Great North Road Solar and Biodiversity Park

Environmental Statement

Volume 4 – Technical Appendices

Technical Appendix A5.3 – Outline Construction Environmental Management Plan

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Contents

A5.3.1 INTRODUCTION

A5.3.1.1 SCOPE AND CONTENT

1. This Outline Construction Environmental Management Plan (CEMP) sets out measures to protect environmental resources during the construction phase of the Great North Road Solar and Biodiversity Park (the Development) and is included in the Environmental Statement (ES) for the Development.
2. A final CEMP will be prepared prior to construction of the Development, following approval of the DCO, and will provide the same or greater protection for the environment as those described in the Outline CEMP. The CEMP will be considered to be a live document, such that it can be revised in light of new information and prevailing conditions and therefore remain fit for purpose.
3. The methods set out in this CEMP are based on good practice agreed (where appropriate) with the Environment Agency (EA) for several constructed solar farms and the following Construction Industry Research and Information Association (CIRIA) guidance:
    - Environmental Good Practice On Site (C811)1;
    - Control of Water Pollution from Construction Sites (C532)[2]; and
    - The SuDS Manual (C753F)[3].
4. This document includes the following sections which provide additional details about specialist matters:
    - Section A5.3.5 Construction Noise Management Plan (CNMP);
    - Section A5.3.9 Pollution Prevention Plan (PPP);
    - Section A5.3.10 Construction Site Waste Management Plan (CSWMP);
    - Section A5.3.11 Construction Ecological Management Plan (CEcMP);
    - Section A5.3.12 Incident Response Plan; and
    - Section A5.3.13 Crossing Schedule.
5. Measures that comprise a Pollution Prevention Plan (PPP) are included within this CEMP.
6. The Applicant has overall responsibility for the Development and its construction, including the appointment and performance of the Principal Contractor and other contractors. The Principal Contractor will engage with relevant bodies (such as, but not limited to, the Environment Agency, Natural England, and the relevant Drainage Board) to secure any necessary permits and licences following the DCO consent.
7. The Principal Contractor will be responsible for implementing the CEMP.

A5.3.1.2 PROJECT POINT OF CONTACT

8. The Principal Contractor will provide a point of contact with the Development for the public, including an e-mail address, phone number, postal address and website address. This will allow members of the public to report potential issues, seek clarification of timing and other matters of potential

[1] Kwan, J. et al. (2023). Environmental Good Practice on Site Guide (fifth edition) (C811). CIRIA.
[2] H Masters-Williams et al. (2001). Control of Water Pollution from Construction Sites (C532). CIRIA.
[3] Woods et al. (2015). The SuDS Manual (C753F). CIRIA.

relevance to the public during the construction phase. These details will be set out in the final CEMP and will be clearly visible at each site entrance for members of the public and stakeholders.

A5.3.1.3 PROGRAMME

9. Construction activities will take place in multiple locations at any one time in order to complete construction in a reasonable timescale, maintain continuity for the various contractors, and to avoid longer term impacts on receptors at a given location. Flexibility in the timing and location of works is required in order to provide accommodation in the construction programme e.g., to avoid impact on birds, accommodate weather events and other construction risks. This will allow a shorter overall programme reducing the period of impact.

10. The overall programme and its component activities will be reviewed regularly throughout construction to help minimise impacts and to accommodate prevailing and expected conditions.

A5.3.1.4 RECORDS AND COMMUNICATION

11. An environmental log will be maintained to record daily site checks, weather conditions and actions taken. This will be made available to Newark and Sherwood District Council quarterly and on request.

A5.3.2 WORKING HOURS

12. Core working hours are proposed to be between 07.30 and 18.00, Monday to Friday, and 08.00 and 13.00 on a Saturday (unless in exceptional circumstances where the need arises to protect plant, personnel or the environment). In addition to this, a start-up and close-down period of up to an hour before and after the core working hours is proposed, which does not include the operation of plant or machinery likely to cause a disturbance. Further detail on transport timings is provided in the Outline Construction Traffic Management Plan (CTMP) (Technical Appendix A5.2).

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

14. Exceptional circumstances in the above context are 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 (as set out in the CEcMP, section A5.3.11). Examples include ensuring that work areas in proximity to public areas are fully secure outside of working hours, or to secure open excavations to protect wildlife.

15. The Applicant or its contractor will notify Newark and Sherwood District Council of any exceptional situations or breaches of approved working hours within 48 hours of them occurring.

A5.3.3 ENVIRONMENTAL CLERK OF WORKS

16. An Environmental Clerk of Works (EnvCoW) will be appointed. The appointment shall be for the period from the start of enabling works for the

Development to final commissioning of the Development or end of the construction period, whichever is later. The EnvCoW will be responsible for monitoring and reporting compliance with the environmental management measures proposed in the ES, CEMP and other environmental control documents. The EnvCoW will also take advice from, and coordinate monitoring and reporting with, other specialists and clerks of work, such as the Ecological Clerk of Works (ECoW) specified in the CEcMP (section A5.3.11).

A5.3.4 CONTROL OF LIGHTING

17. Depending on the time of year, some work lighting may be required to facilitate construction during the hours set out in section A5.3.2. The vast 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.

18. All construction lighting will be deployed in accordance with good practice[4] to reduce or avoid impacts on human and ecological receptors. There will be a presumption against lighting in sensitive areas without seeking the advice of specialists such as the ECoW. Measures will include but not be limited to:

- Lighting being minimised to that required for safe site operations;
- Lighting will utilise directional fittings to minimise outward light spill; and
- Lighting will be directed towards the middle of the site rather than towards the boundaries.

A5.3.5 CONTROL OF NOISE AND VIBRATION

19. Noise and vibration thresholds are set out in Section 12.4 of Chapter 12: Noise and Vibration. Compliance with the noise and vibration thresholds will ensure that adverse impacts are unlikely.

20. A detailed Construction Noise Management Plan (CNMP) will be developed by the Contractor, based on the finalised location of construction activities and equipment to be used on site. The CNMP will identify any mitigation measures required to ensure the noise and vibration thresholds are not exceeded. Where construction activities associated with the Development are likely to occur concurrently with the construction of nearby cumulative developments, the CNMP will identify any associated cumulative noise or vibration impacts. Where required, the CNMP will identify mitigation measures to ensure that cumulative noise and vibration impacts do not exceed the noise and vibration thresholds. The CNMP will be submitted to NSDC for approval as part of the final CEMP, as part of the DCO Requirements, prior to commencement of construction.

21. The following best practice noise and vibration control measures will be included in the CNMP:

- The working hours (section A5.3.2) will be restricted;

[4] The Institute of Lighting Professionals (2021). The Reduction of Obtrusive Light (GN01/21).

- Deliveries of plant and materials by HGV to site shall only take place by designated routes and within times agreed with the Council as secured in the Construction Traffic Management Plan (CTMP);
- The site contractors shall be required to employ the good practice of reducing noise emissions from plant, machinery and construction activities, as advocated in BS 5228[5];
- Non-tonal and/or directional reversing alarms will be used;
- Where necessary and practicable, noise from fixed plant and equipment will be contained within suitable acoustic enclosures or behind acoustic screens;
- All sub-contractors appointed by the Principal Contractor will be contractually obliged to comply with environmental noise and vibration DCO Requirements;
- All plant and equipment will be properly maintained and operated to prevent excessive noise and vibration and will be switched off when not in use; and
- Properties at which the 65 dB $L_{Aeq,t}$ (noise) or 1 mm/s PPV (vibration) thresholds, as specified in section 12.4 of Chapter 12, Noise and Vibration [EN010162/APP/6.2.12], are predicted to be exceeded will be notified prior to construction taking place.

A5.3.6 EXISTING CONTAMINATED LAND OR SOIL

22. Site workers will be made aware of the possibility of encountering localised contamination through toolbox talks and good standards of personal hygiene, including welfare facilities on-site and the use of appropriate levels of personal protective equipment (PPE), will be enforced.

23. Site workers will adhere to health, safety and environmental precautions in order to reduce the potential for any accidents and incidents.

24. A 'Discovery Strategy' protocol will be drawn upon to ensure that any contamination identified during construction is assessed by a specialist in land contamination. This will include but not be limited to stopping works in the area and ensuring the identified contamination does not pose a risk until an environmental specialist undertakes an assessment and a method is agreed to deal with the identified contamination. If required, the Local Planning Authority will be notified.

25. If any demolition of stockpiles is required at the former Ossington Airfield, these may be contaminative and will be removed safely, following a protocol approved by a competent person.

A5.3.7 DUST SUPPRESSION AND CONTROL

26. Water needed for dust suppression on the access tracks and other Works Areas during periods of dry weather will be clean water. Clean water may be obtained from re-circulated clean or treated drainage waters.

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

27. Good practice measures will control the generation and dispersion of dust. The hierarchy for mitigation will be prevention, suppression then containment, including the following:

- 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 to reduce dust escape;
- Completed earthworks and other exposed areas will be covered with topsoil and revegetated 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 when and where required;
- Daily visual inspections will be undertaken to assess the need for 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;
- Covering vehicles carrying dry spoil and other wastes to prevent escape of materials;
- Provision of wheel washing and wet suppression during loading of wagons/vehicles; and
- Daily visual inspections will be undertaken to assess the condition of any in-use junctions of the site tracks with public roads.

A5.3.8 MANAGEMENT OF EXCAVATED SOILS

28. Excavated soils will be stored in accordance with a Soil Management Plan (SMP; an outline of which provided in the ES as TA A17.2, [EN010162/APP/6.4.17.2])

A5.3.9 POLLUTION PREVENTION PLAN

A5.3.9.1 THE MANAGEMENT OF SEDIMENT AND SURFACE WATERS

29. This section addresses the management of sediment and surface water runoff generated during the construction phase of the Development.

30. Major construction works (e.g., large-scale earthworks) will be minimised during heavy precipitation events.

31. Minimum buffer zone distances of 5 m from non-IDB (internal drainage board) drainage ditches and minimum of 10 m from IDB drainage ditches will

be observed for all infrastructure with the exception of fencing, watercourse crossing and access tracks.

32. Drainage from the Development 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 runoff, thus reducing peak flow and any flooding issues that might arise downstream;
- SuDS will treat runoff, which can reduce sediment and pollutant volumes in runoff before discharging back into natural drainage network; and
- SuDS measures, such as lagoons or retention ponds, correctly implemented will produce suitable environments for wildlife.

A5.3.9.1.1 Location of Silt Traps and Silt Matting

33. Silt traps may be utilised to trap and filter sediment-laden runoff from excavation works at the Development, including foundations for the compounds and access roads.

