Order of Magnitude Costing of a new port to replace the existing Dublin Port

Prepared by Programme Management Office, Dublin Port Company

Estimate components:

New port infrastructure

Buildings & Equipment

Land acquisition at new site

Capitalised environmental mitigation costs at new port

Acquisition of stakeholder interests in existing port to allow development

Remediation of existing port lands to allow development

Phasing of new port for costing purposes:

Phase 2 - 134m tonnes p.a. total throughput

Q3 2020 (with no allowance for subsequent inflation)

October 2020

Cost Timebase:

DP2: BREMORE

October 2020

2.1 INTRODUCTION

The following is an Order of Magnitude Estimate for constructing a new port at Bremore to provide a complete replacement for the existing Dublin Port. The ultimate port capacity would be 134m Tonnes p.a after Phase 2 completion. Phase 1, at 77m Tonnes capacity, mirrors the projected required capacity of the existing Dublin Port in the year 2040 - if Masterplan 2040 is completed. The conceptual design of the new port was developed iteratively from initial layouts which were refined through first stage hydraulic modelling so as to produce the final design for costing. No site investigation work has been undertaken.

Costings are based on prices current at Q3 2020, with no allowance for subsequent price inflation.

2.2 BREMORE: COST RANGE

Estimated Cost Range	Lower Range			Up	per Range
Phase 1	7.7	Billion	to	8.9	Billion
Phase 2	1.3	Billion	to	1.5	Billion
Phase 1 & 2	8.9	Billion	to	10.4	Billion

2.3 COST SUMMARY

PHASE 1	PHASE 2	<u>TOTAL</u>
€3.7 bn	€0.9 bn	€4.6 bn
€0.9 bn	€0.1 bn	€1.0 bn
€0.7 bn	€0.0 bn	€0.7 bn
€0.7 bn	€0.0 bn	€0.7 bn
€0.1 bn	€0.0 bn	€0.1 bn
€6.1 bn	€1.0 bn	€7.1 bn
€1.5 bn	€0.3 bn	€1.8 bn
€7.7 bn	€1.3 bn	€8.9 bn
€2.8 bn	€0.5 bn	€3.2 bn
€8.9 bn	€1.5 bn	€10.4 bn
	€3.7 bn €0.9 bn €0.7 bn €0.1 bn €6.1 bn €1.5 bn €7.7 bn	€3.7 bn €0.9 bn €0.9 bn €0.1 bn €0.7 bn €0.0 bn €0.7 bn €0.0 bn €0.1 bn €0.0 bn €1.5 bn €1.3 bn €2.8 bn €0.5 bn

2.4 ASSUMPTIONS

Yards finish level +5.6m MSL / 8.4m CD.

Assume dredged sand filled to level 5m MSL (300mm stone + 300mm Slab Finished Level to 5.6MSL).

Ro Ro Quay allows for Rock Revetments with Jetties for docking.

Assume dredge is uncontaminated and no treatment allowed for before infilling.

Assume sand can be dredged locally for infilling.

Assume an average 30% of dredge for Channel, Basin and Berths will be rock.

Assume no restrictions on rate of dredging per annum.

Buildings assume replication of existing Dublin Port buildings with some capacity adjustments.

Equipment assumes replication of existing with addition of Shore to Ship Power and Automatic Docking.

 $\label{thm:equipment} \mbox{Equipment assumes half of the existing RTG, STS Cranes , and Port Cranes can be relocated to the new Port.}$

Assume remediation of existing Port Lands to a depth of 1m and also raising existing levels by a further 1m to allow for climate change.

Cruise remains in existing Dublin Port.

							October 2020
	Qty	unit	Average Rate	Phase 1	Phase 2	TOTAL	Notes
NEW PORT INFRASTRUCTURE							
PHASE 1 Enabling works	1	item	€244,661,945	€244,661,945		€244,661,945	
External Breakwater - Phase 1	9,200	m	€60,656	€558,036,801		€558,036,801	
Internal Revetments, permanent & temporary	5,700	m	€33,818 €127,801	€192,762,137		€192,762,137	
Container Quay Wall Phase 1 RO RO Berth & Ramps Phase 1	1,200 1,450	m m	€203,170	€153,361,561 €294,596,546		€153,361,561 €294,596,546	
Bulk Quay Walls Phase 1 Port Services Phase 1	900 200	m m	€127,801 €127,801	€115,021,171 €25,560,260		€115,021,171 €25,560,260	
Oil Berth Phase 1	630	m	€127,801	€80,514,820		€80,514,820	
Container Yard Phase 1 RO RO Yard Phase 1	600,000 850,000	m2 m2	€271 €209	€162,414,654 €177,418,984		€162,414,654 €177,418,984	
Bulk Yard Phase 1 Oil Berth Yard Phase 1	320,000 200,000	m2 m2	€215 €213	€68,745,799 €42,632,494		€68,745,799 €42,632,494	
Port & State Services Yard Phase 1	610,000	m2	€211	€128,654,913		€128,654,913	
Bulk Filling Phase 1 Dredging Phase 1	45,377,500 23,476,440	m3 m3	€13 €19	€570,925,494 €437,487,803		€570,925,494 €437,487,803	
River Channel Phase 1	1,750	m	€12,221	€21,385,979		€21,385,979	
Roads Phase 1	18	km	€11,402,135	€202,958,000		€202,958,000	
Rail Phase 1	10	km	€11,405,670	€110,635,000		€110,635,000	
Environmental & Community Gain Costs				€80,000,000		€80,000,000	
PHASE 2 External Breakwater - Phase 2	1,100	m	€27,857		€30,642,255	€30,642,255	
External Breakwater - Priase 2 Container Quay Wall Phase 2	1,200	m	€27,837		€30,642,255 €153,361,561		
Container Quay Wall Phase 2 Ro Ro Berth & Ramps Phase 2	1,200 580	m m	€127,801 €214,495		€153,361,561 €124,407,317	€153,361,561 €124,407,317	
Container Yard Phase 2	600,000	m2	€270		€161,945,769	€161,945,769	
Ro Ro Yard Phase 2 Bulk Quay Yards Phase 2	350,000 40,000	m2 m2	€213 €224		€74,480,627 €8,944,889	€74,480,627 €8,944,889	
Bulk Filling Phase 2	20,725,000	m3	€16		€321,885,623	€321,885,623	
Dredging Phase 2	345,600	m3	€19		€6,440,320	€6,440,320	
Roads Phase 2 Rail Phase 2	2	km km	€7,085,000 €5,790,625		€12,044,500 €9,265,000	€12,044,500 €9,265,000	
Sub-Total - New Port Infrastructure				€3,667,774,360	€903,417,860	€4,571,192,221	
BUILDINGS & EQUIPMENT							
Port Buildings Port Equipment Phase 1				€136,426,308 €197,611,550	€0	€136,426,308 €197,611,550	
Port Equipment Phase 2					€97,462,350	€97,462,350	
Stakeholder Buildings Replacement Stakeholder Equipment Replacement				€215,022,120 €77,385,000	€0 €0	€215,022,120 €77,385,000	
Stakeholder Oil & Gas Facilities				€299,750,000	€0	€299,750,000	
Sub-Total - Buildings & Equipment				€926.194.978	€97.462.350	€1.023.657.328	
LAND ACQUISITION							
New Port - Land costs less sale proceeds of existing Dublin Inland Port lands							
Existing Port - Stakeholder Leases CPO to secure vacant possession				€2,269,153	€0	€2,269,153	
							Existing Port Lands: cost of buying out existing stakeholder
							leases so as to get vacant possession. This assumes that at time of acquisition, existing port lands will have been, or will
							imminently be, rezoned to commercial/ residential. Benchmark price for calculation is the July '19 guide price of €10.4m per
							ha for the 15 ha Glass Bottle Site. Remediation cost was taken off site value at rate of €2.8m per ha (based on the overall
							estimate of remediation costs for the port lands). This benchmark price was then used in assessing acquisition costs
				€683,675,000	€0	€683,675,000	of stakeholder sites with secure long term tenure. Other stakeholder sites were assessed on an individual basis.
Sub-Total - Land Acquisition				€685,944,153	€0	€685,944,153	
REMEDIATION EXISTING PORT LAND							
Existing Port - Site remediation							
							Assumptions:-
							Remediation of top layer across the site to a depth of 1M
			62.042.722	6702 252 702		6702 252 702	Building up levels to an average of 5.5m OD across site (1M additional imported fill)
	247	hectares	€2,843,723	€703,252,703	€0	€/03,252,/03	Includes a perimeter high L shaped wall to retain the material
sub-rotar - Remediation of Existing Port				€/03,252,703	€0	€/03,252,703	
ENVIRONMENTAL MITIGATION (capitalised)							
New Port - Liabilities - Ongoing Environmental Mitigation Measures							Environmental Mitigation Measures. Ongoing due to impact of
							port on natural coastal sediment movements. Continuing OPEX of €5.9m p.a which capitalises to €147m at 4% discount rate.
							Capitalised sum incurred from date when northern breakwater completed.
				€147,000,000	N/A	€147,000,000	
Sub-Total - Environmental Mitigation (Capitalised)				€147,000,000	€0	€147,000,000	
NATIONAL INFRASTRUCTURE							
National Infrastructure - National Roads Network Impact							Bringing forward of elements of the national roads programme
							due to impact of port traffic on M1. Not allowed for in costs.
National Infrastructure - National Rail Network Impact							Bringing forward elements of improvement of national rail network to handle traffic from new port. Not allowed for in
							costs.
Sub-Total - National Infrastructure Impact						-60	
TOTAL				€6,130,166,194	€1,000,880,210	€7,131,046,404	
				, 50,500,151	23,330,300,510	3,352,040,004	

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BREMORE (2.0) : SUMMARY EXCLUDING CONTINGENCY

CAPEX Summary Excluding Contingency	New Port Infrastructure	Buildings & Equipment	Land Acquisition	Remediation of Existing Port Land	On-going Liabilities (Capitalised)	Total
Phase 1	3,667,774,360	926,194,978	685,944,153	703,252,703	147,000,000	6,130,166,194
Phase 2	903,417,860	97,462,350	0	0	0	1,000,880,210
Total Phase 1 & 2	€4,571,192,221	€1,023,657,328	€685,944,153	€703,252,703	€147,000,000	€7,131,046,404

CONTINGENCY CALCULATION

Lower Range Contingency Allowance	New Port Infrastructure	Buildings & Equipment	Land Acquisition	Remediation of Existing Port Land	On-going Liabilities (Capitalised)	Total
Minimum Contingency Allowance	25%	25%	25%	25%	25%	
Phase 1	4,584,717,950	1,157,743,722	857,430,192	879,065,879	183,750,000	7,662,707,742
Phase 2	1,129,272,326	121,827,938	0	0	0	1,251,100,263
Total Phase 1 & 2	€5,713,990,276	€1,279,571,659	€857,430,192	€879,065,879	€183,750,000	8,913,808,006

Upper Range Contingency Allowance	New Port Infrastructure	Buildings & Equipment	Land Acquisition	Remediation of Existing Port Land	On-going Liabilities (Capitalised)	Total
Maximum Contingency Allowance	45%	45%	45%	50%	45%	
Phase 1	5,318,272,822	1,342,982,717	994,619,022	1,054,879,054	213,150,000	8,923,903,616
Phase 2	1,309,955,898	141,320,408	0	0	0	1,451,276,305
Total Phase 1 & 2	€6,628,228,720	€1,484,303,125	€994,619,022	€1,054,879,054	€213,150,000	10,375,179,922

