Gannet A Mast Decommissioning Programme

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Document Control

Approvals

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Terms and Abbreviations

Term	Explanation
ALARP	As Low As Reasonably Practicable
BEIS	Department for Business, Energy and Industrial Strategy
BOM	Business Opportunity Manager (in Shell)
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide equivalent
CoP	Cessation of Production
DES	Drilling Equipment Set
DESNZ	Department for Energy Security and Net Zero
DP	Decommissioning Programme
D&R	Decommissioning and Restoration (group in Shell)
EMODNet	European Marine Observation and Data Network
ENVID	Environmental Impact Identification
EPS	European Protected Species
EU	European Union
FPSO	Floating Production, Storage and Offloading
GHG	Green House Gas
GMAS	Global Maritime Assurance System
GMS	Global Marine Systems Limited
HAZID	Hazard Identification
HLV	Heavy Lift Vessel
HSE	Health and Safety Executive (of UK)
HSSE&SP	Health, Safety, Security, Environment and Social Performance
HWU	Hydraulic Workover Unit
ICES	International Council for the Exploration of the Sea
INTOG	Innovation and Targeted Oil and Gas
JNCC	Joint Nature Conservation Committee
kg	Kilogramme
Km	Kilometre
LOLER	Lifting Operations and Lifting Equipment Regulations (1998)
LSA	Low Specific Activity (scale)
MAH	Major Accident Hazard
MCAA	Marine and Coastal Access Act
MCZ	Marine Conservation Zone
MPA	Marine Protected Area
NCMPA	Nature Conservation MPA
NFFO	National Federation of Fishermen's Organisations
NIFPO	Northern Ireland Fish Producers Organisation
NORM	Naturally Occurring Radioactive Material
NOx	Nitric Oxide and Nitrogen Dioxide
N_2O	Nitrous Oxide
NSTA	North Sea Transition Authority
ODU	Offshore Decommissioning Unit (of OPRED)
OEUK	Offshore Energies UK
OGUK	Oil and Gas UK (now Offshore Energies UK (OEUK))
OPEP	Oil Pollution Emergency Plan

Term	Explanation
OPRED	Offshore Petroleum Regulator for Environment and Decommissioning
OSPAR	Oslo Paris Commission
P&A	Plug and Abandonment (of wells)
PMF	Priority Marine Feature
PON	Petroleum Operations Notice
S29	Section 29 (of Petroleum Act)
SAC	Special Area of Conservation
SCAP	Supply Chain Action Plan
SECE	Safety and Environment Critical Element
SEE	Shipboard Energy Efficiency (Plan)
SFF	Scottish Fishermen's Federation
SIMOPS	Simultaneous Operations
SLV	Single Lift Vessel
SNS	Southern North Sea
SO_2	Sulphur Dioxide
SPA	Special Protection Area
Te	Metric Tonne (1,000kg)
UKCS	United Kingdom Continental Shelf
VOC	Volatile Organic Compound
WBS	Work Breakdown Structure
WGS84	World Geodetic System 1984
WMP	Waste Management Plan

1 EXECUTIVE SUMMARY

1.1 Decommissioning Programme

This document presents one Decommissioning Programme (DP) for the drilling 'mast' on the Gannet A Installation in the central North Sea. It has been prepared by Shell U.K. Limited in accordance with Section 29 of the Petroleum Act 1998 on behalf of the Section 29 Notice Holders of the Gannet A installation who are Shell U.K. Limited, (Shell, the operator), Esso Exploration and Production UK Limited, NEO Energy (SNS) Limited, NEO Energy Natural Resources Limited and NEO Energy Petroleum Limited (Table 1.2). The Section 29 Notice Holders confirm that they support the proposals described in this DP.

Throughout this document, the terms "owners", "we" and "our" refer to the co-venturers as noted above.

1.2 Requirement for Decommissioning Programme

In accordance with the Petroleum Act 1998, the Section 29 Notice Holders of the Gannet A installation are applying to the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) for approval to undertake decommissioning work on the installation as detailed in Section 3 of this DP.

In conjunction with public, stakeholder and regulatory consultation, the DP is submitted in compliance with national and international regulations and the BEIS (DESNZ) Guidance Notes.

1.3 Introduction

The Gannet complex comprises the Gannet A, B, C, D, F and G fields in the Central North Sea, approximately 187 km east of Aberdeen, in a water depth of 95 m. It is serviced by a fixed offshore drilling, production and accommodation platform located above the Gannet A Field at latitude 57° 11' 03.752" N, longitude 0° 59' 54.329" E, in Block 21/25 of the UK sector. The Gannet jacket was installed in June 1991, the topsides were lifted into position in April 1992 and production started in October 1992. It is anticipated that the Gannet Field will cease production (CoP) in 2031.

In preparation for the decommissioning of the Gannet A installation, the owners wish to begin decommissioning platform wells in advance of taking CoP. The existing platform mast is inoperable and is not suitable for safe and efficient wells decommissioning work. The owners have concluded that the mast should be decommissioned and removed so that wells can be decommissioned using an Hydraulic Workover Unit (HWU). This DP describes the proposed mast decommissioning programme of work, which is scheduled to begin in November 2024. It is estimated that the offshore dismantling programme will take about 10 weeks to complete, and that all returned materials will have been treated and disposed of within six months of receipt onshore.

Further Decommissioning Programme(s) for the Gannet A installation and facilities, and its associated tie-backs, will be submitted as appropriate.

1.4 Overview of Installation Being Decommissioned

Table 1.1: Installation Being Decommissioned			
Field	Gannet A	**Production Type**	Oil and Gas
Water Depth (m)	95	**UKCS block**	21/25
Distance to median (km)	78	**Distance from nearest UK coastline (km)**	170
Surface Installation(s)			
Number	**Type**	**Weight (Te)**	
1	Mast	Approximately 145 tonnes	

Table 1.2: Gannet Installation Section 29 Notice Holders		
S29 Notice Holder	**Registration Number**	**Equity Interest**
Shell U.K. Limited	00140141	50%
Esso Exploration and Production UK Limited	00207426	0%
NEO Energy (SNS) Limited	SC291165	50%
NEO Energy Natural Resources Limited	13018823	0%
NEO Energy Petroleum Limited	03288689	0%

1.5 Summary of Proposed Decommissioning Programme

Table 1.3: Summary of Decommissioning Programme		
Selected Option	**Reason for Selection**	**Proposed Decommissioning Solution**
1. Mast on the Topsides		
Complete removal for recycling or disposal.	Allows an alternative system to be installed for safe and efficient P&A activities.	The mast will be removed by piece small dismantling and taken to shore for recycling.
2. Interdependencies		
The work will be undertaken as a sub-project during the normal operation of the platform, which is still producing. It will not affect the platform wells or other operations and facilities on the topsides. It will not affect the subsea wells and facilities tied back to Gannet A. It will not impact the seabed drill cuttings pile. It will not affect any pipelines to or from the Gannet A installation. The proposed programme of work will not foreclose or pre-judge any potential decommissioning solution for any other assets, including the Gannet wells, the Gannet A topsides and jacket, any subsea facilities tied back to Gannet A, and any pipeline, umbilical or control line linked to the Gannet A installation.		

