



MORECAMBE



FLOTATION ENERGY

Morecambe Offshore Windfarm: Generation Assets Environmental Statement

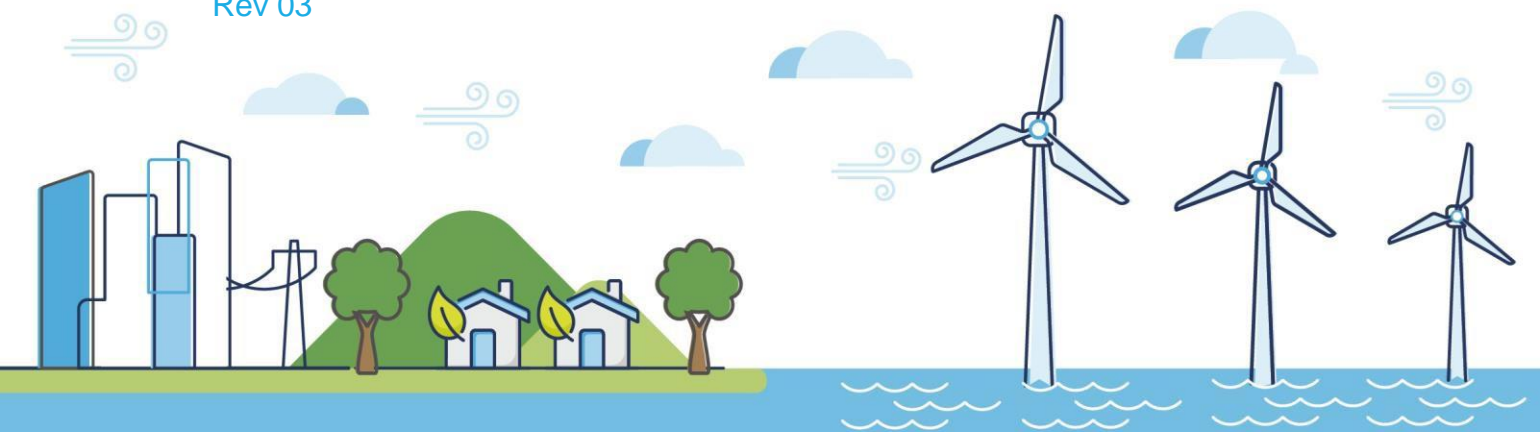
Volume 5

Chapter 7 Marine Geology, Oceanography and Physical Processes Figures

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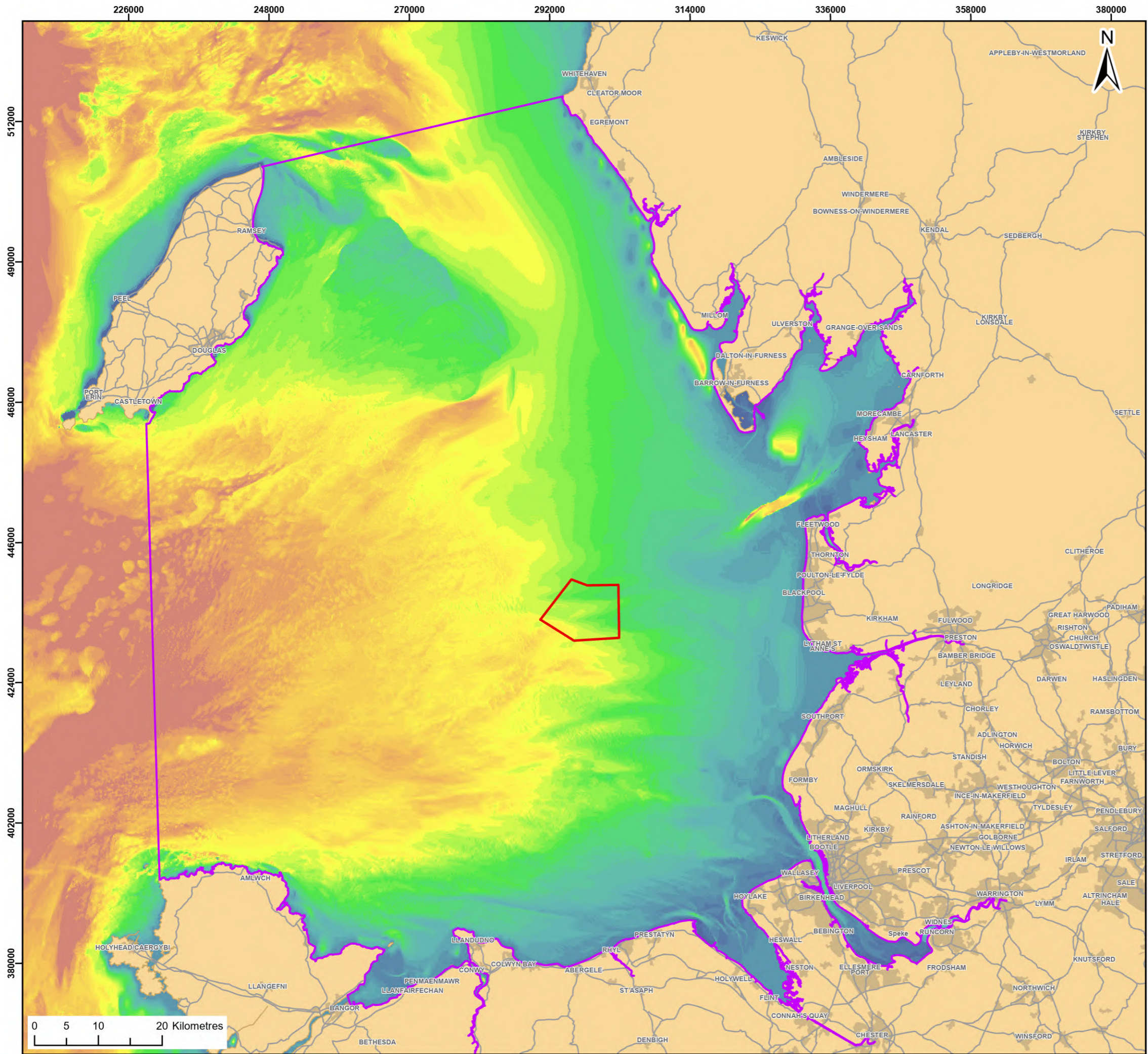
Rev 03



