Offshore Wind Power Limited

West of Orkney Offshore EIA Report

Volume 2, Supporting Study 19: SLVIA Figures

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N

WGS 1984 UTM Zone 30N

km 0 2.3 4.5 9 14

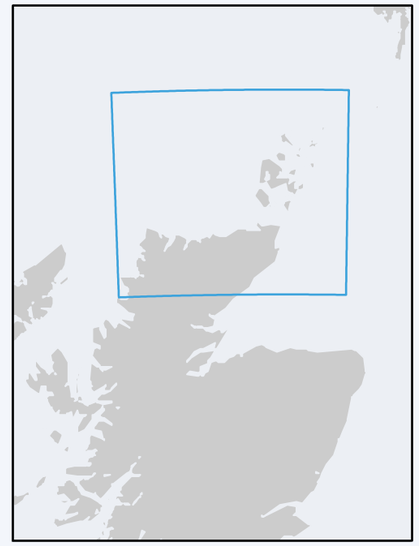
Scale: 1:600,000

360000 370000 380000 390000 400000 410000 420000 430000 440000 450000 460000 470000 480000 490000 500000 510000 520000 530000 540000 550000

6610000 6600000 6590000 6580000 6570000 6560000 6550000 6540000 6530000 6520000 6510000 6500000 6490000 6480000 6470000 6460000 6450000

ORKNEY ISLANDS

60km 50km 40km 30km 20km 10km



Option Agreement Area Location

- Substations
- Turbines
- Option Agreement Area
- 60km Study Area
- Offshore Project area
- Onshore Project area
- Offshore export cable corridor options
- Onshore substation search area

Figure 18.1

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N

WGS 1984 UTM Zone 30N

0 2.3 4.5 9 14 km

Scale: 1:600,000

360000 370000 380000 390000 400000 410000 420000 430000 440000 450000 460000 470000 480000 490000 500000 510000 520000 530000 540000 550000

6610000 6600000 6590000 6580000 6570000 6560000 6550000 6540000 6530000 6520000 6510000 6500000 6490000 6480000 6470000 6460000 6450000

ORKNEY ISLANDS

60km 50km 40km 30km 20km 10km

Landscape Character Types

- Substations
- Turbines
- Option Agreement Area
- 60km Study Area

Landscape Character Types

- 134 Sweeping Moorland and Flows
- 135 Rounded Hills - Caithness & Sutherland
- 136 Rocky Hills and Moorland
- 137 Cnocan - Caithness & Sutherland
- 138 Lone Mountains
- 139 Rugged Mountain Massif - Caithness & Sutherland
- 140 Sandy Beaches and Dunes
- 141 High Cliffs and Sheltered Bays
- 142 Strath - Caithness & Sutherland
- 143 Farmed Lowland Plain
- 144 Coastal Crofts & Small Farms
- 295 Holms
- 296 Whaleback Islands
- 297 Ridgeline Islands
- 298 Low Island Pastures
- 299 Undulating Island Pasture
- 300 Coastal Plain - Orkney
- 301 Coastal Basin
- 302 Inclined Coastal Pasture
- 303 Rocky Coastal Pasture
- 304 Isolated Coastal Knolls
- 305 Enclosed Bays
- 306 Coastal Hills and Heath
- 307 Cliffs - Orkney
- 308 Coast with Sand - Orkney
- 309 Peatland Basin
- 310 Loch Basin - Orkney
- 311 Low Moorland
- 312 Plateau Heath and Pasture
- 313 Rolling Hill Fringe
- 314 Moorland Hills - Orkney
- 315 U-Shaped Valley
- 316 Rugged Hills
- 334 Cnocan - Ross & Cromarty
- 336 Coastal Moorlands and Crofts

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Landscape Character Types (Source: NatureScot Landscape Character Assessment 2019)

Figure 18.2

Figure 18.3

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NatureScot Seascape Character Types (Source: An Assessment of the Sensitivity and Capacity of the Scottish Seascape in Relation to Offshore Windfarm, 2004)

WGS 1984 UTM Zone 30N

Scale: 1:600,000

370000 380000 390000 400000 410000 420000 430000 440000 450000 460000 470000 480000 490000 500000 510000 520000 530000 540000 550000

6610000 6600000 6590000 6580000 6570000 6560000 6550000 6540000 6530000 6520000 6510000 6500000 6490000 6480000 6470000 6460000 6450000 6440000

ORKNEY ISLANDS

60km 50km 40km 30km 20km 10km

Type 1 Type 1 Type 1 Type 1 Type 1 Type 7 Type 7 Type 7 Type 8

Regional Coastal Character Types

- Substations
- Turbines
- Option Agreement Area
- 60km Study Area

Regional Coastal Character Types

- 10: Rousay North
- 11: Rousay South
- 12: Egilsay and Wyre
- 13: Gairsay
- 14: Shapinsay West
- 16: Wide Firth
- 17: Kirkwall
- 18: Shapinsay Sound and Inganess Bay
- 21: Holm Sound
- 22: Scapa Bay
- 23: Orphir
- 24: Stromness and Clestrain Sound
- 25: Breckness and Row Head
- 26: Marwick Head and Bay of Skaill
- 27: Brough Head to Costa Head
- 28: Eynhallow Sound
- 29: Graemsay
- 30: North East Hoy
- 31: Cava, Rysa Little and Fara
- 32: South East Hoy
- 33: Flotta
- 34: North Bay, Longhope and Switha
- 35: South Walls and Brims Ness
- 36: West Hoy Cliffs
- 37: Rora Head and St John's Head
- 38: West Burray and South Ronaldsay
- 39: Burray Ness to Helcro Head
- 40: Brough Ness and Barth Head
- 41: Stroma
- 42: Duncansby Head
- 43: Gills Bay and John o'Groats
- 44: Scarfskerry and Dunnet Head
- 45: Dunnet Bay and Thurso Bay
- 46: Brims Ness
- 47: Portskerra

Seascape Character Types

- Type 1: Remote High Cliffs
- Type 7: Kyles and Sea Lochs
- Type 8: Enclosed Bays, Islands and Headlands

Figure 18.4

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National Scenic Areas (Source: Scottish Executive), Special Landscape Areas (Source: The Highland Council), Wild Land Areas (Source: NatureScot, 2014)

WGS 1984 UTM Zone 30N

Scale: 1:600,000

ORKNEY ISLANDS

60km
50km
40km
30km
20km
10km

Skaill House

Balfour Castle

Melsetter House

Tongue House

Castle of Mey (Barrogill Castle)

Landscape Designations

- Substations
- Turbines
- Option Agreement Area
- 60km Study Area

World Heritage Sites

- Heart of Neolithic Orkney World Heritage Site Boundary
- Heart of Neolithic Orkney World Heritage Site Buffer Zone
- Heart of Neolithic Orkney World Heritage Site Sensitive Area

Landscape Designation

- National Scenic Areas
  - 1: Hoy and West Mainland
  - 2: Kyle of Tongue
  - 3: North - West Sutherland
- Special Landscape Areas (The Highland Council)
  - 1: Oldshoremore, Cape Wrath and Durness
  - 2: Eriboll East and Whiten Head
  - 3: Farr Bay, Strathy and Portskerra
  - 4: Dunnet Head
  - 5: Duncansby Head
- Wild Land Areas
  - 1: Hoy
  - 2: Ben Klibreck - Armine Forest
  - 3: Causeymire -Knockfin Flows
  - 4: East Halladale Flows
  - 5: Ben Hope - Ben Loyal
  - 6: Foinaven - Ben Hee
  - 7: Cape Wrath
  - 8: Reay - Cassley
- Garden and Designed Landscapes

Figure 18.5

© Crown copyright and database right 2022 Ordnance Survey 0100031673.
National Forest Estate Recreation Routes, Scotland[Source: Scottish Government – SpatialData.gov.scot), Sustrans National Route (Source: Sustrans)

N

WGS 1984 UTM Zone 30N

0 2.3 4.5 9 14 km

Scale: 1:600,000

ORKNEY ISLANDS

Transport and Recreational Routes

- Substations
- Turbines
- Option Agreement Area
- 60km Study Area

Transport and Recreational Routes

- Sustrans National Route
- Railway
- Primary Road; A Road
- B Road
- North Coast 500
- Settlement

WGS 1984 UTM Zone 30N

Scale: 1:600,000

370000 380000 390000 400000 410000 420000 430000 440000 450000 460000 470000 480000 490000 500000 510000 520000 530000 540000 550000

6610000 6600000 6590000 6580000 6570000 6560000 6550000 6540000 6530000 6520000 6510000 6500000 6490000 6480000 6470000 6460000 6450000

ORKNEY ISLANDS

60km 50km 40km 30km 20km 10km

C08 A06 E16 E28 C10 E18 E12 C11 E24 E19 C09 1. EMEC Billia Croo 1. EMEC Shapinsay Sound 2. EMEC Scapa Flow E29 E25 C06 E14 E09 C15

A01 A03 C02 E08 E03 E05 C01 A05 E06 E10 E11 A07 C05 E07 A04 E02 A02 E01 E04 C03 C04 Space Hub Sutherland

E13 A08 2. Inner Sound C07 E17 E23 E15 C13 C12 E20 C16 C14 E22 E26 E24 E27 A09

Cumulative Context

- Substations
- Turbines
- 60km Study Area
- Option Agreement Area
- Space Hub - Sutherland
- Wave Farms
  - 1. EMEC Bilia Croo
  - 2. EMEC Scapa Flow
- Tidal Farms
  - 1. EMEC Shapinsay Sound
  - 2. Inner Sound

Existing/Under Construction Farms

E01 Bettyhill
E02 Ackron Farm
E03 Forss I & II
E04 Strathy North
E05 Balmore Farm
E06 Baillie
E07 Limekiln
E08 Thurso WWTW
E09 Ore Brae, Hoy
E10 Moss of Geise
E11 Weydale Farm
E12 Holodykes
E13 Taigh na Muir
E14 West Hill, Flotta
E15 Thurdisoft Farm
E16 Burgar Hill
E17 Lochend
E18 Hammars Hill
E19 Rennibister
E20 Burnside Lyth
E21 Crowness Business Park
E22 Achlachan
E23 Stroupster
E24 Causeymire
E25 Berriedale
E26 Halsary
E27 Bad a Cheo
E28 Kingarly Hill
E29 Northfield, Burray

Consented Wind Farms

C01 Hill of Lybster
C02 Thusater Farm
C03 Strathy Wood
C04 Strathy South
C05 Limekiln Extension
C06 Hoy Community
C07 Cnoc na Gaoithe
C08 Costa Head
C09 Akla
C10 Hammars Hill Extension
C11 Quanterness
C12 Thura Mains
C13 Slickly
C14 Achlachan II
C15 Hesta Head
C16 Cogle Moss

Application Wind Farms

A01 Pentland Floating (Offshore)
A02 Armadale
A03 Forss III
A04 Kirkton
A05 Cairnmore Hill
A06 Nisthill
A07 East of Whitemoss
A08 Hollandmey
A09 Tormsdale

Figure 18.6

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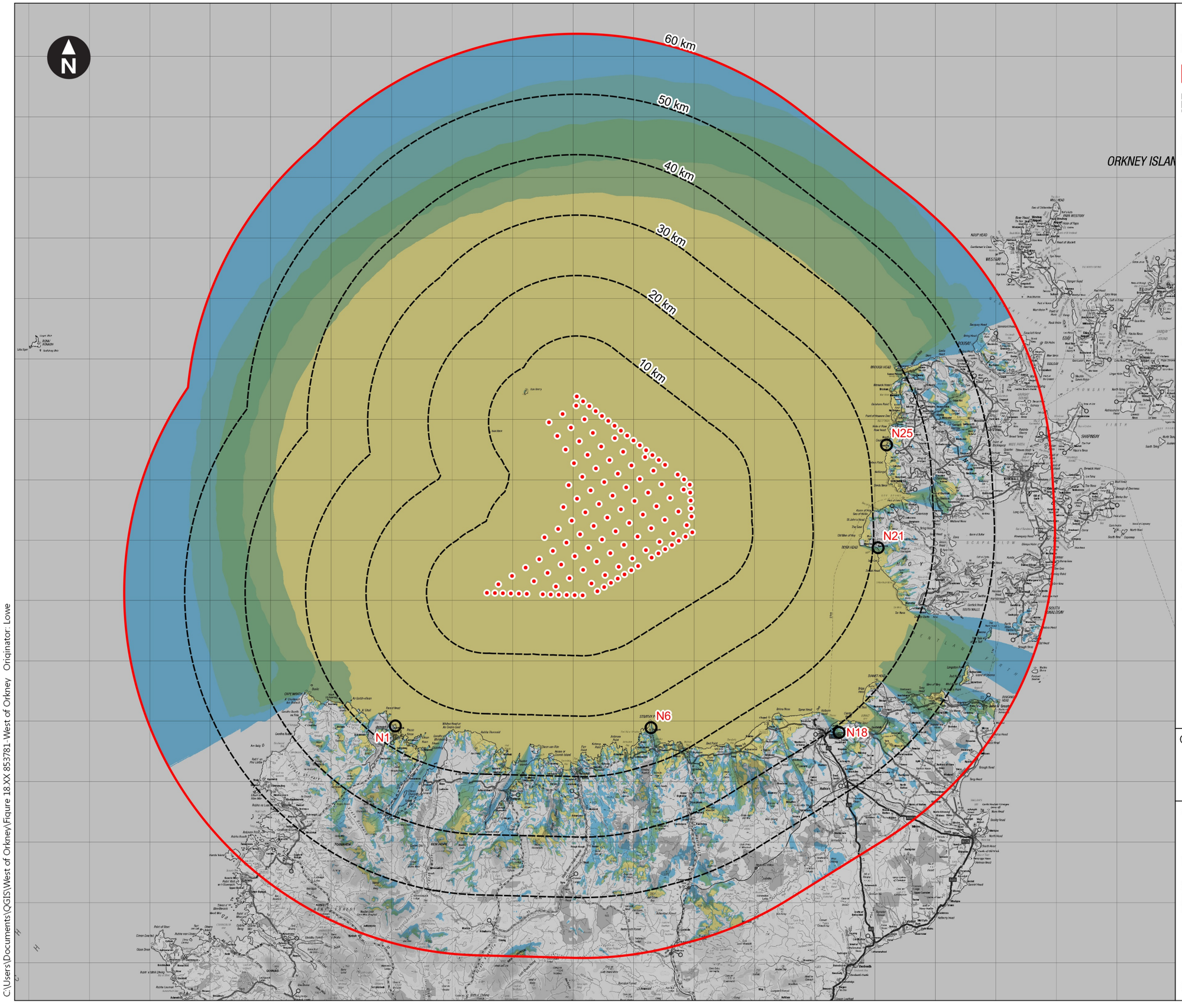
WGS 1984 UTM Zone 30N

0 1.8 3.5 7 11 km

Scale: 1:500,000



Key

- Proposed Lit Turbine Locations
- Landscape and Visual Study Area
- Lines indicating the distance from the proposed lit turbine locations
- Night-time viewpoint locations
- 101-125 nacelle lights may be theoretically visible
- 76-100 nacelle lights may be theoretically visible
- 51-75 nacelle lights may be theoretically visible
- 26-50 nacelle lights may be theoretically visible
- 1-25 nacelle lights may be theoretically visible

Notes: This drawing is based on a computer generated Zone of Theoretical Visibility (ZTV). The areas shown indicate the maximum theoretical visibility of the proposed turbines using OS Terrain 50 data only and do not take account of any screening from vegetation or built-form. The ZTV also includes an adjustment that allows for the Curvature and Light Refraction of the Earth.
This figure has been based on the following parameters:
Turbine layout file: LORKNEY001.WFL
Hub height: 194.52m
Rotor diameter: 330m
Height to blade tip: 359.52m

0 5 10 15 20 25 km

Scale @ A3: 1:600,000

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Client

West of Orkney Windfarm

West of Orkney Offshore Wind Farm

Figure 18.7A

Zone of Theoretical Visibility (ZTV) to Nacelle Lights with Viewpoint Locations (60km)

