BRAE AREA
BRAE ALPHA TOPSIDES, CENTRAL BRAE, WEST BRAE, AND SEDGWICK DECOMMISSIONING PROGRAMMES

May 2026 – Revision 07

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DOCUMENT CONTROL

Approvals

	Name	Date
Prepared by	Louisa Dunn Decommissioning Stakeholder & Compliance Lead Sam Harrison Decommissioning Programme Engineer	May 2026
Verified by	Alastair McLean Decommissioning Manager	May 2026
Approved by	David Wilson Decommissioning, Projects & Engineering Director	May 2026

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Distribution List

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ABBREVIATIONS

Abbreviation	Meaning
BEIS	Department of Business, Energy, and Industrial Strategy (now DESNZ)
CA	Comparative Assessment
CNR	Canadian Natural Resources
CoP	Cessation of Production
Dia.	Diameter
DP	Decommissioning Programme
EIA	Environmental Impact Assessment
ESDV	Emergency Shutdown Valve
FBE	Fusion Bonded Epoxy
HLV	Heavy Lift Vessel
JNCC	Joint Nature Conservation Committee
KP	Kilometre Point
LLC	Limited Liability Corporation
MARPOL	International Convention for the Prevention of Pollution from Ships
MSF	Module Support Frame
No.	Number
NORM	Naturally Occurring Radioactive Material
NSTA	North Sea Transition Authority
OPEP	Oil Pollution Emergency Plan
OPRED	Offshore Petroleum Regulator for Environment and Decommissioning
OSPAR	Oslo Paris Convention
PL	Pipeline (as in PWA pipeline number)
PL	Platform (as in well abandonment category)
PLU	Umbilical (As in PWA Umbilical Number)
PWA	Pipeline Works Authorisation
SAC	Special Area of Conservation
SDU	(Umbilical) Subsea Distribution Unit
SEPA	Scottish Environmental Protection Agency
SFF	Scottish Fishermen's Federation
SLV	Single Lift Vessel
SS	Subsea (as in well abandonment category)
SSIV	Sub Sea Isolation Valve
TAQA	TAQA Bratani Limited
UK	United Kingdom
UKCS	United Kingdom Continental Shelf
WBS	Work Breakdown Structure
WGS 84	World Geodetic System 84
WONS	Well Operations Notification System

1 Executive Summary

1.1 Combined Decommissioning Programmes

This document contains seven Decommissioning Programmes for 12 installations, 33 pipelines, and 29 umbilicals. The installations and pipelines to be decommissioned are listed in Table 1.1 and Table 2.3 respectively and shown in Figure 1-3.

As required by the Petroleum Act 1998, as amended by the Energy Act 2008 and the Energy Act 2016, this document contains the combined Decommissioning Programmes for the following facilities;

1. Brae Fields Section 29 Notices:
   - Brae Alpha Platform Topsides
   - Central Brae subsea template
   - Associated pipelines, and umbilicals.

2. West Brae and Sedgwick Section 29 Notices:
   - West Brae subsea wells, manifold, and extension manifold
   - Sedgwick wells, SDU, protection structures and wellheads
   - Associated pipelines, and umbilicals.

The Brae Alpha Upper Jacket is addressed in a separate Decommissioning Programmes document [1]. Brae Alpha footings and the trunk pipelines and associated umbilicals and power cables connected to the platform will be covered in further Decommissioning Programmes.

1.2 Requirement for Decommissioning Programmes

1.2.1 Installations

In accordance with the Petroleum Act 1998, as amended, TAQA Bratani Limited (TAQA), as operator of the Brae Area, and on behalf of the Section 29 Notice Holders (see Table 1.2, and Table 1.3) is applying to the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) to obtain approval for decommissioning the installations detailed in Sections 2.1 and 2.2 of this document. (See also Section 8 – Section 29 Notice Holders' Letters of Support).

1.2.2 Pipelines

In accordance with the Petroleum Act 1998, as amended, TAQA Bratani Limited (TAQA), as operator of the Brae Area, and on behalf of the Section 29 Notice Holders (see Table 1.5, Table 1.6, Table 1.7, and Table 1.8) is applying to OPRED to obtain approval for decommissioning the pipelines summarised in Table 1.4 and detailed in Section 2.3 of this document. (See also Section 8 – Section 29 Notice Holders' Letters of Support).

1.2.3 Overall Decommissioning Project Schedule

In conjunction with public, stakeholder and regulatory consultation, these Decommissioning Programmes are submitted without derogation and in full compliance with national regulations, international treaties, and OPRED guidance [2]. The schedule outlined in this document is for an eight year decommissioning project plan, see Section 6.3.

1.3 Introduction

The Brae Alpha platform and Central Brae subsea installation are located in UKCS Block 16/7a, in water depths of 112 m and 105 m, respectively. The West Brae subsea development is located in UKCS Blocks 16/7a and 16/6a, and the Sedgwick subsea installation is located entirely within UKCS Block 16/6a. The water depth at both West Brae and Sedgwick is 107m. All of the facilities are approximately 270 km north-east of Aberdeen and approximately 190 km east south east of the nearest UK coastline at Fair Isle.

Marathon Oil originally installed and operated the Brae Alpha, Central Brae, West Brae, and Sedgwick installations. The operatorship subsequently transferred to RockRose Energy and then to the current operator, TAQA. These different entities have performed various activities associated with Brae Area Decommissioning. For clarity, the current document refers to the "Brae Operator" for past activities performed by Marathon Oil or RockRose Energy. Going forward, TAQA will decommission the Brae Area infrastructure as Operator and on behalf of other companies that have previously been involved in Brae Area operations and have decommissioning responsibilities under Section 29 of the Petroleum Act. Therefore, the Decommissioning Programmes contained in this document refer to "TAQA" in relation to future decommissioning activities by the Brae Area Operator.

Brae Alpha has modular topsides and a steel jacket / sub-structure. The platform started production in 1983. The Central Brae subsea installation commenced production in 1989, and the West Brae and Sedgwick subsea installations both began production in 1997. The West Brae extension manifold and an additional West Brae well started production in 2015.

TAQA has already extended the life of the Brae Area fields and Brae Alpha, Central Brae, West Brae, and Sedgwick installations beyond initial projections. Production will become sub-economical in the short term. Other hydrocarbon opportunities have been evaluated and determined not to be viable. The planned date for Brae Alpha Cessation of Production (CoP) is potentially as late as Q4 2027. Decommissioning planning commenced in 2020. The Central Brae, West Brae and Sedgwick installations depend on Brae Alpha for utilities support and to provide processing facilities and an export route. Cessation of production for these subsea installations will therefore be coordinated with Brae Alpha.

In conjunction with Brae Alpha Topsides removal, the Consent to Locate for the installation will be appropriately modified to reflect changes to the installation. During the period after Topsides removal, but before Upper Jacket removal, aids to navigation will be maintained on the sub-structure to mitigate risk to other sea users. The aids to navigation will be in accordance with the revised consent to locate for the installation. The selection and operation of the aids to navigation will take cognisance of guidance from relevant technical bodies including the Northern Lighthouse Board regarding the characteristics, monitoring, and maintenance of the aids to navigation.

The Brae Alpha Upper Jacket [1] and Footings, and the trunk pipelines in the Brae Area will be the subjects of separate Decommissioning Programmes and, in the case of the Footings, a derogation application process under OSPAR Decision 98/3. There is a substantial cuttings pile at Brae Alpha. This is roughly centred on the jacket and extends some 100 m from the centre of the jacket footprint. The decommissioning operations described in these Decommissioning Programmes will not entail disturbance of the cuttings pile. The cuttings pile will be addressed in a future Decommissioning Programme for the Footings.

The Brae Alpha Topsides and the Central Brae, West Brae and Sedgwick subsea installations and the pipelines and umbilicals associated with the subsea installations were included in the Brae Alpha, Brae Bravo, Central Brae, West Brae, and Sedgwick Decommissioning Programme [3], published by the Brae Operator in June 2017. The current document presents the proposed Decommissioning Programmes for the Brae Alpha Topsides, and the Central Brae, West Brae, and Sedgwick subsea installations and the pipelines and umbilicals associated with the subsea installations. The proposed decommissioning options presented in the current document are identical to those contained in the earlier June 2017 field wide decommissioning programme document [3] in all respects, apart from timing and the absence of the Brae Alpha Jacket and Brae Bravo platform from the scope of decommissioning operations described in the current document. The Brae Bravo Topsides and Upper Jacket were addressed by Decommissioning Programmes approved in August 2018 and June 2022, respectively. The Brae Alpha Jacket and the Brae Bravo Footings will be addressed by separate Decommissioning Programmes.

The Brae Operator conducted public, stakeholder, and regulatory consultation on the previous Decommissioning Programme [3] including the Brae Alpha Topsides, Central Brae, West Brae and Sedgwick subsea installations and the pipelines and umbilicals associated with the subsea installations in 2017. Since then, the proposals for decommissioning these facilities have not altered. However, the previous Decommissioning Programme has been split into a number of separate programmes. Therefore, TAQA is issuing the Decommissioning Programmes contained in this document for a second round of stakeholder consultation.

The Decommissioning Programmes explain the principles of the removal activities in accordance with the guidance and are supported by Environmental Statement [4], Comparative Assessment (CA), and Environmental Appraisal [7] reports [5][6].

A significant period has elapsed since the preparation of the Brae Alpha Decommissioning Environmental Statement in 2017 by the Brae Operator. Therefore, in consultation with OPRED, TAQA completed the Environmental Appraisal in 2024 [7]. The objectives of the Environmental Appraisal were,

- to review the differences in available data, topics of concern and methodology between 2017 and 2024.
- to determine if the conclusions of the original Environmental Statement in 2017 remained sound or required revision.
- to check whether changes to proposed decommissioning operations are required to address any revisions of the conclusions.

The Environmental Appraisal determined that there are no changes to the Environmental Statement's conclusions that require modification of the proposed decommissioning methodology for the Brae Alpha Topsides, Central Brae, West Brae, and Sedgwick installations.

1.3.1 Scope of Decommissioning Programmes

The Decommissioning Programmes contained in this document cover the following facilities:

- The Brae Alpha platform topsides
- The Central Brae subsea installation
- The West Brae subsea Installation, including the West Brae Extension Manifold
- The Sedgwick subsea installation
- The wells associated with the West Brae and Sedgwick subsea installations
- Interconnecting pipelines, and umbilicals between the Brae Alpha platform and the Central Brae, West Brae, and Sedgwick subsea installations

- The associated pipeline and umbilical stabilisation and protection features
- The wells associated with Brae Alpha platform and the Central Brae subsea installation

Figure 1-1 is a view of the Brae Alpha platform. Figure 1-2 is an expanded view of the platform topsides modules. The Brae Alpha platform, and the Central Brae, West Brae and Sedgwick facilities and interconnecting lines are shown in Figure 1-3 together with third party assets in the area immediately around the Brae Alpha Platform.

The Brae Alpha Upper Jacket and footings and the third-party facilities connected to the Brae Alpha are outside the scope of the Decommissioning Programmes in this document.

TAQA will continue to collaborate with the operators of third party facilities to maximise any potential efficiencies in decommissioning.

Figure 1-1: Brae Alpha Platform

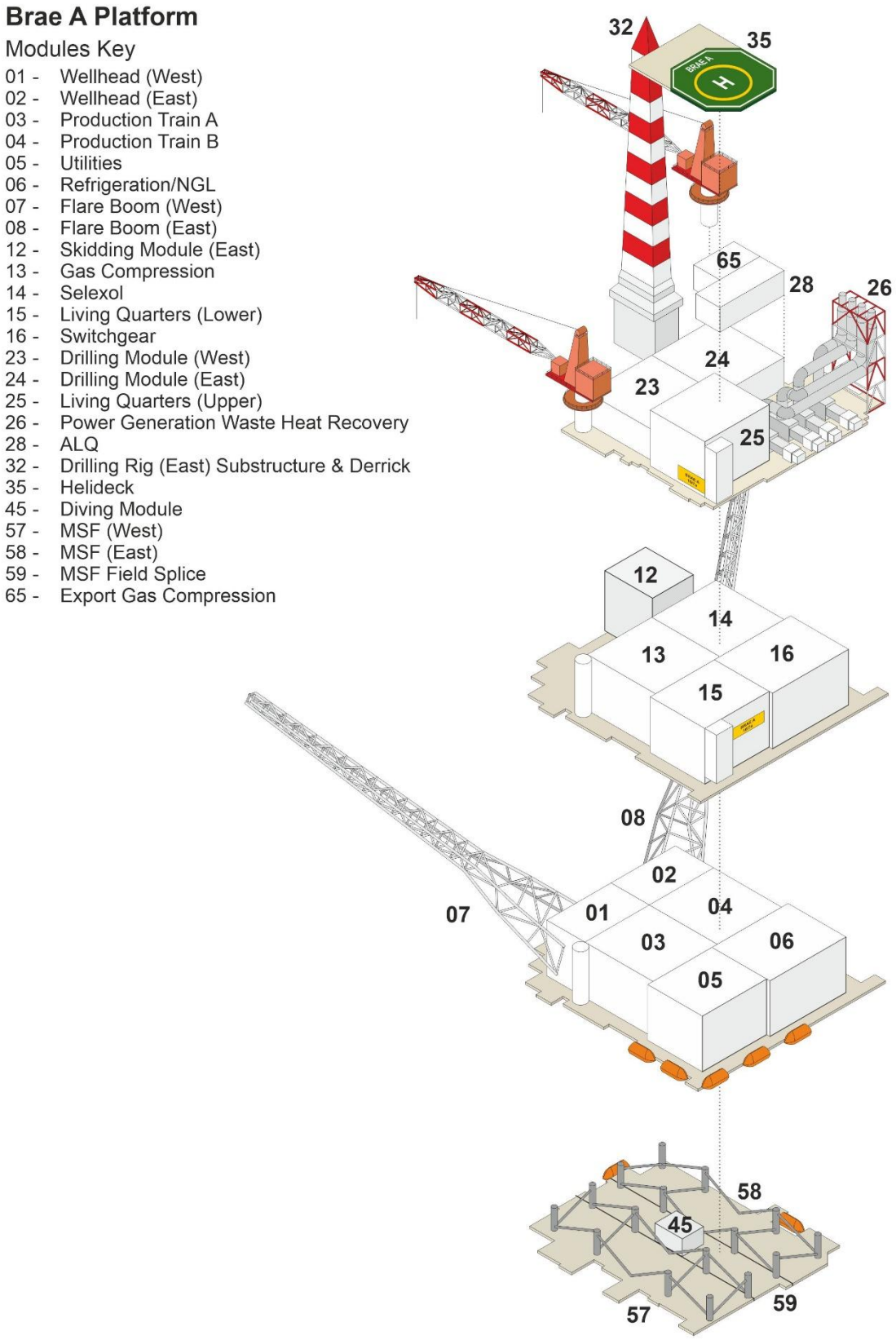


Figure 1-2: Brae Alpha Topsides Expanded View

1.3.2 Decommissioning Programmes Outline

Brae Alpha

1. The Brae Alpha platform wells will be plugged and abandoned in accordance with TAQA Wells Standards and with reference to industry guidelines [8] under the control of the Well Operations Notifications System (WONS).
2. All topsides process equipment will be flushed and cleaned to an appropriate standard prior to decommissioning.
3. The Brae Alpha platform topside modules, including the module support frames, will be removed and returned to shore for reuse, recycling, or disposal.

Central Brae, West Brae and Sedgwick Installations and Interconnecting Pipelines and Umbilicals

1. The Central Brae, subsea wells will be plugged and abandoned in accordance with TAQA Wells Standards and with reference to industry guidelines [8] under the control of the WONS system.
2. West Brae and Sedgwick subsea wells will be plugged and abandoned in accordance with TAQA Wells Standards and with reference to industry guidelines [8].
3. All process equipment, subsea installations, pipelines, flowlines, and umbilicals will be flushed to an appropriate standard prior to decommissioning.
4. The Central Brae template structure will be removed to shore for reuse, recycling, or disposal. The removal scope and seabed remediation requirements will be fully defined during detailed engineering.
5. Any parts of pipelines and umbilicals at Central Brae, West Brae and Sedgwick that are laid on the seabed, will be removed to shore, trenched in place, or rock covered. Parts of pipelines and umbilicals returned to shore will be reused, recycled, or disposed of appropriately.
6. Surface laid sections of Central Brae, West Brae, and Sedgwick pipelines and umbilicals in “Close Proximity” to the Brae Alpha platform Footings, may be left in place, if derogation to leave the Footings in place is granted. In this context, “Close Proximity” is considered within approximately 75 m of the platform Footings. Logical break points between sections left in situ and sections removed will be selected, e.g., pipeline crossings, etc. This option represents a reasonable balance between the level of risk associated with removing the facilities, the degree of disturbance of the seabed, the use of resources during decommissioning, and, following decommissioning, the loss of amenity for other sea users. If derogation to leave the jacket Footings in place is not granted, all surface laid pipelines and umbilicals will be recovered and taken to shore for appropriate re-use, recycling, or disposal. The precise limit of “close proximity will be agreed with OPRED on a case by case basis for each pipeline and umbilical. Notwithstanding, all valve structures, etc. will be removed irrespective of their distance from the platform Footings.
7. The West Brae and Sedgwick wellheads, Xmas trees and manifolds will be removed to shore for reuse, recycling, or appropriate disposal. The active Xmas trees at West Brae and Sedgwick have integrated protection structures that will be removed as part of Plug and Abandonment operations.
8. The Sedgwick SDU (Subsea Distribution Unit) on the Sedgwick Control / Chemical Umbilical (PLU1446JV1) and its protective structure will be removed to shore for reuse, recycling, or appropriate disposal.
9. Following decommissioning of the Brae Alpha Topsides, and Central Brae, West Brae and Sedgwick subsea installations and the associated pipelines and umbilicals, TAQA will visually confirm the status of the facilities is in accordance with the approved Decommissioning Programmes. TAQA will agree the schedule and scope of further post decommissioning monitoring beyond this initial as left visual survey with OPRED.

10. Following full field decommissioning of the wider Brae Area facilities, TAQA will conduct a minimum of two post decommissioning environmental surveys, and two surveys of the area around the Brae Alpha Topsides, and the Central Brae, West Brae and Sedgwick subsea installations and the associated pipelines and umbilicals. TAQA will also commission an independent debris clearance survey. TAQA will agree requirements for further monitoring beyond these initial surveys and verification with OPRED.

1.4 Overview of Installations and Pipelines Being Decommissioned

1.4.1 Installations

The installations included in the Decommissioning Programmes contained in this document are listed in Table 1.1 and shown in Figure 1-3. The weights listed for the installations are best estimates generated from the available data. These weights are subject to confirmation following detailed engineering. The actual weights of materials removed during decommissioning will be reported in the decommissioning close out report. The Section 29 notice holders for the installations are listed in Table 1.2 and Table 1.3.

The well conductors at Brae Alpha are in the scope of the Brae Alpha Upper Jacket DP. In terms of offshore decommissioning operations, the conductors may be removed as part of the Topsides scope of work, or as part of the Upper Jacket scope of work.

Table 1.1: Installations Being Decommissioned

Fields	South Brae (Brae Alpha) Central Brae West Brae Sedgwick	**Production Type (Oil / Gas / Condensate)**	All fields are Oil / Gas / Condensate
Water Depth (m)	Brae Alpha: 112 Central Brae: 105 West Brae: 107 Sedgwick: 107	**UKCS Block**	South Brae (Brae Alpha): 16/7a Central Brae: 16/7a West Brae: 16/6a & 16/7a Sedgwick: 16/6a
Distance to Median (km)	Brae Alpha: 16 Central Brae: 15 West Brae: 20 Sedgwick: 22	**Distance from nearest UK coastline (km)**	Brae Alpha: 190 Central Brae: 192 West Brae: 182 Sedgwick: 180

Surface Installations

Number	Type	Topside Weight (tonnes)	Jacket Weight (tonnes)
1	Fixed Large Steel Platform Topsides	≈ 33,150[1]	Not Applicable

[1] Weight is subject to verification during detailed engineering.

Table 1.1: Installations Being Decommissioned			
Subsea Installations		**Number Of Wells**	
Number	**Type**	**Platform**	**Subsea**
1	Template (Central Brae)	34	Central Brae: 8
2	Manifolds (West Brae, West Brae Extension)		West Brae: 9
1	Protection Structure (Sedgwick SDU)		
8	Wells with Xmas trees that have integrated fishing protection (Seven West Brae wells and one Sedgwick well). All will be removed as part of well plug and abandonment.		Sedgwick: 1
Drill Cuttings Piles			
None[2]			

Table 1.2: Brae Alpha & Central Brae Section 29 Notice Holders (S29 Notice 12.04.06.06/66C)		
Company	**Registration Number**	**Equity Interest**
TAQA Bratani Limited	05975475	69.5%
Spirit Energy Resources Limited	02855151	13.33%
NEO Next+ Energy Petroleum Limited	03288689	10.50%
TAQA Bratani LNS Limited	06230540	6.67%
BP Exploration Operating Company Limited	00305943	0.0%
ITHACA UKCS Limited	01019748	0.0%
Fujairah Oil and Gas UK LLC[3]	FC009587	0.0%
GB Gas Holdings Limited	03186121	0.0%
ITHACA (NE) UKCS Limited	03386464	0.0%
NEO Next + Energy Resources UK Limited	00825828	0.0%
NEO Next + Energy LNS Limited	02483161	0.0%

[2] There is a cuttings pile at Brae Alpha, but the decommissioning works covered by these decommissioning programmes will not disturb the cuttings. The well conductors will be cut at a height that ensures no interaction with the cuttings pile. Pipelines and umbilicals will be removed to a point in close proximity to the base of the Brae Alpha jacket, but outside the drill cuttings pile footprint.

[3] Fujairah Oil and Gas UK 12 Limited previously held an S29 notice. This company is now Dissolved.

Table 1.3: West Brae Section 29 Notice Holders (S29 Notice MI-OGO5-00090)		
Company	**Registration Number**	**Equity Interest**
Fujairah Oil and Gas UK LLC[4]	FC009587	0.0%
GB Gas Holdings Limited	03186121	0.0%
NEO Next+ Energy Petroleum Limited	03288689	10.50%
Spirit Energy Resources Limited	02855151	13.33%
TAQA Bratani Limited	05975475	69.5%
TAQA Bratani LNS Limited	06230540	6.67%

Table 1.4: West Brae and Sedgwick Section 29 Notice Holders (S29 Notice 12.04.06.06/67C)		
Company	**Registration Number**	**Equity Interest**
TAQA Bratani Limited	05975475	69.5%
Spirit Energy Resources Limited	02855151	13.33%
NEO Next+ Energy Petroleum Limited	03288689	10.50%
TAQA Bratani LNS Limited	06230540	6.67%
BP Exploration Operating Company Limited	0305943	0.0%
Fujairah Oil and Gas UK LLC	FC009587	0.0%
GB Gas Holdings Limited	03186121	0.0%
ITHACA (NE) UKCS Limited	03386464	0.0%
NEO Next+ Energy Resources UK Limited	00825828	0.0%
Neo Next + Energy LNS Limited	02483161	0.0%

[4] Fujairah Oil and Gas UK 12 Limited previously held an S29 notice. This company is now Dissolved

1.4.2 Pipelines

The Decommissioning Programmes contained in this document cover a total of 33 pipelines, 29 umbilicals. The pipelines, and umbilicals in the scope of the Decommissioning Programmes are summarised in Table 1.4 and detailed in Section 2.3. Figure 1-3 shows the pipeline routes between the Brae Alpha and other installations, and Figure 1-4 shows the seabed immediately around the base of the Brae Alpha platform.

The pipelines and umbilicals covered by the Brae Alpha Topsides, Central Brae, and West Brae and Sedgwick Decommissioning Programmes, are summarised in Table 1.4 and listed in detail in Table 2.3. The pipelines and umbilicals Section 29 notice holders are listed in Table 1.5, Table 1.6, Table 1.7, and Table 1.8.