1.6 Field Location Including Field Layout and Adjacent Facilities

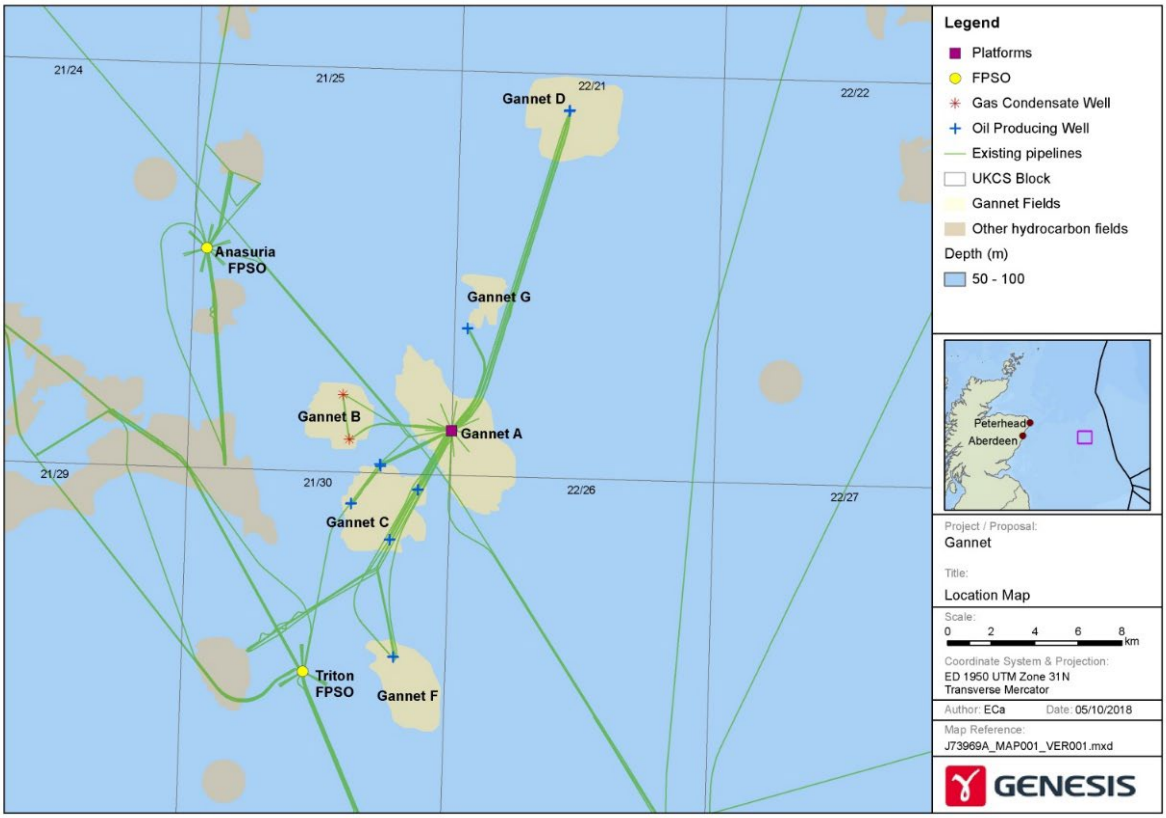

Figure 1.1: Field Location in UKCS

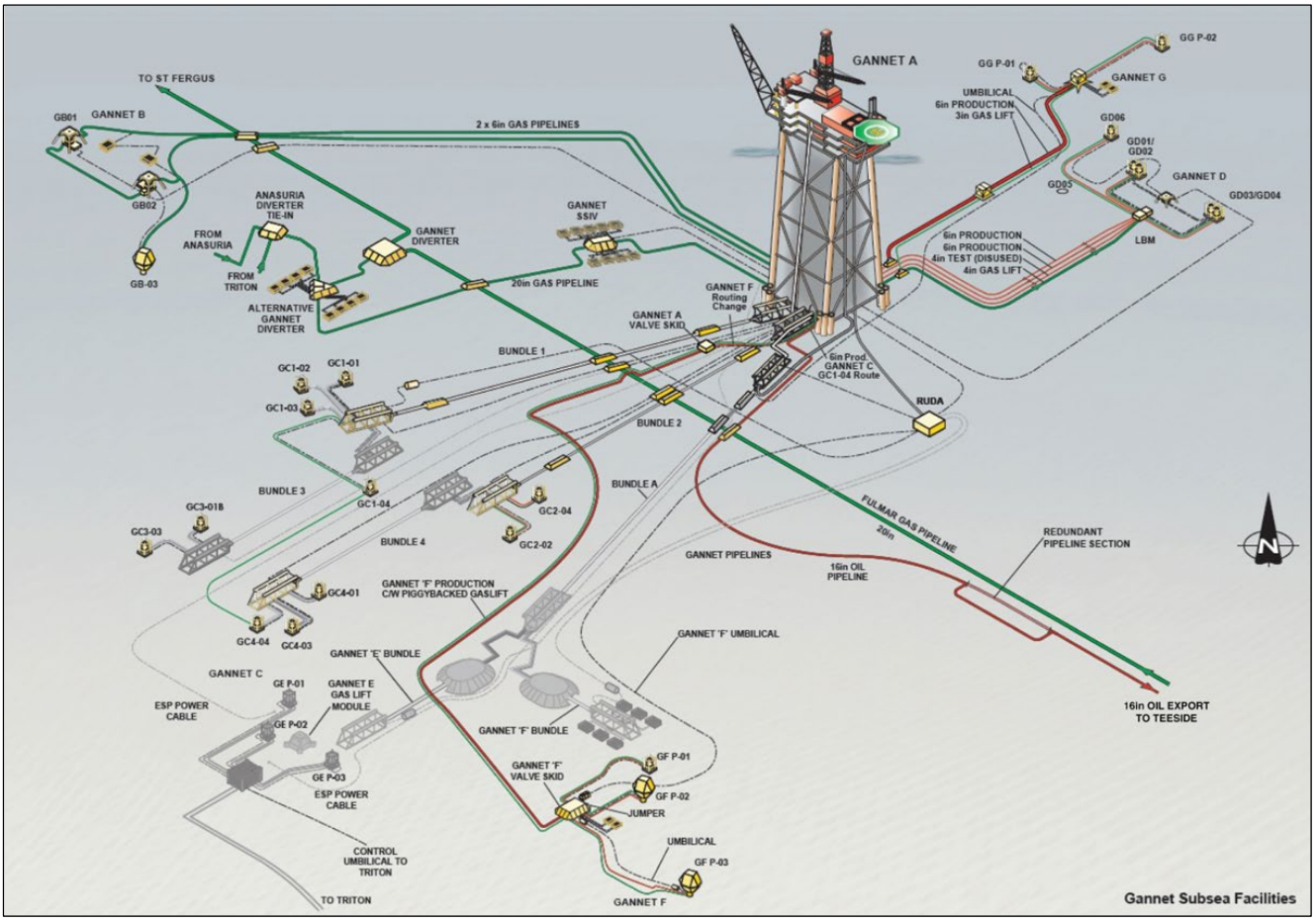

Figure 1.2: Field Layout

Table 1.4: Adjacent Facilities Information				
Operator/Owner	**Name**	**Type**	**Distance/Direction**	**Information/Status**
Shell U.K. Limited	Gannet B	Subsea Tie-Backs	5 km W	Operational
	Gannet C		5 km SW	
	Gannet G		5 km NE	
Impacts of Decommissioning Proposals on third party/adjacent facilities				
The proposed programme of work at Gannet A will have no impact on any other Shell facility or any third-party facility				

