PERENCO UK LIMITED

Indefatigable 18A
Jackets, Bridges and PL76 Riser Section Decommissioning Programmes

November 2025

Consultation Version

Document Control

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Terms and Abbreviations

Abbreviation	Explanation
"	Inch
AB2	Abandoned Phase 2
AB3	Abandoned Phase 3 (fully abandoned)
AtoN	Aids to Navigation
BGT	Bacton Gas Terminal
CA	Comparative Assessment
CoP	Cessation of Production
DESNZ	Department for Energy Security and Net Zero
DP	Decommissioning Programme
EA	Environmental Appraisal
E&A	Exploration & Appraisal
ESDV	Emergency Shut Down Valve
HCS	Hydrocarbon Safe
HLV	Heavy Lift Vessel
HSEx	Health and Safety Executive
Inde 18A	Indefatigable 18 Alpha Installation
Inde 18AD	Inde 18A Drilling Platform
Inde 18AP	Inde 18A Production Platform
Inde 18B	Indefatigable 18 Bravo Installation
Inde 23A	Indefatigable 23 Alpha Installation
Inde 23C	Indefatigable 23 Charlie Installation
Inde 23D	Indefatigable 23 Delta Installation
JNCC	Joint Nature Conservation Committee
JUB	Jack-up Barge

Abbreviation	Explanation
km	Kilometre
LSA	Low Specific Activity
m	Metre
MARPOL	International Convention for the Prevention of Pollution from Ships
MBES	Multibeam Echosounder
MCA	Maritime and Coastguard Agency
MMO	Marine Management Organisation
N/A	Not Applicable
NFFO	National Federation of Fishermen's Organisations
NIFPO	Northern Ireland Fish Producers' Organisation
NORM	Naturally Occurring Radioactive Material
NSTA	North Sea Transition Authority
OPRED	Offshore Petroleum Regulator for Environment and Decommissioning
OSPAR	Convention for the Protection of the Marine Environment of the North-East Atlantic
Perenco	Perenco UK Limited
PL	Pipeline
RAT	Rope Access Technician
ROV	Remotely Operated Vehicle
SAC	Special Area of Conservation
SFF	The Scottish Fishermen's Federation
SLV	Single Lift Vessel
SNS	Southern North Sea
SOPEP	Shipboard Oil Pollution Emergency Plan
SSS	Side Scan Sonar
SZ	Safety Zone
Te	Tonne
UKCS	United Kingdom Continental Shelf
UKHO	UK Hydrographic Office
WGS	World Geodetic System

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1. EXECUTIVE SUMMARY

1.1 Decommissioning Programme

This document contains the Decommissioning Programmes (DP) for the two jackets (AP and AD) of the Indefatigable 49/18 Alpha (Inde 18A) installations, the bridges, and the PL76 riser section that is attached to the AP jacket.

This DP does not include the topsides of Inde 18A, which the Department for Energy Security and Net Zero (DESNZ) approved on 13th December 2021. However, it does include the bridges between the two Inde 18A installations because these were excluded from the Topsides DP.

The PL76 pipeline, except for the Inde 18A riser section, will be covered under a separate Pipeline DP.

1.2 Requirement for Decommissioning Programme

Installations: In accordance with the Petroleum Act 1998, the S29 notice holders of the Inde 18A jackets (see Table 1.2) are applying to the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) to obtain approval for decommissioning the jackets detailed in Section 2.1 of this programme. (See also Section 8 - Section 29 Notice Holders Letters of Support).

Pipelines: In accordance with the Petroleum Act 1998, the Section 29 notice holders of the PL76 riser section (see Table 1.4) are applying to the OPRED to obtain approval for decommissioning the pipeline detailed in Section 2.2 of these programmes. (See also Section 8 – Section 29 Notice Holders Letters of Support).

In conjunction with public, stakeholder and regulatory consultation, these Decommissioning Programmes are submitted without derogation and in compliance with national and international regulations and OPRED guidelines. The schedule outlined in this document is for a 4-year decommissioning plan due to begin in Q4 2026.

1.3 Introduction

The Inde hub is located in the United Kingdom Continental Shelf (UKCS) in blocks 49/18, 49/23 and 49/30 in the Southern North Sea (SNS). The development consists of Inde 18A, Indefatigable 18 Bravo Installation (Inde 18B), Indefatigable 23 Alpha Installation (Inde 23A), Indefatigable 23 Charlie Installation (Inde 23C), Indefatigable 23 Delta Installation (Inde 23D), Bessemer 23E Installation and Davy 30A Installation. The field was discovered in 1966 and brought into production in 1971 by Amoco. The first gas was produced in September 1972, 6 years after the discovery was made.

The Inde 18A installations (Licence Number: P16) and PL76 riser section are located approximately 93 kilometres (km) northeast of Bacton Gas Terminal (BGT) and approximately 3.7km east of the North Norfolk Sandbanks and Saturn Reef Special Areas of Conservation (SAC).

The two Inde 18A installations were installed in July 1968 (Drilling (AD)) and June 1971 (Production (AP)) and are connected by two 45.7m long bridges, east and west. Gas and condensate were exported

from AP to the 23AT platform via 22" subsea pipeline PL76, where they were comingled with gas and condensate from the Davy, Davy North, Davy East, NW Bell, Bessemer, Boyle and Brown and Wenlock fields. AD's co-ordinates are WGS84 Latitude 53° 21' 43.9803" N, Longitude 02° 34' 03.1673"E. AP's co-ordinates are WGS84 Latitude 53° 21' 45.8844"N, Longitude 02° 34' 06.2316"E.

In Q3 2003, Inde 18A was modified and converted to a Normally Unattended Installation. Process systems were simplified to leave a straight-through process system from the platform wells to the export pipeline and onwards to Inde 23A. No other pipelines or risers were taken out/left redundant. In Q4 2003, the field operatorship was transitioned from BP to Perenco.

Perenco has explored all avenues for continuing production and has concluded that, due to high operational costs and a reduction of gas production, continued operations are uneconomical. The Cessation of Production (CoP) documentation was accepted by the North Sea Transition Authority (NSTA) on 5th May 2021.

The Safety Case Volume 30A Inde 49/18A (HCS and Lighthouse Mode) was accepted by the Health and Safety Executive (HSEx) on 24th August 2021. Inde 18A was confirmed as Hydrocarbon Safe (HCS) on 4th May 2022. Following HCS verification, the well conductors were removed, except for one conductor (well 49/18-A13z), which remains in-situ and will be removed with the topsides and jacket. The installation entered Lighthouse Mode on 26th July 2022 and will remain in this state until the topside and jacket removal campaign.

PL76 was flushed and cleaned in March 2022 and is currently out of service. The PL76 riser section is attached to the AP jacket. It will be cut subsea, near the base of the jacket, to create an air gap between the riser and the remaining pipeline to facilitate the removal of the jacket and attached riser section. The pipeline cut end will be re-buried.

The DP explains the principles of the removal activities and is supported by an Environmental Appraisal (EA).

1.4 Overview of Installations Being Decommissioned

1.4.1 Installations

Table 1.1: Installations Being Decommissioned			
Field	Indefatigable	**Production Type (Oil/Gas/Condensate)**	Gas
Water Depth (m)	31.4	**UKCS Block**	49/18a
Distance to median (km)	31.5	**Distance from nearest UK coastline (km)**	93
Surface Installations			
Number	Type	Weight (Te)	
2	Fixed leg steel jackets	Inde 18AD	Inde 18AP
		988[1]	958[2]
2	Bridges	East Bridge	West Bridge
		70[3]	88[4]
Subsea Installations		**Number of Wells**	
Number	Type	Platform	Subsea
0	N/A	12	0
Drill Cuttings piles			
Number of Piles	N/A	Total Estimated Volume (m^3)	N/A

[1] *Includes weight of jacket (468 Te), piles (480 Te) and marine growth (40 Te).*
[2] *Includes weight of jacket (502 Te), piles (416 Te) and marine growth (40 Te).*
[3] *Total bridge weight consisting of a) structural weight 48 Te and b) piping weight 22 Te.*
[4] *Total bridge weight consisting of a) structural weight 44 Te and b) piping weight 44 Te.*

Table 1.2: Installations Section 29 Notice Holders Details		
Section 29 Notice Holders	**Registration Number**	**Equity Interest (%)**
Perenco UK Limited	04653066	76.92%
RockRose UKCS 10 Limited	04105025	23.08%
RockRose UKCS15 Limited	SC375371	0
Amoco (U.K.) Exploration Company, LLC	SF000790 BR005086	0
BG International Limited	00902239	0
Enterprise Oil Limited	01682048	0
Hess Limited	00807346	0

1.4.2 Pipelines

Table 1.3: Pipeline(s) Being Decommissioned	
Number and total length (m) of Pipeline(s) / umbilical(s)	PL76 riser section – 57m

