

- Notes:**
1. This drawing is copyright of Ironside Farrar Ltd and may not be copied or reproduced or used for any purposes without consent of the company to do so.
  2. Do not scale from this drawing.
  3. Dimensions noted are in metres unless stated otherwise.
  4. Drawing to be read in conjunction with other relevant drawings and documents associated with this project.
  5. Works to be carried out in accordance with the Specification included in the Contract Documents.
  6. Existing and proposed dimensions, levels and locations to be checked & verified by Main Contractor & Sub-Contractors on site prior to the commencement of the works and anomalies reported to the Engineer.
  7. Main Low Water Springs and Mean High Water Springs based on the OS mapping.

3<sup>rd</sup> party information used in the preparation of this drawing

	Source	Date
Topographical Survey	Douglas Land Surveys	04.03.23
Lidar Information	SEPA Lidar	12.04.23

For full details of Fencing and Planting and Other Works, refer to the specification.

**Planting Notes:**  
Planting to be cell grown plants Marram sprigs of local provenance to maximise growth and early stability of the planted areas.

Cell grown marram of local province sourced from:

<https://cheviot-trees.co.uk/grasses/119-ammophila-arenaria-marram-grass.html>

NPK, or organic alternative, should be applied at least twice in the first season to promote growth.

Planting density of 10 plants/m<sup>2</sup>.

Allow for return visits to site during the 12-month maintenance period for regular maintenance of plant. To include replacement of dead plants during Autumn visit (allow for 20% replacement, see BO) as well of replanting/reinstatement of any plants affected by erosion but which are still viable.

**Fencing and Sandbag Notes:**

Area to be fenced with three lines of Chespaie Fencing with diagonal SE/NW cross fencing:

- Public exclusion from the outset via outer fence lines at eastern edge of existing dune and western edge of toe of new dune recharge area.
- Additional protection for marram planting by intermediate fence
- Diagonal fences aligned SE-SW at 20m intervals along the length of the recharge.
- All fences will require regular maintenance over the 12-month maintenance period and partial removal as the new landform erodes to some sort of equilibrium.
- Toe fence to be partially buried for increased stability.
- Line of jute sandbags to be installed and buried below the sand near the toe of the existing dunes to offer additional erosion control if required.
- Allow for regular maintenance/reinstatement of fences during the 12-month maintenance period and return visit on completion of the 12 months (or other time to be agreed with SALT/the Engineer) to remove jute bags