3 / 2023

Figure 18.7a

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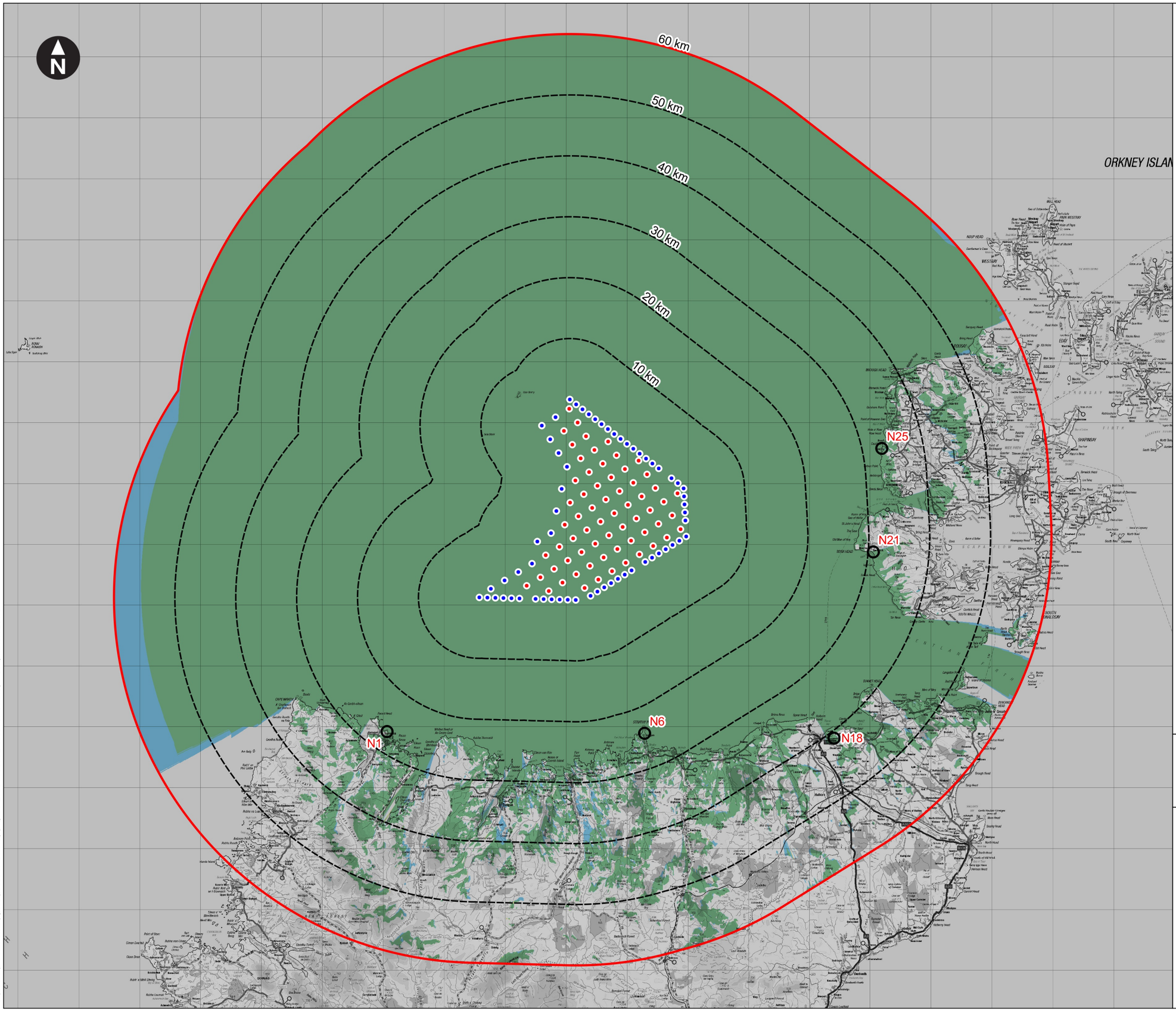
C:\Users\Documents\QGIS\West of Orkney\Figure 18.XX 853781 West of Orkney Originator: Lowe

WGS 1984 UTM Zone 30N

0 1.8 3.5 7 11 km

Scale: 1:500,000



Key

- Proposed Lit Turbine Locations - CAP393
- Proposed Lit Turbine Locations - CAP437 / SAR
- Landscape and Visual Study Area
- Lines indicating the distance from the proposed lit turbine locations
- Night-time viewpoint locations
- CAP393 nacelle lights may be theoretically visible
- Combined Visibility of CAP437 / SAR and CAP393 nacelle lights may be theoretically visible

Notes: This drawing is based on a computer generated Zone of Theoretical Visibility (ZTV). The areas shown indicate the maximum theoretical visibility of the proposed turbines using OS Terrain 50 data only and do not take account of any screening from vegetation or built-form. The ZTV also includes an adjustment that allows for the Curvature and Light Refraction of the Earth.
This figure has been based on the following parameters:
Turbine layout file: LORKNEY001.WFL
Hub height: 194.52m
Rotor diameter: 330m
Height to blade tip: 359.52m

0 5 10 15 20 25 km

Scale @ A3: 1:600,000

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Client

West of Orkney Windfarm

West of Orkney Offshore Wind Farm

Figure 18.7B

Nacelle Lights Night-time Viewpoints and ZTV (Zone of Theoretical Visibility) within 60km

wsp

3 / 2023

Figure 18.7b

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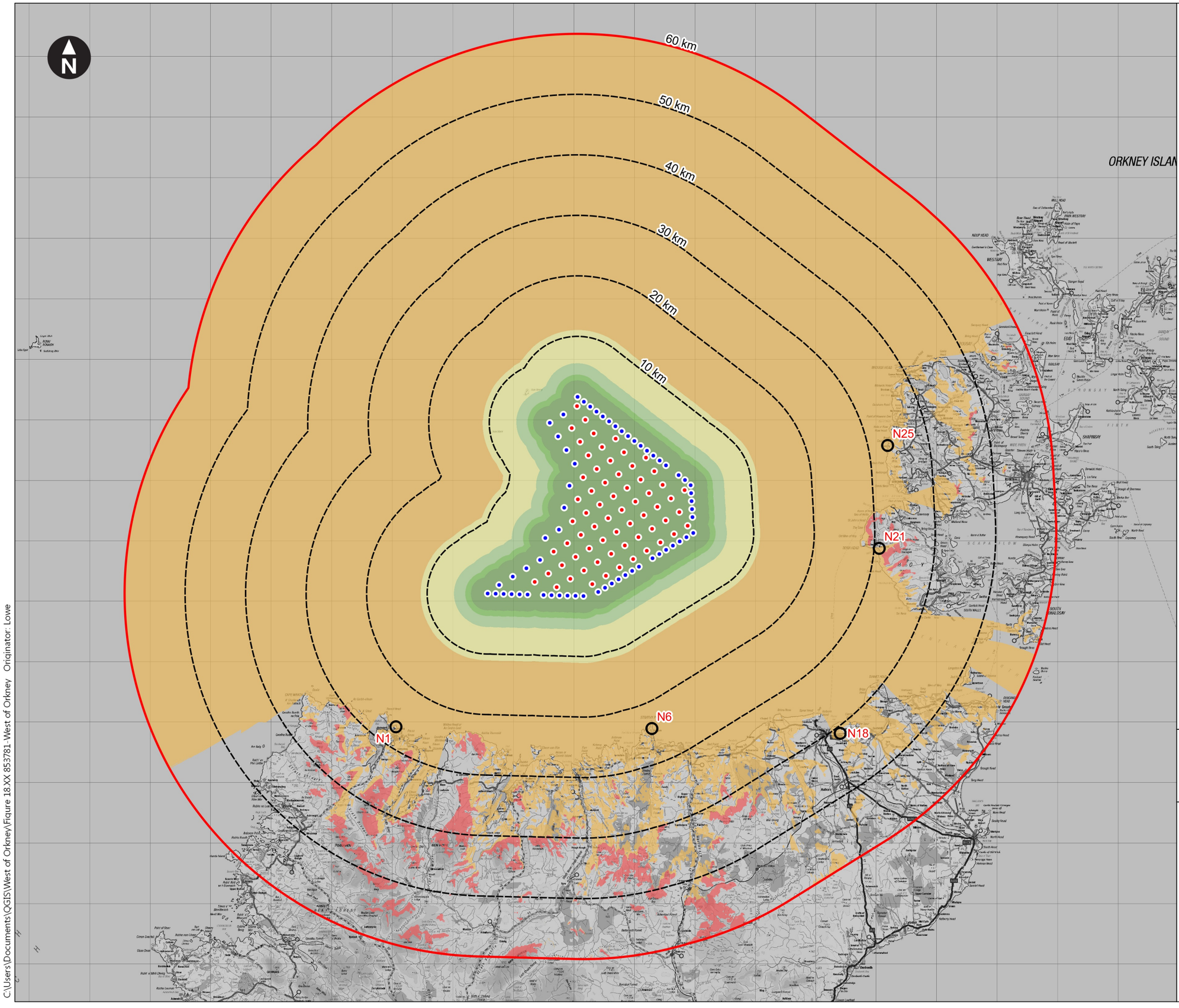
C:\Users\Documents\QGIS\West of Orkney\Figure 18.XX 853781-West of Orkney Originator: Lowe

WGS 1984 UTM Zone 30N

0 1.8 3.5 7 11 km

Scale: 1:500,000



Key

- Proposed Lit Turbine Locations - CAP393
- Proposed Lit Turbine Locations - CAP437 / SAR
- Landscape and Visual Study Area
- Lines indicating the distance from the proposed lit turbine locations
- Night-time viewpoint locations

Intensity of Turbine Light shown in Candelas (cd)

Vertical Angle	Turbine Lighting Intensity	
	2000cd light	200cd light
+3° to 0°	2000cd to 1500cd	200cd to 150cd
0° to -1°	2000cd to 750cd	200cd to 75cd
-1° to -2°	800cd to 265cd	80cd to 27cd
-2° to -3°	265cd to 200cd	27cd to 20cd
-3° to -4°	200cd to 175cd	20cd to 18cd
Below -4°	175cd to 75cd	18cd to 8cd

Notes: This drawing is based on a computer generated Zone of Theoretical Visibility (ZTV). The areas shown indicate the maximum theoretical visibility of the proposed turbines using OS Terrain 50 data only and do not take account of any screening from vegetation or built-form. The ZTV also includes an adjustment that allows for the Curvature and Light Refraction of the Earth.
This figure has been based on the following parameters:
Turbine layout file: LORKNEY001.WFL
Hub height: 194.52m
Rotor diameter: 330m
Height to blade tip: 359.52m

0 5 10 15 20 25 km

Scale @ A3: 1:600,000

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Client

West of Orkney Windfarm

West of Orkney Offshore Wind Farm

Figure 18.7C

Nacelle Light Intensity ZTV (Zone of Theoretical Visibility) within 60km

3 / 2023

Figure 18.7c

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C:\Users\Documents\QGIS\West of Orkney\Figure 18.XX 853781-West of Orkney Oriqinator: Lowe

N

WGS 1984 UTM Zone 30N

km 0 2 3 4.5 9 14

Scale: 1:600,000

360000 370000 380000 390000 400000 410000 420000 430000 440000 450000 460000 470000 480000 490000 500000 510000 520000 530000 540000 550000

6610000 6600000 6590000 6580000 6570000 6560000 6550000 6540000 6530000 6520000 6510000 6500000 6490000 6480000 6470000 6460000 6450000

ORKNEY ISLANDS

60km 50km 40km 30km 20km 10km

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Figure 18.8.1

Note:
The ZTV is calculated to hub height (200m) from a viewing height of 2m above ground level.

The terrain model assumes bare ground and does not take into account the potential screening effects of vegetation and buildings. It is derived from OS Terrain 50 and 5 height data.

Earth curvature and atmospheric refraction have been taken into account.

Hub Height ZTV

North Coast Viewpoints

1. North of Durness - Seanachaisteal
2. Ben Hope
3. A838 A'Moine peninsula
4. Kyle of Tongue - Achininver beach
5. Torrisdale Bay
6. Strathy Point
7. Melvich Bay/Big House LB
8. Beinn Ratha
9. Reay Kirk LB
10. Forss /Crosskirk/St Mary's Chapel
11. Ben Griam Beg hillfort
12. Dunnet Bay
13. Dunnet Head
14. Castle of Mey LB & GDL
15. St John's Point
16. Beinn Freiceadain hillfort
17. Kyle of Tongue - A838 causeway
18. A836 Between Thurso and Castletown
19. A836 Dounreay

Orkney Viewpoints

20. Scrabster-Stromness Ferry
21. Rackwick Bay
22. Path to Old Man of Hoy
23. Tor Ness, Hoy
24. Warebeth
25. Yesnaby - Brough of Bigging
26. Bay of Skaill
27. Marwick Head Kitchener Memorial
28. Earl's Palace Birsay, Brough Road

Option Agreement Area

60km Study Area

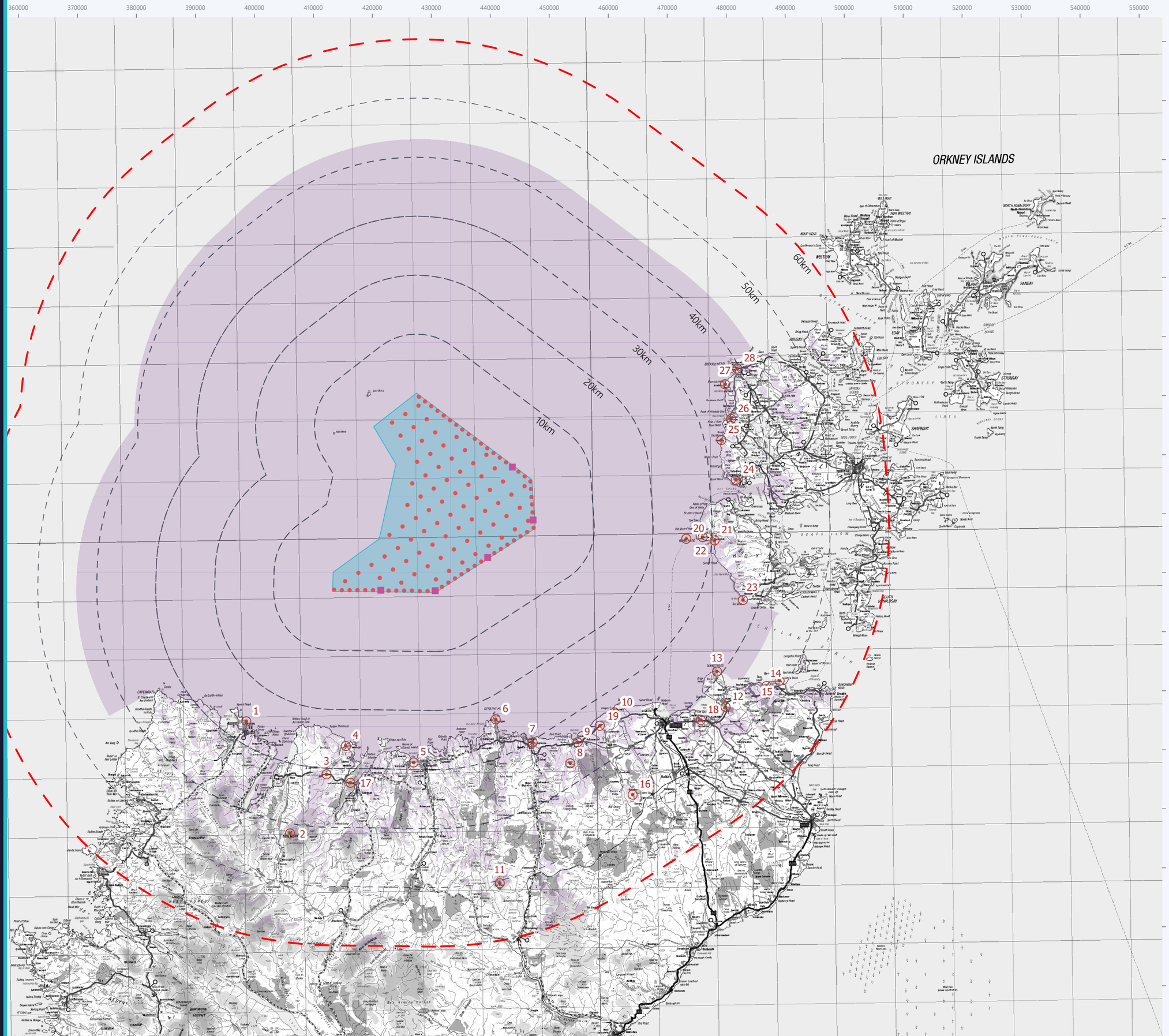
Turbines

Substations

Zone of Theoretical Visibility

Hub Height ZTV (theoretical visibility of anything up to and including hub height)

North Coast and Orkney Viewpoints



Note:
The ZTV is calculated to half hub height (100m) from a viewing height of 2m above ground level.

The terrain model assumes bare ground and does not take into account the potential screening effects of vegetation and buildings. It is derived from OS Terrain 50 and 5 height data.

Earth curvature and atmospheric refraction have been taken into account.

Half Hub Height ZTV

North Coast Viewpoints

1. North of Durness - Seanachaisteal
2. Ben Hope
3. A838 A'Moine peninsula
4. Kyle of Tongue - Achininiver beach
5. Torrisdale Bay
6. Strathy Point
7. Melvich Bay/Big House LB
8. Beinn Ratha
9. Reay Kirk LB
10. Forss /Crosskirk/St Mary's Chapel
11. Ben Griam Beg hillfort
12. Dunnet Bay
13. Dunnet Head
14. Castle of Mey LB & GDL
15. St John's Point
16. Beinn Freiceadain hillfort
17. Kyle of Tongue - A838 causeway
18. A836 Between Thurso and Castletown
19. A836 Dounreay

Orkney Viewpoints

20. Scrabster-Stromness Ferry
21. Rackwick Bay
22. Path to Old Man of Hoy
23. Tor Ness, Hoy
24. Warebeth
25. Yesnaby - Brough of Bigging
26. Bay of Skaill
27. Marwick Head Kitchener Memorial
28. Earl's Palace Birsay, Brough Road

Viewpoints for Wirelines Only

A. Borve Castle
B. Cnoc Freiceadain long cairns
C. Sneuk Head
D. Black Craig -
E. Brough of Birsay Car Park
F. Knowes of Trotty / WHS West Mainland Sensitive Area
G. Skara Brae - at the east side of the settlement
H. Skara Brae - At gate on north side of visitor centre
I. Hall of Clestrain - top of access track

Option Agreement Area

60km Study Area

Turbines

Substations

Zone of Theoretical Visibility

Half Hub Height ZTV (theoretical visibility of anything up to and including half hub)

North Coast and Orkney Viewpoints

Figure 18.8.2

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WGS 1984 UTM Zone 30N

Scale: 1:600,000

0 2.3 4.5 9 14 km

360000 370000 380000 390000 400000 410000 420000 430000 440000 450000 460000 470000 480000 490000 500000 510000 520000 530000 540000 550000

6610000 6600000 6590000 6580000 6570000 6560000 6550000 6540000 6530000 6520000 6510000 6500000 6490000 6480000 6470000 6460000 6450000

ORKNEY ISLANDS

60km 50km 40km 30km 20km 10km

Note:
The ZTV is calculated to quarter hub height (50m) from a viewing height of 2m above ground level.