Table 1.4: Pipeline (riser) Section 29 Notice Holders Details		
Section 29 Notice Holders	**Registration Number**	**Equity Interest (%)**
Perenco UK Limited	04653066	76.92%
RockRose UKCS 10 Limited	04105025	23.08%
RockRose UKCS15 Limited	SC375371	0
Amoco (U.K.) Exploration Company, LLC	SF000790 BR005086	0
BG International Limited	00902239	0
Enterprise Oil Limited	01682048	0
Hess Limited	00807346	0

1.5 Summary of Proposed Decommissioning Programme

Table 1.5: Summary of Decommissioning Programme	
Proposed Decommissioning Solution	**Reason for Selection**
Topsides (Bridges)	
Complete removal, reuse of scrap material or disposal.	To comply with OSPAR requirements and OPRED guidelines to maximise the recycling of materials.
Substructures (Jackets)	
Complete removal to shore for re-use / recycling. The leg piles will be cut to a target depth of at least -3m below the mean seabed level. Cutting of the piles is anticipated to be executed by internal cutting equipment. However, if this proves unfeasible it would be necessary to excavate the seabed around the piles to enable external cutting. Perenco will assess alternative options for removal based on structural integrity, project efficiency and vessel capability.	To comply with the Oslo and Paris Conventions (OSPAR) requirement to leave a clear seabed, removes a potential obstruction to fishing operation and maximises the potential for recycling of materials.
Pipelines, Flowlines, Umbilicals, & Riser Sections	

Table 1.5: Summary of Decommissioning Programme	
Proposed Decommissioning Solution	**Reason for Selection**
The PL76 riser section will be cut subsea near the base of the Inde 18 AP jacket. The section will be removed from the seabed together with the jacket structure for dismantlement onshore. Recycling and recovery methods will be the prioritised disposal options. The point where the riser enters the seabed will be excavated and the tie-in spool will be cut approximately 1m below the seabed (approximately -32.4m LAT) before the pipeline is re-buried with the excavated seabed sediment.	To comply with the Oslo and Paris Conventions (OSPAR) requirement to leave a clear seabed, removes a potential obstruction to fishing operations and maximises the potential for recycling of materials.
Wells	
Well 49/18-A13Z is the only well on AD that is AB2 but all that remains to be done is retrieval of the already cut conductor.	The well will be abandoned in accordance with the latest version of OEUK Guidelines and in compliance with relevant HSE Regulations.
Drill Cuttings	
No drill cuttings were identified on the seabed adjacent to the jacket.	The cuttings pile would have been widely dispersed and, therefore, falls below OSPAR 2006/5 thresholds.
Interdependencies	
Inde 18A is connected to Inde 23A via the export gas pipeline PL76, which has been flushed and filled with seawater.	

