

## **Vattenfall Wind Power Ltd**

## **Thanet Extension Offshore Wind Farm**

Annex F to Appendix 1 to Deadline 4B Submission: Hazard Logs

Relevant Examination Deadline: 4B

Submitted by Vattenfall Wind Power Ltd

Date: April 2019

**Revision A** 

Drafted By:	Marico Marine
Approved By:	Daniel Bates
Date of Approval:	April 2019
Revision:	A

Revision A	Original document submitted to the Examining Authority

Copyright  $\ensuremath{\mathbb{C}}$  2019 Vattenfall Wind Power Ltd

All pre-existing rights retained



A P P P P P P P P P P P P P P P P P P P								M	ost Lik	elv H-	azard	)	rence	Word	Credi	ible Har	ard Occ	urrence	
Best         Auge         Auge <t< td=""><td></td><td></td><td></td><td></td><td></td><td>Consequ</td><td>ences</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>						Consequ	ences												
Image: Part Part Part Part Part Part Part Part	₽ >							Cons	equer	nce				Consec	quence	e			
	Hazard I Categor	/essel Type	Hazard Detail	Possible Causes	Туре	Most Likely Outcome	Worst Credible Outcome	e ople	roperty	nvironment	takeholders	aseline Risk	nhe rent Risk	e ople	roperty	nvironment takeholders	aseline Risk	the rent Risk	
				1 - Adverse Environmental Conditions	Narrative	Glancing Blow	Fire / Sinking / Foundering				s	-	-			o o	-	-	
Image: Proper information of the image: Properties of the image: Propering of the image: Properimage: Properimage: Properimage: Propering of the image: Propering					_			4											
1         2         3         0								-											
1         2         0         1         0         1         0         1         0 <th0< th="">         0         <th0< td=""><td>- io Ci</td><td>Class 1 or 2</td><td>Collision Class 1 or 2</td><td></td><td></td><td></td><td></td><td>┥.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Workshop attendees thoug</td></th0<></th0<>	- io Ci	Class 1 or 2	Collision Class 1 or 2					┥.											Workshop attendees thoug
Image: Normal section         Image: Normal section <td></td> <td></td> <td>vessel with another</td> <td></td> <td>People</td> <td>Minor-Single minor injury</td> <td>Major-Multiple major injuries or single fatality</td> <td>2</td> <td>2</td> <td>1</td> <td>1</td> <td>36</td> <td>18</td> <td>4</td> <td>5</td> <td>5 4</td> <td>450</td> <td>225</td> <td>contr</td>			vessel with another		People	Minor-Single minor injury	Major-Multiple major injuries or single fatality	2	2	1	1	36	18	4	5	5 4	450	225	contr
1     1 <td></td> <td></td> <td></td> <td>7 - Loss of UKC</td> <td>Property</td> <td>Minor damage-Costs £10k -£100k</td> <td>Catastrophic damage-Costs &gt;£10M</td> <td></td>				7 - Loss of UKC	Property	Minor damage-Costs £10k -£100k	Catastrophic damage-Costs >£10M												
Image: Propertion       Image: Properin       Image: Properitor       Ima								_											
Image: Propertion of the second				9 - Pilot Transfer Issues 10 -	Stakeholders	Negligible-No significant effects	Major-National adverse media publicity and/or medium-term loss of revenue	-											
				1 - Adverse Environmental Conditions	Narrative	Glancing Blow	Fire / Sinking / Foundering												
								_											
1         2         4         0         1         0								-											
Image: section         <	5	Class 2 or 4	Collision Class 3 or 4				Vessel / Talikei / Dangerous Goods	-											With TEOW in constructed
Image: biology         Section			vessel with another		People	Minor-Single minor injury	Major-Multiple major injuries or single fatality	2	2	1	1	27	18	4	5	5 4	360	240	collision for a Class 3 or 4 ve construction of the TEOW (a
1       No					Property		Catastrophic damage-Costs >£10M												
I       I				8 - Low Manoeuvrability of Vessels	Environment	Negligible-Very Small Spill	Catastrophic-Tier 3+												
No         No         Section (Section (Sec				9 - Pilot Transfer Issues	Stakeholders	Negligible-No significant effects	Major-National adverse media publicity and/or medium-term loss of revenue	_											
Normal				10 - 1 - Adverse Environmental Conditions	Narrative	Glancing Blow	Fire / Sinking / Foundering	+		+	-	_		$\vdash$	-	-			
A         A         0 construction         (add)         (add) <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>								-											
Image							Loss of life	1											
B         B <th< td=""><td></td><td></td><td>Collision vossal loss</td><td>4 - Equipment or Mechanical Failure</td><td></td><td></td><td>Cargo / Bunker Barge</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>			Collision vossal loss	4 - Equipment or Mechanical Failure			Cargo / Bunker Barge												
No         Normal         Normal         Manage Case 1400         Controlution (Second Second Sec	3 is Vess		than 90m with	5 - Human Error				_ 2	2	1	1	27	18	4	5	4 4	401	267	Workshop attendees thou constructed. With the TE
Image: Probability of section of the sectin of the section	Coll	90m		6 - Increased Traffic Density	People			_											
Image: Note with the section of the sectin of the section of the section of the section of the								_											
4         6         9								-											
4         9         Normal         2         Anadag Outbor tarific         Generating (Normal)         Conside (Normal)				10 -															
4         0					Narrative			_											
4       9       Augustan Failing Signame and Signame								-											Agreement on likelihood of Accident Investigation Bra
4         9         Tehrs of the server of th							Sinking / roundering / Capsize	-											vessels (typical of those ope loss. The UK under 12m fish
Normal       Reference       Normal       Normal <td>5</td> <td>Fishing or</td> <td>Collision Fishing</td> <td></td> <td></td> <td></td> <td>* assumes lights as per Kentish Flats</td> <td>-</td> <td></td> <td>did not result in multiple fishing vessel from collision,</td>	5	Fishing or	Collision Fishing				* assumes lights as per Kentish Flats	-											did not result in multiple fishing vessel from collision,
Image: bit in the section of the condition of the conditic conditis of the conditic conditis on the condition of the co			craft with another		People	Minor-Single minor injury	Catastrophic-Multiple fatalities	2	2	1	2	10	8	5	3	2 4	500	400	who also operate in other WC likelihood value at mo
Image: Property and proper			navigating vesser	7 - Loss of UKC	Property	Minor damage-Costs £10k -£100k	Moderate damage-Costs £100k -£1M												years, and when added to
Image: Constraint of the section of the sectin of the section of the section of the section of the section of				8 - Low Manoeuvrability of Vessels	Environment	Negligible-Very Small Spill	Minor-Tier 1												Based on continued navigat
Normal         Normal         2.000000000000000000000000000000000000				9 - Pilot Transfer Issues	Stakeholders	Minor-Bad local publicity and/or possible short-term loss of revenue	Major-National adverse media publicity and/or medium-term loss of revenue	-											agreed that an
Normal         Normal         2.000000000000000000000000000000000000				10 - 1 - Adverse Environmental Conditions	Narrative	Collides with small vessel at low speed	Collides at speed with other vessel	+		+				$\vdash$	+				
Normal Normation              - 0.00000000000000000000000					warrauve			+											
Normal Normation              - Equipment or Mechanical Failure         Image: Collision of MSX working or transition of the or OWF in report other OWF in report              - Equipment or Mechanical Failure         Image: Collision of MSX working or transition of the or OWF in report other OWF in report              - Equipment or Mechanical Failure         Image: Collision of MSX working or transition of the or OWF in report other OWF in report              - For each or Collision of MSX working or Transition of MIC              - For each or Collision of MSX working or Transition of MIC              - For each or Collision of MSX working or Transition of MIC              - For each or Collision of MSX working or Collision of MIC              - For each or Collision of MSX working or Collision of MIC              - For each or Collision of MSX working or Collision of MIC              - For each or Collision of MSX working or Collision of MIC              - For each or Collision of MSX working or Collision of MIC              - For each or Collision of MSX working or Collision of MIC              - For each or Collision of MSX working or Collision of MIC              - For each or Collision of MSX working or Collision of MIC              - For each or Collision of MSX working or Colision of MSX wor						-		1											
Normage         Normage         Section Plane			Collision of WSV	4 - Equipment or Mechanical Failure				1											
A P P P P P P P P P P P P P P P P P P P	5 uoisi	WSV	working or transiting	5 - Human Error				],	,	,	2	50	40	5	4	2 4	1000	800	With the TEOW constructed
1         1         Adverse Environment 100 damage-Cuss FLIN-FLIN         Minor damage-Cuss FLIN-FLIN		VUUV	other OWF in area	6 - Increased Traffic Density	People	Minor-Single minor injury	Catastrophic-Multiple fatalities	Ĺ		1	-	50		[ ]	•	-  -	1000	000	
Image: bit im			with another vessel					_											
Image: Note Note Note Note Note Note Note Note								-											
A       V       A       Collision Qluber traffic       Gancing Blow				9 - Pilot Transfer Issues	Stakeholders	милог-ваd local publicity and/or possible short-term loss of revenue	Major-National adverse media publicity and/or medium-term loss of revenue	-											
A       V       A       Collision Qluber traffic       Gancing Blow				1 - Adverse Environmental Conditions	Narrative	Slow Speed collision	High speed collision	+	$\vdash$					$\vdash$	+				
4       5								-											
b       b       Collision Pilot Laundwith another navigating vessel       5- Human Error       Image: Collision Pilot Laundwith another navigating vessel       5- Human Error       Image: Collision Pilot Laundwith another navigating vessel       5- Human Error       Image: Collision Pilot Laundwith another navigating vessel       5- Human Error       Image: Collision Pilot Laundwith another navigating vessel       5- Human Error       Image: Collision Pilot Laundwith another navigating vessel       5- Human Error       Image: Collision Pilot Laundwith another navigating vessel       5- Human Error       Image: Collision Pilot Laundwith another navigating vessel       5- Human Error       Image: Collision Pilot Laundwith another navigating vessel       5- Human Error       Image: Collision Pilot Laundwith another navigating vessel       5- Human Error       1mage: Collision Pilot Laundwith another navigating vessel       5- Human Error       1mage: Collision Pilot Laundwith another navigating vessel       5- Human Error       1mage: Collision Pilot Laundwith another navigating vessel       5- Human Error       1mage: Collision Pilot Laundwith another navigating vessel       5- Human Error       1mage: Collision Pilot Laundwith another navigating vessel       5- Human Error       1mage: Collision Pilot Laundwith another navigating vessel								1											
6       is an algorithm of the maximum sector of			Collinson of the state																
B       navigating vessel       6 - Increased Traffic Density       People       Minor-Single minor injury       Major-Multiple major injuries or single fatality	6 Sill Pil	ilot Launch		5 Haman Error				2	2	1	2	50	40	4	4	2 4	1000	800	With the TEOW constructed
7 January Mines demand Caste (40): C4001	8		navigating vessel					-											
Property     Minor damage-Costs £10k - £100k     Major damage - Costs £11M - £10M       8 - Low Manoeuvrability of Vessels     Environment     Negligible-Very Small Spill     Minor-Tier 1								-											
9 - Pilot Transfer Issues Stakeholders Minor-Bad local publicity and/or possible short-term loss of revenue Major-National adverse media publicity and/or medium-term loss of revenue																			
10-				10 -				1											

