EP UK Investments

South Humber Bank Energy Centre Project

Planning Inspectorate Reference: EN010107

South Marsh Road, Stallingborough, DN41 8BZ

The South Humber Bank Energy Centre Order

Document Reference: 8.2 Applicant's Response to the Examining Authority's First Written Questions

The Planning Act 2008
The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

Applicant: EP Waste Management Ltd
Date: December 2020

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GLOSSARY

Abbreviation	Description
ACC	Air-cooled condenser.
AGI	Above Ground Installation.
AOD	Above Ordnance Datum
BAT	Best Available Techniques
BEIS	Department for Business, Energy and Industrial Strategy.
BoR	Book of Reference
CCGT	Combined Cycle Gas Turbine.
CEMP	Construction Environmental Management Plan
CFA	Continuous Flight Auger Piling
DCO	Development Consent Order: provides a consent for building and operating an NSIP.
DRS	Deposit Return Schemes
EfW	Energy from Waste: the combustion of waste material to provide electricity and/or heat.
EIA	Environmental Impact Assessment.
ELV	Emission Limit Value
EPUKI	EP UK Investments Ltd.
EPWM	EP Waste Management Limited ('The Applicant')
EPR	Extended Producer Responsibility
ES	Environmental Statement.
EU BPR	European Union Biocides Regulations
ExA	Examining Authority: An inspector or panel of inspectors appointed to examine the application.
FGT	Flue Gas Treatment
HRA	Habitats Regulations Assessment Signposting
IAQM	Institute of Air Quality Management
IED	Industrial Emissions Directive
LSE	Likely Significant Effects

mAOD	Metres Above Ordnance Datum.
MSW	Municipal Solid Waste
MHW	Mean High Water
MW	Megawatt: the measure of power produced.
NELC	North East Lincolnshire Council.
NGET	National Grid Electricity Transmission plc
NGG	National Grid Gas plc
NIC	National Infrastructure Commission
NPG	Northern Powergrid (Yorkshire) plc
NPS	National Policy Statement.
NSIP	Nationally Significant Infrastructure Project: for which a DCO is required.
PA 2008	Planning Act 2008.
PDAS	Planning, Design and Access Statement
PEIR	Preliminary Environmental Information Report - summarising the likely environmental impacts of the Proposed Development.
PINS	Planning Inspectorate.
PMP	Preventative Maintenance Plan
PPWs	Permitted Preliminary Works
PRoW	Public Rights of Way
Q1	Quarter 1
RDF	Refuse derived fuel.
SHBEC	South Humber Bank Energy Centre.
SHBPS	South Humber Bank Power Station.
SHG	South Humber Gateway
SoCC	Statement of Community Consultation: sets out how a developer will consult the local community about a proposed NSIP.
SoS	Secretary of State.
SPA	Special Protection Area
UK BPR	United Kingdom Biocidal Products Regulations
ZTV	Zone of Theoretical Visibility

CONTENTS

TABLES

APPENDICES

1.0 INTRODUCTION

1.1 Overview

1.1.1 This 'Applicant's Response to the Examining Authority's First Written Quesitons' document (Document Ref. 8.2) has been prepared on behalf of EP Waste Management Limited ('EPWM' or the 'Applicant'). It forms part of the application (the 'Application') for a Development Consent Order (a 'DCO'), that has been submitted to the Secretary of State (the 'SoS') for Business, Energy and Industrial Strategy, under section 37 of 'The Planning Act 2008' (the 'PA 2008').

1.1.2 EPWM is seeking development consent for the construction, operation and maintenance of an energy from waste ('EfW') power station with a gross electrical output of up to 95 megawatts (MW) including an electrical connection, a new site access, and other associated development (together 'the Proposed Development') on land at South Humber Bank Power Station ('SHBPS'), South Marsh Road, near Stallingborough in North East Lincolnshire ('the Site').

1.1.3 Full planning permission ('the Planning Permission') was granted by North East Lincolnshire Council ('NELC') for an EfW power station with a gross electrical output of up to 49.9 MW and associated development ('the Consented Development') on land at SHBPS ('the Consented Development Site') under the Town and Country Planning Act 1990 on 12 April 2019. Since the Planning Permission was granted, the Applicant has assessed potential opportunities to improve the efficiency of the EfW power station, notably in relation to its electrical output. As a consequence, the Proposed Development would have a higher electrical output (up to 95 MW) than the Consented Development, although it would have the same maximum building dimensions and fuel throughput (up to 753,500 tonnes per annum (tpa)).

1.1.4 The application was submitted to PINS on 09 April 2020 and accepted for examination by PINS on 04 May 2020.

1.2 The Applicant

1.2.1 The Applicant is a subsidiary of EP UK Investments Limited ('EPUKI'). EPUKI owns and operates a number of other power stations in the UK and is a subsidiary of Energetický A Prumyslový Holding ('EPH'). EPH owns and operates energy generation assets in the Czech Republic, Slovak Republic, Germany, Italy, Hungary, Poland, Ireland, and the United Kingdom.

1.3 The Proposed Development Site

1.3.1 The Proposed Development Site (the 'Site' or the 'Order limits') is located within the boundary of the SHBPS site, east of the existing SHBPS, along with part of the carriageway within South Marsh Road. The principal access to the site is off South Marsh Road.

1.3.2 The Site is located on the South Humber Bank between the towns of Immingham and Grimsby; both over 3 km from the Site.

1.3.3 The Site lies within the administrative area of NELC, a unitary authority. The Site is owned by EP SHB Limited, a subsidiary of EPUKI, and is therefore

under the control of the Applicant, with the exception of the highway land on South Marsh Road required for the new Site access.

1.3.4 The existing SHBPS was constructed in two phases between 1997 and 1999 and consists of two Combined Cycle Gas Turbine (CCGT) units fired by natural gas, with a combined gross electrical capacity of approximately 1,400 MW. It is operated by EP SHB Limited.

1.3.5 The Site is around 23 hectares ('ha') in area and is generally flat, and typically stands at around 2.0 m Above Ordnance Datum (mAOD).

1.3.6 A more detailed description of the Site is provided at Chapter 3: Description of the Proposed Development Site in the Environmental Statement ('ES') Volume I (Document Ref. 6.2 / APP-034 to APP-055).

1.4 The Proposed Development

1.4.1 The main components of the Proposed Development are summarised below:

- Work No. 1— an electricity generating station located on land at SHBPS, fuelled by refuse derived fuel ('RDF') with a gross electrical output of up to 95 MW at ISO conditions;
- Work No. 1A— two emissions stacks and associated emissions monitoring systems;
- Work No. 1B— administration block, including control room, workshops, stores and welfare facilities;
- Work No. 2— comprising electrical, gas, water, telecommunication, steam and other utility connections for the generating station (Work No. 1);
- Work No. 3— landscaping and biodiversity works;
- Work No. 4— a new site access on to South Marsh Road and works to an existing access on to South Marsh Road; and
- Work No. 5— temporary construction and laydown areas.

1.4.2 Various types of ancillary development further required in connection with and subsidiary to the above works are detailed in Schedule 1 of the DCO.

1.4.3 The Proposed Development comprises the works contained in the Consented Development, along with additional works not forming part of the Consented Development ('the Additional Works'). The Additional Works are summarised below:

- a larger air-cooled condenser (ACC), with an additional row of fans and heat exchangers;
- a greater installed cooling capacity for the generator;
- an increased transformer capacity; and
- ancillary works.

1.4.4 A more detailed description of the Proposed Development is provided at Schedule 1 'Authorised Development' of the draft DCO and Chapter 4: The Proposed Development in the ES Volume I (Document Ref. 6.2 / APP-034 to

APP-055) and the areas within which each of the main components of the Proposed Development are to be built is shown by the coloured and hatched areas on the Works Plans (Document Ref. 4.3 / APP-010). Three representative construction scenarios (timescales) are described within Chapter 5: Construction Programme and Management in the ES Volume I (Document Ref. 6.2 / APP-034 to APP-055) and assessed in the Environmental Impact Assessment ('EIA').

1.5 Purpose of this Document

1.5.1 This document sets out the Applicant's responses to the Examining Authority's (ExA's) first set of written questions, which were issued on 17 November 2020.

1.5.2 The Applicant's responses are provided in Section 2, Table 2.1, with supporting material provided in the appendices.

2.0 APPLICANT'S RESPONSE TO EXAMINING AUTHORITY'S FIRST WRITTEN QUESTIONS

2.1.1 The Applicant's response to the ExA's first written questions are set out in Table 2.1 on the following pages of this document.

2.1.2 Table 2.1 includes the reference number for each relevant question, the ExA's comments and questions and the Applicant's response to each of those questions.

Table 2.1 Applicant's Response to the ExA's First Written Questions

ExQ1	Question to:	Question:	Response
1.	General and Cross-topic Questions		
Q1.0.1	The Applicant/ NELC	Reference to the Planning Permission granted by North East Lincolnshire Council (NELC) under their reference DM/1070/18/FUL, dated 12 April 2019, is made throughout the submitted documentation. Please enter a copy of: any supplementary reports provided by Officers of the Council's Planning Committee of the 12 April 2019 that relate to the Council's consideration of the Planning Application (DM/1070/18/FUL) and the minutes of that planning committee meeting relevant to the decision made on the planning application. Alternatively, please direct the Examining Authority (ExA) to where these documents have been provided in the documentation submitted as part of the Development Consent Order (DCO) application.	In response to Q1.0.1, the Applicant can advise that the planning application DM/1070/18/FUL was determined under delegated authority and was not determined at planning committee. The Applicant understands that the absence of outstanding objections from neighbours and consultees, and siting on existing employment land, were the main factors in the application not requiring a committee decision. The Officer's Report (contained at Appendix 2 of the Planning, Design and Access Statement (Document Ref. 5.5/ APP-024)) describes the position with regard to "representations received" and confirms the position under "conclusions": "There have been no objections from any neighbours and there are no outstanding objections from consultees." This followed technical engagement by the applicant with the local highways authorities, environmental health, landscape/ ecology officers, and others, prior to and during determination, and pre application community consultation including public exhibitions, writing to ward members, and the offer of meetings with parish councils. The pre application community consultation for the Consented Development is described at section 4.5 and Appendix 4.1 of the Consultation Report (Document Ref. 5.1 / APP-020).
Q1.0.2	The Applicant/ NELC	The Environmental Statement (ES) at Appendix 1A [APP-104] refers to the Applicant being likely to progress the Planning Permission (DC/1070/18/FUL) in accordance with the extant consent. Additionally, the ES at Chapter 4 (The Proposed Development) [APP-038] sets out a number of scenarios in regard to the construction programme of the proposed development. The first scenario, if implemented, indicates construction work would commence in the second quarter of 2020. However, during the Examining Authorities (ExA's) unaccompanied site inspection of the 24 August 2020 there was no obvious evidence of commencement of works granted by the Planning Permission referred to above. Please explain the current progress made with regard to the implementation of the Planning Permission, including the number of pre-commencement conditions that needed to be discharged prior to commencement, where the Applicant has reached in the discharge of those pre-commencement conditions and whether a lawful commencement of the Planning Permission is considered to have occurred. Additionally, in the light of the above, please explain the relationship of the Planning Permission and the DCO Application, as set out, in the ES and the conditions and requirements relied upon to inform the assessment that the development is extant.	In response to Q1.0.2 the Applicant provides below an update on progress with regards to the implementation of the Planning Permission (DC/1070/18/FUL). Further information on timings is provided in the Applicant's response to Q1.0.4 but in brief, the Planning Permission has not been implemented, and construction of the Consented Development (pursuant to the Planning Permission) is now likely to commence in Quarter 1 ('Q1') of 2021 and to continue for around three years. Please refer to Q1.0.4 for an update on the construction programme and the impact of COVID-19 on the procurement timetable. No further major delays are expected. Construction commencement corresponds to the date a contract will be signed with the Contractor and therefore may not necessarily correspond to the start of works on site. As shown in Table 5.2 of ES Volume I Chapter 5: Construction Programme and Management (Document Ref. 6.2/ APP-039), construction start includes a notional one month period of mobilisation and around three months of enabling works. The enabling works that would be carried out would be some or all of those in the "permitted preliminary works" defined in condition 3 of the Consented Development and Requirement 1 of the Draft DCO. To enable 'permitted preliminary works' such as fencing and contractor's facilities to get underway in a more timely manner following contract signing, the Applicant has recently decided that the piling works will not be carried out as 'permitted preliminary works' and has updated the Draft DCO submitted at Deadline 2 to show this (Requirement 1 is amended to remove piling works from the definition of 'permitted preliminary works' and Requirement 17 is amended to add an exclusion for 'permitted preliminary works'). The Applicant is also applying to North East Lincolnshire Council to vary Conditions 3 and 11 of the Planning Permission to make the same changes. Separately from the planning permission other progress has been made. Limited on site works have been carried out comprising seasonally constrained pond works and scrub removal. An Environmental Permit is in place for the Consented Development, and a variation application has been submitted to the Environment Agency for a stand-alone permit for the Proposed Development.

ExQ1	Question to:	Question:	Response
			Three conditions of the Planning Permission have been discharged to date as outlined below. Condition 10 'Construction Management Plan' (DM/0713/19/CND was discharged in respect of first phase works only on 27/09/2019 i.e. part discharged). Condition 13 (parts i -iv.) 'Contamination' (DM/0486/19/CND for part 1 was discharged on 12 June 2019 and DM/0626/20/CND for parts ii-iv was discharged on 17 September 2020 rendering the condition fully discharged). Condition 18 'Delivery and Servicing' (DM/1117/19/CND was discharged on 31/01/2020). The only other condition required to be discharge prior to commencement of all development relates to piling (Condition 11). This condition has not yet been discharged (and as noted above the Applicant is applying to vary Conditions 3 and 11 to remove piling from the definition of 'permitted preliminary works'), nor has development commenced. As such, lawful commencement of the Planning Permission has not yet occurred. The Planning Permission remains extant since Condition 1 of the Decision Notice (contained at Appendix 1 of the Planning, Design and Access Statement (Document Ref. 5.5/ APP-024)) states "The development hereby permitted shall commence within five years of the date of this permission", the latter date being 12th April 2019. Given the progress and the position outlined above the Applicant expects to implement the Consented Development promptly upon signing the contract with the preferred Contractor in Q1 2021.
Q1.0.3	The Applicant	Bearing the question above (Q1.0.2) in mind, please also explain to what extent the progress made has had with regards to implementation affects and is accounted for in baseline information presented within the ES?	In response to Q1.0.3, the Applicant confirms that the limited site works carried out to date under the Planning Permission (i.e. seasonally constrained pond works and scrub removal) have been taken into consideration within the ES for the Proposed Development with regards to changes in the baseline (since the Consented Development ES). The baseline ecological conditions presented in ES Volume I Chapter 10: Ecology (Document Ref. 6.2.10 / APP-044) and associated appendices in ES Volume III (Document Refs. 6.4.15-6.4.18 / APP-123-APP-126) take account of the limited site works that have been undertaken. No other elements of the EIA are considered to be affected by the limited site works that have been undertaken to date.
Q1.0.4	The Applicant	Please provide an update as to the construction programme and indicate which option currently represents the most likely proposed construction programme?	In response to Q1.0.4, the Applicant confirms that Construction Programme Scenario 1 (as described in ES Volume I Chapter 5: Construction Programme and Management (Document Ref. 6.2.5 / APP039)) remains the most likely scenario, although the construction start date is now expected to be Quarter 1 ('Q1') of 2021. Covid-19 has had a significant impact on the procurement programme, which has had knock on effects on the start date of construction. However, it is currently anticipated that there will be no further delays to the delivery programme. The first stage of construction will include detailed design and site preparation work prior to the commencement of the main development by the end of Quarter 2 ('Q2') of 2021. Following grant of a DCO for the Proposed Development (which would be expected during the first year of the three-year construction programme based on the revised construction programme), the Applicant would initiate powers to continue development under the Order instead of the Planning Permission. The Order includes appropriate powers and notification requirements for the 'switchover' between consents, to provide clarity for the relevant planning authority regarding the development authorised and the applicable conditions, requirements, and other obligations. Once the Order

ExQ1	Question to:	Question:	Response
			has been implemented the additional works would be constructed and the Proposed Development would be built out in full. The Proposed Development is expected to commence operation in 2024.
Q1.0.5	The Applicant and NELC	Please confirm which planning conditions imposed under NELC Planning Permission reference number DM/1070/18/FUL, dated 12 April 2019, are considered to be pre-commencement planning conditions. In responding please provide the condition number, a title for the condition (i.e. Ecology; Archaeology; Etc.), a brief synopsis of the purpose of the condition and its current status (i.e. whether it: has be discharged; remains outstanding; Etc.). Finally, if they remain outstanding, please confirm what is being done to enable the pre-commencement condition(s) to be discharged and how long it is anticipated the discharge of the relevant pre-commencement condition(s) will take?	In response to Q1.0.5, a total of 12 pre-commencement are listed below in with a short synopsis of the purpose of the condition and identification of the discharge status. Conditions are referenced by their numbers, since no official condition titles are identified on the Consented Development Decision Notice, which can be viewed at Appendix 2 of the Planning, Design and Access Statement (Document Ref. 5.5/ APP-024). • Condition 4. Final Design Details. Requires details of the final position of any buildings, finished floor levels, elevations and floor plans in accordance with approved plans. Not yet submitted. • Condition 5. External Building Materials. Requires details of all external materials to be used in construction of the buildings in accordance with approved plans. Not yet submitted. • Condition 7. Hard Landscaping. Requires details of hard landscaping. Not yet submitted. • Condition 9. Surface and Foul Water Drainage. Requires a scheme for the disposal of surface and foul water drainage including a future maintenance plan. Not yet submitted. • Condition 10. Construction Management Plan ('CEMP') (Phase 1 only). Requiring a CEMP to ensure to highway safety and protect local amenities during the construction process. Discharged 27 September 2019. • Condition 11. Piling. Requires detailed specifications of the type of piling to be used. Not yet submitted. • Condition 12. Unexpected Contamination. Requires development must not commence until condition 13 has been complied with and works to be halted if contamination is found. No submission required unless unexpected contamination is identified. • Condition 13 part i. Contamination Investigation. Requiring a survey of the extent, scale and nature of contamination. Discharged 12 June 2019. • Condition 13 part ii-iv. Contamination Investigation. Requiring an assessment of potential risk, the need for remediation and description of remediation scheme. Discharged 17 September 2020. • Condition 14. Verification Report. Requires the remediation scheme approved under condition 13 to be carried out and a verification report be submitted. Reports submitted for Condition 13 concluded no remediation is required and therefore no submission was required. • Condition 21. Entrance, Highway Drainage and Parking. Requires details are submitted for the proposed layout and construction details of the proposed new entrance, the highway drainage system and the permanent vehicle and two-wheeler and cycle parking spaces. Not yet submitted. • Condition 22. Road Condition Survey. Requires a survey of the condition of the adopted section of the local access road South Marsh Road. Not yet submitted. • Condition 23. UK DVOF & Powerlines Notification. Requires UK DVOF & Powerlines notification of the details for the location of development, date of commencement of construction, proposed date of completion of construction, height above ground level of the tallest structure, maximum extension height of any construction equipment and details of aviation warning lighting. Not yet submitted. Regarding Condition 11, which is a pre-commencement planning condition that has not been discharged and is required before permitted preliminary works can be undertaken, the Applicant has recently decided that the piling works will not be carried out as 'permitted preliminary works' and has updated the Draft DCO submitted at Deadline 2 to show this (Requirement 1 is amended to remove piling works from the definition of 'permitted preliminary works' and Requirement 17 is amended to add an exclusion for 'permitted preliminary works'). The

ExQ1	Question to:	Question:	Response
			Applicant is therefore also applying to North East Lincolnshire Council to vary Conditions 3 and 11 of the Planning Permission to make the same changes. Once varied, Condition 11 will not need to be discharged prior to development (other than permitted preliminary works) being undertaken. Conditions 4, 5, 7, 9, 21, 22 and 23 are to be discharged during the enabling works phase (see Table 5.2 of the ES Volume I (Document Ref. 6.2.5 / APP-039) ahead of main works. Some information required to discharge these conditions will require detailed design information from the EPC contractor and therefore cannot be completed until EPC contract award.
Q1.0.6	The Applicant	The ES Paragraph 4.2.8 sets out *'further associated development that may be required in connection with the above, which are within the scope of the works assessed in this ES'*. Can the Applicant clarify what further authorised development works may be required that are not currently stipulated but are deemed to be within the envelope of assessment? Furthermore, if these or other works, such as site accesses, are classed as pre-commencement works, please clarify and explain how it can be ensured that the works do not rely on mitigation requirements that would not be discharged until the Proposed Development 'commences'?	In response to Q1.0.6 the Applicant states the following: **'Further associated development'** The text in paragraph 4.2 matches that in Schedule 1 to the Draft Order, setting out a description of the Proposed Development in a similar order and noting which items fall within which Work Numbers (as set out in Schedule 1). The quoted text appears at the end of Paragraph 4.2, and links to the wording at the end of Schedule 1 which permits "such other works (i) as may be necessary or expedient for the purposes of or in connection with the relevant part of the authorised development and (ii) which fall within the scope of the works assessed in the environmental statement". This is a common approach in made DCOs - for example The Eggborough Gas-Fired Generating Station Order 2018 and The Port of Tilbury (Expansion) Order 2019 both include a similar concept. The Draft Order and Environmental Statement include the development which the Applicant anticipates will be required. However it is not possible for a project promoter to describe every single item of works, infrastructure or apparatus that may be required – for instance some items may be of a scale so as to not be individually listed, or there may be a technological advancement which means a piece of apparatus (which is listed) can be replaced with something similar but which has a different name (and thus is not described in terms in Schedule 1). It is reasonable and important to allow for these kinds of matters, subject to two caveats – environmental assessment and adequate control over development. Each of these is considered as follows. The Environmental Statement is clear on the scope of the works that have been assessed, being that set out in Chapter 4 (Document Ref. 6.2.4 / APP-038) and in particular that listed in Paragraph 4.2. The approach taken to each topic assessment is to assess the specified elements of the Proposed Development using conservative (or worst-case) assumptions based on the Rochdale Envelope approach, which thereby allows other works to be undertaken, provided that they are within the Rochdale Envelope (meaning they would not change the conclusions of the assessment). For example the landscape and visual impact assessment focusses on the largest buildings and structures which have the greatest potential to affect landscape character and visual amenity, and other small scale development within the Main Development Area (Work No. 1) would not alter the assessment conclusions; and the ecological impact assessment assumes that all vegetation will be removed from the Main Development Area (Work No. 1) when in fact some grassland at the edges of the Main Development Area may not need to be removed.

ExQ1	Question to:	Question:	Response
			In terms of control of the development, the Draft Order achieves this through a combination of mechanisms. Each Work Number can only be carried out within the corresponding area on the Works Plans (secured through Article 4(2)). The authorised development as a whole (including any 'further works') is subject to the requirements (secured through Article 4(1)). The main parameters of the authorised development are secured in requirement 3(1). Other requirements then secure the approval of further details. For example requirements 5 and 6 mandate the approval of details of the final position, finished floor levels, elevations, floor plans, external appearance, colour, materials and surface finishes for "all new permanent buildings and structures". This is clearly broadly drafted - any external works would be subject to these requirements, and this ensures that the local planning authority has control over the development that can be built on the Site. As the "such other works" at the end of Schedule 1 must be within the scope of the works assessed in the Environmental Statement, the local planning authority would be able to (or even required to) refuse an approval pursuant to a requirement where that was not the case. **Pre-commencement works** Please see the response to Q5.0.1 which addresses the permitted preliminary works and how the Draft Order achieves the necessary level of control over development.
Q1.0.7	The Applicant/ Environment Agency	The Environmental Permit, and matters stipulated within it, is referred to a number of times throughout the documentation submitted with the application. Please provide a draft copy of the Environmental Permit or point the ExA to where this has been provided in the submitted documentation? If the document is only in draft at the present time please provide the most up to date draft of the Environmental Permit.	In response to Q1.0.7 the Applicant confirms that the SHBEC facility was varied into the South Humber Bank Power Station (SHBPS) Permit (EPR/MP3235LY) on 25th March 2020 (V008). In May 2020 a varied and consolidated permit was issued by the Environment Agency (V009) following the publication of the revised Best Available Techniques (BAT) Reference Document for large combustion plant. A further permit variation application to amend SHBEC operations (i.e. for the Proposed Development, rather than the Consented Development) was submitted to the Environment Agency in September 2020. This variation will also separate the permits for SHBPS and SHBEC. The application is with the Environment Agency currently and until the variation is issued the ExA is directed to the current operational permit for the Site which includes the Consented Development Permit Reference EPR/MP3235LY/V009. This is provided in Appendix 1.
Q1.0.8	The Applicant/ Environment Agency	Please advise if the Environmental Permit is a template permit or bespoke?	In response to Q1.0.8 the Applicant confirms that the Environmental Permit is a bespoke permit.
Q1.0.9	The Applicant	The Statutory Nuisance Statement [APP-028] Paragraph 3.2.5 (Page 8) appears to refer to Section 3 erroneously. Please amend.	In response to Q1.0.9 the Applicant has checked the Statutory Nuisance Statement (Document Ref. 5.9/ APP-028) and confirms that paragraph 3.2.5 (page 8) should refer to Section 4, not Section 3. Section 3 was also noted to be referred to erroneously in paragraph 5.1.2 (Page 19) of the same document, when it should refer to Section 4.
Q1.0.10	The Applicant	The Statutory Nuisance Statement [APP-028] Paragraph 4.2.2 relates to minimising the risk of	In response to Q1.0.10 the Applicant notes that a Preventative Maintenance Plan (PMP) is a plan that outlines how the operator can proactively perform maintenance activities on plant, buildings and infrastructure.

ExQ1	Question to:	Question:	Response
		statutory nuisance from occurring and lists a number of measures that will be put in place. Once such measure is a Preventative Maintenance Plan? Please advise what a Preventative Maintenance Plan is, what it prevents and what it's aim and purposed would be? For example, is its aim and purpose to prevent the premises falling into disrepair, such as it will become prejudicial to health or a nuisance?	The aim of preventative maintenance is to prevent failure of equipment and parts before it occurs, with the purpose of preserving the functionality and performance of the systems at all times while optimizing operating costs. Key aspects forming part of a preventative maintenance strategy include: • Regular inspections and condition monitoring. These allow identifying changes and issues which are indicative of a developing fault. • Cleaning, lubrication and adjustments necessary to prevent factors such as wearing and corrosion. • Repair and replacement of parts which are reaching the end of their service life (as indicated in the manufacturer O&M manuals and/or the outcomes of inspections and condition monitoring). A detailed PMP will be developed during the construction phase of the Proposed Development in accordance with the recommendations of the manufacturers and in consultation with the suppliers of each systems. The PMP will consider the following areas as a minimum: • External areas, including security and access (e.g. gates, site fencing). • Internal areas, roads and pavements, lighting, etc. • Structures and buildings. • Fixed plant, machinery and equipment. • Mobile equipment and machinery. • Electrical equipment. • Control and instrumentation systems. • Environmental controls and monitoring systems. Some examples of preventative maintenance activities which will mitigate the risk of statutory nuisance or health impacts are provided below. • Regular inspections to identify corrosion and wearing in areas which, if neglected, may result in leakages/escapes of chemicals. • Condition monitoring (e.g. vibration monitoring) on rotating equipment to identify deterioration which may result in vibration and/or noisy operations. • Servicing and lifecycle replacements of motors and moving parts on roller shutters doors and louvres to ensure that the equipment is always in good working order and effective in preventing the escape of odours, litter and dust. • Regular servicing of mobile plant to avoid abnormal noise and exhaust emissions. • In general, an appropriate preventative maintenance regime will maximise the plant's availability and ensure that all systems perform correctly, from fuel reception to control of emissions at the stack.
Q1.0.11	The Applicant/ Environment Agency	The Statutory Nuisance Statement [APP-028] Paragraph 4.3.11 - It is noted that the resulting combustion flue gas will be cleaned in a Flue Gas Treatment (FGT) plant and that each fuel combustion line will be fitted with: Selective Non-Catalytic Reduction (SNCR) for the abatement of emissions of nitrogen oxides (NOx) (if required); lime (or equivalent reagent) injection for the abatement of acid gases including hydrogen chloride and sulphur dioxide;	In response to Q1.0.11 the Applicant confirms that these measures will be fully covered by the Environmental Permit and therefore do not need to be included in Schedule 2 of the DCO, as that would represent a duplication of control. The Consented Development Permit (Reference EPR/MP3235LY/V009) is provided in Appendix 1.

ExQ1	Question to:	Question:	Response
		activated carbon injection for the abatement of Persistent Organic Pollutants (POPs), dioxins and furans and heavy metals; and fabric bag filters for the abatement of particulate emissions, including the injected reagent and activated carbon. Will these measures be covered in the Environmental Permit or will it need to be a Requirement in the DCO?	
Q1.0.12	The Applicant	The Statutory Nuisance Statement [APP-028] Paragraph 4.4.28 suggests there will be times when the plant would be non-operational. Why would the site be non-operational and what levels of Refuse Derived Fuel (RDF) would be stored on site when the site is non-operational? Additionally, please explain what the combustion/ fire risk is both during operation and when the plant is non-operational and what measures are to be put in place to ensure combustion/ fire does not occur?	In response to Q1.0.12 the Applicant provides the following explanations: *Why would the plant be non-operational?* As the Proposed Development will comprise two identical independent lines, the processing of fuel will only be interrupted in the event that both lines are non-operational. This could be due to a planned outage or to unplanned plant performance issues which require immediate intervention, referred to as unplanned shutdowns. Unplanned shutdowns may occur for various reasons but are mostly caused by equipment breakdown or damage, blockages or trips triggered by alarms in the control system. It is highly unusual to have an unplanned shutdown simultaneously on both processing lines. If this was to occur, it would typically be for very short periods of time. Planned outages are scheduled by the operator to carry out maintenance activities which cannot be executed while the plant is operational. The frequency and duration of these planned outages will vary depending on the maintenance approach of the operator and the maintenance and lifecycle requirements of the plant. 1. Typically, planned outage works are carried out on an annual basis and have a duration of up to three weeks. However, the planned shutdowns will be staggered in such way that the two lines will be simultaneously offline only for a limited period (typically 5-7 days). 2. Longer planned outages of up to 5 weeks may be necessary during the asset life (typically every 5-6 years) to carry out major maintenance works such as lifecycle replacements. Major planned outage works will also be scheduled to minimise the periods in which both processing lines are offline simultaneously (typically up to two weeks). *What levels of Refuse Derived Fuel (RDF) would be stored on site when the site is non-operational?* Planned outages will be scheduled well in advance and the volumes of fuel stored within the bunker will be managed by controlling the fuel deliveries to the plant under the supply agreements. This management of the deliveries will ensure that the volumes of fuel are at a minimal level prior to commencement of the shutdown. Due to their nature, unplanned shutdowns cannot be predicted; therefore, the quantity of fuel stored when the site is non-operational will be the quantity of fuel found in the bunker at the time of the shutdown. However, as discussed above, unplanned shutdowns of both processing line are rare and are unlikely to last for extended periods. If necessary, fuel deliveries will be reduced or even stopped. Backloading facilities will be available and, in the unlikely event of prolonged unplanned shutdowns of both lines, fuel can be removed from the bunker and loaded into vehicles for removal off site. *Additionally, please explain what the combustion/ fire risk is both during operation and when the plant is non-operational and what measures are to be put in place to ensure combustion/ fire does not occur?*

ExQ1	Question to:	Question:	Response
			The key risks relating to the combustion of RDF are deliveries of 'hot loads' (fuel consignments delivered to site containing smouldering material) and ignition of materials in the bunker[1]. Further to the implementation of the design and operational mitigation measures summarised below, the risk of uncontrolled fires will be very low both during operation and when the plant is non-operational. Fire protection will be extensive and the EPC contract specification will lay down comprehensive minimum fire safety requirements. In the first instance, the applicant will ensure that the fire protection and detection system is designed and built in compliance with The Regulatory Reform (Fire Safety) Order, Building Regulations, the Environmental Permit fire prevention plan, NFPA 850 and other relevant standards and the insurer's requirements. This will include, but not be limited to, the following: • Fire areas will be separated from each other by fire barriers or spatial separation. Fire barriers will be a minimum of 2-hour fire resistance rating unless a higher resistance is required. There will be a fire wall between the bunker and the rest of the process plant. • All construction materials will be non-combustible or of limited combustibility, including all building thermal insulation. • Fire and smoke detection system and alarms across the plant. Thermal imaging fire detection will cover the entire bunker area to detect glowing and smouldering waste. • Fire suppression systems including: – Firewater tank and pumping system of sufficient capacity to fight a fire for a minimum of two hours with the fixed suppression systems listed below. ▪ Sprinklers in the fuel reception hall and bunker. ▪ Bunker water cannons. These will be initiated both automatically by the thermal imaging detection system or manually. ▪ Feed hopper deluge systems. ▪ Control room window wetting deluge system and other water curtains installed to protect windows in fire barriers. ▪ A hose stream demand of not less than 1,890 litres per minute. – Gas fire suppression systems where required. – Manual fire extinguishers. In addition to the above the design will take into account the requirements of the Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR). This requires the design to eliminate or control the risks from dangerous substances (e.g. dust) that may give rise to fire or explosion. During operations a Fire Management Plan compliant with the Regulatory Reform (Fire Safety) Order will be in place detailing what actions are required to prevent and manage fires on site. These will include procedures to identify and quarantine 'hot loads' delivered to the site. Bunker management procedures (e.g. mixing and stacking) will avoid the creation of 'hot spots' or combustible gases as a result of aerobic or anaerobic decomposition of the waste. The Plant Manager will be responsible for implementing the plan and all operatives will receive fire safety training.

[1] Caused for example by ignition of damaged lithium-ion rechargeable batteries.

ExQ1	Question to:	Question:	Response
			The plan will undergo regular reviews and updates and will be subject to internal and external audits under the company's management system. Section 3.8 of the Environmental Permit for the Consented Development (see Appendix 1) includes a requirement to "take all appropriate measures to prevent fires on site", and the same requirement is expected to be included in the Permit for the Proposed Development.
Q1.0.13	The Applicant	The Statutory Nuisance Statement [APP-028] Paragraph 4.6.1 indicates that the RDF will be delivered in covered or enclosed containers, tipped inside an enclosed reception hall and stored internally. It also indicates that due to the operational nature of the Proposed Development a high turnover of RDF will be contained in the fuel bunker. The Applicant considers that the measures outlined in Paragraph 4.6.1 will minimise the potential for vermin, including insects (such as flies). However, what measures will be put in place if such incidents do occur or when the site is non-operational?	As discussed in the response to Q1.0.12, periods when both processing lines are offline will have a short duration and are unlikely to be long enough for infestations of vermin (e.g. flies and other insects, scavenging birds, and rodents such as rats and mice) to establish. Longer planned outages will be scheduled in advance and bunker levels will be managed accordingly. For example, prior to extended periods of planned maintenance which require shutdown of both lines the quantities of fuel stored will be 'run-down' so that the bunker does not contain significant quantities of old waste during the outage period. On-site monitoring (i.e. visual inspections) will be used to detect pests at an early stage, allowing problems to be resolved in a timely manner. Staff employed at the plant will be trained to monitor for signs of pests. Even during non-operational periods, routine cleaning will continue to be carried out to reduce the potential for the facilities to provide an attractive environment for vermin. Any waste spillages around the site will be cleaned up as soon as practicable and cleaning practices will be implemented to ensure that waste does not accumulate in inaccessible areas. Welfare facilities for staff will be maintained at a high standard of sanitation. By only storing waste within the bunker in the enclosed tipping hall, the risks of vermin and pest infestation is low. The operator will engage with a specialist pest control contractor to undertake inspections to identify potential indicators of an infestation of pests. In the unlikely event that a pest outbreak does occur on site the pest control contractor will be contacted immediately and an action plan will be implemented. The action plan will be based upon recommendations from the pest control contractor, as the specific measures to be undertaken will be dependent on variables such as the type and number of pests identified. A review of the monitoring and prevention measures in place will also be undertaken to identify potential areas for improvement. Where identified, appropriate changes in normal operational practices will be implemented to reduce the potential for similar problems in the future.
Q1.0.14	The Applicant	The Statutory Nuisance Statement [APP-028]] Paragraph 4.6.2 indicates that the fuel reception hall will be regularly cleaned and that regular inspections of the Site, boundary fence, gates and access road in the immediate vicinity of the facility entrance will be carried out. Please advise what the term regular means? (i.e. Once a year/ Once every 6 months/ Once a month/ Once a week/ once a day, Etc.)	In response to Q.1.0.014 the Applicant can confirm that it is proposed that every day, after most or all fuel deliveries have been completed, the reception area will be cleaned down. This daily cleaning will be carried out by the site staff and will consist of removal of litter in the reception hall, clearing of waste in the tipping bays areas and hosing down of the reception hall floor. A 'deep clean' of the reception hall will be carried out on an annual basis, typically during the planned outage by a specialist third party contractor. This will include cleaning of steelwork, cladding, louvres, equipment, etc. as required. Inspections of the boundary fence, gates and access road in the immediate vicinity of the facility entrance will be carried out on at least a weekly basis. Additionally, the site CCTV cameras will be installed in various locations at the site entrance and site boundary allowing continuous monitoring of these areas from the control room.
Q1.0.15	The Applicant	The Statutory Nuisance Statement [APP-028] Paragraph 4.6.3. What is meant by the term 'minimum' and what is meant by the term 'regular'?	In response to Q1.0.15, we address each part of the question below beginning with the full sentence from the Statutory Nuisance Statement.

ExQ1	Question to:	Question:	Response
		Additionally, this paragraph states that Approved chemical pesticides may be used as required or as directed by professional companies. What does the term 'approved chemical pesticides' mean (i.e. approved by whom) and what would be the impact of such chemical pesticides be on protected species, the adjoining Ramsar/ SPA/ SAC?	"Storing RDF for the minimum period possible within defined storage areas". In this context 'minimum' refers to the implementation of a 'first in, first combusted' approach for waste received, keeping the length of waste storage time to a minimum, but recognising that some fuel mixing is undertaken within the bunker to achieve a more homogeneous CV. In addition, 'minimum' means avoiding the delivery of fuel to site when planned shutdowns are scheduled. "Regular inspection and pest control management by professional companies". It is not possible to specify with certainty the frequency of inspections and pest control management at this stage as this will be determined on a risk basis through the preparation of operational management plans, and with advice from a professional pest control company. However, it is anticipated that initially pest control inspections will be carried out on a semi-annual basis. The frequency will be reviewed based on the findings of the inspections and increased or decreased as required. 'Approved chemical pesticides' is used in the final bullet point at paragraph 4.6.3 - "the use of approved chemical pesticides as required or directed by professional companies". 'Approved' refers to pesticides approved for use in the UK under the UK Biocidal Products Regulations (UK BPR) or the EU Biocides Regulations (EU BPR) (see https://webcommunities.hse.gov.uk/connect.ti/pesticides/view?objectId=6020), which a professional pest control company would employ on behalf of the Applicant. The professional pest control company would be audited to the relevant standard in pest management (EN 16636), to ensure activities are delivered safely, effectively and within European and national regulations. Guidance on pollution prevention for businesses (Defra and Environment Agency, 2019, available at Gov.uk) will also be followed. As such the pest control company would be required to prevent pollution, and there will be no potential impact on protected species or the Humber Estuary SPA/ SAC/ Ramsar site.
Q1.0.16	The Applicant	Appendix 5A – Outline CEMP [APP-107] refers to *"Regular environmental audits of the construction works…"* (Paragraph 2.5.4). Please advise what the term regular means? (i.e. Once a year/ Once every 6 months/ Once a month/ Once a week/ once a day, Etc.)	In response to Q1.0.16 the timing of environmental audits will be determined based on what is being audited and for what purpose. The roles and responsibilities for implementation of the CEMP will be described in the detailed CEMP prepared by the Principal Contractor, which will also confirm the frequency of environmental audits to be undertaken. The Applicant has not stipulated a minimum frequency for environmental audits at this stage. Some activities are typically audited on a weekly basis, others monthly. Assigning responsibility for the detailed CEMP to the construction contractor ensures that it can accord with any of the contractor's own internal management systems, processes and procedures as well as fulfilling the requirements of draft DCO Requirement 15.
Q1.0.17	The Applicant	Appendix 5A – Outline CEMP [APP-107] Tables 3.1 to 3.12 (inclusive) sets out the 'Potential Impacts' and the 'Mitigation/ Enhancement Measures'. However, in the sections related to 'Monitoring Requirements' and 'Responsibility' the document consistently states, "To be confirmed in the CEMP". Please advise in regard to progress made in regard on the CEMP and whether there is further clarity as to the sections marked 'Monitoring Requirements' and 'Responsibility' and the phrase "To be confirmed in the CEMP".	In response to Q1.0.17 the Applicant confirms that ES Appendix 5A: Outline CEMP (Document Ref. 6.4.4/ APP107) is intended to be a document which sets the parameters for the detailed CEMP, recognising that the detail cannot be finalised until a construction contractor has been appointed. This is why the section related to "Monitoring Requirements" and "Responsibility" states "To be confirmed". The Outline CEMP is intended to provide sufficient detail to the Secretary of State, local planning authority and other interested parties on how construction environmental effects will be managed given the current development stage of the Proposed Development. This approach (of providing an outline CEMP) has precedent in a number of other DCOs, including the Eggborough Gas Fired Generating Station Order 2018.

ExQ1	Question to:	Question:	Response
			At this stage the construction contractor has not yet been appointed, so the detailed CEMP for the main construction phase has not been prepared. Once the construction contractor is appointed (expected in Q1 2021), this detailed CEMP will be prepared as required by the Planning Permission (DC/1070/18/FUL, Condition 10) for discharge prior to commencement of the main construction works.
Q1.0.18	The Applicant	Is there a requirement to store the bottom ash on site prior to removal? If so please explain why, where the bottom ash is proposed to be stored prior to removal and what measures would be required to ensure it is appropriately stored?	In response to Q1.0.18 the Applicant confirms that bottom ash will be required to be temporarily stored on site as it will be continuously formed during the combustion process and will then need to be temporarily stored before being transported off-site by HGV for off-site processing. The bottom ash produced from the combustion of the fuel drops into an ash extractor and is quenched in a water bath. From the ash extractor the quenched bottom ash is then transported by belt conveyors to a dedicated enclosed IBA storage area (which will be a concrete slab or a bunker). This is indicated in the Indicative Generating Station Plan Floor Plans Section and Elevations (Document Ref. 4.5 / APP-012). To ensure that the bottom ash is stored appropriately, the area will have integrated drainage system which will collect any water runoff and return it back to the quench bath. The bottom ash will be periodically removed from storage and loaded into the offtaker vehicles without any further treatment on-site. The only measure taken by the operator will be to ensure that the volume of ash available for loading is large enough to maximise the payload of the vehicles and minimise traffic movements and transport costs. The IBA storage area will have a minimum storage capacity of 5 days of ash production, allowing for periods when bottom ash collections may not be possible (e.g. bank holiday weekends).
Q1.0.19	The Applicant	No reference is made to waste being stored on site for any length of time. Whilst this may be achievable when the plant is in operation, please explain what waste will be stored on site during the periods of shutdown, including breakdowns and when the site is shut down for repairs and planned maintenance.	Please refer to the response to Q1.0.12. Periods during which both processing lines are offline will be limited and will typically have a short duration; planned periods of shutdown will be scheduled to allow one combustion line to remain operational at all times as far as possible. Bunker management procedures and coordination with the fuel suppliers will allow the operators to control bunker levels during unplanned shutdowns and, if necessary, deliveries can be reduced or stopped. Careful management of bunker levels and fuel deliveries will be carried out ahead of planned outages. Typically, prior to extended outages, quantities of fuel stored in the bunker will be 'run-down' so that fuel in the bunker is kept at minimal levels.
2.	**Air Quality**		
Q2.0.1	The Applicant	The ES considers mitigation (Section 7.7) as part of the Environmental Impact Assessment (EIA) [APP-041]. The ES however also considers 'embedded' mitigation to be implemented during construction (ES Paragraph 7.5.2) and Operation (ES Paragraph 7.5.4). A Construction and Environmental Management Plan (CEMP) is relied upon specifically. The ES Paragraphs 7.5.2 and 7.5.4 suggest that mitigation has been taken into account for the assessment of Likely Significant Effect(s) (LSE). Please confirm precisely what the mitigation relied	In response to Q2.0.1 the Applicant refers the ExA to paragraphs 2.5.1-2.5.3 of ES Chapter 2: Assessment Methodology (Document Ref. 6.2.2/ APP-036) which describes the approach to the inclusion of mitigation measures (including those considered to be embedded mitigation) within the assessments contained within the ES, which includes ES Chapter 7: Air Quality (Document Ref. 6.2.7/ APP-041). Embedded mitigation, or impact avoidance measures, may comprise measures that are required by legislation, measures that will be implemented in accordance with standard good practice for construction contractors, and measures that have been integrated into the design of the development to avoid or reduce adverse effects. Embedded mitigation can be relevant to all stages of the development, which is why they are referred to in relation to construction (ES paragraph 7.5.2) and operation (ES paragraph 7.5.4).

ExQ1	Question to:	Question:	Response
		upon in the assessment is and how such mitigation is to be secured?	ES paragraph 7.5.2 presents a summary of the embedded mitigation measures that are taken into account in the construction air quality assessment, including those that will be implemented in accordance with the CEMP. The CEMP is the mechanism through which the construction related mitigation measures can be prescribed and managed. Section 3.0 of Appendix 5A - Outline CEMP (Document Ref. 6.4.4/ APP-107) sets out the mitigation and management measures for each of the topics including Air Quality (Table 3.1). The requirement for a detailed CEMP to be approved prior to commencement of development is secured by Requirement 15 of the draft DCO. ES paragraph 7.5.4 provides a summary of the embedded mitigation measures that are taken into account in the operational air quality assessment, specifically in relation to Industrial Emissions Directive (IED)/ BAT-AEL Emission Limit Value (ELV) Compliance and the fixed stack height. The stack locations are subject to limits of deviation on the Works Plan to ensure the air quality assessment conclusions are robust (because the effects on specific receptors might be different if the stacks were constructed in a different location within the Site) – whilst stack locations are therefore not a form of embedded mitigation, stack location is an important assumption for the operational air quality assessment. The Proposed Development will be designed such that process emissions (operational emissions) to air comply with the ELV requirements specified in the IED. This will be regulated by the Environment Agency through the Environmental Permit required for the operation of the Proposed Development. Based on the detailed dispersion modelling for the Proposed Development the stack height is fixed at 102 metres Above Ordnance Datum (AOD) which is secured by Requirement 3 of the draft DCO. ES paragraph 7.7.2 (construction) and paragraph 7.7.3 (operation) describe that given the findings of the air quality assessment no additional mitigation (over and above the embedded mitigation as noted above) is required to reduce the significance of air quality effects to acceptable levels. Where the air quality assessment has informed the consideration of Likely Significant Effects in relation to the Habitats Regulations Assessment, the assessment of operational emissions has taken into account the fact that the Proposed Development will be required to comply with the ELV requirements specified in the IED, and the stack heights that are required to achieve this.
Q2.0.2	The Applicant/ Environment Agency	Will the stacks heights and need to ensure the flue gas is emitted with a velocity of at least 15 m/s be specified in the Environmental Permit or will these need to be a Requirement specified in the Development Consent Order? (See Statutory Nuisance Statement [APP-028] Paragraph 4.3.12)	In response to Q2.0.2 the Applicant confirms that following the detailed dispersion modelling for the Proposed Development as presented in ES Appendix 7A: Air Quality Dispersion Modelling Assessment (Document Ref. 6.4.5/ APP-107) the stack height has been set to 102 metres AOD which is secured by Requirement 3 of the draft DCO. ES Appendix 7A: Air Quality Dispersion Modelling Assessment (Document Ref. 6.4.5/ APP-107) includes in Table 7A.13 the properties of the stacks used to inform the assessment. This includes a stack gas exit velocity of 15 m/s per stack. This isn't a parameter that it is mandatory to achieve but standard chimney (stack) design recommends a stack velocity of at least 12-15 m/s to improve dispersion. To achieve this velocity for the

ExQ1	Question to:	Question:	Response
			Proposed Development, the stack parameters will need to meet those specified and secured by Requirement 3 of the draft DCO i.e. Requirement 3(1) (c) - stack height – 102 metres AOD (d) - maximum stack diameter – 3 metres per combustion stream. The maximum diameter prevents a wider stack being used that would result in lower stack velocities occurring. Should a narrower stack design be selected, the velocity could increase above 15/s accordingly. Therefore the key parameters are directly or indirectly covered by Requirement 3 of the draft DCO. The Environmental Permit will also include emissions limits, providing ultimate control regarding air emissions. The Environment Agency has reviewed and accepted the findings of the air impact assessment submitted with the permit variation application submitted for the Consented Development; the same assessment has been used to support the permit application for the Proposed Development. While the permit does not specify a minimum stack velocity, it does require the plant to operate in accordance with the permit application parameters and also requires the operator to demonstrate that adequate dispersion of emissions has occurred from the plant. It is therefore considered that no additional requirement or control is needed for on stack velocities or stack heights within the DCO. As noted in the signed SoCG between the Applicant and the Environment Agency submitted at Deadline 1, the Environment Agency is satisfied with the approach that has been taken, and that the Environmental Permit provides adequate control on operational air emissions.
Q2.0.3	The Applicant	The ES Appendix 1A: (Environmental Impact Assessment Scoping Report) [APP-104] paragraph 7.2.4 refers to the prevailing wind direction. Please confirm the prevailing wind direction or indicate where within the submitted documentation this information has been provided?	In response to Q2.0.3 the Applicant confirms that the prevailing wind direction is from the south west, as with most parts of the UK. The ExA is directed to Figure 7A.2 in ES Appendix 7A: Air Quality Dispersion Modelling Assessment (Document Ref. 6.4.5/ APP-107) which shows the wind roses for the five years of meteorological data used in the air quality assessment (2013-2017). The wind roses show the most frequent wind direction to be from the south west in all years.
3.	**Cultural Heritage**		
Q3.0.1	The Applicant	The ES Section 13.3 sets out that the Study area is based upon a zone of theoretical visibility. This indicates that above ground heritage has been considered but no below ground heritage, which could be impacted through construction, operation or decommissioning either through direct physical impact or indirectly appears to have been considered. Please explain the extent to which the study area takes into account impacts on below ground heritage during construction, operation and decommissioning of the Proposed Development?	In response to Q3.0.1 the Applicant directs the ExA to paragraphs 13.3.16-13.3.18 in ES Chapter 13: Cultural Heritage (Document Ref. 6.2.13/ APP-047) which set out the defined Study Areas used within the assessment of effects on cultural heritage. As outlined the Study Area is based on the ZTV adopted for the landscape and visual impact assessment. The process for defining the ZTV is outlined in Chapter 11: Landscape and Visual Impacts (Document Ref. 6.2.11/ APP-045). The Study Area of 5 km from the Site has been used to identify any designated heritage assets and 1 km to identify any non-designated assets. These Study Areas include both above and below ground heritage assets. These are illustrated on ES Figures 13.1 (Document Ref. 6.3.41/ APP-097) and 13.2 (Document Ref. 6.3.42/ APP-098). Only the 5 km Study Area buffer is presented on these two ES Figures as it is the largest of the two Study Areas and therefore encompasses all of the assets required and referred to within the assessment.

ExQ1	Question to:	Question:	Response
			The Applicant also directs the ExA to paragraphs 13.3.2 – 13.3.3 in ES Chapter 13: Cultural Heritage (Document Ref. 6.2.13/ APP-047) which describes the approach taken in respect of the assessment of effects on below ground heritage. For completeness and in response to consultee comments (refer to Table 13.4 in ES Chapter 13) the assessment includes an assessment of the potential effects of the Proposed Development on relevant below ground assets i.e. those within and immediately adjacent to the Site and within the 5 km Study Area (refer to ES Chapter 13 Section 13.4). In summary, no significant effects on below ground heritage are predicted.
4.	**Design and Layout**		
Q4.0.1	The Applicant	The notes in the Environmental Statement (ES) Chapter 6 [APP-040] Paragraph 6.15 are noted, as is the summary of the design evolution in Table 6.2 of the same document. However, limited information and explanation of the evolution of the design has been provided, other than notes that the design parameters are consistent with the parameters of the development permitted by NELC under the Town and Country Planning Act 1990 (As amended) (TCPA) under Planning Permission reference number DM/1070/18/FUL, dated 12 April 2019. Please provide a full written explanation of the design objectives of the proposed development, what has influenced the design of the proposed development and explain how the way the design of the proposed development has evolved over time meets each of those objectives/ influences?	In response to Q4.0.1, we would firstly refer to Paragraph 4.4.1 of the Planning, Design and Access Statement (Document Ref. 5.5/ APP-024) ('PDAS') which sets out the design principles the Applicant applied as a basis for the design of the Proposed Development. These comprised: • Design Principle 1: provide a functional and durable design that makes the best use of the location and allows efficient, flood resilient and safe waste management and electricity generation • Design Principle 2: ensure the built form and colour of the main building is in keeping with local landscape character and provides a simple roof line in long distance views • Design Principle 3: select, locate and scale the main components (e.g. stacks) to avoid impacts on the operation of SHBPS and minimise environmental impact • Design Principle 4: retain appropriate flexibility in the sizing and positioning of ancillary components and the routes of potential grid and utility connections within the Site. • Design Principle 5: secure opportunities for the management and enhancement of biodiversity-led planting around the edges of the Site. • Design Principle 6: ensure safe and efficient access to the public highway and no queueing onto the public highway. • Design Principle 7: provide internal circulation and soft and hard landscaping that is inclusive, safe, provides amenity for workers and supports sustainable travel. These design principles were influenced by the relevant NPSs (EN-1 and EN-3), and the National Infrastructure Commission (NIC) Design Principles. The relevant policies and where they have been considered in the PDAS and Design Principles are set out below. • EN-1 – 4.5 Criteria for "good design" for energy infrastructure – Consideration of both the aesthetics and functionality of the Proposed Development with regards to these policies influenced all seven Design Principles. • EN-2 – 2.4 Criteria for "good design" for energy infrastructure – Consideration of good design in respect of landscape and visual amenity and the mitigation of impacts such as noise and effects on ecology have been influenced Design Principles 2, 3 and 5. • NIC Design Principle - Climate – Consideration of this policy has influenced Design Principle 1. • NIC Design Principle – People – Consideration of this policy has influenced Design Principles 1, 6 and 7. • NIC Design Principle – Places – Consideration of this policy has influenced Design Principles 2 and 7. • NIC Design Principle – Value – Consideration of this policy has influenced Design Principles 1, 3, 4 and 5.

ExQ1	Question to:	Question:	Response
			The above will be applied whether the Proposed Development is delivered via implementing the Planning Permission initially (Scenario 1) or other construction scenarios. In the design evolution of the Proposed Development the Applicant has taken into account both functionality (including fitness for purpose and sustainability) and aesthetics (including its contribution to the quality of the area in which it would be located) as far as possible. Key outcomes of the design evolution have included the following, which are outlined in paragraph 4.12.3 of the PDAS (Document Ref. 5.5/ APP-024): • Following completion of the air dispersion modelling for the Consented Development stack heights of 100 m above the existing ground level (102 mAOD) were identified as appropriate to mitigate significant environmental effects on sensitive ecological receptors (in accordance with Design Principle 3). • Air cooling is considered to represent the Best Available Technique for the Proposed Development because it would not affect water resources or directly affect the Humber Estuary and the slight loss of efficiency (compared to water-cooling) is minimal for the cooling demand of the Proposed Development. Air cooling therefore was chosen as the cooling technology (in accordance with Design Principles 1 and 3). • A new access is to be developed from South Marsh Road in the north-east of the Main Development Area, to minimise disruption to the SHBPS's operation (in accordance with Design Principle 3). • The Proposed Development layout has been optimised to include a 5 m offset between ditches and buildings/ internal access roads (with the exception of the ditch crossing for the new site access, as described above), avoid siting buildings/ structures above the cooling water pipes where possible, avoid the administration/ office building being located in the HSE Inner Zone, and maximise operational functionality (in accordance with Design Principles 1, 3 and 5). • Both options regarding the design of the fuel bunker (excavation of the fuel bunker up to -8 m AOD with the fuel reception hall floor level around 2 m AOD, and excavation of the fuel bunker to around -4.5 m AOD with the fuel reception hall floor level around 5.5 m AOD) remain open and have been assessed in the EIA where relevant (in accordance with Design Principle 1). • Through the Works Plan flexibility has been secured and potential maximised for landscaping and biodiversity, comprising soft landscaping including planting and biodiversity mitigation and enhancement measures on areas not required for operational reasons for the SHBPS or the Proposed Development (in accordance with Design Principle 5). • Measures to protect biodiversity features have been identified (in accordance with Design Principle 5). These include the installation of a visual screen to avoid disturbance of water birds using a field to the south of the Site, measures to avoid piling noise and vibration disturbance of waterbirds, seasonal constraints on works to a ditch to avoid impacts on water vole, and vegetation removal outside the bird breeding season to avoid impacts on breeding birds. Descriptions of any features of the Proposed Development, or measures envisaged in order to avoid, prevent or reduce, and if possible, offset likely significant adverse effects on the environment can be found in Volume I Chapter 4: The Proposed Development (Document Ref. 6.2/ APP-039) and Chapters 7 to 19 (Document Ref. 6.2/ APP-041 to APP-053), 'Development Design and Impact Avoidance' and 'Mitigation and Enhancement Measures' sections.

ExQ1	Question to:	Question:	Response
Q4.0.2	The Applicant	What is the optimum operational throughput for RDF to produce power – not capacity? Optimum Operating settings (Tolerance).	In response to Q4.0.02 the Applicant can confirm that Power production will be optimised across the whole range of fuel calorific values proposed for the development (9-14 MJ/kg). The sophisticated control system of the EfW plant will allow the boilers to generate an almost constant amount of steam (and therefore power) even when fluctuations in the calorific value will result in variations of the RDF throughput.
Q4.0.3	The Applicant	Will the plant be self-sufficient in terms of energy generation (i.e. Will it generate energy to the grid, as well as generating energy to run itself?	In response to Q4.0.03 the Applicant can confirm that, the plant will be self-sufficient. Approximately 10% of the power generated by the plant will be used for self-consumption, with the remaining exported to the grid. The plant will not be self sufficient in times of emergency or downtime when it will be sourced from the grid. This is expected to be minimal and less than 1,800 MWh per year, a figure based on similar projects. This is referred to and accounted for in the GHG assessment (see paragraph 8.2.1 of ES Vol III Appendix 19A: Greenhouse Gas Emissions Assessment (Document Ref. 6.4 / APP-138)).
Q4.0.4	The Applicant	Will the grid be able to accept the entire generation capacity of the plant at all times?	In response to Q4.04 the Applicant can confirm that the grid connection will be sized with sufficient capacity to accept the entire generation capacity of the plant in all operating scenarios.
Q4.0.5	The Applicant/ Environment Agency	Will the temperatures within the combustion system and in particular to the main flue gas temperature being at least 850°C for a minimum of two seconds, Etc., be covered in the Environmental Permit or will it need to be a Requirement in the Development Consent Order?	In response to Q4.0.5 the Applicant confirms that temperature within the combustion system will be at least 850 °C for a minimum of two seconds and that this is specified in the Environmental Permit. The Applicant directs the ExA to Condition 2.3.9 of the Environmental Permit for the Consented Development (see Appendix 1).
Q4.0.6	The Applicant/ Environment Agency	In terms of emissions, please explain what is the impact of this plant in-combination with other plant already in situ and whether this is considered as part of the Environmental Permitting regime?	In response to Q4.0.6 the Applicant confirms that the air quality assessment considers the effects of the Proposed Development together with the effects of existing developments, in situ, specifically including South Humber Bank Power Station (SHBPS). The Applicant directs the ExA to Annex D (paragraph D1.2) of the Air Quality Dispersion Modelling for the Proposed Development (ES Appendix 7A). This states “The South Humber Bank Power Station (SHBPS) adjacent to the Main Development Area is operational and its emissions will therefore be captured within the baseline values from APIS, Defra and the measured nitrogen dioxide diffusion tube concentrations. Therefore, inclusion of SHBPS in the cumulative modelling was not needed. However, SHBPS and the Proposed Development are located in close proximity to each other so there is the potential for 99.79th percentile 1 hour NO2 and the maximum 24 hour NOx impacts to coincide in the same geographical locations. Therefore, separate analysis of this pollutant averaging period is displayed in the ‘South Humber Bank Power Station’ and ‘Sustainable Transport Fuels Facility’ sections” (refer to Annex D4 and Annex D5 of the same documents). The Applicant confirms for the ExA that the other developments that were considered as part of the assessment of cumulative impacts in respect of emissions can be found in Appendix 7A and is also summarised within ES Chapter 17: Cumulative and Combined Effects (Document Ref. 6.2.17/ APP-051). The conclusion of the air quality assessment (which has been consulted upon and agreed with the Environment Agency and Natural England) is that there will be no significant air quality effects from the Proposed Development alone or together with other existing or proposed developments.

ExQ1	Question to:	Question:	Response
			The Consented Development was varied into the SHBPS Permit (EPR/MP3235LY) on 25th March 2020 (V008). In May 2020 a varied and consolidated permit was issued by the EA (V009) following the publication of the revised BAT Reference Document for large combustion plant. A copy of the Permit for the Consented Development is provided in Appendix 1. A further permit variation application to amend SHBEC operations (i.e. for the Proposed Development) was submitted to the Environment Agency in September 2020. The variation will also separate the permits for SHBPS and The Proposed Development SHBEC. The application is with the Environment Agency currently and until the variation is issued the ExA is directed to the current operational permit for the Site which includes the Consented Development EPR/MP3235LY/V009 (see Appendix 1).
Q4.0.7	The Applicant	It is noted that the Appellant does not consider an Odour Management Plan to be required (See the Statutory Nuisance Statement [APP-028] Paragraph 4.4.26 and 4.4.27). However, the justification for not providing one is limited and whilst it is appreciated that the proposed development is situated approximately 1km from the nearest dwelling, nuisance from odour could still arise. Therefore, please provide an Odour Management Plan or strong justification and evidence as to why one should not be provided.	In response to Q4.0.7 the Applicant confirms that an Odour Management Plan is not considered to be required at this stage for the Proposed Development, and as set out below the Environmental Permit provides for one to be put in place if required. Measures that will be adopted to control odours are outlined in ES Chapter 7: Air Quality (Document Ref. 6.2.7/ APP-041). As noted in Q4.0.7 the Proposed Development is 1 km from the nearest dwelling. The nearest occupied buildings to the Proposed Development are the South Humber Bank Power Station (in the control of the Applicant), a chemical works (Synthomer) and the NEWLINCS Integrated Waste Management Facility. Odour will be controlled using the following methods: • Odours from the storage of RDF will be contained within the main building due to the negative pressure maintained by drawing air from the fuel reception hall into the combustion process where any odours will be combusted. Odour emissions from the Proposed Development are therefore unlikely to occur. • Other control measures to minimise odour include various good housekeeping measures, including the cleaning of storage areas on a regular basis, monitoring odour around the site, storing reagents in sealed containers, and recording and investigating odour issues. These measures represent Best Available Techniques (BAT) for the control of odours from the Proposed Development. Doors to the tipping hall will also remain closed and will only open to allow for vehicle access and egress. • In the event that primary odour control measures (e.g. negative pressure and odour destruction by combustion) require additional support, odour suppression, including mist spray deodorising suppression systems would be implemented as necessary. Personnel will be trained in how and when to use the odour suppression system. The containment measures (including shutter doors and louvres to draw air into the building) built into the building design mean that fugitive odour emissions from the Proposed Development would be unlikely to be perceptible at locations outside of the Site boundary. Louvres of the actuated type, which can be promptly closed, will be installed where there is potential for odours emission from the building (e.g. bunker, reception hall). As part of the Environmental Permitting process, there is a need to demonstrate adequate control of odour emissions so as to avoid odour impacts at sensitive receptors. The operator has an obligation to ensure the control are effective and in accordance with BAT.

ExQ1	Question to:	Question:	Response
			The Applicant directs the ExA to Condition 3.4 of the Environmental Permit for the Consented Development EPR/MP3235LY/V009 (see Appendix 1), which states: *"3.4.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.* *3.4.2 The operator shall:* *(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;* *(b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency".* As above Consented Development Environmental Permit Condition 3.4 outlines the requirements for an Odour Management Plan, which would only be drafted and put in place following notification from the Environment Agency in response to Condition 3.4.2 (a). Notification of such requirement would only occur if activities are giving rise to pollution outside the site due to odour. It is reasonable to assume that Condition 3.4 will be will also be a Condition of the Permit variation for the Proposed Development.
Q4.0.8	The Applicant	It is noted that the building will contain a fully enclosed fuel reception area, which incorporates a fuel reception hall and enclosed fuel storage bunker, and that the reception hall and bunker hall will be fitted with fast acting doors and maintained under slight negative pressure to reduce the risk of odour escaping. However, with the nearest dwelling only being situated some 1km and other businesses being located closer to the site, please explain why deodorising spray is not been proposed or considered necessary in this instance in addition to the mitigations already being promoted to prevent odour from escaping.	In response to Q4.0.8 and as noted in the Applicant's response to Q4.0.7 above, the Applicant will use primary odour control measures (e.g. negative pressure and odour destruction by combustion) in the first instance. As the two processing lines are unlikely to be offline simultaneously for extended periods, primary control measures are considered to be sufficient. In the event that primary control measures require additional support, then supplementary odour abatement, such as mist spray deodorising systems, would be implemented as necessary. Refer to paragraph 7.6.38 of ES Chapter 7: Air Quality (Document Ref. 6.2.7/ APP-041)
Q4.0.9	The Applicant	Please confirm RDF will only be contained inside the building.	In response to Q4.0.9 the storage of fuel relating to the Proposed Development is controlled by Requirement 32 which states: *"With the exception of the diesel tank, fuel for the energy recovery facility must not be stored outside of the main building at any time."* This ensures that RDF will only be kept inside the building. The bunker

ExQ1	Question to:	Question:	Response
			will be large enough to provide for up to four days of fuel supply, in case of periods when there are no fuel deliveries.
Q4.0.10	The Applicant	Please confirm how long bottom ash needs to remain on site before it can be removed for disposal and where it is to be stored on site whilst awaiting disposal (Also see Question Q1.0.18 above).	In response to Q4.0.10 the applicant can confirm that There will be no time requirements for on-site storage of the bottom ash. Bottom ash is non-odorous, chemically inert and not subject to decay or degradation. The bottom ash will be stored in a dedicated enclosed IBA storage area and the operator will be able to load the ash into the offtakers' vehicles when required from the storage area. However, when coordinating with the offtaker, the operator will ensure that there is sufficient material on site to maximise the payload of each ash haulage vehicle (typically 25-28 tonnes per load), in order to minimise traffic movements and transport costs. The plant operates and generates bottom ash on a continuous basis 24 hours a day, while collections from offtakers' vehicles will generally only be scheduled for normal working hours (0600-1800 Mon-Fri).
Q4.0.11	The Applicant	The Planning, Design and Access Statement [APP—024] at Paragraph 4.3.7 to 4.3.11 discuss the combustion system. Please confirm that the proposed development is a mass burn facility and that the level of maintenance set out in the ES Non-Technical Summary [APP-033] at Paragraph 7.4.7 is appropriate.	In response to Q4.0.11 the applicant can confirm that while 'Mass burn' is not a defined term in UK environmental legislation or process engineering, it is recognised that the term is often used to differentiate conventional EfW technology from less proven thermal treatments such as gasification or pyrolysis. The Applicant confirms that the Proposed Development is a conventional EfW facility that will use commercially proven, conventional moving grate technology to fully combust the waste fuel and generate electricity. Unlike gasification/pyrolysis systems, the plant's combustion grates will be able to process the fuel delivered without prior treatment or preparation on site (except for the mixing carried out by the overhead cranes in the storage bunker). Paragraph 7.4.7 in the ES Non-Technical Summary refers to major planned outages to provide an indication of peak site attendance in the context of the traffic and transport assessment and the Applicant confirms that the proposed level of maintenance is appropriate for a facility of this type. Levels of maintenance required by the Proposed Development have been discussed in more detail in the response to Q1.0.12.
Q4.0.12	The Applicant	The ES Appendix 1A: (Environmental Impact Assessment Scoping Report) [APP-104] paragraph 2.1.4 indicates the 'Main Development Area' currently comprises a vegetated area used as the route for the underground cooling water pipes (connecting the two CCGT units and the cooling water pumping station) and other buried services and associated access road. Please confirm what other services are buried here and how the underground cooling water pipes and other buried services will be impacted by the proposed development?	In response to Q4.0.12 the Applicant can confirm that other buried services in the Main Development Area comprise EP SHB only and include the following: 1. Firefighting water main (MDPE, 180mm diameter); 2. Potable water main (MDPE, 63mm diameter); 3. Surface water drainage pipe (PVC, 150mm diameter); 4. Cable trenches with lighting electrical cables and with electrical and control connection cables to CCGT Plant's cooling water abstraction pumphouse. Buildings and permanent structures will not be constructed above the cooling water pipes or other buried services. Where the site infrastructure (e.g. roads, drainage, ductwork) cross the pipes, it will be bridged accordingly.

ExQ1	Question to:	Question:	Response
			During the construction phase of the project, the EPC contractor will be required to appropriately protect the cooling water pipes and other buried services. For the cooling water pipes it is expected that this will be achieved by a combination of the following: 1. Creation of a restricted area of appropriate width (e.g. 6 metres) around the pipes. The restricted area will be signalled to avoid construction activities that may present a risk to the pipe integrity being carried out in the vicinity of the pipes. 2. Reinforcement through slabs of areas where traffic will cross the pipes. 3. Storage areas of heavy equipment will avoid pipe routes. It is envisaged that other buried services listed above will be relocated in an area adjacent to cooling water pipes, so they will benefit from the same protection measures. EP SHB Limited and EP Waste Management Limited are part of the same group of companies and appropriate arrangements will be in place to protect each other's undertakings on transfer or lease of the land for the Proposed Development.
5.	**Draft Development Consent Order (dDCO)**		
Q5.0.1	The Applicant	Bearing in mind ExA question Q1.0.6 above, can the Applicant confirm if mitigation requirements are necessary to control impacts associated with the pre-commencement activities identified in the DCO? Additionally, what requirements are in place to ensure that such mitigation is delivered prior to these activities taking place?	In response to Q5.0.1 the applicant can confirm that pre commencement activities, which are termed Permitted Preliminary Works ('PPWs') and are defined in Requirement 1 of the Draft DCO and Condition 3 of the Planning Permission, represent minor works potentially needing to be carried out early in the enabling works phase. In general these are of a scale and nature that would not have significant residual environmental effects individually or cumulatively and therefore do not need specific mitigation measures to be applied in order to reduce those environmental effects any further. The only exception to this is piling, hence for which details of the mitigation measures to be implemented must be approved in accordance with Condition 11 and Draft DCO Requirement 17 in advance of PPWs commencing. Requirement 17 was in turn governed by requirement 19 to prevent contaminated land impacts. However, as noted above in the response to Q1.0.2, the Applicant now proposes to remove piling from the PPW in the revised Draft DCO submitted at Deadline 2 and vary the Planning Permission conditions to this effect. This results in no change in the level of control or the trigger for the piling methodology, but better aligns the requirements to the construction programme. Requirement 17 is therefore not discussed further within this question. The Construction Environmental Management Plan and Construction Traffic Management Plan (Requirements 15 and 16/ Condition 10) covers any development, including PPWs. In addition the procedure governing unexpected contamination (Requirement 21/ Condition 15) covers the entire construction and operational phases and does not exclude PPWs. Requirement 7/ Condition 6 ensures that the existing tree planting in Work No. 3 is retained. Requirement 11/ Condition 8 stipulates that the specific biodiversity protection measures must be carried out at the times set out in the approved document. In conclusion it is considered that the PPWs are suitably governed in the Draft DCO (and in the Planning Permission) to ensure that the relevant mitigation is delivered prior to the PPWs taking place and no further

ExQ1	Question to:	Question:	Response
			requirements are considered to be necessary to control the PPWs. The main purpose of defining PPWs is to enable a prompt start of enabling works on the signing of the construction contract.
Q5.0.2	The Applicant	The Development Consent Obligation (Document Reference 5.13) [APP-032] seeks to vary the Section 106 (s.106) Agreement, dated 11 April 2019, completed as part of Planning Permission DM/1070/18/FUL. However, Section 106 of the TCPA distinguishes between planning obligations and development consent obligations. In particular s.106(9) provides that: *(9) A planning obligation may not be entered into except by an instrument executed as a deed which— (a) states that the obligation is a planning obligation for the purposes of this section; (aa) if the obligation is a development consent obligation, contains a statement to that effect;* A development consent obligation is defined in s.106(14) as a: *planning obligation entered into in connection with an application (or a proposed application) for an order granting development consent.* The original s.106 agreement naturally refers to the creation of a planning obligation. The proposed variation also refers to the planning obligation. As such there is uncertainty about the legality of the s.106 and doubt about the necessary mitigation being secured. Consequently, the ExA requests the applicant to either provide a draft for a separate s.106 development consent obligation to ensure the habitats mitigation required by the DCO or to give reasons, by reference to the provisions of s.106, why they do not consider this to be necessary?	In response to Q5.0.2 the applicant believes that based on the absence of 'or' between the sub-sections of section 106(9), and the use of 'and' between subsections (c) and (d), it is considered that 106(9)(a) and 106(9)(aa) are not intended to be mutually exclusive. Section 106(9) therefore allows for the possibility that an obligation can be entered into which is both a planning obligation and a development consent obligation. In line with that position the proposed deed of variation will be updated so that clause 2.1 of the existing s106 agreement is varied to state: *"2.1 This deed constitutes for the purposes of –* *2.1.1 the Planning Permission a planning obligation for the purposes of section 106 of the TCPA; and* *2.1.2 the DCO a development consent obligation for the purposes of section 106 of the TCPA;* *and is also entered into pursuant to section 111 of the Local Government Act 1972, section 1 of the Localism Act 2011 and other enabling powers."* The effect of this amendment will be that, for the purposes of the DCO, the existing s106 agreement will also constitute a development consent obligation, and as such can be taken into account by the Secretary of State in determining the DCO application.
Q5.0.3	The Applicant	Should the ExA be minded to recommend changing the wording of the DCO to ensure that the existing permission ceases to have effect on implementation of the DCO, please make submissions on the most appropriate course of action in relation to securing the s.106 agreement.	The Applicant has responded below to Q5.0.4 in relation to whether the DCO should cause the SHBEC planning permission to cease to have effect, or be revoked. The Applicant has also responded to Q5.0.2 on the terms of the proposed section 106 deed of variation and which as noted in that response will ensure that the obligation in the section 106 agreement is secured, and can be taken into account by the Secretary of State in determining the DCO application. The Applicant does not consider that any further changes to the section 106 agreement are needed, including in a scenario where the DCO were to provide for the SHBEC planning permission to 'drop away'. The section 106 agreement has legal force separate to the planning permission, and once amended by the deed of variation will bite on both the SHBEC planning permission and DCO.