The risers associated with these pipelines are in the scope of the Brae Alpha Upper Jacket DP [1], and the future Brae Alpha Footings DP. As part of the Brae Alpha Upper Jacket decommissioning scope, the risers will be severed at the proposed Upper Jacket cut depth approximately 85.5 m below Lowest Astronomical Tide, or deeper if it is practicable to do so. The risers will be cut at a point and removed in a manner that minimises disturbance of the drill cuttings pile at the base of the sub-structure. The Pipeline Works Authorisations will be amended as necessary to reflect the risers' as left status.

Table 1.5: Central Brae, West Brae, and Sedgwick Pipelines to be Decommissioned

Installation	Number of Pipelines & Umbilicals	
Central Brae	6	See Section 2.3 for Pipeline / Umbilical Details
West Brae	52	
Sedgwick	4	
Pipeline Structures, etc.		
PL1442.1 West Brae Gas Lift Flowline includes a blanked T protected by mattresses at KP 6.8. There is no structure associated with this T.		

Table 1.6: Central Brae Pipelines Section 29 Notice Holders / 1 (S29 Notice 12.04.06.05/110C)		
4 Pipelines & 1 Umbilical:		
PL634 PL635 PL636 PL637[5] PL6188[6]		
Company	**Registration Number**	**Equity Interest**
TAQA Bratani Limited	05975475	69.5%
Spirit Energy Resources Limited	02855151	13.33%
NEO Next+ Energy Petroleum Limited	03288689	10.50%
TAQA Bratani LNS Limited	06230540	6.67%
BP Exploration Operating Company Limited	00305943	0.0%
ITHACA UKCS Limited	01019748	0.0%
Fujairah Oil and Gas UK LLC	FC009587	0.0%
GB Gas Holdings Limited	03186121	0.0%
ITHACA (NE) UKCS Limited	03386464	0.0%
NEO Next + Energy Resources UK Limited	00825828	0.0%
NEO Next + Energy LNS Limited	02483161	0.0%

Table 1.7: Central Brae Pipelines Section 29 Notice Holders / 2 (S29 Notice 12.04.06.05-113U)		
1 Umbilical:		
PLU6190		
Company	**Registration Number**	**Equity Interest**
TAQA Bratani Limited	05975475	69.5%
Spirit Energy Resources Limited	02855151	13.33%
NEO Next+ Energy Petroleum Limited	03288689	10.50%
TAQA Bratani LNS Limited	06230540	6.67%
GB Gas Holdings Limited	03186121	0.0%

[5] *PL637 is an umbilical.*
[6] *PL6188 was previously part of PL636*

Table 1.8: West Brae and Sedgwick Pipelines Section 29 Notice Holders / 1 (S29 Notice 12.04.06.05/299C)					
27 Pipelines & Umbilicals:					
PL1441.1	PL1441.2	PL1441.3	PL1441.4	PL1441.5	PL1441.6
PL1442.I	PL1442.2	PL1442.4	PL1442.5	PL1442.6	PL1442.7
PL1442.8	PL1443.1	PL1443.3	PL1444.1	PL1445	PLU1446[7]
PLU1446.12	PLU1446.13	PLU1446.14	PLU1446.15	PLU1446.16	PLU1446.17
PLU1446JV1	PL1447	PL1448			

Company	Registration Number	Equity Interest
TAQA Bratani Limited	05975475	69.5%
Spirit Energy Resources Limited	02855151	13.33%
NEO Next+ Energy Petroleum Limited	03288689	10.50%
TAQA Bratani LNS Limited	06230540	6.67%
BP Exploration Operating Company Limited	00305943	0.0%
Fujairah Oil and Gas UK LLC	FC009587	0.0%
GB Gas Holdings Limited	03186121	0.0%
ITHACA (NE) UKCS Limited	03386464	0.0%
NEO Next + Energy Resources UK Limited	00825828	0.0%
NEO Next + Energy LNS Limited	02483161	0.0%

Table 1.9: West Brae and Sedgwick Pipelines Section 29 Notice Holders / 2 (S29 Notice MI-OGO5-00091)					
29 Pipelines & Umbilicals:					
PL3806	PL3809	PL4242	PL4243	PL4244	PL4245
PL4246	PL4247	PLU3798	PLU3799	PLU3800	PLU3801
PLU3802	PLU3811	PLU3813	PLU4031	PLU4131	PLU4132
PLU4133	PLU4134	PLU4135	PLU4136	PLU4137	PLU4138
PLU4248	PLU4249	PLU4250	PL4545	PL4546	

Company	Registration Number	Equity Interest
TAQA Bratani Limited	05975475	69.5%
Spirit Energy Resources Limited	02855151	13.33%
NEO Next+ Energy Petroleum Limited	03288689	10.50%
TAQA Bratani LNS Limited	06230540	6.67%
Fujairah Oil and Gas UK LLC	FC009587	0.0%
GB Gas Holdings Limited	03186121	0.0%

[7] Individual cores PLU1446.1 to PLU1446.11 were renamed PLU1446 under PWA 177/V/16.

1.5 Summary of Proposed Decommissioning Programmes

The selected decommissioning options for the Brae Alpha platform topsides and Central Brae, West Brae and Sedgwick subsea installations and associated pipelines and umbilicals are summarised in Table 1.9. Details of the selected decommissioning options for each pipeline are presented in Table 3.4.

Table 1.10: Summary of Decommissioning Programmes

Proposed Decommissioning Solution	Reason for Selection
Brae Alpha Topsides	
Complete removal for reuse, recycling, or appropriate disposal. Cleaned equipment will be refurbished for re-use where possible. Equipment which cannot be re-used will be recycled or processed via appropriate disposal routes.	Topside removal is mandatory. TAQA will seek to optimise the benefits that accrue from removal of the topsides by maximising reuse and recycling.
Subsea Installations Central Brae, West Brae, and Sedgwick,	
Complete removal of the Central Brae Template and seabed remediation. The Central Brae template will be recovered in one or more heavy lifts or in smaller pieces, using ROVs or divers. The template will be brought onshore for recycling or appropriate disposal. Depressions in the seabed resulting from the removal of the Central Brae Template, piles (to a depth of -3m) and wells will be appropriately remediated. Exact scope and seabed remediation requirements will be confirmed during detailed engineering	To leave the seabed clear for other users and to meet OSPAR and OPRED regulatory requirements. .
The West Brae facilities will be recovered as single lifts, or in pieces, with piles recovered to a depth of -3m. This recovery work and any associated seabed remediation will be conducted by ROVs, divers and construction vessels as appropriate. The facilities will be reused or recycled as far as is reasonably practicable. Any material that cannot be reused or recycled will be processed via appropriate disposal routes.	To leave the seabed clear for other users and to meet OSPAR and OPRED regulatory requirements.
Complete removal of the Sedgwick SDU and protection structure, Sedgwick wellhead, and Xmas tree with integrated fishing protection. The Sedgwick facilities will be recovered as a single lift, or in pieces. This recovery work and any associated seabed remediation will be conducted by ROVs, divers and construction vessels as appropriate. The Sedgwick facilities will be reused or recycled as far as is reasonably practicable. Any material that cannot be reused or recycled will be processed via appropriate disposal routes.	To leave the seabed clear for other users and to meet OSPAR and OPRED regulatory requirements.

Table 1.10: Summary of Decommissioning Programmes	
Proposed Decommissioning Solution	**Reason for Selection**
Pipelines and Umbilicals	
All pipelines and umbilicals will be flushed to an appropriate standard. Those portions of subsea pipelines and umbilicals that are trenched or buried will be left in place. In general, surface laid sections of pipelines and umbilicals will be recovered using appropriate techniques, for example Cut and Lift. The portions of the pipelines and umbilicals that are brought to shore will be sent for recycling or disposal as appropriate. If derogation is granted to leave the Brae Alpha footings in place, then there may be exceptions to this general rule. These exceptions would be surface laid pipelines and umbilicals that are in close proximity to derogated platform footings, which will be left in place. Close proximity is defined as within a maximum 75 m of the footings. If derogation for the Brae Alpha platform footings is not granted, then the surface laid sections of pipelines and umbilicals in close proximity to the footings will be removed to shore for recycling or disposal as appropriate.	Removal of the majority of surface laid pipelines and umbilicals is in alignment with applicable guidance [2]. Risk assessment concluded that trenched and buried, and surface laid pipelines, and umbilicals that are in close proximity to derogated platform footings, should be left in place. This is because the risk incurred by decommissioning personnel in removing this equipment has been assessed as greater than the long-term snagging risk to fishing vessels' crews. Leaving these portions in place reduces risks to personnel and reduces the use of resources. Surface-laid portions of pipelines and umbilicals that are not trenched or buried and are not in close proximity to derogated Brae Alpha footings pose a potential hazard to fishing vessel crews, therefore these portions will be removed.
All pipelines will be flushed to an appropriate standard prior to disconnection and decommissioning. TAQA has assessed the likelihood of wax being present in the Central Brae, West Brae, and Sedgwick production pipelines. The assessment concluded that wax is unlikely to be present in any of the lines except the Central Brae production lines PL636 and PL6188 where wax is possible. An environmental assessment concluded that in the event that wax is present in lines that are decommissioned in situ this does not pose a significant risk to the marine environment.	
Pipeline and Umbilical Protection and Stabilisation Features	
All pipeline and umbilical protection and stabilisation features that are not in close proximity to derogated Brea Alpha footings will be removed to shore. The protection and stabilisation features that are brought to shore will be sent for recycling or disposal as appropriate. If derogation is granted for the Brae Alpha footings, protection, and stabilisation features in close proximity[8] to the footings will be left in place. If derogation for the Brae Alpha footings is not granted, then the protection and stabilisation features in close proximity to the footings will be brought to shore for recycling or disposal as appropriate	Comparative assessment demonstrated that leaving protection and stabilisation features in close proximity to derogated Brae Alpha footings was the best option based on safety, environmental and technical criteria. This is because the risk incurred by decommissioning personnel in removing this equipment has been assessed as greater than the long-term snagging risk to f. Leaving these portions in place reduces risks to personnel and reduces the use of resources. Protection and stabilisation features that are not in close proximity to derogated Brae Alpha footings pose a potential hazard to fishing vessels' crew, therefore these portions will be removed. .

[8] In this context "close proximity" is no more than 75 m from the footings.

Table 1.10: Summary of Decommissioning Programmes	
Proposed Decommissioning Solution	**Reason for Selection**
Wells	
The Brae Alpha platform wells and the Central Brae, West Brae, and Sedgwick subsea wells will be plugged and abandoned in compliance with regulations and in accordance with TAQA Wells Standards with reference to industry guidelines [8]. Wells conductors will be cut at 3 m below the seabed in accordance with relevant guidance [8]. Decommissioning of Brae Alpha platform wells and Central Brae wells will be controlled under the WONS system, therefore decommissioning of these wells is outside the scope of the decommissioning programmes contained in this document. TAQA will submit the relevant Portal Environmental Tracking System (PETS) applications to support well decommissioning works.	Plugging and abandoning the wells in accordance with TAQA standards with reference to industry guidance will leave the wells in a safe and secure condition. This will protect people and the environment and meet regulatory requirements.
Drill Cuttings	
There are no drill cuttings in the scope of the Decommissioning Programmes described in this document.	
Interdependencies	
The TAQA and third-party installations that produce via the Brae Alpha platform and associated infrastructure have all reached the end of their productive lives. All these installations will cease production at the same time as Brae Alpha, if not before.	

1.6 Field Locations Including Field Layouts and Adjacent Facilities

The locations of the Brae Area fields within the UKCS are shown in Figure 1-5. The facilities adjacent to the Brae Alpha, Central Brae, West Brae and Sedgwick installations are shown in Figure 1-6 and listed in Table 1.10.

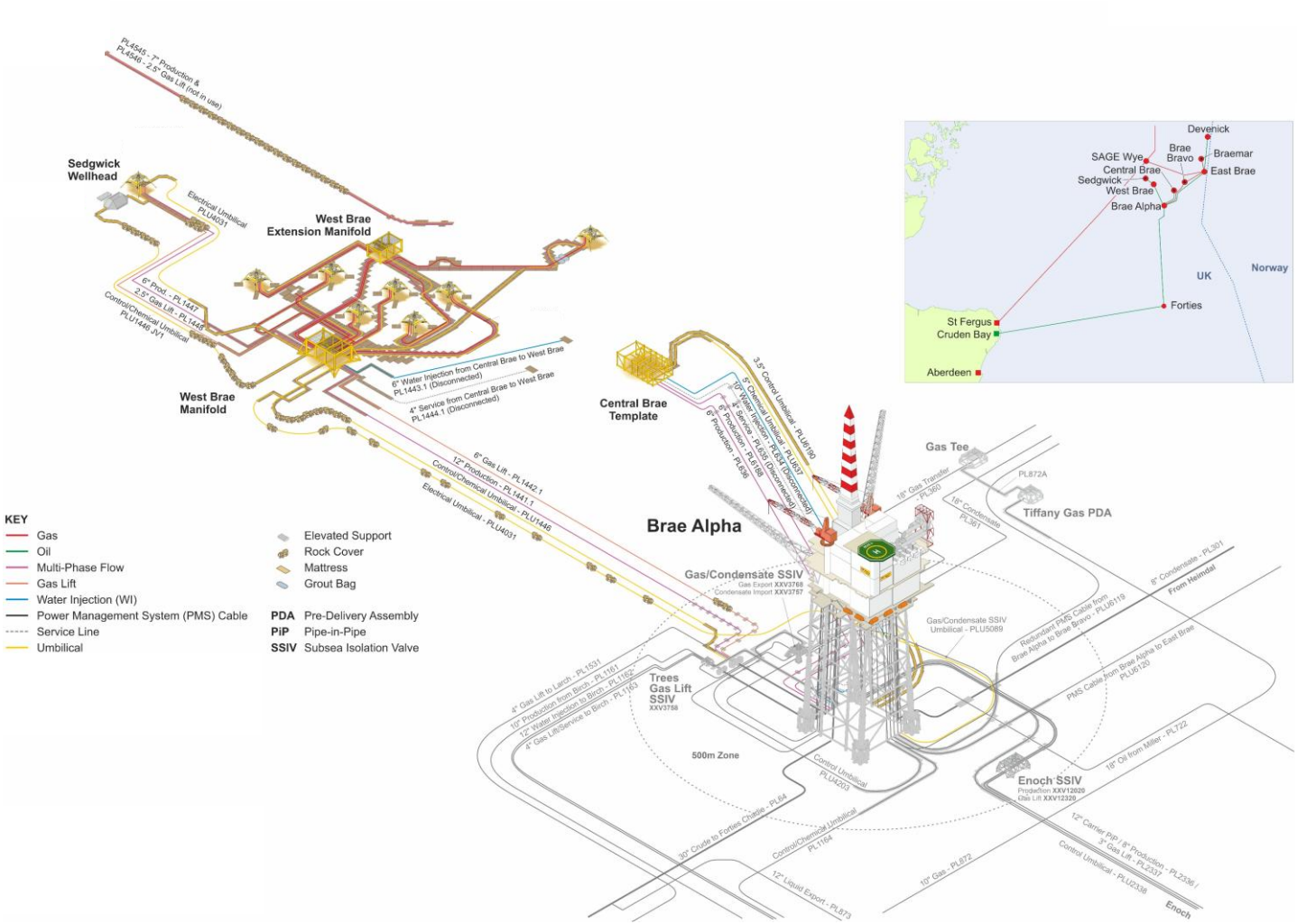
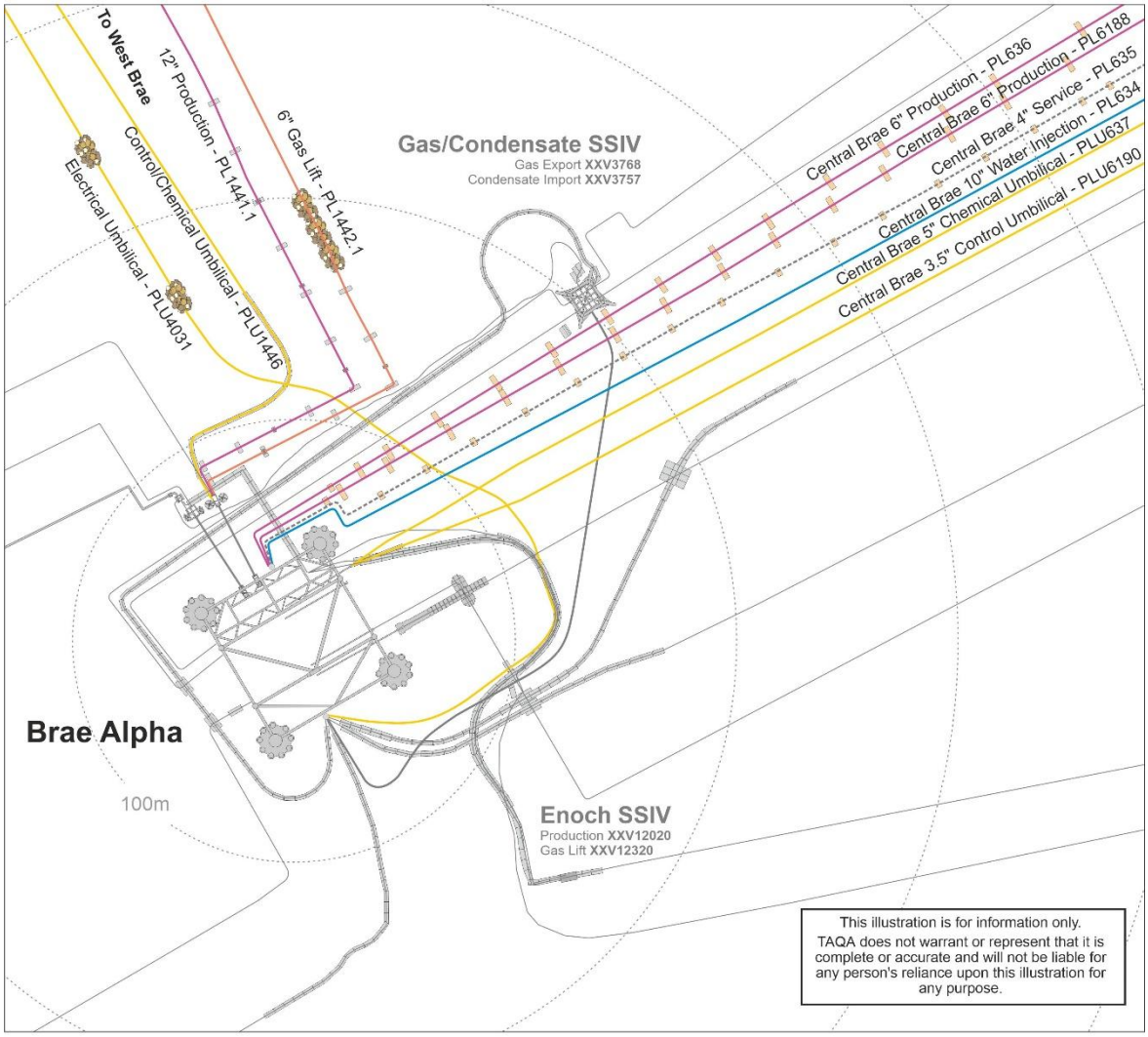


Figure 1-3: Brae Alpha, Etc. Facilities Layout



KEY

- Gas
- Oil
- Multi-Phase Flow
- Gas Lift
- Water Injection (WI)
- Power Management System (PMS) Cable
- Service Line
- Umbilical
- Elevated Support
- Rock Cover
- Mattress
- Grout Bag

PDA Pre-Delivery Assembly
PiP Pipe-in-Pipe
SSIV Subsea Isolation Valve

NOTE

Facilities coloured grey are outside of the scope of the Brae Alpha Topsides, Central Brae,West Brae & Sedgwick DP

Figure 1-4: Plan of Central Brae, West Brae, and Sedgwick Pipelines at Brae Alpha

