

## Seagreen S36C Application

### Screening Report

January 2022

## Annex 2 – Seagreen Offshore Wind Farm Seascape, Landscape and Visual Review to inform the Screening Report

ERM

# Seagreen Offshore Wind Farm

## Seascape, Landscape and Visual Review to inform the Screening Report

Prepared by LUC  
January 2022



## ERM

### Seagreen Offshore Wind Farm

#### Seascape, Landscape and Visual Review to inform the Screening Report

**Project Number**  
11840

Version	Status	Prepared	Checked	Approved	Date
1.	Draft	LUC	LUC	LUC	21.12.2021
2.	Final	LUC	LUC	LUC	06.01.2021

Bristol  
Edinburgh  
Glasgow  
London  
Manchester  
  
landuse.co.uk

Land Use Consultants Ltd  
Registered in England  
Registered number 2549296  
Registered office:  
250 Waterloo Road  
London SE1 8RD  
  
100% recycled paper

Landscape Design  
Strategic Planning & Assessment  
Development Planning  
Urban Design & Masterplanning  
Environmental Impact Assessment  
Landscape Planning & Assessment  
Landscape Management  
Ecology  
Historic Environment  
GIS & Visualisation



# Contents

---

<b>Chapter 1</b>	
<b>Introduction</b>	<b>1</b>

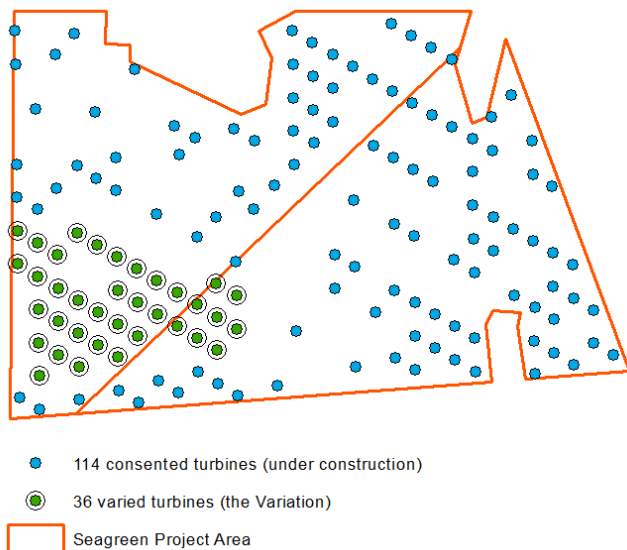
---

<b>Chapter 2</b>	
<b>Potential effects</b>	<b>2</b>
Changes in relation to the 2012 ES	2
Visualisations	3
Potential for changes in effects	5



# Chapter 1

## Introduction



**Figure 1:** Consented Seagreen turbine layout, identifying the 36 turbines that form the proposed Variation, clustered in the south-east

**1.1** LUC was appointed in December 2021 to undertake a review of the potential seascape, landscape and visual effects associated with a proposed variation ('the Variation') to the consented Seagreen Offshore Wind Farm ('the Seagreen Project').

**1.2** The Seagreen Project received consent in 2014. 114 of the 150 consented turbines are currently under construction (beginning in September 2021) and have a grid connection into Tealing, Angus. The Variation seeks to allow for changes principally in the parameters of the 36 turbines that are consented but not under construction. This report considers the effect of these changes on seascape, landscape and visual receptors, and forms an Appendix to the Screening Report being submitted to Marine Scotland.

**1.3** The 2014 Consents allow for the construction of 150 offshore wind turbines, with maximum height to blade tip of 209.7m above lowest astronomical tide (LAT), and a maximum rotor diameter of 167m.

**1.4** The Variation seeks consent to increase the size of 36 turbines to a maximum blade tip height of 285m above LAT, with maximum rotor diameter of 242m ('the varied turbines'). The remaining 114 turbines will be built within the consented dimensions, at 205m blade tip height above LAT and 164m rotor diameter. No changes to the turbine locations are proposed, and these remain as set out in the Development Specification and Layout Plan (DSLP).

**1.5** This report considers the potential for the Variation to have effects on seascape, landscape and visual receptors that are different to the effects set out in Chapter 16 of the 2012 Seagreen Environmental Statement ('the 2012 ES'). Wireline views have been generated to show the consented wind farm alongside the proposed Variation, from each of the eight 2012 ES viewpoints.

**1.6** The review has been undertaken by Chartered Members of the Landscape Institute (CMLI) at LUC. No site visits have been undertaken as part of this review.

## Chapter 2

### Potential effects

#### Changes in relation to the 2012 ES

**2.1** Chapter 16 of the 2012 ES presents an assessment of the effects of the Seagreen Project on seascape, landscape and visual receptors, and was undertaken in accordance with best practice guidance that was current at the time. While some of this guidance has been updated, notably the third edition of *Guidelines for Landscape and Visual Impact Assessment* (GLVIA3) in 2013, this would not materially affect the findings of the seascape, landscape and visual impact assessment (SLVIA).

**2.2** For the purposes of the 2012 ES, the Seagreen Project was considered as two developments of 75 turbines: Seagreen Alpha and Seagreen Bravo; and the combined effects of both schemes were considered separately. This review considers the combined effects as the scheme is now being developed as a single project: the varied turbines are within the Seagreen Project Area and are mainly, but not entirely, within the former Seagreen Alpha (see Figure 1).

#### Baseline

**2.3** Seascape baseline is set out in the Regional Seascape Character Assessment: Aberdeen to Holy Island, prepared for the Forth and Tay Offshore Wind Developer Group (Appendix K2 to the 2012 ES). This divides the coast into 21 seascape character areas, and provides a description for each along with an assessment of sensitivity to offshore wind farm development. While some development and other localised changes have taken place, this does not affect the regional scale assessment, which still provides a reliable baseline for assessment.

**2.4** Onshore landscape character is drawn from a series of regional character assessments. These have been replaced by Nature Scot's national landscape character assessment,<sup>1</sup> although the content of the published material remains largely the same.

**2.5** Since the publication of the 2012 ES, landscape designations have been introduced in Aberdeenshire.<sup>2</sup> The South East Aberdeenshire Coast Special Landscape Area (SLA) covers the coast from Portlethen in the north to St Cyrus in the south, within seascape character area SA3: Cove

---

<sup>1</sup> Nature Scot: [Scottish Landscape Character Types Map and Descriptions](#)

<sup>2</sup> Aberdeenshire Council (2016) [Aberdeenshire Special Landscape Areas: Supplementary Guidance](#)

Bay to Milton Ness. The presence of this designation indicates value placed on the coastal landscape, which influences its sensitivity. If the sensitivity of SA3 were to be reconsidered with the designation in place, the sensitivity to offshore development would likely be medium-high rather than medium.

**2.6** Effects on visual amenity were considered in relation to eight representative viewpoints, as well as the main receptor groups (residents, tourists, marine users, etc). The coastal outlook has not greatly changed from any of the key viewpoints, and there are no reasons to reconsider the main receptor groups.

**2.7** Other than the introduction of the South East Aberdeenshire Coast SLA, no substantive changes in baseline have taken place that would affect the outcome of the SLVIA.

### Cumulative baseline

**2.8** The 2012 ES considered the cumulative impacts of the Project alongside the Inch Cape and Neart na Gaoithe offshore wind farms, as well as a number of onshore wind farms. Neart na Gaoithe is now under construction. Subsequent applications to increase the turbine size of Inch Cape have received consent. In addition, the Kincardine floating offshore wind farm has been constructed. These schemes have been modelled into the cumulative wirelines on the basis of the following data.

