

The Great Grid Upgrade

Sea Link

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**Pegwell Bay Saltmarsh Limits
Topographic Survey
March 2026**

KPAL Technical Note No: 160326

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Kenneth Pye Associates Ltd.
Scientific Research, Consultancy and Investigations

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Topographic Survey
March 2026**

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Prepared on behalf of AECOM and National Grid

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Cover photograph: View from the saltmarsh edge towards the former Hoverport SW ramp

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1.0 Report scope and purpose

As part of plans to upgrade the UK National Grid network, National Grid Electricity Transmission has submitted a Development Consent Order (DCO) application to construct a High Voltage Direct Current sub-sea cable link between the Suffolk coast north of Aldeburgh and Pegwell Bay in Kent (the Sea Link Project). AECOM is supporting National Grid with the application which is currently being considered by the Planning Inspectorate (PINS).

In November AECOM commissioned Kenneth Pye Associates Ltd. (KPAL) to undertake a desk study of the factors which influence saltmarsh distribution and extent within Pegwell Bay (KPAL, 2025). This was followed by a further request in mid-March 2026 that KPAL should undertake a field survey to map the present limits of saltmarsh with the Bay.

2.0 Topographic survey methodology and error checking

The survey was undertaken around the time of low water on Tuesday 24th March 2026. The weather at the time was cool, dry and overcast with a light breeze. A number of ground photographs taken during the surveys are presented in Appendix 1.

The saltmarsh limits were mapped using a Leica GS18 SmartRover mounted on a GS18 pole (2 m). This provides spatial (x,y) and elevation (z) information. Real-time kinematic (RTK) corrections were provided by Leica Smartnet and OSNet Reference Station 123 at MOD Shoeburyness, approximately 45 km to the NW

Table 1 summarises the quality control on the topographic survey in terms of the average estimated errors for all surveyed points for the two surveys. The average 1-D error (equivalent to height measurements) was 22.1 mm, while the average 2-D error (equivalent to position measurements) was 17.6 mm. These values are consistent with the manufacturer's stated errors and accepted accuracy of the method. The GDOP and VDOP values are also low (below 2.0) indicating excellent satellite coverage: at least 20 satellites were being used at any time during the period of survey.

Table 2 summarises the measured position and elevation of the Ordnance Survey benchmark on the south side of Sandwich Road on 24/03/2026, and during previous surveys by KPAL during the period 2019-2024. The closing error for the survey (difference in position and elevation between the start and end on 24/03/2026) was 4 mm in horizontal position and 14 mm in elevation. Differences from the previous surveys were 19 to 25 mm in horizontal position and 12 mm in elevation. These differences are well within the error limit of the technique, and of the same order of instantaneous errors of any single measurement given in Table 1.

Table 1. Average quality control for all 664 data points surveyed on 24/03/2026

	1-D (height) CQ (mm)	2-D (position) CQ (mm)	GDOP	VDOP
Average	22.1	17.6	1.8	1.1
StDev	4.0	3.1	0.2	0.1

Table 2. Comparison of position and elevation of the OS benchmark on the side of Sandwich Road, surveyed by RTK GNSS at the start and end of the survey on 24/03/2026, and previously surveyed by KPAL during the period 2019-2024. The elevation and position reported by the OS in 1976 are also shown, although the benchmark is no longer maintained by the OS

Date	Easting (m)	Northing (m)	Elevation (m ODN)	1-D (height) CQ	2-D (position) CQ
1976*	634370	163670	5.243	n/a	n/a
21/06/2019	634370.384	163672.978	5.245	0.010	0.006
19/03/2020	634370.391	163672.969	5.223	0.010	0.006
15/06/2020	634370.391	163672.987	5.225	0.009	0.006
17/06/2021	634370.416	163673.035	5.208	0.008	0.005
01/10/2021	634370.453	163673.041	5.232	0.009	0.007
08/06/2022	634370.371	163672.974	5.234	0.007	0.007
04/10/2022	634370.441	163672.972	5.229	0.007	0.007
23/04/2024	634370.530	163673.014	5.221	0.016	0.012
31/10/2024	634370.391	163672.975	5.246	0.016	0.012
24/03/2026 start	634370.396	163673.012	5.210	0.020	0.013
24/03/2026 end	634370.392	163673.015	5.225	0.018	0.014
closing error for survey (start to end)	-0.004	0.003	0.014	n/a	n/a
average difference from previous surveys	-0.025	0.019	-0.012	n/a	n/a

The main aim of the survey was to determine the seaward limit of saltmarsh (defined here as viable halophytic vegetation). In Pegwell Bay the lower (most seaward) limit of saltmarsh is generally characterised by *Spartina* species which are more tolerant of submergence and wave action than other pioneer saltmarsh species such as *Salicornia*. However, at slightly higher levels in the lower marsh zone *Spartina* spp. and *Salicornia* spp. frequently occur together, often in conjunction with other species such as *Sueda maritima* and *Limonium vulgare*. At the time of survey no new growth of *Spartina* or *Salicornia* was observed and mapping was undertaken based on visible evidence of previous years growth.