Mid-point of the Lower and Upper_Contingency Range	New Port Infrastructure	Buildings & Equipment	Land Acquisition	Remediation of Existing Port Land	On-going Liabilities (Capitalised)	Total
Phase 1	€4,951,495,386	€1,250,363,220	€926,024,607	€966,972,467	€198,450,000	€8,293,305,679
Phase 2	€1,219,614,112	€131,574,173	€0	€0	€0	€1,351,188,284
Total Phase 1 & 2	€6,171,109,498	€1,381,937,392	€926,024,607	€966,972,467	€198,450,000	€9,644,493,964

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		Quantity	Rate	Phase 1	Ph
		,			
	ENABLING WORKS				
nabling works	Temporary Road from R132 to Shore, including lighting & services 12m wide	500 m	€2,000	€1,000,000	
nabling works	Temporary Road Along Shore linking the two Breakwaters, incl lighting and services, 12m wide	3,000 m	€2,000	€6,000,000	
nabling works	Temporary Double Road Bridge Over Rail Tracks	1 nr	€6,500,000	€6,500,000	
nabling works nabling works	Temporary Bridge Over River Laydown Area	1 nr 100,000 m2	€5,000,000 €50	€5,000,000 €5,000,000	
				13,200,000	
nabling works	Marine Site Investigations	1 item	€15,000,000	€15,000,000	
nabling works	Land Investigations	1 item	€5,000,000	€5,000,000	
nabling works	ESB Substation & Connection for Permanent Works	1 item	€70,000,000	€70,000,000	
Enabling works	Allow for Sustainable Power Supply (wind Farm / Solar)	1 item	€25,000,000	€25,000,000	
nabling works	Gas Connection & Infrastructure Upgrade for Permanent works	1 item	€15,000,000	€15,000,000	
nabling works nabling works	Water Connection & Infrastructure Upgrade for Permanent Works Fibre / Telephone Services Connection & Infrastructure Upgrade	1 item 1 item	€15,000,000 €10,000,000	€15,000,000 €10,000,000	
nabling works	Foul & Surface Water Connection & Infrastructure Upgrade	1 item	€15,000,000	€15,000,000	
	· ·				
Enabling works	Archaeological excavations - Allowance for Archaeological Excavation and potential disruption. Note allowance for Archaeological supervision allowed under dredging. (Anticipate Low Risk) Works / Diversion work to Gas Interconnector, Interconnector to be avoided, confirmed by RPS	1 item	€10,000,000	€10,000,000	
	World of Diversion work to day interconnected, interconnected to be divined, committed by its 3			miterconnector avoided	
nabling works					
nabling works	Contractor Preliminaries	10.000/	6202 500 000	620 250 000	
nabling works nabling works	Allow for Management and Preliminaries PSCS	10.00%	€203,500,000 €203,500,000	€20,350,000 €610,500	
nabling works		0.50/0	2203,300,000	€010,300	
nabling works	Design & Management				
nabling works	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€224,460,500	€20,201,445	
	EXTERNAL BREAKWATER				
xternal Breakwater - Phase 1	Breakwater A1	1,600 m	€19,529	€31,247,040	
xternal Breakwater - Phase 1	Breakwater A2	1,650 m	€40,344	€66,566,940	
xternal Breakwater - Phase 1 xternal Breakwater - Phase 1	Breakwater B Breakwater C (lined both sides, smaller armour internally)	1,550 m 3,000 m	€51,323 €68,688	€79,550,185 €206,065,200	
xternal Breakwater - Phase 1 xternal Breakwater - Phase 1	Breakwater C (lined both sides, smaller armour internally) Breakwater Channel Entrance	3,000 m	€08,688	€206,065,200	
xternal Breakwater - Phase 1	Southern Breakwater (lined both sides, smaller armour internally)	1,400 m	€57,659	€80,723,280	
xternal Breakwater - Phase 1		,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, .,	
xternal Breakwater - Phase 1	Contractor Preliminaries				
xternal Breakwater - Phase 1	Allow for Management and Preliminaries	10.00%	€464,152,645	€46,415,265	
xternal Breakwater - Phase 1	PSCS	0.30%	€464,152,645	€1,392,458	
xternal Breakwater - Phase 1 xternal Breakwater - Phase 1	Design & Management				
xternal Breakwater - Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€511,960,367	€46,076,433	
	Engineers, PMO. INTERNAL REVETMENTS, PERMANENT & TEMPORARY		,,,,,,,		
nternal Revetments, permanent & temporary	RoRo - Internal Breakwater (A2 with Smaller Armour)	2,300 m	€30,796	€70,829,880	
nternal Revetments, permanent & temporary nternal Revetments, permanent & temporary	RoRo - Internal Breakwater (Lining one side of existing A2 with Smaller Armour) RoRo - Internal Breakwater (B with Smaller Armour)	2,300 m 1,100 m	€20,552 €38,392	€47,270,520 €42,231,420	
nternal Revetments, permanent & temporary					
nternal Revetments, permanent & temporary	Contractor Preliminaries	10.000/		045 000 400	
nternal Revetments, permanent & temporary nternal Revetments, permanent & temporary	Allow for Management and Preliminaries PSCS	10.00% 0.30%	€160,331,820 €160,331,820	€16,033,182 €480,995	
nternal Revetments, permanent & temporary	F3C3	0.30%	€100,331,820	€460,555	
nternal Revetments, permanent & temporary	Design & Management				
nternal Revetments, permanent & temporary	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€176,845,997	€15,916,140	
	CONTAINER QUAY WALL PHASE 1				
Container Quay Wall Phase 1	Tubular Quay Wall, Crane Rail support Beam, 30m wide Slab	1,200 m	€106,300	€127,560,000	
Container Quay Wall Phase 1	Control than Brailing local co				
Container Quay Wall Phase 1 Container Quay Wall Phase 1	Contractor Preliminaries Allow for Management and Preliminaries	10.00%	€127,560,000	€12,756,000	
Container Quay Wall Phase 1	PSCS PSCS	0.30%	€127,560,000 €127,560,000	€12,756,000	
			,	555,550	
Container Quay Wall Phase 1		1			
ontainer Quay Wall Phase 1 ontainer Quay Wall Phase 1	Design & Management			€12,662,881	
Container Quay Wall Phase 1 Container Quay Wall Phase 1	Design & Management Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€140,698,680		
ontainer Quay Wall Phase 1 ontainer Quay Wall Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€140,698,680		
ontainer Quay Wall Phase 1 ontainer Quay Wall Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€140,698,680		
ontainer Quay Wall Phase 1 ontainer Quay Wall Phase 1 ontainer Quay Wall Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€140,698,680 €30,796	€30,795,600	
ontainer Quay Wall Phase 1 ontainer Quay Wall Phase 1 ontainer Quay Wall Phase 1 on to Berth & Ramps Phase 1 o Ro Berth & Ramps Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. RO RO BERTH & RAMPS PHASE 1 Ro Ro Area Int Breakwater Type A2 Ro Ro Jetty similar to Holyhead	1,000 m 5 nr	€30,796 €20,100,000	€100,500,000	
ontainer Quay Wall Phase 1 ontainer Quay Wall Phase 1 ontainer Quay Wall Phase 1 o Ro Berth & Ramps Phase 1 o Ro Berth & Ramps Phase 1 o Ro Berth & Ramps Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. RO RO BERTH & RAMPS PHASE 1 RO RO Area Int Breakwater Type A2 RO RO Betty similar to Holyhead RO RO Ro Romps 2nr + support Piles and concrete ramp (2 nr Single)	1,000 m 5 nr 3 nr	€30,796 €20,100,000 €14,900,000	€100,500,000 €44,700,000	
ontainer Quay Wall Phase 1 ontainer Quay Wall Phase 1 ontainer Quay Wall Phase 1 on 80 Berth & Ramps Phase 1 o 80 Berth & Ramps Phase 1 o 80 Berth & Ramps Phase 1 o 80 Berth & Ramps Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. RO RO BERTH & RAMPS PHASE 1 Ro Ro Area Int Breakwater Type A2 Ro Ro Jetty similar to Holyhead	1,000 m 5 nr	€30,796 €20,100,000	€100,500,000	
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ontainer Quay Wall Phase 1 on 80 Berth & Ramps Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. RO RO BERTH & RAMPS PHASE 1 RO RO Area Int Breakwater Type A2 RO RO Betty similar to Holyhead RO RO Ro Romps 2nr + support Piles and concrete ramp (2 nr Single)	1,000 m 5 nr 3 nr	€30,796 €20,100,000 €14,900,000	€100,500,000 €44,700,000	
ontainer Quay Wall Phase 1 on 80 Berth & Ramps Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. RO RO BERTH & RAMPS PHASE 1 RO RO Area Intl Breakwater Type A2 RO RO Letty similar to Holyhead RO RO Ramps Znr + Support Piles and concrete ramp (2 nr Single) RO RO Ramps Znr + Support Piles and concrete ramp (2 nr Double + ramps) Contractor Preliminaries	1,000 m 5 nr 3 nr 2 nr	€30,796 €20,100,000 €14,900,000 €34,519,000	€100,500,000 €44,700,000 €69,038,000	
ontainer Quay Wall Phase 1 on 80 Berth & Ramps Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. RO RO BERTH & RAMPS PHASE 1 RO RO Area Int Breakwater Type A2 RO RO Jetty similar to Holyhead RO RO Ramps 2nr + support Piles and concrete ramp (2 nr Single) RO RO Ramps 2nr + support Piles and concrete ramp (2 nr Double + ramps) Contractor Preliminaries Allow for Management and Preliminaries PSCS	1,000 m 5 nr 3 nr 2 nr	€30,796 €20,100,000 €14,900,000 €34,519,000	€100,500,000 €44,700,000 €69,038,000	
ontainer Quay Wall Phase 1 ontainer Quay Wall Phase 1 ontainer Quay Wall Phase 1 on Ro Berth & Ramps Phase 1 o Ro Berth & Ramps Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. RO RO BERTH & RAMPS PHASE 1 Ro Ro Area Int Breakwater Type A2 Ro Ro Ramps 2nr + support Piles and concrete ramp (2 nr Single) Ro Ro Ramps 2nr + support Piles and concrete ramp (2 nr Double + ramps) Contractor Preliminaries Allow for Management and Preliminaries	1,000 m 5 nr 3 nr 2 nr	€30,796 €20,100,000 €14,900,000 €34,519,000	€100,500,000 €44,700,000 €69,038,000	
ontainer Quay Wall Phase 1 ontainer Quay Wall Phase 1 ontainer Quay Wall Phase 1 on Ro Berth & Ramps Phase 1 o Ro Berth & Ramps Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. RO RO BERTH & RAMPS PHASE 1 Ro Ro Area Int Breakwater Type A2 Ro Ro Rother Strate St	1,000 m 5 nr 3 nr 2 nr 10,00%	€30,796 €20,100,000 €14,900,000 €34,519,000 €245,033,600	€100,500,000 €44,700,000 €69,038,000 €24,503,360 €735,101	
Container Quay Wall Phase 1 Container Quay Wall Phase 1 Container Quay Wall Phase 1 to Ro Berth & Ramps Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. RO RO BERTH & RAMPS PHASE 1 RO RO Area Intl Breakwater Type A2 RO RO Jetty similar to Holyhead RO RO Ramps 2nr + support Piles and concrete ramp (2 nr Single) RO RO Ramps 2nr + support Piles and concrete ramp (2nr Double + ramps) Contractor Preliminaries Allow for Management and Preliminaries PSCS Design & Management Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	1,000 m 5 nr 3 nr 2 nr 10,00%	€30,796 €20,100,000 €14,900,000 €34,519,000 €245,033,600	€100,500,000 €44,700,000 €69,038,000 €24,503,360 €735,101	
container Quay Wall Phase 1 co	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. RO RO BERTH & RAMPS PHASE 1 RO RO Area Int Breakwater Type A2 RO RO Jetty similar to Holyhead RO RO Ramps 2nr + support Piles and concrete ramp (2 nr Single) RO RO Ramps 2nr + support Piles and concrete ramp (2nr Double + ramps) Contractor Preliminaries Allow for Management and Preliminaries PSCS Design & Management Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. BULK QUAY WALLS PHASE 1	1,000 m 5 nr 3 nr 2 nr 10,00%	€30,796 €20,100,000 €14,900,000 €34,519,000 €245,033,600	€100,500,000 €44,700,000 €69,038,000 €24,503,360 €735,101 €24,324,485	
container Quay Wall Phase 1 iontainer Quay Wall Phase 1 ontainer Quay Wall Phase 1 ontainer Quay Wall Phase 1 io Ro Berth & Ramps Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. RO RO BERTH & RAMPS PHASE 1 Ro Ro Area Int Breakwater Type A2 Ro Ro Rother Strate St	1,000 m 5 nr 3 nr 2 nr 10.00% 0.30%	€30,796 €20,100,000 €14,900,000 €34,519,000 €245,033,600 €245,033,600	€100,500,000 €44,700,000 €69,038,000 €24,503,360 €735,101	
container Quay Wall Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. RO RO BERTH & RAMPS PHASE 1 RO RO Area Int Breakwater Type A2 RO RO Jetty similar to Holyhead RO RO Ramps 2nr + support Piles and concrete ramp (2 nr Single) RO RO Ramps 2nr + support Piles and concrete ramp (2nr Double + ramps) Contractor Preliminaries Allow for Management and Preliminaries PSCS Design & Management Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. BULK QUAY WALLS PHASE 1	1,000 m 5 nr 3 nr 2 nr 10.00% 0.30%	€30,796 €20,100,000 €14,900,000 €34,519,000 €245,033,600 €245,033,600	€100,500,000 €44,700,000 €69,038,000 €24,503,360 €735,101 €24,324,485	
Container Quay Wall Phase 1 Container Quay Wall Phase 1 Container Quay Wall Phase 1 AND ROBERT & Ramps Phase 1 To Ro Berth & Ramps Phase 1 To Row Berth & Ramps Phase 1 To Row Berth & Ramps Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. RO RO BERTH & RAMPS PHASE 1 RO RO Area Intl Breakwater Type A2 RO RO Letty similar to Holyhead RO RO Ramps 2nr + support Piles and concrete ramp (2 nr Single) RO RO Ramps 2nr + support Piles and concrete ramp (2nr Double + ramps) Contractor Preliminaries Allow for Management and Preliminaries PSCS Design & Management Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. BULK QUAY WALLS PHASE 1 Tubular Quay Wall, Crane Rail support Beam, 30m wide Slab	1,000 m 5 nr 3 nr 2 nr 10.00% 0.30% 9.00%	€30,796 €20,100,000 €14,900,000 €34,519,000 €245,033,600 €245,033,600	€100,500,000 €44,700,000 €69,038,000 €24,503,360 €735,101 €24,324,485	
container Quay Wall Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. RO RO BERTH & RAMPS PHASE 1 RO RO Area Int Breakwater Type A2 RO RO Jetty similar to Holyhead RO RO Ramps 2nr + support Piles and concrete ramp (2 nr Single) RO RO Ramps 2nr + support Piles and concrete ramp (2nr Double + ramps) Contractor Preliminaries Allow for Management and Preliminaries PSCS Design & Management Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. BULK QUAY WALLS PHASE 1 Tubular Quay Wall, Crane Rail support Beam, 30m wide Slab Contractor Preliminaries Allow for Management and Preliminaries	1,000 m 5 nr 3 nr 2 nr 10.00% 0.30%	€30,796 €20,100,000 €14,900,000 €34,519,000 €245,033,600 €245,033,600 €270,272,061	€100,500,000 €44,700,000 €69,038,000 €24,503,360 €735,101 €24,324,485 €95,670,000	
Container Quay Wall Phase 1 Container Quay Wall Phase 1 Container Quay Wall Phase 1 to Ro Berth & Ramps Phase 1 to Rough Walls Phase 1 to Rough Walls Phase 1 to Wall Quay Walls Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. RO RO BERTH & RAMPS PHASE 1 RO RO Area Intl Breakwater Type A2 RO RO Letty similar to Holyhead RO RO Ramps 2nr + support Piles and concrete ramp (2 nr Single) RO RO Ramps 2nr + support Piles and concrete ramp (2nr Double + ramps) Contractor Preliminaries Allow for Management and Preliminaries PSCS Design & Management Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. BULK QUAY WALLS PHASE 1 Tubular Quay Wall, Crane Rail support Beam, 30m wide Slab	1,000 m 5 nr 3 nr 2 nr 10.00% 0.30% 9.00%	€30,796 €20,100,000 €14,900,000 €34,519,000 €245,033,600 €245,033,600	€100,500,000 €44,700,000 €69,038,000 €24,503,360 €735,101 €24,324,485	
Container Quay Wall Phase 1 Container Quay Wall Phase 1 Container Quay Wall Phase 1 to Ro Berth & Ramps Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. RO RO BERTH & RAMPS PHASE 1 RO RO BERTH & RAMPS PHASE 1 RO RO Area Intl Breakwater Type A2 RO RO Area Intl Breakwater Type A2 RO RO Ramps 2nr + support Piles and concrete ramp (2 nr Single) RO RO Ramps 2nr + support Piles and concrete ramp (2nr Double + ramps) Contractor Preliminaries Allow for Management and Preliminaries PSCS Design & Management Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. BULK QUAY WALLS PHASE 1 Tubular Quay Wall, Crane Rail support Beam, 30m wide Slab Contractor Preliminaries Allow for Management and Preliminaries PSCS	1,000 m 5 nr 3 nr 2 nr 10.00% 0.30%	€30,796 €20,100,000 €14,900,000 €34,519,000 €245,033,600 €245,033,600 €270,272,061	€100,500,000 €44,700,000 €69,038,000 €24,503,360 €735,101 €24,324,485 €95,670,000	
Container Quay Wall Phase 1 Container Quay Wall Phase 1 Container Quay Wall Phase 1 to Ro Berth & Ramps Phase 1 to Rough Walls Phase 1 to Rough Walls Phase 1 to Wall Quay Walls Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. RO RO BERTH & RAMPS PHASE 1 RO RO Area Int Breakwater Type A2 RO RO Jetty similar to Holyhead RO RO Ramps 2nr + support Piles and concrete ramp (2 nr Single) RO RO Ramps 2nr + support Piles and concrete ramp (2nr Double + ramps) Contractor Preliminaries Allow for Management and Preliminaries PSCS Design & Management Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. BULK QUAY WALLS PHASE 1 Tubular Quay Wall, Crane Rail support Beam, 30m wide Slab Contractor Preliminaries Allow for Management and Preliminaries	1,000 m 5 nr 3 nr 2 nr 10.00% 0.30%	€30,796 €20,100,000 €14,900,000 €34,519,000 €245,033,600 €245,033,600 €270,272,061	€100,500,000 €44,700,000 €69,038,000 €24,503,360 €735,101 €24,324,485 €95,670,000	