34. Good practice will be followed prior to placement of silt traps adjacent to watercourses and land drains. Silt matting may be placed at the outfall of settlement lagoons to filter sediment during times of heavy rainfall. Semi-permeable structures may be placed in drainage channels to intercept silt.

35. The silt traps and silt matting will be monitored by the EnvCoW and replaced when necessary.

A5.3.9.1.2 Location of Check Dams

36. Check dams will be installed in new drainage ditches at regular intervals, where necessary. Check dams will facilitate the settlement of suspended solids by slowing the flow of water within the drainage ditches. Appropriately sized stone pitching will be used within the dam in order to provide a rough surface for water within the drainage ditch to pass over.

A5.3.9.1.3 Location of Settlement Lagoons

37. Settlement lagoons will be implemented where appropriate, typically around foundations and hardstanding areas. Settlement lagoons will be actively managed to control water levels and ensure that any runoff is contained, especially during times of rainfall. If required to achieve the necessary quality of the final runoff, further measures may include the use of flocculent to facilitate the settlement of suspended solids.

38. The sides of lagoons will be lined to reduce the potential for erosion and collapse.

A5.3.9.1.4 Outflow Monitoring From Settlement Lagoons

39. Settlement lagoon outflow will be inspected regularly and discharge may be pumped, when required, for maintenance purposes. Pumping activities will be supervised and authorised by the Contractor's Project Manager.

40. Treated water will be discharged onto vegetated surfaces and directed away from surface watercourses. Within all catchments, irrigation techniques,

which may include the use of perforated discharge hoses, or similar, will be employed to rapidly distribute discharge across a vegetated area.

41. 'Siltbusters' will be used to treat pumped/surplus water from lagoons during periods of extreme or persistent rainfall.

42. Silt mats may be used at the outfalls of settlement lagoons to further aid the settlement from earthworks drainage.

43. Discharges from settlement lagoons will be sampled / monitored during wet weather to limit the potential for suspended solids to be transferred to the wider hydrological environment.

A5.3.9.1.5 Provision For Storm Events

44. Sections of the Development are at risk from surface water and fluvial flooding. In extreme storm events, there would be elevated levels of runoff from the hardstanding elements of the Development relative to greenfield flow rates, which has the potential to contribute to down-stream, off-site, flood risk.

45. In the baseline scenario, the water table is not at the ground surface and hence some infiltration would be expected. The Development proposals could affect the water table (e.g., through pumping / dewatering of excavations), and therefore localised infiltration rates could change. Measures are proposed in this CEMP that would reduce runoff rates from the baseline scenario.

46. Temporary storage volume for storm runoff from the foundations and hardstanding areas would be provided via settlement lagoons.

47. Along the access tracks, drainage channels on the downslope would shed track runoff to adjacent rough ground approximately every 30 m, to attenuate flow and allow natural filtration to remove sediments.

48. Appropriate licensing and discharge consents will be sought before the construction phase of the Development.

A5.3.9.1.6 Management of Drainage from Surplus Materials

49. Excavated soils will be stored in accordance with a Soil Management Plan (an outline of which provided in the ES as TA A17.2, [EN010162/APP/6.4.17.2]) Careful consideration will be given to the storage areas for excavated soils. Storage areas will be either in a flat dry area away from watercourses or be protected by the addition of cut off drains above the storage areas to minimise the ingress of water.

50. Mineral soils will not be allowed to dry out and silt fences and mats will be employed to minimise sediment levels in runoff.

51. 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.

A5.3.9.2 WATER QUALITY MONITORING THE MANAGEMENT AND MOVEMENT OF FRESH CONCRETE

52. Fresh concrete will be imported to the Development and the following management measures are proposed.

A5.3.9.2.1 Accidental Spillage

53. Speed limits for vehicles transporting fresh concrete will be set at a maximum of 15 miles per hour (mph) and will be continually monitored. Maximum vehicle load capacities will not be exceeded. Although tracks will be maintained in good condition, vehicle loads and/or speeds will be reduced if rougher surfaces are identified prior to track maintenance.

54. Appropriately sized spill kits will be provided at strategic locations, particularly where fresh concrete may be present. These will contain materials such as absorbent granules and pads, absorbent booms and collection bags. These are designed to halt the spread of spillage and will be deployed, as necessary, should spillage occur.

55. Measures to manage fresh concrete during pouring operations are described in section A5.3.9.2.3.

A5.3.9.2.2 Vehicle Washing

56. There will be a wash-out facility within construction compounds that handle fresh concrete, consisting of a sump overlain with a permeable geosynthetic membrane. The geosynthetic membrane will filter out the concrete fines leaving liquid water to pass through to the sump. The sump water will be pumped to a licenced carrier and taken off-site for approved disposal.

57. No washing of concrete-associated vehicles will be undertaken outside the wash-out facilities, and the area will be signposted, with all site contractors informed of the locations.

58. The frequency of concrete plant wash-out may also be reduced through the use of retarders.

59. In the event that plant and wheel washing is required, dry wheel wash facilities and road sweepers will be provided to prevent (as far as is practicable) mud and debris being deposited on to the public roads.

60. Signage will be put in place to direct all vehicles to use wheel wash facilities. The track section between the wash facility and the public road will be surfaced with tarmac or clean hardcore and the area surrounding the facilities will be kept clean and in good condition.

61. The wheel wash facility, which will work on a closed cycle, shall be operated throughout the construction period. Wheel wash facilities will be located within a designated area of hardstanding at least 50 m from the nearest watercourse or 20 m from the nearest surface drain.

62. Should debris be spread on to the site access or public road adjacent to the Development, then road sweepers will be quickly utilised to clean affected areas. Loose debris will also be periodically removed from site tracks.

A5.3.9.2.3 Concrete Pouring for Foundations

63. 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. These procedures may include, but not be limited to:

- Ensuring that all excavations are sufficiently dewatered before concrete pours begin and that dewatering continues while the concrete cures, noting that fresh concrete will be 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.

A5.3.9.3 OTHER POLLUTION PREVENTION MEASURES

A5.3.9.3.1 Potential Hydrocarbon Contamination

64. Machinery will be regularly maintained to ensure that there is minimal potential for fuel or oil leaks and spillages to occur. All maintenance will be conducted over drip trays or suitably absorbent spill pads to minimise the potential for groundwater and surface water pollution. All machinery will be equipped with drip pans to contain minor fuel spillage or equipment leakages.

65. Appointed refuelling personnel will be trained in the correct methods of refuelling to ensure that pollution incidents are prevented and a quick response plan is implemented (see section A5.3.12 Incident Response Plan), should a spill occur, to minimise the impact of spills.

66. Fuel delivery vehicles servicing the site will only be allowed as far as the construction compounds. The construction compounds will include a bunded refuelling area, and operations will only be permitted where they comply with the Contractor's method statements.

67. 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 be taken:

- Any flexible pipe, tap or valve should be fitted with a lock where it leaves the container and be locked when not in use;
- Flexible delivery pipes should be fitted with manually operated pumps or a valve at the delivery end that closes automatically 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 item of plant or vehicle on site and also located close to identified pollution sources or sensitive receptors (fuel storage areas, water course crossings, etc.).

68. Irrespective of the buffer distances to watercourses and location of refuelling points, interceptor drip trays or similar (noting that open metal drip trays are not acceptable) will be available. 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 site immediately.

A5.3.9.3.2 Non-Road Mobile Machinery

69. 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 EN590:2004);
- All NRMM should comply with either the current or previous EU Directive Staged Emission Standards (97/68/EC, 2002/88/EC, 2004/26/EC). As new emission standards are introduced the acceptable standards will be updated to the most current standard;
- All NRMM should be fitted with Diesel Particulate Filters conforming to defined and demonstrated filtration efficiency (load/duty cycle permitting);
- The ongoing conformity of plant retrofitted with Diesel Particulate Filters, to a defined performance standard should be monitored via regular 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.

A5.3.9.3.3 Chemical Storage

70. Potentially contaminating chemicals stored on site will be kept within a secure bunded area to prevent any accidental spills from affecting hydrological resources. The bunds will have a capacity 110 % of that of the fuel or chemical store. The bunded area will be within the construction compound and will be underlain by an impermeable ground membrane layer to reduce the potential pathways for contaminants to enter watercourses and groundwater. The chemicals storage area will be kept secure to prevent theft or vandalism. A safe system for accessing the storage area will be implemented by the Contractor.

71. Oil storage areas will be covered in order to prevent rainwater collecting within the bunded area.

A5.3.9.3.4 Foul Drainage

72. Portable toilet facilities will be deployed for site personnel. The toilets will be emptied by a waste contractor thereby avoiding the need for onsite treatment and discharge and minimising potential effects on drainage ditches and watercourses.

A5.3.9.4 CABLE WORKS

73. Solar PV areas and the BESS will be connected by underground cabling to the intermediate substations and the existing Staythorpe Substation.

74. The cables will be laid in a trenching operation with sections opened up, laid and reinstated sequentially. All backfilling and re-instatement will be

completed as quickly as is reasonable possible given the prevailing conditions.

75. Where topography or ecological constraints dictate (over limited sections), the cables will be installed in ducts.

76. Clay 'stanks' should be provided at regular intervals within the cable trenches. The entry point of any cable or ducting into chambers should also be sealed to prevent water ingress.

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

78. Following testing, the trench will be backfilled and compacted in layers with suitable material and reinstated with previously excavated surface soils and vegetation. The specification for reseeding or replanting, should they be required, will be agreed with the ECoW.

79. Where cables are laid in wetland areas or other zones that would negatively be impacted by dewatering, backfill to cable trenches will include clay bungs at a maximum of 50 m intervals. The purpose of these is to reduce the potential of trenches to act as drainage pathways.

80. Where cables cross small open gullies and ditches, they will be installed in ducts and, where appropriate, incorporated into access track crossing points. During installation operations, cable trenches will be temporarily dammed uphill of the watercourse and a filter placed downstream to avoid silt migration along the trench into the watercourse.

A5.3.9.4.1 Watercourse and Drainage Ditch Crossings

81. The methods by which the cables will cross watercourses are summarised in Section A5.3.13 and locations are shown in Figure A5.3.1.

82. Open trenching through watercourses and drainage ditches may be necessary or appropriate in some locations, such as small, linear man-made ditches. This will be informed by local constraints and prevailing conditions (e.g., seasonal drying of ditches) taking advice from relevant specialists including the EnvCoW.

83. The section of the watercourse or ditch will be isolated using barriers that span the full width of the channel. This keeps a stretch of the ditch dry, and the water is transferred downstream of the works area by mechanical assistance (pumping) until works are complete. The pump and associated pipework need not be located in the isolated area.

