OUTLINE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

SOAY SOLAR FARM AND GREENER GRID PARK

STATKRAFT UK LTD

JULY 2022

Prepared By:

Arcus Consultancy Services Ltd.

Suite 1C
Swinegate Court East
York
North Yorkshire
YO1 8AJ

T +44 (0)1904 715 470 l **E** info@arcusconsulting.co.uk
w www.arcusconsulting.co.uk

Registered in England & Wales No. 5644976

Author	Gregor Hirst	BSc (Hons)	Engineer
Reviewed	David Ballentyne	BSc (Hons)	Principal Engineer
Approved	Tomos Ap Tomos	BEng (Hons) MCIHT	Associate Director – Engineering

TABLE OF CONTENTS

1 INTRODUCTION

Arcus Consultancy Services Limited (Arcus) has been instructed by Statkraft UK LTD (the Applicant) to prepared an Outline Construction Environmental Management Plan (Outline CEMP) of land at Thornton, near York, East Riding of Yorkshire (the Site), approximately centred on National Grid Reference SE 76204 46514.

The Outline CEMP is submitted as part of a planning application for a proposed Solar Farm and Greener Grid Park (the Development) which includes associated soft and hard landscaping. The layout and technical details of the Development are provided in the associated Planning, Design and Access Statement (PDAS) and accompanying figures.

The Outline CEMP is intended to demonstrate measures that could be used across the Site during construction of the Development to adequately protect environmental resources. Detailed proposals for such measures will be documented prior to construction and will provide the same or greater protection for the environment as those described in this Outline CEMP. The measures are proportionate to the risk and, where greater risk is highlighted at specific locations prior to construction, specific measures would be agreed for those locations.

The methods set out in this Outline CEMP are based on good practice, including measures agreed with the Environment Agency (EA) for several constructed solar farms and Greener Grid Parks. The following guidance is applicable:

- The Construction Industry Research and Information Association (CIRIA), 'Environmental Good Practice On Site (C741)' (2015)[1];
- CIRIA, 'Control of Water Pollution from Construction Sites (C532)' (2001)[2]; and
- The SuDS Manual (2015).
- Engineering, & Construction Procurement Best Practice Guidelines from Solar Power Europe [3]

The Outline CEMP takes into account specific activities during the construction and operational phases of the Development, including:

- Formations of new, and upgrading of, access track;
- Foundations required for the erection of the solar farm and Greener Grid Park equipment; and
- Hardstanding areas and buildings (including the synchronous compensator enclosure, battery storage facilities, electrical compound and associated infrastructure).

Appropriate methodologies for the mitigation of water-related effects, including pollution prevention measures (Pollution Prevention Plan) and other environmental effects are described in the following sections.

The Outline CEMP includes the following appendices:

- Appendix A – Outline Site Waste Management Plan (SWMP);
- Appendix B – Outline Construction Mitigation Measures; and
- Appendix C – Incident Response Plan.

The Application was submitted in December 2021, following which the layout and technical details of the Development have been amended to incorporate minor design

[1] The Construction Industry Research and Information Association (CIRIA), (2015), Environmental Good Practice on Site Guide (C741), CIRIA: London
[2] CIRIA, (2001), Control of Water Pollution from Construction Sites (C532), CIRIA: London.
[3] Solar Power Europe (2020) Engineering, & Construction Procurement Best Practice Guidelines from Solar Power Europe [Online] Available at: https://www.solarpowereurope.org/engineering-procurement-construction-best-practice-guidelines-version-1-0/ (Accessed 21/11/2021)

changes. Due to design minor design changes associated with the Development, this CEMP has been updated in July 2022, primarily Section 4 – Management of Wildlife.

2 GENERAL POINTS

2.1 WORKING HOURS

Core working hours are proposed to be between 07.00 until 19.00, Monday to Saturday (unless in exceptional circumstances where need arises to protect plant, personnel or the environment). In addition to this, a start-up and close down period for up to an hour before and after the core working hours is proposed. This does not include the operation of plant or machinery that may cause a disturbance.

During the more active season for badgers (Spring to Autumn), if work is to be undertaken outside of daylight hours, lighting will be used to the works areas only and shall not to be allowed to spill onto neighbouring habitats of value to badgers and other wildlife. Any lighting required during works will be shielded or fitted with hoods to reduce light spill. Quieter construction activities at this time would be undertaken to reduce disturbance.

Application of the above working hours to manage construction noise and vibration will ensure that effects are minimised as far as reasonably practicable.

Exceptional circumstances in the above context is defined as reasonably unforeseeable circumstances which would result in the curtailment of construction activity, causing an increase in health and safety risk to humans (determined by the construction site manager) or a risk to wildlife (determined by the Ecological Clerk of Works (ECoW)). Examples of this would be ensuring work areas in proximity to public areas are fully secure outside of working hours, or to close up trenches to protect wildlife where practicable.

The Applicant, or the Contractors appointed by the Applicant, will notify East Riding of Yorkshire Council (ERYC) of any exceptional situations to the approved working hours 48 hours before these occur.

2.2 CONTROL OF LIGHTING

The majority of construction activities will be undertaken during daylight hours. In winter, the short daylight hours may require some temporary lighting to be deployed during construction however, this will be avoided as far as practicable and lights will not be used out with core working hours outlined in Section 2.1.

All construction lighting will be deployed in accordance with the following recommendations to reduce or remove impacts on human and ecological receptors:

- The use of lighting will be minimised to that required for safe site operations; Lighting will utilise directional fittings to minimise outward light spill and glare (e.g., via the use of light hoods/cowls which direct light below the horizontal plane, preferably at an angle greater than 20° from horizontal); and
- Lighting will be directed towards the centre of the Site rather than towards the boundaries.

2.3 CONTROL OF NOISE

The Contractor will prepare a scheme of noise control and mitigation measures based on the final detailed construction plan. This can be submitted for approval in advance of works commencing, if required by ERYC. As the Contractor is yet to be appointed, the detailed construction plan has not been finalised at this stage.

The Contractor will observe BS 5228:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites[4] (BS 5228) to inform noise control measures during the construction of the Development, with an awareness of noise pollution legislation.

In accordance with BS 5228 best practice; the Contractor will establish a process for handling any noise-related complaints during the construction period. These will be recorded and a log will be maintained that will include details of the response and any action taken. This will be available upon request for inspection to ERYC. All enquires, whether a query or a complaint will be dealt with in a timely manner. Any complaints with regards to noise will be investigated as soon as practicable, and will be logged, along with the action taken to prevent further exceedances.

Any complaints received are to be recorded into the register within 24 hours. The interested party will be notified what action is being taken to address the enquiry/ complaint as required.

2.4 ECOW

There is a requirement for an ECoW to be appointed for certain periods of times in areas of sensitivity from commencement of construction to final commissioning of the Development, or end of the construction period, whichever is the latter. The scope of the work of the ECoW shall include, but not be limited to:

(a) Monitoring compliance with the ecological mitigation works – including measures for the protection of great crested newts (GCN) water vole, badgers and bats, plus mitigation measures for reptiles following the detailed presence/absence surveys;

(b) Providing advice on adequate protection of nature conservation interests on-site;

(c) Providing contractor tool-box briefings about legally protected species and their habitats; and

(d) Ensuring any required protected species licences are in place and providing advice and monitoring compliance with the licence conditions.

3 MANAGEMENT OF SEDIMENT AND SURFACE WATERS

3.1 OVERVIEW

This section addresses the management of sediment and surface water run-off generated during the construction phase of the Development, through good practice construction techniques.

Major construction works (e.g., foundation excavations and associated backfilling) will be minimised during heavy precipitation events.

Drainage from the Site will include elements of Sustainable Drainage Systems (SuDS) design, where appropriate. SuDS replicate natural drainage patterns and have a number of 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 natural drainage network; and
- SuDS measures, such as lagoons or retention ponds, correctly implemented will produce suitable environments for wildlife.

[4] British Standards (2008): BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites.

In addition, appropriate drainage management system, where necessary, will be implemented to avoid any surface water run-off to public roads.

3.2 LOCATION OF SILT TRAPS AND SILT MATTING

Silt traps may be utilised to trap and filter sediment-laden run-off from excavation works at the Site, including foundations for the temporary construction compounds and access roads.

Good practice will be followed prior to placement of silt traps adjacent to land drains. Silt matting may be placed at the outfall of settlement lagoons to filter sediment during times of heavy rainfall. Plate 1 shows a typical silt fencing.

The silt traps and silt matting will be monitored and replaced when necessary.

Plate 1: Typical Silt Fencing

3.3 PROVISION FOR STORM EVENTS

The Site itself is not assessed to be at any significant risk from surface water or fluvial flooding. In extreme storm events, there would be elevated levels of run-off from any hardstanding relative to greenfield flow rates, which has the potential to contribute to down-stream, off-site, flood risk.

It is anticipated that hardstanding will be limited to access tracks and compounds. Other infrastructure (e.g., battery containers, inverters and welfare etc.) will be on plinths, raised above theground on supports.