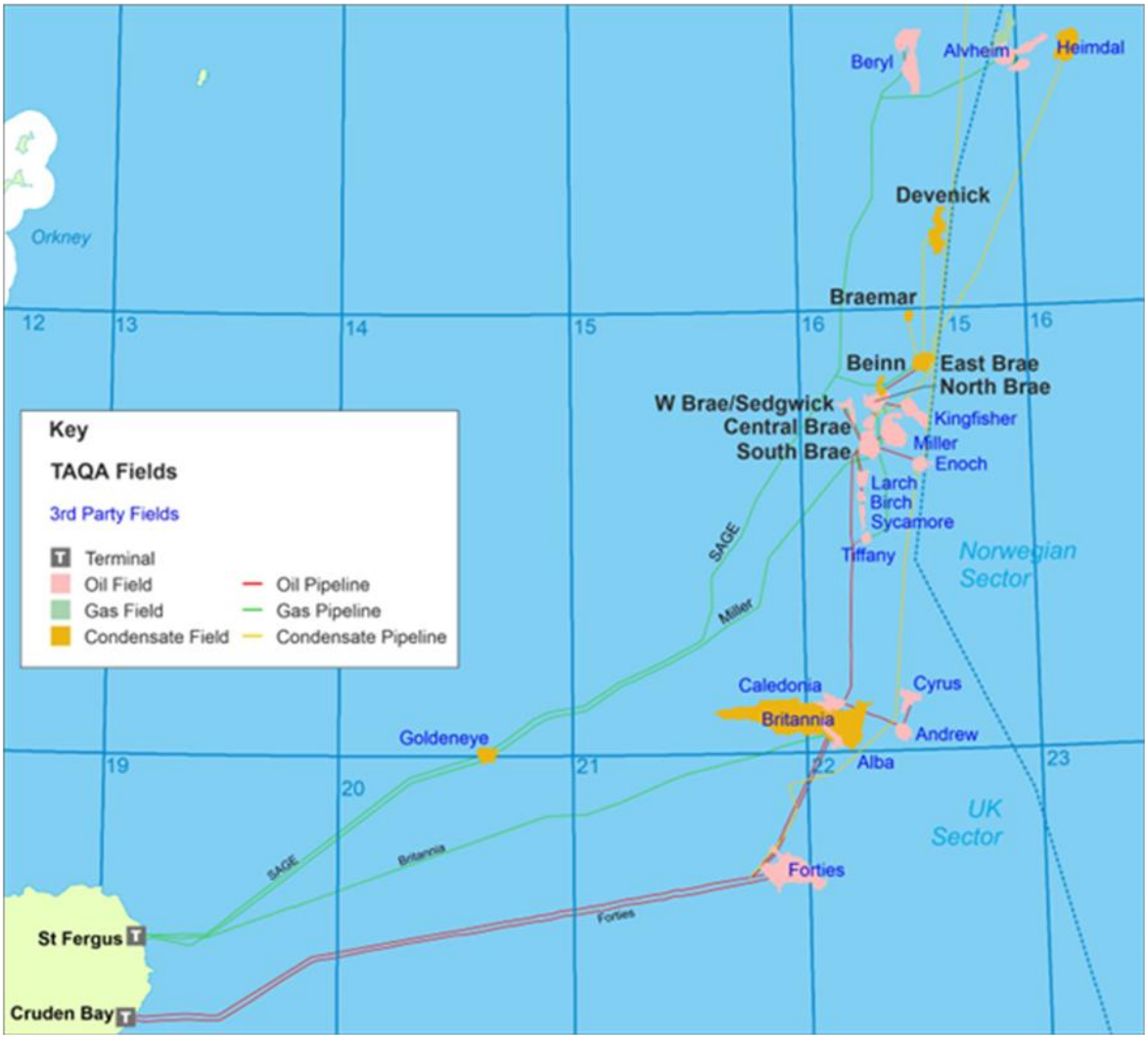


Figure 1-5: Brae Area Field Locations within UKCS

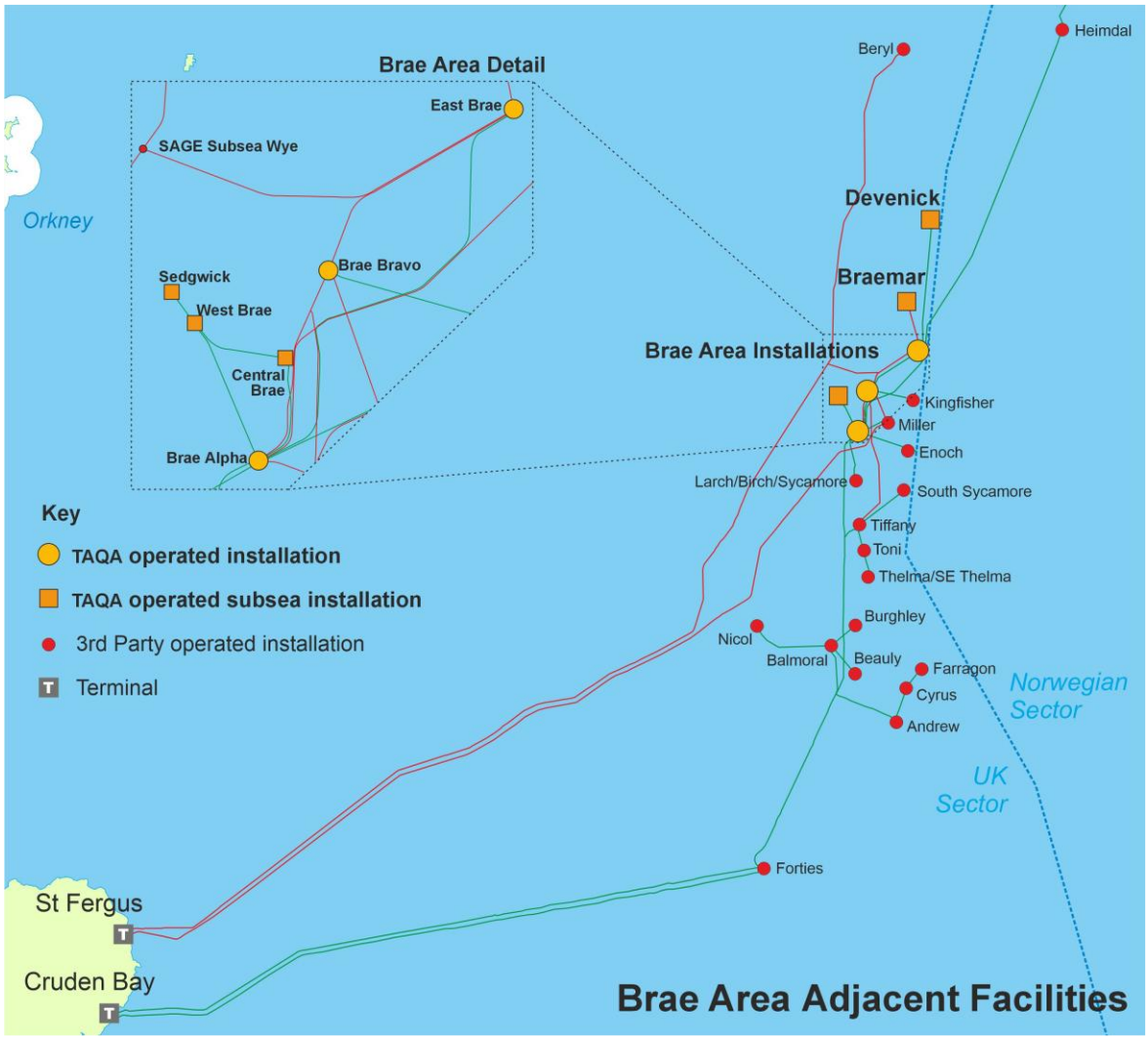


Figure 1-6: Brae Area Adjacent Facilities

The facilities adjacent to the Brae Alpha, Central Brae, West Brae, and Sedgwick installations are listed in Table 1.10.

Table 1.11: Adjacent Facilities

Owner	Name	Type	Distance / Direction from Brae Alpha	Information	Status
TAQA	Brae Bravo	Platform	12 km North-north-east	Connected to Brae Alpha via power cable and pipelines	Decommissioned. Topsides removed 2021. Upper jacket removed 2022
TAQA	East Brae	Platform	23 km North-east	Connected to Brae Alpha via power cables and pipelines	Operational at time of DP submission.
TAQA	PL64	Pipeline	-	30" Oil pipeline from Brae Alpha to Forties Charlie	Operational at time of DP submission.
TAQA	PL360	Pipeline	-	18" Gas transfer pipeline linking Brae Alpha and Brae Bravo Gas SSIV XXV3769	Operational at time of DP submission.
TAQA	PL361	Pipeline	-	18" Condensate pipeline from Brae Bravo Subsea Wye to Brae Alpha.	Operational at time of DP submission.
BP Exploration (Alpha) Limited	Miller	Platform	8 km South-east	Redundant production platform	Decommissioned Topsides and Upper jacket removed.
BP Exploration (Alpha) Limited	PL722 Miller to Brae Alpha	18" Oil Pipeline	-	Redundant pipeline from Miller to Brae Alpha	Suspended
Bridge Petroleum 3 Limited	PL2336 Enoch to Brae Alpha Flowline	Pipeline	-	8" Flowline in 12" carrier pipe from Enoch to Brae Alpha	Operational at time of DP submission. Will be decommissioned at the same time as Brae Alpha or earlier.
Bridge Petroleum 3 Limited	PL2337 Brae Alpha to Enoch Gas Lift Line	Pipeline	-	3" Flowline in 12" carrier pipe from Brae Alpha to Enoch	Operational at time of DP submission. Will be decommissioned at the same time as Brae Alpha or earlier.

Table 1.11: Adjacent Facilities					
Owner	**Name**	**Type**	**Distance / Direction from Brae Alpha**	**Information**	**Status**
Bridge Petroleum 3 Limited	PLU2338 Brae Alpha to Enoch Control Umbilical	Umbilical	-	Electro/ Hydraulic Control Umbilical from Brae Alpha to Enoch	Operational at time of DP submission. Will be decommissioned at the same time as Brae Alpha or earlier.
CNR International (U.K.) Limited	PL872 Tiffany to PL360 Gas Export Line	Pipeline	3.5 km East	10" Gas Pipeline Tiffany to PL360 Gas Export Line	Operational at time of DP submission. Will be decommissioned at the same time as Brae Alpha or earlier.
Spirit Energy North Sea Oil Limited	Birch, Larch, Sycamore	Subsea Production Installations	20 km South-south-west	Subsea manifolds and wellheads. Production routed to Brae Alpha.	Operational at time of DP submission. Will be decommissioned at the same time as Brae Alpha or earlier.
Spirit Energy North Sea Oil Limited	PL1161 Birch to Brae Alpha	Pipeline	-	10" Production Pipeline	Operational at time of DP submission. Will be decommissioned at the same time as Brae Alpha or earlier.
Spirit Energy North Sea Oil Limited	PL1162 Brae Alpha to Birch	Pipeline	-	12" Water Injection Pipeline	Operational at time of DP submission. Will be decommissioned at the same time as Brae Alpha or earlier.
Spirit Energy North Sea Oil Limited	PL1163 Brae Alpha to Birch	Pipeline	-	4" Gas Lift Pipeline	Operational at time of DP submission. Will be decommissioned at the same time as Brae Alpha or earlier.
Spirit Energy North Sea Oil Limited	PLU1164 Brae Alpha to Birch	Umbilical	-	Control/ Chemical Injection Umbilical from Brae Alpha to Birch	Operational at time of DP submission. Will be decommissioned at the same time as Brae Alpha or earlier.

Table 1.11: Adjacent Facilities					
Owner	**Name**	**Type**	**Distance / Direction from Brae Alpha**	**Information**	**Status**
Spirit Energy North Sea Oil Limited	PL1529 (Serving "Trees")	Pipeline	-	4" Service Pipeline	Operational at time of DP submission. Will be decommissioned at the same time as Brae Alpha or earlier.
Spirit Energy North Sea Oil Limited	PL1531 Brae Alpha to Larch	Pipeline	-	4" Gas Lift Pipeline	Operational at time of DP submission. Will be decommissioned at the same time as Brae Alpha or earlier.
Equinor Energy AS	PL301 Heimdal to Brae Alpha Condensate Pipeline	Pipeline	-	8" Condensate Pipeline	Out of use.

Table 1.11: Adjacent Facilities
Impacts of Decommissioning Proposals
TAQA has been, and will continue to be, in contact with operators and owners of adjacent facilities. The adjacent facilities have no known impacts on the Brae Alpha Topsides, Central Brae, West Brae, and Sedgwick Decommissioning Programmes. A number of third party installations are supported by Brae Alpha, and Brae Alpha provides processing and export facilities for the production from these facilities. TAQA will address the impact of decommissioning the Brae Alpha topsides on these installations in dialogue with the respective Operators.

1.7 Industrial Implications

TAQA is developing the Brae Alpha, Central Brae, West Brae, and Sedgwick decommissioning contract and procurement strategy on behalf of the Section 29 Notice Holders. TAQA has, and will continue to:

- Publish Brae Area decommissioning project information on the TAQA decommissioning website.
- In the event of further contract awards for Brae Area decommissioning, TAQA will publish project information and contact details on the North Sea Transition Authority (NSTA) Pathfinder website.
- Engage with the NSTA and the decommissioning supply chain on any future issues relating to the Brae Alpha, Central Brae, West Brae, and Sedgwick Decommissioning Programmes and schedule.
- Use industry databases to support preparing tender lists for any future Brae Alpha, Central Brae, West Brae, and Sedgwick decommissioning contracts and purchases with a value of £250,000 or more.

2 Description of Items to be Decommissioned

2.1 Installations

Key information regarding the Brae Alpha platform topsides is presented in Table 2.1.

Table 2.1: Brae Alpha Topsides Information

Name	Type	Location		Topsides	
				Dry Weight (tonnes)	Number of Modules
Brae Alpha Platform Topsides	Fixed Steel Platform	**WGS84 Decimal**	58.692799°N 1.281446°E	≈ 33,150[9]	25
		WGS84 Decimal Minute	58° 41.568'N 1° 16.888'E		

2.2 Installations: Subsea Including Stabilisation Features

Key information regarding the Central Brae, West Brae and Sedgwick subsea installations and protection and stabilisation features is presented in Table 2.2.

Table 2.2: Subsea Installations & Protection and Stabilisation Features

Central Brae

Subsea Installations Including Stabilisation Features	Number	Size LxWxH (m) Weight (tonnes)	Location		Comments / Status
Template Structure	1	35 × 20 × 11 ≈ 660[10]	WGS84 Decimal	58.745833°N 1.311139°E	The Central Brae Template Structure is piled to the seabed. During completion of the Central Brae wells, cement spilled over onto the template and seabed.
			WGS84 Decimal Minute	58° 44.750'N 1° 18.668'E	

[9] Weight subject to confirmation during detailed engineering.
[10] Excludes any overspill of grout/cement.

Table 2.2: Subsea Installations & Protection and Stabilisation Features					
West Brae					
Subsea Installations Including Stabilisation Features	**Number**	**Size LxWxH (m) Weight (tonnes)**	**Location**		**Comments / Status**
Wells	1 Operating 6 Suspended	7.6 × 7.6 × 4.4 ≈ 40 each	WGS84 Decimal	58.763328°N 1.216114°E	Xmas trees have integrated protection structures that will be removed as part of P&A.
			WGS84 Decimal Minute	58° 45.800'N 1° 12.967'E	
West Brae Manifold	1	17.5 × 12.5 × 4.5 ≈ 142	WGS84 Decimal	58.763328°N 1.216114°E	The West Brae manifold is piled to the seabed.
			WGS84 Decimal Minute	58° 45.800'N 1° 12.967'E	
West Brae Extension Manifold	1	12 × 6 × 5 ≈ 110	WGS84 Decimal	58.763328°N 1.216114°E	The West Brae Extension manifold is piled to the seabed.
			WGS84 Decimal Minute	58° 45.800'N 1° 12.967'E	
West Brae Anode Skids	12	2.9 x 2.3 x 0.18 ≈ 10.6 total	WGS84 Decimal	58.763328°N 1.216114°E	Gravity based anode skids positioned either side of each well, except W5, W10 and W11.
			WGS84 Decimal Minute	58° 45.800'N 1° 12.967'E	
Concrete Mattresses	24	5 × 3 × 0.15 ≈ 168 total	WGS84 Decimal	58.763328°N 1.216114°E	Four mattresses at each well, except W9.
			WGS84 Decimal Minute	58° 45.800'N 1° 12.967'E	
Sedgwick					
Subsea Installations Including Stabilisation Features	**Number**	**Size LxWxH (m) Weight (tonnes)**	**Location**		**Comments / Status**
Wellheads	1 Operating	≈ 7.6 × 7. 6 × 4.4 ≈ 40	WGS 84 Decimal	58.778778°N 1.192103°E	Active well has integrated protection structure that will be removed as part of P&A.
			WGS 84 Decimal Minute	58° 46.727'N 1° 11.526'E	
SDU Protection Structure	1	≈ 4.3 x 3.8 x 2 ≈ 160	WGS 84 Decimal	58.778778°N 1.192103°E	SDU redundant roof panel is currently laid on the seabed adjacent to the structure.
			WGS 84 Decimal Minute	58° 46.727'N 1° 11.526'E	
Concrete Mattresses	4	≈ 5 × 3 × 0.15 ≈ 28 total	WGS 84 Decimal	58.778778°N 1.192103°E	Four mattresses at well 16/06a-V01
			WGS 84 Decimal Minute	58° 46.727'N 1° 11.526'E	

2.3 Pipelines Including Stabilisation Features

The Brae Alpha Topsides Central Brae, West Brae and Sedgwick Combined Decommissioning Programmes cover the following pipelines and umbilicals:

- The pipelines and umbilicals connecting Central Brae, West Brae, and Sedgwick to Brae Alpha.
- The pipelines and umbilicals connecting the West Brae manifold to the West Brae Extension Manifold and Sedgwick.
- The pipelines connecting West Brae to Central Brae.

These facilities are described in more detail in Table 2.3, and illustrated in Figure 1-3, and Figure 1-4 Stabilisation features are listed in Table 2.4.

The proposed decommissioning options for the subsea portions of the pipelines and umbilicals are listed in Table 3.4, and the proposed decommissioning options for the protection and stabilisation features are presented in Table 3.5.

Table 2.3: Pipelines & Umbilicals Information									
Description	**Pipeline No. (as per PWA)**	**Length (km)**	**Dia. (inches)**	**Description of Component Parts**	**Product Conveyed**	**From - To**	**Burial Status**	**Status**	**Current Content**
Brae Alpha to Central Brae Water Injection	PL634	6.7914	10.75	Steel with 2 pack epoxy and FBE coating	Injection water	Brae Alpha Riser Base Flange to Central Brae Template Isolation Valve	Part trenched, part surface-laid, part surface-laid and rock covered.	Out of use	Sea water
Brae Alpha to Central Brae Service Line	PL635	6.73815	4.5	Steel with 2 pack epoxy coating	Chemicals/ Gas	Brae Alpha Riser Base Flange to Central Brae Template Isolation Valve	Part trenched, part surface-laid, part surface-laid and rock covered.	Out of use	Sea water
Central Brae to Brae Alpha Production Flowline (1)	PL6188	6.816	6.7	Stainless steel, with solid / micro / cellular polyurethane coating	Oil	Brae Central Template to Brae Alpha Riser Base Flange	Predominantly trenched and rock covered.	In Service	Oil
Central Brae to Brae Alpha Production Flowline (2)	PL636	6.763	6.7	Stainless steel, with solid / micro / cellular polyurethane coating	Oil	Brae Central Template to Brae Alpha Riser Base Flange	Predominantly trenched and rock covered.	In Service	Oil

Table 2.3: Pipelines & Umbilicals Information								
Brae Alpha to Central Brae Chemical Injection Umbilical (NB This umbilical has a PL identifier, not PLU).	PL637	6.865	5.4	Chemical lines, and structural layers of polymer and steel wire	Chemicals	Cut Point at Foot of Brae Alpha Platform to Brae Central Template	Part trenched, part surface-laid, part surface-laid and rock covered, part surface-laid and mattress protected.	In Service	Chemicals
Brae Alpha to Central Brae Control Umbilical	PLU6190	6.865	3.5	Hydraulic lines, electrical lines and structural layers of polymer and steel wire	Hydraulic fluid, Power and Signal	Cut Point at Foot of Brae Alpha Platform to Brae Central Template	Part trenched, part surface-laid, part surface-laid and rock covered, part surface-laid and mattress protected.	In Service	Hydraulic Fluid, Power, and Signal
West Brae Manifold to Brae Alpha Production Flowline	PL1441.1	8.904	12.75	Stainless steel with 3 layer polypropylene coating	Production Fluids	West Brae Extension Manifold to Brae Alpha Riser Base Flange	Part trenched, part surface-laid, part surface-laid and mattress protected	In Service	Production Fluids
W8z to West Brae Manifold Production Jumper	PL1441.2	0.035	7.75	Layers of polymer and steel wire	Production Fluids	Well W8z to West Brae Manifold	Surface-laid mattress protected	In Service	Production Fluids

Table 2.3: Pipelines & Umbilicals Information									
W12y to West Brae Manifold Production Jumper	PL1441.3	0.035	7.75	Layers of polymer and steel wire	Production Fluids	W12y to West Brae Manifold	Surface-laid mattress protected	In Service	Production Fluids
W3 to West Brae Manifold Production Jumper	PL1441.4	0.035	7.75	Layers of polymer and steel wire	Production Fluids	W3 to West Brae Manifold	Surface-laid mattress protected	In Service	Production Fluids
W7z/W10y to West Brae Manifold Production Jumper	PL1441.5	0.1419	7.75	Layers of polymer and steel wire	Production Fluids	Disconnected end adjacent to well W7z to Disconnected end adjacent to West Brae Manifold	Surface-laid mattress protected	Out of use	Seawater
W9x to West Brae Manifold Production Jumper	PL1441.6	0.035	7.75	Layers of polymer and steel wire	Production Fluids	W9x to West Brae Manifold	Surface-laid mattress protected	In Service	Production Fluids

Table 2.3: Pipelines & Umbilicals Information									
Brae Alpha to West Brae Manifold Gas Lift Flowline. Includes mattress protected pipeline T approximately 7 km from Brae Alpha.	PL1442.1	8.888	6.63	Steel with 3 layer polypropylene coating	Lift Gas	Brae Alpha Riser Base Flange to West Brae Extension Manifold	Part trenched, part surface-laid, part surface-laid and mattress protected	In Service	Lift Gas
West Brae Manifold to W7z/W10y Gas Lift Jumper	PL1442.2	0.1392	5.27	Layers of polymer and steel wire	Lift Gas	Disconnected end adjacent to West Brae Manifold to Disconnected end adjacent to Well W7z	Surface-laid mattress protected	Out of Use	Seawater
West Brae Manifold to W9x Gas Lift Jumper	PL1442.4	0.061	5.27	Layers of polymer and steel wire	Lift Gas	West Brae Manifold to Well W9x	Surface-laid mattress protected	In Service	Lift Gas
West Brae Manifold to W10y Gas Lift Jumper	PL1442.5	0.035	5.27	Layers of polymer and steel wire	Lift Gas	West Brae Manifold to Well W10y	Surface-laid mattress protected	In Service	Seawater
West Brae Manifold to W3 Gas Lift Jumper	PL1442.6	0.027	5.27	Layers of polymer and steel wire	Lift Gas	West Brae Manifold to Well W3	Surface-laid mattress protected	In Service	Lift Gas

Table 2.3: Pipelines & Umbilicals Information									
West Brae Manifold to W12y Gas Lift Jumper	PL1442.7	0.110	5.27	Layers of polymer and steel wire	Lift Gas	Disconnected end adjacent to West Brae Manifold to Disconnected end adjacent to Well W12y	Surface-laid mattress protected	Out of Use	Seawater
West Brae Manifold to W8z Gas Lift Jumper	PL1442.8	0.035	5.27	Layers of polymer and steel wire	Lift Gas	West Brae Manifold to Well W8z	Surface-laid mattress protected	In Service	Lift Gas
Central Brae to West Brae Water Injection Flowline	PL1443.1	5.757	6.63	Steel with 3 layer polypropylene coating	Injection water	Central Brae Subsea Cut to West Brae Subsea Cut	Part trenched, part surface-laid, part surface-laid and mattress protected	Out of Use	Seawater
West Brae manifold to W10y Water Injection Jumper	PL1443.3	0.06	8.81	Layers of polymer and steel wire	Injection water	West Brae Manifold to Well W10y	Surface-laid mattress protected	In Service	Seawater
Central Brae to West Brae Service Flowline	PL1444.1	5.73	4	Steel with 3 layer polypropylene coating	Water and chemicals	Central Brae Subsea Cut to West Brae Subsea Cut	Part trenched, part surface-laid, part surface-laid and mattress protected	Out of Use	Seawater

Table 2.3: Pipelines & Umbilicals Information									
Brae Alpha to base of West Brae Production Riser Gas Lift Flowline	PL1445	0.05	3	Stainless steel	Lift Gas	Brae Alpha Riser Base Flange to Production Pipeline	Not buried	In Service	Lift Gas
Brae Alpha to West Brae Chemical / Control Umbilical	PLU1446	8.595	4.84	Chemical lines, power and signal cores, and structural layers of polymer and steel wire	Chemicals / Hydraulic Fluid	Cut Point at Foot of Brae Alpha Platform to West Brae Manifold	Part trenched, part surface-laid and mattress protected, part surface-laid and rock covered	In Service (Power and signal cores out of use)	Various

Table 2.3: Pipelines & Umbilicals Information									
West Brae Manifold to W8z Chemical / Control Umbilical	PLU1446.12	0.035	0.5	Chemical lines, and structural layers of polymer and steel wire	Chemicals / Hydraulic Fluid	West Brae Manifold to Well W8z	Part surface-laid and part surface laid, and mattress protected	In Service	Methanol (Product)
	PLU1446.15	0.035	0.5	Chemical lines, and structural layers of polymer and steel wire	Chemicals / Hydraulic Fluid	West Brae Manifold to Well W8z	Part surface-laid and part surface laid, and mattress protected	In Service	Methanol (Product)
West Brae Manifold to W12y Chemical / Control Umbilical	PLU1446.13	0.035	0.5	Chemical lines, and structural layers of polymer and steel wire	Chemicals / Hydraulic Fluid	West Brae Manifold to Well W12y	Part surface-laid and part surface laid, and mattress protected	In Service	Methanol (Product)
	PLU1446.16	0.035	0.5	Chemical lines, and structural layers of polymer and steel wire	Chemicals / Hydraulic Fluid	West Brae Manifold to Well W12y	Part surface-laid and mattress protected	In Service	Methanol (Product)
West Brae Manifold to W3 Chemical/Control Umbilical	PLU1446.14	0.035	0.5	Chemical lines, and structural layers of polymer and steel wire	Chemicals / Hydraulic Fluid	West Brae Manifold to Well W3	Part surface-laid and mattress protected	In Service	Methanol (Product)

Table 2.3: Pipelines & Umbilicals Information

	PLU1446.17	0.035	0.5	Chemical lines, and structural layers of polymer and steel wire	Chemicals / Hydraulic Fluid	West Brae manifold to W3	Part surface-laid and mattress protected	In Service	Methanol (Product)
West Brae Manifold to Sedgwick Chemical/Control Umbilical Includes concrete SDU protection structure at Sedgwick	PLU1446JV1	2.3	4.84	Chemical lines, power and signal cores, and structural layers of polymer and steel wire	Chemicals / Hydraulic Fluid	West Brae Manifold to Sedgwick Well V1	Part trenched, part surface-laid and mattress protected, part surface-laid and rock covered	In Service (Power and signal cores out of use)	Various
Sedgwick to West Brae Manifold Production Flowline	PL1447	2.37	6.62	Stainless steel with 3 layer polypropylene coating	Crude oil	Well V1 to West Brae Manifold	Part trenched, part surface-laid and mattress protected, part surface-laid and rock covered	In Service	Crude Oil
West Brae to Sedgwick Gas Lift Flowline	PL1448	2.37	2.9	Steel with 3 layer polypropylene coating	Lift Gas	West Brae Manifold to Well V1	Part trenched with spot rock cover, part surface-laid and mattress protected, part surface-laid and rock covered	In Service	Lift Gas