Document History

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01	May 2024	Approved for Use	Royal HaskoningDHV	Morecambe Offshore Windfarm Ltd	Morecambe Offshore Windfarm Ltd	n/a
02	July 2024	Approved for Use	Royal HaskoningDHV	Morecambe Offshore Windfarm Ltd	Morecambe Offshore Windfarm Ltd	Addition of bathymetry key on Figure 7.1
02	22 January 2025	Approved for Use	Royal HaskoningDHV	Morecambe Offshore Windfarm Ltd	Morecambe Offshore Windfarm Ltd	Amendment to caption of Figure 7.8 following ExQ1



Legend:

- Morecambe Offshore Windfarm Site
- Physical Processes Study Area

Depth (m, LAT)

Value	Color
6 - 12	Dark Blue
3 - 6	Blue
0 - 3	Light Blue
-3 - 0	Teal
-6 - -3	Greenish Teal
-9 - -6	Green
-12 - -9	Light Green
-14 - -12	Yellow-Green
-17 - -14	Yellow
-19 - -17	Light Yellow
-22 - -19	Yellow-Orange
-24 - -22	Orange
-27 - -24	Light Orange
-29 - -27	Orange
-31 - -29	Yellow-Orange
-34 - -31	Yellow
-36 - -34	Light Yellow
-38 - -36	Yellow-Orange
-40 - -38	Orange
-42 - -40	Light Orange
-44 - -42	Orange
-46 - -44	Yellow-Orange
-49 - -46	Orange
-52 - -49	Light Orange
-58 - -52	Orange
-60 - -58	Light Orange
< -60	Red

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Report:
Morecambe Offshore Windfarm: Generation Assets Environmental Statement

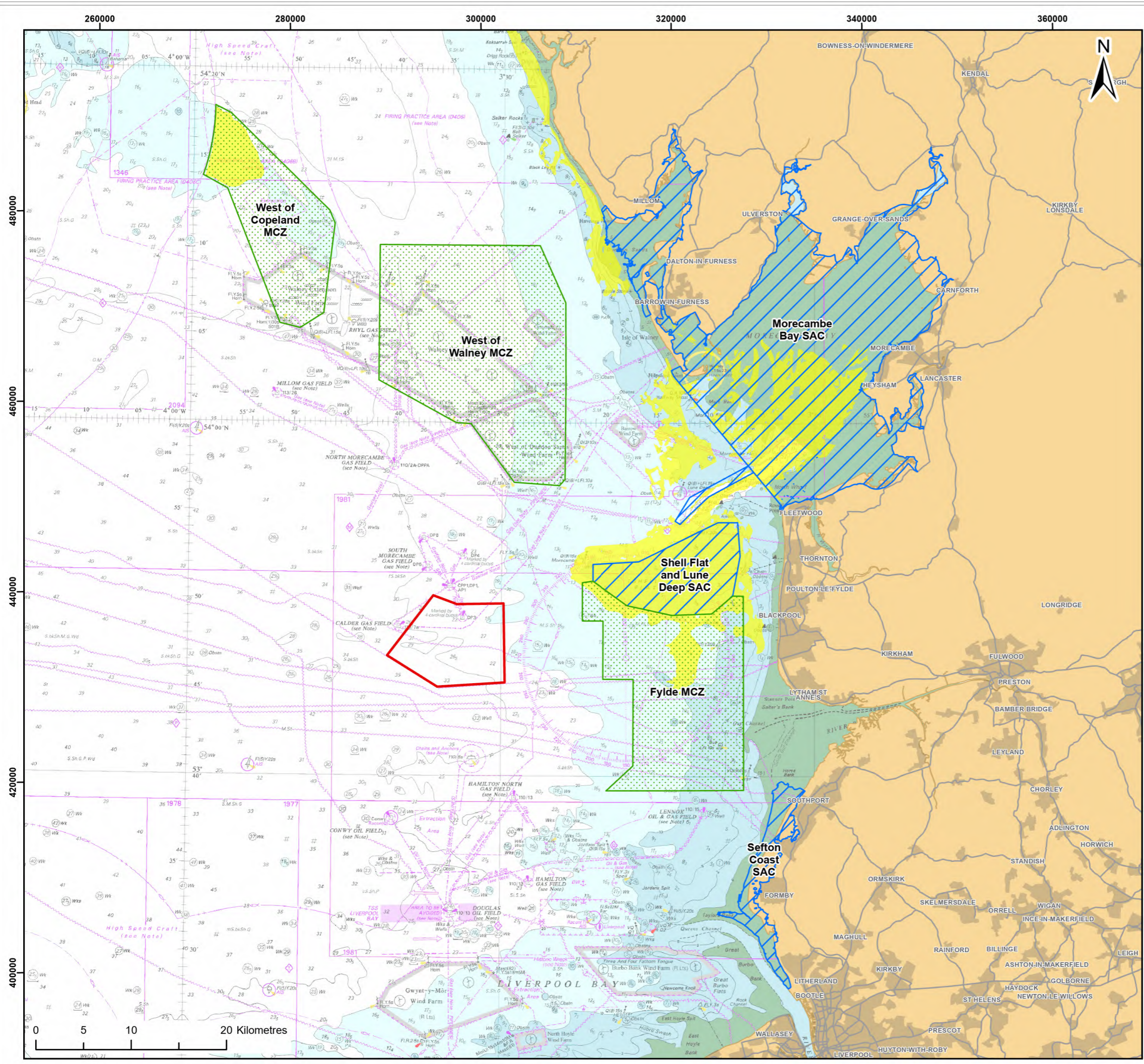
Title:
Study Area and bathymetry at Morecambe Offshore Windfarm