84. It may be necessary to pump water from upstream of the barrier to downstream of the works area, i.e., maintain 'normal' flow in the watercourse either side of the isolated reach. Depending on the gradient of the watercourse, it may also be necessary to install a full width barrier downstream of the work area to prevent ingress of water.

85. Pumps will be kept at least 10 m from the edge of the channel and on drip trays or within bunds that have a capacity 110 % of that of the fuel tank.

A5.3.9.4.2 Horizontal Directional Drilling

86. Horizontal Directional Drilling (HDD) may be required to avoid sensitive features including watercourses (e.g., The Beck, Moorhouse Beck and Pingley Dyke), habitats (e.g., woodland) and Local Wildlife Sites. HDD locations within Work No. 2 Cables are summarised in Section A5.3.13 and shown in Figure A5.3.1.

87. HDD will enable cabling to be installed beneath features without the need to strip or clear vegetation, grade banks and excavate in-channel trenches.

88. The drilling equipment is self-contained machinery which will penetrate the surface through a 'no dig' method whereby the drill head will work through the sub-surface grounds to form a shallow excavation, the 'launch pit'.

89. Should any launch pits be located in the floodplain and a flood event were to occur during the HDD works, displacement would be limited to the extent of the launch pits and excavated material which will be bounded by agricultural land. Therefore, any displacement of floodwaters will not be of a substantial volume and will disperse within the area immediately surrounding the HDD pit, in accordance with the topographic characteristics of the floodplain.

90. HDD will limit the need for infrastructure to be located immediately adjacent to watercourses, therefore limiting the potential flood depths at the location of the infrastructure and is the approach which will result in the smallest displacement of floodwaters.

91. The contractor will consult the EA flood warning service leading up to the HDD works to limit the potential of works taking place during a flood event.

92. HDD has the potential to cause frac-out, which is the unintentional or inadvertent loss of drilling fluids during a drilling operation from the borehole to the ground surface from points other than its entry and exit points. Frac-out during a trenchless operation can happen due to various reasons.

93. Precautions to avoid frac-out include:

- Pre-commencement geotechnical studies to inform operations and risk assessment;
- The use of a drilling fluid with an appropriate composition;
- If reduced cover and bearing pressure exists at entry point, casing can be installed or relief wells can be drilled;
- Continuously monitor drilling fluid parameters; and
- Use correct drill bit and bottom hole assembly;
- Conduct regular inspection along the drill path during pilot hole drilling.

A5.3.9.5 ACCESS TRACK CONSTRUCTION AND USE

94. Prior to access track construction, site operatives will identify 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 each phase of construction.

95. At access track crossings of watercourses where protected species are present, appropriate protected species licences and consents will be sought

and works will not commence until required licences and consents are in place. Further details are provided in the CEcMP (section A5.3.11).

A5.3.9.5.1 Management of Surface Water

96. Access tracks will be designed to have adequate cross fall to avoid ponding of rainwater and surface runoff. Runoff from the access tracks will be directed into swales that will be designed to intercept, filtrate and convey the runoff. Check dams will be installed within the swales in order to increase the attenuation of runoff. Further measures could include the use of settlement ponds or possibly flocculent to further facilitate the settlement of suspended solids, if required.

97. Permanent swales and drainage ditches adjacent to access tracks will have outlets at specified intervals to reduce the volume of water collected in a single channel and, therefore, reduce the potential for erosion.

98. The contractor is responsible for the management of all surface water runoff, including the design and management of a drainage scheme compliant with SuDS principles. This may include settlement lagoons and retention ponds, incorporating natural or assisted attenuation. Further details are provided in section A5.3.9.1.

A5.3.9.5.2 Loose Track Material

99. Loose material from the use of the access track will be prevented from entering watercourses by 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.

A5.3.9.5.3 Material Excavated During Track Construction

100. Material excavated during track construction will be either stored adjacent to the track or within agreed spoil deposition areas and compacted in order to limit instability and erosion potential. Silt fences will be installed, if required, to minimise sediment levels in runoff. 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.

A5.3.9.5.4 Watercourse / Drainage Ditch Crossings

101. The methods by which the access tracks will cross watercourses are summarised in Section A5.3.13 and locations are shown in Figure A5.3.2.

102. Crossings will be designed following granting of the DCO and commit to the soffit level of any bridges will sit above the design flood level. The design flood level for permanent crossings would be the 1% AEP plus Higher central climate change scenario (39 % CC) and will involve the following parameters:

- Soffit height of the bridge will be a minimum of 600 mm above the 1 % AEP + Climate change allowance flood level;
- All abutments must be set back a minimum 1m from the top of bank and as minimal as possible;
- Any loss of floodplain due to abutments and ramps will need to be compensated for; and
- All parapets and railings need to be permeable and open as possible with a minimum 100 mm spacing.

103. The use of in-situ fresh concrete in the construction of watercourse crossings will be avoided by the use of pre-cast elements. Existing culverts may be upgraded and are anticipated to be replaced with suitable pre-cast culvert designs. Ready-made concrete 'box style' culverts will be used. Existing culverts requiring an upgrade will be replaced using ready-made culverts.

104. Culverts will be designed based on good practice to minimise effects of construction on the natural integrity and continuity of watercourses. The design will incorporate the following criteria:

- The substrate and side/head walls will be reinforced in order to prevent erosion over the lifetime of the Development;
- There is a preference to avoid construction in watercourses altogether through the use of box culverts or beam bridge structures appropriately designed not to impede the flow of water and allow safe passage for wildlife. However, the short- and long-term impacts of designs should be considered, and there can be a case for using box culverts;
- Single culverts will be used in preference to a series of smaller culverts that may be more likely to become blocked with flotsam and create erosion (i.e., the crossings will not constrict the channel);
- Ease and speed of construction are important to minimise disruption to the watercourse and surrounding habitat;
- Designs will be low maintenance and where possible self-cleaning; and
- Structures will be visually in-keeping with the surroundings.

A5.3.9.5.5 Structural Design

105. Each watercourse crossing shall be designed on a case-by-case basis taking into account a range of engineering and environmental factors. The structural design of watercourse crossings will consider:

- Design loading (taking into account different delivery vehicles);
- Bearing capacity;
- Potential for short- and long-term settlement;
- Environmental conditions; and
- Flood risk.

106. All structures will be designed in accordance with the Design Manual for Roads and Bridges (DMRB)[6].

A5.3.9.5.6 Culverts

107. The following apply where a watercourse crossing uses a culvert design:

- When installing culverts, care will be taken to ensure that the construction does not pose a permanent obstruction to wildlife;
- Culverts should be sized so that they do not interfere with the bed of the stream following construction (i.e., the culvert will leave the watercourse in as natural condition as possible or permit re-establishment of substrate);
- Culverts will be well bedded to avoid settlement and will be protected by an adequate cover of road material;
- Culvert floors will have the same gradient (not exceeding a slope of 3 %) and level, and carry similar bed material and flow, as the original steam;
- There shall be no hydraulic drop at the culvert inlet or outlet;
- The width of the culvert will be greater than the active channel width of the watercourse;
- Culverts will be used to conduct water under tracks;
- Any fences or screens fitted on the inlet or outlet of the culvert will be designed to allow at least 230 mm of space between the bars of the screen or fence, up to the high-water level;
- Box culverts on watercourses, where such structures are considered appropriate, will likely be pre-cast concrete. Inverts will be located below bed level reflecting ecological requirements;
- A natural stone headwall will be provided upstream and downstream of culverts to protect the road embankment. Further protection will be provided to the banks using soft engineering techniques as much as possible; and
- Where there is risk of bed erosion upstream or downstream of culverts, natural stone rip-rap will be provided.

A5.3.9.5.7 Bridges

108. New bridges will be identified for water crossing points, where appropriate.

109. Bridges are the preferred solution for larger spans and for higher flow watercourses. Bridge construction is less likely to interfere with the watercourse to the same extent as culvert construction and can be built over the existing alignment of the river without the need for diversion. Foundations will be required on both banks (down to a competent bearing stratum) in order to support the bridge deck.

110. It is anticipated that spans up to 10 m can be constructed using pre-cast concrete or steel beams. Spans greater than 10 m may be constructed using a proprietary bridge decking system. These will be delivered to site and lifted into place by crane. It may be necessary, depending on the local conditions,

[6] Standards for Highways. Design Manual for Roads and Bridges (DMRB). Available at: https://www.standardsforhighways.co.uk/dmrb [accessed on 18/11/2024]

to provide a revetment protection to the bridge supports. It may also be necessary to provide bed protection.

111. The design of the abutments will depend on local ground conditions. Where possible the foundation will be excavated to material which will provide the required bearing pressures.

112. Temporary bridges may be required to facilitate construction access to cable installation in places where permanent bridges are not required, as maintenance is unlikely to be required. One such location has been identified, crossing Pingley Dyke between Staythorpe Road and the A617. Bridges in such locations would be installed only for the period for which access is needed, and then removed. Typically, a Bailey bridge would be used.

A5.3.9.5.8 Temporary Trackways

113. If necessary, temporary trackways (e.g., track matting) may be used to reduce the risk of rutting in areas without permanent tracks that could lead to soil erosion and runoff, particularly during wet weather. Generally, vehicles that would undertake construction activities off permanent tracks would result in similar impacts to those caused by agricultural vehicles in the existing arable baseline.

114. If heavily trafficked areas of the site without permanent tracks are at risk of rutting within 10 m of a watercourse, then temporary track matting will be deployed in that area to prevent rutting.

A5.3.9.6 WATER QUALITY MONITORING

115. A surface water and groundwater monitoring programme will be commenced prior to the construction of the Development. The aim of water monitoring is to detect any activity proving detrimental to water quality at the earliest opportunity during the construction of the Development. This will allow action to be taken to prevent any further effect on water quality. An indicative monitoring programme is set out below.

A5.3.9.6.1 Surface Water Monitoring

116. Surface water monitoring will be undertaken at locations on the principal watercourses downstream of the Development infrastructure and upstream of other non-natural influences and the locations and parameters will be agreed with the EA prior to establishing the hydrochemical baseline.

117. Regular visual inspections of surface watercourses are proposed, especially during major excavation works, as these allow rapid identification of changes in levels of suspended solids that could indicate construction-related effects are occurring upstream. Potential effects can then be investigated and remedial action taken to prevent further effects, if necessary.

118. To supplement the visual inspections, it is anticipated that there would be several surface water monitoring points for extractive sampling and analysis. Details will be developed in advance of construction.

119. The following indicative sampling frequency is proposed in order to establish baseline hydrochemical conditions of surface water constituents:

- Twice per month for at least six months prior to the construction phase.