The terrain model assumes bare ground and does not take into account the potential screening effects of vegetation and buildings. It is derived from OS Terrain 50 and 5 height data.

Earth curvature and atmospheric refraction have been taken into account.

Quarter Hub ZTV

North Coast Viewpoints

1. North of Durness - Seanachaisteal
2. Ben Hope
3. A838 A'Moine peninsula
4. Kyle of Tongue - Achininiver beach
5. Torrisdale Bay
6. Strathy Point
7. Melvich Bay/Big House LB
8. Beinn Rattha
9. Reay Kirk LB
10. Forss /Crosskirk/St Mary's Chapel
11. Ben Griam Beg hillfort
12. Dunnet Bay
13. Dunnet Head
14. Castle of Mey LB & GDL
15. St John's Point
16. Beinn Freiceadain hillfort
17. Kyle of Tongue - A838 causeway
18. A836 Between Thurso and Castletown
19. A836 Dounreay

Orkney Viewpoints

20. Scrabster-Stromness Ferry
21. Rackwick Bay
22. Path to Old Man of Hoy
23. Tor Ness, Hoy
24. Warebeth
25. Yesnaby - Brough of Bigging
26. Bay of Skaill
27. Marwick Head Kitchener Memorial
28. Earl's Palace Birsay, Brough Road

Viewpoints for Wirelines Only

A. Borve Castle
B. Cnoc Freiceadain long cairns
C. Sneuk Head
D. Black Craig -
E. Brough of Birsay Car Park
F. Knowes of Trotty / WHS West Mainland Sensitive Area
G. Skara Brae - at the east side of the settlement
H. Skara Brae - At gate on north side of visitor centre
I. Hall of Clestrain - top of access track

Option Agreement Area

60km Study Area

Turbines

Substations

Zone of Theoretical Visibility

Quarter Hub Height ZTV (theoretical visibility of anything up to and including quarter hub height)

North Coast and Orkney Viewpoints

Figure 18.8.3

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N

WGS 1984 UTM Zone 30N

0 2.3 4.5 9 14 km

Scale: 1:600,000

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Figure 18.9.1

360000 370000 380000 390000 400000 410000 420000 430000 440000 450000 460000 470000 480000 490000 500000 510000 520000 530000 540000 550000

6610000 6600000 6590000 6580000 6570000 6560000 6550000 6540000 6530000 6520000 6510000 6500000 6490000 6480000 6470000 6460000 6450000

ORKNEY ISLANDS

60km 50km 40km 30km 20km 10km

Note:
The ZTV is calculated to blade tip height (359.52m) from a viewing height of 2m above ground level.

The terrain model assumes bare ground and does not take into account the potential screening effects of vegetation and buildings. It is derived from OS Terrain 50 and 5 height data.

Earth curvature and atmospheric refraction have been taken into account.

Blade Tip ZTV

North Coast Viewpoints

1. North of Durness - Seanachaisteal
2. Ben Hope
3. A838 A'Moine peninsula
4. Kyle of Tongue - Achininiver beach
5. Torrisdale Bay
6. Strathy Point
7. Melvich Bay/Big House LB
8. Beinn Ratha
9. Reay Kirk LB
10. Forss /Crosskirk/St Mary's Chapel
11. Ben Griam Beg hillfort
12. Dunnet Bay
13. Dunnet Head
14. Castle of Mey LB & GDL
15. St John's Point
16. Beinn Freiceadain hillfort
17. Kyle of Tongue - A838 causeway
18. A836 Between Thurso and Castletown
19. A836 Dounreay

Orkney Viewpoints

20. Scrabster-Stromness Ferry
21. Rackwick Bay
22. Path to Old Man of Hoy
23. Tor Ness, Hoy
24. Warebeth
25. Yesnaby - Brough of Bigging
26. Bay of Skaill
27. Marwick Head Kitchener Memorial
28. Earl's Palace Birsay, Brough Road

Viewpoints for Wirelines Only

A. Borve Castle
B. Cnoc Freiceadain long cairns
C. Sneuk Head
D. Black Craig -
E. Brough of Birsay Car Park
F. Knowes of Trotty / WHS West Mainland Sensitive Area
G. Skara Brae - at the east side of the settlement
H. Skara Brae - At gate on north side of visitor centre
I. Hall of Clestrain - top of access track

Option Agreement Area

60km Study Area

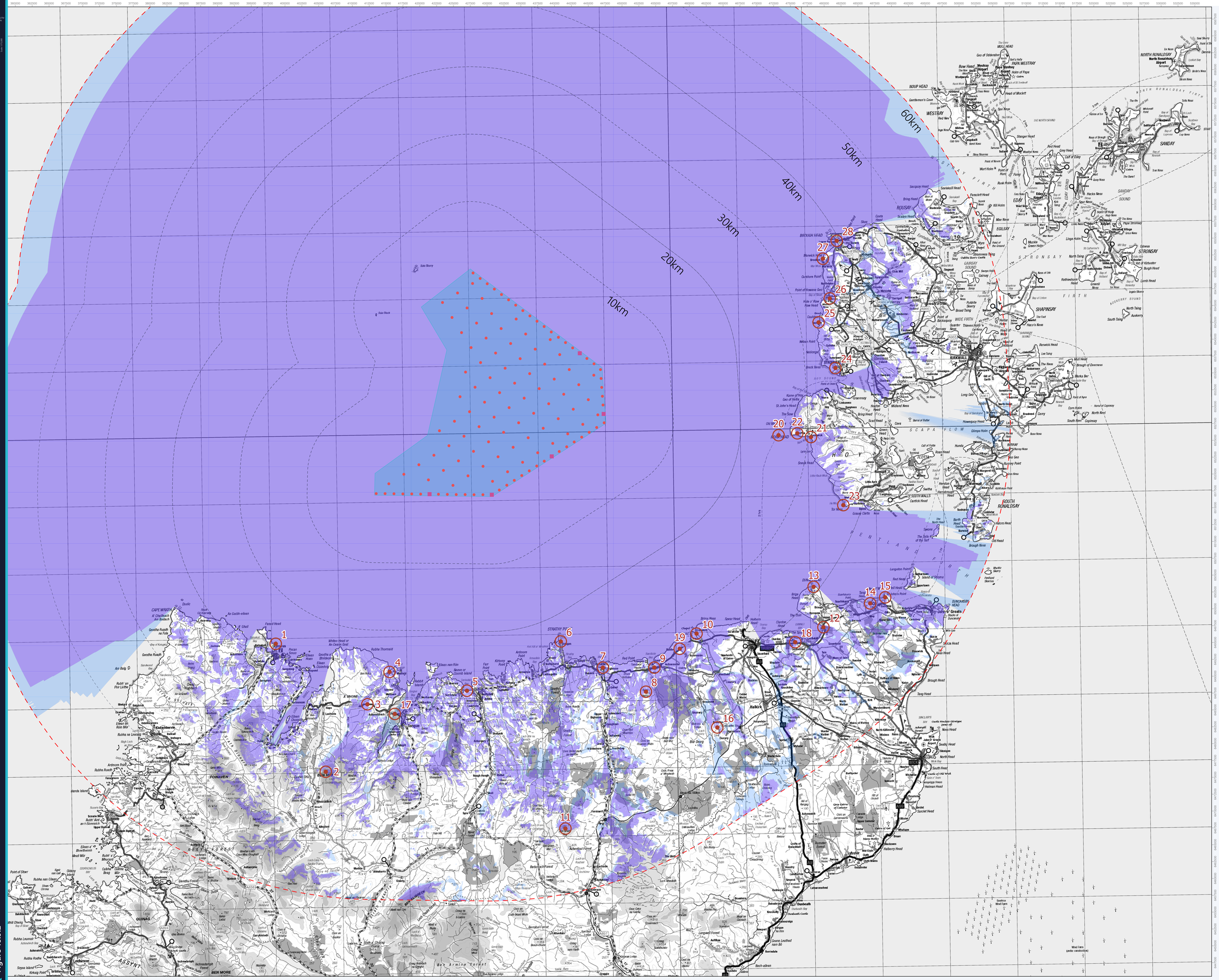
Turbines

Substations

Zone of Theoretical Visibility

Blade Tip ZTV (theoretical visibility of blades when above hub height)

North Coast and Orkney Viewpoints



Note:
The ZTV is calculated to turbine tip height (359.52m) and hub height (200m) from a viewing height of 2m above ground level.

The terrain model assumes bare ground and does not take into account the potential screening effects of vegetation and buildings. It is derived from OS Terrain 50 and 5 height data.

Earth curvature and atmospheric refraction have been taken into account.

Comparative ZTV

North Coast Viewpoints

1. North of Durness - Seanachaisteal
2. Ben Hope
3. A838 A'Moine peninsula
4. Kyle of Tongue - Achininver beach
5. Torrisdale Bay
6. Strathy Point
7. Melvich Bay/Big House LB
8. Beinn Ratha
9. Reay Kirk LB
10. Forss /Crosskirk/St Mary's Chapel
11. Ben Griam Beg hillfort
12. Dunnet Bay
13. Dunnet Head
14. Castle of Mey LB & GDL
15. St John's Point
16. Beinn Freiceadain hillfort
17. Kyle of Tongue - A838 causeway
18. A836 Between Thurso and Castletown
19. A836 Dounreay

Orkney Viewpoints

20. Scrabster-Stromness Ferry
21. Rackwick Bay
22. Path to Old Man of Hoy
23. Tor Ness, Hoy
24. Warebeth
25. Yesnaby - Brough of Bigging
26. Bay of Skaill
27. Marwick Head Kitchener Memorial
28. Earl's Palace Birsay, Brough Road

Option Agreement Area

60km Study Area

North Coast and Orkney Viewpoints

Substations

Turbines

Zone of Theoretical Visibility

Blade Tip ZTV (theoretical visibility of blades when above hub height)

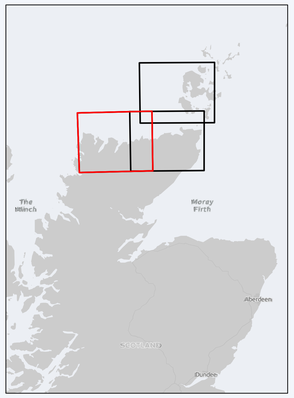
Hub Height ZTV (theoretical visibility of anything above or including the hub)

Figure 18.9.2

Note:
The ZTV is calculated to turbine tip height (359.52m) and hub height (200m) from a viewing height of 2m above ground level.

The terrain model assumes bare ground and does not take into account the potential screening effects of vegetation and buildings. It is derived from OS Terrain 50 and 5 height data.

Earth curvature and atmospheric refraction have been taken into account.



Comparative ZTV - Sheet 1 of 3

North Coast Viewpoints

1. North of Durness - Seanachaisteal
2. Ben Hope
3. A838 A'Moine peninsula
4. Kyle of Tongue - Achininiver beach
5. Torrisdale Bay
6. Strathy Point
7. Melvich Bay/Big House LB
8. Beinn Ratha
9. Reay Kirk LB
10. Forss /Crosskirk/St Mary's Chapel
11. Ben Griam Beg hillfort
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14. Castle of Mey LB & GDL
15. St John's Point
16. Beinn Freiceadain hillfort
17. Kyle of Tongue - A838 causeway
18. A836 Between Thurso and Castletown
19. A836 Dounreay

Option Agreement Area
60km Study Area
North Coast and Orkney Viewpoints
Substations
Turbines

Zone of Theoretical Visibility

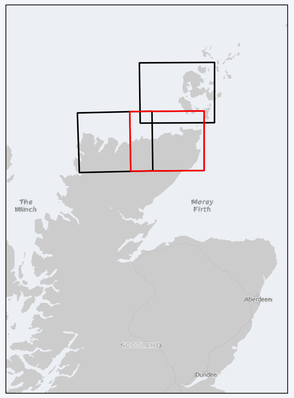
Blade Tip ZTV (theoretical visibility of blades when above hub height)
Hub Height ZTV (theoretical visibility of anything above or including the hub)

Figure 18.10.1

Note:
The ZTV is calculated to turbine tip height (359.52m) and hub height (200m) from a viewing height of 2m above ground level.

The terrain model assumes bare ground and does not take into account the potential screening effects of vegetation and buildings. It is derived from OS Terrain 50 and 5 height data.

Earth curvature and atmospheric refraction have been taken into account.



Comparative ZTV - Sheet 2 of 3

North Coast Viewpoints

1. North of Durness - Seanachaisteal
2. Ben Hope
3. A838 A'Moine peninsula
4. Kyle of Tongue - Achininver beach
5. Torrisdale Bay
6. Strathy Point
7. Melvich Bay/Big House LB
8. Beinn Ratha
9. Reay Kirk LB
10. Forss /Crosskirk/St Mary's Chapel
11. Ben Griam Beg hillfort
12. Dunnet Bay
13. Dunnet Head
14. Castle of Mey LB & GDL
15. St John's Point
16. Beinn Freiceadain hillfort
17. Kyle of Tongue - A838 causeway
18. A836 Between Thurso and Castletown
19. A836 Dounreay

Orkney Viewpoints

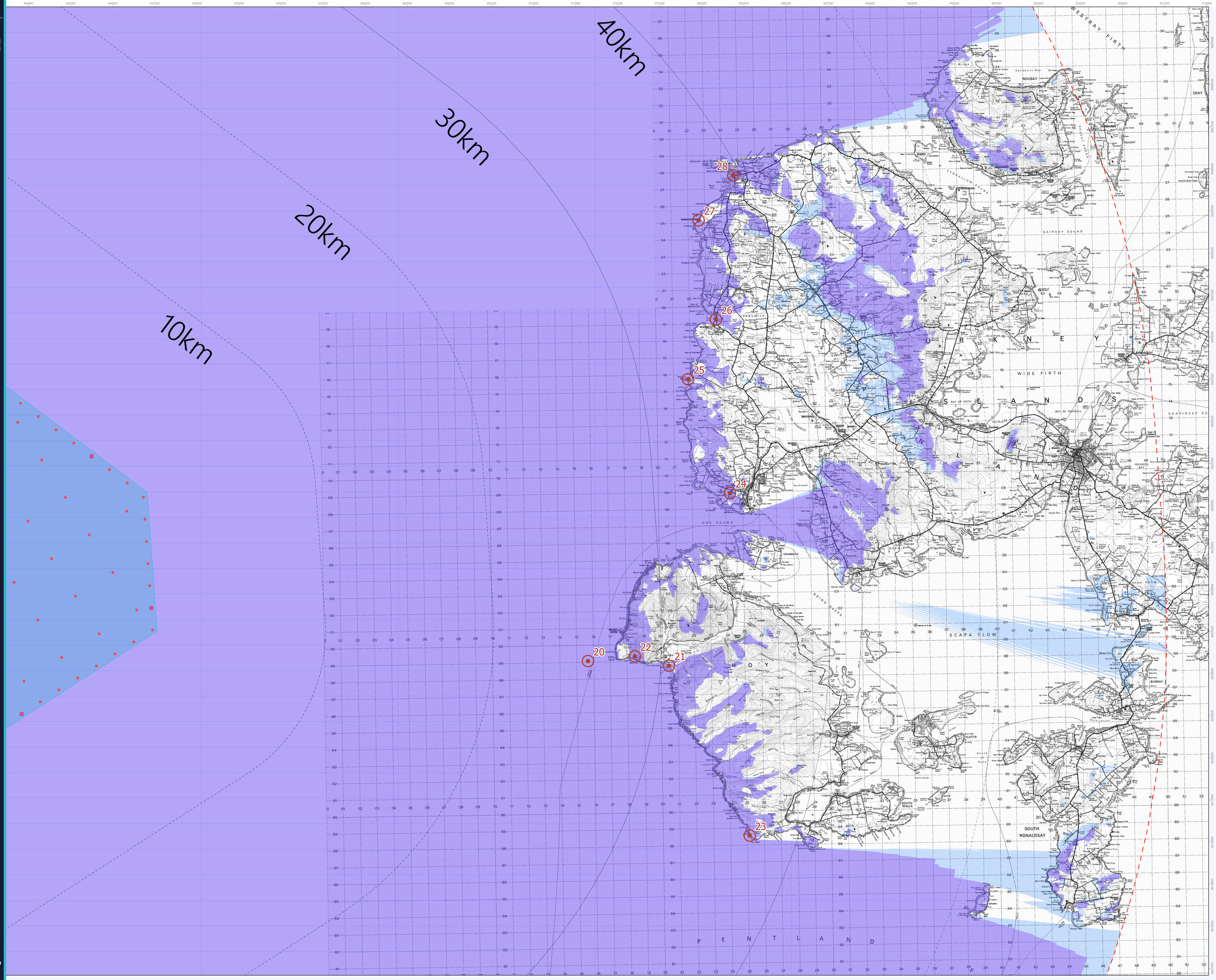
20. Scrabster-Stromness Ferry
21. Rackwick Bay
22. Path to Old Man of Hoy
23. Tor Ness, Hoy
24. Warebeth
25. Yesnaby - Brough of Bigging
26. Bay of Skaill
27. Marwick Head Kitchener Memorial
28. Earl's Palace Birsay, Brough Road

Option Agreement Area
60km Study Area
North Coast and Orkney Viewpoints
Substations
Turbines

Zone of Theoretical Visibility

Blade Tip ZTV (theoretical visibility of blades when above hub height)
Hub Height ZTV (theoretical visibility of anything above or including the hub)

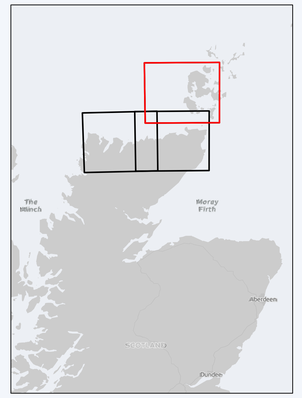
Figure 18.10.2



Note:
The ZTV is calculated to turbine tip height (359.52m) and hub height (200m) from a viewing height of 2m above ground level.

