KEADBY
NEXT GENERATION
POWER STATION
Hydrogen-enabled flexible power

A collaboration between SSE Thermal and Equinor

The Keadby Next Generation Power Station Project

Document Ref: 9.2

Planning Inspectorate Ref: EN0110001

The Keadby Next Generation Power Station Development Consent Order 202[x]

Land at, and in the vicinity of, the existing Keadby Power Station (Trentside, Keadby, Scunthorpe DN17 3EF)

Statement of Common Ground with the Environment Agency

The Planning Act 2008

Applicant: Keadby Next Generation Limited

Date: June 2026

Glossary

Abbreviation	Description
AOD	Above Ordnance Datum - a spot height (an exact point on a map) with an elevation recorded beside it that represents its height above a given datum
CCGT	Combined Cycle Gas Turbine - a highly efficient form of electricity generation technology. An assembly of heat engines work in tandem using the same source of heat to convert it into mechanical energy which drives electrical generators and consequently generates electricity.
CEMP	Construction Environmental Management Plan - a plan to outline how a construction project will avoid, minimise or mitigate effects on the environment and surrounding area.
DCO	Development Consent Order - made by the relevant Secretary of State pursuant to The Planning Act 2008 to authorise a Nationally Significant Infrastructure Project. A DCO can incorporate or remove the need for a range of consents which would otherwise be required for a development. A DCO can also include rights of compulsory acquisition.
EA	Environment Agency - a non-departmental public body sponsored by the United Kingdom government's Department for Environment, Food and Rural Affairs (DEFRA), with responsibilities relating to the protection and enhancement of the environment in England.
FRA	Flood Risk Assessment - an assessment of the flood risk from all sources of flooding for a development.
SoS	Secretary of State - the decision maker for DCO applications and head of Government department.

Contents

Tables

1. Introduction

1.1.1. This Statement of Common Ground has been prepared on behalf of Keadby Next Generation Limited ('the Applicant') and the Environment Agency ('the EA'). It forms part of the application for a Development Consent Order (DCO) ('the Application'), that has been submitted to the Secretary of State (the 'SoS') for Energy Security and Net Zero under Section 37 of 'The Planning Act 2008' ('the 2008 Act').

1.1.2. The Applicant is seeking development consent for the construction, operation and maintenance of a new combined cycle gas turbine ('CCGT') electricity generating station on land at, and in the vicinity of, the existing Keadby Power Station, Trentside, Keadby, Scunthorpe DN17 3EF ('the Site').

1.1.3. The Keadby Next Generation Power Station ('the Proposed Development') is a new CCGT electricity generating station with a capacity of up to 910MW electrical output. The CCGT electricity generating station will be designed to run on 100% hydrogen and able to run on 100% natural gas or a blend of natural gas and hydrogen and will be located on land to the west of Keadby 1 and Keadby 2 Power Stations. The Proposed Development includes connections for cooling water, electricity, hydrogen and natural gas, and construction laydown areas and other associated development. It is described in full in Environmental Statement (ES) Volume I Chapter 4: The Proposed Development (Application Document Ref. 6.2.4).

2. Matters Agreed

2.1.1. Within Table 2.1 below, the date and location where matters have been agreed have been included. The corresponding meeting minutes, emails and letters referenced here are also provided in Appendix 1.

Table 2.1 List of Matters Agreed

Matter agreed	Date and place agreed	Commentary
Flood Risk Assessment (FRA) Approach - Design lifetime assessed in FRA	MS Teams meeting 18 November 2024	It is agreed that a 75-year lifetime for the Proposed Development was acceptable within the FRA.
FRA Approach - Fluvial Models	MS Teams meeting 24 March 2025	It is agreed that the Torne Model is more robust to be used within the FRA over the Trent Model. It is agreed that no fluvial modelling is required for access road or construction laydown areas.
FRA Approach - Tidal Models	MS Teams meeting 18 November 2024	It is agreed that EA breach modelling is sufficient for assessing risks in the southern part of the Site without the need for bespoke modelling. It is agreed that boundary conditions from the 2023 Trent model are to be used in the flood modelling for the Proposed Development.
Flood Modelling	MS Teams meeting 24 March 2025	It is agreed that the flood modelling approach is acceptable.
Design level – tidal flood event	EA Response Letter (XA/2024/100213/01) 10 December 2024	It is agreed that the flood modelling accounts for a 1 in 200 year tidal flood event with climate change and includes a breach at the same return to ensure the Proposed

Matter agreed	Date and place agreed	Commentary
		Development is designed to remain operational in this scenario.
Watercourse Crossings – flood modelling	MS Teams meeting 24 March 2025	It is agreed that the two new bridges proposed as part of the Proposed Development (emergency access and replacement Mabey Bridge) do not require flood modelling as the FRA is based on principles of design and the detailed design for the crossings is subject to a DCO Requirement.
Flood Resistance and Resilience Measures	MS Teams meeting 18 November 2024	It is agreed that the mitigation principles adopted for Keadby 3 CCS Power Station DCO are acceptable to be maintained for the Proposed Development. Based on the updated flood modelling, the following mitigation measures are therefore adopted specifically for the Proposed Development: • The development platform will be raised to 3.0m AOD. • Critical operational infrastructure will be raised to a level of 4.1m AOD (the critical flood level +300mm) where reasonably practicable to do so or a minimum of 1m above the finished development platform level (4.0m AOD). • A minimum finished flood level of 3.3m AOD has been defined for manned buildings

Matter agreed	Date and place agreed	Commentary
		on the main area of the Site (workshops/ control rooms/ admin buildings). • Safe refuge areas will be provided for staff working within other areas of the Site. • Site emergency response plan to be secured by Requirement on the DCO
Eel mitigation at canal water intake	MS Teams meeting 23 June 2025 Email – 5 August 2025	It is agreed that a maximum intake velocity of <0.1m/s and screen aperture size of 2mm will be adopted at the canal water intake in accordance with the Eels Regulations 2009 and the existing abstraction licence conditions.
Flood Risk Activity Permits	Email – 23 June 2025	It is agreed that the Proposed Development is not seeking to disapply any Flood Risk Activity Permits. As such no protective provisions wording is required.
Mabey Bridge Replacement	Email – 27 June 2025	It is agreed that the Mabey Bridge replacement will be like-for-like with a slightly wider bridge deck and will follow the design principles of: • Clear span design • No abutments in the watercourse
Statutory Consultation Comments	Letter – 22 July 2025	Statutory consultation comments were received from the EA for the following topics: • Groundwater and contaminated land; • Flood risk;

Matter agreed	Date and place agreed	Commentary
		• Flood modelling; • Water resources; • Marine environment; • Fisheries, biodiversity and geomorphology; • Regulated industry; • Flood Risk Assessment; and • Water Framework Directive report. Following discussion in a series of meetings, the Applicant provided written responses to all the received comments in July 2025.
Unexpected Contamination	MS Teams meeting and email - 30 September 2025	It is agreed that the method for dealing with unexpected contamination is covered by wording provided in the Outline Construction Environmental Management Plan (CEMP) and secured by Requirement 16 of the Draft DCO.
Various clarification points	Outstanding matters raised Post Submission as part of the EA Written Representations submitted at Deadline 1 and 2.	The EA raised a series of outstanding matters with the Applicant relating to the following topics: • Request to update the Requirement wording to explicitly include the EA as a consultee; • Ground investigations; • Unexpected contamination protocol; • Consideration of landfills within the Water Environment Regulations Assessment;

Matter agreed	Date and place agreed	Commentary
		• Dewatering activities; • Fish and eel mitigation measures; • Offset distances from watercourses; • Siting of refuelling activities; • Fuel and chemical storage; • Containment of firewater; • Concrete mitigation measures; • Management of wheel washing water; • Water quality monitoring; • Water Supply measures; • Clarification on watercourse surveys completed; and • Water vole mitigation measures. Through the responses provided by the Applicant along with updates to the Outline CEMP, WFD Assessment and draft DCO submitted to the Examining Authority and the EA at each Examination Deadline, these matters are now agreed as having been suitably addressed.
Requirement 30 and Requirement 31 (carbon capture readiness reserve space and carbon capture readiness monitoring report, respectively)	Matter is agreed in principle through this SoCG and Applicant's Response to Rule 17 Letter dates 19 May 2026 and Report on the Implications for European Sites	It is agreed in principle that Requirements 30 and 31 will be retained within the draft DCO (Document Ref 3.1) submitted at Deadline 6, on the basis that it is not yet confirmed that the environmental permit secures the decarbonisation readiness requirements.

Matter agreed	Date and place agreed	Commentary
within the Draft DCO.	(Document Ref. 8.16)	

3. Matters Not Yet Agreed

3.1.1. Within Table 3.2 below, outstanding matters which are yet to be resolved are included along with their likelihood of resolution during the examination process.

Table 3.2 List of Matters Not Yet Agreed

Matter not yet agreed	Commentary	Likelihood of resolution during Examination
Removal of the term 'substantially' from Requirements 11, 12, 13, 14 and 16 of the Draft DCO.	The Applicant proposed amendments at Examination Deadline 3 to the wording of a number of draft DCO Requirements (including 11, 12, 13, 14 and 16) in response to the Examining Authority's written question Q1.0.15, strengthening the wording from 'general accordance' to 'substantially in accordance with'. The EA requested the removal of the term 'substantially' from the Requirements which list the EA as a consultee. The EA consider that using this term in a requirement results in a lack of precision and renders it difficult to enforce. The Applicant considers it is important that the draft DCO	It is unlikely that this matter will be resolved before the Examination process ends.

Matter not yet agreed	Commentary	Likelihood of resolution during Examination
	allows a degree of flexibility for the final plans submitted pursuant to these requirements to differ slightly from the current outline versions, noting that the final versions may not be submitted for approval for several years (based on construction starting between 2027 and 2034, as per the ES). The revised drafting secures this. The Applicant also considers it is important to note that the final plans are subject to approval by the relevant planning authority and any consultation with specified consultees and so there is already a built-in safeguard against any substantial departures from the outline plans. The provisions relating to materially new or materially different environmental effects in Schedule 8 (procedure for discharge of requirements) to the draft DCO provide a further safeguard in this respect and the Applicant has added a corresponding definition of "substantially in accordance with" to Requirement 1 (interpretation) which	

Matter not yet agreed	Commentary	Likelihood of resolution during Examination
	reflects the definition of that term in The London Luton Airport Expansion Order 2025.	

