

Viking CCS Pipeline

9.6 Design Changes 1 and 2: Environmental Technical Note



Document Reference: EN070008/EXAM/9.6

Applicant: Chrysaor Production (U.K.) Limited,

a Harbour Energy Company PINS Reference: EN070008 Planning Act 2008 (as amended)

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 - Regulation 5(2)(q)

Deter Merels 2004

Date: March 2024





PINS Reference	Document Reference	Document Revision	Date
EN070008	EN070008/EXAM/9.6	Revision 1	March 2024

Prepared by	Verified by	Approved by
HT	MW	NP
Principal EIA Consultant	EIA Technical Director	EIA Technical Director

Prepared by:

AECOM Limited Exchange Station Tithebarn Street Liverpool Merseyside L2 2QP

© AECOM Limited. All rights reserved.

i

Table of Contents

1	Introduction	1
1.1	Background	1
1.2	Purpose of this document	1
2	Description of Design Changes	2
2.1	Overview	2
2.2	Design Change 1	2
2.3	Design Change 2	3
2.4	Updated DCO Site Boundary/Order Limits	3
3	Review of Impact of Design Changes on the Original ES	9
3.1	General Approach	
3.2	Design Change 1	
3.3	Design Change 2	9
3.4	Review of the Original ES	10
4	Conclusion	17
5	References	18
Figu	ires	
Figur	e 1: Design Change 1 – Amendment to Order Limits at the Immingham Facilit e 2: Design change 2 – Removal of pipeline option 2 exit route from the ngham Facility	-
	e 3: Updated Order Limits	
Tabl	es	
Table	1: Summary of changes to significant effects reported within the Original ES	
Table	2: Summary of changes to findings reported within other environmental repo	rts

1 Introduction

1.1 Background

- 1.1.1 This Environmental Technical Note is provided in relation to two specific design changes to the Development Consent Order (DCO) Site Boundary/Order Limits for the Viking CCS Pipeline (hereafter referred to as the 'Proposed Development') DCO application in and around the Immingham Facility. Notification of the Applicant's intention to submit a change request was submitted to the Planning Inspectorate on 26 February 2024 [AS-037].
- 1.1.2 The Viking CCS Pipeline is an onshore CO₂ transportation system comprising a buried approximately 55.5 kilometre (km) 24-inch diameter onshore pipeline commencing at the Immingham Facility and ending at the Theddlethorpe Facility. Here the onshore pipeline will connect into the existing 36-inch Lincolnshire Offshore Gas Gathering System (LOGGS) offshore pipeline by means of a crossover at the Theddlethorpe Facility and continue to Mean Low Water Springs (MLWS) tide mark.
- 1.1.3 The likely environmental impacts and effects resulting from the Proposed Development during construction, operation and decommissioning are reported in the Environmental Statement (ES) [APP-041 to APP-117] submitted as part of the DCO application for the project.
- 1.1.4 The DCO application for the Proposed Development was submitted by the Applicant to the Planning Inspectorate on 23 October 2023. The application was accepted for Examination on 17 November 2023, with a Preliminary Meeting date set for 26 March 2024.

1.2 Purpose of this document

- 1.2.1 This Environmental Technical Note has been produced to assess two proposed design changes and document any alterations to the findings or content of the ES [APP-041 to APP-117] and other environmental reports [APP-118 to APP-128] as submitted to the Planning Inspectorate on 23 October 2023 or as since amended. This report has been developed to ensure that the environmental impacts of the design changes have been appropriately assessed ensuring any new or different likely significant effects are identified, to satisfy the requirements of the Infrastructure Planning (Environmental impact Assessment) Regulations 2017 (as amended).
- 1.2.2 This document therefore provides further information relating to the two specific changes to the Order Limits (referred to as Design Change 1 and Design Change 2) and then provides a systematic review of these changes in terms of the findings of the original ES and other environmental reports submitted in support of the Applicant's application.

