and Management Plan (BEMP) will be implemented prior to, during and post construction of the proposed development. An Outline BEMP is included in the planning application and the adopted BEMP will be prepared for approval by Aberdeenshire Council prior to construction.

5.3.4 This section of the Outline CEMP provides a summary of ecological measures but the Outline BEMP (and in due course the adopted BEMP) should be referred to for further details of implementation.

5.3.5 The following management measures, overseen by an independent Ecological Clerk of Works (ECoW), will also be implemented prior to, during and after construction, where relevant:

- An Environmental Advisor/Manager will be employed to design and implement on site mitigation strategies as they are required.
- An independent Ecological/Environmental Clerk of Works (ECoW) will be employed to audit and report on adherence to the CEMP, as well as any other relevant planning consents, environmental permits, legislation and mitigation.
- All personnel on the site will be made aware of the environmental sensitivities of the site (proximity to designated sites) via the site induction and additional task specific toolbox talks as required.
- A speed limit of 15 mph to be in place along access and site roads for the electrolysis plant, AGI area or intake/ outfall area.
- The Principal Contractor will adhere to the following good practice guidelines (GPGs):
 - GPG 5: Works and maintenance in or near water;
 - GPG 6: Working at construction and demolition sites;
 - GPG 7: Safe storage – the safe operation of refuelling facilities;
 - GPG 21: Pollution and incident response planning; and
 - GPG 22: Dealing with spills.

5.3.6 Specific measures are as follows.

Pre-work checks and management

- A pre-works check of the site for protected species to be completed by a suitably qualified ecologist, prior to works commencing to highlight and where possible, avoid any new ecological constraints.
- Pre-works checks will be conducted by a suitably licensed ecologist for trees with PRFs, to avoid unforeseen damage to any trees with potential roost features (PRFs) prior to removal and to prevent any death or injury to any bats.
- Retained woodland and trees on and adjacent to the site will be protected following British Standard 5837:2012 tree protection measures during construction.

Species protection measures

- A phased removal of arable vegetation during the winter season (where possible), as further mitigation to minimise the effect on geese. The areas of habitat

clearance will be kept to a minimum and phased to reduce the total area of temporary habitat loss at any one time.

- Vegetation removal of scrub, trees, woodland and arable field (grass and crop) habitats should be avoided during the nesting bird season (March-August). Where this cannot be avoided, checks will be made an ecologist within 48hrs before vegetation removal is required to determine the presence of any nesting birds.
- Site contractors will be made aware of the presence of nesting birds (during the nesting bird season (March-August)) on site and in the locale, as part of their onsite induction material. If a nesting bird is suspected or discovered during works, works in that area should cease and the project ecologist/ECoW will be contacted for advice.
- Species-specific protection plans for bats, otter, badger and reptiles will be developed, which will include detailed measures proposed to minimise impacts to these species pre-, during and post works (e.g. installation of reptile fencing, and translocation plan pre-works commencing). Where relocation is required, this will be undertaken under licence from NatureScot where applicable.

Protective buffers

- Detailed design will ensure a 30m buffer from each otter rest site. A protection zone around the rest site features will be clearly communicated to the project team and included in works planning/site induction material.
- The Barn Owl tree roost will require a disturbance buffer to be implemented during the breeding season (March-August). The size of the buffer will depend on the nature of the disturbance and should be advised by a suitably qualified ecologist. However, based on NatureScot guidance, this could be 50 m or more for activities that might disturb the roost during the breeding season.

Reptile translocation

- A translocation programme for reptile will be undertaken within the area of habitat considered to host a 'good' population of common lizard. Any reptiles will be safely removed and translocated into a pre-arranged area of enhanced habitat suitable for reptiles.
- Potential reptile habitat will not be removed during hibernation period (November to March inclusive) and only undertaken 2 hours after sunrise and 2 hours before sunset and during optimal conditions (11-18 degrees, no heavy rain). To avoid disturbing hibernating reptile any works regarding reptiles or habitat will be undertaken in accordance with ARGUK's Advice Note 10: Reptile survey and mitigation guidance for peatland habitats⁴.