4. Signatures

This SoCG is agreed.

On behalf of the Environment Agency:

Please see appended email confirmation received from the Environment Agency confirming that the SoCG has been agreed.

Name:

Signature:

Date:

On behalf of the Applicant:

Name: [redacted]

Signature: [redacted]

Date: 15/06/2026

Appendix 1 - Correspondence

From: [redacted]
To: [redacted]
Cc: [redacted]; Keadby Developments; [redacted]
Subject: RE: Keadby Next Generation Power Station - Updated SoCG
Date: 12 June 2026 11:53:28
Attachments: image002.png
image003.png
image004.png
image005.png
image006.png
image007.png
image008.png
image009.png
image010.png
KNGPS 9.2 - SoCG with the Environment Agency - Rev 6 Clean.docx

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Good afternoon [redacted],

Thank you for sending through the updated Final SoCG (June 2026).

We have reviewed the SoCG and we are satisfied that it can be signed off as the final version for submission at Deadline 6.

I confirm that almost all matters have been 'agreed' or 'agreed in principle' and one matter remains 'not agreed'. The matter in reference concerns the use of the term 'substantially' in the DCO.

We would like to thank you for working with us to reach this point.

Kind regards,

[redacted]
Planning Advisor
National Infrastructure team
Growth, Permitting & Monitoring
[redacted]@environment-agency.gov.uk
[redacted]

Environment Agency
For homes and habitats

From: [redacted]@arup.com>
Sent: 12 June 2026 11:19
To: [redacted]@environment-agency.gov.uk>
Cc: [redacted]@environment-agency.gov.uk>; [redacted]@sse.com>; [redacted]@sse.com>; [redacted]@arup.com>; [redacted]@arup.com>; Keadby Developments <keadbydevelopments@aecom.com>; [redacted]@environment-agency.gov.uk>
Subject: RE: Keadby Next Generation Power Station - Updated SoCG

Good morning [redacted],

Many thanks for the quick response and the information provided below.

As requested, I have updated the wording in the SoCG to reflect the agreement on this matter is in principle.

I also note the information regarding the appending of the email to the SoCG.

Kind regards,
[redacted]

[redacted]
Senior Consultant
BSc Hons, PISEP

Please note, I have every other Friday off.

Arup
6th Floor 3 Piccadilly Place, Manchester, M1 3BN
United Kingdom
[redacted]
arup.com

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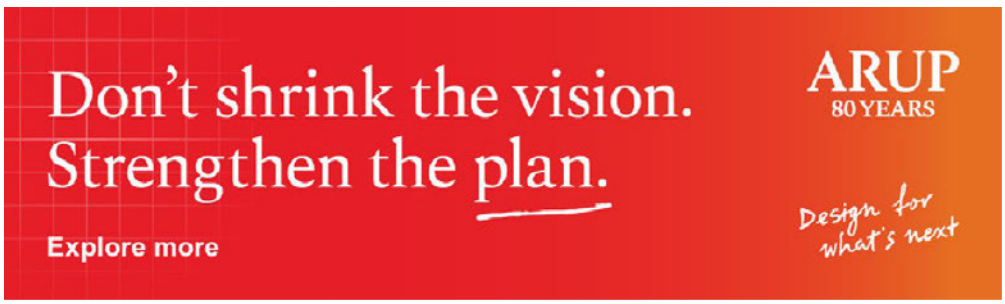

From: [redacted]@environment-agency.gov.uk>
Sent: 12 June 2026 10:34
To: [redacted]@arup.com>
Cc: [redacted]@environment-agency.gov.uk>; [redacted]@sse.com>; [redacted]@sse.com>; [redacted]@arup.com>; [redacted]@arup.com>; Keadby Developments <keadbydevelopments@aecom.com>; [redacted]@environment-agency.gov.uk>
Subject: RE: Keadby Next Generation Power Station - Updated SoCG

Good morning [redacted],

Thank you for your email.

Noted that the Applicant has committed to reinstating Requirements 30 and 31 in the Draft DCO to be submitted at Deadline 6. As we will be unable to review the

updated Draft DCO prior to the submission of the final signed SoCG, as both documents are to be submitted at Deadline 6, this matter should be changed to 'agreed in principle'. If you can make this update and send the final version of the SoCG back to me by lunchtime, I will endeavour to confirm sign off to you today.

Also noted the use of 'substantially' in requirements where the EA is listed as a consultee is now included in the 'matters not agreed' table within the SoCG.

For awareness, our approach to signing off the final SoCG is to provide an email confirming our position that should then be appended to the final SoCG; we don't tend to sign the final document itself. As an example of this approach to sign off, please see the SoCG between the EA and the Applicant for A46 Newark Bypass (Appendix A contains EA sign off email on 02/04/2025 at 14:48): TR010065-001218-7.21 Statements of Common Ground - Environment Agency- CLEAN.pdf.

Kind regards,

[redacted]
Planning Advisor
National Infrastructure team
Growth, Permitting & Monitoring
[redacted]@environment-agency.gov.uk

Environment Agency
For homes and habitats

From: [redacted]@arup.com>
Sent: 11 June 2026 13:24
To: [redacted]@environment-agency.gov.uk>
Cc: [redacted]@environment-agency.gov.uk>; [redacted]@sse.com>; [redacted]@sse.com>; [redacted]@arup.com>; [redacted]@arup.com>; Keadby Developments <keadbydevelopments@aecom.com>
Subject: Keadby Next Generation Power Station - Updated SoCG

Good afternoon [redacted]

Thank you for sharing your Deadline 5 and ExQ2 responses with us.

As noted in our response to the Rule 17 letter [REP5-011] we have spoken to the EA permit case officer on 8 June and have subsequently committed to reinstating Requirements 30 and 31 in the Draft DCO which will be submitted at Deadline 6. On this basis, we have also updated the SoCG to reflect the latest understanding relating to Requirements 30 and 31 and have moved this line into the 'matters agreed' table. We have also reflected the EA's disagreement with inclusion of the term 'substantially' in requirements where the EA is listed as a consultee, this matter has now been included in the 'matters not agreed' table within the SoCG.

We have attached the tracked and clean versions of the SoCG to this email. Would it be possible to get the clean version signed and returned to us this week to give SSE an opportunity to also sign it in time for submission to PINS on Tuesday?

Kind regards,
[redacted]

[redacted]
Senior Consultant
BSc Hons, PISEP

Please note, I have every other Friday off.

Arup
6th Floor 3 Piccadilly Place, Manchester, M1 3BN
United Kingdom
[redacted]
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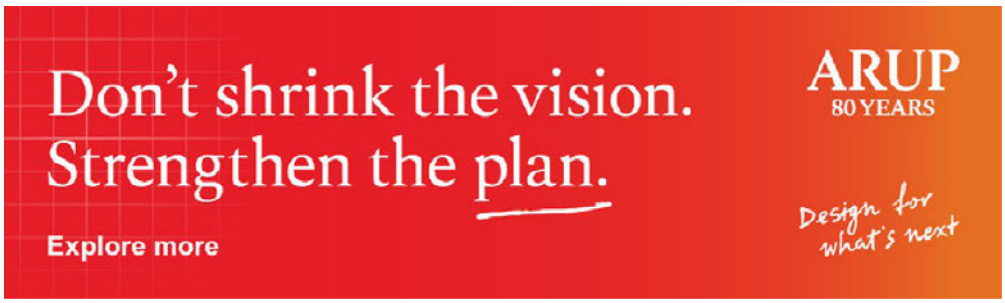

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Minutes

Meeting name	Subject	Attendees	Circulation list	Apologies
Keadby Next Generation PS - EA (FRA)	Flood Risk Assessment	[redacted], Planning, EA [redacted], Planning, EA [redacted], Modelling, EA [redacted], Flood Risk, EA [redacted], SSE [redacted], Arup Tom Goodfellow, Arup [redacted], AECOM [redacted], AECOM	Attendees plus KNGS Consultation team and SK	[redacted], SSE
Meeting date 18/11/24	**Location** MS Teams			
Project name Keadby Next Generation PS	**Project number** 60721867			
AECOM project number 60721867	**Prepared by** Daniel Minski / Claire Storer			

Ref	Item	Responsible
01	Update on Humber Strategy	
	MH to share latest information on strategy	MH (complete)
	MH following up internally for any information on specific flood defence improvement schemes	MH
02	Approach to the FRA (General)	
	FRA approach generally aligns with EA expectations. JB supports the precautionary approach adopted regarding Trent defences (whilst there is an expectation these will be improved over the development lifetime but this is not assumed). **EA to share specific comments on the draft FRA when available**	MH
03	Design life	
	Expected design life is 25 years, with assessments planned at the end to determine remaining life. Maximum potential design life expected to be c.35 years (same as assumed for Keadby 3). While 75 years was considered in response to the scoping opinion it is unlikely the site will operate for this length of time. JB confirmed the EA would still expect the 75 year lifetime to be assessed in line with NSIP guidance unless the development lifetime would be restricted by condition. KC confirmed the raised platforms are likely to remain on decommissioning due to the large quantities of material involved. **MH to share relevant NSIP guidance on design life**	MH (complete)

Ref	Item	Responsible
04	Fluvial models	
	CS highlighted the difference in flooding shown between the Torne and Trent models. The Trent model shows more extensive flooding but there is insufficient information to determine the cause.	
	Differences are unknown but are perhaps due to underrepresentation of the channel capacity in the Trent model, also differences in boundary conditions and pump representation.	
	PS indicated the Torne model likely provides the better representation of fluvial flooding, subject to checks as below.	
	PS to check differences in the boundary and pump representation between the two models.	PS
	AECOM to check that modelled climate change allowances are sufficient for current assessment guidance and that LiDAR updates do not have significant implications on the modelled flooding. Also that the flooding in the Trent model isn't overly influenced by flooding from the Trent.	CS
05	Tidal models	
	CS summarised the current assessment that Trent model provides best representation of in-channel flood levels but the AECOM model provides improved representation of flooding in and around the main site due to added detail.	
	PS highlighted the difference between the current AECOM modelled tide level and latest data (for 2105) as c.300mm, hence may make a difference to the modelled breach flood levels. PS also highlighted recent observed level at the Keadby gauge of 6.36 mAOD, higher than that used in the AECOM model. The higher level may be due to the bend in the river but is consistent with some underestimation seen in calibration, suggesting using the higher Trent flood levels is advisable.	
	PS agreed the AECOM breach location and model is appropriate but requested it is updated to use boundary conditions from the 2023 Trent model. **CS / KC to confirm with SSE**.	CS
	EA confirmed there is no requirement to refine the assumed land raising in the model to reflect the smaller area that is proposed (as the current representation is conservative) but the project team may wish to refine this**. CS / KC to confirm with SSE.**	CS
	It was agreed the EA breach modelling should be sufficient to assess risks to the southern part of the site without a need for bespoke modelling. This is principally the existing access road with limited ground raising.	
06	Assessment of H++ / Credible maximum climate change	
	CS summarised the assessment to date that an increase in the downstream Trent levels has a lesser impact at the site and therefore freeboard allowances and additional proposed resilience measures are likely to be sufficient for the H++ scenario.	
	It was agreed that modelling of the H++ scenario could be problematic and is not necessary for the FRA.	
	PS suggested the FRA should consider developing a linear relationship between downstream Trent levels and at Keadby. Discussed that a linear	