120. The following indicative sampling frequencies are proposed in order to monitor surface water conditions against baseline conditions:

- Weekly for the first three months of the construction phase;
- Twice a month during earthworks and concrete works, e.g., access track construction, foundations; and once a month, for six months after the construction phase.

121. Establishing baseline conditions for surface waters will enable any trends in levels of critical parameters to be assessed and deviations from the norm identified and rectified through water management measures. Monitoring will not take place within catchments or sub-catchments where no construction activity has occurred for a period of two weeks or more.

A5.3.9.6.2 Monitoring Reporting

122. The results of laboratory analysis of water samples will be tabulated and recorded and provided monthly to the EA's East Midlands Water Quality email inbox.

A5.3.9.6.3 Water Infrastructure Watching Brief

123. Where works are carried out within proximity to water distribution infrastructure, a 'Watching Brief' will be conducted during works by a Hydrologist or Engineer.

124. The Watching Brief should be used to clearly mark and demarcate any sensitive areas around the pipes which serve the property and aim to isolate pipes from construction works and avoid impact on the pipe infrastructure.

125. Employees will be briefed of the pipework and locations and be briefed on any controls and conditions put in place prior to the commencement of works.

126. Should any works cross the pipes then measures will be implemented to prevent damage to the pipes, such as laying of steel matting or concrete above the pipework.

A5.3.10 CONSTRUCTION SITE WASTE MANAGEMENT PLAN

A5.3.10.1 INTRODUCTION

127. The aim of the Outline Construction Site Waste Management Plan (CSWMP) is to protect the environment from issues arising from waste through the implementation of effective waste management plans which relate to the management of waste during the construction phase of the Development. The Principal Contractor will be responsible for the implementation of the CSWMP.

128. The CSWMP is used to plan, implement, monitor and review waste minimisation and management during the construction phase of the Development.

129. Import, export (not anticipated) and reuse of material generated onsite will be undertaken in line with the requirements of the CLAIRE Definition of

Waste: Development Industry Code of Practice[7]. No waste soils are expected to be generated that cannot be reused onsite. As such this CSWMP considers only the management of the waste arising from imported materials.

A5.3.10.2 LEGISLATION, GUIDANCE AND OBJECTIVES

130. The development and implementation of a CSWMP in England is no longer a legal requirement as of 2013, however it is regarded as good practice[8]. However, policy and legislation do dictate the management of waste in England and therefore the following items have been considered when developing the CSWMP:

- The Environmental Protection Act 1990;
- The Hazardous Waste (England and Wales) Regulations 2005;
- The Waste (England and Wales) Regulations 2011; and
- The Waste Management Plan for England 2021.

131. Several guidance documents have been used to develop the CSWMP:

- Manage Water on Land: Guidance for Land Managers[9];
- BS 5930:2015+A1:2020 – Code of practice for ground investigations[10];
- Environmental Good Practice On Site (C811)[11];
- Practical Solutions for Sustainable Construction: Achieving Good Practice Waste Minimisation and Management – Guidance for construction clients, design teams and contractors[8]
- Waste Duty of Care Code of Practice[12];
- Pollution Prevention for Businesses[13];
- Discharges to Surface water and groundwater: environmental permits[14];
- Oil Storage Regulations for Businesses[15];

132. The above guidance on waste management will be used to ensure the following objectives are met through the CSWMP:

- Legal obligations of the Development;
- Waste production is minimised;

[7] CL:AIRE (2011).CLAIRE Definition of Waste: Development Industry Code of Practice. Available at: https://claire.co.uk/projects-and-initiatives/dow-cop [accessed on 18/11/2024]
[8] Waste & Resources Action Programme (WRAP) (undated). Practical Solutions for Sustainable Construction: Achieving Good Practice Waste Minimisation and Management – Guidance for construction clients, design teams and contractors.
[9] UK Government (2024) Manage water on land: guidance for land managers. Available at: https://www.gov.uk/guidance/manage-water-on-land-guidance-for-land-managers [accessed on 18/11/2024]
[10] British Standards Institute (2020). Code of Practice for Ground Investigations.
[11] Kwan, J. et al. (2023). Environmental Good Practice on Site Guide (fifth edition) (C811). CIRIA.
[12] UK Government (2018). Waste duty of care code of practice. Available at: https://www.gov.uk/government/publications/waste-duty-of-care-code-of-practice [accessed on 18/11/2024]
[13] UK Government (2024). Pollution prevention for businesses. Available at: https://www.gov.uk/guidance/pollution-prevention-for-businesses [accessed on 18/11/2024]
[14] UK Government (2024). Discharges to surface water and groundwater: environmental permits. Available at: https://www.gov.uk/guidance/discharges-to-surface-water-and-groundwater-environmental-permits [accessed on 18/11/2024]
[15] UK Government (2023). Oil storage regulations for businesses. Available at: https://www.gov.uk/guidance/storing-oil-at-a-home-or-business [accessed on 18/11/2024]

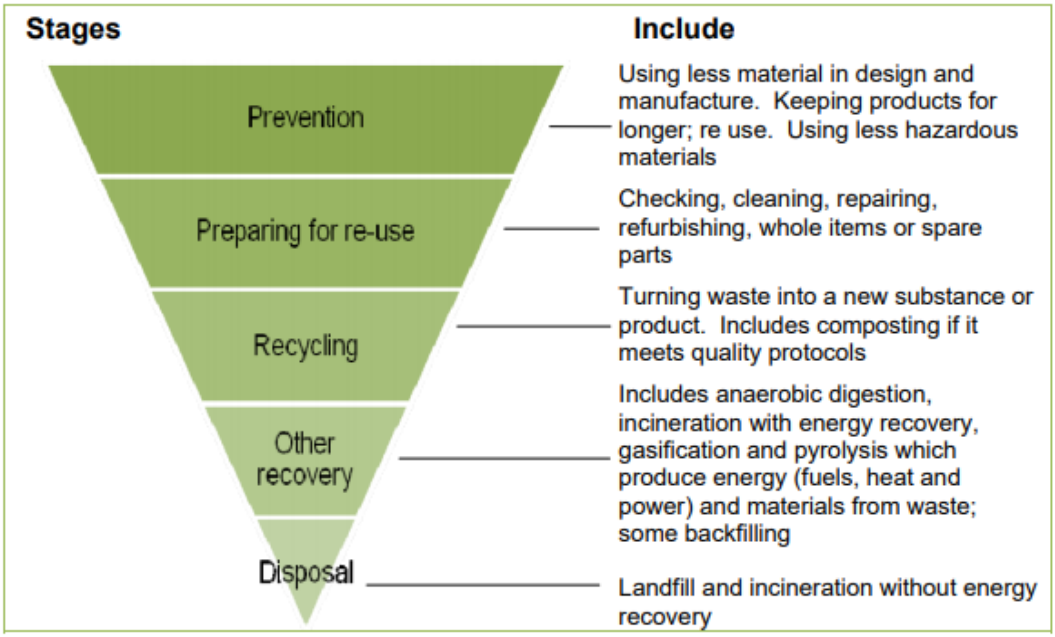
- Waste is recognised as a resource;
- Project build costs are minimised;
- A framework for continuous improvement and best practice is implemented and maintained; and
- Adverse environmental impacts associated with the production and management of waste materials are minimised.

A5.3.10.3 THE WASTE HIERARCHY

133. The 'Waste Hierarchy' (Inset A5.3.1) provides an outline approach of how waste management should be assessed in the CSWMP. The Waste (England and Wales) Regulations 2011 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 the selection of the Best Practicable Environmental Option (BPEO) and is the preferred option for management of waste.

134. The core waste management principles, as defined in the Waste Hierarchy, of prevention, reuse, recycle, recover and disposal are embedded in this CSWMP.

Inset A5.3.1: Waste Hierarchy[16]



A5.3.10.4 WASTE PREVENTION

135. 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, and/or minimise the volume, of waste produced by the Development. This can be through reducing consumption, using resources efficiently, and designing for longevity.

[16] UK Government (2011). Guidance on applying the waste hierarchy. Available at: https://www.gov.uk/government/publications/guidance-on-applying-the-waste-hierarchy [accessed on 18/11/2024]

A5.3.10.5 WASTE SEPARATION FOR REUSE AND RECYCLE

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

A5.3.10.6 WASTE STORAGE, DISPOSAL AND TRANSPORTATION

137. All areas used for temporary storage of waste on site will comply with guidance (section A5.3.10.2) 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.

138. Disposal activities will also be carried out in accordance with guidance[13] in order to ensure compliance with current waste legislation.

139. 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.

140. 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 held by the Contractor for at least two years. The appropriate European Waste Catalogue (EWC) code 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 recorded.

141. If required, the Environment Agency (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 by the Contractor for at least three years.

A5.3.10.7 ANTICIPATED WASTE STREAMS

142. 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
- Wastewater.

A5.3.10.7.1 Waste from Welfare Facilities

143. Temporary welfare facilities will be provided, such as ‘Portaloo’-type facilities. These facilities will include toilets, washing and drinking water. This would be periodically serviced by a licensed operator. All on site welfare facilities will be clearly signposted and maintained.

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

A5.3.10.7.1.1 Other General Refuse

145. 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.

A5.3.10.7.2 Waste Chemicals, Fuels and Oils

146. All fuel and oil will be stored within an area of a construction compound 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 guidance[15]. Any contaminated runoff within the bund will be disposed of at an appropriate waste management facility.

147. Any used (contaminated) spill kits, absorbent granules, sheets or fibres will be disposed of in accordance with the COSHH regulations and in accordance with the spill management plan.

A5.3.10.7.3 Packaging

148. Construction waste is expected to be restricted to general construction waste, such as off cuts of timber, wire, cleaning cloths, paper, etc. which will be sorted and either recycled or disposed of off-site to an appropriately licenced landfill by the Contractors.

149. 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.

A5.3.10.7.4 Waste Metals

150. It is likely that this will be produced from excess steel from the solar PV mounting structures or cuttings from underground cabling. These materials would be recycled.

A5.3.10.7.5 Wastewater

A5.3.10.7.5.1 Dewatering of Excavations

151. Where dewatering is required, water will be pumped into settlement lagoons for treatment and discharged onto vegetated surfaces. These methods are included in section A5.3.9.1.

A5.3.10.7.5.2 Cleaning Activities

152. A vehicle washing facility will be installed in the construction compound or other designated area. These methods are included in section A5.3.9.2.2.

A5.3.11 CONSTRUCTION ECOLOGICAL MANAGEMENT PLAN (CEcMP)

A5.3.11.1 INTRODUCTION

A5.3.11.1.1 Background

153. This Construction Ecological Management Plan (CEcMP) sets out the measures that will be adopted to safeguard ecological features during construction.