**Topographic Surveys and Monitoring Notes:**

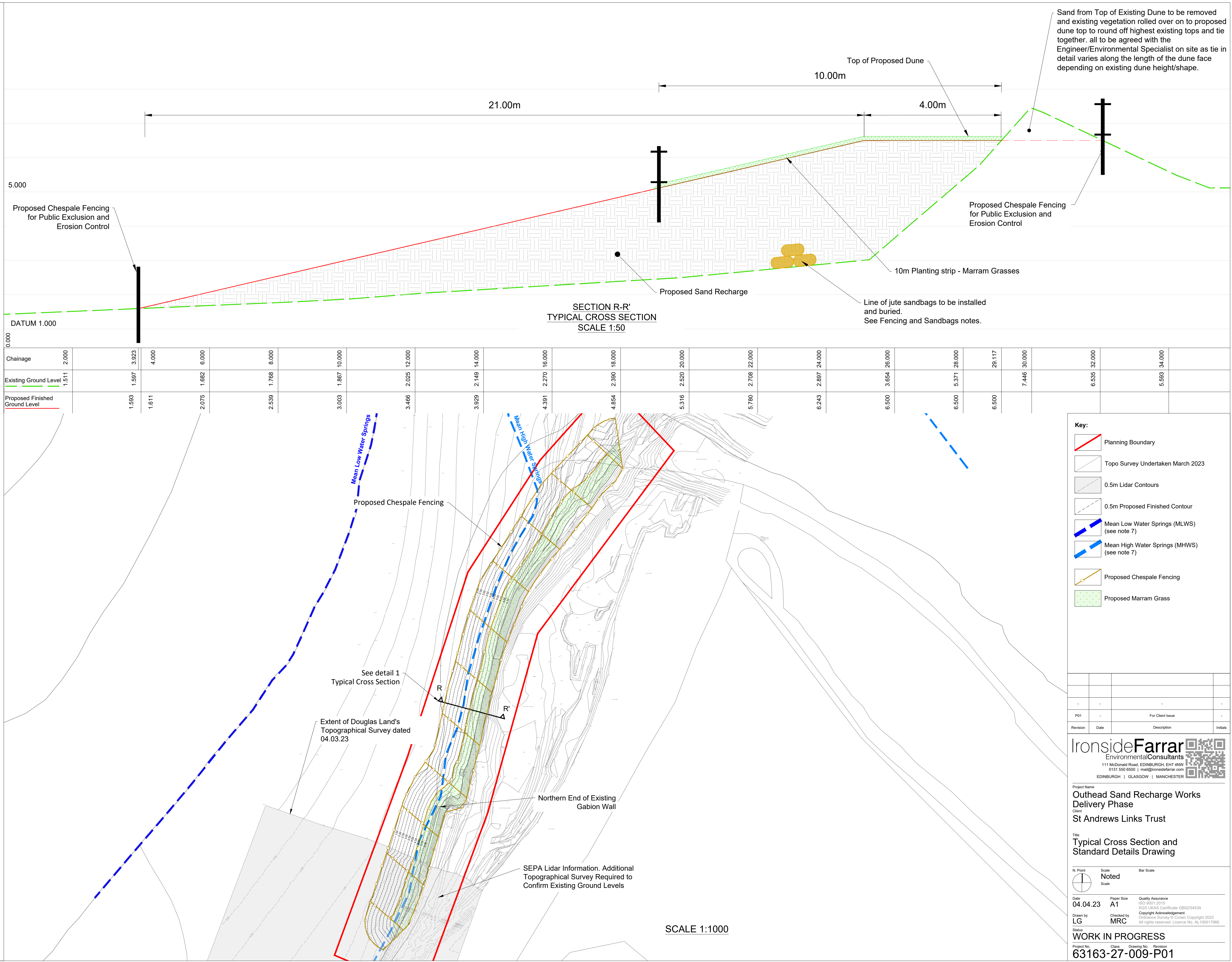
Provision of full topographic survey of recharge area plus 50m buffer zone North and South and 20m East and West via Douglas Land Surveys (who undertook previous surveys) prior to the works or other approved surveyor.

Calculation of volumes required for recharge works against the topographic survey - for agreement and checking by the Engineer. Note that ongoing erosion may have altered volumes required for the works since January 2023 topographic Survey.

Further topographic surveys to monitor the dunes at:

- One immediately post construction.
- Two at approximate six-month intervals - October 2024 and April 2025
- Four further April surveys at yearly intervals April 2026 - 2029

All surveys to be undertaken at Low Tide and to be in 3D CAD format to allow volume calculations and overlaying exercises to be completed.



Sand from Top of Existing Dune to be removed and existing vegetation rolled over on to proposed dune top to round off highest existing tops and tie together. all to be agreed with the Engineer/Environmental Specialist on site as tie in detail varies along the length of the dune face depending on existing dune height/shape.

Chainage	2.000	3.923	4.000	6.000	8.000	10.000	12.000	14.000	16.000	18.000	20.000	22.000	24.000	26.000	28.000	29.117	30.000	32.000	34.000
Existing Ground Level	1.511	1.597		1.662	1.768	1.867	2.025	2.149	2.270	2.390	2.520	2.708	2.897	3.654	5.371		7.446	6.535	5.593
Proposed Finished Ground Level		1.593	1.611	2.075	2.539	3.003	3.466	3.929	4.391	4.854	5.316	5.780	6.243	6.500	6.500	6.500			

**Key:**

- Planning Boundary
- Topo Survey Undertaken March 2023
- 0.5m Lidar Contours
- 0.5m Proposed Finished Contour
- Mean Low Water Springs (MLWS) (see note 7)
- Mean High Water Springs (MHS) (see note 7)
- Proposed Chespaie Fencing
- Proposed Marram Grass

Revision	Date	Description	Initials
P01		For Client Issue	

**IronsideFarrar**  
Environmental Consultants  
111 McDonald Road, EDINBURGH, EH7 4NW  
0131 550 6500 | mail@ironsidefarrar.com  
EDINBURGH | GLASGOW | MANCHESTER