Ref	Item	Responsible
	relationship may not be apparent from the data but that sufficient data is available to support the current conclusions. **Additional detail to be included in the final FRA.**	CS
07	Mitigation principles CS summarised the intention to keep the same mitigation approach as for Keadby 3, in summary: - Raised platforms for critical operational infrastructure & manned buildings (200cc breach flood level +300mm) - Critical infrastructure and safe refuge areas raised a further 1m or to SFRA critical flood level - Implementation of flood warning and evacuation plans (noting that breach may not allow for evacuation) - Typical mitigation measures to be implemented for construction and decommissioning, noting a reliance on flood warning and evacuation plans for severe flood events. JB indicated a preference for Keadby 3 mitigation principles to be maintained, noting actual design levels may change due to more recent data. JB stated it would be useful to include information on the numbers of personnel on site and those that need to stay on site during a flood for operational reasons. **To be included in final FRA**	CS
08	Offsite impacts JB confirmed the EA would expect off-site impacts to be no greater than presented at the June 2024 meeting, noting the EA's advice took account of the effects of the National Grid defence wall.	
09	Future programme and next steps KC confirmed the statutory consultation is programmed for 9th January with DCO submission expected summer 2025. KC noted there is limited time to update the PEIR at this stage, but comments will be taken on board for the final submissions. **EA flood risk team will prioritise review of the draft FRA.**	JB / PS

Record of meeting

Meeting details

Date	24/3/25
Time	11:00-12:00
Location	Teams
Organisation	Environment Agency
Attendees (internal/consultant)	• [redacted], SSE project manager • [redacted], SSE consents manager • [redacted], AECOM flood risk specialists • [redacted], Arup project manager and environment lead
Attendees (external)	• [redacted], Environment Agency (EA) planning specialist and lead point of contact • [redacted], EA flood modelling specialists • [redacted], EA flood specialist • [redacted], EA planning specialist
Meeting purpose	To discuss the Environment Agency's statutory consultation response in relation to flood risk assessment and flood modelling

Actions summary

Action	Assigned to
All emails to be cc'd to [redacted] (EA), [redacted] (SSE), [redacted] (SSE) and [redacted] (Arup) as well as the keadbydevelopments@aecom.com email address so coordinators can retain oversight of all communications.	All
Claire (AECOM) to share method statement for flood modelling.	[redacted] (AECOM)
Phil (EA) to share raw data files requested by Claire (AECOM).	[redacted] (EA)
EA to review boundary conditions in AECOM modelling when model files are available.	[redacted] (EA)
SSE to consider the potential for seeking EA approval in principle to FRAPs for works over/ near to main rivers at DCO pre-application stage.	[redacted] (SSE)
SSE/Arup to share draft Other Consents and Licences document with EA at pre-application stage.	[redacted] (SSE)/ [redacted] (Arup)

Meeting notes

Topic	Comment
Tidal and breach modelling	[redacted] (AECOM) is undertaking flood modelling using updated Trent model inflows and revised layout for Keadby Next Generation Power Station. EA would like to review the model files when available but will only need 1 week to review the boundary conditions. [redacted] (AECOM) will provide a modelling method statement to the EA in the next 2 weeks for review. [redacted] (AECOM) noted that the raw data files for the Trent model are not available; [redacted] (EA) agreed these can be shared if Claire (AECOM) confirms which scenarios raw data is required for.
Fluvial modelling	[redacted] (EA) and [redacted] (EA) agreed: • the Torne model is more suitable for use in fluvial modelling than the Trent model • no fluvial modelling is required for the access road or construction laydown areas
Watercourse crossings	The EA consultation response referred to watercourse crossings being designed to 1 in 100 year event. [redacted] (EA) and [redacted] (EA) explained this is a general point of principle to avoid increasing flood risk for third parties and it is acknowledged that some of the locations are quite remote from receptors and some of the watercourses are managed by the IDB rather than EA. [redacted] (AECOM) explained that there are two watercourse crossings to consider: Mabey Bridge at the southern end of the access road which is an existing crossing over a main river, and the emergency access road bridge which is proposed to cross the IDB ditch along the northern boundary of the Main Site. [redacted] (Arup) clarified that SSE is progressing a planning application for Mabey Bridge replacement because SSE may want to progress this work to improve the existing access before the DCO is concluded, so the EA may also see correspondence in relation to a planning application due to be submitted in the next month or so. A design will be available for Mabey Bridge which will be a clear span structure like the existing, with no anticipated change to the soffit level. A design will not be available for the emergency access road bridge but it is expected to be a clear span structure. [redacted] (AECOM) noted that there is no data on flood levels in the IDB ditch. [redacted] (EA) and [redacted] (EA) agreed that no modelling is required for these bridges and the FRA will be based on principles of design, with detailed design being the subject of DCO Requirement.

Topic	Comment
	[redacted] (EA) noted that the WFD assessment would need to assess the impacts of these bridges as well as the FRA.
Flood compensation	[redacted] (AECOM) noted that the EA's statutory consultation response refers to modelling for the tidal 200 year event in 2121 and the potential need for flood compensation, and asked the EA to provide further context to this request. [redacted] (EA) noted that the year 2121 is referred to because this is an event run in the tidal Trent model and advised that compensation requirements would depend on impacts, and their significance, but specific mitigation (e.g. removing part of the land raise at decommissioning and/or providing flow pathways through the land raise at decommissioning) may be able to resolve impacts if any are identified. [redacted] (EA) clarified that the EA will not require compensation or mitigation if the effects are no worse than previously modelled and discussed with the EA following Keadby 3 DCO being granted.
Other consents and permits	[redacted] (EA) requested a permit and consents strategy is developed and shared with the EA at the DCO pre-application stage, including Flood Risk Activity Permits (FRAP) which could be disapplied (= approval in principle) through the DCO if the required details such as method statement and design details can be provided at pre-app stage. FRAPs will be required for Mabey Bridge replacement and any other works in proximity to main rivers. SSE to consider the option to seek approval in principle if FRAPs. [redacted] (Arup) noted that an 'Other Consents and Licences' document is being prepared to accompany the DCO application which will set out all other consents and licences outside the DCO that are expected to be required, and the status/ proposed timing of each one. [redacted] (EA) noted it would be useful for the EA to have sight of a draft before the DCO application is submitted.
Emergency evacuation plan	[redacted] (AECOM) noted that the FRA will propose to secure preparation of an emergency evacuation plan via DCO Requirement.
Storm surge modelling	[redacted] (EA) and [redacted] (EA) agreed that no assessment of storm surge modelling is required for any of the model scenarios AECOM is modelling.
Other meetings	A meeting to discuss contaminated land is being set up. Subsequent meetings are proposed to cover WFD, Ecology and Water Resources.

Topic	Comment
Water resources	[redacted] (EA) noted that more information is required to demonstrate availability of water for construction and operation. [redacted] (Arup) clarified that the river water abstraction option has been dropped as SSE has agreed canal abstraction with the Canal and River Trust for Keadby 3, and this agreement will be transferred to Keadby Next Generation Power Station in the event that this project progresses rather than Keadby 3.

Record of meeting

Meeting details

Date	23/6/25
Time	9:00am
Location	Teams meeting
Organisation	Environment Agency
Attendees	• [redacted], SSE • [redacted], Environment Agency • [redacted], AECOM • [redacted], Arup
Meeting purpose	Discussion on Environment Agency statutory consultation comments on fisheries, biodiversity and geomorphology

Actions summary

Action	Assigned to
SSE/Arup to share draft Framework CEMP and Schedule of Other Consents and Licences with Environment Agency.	[redacted], Arup
SSE to consider Environment Agency request to commit to approach velocity of less than 0.1m/s at canal water abstraction, which would negate the need for fish recovery and return system.	[redacted], SSE
AECOM to consider potential for piling noise impacts from canal abstraction to affect salmon in River Trent (e.g. quote distance) and assess noise impacts on coarse fish in the canal in ES Ecology chapter.	[redacted], AECOM
AECOM to reflect future baseline for salmon in River Trent (population expected to increase) in ES Ecology chapter.	[redacted], AECOM
AECOM and Arup to ensure it is clear in ES Ecology and Water chapters that there are no works proposed to North Soak Drain.	[redacted], AECOM and Chris Proctor, Arup
Environment Agency to advise on protective provisions if FRAPs are not disallowed in the Draft DCO.	[redacted], Environment Agency
Environment Agency to confirm whether there are any comments on the notes from the last meeting on flood modelling, issued by Siobhan Kohli-Lynch.	[redacted], Environment Agency

Meeting notes

Topic	Comment
Project updates	[redacted] provided a summary of targeted consultation timescales, refinements to Proposed Development and Site boundary since statutory consultation/ PEI Report and programme to DCO application submission. [redacted] summarised the draft application documents that have been shared with PINS. [redacted] advised that the Environment Agency would be most interested in reviewing the Framework CEMP and Schedule of Other Consents and Licences (to review proposed timing of licence applications to Environment Agency) (**ACTION:** [redacted])
Eel mitigation at canal water abstraction point	Environment Agency would prefer SSE commit to intake velocity <0.1m/s as this would negate the need for a fish recovery and return system (which it was noted can still result in some harm or mortality of fish). If a fish recovery and return system is proposed, WFD assessment should consider fish harm and/or mortality rate. **ACTION: SSE ([redacted])** to review whether commitment can be made at this stage of design to <0.1m/s intake velocity
Dredging	[redacted] confirmed the Proposed Development does not include dredging.
Piling timing restriction for salmon	[redacted] confirmed there are no physical works proposed in the River Trent. Will requested consideration of piling noise impacts to travel from canal abstraction location to River Trent and assessment of noise impacts on coarse fish in the canal – **ACTION:** [redacted] to consider in ecological impact assessment. Will recommended reviewing *Popper et al (2014) Sound Exposure Guidelines for Fishes and Sea Turtles: A Technical Report prepared by ANSI-Accredited Standards Committee S3/SC1 and registered with ANSI.* The Environment Agency would favour vibro piling if possible. This would not require timing restrictions for fish. Kirsty explained that the EIA will assess the worst case at this stage, as technique is not fixed at this stage.
Atlantic salmon future baseline	Atlantic salmon populations are expected to increase in the River Trent. **ACTION:** [redacted] to reflect this in ecological impact assessment future baseline. It was noted that the Environmental Permit for discharge will also consider this.