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		Quantity	Rate	Phase 1	Phas
	PORT SERVICES				
ort Services Phase 1	Tubular Quay Wall, Crane Rail support Beam, 30m wide Slab	200 m	€106,300	€21,260,000	
ort Services Phase 1					
ort Services Phase 1 ort Services Phase 1	Contractor Preliminaries Allow for Management and Preliminaries	10.00%	€21,260,000	€2,126,000	
ort Services Phase 1	PSCS PSCS	0.30%	€21,260,000	€2,126,000	
ort Services Phase 1			. , ,	,	
ort Services Phase 1	Design & Management	0.000/	500 440 700	52.440.400	
ort Services Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€23,449,780	€2,110,480	
	Eligineers, Fivio.				
	OIL BERTH				
il Berth Phase 1	Tubular Quay Wall, Crane Rail support Beam, 30m wide Slab	630 m	€106,300	€66,969,000	
il Berth Phase 1			5350,500	553,553,553	
il Berth Phase 1	Contractor Preliminaries				
il Berth Phase 1 il Berth Phase 1	Allow for Management and Preliminaries PSCS	10.00%	€66,969,000 €66,969,000	€6,696,900 €200,907	
il Berth Phase 1	F3C3	0.30%	€66,565,000	€200,507	
il Berth Phase 1	Design & Management				
il Berth Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€73,866,807	€6,648,013	
	Engineers, PMO.				
	CONTAINER YARD PHASE 1				
	a				
ontainer Yard Phase 1 ontainer Yard Phase 1	Container Yard RTG Yard Site Enclosures	600,000 m2 4 150 m	€221 €600	€132,600,000 €2,490,000	
ontainer Yard Phase 1 ontainer Yard Phase 1	Site Enclosures	4,150 m	€600	€2,490,000	
ontainer Yard Phase 1	Contractor Preliminaries				
ontainer Yard Phase 1	Allow for Management and Preliminaries	10.00%	€135,090,000	€13,509,000	
ontainer Yard Phase 1	PSCS	0.30%	€135,090,000	€405,270	
ontainer Yard Phase 1 ontainer Yard Phase 1	Design & Management				
Container Yard Phase 1	Design & Management Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€149,004,270	€13,410,384	
	Engineers, PMO.			,,	
	DO DO VADO DHACE 1	-	+		
	RO RO YARD PHASE 1	+	+ +		
o Ro Yard Phase 1	Yard allow 300mm thick Yard	850,000 m2	€171	€145,350,000	
o Ro Yard Phase 1	Site Enclosures	3,700 m	€600	€2,220,000	
o Ro Yard Phase 1					
o Ro Yard Phase 1 o Ro Yard Phase 1	Contractor Preliminaries Allow for Management and Preliminaries	10.00%	€147,570,000	€14,757,000	
o Ro Yard Phase 1	Allow for Management and Preliminaries PSCS	0.30%	€147,570,000	€14,737,000	
o Ro Yard Phase 1					
o Ro Yard Phase 1	Design & Management				
to Ro Yard Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€162,769,710	€14,649,274	
	Engineers, PMO.				
	BULK YARD PHASE 1				
lulk Yard Phase 1 lulk Yard Phase 1	Yard allow 300mm thick Yard Site Enclosures	320,000 m2 4,100 m	€171 €600	€54,720,000 €2,460,000	
ulk Yard Phase 1	Site Enclosures	4,100 m	€600	€2,460,000	
ulk Yard Phase 1	Contractor Preliminaries				
ulk Yard Phase 1	Allow for Management and Preliminaries	10.00%	€57,180,000	€5,718,000	
ulk Yard Phase 1	PSCS	0.30%	€57,180,000	€171,540	
ulk Yard Phase 1 ulk Yard Phase 1	Design & Management				
ulk Yard Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€63,069,540	€5,676,259	
	Engineers, PMO.		,,-	,-: -,	
	OIL BERTH YARD				
il Berth Yard Phase 1	Yard allow 300mm thick Yard	200.000 m2	€171	€34,200,000	
il Berth Yard Phase 1	Site Enclosures	2,100 m	€600	€34,200,000	
il Berth Yard Phase 1		·			
il Berth Yard Phase 1	Contractor Preliminaries	L			
il Berth Yard Phase 1	Allow for Management and Preliminaries	10.00%	€35,460,000	€3,546,000 €106,380	
il Berth Yard Phase 1 il Berth Yard Phase 1	PSCS	0.30%	€35,460,000	€106,380	
il Berth Yard Phase 1	Design & Management				
All Deltil Talu Filase 1			€39,112,380	€3,520,114	
il Berth Yard Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	000,222,000		
	Engineers, PMO.	9.00%			
		9.00%	111,111		
		9.00%			
il Berth Yard Phase 1	Engineers, PMO. PORT SERVICES & STATE SERVICES YARD				
iil Berth Yard Phase 1 ort & State Services Yard Phase 1	Engineers, PMO. PORT SERVICES & STATE SERVICES YARD Yard allow 300mm thick Yard	610,000 m2	€171	€104,310,000	
ill Berth Yard Phase 1 ort & State Services Yard Phase 1 ort & State Services Yard Phase 1	Engineers, PMO. PORT SERVICES & STATE SERVICES YARD			€104,310,000 €2,700,000	
iil Berth Yard Phase 1 ort & State Services Yard Phase 1 ort & State Services Yard Phase 1 ort & State Services Yard Phase 1	Engineers, PMO. PORT SERVICES & STATE SERVICES YARD Yard allow 300mm thick Yard Site Enclosures	610,000 m2	€171		
il Berth Yard Phase 1 ort & State Services Yard Phase 1	Engineers, PMO. PORT SERVICES & STATE SERVICES YARD Yard allow 300mm thick Yard	610,000 m2	€171 €600 €107,010,000		
ort & State Services Yard Phase 1 ort & State Services Yard Phase 1 ort & State Services Vard Phase 1 ort & State Services Yard Phase 1	Engineers, PMO. PORT SERVICES & STATE SERVICES YARD Yard allow 300mm thick Yard Site Enclosures Contractor Preliminaries	610,000 m2 4,500 m	€171 €600	€2,700,000	
ort & State Services Yard Phase 1	Engineers, PMO. PORT SERVICES & STATE SERVICES YARD Yard allow 300mm thick Yard Site Enclosures Contractor Preliminaries Allow for Management and Preliminaries PSCS	610,000 m2 4,500 m	€171 €600 €107,010,000	€2,700,000 €10,701,000	
ort & State Services Yard Phase 1	Engineers, PMO. PORT SERVICES & STATE SERVICES YARD Yard allow 300mm thick Yard Site Enclosures Contractor Preliminaries Allow for Management and Preliminaries PSCS Design & Management	610,000 m2 4,500 m 10,00% 0,30%	€171 €600 €107,010,000 €107,010,000	€2,700,000 €10,701,000 €321,030	
ort & State Services Yard Phase 1	Engineers, PMO. PORT SERVICES & STATE SERVICES YARD Yard allow 300mm thick Yard Site Enclosures Contractor Preliminaries Allow for Management and Preliminaries PSCS	610,000 m2 4,500 m	€171 €600 €107,010,000	€2,700,000 €10,701,000	
ort & State Services Yard Phase 1	Engineers, PMO. PORT SERVICES & STATE SERVICES YARD Yard allow 300mm thick Yard Site Enclosures Contractor Preliminaries Allow for Management and Preliminaries PSCS Design & Management Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	610,000 m2 4,500 m 10,00% 0,30%	€171 €600 €107,010,000 €107,010,000	€2,700,000 €10,701,000 €321,030	
ort & State Services Yard Phase 1	Engineers, PMO. PORT SERVICES & STATE SERVICES YARD Yard allow 300mm thick Yard Site Enclosures Contractor Preliminaries Allow for Management and Preliminaries PSCS Design & Management Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	610,000 m2 4,500 m 10,00% 0,30%	€171 €600 €107,010,000 €107,010,000	€2,700,000 €10,701,000 €321,030	
ort & State Services Yard Phase 1	Engineers, PMO. PORT SERVICES & STATE SERVICES YARD Yard allow 300mm thick Yard Site Enclosures Contractor Preliminaries Allow for Management and Preliminaries PSCS Design & Management Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	610,000 m2 4,500 m 10,00% 0,30%	€171 €600 €107,010,000 €107,010,000	€2,700,000 €10,701,000 €321,030	
ort & State Services Yard Phase 1	Engineers, PMO. PORT SERVICES & STATE SERVICES YARD Yard allow 300mm thick Yard Site Enclosures Contractor Preliminaries Allow for Management and Preliminaries PSCS Design & Management Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. BULK FILLING PHASE 1	610,000 m2 4,500 m 10.00% 0.30%	€171 €600 €107,010,000 €107,010,000	€2,700,000 €10,701,000 €321,030 €10,622,883	
ort & State Services Yard Phase 1	Engineers, PMO. PORT SERVICES & STATE SERVICES YARD Yard allow 300mm thick Yard Site Enclosures Contractor Preliminaries Allow for Management and Preliminaries PSCS Design & Management Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. BULK FILLING PHASE 1 Dredging sand locally (less Dredging for Basin & Channel + Rock as difficult to transfer from dredger to	610,000 m2 4,500 m 10,00% 0.30%	€171 €600 €107,010,000 €107,010,000	€2,700,000 €10,701,000 €321,030	
ort & State Services Yard Phase 1	Engineers, PMO. PORT SERVICES & STATE SERVICES YARD Vard allow 300mm thick Yard Site Enclosures Contractor Preliminaries Allow for Management and Preliminaries PSCS Design & Management Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. BULK FILLING PHASE 1 Dredging sand locally (less Dredging for Basin & Channel + Rock as difficult to transfer from dredger to Infili areas)	610,000 m2 4,500 m 10,00% 0,30% 9,00%	€171 €600 €107,010,000 €107,010,000 €118,032,030	€2,700,000 €10,701,000 €321,030 €10,622,883	
ort & State Services Yard Phase 1 utk Filling Phase 1	Engineers, PMO. PORT SERVICES & STATE SERVICES YARD Yard allow 300mm thick Yard Site Enclosures Contractor Preliminaries Allow for Management and Preliminaries PSCS Design & Management Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. BULK FILLING PHASE 1 Dredging sand locally (less Dredging for Basin & Channel + Rock as difficult to transfer from dredger to Infilli areas) Transporting dredge to area for Filling	610,000 m2 4,500 m 10.00% 0.30%	€171 €600 €107,010,000 €107,010,000	€2,700,000 €10,701,000 €321,030 €10,622,883	
	Engineers, PMO. PORT SERVICES & STATE SERVICES YARD Vard allow 300mm thick Yard Site Enclosures Contractor Preliminaries Allow for Management and Preliminaries PSCS Design & Management Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. BULK FILLING PHASE 1 Dredging sand locally (less Dredging for Basin & Channel + Rock as difficult to transfer from dredger to Infili areas)	610,000 m2 4,500 m 10.00% 0.30% 9.00% 28,943,992 m3 28,943,992 m3	€171 €600 €107,010,000 €107,010,000 €118,032,030	€2,700,000 €10,701,000 €321,030 €10,622,883 €144,719,960 €57,887,984	
ort & State Services Yard Phase 1 utk State Services Yard Phase 1 utk Filling Phase 1 utk Filling Phase 1 utk Filling Phase 1 utk Filling Phase 1	Engineers, PMO. PORT SERVICES & STATE SERVICES YARD Yard allow 300mm thick Yard Site Enclosures Site Enclosures Allow for Management and Preliminaries PSCS Design & Management Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. BULK FILLING PHASE 1 Dredging sand locally (less Dredging for Basin & Channel + Rock as difficult to transfer from dredger to Infill areas) Transporting dredge to area for Filling Drying, Filling & Double handling Levelling and Compacting	610,000 m2 4,500 m 10.00% 0.30% 9.00% 28,943,992 m3 28,943,992 m3 45,377,500 m3	€171 €600 €107,010,000 €107,010,000 €118,032,030 €5.00 €2.00 €3.00	€2,700,000 €10,701,000 €321,030 €10,622,883 €144,719,960 €57,887,984 €136,132,500	
il Berth Yard Phase 1 ort & State Services Yard Phase 1 olik Filling Phase 1	Engineers, PMO. PORT SERVICES & STATE SERVICES YARD Vard allow 300mm thick Yard Site Enclosures Contractor Preliminaries Allow for Management and Preliminaries PSCS Design & Management Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. BULK FILLING PHASE 1 Dredging sand locally (less Dredging for Basin & Channel + Rock as difficult to transfer from dredger to Infili areas) Transporting dredge to area for Filling Drying, Filling & Double handling Levelling and Compacting Contractor Preliminaries	610,000 m2 4,500 m 10,00% 0,30% 9,00% 28,943,992 m3 28,943,992 m3 45,377,500 m3	€171 €600 €107,010,000 €107,010,000 €118,032,030 €13,00 €2,00 €3,00	€2,700,000 €10,701,000 €321,030 €10,622,883 €144,719,960 €57,887,984 €136,132,500 €136,132,500	
ort & State Services Yard Phase 1 olik Filling Phase 1	Engineers, PMO. PORT SERVICES & STATE SERVICES YARD Yard allow 300mm thick Yard Site Enclosures Contractor Preliminaries Allow for Management and Preliminaries PSCS Design & Management Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. BULK FILLING PHASE 1 Dredging sand locally (less Dredging for Basin & Channel + Rock as difficult to transfer from dredger to Infilli areas) Transporting dredge to area for Filling Dyring, Filling & Double handling Levelling and Compacting Contractor Preliminaries Allow for Management and Preliminaries	610,000 m2 4,500 m 10.00% 0.30% 9.00% 9,00% 28,943,992 m3 28,943,992 m3 45,377,500 m3	€107,010,000 €107,010,000 €107,010,000 €118,032,030 €18,032,030 €3.00 €3.00 €3.00	€2,700,000 €10,701,000 €321,030 €10,622,883 €144,719,960 €57,887,984 £136,132,500 £136,132,500	
ort & State Services Yard Phase 1 ort &	Engineers, PMO. PORT SERVICES & STATE SERVICES YARD Vard allow 300mm thick Yard Site Enclosures Contractor Preliminaries Allow for Management and Preliminaries PSCS Design & Management Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. BULK FILLING PHASE 1 Dredging sand locally (less Dredging for Basin & Channel + Rock as difficult to transfer from dredger to Infili areas) Transporting dredge to area for Filling Drying, Filling & Double handling Levelling and Compacting Contractor Preliminaries	610,000 m2 4,500 m 10,00% 0,30% 9,00% 28,943,992 m3 28,943,992 m3 45,377,500 m3	€171 €600 €107,010,000 €107,010,000 €118,032,030 €13,00 €2,00 €3,00	€2,700,000 €10,701,000 €321,030 €10,622,883 €144,719,960 €57,887,984 €136,132,500 €136,132,500	
ort & State Services Yard Phase 1 ulk Filling Phase 1	Engineers, PMO. PORT SERVICES & STATE SERVICES YARD Yard allow 300mm thick Yard Site Enclosures Contractor Preliminaries Allow for Management and Preliminaries PSCS Design & Management Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. BULK FILLING PHASE 1 Dredging sand locally (less Dredging for Basin & Channel + Rock as difficult to transfer from dredger to infill areas) Transporting dredge to area for Filling Dyring, Filling & Double handling Levelling and Compacting Contractor Preliminaries Allow for Management and Preliminaries PSCS	610,000 m2 4,500 m 10.00% 0.30% 9.00% 9,00% 28,943,992 m3 28,943,992 m3 45,377,500 m3	€107,010,000 €107,010,000 €107,010,000 €118,032,030 €18,032,030 €3.00 €3.00 €3.00	€2,700,000 €10,701,000 €321,030 €10,622,883 €144,719,960 €57,887,984 £136,132,500 £136,132,500	
ort & State Services Yard Phase 1 ort &	Engineers, PMO. PORT SERVICES & STATE SERVICES YARD Yard allow 300mm thick Yard Site Enclosures Contractor Preliminaries Allow for Management and Preliminaries PSCS Design & Management Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO. BULK FILLING PHASE 1 Dredging sand locally (less Dredging for Basin & Channel + Rock as difficult to transfer from dredger to Infilli areas) Transporting dredge to area for Filling Dyring, Filling & Double handling Levelling and Compacting Contractor Preliminaries Allow for Management and Preliminaries	610,000 m2 4,500 m 10.00% 0.30% 9.00% 9,00% 28,943,992 m3 28,943,992 m3 45,377,500 m3	€107,010,000 €107,010,000 €107,010,000 €118,032,030 €18,032,030 €3.00 €3.00 €3.00	€2,700,000 €10,701,000 €321,030 €10,622,883 €144,719,960 €57,887,984 £136,132,500 £136,132,500	