Table 2.3: Pipelines & Umbilicals Information									
West Brae Manifold to W9x Chemical Jumper	PLU3798	0.035	¾ hose and ½ hose	Chemical lines, and structural layers of polymer and steel wire	Chemicals	West Brae Manifold to Well W9x	Surface-laid mattress protected	In Service	Chemicals
West Brae Manifold to W7z Chemical Jumper	PLU3799	0.058	¾ hose and ½ hose	Chemical lines, and structural layers of polymer and steel wire	Chemicals	West Brae Manifold to Well W7z	Surface-laid mattress protected	In Service	Chemicals
West Brae Manifold to W9x Chemical Jumper	PLU3800	0.035	¾ hose and ½ hose	Chemical lines, and structural layers of polymer and steel wire	Chemicals	West Brae Manifold to Well W9x	Surface-laid mattress protected	In Service	Chemicals
West Brae Manifold to W10y Chemical Jumper	PLU3801	0.04	¾ hose and ½ hose	Chemical lines, and structural layers of polymer and steel wire	Methanol (Product)	West Brae Manifold to Well W10y	Surface-laid mattress protected	In Service	Methanol (Product)
West Brae Manifold to W10y Chemical Jumper	PLU3802	0.04	¾ hose and ½ hose	Chemical lines, and structural layers of polymer and steel wire	Chemicals	West Brae Manifold to Well W10y	Surface-laid mattress protected	In Service	None

Table 2.3: Pipelines & Umbilicals Information									
West Brae Manifold to W7z Chemical Jumper	PLU3811	0.058	¾ hose and ½ hose	Layers of polymer and steel wire	Methanol (Product)	West Brae Manifold to Well W7z	Surface-laid mattress protected	In Service	Methanol (Product)
West Brae Manifold to W11 Chemical Jumper	PLU3813	0.2	¾ hose and ½ hose	Layers of polymer and steel wire	Methanol (Product)	West Brae Manifold to Well W11	Surface-laid mattress protected	In Service	Methanol (Product)
W11 to West Brae Extension Manifold Production Jumper	PL3806	0.162	7.95	Layers of polymer and steel wire	Production Fluids	Well W11 to West Brae Extension Manifold	Surface-laid mattress protected	In Service	Production Fluids
West Brae Extension Manifold to W11 Gas Lift Jumper	PL3809	0.162	5.83	Layers of polymer and steel wire	Lift Gas	West Brae Extension Manifold to Well W11	Surface-laid mattress protected	In Service	Lift Gas
Brae Alpha to West Brae Manifold and Sedgwick Electrical Umbilical	PLU4031	11.815	2.8	Electrical quads and steel wire armour	Others	Cut Point at Foot of Brae Alpha Platform to Sedgwick Well V1 (via West Brae Manifold)	Surface Laud mattress protected. Trenched and partially rock covered	In Service	Others

Table 2.3: Pipelines & Umbilicals Information									
West Brae Manifold to W7z Electrical Flying Lead	PLU4131	0.058	1	Copper conductor, steel wire armour, insulation	Electric Power	West Brae Manifold to Well W7z Control Module	Surface-laid mattress protected	Out of use	Various
West Brae Manifold to W7z Electrical Flying Lead	PLU4132	0.072	1	Copper conductor, steel wire armour, insulation	Various	West Brae Manifold to W7z Control Module	Surface-laid mattress protected	In Service	Various
West Brae Manifold to W8z Electrical Flying Lead	PLU4133	0.060	1	Copper conductor, steel wire armour, insulation	Electric Power	West Brae Manifold to W8z Control Module	Surface-laid mattress protected	Out of	Various
West Brae Manifold to W8z Electrical Flying Lead	PLU4134	0.072	1	Copper conductor, steel wire armour, insulation	Various	West Brae Manifold to W8z Control Module	Surface-laid mattress protected	Operational	Various
West Brae Manifold to W9x Electrical Flying Lead	PLU4135	0.086	1	Copper conductor, steel wire armour, insulation	Electric Power	West Brae Manifold to W9x Control Module	Surface-laid mattress protected	Out of use	Various
West Brae Manifold to W9x Electrical Flying Lead	PLU4136	0.102	1	Copper conductor, steel wire armour, insulation	Various	West Brae Manifold to W9x Control Module	Surface-laid mattress protected	In Service	Various

Table 2.3: Pipelines & Umbilicals Information									
West Brae Manifold to W12y Electrical Flying Lead	PLU4137	0.040	1	Copper conductor, steel wire armour, insulation	Electric Power	West Brae Manifold to W12y Control Module	Surface-laid mattress protected	Out of use	None
West Brae Manifold to W12y Electrical Flying Lead	PLU4138	0.072	1	Copper conductor, steel wire armour, insulation	Various	West Brae Manifold to W12y	Surface-laid mattress protected	In Service	Various
W7z to West Brae Extension Manifold Production Jumper	PL4242	0.042	7.75	Layers of polymer and steel wire	Production fluids	Well W7z to West Brae Extension Manifold	Surface-laid mattress protected	In Service	Production Fluids
W10y to West Brae Extension Manifold Production Jumper	PL4243	0.073	7.75	Layers of polymer and steel wire	Production fluids	Well W10y to West Brae Extension Manifold	Surface-laid mattress protected	In Service	Production Fluids
West Brae Extension Manifold to West Brae Manifold Test Production Jumper	PL4244	0.055	7.75	Layers of polymer and steel wire	Production fluids	West Brae Extension Manifold to West Brae Manifold	Surface-laid mattress protected	In Service	Production Fluids

Table 2.3: Pipelines & Umbilicals Information									
West Brae Extension Manifold to W7z Gas Lift Jumper	PL4245	0.042	5.27	Layers of polymer and steel wire	Lift gas	West Brae Extension Manifold to well W7z	Surface-laid mattress protected	In Service	Lift Gas
West Brae Extension Manifold to W10y Gas Lift Jumper	PL4246	0.064	5.27	Layers of polymer and steel wire	Lift gas	West Brae Extension Manifold to well W10y	Surface-laid mattress protected	In Service	Lift Gas
West Brae Extension Manifold to W12y Gas Lift Jumper	PL4247	0.03	5.27	Layers of polymer and steel wire	Lift gas	West Brae Manifold to well W12y	Surface-laid mattress protected	In Service	Lift Gas
W7z to West Brae Extension Manifold Control Jumper	PLU4248	0.043	3.54	Bundle of 6 low pressure hydraulic hoses	Hydraulic fluids	Well W7z to West Brae Extension Manifold	Surface-laid mattress protected	In Service	Hydraulic Fluids
W10y to West Brae Extension Manifold Control Jumper	PLU4249	0.06	3.54	Bundle of 6 low pressure hydraulic hoses	Hydraulic fluids	Well W10y to West Brae Extension Manifold	Surface-laid mattress protected	In Service	Hydraulic Fluids

Table 2.3: Pipelines & Umbilicals Information									
West Brae Manifold to West Brae Extension Manifold Hydraulic Umbilical	PLU4250	0.056	2.5	Bundle of 2 low pressure hydraulic hoses	Hydraulic fluids	West Brae Extension Manifold to West Brae Manifold	Surface-laid mattress protected	In Service	Hydraulic Fluids
West Sedgwick Production Flowline to West Brae Extension Manifold	PL4545	6.288	9.73	Layers of polymer and steel wire	Production Fluids	Flowline Flange Adjacent to West Brae Wellhead V2 to Flowline Flange Adjacent to West Brae Extension Manifold	Rock Covered	Out of use (Never brought into use)	Various
West Sedgwick Gas Lift Flow Line from West Brae Extension Manifold	PL4546	6.291	4.66	Layers of polymer and steel wire	Hydrocarbon Lift Gas	Flowline Flange Adjacent to West Brae Extension Manifold to Flowline Flange Adjacent to West Brae Wellhead V2	Rock Covered	Out of use	Various

Table 2.4: Pipelines & Umbilicals Protection and Stabilisation Features				
Protection / Stabilisation Feature	**Approximate Number**	**Weight (Te)**	**Location(s)**	**Exposed Buried Condition**
Concrete Mattresses	2	14	On umbilical PL637 adjacent to Brae Alpha 2 Mattresses between KP 0.002 and KP 0.015	1 Mattress predominantly buried in good condition (KP 0.002 to KP 0.008) 1 Mattress exposed in good condition (KP 0.008 to KP 0.015)
Concrete Mattresses	7	49	On umbilical PL637 adjacent to Central Brae structure 7 Mattresses between KP 6.759 to KP 6.850	1 Mattress partially buried in good condition (KP 6.759 to KP 6.771) 3 Mattresses exposed in good condition (KP 6.771 to KP 6.817) 3 Mattresses predominantly buried (KP 6.817 to KP 6.850) Note: In this area, the mattresses are made up of hexagonal sections and measure 12m each in length.
Concrete Mattresses	8	56	On control umbilical PLU6190 adjacent to Brae Alpha sub-structure	4 mattresses partially buried by drill cuttings. 4 mattresses exposed.
Concrete Mattresses	33	231	On control umbilical PLU6190 adjacent to Central Brae structure	3 Mattresses buried. 30 mattresses exposed.
Concrete Mattresses	33	231	On PL1441.1 11 Mattresses between KP 0.000 to KP 0.298 22 Mattresses between KP 8.642 to KP 8.781	14 Mattresses exposed in good condition (KP 0.014 to KP 0.016, KP 0.040 to KP 0.042, KP 0.140 to KP 0.142, KP 0.165 to KP 0.167, KP 0.183 to KP 0.186, KP 0.218 to KP 0.220, KP 8.730 to KP 8.776) 15 Mattresses partially buried in good condition (KP 0.118 to KP 0.120, KP 8.646 to KP 8.730) 4 Mattresses predominantly buried in good condition (KP 0.062 to KP 0.065, KP 0.090 to KP 0.093, KP 0.121 to KP 0.124, KP 0.238 to KP 0.240)

Table 2.4: Pipelines & Umbilicals Protection and Stabilisation Features				
Protection / Stabilisation Feature	**Approximate Number**	**Weight (Te)**	**Location(s)**	**Exposed Buried Condition**
Concrete Mattresses	50	350	On PL1442.1 6 Mattresses between KP 0.007 to KP 0.162 24 Mattresses between KP 6.681 to KP 6.816 (On tie in tee). 20 Mattresses between KP 8.687 to KP 8.781	12 Mattresses exposed in good condition (KP 0.038 to KP 0.131, KP 6.749 to KP 6.751) 28 Mattresses partially buried in good condition (KP 0.160 to KP 0.162, KP 6.694 to KP 6.705, KP 6.717 to KP 6.749, KP 6.751 to KP 6.803, KP 8.704 to KP 8.754, KP 8.752 to KP 8.781) 10 Mattresses predominantly buried in good condition (KP 0.007 to KP 0.013, KP 6.681 to KP 6.694, KP 6.705 to KP 6.717, KP 6.803 to KP 6.816, KP 8.687 to KP 8.704)
Concrete Mattresses	21	147	On PL1443.1 4 Mattresses between KP 0.005 to KP 0.082 13 Mattresses between KP 6.067 to 6.141 2 mattresses deposited at cut location at Central Brae 2 mattresses deposited at cut location at West Brae	12 Mattresses exposed in good condition (KP 0.005 to KP 0.082, KP 6.087 to KP 6.104, KP 6.127 to KP 6.141) 7 Mattresses partially buried in good condition (KP 6.075 to KP 6.087, KP 6.104 to KP 6.127) 2 Mattresses predominantly buried in good condition (KP 6.067 to KP 6.075)
Concrete Mattresses	24	168	On PL1444.1 6 Mattresses between KP -0.075 to KP 0.046 14 Mattresses between KP 5.996 to KP 6.084 2 mattresses deposited at cut location at Central Brae 2 mattresses deposited at cut location at West Brae	14 Mattresses exposed in good condition (KP -0.075 to KP 0.046, KP 6.013 to KP 6.049, KP 6.075 to KP 6.083) 8 Mattresses partially buried in good condition (KP 6.008 to KP 6.013, KP 6.049 to KP 6.075, KP 6.083 to KP 6.084) 2 Mattresses predominantly buried in good condition (KP 5.996 to KP 6.008)

Table 2.4: Pipelines & Umbilicals Protection and Stabilisation Features				
Protection / Stabilisation Feature	**Approximate Number**	**Weight (Te)**	**Location(s)**	**Exposed Buried Condition**
Concrete Mattresses	46	322	On PLU1446 24 Mattresses between KP 0.007 to KP 0.149 22 Mattresses between KP 8.728 to KP 8.840	20 Mattresses exposed in good condition (KP 8.739 to KP 8.840) 3 Mattresses partially buried in good condition (KP 0.007 to KP 0.024) 20 Mattresses predominantly buried in good condition (KP 0.026 to KP 0.149) 1 Mattress predominantly buried and torn (KP 0.024 to KP 0.026) 2 Mattresses predominantly rock covered in good condition (KP 8.728 to KP 8.739)
Concrete Mattresses	25	175	On PLU1446JV1: 12 Mattresses between KP 0.005 to KP 0.067 13 Mattresses between KP 2.250 to KP 2.317	15 Mattresses exposed in good condition (KP 0.005 to KP 0.007, KP 0.025 to KP 0.037, KP 0.049 to KP 0.061, KP 2.270 to KP 2.307, KP 2.308 to KP 2.317) 7 Mattresses partially buried in good condition (KP 0.007 to KP 0.025, KP 5 to KP 0.049, KP 2.257 to KP 2.270) 3 Mattresses partially rock covered in good condition (KP 0.061 to KP 0.067, KP 2.250 to KP 2.257)
Concrete Mattresses	14	98	Umbilical SDU Foundation at Sedgwick	14 Mattresses buried
Concrete Mattresses	52	364	On PL1447: 26 Mattresses between KP 0.002 to KP 0.104 26 Mattresses between KP 2.067 to KP 2.224	24 Mattresses exposed in good condition (KP 0.002 to KP 0.017, KP 0.026 to KP 0.047, KP 2.128 to KP 2.187) 15 Mattresses partially buried in good condition (KP 0.017 to KP 0.032, KP 0.038 to KP 0.075, KP 2.095 to KP 2.100, KP 2.125 to KP 2.128, KP 2.187, KP 2.224) 12 Mattresses predominantly buried in good condition (KP 0.075 to KP 0.104, KP 2.074 to KP 2.095, KP 2.100 to KP 2.125) 1 Mattress predominantly buried with rock cover in good condition (KP 2.067 to KP 2.074)

Table 2.4: Pipelines & Umbilicals Protection and Stabilisation Features				
Protection / Stabilisation Feature	**Approximate Number**	**Weight (Te)**	**Location(s)**	**Exposed Buried Condition**
Concrete Mattresses	32	224	On PL1448: 12 Mattresses between KP 0.002 to KP 0.066 20 Mattresses between KP 2.100 to KP 2.245	11 Mattresses exposed in good condition (KP 0.002 to KP 0.012, KP 0.0244 to KP 0.033, KP 0.041 to KP 0.048, KP 2.102 to KP 2.120, KP 2.157 to KP 2.166) 18 Mattresses partially buried in good condition (KP 0.012 to KP 0.024, KP 0.033 to KP 0.041, KP 2.102 to KP 2.103, KP 2.120 to KP 2.158, KP 2.166 to KP 2.245) 2 Mattresses predominantly buried in good condition (KP 0.048 to KP 0.066) 1 Mattress predominantly buried with rock cover in good condition (KP 2.100 to KP 2.102)
Concrete Mattresses	45	315	On PL4031	45 Mattresses exposed in good condition
Concrete Mattresses	178	1246	Mattresses on surface-laid jumpers at West Brae	Mattresses are in multiple layers. Visible mattresses are in good condition.
Concrete Mattresses	56	392	Mattresses on surface-laid pipelines and umbilical at Sedgwick	Mattresses partially or fully buried by rock cover. Some mattresses partially buried by sediment.
Concrete Mattresses	3	21	Mattresses on surface laid PL4138 between West Brae manifold and well W12y	
Concrete Mattresses	24	168	Mattresses on surface laid portions PL4545 and PL4546 at well WPOZ (16/06a-V2)	24 mattresses exposed in good condition.
Concrete Mattresses	16	112	Mattresses on surface laid portions PL4545 and PL4546 at West Brae Extension Manifold.	16 mattresses exposed in good condition.
Grout Bags	600	60	Grout bags associated with jumpers at West Brae	Grout bags are inter-layered with mattresses on pipelines and umbilical jumpers.
Formwork – Pipeline Ballast Support Structures/SDU Concrete Structure	14	≈ 135	14 Ballast/Support Structures on PL6188 in Brae Alpha safety zone intermittently between KP 0.045 to KP 0.436	7 Ballast/Support Structures exposed in good condition. (KP 0.226 to KP 0.436) 7 Ballast/Support Structures partially buried in good condition. (KP 0.045 to KP 0.196)

Table 2.4: Pipelines & Umbilicals Protection and Stabilisation Features				
Protection / Stabilisation Feature	**Approximate Number**	**Weight (Te)**	**Location(s)**	**Exposed Buried Condition**
	17	≈ 165	17 Ballast/Support Structures on PL636 in Brae Alpha safety zone intermittently between KP 0.054 to KP 0.452	12 Ballast/Support Structures exposed in good condition. (KP 0.112 to KP 0.452) 2 Ballast/Support Structures partially buried in good condition. (KP 0.079 to KP 0.086) 3 Ballast/Support Structures predominantly buried in good condition. (KP 0.054 to KP 0.072)
	16	≈ 100	16 Ballast/Support Structures on PL635 in Brae Alpha safety zone intermittently between KP 0.070 to KP 0.452	15 Ballast/Support Structures exposed in good condition. (KP 0.095 to KP 0.452) 1 Ballast/Support Structure partially buried in good condition. (KP 0.070 to KP 0.073)
	1	≈ 160	SDU Concrete Structure at Sedgwick located on PLU1446JV1 line between KP 2.308 to KP 2.317	SDU Concrete Protection Structure at Sedgwick in good condition. (Structure includes redundant roof panel on seabed adjacent to structure).
Insulation Shells	6	≈ 0.5	At Brae Alpha, 3 installed on PL636, 3 installed on PL6188	Largely exposed.
Half Shells	440	≈ 3	At Brae Alpha installed on PLU4031, covering the line to approximately 150m from the plan centre of the Brae Alpha footings.	Half shells present in good condition. The half shells overlap one another to form around 330m of ducting. Largely exposed.
Rock Cover	4.2km of cover	N/A	Between KP 1.283 and 5.494 on PL6188	Rock cover present
Rock Cover	4.2km of cover	N/A	Between KP1.284 and 5.502 on PL636	Rock cover present
Rock Cover	0.26km of cover	N/A	Between KP 4.816 and 5.072 on umbilical PL637	Rock cover present
Rock Cover	0.32km of cover	N/A	Between KP 4.83 and 5.15 on PLU6190	Rock cover present
Rock Cover	0.020km of cover	N/A	Between KP 14.465 and 14.485 on umbilical PL894.1	Rock cover present

Table 2.4: Pipelines & Umbilicals Protection and Stabilisation Features				
Protection / Stabilisation Feature	**Approximate Number**	**Weight (Te)**	**Location(s)**	**Exposed Buried Condition**
Rock Cover	0.004km of cover	N/A	Between KP 0.058 and 0.062 on PL1442.1	Rock cover present
Rock Cover	0.102km of cover	N/A	Between KP 8.639 and 8.741on umbilical PLU1446	Rock cover present
Rock Cover	0.119km of cover	N/A	Between KP 1.856 to KP 1.886 and KP 1.981 to KP 2.070 on umbilical PL1447	Rock Cover present
Rock Cover	0.5km of cover	N/A	Between KPs 1.4 and 1.5, 1.6 and 1.9, 1.98 and 2.02, and 2.03 and 2.1 on PL1448 West Brae to Sedgwick gas lift flowline	Rock Cover present
Rock Cover	Intermittent	N/A	Between KP 0.477 and 5.636 on PLU4031 Brae Alpha to West Brae and Sedgwick Electrical Umbilical	Rock Cover present
Rock Cover	6.1 km of cover	≈ 100,000	Between ≈ KP 0.1 and ≈ KP 6.2 on PL4545 and PL 4546 from well WPOZ (16/06a-V2) to West Brae Extension Manifold.	Rock Cover present

2.4 Wells

2.4.1 Platform Wells

The Brae Alpha platform wells are listed in Table 2.5.

Table 2.5: Brae Alpha Platform Wells Information

Well	Designation	Status	Abandonment Category
16/07a-A01 (South Brae)	Oil Producer	Completed (operating)	PL 3-0-1
16/07a-A02 (South Brae)	Oil Producer	Completed (operating)	PL 3-0-1
16/07a-A03 (South Brae)	Oil Producer	Suspended – Plugged	PL 3-0-1
16/07a-A04 (South Brae)	Oil Producer	Abandoned Phase 1	PL 0-0-1
16/07a-A05 (South Brae)	Oil Producer	Suspended – Plugged	PL 3-0-1
16/07a-A07 (South Brae)	Oil Producer	Suspended – Plugged	PL 3-0-1
16/07a-A08 (South Brae)	Oil Producer	Completed (operating)	PL 3-0-1
16/07a-A10 (South Brae)	Water Injector	Abandoned Phase 2	PL 0-0-1
16/07a-A11 (South Brae)	Water Injector	Suspended - Plugged	PL 3-0-1
16/07a-A14 (South Brae)	Water Injector	Suspended - Plugged	PL 3-0-1
16/07a-A15 (South Brae)	Water Injector	Abandoned Phase 2	PL 0-0-1
16/07a-A16 (South Brae)	Oil Producer	Completed (operating)	PL 3-0-1
16/07a-A18 (South Brae)	Oil Producer	Completed (operating)	PL 3-0-1
16/07a-A20 (South Brae)	Water Injector	Suspended - Plugged	PL 3-0-1
16/07a-A22 (South Brae)	Oil Producer	Abandoned Phase 2	PL 0-0-1
16/07a-A24 (South Brae)	Oil Producer	Completed (operating)	PL 3-0-1
16/07a-A25Z (South Brae)	Oil Producer	Completed (operating)	PL 3-0-1
16/07a-A27 (South Brae)	Oil Producer	Abandoned Phase 1	PL 0-0-1
16/07a-A28 (South Brae)	Oil Producer	Suspended - Plugged	PL 3-0-1
16/07a-A30Z (South Brae)	Not Completed	Abandoned Phase 2	PL 0-0-1
16/07a-A32Z (South Brae)	Oil Producer	Abandoned Phase 2	PL 0-0-1
16/07a-A35 (South Brae)	Not Completed	Abandoned Phase 2	PL 0-0-1
16/07a-A36 (South Brae)	Oil Producer	Completed (operating)	PL 3-0-1
16/07a-A37 (South Brae)	Oil Producer	Completed (operating)	PL 3-0-1
16/07a-A38 (South Brae)	Oil Producer	Suspended (plugged)	PL 3-0-1
16/07a-A40 (South Brae)	Oil Producer	Abandoned Phase 2	PL 0-0-1
16/07a-A41 (South Brae)	Oil Producer	Completed (Shut In)	PL 3-0-1
16/07a-A43 (South Brae)	Not Completed	Abandoned Phase 2	PL 0-0-1
16/07a-A44Z (Central)	Water Injector	Abandoned Phase 2	PL 0-0-1
16/07a-A45Z (South Brae)	Oil Producer	Completed (operating)	PL 3-0-1
16/07a-A46 (South Brae)	Oil Producer	Suspended – Plugged	PL 3-0-1
16/07a-A47 (South Brae)	Oil Producer	Completed (operating)	PL 3-0-1
16/07a-A48 (South Brae)	Oil Producer	Completed (operating)	PL 3-0-1
16/07a-A49 (South Brae)	Oil Producer	Abandoned Phase 2	PL 0-0-1

2.4.2 Subsea Wells

The Central Brae, West Brae and Sedgwick subsea wells are listed in Table 2.6. Only the West Brae and Sedgwick Wells are covered by the DPs contained in this document. The Central Brae wells will be decommissioned (Plugged and Abandoned) under the Well Operations Notifications System (WONS).