Otter	[redacted] confirmed pre-construction otter survey is proposed. [redacted] confirmed there are no works proposed in North Soak Drain (only use of existing North Pilfrey Bridge over North Soak Drain and use of access track to north of North Soak Drain to get to canal abstraction point.
Mabey Bridge impacts on Hatfield Waste Drain LWS	[redacted] confirmed the bridge will be replaced like for like so no impacts on watercourse as a result of it. [redacted] noted the TCPA application for Mabey Bridge replacement is now anticipated to be submitted in July, but the works will also continue to included in the DCO application.
Water vole	[redacted] confirmed water vole are known to be present in Glew Drain and a water vole mitigation plan is proposed to avoid impacts.
INNS	[redacted] and [redacted] confirmed the Framework CEMP includes INNS management and control measures. David noted that this is also something Keadby Power Station is required to manage in relation to existing operations.
Assessment of North Soak Drain	[redacted] confirmed (as noted earlier) there are no works proposed in North Soak Drain. **ACTION:** [redacted] to ensure this is clear in the Ecology and Water ES chapters.
Protective provisions and FRAPs	[redacted] explained that one of the standard protective provisions provided by the Environment Agency to Dentons relates to disallowing FRAPs. [redacted] explained that SSE do not propose to disallow FRAPs in the DCO as there is not sufficient design information at this stage to provide to the Environment Agency to enable this. **ACTION:** [redacted] to review and advise how this affects the protective provisions included in the Draft DCO.
Notes from last meeting on flood modelling	**ACTION:** [redacted] to confirm any comments on the notes from the last meeting.
Work package tracker and SoCGs/ PADSS	[redacted] advised that the Environment Agency would anticipate the Applicant drafting a summary of consultation engagement and outcomes (i.e. SoCG) for the Environment Agency to review, and that this would be prepared and submitted to PINS at Pre-Examination stage after the Environment Agency has submitted its Relevant Representation.
Notice of annual leave	[redacted] advised he will be on annual leave from 24 June to 10 July. Siobhan Martin to continue to be copied into all emails.

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By email
22 July 2025

[redacted]
National Infrastructure Team
Environment Agency
NITeam@environment-agency.gov.uk

Your ref XA/2025/100240/01-L01
Our ref EN0110001
File ref 299029-00/KC

Dear [redacted]

Keadby Next Generation Power Station

Response to the Environment Agency's statutory consultation comments

Thank you for sharing the Environment Agency (EA)'s comments on the statutory consultation documents (the Preliminary Environmental Information Report (PEIR)), and for the discussions we have since had via a series of meetings in relation to the key points raised.

We thought it would be useful to record our response in the form of a letter for our records.

Our response to the technical matters raised is provided in the sections below, following the structure used in the EA's statutory consultation response letter. *EA comments are summarised in blue italics below*, with the Applicant's response to each point provided in black.

In response to your comments in relation to any **requests to disapply any permits or consents**, as the Applicant has confirmed in our recent meetings, the Draft DCO will not disapply any EA permits or consents. The other consents and licences that are currently anticipated to be required (in addition to the DCO itself) are summarised in the attached draft Schedule of Other Consents and Licences, which is shared with the EA for information as requested.

We note the latest EA guidance on cooling water best practice for power stations and other energy industry facilities (June 2024), which you referred the Applicant to.

1. Groundwater and contaminated land

PEIR Chapter 5 Construction Programme and Management says any significant groundwater dewatering required will be undertaken in line with EA requirements. The EA advises that all dewatering must be undertaken in accordance with EA requirements. This is acknowledged in PEIR Chapter 12 Water Environment and Flood Risk so no action is required.

Comment noted.

PEIR Chapter 12 Water Environment and Flood Risk says pollution during construction may occur but impacts would be temporary and short term. The EA advises that risks still need to be mitigated

and impacts may persist into the long term. Appropriate assessment of construction risks on the water environment must be carried out and appropriate mitigation secured.

This wording has been removed, as to not misrepresent the potential long term pollution risks from construction activities. Mitigation measures to avoid, prevent and reduce adverse effects as a result of pollution have been included in the Outline CEMP (see attached) and Outline Water Management Plan (see response below) which will inform the final CEMP that the contractor will finalise prior to construction. (Please note references to 'Framework CEMP' have been amended to 'Outline CEMP' in response to a comment from the Planning Inspectorate.)

PEIR Chapter 12 paragraph 12.6.4 refers to a Water Management Plan that will form part of the final CEMP. The EA requires a draft Water Management Plan to be part of the Framework CEMP which should be submitted with the ES rather than at DCO submission.

Based on the EA's comments, an Outline Water Management Plan is now being prepared to accompany the Outline CEMP to be submitted alongside the ES as part of the DCO Application. We will share a draft of the Outline Water Management Plan as soon as possible.

PEIR Chapter 12 states that the proposed concept drainage strategy will be provided in the Flood Risk Assessment (FRA) as part of the DCO application. The drainage strategy should be submitted with the ES rather than at DCO submission.

An Outline Drainage Strategy has been prepared to accompany the FRA (ES Appendix 12A) to be submitted as part of the DCO Application. A draft of the FRA including the Outline Drainage Strategy is attached.

PEIR Chapter 12 refers to proposals to leave underground infrastructure in place after decommissioning. Leaving subsurface infrastructure in situ will mean any local changes to groundwater flow and interactions with drainage will effectively be permanent. If drainage systems are not monitored and maintained they maybe ineffective over time. Any chemicals bound within infrastructure left in situ may degrade over time and leach into soils and groundwater. These impacts should be assessed and details provided on how drainage will be maintained following decommissioning in the ES.

The Proposed Development would be subject to decommissioning under the conditions of the Environmental Permit including conditions relating to chemical/ polluting material handling, storage and use and emergency procedures in line with BAT. A Decommissioning Environmental Management Plan (DEMP) will be secured by a Requirement of the Draft DCO and will be prepared and agreed with the Environment Agency to identify required measures to prevent pollution during this phase of the Proposed Development, as part of the Environmental Permitting and site surrender process at the appropriate time and is separate to the DCO application.

PEIR Chapter 12 refers to a Drainage Philosophy but it is not clear what this is referring to.

ES Chapter 12 has been revised to refer to the Outline Drainage Strategy which now forms part of the FRA (ES Appendix 12A) to be submitted as part of the DCO Application. A draft of the FRA including the Outline Drainage Strategy is attached.

PEIR Chapter 13 Geology, Hydrogeology and Land Contamination refers to Appendix 13A Phase DBA which is the desk based assessment for another development on the same site. Assess whether updated reports are required that are specific to the current application.

As discussed with the EA, the Phase I Desk Based Assessment for the Proposed Development (Appendix 13A) was available for statutory consultation in the Virtual Consultation Room on the project website but was erroneously omitted from the Library page of the project website. This was rectified by sharing with the EA as soon as the issue was realised and adding the document to the Library page of the project website.

The Phase I Desk Based Assessment has been prepared specifically for the Proposed Development and we have apologised to the EA for the confusion that arose as a result of only the Annexes to Appendix 13A being available initially (which includes at Annex 3 the Phase I Desk Based Assessment that was previously prepared for the Keadby 3 CCS Power Station project).

PEIR Chapter 13 omits reference to a 2022 ground investigation (GI). The 2022 GI report in Appendix 13A recommended additional monitoring and investigation but this is not referred to in Chapter 13. Ensure the assessment considers all works completed to date including the presence of Made Ground and follows all the recommendations in the relevant reports.

The results of the 2022 GI are included in the ground conditions summary in ES Chapter 13 Table 13.6 and discussed in the Baseline Conditions section of ES Chapter 13. The recommendation to undertaken additional monitoring and investigation are included in the Development Design and Impact Avoidance section of ES Chapter 13.

The depth of Made Ground stated in PEIR Chapter 13 is not consistent with some of the Appendix 13A Annexes, and the full exploratory borehole logs for the 2022 GI were not supplied.

The summary of anticipated ground conditions is updated in ES Chapter 13 Table 13.6, based on all available information and the anticipated thickness of Made Ground has been sub-divided by areas of the Site.

Appendix 13A Annex 4 Part 1 does not include the factual GI report and includes references to the EA's Land Contamination Risk Management guidance with dates of both 2020 and 2021. Supply the report and take care with consistency of references.

Borehole logs from the 2022 GI are now included in ES Appendix 13A.

Referencing within Appendix 13A Annex 4 cannot be updated as this is a copy of the Keadby 3 CCS Power Station Phase I desk based assessment (which has been provided as an Annex to the Phase I desk based assessment that has been undertaken for the Proposed Development).

Appendix 13A Annex 4 Part 1 uses inconsistent terms and colour coding of risk ratings and also incorrectly reproduces CIRIA C552 guidance. Review the terms and check consistency and accuracy within the report.

As noted above, Appendix 13A Annex 4 cannot be updated as this is a copy of the Keadby 3 CCS Power Station Phase I desk based assessment (which has been provided as an Annex to the Phase I desk based assessment that has been undertaken for the Proposed Development).

Appendix 13A Annex 4 Part 1 does not confirm extent of Made Ground removal or assess the risk of reuse of contaminated soil on site and discusses works which are not part of the current application. Make allowance for additional sampling and testing of any soils and groundwater to be removed from site and ensure the DBA is relevant to the current application.