**Table 2.1: Cumulative wind farms**

Wind farm	Number of Turbines	Tip height (m)	Rotor diameter (m)
Inch Cape <sup>3</sup>	72	291	250
Kincardine	6	191	164
	1	106	80
Neart na Gaoithe	54	208	167

**2.9** A variation to the Forthwind offshore wind farm in the Firth of Forth remains in planning, though due to its location it would not be visible from any of the 2012 ES viewpoints. A Scoping Report for Berwick Bank Offshore Wind Farm has been published, but limited project information is available. These schemes have not been modelled in to the cumulative wirelines.

### Findings of the 2012 ES

**2.10** The findings of the SLVIA are presented in Tables 16.29a and 16.29b of the 2012 ES, and significant effects are summarised below.

**2.11** Potentially significant (moderate adverse) effects during operation were identified for two seascape character areas: SA3 Cove Bay to Milton Ness; and SA4 Montrose Bay. No significant effects were found on landscape character or designations.

**2.12** Potentially significant (moderate adverse) effects on visual amenity were identified at two representative viewpoints: VP2 Kirkton, St Cyrus; and VP5: Braehead of Lunan. More generally, potentially significant effects were identified for high sensitivity receptors, including residents, recreational users and marine users, within 35km of the offshore turbines.

**2.13** No significant effects were identified during construction. Effects during construction have not been considered further in this report. No significant night time effects were identified as a result of turbine lighting. No changes to lighting are proposed, and night time effects are not considered further in this report.

**2.14** When considering the presence of offshore wind farms (Neart na Gaoithe and Inch Cape), potentially significant cumulative effects were identified on SA3 (moderate adverse) and SA4 (major/moderate adverse), and also SA5 Long Craig and SA6 Lunan Bay (moderate adverse).

**2.15** Significant (major/moderate) cumulative visual effects were noted for VP2 Kirkton, St Cyrus, and VP5 Braehead of Lunan. This was mainly due to the interaction of Seagreen with Inch Cape in the seaward view.

### Visualisations

**2.16** Wireline visualisations have been generated to show the appearance of the proposed Variation. Wirelines show the consented and Variation schemes side-by-side for each of the eight assessment viewpoints used in the 2012 ES (see Table 2.2). A second page for each viewpoint shows the same pair of views with the cumulative wind farms listed in Table 2.1 included.

**2.17** Observations on the wirelines, focusing on the difference in visual appearance between the consented and Variation schemes, are set out in Table 2.2. The potential for changes in seascape, landscape and visual effects is discussed in the concluding sections.

<sup>3</sup> No up to date layout information was available for Inch Cape, so an indicative 72 turbine layout was developed by LUC using previous published layouts for this scheme as a general guide.

Table 2.2: Observations on wireline visualisations

VP No.	Viewpoint	Distance (approx.)	Seagreen only (including the Variation)	Cumulative
VP1	Garron Point	38 km	The difference in height between the consented and proposed turbines is likely to be imperceptible, as the varied turbines are among the most distant.	The cumulative schemes are distant and do not alter perception of the difference in turbine height.
VP2	Beach Road Kirkton St. Cyrus	31 km	The closest viewpoint. The difference in height between the consented and proposed turbines is likely to be discernible in the view, particularly as the varied turbines are seen in rows.	The larger Inch Cape turbines are seen alongside Seagreen, diminishing the apparent difference between the consented and varied turbines.
VP3	White Caterthun Hill Fort	51 km	Although the difference in turbine height is discernible when comparing the wirelines on the page, at over 50km distance it is likely that atmospheric visibility will make the size difference between the turbines imperceptible in the view.	All four wind farms are theoretically visible, though details of turbine dimensions are unlikely to be discernible at this distance.
VP4	Montrose	32 km	From sea level, the hubs of the consented turbines are at the horizon. The larger varied turbines appear with hubs just above the horizon, so the difference is just discernible.	The larger Inch Cape turbines are seen closer than Seagreen, diminishing the apparent difference between the consented and varied turbines of the more distant scheme.
VP5	Braehead of Lunan	35 km	The larger size of the varied turbines is discernible in this elevated view, though the difference is unlikely to be clearly noticeable.	The larger Inch Cape turbines are seen alongside Seagreen, diminishing the apparent difference between the consented and varied turbines.
VP6	Arbroath Signal Tower	40 km	In this more distant sea-level view, the varied turbines are more visible than the consented, though they will still appear as just hubs and upper blades on the horizon.	The larger varied turbines are seen behind Inch Cape, and the difference in size is unlikely to be discernible.
VP7	Carnoustie	48 km	The consented scheme is barely visible from this viewpoint, and the varied turbines will be just visible as turbine blades.	Seagreen is entirely behind Inch Cape, and would not be discernible in the view.
VP8	Fife Ness	49 km	Similar to VP7, the upper blades of the varied turbines will be barely visible above the horizon.	Seagreen is entirely behind Inch Cape, and would not be discernible in the view.

## Potential for changes in effects

**2.18** The focus of this section is the difference between the turbines of the proposed Variation when compared to the consented Seagreen Project. Although minor changes to the baseline have been noted, and changes to the cumulative offshore situation, this section primarily considers the additional effects of the increased dimensions of the 36 varied turbines.

**2.19** As noted above, significant effects on coastal seascape were identified for two seascape character areas, with cumulative effects on two more. With reference to the viewpoints located within those seascape character areas (VPs 1, 2, 4 and 5), the changes in the coastal outlook as a result of the Variation would be very small. It is judged that no additional effects on seascape character would occur. Even considering the slight increase in sensitivity that may be attributed to SA3 as a result of the SLA designation, no additional level of effect would be anticipated as a result of the Variation.

**2.20** With reference to the other visualisations, it is judged that the Variation would not alter the outlook from other seascape character areas, such that the predicted level of effect would be increased.

**2.21** In terms of visual effects, the observations in Table 2.2 suggest that the difference in turbine dimensions between the consented and Variation schemes is likely to be discernible but not especially noticeable for a number of views.

**2.22** The views where significant effects were previously noted (VP2 and VP5) are those where the difference appears most clear. However, factors such as atmospheric visibility will reduce the clarity of the view. It is judged that at these viewpoints the Variation would not lead to any increase in the level of effect on the view.

**2.23** In relation to other viewpoints, it is judged that the change in view will be minimal, and would not be sufficient to raise any effect above the level of significance.

**2.24** By extension, no changes in the outlook experienced by the receptor groups assessed would be so great as to increase the level of effect on the receptor.

**2.25** When considering cumulative effects, the additional effect of the Seagreen Project in combination with other offshore wind farms is to increase the horizontal spread of turbines across the seaward horizon. In terms of apparent turbine size, the presence of the larger Inch Cape turbines at generally closer distances tends to diminish the apparent size difference between the consented and varied turbines. In other cases, Inch Cape would appear in front of the Seagreen Project, which would render the more distant scheme barely perceptible in the view. It is judged that no additional

cumulative effects would occur as a result of the proposed Variation. No clear conclusion can be drawn in relation to Berwick Bank offshore wind farm, as the details of this scheme remain unknown.

## Conclusion

**2.26** This report has examined the proposed Variation of turbine dimensions for 36 of the 150 consented Seagreen turbines. The SLVIA within the 2012 ES assessed the effects of the consented scheme, and no substantive changes to the assessment baseline have been identified. The SLVIA therefore remains an accurate assessment of the effects of the consented scheme.