Project Name  
**Outhead Sand Recharge Works Delivery Phase**  
Client  
**St Andrews Links Trust**

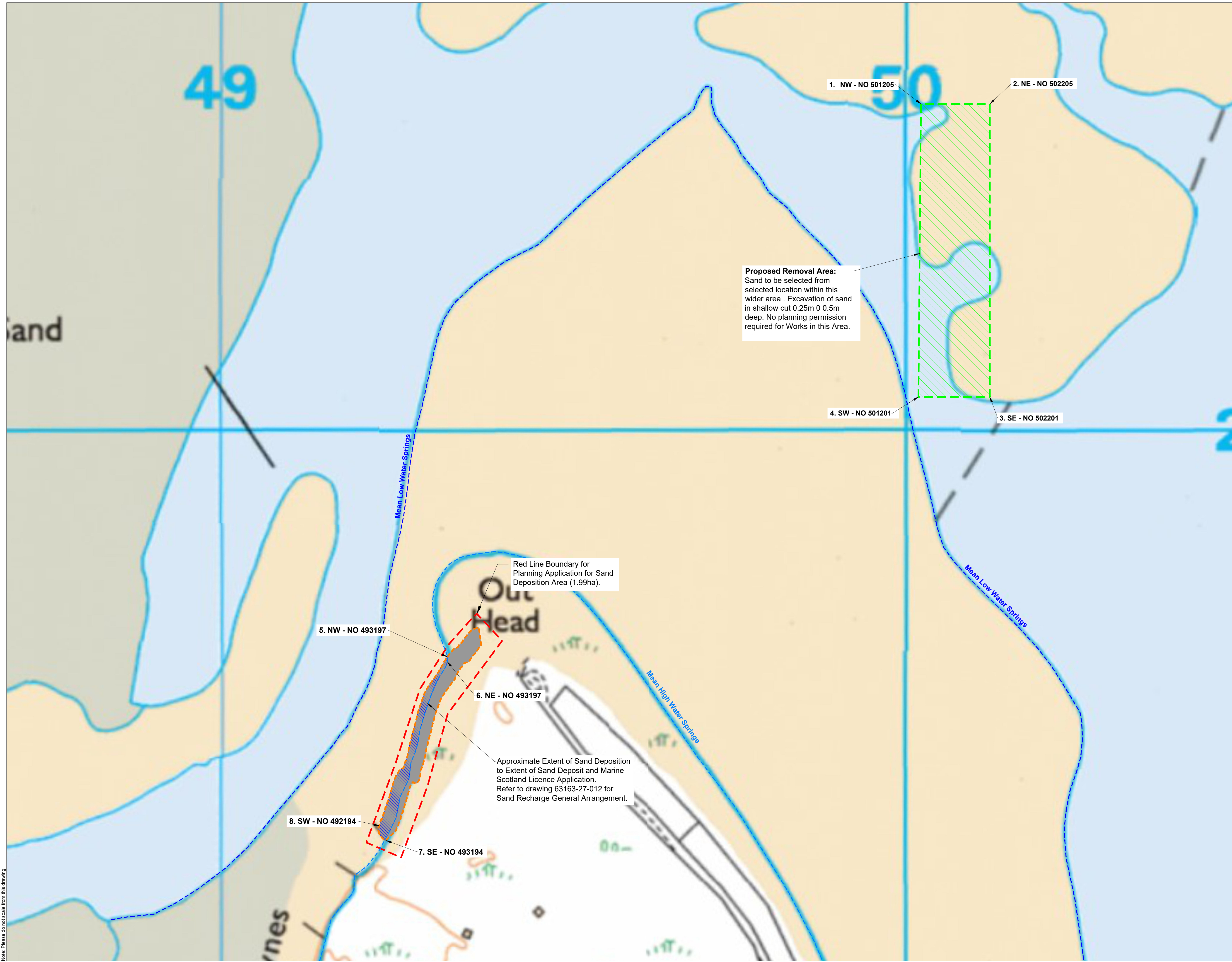
Title  
**Typical Cross Section and Standard Details Drawing**