As noted above, Appendix 13A Annex 4 cannot be updated as this is a copy of the Keadby 3 CCS Power Station Phase I desk based assessment (which has been provided as an Annex to the Phase I desk based assessment that has been undertaken for the Proposed Development).

Appendix 13A Phase I Desk Based Assessment for the Proposed Development has been amended to clarify that the earthworks discussed in Annex 4 do not relate to the Proposed Development.

Requirements for additional testing of soils and groundwater and requirements for a suitable permit, exemption or Materials Management Plan for re-use of earthworks material are included in the Development Design and Impact Avoidance section of ES Chapter 13. The text discussing shallow groundwater levels in PEIR Appendix 13A has been updated in ES Appendix 13A to reflect available data.

Appendix 13CA Annex 4 Part 1 refers to Appendix XX but there is no Appendix XX.

Chapter 3 notes that the correct reference should be to Appendix F.2 Groundwater Risk Assessment Analysis which is available in Appendix 13A Annex 4. The erroneous reference to Appendix XX cannot be updated as Appendix 13A Annex 4 is a historic report that was prepared for the Keadby 3 CCS Power Station project.

Appendix 13C uses unclear initialisms, inconsistent naming of references and has missing information. Appendix 13A also refers to PEIR Figure 13.2 which does not appear to be available. Review and update.

The term ‘AOC’ has been removed in ES Appendix 13C and ES Chapter 13 and ‘areas of contamination’ is spelt in full throughout to avoid confusion.

The reference to Figure 13.2 was a typographical error that has been updated in the ES to refer to Figure 13.1.

Appendix 13C incorrectly assesses the development boundary and contamination sources. Update the assessment and check accuracy of sources being described as within or outside the Site boundary.

The assessment of contamination sources has been revised in ES Appendix 13C and all identified source areas which are fully or partially within the Site boundary are described as being within the Site.

Appendix 13C and Chapter 13 reports the perceived risk of harm to groundwater as lower than it should be, which could lead to unacceptable risks. Review Appendix 13C to ensure risk levels are appropriately determined and ensure Chapter 13 reflects the updated Appendix 13C.

The assessment has been revised in ES Appendix 13C and ES Chapter 13 has also been updated to be consistent with ES Appendix 13C.

2. Flood risk

PEIR Chapter 12 Water Environment and Flood Risk does not provide sufficient detail regarding construction and operation procedures for staff in the event of a flood. Staff safety must be a key consideration. The potential vulnerability of staff on site should be clarified and assessed in Chapter 12 and the FRA (Appendix 12A). Please consult with the LLFA in regards to flood evacuation plans.

ES Appendix 12A: FRA has been updated to include further information regarding staffing on site – please see the attached draft FRA.

A flood emergency response plan will be developed for the Proposed Development in accordance with the flood risk mitigation Requirement in the Draft DCO. The Applicant has sought comments from NLC regarding this matter but has not received any comments to date.

Full details of the proposed replacement of Mabey Bridge have not been submitted. A new structure at this location has the potential to restrict flood flows and impact flood depths within the site and surrounding area. The proposed replacement structure will need to be clear span and have no adverse effects on flood flows and depths. A Flood Risk Activity Permit (FRAP) will also be required.

Preliminary design information is available for Mabey Bridge replacement. The Applicant proposes a clear span structure for the replacement bridge which will have no adverse effects on flood flow.

The draft Schedule of Other Consents and Licences (attached) notes the requirement for a FRAP.

Culverting, infilling and access bridges on non-main river watercourses have not been fully detailed in PEIR Appendix 12A FRA. Proposed works have the potential to impact the movement and storage of water in and around the site. Full details should be included in the FRA with

reference to the relevant consenting procedures with other risk management authorities. The FRA should confirm that there will be no adverse impact on flood flows and extents.

The FRA describes the proposed infilled drains. Details of other watercourse crossings are not yet available, however the FRA considers potential impacts.

3. Flood modelling

If the current standard of protection afforded by the raised embankments and walls on the left bank of the Tidal Trent remain unchanged they could overtop in the design flood towards the end of the century. Inspection of the defended 0.5% (1 in 200) annual exceedance probability (AEP) higher central climate change scenario for 2121 shows that defences overtop and the proposed development site is inundated. Depending on the lifetime of the development, and if the land raising remains in place, flood risk could be increased to third parties in the future if the standard of protection afforded by the flood defences remains unchanged. The impact of the land raising in the defended 0.5% AEP higher central and upper climate change scenarios for 2121 should be quantified by presenting water level difference maps within the FRA. If the plan is to leave any land raising in place, then associated compensatory flood storage should be sought to mitigate any impacts on flood risk to third parties.

Updated flood modelling has been completed and the findings shared with the EA in a meeting on 24th March 2025 and by follow-up email. The modelling is also now described in the updated FRA (see attached). The EA has indicated that the updated modelling meets the EA's requirements and the impacts of the Proposed Development are acceptable. The EA has also confirmed to the Applicant that compensatory flood storage is therefore not required.

The flood modelling files are provided for reference.

4. Water resources

PEIR Chapter 4 The Proposed Development and PEIR Chapter 12 Water Environment and Flood Risk identifies operational uses of water which are not covered by the purposes listed on the licence for water supply (evaporative cooling and process water). If any other operational uses of water are anticipated than the use of water from the MD/028/0083/014 abstraction will require a formal variation to the licence. Recommend planning any licence changes far in advance of commencement as determination can be lengthy (up to 3 months).

As noted in the draft Schedule of Other Consents and Licences (attached), the Applicant acknowledges that the current abstraction licence does not specifically list firewater and a variation may be required to include use for firewater. This will not affect the abstraction volume already permitted.

PEIR Chapter 12 and PEIR Chapter 18 Climate Change do not consider the cessation conditions of the abstraction licence MD/028/0083/014. The Applicant should be aware of the potential for water supply not to be available during peak summer months, periods of prolonged dry weather and drought. Contingency needs to be considered or if potential outages are deemed acceptable or

manageable. The frequency of the level in Keadby Pound dropping to 2.6mAOD can be explored with the Canal and River Trust to evaluate the impact.

The Applicant is aware of the cessation conditions in the abstraction licence, and the risk that the operation of the Proposed Development (as well as the ongoing operation of Keadby 2 Power Sattion). SSE has discussed the cessation conditions with the Canal and River Trust to understand the potential impact on operations and considers the risk to be acceptable. The Canal and River Trust propose to undertake a minor modification to the Keadby Lock gate to prevent water being lost into the River Trent when water levels are high in the canal

PEIR Chapter 5 Construction Programme and Management and Chapter 8 Air Quality do not consider water supply in the construction phase where a number of consumptive uses of water have been identified. There are significant water demands in the Humber region which may rely on public water supply. The proposal needs to consider other alternative sources of supply, for example within existing licence quantities.

Further details on water supply during construction will be discussed in the Outline Water Management Plan which is being prepared to accompany the Outline CEMP to be submitted alongside the ES as part of the DCO Application. We will share a draft of the Outline Water Management Plan as soon as possible.

The scope of the Water Management Plan referred to in PEIR Chapter 12 is unclear as to whether this will include water supply for construction. There may not be enough water available from water company supply to meet all demands in the Humber cluster so efficient use of existing licences is critical in maintaining growth in such a water scarce region. A draft Water Management Plan should be submitted with the Framework CEMP along with the ES. The EA would encourage the use of existing licensed quantities under licence MD/028/0083/014.

As noted above, an Outline Water Management Plan is now being prepared to accompany the Outline CEMP to be submitted alongside the ES as part of the DCO Application. We will share a draft of the Outline Water Management Plan as soon as possible.

5. Marine

The EA consider that PEIR Chapter 11 Biodiversity and Nature Conservation makes an incorrect assumption that good ecological status will be achieved by 2027. The EA do not think it is reasonable to assume these improvements will be in place by a deadline just because they are mandatory. This may lead to false assurance about the future status of a waterbody and undermine attempts to avoid or mitigate impacts to WFD waterbodies. Please reword this section and ensure that, by actions relating to the development, the watercourses are able to achieve and support good status.

The statement assuming good ecological status will be achieved by 2027 has been removed from ES Chapter 11. This does not alter any aspect of the assessment.

The EA consider that PEIR Chapter 11 makes an incorrect assumption about cumulative effects from thermal discharges. Increased temperatures can act as a barrier to fish species. Incorporate

the likely volume of discharge in addition to the final temperature when considering potential thermal impacts to fish migration.

The assessment of the thermal plume is provided in the Likely Impacts and Effects section of ES Chapter 11. This states there would be no increase in water temperature within the River Trent when the Proposed Development is operating with Keadby 2 and Keadby CCS Power Station. The worst-case cumulative scenario is therefore one of no change.

The EA consider that PEIR Appendix 11C Preliminary Ecological Appraisal (PEA) includes an incorrect description of the River Trent tidal limit at Keadby. The tidal limit is well upstream of Keadby and the transitional water body extends ~12km beyond Keadby to Owston Ferry. It is the boundary of the Humber Estuary conservation designations that end at Keadby.

The incorrect description has been removed from ES Appendix 11C PEA.

PEIR Chapter 12 does not include the Habitats Directive in the list of relevant legislation.

Conservation of Habitats and Species Regulations 2017 has been added to the list of legislation in Chapter 12 to reflect this comment.

PEIR Chapter 12 incorrectly describes a waterbody. The operational catchment water body that the project discharges into is Humber Upper (one part of which is the lower end of the River Trent, downstream of Owston Ferry). The Trent river waterbody is much further upstream and not relevant to this project.

We have amended the chapter to make clearer the discharge is into the Humber Upper catchment. However, we do still make reference to discharging into the River Trent to avoid confusing a non-technical reader. (e.g. "*In this instance, the Proposed Development lies adjacent to the tidal River Trent (Humber Upper WER waterbody*)".

PEIR Chapter 12 includes contradictory statements regarding saltmarsh. Wording describes "Adjacent to Keadby village, there are two existing discharge points into the River Trent from Keadby Power Station… The tide was low enough during the site visit to expose intertidal muddy sediments at the channel margins surrounded by vegetation that appeared typical of a salt marsh." This directly contradicts statements about saltmarsh elsewhere in the PEIR (such as PEIR Chapter 11 paragraph 11.7.85 and PEIR Appendix 12B Annex D.1.35).