Lighting

- Artificial lighting required during construction will be fitted with directional shades and will not illuminate habitats outside of the immediate works area.

Badger setts

- An artificial sett feature will be created six months in advance of main sett removal prior to the construction phase and baited, to provide badger with an alternative place to reside and licensed sett exclusion works will be undertaken.
- Protection zones around retained badger setts will be clearly demarcated and communicated to all site contractors for avoidance, to avoid disturbing or destroying badgers and their setts.

Bat and bird boxes

- Ten bat roost boxes will be installed on established trees within woodland and treelines within and adjacent to the site as well as on buildings. Bat boxes are best located with a south facing orientation, to replace trees with suitability for bats.
- Four owl boxes will be installed into woodland habitats to increase overall nesting provisions for owl species.
- Twenty bird boxes will be installed into woodland and on retained trees to increase provisions for a range of bird species.

Insect safeguarding

- Woodcrete and reed insect blocks or 'bug hotels' will be installed to provide shelter for insects which may be present. Bug hotels may be installed on retained trees or fence posts as attracting insects to the site increases prey resource for bat, reptiles and bird species.
- For any trees required to be felled/limbed as part of construction works, a suitable proportion of the felled wood will be retained to construct log piles within the proposed development, as well as maintaining standing and buried deadwood within the site. Log piles, standing and buried deadwood provides a feeding and housing resource for insects which are a prey source for bats and other species.

INNS and biosecurity plan

- An invasive and non-native species (INNS) management plan (inclusive of a site-specific good practice biosecurity plan) will be developed and implemented manage INNS on site and avoid spread. This will also allow native plant species to avoid being smothered/ outcompeted by non-native species

Fish screen design

- The fish screens associated with the inflow and outflow structures will be designed to prevent fish impingement. Traditional passive mesh screens will be utilised, with a rectangular mesh size of 12.5 mm (vertical) x 25 mm (horizontal) being commonplace in Scotland⁵. To ensure the discharge reinforces the attraction flow from the remainder of the river and that outfall screening remains effective even when the outfalls are not discharging, the following will be considered within the design for outfall screens:
 - mesh or bar spacings for adult Atlantic salmon are 40 mm horizontal spacings and 30 mm for adult sea trout.;
 - outfall screens located at the most downstream point of the discharge;
 - the height and extent of the screen should take into account of topography and flood levels;
- Soft-start techniques will be implemented for any works within watercourse channels to allow fish and other species time to flee, to avoid injury or death.

Habitat compensation

- Loss of habitats will be compensated for via the enhancement and creation of habitats. The following will also be implemented to aid in compensation for the lost protected species habitat. Details of the habitat creation are set out in the Outline BEMP.
 - planting of native tree, shrub and scrub species within the site and along boundaries to offer sheltered and connective commuting habitat;
 - creation of a riparian habitat area north of the River Don;
 - enhancement of grassland through addition of flower rich species;
 - inclusion of rock and stone piles and creation of reptile hibernacula using stones from stone walls and soil from existing site.

5.4 Transport and Access

Objectives

- 5.4.1 To carry out construction works in such a way that maintains highway safety and avoids or minimises adverse effects on local communities and highway users.

Management measures

- 5.4.2 Prior to the commencement of construction traffic movements, a CTMP, CWTP and if required an AIL Transport Plan will be prepared in accordance with the Outline management plans that accompany the planning application.

5.4.3 The key management measures for construction logistics are scheduling deliveries to manage traffic levels and avoid peak periods, and providing routing information to the strategic highway network. The key management measures for construction worker travel are implementing a shuttle bus service and ride-sharing from pickup points around Kintore and Aberdeen. Further details are in the outline documents accompanying the planning application.

5.5 Noise and Vibration

Objectives

5.5.1 To control and limit the noise and vibration levels generated by the construction of the proposed development, so far as reasonably practicable, in order to minimise disturbance to sensitive receptors.