154. Ecological studies for the Development have been underway since 2021 and have identified a range of sensitive ecological receptors that have the potential to be affected during construction. Known and potential ecological constraints have influenced the Development design such that many ecological effects have been avoided or reduced. In the instances where such effects cannot be avoided or reduced, including through measures in the CEMP, the CEcMP provides additional measures to mitigate potential adverse ecological effects and reduce the likelihood of legal offences.

155. The CEcMP will be revised and updated at various stages of the application process and during construction to ensure, as far as is reasonable, that it remains fit for purpose.

A5.3.11.1.2 Aims and Objectives

156. The aim of the CEcMP is to provide a clear account of the measures by which sensitive ecological features will be safeguarded during construction. The CEcMP explicitly addresses the ecological features most likely to be affected by work, as identified in ES Chapter 8: Ecology and Biodiversity [EN010162/APP/6.2.8], although provision is made for unforeseen issues. In addressing this aim, the CEcMP will address the following objectives:

- Define roles and responsibilities;
- Summarise the legal and conservation drivers of mitigation;
- Identify the potential adverse effects on ecological features;
- Set out measures to mitigate potential adverse effects and risks to ecological features; and
- Integrate mitigation with the requirements of protected species licensing.

A5.3.11.1.3 Relevant Legislation

157. Legal compliance is a key driver of this CEcMP and the following sections summarise the most relevant legislation.

A5.3.11.1.3.1 The Wildlife and Countryside Act 1981

158. The Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way Act (CRoW) 2000 and the Natural Environment and Rural Communities Act (NERC) 2006, is the main legislation that protects wildlife in England. The legislation makes it an offence to:

- Intentionally kill, injure or take any wild bird or their eggs or nests (with certain exceptions) and disturb any bird species listed under Schedule 1 to the Act, or its dependent young while it is nesting;

- Intentionally kill, injure or take any wild animal listed under Schedule 5 to the Act; intentionally or recklessly damage, destroy or obstruct any place used for shelter or protection by any wild animal listed under Schedule 5 to the Act; intentionally or recklessly disturb certain Schedule 5 animal species while they occupy a place used for shelter or protection; and
- Pick or uproot any wild plant listed under Schedule 8 of the Act. Schedule 9, Part II of the Act also lists many species for which it is an offence to plant, or otherwise cause to grow, in the wild. Any material containing Japanese knotweed is also identified as controlled waste under the Environmental Protection Act 1990 and must be disposed of properly at licenced landfill according to the Environmental Protection Act (Duty of Care) Regulations 1991.

A5.3.11.1.3.2 The Conservation of Habitats and Species Regulations 2017

159. The Conservation of Habitats and Species a Regulations 2017 (the 'Habitats Regulations'), as amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, establish the requirements for protecting sites that are internationally important for threatened habitats and species – the National Site Network – and thus the requirement for a 'Habitats Regulations Assessment' for plans or developments with potential to affect them.

160. The Habitats Regulations also establish the strict protection of some species – 'European Protected Species' – and make it an offence to deliberately capture, kill or disturb certain wild animals, and to damage or destroy a breeding site or resting place of such an animal even if the animal is not present at the time.

A5.3.11.1.3.3 Natural Environment & Rural Communities (NERC) Act 2006

161. The NERC Act 2006 places a duty on local planning authorities to have due regard for biodiversity and nature conservation during their operations and thus ensures that biodiversity is a key consideration in the planning process. The Act also establishes a list of species and habitats of principal importance ('priority' species and habitats) for the conservation of biodiversity.

A5.3.11.1.3.4 The Environment Act 2021

162. The Environment Act 2021 provides a framework for environmental protection in the UK. It is a wide-ranging piece of legislation affecting many aspects of the natural environment, including biodiversity. The act sets clear targets to halt the decline in wildlife populations through a legally binding target for species abundance by 2030 and a requirement to increase species populations by 10% by 2042. The Act also establishes a mandatory requirement for Biodiversity Net Gain in new developments.

A5.3.11.1.3.5 Protection of Badgers Act 1992

163. Badgers receive strict protection under the Protection of Badgers Act 1992, which prohibits the taking, injuring, selling, possessing or killing of badgers and makes it an offence to ill-treat any badger, damage, destroy, disturb or cause a dog to enter a badger sett.

164. Pre-commencement Surveys; the baseline ecological conditions upon which the CEcMP is based will be validated by an ecological walkover survey before construction begins. The walkover will be completed sufficiently

ahead of works to allow for the completion of any additional pre-commencement surveys that might be required. There is no default requirement to update all of the current baseline studies. Additional surveys will only be required to address the following:

- To provide the necessary up-to-date information for protected species licence applications;
- To update the baseline, or parts thereof, if it is considered insufficient for the purposes of the CEcMP;
- To provide information about new and currently unknown risks.

165. It is anticipated that the following detailed surveys will be undertaken:

- Great crested newt: eDNA surveys of all ponds within 250 m of potential harmful works;
- Badger: Visual/walkover survey to identify setts in vicinity of potentially harmful works; sett activity studies to determine occupancy;
- Bats: Surveys of trees to be felled or lopped. Ground-level tree assessment (GLTA) and, as necessary, Potential Roost Feature (PRF) inspection and Emergence survey;
- Otter: Visual/walkover survey of watercourses with new or upgraded crossings. Camera trapping of potential holts; and
- Water vole: Visual/walkover survey of watercourses in which works are proposed (e.g., road crossings and cable trenching). Survey will comprise two visits, one each in early and late summer.

166. The results of the surveys will inform the preparation of the final CEcMP and subsequent revisions of it. The pre-construction surveys included in method statements below are in addition to the above surveys. All surveys will be undertaken by holders of the relevant protected species survey licences.

A5.3.11.1.4 Protected species Licences

167. This CEcMP has been prepared on the basis of 'reasonable avoidance measures' and seeks to avoid the need for species mitigation licences in most scenarios. However, it is possible that a small number of scenarios – involving a specific combination of species and construction activity –may require a species mitigation licence to proceed lawfully. Licences may be required to facilitate works affecting the following legally protected species:

- Great crested newt
- Bats;
- Otter;
- Water vole; and
- Badger.

168. Draft licence applications have not been submitted because the mitigation and terms are highly context dependent. For example, a bat mitigation licence will depend on the species and type of roost, which may vary from tree to tree, and a licence to interfere with a badger sett will depend on the type of sett. These features may vary widely across the Order Limits and so it is not possible to draft licences that cover all eventualities. Nonetheless, approaches to mitigation for these are very well-established and there is a high probability of securing licences. Water vole mitigation (section

A5.3.11.8) is likely to proceed under a class licence from Natural England for which draft applications are not applicable. The need for and scope of development licences will be determined upon completion of pre-commencement and pre-construction studies.

169. If necessary, the mitigation strategies for these species will be set out under the terms of the licences and will be in addition to the measures in this CEcMP. The CEcMP will be revised so that it is complementary to licencing requirements.

A5.3.11.1.5 Roles and Responsibilities

A5.3.11.1.5.1 Principal Contractor

170. It will be the responsibility of the Principal Contractor to implement the CEcMP and communicate its requirements to appointed contractors and site personnel.

A5.3.11.1.5.2 Environmental Clerk of Works (EnvCoW)

171. The CEMP defines the role of an EnvCoW who will be responsible for monitoring and reporting environmental compliance during construction, and this will extend to the CEcMP.

A5.3.11.1.5.3 Ecological Clerk of Works (ECoW)

172. An Ecological Clerk of Works (ECoW) will be appointed. The appointment shall cover the full programme of the construction works and will be extended, as necessary, to provide pre- and post-works support. The scope of the work of the ECoW shall include:

- Carrying out surveys in line with the methods in the CEcMP;
- Monitoring and reporting compliance with the CEcMP;
- Coordinating with the Environmental Clerk of Works (EnvCoW);
- Providing advice about the protection of ecological features;
- Planning for known ecological issues and localised constraints, and responding to new ones, appropriately;
- Providing contractor briefings and Toolbox Talks (or providing materials to enable others to fulfil these);
- Seeking specialist support (e.g. from an Arboriculturist), as required;
- Communicating with the wider project team;
- Carrying out post-works monitoring (e.g. to check reinstatement of ground conditions); and
- Recording observations.

173. The frequency of ECoW site visits will be determined by the construction programme, which is currently unknown. At times of higher sensitivity, such as during initial ground works, a higher frequency of visits may be required. At times of lower sensitivity, such as during site demobilisation during the winter months, fewer visits may be required. The ECoW will be responsible for reviewing the programme and planning their site attendance and inputs accordingly.

A5.3.11.1.6 Communication

174. The Principal Contractor will be responsible for delivering Toolbox Talks to site operatives as part of site inductions or at other appropriate times. The Toolbox talks may be provided by the EnvCoW or ECoW, as appropriate. Toolbox talks will cover all of the issues in this CEcMP in sufficient and proportionate detail such that operatives can fulfil their obligations in accordance with the risks associated with their work.

175. Infographics will be displayed prominently in the site office, welfare facilities and at other locations deemed appropriate, to clearly and concisely communicate certain ecological risks and features.

A5.3.11.1.7 Method Statements

176. The method statements provide a framework for mitigating ecological effects during works. They are proportionate to the risks and are based on the best available evidence, standard good practice guidelines, and the current understanding of the works.

177. The method statements do not provide definitive procedures to deal with every eventuality but, instead, provide some flexibility and give the ECoW the discretion to act in a way that is appropriate to the prevailing conditions. For the avoidance of doubt, the ECoW will have the authority to stop works and, if necessary, seek advice.

178. Most works will take place in agricultural land, the majority of which is under arable cultivation and subject to pre-existing disturbance, and so the potential for adverse ecological impacts has been greatly reduced. Night-time works are not proposed. Nonetheless, adverse ecological effects and potential legal offences are possible, for example through visual, aural and vibration disturbance, by damaging underground/hidden structures, or by directly harming individual animals.

179. The following method statements summarise, for each distinct ecological feature, the conservation status, likely potential effects of work, and steps to be taken to safeguard them during works.

A5.3.11.2 DESIGNATED SITES

180. Potential effects to designated sites are assessed in terms of the effects to their notified or qualifying features. The measures set out in the CEMP and, below, for habitats and species, are in most cases sufficient to mitigate for potential effects to these features. Key elements of the CEMP that must be adhered to include:

- The control of lighting;
- The control of noise and vibration;
- The management of sediment and surface waters;
- The management of concrete; and
- Other pollution prevention measures (including dust and chemicals);

181. Works in the vicinity of designated sites or with the potential to affect them will be fully reviewed before commencement and will be communicated as part of Toolbox talks. Additional controls are specified for the following designated sites to reduce the potential for adverse effects.