A SuDS network has been designed to attenuate and discharge surface water related to the impermeable elements of the Greener Grid Park infrastructure at a controlled rate without surcharging to a 1:100-year (plus climate change allowance) event. Further details of the SuDS network are available in the Drainage Impact Assessment (DIA)[5].

Along the access tracks, drainage channels on the down-slope would direct run-off from the track to adjacent rough ground approximately every 30 meters (m), to attenuate flow and allow natural filtration to remove sediments.

[5] Drainage Impact Assessment, Soay Solar Farm and Greener Grid Park, Arcus (2021)

The Site benefits from existing perimeters scrapes which intercept surface water runoff, with no active outlet into a receiving waterbody, providing a level of interception and increasing the interception and infiltration capacity at the Site. The Development will extend upon such scrapes where required to provide further surface water interception benefits, as detailed within the DIA.

Appropriate licensing and discharge consents will be sought before the construction phase of the Development, if required.

3.4 FOUL DRAINAGE

During the construction phase, 'Porta-loo' type facilities, or equivalent, will be used and emptied by a waste contractor, therefore minimising potential effects on drainage ditches and watercourses.

It is anticipated that presence on site during the operational phase will be infrequent. Visits will mainly be restricted to maintenance personnel and will only be for short periods of time. Permanent welfare facilities are to be included as part of the Greener Grid Park development, however no water or waste water supply is required as a septic tank will be installed and foul water will be removed from site and treated responsibly by a waste water contractor.

3.5 MANAGEMENT AND MOVEMENT OF FRESH CONCRETE

3.5.1 Overview

Concrete will be delivered to the Site from an off-site supplier and the following management measures are proposed.

3.5.2 Accidental Spillage within the Construction Compound

The temporary construction compound will house equipment used to store liquids including diesel and other fuels. The equipment will all be bunded with a 110% capacity to attenuate stored liquids, including fresh concrete. This will reduce the potential for accidental spillages to contaminate surface water or groundwater.

An appropriately sized spill kit(s) will be provided and maintained on-site. This 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 elsewhere within the construction compound.

3.5.3 Accidental Spillage Outside Construction Compound

Speed limits for vehicles transporting fresh concrete will be set at a maximum of 15 miles per hour (mph) and will be monitored to reduce the risk of spillage or damage as a result of Site conditions or other Site operations. Maximum vehicle load capacities will not be exceeded. Although tracks will be maintained in good condition, vehicle loads and/or speeds will be reduced when a rougher surface is identified prior to track maintenance.

Spill kits will also be located at strategic points across the Site where fresh concrete may be present. Measures to manage fresh concrete during pouring operations are described in Section 3.9.

3.5.4 Concrete Pouring for Foundations

To prevent pollution it is important that all concrete pours are planned and that specific procedures are adopted where there may be a risk of surface water or groundwater contamination, in accordance with CIRIA C532. These procedures will include:

- Ensuring that all excavations are sufficiently dewatered before concrete pours begin and that dewatering continues while the concrete cures. However, construction

good practice will be followed to ensure that fresh concrete is isolated from the dewatering system; and
- Ensuring that covers are available for freshly placed concrete to avoid the surface of the concrete washing away during heavy precipitation.

The excavated area will be back-filled with compacted layers of graded material from the original excavation, where this is suitable, and capped with soil. Locally, around the foundations, the finished surface will be capped with crushed aggregate to allow for safe personnel access. The management of run-off from these areas is described in Section 2.

3.5.5 Concrete Batching

Concrete will be manufactured off-site and delivered to Site via ready mixed concrete delivery vehicles.

4 MANAGEMENT OF WILDLIFE

4.1 SUMMARY OF ECOLOGICAL SENSITIVITIES

An ecological impact assessment[6] (EcIA) and ornithological impact assessment[7] (OIA) were carried out and the results of these detailed assessment are reported within the separate EcIA and OIA reports. A series of ecological surveys were undertaken as part of the EcIA and OIA, including the initial Phase 1 Habitat survey, and species-specific surveys for great crested newts (GCN), water voles and birds. Information from consultations and desk-based literature reviews were also undertaken as part of the assessment. The information and results from these assessments was used to generate a picture of the ecological baseline and assess the effects of the proposed development on the ecological interests of the Site.

A desk-based assessment identified six statutory designated sites within 5 km of the Site. The closest of these being Allerthorpe Common SSSI located adjacent to the northern boundary of the Site. The Lower Derwent Valley is designated as a SAC, SPA, and a NNR and is located 1 km south-west from the Site.

A further 21 non-statutory designed sites were identified within 2 km of the site. The closest of these being Allerthorpe Common LWS, located adjacent to the northern boundary of the Site, which is also a Yorkshire Wildlife Trust (YWT) Reserve. Furthermore, Warren Wood Deleted LWS is located adjacent to the eastern Site boundary.

Habitats presents within the survey area comprise predominately arable land with associated intact and defunct species poor hedgerows or tree lines. Pockets of woodland and standing trees are scattered across the Site. A network of ditches, associated with field margins, are present throughout the site.

The surveys have confirmed protected species presence on Site including GCN, water voles, badgers, and bird species. There is the potential for a range of protected or notable species including otter, bats, and invertebrates. Himalayan balsam, an invasive non-native plant species has also been recorded on Site.

Potential effects on habitats and species found to be present within the survey area principally include habitat loss, displacement, and disturbance/injury. These effects were minimised during the EcIA stage design of the Development, by creating a network of retained and newly created habitat. Any construction impact on UK/European protected species is mitigated through obtaining a Natural England licence or by following a non-licenced method statement and conducting works on habitats at appropriate times to minimise ecological impact.

[6] Arcus (2021) *Ecological Impact Assessment: Soay Solar Farm and Greener Grid Park.* Statkraft UK LTD
[7] Arcus (2021) *Ornithological Impact Assessment, Soay Solar Farm and Greener Grid Park.* Statkraft UK LTD

In the design and construction of the Development, the Contractor shall implement the mitigation measures defined in the EcIA, OIA and CEMP.

4.2 ECOLOGICAL WORKS

Mitigation will include avoidance of ecologically sensitive habitat, the creation of new habitat, the maintenance of habitat connectivity, plus the enhancement of habitats within the Site.

Appropriate buffer zones will be implemented in conjunction with the advice of an ECoW to avoid adverse impacts on habitats, great crested newts, water vole, otter, nesting birds, bats, badger, invertebrates, and invasive species.

A full summary of the construction mitigation measures to safeguard habitats and species is presented in Appendix B.

4.2.1 Designated Sites and Habitats

Construction works will avoid and retain habitats of high value on-site i.e., woodland and hedgerows and reduce the likelihood of adverse impacts to off-site designated sites. Mitigation measures to safeguard sensitive ecological receptors are detailed within the EcIA and are summarised within Appendix B.

- Follow and implement best practice measures to reduce the risk of accidental inputs to designated sites, field margins and the ditch network;
- Maintain a 100 m buffer from Allerthorpe Common SSSI and LWS; and
- Maintain at least a 10 m buffer from all woodland on-site.

4.2.2 Great Crested Newts

GCN presence has been identified within ponds on the Site. Suitable terrestrial habitats such as the semi-improved grassland field margins, tall ruderal, hedgerows, and woodland have potential to support great crested newts. These habitats will predominantly be avoided, with works commencing within arable land.

In order for construction works to progress, a Non-licensed Method Statement (NLMS) is required. This is a precautionary approach that seeks to avoid disturbance to GCN through mitigation.

The habitat creation (mitigation) works within 100 m of known GCN ponds will need to be carried out during the winter months (November to February inclusive) when GCN are found in sheltered terrestrial habitat and are typically absent in ponds.

Construction work is other parts of the site away from ponds and in arable habitat can take place year-round, as the risk of encountering GCN is reduced.

The mitigation approach will include but not be limited to the following:

- Installation of terrestrial habitat prescriptions within a dedicated Habitat Management Area (HMA) prior to any other works taking place;
- Habitat creation works located within 100 m of the three on-site ponds with known GCN populations, will only be undertaken during the winter months as the works area, existing arable land, contains no features of hibernation value or potential, and therefore GCN are unlikely to be present;
- An Ecological Clerk of Works (ECoW) will be present during habitat creation works within 100 m of ponds;
- An ECoW for GCN will not be required for works within negligible value habitat beyond 100 m from a known GCN pond and timing restrictions will not apply;
- The on-site ponds (P2, P5a & P5b) with a small population of GCN will not be directly impacted and strict 100 m buffers (e.g., Heras fencing barriers) will be maintained from these ponds along with suitable terrestrial habitat such as hedgerows and woodland;

- Habitat creation will take place around these ponds further enhancing the habitat present and, segregating the Development from the on-site ponds with identified small populations of GCN; and
- Pollution prevention measures and a lack of hydrological connectivity to off-site ponds will ensure no pollution to the off-site ponds.