Management measures

5.5.2 To manage noise and vibration generating activities, all works will be carried out in accordance with the following principles:

- Best Practicable Means (BPM), for example the use of quieter alternative methods, plant and/or equipment, where reasonably practicable; the use of site hoardings, enclosures, acoustic barriers, portable screens and/or screening of noisier items of plant, where reasonably practicable; and maintaining and operating all vehicles, plant and equipment in an appropriate manner, to ensure that extraneous sound from mechanical vibration, creaking and squeaking is kept to a minimum.
- Where required, construction noise management measures for specific construction activities will be agreed with Aberdeenshire Council prior to the start of construction and set out in the adopted CEMP.
- As outlined in Section 3.1, normal construction working hours will be Monday to Saturday 08:00-18:00 unless otherwise agreed with Aberdeenshire Council. No Sunday, bank holiday or night working is proposed except where certain activities cannot be interrupted and require 24-hour working or are not noise-generating activities.

5.6 Air Quality

Objectives

5.6.1 To minimise the generation of dust near sensitive receptors during construction and to facilitate community engagement and a proactive approach to complaints regarding nuisance dust.

Management measures

5.6.2 These are based on the 'highly recommended' and 'desirable' mitigation measures recommended in the Institute of Air Quality Management (IAQM) dust guidance⁶. They constitute an initial Outline Dust Management and Monitoring Plan (DMMP), and are subject to refinement based on practical experience obtained during work on the construction on site.

Communications

- Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
- Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be an environment manager/engineer or the site manager.
- Display the head, regional or local office contact information.

Dust Management

Site Management

- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
- Make the complaints log available to Aberdeenshire Council when asked.
- Record any exceptional incidents that cause dust and/or abnormal air emissions, based on the site manager's judgement, either on- or off-site, and the action taken to resolve the situation in the log book.
- Hold regular liaison meetings with other high risk construction sites within 250m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.

Monitoring

- Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of the site boundary, with cleaning to be provided if necessary.
- Carry out regular site inspections to monitor compliance with the DMMP, record inspection results, and make an inspection log available to the local authority when asked.

- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- It is not proposed to undertake dust deposition, dust flux, and/or real-time PM₁₀ continuous monitoring for this project at this location, given the distance to sensitive receptors. The principal method of monitoring will be the log of daily visual inspections during construction hours.

Preparing and maintaining the site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
- Enclose specific operations where there is a high potential for dust production and the site is active for an extended period.
- Avoid site runoff of water or mud.
- Keep site fencing, barriers and scaffolding clean using wet methods.
- Remove materials that have a high potential to produce dust from site as soon as practical, unless being re-used on site. If they are being reused on-site cover as described below.
- Cover, seed or fence stockpiles to prevent wind whipping.

Operating vehicle/machinery and sustainable travel

- Ensure all vehicles switch off engines when stationary – no idling vehicles.
- Avoid the use of diesel- or petrol-powered generators and use mains electricity, solar or battery powered equipment where practicable.
- Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on un-surfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, with the agreement of the local authority, where appropriate).
- Produce a Construction Logistics Plan (this forms part of the CTMP) to manage the sustainable delivery of goods and materials.
- Implement a Travel Plan (this forms part of the CWTP) that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).

Construction Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction (e.g. suitable local exhaust ventilation systems).

- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment where appropriate.
- Ensure equipment is readily available on site to clean any dry spillages and clean up such spillages as soon as reasonably practicable after the event using wet cleaning methods.

Waste management

- Avoid bonfires and burning of waste materials.

Measures specific to earthworks

- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
- Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
- Where practicable, only remove the cover in small areas during work and not all at once.

Measures specific to construction

- Avoid scabbling (roughening of concrete surfaces) if possible.
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
- For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust.

Measures specific to trackout

- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site.
- Avoid dry sweeping of large areas.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.