The positions of individual clumps of *Spartina* along the seaward edge were defined using the RTK-GNSS equipment and points joined to form a smoothed line using the Golden-Software *Surfer* GIS programme. The landward limit of ‘saltmarsh’ was mapped by the same process. For this purpose features such as including reed beds, chenier (shell) ridges, areas of bare mud and standing water have been included within the broad mapping definition of ‘saltmarsh’. Areas of macroalgae growing around the margin of the former hoverport and at the southern part of the survey area were not included within the operational defined limits of saltmarsh but were recorded separately.

3.0 Results

Figure 1 provides an overview of saltmarsh distribution with the entire survey area which extended from Little Cliffsend Farm in the north to Pegwell Bay Country Park in the south. The locations and extent of reed beds, the main brackish lagoon feature and shell cheniers within the broadly defined ‘saltmarsh’ area are also shown. More detailed enlargements of the northern, central and southern parts of the area, including other geomorphological features and man-made structures, are provided in Figures 2,3 and 4.

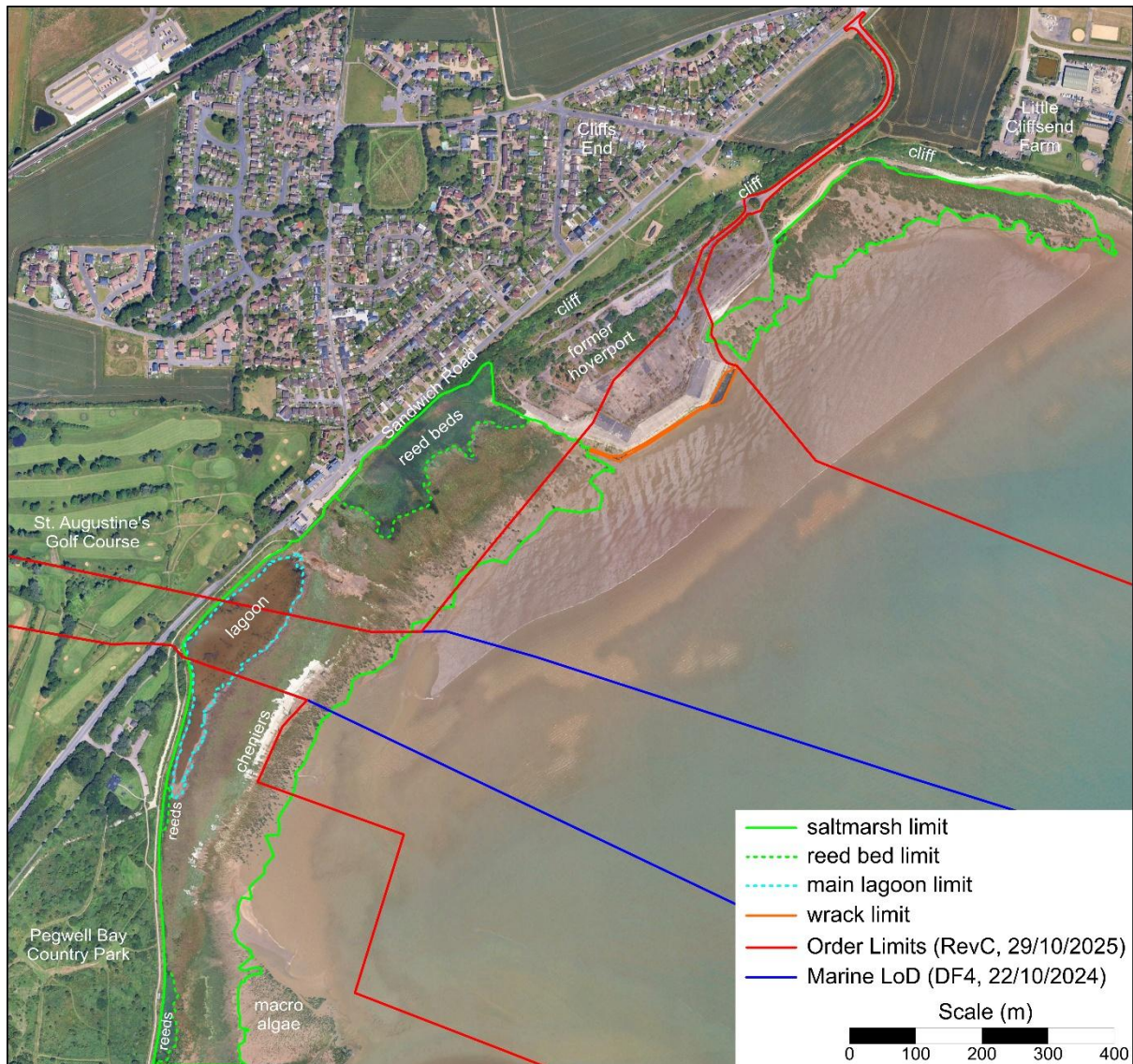


Figure 1. Extent of saltmarsh mapped on the ground by RTK GNSS on 24/03/2026, with the seaward limit of neighbouring ‘clumps’ shown as a solid green line. Reed beds and the main lagoon within the saltmarsh limits are shown with dashed green and blue lines respectively. The limits of macroalgae (‘wrack’) growing at the base of the hoverport ramps are shown by orange lines. The Sea Link Marine Order Limits and Marine LoD are also shown as solid red and blue lines, respectively. Base satellite image captured 14/04/2024 (source: Google Earth)



Figure 2. Enlargement of the northern part of Pegwell Bay: extent of saltmarsh mapped on the ground by RTK GNSS on 24/03/2026, with the seaward limit mapped as the convex hull of seaward marsh islands shown as a solid green line. Reed bed within the saltmarsh limits is shown with dashed green line. The limits of macro-algae ('wrack' growing at the base of the hoverport ramps) are shown with an orange line. Base satellite image captured 14/04/2024 (source: Google Earth)



Figure 3. Enlargement of the central part of Pegwell Bay: extent of saltmarsh mapped on the ground by RTK GNSS on 24/03/2026, with the seaward limit mapped as the convex hull of seaward marsh islands shown as a solid green line. Reed beds within the saltmarsh limits are shown with a dashed green line. The limits of macro-algae ('wrack') growing at the base of the hoverport ramps is shown with an orange line. Base satellite image captured 14/04/2024 (source: Google Earth)