Notes
hought collision of Class 1 or 2 vessel was likely to occur twice as often with TEOW in place and no risk controls in place. The inherent likelihood value was therefore increased by 50%.
ucted and no risk controls in place the workshop attendees thought that the increase in likelihood of 4 vessels was not a great as for the Class 1 or 2 vessel, and they would have more sea room following W (as can pass inshore of NE Racon buoy). With the TEOW constructed and no additional risk controls in place the inherent likelihood return rate was increased by 33%.
thought collision of a vessel less than 90m a similar change as with Class 3 or 4 vessels with the TEOW the TEOW constructed and no additional risk controls in place the inherent likelihood return rate was increased by 33%.
ood of WC outcome was not reached at the workshop. A review of literature published by the Marine Branch - Analysis of UK Fishing Vessel Safety 1992 to 2006 , shows that for fishing vessels under 12m operating in the study area) there were 10 collision/contacts between 1992-2006 that results in vessel I fishing fleet at 2006 was 61119, and therefore the likelihood of vessel loss (note that most vessels lost tiple fatalities) was 10 losses for 6119 vessels over 14 years. This gives an incident rate for loss of a sion/contact of 1 in 12,238 per vessel years. The fleet operating in the study area is around 10 vessels, ther areas, and as such based on national incidents, it would be expected that the area would have a t most 1 in 2000 years. Based on the complexity of traffic profile this could be increased to 1 in 1000 d to recreational craft incidents which show a similar return rate, then a conservative estimate would be around 1 in 500 year likelihood for the WC assessment. Arigation (and fishing) of fishing vessels and recreational craft through the windfarm then the workshop t an increase in likelihood for the inherent assessment would be expected of around 20%.
rcted and no additional risk controls in place the inherent likelihood return rate was increased by 20%.
icted and no additional risk controls in place the inherent likelihood return rate was increased by 20%.