2 Description of Design Changes

2.1 Overview

- 2.1.1 The DCO application included a degree of flexibility and optionality relating to:
 - (i) the location of the Immingham Facility; and
 - (ii) the route of section 1 of the pipeline.
- 2.1.2 Since the submission of the original application, the Applicant has continued to engage with VPI Immingham and Phillips 66 (P66), who are Interested Parties. This further engagement has allowed the Applicant to: (a) refine the temporary and permanent land requirements for the Immingham Facility and associated accesses; and (b) conclude that pipeline route Option 2 through the Humber Refinery is not viable.
- 2.1.3 This Environmental Technical Note therefore considers the following two changes to be made to the submitted Order Limits:
 - Design Change 1: Modification and reduction of the Order Limits as shown on workplans Work No.01 (Permanent AGI Construction Works), Work No.01a (Permanent AGI Construction Works and Temporary Working Area), Work No.01b (Temporary and Permanent Access) and Work No.01c (Electrical Connection).
 - Design Change 2: Removal of Work No.2 (Carbon Dioxide Pipeline Works), Work No.02a (Temporary Access & Laydown Location) and Work No.02b (Temporary Access & Laydown Location).
- 2.1.4 These are discussed in more detail in the sections below.

2.2 Design Change 1

- 2.2.1 The Immingham Facility will include the infrastructure necessary to receive and transfer CO₂ that has been captured and conditioned by emitters into the Viking CCS Pipeline. The Immingham Facility will be located on brownfield land, between the facility operated by VPI Immingham, the Humber Refinery operated by Phillips 66 (P66), and Rosper Road. A full description of the Immingham Facility is set out in section 3.6 of ES Volume II Chapter 3 of the Environmental Statement (ES): Description of the Proposed Development [APP-045].
- 2.2.2 The change involves a reduction in the Order Limits, as a result of further defining the access routes and fixing more closely the anticipated location of the Immingham Facility itself. This change has been informed by further engagement with interested parties.
- 2.2.3 This change would result in reductions to the Order Limits as shown in **Figure 1**. No additional land outside of the current Order Limits is required. The reduction in the area of the Order Limits for Design Change 1 totals 2.55 hectares.
- 2.2.4 Importantly, no changes are anticipated to the Immingham Facility itself, which is anticipated to require an area of approximately 1 hectare and would still include:
 - Inlet manifold with valve access platform;
 - Permanent pig launcher and receiver to allow the onshore CO2 pipeline to be cleaned and inspected during commissioning and operation and be suitable for intelligent pigging;
 - Common pig handling area for the pig receiver and launcher, which includes a projectile blast wall;
 - High-integrity pressure protection system (HIPPS);

