

wardell-armstrong.com

ENERGY AND CLIMATE CHANGE  
ENVIRONMENT AND SUSTAINABILITY  
INFRASTRUCTURE AND UTILITIES  
LAND AND PROPERTY  
MINING AND MINERAL PROCESSING  
MINERAL ESTATES  
WASTE RESOURCE MANAGEMENT



**ASCO UK LTD**

**GREAT YARMOUTH SHIP TO SHORE FACILITY**

**AMENITY AND ACCIDENT RISK ASSESSMENT**

**APRIL 2023**

**DATE ISSUED: APRIL 2023**  
**JOB NUMBER: BM12124**  
**REPORT NUMBER: 0001**  
**VERSION: V2.0**  
**STATUS: FINAL**

**ASCO UK LTD**

**GREAT YARMOUTH SHIP TO SHORE FACILITY**

**AMENITY AND ACCIDENT RISK ASSESSMENT**

**APRIL 2023**

**PREPARED BY:**

Katie Heath Senior Waste and Resources Consultant



**REVIEWED BY:**

Luke Prazsky Regional Director



**APPROVED BY:**

Alison Cook Regional Director



*This report has been prepared by Wardell Armstrong LLP with all reasonable skill, care and diligence, within the terms of the Contract with the Client. The report is confidential to the Client and Wardell Armstrong LLP accepts no responsibility of whatever nature to third parties to whom this report may be made known.*

*No part of this document may be reproduced without the prior written approval of Wardell Armstrong LLP.*



## CONTENTS

1	INTRODUCTION.....	1
2	RECEPTORS.....	2
3	RISK ASSESSMENT .....	3
4	CONSERVATION RISK ASSESSMENT .....	10
5	FLOOD RISK ASSESSMENT .....	13

## TABLES

Table 2:1	Receptors within 2km of the ASCO waste transfer facility.....	2
Table 3:1	Risk Assessment for the ASCO Great Yarmouth bulking up facility.....	5
Table 4:1	Conservation areas within 3km of the proposed facility.....	10

## DRAWINGS

BM12124-001	Site Location Plan
BM12124-002	Environmental Permit Boundary and Site Layout

## 1 INTRODUCTION

- 1.1.1 ASCO UK Ltd proposes to develop a waste storage facility (tank farm) at its 'ship to shore' site on South Denes Road, Great Yarmouth. The location of the site is shown on drawing BM12124-001.
- 1.1.2 The facility will accept up to 20,000 tonnes per annum of hazardous and non-hazardous wastes from the oil and gas industry, including off-shore platforms and drilling rigs and onshore gas terminals.
- 1.1.3 Under the Environmental Permitting (England and Wales) Regulations 2016, the proposed storage of hazardous waste is classified as an installation activity and listed under Schedule 1, Part 2, Section 5.6 A(1), while the storage of non-hazardous waste is classified as a waste operation. The physico-chemical treatment (by gravity separation) of hazardous waste for recovery or disposal and the physico-chemical treatment of non-hazardous waste for disposal are also listed activities, falling under Section 5.3 A(1) and Section 5.4 A(1), respectively. The treatment of non-hazardous waste for recovery is classified as a waste operation.
- 1.1.1 Permitted wastes will be limited to drilling fluids contaminated with hydrocarbons, plus other liquid and slurry wastes from offshore drilling and onshore gas holders. No Naturally Occurring Radioactive Materials (NORM) will be deposited at the facility. Waste deliveries will be made by ship and road tanker and all wastes will be removed from site by road tanker.
- 1.1.4 The facility will comprise five storage tanks with a total storage capacity of 550m<sup>3</sup>. All tanks will be located within a single bund with a capacity of c. 392m<sup>3</sup> that provides sufficient capacity for 110% of the largest tank (c. 160m<sup>3</sup>) and at least 25% of the total tank capacity. Hazardous and non-hazardous wastes will not be stored in the same tank.
- 1.1.5 The permit boundary is shown on drawing BS12124-002 and includes the tank farm, all related pipework and an area adjacent to the bund for the deposits and offtake of waste by road tankers. The wider ASCO site includes a lower tier COMAH facility which is located adjacent to the permit boundary of the ship to shore site.
- 1.1.6 The facility and its operations have been designed with environmental protection as a priority and will be operated under an Environmental Management System (EMS) accredited to ISO14001. Accordingly, an accident and amenity risk assessment, habitats assessment and flood risk assessment have been prepared in order to support

the permit application, demonstrating that risk of harm to human health and the environment from the new activities is controlled and minimised at all times

- 1.1.7 Potentially sensitive residential, industrial and ecological receptors proximal to the site are discussed further in section 2. A separate habitats risk assessment including a discussion of potentially sensitive ecological receptors is provided in section 4.
- 1.1.8 The risks from the proposed activities include risks to surface and groundwaters. All potential risks are discussed further in section 3.
- 1.1.9 The facility is located in a flood risk zone 3. A flood risk assessment is included as section 5 confirming that the potential impact from a flood event has been considered and will be suitably mitigated.