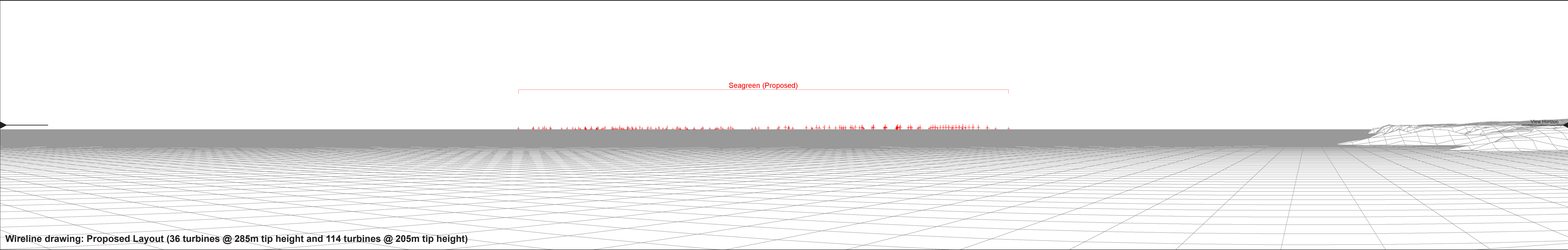
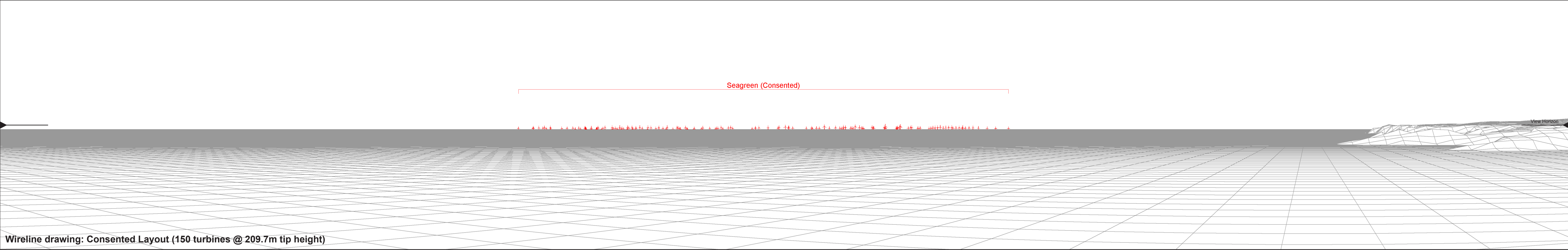
**2.27** Wireline visualisations have been generated to show the consented and Variation schemes side by side, both on their own and with other offshore wind farms shown. The difference in turbine height between the consented and varied turbines are often barely discernible, and are unlikely to be clearly noticeable in any view.

**2.28** It is judged that the changes to the appearance of the wind farm arising from the proposed Variation would not be sufficient to increase the level of effect experienced by any seascape, landscape or visual receptor. The distribution of significant effects would be the same for the proposed Variation as was set out in the 2012 ES.

**2.29** On this basis, it is judged that there is no requirement to undertake SLVIA for the proposed Variation, as the findings would not be materially different to the findings of the 2012 ES.



© Crown copyright and database rights 2021 Ordnance Survey data Licence number: 0100091673

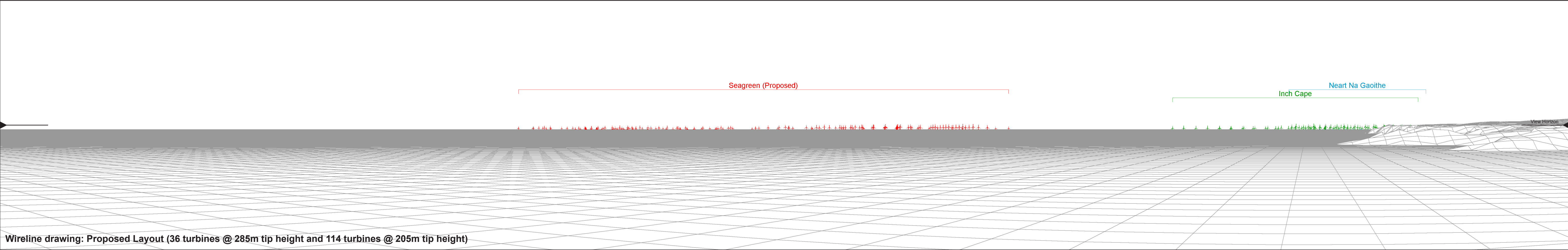
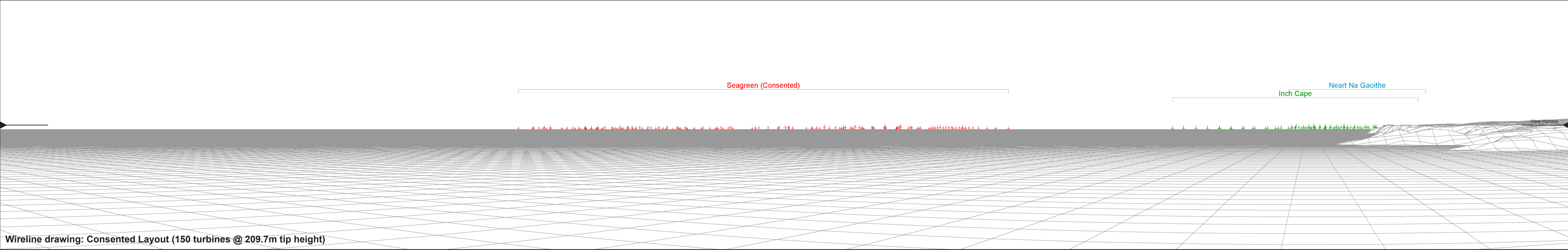


OS reference:	388587E 787597N	Horizontal field of view:	90° (cylindrical projection)
AOD:	58 m	Principal distance:	522 mm
Direction of view:	150°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	37.9 km	Correct printed image size:	820 x 260 mm

Seagreen Wind Farm

Viewpoint 1: Garron Point

© Crown copyright and database rights 2021 Ordnance Survey data Licence number: 0100051673



OS reference: 388587E 787597N  
AOD: 58 m  
Direction of view: 150°  
Nearest turbine: 37.9 km

Horizontal field of view: 90° (cylindrical projection)  
Principal distance: 522 mm  
Paper size: 841 x 297 mm (half A1)  
Correct printed image size: 820 x 260 mm

Wind Farm Developments key  
(by status):

