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**RSPB Old Hall Marshes**

**Solar pump installation**

**Client brief.**

1. **Introduction and overview.**

RSPB Old Hall Marshes is a nature reserve owned and managed by the RSPB. It is situated in Essex, on the Blackwater estuary.

The reserve is designated under the UK Wildlife and Countryside Act 1981 and is a key part of the Blackwater estuary SSSI, it is also an SPA (Special protection Area), a National nature reserve and a Ramsar site.

This project will see the supply and installation of 2x solar powered pump units, and associated pipework, solar panels and fencing, that will be used to distribute water across the marshes in various locations as detailed in the location map.

This project will help achieve suitable wet conditions on a saline lagoon, to benefit breeding birds such as Avocet and Common tern, and other wetland wildlife.

It should be noted that two contractors will be involved in delivering the project, one for installation of the solar pumps and the other for the associated groundworks.

1. **Objectives and outcomes.**

The objectives are as follows:

Water levels at the right height based on the time of year

* High (>50cm) winter (November to March)
* Water levels below top of height of nesting islands at beginning of breeding season (April)
* Gradual drawdown throughout the breeding season (late April to July)
* Shallow water levels varying between 5cm and 30cm during passage (July to September)
* Gradual increase in levels from October onwards (> 30cm)
* Conductivity during breeding season (Apr – July) between 9.6 to 30 ‰ (15,000 to 48,00 μs/cm²)For the pumps and pipework to be installed in a way that ensures they operate effectively.

Outcomes are as follows:

* The ability to move water in and out of a saline lagoon will be increased thereby improving habitat conditions for priority bird species and making it more resilient to the effects of climate change
* The need to use a diesel water pump will be reduced
1. **Opportunities.**

This project will be the final phase of the habitat improvements that have taken place at RSPB Old Hall Marshes since 2019, following scrape creation, ditch re-profiling, culvert repair and reinstatement.

It will also be the first phase of the Salcott field habitat improvement project, which will use the enhanced water supply on this field to enhance conditions for breeding lapwing and redshank.

At the moment a majority of the breeding waders are concentrated in Bale field, these solar pumps will hopefully allow the other fields in question to develop more and more productive breeding wader colonies.

It is expected that this innovative technology will have high demonstration value for other site mangers and practitioners.

**Constraints.**

* The site is designated as a Site of Special Scientific Interest under the Wildlife and Countryside Act, 1981
* One of the site locations will also take place alongside a watercourse designated as a Main River.
* Whilst all necessary consents and permissions have been secured for these works to proceed, care must be taken not to damage the SSSI or its wildlife during these works, and care must be taken not to damage or pollute any watercourse on site.
* The site is located on an active floodplain – attention will need to be paid to ground conditions which can become waterlogged, and to any prevailing Flood Alerts.
* No unattended storage, temporary or otherwise, of plant or fuel will be allowed on the floodplain.
* Biosecurity must be maintained.
1. **Access management plan**
* See the attached access management plan for details on details on access and storage of materials.
1. **Pump and works specification.**
* See Document C, locations, and photos for work specifications.
1. **Management arrangements.**
* Onsite and day to day management of the tender will be provided by Neil Lincoln, Warden, RSPB Old Hall Marshes
* Contract, financial control, and access management will be provided by Kieren Alexander, Site Manager, RSPB Old Hall Marshes