A5.3.11.2.1 Eakring and Maplebeck Meadows SSSI

182. Eakring and Maplebeck Meadows SSSI is located adjacent to a minor road on which new passing places will be constructed. The construction of the passing places must not take place between March and August. This is to prevent disturbance to breeding birds which are a notified feature of the SSSI.

A5.3.11.2.2 Laxton Sykes SSSI

183. Laxton Sykes SSSI is located 650 m downstream from the Order Limits. It is essential that measures to avoid waterborne pollution are implemented in full in the upstream work areas. These measures will be reviewed before works commence.

A5.3.11.2.3 Mather Woods SSSI

184. Mather Woods SSSI is located outside the Order Limits, approximately 45 m from the nearest work area (cabling). It is essential that measures to avoid waterborne pollution and dust are implemented in full in the nearby work areas. These measures will be reviewed before works commence. Protective fencing will be erected around the cable works in the open field to the east of the SSS to maintain separation of works from the woodland.

A5.3.11.2.4 Local Wildlife Sites

185. There are 16 Local Wildlife Sites within or bordering the Order Limits, 15 of which are noted for their botanical interest and one for its water beetle populations. Each LWS has its own unique ecological sensitivities and these will be reviewed by the ECoW in the context of proposed works to inform mitigation requirements.

A5.3.11.3 HABITATS AND VEGETATION

186. Works will take place mostly in agricultural land which is generally considered to be a habitat of limited ecological value. Exclusion buffers have been designed into the Development and the measures in the CEMP will provide further safeguards, particularly of freshwater features, such that the vast majority of works will not impact higher value habitats. Nonetheless, higher value habitats have been recorded within and near work areas.

A5.3.11.3.1 Legal and Conservation Status

187. Ancient Woodland is a priority habitat and, with ancient and veteran trees, are classified as ‘irreplaceable’ habitats under Biodiversity Net Gain (BNG) legislation and guidance. Some trees may be subject to Tree Protection Orders.

188. Hedgerows are a priority habitat under the NERC Act 2006.

A5.3.11.3.1.1 Potential Effects of Works

189. Construction activities that could affect trees and hedgerows are summarised in Table A5.3.1.

Table A5.3.1 Potential Effects on Trees and Hedgerows

Effect	Example Activity
Direct harm to above-ground structures (e.g. tree branches)	Physical damage caused by machinery
Direct harm to below-ground structures (e.g. plant roots)	Physical damage caused by groundworks and soil compaction
Direct harm from pollution	Fuel spills

A5.3.11.3.2 Mitigation

A5.3.11.3.2.1 Woodland and Trees

190. Root Protection Areas (RPAs) will be defined for all trees and woodland in work areas and no works will be permitted within these without the consent of the ECoW. If necessary, the RPAs will be clearly identified on site and physical barriers will be erected to protect them. For the avoidance of doubt, the Arboricultural Impact Assessment (AIA) (TA A8.12 [EN010162/APP/6.4.8.12]) defines protective measures and RPAs for 'high impact' works and provides method statements for working near retained trees:

- All mature Trees and Woodland: RPAs will be assumed to be 15 m from the base of a tree or woodland. No ground works or material storage will take place in these areas without the consent of the ECoW, who in turn may consult with an Arboriculturist.
- Ancient and Veteran trees: If a tree is suspected to be an ancient or veteran specimen, the RPA will be increased to at least 15 times the diameter of the tree. The buffer zone should be 5 m from the edge of the tree's canopy if that area is larger than 15 times the tree's diameter.

A5.3.11.3.2.2 Hedgerows

191. A separation distance of 5 m from hedgerow centres has been designed into the Development. In nearly all cases, this exceeds the distance between hedgerows and current agricultural operations, and so hedgerows are likely to be subjected to a generally low level of disturbance.

192. Some hedgerow removals will be required. Where possible, mitigation will include elements of the following:

- Reduce losses to the minimum needed to undertake works;
- Carry out works in winter, including coppicing hedgerows to reduce their potential to support breeding birds;
- Microsite works to existing gaps and the least sensitive hedgerows (or parts thereof), under the guidance of the ECoW;
- Safeguard (e.g., with fencing) sections of hedgerows for which no works are proposed;
- Where a hedgerow gap/loss is not needed for operational purposes, reinstate it with new planting of greater species richness; and
- For particularly notable hedgerows (e.g. old or species-rich), translocate hedgerows to receptor areas (or reinstate upon completion of works). The method of translocation will be context specific.

A5.3.11.3.2.3 Grassland and Agricultural Land

193. Mitigation for works affecting grassland and agricultural land will follow the measures in the Soil Management Plan. Wherever possible, temporary ground works will be reinstated as soon as possible upon completion of works. If necessary, temporary trackways (e.g., track matting) may be used to reduce the risk of rutting in areas without permanent tracks that could lead to soil damage/erosion and runoff, particularly during wet weather.

A5.3.11.3.2.4 Vegetation Clearance

194. A vegetation clearance phasing plan will be produced in the final CEMP. This will enable vegetation clearance to be coordinated with construction activities and completed at the least sensitive times of the year.

A5.3.11.4 GREAT CRESTED NEWT

A5.3.11.4.1 Legal and Conservation Status

195. Great crested newt is strictly legally protected by the Wildlife and Countryside Act 1981 and the Habitats Regulations; it is also a priority and Local Biodiversity Action Plan (LBAP) species.

A5.3.11.4.2 Potential Effects of Works

196. Construction activities that could affect great crested newt are summarised in Table A5.3.2.

Table A5.3.2 Potential Effects on Great Crested Newt

Effect	Example Activity
Terrestrial habitat loss (temporary)	Vegetation clearance and ground works
Harming or killing individuals	Vehicle movements. Entrapment in excavation.

A5.3.11.4.3 Mitigation

197. Works will take place almost wholly in arable land, a terrestrial habitat of very limited value to great crested newts and subject to high levels of pre-existing disturbance. No ponds will be directly affected by the works (as per the safeguards in the CEMP). Consequently, the likelihood of encountering great crested newts during the works is low. A limited amount of higher value terrestrial habitat may be affected by work. The following reasonable avoidance measures are proposed for works taking place within 250 m of great crested newt ponds.

- The localised phasing of the construction will enable works in arable land in close proximity to great crested newt ponds to be completed between November and February (weather dependent), outside the main activity period for the species;
- No more than seven days before the start of work, and periodically during works, the ECoW will assess work areas within 250 m of great crested newt ponds for their potential to support great crested newts. It is assumed that arable habitats have negligible value and works in them may proceed without restrictions;

- Removal of higher value terrestrial vegetation will ideally take place when temperatures are continuously more than 5°C (typically March to October);
- Vegetation will be removed in phases so that its height is successively reduced over several days. The vegetation may also be cleared in the direction of more favourable or undisturbed habitats;
- Conditions will be managed to reduce suitability for great crested newt, such as maintaining bare earth and avoiding the creation of temporary pools;
- The ECoW may carry out additional checks place before and on the same days as works, including reinstatement (i.e., checking trenches and stockpiled soils);
- The duration of works will be minimised;
- Open excavations will be securely covered overnight or otherwise include a safe means of escape. Excavations will be checked for the presence of wildlife before works to them recommence;
- In the very unlikely event that great crested newts are identified in a work area, works will cease and the ECoW will provide advice to ensure that works proceed in a sensitive manner; and
- If other amphibians are discovered in a work area they will be translocated to suitable receptor areas outside the work area.

A5.3.11.5 GRASS SNAKE

A5.3.11.5.1 Legal and Conservation Status

198. Grass snake is protected from intentional harm by the Wildlife and Countryside Act 1981; it is also a priority and Local Biodiversity Action Plan (LBAP) species.

A5.3.11.5.2 Potential Effects of Works

199. Construction activities that could affect grass snake are summarised in Table A5.3.3.

Table A5.3.3 Potential Effects on Grass Snake

Effect	Example Activity
Terrestrial habitat loss (temporary)	Vegetation clearance and ground works
Harming or killing individuals	Vehicle movements. Entrapment in excavation.

A5.3.11.5.3 Mitigation

200. Works affecting riparian vegetation have the greatest potential to affect grass snake. Other common and widespread reptile species may be present at very low density and will be associated with a variety of less disturbed habitats. It is assumed that arable habitats have negligible value and works in them may proceed without restrictions. The following measures will be implemented, where possible, to safeguard reptiles:

- Works will be microsited to avoid areas of high-value reptile habitat;

- Works affecting high-value reptile habitats will ideally be undertaken in the summer months (April to September) when the species are most active;
- Removal of higher value terrestrial vegetation will ideally take place when temperatures are continuously more than 5°C (typically March to October);
- Vegetation will be removed in phases so that its height is successively reduced over several days. The vegetation may also be cleared in the direction of more favourable or undisturbed habitats;
- Vegetation may be managed to reduce its suitability for reptiles, such as maintaining grass at a short length;
- No more than seven days before the start of work, and periodically during works, the ECoW will assess work areas for their potential to support reptiles;
- If reptiles are discovered in a work area, they will be translocated to suitable, nearby receptor areas outside the work area.

A5.3.11.6 BREEDING BIRDS

A5.3.11.6.1 Legal and Conservation Status

201. Breeding (nesting) birds are protected by the Wildlife and Countryside Act (WCA) 1981. The level of protection is increased for species listed in Schedule 1 of the Act. Many species are also conservation priorities at national and local scales.

A5.3.11.6.2 Potential Effects of Works

202. Construction activities that could affect breeding birds are summarised in Table A5.3.4.

Table A5.3.4 Potential Effects on Breeding Birds

Effect	Example Activity
Damage to or destruction of an active or under-construction nest (including harm to birds and eggs)	Ground works and vehicle movements
Disturbance of nesting Schedule-1 species and their young	Heavy plant operating near a nest site

A5.3.11.6.3 Mitigation

203. The breeding bird season is defined as March to August inclusive, although some species may breed outside this period. Works taking place outside the nesting season may proceed without restrictions. The remainder of this method statement relates to works taking place between March and August.