## 2 SENSITIVE RECEPTORS

- 2.1.1 The facility is located on the quayside of Great Yarmouth Harbour on the tidal River Yare, South Denes Road, Great Yarmouth NR30 3LX. The National Grid Reference for the facility is TG 52665 05690. The River Yare directly borders the facility and the North Sea is some 600m to the East. Drawing reference BM12124-001 shows the wider location of the site, for context.
- 2.1.2 There are several key sensitive receptors within 2km of the site boundary. Due to the tidal nature of the River Yare and seas, additional and important designated sites outside the 2km radius have also been included.
- 2.1.3 Surrounding the site are a mixture of commercial and residential premises. Several environmentally sensitive areas are in the wider geographical area of the site. These receptors include Breydon Water SSSI, North Denes SSSI, The Broads National Park, residential areas and commercial areas, as listed in Table 2.1.

<b>Table 2.1 Potential receptors within 2km of the ASCO waste transfer facility</b>			
<b>Receptor</b>	<b>Type of receptor</b>	<b>Direction</b>	<b>Approximate Distance from facility</b>
Outer Thames Estuary	Marine Special Protection Area	West	10m
ASCO COMAH installation	Industrial	North	50m
Industrial estate	Industrial	North, south and east	50m

<b>Table 2.1 Potential receptors within 2km of the ASCO waste transfer facility</b>			
<b>Receptor</b>	<b>Type of receptor</b>	<b>Direction</b>	<b>Approximate Distance from facility</b>
Housing estate	Residential	Southwest and west	240m
Housing estate	Residential	Northeast	330m
Residential housing	Residential	Northwest	380m
Southtown Common recreation ground	Leisure	West	430m
Kingsgate Community Church	Commercial/ Leisure	Northwest	580m
Southern North Sea	Marine SAC, Possible SAC	Northeast, east, southeast	620m
Harreys Industrial estate	Industrial	West	660m
Housing	Residential	Northwest	1120m
Shops and retail outlets	Retail	Northwest	1120m
The Broads	National Park	Northwest	1500m
Kitchener Road Cemetery	County Wildlife Site	North	2500m
Breydon Water	Ramsar, SPA, SSSI & LNR	Northwest	2700m
Great Yarmouth North Denes	SSSI, SPA	North	3500m
Coastal habitat Corton Cliffs	Environmental	South	3700m
Broadland/ The Broads	Ramsar, SPA, SAC	West	7400m
Halvergate Marshes	SSSI	West	7400m

2.1.4 Due to the presence of sensitive habitats in the vicinity of the site, a Habitats Risk Assessment has been provided in Section 4, demonstrating the site will be managed to ensure risk to the identified habitats is low.

### **3 RISK ASSESSMENT**

- 3.1.1 Table 3.1 below identifies the potential environmental risks that could arise from the installation. It also details how these are managed to ensure that any impact on the environment is prevented or, where that is not possible, minimised.
- 3.1.2 All identified hazards that could cause environmental harm will be subject to strict preventative or control measures.
- 3.1.3 Site infrastructure has been designed and will be maintained to prevent potential emissions of pollutants, particulates, noise and odour beyond the site boundary as far as possible and ensure the operation will not cause harm to local sensitive human and ecological receptors.
- 3.1.4 The site will operate under an ISO14001 accredited environmental management system to ensure a high standard of environmental protection is maintained. Site operatives will be trained to understand the potential environmental risks associated with the site, and their role in managing those risks. An induction will also be provided for contractors, so that they are aware of any environmental requirements.