A European Protected Species Mitigation (EPSM) licence application is not considered necessary as the risk of killing/injuring GCN and preventing access to a place of shelter is considered unlikely if the detailed mitigation proposed in the NLMS is followed, and strict working methodologies are in place and, supervised by a licenced GCN ecologist in habitats within 100 m of known GCN ponds. However, in the unlikely event that GCN are still encountered at any time or location within the Site, and it is proposed that works will stop within 100 m of the find, with Natural England consulted for advice and a licence applied for.

4.2.3 Water Vole

Water vole presence has been identified within ditches on the Site. Two watercourse crossing located to the north-west of Field L1 and north-east of Field O have the potential to cause harm or disturbance. These works will need to proceed under a Natural England Displacement Class Licence. The following measures and the measures detailed within the Method Statement for the Natural England Displacement Class Licence will apply:

- These works will be supervised by a licenced ecologist and in full accordance with the CL21 Displacement Licence;
- Provision of tool-box briefing to all site personnel to ensure understanding of water vole presence, their status and legal protection, and actions if encountered or suspected as present during any works;
- Displacement activities will only take place between 15th February to 15th April (inclusive); and
- Construction will take place within 5 days of displacement completion or the habitat will need to be maintain at bare ground to ensure the habitat does not re-establish and pose a risk of water vole re-entering the works extent.

All other construction works will maintain a minimum of a 5 m buffer from watercourse suitable to support water vole. It is necessary that during the works, best working practises are in place to minimise damage to the banks of the watercourse during construction and to reduce the risk of a pollution incident occurring, as outlined within this document.

4.2.4 Otter

There is potential for otters to use riparian habitats on Site. Riparian habitat will largely be avoided and retained by the Development. Precautionary mitigation detailed within the EcIA must be followed to reduce impacts to this species, with the main points summarised below:

- During spring through to Autumn, works will maintain a minimum of a 10 m buffer from watercourse suitable to support otter. In the limited areas where this is not possible, construction works are to be limited to the hours from dawn to one hour before sunset;
- Excavations must be covered overnight to prevent animals from falling in and inspected daily before recommencing work; and
- Store building materials above ground on pallets, with any pipework materials capped to avoid otters becoming trapped.

4.2.5 Nesting Birds

To reduce disturbance or harm to nesting birds, detailed mitigation to safeguard nesting birds during the construction of the Development are outlined within the OIA. A summary of these measures is included within Appendix B.

4.2.6 Bats

Several trees were identified with bat roosting potential within the Site. The majority of these will be avoided and retained by the Development. However, seven trees with low bat roost potential will require removal to facilitate the works.

These trees must first be climbed by a bat licenced climber and assessed via an endoscope in advance of any works. Soft felling techniques will be required under the supervision of a bat licenced ecologist.

To carefully manage impacts to foraging and commuting bats, a lighting strategy will need to be developed. Mitigation for the control of lighting is outlined within the EcIA and summarised within Appendix B: Protection of Species and Protection of Bats.

4.2.7 Badger

Specific mitigation measures have been detailed within the Confidential Badger Annex, available on request; however, this document must not be released into the public domain.

Mammal gates, fence under-passes or small openings (of approximately 300 mm diameter) will be installed in the perimeter fence to enable badger and other mammals (e.g., hedgehog and brown hare) to retain their existing commuting routes to off-site resources and access the newly created habitats once the Development is operational.

Additional mitigation measures that will also reduce harm to badgers using the Site are detailed within Appendix B: Protection of Species – General protective measures.

4.2.8 Invertebrates

Measures to safeguard habitats and other sensitive receptors will also protect invertebrate species within the Site. This includes dust and other air pollutants that has the potential to impact water quality within aquatic habitats or plants in terrestrial habitats.

Dust suppression and best practice pollution prevention measures outlined within this document will help to minimise pollution occurrences and adverse impacts to invertebrates.

4.2.9 Invasive Non-Native Species

Himalayan balsam was found adjacent to ponds P5a and P5b, identified during the eDNA surveys and present within ditches in the north-east of the Site. Himalayan balsam is an invasive, non-native species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). This means it is an offence to plant or otherwise cause them to grow in the wild.

Details of the management strategy are outlined within the Biodiversity Enhancement Management Plan[8] (BEMP) and are summarised in Appendix B.

[8] Arcus (2021) *Biodiversity Enhancement Management Plan: Soay Solar Farm and Greener Grid Park.* Statkraft UK LTD

5 OTHER POLLUTION PREVENTION MEASURES

5.1 VEHICLE MAINTENANCE

5.1.1 Potential Hydrocarbon Contamination

During construction, machinery will be regularly maintained to reduce the likelihood of fuel or oil leaks / spillages to occur. All maintenance will be conducted on suitable absorbent spill pads to minimise the potential for groundwater and surface water pollution. All machinery will be bunded and equipped with drip pans to contain fuel spillage or equipment leakages.

Appointed refuelling personnel will be trained in the correct methods of refuelling on-site to ensure that pollution incidents are prevented. Should a spill occur, a quick response plan will be implemented to minimise the impact of spills (see Appendix C: Incident Response Plan).

Fuel delivery vehicles servicing the Site will only be allowed as far as the construction compound. Equipment within the construction compound will be bunded to mitigate any spillage during refuelling and operations will only be permitted where they comply with the Contractor's method statement/ requirements.

Fuel pipes on plant, outlets at fuel tanks, etc., will be regularly checked and maintained to ensure that no drips or leaks to ground occur. The following precautions will also be installed on fuel delivery pipes:

- Any flexible pipe, tap or valve must be fitted with a lock where it leaves the container and be locked when not in use;
- Flexible delivery pipes must be fitted with manually operated pumps or a valve at the delivery end that closes automatically when not in use;
- The pump or valve must have a lock and be locked when not in use;
- Warning notices including "No smoking" and "Close valves when not in use" shall also be displayed; and
- Spill kits will be available within each plant/ vehicle on site and also located close to identified pollution sources or sensitive receptors (fuel storage areas, water course crossings, etc.).

Irrespective of the buffer distances to watercourses and location of refuelling points, interceptor drip trays or similar (open metal drip trays are not acceptable) will be available in accordance with standard good practice across the construction industry. Interceptor drip trays will be positioned under any stationary mobile plant to prevent oil contamination of the ground surface or water. Plant and site vehicles are to be well maintained and any vehicles leaking fluids must be repaired or removed from the Site immediately. Any servicing operations shall take place over drip trays.

5.1.2 Non-Road Mobile Machinery

Recommended mitigation measures in relation to Non-Road Mobile Machinery (NRMM) are detailed below:

- All NRMM should use fuel equivalent to ultra-low sulphur diesel (fuel meeting the specification within EN590:2013[9]);
- All NRMM should comply with the previous EU Directive Staged Emission Standards (97/68/EC, 2002/88/EC, 2004/26/EC) or new emission standards as they are introduced in the UK. Acceptable standards will be updated to the most current standard as appropriate;
- All NRMM should be fitted with Diesel Particulate Filters conforming to defined and demonstrated filtration efficiency (load/duty cycle permitting);

[9] British Standards (2013) BS EN 590:2013+A1:2017 Automotive fuels. Diesel. Requirements and test methods

- The on-going conformity of plant retrofitted with Diesel Particulate Filters, to a defined performance standard, should be ensured through a programme of on-site checks;
- Implementation of energy conservation measures including instructions to throttle down or switch off idle construction equipment; switch off the engines of trucks while they are waiting to access the site and while they are being loaded or unloaded; and ensure equipment is properly maintained to ensure efficient energy consumption; and
- NRMM and plant should be well maintained. If any emissions of dark smoke occur then the relevant machinery will stop immediately and any problem rectified.

5.2 CHEMICAL STORAGE

Potentially contaminating chemicals stored on-site will be kept within the construction compound and will each be bunded to prevent any accidental spills from affecting hydrological resources by removing a potential pathway for contaminants to enter watercourses and groundwater.

Oil storage areas will be covered in order to prevent rainwater collecting within bunded areas. Further detail is presented in Section 4.2.

The chemicals storage area would be kept secure to prevent theft or vandalism. A safe system for accessing the storage area would be implemented by the Contractor.

5.3 MANAGEMENT OF DRAINAGE FROM SURPLUS MATERIALS

Careful consideration will be given to the location of topsoil and subsoil storage areas for all areas of the Site during construction. Storage areas will be either in a flat dry area away from existing land drains, or be protected by the addition of cut off drains above the storage areas to minimise the ingress of water.

Mineral soils will not be allowed to dry out and silt fences and mats will be employed to minimise sediment levels in run-off.

All stockpiled material will be stored at least 50 m from drainage ditches in order to reduce the potential for sediment to be transferred into the wider surface water system and will be regularly inspected to ensure that erosion of the material is not taking place.

5.4 DUST SUPPRESSION AND CONTROL

Water will be needed for dust suppression on the haul roads during periods of dry weather and the compound vehicle wash will be clean water. Clean water may be obtained from re-circulated clean or treated drainage waters.