The terrain model assumes bare ground and does not take into account the potential screening effects of vegetation and buildings. It is derived from OS Terrain 50 and 5 height data.

Earth curvature and atmospheric refraction have been taken into account.



Comparative ZTV - Sheet 3 of 3

North Coast Viewpoints

1. North of Durness - Seanachaisteal
2. Ben Hope
3. A838 A'Moine peninsula
4. Kyle of Tongue - Achininiver beach
5. Torrisdale Bay
6. Strathy Point
7. Melvich Bay/Big House LB
8. Beinn Ratha
9. Reay Kirk LB
10. Forss /Crosskirk/St Mary's Chapel
11. Ben Griam Beg hillfort
12. Dunnet Bay
13. Dunnet Head
14. Castle of Mey LB & GDL
15. St John's Point
16. Beinn Freiceadain hillfort
17. Kyle of Tongue - A838 causeway
18. A836 Between Thurso and Castletown
19. A836 Dounreay

Orkney Viewpoints

20. Scrabster-Stromness Ferry
21. Rackwick Bay
22. Path to Old Man of Hoy
23. Tor Ness, Hoy
24. Warebeth
25. Yesnaby - Brough of Bigging
26. Bay of Skaill
27. Marwick Head Kitchener Memorial
28. Earl's Palace Birsay, Brough Road

Viewpoints for Wirelines Only

A. Borve Castle
B. Cnoc Freiceadain long cairns
C. Sneuk Head
D. Black Craig -
E. Brough of Birsay Car Park
F. Knowes of Trotty / WHS West Mainland Sensitive Area
G. Skara Brae - at the east side of the settlement
H. Skara Brae - At gate on north side of visitor centre
I. Hall of Clestrain - top of access track

Option Agreement Area
60km Study Area
North Coast and Orkney Viewpoints
Substations
Turbines

Zone of Theoretical Visibility

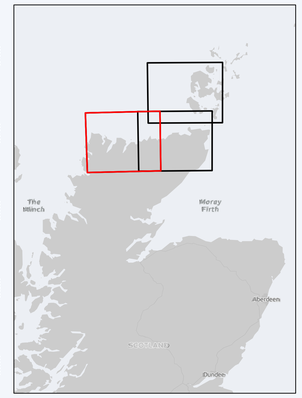
Blade Tip ZTV (theoretical visibility of blades when above hub height)
Hub Height ZTV (theoretical visibility of anything above or including the hub)

Figure 18.10.3

Note:
The ZTV is calculated to turbine tip height (359.52m) and hub height (200m) from a viewing height of 2m above ground level.

The terrain model assumes bare ground and does not take into account the potential screening effects of vegetation and buildings. It is derived from OS Terrain 50 and 5 height data.

Earth curvature and atmospheric refraction have been taken into account.



ZTV with Landscape and Visual receptors Sheet 1 of 3

North Coast Viewpoints

1. North of Durness - Seanachaisteal
2. Ben Hope
3. A838 A Moine peninsula
4. Kyle of Tongue - Achininver beach
5. Torrisdale Bay
6. Strathy Point
7. Melvich Bay/Big House LB
8. Beinn Ratha
9. Reay Kirk LB
10. Forss /Crosskirk/St Mary's Chapel
11. Ben Griam Beg hillfort
12. Dunnet Bay
13. Dunnet Head
14. Castle of Mey LB & GDL
15. St John's Point
16. Beinn Freiceadain hillfort
17. Kyle of Tongue - A838 causeway
18. AB36 Between Thurso and Castletown
19. AB36 Dounreay

Orkney Viewpoints

20. Scrabster-Stromness Ferry
21. Packwick Bay
22. Path to Old Man of Hoy
23. Tor Ness, Hoy
24. Warebeth
25. Yesnaby - Brough of Bigging
26. Bay of Skaill
27. Marwick Head Kitchener Memorial
28. Earl's Palace Birsay, Brough Road

Viewpoints for Wirelines Only

A. Borve Castle
B. Cnoc Freiceadain long cairns
C. Sneuk Head
D. Black Craig -
E. Brough of Birsay Car Park
F. Knowes of Trotty / WHS West Mainland Sensitive Area
G. Skara Brae - at the east side of the settlement
H. Skara Brae - At gate on north side of visitor centre
I. Hall of Clestrain - top of access track

- 60km Study Area
- Option Agreement Area
- North Coast and Orkney Viewpoints
- Substations
- Turbines

Zone of Theoretical Visibility

- Blade Tip ZTV (theoretical visibility of blades when above hub height)
- Hub Height ZTV (theoretical visibility of anything above or including the hub)

- Heart of Neolithic Orkney World Heritage Site Sensitive Area
- Heart of Neolithic Orkney World Heritage Site Buffer Zone
- Heart of Neolithic Orkney World Heritage Site Boundary

Landscape Designation

- National Scenic Areas
  - 1: Hoy and West Mainland
  - 2: Kyle of Tongue
  - 3: North - West Sutherland
- Special Landscape Areas (The Highland Council)
  - 1: Oldshoremore, Cape Wrath and Durness
  - 2: Eriboll East and Whiten Head
  - 3: Farr Bay, Strathy and Portskerra
  - 4: Dunnet Head
  - 5: Duncansby Head
- Wild Land Areas
  - 1: Hoy
  - 2: Ben Klibreck - Armine Forest
  - 3: Causeymire -Knockfin Flows
  - 4: East Halladale Flows
  - 5: Ben Hope - Ben Loyal
  - 6: Foinaven - Ben Hee
  - 7: Cape Wrath
  - 8: Reay - Cassley
- Garden and Designed Landscapes
- Sustrans National Route
- Railway
- Core Paths
- North Coast 500
- Settlement
- Primary Road; A Road
- B Road

Landscape Character Types

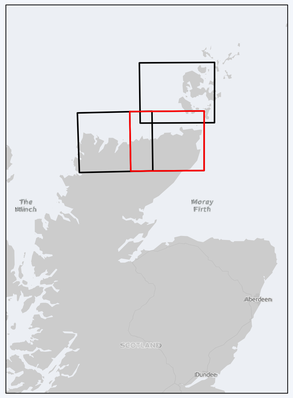
- 134 Sweeping Moorland and Flows
- 135 Rounded Hills - Caithness & Sutherland
- 136 Rocky Hills and Moorland
- 137 Cnocan - Caithness & Sutherland
- 138 Lone Mountains
- 139 Rugged Mountain Massif - Caithness & Sutherland
- 140 Sandy Beaches and Dunes
- 141 High Cliffs and Sheltered Bays
- 142 Strath - Caithness & Sutherland
- 143 Farmed Lowland Plain
- 144 Coastal Crofts & Small Farms
- 295 Holms
- 296 Whaleback Islands
- 297 Ridgeline Islands
- 298 Low Island Pastures
- 299 Undulating Island Pasture
- 300 Coastal Plain - Orkney
- 301 Coastal Basin
- 302 Inclined Coastal Pasture
- 303 Rocky Coastal Pasture
- 304 Isolated Coastal Knolls
- 305 Enclosed Bays
- 306 Coastal Hills and Heath
- 307 Cliffs - Orkney
- 308 Coast with Sand - Orkney
- 309 Peatland Basin
- 310 Loch Basin - Orkney
- 311 Low Moorland
- 312 Plateau Heath and Pasture
- 313 Rolling Hill Fringe
- 314 Moorland Hills - Orkney
- 315 U-Shaped Valley
- 316 Rugged Hills
- 334 Cnocan - Ross & Cromarty
- 336 Coastal Moorlands and Crofts

Figure 18.11.1

Note:
The ZTV is calculated to turbine tip height (359.52m) and hub height (200m) from a viewing height of 2m above ground level.

The terrain model assumes bare ground and does not take into account the potential screening effects of vegetation and buildings. It is derived from OS Terrain 50 and 5 height data.

Earth curvature and atmospheric refraction have been taken into account.



ZTV with Landscape and Visual receptors Sheet 2 of 3

North Coast Viewpoints

1. North of Durness - Seanachaisteal
2. Ben Hope
3. A838 A Moine peninsula
4. Kyle of Tongue - Achininver beach
5. Torrisdale Bay
6. Strathy Point
7. Melvich Bay/Big House LB
8. Beinn Ratha
9. Reay Kirk LB
10. Forss /Crosskirk/St Mary's Chapel
11. Ben Griam Beg hillfort
12. Dunnet Bay
13. Dunnet Head
14. Castle of Mey LB & GDL
15. St John's Point
16. Beinn Freiceadain hillfort
17. Kyle of Tongue - A838 Causeway
18. A836 Between Thurso and Castletown
19. A836 Dounreay

Orkney Viewpoints

20. Scrabster-Stromness Ferry
21. Packwick Bay
22. Path to Old Man of Hoy
23. Tor Ness, Hoy
24. Wareberth
25. Yesnaby - Brough of Bigging
26. Bay of Skaill
27. Marwick Head Kitchener Memorial
28. Earl's Palace Birsay, Brough Road

Viewpoints for Wirelines Only

A. Borve Castle
B. Cnoc Freiceadain long cairns
C. Sneuk Head
D. Black Craig -
E. Brough of Birsay Car Park
F. Knowes of Trotty / WHS West Mainland Sensitive Area
G. Skara Brae - at the east side of the settlement
H. Skara Brae - At gate on north side of visitor centre
I. Hall of Clestrain - top of access track

60km Study Area

Option Agreement Area

North Coast and Orkney Viewpoints

Substations

Turbines

Zone of Theoretical Visibility

Blade Tip ZTV (theoretical visibility of blades when above hub height)

Hub Height ZTV (theoretical visibility of anything above or including the hub)

Heart of Neolithic Orkney World Heritage Site Sensitive Area

Heart of Neolithic Orkney World Heritage Site Buffer Zone

Heart of Neolithic Orkney World Heritage Site Boundary

Landscape Designation

National Scenic Areas
- 1: Hoy and West Mainland
- 2: Kyle of Tongue
- 3: North - West Sutherland

Special Landscape Areas (The Highland Council)
- 1: Oldshoremore, Cape Wrath and Durness
- 2: Eriboll East and Whiten Head
- 3: Farr Bay, Strathy and Portskerra
- 4: Dunnet Head
- 5: Duncansby Head

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- 1: Hoy
- 2: Ben Klibreck - Armine Forest
- 3: Causeymire -Knockfin Flows
- 4: East Halladale Flows
- 5: Ben Hope - Ben Loyal
- 6: Foinaven - Ben Hee
- 7: Cape Wrath
- 8: Reay - Cassley

Garden and Designed Landscapes

Sustrans National Route

Railway

Core Paths

North Coast 500

Settlement

Primary Road; A Road

B Road

Landscape Character Types

134 Sweeping Moorland and Flows
135 Rounded Hills - Caithness & Sutherland
136 Rocky Hills and Moorland
137 Cnocan - Caithness & Sutherland
138 Lone Mountains
139 Rugged Mountain Massif - Caithness & Sutherland
140 Sandy Beaches and Dunes
141 High Cliffs and Sheltered Bays
142 Strath - Caithness & Sutherland
143 Farmed Lowland Plain
144 Coastal Crofts & Small Farms
295 Holms
296 Whaleback Islands
297 Ridgeline Islands
298 Low Island Pastures
299 Undulating Island Pasture
300 Coastal Plain - Orkney
301 Coastal Basin
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303 Rocky Coastal Pasture
304 Isolated Coastal Knolls
305 Enclosed Bays
306 Coastal Hills and Heath
307 Cliffs - Orkney
308 Coast with Sand - Orkney
309 Peatland Basin
310 Loch Basin - Orkney
311 Low Moorland
312 Plateau Heath and Pasture
313 Rolling Hill Fringe
314 Moorland Hills - Orkney
315 U-Shaped Valley
316 Rugged Hills
334 Cnocan - Ross & Cromarty
336 Coastal Moorlands and Crofts

Figure 18.11.2

Figure 18.11.3

Note:
The ZTV is calculated to turbine tip height (359.52m) and hub height (200m) from a viewing height of 2m above ground level.

The terrain model assumes bare ground and does not take into account the potential screening effects of vegetation and buildings. It is derived from OS Terrain 50 and 5 height data.

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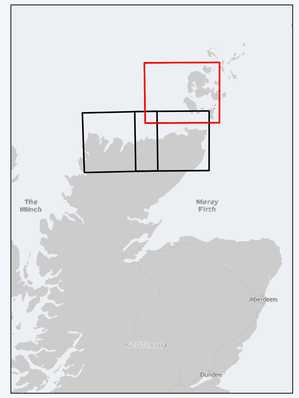

ZTV with Landscape and Visual receptors Sheet 3 of 3

North Coast Viewpoints

1. North of Durness - Seanachaisteal
2. Ben Hope
3. A838 A'Moine peninsula
4. Kyle of Tongue - Achininver beach
5. Torrisdale Bay
6. Strathy Point
7. Melvich Bay/Big House LB
8. Beinn Ratha
9. Reay Kirk LB
10. Forss /Crosskirk/St Mary's Chapel
11. Ben Griam Beg hillfort
12. Dunnet Bay
13. Dunnet Head
14. Castle of Mey LB & GDL
15. St John's Point
16. Beinn Freiceadain hillfort
17. Kyle of Tongue - A838 causeway
18. A836 Between Thurso and Castletown
19. A836 Dounreay

Orkney Viewpoints

20. Scrabster-Stromness Ferry
21. Packwick Bay
22. Path to Old Man of Hoy
23. Tor Ness, Hoy
24. Wanbeith
25. Yesnaby - Brough of Bigging
26. Bay of Skaill
27. Marwick Head Kitchener Memorial
28. Earl's Palace Birsay, Brough Road

Viewpoints for Wirelines Only

A. Bonxe Castle
B. Cnoc Freiceadain long cairns
C. Sneuk Head
D. Black Craig -
E. Brough of Birsay Car Park
F. Knowes of Trotty / WHS West Mainland Sensitive Area
G. Skara Brae - at the east side of the settlement
H. Skara Brae - At gate on north side of visitor centre
I. Hall of Clestrain - top of access track

60km Study Area
Option Agreement Area
North Coast and Orkney Viewpoints
Substations
Turbines

Zone of Theoretical Visibility

Blade Tip ZTV (theoretical visibility of blades when above hub height)
Hub Height ZTV (theoretical visibility of anything above or including the hub)

Heart of Neolithic Orkney World Heritage Site Sensitive Area
Heart of Neolithic Orkney World Heritage Site Buffer Zone
Heart of Neolithic Orkney World Heritage Site Boundary

Landscape Designation
National Scenic Areas
1: Hoy and West Mainland
2: Kyle of Tongue
3: North - West Sutherland
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3: Farr Bay, Strathy and Portskerra
4: Dunnet Head
5: Duncansby Head

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1: Hoy
2: Ben Klibreck - Armine Forest
3: Causeymire -Knockfin Flows
4: East Halladale Flows
5: Ben Hope - Ben Loyal
6: Foinaven - Ben Hee
7: Cape Wrath
8: Reay - Cassley
Garden and Designed Landscapes
Sustrans National Route
Railway
Core Paths
North Coast 500
Settlement
Primary Road; A Road
B Road

Landscape Character Types
134 Sweeping Moorland and Flows
135 Rounded Hills - Caithness & Sutherland
136 Rocky Hills and Moorland
137 Cnocan - Caithness & Sutherland
138 Lone Mountains
139 Rugged Mountain Massif - Caithness & Sutherland
140 Sandy Beaches and Dunes
141 High Cliffs and Sheltered Bays
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143 Farmed Lowland Plain
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306 Coastal Hills and Heath
307 Cliffs - Orkney
308 Coast with Sand - Orkney
309 Peatland Basin
310 Loch Basin - Orkney
311 Low Moorland
312 Plateau Heath and Pasture
313 Rolling Hill Fringe
314 Moorland Hills - Orkney
315 U-Shaped Valley
316 Rugged Hills
334 Cnocan - Ross & Cromarty
336 Coastal Moorlands and Crofts

Cumulative ZTV with Pentland Firth Offshore

Note:
The ZTV is calculated to turbine tip height (359.52m West of Orkney, 300m Pentland) from a viewing height of 2m above ground level.