**Table 3:1 Risk Assessment for the ASCO Great Yarmouth Ship to Shore facility**

Risk	Nature of risk	Severity	Likelihood without mitigation	Mitigation measures (Design and Operational)	Actual risk with mitigation measures
Emissions/ pollution to watercourse	Leak or spillages entering the River Yare or the sea via the River Yare	Medium	Low	<p>All wastes are transported in dedicated tankers and are offloaded or loaded with appropriate pipework that is fitted with non-return valves.</p> <p>Suitable supervision of all loading/ unloading will be carried out. Tanks will be made of materials appropriate for storage of the permitted wastes and resistant to corrosion.</p> <p>A sealed drainage system utilising automated shut-off valves is in place and utilised at the site. Only clean rainwater will be discharged from the facility. Spillage kits will be in place and available for use at the site on minor spills. Staff will be trained in their use.</p> <p>The site Environmental Management System will ensure that the staff are suitably trained and appropriate measures are in place to prevent emissions or harm to the environment.</p> <p>Site contractors and external suppliers will be trained and made aware of the site requirements and dangers to ensure no incidents or accidents occur.</p>	Very low
Emissions/ pollution to Groundwater	Leaks or spillages entering underlying groundwater	Medium	Low	<p>All tanks will be located within a single bund with a capacity of c. 392m<sup>3</sup> that provides sufficient capacity for 110% of the largest tank (c. 160m<sup>3</sup>) and at least 25% of the total tank capacity. The bund has been constructed to [BS8500:2015].</p> <p>Tertiary containment is also provided through the wider site surface water drainage system which will provide a sealed drainage system. This also effectively provides secondary containment for the reception point (pipe connection) and outloading areas of the facility.</p>	Very Low



**Table 3:1 Risk Assessment for the ASCO Great Yarmouth Ship to Shore facility**

Risk	Nature of risk	Severity	Likelihood without mitigation	Mitigation measures (Design and Operational)	Actual risk with mitigation measures
				<p>The site Environmental Management System will ensure that the staff are suitably trained and appropriate measures are in place to prevent emissions or harm to the environment. Appropriate inspection and maintenance of site infrastructure will be undertaken to ensure environmental protection is preserved.</p> <p>Site contractors and external suppliers will be trained and made aware of the site requirements and dangers to ensure no incidents or accidents occur.</p>	
Plant breakdown	Causing leak or spillage, over fill or other containment failure	Medium	Low	<p>A preventative maintenance schedule will be in place and this will identify any plant requiring repair as well as ensuring it is kept in a serviceable and appropriate condition.</p> <p>Trained site staff will be on site at all times during operational hours for receipt of waste and so will identify any issues immediately.</p> <p>The Environmental Management System will require that all plant and infrastructure remains in good condition and is maintained to a good standard. Any breakdown or malfunction will be reported immediately.</p> <p>There are non-return valves in place on the plant and tanks to minimise the risk of spillage. Secondary containment is provided that is constructed to British Standard BS8500.</p>	Very low
Fire	Fumes and escape of wastes or fire water runoff	Low	Very low	<p>There are no flammable wastes that are contained at the site. Should a fire start in a neighbouring facility then the tanks are contained in an area with secondary containment which will ensure that any spillages or damage to tanks, along with fire waters, will be adequately retained so as not to cause a pollution.</p>	Very low
Noise and Vibration	Noise during waste delivery and off-take	Low	Low	<p>The operations at the site are generally quiet, with noisy operations limited to the landing and dispatch of waste, which generally leads to a period of</p>	Very Low

**Table 3:1 Risk Assessment for the ASCO Great Yarmouth Ship to Shore facility**

Risk	Nature of risk	Severity	Likelihood without mitigation	Mitigation measures (Design and Operational)	Actual risk with mitigation measures
				<p>intense activity. Pumps in use at the site are modern and well maintained, preventing pollution from noise or vibration.</p> <p>The facility is located in an area of industrial activity and therefore any noise generated by operations onsite are unlikely to cause a nuisance to nearby receptors.</p> <p>Noise will be assessed during delivery, delivery and offtake of waste as well as during routine inspection. Records will be kept of any detected instances or complaint of excessive noise, as well as the results of any investigation and measures put in place to prevent future nuisance.</p>	
Amenity impacts	Odour, dust, litter, pests.	Low	Low	<p>There are no odorous wastes associated with this facility. Additionally, wastes are kept within a sealed tank and are pumped through sealed pipes from the point of delivery. This ensures they are never exposed to the air further preventing risk of odour.</p> <p>Wastes are not inherently dusty as they have high moisture contents. Good housekeeping measures will prevent the build-up of dirt on site roads that have the potential to lead to dusty emissions.</p> <p>By its nature, the wastes accepted at this facility will not attract or encourage pests or vermin. Strict waste acceptance procedures and good housekeeping measures will be employed to ensure risk of attracting pests and vermin is kept to a minimum.</p> <p>The incoming waste is not capable of causing litter problem. Mitigation measures to prevent litter will include regular site checks by staff and dedicated litter bins for staff waste, along with covered waste containers for canteen and other general waste produced on site and are awaiting collection.</p>	Very low

Table 3:1 Risk Assessment for the ASCO Great Yarmouth Ship to Shore facility					
Risk	Nature of risk	Severity	Likelihood without mitigation	Mitigation measures (Design and Operational)	Actual risk with mitigation measures
				Site staff are trained to ensure that any issues are noted and reported, and remedial measures are instigated.	