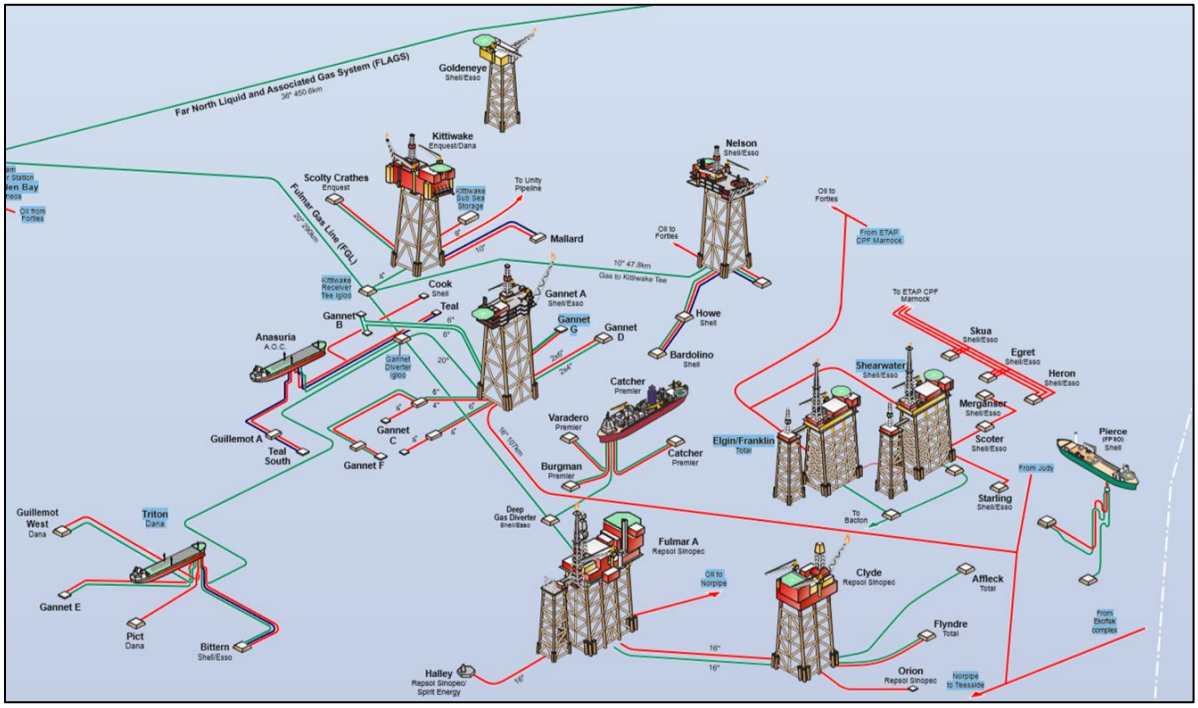

Figure 1.3: Adjacent Facilities

The nearest facilities are the subsea tie-backs Gannet B. C and G, each approximately 5 km from Gannet A. The nearest third-party facilities (excluding pipelines) are the Guillemot subsea cluster 10.6 km to the west, Teal South 12.2 km to the northwest east and the Madoes subsea cluster 26.2 km to the east. The nearest third-party pipelines are a group pipelines and umbilicals from Guillemot A to Teal or Anasuria, all approximately 10.4 km to the west, and the 44" Langeled gas pipeline PL2071, approximately 11.2 km to the east.

1.7 Industrial Implications

The Gannet A Mast Decommissioning Project seeks to identify a safe, efficient and cost-effective programme of work for decommissioning the mast.

All procurement will be carried out in accordance with the company standards for contract and procurement. Furthermore, in accordance with the NSTA Supply Chain Action Plans Guidance, Shell will develop a Supply Chain Action Plan (SCAP) to be submitted in support of the main Gannet Decommissioning Programmes closer to CoP.

2 Description of Items to be Decommissioned

2.1 Gannet A Mast

Table 2.1: Surface Facilities Information				
Name	**Facility Type**	**Location**		**Description**
Gannet A Installation	Mast	WGS84 Decimal	53.108032 02.065629	A steel structure approximately 50 m high overall, weighing approximately 145 tonnes. The mast will be removed and taken to shore for recycling and disposal.
		WGS84 Decimal Minute	57 11 03.752N 0 59 54.329E	

2.2 Overview of Drilling Facilities

The drilling facilities on the Gannet A platform comprise a Drilling Equipment Set (DES) installed on two skid beams on the Upper Deck. The DES consists of a skid base, a substructure and a mast. The substructure has three levels and forms a typical drilling derrick, with plated decks, windwalls and support at the upper level for the mast.

The mast is supported on four legs secured by pin connections to the top of the substructure (Figure 2.1,) and it tapers from 10 m x 10 m at its base to 3.5 m x 7.3 m at the hinge and 2.5 m x 2.85 m at the top (Figure 2.2). The hinge at approximately 15 m above the base allowed the mast to be installed in a folded condition.

The mast has not been used for drilling since 2005, and the drilling structure, now only used for well intervention rig-ups, is redundant (it is mothballed within the Safety Case). It is not considered as a viable facility for the abandonment of the platform wells in the lead-up to CoP. Because of the condition of the mast and the cost of refurbishment and reinstatement, we have decided that the mast should be removed so that the P&A of the platform's wells can be undertaken safely and more efficiently by an HWU that can be positioned on top of the DES substructure.

An application for the decommissioning and removal of the mast has been made under the Marine and Coastal Access Act (MCAA) 2009. ML/1199/0 'Gannet Mast Removal' was submitted on 23rd October 2024 and approved on 4th November 2024.

2.3 Items to be Decommissioned

The items to be decommissioned comprise:

- Mast, fittings and accessories, and all associated cabling, top crown block and sheaves (Figure 2.2)
- Redundant drilling package equipment on the drill floor at the base of the mast (i.e., on top of the substructure), including:
  - the doghouse
  - iron roughneck
  - draw-works
  - choke and kill package
  - old winch lines

Figure 2.1: Gannet A drilling substructure with Mast

Figure 2.2: General view of Gannet A Mast with the west crane alongside the Crown

2.4 Cleaning and Preparation

As part of the proposed programme of work, a detailed survey of the mast will be performed to (i) confirm and update the materials inventory; and (ii) determine if any hazardous materials are present.

The facilities and pipework connected to the mast may be contaminated with residual amounts of hazardous substances such as drilling mud and cuttings, oils of various types, and possibly small amount of Naturally Occurring Radioactive Material (NORM).

All such materials will be located and quantified. Mobile contaminants will be removed before decommissioning begins, to ensure that they are not spilled or lost onto the topsides or into the sea. All such removal work will be carried out under Shell's procedures and all waste material will be returned to shore for treatment or disposal under all necessary licences.

Dismantled equipment and waste will be monitored for NORM according to Shell's Radiation Policy and Radiation Work Instructions. Where immobile NORM scale is confirmed, it will be left in place undisturbed and taken to shore where it can be dealt with more safely and efficiently. Items or areas with NORM or suspected NORM will be clearly marked, protected and segregated for shipment to ensure the safety of personnel during the decommissioning activities. Table 2.2 summarises the proposed offshore pre-lift cleaning programme.

Table 2.2: Gannet A Mast Offshore Cleaning Programme

Material	Proposed Cleaning
Drilling muds and drilling fluids	No residual material is expected to be present. Before dismantling, all pipes, tanks and vessels will be accessed to check that they have been depressurised and emptied. If residual fluids are found, the system(s) will be drained and flushed as necessary and OPRED will be advised accordingly. Any recovered drilling muds and other fluids will be used elsewhere or returned to shore for re-use or safe disposal.
Hydrocarbons	No residual material is expected to be present. Before dismantling, all pipes, tanks and vessels will be accessed to check that they have been depressurised and emptied. If residual fluids are found, the system(s) will be drained and flushed as necessary and OPRED will be advised accordingly. Any recovered hydrocarbons will be used elsewhere or returned to shore for re-use or safe disposal.
Paint coating	Samples of paint have been taken and the results are awaited. The mast will be dismantled using cold-cutting techniques. Steel with lead-based paints may give off dust if flame-cutting or grinding/blasting is used, so appropriate safety measures will be taken. Any such paint will not be removed offshore but will be dealt with appropriately by the onshore dismantling facility.
Asbestos and Ceramic Fibre	The pre-dismantling survey will identify if such hazardous materials are present. If found, appropriate control and management will be enforced. These materials would be marked, contained, and left in situ and returned to shore to be dealt with appropriately by the licensed onshore dismantling facility.