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		Quantity	Rate	Phase 1	Phas
	DREDGING PHASE 1				
redging Phase 1	Dredging Basin to -12 (-12.5)	15,969,600 m3	€5.00	€79,848,000	
redging Phase 1	Dredging Container and Bulk Berths to -14 (-14.5)	820,800 m3	€5.00	€4,104,000	
redging Phase 1	Dredging channel Entrance	6,686,040 m3	€5.00	€33,430,200	
redging Phase 1	Transporting - Pump from Dredger - Included	23,476,440 m3	incl		
redging Phase 1	Extra over Rock excavation - allow 30%	7,042,932 m3	€35.00	€246,502,620	
redging Phase 1					
Predging Phase 1	Contractor Preliminaries	40.000/	5252 004 020	606 000 400	
Oredging Phase 1	Allow for Management and Preliminaries PSCS	10.00% 0.30%	€363,884,820 €363,884,820	€36,388,482 €1,091,654	
Predging Phase 1 Predging Phase 1	PSCS	0.30%	€303,884,820	€1,091,054	
Oredging Phase 1	Design & Management				
Predging Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€401,364,956	€36,122,846	
	Engineers, PMO.				
	RIVER CHANNEL PHASE 1				
	RIVER CHANNEL PHASE 1				
iver Channel Phase 1	2 nr lined Berms to form river 1500m long - River Delvin	1,750 m	€8,112.00	€14,196,000	
tiver Channel Phase 1	Culvert under Double Rail Line	2 nr	€476,000.00	€952,000	
iver Channel Phase 1	Culvert under Dual Carriageway	3 nr	€660,000.00	€1,980,000	
iver Channel Phase 1	Culvert through Berm	1 nr	€660,000.00	€660,000	
iver Channel Phase 1					
iver Channel Phase 1	Contractor Preliminaries				
iver Channel Phase 1	Allow for Management and Preliminaries	10.00%	€17,788,000	€1,778,800	
iver Channel Phase 1	PSCS	0.30%	€17,788,000	€53,364	
iver Channel Phase 1 iver Channel Phase 1	Design & Management				
iver Channel Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€19,620,164	€1,765,815	
	Engineers, PMO.	3.55,5	223,020,104	21,703,013	
	·				
	ROADS PHASE 1				
toads Phase 1	Dual Carriageways on reclaimed land	11.2 km	€6,500,000	€72,800,000	
oads Phase 1 oads Phase 1	Dual Carriageways on main land Road Bridge Over Existing Rail Tracks	6.6 km 2 nr	€9,000,000 €15,000,000	€59,400,000 €30,000,000	
loads Phase 1	Road Bridge Over Existing Rail Tracks Pedestrian Bridge Over Existing Rail Tracks	2 nr	€15,000,000 €2,000,000	€30,000,000 €4,000,000	
loads Phase 1	Connection to existing Motorway connection	1 item	€2,000,000	€20,000,000	
Roads Phase 1					
Roads Phase 1	Design & Management				
Roads Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€186,200,000	€16,758,000	
	Engineers, PMO.				
	RAIL PHASE 1				
	NAIL FRASE 1				
tail Phase 1	Double Rail Line mainly on reclaimed land	9.7 km	€5,000,000	€48,500,000	
Rail Phase 1	Rail switch existing line	2 nr	€500,000	€1,000,000	
Rail Phase 1	Rail switch new line	4 nr	€250,000	€1,000,000	
Rail Phase 1	Road Bridge Over New Rail Tracks	3 nr	€15,000,000	€45,000,000	
Rail Phase 1	Pedestrian Bridge Over New Rail Tracks	3 nr	€2,000,000	€6,000,000	
Rail Phase 1					
	Design & Management		1		
	Contractor Detail Design CSA MRS Fire Cat 1 Chapter DSDD Decident Engineers Engineers	0.00%	£101 E00 000		
Rail Phase 1 Rail Phase 1	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	€9,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€101,500,000	€9,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	€9,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	€9,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	€9,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	€9,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	€9,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	(9,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	(9,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9,00%	€101,500,000	(9,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	(9,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	(9,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	(9,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	(9,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9,00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€101,500,000	69,135,000	