Table 2.6: Central Brae, West Brae, and Sedgwick Subsea Wells Information

Well	Designation	Status	Abandonment Category
Subsea Wells (Central Brae)			
16/07a-C01	Oil Producer	Shut In	SS 4-0-1
16/07a-C02	Water Injector	Abandoned Phase 2	SS 0-0-1
16/07a-C03	Oil Producer	Operating	SS 3-4-1
16/07a-C04	Oil Producer	Shut In	SS 4-4-1
16/07a-C05	Water Injector	Shut In	SS 3-0-1
16/07a-C06Z	Water Injector	Shut In	SS 3-0-1
16/07a-C07	Oil Producer	Shut In	SS 3-0-1
16/07a-C09	Water Injector	Shut In	SS 3-0-1
Subsea Wells (West Brae)			
16/07a-W03	Oil Producer	Operating	SS 3-0-1
16/07a-W05	Not Completed	Abandoned Phase 2	SS 0-0-1
16/07a-W08Z	Oil Producer	Operating	SS 3-0-1
16/07a-W09X	Oil Producer	Operating	SS 4-0-1
16/07a-W10Y	Oil Producer	Operating	SS 3-0-1
16/07a-W11	Oil Producer	Operating	SS 3-0-1
16/07a-W12Y	Oil Producer	Operating	SS 4-0-1
16/07a-W013	Oil Producer	Operating	SS 3-0-1
16/07a-32	Appraisal	Suspended (Plugged)	SS 4-0-1
Subsea Wells (Sedgwick)			
16/06a-V01	Oil Producer	Active	SS 3-0-1

2.5 Drill Cuttings

There are no drill cuttings in the scope of these Decommissioning Programmes.

2.6 Inventory Estimates

TAQA has estimated the inventories of key materials that make-up of the Brae Alpha topsides, Central Brae, West Brae and Sedgwick installations and associated pipelines, umbilicals, stabilisation and protection facilities, and structures. A comprehensive review of the inventories of materials will be conducted during the detailed engineering phase of decommissioning to confirm the overall weights and the weights of the various material categories. The level of detail developed, and waste coding of materials will be subject to the reuse, recycling or disposal options selected, and the chosen removal method and onshore processing sites. The actual weights of materials removed will be reported in the Decommissioning Close Out report.

Summaries of the material inventories for Brae Alpha Topsides, Central Brae, West Brae and Sedgwick installations and associated pipelines, umbilicals, stabilisation and protection facilities and structures are presented in Table 2.7, Table 2.8, and Table 2.9 and shown in Figure 2-1, Figure 2-2, and Figure 2-3. The pipelines and stabilisation data presented in the table and figure do not include approximately 275,000 Te of rock cover which is in place on some of the pipelines and umbilicals. This rock cover will not be brought to shore. It is not listed in Table 2.9 or included in Figure 2-3 as the mass of rock would obscure the other data.

There may also be small quantities of marine growth associated with the subsea installations and the pipelines and umbilicals. Marine growth will either be removed at sea or removed onshore. Marine growth will be disposed of in accordance with relevant regulations and guidelines.

Table 2.7: Brae Alpha Topsides, Material Inventory		
Material	**Weight (tonnes)**	**% of Total**
Carbon Steel	≈ 22,062	≈ 66.6
Non-Ferrous	≈ 2,343	≈ 7.1
NORM	≈ 24	≈ 0.1
Hazardous Material	≈ 380	≈ 1.1
Other	≈ 8,342	≈ 25.2
Total	≈ 33,150	≈ 100

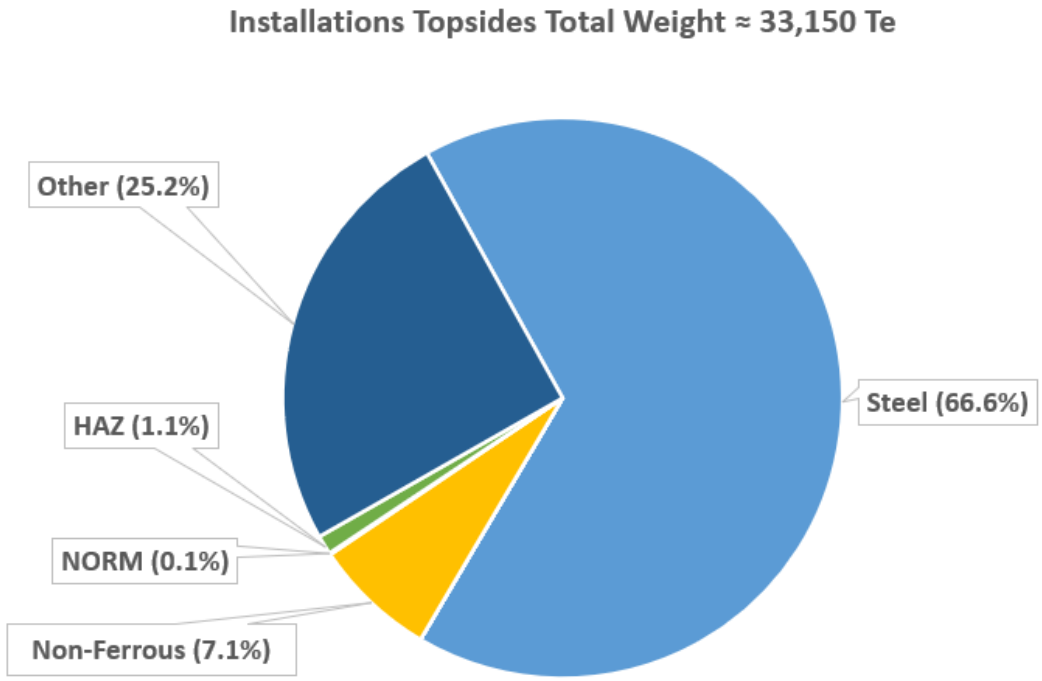


Figure 2-1: Brae Alpha Topsides Inventory

Table 2.8: Central Brae, West Brae, and Sedgwick Subsea Installations Material Inventory		
Material	**Weight (tonnes)**	**% Of Total**
Carbon Steel	≈ 1,380	≈ 86.9
Concrete	≈ 196	≈ 12.3
Non-Ferrous	≈ 23	≈ 0.8
Total	≈ 1,599	≈ 100

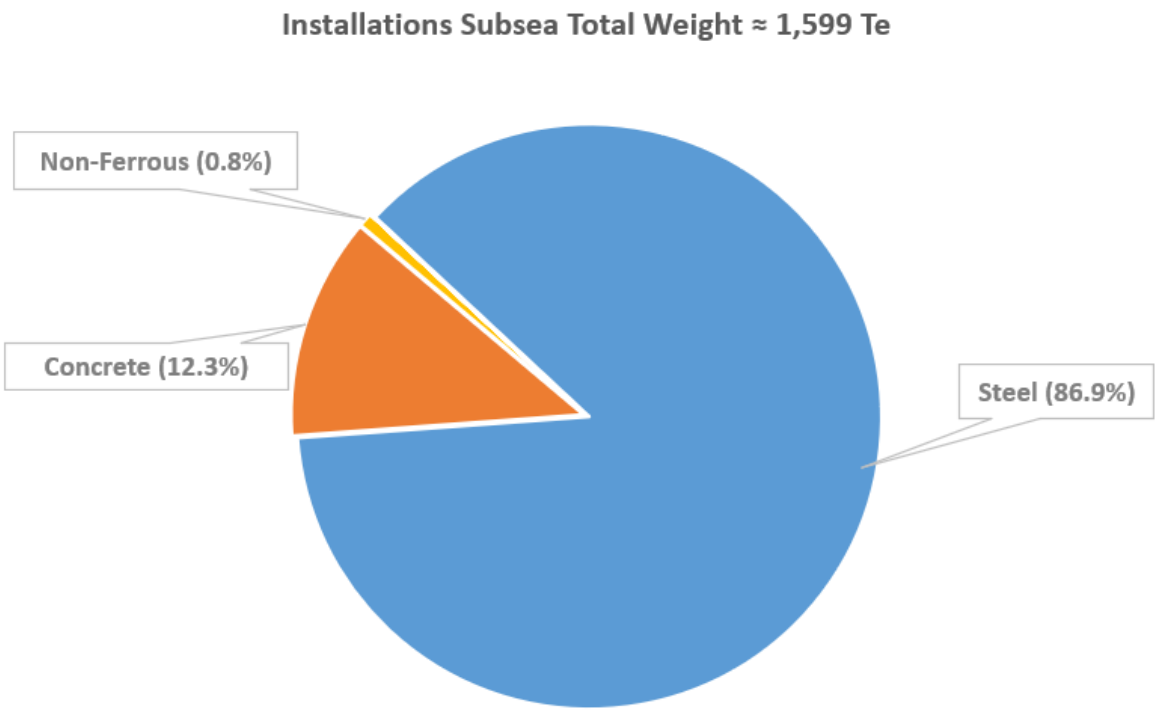


Figure 2-2: Central Brae, West Brae, and Sedgwick Subsea Installations Inventory

Table 2.9: Brae Alpha, Central Brae, West Brae, and Sedgwick. Pipelines and Stabilisation Features Material Inventory		
Material	**Weight (tonnes)**	**% Of Total**
Carbon Steel	≈ 5,271	≈ 45.7
Concrete	≈ 5,350	≈ 46.4
Plastic	≈ 909	≈ 7.9
Total	≈ 11,530	≈ 100

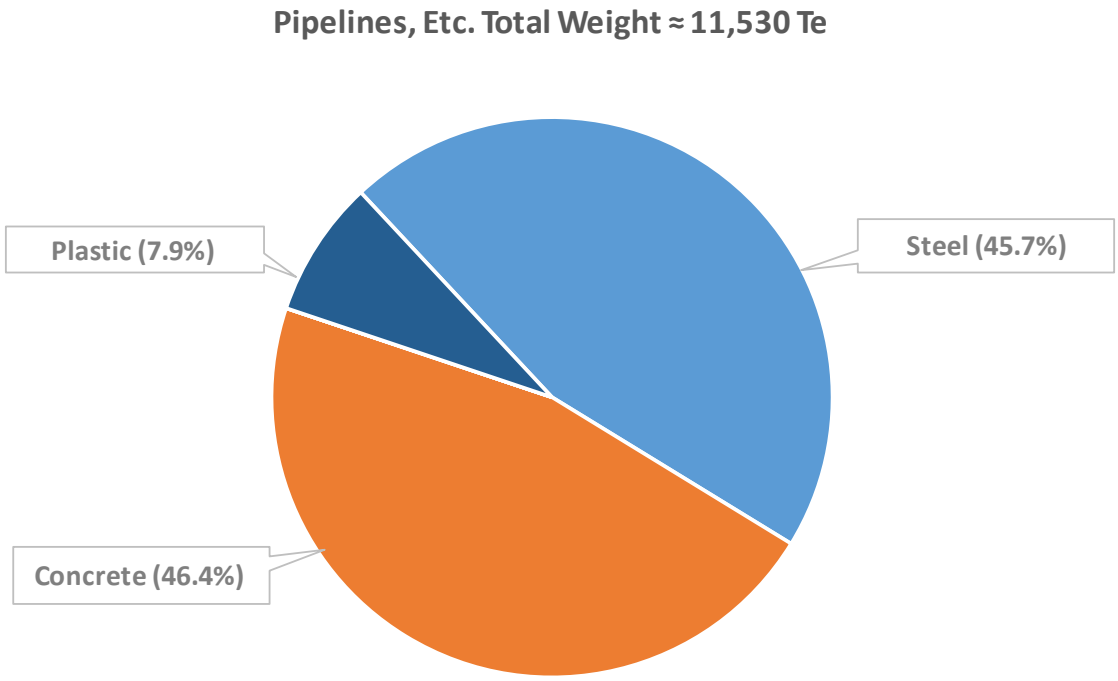


Figure 2-3: Central Brae, West Brae, and Sedgwick Pipelines & Stabilisation Features Inventory

3 Removal and Disposal Methods

The reuse of offshore installations, pipelines, umbilicals, structures and protection and stabilisation features is the preferred decommissioning option. The Brae Operator carried out a qualitative internal review of options for reusing the Brae Alpha, Central Brae, West Brae, and Sedgwick facilities as producing assets and concluded that due to the age of the process technology, and the high cost of maintaining the fabric and structural integrity of the platform, there are no technically viable reuse options.

Alternate uses for the Brae Alpha facilities for electricity generation using wind, wave, or tidal energy were also considered but none of these alternative use options is considered economically viable. The reuse of the Brae Alpha, Central Brae, West Brae and Sedgwick facilities and infrastructure was considered for carbon capture and storage. The installations were found to be unsuitable for this purpose. Marathon Oil, the Brae Operator at that time, discussed and agreed this conclusion with the Oil and Gas Authority (OGA) (now the NSTA).

TAQA will seek to reuse individual items of equipment where practicable. The majority of the balance of the materials and components that make up the Brae Alpha, Central Brae, West Brae, and Sedgwick facilities will be recycled. For example, a significant proportion of the material making up the facilities is steel, which will be recovered and recycled. The materials remaining after reuse and recycling will be disposed of appropriately in accordance with TAQA policies and the project Active Waste management Plan, environmental and health and safety expectations, and relevant regulatory requirements.

It is unlikely that significant volumes of recovered material will be landed onshore before 2027. TAQA will track reuse market trends to exploit reuse opportunities as they arise at the appropriate time.

3.1 Installations

3.1.1 Brae Alpha Platform Topsides

The Brae Alpha topsides are shown in Figure 1-2. They comprise drilling, production and utilities modules arranged in four tiers. The lowest tier of modules (57, 58 and 59), make up the Module Support Frame (MSF). The diving module (45) is also at this lowest level. The MSF forms the interface between the platform's jacket and the other topsides modules. The second tier of modules (01 to 08) consists of the wellheads, production facilities, utilities, and flare structures. The third tier of modules (12 to 16) comprises the rig-skidding module, gas compression, switchgear, and the lower accommodation. The fourth tier of modules (23 to 26, and 32) is made up of the drilling rig, drilling utilities, power generation, and the upper accommodation. The fourth tier also supports the Additional Living Quarters (ALQ) (module 28), the helideck (module 35), and the refrigeration facilities (module 65). The topsides' plan dimensions are approximately 65m by 45m. Modules 11and 31, the West drilling rig and associated skid base, were removed from the platform in 2022, under a separate Decommissioning Programme [9].

Experience from previous projects and studies completed in support of Brae Area decommissioning, indicate that there are several technically feasible options for removal of the Brae Alpha topsides. The removal options include Piece Small removal and Piece Medium removal, which are proven techniques. Single lift is also considered to be a technically feasible technique that may be used by TAQA for removal of the Brae Alpha topsides. TAQA will decide on the technique, or combination of techniques, to be used in consultation with removal contractors taking account of safety,

environmental, technical, socio-economic, and cost factors. TAQA will continue to consult with stakeholders during the decision-making process.

The Consent to Locate for the Brae Alpha platform will be modified following topsides removal. The modified Consent to Locate will remain in place until final decommissioning of the installation, which will occur when the platform Upper Jacket and Footings are removed, or when derogation is granted for the Footings to be decommissioned in situ.

The Brae Alpha topsides will be returned to shore for reuse, recycling, or disposal. TAQA will select recycling and disposal facilities appropriately, considering safety, environmental, socio-economic, availability and cost factors. United Kingdom, European and international facilities will be considered in this selection process.

Some of the topsides equipment, such as rotating equipment, safety equipment and some electrical or electronic equipment may be suitable for reuse or recycling. Other equipment such as structural steel, steel process vessels and piping, and electrical cables may only be suitable for recycling, and there are some components and materials that are only suitable for disposal, including NORM and other hazardous wastes. TAQA will dispose of these wastes appropriately and in accordance with the relevant regulatory requirements. If a dismantling yard outside the UK is selected, TAQA will comply with the trans-frontier waste regulatory regime pertaining at that time. Notwithstanding, TAQA will inform OPRED of the selected removal method and disposal route.

Table 3.1 lists the methods that will be used to clean the Brae Alpha topsides and Table 3.2 lists the methods considered for topsides removal.

Table 3.1: Brae Alpha Topsides Cleaning Methods

Waste Type	Composition of Waste	Disposal Route
On-board hydrocarbons	Process fluids, diesel, and lubricants	Equipment will be drained, flushed, and cleaned, and the residual effluent will be transported onshore for appropriate reuse, recycling, or disposal.
Production and drilling chemicals	Proprietary preparations and bulk chemicals	Equipment will be drained, flushed, and cleaned, and the residual effluent will be transported onshore for appropriate reuse, recycling, or disposal.
Structural and equipment paint coat	Paints may include hazardous components, e.g., isocyanates	Paint may give off toxic fumes or dust during flame-cutting, abrasive blasting or mechanical cutting. This hazard will be managed by sampling and safe systems of work as appropriate. Paint and coatings will be transported onshore for appropriate licensed disposal.
Other hazardous materials	NORM, mercury, radioactive sources in instrumentation, heavy metals, batteries, Asbestos, and ceramic fibres, etc.	This hazard will be managed by sampling and safe systems of work as appropriate. Equipment will be made safe and transported onshore for appropriate licensed reuse, recycling, or disposal.

Table 3.1: Brae Alpha Topsides Cleaning Methods		
Waste Type	**Composition of Waste**	**Disposal Route**
Seals, gaskets, and insulation	Rubber and polymer[11].	Equipment will be made safe and transported onshore for appropriate licensed recycling or disposal.

Table 3.2: Brae Alpha Topsides Removal Methods	
Topsides Removal Methods	
1) HLV Cut and Lift	✓
2) Monohull crane vessel[12]	
3) Single Lift Vessel (SLV)	✓
4) Piece Small	✓
5) Other	A Hybrid option (combination of *Piece Small* and *Cut and Lift)* is feasible, and for the purpose of Brae Alpha topsides decommissioning is considered captured within the *Cut and Lift* and *Piece Small* methods.
Method	**Description**
Single lift removal by SLV	Removal of the topsides in one unit by an SLV. In this case, the topsides will be taken to a suitable onshore decommissioning facility to be broken up for reuse, recycling, or disposal.
HLV Cut and Lift	Removal of the topsides in several large modules, e.g., the drilling derrick helideck, compression modules, etc. These modules will then be taken to an onshore decommissioning facility to be broken up for reuse, recycling, or disposal.

3.1.2 Subsea Installations and Stabilisation / Protection Features Decommissioning Options and Disposal Routes

The decommissioning options and disposal routes for the subsea installations that are in the scope of the Central Brae, West Brae and Sedgwick Decommissioning Programmes are listed in Table 3.5. All the subsea installations will be removed to shore for reuse recycling or disposal.

[11] *Any seals, gaskets, or insulation potentially containing asbestos or ceramic fibre will be treated as "Other Hazardous Material."*
[12] *The HLV Cut and Lift evaluation has assumed a semi-sub type lift vessel as data exists for the installation of the platforms with such a vessel, and this is the type of vessel that would be used.*

Table 3.3: Subsea Installations and Stabilisation Features Decommissioning Options & Disposal Routes			
Subsea Installations and stabilisation features	**Number**	**Option**	**Disposal Route**
Well with over-trawlable protections	8[13]	Remove	Return to shore for reuse, recycling, or disposal.
Manifolds	2	Remove	The West Brae and West Brae extension manifolds will be removed and returned to shore for reuse, recycling, or disposal. The foundation piles will be cut approximately 3 m below the seabed and removed with the manifolds.
Templates	1	Remove	The Central Brae template will be removed and returned to shore for reuse, recycling, or disposal, including the six integrated wellheads. Detailed engineering will define the method of removal. The template is secured to the seabed by foundation piles and cement grout. The foundation piles will be cut approximately 3 m below the seabed and removed with the template. This may result in a substantial cavity in the seabed. Consequently, seabed remediation may be required, i.e. back filling with imported rock, or redundant mattresses with a cap layer of imported rock.
SDU Protection Structure	1	Remove	The Sedgwick SDU protection structure will be returned to shore for reuse, recycling, or disposal.
West Brae Anode Skids	12	Remove	Return to shore for reuse, recycling, or disposal.
Mattresses	28	Reuse, Recycle or Remove	Mattresses associated with West Brae and Sedgwick installations may be reused to profile and stabilise features, such as cut ends of pipelines or recycled to remediate the seabed at Central Brae. Mattresses that cannot be reused or recycled offshore will be removed to shore for reuse, recycling, or appropriate disposal.

3.2 Pipelines and Pipeline Structures

The decommissioning options considered for the Central Brae, West Brae and Sedgwick pipelines, umbilicals, and associated structures are listed in Table 3.3. The CA for pipelines considered complete removal as the base case. However, the CA concluded that options 1 and 2, removal by reverse reeling and removal by reverse S-lay, were not feasible. The CA identified 'Piece Small' (also known as 'Cut and Lift') as the complete removal option. This option consists of cutting the line into small sections in place and removal of the resulting pieces by a construction vessel working with divers, ROVs or both. In Table 3.3 this option is recorded under '*10) Other*'. The pipelines and umbilicals will be flushed as far as practicable prior to removal.

Pipeline structures may be removed piece small or may be removed in a single piece.

[13] This total is made up of eight West Brae wellheads, seven of which support over-trawlable Xmas trees, and the Sedgwick production wellhead, which also supports an over-trawlable Xmas tree. The two Central Brae wellheads located within the Central Brae template footprint are not treated as installations in their own right.