Figure: 7.1 **Drawing No:** PC1165-RHD-ES-OF-DR-Z-0008

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
P01	22/04/2024	JH	GC	A3	1:600,000
P02	23/07/2024	SB	GC	A3	1:600,000

Co-ordinate system: WGS 1984 UTM Zone 30N





- Legend:**
- Morecambe Offshore Windfarm Site
 - Special Areas of Conservation (SAC)
 - Marine Conservation Zone (MCZ)
 - Annex I Sandbanks

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Report:
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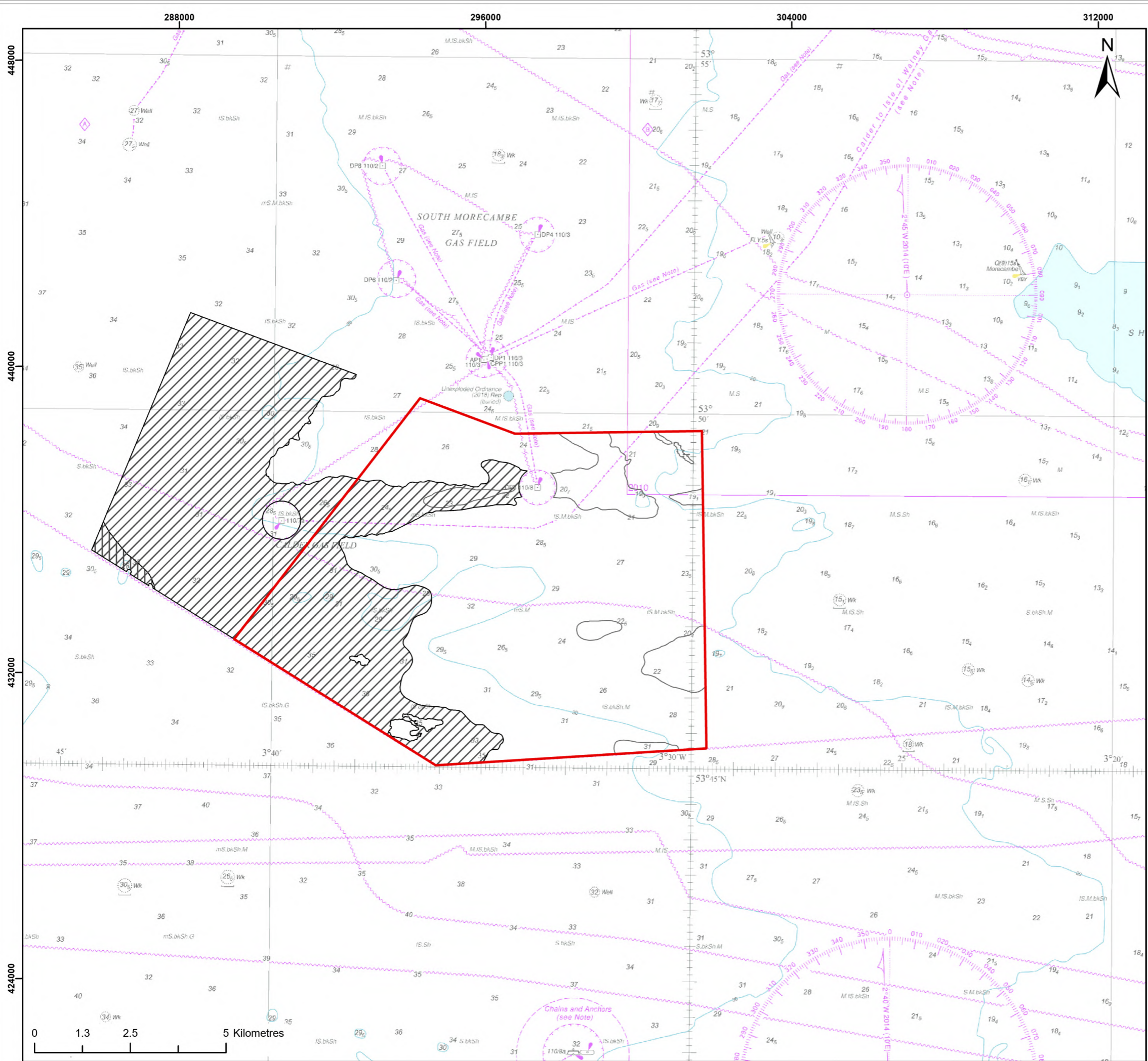
Title:
Impact receptors for Marine Geology, Oceanography and Physical Processes

Figure: 7.2 **Drawing No:** PC1165-RHD-ES-OF-DR-Z-0013

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
P01	22/04/2024	JT	GC	A3	1:400,000

Co-ordinate system: WGS 1984 UTM Zone 30N





Legend:

- Morecambe Offshore Windfarm Site
- Current lineation
- Sandwaves
- Megaripples

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 Environmental Statement

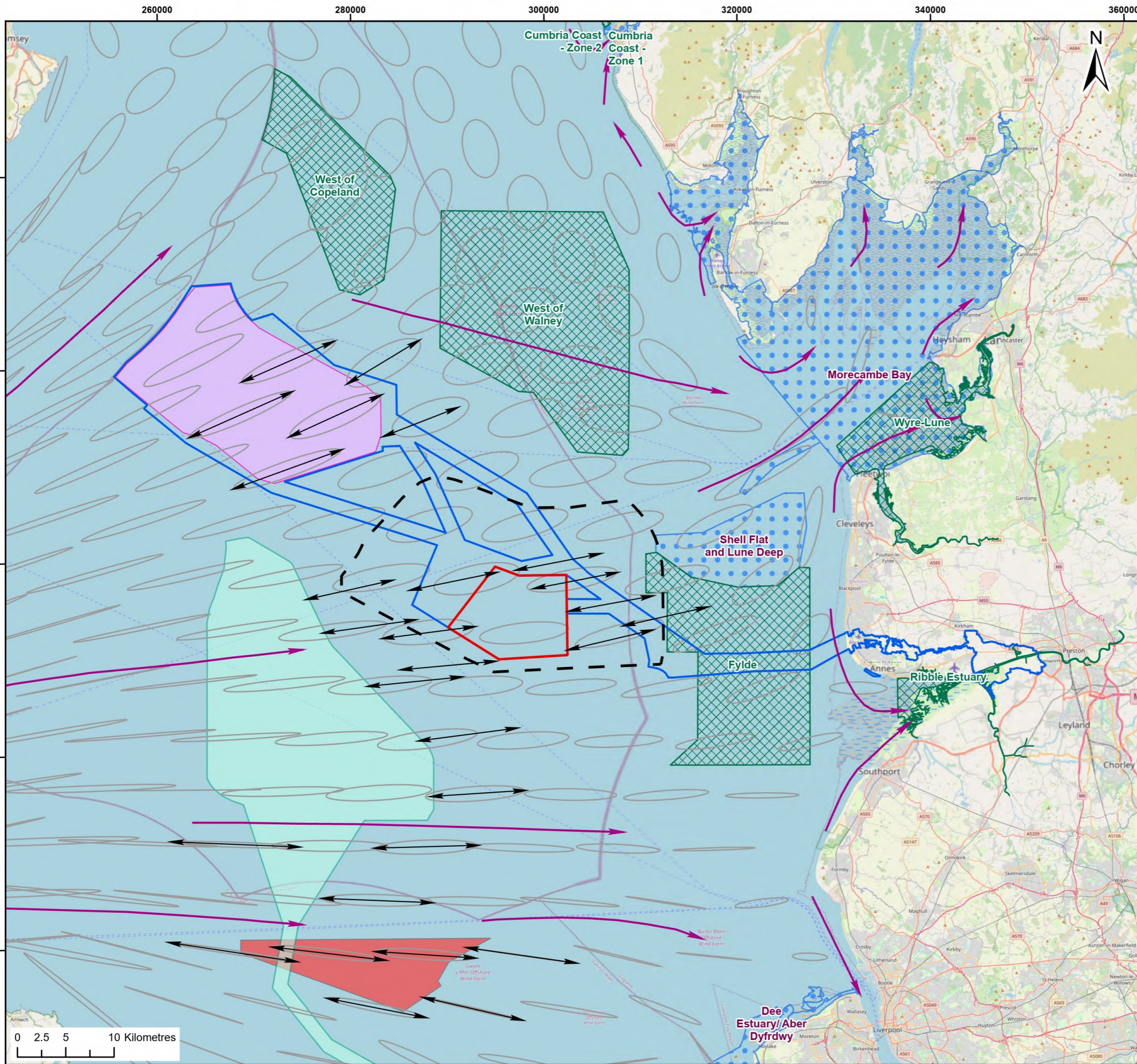
Title:
 Bedforms recorded during the
 geophysical survey (MMT, 2022)

Figure: 7.3 Drawing No: PC1165-RHD-ES-OF-DR-Z-0009

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
P01	22/04/2024	JT	GC	A3	1:100,000

Co-ordinate system: WGS 1984 UTM Zone 30N





Legend:

- Morecambe Offshore Windfarm Site
- Morgan and Morecambe Offshore WindFarms: Transmission Assets
- Mona Offshore Wind Project
- Morgan Offshore Wind Project Generation Assets
- Awel y Môr Offshore Wind Farm
- Spring tidal ellipse
- Suspended sediment transport directions
- Sediment transport pathways
- Marine Conservation Zone
- Special Areas of Conservation
- Zone of Influence (ZoI) on the tidal regime