- Record all inspections of haul routes and any subsequent action in a site log book.
- Install hard surfaced haul routes where practicable and where in proximity to dust-sensitive properties, which are regularly damped down in dry weather with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
- Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
- Access gates to be located at least 10 m from receptors where possible.

5.7 Climate Change

Objectives

5.7.1 To minimise as far as reasonably practicable effects to climate as a result of greenhouse gas (GHG) emissions generated during the construction phase.

5.7.2 To manage risk from weather extremes due to a changing climate, ensuring staff safety and welfare.

Greenhouse gas emissions

5.7.3 The primary impact of GHG emissions generated during the construction period would be as a result of 'embodied carbon' within construction materials used, such as concrete and steel, and various premanufactured components of the electrolysis plant. These are the indirect GHG emissions generated from the supply chain in the production of those materials. Direct GHG emissions produced from the construction phase will include onsite fuel consumption and emissions from construction plant.

5.7.4 Measures to reduce embodied carbon will be identified through a detailed design stage life cycle assessment (LCA), with the implementation managed through a carbon management framework. In outline this will comprise the following steps:

- undertake a detailed LCA during engineering/architectural design of the development to identify construction carbon hotspots and guide optioneering to achieve reductions;
- use recognised frameworks such as PAS2080: Carbon Management in Infrastructure and Built Environment and the UKGBC's forthcoming Net Zero Carbon Building Standard (building on the existing UKGBC framework definition for net zero buildings, and expected to be published later in 2024) to define a target for substantially reduced or net zero emissions from construction and manage this through the principal contractor interface;

- use verified Environmental Product Declarations and engage with or require the principal contractor to engage with the key technology providers and tier one suppliers for the main materials and major engineered components to procure lower-carbon products; and
- give consideration in the detailed design LCA to future decommissioning, incorporating materials and fixings capable of eventual dismantling and re-use where feasible.

5.7.5 Measures to reduce construction plant and site vehicle GHG emissions, as far as reasonably practicable, will include the following:

- vehicle engines will be switched off when stationary;
- mains electricity, solar or battery powered equipment will be used instead of diesel- or petrol-powered equipment/generators, where feasible; and
- source materials locally, where possible, to reduce transport GHG emissions.

Climate risk

5.7.6 Climatic change introduces a greater risk of weather extremes, including more frequent or intense summer heatwave conditions, and potentially more intense winter storms. Construction workforce welfare, health and safety will be managed to adapt to climate risks in line with the HSE's advice for outdoor working:

Cold environments

- Ensure the personal protective equipment issued is appropriate
- Provide mobile facilities for warming up, and soup or hot drinks
- Introduce more frequent rest breaks
- Consider delaying the work until warmer times of the year without compromising on safety
- Make sure workers can recognise the early symptoms of cold stress, such as a cough or body aches

Hot environments

- Reschedule work to cooler times of the day
- Provide more frequent rest breaks and introduce shading to rest areas
- Provide free access to cool drinking water
- Introduce shading in areas where people are working
- Encourage workers to remove personal protective equipment when resting to help encourage heat loss
- Make sure workers can recognise the early symptoms of heat stress

5.8 Soils, Geology and the Water Environment

Objectives

5.8.1 To reduce the potential for impacts on soils, geology and the water environment during the construction phase of the proposed development.

5.8.2 To manage topsoil and subsoil so that previous landuse can be restored following temporary works or completion of underground works.

General good practice construction measures

5.8.3 Good environmental practice will be implemented during the construction phase based on current legal responsibilities and guidance on good environmental management in: CIRIA C532 Control of Water Pollution from Construction Sites – Guidance for Consultants and Contractors (2001)⁷; and CIRIA C648 Control of Water Pollution from Linear Construction Projects (2006)⁸. Vehicles and plant required during construction would be confined to the area required for safe working only to prevent compaction, rutting and habitat damage to adjacent areas of land. Working areas would be clearly marked out and temporary fencing used where risk assessments indicate a requirement. Similar procedures would be adopted to demarcate areas where plant access is required for pipeline and electricity cable trench installation.