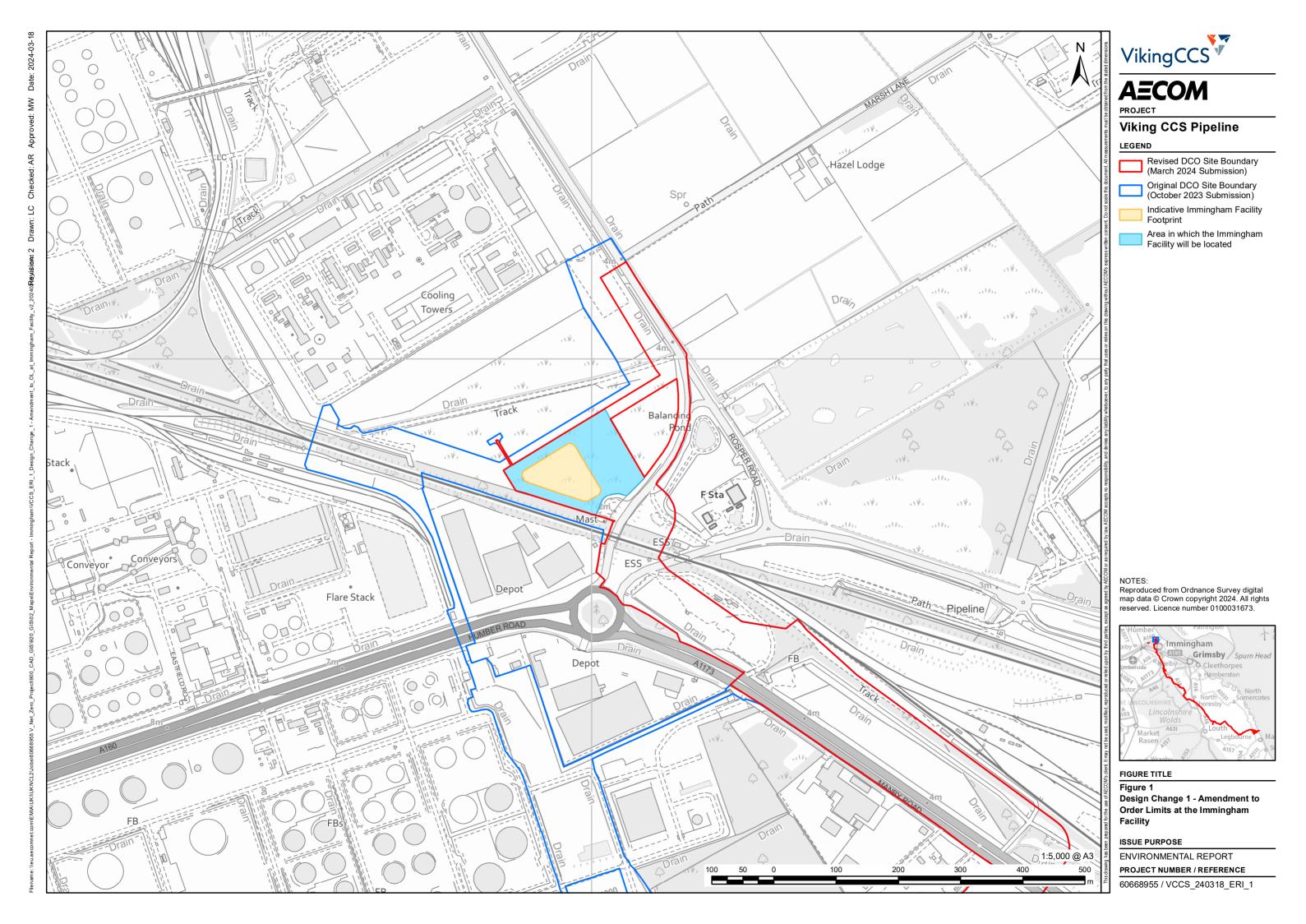
- Emergency Shutdown Valve (ESDV) for each pipeline and Isolation valves;
- Venting system including vent pipework, valves and vent stack. Permanent vent stack to be a maximum of 24" diameter and up to 25 metres high;
- Various instruments installed on the pipework, including temperature, pressure and flow measurement;
- Central control room (CCR);
- Local equipment room (LER);
- Analyser house; and
- Supporting utilities.
- 2.2.5 No material change to the construction works or programme is expected to occur as a result of Design Change 1. Additionally, no changes to the operational or decommissioning phases will occur as a result of this change.