Where required, water may be extracted from local watercourses or groundwater. In these instances, the Contractor will liaise with the EA beforehand to agree abstraction locations, rates and licencing requirements.

Good practice measures will be adopted during construction to control the generation and dispersion of dust such that significant impacts on neighbouring habitats will not occur. The hierarchy for mitigation will be prevention, suppression then containment.

The following mitigation measures will be implemented to control the movement of dust within the Site:

- Excavation and earthworks areas will be stripped as required in order to minimise exposed areas;
- During excavation works, drop heights from buckets will be minimised to control the fall of materials reducing dust escape;
- 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;

- During stockpiling of loose materials, stockpiles shall 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;
- Material stockpiles will be sited to account for the predominant wind direction and the location of sensitive receptors;
- Water bowsers will be available on site and utilised for dust suppression during roadworks/ vehicle movements when and where required;
- Daily visual inspections will be undertaken to assess need for use of water bowsers, with increased frequency when activities with high potential to generate dust are carried out during prolonged dry or windy conditions;
- Shielding of dust-generating activities;
- Use of enclosed chutes, conveyors and covered skips; and
- Covering vehicles carrying dry spoil and other wastes to prevent escape of materials.

5.5 INSTALLATION OF UNDERGOUND CABLING

Underground electrical cabling will be required to import and export electricity on-site.

The installation of underground cabling could lead to sedimentation of near-surface water should the cabling be buried in trenches. Chemical pollutants and sedimentation could, therefore, have the potential to adversely affect subsurface water quality, surface water quality, and groundwater.

The position of the cable route will be marked out and the line stripped of turfs and soils and set aside for reinstatement. Ecologically sensitive areas will be avoided by construction plant and vehicles. Where practical, the cable run installation will be undertaken adjacent to and within the access track, to minimise intrusion into the surrounding areas, although it may be required to divert to the shortest possible routes locally. The siting and laying of the cables will be supervised by the ECoW(s) where possible.

Sand will be imported to the Site and will be placed around the cables as protection. Suitable duct marker tape shall be installed in the trench prior to backfilling.

The following mitigation measures will aim to minimise soil compaction:

- The position of trenches will be marked out and the line stripped of turfs and soils and set aside for reinstatement; and
- Vehicles using the track/undertaking the cable laying must be the lightest vehicle required for that job and must use either wider tires, dual tires, or tracks.

6 ACCESS TRACKS

6.1 OVERVIEW

Prior to the construction of new access tracks, the Contractor will identify flush areas, depressions or zones which may concentrate water flow. These sections may be spanned with plastic pipes if required to ensure hydraulic conductivity under the road, and reduce water flow over the road surface during heavy precipitation. Site drainage design will be produced in advance of construction.

6.2 MANAGEMENT OF SURFACE WATER

Access tracks will be designed to infiltrate and avoid ponding of rainwater and surface run-off.

The Contractor would be responsible for the management of all surface water run-off, including the design and management of a drainage scheme compliant with SuDS principles.

6.3 LOOSE TRACK MATERIAL

Loose material from the use of the access tracks will be prevented from entering watercourses by utilising the following measures:

- Silt fences will be erected between areas at risk of erosion and drainage ditches;
- Silt fences and swales will be inspected daily and cleaned out as required to ensure their continued effectiveness;
- Silt matting if required will be checked daily and replaced as required;
- Excess silt will be disposed of in designated areas at least 50 m away from any watercourses or drainage ditches;
- Swales and drains will be checked after periods of heavy precipitation;
- The inlets and outlets of settlement lagoons, retention basins and extended detention basins will be checked on a daily basis for blockages; and
- The access tracks will be inspected on a daily basis for areas where water collects and ponds.

6.4 EXCAVATED MATERIALS DURING CONSTRUCTION

Material excavated during track construction will either be stored adjacent to the track or within agreed spoil deposition areas and compacted in order to limit instability and erosion potential. Prior to relocating spoil, the ECoW will undertake checks to ensure mammals have not created burrows or otherwise.

If required, silt fences will be employed to minimise sediment levels in run-off. Where possible, material will be stored at least 50 m from watercourses and drainage ditches in order to reduce the potential from sediment to be transferred into the wider hydrological system.

Additionally, excavated stockpiles will be covered with a layer of topsoil and compacted. This will limit the amount of water entering the stockpile which has the potential to change the soil matrix and reduce its effectiveness for re-use at the Site. A schematic diagram of the proposed stock pile is provided below:

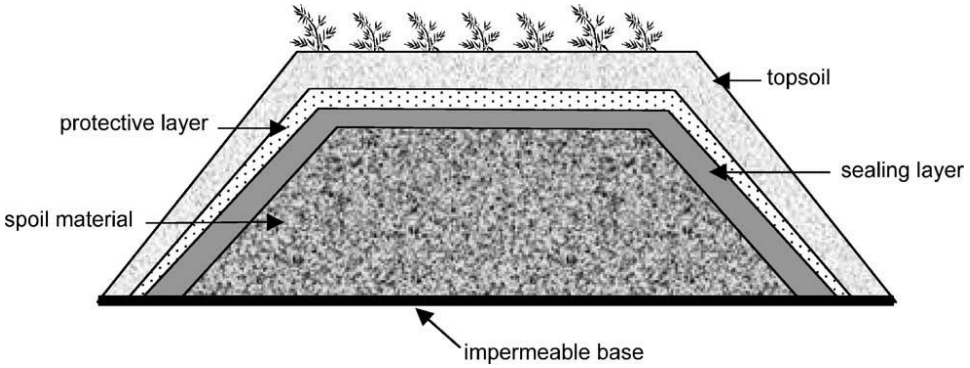


Diagram taken from Johnson & Hallberg 2005[10].

Rock stockpiles will be located on safe and stable designated areas approved by a qualified engineer, identified on a plan and agreed with the ECoW. Stockpiles will be

[10] Johnson DB, Hallberg KB (2005): Acid mine drainage remediation operations: a review. Sci. Total Environ.

checked routinely by the ECoW for signs of excavations by mammals, with advice given should excavations be recorded.

Overburden or rock stockpiles will be stored at least 50 m from watercourses or drainage ditches in order to reduce the potential for sediment to be transferred into the wider hydrological system.

6.5 TEMPORARY TRACKWAYS

The predominant purpose of temporary roadways (track matting) is to provide a transport route for the construction of the heaviest items required during construction of the Development.

The mats provide a much larger surface area for the tracks of the transport vehicles, reducing the risk of rutting that could lead to soil erosion and run-off, particularly during wet weather.

Lighter items (e.g., solar PV modules, inverters and mounting structures) have a reduced risk of causing rutting during transportation, with similar impacts to those caused by agricultural vehicles in the existing arable baseline.

At any time during construction, if it is identified that heavily trafficked areas of the Site are at risk of rutting within 10 m of a watercourse, temporary track matting will be deployed in that area to prevent rutting before it occurs. Track matting may also be used within the construction compound as a preventative measure against rutting, if deemed necessary.

6.6 GENERAL GOOD PRACTICE MEASURES

The excavation of foundations for the transformers and Greener Grid Park buildings will generate excess material, the majority of which will typically be mineral soils.

At excavations, topsoil will be stripped separately to subsoils, where possible aiming to keep the top layer of turf intact. This material will be stored adjacent to the base working area at the footprint of proposed buildings and will be limited in height to 2 m to minimise the risk of overheating. Subsoil will then be stripped and stored, keeping this material separate from the topsoil in accordance with EA guidance.

In accordance with BS 3882:2015 'Specification for Topsoil'[11], any long term (temporary) stockpiling of topsoil should not exceed 2 m in height with a maximum side slope of 1 in 2.

In its dry non-plastic state, topsoil can be stockpiled in a 'loose tipped' manner and tracked using a method of compaction to reduce water ingress. Wetter soils can be stored in rows for drying and later stockpiled for re-use.

7 MATERIALS MANAGEMENT

7.1 MATERIALS MANAGEMENT PLAN

Import, export (not anticipated) and reuse of material generated on-site will be undertaken in line with the requirements of the CL:AIRE Definition of Waste: Development Industry Code of Practice (version 2)[12].

No soils are expected to be generated that cannot be re-used on the Site.

[11] British Standards (2015): BS 3882:2015 – Specification for Topsoil
[12] Contaminated Land: Applications in Real Environments (2011): The Definition of Waste: Development Industry Code of Practice (Version 2)

7.2 OTHER WASTE MATERIALS

Waste such as timber, metal, general waste, etc., will be segregated on-site, and disposed off-site in a licenced waste facility.

7.3 DECOMMISSIONING

The Outline Decommissioning and Restoration Plan will be supported by a Decommissioning Environmental Management Plan (DEMP) to be agreed prior to decommissioning of the Development.

A full drainage reinstatement plan would be developed as part of the DEMP in advance of decommissioning the Development. Decommissioning activities will be undertaken in accordance with good practice at the time, and agreed with the relevant consultees in advance of the works commencing.