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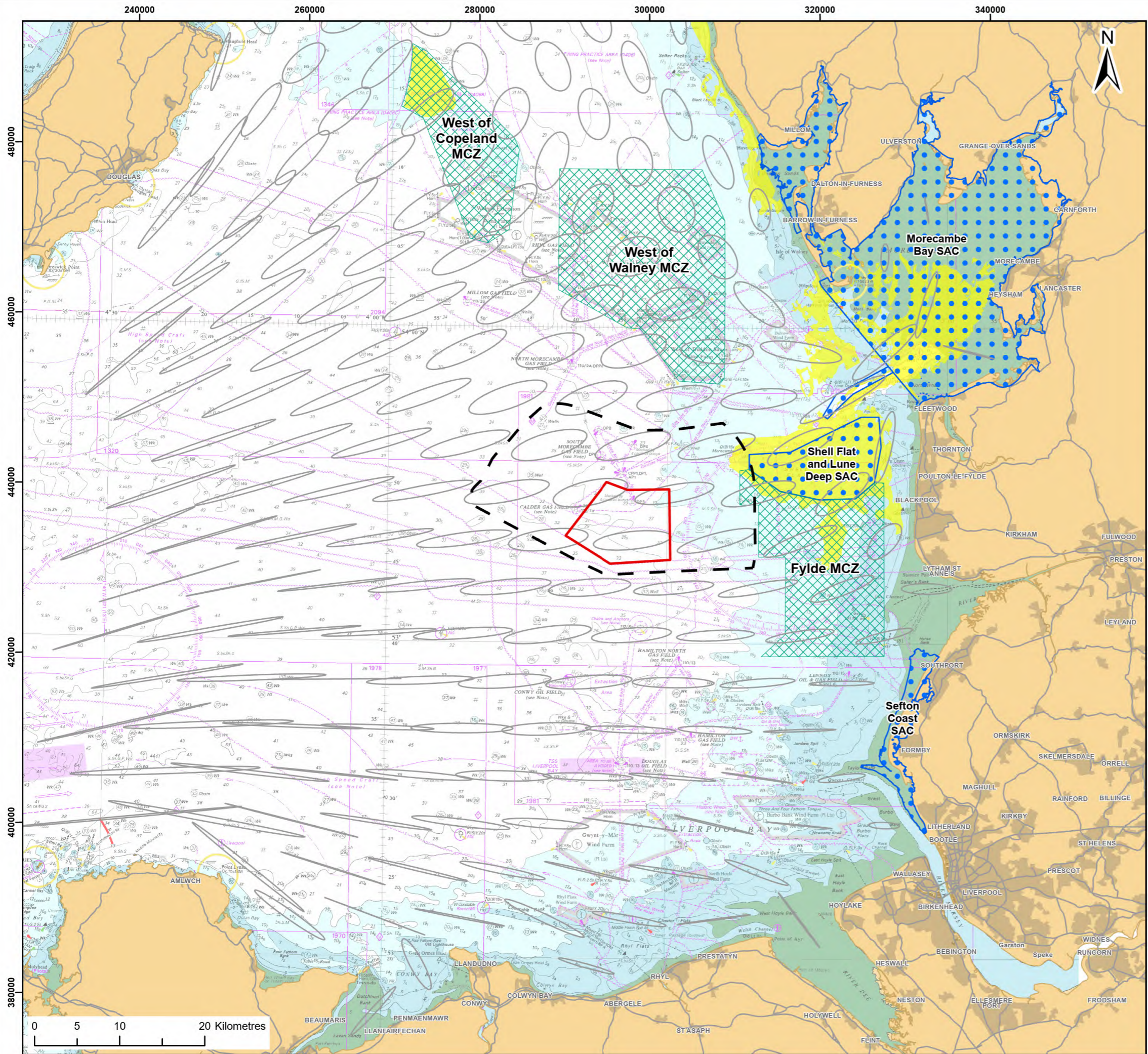
Title:
Conceptual map of sediment transport directions from disturbance activities.

Figure: 7.4 **Drawing No:** PC1165-RHD-ES-OF-DG-Z-0076

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
P01	20/03/2024	JH	SB	A3	1:400,000

Co-ordinate system: WGS 1984 UTM Zone 30N





- Legend:**
- Morecambe Offshore Windfarm Site
 - Zone of Influence (ZoI) on the tidal regime
 - Spring tidal ellipses
 - Annex I sandbanks
 - Special Areas of Conservation (SAC)
 - Marine Conservation Zone (MCZ)

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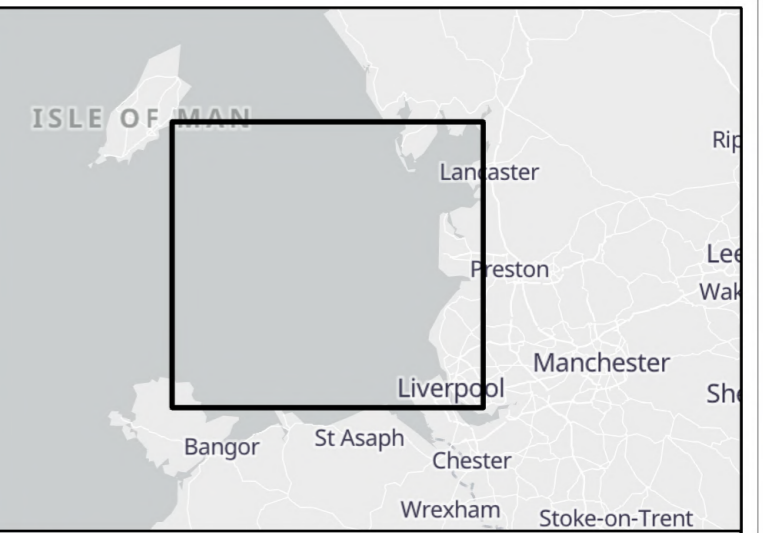
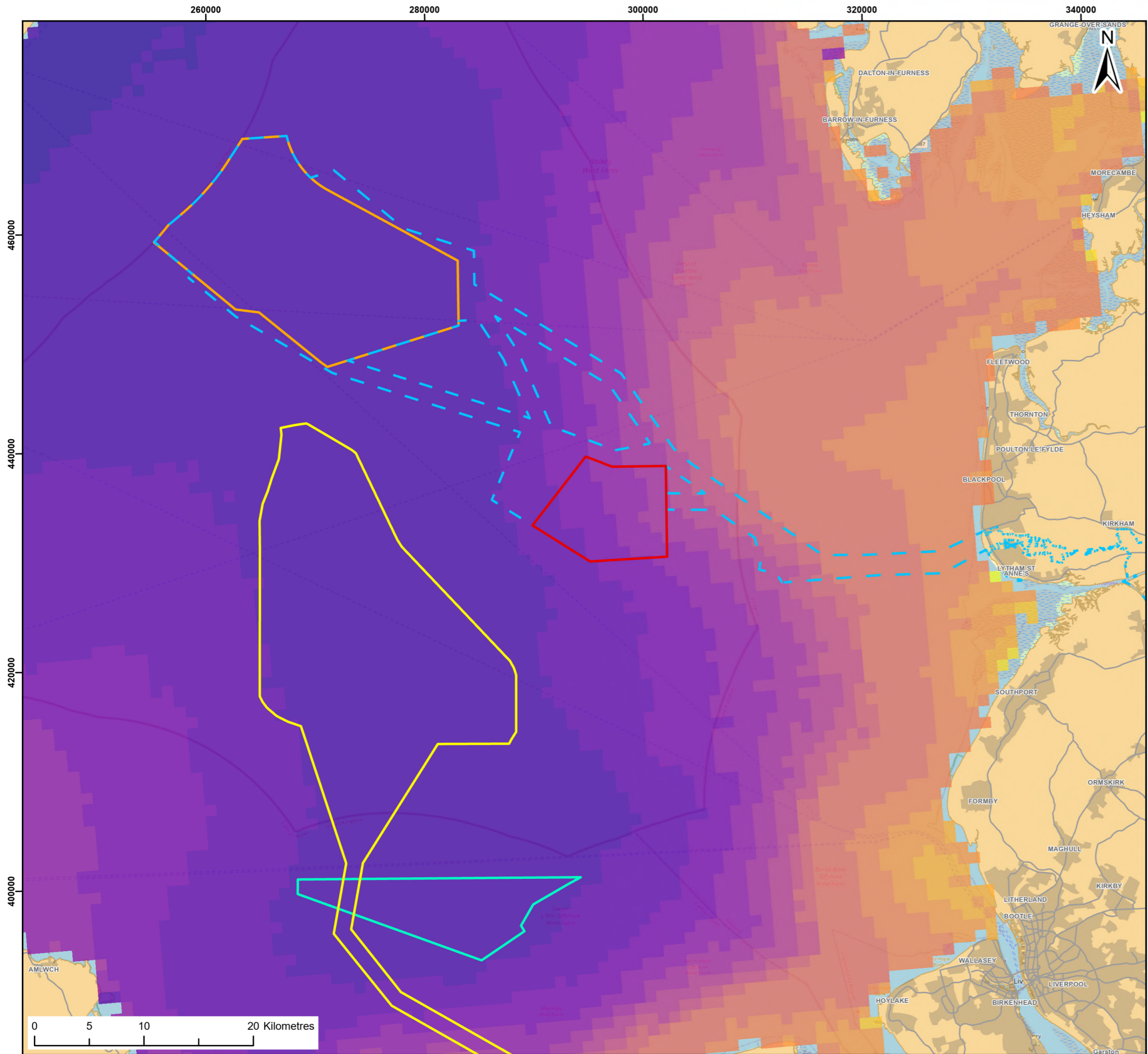
Title:
Zone of potential influence on the tidal regime