1.6 Field Location Including Field Layout and Adjacent Facilities

Figure 1.1: Field Location in UKCS

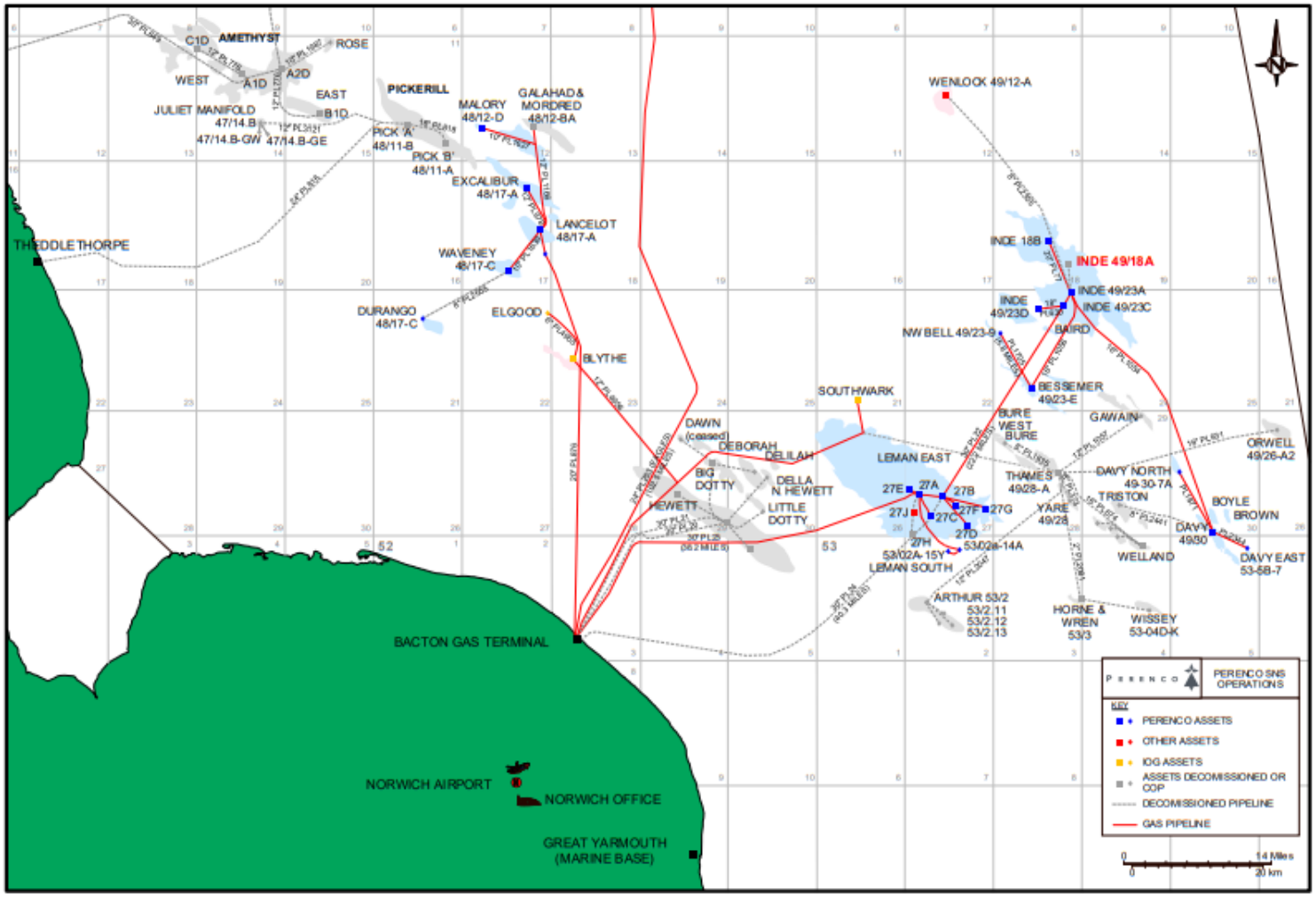


Figure 1.2: Indefatigable Field Layout

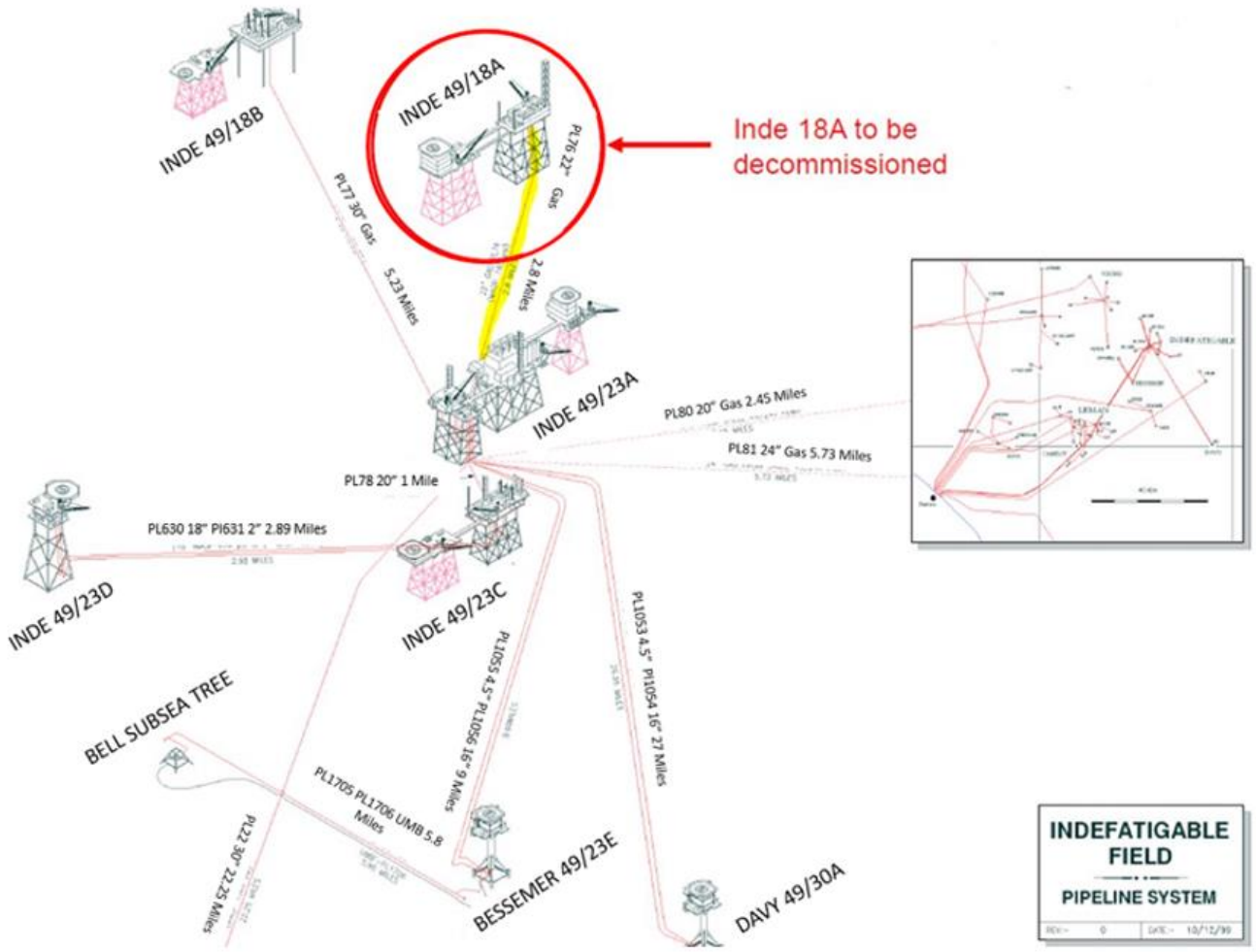
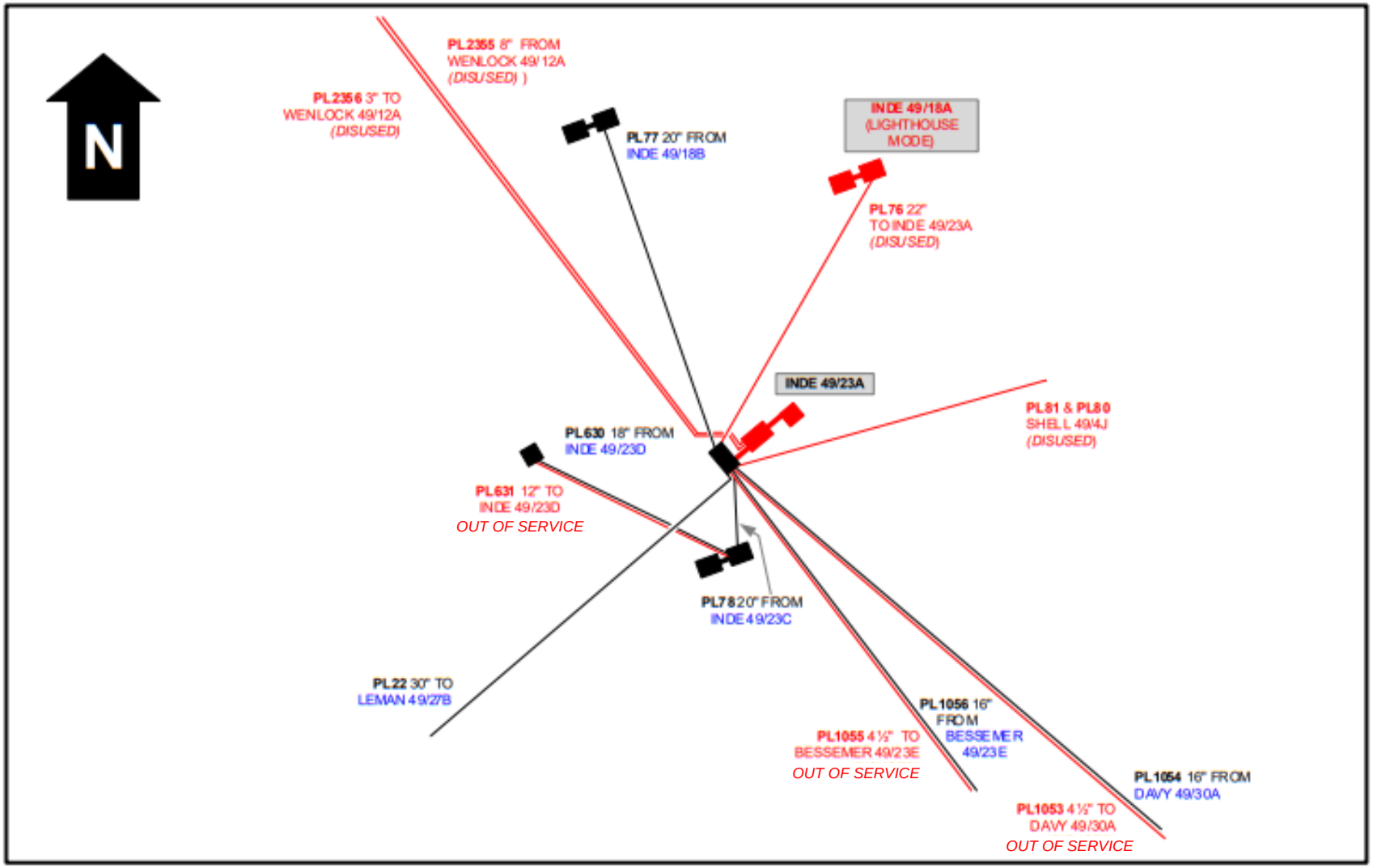


Table 1.6: List of Adjacent Facilities					
Owner Operator	**Name**	**Type**	**Distance/ Direction**	**Information**	**Status**
Perenco UK Limited	Inde 18B	Platforms	4.4km northwest	Drilling platform and production platform	Operational
Perenco UK Limited	Inde 23A	Platforms	4.3km south	Pipeline terminal, compression platform and accommodation platform	Operational
Perenco UK Limited	Inde 23C	Platforms	6.2km south	Drilling platform and production platform	Operational
Perenco UK Limited	Inde 23D	Platform	8.3km southwest	Production platform	Operational
Perenco UK Limited	PL22	Pipeline	4.3km south	30” joint trunkline	Operational
Perenco UK Limited	PL76	Pipeline	0km	22” infield pipeline	Non-operational
Perenco UK Limited	PL77	Pipeline	1.5km west	20” infield pipeline	Operational
Perenco UK Limited	PL78	Pipeline	4.3km south	20” infield pipeline	Operational
Shell U.K. Limited	PL80	Pipeline	4.3km south	20” pipeline	Non-operational
Shell U.K. Limited	PL81	Pipeline	4.3km south	24” pipeline	Non-operational
Perenco UK Limited	PL630	Pipeline	6km south	18” infield pipeline	Operational
Perenco UK Limited	PL631	Pipeline	6km south	2” piggybacked infield pipeline	Out of Service
Perenco UK Limited	PL1053	Pipeline	4.3km south	4.5” piggybacked pipeline	Out of Service
Perenco UK Limited	PL1054	Pipeline	4.3km south	16” infield pipeline	Operational
Perenco UK Limited	PL1055	Pipeline	4.3km south	4.5” piggybacked pipeline	Out of Service
Perenco UK Limited	PL1056	Pipeline	4.3km south	16” infield pipeline	Operational

Table 1.6: List of Adjacent Facilities					
Energean UK Limited	PL2355	Pipeline	2km west	8” gas export pipeline	Non-operational
Energean UK Limited	PL2356	Pipeline	2km west	3” chemical injection pipeline	Non-operational
Impacts of Decommissioning Proposals					
Decommissioning of the Inde 18A installations is not expected to impact the adjacent facilities and pipelines.					

Figure 1.3: Adjacent Facilities



1.7 Industrial Implications

Perenco's contract strategy and Supply Chain Action Plan, including Pathfinder, will result in an efficient and cost-effective execution of the decommissioning works.

The Inde 18A installations are managed by Perenco to ensure the safe, efficient, and legally compliant delivery of the various elements of the decommissioning scope. The intention is to make efficient use of the supply chain to generate value through the application of knowledge, innovation, and technology, explore collaboration opportunities and employ best practices in the management of the supply chain to deliver a cost-effective and reliable service. Where appropriate, existing framework agreements may be used for decommissioning activities.