5.8.4 Measures to prevent and control spillage of fuel, chemicals and other potentially harmful liquids will be implemented. Appropriate storage and handling of materials, equipment and products will be provided and will include for example:

- any above ground on-site fuel and chemical storage would be bunded;
- emergency spill response kits would be maintained during the construction works;
- a vehicle management system and speed limit to reduce the potential conflicts between vehicles and thereby reduce the risk of collision;
- suitable access routes which minimise the potential requirement for either new access tracks or for tracking across open land which could contribute to the generation of suspended solids;
- drip trays will be placed under vehicles which could potentially leak fuel/oils;
- temporary construction/storage compounds will be located remote from any sensitive surface water receptors and will be constructed to manage surface water runoff in accordance with best practice;
- any water contaminated with silt or chemicals will not be discharged directly or indirectly to a watercourse without prior treatment; and
- water for temporary site welfare facilities will be brought to site, and foul water will be collected in a tank and collected for offsite disposal at an appropriately licensed facility.

5.8.5 A wet weather protocol would be developed that would detail the procedures to be adopted by all staff during periods of heavy rainfall. Roles would be assigned and the inspection and maintenance regimes of sediment and runoff control measures would be adopted during these periods. In extreme cases, this protocol would dictate that work onsite may have to be temporarily suspended until weather/ground conditions allow.

Topsoil and subsoil

5.8.6 Topsoil and subsoil will be excavated, handled and stored in a manner to enable its use in landscaping and to restore existing landuse following work in areas of temporary construction or buried (such as pipeline routes).

5.8.7 Topsoil and subsoil will be stockpiled separately and reused in sequence to reinstate the soil conditions. Compaction of stockpiles will be avoided and protective sheeting used to prevent rainwater saturation and erosion of the stockpiles.

5.8.8 Further detail of the methods prior to construction will be developed through a Soil Management Plan (SMP) to be incorporated or appended to the adopted CEMP. The SMP will have regard to the “Construction Code of Practice for the Sustainable Use of Soils on Construction Sites⁹.”

5.8.9 It is important to implement best practice measures to avoid degradation and deformation during all phases of soil handling. The main threats to soil resources on construction sites are trafficking of vehicles and incorrect handling as they can damage the structure of the soils through over-compaction and contamination. These effects compromise the ability of the soil to perform its functions such as providing adequate air, nutrients, and water to plant roots.

5.8.10 The SMP would include the following information:

- investigation and testing schedule to allow an accurate soils resource budget to be prepared;
- details of required preparation of working areas prior to soils stripping (e.g. advance stumping / mowing, removal of large roots or stumps etc., and removal of woody material to prevent anaerobic conditions establishing in soil stockpiles)
- details of how soils will be stripped in accordance with Defra’s code of practice referenced above;
- confirmation that topsoil will be stripped and stockpiled separately to other materials on site and not more than 3 m in height to prevent compaction; and
- confirmation that subsoil will only be stockpiled on subsoil (e.g. not on topsoil).

5.8.11 The SMP will be defined based on the results of the site investigation and will be used to specify existing soil characteristics and the depths of topsoil and subsoils horizons.

Contractor method statements shall include details of the methods of working, proposed site machinery and tillage equipment, materials, and health & safety requirements. Temporary works will be progressively restored and therefore no long term storage of soils is anticipated. In the unlikely event soil is stockpiled for more than six months a low-maintenance seed mix will be sown over the top and sides of the stockpile(s), to stabilise the surface, reduce erosion and nutrient loss and hinder the growth of weeds.