Figure: 7.5 Drawing No: PC1165-RHD-ES-OF-DR-Z-0014

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
P01	22/04/2024	JT	GC	A3	1:450,000

Co-ordinate system: WGS 1984 UTM Zone 30N





Legend:

- Morecambe Offshore Windfarm Site
- Morgan Offshore Wind Project Generation Assets
- Morgan & Morecambe Offshore Wind Farms: Transmission Assets
- Mona Offshore Wind Project
- Awel y Môr Offshore Windfarm

Average Suspended Particulate Matter (mg/l) (1998 - 2015)

	< 1		5 - 6		10 - 15
	1 - 2		6 - 7		15 - 20
	2 - 3		7 - 8		20 - 25
	3 - 4		8 - 9		25 - 30
	4 - 5		9 - 10		30 - 35
					35 - 40
					> 45

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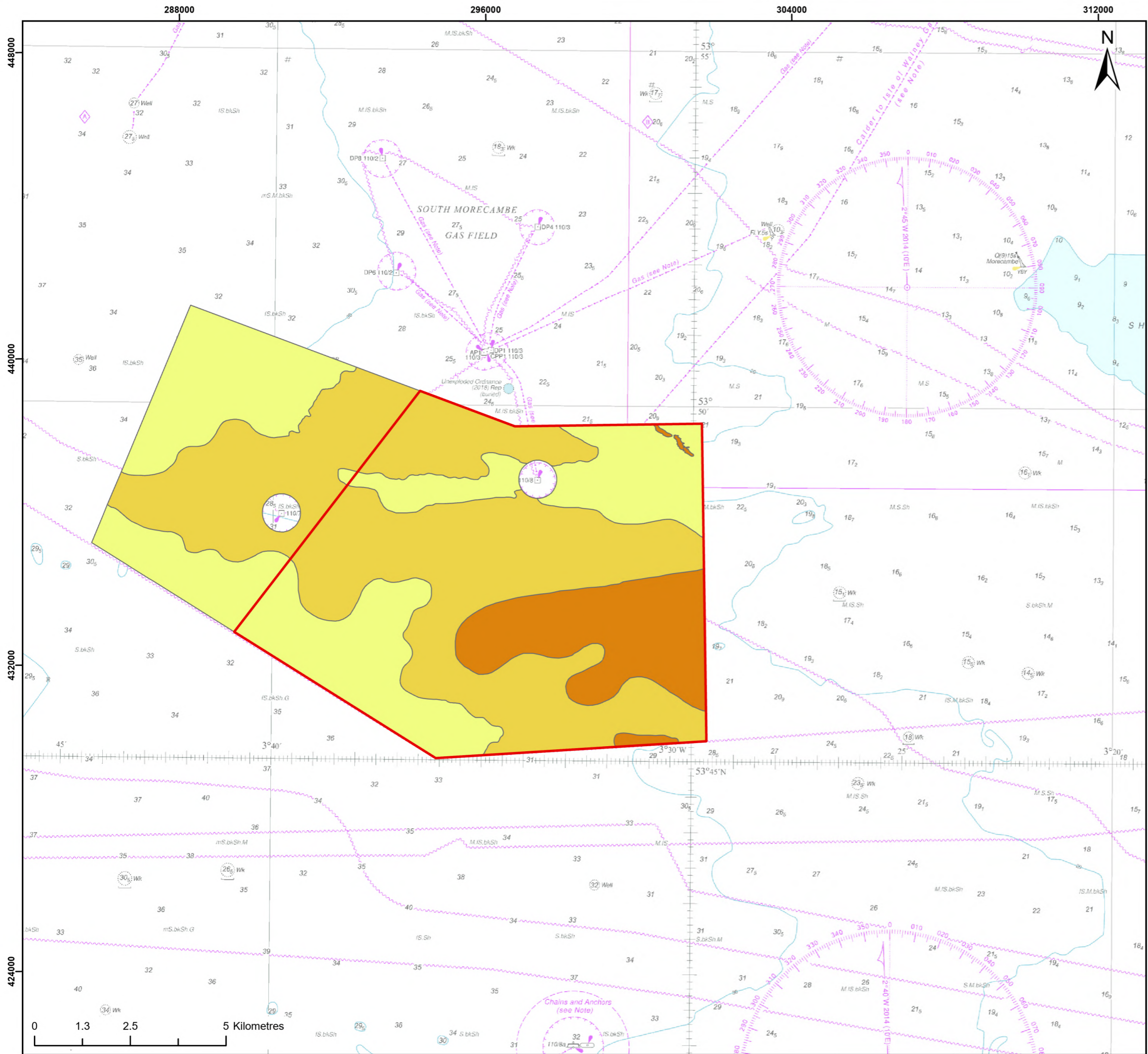
Title:
Suspended sediment concentrations (Cefas, 2016)