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		Quantity	Rate	Phase 1	Phase 2	
	PHASE 2					
	EXTERNAL BREAKWATER					
External Breakwater - Phase 2	Breakwater Phase 2 G1	1,100 m	€23,170		€25,487,000	
External Breakwater - Phase 2	Breakwater Channel Entrance	0 m	€0		€	
External Breakwater - Phase 2	Contractor Bullinding in					
External Breakwater - Phase 2 External Breakwater - Phase 2	Contractor Preliminaries Allow for Management and Preliminaries	10.00%	€25,487,000		€2,548,700	
External Breakwater - Phase 2	PSCS	0.30%	€25,487,000		€76,461	
External Breakwater - Phase 2						
External Breakwater - Phase 2 External Breakwater - Phase 2	<u>Design & Management</u> Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€28,112,161		€2,530,094	
	CONTAINER QUAY WALL PHASE 2					
Container Quay Wall Phase 2 Container Quay Wall Phase 2	Tubular Quay Wall, Crane Rail support Beam, 30m wide Slab	1,200 m	€106,300		€127,560,000	
Container Quay Wall Phase 2	Contractor Preliminaries					
Container Quay Wall Phase 2	Allow for Management and Preliminaries	10.00%	€127,560,000		€12,756,000	
Container Quay Wall Phase 2	PSCS	0.30%	€127,560,000		€382,680	
Container Quay Wall Phase 2						
Container Quay Wall Phase 2 Container Quay Wall Phase 2	Design & Management Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€140,698,680		€12,662,88	
Container Quay Wall Fliase 2	Engineers, PMO.	5.00%	€140,050,000		€12,002,00	
	RO RO BERTH & RAMPS PHASE 2					
Ro Ro Berth & Ramps Phase 2	Ro Ro Area Int Breakwater Type A2	450 m	€30,796		€13,858,020	
Ro Ro Berth & Ramps Phase 2 Ro Ro Berth & Ramps Phase 2	Ro Ro Area Int Breakwater Type AZ Ro Ro Jetty similar to Holyhead	450 m	€30,796 €20,100,000		€13,858,020 €40,200,000	
Ro Ro Berth & Ramps Phase 2	Ro Ro Ramps 2nr + support Piles and concrete ramp (2 nr Single)	1 nr	€20,100,000		€14,900,000	
Ro Ro Berth & Ramps Phase 2	Ro Ro Ramps 2nr + support Piles and concrete ramp (2nr Double + ramps)	1 nr	€34,519,000		€34,519,000	
Ro Ro Berth & Ramps Phase 2						
Ro Ro Berth & Ramps Phase 2	Contractor Preliminaries					
Ro Ro Berth & Ramps Phase 2	Allow for Management and Preliminaries	10.00%	€103,477,020 €103,477,020		€10,347,702	
Ro Ro Berth & Ramps Phase 2 Ro Ro Berth & Ramps Phase 2	PSCS	0.30%	€103,477,020		€310,431	
Ro Ro Berth & Ramps Phase 2	Design & Management					
Ro Ro Berth & Ramps Phase 2	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€114,135,153		€10,272,164	
	•					
	CONTAINER YARD PHASE 2					
Container Yard Phase 2	Container Yard RTG Yard	600,000 m2	€221		€132,600,000	
Container Yard Phase 2 Container Yard Phase 2	Site Enclosures	3,500 m	€600		€2,100,000	
Container Yard Phase 2	Contractor Preliminaries					
Container Yard Phase 2	Allow for Management and Preliminaries	10.00%	€134,700,000		€13,470,000	
Container Yard Phase 2	PSCS	0.30%	€134,700,000		€404,100	
Container Yard Phase 2 Container Yard Phase 2	Desire 9 Management					
Container Yard Phase 2	<u>Design & Management</u> Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€148,574,100		€13,371,669	
	RO RO YARD PHASE 2					
Ro Ro Yard Phase 2	Yard allow 300mm thick Yard	350,000 m2	€171		€59,850,000	
Ro Ro Yard Phase 2	Site Enclosures	3,500 m	€600		€2,100,000	
Ro Ro Yard Phase 2	Site Efficiosores	3,300 111			62,100,000	
Ro Ro Yard Phase 2	Contractor Preliminaries					
Ro Ro Yard Phase 2	Allow for Management and Preliminaries	10.00%	€61,950,000		€6,195,000	
Ro Ro Yard Phase 2	PSCS	0.30%	€61,950,000		€185,850	
Ro Ro Yard Phase 2	During & Management					
Ro Ro Yard Phase 2 Ro Ro Yard Phase 2	Design & Management Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€68,330,850		€6,149,77	
	g-cody t mod					
	BULK QUAY YARDS PHASE 2					
Bulk Quay Yards Phase 2	Yard allow 300mm thick Yard	40,000 m2	€171		€6,840,00	
Bulk Quay Yards Phase 2	Site Enclosures	1,000 m	€600		€600,000	
Bulk Quay Yards Phase 2						
Bulk Quay Yards Phase 2	Contractor Preliminaries					
Bulk Quay Yards Phase 2 Bulk Quay Yards Phase 2	Allow for Management and Preliminaries PSCS	10.00%	€7,440,000		€744,000	
Bulk Quay Yards Phase 2 Bulk Quay Yards Phase 2	PSCS	0.30%	€7,440,000		€22,320	
Bulk Quay Yards Phase 2	Design & Management					
Bulk Quay Yards Phase 2	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€8,206,320		€738,56	
	BULK FILLING PHASE 2					
Dully Fillian Dhara 2	Deside and levelle (leve Deside) (0 1 0 0) 1 0 0 1 0 0 1 0 0 10 0 10 0	20 402 000 -			****	
Bulk Filling Phase 2 Bulk Filling Phase 2	Dredging sand locally (less Dredging for Basin & Channel + Rock as unlikely to fill) Transporting (less Dredging for Basin & Channel)	20,483,080 m3 20,483,080 m3	€5.00 €2.00		€102,415,400 €40,966,160	
Bulk Filling Phase 2	Filling & Double handling	20,725,000 m3	€3.00		€62,175,000	
Bulk Filling Phase 2	Levelling and Compacting	20,725,000 m3	€3.00		€62,175,000	
Bulk Filling Phase 2						
Bulk Filling Phase 2	Contractor Preliminaries Allow for Management and Preliminaries	10.009/	£267 724 FC0		£26 772 15	
Bulk Filling Phase 2 Bulk Filling Phase 2	Allow for Management and Preliminaries PSCS	10.00%	€267,731,560 €267,731,560		€26,773,156 €803,19	
Bulk Filling Phase 2		0.30%	2207,731,300		£005,193	
Bulk Filling Phase 2	Design & Management		1			
Bulk Filling Phase 2	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%	€295,307,911		€26,577,71	

