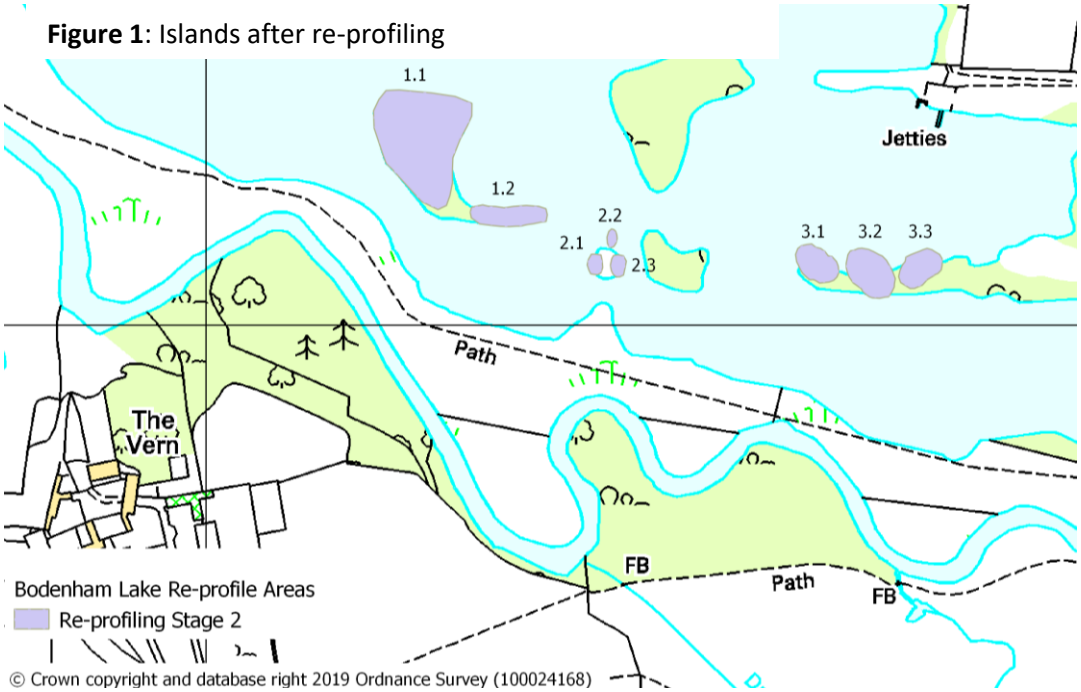
1. Specification

A. Design works;

1. Conduct assessments of the hydrology, topography and soil profile of Bodenham Lake Nature reserve, to;

2. Design new profiles for three islands of Bodenham Lake, to maximise their ecological value for ground nesting birds, and support the establishment of scrub and reedbed. See Figure 1.

Figure 1: Islands after re-profiling



Designs must be based upon the following:

- **Island 1:** Lowering the southern half of island 1.1 and using the material gained create a second adjacent island, 1.2 on the existing roadway that runs below water level.
  - Island 1.2 should consist of exposed mud suitable for wading birds and dabbling ducks.

- **Island 2**: Lowering the island and dividing it into three smaller islands which will be coated in gravel to create suitable habitat for ground nesting birds.
  - Island 2.2 created by winning material from the centre of island 2 should be as far off shore as possible to minimise disturbance from the bird hide.
  - Once surfaced with shingle island 2.2 and 2.3 should be up to 0.6m above the summer water level, to allow seasonal inundation, to maintain conditions suitable for little ringed plover to nest.
  - Islands 2.1 should be more than 0.6m above the summer water level to allow establishment of a low sward suitable for species such as lapwing to nest.

- **Island 3**: Lowering the spit and dividing it into three islands, one suitable for scrub establishment and the other two suitable for reedbed establishment
  - Islands 3.1 and 3.3 should be the right levels for a mosaic of wet and dry reedbed to form, where wet reed is in standing in water all year round (summer water level 0.6-1m) and dry reed is dry to bed level at summer water levels.
  - Island 3.2 should be 0.60m above the summer water level to allow establishment of scrub suitable for otter cover and nesting waterfowl.
  - N.B island 3 is separated from the land by a channel despite OS maps showing it being connected, see Figure 2.