204. *Surveys will be conducted ahead of works to determine the presence of sensitive breeding species.*

- Baseline studies have recorded four breeding Schedule-1 species: Red Kite, Barn Owl, Kingfisher, Hobby and Peregrine. Surveys to locate the nests of these species may, depending on context, extend up to 500 m

from work areas, incorporate species-specific methods, and be undertaken several weeks in advance of works;

- The ECoW will check work areas for active nests before works start. This check will take place no more than 48 hours before works and will be repeated if works have not been completed within this time;
- If the checks and surveys confirm that nesting birds are absent from an area, works may proceed without further mitigation;
- If a nesting bird is recorded in or near a work area, an appropriate exclusion zone around the nest will be determined by the species, landscape context (e.g., presence of natural screening), and the character of the works (e.g., magnitude, duration or frequency of disturbance). The exclusion zone will be clearly delineated and communicated. No potentially harmful or disturbing works will be permitted in an exclusion zone until an ecologically sensitive and legally compliant solution is in place, or until it can be confirmed by the ECoW that the nest has been vacated; and
- Upon the natural conclusion of the breeding attempt (i.e., once breeding has finished and all adults and young have vacated the nest), works may commence in the exclusion zone;

205. In addition to the above measures, should it be necessary to schedule critical construction activities within the breeding season in open farmland or grassland, visual deterrents such as reflective bunting or kite hawks will be deployed before the commencement of the breeding season to dissuade birds from nesting. These will be removed when works start.

206. Wherever possible, vegetation removal and management will be timed to minimise harm or disturbance to nesting birds. This will be considered as part of a vegetation clearance phasing plan.

207. The phasing of construction will result in areas of retained and created/enhanced habitats that are not scheduled for construction during the prevailing breeding season. These areas will be managed to provide undisturbed areas to maximise nesting opportunities for birds.

A5.3.11.7 BADGER

208. Badger setts and signs have been recorded throughout the Order Limits. The locations of setts will be made available to the ECoW.

A5.3.11.7.1 Legal and Conservation Status

209. Badger receives strict protection under the Protection of Badgers Act 1992 but is not otherwise considered a conservation priority.

A5.3.11.7.2 Potential Effects of Works

210. Construction activities that could affect badger are summarised in Table A5.3.5.

Table A5.3.5 Potential Effects on Badger

Effect	Example Activity
Direct damage to and destruction of setts	Ground works and vehicle movements near a sett

Disturbance of badgers in a sett	Heavy plant operating near a sett
Harming or killing individuals	Entrapment in excavation

A5.3.11.7.3 Mitigation

211. Badgers are active throughout the year, although there are certain times (e.g., the breeding season) when they are more sensitive to disturbance. The existing baseline suggests that a licence from Natural England to allow interference with a sett will not be required. Mitigation will be based on the results the pre-commencement surveys and the characteristics of the proposed works and may include the following:

- Pre-construction survey to identify setts within 30 m of work areas. This survey should be undertaken no more than seven days before the start of works and repeated if works have not been completed within a seven-day period;
- Should an active badger sett be identified within 30 m of the works, the ECoW will assess the risk from the works and define an appropriate exclusion zone, which may be less than 30 m in some circumstances. The size of the exclusion zone will be determined by the sett type and the characteristics of the immediate works area and construction
- Exclusion zones will be clearly communicated and demarcated;
- If the exclusion zone cannot be achieved, additional monitoring (to determine sett occupancy) of the sett will be carried out over 21 days, the results of which will determine the approach to sett exclusion, including, if necessary, under licence from Natural England licence. Exclusion of an active sett can only be undertaken between July and November and may require compensation; linear works (e.g. including cabling, fencing and road construction) of more 200 m will, outside of works hours, maintain safe and unimpeded passage for badgers and other wildlife;
- Open excavations will be securely covered over night or include a means of escape; and
- Excavations will be checked for the presence of badgers and other wildlife before works in them, including reinstatement, recommence. In the event that badgers or other wildlife are present, the ECoW will be responsible for taking the necessary action.

A5.3.11.8 WATER VOLE

A5.3.11.8.1 Legal and Conservation Status

212. Water vole is strictly legally protected by the Wildlife and Countryside Act 1981 and is a priority and LBAP species.

A5.3.11.8.2 Potential Effects of Works

213. Construction activities that could affect water vole are summarised in Table A5.3.6.

Table A5.3.6 Potential Effects on Water Vole

Effect	Example Activity

Disturbance of a breeding site or resting place	Heavy plant operating near burrows
Harming or killing individuals	Ground works near burrows

A5.3.11.8.3 Mitigation

214. Works in watercourses and riparian vegetation have the greatest potential to affect water voles. These works relate mainly to new crossings of watercourses by access tracks and cables.

215. Mitigation will be based on the results the pre-commencement surveys and the characteristics of the proposed works and may include the following:

- A pre-construction survey will be carried out to identify evidence of water vole within 100 m of the fullest extent of work areas affecting watercourses and the riparian zone. The survey should be undertaken between April and September and no more than seven days before the start of works;
- If no evidence is recorded, works may proceed without further species-specific mitigation;
- If evidence is recorded, the ECoW will determine the need for and scope of licensed mitigation
- Displacement of water voles, if required, is likely to be possible under a class licence[17] from Natural England. This provides an effective approach to mitigation for the localised works that characterise the Development (i.e., less than 50 m linear length of watercourse affected in a 500 m stretch);
- Multiple simultaneous crossings of the same watercourse within 500 m of each other will not be permitted;
- Water voles will be displaced from the works area into adjacent, unaffected suitable habitat; and
- Habitats will be reinstated, where possible, or otherwise adjacent areas will be enhanced.

A5.3.11.9 OTTER

216. Evidence of otter, including potential resting places, has been recorded in watercourses throughout the Order Limits.

A5.3.11.9.1 Legal and Conservation Status

217. Otter is strictly legally protected by the Wildlife and Countryside Act 1981 and the Habitats Regulations; it is also a priority species.

A5.3.11.9.2 Potential Effects of Works

218. Construction activities that could affect otter are summarised in Table A5.3.7.

[17] Natural England (2025). Licence to intentionally damage or destroy water vole burrows by displacement (CL31). Available at: https://www.gov.uk/government/publications/water-voles-licence-to-displace-them-for-development-projects/water-voles-licence-to-intentionally-disturb-and-damage-or-destruct-their-burrows-by-displacement-licence-cl31 [accessed on 20/05/2025]

Table A5.3.7 Potential Effects on Otter

Effect	Example Activity
Disturbance of a breeding site or resting place	Heavy plant operating near a breeding site
Harming or killing individuals	Entrapment in excavation

A5.3.11.9.3 Mitigation

219. Works in and near watercourses have the greatest potential to affect otters. Otter holts may be present away from watercourses, although usually in well-connected habitats. The distance over which the species is sensitive to disturbance may extend to approximately 150 m from a breeding site. The suitability of watercourses to support otter varies across the site and will be confirmed by the pre-commencement surveys. This method statement relates only to watercourses with potential to support otter.

- A pre-works survey will be undertaken to identify evidence of otter, including potential resting places, within 150 m of the fullest extent of works areas affecting a watercourse. The survey will be undertaken no more than seven days before the start of works and repeated periodically during works;
- If no evidence is recorded, works may proceed without further specialist mitigation.
- If evidence is recorded, the ECoW will determine the need for a licence after considering the nature of the evidence, the character of works and potential reasonable avoidance measures;
- Works with the potential to disturb an otter holt will be avoided or postponed until the holt is demonstrably inactive; this will be demonstrated through additional surveys. There is a presumption against loss of or disturbance to holts (and associated licencing);
- Works with the potential to generate noise, vibration and visual disturbance, including HDD, will be avoided or otherwise limited within 150 m of a holt or within 30 m of other suitable watercourses. The distance over which disturbance might occur will depend on the local context (e.g. screening or the presence of background disturbance from roads or rail lines) and so the ECoW will have the discretion to vary an exclusion zone. Disturbance will be reduced through one or more of the following:
- Noise screening will be erected;
- Visual screening will be erected;
- Low noise generating plant will be used;
- The duration and frequency of works will be limited;
- Multiple crossings of the same watercourse will not happen simultaneously;
- Works will be relocated to a less sensitive area;
- Works will be programmed to a less sensitive time of year;
- Nighttime works and lighting will not be permitted; and
- Open excavations will be checked for the presence of otters and other wildlife before works in them recommence.

A5.3.11.10 BATS

A5.3.11.10.1 Legal and Conservation Status

220. Bats are strictly legally protected by the Wildlife and Countryside Act 1981 and the Habitats Regulations; they are also priority species.

A5.3.11.10.2 Potential Effects of Works

221. Construction activities that could affect bats are summarised in Table A5.3.8.

Table A5.3.8 Potential Effects on Bats

Effect	Example Activity
Disturbance of a breeding site or resting place	Heavy plant operating near to a tree roost
Harming or killing individuals	Damage to a tree roost
Disturbance of bat activity	Nighttime lighting

A5.3.11.10.3 Mitigation

222. Trees have the potential to support roosting bats and any works to them risks harming or disturbing roosting bats. Bats are active at nighttime and so lighting and other nighttime works have the potential to disturb their activity.

- The AIA includes measures to safeguard retained trees during construction;
- Some tree works and felling may be required and these will be
- preceded by a ground-level tree assessment (GLTA) to determine the potential of the affected trees to support roosting bats;
- No works will take place to a tree with potential roost features without further advice from a suitably licensed ecologist who will provide guidance on additional surveys (e.g., tree climbing and/or activity surveys), mitigation and licensing requirements;
- A Natural England mitigation licence will be obtained as necessary; and
- Notwithstanding the above, works and lighting within 15 m of high-value bat habitats (e.g. watercourses and woodland edges) between the hour before sunrise and the hour before sunset will be subject to approval by the ECoW; and
- Nighttime lighting in the vicinity of woodland and potential tree roosts will be controlled and specified with reference to the Institute of Lighting Engineers guidance to reduce impacts to bats[18].

A5.3.11.11 FISH

223. European eel, river lamprey, bullhead and brown trout have been recorded in watercourses that may be affected by works.

A5.3.11.11.1 Legal and Conservation Status

224. European eel is protected by the Eels (England and Wales) Regulations 2009 and is a species of principal importance. Bullhead and river lamprey

[18] Institute of Lighting Engineers (2023). Guidance Note GN08/23 Bats and Artificial Lighting at Night.

are listed in Annex II of the EU Habitats Directive. Brown trout is species of principal importance.

A5.3.11.11.2 Potential Effects of Works

225. Construction activities that could affect fish are summarised in Table A5.3.9.

Table A5.3.9 Potential Effects on Fish

Effect	Example Activity
Disturbance of freshwater habitats	Pollution run-off into watercourse
Direct harm of individuals	In-channel construction activities may disturb fish whilst spawning

A5.3.11.11.3 Mitigation

226. The locations of watercourse crossings are provided in section A5.3.13. The most sensitive watercourses, including those with the greatest potential to support fish, will be crossed with HDD or single-span structures, including associated safeguards, thereby avoiding or greatly reducing direct effects.