Other hazardous materials	Batteries	Transported to shore for re-use/disposal by appropriate methods.
	NORM, LSA Scale	In compliance with Shell's Radiation Policy and Radiation Work Instructions, all equipment and waste arising from this scope will be monitored for NORM contamination. Any confirmed or suspected NORM contamination will be managed in accordance with the Environmental Authorisations (Scotland) Regulations 2018 permit held by the Gannet Facility and Shell's 'Radiation Work Instructions' and 'Radiation Policy and Guidance'. Confirmed NORM will be identified, bagged and labelled, and then returned to shore as NORM-contaminated waste for treatment and disposal at an appropriately-licensed facility.
	Radioactive sources	There are no known radioactive sources on the mast or associated equipment.

2.5 Mast Inventory

This section assumes that all the above cleaning operations have been successfully carried out, and therefore describes the materials that will be dismantled and removed in the mast decommissioning programme.

The mast weighs approximately 145 tonnes, which represents about 1% of the total operational weight of the Gannet A topsides (14,634 tonnes).

Shell's contractors have provided a provisional inventory (Table 2.3 and Figure 2.3) which shows their estimate of the main types of material and equipment that would be likely to be removed. This estimate (172 tonnes) is higher than Shell's estimate and is believed to be too great. However, it is included here because it gives an indication of the likely proportions of different types of material that will be removed and disposed of during the decommissioning of the mast. It is anticipated that at least 63% of the mass of removed material will be either carbon steel or stainless steel.

On completion of onshore dismantling and waste treatment, the close-out report will present a post-decommissioning inventory which will detail the exact amounts of material received and processed.

Table 2.3: Gannet A Mast Provisional Inventory	
Material	**Estimated Proportion**
High grade structural carbon steel	49%
Carbon steel windwalls	11%
Stainless steel (windwalls	3%
Electric motors (2 off)	6%
Electricity cable	1%
Electrical equipment	1%
Drillfloor equipment	29%

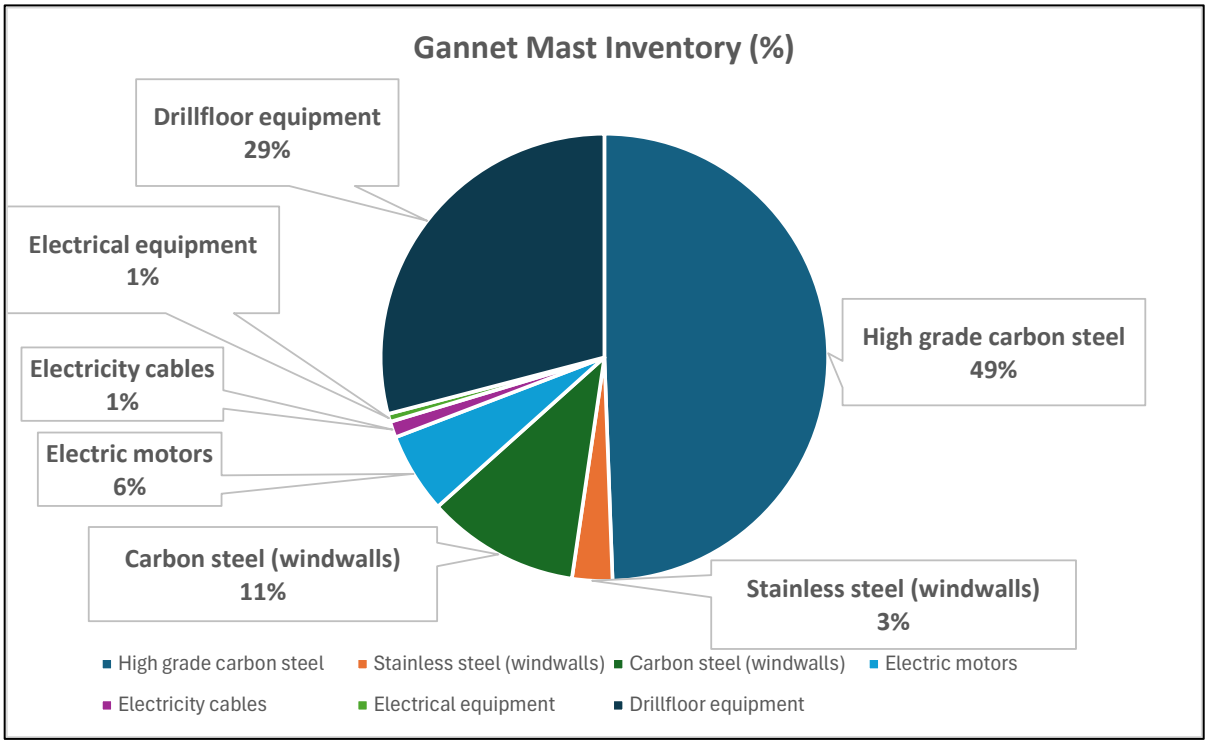

Figure 2.3: Gannet A Mast Provisional Inventory – Estimate of Proportions of Different Materials

3 REMOVAL AND DISPOSAL METHODS

3.1 Introduction

The programme of work to prepare and remove the mast will be carefully planned to ensure that it can be safely completed on the platform while it is still in production. Planning work will include:

- Preparing a detailed plan for the sequences of cutting and lifting
- Preparing detailed plan(s) for lifting cut sections and items using the platform's cranes, a fixed lifting frame or a 'floating pole'
- Specific assessments of the number, locations and sequences for any 'cold cutting' that may be required (it is not envisaged that 'hot cutting' will be required)
- Specific assessments of how the structural integrity of the mast and the DES substructure, and the topsides in general, will be affected by the progressive removal of the mast
- Updating the platform's Safety Case
- Conducting a HAZID of proposed activities
- Examining potential issues arising from SIMOPS on the platform
- Readiness and training for existing platform personnel, even if they are not engaged in the decommissioning work
- Onboarding and familiarisation for contractor personnel who will be working on decommissioning the mast offshore

3.2 Preparation and Planning

The mast and its immediate surroundings will be surveyed and inspected. Individual loose items and equipment that can be safely removed will be taken away. Checks will be completed to ensure that no part of the mast system is pressurised, and that it has been isolated from the platform's supplies of electricity, oil and water.

A survey will be completed to identify and locate potentially hazardous and noxious materials and substances, including NORM. Throughout dismantlement, Shell will continue to monitor for hazardous substances as new surfaces are exposed. Any newly identified hazardous waste will be appropriately assessed, marked, isolated, segregated, quarantined and treated prior to shipment for recycling or disposal.

A survey will be completed to identify suitable areas on the topsides deck for the receipt and temporary storage of removed equipment and sections of mast.

3.3 Removal Programme

The mast is a largely welded structure and will be dismantled 'piece-small'. In 'piece-small' dismantling, the mast will be cut into manageable pieces by specialist contractors working at height on the mast. The use of 'cold' cutting methods will be maximised but the need for 'hot' cutting cannot be entirely ruled out.

This planned programme of work will be designed to ensure that the structural integrity of the mast is not compromised during removal operations, and that the mast would be left in a safe condition if operations had to be temporarily suspended.