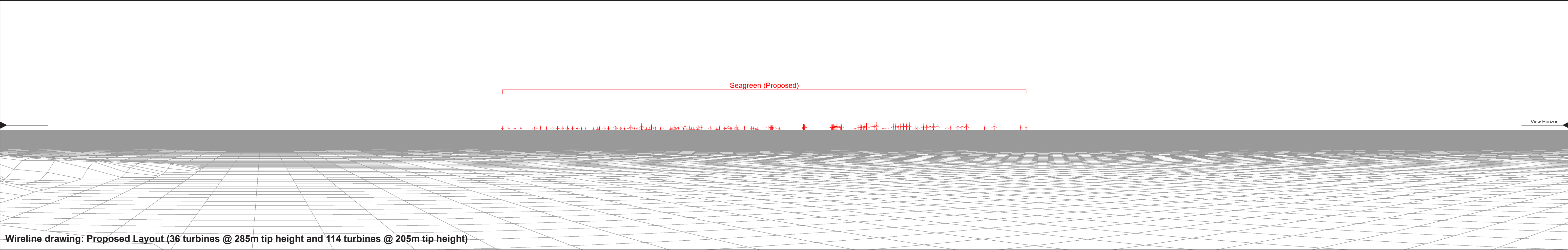
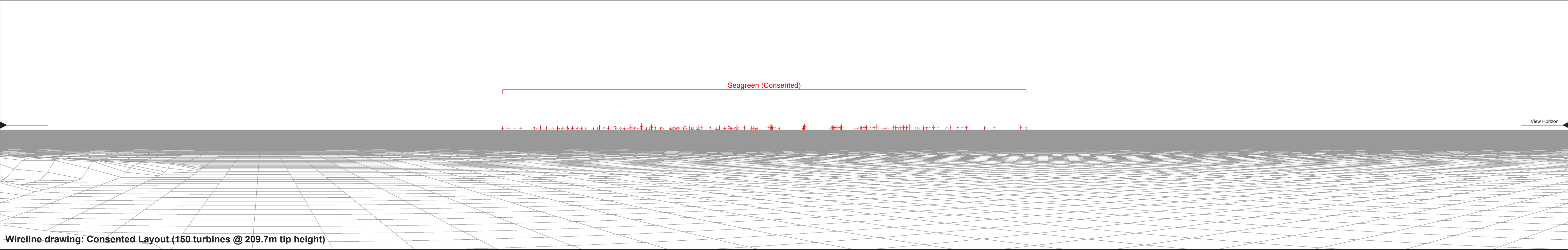
Seagreen  
Operational  
Under construction  
Consented

Seagreen Wind Farm

Viewpoint 1: Garron Point



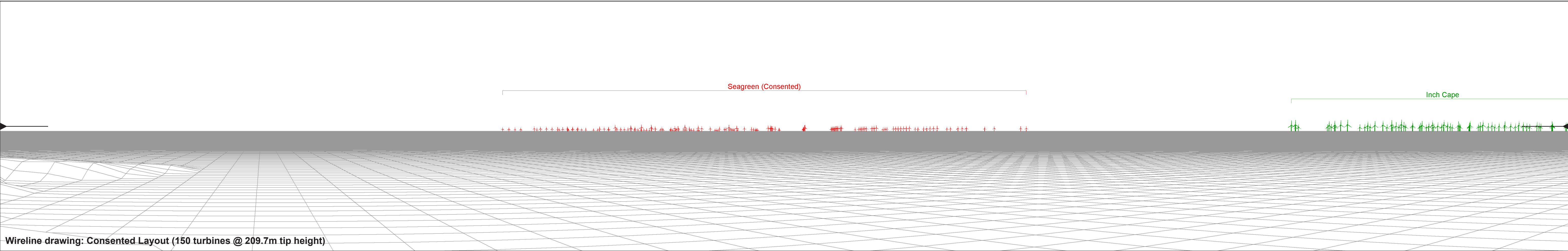
© Crown copyright and database rights 2021 Ordnance Survey data licence number 0100051673



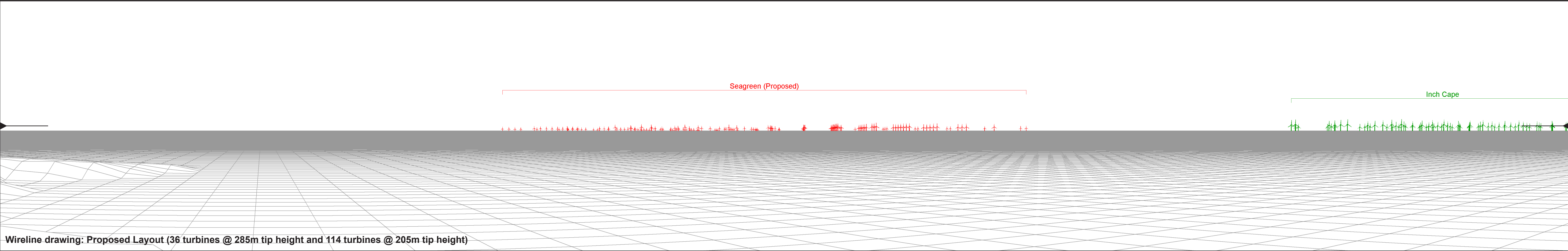
OS reference:	375195E 764644N	Horizontal field of view:	90° (cylindrical projection)
AOD:	75 m	Principal distance:	522 mm
Direction of view:	120°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	31.2 km	Correct printed image size:	820 x 260 mm

Seagreen Wind Farm

Viewpoint 2: Beach Road Kirkton St. Cyrus



Wireline drawing: Consented Layout (150 turbines @ 209.7m tip height)



Wireline drawing: Proposed Layout (36 turbines @ 285m tip height and 114 turbines @ 205m tip height)



OS reference: 375195E 764644N  
AOD: 75 m  
Direction of view: 120°  
Nearest turbine: 31.2 km

Horizontal field of view: 90° (cylindrical projection)  
Principal distance: 522 mm  
Paper size: 841 x 297 mm (half A1)  
Correct printed image size: 820 x 260 mm

Wind Farm Developments key  
(by status):

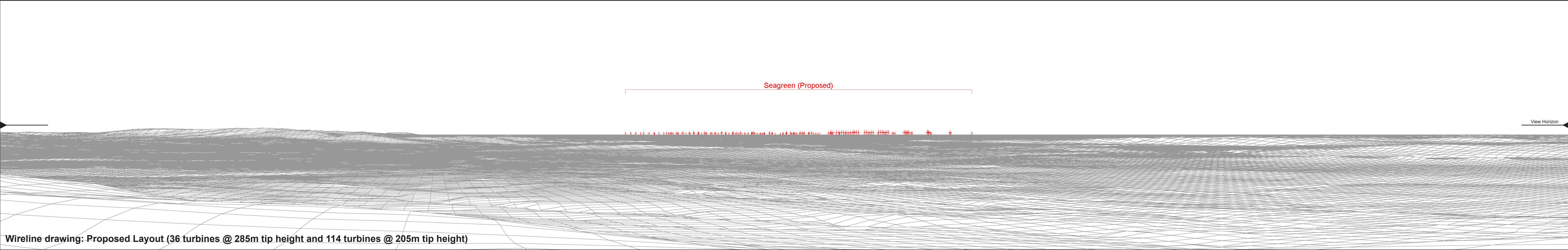
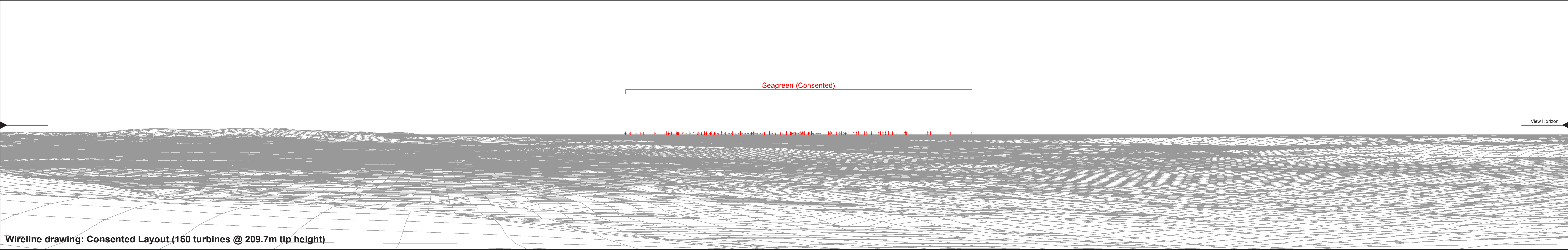
Seagreen  
Operational  
Under construction  
Consented