N. Point Scale Noted Bar Scale  
Date: 04.04.23 Paper Size: A1 Quality Assurance: ISO 9001:2015  
SCS UKAS Certificate: CB0254539  
Checked by: MRC Copyright Acknowledgement: Ordnance Survey © Crown Copyright 2022  
All rights reserved. Licence No. AL100017966

Status  
**WORK IN PROGRESS**  
Project No. Class. Drawing No. Revision  
**63163-27-009-P01**

Note: Please do not scale from this drawing

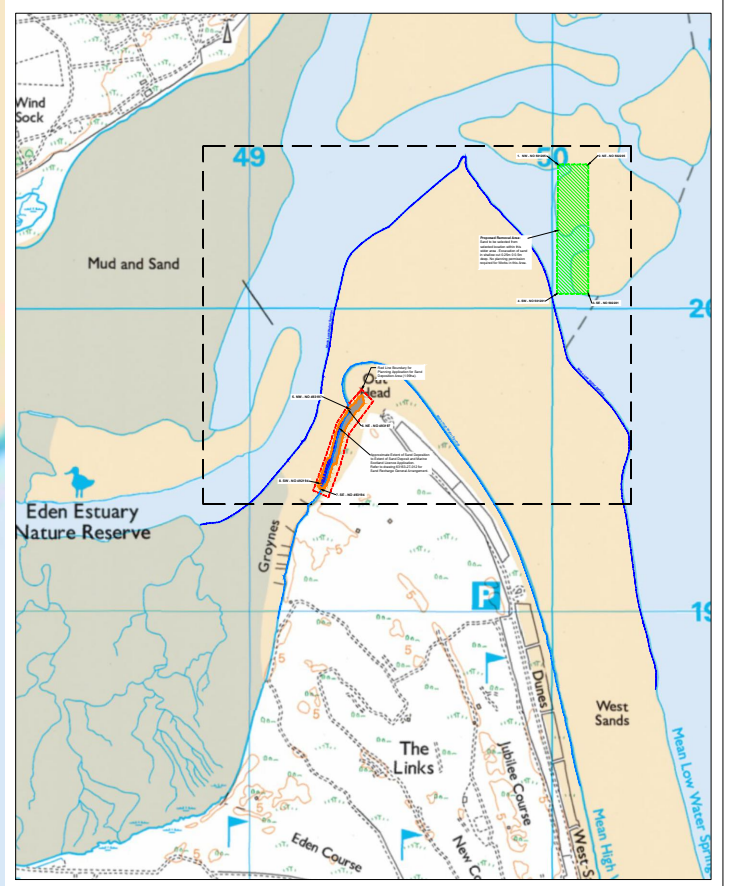




**Proposed Removal Area:**  
 Sand to be selected from selected location within this wider area. Excavation of sand in shallow cut 0.25m to 0.5m deep. No planning permission required for Works in this Area.

Red Line Boundary for Planning Application for Sand Deposition Area (1.99ha).

Approximate Extent of Sand Deposition to Extent of Sand Deposit and Marine Scotland Licence Application. Refer to drawing 63163-27-012 for Sand Recharge General Arrangement.

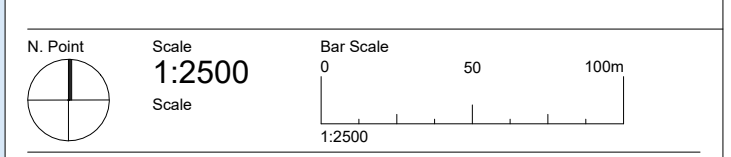


**Location Plan**  
 1:25,000

Revision	Date	Description	Initials
P01	-	For Client Issue	-

**IronsideFarrar**  
 Environmental Consultants  
 111 McDonald Road, EDINBURGH, EH7 4NW  
 0131 550 6500 | mail@ironsidefarrar.com  
 EDINBURGH | GLASGOW | MANCHESTER

Project Name  
**Outhead Sand Recharge Works Delivery Phase**  
 Client  
**St Andrews Links Trust**  
 Title  
**Marine Scotland License Application, Removal and Deposit Areas**