- 5.8.12 The main objective for the reinstatement of disturbed ground is to restore it to its pre-development quality. This will be achieved by ensuring that the soil profile is reinstated in the correct sequence of horizons, and in a state where good soil drainage and plant root development can be achieved.
- 5.8.13 Subsoil decompaction and preparation may be necessary prior to topsoil reinstatement. Where required subsoil will be graded and placed to achieve the desired formation levels and falls with the specified finished levels of topsoil.
- 5.8.14 It is likely that the subsoil will have been heavily compacted during the construction period. On large areas the subsoil will be loosened to a depth of 300 mm.
- 5.8.15 Topsoil that has been stored in a stockpile is often compacted and anaerobic. It should therefore be cultivated to its full depth using appropriate tillage equipment to decompact and fully re-aerate. After respreading topsoil, any large, compacted lumps should be broken down by using suitable tillage equipment (e.g. chisel plough, power harrow or landscape rake) to produce a fine tilth suitable for planting.
- 5.8.16 To minimise the risk of degradation to soils, the following guidance will be adhered to during all soil handling tasks:
- no trafficking of vehicles/plant or storage of materials to take place outside designated working areas;
 - the soils (topsoil and subsoils) will not unnecessarily be trafficked or trampled by vehicles, which will operate on the 'basal'/non-soil layer where possible;
 - no trafficking of vehicles or plant on reinstated soils (topsoil or subsoil);
 - plant and machinery to only work when ground or soil surface conditions are conducive to this, for example avoiding operation when machinery is not at risk of being bogged down due to wetness);
 - plant and machinery will be maintained in good working order; low ground pressure and tracked vehicles will be used where possible when working directly on bare or vegetated soils (this reduces the intensity of ground compaction);
 - stripping areas are to be protected from in flow of water and ponding and wet areas will be drained in advance of stripping;

- where practicable, soils will only be moved when they are in a dry and friable condition (for stripping and reinstatement), based on field assessment of the soils' wetness in relation to its lower plastic limit; and
- no mixing of topsoil with subsoil, or of soil with other materials.

- 5.8.17 The size of the earthmoving plant to be used will be tailored to the size of the area to be stripped and the space available within the working area. The use of a long reach excavator, which will minimise the need for movement across the soil surface, and the use of tracked vehicles will reduce soil compaction.
- 5.8.18 During certain weather conditions soil handling and movements must be effectively managed to reduce the risk of degradation and damage. This will be specified in the SMP for the adopted CEMP. When a rainfall event forces the suspension of soil handling operations, the soil profile within the active strip should be stripped to the basal layer (i.e. measured topsoil depth) before cessation of works. New active strip areas should not be started.
- 5.8.19 Before soil handling operations recommence the weather forecast should be checked and works only recommenced if no further heavy rain, prolonged frost or snow is forecast during a period which would require stoppage midway through a stripping area. Soil moisture and condition should be tested prior to work recommencing.

Ecological Clerk of Works (ECoW)

- 5.8.20 As noted above, an ECoW will be appointed for the construction works. With respect to the water environment, the ECoW will be present onsite during the construction phase at the times required to supervise specific activities or areas of works. The ECoW will carry out monitoring of works and briefings with regard to ecological and hydrological sensitivities on the site to the relevant staff. The ECoW would also have responsibility to ensure water flow paths and quality to water dependant habitats are sustained. The ECoW would have authority to cease works on site if required.

Water quality monitoring

- 5.8.21 A programme of visual inspection of temporary and permanent water control measures and of receiving watercourses will be used during the construction phase to ensure that construction works are not impairing flows or quality in the adjacent watercourses.
- 5.8.22 The monitoring will be used to allow a rapid response to any pollution incident and also to assess the impact of good practice or remedial measures. Monitoring frequency will increase during the construction phase if remedial measures to improve water quality need to be implemented.
- 5.8.23 The scope and frequency of monitoring, including reporting procedures and the provision of an emergency response action plan, would be agreed with statutory

consultees, including SEPA and AC, through approval of the adopted CEMP prior to the commencement of construction.