2. DESCRIPTION OF ITEMS TO BE DECOMMISSIONED

2.1 Installation: Surface Facilities

Table 2.1: Surface Facilities Information – Jackets							
Name	Facility Type	Location		Jacket			
		WGS84 decimal	WGS84 decimal of a minute	Weight (Te)	No. of Legs	No. of Piles	Weight of Piles (Te)
Inde 18AD	Fixed leg steel jacket	53.36221674N 02.56754648E	53° 21’ 43.9803” N 02° 34’ 03.1673” E	988*	8	8	480
Inde 18AP	Fixed leg steel jacket	53.36274567N 02.56839767E	53° 21' 45.8844" N 02° 34' 06.2316" E	958**	8	8	416

** Includes weight of jacket (468 Te), piles (480 Te) and marine growth (40 Te).*
*** Includes weight of jacket (502 Te), piles (416 Te) and marine growth (40 Te).*

Table 2.2: Surface Facilities Information – Bridges							
Name	Facility Type	Location		Bridge			
		WGS84 decimal	WGS84 decimal of a minute	Weight (Te)	No. of Legs	No. of Piles	Weight of Piles (Te)
East Bridge	Carbon steel bridge	53.36221674N 02.56754648E to 53.36274567N 02.56839767E	53° 21’ 43.9803” N 02° 34’ 03.1673” E to 53° 21' 45.8844"N 02° 34' 06.2316"E	70*	N/A	N/A	N/A
West Bridge	Carbon steel bridge	53.36221674N 02.56754648E to 53.36274567N 02.56839767E	53° 21’ 43.9803” N 02° 34’ 03.1673” E to 53° 21' 45.8844"N 02° 34' 06.2316"E	88**	N/A	N/A	N/A

**Total bridge weight consisting of a) structural weight 48 Te and b) piping weight 22 Te.*
***Total bridge weight consisting of a) structural weight 44 Te and b) piping weight 44 Te.*

2.2 Pipelines Including Stabilisation Features

Table 2.3: Pipeline/Flowline/Umbilical Information							
Pipeline Number	**Description (Include diameter)**	**Length (m)**	**Product Conveyed**	**From – To Location Points**	**Burial Status**	**Pipeline Status**	**Current Content**
PL76	22" Export line (riser section)	57m	Gas/ Condensate	From Inde 49/18-AP ESDV-2151 to subsea pipeline flange (ident number 4)	Attached to jacket; exposed	Out of use	Flushed clean and filled with seawater

2.3 Wells

Table 2.4: Well Information – 18AD			
Platform Wells	**Designation**	**Status**	**Category of Well**
49/18-A2	Gas Production	AB3	PL-0-0-0
49/18-A3	Gas Production	AB3	PL-0-0-0
49/18-A4	Gas Production	AB3	PL-0-0-0
49/18-A5	Gas Production	AB3	PL-0-0-0
49/18-A6	Gas Production	AB3	PL-0-0-0
49/18-A7	Gas Production	AB3	PL-0-0-0
49/18-A8	Gas Production	AB3	PL-0-0-0
49/18-A9	Gas Production	AB3	PL-0-0-0
49/18-A10	Gas Production	AB3	PL-0-0-0
49/18-A11	Gas Production	AB3	PL-0-0-0
49/18-A12	Gas Production	AB3	PL-0-0-0
49/18-A13Z*	Gas Production	AB2	PL-0-0-1
Subsea Wells			
There are no subsea wells associated with the Inde 18A installations.			
E&A Wells			
49/18-4*	Appraisal	AB2	PL-0-0-1

**The 49/18-4 well was drilled by Amoco UK as an appraisal well and a platform was subsequently built over the top, resulting in it being renamed 49/18-A1. 49/18-A13 was then sidetracked from 49/18-A1 before it was decided to plug back and sidetrack a second time, becoming 49/18-A13Z.*

2.4 Drill Cuttings

Table 2.5: Drill Cuttings Piles Information		
Location of Pile Centre (Latitude/Longitude)	**Seabed Area (m^2)**	**Estimated volume of cuttings (m^3)**
N/A	N/A	N/A

2.5 Inventory Estimates

Figure 2.1: Inde 18AD Pie Chart of Estimated Inventories (Jacket)

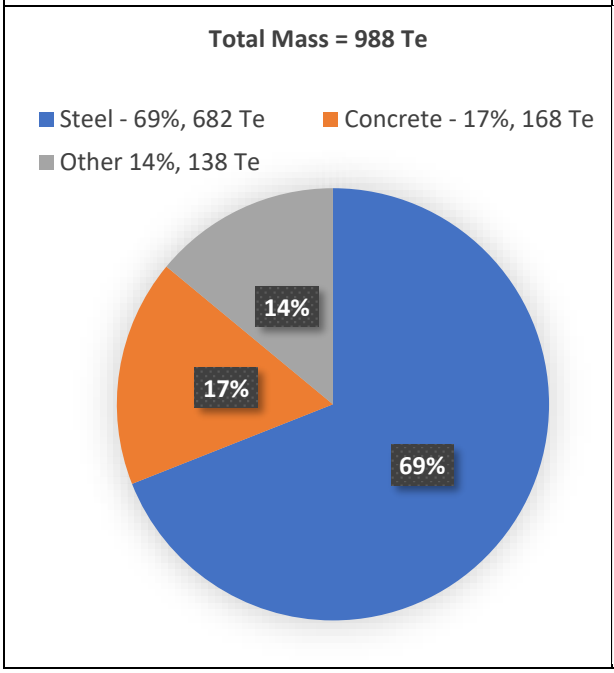


Figure 2.2: Inde 18AP Pie Chart of Estimated Inventories (Jacket incl. PL76 riser section)

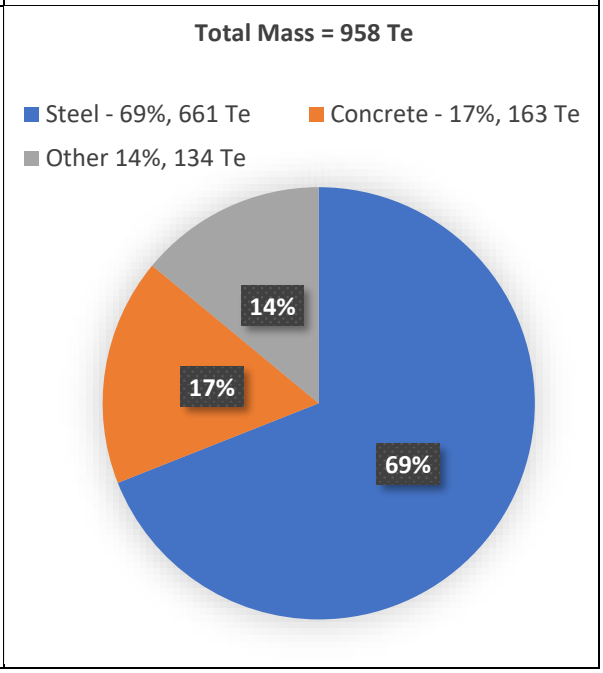


Figure 2.3: Inde 18A Pie Chart of Estimated Inventories (East Bridge)

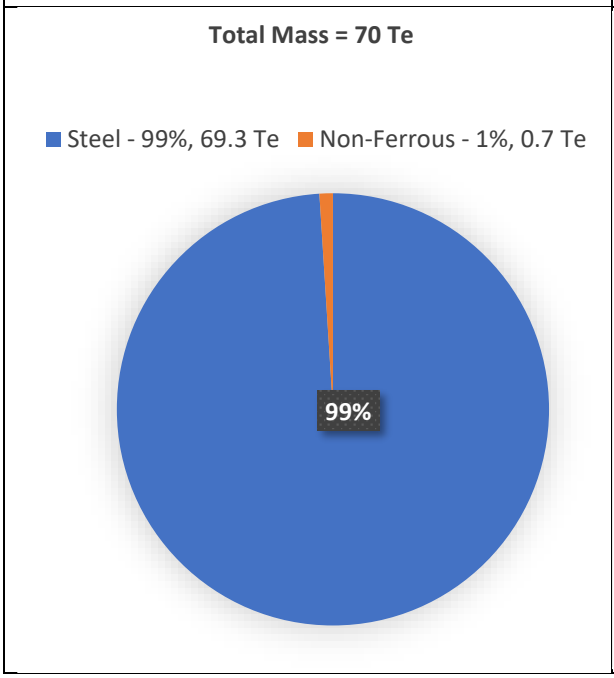
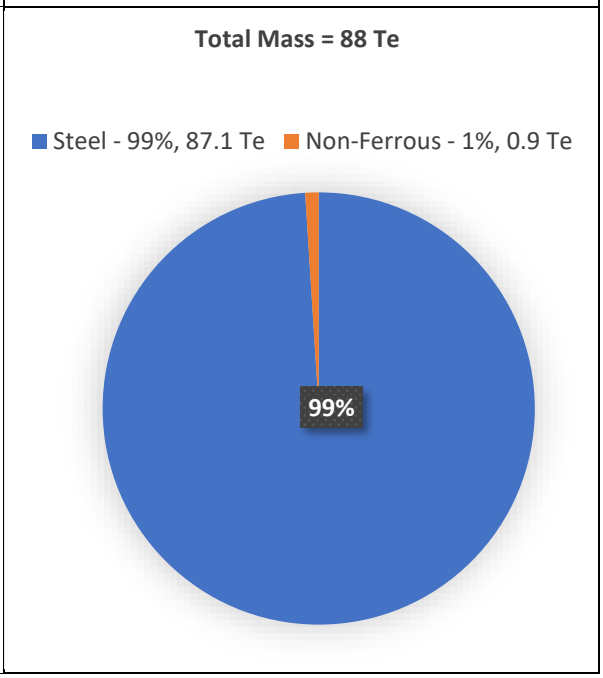


Figure 2.4: Inde 18A Pie Chart of Estimated Inventories (West Bridge)



3. REMOVAL AND DISPOSAL METHODS

Disposal option selection will be in accordance with the Environmental Agency Waste Management Hierarchy. Perenco will consider the disposal options available, taking into account the business needs within Perenco to reuse equipment and materials where appropriate.