8 CONCLUSIONS AND RECOMMENDATIONS

The purpose of this Outline CEMP is to detail appropriate soil and water management measures to control surface water run-off, drainage infrastructure and soil quality during the construction of the Development.

The measures detailed throughout this Outline CEMP will ensure that any effects on the surface and groundwater environment are minimised.

If required, this Outline CEMP will be adapted to meet the additional requirements of the Contractor and ECoW, to ensure that all measures implemented are effective and site-specific.

The Outline CEMP is considered to be a 'live' document, such that modifications can be made following additional information and advice from consultees.

APPENDIX A - OUTLINE SITE WASTE MANAGEMENT PLAN

INTRODUCTION

Arcus Consultancy Services Limited (Arcus) has been instructed by Statkraft UK LTD (the Applicant) to prepared an Outline Site Waste Management Plan (SWMP) of land at Thornton, near York, East Riding of Yorkshire (the Site), approximately centred on National Grid Reference SE 76204 46514.

The Outline SWMP is submitted as part of a planning application for a proposed Solar Farm and Greener Grid Park (the Development) which includes associated soft and hard landscaping. The layout and technical details of the Development are provided in the associated Planning, Design and Access Statement (PDAS) and accompanying figures.

The aim of this Outline SWMP is to protect the environment through implementation of effective management plans which relate to the management of waste throughout the life cycle of the Development.

Prior to construction of the Development, the Contractor will update this Outline SWMP to ensure it is a suitably detailed document. The Contractor will take ownership of the Detailed SWMP and will adhere to the principles presented within it.

The Detailed SWMP is a key tool which is used to plan, implement, monitor and review waste minimisation and management during the construction, operation and decommissioning phases of the Development.

This Outline SWMP provides guidelines and details of the minimum requirements which the Contractor shall include in their detailed SWMP. The Detailed SWMP will be put in place by the appointed Contractor prior to commencement of the construction phase of the Development and will be implemented in conjunction with the Construction Environmental Management Plan (CEMP) to ensure environmental effects on-site are reduced.

It is anticipated that all excavated materials will be utilised on-site as part of the permanent works and site restoration process resulting in no waste arising from these elements of the Development.

Any import, export (not anticipated) and reuse of material generated onsite will be undertaken in line with the requirements of the CL:AIRE Definition of Waste: Development Industry Code of Practice (version 2)[13]. As such, this Outline SWMP considers only the management of the waste arising from other imported construction materials.

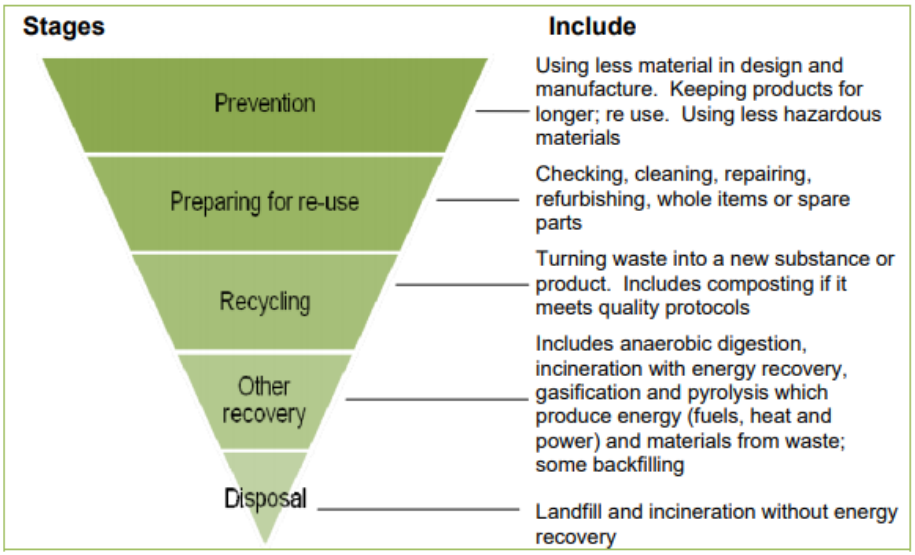
THE WASTE HIERARCHY

The 'Waste Hierarchy' provides an outline approach of how waste management should be assessed within the Outline SWMP, see Plate 2 The Waste (England and Wales) Regulations 2011[14] place a duty on all persons who produce, keep or manage waste to apply the 'Waste Hierarchy' in order to minimise waste production at every stage of the Development.

The 'Waste Hierarchy' promotes selection of the Best Practicable Environmental Option (BPEO) and preferred option for management of waste.

[13] Contaminated Land: Applications in Real Environments (2011): The Definition of Waste: Development Industry Code of Practice (Version 2)
[14] Legislation (England and Wales) (2011): The Waste (England and Wales) Regulations 2011 [Online] Available at: https://www.legislation.gov.uk/uksi/2011/988/contents/made (Accessed 19/07/2021)

Plate 2: Waste Hierarchy[15]



The core waste management principles of reduce, reuse, recycle, recover and disposal as defined in the 'Waste Hierarchy', are embedded within this Outline SWMP.

Waste Prevention

Minimisation of waste generation is achieved through careful design and creating a 'waste aware' culture on-site. All reasonable actions will be taken by the Contractor to avoid the production of and/or minimise the volume of waste produced as a result of the Development. This can be through reducing consumption, using resources efficiently, and designing for longevity.

Waste Separation for Reuse and Recycle

Where possible, the separation of waste will be carried out at the source in order to maximise opportunities for reuse and recycling. Segregation of waste will require training, monitoring and enforcement.

Waste Storage, Disposal and Transportation

All areas used for temporary storage of waste on-site will comply with Defra and EA guidelines and will be clearly signed. Waste storage facilities will be provided at source using the best environmental options available. Any hazardous or special waste will be stored in separate, secure containers and clearly identified as such.

Disposal activities will also be carried out in accordance with the EA, Pollution Prevention Guidelines (PPGs[16]) in order to ensure compliance with current waste legislation.

A review plan for the PPGs is currently underway, replacing them with a replacement guidance series, Guidance for Pollution Prevention (GPPs[17]). GPPs provide environmental regulatory guidance for Northern Ireland, Scotland and Wales and environmental good practice guidance for the whole UK.

[15] Defra (2011) Guidance on applying the Waste Hierarchy [Online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69403/pb13530-waste-hierarchy-guidance.pdf (Accessed 14/07/2021)
[16] Environment Agency (2014): Pollution prevention guidance (PPG) [Withdrawn] Available at: https://webarchive.nationalarchives.gov.uk/20140328090931/http://www.environment-agency.gov.uk/business/topics/pollution/39083.aspx (Achieved material accessed 19/07/2021)
[17] NetRegs (2021): Guidance for Pollution Prevention (GPP) [Online]. Available at: https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/guidance-for-pollution-prevention-gpps-full-list/ (Accessed 19/07/2021)

As the Site is within England the PPGs still provide regulatory guidance for the Development, however the activities will also be carried out in accordance with GPPs to demonstrate environmental good practice.

Waste transportation will take place at regular intervals to avoid the accrual of waste. Where possible, delivery vehicles will aim to remove waste materials on return trips.

Only registered waste carriers will be authorised to transport waste and a Waste Transfer Note (WTN) will be completed for each load of waste, which must contain a record of their waste carrier registration number. Copies of each WTN will be filed as an appendix to the SWMP and held for at least two years. The appropriate European Waste Catalogue (EWC) code will be established using updated Technical Guidance (WM3)[18] and will be noted on the WTN, in addition to how it is contained. All sites receiving waste must have an appropriate permit, licence or registration exemption, the details of which should also be recoded.

If required, the EA will be advised in advance of any hazardous waste movements and Waste Consignment Notes (WCNs) will be purchased in advance for this type of waste transportation. These consignment notes will be held for at least three years.

POLICY CONTEXT AND LEGISLATION

As of 2013, the production and implementation of a SWMP is no longer a legal requirement, however it is regarded as best practice[19]. Policy and legislation do dictate the management of waste and therefore, the following items have been considered when developing the SWMP:

- The Environmental Protection Act 1990[20];
- The Hazardous Waste (England and Wales) Regulations 2005[21];
- The Waste (England and Wales) Regulations 2011[22];
- The Waste Framework Directive[23]; and
- The Waste Management Plan for England 2013[24].

Should any surplus waste remain which cannot be reused or recycled, then the Landfill Directive 1999[25] will apply.