The terrain model assumes bare ground and does not take into account the potential screening effects of vegetation and buildings. It is derived from OS Terrain 50 and 5 height data.

Earth curvature and atmospheric refraction have been taken into account.

North Coast Viewpoints

1. North of Durness - Seanachaisteal
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7. Melvich Bay/Big House LB
8. Beinn Ratha
9. Reay Kirk LB
10. Forss /Crosskirk/St Mary's Chapel
11. Ben Griam Beg hillfort
12. Dunnet Bay
13. Dunnet Head
14. Castle of Mey LB & GDL
15. St John's Point
16. Beinn Freiceadain hillfort
17. Kyle of Tongue - A838 causeway
18. A836 Between Thurso and Castletown
19. A836 Dounreay

Orkney Viewpoints

20. Scrabster-Stromness Ferry
21. Rackwick Bay
22. Path to Old Man of Hoy
23. Tor Ness, Hoy
24. Warebeth
25. Yesnaby - Brough of Bigging
26. Bay of Skaill
27. Marwick Head Kitchener Memorial
28. Earl's Palace Birsay, Brough Road

- Option Agreement Area
- West Of Orkney Turbines
- West Of Orkney Substations
- Pentland Firth Offshore Turbines
- 60km Study Area
- North Coast and Orkney Viewpoints

Zone of Theoretical Visibility

West Of Orkney Blade Tip ZTV (theoretical visibility of blades when above hub height)

Pentland Firth Blade Tip ZTV (theoretical visibility of blades when above hub height)

N

WGS 1984 UTM Zone 30N

0 1.8 3.5 7 11 km

Scale: 1:500,000

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Figure 18.12

Figure 18.13

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WGS 1984 UTM Zone 30N

Scale: 1:500,000

Note:
The ZTV is calculated to turbine tip height (359.52m West of Orkney, 149.9m Hoy Community) from a viewing height of 2m above ground level.

The terrain model assumes bare ground and does not take into account the potential screening effects of vegetation and buildings. It is derived from OS Terrain 50 and 5 height data.

Earth curvature and atmospheric refraction have been taken into account.

Cumulative ZTV with Hoy Community

North Coast Viewpoints

1. North of Durness - Seanachaisteal
2. Ben Hope
3. A838 A'Moine peninsula
4. Kyle of Tongue - Achininver beach
5. Torrisdale Bay
6. Strathy Point
7. Melvich Bay/Big House LB
8. Beinn Ratha
9. Reay Kirk LB
10. Forss /Crosskirk/St Mary's Chapel
11. Ben Griam Beg hillfort
12. Dunnet Bay
13. Dunnet Head
14. Castle of Mey LB & GDL
15. St John's Point
16. Beinn Freiceadain hillfort
17. Kyle of Tongue - A838 causeway
18. A836 Between Thurso and Castletown
19. A836 Dounreay

Orkney Viewpoints

20. Scrabster-Stromness Ferry
21. Rackwick Bay
22. Path to Old Man of Hoy
23. Tor Ness, Hoy
24. Warebeth
25. Yesnaby - Brough of Bigging
26. Bay of Skaill
27. Marwick Head Kitchener Memorial
28. Earl's Palace Birsay, Brough Road

- Option Agreement Area
- West Of Orkney Turbines
- West Of Orkney Substations
- Hoy Community Turbines
- 60km Study Area
- North Coast and Orkney Viewpoints

Zone of Theoretical Visibility

West Of Orkney Blade Tip ZTV (theoretical visibility of blades when above hub height)

Hoy Community Blade Tip ZTV (theoretical visibility of blades when above hub height)

Figure 18.14

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N

WGS 1984 UTM Zone 30N

0 1.8 3.5 7 11 km

Scale: 1:500,000

Note:
The ZTV is calculated to turbine tip height (359.52m West of Orkney, 149.9m Armadale) from a viewing height of 2m above ground level.

The terrain model assumes bare ground and does not take into account the potential screening effects of vegetation and buildings. It is derived from OS Terrain 50 and 5 height data.

Earth curvature and atmospheric refraction have been taken into account.

Cumulative ZTV with Armadale

North Coast Viewpoints

1. North of Durness - Seanachaisteal
2. Ben Hope
3. A838 A'Moine peninsula
4. Kyle of Tongue - Achininver beach
5. Torrisdale Bay
6. Strathy Point
7. Melvich Bay/Big House LB
8. Beinn Ratha
9. Reay Kirk LB
10. Forss /Crosskirk/St Mary's Chapel
11. Ben Griam Beg hillfort
12. Dunnet Bay
13. Dunnet Head
14. Castle of Mey LB & GDL
15. St John's Point
16. Beinn Freiceadain hillfort
17. Kyle of Tongue - A838 causeway
18. A836 Between Thurso and Castletown
19. A836 Dounreay

Orkney Viewpoints

20. Scrabster-Stromness Ferry
21. Rackwick Bay
22. Path to Old Man of Hoy
23. Tor Ness, Hoy
24. Warebeth
25. Yesnaby - Brough of Bigging
26. Bay of Skaill
27. Marwick Head Kitchener Memorial
28. Earl's Palace Birsay, Brough Road

- Option Agreement Area
- West Of Orkney Turbines
- West Of Orkney Substations
- Armadale Turbines
- 60km Study Area
- North Coast and Orkney Viewpoints

Zone of Theoretical Visibility

West Of Orkney Blade Tip ZTV (theoretical visibility of blades when above hub height)

Armadale Tip ZTV (theoretical visibility of blades when above hub height)

Figure 18.15

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N

WGS 1984 UTM Zone 30N

0 1.8 3.5 7 11 km

Scale: 1:500,000

360000 370000 380000 390000 400000 410000 420000 430000 440000 450000 460000 470000 480000 490000 500000 510000

6580000 6570000 6560000 6550000 6540000 6530000 6520000 6510000 6500000 6490000 6480000 6470000 6460000 6450000

10km 20km 30km 40km 50km 60km

Note:
The ZTV is calculated to turbine tip height (359.52m West of Orkney, 119m Bettyhill) from a viewing height of 2m above ground level.

The terrain model assumes bare ground and does not take into account the potential screening effects of vegetation and buildings. It is derived from OS Terrain 50 and 5 height data.

Earth curvature and atmospheric refraction have been taken into account.

Cumulative ZTV with Bettyhill

North Coast Viewpoints

1. North of Durness - Seanachaisteal
2. Ben Hope
3. A838 A'Moine peninsula
4. Kyle of Tongue - Achininver beach
5. Torrisdale Bay
6. Strathy Point
7. Melvich Bay/Big House LB
8. Beinn Ratha
9. Reay Kirk LB
10. Forss /Crosskirk/St Mary's Chapel
11. Ben Griam Beg hillfort
12. Dunnet Bay
13. Dunnet Head
14. Castle of Mey LB & GDL
15. St John's Point
16. Beinn Freiceadain hillfort
17. Kyle of Tongue - A838 causeway
18. A836 Between Thurso and Castletown
19. A836 Dounreay

Orkney Viewpoints

20. Scrabster-Stromness Ferry
21. Rackwick Bay
22. Path to Old Man of Hoy
23. Tor Ness, Hoy
24. Warebeth
25. Yesnaby - Brough of Bigging
26. Bay of Skaill
27. Marwick Head Kitchener Memorial
28. Earl's Palace Birsay, Brough Road

- Option Agreement Area
- West Of Orkney Turbines
- West Of Orkney Substations
- Bettyhill Turbines
- 60km Study Area
- North Coast and Orkney Viewpoints

Zone of Theoretical Visibility

West Of Orkney Blade Tip ZTV (theoretical visibility of blades when above hub height)

Bettyhill Blade Tip ZTV (theoretical visibility of blades when above hub height)

Cumulative ZTV with Baillie and Hill of Lybster

Note:
The ZTV is calculated to turbine tip height (359.52m West of Orkney, 110m Baillie and 99.5 Hill of Lybster) from a viewing height of 2m above ground level.

The terrain model assumes bare ground and does not take into account the potential screening effects of vegetation and buildings. It is derived from OS Terrain 50 and 5 height data.

Earth curvature and atmospheric refraction have been taken into account.

North Coast Viewpoints

1. North of Durness - Seanachaisteal
2. Ben Hope
3. A838 A'Moine peninsula
4. Kyle of Tongue - Achininver beach
5. Torrisdale Bay
6. Strathy Point
7. Melvich Bay/Big House LB
8. Beinn Ratha
9. Reay Kirk LB
10. Forss /Crosskirk/St Mary's Chapel
11. Ben Griam Beg hillfort
12. Dunnet Bay
13. Dunnet Head
14. Castle of Mey LB & GDL
15. St John's Point
16. Beinn Freiceadain hillfort
17. Kyle of Tongue - A838 causeway
18. A836 Between Thurso and Castletown
19. A836 Dounreay

Orkney Viewpoints

20. Scrabster-Stromness Ferry
21. Rackwick Bay
22. Path to Old Man of Hoy
23. Tor Ness, Hoy
24. Warebeth
25. Yesnaby - Brough of Bigging
26. Bay of Skaill
27. Marwick Head Kitchener Memorial
28. Earl's Palace Birsay, Brough Road

- Option Agreement Area
- West Of Orkney Turbines
- West Of Orkney Substations
- Baillie and Hill of Lybster Turbines
- 60km Study Area
- North Coast and Orkney Viewpoints

Zone of Theoretical Visibility

West Of Orkney Blade Tip ZTV (theoretical visibility of blades when above hub height)

Baillie and Hill of Lybster Blade Tip ZTV (theoretical visibility of blades when above hub height)

WGS 1984 UTM Zone 30N

0 1.8 3.5 7 11 km

Scale: 1:500,000

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Figure 18.16

N

WGS 1984 UTM Zone 30N

0 1.8 3.5 7 11 km

Scale: 1:500,000

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Figure 18.17

Note:
The ZTV is calculated to turbine tip height (359.52m West of Orkney, 78m Forss 1 & 2, 124.5m Forss 3) from a viewing height of 2m above ground level.

The terrain model assumes bare ground and does not take into account the potential screening effects of vegetation and buildings. It is derived from OS Terrain 50 and 5 height data.

Earth curvature and atmospheric refraction have been taken into account.

Cumulative ZTV with Forss 1-3

North Coast Viewpoints

1. North of Durness - Seanachaisteal
2. Ben Hope
3. A838 A'Moine peninsula
4. Kyle of Tongue - Achininver beach
5. Torrisdale Bay
6. Strathy Point
7. Melvich Bay/Big House LB
8. Beinn Ratha
9. Reay Kirk LB
10. Forss /Crosskirk/St Mary's Chapel
11. Ben Griam Beg hillfort
12. Dunnet Bay
13. Dunnet Head
14. Castle of Mey LB & GDL
15. St John's Point
16. Beinn Freiceadain hillfort
17. Kyle of Tongue - A838 causeway
18. A836 Between Thurso and Castletown
19. A836 Dounreay

Orkney Viewpoints

20. Scrabster-Stromness Ferry
21. Rackwick Bay
22. Path to Old Man of Hoy
23. Tor Ness, Hoy
24. Warebeth
25. Yesnaby - Brough of Bigging
26. Bay of Skaill
27. Marwick Head Kitchener Memorial
28. Earl's Palace Birsay, Brough Road

Option Agreement Area

West Of Orkney Turbines

West Of Orkney Substations

Forss 1-3 Turbines

60km Study Area

North Coast and Orkney Viewpoints

Zone of Theoretical Visibility

West Of Orkney Blade Tip ZTV (theoretical visibility of blades when above hub height)

Forss ZTV 1-3 (theoretical visibility of blades when above hub height)

N

WGS 1984 UTM Zone 30N

0 1.8 3.5 7 11 km

Scale: 1:500,000

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Figure 18.18

Note:
The ZTV is calculated to turbine tip height (359.52m West of Orkney, 110m Strathy North, 180m Strathy Wood and 200m Strathy South) from a viewing height of 2m above ground level.

The terrain model assumes bare ground and does not take into account the potential screening effects of vegetation and buildings. It is derived from OS Terrain 50 and 5 height data.

Earth curvature and atmospheric refraction have been taken into account.

Cumulative ZTV with Strathy North, Strathy Wood and Strathy South

North Coast Viewpoints

1. North of Durness - Seanachaisteal
2. Ben Hope
3. A838 A'Moine peninsula
4. Kyle of Tongue - Achininver beach
5. Torrisdale Bay
6. Strathy Point
7. Melvich Bay/Big House LB
8. Beinn Ratha
9. Reay Kirk LB
10. Forss /Crosskirk/St Mary's Chapel
11. Ben Griam Beg hillfort
12. Dunnet Bay
13. Dunnet Head
14. Castle of Mey LB & GDL
15. St John's Point
16. Beinn Freiceadain hillfort
17. Kyle of Tongue - A838 causeway
18. A836 Between Thurso and Castletown
19. A836 Dounreay

Orkney Viewpoints

20. Scrabster-Stromness Ferry
21. Rackwick Bay
22. Path to Old Man of Hoy
23. Tor Ness, Hoy
24. Warebeth
25. Yesnaby - Brough of Bigging
26. Bay of Skaill
27. Marwick Head Kitchener Memorial
28. Earl's Palace Birsay, Brough Road

- Option Agreement Area
- West Of Orkney Turbines
- West Of Orkney Substations
- Strathy Turbines
- 60km Study Area
- North Coast and Orkney Viewpoints

Zone of Theoretical Visibility

West Of Orkney Blade Tip ZTV (theoretical visibility of blades when above hub height)

Strathy North, Strathy Wood and Strathy South Blade Tip ZTV (theoretical visibility of blades when above hub height)

N

WGS 1984 UTM Zone 30N

0 1.8 3.5 7 11 km

Scale: 1:500,000

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Figure 18.19

Note:
The ZTV is calculated to turbine tip height (359.52m West of Orkney, 149.9m Kirkton and 138.5m Cairnmore) from a viewing height of 2m above ground level.

The terrain model assumes bare ground and does not take into account the potential screening effects of vegetation and buildings. It is derived from OS Terrain 50 and 5 height data.

Earth curvature and atmospheric refraction have been taken into account.

Cumulative ZTV with Kirkton and Cairnmore

North Coast Viewpoints

1. North of Durness - Seanachaisteal
2. Ben Hope
3. A838 A'Moine peninsula
4. Kyle of Tongue - Achininver beach
5. Torrisdale Bay
6. Strathy Point
7. Melvich Bay/Big House LB
8. Beinn Ratha
9. Reay Kirk LB
10. Forss /Crosskirk/St Mary's Chapel
11. Ben Griam Beg hillfort
12. Dunnet Bay
13. Dunnet Head
14. Castle of Mey LB & GDL
15. St John's Point
16. Beinn Freiceadain hillfort
17. Kyle of Tongue - A838 causeway
18. A836 Between Thurso and Castletown
19. A836 Dounreay

Orkney Viewpoints

20. Scrabster-Stromness Ferry
21. Rackwick Bay
22. Path to Old Man of Hoy
23. Tor Ness, Hoy
24. Warebeth
25. Yesnaby - Brough of Bigging
26. Bay of Skaill
27. Marwick Head Kitchener Memorial
28. Earl's Palace Birsay, Brough Road

- Option Agreement Area
- West Of Orkney Turbines
- West Of Orkney Substations
- Kirkton and Cairnmore Turbines
- 60km Study Area
- North Coast and Orkney Viewpoints

Zone of Theoretical Visibility

West Of Orkney Blade Tip ZTV (theoretical visibility of blades when above hub height)

Kirkton and Cairnmore Blade Tip ZTV (theoretical visibility of blades when above hub height)

N

WGS 1984 UTM Zone 30N

0 1.8 3.5 7 11 km

Scale: 1:500,000

360000 370000 380000 390000 400000 410000 420000 430000 440000 450000 460000 470000 480000 490000 500000 510000

6580000 6570000 6560000 6550000 6540000 6530000 6520000 6510000 6500000 6490000 6480000 6470000 6460000 6450000

60km 50km 40km 30km 20km 10km

Note:
The ZTV is calculated to turbine tip height (359.52m West of Orkney, 149.9m Limekiln and 149.9m Limekiln Extension) from a viewing height of 2m above ground level.

The terrain model assumes bare ground and does not take into account the potential screening effects of vegetation and buildings. It is derived from OS Terrain 50 and 5 height data.

Earth curvature and atmospheric refraction have been taken into account.