Figure 2: Satellite imagery of island 3 showing the channel between the land and island

3. The design must provide the following across the 3 islands:

i. Shallow sloping shorelines.
  - Slopes on islands 2.1, 2.2 and 2.3 should be no greater than 1:4 for use by nesting wildfowl and ducklings.
  - In sheltered situations such as island 2.1, 2.2 and 2.3 islands may be entirely surrounded by shallows of less than 1m deep.

ii. Consideration to minimise erosion in exposed shores.
  - Erosion control methods could include temporary structures such as willow staking whilst vegetation establishes.
  - In exposed situations such as island 1.2 the island could be profiled to a slope of 1:15 to absorb wave effects on the windward side and to provide shelter for wildfowl in the lee.

iii. Maximised length of edge through creation of an irregular shaped shoreline, with regular sheltered bays.
  - Horseshoe and cruciform shapes will maximise the length of shoreline.

iv. Consideration to maximise bird watching opportunities from the two bird hides
   - Shallow should face towards the bird hides.

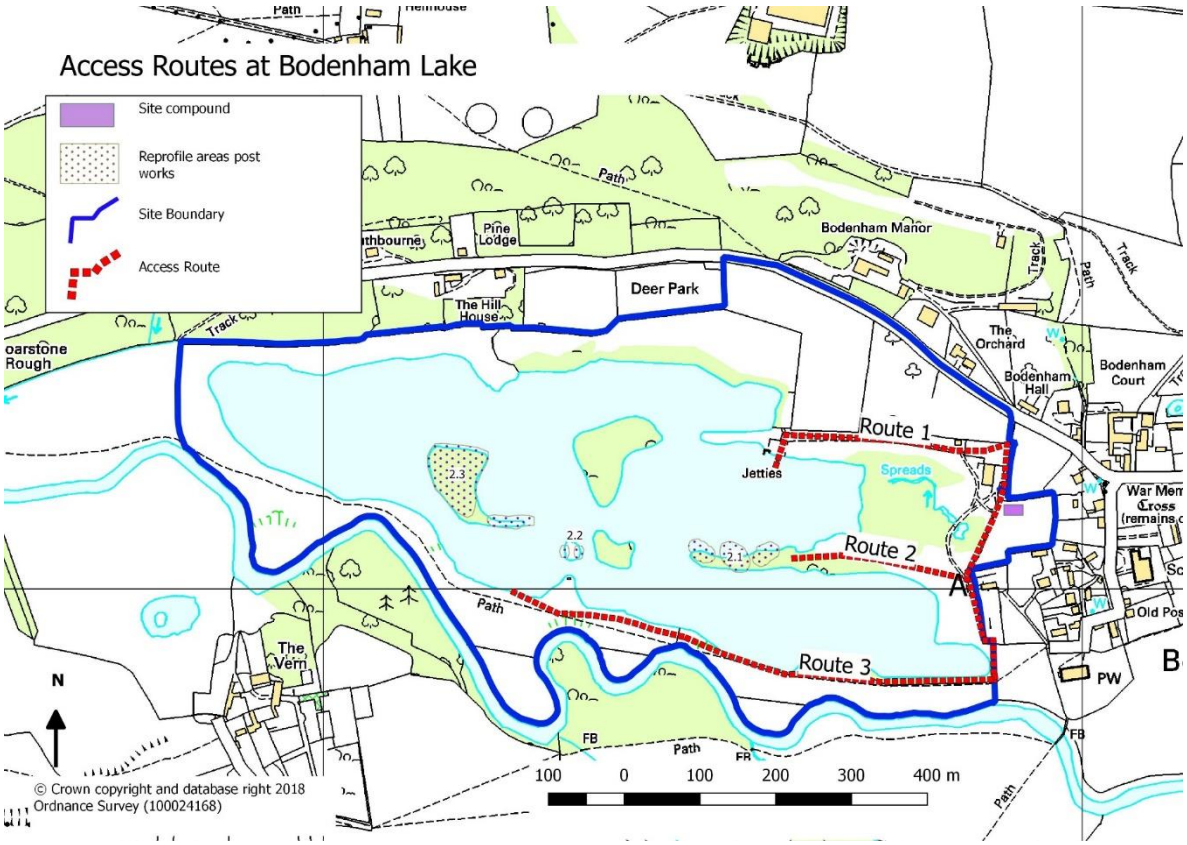
4. Provide drawings to include;
   i. Existing contours, and ground levels, and proposed grading of land areas including the contours and levels to be formed.
   ii. For each of the islands provide a minimum of two cross sections through the existing and proposed levels to show the relationship of the proposed grading to the surrounding land form.
   iii. Design calculations e.g volumes of spoil to be moved.
   iv. Technical specifications to include geology and hydrology.