Table 3.4: Pipelines & Pipeline Structures Decommissioning Options			
Key to Decommissioning Options Considered			
1) Remove Reverse Reeling	2)Remove – Reverse S lay	3)Trench and Bury	4) Rock Dump
5)Partial Removal	6)Leave in Place	7) Remedial Trenching	8) Remedial Removal
9) Remedial Rock Dump	10) Other		

Pipeline or Pipeline Group	Condition of Line or Group	Whole or Part of Pipeline Group	Decommissioning Options Considered
PL634 Brae Alpha to Central Brae water injection line	Part trenched and buried, part surface-laid, part surface-laid with rock cover	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL635 Brae Alpha to Central Brae service line	Part trenched and buried, part surface-laid, part surface-laid with protective structures, part surface-laid rock covered	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL636 Central Brae to Brae Alpha Production Flowline	Part trenched and buried with rock cover, part surface-laid with rock cover, part surface-laid with protective structures, part surface-laid	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL637 Brae Alpha to Central Brae chemical umbilical	Part trenched and buried, part surface-laid mattress protected, part surface-laid rock covered	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL1441.1 West Brae to Brae Alpha Production Flowline	Part trenched and buried, part surface-laid mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL1441.2 West Brae Production Jumper from W8z	Surface-laid, mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL1441.3 West Brae Production Jumper from W12y	Surface-laid, mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal

Table 3.4: Pipelines & Pipeline Structures Decommissioning Options			
Key to Decommissioning Options Considered			
1) Remove Reverse Reeling	2)Remove – Reverse S lay	3)Trench and Bury	4) Rock Dump
5)Partial Removal	6)Leave in Place	7) Remedial Trenching	8) Remedial Removal
9) Remedial Rock Dump	10) Other		

Pipeline or Pipeline Group	Condition of Line or Group	Whole or Part of Pipeline Group	Decommissioning Options Considered
PL1441.4 West Brae Production Jumper from W3	Surface-laid, mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL1441.5 West Brae Production Jumper from W7z/W10y	Surface-laid, mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL1441.6 West Brae Production Jumper from W9x	Surface-laid, mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL1442.1 Brae Alpha to West Brae Gas Lift flowline	Part trenched and buried, part surface-laid mattress protected, part surface-laid rock covered	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL1442.1 Pipeline T	Surface-laid mattress protected	Part	4, 6, & 10 – Piece Small removal
PL1442.2 West Brae Gas Lift jumper to W7z/W10y	Surface-laid, mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL1442.4 West Brae Gas Lift jumper to W9x	Surface-laid, mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL1442.5 West Brae Gas Lift jumper to W10y	Surface-laid, mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL1442.6 West Brae Gas Lift jumper to W3	Surface-laid, mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal

Table 3.4: Pipelines & Pipeline Structures Decommissioning Options			
Key to Decommissioning Options Considered			
1) Remove Reverse Reeling	2)Remove – Reverse S lay	3)Trench and Bury	4) Rock Dump
5)Partial Removal	6)Leave in Place	7) Remedial Trenching	8) Remedial Removal
9) Remedial Rock Dump	10) Other		

Pipeline or Pipeline Group	Condition of Line or Group	Whole or Part of Pipeline Group	Decommissioning Options Considered
PL1442.7 West Brae Gas Lift jumper to W12y	Surface-laid, mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL1442.8 West Brae Gas Lift jumper to W8z	Surface-laid, mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL1443.1 Central Brae to West Brae water injection flowline	Part trenched and buried, part surface-laid mattress protected, part surface-laid rock covered	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL1443.3 Water injection jumper at West Brae to W10y	Surface-laid, mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL1444.1 Central Brae to West Brae service line	Part trenched and buried, part surface-laid mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL1445 Brae Alpha to base of West Brae Production Riser gas lift	Mounted on Brae Alpha platform sub-structure	Whole	5, & 6
PLU1446 Chemical Umbilical from Brae Alpha to West Brae	Part trenched and buried, part surface-laid mattress protected, part surface-laid rock covered	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PLU1446.12 & PLU1446.15 West Brae Manifold to W8z chemical jumper	Surface-laid mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal

Table 3.4: Pipelines & Pipeline Structures Decommissioning Options			
Key to Decommissioning Options Considered			
1) Remove Reverse Reeling	2)Remove – Reverse S lay	3)Trench and Bury	4) Rock Dump
5)Partial Removal	6)Leave in Place	7) Remedial Trenching	8) Remedial Removal
9) Remedial Rock Dump	10) Other		

Pipeline or Pipeline Group	Condition of Line or Group	Whole or Part of Pipeline Group	Decommissioning Options Considered
PLU1446.13 & PLU1446.16 West Brae Manifold to W12y chemical jumper	Surface-laid mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PLU1446.14 & PLU1446.17 West Brae Manifold to W3 chemical jumper	Surface-laid mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PLU1446JV1 West Brae to Sedgwick chemical/control umbilical	Part trenched and buried, part surface-laid mattress protected, part surface-laid rock covered	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PLU1446JV1 SDU & protection structure	Surface-laid mattress protected	Part	4, 6, & 10 – Piece Small removal
PL1447 Sedgwick to West Brae Production Flowline	Part trenched and buried, part surface-laid mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL1448 West Brae to Sedgwick gas lift flowline	Part trenched and buried, part surface-laid mattress protected, part surface-laid rock covered	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PLU3798 West Brae chemical jumper to W9x	Surface-laid mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PLU3799 West Brae chemical jumper to W7z	Surface-laid mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PLU3800 West Brae chemical jumper to W9x	Surface-laid mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal

Table 3.4: Pipelines & Pipeline Structures Decommissioning Options			
Key to Decommissioning Options Considered			
1) Remove Reverse Reeling	2)Remove – Reverse S lay	3)Trench and Bury	4) Rock Dump
5)Partial Removal	6)Leave in Place	7) Remedial Trenching	8) Remedial Removal
9) Remedial Rock Dump	10) Other		

Pipeline or Pipeline Group	Condition of Line or Group	Whole or Part of Pipeline Group	Decommissioning Options Considered
PLU3801 West Brae chemical jumper to W10y	Surface-laid mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PLU3802 West Brae chemical jumper to W10y	Surface-laid mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL3806 West Brae Manifold to W11 Production Jumper	Surface-laid mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL3809 West Brae manifold to W11 Gas Lift Jumper	Surface-laid mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PLU3811 West Brae manifold to W7z chemical jumper	Surface-laid mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PLU3813 West Brae manifold to W11 chemical jumper	Surface-laid mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PLU4031 Brae Alpha to West Brae and Sedgwick electrical umbilical	Part surface-laid/mattress protected, part trenched and buried	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PLU4131 & PLU4132 West Brae manifold to W7 Electrical Flying Leads	Surface-laid mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PLU4133 & PLU4134 West Brae manifold to W8 Electrical Flying Leads	Surface-laid mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal

Table 3.4: Pipelines & Pipeline Structures Decommissioning Options			
Key to Decommissioning Options Considered			
1) Remove Reverse Reeling	2)Remove – Reverse S lay	3)Trench and Bury	4) Rock Dump
5)Partial Removal	6)Leave in Place	7) Remedial Trenching	8) Remedial Removal
9) Remedial Rock Dump	10) Other		

Pipeline or Pipeline Group	Condition of Line or Group	Whole or Part of Pipeline Group	Decommissioning Options Considered
PLU4135 & PLU4136 West Brae manifold to W9 Electrical Flying Leads	Surface-laid mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PLU4137 & PLU4138 West Brae manifold to W12 Electrical Flying Leads	Surface-laid mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL4242 W7z to West Brae Extension Manifold Production Jumper	Surface-laid mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL4243 W10y to West Brae Extension Manifold Production Jumper	Surface-laid mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL4244 West Brae Extension Manifold to West Brae Manifold Test Production Jumper	Surface-laid mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL4245 West Brae Extension Manifold to W7z Gas Lift Jumper	Surface-laid mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL4246 West Brae Extension Manifold to W10y Gas Lift Jumper	Surface-laid mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL4247 West Brae Extension Manifold to W12y Gas Lift Jumper	Surface-laid mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PLU4248 W7z to West Brae Extension Manifold Control Jumper	Surface-laid mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal

Table 3.4: Pipelines & Pipeline Structures Decommissioning Options			
Key to Decommissioning Options Considered			
1) Remove Reverse Reeling	2)Remove – Reverse S lay	3)Trench and Bury	4) Rock Dump
5)Partial Removal	6)Leave in Place	7) Remedial Trenching	8) Remedial Removal
9) Remedial Rock Dump	10) Other		

Pipeline or Pipeline Group	Condition of Line or Group	Whole or Part of Pipeline Group	Decommissioning Options Considered
PLU4249 W10y to West Brae Extension Manifold Control Jumper	Surface-laid mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PLU4250 West Brae Manifold to West Brae Extension Manifold Hydraulic Umbilical	Surface-laid mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL4545 WPOZ (well 16/06a-V2) Production Flowline	Surface-laid part rock covered, part mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL4546 WPOZ (well 16/06a-V2) gas lift flowline	Surface-laid part rock covered, part mattress protected	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PL6188 Central Brae to Brae Alpha Production pipeline	Part trenched and buried with rock cover, part surface-laid with rock cover, part surface-laid with protective structures, part surface-laid	Whole	3, 4, 5, 6, & 10 – Piece Small removal
PLU6190 Brae Alpha to Central Brae control umbilical	Part trenched and buried, part surface-laid mattress protected, part surface-laid rock covered	Whole	3, 4, 5, 6, & 10 – Piece Small removal

3.2.1 Comparative Assessment Method

The Brae Operator adopted a CA method that grouped the different parts of pipelines and umbilicals into segments, i.e., parts of lines with similar attributes [5]. For example, surface-laid lines were grouped together, as were trenched lines. This process resulted in a tool kit, or set of templates, which defines how TAQA will manage the subsea assets in the Brae Area. The methodology aligns with BEIS and industry guidance for comparative assessment [10]. Where subsea facilities are not covered by the tool kit, the Brae Operator conducted specific comparative assessments. The Central Brae facilities are an example of this due to the technical challenges and safety concerns associated with decommissioning these facilities.

3.2.2 Outcome of Comparative Assessment

The outcome of the Comparative Assessment is summarised in Table 3.4.

Table 3.5: Pipelines Outcome of Comparative Assessment

Pipeline or Pipeline Group	Recommended Option	Justification
PL634 Brae Alpha to Central Brae Template Water Injection Pipeline	**Partial removal, partial leave in place.** **Surface Laid Section of Pipeline at Brae Alpha** Remove the surface-laid line from Brae Alpha to the trench transition. Return the removed portion to shore for recycling or disposal. If derogation to leave the Brae Alpha footings in place is granted, remove the surface laid line that is not in close proximity to the platform footings. A short section of surface laid line terminating within the Brae Alpha footings will be left in place. If derogation for the Brae Alpha platform footings is not granted, then the surface laid sections of lines in close proximity to the footings will be removed to shore for recycling or disposal as appropriate. **Surface Laid Section of Pipeline at Central Brae** Remove the surface-laid line at the Central Brae template and return the removed material to shore for recycling or disposal. **Trenched Section of Pipeline** Leave the trenched portion of the line in place.	Removing the surface-laid line at Brae Alpha and Central Brae reduces the snagging risk for fishing vessels' crews. Risk assessment shows that if derogation for the Brae Alpha footings is granted, the surface laid pipelines in close proximity to the footings, should be left in place. This is because the risk incurred by decommissioning personnel in removing this equipment is assessed as greater than the long-term snagging risk to fishing vessels' crews. Leaving this portion of the line in place also minimises disturbance of the seabed and drill cuttings pile. Leaving the trenched portion of the line in place minimises disturbance of the environment, risks to decommissioning personnel and consumption of resources.

Table 3.5: Pipelines Outcome of Comparative Assessment		
Pipeline or Pipeline Group	**Recommended Option**	**Justification**
PL635 Brae Alpha to Central Brae Template Service Pipeline	**Partial removal, partial leave in place**. **Surface Laid Section of Pipeline at Brae Alpha** Remove the surface-laid line from Brae Alpha to the trench transition. Return the removed portion to shore for recycling or disposal. If derogation to leave the Brae Alpha footings in place is granted, remove the surface laid line that is not in close proximity to the platform footings. A short section of surface laid line terminating within the Brae Alpha footings will be left in place. If derogation for the Brae Alpha platform footings is not granted, then the surface laid sections of lines in close proximity to the footings will be removed to shore for recycling or disposal as appropriate. **Surface Laid Section of Pipeline at Central Brae** Remove the surface-laid line at the Central Brae template and return the removed material to shore for recycling or disposal. **Trenched Section of Pipeline** Leave the trenched portion of the line in place.	Removing the surface-laid line at Brae Alpha and Central Brae reduces the snagging risk for fishing vessels' crews. Risk assessment shows that if derogation for the Brae Alpha footings is granted, the surface laid pipelines in close proximity to the footings, should be left in place. This is because the risk incurred by decommissioning personnel in removing this equipment is assessed as greater than the long-term snagging risk to fishing vessels' crews. Leaving this portion of the line in place also minimises disturbance of the seabed and drill cuttings pile. Leaving the trenched portion of the line in place minimises disturbance of the environment, risk to decommissioning personnel and consumption of resources.

Table 3.5: Pipelines Outcome of Comparative Assessment		
Pipeline or Pipeline Group	**Recommended Option**	**Justification**
PL6188 Central Brae Template to Brae Alpha production flowline	**Partial removal, partial leave in place**. **Surface Laid Section of Pipeline at Brae Alpha:** Remove the surface-laid line from Brae Alpha to the trench transition. Return the removed portion to shore for recycling or disposal. If derogation to leave the Brae Alpha footings in place is granted, remove the surface laid line that is not in close proximity to the platform footings. A short section of surface laid line terminating within the Brae Alpha footings will be left in place. If derogation for the Brae Alpha platform footings is not granted, then the surface laid sections of lines in close proximity to the footings will be removed to shore for recycling or disposal as appropriate. **Surface Laid Section of Pipeline at Central Brae** Remove the surface-laid line at the Central Brae template and return the removed material to shore for recycling or disposal. **Trenched Section of Pipeline** Leave the trenched portion of the line in place.	Removing the surface-laid line at Brae Alpha and Central Brae reduces the snagging risk for fishing vessels' crews. Risk assessment shows that if derogation for the Brae Alpha footings is granted, the surface laid pipelines in close proximity to the footings, should be left in place. This is because the risk incurred by decommissioning personnel in removing this equipment is assessed as greater than the long-term snagging risk to fishing vessels' crews. Leaving this portion of the line in place also minimises disturbance of the seabed and drill cuttings pile. Leaving the trenched portion of the line in place minimises disturbance of the environment, risk to decommissioning personnel and consumption of resources.

Table 3.5: Pipelines Outcome of Comparative Assessment		
Pipeline or Pipeline Group	**Recommended Option**	**Justification**
PL636 Central Brae Template to Brae Alpha Production Pipeline	**Partial removal, partial leave in place**. **Surface Laid Section of Pipeline at Brae Alpha** Remove the surface-laid line from Brae Alpha to the trench transition. Return the removed portion to shore for recycling or disposal. If derogation to leave the Brae Alpha footings in place is granted, remove the surface laid line that is not in close proximity to the platform footings. A short section of surface laid line terminating within the Brae Alpha footings will be left in place. If derogation for the Brae Alpha platform footings is not granted, then the surface laid sections of lines in close proximity to the footings will be removed to shore for recycling or disposal as appropriate. **Surface Laid Section of Pipeline at Central Brae** Remove the surface-laid line at the Central Brae template and return the removed material to shore for recycling or disposal. **Trenched Section of Pipeline** Leave the trenched portion of the line in place.	Removing the surface-laid line at Brae Alpha and Central Brae reduces the snagging risk for fishing vessels' crews. Risk assessment shows that if derogation for the Brae Alpha footings is granted, the surface laid pipelines in close proximity to the footings, should be left in place. This is because the risk incurred by decommissioning personnel in removing this equipment is assessed as greater than the long-term snagging risk to fishing vessels' crews. Leaving this portion of the line in place also minimises disturbance of the seabed and drill cuttings pile. Leaving the trenched portion of the line in place minimises disturbance of the environment, risk to decommissioning personnel and consumption of resources.

Table 3.5: Pipelines Outcome of Comparative Assessment		
Pipeline or Pipeline Group	**Recommended Option**	**Justification**
PL637 Brae Alpha to Central Brae Template Chemical Umbilical	**Partial removal, partial leave in place**. **Surface Laid Section of Pipeline at Brae Alpha** Remove the surface-laid line from Brae Alpha to the trench transition. Return the removed portion to shore for recycling or disposal. If derogation to leave the Brae Alpha footings in place is granted, remove the surface laid line that is not in close proximity to the platform footings. A short section of surface laid line terminating within the Brae Alpha footings will be left in place. If derogation for the Brae Alpha platform footings is not granted, then the surface laid sections of lines in close proximity to the footings will be removed to shore for recycling or disposal as appropriate. **Surface Laid Section of Pipeline at Central Brae** Remove the surface-laid line and protective mattresses at the Central Brae template and return the removed material to shore for recycling or disposal. **Trenched Section of Pipeline** Leave the remaining trenched portion of the line in place.	Removing the surface-laid line at Brae Alpha and Central Brae and the protective mattresses at Central Brae reduces the snagging risk for fishing vessels' crews. Risk assessment shows that if derogation for the Brae Alpha footings is granted, the surface laid pipelines in close proximity to the Brae Alpha footings, should be left in place. This is because the risk incurred by decommissioning personnel in removing this equipment is assessed as greater than the long-term snagging risk to fishing vessels' crews [5]. Leaving this portion of the line in place also minimises disturbance of the seabed and drill cuttings pile. Leaving the trenched portion of the line in place minimises disturbance of the environment, risk to decommissioning personnel and consumption of resources.

Table 3.5: Pipelines Outcome of Comparative Assessment		
Pipeline or Pipeline Group	**Recommended Option**	**Justification**
PLU6190 Brae Alpha to Central Brae Template Control Umbilical	**Partial removal, partial leave in place**. **Surface Laid Section of Umbilical at Brae Alpha** Remove the surface-laid line from Brae Alpha to the trench transition. Return the removed portion to shore for recycling or disposal. If derogation to leave the Brae Alpha footings in place is granted, remove the surface laid line that is not in close proximity to the platform footings. A short section of surface laid line terminating within the Brae Alpha footings will be left in place. If derogation for the Brae Alpha platform footings is not granted, then the surface laid sections of lines in close proximity to the footings will be removed to shore for recycling or disposal as appropriate. **Surface Laid Section of Umbilical at Central Brae** Remove the surface-laid line and protective mattresses at the Central Brae template and return the removed material to shore for recycling or disposal. **Trenched Section of Umbilical** Leave the trenched portion of the line in place.	Removing the surface-laid line at Brae Alpha and Central Brae and the protective mattresses at Central Brae reduces the snagging risk for fishing vessels' crews. Risk assessment shows that if derogation for the Brae Alpha footings is granted, the surface laid pipelines in close proximity to the footings, should be left in place. This is because the risk incurred by decommissioning personnel in removing this equipment is assessed as greater than the long-term snagging risk to fishing vessels' crews. Leaving this portion of the line in place also minimises disturbance of the seabed and drill cuttings pile. Leaving the trenched portion of the line in place minimises disturbance of the environment, risk to decommissioning personnel and consumption of resources.

Table 3.5: Pipelines Outcome of Comparative Assessment		
Pipeline or Pipeline Group	**Recommended Option**	**Justification**
PL1441.1 West Brae to Brae Alpha Production Pipeline	**Partial removal, partial leave in place**. **Surface Laid Section of Pipeline at West Brae Manifold** Remove the mattress protected surface-laid pipeline at the West Brae manifold and return the removed material to shore for recycling or disposal. **Surface Laid Section of Pipeline at Brae Alpha** Remove the surface-laid line from Brae Alpha to the trench transition. Return the removed portion to shore for recycling or disposal. If derogation to leave the Brae Alpha footings in place is granted, remove the surface laid line that is not in close proximity to the platform footings. A short section of surface laid line terminating within the Brae Alpha footings will be left in place. If derogation for the Brae Alpha platform footings is not granted, then the surface laid sections of lines in close proximity to the footings will be removed to shore for recycling or disposal as appropriate. **Trenched Section of Pipeline** Leave the remaining trenched portion of the flowline in place.	Removing the surface-laid flowline at West Brae, and the mattresses that protect this portion of the pipeline reduces the snagging risk for fishing vessels' crews. Similarly, removing the surface laid line at Brae Alpha reduces the snagging risk for fishing vessels' crews. Risk assessment shows that if derogation for the Brae Alpha footings is granted, the surface laid pipelines in close proximity to the footings, should be left in place. This is because the risk incurred by decommissioning personnel in removing this equipment is assessed as greater than the long-term snagging risk to fishing vessels' crews. Leaving this portion of the line in place also minimises disturbance of the seabed and drill cuttings pile. Leaving the trenched portion of the line in place minimises disturbance of the environment, risk to decommissioning personnel and consumption of resources.
PL1441.2, PL1441.3, PL1441.4, PL1441.5, PL1441.6, Production Jumpers from West Brae Wells W8z, W12y, W3, W7z, & W9x respectively to West Brae Manifold	**Remove to shore.**	Removing the jumpers leaves the seabed clear for other sea users.

Table 3.5: Pipelines Outcome of Comparative Assessment		
Pipeline or Pipeline Group	**Recommended Option**	**Justification**
PL1442.1 Brae Alpha to West Brae Manifold Gas Lift Pipeline	**Partial removal, partial leave in place**. **Surface Laid Section of Pipeline at West Brae Manifold** Remove the mattress protected surface-laid pipeline at the West Brae manifold and return the removed material to shore for recycling or disposal. **Surface Laid Section of Pipeline at Brae Alpha** Remove the surface-laid line from Brae Alpha to the trench transition. Return the removed portion to shore for recycling or disposal. If derogation to leave the Brae Alpha footings in place is granted, remove the surface laid line that is not in close proximity to the platform footings. A short section of surface laid line terminating within the Brae Alpha footings will be left in place. If derogation for the Brae Alpha platform footings is not granted, then the surface laid sections of lines in close proximity to the footings will be removed to shore for recycling or disposal as appropriate. **Trenched Section of Pipeline** Leave the remaining trenched portion of the pipeline in place.	Removing the surface-laid pipeline at West Brae, and the mattresses that protect this portion of the pipeline reduces the snagging risk for fishing vessels' crews. Risk assessment shows that if derogation for the Brae Alpha footings is granted, the surface laid pipelines in close proximity to the footings, should be left in place. This is because the risk incurred by decommissioning personnel in removing this equipment is assessed as greater than the long-term snagging risk to fishing vessels' crews [5]. Leaving this portion of the line in place also minimises disturbance of the seabed and drill cuttings pile. Leaving the trenched portion of the line in place minimises disturbance of the environment, risk to decommissioning personnel and consumption of resources.
PL1442.2, PL1442.4, PL1442.5, PL1442.6, PL1442.7, PL1442.8 Gas Lift Jumpers from West Brae Manifold to Wells W7z, W9x, W10y, W3, W12y, W8z, respectively.	**Remove jumpers.**	Removing the jumpers leaves the seabed clear for other sea users.

Table 3.5: Pipelines Outcome of Comparative Assessment		
Pipeline or Pipeline Group	**Recommended Option**	**Justification**
PL1443.1 Central Brae Template to West Brae Manifold Water Injection Flowline	**Partial removal, partial leave in place.** **Surface Laid Section of Pipeline at Central Brae Template** Remove the mattress protected surface-laid line at the Central Brae template and return the removed material to shore for recycling or disposal. **Surface Laid Section of Pipeline at West Brae Manifold** Remove the mattress protected surface-laid portion of the line at the West Brae manifold and return the removed material to shore for recycling or disposal. Leave the remaining trenched portion of the line in place.	Removing the surface-laid portions of the line at Central Brae and West Brae, and the mattresses that protect these portions of the lines reduces the snagging hazard for fishing vessels' crews. Leaving the trenched portion of the line in place minimises disturbance of the environment, risk to decommissioning personnel and consumption of resources.
PL1443.3 Water Injection Jumper from West Brae Manifold to Well W10y	**Surface Laid Jumper** Remove the surface laid jumper from West Brae to Well W10y.	Removing the jumper leaves the seabed clear for other sea users.
PL1444.1 Central Brae Template to West Brae Manifold Service Line	**Partial removal, partial leave in place.** **Surface Laid Section of Pipeline at Central Brae Template** Remove the mattress protected surface-laid line at the Central Brae template and return the removed material to shore for recycling or disposal. **Surface Laid Section of Pipeline at West Brae Manifold** Remove the mattress protected surface-laid portion of the line at the West Brae manifold and return the removed material to shore for recycling or disposal. **Trenched Section of Pipeline** Leave the remaining trenched portion of the line in place.	Removing the surface-laid portions of the line at Central Brae and West Brae, and the mattresses that protect these portions of the lines reduces the snagging hazard for fishing vessels' crews. Leaving the trenched portion of the line in place minimises disturbance of the environment, risk to decommissioning personnel and consumption of resources.