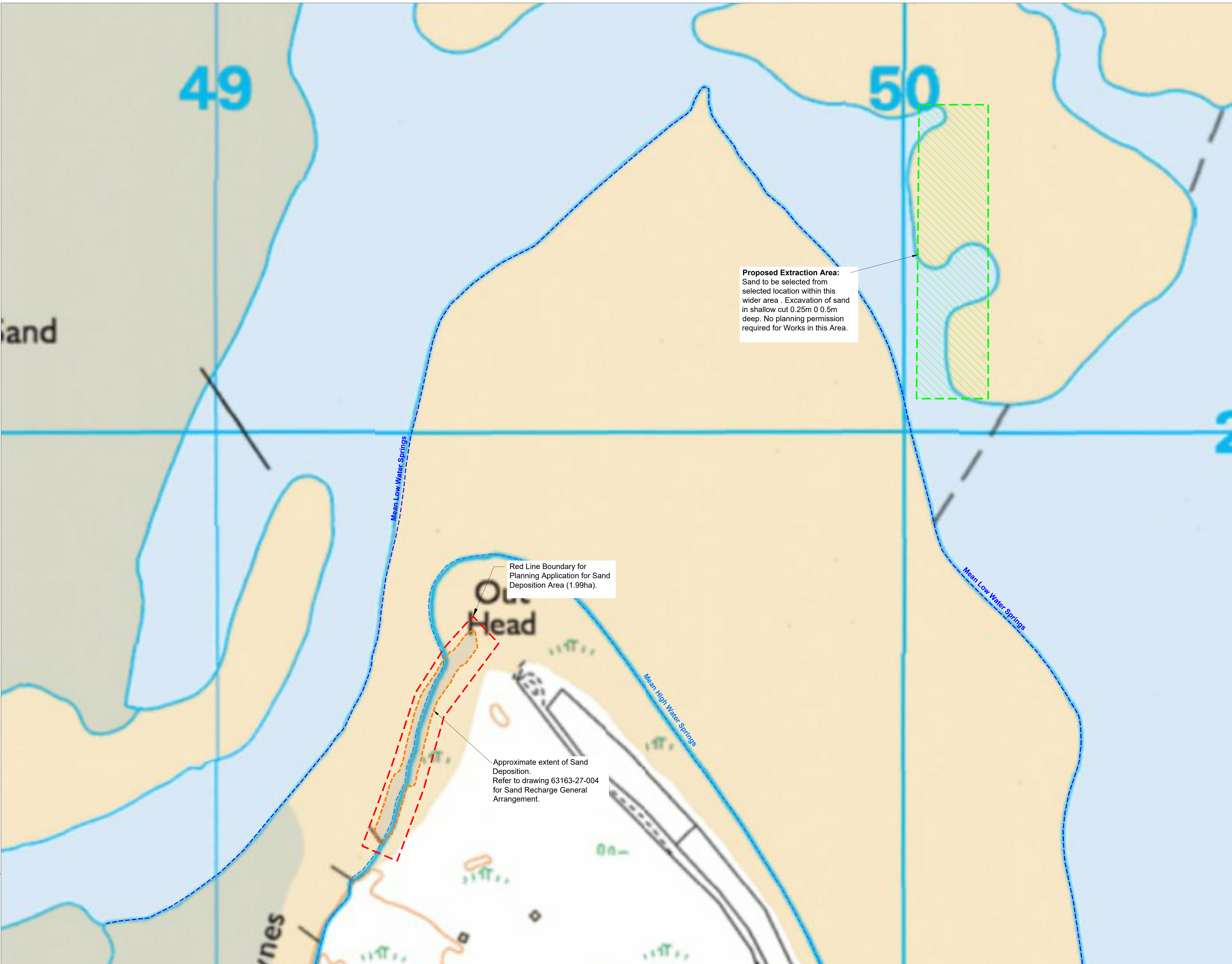


Date: 08.06.23  
 Paper Size: A1  
 Quality Assurance: ISO 9001:2015  
 SCS UKAS Certificate: CS60254539  
 Copyright Acknowledgement: Ordnance Survey © Crown Copyright 2022. All rights reserved. Licence No. AL100017966

Status  
**WORK IN PROGRESS**  
 Project No. 63163-27-011-P03  
 Class: Drawing No. Revision:

Note: Please do not scale from this drawing.