								M	ost Lik	ely Haz	ard Occ	urrenc	e W	orst Cre	edible H	azard O	currence	
ap	lory						sequences	Cons	equer	nce		elihoo in x yr:		seque	nce		elihood in x yrs	
Hazard ID	Servers	ssel Type	Hazard Detail	Possible Causes	Туре	Most Likely Outcome	Worst Credible Outcome	eopie	roperty	nvironment	takeholders iaseline Risk	ohoront Bick	eople	roperty	nvironment	takeholders acoline Dick	nhe rent Risk	
				1 - Adverse Environmental Conditions	Narrative	Glancing Blow	Fire / Sinking / Foundering	<u> </u>	•					-	ū			
				2 - Avoiding Other traffic			Loss Cargo											
				3 - Constriction of Shipping Routes			Loss of life											
			Class 1 or 2 Vessel	4 - Equipment or Mechanical Failure			Large vessel / Tanker / Dangerous Goods											
7		iss 1 or 2 /essels	with a MITC an ath an	5 - Human Error 6 - Increased Traffic Density	People	Minor-Single minor injury	Major-Multiple major injuries or single fatality	2	2	1	2 50	2	5 4	4	4	4 54	0 270	With the TEOW constructe which is the second
			structure	7 - Loss of UKC	Property	Minor damage-Costs £10k -£100k	Major Hange -Costs £1M - £10M											
				8 - Low Manoeuvrability of Vessels	Environment	Negligible-Very Small Spill	Major-Tier 3											
				9 - Pilot Transfer Issues	Stakeholders	Minor-Bad local publicity and/or possible short-term loss of revenue	Major-National adverse media publicity and/or medium-term loss of revenue											
				10 -														
				1 - Adverse Environmental Conditions 2 - Avoiding Other traffic	Narrative	Glancing Blow	Fire / Sinking / Foundering Loss Cargo											
				3 - Constriction of Shipping Routes			Loss of life											
				4 - Equipment or Mechanical Failure			Large vessel / Tanker / Dangerous Goods											
	Clas	iss 3 or 4	Class 3 or 4 Vessel comes into contact	5 - Human Error				2	2	1	2 40	2	7 4	4	4	4 50	1 334	With the TEOW constructe
			with a WTG or other structure	6 - Increased Traffic Density	People	Minor-Single minor injury	Major-Multiple major injuries or single fatality	2		1	2 40	2	/   <sup>4</sup>	4	4	4 50	1 554	which is t
				7 - Loss of UKC	Property	Minor damage-Costs £10k –£100k	Major damage -Costs £1M - £10M											
				8 - Low Manoeuvrability of Vessels	Environment	Negligible-Very Small Spill	Major-Tier 3											
				9 - Pilot Transfer Issues	Stakeholders	Negligible-No significant effects	Major-National adverse media publicity and/or medium-term loss of revenue											
				1 - Adverse Environmental Conditions	Narrative	Slow Speed contact	High speed contact											
				2 - Avoiding Other traffic		Glancing blow	Significant damage											
				3 - Constriction of Shipping Routes		Minimal damage												
				4 - Equipment or Mechanical Failure														
9		el less than 90m	less than 90m comes into contact with a					2	2	1	2 50	3	3 4	4	4	4 10	00 667	With the TEOW constructe which is th
1	8	5011	WTG or other structure	6 - Increased Traffic Density	People	Minor-Single minor injury	Major-Multiple major injuries or single fatality											which is th
				7 - Loss of UKC 8 - Low Manoeuvrability of Vessels	Property Environment	Minor damage-Costs £10k -£100k Negligible-Very Small Spill	Major damage -Costs £1M - £10M Major-Tier 3											
				9 - Pilot Transfer Issues	Stakeholders	Negligible-No significant effects	Major-National adverse media publicity and/or medium-term loss of revenue											
				10 -														
				1 - Adverse Environmental Conditions	Narrative	Slow Speed contact	High speed contact											
				2 - Avoiding Other traffic		Glancing blow	Significant damage											
				3 - Constriction of Shipping Routes		Minimal damage												
	t		WSV comes into	4 - Equipment or Mechanical Failure 5 - Human Error														
10	v Conta	WSV	or other structure	6 - Increased Traffic Density	People	Minor-Single minor injury	Major-Multiple major injuries or single fatality	2	2	1	2 50	4	0 4	4	2	4 10	00 800	With the TEOW constructed
			whilst navigating	7 - Loss of UKC	Property	Minor damage-Costs £10k –£100k	Major damage -Costs £1M - £10M											
				8 - Low Manoeuvrability of Vessels	Environment	Negligible-Very Small Spill	Minor-Tier 1											
				9 - Pilot Transfer Issues	Stakeholders	Minor-Bad local publicity and/or possible short-term loss of revenue	Major-National adverse media publicity and/or medium-term loss of revenue											
$\left  \right $				10 - 1 - Adverse Environmental Conditions	Norret	Slow Speed contact	High speed contact							-				
				1 - Adverse Environmental Conditions     2 - Avoiding Other traffic	Narrative	Slow Speed contact Glancing blow	High speed contact Significant damage											
				3 - Constriction of Shipping Routes		Minimal damage												
				4 - Equipment or Mechanical Failure														
11		shing or	Narrative	5 - Human Error				2	2	1	1 20	1	6 4	3	2	3 50	0 400	With the TEOW constructed
	B Recre	reational		6 - Increased Traffic Density	People	Minor-Single minor injury	Major-Multiple major injuries or single fatality			-	-							
				7 - Loss of UKC	Property	Minor damage-Costs £10k -£100k	Major damage -Costs £1M - £10M											
				8 - Low Manoeuvrability of Vessels	Environment	Negligible-Very Small Spill	Minor-Tier 1											
				9 - Pilot Transfer Issues	Stakeholders	Negligible-No significant effects	Major-National adverse media publicity and/or medium-term loss of revenue											
	+			1 - Adverse Environmental Conditions	Narrative	Slow Speed contact	High speed contact		$\vdash$					-				
				2 - Avoiding Other traffic		Glancing blow	Significant damage											
				3 - Constriction of Shipping Routes		Minimal damage												
			Pilot Launch comes	4 - Equipment or Mechanical Failure														
12	Pilot	ot Launch	into contact with a	5 - Human Error				2	2	1	1 50	4	0 4	3	2	3 10	00 800	With the TEOW constructed
	ŭ		structure	6 - Increased Traffic Density	People	Minor-Single minor injury	Major-Multiple major injuries or single fatality											
				7 - Loss of UKC 8 - Low Manoeuvrability of Vessels	Property Environment	Minor damage-Costs £10k –£100k Negligible-Very Small Spill	Major damage -Costs £1M - £10M Minor-Tier 1											
				9 - Pilot Transfer Issues	Stakeholders	Negligible-No significant effects	Major-National adverse media publicity and/or medium-term loss of revenue											
	1									1				1	1 I		1.1	

Notes
cted and no additional risk controls in place the inherent likelihood return rate was increased by 50% is the same increase in likelihood as applied to Haz # 1: Collision Class 1 or 2 vessels.
cted and no additional risk controls in place the inherent likelihood return rate was increased by 33% is the same increase in likelihood as applied to Haz # 2: Collision Class 3 or 4 vessels.
cted and no additional risk controls in place the inherent likelihood return rate was increased by 33% s the same increase in likelihood as applied to Haz # 3: Collision less than 90m length.
cted and no additional risk controls in place the inherent likelihood return rate was increased by 20%.
cted and no additional risk controls in place the inherent likelihood return rate was increased by 20%.
cted and no additional risk controls in place the inherent likelihood return rate was increased by 20%.