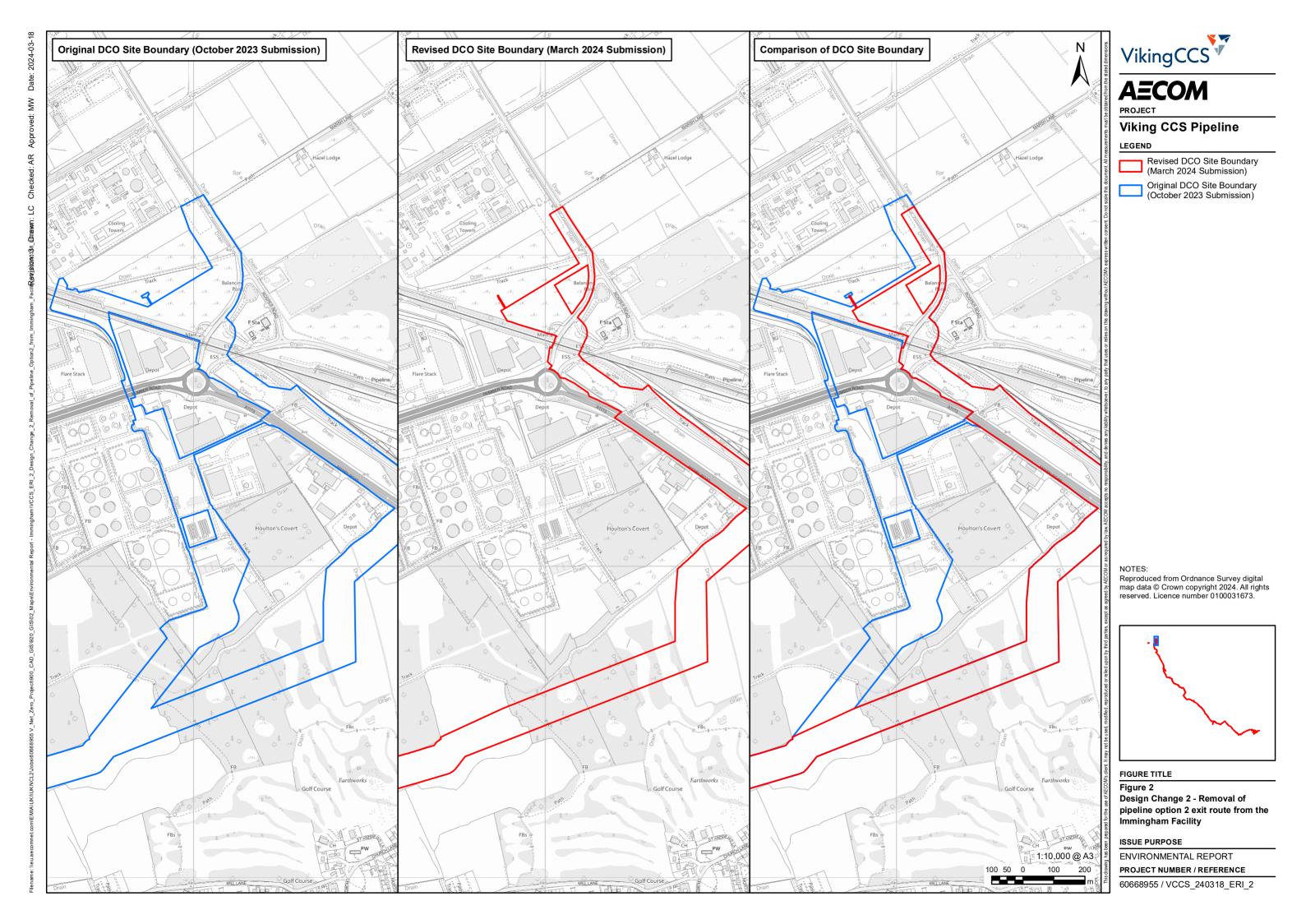
2.3 Design Change 2

- 2.3.1 As set out in Table 3-2 of ES Volume II Chapter 3: Description of the Proposed Development [APP-045], the Applicant included two options in the DCO application within section 1 of the pipeline route from the Immingham Facility to the A180. The Option 1 route exited to the south of the VPI site crossing Rosper Road, the railway and Humber Road before heading parallel along to the A1173 and then crossing it to head west towards the A180. Option 2 provided an alternative exit route through the Humber Refinery site (owned and operated by P66), crossing the railway line then the A160 Humber Road before heading south westwards towards the A180.
- 2.3.2 As a result of further discussions between the Applicant and P66, it has been concluded that Option 2 is no longer a viable option and thus will be removed from the application.
- 2.3.3 This change therefore involves a reduction in the Order Limits and would thus reduce the area of land included in the Order Limits, as shown in **Figure 2**. The reduction in the area of the Order Limits for Design Change 2 totals 16.06 hectares. This change would also remove two temporary access and laydown areas which would no longer be needed. Consequently, this change also means that it is confirmed that the pipeline will exit the Immingham Facility using Option 1.
- 2.3.4 No material change to the construction works or programme is expected to occur as a result of Design Change 2. Additionally, no changes to the operational or decommissioning phases will occur as a result of this change.

2.4 Updated DCO Site Boundary/Order Limits

2.4.1 **Figure 3** presents the update Order Limits/DCO Site Boundary for the Proposed Development taking into account the proposed Design Change 1 and Design Change 2.





Date:



Viking CCS Pipeline

LEGEND

Revised DCO Site Boundary (March 2024 Submission)

Route Section Break

Temporary Construction Compound

Block Valve Station

Immingham Facility

NOTES: Reproduced from Ordnance Survey digital map data © Crown copyright 2024. All rights reserved. Licence number 0100031673.