Table 3.5: Pipelines Outcome of Comparative Assessment		
Pipeline or Pipeline Group	**Recommended Option**	**Justification**
PL1445 Brae Alpha Topsides to base of West Brae Production Riser Gas Lift Line	**Surface Laid Section of Pipeline at Brae Alpha.** Remove this line. Return the removed portion to shore for recycling or disposal. The majority of the line will be removed with the Brae Alpha topsides and Upper Jacket. If derogation to leave the Brae Alpha footings in place is granted, leave the part of the line adjacent to the footings in place with the footings. If derogation for the Brae Alpha platform footings is not granted, then the surface laid sections of lines in close proximity to the footings will be removed to shore for recycling or disposal as appropriate.	PL1445 runs from the Brae Alpha topsides to PL1441.1 at the base of the jacket. Risk assessment concluded that if derogation is granted to leave the Brae Alpha footings in place, lines in close proximity to the Brae Alpha footings, should be left in place. This is because the risk incurred by decommissioning personnel in removing this equipment is assessed as greater than the long-term snagging risk to fishing vessels' crews.
PLU1446 Control/ Chemical Umbilical from Brae Alpha to West Brae Manifold	**Partial removal, partial leave in place**. **Surface Laid Section of Pipeline at West Brae Manifold** Remove the mattress protected surface-laid umbilical at the West Brae manifold and return the removed material to shore for recycling or disposal. **Surface Laid Section of Pipeline at Brae Alpha** Remove the surface-laid umbilical and protective mattresses between Brae Alpha and the trench transition. Return the removed portion of the line and mattresses to shore for recycling or disposal. If derogation to leave the Brae Alpha footings in place is granted, remove the surface laid line and mattresses that are not in close proximity to the platform footings. A short section of surface laid line terminating within the Brae Alpha footings will be left in place. If derogation for the Brae Alpha platform footings is not granted, then the surface laid sections of lines in close proximity to the footings will be removed to shore for recycling or disposal as appropriate. **Trenched Section of Pipeline** Leave the remaining trenched portion of the umbilical in place.	Removing the surface-laid umbilical at West Brae, and the mattresses that protect this portion of the umbilical reduces risks for fishing vessels' crews. Risk assessment shows that if derogation for the Brae Alpha footings is granted, the surface laid umbilical in close proximity to the footings, should be left in place. This is because the risk incurred by decommissioning personnel in removing this equipment is assessed as greater than the long-term snagging risk to fishing vessels' crews. Leaving this portion of the line in place also minimises disturbance of the seabed and drill cuttings pile. Leaving the trenched portion of the line in place minimises disturbance of the environment, risk to decommissioning personnel and consumption of resources.

Table 3.5: Pipelines Outcome of Comparative Assessment		
Pipeline or Pipeline Group	**Recommended Option**	**Justification**
PLU1446.12 & PLU1446.15, Chemical Jumpers from West Brae Manifold to Well W8z **PLU1446.13 & PLU1446.16, Chemical Jumpers from West Brae Manifold to Well W12y** **PLU1446.14 & PLU1446.17 Chemical Jumpers from West Brae Manifold to Well W3**	**Surface Laid Jumpers.** Remove jumpers and return the removed material to shore for recycling or disposal.	Removing the jumpers leaves the seabed clear for other sea users.
PLU1446JV1 West Brae Manifold to Sedgwick SDU at Well V1 Chemical/Control Umbilical **PL1447 Sedgwick Well V1 to West Brae Manifold Production Flowline** **PL1448 West Brae Manifold to Sedgwick Well V1 Gas Lift Flowline**	**Partial removal, partial leave in place**. **Surface Laid Section of Pipeline at Sedgwick** Remove the mattress protected surface-laid lines at the Sedgwick wellhead and return the removed material to shore for recycling or disposal. **Surface Laid Section of Pipeline at West Brae Manifold** Remove the mattress protected surface-laid lines at the West Brae manifold and return the removed material to shore for recycling or disposal. **Trenched Section of Pipeline** Leave the remaining trenched and rock covered portions of the lines in place.	Removing the surface-laid lines at West Brae and Sedgwick reduces the snagging hazard for fishing vessels' crews. Leaving the trenched portion of the lines in place also minimises disturbance of the seabed and risk to decommissioning personnel.
PLU3798, PLU3799, PLU3800, PLU3801, PLU3802, PLU3811 & PLU3813 Chemical Jumpers from West Brae Manifold to Wells W9x, W7z, W9x, W10y, W10y, W7z, & W11 respectively	**Surface Laid Jumpers.** Remove jumpers and return the removed material to shore for recycling or disposal.	Removing the jumpers leaves the seabed clear at these locations.
PL3806 Well W11 to West Brae Extension Manifold Production Jumper	**Surface Laid Jumper.** Remove jumper and return the removed material to shore for recycling or disposal.	Removing the jumper leaves the seabed clear at this location.

Table 3.5: Pipelines Outcome of Comparative Assessment		
Pipeline or Pipeline Group	**Recommended Option**	**Justification**
PL3809 West Brae Extension Manifold to Well W11 Gas Lift Jumper	**Surface Laid Jumper.** Remove jumper and return the removed material to shore for recycling or disposal.	Removing the jumper leaves the seabed clear at this location.
PLU4031 Electrical Umbilical from Brae Alpha to Sedgwick Well V1 (via West Brae Manifold)	**Partial removal, partial leave in place.** **Surface Laid Section of Umbilical at Brae Alpha** Remove the surface-laid umbilical and protective mattresses between Brae Alpha and the trench transition. Return the removed portion of the line and mattresses to shore for recycling or disposal. If derogation to leave the Brae Alpha footings in place is granted, remove the surface laid line and mattresses that are not in close proximity to the platform footings. A short section of surface laid line terminating within the Brae Alpha footings will be left in place. If derogation for the Brae Alpha platform footings is not granted, then the surface laid sections of lines in close proximity to the footings will be removed to shore for recycling or disposal as appropriate. **Surface Laid Section of Umbilical at West Brae** Remove the mattress protected surface-laid umbilical at the West Brae manifold and return the removed material to shore for recycling or disposal. **Surface Laid Section of Umbilical at Sedgwick** Remove the mattress protected surface-laid umbilical at Sedgwick and return the removed material to shore for recycling or disposal. **Trenched Sections of Umbilical** Leave the remaining trenched and rock covered portions of the line in place.	Removing the surface-laid umbilical at West Brae and Sedgwick, and the mattresses that protect this portion of the umbilical reduces risks for fishing vessels' crews. Risk assessment shows that if derogation for the Brae Alpha footings is granted, the surface laid umbilical in close proximity to the footings, should be left in place. This is because the risk incurred by decommissioning personnel in removing this equipment is assessed as greater than the long-term snagging risk to fishing vessels' crews. Leaving this portion of the line in place also minimises disturbance of the seabed and drill cuttings pile. Leaving the trenched portion of the line in place minimises disturbance of the environment, risk to decommissioning personnel and consumption of resources.

Table 3.5: Pipelines Outcome of Comparative Assessment		
Pipeline or Pipeline Group	**Recommended Option**	**Justification**
PLU4131, PLU4132, Electrical Jumpers from West Brae Manifold to Well W7z **PLU4133, PLU4134, Electrical Jumpers from West Brae Manifold to Well W8z** **PLU4135, PLU4136, Electrical Jumpers from West Brae Manifold to Well W9x** **PLU4137 & PLU4138, Electrical Jumpers from West Brae Manifold to Well W12y**	**Surface Laid Jumpers** Remove jumpers and return the removed material to shore for recycling or disposal.	Removing the jumpers leaves the seabed clear at these locations.
PL4242 & PL4243 Production Jumpers from Well W7z and Well W10y respectively to West Brae Extension Manifold	**Surface Laid Jumpers** Remove jumpers and return the removed material to shore for recycling or disposal.	Removing the jumpers leaves the seabed clear at these locations.
PL4244 Production Test Jumper from West Brae Extension Manifold to West Brae Manifold	**Surface Laid Jumper.** Remove jumper and return the removed material to shore for recycling or disposal.	Removing the jumper leaves the seabed clear at these locations.
PL4245, PL4246, Gas Lift Jumpers from West Brae Extension Manifold to Wells W7z, W10y, respectively	**Surface Laid Jumpers.** Remove jumpers and return the removed material to shore for recycling or disposal.	Removing the jumpers leaves the seabed clear at these locations.
PL4247, Gas Lift Jumper from West Brae Manifold to Well W12y	**Surface Laid Jumpers.** Remove jumpers and return the removed material to shore for recycling or disposal.	Removing the jumpers leaves the seabed clear at these locations.
PLU4248, PLU4249 Control Jumpers from Wells W7z and W10y respectively to West Brae Extension Manifold	**Surface Laid Jumpers.** Remove jumpers and return the removed material to shore for recycling or disposal.	Removing the jumpers leaves the seabed clear at these locations.
PLU4250 Hydraulic Umbilical from West Brae Extension Manifold to West Brae Manifold	**Surface Laid Umbilical.** Remove umbilical and return the removed material to shore for recycling or disposal.	Removing the umbilical leaves the seabed clear at these locations.
PL4545 Production Flowline from Wellhead V2 (16/06a-V2) to West Brae Extension Manifold	**Partial removal, partial leave in place.**	Removing the mattress protection and surface-laid potions of the pipelines at the well and the West Brae manifold

Table 3.5: Pipelines Outcome of Comparative Assessment		
Pipeline or Pipeline Group	**Recommended Option**	**Justification**
PL4546 WPOZ Gas Lift Flowline from West Brae Extension Manifold to Wellhead V2 (16/06a-V2)	**Surface Laid Sections of Pipeline at West Brae Manifold** Remove the mattress protection from the surface laid portion of the pipelines at the manifold, and remove the surface laid portions of the pipelines, and return the removed material to shore for recycling or disposal. **Surface Laid Sections of Pipeline at Well 16/06a-V2** Remove the mattress protection from the surface laid portion of the pipelines at well 16/06a-V2, and remove the surface laid portions of the pipelines, and return the removed material to shore for recycling or disposal **Surface Laid Rock Covered Sections of Pipelines** Leave the remaining rock covered portions of the pipelines in place. Make safe the cut ends of the pipelines.	reduces risks for fishing vessels' crews. Leaving the rock covered portions of the pipelines in place reduces the risk to decommissioning personnel and potential disturbance of the seabed.

3.3 Pipeline Protection and Stabilisation Features

The stabilisation features and proposed decommissioning options and disposal routes are listed in Table 3.5.

Table 3.6: Pipeline Protection and Stabilisation Features Decommissioning and Disposal Options

Protection / Stabilisation Feature	Number	Decommissioning Option	Disposal Route
Concrete Mattresses	669	Remove mattresses and return to shore for recycling or disposal. If derogation to leave the Brae Alpha footings in place is granted, remove the mattresses at Brae Alpha that that are not in close proximity to the platform footings. A number of mattresses in close proximity to the footings may be left in place. Risk assessment has concluded that mattresses that are in close proximity to Brae Alpha footings should be left in place. This is because the risk incurred by decommissioning personnel in removing the mattresses has been assessed as greater than the long-term snagging risk to fishing vessels' crews arising from leaving them in place.	Left in place, reused, or recycled offshore, or returned to shore for recycling or disposal to landfill.
Grout Bags	600	Remove grout bags and return to shore for recycling or disposal. If derogation to leave the Brae Alpha footings in place is granted, remove the grout bags at Brae Alpha that that are not in close proximity to the platform footings. A number of grout bags in close proximity to the footings may be left in place. Risk assessment has concluded that grout bags that are in close proximity to Brae Alpha footings should be left in place. This is because the risk incurred by decommissioning personnel in removing the grout bags has been assessed as greater than the long-term snagging risk to fishing vessels' crews arising from leaving them in place.	Left in place, reused, or recycled offshore, or returned to shore for recycling or disposal to landfill.

Table 3.6: Pipeline Protection and Stabilisation Features Decommissioning and Disposal Options			
Protection / Stabilisation Feature	**Number**	**Decommissioning Option**	**Disposal Route**
Formwork	48	Remove formwork and return to shore for recycling or disposal. If derogation to leave the Brae Alpha footings in place is granted, remove the formwork at Brae Alpha that that is not in close proximity to the platform footings. A number of items of formwork in close proximity to the footings may be left in place. Risk assessment has concluded that formwork that is in close proximity to Brae Alpha footings should be left in place. This is because the risk incurred by decommissioning personnel in removing the formwork has been assessed as greater than the long-term snagging risk to fishing vessels' crews arising from leaving it in place.	Returned to shore for recycling or disposal to landfill, or left in place if it is in close proximity to the Brae Alpha footings and derogation to leave the footings in place is granted.
Insulation Shells	6	Remove half shells and return to shore for recycling or disposal. If derogation to leave the Brae Alpha footings in place is granted, remove the half shells at Brae Alpha that that are not in close proximity to the platform footings. A number of half shells (approximately 50) in close proximity to the footings may be left in place. Risk assessment has concluded that half shells that are in close proximity to Brae Alpha footings should be left in place. This is because the risk incurred by decommissioning personnel in removing the half shells has been assessed as greater than the long-term snagging risk to fishing vessels' crews arising from leaving them in place.	Returned to shore for recycling or disposal to landfill, or left in place if it is in close proximity to the Brae Alpha platform footings and derogation to leave the footings in place is granted.
Half Shells	440	Remove half shells and return to shore for recycling or disposal. If derogation to leave the Brae Alpha footings in place is granted, remove the half shells at Brae Alpha that that are not in close proximity to the platform footings. A number of half shells (approximately 50) in close proximity to the footings may be left in place. Risk assessment has concluded that half shells that are in close proximity to Brae Alpha footings should be left in place. This is because the risk incurred by decommissioning personnel in removing the half shells has been assessed as greater than the long-term snagging risk to fishing vessels' crews arising from leaving them in place.	Returned to shore for recycling or disposal to landfill, or left in place if it is in close proximity to the Brae Alpha platform footings and derogation to leave the footings in place is granted.

Table 3.6: Pipeline Protection and Stabilisation Features Decommissioning and Disposal Options			
Protection / Stabilisation Feature	**Number**	**Decommissioning Option**	**Disposal Route**
Rock Cover	~16km	Leave in Place.	

3.4 Wells

Table 3.7: Brae Alpha, Central Brae, West Brae, and Sedgwick Well Plug and Abandonment
The wells listed in Table 2.5 (see Section 2.4) will be plugged and abandoned in accordance with TAQA Wells Standards with reference to industry guidelines for the suspension and abandonment of wells [8]. Cement plugs will be installed deep in each well to ensure that the reservoir is completely sealed off and that the borehole is isolated from the surface. In the case of subsea wells, the wellbore components and conductors will be removed to an elevation 3 m below the seabed. The scope of the decommissioning programmes in the current document covers removal of the Brae Alpha platform wells to the lowest practicable level at or below the top of the footings that avoids disturbance of the drill cuttings. If derogation to leave the footings in place is granted, the parts of the conductors below the level of the top of the cuttings will remain in place. If derogation to leave the footings in place is not granted, the well components will be removed to a level 3 m below the seabed when the footings are removed. This aspect of well abandonment will be covered in the future Brae Alpha footings DP. Relevant permit applications, for example Well Intervention Applications on the OPRED Portal, will be submitted in support of well plug and abandonment work.

3.5 Waste Streams

The methods for managing the waste streams from the Brae Alpha topsides, Central Brae, West Brae and Sedgwick installations and the associated pipelines, umbilicals and protection and stabilisation features are listed in Table 3.7. The ultimate disposition of the waste materials is described in Table , Table 3.9, and Table 3.10 the proportions of materials that TAQA envisages reusing, recycling or disposing of are given Table 3.11, Table 3.12, and Table 3.13. Onshore cleaning and disposal of equipment will be carried out at appropriately licensed sites, in accordance with relevant legislation. Any activity conducted whilst the platform and subsea installations are in operation, e.g., flushing, will be completed under the current permitting regime. Likely discharges are discussed in Technical Appendix 4.1 of the Environmental Statement [4].

TAQA and the selected decommissioning contractor(s) will address any trans-frontier waste shipments to ensure that the associated issues are appropriately managed.

Table 3.8: Waste Stream Management Methods	
Waste Stream	**Removal and Disposal Method**
Bulk Liquids	As far as possible, bulk hydrocarbon liquids will be removed via the export pipeline from the Brae Alpha platform. The process equipment will be cleaned and flushed to an appropriate standard prior to decommissioning. Discharges offshore will be managed, and risk assessed under the existing permitting regime. Any effluent will be shipped to shore for treatment and disposal in accordance with maritime transportation guidelines. Equipment will be further checked onshore, and any residual contamination will be removed from the equipment prior to its reuse, recycling, or ultimate disposal.
Marine Growth	The disposal of marine growth will depend on the decommissioning option selected and the techniques used. Therefore, marine growth may be disposed of either offshore or onshore. Notwithstanding, marine growth will be disposed of in accordance with relevant regulations and guidelines.
NORM	NORM may be disposed of either offshore or onshore. In either case, disposal will be in accordance with the relevant regulations and guidelines.
Asbestos	Any asbestos that is present on Brae Alpha or in subsea installations or pipelines, will be contained and taken onshore for disposal in accordance with regulations and guidelines.
Wax	Wax is only considered possible in the Central Brae Production Flowlines. Any wax that is returned to shore with sections of pipelines that are removed will be disposed of under marine licence or permit, or via appropriate onshore facilities. An environmental assessment concluded that in the event that wax is present in lines that are decommissioned in situ this does not pose a significant risk to the marine environment.
Other Hazardous Wastes	Where no further options are available for the waste stream the waste will be taken onshore to an appropriately licensed site for recycling, or disposal.
All Waste Handled Onshore	The removal contractor will select appropriately licenced sites. TAQA will ensure that the removal contractor has a proven disposal track record and waste stream management throughout the deconstruction process and demonstrate their ability to deliver innovative recycling options. TAQA will carry out audits on disposal yards to provide assurance that they are compliant with legislation.

Table 3.9: Brae Alpha Topsides Inventory Disposition			
	Total Inventory (tonnes)	**Planned Tonnage to Shore (tonnes)**	**Planned Tonnage Left in Situ (tonnes)**
Installation (Brae Alpha Topsides)	≈ 33,150	≈ 33,150	0

Table 3.10: Subsea Installations Inventory Disposition			
	Total Inventory (tonnes)	**Planned Tonnage to Shore (tonnes)**	**Planned Tonnage Left in Situ (tonnes)**
Subsea Installations	≈ 1,599	≈ 1,599	0

Table 3.11: Pipelines, etc. Inventory Disposition			
	Total Inventory (tonnes)	**Planned Tonnage to Shore (tonnes)**	**Planned Tonnage Left in Situ (tonnes)**
Pipelines	≈ 11,530	≈ 5,770	≈ 5,760

Table 3.12 Brae Alpha Topsides Reuse, Recycling and Disposal of Material Returned to Shore (By Weight)			
	Reuse	**Recycle**	**Disposal**
Installation (Brae Alpha Topsides)	< 10%	85-90%	<5%

Table 3.13: Subsea Installations Reuse, Recycling and Disposal of Material Returned to Shore (By Weight)			
	Reuse	**Recycle**	**Disposal**
Subsea Installations	0	>95%	<5%

Table 3.14: Pipelines Reuse, Recycling and Disposal of Material Returned to Shore (By Weight)			
	Reuse	**Recycle**	**Disposal**
Pipelines	0	≈ 90%[1]	≈ 10%

Note 1. 90% recycling is a target. The bulk of the material returned to shore will be concrete mattresses and other stabilisation materials. TAQA will endeavour to find a recycling route for these materials. However, if a recycling route for the concrete materials cannot be found, this recycling rate may not be achieved.

TAQA's intent is to maximise the reuse and recycling of materials that are returned to shore, and thereby minimise the quantity of material that is disposed of to landfill. Significant volumes of material are unlikely to be returned to shore before 2027. It is not possible to predict the state of the reuse and recycling market at that time, therefore the reuse and recycling rates listed in Table 3.11, Table , and Table 3.13 are provisional estimates subject to confirmation at project close out.

TAQA recognises that there will be large quantities of material returned to shore for reuse, recycling, and disposal. Regardless of ultimate destination, there will be sufficient notice provided to ensure that there is suitable capacity for the processing of landed material (taking cognisance of destination handling capacity and availability) and to allow all applicable regulatory bodies, stakeholders, and contractors to be engaged appropriately.

4 Environmental Impact Assessment

The Brae Operator originally completed an Environmental Impact Assessment (EIA) for decommissioning the Brae Alpha, Central Brae, West Brae and Sedgwick installations and associated pipelines in 2017. TAQA has environmental survey data for the Brae Alpha area from before the platform was installed in 1982 up to the present. However, given the length of time that had elapsed since completion of the original EIA in 2017, TAQA carried out a supplementary Environmental Appraisal in 2024. This considered the reduced scope of work involved in removing the Brae Alpha Topsides, Central Brae, West Brae, and Sedgwick installations in comparison to the entire Brae Alpha and Brae Bravo installations and the associated subsea facilities, changes in data concerning the environment around Brae Alpha, and other relevant factors.
The 2024 Environmental Appraisal considered the following main topics, inter alia;

1. Expansion of the Braemar Pockmarks Special Area of Conservation (SAC) boundaries
2. Application of the Wild Birds Directive to offshore oil and gas operations
3. Findings from recent Brae Area environmental surveys
4. Net Zero considerations
5. Energy use and atmospheric emissions
6. The Scottish Marine Plan
7. Any changes in Commercial Fisheries

The Environmental Appraisal concluded that there have been significant changes in some factors that are relevant to the assessment of the environmental impact of the proposed Brae Alpha Topsides, Central Brae, West Brae, and Sedgwick decommissioning operations. However, these either have no significant bearing on the project, or are adequately addressed by TAQA's existing management measures. The expansion of the Braemar Pockmarks SAC from approximately 5.2 km^2, to 11.4 km^2 is an example of a substantive issue with no significant bearing on the project. The smallest separation between the enlarged SAC and the facilities covered by these decommissioning programmes is approximately 28 km, and the removal of the Brae Alpha Topsides, Central Brae, West Brae, and Sedgwick facilities is very unlikely to impact the SAC in any way. Therefore, there is no substantive change to the conclusions of the Environmental Statement, and no requirement to modify the proposed Brae Alpha Topsides, Central Brae, West Brae, and Sedgwick decommissioning methodology as a consequence of this change. The application of the Wild Birds directive offshore is an example of a change that has an impact on Brae Alpha Topsides, Central Brae, West Brae decommissioning operations. However, this issue has been highlighted by TAQA's other decommissioning projects and therefore TAQA has already implemented a Wild Birds Management strategy to mitigate any potential impact on wild birds.

Overall, the Environmental Appraisal concluded that there is no need to modify the proposed Brae Alpha Topsides, Central Brae, West Brae, and Sedgwick decommissioning methodology in light of changes to environmental data, or changes to the environmental assessment process in the period since 2017.

Prior to commencing decommissioning operations offshore, TAQA will obtain the necessary permissions including those relating to the Marine Licence regime, incorporating any environmental survey and risk assessment requirements. Any necessary mitigation measures identified by the Marine Licence process will be implemented as required.

The environmental sensitivities in the Brae Alpha area, and the impacts of decommissioning operations are listed in Table 4.1 and Table 4.2 respectively.

4.1 Environmental Sensitivities Summary

Table 4.1: Brae Area Environmental Sensitivities Summary	
Environmental Receptor	**Main Features**
Conservation Interests	The Braemar Pockmarks SAC is approximately 35 km from the Brae Alpha platform and 28 km from the closest of the subsea facilities described in this document. A Marine Life Study of the Brae Area infrastructure has not identified the presence of the cold water coral (*Lophelia spp*).
Seabed	The seabed community in the Brae Area is classed as representative of the Central North Sea and is dominated by the bristle worm (*Paramphinone jeffreysii*), with other species such as *Spiophanes bombyx, Galthowenia oculata, Tharyx killariensis* and *Pholoe assimilies* also present.
Fish	Several fish species are present in the Brae Area and use the area for spawning and/or nursery grounds; these include Norway pout, Nephrops, mackerel, haddock, and blue whiting. The basking shark, tope, porbeagle, common skate and angel shark may also be present in low numbers.
Fisheries	Commercial fishing in the Brae Area is dominated by demersal and shellfish fisheries, with fishing effort peaking during spring and autumn. Gear types used are trawlers and seine nets. Peterhead is the main landing port for the area.
Marine Mammals	The seven most commonly sighted species of cetacean in the Brae Area are the harbour porpoise, Atlantic white-sided dolphin, white-beaked dolphin, Risso's dolphin, killer whale, minke whale and long-finned pilot whale. Grey and harbour seals have also been recorded.
Birds	Seabirds are present in the central North Sea throughout the year, though densities in the Brae Area tend to be lower due to the distance from coastal colonies. Seabird densities in the Brae Area are at their lowest in late spring/early summer during the breeding season. After this, diversity, and density of seabirds offshore increases. Seabirds are particularly vulnerable to surface pollutants during moulting (July) when the birds are flightless.
Onshore Communities	Onshore communities are potentially sensitive to disturbance from cleaning, dismantling and disposal activities. TAQA will select onshore decommissioning facilities that comply with all regulatory requirements to ensure that potential impacts are appropriately controlled.
Other Users of the Sea	There are no ferry routes, and no known military uses in the vicinity of the Brae Area. Recreation activity in the offshore North Sea is limited to the occasional yachts in passage. Telecommunications cables are charted to the north of the Brae platforms. No designated wreck sites or marine archaeological features are located within the area.
Atmosphere	The primary sources of atmospheric emissions will be from offshore vessel activity and smelting recovered steel.