This contradictory statement has been removed from ES Chapter 12.

6. Fisheries, biodiversity and geomorphology

PEIR Chapter 11 Biodiversity and Nature Conservation does not include sufficient mitigation to protect European eel at the point of abstraction. We agree that the screen aperture size should be 2mm and that this will sufficiently reduce the risk of entrainment of all eel life stages as well as other fish species likely present in the Stainforth and Keadby Canal. However the point of intake is within 30km of the Normal Tide Limit and therefore glass eel and elver are likely to be present and could be impinged upon. In order for glass eel and elver to be protected at the intake, the target intake velocity should be <0.1m/s as well as a screen aperture size of 2mm. This is Best Achievable

Eel Protection (BAEP). This is made more necessary in canal conditions where sweeping velocity is limited. The EA recommend looking at the most up to date EA guidance 'LIT 60516 Screening at intakes: measures to protect eel and elvers'.

The design of the Proposed Development remains consistent with Keadby 2 and Keadby CCS Power Stations and therefore meets the necessary standards for fish protection advised by the Environment Agency at that time. The final design will be agreed with the Environment Agency at the detailed design stage, but the assessment in ES Chapter 11 includes the potential for a fish recovery and return system to be included given that such a system is part of the Keadby 2 Power Station canal water abstraction infrastructure. This ensures that the EIA is robust by assessing a 'worst case'.

PEIR Chapter 11 does not include assessment of impacts on fish from any dredging activities or mitigation measures. Any dredging activity may have an impact to fish species and migratory fish through changes in water quality , noise impacts and physical damage through entrapment. Certain methods can be more damaging for European eel as they require an intake and outlet of water (e.g. suction dredging and water injection dredging). An exemption under the Eels Regulations 2009 is likely to be required with a mitigation plan in place. The EA would favour backhoe dredging and any dredging taking place outside of key periods for migratory fish. An updated WFD Assessment would be required for any dredging licence application.

No dredging is proposed for the Proposed Development.

The EA consider the timing restriction in PEIR Appendix 11F Aquatic Ecology Survey Report for piling to protect fish from noise is not sufficient. Atlantic salmon may be impacted by increased noise from piling activities. Atlantic salmon run up until the end of December in the tidal River Trent therefore the timing restriction of no piling should run from September to the end of December.

No piling is proposed within the River Trent. The Stainforth and Keadby Canal is not accessible to salmon.

PEIR Appendix 11F Aquatic Ecology Survey Report does not consider Atlantic salmon populations of the River Trent in the future baseline. Recovering stocks may be hindered by the operation of the power station cumulatively when taking into account climate change projections. The recovering population, with a projection of an increasing population, should be considered for the future baseline.

Salmon as a migratory fish falls within the scope of this statement in ES Chapter 11:

> "*The assemblage of fish in the River Trent and the Stainforth and Keadby Canal is anticipated to gradually improve over time due to the removal of weirs and other barriers upstream in the wider catchment. Other general medium-term improvements in the biological quality of the River Trent and the Stainforth and Keadby Canal may occur over time due to WFD requirements.*"

As noted above, assessment of the thermal plume is provided in the Likely Impacts and Effects section of ES Chapter 11. This states there would be no increase in water temperature within the

River Trent when the Proposed Development is operating with Keadby 2 and Keadby CCS Power Station. The worst-case cumulative scenario is therefore one of no change.

Otters have been scoped out of PEIR Chapter 11 as no evidence was found. However otters will be using all the major watercourses in and around the development therefore otters need to be considered. The North Soak Drain, which is a larger watercourse more likely to be used by otters, is within the red line boundary but doesn't seem to be included in the assessment. The EA have a recent record of a dead otter (RTA) being collected on the A18 just west of the entrance on to a site near Pilfrey Farm. Otters are legally protected. Include otters in the assessment.

Whilst small parts of North Soak Drain are within the Site boundary, the only activities proposed nearby are those consistent with current land use (roads) or temporary works for construction of the Canal Water Abstraction infrastructure. The habitats providing potential cover for otter at these locations are dense inaccessible stands of bramble on the off-side banks of the North Soak Drain at distances of upwards of 15m from the established roads and tracks and temporary disturbances for utility connections. These activities are consistent with existing land uses, including operation of the railway on the southern bank of the North Soak Drain. Allowance is made for otter to be re-assessed pre-construction as part of the scope of the proposed and committed update surveys. Therefore if more suitable habitat establishes in the future in locations where there is a reasonable likelihood of otter experiencing meaningful disturbance then appropriate mitigation would be specified at that time and agreed during the discharge of Requirements.

PEIR Chapter 11 Table 11.7 scoped out assessment of impacts on Hatfield Waste Drain LWS during operation. Ensure the design of the new bridge doesn't impost further impacts on the watercourse than the existing one and if possible lessen the impacts.

As noted above, preliminary design information is available for Mabey Bridge replacement. The Applicant proposes a clear span structure for the replacement bridge which will have no adverse effects on the channel. The Outline Landscape and Biodiversity Mitigation and Enhancement Plan (LBMEP) Report proposes habitat enhancement adjacent to Hatfield Waste Drain.

PEIR Chapter 11 current baseline indicates that existing numbers of water vole are small and patchily distributed. Permanent loss of water vole habitat through loss of drains and the proposed bridge over Drain 1 (Glew Drain) could cause further negative impact to an already small, patchily distributed population. Water voles are legally protected and listed as a BAP species. Improve existing habitat and connectivity and investigate the reasons for the small patchily distributed population.

A suitable package of update surveys and outline mitigation requirements has been specified in the Development Design and Impact Avoidance section of ES Chapter 11 and these are also now included the Outline LBMEP Report. These proposals remain consistent with those agreed with Natural England for the consented Keadby CCS Power Station, for which the Proposed Development is an alternative.

The Applicant will submit a full mitigation strategy at the detailed design stage when discharging Requirements. This will be informed by and proportionate to the baseline status of water voles in

the zone of influence at that time. The Applicant would be happy to consider partnerships with other organisations at that time as part of the final mitigation and enhancement approach. In the event that a development licence is needed then such measures would be secured through that licence.

PEIR Chapter 11 mentions measures to prevent the spread of Invasive Non Native Species (INNS) during construction but should also include preventing introduction of new INNS not already known to be present and management/ eradication measures of the INNS present. Assessment of INNS should extend to both operational and decommissioning periods as well as construction. The EA have recently found Floating Pennywort on the Stainforth and Keadby Canal, which is a highly invasive species that needs to be factored into the assessment. American Mink should also be included as there are recorded sightings in this area. The EA recommend the Applicant works on catchment-wide eradication projects.

ES Chapter 11 confirms that the Applicant will fully comply with legal requirements in relation to INNS. The Applicant cannot commit to the eradication of INNS within the water environment (which are the INNS of current relevance); it is not technically feasible to eradicate aquatic INNS from the Stainforth and Keadby Canal, and this is not the responsibility of the Applicant given it is not the owner of this waterbody.

North Soak Drain, which is within the red line boundary, has been omitted from the assessment in PEIR Chapter 11. Include North Soak Drain in the assessment of impacts.

Whilst a small part of North Soak Drain is within the Site boundary, the only activities proposed nearby are those consistent with current land use (roads) or temporary works for construction of the Canal Water Abstraction infrastructure in the Canal. There will be no impact on North Soak Drain.

7. Regulated industry

PEIR Chapter 20 Materials and Waste does not mention waste classification technical guidance WM3 when discussing the characterisation and classification of wastes. Ensure that WM3 is recognised and the requirements of the document are considered when characterising and classifying wastes.

Reference to WM3 is considered to be most relevant to the Outline Site Waste Management Plan which is being prepared to accompany the Outline CEMP, so we will include reference to the WM3 guidance in that document.

8. Flood Risk Assessment

Sequential Test: The FRA (PEIR Appendix 12A) will need to fully address the Sequential Test in order to show that the development is appropriately located as referred to in Section 2.4.3. Further detail is required to evidence robust site selection in relation to flood risk. This could be supported by appropriate mapping.

The FRA has been updated to include additional text describing the site selection process, as follows:

"*During the early stage of planning the Proposed Development, the Applicant considered potential sites in the Humber region for a new CCGT project, reviewing a number of factors: environmental impact (including those topics considered in the ES), electrical grid connection, cooling water availability, natural gas supply, proximity to future hydrogen supply, access constraints and land and space constraints. The electrical grid connection was a key differentiator favouring development on the Keadby site. The alternative sites not taken forward all had similar flood risk profiles (in Flood Zone 3).*"

Site Design: The PEIR FRA states in Section 1.5.11 that the site will be designed to remain operational during the 1 in 200 year tidal flood event plus climate change including a breach at that return period scenario. This will impact the design of the site and the levels to which the site in general, and specific infrastructure, will be raised in mitigation of flood risk.

As discussed with the EA and reported in the updated FRA (see attached), the modelling has demonstrated that raising the development platform to 3.0mAOD will ensure the Proposed Development is above the 1 in 200 year tidal flood event plus climate change including a breach scenario.

Assessment of Climate Change: The proposed lifetime of the development is discussed with a maximum expected design life of 35 years, operating from 2030 to 2065. It is assumed that decommissioning would follow beyond 2065 (PEIR FRA Section 1.5.17). Climate change should be assessed for a 75 year period in line with the National Planning Practice Guidance.

A 75 year period has been assessed in the updated FRA (see attached).

Flood Resistance and Resilience: Flood mitigation measures for the site and for critical elements of the development will be subject to further flood modelling work. The principles set out for resistance and resilience in the PEIR FRA are acceptable.

As described above, updated flood modelling has been completed and shared with the EA in a meeting on 24th March and by follow-up email. The modelling is also now described in the updated FRA (see attached). The EA has indicated that the updated modelling meets the EA's requirements and the impacts of the Proposed Development are acceptable.

Flood Evacuation: The EA recommend that flood evacuation procedures are developed for the site. Where the site is proposed to remain operational, confirmation should be given of the number of staff on site and how they would remain safe. Emergency access to and from the site during a flood event will also need to be considered. Please consult with the LLFA on this matter.

As described above, ES Appendix 12A: FRA has been updated to include further information regarding staffing on site (see the attached draft FRA) and the Applicant has sought comments from NLC regarding flood risk management/ evacuation plan but has not received any comments to date.