ExQ1	Question to:	Question:	Response
Q5.0.4	The Applicant	The ExA has concerns in regard to the provisions of Article 5 (Effect of the Order on the SHBEC planning permission) of the DCO. Article 5(2)(i) of the DCO would result in the conditions imposed in the Planning Permission ceasing to have effect, but the Planning Permission still existing, notwithstanding the provision within Article 5(2)(a) of the DCO. Please provide your views on: i) why such a provision is necessary; ii) why the two consents could not co-exist; iii) whether the inclusion of a provision to either: a) revoke the existing Planning Permission; or b) for the existing Planning Permission to cease to have effect should be included within the DCO; iv) whether iii) a) and iii) b) above, would be tantamount to having the same effect of revoking the Planning Permission? In responding to iii) and iv) above, please consider the legal consequences of revoking a Planning Permission and whether any of those legal consequences would apply if the SoS revoked or caused the Planning Permission to cease to have effect as a result of the DCO.	In response to Q5.0.4 the Applicant responds to each point as follows. **i) Why such a provision is necessary** Under the structure which Article 5 sets up, the Applicant has provided for a situation in which it is clear that only one of the SHBEC planning permission or DCO can be implemented at one time, and that it is clear which controls (conditions or requirements) apply. The fact that the SHBEC planning permission will continue to exist but the conditions will not apply is the same as where a later planning permission takes effect, instead of an earlier planning permission – a situation which is very common. In that scenario the earlier planning permission continues to exist (it is not expunged from the planning history of the site), but its conditions no longer apply. The only difference with the Proposed Development is in the type of consents, with the later planning permission instead being a DCO, with its requirements replacing the SHBEC planning permission conditions. In general terms the continued existence of the SHBEC planning permission (after the Article 5 provisions have been activated) is of no consequence. Since it no longer needs to control any development (the requirements in the DCO perform that role), the fact that it continues to exist does not matter. The one exception to that is in relation to the areas of the SHBEC planning permission which are not covered by the Order limits - the Applicant has proposed that the conditions would only be of no effect within the Order limits – see further the response to Q5.0.7 below. **ii) Why the two consents could not co-exist** As noted above the two consents will co-exist, in the sense that both the SHBEC planning permission and DCO will remain in place and part of the planning history of the Site. It would not be appropriate to have both consents actively controlling the development since there is then likely to be confusion as to the appropriate control and regime, and it is not necessary. **iii) whether the inclusion of a provision to either: a) revoke the existing Planning Permission; or b) for the existing Planning Permission to cease to have effect should be included within the DCO** As noted in response to point i) above, the position set up by Article 5 is not in fact different to what happens on any other site where one planning permission replaces another, and becomes the one which controls development on a site. Revocation of a planning permission is not used in those situations to 'tidy up' the planning history of the site – it is simply not necessary. The power to revoke a planning permission is contained in section 97 of the Town and Country Planning Act 1990 (copies of relevant statutory provisions are at Appendix 2). The power is to be used by a local planning authority where it considers it "expedient" (section 97(1)), and they must have regard to the development plan and other material considerations (section 97(2)). The word "expedient" is the same term used in other sections of the 1990 Act dealing with enforcement (such as enforcement notices pursuant to section 172), and it is clear that revocation is a power to be used in that context. Whilst section 97(2) is not directly applicable to the position at the Proposed Development, it is pertinent to consider its terms. There is nothing in the development plan relating to the Site, nor any material considerations (such as a nuisance which may be caused by the existence of the SHBEC Planning Permission), which would indicate that the SHBEC Planning Permission should be revoked.

ExQ1	Question to:	Question:	Response
			The legal consequences of revocation pursuant to section 97 are that the planning permission in effect ceases to exist (and so can no longer be relied on in relation to works or a change of use), and compensation can be payable by the local planning authority (pursuant to section 107). Whether those consequences occurred in any revocation provision in the DCO would depend on how it was drafted – if the provision provided that the local planning authority was deemed to have made a revocation order pursuant to section 97, then those legal consequences would follow. If the provision simply provided that the planning permission was revoked (without relying on section 97), then they may not. The alternative mooted in point iii) – that the SHBEC planning permission should cease to have effect – is similar. There is no procedural or substantive reason why that is necessary. Once the Article 5 process means that the DCO is regulating development on the Site, the SHBEC Planning Permission will continue to be part of the planning history. It is also relevant to note that the Applicant will amend the DCO so that the SHBEC Planning Permission conditions will no longer have effect within the Order limits (see Q5.0.7). Whilst no development is planned to take place within the areas included in the SHBEC Planning Permission site but which are outside the Order limits, the change to Article 5 will ensure that any development is still regulated. If the SHBEC Planning Permission were to be revoked or ceased to have effect, it would no longer be able to perform this function. **iv) whether iii) a) and iii) b) above, would be tantamount to having the same effect of revoking the Planning Permission?** This question is assumed to relate to iii)b), since iii)a) is concerned with revocation. The Applicant's position on the SHBEC Planning Permission ceasing to have effect is covered in iii) above.
Q5.0.5	The Applicant	Please explain how conditions discharged under the Planning Permission are to be secured as part of the DCO and highlight how you have done this within the draft DCO [APP-005].	In response to Q5.0.5 the applicant can confirm that its approach is not to ensure that the SHBEC planning permission conditions are themselves secured as part of the DCO, but to ensure that they are replicated within the requirements (in Schedule 2 to the DCO). The following provides an explanation of the mechanics of switching from the SHBEC planning permission to the DCO, and from the conditions to the requirements. In terms of the substantive point as to whether the requirements do replicate the conditions, see the Applicant's response to Q5.0.35 and Q5.0.40 and Appendix 3. Article 5(5) sets out that any details, plans or other matters which have been approved or agreed by the relevant planning authority pursuant to a condition of the SHBEC planning permission (as set out in column (1) of Schedule 3) prior to the date on which the undertaker serves notice that it intends to construct the authorised development, are deemed to have been approved for the purpose of the corresponding requirement (as set out in column (2) of Schedule 3) from the date of the undertaker's notice. Schedule 3 sets out the conditions under the SHBEC planning permission and the corresponding requirements under the DCO. Article 5(6) sets out that the undertaker must issue a requirements discharge schedule with the notice referred to above. The requirements discharge schedule must provide the following information:

ExQ1	Question to:	Question:	Response
			(a) the submissions and approvals that have been made in relation to each condition attached to the SHBEC planning permission; (b) the submissions and approvals that the undertaker anticipates are required pursuant to each requirement; (c) details of any outstanding applications for discharge of conditions attached to the SHBEC planning permission and which will be treated as an application for discharge of the corresponding requirement in column (2) of Schedule 3; and (d) any steps to which paragraph 36 of Schedule 2 applies. Paragraph 36 of Schedule 2 sets out that if prior to the coming into force of the DCO the undertaker (or any other person) took steps intended to be towards compliance with a provision of the requirements, those steps must be taken into account for the purposes of determining compliance with that provision if they would have been valid steps towards compliance had they been taken after the DCO came into force. Reference should also be made to the response to Q5.0.8 which further explains how the deemed discharge of requirements operates.
Q5.0.6	The Applicant	The documentation submitted with the DCO application indicates that there is no intention to implement both the Planning Permission and the DCO, if granted. However, you have also consistently referred to the Planning Permission as 'extant' and indicated that you propose to implement the Planning Permission, through-out the documentation submitted with this application. Please explain, clarify or correct as necessary.	In response to Q5.0.6 the Applicant can confirm that it is intended that the SHBEC planning permission will be implemented however at no point will development be carried out under both the SHBEC planning permission and the DCO at the same time. This development process would of course involve the SHBEC planning permission and then the DCO being implemented, but not simultaneously. Where the SHBEC planning permission has been implemented and the applicant intends to then construct the authorised development under the DCO, the applicant must give notice to the relevant planning authority under article 5 (referred to above) and from the date of that notice there can be no further development under the SHBEC planning permission. This is secured by Article 5 in the Draft DCO.
Q5.0.7	The Applicant	Document Reference 4.12 (Proposed and consented development comparison plan) [APP-019] shows the DCO order limits and the planning application boundary. Please clearly explain how the two interact, particularly given that the planning permission site is not entirely subsumed within the DCO order limits? The ExA considers that it is particularly important to understand the differences between the DCO boundary and the planning application boundary in light of Article (Art) 5 of the DCO, which attempts to transfer works commenced under the planning permission to works regulated under the DCO and to effectively deem discharge of Requirements by information submitted and approved for discharge of conditions of planning permission.	In response to Q5.0.7 the Applicant can confirm that the DCO order limits have been refined further from the SHBEC planning permission site so that a) land not required for the purposes of the authorised development is not incorporated and b) further land identified as being required for the purposes of the authorised development is included. Document Reference 4.12 / APP-019 (Proposed and consented development comparison plan) shows the differences between the SHBEC planning permission site and the DCO order limits are: • a section of the track to the flood defence along the Humber Estuary (unregistered land) is included within the SHBEC planning permission site but not the DCO order limits – no works are proposed in this area under the SHBEC planning permission or the DCO; • a section along the western boundary is included within the SHBEC planning permission site but not the DCO order limits – no works are proposed in this area under the SHBEC planning permission or the DCO; • the NGET substation and gas AGI compounds are included within the SHBEC planning permission site but not the DCO order limits – no works are proposed in these areas under the SHBEC planning permission or

ExQ1	Question to:	Question:	Response
			the DCO. To the extent that works do place within these areas they would be carried out by the relevant National Grid statutory undertaker, and would be covered by their permitted development rights; and • a section of public highway near the main entrance is included within the DCO order limits but not the SHBEC planning permission site - works are proposed here under the DCO to provide a more comprehensive application than the planning application. In the scenario where these highway works are carried out alongside development under the SHBEC planning permission they would be done pursuant to a Section 278 highways agreement. Article 5(b)(i) is only intended to have effect insofar as it relates to works within the order limits. In order to avoid any doubt as to this position and to ensure that planning controls remain in place for any works that do take place within areas covered only by the SHBEC planning permission, article 5(b)(i) has been amended in the draft DCO submitted at Deadline 2, as follows: *"the conditions of the SHBEC planning permission will cease to have effect <u>within the Order limits</u>;"*
Q5.0.8	The Applicant	The Explanatory Memorandum (EM) (Document Reference 2.2) [APP-006] at Paragraph 1.5.1 identifies the "additional works" as works not forming part of the "consented development". However, there is no reference in the EM to the corresponding works in the DCO, so it is unclear exactly which of the works for which consent is sought in the DCO are additional to the works consented in the Planning Permission. Furthermore, there is no definition of "additional works" in the DCO. To be sure which works are additional in the DCO, to that consented within the existing planning permission (defined as the SHBEC planning permission in the DCO Art 2), the ExA will need to fully understand the differences and ensure that those works are adequately controlled by Requirements that cannot be deemed to be discharged by discharge of conditions under the planning permission. Please explain clearly the "additional works" and how those works will be adequately controlled by the Requirements in the DCO.	In response to Q5.0.8 the applicant can confirm that the "additional works" are: • a larger air-cooled condenser (ACC), with an additional row of fans and heat exchangers; • a greater installed cooling capacity for the generator; • an increased transformer capacity; and • ancillary works (for example cabling or pipes). The additional works are not defined in DCO, and for the reasons set out below it is not considered that they need to be. The additional works are defined in the ES Chapter 4 at paragraph 4.2 (Document Reference 6.2.4/ APP-038), a certified document. When constructed with the additional works, the power station would be capable of generating over 50MW. This generating capacity would be unlawful under a planning permission as to carry out the additional works other than pursuant to a DCO would be an offence under section 160 of the Planning Act 2008. Therefore if the Applicant were to construct the additional works without a DCO, the local planning authority could take enforcement action. In terms of details to be approved under the conditions / requirements, the latter are deemed to be discharged insofar as they have been discharged pursuant to the SHBEC planning permission. Since it would be unlawful to carry out the additional works pursuant to the planning permission, similarly it is not open to the applicant to discharge details of the additional works pursuant to conditions attached to the planning permission. It follows that the deemed discharge of requirements cannot include details relating to the additional works, since those cannot have been discharged under conditions. They will remain to be discharged under the DCO. By way of example, under the SHBEC planning permission condition 4 deals with detailed design (position and scale) and within the DCO requirement 5 deals with the same matters. Where condition 4 is discharged in respect of the SHBEC planning permission, this can only be approval of details for plant capable of generating up to 50MW – anything above would not be lawful – and cannot therefore include approval of the position and scale of the additional works. When that discharge is then 'carried across' as deemed discharge of requirement

ExQ1	Question to:	Question:	Response
			5, it is only a partial discharge of that requirement as there will be further details to be discharged as relate to works to facilitate generating capacity over 50MW (ie. the additional works). The applicant will therefore still be required to submit such further details as relate to the additional works so that requirement 5 is fully discharged. Not to do so would be a breach of section 161 of the Planning Act 2008, and the local planning authority could take enforcement action.
Q5.0.9	The Applicant	You seek to set out the intended purpose of Art 5 of the dDCO, within the EM [APP-006] at Paragraphs 4.2.6 – 4.2.25. These paragraphs express the opinion that it is possible to modify conditions of planning permission under s.120(5)(a) Planning Act 2008 (PA2008) because the term “statutory provision” as defined in s.120(6), is capable of including conditions of a planning permission as provisions of an instrument (the planning permission) made under the TCPA. The effect of Art 5 of the draft Development Consent Order (dDCO) would not really be trying to seek to modify or exclude the conditions, but instead provide that the conditions will “cease to have effect”. Additionally, reference is made to s.120(5)(b) and 120(5)(c) PA2008 as being sections under which the Secretary of State (SoS) could authorise the provisions in this article. Please explain how s.120(5)(a), s.120(5)(b) and s.120(5)(c) of the PA2008 are applicable here.	In response to Q5.0.09 the Applicant has considered each of the relevant provisions in Section 120(5)(a) to (c) below. **Section 120(5)(a)** Sub-section (a) allows a DCO to "apply, modify or exclude a statutory provision which relates to any matter for which provision may be made in the order". As noted in the question the Explanatory Memorandum sets out at paragraphs 4.2.12-13 why the conditions attached to the SHBEC planning permission are 'statutory provisions' within the meaning of Section 120(6). Whilst the wording used in Article 5 is that the conditions will "cease to have effect", the Applicant considers that the effect of this is to exclude the operation of those statutory provisions (the conditions). There is nothing in Section 120(5)(a) which specifically requires the word "exclude" to be used, and this is therefore considered to be within the terms of the power in Section 120(5)(a). **Section 120(5)(b)** Sub-section (b) allows a DCO to "make such amendments, repeals or revocations of statutory provisions of local application as appear to the [Secretary of State] to be necessary or expedient in consequence of a provision of the order or in connection with the order". The same analysis applies as above in relation to the conditions being 'statutory provisions'. Sub-section (b) also requires that they are "of local application" – it is clear that this is satisfied given that the conditions apply exclusively to the site for which planning permission is granted, and are not of more general geographic application. The Applicant considers that it is open to the Secretary of State to include in Article 5 that the conditions will cease to have effect as an "amendment" of those statutory provisions, noting that they are to remain in existence and (as per the response to Q5.0.7) will remain in force in relation to land which is covered by the SHBEC planning permission but which is outside the Order limits. The Applicant considers that it is "necessary or expedient" for Article 5 to provide for the conditions to cease to have effect in connection with the order, the final part of sub-section (b). This ensures that there is clarity as to which planning controls will apply to the development of the Site once the Article 5 notice has been given, a matter which is clearly in the interests of the Applicant, the local planning authority and more generally to any other person who may be interested in the Proposed Development.

ExQ1	Question to:	Question:	Response
			Sub-section 120(5)(c) Sub-section (c) allows a DCO to include "any provision that appears to the [Secretary of State] to be necessary or expedient for giving full effect to any other provision of the order". The Applicant's position in relation to why the provisions are "necessary or expedient" is set out in relation to sub-section (b) above, and applies equally here. For sub-section (c) to be available though the necessity or expediency must relate to another provision of the order – it is Article 5(2)(b)(i) which disapplies the conditions on the planning permission, and it is necessary to ensure that the other provisions of Article 5 operate satisfactorily and with clarity.
Q5.0.10	The Applicant	S.120(5)(c) enables a DCO to include any provision that appears to the SoS to be necessary and expedient for giving full effect to any other provision of the order. Whilst this could be wide enough to encompass the provisions sought in the dDCO (Article 5) it needs to be shown that it is necessary and expedient for giving full effect to another provision in the order. The EM [APP-006] states at paragraph 4.2.15 "*The undertaker considers that article 5 is necessary to ensure conditions in the Planning Permission no longer apply and that the whole development is regulated by the DCO going forwards".* Please explain in more detail how s.120(5)(c) is considered to be satisfied in relation to the provisions in Article 5. In particular please explain what other provision it is necessary and expedient to give full effect to.	Please see the Applicant's response to Q5.0.9 above.
Q5.0.11	The Applicant	At EM [APP-006] Paragraph 4.2.16 refers to the legal effect of Art 5(2) and states "*The legal effect of article 5(2) is that the planning permission continues to exist but it has no enforceable conditions. The fact that it continues to exist is not a concern, since article 5(2)(a) secures that no further development can take place pursuant to it. It therefore in effect becomes part of the planning history for the Site, not a 'live' consent."* Given that this is the intention, please explain why you are not simply seeking to revoke the existing planning permission once development is to proceed	The Applicant's position on revocation is set out in the response to Q5.0.4.

ExQ1	Question to:	Question:	Response
		and be regulated by the DCO. The ExA considers this would seem a neater and more certain way to proceed.	
Q5.0.12	The Applicant	Art 5(1) of the dDCO provides that the undertaker (defined in Art 2 as EP Waste Management LTD or a person with benefit of the order in accordance with Arts 8 & 9) must not construct any part of the authorised development pursuant to the order until a notice has been served under paragraph (2). It is notable that the term “construct” is used and not “commence”. Unlike commence, “construct” is undefined in the DCO. Please explain why the term “construct” is not linked to “commence” or include a definition of “construct” in Art 2.	In response to Q5.0.12 the Applicant can confirm that Article 5(1) will be amended so as to use the term "commence".
Q5.0.13	The Applicant	The EM [APP-006] at Paragraph 4.2.6 indicates that the undertaker cannot “implement” the DCO until it has served a notice, but provides no further explanation. Please provide further and a fuller explanation in this regard and amend the dDCO, as appropriate.	Please see the response to Q5.0.12 which confirms that the wording of Article 5(1) will be updated from "construct" to "commence". Under article 5(1) the undertaker must not commence any part of the authorised development until it has served notice on the relevant planning authority. This is to ensure that the relevant planning authority is made aware that the 'switch' to the DCO will take place. The consequences of the notice are set out at article 5(2): a) there must be no further development under the SHBEC planning permission; and b) from the date of the notice— (i) the conditions of the SHBEC planning permission will cease to have effect (within the Order limits, see the response to Q5.0.7); (ii) the requirements apply to development that has or is to take place within the order limits and which is comprised in the authorised development; and any application for discharge of a condition listed in column (1) of Schedule 3 which was outstanding at the date of the undertaker’s notice will be treated as an application for discharge of the corresponding requirement listed in column (2) of Schedule 3.
Q5.0.14	The Applicant	dDCO Art 5(3) sets out that, notwithstanding 5(1), the undertaker may exercise any “other powers” under the order in respect of the authorised development. Please explain what “other powers” means in this context.	In response to Q5.0.014 the Applicant can confirm that the terms of Article 5(3) are deliberately broad, encompassing all powers in the DCO other than any which would involve the undertaker commencing the authorised development pursuant to the DCO (as noted at Q5.0.12 the Applicant will update "construct" to "commence" in Article 5(1)). Examples of other powers in the DCO that could be relevant include the power to transfer the benefit of the Order (Article 9), to enter into agreements with a highway authority (Article 14), or to survey land (Article 16). Article 5(1) bites only on the commencement of the authorised development - it is that activity which is controlled by the requirements, and that control is achieved through Article 5(2).

ExQ1	Question to:	Question:	Response
Q5.0.15	The Applicant	Should notice be served pursuant to Art 5(2), as currently drafted in the current dDCO, this would appear to have the effect of resulting in conditions attached to an implemented planning permission ceasing to have effect. Please clarify whether you consider this to be the effect of this Art and if not what the effect/ intent of the Art is?	In response to Q5.0.15 the Applicant agrees that Article 5(2)(b) does have the effect of conditions attached to a planning permission ceasing to have effect. It is possible that it would not have been implemented, although the more likely scenario is that it would have been. The Applicant's justification for the approach to conditions and requirements is set out in the response to various questions above.
Q5.0.16	The Applicant	The effect of Art 5(2)(a) is that once the undertaker serves notice on the Local Planning Authority (LPA) there must be no further development of the planning permission. The notice served by the undertaker must be included on the planning register. Although it is clear that the intention is for the undertaker to be the same person as the developer implementing the planning permission (i.e. EP Waste Management Ltd) it does not appear possible for this to be secured. Please can the applicant comment on this and the implications that flow from this.	In response to Q5.0.16 the Applicant notes that a planning permission runs with the land and can (subject to that person have the right to do so) be implemented and relied on by anyone. A DCO is personal to the parties named within it, and may be transferred subject to the terms of the DCO. The Draft Order is not different to other DCOs in this respect. It is indeed the intention of EP Waste Management Limited to implement the SHBEC planning permission, and then the DCO. There is no need for the identity of the person undertaking development pursuant to the SHBEC planning permission to be secured. Whilst development is taking place pursuant to the planning permission, the local planning authority has the usual range of enforcement powers available to it – those bite against parties with an interest in the land and against a person undertaking development. If the undertaker then takes forward the Proposed Development pursuant to the DCO, and serves an Article 5(1) notice, then it will the DCO which must be complied with, and the enforcement regime moves to that within the Planning Act 2008. If some other person seeks to undertake development pursuant to the DCO, then they would be breaching the Planning Act 2008, and would be liable to enforcement. The breach would either be carrying out development that requires development consent without a DCO (as they do not have the benefit of it), or carrying out development in breach of a DCO (again as they do not have the benefit of it). Those activities are respectively breaches of sections 160 and 161 of the Planning Act 2008.
Q5.0.17	NELC	Would placing a copy of the notice served under Art 5(2)(a) on the planning register be sufficient to inform any party affected that any development undertaken in accordance with the SHBEC Planning Permission will be in breach of the DCO from the date the notice is served? Please give a full explanation of your response, including any justification/ evidence which supports your reply.	In response to Q5.0.17 the Applicant can confirm that the main purpose of an Article 5(1) notice is to provide a transparent and discernible point at which the development is no longer regulated by the SHBEC planning permission and is then regulated by the DCO. This is primarily information which the local planning authority requires, as enforcing authority under both the 1990 Act and 2008 Act regimes. The Applicant has provided for the notice to be added to the planning register so that it is also available to members of the public, in order to ensure that transparency. The Applicant does not consider that "any development undertaken in accordance with the SHBEC Planning Permission will be in breach of the DCO from the date the notice is served" (emphasis added). It is assumed that this is referring to development being *regulated* by the DCO from that point. The planning system (the 1990 Act or 2008 Act) does not provide for proactive publicity when consents are implemented, and the Applicant does not consider that the position in this DCO needs to be any different. If a person wants to understand the position with progress on the Site then they can inspect the planning register which will include any Article 5(1) notice, a requirements discharge schedule, and details of approvals pursuant

ExQ1	Question to:	Question:	Response
			to both conditions and requirements. Should they wish to have further information then, as for any other site or planning consent, they can contact the local planning authority.
Q5.0.18	NELC	dDCO Art 5(2)(b)(i) and (ii) provide that from the date of the notice the conditions of the planning permission will cease to have effect and the Requirements of the DCO will apply to development that has or is to take place within the Order limits which is part of the authorised development. This would mean that once the notice is served any development undertaken in compliance with the planning permission will be regulated by the Requirements in the DCO and not the conditions of the planning permission from that date. Please confirm whether you are satisfied that all the conditions which apply to the existing planning permission are replicated satisfactorily in the DCO. Art 5(5) of the DCO clarifies that where details/ plans have been approved or agreed by the LPA pursuant to a condition in column 1 of schedule 3 the corresponding requirement in column 2 of schedule 3 will be deemed to be discharged. As such the ExA will need to be satisfied that the discharge of the condition corresponding to each Requirement is sufficient to discharge the Requirement, even though the condition will not relate to the additional works included in the DCO. For example, in terms of the landscaping condition the ExA will need to be satisfied that the details submitted to discharge the landscaping condition within the planning permission were acceptable to deem discharge the corresponding Requirement in the DCO. As such please confirm whether NELC, acting as the LPA, are content with the acceptability of this Art in principle and in practice, providing justification for your response.	In response to Q5.0.18, the Applicant would refer to its response to Q5.0.40.

ExQ1	Question to:	Question:	Response
Q5.0.19	The Applicant/ NELC	dDCO Art 5(6) requires the undertaker to issue a requirements discharge schedule (defined in Art 2). The LPA must state within 3 weeks whether the details in this are agreed or, if not, what parts it considers are incorrect. What happens in the event that the LPA does not agree with the applicant's schedule?	In response to Q5.0.19 the Applicant can confirm that the provisions of Article 5(6) to (8) are intended to ensure that relevant information is available to the local planning authority, and to the general public via the planning register. They are not intended to provide solutions (such as enforcement) in the event that there is a disagreement on the information in the requirements discharge schedule. In this event the Applicant envisages that the exchange of information provided for in Article 5 would then allow the Applicant and the local planning authority to discuss the issues which have arisen, and to seek to resolve any matters which are not agreed. If the matter which is not agreed could constitute a breach of planning then the local planning authority has its normal enforcement powers available to it, under either the Town and Country Planning Act 1990 or the Planning Act 2008 (depending on whether the breach relates to the SHBEC planning permission or the DCO).
Q5.0.20	The Applicant	As noted at Q5.0.7 above, the redline boundary of the planning permission is not entirely subsumed within the DCO. For example, the land which is within the planning permission boundary but outside of the red line boundary (see comparison plan 4.12 and EM [APP-006] Paragraph 3.4.1) will in effect be land which benefits from the existing planning permission but which is not subject to the Requirements in the DCO. Once the conditions "cease to have effect" this land will have the benefit of the planning permission with no conditions. Bearing the above in mind, what would the consequences be as a result of the provisions in Art 5(2) generally and specifically in regard to the National Grid Gas above ground installation and the National Grid Electricity Substation?	Please see the response to Q5.0.7 which also covers this question.
Q5.0.21	The Applicant	dDCO Art 8(2) provides that in relation to Work No 2(e) the order is for the benefit of the undertaker and EP SHB Limited. The EM [APP-006] does not explain who this is but instead refers to "appropriate statutory undertakers" (see 4.2.28). Please clarify who EP SHB Limited is and explain why it is appropriate for them to have the benefit of the order in relation to work No 2(e)? Additionally, please explain the reference to appropriate Statutory Undertakers (SU) in the EM.	In response to Q5.0.21 the Applicant states the following: (i) Article 8(2) The effect of article 8 is to confirm that, subject to article 9, the benefit of the DCO is for the undertaker, being EP Waste Management Limited. Sub-paragraph (2) confirms that Work No 2(e) is also for the benefit of EP SHB. EP SHB Limited is a subsidiary of EPUKI. The Applicant would refer the ExA to paragraphs 1.2.1 and 1.2.2 of the EM [APP 006] for a more detailed overview of EPUKI. EP SHB Limited owns the Proposed Development Site. EP SHB is also the owner and operator of the South Humber Bank Power Station (SHBPS). The Proposed Development lies within the boundary of the SHBPS site and adjacent to the SHBPS itself.

ExQ1	Question to:	Question:	Response
			The drafting in article 8(2) allows for a scenario whereby, should it become feasible and desirable in the future, a steam off-take from the Proposed Development could be directed to SHBPS where the steam could be beneficially used. The drafting in 8(2) enables EP SHB, as the operator of the SHBPS, to rely on the powers in the DCO directly and to undertake the necessary works should they be required. <u>(ii) Statutory Undertakers</u> The term "appropriate Statutory Undertaker" is referenced in the Explanatory Memorandum [APP-006] and is used to refer to those bodies whom, by virtue of their function and statutory designation are bodies responsible for carrying out statutory duties relating to the water, gas, sewerage, electrical and telecoms networks and systems. However the reference to "appropriate Statutory Undertaker" in the Explanatory Memorandum in relation to Article 8 is an error. They are however relevant to Article 9, considered in Q9.1.6 below.
Q5.0.22	The Applicant	dDCO Art 9(4) permits the transfer of the benefit without SoS consent. Art 9(4)(b) applies to “relevant statutory undertakers” or “licence holders” and this is potentially a very wide category of persons. What is the justification for permitting the transfer of these benefits to these persons? Additionally, please provide a definition for “relevant statutory undertaker” and “licence holder” in this context, as it is unclear exactly who would fall into these categories.	In response to Q5.0.22 the Applicant confirms that Article 9(4) prescribes that the consent of the SoS is to be obtained for the transfer of the benefit of the DCO, except where the transferee or lessee is (i) the holder of a licence under Section 6 of the Electricity Act 1989, (ii) in relation to a transfer or lease of utility or other infrastructure connection works the relevant statutory undertaker or licence holder; or (iii) a highway authority in respect of a transfer of lease of works within a highway. *"Utility or other infrastructure connection works"* are referenced in paragraph (e) of the catch-all wording included in Schedule 1. The Applicant has therefore included reference to these works, and the ability to transfer or lease these to the relevant licence holder or statutory undertaker in article 9, for completeness and to ensure that any transfer is able to be dealt with expediently at the time. The Applicant notes that as currently drafted, the dDCO does not define "*utility or other infrastructure connection works",* nor does it define "*relevant statutory undertaker"* or *"licence holder"*. The Applicant therefore proposes that article 9 is amended to include a new sub-paragraph 9(9) as follows:- "*In this article "relevant statutory undertaker" or "licence holder" means :* *a body who:* *(i) falls within section 127(8) of the Planning Act 2008 and or is a holder of a statutory licence or a licence granted under or pursuant to a statute or other regulatory framework; and* *(ii) whose licensed duties include owning, operating or maintaining utilities and or infrastructure and their connections."*

ExQ1	Question to:	Question:	Response
			The Applicant notes ExA question 5.0.23, however does not consider that it is necessary to define "*utility or other infrastructure connection works".* The intention behind the drafting in the dDCO is to ensure that it is sufficiently broad to include relevant statutory undertakers and utility operators without providing an exhaustive list. The Applicant considers that the proposed drafting for article 9(9), as set out above, provides comfort that the transfer of the benefit of the DCO, should that take place, would only be permitted without the consent of the Secretary of State where that transfer was to a body of sufficient and comparable regulatory standing. The Applicant further notes that the dDCO does not include powers of compulsory acquisition. The ExA and Secretary of State can therefore be satisfied that this is a different scenario to those in other DCOs where powers of compulsory acquisition are included, and which would have a different criteria for the transfer of the benefit of the DCO.
Q5.0.23	The Applicant	The transfer of benefits applies to “utility or other infrastructure connection works” (See dDCO [APP-005] Art 9-(4)(b)). To provide sufficient certainty as to which works this relates to, please provide a definition to this term.	In response to Q5.0.23 the Applicant refers the ExA to its answer to ExA FWQ 5.0.22 in respect of the justification as to why "*utility or other infrastructure connection works"* is not defined.
Q5.0.24	The Applicant	The EM [APP-006] paragraph 4.2.30 attempts to justify the provision within dDCO Art 9(4) by stating that the transfers without consent are permissible because they are transfers to persons of a similar regulatory standard as the Applicant and refers to precedents in Progress Power and Eggborough DCOs. However, neither the Progress Power and Eggborough DCO included transfer to “relevant statutory undertakers or licence holders”. In the light of this please explain why the transfer of such powers would be justified in this instance or direct the ExA to relevant and appropriate precedent(s) that permit such transfers.	In response to Q5.0.24 the Applicant refers the ExA to its answer to ExA FWQ 5.0.22 in respect of the justification for the transfer of the powers as provided for in article 9 of the dDCO, and the proposed amendment to that article to ensure that transfers are to bodies of sufficient and comparable regulatory standing. The Applicant notes that the EM [APP-006] refers to both the Progress Power (Gas Fired Power Station) Order 2015 and Eggborough Gas Fired Generating Station Order 2018 and notes that the drafting in article 9(4) in respect of limbs (i) and (iii) follow the approach taken in those DCOs. In respect of article 9(4)(ii), the Applicant confirms that it is not aware of similar precedent for this drafting, however considers that in this case the drafting is justified to ensure that the Applicant has the benefit of flexibility in the future. As explained in the Applicant's response to ExA FWQ 5.0.22, the Secretary of State and ExA can be satisfied that this flexibility is balanced by ensuring that any transfer is to a body of sufficient and comparable regulatory standing.
Q5.0.25	The Applicant	ES Paragraph 4.3.2 states that Paragraphs (3) and (4) of Art 12 of the dDCO mirror the defence in section 58 of the Highways Act 1980. Please explain fully why it is necessary to include this defence in the DCO if it is already available in the Highways Act?	In response to Q5.0.25 the Applicant notes that paragraph 4.3.2 of the EM [APP-006] states that paragraphs (3) and (4) of article 12 of the dDCO mirrors the defence in section 58 of the Highways Act 1980. The defence in section 58 of the Highways Act 1980 is available where there is "an action against a highway authority". The undertaker is not a highway authority, and therefore the DCO needs to include specific wording (as per Article 12(3) and (4)) to achieve the same position.

ExQ1	Question to:	Question:	Response
			The Applicant would also refer the ExA to other DCOs - in addition to Hinkley Point C (Nuclear Generating Station) Order 2013 – such as the Drax Power (Generating Stations) Order 2019, which also includes this wording.
Q5.0.26	The Applicant	dDCO Arts 10, 11, 12 and 13 – Whilst the EM [APP-006] at paragraph 3.4.2 explains the Applicant's control of the land, bearing in mind the Book of Reference (BoR) [APP-007], in the absence of any Compulsory Acquisition (CA) and Temporary Possession (TP) please explain how you will exercise these powers over private and public streets and highways, especially bearing in mind the Category 1 and 2 parties identified in BoR at Parts 1 and 3?	In response to Q5.0.26 the Applicant considers that it is relevant to consider public and private streets separately, since the considerations are not identical. **Public streets** There is only one public street within the Order limits, being a small extent of South Marsh Road where the new entrance to the Site is to be created. On the Land Plan (Document Ref. 4.2 / APP-009) this area is Plot 3, and is within both Work Number 2 (utility connections) and Work Number 4 (site access) on the Works Plans (Document Ref. 4.3 / APP-010). Plot 3 is not registered at the Land Registry - the only interests in Plot 3 are NELC (as highway authority, not a land interest) and four companies who have an assumed interest in the subsoil underneath the public highway, as each owns part of the land adjoining the highway. Works in this area will be confined to those which commonly take place within a public highway, being highway works and utility connections to apparatus already installed in the road, and which do not go 'beneath' the highway into the subsoil. There is therefore no interference with any third party land interests, and the street works powers in the DCO are sufficient. **Private streets** The only private streets within the Order limits are the existing ones within the South Humber Bank Power Station site. The land on which these sit are within the freehold ownership of EP SHB Limited, a company within the same corporate group as the Applicant. As noted in the Explanatory Memorandum (3.4.2) at the relevant time EP SHB Limited will transfer or grant a lease of the relevant land to the Applicant. To the extent that EP SHB Limited will retain ownership and occupation of the land (such as the South Humber Bank Power Station), it will grant rights to the Applicant to carry out the works it needs to as part of the Proposed Development. South Humber Bank Power Station is within Plot 1 on the Land Plan. The Book of Reference notes five parties with interests in Plot 1 (some of these are also referenced in Plot 2, for which there's no difference in analysis): • Lloyds Bank plc – it has a mortgage over EP SHB Limited's freehold interest in the site. Consent to the transfer or lease to the Applicant will be sought at the appropriate time. • Innogy Renewables UK Holdings Limited – it owns land to the immediate south of the Site and has rights to connect into and use the drainage system and drains within the Site. These rights do not impact on the Proposed Development, since a drainage system and drains will be maintained, and will be sized to accommodate all land that they drain. • National Grid Gas plc (NGG), National Grid Electricity Transmission plc (NGET) and Northern Powergrid (Yorkshire) plc (NPG) – these parties each have leases within the overall area of SHBPS. These are not relevant to the DCO as the areas which are leased to each of them have been excluded from the Order limits. See also the response to Q9.0.7. These parties also have the benefit of rights within Plot 2, for instance to lay and maintain apparatus (such as cables and pipes) and rights of way over access roads.

ExQ1	Question to:	Question:	Response
			These rights do not give the relevant party exclusive possession over the private roads within Plot 2 and nor do they permit these parties to prevent works. The rights allow them to use the roads alongside others (such as EP SHB Limited and any occupiers of the Site). To the extent that works are required to private roads themselves, or within them (such as to lay connections for the Proposed Development), these can therefore be carried out pursuant to the street works powers in the DCO. Works to NGG's, NGET's or NPG's apparatus can be carried out pursuant to article 19, and the protective provisions include protection for these parties and their apparatus, and its replacement where necessary (see the Draft Order Schedule 8, Parts 2 and 3).
Q5.0.27	The Applicant	Whilst the definition of 'public sewer' and 'drain' is provided within Art 15 of the dDCO, these terms are used elsewhere throughout the document (See Arts 2, 10 and 21) as well as the Schedules. Please clarify why these terms have not be included within Art 2 (definitions) of the dDCO?	In response to Q5.0.27 the Applicant can confirm that these definitions will be moved to article 2 in the updated Draft Order to be submitted at Deadline 2.
Q5.0.28	The Applicant	Art 17(1) of the dDCO permits the undertaker to fell or lop any tree or shrub "near any part of the development". This does not provide sufficient certainty in terms of identifying which trees the undertaker is permitted to fell or lop. Please explain the acceptability of this, particularly in consideration of Art 17(6), which provides that the authority given under subparagraph (1) is a deemed consent under the relevant Tree Preservation Order (TPO) or amend the dDCO accordingly. In addition to the above, please provide details of the TPO referred to in Art 17(6) of the dDCO.	In response to Q5.0.28 the Applicant notes that Article 17 does not specify the trees to which it applies. That is deliberate, since the Applicant does not know now the trees that may exist in and around the Site over the course of the operational period of the Proposed Development. Whilst particular trees are not specified, Article 17 is limited in its scope through the following: • the tree or shrub must be "near any part of the authorised development" (17(1)); • the undertaker must reasonably believe that the felling or lopping is necessary in order to avoid one of the consequences set out in Article 17(1)(a) or (b); • the undertaker cannot fell or lop trees within the public highway without the highway authority's consent (17(4)). If the Applicant felled or lopped a tree pursuant to Article 17 and the local planning authority considered that the action may be beyond the scope of Article 17, the authority would be entitled to take enforcement action in respect of the alleged breach of the DCO (pursuant to section 161 PA2008). The Applicant is not aware of any tree preservation orders in or close to the Site. Article 17(6) is included to allow for the possibility that relevant trees will later be subject to a tree preservation order.
Q5.0.29	The Applicant	Art 19 of the dDCO gives the undertaker the power to extinguish or suspend the rights of, remove or reposition the apparatus belonging to SU(s). Please explain why this does not amount to CA or the acquisition of land by agreement (See Section 138 of the PA2008), or the TP of Land?	In response to Q5.0.29 the Applicant states the following: **The powers in Article 19** The Secretary of State is prevented from being able to grant powers of compulsory acquisition unless one of the conditions in Section 123(2) to (4) of the PA2008 is met (amongst other substantive tests). None of the Section 123 conditions are met, and in particular the Applicant did not apply for compulsory acquisition powers as part of the DCO application.

ExQ1	Question to:	Question:	Response
		Additionally, the ExA needs to be satisfied that extinguishment or suspension of SU rights and removal or repositioning of SU apparatus is necessary and justified. Please provide full justification of why extinguishment or suspension of SU rights and removal or repositioning of SU apparatus is necessary and justified?	The Applicant does not consider that Article 19 would be sufficient to provide it with powers of compulsory acquisition, for two reasons. The word "compulsory" is omitted, and this would be different to every piece of modern primary legislation which grants powers of compulsory acquisition. In addition, none of the usual provisions related to compulsory acquisition are included in the Draft Order, and that would make it unworkable practically to read Article 19 as providing powers of compulsory acquisition. The Applicant considers that it may be possible to read the words "extinguish or suspend the rights of" or "remove" as being a power to *agree* to acquire an interest in land. The Applicant has reviewed this wording in the Draft Order and has omitted them in the updated draft submitted at Deadline 2 (Document Ref. 2.1 Version 2.0). The updated wording in the Draft Order therefore just refers to "re-position" in relation to apparatus. This clearly does not encompass acquisition or removal, and therefore the Applicant is content that Article 19 does not empower the acquisition of land. Article 19 does not mention "temporary possession" of land, nor any similar phrase, and the Applicant's view is that that cannot (and would not, by the Courts) be implied into the Article. **Justification for Article 19 (as amended)** It is necessary for the undertaker to have the ability to re-position apparatus belonging to statutory undertakers as this may be necessary as part of the Proposed Development. It is likely that there will be interactions between a statutory undertaker's apparatus (such as a water pipe or electric line) and connections required for the Proposed Development, for instance within the operational area of SHBPS where there are a number of utilities already. In many cases it may be possible simply to pass over or under existing utilities at the crossing point, without disturbing them. However in other cases it may be appropriate or necessary (for instance for safety reasons) to move the existing utility, so that the crossing can occur in a different way. Article 19 is expressly subject to the protective provisions, and those provide relevant bodies with sufficient approval rights or control so as to appropriately regulate the Article 19 power. Examples include (all in Schedule 8 to the Draft Order) paragraph 3 of Part 1 in respect of Anglian Water's apparatus, and paragraphs 14-17 of Part 2 in respect of National Grid's apparatus.
Q5.0.30	Statutory Undertakers	Consideration needs to be given to the protective provisions and the views of the affected SU's. Could any SU effected by the proposed development advise whether they consider whether there should be any specific compensation provisions included in the DCO for extinguishment or suspension of SU rights or if these are adequately addressed by the relevant protective provisions?	In response to Q5.0.30 the Applicant notes that Q5.0.30 is directed at Statutory Undertakers, however the Applicant considers it may be useful to the Examining Authority for it to comment. The Applicant's view is that Statutory Undertakers are adequately protected by the Protective Provisions included at Schedule 8 of the dDCO. The Applicant refers the Examining Authority to the Statement of Common Ground with Anglian Water (Document Ref. 7.8) which confirms that the protective provisions are agreed between the parties. The

ExQ1	Question to:	Question:	Response
			Applicant will submit a revised Draft Order at Deadline 2 including the agreed Protective Provisions with Anglian Water. The Applicant notes that it is continuing to engage with National Grid regarding the negotiation of bespoke Protective Provisions, but that it has included a comprehensive set of provisions, based on National Grid's preferred terms, and which provide adequate protection for both NGET and NGG. The Applicant has also included sets of protective provisions which apply to other types of statutory undertakers generically, in Parts 3 and 4 of Schedule 8, and which closely follow the form of similar provisions included in many of the DCOs made to date.
Q5.0.31	The Applicant	dDCO Art 23 – The EM [APP-006] does not adequately explain why it is necessary to ensure that the land will be operational land in the circumstances of this particular Nationally Significant Infrastructure Project (NSIP). The EM simply refers to precedent (see EM paragraph 4.6.6) but does not explain why in response to that question. Please provide full and clear explanation for the need for this provision.	In response to Q5.0.31 the Applicant states that where the SHBEC planning permission is implemented, the land will be operational land for the purposes of the Town and Country Planning Act 1990. That occurs as section 264(3) of that Act specifies that there must be "a specific planning permission" and which involves use of the land for the purposes of the statutory undertaker's undertaking (in this case an electricity undertaking). If article 23 is not included, the land will then cease to be operational land from the point at which the DCO is triggered (under Article 5), as section 264 refers only to the existence of a planning permission, not a DCO. The Applicant will have a generation licence under section 6 of the Electricity Act 1989 and it is appropriate for the land to continue to be operational land, with the planning consequences that flow from such status (including permitted development rights).
Q5.0.32	The Applicant/ NELC	dDCO Art 27 – Art 27(2) contains a deemed approval procedure for applications other than those made under the Requirements. Please advise which provisions in the DCO this applies to and whether the consenting authorities are happy with this provision. Additionally, bearing Art 27 in mind, the ExA would seek the views of NELC, acting as the relevant LPA and Highway Authority, and any other street authority as is relevant to this DCO application, on the acceptability of this provision and the timescales provided?	In response to Q5.0.32 the Applicant confirms that other than to exclude the requirements, which are to be dealt with as if they were conditions attached to a planning permission, Article 27 does not specify which provisions it applies to. This is deliberate, as it is intended to apply broadly. Examples of provisions to which it would apply include: • those which require the consent of the highway / street authority. These include various provisions within Part 3 of the Draft Order, such as articles 10(2) and 11(2) in relation to works in streets other than those specified in 10(1) / Schedule 4 and 11(1) / Schedule 5 (this is not an exhaustive list of potential consents required in Part 3). The consent of the highway authority is also required for works to trees in the public highway under article 17(4). • discharge of water to a watercourse, public sewer or drain (article 15), other than where that dispute is to be determined pursuant to section 106 of the Water Industry Act 1991 pursuant to article 15(2). Anglian Water confirmed in an email to the Applicant on 19 October 2020 that it had no comments on Article 27. The Applicant and Anglian Water submitted a signed Statement of Common Ground (Document Ref. 7.8) at Deadline 1 and which confirmed the changes to the Draft Order which were agreed (and which have been incorporated into the revised Draft Order submitted at Deadline 2). There are no changes to Article 27 noted in the Statement of Common Ground. The Applicant discussed the Draft Order with NELC prior to submitting the DCO Application. NELC, in reviewing the various procedural aspects of the Draft Order (including Article 27), commented that there was potential for

ExQ1	Question to:	Question:	Response
			there to be confusion if a matter was being submitted pursuant to Requirement 36, and asked that any such submission should be clear on its face. The Applicant included Requirement 36(2) in the Draft Order in response. NELC has not made any comments on Article 27 to the Applicant.
Q5.0.33	The Applicant	In terms of Schedule 1 Work 2 Please explain as to when a decision will be made on underground or overground for the electrical connection?	In response to Q5.0.33 the Applicant confirms that a decision on whether the 400 kV electrical cable will be installed underground or overground will be taken during the construction phase of the project as part of the EPC contractor's detailed design activities. The cable installation layout will be discussed and agreed with the Applicant and EP SHB Limited as the cable route to the NGET substation will cross the South Humber Bank Power Station site. For the avoidance of doubt, in this context 'overground cables' mean plastic coated cables laid in cable tray/ rack support systems at a relatively low height (e.g. approx. 6m). These should not be confused with 'overhead' power lines, which are wires suspended between towers or poles.
Q5.0.34	The Applicant	Schedule 1 Further Development - Please consider drafting which ensures that all further development (a) – (j) falls within the scope of works assessed in the ES or explain why such amendments to the DCO are not considered necessary?	See the response to Q1.0.6 which addresses this question.
Q5.0.35	The Applicant	Schedule 2 General - As per comments above on Art 5, if Art 5 remains as drafted, all of the conditions of the planning permission will need to be completely incorporated into the Requirements of the DCO. This is because the operation of Art 5 will in effect remove the existing conditions and all works undertaken in relation to the planning permission will be subject to the Requirements in the DCO instead. Should Art 5 be retained, please ensure that the dDCO completely incorporates all of the conditions of the planning permission within the Requirements of the DCO.	In response to Q5.0.35 the Applicant agrees that it is important that the conditions of the SHBEC planning permission are incorporated within the requirements of the Draft Order. This was a matter which the Applicant considered in detail prior to submission of the DCO application, and discussed extensively with NELC. Please see the attached detailed table at Appendix 3 which demonstrates the read across between each planning condition and requirements included in the Draft Order.
Q5.0.36	The Applicant	Schedule 2 Requirement 1 & Other Requirements relating to Permitted Preliminary Works - Requirement 1 contains a definition of permitted preliminary works and several Requirements permit these works to take place before the Requirement is discharged (See Requirements 5, 6, 8, 10, 13, 14, 19, 20 ,29 and 30 for example). Please explain fully and clearly why it is appropriate in each case for these works to take place before the Requirement is	In response to Q5.0.36, the Applicant confirms that the pre commencement activities, which are termed Permitted Preliminary Works ('PPWs') and are defined in Condition 3 of the Planning Permission and Requirement 1 of the Draft DCO, are minor in scale and enabling in nature. As a reference, the scale and nature of the works includes works permitted by The Town and Country Planning (General Permitted Development) (England) Order 2015 (as amended) (Schedule 2, Part 15, Class B – electricity undertakings) or other PD rights. It is important to note that the Construction Environmental Management Plan and Construction Traffic Management Plan (Condition 10/ Requirements 15 and 16) cover any development, including PPWs. This will ensure the environmental and traffic impacts associated with PPW's are acceptable.

ExQ1	Question to:	Question:	Response
		discharged and therefore without the control of the Requirement?	The relevant pre-commencement Requirements that permit PPWs prior to discharge are 5, 6, 8, 10, 13, 14, 19, 20 ,29 and 30. Requirement 5 'Detailed design (position and scale)' and Requirement 6 'Detailed design (appearance)' relate to the future design of Work No. 1. The PPWs do not include or affect any permanent above ground development so their design, position and scale do not need controlling. Requirement 8 'Means of enclosure and hard landscaping' is considered to require details at a later stage of the development process. The PPWs do not include or affect any hard landscaping or permanent means of enclosure so their appearance do not need controlling. Requirement 10 'Soft landscaping' is considered to require details at a later stage of the development process. The details for this requirement do not relate to the outcomes or purpose of the proposed PPWs. Where surveys are undertaken as part of the PPWs this will enhance the details to be provided for Soft Landscaping. Additionally any PPW works are required to be in accordance with the biodiversity protection plan or any details approved pursuant to requirement 11 'Biodiversity protection'. The Soft Landscaping would also be in accordance with this Plan. Requirement 13 'Surface Water Drainage' is not considered to have any impact on the PP's as they will not materially impact the surface water drainage to be proposed on Site. Requirement 14 'Foul Water Drainage' is not considered to have any impact on the PPW's as they will not materially impact the foul water drainage to be proposed on Site. Requirement 19 'Investigation and remediation of contamination' is acceptable to be discharged after the PPWs begin as the procedure governing unexpected contamination (Condition 12/ Requirement 18) covers the entire construction and operational phases and does not exclude PPWs. It is additionally considered that the level of works proposed as part of the PPWs would be unlikely to encounter contamination. Refer to Q5.0.1 for information about how piling works carried out as part of PPWs are subject to Requirement 19 and Requirement 17 (piling methodology) and the other contaminated land requirements, and information about the modifications to the piling related requirements in the Draft DCO at Deadline 2 to align the piling works to the enabling works programme. It is further noted that Condition 13 (Requirement 19) of the Consented Development has been discharged and no remediation strategy is required on the basis of the Ground Investigation findings. Requirement 20 'Implementation of remediation scheme' is considered acceptable to be discharged after the PPWs begin as the procedure governing unexpected contamination (condition 15 / Requirement 21) covers the entire construction and operational phases and does not exclude PPWs. It is additionally considered that the level of works proposed as part of the PPW's would be unlikely to encounter contamination. It is further noted that Condition 13 (Requirement 19) of the Consented Development has been discharged and no remediation strategy is required on the basis of the Ground Investigation findings. Requirement 29 'Road condition survey' is considered acceptable to be discharge after the PPWs begin as the PPWs would be of a minor scale that would not impact the outcomes of the offsite Road Condition Survey.

ExQ1	Question to:	Question:	Response
			Requirement 30 ‘Air Safety’ is considered acceptable to be discharge after the PPWs begin given the height of construction equipment used at PPW stage would not be relevant to air safety.
Q5.0.37	The Applicant	Schedule 2 Requirement 3 and tailpieces in other Requirements - The ExA would query the use of tailpieces such as “*unless otherwise approved by the LPA*” and asked the Applicant to consider removing them or provide an explanation and justification for each tailpiece. It would be helpful for the Applicant to explain the interaction of the tailpieces with Requirement 3(2). The ExA would draw your attention to PINS AN 15 on DCO drafting, section 17, in relation to tailpieces. Whilst EM [APP-006] Paragraph 5.2.4 is noted, the ExA needs to consider, in each Requirement where the tailpiece arises, whether it is acceptable. As such a full and clear explanation/ justification in regard to each tailpiece, in consideration of PINS AN 15 section 17, is requested. Your attention is drawn in particular to Requirement 15(3), which enables the LPA to agree that the development does not need to be carried out in accordance with the approved CEMP. This seems to undermine the purpose of the Requirement itself which is to ensure that the CEMP is in accordance with appendix 5A of the ES and incorporates the information in Requirement 15(2). Requirements 16, 17, 22, 24 and 25 are likely to warrant similar concerns. Furthermore, whilst Requirement 34 is noted Art 28 relates to appeals against LPA decisions on applications to discharge Requirements. This does not seem to get around the difficulty that “unless otherwise agreed with the LPA” allows the LPA to approve details outside of the parameters of the Requirements. Please address the above matters within the dDCO or provide a full explanation as to why each of the matters identified above does not need to be amended and/ or addressed within the dDCO.	Advice note 15 states the following in relation to requirements and subsequent approvals under them: "17.3 Applicants should be aware that details fixed by the terms of the DCO can only be changed if authorised, and following adherence with the prescribed approach explained in section 153 of and Schedule 6 to the PA2008. Furthermore, it is not acceptable to circumvent the prescribed process in Schedule 6 by seeking to provide another route to approving such changes or variations, by a person other than the Secretary of State who made the DCO, for example by applying the provisions of section 73 and/ or section 96A of the TCPA1990. 17.4 Therefore, adding a tailpiece such as the one below would not be acceptable because it might allow the discharging authority to approve a change to the scope of the Authorised Development applied for and examined, thus circumventing the statutory process: *“The authorised development must be carried out in accordance with the principles set out in application document [x] [within the Order limits] unless otherwise approved in writing”* 17.5 On the other hand, a Requirement might make the development consent conditional on the discharging authority approving detailed aspects of the development in advance (for example, the relevant planning authority approving details of a landscaping scheme). Where the discharging authority is given power to approve such details it will be acceptable to allow that body to approve a change to details that they had already approved. However, this process should not allow the discharging authority to approve details which are outside the parameters authorised within any granted DCO." The Applicant acknowledges the above advice and that the Draft Order (Document Ref. 2.1 / APP-005) includes tailpieces within a number of requirements. These need to be viewed in the context of the controls in the Draft Order as a whole, considered below, and the relevant provisions of the PA2008. The Draft Order is permissive, allowing the authorised development (in Schedule 1) to be built and operated within the areas established by the Works Plans (Document Ref. 4.3 / APP-010). The requirements (in Schedule 2) then ensure that the parameters and controls considered in both the environmental assessment and other application documents are secured. Where necessary they are tied to specific parts of the application, such as where a framework control document has been submitted which sets out the structure and principles for the detailed control which is subject to later approval by the local planning authority. It is also noted that key requirements relating to parameters and control over design (3(1), 4 and 5) are not subject to tailpieces. Wherever relevant each requirement then requires compliance with the approved details, to complete the chain of planning and environmental control. Requirement 3(2) is a mechanism to acknowledge that the undertaker may need to change details which have been approved by the local planning authority, and ensures that the 'compliance' part of relevant requirements

ExQ1	Question to:	Question:	Response
			bites on any such amended details. It is necessary to ensure that the obligation to comply with approved details evolves with any details that change, rather than always requiring compliance with the details that are first approved under the requirement. It is very common on projects such as the Proposed Development for the construction methodology or details of particular parts of the scheme to change over the course of the build period. Similarly it is common for operational stage details to change, in response to changing circumstances or 'on the ground' experience of operating the plant and related aspects such as fuel deliveries. It is therefore essential to allow for these likely – but unknown - changes within the Draft Order, subject to adequate control over them. In terms of how changes to approved details could occur, there are three principal routes. The first is via an application for a change to the Order itself via the process in Schedule 6 of the PA 2008. The second is via a new application to re-discharge the relevant requirement, effectively displacing the details originally approved under the requirement. This would not require particular wording in each requirement as it is a route generally available to the Applicant. The third route is, where provided for, pursuant to the tailpiece – this allows the local planning authority to exercise its discretion to permit a change to the approved method or details, if requested by the undertaker. The Applicant's view is that the Secretary of State is able to include such provisions in a DCO, as it is a statutory instrument and specifically as Section 120(2) allows the imposition of requirements akin to planning conditions (120(2)(a)) and those which require the undertaker to "obtain the approval of the Secretary of State or any other person, so far as not within paragraph (a)" (120(2)(b)). The latter phrase clearly envisages that requirements (and therefore elements of them) could be additional to controls which can be imposed as a condition to the grant of planning permission (or other relevant consents), being those covered in "paragraph (a)". The Applicant's view is that it is therefore open to the Secretary of State to permit the local planning authority to approve details under requirements (the first part of 120(2)(b)), and that the Secretary of State is not limited in this respect by the law applicable to planning conditions (the second part of 120(2)(b)). The lawfulness of the principle of tailpieces is therefore clear, and the local planning authority is clearly an appropriate body to be responsible for discharging requirements and details of the Proposed Development. That overall position is subject to compliance with other legislation, and in particular cannot be used to circumvent environmental impact assessment. In order to ensure that this is not contravened the Applicant has included Requirement 34(1), which prevents the local planning authority from approving details which would lead to different environmental effects from those assessed in the Environmental Statement (Document Ref. 6.1-6.4 / APP-033 to APP-139). The Environmental Statement is a certified document, pursuant to Article 25. The Applicant therefore considers that, whilst the tailpieces do potentially permit different details to be approved compared to those set out in the Application, there is nothing in this which is unlawful nor objectionable from a planning control perspective. Notwithstanding that position, the Applicant is proposing to add an additional control to the Draft Order - a new paragraph has been added to Requirement 34 (in the revised Draft Order submitted at Deadline 2) which obliges

ExQ1	Question to:	Question:	Response
			the undertaker, if requesting that the local planning authority 'approves otherwise', to provide information to the local planning authority which demonstrates compliance with relevant certified documents. This goes beyond merely requiring that the assessed environmental effects are not exceeded, tying in the nature of controls set out in (for instance) a framework document submitted with the Application. This deals with the points raised in the question regarding the apparent ability of the local planning authority to approve something which could go beyond the scope of the requirement. This also corresponds to the situation that is clearly stated in Advice Note 15 (at paragraph 17.5) as being acceptable. In terms of the position in relation to particular requirements, the Applicant provides the following explanation of the need and justification for the tailpieces noted in the question. As the underlying justification for these is the same, examples of circumstances relevant to some of the requirements are provided, rather than a justification in each case. • Construction period requirements - 15 (CEMP), 16 (Construction traffic) and 17 (Piling) – as noted above, it is common for a construction methodology or practice to change, potentially at relatively short notice. It may be that the detailed CEMP or piling specification includes information on how a particular aspect of the works will be controlled, such as avoiding polluted discharges to surface water. There may be a period during construction when that method is not appropriate, and which was not envisaged when the detailed CEMP was approved, but that another method which has the same result is available. To switch method is likely to involve a breach of the CEMP and therefore the requirement, and risks enforcement pursuant to Section 161 of the Planning Act 2008 (which notably carries criminal sanctions). It is not proportionate to require the contractor or undertaker to go through the full process to re-discharge the relevant requirement (which could take 8-12 weeks), particularly when the change may be a temporary one. If the local planning authority considered that approving a change pursuant to the tailpiece was not appropriate, it can refuse to give the approval, and the contractor or undertaker would need to find an alternative solution (whether to make a formal application to discharge the requirement, a non-material change to the DCO, or an alternative solution on site). • Operational period requirements – 22 (Flood risk), 24 (Delivery and servicing plan) and 25 (Operational travel plan) – the considerations in relation to the relevant operational stage requirements are effectively the same, although the potential scenarios are different. It may be that circumstances change over time, and that these necessitate a departure from the approved traffic plans (requirements 24 and 25) or flood risk approach (requirement 22). For instance, travel planning and reduction in the use of the private car is likely to remain a fixed policy objective, but how that is best achieved may well change over time as technology and human behaviour evolve. As above for the construction stage, any substantial changes would need to be made through re-discharging the requirements or an application to change the Order, but anything which is within the scope of the environmental statement and (as per the new drafting) complies with relevant certified documents can appropriately and proportionately be dealt with pursuant to a tailpiece.
Q5.0.38	The Applicant	Schedule 2 Requirements 5 & 6 - These Requirements appear to permit work number 1 to be undertaken in different parts and the Requirement discharged separately for each part. It is unclear what constitutes a “part” of the authorised development in	In response to Q5.0.38 the Applicant can confirm its intention that these requirements allow for separate discharge applications for different parts of Work Number 1, and it is deliberate that "a part" is not defined. It may be that the Applicant has information so as to be able to obtain detailed approval of elements of Work Number 1 before others, and the drafting enables the Applicant to submit the former details without delay. If the local planning authority is concerned that it does not have sufficient information then it is within its powers to

ExQ1	Question to:	Question:	Response
		Work No 1 and you are asked to give clear and precise clarification in this regard.	request that information. Ultimately the local planning authority can also refuse to discharge the requirement if its view is that the partial discharge sought cannot be considered without details of other parts.
Q5.0.39	The Applicant	Schedule 2 - Requirement 29 - For consistency with other Requirements, please rephrase to say “no part of the authorised development may commence…” instead of “No development may take place…”	In response to Q5.0.39 the Applicant can confirm that this change has been made in the Draft DCO submitted at Deadline 2.
Q5.0.40	The Applicant	Schedule 3 – This Schedule needs to be considered in conjunction with the operation of Art 5 and the ExA will need to be satisfied that the discharge of each condition in column 1 will be sufficient to discharge the corresponding requirement in column 2. Please explain how you consider this is achieved in relation to each condition/ Requirement?	In response to Q5.0.40, the Applicant has provided a detailed table within Appendix 3 which identifies the Consented Development condition wording, the Proposed Development requirement wording, comments on the wording when compared, the trigger for each and the implications of the Additional Works. It is noted that Requirements 1-4 of the DCO are bespoke to the Proposed Development and therefore are not included in the table provided. Based on the table, it is considered that all conditions are adequately covered by the requirements and in some circumstances the requirements provide additional control.
Q5.0.41	Statutory Undertakers identified in the BoR and Schedule 8 of the dDCO.	Please confirm you are content that the Protective Provisions, Arts and Requirements within the dDCO provide adequate protection?	Please see the response to Q5.0.30 which provides the Applicant's position on protective provisions.
Q5.0.42	The Applicant	BOR - Part 1 Second Column is headed “*Extent, Description and Situation of Land or Right to be Acquired.”* As the Applicant indicates that there is no acquisition proposed in this case you are asked to amend this heading to read “*Extent, Description and Situation of Land”* to avoid any confusion. Additionally, Part 2 of the BoR does not include any category 3 persons. Please explain how you have reached this conclusion?	In response to Q5.0.42 the Applicant confirms the following: **Format of book of reference** The Book of Reference (Document Ref. 3.1) has been updated as requested and a revised version submitted at Deadline 2. **Category 3 parties** Based on the findings of the Environmental Impact Assessment, including consideration of noise and other nuisances, the Applicant has not identified any category 3 persons as defined by section 44 of the Planning Act 2008. This is based on the nature of the works proposed and the distances to identified human receptors.
Q5.0.43	The Applicant	Does the Applicant accept that Section 138(4) of the PA2008 will not apply unless the DCO includes the authorisation of the acquisition of land over which there is a relevant right or there is on, over, or under the land, relevant apparatus?	In response to Q5.0.43 the Applicant confirms that that does reflect its view of Section 138(4), due to the terms of Section 138(1) which sets out that the Section only applies where a DCO authorises the acquisition of land.
6. Ecology			

ExQ1	Question to:	Question:	Response
Q6.0.1	The Applicant	The ES Table 8.18 sets out that the Humber Estuary is identified as Receptor 3. The ES has scoped out traffic noise on the Humber estuary as it is 385m away. However, there is no clear justification for this ecological receptor being scoped out, apart from distance. Notwithstanding the distances involved, please explain the extent to which there is agreement with Natural England (NE) that noise impacts from traffic during construction and operation are unlikely to result in effects on ecological receptors at the Humber Estuary?	In response to Q6.0.1 the Applicant provides the following points of clarification for the ExA. Coastal birds are not particularly susceptible to the effects of noise resulting from 'constant' noise sources such as traffic; they are susceptible to 'peaky' noise events (see references in ES Chapter 10: Ecology: IECS, 2009; Xodus, 2012). Therefore, the focus of noise assessment work in relation to coastal birds associated with the Humber Estuary is generally only on those types of noise events. The scope of the ecological impact assessment in respect of noise has been agreed with both NELC and NE and is consistent with the approach taken on other approved developments in and around the Humber Estuary including the Consented Development. NE has reviewed the Consented Development ES, and the Proposed Development PEI Report and ES and only identified piling as a potential noise source requiring further consideration, which has been provided by the Applicant. The Applicant directs the ExA to the signed SoCG between the Applicant and Natural England submitted at Deadline 2. This includes agreement on all matters.
Q6.0.2	The Applicant	No ponds are located within the Proposed Development or within 250m of the Proposed Development. As such Great Crested Newts (GCN) have not been considered further in the Ecological Impact Assessment. A potential hibernacula and ditches with standing water during times of no flow are present and there is potential for GCN to be in the wider area, so the ES states that a watching brief will be carried out during the ground clearance of the Main Development Area (MDA). Please explain why the survey area for the presence of GCN was set at a radius of 250m and clarify how the watching brief will be overseen and how it is secured through the DCO. Additionally, please clarify what is meant by the term MDA. Does the MDA extend to the Order limits or is it restricted to specific areas within the Order?	In response to Q6.0.2 the Applicant confirms that a distance of 250 m is considered an acceptable search area for ponds. This is on the basis that 250 m is the typical maximum distance GCNs disperse on land away from breeding ponds in accordance with published literature. For GCN mitigation "…*capture operations beyond 200-250m will hardly ever be appropriate*" (see page 8, bullet point 2 of Natural England (2004) *(An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt (ENRR576):* http://publications.naturalengland.org.uk/publication/134002) included as Appendix 4. The typical GCN dispersal distance of 250 m is also stated in paragraph 3, page 19, of the English Nature GCN Mitigation Guidelines: http://mokrady.wbs.cz/literatura_ke_stazeni/great_crested_newt_mitigation_guidelines.pdf) included as Appendix 5. This approach was accepted by NELC and NE for the Consented Development, and is a standard approach adopted for many other developments including the consented Stallingborough Link Road, which is adjacent to SHBEC (Planning ref: DM/0094/18/FUL; see Section C.3 of the Ecological Impact Assessment: http://planninganddevelopment.nelincs.gov.uk/online-applications/files/72C25F32AD4DF89155E7ADBE5EC5A398/pdf/DM_0094_18_FUL-ECOLOGICAL_IMPACT_ASSESSMENT-1356027.pdf) included as Appendix 6. The provision of a watching brief by an ecological clerk of works is a standard approach to mitigating extremely low risks to species including amphibians, where the risks fall below the license threshold. A suitably qualified ecologist will complete this work on behalf of the applicant (i.e. with experience in undertaking an ECoW role and experienced in the identification of GCN).The need for an ecological clerk of works is outlined within the Outline CEMP. The preparation and approval of a detailed CEMP (in accordance with the Outline CEMP) is secured by Requirement 15 of the draft DCO. The Applicant directs the ExA to the signed SoCG between the Applicant and Natural England submitted at Deadline 2. This includes agreement on all matters including at Section 4.2 the approach to surveys and effects on protected species and their habitats.

ExQ1	Question to:	Question:	Response
			The reference to the MDA is referring to the Main Development Area. This if defined in paragraph 3.2.2 of ES Chapter 3: The Proposed Development Site (Document Ref. 6.2.3/ APP-037) and is the same as Work No. 1 on the Works Plan.
Q6.0.3	The Applicant	Please explain why the search radius of 1km was chosen for the Phase 1 Habitat survey for the study of notable and protected aquatic macroinvertebrate and macrophyte species?	In Response to Q6.0.3 the Applicant confirms for the ExA that a standard desk study search radius of 1 km is the minimum requirement for protected species in accordance with the Chartered Institute for Ecology and Environmental Management (CIEEM) guidance (see Appendix 2, page 15 https://cieem.net/wp-content/uploads/2019/02/Guidelines-for-Preliminary-Ecological-Appraisal-Jan2018-1.pdf) included as Appendix 7. This approach was accepted by NELC and NE for the Consented Development, and is a standard approach adopted for many other developments including the consented Stallingborough Link Road, which is adjacent to SHBEC (Planning ref: DM/0094/18/FUL; see Section C.2 of the Ecological Impact Assessment: http://planninganddevelopment.nelincs.gov.uk/online-applications/files/72C25F32AD4DF89155E7ADBE5EC5A398/pdf/DM_0094_18_FUL-ECOLOGICAL_IMPACT_ASSESSMENT-1356027.pdf) included as Appendix 6. The Applicant directs the ExA to the signed SoCG between the Applicant and Natural England submitted at Deadline 2. This includes agreement on all matters including at Section 4.2, the approach to surveys and effects on protected species and their habitats.
Q6.0.4	The Applicant	Aquatic macroinvertebrate sampling was carried out by two experienced aquatic ecologists, and field surveys were carried out as part of the macrophyte survey by two experienced ecologists as stated in Section 2.2 of Appendix 10D [APP-124]. The water vole and otter surveys were also completed by suitably experienced ecologists (Section 2.2) [APP-125]. However, the reptile survey does not state it was carried out by professional ecologists [APP-126]. Therefore, please cite the professional expertise and qualifications of the ecologists and other experts who carried out any of the surveys and made the assessment of all likely ecological impacts and significance of effects from the Proposed Development submitted as part of this DCO application. Please also confirm which survey(s) and/ or assessment(s) each ecologist or other expert worked on.	In response to Q6.0.4 the Applicant directs the ExA to Table 1C.2 of ES Appendix 1C: Statement of Competence (Document Ref. 6.4.3/ APP-060). This outlines the qualifications of each of the specialist topic leads, including the Ecology lead. AECOM has a large team of in-house ecological specialists (circa. 80), and also utilises trusted approved sub-contractors to support the survey team as necessary. All surveyors are members of a professional environmental body appropriate to their field and level of expertise (e.g. Chartered Institute of Ecology and Environmental Management) and are bound by that body's code of professional conduct. AECOM expects high standards of its staff and supports continued professional development through both in-house and external training provision. All sub-contractors are subject to a rigorous approvals process, which requires proof of expertise, experience and membership of an appropriate professional body. A summary of the qualifications and expertise of each ecologist that worked on the ecology surveys and the ecological impact assessment, along with the areas to which they contributed is provided as a separate document (refer to Appendix 8).
Q6.0.5	The Applicant and Natural England	NE [RR-008] note that the Applicant has used significance criteria for disturbance to birds based on bird behaviour and noise monitoring studies	In response to Q6.0.5 the Applicant confirms it has provided further information to Natural England in response to the queries raised in Natural England's Relevant Representation. The ExA is referred to the Applicant's response to this Relevant Representation issued at Deadline 1 (Document Ref. 8.1, Appendix 8) and Appendix

ExQ1	Question to:	Question:	Response
		undertaken by Xodus Group during construction piling for the Grimsby River Terminal. That assessment classifies the peak noise levels of 75dB LAmax as having a minor adverse impact and concludes no LSE. However, NE considers that this increase in noise levels could disturb bird species using the Pyewipe mudflats and require additional information to demonstrate that a LSE can be ruled out. Can NE clarify what additional information they require and can the Applicant comment on this.	9 of this document. The Applicant directs the ExA to the signed SoCG between the Applicant and Natural England submitted at Deadline 2 which confirms agreement on all matters including in relation to noise impacts on waterbirds.
Q6.0.6	The Applicant	The potential use of impact piling and/or Continuous Flight Auger (CFA) piling is referred to in various chapters of the ES including Chapter 8 (Noise and Vibration) [APP-042] and Chapter 10 (Ecology) [APP-044]. Please clarify what piling technique will be used during construction and confirm if that technique has been assessed for LSEs?	In response to Q6.0.6 the Applicant directs the ExA to the response provided to Q12.0.2 and Q12.0.3 below.
Q6.0.7	The Applicant	NE [RR-008] notes that the air quality assessment suggests that there will be exceedances of environmental thresholds of annual mean NOx (Nitrogen oxide) at Laporte Road Local Wildlife Site (LWS) in-combination with other plans/projects. Stallingborough Fish Ponds, Healing Cress Beds and Sweedale Croft Drain LWSs all exceed the environmental thresholds both alone and in-combination with other plans/ projects for proposed nitrogen deposition rates. Please clarify how you have considered the potential impacts from the Proposed Development in respect of exceedances of environmental thresholds of annual mean NOx at Laporte Road LWS cumulatively with other plans/ projects and exceedances for nitrogen deposition rates for Stallingborough Fish Ponds, Healing Cress Beds and Sweedale Croft Drain LWSs, both alone and cumulatively with other plans/ projects, as part of the assessment of likely effects on these LWS sites.	In response to Q6.0.7, the Applicant confirms that potential air quality impacts on all relevant ecological receptors have been assessed in the EIA. As noted in the SoCG between the Applicant and Natural England that was submitted at Deadline 1 and in the signed SoCG submitted at Deadline 2, Natural England defers to the local planning authority (NELC) regarding impacts on Local Wildlife Sites. NELC considered the effects of the Consented Development on locally designated sites and granted the Planning Permission. The approach to assessment of significance of effects on LWS is different to that used to assess the significance of effects on nationally or internationally designated sites. As per EA Guidance “Air emissions risk assessment for your environmental permit “ [Environment Agency and Defra (2016)], the requirement is to demonstrate that the Process Contribution on its own (and not in-combination with other schemes or the background) does not exceed the critical levels of NOx at the LWS sites, which is the case for the Consented and Proposed Developments. The guidance wording states: If your emissions meet both of the following criteria, they’re insignificant – you do not need to assess them any further: • the short-term PC is less than 100% of the short-term environmental standard • the long-term PC is less than 100% of the long-term environmental standard For completeness, the Process Contribution at the Laporte Road LWS is 4.9% for short term PC and 0.4% for the long term PC and therefore insignificant based on the EA guidance.

ExQ1	Question to:	Question:	Response
			This was also assessed as part of the Environmental Permit applications for the Consented and Proposed Developments. Regarding the Critical Loads, most LWS do not have published Critical Loads available and there is no defined guidance on assessment of Critical Load effects on LWS's, but a comparable approach to the above approach to assessment of Critical Levels is considered reasonable. Critical Loads have been estimated in the ES for the LWS to enable an assessment to be undertaken. The Process Contribution to Critical Loads at the three identified LWS are: • Stallingborough Fish Ponds: 2.8% • Healing Cress Beds: 2.8% • Sweedale Croft Drain: 1% NELC has been consulted in relation to the Proposed Development and raised no concerns. The effects of the Proposed Development on ecological receptors are the same as the effects of the Consented Development.
Q6.0.8	The Applicant	It is noted that the foul drainage options are set out in ES Chapter 4 [APP-038] and in the Outline Drainage Strategy (Appendix 14B) [APP-137]. An on-site package treatment plant that discharges to one of the surface water ditches within the MDA, and will ultimately discharge to the Humber Estuary is not predicted to have any impacts on water quality within the receiving ditches or the Humber Estuary as described in ES Chapter 14 [APP-048]. NE [RR-008] has noted the Outline Drainage Strategy (Appendix 14B) states that the means of foul drainage disposal has not been decided, but that an on-site package treatment plant is the Applicant's preferred option. NE advises that this should be considered further as part of the Habitat Regulations Assessment (HRA) process if the Applicant decide on a different drainage option. In the light of NE's Relevant Representation (RR) in regard to this matter, please advise the ExA as to progress on the choice of foul drainage disposal.	In response to Q6.0.7, the Applicant confirms that potential air quality impacts on all relevant ecological receptors have been assessed in the EIA. As noted in the SoCG between the Applicant and Natural England that was submitted at Deadline 1 and in the signed SoCG submitted at Deadline 2, Natural England defers to the local planning authority (NELC) regarding impacts on Local Wildlife Sites. NELC considered the effects of the Consented Development on locally designated sites and granted the Planning Permission. The approach to assessment of significance of effects on LWS is different to that used to assess the significance of effects on nationally or internationally designated sites. As per EA Guidance "Air emissions risk assessment for your environmental permit " [Environment Agency and Defra (2016)], the requirement is to demonstrate that the Process Contribution on its own (and not in-combination with other schemes or the background) does not exceed the critical levels of NOx at the LWS sites, which is the case for the Consented and Proposed Developments. The guidance wording states: If your emissions meet both of the following criteria, they're insignificant – you do not need to assess them any further: • the short-term PC is less than 100% of the short-term environmental standard • the long-term PC is less than 100% of the long-term environmental standard For completeness, the Process Contribution at the Laporte Road LWS is 4.9% for short term PC and 0.4% for the long term PC and therefore insignificant based on the EA guidance. This was also assessed as part of the Environmental Permit applications for the Consented and Proposed Developments.