Cumulative ZTV with Limekiln and Limekiln Extension

North Coast Viewpoints

1. North of Durness - Seanachaisteal
2. Ben Hope
3. A838 A'Moine peninsula
4. Kyle of Tongue - Achininver beach
5. Torrisdale Bay
6. Strathy Point
7. Melvich Bay/Big House LB
8. Beinn Ratha
9. Reay Kirk LB
10. Forss /Crosskirk/St Mary's Chapel
11. Ben Griam Beg hillfort
12. Dunnet Bay
13. Dunnet Head
14. Castle of Mey LB & GDL
15. St John's Point
16. Beinn Freiceadain hillfort
17. Kyle of Tongue - A838 causeway
18. A836 Between Thurso and Castletown
19. A836 Dounreay

Orkney Viewpoints

20. Scrabster-Stromness Ferry
21. Rackwick Bay
22. Path to Old Man of Hoy
23. Tor Ness, Hoy
24. Warebeth
25. Yesnaby - Brough of Bigging
26. Bay of Skaill
27. Marwick Head Kitchener Memorial
28. Earl's Palace Birsay, Brough Road

Option Agreement Area

West Of Orkney Turbines

West Of Orkney Substations

Limekiln and Limekiln Extension Turbines

60km Study Area

North Coast and Orkney Viewpoints

Zone of Theoretical Visibility

West Of Orkney Blade Tip ZTV (theoretical visibility of blades when above hub height)

Limekiln and Limekiln Extension Blade Tip ZTV (theoretical visibility of blades when above hub height)

Figure 18.20

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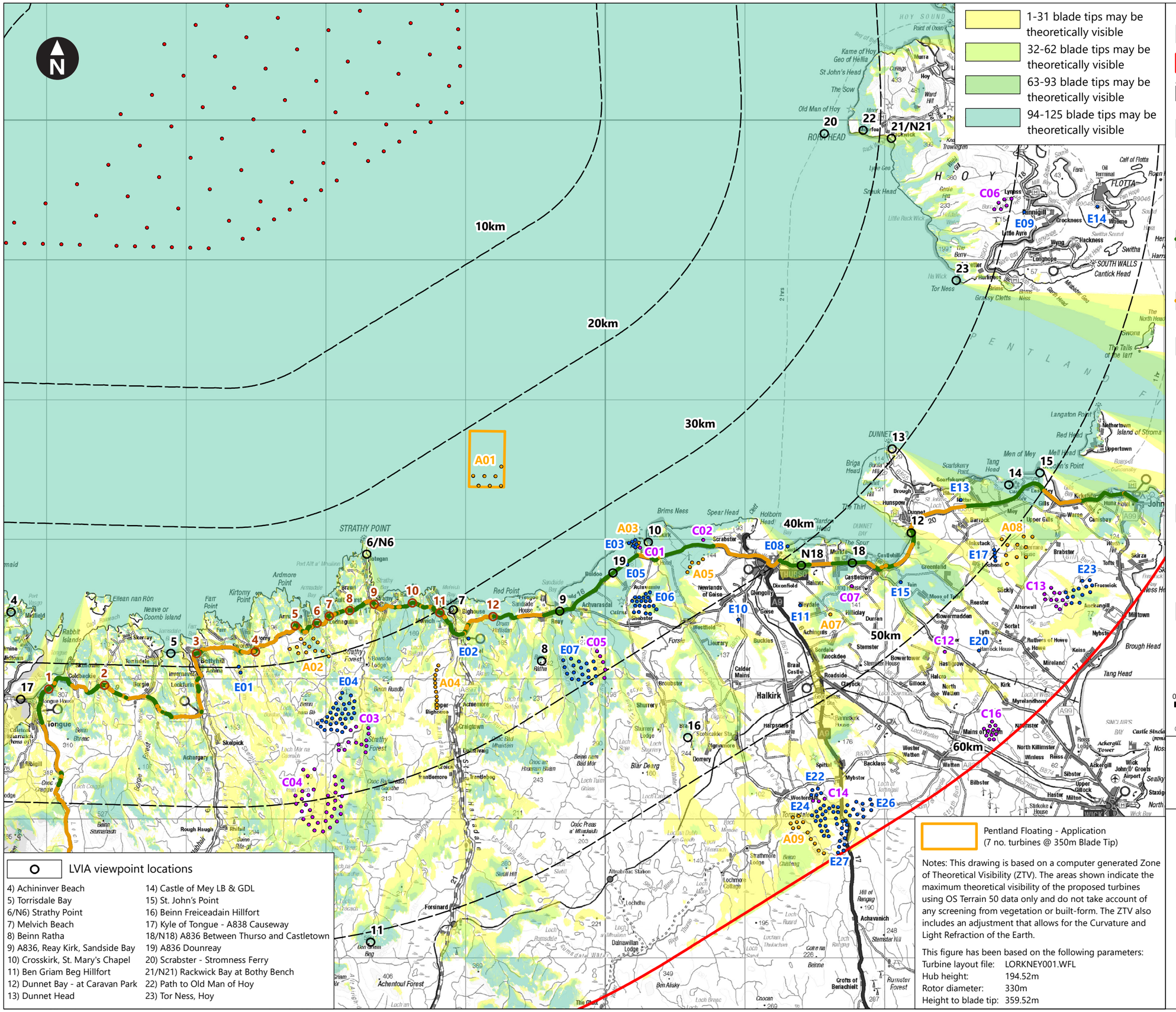
1-31 blade tips may be theoretically visible
32-62 blade tips may be theoretically visible
63-93 blade tips may be theoretically visible
94-125 blade tips may be theoretically visible
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STRATHY POINT
ROAN HEAD
DUNNET BAY
HOY SOUND
PENTLAND FIRTH
Tongue
Melvich
Bighouse
Strathy Forest
Halkirk
Thurso
Castletown
Scrabster
Brough Head
Tang Head
Dunnet Head
Tor Ness
Hoy
FLOTTA
SOUTH WALLS
Cantick Head
Switha
Hackness
Lyness
Crockness
Whitemire
Rinnigill
Little Ayre
Longhope
Grassy Cletts
Stromness
Kirkwall
Scapa Flow
Orkney Mainland
Island of Stroma
Uppertown
Netherstown
Langaton Point
Red Head
Men of Mey
Mell Head
John's Point
Castle of Mey
Brough
Hunspow
Barrock
Upper Gills
Canisbay
Inkstack
Brabster
Skirza
Froswick
Auckengill
Nybster
Keiss
Mireland
Sortat
Roester
Alterwall
Bowermadden
Hastigrow
Halcro
Gillock
North Watten
Watten
Mybster
Spittal
Wester Watten
Bilbster
Upper Gillock
Haster
Milton
Strikoke House
Ackergill
Wick John o' Groats Airport
Sealky
Staxigoe
Wick Bay
North Head
Swona
The Tails of the Iart
Calf of Flotta
Oil Terminal
Pan Howe
Lyrawa
Fara
Cava
Rysa Little
Rysa Sound
Switha Sound
Hoxa
Hoxa Sound
Longhope
Burra Sound
Skerray
Torrisdale
Borgie
Coldbackie
Tongue House
Kyle of Tongue
Rabbit Islands
Eilean nan Ròn
Neave or Coomb Island
Farr Point
Kirtomy Point
Ardmore Point
Armadale Bay
Port Vasgo
Port Allt a' Mhuilinn
Kinloch
Kirtomy
Bettyhill
Invernaver
Lockturin
Achina
Skelpick
Achargary
Rhifail
Rough Haugh
Torrisdale Bay
Coldbackie Bay
Tongue Bay
Kyle of Tongue
Loch Craggie
Loch Caladail
Loch Mòr na Caorach
Loch Buailtean
Loch Na Sithe
Loch Na Seilge
Loch Na Meadhoin
Loch Na Cuaiche
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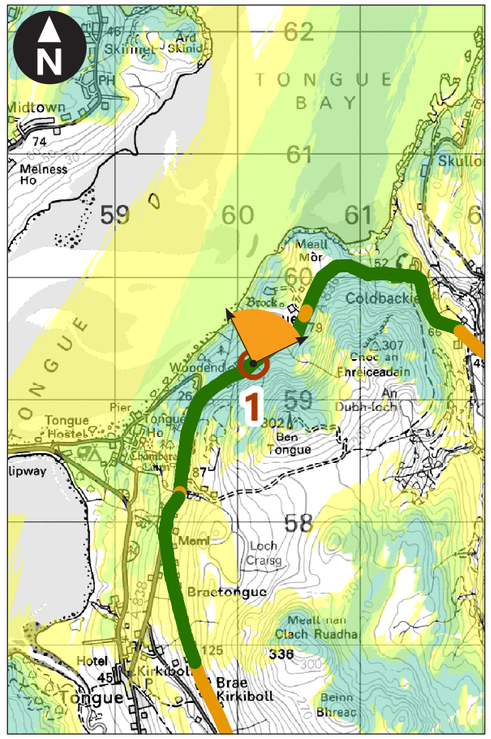
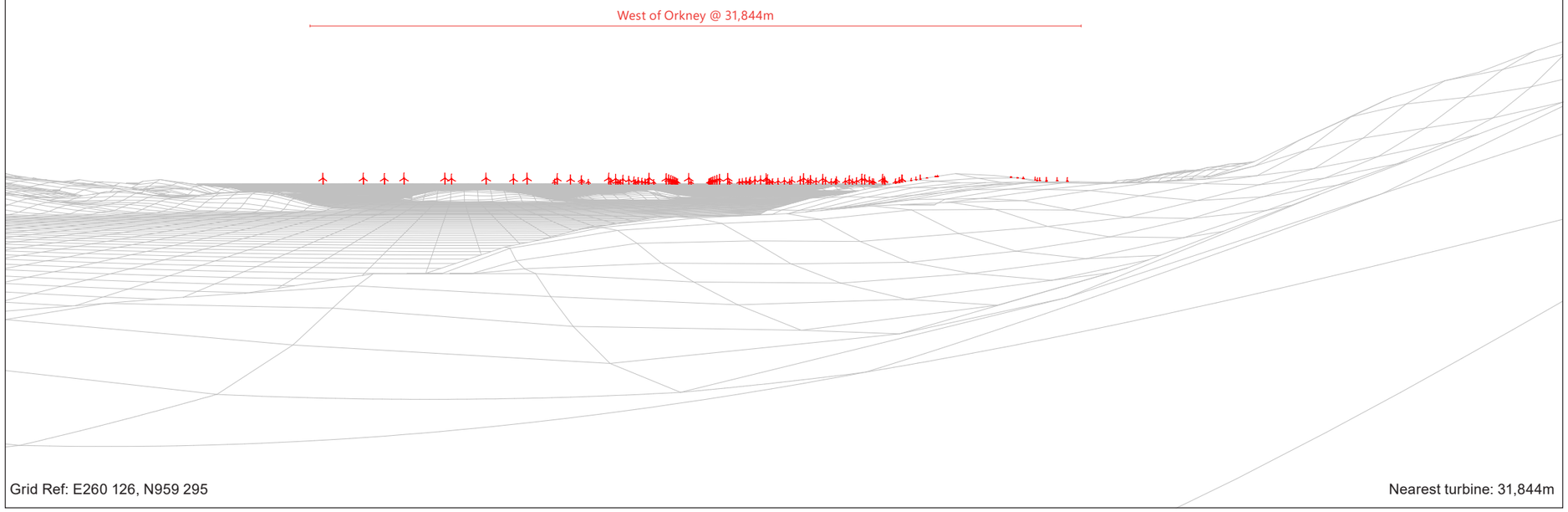
WGS 1984 UTM Zone 30N

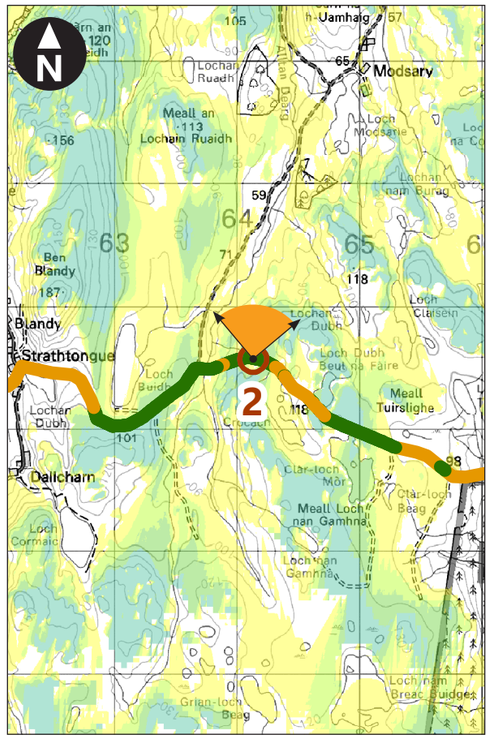


Viewpoint 1 - Tongue

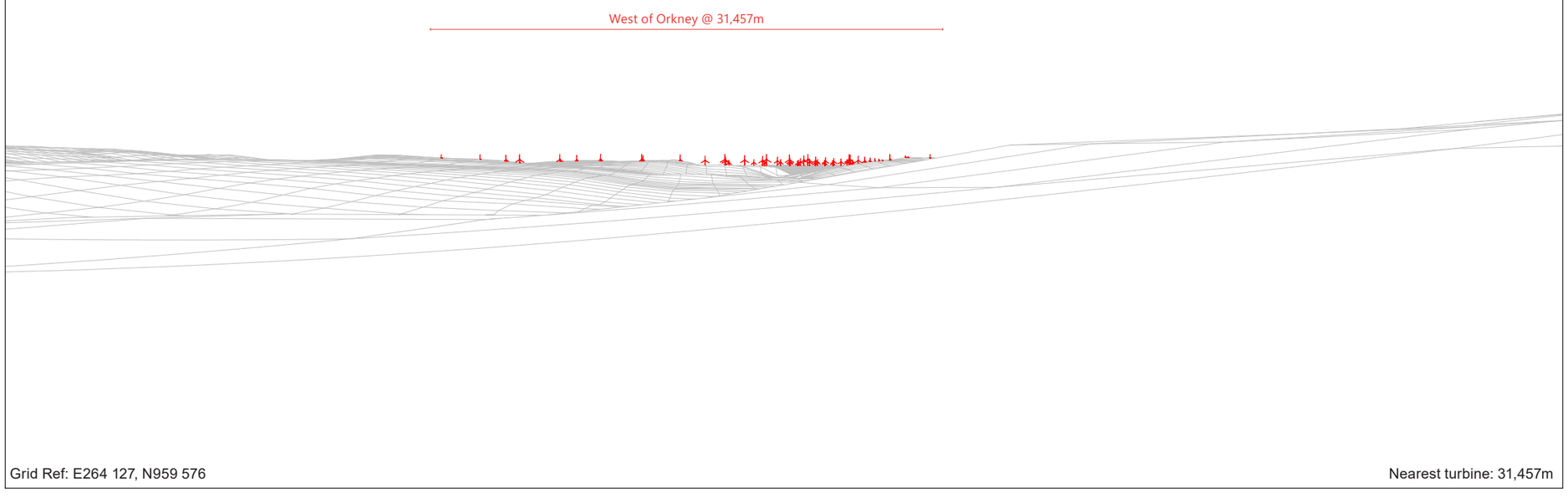


Grid Ref: E260 126, N959 295

Nearest turbine: 31,844m



Viewpoint 2 - Moorland near Loch Cròcach



Grid Ref: E264 127, N959 576

Nearest turbine: 31,457m

0 km 3 km

Scale 1:50,000 @ A3

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Wind Farm Key: West of Orkney Wind Farm; Existing; Consented; Application

Notes:
i) Key for ZTV as illustrated on Figure 18.21a.
ii) Key for cumulative wind farms as illustrated on Figure 18.21a.
iii) The OS Terrain 50 data on the wirelines and ZTV does not take into account the screening effects of any localised landform, vegetation and built-form.
iv) Wirelines illustrate a 90° field of view (unless otherwise stated) and are provided for illustrative purposes only.