							M	ost Lik	ely Haz	ard Or	currei	nce	Worst Cr	edible	Hazard	Occurren	ce
<u> </u>	5				Conseq	uences	Cons	equei	nce		Likeliho 1 in x		Conseque	ence		Likelihoo 1 in x yr	
Hazard ID	Vessel Type	Hazard Detail	Possible Causes	Туре	Most Likely Outcome	Worst Credible Outcome	2e opte	roperty	Environment	stakeholders	3aseline Risk	nherent Risk	<sup>2</sup> eople <sup>2</sup> roperty	Environment	stakeholders	Baseline Risk	
			1 - Adverse Environmental Conditions	Narrative	Slow Speed grounding	Vessel unable to re-float on same tide / assistance required		-	<u> </u>		-				<u></u>		
			2 - Avoiding Other traffic		Re-float on the same tide	Fire / Sinking / Foundering											
		Displacement or	3 - Constriction of Shipping Routes			Loss Cargo	_										
0	٥	constriction of shipping routes and	4 - Equipment or Mechanical Failure			Loss of life	_										
13	Class 1 or 2 Vessels	the loss of depth along cable route	5 - Human Error 6 - Increased Traffic Density	People	Minor-Single minor injury	Large vessel / Tanker / Dangerous Goods Major-Multiple major injuries or single fatality	2	2	1	2 8	30	53	3 4	3	5 1	.000 66	With the TEOW constru
6	5	results in a Class 1 or 2 vessel running	7 - Loss of UKC	Property	Minor damage-Costs £10k –£100k	Catastrophic damage-Costs >£10M	-										
		aground.	8 - Low Manoeuvrability of Vessels	Environment	Minor-Tier 1	Catastrophic-Tier 3+											
			9 - Pilot Transfer Issues	Stakeholders	Minor-Bad local publicity and/or possible short-term loss of revenue	Major-National adverse media publicity and/or medium-term loss of revenue											
			10 -														
			1 - Adverse Environmental Conditions	Narrative	Slow speed grounding	Higher speed Grounding											
			2 - Avoiding Other traffic		Vessel touches bottom	Vessel firmly aground											
		Displacement or constriction of	3 - Constriction of Shipping Routes		Vessel re-floats on same tide	Vessel is not re-floated on same tide	_										
0	٥	shipping routes and	4 - Equipment or Mechanical Failure				_										
14	Class 3 or 4 Vessels	the loss of depth along cable route	5 - Human Error 6 - Increased Traffic Density	People	Minor-Single minor injury	Major-Multiple major injuries or single fatality	2	2	1	2 6	60	45	3 4	3	5 8	800 60	00 With the TEOW constructe
l d	5	results in a Class 3 or 4 vessel running	7 - Loss of UKC	Property	Minor damage-Costs £10k –£100k	Catastrophic damage-Costs >£10M	_										
		aground.	8 - Low Manoeuvrability of Vessels	Environment	Minor-Tier 1	Catastrophic-Tier 3+											
			9 - Pilot Transfer Issues	Stakeholders	Minor-Bad local publicity and/or possible short-term loss of revenue	Major-National adverse media publicity and/or medium-term loss of revenue											
			10 -														
			1 - Adverse Environmental Conditions	Narrative	Slow speed grounding	Higher speed Grounding											
			2 - Avoiding Other traffic		Vessel touches bottom	Vessel firmly aground											
		Displacement or	3 - Constriction of Shipping Routes		Vessel re-floats on same tide	Vessel is not re-floated on same tide	_										
	٥	constriction of shipping routes and	4 - Equipment or Mechanical Failure				_										
15	Vessel less than 90m	the loss of depth along cable route	5 - Human Error	Decele	Atlan findaminania		2	2	1	2 6	60	48	3 4	3	4 !	500 40	00 With the TEOW constructe
	5	results in a vessel less than 90m running	6 - Increased Traffic Density 7 - Loss of UKC	People Property	Minor-Single minor injury Minor damage-Costs £10k -£100k	Major-Multiple major injuries or single fatality Catastrophic damage-Costs >£10M	-										
		aground.	8 - Low Manoeuvrability of Vessels	Environment	Minor-Tier 1	Catastrophic-Tier 3+	-										
			9 - Pilot Transfer Issues	Stakeholders	Minor-Bad local publicity and/or possible short-term loss of revenue	Major-National adverse media publicity and/or medium-term loss of revenue											
			10 -														
			1 - Adverse Environmental Conditions	Narrative	Slow speed grounding	Higher speed Grounding											
			2 - Avoiding Other traffic	_	Vessel touches bottom	Vessel firmly aground											
		Displacement or constriction of	3 - Constriction of Shipping Routes	_	Vessel re-floats on same tide	Vessel is not re-floated on same tide	_										
	٥	shipping routes and					_										
16	Fishing or Recreational	the loss of depth along cable route	5 - Human Error				2	1	1	2 2	25	23	4 3	2	3 1	250 11	25 With the TEOW constructe
6	5	results in a Fishing vessel or recreational	6 - Increased Traffic Density 7 - Loss of UKC	People Property	Minor-Single minor injury Negligible-Costs <£10k	Major-Multiple major injuries or single fatality Moderate damage-Costs £100k -£1M	_										
		vessel running aground.	8 - Low Manoeuvrability of Vessels	Environment	Negligible-Very Small Spill	Minor-Tier 1	-										
		-3	9 - Pilot Transfer Issues	Stakeholders	Minor-Bad local publicity and/or possible short-term loss of revenue	Moderate-Bad widespread publicity and/or short-term loss of revenue	-										
			10 -														
			1 - Adverse Environmental Conditions	Narrative	Slow speed grounding	Higher speed Grounding											
			2 - Avoiding Other traffic		Vessel touches bottom	Vessel firmly aground											
		Displacement or	3 - Constriction of Shipping Routes		Vessel re-floats on same tide	Vessel is not re-floated on same tide											
	م	constriction of shipping routes and	4 - Equipment or Mechanical Failure														
17	wsv	the loss of depth along cable route	5 - Human Error				2	2	1	2 2	25	23	4 3	2	4 1	250 11	25 With the TEOW constructe
	5	results in a WSV	6 - Increased Traffic Density	People	Minor-Single minor injury	Major-Multiple major injuries or single fatality Medecate damage Centr £100k £1M	_										
		vessel running aground.	7 - Loss of UKC 8 - Low Manoeuvrability of Vessels	Property Environment	Minor damage-Costs £10k –£100k Negligible-Very Small Spill	Moderate damage-Costs £100k -£1M Minor-Tier 1	-										
			9 - Pilot Transfer Issues	Stakeholders	Minor-Bad local publicity and/or possible short-term loss of revenue	Minor-Her 1 Major-National adverse media publicity and/or medium-term loss of revenue	_										
			10 -	- La cholucia													
			1 - Adverse Environmental Conditions	Narrative	Slow speed grounding	Higher speed Grounding								$\square$			
			2 - Avoiding Other traffic		Vessel touches bottom	Vessel firmly aground											
		Displacement or	3 - Constriction of Shipping Routes		Vessel re-floats on same tide	Vessel is not re-floated on same tide											
		constriction of	4 - Equipment or Mechanical Failure														
	٥		1.1	_							100						
18	Pilot Launch	shipping routes and the loss of depth	5 - Human Error				2	2	1	2 4	10	36	4 3	2	4 2	2000 18	00 With the TEOW constructe
18	Pilot Launch	shipping routes and the loss of depth along cable route results in a Pilot	5 - Human Error 6 - Increased Traffic Density	People	Minor-Single minor injury	Major-Multiple major injuries or single fatality	2	2	1	2 4	40	36	4 3	2	4 2	2000 18	00 With the TEOW constructe
18	Pilot Launch	shipping routes and the loss of depth along cable route	5 - Human Error 6 - Increased Traffic Density 7 - Loss of UKC	Property	Minor damage-Costs £10k –£100k	Moderate damage-Costs £100k -£1M	2	2	1	2	40	36	4 3	2	4 2	2000 18	00 With the TEOW constructe
18 18	Pilot Launch	shipping routes and the loss of depth along cable route results in a Pilot Launch running	5 - Human Error 6 - Increased Traffic Density				2	2	1	2	40	36	4 3	2	4 2	2000 18	00 With the TEOW constructe