ExQ1	Question to:	Question:	Response
			Regarding the Critical Loads, most LWS do not have published Critical Loads available and there is no defined guidance on assessment of Critical Load effects on LWS's, but a comparable approach to the above approach to assessment of Critical Levels is considered reasonable. Critical Loads have been estimated in the ES for the LWS to enable an assessment to be undertaken. The Process Contribution to Critical Loads at the three identified LWS are: • Stallingborough Fish Ponds: 2.8% • Healing Cress Beds: 2.8% • Sweedale Croft Drain: 1% NELC has been consulted in relation to the Proposed Development and raised no concerns. The effects of the Proposed Development on ecological receptors are the same as the effects of the Consented Development.
Q6.0.9	Natural England and The Applicant	An Indicative Lighting Strategy is provided [APP-031], and lighting impacts are considered in the HRA Signposting Document [APP-027] (HRAR). NE suggests [RR-008] that the arrangement of temporary construction lighting to minimise glare outside the construction site should be secured in the CEMP, and that mitigation measures for operational lighting impacts should be minimised as far as possible and secured through a detailed lighting strategy. Can NE clarify whether the Indicative Lighting Strategy and the relevant information in the HRAR address their concerns over lighting? Can the Applicant comment on NE's suggestion with respect to these mitigation measures and state whether they are intending to prepare a detailed lighting strategy and if so how this would be secured in the DCO?	In response to Q6.0.9 the Applicant confirms that mitigation measures required for the control of construction related lighting impacts will be secured by Requirement 15 of the draft DCO. Mitigation measures required for the control of operational lighting impacts will be secured by Requirement 9 of the draft DCO. An Indicative Lighting Strategy has been submitted with the application (Document Ref. 5.12/ APP-031). The detailed lighting strategy will be prepared as part of the detailed design process, which has not yet commenced. The Applicant directs the ExA to the signed SoCG between the Applicant and Natural England submitted at Deadline 2 which confirms agreement on all matters.
Q6.0.10	Natural England	NE is not satisfied that the proposal is unlikely to damage features of interest of the Humber Estuary Site of Special Scientific Interest (SSSI) [RR-008]. Many of the species included in the Humber Estuary Special Protection Area (SPA)/ Ramsar water bird assemblage are also part of the Humber Estuary SSSI citation, and so the above impacts also have the potential to impact upon the notified features of the Humber Estuary SSSI. NE advises that, if approved, the project must be subject to all necessary and appropriate requirements, which ensure that unacceptable environmental impacts	In response to Q6.0.10 the Applicant confirms it has provided further information to Natural England in response the queries raised in Natural England's Relevant Representation. The ExA is referred to the Applicant's response to this Relevant Representation issued at Deadline 1 (Document Ref. 8.1, Appendix 8) and Appendix 9 of this document. The Applicant directs the ExA to the signed SoCG between the Applicant and Natural England submitted at Deadline 2 which confirms agreement on all matters.

ExQ1	Question to:	Question:	Response
		either do not occur or are sufficiently mitigated (para 3.2.11). Can NE clarify what appropriate requirements would be necessary, such as mitigation measures, that the Applicant has not already proposed for the DCO, to satisfy NE that no unacceptable environmental effects would occur at the Humber Estuary SSSI designated site?	
Q6.0.11	The Applicant	NE concurs with the conclusion that LSEs from noise and vibratory disturbance cannot be excluded and consider that the proposed mitigation to use CFA piling, rather than drop hammer piling, could adequately mitigate for these impacts. However, NE state that it is unclear if the figures provided at 10.6.23 are for the location of the noise receptor (LT3) or at a central location within the field on neighbouring functionally linked land (fields to north and south) during construction and operation. NE recommend that a noise contour map is provided to illustrate this conclusion and seasonal piling restrictions might also adequately mitigate for these impacts. NE advise that further evidence should be provided to demonstrate there would be adequate alternative undisturbed habitat available, as the noise assessment indicates that there could also be increased noise levels on the nearby mudflats too. Please provide clarification in writing, and shown on a map, the precise location of noise receptor (LT3) and provide further evidence to demonstrate there would be adequate alternative undisturbed habitat available. Please also provide a noise contour map, as recommended by NE in their RR [RR-008].	In response to Q6.0.11 the Applicant refers the ExA to the response provided to Natural England in response to their Relevant Representation, submitted at Deadline 1, (Document Ref. 8.1, Appendix 8) and Appendix 9 of this document which includes noise contours and clarifications regarding piling noise impacts on ecological receptors. The Applicant directs the ExA to the signed SoCG between the Applicant and Natural England submitted at Deadline 2 which confirms agreement on all matters.
Q6.0.12	The Applicant	Piling noise mitigation options considered appropriate by the Applicant are described in Section 10.7. The PEI Report provides further detail on the impacts from CFA piling and are assessed in ES Chapter 8 (Noise and Vibration) [APP-042] and effects on birds at functionally linked fields are assessed at paragraphs 10.6.15, 10.6.23 and 10.6.28. Paragraph 10.6.15 states that the use of CFA piling has been considered. NE considers that if this piling	In response to Q6.0.12 the Applicant directs the ExA to the response provided against Q12.0.2 and Q12.0.3.

ExQ1	Question to:	Question:	Response
		technique is used, it can be concluded that likely significant impacts can be ruled out for bird species using the foreshore [RR-008]. Can the Applicant clarify whether the CFA piling technique will be used during construction and how this is secured in the DCO? If not please advise the piling method chosen and how that will be secured through the DCO?	
Q6.0.13	The Applicant	NE notes [RR-008] that the Applicant has proposed enhancement measures including planting a species-rich hedgerow, enhancing ditch habitats within the Proposed Development site for the benefit of water vole and widening and reprofiling a section of ditch to allow a range of aquatic plant species to establish. NE welcomes these measures and the commitment to the management and maintenance schedule. NE advises that these measures should be secured through a Biodiversity Mitigation and Enhancement Plan. Please confirm whether the above additional enhancement measures will be included within a Biodiversity Mitigation and Enhancement Plan and clarify how this plan would be secured through the DCO process.	In response to Q6.0.13 the Applicant confirms that additional enhancement measures will be included within a Biodiversity Mitigation and Enhancement Plan which is secured by Requirement 12 of the draft DCO and must be in accordance with the principles set out in the Indicative Biodiversity Mitigation and Enhancement Plan contained within Section 8 of the Biodiversity Strategy (Document Ref. 5.11/ APP-030).
Q6.0.14	NELC	The ES Ecology Chapter [APP-044] and the Biodiversity Strategy [APP-030] indicate that the proposed area of species-rich grassland to be created to the west of the SHBPS will be monitored once every other year during the establishment period for five years, (commencing one year after planting) to determine whether any management intervention is required (para 10.7.13). Can NELC confirm that they are satisfied with this level of monitoring?	Q6.0.14 from the ExA has been directed to NELC but the Applicant understands from discussions with NELC that NELC agree with the proposed monitoring regime. The monitoring regime is set out in Appendix 1 of Biodiversity Strategy (Document Ref. 5.11/ APP-030)
Q6.0.15	The Applicant	It is noted that based on Institute of Air Quality Management (IAQM) guidance (IAQM, 2014), receptors potentially affected by dust soiling and short-term concentrations of PM10 generated during construction activities are limited to those located within 350 m of the nearest construction activity (See the ES Appendix 1A: (Environmental Impact Assessment Scoping Report) [APP-104] paragraph 7.2.8). However, this paragraph also indicates that during the construction phase, Ecological receptors are limited to those located within 50 m of the nearest	In response to Q6.0.15 the Applicant can confirm that the 50 m distance to ecological receptors is specified within Institute of Air Quality Management (IAQM) (2014) Guidance on the assessment of dust from demolition and construction Version 1.1 dated 01/06/16. The ExA makes reference to the ES Appendix 1A: (Environmental Impact Assessment Scoping Report) paragraph 7.2.8). The Applicant would like to clarify that this is a historical document which was submitted to satisfy its intended purpose at that time, pursuant to Regulation 8(1)(b) and 10 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 ('the EIA Regulations').

ExQ1	Question to:	Question:	Response
		construction activity. Please advise why only Ecological receptors located within 50 m of the nearest construction activity have been assessed in terms of construction dust and Non-Road Mobile Machinery (NRMM) emissions?	The EIA Scoping Report contained the detail available and required on the scope of the assessments as was known at the time of writing. The Applicant directs the ExA to paragraph 7.3.16 of ES Chapter 7: Air Quality (Document Ref. 6.2.7/ APP-041) for further details of the dust assessment methodology, which is in accordance with the guidance.
7.	**Environmental Impact Assessment and Environmental Statement**		
Q7.0.1	The Applicant	ES Figure 4.1 (Proposed Development Layout) [APP-061] and ES Figure 4.3 (Comparison of the Consented and Proposed Development) [APP-063] do not show the proposed full Order Limits and does not match the interpretation of Order Limits defined in the dDCO Paragraph 2 (Interpretations) or as detailed on the currently submitted Works Plans [APP-010] (Drawing Number: S2522-0610-0005 (Sheets 1 through to 8) Revision 1.0). Please review these Figures and provide revised Figures that depict all of the Order limits.	In response to Q7.0.1 the Applicant notes that ES Figure 4.1 (Document Ref. 6.3.5/ APP-061) and ES Figure 4.3 (Document Ref. 6.3.7/ APP-063) are intentionally zoomed in. These Figures were presented in this way so that the layout of the Proposed Development (as shown on Figure 4.1) within the Main Development Area (which corresponds to Work No. 1 on the Works Plan) and the comparison between the Consented Development and Proposed Development (as shown on Figure 4.3) can be viewed clearly. The Applicant can confirm that The Order Limits (although zoomed in and only partially visible) are the same as the Order Limits as shown on the submitted Works Plans (Drawing Number: S2522-0610-0005 (Sheets 1 through to 8) Revision 1.0). The Applicant directs the ExA to ES Figure 3.2 which is included within the ES and presents the full Order Limits and Works areas. For the avoidance of doubt and as requested however the Applicant has provided the ExA with zoomed out versions of the images shown on ES Figure 4.1 and 4.3 showing all of the Order Limits to clarify this further. These are provided in Document Ref. 8.5 as Figure 1 and Figure 2 submitted at Deadline 2.
Q7.0.2	The Applicant	The Appendix 1A: (Environmental Impact Assessment Scoping Report) [APP-104] paragraph 2.1.4 states that the ‘Main Development Area’ is shown on Figures 2 and 3. This is incorrect as Figure 2 does not show the ‘Main Development Area’. Please correct.	In response to Q7.0.2 the Applicant acknowledges the typographical error in the EIA Scoping Report at paragraph 2.1.4 of the EIA Scoping Report (dated August 2019). However as this is an historical document which was submitted to satisfy its intended purpose at that time, pursuant to Regulation 8(1)(b) and 10 of the EIA Regulations, it is not considered appropriate to amend the EIA Scoping Report. The Applicant does not consider that the typographical error has affected the validity of the EIA Scoping process and the subsequent EIA as the Main Development Area was clearly shown on Figure 3 of the EIA Scoping Report as stated within paragraph 2.1.4 of the EIA Scoping Report.
Q7.0.3	The Applicant	The ES Appendix 1A: (Environmental Impact Assessment Scoping Report) [APP-104] paragraph 4.3.1 indicates that several alternative sites, within the landholding of the Applicant’s parent company, were considered. Please confirm which alternative sites were considered and why they were discounted or indicate where within the submitted documentation this information has been provided? Additionally, please advise whether any sites not within the control of the applicant or their parent company were considered or indicate where within the submitted documentation this information has been provided?	Q7.0.3 relates to the EIA Scoping Report (dated August 2019). This is an historic document which was submitted to satisfy its intended purpose at that time, pursuant to Regulation 8(1)(b) and 10 of the EIA Regulations. It has been included within the application as an Appendix to the ES for reference purposes only and as required by the Infrastructure Planning (Applications: Prescribed Forms and Procedures) Regulations 2009. The assessment of alternatives at the EIA Scoping stage was a high level assessment, setting out the types of alternatives that were expected to be considered as part of the EIA at that stage. The Applicant directs the ExA to ES Chapter 6: Need, Alternatives and Design Evolution (Document Ref. 6.2.6/ APP-040) as the most up to date and full assessment of alternatives as required by Regulation 14(2)(e) and

ExQ1	Question to:	Question:	Response
			paragraph 4 of Schedule 2 of the EIA Regulations. Paragraph 6.4.1 of ES Chapter 6 (Document Ref. 6.2.6/ APP-060) states: *"The Applicant chose the Site (which is within its control) at the existing SHBPS for the Consented Development. Whilst no alternative sites were considered, careful consideration was given to the suitability of the Site and the location and layout for the Main Development Area (which is discussed further in Table 6.1 and Section 6.6). Central to informing this suitability assessment was the completion of an initial environmental appraisal via a desk based study, which identified key environmental sensitivities within and surrounding the Site."* The Applicant's parent company does have other landholdings across the UK and in Europe and is constantly reviewing development opportunities for its landholdings. As noted in paragraph 6.4.1 of the ES (quoted above), the SHBPS site was identified as suitable for the Consented Development and the Proposed Development. The Applicant can confirm that no sites that are not within the control of the Applicant or parent company were considered for the Consented Development, and the site for the Proposed Development was determined by the location of the Consented Development.
8.	**Flood Risk, Hydrology and Water Resources**		
Q8.0.1	The Applicant	The ES Paragraph 14.7.13 states 'Facilities will be provided during the construction phase of the Proposed Development, where necessary, to ensure controlled discharge of any surface water runoff that might occur.' Please provide further detail on what such 'facilities' may comprise and explain why such facilities have been omitted from the assessment? Furthermore, in answering this question, please set out how such 'facilities' will be controlled and/ or delivered.	In response to Q8.0.1 the Applicant confirms that the facilities referred to have not been omitted from the assessment, these have been assumed as embedded mitigation and include measures that would be considered to be best practice on construction sites to control discharge of surface water runoff which may occur. These may include but are not limited to the measures which are presented in Table 3.6-3.8 of ES Appendix 5A: Outline CEMP (Document Ref. 6.2.5/ APP-039). The suitability of these measures have been deemed acceptable by consultees including the Environment Agency (refer to signed SoCG submitted at Deadline 1, Document Ref. 7.3) and Anglian Water (refer to signed SoCG submitted at Deadline 1, Document Ref. 7.8). A drainage strategy for construction will be incorporated into the CEMP as described in Table 3.8 of the Outline CEMP. Discharge rates and volumes of surface water runoff from the Proposed Development will be restricted to the existing greenfield runoff rates. Discharge/ disposal of Site runoff/ material and/ or disposal of potentially contaminated water will be agreed in advance with the Environment Agency, Anglian Water, NELC and North East Lindsey Internal Drainage Board where appropriate (and permits obtained as required). These measures will be outlined in and monitored against the detailed CEMP when it is prepared. The Applicant refers the ExA to its answers to Q1.0.16 and Q1.0.17 for further detail regarding how the detailed CEMP is secured.

ExQ1	Question to:	Question:	Response
Q8.0.2	The Applicant	Operation of the site will require an Environmental Permit, please provide an update as to the progress to obtain such a permit. Additionally, please enter into the examination a copy of the most up to date version of the draft Environmental Permit or, if issued by the Environment Agency, a copy of the Environmental Permit as issued.	In response to Q8.0.2 the Applicant refers the ExA to the response given for Q1.0.7, where information on the Permit that has been granted for the Consented Development and an update on the Permit application for the Proposed Development is provided.
Q8.0.3	The Applicant	The ES paragraph 14.7.21 sets out a number of measures that may be implemented to manage flood risk. Please confirm if this list has been reviewed by the Environment Agency? Please also set out how: i) a decision is made on which measures to implement and by when; ii) what are the implications of not implementing such measures; and iii) detail where such measures are secured in the DCO?	In response to Q8.0.3 the Applicant confirms that the Environment Agency has been consulted on matters relevant to flood risk for both the Consented Development and the Proposed Development. The Applicant directs the ExA to Table 14.5 of ES Chapter 14: Water Resources, Flood Risk and Drainage (Document Ref. 6.2.14/ APP-048) which provides a summary of consultation in respect of water related matters, including consultation with the Environment Agency. The measures referred to in ES paragraph 14.7.21 are also detailed in ES Appendix 14A: Flood Risk Assessment (Document Ref. 6.4.26/ APP-135) for the Proposed Development. The Applicant directs the ExA to the signed SoCG between the Applicant and the Environment Agency that has also been submitted for Deadline 1 (Document Ref. 7.8). The SoCG covers the agreement that has been reached in respect of various matters including flood risk and includes agreement specifically in relation to the measures in question (refer to Section 4.2 of Document Ref. 7.3). There are no matters of disagreement between the parties. The Applicant provides the following responses to parts (i) to (iii) of Q8.0.3. (i)- timing of implementation of the measures agreed by the Environment Agency is secured by Requirement 22 of the draft DCO which states: 22.—(1) No part of the authorised development may be commissioned until a scheme for the mitigation of flood risk during operation has, for that part, been submitted to and approved by the relevant planning authority. (2) The scheme submitted and approved under sub-paragraph (1) must be in accordance with appendix 14A of the environmental statement unless otherwise approved in writing by the relevant planning authority in consultation with the Environment Agency. (3) The scheme submitted and approved under sub-paragraph (1) must provide for critical equipment assets to be elevated to no lower than 4.60m AOD or, alternatively, adequately protected through flood resistance and resilience measures, and a place of safe refuge to be provided at a level no lower than 4.60m AOD. (4) The scheme approved under sub-paragraph (1) must be implemented as approved and maintained throughout the operation of the authorised development unless otherwise agreed with the relevant planning authority. (ii) The measures must be implemented in order to satisfy draft DCO Requirement 22 (and that the carrying out of development in breach of the terms of a development consent order is an offence pursuant to section 161 of the Planning Act 2008). These measures have been proposed and agreed to be appropriate for the nature and scale of the Proposed Development based on the findings of the Flood Risk Assessment and through consultation with the Environment Agency.

ExQ1	Question to:	Question:	Response
			(iii)As outlined in part (i) above the measures are secured by Requirement 22 of the draft DCO.
Q8.0.4	The Applicant	The ES Ecology Chapter [APP-044] Paragraph 10.3.24 states that comments from the Marine Management Organisation (MMO) (as referenced in paragraph 10.3.23) do not apply as they relate to any works below the Mean High Water (MHW) level, which may require a licence or consent from the MMO. Please provide a plan, at an appropriate scale, which shows the MHW level relative to the proposed development site.	In response to Q8.0.4 the Applicant directs the ExA to the following Figures which shows the Mean High Water (MHW) Level. • ES Figure 14.1 (Document Ref. 6.3.43/ APP-099); and • Drawing No. S2522-0610-0009 – Indicative Surface Water Drainage Plan (Document Ref. 4.9/ APP-016). No works are proposed below the MHW level, which is located approximately 175 m from the Site boundary and therefore no licence or consent is required from the MMO.
Q8.0.5	The Applicant/ Anglian Water	The ES Waste Management Chapter (Chapter 16) [APP-050] at Paragraph 16.3.10 indicates excess liquid effluent would be stored on site and tankered off by a suitable contractor, or discharged to Anglian Water foul sewer, under a trade effluent consent. Please advise of any progress in regard to how liquid effluent is to be dealt with on site. Additionally, please provide evidence of any discussions with Anglian Water in this regard or copies of any agreements reached with them in regard to this matter.	In response to Q8.0.5 the Applicant confirms that at this stage options for the disposal of excess liquid effluent from the Proposed Development still comprise the options as set out in ES Chapter 16: Waste Management (Document Ref. 6.2.16) i.e. • would be stored on site and tankered off by suitable contractor; or • discharged to Anglian Water foul sewer. At this stage, a connection to foul sewer appears to be unfeasible due to the distance from the Site to the nearest existing foul sewer (over 1 km) but has not yet been entirely ruled out. Following email correspondence between the Applicant and Anglian Water (dated 18th November 2020) Anglian Water have confirmed that there is no requirement for trade effluent consent to be obtained from Anglian Water. The Applicant directs the ExA to the signed SoCG between the parties that has also been submitted for Deadline 1 (Document Ref. 7.8). • The SoCG covers the agreement that has been reached in respect of the potential for impacts upon AW's assets, as well as the drafting of the Protective Provisions and the draft Order. It is agreed between the parties that no amendments are required to the articles in the draft Order, however Requirements 13 (Surface Water Drainage) and 14 (Foul Water Drainage) are to be amended to include AW as a consultee and a new paragraph in the protective provisions has been added in the revised draft DCO submitted at Deadline 2
Q8.0.6	The Applicant	During shutdown of the plant for repairs/maintenance, there is likely to be a higher amount of excess liquid effluent produced, especially if waste is being stored on site during the shutdown period. What provisions are being put in place to deal with such excess liquid effluent during these shutdown periods?	In response to Q8.0.6 the Applicant can confirm that the primary source of effluent during periods of shutdown will be the boilers during periods of planned maintenance. Typically every 12 to 18 months, it will be necessary to drain the boilers, or elements of the boilers, to enable inspections and/ or repairs to be carried out. In this case, any excess effluent will be temporarily stored in tanks/ pits then removed from the site by tankers for disposal at suitably licenced facilities or, if feasible, discharged to foul sewer. If the contractor selected the latter

ExQ1	Question to:	Question:	Response
			option a trade effluent consent will be secured as appropriate. The volume of other process effluents produced during shutdown periods will be minimal, as the systems will be offline. No particular provisions will need to be put in place during shutdown periods for liquid effluents which may accumulate within the bunker. The bunker will be designed as a watertight structure2. Therefore, it will not allow groundwater to penetrate into the fuel stored within it, nor will it allow liquid within the bunker to leach into the underlying ground. Any leachate produced by the stored waste will be contained within the bunker and absorbed by the waste and fed to the furnace. Furthermore, as discussed in the response to Q1.0.13, bunker management procedure will be implemented to minimise waste levels in the bunker prior to planned outages.
9.	**Geology and Land Contamination**		
Q9.0.1	The Applicant	It is noted that the risks to controlled waters are considered to be moderate to high. This is due to the site overlying a Principal Aquifer and the number of drainage channels surrounding the site (See Appendix 12A: Phase 1 Geo-Environmental and Geotechnical Desk Study Report [APP-129]). Bearing in mind the risks identified please advise why the assessment has not progressed to a Phase 2 Assessment?	In response to Q9.0.1 the Applicant confirms that the report contained at Appendix 12A of the ES presents the findings of the desk study which preceded any intrusive ground investigation. The Applicant also confirms that a Phase 2 Ground Investigation and Assessment was subsequently carried out and directs the ExA to ES Appendix 12B: Ground Investigation Factual Report (Document Ref. 6.4.22/ APP-131) and Appendix 12C: Ground Investigation Interpretive Report (Document Ref. 6.4.23/ APP-132) submitted as part of the application. The final versions of these reports were submitted to NELC to discharge Condition 13 of the Consented Development (parts i-iv) 'Contamination' (DM/0486/19/CND for part i was discharged on 12 June 2019 and DM/0626/20/CND for part ii-iv was discharged on 17 September 2020). The detailed information on ground conditions provided by the Phase 2 Ground Investigation and Assessment will inform the design of the Proposed Development, but it concluded that no remediation will be required.
Q9.0.2	The Applicant	Appendix 12A: Phase 1 Geo-Environmental and Geotechnical Desk Study Report [APP-129] Paragraph 8.2.1 refers to targeted ground investigation works being undertaken in advance of construction of the Consented Development across the Main Development Area. Paragraph 8.2.3 of the same Appendix states *"Following the ground investigation, a factual and interpretative report will be prepared. This will include assessment and interpretation of ground conditions, geology, hydrogeology, contamination observations, in ground features and obstructions, geotechnical assessment and environmental risk assessment. The interpretative report will include an updated risk assessment based on the ground conditions encountered and the laboratory analysis undertaken."*	In response to Q9.0.2, the Applicant refers the ExA to the response to Q9.0.1 above. The Applicant confirms that ES Chapter 12: Geology, Hydrogeology and Land Contamination (Document Ref. 6.2.12/ AP-046P) already incorporates the findings of the Ground Investigation Factual Report and Ground Investigation Interpretative Report. The full reports are presented in ES Vol III, Appendices 12B and 12C respectively. In line with the relevant guidance (at time of writing) as outlined in Appendix 12A i.e. Contaminated Land Report (CLR) 11 'Model Procedures for the Management of Land Contamination' (2004) the assessment of risk in relation to Geo-environmental and Geotechnical matters is a sequential process which proceeds as follows (in summary): 1- The Phase 1 is prepared to identify any potential contamination issues from current and historic land uses, which may be related to on and off-site sources and provide a preliminary assessment of the geotechnical factors which have the potential to affect a future development.

[2] The bunker structure will be designed to achieve tightness class 2, in accordance with the requirements of the standard EN 1992-3: Design of concrete structures - Liquid retaining and containment structures.

ExQ1	Question to:	Question:	Response
		Bearing the above in mind, as well as the preferred construction programme commencing in Q2 2020, the ExA would ask if the targeted ground investigation works across the site have been undertaken and whether the factual and interpretative report has been prepared? If they have please submit the factual and interpretative report into evidence, update the ES Chapter 12 (Geology, Hydrology and Land Contamination) [APP-046] and Appendix 12A: Phase 1 Geo-Environmental and Geotechnical Desk Study Report [APP-129] accordingly. If the targeted ground investigation works across the site have not been undertaken, please advise why and provide a clear indication of when such investigation works will commence?	2- Following this the Phase 2 Ground Investigation (if considered required by the Phase 1) is carried out and the findings reported separately as the Phase 2 Assessment. It is noted that since October 2020 (post assessment) the CLR11 guidance has been redacted and replaced by the guidance on Land Contamination Risk Management (Environment Agency, 2020). However this does not affect the assessment process or its findings. The report contained at ES Appendix 12A (Phase 1 Geo-Environmental and Geotechnical Desk Study Report) presents the findings of the desk study which preceded the ground investigation (and informed the scope of the ground investigation), and as such it is not appropriate to retrospectively update it in light of the findings of the Phase 2 ground investigation.
Q9.0.3	The Environment Agency and NELC	Bearing in mind the risks to controlled waters are considered to be moderate to high (See Q9.0.1 above), please confirm whether the ES Chapter 12 (Geology, Hydrology and Land Contamination) [APP-046] and Appendix 12A: Phase 1 Geo-Environmental and Geotechnical Desk Study Report [APP-129] satisfactorily deals with the potential risks to controlled waters and whether imposing Requirements within the DCO would be adequate to control/ deal with this concern?	In response to Q9.0.3 the Applicant confirms that matters in relation to the risk to controlled waters have been dealt with satisfactorily in both the ES Chapter 12: Geology, Hydrology and Land Contamination (Document Ref. 6.2.12/ APP-046) and ES Appendix 12A: Phase 1 Geo-Environmental and Geotechnical Desk Study Report (Document Ref. 6.4.21/ APP-129). ES Appendix 12A: Phase 1 Geo-Environmental and Geotechnical Desk Study Report identifies the need to further investigate the risk to controlled waters through the Phase 2 Ground Investigation which (as outlined in responses to Q9.0.1 and Q9.0.2 above) has been completed. ES Appendix 12B: Ground Investigation Factual Report (Document Ref. 6.4.22/ APP-131) and Appendix 12C: Ground Investigation Interpretive Report (Document Ref. 6.4.23/ APP-132) submitted as part of the application report on the findings of the ground investigation and have informed the assessment presented in ES Chapter 12: Geology, Hydrology and Land Contamination (Document Ref. 6.2.12/ APP-046). Measures to control potential impacts on controlled waters are secured by draft DCO Requirements 13 (Surface water drainage), 14 (Foul water drainage), 17 (Piling) and 19-21 (Investigation and remediation of contamination). The Applicant notes that with regard to requirements 13 and 14, these have been agreed as acceptable by Anglian Water (the ExA is referred to the signed SoCG between the Applicant and Anglian Water that has been submitted for Deadline 1 (Document Ref 7.8) The Applicant further directs the ExA to the signed SoCG between the Applicant and the Environment Agency that has been submitted for Deadline 1 (Document Ref. 7.3). The SoCG covers the agreement that has been reached in respect of various matters including land contamination (refer to Section 4.3 of Document Ref. 7.3). There are no matters of disagreement between the parties.

ExQ1	Question to:	Question:	Response
Q9.0.4	The Applicant	Appendix 12A: Phase 1 Geo-Environmental and Geotechnical Desk Study Report [APP-129] Paragraph 7.4 refers to 'Aggressive Ground Conditions' and indicates that two types need to be considered in relation to this development. Bearing in mind the risks to controlled waters and the potential to create a 'Pathway' please advise what further investigations have been undertaken in regard to this matter and what the conclusions/ mitigations have been made/ proposed in the light of those investigations?	In response Q9.0.4 the Applicant directs the ExA to the responses provided to Q9.0.1 and Q9.0.2 as well as ES Appendix 12B: Ground Investigation Factual Report (Document Ref. 6.4.22/ APP-131) and Appendix 12C: Ground Investigation Interpretive Report (Document Ref. 6.4.23/ APP-132) submitted as part of the application. The Interpretive Report outlines what further investigations have been undertaken (which are in line with the recommendations within ES Appendix 12A). It also includes recommendations for mitigation to be included in the detailed design where required, for example to deal with aggressive ground conditions, but no requirement for contaminated land remediation has been identified. This has been agreed with NELC via the discharge of the Consented Development Planning Permission Condition 13 on 17 September 2020.
Q9.0.5	The Applicant	Has testing and assessment of the soils beneath the Site been undertaken to determine the level of risk. If so what are the conclusions/ mitigation required and do they address the risk caused by common stylolitic surfaces and pyrite nodules which are known to be present in the underlying Flamborough Chalk?	In response Q9.0.5 the Applicant confirms that testing and assessment of soils beneath the Site has been undertaken. ES Appendix 12B: Ground Investigation Factual Report (Document Ref. 6.4.22/ APP-131) and Appendix 12C: Ground Investigation Interpretive Report (Document Ref. 6.4.23/ APP-132) submitted as part of the application report the findings. With regard to common stylolite surfaces, no specific mitigation has been identified as being required. Regarding pyrite nodules which are known to be present in the underlying Flamborough Chalk, the mitigation required is outlined within Section 6.6 of the Interpretive Report, ES Appendix 12C: Ground Investigation Interpretive Report (Document Ref. 6.4.23/ APP-132). This includes recommendations in the BRE digest which will be followed for the detailed design of subsurface concrete.
Q9.0.6	The Applicant	Has a scheme of ground investigation works been designed in accordance with Appendix 12A: Phase 1 Geo-Environmental and Geotechnical Desk Study Report [APP-129] Paragraph 7.4? If so please submit into evidence and update the ES Chapter 12 (Geology, Hydrology and Land Contamination) [APP-046] and Appendix 12A: Phase 1 Geo-Environmental and Geotechnical Desk Study Report [APP-129] accordingly.	In response to Q9.0.6, the Applicant refers the ExA to its response to Q9.0.2 above.
Q9.0.7	The Environment Agency and NELC	Bearing in mind Questions Q9.0.4 to Q9.0.6 above, please confirm whether the ES Chapter 12 (Geology, Hydrology and Land Contamination) [APP-046] and Appendix 12A: Phase 1 Geo-Environmental and Geotechnical Desk Study Report [APP-129] satisfactorily deals with the potential risks to controlled waters arising from potential aggressive ground conditions and whether imposing Requirements within the DCO would be adequate to control/ deal with this concern?	In response to Q9.0.7, although not directed to the Applicant, the Applicant directs the ExA to the response to Q9.0.3 to 9.0.5 above.

ExQ1	Question to:	Question:	Response
10. Habitat Regulations Assessment			
Q10.0.1	The Applicant and Natural England	NE state in their RR [RR-008] that further information is required to assess the potential for the Proposed Development's impact on the European sites. NE is not satisfied that it can be excluded beyond reasonable scientific doubt that the Proposed Development would not have an adverse effect on the integrity of the Humber Estuary SPA or Ramsar site. Could the Applicant and NE provide an update with regard to what is being done to overcome the concerns of NE in this regard?	In response the Q10.0.1, the Applicant confirms it has responded to Natural England's Relevant Representation. The ExA is referred to the Applicant's response to this Relevant Representation issued at Deadline 1 (Document Ref. 8.1, Appendix 8) and Appendix 9 of this document. Since Deadline 1 the Applicant has engaged with Natural England to resolve all outstanding queries. The Applicant directs the ExA to the signed SoCG between the Applicant and Natural England submitted at Deadline 2. This includes agreement on all matters.
Q10.0.2	The Applicant	The HRAR [APP-027] provides information on the construction and operational activities of the Proposed Development. Only brief references to decommissioning are provided in the screening and integrity matrices and their accompanying footnotes. Please provide an updated HRAR that includes an assessment of potential decommissioning effects?	In response to Q10.0.2 the Applicant provides and updated version of the HRA Signposting Report (Document Ref. 5.8/ APP-027). This is enclosed as referenced in the covering letter submitted at Deadline 2. This includes the following in response to Q10.0.2: • New Section 5.3 added to HRAR regarding decommissioning phase. • New paragraph 5.4.3 added to Section 5.4 of HRAR regarding decommissioning phase. • New Table 5.3 added for clarity as per ExA comments. As stated in Chapter 10: Ecology (Document Ref. 6.2.10/ APP-044), paragraph 10.6.92 in relation to decommissioning *"Potential effects on ecological features are not anticipated to differ significantly from those predicted at construction."*
Q10.0.3	The Applicant	The HRAR [APP-027] paragraph 3.4.6 states that the approach to the assessment of Natura 2000 sites (European sites) differs to that taken in assessing LSEs from the Proposed Development for the purposes of the EIA. For the HRA, the Applicant considered a search radius of 10 km when examining the potential pathways for air quality impacts on the sites. However, it is recognised that the HRA is separate to the EIA. Bearing the above in mind, please explain how a 10km study area was selected for air quality in the HRA and whether this study area was agreed with relevant consultation bodies?	In response to Q10.0.3 the Applicant confirms clarifies for the ExA that although the approach to the HRA and overall EIA is slightly different (e.g. the EIA approach to 'significance' is not applicable to HRA), the gathering of baseline data to inform the assessment is the same for both EIA and HRA. This includes defining an appropriate desk study search area for the various designated sites, which for both EIA and HRA was 10 km for internationally designated statutory designated sites. The scope of the ecological impact assessment was agreed with NELC, and Natural England has provided no objections to the baseline data gathering approach.
Q10.0.4	The Applicant	The HRAR [APP-027] (Section 5) sets out how the Applicant has identified European sites that could potentially be affected by the Proposed Development. Sites have been identified using the potential source-receptor pathways methodology. This has been	In response to Q10.0.4 the Applicant agrees that ES Appendix 10C (Document Ref. 6.4.15/ APP-123), Figure 10C.2 illustrates the location of the three European Sites that that are considered in the Habitats Regulations Assessment Signposting Report. As the sites are already shown on this figure in relation to the Proposed Development and the HRA Signposting Report is a signposting document, the figure has not been duplicated in the HRA Signposting Report but cross reference to this figure has been added into Section 4.3 of the updated

ExQ1	Question to:	Question:	Response
		considered for construction (HRAR Paragraph 5.1.1) and operation (HRAR Paragraph 5.2.1). Three European sites associated with the Humber Estuary identified by the Applicant are: • the Humber Estuary Special Area of Conservation (SAC); • the Humber Estuary SPA; and • the Humber Estuary Ramsar site. All of these sites are located approximately 175m east of the Proposed Development. There are no cross-references from the HRAR to any figures that identify the location of European sites, but the above sites are depicted on Figure 10C.2: Statutory and Non-statutory Designations in ES Appendix 10C and on ES Figure 3.3: Environmental Receptors within 5km. Please provide a figure or figures showing the location of the European Sites identified in the HRAR.	HRA Signposting Report for clarity. Figure 10.C.2 has also been included as Appendix 9 of the updated HRA Signposting Report. This is enclosed as referenced in the covering letter submitted at Deadline 2.
Q10.0.5	The Applicant	The Applicant considers that all information deemed necessary to undertake the Habitat Regulations Assessment is contained in the Environmental Statement (ES) particularly in Chapters 4-8, 10, 14, and 17, [APP-038] to [APP-041], [APP-044], [APP-048] and [APP-051] respectively (para 3.4.4, HRAR [APP-027]). The HRAR states that a separate process is required to address the specific obligations of the Habitats Regulations which the HRAR document seeks to provide by assisting the Competent Authority in directing them to the necessary aspect chapters in the ES. However, the HRAR does not include detailed information to inform an Appropriate Assessment (AA); Section 7 of the HRAR instead provides summary information and cross-references to where the detailed information can be found in the ES chapters, such as Chapters 7 (Air Quality), 8 (Noise	Signposting is an approach that is often taken to reduce repetition. This approach was also taken for the Consented Development HRA. However, in response to Q10.0.5 the Applicant confirms the HRA Signposting Report has been updated to include new appendices numbered 3 to 7. These appendices include all the cross referenced text from the relevant sections of the ES, to assist the competent authority in undertaking its HRA. The updated HRA Signposting Report is submitted at Deadline 2.

ExQ1	Question to:	Question:	Response
		and Vibration), 10 (Ecology) and 17 (Cumulative and Combined Effects). Please update the HRAR to include detailed information to inform an AA.	
Q10.0.6	The Applicant	The construction, operation and in-combination LSEs identified in HRAR [APP-027] Section 7.1 (Appropriate Assessment) are not consistent with those identified in Tables 5.1, 5.2, 6.1 and 6.2 (Screening Assessment). The subsequent information provided in Sections 7.2 – 7.4 (Construction, operation and in-combination construction effects on integrity, respectively) is not consistent with that in either Section 7.1 or the above tables. Please submit an updated HRAR which addresses these discrepancies.	In response to Q10.0.6 the Applicant directs the ExA to the updated HRA Signposting Report which includes minor edits/ clarifications made to the identified sections and tables. The updated HRA Signposting Report is submitted at Deadline 2.
Q10.0.7	The Applicant	The methodologies used to gather data or evidence to inform the HRA are not set out or justified in the HRAR [APP-027] document. Please provide this information and/or make specific reference to where the data and evidence used to inform the HRA process is located in the submitted examination documentation.	In response to Q10.0.7 the Applicant directs the ExA to the updated HRA Signposting Report which includes minor edits/ clarifications made at sections 3.4 and 4. The updated HRA Signposting Report is submitted at Deadline 2.
Q10.0.8	The Applicant and Natural England	The ES Chapter 10, [APP-044] Table 10.4, states that NE were consulted in relation to the information needed to support a HRA for the Proposed Development. Table 10.5 summarises NE's Section 42 consultation comments, made in December 2019, which include points relating to the European sites. However, NE in its RR [RR-008] consider that additional information is required to assess the potential for the Proposed Development to impact on SAC habitats as well as the passage/ wintering bird assemblage of the Humber Estuary SPA and Ramsar site. Can the Applicant and NE clarify what progress has been made to agree what additional information is needed to predict the likely effects?	In response to Q10.0.8, the Applicant confirms it has provided further information to Natural England in response to the queries raised in Natural England's Relevant Representation. The ExA is referred to the Applicant's response to this Relevant Representation issued at Deadline 1 (Document Ref. 8.1, Appendix 8) and Appendix 9 of this document. The Applicant directs the ExA to the Signed SoCG between the Applicant and Natural England submitted at Deadline 2 which includes agreement on these matters.
Q10.0.9	The Applicant	In-combination' and 'cumulative' are used interchangeably to describe HRA in-combination effects, the assessment of which is based on information provided in ES Chapter 17 (Cumulative and Combined Effects) [APP-051]. Please clarify the	In response to Q10.0.9 the Applicant confirms that different terminology is used in EIA and HRA. In EIA terminology 'cumulative effects' refers to the effects of the development in question and other proposed developments on environmental receptors. The Applicant directs the ExA to paragraph 17.1.1 of ES Chapter

ExQ1	Question to:	Question:	Response
		distinction in the use of these two terms and ensure that this is reflected in an updated HRAR?	17: Cumulative and Combined Effects (Document Ref. 6.2.17/ APP-051) which provides a more detailed description. In HRA terms these effects are referred to as 'in-combination effects'. 'Combined effects' in EIA terminology refers to a combination of different effects of the development in question, acting on a single receptor (e.g. noise and visual disturbance). The Applicant directs the ExA to paragraph 17.1.1 of ES Chapter 17: Cumulative and Combined Effects (Document Ref. 6.2.17/ APP-051) which provides a more detailed description. The HRAR has been checked for consistency of terminology and edited as appropriate. The approach and conclusions are not affected. The updated HRA Signposting Report is enclosed as referenced in the covering letter submitted at Deadline 2.
Q10.0.10	The Applicant	HRAR [APP-027] Tables 6.1 and 6.2 identify 13 projects that were considered in the screening In-Combination Effects (ICE) assessment for construction and operation, respectively, and indicate which potential impacts were considered to have potential to result in LSEs. Not all of the effects considered in the screening assessment of the Proposed Development are considered in the ICE assessment. Construction air quality, and both construction and operational visual disturbance effects are not listed. Please amend Tables 6.1 and 6.2 of the HRAR to set out the ICE assessment of these effects or explain why they did not need to be considered?	In response to Q10.0.10 the Applicant provides the following points of clarification on the approach to the in-combination effects assessment in the HRA Signposting Report. • In relation to construction air quality – LSEs are not predicted (this pathway was scoped out of the ecological impact assessment in paragraph 10.6.4 of ES Chapter 10: Ecology (Document Ref. 6.2.10/ APP-044) on the basis of distance from the nearest terrestrial habitats susceptible to fugitive dust emissions of c. 500m). This pathway is therefore not applicable to the in-combination effects assessment. • In relation to construction visual disturbance – LSEs are not predicted therefore this pathway was not considered in the in-combination effects assessment. • In relation to operational visual disturbance – LSEs are not predicted therefore this pathway was not considered in the in-combination effects assessment.
Q10.0.11	The Applicant	The Humber Estuary SPA and Ramsar site have not been separated out in HRAR [APP-027] Tables 6.1 and 6.2, and the Humber Estuary SAC has been omitted. Although an LSE arising from operational air quality impacts of the Proposed Development was predicted, this is not reflected in the ICE assessment presented in Table 6.2. Please update the tables to ensure LSE from all sites screened in have been included. Additionally, the screening assessment of the Proposed Development concluded some LSEs on the Humber Estuary SAC and therefore there is a requirement to take them forward to AA. As such please update Tables 6.1 and 6.2 to set out the assessment for the separate designations and include the information for the Humber Estuary SAC.	In response to Q10.0.11 the Applicant provides the following points of clarification. Regarding Tables 6.1 and 6.2 - given the common ecology features for which LSEs have been identified for the SPA/ Ramsar, the two sites have been considered together in the same table for clarity and to avoid repetition. Minor edits have been made to table headings to clarify (refer to Tables 6.1 and 6.2 of the updated HRA Signposting Report. The updated HRA Signposting Report is submitted at Deadline 2. The only LSE identified for the SAC is for operational air quality, and this is included in a column in Table 6.2. The headings have been updated for clarity (refer to Tables 6.2 of the updated HRA Signposting Report submitted at Deadline 2. In response to the second part of Q10.0.11, with respect to the references to visual screening in the 'Noise Disturbance to SPA/ Ramsar' column of Tables 6.1 and 6.2 for Stallingborough Link Road, this is due to the way the assessment was presented in that scheme's HRA i.e. there was no distinction made between noise and

ExQ1	Question to:	Question:	Response
		In addition to the above, although visual disturbance is not included in the HRAR Tables 6.1 and 6.2 reference is made in both tables to visual screening under 'Noise Disturbance to the SPA/Ramsar'; this text appears to be erroneous. Please update Tables 6.1 and 6.2 as necessary?	visual disturbance in the construction and operational assessments only 'construction-related disturbance' and 'operational disturbance' respectively.
Q10.0.12	The Applicant	Consideration at AA stage of the identified ICE takes into account the effect of contributions from developers of other projects to the South Humber Gateway (SHG) strategic mitigation scheme. Please provide references to the relevant information within the application documents to support the statements on contributions to the SHG mitigation scheme?	In response to Q10.0.12 the Applicant considers that as the requirement for financial contributions to the SHG mitigation strategy at Cress Marsh is a requirement of NELC Policy 9 it is therefore reasonable to assume that any developments that fall within this area would only be accepted by NELC on the basis of such a commitment. The commitment to provide this financial contribution is secured in the Development Consent Obligation (Document Ref. 5.13/ APP-032).
Q10.0.13	The Applicant and NELC	Reference is made to the SHG strategic mitigation scheme. Please provide substantive information, in relation to the SHG strategic mitigation scheme, the background to the strategy, it's purpose/ current status or how the conclusions within it have been derived. Details submitted into evidence pursuant to this request should include any advice provided by Natural England.	In response to Q10.0.13, the Applicant has adhered to NELC Policy 9 by committing a financial contribution to the SHG strategic mitigation scheme via the Development Consent Obligation (Document Ref. 5.13/ APP-032), which will be allocated to pay (retrospectively) towards the costs of constructing the Cress Marsh wetland habitat. Construction of this habitat was completed by NELC in winter 2018/19, and NELC has advised the Applicant that it has been demonstrated by survey data to be successfully providing functional habitat for waterbirds, with 111 species recorded to date. NELC at Deadline 1 have written in their Local Impact Report: *"Importantly it [the DCO application] also includes the provision of a contribution totalling £105,378 (based on site area) to assist in the repayment of construction costs for the South Humber Gateway Mitigation Strategy. A strategic approach to promoting economic development on the South Humber Bank whilst maintaining the areas functional relationship with the estuary through the creation of a network of smaller sites of wetland/ grass habitat creation to mitigate the impact on over wintering birds from the estuary. The key with the mitigation strategy is always having sufficient mitigation land in the balance to allow development sites to progress without delay. The contribution secured by the existing S106 agreement and proposed variation relates to the Cress Marsh wetland site. It is important that this is secured prior to the granting of the DCO. This is the applicant's intention. That site is now operational allowing the release of land for development, with further sites under negotiation."* The Applicant understands from discussions with NELC that NELC is submitting several documents to the ExA at Deadline 2 in response to Q10.0.13, which provide evidence of the background to the strategy, it's purpose and approach. This includes a memorandum of understanding between NELC and key stakeholders including Natural England. Links to the Deliver Plan and Local Plan Evidence Base are also provided in the Applicant's response to Q10.0.14 below.
Q10.0.14	The Applicant and NELC	It is noted that the draft Planning Obligation [APP-032] would, if the DCO is made, secure a financial contribution towards strategic mitigation in	In response to Q10.0.14, the Applicant confirms that NELC Policy 9 and the evidence base that informed that policy provides the justification for the financial contribution. The SHB strategic mitigation scheme was developed over a period of years by NELC in consultation with Natural England, RSPB and other relevant

ExQ1	Question to:	Question:	Response
		accordance with Policy 9 of the North East Lincolnshire Local Plan (NELLP) and the North East Lincolnshire SHG Ecological Mitigation Delivery Plan (Delivery Plan) . This financial contribution is to be used to mitigate against the impact of the development on the Humber Estuary SPA/Ramsar. Please enter into evidence a copy of the written justifications as to the need for this financial contribution, including a copy of the Delivery Plan and any other relevant documents that explain the background to the Delivery Plan and its purpose / current status and/ or how the conclusions within it have been derived. Alternatively, please direct the ExA to where a copy of the Delivery Plan, together with any of the other relevant documents that explain the background to the Delivery Plan and its purpose / current status and/ or how the conclusions within it have been derived, are located within the examination documentation. Please enter into evidence Policy 9 of the NELLP and any relevant pre/ post amble relevant to this policy and/ or make specific reference to where the policies together with the relevant pre and post amble to the relevant policies are located within the examination documentation.	stakeholders. Policy 9 provides a formula for calculating the value of the financial contribution based on the development area. The Applicant understands from discussions with NELC that NELC is submitting several documents to the ExA at Deadline 2 in response to Q10.0.14, which provide evidence of the justifications for the financial contribution. During the determination of the existing Planning Permission for the Consented Development the Applicant had agreement with Natural England that the contribution was appropriate mitigation for the Consented Development. This is also confirmed in the Officer's report which is appended to the Planning, Design and Access Statement (Document Ref. 5.5/ APP-024) at Appendix 2. A copy of the South Humber Gateway Ecological Mitigation North East Lincolnshire Delivery Plan is provided in Appendix 10. Policy 9 (Habitat Mitigation: South Humber Bank) is located within the North East Lincolnshire Local Plan 2013 – 2032 and the policy text along with the related pre- and post-amble can be found at Appendix 12 to this document.
Q10.0.15	The Applicant	NE notes [RR-008] that the HRAR [APP-027] states that *"it is concluded that air quality impacts will not result in an adverse effect on the integrity of the Humber Estuary SPA/ Ramsar."* NE notes that this should refer to the SAC. Please amend this in the updated HRAR.	In response to Q10.0.15 a minor edit has been made to paragraph 7.3.2 of the HRA Signposting Report and also paragraphs 1.1.5 and 1.1.6 in the Executive Summary of the HRA Signposting Report. The Applicant directs the ExA to the updated HRA Signposting Report submitted at Deadline 2.
Q10.0.16	The Applicant	The screening conclusions for each of the three sites are summarised in Tables 5.1 and 5.2. The HRAR [APP-027] Table 5.1 signposts the relevant chapters of the ES as evidence for the conclusions that there will be an LSE on the European sites. During construction - • Humber Estuary SAC: Loss of habitat within the Proposed Development boundary for	In response to Q10.0.16 the Applicant provides the following points of clarification. The PINS Screening and Integrity matrices are essentially a repeat (and heavily abridged version, by virtue of the template) of the tables, assessment and signposting provided in the HRA Signposting Report. In order to prevent duplication within the matrices of the more detailed signposting provided in the main body of the HRA Signposting Report, our approach here is to provide summary supporting notes rather than detailed screening/ appropriate assessment text. To assist the Competent Authority the Applicant has updated the HRA Signposting Report (including the supporting notes to the PINS Screening and Integrity matrices) to provide references to new appendices 3 to 7.

ExQ1	Question to:	Question:	Response
		populations of European importance Annex I and Annex II overwintering wildfowl and wading birds. Internationally important assemblage of migratory and wintering birds; noise impacts during construction to birds using Pyewipe mudflats; noise/vibration impacts during construction to birds using arable field to the south (field 37) and using arable fields to the north (fields 30 and 31); and visual impacts during construction to birds using arable field to the south (field 37); and • Humber Estuary Ramsar: Internationally important populations of passage wildfowl and waders potentially affected by noise impacts during construction to birds using Pyewipe Mudflats; noise/vibration impacts during construction to birds using arable field to the south (field 37) and using arable fields to the north (fields 30 and 31); and visual impacts during construction to birds using arable field to the south (field 37). During operation - • Humber Estuary SAC habitats: Changes in air quality from NOx emissions, and Nitrogen deposition; and • Humber Estuary Ramsar site's estuarine habitats: Changes in air quality from NOx emissions, and Nitrogen deposition. Many of the evidence notes linked to the Screening and Integrity matrices do not contain any references to supporting information within the HRAR. Please provide specific references to the location of all relevant supporting evidence in an updated HRAR? In addition to the above, a summary of the qualifying features of each of the three Humber Estuary designated sites is provided in Section 4, Table 4.1, however several features appear to have been omitted. Furthermore, the qualifying features set out in Tables 5.1 and 5.2 (LSEs during construction and operation, respectively) are not consistent with those	These appendices present the full wording of all the cross referenced sections from the relevant ES chapters. This update now provides specific references to the location of all relevant supporting evidence. Table 4.1 lists all of the qualifying features of the designated sites, but only those for which source-receptor pathways exist for the Proposed Development are considered in the LSE screening Tables 5.1 and 5.2. The source-receptor pathways scoped out of the LSE screening exercise are set out in paragraphs 5.1.2 to 5.1.6 (construction impacts) and paragraphs 5.2.2 to 5.2.3 (operational impacts). Minor edits have been made to these sections in the updated HRA Signposting Report to clarify exactly which features in Table 4.1 have been scoped out. Minor edits have also been made to Tables 5.1 and 5.2 in the updated HRA Signposting Report for consistency. The 10 km search radius for Natura 2000 sites is the accepted search area for Natura 2000 sites from a proposed development (see also response to Q10.0.3). If the Proposed Development were further from the Humber Estuary Natura 2000 site, different zones of influence for potential impacts other than air quality may have been adopted, and not all pathways may have required consideration in the impact assessment and HRA Signposting Report. However, the proximity of the Humber Estuary Natura 2000 site to the Proposed Development site (c. 175 m) means that all other potential pathways (noise, visual disturbance, displacement etc.) have been scoped in by default.

ExQ1	Question to:	Question:	Response
		identified in Table 4.1. Please amend the HRAR to reflect the correct qualifying features according to NE's current site information? Turning to Section 3 of the HRAR, this states that it is usual to apply a search radius of 10km to identify potential pathways for air quality effects on European sites. No information is provided in the HRAR in respect of the study areas/zones of influence for the other potential effects, such as noise/vibration, visual disturbance, displacement, and surface water quality. Please signpost to where this information is provided in the application documents.	
Q10.0.17	The Applicant	Mitigation for some effects relies on the implementation of the SHG strategic mitigation approach under Policy 9 of the NELLP. The NELLP requires an appropriate financial contribution towards delivery of mitigation to be secured by a Section 106 Agreement (paras 7.2.2 – 7.2.5, 7.4.1, 7.4.2, 7.5.3, 8.1.2 and evidence notes to the matrices). The mitigation comprises areas of land allocated in the Local Plan for the creation of strategic mitigation habitat for water birds (see ES Chapter 10, Sections 10.4 and 10.5) [APP-044]. This mitigation is included in the Indicative Biodiversity Mitigation and Enhancement Plan (contained in the Biodiversity Strategy, [APP-030]), and the dDCO [APP-005], Requirement 12 provides that the approved Plan must be in accordance with the principles of the Indicative Plan. It is noted that the Development Consent Obligation [APP-032] is a Deed of Variation to the original Planning Obligation secured against Planning Permission [DM/1070/18/FUL] and that it has not been completed. Please explain why a separate Planning Obligation is not being provided in its own right and how the SHG strategic mitigation is secured in this Deed of Variation, such that reliance may be placed on this mitigation?	In response to Q10.0.17 the Applicant can confirm that a separate development consent obligation is not being provided in its own right as it is considered the clearest and most efficient approach is to vary the existing section 106 agreement so that it applies to development under the Planning Permission or development under the DCO as appropriate. Please see response to Q9.0.2 with regard to amendments to the proposed section 106 deed of variation. The existing section 106 agreement secures payment of £105,378 to be applied towards the centralised off-site mitigation project in the South Humber Bank Mitigation Zone including habitat creation and maintenance works at Cress March on South Marsh Road. The habitat creation works at Cress Marsh have already been carried out and there is a functioning habitat in place.
Q10.0.18	The Applicant	Requirement 17(2) of the dDCO [APP-005] requires that a written specification for piling would be approved by the relevant planning authority and must	In response to Q10.0.18 the Applicant refers the ExA to Section 7 of the Biodiversity Strategy (Document Ref. 5.11/ APP-030) which sets out matters in relation to the seasonal piling restrictions / use of CFA piling.

ExQ1	Question to:	Question:	Response
		include a scheme to mitigate the effects of piling noise on ecological receptors, which shall be in accordance with Section 7 of the Biodiversity Strategy [APP-030]. Requirement 17(2) repeats the text in the HRAR [APP-027] and provides no additional information or certainty of the measures to be employed and no reference is made in the HRAR to the Biodiversity Strategy. Please clarify how seasonal piling restrictions or use of CFA piling referred to in the Biodiversity Strategy would be secured as mitigation for piling noise effects through the DCO?	*"At this stage, the mitigation measures to be employed have not been fixed; this is to enable sufficient flexibility for the contractor to determine the best available technique for noise abatement during piling works. Mitigation is expected to comprise: · seasonal piling restrictions – piling will be restricted for two hours either side of high tide in the period September to March inclusive, to avoid the most sensitive winter months, and the time period when birds are most likely to be present in the fields (i.e. when they are pushed off the coastal mudflats at high tide); and/ or · Continuous Flight Auger (CFA) piling – this technique is virtually vibration free, and one of the quietest forms of piling. If this technique is adopted, it will be possible to reduce construction noise reaching the fields to within ambient levels, and vibration disturbance effects would also be reduced."* Draft DCO Requirement 17 is worded to provide the flexibility required to enable the contractor to determine the best available technique as part of the detailed design process, whilst ensuring that any impacts are avoided or mitigated. The scheme to be submitted must be approved by the local planning authority prior to works within Work No. 1 commencing, and compliance with Section 7 of the Biodiversity Strategy is mandated by Requirement 17(2). This wording mirrors that agreed with NE and NELC for planning condition 11 of the Consented Development. However to provide more clarity on the matter, the Applicant confirms that the mitigation will comprise use of CFA piling or seasonal restrictions on drop hammer piling (or a combination of both), and no other piling noise mitigation options will be proposed. The Applicant proposes to revise the wording of Requirement 17 to describe these two mitigation options.
Q10.0.19	The Applicant	In relation to operational visual disturbance to Field 37 (paragraphs 7.3.3 – 7.3.4) it is stated that the fence installed along the southern site boundary would be retained during operation to provide visual screening and that lighting impacts beyond the site boundary would be minimised 'as far as possible', by use of methods in accordance with the Indicative Lighting Strategy [APP-031]. No conclusion is presented on the anticipated effectiveness of the measures proposed. Please provide an assessment of the effectiveness of these proposed mitigation measures, and a plan which indicates the extent of illumination proposed, both with and without mitigation.	In response to Q10.0.19 the Applicant can clarify for the ExA that visual disturbance to Field 37 during operation was not identified as an LSE at the screening stage, and therefore mitigation is not required. It should be noted that when considering potential visual disturbance impacts on waterbirds, the primary consideration is movement of people (and vehicles/ machinery), rather than lighting, as people could be perceived as a threat (i.e. predator) by feeding, roosting and loafing waterbirds. The reference to the retention of the boundary fence and directing lighting away from the adjacent habitats is included for information only, and as discussed this is not a mitigation requirement for Habitats Regulations compliance. There is therefore no requirement to demonstrate its effectiveness for the purposes of the HRA. The close boarded fence is expected to provide an effective visual screen to avoid disturbance of waterbirds in Field 37 to the south of the Site from the movement of people on Site.
Q10.0.20	The Applicant	The effects included in the Integrity matrices are not consistent with the LSEs identified in the screening assessment. Please clarify which LSEs have been assessed and taken forward to AA from the screening assessment and amend the Integrity matrices as necessary to reflect any changes?	In response to Q10.0.20 the Applicant confirms that the integrity matrices only provide a summary of the information provided in the HRA Signposting Report. The LSE's identified in Tables 5.1 and 5.2 are consistent with those highlighted in the matrices, although the matrices are more summarised i.e. for example for the Humber Estuary Ramsar site, in Table 5.1 LSE is predicted for visual impacts during construction to birds using the arable field to the south (field 37), but no LSE is predicted for visual impacts to birds on Pyewipe mudflats; however the screening matrix Table 1A.4 does not distinguish between these impacts because 'visual disturbance' is considered in one column. So therefore 'visual disturbance' has been included within the appropriate assessment and is summarised in integrity matrix Table 2A.3 as a single impact on a single receptor, although clearly the actual assessment undertaken is more nuanced in its approach to the assessment of visual

ExQ1	Question to:	Question:	Response
			impacts on qualifying features (i.e. takes into approach the location and sensitivity of the qualifying feature, rather than just classing it as a single receptor as the matrix tables require).
Q10.0.21	The Applicant	The HRAR [APP-027] - During the operation, visual disturbance to the arable field to the south (Field 37) (paras 7.3.3 – 7.3.4) is not identified as an LSE in Table 6.1 at screening stage. Please amend the HRAR accordingly and submit the revised document into evidence.	In response to Q10.0.21 the Applicant directs the ExA to the updated HRA Signposting Report enclosed as referenced in the covering letter submitted at Deadline 2 which includes a minor amendment to paragraph 7.3.3 – included for information only and not a mitigation requirement as no LSE is identified.
Q10.0.22	The Applicant	The HRAR [APP-027] - For in-combination construction impacts, visual disturbance for bird species occupying functionally linked habitats (paras 7.4.3 – 7.4.4) is not identified as an LSE in Table 6.2 at Screening stage. Please amend the HRAR accordingly and submit the revised document into evidence.	In response to Q10.0.22 the Applicant directs the ExA to the updated HRA Signposting Report enclosed as referenced in the covering letter submitted at Deadline 2 in which paragraph 7.4.3 and 7.4.4 has been deleted as operational visual disturbance to arable field to the south (Field 37) is not identified as an LSE.
Q10.0.23	The Applicant	The HRAR [APP-027] Para 7.1.1 summarised the LSEs, including ICE, for all of the sites together. However, it is not made clear whether all the LSEs listed apply equally to the features of each of the designated sites. Please provide a separate summary of the LSEs for each of the designated sites (Humber Estuary SAC, Humber Estuary SPA and Humber Estuary Ramsar) and identify the in-combination LSEs separately.	In response to Q10.2.23 the Applicant directs the ExA to the updated HRA Signposting Report enclosed as referenced in the covering letter submitted at Deadline 2 in which minor edits have been made to paragraph 7.1.1. Each bullet point makes it clear which impact pertains to which designation, and therefore we do not believe it is necessary to update this section further. The similar nature of some of the designated features (particularly for the SPA/ Ramsar waterbirds) means that it is more succinct to address them in the same part of the assessment to avoid unnecessary repetition.
Q10.0.24	The Applicant	The conservation objectives for the Humber Estuary SAC and SPA are summarised in Section 4, Table 4.2. Please confirm the conservation objectives for Humber Estuary Ramsar sites, or confirm they are the same objectives for the Humber Estuary SAC, and Humber Estuary SPA as set out in Table 4.2 mentioned above.	In response to Q Q10.0.24 the Applicant directs the ExA to Table 4.2 of the HRA Signposting Report (bottom row), which states that there are no specific conservation objectives listed for the Humber Estuary Ramsar and they are therefore "*Assumed as for Humber Estuary SAC and SPA*".
Q10.0.25	The Applicant	Is the Applicant proposing, or aware of, any relevant monitoring or proposed monitoring of the Cress Marsh site to assess its effectiveness as mitigation?	In response to Q10.0.25 the Applicant directs the ExA to The South Humber Gateway Mitigation Delivery Plan (2019) (see Appendix 10) sets out the approach to management and monitoring of the Cress Marsh site (and others within the SHG plan) in perpetuity: Paragraph 3.26 of this document states that "The Council will ensure appropriate monitoring of the mitigation sites is undertaken in accordance with the monitoring framework and report the results to the ecology group to advise on on-going management and need for remedial measures".

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			NELC has advised the Applicant that surveys have indicated that the habitat is functional and has been used by 111 species of waterbirds.
Q10.0.26	Natural England or other IPs	Noise Disturbance to Arable Field (Field 37) to the South is identified as a temporary likely significant adverse effect on the protected bird species using this habitat, and it is explained that the noise mitigation measures would be determined by the contractor using the best available technique for noise abatement during the piling works, which will be agreed with NELC (para 7.2.13). Do NE or other IPs have any comments on the mitigation proposed?	N/A
Q10.0.27	Applicant and Natural England	Section 8 of the HRAR [APP-027], concludes that the Proposed Development would not give rise to an adverse effect on the integrity of the Humber Estuary SAC/ SPA/ Ramsar sites. However, potential LSEs were identified at the HRA screening stage with the two other developments proposed in the area (Stallingborough Link Road and Sustainable Transport Fuels Facility) of the Proposed Development result in the loss of functionally linked habitat. These other developments are committed to the delivery of habitat mitigation through the SHG strategic mitigation proposal, so it is concluded that there would be no adverse effects on the Humber Estuary SPA/ Ramsar in-combination with the Proposed Development as a result of the losses of functionally linked habitat (para 8.1.3). NE [RR-008] is not satisfied that it can be excluded beyond reasonable scientific doubt that the Proposed Development would not have an adverse effect on the integrity of the Humber Estuary SPA or Ramsar site. NE advises that, if approved, the Proposed Development must be subject to all necessary and appropriate requirements, which ensure that unacceptable environmental impacts either do not occur or are sufficiently mitigated. Can the Applicant and NE clarify what progress has been made to agree what additional information is needed to predict the likely effects?	In response to Q10.0.27 the Applicant confirms it has responded to Natural England's Relevant Representation. The ExA is referred to the Applicant's response to this Relevant Representation issued at Deadline 1 (Document Ref. 8.1, Appendix 8) and Appendix 9 of this document. Since Deadline 1 the Applicant has engaged with Natural England to resolve any outstanding queries. The Applicant directs the ExA to the signed SoCG between the Applicant and Natural England submitted at Deadline 2 which includes agreement on all matters.

ExQ1	Question to:	Question:	Response
Q10.0.28	The Applicant	Please clarify in the updated HRAR [APP-027] whether any priority habitats or species are on the European sites which may be affected by the Proposed Development?	In response to Q10.0.28 the Applicant confirms that only ecology features listed as qualifying or supporting features in the citations for the SPA, SAC and Ramsar sites are considered in the HRA Signposting Report. Potential impacts on priority habitats and species are considered in the ecological impact assessment in Table 10.10 of ES Chapter 10: Ecology (Document Ref. 6.2.10/ APP-044) which summarises the ecology features that have been scoped into the impact assessment (other than the designated sites considered in the HRA Signposting Report).
Q10.0.29	The Applicant	Integrity matrices 2A.2 and 2A.3 (Humber Estuary SPA and Ramsar site, respectively) are incorrectly entitled Screening matrices. Can the Applicant correct the titles of these Integrity matrices in the updated HRAR?	In response to Q10.0.29 the Applicant directs the ExA to the updated HRA Signposting Report enclosed as referenced in the covering letter submitted at Deadline 2 , in which the headings of the matrices have been amended.
Q10.0.30	The Applicant	Discrepancies or errors appear to have been made in the Integrity matrices (Appendix 2): Table 2A.2: Humber Estuary SPA - Although a heading is included in the matrix it does not include information on air quality, which was identified as an LSE. Table 2A.3: Humber Ramsar site - Information on loss of functionally linked habitat during construction is included in the matrix but was not identified as an LSE. - Operational changes in air quality were identified as an LSE, both alone and in-combination, but no information is presented in the matrix. - In-combination construction noise disturbance is identified as an LSE, but no information is presented in the matrix. - Loss of functionally linked habitat during construction is included in the Integrity matrix, for an LSE both alone and in-combination, but this was not identified as an LSE alone at Screening stage. All three Integrity matrices include headings for impacts which were not concluded to result in LSEs and no information is provided in the matrices. Please provide revised matrices which address the above points?	In response to Q10.0.30 the Applicant provides the following points of clarification. All of the relevant signposting for LSE screening and appropriate assessment is provided in the relevant sections of the HRA Signposting Report and is consistent in the main body of the report, and therefore the amendments made to the matrix tables below are for information only and do not alter the outcome of the assessment. Table 2A.2: • air quality is not identified as an LSE for the Humber Estuary SPA (this is only an LSE for the SAC and Ramsar designations). The inclusion of this heading is just a function of the matrix table template which is difficult to edit. Table 2A.3: • loss of functionally linked habitat identified as LSE for the Humber Estuary Ramsar alone and in-combination in Table 1A.4 therefore is included in integrity matrix. • Additional summary notes ‘e’ and ‘f’ added to signpost air quality assessment alone and in-combination respectively. • Additional summary note ‘d’ added to signpost in-combination noise disturbance. In addition to clarify regarding the headings – it is acknowledged that all of the headings are not relevant to all of the qualifying features; however for consistency throughout the assessment process the headings have been kept the same (this way the reader can clearly see which effects are not relevant); however the columns are left blank or ‘NA’ included where these are not relevant to the assessment.

ExQ1	Question to:	Question:	Response
Q10.0.31	The Applicant	The HRAR [APP-027] Screening and Integrity matrices (Appendices 1 and 2) list qualifying features and interests of the European sites that have been assessed for LSE. However, the qualifying features are not listed in the matrices for the sites considered in the HRAR. The qualifying features listed in Tables 5.1 and 5.2 for the SPA, SAC and Ramsar sites are general rather than listing those features according to the relevant current conservation objectives. Please submit revised matrices for Appendices 1 and 2 of the report which list in full detail the qualifying features of the European (Natura 2000) sites according to the relevant current conservation objectives.	In response to Q10.0.31 the Applicant directs the ExA to the response provided to Q10.0.20 – this explains the way the assessment has been undertaken in respect of the relevant qualifying features. The assessment takes into account the conservation objectives as part of the impact assessment process. Although the conservation objectives are not explicitly referred to in the assessment, they are an inherent part of the assessment process that considers potential impacts on structure, function, supporting processes etc. for each of the qualifying features. The setting out of the PINS matrices is in accordance with the approach taken on other similar projects, and the listing out of qualifying features and potential effects in this way is in accordance with the published template (we are unclear where specific references to conservation objectives would fit within the PINS matrix template).
Q10.0.32	The Applicant	The HRAR [APP-027] states that evidence for, or against, LSEs on the European sites and their qualifying features are provided in footnotes to the Screening and Integrity matrices in the HRAR. Tables 5.1 and 5.2 also provide references to the relevant chapters in the ES to support the assessment. Many of the evidence notes linked to the Screening and Integrity matrices do not contain any references to information within the HRAR or other application documents. Those that cross refer to the relevant information correctly identify their location in the ES and not in the HRAR. Please check all references within the HRAR and in updating the HRAR ensure that all cross references for the Screening and Integrity matrices are linked to relevant evidence notes within the HRAR or other application documents where appropriate.	In response to Q10.0.32 the Applicant confirms that the HRA Signposting Report has been updated to include new appendices numbered 3 to 7. These appendices include the full wording of all the cross referenced sections from the relevant ES chapters to assist the Competent Authority in undertaking its HRA. In addition, where referenced in the notes to the matrices, the full cross referenced paragraphs from the relevant ES chapters can be found in the new appendices 3 to 7 of the updated HRA Signposting Report. The updated HRA Signposting Report is enclosed as referenced in the covering letter submitted at Deadline 2.
Q10.0.33	The Applicant	The matrices do not confirm that mitigation measures have been taken into consideration. Mitigation measures are considered elsewhere in the HRAR [APP-027]. Please update the HRAR matrices explanatory notes to clarify where information on mitigation measures is	In response to Q 10.0.33 minor edits have been made to the matrices in the updated HRA Signposting Report. Reference to mitigation measures is limited to: • SHG contribution (for Cress Marsh to mitigate for the loss of functionally linked land) referred to in Table 2A.2 notes (a) and (d) and Table 2A.3 notes (a) and (d); and • piling mitigation (for noise disturbance to birds using functionally linked land) referred to in Table 2A.2 note (c) and Table 2A.3 note (c).

ExQ1	Question to:	Question:	Response
		found and clarify how this has been taken into consideration? Additionally, there does not appear to be any reference to agreement with Statutory Nature Conservation Bodies (SNCB) on mitigation. Please advise what agreements have been reached with SNCB's on mitigation.	In addition, where referenced in the notes to the matrices, the full cross referenced paragraphs from the relevant ES chapters can be found as referenced in the new appendices 3 to 7 of the updated HRA Signposting Report. The updated HRA Signposting Report is enclosed as referenced in the covering letter submitted at Deadline 2.
Q10.0.34	The Applicant	NE's RR [RR-008] states that there are a number of matters which have not been resolved satisfactorily as part of the pre-application process which must be addressed by the Applicant and the ExA as part of the examination and consenting process before development consent can be granted. NE consider that some of these matters are important enough to mean that if they are not satisfactorily addressed it would not be lawful to permit the Proposed Development due to its impacts on the SAC, SPA, and Ramsar interests. However, NE's view is that all these matters are capable of being overcome. NE's specific concerns, set out in paragraphs 3.3.1-3.3.9 of their RR, are: - Impacts on air quality during operation in-combination with other plans and projects; - Noise disturbance to SPA/Ramsar birds using Humber Estuary foreshore during construction and operation; - Noise and vibratory disturbance to SPA/Ramsar birds using neighbouring functionally linked land (fields to south) during construction and operation; and - Noise and vibratory disturbance to SPA/Ramsar birds using neighbouring functionally linked land (fields to north) during construction and operation. NE also state [RR-008] that further evidence or assessment work is required and that further justification in the information for the AA to demonstrate that there will be no adverse impacts on	In response to Q10.0.34 the Applicant confirms it has responded to Natural England's Relevant Representation. The ExA is referred to the Applicant's response to this Relevant Representation issued at Deadline 1 (Document Ref. 8.1, Appendix 8) and Appendix 9 of this document. Since Deadline 1 the Applicant has engaged with Natural England to resolve any outstanding queries. The Applicant directs the ExA to the signed SoCG between the Applicant and Natural England submitted at Deadline 2 which includes agreement on all matters.