Client

West of Orkney Windfarm

Figure 18.21b
A836 Sequential Route Assessment

West of Orkney Offshore Wind Farm

May 2023

wsp

Figure 21.b

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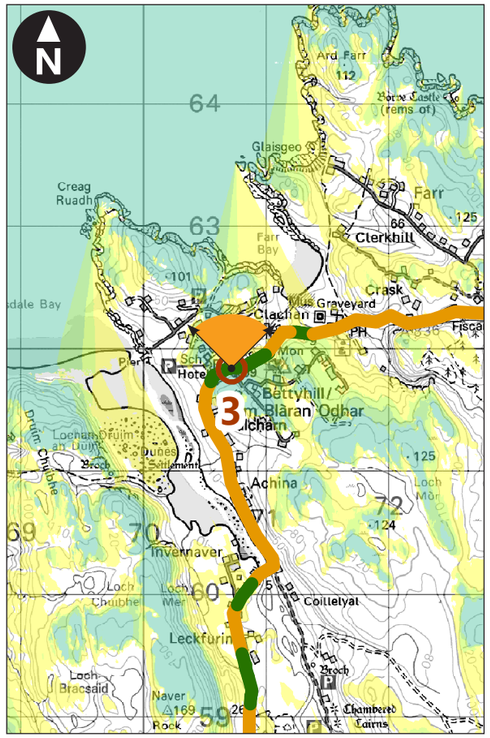
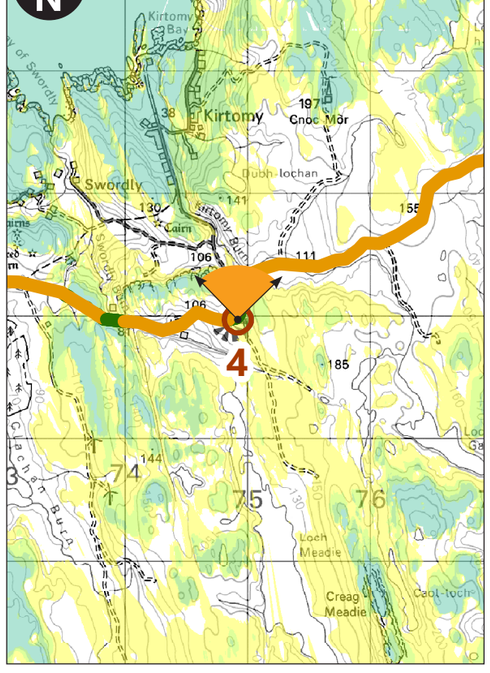
H:\data\Projects\853781WestofOrkneyOffshoreWindFarm\DeliveStage\DDesign_Technical\InDesign\2023-05ExtraFigure18.21b-gSequential853781-FG-SA-00069_R2.indd Originator:wilsc03

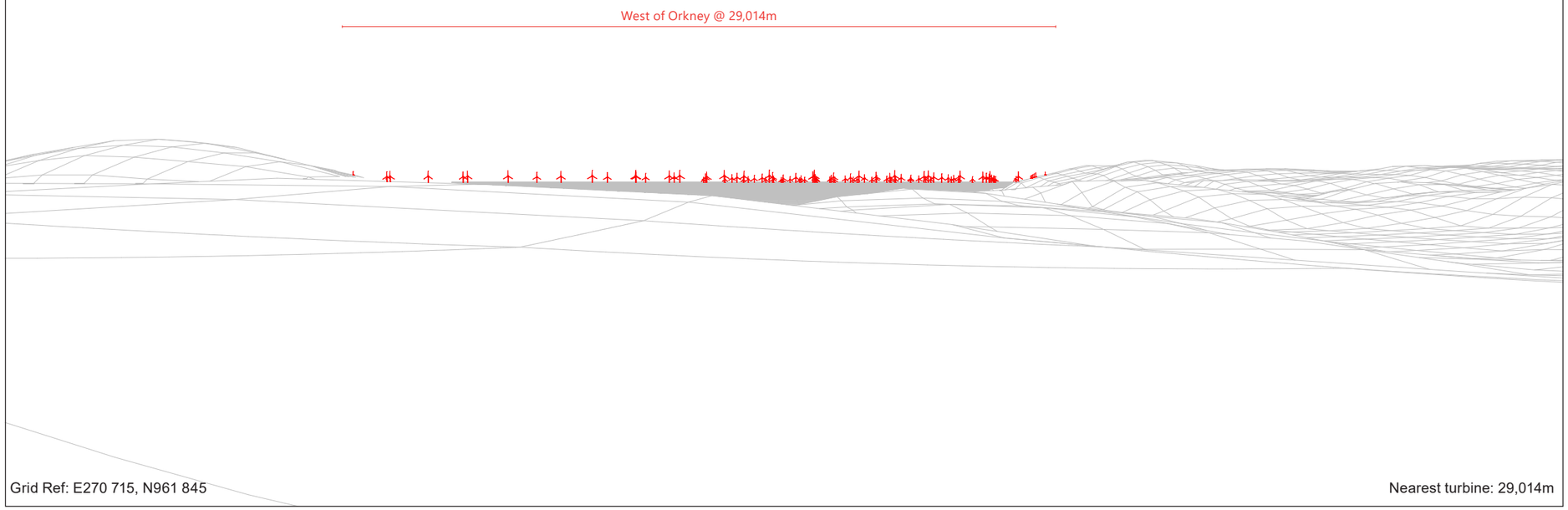
N

WGS 1984 UTM Zone 30N





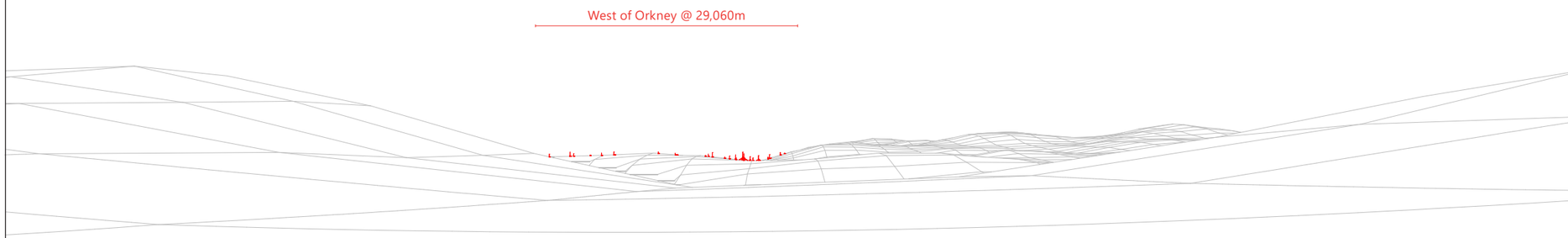
Viewpoint 3 - Bettyhill



Grid Ref: E270 715, N961 845

Nearest turbine: 29,014m

Viewpoint 4 - Kirtomy Burn



Grid Ref: E274 917, N961 976

Nearest turbine: 29,060m

0 km 3 km

Scale 1:50,000 @ A3

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Wind Farm Key: West of Orkney Wind Farm; Existing; Consented; Application

Notes:
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ii) Key for cumulative wind farms as illustrated on Figure 18.21a.
iii) The OS Terrain 50 data on the wirelines and ZTV does not take into account the screening effects of any localised landform, vegetation and built-form.
iv) Wirelines illustrate a 90° field of view (unless otherwise stated) and are provided for illustrative purposes only.

Client

West of Orkney Windfarm

Figure 18.21c
A836 Sequential Route Assessment

West of Orkney Offshore Wind Farm

May 2023

wsp

Figure 21.c

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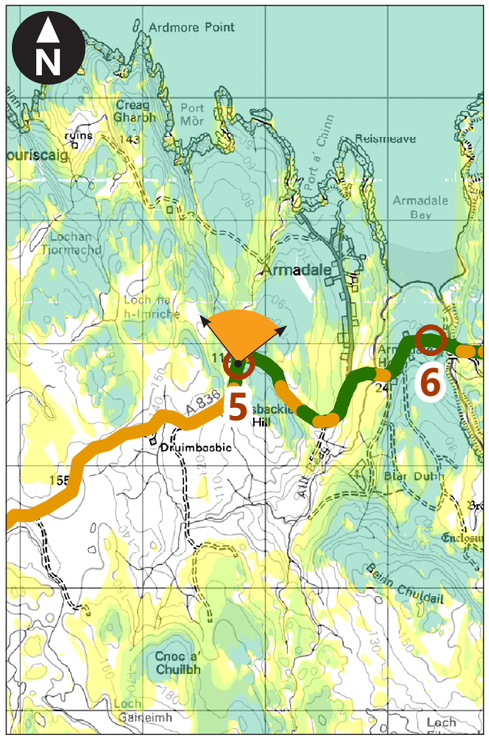
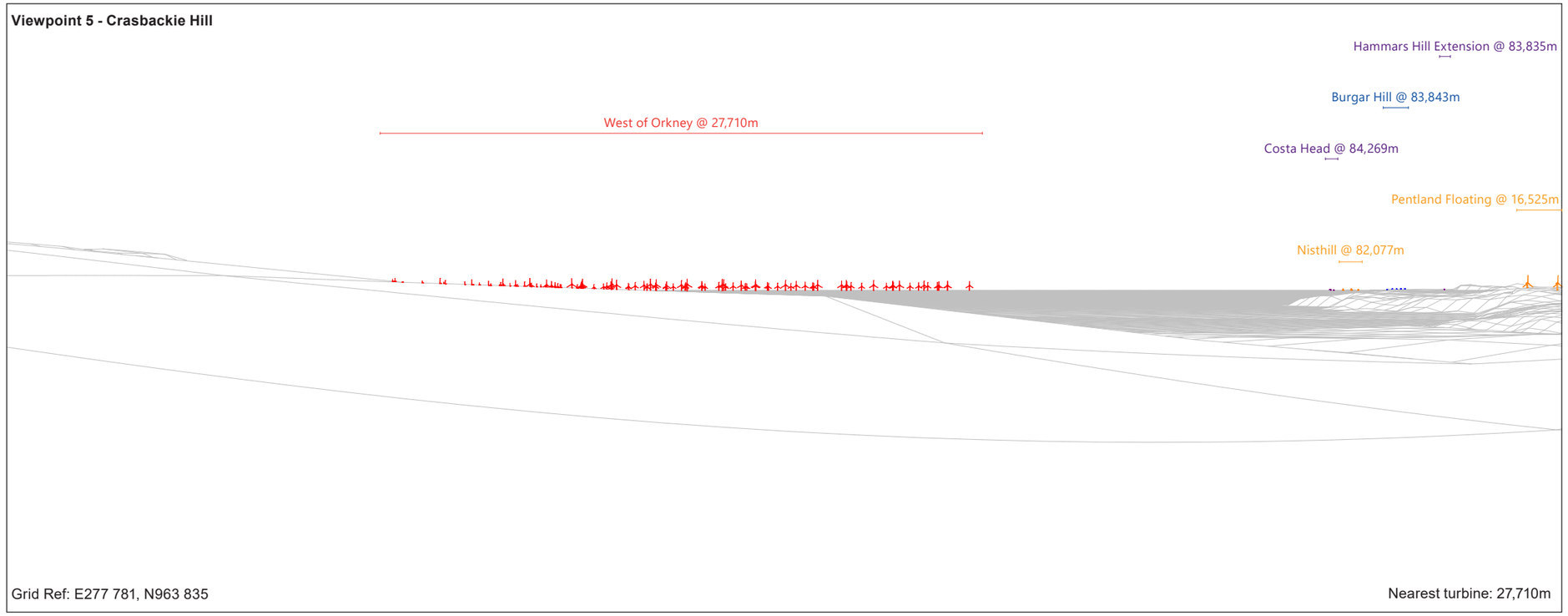
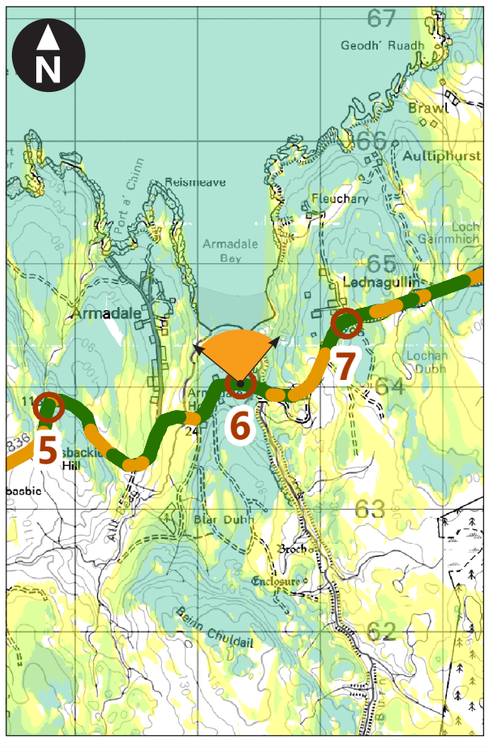
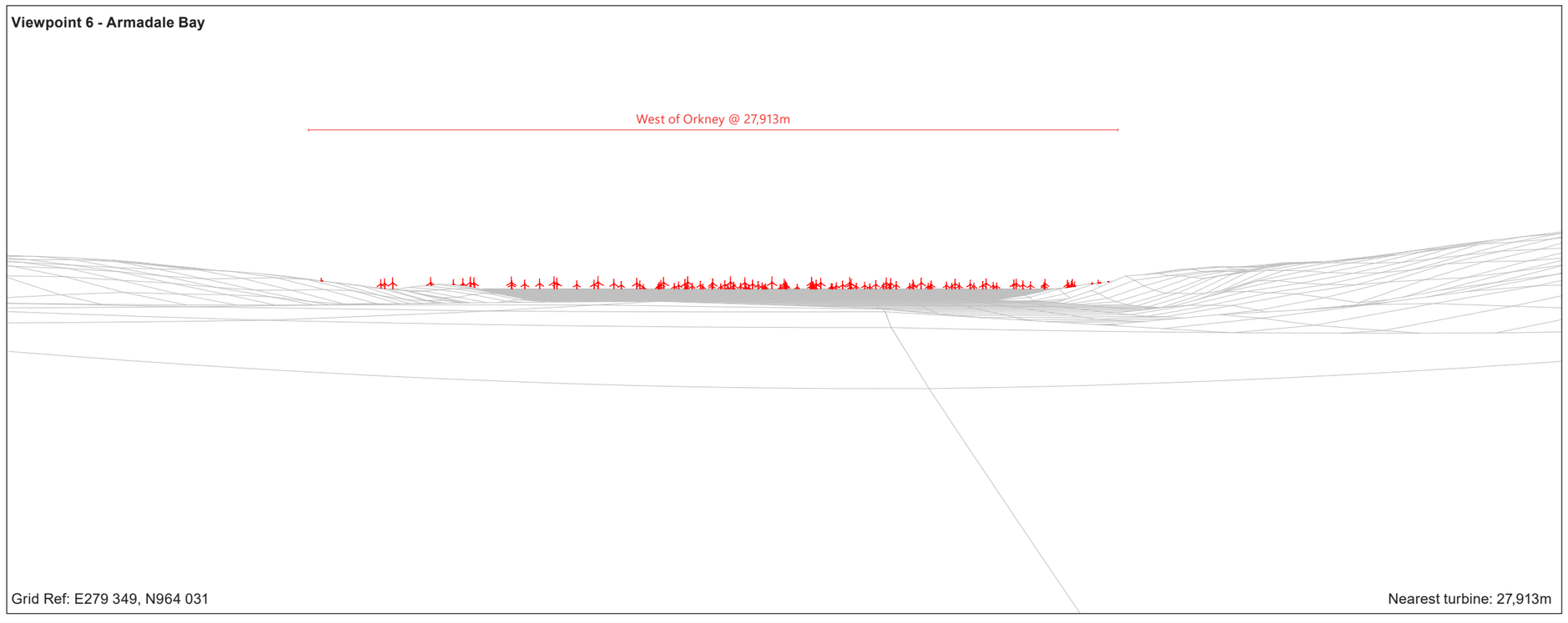
N

WGS 1984 UTM Zone 30N









0 km 3 km

Scale 1:50,000 @ A3

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Wind Farm Key: West of Orkney Wind Farm; Existing; Consented; Application

Notes:
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Client

West of Orkney Windfarm

Figure 18.21d
A836 Sequential Route Assessment

West of Orkney Offshore Wind Farm

May 2023

wsp

Figure 21.d

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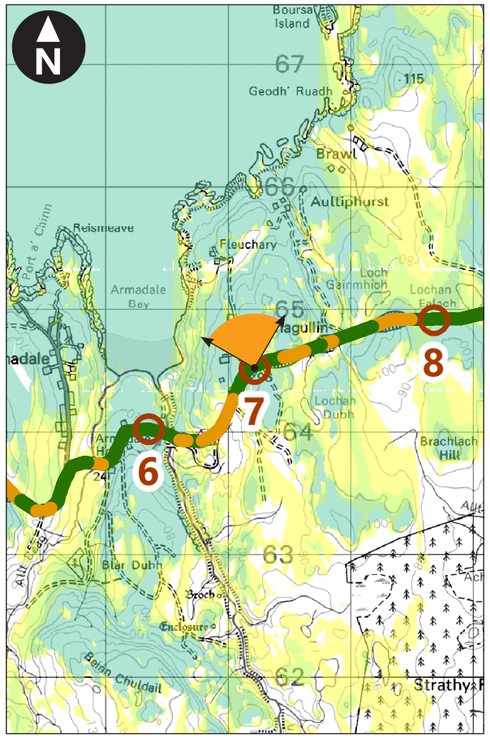
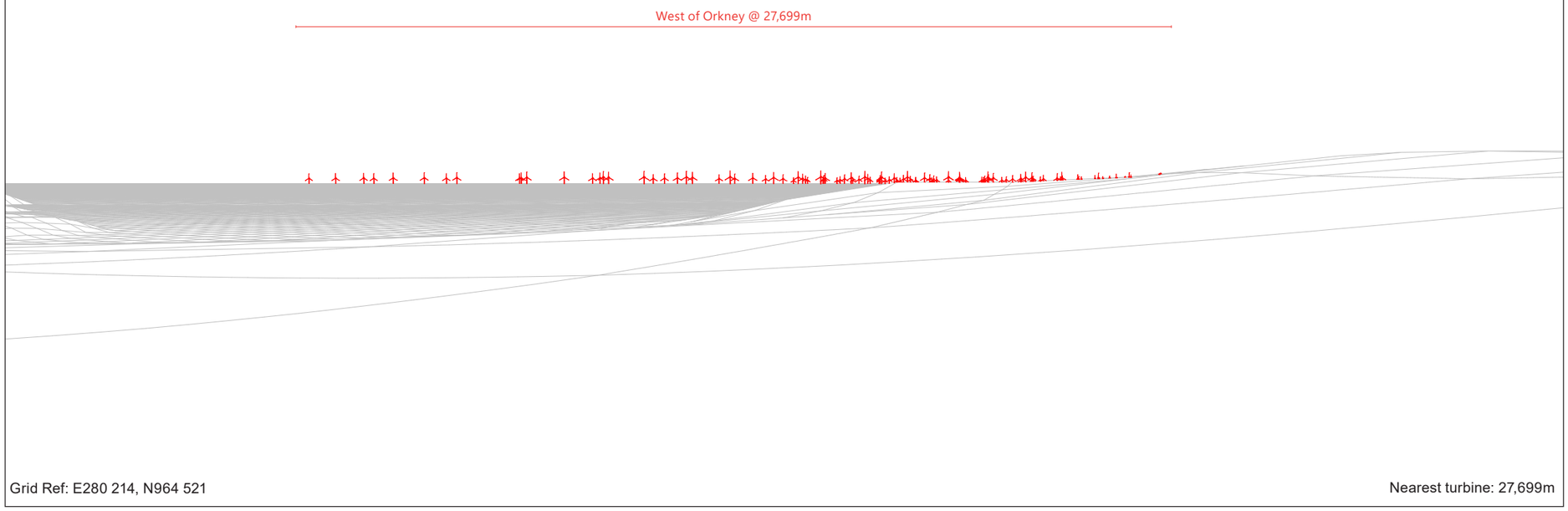
N
WGS 1984 UTM Zone 30N