Seagreen Wind Farm

Viewpoint 2: Beach Road Kirkton St. Cyrus



© Crown copyright and database rights 2021. Ordnance Survey data. Licence number: 0100091673



OS reference:	354818E 766084N	Horizontal field of view:	90° (cylindrical projection)
AOD:	292 m	Principal distance:	522 mm
Direction of view:	110°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	51.0 km	Correct printed image size:	820 x 260 mm

Seagreen Wind Farm

Viewpoint 3: White Caterthun Hill Fort



Kincardine

Seagreen (Consented)

Inch Cape

Neart Na Gaoithe

View Horizon

Wireline drawing: Consented Layout (150 turbines @ 209.7m tip height)

Kincardine

Seagreen (Proposed)

Inch Cape

Neart Na Gaoithe

View Horizon

Wireline drawing: Proposed Layout (36 turbines @ 285m tip height and 114 turbines @ 205m tip height)



OS reference: 354818E 766084N  
AOD: 292 m  
Direction of view: 110°  
Nearest turbine: 51.0 km

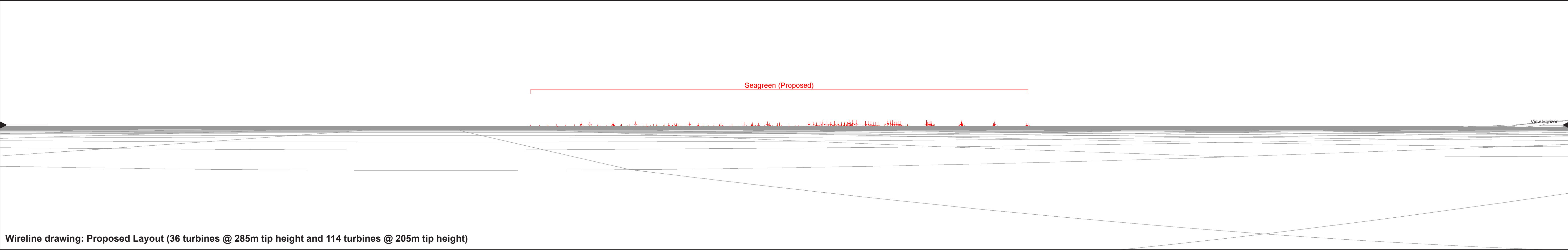
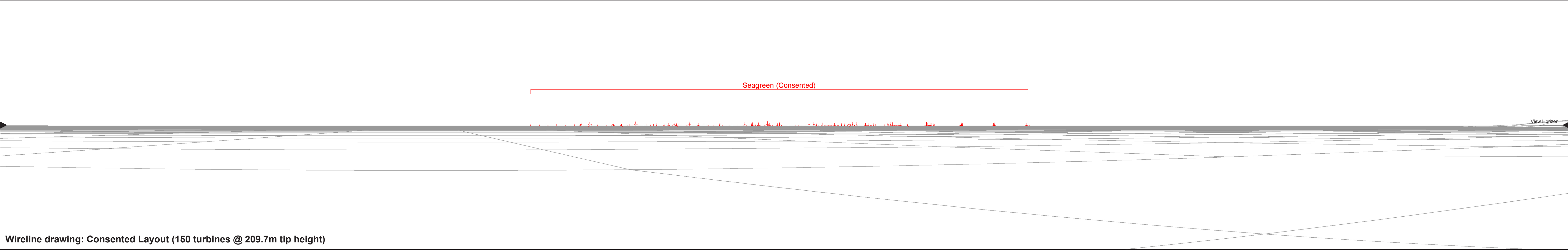
Horizontal field of view: 90° (cylindrical projection)  
Principal distance: 522 mm  
Paper size: 841 x 297 mm (half A1)  
Correct printed image size: 820 x 260 mm

Wind Farm Developments key  
(by status):

Seagreen  
Operational  
Under construction  
Consented

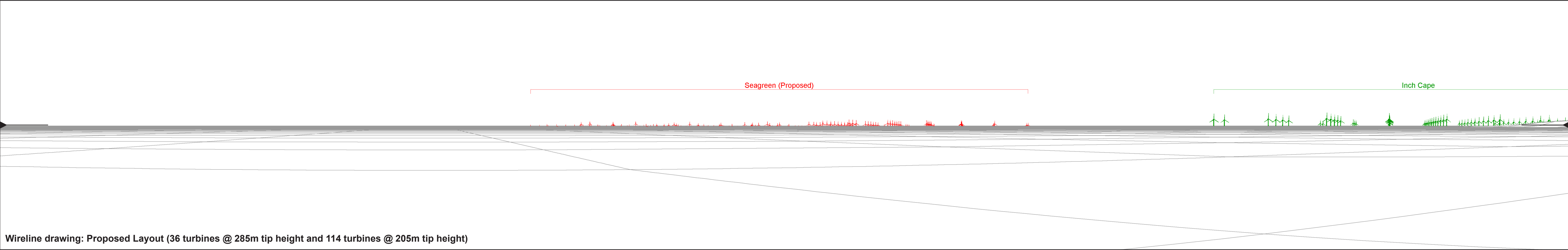
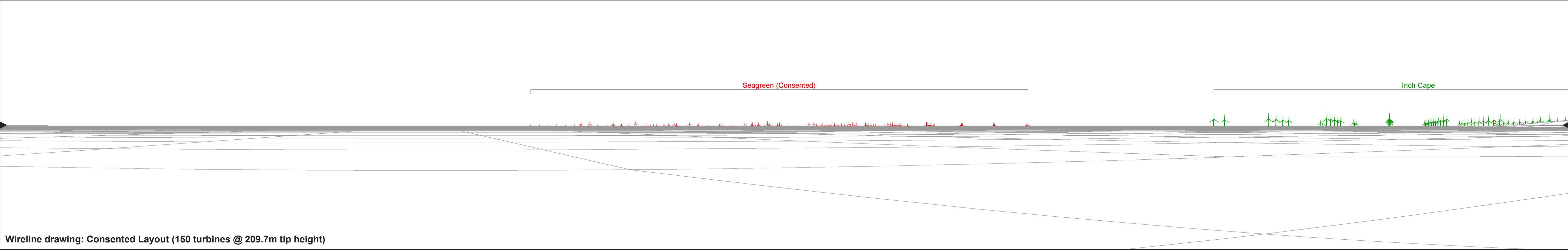
Seagreen Wind Farm

Viewpoint 3: White Caterthun Hill Fort



OS reference: 372689E 757962N  
AOD: 1 m  
Direction of view: 110°  
Nearest turbine: 31.8 km

Horizontal field of view: 90° (cylindrical projection)  
Principal distance: 522 mm  
Paper size: 841 x 297 mm (half A1)  
Correct printed image size: 820 x 260 mm



OS reference: 372689E 757962N  
AOD: 1 m  
Direction of view: 110°  
Nearest turbine: 31.8 km

Horizontal field of view: 90° (cylindrical projection)  
Principal distance: 522 mm  
Paper size: 841 x 297 mm (half A1)  
Correct printed image size: 820 x 260 mm