FIGURE TITLE

Figure 3 (1 of 3) Updated Order Limits / DCO Site Boundary

ISSUE PURPOSE

ENVIRONMENTAL REPORT

PROJECT NUMBER / REFERENCE

60668955 / VCCS_240318_ERI_3

Date:

Approv



PROJECT

Viking CCS Pipeline

LEGEND

Revised DCO Site Boundary (March 2024 Submission)

Route Section Break

Temporary Construction

Compound

Block Valve Station

NOTES: Reproduced from Ordnance Survey digital map data © Crown copyright 2024. All rights reserved. Licence number 0100031673.



FIGURE TITLE Figure 3 (2 of 3) Updated Order Limits / DCO Site

ENVIRONMENTAL REPORT

PROJECT NUMBER / REFERENCE

60668955 / VCCS 240318 ERI 3

Date:



PROJECT

Viking CCS Pipeline

LEGEND

Revised DCO Site Boundary (March 2024 Submission)

Route Section Break

Dune Isolation Valve

Temporary Construction Compound

Block Valve Station

Theddlethorpe Facility

NOTES: Reproduced from Ordnance Survey digital map data © Crown copyright 2024. All rights reserved. Licence number 0100031673.



FIGURE TITLE

Figure 3 (3 of 3) Updated Order Limits / DCO Site Boundary

ISSUE PURPOSE

ENVIRONMENTAL REPORT PROJECT NUMBER / REFERENCE

60668955 / VCCS 240318 ERI 3

3 Review of Impact of Design Changes on the Original ES

3.1 General Approach

- 3.1.1 Each technical topic reported within the ES has been reviewed to see if the changes proposed could alter the assessment findings included within the original ES submitted with the DCO application in October 2023. As part of the review, factors which have been considered include:
 - Whether it increases or decreases the Order Limits:
 - Whether the changes result in any amendments to the key components of the Proposed Development;
 - Whether the changes introduce any new receptors which should be considered within the assessment;
 - Whether the changes could alter the proposed construction phase works or programme;
 - Whether the changes could alter the proposed operation of the Proposed Development; and
 - Whether the changes could alter the proposed decommissioning of the Proposed Development.

Further details specific to design changes 1 and 2 are provided below.

3.2 Design Change 1

- 3.2.1 The proposed change to the Order Limits as a result of Design Change 1 has been reviewed. This change results in a reduction of the Order Limits by 2.55 hectares, but does not alter the components, size or operation of the Immingham Facility itself and instead simply reduces the extent of the Order Limits in this area, providing greater certainty on its anticipated location and associated access routes. No new receptors have been identified as a result of this change. This change will also not lead to any changes to the construction programme or methodology, nor to any of the plans for decommissioning.
- 3.2.2 **Table 1** provides a summary of the review of the impact of Design Change 1 on the findings presented within the original ES Volume II. **Table 2** provides a summary of the review of the impact of Design Change 1 on the findings provided in a number of other environmental reports which are of particular relevance.

3.3 Design Change 2

3.3.1 The proposed change to the Order Limits as a result of Design Change 2 has been reviewed. This change results in a reduction of the Order Limits by 16.06 hectares and removes Option 2 which exited the Immingham Facility through the P66 operational site. This means that land immediately south of the P66 operational site will no longer be affected, nor will there be a need for a horizontal directional drill (HDD) trenchless crossing underneath a northern section of Mayflower Woods including Children's Avenue. This change would also remove two temporary access and laydown areas which would no longer be required. No new receptors have been identified as a result of this change and instead

- clarification has been provided on those areas in and around the P66 site associated with pipeline routeing Option 2 which will now not be affected. It is worth noting that the HDD trenchless crossing below the southern part of Mayflower Woods to the south of the P66 site associated with the Option 1 exit route from the Immingham Facility will still be required.
- 3.3.2 This change provides clarification of the chosen option (Option 1) for the pipeline as it leaves the Immingham facility. Importantly, however, it does not alter any details on the construction, operation or decommissioning of the pipeline itself as both exit route options (Option 1 and Option 2) had been considered within the original ES submitted as part of the DCO application. This change will also not lead to any changes to the construction programme or methodology, nor to any of the plans for decommissioning.
- 3.3.3 **Table 1** provides a summary of the review into the impact of Design Change 2 on the findings presented within the original ES Volume II. **Table 2** provides a summary of the review into the impact of Design Change 2 on the findings provided in a number of other environmental reports which are of particular relevance.