GUIDANCE

Several guidance documents were also used to develop the SWMP and include:

- Environment Agency, 2015, Manage Water on Land: Guidance for Land Managers[26];

[18] Environment Agency, Scottish Environment Protection Agency & Natural Resources Wales (2015) Waste Classification: Guidance on the classification and assessment of waste (1st Edition v1.1.GB) Technical Guidance WM3, EU Exit Update (Jan 2021) [Online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/948735/Waste_classification_technical_guidance_WM3.pdf (Accessed 23/02/2021)
[19] IEMA (2008) Practitioner Series No. 11, Waste Management: A Guide for Business in the UK. Institute of Environmental Management and Assessment.
[20] UK Government (1990): Environmental Protection Act 1990 [Online] Available at: https://www.legislation.gov.uk/ukpga/1990/43/contents (Accessed 19/07/2021)
[21] Legislation (England and Wales) (2005) The Hazardous Waste (England and Wales) Regulations 2005 [Online] Available at: https://www.legislation.gov.uk/uksi/2005/894/contents/made (Accessed 19/07/2021)
[22] Legislation (England and Wales) (2011) The Waste (England and Wales) Regulations 2011 [Online] Available at: https://www.legislation.gov.uk/uksi/2011/988/contents/made (Accessed 19/07/2021)
[23] European Commission (2008) The Waste Framework Directive - DIRECTIVE 2008/98/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 19 November 2008 on waste and repealing certain Directives [Online] Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02008L0098-20180705 (Accessed 19/07/2021)
[24] Defra (2013) The Waste Management Plan for England 2013 [Online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/265810/pb14100-waste-management-plan-20131213.pdf (Access 19/07/2021)
[25] European Commission (1999) Landfill of waste - Directive 1999/31/EC on the landfill of waste [Online] Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=LEGISSUM%3Al21208 (Accessed 19/07/2021)
[26] Environment Agency (2015) Manage Water on Land: Guidance for Land Managers [Online] Available at: https://www.gov.uk/guidance/manage-water-on-land-guidance-for-land-managers (Accessed 19/07/2021)

- British Standards Institution, 2015, BS 5930:2015, Code of practice for ground investigations[27];
- Construction Industry Research and Information Association (CIRIA), 2015, Environmental Good Practice on Site (C741), 4th edition[28];
- Defra and Environmental Agency, 2018, Waste Duty of Care Code of Practice[29];
- Defra and Environmental Agency, 2019, Pollution Prevention for Businesses[30];
- Defra and Environmental Agency, 2021, Discharges to Surface water and groundwater: environmental permits[31];
- Defra and Environmental Agency, 2020, Oil Storage Regulations for Businesses[32];
- Institute of Environmental Management and Assessment (IEMA), 2008, Practitioner Vol. 11 Waste Management: a guide for businesses in the UK[33]; and
- Wrap, www.wrap.org.uk[34].

The above guidance on waste management will be used to ensure the following objectives are met through the Outline SWMP:

- Legal obligations of the Development;
- Waste production is minimised;
- Waste is recognised as a resource;
- Project build costs are minimised;
- A framework for continuous improvement and best practice is implemented and maintained; and
- Adverse environmental impacts associated with the production and management of waste materials are minimised.

ANTICIPATED WASTE STREAMS

The list below provides an indication of the expected waste streams, however this list is not exhaustive and additional streams may be added as the works progress:

- Waste from welfare and domestic facilities;
- Waste chemicals, fuels and oils;
- Packaging;
- Waste metals; and
- Waste water.

Waste from Welfare and Domestic Facilities

Temporary welfare facilities will be provided during the construction phase. These facilities will include toilets, washing and drinking water. This could include a connection to the public mains water supply, and a cess tank that would be periodically emptied and taken off-site by a licensed operator. All on-site welfare facilities will be clearly signposted and maintained.

[27] British Standards Institution (2015) Code of practice for ground investigations - BS 5930:2015+A1:2020
[28] Construction Industry Research and Information Association (2015): Environmental Good Practice on Site (C741), 4th edition
[29] Defra and Environmental Agency (2018) Waste Duty of Care Code of Practice [Online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/759083/waste-code-practice-2018.pdf (Accessed 19/07/2021)
[30] Defra and Environmental Agency (2016) Pollution Prevention for Businesses [Online] Available at: https://www.gov.uk/guidance/pollution-prevention-for-businesses (Accessed 19/07/2021)
[31] Defra and Environmental Agency (2021) Discharges to Surface water and groundwater: environmental permits [Online] Available at: https://www.gov.uk/guidance/discharges-to-surface-water-and-groundwater-environmental-permits (Accessed 19/07/2021)
[32] Defra and Environmental Agency (2020) Oil Storage Regulations for Businesses [Online] Available at: https://www.gov.uk/guidance/storing-oil-at-a-home-or-business (Accessed 19/07/2021)
[33] IEMA (2008) Practitioner Series No. 11, Waste Management: A Guide for Business in the UK. Institute of Environmental Management and Assessment.
[34] Waste and Resources Action Programme (WRAP) [Online] Available at: https://wrap.org.uk/ (Accessed 19/07/2021)

Where excess surface water occurs from the area of the buildings, this would be collected and treated in a Sustainable Urban Drainage System (SUDS), prior to discharge.

Toilet Facilities

During the construction phase, 'Porta-loo' type facilities, or equivalent, will be used and emptied by a waste contractor, therefore minimising potential effects on drainage ditches and watercourses. Beyond construction, the GGP will utilise a permanent toilet facility linked to a septic tank.

Other Domestic Refuse

Collection facilities for refuse will be provided to segregate waste. These facilities will be clearly marked, positioned in appropriate locations and protected from the weather and animals.

Waste Chemicals, Fuels and Oils

All fuel and oil will be stored within designated area and contained by a small bund constructed from material sourced on site and lined with an impermeable membrane in order to prevent any contamination of the surrounding soils, vegetation and water table, in accordance with Defra and Environmental Agency Oil Storage Regulations for Businesses[35]. Any contaminated run-off within the bund will be disposed of at an appropriate waste management facility.

Any used (contaminated) spill kits, absorbent granules, sheets or fibres must be disposed of in accordance with the COSHH Regulations[36] and amended workplace limits for exposure to COSHH materials[37] and in accordance with the spill management plan.

Packaging

Construction waste generated is expected to be restricted to general construction waste (e.g., off cuts of timber, timber pallets, cardboard, wire, cleaning cloths, paper, etc.) which will be sorted and either recycled or disposed of off-site to an appropriately licenced landfill by the Contractor.

Packaging will be separated at the source of generation on-site, where practical. This approach uses the Waste Hierarchy by encouraging reuse and recycling of materials, such as plastic, wood and paper.

Waste Metals

It is likely that this will be produced from excess steel (e.g., from the solar panel mounting structures or cuttings from underground cabling). Any waste metal would be recycled as appropriate.

Waste Water

Dewatering of Excavations

Where dewatering is required, water will be pumped into settlement lagoons for treatment and discharged onto vegetated surfaces. Details of such activities are included in the Outline CEMP.

Alkali (limestone) may be added to the base of dewatering pits to buffer acidic water, should intrusive site investigations indicate the presence of acid mine water in near surface groundwater. Settlement lagoons may also be constructed with a composting

[35] Defra and Environmental Agency (2020) Oil Storage Regulations for Businesses [Online] Available at: https://www.gov.uk/guidance/storing-oil-at-a-home-or-business (Accessed 19/07/2021)
[36] Health and Safety Executive (2002) Control of Substances Hazardous to Health 2002 (COSHH)
[37] Health and Safety Executive (2020) EH40/2005 Workplace exposure limits. Containing the list of workplace exposure limits for use with the Control of Substances Hazardous to Health Regulations 2002 (as amended)

layer also allow for the treatment of any ochre water before being discharged into the hydrological system. A schematic diagram is displayed below:

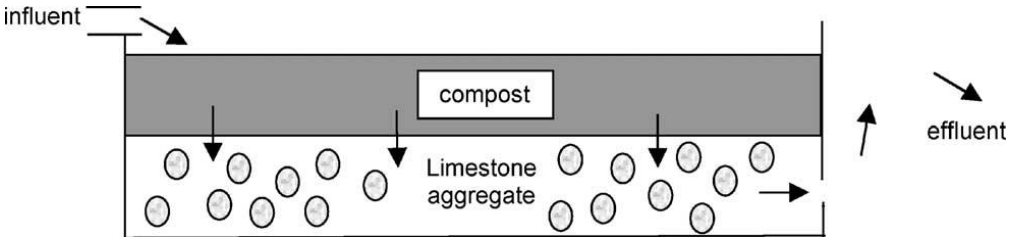


Diagram taken from Johnson & Hallberg 2005[38].

Cleaning Activities

A vehicle washing facility will be in the construction compound or other designated area, if necessary. The sump water will either be pumped to a licenced carrier and disposed of offsite or discharged to vegetated surfaces if the water quality meets EA requirements.