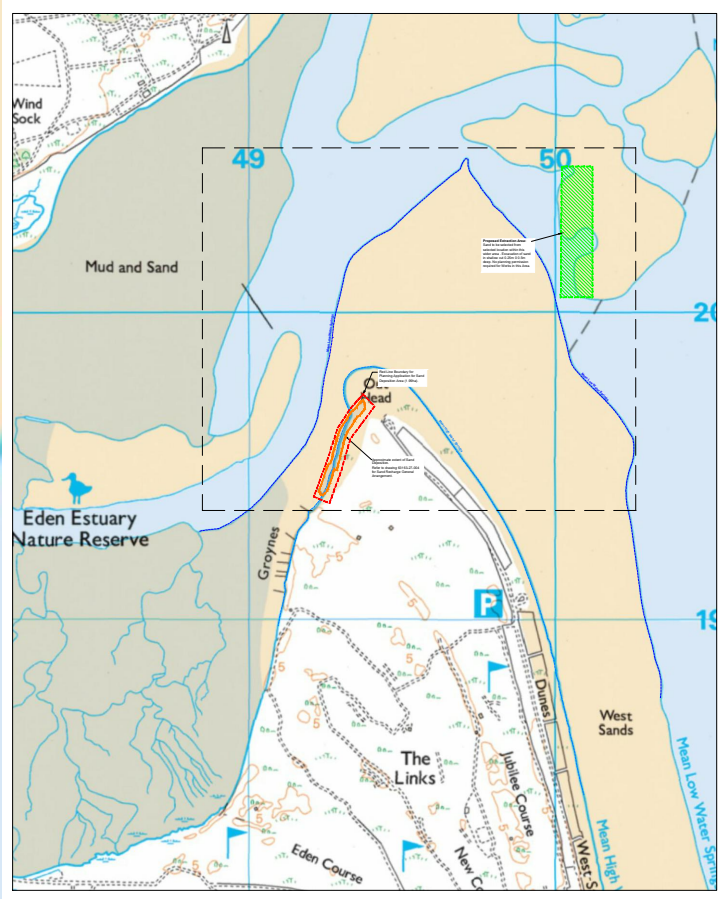
49

50

**Proposed Extraction Area:**  
 Sand to be selected from selected location within this wider area. Excavation of sand in shallow cut 0.25m 0.0.5m deep. No planning permission required for Works in this Area.

Red Line Boundary for Planning Application for Sand Deposition Area (1.99ha).

Approximate extent of Sand Deposition. Refer to drawing 63163-27-004 for Sand Recharge General Arrangement.



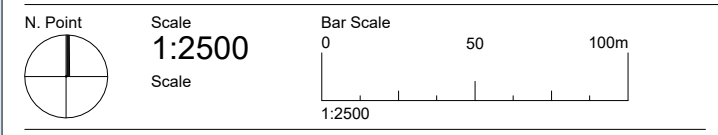
**Location Plan**  
1:25,000

Revision	Date	Description	Initials
P03	23.05.23	Proposed Extraction Area revised	LG
P02	18.04.23	Proposed Extraction Area revised	KMcN
P01	-	For Client Issue	-

**IronsideFarrar**  
 Environmental Consultants  
 111 McDonald Road, EDINBURGH, EH7 4NW  
 0131 550 6500 | mail@ironsidefarrar.com  
 EDINBURGH | GLASGOW | MANCHESTER

Project Name  
**Outhead Sand Recharge Works Delivery Phase**  
 Client  
**St Andrews Links Trust**

Title  
**Proposed Extent of Works: Extraction and Deposition Areas**



Date  
**13.04.23**  
 Paper Size  
**A1**  
 Quality Assurance  
 ISO 9001:2015  
 SGS UKAS Certificate GB02/54539  
 Copyright Acknowledgement  
 Ordnance Survey © Crown Copyright 2022  
 All rights reserved. Licence No. AL100017966

Drawn by  
**KMcN**  
 Checked by  
**MRC**  
 Status  
**WORK IN PROGRESS**  
 Project No. Class Drawing No. Revision  
**63163-27-003-P03**

Note: Please do not scale from this drawing