Notes
tructed and no additional risk controls in place the inherent likelihood return rate was increased by 33.33%.
cted and no additional risk controls in place the inherent likelihood return rate was increased by 25%.
cted and no additional risk controls in place the inherent likelihood return rate was increased by 20%.
cted and no additional risk controls in place the inherent likelihood return rate was increased by 10%.
cted and no additional risk controls in place the inherent likelihood return rate was increased by 10%.
cted and no additional risk controls in place the inherent likelihood return rate was increased by 10%.

						Conseque	inces				Baseline	Risk					Inhere	ent Risk				
Hazard ID	کے Ba Vesse	el Type	Hazard Detail	Possible Causes				N	Most Lik	ely Risk		Worst	Credible F	lisk	м	ost Likely F	Risk	w	orst Cred	lible Risk	_	
Haz	Cat				Туре	Most Likely Outcome	Worst Credible Outcome	People	Property	Environment	stakeholders	Property	Environment	stakeholders	People	Property Environment	stakeholders	People	Property	Environment Stakeholders	Baseline Risk	Inherent Risk
				1 - Adverse Environmental Conditions	Narrative	Glancing Blow	Fire / Sinking / Foundering	-	-		<u></u>			S	<u> </u>		<u> </u>	-	<u>~</u>	<u> </u>		_
			-	2 - Avoiding Other traffic			Loss Cargo															
				3 - Constriction of Shipping Routes			Loss of life															
				4 - Equipment or Mechanical Failure			Large vessel / Tanker / Dangerous Goods	1														
1		1 or 2	Collision Class 1 or 2 vessel with another	5 - Human Error				2.81	2.81	0.00	0.00 5	19 62	6 6 26	5 19	3 15	3 15 0 0		5 51	6.59	6.59 5.5	1 4 05	4 34
	llo ves	ssels		6 - Increased Traffic Density	People	Minor-Single minor injury	Major-Multiple major injuries or single fatality	2.01	2.01	0.00	0.00	.15 0.2	0 0.20	5.15	5.15	5.15 0.0	0.00	5.51	0.55	0.55 5.5	4.05	4.54
				7 - Loss of UKC	Property	Minor damage-Costs £10k -£100k	Catastrophic damage-Costs >£10M															
				8 - Low Manoeuvrability of Vessels	Environment	Negligible-Very Small Spill	Catastrophic-Tier 3+															
				9 - Pilot Transfer Issues	Stakeholders	Negligible-No significant effects	Major-National adverse media publicity and/or medium-term loss of revenue															
				10 -																		
				1 - Adverse Environmental Conditions	Narrative	Glancing Blow	Fire / Sinking / Foundering															
				2 - Avoiding Other traffic			Loss Cargo															
				3 - Constriction of Shipping Routes			Loss of life															
				4 - Equipment or Mechanical Failure			Vessel / Tanker / Dangerous Goods															
1	Class		Collision Class 3 or 4 vessel with another	5 - Human Error				2.04	2 0/	0.00	0.00	28 63	7 6 37	5.28	2 15	2 15 0 0		5.47	6.55	6.55 5.4	7 4 15	4 22
	Ves Ves	ssels	navigating vessel	6 - Increased Traffic Density	People	Minor-Single minor injury	Major-Multiple major injuries or single fatality	2.54	2.54	0.00	0.00	.20 0.3	/ 0.5/	5.20	3.13	5.15 0.0	0.00	5.47	0.55	0.55 5.4	4.15	4.52
				7 - Loss of UKC	Property	Minor damage-Costs £10k –£100k	Catastrophic damage-Costs >£10M															
				8 - Low Manoeuvrability of Vessels	Environment	Negligible-Very Small Spill	Catastrophic-Tier 3+															
				9 - Pilot Transfer Issues	Stakeholders	Negligible-No significant effects	Major-National adverse media publicity and/or medium-term loss of revenue															
				10 -				1														
				1 - Adverse Environmental Conditions	Narrative	Glancing Blow	Fire / Sinking / Foundering															
				2 - Avoiding Other traffic		Vessel do not need to slow for Pilot Transfer	Loss Cargo															
				3 - Constriction of Shipping Routes			Loss of life															
				4 - Equipment or Mechanical Failure			Cargo / Bunker Barge															
			Collision vessel less than 90m with	5 - Human Error											2.45			5.43				
3		0m	another navigating	6 - Increased Traffic Density	People	Minor-Single minor injury	Major-Multiple major injuries or single fatality	2.94	2.94	0.00	0.00 5	.24 6.3	2 5.24	5.24	3.15	3.15 0.0	0.00	5.42	6.50	5.42 5.4	2 4.06	4.23
			vessel	7 - Loss of UKC	Property	Minor damage-Costs £10k –£100k	Catastrophic damage-Costs >£10M															
				8 - Low Manoeuvrability of Vessels	Environment	Negligible-Very Small Spill	Major-Tier 3															
			-	9 - Pilot Transfer Issues	Stakeholders	Negligible-No significant effects	Major-National adverse media publicity and/or medium-term loss of revenue															
				10 -																		
				1 - Adverse Environmental Conditions	Narrative	Small vessels colliding	Collides with larger vessel (WSV, Cargo, etc.)															
				2 - Avoiding Other traffic		Glancing Blow / Loss of gear	Crossing / Head on Collision															
				3 - Constriction of Shipping Routes		Lighting of WTG - displace fishing vessels	Sinking / Foundering / Capsize															
				4 - Equipment or Mechanical Failure		Mostly - potting / netting (less likely trawling) (LOA 8-10m)																
	Fishi	ing or N	Collision Fishing Vessel or recreational	5 - Human Error		Wake / Wash Impacts	* assumes lights as per Kentish Flats	2.50	2.50	0.00	2.50			5.44	2.05		2.65	6.22	2.02	2.04 5.2		4.25
4		ational	craft with another	6 - Increased Traffic Density	People	Minor-Single minor injury	Catastrophic-Multiple fatalities	3.50	3.50	0.00	3.50 6	.22 3.7	4 1.99	5.14	3.05	0.0	3.65	0.32	5.82	2.04 5.2	+ 4.15	4.20
			navigating vessel	7 - Loss of UKC	Property	Minor damage-Costs £10k –£100k	Moderate damage-Costs £100k -£1M															
				8 - Low Manoeuvrability of Vessels	Environment	Negligible-Very Small Spill	Minor-Tier 1															
				9 - Pilot Transfer Issues	Stakeholders	Minor-Bad local publicity and/or possible short-term loss of revenue	Major-National adverse media publicity and/or medium-term loss of revenue															
				10 -				1														
				1 - Adverse Environmental Conditions	Narrative	Collides with small vessel at low speed	Collides at speed with other vessel															
				2 - Avoiding Other traffic		Glancing blow	Crossing / Head on Collision															
				3 - Constriction of Shipping Routes			Sinking / Foundering / Capsize															
			Collision of WSV	4 - Equipment or Mechanical Failure																		
_	sion	101	working or transiting	5 - Human Error					2.55	0.00	2.02		-		2.75					1.00		2.00
5	W Collis	/sv	to from Thanet or other OWF in area	6 - Increased Traffic Density	People	Minor-Single minor injury	Catastrophic-Multiple fatalities	2.68	2.68	0.00	2.68 5	.92 4.8	5 1.85	4.85	2.77	2.77 0.0	2.77	6.02	4.94	1.89 4.9	4 3.74	3.83
			with another vessel	7 - Loss of UKC	Property	Minor damage-Costs £10k -£100k	Major damage -Costs £1M - £10M															
				8 - Low Manoeuvrability of Vessels	Environment	Negligible-Very Small Spill	Minor-Tier 1															
				9 - Pilot Transfer Issues	Stakeholders	Minor-Bad local publicity and/or possible short-term loss of revenue	Major-National adverse media publicity and/or medium-term loss of revenue															
				10 -																		
L	1				1	1	1															