The mast dismantling and removal operations will be broken down into three phases:

1. A large, fixed lifting frame (a strong A-frame) will be installed at the top of the mast to lower the crown block, which weighs about 6 tonnes and is too heavy for the platform's crane.
2. The upper parts of the mast will then be dismantled using a 'floating pole' assembly. In this arrangement, a long steel 'pole' is suspended inside the mast framework by controllable steel wires, so that the lifting head on the pole is raised above the item to be lifted (Figure 3.1).
3. Once the mast has been partially dismantled and reduced in height, mast components will increasingly fall within the working limits of the platform's crane, which will be used as much as possible to increase efficiency.

Shell will utilise the existing materials handling processes on the Gannet A Platform to manage the storage, transportation, recycling and disposal of waste arising from the dismantlement. Removed sections will be loaded onto suitable supply vessels, seafastened and taken to the licensed onshore recycling facility.

Figure 3.1: An Example of a Floating Pole

Table 3.1: Mast Removal Methods	
1) HLV (semi-submersible crane vessel) ☐ 2) SLV ☐ 3) Piece small ☑ 4) Other ☐	
Method	**Description**
Piece-Small Removal	The Gannet A mast will be cut into manageable sections by cold cutting techniques and lifted away by the platform's crane or other suitable arrangements. Material will be temporarily stored in laydown areas on the platform's deck before being back-loaded onto supply vessels for transportation to a licensed UK facility for further cleaning, dismantlement, re-use, recycling and disposal as appropriate.

3.4 Onshore Dismantling and Disposal

3.4.1 Programme of work

The mast and its associated equipment will be returned to a licensed dismantling site in the UK. Onshore, items will be dismantled and cut into smaller sections, using a combination of 'hot' and 'cold' cutting techniques. This work will result in all the components being broken down and segregated into different waste streams that can be easily moved for further reuse, treatment or disposal. Throughout dismantlement, waste will be monitored for contaminants and hazardous material (e.g. NORM) as appropriate.

It is anticipated that onshore dismantling and final disposal will be completed within six months of receipt onshore.

3.4.2 Overall Approach and Management

The Waste Management Strategy for the Gannet A Mast Decommissioning Project is based on the waste hierarchy (avoid, re-use, recycle, recover energy, dispose) underpinned by the commitment to comply with legal requirements. The Project will implement Shell's HSSE & SP Control Framework, with a waste management hierarchy that, in accordance with the EU Waste Framework Directive, optimises the re-use and recycling of waste and aims to minimise waste disposal. The risks associated with waste will be assessed before removal to shore. Opportunities to re-use the waste for the same or other purposes will be identified. Waste will be characterised, classified, segregated, stored and transported according to appropriate regulatory requirements.

At the onshore dismantling facility, different types of material will be segregated with a view to optimising re-use and recycling.

The decommissioning contractor may seek opportunities to re-use equipment, machinery or component parts, either as spares or for refurbishment. It is anticipated there may be limited commercial interest in the decommissioned components, given the age and condition of the mast.

The decommissioning contractor's established arrangements with recycling companies will facilitate optimisation of the quantity of materials that can be sent for recycling. An active project Waste Management Plan (WMP) will be implemented that will track waste materials through to the recycling end points. Materials for which no re-use or recycling options are available will be tracked through to disposal in landfill.

3.5 Waste Streams

Table 3.2: Waste Stream Management Methods	
Waste Stream	**Removal and Disposal Method**
Bulk Liquids	As the items and components in the scope of this DP have not been subject to produced water, hydrocarbon or seawater service, we do not expect any 'bulk liquids' to be present. Vessels, pipework and sumps will be drained prior to removal to shore and shipped in accordance with maritime transportation guidelines. Further cleaning and decontamination will take place onshore prior to recycling or re-use.
NORM/LSA Scale	Gannet A holds an Environmental Authorisations (Scotland) Regulations 2018 permit for the storage and accumulation of NORM. As none of the materials or components in the scope of this DP have been used to handle produced water, hydrocarbons or seawater, we do not expect that any wastes arising will be contaminated with NORM. Nevertheless, all recovered material will be monitored for NORM contamination and, where encountered, managed in accordance with the Environmental Authorisations (Scotland) Regulations 2018. There are no known low-level radioactive sources on the mast or associated equipment.
Asbestos	If asbestos is found, appropriate control and management will be enforced.
Other hazardous wastes	A desktop study will be performed to assess if other hazardous materials are likely to be present. Throughout offshore and onshore decommissioning operations, components will be monitored for the possible presence of hazardous materials.
Onshore Dismantling sites	Shell will utilise the existing materials control and waste processes on the Gannet A platform for the piece-small dismantling and disposal of the mast. We will utilise existing contracts with appropriately-permitted and licensed supply vessels, logistics companies, and dismantling and recycling facilities. In compliance with Shell's Waste Control Framework, all existing waste contractors have been the subject of a Duty of Care audit by a Shell Waste Subject Matter Expert.

Table 3.3: Inventory Disposition			
	Total Inventory Tonnage	**Planned tonnage to shore**	**Planned left in situ**
Installations	**145**	**145**	**0**

4 ENVIRONMENTAL APPRAISAL OVERVIEW

4.1 Introduction

This section summarises the environmental sensitivities in the vicinity of the Gannet A platform and considers the potential impacts associated with the proposed activities.

The Gannet A mast decommissioning programme of work will be undertaken wholly on the topsides of the platform, within an existing 500 m safety zone.

An ENVID (Environmental Impact Identification) was carried out which considered the planned programme of work and identified all the possible sources of impact. The results of the ENVID indicate that there would be no significant impacts as a result of the proposed activities.

Environmental receptors in the area are summarised in Table 4.1. Potential environmental impacts and proposed management of impacts from any planned and unplanned events are summarised in Table 4.2. Table 4-3 lists other sources of impact that were not considered further. For reference, Figure 4.1 shows the location of the Gannet A platform in relation to conservation areas.