ExQ1	Question to:	Question:	Response
		the integrity of the European sites despite exceedances in the environmental thresholds for annual mean NOx and nitrogen deposition rates in combination with other plans/projects. NE note that the background NOx concentrations already exceed the critical levels, and regular inundation and nutrient inputs from estuary water are likely to have a greater influence over the establishment and changes to saltmarsh habitat (para 3.3.1, [RR-008]). NE note that D3.11 of Appendix 7A states that "the cumulative effect of acid deposition on the Dune habitat has been considered in detail in the report to inform the HRAR" [APP-027], but NE state that this does not appear to have been discussed in the HRAR. NE require further information to demonstrate why there will be no adverse effects on the integrity of the European sites in question (para 3.3.2 [RR-008]). In the light of the above, please provide further information to demonstrate there would be no adverse impacts on the integrity of the European sites from the Proposed Development despite exceedances in the environmental thresholds for annual mean NOx and nitrogen deposition rates, and acid deposition in-combination with other plans/ projects.	
Q10.0.35	The Applicant	Please provide noise contour maps, showing dB LAeq and dB LAmax, to illustrate noise levels across the Humber Estuary foreshore and functionally linked land due to site activities. Activities should include CFA and/or hammer piling as appropriate. This information is required to demonstrate that the Applicant's conclusions regarding effects are robust in order to evidence their conclusions over likely adverse effects.	In response to Q10.0.35 the Applicant confirms it has responded to Natural England's Relevant Representation. The ExA is referred to the Applicant's response to Natural England's Relevant Representation issued at Deadline 1 (Document Ref. 8.1, Appendix 8) and Appendix 9 of this document. Since Deadline 1 the Applicant has engaged with Natural England to resolve any outstanding queries. The Applicant directs the ExA to the signed SoCG between the Applicant and Natural England submitted at Deadline 2 which includes agreement on all matters.
Q10.0.36	The Applicant	NE [RR-008] state that evidence of undisturbed habitat availability should be provided to support the	In response to Q10.0.36 the Applicant confirms it has responded to Natural England's Relevant Representation. The ExA is referred to the Applicant's response to Natural England's Relevant Representation issued at

ExQ1	Question to:	Question:	Response
		argument that there is plenty of alternative undisturbed foraging/ roosting areas, if birds are displaced through noise and vibration impacts, which can provide functional supporting habitat for the bird species on affected SPA and Ramsar sites. As such, please provide evidence of sufficient undisturbed habitat for alternative foraging and roosting areas for birds?	Deadline 1 (Document Ref. 8.1, Appendix 8) and Appendix 9 f this document. Since Deadline 1 the Applicant has engaged with Natural England to resolve any outstanding queries.
11. Landscape and Visual Amenity			
Q11.0.1	The Applicant	The ES identifies a LSE during construction, operation and decommission at Middle Drain Public Right of Way (Viewpoint 9). The proposed development is concluded as being of Moderate Adverse significant effect in regard to Viewpoint 9. However, the ES does not propose to mitigate the LSE in regard to this Viewpoint. Notwithstanding ES Paragraph 11.7 (Mitigation and Enhancement Measures), please explain what, if any, mitigation options have been considered and exist to address the anticipated significant effect on Viewpoint 9 (Middle Drain Public Right of Way)? Additionally, please also explain why any such mitigation/ option has not been proposed in the DCO application?	In response to Q11.0.1 the Applicant confirms that no potential mitigation measures have been identified for Viewpoint 9 (Middle Drain PRoW), which is the only receptor assessed to experience a significant adverse effect. The effect at this location is an inevitable result of the nature and scale of the Proposed Development and it is not possible to mitigate this visual effect from this PRoW. Although a number of the design aspects and features of the Proposed Development cannot be confirmed until the detail design stage, the final design of the Proposed Development is considered to be functional, reflecting its purpose to generate electricity and the context within which it would sit (i.e. the industrial area). Opportunities have been taken to minimise the visual impact of the EfW plant by locating it immediately adjacent to the existing SHBPS and maintaining existing trees around the Site. Paragraph 5.9.8 of The Overarching National Policy Statement (NPS) for Energy EN-1 states that virtually all nationally significant energy infrastructure projects will have effects on the landscape. As such, projects need to be designed carefully, taking account of the potential impact on the landscape. Having regard to siting, operational and other relevant constraints the aim should be to minimise harm to the landscape, providing reasonable mitigation where possible and appropriate. Paragraph 5.9.18 recognises that all proposed energy infrastructure is likely to have visual effects for receptors around proposed sites; however, in determining proposals, a judgment is to be made as to whether the visual effects on sensitive receptors outweigh the benefits of the Proposed Development. Section 8.4 of the Planning, Design and Access Statement (Document Ref. 5.5/ APP-024) identities that there are a number of very clear and substantial benefits that the Proposed Development would deliver and facilitate. The NPS EN-1 and NPS EN-3 identifies that many of these types of benefit are to be given substantial weight. The benefits are appropriately secured in the DCO. In contrast, few significant adverse effects have been identified, including the effect on visual amenity at Viewpoint 9 which is no different to the Consented Development. These are unavoidable and arise due to the scale of the Proposed Development, which its electricity generation and waste management function require, and the low-lying nature of the Site and surrounding areas. The Officer's Report for the Consented Development (at Appendix 2 of the Planning, Design and Access Statement, APP-024) acknowledges the following:

ExQ1	Question to:	Question:	Response
			"The surrounding land is… of industrial character, where many uses are of an intense nature from the processes they undertake and nature of their businesses. In this instance this includes Synthomer and Newlincs to the north, Lenzing Fibres to the far south and the existing South Humber Bank Power Station (in the applicant's control) to the west. Being within an existing employment area and adjacent to newly allocated land, such proposals are somewhat expected and are directed to such areas." Overall, the Proposed Development is considered to be compliant with NPS policy as the benefits of the Proposed Development outweigh the impacts on Landscape (visual and amenity). The Applicant directs the ExA to the SoCG between the Applicant and NELC that has been submitted for Deadline 1 (Document Ref. 7.1/ APP-141). The SoCG covers the agreement that has been reached in respect of the Proposed Development including landscape and visual amenity matters (refer to Section 9.6 of the SoCG). No further mitigation is required, as recognised at section 12 of the SoCG: *"12.1.1 The likely significant adverse effects of the Proposed Development, as identified in the ES, after taking account of mitigation secured within the requirements within Schedule 2 of the draft DCO (Document Ref 2.1), are limited to visual impacts as follows:* • *one visual amenity receptor (Viewpoint 9 – footpath users of the Public Right of Way (PRoW) along Middle Drain to the north-west of the Site) is predicted to experience significant adverse effects at construction, operation, and decommissioning, as a result of the close distance and height of the proposed structures; and* •*significant cumulative effects on views from Viewpoint 5 (Beechwood Farm Carvery) and Viewpoint 9 (Middle Drain footpath) are predicted during construction and operation of the Proposed Development together with the construction and operation of other developments proposed in the vicinity of the Site.* *12.1.2 It is agreed that for the above visual effects no specific mitigation measures are required since it is difficult to avoid or mitigate this effect due to the size of the buildings and structures required".*
Q11.0.2	The Applicant	It is stated that screening provided through planting for the current SHBPS will be retained and maintained to provide mitigation screening for the Proposed Development. Please set out where this mitigation is secured and whether additional planting or other forms of screening and mitigation are proposed on site? Please note that the ES should not rely on mitigation and screening being provided by another development.	In response to Q11.0.2 the Applicant refers to paragraph 11.7.1 of the Environmental Statement: Volume I, Chapter 11 Landscape and Visual Amenity (Document Ref. 6.2/ APP-045) which states that *"The existing plantation to the north-west of the existing power station (which is required for the continued screening of SHBPS as well as screening of the Proposed Development) will be retained and will benefit from future maintenance and management to retain its existing screening and ecological function. The existing plantations to the west and south-west of SHBPS will also be subject to the same maintenance and management regime."* The aforementioned planting to the north-west of the existing power station was created and maintained in association with the SHBPS but has also been contained within the Order Limits of the Proposed Development, specifically designated as Work No 3 Landscaping and Biodiversity within the Works Plan (Document Ref. 4.3/ APP-010) This screening is secured by Requirement 7 (Retained Trees) of the Draft DCO (Document Ref. 2.1 / APP-005) which states the following:

ExQ1	Question to:	Question:	Response
			(1) All trees located within Work No.3 must be retained throughout the construction and operation of the authorised development unless replaced under sub-paragraph (2) or otherwise agreed with the relevant planning authority. *(2) Any tree within WorkNo.3 that is removed, dies or becomes , in the opinion of the relevant planning authority, seriously damaged or diseased, during the construction or operation of the development must be replaced in the first available planting season with a specimen of the same species unless otherwise agreed with the relevant planning authority.* The retained trees are on land within the control of the Applicant and are understood to have been developed in accordance with condition 10 of the deemed planning permission granted as part of the Section 36 consent dated 3 August 1992 that authorised the construction and operation of SHBPS, which has been appended to this response at Appendix 11. This condition does not expressly require the retention, maintenance, replacement of dead trees or suchlike. Therefore, it is considered both feasible and desirable that the Draft DCO makes express provision for the retention and maintenance of these trees by the Applicant for the lifetime of the Proposed Development. This is in contrast to reliance on mitigation or screening provided by the SHBPS Section 36 consent. There is no reliance on mitigation or screening provided by other developments since the trees would be retained, maintained, and replaced as required for the lifetime of the Proposed Development pursuant to a requirement in the DCO. The result of the above is that once SHBEC is constructed or operational, if any trees in Work No. 3 die or become damaged or diseased or are removed then the Applicant would be required to replace them. In addition, if the SHBPS were to cease generating and is removed, then the trees comprising Work No. 3 would be unaffected and would be retained pursuant to Requirement 7 of Schedule 2 of the DCO. No further planting or screening is considered necessary nor proposed. This position is agreed with NELC in the SoCG submitted at Deadline 1 (Document 7.1) in section 7 and at section 12: “12.1.1 The likely significant adverse effects of the Proposed Development, as identified in the ES, after taking account of mitigation secured within the requirements within Schedule 2 of the draft DCO (Document Ref 2.1), are limited to visual impacts as follows: • one visual amenity receptor (Viewpoint 9 – footpath users of the Public Right of Way (PRoW) along Middle Drain to the north-west of the Site) is predicted to experience significant adverse effects at construction, operation, and decommissioning, as a result of the close distance and height of the proposed structures; and • significant cumulative effects on views from Viewpoint 5 (Beechwood Farm Carvery) and Viewpoint 9 (Middle Drain footpath) are predicted during construction and operation of the Proposed Development together with the construction and operation of other developments proposed in the vicinity of the Site. 12.1.2 It is agreed that for the above visual effects no specific mitigation measures are required since it is difficult to avoid or mitigate this effect due to the size of the buildings and structures required.
12. Noise and Vibration			

ExQ1	Question to:	Question:	Response
Q12.0.1	The Applicant	The ES Section 8.7 discusses mitigation required for Receptor R4 – field south of the site in relation to hammer piling. However, there does not appear to be any similar discussion in regard mitigation to Receptor R5 – Field north of the Proposed Development. Please explain why mitigation measures are not identified for Receptor R5 – Field north of the Proposed Development despite the conclusions at ES Paragraph 8.6.24?	In response to Q12.0.1 the Applicant confirms that the mitigation set out in paragraph 8.7.2 of ES Chapter 8: Noise and Vibration (Document Ref. 6.2.8/ APP-042) will provide mitigation for noise and vibration effects on both Receptor R4 and Receptor R5. This mitigation comprises the use of CFA piling or seasonal constraints on drop hammer piling.
Q12.0.2	The Applicant	There is ambiguity in the ES with regards to the need for percussive piling as a construction technique. Can the Applicant confirm if percussive piling will be required to construct the Proposed Development and to what extent?	In response to Q12.0.2 the Applicant cannot at this stage confirm what method of piling will be used and (as noted at the response to Q10.0.18 above) flexibility is required to enable the construction contractor to determine the best available technique as part of the detailed design process. Paragraphs 8.3.14-8.3.15 and 8.3.27 of ES Chapter 8: Noise and Vibration (Document Ref. 6.2.8/ APP-042) set out the noise and vibration assessment scenarios and parameters. In summary this confirms that the assessment is based on the worst case parameters, which in the case of piling would be drop hammer piling (also known as percussive piling). Whilst the Proposed Development is due to commence in Q1 2021 with the appointment of the Contractor, the detailed design has not yet been completed and a detailed construction programme has not yet been fixed. The Applicant directs the ExA to Requirement 17 of the draft DCO which requires details of the mitigation approach to be submitted and approved at an appropriate time, securing the commitment to appropriate mitigation whilst also retaining the required flexibility for the contractor. Refer to Q5.0.1 for information on the modified piling requirement/ condition provided in the Draft DCO (Document Ref. 2.1/ APP-005) at Deadline 2.
Q12.0.3	The Applicant	Please explain whether the impacts associated with such a construction technique have been assessed within the ES and are accounted for within the assessment of LSEs?	In response to Q12.0.3 the Applicant can confirm that the impacts associated with both drop hammer piling and Continuous Flight Auger Piling (CFA) have been assessed within the ES and are accounted for within the assessment of effects.
Q12.0.4	The Applicant	Please explain if NE have been engaged in discussions in relation to the proposed construction techniques and whether they are content that it would not represent a significant effect to relevant nearby ecological receptors?	In response to Q12.0.4 the Applicant confirms it has engaged with Natural England during consultation on both the Consented Development and the Proposed Development. The Applicant has responded to Natural England's Relevant Representation. The ExA is referred to the Applicant's response to Natural England's Relevant Representation issued at Deadline 1 (Document Ref. 8.1) and Appendix 9 of this document . Since Deadline 1 the Applicant has engaged with Natural England to resolve all outstanding queries. The Applicant directs the ExA to the signed SoCG between the Applicant and Natural England submitted at Deadline 2 which includes agreement on all matters.
Q12.0.5	The Applicant	The ES is required to assess the LSEs. The use of hammer piling is likely and has therefore been	In response to Q12.0.5 the Applicant directs the ExA to paragraphs 8.7.3 – 8.7.6 of ES Chapter 8: Noise and Vibration (Document Ref. 6.2.8/ APP-042) which sets out the mitigation measures required. Requirement 17 of

ExQ1	Question to:	Question:	Response
		assessed. Therefore, the ES should set out mitigation for any significant adverse effect, and this should be secured. Please review this and consider how mitigation related to this form of piling can be secured, including through the dDCO. Please provide appropriate wording for the dDCO and include within a revised dDCO.	the draft DCO requires details of the mitigation approach to be submitted and approved prior to the commencement of development (except permitted preliminary works), securing the commitment to appropriate mitigation at the appropriate time, whilst also retaining the required flexibility for the contractor.
Q12.0.6	The Applicant	The ES Non-Technical Summary [APP-033] at Paragraph 7.3.6 refers to operational noise modelling and states that the modelling *"…shows that noise from the operational Site is not predicted to have a significant adverse effect on the nearest residential and ecological receptors due to the adoption of appropriate mitigation measures and the location of the Site away from residential properties."* Bearing this in mind, please confirm the level of effect that is shown to occur and, if required, what mitigation is proposed.	In response to Q12.0.6 the Applicant directs the ExA to ES Chapter 8: Noise and Vibration (Document Ref. 6.2.8/ APP-042) which presents in full the findings of the noise assessment. The NTS is not intended to provide the full assessment. The ExA is directed to Section 8.7 of ES Chapter 8 which describes the mitigation measures and Section 8.9 of ES Chapter 8 which describe the level of the residual effect (post mitigation).
13. Planning Policy			
Q13.0.1	The Applicant	The Planning Design and Access Statement [APP-024] Paragraph 5.6 refers to the Local Plan, with paragraphs 5.6.2 and 5.6.3 referring to specific policies contained in the adopted NELLP 2013-2032. Please enter copies of the policies detailed in these paragraphs into the examination, along with copies of the relevant pre and post amble to the policies listed, and/ or make specific reference to where the policies together with the pre and post amble to the relevant policies are located within the examination documentation.	Please see table of the full text of policies detailed in Planning Design and Access Statement paragraphs 5.6.2 and 5.6.3 with relevant pre- and post-ambles at Appendix 13.
Q13.0.2	The Applicant	The ES Appendix 1A: (Environmental Impact Assessment Scoping Report) [APP-104] paragraph 5.5.1 indicates that allocation ELR020 is identified as an Enterprise Zone. Please check and confirm that this is correct.	In response to Q13.0.2 the Applicant refers to Paragraph 5.5.4 of the ES Appendix 1A: (Environmental Impact Assessment Scoping Report (Document Ref. 6.3/ APP-104) which states that *"Surrounding the Site are areas allocated as Employment Land. These are identified as proposed allocations ELR025d, ELR019 and ELR020. ELR020 is also identified as being an Enterprise Zone."* The Table contained within Policy 7 (Employment allocations) of the North East Lincolnshire Local Plan 2013 to 2032 sets out the employment allocations within North East Lincolnshire. Some of these are further designated enterprise zones. This table states that ELR019 forms part of Hobson Way Enterprise Zone while ELR020 is not. The paragraph noted in the question therefore appears to be an error. The Applicant does not consider that it affects the scoping exercise carried out and confirms no reference has been made in any consultation or application documentation to ELR020 being an enterprise zone. The

ExQ1	Question to:	Question:	Response
			Planning, Design and Access Statement (Document Ref. 5.5/ APP-024) in paragraph 5.6.4 correctly identifies ELR019 as being an enterprise zone.
14.	**Socio-economic Effects**		
Q14.0.1	N/A	No specific questions at present, which aren't already covered by other questions within this document.	N/A
15.	**Traffic, Transport and Waste Management**		
Q15.0.1	The Applicant	Is the proposed one way traffic system within the proposed development included as part of the Environmental Permit or does it need to form part of the Development Consent Order? (See: Statutory Nuisance Statement [APP-028] Paragraph 4.4.15). Additionally, it is noted that fuel in transit would be delivered to the site by enclosed and covered containers. Please confirm that reference to fuel means RDF? If not, or fuel means RDF in addition to other fuel, please define what is meant by the term 'fuel'? Additionally, please confirm how you will ensure/ control such deliveries are contained in enclosed/ covered containers during transit and when delivered to the site?	In response to Q15.0.2 the Applicant points out that approval of the detailed design and layout of the Proposed Development is secured by the draft DCO requirements. The one way system is internal to the site and is health and safety driven, and is not assumed or relied on in the Environmental Impact Assessment (see for example chapters 4, 7 and 9 of ES Volume 1, Document Ref 6.2 / APP-038, APP-041, APP-043). The proposed one way traffic system is referred to at paragraph 4.3.15 of the Statutory Nuisance Statement (Document Ref. 5.9 / APP-028), which states "*The operation of a one-way traffic system around the site will reduce congestion and the resulting excess vehicle exhaust emissions.*" The one-way system is included as part of the Environmental Permit application; this is not a condition within the Permit. The reference to fuel in paragraph 4.4.15 means fuel as defined in requirement 31 of Schedule 2 of the Draft Development Consent Order: *Only refuse derived fuel comprising of processed waste from municipal, household, commercial and industrial sources may be used in the combustion system in Work No. 1, except for purposes of start-up or support firing when gas or fuel oil may be used'.* Under the fuel supply agreements, the suppliers will be required to transport and deliver fuel in enclosed or covered containers. Visual inspections, either directly by the site operatives or from the control room via CCTV, will be carried out on consignments at their arrival on site and at departure. Failure to comply with the delivery protocols will have consequences under the fuel supply agreements, including warnings, suspensions, penalties and, in case of repeated offences, termination. Furthermore, the fuel suppliers will be registered waste carriers and will be required to comply with their Duty of Care in accordance with Part 2 of the Environmental Protection Act 1990, which requires waste carriers to handle the waste safely and securely and to prevent the escape of waste.
Q15.0.2	The Applicant	Appendix 5A – Outline Construction and Environmental Management Plan (CEMP) [APP-107] advises that the CEMP should be read alongside other environmental documents related to the construction phase and makes specific reference to the Construction Workers Travel Plan, The Construction Traffic Management Plan and the Materials Management Plan. Please provide these documents, and any other Environmental documents relevant to the CEMP, or direct the ExA to where they can be found within the examination documentation submitted.	In response to Q15.0.2 the Applicant confirms that paragraph 1.3.5 of ES Appendix 5A: Outline CEMP (Document Ref. 6.4.5/ APP-108) is referring to the detailed CEMP and when it is being used as a management tool onsite. It is not possible to provide all of the environmental documents relevant to the detailed CEMP at this stage as this will include documents that have not yet been prepared and will only be available pre-construction and once a contractor has been appointed e.g. Materials Management Plan. The Applicant directs the ExA to Tables 3.1- 3.12 of ES Appendix 5A: Outline CEMP which provides signposting to the ES documents and parts therein which are relevant to the management measures prescribed in the outline CEMP, this includes reference to relevant ES Appendices (Document Ref 6.4/ APP-103 onwards). The Construction Worker Travel Plan and Construction Traffic Management Plan are provided as annexes to ES Appendix 9A: Transport Assessment.

ExQ1	Question to:	Question:	Response
Q15.0.3	The Applicant	The Fuel Availability and Waste Hierarchy Assessment [APP-026] (Document Reference 5.7) at Paragraph 4.1 (Legislative and Policy Basis) discusses the transition period as a result of the United Kingdom leaving the European Union and indicates that updates in regard to legal references will be provided during the examination. Whilst it is appreciated that the transition period has not yet lapsed, is there any update in respect of legal references, as indicated in Paragraph 4.1.4?	In response to Q15.0.3, the Applicant notes that the transition period will end on 31 December 2020, but at the date of Deadline 2 the terms of engagement with the EU remain uncertain. The alternative scenarios set out in paragraph 4.1.3 of the Fuel Availability and Waste Hierarchy Document (Document Ref. 5.7 / APP-026) remain valid.
Q15.0.4	The Applicant	The ES Waste Management Chapter (Chapter 16) [APP-050] at Paragraph 16.4.4 states: "…there is insufficient information to estimate future levels of waste arisings in the region…" However, the Waste Disposal Authority for the area and Waste Disposal Authorities for adjoining areas predict growth. For residential at the very least the Waste Authorities would be able to predict growth, even if Extended Producer Responsibility (EPR) and Deposit Return Schemes (DRS) may alter waste produced and kerbside collections respectively. As such please update the ES accordingly in relation to estimate future levels of waste arisings in the region, and the future annual baseline waste arising or justify why such information has not been sought from the relevant Waste Authorities and provided within the ES.	In response to Q15.0.4 the Applicant has considered the request to update ES Chapter 16: Waste Management (Document Ref. 6.2.16/ APP-050), but for the reasons outlined below has not provided an updated chapter. The Applicant directs the ExA to paragraphs 16.3.1-16.3.11 of ES Chapter 16: Waste Management (Document Ref. 6.2.16/ APP-050) which sets out the scope of the assessment. The ExA refers in its question to paragraph 16.4.4 which relates to future waste arisings in the region. The Applicant would like to clarify for the ExA that future waste arisings are only of relevance to this assessment in the context of assessing waste impacts from operation of the Proposed Development. The operational wastes generated by the Proposed Development are compared (in the case of bottom ash) to the arisings of construction and demolition waste and (in the case of FGT residues) to the arisings of hazardous waste. In both cases the future baseline of residential waste arisings and the impacts of EPR and DRS are not relevant, and therefore this information has not been sought or presented in the ES as submitted with the application.
Q15.0.5	The Applicant and NELC	In the light of the RR made on behalf of Network Rail [RR-001] and Appendix 2 (Consented Development Officers Report) to the Planning, Design and Access Statement [APP-024], please enter into evidence a copy of any representation made by, or on behalf of Network Rail, in relation to the Planning Permission granted under Planning Reference DM/1070/18/FUL.	In response to Q15.0.5, the Applicant confirms that Network Rail responded twice to the application for the Consented Development. The first time was on 21 February 2019 seeking an extension of time for a response up to 8 March 2019. The second time was on 8 March 2019 confirming no objection in principle, but requesting the applicant contact NR Asset Protection in relation to Abnormal Loads. This can be found in Appendix 3 of the Applicant's Comments on Relevant Representations (Document Ref. 8.1) submitted at Deadline 1. This request was dealt with by way of Informative 5 of the Consented Development Decision Notice. Network Rail also responded to a formal consultation on the discharge of condition 18 in relation to the Delivery and Servicing Plan, responding on 21 January 2020 with no objection. This can be found in Appendix 4 of the Applicant's Comments on Relevant Representations (Document Ref. 8.1) submitted at Deadline 1. North East Lincolnshire Council in the LIR state at paragraph 5.21 that Network Rail did not raise "concerns … with respect to other major development within the south Humber bank area nor at Local Plan examination stage which established large employment designations to the east of the rail line and indeed the new link road from Moody Lane/ Woad Lane junction to Hobson Way Roundabout which again has the potential to draw greater traffic to Kiln Lane".

ExQ1	Question to:	Question:	Response
Q15.0.6	Network Rail	Appendix 2 (Consented Development Officers Report) to the Planning, Design and Access Statement [APP-024] indicates Network Rail raise no objections to planning application DM/1070/18/FUL, subject to the inclusion of informative(s). Whilst the differences between the development permitted under the TCPA Planning Permission and the NSIP application, currently under consideration, are noted, please provide comment on the change in Network Rails position from that set out by NELC in their Consented Development Officers Report. In responding, please bear in mind the documentation before NELC when they considered and approved Planning Application DM/1070/18/FUL. Please draw the ExA's attention to anything within the submitted documentation related to this NSIP Application, including ES Chapter 9: Traffic and Transport [APP-043] and/ or its Appendices [APP-115], [APP-116], [APP-117], [APP-118], [APP-119] and [APP-120], that resulted in Network Rail becoming concerned and caused them to object to the proposed development, as set out in their RR [RR-001].	In response to Q15.0.6 the Applicant refers to the Statement of Common Ground with Network Rail (Document Ref. 7.7) submitted at Deadline 1, section 5 'matters not yet agreed', p48, Network Rail which states in relation to the relevance of the Consented Development: "The Consented Development is relevant insofar as it provides a baseline against which the ExA will assess the built development for which the DCO application seeks powers. However, the application for the Proposed Development is a new application and the DCO seeks powers, including powers in respect of land, which were not included in the planning permission for the Consented Development. Accordingly, the Applicant has to overcome a higher hurdle to make the case for the making of the DCO." In the same section of the same document, the Applicant agrees with Network Rail that the Consented Development provides a baseline against which to assess the Proposed Development. The Applicant in particular notes that the level of HGVs and the designated HGV route for the Proposed Development are exactly the same as for the Consented Development. The Applicant has not sought any "powers in respect of land" in the Draft Order outside the Order Limits (which is distant from the railway) and has not sought any compulsory acquisition powers in relation to any land. The Applicant does not consider that the differences between the Consented Development and the Proposed Development (the 'Additional Works' and the resulting increased generation of electricity) are in any way relevant to Network Rail and its infrastructure.
Q15.0.7	The Applicant and Network Rail	Please comment on whether a realistic fallback position exists in relation to the Planning Permission granted under Planning Reference DC/1070/18/FUL, or has the potential to exist within the lifetime of the above mentioned Planning Permission. Please comment on whether such a fallback position has any bearing on the RR [RR-001] made by Network Rail?	In response to Q15.0.7 the Applicant considers that a realistic fallback position exists in relation to the SHBEC planning permission and that the existence of such fallback position is directly relevant to Network Rail's objection. The Applicant's position is summarised in the following bullet points, and where relevant further details are provided further below: • The courts have held that a fallback position is be a 'material consideration' in determining planning applications under the TCPA 1990 regime; • To constitute a real fallback, the courts have held that an alternative development must be "a possibility", not any higher test; • In determining the DCO Application, the Secretary of State must take into account anything they consider to be "important and relevant"; • Fallback positions have been considered in examining and determining various energy DCO applications; • The SHBEC planning permission is extant. Progress has been made with procurement of a contractor, discharge of conditions and an environmental permit, and an Environmental Permit has been granted. It is clearly more than "a possibility" that it will be implemented; • The traffic and HGV levels, and designated HGV route, under the Consented Development and Proposed Development are identical. Network Rail did not object to those aspects of the Consented Development; • Network Rail did not seek any of the controls for the Consented Development which Network Rail is now seeking in relation to the Proposed Development, and the Planning Permission does not secure any of them;

ExQ1	Question to:	Question:	Response
			• The Applicant is free, and proposes, to implement and build out a scheme with identical traffic impacts, but which can generate less electricity; • The terms on which the Consented Development can be built out is clearly "important and relevant" to the Secretary of State's consideration of the DCO Application, and the controls which Network Rail now seeks. The Applicant also notes Network Rail's position in the Draft Statement of Common Ground submitted at Deadline 1 in which it stated "The Consented Development is relevant insofar as it provides a baseline against which the Examining Authority will assess the built development for which the DCO application seeks powers" (see page 48, Document Ref. 7.7). This is a clear acknowledgement that the Consented Development is relevant to the DCO Application, and the reference to it being "a baseline" is akin to agreement that the Planning Permission represents a fallback position. <u>Fallback under the TCPA 1990</u> Under section 70 of the Town and Country Planning Act 1990, in dealing with an application for planning permission, a local authority must have regard to a specified list of factors, and "any other material considerations". *Stringer v Minister of Housing and Local Government (1971)* set out that "in principle... any consideration which relates to the use and development of land is capable of being a planning consideration. Whether a particular consideration falling within that broad class is material in any given case will depend on the circumstances". *R (on the application of Wright v Resilient Energy Severndale Ltd and Forest of Dean District Council (2019)* confirmed that a planning decision maker has a statutory duty to have regard to all material considerations. It is not open to a decision maker to decide not to take a material consideration into account. In *Samuel Smith Old Brewery (Tadcaster) v Secretary of State for Communities and Local Government (2009)* it was confirmed that the prospect of alternative development in accordance with an alternative lawful use was capable of being a material consideration. It also held that for the fallback to be "real" it did not have to be probable or likely, rather a possibility would be sufficient and it would depend on a fact-specific assessment of each individual case. The Applicant considers that the Consented Development is very much more than a "possibility". <u>Fallback under the PA 2008</u> Nothing in the PA2008 statutory regime directly addresses a fallback development, and nor has any case law brought in respect of DCO decisions considered the potential relevance of a fallback. The general position for the determination of DCO applications must therefore be considered. Under section 104 of the PA2008 a DCO application must be determined in accordance with relevant national policy statements. There is nothing in the suite of Energy National Policy Statements on fallback development. Section 104 also provides that in determining an application the Secretary of State must have regard to "any other matters which the Secretary of State thinks are both important and relevant to the Secretary of State's decision". What is "important and relevant" is not further defined in the PA2008. Under the TCPA 1990 regime the fallback position for a particular development must be treated as a 'material consideration' when determining the planning application for that development. The Applicant considers that in the same way, under the PA2008 regime, the fallback position of a particular development should be treated by the Secretary of State as an important and relevant matter when determining the application for development consent for that development. The planning history of a Site, and the potential for further development to take place, is clearly relevant.

ExQ1	Question to:	Question:	Response
			<u>Treatment of fallback in energy DCO projects</u> The following are examples of where a fallback position has been considered in energy DCO decisions to date. **Glyn Rhonwy Pumped Storage (Generating Station) 2017** The application was for a DCO for the construction, operation and maintenance of a pumped hydro-electricity storage facility with capacity of 1.3 million cubic metres of stored water and peak power output of 99.9 MWe. An existing planning permission for the construction and operation of a 600 MW hours pumped storage facility with a generating capacity of 49.9 MW was extant and capable of implementation during the DCO application. The planning statement set out that the extant planning permission represented the baseline position for the land subject to the DCO application. The Examining Authority's report acknowledged the moderate beneficial impacts of the viability of the DCO development when compared with the consented development. **Meaford Energy Centre 2016** The application was for a DCO for a combined cycle gas turbine (CCGT) power station with the capacity of generating up to 299 MWe rated electrical output on land within the Meaford Business Park. An existing outline planning permission for warehousing, industrial, offices and business support activities was extant and capable of implementation. The Examining Authority's report set out that the impacts of the proposed development were assessed in the context that the wider Meaford Business Park site had been identified as a major developed site in the green belt with redevelopment potential for many years, and had planning permission for a major commercial/ industrial development since at least 2007. **Wrexham Energy Centre 2017** The application was for DCO for the development, construction and operation of a CCGT generating station of up to 299 MWe installed capacity. Outline planning permission for the development of 47,534 square metres of warehouse and distribution including 2,144 square metres of office space in a single building was granted on the Power Station Complex Site on appeal in May 2015. A planning application to renew the outline planning permission was pending consideration at the time of the Examining Authority's Report. The Examining Authority's report confirmed "the main application site has outline planning permission for warehouse and storage development uses and hence also has major development future land use. Such development would also have landscape and visual impact and other relevant implications. […] The suggested adverse effects of the Application Proposal have to be evaluated within a context informed by both historic and by policy-supported and permitted future use and development". <u>Fallback under SHBEC planning permission</u> As previously noted the Planning Permission is extant and is capable of implementation until 11 April 2024. The following conditions under the Planning Permission have been discharged/ partially discharged: • details in discharge of part 1 of condition 13 (contamination investigation) – Condition partially discharged (part 1 only);

ExQ1	Question to:	Question:	Response
			• details in discharge of condition 10 (construction management plan – phase 1) – Condition partially discharged (phase 1 only); • details in discharge of condition 18 (delivery and servicing) – Condition discharged; and • details in discharge of part 2 of condition 13 (contamination investigation) – Condition discharged. The Applicant is progressing with the procurement of a construction contractor and expects to sign a contract with the preferred contractor in Q1 2021. An environmental permit has been granted in respect of the Consented Development. It is therefore considered there is a real possibility of development taking place in accordance with the Planning Permission. The fallback position under the Planning Permission is the development of an energy from waste facility of up to 49.9 MW, with the same level of HGV traffic and the same designated HGV route. None of the controls which Network Rail seeks in relation to the DCO are secured in or alongside the Planning Permission. The DCO would allow the generation of a higher level of electricity, with no additional significant adverse effects when compared to the fallback scheme. The Secretary of State is therefore bound to take the Consented Development fallback position into account in considering the Proposed Development and the terms on which it should be granted development consent (as "important and relevant" matters). It is up to the Secretary of State to determine the weight that they attach to this factor – the Applicant submits that given the identical nature of the two schemes (except minor works and additional electricity generation); the identical traffic movements, routes and effects; and Network Rail's conscious non-objection to the Consented Development, that the Secretary of State should give it significant weight.

APPENDIX 1: CONSENTED DEVELOPMENT ENVIRONMENTAL PERMIT REFERENCE EPR/MP3235LY/V009

Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

EP SHB Limited

South Humber Bank Power Station
South Marsh Road
Stallingborough
North East Lincolnshire
DN41 8BZ

Variation application number

EPR/MP3235LY/V009

Permit number

EPR/MP3235LY

South Humber Bank Power Station
Permit number EPR/MP3235LY

Introductory note

This introductory note does not form a part of the notice.

Under the Environmental Permitting (England & Wales) Regulations 2016 (schedule 5, part 1, paragraph 19) a variation may comprise a consolidated permit reflecting the variations and a notice specifying the variations included in that consolidated permit.

Schedule 2 of the notice comprises a consolidated permit which reflects the variations being made. All the conditions of the permit have been varied and are subject to the right of appeal.

This variation makes the below changes:

Chapter III limits

This Permit, for the operation of large combustion plant (LCP), as defined by articles 28 and 29 of the Industrial Emissions Directive (IED), was varied by the Environment Agency to implement the special provisions for LCP given in the IED. The Operator chose to operate **LCP 49, LCP 50 and LCP 51** under the Transitional National Plan (TNP) compliance route until 30/06/2020. This variation introduces the Chapter III, Annex V limits into table S3.1 which will be applicable at the end of the TNP, from 01/07/2020.

Review against the BAT Conclusions:

Article 21(3) of the Industrial Emissions Directive (IED) requires the Environment Agency to review conditions in permits that it has issued and to ensure that the permit delivers compliance with relevant standards, within four years of the publication of updated decisions on Best Available Techniques (BAT) Conclusions. We have reviewed the permit for this installation against the revised BAT Conclusions for the large combustion plant sector published on 17th August 2017. Only activities covered by this BAT Reference Document have been reviewed and assessed. There are no BAT Conclusions applicable to the odorising plant activities undertaken by National Grid Gas PLC. The Energy from Waste plant was added to the permit after the publication of the BAT Conclusions for Waste Incineration. The relevant BAT conclusions were considered during determination of EPR/MP3235LY/V008, therefore we have not carried out an assessment against these BAT conclusions as part of this permit review.

Following the review under Article 21(3) of the IED and the consolidation of the Environmental Permitting Regulations that came into force on the 4 January 2017:

- Revised emission limits and monitoring requirements for emissions to air applicable from 17 August 2021 in line with the BAT Conclusions have been included in table S3.1a; and
- Inclusion of process monitoring for energy efficiency in table S3.3.

Permit condition 2.3.8 has been included in the permit with corresponding improvement condition (IP23) requiring the operator to submit a report in relation to potential black start operation of the plant.

We have removed the completed improvement conditions from the permit.

The rest of the installation is unchanged and continues to be operated as follows:

The South Humber Bank Power Station (SHBPS) installation consists of a Combined Cycle Gas Turbine (CCGT) Power Station, a gas odourising plant and a two-stream Energy from Waste (EfW) facility.

CCGT Power Station

The CCGT Power Station (operated by EP SHB Limited), consists of three Large Combustion Plants (LCPs). The net thermal input of the LCPs is as follows:

LCP49 – one 491MWth CCGT,

LCP50 – two CCGT's combined 982MWTh,

LCP51 – two CCGT's combined 982MWTh

The addition of an odourising agent to the natural gas fed to the CCGTs is operated by National Grid Gas plc under Environmental Permit EPR/QP3535LG.

The power station consists of two CCGT modules. The first comprises three gas turbines, three heat recovery steam generators and one steam turbine. The second comprises two gas turbines, two heat recovery steam generators and one steam turbine. Each gas turbine drives its own electrical generator and the hot turbine exhaust is used to generate steam in the heat recovery steam generators. The steam is used to power the steam turbine associated with each module, which drives another generator. The electrical output from the five gas turbine generators and the two steam turbine generators is combined to give the total net nominal output of approximately 1260 MW. The plant can operate to a base load or demand following regime.

GT13 is a single unit which vents into a dedicated stack at release point A1. GT11 and GT12 vent into a common stack at release point A2. Similarly, GT21 and GT22 vent into a common stack at release point A3.

Boiler feed water is supplied from towns water via two demineralisation plants (one on each module).

Water from the deepwater channel in the estuary is used for direct ("once through") cooling and returned to the deepwater channel. Apart from the inlet and outlet culverts/ponds the two modules have separate cooling water systems.

A gas oil fired auxiliary boiler provides steam during start-up of the first module following a complete shutdown. The auxiliary boiler and gas turbine use low NOX technology to minimise releases at source.

Energy from Waste (EfW) facility

There is also a two-stream, EfW facility fired by refuse derived fuel (RDF) with a combined thermal input of 240MWth, a gross electrical output of 49.9MWe and a nominal thermal export of 84.1MWth. The EfW facility has the capability to export all steam generated (approximately 211MWth) to the CCGT power plant when not producing electricity for direct export.

The EfW facility can operate using fuel with a range of Net Calorific Values (NCV) between 9MJ/kg and 14MJ/kg, with a design average NCV of 11MJ/kg.

The Site is located off South Marsh Road, Stallingborough on the South Humber Bank between the towns of Immingham and Grimsby; both over 3 km from the Site. The surrounding area is characterised by a mix of industrial and agricultural land use with the main settlements being the villages of Stallingborough, Healing and Great Coates. The nearest settlement is the village of Stallingborough over 2 km away. The closest residential properties are located approximately 1 km west. These are Poplar Farm located on South Marsh Road, and Primrose Cottage accessed via Station Road north of the A180.

The land immediately to the south, west and north-west of the site is agricultural. There is a concentration of industrial land uses on the South Humber Bank along the bank of the Humber Estuary. A large polymer manufacturing site (Synthomer (UK) Limited) and the NEWLINCS waste management facility are both located to the north of the site beyond South Marsh Road. The eastern boundary of the installation borders the Humber Estuary (a SSSI, SAC, SPA and Ramsar site).

There are emissions to air and to water from the installation. Administrative support, raw material storage, warehousing and limited engineering support are all located on the installation to support operations.

The status log of a permit sets out the permitting history, including any changes to the permit reference number.

Status log of the permit		
Description	**Date**	**Comments**
Application EPR/MP3235LY	Duly made 22/03/2006	
Additional information requested (site visit)	06/07/2006	
Additional Information Received		04/08/2006
Permit determined	12/12/2006	
Application EPR/MP3235LY/V002	29/10/2010	
Variation issued	14/12/2010	
Variation determined EPR/MP3235LY/V003	11/03/2013	Environment Agency initiated Variation, to incorporate Eel Regulations improvement condition
Variation determined EPR/MP3235LY/V004 (Billing reference) MP3235WK	29/09/2014	Environment Agency Initiated Variation issued, to add an improvement condition requiring a cost benefit appraisal to ensure compliance with the Eels Regulations. Effective 1/10/2014.
Regulation 60 Notice sent to the Operator	17/12/2014	Issue of a Notice under Regulation 60(1) of the EPR. Environment Agency Initiated review and variation to vary the permit under IED to implement the special provisions for LCP under Chapter III, introducing new Emission Limit Values (ELVs) applicable to LCP, referred to in Article 30(2) and set out in Annex V.
Regulation 60 Notice response	31/03/2015	Response received from the Operator.
Additional information received	24/11/2015	Response to request for further information (RFI) dated 20/10/2015.
Variation determined EPR/MP3235LY/V005	23/12/2015	Varied and consolidated permit issued in modern condition format.
Notified of change of company name and registered office address	04/09/2017	Name and registered address changed to EP SHB Limited, Berger House, 36-38 Berkeley Square, London, W1J 5AE.
Variation determined EPR/MP3235LY/V006	15/09/2017	Varied permit issued to EP SHB Limited.
Regulation 61 Notice sent to the Operator	01/05/2018	Issue of a Notice under Regulation 61(1) of the EPR. Environment Agency initiated review and variation to vary the permit under IED to implement Chapter II following the publication of the revised Best Available Techniques (BAT) Reference Document for large combustion plant.
Regulation 61 Notice response.	12/10/2018	Response received from the Operator.
Variation application EPR/MP3235LY/V007	Duly made 26/11/2018	Application to amend the set of minimum start-up and shut-down conditions for LCP49 and LCP50.
Variation determined EPR/MP3235LY/V007 (Billing ref: DP3439QU)	18/12/2018	Varied and consolidated permit issued.

Status log of the permit		
Description	**Date**	**Comments**
Variation Application EPR/MP3235LY/V008	Duly made 08/05/2019	Application to include an energy from waste facility within the installation.
Schedule 5 Notice	02/07/2019	Response received 26/07/2019
Additional information requested	22/08/2019	Clarification of Schedule 5. Response received 30/08/2019.
Revised site plan	10/10/2019	Emission points added
Additional information requested	19/12/2019	Revised HRA. Received 07/01/2020
Additional information requested	09/01/2020	Clarification of HRA. Received 10/01/2020.
Variation determined EPR/MP3235LY/V008 (Billing ref: BP3238QY)	25/03/2020	Varied and consolidated permit issued.
Variation determined EPR/MP3235LY/V009 (Billing ref: TP3308PZ)	04/05/2020	Varied and consolidated permit issued. Following the publication of the revised Best Available Techniques (BAT) Reference Document for large combustion plant. Effective from 01/07/2020

Other Part A installation permits relating to this installation		
Operator	**Permit number**	**Date of issue**
National Grid Gas PLC	QP3535LG	12/12/2006

End of introductory note

The Environmental Permitting (England and Wales) Regulations 2016

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2016 varies

Permit number

EPR/MP3235LY

Issued to

EP SHB Limited ("the operator")

whose registered office is

Berger House
36-38 Berkeley Square
London
W1J 5AE

company registration number 02571241

to operate a regulated facility at

South Humber Bank Power Station
South Marsh Road
Stallingborough
North East Lincolnshire
DN41 8BZ

to the extent set out in the schedules.

The notice shall take effect from 01/07/2020

Name	Date
Sifelani Mpofu	**04/05/2020**

Authorised on behalf of the Environment Agency

Schedule 1

All conditions have been varied by the consolidated permit as a result of an Environment Agency initiated variation.

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/MP3235LY

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/MP3235LY/V009 authorising,

EP SHB Limited ("the operator"),

whose registered office is

Berger House
36-38 Berkeley Square
London
W1J 5AE

company registration number 02571241

to operate a regulated facility at

South Humber Bank Power Station
South Marsh Road
Stallingborough
North East Lincolnshire
DN41 8BZ

to the extent authorised by and subject to the conditions of this permit.

Name	Date
Sifelani Mpofu	**04/05/2020**

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

(a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and

(b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

1.2 Energy efficiency

1.2.1 For the following activities referenced in schedule 1, table S1.1 (AR1, AR3, AR4, AR5 and AR6) the operator shall:

(a) take appropriate measures to ensure that energy is used efficiently in the activities;

(b) take appropriate measures to ensure the efficiency of energy generation at the permitted installation is maximised;

(c) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and

(d) take any further appropriate measures identified by a review.

1.2.2 For the following activities referenced in schedule 1, table S1.1 (AR2 and AR7) the operator shall:

(a) take appropriate measures to ensure that energy is recovered with a high level of energy efficiency and energy is used efficiently in the activities.

(b) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and

(c) take any further appropriate measures identified by a review.

1.2.3 For the following activities referenced in schedule 1, table S1.1 (AR2) the operator shall provide and maintain steam and/or hot water pass-outs such that opportunities for the further use of waste heat may be capitalised upon should they become practicable.

1.2.4 For the following activities referenced in schedule 1, table S1.1 (AR2) the operator shall review the viability of Combined Heat and Power (CHP) implementation at least every 4 years, or in response to any of the following factors, whichever comes sooner:

(a) new plans for significant developments within 15 km of the installation;

(b) changes to the Local Plan;

(c) changes to the UK CHP Development Map or similar; and

(d) new financial or fiscal incentives for CHP.

The results shall be reported to the Agency within 2 months of each review, including where there has been no change to the original assessment in respect of the above factors

1.3 Efficient use of raw materials

1.3.1 The operator shall:

(a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;

(b) maintain records of raw materials and water used in the activities;

(c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and

(d) take any further appropriate measures identified by a review.

1.4 Avoidance, recovery and disposal of wastes produced by the activities

1.4.1 The operator shall take appropriate measures to ensure that:

(a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities;

(b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and

(c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.

1.4.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

1.5 Multiple operator installations

1.5.1 Where the operator notifies the Environment Agency under condition 4.3.1 (a) or 4.3.1 (c), the operator shall also notify without delay the other operator(s) of the installation of the same information.

2 Operations

2.1 Permitted activities

2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the "activities").

2.1.2 Waste authorised by this permit shall be clearly distinguished from any other waste on the site.

2.2 The site

2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 7 to this permit.

2.3 Operating techniques

2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.

2.3.2 For the following activities referenced in schedule 1, table S1.1: LCP49, LCP 50 and LCP 51. The activities shall be operated in accordance with the "Electricity Supply Industry IED Compliance Protocol for Utility Boilers and Gas Turbines" dated December 2015 or any later version unless otherwise agreed in writing by the Environment Agency.

2.3.3 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan or other documentation ("plan") specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan , and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.

2.3.4 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.

2.3.5 For the following activities referenced in Schedule 1, Table S1.1: (AR1) Auxiliary boiler. The activities shall not operate for more than 500 hours per year.

2.3.6 For the following activities referenced in schedule 1, table S1.1: LCP49, LCP 50 and LCP51. The end of the start up period and the start of the shutdown period shall conform to the specifications set out in Schedule 1, tables S1.2 and S1.5.

2.3.7 For the following activities referenced in schedule 1, table S1.1: LCP49, LCP 50 and LCP51. The effective Dry Low NOx threshold shall conform to the specifications set out in Schedule 1, tables S1.2 and S1.6.

2.3.8 The emission limit values from emission point(s) A1, A2 and A3 listed in tables S3.1 and S3.1a of Schedule 3 following the issue of a Black Start Instruction by the National Grid shall be disregarded for the purposes of compliance whilst that instruction remains effective and in accordance with the report submitted in response to improvement condition IP23.

2.3.9 For the following activities referenced in schedule 1, table S1.1 (AR2) waste fuel shall not be charged, or shall cease to be charged, if:

(a) the combustion chamber temperature is below, or falls below, 850°C; or

(b) any continuous emission limit value in schedule 3 table S3.1.1 is exceeded; or

(c) any continuous emission limit value in schedule 3 table S3.1 is exceeded, other than during abnormal operation or periods of OTNOC; or

(d) Any continuous emission limit value in schedule 3 table S3.1.2 is exceeded other than during abnormal operation; or

(e) monitoring results required to demonstrate compliance with any continuous emission limit value in schedule 3 table S3.1 are unavailable other than during abnormal operation; or

(f) there is a stoppage, disturbance or failure of the activated carbon abatement system.

2.3.10 For the following activities referenced in schedule 1, table S1.1 (AR2) the operator shall have at least one auxiliary burner in each line which shall be operated at start up, shut down and as required during operation to ensure that the operating temperature specified in condition 2.3.9 is maintained as long as incompletely burned waste is present in the combustion chamber. Unless the temperature specified in condition 2.3.9 is maintained in the combustion chamber, such burner(s) shall be fed only with fuels which result in emissions no higher than those arising from the use of gas oil, liquefied gas or natural gas.

2.3.11 For the following activities referenced in schedule 1, table S1.1 (AR2) the operator shall record the beginning and end of each period of "abnormal operation".

2.3.12 For the following activities referenced in schedule 1, table S1.1 (AR2) during a period of "abnormal operation" or OTNOC, the operator shall restore normal operation of the failed equipment or replace the failed equipment as rapidly as possible.

2.3.13 For the following activities referenced in schedule 1, table S1.1 (AR2) where, during " abnormal operation", on an incineration line, any of the following situations arise, waste shall cease to be charged on that line until normal operation can be restored:

(a) continuous measurement shows that an emission exceeds any emission limit value in schedule 3 tables S3.1 and S3.1a due to stoppages, disturbances or failures of the abatement plant, or continuous emission monitor(s) are out of service, as the case may be, for a total of 4 hours uninterrupted duration;

(b) there is a technically unavoidable stoppage, disturbance or failure of the activated carbon abatement system for a total of 4 hours uninterrupted duration;

(c) the cumulative duration of " abnormal operation" periods over 1 calendar year has reached 60 hours;

(d) continuous measurement shows that an emission exceeds any emission limit value in schedule 3 table S3.1.1.

(e) continuous emission monitors or alternative techniques to demonstrate compliance with the emission limit value(s) for particulates, TOC and / or CO in schedule 3 table S3.1.1, as detailed in the application or as agreed in writing with the Environment Agency, are unavailable.

2.3.14 For the following activities referenced in schedule 1, table S1.1 (AR2) the operator shall interpret the end of the period of "abnormal operation" as the earliest of the following:

(a) when the failed equipment is repaired and brought back into normal operation;

(b) when the operator initiates a shut down of the waste fuel combustion activity, as described in the application or as agreed in writing with the Environment Agency;

(c) when a period of four hours has elapsed from the start of the "abnormal operation";

(d) when, in any calendar year, an aggregated period of 60 hours "abnormal operation" has been reached on an incineration line.

2.3.15 For the following activities referenced in schedule 1, table S1.1 (AR2) bottom ash and APC residues shall not be mixed.

2.3.16 For the following activities referenced in schedule 1, table S1.1 (AR2) waste shall only be accepted if:

(a) it is of a type and quantity listed in schedule 2 table S2.2;

(b) it conforms to the description in the documentation supplied by the producer or holder; and

(c) it having been separately collected for recycling, it is subsequently unsuitable for recovery by recycling.

2.3.17 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:

(a) the nature of the process producing the waste;

(b) the composition of the waste;

(c) the handling requirements of the waste;

(d) the hazardous property associated with the waste, if applicable; and

(e) the waste code of the waste.

2.3.18 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.

2.4 Improvement programme

2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by the Environment Agency.

2.4.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each improvement.

2.5 Pre-operational conditions

2.5.1 The activities shall not be brought into operation until the measures specified in schedule 1 table S1.4 have been completed.

3 Emissions and monitoring

3.1 Emissions to water, air or land

3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1 and S3.1a, S3.1.1, S3.1.2 and S3.2

3.1.2 For the following activities referenced in schedule 1, table S1.1 (AR1) the limits given in schedule 3 shall not be exceeded.

3.1.3 For the following activities referenced in schedule 1, table S1.1 (AR2) limits given in schedule 3, subject to condition 3.2.1, shall not be exceeded.

3.1.4 For the following activities referenced in schedule 1, table S1.1 (AR2) wastes produced at the site shall, as a minimum, be sampled and analysed in accordance with schedule 3 table S3.4. Additional samples shall be taken and tested and appropriate action taken, whenever:

(a) disposal or recovery routes change; or

(b) it is suspected that the nature or composition of the waste has changed such that the route currently selected may no longer be appropriate.

3.2 Emissions limits and monitoring for emissions to air for incineration plant

3.2.1 For the following activities referenced in schedule 1, table S1.1 (AR2) the limits for emissions to air apply as follows:

(a) The limits in tables S3.1 and S3.1a shall not be exceeded except during periods of abnormal operation or OTNOC.

(b) The limits in table S3.1.1 shall not be exceeded.

(c) The limits in table S3.1.2 shall not be exceeded except during abnormal operation.

3.2.2 For the following activities referenced in schedule 1, table S1.1 (AR2) where Continuous Emission Monitors are installed to comply with the monitoring requirements in schedule 3 table S3.1, S3.1a, S3.1.1 and S3.1.2; the Continuous Emission Monitors shall be used such that;

(a) the values of the 95% confidence intervals of a single measured result at the daily emission limit value shall not exceed the following percentages of the emission limit values:

- Carbon monoxide 10%
- Sulphur dioxide 20%
- Oxides of nitrogen (NO & NO_2 expressed as NO_2) 20%
- Particulate matter 30%
- Total organic carbon (TOC) 30%
- Hydrogen chloride 40%

- Ammonia 40%

(b) valid half-hourly average values shall be determined within the effective operating time (excluding the start-up and shut-down periods) from the measured values after having subtracted the value of the confidence intervals in condition 3.2.2 (a).

(c) where it is necessary to calibrate or maintain the monitor and this means that data are not available for a complete half-hour period , the half-hourly average shall in any case be considered valid if measurements are available for a minimum of 20 minutes during the half-hour. The number of half-hourly averages so validated shall not exceed 5 per day;

(d) daily average values shall be calculated as follows:

(i) for the daily average values in tables S3.1 and S3.1a the average of valid half hourly averages over a calendar day excluding half hourly averages during periods of abnormal operation and OTNOC. The daily average value shall be considered valid if no more than five half-hourly average values in any day have been determined not to be valid;

(ii) for the daily average values in table S3.1.1, the average of valid half hourly averages over a calendar day excluding half hourly averages during periods of abnormal operation. The daily average value shall be considered valid if no more than five half-hourly values in any day have been determined not to be valid;

(e) no more than ten daily average values per year shall be determined not to be valid.

3.3 Emissions of substances not controlled by emission limits

3.3.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

3.3.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;

(b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.3.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.3.4 Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination.

3.4 Odour

3.4.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.

3.4.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;

(b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.5 Noise and vibration

3.5.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.

3.5.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;

(b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.6 Monitoring

3.6.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring specified in the following tables in schedule 3 to this permit:

(a) point source emissions specified in tables S3.1, S3.1a, S3.1.1, S3.1.2 and S3.2;

(b) process monitoring specified in table S3.3; and

(c) residue quality in table S3.4.

3.6.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continuous), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.

3.6.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.6.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by the Environment Agency. Newly installed CEMs, or CEMs replacing existing CEMs, shall have MCERTS certification and have an MCERTS certified range which is not greater than 1.5 times the daily emission limit value (ELV) specified in schedule 3 tables S3.1 and S3.1a. The CEM shall also be able to measure instantaneous values over the ranges which are to be expected during all operating conditions. If it is necessary to use more than one range setting of the CEM to achieve this requirement, the CEM shall be verified for monitoring supplementary, higher ranges.

3.6.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1, S3.1a, S3.1.1, S3.1.2 and S3.2 unless otherwise agreed in writing by the Environment Agency.

3.7 Monitoring for Large Combustion Plant

3.7.1 For the following activities referenced in schedule 1, table S1.1 (AR1) monitoring required by this permit shall be carried out in accordance with the provisions of Annex V of the Industrial Emissions Directive and the Large Combustion Plant Best Available Techniques Conclusions.

3.7.2 For the following activities referenced in schedule 1, table S1.1 (AR1) if the monitoring results for more than 10 days a year are invalidated within the meaning set out in condition 3.7.7, the operator shall:

(a) within 28 days of becoming aware of this fact, review the causes of the invalidations and submit to the Environment Agency for approval, proposals for measures to improve the reliability of the continuous measurement systems, including a timetable for the implementation of those measures; and

(b) implement the approved proposals.

3.7.3 For the following activities referenced in schedule 1, table S1.1 (AR1) continuous measurement systems on emission points from the LCP shall be subject to quality control by means of parallel measurements with reference methods at least once every calendar year.

3.7.4 For the following activities referenced in schedule 1, table S1.1 (AR1) unless otherwise agreed in writing by the Environment Agency in accordance with condition 3.7.5 below, the operator shall carry out the methods, including the reference measurement methods, to use and calibrate continuous measurement systems in accordance with the appropriate CEN standards.

3.7.5 For the following activities referenced in schedule 1, table S1.1 (AR1) if CEN standards are not available, ISO standards, national or international standards which will ensure the provision of data of an equivalent scientific quality shall be used, as agreed in writing with the Environment Agency.

3.7.6 For the following activities referenced in schedule 1, table S1.1 (AR1) where required by a condition of this permit to check the measurement equipment, the operator shall submit a report to the Environment Agency in writing, within 28 days of the completion of the check.

3.7.7 For the following activities referenced in schedule 1, table S1.1 (AR1) where Continuous Emission Monitors are installed to comply with the monitoring requirements in schedule 3, tables S3.1 and S3.1a; the Continuous Emission Monitors shall be used such that:

(a) for the continuous measurement systems fitted to the LCP release points defined in tables S3.1 and S3.1a the validated hourly, monthly, yearly and daily averages shall be determined from the measured valid hourly average values after having subtracted the value of the 95% confidence interval;

(b) the 95% confidence interval for nitrogen oxides and sulphur dioxide of a single measured result shall be taken to be 20%;

(c) the 95% confidence interval for dust releases of a single measured result shall be taken to be 30%;

(d) the 95% confidence interval for carbon monoxide releases of a single measured result shall be taken to be 10%;

(e) an invalid hourly average means an hourly average period invalidated due to malfunction of, or maintenance work being carried out on, the continuous measurement system. However, to allow some discretion for zero and span gas checking, or cleaning (by flushing), an hourly average period will count as valid as long as data has been accumulated for at least two thirds of the period. Such discretionary periods are not to exceed more than 5 in any one 24-hour period unless agreed in writing. Where plant may be operating for less than the 24-hour period, such discretionary periods are not to exceed more than one quarter of the overall valid hourly average periods unless agreed in writing; and

(f) any day, in which more than three hourly average values are invalid shall be invalidated.

3.8 Fire prevention

3.8.1 For the following activities referenced in schedule 1, table S1.1 (AR2) the operator shall take all appropriate measures to prevent fires on site and minimise the risk of pollution from them including, but not limited to, those specified in any approved fire prevention plan.

3.8.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to a risk of fire, submit to the Environment Agency for approval within the period specified, a fire prevention plan which prevents fires and minimises the risk of pollution from fires;
(b) implement the fire prevention plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

4 Information

4.1 Records

4.1.1 All records required to be made by this permit shall:

(a) be legible;

(b) be made as soon as reasonably practicable;

(c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and

(d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:

(i) off-site environmental effects; and

(ii) matters which affect the condition of the land and groundwater.

4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

4.2 Reporting

4.2.1 The operator shall send all reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.

4.2.2 For the following activities referenced in schedule 1, table S1.1 (AR1) a report or reports on the performance of the activities over the previous year shall be submitted to the Environment Agency by 31 January (or other date agreed in writing by the Environment Agency) each year. The report(s) shall include as a minimum:

(a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;

(b) the resource efficiency metrics set out in schedule 4 table S4.2;

(c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule.

(d) where condition(s) 2.3.5 applies the hours of operation in any year.

4.2.3 For the following activities referenced in schedule 1, table S1.1 (AR2) a report or reports on the performance of the activities over the previous year shall be submitted to the Environment Agency by 31 January (or other date agreed in writing by the Environment Agency) each year using the annual report form specified in schedule 4, table S4.3a or otherwise in a format agreed with the Environment Agency. The report(s) shall include as a minimum:

(a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;

(b) the resource efficiency metrics set out in schedule 4 table S4.2a; and

(c) the performance parameters set out in schedule 4 table S4.3a.

(d) the functioning and monitoring of the incineration plant in a format agreed with the Environment Agency. The report shall, as a minimum requirement (as required by Chapter IV of the Industrial Emissions Directive) give an account of the running of the process and the emissions into air and water compared with the emission standards in the IED.

4.2.4 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:

(a) in respect of the parameters and emission points specified in schedule 4 tables S4.1 and S4.1a;

(b) for the reporting periods specified in schedule 4 tables S4.1 and S4.1a and using the forms specified in schedule 4 tables S4.4 and S4.4a; and

(c) giving the information from such results and assessments as may be required by the forms specified in those tables.

4.2.5 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

4.2.6 For the following activities referenced in schedule 1, table S1.1: LCP49, LCP50 and LCP51. Unless otherwise agreed in writing with the Environment Agency, within 1 month of the end of each quarter, the operator shall submit to the Environment Agency using the form IED RTA1, listed in table S4.4, the information specified on the form relating to the site's mass emissions.

4.3 Notifications

4.3.1 In the event:

(a) that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—

(i) inform the Environment Agency,

(ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and

(iii) take the measures necessary to prevent further possible incidents or accidents;

(b) of a breach of any permit condition the operator must immediately—

(i) inform the Environment Agency, and

(ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;

(c) of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.

4.3.2 Any information provided under condition 4.3.1 (a)(i), 4.3.1 (b)(i) where the information relates to the breach of a condition specified in the permit, shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.

4.3.3 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.

4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

(a) any change in the operator's trading name, registered name or registered office address; and

(b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

(c) any change in the operator's name or address; and

(d) any steps taken with a view to the dissolution of the operator.

In any other case:

(e) the death of any of the named operators (where the operator consists of more than one named individual);

(f) any change in the operator's name(s) or address(es); and

(g) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:

(a) the Environment Agency shall be notified at least 14 days before making the change; and

(b) the notification shall contain a description of the proposed change in operation.

4.3.6 The Environment Agency shall be given at least 14 days notice before implementation of any part of the site closure plan.

4.3.7 The operator shall inform the Environment Agency in writing of the closure of any LCP within 28 days of the date of closure.

4.4 Interpretation

4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made without delay, in which case it may be provided by telephone.

Schedule 1 – Operations

Table S1.1 activities			
Activity reference	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity**	**Limits of specified activity**
AR1	Section 1.1 A(1) (a): Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more.	LCP 49 (GT13): CCGT for production of electricity and steam. LCP 50 (GT11&GT12): CCGT's for production of electricity and steam. LCP51 (GT21&GT22): CCGT's for production of electricity and steam. Auxiliary gas oil boiler. Limited to <500 hours/ yr operation (42 MWth input)	From receipt of gas through to discharge of exhaust gases and generation of electricity From receipt of gas oil through to discharge of exhaust gases and export of steam to the steam systems.
AR2	Section 5.1 A(1) (b): The incineration of non-hazardous waste in a waste incineration plant with a capacity exceeding 3 tonnes per hour.	The incineration of non-hazardous waste in a waste incineration plant with a capacity of 3 tonnes per hour or more.	From receipt of waste to emission of exhaust gas and disposal of waste arising. Waste types and quantities as specified in Table S2.2 of this permit.
	Directly Associated Activity		
AR3	Directly associated activity	Water treatment. Demineralisation of water.	Receipt of water and other raw materials through to the export to boiler feed system and drains.
AR4	Directly associated activity	Cooling water system	From inlet ports to discharge ports.
AR5	Directly associated activity	Raw materials handling and storage. Receipt storage and handling of water treatment chemicals, fuel and lubricating oils, turbine cleaning chemicals and all other raw materials	From receipt of raw materials to their point of use
AR6	Directly associated activity	Waste handling and storage	From generation to the removal from the installation.

Table S1.1 activities			
Activity reference	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity**	**Limits of specified activity**
AR7	Directly associated activity	Electricity Generation. Generation of 49.9 MWe electrical power using a steam turbine from energy recovered from the flue gases.	Generation of electrical power using steam from the Energy from Waste facility

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Application	The response to section 2.1 and 2.2 excluding Appendix A (Application site report, February 2006) in the application	22/03/2006
Receipt of additional information to the application	Revised Application Site Report July 2006	04/08/2006
Information submitted as part of a variation	Information provided in non technical summary	29/10/2010
Response to regulation 60(1) Notice – request for information dated 17/12/14	Compliance route and operating techniques identified in response to questions 2 (chosen compliance route), 4 (LCP configuration), 5 (Net rated thermal Input), 6 (start up and shut down), 9ii (ELV Limits), 11 (monitoring requirements).	Received 31/03/2015
Receipt of additional information to the regulation 60(1) Notice. requested by letter dated 20/10/2015	Further details provided on Net rated thermal input and Start up and Shut down thresholds for the gas turbines.	24/11/2015
Response to regulation 61(1) Notice – request for information dated 01/05/18 EPR/MP3235LY/V009	Compliance and operating techniques identified in response to the BAT Conclusions for large combustion plant published on 17th August 2017.	12/10/2018
Application EPR/MP3235LY/V007	Document referred as "REF: Minor technical change to permit MP3235LY (amendment 1 to include additional information in appendix 1) 26/11/18" including information on operating techniques for start-up and shut-down thresholds for the gas turbines GT11, GT12 and GT13 operating in low-load combustion mode.	26/11/2018
Application for variation EPR/MP3235LY/V008	Application form Part C3. Document "Environmental Permit Application – Supporting Statement" Dated December 2018	Duly Made 08/05/2019
Response to Sch 5 notice dated 02/07/19	Response to questions 1-20	26/07/2019
Additional information	Response to questions 1, 2 and 3.	30/08/2019
Additional information in response to regulation 61(1) Notice EPR/MP3235LY/V009	Compliance and operating techniques identified in response to BAT Conclusions 20, 22, 25, 45, 47 and 54.	04/11/2019

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
Improvement conditions 1 – 8 have been removed from the permit through variation EPR/MP3235LY/V009 as they are complete.		
IP9	The Operator shall submit a written report to the Environment Agency on the implementation of its Environmental Management System (EMS) and the progress made in the certification of the system by an external body or if appropriate submit a schedule by which the EMS will be certified.	Within 12 months of the completion of commissioning.
IP10	The Operator shall submit a written proposal to the Environment Agency to carry out tests to determine the size distribution of the particulate matter in the exhaust gas emissions to air from emission points A17 and A18, identifying the fractions within the PM_{10}, and $PM_{2.5}$ ranges. On receipt of written approval from the Environment Agency to the proposal and the timetable, the Operator shall carry out the tests and submit to the Environment Agency a report on the results.	Within 6 months of the completion of commissioning.
IP11	For Activity AR2 the Operator shall submit a written report to the Environment Agency on the commissioning of the installation. The report shall summarise the environmental performance of the plant as installed against the design parameters set out in the Application. The report shall also include a review of the performance of the facility against the conditions of this permit and details of procedures developed during commissioning for achieving and demonstrating compliance with permit conditions and confirm that the Environmental Management System (EMS) has been updated accordingly	Within 4 months of the completion of commissioning.
IP12	For Activity AR2 the Operator shall submit, for approval with the Environment Agency, a methodology (having regard to Technical Report P4-100/TR Part 2 Validation of Combustion Conditions) to verify the residence time, minimum temperature and oxygen content of the gases in the furnace whilst operating under normal load, minimum turn down and overload conditions.	Report for approval to be submitted at least 2 months before validation testing or as agreed in writing with the Environment Agency.
IP13	For Activity AR2 the operator shall notify the Environment Agency of the proposed date(s) that validation testing is planned for.	Notification at least 3 weeks prior to validation testing
IP14	For Activity AR2, during commissioning the operator shall carry out validation testing to validate the residence time, minimum temperature and oxygen content of the gases in the furnace whilst operating under normal load and most unfavourable operating conditions. The validation shall be to the methodology as approved through improvement condition IP12.	Validation tests completed before the end of commissioning
IP15	For Activity AR2 the operator shall submit a written report to the Environment Agency on the validation of residence time, oxygen and temperature whilst operating under normal load, minimum turn down and overload conditions. The report shall identify the process controls used to ensure residence time and temperature requirements are complied with during operation of the incineration plant.	Report submitted within 2 months of the completion of commissioning.

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IP16	For Activity AR2 the Operator shall submit a written report to the Environment Agency describing the performance and optimisation of: • The Selective Non Catalytic Reduction (SNCR) system and combustion settings to minimise oxides of nitrogen (NOx).The report shall include an assessment of the level of NOx, N_2O and NH_3 emissions that can be achieved under optimum operating conditions. • The lime injection system for minimisation of acid gas emissions The carbon injection system for minimisation of dioxin and heavy metal emissions.	Within 4 months of the completion of commissioning.
IP17	For Activity AR2 the Operator shall carry out an assessment of the impact of emissions to air of the following component metals subject to emission limit values, i.e. Cd, As, Pb, Cr, Mn, Ni and V A report on the assessment shall be made to the Environment Agency. Emissions monitoring data obtained during the first year of operation shall be used to compare the actual emissions with those assumed in the impact assessment submitted with the Application. An assessment shall be made of the impact of each metal against the relevant EQS/EAL. In the event that the assessment shows that an environmental standard can be exceeded, the report shall include proposals for further investigative work.	15 months from the completion of commissioning
IP18	For Activity AR2 the Operator shall submit a written summary report to the Environment Agency to confirm that the performance of Continuous Emission Monitors for parameters as specified in Tables S3.1, S3.1a and Table S3.1.1 complies with the requirements of BS EN 14181, specifically the requirements of QAL1, QAL2 and QAL3. The report shall include the results of calibration and verification testing.	Initial calibration report to be submitted to the Agency within 3 months of completion of commissioning. Full summary evidence compliance report to be submitted within 18 months of completion of commissioning.
IP19	For Activity AR2, during commissioning, the operator shall carry out tests to demonstrate whether the furnace combustion air will ensure that negative pressure is achieved throughout the reception hall. The tests shall demonstrate whether air is pulled through the reception hall and bunker area and into the furnace with dead spots minimised. The operator shall submit a report to the Environment Agency, for approval, summarising the findings along with any proposed improvements if required.	Within 3 months of completion of commissioning.
IP20	For Activity AR2 the operator shall carry out a programme of dioxin and dioxin like PCB monitoring over a period and frequency agreed with the Environment Agency. The operator shall submit a report to the Environment Agency with an analysis of whether dioxin emissions can be considered to be stable.	Within 3 months of completion of commissioning or as agreed in writing with the Environment Agency

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IP21	For Activity AR2 the operator shall carry out a programme of mercury monitoring over a period and frequency agreed with the Environment Agency. The operator shall submit a report to the Environment Agency with an analysis of whether the waste feed to the plant can be proven to have a low and stable mercury content.	Within 3 months of completion of commissioning or as agreed in writing with the Environment Agency
IP22	For Activity AR2 the Operator shall submit a report to the Environment Agency for approval on start-up and shut-down conditions over the first 12 months of operation. The report shall identify any amendments to the start-up and shut-down definitions that were described in the application.	Within 15 months of completion of commissioning or as agreed in writing with the Environment Agency
IP23	For Activity AR1, a written report shall be submitted to the Environment Agency for approval. The report shall contain an impact assessment demonstrating that there is no significant environmental risk associated with black start operations and propose a methodology for minimisation of environmental impact during such a period of operation and for reporting instances of black start operation. The plant can be operated as set out in condition 2.3.8 of the permit once the report has been approved by the Environment Agency. The methodology for operation and reporting set out in the report shall be implemented by the Operator from the date of approval by the Environment Agency.	12 months from variation issue EPR/MP3235LY/V009
IP24	For Activity AR1, the Operator shall submit a report in writing to the Environment Agency for approval. The report shall define an output load or operational parameters and provide a written justification for when the dry low NOx operation is effective. The report shall also include the NOx profile through effective dry low NOx to 70% and then to full load.	17/02/2021

Table S1.4 Pre-operational measures	
Reference	**Pre-operational measures**
PO1	Dosing of cooling water system with biocide. At least 4 weeks prior to commencing to dose, the operator shall submit a request to commence for approval by the Agency. This request shall include confirmation the continuous monitoring of the pH of the discharge has been initiated and shall outline the techniques to be used to ensure compliance with the conditions outlined in table S3.2
PO2	For Activity AR2, prior to the commencement of commissioning, the Operator shall send: • A summary of the site Environment Management System (EMS);and • A copy of the full OTNOC management plan which shall be prepared in accordance with BAT 18 of the BAT conclusions to the Environment Agency and obtain the Environment Agency's written approval to the EMS summary and the full OTNOC management plan. The Operator shall make available for inspection all documents and procedures which form part of the EMS. The EMS shall be developed in line with the requirements set out in Environment Agency web guide on developing a management system for environmental permits (found on www.gov.uk) and BAT 1 of the incineration BAT conclusions. The EMS shall include the approved OTNOC management plan. The documents and procedures set out in the EMS shall form the written management system referenced in condition 1.1.1 (a) of the permit.
PO3	For Activity AR2, prior to the commencement of commissioning, the Operator shall send an updated version of the Fire Prevention Plan (FPP) to the Environment Agency and obtain the Environment Agency's written approval to it. The FPP shall be based on Environment Agency Fire Prevention Plan Guidance for Environmental Permits (May 2018) and Waste Industry Safety and Health Forum Guidance (WASTE 28 Reducing fire risk at waste management sites issue 2 – April 2017). The final FPP must be in place prior to commissioning.
PO4	For Activity AR2, prior to the commencement of commissioning, the Operator shall send a report to the Environment Agency, and obtain the Environment Agency's written approval to it, which will contain a comprehensive review of the options available for utilising the heat generated, including operating as CHP or supplying district heating, by the waste incineration process in order to ensure that it is recovered as far as practicable. The review shall detail any identified proposals for improving the recovery and utilisation of heat and shall provide a timetable for their implementation
PO5	For Activity AR2, prior to the commencement of commissioning, the Operator shall submit to the Environment Agency, and obtain the Environment Agency's written approval to it, a protocol for the sampling and testing of incinerator bottom ash for the purposes of assessing its hazard status. Sampling and testing shall be carried out in accordance with the protocol as approved.
PO6	For Activity AR2, prior to the commencement of commissioning, the Operator shall submit to the Environment Agency, and obtain the Environment Agency's written approval to it, a written commissioning plan, including timelines for completion, for approval by the Environment Agency. The commissioning plan shall include the expected emissions to the environment during the different stages of commissioning, the expected durations of commissioning activities and the actions to be taken to protect the environment and report to the Environment Agency in the event that actual emissions exceed expected emissions. Commissioning shall be carried out in accordance with the commissioning plan as approved.

Table S1.4 Pre-operational measures	
Reference	**Pre-operational measures**
PO7	For Activity AR2, prior to the commencement of commissioning, the Operator shall submit a written report to the Agency, and obtain the Environment Agency's written approval to it, detailing the waste acceptance procedure to be used at the site. The waste acceptance procedure shall include the process and systems by which wastes unsuitable for incineration at the site will be controlled. *The procedure shall be implemented in accordance with the written approval from the Agency.*
PO8	For Activity AR2, no later than one month after the final design of the furnace and combustion chamber, the operator shall submit a written report to the Environment Agency, and obtain the Environment Agency's written approval to it, of the details of the computational fluid dynamic (CFD) modelling. The report shall explain how the furnace has been designed to comply with the residence time and temperature requirements as defined by Chapter IV and Annex VI of the IED whilst operating under normal load and the most unfavourable operating conditions (including minimum turn down and overload conditions), and that the design includes sufficient monitoring ports to support subsequent validation of these requirements during commissioning.
PO9	For Activity AR2, prior to the commencement of commissioning, the Operator shall submit a report, and obtain the Environment Agency's written approval to it, on the baseline conditions of soil and groundwater at the installation. The report shall contain the information necessary to determine the state of soil and groundwater contamination so as to make a quantified comparison with the state upon definitive cessation of activities provided for in Article 22(3) of the IED. The report shall contain information, supplementary to that already provided in application Site Condition Report, needed to meet the information requirements of Article 22(2) of the IED.
PO10	For Activity AR2, at least three months before (or other date agreed in writing with the Environment Agency) the commencement of commissioning, the Operator shall submit a written report to the Environment Agency, and obtain the Environment Agency's written approval to it, specifying arrangements for continuous and periodic monitoring of emissions to air to comply with Environment Agency guidance notes M1, M2 and M20. The report shall include the following: • Plant and equipment details, including accreditation to MCERTS • Methods and standards for sampling and analysis Details of monitoring locations, access and working platforms
PO11	For Activity AR2, no later than one month after the final design of the furnace and combustion chamber, the operator shall submit a written report to the Environment Agency, and obtain the Environment Agency's written approval to it, of the details of the use of flue gas recirculation (FGR) for the abatement of emissions of oxides of nitrogen, or shall provide justification for not using FGR.
PO12	For Activity AR2, no later than one month after the final design of the furnace and combustion chamber, the operator shall submit a written report to the Environment Agency, and obtain the Environment Agency's written approval to it, of the details of the use of either ammonium hydroxide or urea in the SNCR system.
PO13	For Activity AR2, no later than one month after the final design of the furnace and combustion chamber, the operator shall submit a written report to the Environment Agency, and obtain the Environment Agency's written approval to it, of the details of the use of either lime or sodium hydroxide in the acid gas abatement system.
PO14	For Activity AR2, prior to the commencement of commissioning, the operator shall submit a CQA Validation Report, on those below ground structures including the fuel storage and IBA bunkers, designed to contain liquids or wastes, to the Environment Agency for approval. Commissioning shall not commence until approval of the CQA Validation Report has been given.
PO15	For Activity AR2, no later than one month after the final design, the operator shall submit a written report to the Environment Agency, and obtain the Environment Agency's written approval to it, of the details of the boiler feed water treatment plant with the arrangements for the disposal of any effluent.

Table S1.4 Pre-operational measures	
Reference	**Pre-operational measures**
PO16	For Activity AR2, no later than one month after the final design the operator shall submit a written report to the Environment Agency, and obtain the Environment Agency's written approval to it, of the details of the site drainage system including discharge points to water and sewer.
PO17	For Activity AR2, at least 3 months before the commencement of commissioning (or other date agreed in writing with the Environment Agency) the Operator shall submit, for approval by the Environment Agency, a methodology (having regard to Technical Report P4-100/TR Part 2 Validation of Combustion Conditions) to verify the residence time, minimum temperature and oxygen content of the gases in the furnace whilst operating under normal load, minimum turn down and overload conditions.

Table S1.5 Start-up and Shut-down thresholds		
Emission Point and Unit Reference	**"Minimum start up load"** **Load in MW and as percent of rated power output (%) and /or when two of the criteria listed below for the LCP have been met.**	**"Minimum shut-down load"** **Load in MW and as percent of rated power output (%)**
A1 LCP49 (GT13)	Circuit breaker closed and stress <60%	75 MW; 40%
	GT release is given with -32 and -45 curve fuel ratio balanced	
	Relative Power >45%	
A2 LCP50 (GT11)	Circuit breaker closed and stress <60%	75 MW; 40%
	GT release is given with -32 and -45 curve fuel ratio balanced	
	Relative Power >45%	
A2 LCP50 (GT12)	Circuit breaker closed and stress <60%	75 MW; 40%
	GT release is given with -32 and -45 curve fuel ratio balanced	
	Relative Power >45%	
A3 LCP51 (GT21)	Circuit breaker closed and stress <60%	75 MW; 40%
	GT release is given with -32 and -45 curve fuel ratio balanced	
	Relative Power >45%	
A3 LCP51 (GT22)	Circuit breaker closed and stress <60%	75 MW; 40%
	GT release is given with -32 and -45 curve fuel ratio balanced	
	Relative Power >45%	

Table S1.6 Dry Low NOx effective definition	
Emission Point and Unit Reference	**Dry Low NOx effective definition** **Load in MW and as percent of rated power output (%) or when two of the criteria listed below for the LCP or unit have been met, whichever is soonest**
A1 LCP49	To be agreed in writing by the Environment Agency, following the outcome of improvement condition IP24.

Table S1.6 Dry Low NOx effective definition	
Emission Point and Unit Reference	**Dry Low NOx effective definition** **Load in MW and as percent of rated power output (%) or when two of the criteria listed below for the LCP or unit have been met, whichever is soonest**
A2 LCP50	To be agreed in writing by the Environment Agency, following the outcome of improvement condition IP24.
A3 LCP51	To be agreed in writing by the Environment Agency, following the outcome of improvement condition IP24.

