

## 4 Alternatives

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### 4.1 Introduction

4.1.1 In accordance with the EIA Regulations, this chapter describes the reasonable alternatives to the Proposed Development considered by the Applicant, prior to the selection of the final design and provides a description of the main reasons for the choice made, including a comparison of the environmental effects if available.

4.1.2 The alternatives that are considered in this chapter include:

- 'No Development' Alternative;
- Re-use of the Dews Lane HOAC site;
- Other alternative sites;
- Alternative locations for development (within the Site);
- Alternative activities and uses;
- Alternative layouts and reclaimed land;
- Alternative materials considered for land reclamation;
- Alternative siting of water based activities within Broadwater Lake
- Alternative HS2 ecological mitigation siting;
- Alternative access and rights of way; and
- Alternative external appearance of buildings and structures.

4.1.3 This chapter is accompanied by Appendix 4.1: Alternative Site Assessment and Appendix 4.2: Alternative Peninsula Layouts.

### 4.2 The 'No Development' Alternative

4.2.1 The Proposed Development is delivering a replacement facility to the former Hillingdon Outdoor Activity Centre (HOAC) which was formerly operating from a site at Dews Lane, UB9 6JN (the 'Dews Lane site'). The Dews Lane HOAC site was subject to a Compulsory Purchase Order and is now under the ownership of HS2. HOAC ceased to operate from the Dews Lane site in October 2020. The High-Speed Rail (London – West Midlands) Act 2017 ("the HS2 Act")<sup>1</sup> includes a statutory requirement for HS2 to fund the relocation of the HOAC to an alternative site, which is suitable for their needs. As such, a scenario where HOAC is not relocated is not considered to be a reasonable alternative.

4.2.2 In a No Development scenario, the Proposed Development would not proceed. This would mean that the baseline and future baseline conditions for the Site set out Chapters 7 – 10 of the ES are likely to prevail. These are not repeated here.

4.2.3 The Applicant's aims for the Proposed Development are to deliver a replacement facility for HOAC to deliver public social and health benefits to the local community. The Applicant also seeks to conserve and enhance the special features of the Mid-Colne Valley SSSI and

Broadwater Lake as a waterbody, in accordance with planning policy and its statutory duties. These objectives are proposed to be delivered partly through the physical elements of the Proposed Development but also through a commitment to long term management set out in the Draft Mitigation Enhancement and Management Plan (MEMP) which accompanies the planning application (Appendices 7.4 and 7.5 of this ES).

4.2.4 The Draft MEMP demonstrates that these aims can be achieved through a number of principles as follows:

- Design and operational management of all recreational waterside and landside activities in a way which avoids disturbance and conflict with the reasons for notification of the Mid-Colne Valley SSSI, including its significant ornithological interest;
- Avoidance of terrestrial habitat loss, with enhancement of retained habitat and creation of new habitat of value for nature conservation;
- Improvements to the quality of the aquatic ecosystem and water environment;
- Increase the amount and quality of habitat of potential value to breeding and wintering birds, providing screened areas to act as refuges from visual disturbance, and with increased nesting opportunities;
- Enhancement of food webs within the SSSI, with the ultimate goal of supporting increased numbers and diversity of breeding and wintering birds; and
- Address existing and future threats to the value of the SSSI through design and ongoing management. Such threats include climate change, invasive species, water quality, contamination, unauthorised site uses and recreational pressure from an increased population.

4.2.5 The Site is not currently being managed specifically in relation to relevant objectives for nature conservation or the water environment. The Applicant is committed to the long-term management of this part of the Mid-Colne Valley SSSI. The package of management and enhancement measures included in the MEMP is unlikely to be delivered in the absence of the project.

4.2.6 The Proposed Development will deliver a replacement for a community asset which has not been able to operate since 2020. As a not-for-profit organisation, HOAC aims to provide a quality, safe, outdoor and environmental educational facilities primarily for young people, but also for the whole community of Hillingdon (and beyond), at an affordable cost. The centre would provide a broad range of outdoor and environmental educational activities for the community in West London and districts west of London, with priority for use was to young people, youth organisations, and disadvantaged or disabled groups. This requires tailored programmes and activities and targeted engagement of those groups.