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		Quantity	Rate	Phase 1	Phase
		1			
	DREDGING PHASE 2				
Dandaina Bhana 2	Decide Contributed Built Books to 44/44 F)	345,600 m3	€5.00		61 720 0
Oredging Phase 2 Oredging Phase 2	Dredging Container and Bulk Berths to -14 (-14.5) Transporting to infill areas - Pump	345,600 m3	incl €5.00	'	€1,728,00
Oredging Phase 2	Extra over Rock excavation - allow 30%	103,680 m3	€35.00		€3,628,80
Oredging Phase 2 Oredging Phase 2	Contractor Preliminaries				
Dredging Phase 2	Allow for Management and Preliminaries	10.00%	€5,356,800		€535,68
Dredging Phase 2	PSCS	0.30%	€5,356,800		€16,0
Dredging Phase 2	Desire & Management				
Dredging Phase 2 Dredging Phase 2	<u>Design & Management</u> Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€5,908,550		€531,7
	Engineers, PMO.		,,		
	ROADS PHASE 2				
Roads Phase 2	Dual Carriageways on reclaimed land	1.7 km	€6,500,000)	€11,050,0
Roads Phase 2 Roads Phase 2	Design & Management				
Roads Phase 2	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€11,050,000		€994,5
	Engineers, PMO.				
	RAIL PHASE 2				
Rail Phase 2	Double Rail Line mainly on reclaimed land	1.6 km	€5,000,000		€8,000,0
Rail Phase 2 Rail Phase 2	Rail switch new line	2 nr	€250,000		€500,0
Rail Phase 2	Design & Management				
Rail Phase 2	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%	€8,500,000		€765,0
	Engineers, PMO.				
	ENVIRONMENTAL & COMMUNITY GAIN COSTS				
Environmental & Community Gain Costs	Environmental Conservation Measures (RPS)				
Environmental & Community Gain Costs	Community Gain	1 ite	n €30,000,000	€30,000,000	
Environmental & Community Gain Costs	Environmental Monitoring Programmes during Construction	1 ite	n €15,000,000	€15,000,000	
Environmental & Community Gain Costs	Compensate loss of local fishing grounds (potting)	1 ite			
Environmental & Community Gain Costs	Landscaping cycle and pedestrian pathways including appropriate setting of archaeology sites	1 ite			
Environmental & Community Gain Costs Environmental & Community Gain Costs	Enhancement works to nearby beaches	1 ite	n €10,000,000	€10,000,000	
Environmental & Community Gain Costs	Section 49 or equivalent Contributions, Assume not required as this is National Infrastructure and			Assume not required	
·	Section 48 is a contribution towards public infrastructure and facilities benefiting development in the				
	area of the planning authority.				
	PORT BUILDINGS				
Port Buildings	Port Centre Office (increase by 25% To allow 2040 increase in capacity)	6,813 m	. €4,500	€30,656,250	
FOIL Buildings	Port centre office (increase by 25% to allow 2040 increase in capacity)	0,015	. €4,300	€30,030,230	
Port Buildings	Port Engineering/ Maintenance Facilities - Office	1,500 m	. €3,500	€5,250,000	
Port Buildings	Port Engineering/ Maintenance Facilities - workshop	1,750 m	. €1,500		
Port Buildings	Port Harbour Office (increase by 50% To allow 2040 increase in capacity)	750 m			
	, , , , , , , , , , , , , , , , , , , ,		33,033	12,522,533	
Port Buildings	Port Terminal 1 Building (increase by 35% To allow 2040 increase in capacity)	4,320 m	€5,500	€23,760,000	
Port Buildings	Port Terminal 2 Building (increase by 35% To allow 2040 increase in capacity)	2,106 m	. €5,500	€11,583,000	
Fort Buildings	For Terminal 2 building (increase by 33% to allow 2040 increase in capacity)	2,100 111	. 65,500	£11,363,000	
Port Buildings	Port Terminal 3 Building (increase by 35% To allow 2040 increase in capacity)	675 m	€5,500	€3,712,500	
Port Buildings	Check-in Facilities Terminal 1, Booths, Weighbridges, Security infrastructure , Inspection sheds	1 ite	n €7,500,000	€7,500,000	
Port Buildings	Check-in Facilities Terminal 2	1 ite	n €7,500,000	€7,500,000	
Port Buildings	Check-in Facilities Terminal 3	1 ite			
Port Buildings					
Port Buildings	Additional Customs Facilities	1 ite			
Port Buildings Port Buildings	Additional Garda Facilities Fire Engine Building	1 ite			
Port Buildings					
Port Buildings	Driver Welfare Facilities	500 m			
Port Buildings Port Buildings	Seafarer Facilities	400 m	9 €3,000	€1,200,000	
Port Buildings	Lighthouses , 2 nr at Port entrance Only	2 n	€500,000	€1,000,000	
Port Buildings					
Port Buildings Port Buildings	Design & Management Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%		€11,264,558	
	Engineers, PMO.	3.00%		÷11,204,338	
		1			

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		Quantity	Rate	Phase 1	Phase:
	PORT EQUIPMENT PHASE 1				
ort Equipment Phase 1	Cathodic Protection (€5k / m of quay wall approx.) Container Quay			65 000 000	
ort Equipment Phase 1 ort Equipment Phase 1	Container Quay Ro Ro Quay			€6,000,000 €15,000,000	
Port Equipment Phase 1	Bulk Quay			€4,500,000	
Port Equipment Phase 1	Port Services Quay			€500,000	
Port Equipment Phase 1	Oil Services Quay			€1,500,000	
Port Equipment Phase 1	Automatic Docking Facilities (€22k per m) - Enhancement based on 2016 operations				
Port Equipment Phase 1	Container Quay			€26,400,000	
Port Equipment Phase 1	Ro Ro Quay			€55,000,000	
Port Equipment Phase 1 Port Equipment Phase 1	Bulk Quay Port Services Quay			€19,800,000 €2,200,000	
Port Equipment Phase 1	Oil Services Quay			€6,600,000	
				33,533,533	
Port Equipment Phase 1	Shore Crane - Panzer PZB / Channel / Fixing Strips, approximately €450 per metre (Cavotec),				
Port Equipment Phase 1	Enhancement based on 2016 operations Container Quay			€540,000	
Port Equipment Phase 1	Ro Ro Quay			N/A	
Port Equipment Phase 1	Bulk Quay			€405,000	
Port Equipment Phase 1	Port Services Quay			N/A	
Port Equipment Phase 1	Oil Services Quay			N/A	
Port Equipment Phase 1					
Port Equipment Phase 1	Shore to Ship Facilities (£5k per M), Shore power transfer unit, Junction Box, local Substation and local transformers (Main transformer allowed in enabling), Enhancement based on 2016 operations.				
Port Equipment Phase 1	Container Quay			€6,000,000	
Port Equipment Phase 1	Ro Ro Quay			€12,500,000	
Port Equipment Phase 1	Bulk Quay			€4,500,000	
Port Equipment Phase 1	Port Services Quay Oil Services Quay			€500,000	
Port Equipment Phase 1	Oil Services Quay			€1,500,000	
Port Equipment Phase 1	Lights and Buoys	1 item	€500,000	€500,000	
Port Equipment Phase 1	VTS Installation	1 item	€3,000,000	€3,000,000	
Port Equipment Phase 1	CCTV Installation	1 item	€750,000	€750,000	
Port Equipment Phase 1 Port Equipment Phase 1	Bilat Boots 2 outra over required for Chies	2 -	€1,500,000	€3,000,000	
Port Equipment Phase 1 Port Equipment Phase 1	Pilot Boats, 2 extra over required for Ships Tugs, allow 1 extra over required for ships	2 nr	€1,500,000	€10,000,000	
Port Equipment Phase 1	Fire Fighting Equipment / Engines, allowed as may not have capacity locally	1 nr 2 nr	€250,000	€500,000	
Port Equipment Phase 1	Harbour Road Vehicles, 2 extra over required	2 nr	€50,000	€100,000	
Part Fauinment Phase 1	Decign 9 Management				
Port Equipment Phase 1 Port Equipment Phase 1	Design & Management Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%		€16,316,550	
Tore Equipment Fluse 1	Engineers, PMO.	3.00%		C10,510,550	
	PORT EQUIPMENT PHASE 2				
	FORT EQUITMENT PRINCE Z				
Port Equipment Phase 2	Cathodic Protection (€5k / m of quay wall approx.)				
Port Equipment Phase 2	Container Quay				€7,000,000
Port Equipment Phase 2	Ro Ro Quay				€6,000,000
Port Equipment Phase 2	Bulk Quay				€1,500,00
Port Equipment Phase 2 Port Equipment Phase 2	Port Services Quay Oil Services Quay				N/A N/A
rore Equipment rhase 2	On Services quay				14/7
Port Equipment Phase 2	Automatic Docking Facilities (€22k per m) - Enhancement based on 2016 operations				
Port Equipment Phase 2	Container Quay				€30,800,00
Port Equipment Phase 2	Ro Ro Quay				€22,000,00
Port Equipment Phase 2 Port Equipment Phase 2	Bulk Quay Port Services Quay				€6,600,000 N/A
Port Equipment Phase 2	Oil Services Quay				N//
a same and a same and a same a sa					,
Port Equipment Phase 2	Shore Crane - Panzer PZB / Channel / Fixing Strips, approximately €450 per metre (Cavotec),				
	Enhancement based on 2016 operations				5520.00
Port Equipment Phase 2 Port Equipment Phase 2	Container Quay Ro Ro Quay				€630,000 N/A
Port Equipment Phase 2 Port Equipment Phase 2	Ro Ro Quay Bulk Quay				N// €135,00
Port Equipment Phase 2	Port Services Quay				N/A
Port Equipment Phase 2	Oil Services Quay				N/A
Port Equipment Phase 2					
Port Equipment Phase 2	Shore to Ship Facilities (£5k per M), Shore power transfer unit, Junction Box, local Substation and local transformers. Main transformer allowed in enabling. (£nhancement based on 2016 operations)				
Port Equipment Phase 2	Container Quay				€7,000,000
Port Equipment Phase 2	Ro Ro Quay				€5,000,00
Port Equipment Phase 2	Bulk Quay				€1,500,000
Port Equipment Phase 2	Port Services Quay				N/A
Port Equipment Phase 2	Oil Services Quay				N/A
Port Equipment Phase 2	VTS Installation	1 item	€1,000,000		€1,000,00
Port Equipment Phase 2	CCTV Installation	1 item	€250,000		€250,000
Port Equipment Phase 2	Design & Management				€8,047,35
Port Equipment Phase 2 Port Equipment Phase 2	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%			,,
Port Equipment Phase 2		9.00%			
	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%			
Port Equipment Phase 2	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%			
Port Equipment Phase 2	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%			
Port Equipment Phase 2	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%			
Port Equipment Phase 2	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%			
Port Equipment Phase 2	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%			
Port Equipment Phase 2	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%			
Port Equipment Phase 2	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%			
Port Equipment Phase 2	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%			
Port Equipment Phase 2	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%			
Port Equipment Phase 2	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%			