Schedule 2 – Raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	**Specification**
Natural gas	Supplied from national grid
Gas oil	Not exceeding 0.1% w/w sulphur content
Urea or ammonium hydroxide	To be confirmed
Hydrated lime	---

Table S2.2 Permitted waste types and quantities for incineration plant	
Maximum quantity	**753,500te per annum**
Waste code	**Description**
02	**Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing**
02 01	**Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing**
02 01 03	Plant-tissue waste
02 01 04	Waste plastics (except packaging)
02 01 07	Wastes from forestry
02 02	**Wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation**
02 02 03	Materials unsuitable for consumption or processing
02 05	**Wastes from the dairy products industry**
02 05 01	Materials unsuitable for consumption or processing
02 06	**Wastes from the baking and confectionery industry**
02 06 01	Materials unsuitable for consumption or processing
02 07	**Wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)**
02 07 01	Wastes from washing, cleaning and mechanical reduction of raw materials
03	**Wastes from wood processing and the production of panels and furniture, pulp, paper and cardboard**
03 01	**Wastes from wood processing and the production of panels and furniture**
03 01 01	Waste bark and cork
03 01 05	Sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04
04	**Wastes from the leather, fur and textile industries**
04 02	**Wastes from the textile industry**
04 02 15	Wastes from finishing other than those mentioned in 04 02 14
04 02 21	Wastes from unprocessed textile fibres
04 02 22	Wastes from processed textile fibres

Table S2.2 Permitted waste types and quantities for incineration plant	
Maximum quantity	**753,500te per annum**
Waste code	**Description**
15	**Waste packaging; absorbents, wiping cloths, filter materials and protective clothing not otherwise specified**
15 01	**Packaging (including separately collected municipal packaging waste)**
15 01 01	Paper and cardboard packaging
15 01 02	Plastic packaging
15 01 05	Composite packaging
15 01 06	Mixed packaging
15 01 09	Textile packaging
15 02	**Absorbents, filter materials, wiping cloths and protective clothing**
15 02 03	Absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02
16	**Wastes not otherwise specified in the list**
16 01	**End-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)**
16 01 03	End-of-life tyres
16 01 19	Plastic
17	**Construction and demolition wastes (including excavated soil from contaminated sites)**
17 02	**Concrete, bricks, tiles and ceramics**
17 02 01	Wood
17 02 03	Plastic
17 09	**Other construction and demolition wastes**
17 09 04	Mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03
19	**Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use**
19 02	**Wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)**
19 02 03	Premixed wastes composed only of non-hazardous wastes
19 02 10	Combustible wastes other than those mentioned in 19 02 08 and 19 02 09
19 05	**Wastes from aerobic treatment of solid wastes**
19 05 01	Non-composted fraction of municipal and similar wastes
19 05 02	Non-composted fraction of animal and vegetable waste
19 12	**Wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12 01	Paper and cardboard
19 12 04	Plastic and rubber
19 12 07	Wood other than that mentioned in 19 12 06
19 12 08	Textiles

Table S2.2 Permitted waste types and quantities for incineration plant	
Maximum quantity	**753,500te per annum**
Waste code	**Description**
19 12 10	Combustible waste (RDF)
19 12 12	Other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11
20	**Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions**
20 01	**Separately collected fractions (except 15 01)**
20 01 01	Paper and cardboard
20 01 08	Biodegradable kitchen and canteen waste
20 01 10	Clothes
20 01 11	Textiles
20 01 25	Edible oil and fat Note 1
20 01 38	Wood other than that mentioned in 20 01 37
20 01 39	Plastics Note 2
20 02	**Garden and parks wastes (including cemetery waste)**
20 02 01	Biodegradable waste
20 02 03	Other non-biodegradable wastes
20 03	**Other municipal wastes**
20 03 01	Mixed municipal waste
20 03 03	Street-cleaning residues
Note 1: Any edible oil and fat under municipal wastes (EWC code: 20 01 25) accepted on Site will only comprise solid wastes. Note 2: Plastics under municipal wastes (EWC code: 20 01 39) accepted on Site will only comprise contaminated plastics, which are not suitable for recycling.	

Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air - emission limits and monitoring requirements shall apply from 01 July 2020 until 16 August 2021						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)-these limits do not apply during start up or shut down**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A1[GT13] A2[GT11/GT 12] A3[GT21/GT 22]	LCP No 49 LCP No 50 LCP No 51 Gas turbines fired on natural gas	Oxides of nitrogen (NO and NO_2 expressed as NO_2)	50 mg/m^3 70% to base load Note 3	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			55 mg/m^3 70% to base load Note 3	Daily mean of validated hourly averages	Continuous	BS EN 14181
			100 mg/m^3 70% to base load Note 3	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A1[GT13] A2[GT11/GT 12] A3[GT21/GT 22]	LCP No 49 LCP No 50 LCP No 51 Gas turbines fired on natural gas	Carbon monoxide	100 mg/m^3 70% to base load Note 3	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			100 mg/m^3 70% to base load Note 3	Daily mean of validated hourly averages	Continuous	BS EN 14181
			200 mg/m^3 70% to base load Note 3	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A1[GT13] A2[GT11/GT 12] A3[GT21/GT 22	LCP No 49 LCP No 50 LCP No 51 Gas turbines fired on natural gas	Sulphur dioxide	-	-	At least every 6 months	Concentration by calculation as agreed in writing with the Environment Agency
		Oxygen	-	-	Continuous As appropriate to reference	BS EN 14181

Table S3.1 Point source emissions to air - emission limits and monitoring requirements shall apply from 01 July 2020 until 16 August 2021						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)-these limits do not apply during start up or shut down**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
		Water vapour	-	-	Continuous As appropriate to reference	BS EN 14181
		Stack gas temperature	-	-	Continuous As appropriate to reference	Traceable to national standards
		Stack gas pressure	-	-	Continuous As appropriate to reference	Traceable to national standards
		Stack gas volume flow	-	-	Continuous As appropriate to reference	BS EN16911
		As required by the Method Implementation Document for BS EN 15259	-	-	Pre-operation and when there is a significant operational change	BS EN 15259
A4	Auxiliary Boiler 42 MWth Input	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	300mg/m³ Notes 1, 2	-	-	-
		Sulphur Dioxide	No limit set Notes 1, 2	-	-	-
		Dust	No limit set Notes 1, 2	-	-	-
		Carbon Monoxide	150mg/m³ Notes 1, 2	-	-	-
A5	Phase 1 emergency gas oil generator	-	-	-	-	-
A6	Phase 2 emergency gas oil generator	-	-	-	-	-
A7	Phase 1 gas oil back up firewater pump	-	-	-	-	-

Table S3.1 Point source emissions to air - emission limits and monitoring requirements shall apply from 01 July 2020 until 16 August 2021						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)-these limits do not apply during start up or shut down**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A8	Phase 2 gas oil back up firewater pump	-	-	-	-	-
A9	GT13 fuel gas vent	-	-	-	-	-
A10	GT12 fuel gas vent	-	-	-	-	-
A11	GT11 fuel gas vent	-	-	-	-	-
A12	GT22 fuel gas vent	-	-	-	-	-
A13	GT21 fuel gas vent	-	-	-	-	-
A14	All steam vents	-	-	-	-	-
A15	Raw material storage tank vents	-	-	-	-	-
A16	All building ventilation vents	-	-	-	-	-
A17 A18	Particulate matter	Incinerator stack	30 mg/m^3	½-hr average	Continuous	BS EN 14181
A17 A18	Particulate matter	Incinerator stack	5 mg/m^3	daily average	Continuous	BS EN 14181
A17 A18	Total Organic Carbon (TOC)	Incinerator stack	20 mg/m^3	½-hr average	Continuous	BS EN 14181
A17 A18	Total Organic Carbon (TOC)	Incinerator stack	10 mg/m^3	daily average	Continuous	BS EN 14181
A17 A18	Hydrogen chloride	Incinerator stack	60 mg/m^3	½-hr average	Continuous	BS EN 14181
A17 A18	Hydrogen chloride	Incinerator stack	6 mg/m^3	daily average	Continuous	BS EN 14181
A17 A18	Hydrogen fluoride	Incinerator stack	4 mg/m^3	½-hr average	Continuous	BS EN 14181
A17 A18	Hydrogen fluoride	Incinerator stack	1 mg/m^3	daily average	Continuous	BS EN 14181

Table S3.1 Point source emissions to air - emission limits and monitoring requirements shall apply from 01 July 2020 until 16 August 2021						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)-these limits do not apply during start up or shut down**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A17 A18	Carbon monoxide	Incinerator stack	100 mg/m^3	½-hr average	Continuous measurement	BS EN 14181
A17 A18	Carbon monoxide	Incinerator stack	50 mg/m^3	daily average	Continuous	BS EN 14181
A17 A18	Sulphur dioxide	Incinerator stack	200 mg/m^3	½-hr average	Continuous	BS EN 14181
A17 A18	Sulphur dioxide	Incinerator stack	30 mg/m^3	daily average	Continuous	BS EN 14181
A17 A18	Oxides of nitrogen (NO and NO_2 expressed as NO_2)	Incinerator stack	400 mg/m^3	½-hr average	Continuous	BS EN 14181
A17 A18	Oxides of nitrogen (NO and NO_2 expressed as NO_2)	Incinerator stack	120 mg/m^3	daily average	Continuous	BS EN 14181
A17 A18	Cadmium & thallium and their compounds (total)	Incinerator stack	0.02 mg/m^3	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 14385
A17 A18	Mercury and its compounds	Incinerator stack	0.02 mg/m^3	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 13211
A17 A18	Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	Incinerator stack	0.3 mg/m^3	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 14385
A17 A18	Ammonia (NH_3)	Incinerator stack	No limit set	½-hr average and / or daily average	Continuous	BS EN 14181 and BS EN 15267-3

Table S3.1 Point source emissions to air - emission limits and monitoring requirements shall apply from 01 July 2020 until 16 August 2021						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)-these limits do not apply during start up or shut down**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A17 A18	Nitrous oxide (N_2O)	Incinerator stack	No limit set	½-hr average and / or daily average	Continuous	BS EN ISO 21258
A17 A18	Dioxins / furans (I-TEQ)	Incinerator stack	0.04 ng/m^3 or 0.06 ng/m^3 if long term limit is specified by the Environment Agency after completion of IP20	periodic over minimum 6 hours, maximum 8 hour period or value over sampling period of 2 to 4 weeks for long term sampling	Monthly for first 6 months and accelerated monitoring as agreed through IC11, quarterly for following 6 months and then bi-annually; or long term monitoring if specified by the Environment Agency after completion of IP20	BS EN 1948 Parts 1, 2 and 3 Or long term sampling method if specified by the Environment Agency after completion of IP20
A17 A18	Dioxins / furans (WHO-TEQ Humans / Mammals, Fish, Birds)	Incinerator stack	No limit set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3

Table S3.1 Point source emissions to air - emission limits and monitoring requirements shall apply from 01 July 2020 until 16 August 2021						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)-these limits do not apply during start up or shut down**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A17 A18	Dioxin-like PCBs (WHO-TEQ Humans / Mammals, Fish, Birds)		No limit set	periodic over minimum 6 hours, maximum 8 hour period or value over sampling period of 2 to 4 weeks for long term sampling	Monthly for first 6 months and accelerated monitoring as agreed through IP20, quarterly for following 6 months and then bi-annually; or long term monitoring if specified by the Environment Agency after completion of IP20. No monitoring is required if emissions have been shown to be below 0.01 ng/m^3 as agreed with the Environment Agency.	BS EN 1948 Parts 1, 2 and 4 or long term sampling method if specified by the Environment Agency after completion of IP20
A17 A18	Benzo (a)pyrene	Incinerator stack	No limit set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS ISO 11338 Parts 1 and 2.

Note 1: Auxiliary boiler operation is limited to 500 hours per calendar year.

Note 2: Emissions monitoring required if auxiliary boiler operates continuously for more than 24 hours and subject to a maximum of 1 test per 6 month period.

Note 3: This ELV applies when the load is > 70% throughout the reference period.

Table S3.1a Point source emissions to air - emission limits and monitoring requirements shall apply from 17 August 2021						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)-these limits do not apply during start up or shut down**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A1[GT13]	LCP No 49 Gas turbines fired on natural gas	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	45 mg/m^3 When DLN is effective Note 3	Yearly average	Continuous	BS EN 14181
A2[GT11/GT 12] A3[GT21/GT 22]	LCP No 50 LCP No 51 Gas turbines fired on natural gas		40 mg/m^3 When DLN is effective Note 3	Yearly average	Continuous	BS EN 14181
A1[GT13] A2[GT11/GT 12] A3[GT21/GT 22]	LCP No 49 LCP No 50 LCP No 51 Gas turbines fired on natural gas		50 mg/m^3 When DLN is effective Note 3	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A1[GT13]	LCP No 49 Gas turbines fired on natural gas		55 mg/m^3 When DLN is effective Note 3 55 mg/m^3 MSUL/MSDL to base load Note 4	Daily mean of validated hourly averages	Continuous	BS EN 14181
A2[GT11/GT 12] A3[GT21/GT 22]	LCP No 50 LCP No 51 Gas turbines fired on natural gas		50 mg/m^3 When DLN is effective Note 3 55 mg/m^3 MSUL/MSDL to base load Note 4	Daily mean of validated hourly averages	Continuous	BS EN 14181
A1[GT13] A2[GT11/GT 12] A3[GT21/GT 22]	LCP No 49 LCP No 50 LCP No 51 Gas turbines fired on natural gas		100 mg/m^3 When DLN is effective Note 3	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181

Table S3.1a Point source emissions to air - emission limits and monitoring requirements shall apply from 17 August 2021						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)-these limits do not apply during start up or shut down**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A1[GT13] A2[GT11/GT 12] A3[GT21/GT 22]	LCP No 49 LCP No 50 LCP No 51 Gas turbines fired on natural gas	Carbon Monoxide	30 mg/m^3 When DLN is effective Note 3	Yearly average	Continuous	BS EN 14181
			100 mg/m^3 When DLN is effective Note 3	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			100 mg/m^3 When DLN is effective Note 3 100 mg/m^3 MSUL/MSDL to base load Note 4	Daily mean of validated hourly averages	Continuous	BS EN 14181
			200 mg/m^3 When DLN is effective Note 3	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A1[GT13] A2[GT11/GT 12] A3[GT21/GT 22	LCP No 49 LCP No 50 LCP No 51 Gas turbines fired on natural gas	Sulphur dioxide	-	-	At least every 6 months	Concentration by calculation as agreed in writing with the Environment Agency
		Oxygen	-	-	Continuous As appropriate to reference	BS EN 14181
		Water vapour	-	-	Continuous As appropriate to reference	BS EN 14181
		Stack gas temperature	-	-	Continuous As appropriate to reference	Traceable to national standards

Table S3.1a Point source emissions to air - emission limits and monitoring requirements shall apply from 17 August 2021						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)-these limits do not apply during start up or shut down**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
		Stack gas pressure	-	-	Continuous As appropriate to reference	Traceable to national standards
		Stack gas volume flow	-	-	Continuous	BS EN16911
		As required by the Method Implementation Document for BS EN 15259	-	-	Pre-operation and when there is a significant operational change	BS EN 15259
A4	Auxiliary Boiler 42 MWth Input	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	300mg/m³ Notes 1 and 2	-	- Notes 1 and 2	-
A4	Auxiliary Boiler 42 MWth Input	Sulphur Dioxide	No limit set Notes 1 and 2	-	- Notes 1 and 2	-
A4	Auxiliary Boiler 42 MWth Input	Dust	No limit set Notes 1 and 2	-	- Notes 1 and 2	-
A4	Auxiliary Boiler 42 MWth Input	Carbon Monoxide	150mg/m³ Notes 1 and 2	-	- Notes 1 and 2	-
A5	Phase 1 emergency gas oil generator	-	-	-	-	-
A6	Phase 2 emergency gas oil generator	-	-	-	-	-
A7	Phase 1 gas oil back up firewater pump	-	-	-	-	-
A8	Phase 2 gas oil back up firewater pump	-	-	-	-	-
A9	GT13 fuel gas vent	-	-	-	-	-
A10	GT12 fuel gas vent	-	-	-	-	-
A11	GT11 fuel gas vent	-	-	-	-	-
A12	GT22 fuel gas vent	-	-	-	-	-

Table S3.1a Point source emissions to air - emission limits and monitoring requirements shall apply from 17 August 2021						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)-these limits do not apply during start up or shut down**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A13	GT21 fuel gas vent	-	-	-	-	-
A14	All steam vents	-	-	-	-	-
A15	Raw material storage tank vents	-	-	-	-	-
A16	All building ventilation vents	-	-	-	-	-
A17 A18	Particulate matter	Incinerator stack	30 mg/m^3	½-hr average	Continuous	BS EN 14181
A17 A18	Particulate matter	Incinerator stack	5 mg/m^3	daily average	Continuous	BS EN 14181
A17 A18	Total Organic Carbon (TOC)	Incinerator stack	20 mg/m^3	½-hr average	Continuous	BS EN 14181
A17 A18	Total Organic Carbon (TOC)	Incinerator stack	10 mg/m^3	daily average	Continuous	BS EN 14181
A17 A18	Hydrogen chloride	Incinerator stack	60 mg/m^3	½-hr average	Continuous	BS EN 14181
A17 A18	Hydrogen chloride	Incinerator stack	6 mg/m^3	daily average	Continuous	BS EN 14181
A17 A18	Hydrogen fluoride	Incinerator stack	4 mg/m^3	½-hr average	Continuous	BS EN 14181
A17 A18	Hydrogen fluoride	Incinerator stack	1 mg/m^3	daily average	Continuous	BS EN 14181
A17 A18	Carbon monoxide	Incinerator stack	100 mg/m^3	½-hr average	Continuous measurement	BS EN 14181
A17 A18	Carbon monoxide	Incinerator stack	50 mg/m^3	daily average	Continuous	BS EN 14181
A17 A18	Sulphur dioxide	Incinerator stack	200 mg/m^3	½-hr average	Continuous	BS EN 14181
A17 A18	Sulphur dioxide	Incinerator stack	30 mg/m^3	daily average	Continuous	BS EN 14181

Table S3.1a Point source emissions to air - emission limits and monitoring requirements shall apply from 17 August 2021						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)-these limits do not apply during start up or shut down**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A17 A18	Oxides of nitrogen (NO and NO_2 expressed as NO_2)	Incinerator stack	400 mg/m^3	½-hr average	Continuous	BS EN 14181
A17 A18	Oxides of nitrogen (NO and NO_2 expressed as NO_2)	Incinerator stack	120 mg/m^3	daily average	Continuous	BS EN 14181
A17 A18	Cadmium & thallium and their compounds (total)	Incinerator stack	0.02 mg/m^3	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 14385
A17 A18	Mercury and its compounds	Incinerator stack	0.02 mg/m^3	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 13211
A17 A18	Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	Incinerator stack	0.3 mg/m^3	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 14385
A17 A18	Ammonia (NH_3)	Incinerator stack	No limit set	½-hr average and / or daily average	Continuous	BS EN 14181 and BS EN 15267-3
A17 A18	Nitrous oxide (N_2O)	Incinerator stack	No limit set	½-hr average and / or daily average	Continuous	BS EN ISO 21258

Table S3.1a Point source emissions to air - emission limits and monitoring requirements shall apply from 17 August 2021						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)-these limits do not apply during start up or shut down**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A17 A18	Dioxins / furans (I-TEQ)	Incinerator stack	0.04 ng/m^3 or 0.06 ng/m^3 if long term limit is specified by the Environment Agency after completion of IP20	periodic over minimum 6 hours, maximum 8 hour period or value over sampling period of 2 to 4 weeks for long term sampling	Monthly for first 6 months and accelerated monitoring as agreed through IC11, quarterly for following 6 months and then bi-annually; or long term monitoring if specified by the Environment Agency after completion of IP20	BS EN 1948 Parts 1, 2 and 3 Or long term sampling method if specified by the Environment Agency after completion of IP20
A17 A18	Dioxins / furans (WHO-TEQ Humans / Mammals, Fish, Birds)	Incinerator stack	No limit set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3

Table S3.1a Point source emissions to air - emission limits and monitoring requirements shall apply from 17 August 2021						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)-these limits do not apply during start up or shut down**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A17 A18	Dioxin-like PCBs (WHO-TEQ Humans / Mammals, Fish, Birds)		No limit set	periodic over minimum 6 hours, maximum 8 hour period or value over sampling period of 2 to 4 weeks for long term sampling	Monthly for first 6 months and accelerated monitoring as agreed through IP20, quarterly for following 6 months and then bi-annually; or long term monitoring if specified by the Environment Agency after completion of IP20. No monitoring is required if emissions have been shown to be below 0.01 ng/m^3 as agreed with the Environment Agency.	BS EN 1948 Parts 1, 2 and 4 or long term sampling method if specified by the Environment Agency after completion of IP20
A17 A18	Benzo (a)pyrene	Incinerator stack	No limit set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS ISO 11338 Parts 1 and 2.

Table S3.1a Point source emissions to air - emission limits and monitoring requirements shall apply from 17 August 2021						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)-these limits do not apply during start up or shut down**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
Note 1: Auxiliary boiler operation is limited to 500 hours per calendar year. Note 2: Emissions monitoring required if auxiliary boiler operates continuously for more than 24 hours and subject to a maximum of 1 test per 6 month period. Note 3: This ELV applies when DLN is effective as defined in Table S1.6. Note 4: This ELV applied when the load varies between MSUL/MSDL and base load during the daily reference period. MSUL and MSDL are defined in Table S1.5.						

Table S3.1.1 Point source emissions to air during abnormal operation of incineration plant – emission limits and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A17 and A18	Particulate matter	Incinerator stack	150 mg/m^3	½-hr average	Continuous measurement	BS EN 14181 during abatement plant failure
A17 and A18	Total Organic Carbon (TOC)	Incinerator stack	20 mg/m^3	½-hr average	Continuous measurement	BS EN 14181 during abatement plant failure
A17 and A18	Carbon monoxide	Incinerator stack	100 mg/m^3	½-hr average	Continuous measurement	BS EN 14181 during abatement plant failure

Table S3.1.2 Point source emissions to air during OTNOC – emission limits (IED Annex VI limits) and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard(s) or method(s)**
A17 and A18	As specified in the OTNOC management plan as approved after completion of pre-operational condition PO1	Incinerator stack		As specified in the OTNOC management plan as approved after completion of pre-operational condition PO1		
A17 and A18	Particulate matter	Incinerator stack	30 mg/m^3	½-hr average	Continuous measurement	BS EN 14181
A17 and A18	Particulate matter	Incinerator stack	10 mg/m^3	daily average	Continuous measurement	BS EN 14181

Table S3.1.2 Point source emissions to air during OTNOC – emission limits (IED Annex VI limits) and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard(s) or method(s)**
A17 and A18	Total Organic Carbon (TOC)	Incinerator stack	20 mg/m^3	½-hr average	Continuous measurement	BS EN 14181
A17 and A18	Total Organic Carbon (TOC)	Incinerator stack	10 mg/m^3	daily average	Continuous measurement	BS EN 14181
A17 and A18	Hydrogen chloride	Incinerator stack	60 mg/m^3	½-hr average	Continuous measurement	BS EN 14181
A17 and A18	Hydrogen chloride	Incinerator stack	10 mg/m^3	daily average	Continuous measurement	BS EN 14181
A17 and A18	Hydrogen fluoride	Incinerator stack	4 mg/m^3	½-hr average	Continuous measurement	BS EN 14181
A17 and A18	Hydrogen fluoride	Incinerator stack	1 mg/m^3	daily average	Continuous measurement	BS EN 14181
A17 and A18	Carbon monoxide	Incinerator stack	100 mg/m^3	½-hr average	Continuous measurement	BS EN 14181
A17 and A18	Carbon monoxide	Incinerator stack	50 mg/m^3	daily average	Continuous measurement	BS EN 14181
A17 and A18	Sulphur dioxide	Incinerator stack	200 mg/m^3	½-hr average	Continuous measurement	BS EN 14181
A17 and A18	Sulphur dioxide	Incinerator stack	50 mg/m^3	daily average	Continuous measurement	BS EN 14181
A17 and A18	Oxides of nitrogen (NO and NO_2 expressed as NO_2)	Incinerator stack	400 mg/m^3	½-hr average	Continuous measurement	BS EN 14181
A17 and A18	Oxides of nitrogen (NO and NO_2 expressed as NO_2)	Incinerator stack	200 mg/m^3	daily average	Continuous measurement	BS EN 14181
A17 and A18	Cadmium & thallium and their compounds (total)	Incinerator stack	0.05 mg/m^3	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 14385
A17 and A18	Mercury and its compounds	Incinerator stack	0.05 mg/m^3	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 13211

Table S3.1.2 Point source emissions to air during OTNOC – emission limits (IED Annex VI limits) and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard(s) or method(s)**
A17 and A18	Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	Incinerator stack	0.5 mg/m^3	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 14385
A17 and A18	Ammonia (NH_3)	Incinerator stack	No limit set	½-hr average and / or daily average	Continuous measurement	BS EN 14181
A17 and A18	Nitrous oxide (N_2O)	Incinerator stack	No limit set	½-hr average and / or daily average	Continuous measurement	BS EN ISO 21258
A17 and A18	Dioxins / furans (I-TEQ)	Incinerator stack	0.1 ng/m^3	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3

Table S3.2 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (incl. unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
W1 (Discharge to River Humber deep water channel)	Flow	Cooling water with trivial contribution from water treatment plant and surface water	2,376,000m³/day 99,000m³ hour	Day Hour	Continuous Continuous	-
W1 (Discharge to River Humber deep water channel)	pH		5-9 Note 1	Continuous	Note 1	-
W1 (Discharge to River Humber deep water channel)	Temperature		<8ºC <15ºC Note 2	Continuous Continuous	Continuous Continuous	- -

Table S3.2 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (incl. unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
W1 (Discharge to River Humber deep water channel)	Total oxidant (As chlorine)		0.1mg/l	To be agreed before dosing commences	-	-
Note 1: Continuous monitoring of pH is only required where biocide dosing has commenced. Note 2: This is limited to the following activities: (a) Maintenance work on the cooling water pumps. (b) Repairs to leaks on the cooling water system. (c) Clearing blockages on the main screens. (d) Clearing of debris filters within the process. (e) Investigations to identify condenser tube leaks. (f) Running on steam by-pass following trips. (g) Recommissioning. (h) Optimisation of plant thermal efficiency performance. (i) Other conditions agreed in writing with the Environment Agency.						

Table S3.3 Process monitoring requirements				
Emission point reference or source or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
As identified in the Application	Wind Speed and Direction	Continuous	Anemometer	
Location close to the Combustion Chamber inner wall or as identified and justified in Application.	Temperature (°C)	Continuous	Traceable to national standards	As agreed in writing with the Agency.
A17 and A18	Exhaust gas temperature	Continuous	Traceable to national standards	As agreed in writing with the Agency.
A17 and A18	Exhaust gas pressure	Continuous	Traceable to national standards	As agreed in writing with the Agency.
A17 and A18	Exhaust gas flow	Continuous	Traceable to national standards	As agreed in writing with the Agency.
A17 and A18	Exhaust gas oxygen content	Continuous	BS EN 15267-3 BS EN 14181	
A17 and A18	Exhaust gas water vapour content	Continuous	BS EN 15267-3 BS EN 14181	Unless gas is dried before analysis of emissions.
Incineration plant	Gross electrical efficiency	Within 6 months of first operation and then within 6 months of	Performance test at full load	25-35%

Table S3.3 Process monitoring requirements				
Emission point reference or source or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
		any modification that significantly affects energy efficiency		
LCP49 (A1), LCP50 (A2), LCP 51 (A3)	Net electrical efficiency	After each modification that could significantly affect these parameters	EN Standards or equivalent	-

Table S3.4 Residue quality					
Emission point reference or source or description of point of measurement	**Parameter**	**Limit**	**Monitoring frequency**	**Monitoring standard or method ***	**Other specifications**
Bottom Ash	TOC	<3%	Monthly in the first year of operation. Then Quarterly	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	
Bottom Ash	Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs.		Monthly in the first year of operation. Then Quarterly	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	
Bottom Ash	Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions		Before use of a new disposal or recycling route	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	

Table S3.4 Residue quality					
Emission point reference or source or description of point of measurement	**Parameter**	**Limit**	**Monitoring frequency**	**Monitoring standard or method ***	**Other specifications**
APC Residues	Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs.		Monthly in the first year of operation. Then Quarterly	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	
APC Residues	Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions		Before use of a new disposal or recycling route	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	
Boiler ash	Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs.		Monthly in the first year of operation. Then Quarterly	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	
Boiler ash	Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions		Before use of a new disposal or recycling route	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	

Schedule 4 – Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

Table S4.1 Reporting of monitoring data for activity AR1			
Parameter	**Emission or monitoring point/reference**	**Reporting period**	**Period begins**
Oxides of nitrogen	A1, A2, A3	Every 3 months	1 January, 1 April, 1 July, 1 October
		Every year	1 January
Oxides of nitrogen	A4	Every 6 months Note 1	1January, 1July
Carbon Monoxide	A1, A2, A3	Every 3 months	1 January, 1 April, 1 July, 1 October
		Every year	1 January
Carbon Monoxide	A4	Every 6 months Note 1	1January, 1July
Sulphur dioxide	A1, A2, A3	Every 6 months	1January, 1July
Sulphur dioxide	A4	Every 6 months Note 1	1January, 1July
Dust	A4	Every 6 months Note 1	1January, 1July
Surface water monitoring Parameters as required by condition 3.5.1	W1	Every 3 months	1 January, 1 April, 1 July, 1 October
Note 1: Emissions monitoring required if auxiliary boiler operates continuously for more than 24 hours and subject to a maximum of 1 test per 6 month period.			

Table S4.1a Reporting of monitoring data for activity AR2			
Parameter	**Emission or monitoring point/reference**	**Reporting period**	**Period begins**
Emissions to air Parameters as required by condition 3.6.1	A17 and A18	Quarterly	1 January, 1 April, 1 July, 1 October
TOC Parameters as required by condition 3.5.1	Bottom Ash	Quarterly (but monthly for the first year of operation)	1 January, 1 April, 1 July, 1 October
Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs	Bottom Ash	Quarterly (but monthly for the first year of operation)	1 January, 1 April, 1 July, 1 October

Table S4.1a Reporting of monitoring data for activity AR2			
Parameter	**Emission or monitoring point/reference**	**Reporting period**	**Period begins**
Parameters as required by condition 3.5.1			
Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions Parameters as required by condition 3.5.1	Bottom Ash	Before use of a new disposal or recycling route	-
Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs Parameters as required by condition 3.5.1	APC Residues	Quarterly (but monthly for the first year of operation)	1 January, 1 April, 1 July, 1 October
Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions Parameters as required by condition 3.5.1	APC Residues	Before use of a new disposal or recycling route	-
Functioning and monitoring of the incineration plant as required by condition 4.2.2	-	Annually	1 January

Table S4.2 Resource Efficiency Metrics for activity AR1	
Parameter	**Units**
Electricity Exported	GWhr
Heat Exported	GWhr
Mechanical Power Provided	GWhr
Fossil Fuel Energy Consumption	GWhr
Non-Fossil Fuel Energy Consumption	GWhr
Annual Operating Hours	hr
Water Abstracted from Fresh Water Source	m^3
Water Abstracted from Borehole Source	m^3
Water Abstracted from Estuarine Water Source	m^3
Water Abstracted from Sea Water Source	m^3
Water Abstracted from Mains Water Source	m^3
Gross Total Water Used	m^3
Net Water Used	m^3

Table S4.2 Resource Efficiency Metrics for activity AR1	
Parameter	**Units**
Hazardous Waste Transferred for Disposal at another installation	t
Hazardous Waste Transferred for Recovery at another installation	t
Non-Hazardous Waste Transferred for Disposal at another installation	t
Non-Hazardous Waste Transferred for Recovery at another installation	t
Waste recovered to Quality Protocol Specification and transferred off-site	t
Waste transferred directly off-site for use under an exemption / position statement	t

Table S4.2a Annual production/treatment for activity AR2	
Parameter	**Units**
Total Waste Incinerated	tonnes
Electrical energy produced	KWh
Thermal energy produced e.g. steam for export	KWh
Electrical energy exported	KWh
Electrical energy used on installation	KWh
Waste heat utilised by the installation	KWh

Table S4.3 Large Combustion Plant Performance parameters for reporting to DEFRA		
Parameter	**Frequency of assessment**	**Units**
Thermal Input Capacity for each LCP	Annually	MW
Annual Fuel Usage for each LCP	Annually	TJ
Total Emissions to Air of NOx for each LCP	Annually	t
Total Emissions to Air of SO2 for each LCP	Annually	t
Total Emissions to Air of Dust for each LCP	Annually	t
Operating Hours for each LCP	Annually	hr

Table S4.3a Performance parameters for activity AR2		
Parameter	**Frequency of assessment**	**Units**
Annual Report as required by condition 4.2.2	Annually	-
Electrical energy exported, imported and used at the installation	Annually	KWh / tonne of waste incinerated
Fuel oil consumption	Annually	Kg / tonne of waste incinerated
Bottom Ash residue	Annually	Route, tonnes and tonnes / tonne of waste incinerated

Table S4.3a Performance parameters for activity AR2		
Parameter	**Frequency of assessment**	**Units**
APC residue	Annually	Route, tonnes and tonnes / tonne of waste incinerated
[Ammonia / Urea] consumption	Annually	Kg / tonne of waste incinerated
Activated Carbon consumption	Annually	Kg / tonne of waste incinerated
[Lime / Sodium Bicarbonate] consumption	Annually	Kg / tonne of waste incinerated
Water consumption	Annually	Kg / tonne of waste incinerated
Periods of abnormal operation	Annually	No of occasions and cumulative hours for current calendar year for each line.

Table S4.4 Reporting forms for activity AR1		
Media/ parameter	**Reporting format**	**Agency recipient**
Air & Energy	Form IED AR1 – SO_2, NO_x and dust mass emission and energy. Form as agreed in writing by the Environment Agency.	National and Area Office
Air	Form IED RTA1 – TNP quarterly emissions summary log	National and Area Office
LCP	Form IED HR1 – operating hours. Form as agreed in writing by the Environment Agency.	National and Area Office
Air	Form IED CON 2 – continuous monitoring. Form as agreed in writing by the Environment Agency	Area Office
CEMs	Form IED CEM – invalidation Log. Form as agreed in writing by the Environment Agency.	Area Office
Resource Efficiency	Form REM1 – resource efficiency annual report Form as agreed in writing by the Environment Agency.	National and Area Office
Water	Form water 1 or other form as agreed in writing by the Environment Agency	Area Office

Table S4.4a Reporting forms for activity AR2		
Media/parameter	**Reporting format**	**Date of form**
Annual Report as required by condition 4.2.2	Annual performance report template	25/03/2020
Air	Form air 1 or other form as agreed in writing by the Environment Agency	25/03/2020
Water and Land	Form water 1 or other form as agreed in writing by the Environment Agency	25/03/2020
Sewer	Form sewer 1 or other form as agreed in writing by the Environment Agency	25/03/2020
Water and raw material usage	Form WU/RM1 1 or other form as agreed in writing by the Environment Agency	25/03/2020
Energy usage	Form energy 1 or other form as agreed in writing by the Environment Agency	25/03/2020
Waste disposal/recovery	Form R1 or other form as agreed in writing by the Environment Agency	25/03/2020
Residue quality	Form residue 1 or other form as agreed in writing by the Environment Agency	25/03/2020
Other performance indicators	Form performance 1 or other form as agreed in writing by the Environment Agency	25/03/2020

Schedule 5 – Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	
Name of operator	
Location of Facility	
Time and date of the detection	

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution	
To be notified within 24 hours of detection	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Measures taken, or intended to be taken, to stop the emission	
Time periods for notification following detection of a breach of a limit	
Parameter	Notification period

(c) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B – to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

“abatement equipment” means that equipment dedicated to the removal of polluting substances from releases from the installation to air or water media.

“abnormal operation” means any technically unavoidable stoppages, disturbances, or failures of the abatement plant or the measurement devices, during which the emissions into the air and the discharges of waste water may exceed the prescribed emission limit values for the pollutants affected.

“accident” means an accident that may result in pollution.

“Air Quality Risk Assessment” has the meaning given in Annex D of IED Compliance Protocol for Utility Boilers and Gas Turbines.

“APC residues” means air pollution control residues.

“application” means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

“authorised officer” means any person authorised by the Environment Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

“background concentration” means such concentration of that substance as is present in:

for emissions to surface water, the surface water quality up-gradient of the site; or

for emissions to sewer, the surface water quality up-gradient of the sewage treatment works discharge.

“base load” means: (i) as a mode of operation, operating for >4000hrs pa; and (ii) as a load, the maximum load under ISO conditions that can be sustained continuously, i.e. maximum continuous rating.

“BAT conclusions” means Best Available Techniques (BAT) Conclusions published by the European Commission.

“Black Start” means the procedure to recover from a total or partial shutdown of the UK Transmission System which has caused an extensive loss of supplies. This entails isolated power stations being started individually and gradually being reconnected to other power stations and substations in order to form an interconnected system again.

“bi-annual” means twice per year with at least five months between tests.

“bottom ash” means ash transported by the grate.

“breakdown” has the meaning given in the ESI IED Compliance Protocol for Utility Boilers and Gas Turbines.

“calendar monthly mean” means the value across a calendar month of all validated hourly means.

“CEN” means Commité Européen de Normalisation.

“Combustion Technical Guidance Note” means IPPC Sector Guidance Note Combustion Activities, version 2.03 dated 27th July 2005 published by Environment Agency.

“Commissioning” means testing of the new incineration plant that involves any operation of the furnace

“daily average” means the average over a period of 24 hours of validated hourly averages obtained by continuous measurements.

“dioxin and furans” means polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans.

“disposal” means any of the operations provided for in Annex I to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“DLN” means dry, low NO_x burners.

“emissions of substances not controlled by emission limits” means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission or background concentration limit.

“emissions to land” includes emissions to groundwater.

“Energy efficiency” (For Activity AR1) means the annual net plant energy efficiency, the value for which is calculated from the operational data collected over the year.

“Energy efficiency” (For Activity AR2) the ISO base load net plant efficiency means the performance value established by acceptance testing following commissioning or performance testing following improvements made to the plant that could affect the efficiency.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations SI 2016 No.1154 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

“groundwater” means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

“Industrial Emissions Directive” means DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions.

“ISO” means International Standards Organisation.

‘List of Wastes’ means the list of wastes established by Commission Decision 2000/532/EC replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste, as amended from time to time

“LOI” means loss on ignition a technique used to determine the combustible material by heating the ash residue to a high temperature

“large combustion plant” or “LCP” is a combustion plant or group of combustion plants discharging waste gases through a common windshield or stack, where the total thermal input is 50 MW or more, based on net calorific value. The calculation of thermal input, excludes individual combustion plants with a rated thermal input below 15MW.

“malfunction” has the meaning given in the ESI IED Compliance Protocol for Utility Boilers and Gas Turbines.

“MCERTS” means the Environment Agency’s Monitoring Certification Scheme.

“MCR” means maximum continuous rating.

“MSDL” means minimum shut-down load as defined in Implementing Decision 2012/249/EU.

“MSUL” means minimum start-up load as defined in Implementing Decision 2012/249/EU.

“Natural gas” means naturally occurring methane with no more than 20% by volume of inert or other constituents.

“ncv” means net calorific value.

“Net electrical efficiency” means the ratio between the net electrical output (electricity produced minus the imported energy) and the fuel/feedstock energy input (as the fuel/feedstock lower heating value) at the combustion unit boundary over a given period of time.

“operational hours” are whole hours commencing from the first unit ending start up and ending when the last unit commences shut down.

“OTNOC” means operation other than normal operating conditions, excluding start-up and shut-down and periods of abnormal operation, as defined in the OTNOC management plan approved through pre-operational condition PO1 or otherwise as agreed in writing with the Environment Agency.

“PAH” means Poly-cyclic aromatic hydrocarbon, and comprises Anthanthrene, Benzo[a]anthracene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Benzo[b]naph(2,1-d)thiophene, Benzo[c]phenanthrene, Benzo[ghi]perylene, Benzo[a]pyrene, Cholanthrene, Chrysene, Cyclopenta[c,d]pyrene, Dibenzo[ah]anthracene, Dibenzo[a,i]pyrene Fluoranthene, Indo[1,2,3-cd]pyrene, Naphthalene

“PCB” means Polychlorinated Biphenyl. Dioxin-like PCBs are the non-ortho and mono-ortho PCBs listed in the table below.

“quarter” means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

“recovery” means any of the operations provided for in Annex II to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“SI” means site inspector.

“start up” (For Activity AR2) is any period, where the plant has been non-operational, [after igniting the auxiliary burner] until [waste][waste fuel] has been fed to the plant [in sufficient quantity to cover the grate and] to initiate steady-state conditions as described in the application or agreed in writing with the Environment Agency.

“shut down” (For Activity AR2) is any period where the plant is being returned to a non-operational state [and there is no waste being burned] as described in the application or agreed in writing with the Environment Agency.

“TNP Register” means the register maintained by the Environment Agency in accordance with regulation 4 of the Large Combustion Plants (Transitional National Plan) Regulations 2015 SI2015 No.1973

“Waste code” means the six digit code referable to a type of waste in accordance with the List of Wastes and in relation to hazardous waste, includes the asterisk

“Waste Framework Directive” or “WFD” means Waste Framework Directive 2008/98/EC of the European Parliament and of the Council on waste

Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

- in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or
- in relation to emissions from gas turbine or compression ignition engine combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3kPa and with an oxygen content of 15% dry for liquid and gaseous fuels; and/or
- in relation to emissions from combustion processes comprising a gas turbine with a waste heat boiler, the concentration in dry air at a temperature of 273K, at a pressure of 101.3kPa and with an oxygen content of 15% dry, unless the waste heat boiler is operating alone, in which case, with an oxygen content of 3% dry for liquid and gaseous fuels; and/or
- in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content; and/or
- in relation to gases from incineration plants other than those burning waste oil, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 11% dry.

For dioxins/furans and dioxin-like PCBs the determination of the toxic equivalence concentration (I-TEQ, & WHO-TEQ for dioxins/furans, WHO-TEQ for dioxin-like PCBs) stated as a release limit and/ or reporting requirement, the mass concentrations of the following congeners have to be multiplied with their respective toxic equivalence factors before summing. When reporting on measurements of dioxins/furans and dioxin-like PCBs, the toxic equivalence concentrations should be reported as a range based on: all congeners less than the detection limit assumed to be zero as a minimum, and all congeners less than the detection limit

assumed to be at the detection limit as a maximum. However the minimum value should be used when assessing compliance with the emission limit value in table S3.1 and S3.1a.

TEF schemes for dioxins and furans				
Congener	**I-TEF**	**WHO-TEF**		
	1990	**2005**	**1997/8**	
		Humans / Mammals	**Fish**	**Birds**
Dioxins				
2,3,7,8-TCDD	1	1	1	1
1,2,3,7,8-PeCDD	0.5	1	1	1
1,2,3,4,7,8-HxCDD	0.1	0.1	0.5	0.05
1,2,3,6,7,8-HxCDD	0.1	0.1	0.01	0.01
1,2,3,7,8,9-HxCDD	0.1	0.1	0.01	0.1
1,2,3,4,6,7,8-HpCDD	0.01	0.01	0.001	<0.001
OCDD	0.001	0.0003	-	-
Furans				
2,3,7,8-TCDF	0.1	0.1	0.05	1
1,2,3,7,8-PeCDF	0.05	0.03	0.05	0.1
2,3,4,7,8-PeCDF	0.5	0.3	0.5	1
1,2,3,4,7,8-HxCDF	0.1	0.1	0.1	0.1
1,2,3,7,8,9-HxCDF	0.1	0.1	0.1	0.1
1,2,3,6,7,8-HxCDF	0.1	0.1	0.1	0.1
2,3,4,6,7,8-HxCDF	0.1	0.1	0.1	0.1
1,2,3,4,6,7,8_HpCDF	0.01	0.01	0.01	0.01
1,2,3,4,7,8,9-HpCDF	0.01	0.01	0.01	0.01
OCDF	0.001	0.0003	0.0001	0.0001

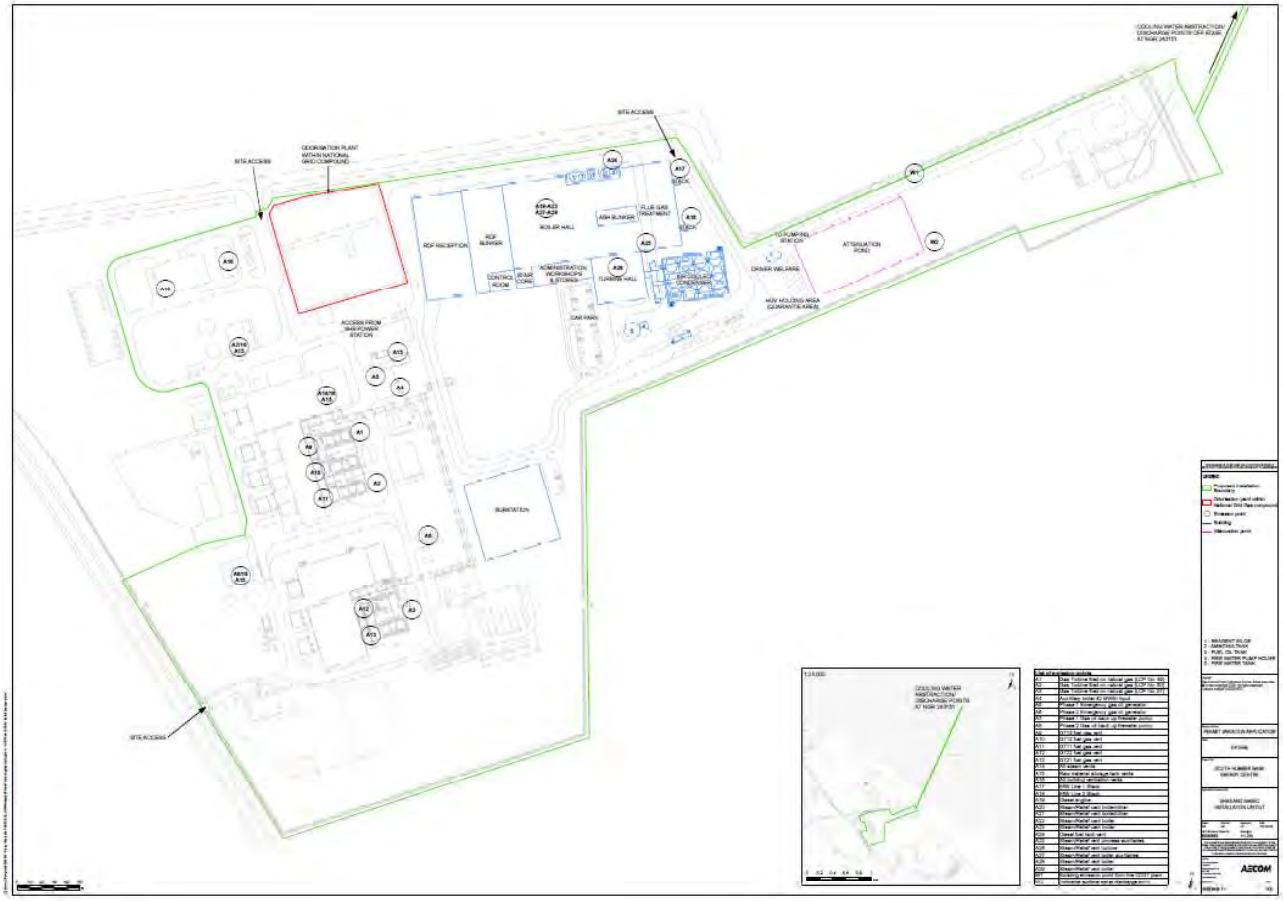
TEF schemes for dioxin-like PCBs			
Congener	**WHO-TEF**		
	2005	**1997/8**	
	Humans / mammals	**Fish**	**Birds**
Non-ortho PCBs			
3,4,4',5-TCB (81)	0.0001	0.0005	0.1
3,3',4,4'-TCB (77)	0.0003	0.0001	0.05
3,3',4,4',5 - PeCB (126)	0.1	0.005	0.1
3,3',4,4',5,5'-HxCB(169)	0.03	0.00005	0.001
Mono-ortho PCBs			

TEF schemes for dioxin-like PCBs			
Congener	**WHO-TEF**		
	2005	**1997/8**	
	Humans / mammals	**Fish**	**Birds**
2,3,3',4,4'-PeCB (105)	0.00003	<0.000005	0.0001
2,3,4,4',5-PeCB (114)	0.00003	<0.000005	0.0001
2,3',4,4',5-PeCB (118)	0.00003	<0.000005	0.00001
2',3,4,4',5-PeCB (123)	0.00003	<0.000005	0.00001
2,3,3',4,4',5-HxCB (156)	0.00003	<0.000005	0.0001
2,3,3',4,4',5'-HxCB (157)	0.00003	<0.000005	0.0001
2,3',4,4',5,5'-HxCB (167)	0.00003	<0.000005	0.00001
2,3,3',4,4',5,5'-HpCB (189)	0.00003	<0.000005	0.00001

“year” means calendar year ending 31 December.

“yearly average” means the average over a period of one year of validated hourly averages obtained by continuous measurements.

Schedule 7 – Site plan



END OF PERMIT

APPENDIX 2: SECTION 97 OF THE TOWN AND COUNTRY PLANNING ACT 1990 (COPY OF RELEVANT STATUTORY PROVISIONS)

97.— Power to revoke or modify planning permission [or permission in principle][1] .

(1) If it appears to the local planning authority that it is expedient to revoke or [modify—][2]

[(a) any permission (including permission in principle) to develop land granted on an application made under this Part, or

(b) any permission in principle granted by a development order,

the authority may by order revoke or modify the permission to such extent as they consider expedient.][2]

(2) In exercising their functions under subsection (1) the authority shall have regard to the development plan and to any other material considerations.

(3) The power conferred by this section may be exercised—

(a) [in the case of planning permission that][3] relates to the carrying out of building or other operations, at any time before those operations have been completed;

(b) [in the case of planning permission that][3] relates to a change of the use of any land, at any time before the change has taken place.

(4) The revocation or modification of [planning permission][4] for the carrying out of building or other operations shall not affect so much of those operations as has been previously carried out.

(5) References in this section to the local planning authority are to be construed in relation to development consisting of the winning and working of minerals as references to the mineral planning authority [...][5] .

[(6) Part II of Schedule 5 shall have effect for the purpose of making special provision with respect to the conditions that may be imposed by an order under this section which revokes or modifies permission for development—

(a) consisting of the winning and working of minerals; or

(b) involving the depositing of refuse or waste materials.

][6]

Notes

1 Words inserted by Housing and Planning Act 2016 c. 22 Sch.12 para.25(2) (July 13, 2016)

2 Words and s.97(1)(a) and (b) substituted for words by Housing and Planning Act 2016 c. 22 Sch.12 para.25(3) (July 13, 2016)

3 Words substituted by Housing and Planning Act 2016 c. 22 Sch.12 para.25(4) (July 13, 2016)

4 Word substituted by Housing and Planning Act 2016 c. 22 Sch.12 para.25(5) (July 13, 2016)

5 Words repealed by Planning and Compensation Act 1991 c. 34 Sch.19(I) para.1 (September 25, 1991 as SI 1991/2067)

6 Added by Planning and Compensation Act 1991 c. 34 Sch.1 para.4 (September 25, 1991)

APPENDIX 3: CONDITIONS AND REQUIREMENTS COMPARISON TABLE

TCPA condition titles are as per Schedule 3 of the draft DCO as Consented Development Decision Notice has no condition titles.

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
DCO Requirement 5 'Detailed design (position and scale)' **TCPA Condition 4 'Details of final positioning of buildings, elevations and floor levels'**			
In relation to any part of the authorised development comprised in Work No. 1 no development of that part may commence, save for the permitted preliminary works, until details of the final position, finished floor levels, elevations and floor plans of all new permanent buildings and structures have been submitted to and approved by the relevant planning authority.	Development shall not commence, save for the permitted preliminary works, until details of the final position of any buildings, finished floor levels, elevations and floor plans (which shall be in general accordance with "Section through bunker showing Proposed Finished Floor Level (2522-023 rev R1)" and "Floor Plans including Roof Plan (2522-043 rev R1)" and Elevations Plan reference (2522-032 rev R1)), have been submitted to and approved in writing by the Local Planning Authority. The only building with more than three occupied storeys shall be the administration block as shown in the "Development Areas Plan (2522-031 rev R1)". The development shall then proceed in accordance with the approved details.	Both pre-commencement	New details will need submitting for the air cooled condenser (ACC) and Transformers as they are will be visible externally.
DCO Requirement 6 'Detailed design (appearance)' **TCPA Condition 5 'Details of all external materials'**			
In relation to any part of the authorised development comprised in Work No. 1 no	Development shall not commence, save for the permitted preliminary works, until details of all external materials to be used in	Both pre-commencement	New details will need submitting for the ACC and

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
development of that part may commence, save for the permitted preliminary works, until details of the external appearance, including the colour, materials and surface finishes, of all new permanent buildings and structures have been submitted to and approved by the relevant planning authority.	construction of the buildings (which shall be in general accordance with those illustrated in the "Elevations Plan reference (2522-032 rev R1)") have been submitted to and approved in writing by the Local Planning Authority. The development shall then proceed in accordance with the approved details.		Transformers as they are visible externally.
DCO Requirement 7 'Retained trees' **TCPA Condition 6 'Existing tree planting to be retained'**			
(1) All trees located within Work No. 3 must be retained throughout the construction and operation of the authorised development unless replaced under sub-paragraph (2) or otherwise agreed with the relevant planning authority.	The existing tree planting associated with the South Humber Bank Power Station and lying within the site and outside the main development area shall be retained (as described in paragraph 11.7.2 of the submitted Environmental Statement) throughout the construction and operation of the development, unless otherwise approved in writing by the Local Planning Authority.	Both compliance	Additional Works will not impact retained trees.
(2) Any tree within Work No. 3 that is removed, dies or becomes, in the opinion of the relevant planning authority, seriously damaged or	n/a	Compliance	Additional Works will not impact retained trees.

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
diseased, during the construction or operation of the development must be replaced in the first available planting season with a specimen of the same species unless otherwise agreed with the relevant planning authority.			
DCO Requirement 8 'Means of enclosure and hard landscaping' **TCPA Condition 7 'So far as relating to details and position of boundary treatments, circulation areas and other hard landscaping'**			
(1) No part of the authorised development may commence, save for the permitted preliminary works, until the details and position of means of enclosure, circulation areas, hardstandings and all other hard landscaping for that part have been submitted and approved in writing by the relevant planning authority.	The development must not commence, save for the permitted preliminary works, until the details and position of boundary treatments, circulation areas, hardstandings and all other hard landscaping have been submitted and approved in writing by the Local Planning Authority.	Both pre-commencement	This will not need fresh details as the Additional Works are will not affect the boundary treatments, circulation areas or other hard landscaping. The concrete slab would be installed the same size for either ACC layout.
(2) The details submitted under sub-paragraph (1) in respect of Work No. 1 must include details of a 2.5 metre high close board fence along	The details submitted for the boundary treatment shall, further, be in general accordance with the submitted "Proposed Fence Section" (2522-036 rev R1) and in	Compliance	No impact on Additional Works.

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
the southern and eastern boundary of Work No. 1.	accordance with paragraph 10.7.3 of the submitted Environmental Statement.		
(3) The details submitted under sub-paragraph (1) in respect of Work No. 5 must include details of a 2.5 metre high close board fence along the eastern boundary of Work No. 5 to the extent that it is coincidental with the Order limits.	The details submitted for the boundary treatment shall, further, be in general accordance with the submitted "Proposed Fence Section" (2522-036 rev R1) and in accordance with paragraph 10.7.3 of the submitted Environmental Statement.	Compliance	No impact on Additional Works.
(4) In this requirement, “means of enclosure” means fencing, walls or other means of boundary treatment and enclosure.	n/a	Compliance	No impact on Additional Works.
DCO Requirement 9 ‘Lighting scheme’ **TCPA Condition 9 ‘So far as relating to details of permanent lighting’**			
(1) No part of the authorised development may come into operation until a scheme for all permanent external lighting to be installed (with the exception of any aviation warning lighting required under requirement 30) has been submitted to and	Prior to the development coming into operation: (a) A lighting scheme, which shall be in accordance with paragraphs 4.4.15 and 4.4.16 of the submitted Environmental Statement;	Both pre-operation	No impact on Additional Works.

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
approved by the relevant planning authority.			
(2) The scheme submitted and approved under sub-paragraph (1) must be in accordance with the indicative lighting strategy and include measures to minimise and otherwise mitigate any artificial light emissions during the operation of the authorised development.	n/a	Compliance	No impact on Additional Works.
(3) The scheme must be implemented as approved unless otherwise agreed by the relevant planning authority throughout the operation of the authorised development.	The lighting, boundaries, circulation and hard surfaces shall be installed as approved.	Compliance	No impact on Additional Works.
DCO Requirement 10 'Soft Landscaping' **TCPA Condition 7 'So far as relating to a scheme for soft landscaping and planting'**			
(1) No part of the authorised development may commence, save for the permitted preliminary works, until a scheme of soft landscaping and planting for that part has been submitted and approved	(b) A scheme of landscaping showing hard and soft landscaping materials details, ….	Pre-commencement for DCO and pre-operation for TCPA.	No changes to the soft landscaping will occur as a result of the Additional Works.

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
in writing by the relevant planning authority.			
(2) The scheme submitted and approved under sub-paragraph (1) must include details of— (a) materials, and the number, species, sizes and planting positions of any planting; (b) measures to protect any existing shrub and tree planting that is to be retained; (c) an implementation plan; and (d) a future maintenance plan.	…and the details of the number, species, sizes and planting positions of any amenity planting and landscaping; (c) A phasing plan for the planting of the landscaping scheme; and (d) A future maintenance plan for the landscaping	Compliance	No changes to the soft landscaping will occur as a result of the Additional Works.
(3) The scheme must be implemented within a period of 12 months beginning with the coming into operation of the authorised development and maintained as approved during the operation of the authorised development, unless otherwise agreed with the relevant planning authority.	All landscaping measures must thereafter be implemented as approved within a period of 12 months beginning with the coming into operation of the development, or within such longer period as may be first approved in writing by the Local Planning Authority	Compliance	No changes to the soft landscaping will occur as a result of the Additional Works.
DCO Requirement 11 'Biodiversity protection' **TCPA Condition 8 'So far as relating to biodiversity protection'**			

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
(1) The biodiversity protection plan must be implemented during the construction of the authorised development, unless otherwise agreed by the relevant planning authority.	The ecological management and mitigation measures shown in paragraphs 10.7.3, 10.7.6-10.7.18 and 10.7.23 of the submitted Environmental Statement (as amended by the ES addendum paragraph 10.7.10 submitted March 2019)	Both to be implemented during construction.	The Additional Works do not alter the required biodiversity protection measures.
(2) No later than 24 months from the commencement of construction of the new access on South Marsh Road a report by a qualified ecologist verifying the implementation of the biodiversity protection plan must be submitted to and approved in writing by the relevant planning authority, unless otherwise agreed by the relevant planning authority.	shall be implemented in full including in respect of timings.	DCO requires a verification report within 24 months. TCPA requires compliance with details.	The Additional Works do not alter the required biodiversity protection measures.
DCO Requirement 12 'Biodiversity mitigation and enhancement' **TCPA Condition 8 'So far as relating to biodiversity mitigation and enhancement'**			
(1) No later than 12 months from submission of the details under requirement 11(2) a biodiversity mitigation and enhancement plan must be	At least twelve months prior to the anticipated date of the development coming into operation an Ecological Mitigation and Enhancement Plan (which shall accord with Figure 4.2 and paragraphs 10.7.20-10.7.22	TCPA requires least 12 months prior to the anticipated date of the	The Additional Works do not alter the proposed biodiversity mitigation and enhancement, although additional enhancement measures are

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
submitted to the relevant planning authority.	and 10.7.24 of the submitted Environmental Statement) must be submitted to the Local Planning Authority.	development coming into operation .DCO requires 12 months from submission of verification of the implementation of the biodiversity protection plan. This is because measuring from "anticipated date" was advised against in general within the Inspectorate's S51 pre application advice.	proposed in the DCO application compared to the TCPA as a result of Natural England comments on the PEI Report.
(2) The plan submitted and approved under sub-paragraph (1) must be in accordance with the principles	…an Ecological Mitigation and Enhancement Plan (which shall accord with Figure 4.2 and paragraphs 10.7.20-10.7.22 and 10.7.24 of the submitted Environmental	Compliance	The Additional Works do not alter the proposed biodiversity mitigation and enhancement, although additional

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
set out in the indicative biodiversity mitigation and enhancement plan, and must include an implementation timetable, including monitoring and maintenance activities.	Statement) must be submitted to the Local Planning Authority.		enhancement measures are proposed in the DCO application compared to the TCPA as a result of Natural England comments on the PEI Report.
(3) The plan approved under sub-paragraph (1) must be implemented in full by the end of the second planting season after the plan is approved and implemented as approved during the operation of the authorised development unless otherwise agreed the relevant planning authority.	Once this plan has been approved by the Local Planning Authority, it must be implemented in full by the end of the second planting season thereafter and any monitoring activities in the plan shall be carried out as approved.	Compliance	The Additional Works do not alter the proposed biodiversity mitigation and enhancement, although additional enhancement measures are proposed in the DCO application compared to the TCPA as a result of Natural England comments on the PEI Report.
DCO Requirement 13 'Surface water drainage' **TCPA Condition 9 'So far as relating to surface water drainage'**			
(1) No part of the authorised development may commence, save for the permitted preliminary works, until details of the permanent surface water drainage systems,	Development shall not commence, save for the permitted preliminary works, until a scheme for the disposal of surface and foul water drainage including a future maintenance plan has been submitted to	Both pre-commencement	This is unlikely to need new details as Additional Works are unlikely to give rise to different surface water drainage proposals.

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
including a future maintenance plan, have been submitted to and approved in writing by the relevant planning authority.	and approved in writing by the Local Planning Authority.		
(2) The details submitted and approved under sub-paragraph (1) must be in accordance with the principles set out in the relevant part of the outline drainage strategy.	n/a	Compliance	This is unlikely to need new details as Additional Works are unlikely to give rise to different surface water drainage proposals.
(3) The scheme approved under sub-paragraph (1) must be implemented as approved prior to the development coming into operation and maintained as approved throughout the operation of the authorised development unless otherwise agreed with the relevant planning authority.	Once approved, the drainage shall be implemented as approved prior to the development coming into operation and shall be maintained in line with the details approved thereafter. No infiltration of surface water drainage into the ground is permitted unless otherwise approved in writing by the Local Planning Authority.	Compliance	This is unlikely to need new details as Additional Works are unlikely to give rise to different surface water drainage proposals.
DCO Requirement 14 'Foul water drainage **TCPA Condition 9 'So far as relating to foul water drainage'**			
(1) No part of the authorised development may commence, save for the permitted preliminary works, until details	Development shall not commence, save for the permitted preliminary works, until a scheme for the disposal of surface and foul water drainage including a future	Both pre-commencement	This will not need new details as Additional Works will not give rise to different foul water drainage proposals.

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
of the permanent foul water drainage systems, including a future maintenance plan, have been submitted to, and after consultation with Anglian Water, approved in writing by the relevant planning authority.	maintenance plan has been submitted to and approved in writing by the Local Planning Authority.		
(2) The details submitted and approved under sub-paragraph (1) must be in accordance with the principles set out in the relevant part of the outline drainage strategy.	n/a	Compliance	This will not need new details as Additional Works will not give rise to different foul water drainage proposals.
(3) The scheme approved under sub-paragraph (1) must be implemented as approved prior to the development coming into operation and maintained as approved throughout the operation of the authorised development unless otherwise agreed by the relevant planning authority.	Once approved, the drainage shall be implemented as approved prior to the development coming into operation and shall be maintained in line with the details approved thereafter. No infiltration of surface water drainage into the ground is permitted unless otherwise approved in writing by the Local Planning Authority.	Compliance	This will not need new details as Additional Works will not give rise to different foul water drainage proposals.
DCO Requirement 15 'Construction environmental management plan' **TCPA Condition 10 'Construction Management Plan'**			

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
(1) No part of the authorised development may commence until a construction environmental management plan for that part has been submitted to and approved by the relevant planning authority.	No development shall commence, or any phase thereof, until a Construction Management Plan in general accordance with the Outline CEMP (Volume III Appendix 5A of the submitted ES), has been submitted to and approved in writing by the Local Planning Authority.	Pre-Commencement	This will not need new details as the Additional Works will not require any different or additional environmental management measures.
(2) The plan submitted and approved must be in accordance with appendix 5A of the environmental statement and the biodiversity protection plan and …	… a Construction Management Plan in general accordance with the Outline CEMP (Volume III Appendix 5A of the submitted ES),	Compliance	The forecast construction traffic associated with the Proposed Development is the same as the forecast construction traffic associated with the Consented Development. This is because the conservative assumptions made in the TA for the Consented Development are also considered to be appropriate for the Proposed Development. No additional details are therefore considered to be required.
… incorporate— (a) visitor and contractor parking areas; (b) a materials management	The Construction Management Plan shall (if submitted for a phase) be specific to and appropriate for that phase, and shall	Compliance	The forecast construction traffic associated with the Proposed Development is the

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
plan; (c) materials storage areas; (d) wheel cleaning facilities; (e) noise, vibration and dust mitigation measures; (f) lighting details; (g) waste management in accordance with chapter 16 of the environmental statement; and (h) pollution control.	contain details on the following matters: Visitor and contractor parking areas; Materials management plan; Materials storage area; Wheel cleaning facilities; Noise, vibration and dust mitigation measures; Lighting details; Construction traffic management plan; Waste management in accordance with section 16.5 of the submitted Environmental Statement; Pollution control.		same as the forecast construction traffic associated with the Consented Development. This is because the conservative assumptions made in the TA for the Consented Development are also considered to be appropriate for the Proposed Development given the nature and overall scale of construction activity. No additional details are therefore considered to be required.
(3) All construction works associated with the authorised development must be carried out in accordance with the approved construction environmental management plan unless otherwise agreed with the relevant planning authority.	The development, or the relevant phase, shall then proceed in full accordance with the approved plan.	Compliance	The forecast construction traffic associated with the Proposed Development is the same as the forecast construction traffic associated with the Consented Development. This is because the conservative assumptions made in the TA for the Consented Development are also considered to be appropriate

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
			for the Proposed Development. No additional details are therefore considered to be required.
DCO Requirement 16 'Construction traffic management and travel planning'. **TCPA Condition 10 'Construction Management Plan'**			
(1) No part of the authorised development may commence until a construction traffic management plan for that part has been submitted to and approved by the relevant planning authority.	No development shall commence, or any phase thereof, until a Construction Management Plan in general accordance with the Outline CEMP (Volume III Appendix 5A of the submitted ES), has been submitted to and approved in writing by the Local Planning Authority. The Construction Management Plan shall (if submitted for a phase) be specific to and appropriate for that phase, and shall contain details on the following matters: […] Construction traffic management plan…	Pre-Commencement	The forecast construction traffic associated with the Proposed Development is the same as the forecast construction traffic associated with the Consented Development. This is because the conservative assumptions made in the TA for the Consented Development are also considered to be appropriate for the Proposed Development given the nature and overall scale of construction activity. No additional details are therefore considered to be required.

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
(2) The plan submitted and approved under sub-paragraph (1) must be in accordance with the framework construction traffic management plan included as annex 28 of appendix 9A of the environmental statement.	Construction traffic management plan (which shall be in accordance with the outline document included as Annex 26 of Appendix 9A of the submitted Environmental Statement);	Compliance	Proposed Development is the same as the forecast construction traffic associated with the Consented Development. This is because the conservative assumptions made in the TA for the Consented Development are also considered to be appropriate for the Proposed Development given the nature and overall scale of construction activity. The designated route for the HGV's is also the same for the Proposed Development and Consented Development. No additional details are therefore considered to be required.
(3) The plan submitted and approved under sub-paragraph (1) for Work No. 1 must include— (a) details of the routes to be used for the delivery of abnormal indivisible loads and procedures for the notification	Construction worker travel plan (which shall be in accordance with the outline document included as Annex 25 of Appendix 9A of the submitted Environmental Statement);	Compliance	Proposed Development is the same as the forecast construction traffic associated with the Consented Development. This is because the conservative assumptions made in the TA for the Consented

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
of these to the local highway authority and, if the route includes railway assets, Network Rail; and (b) a construction worker travel plan (which must be in accordance with the framework construction worker travel plan included as annex 27 of appendix 9A of the environmental statement).			Development are also considered to be appropriate for the Proposed Development given the nature and overall scale of construction activity. No additional details are therefore considered to be required.
(4) The plan must be implemented as approved unless otherwise agreed with the relevant planning authority.	The development, or the relevant phase, shall then proceed in full accordance with the approved plan.	Compliance	Proposed Development is the same as the forecast construction traffic associated with the Consented Development. This is because the conservative assumptions made in the TA for the Consented Development are also considered to be appropriate for the Proposed Development. No additional details are therefore considered to be required.

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
(5) In this requirement, "Network Rail" means Network Rail Infrastructure Limited (Company No. 02904587) whose registered office is at 1 Eversholt Street, London NW1 2DN	n/a – See comments on Consented Development Informative 5.	Compliance	No changes will occur to the notification methods as a result of the Additional Works.
DCO Requirement 17 'Piling' **Condition 13 (part 1 and 2) 'Contamination'**			
(1) No part of the authorised development comprised within Work No. 1 may commence until a written specification of the type of piling to be used to support the building and structures has been submitted to and approved by the relevant planning authority.	Development shall not commence until detailed specifications of the type of piling to be used to support the building/structures shall be submitted to and approved in writing by the Local Planning Authority.	Both pre-commencement	If any additional or different piling is required then an application for approval of those details would be made pursuant to the requirement.
(2) The written specification submitted to and approved under sub-paragraph (1) must include a scheme to mitigate the effects of the piling with regard to noise to ecological receptors (which shall be in accordance with section 7 of the biodiversity strategy) and a scheme to mitigate the	Included shall be a scheme to mitigate the effects of the piling with regard to noise to ecological receptors (which shall be in accordance with paragraph 10.7.2 of the submitted Environmental Statement) and a scheme to mitigate the effects of the piling with regard to groundwater resources (which shall be in accordance with the results of the site investigation carried out, and the remediation strategy submitted,	Compliance	If any additional or different piling is required then an application for approval of those details would be made pursuant to the requirement.

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
effects of the piling with regard to groundwater resources (which must be in accordance with the results of the site investigation carried out, and the remediation strategy submitted, pursuant to requirement 19).	pursuant to condition 13 of this planning permission).		
(3) All piling works must be carried out in accordance with the approved written specification unless otherwise agreed with the relevant planning authority.	The piling shall be carried out in accordance with the approved details, unless any variation is first approved in writing by the Local Planning Authority.	Compliance	If any additional or different piling is required then an application for approval of those details would be made pursuant to the requirement.
DCO Requirement 18 (parts 1, 2, 3 (a and b) 'Temporary halting of development on finding unexpected contamination' **Condition 12 'Steps where unexpected contamination is found after development has commenced'**			
If at any point during construction contamination is found that is not expected in the scheme submitted and approved under sub-paragraph (1) of requirement 19, development must be halted on that part of the site affected by the unexpected contamination to the extent	Unless otherwise approved in writing by the Local Planning Authority, and save for the permitted preliminary works or development required to be carried out as part of the scheme of remediation approved under condition 13, development must not commence until condition 13 has been complied with. If unexpected contamination is found after development has begun, development must be halted on that part of	Both if unexpected contamination found.	No further details would be required as a result of the Additional Works.

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
specified by the relevant planning authority in writing until requirement 21 has been complied with in relation to the unexpected contamination	the site affected by the unexpected contamination to the extent specified by the Local Planning Authority in writing until condition 15 has been complied with in relation to that contamination.		
DCO Requirement 19 (parts 1, 2, 3 (a and b) 'Investigation and remediation of contamination' **Condition 13 (part i and ii) 'Contamination'**			
(1) No part of the authorised development may commence, save for the permitted preliminary works, until a scheme for an investigation of the nature and extent of any contamination on the site, whether or not it originates on the site, has been submitted to and approved in writing by the relevant planning authority.	Development must not commence, save for the permitted preliminary works, until a scheme for an investigation of the nature and extent of any contamination on the site, whether or not it originates on the site, has been submitted to and approved in writing by the Local Planning Authority.	Both pre-Commencement (save for the permitted preliminary works)	No changes to contamination investigation and remediation will occur as a result of the Additional Works.
(2) The scheme submitted and approved under sub-paragraph (1) must be in accordance with the principles set out in chapter 12 and appendix 12A of the environmental statement, and must be undertaken by competent persons.	The investigation must be based on the assessment included in Appendix 12A of the submitted Environmental Statement, and must be undertaken by competent persons.	Compliance	No changes to contamination investigation and remediation will occur as a result of the Additional Works.

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
(3) The scheme submitted and approved under sub-paragraph (1) must include— (a) a survey of the extent, scale and nature of contamination; (b) a risk assessment taking into account— (i) human health; (ii) property (existing or proposed) including buildings, crops, livestock, pets, woodland and service lines and pipes; (iii) adjoining land; (iv) groundwaters and surface waters; (v) ecological systems; and (vi) archaeological sites and ancient monuments (if applicable).	The development must not commence, save for the permitted preliminary works, until a written report of the findings of the investigation has been prepared and submitted to and approved in writing by the Local Planning Authority. The report must include: (i) a survey of the extent, scale and nature of contamination; (ii) an assessment of the potential risks to: o human health, o property (existing or proposed) including buildings, crops, livestock, pets, woodland and service lines and pipes, o adjoining land, o groundwaters and surface waters, o ecological systems, o archaeological sites and ancient monuments (if applicable)	Compliance	No changes to contamination investigation and remediation will occur as a result of the Additional Works.
DCO Requirement 19 (parts 3(c), 4, 5 and 6) 'Investigation and remediation of contamination' **TCPA Condition 13 (part iii and iv) 'Contamination'**			
(c) an appraisal of the need for remediation to bring the site to a condition suitable for the intended use by removing unacceptable risks to human health, buildings and other property and the natural and	(iii) an appraisal of the need for remediation to bring the site to a condition suitable for the intended use by removing unacceptable risks to human health, buildings and other property and the natural and (if applicable) historical environment;	Compliance	No changes to contamination investigation and remediation will occur as a result of the Additional Works.

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
(if applicable) historical environment.			
(4) If the appraisal under sub-paragraph (3)(c) identifies the need for remediation then a remediation scheme must be submitted together with the scheme submitted pursuant to subparagraph (1).	(iv) if there is a need, then an appraisal of the remedial options available and a description of the proposed remediation scheme.	Both if a need is identified.	No changes to contamination investigation and remediation will occur as a result of the Additional Works.
(5) The scheme submitted under sub-paragraph (4) must contain an appraisal of the remedial options available and a description of the proposed remediation works to be undertaken, proposed remediation objectives and remediation criteria, timetable of works and site management procedures. The remediation scheme must ensure that the site will not qualify as contaminated land under Part 2A of the Environmental Protection Act 1990 in relation to the intended use of the land after remediation.	The scheme must include all works to be undertaken, proposed remediation objectives and remediation criteria, timetable of works and site management procedures. The scheme must ensure that the site will not qualify as contaminated land under Part 2A of the Environmental Protection Act 1990 in relation to the intended use of the land after remediation.	Compliance	No changes to contamination investigation and remediation will occur as a result of the Additional Works.

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
(6) The scheme submitted and approved under sub-paragraphs (1) and (4) must be conducted in accordance with DEFRA and the Environment Agency's 'Model Procedures for the Management of Land Contamination, CLR 11'.	All activities under this condition must be conducted in accordance with DEFRA and the Environment Agency's 'Model Procedures for the Management of Land Contamination, CLR 11'.	Compliance	No changes to contamination investigation and remediation will occur as a result of the Additional Works.
DCO Requirement 20 'Implementation of remediation scheme' **TCPA Condition 14 'Remediation scheme under condition 13 to be carried out'**			
(1) The relevant part of the authorised development must not commence, save for the permitted preliminary works, until the schemes approved under requirement 19 have been implemented as approved, unless otherwise agreed in writing by the relevant planning authority.	Development must not commence, save for the permitted preliminary works, until the remediation scheme approved under condition 13 of this planning permission has been carried out in accordance with its terms, unless otherwise agreed in writing by the Local Planning Authority.	Both pre-commencement	No changes to contamination investigation and remediation will occur as a result of the Additional Works.
(2) Following the implementation under sub-paragraph (1), a verification report that demonstrates the effectiveness of the remediation scheme must be submitted to and approved by	Following completion of the approved remediation scheme, a verification report that demonstrates the effectiveness of the remediation scheme must be submitted to and approved in writing of the Local Planning Authority prior to the development coming into operation.	Both following implementation of relevant works.	No changes to contamination investigation and remediation will occur as a result of the Additional Works.