Off Site Impacts: The FRA should fully detail off site impacts to flood levels resulting from the development. It is acknowledged that potential off site impacts previously modelled for the Keadby

CCS Power Station development layout may be offset by a reduced raised development platform. The EA would not accept any further increase in flood levels.

As noted above, updated flood modelling has been completed the EA has advised that the modelled impacts of the Proposed Development are acceptable.

Flood Modelling: The PEIR FRA presents limited information on water level differences (proposed minus baseline) for the breach scenario and for the defended design scenario for different climate change horizons. Water level difference mapping needs to be provided in the final FRA including the proposed minus baseline water levels for the breach scenarios and overtopping scenarios for different climate change epochs. The EA require grid comparison maps.

Water level difference mapping has been shared with the EA in our meeting on 24th March 2025 (and follow-up email) and is included in the updated FRA (attached).

The EA provided comments on the boundary condition data to be used in the updated flood modelling for the final FRA.

The EA's comments have informed the updated modelling work that has now been completed and shared with the EA in our meeting on 24th March 2025 and follow-up email.

The EA advise that any proposed crossings over IDB watercourses (where no model data is available) should be designed so that the soffit level of any bridges sits above the design flood level (in this case the 1% AEP plus higher central climate change scenario for permanent crossings and 1% AEP scenarios for temporary crossings). Consideration will need to be given to how the design flood level will be determined, e.g. using the Mannings equation. The proposed crossings should be designed such that they do not increase flood risk elsewhere.

Details of watercourse crossings are not yet available, however the FRA considers potential impacts. The Applicant has subsequently confirmed with the EA that modelling and the 1% AEP design standard is not required.

The EA welcome the 75 year design life being considered as a precautionary approach for the FRA.

Comment noted.

The EA welcome the consideration of upper end allowances for sea level rise within the FRA and confirm the projections in PEIR FRA Table 5 reflect the most up to date allowances for the Humber River Basin District.

Comment noted.

The EA agree that as the development is classed as 'Essential Infrastructure' the higher central allowances should be used for fluvial flood risk. The EA confirm the allowances presented in PEIR FRA Table 7 are the most up to date for the Lower Trent and Erewash Management catchment.

Comment noted.

Climate change allowance relating to storm surge have not been specifically considered as part of the PEIR FRA and the rationale for this is explained. The EA consider the omission to be reasonable for the H++ scenario.

Comment noted.

The EA note the description of the proposed Mabey Bridge replacement bridge design which provides a 15mm higher soffit level than the existing bridge. The EA consider this to be reasonable.

Comment noted.

The EA note Keadby pumping station is not operational in the defended scenarios in the Jacobs Tidal Trent modelling. On this basis the Tidal Trent model provides a conservative and precautionary assessment of fluvial flood risk from the Three Rivers.

Comment noted.

The EA agree the PEIR FRA description of the latest available model for the Tidal River Trent at the location of the proposed development is correct and that the Tidal Trent hydraulic model is suitable to inform the FRA.

Comment noted.

The EA agree the breach modelling approach adopted for the Keadby CCS Power Station Breach Modelling Report is reasonable. The only area where further action is required is with regards to considering the impact on breach water levels.

As noted above, updated flood modelling has been completed and shared with the EA in a meeting on 24th March 2025 and by follow-up email. The modelling is also now described in the updated FRA (see attached). The EA has indicated that the updated modelling meets the EA's requirements.

9. Water Framework Directive report

The EA note the WFD Assessment in PEIR Appendix 12B covers only Stages 1 and 2 of the WFD assessment process. The EA look forward to reviewing Stage 3 in due course.

A Stage 3 assessment will be undertaken at the detailed design stage and the EA will be consulted at that time. A Stage 2 assessment (Preliminary assessment) is considered to be appropriate for the DCO application based on indicative design information available at the time of reporting.

The EA would not currently recommend to the Secretary of State that the proposal meets the requirements of the Water Environment (WFD) (England) Regulations 2017 because the EA do not consider the development proposal to be compliant with regards to surface water ecological status, groundwater quantitative status and groundwater chemical status. The EA's concerns specifically relate to:

- *groundwater quantitative status – scoping out of River Don from assessment;*

- *groundwater chemical status – insufficient Source-Pathway-Receptor model, details of further assessments, monitoring and modelling not given, and no risks of drilling not considered for groundwater; and*
- *surface water ecological status – protected fish species (Twaite and Allis Shad) omitted from assessment, and River Don scoped out of assessment (impacts on strategic fish pass).*

The Applicant has responded to the specific points raised by the EA below and considers the WFD Assessment to be compliant.

The EA consider the approach to the development is compliant with the Humber RBMP in regards to surface water chemical status only.

Comment noted.

WFD impacts will also be assessed separately under the Permitting regime for abstractions and discharges. The EA recommend engaging in enhanced pre-app advice for these permits.

Comment noted.

The EA agree with the approach to screen out assessment on downstream waterbodies (Humber Middle) as being too distant.

Comment noted.

The EA note that the relevant impacts in relation to marine ecology have been identified but recommend some receive greater attention in the WFD Assessment, e.g. if chemical biocides are to be added to cooling water and discharged into the Humber Upper they should be added to the list of risks to Chemical Status in PEIR WFD Assessment Table 10.

Biocides may be used in coolant waters and have therefore been added to the risk to Chemical Status in the WFD Assessment. For the purposes of assessment it is considered reasonable to assume that the Proposed Development will comply with environmental quality standards and with the Environmental Permit set by the Environment Agency.

INNS are included but risks stem not only from marine plant but from any equipment that has been used in the presence of INNS, regardless of habitat. This is particularly important given the proximity of problematic INNS in fresh or slightly saline waters, including zebra mussel.

Comment noted. The WFD Assessment has been updated to reflect the potential for INNS introduction through any equipment and is screened into the assessment.

The WFD Assessment should include the Humber Upper in the summary matrix for Water Environment Regulations surface waterbodies (PEIR WFD Assessment Table 17). The EA consider this waterbody should include components of risk during construction and operation.

The Humber Upper water body is a transitional water body and therefore was not included in the PEIR WFD Assessment Table 17 (which related surface water bodies only). However, the point is noted and has been addressed by adding a new separate summary matrix for Humber Upper to the

WFD Assessment which summarises the potential impacts of the Proposed Development on the 'scoped in' quality elements.

The EA provided comments on potential impacts associated with discharge to the River Trent including discharge of water acting as an attractant to fish leading to entrapment, and changes to water quality/ thermal discharges affecting Atlantic salmon and lamprey species.

Based on information provided by SSE, the WFD Assessment has assumed that the Proposed Development will comply with the current requirements of the Environmental Permit, including temperature and water quality for discharges. The risk of entrapment for fish has been included within the updated assessment.

The EA provided comments on abstraction, impingement and entrainment, disagreeing that there is no risk of impingement or entrainment. By incorporating a fish recovery and return system, it assumes there will be entrainment. Fish recovery and return systems can lead to mortality and damage of fish. The EA require a description of the proposed system, with detail on how the design will mitigate any impacts to fish.

The EIA and the WFD Assessment include for the possibility of a fish recovery and return system being required for the Canal Water Abstraction infrastructure. The WFD Assessment has been updated to assess the potential risk to fish in the Stainforth and Keadby Canal.

Pump screens should have screens with an aperture of 2mm to stop elvers from being entrained.

Comment noted. The design of the new Canal Water Abstraction infrastructure includes screens which comply with the requirements of the Eels (England and Wales) Regulations 2009, which is a requirement of the canal water abstraction licence.

The WFD Assessment should assess impacts on Atlantic salmon, Twaite and Allis Shaf in the Humber Estuary. These species are listed in the Habitats Directive.

The WFD Assessment has considered the potential impacts to the 'fish' quality element arising from the Proposed Development, which includes all relevant fish. The Habitats Directive is separate legislation which is not specifically discussed within the WFD Assessment.

The EA note that the assessment matrix for quantitative and chemical tests for groundwater is provided in the PEIR WFD Assessment but no information is provided on how the Applicant will carry out the assessments.

The WFD Assessment has been updated to include a description of how the assessment will be undertaken for groundwater bodies.

The EA note some out of date and/or missing references in the PEIR WFD Assessment. Accessed dates for websites should be provided.

References have been updated and accessed dates have now been provided in the WFD Assessment.

The WFD Assessment should include consideration of existing contamination or pollutants that may be present alongside sources that may be introduced as part of the construction and operation, e.g.

some parts of the site are underlain by historic landfill associated with the existing Keadby Power Station.

The WFD Assessment notes that there will be a requirement to avoid creating flow paths between potentially contaminated soils and/ or groundwater in the underlying aquifer, and that appropriate working practices have been included in the Outline CEMP (attached). Assuming these embedded mitigation measures are implemented during construction, it is considered that these risks can be mitigated against to avoid adverse effects to either Quantitative or Chemical (GW) quality elements, or water body status. This mitigation will be further defined at the detailed design stage.

The EA disagree with the statement in the PEIR WFD Assessment that the operation of the development would not pose potential risks of deterioration to groundwater bodies. Leaks and spillages could cause a risk without adequate mitigation as well as firewater runoff and storage of firewater prior to removal from site if not appropriately designed. Impacts on groundwater levels should also be considered.

The Applicant has updated the WFD Assessment to consider these risks, but the WFD Assessment assumes best practice in design and operation of the Proposed Development.

Mitigation for impacts on groundwater should be considered for installation of pipework using open cut or trenchless technologies, potential storage of wastewater on site (if discharge to sewer is not possible) and discharge of surface water to IDB drains or using SuDS.

The Outline CEMP (attached) (and the Water Management Plan which the Applicant is preparing) identify mitigation to be implemented at the construction stage to prevent pollution.

If discharge of foul drainage to sewer is not possible, the Proposed Development includes the option of a package treatment plant, which would be subject to an Environmental Permit.

As noted in the Schedule of Other Consents and Licences, IDB consent would be required for the discharge of surface water to IDB drains and the WFD Assessment assumes best practice and legislative requirements are met with regards to pollution prevention.

The EA support the proposal to have a drainage system designed to prevent firewater from entering surface water.

Comment noted.

The EA note that a connection to the public sewer is always preferred.

Comment noted.

The EA note that PEIR WFD Assessment Table 9 scopes out assessment of harmful algae and suggests that although there is no known monitoring of harmful algae in this area it has potential to appear over the development's lifetime and therefore needs consideration.