[38] Johnson & Hallberg (2005) Acid mine drainage remediation options: a review [Online] Available at: http://www.hsph.harvard.edu/mining/files/Acid_mine_drainage_remediation_options_-_a_review_JOHNSON_20.pdf (Accessed 14/07/2021)

APPENDIX B – OUTLINE CONSTRUCTION MITIGATION MEASURES

Intervention	Action	Management Prescriptions	Reason or Justification
Protection of existing habitats adjacent to the Site	Follow measures detailed in the Outline CEMP	Reduce negligible risk of accidental inputs to both the designated sites, field margins and ditch network leading to designated sites by isolation. Maintain a 100 m buffer from Allerthorpe Common SSSI and LWS. Maintain at least a 10 m buffer from all woodland onsite. Follow measures detailed in CEMP including: Use interceptor ditches, bunding, and best practice measures to isolate potential input sources such as oil leaks, dust emissions and other contaminated runoff.	To protect local environment from contamination and be compliant with legislation and best practice.
Protection of existing habitats on-site	Follow measures detailed in Outline CEMP	Follow measures detailed in CEMP including: Use interceptor ditches, bunding and best practice measures to isolate potential input sources such as oil leaks, dust emissions and other contaminated runoff into terrestrial and aquatic habitats. Maintain at least a 10 m buffer from all woodland onsite. Follow separation distances included in the Landscape and Visual Appraisal for high value habitats.	To ensure the construction is ecologically sensitive and compliant with legislation and best practice.
Protection of species	General protective measures Follow measures detailed in Outline CEMP	All water control structures will be designed to ensure that they will be mammal/ eel/elver (all life stages) friendly, such that free passage across the Development is achievable for mammals and eels and ensuring compliance with the Eel Regulations 2009. Mammal gates, fence under-passes or small openings (of approximately 300 mm diameter) will be installed in the perimeter fence to enable badger and other mammals (e.g., hedgehog and brown hare) to retain or improve their current resources. Where referenced in the EcIA, an update survey for protected species will be undertaken by a suitably experienced ecologist before works begin, who will then advise about any potential constraints. Where required, works will commence under the conditions of a Natural England mitigation licence for protected species, following an agreed method statement. Deep excavations will be filled in at the end of the day or where this is not possible, either securely covered at night to prevent badgers and other animals falling into them or installed with mammal 'ramps' where covering is impractical. Heras or similar fencing to be installed within the works perimeter of excavations. All excavations will be checked for the presence of animals before recommencing work. Where pipework is required for drainage and other purposes, these will need to be stored in areas which do not offer ecological value to wildlife and will need to be capped until such time as they are used in the Development. Building materials will be stored above ground on pallets. The creation of large stockpiles of earth will be avoided, and any small stockpiles created will be inspected routinely by the ECoW.	To ensure the construction is ecologically sensitive and compliant with legislation and best practice.
	Follow measures detailed in Outline CEMP. Control of Lighting	Night-time lighting during construction (if installed) will be minimised as far as possible and where used will be directed into the works area, away from potential habitats of value to bats and other nocturnal creatures, if compatible with operational Health and Safety procedures. Any lighting required for public safety and security purposes near bat roosts or bat flight lines have the potential to alter the distribution of artificial lighting on site, which may impact on the flight and foraging behaviour of bats present in the area[39]. Light levels during construction (and post construction) should be carefully managed to ensure they do not impact on potential bat foraging/commuting habitat such as hedgerows, waterbodies, ditches and marginal habitats. The following approach based on BCT guidelines[40] can help when designing the lighting strategy for the site: • Lighting in ecologically sensitive areas within the Development site such as ditch habitats, and towards sensitive habitats out with the Development site such as: trees and mature habitats Allerthorpe Common SSSI and LWS, and Warren Wood Deleted LWS will be avoided; • The siting of lights will avoid locations where lighting could reflect off solar panels and other reflective surfaces; • Lighting will be positioned to minimise the spread of light to, at, or below horizontal and ensure that only the task work area or compound (during the construction phase) or security area (operational phase) is lit; • Flat cut-off lanterns or accessories will be used to shield or direct light to where it is required, with the height of lighting columns optimised to ensure light spill is minimised and non-target areas are not lit; • The demarcation of works areas (temporary and permanent) with white lining, good signage and LED cats eyes to reduce lighting requirements in the Development site. Ensure only high-risk areas of the Development site are lit, allowing headlights or torchlight to provide any necessary illumination at other times;	To reduce disturbance to bats and other nocturnal animals and to avoid a criminal offence under the Conservation of Habitats and Species Regulations 2017[41] (the 'Habitat Regulations'), as amended by the Conservation of Habitats and Species and Planning (Amendment) (EU Exit) Regulations 2019[42].

[39] Jones, J. (2000) Guidelines on the Impact of Lighting on Bats. English Nature, Peterborough
[40] BCT (2014) Artificial lighting and wildlife Interim Guidance: Recommendations to help minimise the impact artificial lighting.
[41] UK Government (2017) The Conservation of Habitats and Species Regulations 2017
[Online] Available at: https://www.legislation.gov.uk/uksi/2017/1012/contents/made (Accessed 21/11/2021)
[42] UK Government (2019) The Conservation of Habitats and Species and Planning (Amendment) (EU Exit) Regulations 2019
[Online] Available at: http://www.legislation.gov.uk/ukdsi/2019/9780111176573 (Accessed 21/11/2021)

Intervention	Action	Management Prescriptions	Reason or Justification
		• Lights will be limited to such that there are dark periods within the Site. This will include measures such as the use of adaptive lighting, to reduce lighting intensity from lights, adjustment to the timing of lighting within the Development site, and provision of motion sensitive lighting to suit human health and safety as well as wildlife needs; and • Technical specifications to lighting will include the use of narrow spectrum light sources to lower the range of species affected by lighting, the use of light sources that emit minimal ultra-violet light, with a lighting peak no higher than 550 nm. White and blue wavelengths of the light spectrum will be avoided to reduce insect attraction, and where white light sources are required in order to manage the blue short wavelength content they should be of a warm /neutral colour temperature.	
Protection of Great Crested Newts	Follow measures detailed in the Natural England European Protected Species Mitigation (EPSM) licence.	Ensure no harm to GCN and reduce disturbance. Follow measures detailed in CEMP and NLMS including, but not limited to: • Provide tool-box briefings to all on site personnel to explain the potential for GCN to be present in the area, their status and legal protection and what actions they need to take should any GCN be encountered or suspected as present during their work; • Installation of terrestrial habitat prescriptions within a dedicated Habitat Management Area (HMA) prior to any other works taking place; • Installation of Heras fencing and signage within 100 m of known GCN ponds prior to construction; and • Strict supervision of habitat creation works within 100 m of known GCN ponds by a GCN licenced ecologist. No construction works to take place within 100 m of GCN ponds; The detailed procedures for carrying out construction works with respect to GCN, will be specified within the Non-Licenced Method Statement (NLMS). Construction works will take place as stipulated under the NLMS under a licenced GCN ecologist, who will need to be present as directed by the NLMS. Mitigation will be targeted at areas where GCN are present; however, measure and locations will be agreed with Natural England prior to implementation, following pre-construction surveys.	To reduce disturbance to great crested newts and avoid legal offences under Wildlife and Countryside Act 1981[43] (as amended), and Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019[42]
Protection of Water Vole	Follow measures detailed in the method statement for works under the Natural England Displacement Class Licence	Ensure no harm to water vole and reduce disturbance. The following measures apply for the construction of the ditch crossings: • ECoW supervision of works near sensitive features and where works required under licence; • Provide tool-box briefings to all on site personnel to explain the potential for water vole to be present in the area, their status and legal protection and what actions they need to take should any water vole be encountered or suspected as present during their work; • Displacement activities will only take place between 15th February to 15th April (inclusive) as mandated by the CL31 displacement licence; • Construction will take place within 5 days of displacement completion, or the habitat will need to be maintained at bare ground to ensure the habitat does not re-establish and pose a risk of water vole re-entering the work extent; and • Activities at ditch crossing points where there is an identified impact to water voles, to take place in full accordance with the CL31 Displacement Licence. All other construction works will maintain a minimum of a 5 m buffer from watercourse suitable to support water vole. It is necessary that during the works, best working practises are in place to minimise damage to the banks of the watercourse during construction and to reduce the risk of a pollution incident occurring, as outlined within this CEMP.	To reduce disturbance to water vole and avoid legal offences under Wildlife and Countryside Act 1981[44] (as amended),
Protection of otter	Follow measures detailed in the Ecological Impact Assessment	In order to prevent harm to otters that have the potential to use the Site, the following controls are to be implemented during the construction phase: • During spring through to autumn, works within 10 m of aquatic or riparian habitats ideally needs to be avoided, and in the limited areas where this is not possible, limited to the hours from dawn to one hour before sunset; • Cover excavations overnight to prevent animals falling into them. Inspect excavations daily for the presence of animals before recommencing work on them; • Any deep excavations that are to be left open overnight should include a means of escape for any animals that may fall in; • Store building materials above ground on pallets, with any pipework materials capped; and • Should any new mammal burrows (e.g., holts) be identified, works in the area will need to stop and a suitably experienced ecologist contacted for advice.	To reduce disturbance to otters and avoid legal offences under Wildlife and Countryside Act 1981[45] (as amended), and Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019[42]
Nesting bird protection	Follow measures detailed in Ornithological Impact Assessment	Ensure no harm to actively nesting birds and reduce disturbance. • Along with other ecological features, provide tool-box briefings to all on site personnel to explain the potential for nesting birds to be present in the area, their status and legal protection and what actions they need to take should any nesting birds be encountered or suspected as present during their work; • Measures detailed in the Ornithological Impact Assessment include: • No potentially disturbing construction activities will take place within the north of the Site between March and August without first establishing the present status of woodlark within the north of the Site. Prohibited activities include, but are not limited to: vegetation clearance, site investigation works, ground preparation, construction of infrastructure, installation of panels. Restrictions can be lifted if it is demonstrated through survey that woodlark is not holding territory in the Site;	To safeguard nesting birds and avoid legal offences.