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
the relevant planning authority prior to the development coming into operation.			
DCO Requirement 21 'Procedure in cases of unexpected contamination' **TCPA Condition 15 'Previously unidentified contamination'**			
(1) At any time during construction or operation, in the event that contamination is found that was not expected in the scheme submitted and approved under sub-paragraph (1) of requirement 19, the unexpected contamination must be notified in writing to the relevant planning authority before the end of the following working day.	At any time during construction or operation, in the event that contamination is found that was not previously identified it must be notified in writing immediately to the Local Planning Authority.	In the event that unexpected contamination is found	No change will occur regarding unexpected contamination as a result of the Additional Works.
(2) Within three months of the notification made under sub-paragraph (1) all details required by sub-paragraphs (1) and (4) of requirement 19 must be submitted to the relevant planning authority in	A risk assessment of the contamination must be undertaken by competent persons and a written report of the findings must be produced, along with a site investigation in accordance with the requirements of condition 12 and 13. Where remediation is necessary a remediation scheme must be	DCO requires within 3 months of notification. TCPA provides no specific timeframe.	No change will occur regarding unexpected contamination as a result of the Additional Works.

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
respect of the unexpected contamination.	prepared in accordance with the requirements of condition 13 and submitted to and approved in writing by the Local Planning Authority as soon as practicable.		
(3) Within three months of the approval by the relevant planning authority of the schemes submitted under sub-paragraph (2), the schemes must be implemented as approved.	Following completion of measures identified in the remediation scheme approved under this condition.	DCO requires within 3 months of notification. TCPA provides no specific timeframe.	No change will occur regarding unexpected contamination as a result of the Additional Works.
(4) Within three months of the implementation of the schemes under sub-paragraph (3) a verification report must be prepared in accordance with the requirements of requirement 20 and submitted to the relevant planning authority for approval.	Following completion of measures identified in the remediation scheme approved under this condition, a verification report must be prepared in accordance with the requirements of condition 14 and submitted to and approved in writing by the Local Planning Authority as soon as practicable	DCO requires within 3 months of notification. TCPA provides no specific timeframe.	No change will occur regarding unexpected contamination as a result of the Additional Works.
DCO Requirement 22 'Flood risk mitigation' **TCPA Condition 16 'Development to be carried out in accordance with FRA'**			
(1) No part of the authorised development may be commissioned until a scheme for the mitigation of flood risk during operation has, for that	The development permitted by this planning permission shall be carried out in accordance with the approved Flood Risk Assessment, [….] unless otherwise	DCO requires no commissioning until a scheme is approved. TCPA requires	This is unlikely to need new details as the Additional Works do not affect flood risk mitigation.

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
part, been submitted to and approved by the relevant planning authority.	approved in writing by the Local Planning Authority ….	work to be in accordance with approved document.	
(2) The scheme submitted and approved under sub-paragraph (1) must be in accordance with appendix 14A of the environmental statement unless otherwise approved in writing by the relevant planning authority in consultation with the Environment Agency.	Shall be carried out in accordance with the approved Flood Risk Assessment, Appendix 14A of the submitted Environmental Statement, dated December 2018 by AECOM, unless otherwise approved in writing by the Local Planning Authority in consultation with the Environment Agency.	Compliance	This is unlikely to need new details as the Additional Works are unlikely to affect flood risk mitigation.
(3) The scheme submitted and approved under sub-paragraph (1) must provide for critical equipment assets to be elevated to no lower than 4.60m AOD or, alternatively, adequately protected through flood resistance and resilience measures, and a place of safe refuge to be provided at a level no lower than 4.60m AOD.	In particular: critical equipment assets shall be elevated to no lower than 4.55m above Ordnance Datum (AOD) or, alternatively, adequately protected through flood resistance and resilience measures of a place of safe refuge shall be provided at a level no lower than 4.55m AOD	Compliance	The Additional Works do not affect the mitigation for flood risk. As the Applicant is aware of the revised flood height provided by the Environment Agency during the preparation of the DCO application, the Consented Development design will take account of this revised level and new details will therefore not be required.
(4) The scheme approved under sub-paragraph (1) must be implemented as approved	The above mitigation measures shall be fully implemented prior to occupation of the	Compliance	This is unlikely to need new details as the Additional

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
and maintained throughout the operation of the authorised development unless otherwise agreed with the relevant planning authority	development and subsequently remain in place.		Works are unlikely to affect flood risk mitigation.
DCO Requirement 23 'Flood warning and evacuation plan (FWEP)' **TCPA Condition 17 'Flood warning and evacuation plan'**			
(1) The authorised development must not be occupied until a flood emergency response and contingency plan has been submitted to and approved by the relevant planning authority.	The development shall not be occupied until a Flood Warning and Evacuation Plan, [….], has been submitted to and approved in writing by the Local Planning Authority.	Both pre-occupation	This will not need new details as the Additional Works do not affect the details contained in the FWEP.
(2) The scheme submitted and approved under sub-paragraph (1) must include provisions to secure the subscription of the authorised development to the Floodline Warnings Direct service or equivalent service.	… a Flood Warning and Evacuation Plan, which includes signing up to the Floodline Warnings Direct service, has been submitted to and approved in writing by the Local Planning Authority	Compliance	This will not need new details as the Additional Works do not affect the details contained in the FWEP.
(3) The flood warning and evacuation plan submitted and approved under sub-paragraph (1) must be implemented as approved	The flood warning and evacuation plan shall be fully implemented prior to occupation of the development and subsequently remain in place.	Compliance	This will not need new details as the Additional Works do not affect the details contained in the FWEP.

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
prior to the authorised development coming into operation and remain in place throughout the operation of the development unless otherwise agreed by the relevant planning authority.			
DCO Requirement 24 'Delivery and servicing plan' **TCPA Condition 18 'Delivery and Servicing'**			
(1) The authorised development must not come into operation until an operational delivery and servicing plan for all operational HGVs entering and leaving the site has been submitted to and approved in writing by the relevant planning authority.	Prior to the development coming into operation, a Delivery and Servicing Plan for all operational HGVs entering and leaving the site must be submitted to and approved in writing by the Local Planning Authority.	Both pre-occupation	No changes to operational HGV traffic generation or routing are proposed as a result of the Additional Works.
(2) The plan submitted and approved under sub-paragraph (1) must be in accordance with the operational delivery and servicing plan within annex 26 of appendix 9A of the environmental statement unless otherwise agreed by	This must be in accordance with the Operational Delivery and Servicing Plan within Annex 24 (version dated March 2019) of Appendix 9A of the Environmental Statement.	Compliance	No changes to operational HGV traffic generation or routing are proposed as a result of the Additional Works.

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
the relevant planning authority.			
(3) The plan approved under sub-paragraph (1) must be implemented as approved throughout the operation of the authorised development unless otherwise agreed by the relevant planning authority.	The development shall operate in accordance with the approved Delivery and Servicing Plan throughout its lifetime, unless otherwise approved in writing by the Local Planning Authority.	Compliance	No changes to operational HGV traffic generation or routing are proposed as a result of the Additional Works.
DCO Requirement 25 'Operational travel plan' **TCPA Condition 19 'Operational travel plan'**			
(1) The authorised development must not come into operation until an operational travel plan has been submitted to and approved in writing by the relevant planning authority.	Prior to the development coming into operation, an Operational Travel Plan (OTP) shall be submitted to and approved in writing by the Local Planning Authority.	Both pre-operation	No changes to the Operational Travel Plan will occur as a result of the Additional Works.
(2) The plan submitted and approved under sub-paragraph (1) must be in accordance with business travel plan guidance published by the local highway authority and in accordance with the framework operational travel plan within annex 7 of	The OTP should be produced in accordance with NELC guidance and in liaison with the Business Travel Plan Officer. The OTP submitted shall be in accordance with the Framework Operational Travel Plan within Annex 6 of Appendix 9A of the submitted Environmental Statement.	Compliance	No changes to the Operational Travel Plan will occur as a result of the Additional Works.

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
appendix 9A of the environmental statement unless otherwise agreed in writing by the relevant planning authority.			
(3) The plan approved under sub-paragraph (1) must be implemented as approved throughout the operation of the authorised development unless otherwise agreed by the relevant planning authority	Once approved, the OTP shall be implemented in full and operated in line with its terms and timings throughout the lifetime of the development.	Compliance	No changes to the Operational Management Plan will occur as a result of the Additional Works.
DCO Requirement 26 'Visibility splays' **TCPA Condition 20 'Visibility splays'**			
(1) The authorised development must not come into operation until details of the visibility splays at the proposed new highway access have been submitted to and, after consultation with the local highway authority, approved by the relevant planning authority.	Prior to the development coming into operation details of the visibility splays at the proposed site entrance must be submitted to and approved in writing by the Local Planning Authority.	Both pre-operation	No changes to the Visibility Splays will occur as a result of the Additional Works.
(2) The details submitted to and approved under sub-paragraph (1) must be in accordance with the access	The location of the visibility splays shall be located in line with the "Access Plan (SK001)" revision submitted 15.2.19 and	Compliance	No changes to the Visibility Splays will occur as a result of the Additional Works.

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
and rights of way plan and swept path analysis plan unless otherwise agreed by the relevant planning authority.	"Swept Path Analysis plan (SK002)" submitted 15.2.19.		
(3) The details approved under sub-paragraph (1) must be implemented as approved and maintained throughout the operation of the authorised development, and nothing erected or allowed to grow above 1.05 metres higher than the carriageway level of the adjoining highway within the visibility splays unless otherwise agreed by the relevant planning authority.	Visibility splays shall thereafter be implemented in accordance with the details agreed and nothing shall at any time be erected or allowed to grow over 1.05 metres in height above the carriageway level of the adjoining highway within the visibility splays.	Compliance	No changes to the Visibility Splays will occur as a result of the Additional Works.
DCO Requirement 27 'New highway access' **TCPA Condition 21 'So far as relating to plans for layout and construction of new entrance and highway drainage'**			
(1) The authorised development must not come into operation until details of the proposed new highway access and highway drainage system have been submitted to and, after consultation with the local highway authority,	Development shall not commence, save for the permitted preliminary works, until detailed plans have been submitted to and approved in writing by the Local Planning Authority,	DCO is pre-operation. TCPA is pre-commencement.	The Additional Works do not alter the details of the new highway access or highway drainage.

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
approved by the relevant planning authority.			
(2) The details submitted to and approved under sub-paragraph (1) must include the proposed layout and construction details of the proposed new entrance to the site including the junction and connection with the adopted highway which must be in accordance with the access and rights of way plan and swept path analysis plan and proposed culvert for site access plan unless otherwise agreed by the relevant planning authority or any details in respect of this new entrance that have been approved under articles 11 or 12.	…showing:- (a) The proposed layout and construction details of the proposed new entrance to the site including the junction and connection with the adopted highway (which shall be in accordance with: either "Access Plan (SK001)" revision submitted 15.2.19 and the submitted Proposed Culvert for Site Access plan (2522-035 rev R1)); or any details in respect of this new entrance that have been approved under S278 Highways Act 1980 by the Local Highways Authority; (b) The highway drainage system; […]	Compliance	The Additional Works do not alter the details of the new highway access or highway drainage.
(3) The details approved under sub-paragraph (1) must be implemented as approved and maintained throughout the operation of the authorised development.	The details shall be implemented in full as approved prior to the development coming into operation.	Compliance	The Additional Works do not alter the details of the new highway access or highway drainage.

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
DCO Requirement 28 'Parking' **TCPA Condition 21 'So far as relating to plans for parking'**			
(1) The authorised development must not come into operation until details of the proposed location, type and number of permanent vehicle and two-wheeler and cycle parking spaces have been submitted to and approved by the relevant planning authority.	Development shall not commence, save for the permitted preliminary works, until detailed plans have been submitted to and approved in writing by the Local Planning Authority, showing: […] (c) Location, type and number of permanent vehicle and two-wheeler and cycle parking spaces.	DCO is pre-operation. TCPA is pre-commencement.	No changes to the Parking will occur as a result of the Additional Works.
(2) The details approved under sub-paragraph (1) must be implemented as approved and maintained throughout the operation of the authorised development.	The details shall be implemented in full as approved prior to the development coming into operation.	Compliance	No changes to the Parking will occur as a result of the Additional Works.
DCO Requirement 29 'Road condition survey' **TCPA Condition 22 'Road condition survey of South Marsh Road and subsequent report on traffic survey results'**			
(1) No development may take place, save for the permitted preliminary works, until a survey of the condition of the adopted section of South	No development must take place, save for the permitted preliminary works, until a survey of the condition of the adopted section of the local access road South Marsh Road (east of Hobson Way) has	Both pre-commencement (save for the permitted	No changes to road condition survey will occur as a result of the Additional Works.

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
Marsh Road (east of Hobson Way) has been carried out and details submitted to and approved by the relevant planning authority.	been carried out and details submitted to and approved by the local planning authority.	preliminary works).	
(2) The details submitted to and approved under sub-paragraph (1) must include the results of a survey comprising SCANNER, deflectograph equipment, and supporting road core data with cores taken every 100m, contained in a report detailing the survey methodology and the findings as to the theoretical capacity of the structure of the road based on a million standard axle calculation.	The survey must comprise SCANNER, deflectograph equipment, and supporting road core data with cores taken every 100m. The details must comprise a report detailing the survey methodology and the findings as to the theoretical capacity of the structure of the road based on a million standard axle calculation.	Compliance	No changes to road condition survey will occur as a result of the Additional Works.
(3) Within six months of the authorised development coming into operation a report must be submitted to the relevant planning authority for approval.	Additionally, within six months of the development coming into operation a report must be submitted to and approved in writing by the local planning authority setting out the results of traffic surveys along South Marsh Road (east of Hobson Way) conducted since the coming into operation of the development.	Both within six months of the authorised development coming into operation.	No changes to road condition survey will occur as a result of the Additional Works.

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
(4) The report submitted and approved under sub-paragraph (3) must contain the results of traffic surveys along South Marsh Road (east of Hobson Way) conducted after the coming into operation of the authorised development and must include information on actual HGV tonnage and volumes and a comparison against the theoretical capacity of the structure of the road contained in the details approved under sub-paragraph (1).	The report shall include information on HGV tonneage and volumes and a comparison against the theoretical capacity of the structure of the road contained in the details approved under the first paragraph of this condition.	Compliance	No changes to road condition survey will occur as a result of the Additional Works.
(5) In the event that the report shows the actual HGV tonnage and volumes using the road is in exceedance of the theoretical capacity, and the exceedance can reasonably be attributed to the authorised development, the undertaker must within three months of an approval under sub-paragraph (3), submit details of a scheme of improvement for South Marsh	If the findings show the actual traffic using the road exceeds the theoretical capacity, and the exceedance is attributable to the development authorised by this planning permission, the applicant shall within three months of an approval under the second paragraph of this condition submit details of a scheme of improvement for South Marsh Road (east of Hobson Way) and a programme for implementation to the local highways authority for their consideration and	Both within three months of the findings showing the actual HGV tonnage exceeding the theoretical capacity and being attributable to the proposed development.	No changes to road condition survey or operational traffic using South Marsh Road will occur as a result of the Additional Works.

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
Road (east of Hobson Way) and a programme for implementation to the local highways authority for its approval.	agreement under Section 278 Highways Act 1980.		
DCO Requirement 30 'Air Safety' **TCPA Requirement 23 'Information to be provided to local planning authority to notify UK DVOF & Powerlines at the Defence Geography Centre'**			
(1) No part of the authorised development may commence, save for the permitted preliminary works, until details of the information that is required by the Defence Geographic Centre of the Ministry of Defence to chart the authorised development for aviation purposes for that part have been submitted to and approved by the relevant planning authority.	Development shall not commence, save for the permitted preliminary works, until the following information has been submitted to the Local Planning Authority, who shall immediately notify UK DVOF & Powerlines at the Defence Geographic Centre:	Both pre-commencement (save for the permitted preliminary works).	No changes to the information to be submitted in relation to air safety will occur as a result of the Additional Works.
(2) The information submitted to and approved under sub-paragraph (1) must include – (a) location of development; (b) date of commencement of construction;	a. Precise location of development. b. Date of commencement of construction. c. The proposed date of completion of construction. d. The height above ground level of the tallest structure.	Compliance	No changes to the information to be submitted in relation to air safety or aviation lighting requirements will occur as a result of the Additional Works.

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
(c) anticipated date of completion of construction of tall structures including the emissions stacks; (d) height above ground level of tall structures including the emissions stacks; (e) maximum extension height of any construction equipment; and (f) details of aviation warning lighting to be fitted to the tall structures, which must include fitting the emissions stacks with a minimum intensity 25 candela omni directional flashing red light or equivalent infra-red light fitted at the highest practicable point of the structure.	e. The maximum extension height of any construction equipment. f. Details of aviation warning lighting to be fitted to the structure(s), which must include fitting the emissions stack(s) with a minimum intensity 25 candela omni directional flashing red light or equivalent infra-red light fitted at the highest practicable point of the structure.		
(3) The aviation warning lighting details submitted to and approved under sub-paragraph (2)(f) must be implemented in full before the construction of the emissions stacks is complete unless otherwise agreed by the relevant planning authority.	The aviation warning lighting approved pursuant to part (f) must thereafter be implemented in full before the construction of the emissions stack(s) is complete or within an agreed time frame to be approved in writing with the Local Planning Authority.	Compliance	No changes to aviation warning lighting requirements will occur as a result of the Additional Works.

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
(4) At the earliest opportunity prior to the date of completion of the construction of the stacks, the anticipated date of construction completion must be submitted to the relevant planning authority.	At the earliest opportunity prior to the known final date of completion of the construction, the actual date of construction completion shall be submitted to the Local Planning Authority	Both prior to the date of completion of the construction of stacks.	No changes to the information to be submitted in relation to air safety will occur as a result of the Additional Works.
(5) All details submitted to and approved in writing under this requirement must be implemented as approved and maintained throughout (to the extent relevant) the construction of the authorised development and the operation of the authorised development unless otherwise agreed by the relevant planning authority.	There shall be no deviation from, or exceedance of the details provided to the Local Planning Authority, unless first approved in writing by the Local Planning Authority.	Compliance	No changes to the information to be submitted in relation to air safety and aviation warning lighting requirements will occur as a result of the Additional Works.
DCO Requirement 31 'Fuel type' **TCPA Requirement 24 'Use only of refuse derived fuels'**			
Only refuse derived fuel comprising of processed waste from municipal, household, commercial and industrial sources may be	The hereby approved power facility shall use refuse derived fuel only (RDF), with the exception of the limited use of fuel oil during start up periods only. RDF	Both compliance	No changes to fuel type will occur as a result of the Additional Works.

DCO Wording	TCPA Wording	Trigger	Impact of Additional Works
used in the combustion system in Work No. 1, except for purposes of start-up or support firing when gas or fuel oil may be used.	comprises of processed waste from municipal, household, commercial and industrial sources.		
DCO Requirement 32 'Fuel Storage **TCPA Requirement 25 'No fuel to be stored outside of main building'**			
With the exception of the diesel tank, fuel for the energy recovery facility must not be stored outside of the main building at any time.	With the exception of the fuel oil tank, at no time shall any fuel stock for the energy recovery facility be stored outside of the main building.	Both compliance	No changes to fuel storage will occur as a result of the Additional Works.
DCO Requirement 33 'Decommissioning' **TCPA Requirement 26 'Decommissioning plan'**			
Within two years of the date that the undertaker decides to end commercial operation of the authorised development, the undertaker must submit to the relevant planning authority for its approval a decommissioning plan, including a decommissioning environmental management plan.	Within two years of the development ceasing commercial operations a Decommissioning Plan, including a Decommissioning Environmental Management Plan, must be submitted to and approved in writing by the Local Planning Authority. Once approved, the decommissioning shall only be carried out in accordance with the approved details.	Both within two years of the development ceasing commercial operations.	No changes to the decommissioning plan will occur as a result of the Additional Works.

APPENDIX 4: AN ASSESSMENT OF THE EFFICIENCY OF CAPTURE TECHNIQUES AND THE VALUE OF DIFFERENT HABITATS FOR THE GREAT CRESTED NEWT (ENRR576)

ENGLISH NATURE

Report Number
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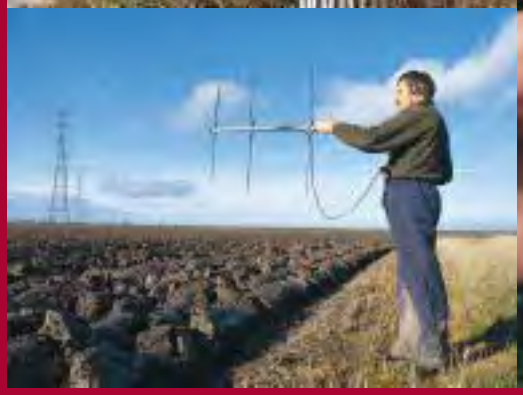
An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt *Triturus cristatus*

English Nature Research Reports



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An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt *Triturus cristatus*

Warren Cresswell and Rhiannon Whitworth

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English Nature cover note

This report is the result of a project conducted by Cresswell Associates under contract to English Nature. The project examined a large amount of data collected mainly under Defra licences for great crested newt mitigation projects. The overall aims were to use this data to review existing mitigation practice, and to provide recommendations for future advice. The lead researchers were Warren Cresswell and Rhiannon Whitworth at Cresswell Associates, and the English Nature project officer was Jim Foster. The views in this report are the authors' own and do not necessarily represent those of English Nature.

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Non-technical summary

This report presents the results of a study undertaken on behalf of English Nature to evaluate the efficiency of capture techniques and the value of different habitats for great crested newts. Licence return data were analysed in an attempt to assess the effectiveness of various different elements of the measures used to mitigate the effects of developments on newts. A further aim of the project was to assess the value of different habitats for newts by investigating the numbers captured in a variety of types of land across England. It was intended that the results of these analyses would help to predict development-related impacts and inform trapping, and other mitigation requirements, and thus help inform the development of best practice in mitigation projects involving this species.

The capture data revealed relatively clear associations between the numbers of newts caught and certain habitats. Four habitats were found regularly to predict the number of newts captured: woodland, arable land, post-industrial habitats and hedgerows. There was also a significant correlation between captures and proximity to breeding ponds, and the combination of habitats and proximity to ponds showed an even stronger relationship with numbers of newts captured. Whilst it is likely that newts were actively selecting the more suitable habitat types such as woodland and hedgerows, the role of arable land as a predictor of newt density and occurrence was more likely to be an artefact of the sampling. However, the results did show that arable farmland with a high density of ponds can support large newt populations. More research on newt habitat associations is required in order to investigate a more useful means of predicting newt density and distribution on the basis of habitat or land-use.

The information provided in the licence records was insufficient to provide clear-cut recommendations as to the type of capture method to use in all cases, because season, habitat, distance from a breeding pond, and life stage of the newts were all complicating factors within the analyses. There was, however, a significant positive correlation between the total number of newts captured and both the number of capture methods used and the overall project scores for capture effort.

Pitfall trapping was the most widely employed technique and generated the largest capture totals (excluding captures of larvae). The effectiveness of pitfall trapping varied considerably depending upon whether or not the trapping operation involved the use of a fence around a breeding pond. Only bottle trapping showed a positive correlation between effort and numbers caught for both adults and larvae.

Far more adults were captured than any other life stage. Netting appeared to be the most effective technique for capturing larvae, and can be useful in capturing adult newts also, but is far more efficient when combined with some form of ‘draining-down’ operation. Although slightly more effective at capturing sub-adults, refuges appeared to be generally ineffective at capturing newts in substantial numbers. By contrast, pitfall trapping was more efficient, particularly in capturing adult newts. As with the use of fences and traps in other situations, the over-riding influence appeared to be the proximity to breeding ponds. By far the most captures were recorded within 50m of ponds and few animals were captured at distances greater than 100m.

Generally the results of the various investigations supported the details and advice presented in English Nature's *Great Crested Newt Mitigation Guidelines.* However, it was also possible to make the following further recommendations:

- Where the more suitable habitats occur in conjunction with breeding ponds, it is necessary to consider a comprehensive mitigation programme. However, it would be misleading to discount any habitats if closely associated with breeding ponds.

- The most comprehensive mitigation, in relation to avoiding disturbance, killing or injury is appropriate within 50m of a breeding pond. It will also almost always be necessary to actively capture newts 50-100m away. However, at distances greater than 100m, there should be careful consideration as to whether attempts to capture newts are necessary or the most effective option to avoid incidental mortality. At distances greater than 200-250m, capture operations will hardly ever be appropriate.

- The use of multiple capture methods has also been shown to be important, particularly (i) if attempting to catch newts away from breeding ponds, and (ii) where, for whatever reason, the early-season elements of an operation to exclude and relocate newts from a breeding pond have been less effective at keeping adult newts out of the pond, and hence some could go on to breed.

- The significantly better performance of netting as a technique when associated with draining-down operations should be considered when this approach is being proposed. In addition, the increased effectiveness and usefulness of nocturnal searching of terrestrial habitat in the zone beside drift fences, both during the first warmer, wet nights of the early season, for adults; and during similar climatic conditions from mid-August to the end of September for juveniles should also be recognised.

- It was clear from the data that consistently, sub-adult life stages were captured less effectively than the others. Unless captures over successive seasons are possible, it is necessary to attempt to capture sub-adults in terrestrial habitats away from ponds. However, the analysis of capture results shows clearly that in almost all cases catching newts at a distance from breeding ponds is labour-intensive and inefficient.

- It has also been possible to identify a clear relationship between 'effort' and capture success for bottle traps, meaning that the more traps employed the more newts will be caught. Thus, recommended trap densities could be increased to accelerate captures in key periods (for example, early in the season, to minimise successful breeding in ponds to be cleared).

- It has also been possible to identify that the efficient capture of juvenile newts relies on rather 'narrow' and potentially very important 'windows' in late summer/early autumn. In addition, because of the size and behaviour of juveniles, the details of some mitigation techniques (particularly the quality of installation of drift fences and pitfall traps) are more critical and these methods can be much less successful than for adult newts.

- The results supported the idea of not attempting to capture newts in terrestrial habitats at temperatures below 5-6^{o}C. The key finding with regard to the influence of weather

patterns was that it is seldom worth attempting to capture newts away from ponds during spells of dry weather between June and mid-August inclusive.

- Very few of the projects provided a clear test of the comprehensive 'compartmentalisation' recommended in English Nature's *Guidelines*. Whilst newts were caught in these circumstances, in most cases only small numbers were caught compared to the lengths of fencing and numbers of traps employed. In addition, assessing the amount of excavation etc., necessary to install large amounts of fencing in areas known to contain newts, raised some concerns about the possibilities of incidental mortality when mechanically installing 'compartmentalising' fencing.

- Where there were no obvious features to 'target' with fencing, capture success along fences declined sharply with distance from ponds, and captures within the 50-100m zone were generally inefficient. Captures on fences (and by other methods) at distances between 100m and 200-250m from breeding ponds tended to be so low as to raise serious doubts about the efficacy of this as an approach, although a small number of projects did report captures on significant linear features at distances of approximately 150-200m from ponds.

- It is important that mitigation design is based upon a carefully considered risk assessment, with regard to the likelihood of the development-related activities resulting in disturbance, killing or injury of newts and interference with population processes. The scale of the mitigation and the resources allocated to it also needs to take account of the likely outcomes of different mitigation options in relation to these potential impacts, the numbers of newts involved and the likelihood of success of the various mitigation options.

Contents

1. Introduction

In November 2002 Cresswell Associates were asked to undertake a study on behalf of English Nature to evaluate the efficiency of capture techniques and the value of different habitats for the great crested newt (*Triturus cristatus*). The intention was for the results to help inform the development of best practice in mitigation projects involving this species.

1.1 Background to the project

Great crested newts receive both national- and European-level protection in the UK, under the Wildlife and Countryside Act 1981 and the Conservation (Natural Habitats &c.) Regulations 1994. They require a range of habitat types throughout their life cycle, and at different times of year, for breeding, foraging and hibernating, and can use terrestrial habitats some distance from their breeding ponds. Developments can therefore have both direct and indirect impacts upon great crested newt populations, by the loss or fragmentation of any of the individual habitats on which the population, or meta-population depends, and potentially through incidental mortality.

Mitigation for developments affecting newts currently takes place under licences issued by Defra (previously, until March 2000, these licences were issued by English Nature). Guidance on the principles and methods of mitigation is given in English Nature's *Great Crested Newt Mitigation Guidelines* (hereafter referred to as (*the Guidelines).* Such mitigation can typically involve the capture and exclusion of newts and their removal to areas of restored, enhanced or created habitat. In recent years there has been a substantial increase in the numbers of such projects. Consequently, through the licence return process, a substantial amount of capture data for newts now exist.

When planning mitigation works, it is important to be able to predict what combination of methods, effort and timing will be most effective. Therefore the aims of this project were, through analysis of licence return data, to attempt to assess the effectiveness of the various mitigation measures and thus to help inform best practice in the future. In addition, given that the various projects have involved capturing newts from a variety of habitats across England, a further aim of the project was to investigate the capture results from different habitat types. It was intended that the results of these analyses would help to predict development impacts and inform trapping, and other mitigation requirements.

2. Specific objectives

The specific objectives of the study were as follows:

(a) To evaluate the efficiency of capture methods for the great crested newt, using existing data from licence returns.
(b) To use these capture data to assess the value of different habitats for the great crested newt.
(c) To make recommendations for additions and/or amendments to good practice in mitigation.

3. Literature review

3.1 Value of habitats

Predicting the value of various habitat types for great crested newts can help inform the methods, effort and timing required for specific mitigation projects. Previous studies have attempted to determine the suitability of different habitats for this species (e.g. Oldham *et al,* 2000, Franklin, 1993). However, there is a lack of information concerning the terrestrial habitat preferences of great crested newts (Oldham *et al,* 2000).

Among the habitat types thought to be preferred by great crested newts are: deciduous woodland (Latham *et al* 1996; Malmgren, 2002), particularly in the vicinity of ponds (Beebee, 1977; Beebee, 1981); shrubs, hedgerows and trees (Jehle and Arntzen, 2000); and scrub and mixed garden habitat (Oldham and Nicholson, 1986). Deciduous woodland is thought to be particularly valuable as habitat for over-wintering newts (Duff, 1989; Franklin, 1993). Dense ground vegetation cover has also been found to indicate the presence of great crested newt populations (Oldham and Nicholson, 1986).

Pasture has also been suggested as indicating the likely presence of great crested newt populations (Oldham and Nicholson, 1986). However, Oldham and Nicholson surmised that this was likely to be an artefact of pond distribution, since they found that great crested newts were not utilising the pasture land. Newts have been found to occur more frequently on land with a low intensity of agricultural use rather than on pasture and arable land (Laan and Verboom,1990; Swan and Oldham 1993, 1994). Beebee, 1980 suggests that pasture may not constitute good amphibian habitat in the absence of some secondary vegetation such as scrub or hedgerows. This is supported by the finding that the occurrence and abundance of newts within pasture is related to the presence and width of uncultivated habitat features (Oldham *et al,* 2000).

In order to inform best practice mitigation procedures, it is important to determine zones around breeding ponds where capture efforts would be best concentrated. Great crested newts display a directional bias towards the preferred habitat during migration between the breeding pond and surrounding terrestrial habitat (Franklin, 1993; Jehle and Arntzen, 2000; Malmgren, 2002). The directional preferences of adult great crested newts tend to be reliable indicators of the location of suitable terrestrial habitats (Malmgren, 2002). The least favoured direction of terrestrial dispersal has been found to be towards the habitat least likely to provide a favourable conditions: arable land (Franklin, 1993) and open areas (Jehle and Arntzen, 2000). Jehle and Arntzen (2000) found that migration in the direction of a suitable habitat type, characterized by trees and underground shelters, was favoured over migrations toward other areas. Malmgren's (2002) research revealed a preference to leave a pond where forest, as opposed to open fields, adjoin it. The data suggested that dispersal directions approach uniformity when a pond is surrounded by equally favourable forest habitat (Malmgren, 2002).

In terms of distances travelled from the breeding ponds, newts have been found at high densities in the terrestrial habitats up to 200m away from a breeding pond (Franklin, 1993). Although great crested newts have been found to move up to 1.3km between breeding ponds, a maximum migratory range has been estimated as 250m from a pond (Franklin, 1993; Oldham and Nicholson, 1986; Jehle, 2000), although one study has estimated this range to be only approximately 150m (Jehle and Arntzen, 2000).

3.2 Capture methodologies

3.2.1 Different capture techniques

Amphibian survey methodology in the U.K. is well established (e.g. Griffiths, 1985, Swan and Oldham, 1993), and various attempts have been made to produce and improve upon standardised methodologies (Griffiths *et al.* 1996). However, there is little information regarding the efficiency of these methodologies as tools for mitigation.

Bottle-trapping is generally favoured as a survey technique. In terms of the numbers captured, it has been found to be the best survey method (Griffiths *et al,*1996). It has also been suggested that it is the most efficient technique when there are few newts in a pond (Cooke 1995).

Netting has been found to be generally inefficient as a survey technique when compared to torch counts or bottle trapping (Cooke, 1995; Griffiths *et al,* 1996). However, as a mitigation tool, netting is often used in conjunction with a destructive search or a draining-down procedure, which may substantially increase its efficiency, particularly for larvae.

Several studies have included information on fencing in combination with pitfall trapping, as a method for capturing newts. Two studies in particular focussed on the perceived efficiency of capturing newts during their seasonal immigrations and emigrations from breeding ponds. During the immigration period (i.e., moving from hibernation sites to breeding ponds), the percentages of the breeding population captured were estimated as 67-100% (Kupfer and Kneitz, 2000) and 45-61% (Arntzen *et al,* 1995). Lower percentage captures were observed during emigration: 32-83% (Kupfer and Kneitz, 2000) and 34-40% (Arntzen *et al,* 1995). This lower efficiency was perhaps due to newts having circumvented the fences or hibernated within the fenced area (Kupfer and Kneitz, 2000). A suggested improvement upon the effectiveness of this technique is to place an additional line of drift fence at 90 degrees to existing drift fences (Kemp, 2001).

3.2.2 Capturing different life stages

The limited data on newt life tables suggest that in a productive population, approximately 70% of the population is comprised of non-breeding animals (Arntzen and Teunis, 1993; Halley *et al,* 1996). There are few reliable data on the efficacy with which different capture techniques and methodologies sample breeding and non-breeding animals, but the general trend is that these methodologies are either biased toward captures of breeding adults or larvae.

4. Methodology

4.1 Selection of licensing files

Following a brief initial review of the documentation, a 'two-step' approach to data analysis was adopted:

Out of the approximately 100 licensing files collated for the purpose of this project, 81 were suitable for inclusion within the first level of analysis. The remainder were deficient in one or more key items of information. In addition, a further six 'in-house' projects were included, for which relatively comprehensive capture data could be extracted from the project files. The results from one of these, a particularly large pipeline project in Kent, were subdivided into 12 separate 'cases', giving a total sample of 98 'cases' for this first level of analysis. Whilst it is acknowledged that this approach could potentially introduce an element of pseudo-replication, the mitigation works and the characteristics of the various pipeline sections (which formed the 12 'cases') were substantially different; calculating meaningful summary variables for this project was impossible without some level of sub-division; and it was important that the cases/projects were all approximately the same scale.

Together these projects provided data for a general analysis of the following variables:

- the type of capture method(s) employed;
- the habitat type(s) involved;
- the relationship between the initial survey data (if provided) and the final numbers of captured newts;
- the time of year during which the mitigation took place;
- the degree of effort employed throughout the mitigation;
- the magnitude of the impacts associated with the proposed development.

The intention of this first level of analysis was to help investigate, in particular, broad trends in the associations between great crested newts and different habitat types, and to undertake a very general assessment of the effectiveness and frequency of use of different capture methods.

A sub-set of 44 projects (55 cases) were selected for more in-depth review and analysis on the basis that they included representative samples of the variables given above, as well as providing at least some information on the following:

- the 'effort' applied for each capture method;
- the use of capture methods in different habitat types;
- the numbers of different life stages captured;
- the numbers captured using each method;
- the distance from the breeding pond at which newt mitigation occurred;
- whether information on the spatial configuration of the trapping apparatus was provided;
- whether monitoring was carried out.

In addition, a small proportion of the projects supplied details of weather conditions and ambient temperature. A large proportion of the 81 projects involved no total captures of newts. Since no newt captures would restrict opportunities for analysis, the number of files with no captures to be selected for detailed analysis was restricted to 5.

4.2 Transforming and scaling selected variables

For some of the variables it was appropriate to use raw data: for example, the areas (in m^2) of different habitat types within which mitigation works were undertaken; or the total numbers of each life stage of newts that were captured. However, for many of the variables it was necessary to devise suitable scales, and combinations of scales, by which they could be classified. For several variables it was also necessary to derive scales and categories that were based, at least to some extent, on subjective criteria. Each variable for each database is listed in Appendix I and, where appropriate, an explanation of the devised scale is provided. Similarly an explanation of the variable names is also given in Appendix I, as part of a more general Glossary of technical terms.

4.3 Data collation

Data were collated, organised and stored in a series of four databases. One contained summary data collated from the first level of analysis, with one set of data for each 'case'. Another contained summary data collated for the second level of analysis, again with one set of data for each 'case'. A third database contained capture details for each capture method used. The final database contained these capture details for each season.

4.4 Analytical techniques

4.4.1 Statistical analysis

A range of analytical techniques were used to investigate trends, patterns and relationships within the capture data, focussing on the specific objectives of the project. Details of the specific investigations, and of the various statistical tests employed are presented in Section 5.

4.4.2 Qualitative analyses

For several of the potential relationships, the sub-divided sample sizes were simply too small and the data too fragmented and variable to permit statistically robust analysis. Nevertheless, the information presented in the licence returns was potentially valuable. In these circumstances a more descriptive, qualitative approach was adopted, and particularly cogent examples are included as appropriate in Section 5.

5. Results

5.1 Key variables

A breakdown of the variables and the layout of each of the databases are presented in Appendix I. Where appropriate, the scales or categories derived for each variable are also set out.

5.2 Locations of mitigation projects

Figure 5.2.1 indicates those counties within which the 87 projects which were used in the first level of analysis were undertaken. Although this sample included a relatively large number of projects from the north-west, it also incorporated one or more representative examples from most regions.

Figure 5.2.1 Locations of the 87 cases included in the first level of analysis

Figure 5.2.2 presents equivalent information for the 44 projects included in the second level of analysis. Once again, this constituted a reasonably even spread of projects across the country.

Figure 5.2.2 Locations of 44 cases included in the second level of analysis

No significant differences were detected between mean numbers of newts captured from the different counties or from different regions (aggregations of counties), across the 98 cases included in the first level of analysis. Similarly, no significant differences could be detected between mean numbers of newts captured (based on totals of all life stages and totals excluding larvae) from the different counties or regions across the 44 more detailed cases.

5.3 Habitat associations

5.3.1 Habitat categories

Figure 5.3.1 indicates the range of habitat types defined within the various projects included in the overall sample (of 87 projects). To facilitate a more robust analysis of any habitat associations, these habitat types have been aggregated to create eight broad habitat categories, as presented in Figure 5.3.2 (how the habitat groupings were created is set out in Appendix I).

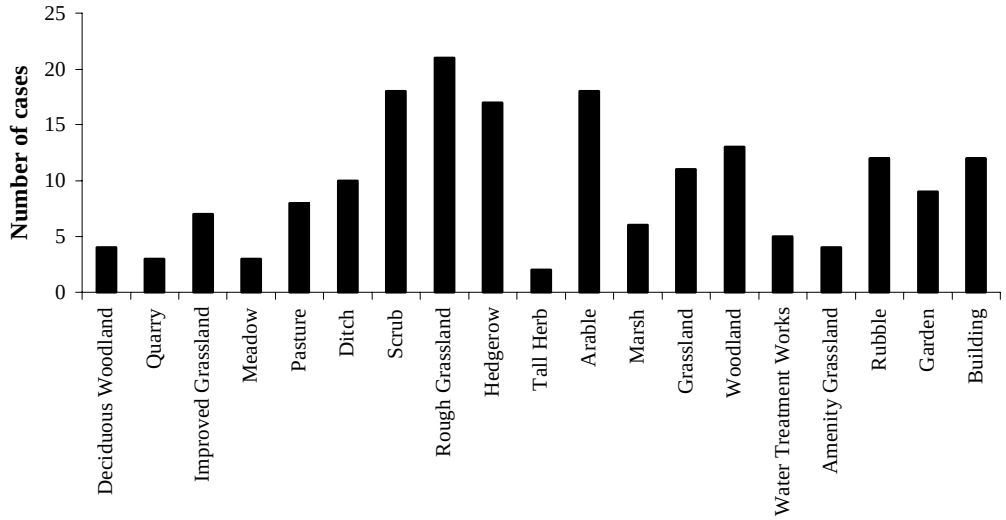


Figure 5.3.1 Habitat types recorded in each project

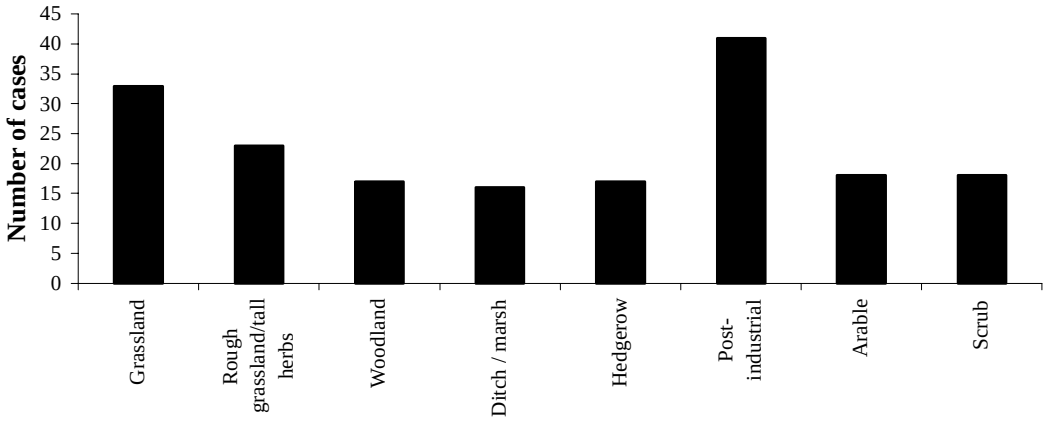


Figure 5.3.2 Habitat groupings recorded in each project

5.3.2 Analysis of habitat associations using the more general data

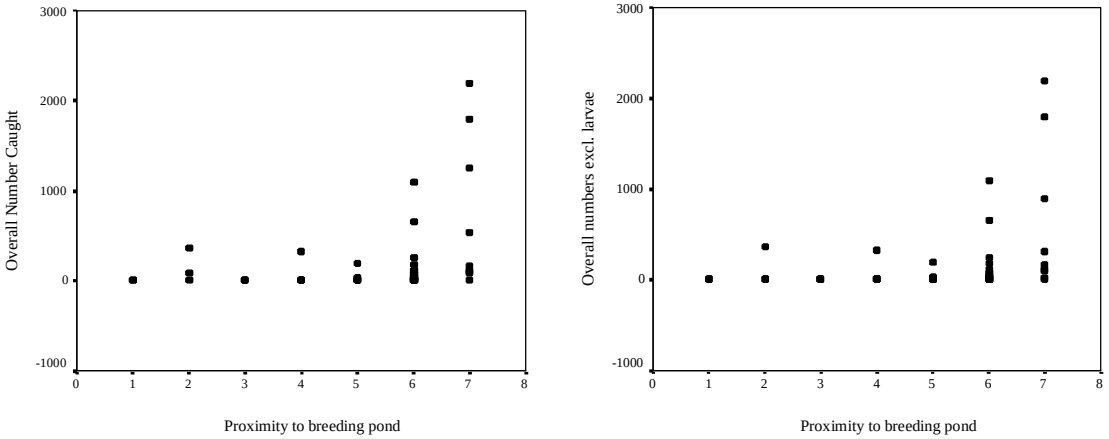
Analysis of Variance (ANOVA) was used to investigate captures from different habitats, based on the presence of one or more of the eight habitat categories in each of the 98 cases. Very few trends were discernable and there were no statistically significant differences in capture totals between different habitats. There was a weak (positive) association with the presence of hedgerows ($F = 1.68$; $p = 0.065$). That no clear relationships could be discerned on the basis of this more general analysis is not surprising: there was significant 'noise' in the capture totals (not least that, for this level of analysis, the total captures for each life stage were not identified separately, so the data may be biased by high larval captures); there was no account taken of fence/trap configuration or the season within which the captures took place; and multiple habitat categories within a single case had to be assigned the same capture totals.

Notwithstanding these limitations, this level of capture information did appear likely to reveal more if the influence of habitat categories on capture totals could be analysed in combination. These data were therefore incorporated within a multiple (stepwise) regression with capture totals as the dependent variable and the habitat categories as predictors. A combination of the presence of woodland, arable, post-industrial habitats and hedgerows (entered into the regression model in that order) produced a regression which explained a little less than 50% of the variation in capture totals ($R = 0.67$; % explained variation 44.8%; $p<0.001$) [1]. Although the presence of woodland was most strongly correlated with increasing total captures, each of the four habitat categories had a similarly important input to the model (on the basis of their beta weights). In addition, all were positively correlated with total captures. A simultaneous regression, involving all habitat variables produced a similar result ($R = 0.68$; % explained variation 45.8%; $p<0.001$).

5.3.3 Analysis of habitat associations using the more detailed information

Using capture data from the 44 projects (55 cases) it was possible to control, and sub-divide, more variables. It was also possible to generate a composite (scalar) variable by weighting the presence of a habitat category with distance from one or more breeding ponds. This was important since, as expected, a significant correlation was revealed between the total captures (of all life stages and totals excluding larvae) and proximity to breeding ponds. A seven point scale was used to categorise distance from breeding pond. This is illustrated in Figure 5.3.3 overleaf.

[1] Regression statistics: R = multiple correlation coefficient. R square was used as a measure of the percentage variation explained by the regression model. For stepwise regressions default settings for entry: F = 0.05 and removal: F = 0.1; where these were varied, revised F-to-enter and F-to-remove are quoted. ANOVA was used to determine regression significance by testing the significance of the regression mean square vs the residual mean square (p is given). In each case residuals were examined using standardised residual plots to confirm the appropriateness of the data for this form of analysis.



Scale:
1 = Breeding pond greater than 1km away
2 = Breeding pond 500-1000m away
3 = Breeding pond 200-500m away
4 = Breeding pond 50-200m away
5 = Single breeding pond less than 50m away
6 = Multiple breeding ponds less than 50m away
7 = Work within breeding pond

Spearmans Rho		**Proximity to breeding pond(s)**
Total Captures	Correlation Coefficient	0.507**
	Sig. (1-tailed)	0.000
	N	52
Overall numbers excl. larvae	Correlation Coefficient	0.522**
	Sig. (1-tailed)	0.000
	N	52

** Correlation is significant at the 0.01 level

Figure 5.3.3 Relationships between capture totals and the proximity to one or more breeding ponds

A matrix of simple, non-parametric correlations between total numbers of newts caught and totals excluding larvae, and the weighted habitat variables, indicated similar relationships as those selected during the multiple regression analysis using the more general data; a list of correlations are presented in Table 5.3.1.

Although a number of correlations were identified with the full capture data, restricting the data to only fence/trap configurations not involving breeding ponds revealed no significant correlations between habitats and capture totals.

Table 5.3.1 Correlations between the presence of different habitats weighted by their proximity to breeding ponds, and newt capture totals

		Overall number Caught	Overall numbers excl. larvae
Weighted grassland	*Correlation Coefficient*	0.125	0.144
	Sig. (1-tailed)	0.190	0.156
	N	51	51
Weighted rough grass	*Correlation Coefficient*	0.057	0.072
	Sig. (1-tailed)	0.346	0.308
	N	51	51
Weighted woodland	*Correlation Coefficient*	0.284*	0.282*
	Sig. (1-tailed)	0.022	0.023
	N	51	51
Weighted wet habitats	*Correlation Coefficient*	0.197	0.184
	Sig. (1-tailed)	0.083	0.098
	N	51	51
Weighted hedgerows	*Correlation Coefficient*	0.374**	0.374**
	Sig. (1-tailed)	0.003	0.003
	N	51	51
Weighted post-industrial	*Correlation Coefficient*	0.333**	0.275*
	Sig. (1-tailed)	0.009	0.026
	N	51	51
Weighted arable	*Correlation Coefficient*	0.358**	0.376**
	Sig. (1-tailed)	0.005	0.003
	N	51	51
Weighted scrub	*Correlation Coefficient*	0.224	0.213
	Sig. (1-tailed)	0.057	0.067
	N	51	51

* Correlation is significant at the 0.05 level
** Correlation is significant at the 0.01 level

Since it is possible, with repeated correlations, to obtain some relationships by chance, the more robust approach of multiple regression was also pursued, to investigate a number of possible associations.

Using total numbers caught as the dependent variable in a stepwise regression, a similar model was formed as for the data extracted from the first level of analysis. In this instance a model comprising: the presence of woodland weighted by distance from breeding pond(s) (weighted woodland); weighted arable; and weighted post-industrial habitats was selected. Once again, woodland was the variable most strongly correlated with increasing captures and all variables made substantial contributions to the model. In this case the regression model explained a rather greater proportion of the variation in total captures than the model derived from the general data ($R = 0.80$; % explained variation 63.8%; $p<0.001$). A simultaneous regression using all weighted habitat variables produced a similar, slightly stronger correlation ($R = 0.82$; % explained variation 67.8%; $p<0.001$).

Using total captures excluding larvae as the dependent variable produced a similar result: woodland, arable, post-industrial habitats and hedgerows (all weighted by their proximity to breeding ponds) forming the stepwise regression equation ($R = 0.80$; % explained variation 64.3%; $p<0.001$).

Looking only at fence/trap configurations not involving breeding ponds (using total captures excluding larvae as the dependent variable) some associations were identified, although these appeared to be weaker and more subtle than for the combined data. Stepwise regression added only the presence of hedgerows weighted by distance from breeding ponds to the regression model ($R = 0.49$; % explained variation 25%; $p < 0.01$) regardless of variations in F-to-enter. However, a simultaneous regression using all weighted habitat variables produced a stronger correlation ($R = 0.74$; % explained variation 55%; $p<0.01$). Hedgerow; Woodland; Post-industrial habitats; 'wet' habitats and rough grassland (all weighted by their proximity to breeding ponds) all contributed substantially to the regression.

For a relatively small number of projects, it was possible to extract measurements of the approximate areas of the different habitats involved and/or a measure of differential trapping effort within the different habitats. However, the sample sizes involved were too small and the data too variable to permit a robust analysis. The only clear trend that could be discerned was that, for trapping away from ponds, captures from woodland and, to a lesser extent, boundary features (not just hedges, but woodland/scrub edges, ditches and other habitat interfaces) were consistently greater than for other habitats and that this effect was magnified substantially with increasing proximity to ponds. The trend for increased captures from woodland habitat was clear, but too few projects were involved to permit a robust statistical analysis. With regard to habitat boundaries, captures were biased towards these locations in several projects but not in all. Variations in capture effort and fence alignment meant that this could not be tested in a quantitative manner. Both these habitat relationships became much less clear when fence configurations actually encircled a breeding pond.

5.3.4 Summary of habitat analyses

The capture data revealed relatively clear associations between numbers caught (both total captures and totals excluding larvae) and certain habitat variables. There was also a significant correlation between captures and proximity to breeding ponds, and when habitat and proximity variables were combined the relationships were much stronger.

Four habitat variables appeared regularly as predictors of newt captures: woodland, arable land, post-industrial habitats and hedgerows. The status of woodland and post-industrial habitats as predictors appeared to arise as a result of their correlation with increased capture totals across a range of projects.

Arable land as a predictor of newt numbers appeared to be selected on the basis of fewer projects, but those involving relatively large numbers of newts. In addition, proximity of breeding ponds appeared to have a greater influence on the correlations between arable habitats and newt numbers than for some of the other habitat variables. It did not appear, therefore, that newts were actively selecting arable *per se*, but that several of the projects which involved relatively large newt populations and clusters of breeding ponds were located within arable farmland. There were overall relationships between hedgerows and newt captures also and this habitat variable was most closely correlated with captures away from breeding ponds. However, the habitat relationships associated with captures away from ponds were subtle, with a range of other habitat variables also highlighted: woodland; post-industrial habitats, 'wet' habitats and rough grassland.

These relationships and their consistency or otherwise with findings in the literature, are discussed further in Section 6.1.

5.4 Capture details

5.4.1 The use of different capture techniques

Figure 5.4.1 indicates the frequency with which different capture techniques were used (across all 87 projects). Pitfall traps were the most frequently employed (in almost every case these were associated with drift and/or exclusion fencing).

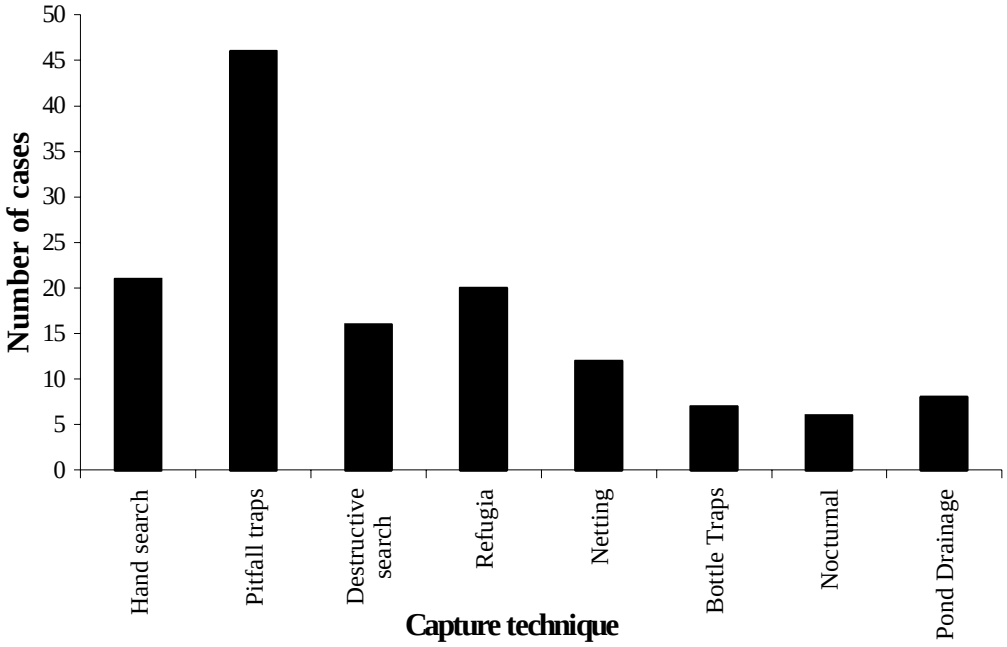


Figure 5.4.1 Use of different capture techniques

NB: These capture techniques are defined in Appendix 1

5.4.2 Effectiveness of capture methods

Table 5.4.1 indicates the overall performance of each capture method across the 55 cases for which more detailed information was collated. Histogram plots for each of the capture methods are presented in Appendix II. Clearly these data contain a significant degree of variation and have not, for the purposes of this overall analysis, been sub-divided by season etc. Nevertheless, the data illustrate some basic principles. Aside from pitfall trapping, for which there were a reasonable range of capture totals across the projects, many of the capture totals for the other methods exhibited a bi-modal distribution. In almost all cases a reason could be identified for these apparent anomalies, but this has made discerning trends in these data extremely difficult.

Table 5.4.1 Capture method performance (55 detailed information cases)

		N	Range	Median	Mean	± Std. Error
Hand Search	*Total No. of Newts excl. larvae*	19	0-48	2.0	7.16	2.61
Destructive Search	*Total No. of Newts excl. larvae*	16	0-128	3.0	16.38	8.73
Pond Drainage	*Total No. of Newts*	5	1-18	5.0	7.80	3.31
	Total No. of Newts excl. larvae	5	1-6	2.0	3.20	0.97
Netting	*Total No. of Newts*	9	0-462	42.0	95.33	49.07
	Total No. of Newts excl. larvae	9	0-164	6.0	37.00	19.89
Nocturnal	*Total No. of Newts excl. larvae*	5	0-71	5.0	17.20	13.50
Refuges	*Total No. of Newts excl. larvae*	18	0-17	0	2.94	1.43
Bottle Traps	*Total No. of Newts*	6	7-233	34.5	69.17	34.98
	Total No. of Newts excl. larvae	5	7-233	38.0	79.60	40.83
Pitfalls	*Total No. of Newts excl. larvae*	42	0-360	4.0	31.00	10.04
Pitfalls (associated with breeding ponds)	*Total No. of Newts excl. larvae*	12	0-360	29.0	70.08	28.02
Pitfalls (not associated with breeding ponds)	*Total No. of Newts excl. larvae*	30	0-135	1.0	14.70	5.99

Hand searching (during daylight): The majority of these data were obtained from pipeline projects which involved searching spoil mounds etc. These generated totals of approximately 20-50 newts. Other projects tended to involved far fewer captures.

Destructive searches: More so than for hand searching vegetation, the vast majority of projects which included destructive searching yielded few newts (less than 20) and the destructive search tended to be preceded by extended capture periods. However, one project was an exception. This involved captures of newts from within a large pile of fissured clay spoil and debris close to a breeding pond. Refuges and pitfall traps (largely without drift fences) were used during March and April and approximately 200 newts were caught during this period. Captures declined during April reportedly as a result of removals and the remaining newts' responses to increasingly warm weather (but presumably also, at least in part, as a result of their continuing seasonal migration towards the breeding ponds). A destructive search using heavy machinery was then carried out, yielding a further 128 newts, approximately 65% of the total caught prior to the destructive search, and nine known mortalities (and presumably a number of undetected dead animals).

Pond drainage: When the data were collated from the original project files, capture totals for this method were limited to 'rescues' from drained ponds. Captures using other techniques (primarily netting) used in conjunction with pond drainage were assigned to the other relevant capture methods. Thus the numbers recorded for pond drainage were always small and related largely to adult and larval newts recovered by hand from exposed sediments, the mesh screens of drainage equipment and/or moved with the drained water.

Netting: Capture totals for netting were highly variable. When not combined with a drainage procedure relatively few animals were caught, although this did seem to vary substantially

with pond size (and presumably also with the density of vegetation and the amount of submerged debris, although this was rarely noted). Intensive netting in smaller ponds did appear to generate reasonable captures, particularly of larvae. The netting operations that generated the largest captures were undertaken in combination with drainage operations and involved open, gently shelving ponds with little vegetation and few submerged structures. Some of these ponds were small, but the largest captures of adults and larvae came from larger ponds with medium/large populations, where migration into the pond had not been prevented (either at all or, at least, not effectively) by exclusion fencing.

Nocturnal searches: As with the capture data for many of the other methods, the capture totals for nocturnal searches were strongly bi-modal. The majority of projects yielded very few newts by this method. However, on a small number of occasions the numbers captured were substantially higher. In each case these coincided with extremely favourable conditions: warm, wet nights early in the year and the searches were conducted, at least in part, along drift fences, which had concentrated the animals into a particular 'zone'.

Refuges: Captures from beneath refuges were never frequent and on several projects they were totally ineffective. Refuges appeared to yield more newts when used in association with drift fencing.

Bottle traps: This method was used in relatively few projects and the capture totals obtained using bottle traps were extremely variable. The data were biased to some extent by large numbers of newts having been captured in this manner in a small number of projects. In one case 233 adult and sub-adult newts were captured in bottle traps (the number of larvae caught in this way were not included since these were recorded differently and could not be split by capture method for this project). As with netting, the largest capture totals came from ponds where migration into the pond had not been prevented effectively.

Pitfall traps: This was the most widely employed technique and generated the largest capture totals (excluding captures of larvae). The effectiveness of pitfall trapping varied considerably depending upon whether or not the trapping operation involved the use of a drift fence around a breeding pond. Where data were presented with regard to precisely where newts were captured and when, this effect was even more pronounced, with those traps positioned on exclusion fences erected prior to the seasonal migration into the ponds in early spring being many times more likely to capture newts, than traps positioned elsewhere or established later in the season.

Other methods: A small number of other 'techniques' were included in the sample projects, which occurred too infrequently to analyse formally, but are worthy of reporting:

A number of projects recorded captures of adult, sub-adult and juvenile newts from badly-compacted back-fill along drift fences and during fence removal. In most cases small numbers were involved, but in a small number of instances a combination of clay-rich 'blocky' back-fill and proximity to breeding ponds late in the year, led to large captures of juveniles in particular.

Some projects made use of vegetation management (most often grass cutting) in an attempt to increase nocturnal/hand search captures and/or to dissuade newts from using an area. Whilst it is possible that this was effective in altering the newts' behaviour in avoiding areas, no reliable data were collated to indicate any increases in capture totals or efficiency.

A small number of projects involved the transfer of egg-laden pond vegetation and/or the use of artificial egg-laying media in order to move eggs between donor and receptor ponds. Although these procedures appeared self-evidently to be successful, there were no simple measures of efficiency. In certain situations, particularly in ponds with little submerged or floating vegetation or, when the vegetation had been removed effectively, the use of artificial media certainly was shown to be effective in moving large numbers of eggs. Similarly, transferring aquatic vegetation (particularly floating mats of *Glyceria*) was also reported as being effective in moving eggs. Clearly, the timing of such operations was critical: moving the material (vegetation or artificial media) late enough for it to have accumulated significant numbers of eggs but early enough for the eggs not to have hatched.

5.4.3 The influence of capture 'effort'

In order to further examine the effectiveness of the capture methods, a score for the 'effort' applied to the various methods was calculated for each method, along with a composite variable for each project, measured in terms of the period of trapping; numbers and density of traps; intensity of trapping/searching (see Appendix I).

There was a significant positive correlation between captures (using total captures and total captures excluding larvae) and both the number of capture methods used and the overall project scores for capture effort. Details are presented in Table 5.4.2 along with the equivalent information split by trap/fence configuration. Trap/fence configuration appeared to have a significant effect. Trap/fence configurations involving breeding ponds appeared to be less sensitive to trapping effort than attempts to capture newts away from breeding ponds.

Table 5.4.2 Correlation matrix of numbers of capture methods and capture effort vs capture totals

		Overall numbers caught	**Overall numbers excl. larvae**
Number of Capture Methods	*Correlation Coefficient*	0.506**	0.500**
	Sig. (1-tailed)	0.000	0.000
	N	52	52
Number of capture methods (associated with breeding ponds)	*Correlation Coefficient*	0.057	0.007
	Sig. (1-tailed)	0.414	0.490
	N	17	17
Number of capture methods (not associated with breeding ponds)	*Correlation Coefficient*	0.511**	0.453**
	Sig. (1-tailed)	0.001	0.004
	N	34	34
Capture Effort	*Correlation Coefficient*	0.478**	0.489**
	Sig. (1-tailed)	0.000	0.000
	N	53	53
Capture Effort (associated with breeding ponds)	*Correlation Coefficient*	0.212	0.149
	Sig. (1-tailed)	0.199	0.278
	N	18	18
Capture Effort (not associated with breeding ponds)	*Correlation Coefficient*	0.498**	0.453**
	Sig. (1-tailed)	0.001	0.004
	N	34	34

* Correlation is significant at the 0.05 level ** Correlation is significant at the 0.01 level

Similar information is presented in Table 5.4.3 for each capture method. This indicates that the relationships between capture effort and numbers caught for each capture method were far less clear. A sequence of correlations of this kind needs to be interpreted with caution, since some relationships would be expected by chance; scatter plots of each of these comparisons are presented in Appendix III to help interpret the data further. Only bottle trapping showed a positive correlation between effort and numbers caught for both totals. The raw data which underpins this relationship were investigated further, along with a small number of other cases which, whilst they could not be included within this particular analysis as a result of one or more missing variables, nevertheless contained valid bottle trapping results. This indicated that the positive correlation between numbers of bottle traps, and periods of trapping and total captures was a valid relationship. The correlation between pitfall trapping effort associated with breeding ponds and capture totals is possibly also valid, but runs counter to the clear relationship illustrated in Table 5.4.2, of capture totals from operations associated with breeding ponds not being correlated with capture effort, whereas there was a relationship for operations not involving breeding ponds.

Table 5.4.3 Correlation matrix of capture effort scores for each method vs capture totals.

		Total No. of Newts	**Total No. of Newts excl. larvae**
Hand Search	*Correlation Coefficient*		0.154
	Sig. (1-tailed)		0.264
	N		19
Destructive Search	*Correlation Coefficient*		0.036
	Sig. (1-tailed)		0.447
	N		16
Pond Drainage	*Correlation Coefficient*	0.707	0.725
	Sig. (1-tailed)	0.091	0.083
	N	5	5
Netting	*Correlation Coefficient*	0.345	0.310
	Sig. (1-tailed)	0.182	0.208
	N	9	9
Nocturnal	*Correlation Coefficient*		0.775
	Sig. (1-tailed)		0.113
	N		4
Refugia	*Correlation Coefficient*		0.095
	Sig. (1-tailed)		0.353
	N		18
Bottle Traps	*Correlation Coefficient*	0.828*	0.866*
	Sig. (1-tailed)	0.021	0.029
	N	6	5
Pitfalls	*Correlation Coefficient*		0.126
	Sig. (1-tailed)		0.211
	N		43
Pitfalls (associated with breeding ponds)	*Correlation Coefficient*		0.496*
	Sig. (1-tailed)		0.043
	N		13
Pitfalls (not associated with breeding ponds)	*Correlation Coefficient*		0.14
	Sig. (1-tailed)		0.471
	N		30

* Correlation is significant at the 0.05 level

5.4.4 Effectiveness of capture methods for each life stage

Figure 5.4.2 indicates the number of projects which involved captures of one, two, three or all life stages.

It is clear from Figure 5.4.2 that the majority of the 87 projects have dealt with adult newts only (where one life stage was involved, these were always adult) and that only a small proportion involved captures of all life stages.

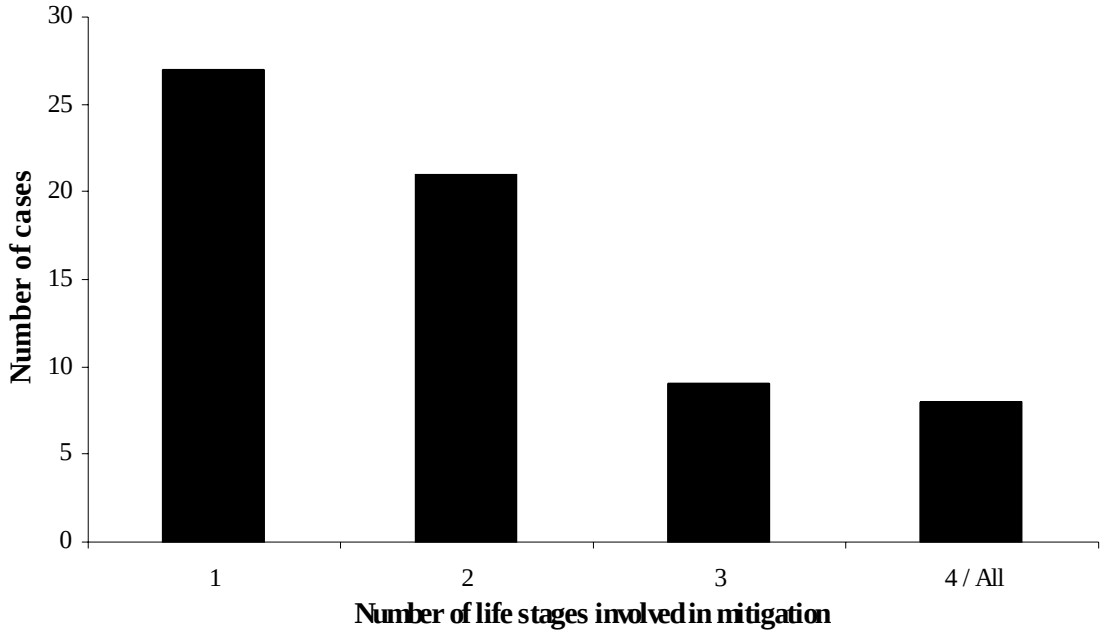


Figure 5.4.2 Numbers of projects involving different life stages

Table 5.4.4 sets out the capture totals recorded for each life stage from the 44 projects for which more detailed information was available. Clearly these data contain a significant amount of variation, but a key feature is the relatively small proportion of sub-adults captured across the majority of projects. Few projects appeared to involve captures of substantial numbers of sub-adults (although for those cases where total captures of each life stage were not recorded, the proportion of sub-adults is obviously unknown). There were two notable exceptions, where substantial numbers of sub-adults were captured:

One was a project which involved captures (using pitfalls and refuges) along a drift fence in the year following a multiple pond exclusion; the other was a pipeline project involving the removal of newts from spoil mounds to which they had access from the autumn of the previous year. Both projects (or project phases) yielded relatively large proportions of sub-adults.

Sub-adult capture totals were, however, similar across different trap configurations: as many (and in some cases more) sub-adults were caught away from breeding ponds as around them, whereas for all other life stages, far more were caught in projects which involved work around breeding ponds.

Table 5.4.4 Capture totals analysed by life stage and fence/trap configuration

Capture totals for each life stage

	N	Range	Median	Mean	± Std. Error
No. of Larvae	43	0-351	0	18.60	9.80
No. of Juveniles	43	0-376	0	14.76	10.02
No. of Sub-Adults	43	0-68	0	6.57	2.31
No. of Adults	45	0-723	4	55.69	20.81

Capture totals for each life stage (fence/trap configuration associated with breeding ponds)

	N	Range	Median	Mean	± Std. Error
No. of Larvae	12	0-351	6.0	65.08	32.24
No. of Juveniles	12	0-221	0	18.50	18.41
No. of Sub-Adults	12	0-60	0	8.92	5.27
No. of Adults	12	0-475	81.50	134.17	43.96

Captures totals for each life stage (fence/trap configuration not associated with breeding ponds)

	N	Range	Median	Mean	± Std. Error
No. of Juveniles	29	0-6†	0	0.76	0.26
No. of Sub-Adults	30	0-68	1	6.04	2.67
No. of Adults	31	0-41 †	2.0	5.55	1.62

Clearly, (as expected), far more adults have been captured than any other life stage. In addition, a comparison of mean and median figures indicates that many more adults have been captured during exclusions of breeding ponds rather than fence/trap configurations which do not involve breeding ponds. This latter sample had been biased by the inclusion of a project which involved a large number of captures (over 700) from exclusion fencing along a pipeline which ran between, and very close to, a cluster of large breeding ponds. This therefore was effectively a hybrid fence/trap configuration, and when it was removed from the analysis (shown by † on Table 5.4.4) a much clearer distinction could be made between adult captures obtained using different fencing configurations.

Juvenile capture totals were heavily influenced by a small number of projects. Where fence/trap configurations involved breeding ponds, large juvenile captures appeared to arise from those few projects which began later in the season and/or which enclosed terrestrial habitats and hibernation sites within fencing, and thus 'permitted' breeding in the ponds in question. Very few juvenile newts were captured in most projects not involving exclusions of breeding ponds. However, a small number of projects which (on the basis of key missing variables or a 'hybrid' trap configuration) were not included in Table 5.4.4, did involve the capture of larger numbers of juveniles (in some cases several hundred). This tended to be where drift fencing and pitfall traps (often excluding newts from pipeline routes or other development sites) were erected very close to breeding ponds and operated during the autumn, but where these ponds were otherwise unaffected.

Larval capture totals were extremely variable. In the vast majority of cases, high larval captures were generated when the timing of fence erection, the effectiveness of the fencing

and/or the incorporation of terrestrial habitat features within exclusion fencing, 'permitted' breeding in ponds from which newts were being relocated.

Tables 5.4.5 (a)-(e) set out the captures per unit effort for each life stage using the different capture methods. For ease of interpretation, capture methods have been included within the same sub-table where the effort estimates utilised broadly similar scales. Thus, no direct comparison is possible between the differential efficiency of capturing adults by netting and from beneath refuges, whereas a comparison between the use of refuges and pitfall traps is more valid, as is a comparison between destructive searching and hand searching during daylight. Comparisons within sub-tables are generally valid, although the data are extremely variable.

Notwithstanding the variable nature of the data, it is possible to identify some clear relationships. Bottle trapping produced variable totals but was clearly only efficient in capturing adult newts, and then only in certain situations. Netting appears to be the most effective technique for capturing larvae, and can be useful in capturing adult newts also. As identified in Section 5.4.2, these large capture totals tended to be when netting was combined with some form of pond drainage.

Although slightly more effective at capturing sub-adults, refuges appeared to be generally ineffective at capturing newts in substantial numbers. By contrast, pitfall trapping was more efficient, particularly for some projects and particularly in capturing adult newts.

Few clear trends were discernable with regard to the other techniques: the capture totals for destructive searches were biased by the inclusion of a single project (as explained in Section 5.4.2); similarly two projects to some extent biased the apparent efficiency of daylight hand searching in capturing sub-adults. Destructive searching and hand searching in daylight tended to be equally efficient (or inefficient) in capturing each terrestrial life stage.

As explained in Section 5.4.2, the few occasions that large numbers of newts were captured during nocturnal searches coincided with the use of drift fences, concentrating animals into a particular 'zone'. Thus these capture totals were biased towards adults rather than sub-adults (as were those for pitfall traps associated with breeding ponds); none of these projects happened to involve periods when juvenile newts would be available for capture.

Tables 5.4.5 (a) – (e) Captures per unit effort for each life stage by capture method

(a) Bottle Traps

	N	Range	Median	Mean	± Std. Error
Larvae	5	0-1.0	0.0	0.20	0.20
Sub-Adults	5	0-1.25	0.0	0.25	0.25
Adults	5	2.33-57.0	12.67	20.87	9.63
All Life Stages	5	2.33-57.0	12.67	20.87	9.63
All Life Stages except Larvae	5	2.33-58.25	12.67	21.12	9.86

(b) Netting

	N	Range	Median	Mean	± Std. Error
Larvae	9	0-117.00	0.25	24.85	14.38
Sub-Adults	9	0-6.0	0.0	0.70	0.66
Adults	9	0-36.67	1.5	11.42	5.06
All Life Stages	9	0-154.0	15.25	36.97	17.40
All Life Stages except Larvae	9	0-41.00	1.5	12.12	5.50

(c) Pitfalls and Refuges

	N	Range	Median	Mean	± Std. Error
Refuges					
Juveniles	17	0-0.25	0.0	0.02	0.02
Sub-Adults	17	0-3.5	0.0	0.64	0.32
Adults	17	0-1.25	0.0	0.14	0.08
All Life Stages except Larvae	18	0-4.25	0.0	0.75	0.36
Pitfalls (associated with breeding pond)					
Juveniles	10	0	0.0	0	0
Sub-Adults	10	0-5.25	0.0	1.22	0.81
Adults	10	0-120	5.63	18.18	11.52
All Life Stages except Larvae	12	0-120	8.25	21.78	9.73
Pitfalls (not associated with breeding ponds)					
Juveniles	27	0-0.67	0.0	0.06	0.03
Sub-Adults	27	0-21.75	0.0	1.13	0.81
Adults	29	0-20.67	0.0	1.72	0.84
All Life Stages except Larvae	30	0-45	0.42	4.31	1.84

(d) Destructive Search and Hand Search (daylight)

	N	Range	Median	Mean	± Std. Error
Destructive Search					
Juveniles	13	0-1.50	0.0	0.13	0.12
Sub-Adults	13	0-5.33	0.0	1.03	0.53
Adults	14	0-13.50	0.0	1.41	0.97
All Life Stages except Larvae	16	0-42.67	0.92	4.96	2.77
Hand Search					
Juveniles	17	0-1.33	0.0	0.14	0.08
Sub-Adults	18	0-11.50	0.0	1.36	0.69
Adults	18	0-8.5	0.0	1.13	0.53
All Life Stages except Larvae	18	0-12	1.0	2.14	0.73

(e) Nocturnal search

	N	Range	*Median*	*Mean*	± Std. Error
Sub-Adults	5	0-0.33	0.0	0.07	0.07
Adults	4	0-23.67	1.17	6.50	5.76
All Life Stages except Larvae	4	0-23.67	1.67	6.75	5.66

5.4.5 Captures in different seasons

Figure 5.4.3 indicates the different seasons during which mitigation works were undertaken (involving all 87 projects). The most obvious feature is that although a number of projects involved the temporary or permanent relocation of newts from breeding ponds, by no means all of these began the works sufficiently early in the year to prevent newts entering the ponds in question and going on to breed in the year during which the bulk of the relocation operations took place. Very few of the projects selected involved captures over successive years.