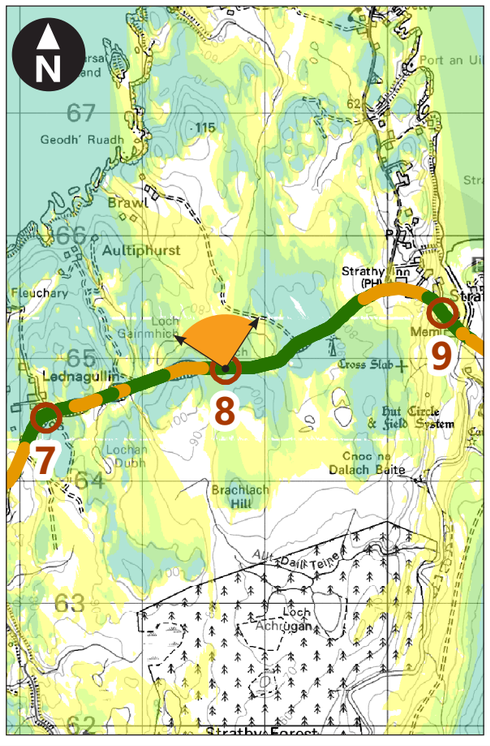


Viewpoint 7 - Lednagullin

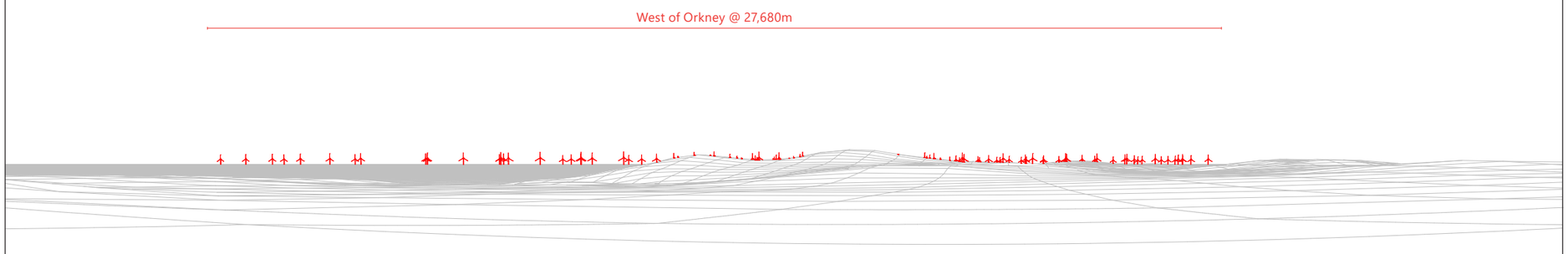


Grid Ref: E280 214, N964 521

Nearest turbine: 27,699m



Viewpoint 8 - Car Park near Lochan Ealach



Grid Ref: E281 678, N964 920

Nearest turbine: 27,680m

0 km 3 km

Scale 1:50,000 @ A3

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Client

West of Orkney Windfarm

Figure 18.21e
A836 Sequential Route Assessment

West of Orkney Offshore Wind Farm

May 2023

wsp

Figure 21.e

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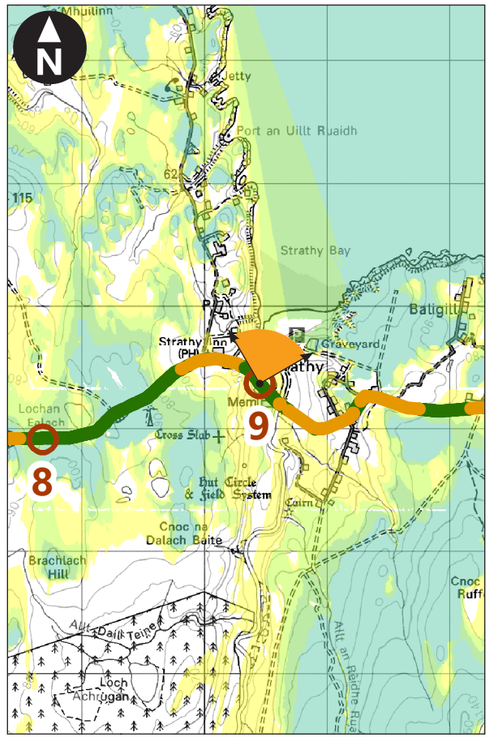
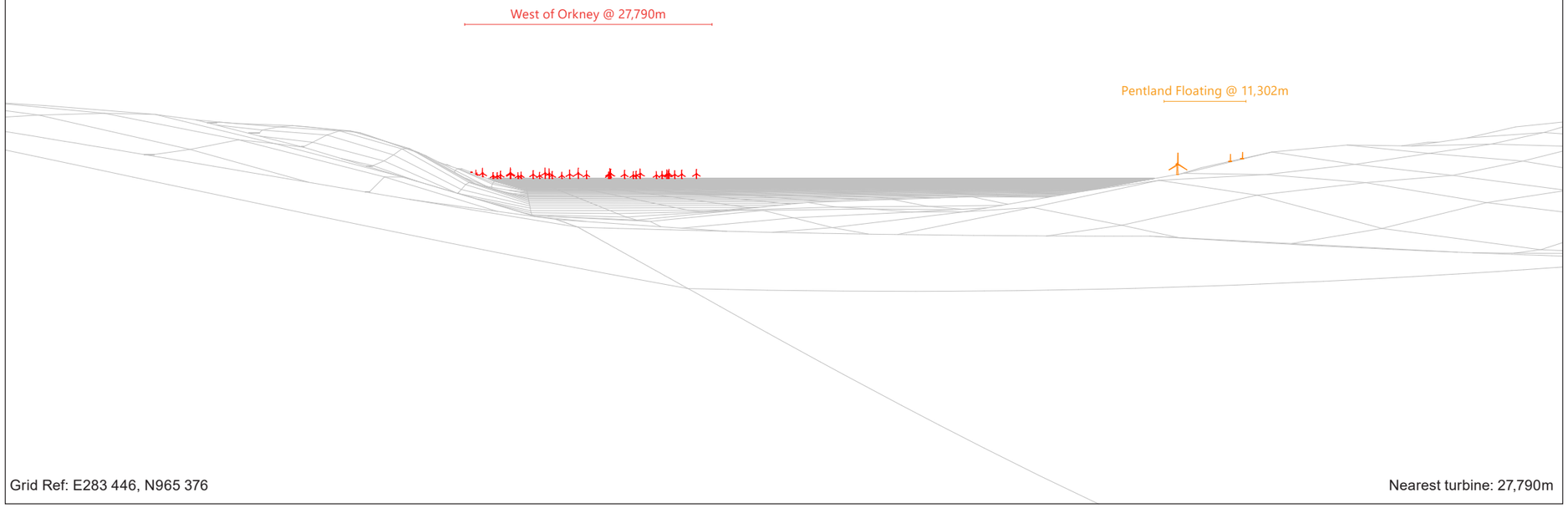
N

WGS 1984 UTM Zone 30N

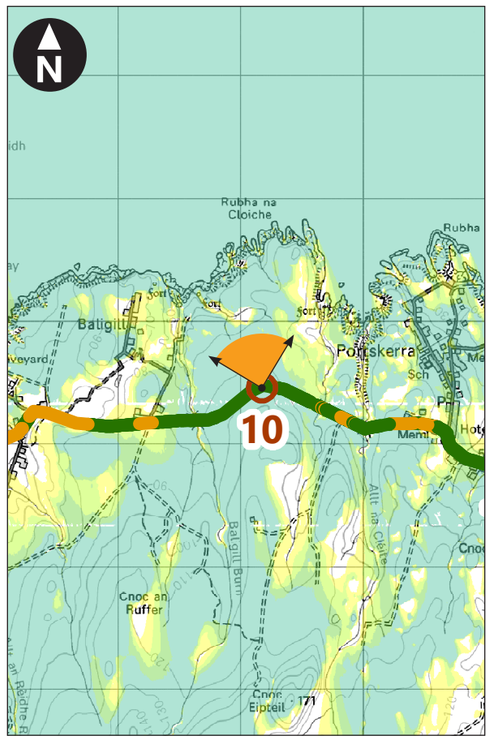


Viewpoint 9 - Strathy Valley

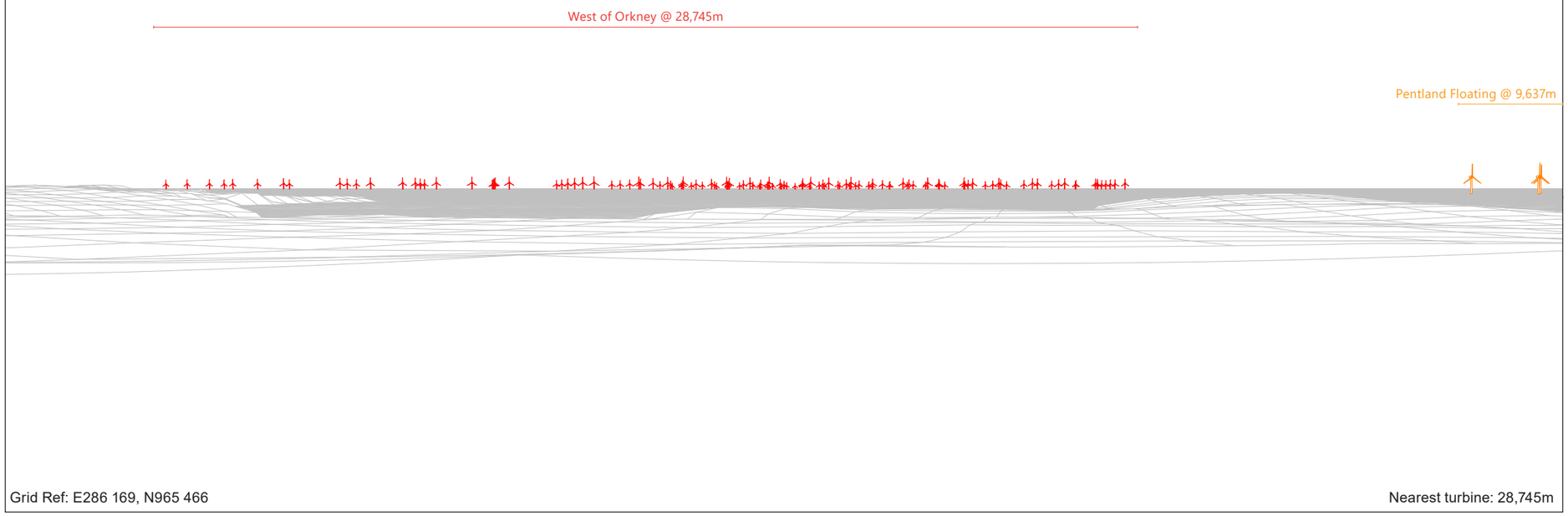


Grid Ref: E283 446, N965 376

Nearest turbine: 27,790m



Viewpoint 10 - Car Park (Signposted Viewpoint)



Grid Ref: E286 169, N965 466

Nearest turbine: 28,745m

0 km 3 km

Scale 1:50,000 @ A3

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Wind Farm Key: West of Orkney Wind Farm; Existing; Consented; Application

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Client: West of Orkney Windfarm

Figure 18.21f
A836 Sequential Route Assessment

West of Orkney Offshore Wind Farm

May 2023

wsp

Figure 21.f

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N
WGS 1984 UTM Zone 30N

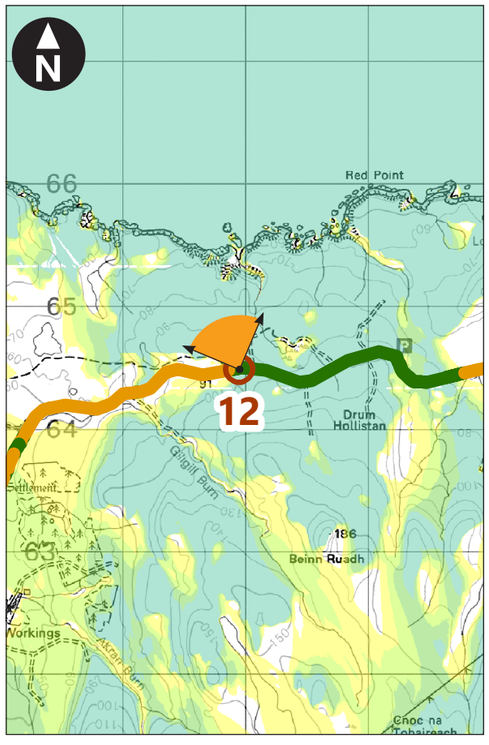


Viewpoint 11 - Melvich

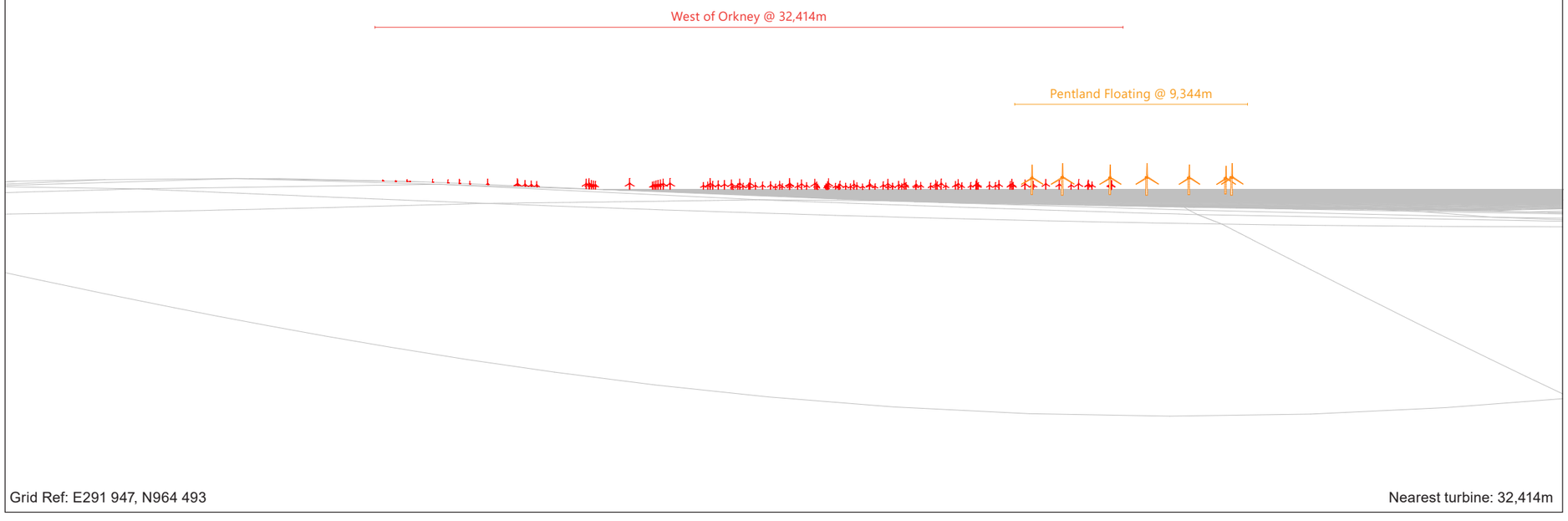


Grid Ref: E288 140, N964 767

Nearest turbine: 30,248m



Viewpoint 12 - Mackay Country Landmark



Grid Ref: E291 947, N964 493

Nearest turbine: 32,414m

0 km 3 km

Scale 1:50,000 @ A3

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Client

West of Orkney Windfarm

Figure 18.21g
A836 Sequential Route Assessment

West of Orkney Offshore Wind Farm

May 2023

wsp

Figure 21.g

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