- 3.1.5 The site will be operated to the in accordance with BAT and relevant Environment Agency guidance. There are very few potentially polluting activities that will be carried out at the facility.
- 3.1.6 Regular checks and visual observations by trained site staff and management will ensure that preventative measures are in place and any occurrence that could give rise to pollution will be identified and resolved. These remedial measures are detailed and reviewed in the Environment Management System (EMS).
- 3.1.7 The receptors in the area of the site are well known and while some are in close proximity to the site, these are afforded a high level of protection by the facility's operational controls.
- 3.1.8 The site is relatively small-scale activity and wastes will be contained within sealed tanks on site. These are provided with secondary containment. Trained staff will ensure that deliveries and dispatches of waste are carried out appropriately.
- 3.1.9 Given that there are no anticipated emissions from the site and no activities that could reasonably be expected to cause any, then impact on any receptor is unlikely to occur during the life of the facility.
- 3.1.10 There is little opportunity, if the appropriate measures and housekeeping are maintained, for a pathway to be created from the facility to any receptor.

## 4 HABITATS RISK ASSESSMENT

4.1.1 There are several designated habitats identified in close proximity to the proposed facility. Additional designated sites beyond 2km have also been identified due to the presence of tides around the site that may carry any emissions beyond 2km.

Table 4.1 identifies these designated sites and the mitigation measures that will be in place to protect them.

Table 4:1 Conservation areas within 3km of the proposed facility			
Site name	Designations	Reason for designation	Mitigation
<b>Breydon Water</b>	<b>SSSI, Ramsar, Special Protection Area, Local Nature Reserve</b>	<p>Exposed muds at low tide are the only intertidal mud flats in East Norfolk, supporting many wildfowl and wader populations.</p> <p>Nationally important numbers of over-wintering wildfowl and other rare species.</p> <p>Significant botanical interest in saltmarsh, reedbeds and brackish water communities along with rich invertebrate populations including scarce snail species and uncommon mollusc <i>Assiminea Grayana</i>.</p>	<p>The facility is 2.7km from the site and is located next to the River Yare. The tidal Yare could transport pollutants to this SSSI if they were spilt at the site and entered the River Yare.</p> <p>The facility operates in accordance with an Environmental Management System with documented procedures for supervising deliveries, preventing spills and leaks and maintaining containment structures.</p> <p>Appropriately constructed and designed tanks are used. The site has sealed drainage provided by automated shut off valves and secondary containment, sealed tanks and pipes.</p> <p>Spill kits and a clear accident plan further enhance protection.</p>
<b>Outer Thames Estuary and South North Sea</b>	<b>Candidate Special Protection Area and Candidate Special Area of Conservation.</b>	<p>These are important feeding grounds and habitats for the Harbour Porpoise.</p>	<p>The facility is not capable of disturbing the feeding areas of the Porpoise.</p> <p>The use of sealed drainage and tanks at the site will prevent any leaks and spills at the site damaging the habitats.</p>
<b>Great Yarmouth North Denes</b>	<b>SSSI, Special Protection Area</b>	<p>Important dune system with an accreting Ness/prominatory. This supports the full range of vegetation succession - from pioneer to mature types.</p> <p>There is an important Little Tern colony present and the Ness is actively accreting.</p>	<p>The facility is 3.5km from this SSSI and is not expected to impact on it during its normal operations and activities.</p> <p>The sealed storage tanks and drainage at the site will mean that there is little opportunity for the facility to affect this habitat.</p>