Figure 4. Enlargement of the southern part of Pegwell Bay: extent of saltmarsh mapped on the ground by RTK GNSS on 24/03/2026, with the seaward limit mapped as the convex hull of seaward marsh islands shown as a solid green line. Reed bed and the main lagoon within the saltmarsh limits are shown with dashed green and blue lines respectively. Base satellite image captured 14/04/2024 (source: Google Earth)

4.0 Reference

KPAL (2025) *Saltmarsh Development in Pegwell Bay, Kent, With Particular Reference to the Area Around the Former Hoverport. Technical Note No: 021125*, Prepared on behalf of AECOM and National Grid, Kenneth Pye Associated Ltd, 25 November 2025.

Ground photographs taken during the survey on 24 March 2026



Photograph A1.1 The eastern side of the hoverport ramp, view south – no saltmarsh present



Photograph A1.2 The eastern side of the hoverport ramp, view north – no saltmarsh present



Photograph A1.3 Discontinuous patches of saltmarsh (mostly *Spartina* spp.) in the embayment to the north of hoverport, viewed from the top of the rock revetment



Photograph A1.4 Landward limit of saltmarsh defined by a high tide sandy beach and wave-rafter debris, north of the hoverport



Photograph A1.5 Saltmarsh separated from a chalk cobble beach by muddy sand flats near the northeastern limit of the saltmarsh



Photograph A1.6 The northeastern limit of saltmarsh



Photograph A1.7 Fragmented saltmarsh adjacent to the southwest ramp of the hoverport



Photograph A1.8 Patches of saltmarsh close to the southwest ramp of the hoverport



Photograph A1.9 View seaward across the saltmarsh edge just south of the hoverport



Photograph A1.10 Fragmented saltmarsh edge in the mid part of the embayment to the south of the hoverport



Photograph A1.11 Zone of eroded middle saltmarsh separating a zone of healthy lower marsh (mainly *Spartina*) from chenier (shell) ridges rolling back over the higher marsh ridge, south-central part of the embayment (south of the Nemo Link cable corridor)



Photograph A1.12 View landwards towards the brackish lagoon from the chenier ridge rolling back over high saltmarsh in the south-central part of the bay



Photograph A1.13 Relatively stable marsh edge in the southern part of the bay opposite Pegwell Bay Country Park



Photograph A1.14 The saltmarsh edge opposite the southern part of Pegwell Bay Country Park



Photograph A1.15 *Phragmites* reed bed at the landward margin of the saltmarsh fronting the Pegwell Bay Country Park rock revetment, south of the bird hide

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