Figure: 7.6 **Drawing No:** PC1165-RHD-ES-OF-DR-Z-0012

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
P01	20/03/2024	JH	SB	A3	1:350,000

Co-ordinate system: WGS 1984 UTM Zone 30N





Legend:

Morecambe Offshore Windfarm Site

Sediment classification

- Sand
- Clayey Sand
- Gravelly Sand

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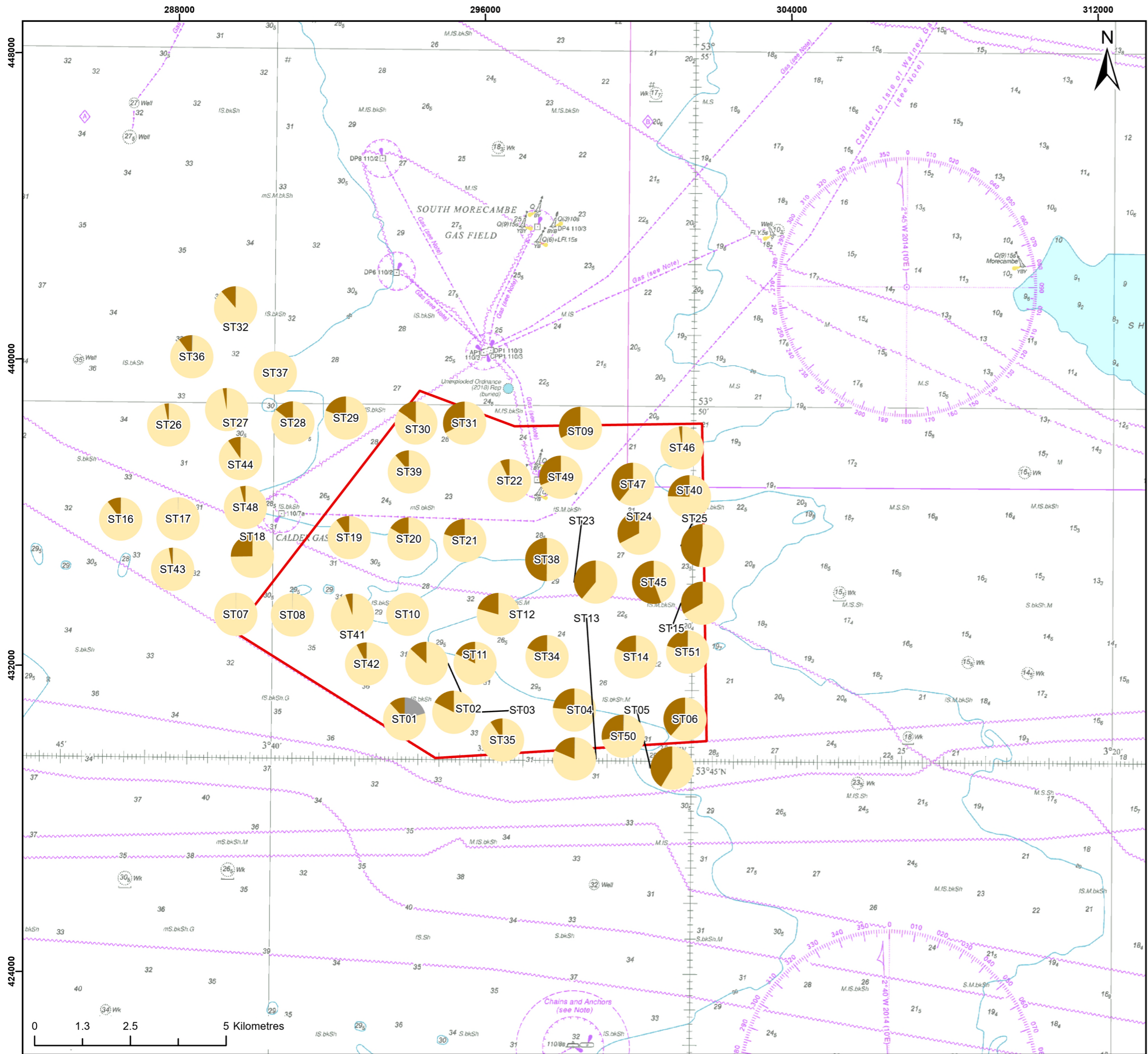
Title:
Site-specific sediment classification (MMT, 2022)