At the current time, a suitable relocation or reuse as a whole for the jackets, bridges and riser has not been identified; therefore, at present, dismantling of the jackets at an onshore disposal facility is considered the most likely disposal option. Those materials deemed suitable for recycling are to be recovered at an appropriate recycling facility.

3.1 Jackets

3.1.1 Jacket Decommissioning Overview

A single lift removal option using a suitable Heavy Lift Vessel (HLV) and transportation ashore for cleaning, break up, and recycling is considered the most likely removal methodology. The means of cutting will be an industry standard technique, such as diamond wire or high-pressure abrasive water jet internal cutting.

The process will be the same for both jackets (Inde 18AD, Inde 18AP). The PL76 riser section will be removed with the AP jacket. The pile cuts will be made -3m below the seabed so that the remains will not become uncovered. The point where the riser enters the seabed will be excavated, and the tie-in spool will be cut below the seabed before the pipeline is re-buried with the excavated seabed sediment.

The steps presented below provide a high-level chronological summary of the key stages of jacket dismantling using an HLV single lift:

- Mobilisation of equipment and personnel to HLV. Transit of vessel to Indefatigable field.
- Arrive at 500m safety zone (SZ) and complete pre-entry checks.
- Move into position next to the jacket.
- Launch a Remotely Operated Vehicle (ROV) to inspect the jacket.
- Connect rigging to the solar Aids to Navigation (AtoNs) grillage with help from Rope Access Technicians (RATs) (if required).
- Connect rigging to main crane.
- Lift grillage and solar AtoNs from the jacket.
- Connect rigging to jacket pad-eyes with RAT and hang off rigging to the vessel deck.
- Remove soil plug from pile annulus and complete pile cuts.
- Cut riser subsea at the base of the jacket.
- Connect rigging to main crane.
- Lift the jacket to the deck of the vessel and seafasten it in place.
- Execute as-left survey/debris removal with ROV.
- Complete safety checks in preparation for leaving the field and moving out of 500m SZ.
- Transport the jacket to the disposal yard for onshore disposal and recycling. Recycling and recovery methods will be the prioritised disposal options.

Figure 3.1: Inde 18AD General Arrangement of Jacket

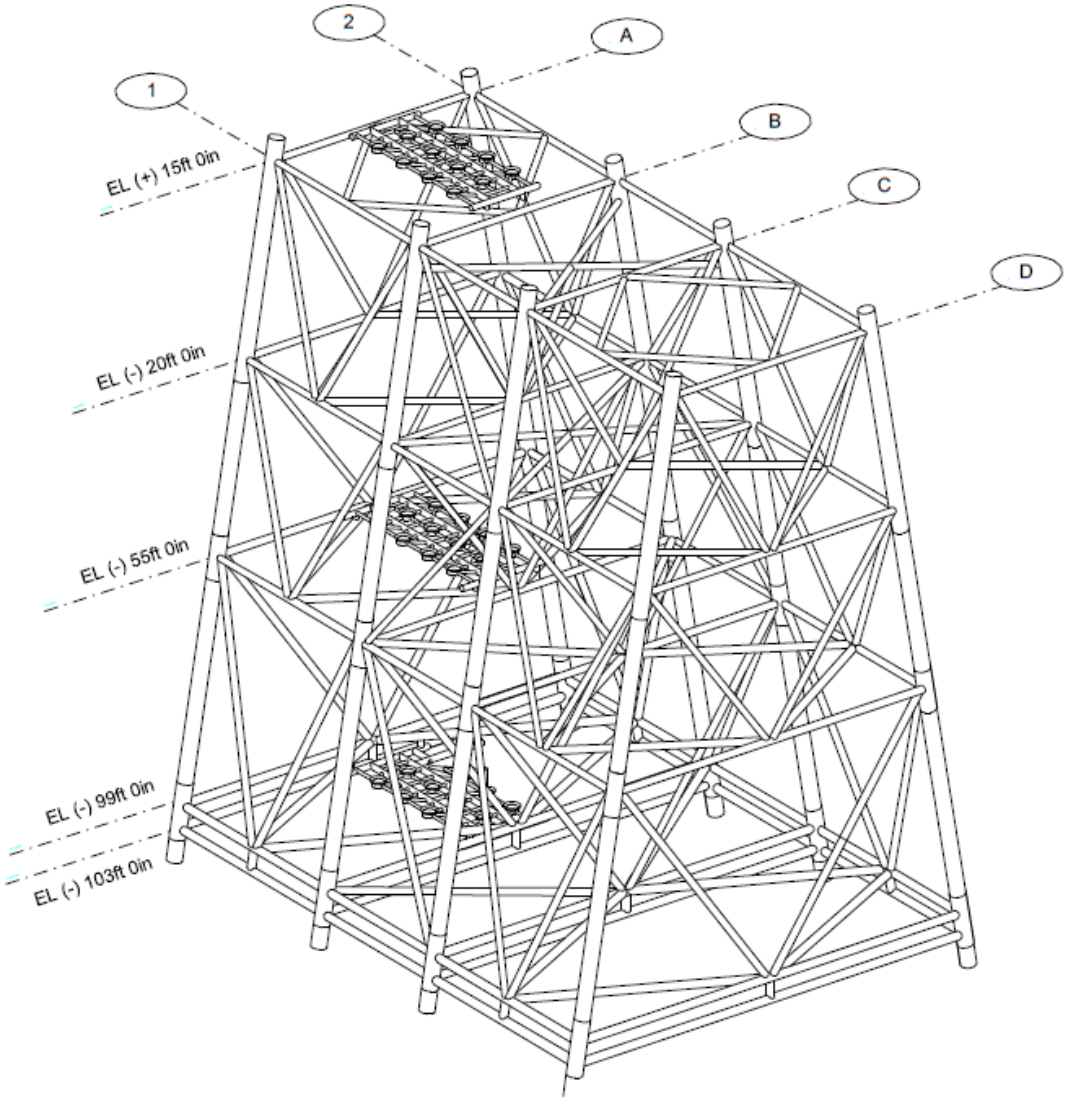
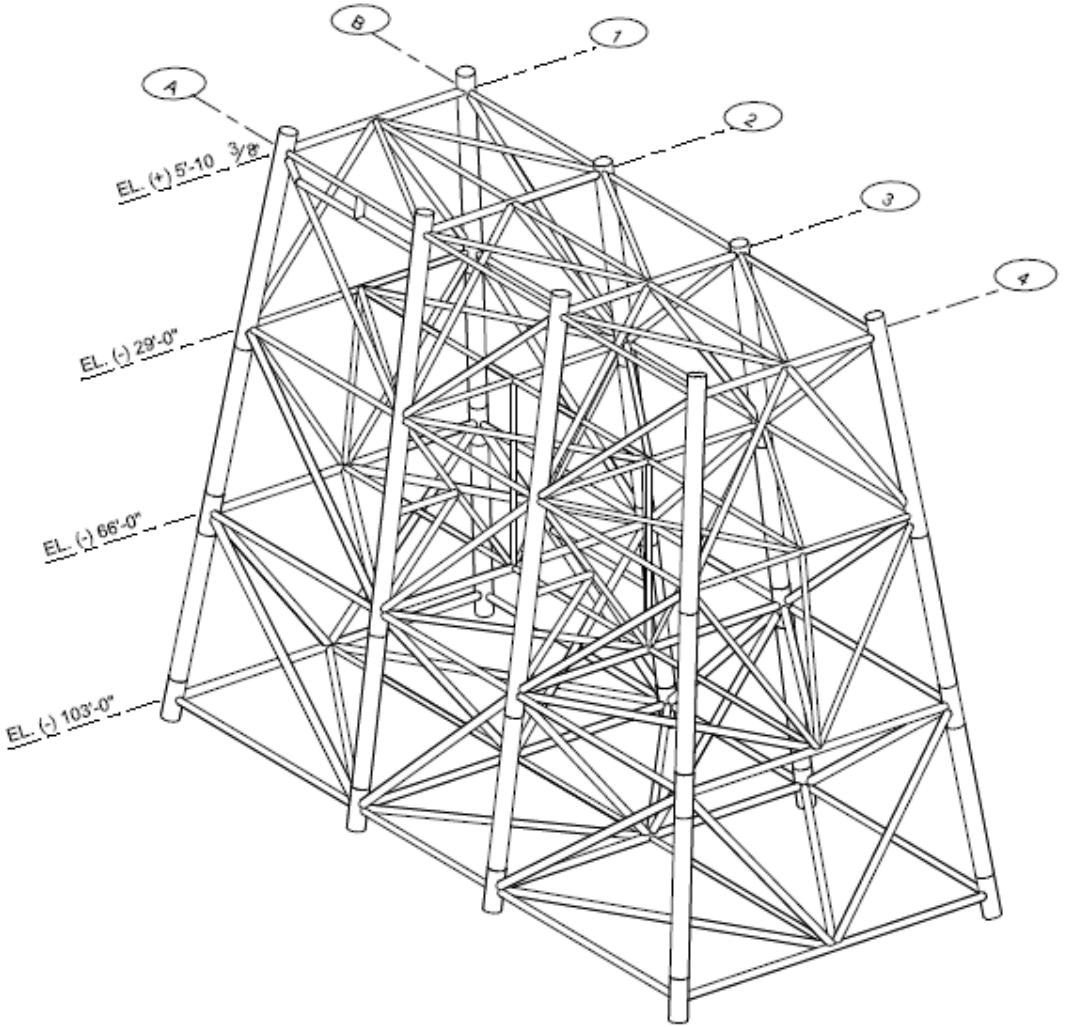