N     N       1     1       6     10       1     1	Hazard Detail	Possible Causes 1 - Adverse Environmental Conditions 2 - Avoiding Other traffic	Туре	Most Likely Outcome	Worst Credible Outcome	M	lost Likel	y Risk	v	/orst Cred	dible Risk		Mos	t Likely Ri	sk	Wors	st Credibl	e Risk		
6	allision Pilot Launch	1 - Adverse Environmental Conditions		Most Likely Outcome	Worst Credible Outcome		lost Likel			orst Cred			Mos	t Likely Ri	sk	Wors	st Credibl			
6 Pilot Launch with	~					eople	roperty	rvironment	akenolders eople	roperty	rvironment	takeholders	eople	vironment	akeholders	eople	roperty	akeholders	aseline Risk	therent Risk
6 Pilot Launch with	~		Narrative	Slow Speed collision	High speed collision	č	<u> </u>	<u>a</u> :	n d	ā	<u> </u>	5	<u> </u>	<u> </u>	<u>St</u>	<u> </u>	<u> </u>	i 55		-
6 Pilot Launch with	~		Nundave	Glancing Blow	Crossing / Head on Collision															
6 Pilot Launch with	~			Minimal damage	Significant damage															
6 Pilot Launch with	~	4 - Equipment or Mechanical Failure																		
	with another	5 - Human Error							_											
	navigating vessel	5 - Increased Traffic Density	People	Minor-Single minor injury	Major-Multiple major injuries or single fatality	2.68	2.68	0.00 2.	68 4.85	4.85	1.85 4	.85 2	.77 2.7	77 0.00	2.77	4.94 4	4.94 1.8	39 4.94	3.41	3.49
		7 - Loss of UKC	Property	Minor damage-Costs £10k –£100k	Major damage -Costs £1M - £10M															
	8	8 - Low Manoeuvrability of Vessels	Environment	Negligible-Very Small Spill	Minor-Tier 1	1														
	9	9 - Pilot Transfer Issues	Stakeholders	Minor-Bad local publicity and/or possible short-term loss of revenue	Major-National adverse media publicity and/or medium-term loss of revenue															
	1	10 -																		
	1	1 - Adverse Environmental Conditions	Narrative	Glancing Blow	Fire / Sinking / Foundering															
	2	2 - Avoiding Other traffic			Loss Cargo	1														
	з	3 - Constriction of Shipping Routes			Loss of life															
Class		4 - Equipment or Mechanical Failure			Large vessel / Tanker / Dangerous Goods															
7 B Class 1 or 2 comes	onnes into contact	5 - Human Error				2.68	2 68 0	00 2	68 5 11	5 11	5.11 5	11 2	2 98 2	8 0.00	2.98	5 42 5	5 42 5	2 5 42	3 72	4 01
	ith a WTG or other structure	5 - Increased Traffic Density	People	Minor-Single minor injury	Major-Multiple major injuries or single fatality	2.00	2.00				5.11				2.50	5.12			5.72	
	7	7 - Loss of UKC	Property	Minor damage-Costs £10k -£100k	Major damage -Costs £1M - £10M															
	٤	8 - Low Manoeuvrability of Vessels	Environment	Negligible-Very Small Spill	Major-Tier 3															
	<u>c</u>	9 - Pilot Transfer Issues	Stakeholders	Minor-Bad local publicity and/or possible short-term loss of revenue	Major-National adverse media publicity and/or medium-term loss of revenue															
	1	1 - Adverse Environmental Conditions	Narrative	Glancing Blow	Fire / Sinking / Foundering								$\square$							
	2	2 - Avoiding Other traffic			Loss Cargo															
	3	3 - Constriction of Shipping Routes			Loss of life															
	4	4 - Equipment or Mechanical Failure			Large vessel / Tanker / Dangerous Goods															
	Class 3 or 4 Vessel	5 - Human Error																		
Vessels with a V	ith a WTG or other	6 - Increased Traffic Density	People	Minor-Single minor injury	Major-Multiple major injuries or single fatality	-0.02	-0.02 0	0.00 -0	.02 5.14	5.14	5.14 5	.14 2	95 2.9	95 0.00	2.95	5.32 5	5.32 5.3	5.32	2.57	3.95
st	structure	7 - Loss of UKC	Property	Minor damage-Costs £10k –£100k	Major damage -Costs £1M - £10M															
	٤	8 - Low Manoeuvrability of Vessels	Environment	Negligible-Very Small Spill	Major-Tier 3															
	<u> </u>	9 - Pilot Transfer Issues	Stakeholders	Negligible-No significant effects	Major-National adverse media publicity and/or medium-term loss of revenue															
	1	10 -																		
	1	1 - Adverse Environmental Conditions	Narrative	Slow Speed contact	High speed contact															
	2	2 - Avoiding Other traffic		Glancing blow	Significant damage															
		3 - Constriction of Shipping Routes		Minimal damage																
Comm	Commercial Vessel	4 - Equipment or Mechanical Failure																		
U Vessel less than less than	ss than 90m comes																			
9 E 90m into co	nto contact with a 📙	6 - Increased Traffic Density	People	Minor-Single minor injury	Major-Multiple major injuries or single fatality	-0.02	-0.02 0	0.00 -0	.02 4.85	4.85	4.85 4	.85 2	.85 2.8	35 0.00	2.85	5.02 5	5.02 5.0	5.02	2.42	3.75
	structure	7 - Loss of UKC	Property	Minor damage-Costs £10k -£100k	Major damage -Costs £1M - £10M															
	٤	8 - Low Manoeuvrability of Vessels	Environment	Negligible-Very Small Spill	Major-Tier 3															
	9	9 - Pilot Transfer Issues	Stakeholders	Negligible-No significant effects	Major-National adverse media publicity and/or medium-term loss of revenue															
	1	10 -																		
	1	1 - Adverse Environmental Conditions	Narrative	Slow Speed contact	High speed contact															
	2	2 - Avoiding Other traffic		Glancing blow	Significant damage															
	3	3 - Constriction of Shipping Routes		Minimal damage																
		4 - Equipment or Mechanical Failure																		
Contact v	WSV comes into ntact with a WTG or	5 - Human Error				200	2.69		co ( 0-	4.95	1.05	1 05	. 77	77 0.00	3.77	4.04	104	0 4.04	24	2.40
other str	her structure whilst	5 - Increased Traffic Density	People	Minor-Single minor injury	Major-Multiple major injuries or single fatality	2.68	2.08		4.85	4.85	1.85 4	.85 2	.// 2.)	0.00	2.77	4.94 4	+.94 1.	4.94	5.41	3.49
na na	navigating	7 - Loss of UKC	Property	Minor damage-Costs £10k -£100k	Major damage -Costs £1M - £10M															
	٤	8 - Low Manoeuvrability of Vessels	Environment	Negligible-Very Small Spill	Minor-Tier 1															
	g	9 - Pilot Transfer Issues	Stakeholders	Minor-Bad local publicity and/or possible short-term loss of revenue	Major-National adverse media publicity and/or medium-term loss of revenue															
	L																			