**Table 4:1 Conservation areas within 3km of the proposed facility**

Site name	Designations	Reason for designation	Mitigation
			There are no airborne emissions or other point source emissions that could affect this designated site.
<b>Corton Cliffs</b>	<b>SSSI</b>	The cliffs show important geological sequences that demonstrate a nationally important Pleistocene site with three tills overlain by glacial deposits.	<p>The site is sufficiently far away from the designated site that it will not impact it.</p> <p>There are no point source emissions from the site and the site is not able to damage or affect the exposed geological sequences at this SSSI.</p>
<b>Broadland/ The Broads</b>	<b>Ramsar, SAC, SPA, National Park</b>	The Broads are Britain's largest protected wetland and are home to a wealth of wildlife, especially birdlife. It contains important habitats including humid and mesophile grassland, Broad-leaved deciduous woodland, Bogs, Marshes, Water fringed vegetation and inland water bodies.	<p>The site is sufficiently far away from the designated site that it will not impact it.</p> <p>The sealed storage tanks and drainage at the site will mean that there is little opportunity for the facility to affect this habitat.</p> <p>There are no airborne emissions or other point source emissions that could affect this designated site.</p>
<b>Halvergate Marshes SSSI</b>	<b>SSSI</b>	Includes land which forms part of the Broadland SPA/Ramsar and SAC. Halvergate Marshes form the largest expanse of traditionally managed grazing/grass marshes with their intersecting system of drainage ditches, in Broadland. The soils are peaty along the upland margin and grade into clay alluvial soils nearer the Breydon estuary. A well-developed band of woodland occurs along the upland marsh margin and small areas of unimproved pasture, wet fen meadow, reedbed and alder carr add to the diversity of the habitat.	<p>The site is sufficiently far away from the designated site that it will not impact it.</p> <p>The sealed storage tanks and drainage at the site will mean that there is little opportunity for the facility to affect this habitat.</p> <p>There are no airborne emissions or other point source emissions that could affect this designated site.</p>
<b>Kitchener Road Cemetery</b>	<b>County Wildlife Site</b>	The St. Nicholas Churchyard and the Old and New Cemeteries on either side of Kitchener Road occupy over 40 acres of green space in the centre of Great Yarmouth. The cemeteries are of local and regional significance, both for the fine monuments which display the town's rich social history, and as an important habitat for wildlife.	<p>The site is sufficiently far away from the designated site that it will not impact it.</p> <p>There are no airborne emissions or other point source emissions that could affect this designated site.</p>

- 4.1.2 The use of an ISO14001 accredited Environmental Management System will ensure that emissions are minimised.
- 4.1.3 The use of bunded storage tanks combined with sealed drainage, spill kits and written accident management procedures, mean that the likelihood of the facility impacting on the designated sites is very low. Secondary containment is provided for the tanks by the bunded area. Tertiary containment is also provided through the wider site surface water drainage system which will provide a sealed drainage system. This also effectively provides secondary containment for the reception point (pipe connection) and outloading areas of the facility.
- 4.1.4 The distance from the proposed facility to the designated sites, along with the lack of any point-source emissions from the site and the housekeeping and preventative measures in place to prevent fugitive emissions, ensures that there are no pathways from the facility to any receptor should any incident occur.
- 4.1.5 The facility therefore presents no risk to these designated sites.

## 5 FLOOD RISK ASSESSMENT

5.1.1 An assessment of the level of flood risk to the site, from all sources, has been made and is detailed below. The potential sources of flooding which have been identified are fluvial/tidal flooding from the Great Yare, surface water flooding, extreme sea-level rise, groundwater, and sewers and drains. It is considered that there is no risk of flooding to the site from reservoirs or artificial sources such as canals or impounded waterbodies.