Harmful algae has been screened out of the WFD Assessment based on no known monitoring of harmful algae in the area. However, potential changes to conditions which could promote future

algal blooms, and which arise from the Proposed Development, have been screened in and assessed (e.g. temperature, water quality).

The EA advises that screening the River Don out of the WFD assessment is only acceptable if the improvements to the lock structure have been completed and it can be demonstrated that the impacts of the licence changes are limited to reduced quantities discharged to the River Trent as opposed to an increase in abstraction operated by Canal and River Trust from the River Don.

For the purpose of the WFD Assessment at this stage, it is noted that the abstraction licence required for the Proposed Development has already been issued and it is assumed that improvements to the lock structure will have been completed by the Canal and River Trust. The Proposed Development will not require changes to abstraction volume permitted by the existing abstraction licence.

We trust this letter provides a useful update further to our recent meetings on how the Applicant is addressing the EA's comments on the PEIR.

Please find attached to this letter:

- draft FRA (including Outline Drainage Strategy);
- draft Outline CEMP;
- draft Schedule of Other Consents and Licences; and

We will upload the flood modelling files to the link you have provided.

Please let us know if you think it would be beneficial to have another meeting when you have had time to review these documents, noting that our target application submission date is at the end of August 2025.

Yours sincerely

[redacted]
Associate Director

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Our ref: XA/2024/100213/01-L01
Your ref: N/A

Date: 10 December 2024

Dear [redacted]

Draft Flood Risk Assessment (FRA) with Flood Modelling Approach Non-Statutory Consultation

The Keadby Next Generation Power Station Project, Trentside, Keadby, DN17 3EF

Thank you for consulting us on the above proposed development which was received on 05 November 2024.

We have reviewed the following technical documents insofar as they relate to our remit:

- "The Keadby Next Generation Power Station Project Preliminary Environmental Information Report Volume II: Appendix 12A Flood Risk Assessment" by AECOM, dated 10 October 2024 (Rev 1)
- "Keadby Hydrogen FRA Annex D Existing model reviews" by AECOM, dated September 2024 (V1.0)

We respond as follows.

Flood Risk

We note that the draft Flood Risk Assessment (FRA) identifies the risk of flooding to the site, and sets a suitable approach to the assessment and mitigation of risk. However, the following points should be considered when you revise the FRA.

Sequential Test

The FRA will need to fully address the Sequential Test, in order to show that the development is appropriately located, as referred to in Section 2.4.3. However,

further detail is required to evidence robust site selection, in relation to flood risk. This could be supported by appropriate mapping.

In accordance with National Planning Policy Framework and the sequential test (paragraph 161), development should apply a sequential, risk-based approach to the location of development, taking into account all sources of flood risk, and the current and future impact of climate change, to avoid (where possible) flood risk to people and property. The project should take a sequential approach where it can, if there are any opportunities for development to be located outside of flood zones 2 and 3 and into flood zone 1, this should be prioritised.

Site Design

We note in Section 1.5.11, that the site will be designed to remain operational during the 1 in 200-year tidal flood event plus climate change, including a breach at that return period scenario. This will impact the design of the site, and the levels to which the site in general, and specific infrastructure, will be raised in mitigation of flood risk.

Assessment of Climate Change

The proposed lifetime of the development is discussed with a maximum expected design life of 35 years, operating from 2030 to 2065. It is assumed that the decommissioning of the site would follow beyond 2065 (Section 1.5.17). In line with National Planning Practice Guidance (006 Reference ID: 7-006-20220825), climate change should be assessed for a 75-year period.

Flood Resistance and Resilience

Flood mitigation measures for the site, and for critical elements of the development will be subject to further flood modelling work. However, the principles set out for resistance and resilience in the FRA are acceptable.

Section 5.4.4 outlines that the main site would be raised above the modelled breach flood level for the 200-year event, including appropriate allowance for climate change. This would also include an additional minimum 300mm freeboard. Further to this, it is proposed that critical operational infrastructure would be raised either an additional 1m, or to the Critical Flood Level (as set out in the North and North East Lincolnshire Strategic Flood Risk Assessment) plus 300mm freeboard.

It is recommended that areas of the site, where staff may be required to remain for operational reasons during a flood event, should be mitigated in the same manner as critical operational infrastructure.

Flood Evacuation

We recommend that flood evacuation procedures are developed for the site. Where the site is proposed to be remain operational, confirmation should be given of number of staff on site, and how they would remain safe. Emergency access to and

from the site during a flood event will also need to be considered. Please consult with the Lead Local Flood Authority on this matter.

Off Site Impacts
The FRA should fully detail off site impacts to flood levels resulting from the development. This has been quantified within previous modelling work. It is acknowledged that potential off-site impacts based on the Keadby Carbon Capture Power Station development layout may be offset by a reduced raised development platform. We would welcome this; however, it is important to note that we would not accept any further increase in offsite flood levels.

Our position is supported by Section 5.8.15 of EN-1 Overarching National Policy Statement for Energy, which states that FRAs should include measures ensuring the "development will be safe and remain operational during a flooding event throughout the development's lifetime without increasing flood risk elsewhere"

River Crossings
We oppose the culverting of any watercourses and instead prefer the installation of a temporary clear-span bridge crossing. This is in line with our policy regarding culverts. We will normally only grant a permit for a culvert if there is no reasonably practical alternative, and if the detrimental effects would be sufficiently minor, that a more costly alternative would not be justified or there are reasons of overriding public/economic interest. Any such works proposed would likely require a Flood Risk Activity Permit. Further detail or discussion can be provided regarding this if required.

Our position on this is supported by paragraphs 2.10.87 and 2.10.88 of National Policy Statement EN-3, which state that:

- culverting existing watercourses should be avoided
- where culverting for access is unavoidable, applicants should demonstrate that no reasonable alternatives exist, and where necessary it will only be in place temporarily for the construction period.

Flood Modelling
Table 1-2 Consultation for the FRA
This section notes that the Tidal Trent (2023) modelling did not include a H++ scenario, but that this was included in the Humber Extreme Water levels. It is appreciated that running the H++ scenario through the Trent hydraulic model may present some challenges, and could cause the Trent hydraulic model to crash. It is suggested that a comparison of modelled water levels at the Trent downstream boundary (node Trent00870), and at the development site (for example Trent node Trent14600DS), is undertaken for a range of annual exceedance probability (AEP) scenarios. This could be plotted, and a regression analysis undertaken, to see if there is a strong relationship between water levels at the downstream boundary of

the River Trent, (node Trent00870) and on the River Trent at the proposed development site at node Trent14600DS. It is appreciated that this relationship may not be linear, but it should be explored as a starting point. If there is a strong relationship, this would allow the 200-year H++ water level, at the downstream boundary of the Trent 2023 hydraulic model, to be used to predict the 200-year H++ water level on the River Trent at the development site. By using the H++ water level for the River Trent at the development site, it may then be possible to estimate water levels and depths within the floodplain. This would seem a reasonable and pragmatic way forward, owing to the challenges associated with modelling the H++ event. This analysis should be clearly presented in the FRA.

Section 3.2.19 Modelled Breach water levels behind the defences

The AECOM (2023) site specific breach model schematisation is reasonable; however, this model should use the boundary conditions from the latest Tidal Trent (Jacobs, 2023) modelling, rather than the previous Tidal Trent modelling (Mott Macdonald, 2014). Similarly for overtopping modelling, the Tidal Trent (Jacobs, 2023) modelling should be used. The 0.5% (1 in 200) design water levels are higher in the more recent modelling (Jacobs, 2023), when compared to previous modelling (Mott Macdonald, 2014). Furthermore, in the December 2013 tidal surge event, levels at the Keadby gauge reached 6.36 m Above Ordnance Datum (AOD), which indicates that the design tidal water levels in previous modelling (2014), and current modelling, could be underestimated. This may be in part due to limitations associated with the 1d component of the modelling, and the inability to capture effects related to superelevation.

Section 3.3.7

The crest level of 1.3mAOD is the design crest level, rather than the effective crest level within the Environment Agency's Asset Information Management System (AIMS) database for banks on the Three Rivers, North and South Soak Drains. In terms of understanding asset bank levels for the North and South Soak drains, and Three Rivers, its best to refer to the elevation lines within the available hydraulic models. For example, embankment point elevation dataset *2d_zln_TTRENT_2022_Torne_P_02.shp* within the Tidal Trent model (Jacobs, 2023), shows the variation in embankment crest levels along the Three Rivers and North and South Soak drains in greater detail than the AIMS dataset.

Land raising

Careful consideration will need to be given to the impact of land raising on flood risk in the River Trent overtopping scenarios, particularly with climate change in place. It is noted that land raising for the proposed development may remain after decommissioning, which could impact on flood risk elsewhere.

Fluvial flood risk from the Three Rivers and North and Soak Soak Drains

There are two models here, the River Torne modelling (Capita AECOM, 2017) and

the Tidal Trent modelling (Jacobs, 2023). The Tidal Trent modelling (Jacobs, 2023) provides a more conservative assessment of flood risk from the Three Rivers. We believe the differences in results between these two models are being driven by two key factors:

- Firstly, the representation of the Three Rivers channel in the Tidal Trent (Jacobs, 2023) hydraulic model is in 2d only. 2d grid cells along this watercourse are lowered to channel bed levels using a gully line in Tuflow. Conversely in the River Torne Hazard Mapping modelling (Capita AECOM, 2017), the Three Rivers are represented using 1d Flood Modeller cross sections which are linked with spill units.
- Secondly, a comparison between the Tidal Trent model (Jacobs, 2023) and River Torne model (Capita AECOM, 2017) shows that channel bed levels for the Three Rivers appear to be higher in the more recent modelling (Tidal Trent, 2023), when compared to the River Torne modelling (2017).

We are awaiting further detail from our colleagues within the Environment Agency's local office for the East Midlands with regards to the modelling for the Three Rivers. We will provide further clarity on the way forward shortly. Given the risks to the construction laydown area and southern access route from the Three Rivers, the impact of these proposals on fluvial flood risk should be quantified through hydraulic modelling.

This response is based on the information you have made available at this time. It is based on current national planning policy, associated legislation and environmental data/information. If any of these elements change in the future, then we may need to reconsider our position.

We trust that this information will be of use to you.

If you have any queries, please do not hesitate to contact us.

Yours sincerely,

[redacted]
Planning Specialist