4.2 Potential Environmental Impacts and their Management

The Environmental Impact Assessment (EIA) process has considered the potential for significant environmental effects arising from interactions between the proposed decommissioning activities and sensitive environmental receptors. The EIA has been developed by means of a multistage scoping process with the aim of delivering a focused and proportionate EIA and Environmental Statement (ES). The process was developed in consultation with key stakeholders including, BEIS, JNCC, Marine Scotland and SEPA.

Following the scoping stage, the key issues identified for further detailed assessment were:

- Seabed disturbance effects
- Underwater noise effects
- Cumulative and transboundary effects

Table 4.2 provides a summary of the environmental impacts identified in the Environmental Statement [4] and Environmental Appraisal [7].

The Environmental Statement and Environmental Appraisal did not identify any significant residual environmental impacts arising from activities described in this DP. However, TAQA is committed to the schedule of environmental management measures identified in the Environmental Statement and Environmental Appraisal as summarised in Table 4.2 to further reduce the potential for environmental impacts.

Table 4.2: Potential Environmental Impacts and Management		
Main Impacts	**Activity**	**Management Measures**
Energy and Emissions	**Topsides Removal**	All vessels will comply with MARPOL 73/78 Annex VI on air pollution and machinery will be maintained in an efficient state. The total estimated CO_2e emissions generated by the decommissioning operations is ≈ 95,000 Te of CO_2e. Greenhouse gas emissions for the UK Oil and Gas sector in 2022 amounted to 14,300,000 Te of CO_2e [4]**Error! Reference source not found.**. In the context of the whole sector, the emissions associated with these operations would equate to approximately 0.66% of the annual total. These emissions have been calculated assuming worst case vessel emissions across the duration of the decommissioning project across all types of vessels which will participate in a variety of activities.
	Subsea Installation Removal	
	Decommissioning Pipelines	
	Decommissioning Stabilisation Features	
Seabed Disturbance	**Topsides Removal**	Cutting the Topsides from the jacket will be carried out using abrasive water jet or diamond wire. Both techniques will generate swarf, and abrasive water jet will release spent abrasive media. Any swarf, abrasive media, etc. that falls to the seabed will fall within a footprint that extends some 15 m from the base of the jacket. Any such discharges are unlikely to cause significant disturbance to the seabed or cuttings pile. Following award of contract and selection of cutting methodology, any such disturbances will be quantified and assessed in the Marine Licence application submitted in support of the execution of decommissioning works.
	Subsea Installation Removal	Seabed disturbance and subsequent resettlement is considered within the Environmental Statement [4]. Activities will be risk assessed in the Marine Licence application submitted in support of the execution of decommissioning works.
	Decommissioning Pipelines	
	Decommissioning Stabilisation Features	

Table 4.2: Potential Environmental Impacts and Management		
Main Impacts	**Activity**	**Management Measures**
Physical Presence of Vessels in Relation to other Users of the Sea	**Topsides Removal**	The physical presence of vessel offshore will be limited in duration. The vessel will be similar to those currently deployed for oil and gas installation, operation, and decommissioning activities. Vessel activity will be focussed within the existing 500 m safety zone and will not occupy "new" areas. Other sea users and relevant authorities will be notified in advance of and subsequent to operations.
	Subsea Installation Removal	
	Decommissioning Pipelines	
	Decommissioning Stabilisation Features	
Physical presence of infrastructure decommissioned in situ in relation to other sea users	**Topsides Removal**	Topsides removal will leave the jacket in situ. The jacket, including the jacket footings and associated riser sections will be the subject of subsequent Decommissioning Programmes. The Consent to Locate for the platform will be modified to reflect Topsides removal. Following Topside removal, Aids to Navigation will be installed on the jacket in accordance with the revised Consent to Locate.
	Subsea Installation Removal	Subsea installations will be removed in their entirety. They will not result in any of the current Central Brae, West Brae or Sedgwick material being left in situ. However, it may be necessary to install rock to mitigate the hazard represented by the cavities left in the seabed by removal of subsea installations. The placement of rock or other mitigation measures will be controlled under the Marine Licence regime.
	Decommissioning Pipelines	Buried pipelines will be left in situ. Surface laid pipelines in close proximity to derogated platform footings at Brae A may also be left in situ. TAQA will agree a monitoring and management strategy with OPRED to ensure that buried pipelines do not become a hazard.
	Decommissioning Stabilisation Features	Pipeline stabilisation features will be removed to shore for reuse, recycling, or disposal.

Table 4.2: Potential Environmental Impacts and Management		
Main Impacts	**Activity**	**Management Measures**
Discharges to Sea	**Topsides Removal**	Discharges from vessels are typically well-controlled activities that are regulated through vessel and machinery design, management, and operational procedures.
	Subsea Installation Removal	Any marine growth present on subsea installations may be removed prior to removal. This will be fully assessed in the relevant environmental permit applications under the Marine Licence regime. Marine growth remaining on subsea installations, lengths of pipelines and umbilicals, and stabilisation features that are taken onshore will be appropriately disposed of.
	Decommissioning Pipelines	
	Decommissioning Stabilisation Features	
Underwater Noise	**Topsides Removal**	Noise modelling has been conducted to identify the impacts of noise on marine mammals and potential mitigation measures. The results are documented within the Environmental Statement [4]. Procedures for vessel operations and underwater cutting will incorporate mitigation measures identified by the noise study. There are no plans to use explosives at this time. However, should the use of explosives be necessary TAQA will complete appropriate evaluations and consultations.
	Subsea Installation Removal	
	Decommissioning Pipelines	
	Decommissioning Stabilisation Features	
Resource Use	**Topsides Removal**	The decommissioning operations will use very limited raw materials, largely restricted to steel for lifting aids and rock to remediate seabed cavities arising from the removal of subsea installations. required (largely restricted to fuel use). Material will be returned to shore as a result of project activities, expectation is to reuse or recycle c.95 % of this returned material. There may be instances where infrastructure returned to shore is contaminated and cannot be recycled, but the weight/volume of such material is not expected to result in substantial landfill use.
	Subsea Installation Removal	
	Decommissioning Pipelines	
	Decommissioning Stabilisation Features	

Table 4.2: Potential Environmental Impacts and Management		
Main Impacts	**Activity**	**Management Measures**
Disturbance of Onshore Communities	**Topsides Removal**	In collaboration with the selected decommissioning contractor, TAQA will select onshore decommissioning facilities that comply with all regulatory requirements to ensure that potential impacts are appropriately controlled.
	Subsea Installation Removal	
	Decommissioning Pipelines	
	Decommissioning Stabilisation Features	
Waste	**Topsides Removal**	The waste to be brought to shore will be managed in line with TAQA's Waste Management Strategy and the Waste Hierarchy, as part of the project Active Waste management Plan (AWMP), using approved waste contractors and in liaison with the relevant Regulators.
	Subsea Installation Removal	
	Decommissioning Pipelines	
	Decommissioning Stabilisation Features	
Accidental Events	**Topsides Removal**	The potential for spills, dropped objects or other contaminants to impact the ecosystem has been assessed. This is documented in the Environmental Statement [4]. The Brae Alpha Oil Pollution Emergency Plan (OPEP) will be revised to incorporate decommissioning activities. The Brae Alpha OPEP also covers the Central Brae, West Brae, and Sedgwick subsea facilities. The Brae Alpha topsides will be drained down and cleaned prior to any removal activities. The vessels used for the decommissioning operations will each have a Shipboard Oil Pollution Emergency Plan (SOPEP).
	Subsea Installation Removal	
	Decommissioning Pipelines	
	Decommissioning Stabilisation Features	

Table 4.2: Potential Environmental Impacts and Management		
Main Impacts	**Activity**	**Management Measures**
Wild Birds Disturbance	**Topsides Removal**	All nesting birds and nesting activities are protected from damage by conservation legislation. Under the Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2017 – (OMR 17), it is an offence to: • take, damage, or destroy the nest of any wild bird while that nest is in use or being built, or • take or destroy an egg of any wild bird. TAQA has in place a proactive Seabird Management Strategy, which is managed continuously. This includes a suite of remedial strategies that can be used, if required, to prevent birds from nesting. Part of the strategy includes conducting independent annual nesting bird surveys on each of TAQA's offshore platforms. Since 2021 there has been no evidence of nesting birds on Brae Alpha. In addition, monthly surveys are conducted on the platform by trained personnel to provide a summary of bird activity and presence throughout the year. Again, this has not identified any nesting birds. Prior to disembarkation, an asset specific survey will be undertaken to identify those areas of higher risk of nesting birds and appropriate deterrent measures will be put in place. In addition to the ongoing annual surveys, a dedicated survey will be conducted prior to the arrival of the HLV in the field to re-confirm there remains no nesting birds. In the event nesting birds are encountered, TAQA will engage with OPRED to agree any necessary licensing obligations at that time. This may include application for a disturbance licence.
	Subsea Installation Removal	Subsea Installation removal, pipeline decommissioning and stabilisation features decommissioning are not anticipated to have any impact on wild birds.
	Decommissioning Pipelines	
	Decommissioning Stabilisation Features	

5 Interested Party Consultations

The Brae Operator consulted a wide range of interested parties during the decommissioning planning stages, preparation of the comparative assessments and environmental statements, and compilation of the Decommissioning Programmes. These included:

- BEIS (now DESNZ OPRED) Environmental Management Team
- BEIS (now DESNZ OPRED) Offshore Decommissioning Unit
- Global Marine Systems
- Greenpeace
- Health and Safety Executive (HSE)
- Joint Nature Conservation Committee (JNCC)
- Marine Conservation Society
- Marine Scotland (now the Scottish Government Marine Directorate)
- National Federation of Fishermen's Organisations (NFFO)
- Oil and Gas Authority (OGA) (now the North Sea Transition Authority NSTA)
- OSPAR
- Scottish Environment Protection Authority (SEPA)
- Scottish Fishermen's Federation (SFF)
- World Wide Fund for Nature (WWF)

The Brae Operator, and subsequently TAQA, have also made information regarding decommissioning of the Brae Area available to other interested parties and the general public. The latest information is available via the TAQA Decommissioning website: Decommissioning consultations and projects – TAQA Europe.

The comments received from Consultees in 2017 are summarised in Table 5.1 .

Following the conclusion of the latest formal consultation process, TAQA will complete Table 5.2 with comments received from stakeholders, and the company's responses.

NSTA have been contacted as per Section 29(2)(A).

Table 5.1: Summary of Stakeholder Comments Received in 2017		
Statutory Consultees		
Stakeholder	**Comment**	**Response**
The National Federation of Fishermen's Organisations	No comments received	
Scottish Fishermen's Federation (SFF)	The SFF sent its comments to the Brae Operator (Marathon Oil) in a letter dated July 17th, 2017. The letter acknowledged Marathon Oil's engagement with the SFF regarding decommissioning of the Brae Area facilities. The SFF reiterated its overarching principal of return to clean seabed.	The bulk of the facilities covered by these Decommissioning Programmes will be removed and returned to shore. There are two exceptions to this general rule. Firstly, trenched and buried pipelines and umbilicals, etc, will be left in place. Secondly, short lengths of pipelines and umbilicals that are in close proximity to the Brae Alpha footings will be left in place if derogation to leave the footings in situ is obtained.
Northern Irish Fish Producers' Organisation	No comments received	
Global Marine Systems Limited	No comments received	
Other Stakeholders		
Public	No comments received	

Table 5.2: Summary of Latest (2025) Stakeholder Comments		
Statutory Consultees		
Stakeholder	**Comment**	**Response**
The National Federation of Fishermen's Organisations		
Scottish Fishermen's Federation		
Northern Irish Fish Producers' Organisation		
Global Marine Systems Limited		
North Sea Transition Authority (NSTA)		
Other Stakeholders		
Public		

6 Programme Management

6.1 Project Management and Verification

TAQA, on behalf of the Section 29 Notice Holders, has appointed a project management team to manage the planning and execution of the Brae Alpha topsides, Central Brae, West Brae, and Sedgwick Decommissioning Programmes. TAQA health, environmental and safety management principles will govern hazard identification, risk management and operational controls. The work will be coordinated with due regard to interfaces with other operators' oil and gas assets and with other sea users. TAQA will control and manage the progress of all permits, licences, authorisations, notices, consents, and consultations required. Any significant changes to these Decommissioning Programmes will be discussed and agreed with OPRED.

6.2 Post-decommissioning Debris Clearance and Verification

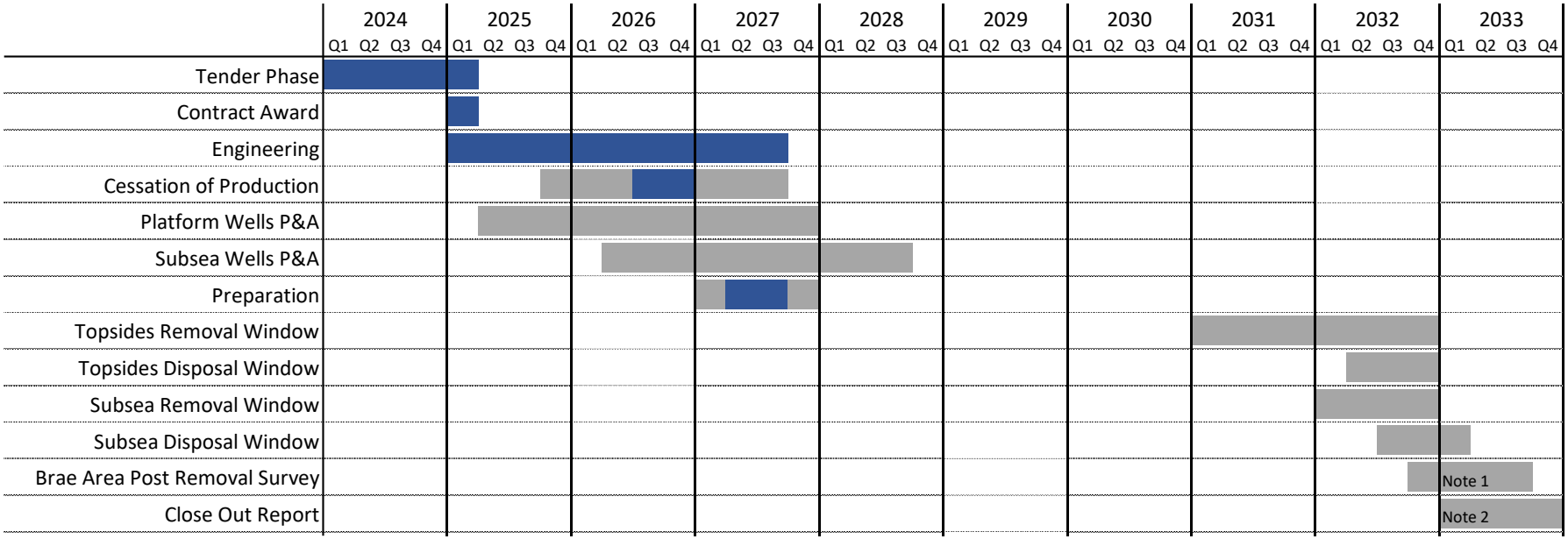
Following completion of the Brae Area decommissioning activities, post decommissioning site surveys will be carried out within a 500 m radius of all installation sites and a 100 m corridor along each pipeline route centred on the pipeline. Any oilfield-related seabed debris that is found will be recovered and returned to shore for recycling or appropriate disposal. Independent verification of the state of the seabed will be obtained by surveying the pipeline corridors and within the safety zones. Following verification TAQA will issue a statement of clearance to all relevant governmental departments and non-governmental organisations. The post-decommissioning survey results will be notified to the UK Fisheries Offshore Oil and Gas Legacy Trust Fund Ltd for inclusion in the FishSAFE system, and to the United Kingdom Hydrographic Office for notification and marking on Admiralty charts and notices to mariners as required.

6.3 Schedule

The main milestones in the Brae Alpha topsides Central Brae, West Brae and Sedgwick decommissioning process are anticipated to be:

- Brae Alpha cessation of production: 2026
- Brae Alpha platform wells plug and abandon: 2025 – 2027
- Central Brae, West Brae, and Sedgwick wells plug and abandon 2026 – 2028
- Brae Alpha facilities making safe: 2027
- Brae Alpha platform topsides removal: 2031 - 2032
- Subsea Facilities Removal 2032 (Post subsea wells P&A)
- Close Out Report 2032 – 2033 (Post subsea facilities removal)
- Brae Area Post removal survey: 2033 (Post Brae Area Decommissioning completion)

This schedule may change to maximise economic recovery, or to exploit opportunities to minimise decommissioning impacts by combining Brae Area decommissioning activities into campaigns, or by combining Brae Area decommissioning operations with third-party decommissioning. The Brae Alpha Topsides, Central Brae, West Brae, and Sedgwick decommissioning schedule is shown in Figure 6-1. The timings shown in the figure reflect the bulleted schedule above but also include uncertainty bars.



Note 1: The Brae Area Post Removal Survey will be conducted in alignment with the overall Brae Area decommissioning schedule

Note 2: The Close Out Report will be submitted within 12 months of the completion of offshore works.

Activity window

Most likely schedule

Figure 6-1: Decommissioning Schedule

6.4 Long Term Facilities Management

The decommissioning of the Brae Area is planned to take place over an extended period. Throughout this period, the assets and infrastructure will be in various stages of dismantlement and remediation. At all times, the facilities will be maintained to a standard that enables completion of the programmes safely and in compliance with regulations and TAQA's corporate standards.

Following removal of the Brae Alpha Platform topsides there may be a period prior to jacket removal, where the top of the jacket remains above sea level. If this situation does occur, the 500 m safety zone will remain in place during the period when the jacket projects above the sea surface. At all stages of the decommissioning operations, the Brae Alpha Consent to Locate will be revised to reflect the change in structure and appropriate navigational aids will be fitted in accordance with requirements of the amended Consent to Locate.

6.5 Costs

TAQA has used the Offshore Energies UK work breakdown structure presented in Table 6.1 to develop cost estimates for the Brae Alpha Topsides, Central Brae, West Brae and Sedgwick Decommissioning Programmes [12][13]. The provisional estimated costs have been provided to OPRED in confidence.

Table 6.1: Brae Alpha Topsides, Central Brae, West Brae, and Sedgwick Provisional Decommissioning Programme Costs

Item	Estimated Cost (£m)
WBS 1 – Operator Project Management	Provided to OPRED in confidence
WBS 2 – Post CoP Operating Expenditure (OPEX)	
WBS 3 – Well Abandonment	
WBS 4 – Facilities & Pipelines Permanent Isolation & Cleaning	
WBS 5 – Topsides Preparation	
WBS 6 – Topsides Removal	
WBS 7 – Substructure Removal	
WBS 8 – Onshore Recycling	
WBS 9 – Subsea Infrastructure	
WBS 10 – Site Remediation	
WBS 11 – Monitoring	

6.6 Close Out

A close out report will be submitted to OPRED within twelve months of the completion of the Brae Alpha Topsides, Central Brae, West Brae and Sedgwick offshore decommissioning work and material disposal. Any variances from the approved decommissioning programmes will be described and explained in the close out report.

6.7 Post-Decommissioning Monitoring and Evaluations

After completion of the Brae Alpha Topsides, Central Brae, West Brae, and Sedgwick decommissioning activities detailed in this document and the wider Brae Area activities, TAQA will carry out the monitoring and survey activities below as a minimum;

- Following Brae Alpha Topsides, Central Brae, West Brae, and Sedgwick decommissioning
  - Initial as left visual confirmation that Brae Alpha Topsides, Central Brae, West Brae, and Sedgwick decommissioning has been completed in accordance with the decommissioning programmes.
- Following completion of Brae Area decommissioning
  - An independent debris clearance verification survey.
  - Two post decommissioning environmental surveys, focusing on chemical and physical disturbances resulting from decommissioning with reference to the findings of pre decommissioning surveys.
  - Two surveys of the area around the platform footprint, the subsea installation footprints, and the 500 m zones, and
  - Two surveys 50 m either side of the pipelines.

Copies of the survey results will be forwarded to OPRED for review. TAQA will then agree a post monitoring survey schedule with OPRED taking account of the findings of previous surveys and continuing liabilities. The schedule will apply a risk based approach to planning the frequency and scope of further surveys.

6.8 Management of Residual Liability

The Jacket and associated riser sections, and subsea Central Brae, West Brae and Sedgwick facilities decommissioned in situ following the completion of the Brae Alpha Topsides, Central Brae, West Brae, and Sedgwick Decommissioning Programmes will remain the responsibility of the respective S29 notice holders. The Brae Alpha Upper Jacket and Footings will be subject to separate Decommissioning Programmes in due course.

TAQA, as operator of Brae Alpha, Central Brae, West Brae, and Sedgwick recognises that the parties to these Brae Alpha Topsides, Central Brae, West Brae, and Sedgwick Decommissioning Programmes will continue, post completion of the programmes, to retain the residual liability for any infrastructure left in place."

7 Supporting Documents

[1] Brae Alpha Upper Jacket Decommissioning Programme, TB-BRADEC01-X-AD-0002-000, TAQA Bratani Limited.

[2] Guidance Notes Decommissioning of Offshore Oil and Gas Installations and Pipelines, BEIS, November 2018.

[3] Brae Alpha, Brae Bravo, Central Brae, West Brae, and Sedgwick Combined Decommissioning Programmes, 9000-MIP-99-PM-RP-00003-000, Marathon Oil Decommissioning Services, July 2017.

[4] Brae Alpha, Brae Bravo, Central Brae, West Brae, and Sedgwick Combined Decommissioning Programmes – Environmental Statement, 9000-MIP-99-EV-RT-00001-000, Marathon Oil Decommissioning Services, June 2017.

[5] Brae Area Subsea Assets Decommissioning Comparative Assessment Methodology, 9000-MIP- 99-PM-FD-00003-000, Marathon Oil Decommissioning Services, December 2015.

[6] Brae Area Central Brae, West Brae, and Sedgwick Comparative Assessment, TAQA, May 2024,

[7] Brae Alpha, Central Brae, West Brae, and Sedgwick Environmental Appraisal Technical Note, 77IFS-219936-F99-0001, TAQA, May 2024.

[8] Well Decommissioning Guidelines, Oil and Gas UK (Now Offshore Energies UK), November 2022.

[9] Brae Alpha West Drilling Rig Decommissioning Programme, 9020-RRE-99-DR-RP-00002-000, RockRose Energy, August 2019.

[10] Guidelines for Comparative Assessment in Decommissioning Programmes, Oil and Gas UK (Now Offshore Energies UK), October 2015.

[11] Offshore Energies UK (OEUK), Emissions Report 2022, OEUK, 2023.

[12] Decommissioning Work Breakdown Structure, OEUK, October 2019

[13] Guidelines on Decommissioning Cost Estimation, OEUK, September 2020

8 Section 29 Holders' Letters of Support

Letters of support will be attached following incorporation of the consultation draft comments.

CONTACT

TAQA Bratani Limited,
Brimmond House,
Prime Four Business Park, Kingswells,
Aberdeen, AB15 8PU,
Scotland UK.

Tel: +44 (0)1224 275275

www.taqa.com