3.4 Review of the Original ES

3.4.1 Table 1 below provides a summary of any potential changes to the findings reported in the application version of the Environmental Statement, included in Volume 6 of the application, as a result of either Design Change 1 or Design Change 2.

Table 1: Summary of changes to significant effects reported within the Original ES

Application Document Number	Relevant Topic and chapter of the ES	Change as a result of Design Change 1	Change as a result of Design Change 2
APP-048	Chapter 6: Ecology and Biodiversity	There are no new ecological receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified. The design change would therefore not result in potential impacts of a different magnitude from those assessed in the ES.	There are no new ecological receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified. The design change would therefore not result in potential impacts of a different magnitude from those assessed in the ES.
APP-049	Chapter 7: Landscape and Visual	There are no new landscape and visual receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified. The design	There are no new landscape and visual receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified.

Application Document Number	Relevant Topic and chapter of the ES	Change as a result of Design Change 1	Change as a result of Design Change 2
		change would therefore not result in potential impacts of a different magnitude from those assessed in the ES.	The design change would therefore not result in potential impacts of a different magnitude from those assessed in the ES.
APP-050 and updated version AS- 023	Chapter 8: Historic Environment	There are no new historic environment receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified. The design change would therefore not result in potential impacts of a different magnitude from those assessed in the ES.	There are no new historic environment receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified. The design change would therefore not result in potential impacts of a different magnitude from those assessed in the ES.
APP-051	Chapter 9: Geology and Hydrogeology	There are no new geological receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified. The design change would therefore not result in potential impacts of a different magnitude from those assessed in the ES.	There are no new geological receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified. The design change would therefore not result in potential impacts of a different magnitude from those assessed in the ES.
APP-052	Chapter 10: Agriculture and Soils	There are no new agriculture/soil receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified. The design	There are no new agriculture/soil receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified.

Application Document Number	Relevant Topic and chapter of the ES	Change as a result of Design Change 1	Change as a result of Design Change 2
		change would therefore not result in potential impacts of a different magnitude from those assessed in the ES.	The design change would therefore not result in potential impacts of a different magnitude from those assessed in the ES.
APP-053	Chapter 11: Water Environment	There are no new water environment receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified. The design change would therefore not result in potential impacts of a different magnitude from those assessed in the ES.	There are no new water environment receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified. The design change would therefore not result in potential impacts of a different magnitude from those assessed in the ES.
APP-100	ES Appendix 6.4.11.4 Water Framework Directive (WFD) Assessment	As the change resulted in a reduction to the Order Limits there would be no new or different consequences for WFD water bodies.	As the change resulted in a reduction to the Order Limits there would be no new or different consequences for WFD water bodies.
APP-101	ES Appendix 6.4.11.5 Flood Risk Assessment	As the change results in a reduction to the Order Limits considered previously in the Flood Risk Assessment, there is no potential for new or different flood risk impacts.	As the change results in a reduction to the Order Limits considered previously in the Flood Risk Assessment, there is no potential for new or different flood risk impacts.
APP-054	Chapter 12: Traffic and Transport	There are no new traffic and transport receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified. The design change would therefore	There are no new traffic and transport receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified. The design change

Application Document Number	Relevant Topic and chapter of the ES	Change as a result of Design Change 1	Change as a result of Design Change 2
		not result in potential impacts of a different magnitude from those assessed in the ES.	would therefore not result in potential impacts of a different magnitude from those assessed in the ES.
APP-055	Chapter 13: Noise and Vibration	There are no new noise receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified. The design change would therefore not result in potential impacts of a different magnitude from those assessed in the ES.	There are no new noise receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified. The design change would therefore not result in potential impacts of a different magnitude from those assessed in the ES.
APP-056	Chapter 14: Air Quality	There are no new air quality receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified. The design change would therefore not result in potential impacts of a different magnitude from those assessed in the ES.	There are no new air quality receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified. The design change would therefore not result in potential impacts of a different magnitude from those assessed in the ES.
APP-057	Chapter 15: Climate Change	There are no new climate change receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified. The design change would therefore not result in potential	There are no new climate change receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified. The design change would therefore not