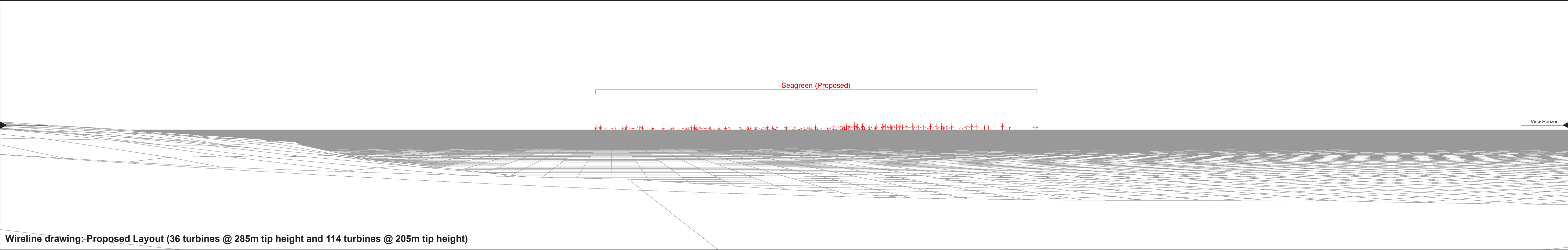
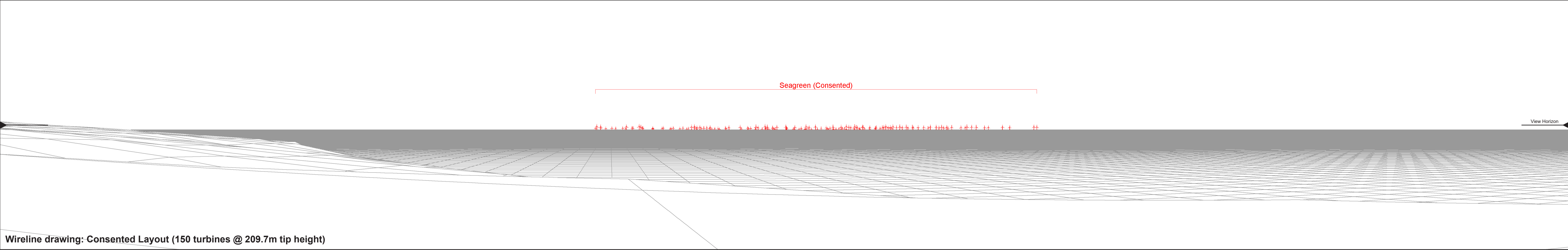
Wind Farm Developments key  
(by status):

Seagreen  
Operational  
Under construction  
Consented

Seagreen Wind Farm  
Viewpoint 4: Montrose



© Crown copyright and database rights 2021 Ordnance Survey data Licence number: 0100051673

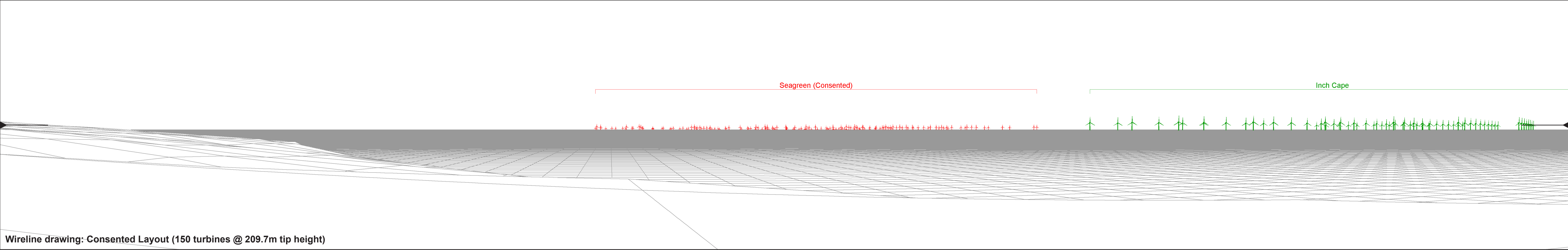


OS reference:	368987E 752602N	Horizontal field of view:	90° (cylindrical projection)
AOD:	73 m	Principal distance:	522 mm
Direction of view:	100°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	35.1 km	Correct printed image size:	820 x 260 mm

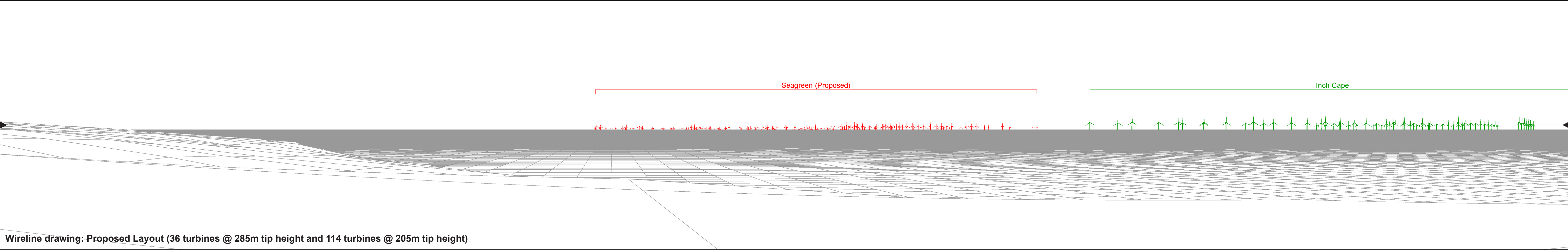
Seagreen Wind Farm

**Viewpoint 5: Braehead of Lunan**





Wireline drawing: Consented Layout (150 turbines @ 209.7m tip height)



Wireline drawing: Proposed Layout (36 turbines @ 285m tip height and 114 turbines @ 205m tip height)



OS reference: 368987E 752602N  
AOD: 73 m  
Direction of view: 100°  
Nearest turbine: 35.1 km

Horizontal field of view: 90° (cylindrical projection)  
Principal distance: 522 mm  
Paper size: 841 x 297 mm (half A1)  
Correct printed image size: 820 x 260 mm