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		Quantity	Rate	Phase 1	Phase 2
Stakeholder Buildings Replacement	STAKEHOLDER BUILDINGS				
	Component details of the make-up of this item removed due to commercial sensitivity			€215,022,120	€
	STAKEHOLDER EQUIPMENT				
Stakeholder Equipment Replacement	Component details of the make-up of this item removed due to commercial sensitivity			€77,385,000	€
	STAKEHOLDER OIL & GAS FACILITIES				
Stakeholder Oil & Gas Facilities	Oil Tanks (Replacement cost for all of current oil facilities, excluding land and jetties)			€275,000,000	
Stakeholder Oil & Gas Facilities	Oil Pipelines			incl above	
Stakeholder Oil & Gas Facilities	Oil Un-fuelling Facilities			incl above	
Stakeholder Oil & Gas Facilities	Oil Truck Filling facilities			incl above	
Stakeholder Oil & Gas Facilities	Common Oil Pipeline			incl above	
Stakeholder Oil & Gas Facilities	National Oil Reserves Agency (NORA)			incl above	
Stakeholder Oil & Gas Facilities	Gas Storage and Gas Infrastructure			incl above	
Stakeholder Oil & Gas Facilities				mer above	
	<u>Design & Management</u> Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental	9.00%		€24,750,000	
	Engineers, PMO.			. , , ,	
	NEW PORT - LAND COSTS				
	Component details of the make-up of this item removed due to commercial sensitivity			€2,269,153	•
Dublin Inland Port lands					
	STAKEHOLDER LEASES CPO				
Existing Port - Stakeholder Leases CPO to secure	Existing Port Lands: cost of buying out existing stakeholder leases so as to get vacant possession. This			€683,675,000	
vacant possession	assumes that at time of acquisition, existing port lands will have been, or will imminently be, rezoned to			6083,073,000	
	commercial/ residential. Benchmark price for calculation is the July '19 guide price of €10.4m per ha for the 15 ha Glass Bottle Site. Remediation cost was taken off site value at rate of €2.8m per ha (based on				
	the overall estimate of remediation costs for the port lands). This benchmark price was then used in				
	assessing acquisition costs of stakeholder sites with secure long term tenure. Other stakeholder sites were assessed on an individual basis.				
	DUBLIN PORT SITE REMEDIATION Assumes remediation of soil across site to a depth of 1M				
Existing Port - Site remediation Existing Port - Site remediation	North Port Lands 1,937,000m2 South Port Lands 450,000m2				
Existing Port - Site remediation	West Port Lands 86,000m2				
Existing Port - Site remediation Existing Port - Site remediation	Total Area 2,473,000 (247 Hectares)				
Existing Port - Site remediation	Site Investigations across the whole site	1 item			
Existing Port - Site remediation Existing Port - Site remediation	allow for removing structures / buildings on -site, tanks Break up of hard Surface	2,473,000 m2 741,900 m3			
Existing Port - Site remediation	Removal of 1 m of ground	2,473,000 m3			
Existing Port - Site remediation	Removal of Hotspots of heavy contamination further than 1 m deep (say 10% of area between 1m and 2m deep)	247,300 m3	€15	€3,709,500	
Existing Port - Site remediation Existing Port - Site remediation	Sorting, testing of all the excavated Material Blended rate between on site Treatment washing, stabilisation (say 75%) and disposal off site (say 25%)	2,720,300 m3 2,720,300 m3			
-					
	Replacement of Fill disposed off site Allow for importation of a 1.25m layer of inert Material to raise levels to 5.5 OD average (1 m raise level	680,075 m3 3,091,250 m3			
Existing Port - Site remediation	+ 0.25m replacing disposed off site material)	24,000 m3	8 €500	€12,000,000	
Existing Port - Site remediation	Allow for L concrete retaining wall structure to Perimeter 500mm wide x 2.0m high + 1.0m base	24,000 m3			
Existing Port - Site remediation Existing Port - Site remediation	Allowance for Ground Water Treatment Allow for Phasing of Works 5%	1 item 5%	€30,000,000 €0		
Existing Port - Site remediation		370		(27,034,103	
	Contractor Preliminaries Allow for Management and Preliminaries	10.00%		€58,493,741	
Existing Port - Site remediation	PSCS	0.30%		€1,754,812	
	Design & Management				
Existing Port - Site remediation	Contractor Detail Design CSA, M&E, Fire, Cat 1 Checker, PSDP, Resident Engineers, Environmental Engineers, PMO.	9.00%		€58,066,737	
	ENVIRONMENTAL MITIGATION (capitalised)				
		1 item	€147,000,000	€147,000,000	
	E 1		€147,000,000	€147,000,000	
New Port - Liabilities - Ongoing Environmental Mitigation Measures	Environmental Mitigation Measures - ongoing. (Major beach re-nourishment, additional maintenance dredging and protection works.) Continuing OPEX of €5.88m p.a which capitalises to €147m at 4%	1 item			
New Port - Liabilities - Ongoing Environmental Mitigation Measures		1 item			
New Port - Liabilities - Ongoing Environmental Mitigation Measures	dredging and protection works.) Continuing OPEX of €5.88m p.a which capitalises to €147m at 4% discount rate. Capitalised sum incurred from date when southern breakwater completed.	1 Rem		incl above	
New Port - Liabilities - Ongoing Environmental Mitigation Measures New Port - Liabilities - On-going Environmental Measures & Dredging	dredging and protection works.) Continuing OPEX of €5.88m p.a which capitalises to €147m at 4% discount rate. Capitalised sum incurred from date when southern breakwater completed. Dredging cost of approach channel to Bremore (capitalised). This is an additional cost, as existing DP1 channel will still need maintenance dredging due to retention of cruise in Dublin. The approach channel	I tem		incl above	
New Port - Liabilities - Ongoing Environmental Mitigation Measures New Port - Liabilities - On-going Environmental Measures & Dredging	dredging and protection works.) Continuing OPEX of €5.88m p.a which capitalises to €147m at 4% discount rate. Capitalised sum incurred from date when southern breakwater completed. Dredging cost of approach channel to Bremore (capitalised). This is an additional cost, as existing DP1	1 Reil		incl above	
New Port - Liabilities - Ongoing Environmental Mitigation Measures New Port - Liabilities - On-going Environmental Measures & Dredging	dredging and protection works.) Continuing OPEX of €5.88m p.a which capitalises to €147m at 4% discount rate. Capitalised sum incurred from date when southern breakwater completed. Dredging cost of approach channel to Bremore (capitalised). This is an additional cost, as existing DP1 channel will still need maintenance dredging due to retention of cruise in Dublin. The approach channel	T item		incl above	
New Port - Liabilities - Ongoing Environmental Mitigation Measures New Port - Liabilities - On-going Environmental Measures & Dredging	dredging and protection works.) Continuing OPEX of €5.88m p.a which capitalises to €147m at 4% discount rate. Capitalised sum incurred from date when southern breakwater completed. Dredging cost of approach channel to Bremore (capitalised). This is an additional cost, as existing DP1 channel will still need maintenance dredging due to retention of cruise in Dublin. The approach channel	I Kem		incl above	
New Port - Liabilities - Ongoing Environmental Mitigation Measures New Port - Liabilities - On-going Environmental Measures & Dredging	dredging and protection works.) Continuing OPEX of €5.88m p.a which capitalises to €147m at 4% discount rate. Capitalised sum incurred from date when southern breakwater completed. Dredging cost of approach channel to Bremore (capitalised). This is an additional cost, as existing DP1 channel will still need maintenance dredging due to retention of cruise in Dublin. The approach channel	I Kem		incl above	
New Port - Liabilities - Ongoing Environmental Mitigation Measures New Port - Liabilities - On-going Environmental Measures & Dredging	dredging and protection works.) Continuing OPEX of €5.88m p.a which capitalises to €147m at 4% discount rate. Capitalised sum incurred from date when southern breakwater completed. Dredging cost of approach channel to Bremore (capitalised). This is an additional cost, as existing DP1 channel will still need maintenance dredging due to retention of cruise in Dublin. The approach channel	I Kem		incl above	
New Port - Liabilities - Ongoing Environmental Mitigation Measures New Port - Liabilities - On-going Environmental Measures & Dredging	dredging and protection works.) Continuing OPEX of €5.88m p.a which capitalises to €147m at 4% discount rate. Capitalised sum incurred from date when southern breakwater completed. Dredging cost of approach channel to Bremore (capitalised). This is an additional cost, as existing DP1 channel will still need maintenance dredging due to retention of cruise in Dublin. The approach channel	I Kem		incl above	
New Port - Liabilities - Ongoing Environmental Mitigation Measures New Port - Liabilities - On-going Environmental Measures & Dredging	dredging and protection works.) Continuing OPEX of €5.88m p.a which capitalises to €147m at 4% discount rate. Capitalised sum incurred from date when southern breakwater completed. Dredging cost of approach channel to Bremore (capitalised). This is an additional cost, as existing DP1 channel will still need maintenance dredging due to retention of cruise in Dublin. The approach channel	I Ken		incl above	
New Port - Liabilities - Ongoing Environmental Mitigation Measures New Port - Liabilities - On-going Environmental Measures & Dredging	dredging and protection works.) Continuing OPEX of €5.88m p.a which capitalises to €147m at 4% discount rate. Capitalised sum incurred from date when southern breakwater completed. Dredging cost of approach channel to Bremore (capitalised). This is an additional cost, as existing DP1 channel will still need maintenance dredging due to retention of cruise in Dublin. The approach channel	I Ken		incl above	
New Port - Liabilities - Ongoing Environmental Mitigation Measures New Port - Liabilities - On-going Environmental Measures & Dredging	dredging and protection works.) Continuing OPEX of €5.88m p.a which capitalises to €147m at 4% discount rate. Capitalised sum incurred from date when southern breakwater completed. Dredging cost of approach channel to Bremore (capitalised). This is an additional cost, as existing DP1 channel will still need maintenance dredging due to retention of cruise in Dublin. The approach channel	I Ken		incl above	
New Port - Liabilities - Ongoing Environmental Mitigation Measures New Port - Liabilities - On-going Environmental Measures & Dredging	dredging and protection works.) Continuing OPEX of €5.88m p.a which capitalises to €147m at 4% discount rate. Capitalised sum incurred from date when southern breakwater completed. Dredging cost of approach channel to Bremore (capitalised). This is an additional cost, as existing DP1 channel will still need maintenance dredging due to retention of cruise in Dublin. The approach channel	I Ken		incl above	

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5.0 MAIN QUANTITIES

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DP2 Bremore
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BREMORE