5. Act as Principal Designer, to fulfil the local authority and CDM requirements (see Appendix 1 Planning Permission)

B. Re-profile works;

1. Remove trees trunks from re-profile areas and if necessary access route 2 (see Figure 3). Burn the remaining brash/roots at pre-agreed fire sites on islands or mainland

Figure 3: Bodenham Lake access route for re-profiling of the islands.

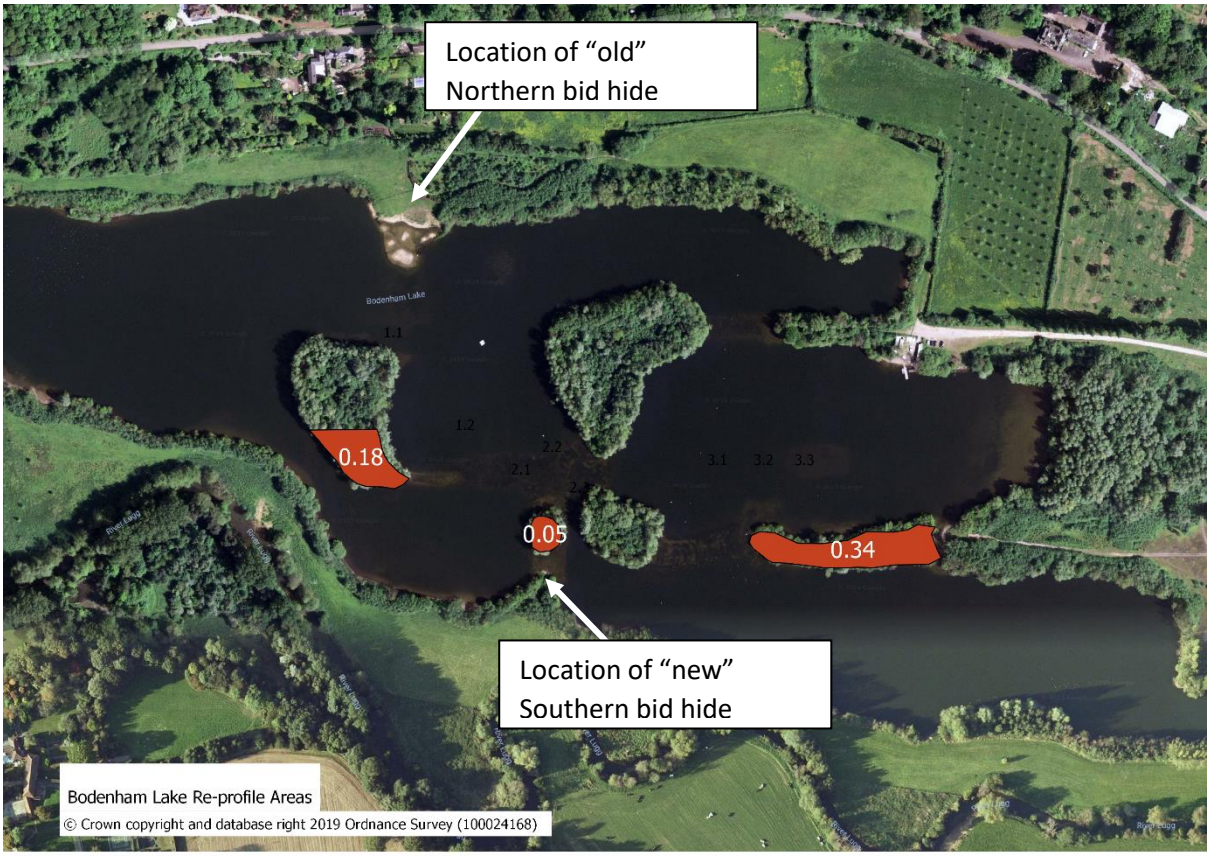


2. In line with the design (Section A above) and planning consent, utilise materials excavated on site to re-profile 3 islands, as outlined in Figure 1, to make them suitable for ground nesting birds, scrub and reedbed establishment.

3. Manage the health and safety responsibilities associated with these projects. Fulfil CDM regulations and conditions of planning permission (see Appendix 1 Planning Permission).

4. Ensure that final works meet the agreed design parameters.

Figure 4: Map of Bodenham Lake showing re-profile areas, and location of bird hides. Labels indicate the size of each area in hectares (trees hangover the edge of some islands).



C. Gravel installation

1. Transport 180 tonnes of gravel from storage area identified in Figure 5 to the 3 islands created by reprofiling island 2.

2. Spread gravel to 10cm deep to create habitat suitable for nesting little ringed plover, oystercatcher and lapwing.

Figure 5: Map of Bodenham Lake showing location of stored gravel and locations where gravel needs to be spread.