Figure: 7.7 **Drawing No:** PC1165-RHD-ES-OF-DR-Z-0011

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
P01	20/03/2024	JT	GC	A3	1:100,000

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Legend:

Morecambe Offshore Windfarm Site

Seabed Sediment Sample Locations - Major Sediment Fractions



% Gravel

% Sand

% Mud

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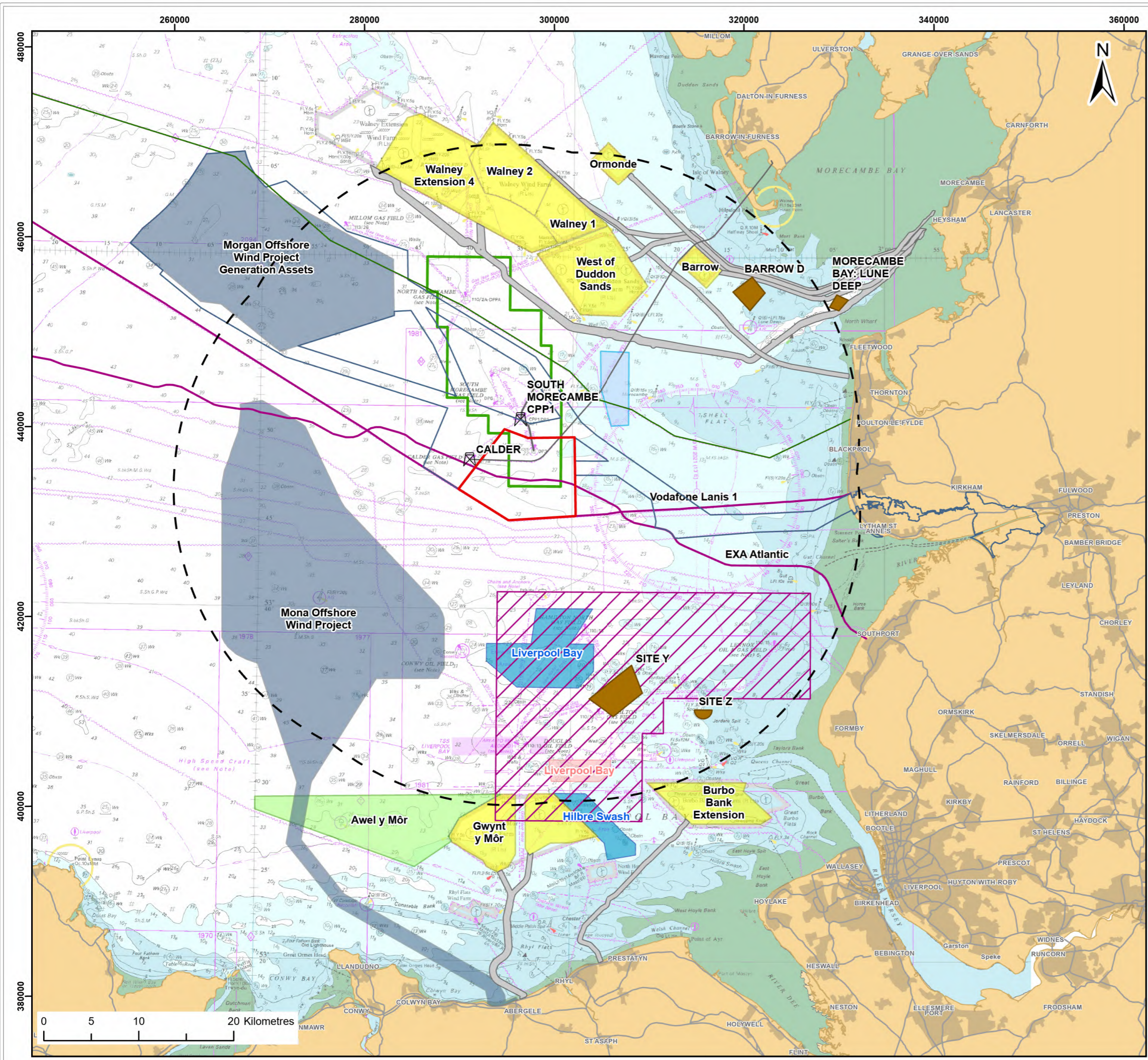
Title:
Site-specific sediment sampling locations (Ocean Ecology Limited, 2022)

Figure: 7.8 Drawing No: PC1165-RHD-ES-OF-DR-Z-0010

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
P01	20/03/2024	JT	GC	A3	1:100,000
P02	03/01/2025	SM	AS	A3	1:100,000

Co-ordinate system: WGS 1984 UTM Zone 30N





Legend:

- Morecambe Offshore Windfarm Site
- 30km CEA screening buffer
- Morgan and Morecambe Offshore Wind Farms: Transmission Assets (In Planning)
- Telecom cables
- Isle of Man Interconnector
- Oil & Gas Pipeline
- Disposal Sites
- Gateway Gas Storage Project
- Carbon Capture Storage Licence (CS004)
- Carbon Capture Storage Area (EIS Area 1)
- Offshore Wind Cable Agreements

Windfarm status

- Fully commissioned
- In Planning
- Consented

Minerals & Aggregates Site Agreements

- Exploration and Option Area
- Production Agreement Area

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Title:
Other plans, projects and activities included in the Cumulative Effects Assessment for physical processes

Figure: 7.9 **Drawing No:** PC1165-RHD-ES-OF-DR-Z-0015

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
P01	20/03/2024	JH	SB	A3	1:400,000

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