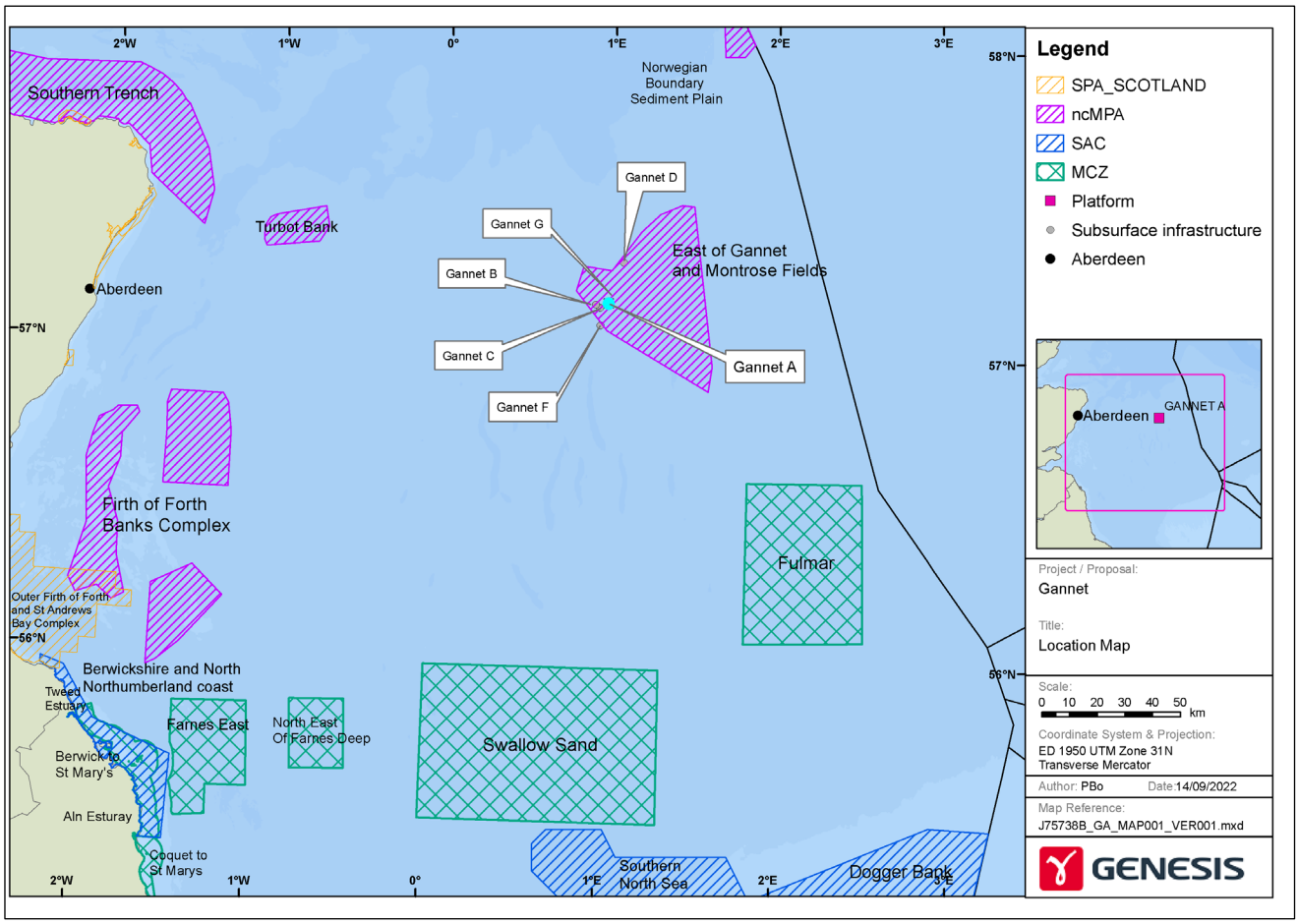

Figure 4.1: Location of Gannet Field in Relation to Conservation Areas

4.2 Environmental Sensitivities

Table 4-1: Environmental Sensitivities	
Environmental Receptor	**Main Features**
Conservation Interests: Designated Sites	The Gannet A platform is located within the East of Gannet and Montrose Fields Nature Conservation Marine Protected Area (NCMPA). This site is designated for offshore deep-sea muds and *Arctica islandica* aggregations (including sands and gravels as their supporting habitat) (Joint Nature Conservation Committee (JNCC), 2020). The OSPAR Convention* designates offshore deep-sea muds as a habitat under threat and/or in decline, whilst *A. islandica* is also listed by OSPAR as being threatened and/or declining across the North-East Atlantic. Both deep-sea muds and *A. islandica* are considered Priority Marine Features (PMFs) in Scotland (JNCC, 2014). There are no other designated sites within 40 km of the Gannet A platform. The proposed activities associated with the removal of the mast from the Gannet A platform will not affect the seabed, and the designated features of the NCMPA will not be impacted. **OSPAR Convention is the Convention for the Protection of the Marine Environment of the North-East Atlantic.*
Seabed Sediments and Habitats	As the proposed activities will not impact the seabed or its associated ecosystem, only a brief overview of the sediments and habitats at Gannet A is given here. A survey carried out at the Gannet A platform in 2011 (Fugro, 2011) interpreted the area to predominantly comprise silty fine sand with patches of clay, ranging in thickness from less than 1 m to more than 7 m. These sediments were found to be underlain by very soft to soft clays embedded with clayey sands. The epifauna seen during the environmental monitoring survey (Fugro, 2011) was sparse, as is typical of soft sediment habitats. Sea pens (*Pennatula phosphorea*) were the only sessile epifauna regularly seen in the area, although some barnacles (Cirripedia) and dead men's fingers (*Alcyonium digitatum*) were seen attached to shells at one station, and a plumose anemone (*Metridium senile*) was also recorded. Occasional sponges (Porifera) and bryozoa were present throughout the survey area, but the general lack of hard substrate inhibited colonisations by epilithic (rock-attached) species in most of the area. An environmental survey carried out across the Gannet Field in 2020 also identified the presence of fine sand across the survey area (Fugro, 2020). Sea pens (*Pennatula phosphorea* and *Virgularia mirabilis)* and faunal burrows were recorded in the 2020 survey, so there is the potential for the presence of the OSPAR-listed threatened and/or declining habitat 'sea pens and

Table 4-1: Environmental Sensitivities	
Environmental Receptor	**Main Features**
	burrowing megafauna communities' to occur within the vicinity of the Gannet A platform (Fugro, 2020).
Fish	Several species of fish, including cod, lemon sole, mackerel, Norway pout, *Nephrops* and sandeels, use the area as a spawning site. In addition, a number of species, including anglerfish, blue whiting, cod, haddock, hake, herring, ling, mackerel, *Nephrops,* Norway pout, plaice, sandeels, spurdog, whiting and sprat use the area as a nursery ground (Coull *et al*., 1998; Ellis *et al*., 2012). Some of these species are Scottish PMF, including anglerfish, herring, mackerel, cod, blue whiting, ling, Norway pout, sandeels, spurdog and whiting (JNCC, 2014). Given that the proposed activities will not result in discharges to the water column or disturbance to the seabed, no significant impact on fish is expected.
Fisheries	The Gannet A platform is located within International Council for the Exploration of the Sea (ICES) rectangle 43F0 and is close to rectangle 43F1. In 2022, commercial fishery landings from 43F0 and 43F1 accounted for 0.06% and 0.03% respectively of the total value (£) of UK landings, and 0.06% and 0.02% respectively of the total weight (te) of UK landings. Demersal species were the dominant species type landed from these rectangles in 2022, whilst the dominant gear types in recent years (2018 to 2022) were trawls and seine nets (Marine Scotland, 2023). Given that the proposed activities will occur at a platform with an existing 500 m safety zone, no significant impact on fisheries is expected.
Marine Mammals	Cetacean species which may use the Gannet area throughout the year include harbour porpoise, minke whale, white-beaked dolphin and Atlantic white-sided dolphin. There is also a small possibility that fin whales might be found in the area. Seal distribution maps indicate that seals are unlikely to be found in the Gannet area (Carter *et al*., 2022). However, aerial surveys carried out in support of the Cenos Offshore Windfarm Scoping Report (Flotation Energy, 2023) identified low numbers of grey seals in the area of the East of Gannet and Montrose Fields NCMPA. Under the Conservation of Habitats and Species Regulations 2017 (as amended) all cetaceans are European Protected Species (EPS) and are protected regardless of their location. In addition, harbour porpoise and grey seal are also considered to be Annex II species. All species identified are also PMFs in Scotland. Given the scope of the proposed activities, it is not anticipated that there will be significant impacts on marine mammals.
Birds	A number of bird species are seen in the Gannet area including guillemot, razorbill and puffin. Seabird densities in the Gannet area range from