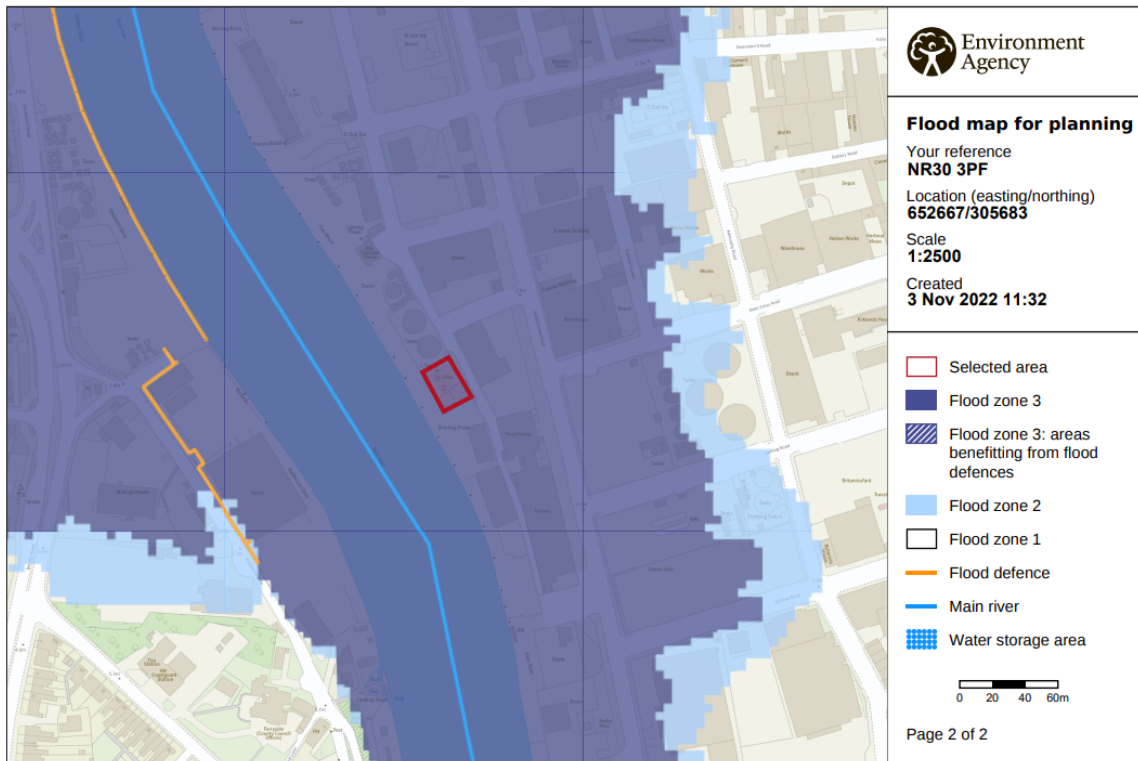
### 5.2 Historic Flooding

5.2.1 Data provided by the Environment Agency shows the site to have been affected by a flood event in 1953. Following this flood event, the flood defence walls along the River Yare have been raised on an *ad-hoc* basis to improve the standard of protection.

### 5.3 Fluvial/Tidal Flooding

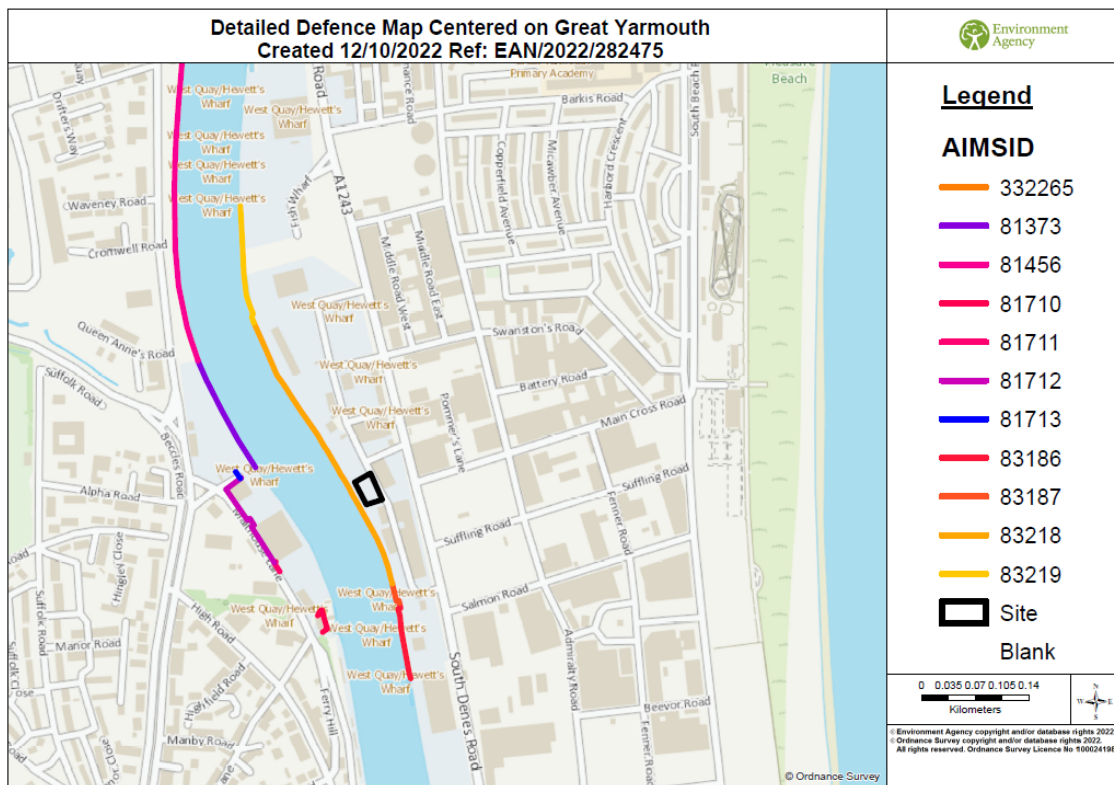
5.3.1 The site is located adjacent to the Great Yare, a Main River, which flows southwards and is tidally influenced at this location. The site is shown on the Environment Agency's Flood Map for Planning to be located within Flood Zone 3 (High Risk) of the Great Yare. This is land assessed as having an annual probability of flooding from rivers 1 in 100 years or greater (ie AEP >1%), and/or from the sea of 1 in 200 years or greater (ie AEP > 0.5%). The Flood Map for Planning is included as Figure 1 below.