					Conseque	ences				Baseline	e Risk					Inhe	erent Risl	<u>(</u>			
Hazard ID	C 영월 Vessel Type	Hazard Detail	Possible Causes				N	Aost Lik	ely Risk	_	Wors	Credible	Risk	r	Aost Likel	/ Risk	v	Vorst Cree	dible Risk	_	
На	G			Туре	Most Likely Outcome	Worst Credible Outcome	People	Property	invironment	stakeholders	eople	roperty invironment	stakeholders	eople	roperty	Environment Stakeholders	People	roperty	invironment	Baseline Risk	inherent Risk
			1 - Adverse Environmental Conditions	Narrative	Slow Speed contact	High speed contact	-	-	<u> </u>	Ś.	<u> </u>	<u> </u>	<u> </u>	-	<u> </u>			-	<u>ت س</u>	,	
			2 - Avoiding Other traffic		Glancing blow	Significant damage															
			3 - Constriction of Shipping Routes		Minimal damage																
			4 - Equipment or Mechanical Failure																		
	당 말 Fishing or		5 - Human Error																		
11	Recreational	Narrative	6 - Increased Traffic Density	People	Minor-Single minor injury	Major-Multiple major injuries or single fatality	3.09	3.09	0.00	0.00	5.14 3.	74 1.99	3.74	3.21	3.21 0	.00 0.0	5.24	3.82	2.04 3.	32 3.36	3.45
			7 - Loss of UKC	Property	Minor damage-Costs £10k –£100k	Major damage -Costs £1M - £10M															
			8 - Low Manoeuvrability of Vessels	Environment	Negligible-Very Small Spill	Minor-Tier 1															
			9 - Pilot Transfer Issues	Stakeholders	Negligible-No significant effects	Major-National adverse media publicity and/or medium-term loss of revenue															
			10 -																		
			1 - Adverse Environmental Conditions	Narrative	Slow Speed contact	High speed contact															
			2 - Avoiding Other traffic		Glancing blow	Significant damage															
			3 - Constriction of Shipping Routes		Minimal damage																
			4 - Equipment or Mechanical Failure																		
	ct	Pilot Launch comes	5 - Human Error																		
12	Pilot Launch	into contact with a WTG or other	6 - Increased Traffic Density	People	Minor-Single minor injury	Major-Multiple major injuries or single fatality	2.68	2.68	0.00	0.00	4.85 3.	50 1.85	3.50	2.77	2.77 0	.00 0.0	4.94	3.57	1.89 3.	57 3.07	3.15
	0	structure																			
			7 - Loss of UKC	Property	Minor damage-Costs £10k –£100k	Major damage -Costs £1M - £10M															
			8 - Low Manoeuvrability of Vessels	Environment	Negligible-Very Small Spill	Minor-Tier 1															
			9 - Pilot Transfer Issues	Stakeholders	Negligible-No significant effects	Major-National adverse media publicity and/or medium-term loss of revenue															
			10 -																		
			1 - Adverse Environmental Conditions	Narrative	Slow Speed grounding	Vessel unable to re-float on same tide / assistance required															
			2 - Avoiding Other traffic		Re-float on the same tide	Fire / Sinking / Foundering															
		Displacement or	3 - Constriction of Shipping Routes			Loss Cargo															
	20	constriction of shipping routes and	4 - Equipment or Mechanical Failure			Loss of life															
13	Class 1 or 2	the loss of depth	5 - Human Error			Large vessel / Tanker / Dangerous Goods	2.50	2.50	0.00	2.50	3.50 4	85 3.50	5.92	2.65	2.65 0	.00 2.6	5 3.63	5.02	3.63 6.	3.69	3.83
	D Vessels	along cable route results in a Class 1 or	6 - Increased Traffic Density	People	Minor-Single minor injury	Major-Multiple major injuries or single fatality															
		2 vessel running	7 - Loss of UKC	Property	Minor damage-Costs £10k -£100k	Catastrophic damage-Costs >£10M															
		aground.	8 - Low Manoeuvrability of Vessels	Environment	Minor-Tier 1	Catastrophic-Tier 3+															
			9 - Pilot Transfer Issues	Stakeholders	Minor-Bad local publicity and/or possible short-term loss of revenue	Major-National adverse media publicity and/or medium-term loss of revenue															
			10 -																		
			1 - Adverse Environmental Conditions	Narrative	Slow speed grounding	Higher speed Grounding															
			2 - Avoiding Other traffic		Vessel touches bottom	Vessel firmly aground	1														
		Displacement or	3 - Constriction of Shipping Routes		Vessel re-floats on same tide	Vessel is not re-floated on same tide															
		constriction of	4 - Equipment or Mechanical Failure																		
	E Class 3 or 4	shipping routes and the loss of depth	5 - Human Error																		
14	Vessels	along cable route	6 - Increased Traffic Density	People	Minor-Single minor injury	Major-Multiple major injuries or single fatality	2.61	2.61	0.00	2.61	3.57 4.	94 3.57	6.02	2.72	2.72	.00 2.7	2 3.67	5.06	3.67 6.	14 3.78	3.88
		results in a Class 3 or 4 vessel running	7 - Loss of UKC	Property	Minor damage-Costs £10k –£100k	Catastrophic damage-Costs >£10M															
		aground.	8 - Low Manoeuvrability of Vessels	Environment	Minor-Tier 1	Catastrophic-Tier 3+															
			9 - Pilot Transfer Issues	Stakeholders	Minor-Bad local publicity and/or possible short-term loss of revenue	Major-National adverse media publicity and/or medium-term loss of revenue															
			10 -																		
			1 - Adverse Environmental Conditions	Narrative	Slow speed grounding	Higher speed Grounding															
			2 - Avoiding Other traffic		Vessel touches bottom	Vessel firmly aground															
			3 - Constriction of Shipping Routes		Vessel re-floats on same tide	Vessel is not re-floated on same tide															
		Displacement or constriction of	4 - Equipment or Mechanical Failure																		
	80 80	shipping routes and	5 - Human Error																		
15	Vessel less than 90m		6 - Increased Traffic Density	People	Minor-Single minor injury	Major-Multiple major injuries or single fatality	2.61	2.61	0.00	2.61	3.74 5.	14 3.74	5.14	2.69	2.69 0	.00 2.6	i9 3.82	5.24	3.82 5.	24 3.53	3.62
	σ	results in a vessel less		People	Minor-Single minor injury	Major-Multiple major injuries or single fatality Catastrophic damage.Costs >610M															
		aground	7 - Loss of UKC	Property	Minor damage-Costs £10k -£100k	Catastrophic damage-Costs >£10M															
			8 - Low Manoeuvrability of Vessels	Environment	Minor-Tier 1	Catastrophic-Tier 3+															
			9 - Pilot Transfer Issues	Stakeholders	Minor-Bad local publicity and/or possible short-term loss of revenue	Major-National adverse media publicity and/or medium-term loss of revenue															
			10 -																		