Pollution risk

5.8.24 Good practice measures in relation to pollution prevention during construction would include the following:

- refuelling would take place at least 50 m from watercourses and where there is no risk that oil from a spill could directly enter the water environment;
- foul water generated onsite would be managed in accordance with PPG4;
- areas would be designated for washout of vehicles which are a minimum distance of 50 m from a watercourse;
- washout water would also be stored in a washout area before being treated and disposed of;
- if any water is contaminated with silt or chemicals, runoff would not enter a watercourse directly or indirectly prior to treatment;
- water would be prevented as far as possible, from entering excavations such as trenches and foundations;
- procedures would be adhered to for storage of fuels and other potentially contaminative materials in line with the Controlled Activities Regulations licence (CAR), to minimise the potential for accidental spillage; and
- a plan for dealing with spillage incidents would be developed in the adopted CEMP prior to construction, and this will be adhered to should any incident occur, reducing the effect as far as practicable.

Erosion and sedimentation

5.8.25 Good practice measures for the management of erosion and sedimentation during construction would include the following:

- all stockpiled materials would be located at least 50m from watercourses;
- water would be prevented as far as possible, from entering excavations such as trenches and foundations through the use of appropriate temporary cut-off drainage;
- where the above is not possible, water would pass through silt/sediment traps to remove silt prior to discharge into the surrounding drainage system;
- clean and dirty water onsite would be separated, and dirty water would be filtered before entering the water environment;
- if temporary material stockpiles are on a slope, silt fences would be located at the toe of the slope to reduce sediment transport;
- the amount of ground exposed, and time period during which it is exposed, would be kept to a minimum;

- silt/sediment traps, single size aggregate, geotextiles or straw bales would be used to filter any coarse material and prevent increased levels of sediment in runoff. Further to this, activities involving the movement or use of fine sediment would avoid periods of heavy rainfall where possible; and
- construction personnel, ECoW, and the Principal Contractor would carry out regular visual inspections of watercourses to check for suspended solids in watercourses downstream of work areas – these inspections would be verified by confirmatory extractive sampling.

5.8.26 Further, it is proposed to surface (e.g. asphalt) the temporary construction access from the public highway to the main electrolysis plant site, which will prevent erosion and the generation of sediment from the access route.

5.8.27 Immediately post-construction, newly excavated drains, surface treatment to trenches and areas of landscaping may be prone to erosion as any vegetation would not have matured. Immediately post-construction, flow attenuation measures will remain and be maintained to slow runoff velocities and prevent erosion until vegetation becomes established.

Fluvial flood risk

5.8.28 It is proposed to adopt Sustainable Drainage Systems (SuDS) as part of the proposed development. SuDS techniques aim to mimic pre-development runoff conditions and balance or throttle flows to the rate of runoff that might have been experienced prior to development. Good practice in relation to the management of surface water runoff rates and volumes during construction would include the following:

- temporary drainage systems would be designed to ensure that any sediment, pollutants or foreign materials which may cause blockages are removed before water is discharged into a watercourse;
- temporary onsite drainage would be subject to routine checks to ensure that there is no build-up of sediment or foreign materials which may reduce the efficiency of the original drainage design causing localised flooding;
- drainage measures would attenuate runoff rates to ensure minimal effect upon flood risk; and
- where necessary, check dams would be used within trenches in order to prevent trenches developing into preferential flow pathways.
- temporary construction compounds will be positively drained e.g. incident rainfall will be collected and managed in accordance with SuDS principles. No uncontrolled discharge of water will be made from the compounds.

Concrete batching, transport and pouring

5.8.29 The following mitigation would be adopted:

- where concrete transfers are required, measures would be adopted at the point of concrete transfer to prevent accidental spillage of liquid concrete and no transfers would be undertaken in proximity to watercourses or areas of standing water;
- wash-out of concrete carrying vehicles will be undertaken where suitably bunded/protected facilities are provided. Chutes, if required, would be washed out to a suitable container, allowed to settle and disposed at suitably licensed facilities; and
- excess concrete or wash-out liquid would not be discharged to drains or watercourses or any ground. Drainage from washout facilities would be collected and treated or removed to an appropriate treatment point/licensed disposal site.