Application Document Number	Relevant Topic and chapter of the ES	Change as a result of Design Change 1	Change as a result of Design Change 2
		impacts of a different magnitude from those assessed in the ES.	result in potential impacts of a different magnitude from those assessed in the ES.
APP-058	Chapter 16: Socio- Economics	There are no new socio- economic receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified. The design change would therefore not result in potential impacts of a different magnitude from those assessed in the ES.	There are no new socio- economic receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified. The design change would therefore not result in potential impacts of a different magnitude from those assessed in the ES.
APP-059	Chapter 17: Health and Wellbeing	There are no new health and wellbeing receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified. The design change would therefore not result in potential impacts of a different magnitude from those assessed in the ES.	There are no new health and wellbeing receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified. The design change would therefore not result in potential impacts of a different magnitude from those assessed in the ES.
APP-060	Chapter 18: Materials and Waste	There are no new materials and waste receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified. The design change would therefore not result in potential	There are no new materials and waste receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified. The design change would therefore not

Application Document Number	Relevant Topic and chapter of the ES	Change as a result of Design Change 1	Change as a result of Design Change 2
		impacts of a different magnitude from those assessed in the ES.	result in potential impacts of a different magnitude from those assessed in the ES.
APP-061	Chapter 19: Major Accidents and Disasters	There are no new receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified. The design change would therefore not result in potential impacts of a different magnitude from those assessed in the ES.	There are no new receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified. The design change would therefore not result in potential impacts of a different magnitude from those assessed in the ES.
APP-062	Chapter 20: Cumulative Effects Assessment	There are no new receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified. The design change would therefore not result in potential impacts of a different magnitude from those assessed in the ES.	There are no new receptors affected as this change only results in a reduction of the Order Limits. Consequently, no new or different significant environmental effects have been identified. The design change would therefore not result in potential impacts of a different magnitude from those assessed in the ES.

3.4.2 Table 2 below provides a summary of any potential changes to the findings reported in the application versions of the Other Documents included in Volume 6 of the application, resulting from either Design Change 1 or Design Change 2.

Viking CCS Pipeline Document 9.6

Table 2: Summary of changes to findings reported within other environmental reports

Application Document Number	Relevant Topic/Report	Change as a result of Design Change 1	Change as a result of Design Change 2
APP-118 and updated version AS- 026	Report to Inform the Habitat Regulations Assessment	The change results in a reduction to the Order Limits considered previously in the HRA, and the areas removed as a result of the change were not required to mitigate or compensate for any potential effects on the Integrity of European Sites. As such it is concluded that there are no changes to the findings as reported in the HRA report.	The change results in a reduction to the Order Limits considered previously in the HRA, and the areas removed as a result of the change were not required to mitigate or compensate for any potential effects on the Integrity of European Sites. As such it is concluded that there are no changes to the findings as reported in the HRA report.
APP-124	Statement of Statutory Nuisance	As this document draws information about impacts from the ES, and there are no new or different significant effects in the ES, as set out in Table 1, it is concluded that there are no changes to the Statement of Statutory Nuisance as a result of Change 1.	As this document draws information about impacts from the ES, and there are no new or different significant effects in the ES, as set out in Table 1, it is concluded that there are no changes to the Statement of Statutory Nuisance as a result of Change 2.

4 Conclusion

- 4.1.1 The changes to the Order Limits generated by Design Change 1 and Design Change 2 have been reviewed and assessed by the same environmental specialists that drafted the ES and other supporting documents. The extent to which the changes are likely to lead to new or different significant environmental effects in line with the methodologies set out in the Original ES, have been considered.
- 4.1.2 Based on the re-assessment work undertaken it is confirmed that design changes 1 and 2 do not result in any changes to the conclusions presented in the ES and other environmental documents.

5 References

HM Government, (2023). The Planning Inspectorate. Advice Note Sixteen: Requests to change applications after they have been accepted for examination.