- Watercourses will be managed to maintain connectivity, ensuring passage for fish and other aquatic species. During construction and decommissioning, where drawdown or over-pumping is required, fish rescues would be conducted as necessary. Additionally, eel screens would be fitted to pump inlets and outlets;
- In-channel works may be programmed to avoid sensitive times of the year which may include:
  - European eel spring (February to May) and autumn migration (August to December);
  - Brown trout and Atlantic salmon spawning (November to January);
  - Bullhead spawning (March to May);
  - River lamprey spawning (April to May)
- The specification for HDD will be determined on a case-by-case basis such that impacts from noise, vibration and electromagnetic fields are below acceptable thresholds;
- Where new culverts are required on watercourses, they will be designed to maintain connectivity and allow fish passage. Where feasible, culvert extensions would be set 150 mm below bed level to promote sedimentation and the formation of a naturalised bed, ensuring uninterrupted connectivity without drop inlets or outlets;
- Open-cut methods may be used for some cable crossings, typically on the lowest sensitivity watercourses. Impacts would be temporary, and habitats expected to recover within two years, with aquatic species naturally re-colonizing from adjacent areas; and
- Night-time illumination of watercourses will be avoided to prevent disturbance to sensitive phototactic species.

A5.3.11.12 BIOSECURITY

227. Invasive non-native species (INNS) are animals and plants that grow in an area in which they do not naturally occur and that have the ability to spread rapidly causing environmental, economic and health impacts. Invasive animal and plant species have been recorded or have the potential to be present within the Order Limits. Some INNS are not readily observable through visual checks and watercourses may act as a vector for them, potentially affecting the wider catchment.

A5.3.11.12.1 Legal and Conservation Status

228. Under the Wildlife and Countryside Act 1981 (as amended) it is an offence to plant or otherwise cause to grow in the wild any such species listed in Schedule 9, Part I or Part II of Section 62 of Act. The Invasive Non-native Species (Amendment etc.) (EU Exit) Regulations 2019[19] include a list of invasive species of special concern. Material containing invasive plant material must be disposed of as controlled waste.

A5.3.11.12.2 Potential Effects of Works

229. Construction activities that could affect INNS are summarised in Table A5.3.10.

Table A5.3.10 Potential Effects on INNS

Effect	Example Activity
Outcompeting or harming native species	Moving contaminated material off-site.

A5.3.11.12.3 Mitigation

230. Mitigation aims to prevent the spread of INNS.

- A pre-works survey will be undertaken to identify INNS, or the potential presence of them, in work areas, noting that some species are not readily observable;
- The ECoW will assess the risk from the works and define an appropriate zone within which works will be restricted. This risk zone will be clearly fenced and communicated;
- If avoidance of an INNS risk zone is not possible, appropriate measures will be implemented. The measures are highly species and context dependent and may include:
  - A 'Check, clean, dry'[20] protocol will be adopted by all site personnel, particularly for works in or near water;
  - Personnel working on or between sites or areas should ensure their clothing and footwear are cleaned to prevent spread;
  - Tracked vehicles should preferably not be used in the areas of risk;

[19] UK Government (2019). The Invasive Non-native Species (Amendment etc.) (EU Exit) Regulations 2019. Available at: https://www.legislation.gov.uk/ukdsi/2019/9780111176269 [accessed on 28/04/2025]
[20] GB Non-Native Species Secretariat Website. Available at: https://www.nonnativespecies.org/what-can-i-do/check-clean-dry [accessed on 28/04/2025]

- All vehicles leaving a risk area and/or transporting potentially contaminated soil/materials must be thoroughly pressure-washed in a designated wash-down area before being used for other work;
- Where cross-contamination is possible (i.e., from one site to another), vehicles or machinery should be designated to specific sites;
- Material/water left after vehicles have been cleaned must be contained, collected and disposed of appropriately;
- Minimise the movement of soils within site and move only soils that are free from contamination;
- Water abstraction will only be permitted from sources free from contamination;

- Species-specific management plans will be developed with input from suitably qualified professionals who may be required to undertake surveys, provide management advice, and to implement management actions, including onsite remediation or removing contaminated material offsite under licence; and
- Management plans will be made available to relevant site personnel and will include maps showing the locations of INNS and associated exclusion and management areas; the responsibilities of the workforce; good practice biosecurity for minimising the spread of INNS (including importing to site).

A5.3.12 INCIDENT RESPONSE PLAN

231. An incident response plan will be developed by the contractor prior to the start of construction.

A5.3.13 CROSSINGS SCHEDULE

232. The construction of new access tracks, cabling and fences will cross existing roads, habitats/vegetation (including those associated with designated sites) and watercourses.

233. The locations of some of these crossings can be determined with a reasonable degree of accuracy from the Work Areas. For example, Work no. 2, Cables, tends to be a 60 m-wide corridor therefore limiting the area within which the cable crossing may take place in a given location. The location and number of crossings by new fences, access tracks and cables within other Work Areas has a much higher degree of flexibility because the design of these features will be finalised following consent of the DCO. However, the illustrative design provides a basis for estimating the approximate locations.

A5.3.13.1 CABLE CROSSINGS

234. Figure A5.3.1 (Appendix A) shows the locations of cable crossings and the method by which the crossing will be undertaken. Table A5.3.11 summarises the crossings methods and the reasoning for them.

235. Watercourse crossings by cables will take one of several forms depending on the nature of works, habitat sensitivity, and other environmental and technical design considerations. HDD will be the default option for watercourse crossings and is the least invasive, most sensitive method,

although it may not be suitable or necessary in some locations, such as for small field drains, for which open trenching is proposed.

236. The exact location of each crossing will be determined as part of the detailed design following consent, but will be of the identified feature within the limits of the Work no. 2 Cables.

Table A5.3.11 Cable Crossings within Work no. 2 Cables

Crossing ID	Method	Rationale
WCRCP1	Open Trench	Road width not sufficient for half & half (see note 1, below) with temporary traffic signals
RCP2	HDD or Open Trench	Road wide enough for half & half with temporary traffic signals. HDD may be needed for non-traffic reasons
RCP3	HDD or Open Trench	Road wide enough for half & half with temporary traffic signals. HDD may be needed if NCC do not want disruption to A road
WCRCP6	Open Trench	Road wide enough for half & half with temporary traffic signals
RCP5	Open Trench	Road wide enough for half & half with temporary traffic signals
WDRCP1	HDD	Road width not sufficient for half & half with temporary traffic signals. Woodland present means that HDD is necessary. Lake Plantation LWS. Mature mixed woodland.
RCP7	Open Trench	Road width not sufficient for half & half with temporary traffic signals
RCP8	HDD	High-volume traffic road
RCP9	HDD	Wide enough but HV cable is large so HDD
RCP10	Open Trench	Road width not sufficient for half & half with temporary traffic signals
WCRCP8	Open Trench	Road wide enough for half & half with temporary traffic signals
WCRCP9	Open Trench	Road width not sufficient for half & half with temporary traffic signals

Crossing ID	Method	Rationale
RCP14	Open Trench	Road wide enough for half & half with temporary traffic signals
RCP15	Open Trench	Road width not sufficient for half & half with temporary traffic signals
RCP18	Open Trench	Road wide enough for half & half with temporary traffic signals
RCP19	Open Trench	Road width not sufficient for half & half with temporary traffic signals
WCRCP7	HDD or Open Trench	Road wide enough for half & half with temporary traffic signals. HDD needed if northern half crosses a Local Wildlife Site
WC1	HDD	Otter present. Water vole potential. WFD Watercourse.
WC2	HDD	WFD Watercourse.
WC3	Open Trench	
WC4	Open Trench	
WC5	Open Trench	
WC6	Open Trench	
WDWC1	HDD	Large black of broadleaved woodland.
WC10	Open Trench	
WC11	Open Trench	
WC12	Open Trench	
WDWC2	HDD	Upstream of Laxton Sykes SSSI.
WC16	HDD	Otter present. Water vole potential. WFD Watercourse.
WC17	Open Trench	
WC18	HDD	Otter present. Water vole present. Mature trees.
WCRCP3	HDD	Upstream of Eakring and Maplebeck Meadows SSSI.

Crossing ID	Method	Rationale
WCRCP4	HDD	Upstream of Eakring and Maplebeck Meadows SSSI.
WCRCP5	HDD	Upstream of Eakring and Maplebeck Meadows SSSI.
WC22	HDD	Upstream of Eakring and Maplebeck Meadows SSSI.
WC23	HDD	Upstream of Eakring and Maplebeck Meadows SSSI. Otter and water vole potential.
WC24	Open Trench	
WC25	HDD	Otter present. Water vole present. WFD Watercourse. With Clear Span Bridge.
WC26	Open Trench	
WC27	Open Trench	
WC28	Open Trench	
WC30	Open Trench	
WC31	Open Trench	
WC33	Open Trench	
WC34	Open Trench	
WC35	Open Trench	
WC36	Open Trench	
WDWC3	HDD	Crosses a Local Wildlife Site. Hydrological connectivity to Laxton Sykes Site of Special Scientific Interest
WCRCP2	HDD	Crosses a Local Wildlife Site. Road width not sufficient for half & half with temporary traffic signals.
WC37	HDD or Open Trench	WFD Watercourse.
WC38	HDD or Open Trench	WFD Watercourse.
WC43	HDD	WFD Watercourse.
WC39	Open Trench	

Crossing ID	Method	Rationale
WC40	Open Trench	
WC41	Open Trench	
WC42	Open Trench	

237. Note 1: Contraflow system in which access is maintained along half of the carriageway at all times.

A5.3.13.2 ACCESS CROSSINGS

238. Figure A5.3.2 (Appendix A) shows the locations of track and road crossings of watercourses based on the illustrative design.

239. New crossings by access tracks will be either temporary or permanent and will take one of the following forms and their locations and method will be determined as part of the detailed design following consent. The candidate crossing types are listed in order of least to most impact and are likely to be appropriate, respectively, for the most to least sensitive features:

- Open-span structures that do not interfere with the channel (banksides, bed or water column);
- Span structures with in-stream supports or pre-cast structures with natural bed; and
- Closed culverts with artificial invert.

A5.3.13.3 FENCE CROSSINGS

240. Figure A5.3.3 (Appendix A) shows Work no.s 1, 4, 5a, 5b, 6, 7, which are the maximum extend of fenced areas, and the watercourses within them. There are no large watercourses in these areas, only small ditches and field drains.

241. Fence crossings of these watercourses will, wherever possible, follow new and existing access tracks to reduce adverse effects.

A5.3.14 SPECIFIC DETAILED-DESIGN PROHIBITIONS

242. To avoid potential flooding impacts on the function of the floodplain, , no construction compounds will be located in Flood Zone 3a or 3b.

APPENDIX A - FIGURES