Figure 3.2: Inde 18AP General Arrangement of Jacket



3.1.2 Jacket Removal Methods

The jackets will be removed to shore for cleaning and disposal. The pile cuts will be made -3m below the seabed so that the remains will not become uncovered. The means of cutting could be diamond wire, oxyacetylene or high-pressure abrasive water jet cutting.

The Inde 18AD and Inde 18AP jackets will be removed by the methods outlined in the table below.

Table 3.1: Jacket Removal Methods

1) HLV (semi-submersible crane vessel) ☑ 2) Single Lift Vessel (SLV) ☑ 3) Jack-up barge (JUB) ☑ 4) Piece small ☑ 5) Other ☐

Method	Description
Onshore disposal using HLV/SLV/JUB	Removal of the jackets and PL76 riser section in single lifts and transport to shore for re-use of selected equipment for break up, recycling and disposal. If the decommissioning method changes, OPRED will be notified.
Offshore removal 'piece small' for onshore reuse/disposal	Removal of jackets by breaking up offshore and transporting to shore using work barge. Items will then be sorted for re-use, recycling or disposal.
Proposed removal method and disposal route	All necessary permits and consents required for trans-frontier shipments of waste will be in place before leaving UK waters. A final decision on decommissioning method will be made following a commercial tendering process and OPRED informed.

3.2 Bridges

3.2.1 Bridges Decommissioning Overview

The bridges will be decommissioned one at a time. A bridge will be rigged up to the HLV crane and prepared for lifting. It will then be disconnected at AD and AP. Once disconnected, the bridges will be lifted using the HLV crane and transferred to a predetermined position on the HLV. The process will then be repeated for the second bridge. Both bridges will be transported to an onshore disposal yard for dismantlement and processing.

Figure 3.3: East Bridge Upturned Triangular Cross Section

Figure 3.4: West Bridge Square Cross Section

3.3 Pipelines

Decommissioning Options:
A Comparative Assessment (CA) is not required as the riser will be fully removed.

Table 3.2: Pipeline Decommissioning Options			
Pipeline or Group (as per PWA)	**Condition of line/group**	**Whole or part of pipeline/group**	**Decommissioning options considered**
PL76	Riser is attached to jacket; exposed.	Riser only	A CA is not required; the riser is attached to the jacket and will be removed with the jacket.

3.4 Wells

Table 3.3: Well Plug and Abandonment
Well 49/18-A13Z will be abandoned to AB3 in accordance with OEUK *Guidelines for the Suspension and Abandonment of Wells*. A JUB will come alongside Inde 18AD to perform wellhead conductor removal. The necessary permits will be obtained from OPRED before the commencement of the operations.

3.5 Waste Streams

Table 3.4: Waste Stream Management Methods	
Waste Stream	**Removal and Disposal Method**
Bulk liquids	N/A
Marine growth	Marine growth will be removed offshore/onshore and disposed of according to guidelines.
Naturally Occurring Radioactive Material (NORM)/ Low Specific Activity (LSA Scale)	Inde 18A has no history of NORM contamination. However, monitoring will be carried out through all stages of preparation and during destruct activity. Any encountered NORM will be dealt with and disposed of following guidelines and company policies and under the appropriate permit(s).
Asbestos	Tests for asbestos will take place offshore and will be dealt with / disposed of according to guidelines and company policies.
Other Hazardous Wastes	The topsides have low concentrations of lead and chromium VI in the paintwork. Due to a lack of access, the jackets have not been inspected, but it is assumed the jackets will have similar lead and chromium VI content as the topsides.

Onshore Dismantling Sites	Appropriate licensed sites will be selected. The dismantling site must demonstrate a proven disposal track record and waste stream management throughout the deconstruction process, and demonstrate their ability to deliver re-use and recycling options. OPRED will be advised when a decision is made.

Table 3.5: Inventory Disposition

	Total Inventory (Te)	Planned (Te) to Shore	Planned Left in Situ
Installation Inde 18AD	988	532	456*
Installation Inde 18AP	958**	570	388*
East Bridge	70	70	0
West Bridge	88	88	0

**Pile weights assuming -3m cuts below seabed.*
***Includes the weight of PL76 riser section*

4. ENVIRONMENTAL APPRAISAL OVERVIEW

4.1 Environmental Sensitivities (Summary)

Table 4.1: Environmental Sensitivities	
Environmental Receptor	**Main Features**
Conservation Interests	Inde 18A is located 3.7km east of the Annex I Habitat, North Norfolk Sandbanks and Saturn Reef Special Area of Conservation (SAC) and 15.04km southeast of the Southern North Sea SAC. The area within Inde 18A has the potential to be classified as Annex I sandbank habitat due to its fine sandy sediment, observed presence of *P. bernhardus*, *Liocarcinus sp.*, and *A. rubens*, and proximity to the North Norfolk Sandbanks and Saturn Reef SAC. The site is deeper (>20m) than usually found at the sandbank system however, there is potential that the site could form part of the sandbank system flank.
Seabed	Around the platform jackets, there is evidence of scouring, with the deepest water depth within the scoured area being 32.4m. The entire safety zone apart from the scoured area was covered with megaripples. 2020 data found that most of the Inde 18A 500m safety zone had a JNCC/EUNIS habitat classification of 'Circalittoral Fine Sand' (SS.SSa.CFiSa/A5.25) while the scour feature around the platform was classed as 'Circalittoral Coarse sediment' (SS.SCS.CCS/A5.14). This was in keeping with the habitats predicted by EMODnet mapping of marine sediments. Some elevated levels of contaminants, including Total Hydrocarbon Content and total n-alkane concentrations, were observed 100m north and 100m east of the platform. Chemical analysis suggested that low toxicity oil-based drilling mud could be present 100m east of platform. However, the morphology and sediment characteristics of the seabed scour could have influenced hydrocarbon concentrations close to the platform. Efforts will be made to plan and implement the work in a way that minimises seabed disturbance and the release of contaminants into the water column.
Fish	Species that spawn or nurse within ICES 35F2 rectangle where Inde 18A is located include: sandeel (*Ammodytes marinus*), cod (*Gadus morhua*), herring (*Clupea harengus*), mackerel (*Scomber scombrus*), plaice (*Pleuronectes platessa*), nephrops (*Nephrops norvegicus*), sprat (*Sprattus sprattus*), whiting (*Merlangius merlangus*) and tope shark (*Galeorhinus galeus*).
Fisheries	There is currently no data published on fishing effort in ICES rectangle 35F2. However, activity within the adjacent ICES rectangle 36F2 included 235 days of fishing effort during 2023, 200 days of fishing effort in 2022 and 196 days of effort in 2021. A total of 340 Te was landed in 36F2 in 2023, 336 Te in 2022 and 289 Te in 2021. Landed species were made up predominantly of edible crab (*Cancer paguru*) and Great Atlantic scallop (*Pecten maximus*).
Marine Mammals	The relative abundance and density of cetaceans in the vicinity of Inde 18A can be derived from data obtained during the Small Cetacean Abundance of the North Sea (SCANS-IV) aerial and ship-based surveys. The Inde 18A field is situated within the SCANS-IV Block 'NS-C', in which harbour porpoise, bottlenose dolphin, white-