**Figure 1. Environment Agency Flood Map for Planning Flood Risk**

5.3.2 Flood defences are present along this section of the River Yare, which are not shown on the Flood Map for Planning. Figure 2 shows the location and reference number of the flood defences in this location. The condition and crest level of the defences along the eastern bank of the watercourse, provided by the Environment Agency, are summarised in Table 5.1 below.



**Figure 2. Flood Defences along section of River Yare, Great Yarmouth**

Table 5.1. Flood Defences Data				
Asset Reference	Asset	Standard of Protection (%)	Condition Grade <sup>1</sup>	Effective Crest Level
83186	Wall	0.33	3	3.103
83187	Wall	0.33	3	3.094
83218	Wall	0.33	4	3.098
83219	Wall	0.33	4	3.104

1. Overall condition grade: 3 = Fair (minor defects that could reduce the performance of the asset). 4 = Poor (defects that would significantly reduce the performance of the asset. Further investigation suggested).

5.3.3 A major flood defence improvement scheme is currently underway in Great Yarmouth, with the aim of improving the condition of the existing flood defences and increasing the standard of protection where needed. Information provided by the EA, however, states that there are no improvement plans for flood defences along the eastern bank of the River Yare adjacent to the site identified in Table 5.2 above.

5.3.4 Modelled flood data from the Great Yarmouth Coastal Model (2018) was provided by the Environment Agency. The maximum and minimum flood levels for nodes within the site area (nodes 4, 5, 9, 10, 11, 14, 15, 16, 21 and 22 on Figure 3 below) for the defended present day and climate change scenarios are shown in Table 5.2.

Table 5.2. Environment Agency Modelled Defended Flood Levels				
Scenario	Return Period			
	1 in 75	1 in 100	1 in 200	1 in 1000
Present Day	Min: No flood Max: 1.93mAOD	Min: No flood Max: 2.01mAOD	Min: No flood Max: 2.23mAOD	Min: 3.44mAOD Max: 3.44mAOD
Climate Change Scenario	Not modelled	Not modelled	Min: 3.73mAOD Max: 3.73mAOD	Min: 4.02mAOD Max: 4.03mAOD
Climate change allowance is based on the '+1110mm' scenario				



Figure 2. Environment Agency Flood Model Node Locations

- 5.3.5 Modelled flood levels are generally highest in the south-western areas of the site (nodes 4 and 9), and lower in northern areas.
- 5.3.6 When the flood levels are compared to the level of the flood defences shown in Table 5.1, the defences would protect the site for all storm events up to and including the 1 in 200 year storm event in the present day scenario. The defences would not, however, provide protection for the 1 in 1000 year event in the present day scenario.
- 5.3.7 The site is, however, surrounded by a bund (for containment purposes) in the form of a continuous concrete wall approximately 1.5m in height. This bund will provide protection to the site from flood waters that overtop the tidal flood defences during a storm event. The lowest minimum elevation of the bund wall is estimated to be 3.44mAOD and, therefore, provides protection up to and including the 1 in 1000 year storm event (present day scenario).
- 5.3.8 The flood level data in Table 5.2 shows, however, that site would not be protected by the bund or tidal flood defences for the 1 in 200 or 1 in 1000 year storm events where climate change is considered.
- 5.3.9 Based on the classifications for Flood Zones, the risk of flooding to the site, when flood defences and existing infrastructure is taken into consideration is located less than 1 in 1000 years or <0.1%. The risk of flooding to the internal site area is, therefore considered to be LOW.
- 5.4 Surface Water Flooding
- 5.4.1 The Environment Agency's Surface Water Flooding Map (included as Figure 4 below) shows minor areas of the site to be at a MEDIUM risk of surface water flooding. This is defined as having a less than 1% chance (ie < 1 in 100 years), but greater than 3.33% chance (> 1 in 30 years) of flooding per annum. The mapping indicates that the flood depths would be below 300mm and the velocity would be less than 0.25m/s. The hazard rating is, therefore, considered to be LOW.

## **DRAWINGS**





Contains public sector information licensed under the Open Government Licence v3.0.