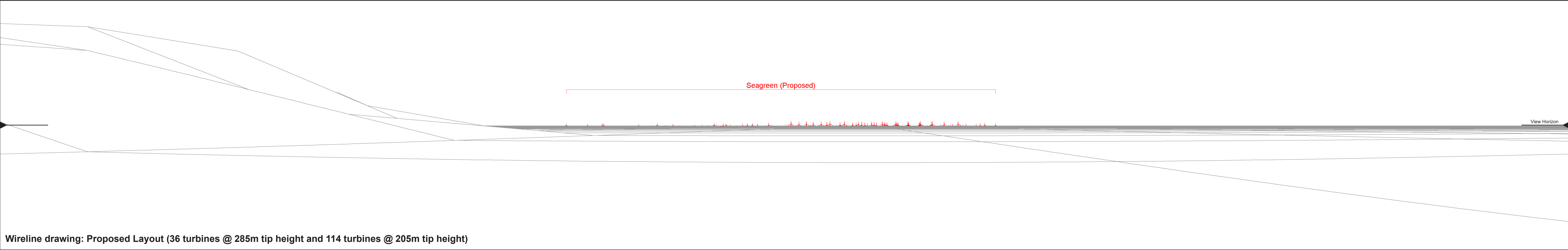
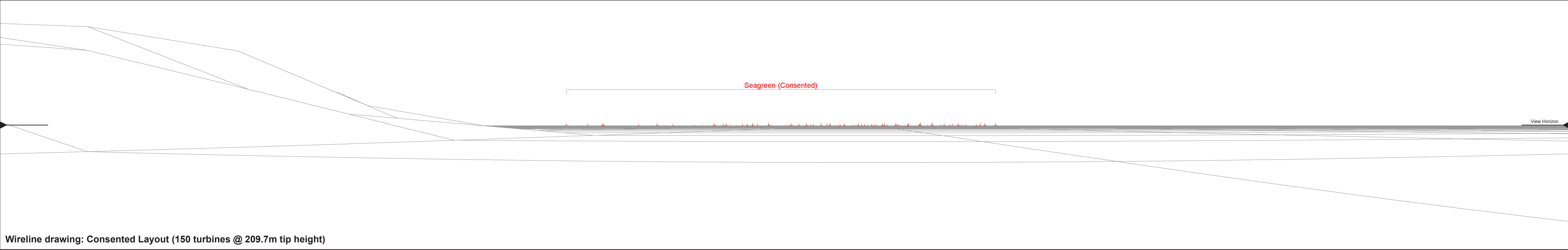
Wind Farm Developments key  
(by status):

Seagreen  
Operational  
Under construction  
Consented

Seagreen Wind Farm

Viewpoint 5: Braehead of Lunan

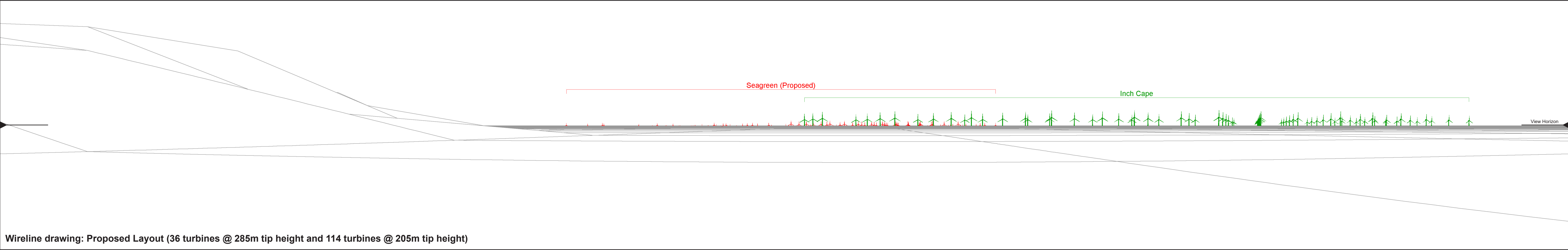
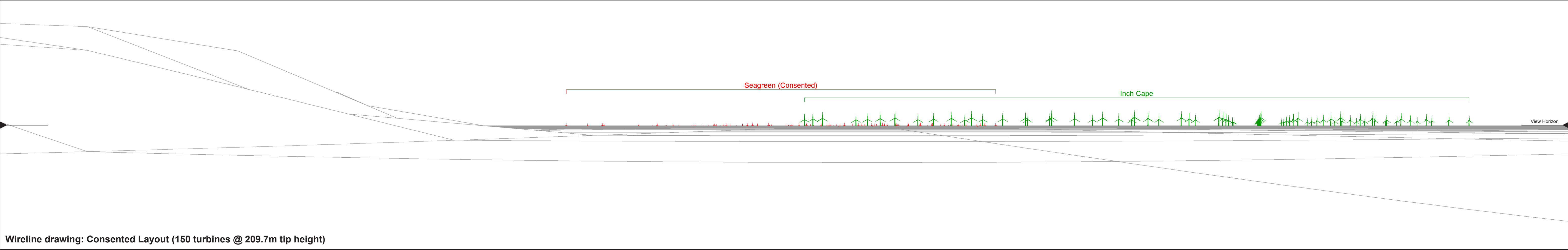
© Crown copyright and database rights 2021 Ordnance Survey data Licence number: 0100051673



OS reference:	365910E 741010N	Horizontal field of view:	90° (cylindrical projection)
AOD:	0 m	Principal distance:	522 mm
Direction of view:	85°	Paper size:	841 x 297 mm (half A1)
Nearest turbine:	38.4 km	Correct printed image size:	820 x 260 mm

Seagreen Wind Farm

**Viewpoint 6: Arbroath Signal Tower**



OS reference: 365910E 741010N  
AOD: 0 m  
Direction of view: 85°  
Nearest turbine: 38.4 km

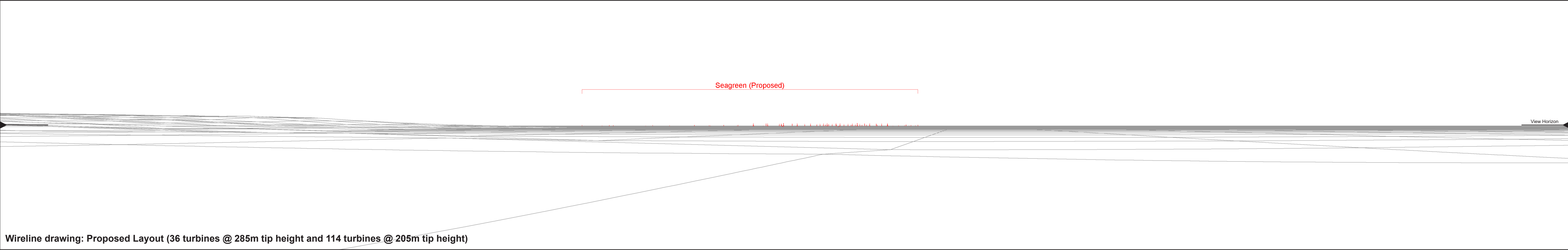
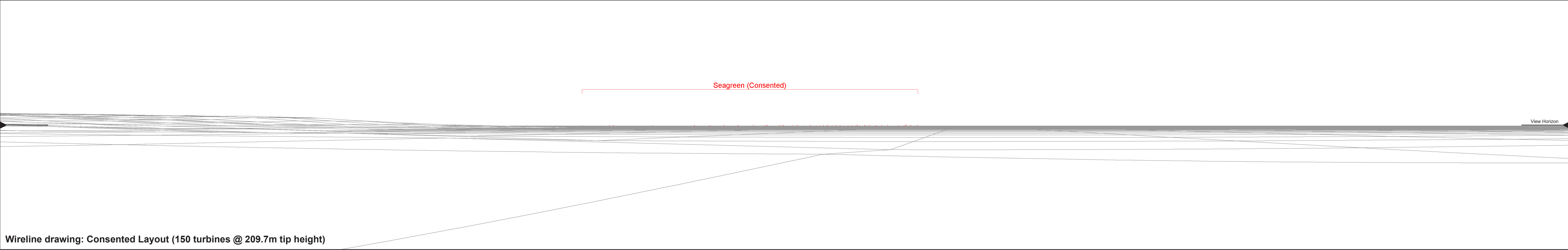
Horizontal field of view: 90° (cylindrical projection)  
Principal distance: 522 mm  
Paper size: 841 x 297 mm (half A1)  
Correct printed image size: 820 x 260 mm