	beaked dolphin, common dolphin and minke whale have been recorded. The ocean around Inde 18A has a relatively high estimated density of harbour porpoise (*Phocoena phocoena*), suggesting that the area represents an important habitat area. In addition, two species of seals are found in the Southern North Sea: grey seal (*Halichoerus grypus*) and the harbour (or common) seal (*Phoca vitulina*). On the east coast of England, harbour seals tend to concentrate around The Wash and grey seals tend to be found more regularly around the Humber estuary and foraging offshore. The presence of seals around Inde 18A are relatively low, with an estimated mean density of 0.0516191 individuals per 25km^2 for grey seals and 0.0009851 individuals per 25km^2 for Harbour seals.
Seabirds	Offshore structures, such as oil platforms in the Southern North Sea, create a manmade archipelago of islands that provide several opportunities to birds. Species recorded nesting on offshore assets include razorbill (*Alca torda*), guillemot (*Uria aalge*), lesser black-backed gull (*Larus fuscus*), herring gull (*Larus argentatus*), carrion crow (*Corvus corone*), common guillemot (*Uria aalge*), razorbill (*Alca torda*), and, most commonly, black-legged kittiwake (*Rissa tridactyla*). No bird species have been recorded nesting at the Inde 18A platforms in annual surveys conducted from 2023 to 2025 [Ref 1, 2, 3].
Onshore Communities	The only interaction between the project and onshore communities will be via the handling and treatment of the removed jackets, bridges, and riser section. This waste will be transported to a licensed onshore waste handling facility. No other impacts to onshore communities have been identified. As a result, no onshore communities are expected to be affected by the DPs.
Other Users of the Sea	The waters surrounding Inde 18A are described as having 'Medium' shipping activity. There are significant oil and gas surface and subsurface infrastructure found within UKCS 49/18 and surrounding blocks, predominantly associated with the Inde field. Inde 18A is within a Carbon Storage Appraisal and Storage Licence area (licence reference CS027) held by Shell U.K. Limited. This area is currently under investigation for the feasibility of geological storage of captured carbon dioxide. The closest marine aggregate location is Indefatigable West, operated by Deme Building Materials Ltd, approximately 11.02km to the east of Inde 18A. The nearest offshore wind farm to Inde 18A is approximately 29.48km to the southeast (Norfolk Boreas). The Inde 18A platforms are approximately 9.22km from the near subsea cable (NORSEA COM 1 LOW-MUR TELECOM CABLE). The Inde 18A installation does not fall within a known Military Practice and Exercise Area. Due to the distance between the Inde 18A installation and the nearest landfall (93km northeast of Bacton Gas Terminal), recreational activities in the region are highly unlikely.
Atmosphere	Atmospheric emissions will occur as a result of operating vessels during the decommissioning works. A total of 2561.8 Te of CO_2e is expected to be released to the atmosphere as a result of deploying the HLV, tug vessels and support vessels. This represents 0.01986% of the total upstream oil and gas industry emissions during 2023 and 0.00067% of the total UK 2023 CO_2e emissions.

4.2 Potential Environmental Impacts and Their Management

Environmental Impact Assessment Summary:
A detailed review of the proposed decommissioning activities, the environmental and social baseline, and potential impacts on environmental and social receptors occurred as part of the EA. This review determined that the proposed decommissioning works are unlikely to cause any significant impacts. The decommissioning option is well understood and can be managed through established mitigation measures.

Temporary disturbance to the seabed will occur from excavation, cutting, jacket lifting and over-trawling. Underwater noise will also arise due to vessel operation as well as the operation of equipment. However, the assessment determined the potential impacts to not be significant following the implementation of the mitigation measures detailed below. The full assessment can be read in the supporting *Indefatigable 18A Jackets, Bridges and PL76 Riser Section Environmental Appraisal* [Ref 4].

Overview:

Table 4.2: Environmental Impact Management		
Activity	**Main Impacts**	**Management**
Decommissioning the Inde 18A jackets, bridges and PL76 pipeline riser	Seabed disturbance from the jack-up legs, anchor lines, excavation, removal of subsea infrastructure and seabed picking and trawling.	• Movement of the HLV will be reduced to minimise the number of times that the legs need to be placed on the seabed floor. • The anchor lines will be equipped with buoys to reduce drag. Stabilisation will only be placed at the HLV legs if required. If stabilisation material is required, then gravel or grout bags will be used if possible, so that these can be retrieved. • Internal subsea leg cuts will be used if possible. • PL76 will be re-buried.
	Underwater noise from vessels, cutting tools, dredging (if required), pipeline uncovering and burying	• The decommissioning works will be planned to reduce vessel movement as much as possible. • Lower noise methods will be selected where possible. • Internal cuts using diamond wire will be prioritised if feasible. Cutting activities will also be minimised and carried out in isolation where possible. • Dredging and explosive use will only be carried out if required. • All equipment will be subject to proper preventative maintenance to ensure that it is properly functioning, and unnecessary noise is not generated. • Any required post-decommissioning surveys will be scheduled and planned efficiently to minimise vessel operation time. JNCC guidelines for minimising noise impacts from surveys will be followed, where applicable.
	Unplanned events	• Standard navigation notifications will be followed, and Navaids used where required to reduce risk of vessel collision. • Vessels will be managed in line with MARPOL requirements, including the requirement to operate a Shipboard Oil Pollution Emergency Plan (SOPEP) for hydrocarbon spills to sea. • An approved Lift Plan and company procedures will be followed regarding securing assets while in transit. • All dropped objects will be recovered if feasible to prevent the objects from causing navigational or fishing (snagging) impacts.
	Energy and emissions	• Impacts from vessel presence will be reduced through combining the topside removal with decommissioning of the jackets, bridges, and pipeline riser section. • Vessel and fuel use will be reduced where possible. • All used fuels will be MARPOL compliant.

		• The project will be compliant with the company's Atmospheric Emissions and GHG Management Procedures.
	Physical presence of vessels in relation to other sea users	• Impacts from vessel presence will be reduced through combining the topside removal with decommissioning of the jackets, bridges and pipeline riser section. • Transit of the vessels to Inde 18A will be managed through standard maritime notification and navigation rules. • Other sea users would be consulted in accordance with legal requirements.
	Light emissions	Once the decommissioning works are complete and the HLV leaves, the area will return to natural dark conditions.
	Discharges to sea	• Vessel discharge such as sanitary water, bilge water and ballast water will be managed in accordance with MARPOL, International Convention on the Control and Management of Ship's Ballast Water and Sediments. • Discharge of deck water will be managed under an appropriate permit. Requirements for other discharge permit will be considered under the individual consent application for the decommissioning activities through the Portal Environment Tracking System. • All discharges to sea will be managed with PUK and Contractor procedures, including the 'Drainage and Discharge Procedure'.
	Snagging	• Once assets are removed, the area will be cleared to remove debris. • The remaining PL76 pipeline will be re-buried. The time between the pipeline cut and reburying will be minimised.
	Seabirds	• A further assessment on the presence of nesting will be carried out before the work starts. Should any nesting be observed, options will be discussed with OPRED.
	Waste management	• PUK will comply with the Duty of Care and waste hierarchy to ensure that waste is managed correctly. • Only licensed contractors with demonstrable experience will be used. Any waste transferred outside of the UK will be covered by an International Waste Shipment permit. • An audit trail will be maintained for waste materials from all vessels, through to the onshore decommissioning yard, and on to the recycling facility or disposal site. The onshore yard contractor will keep an inventory of the types, quantities and dates of waste received and the quantities and dates of dispatch from the site. • Tests for NORM will be undertaken offshore by the Radiation Protection Supervisor. Any NORM will be dealt with under an appropriate permit and disposed of in accordance with guidelines and company policies. • The dismantling contractor has processes in place to aid in the identification and treatment of asbestos are found.

5. INTERESTED PARTY CONSULTATIONS

Table 5.1: Summary of Stakeholder Comments		
Who	**Comment**	**Response**
1. Informal Stakeholder Consultations		
Health and Safety Executive		
UKHO		
MCA		
Environment Agency		
MMO		
Trinity House		
2. Public		
3. Statutory Consultations		
National Federation of Fishermen's Organisations		
Scottish Fishermen's Federation		
Northern Ireland Fish Producers' Organisation		
Global Marine Group		
NSTA	Perenco has consulted with NSTA under S29(2A) of the Petroleum Act.	