© Copyright Reserved

CLIENT	ASCO Group Ltd		DRG No.	BM12124-001		REV		
	PROJECT	Great Yarmouth Ship to Shore Facility		SIZE	A4	SCALE	1:20,000	DATE
DRAWING TITLE		Site Location Plan		DRAWN BY	SJB	CHECKED BY		APPROVED BY
					■ STOKES ON TRENT   TEL 01782 276700 WWW.WARDELL-ARMSTRONG.COM			
<input type="checkbox"/> BIRMINGHAM <input type="checkbox"/> GLASGOW <input type="checkbox"/> BOLTON <input type="checkbox"/> LEEDS <input type="checkbox"/> CARDIFF <input type="checkbox"/> LONDON <input type="checkbox"/> CARLISLE <input type="checkbox"/> MANCHESTER <input type="checkbox"/> EDINBURGH <input type="checkbox"/> NEWCASTLE UPON TYNE								



DO NOT SCALE FROM THIS DRAWING

KEY

- █ PERMIT BOUNDARY
- PRESSURE RELEASE VALVE
- - - TRANSFER PIPES
- █ BUND WALL CONSTRUCTED TO BS8500 SPECIFICATION
- - - STORM DRAINAGE WITH AUTOMATIC SHUT-OFF VALVES

Tank ENV01 = 3.7m x 15.0m = 161m<sup>3</sup>  
 Tank ENV02 = 3.7m x 15.0m = 161m<sup>3</sup>  
 Tank ENV03 = 3.7m x 15.0m = 161m<sup>3</sup>  
 Tank ENV04 = 3.7m x 15.0m = 161m<sup>3</sup>  
 Tank ENV05 = 3.7m x 15.0m = 161m<sup>3</sup>



REVISION	DETAILS	DATE	DRN	CHKD	APPD

CLIENT  
**ASCO Group Ltd**

PROJECT  
**Great Yarmouth Ship to Shore Facility**

DRAWING TITLE  
**Environmental Permit Boundary and Site Layout**

DRG No.	BM12124-002	REV
DRG SIZE	SCALE	DATE
A3	1:150	18/02/21
DRAWN BY	CHECKED BY	APPROVED BY
SJB		

STOKE ON TRENT | TEL 01782 276700  
 WWW.WARDELL-ARMSTRONG.COM

<input type="checkbox"/> BIRMINGHAM	<input type="checkbox"/> GLASGOW
<input type="checkbox"/> BOLTON	<input type="checkbox"/> LEEDS
<input type="checkbox"/> CARDIFF	<input type="checkbox"/> LONDON
<input type="checkbox"/> CARLISLE	<input type="checkbox"/> MANCHESTER
<input type="checkbox"/> EDINBURGH	<input type="checkbox"/> NEWCASTLE UPON TYNE

© Copyright Reserved

**STOKE-ON-TRENT**

Sir Henry Doulton House  
Forge Lane  
Etruria  
Stoke-on-Trent  
ST1 5BD  
Tel: +44 (0)1782 276 700

**BIRMINGHAM**

Two Devon Way  
Longbridge Technology Park  
Longbridge  
Birmingham  
B31 2TS  
Tel: +44 (0)121 580 0909

**BOLTON**

41-50 Futura Park  
Aspinall Way  
Middlebrook  
Bolton  
BL6 6SU  
Tel: +44 (0)1204 227 227

**BRISTOL**

Temple Studios  
Temple Gate  
Redcliffe  
Bristol  
BS1 6QA  
Tel: +44 (0)117 203 4477

**BURY ST EDMUNDS**

Armstrong House  
Lamdin Road  
Bury St Edmunds  
Suffolk  
IP32 6NU  
Tel: +44 (0)1284 765 210

**CARDIFF**

Tudor House  
16 Cathedral Road  
Cardiff  
CF11 9LJ  
Tel: +44 (0)292 072 9191

**CARLISLE**

Marconi Road  
Burgh Road Industrial Estate  
Carlisle  
Cumbria  
CA2 7NA  
Tel: +44 (0)1228 550 575

**EDINBURGH**

Great Michael House  
14 Links Place  
Edinburgh  
EH6 7EZ  
Tel: +44 (0)131 555 3311

**GLASGOW**

24 St Vincent Place  
Glasgow  
G1 2EU  
Tel: +44 (0)141 428 4499

**LEEDS**

36 Park Row  
Leeds  
LS1 5JL  
Tel: +44 (0)113 831 5533

**LONDON**

Third Floor  
46 Chancery Lane  
London  
WC2A 1JE  
Tel: +44 (0)207 242 3243

**NEWCASTLE UPON TYNE**

City Quadrant  
11 Waterloo Square  
Newcastle upon Tyne  
NE1 4DP  
Tel: +44 (0)191 232 0943

**TRURO**

Baldhu House  
Wheal Jane Earth Science Park  
Baldhu  
Truro  
TR3 6EH  
Tel: +44 (0)187 256 0738

**International office:**

**ALMATY**

29/6 Satpaev Avenue  
Hyatt Regency Hotel  
Office Tower  
Almaty  
Kazakhstan  
050040  
Tel: +7(727) 334 1310