[43] UK Government (1981) Wildlife and Countryside Act 1981 [Online] Available at https://www.legislation.gov.uk/ukpga/1981/69 (Accessed 21/11/2021)
[44] UK Government (1981) Wildlife and Countryside Act 1981 [Online] Available at https://www.legislation.gov.uk/ukpga/1981/69 (Accessed 21/11/2021)
[45] UK Government (1981) Wildlife and Countryside Act 1981 [Online] Available at https://www.legislation.gov.uk/ukpga/1981/69 (Accessed 21/11/2021)

Intervention	Action	Management Prescriptions	Reason or Justification
		• If any clearance works to nesting habitats are required during the nesting season, then pre-construction checks for nesting birds would need to be carried out by a suitably experienced ecologist no more than 48 hours prior to the works commencing; • If any active nests are found, appropriate protection zones will be put in place and maintained until the nesting attempt reaches a natural conclusion; and • In the event that any Schedule 1-listed bird species[46] are found to be nesting within or close to the Site, an ecologist will need to be contacted for further advice.	
Bat Protection	Follow measures detailed in the Ecological Impact Assessment	To carefully manage light levels within the Development and to ensure the Site is able to provide continued undisturbed bat foraging and commuting habitat for bats, the following lighting aspects need to be incorporated into the design of the lighting strategy: • Motion sensitive security lighting and avoidance of floodlighting; • Avoidance of lighting with an ultra-violet (UV) component in areas where lighting is required for public safety purposes. UV light is particularly disruptive to bat behaviour; • Use of flat-glass protectors on luminaires to help reduce light spill above angles greater than 70º from the vertical plane; and • Avoiding light spill by using accessories such as shields, louvres, hoods and cowls. No trees with moderate or high bat roost potential are to be removed. Where trees with low bat roost potential require removal, these must first be climbed by a bat licenced climber and assessed via an endoscope in advance of any works. Soft felling techniques will be required under the supervision of a bat licenced ecologist.	To reduce disturbance to bats.
Protection of Invertebrates	Follow measures detailed in Outline CEMP	Reduce dust and other air pollutants that may impact water quality within aquatic habitats and plants and flora in terrestrial habitats within the Development site via dust and emissions from construction vehicles, the building of access roads and the substation. Follow measures detailed in CEMP to achieve this including the use of interceptor ditches, bunding and best practice measures to isolate potential input sources such as oil leaks, dust emissions and other contaminated runoff into terrestrial and aquatic habitats.	To reduce disturbance to invertebrates.
Invasive Species	Follow measures detailed in the BEMP	Management will entail the following: • Hand pulling to be undertaken where appropriate on an annual basis prior to seed formation between March and June for five years following completion of the Development. Himalayan balsam has a relatively small, shallow root network which is easily pulled out with the rest of the plant if the plant is pulled firmly from the base. Where hand pulling is not practicable, mechanical removal such as cutting or strimming may be undertaken; • Within the first year of management, follow up monitoring in the same growing season to deal with any regrowth (e.g., post-cutting) or plants missed in the initial treatment; • Pulled plants should not be placed on soil or in damp areas as they can readily re-root. Arising's will be retained onsite (e.g., bunded or buried as per Defra guidance with permission from the Environment Agency[47]) whenever possible and only disposed of off-site as a last resort; • Re-vegetation of cleared soils with suitable native species; and • After five years, monitoring with follow up treatment, when necessary, will be maintained until at least one year has passed with no Himalayan balsam growth.	To avoid contravention of Wildlife and Countryside Act 1981 (as amended).

[46] RSPB (2021) Schedule 1 [Online] Available at: https://www.rspb.org.uk/birds-and-wildlife/advice/wildlife-and-the-law/wildlife-and-countryside-act/schedules/ (Accessed 13/07/2021)
[47] UK Government (2019) Stop Invasive Non-Native Plants from Spreading [Online] Available at: https://www.gov.uk/guidance/prevent-the-spread-of-harmful-invasive-and-non-native-plants (Accessed 13/07/2021)

APPENDIX C - INCIDENT RESPONSE PLAN

INTRODUCTION

An Incident Response Plan will be implemented throughout the construction and operation of the Development.

Prior to the commencement of construction, the lead construction contractor shall set up an emergency response plan/procedure in liaison with Natural England in order to ensure that this plan is adequate for the nature and lifetime of the project and the environment in which works are being undertaken.

The Incident Response Plan will include emergency contacts who will coordinate response activities in the event of a pollution incident.

This Incident Response Plan will include an outline procedure similar to that set out below:

1. Make the situation safe: Do not compromise the health and safety of site personnel in controlling a pollution incident. Ensure that appropriate Personal Protective Equipment (PPE) is available to use where necessary.

2. Stop the source of the pollution incident: Identify the cause of the emergency or incident and act immediately to prevent further pollution.

3. Contain the pollution incident: Once the source of the pollution has been stopped, act to prevent the pollution that has already taken place from spreading. Ensure that appropriate materials are available in appropriate quantities to use where necessary. For example, absorbent materials and booms to soak up the pollution are required to deal with spillages of liquid contaminants. For example, an excavator may be used to dig containment facilities or bunds where containing large volumes of pollutants.

4. Notify the pollution incident: Any emergency or incident will be reported as soon as possible after the above initial control measures have been implemented detailing the nature, cause and location to ensure that appropriate action is taken. Where appropriate, the site team should refer the incident to a specialist clean up Contractor. Where pollution is serious, or containment has failed, it may be necessary to contact the Local Authority, the Environment Agency and/or Natural England as relevant to the incident.

5. Monitor the pollution incident: Once the pollutants are contained, the site of the pollution should be monitored on an ongoing basis until the pollutants and contaminated materials are successfully removed and if necessary, further action taken to contain the pollutants. Where it is possible that pollution has spread, the surrounding water bodies and watercourses should be inspected and monitored on an ongoing basis to identify the extents of the pollution. In the event of pollution due to sedimentation of watercourses, those watercourses should be checked during periods of high rainfall or during construction activities with the potential for significant run-off.

6. Clean up the pollution incident: Once the pollution incident has been stopped, contained and the full extents defined, a strategy for cleaning up should be developed. All waste generated by clean-up activities should be disposed of in accordance with current legislative requirements and the site waste management plan and copies of all transfer notes retained.

7. Learn from the pollution incident: Ensure that any lessons from the incident are communicated to all relevant staff and appropriate action taken elsewhere on site if necessary. Update all relevant Method Statements and Toolbox Talks, and ensure new information is communicated to site staff.

ENVIRONMENTAL INCIDENT PROTOCOL

In the event of an environmental incident occurring, the following protocol (or similar) will be adopted:

- The appropriate notification protocols shall be implemented immediately following a planning or environmental spillage or incident, followed by immediate notification of the Site Manager. Should a serious environmental incident occur, the EA should also be notified;
- The Site Manager will investigate the incident, with inputs from specialist advice as to appropriate measures to remedy or mitigate any potential pollution arising from the incident;
- Assuming the issue arose from the failure of a control system, the issue shall be rectified at the earliest opportunity;
- The response action shall be recorded on the Environmental Complaints/ Spills/ Incidents Report by the Site Manager, Lead Contractor or ECoW;
- A log of all environmental spills/ incidents and follow-up actions should be kept and made available for inspection; and
- All complaints received from the public or other interested parties as a result of the installation works must be recorded on the Environmental Complaints/ Spills/ Incident Form.

REPORTING OF ENVIRONMENTAL INCIDENTS

All accidents, incidents and near misses (including spills, dust, noise pollution etc) will be reported to the Site Manager immediately, these will be recorded and investigated by the Site Manager and ECoW as appropriate.

Details which will be recorded on the report will include:

- A description of the incident;
- Contributory causes;
- Adverse effects;
- Measures implemented to mitigate adverse effects; and
- Effectiveness of measures implemented to prevent pollution incidents.

EMERGENCY CONTACT DETAILS

A notice displaying emergency contact details will be displayed in a prominent location within the site accommodation / office, including emergency spill response team details.

Internal Emergency Pollution Response Team

The details of at least two lead members of staff with responsibility for emergency pollution response will be included in this section, as well as the details of the Ecological Clerk of Works during construction:

- Primary emergency contact;
- Secondary emergency contact; and
- Ecological Clerk of Works.

External Organisations

This section will be populated with contact telephone numbers for organisations to be contacted following a pollution incident (contact details are specifically excluded to ensure that the final version of the CEMP includes the most up to date details). Examples of the types of organisations/call lines to be included are:

- EA Incident Hotline; and
- Natural England