6. PROGRAMME MANAGEMENT

6.1 Project Management and Verification

A Perenco Project Management team will manage the operations of competent contractors selected for all decommissioning activities. The team will ensure the decommissioning is executed safely, in accordance with legislation and Perenco Policies and Principles.

Perenco's standard procedures for operational control and hazard identification and management will be used. Where possible, the work will be coordinated with other decommissioning operations in the SNS. Perenco will monitor and track the process of consents and the consultations required as part of this process.

6.2 Post-Decommissioning Debris Clearance and Seabed Clearance Verification

A pre-decommissioning habitat assessment & environmental baseline survey was completed inside the Inde 18A 500m zone in November 2020 [5]. This was performed using a multibeam echosounder (MBES), a towed Sidescan Sonar (SSS) and piggybacked magnetometer. A geophysical survey was conducted in July 2025 to acquire data to evaluate the potential hazards for a self-elevating platform and to ensure there is no debris which may impede the safe operation of a jack-up barge [6]. This included MBES, SSS and single magnetometer.

Following the completion of the removal activities detailed in the DPs, an as-left survey will be completed. A post-decommissioning site survey will also be conducted around the 500m safety zones of the former installation sites.

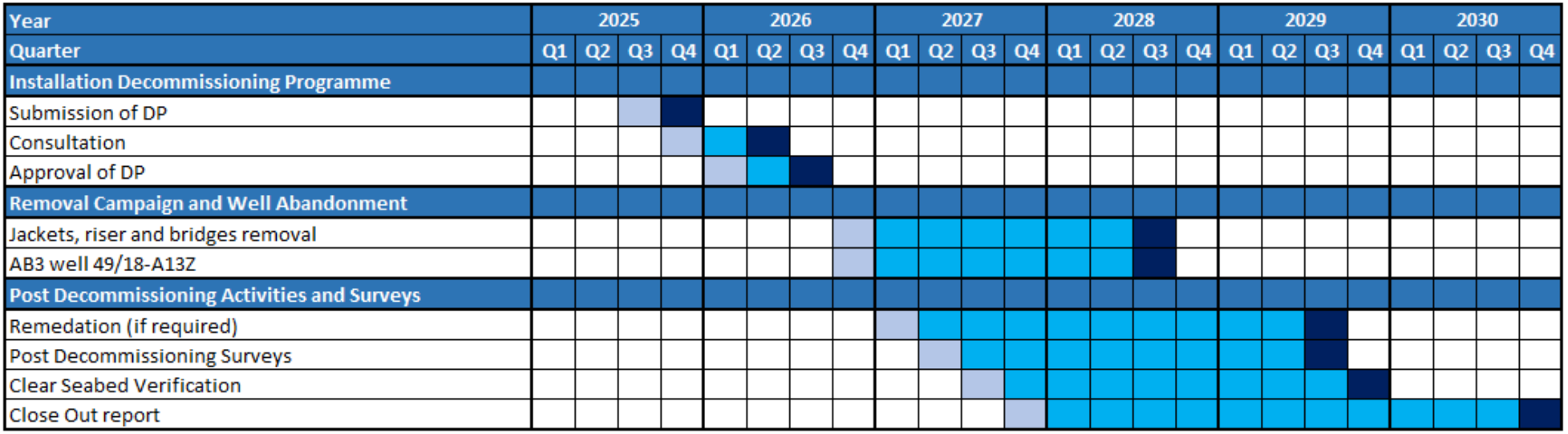
Independent verification of the seabed state will be obtained and provided to OPRED by trawling or other methods for the former installation area. This will be followed by a statement of clearance to all relevant governmental departments and non-governmental organisations.

Any objects dropped during the removal preparations will be notified to OPRED via the PON2 process. Their subsequent recovery will be reported via the PON2 and DP Progress Reporting processes. Any recovered debris will be recovered for onshore disposal or recycling in line with existing disposal methods.

6.3 Schedule

Figure 6.1 below provides the timeline of all decommissioning activities concerning this DP.

Figure 6.1: Gantt Chart of Project Plan



LEGEND	
	Earliest date task could be completed
	Period in which the task expected to be completed
	Latest date task could be completed

6.4 Costs

The decommissioning costs detailed within this DP have been provided to OPRED.

6.5 Close Out

In accordance with OPRED Guidance Notes, a Close Out report will be submitted to OPRED within 12 months of the completion of the offshore decommissioning scope including the first post-decommissioning environmental survey. The report will detail the outcomes of surveys, a summary comparison of pre-and post-environmental survey and explain any major variances from the programme.

6.6 Post-Decommissioning Monitoring and Evaluation

A post decommissioning environmental seabed survey, centred around the sites of the wellheads and former installations, will be carried out. The survey will focus on chemical and physical disturbances of the decommissioning and be compared with the pre-decommissioning survey. The results of this survey will be available once the work is complete, with a copy forwarded to OPRED.

7. SUPPORTING DOCUMENTS

Table 7.1: Supporting Documents	
Document Number	**Title**
1	RSK, Biocensus Ornithological Assessment Report, 2023
2	Xodus, Ornithological Assessment Report, 2024
3	Xodus, Ornithological Assessment Report, 2025
4	GHD, Indefatigable 18A Jackets, Bridges and PL76 Riser Section Environmental Appraisal, 2025
5	N-Sea/Benthic Solutions Limited, Inde 49/18A Platform – Pre-decommissioning Habitat Assessment & Environmental Baseline Survey, 2021
6	N-Sea, Debris Site Survey Results Report Inde 18A, 2025

8. SECTION 29 NOTICE HOLDERS' LETTERS OF SUPPORT

9. APPENDICES

Appendix 1: Extracts of RSK Biocensus Ornithological Assessment Report June 2023 relating to Inde 18A

Asset	Date	Cloud cover	Start time (BST)	End time (BST)	Sea state	Swell	Sun	Rain	Wind (Beaufort & direction)	Visibility	Comments/observations
Inde 18A	18/06/2023	8	08:00	09:20	3	Low	Moderate	1	4	Good	Six kittiwakes present including two pairs but no breeding evidence observed.

Asset/ aspect	Kittiwake results			Other observations
	Occupied nests	Trace nests	Birds recorded on platform	
Inde 18A	**0**	**0**	**6**	Flying W c.200 from platform: 2x great black-backed gull Flying N c.200 from platform: 1x gannet, 1x fulmar Kittiwakes on 'AD' side of rig, including two pairs, but no breeding evidence recorded. No birds on 'AP' side of rig.
N	0	0	6	
E	0	0		
S	0	0		
W	0	0		

Inde

Photograph 7. Suitable nesting ledge on Inde 18A.

Photograph 8. Faecal staining on platform frame on Inde 18A.

Photograph 9. Faecal staining on platform walkway of Inde 18A.

Appendix 2: Extracts of Xodus Ornithological Assessment Report May 2024 relating to Inde 18A

Perenco: Ornithological Support
Perenco Asset Survey 2024

3.11 Inde 18A

Boat Survey Date – 29/05/2024, **Boat:** Putford Jaguar
Observer Position: Bridge Deck for 500m survey. **Visibility:** Good.
Remarks: Survey data was collated during favourable conditions and completed in one day.
Summary: No nesting birds were observed during the vantage point surveys conducted at Inde 18A. It is unlikely that there will be any successful nesting activity initiated during the 2024 breeding season.

ASPECT	AON	PNL	EVIDENCE OF BIRD ACTIVITY	SPECIES RECORDED
North Face	-	-	-	-
East Face	-	-	-	-
South Face	-	-	-	-
West Face	-	-	-	-
Undersides/Cellar Deck	-	-	-	-
Topsides	-	-	-	-
Derrick, Cranes	-	-	-	-
Flare Booms	-	-	-	-
Vicinity - 500 m zone	N/A	N/A	-	Guillemot (6), LBBG (1)

Appendix 3: Extracts of Xodus Ornithological Assessment Report May 2025 relating to Inde 18A

4.10 Inde 18A

Survey Date: 23/05/2025. **Boat:** Egvast Christina. **Visibility:** Very good.
Observer Position: Bridge Deck for 500m survey.
Remarks: Data was collated during favourable conditions and completed in one day.
Summary: No nesting birds were observed during the vantage point survey conducted at Inde 18A. It is unlikely that there will be any successful nesting activity initiated during the 2025 breeding season.

ASPECT	AON	EVIDENCE OF BIRD ACTIVITY	SPECIES RECORDED
North Face	-	-	-
East Face	-	-	-
South Face	-	-	-
West Face	-	-	-
Undersides/Cellar Deck	-	-	-
Topsides	-	-	-
Derrick, Cranes	-	-	-
Flare Booms	-	-	-
Vicinity - 500 m zone	N/A	-	Fulmar (2), guillemot (2)