										Bas	eline Risk					l	nherent F	Risk			
ap	λιο					Consequ	iences		Most Like	ly Risk	w	/orst Cre	edible Risl		Most Lik	ly Risk		Worst 0	redible Risk		
Hazard ID	Categ	Vessel Type	Hazard Detail	Possible Causes	Туре	Most Likely Outcome	Worst Credible Outcome	People	Property	Environment Stakeholders	People	Property	Environment	Stakeholders People	Property	Environment	Stakeholders	People Property	Environment	Baseline Risk	Inherent Risk
				1 - Adverse Environmental Conditions	Narrative	Slow speed grounding	Higher speed Grounding														
				2 - Avoiding Other traffic		Vessel touches bottom	Vessel firmly aground														
			Displacement or	3 - Constriction of Shipping Routes		Vessel re-floats on same tide	Vessel is not re-floated on same tide														
			constriction of shipping routes and	4 - Equipment or Mechanical Failure																	
10	nding	Fishing or	the loss of depth	5 - Human Error				2.00		200 20	77 4	2.42	1 01	2 4 2 2 2	2 0 00	0.00	2 02 4	01 2 44	5 1.83 3.4	16 2 15	2 10
1	, און אין אין אין אין אין אין אין אין אין אי	Recreational	along cable route results in a Fishing	6 - Increased Traffic Density	People	Minor-Single minor injury	Major-Multiple major injuries or single fatality	2.50	0.00	0.00 2.9	6 4.77	5.42	1.01	5.42 5.0	5 0.00	0.00	5.05 4.	.01 5.40	1.05 5.4	+0 5.15	5.19
			vessel or recreational vessel running	7 - Loss of UKC	Property	Negligible-Costs <£10k	Moderate damage-Costs £100k -£1M														
			aground.	8 - Low Manoeuvrability of Vessels	Environment	Negligible-Very Small Spill	Minor-Tier 1														
				9 - Pilot Transfer Issues	Stakeholders	Minor-Bad local publicity and/or possible short-term loss of revenue	Moderate-Bad widespread publicity and/or short-term loss of revenue														
				10 -																	
				1 - Adverse Environmental Conditions	Narrative	Slow speed grounding	Higher speed Grounding														
				2 - Avoiding Other traffic		Vessel touches bottom	Vessel firmly aground														
			Displacement or	3 - Constriction of Shipping Routes		Vessel re-floats on same tide	Vessel is not re-floated on same tide														
			constriction of	4 - Equipment or Mechanical Failure																	
17	, nding	wsv	shipping routes and the loss of depth	5 - Human Error				2.98	2 98	0 00 2 9	8 4 77	3.42	1.81	177 30	3 3 03	0.00	3 03 4	81 3 46	5 1.83 4.8	31 3 42	3 46
1	Grou	W3V	along cable route results in a WSV	6 - Increased Traffic Density	People	Minor-Single minor injury	Major-Multiple major injuries or single fatality	2.50	2.50	5.00 2.5		3.42	1.01		5 5.05	0.00	5.05	.01 5.4	, 1.05 4.0	51 5.42	5.40
			vessel running	7 - Loss of UKC	Property	Minor damage-Costs £10k –£100k	Moderate damage-Costs £100k -£1M														
			aground.	8 - Low Manoeuvrability of Vessels	Environment	Negligible-Very Small Spill	Minor-Tier 1														
				9 - Pilot Transfer Issues	Stakeholders	Minor-Bad local publicity and/or possible short-term loss of revenue	Major-National adverse media publicity and/or medium-term loss of revenue														
				10 -																	
				1 - Adverse Environmental Conditions	Narrative	Slow speed grounding	Higher speed Grounding														
				2 - Avoiding Other traffic		Vessel touches bottom	Vessel firmly aground														
			Displacement or	3 - Constriction of Shipping Routes		Vessel re-floats on same tide	Vessel is not re-floated on same tide														
			constriction of	4 - Equipment or Mechanical Failure																	
18	nding	Pilot Launch	shipping routes and the loss of depth	5 - Human Error				2 77	2 77		7 4 59	3.28	1 72	159 25	1 2 81	0.00	2 81 4	63 33	1.74 4.0	3 3 25	3 28
	Grou	Launon	along cable route results in a Pilot	6 - Increased Traffic Density	People	Minor-Single minor injury	Major-Multiple major injuries or single fatality			2.7		0.25		2.0						0.25	0.20
			Launch running	7 - Loss of UKC	Property	Minor damage-Costs £10k –£100k	Moderate damage-Costs £100k -£1M														
			aground.	8 - Low Manoeuvrability of Vessels	Environment	Negligible-Very Small Spill	Minor-Tier 1														
				9 - Pilot Transfer Issues	Stakeholders	Minor-Bad local publicity and/or possible short-term loss of revenue	Moderate-Bad widespread publicity and/or short-term loss of revenue														
				10 -																	