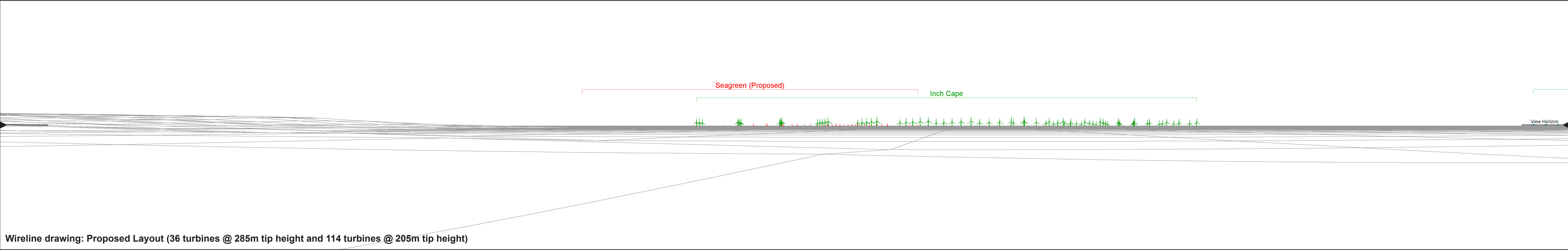
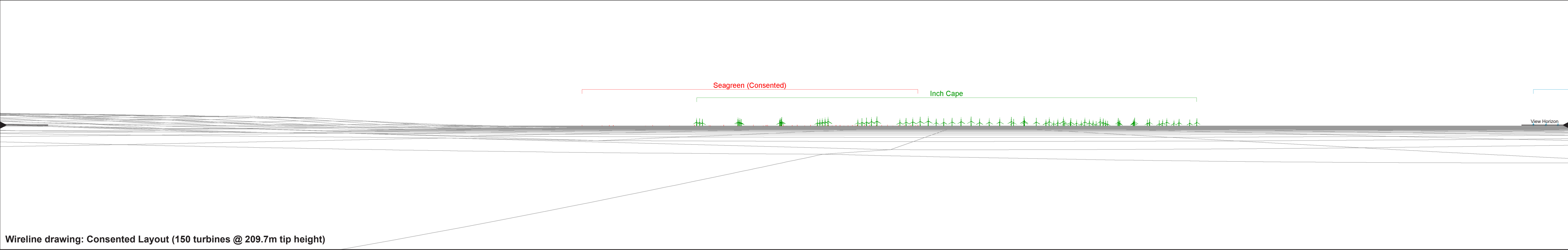
Wind Farm Developments key  
(by status):

Seagreen  
Operational  
Under construction  
Consented

Seagreen Wind Farm

Viewpoint 6: Arbroath Signal Tower





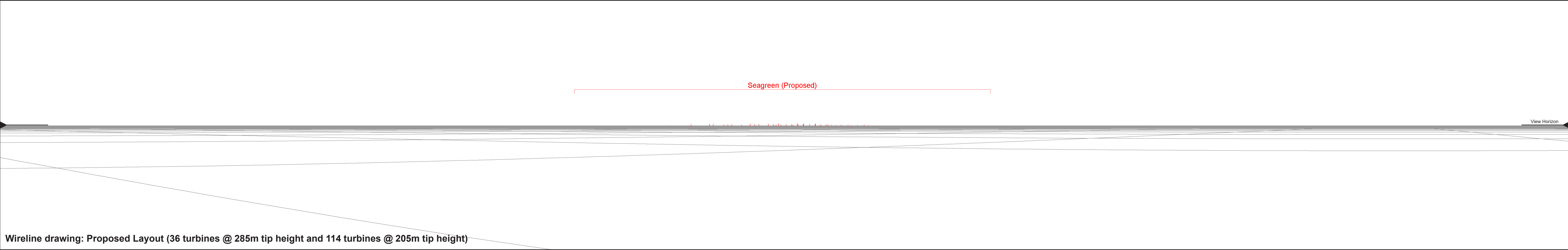
OS reference: 356249E 734093N  
AOD: 1 m  
Direction of view: 80°  
Nearest turbine: 48.2 km

Horizontal field of view: 90° (cylindrical projection)  
Principal distance: 522 mm  
Paper size: 841 x 297 mm (half A1)  
Correct printed image size: 820 x 260 mm

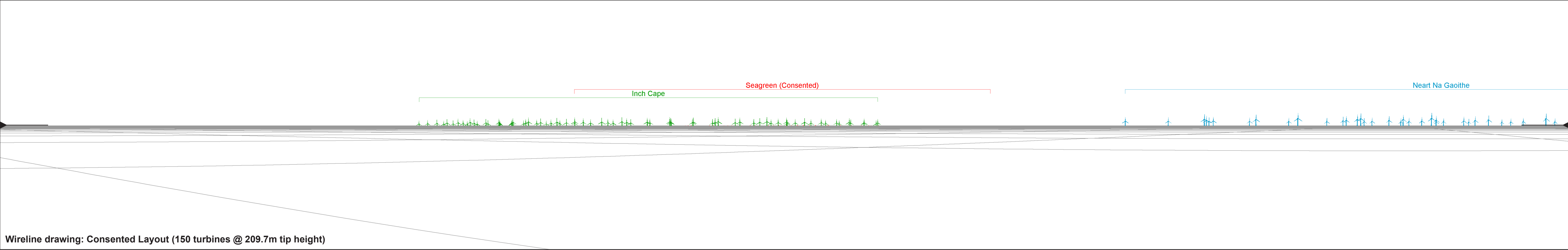
Wind Farm Developments key  
(by status):

Seagreen  
Operational  
Under construction  
Consented

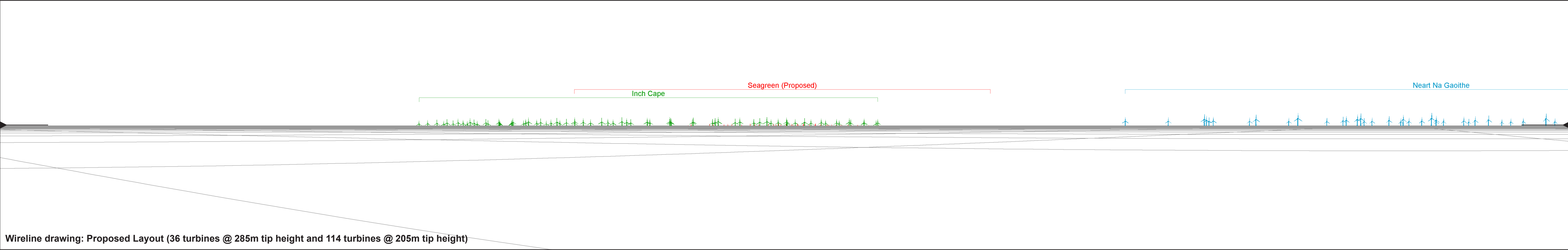
Seagreen Wind Farm  
Viewpoint 7: Carnoustie







Wireline drawing: Consented Layout (150 turbines @ 209.7m tip height)



Wireline drawing: Proposed Layout (36 turbines @ 285m tip height and 114 turbines @ 205m tip height)



OS reference: 363842E 709766N  
AOD: 0 m  
Direction of view: 55°  
Nearest turbine: 48.6 km

Horizontal field of view: 90° (cylindrical projection)  
Principal distance: 522 mm  
Paper size: 841 x 297 mm (half A1)  
Correct printed image size: 820 x 260 mm

Wind Farm Developments key  
(by status):

Seagreen  
Operational  
Under construction  
Consented

Seagreen Wind Farm  
Viewpoint 8: Fife Ness