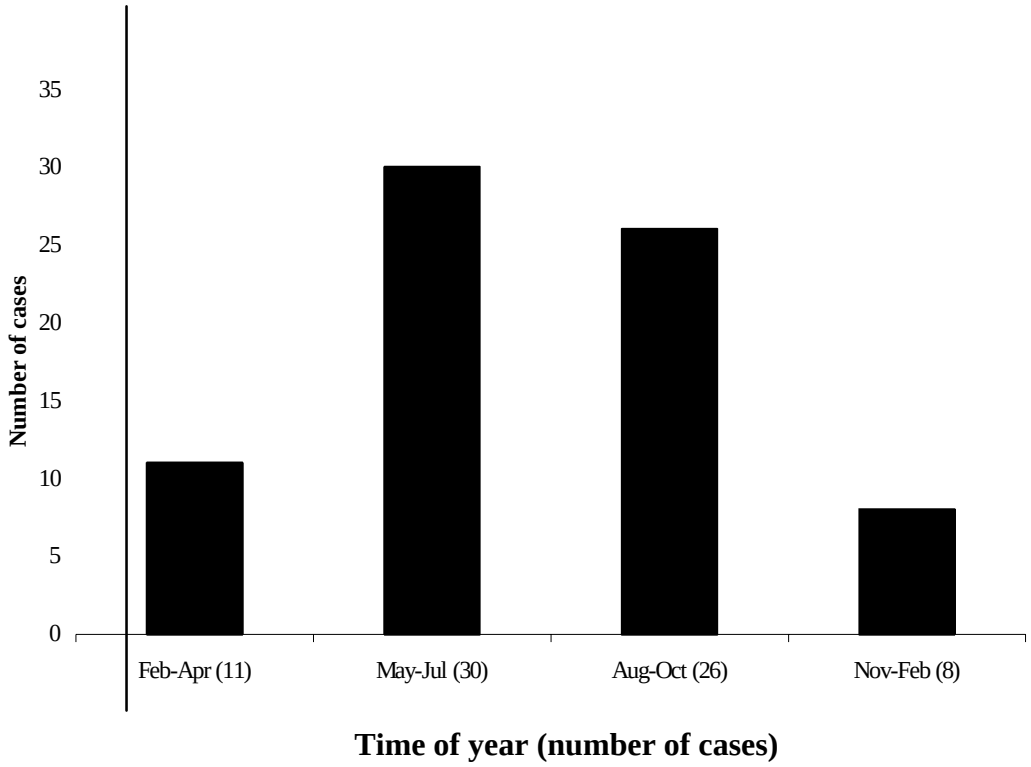


Figure 5.4.3 Time of year mitigation works were undertaken

The capture totals for the different life stages in each season (presented in Table 5.4.6) are largely as expected: very few captures of any life stage over winter; very few larvae captured outside the main breeding period; a peak of juvenile captures around emergence from the pond during the autumn; no particular difference in sub-adult captures between spring and autumn, but with a slight increase during the summer; and consistent adult captures outside the winter, with a peak in spring, coinciding with animals captured *en route* to breeding ponds.

Table 5.4.6 Capture totals for different life stages in each season

		N	Range	Median	Mean	± Std. Error
Number of Larvae	Feb-Apr	8	0	0.0	0	0.0
	May-Jul	24	0-351	0.0	18.00	14.75
	Aug-Oct	17	0-228	0.0	15.71	13.45
	Nov-Jan	6	0-15	0.0	2.67	2.47
Number of Juveniles	Feb-Apr	8	0-2	0.0	0.25	0.25
	May-Jul	24	0-6	0.0	0.63	0.30
	Aug-Oct	16	0-221	0.0	22.94	15.89
	Nov-Jan	5	0-2	0.0	0.8	0.49
Number of Sub-Adults	Feb-Apr	8	0-18	0.5	3.88	2.35
	May-Jul	24	0-68	1.0	8.83	3.40
	Aug-Oct	16	0-20	0.0	2.38	1.37
	Nov-Jan	5	0	0.0	0.0	0.0
Number of Adults	Feb-Apr	8	0-360	34.0	89.88	45.09
	May-Jul	25	0-411	2.0	25.56	16.38
	Aug-Oct	18	0-164	5.0	24.11	9.97
	Nov-Jan	6	0-9	2.5	3.33	1.26
Total Numbers excluding larvae	Feb-Apr	10	0-360	70.0	89.6	35.64
	May-Jul	28	0-453	13.0	40.54	16.50
	Aug-Oct	22	0-308	9.5	48.23	19.04
	Nov-Jan	7	0-9	5.0	4.29	1.27

Some of the small sample sizes which underpin the capture per unit effort figures presented in Table 5.4.7 mean that these data should be interpreted with caution. The only valid relationships appear to be that pitfall trapping and nocturnal searches are more productive in the spring and that (not unexpectedly) netting is more effective in spring and summer.

Table 5.4.7 Combined captures per unit effort for all life stages except larvae by method in each season

		N	Range	Median	Mean	± Std. Error
Hand Search	Feb-Apr	1	0	0	0	0
	May-Jul	13	0-12	1.75	2.53	0.94
	Aug-Oct	4	0-4.7	0.5	1.42	1.11
Destructive Search	Feb-Apr	2	0-1.3	0.63	0.63	0.63
	May-Jul	7	0-17.5	0.5	3.70	2.41
	Aug-Oct	4	0-4.0	0.88	1.44	0.95
	Nov-Jan	2	0-1.5	0.75	0.75	0.75
Netting	Feb-Apr	2	4-21.5	12.75	12.75	8.75
	May-Jul	3	1.5-33	19.5	18.00	9.13
	Aug-Oct	3	0-1.3	0.25	0.53	0.41
	Nov-Jan	2	0	0	0	0
Nocturnal	Feb-Apr	2	1.3-23.7	12.5	12.50	11.17
	May-Jul	3	0-1.0	0.33	0.44	0.29
	Aug-Oct	1	0	0	0	0
Pitfalls	Feb-Apr	8	0-120.00	3.79	19.31	14.53
	May-Jul	22	0-16.5	0.25	1.44	3.54
	Aug-Oct	17	0-28.0	0.63	6.15	2.66
	Nov-Jan	3	0.3-3.0	1.67	1.64	0.79
Refugia	Feb-Apr	2	0-1.8	0.88	0.88	0.88

		N	Range	Median	Mean	± Std. Error
	May-Jul	12	0-4.3	0.17	0.95	0.45
	Aug-Oct	5	0-0.3	0.0	0.05	0.05
Bottle Traps	Feb-Apr	2	6.3-15	10.63	10.63	4.38
	May-Jul	4	2.3-52	8.67	17.92	11.46
Pond Drainage	May-Jul	4	0.3-1.7	0.93	0.97	0.29
	Nov-Jan	1	0.7	0.67	0.67	0.67

5.4.6 The influence of weather conditions on capture success

Few projects recorded details of nocturnal temperatures or other weather conditions, and where these data were recorded, the recording methodologies and/or descriptions of weather conditions were rarely directly comparable. As a result no statistical analysis was possible. Only the most basic trends and relationships could be discerned from the weather data:

a. Very few newts were captured at temperatures below 6°C. Above that temperature no clear relationships could be discerned.

b. Very few newts were captured in terrestrial habitats during extended periods of dry weather in June, July and the first half of August.

c. The largest captures of adult newts tended to be on wet nights during March; the largest captures of juvenile newts on wet nights in late August and early September.

5.4.7 The influence of different fencing and trapping configurations

In order to maintain reasonable sample sizes, for the purposes of each of the preceding analyses the original fence configuration categories that were assigned to each project were combined to form a composite variable. This variable identified (i) projects which involved some element of captures from around breeding ponds and (ii) those which did not. Those projects for which fence/trap configuration was unclear were coded as missing values. The influences of this most basic variation in fencing and trapping configuration have been highlighted as appropriate in the preceding analyses. However, whilst the following data were not suitable for a robust, statistical analysis, detailed investigations of trapping returns from particular fence arrangements where the locations of captures were also recorded, did yield some valuable information:

(a) The effectiveness of drift fencing located at a distance from breeding ponds in capturing newts as part of a relocation operation.

A number of projects made use of drift fencing away from breeding ponds, both as a means of trapping and removing newts from prescribed areas and as an adjunct to a relocation operation involving breeding ponds. In the majority of cases no more than small numbers of newts were captured on drift fences in any of these situations.

There was a clear inverse relationship between distance from the breeding pond and captures along drift fences, for those projects which used drift fencing away from ponds as part of an exclusion and relocation project. Captures were greatest within 50m of a pond and few captures were recorded greater than 100m from a pond (although for some projects the proximity of the works to breeding ponds was not identified). Although the numbers of newts captured still appeared to be dependent

upon distance from breeding ponds, there also appeared to be a relationship between the number and length of drift fence 'panels' and their degree of 'overlap' or the density of compartmentalisation, and the capture totals. None of these projects caught large numbers of newts per unit effort. However, each of the projects with higher capture totals utilised substantial lengths of drift fencing, in some cases arranged in lengths which 'overlapped'. Appendix IV presents selected examples of different fence arrangements and capture locations. Very few of the projects fully 'compartmentalised' exclusion areas as described in *the Guidelines*.

A small number projects recorded some captures on drift fences across linear features at distances up to 150-200m from breeding ponds.

(b) The effectiveness of drift fencing and traps in excluding newts from prescribed areas.

A number of the projects used drift fencing (usually accompanied by pitfall traps) to exclude newts from particular areas or features. Variations in the extents and configurations of this fencing and the numbers and locations of pitfall traps made direct comparisons difficult, but there were certain principles which held true for most projects. As with the use of drift fences and traps in other situations, the over-riding influence appeared to be the proximity to breeding ponds. Once again, by far the most captures were recorded within 50m of ponds and few animals were captured at distances greater than 100m. In addition, most of the other factors which have been shown to influence capture totals, for example low captures during mid-summer, appeared to have even greater effects on trap success in these situations. An example of the distribution of captures along a drift fence used to exclude newts from a pipeline development is presented in Appendix IV, which illustrates some of these principles.

5.4.8 The relationship between population estimates and capture totals

Some of the 44 projects subject to more detailed analysis calculated population size class estimates from their initial survey data (as set out in *the Guidelines*) and others came up with numerical estimates. In some cases there were attempts to base these numerical estimates on population capture models, however in the majority a relatively basic estimate of the likely proportion seen or captured was used as a conversion factor. Some projects simply presented initial survey results without further analysis. Figure 5.4.4 presents the numbers of projects which dealt with small, medium or large populations respectively. Where no size class was quoted, these size class estimates were derived from an analysis of whatever pre-mitigation survey data were available. Figure 5.5.5 presents the range of numerical population estimates produced by the different projects.

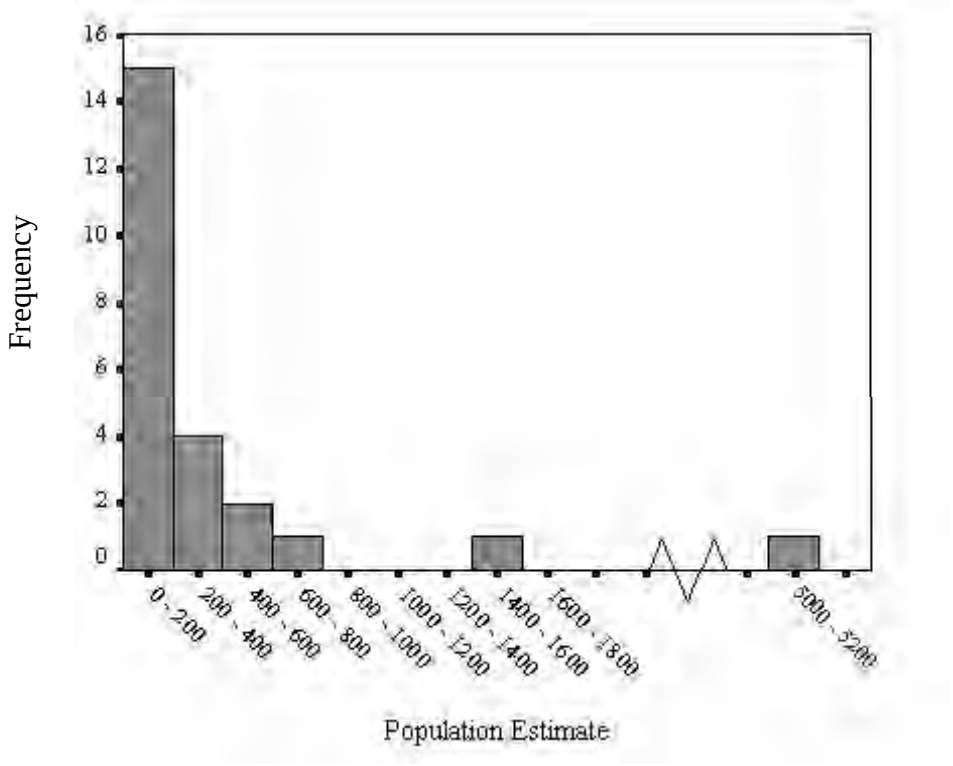


Figure 5.4.4 Numerical population estimates quoted

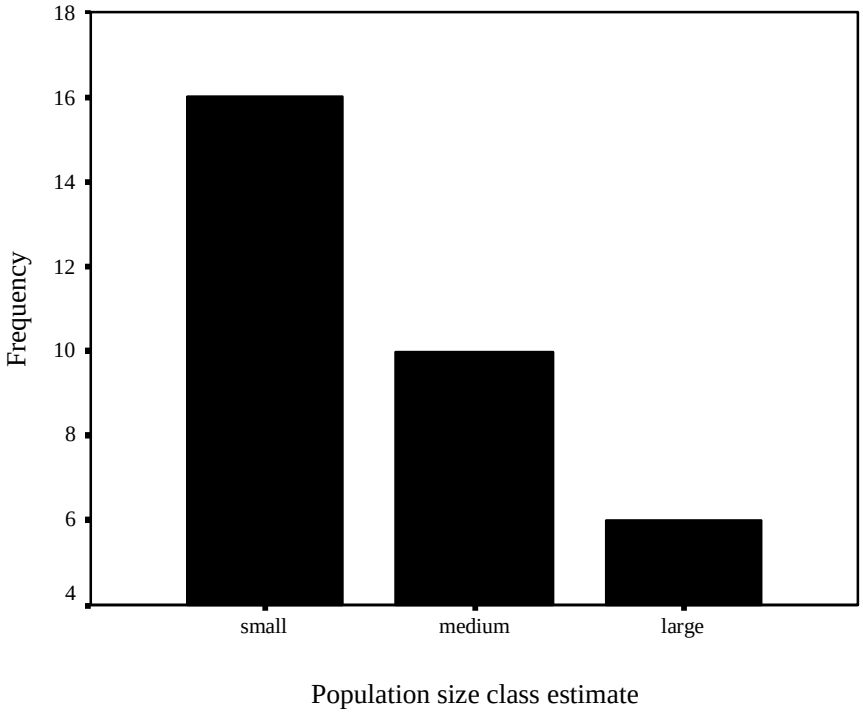


Figure 5.4.5 Population size class estimates derived for the 44 projects involved in the more detailed analysis

Significant positive correlations were found between population size class estimates and capture totals across all projects and for all of those involving breeding ponds (details are presented in Table 5.4.8). No relationship was found for those projects not involving breeding ponds.

The relationship between capture totals and numerical estimates was similar, but less clear with regard to fencing/trap configurations associated with breeding ponds.

Table 5.4.8 Correlation matrix of population size classes + estimates vs total captures and total captures excluding larvae

		Population Size Class Estimate	**Population Estimate**
All Fencing/Trap Configurations			
All Life Stages	*Correlation Coefficient*	0.483**	0.583**
	Sig. (1-tailed)	0.003	0.001
	N	31	24
All Life Stages excluding larvae	*Correlation Coefficient*	0.478**	0.608**
	Sig. (1-tailed)	0.003	0.004
	N	31	24
Fencing/Trap Configurations associated with breeding ponds			
All Life Stages	*Correlation Coefficient*	0.643*	0.460
	Sig. (1-tailed)	0.012	0.066
	N	12	12
All Life Stages excluding larvae	*Correlation Coefficient*	0.616*	0.573*
	Sig. (1-tailed)	0.017	0.036
	N	12	12
Fencing/Trap Configurations <u>not</u> associated with breeding ponds			
All Life Stages excluding larvae	*Correlation Coefficient*	0.315	0.493
	Sig. (1-tailed)	0.101	0.062
	N	18	11

* Correlation is significant at the 0.05 level
** Correlation is significant at the 0.01 level

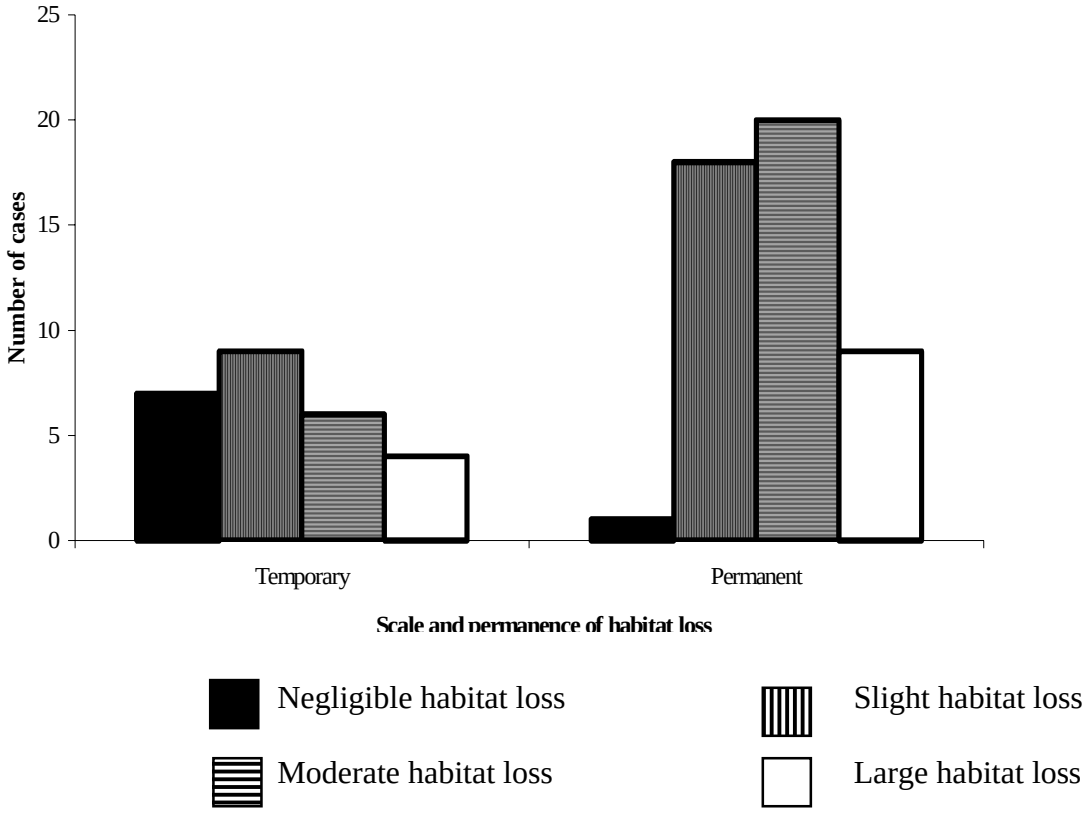


Figure 5.4.6 Scale and permanence of habitat losses

5.4.9 The relationship between impact and capture effort

Figure 5.4.6 presents the scale and permanence of habitat losses for each of the 87 projects which recorded appropriate details. These data were then combined to create a variable representing the overall impact involved in each of the projects for which more detailed information was available. The relationship between impact and the overall capture effort score for each project was compared using a simple non-parametric correlation, and no significant relationship was revealed. A measure of impact significance was also obtained by creating a combined variable of impact scale and population size class. However, there was also no correlation between this new variable and capture effort. This indicates that, in some cases at least, inappropriate levels of capture effort had been applied, with regard to the scale of the likely impact on newts.

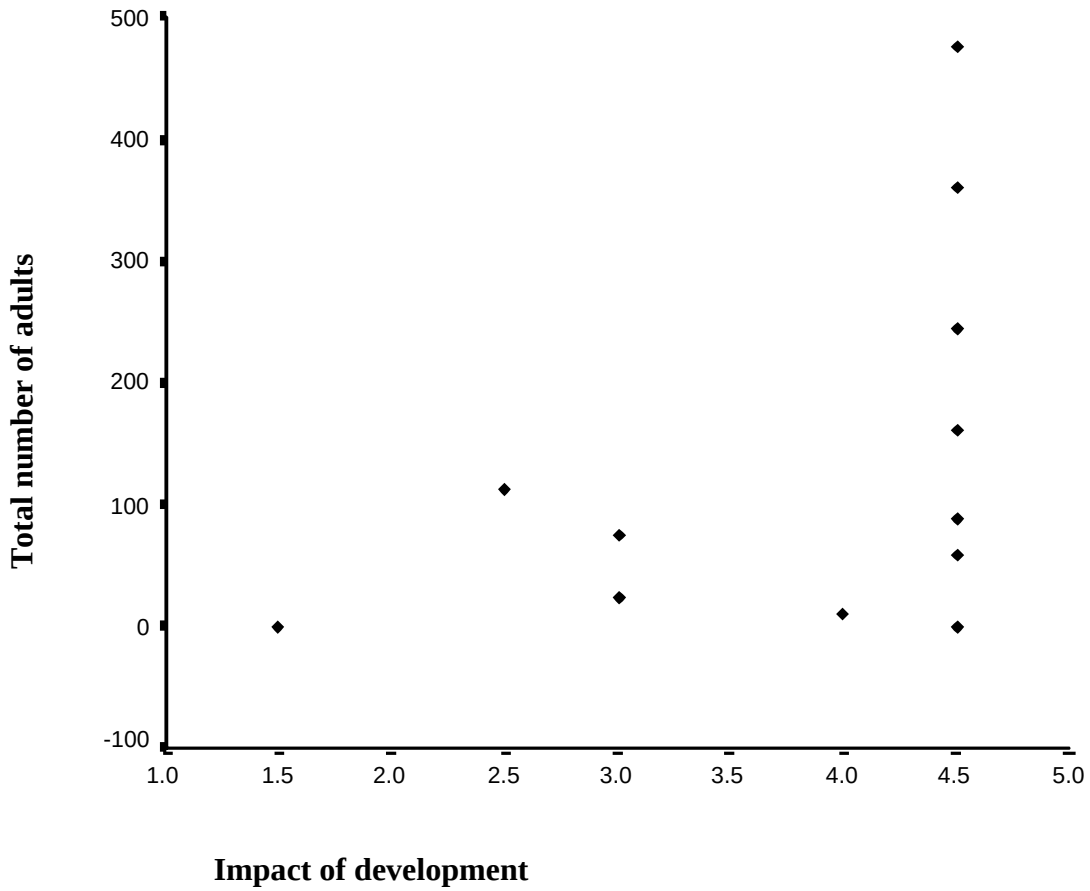


Figure 5.4.7 The relationship between impact of development and total number of adults caught

5.4.10 The relationship between impact of development and adult capture totals

The scatter plot in figure 5.4.7 presents the relationship between the impact of development and adult capture totals. There appeared to be a positive trend between total numbers of adults caught and impact of development, although this relationship was found not to be statistically significant. A significant relationship was revealed when numbers caught at all life stages were correlated with impact of development, however the high numbers of larval captures associated with several of their larger-scale developments appeared likely to have biased this result.

6. Discussion and recommendations

6.1 Can habitat type be used to predict newt density and distribution, and appropriate mitigation effort?

Although it has been possible to account for a substantial proportion of the variation in numbers of newts captured by deriving regression equations using selected habitat variables, the apparent relationships revealed by these analyses are subtle and cannot be converted into simple recommendations with regard to the scope and scale of mitigation in different habitats. Clearly, where the selected habitats (woodland, hedgerows, post-industrial habitats and, in some cases, arable land) occur in conjunction with breeding ponds, it is necessary to consider a comprehensive mitigation programme. However, it would be misleading to use these findings as a reason to undertake less comprehensive mitigation in other habitats, particularly if associated with breeding ponds.

The selection of woodland and hedgerow habitats as predictors of newt numbers is generally consistent with the literature. (Beebee, 1977; Beebee, 1981; Latham *et al*, 1996; Malmgren, 2002). The finding that the presence of arable land was positively correlated with total great crested newt captures was somewhat surprising, since it is well reported in the literature that it represents poor terrestrial habitat for newts (Laan and Verboom,1990; Swan and Oldham 1993, 1994). This is likely to have been, to some extent, an artefact of the selection process: licensed operations are only likely to be taking place in situations where newts have been found or predicted to occur, so if the majority of the habitat involved in some of the projects is arable farmland, this represents, to some degree, a self-selected sample. In addition, those projects which contributed most to the perceived relationship between capture totals and arable land were associated within a high pond density. This strengthens the metapopulation structure and reduces the chance of long-term declines and local extinctions, otherwise likely to occur within a sub-optimal habitat (Froglife, 2001). Thus, whilst the results do not necessarily indicate the active selection of arable habitats by newts, they do indicate that arable farmland with a high density of ponds can support substantial great crested newt populations.

It should also be considered that there are opportunities for great crested newts within the arable landscape. Hedges and ditches have been shown to be significant positive determinants of great crested newt occurrence in arable habitats, since they increase habitat diversity and provide stable refugia in a landscape prone to massive change (Swan and Oldham, 1994). In addition, certain points during the arable rotation, such as set-aside and post-cropping habitats, may also increase the structural diversity of the vegetation and substrate, and constitute a valuable intermittent habitat. The occurrence and abundance of newts within pasture has been found to be related to the presence and width of uncultivated sectors (Oldham *et al*, 2000). Some of these habitat features are also likely to have been present within the arable land which formed part of the current analysis.

More research on newt habitat associations is required in order to investigate a more useful means of predicting newt density and distribution on the basis of habitat variables.

A strong relationship was demonstrated between the proximity of breeding ponds, and capture totals and capture efficiency, throughout the analyses. In contract to the effects of habitat, it is possible to give definitive advice with regard to trapping effort in different

distance ‘zones’ away from breeding ponds. The most comprehensive mitigation, in relation to avoiding disturbance, killing or injury is appropriate within approximately 50m of a breeding pond. It will also almost always be necessary actively to capture newts 50-100m away. However, at distances greater than 100m, there should be careful consideration as to whether attempts to capture newts are necessary or the most effective option to avoid incidental mortality (this is dealt with in more detail along with related considerations below). At distances greater than 200-250m, capture operations with hardly ever be appropriate.

These recommendations are also broadly consistent with findings in the literature, since although a maximum routine migratory range has been estimated as approximately 250m from a breeding pond (Franklin, 1993; Oldham and Nicholson, 1986; Jehle, 2000), Jehle (2000) determined a terrestrial zone of 63m, within which 95% of summer refuges were located. In addition, following the breeding season, (Jehle and Arntzen, 2000) recorded 64% of newts within 20m of the pond edge.

6.2 What are the most effective capture methods?

In general, the results of the various analyses support the recommendations presented in *the Guidelines*. For projects involving the exclusion and relocation of newts from breeding ponds, pitfall traps set on an encircling drift fence are clearly the most important element. The results suggest that the critical features are establishing the fencing sufficiently early and installing the fencing sufficiently well to be effective in preventing as many adult newts as possible returning to the water. The use of multiple capture methods has also been shown to be important, particularly (i) if attempting to catch newts away from breeding ponds, and (ii) where, for whatever reason, the early-season elements of an operation to exclude and relocate newts from a breeding pond have been less effective at keeping adult newts out of the pond.

A small number of other, minor, modifications to *the Guidelines* may also be appropriate: It would be helpful to stress the significantly better performance of netting as a technique when associated with draining-down operations. It may also be helpful to recognise the increased effectiveness and usefulness of nocturnal searching of terrestrial habitat in the zone beside drift fences, both during the first warmer, wet nights of the season (primarily during March), for adults; and during similar climatic conditions from mid-August to the end of September for juveniles.

6.3 Capturing differing life stages

It was clear from the data that, consistently, sub-adult life stages were captured less effectively than the others. The main reason appeared to be that few mitigation projects took place over successive seasons, and none appeared to have taken place over the three-year period recommended in *the Guidelines.*

This means that under these circumstances it is necessary to attempt to capture sub-adults in terrestrial habitats away from ponds, and the analysis of capture results shows clearly that in almost all cases catching newts at a distance from breeding ponds is labour-intensive and inefficient. The inability to capture non-breeding newts, which constitute a significant proportion of the population, probably represents the single most important limitation on most mitigation projects.

The inefficiency of capturing non-breeding individuals some distance from the pond is partially attributable to inadequacies in the terrestrial capture methods for this life stage. There have been suggestions that sub-adult newts are more capable of climbing out of pitfall traps (Kemp, 2001). In addition, with increasing distance from breeding ponds the issues of scale in relation to lengths of drift fencing and numbers of pitfall traps required, along with the problems of low trap returns per unit effort, multiply to the extent that these techniques become less practicable to employ. A substantial degree of effort is also required to capture significant numbers of sub-adult newts away from breeding ponds using artificial refugia. As an approach to reptile translocation this technique is labour-intensive and can be very time consuming. Since non-breeding newts away from ponds are often likely to be present at much lower densities than reptiles and, as non-heliotherms, are less attracted to such refugia, this technique is a very inefficient.

One way of improving sub-adult captures, if captures on a drift fence around a breeding pond is not possible in the following spring (because, for example, it has been destroyed to permit development), is to install some form of drift fence on the development boundary in the direction of nearby suitable terrestrial habitat and hibernation features, and operate pitfall traps during the most critical periods in an attempt to catch newts returning in the direction of the old ponds in subsequent years.

In addition, a suggested design modification to pitfall traps to prevent sub-adult and juvenile newts from escaping is to cut out the centre of the lids to form a 10mm overhang (Kemp, 2001).

It would also be appropriate to investigate the possibility of designing passive multiple live capture 'traps' for newts, which can be used in terrestrial habitats (possibly used in conjunction with drift fences or channels) and which can be checked less frequently than pitfalls, offering the opportunity for cumulative captures.

One of the reasons underlying the inability to capture non-breeding newts appears to be the need to complete capture operations in shorter time periods. This is often as a result of the need to have a detailed planning consent in place prior to undertaking mitigation. Thus the poor performance of projects in capturing non-breeding newts is likely to have worsened considerably as a result of the changes in responsibility for licensing which took place in 2000, moving the responsibilities for licensing development activities from English Nature (originally for 'conservation purposes'), to Defra ('for imperative reasons of overriding public interest').

Prior to 2000 it was possible, for those development projects that were clearly going to proceed, to begin capture and relocation operations as advance works, prior to the granting of detailed planning consent. In this way projects had a chance of approaching English Nature's best practice guidance that such relocation operations should take place over successive seasons (ideally three breeding periods). However, in practice, and for most housing developments in particular, a detailed consent is rarely granted any more than weeks (even days) in advance of the commencement of site clearance, and thus the need to delay licence application and mitigation works until this is received, tends unavoidably to compress the time available for mitigation. It is often the efficacy of the mitigation operations which has suffered, particularly the ability to capture the non-breeding element of the population. It is possible that any subsequent transfer of responsibilities for determining derogations from Council Directive 92/42/EEC to, for example, Local Planning Authorities, may improve the

situation, but only if any licensing procedures could incorporate more time for advance mitigation.

Other issues were also identified which would usefully inform future mitigation design (and which could be incorporated within *the Guidelines*):

It has been possible clearly to identify netting as the most efficient means of capturing larval newts, particularly when associated with draining-down operations.

It has also been possible to identify a clear relationship between 'effort' and capture success for bottle traps, meaning that the more traps employed the more newts will be caught. Thus, recommended trap densities could be increased to accelerate captures in key periods (for example, early in the season, to minimise successful breeding in ponds to be cleared).

It might also be helpful to include reference to the use of artificial egg-laying media as an adjunct to relocation operations.

It has also been possible to identify that the efficient capture of juvenile newts relies on rather 'narrow' and potentially very important 'windows' in late summer/early autumn. In addition, because of the size and behaviour of juveniles, the details of some mitigation techniques (particularly the quality of installation of drift fences and pitfall traps) are more critical and these methods can be much less successful than for adult newts. It is likely that other measures, for example, the careful re-excavation and supervised removal of fencing, or very labour-intensive 'bursts' of trapping and nocturnal hand searching during wet conditions, would need to be undertaken to 'back-up' the more routine techniques.

6.4 Additional effects of weather and season

Generally the results of the various investigations supported the details and advice presented in *the Guidelines.* In particular, the results support not attempting to capture newts in terrestrial habitats at temperatures below 5-6^{o}C.

The key finding with regard to the influence of weather patterns, is that it is seldom worth attempting to capture newts away from ponds during spells of dry weather between June and mid-August inclusive.

6.5 Fencing and trapping configurations

Clearly, when dealing with the relocation of newts from breeding ponds, the vast majority of captures come along encircling drift fences. To capture newts effectively at distances up to 100m from a pond requires significant lengths of drift fencing with pitfall traps, laid out to create sequential barriers for newts to negotiate. There were also some indications that for long lengths of drift fencing, including those around breeding ponds, trapping efficiency was increased by the addition of short lengths of fencing, with pitfalls, at 90 ^{o} to the main fence. There were also some tentative indications that orientating 'panels' of drift fencing at 90^{o} to potentially important habitat features, which might represent 'movement corridors' increased the effectiveness of the fences, when installed some distance away from breeding ponds.

Very few of the projects provided a clear test of the comprehensive 'compartmentalisation' recommended in *the Guidelines*. Whilst newts were caught in these circumstances,

including, in one case, a large proportion of sub-adults, and in another, relatively large numbers of sub-adults or juveniles, overall small numbers were caught compared to the lengths of fencing and numbers of traps employed. In addition, the risk of incidental mortality associated with installing relatively dense fencing compartments within terrestrial habitat also needs to be considered when evaluating this method as an effective capture technique.

Where there were no obvious features to 'target' with fencing, capture success along drift fences declined sharply with distance from ponds and captures within the 50-100m zone were generally inefficient.

Captures on fences (and by other methods) at distances between 100m and 200-250m from breeding ponds tended to be so low as to raise serious doubts about the efficacy of this as an approach, although a small number of projects did report captures on significant linear features at distances of approximately 150-200m from ponds.

6.6 The relationships between capture effort, mitigation success, impact magnitude and population status

On the basis of the projects included in this investigation, it appears that there have, in the past, been imbalances between the extent of mitigation (particularly in relation to capture effort), and the magnitude of impact and the status of the newt population concerned.

It is important that mitigation design is based upon a carefully considered risk assessment, with regard to the likelihood of the development-related activities resulting in disturbance, killing or injury of newts and interference with population processes; for example reducing breeding success, or impeding seasonal mitigation. The scale of the mitigation and the resources allocated to it also needs to take account of the likely outcomes of different mitigation options in relation to these potential impacts, the numbers of newts involved and the likelihood of success of the various mitigation options.

Based on comprehensive, high quality surveys and a sound impact assessment, certain aspects of any mitigation method statement need to be 'fixed'; for example the number of breeding sites that would be affected and the amounts of different types of terrestrial habitats (and key habitat features) that would be lost. The overall design needs to be founded on the principles and details set out in *the Guidelines* and could also usefully be informed by the relevant findings in this study.

However, any risk assessment also needs to be an iterative process, continually reviewed and re-modelled on the basis of the emerging capture results. To limit the need for repeated requests for licence amendments, a flexible approach may therefore have to be incorporated within licence application method statements, with regard to capture methods and intensity, dependent upon emerging capture results. Notwithstanding this need for an iterative approach to some aspects of the capture operations, it should be noted that in the sample of licensed operations reviewed in this study, those with more robust and comprehensive pre-mitigation surveys required fewer licence amendments or changes to be made during the mitigation period.

Some examples of important elements that should be included in a risk assessment/mitigation design are given below:

(a) **Exclusions and relocations from breeding ponds**

For exclusions and relocations of newts from breeding ponds, the most critical element is to install an encircling drift fence early in the season, to a high standard, and as close to the pond as possible. It is then an advantage to focus extra capture effort (in addition to routine pitfall trapping) on key 'windows' to take advantage of favourable weather conditions in the early stages.

If it is obvious that adult newts remain within (or have penetrated) the fence in anything more than very low numbers, it is necessary to react quickly, adopting multiple additional capture methods, with the aim of capturing most adults before they have bred and moving most eggs before they have hatched. It is then necessary to plan carefully an additional bottle-trapping and netting programme, in concert with a draining-down exercise.

It is also necessary to make a reasonable attempt to capture the non-breeding elements of the population. Ideally this should take place over subsequent years, taking advantage of seasonal migrations. It is rarely feasible to rely just upon a single 'bout' of drift fencing and pitfall trapping away from the pond during the summer to achieve this.

(b) **Clearance of prescribed areas**

For clearing newts from areas of terrestrial habitat away from breeding ponds, the proximity to the breeding pond is key:

Within a zone up to approximately 100m from the pond, the following measures can be effective in capturing newts: comprehensive drift fencing and pitfall trapping, involving substantial lengths and using layouts which create a series of overlapping barriers across features most likely to be used as movement corridors, combined with a 'compartmentalising' approach. However, in all cases, and particularly when only small areas of suitable habitat are involved, care needs to be taken to avoid the incidental mortality of newts during fence installation: it is important not to destroy substantial amounts of the valuable habitat concerned by installing the fences themselves. Because of the likely reductions in capture efficiency pitfall trapping should be suspended during periods of dry summer weather. This approach should be combined with the use of as many other measures as possible, but only when these are 'targeted' to take advantage of particularly weather and seasonal 'windows'.

At distances between 100 and 200-250m from breeding ponds careful consideration should be given to whether attempts to capture newts are appropriate. This will depend upon the magnitude, type and duration of impacts, what habitat types and features would be affected, the proportions of habitats within this 'zone' which would be affected and, crucially, the timing of the development activities. If the habitats within the zone are largely homogenous and there is no way of 'targeting' capture effort, a comprehensive attempt to capture newts throughout this zone is rarely likely to be feasible or cost effective. However, targeting particular habitat features may be worthwhile, using similar capture protocols as described for the within 100m zone.

Existing information on habitat preferences (reviewed in Section 3) and the results of this study could be used to help design such targeted capture measures. However, it is important

to highlight that more information is urgently required on resource utilisation and selection, how great crested newts move within different habitat types, and their use of different habitat features in the UK, in order to improve this element of mitigation design.

(c) **Exclusions from prescribed areas**

For exclusions from, for example, a pipeline development, the example guidance presented in Example 4 in *the Guidelines* was generally supported by the results from this investigation. However, it would rarely be appropriate to extend exclusion fencing for greater than 100m to either side of a breeding pond, and then only if the pond itself is within 100m of the route. It is also appropriate to critically evaluate the need for, or cost effectiveness of, pitfall trapping, (i) to make shorter lengths of fencing effective, and (ii) to help reduce the effects of fragmentation. It would certainly be appropriate to move adults across the pipeline toward ponds in the early spring (however most pipelines will not be established during this period). It will often be less appropriate (or necessary) to relocate adults and juveniles across the pipeline away from ponds in the summer and autumn. It is also necessary to critically evaluate the need for exclusion fencing at all. Fencing is almost certainly necessary in the proximity of breeding ponds pre- mid-April and post- mid-August, but many pipelines are completed between these dates. Unless the works have to take place very close to the ponds, in some cases it may be possible to avoid fencing, given careful consideration of the likelihood, in practice, of incidental mortality.

For each of these elements it is helpful, when undertaking the detailed mitigation design, to 'de-couple' the aims of maintaining or enhancing the favourable conservation status of the local population, through mitigating losses of habitat and breeding sites; from measures to avoid the incidental mortality of individual newts. Assessments of the importance and likely success of such measures and the amount of resources allocated to each, referring back to the risk assessment, can then be made objectively.

7. Acknowledgements

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Appendix I. Variable name definitions and glossary of technical terms

Variable names	
Capture techniques:	
Drift fence	An amphibian-proof fence, generally an upright barrier formed by some form of plastic membrane or similar, used to exclude/deflect/guide newts moving within terrestrial habitats. Often used as a capture technique in conjunction with pitfall traps.
Pitfall trap	A sunken plastic bucket or similar into which newts tend to fall and from which they cannot easily escape. With damp cover material, drainage holes to prevent flooding, means for small mammals to escape and, in some circumstances a partial lid to increase capture efficiency.
Destructive/hand search	A method by which the first stages of site clearance proceed with care, under close supervision by suitably experienced ecologists. This can involve the demolition/excavation of structures and substrates by hand alone or in combination with a mechanical excavator or similar. The intention is, wherever possible, to identify and capture newts unharmed during this process. It usually takes place as the final stage in a capture and relocation process, in order to safely 'rescue' any remaining animals, once captures fall (reliably) to zero.
Netting	The careful use of hand-held pond nets or, in some cases static nets, to capture adult newts and larvae from standing water and the surface layers of pond sediment. This technique is far more efficiently employed in parallel with pond drainage. As with destructive searching, this is often undertaken as part of the latter stages of a capture and relocation operation, having been preceded by bottle trapping and terrestrial capture methods.
Funnel traps/bottle traps	Underwater traps usually constructed from 2 litre plastic bottles which adult newts and larvae enter but find difficulty in escaping from.
Nocturnal searches	A technique of torchlight searching of terrestrial habitat features and the hand investigation of vegetation and natural refuges during the night. This is a generally inefficient technique but under certain weather conditions can be helpful, particularly if focussed along drift fences.
Grass cutting/other vegetation manipulation	Simply the careful removal of vegetation to facilitate finding newts or increasing the effectiveness of artificial refuges.
Refuges/artificial cover objects	The placing of artificial refuges which provide newts with small areas of artificial cover and places of protection and relatively high humidity. Captures from beneath refuges can be helpful but this tends to be a relatively inefficient process.
Newt age classes:	
Adults	Animals which have reached sexual maturity
Sub-adults	Immature animals from the beginning of their second year onwards (newts usually reach sexual maturity in 2 to 4 years).
Juveniles	Newly land-adapted newts which have recently emerged from the breeding pond (newts usually emerge during the period August-September). Juveniles are also called 'efts'.
Larvae	The term used to describe the newts' developmental phase after hatching from eggs (laid between mid-March and mid-May) and until metamorphosis and emergence from the breeding pond (larvae take approximately 2-3 months to complete development).
Pond drainage/'draining-down'	The process of removing water from a breeding pond as part of a destructive search and the removal of a pond. Should be combined with netting. Precautions needed to avoid incidental mortality.
Other technical terms:	
Metapopulation	A series of sub-populations that are linked by the relatively frequent dispersal of individuals. Usually relates to 'pond clusters'.

First level of analysis database
File number
Total number of newts captured
Capture method used and numbers of traps
Trapping period
Habitat types present
Season
Geographic location
Type and size of development
Number of life stages involved
Level of detail in methods statement
Level of detail in licence return
Climate details provided
Population estimate
Population size class estimate
Monitoring carried out
Fencing configuration plan/comments

Project database	
File identification number	
Magnitude of development	1 = Temporary, very small area of habitat loss (<0.01ha) 1.5 = Temporary, small area of habitat loss (0.01-0.25ha) 2 = Permanent, very small area of habitat loss (<0.01ha) 2.5 = Temporary, medium area of habitat loss (0.25-1ha) 3 = Permanent, small area of habitat loss (0.01ha – 0.25ha) 3.5 = Temporary, large area of habitat loss (>1ha) 4 = Permanent, medium area of habitat loss (0.25 - 1ha) 4.5 = Permanent, large area of habitat loss (>1ha)
Population size class estimate	1 = Small 2 = Medium 3 = Large
Sum total of capture effort per method scores per file (maximum = 45)	See Capture Method database for scales of capture effort per method scores.
Latitude	
Longitude	
Number of different capture methods used	1 - 9
Types of capture method	1 = Only trap method used 2 = Only non trap method used 3 = Both trap and non-trap method used
Number of seasons in which mitigation took place	1 - 4
Population estimate	
Overall number of newts caught	
Overall number of newts caught excluding larvae	
Overall: captures/unit effort	Overall number of newts caught / overall subjective effort for all capture methods
Excl. larvae: captures/unit effort	Overall number of newts caught excluding larvae / overall subjective effort for all capture methods
Proximity to Breeding Ponds	1 = Breeding pond greater than 1km away 2 = Breeding pond 500-1000m away 3 = Breeding pond 200-500m away 4 = Breeding pond 50-200m away 5 = Single breeding pond less than 50m away 6 = Multiple breeding ponds less than 50m away 7 = Work within breeding pond
Number of larvae	
Number of juveniles	
Number of sub-adults	
Number of adults	
Total numbers at different life stages	
Number of newts caught at -0 Degrees C	
Number of newts caught at 0 - 1.9 Degrees C	
Number of newts caught at 2 - 3.9 Degrees C	
Number of newts caught at 4 - 5.9 Degrees C	
Number of newts caught at 6 - 7.9 Degrees C	
Number of newts caught at 8 - 9.9 Degrees C	
Number of newts caught at 10 - 11.9 Degrees C	
Number of newts caught at 12 - 13.9 Degrees C	
Number of newts caught at 14 - 15.9 Degrees C	
Number of newts caught at 16 + Degrees C	

Rough Grassland Present/Absent	0 Absent; 1 Present
Scrub Present/Absent	0 Absent; 1 Present
Arable Present/Absent	0 Absent; 1 Present
Grassland Present/Absent	0 Absent; 1 Present
Deciduous Woodland Present/Absent	0 Absent; 1 Present
Ditch Present/Absent	0 Absent; 1 Present
Garden Present/Absent	0 Absent; 1 Present
Hedgerow Present/Absent	0 Absent; 1 Present
Marsh Present/Absent	0 Absent; 1 Present
Meadow Present/Absent	0 Absent; 1 Present
Pasture Present/Absent	0 Absent; 1 Present
Rubble Present/Absent	0 Absent; 1 Present
Tall Herbs Present/Absent	0 Absent; 1 Present
Treatment Works Present/Absent	0 Absent; 1 Present
Woodland Present/Absent	0 Absent; 1 Present
Quarry Present/Absent	0 Absent; 1 Present
Building Present/Absent	0 Absent; 1 Present
Size in m^2 of Rough Grassland	
Size in m^2 of Scrub	
Size in m^2 of Arable	
Size in m^2 of Grassland	
Size in m^2 of Deciduous Woodland	
Size in m^2 of Ditch	
Size in m^2 of Garden	
Size in m^2 of Hedge	
Size in m^2 of Marsh	
Size in m^2 of Meadow	
Size in m^2 of Pasture	
Size in m^2 of Rubble	
Size in m^2 of Tall herb	
Size in m^2 of Water treatment works	
Size in m^2 of Woodland	
Size in m^2 of Quarry	
Size in m^2 of Building	
Distance of Rough grassland from Breeding Pond	1 = Breeding pond greater than 1km away 2 = Breeding pond 500-1000m away 3 = Breeding pond 200-500m away 4 = Breeding pond 50-200m away 5 = Single breeding pond less than 50m away 6 = Multiple breeding ponds less than 50m away 7 = Work within breeding pond
Distance of Scrub from Breeding Pond	
Distance of Arable from Breeding Pond	
Distance of Grassland from Breeding Pond	
Distance of Deciduous Woodland from Breeding Pond	
Distance of Ditch from Breeding Pond	
Distance of Garden from Breeding Pond	
Distance of Hedgerow from Breeding Pond	
Distance of Marsh from Breeding Pond	
Distance of Meadow from Breeding Pond	
Distance of Pasture from Breeding Pond	
Distance of Rubble from Breeding Pond	
Distance of Tall herb from Breeding Pond	
Distance of Water Treatment Works from Breeding Pond	
Distance of Woodland from Breeding Pond	
Distance of Quarry from Breeding Pond	
Distance of Building from Breeding Pond	
Total Newt Captures within Rough Grassland	
Total Newt Captures within Scrub	
Total Newt Captures within Arable	
Total Newt Captures within Grassland	
Total Newt Captures within Deciduous Woodland	
Total Newt Captures within Ditch	
Total Newt Captures within Garden	
Total Newt Captures within Hedge	
Total Newt Captures within Marsh	
Total Newt Captures within Meadow	
Total Newt Captures within Pasture	
Total Newt Captures within Pasture	
Total Newt Captures within Tall herb	

Total Newt Captures within Water Treatment Works		
Total Newt Captures within Woodland		
Total Newt Captures within Quarry		
Total Newt Captures within Building		
Rough Grassland Subjective Effort	Insufficient data to calculate subjective effort for habitats	
Scrub Subjective Effort		
Arable Subjective Effort		
Grassland Subjective Effort		
Deciduous Woodland Subjective Effort		
Ditch Subjective Effort		
Garden Subjective Effort		
Hedgerow Subjective Effort		
Marsh Subjective Effort		
Meadow Subjective Effort		
Pasture Subjective Effort		
Rubble Subjective Effort		
Tall herb Subjective Effort		
Water Treatment Works Subjective Effort		
Woodland Subjective Effort		
Quarry Subjective Effort		
Building Subjective Effort		
Pasture, meadow or grassland present	0 Absent; 1 Present	
Rough grassland or tall herbs present	0 Absent; 1 Present	
Any woodland present	0 Absent; 1 Present	
Ditch or marsh present	0 Absent; 1 Present	
Hedgerow present	0 Absent; 1 Present	
Post-industrial habitats present	0 Absent; 1 Present	
Arable present	0 Absent; 1 Present	
Scrub present	0 Absent; 1 Present	
Weighted grassland by distance	Presence or absence x proximity to breeding pond	
Weighted rough grass by distance		
Weighted woodland by distance		
Weighted wet habitats by distance		
Weighted hedgerow by distance		
Weighted post-industrial by distance		
Weighted arable by distance		
Weighted scrub by distance		
Adult captures per unit effort	Number of adult newts caught / total subjective effort for all capture methods	
Overall fencing configuration	0 = Ring fenced breeding pond 1 = Fencing other than ring fenced breeding pond 2 = Both of the above 3 = Neither	
Pond or not pond mitigation	1 = Mitigation excluding the breeding pond 2 = Mitigation including the breeding pond	
Transformation of habitat variables for all subsequent databases	Deciduous Woodland	Woodland
	Woodland	
	Improved Grassland	Grassland
	Meadow	
	Pasture	
	Grassland	
	Amenity Grassland	
	Rough Grassland	Rough Grassland/Tall Herbs
	Tall Herbs	
	Ditch	Wet Habitats
	Marsh	
	Hedgerow	Hedgerow
	Arable	Arable
	Scrub	Scrub
	Quarry	Post Industrial
	Water Treatment Works	
	Rubble	
	Garden	
	Building	

Capture method database	
File identification number	
Numerical population estimate	
Total number of newts caught	
Proximity to breeding ponds	1 = Breeding pond greater than 1km away 2 = Breeding pond 500-1000m away 3 = Breeding pond 200-500m away 4 = Breeding pond 50-200m away 5 = Single breeding pond less than 50m away 6 = Multiple breeding ponds less than 50m away 7 = Work within breeding pond
Fencing configuration	0 = Ring fenced breeding pond 1 = Fencing other than ring fenced breeding pond 2 = Both of the above 3 = Neither
Mitigation inc/excl pond	1 = Excluding pond 2 = Including pond
Trapping effort estimate pitfalls and refuges	1 = Less than 30 trap nights, less than 1 trap every 15m+ 2 = Less than 30 trap nights, 1 trap every 10 – 14.99m 3 = 30 trap nights, 1 trap every 10m 4 = More than 30 trap nights, 1 trap every 5 - 9.9m 5 = More than 30 trap nights, 1 trap every 4.99m or less
Trapping effort estimate for bottle traps	1 = Less than 20 trap nights, very low trap density 2 = 20-30 trap nights, less than 1 trap every 2m 3 = 30 trap nights, 1 trap every 2m 4 = More than 30 trap nights, 1 trap every 1 – 1.99m 5 = More than 30 trap nights, very high trap density
Trapping effort estimate for non trap methods	Destructive/Hand Search 1-5 scale based on time per area, whether a machine was involved, type of terrain. Where there was insufficient information, a score was estimated dependent on the level of detail provided for that technique compared to other capture methods. The approximate scale, taking these factors into account is based on covering $20m^2$ per day. 1 = Less than 1 day 2 = Less than 4 days 3 = 5/6 days 4 = Up to 10 days 5 = More than 10 days Netting and Nocturnal Searches Loosely based on time per area 1 = Inadequate 2 = Poor 3 = Good 4 = Very good 5 = Excellent Drainage Scale of 1-5 as for netting and nocturnal searches, but taking into account, for example, whether preliminary mitigation was used (e.g. netting) and how comprehensive the approach was.
Combined effort scores	Total of all trapping effort scores
Capture method	1 = Hand search; 2 = Destructive search; 3 = Netting; 4 = Nocturnal; 5 = 5 = Grass cutting; 6 = Pitfall traps; 7 = Refuges; 8 = Funnel traps; 9 = Pond drainage
Is the capture method a trap or not?	1 = Trap; 2 = Non trap
Number of traps	
Area of traps	
Trap density	Number of traps / area of traps
Number of trapping nights	
Capture effort for traps	Number of traps x number of trapping nights
Duration of non-trap mitigation (days)	
Non trapping effort value	Duration of non-trap mitigation x area of mitigation
Number of larvae	
Number of juveniles	
Number of sub-adults	
Number of adults	

Capture method database	
Total numbers at different life stages	
Total numbers excluding larvae	
Captures/unit effort larvae	Captures of newt larvae / subjective effort score for that capture method
Captures/unit effort juveniles	Captures of newt juveniles / subjective effort score for that capture method
Captures/unit effort sub-adults	Captures of newt sub-adults / subjective effort score for that capture method
Captures/unit effort adults	Captures of adult newts / subjective effort score for that capture method
Captures/unit effort/all life stages	Total captures of newts / subjective effort score for that capture method
Number of newts caught at -0 Degrees C	
Number of newts caught at 0 - 1.9 Degrees C	
Number of newts caught at 2 - 3.9 Degrees C	
Number of newts caught at 4 - 5.9 Degrees C	
Number of newts caught at 6 - 7.9 Degrees C	
Number of newts caught at 8 - 9.9 Degrees C	
Number of newts caught at 10 - 11.9 Degrees C	
Number of newts caught at 12 - 13.9 Degrees C	
Number of newts caught at 14 - 15.9 Degrees C	
Number of newts caught at 16 + Degrees C	
Total numbers of newts at different temperatures	
Rough Grassland Present/Absent	0 Absent; 1 Present
Scrub Present/Absent	0 Absent; 1 Present
Arable Present/Absent	0 Absent; 1 Present
Grassland Present/Absent	0 Absent; 1 Present
Deciduous Woodland Present/Absent	0 Absent; 1 Present
Ditch Present/Absent	0 Absent; 1 Present
Garden Present/Absent	0 Absent; 1 Present
Hedgerow Present/Absent	0 Absent; 1 Present
Marsh Present/Absent	0 Absent; 1 Present
Meadow Present/Absent	0 Absent; 1 Present
Pasture Present/Absent	0 Absent; 1 Present
Rubble Present/Absent	0 Absent; 1 Present
Tall Herbs Present/Absent	0 Absent; 1 Present
Treatment Works Present/Absent	0 Absent; 1 Present
Woodland Present/Absent	0 Absent; 1 Present
Quarry Present/Absent	0 Absent; 1 Present
Building Present/Absent	0 Absent; 1 Present
Size in m^2 of Rough Grassland	
Size in m^2 of Scrub	
Size in m^2 of Arable	
Size in m^2 of Grassland	
Size in m^2 of Deciduous Woodland	
Size in m^2 of Ditch	
Size in m^2 of Garden	
Size in m^2 of Hedge	
Size in m^2 of Marsh	
Size in m^2 of Meadow	
Size in m^2 of Pasture	
Size in m^2 of Rubble	
Size in m^2 of Tall herb	
Size in m^2 of Water treatment works	
Size in m^2 of Woodland	
Size in m^2 of Quarry	
Size in m^2 of Building	

Capture method database	
Distance of Rough grassland from Breeding Pond	1 = Breeding pond greater than 1km away 2 = Breeding pond 500-1000m away 3 = Breeding pond 200-500m away 4 = Breeding pond 50-200m away 5 = Single breeding pond less than 50m away 6 = Multiple breeding ponds less than 50m away 7 = Work within breeding pond
Distance of Scrub from Breeding Pond	
Distance of Arable from Breeding Pond	
Distance of Grassland from Breeding Pond	
Distance of Deciduous Woodland from Breeding Pond	
Distance of Ditch from Breeding Pond	
Distance of Garden from Breeding Pond	
Distance of Hedgerow from Breeding Pond	
Distance of Marsh from Breeding Pond	
Distance of Meadow from Breeding Pond	
Distance of Pasture from Breeding Pond	
Distance of Rubble from Breeding Pond	
Distance of Tall herb from Breeding Pond	
Distance of Water Treatment Works from Breeding Pond	
Distance of Woodland from Breeding Pond	
Distance of Quarry from Breeding Pond	
Distance of Building from Breeding Pond	
Total Newt Captures within Rough Grassland	
Total Newt Captures within Scrub	
Total Newt Captures within Arable	
Total Newt Captures within Grassland	
Total Newt Captures within Deciduous Woodland	
Total Newt Captures within Ditch	
Total Newt Captures within Garden	
Total Newt Captures within Hedge	
Total Newt Captures within Marsh	
Total Newt Captures within Meadow	
Total Newt Captures within Pasture	
Total Newt Captures within Pasture	
Total Newt Captures within Tall herb	
Total Newt Captures within Water Treatment Works	
Total Newt Captures within Woodland	
Total Newt Captures within Quarry	
Total Newt Captures within Building	
Rough Grassland Subjective Effort	
Scrub Subjective Effort	Insufficient data to calculate a subjective effort score for each habitat
Arable Subjective Effort	
Grassland Subjective Effort	
Deciduous Woodland Subjective Effort	
Ditch Subjective Effort	
Garden Subjective Effort	
Hedgerow Subjective Effort	
Marsh Subjective Effort	
Meadow Subjective Effort	
Pasture Subjective Effort	
Rubble Subjective Effort	
Tall herb Subjective Effort	
Water Treatment Works Subjective Effort	
Woodland Subjective Effort	
Quarry Subjective Effort	
Building Subjective Effort	

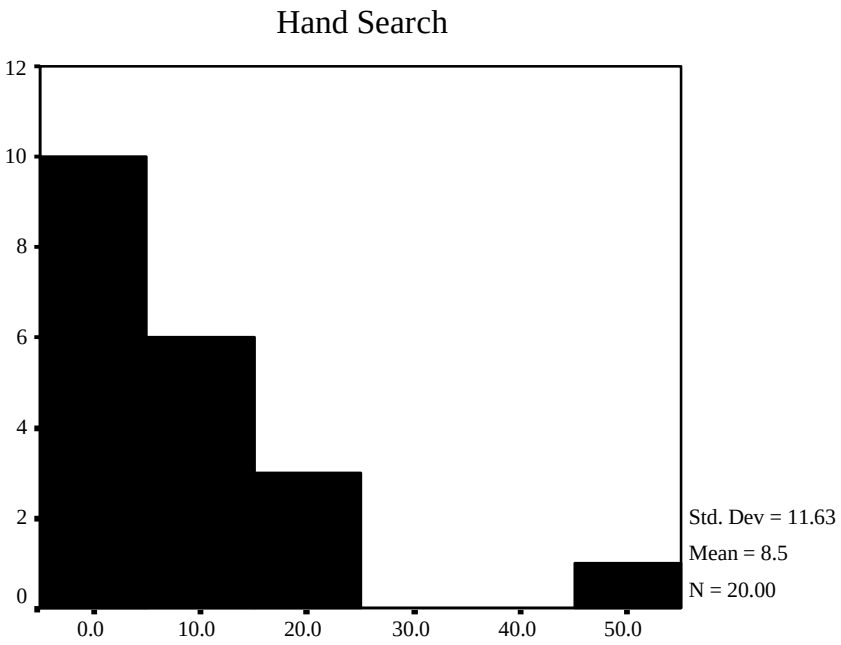
Capture method database	
Capture effort per Rough Grassland	Insufficient data to calculate a capture effort score for each habitat
Capture effort per Scrub	
Capture effort per Arable	
Capture effort per Grassland	
Capture effort per Deciduous Woodland	
Capture effort per Ditch	
Capture effort per Garden	
Capture effort per Hedgerow	
Capture effort per Marsh	
Capture effort per Meadow	
Capture effort per Pasture	
Capture effort per Rubble	
Capture effort per Tall herb	
Capture effort per Water Treatment Works	
Capture effort per Woodland	
Capture effort per Quarry	
Capture effort per Building	

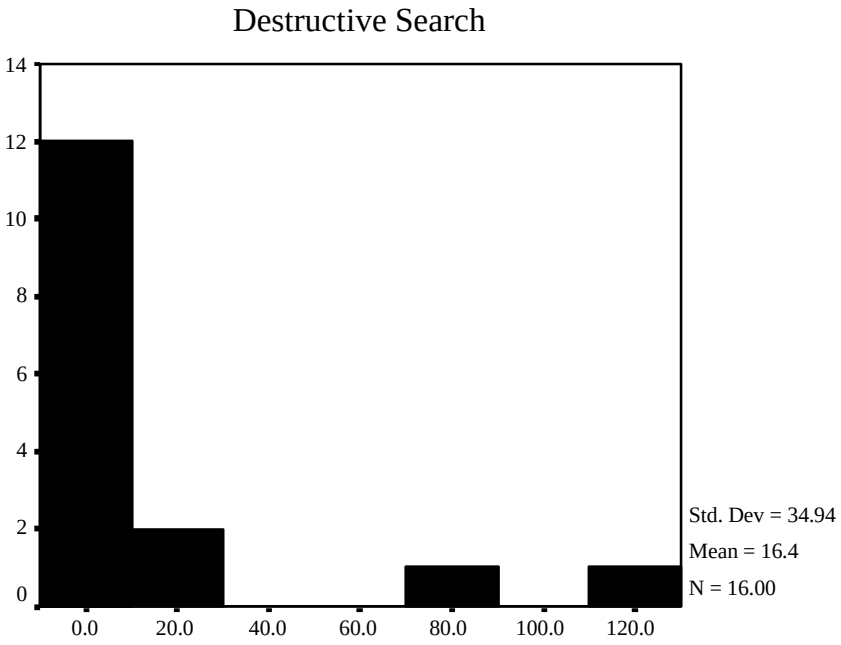
Seasonal database	
Variable	**Values**
File identification number	
Estimate of effort per capture method	*Pitfalls and Refuges* 1 = Less than 30 trap nights, less than 1 trap every 15m+ 2 = Less than 30 trap nights, 1 trap every 10 – 14.99m 3 = 30 trap nights, 1 trap every 10m 4 = More than 30 trap nights, 1 trap every 5 - 9.9m 5 = More than 30 trap nights, 1 trap every 4.99m or less *Bottle Traps* 1 = Less than 20 trap nights, very low trap density 2 = 20-30 trap nights, less than 1 trap every 2m 3 = 30 trap nights, 1 trap every 2m 4 = More than 30 trap nights, 1 trap every 1 – 1.99m 5 = More than 30 trap nights, very high trap density *Destructive/Hand Search* 1-5 scale based on time per area, whether a machine was involved, type of terrain. Where there was insufficient information, a score was estimated dependent on the level of detail provided for that technique compared to other capture methods. The approximate scale, taking these factors into account is based on covering $20m^2$ per day. 1 = Less than 1 day 2 = Less than 4 days 3 = 5/6 days 4 = Up to 10 days 5 = More than 10 days *Netting and Nocturnal Searches* Loosely based on time per area 1 = Inadequate 2 = Poor 3 = Good 4 = Very good 5 = Excellent *Drainage* Scale of 1-5 as for netting and nocturnal searches, but taking into account, for example, whether preliminary mitigation was used (e.g. netting) and how comprehensive the approach was.
Numerical population estimate	
Total number of newts caught	
Proximity to breeding ponds	1 = Breeding pond greater than 1km away 2 = Breeding pond 500-1000m away 3 = Breeding pond 200-500m away 4 = Breeding pond 50-200m away 5 = Single breeding pond less than 50m away 6 = Multiple breeding ponds less than 50m away 7 = Work within breeding pond
Fencing configuration	0 = Ring fenced breeding pond 1 = Fencing other than ring fenced breeding pond 2 = Both of the above 3 = Neither
Capture method	1 = Hand search; 2 = Destructive search; 3 = Netting; 4 = Nocturnal; 5 = Grass cutting; 6 = Pitfall traps; 7 = Refuges; 8 = Funnel traps; 9 = Pond drainage
Is the capture method a trap or not?	1 = Trap; 2 = Non trap
Season	1 = Feb-April; 2 = May-Jul; 3 = Aug-Oct; 4 = Nov-Jan
Number of traps	
Area of traps	
Trap density	Number of traps / area of traps
Number of trapping nights	
Capture effort for traps	Number of traps x number of trapping nights
Duration of non-trap mitigation (days)	

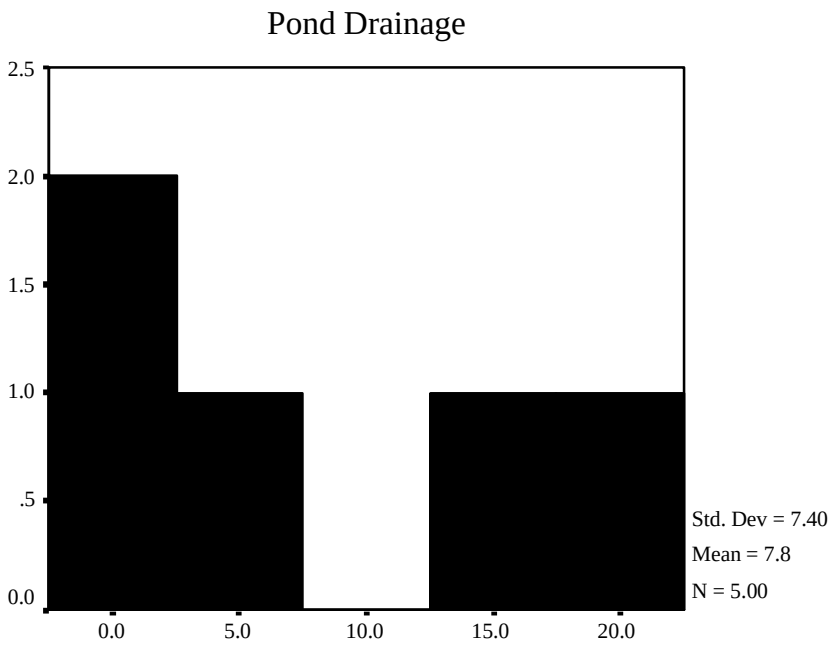
Seasonal database	
Non trapping effort value	Duration of non-trap mitigation x area of mitigation
Number of larvae	
Number of juveniles	
Number of sub-adults	
Number of adults	
Total numbers at different life stages	
Number of newts caught at -0 Degrees C	
Number of newts caught at 0 - 1.9 Degrees C	
Number of newts caught at 2 - 3.9 Degrees C	
Number of newts caught at 4 - 5.9 Degrees C	
Number of newts caught at 6 - 7.9 Degrees C	
Number of newts caught at 8 - 9.9 Degrees C	
Number of newts caught at 10 - 11.9 Degrees C	
Number of newts caught at 12 - 13.9 Degrees C	
Number of newts caught at 14 - 15.9 Degrees C	
Number of newts caught at 16 + Degrees C	
Total numbers of newts at all temperatures	
Rough Grassland Present/Absent	0 Absent; 1 Present
Scrub Present/Absent	0 Absent; 1 Present
Arable Present/Absent	0 Absent; 1 Present
Grassland Present/Absent	0 Absent; 1 Present
Deciduous Woodland Present/Absent	0 Absent; 1 Present
Ditch Present/Absent	0 Absent; 1 Present
Garden Present/Absent	0 Absent; 1 Present
Hedgerow Present/Absent	0 Absent; 1 Present
Marsh Present/Absent	0 Absent; 1 Present
Meadow Present/Absent	0 Absent; 1 Present
Pasture Present/Absent	0 Absent; 1 Present
Rubble Present/Absent	0 Absent; 1 Present
Tall Herbs Present/Absent	0 Absent; 1 Present
Treatment Works Present/Absent	0 Absent; 1 Present
Woodland Present/Absent	0 Absent; 1 Present
Quarry Present/Absent	0 Absent; 1 Present
Building Present/Absent	0 Absent; 1 Present
Size in m^2 of Rough grassland	
Size in m^2 of Scrub	
Size in m^2 of Arable	
Size in m^2 of Grassland	
Size in m^2 of woodland	
Size in m^2 of Ditch	
Size in m^2 of Garden	
Size in m^2 of Hedge	
Size in m^2 of Marsh	
Size in m^2 of Meadow	
Size in m^2 of Pasture	
Size in m^2 of Rubble	
Size in m^2 of Tall herb	
Size in m^2 of Water treatment works	
Size in m^2 of Woodland	
Size in m^2 of Quarry	
Size in m^2 of Building	
Distance of Rough grassland from Breeding Pond	1 = Breeding pond greater than 1km away 2 = Breeding pond 500-1000m away 3 = Breeding pond 200-500m away 4 = Breeding pond 50-200m away 5 = Single breeding pond less than 50m away 6 = Multiple breeding ponds less than 50m away 7 = Work within breeding pond
Distance of Scrub from Breeding Pond	
Distance of Arable from Breeding Pond	
Distance of Grassland from Breeding Pond	
Distance of Deciduous Woodland from Breeding Pond	
Distance of Ditch from Breeding Pond	
Distance of Garden from Breeding Pond	
Distance of Hedgerow from Breeding Pond	
Distance of Marsh from Breeding Pond	
Distance of Meadow from Breeding Pond	
Distance of Pasture from Breeding Pond	
Distance of Rubble from Breeding Pond	
Distance of Tall herb from Breeding Pond	
Distance of Water Treatment Works from Breeding Pond	
Distance of Woodland from Breeding Pond	
Distance of Quarry from Breeding Pond	
Distance of Building from Breeding Pond	

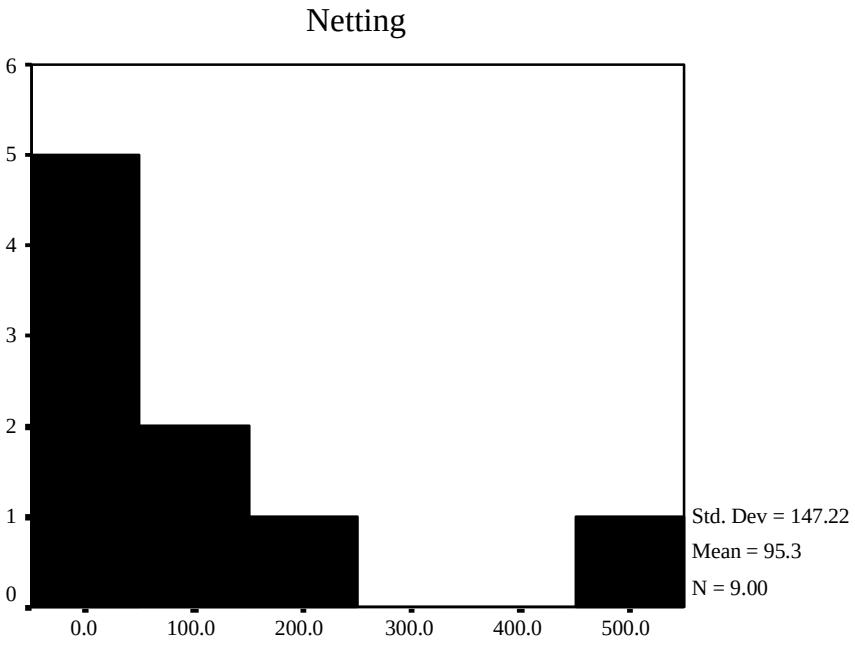
Seasonal database	
Total Newt Captures within Rough Grassland	
Total Newt Captures within Scrub	
Total Newt Captures within Arable	
Total Newt Captures within Grassland	
Total Newt Captures within Deciduous Woodland	
Total Newt Captures within Ditch	
Total Newt Captures within Garden	
Total Newt Captures within Hedge	
Total Newt Captures within Marsh	
Total Newt Captures within Meadow	
Total Newt Captures within Pasture	
Total Newt Captures within Pasture	
Total Newt Captures within Tall herb	
Total Newt Captures within Water Treatment Works	
Total Newt Captures within Woodland	
Total Newt Captures within Quarry	
Total Newt Captures within Building	
Rough Grassland Subjective Effort	Insufficient data to calculate a subjective effort score for each habitat
Scrub Subjective Effort	
Arable Subjective Effort	
Grassland Subjective Effort	
Deciduous Woodland Subjective Effort	
Ditch Subjective Effort	
Garden Subjective Effort	
Hedgerow Subjective Effort	
Marsh Subjective Effort	
Meadow Subjective Effort	
Pasture Subjective Effort	
Rubble Subjective Effort	
Tall herb Subjective Effort	
Water Treatment Works Subjective Effort	
Woodland Subjective Effort	
Quarry Subjective Effort	
Building Subjective Effort	
Capture effort per Rough Grassland	Insufficient data to calculate a capture effort for each habitat
Capture effort per Scrub	
Capture effort per Arable	
Capture effort per Grassland	
Capture effort per Deciduous Woodland	
Capture effort per Ditch	
Capture effort per Garden	
Capture effort per Hedgerow	
Capture effort per Marsh	
Capture effort per Meadow	
Capture effort per Pasture	
Capture effort per Rubble	
Capture effort per Tall herb	
Capture effort per Water Treatment Works	
Capture effort per Woodland	
Capture effort per Quarry	
Capture effort per Building	

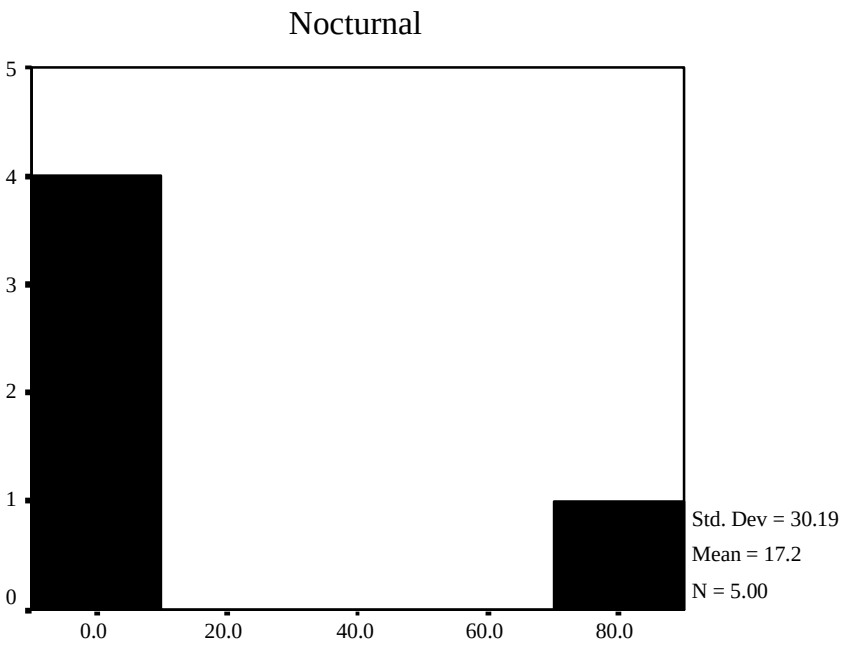
Appendix II. Histograms of total captures using different capture methods



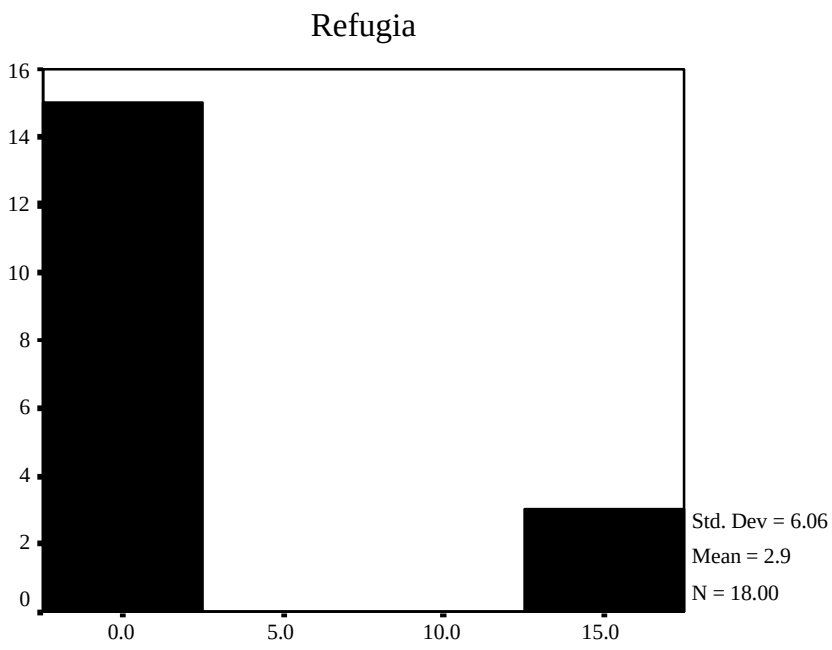



Pond Drainage
2.5
2.0
1.5
1.0
.5
0.0
0.0
5.0
10.0
15.0
20.0
Std. Dev = 7.40
Mean = 7.8
N = 5.00
Total Numbers at Different Life Stages