Paning & Environmental Paning & Environmen	PHASE 1	Lengths	Fill Stone	Armour	Concrete	GeoTextile	Piled wall,	Scour Protection	Yards	Ro Ro Jetty	Bulk Filling	Dredging	Bridge	River Channel	Roads	Rail
March Marc	Fnahling												2 nr		4 km	
March Marc	Litability												2 111		7 KIII	
See State See	External Breakwater	9,200 n	n 4,930,100 m3	1,044,600 m3	196,000 m3	164,900 m2	0 n	0 m2								
Septimination 1,000 a 45,000 a 1,000 a																
	Internal Revetments, permanent & temporary	5,700 n	n 1,775,600 m3	485,000 m3	125,400 m3	111,800 m2										
	Ro Ro letty Revetment	1.000 n	n 426.000 m3	82.000 m3	22.000 m3	20.000 m2										
March Marc				55,555												
Version	Ro Ro Jetty									5 nr						
Version																
Exercises Springered 1 100 m 200 m 2	Quay Wall		_				2,930 n	1		-						
Exercises Springered 1 100 m 200 m 2	Yards								2 580 000 m2							
Controlled	10.03								2,500,000 1112							
Control Cont	Bulk Filling										45,377,500 m3					
Control Cont																
Roads Goals	Dredging											23,476,440 m3				
Roads Goals	Diver Channel													1 0 lum		
Ball Ball Ball Ball Ball Ball Ball Ball	niver Chailliel			<u> </u>		1				 				1.8 KM		
Ball Ball Ball Ball Ball Ball Ball Ball	Roads												4 nr		17.8 km	
Parising Environmental Parising Environmen																
Performs & Design Problems & Design & Desi	Rail												6 nr			9.7 km
Performs & Design Problems & Design & Desi																
PASE 2 5600 m 143,000 m	Planning & Environmental															
PASE 2 5600 m 143,000 m	Prelims & Design															
Fill Stone Fil																
External Breakwater 1,100 m 368,500 m3 106,150 m3 5,500 m3 13,750 m2 0 m 0 m2	PHASE 1		7,131,700 m3	1,611,600 m3	343,400 m3	296,700 m2	2,930 n	0 m2	2,580,000 m2	5 nr	45,377,500 m3	23,476,440 m3	12 nr	2 km	21 km	10 km
Ro Ro Jetty Stone Wall 450 m 191,700 m3 36,900 m3 9,900 m3 9,900 m2	PHASE 2		Fill Stone	Armour	Concrete	GeoTextile	Piled wall,	Scour Protection	Yards	Ro Ro Jetty	Bulk Filling	Dredging	Bridge	River Channel	Roads	Rail
Ro Ro Jetty Stone Wall 450 m 191,700 m3 36,900 m3 9,900 m3 9,900 m2																
Ro Ro Jetty Coay Wall Coay Wall Coay Wall Coay March Coay Wall Coay March Coay Marc																
Ro Ro Jetty Coay Wall Coay Wall Coay Wall Coay March Coay Wall Coay March Coay Marc	External Breakwater	1,100 n					0 n									
Quay Wall 1,200 m			n 368,500 m3	106,150 m3	5,500 m3	13,750 m2										
Yards Bulk Filling Dredging RoadS Rall PHASE 2 560,200 m3 143,050 m3 15,400 m3 22,750 m2 1,200 m 0 m2 990,000 m2 2 nr 20,725,000 m3 345,600 m3 0 nr 0 km 2 km 2 km			n 368,500 m3	106,150 m3	5,500 m3	13,750 m2										
Yards Bulk Filling Dredging RoadS Rall PHASE 2 560,200 m3 143,050 m3 15,400 m3 22,750 m2 1,200 m 0 m2 990,000 m2 2 nr 20,725,000 m3 345,600 m3 0 nr 0 km 2 km 2 km			n 368,500 m3	106,150 m3	5,500 m3	13,750 m2				2 nr						
Bulk Filling Dredging Roads Rail Prelims & Design Prelims & Design Phase 2 560,200 m3 143,050 m3 15,400 m3 22,750 m2 1,200 m 0 m2 990,000 m2 2 nr 20,725,000 m3 345,600 m3 0 nr 0 km 2 km 2 km	Ro Ro Jetty Stone Wall Ro Ro Jetty		n 368,500 m3	106,150 m3	5,500 m3	13,750 m2		0 m2		2 nr						
Bulk Filling Dredging Roads Rail Prelims & Design Prelims & Design Phase 2 560,200 m3 143,050 m3 15,400 m3 22,750 m2 1,200 m 0 m2 990,000 m2 2 nr 20,725,000 m3 345,600 m3 0 nr 0 km 2 km 2 km	Ro Ro Jetty Stone Wall Ro Ro Jetty		n 368,500 m3	106,150 m3	5,500 m3	13,750 m2		0 m2		2 nr						
Dredging Roads Rail Prelims & Design PHASE 2 560,200 m3 143,050 m3 15,400 m3 22,750 m2 1,200 m 0 m2 990,000 m2 2 nr 20,725,000 m3 345,600 m3 0 nr 0 km 2 km 2 km	Ro Ro Jetty Stone Wall Ro Ro Jetty Quay Wall		n 368,500 m3	106,150 m3	5,500 m3	13,750 m2		0 m2	990 000 m2							
Rail 2 km Prelims & Design PHASE 2 S60,200 m3 143,050 m3 15,400 m3 22,750 m2 1,200 m 0 m2 990,000 m2 2 nr 20,725,000 m3 345,600 m3 0 nr 0 km 2 km 2 km	Ro Ro Jetty Stone Wall Ro Ro Jetty Quay Wall		n 368,500 m3	106,150 m3	5,500 m3	13,750 m2		0 m2	990,000 m2							
Rail 2 km Prelims & Design PHASE 2 S60,200 m3 143,050 m3 15,400 m3 22,750 m2 1,200 m 0 m2 990,000 m2 2 nr 20,725,000 m3 345,600 m3 0 nr 0 km 2 km 2 km	Ro Ro Jetty Stone Wall Ro Ro Jetty Quay Wall Yards		n 368,500 m3	106,150 m3	5,500 m3	13,750 m2		0 m2	990,000 m2							
Rail 2 kn Prelims & Design PHASE 2 560,200 m3 143,050 m3 15,400 m3 22,750 m2 1,200 m 0 m2 990,000 m2 2 nr 20,725,000 m3 345,600 m3 0 nr 0 km 2 km 2 km	Ro Ro Jetty Stone Wall Ro Ro Jetty Quay Wall Yards Bulk Filling		n 368,500 m3	106,150 m3	5,500 m3	13,750 m2		0 m2	990,000 m2							
Rail 2 kn Prelims & Design PHASE 2 560,200 m3 143,050 m3 15,400 m3 22,750 m2 1,200 m 0 m2 990,000 m2 2 nr 20,725,000 m3 345,600 m3 0 nr 0 km 2 km 2 km	Ro Ro Jetty Stone Wall Ro Ro Jetty Quay Wall Yards Bulk Filling		n 368,500 m3	106,150 m3	5,500 m3	13,750 m2		0 m2	990,000 m2							
Prelims & Design PHASE 2 560,200 m3 143,050 m3 15,400 m3 22,750 m2 1,200 m 0 m2 990,000 m2 2 nr 20,725,000 m3 345,600 m3 0 nr 0 km 2 km 2 km	Ro Ro Jetty Stone Wall Ro Ro Jetty Quay Wall Yards Bulk Filling Dredging		n 368,500 m3	106,150 m3	5,500 m3	13,750 m2		0 m2	990,000 m2						7 km	
PHASE 2 560,200 m3 143,050 m3 15,400 m3 22,750 m2 1,200 m 0 m2 990,000 m2 2 nr 20,725,000 m3 345,600 m3 0 nr 0 km 2 km 2 km	Ro Ro Jetty Stone Wall Ro Ro Jetty Quay Wall Yards Bulk Filling Dredging		n 368,500 m3	106,150 m3	5,500 m3	13,750 m2		0 m2	990,000 m2						2 km	
PHASE 2 560,200 m3 143,050 m3 15,400 m3 22,750 m2 1,200 m 0 m2 990,000 m2 2 nr 20,725,000 m3 345,600 m3 0 nr 0 km 2 km 2 km	Ro Ro Jetty Stone Wall Ro Ro Jetty Quay Wall Yards Bulk Filling Dredging Roads		n 368,500 m3	106,150 m3	5,500 m3	13,750 m2		0 m2	990,000 m2						2 km	2 km
	Ro Ro Jetty Stone Wall Ro Ro Jetty Quay Wall Yards Bulk Filling Dredging Roads		n 368,500 m3	106,150 m3	5,500 m3	13,750 m2		0 m2	990,000 m2						2 km	2 km
	Ro Ro Jetty Stone Wall Ro Ro Jetty Quay Wall Yards Bulk Filling Dredging Roads		n 368,500 m3	106,150 m3	5,500 m3	13,750 m2		0 m2	990,000 m2						2 km	2 km
	Ro Ro Jetty Stone Wall Ro Ro Jetty Quay Wall Yards Bulk Filling Dredging Roads Rail Prelims & Design		n 368,500 m3	106,150 m3 36,900 m3	5,500 m3	9,000 m2	1,200 n	0 m2			20,725,000 m3	345,600 m3				
	Ro Ro Jetty Stone Wall Ro Ro Jetty Quay Wall Yards Bulk Filling Dredging Roads Rail Prelims & Design		n 368,500 m3	106,150 m3 36,900 m3	5,500 m3	9,000 m2	1,200 n	0 m2			20,725,000 m3	345,600 m3	0 nr			2 km

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6.0 TOTAL BERTHAGE AND TERMINAL AREA AFTER EACH DEVELOPMENT PHASE

Phase 1, 77m tonnes p.a. throughput in 2040:

Trade/Activity	Berth numbers	Berth length (m)	Berth depth (m)	Terminal (ha)
Bulk Liquid	2	600 total	14.5	20
Bulk Solid	2	600 total	14.5	20
Trade Vehicles	1	250	11	12
Container	4	1,200 total	14	60
RoRo		325 each, using 5 double berth finger piers, min 180m apart. Berth length = 9*325 = 2925m	10	85
Port/ State Services	1	100	10	60
TOTAL	19	5,675m		257

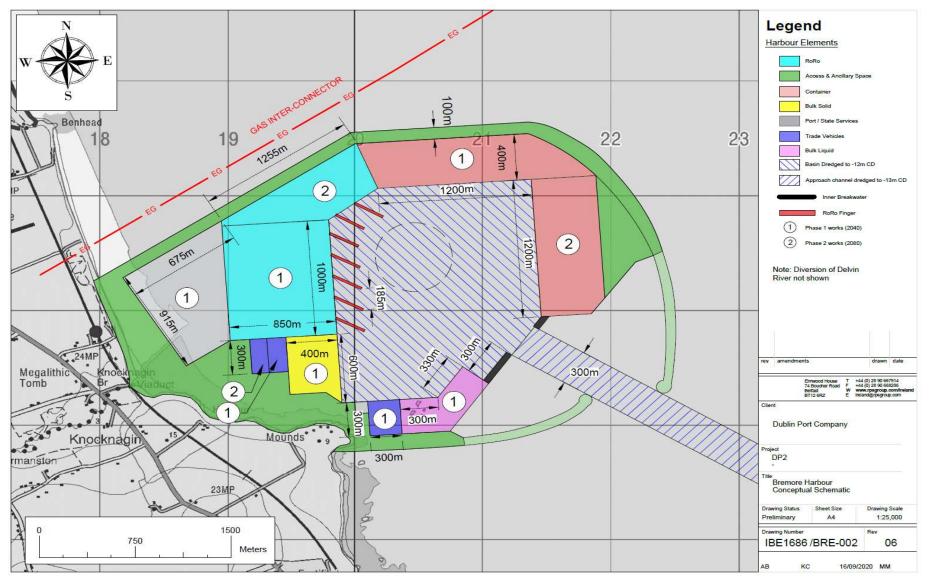
Phase 2, 134m tonnes p.a. throughput in 2080:

Trade/Activity	Berth numbers	Berth length (m)	Berth depth (m)	Terminal (ha)
Bulk Liquid	2	600 total	14.5	20
Bulk Solid	2	600 total	14.5	20
Trade Vehicles	1	250 each	11	16
Container	8	2,400 total	15	120
RoRo	14	325 each, using 7 double berth finger piers, min 180m apart. Berth length = 14*325 = 4550m	10	120
Port/ State Services	1	100	10	60
TOTAL	28	8,500m		356

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