Permanent watercourse crossings (inc. trenchless crossings)

5.8.30 Good practice in relation to new water crossings involves the following aspects:

- the design of the watercourse crossings would be agreed with SEPA prior to construction and be regulated in accordance with CAR;
- the appropriate crossing type would be identified from SEPA's good practice guidance and would take into account any ecological and hydrological constraints; and
- the crossing would be sized and designed so as to minimise effect upon flood risk (sized to accommodate at least the 200 year flow plus an allowance for climate change).

5.8.31 Should it become apparent, as part of the detailed design stage of the project, that an existing crossing needs to be replaced, then the principles identified above for new crossings would be used.

5.8.32 Good practice in relation to HDD or other trenchless techniques for water crossings includes the following:

- the design of the works would be informed by site investigation to ensure an appropriate drilling technique is specified;
- the works would be undertaken by a suitably experience contractor and be supervised by the site ECoW in locations where required due to ecological sensitivities;
- it will be necessary to develop launch and landing pads for the HDD or other trenchless works which would be developed and managed in accordance with the pollution and erosion, and sedimentation best practice discussed above;
- the works would be agreed with SEPA prior to construction and be regulated in accordance with CAR;

- the works would be undertaken in accordance with a method statement agreed with SEPA and include monitoring the volume of any drilling fluids used, such as bentonite, to ensure no loss of drilling fluid;
- the HDD or other trenchless works launch and landing pads would be set sufficiently far from the watercourse so that the banks of the watercourse being crossed are not disturbed by the proposed works;
- a flood response plan would be developed and then implemented during the works, so that works can cease and be made safe in the event of extreme rainfall and flood levels; and
- an emergency incident response plan would be prepared and deployed if required during the works.

Installation of water and hydrogen pipelines

5.8.33 Underground pipelines would be installed progressively. The length of time the pipeline trench would remain open would be minimised. The trench would be opened using a tracked excavator and arisings from the trench would be temporarily stored adjacent to the trench ready for use to restore the trench.

5.8.34 Arisings would be stored so that the potential for erosion and sedimentation is minimised (see above). Silt fences, cut-off drains and temporary cover of the stockpiles will be deployed as required.

5.8.35 Vegetation turves would be stored separately to the spoil arisings. Once the pipeline has been installed in the trench, arisings would be used to restore the trench and backfilled in the same order that the material was excavated from the trench. Turves would then be replaced on the backfilled trench.

5.8.36 If directed by the ECoW, low permeability barriers would be installed in the trench to prevent the trench forming a preferential water flow path. Where ground conditions are saturated, a geotextile wrap would be used within the trench to ensure there is no loss of the sand pipeline surround to adjacent ground.

5.8.37 Where required localised temporary pumping of water from the trench would be undertaken to maintain safe working conditions and to facilitate trench installation. Pumping arrangements would be agreed under a permit to pump system reviewed by the site ECoW to ensure water is not discharged to sensitive habitats. Pumping would cease once the pipeline has been installed.

References

¹ Gov.uk (2015). The Construction (Design and Management) Regulations 2015, available at: <https://www.legislation.gov.uk/uksi/2015/51/regulation/3>, accessed 04/06/24.

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⁴ ARGUK (2024). Advice Note 10. Available: <https://www.arguk.org/info-advice/advice-notes/598-10-advice-note-10-reptile-survey-and-mitigation-guidance-for-peatland-habitats-1>, accessed 04/09/24.

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⁶ IAQM (2024). Guidance on the assessment of dust from demolition and construction, available at: <https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf>, accessed 12/06/24.

⁷ CIRIA (2001). C532 Control of water pollution from construction sites, guidance for consultants and contractors, available at: https://www.ciria.org/CIRIA/CIRIA/Item_Detail.aspx?iProductCode=C532&Category=BOOK, accessed 04/06/24.

⁸ CIRIA (2006). C649 Control of water pollution from linear construction projects, available at: https://www.ciria.org/CIRIA/CIRIA/Item_Detail.aspx?iProductCode=C649&Category=BOOK, accessed 04/06/24.

⁹ Defra (2009): Construction Code of Practice for the Sustainable Use of Soils on Construction Sites.