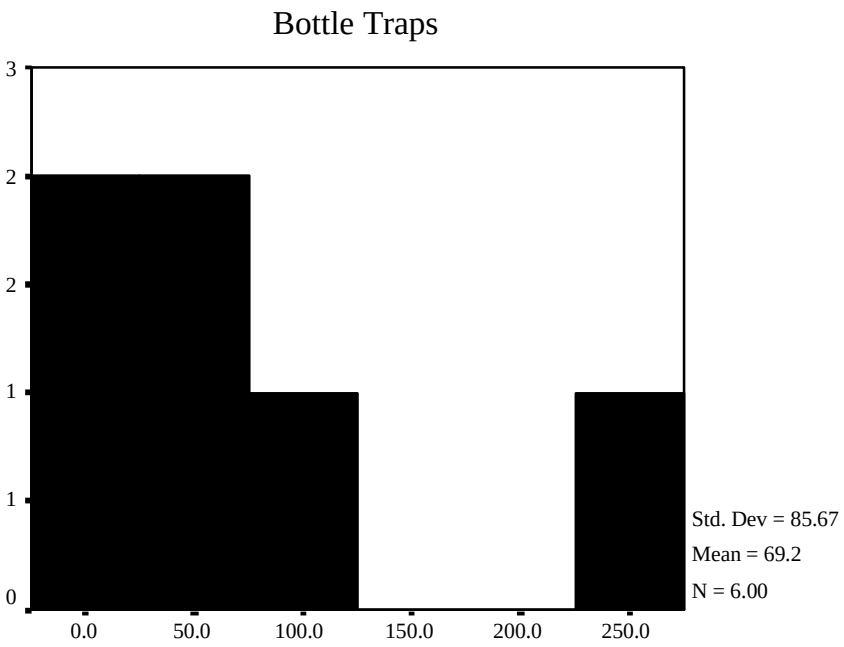

Netting
6
5
4
3
2
1
0
0.0
100.0
200.0
300.0
400.0
500.0
Std. Dev = 147.22
Mean = 95.3
N = 9.00
Total Numbers at Different Life Stages



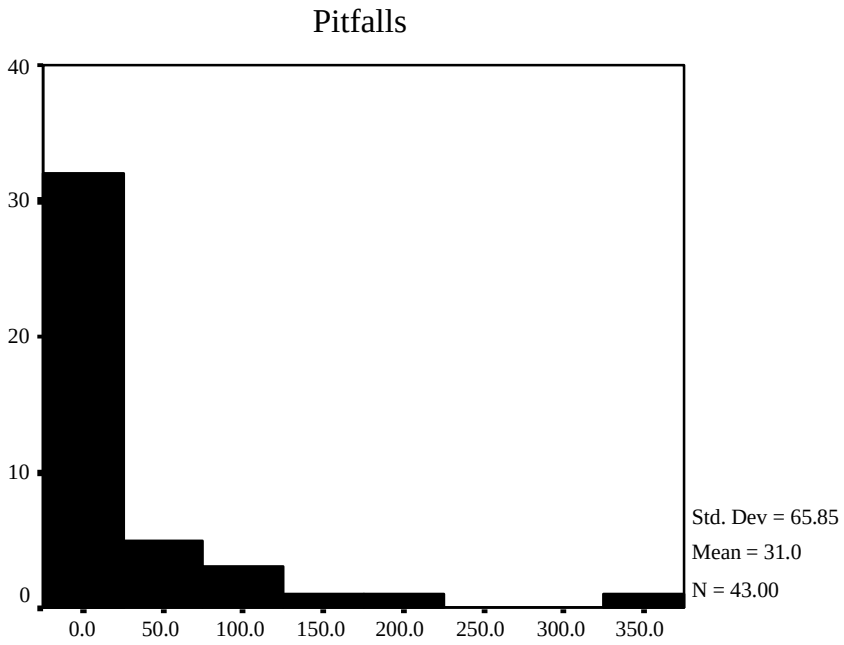
Total Numbers at Different Life Stages



Total Numbers at Different Life Stages



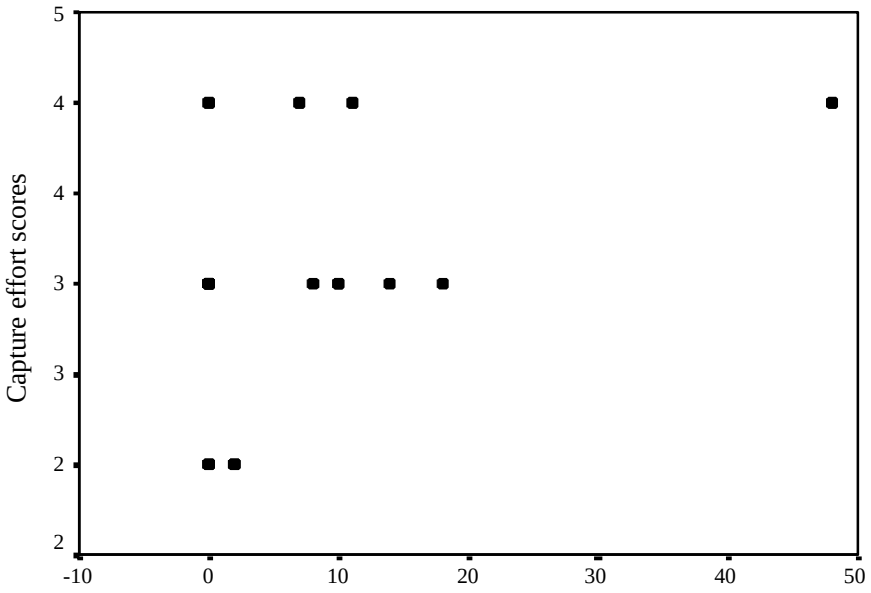
Total Numbers at Different Life Stages



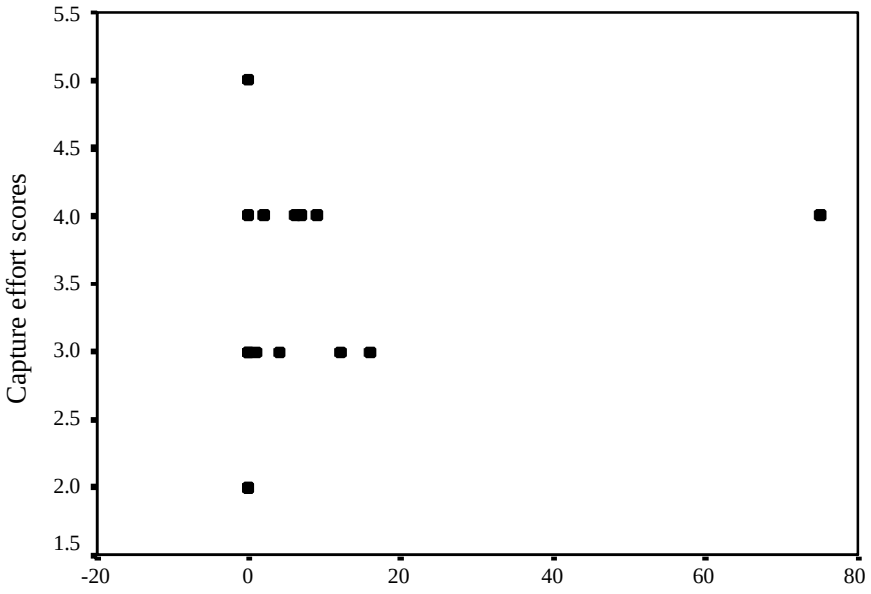
Total Numbers at Different Life Stages

Appendix III. Scatter plots of Effort Scores against total numbers of newts caught, excluding larvae for different capture techniques

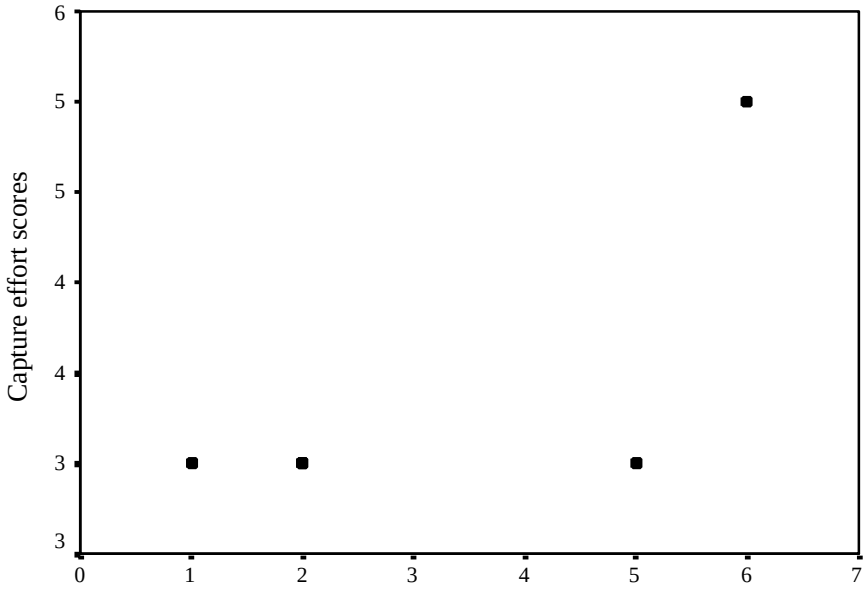
Hand Search



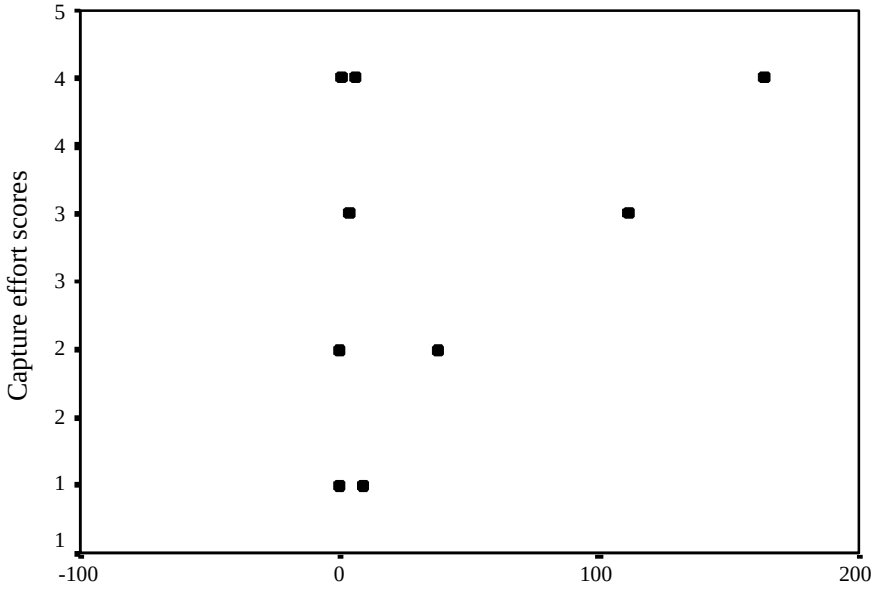
Destructive Search



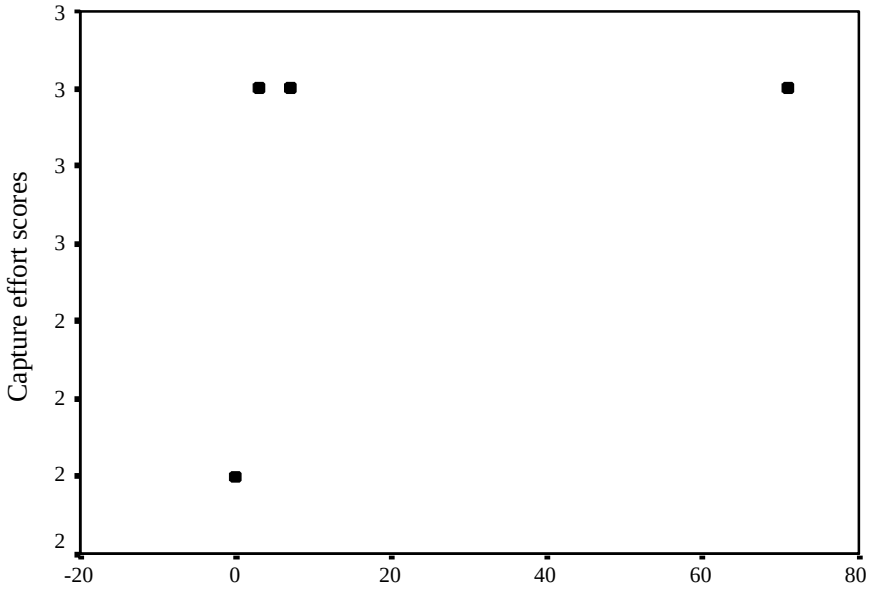
Pond Drainage



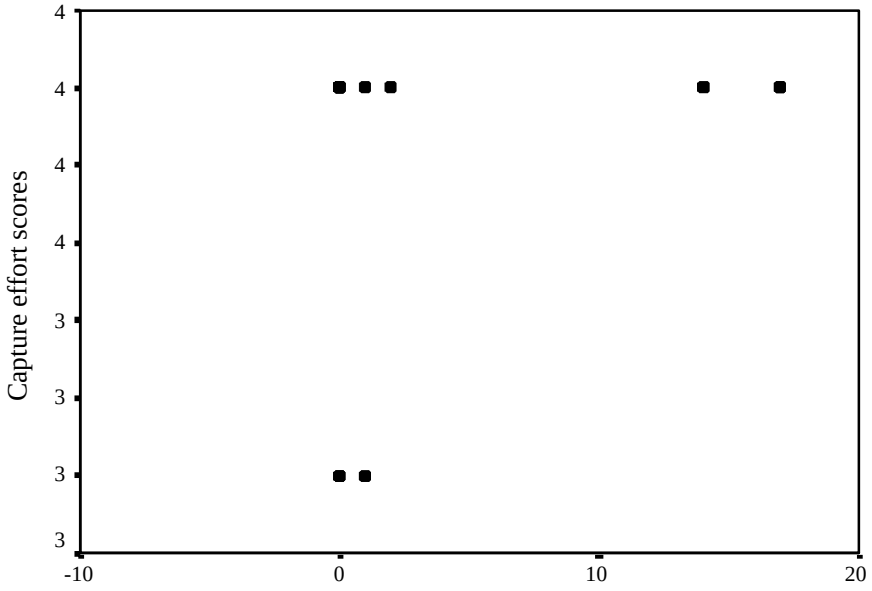
Netting



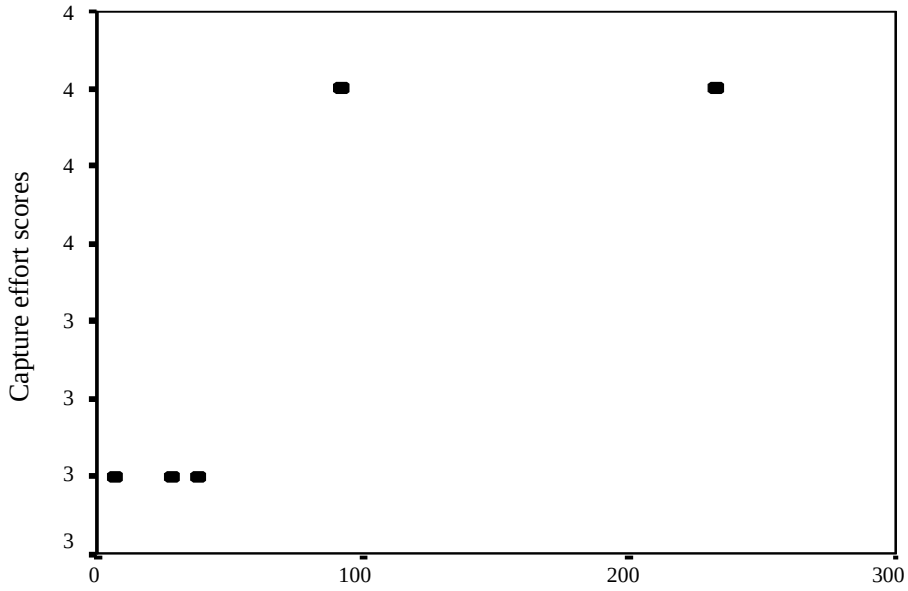
Nocturnal



Refugia

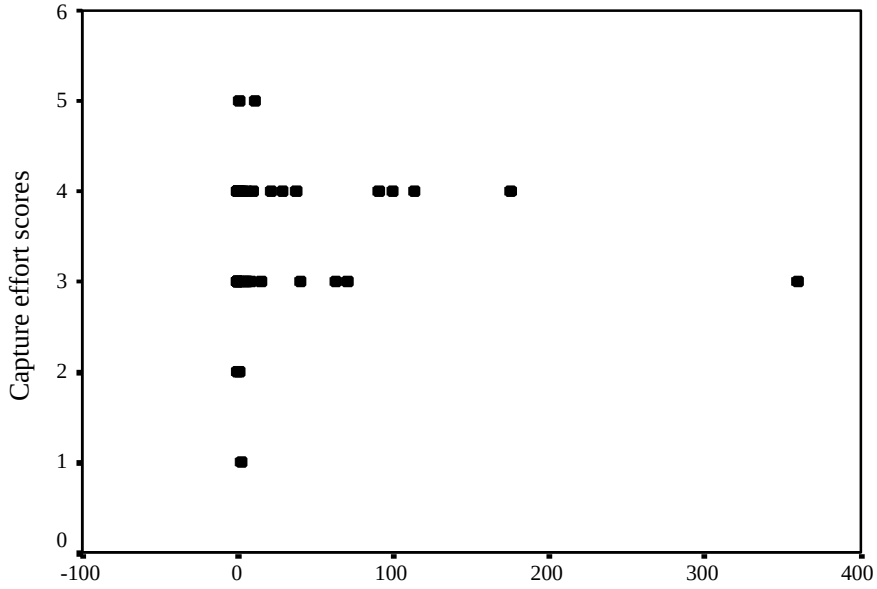


Bottle Traps



Total numbers excluding larvae

Pitfalls



Total numbers excluding larvae

Appendix IV. Examples of fence configurations and capture results

This indicates an apparently successful compartment-style fence arrangement enclosing newts from a future development area.
Newt captures, as expected, were highest in Compartment A (very close to a pond and hedge line) and Compartments F and G (enclosing a central hedge leading away from pond areas). Using compartments, trapping effort can be maximised in areas predicted to be used most frequently by newts. However, during installation care needs to be taken to avoid incidental mortality.

ENGLISH NATURE

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Front cover photographs:
Top left: Using a home-made moth trap.
Peter Wakely/English Nature 17,396
Middle left: Co_2 experiment at Roudsea Wood and Mosses NNR, Lancashire.
Peter Wakely/English Nature 21,792
Bottom left: Radio tracking a hare on Pawlett Hams, Somerset.
Paul Glendell/English Nature 23,020
Main: Identifying moths caught in a moth trap at Ham Wall NNR, Somerset.
Paul Glendell/English Nature 24,888

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APPENDIX 5: ENGLISH NATURE GCN MITIGATION GUIDELINES

ENGLISH NATURE

Great crested newt mitigation guidelines

working today
for nature tomorrow

Great crested newt mitigation guidelines

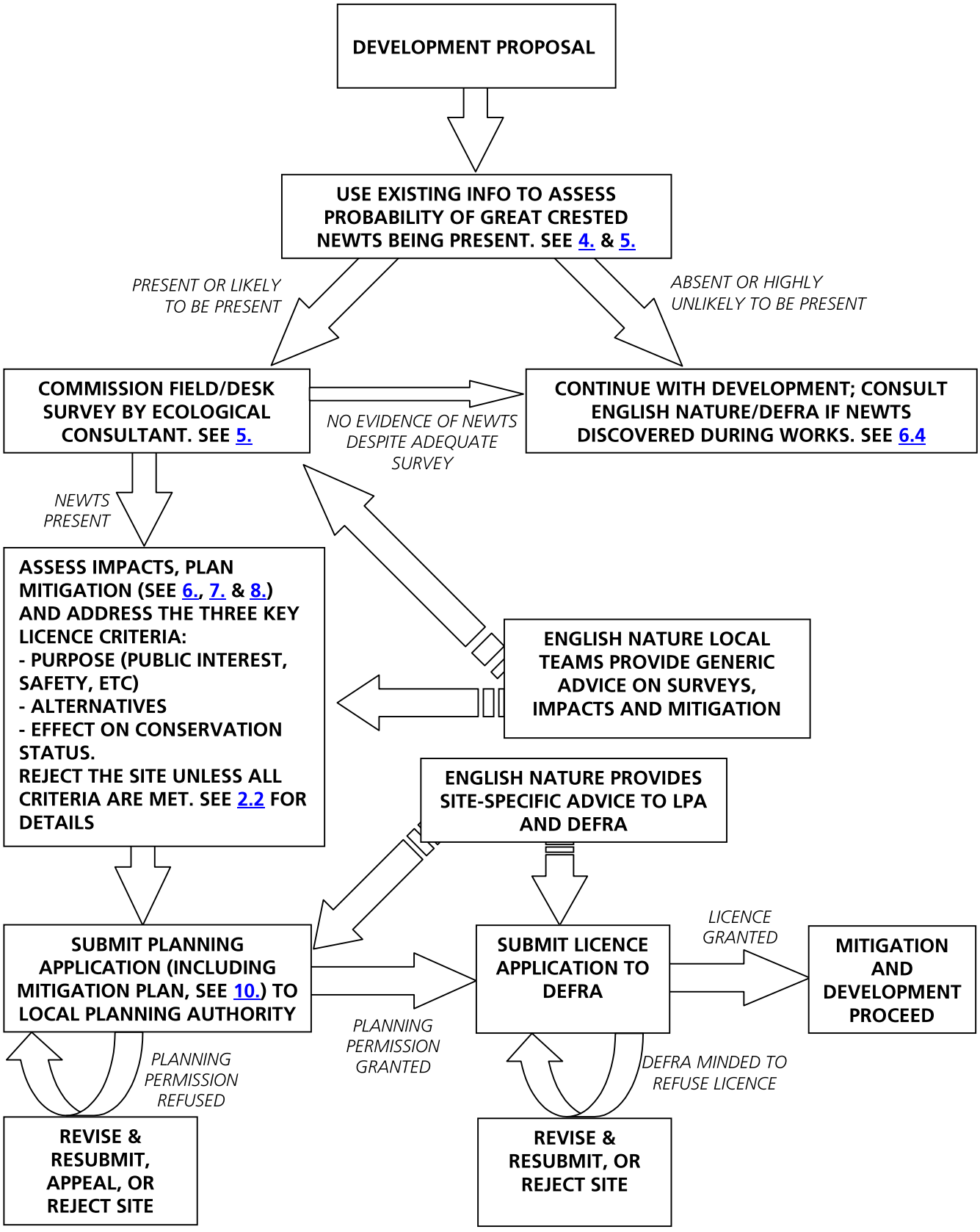
Version: August 2001

ISBN 1 85716 568 3

Key messages for developers:

- The great crested newt and its habitat are protected by law because the species has declined significantly over recent decades, largely due to habitat loss.
- Great crested newts breed in ponds but spend much of their lives on land, sometimes venturing several hundred metres from the pond. Their populations are often dependent on there being several ponds close together, linked by suitable land habitats.
- Great crested newts occupy a range of habitats, and occur in rural, suburban and urban areas. They are widespread across lowland England, but are less frequent in the far south-west, in upland areas, in intensively farmed landscapes and where there is a high degree of urbanisation.
- It is advisable to check for the presence of great crested newts as early as possible – ideally before any land purchase. Newt surveys can only be done at certain times of the year and therefore must be carefully programmed, otherwise considerable delays can occur. Alternative sites should be considered and surveyed at an early stage, as activities affecting newts can only be licensed where there is no satisfactory alternative.
- Before applying for planning permission, an appraisal of the impact of development on the newt population is required.
- Planning authorities are required to take account of great crested newts when considering planning permission, and may refuse applications on the basis of an adverse effect on newt populations. Insufficient appraisals can lead to delays or a refusal of planning permission. When granting permission, planning conditions or Section 106 agreements may be used to help ensure appropriate mitigation and aftercare.
- In order to undertake actions affecting great crested newts which would normally be prohibited by law (such as capturing newts, or filling in their breeding ponds), a licence is required. In a development context, a licence may be granted by the Department for Environment, Food and Rural Affairs, ideally after the developer has conducted initial liaison with English Nature. Usually a licence will only be granted after gaining planning consent (where applicable).
- In order to obtain a licence, it must be demonstrated that the project is for the purpose of preserving public health or public safety or other imperative reasons of overriding public interest.
- Mitigation to compensate for any impacts is likely to be a requirement of the licence, and may involve changes in timing of operations, capturing and excluding newts, setting aside land for newts, purchase of additional land, habitat creation, and post-development commitments to ensure the population is safeguarded. The level of mitigation required depends crucially on (a) the size and type of impact, and (b) the importance of the population affected.
- Some mitigation plans may impose a lead-in time of several months to a year before ground clearance or construction works can commence.
- Developments for which planning permission is not required still need to take account of great crested newts, and licensing may still be necessary.
- English Nature strongly advises developers to seek the services of a professional environmental consultant with proven experience in planning great crested newt mitigation, in order to assist with the above stages.
- This document gives generic technical advice to assist in assessing impacts and producing mitigation plans. It is important to note that the document gives general guidance and is not a full explanation of the legislation relating to great crested newts.

Figure 1: Main steps involved in ensuring that great crested newt issues are properly considered in developments requiring planning permission



Contents

List of figures:

1. Introduction

1.1 Background

This document has been prepared to assist those involved with changes in land-use where great crested newts *Triturus cristatus* are known or suspected to occur. It concentrates on development and other changes of land-use which fall within the remit of the planning system, though it is also applicable to many projects not subject to planning permission. The guidelines should inform projects where there is potential conflict between great crested newts and the purpose of the development, rather than those whose prime aim is to promote the conservation of this species. The guidelines build on previously published information contained in English Nature's 'Great crested newts: guidelines for developers' (now withdrawn), and Herpetofauna Groups of Britain and Ireland's 'Evaluating local mitigation/translocation programmes: maintaining best practice and lawful standards.'

It is important to note that these guidelines are primarily aimed at informing the mitigation process itself, rather than the Local Planning Authority's decision on whether to grant planning permission for sites where great crested newts occur. Hence, nothing in this document should imply that development is acceptable on a given great crested newt site solely because the mitigation measures explained here are feasible at that site. Capturing and moving newts, and destroying their habitats, should only be considered as a last resort, and only when this forms part of a wider mitigation scheme that ensures the future conservation of the population. The Local Planning Authority and DEFRA (as the licensing authority) have other factors to consider, notably the purpose and need for development, and the consideration of alternatives, which are not explored in detail in these guidelines as such matters are largely outside English Nature's remit. Note also that these guidelines apply only to England; whilst some of the practical information will be of use to those operating in Wales and Scotland, differences such as separate legislation and planning arrangements mean that the guidelines will not be directly applicable in their entirety.

1.2 Conservation status of the great crested newt

The great crested newt has suffered a major decline in status in Britain over the last century. Studies of newt status are complicated by the fact that the majority of breeding ponds used over the last few hundred years were artificial. However, these would have taken the place of natural breeding sites lost through extensive drainage of wetlands, and there is good evidence that in many ways these artificial ponds mimic more natural breeding sites. Many ponds were built between the seventeenth and nineteenth centuries, largely for agricultural purposes, but these have been lost at a dramatic rate particularly since the Second World War. With new, piped water supplies, field enlargement and agricultural intensification, many ponds have been destroyed or left unmanaged, and surrounding habitats damaged. Unmanaged ponds can become silted up and over-shaded, leading to reduced viability as breeding sites. Development, in the form of residential, industrial and commercial buildings, has also destroyed ponds and associated terrestrial habitats. Though mineral workings have provided some good habitats for great crested newts, renewed workings and landfill have also damaged some of the largest sites. Newt habitats have become increasingly fragmented through development, roads and other unfavourable land-use; smaller, more isolated populations are more vulnerable to extinction than larger, well-connected populations. The loss of grassland, scrub, and woodland means that there are fewer opportunities for foraging, dispersal and hibernation. Inappropriate management has impacted on some populations. In recent years it has become increasingly recognised that fish

introduction can play a major role in local extinction, as many predatory fish species prey on great crested newt larvae.

Precise figures on the rate of decline are difficult to calculate primarily because of a lack of detailed historical data and a paucity of recent data for large areas of England. It is estimated that the locations of around two-thirds of great crested newt sites are currently unrecorded. However, many repeat survey studies have indicated a worrying rate of colony loss, well above that observed for other amphibians. Ecological studies have also indicated that in several ways the great crested newt's habitat requirements are more restrictive than that of the other species. Local and national surveys have estimated rates of colony loss in England at between 0.5% and 4% a year during the 1960s to 1990s; a conservative estimate gives around 40,000 great crested newt breeding pond losses in this period. Aside from this direct evidence, an array of studies demonstrated that the rate of pond loss in England over the last century has been considerable, and the inference must be that great crested newts have suffered because of this. For example, a 60% loss of field ponds in Cheshire between 1870 and 1960 has been documented. Though new ponds are being created, there is a long way to go before they compensate numerically for the massive twentieth century loss. Moreover, they do not offset past losses qualitatively since many new agricultural ponds are unsuitable for newts, due to their poor surrounding habitat or their function as duck or fish ponds.

A similar pattern of decline has also been noted across the European range of the great crested newt. However, England is thought to support a significant number of newt breeding sites on a European scale, and despite the declines outlined above the species is still fairly widespread in England. Indeed, in some areas it can be found in around 40% of ponds, though this appears to be exceptional. The widespread distribution should not raise false hopes, however, as the status of newt populations, and the prospects for their habitats even in these high density areas, give cause for unease as many threats are still prevalent. It is worth noting that the species may be found on 'brownfield' (previously built on) sites, and not just undeveloped land; with recent trends for the redevelopment of such areas there are fresh concerns for urban great crested newt populations.

The UK Biodiversity Action Plan (BAP) contains a great crested newt Species Action Plan (SAP), aimed at maintaining its existing range and population status, as well as increasing the number of populations through re-colonisation. The SAP calls for a wide range of actions to further the conservation of this species, such further survey, monitoring and the favourable management of sites. Importantly, in the context of this document, the SAP recognises the negative impact of development and includes actions for local authorities to identify known great crested newt breeding sites in Local Plans, and to encourage the retention of these populations.

1.3 Legal status and its implications for developers

In view of its status across Europe, the great crested newt has been listed on Annex IV of the EC 'Habitats and Species Directive' (see 2.1 Legislation). The domestic legislation which implements this directive, combined with other UK law, ensures that individual newts and their habitats are protected, and this has important implications for those who own or manage land where great crested newts occur. Whilst in recent years it has been a familiar complaint of some developers that great crested newts occur on construction sites more often than they would imagine for a strictly protected species, this situation in itself is of concern; indeed, one of the prime reasons for the decline of this species in some areas is loss of habitat through development. That such pressure continues underlines the need for safeguards. Unlike several other species subject to similar levels of protection, great crested newts

occur on habitats which are often prime development areas. By contrast, the hazel dormouse, which enjoys similar protection, is rarely encountered by developers since its primary habitat is established woodland, which is seldom subject to land-use change.

Guidance on the consideration that local planning authorities should give to nature conservation interests is contained in Planning Policy Guidance 9: Nature Conservation (October 1994) [note that a revised version is in preparation]. The presence of a protected species is a material consideration when the authority is considering a developmental proposal. The protected status afforded to great crested newts means planning authorities may require extra information (in the form of surveys, impact assessments and mitigation proposals), before determining planning applications for land proposed for a change of land use. Planning authorities may refuse planning permission solely on grounds of the predicted impact on protected species like the great crested newt. Recent case law has underlined the importance of obtaining survey information prior to the determination of planning consent (see 6.1). Areas known to be of significance for the great crested newt may be excluded from development by appropriate allocation in Local Plans. Designations of various kinds, both statutory and non-statutory, may further protect individual sites. Although the presence of great crested newts does not always preclude a land parcel from development, planning and licensing controls may limit the extent of disturbance, the timing of activities, and may well stipulate compensatory measures. Conditions and legally binding arrangements such as Section 106 agreements are often used to this end.

1.4 Development, mitigation and compensation

In this document, the term 'development' is used to cover common forms of land use change or operations that have the potential to negatively impact on great crested newt populations. Typical examples would be the construction of housing developments, retail outlets and factories, and the extraction of aggregates (all of which require planning permission), as well as pipeline or rail projects (which may constitute permitted development and hence not require permission). Likewise, the term 'developer' is used herein to cover individuals, companies or organisations responsible for undertaking these activities, and not simply members of the construction industry.

Where the proposed development will affect land known to be used by great crested newts, consideration needs to be given to the likely impact on the population(s). Even when planning permission is given, or the activity does not require such permission, the wildlife legislation applies; great crested newts and their habitats are still protected. In some cases, this situation may be resolved by the issuing of a licence to facilitate mitigation, which is the term used to cover measures to protect the newt population from damaging activities and to reduce or remove the impact of development; this will often involve trapping and exclusion. Normally, compensation for the loss of habitat is also required, and this often takes the form of habitat creation, restoration or enhancement. Such a programme of mitigation and compensation should allow the conservation status of great crested newts to be maintained or enhanced following development, thus meeting one of the licensing criteria (see 2.2 Exceptions and licensing). Note that in this document, the term 'mitigation' is generally used in its broad sense, to encompass both compensation and mitigation.

1.5 Responsibility for achieving successful outcomes

In order to successfully address land-use conflicts where great crested newts are involved, a number of stages are necessary; these are outlined in Figure 1 and the roles of each key player are given in 3. Roles and responsibilities. The Sustainable Development initiative and the Biodiversity Action Plan

confer general responsibilities on all participants in the development process to take account of protected species. Some important messages resulting from these responsibilities are given here:

For developers: Sustainable Development should be a guiding principle when progressing proposals, and resolving wildlife issues requires specialist ecological knowledge. English Nature recommends that developers seek the services of a professional advisor (environmental consultant) when protected species issues arise in connection with proposed development. Contact details for environmental consultants can be obtained from a number of sources, including their professional bodies and published directories. Two such directories are: the *ENDS Environmental Consultancy Directory* (Environmental Data Services; www.ends.co.uk/consultants/), and the *Directory of Ecologists and Environmental Managers* (IEEM).

For consultants: In order to successfully resolve most great crested newt issues, consultants should have a sound knowledge of, and experience with, the species. A thorough grounding in pond ecosystems in general, including an understanding of hydrology, aquatic vegetation and invertebrates, can be crucial to good survey and mitigation planning. Consultants are expected to apply landscape ecology principles so that the local circumstances relating to a particular development proposal can be interpreted using these generic guidelines. The outline mitigation plan structure (see 10. Presenting mitigation plans) should be used where appropriate. It is expected that consultants will provide advice to clients, and information to English Nature, planners and others, in an impartial and accurate manner. Should cases come to light where consultants appear to have wilfully or negligently misrepresented a situation or site details, English Nature will consider bringing its concerns to the attention of the relevant client and, if applicable, the professional body. The UK Government has underlined obligations under international wildlife legislation by making it an offence under Regulation 46 of the Conservation (Natural Habitats &c.) Regulations 1994 and section 17 of the Wildlife and Countryside Act 1981 to knowingly or recklessly make false statements for the purpose of obtaining a licence, whether for oneself or for another.

General: These guidelines are intended to provide generic advice, and are not meant to be taken as a rigid set of rules. Individual sites vary considerably in terms of population status, habitat type, connectivity, etc, and the potential impacts of different types of development also vary, so it would be impossible to develop an all-encompassing document. Decisions should be made on a site-by-site basis. The methods described are those considered to be practical and effective based on past experience, but this does not mean that other methods are inappropriate or unlawful. Similarly, the levels of mitigation effort suggested herein are based on available information, and do not necessarily constitute a statement of the lawful minimum. It would be for a court to decide as to whether an offence has been committed. The legislation does not specify mitigation methods; it prohibits certain actions. Developers and their consultants may wish to take their own legal advice to provide an interpretation of the law. Notwithstanding the above caveats, these guidelines are currently the most detailed, readily available source of information on mitigation for great crested newts and it is strongly recommended that developers and consultants take them into consideration. Should legal proceedings be initiated, these guidelines will be used as a record of English Nature's approach to best practice, which may have a bearing on the definition of reasonable effort.

2. Legislation and licensing

Note: The information given in this section is intended as general guidance on the law relating to great crested newts and development, and is not comprehensive. When dealing with individual cases, readers should consult the full texts of the legislation, and obtain their own legal advice if necessary. Web addresses for the texts of legislation are given in 11. Further reading.

2.1 Legislation

The Wildlife and Countryside Act 1981 (as amended) transposes into UK law the Convention on the Conservation of European Wildlife and Natural Habitats (commonly referred to as the 'Bern Convention'). The 1981 Act was recently amended by the Countryside and Rights of Way ['CRoW'] Act 2000. The great crested newt is listed on Schedule 5 of the 1981 Act, and is therefore subject to the provisions of Section 9, which make it an offence to:

- Intentionally kill, injure or take a great crested newt [Section 9(1)]
- Possess or control any live or dead specimen or anything derived from a great crested newt [Section 9(2)]
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection by a great crested newt [Section 9(4)(a)]
- Intentionally or recklessly disturb a great crested newt while it is occupying a structure or place which it uses for that purpose [Section 9(4)(b)]

The Conservation (Natural Habitats &c.) Regulations 1994 (the Habitats Regulations) transpose into UK law Council Directive 92/43/EEC of 21st May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora (often referred to as the 'Habitats [and Species] Directive.') The great crested newt is listed on Annex II and Annex IV of the Directive. The former Annex relates to the designation of Special Areas of Conservation (SACs) for this species; even where great crested newts occur outside SACs, the inclusion on Annex II serves to underline their conservation significance. Inclusion on Annex IV ('European protected species') means that member states are required to put in place a system of strict protection as outlined in Article 12, and this is done through inclusion on Schedule 2 of the Regulations. Regulation 39 makes it an offence to:

- Deliberately capture or kill a great crested newt [Regulation 39(1)(a)]
- Deliberately disturb a great crested newt [Regulation 39(1)(b)]
- Deliberately take or destroy the eggs of a great crested newt [Regulation 39(1)(c)]
- Damage or destroy a breeding site or resting place of a great crested newt [Regulation 39(1)(d)]

The legislation applies to all life stages of great crested newts.

2.2 Exceptions and licensing

There are several exceptions (or 'defences') to the provisions listed in section 2.1 above. For example, a disabled great crested newt may be lawfully captured for the purpose of restoring it back to health for subsequent release, and 'mercy killing' of severely injured newts is also permissible without a licence. Both the 1981 Act and the Habitats Regulations provide a defence to the offences listed in section 2.1 above in cases where "*the act was the incidental result of a lawful operation and could not reasonably have been avoided.*" [Section 10(3)(c) of the 1981 Act and Regulation 40 (3)(c) of the Habitats

Regulations]. Readers may wish to seek their own legal advice as to the applicability of the exceptions. As there is a licensing system in place, it is generally recommended that this system is used (rather than proceeding with works without a licence and relying on exceptions if challenged).

Licences permit otherwise unlawful activities, and can only be granted for certain purposes. English Nature issues licences for scientific, educational and conservation purposes. Surveys for great crested newts which involve otherwise unlawful acts (such as disturbance) may be authorised for scientific and educational purposes; this includes surveys of potential development sites. The Department for Environment, Food and Rural Affairs (DEFRA) issues licences for the purposes of "*preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment*" [Regulation 44(2)(e)].

In every case, a licence cannot be granted unless:

- "*There is no satisfactory alternative*" [Regulation 44(3)(a)], and
- "*The action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range*" [Regulation 44(3)(b)].

'Favourable conservation status' is defined in the Habitats and Species Directive (Article 1(i)); one of the key aims of the Directive is to encourage member states to maintain at, or restore to, favourable conservation status those species of community interest (Article 2(2)). Conservation status is defined as "*the sum of the influences acting on the species concerned that may affect the long term distribution and abundance of its population within the territory*." It is assessed as favourable when:

- "*population dynamics data on the species concerned indicate that it is maintaining itself on a long term basis as a viable component of its natural habitats, and*
- *the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and*
- *there is, or will probably continue to be, a sufficiently large habitat to maintain its populations on a long term basis*."

For the great crested newt, evidence of past and current decline indicate that its conservation status does not currently satisfy the criteria required for it to be taken as favourable. Hence, in order to obtain a licence to allow the capture of newts, destruction of breeding sites, etc, in advance of any otherwise legitimate development which further impacts on the status of great crested newts, it has to be clearly demonstrated that the damage will be adequately compensated for (to satisfy Regulation 44(3)(b)). Current English Nature advice is that there should be no net loss in local great crested newt status, taking into account factors such as population size, viability and connectivity. Hence, when it is unavoidable that a development will affect a great crested newt population, the mitigation should aim to maintain a population of equivalent status on or near the original site, and should address links to adjacent (indirectly affected) populations where present.

Note that even though there is apparent overlap between the 1981 Act and the Habitats Regulations, they run concurrently. Licences issued by DEFRA to permit capture, breeding site destruction, etc are issued under the Conservation (Natural Habitats &c.) Regulations 1994, and reflect the derogations in Article 16 of the Directive. It should also be noted that a licence only allows what is permitted

within its terms and conditions; it does not legitimise all actions related to great crested newts at a given site.

2.2.1 When is a licence required?

English Nature and DEFRA are frequently asked by consultants whether a licence is required for a particular activity. However, this is a decision to be made by the consultant. A licence simply permits an action that is otherwise unlawful. A licence should be applied for if, on the basis of survey information and specialist knowledge, it is considered that the proposed activity is reasonably likely to result in an offence (killing, breeding site destruction, etc – see above). No licence is required if, on balance, the proposed activity is unlikely to result in an offence. The advice given in this document should assist the consultant in arriving at a decision on this matter.

2.3 Interpretation and enforcement

As the legislation applies to a wide range of species, its provisions are generic in nature and there are no detailed definitions of, for instance, exactly what constitutes a 'resting place' for a great crested newt, nor what has to be proved to establish that an act could not reasonably have been avoided. Were a breach of the law to be alleged, a court would have to decide whether an offence did in fact occur. Note that under the 1994 Regulations, damaging or destroying a breeding site or resting place is an offence regardless of whether the act was deliberate or not.

The police are the main enforcement body for wildlife offences, and in some cases local authorities may also take action. Section 24(4) of the 1981 Act gives English Nature the function of providing advice or assistance to the police in respect of alleged offences. The maximum fine on conviction of offences under Section 9 and Regulation 39 currently stands at £5000. The CRoW Act 2000 amended the 1981 Act to allow for a custodial sentence of up to six months instead of, or in addition to, a fine. Note that fines may be imposed in relation to each offence committed, so operations involving many animals or repeated offences can potentially accrue large fines. In addition, items which may constitute evidence of the commission of an offence may be seized and detained. The CRoW Act 2000 also amends the Police and Criminal Evidence Act 1984 to render Section 9 offences 'arrestable', giving the police significant additional powers.

2.4 Other legislation

Once captured, great crested newts may become subject to the Protection of Animals Act 1911, which prohibits cruelty and mistreatment. Releasing a great crested newt in such a way as to cause undue suffering may be an offence under the Abandonment of Animals Act 1960. There are various statutory provisions relating to the transport of animals, designed to ensure their welfare. These provisions are taken into consideration in the guidelines in 8.6 Welfare considerations for capture programmes.

3. Roles and responsibilities

3.1 Introduction

In order for great crested newts to be protected successfully when development is planned, a number of organisations will need to interact. Each organisation has its own role, and in some cases its statutory duties, to carry out. This section spells out the roles and responsibilities of the main players in connection with development, with the intention of promoting more effective liaison.

3.2 English Nature

English Nature is the Government's statutory nature conservation advisor. In the current context it has the following functions:

- Provision of advice to Local Planning Authorities on European protected species issues, including consultations on planning applications where great crested newts are thought to occur (as described in PPG9)
- Provision of general advice to developers, consultants and others on protected species cases (through documents such as the current one; English Nature Local Teams may also provide site-specific advice, though this will be constrained by local circumstances)
- Provision of advice to Local Planning Authorities on forward planning (eg commenting on Local Plans)
- Provision of generic advice to Local Planning Authorities, including the legal background to protected species casework
- Determining applications for licences for great crested newt survey work
- Provision of advice to DEFRA over great crested newt licences applied for under Regulation 44, both generally and on a case-by-case basis
- Provision of specialist advice to those involved with enforcement (primarily the police).

Contact details (head office): English Nature, Northminster House, Peterborough PE1 1UA; tel 01733 455000; web www.english-nature.org.uk [for initial discussions about individual sites, the relevant Local Team should be contacted; contact details for Local Teams are available from the head office or the website].

3.3 The Department for Environment, Food and Rural Affairs

DEFRA has the following roles in connection with great crested newts and development:

- Assisting in the development of wildlife legislation
- Producing guidance for Local Planning Authorities on planning policy (notably PPG9)
- Determining licence applications for great crested newt activities under Regulation 44(2)(e) of the 1994 Regulations
- Determining planning applications which are 'called in' (public inquiry).

Contact details: Licensing Section, European Wildlife Division, DEFRA, Zone 1/08, Kite Wing, Temple Quay House, 2 The Square, Temple Quay, Bristol BS1 6EB; tel 0117 372 8291; fax 0117 372 8182; web www.defra.gov.uk/wildlife-countryside/ewd/index.htm .

3.4 Developers and environmental consultants

The developer and their advisor(s) share the responsibility for the following:

- Ensuring that they provide to Local Planning Authorities an accurate assessment of application sites, including surveys for great crested newts if their presence is suspected
- Applying for a licence to DEFRA should mitigation be required
- Providing a sound and objective assessment of the potential impact of proposed development on great crested newt populations
- Where necessary, designing and undertaking a mitigation scheme that meets planning and licensing requirements, and in particular will ensure as far as possible the long term future of any populations affected; such schemes should ideally employ 'best practice'
- Where necessary, agreeing with Local Planning Authorities a Section 106 agreement or similar, to ensure continued support for affected populations
- In many cases, monitoring affected populations after completion of development

3.5 Local Planning Authorities

Local Planning Authorities have the following roles:

- Ensuring that protected species issues are taken into account as a material consideration when determining planning applications, as set out in PPG9; this may involve refusal, deferral, conditions or agreements
- Ensuring that protected species issues are taken into account in preparation of Local Plans, UDPs, etc (this is best addressed through species protection policies in development plans, and allocations based on the distribution of great crested newts and their habitats). This and the above point are underlined by Regulation 3(4) of the Conservation (Natural Habitats &c.) Regulations 1994, which require authorities to have regard to the conservation of European Protected Species
- In order to achieve the above, developing means of assessing information on the presence of great crested newts, in order to better inform planning decisions; this may include the operation of Local Records Centres, or liaison with local voluntary groups
- Raise awareness of protected species in their area, and, in some cases, enforce wildlife legislation (s.25 of the Wildlife and Countryside Act 1981)
- According to information available, advising developers about statutory species protection provisions affecting an application site
- Enforcement of planning obligations

3.6 Other organisations

Enforcement of most relevant legislation is carried out by the police, and in most areas there is now a Wildlife Liaison Officer who will assist. The Environment Agency may have an involvement where water quality and drainage issues are raised; it also has a general remit to promote the conservation of wetland wildlife and may therefore comment to Local Planning Authorities on planning applications concerning great crested newt ponds. Local Records Centres often have useful information on the distribution of great crested newts, and can provide such details to consultants, developers and Local Planning Authorities (note that English Nature does not generally hold records of protected species except on designated sites). Similarly, local amphibian and reptile groups often collect data and may be able to provide a more detailed assessment of status; some may also be willing to undertake great crested newt surveys in advance of planning applications. Most of these voluntary groups are part of the Herpetofauna Groups of Britain and Ireland (HGBI) network, which has produced guidance for

the involvement of volunteers in development-related work, and has also developed guidance on mitigation standards (see 11. Further reading). The county Wildlife Trust may also be able to give advice about local great crested newt sites.

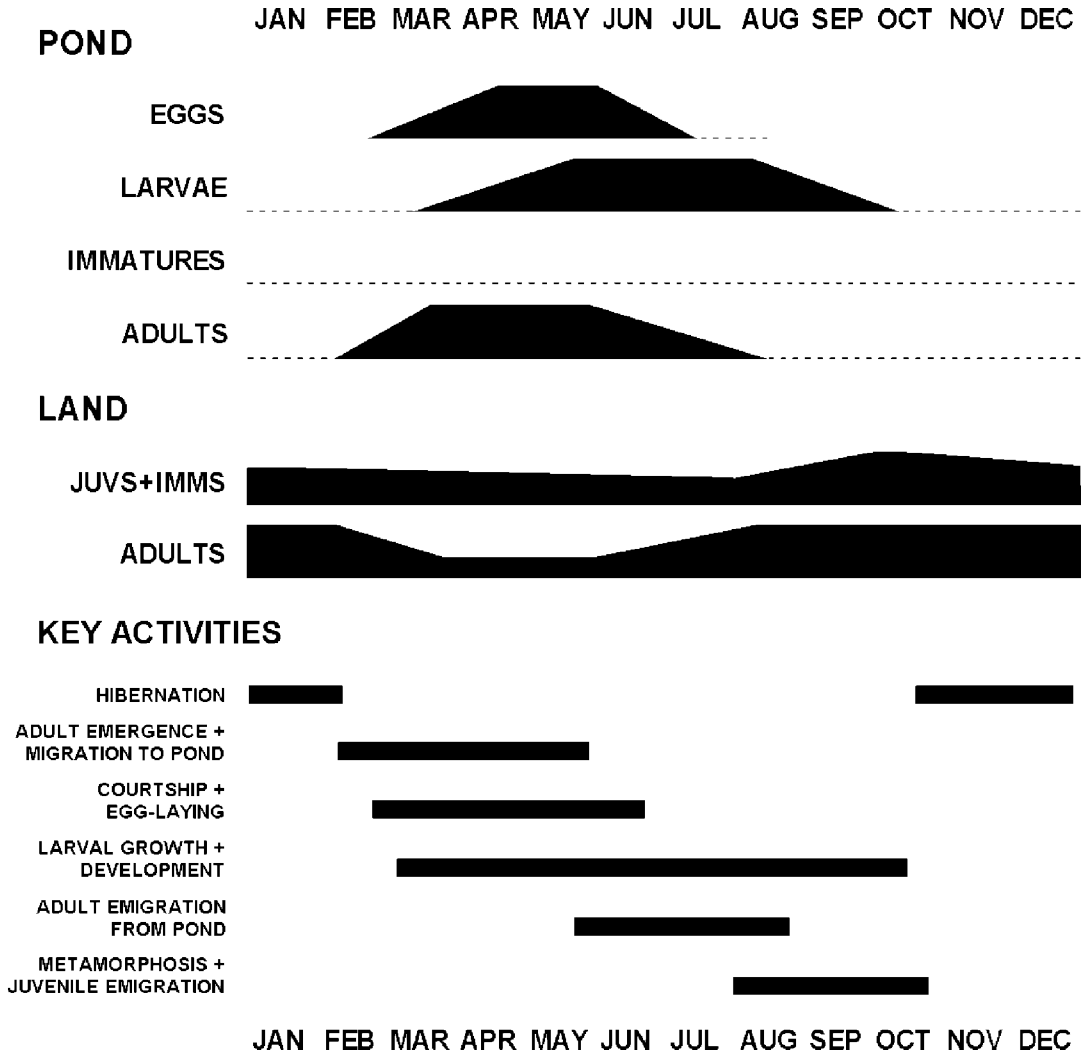
4. Introducing the great crested newt

4.1 General

In order to understand the potential effects of development work, and in turn to plan effective mitigation, it is essential to have a knowledge of great crested newt ecology. This knowledge is likely to be most relevant to environmental consultants, whose role it is to undertake site surveys, predict impacts and propose mitigation. English Nature and Local Planning Authority staff will also benefit from such understanding. This section is not intended as a comprehensive description of great crested newt ecology, as consultants are expected to have developed their own knowledge through study and field experience. It is meant as a general introduction, mainly for developers, to the great crested newt lifecycle and its habits. A range of more detailed references is given in 11. Further reading for those who wish to investigate more. Specialist amphibian conservation organisations, and local amphibian groups, are also a good source of knowledge about great crested newts in a given area.

Figure 2: The newt year

The upper two diagrams show the changes in the numbers of newts found in the breeding pond and in the surrounding terrestrial habitat. The thickness of the bar indicates the proportion of individuals; a dotted line indicates that small numbers of individuals follow this pattern at some sites. The lower diagram illustrates the timing of key activities in the newt life cycle. Based on typical, lowland, central England activity. Upper two diagrams modified after BHS (1996).



4.2 Summary of great crested newt ecology and habitat requirements

Like all British amphibians, great crested newts rely on waterbodies for breeding but otherwise they spend much of their lives on land (see Figure 2: The newt year). Some adult great crested newts commence migration to their breeding ponds as early as the first frost-free days in late January, but most move later, with the majority reaching the ponds by mid March. This movement, like most overland dispersal in the great crested newt, is influenced by a range of factors, notably evening temperatures and rain. Great crested newts are ectotherms (ie they rely on external heat sources to raise their body temperature to a level that allows activity) and have permeable skins, so most movement occurs when the air temperature is above around 5°C and there is, or has recently been, rain. Movement at night may reduce predation risk, and certainly makes desiccation (dehydration) less likely. This gradual migration to the breeding pond is in contrast to the shorter period of migration to ponds observed in frogs and toads.

The peak courtship and egg-laying period is normally from mid-March to mid-May. During this time, adult males attract females by undertaking a complicated courtship 'dance', which may result in the female taking up his sperm (in the form of a packet called a spermatophore) into her cloaca. Following this, the female lays eggs individually, mostly on the leaves of submerged plants. She may lay around 200 eggs per season, over a period of several weeks. The larvae hatch out after around 3 weeks, and then take another 2 to 3 months to complete larval development. During this time they feed on a range of prey, including small crustaceans, fly larvae, frog and toad tadpoles and other newt larvae. Adult newts generally leave the breeding ponds from late May onwards, this dispersal being gradual, and newts may return occasionally to feed. Adult males tend to remain in the pond for longer than females.

Once the larvae have completed metamorphosis (the transition from aquatic larvae to land-adapted juveniles, also called efts), they emerge from the pond. This emergence generally begins in early August and lasts for around two months. It then takes between 2 and 4 years to reach sexual maturity, during which time the immature newts will be largely terrestrial (based on land). Adults and immature newts spend the winter in places that afford protection from frost and flooding, often underground amongst tree roots, in mammal burrows, or above ground under suitable refuges like deadwood or rubble piles. Hibernation may last from October to February.

Whilst on land and outside of the hibernation period, great crested newts require refuge from extremes of weather, meaning that during the day they will rest in dense vegetation, under refuges, or underground. They will also forage on land, taking a range of invertebrate prey.

For their size, great crested newts are relatively long-lived animals. There is often a high mortality during the egg and larval stage (indeed, 50% of all eggs die before hatching due to a chromosome abnormality), but once on land year to year survival is relatively high. Post-metamorphic great crested newts have toxins in their skins which make them unpalatable to many predators, and this may aid survival. Exceptionally, adults can live for over 15 years, but the majority will survive only a few years past sexual maturity. Juvenile and immature animals normally outnumber adults considerably, though sometimes a cohort (the collective name for all animals hatched in a single year) may be reduced or absent because of poor survival, perhaps due to early pond drying.

Great crested newts in a given area often form a metapopulation, ie a series of sub-populations that are linked by dispersal of individuals. This system often applies to species which depend on habitats which vary in quality over time, and where the distribution of suitable habitats may change. Great crested newts often inhabit ponds that are part of a 'pond cluster', and individuals (and hence genes) may move between ponds with varying frequency. This ability to shift between locations is beneficial, for example, if a pond were to become less suitable for breeding through prolonged drought, as great crested newts may move to newly created or restored ponds. Small, isolated populations based on a single pond are normally less likely to persist in the long term. To some extent, the metapopulation concept complicates the study and conservation of this species, since impacts on a single pond may have knock-on effects on newts in nearby ponds.

Though adult newts often return to the same breeding site, they may also move between different ponds both within and between years. Adults may occasionally skip a reproductive season in order to move to a new pond. Dispersal to new sites may thus occur by both adult and immature newts. However, it would be very unusual for a given pond that was previously the centre of breeding activity for a viable population, to suddenly 'lose' its newts (unless a major catastrophe occurred, such as predatory fish introduction). Even if other, good quality sites were created nearby it is likely that a population would remain at the original site, but that some dispersal would occur resulting in breeding in the new ponds.

Great crested newts have been found to move over considerable distances (up to 1.3km from breeding sites). However, the vast majority of newts will inhabit an area much closer to the pond, and the exact distribution and migration patterns of newts on land depends on a variety of factors. The quality of terrestrial habitat near to breeding ponds is important, as are the lack of barriers to dispersal (such as fast-flowing rivers, or very busy roads). The distribution of ponds and hibernation opportunities may also influence movements. Only detailed survey at a given site will reveal the direction and amount of dispersal that occurs. Several studies have been conducted which reveal a great deal of variation, but great crested newts commonly move between ponds that are within around 250m of each other.

To summarise habitat requirements, great crested newts require waterbodies to be able to reproduce effectively, and these are typically ponds. Various types of ponds are used, most commonly medium sized ones, such as field ponds, clay pits, marl pits, moats, large ditches and quarry ponds. Great crested newts are most commonly found in lowland, neutral to high pH ponds, which are well-vegetated and not too shaded. Ponds that occasionally dry out in summer, even if this kills larvae, may still be suitable. The presence of predatory fish and a high density of waterfowl reduces the value of ponds, often to the point where they will not be used for breeding. Ponds not used by great crested newts for breeding can still be of importance for the population as they may support prey (for instance, temporary ponds used by frogs may be visited by adult newts). Terrestrial habitats are required for feeding, dispersal and hibernation, and typically this would include grassland, scrub, woodland, hedgerows, 'wasteground' or quarry floors. The key factors seem to be the availability of prey species combined with the presence of dense ground vegetation or voids in the substrate to allow refuge; shelters on the surface, such as logs and rocks, are also valuable. Great crested newts often occur in metapopulations, so connections between ponds (and between populations more distant) are also important.

The above account gives a general picture of great crested newt biology, based on a range of references given in 11. Further reading. Note that populations will be influenced by factors such as altitude,

weather, geology, vegetation and disturbance. For instance, it is known that at some sites, low numbers of adults remain in the pond to over-winter, and that in some populations (particularly in cool, upland, low nutrient areas) larvae regularly overwinter, to emerge the following spring.

5. Survey objectives, methods and standards

5.1 The importance of a good survey

The importance of a thorough site survey prior to considering development cannot be over-emphasised. The following descriptions of survey techniques and their correct application are aimed at assisting consultants (to appreciate the type of survey that is expected), the developer (to be assured that their consultant is recommending a survey to help them meet legal and policy requirements), and planning officers and English Nature staff (to be sure that an accurate assessment of the site and the extent of its population has been made). Without a sound survey that includes an assessment of all available evidence, it is difficult to accurately predict the impact of development.

5.2 Some general points on surveys

A survey for great crested newts may be indicated when background information on distribution suggests that they may be present. More detailed indicators are:

- any historical records for great crested newts on the site, or in the general area.
- a pond on or near the site (within around 500m), even if it holds water only seasonally. Note that muddy, cattle-poached, heavily vegetated or shady ponds, ditches and temporary, flooded hollows can be used by great crested newts
- sites with refuges (such as piles of logs or rubble), grassland, scrub, woodland or hedgerows within 500m of a pond

Note that if the proposed development site has been ploughed, soil stripped, or had ponds in-filled within the last four or so years, it should not automatically be assumed that the site will not support great crested newts. It is possible for this species to survive for several years on sites where the breeding pond has been destroyed. Survey data that are more than a few years old normally cannot be relied upon for details on which to base mitigation schemes, as populations and sites may change in nature and extent.

It is the responsibility of the developer to produce, normally via a consultant, evidence on the presence of great crested newts on a site at which works are proposed. It is for the consultant to decide on the level of survey required (taking these guidelines into account). English Nature will not generally agree or endorse the methods and effort prior to a survey, as this is not English Nature's role, and site circumstances vary considerably. However, if English Nature or the Local Planning Authority consider that an inadequate survey has been conducted, further work may be required of the developer and consultant. English Nature staff will generally visit sites only where there is an exceptional need to do so, so it is crucial that survey reports are thorough.

Considering the great variation between sites, it is not possible to give exact prescriptions for survey work here that will cover all circumstances. Therefore, survey proposals needs to be formulated on a site basis, and the experience of the consultant should help shape this. Survey projects must not involve any translocation or obstruction of great crested newts, aside from that which is required to fulfil the survey objectives. Surveys should not entail undue site damage or disturbance to the population.

Survey reports are expected to:

- State what the survey objective was, what work was done, by whom, and when. A suggested outline for survey reports within mitigation plans is given in 10. Presenting mitigation plans.
- Be clear and unambiguous, with appropriate evidence to support conclusions. For instance, it is unhelpful simply to state that a given area of habitat is 'good' or 'poor'; remember that the reader may not have visited the site and needs to understand the reasoning behind such assertions
- Contain relevant raw data as well as processed data, and any negative results obtained
- Contain contextual information, such as weather conditions, which may have affected results
- Contain good site descriptions (pond type, water depth, profile, aquatic vegetation description, degree of shading, terrestrial habitat descriptions, etc)
- Include a summary which is understandable by people without detailed knowledge of great crested newts.
- Be accessible to third parties. Note that as survey reports are used in the decision-making process for licences, they should not be confidential. Under the Environmental Information Regulations 1992, DEFRA (or English Nature) is obliged to make such information available to third parties on request wherever possible.

5.3 Setting survey objectives

Before setting foot in the field, it is important to define the purpose of the survey; in other words, why is it being undertaken? In turn, objectives for field survey can be set, the two most common objectives in relation to development being:

- Presence/absence survey: how likely is it that great crested newts use a particular area of land (typically a pond)?
- Population size class assessment: how large is the population of great crested newts?

The former may be a first stage, when assessing potential development sites from a list of several. Undertaking the latter will normally be required prior to applying for planning permission, to inform an opinion as to what effect development will have on a particular piece of land (see 6. Predicting the impact of development).

5.4 Survey area

As a minimum, the area of survey should normally cover any land which is proposed for development. For phased developments, the entire site should be surveyed, not just the first phase, and considered as a whole unit when assessing impacts and possible mitigation. Remember that as well as construction work itself, there are other development-related activities which can affect great crested newt sites (see 6.2 Major types of impact and their effects on populations). However, certain parts of the land may be excluded from survey if it is considered that (a) great crested newts are highly unlikely to be present (normally due to habitat unsuitability or distance from great crested newt locations), or (b) development on that area would not affect the great crested newt population. Examples include areas which are isolated from known newt sites because of barriers to dispersal, or areas of intensive land use which would preclude newt habitation. Ponds should not be excluded simply because they appear superficially unsuitable; even heavily shaded ponds may still support newts, and ponds containing fish should not always be disregarded as newt habitat.

For a common situation, where a plot of land containing a pond is proposed for development, the pond itself should be surveyed, and other ponds up to 500m away should also be checked, if it is

thought likely that great crested newt populations centred on these ponds would be affected by changes to the plot. The decision as to whether to survey other ponds will be influenced by surrounding land use. A survey of the terrestrial habitats around the target pond may also be required, depending on the type and extent of development and the habitats to be disturbed. However, where a great crested newt breeding pond is within the development footprint a survey of the use of terrestrial habitats by newts will often not be required; such surveys can be very difficult to conduct thoroughly, and the extent of likely terrestrial habitat disturbance can normally be assessed by a knowledgeable consultant.

It should be noted that development planned on a given plot may affect newt populations on adjoining plots that are not in the developer's ownership. Although this may make the developer's and consultant's task more difficult, licences can only be issued if the range of likely impacts are explored, regardless of ownership. It is the developer's responsibility to finance this work; this may involve surveys of adjacent land and garden ponds. Note however that studies indicate that in general, typical garden ponds are less likely than larger field ponds to support great crested newt populations. Typically, if there is a larger pond nearby in which breeding occurs, garden ponds may often be used by low numbers of great crested newts for foraging and/or for limited breeding activity. It is for the consultant to decide whether other ponds in the area, but outside the ownership of the developer, should be surveyed, based on relevance to the proposed disturbance.

5.5 Desk study

The following sources can be asked for existing information on local great crested newt distribution: Local Planning Authorities (eg on 'constraint plans'), Local Record Centres, county Wildlife Trust, local Amphibian and Reptile Groups, natural history societies, and museums. Ideally, there will be one organisation, often the Local Record Centre, that compiles the information, but in many areas it is fragmented between the other bodies. This consultation can result in lists of recent sightings and an indication of status and distribution in the general area. However, it should only used as background information, because such archives are likely to become out-of-date quite quickly, and should never be considered as a substitute for a field study.

5.6 Field survey methods

This section describes the main methods used to detect great crested newts. How often these methods are used, and exactly how they are implemented depends on the purpose of the survey, and the confidence the surveyor wishes to attach to the resulting data (this is discussed later.) Environmental consultants working on great crested newt projects are expected to have a good working knowledge of these techniques, so the information below is a summary of the most salient points, rather than a set of instructions. Details on methods are given in a range of other publications, notably the *Herpetofauna Worker's Manual* (Gent & Gibson, 1998) and *Froglife Advice Sheet 11: Surveying for (Great Crested) Newt Conservation* (Froglife, 2001). English Nature licences will generally be required for all of these activities except egg searching.

5.6.1 Bottle (or funnel) trapping

This method involves setting bottle traps (normally made from 2-litre plastic bottles) around the pond margin, and leaving the traps set overnight. A density of one trap per two metres of shoreline is recommended for general survey purposes. Some studies indicate that bottle trapping is the most reliable method for detecting the presence of great crested newts, and it is especially useful for surveying turbid or weedy ponds. The main disadvantages are susceptibility to damage by vandals and

possible harm to newts; certainly there is a need for careful training to minimise such risks. Bottle trapping can be used to catch adults during the breeding season and larvae during summer. It should only be used when the night-time air temperature is >5°C, but note that very high temperatures can increase the likelihood of harm to trapped newts, especially larvae. This method must be carried out strictly in accordance with guidelines on animal welfare (see 8.6.3 Bottle traps).

5.6.2 Egg search

This method involves searching both live and dead submerged vegetation for great crested newt eggs (or rather, strictly speaking, embryos). This is often a very effective method for detecting great crested newt presence, but eggs can prove difficult to find in heavily vegetated ponds with small newt populations, or those with no accessible vegetation. The search should be conducted with care not to damage the eggs or the aquatic and marginal vegetation. Normally, it is necessary to 'unwrap' eggs to confirm identification, and there is some evidence that exposed eggs may be more prone to predation and UV radiation impacts. It is therefore recommended that large areas of vegetation are not systematically unwrapped (to conduct egg counts); once great crested newt eggs have been reliably identified, the search can be terminated. This is not a problem as the method does not give any meaningful quantitative information on population size. In large ponds, it may be useful to conduct egg searching in different sections of the pond margin to establish favoured breeding areas. Artificial 'egg strips' may be successful at detecting newt presence, and are especially valuable in sparsely vegetated ponds (though even in well-vegetated ponds, newts sometimes prefer them). Egg-strips may be constructed from plastic bin-liners cut into 1-2cm wide strips, attached to a stake or rock and submerged near the pond margin. The risk of interference should be considered (do not use them if there is a high risk), and egg-strips should be removed after hatching. When egg searching it can be instructive to make a note of the developmental stage of newt eggs and the presence of previously used leaves (folds without eggs are often evident in late season); see 5.6.7 Timing of surveys.

5.6.3 Torch survey

This method involves searching for great crested newts at night by shining a torch in the pond. In clear ponds this can be a simple and very effective way of detecting newts, but in heavily weeded or turbid ponds this method is limited. Bright light may cause great crested newts to seek the cover of vegetation, possibly affecting survey results and disrupting their breeding activity. Nonetheless, it is often indicated as a useful method. Powerful torches should be used, with 50,000 candlepower as a recommended minimum. Some surveyors use 1,000,000 candlepower torches, which may increase the chance of detecting newts and may reveal a higher proportion of the newts present, though increased disturbance also occurs. The margins of the pond are often the best areas to search for newts. It is recommended that the entire margin of the pond is walked once, slowly checking for great crested newts (though some areas of the margin may need to be omitted if access if difficult). Torch survey results are subject to high variation due to weather conditions, and so should only be carried out under the following conditions: night-time air temperature >5°C, no/little wind, no rain.

5.6.4 Netting

Using a long-handled dip-net, great crested newts can be captured by sampling the area around the pond edge. Netting can be conducted by day or night, but better results may be obtained at night when adult newts are more likely to be in open water. A perimeter walk, as with torch surveys, is recommended, and there should be at least 15 minutes of netting per 50m of shoreline. Studies indicate that netting is much less effective at detecting adult great crested newt presence than bottle-trapping, torch survey or egg search, but it is nonetheless useful in augmenting these techniques. In

addition, netting is often useful for finding larvae during late summer (though care is needed to avoid damage to gills). Results from netting are normally only useful for indicating presence/absence; using netting to give an indication of population size is not usually recommended.

5.6.5 Pitfall trapping

Newts can be captured on land using pitfall traps sunk into the ground, flush with a drift fence (see Figure 4: Fence and pitfall trap design). Pitfall traps are commonly used in conjunction with a ring fence, ie a length of drift fence that encircles the breeding pond. This is a good method of sampling immigration and emigration. Drift fences with pitfall traps can also be used to sample newts in areas away from the breeding pond, though this often requires considerable time. The sampling efficiency of drift fence systems can be greatly influenced by their design and installation. Traps should be installed at 5-10m intervals (or less for very intensive surveys). Capture rates are highly dependent on timing and weather conditions, particularly in summer when great crested newt terrestrial movements are normally highly correlated with rainfall. There are a number of practical concerns relating to the welfare of great crested newts and other species when using pitfall traps (see 8.6.2 Pitfall traps).

5.6.6 Refuge search

Great crested newts may rest under refuges such as logs, bark, rocks, and debris (discarded furniture, etc). Placing further refuges such as carpet tiles and plywood boards on a site for the purpose of survey may be advised to increase the chances of newts finding a refuge. However, lifting and searching underneath such refuges appears to be a very inefficient method, and is best used as an additional technique. It should certainly not be relied upon as the sole survey method. There is some evidence that placing refuges along drift fences can be somewhat more effective, but they should be used together with, not instead of, pitfall traps.

5.6.7 Timing of surveys

The table below gives the most effective (*) and alternative, less effective (+) times for survey methods. (L) indicates the method may be used for detection of larvae. A blank indicates that the survey method is highly unlikely to detect newts. Note that these times are based on typical lowland central England activity, and that activity is generally progressively earlier towards the south-west and later towards the north-east. Local weather conditions and altitude may also influence timing. When conducting egg searches it is useful to note the developmental stage of any eggs present (see Green [2001]), and the presence of previously folded leaves without eggs. If many of the latter are found, it indicates that the main adult and egg survey season has passed in that pond. If a high proportion of eggs are still at an early developmental stage, this indicates that the timing of the survey is appropriate. Note that ponds even within the same site can vary considerably in the speed with which great crested newt embryos will develop, especially if there are variations in the degree of shading. These considerations are particularly pertinent when conducting population size class estimates during the margins of the acceptable time window (see below).

Method	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bottle		+	*	*	*	+	+	*(L)	+(L)			
Egg			+	*	*	*	+					
Torch		+	*	*	*	+	+	+(L)	+(L)			
Net		+	*	*	*	+	+	*(L)	+(L)			
Pitfall		+	*	*	*	+	+	+	*	+		
Refuge			+	*	*	*	*	*	*	+		

5.7 Survey standards

It is for the person planning the survey to decide what level of effort is required, according to the objective of the survey and local conditions. However, this section gives guidelines on reasonable minimum standards for survey methods and effort. Deviation from these guidelines should be justified by a supporting statement, giving reasons for the use of a different set of methods, or level of effort. Obviously, for presence/absence surveys, in many cases newts will be detected in much less time than the number of visits indicated here (sometimes within a few minutes of a site visit commencing), and there may be no need to undertake the full effort indicated if the objective is purely to determine presence.

5.7.1 Presence/absence survey

5.7.1.1 Ponds
Method: three methods (preferably torch survey, bottle-trapping and egg search) per visit
Effort: 4 visits in suitable weather conditions
Timing: mid-March to mid-June, with at least two of these visits during mid-April to mid-May

5.7.1.2 Terrestrial habitat
Method: Pitfall-trapping with drift fence (preferably plus refuges)
Effort: 60 trapping nights (NB this means 60 nights with suitable weather conditions – see 8.4.2.2 Pitfall trapping)
Timing: March - October

5.7.2 Population size class assessment

5.7.2.1 Ponds
Method: torch survey and bottle-trapping
Effort: 6 visits in suitable weather conditions
Timing: mid-March to mid-June, with at least 3 of these visits during mid-April to mid-May

5.7.2.2 Terrestrial habitat
Determining population size class by sampling in terrestrial habitat distant from the pond is fraught with practical and interpretative difficulties, and is therefore not recommended.

5.8 Interpreting and evaluating survey results

5.8.1 Low numbers and absence

'Presence/absence' surveys may determine presence but in fact it is virtually impossible to demonstrate absence. The guidance here is designed to suggest a reasonable level of effort that, at the majority of ponds, will detect the presence of newts. However, where survey conditions are difficult, or where very small populations are involved, it can be exceedingly difficult to detect great crested newts. It is feasible, for example, that using the above methodology at a site with a very small population, 4 visits could be carried out with no great crested newts detected, but a fifth visit might find them. Note that even if great crested newts are indicated to be absent from a given pond in one year, it is feasible that in future years they may colonise, depending on the surrounding populations and connectivity.

Small numbers of adult great crested newts found during a pond survey may indicate that there is (1) a small population centred on the pond, (2) a recent colonisation, (3) a declining population, (4) several, recent low-recruitment years, and/or (5) foraging, and possibly not breeding, occurring in that pond. Similarly, small numbers of immature or adult newts might be encountered on land, say 700m from a pond, but it would be unwise to assume from this that the pond supports only a small population (see 5.7.2.2 Terrestrial habitat); this finding would simply indicate that the sampled area is used by newts. Note also that ponds that are dry the summer of survey (hence no larvae present) may be wet in other years, and hence could still be used by great crested newts.

It is for the consultant to decide on the level of effort to employ according to site conditions; the fundamental issue is that the survey should be able to provide English Nature, the Local Planning Authority and DEFRA with an assessment of the effects of development.

5.8.2 Terrestrial habitat use

Although it can be difficult to assess how much habitat is used by newts (because of the practical problems of detecting newts away from the pond), a precautionary interpretation should adopted. That is, just because no newts are detected in a given area, it should not be assumed that newts will not use it. It would be futile to attempt to comprehensively assess terrestrial habitat use through survey unless several years of intensive studies were undertaken. Some indication can be gained by ring-fencing ponds and determining the direction of immigration and emigration, and by placing traps at points around the terrestrial habitat. However, there is ample evidence that newts often disperse a considerable distance from ponds, so it is for the surveyor to assess likely habitat use based on the available information. Even habitats which do not provide much food or cover, such as playing fields or car parks, may be traversed, so loss of these habitats may have impacts on dispersal. As a general guide, suitable habitats within 250m of a breeding pond are likely to be used most frequently.

5.8.3 Population size class assessment

5.8.3.1 Rapid assessment of population size class

It is very difficult to establish the true size of a population of great crested newts, due to a range of factors, notably the variable sampling efficiency attained even by the best methods, and the complex (meta)population dynamics involved. There have been various attempts at developing multipliers to convert survey results into population size, but these are regularly shown to be unreliable. At the few sites where reliable population estimates or complete censuses are available to compare with survey data, they indicate that surveys may reveal from around 2% to 30% of the population. On this basis, a torch count of 10 may indicate a minimum of 33 newts, but a maximum of 500; clearly this is not very useful. Moreover, recent evidence from mitigation schemes has indicated even greater variation. Until further detailed research is done in this area, such multipliers are not to be recommended. Density based methods are useful for certain types of surveys, but used on their own for mitigation planning they are unlikely to give the most appropriate interpretation (for instance because populations in large ponds are likely to be to undervalued, and vice versa). Survey reports for development projects should use the interpretation shown below as a minimum; further interpretations using density, mark-recapture, multiplier or other methods may be presented in addition if the surveyor feels this would be useful.

For mitigation schemes, it is not normally necessary to determine the actual population size (for which, see 5.8.3.2), though a maximum capture figure may need to be given in DEFRA licence