Table 4-1: Environmental Sensitivities	
Environmental Receptor	**Main Features**
	≤1-10 individuals per km^2 over the winter months (November – March) to ≤1- 20 km^{-2} in the breeding/summer months (April – October). The majority of species are present at densities of ≤1 – 10 individuals per km^2 throughout both seasons. Birds are not known to nest on the Gannet mast, and the proposed activities are not expected to have a significant impact on birds.
Onshore Communities	No onshore community sensitivities that would be impacted by the proposed activities have been identified.
Other Users of the Sea	The density of shipping in the Gannet area ranges from 0 hours per km^2 per month to <5 hours per km^2 per month (EMODnet, 2023). There are several surface installations in the wider vicinity, including the Triton Floating Production Storage and Offloading (FPSO) *c*. 6 km south-west, the Anasuria FPSO *c*. 7 km west, the Arbroath platform *c*. 36 km north-east and the Montrose A platform *c*. 44 km north-east. The closest operational wind farm is the Hywind Scotland wind farm located off the coast of Peterhead, over 100 km west of the Gannet area. The Gannet A platform is located *c*. 18 km east of the closest successful Innovation and Targeted Oil & Gas (INTOG) site. Given the scope of the activities, the existing 500 m safety zone around the Gannet A platform and the distance from other installations, it is not anticipated that there will be any significant impact on other sea users.
Atmosphere	The main source of atmospheric emissions associated with the proposed activities will be the use of vessels. These emissions have the potential to impact local air quality and to contribute to global warming. Given the offshore location and the limited number of additional vessel movements (if any), any impacts on local air quality are not expected to be detectable above current background levels. Concern regarding the emission of greenhouse gasses (GHGs) is focused on the impact they have on global climate change. The project will use one of the existing supply vessels supporting the Gannet A to transport the mast to shore. It is estimated that the movements for the Gannet mast decommissioning will comprise one round trip per week, and that these transits this will give rise to a total of approximately 496 tonnes of CO_2 emissions. Consequently, because of the short duration of the offshore vessel campaign, any additional use of vessels will result in a minimal contribution to global warming.

4.3 Potential Environmental Impacts and their Management

An ENVID was carried out which examined the planned programme of work and identified all the possible sources of impact. The results of the ENVID indicate that there would be no significant impacts as a result of the proposed activities. Potential impacts from planned and unplanned events are summarised in Table 4.2. Table 4-3 lists other sources of impact that were not considered further and the reasons for their exclusion.

Table 4-2: Potential Impacts from Planned and Unplanned Events

Activity	Main Impacts	Management of Impacts
Gannet Mast Removal	**Emissions to Air** Emissions of CO_2, NOx, N_2O, VOCs, CO and SO_2 associated with vessel operations will contribute to a reduction in air quality and impact on climate change.	• Minimise vessel use. For example, if possible the project will use one of the existing supply vessels supporting Gannet A to return the mast to shore. • Minimisation of emissions from vessels forms part of Shells' selection criteria when tendering and selecting execution vessels. • Vessels will be required to have a Shipboard Energy Efficiency Management Plan (SEE) in place.
	Nesting Birds	• Nesting birds have not previously been identified on the Gannet mast, so the proposed activities are not expected to impact birds.
	Waste Generation Recovered material will be classed as waste	• Materials from the mast will be managed in line with the waste hierarchy. Since the mast primarily comprises steel, it is expected that over 97% by weight of recovered material will be recycled. • Only licensed waste management contractors will be contracted to handle, store, recycle and dispose of any waste generated by the proposed activities. • The fate of all waste materials will be tracked in accordance with Shell's Waste Control Framework – i.e. up to the point where materials can no longer be traced as Shell's waste. Typically, this will be the point at which the waste is delivered to a smelter or similar recycling facility or, where recycling/re-use is not possible, at the point of disposal.

Gannet Mast Removal	**Unplanned/Accidental Events** Worst case accidental events during the proposed activities would be a loss of diesel inventory from the vessels.	Preventing / minimising probability of an event: The vessel(s) utilised in the decommissioning programme will be subject to vessel assurance as per Shell's Global Maritime Assurance System (GMAS) verification. Reducing consequences: A tiered system of responses is identified in the Gannet Field System OPEP including mobilisation of the Onshore Emergency Response Team, aerial surveillance and the mobilisation of Offshore Mechanical Containment and Recovery, as appropriate. Given the existing mitigation measures, the likelihood of the loss of fuel inventory from a vessel is considered remote. To inform the current Field OPEP, modelling conducted by Shell included stochastic modelling of the instantaneous release of 2,695 m^3 of diesel from an in-field vessel. Under worst-case conditions, this modelling showed that (i) the spill would not reach the shorelines of either the UK or mainland Europe; and (ii) all diesel would disperse naturally within 5 days.

Table 4-3: Possible Sources of Impact Excluded from Further Consideration

Event	Reason for Exclusion
Vessel Noise	Marine mammals in the North Sea are acclimatised to the presence of vessels. In addition, the project will aim to consider the use of existing supply vessels to transport the mast back to shore. Given the size and weight of the mast, only a small amount of additional vessel time will be required to transport waste material to shore. Any impacts on marine mammals will be of short duration and not considered significant. There are no other sources of underwater noise associated with the proposed scope.
Seabed Disturbance	The scope of work does not result in any impact on the seabed. The vessels used to transport the mast to shore will not require to deploy anchors at the offshore location.
Impact to Other Users of the sea	The proposed activities will take place within an existing 500 m safety zone, an area not frequented by other sea users.

5 INTERESTED PARTY CONSULTATIONS

Initial contact has been made with OPRED ODU and the HSE.

Formal engagement with statutory consultees will begin on submission of the draft DP to OPRED.

Table 5-1: Summary of Stakeholder Comments		
Who	**Comment**	**Response**
1. Informal Stakeholder Consultations		
2. Public		
3. Statutory Consultations		
National Federation of Fishermen's Organisations		
Scottish Fishermen's Federation		
Northern Ireland Fish Producers Organisation		
Global Marine Group		
North Sea Transition Authority		

6 PROGRAMME MANAGEMENT

6.1 Project Management and Verification

A Project Management team has been appointed to manage suitable (sub)contractors for the disconnection and removal activities. Standard Shell procedures for operational control, hazard identification and hazard management will be used.

The process of obtaining consents, and completing the consultations required as part of this process, has commenced and will be fully managed and monitored throughout the project.

If any changes to the offshore removal programme are required, these will be discussed and agreed with OPRED in advance.

As required by the BEIS (DESNZ) Guidance Notes, the United Kingdom Hydrographic Office will be notified of any aspect of the programme that would have implications for navigation around the Gannet A platform.

6.2 Assessment and Management of Safety Risks

6.2.1 Hazard Identification and Risk Assessments

Shell UK have opted to utilise the services of specialist third party contractors who have expertise in the piece-small dismantling of drilling derricks in the UKCS. They supplied previous case-studies, HAZID and Risk Assessment information to Shell, which informed and supported the conclusion that the risks associated with the piece-small dismantling of the Gannet A mast could be managed to a level that is considered As Low As Reasonably Practicable (ALARP).

As planning for the project progresses, further HAZID and Risk Assessment workshops will be undertaken which will focus specifically on the scope being executed on Gannet A.

6.2.2 Major Accident Hazard Screening

An assessment of the possible implications of the project on the Gannet Major Accident Hazards (MAH) has been undertaken. No new MAHs will be introduced as part of the mast removal or dismantling activities. A small reduction in risk will be realised once the mast is removed.

6.2.3 Potential Risks

The most obvious potential sources of safety risk are crane failure and dropped objects.

Dropped objects can result in direct harm to personnel or damage to topside equipment which could lead to cascading hazardous events. Prevention of dropped objects will be achieved by the careful control of all cutting and lifting activities during each phase of the offshore dismantling process. All lifting activities will be subject to the controls required by Shell UK's Lifting and Hoisting Procedure. Key aspects of the controls include:

- all lifts will be suitably planned and engineered, and subject to the relevant LOLER approvals
- the dismantling of the mast will be engineered such that activities can be suspended without compromising the structural integrity of the mast
- provision of competent crane operators and dismantling personnel
- ensuring a regular programme of inspection, maintenance and testing for all lifting appliances to ensure they are fit for purpose

- ensuring that hoisting and lifting equipment is checked prior to use
- provision of competent rigging personnel as required
- controlled issue of certified hoisting and lifting equipment prior to use

In preparation for the dismantling of the mast, the DES will be skidded to a location that affords the maximum degree of accessibility for the platform's cranes; this will minimise the number of cuts and lifts required. Drops sweeps and surveys will be undertaken before work starts and at regular intervals during the dismantling process. A SIMOPS matrix will be developed and restrictions on other simultaneous work that may interact with the dismantling activities may be imposed.

Exclusion Zones with barriers will be erected to prohibit personnel entering areas where there may be a risk of dropped objects.

Vulnerable items of equipment (e.g. live hydrocarbons, sensitive equipment) that cannot be removed from a potential drop zone will be risk-assessed on a case-by-case basis taking account of the load being lifted and the potential consequences of failure. Additional controls may be adopted in these circumstances.

No new Safety and Environment-Critical Elements (SECE) will be introduced on Gannet A following the removal of the mast.

6.3 Post-Decommissioning Debris Clearance and Verification

No post-decommissioning debris clearance is proposed at this time, for the following reasons:

1. Any potential impact to the seabed would be from unplanned dropped objects. These would be closely observed and subject to a PON2 submission, with the opportunity to conduct remediation or subsequent targeted monitoring and evaluation, if warranted.
2. The later DP for the whole Gannet A installation will include a post-decommissioning survey of debris and its clearance.

6.4 Schedule

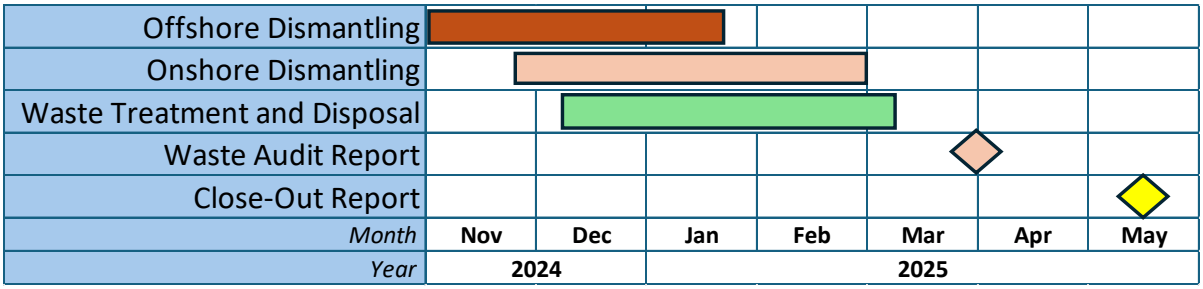

Figure 6.1: GANTT Chart of Project Plan

6.5 Costs

At the time of public consultation, a 'commercial – in confidence' version of this document will be submitted to OPRED, providing the estimated costs of the Gannet A Mast decommissioning in the OEUK WBS format.

Table 6-1: Provisional Decommissioning Programme Cost

Item	Estimated Cost (£m)
Engineering	Provided to OPRED
Manufacturing	Provided to OPRED
Offshore Execution	Provided to OPRED
Manpower and Equipment	Provided to OPRED

6.6 Close Out

In accordance with the BEIS (DESNZ) Guidance Notes, a Close Out Report will be submitted to OPRED within 12 months of completion of the offshore decommissioning programme of work.

6.7 Post-Decommissioning Monitoring and Evaluation

No post-decommissioning monitoring is proposed at this time, for the following reasons:

1. All the work will be carried out on the topsides.
2. Any potential impact to the seabed would be from either unplanned spills or discharges or dropped objects. These would be closely observed and subject to a PON1 submission (for releases) or a PON2 submission (for dropped objects), with the opportunity to conduct remediation or subsequent targeted monitoring and evaluation, if warranted.
3. The later DP for the whole Gannet A installation will include a post-decommissioning monitoring programme.

7 SUPPORTING DOCUMENTS

Table 7.1: Supporting Documents

Ref	Title
[1]	The Petroleum Act 1998
[2]	BEIS (DESNZ) Guidance Notes - Decommissioning of Offshore Oil and Gas Installations and Pipelines November 2018
[3]	Shell, 2023. Gannet: Environmental Assessment Justification (EAJ). PRA/53.
[4]	Environmental & Resources Technology LTD (ERT), (1990). Shell Gannet Centraol Baseline Environmental Survey.
[5]	Environmental & Resource Technology (ERT) LTD. (1994). Shell Gannet A Environmental Survey.
[6]	Fugro Survey Ltd (2008). Environmental Survey, Gannet Field, UKCS Blocks 21/25, 21/30, 22/21, 22/26a. Report No.9298V1.2
[7]	Fugro Survey LTD (2011). Environmental Survey, Gannet Filed UKCS Blocks 21/25, 21/30, 22/21 & 22/26a. Report No. 00305.5V1.1
[8]	Fugro (2018). Environmental Monitoring Survey Gannet UKCS Blocks 21/25, 21/30, 22/21 and 22/26a. survey Period 12 July – 7 August 2013 & 25 – 26 August 2013. Report No:130927V1.0, Rev 2.
[9]	Fugro (2020). Edinburgh and Gannet Environmental Surveys. Gannet Monitoring Survey. UKCS Blocks 30/14, 21/25, 21/30, 22/21 & 22/26a. Environmental Monitoring Report. Survey Period: 22 to 24 June 2020. Fugro Project No: 200363
[10]	JNCC (2014). Priority Marine Features in Scotland's seas.
[11]	Marine Scotland (2023). 2022 Scottish Sea Fisheries Statistics - Fishing Effort and Quantity and Value of Landings by ICES Rectangles. DOI: 10.7489/12419-1. [Online] Available at: https://data.marine.gov.scot/dataset/2022-scottish-sea-fisheries-statistics-fishing-effort-and-quantity-and-value-landings-ices
[12]	Carter, M.I., Boehme, L., Cronin, M.A., Duck, C.D., Grecian, W.J., Hastie, G.D., Jessopp, M., Matthiopoulos, J., McConnell, B.J., Miller, D.L. and Morris, C.D. (2022). Sympatric seals, satellite tracking and protected areas: habitat-based distribution estimates for conservation and management. Frontiers in Marine Science, 9, pp.875-869.
[13]	Flotation Energy (2023). Cenos Offshore Windfarm Scoping Report. February 2023. Available for download from https://marine.gov.scot/node/23676.
[14]	EMODnet (2023). EMODnet Human Activities, Vessel Density Map. Available at: https://emodnet.ec.europa.eu/geonetwork/srv/eng/catalog.search#/metadata/0f2f3ff1-30ef-49e1-96e7-8ca78d58a07cFugro (2015). Penguin FPSO Project, UKCS Block 211/14, Habitat Assessment Desktop Study. Report number: 140605-65V1.5
[15]	Shell (2024). Marine Licence Application ML/1199/0 – Gannet Mast Removal
[16]	Shell (2024). Gannet PRA/53 Environmental Justification

These documents are available as follows:

1. At the Shell website at https://www.shell.co.uk/sustainability/decommissioning.html
2. Electronic copies may be requested by emailing SUKEP-Shell-Decommissioning-Correspondence@shell.com or writing to Decommissioning Business Opportunity Manager, Decommissioning Strategy, Shell U.K. Limited, The Silver Fin Building, 455 Union Street, Aberdeen, AB11 6DB.

8 SECTION 29 NOTICE HOLDERS' LETTERS OF SUPPORT

Letters of support from the Section 29 Notice Holders will be included in the final version of this DP.

APPENDIX 1 – PUBLIC NOTICE

The Petroleum Act 1998

Gannet A Platform Mast Decommissioning Programme

A copy of the Public Notice will be appended to the final version of this DP.