4.2.7 From a social and community perspective, the benefits of the Proposed Development of the relocated HOAC will be very positive for disadvantaged and disabled groups. These benefits are detailed further in a Social and Community Benefits Statement which accompanies the planning application. In summary, the Proposed Development is expected to deliver the following benefits:

- Opportunities for community cohesion, providing a facility for the community members of all ages to gather and engage in outdoor and water sport activities;

- A space that champions inclusivity by increasing access to water sport activities to disabled and disadvantaged people;
- Training and skilling opportunities for young people through part-time employment, volunteering opportunities and training in water sports;
- Making the natural environment accessible, providing opportunities for leisure and educating children from urban areas on fauna and flora;
- Sustains physical activity and a healthy lifestyle; and
- Stewardship and operation – builds on previous experience to create the opportunities for all residents in Hillingdon (and beyond) to engage in water sports.

4.2.8 The above benefits for users of the HOAC would not be delivered in the absence of the Proposed Development.

### 4.3 Re-use of Dews Lane HOAC site

4.3.1 HOAC operated between 1992 and October 2020 at the Dews Lane site. The HOAC facilities at the Dews Lane site included:

- a range of land based activities, including archery, a giant swing, woodland activity area, low and high ropes, caving, climbing/bouldering, pedal karting, BBQ area and a campsite;
- accommodation, including three seasonal staff accommodation chalets, log cabin waterfront office/store room, a wood shelter race hut, lecture room, centre office and staff room, classroom, workshop to allow for maintenance of the facilities and assets, equipment storage areas/shelters;
- a range of water based activities including windsurfing, canoeing, power boating, dinghy sailing as well as floating/rowing pontoons and a slipway for launching boats;
- a main office & reception, toilets and changing rooms, workshop, waterfront office & race hut and outbuildings & stores; and
- open hardstanding for parking (both vehicles and boats).

4.3.2 HS2 will cross the Dews Lane site on the Colne Valley viaduct and necessitated the demolition of three of HOAC's buildings. The construction of the viaduct will require placement of piers within the Dews Lane site, including approximately 10 in the adjoining 18ha lake, where water based activities took place. The Dews Lane site was subject to a Compulsory Purchase Order (CPO) to facilitate construction of HS2 and is has been under the control of HS2 Ltd since 2020.

4.3.3 In relation to the re-use of the Dews Lane site for HOAC, the HS2 Phase One Environmental Statement (HS2 ES, Volume 5: Technical Appendices, Colne Valley Community data section 2.3, Table 3)<sup>2</sup> concluded the following:

*"The construction of the Colne Valley viaduct will require placement of piers in the 18ha Harefield No 2 Lake where HOAC water based activities take place. The introduction of piers in the lake will constrain water based activities being allocated to the most appropriate part of the lake. This allocation of these water based activities is influenced by the weather conditions (primarily wind conditions) which will be affected by the new structures in the lake. The numbers of groups, ability of groups and types of activities also determine which*

*parts of the lake are used. HOAC advises that the introduction of the viaduct in the lake will affect the flow of the wind which has implications for sailing, as well as affecting visibility, which they believe could restrict the areas of the lake that are available for use. It is considered that the use of part of this community resource will be impaired during the operation of the Proposed Scheme.*

*The piers for the viaduct will also be placed on land that is part of the HOAC site and will require the demolition of three buildings. The area is currently used for land-based outdoor activities at HOAC.*

*The land required permanently to construct the Proposed Scheme is considered to result in both the current water-based and land-based operations of HOAC being impaired. It is therefore considered to be a major adverse effect and is significant.”*

- 4.3.4 The presence of the viaduct requires a safety buffer zone either side of the railway. The remaining portions of the lake would be too small and inadequate for future HOAC activities to be conducted. In addition, once the viaduct is complete and operational, the Applicant considers that noise and vibration from the high-speed trains would result in an unsafe environment for future users as there would be difficulty hearing and following instructions, creating a safety risk, particularly for children.
- 4.3.5 The Applicant is therefore of the view that the lake at the Dews Lane cannot be used for water based activities following completion of HS2 and therefore this alternative is not considered further.

#### **4.4 Other Alternative Sites**

- 4.4.1 Chapter 15 of the NPPF deals with conserving and enhancing the natural environment. Paragraph 180 of the NPPF sets out the principles that should be followed by local planning authorities when determining planning applications:
- “(a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- 4.4.2 An Alternative Site Assessment (ASA) has been prepared and is provided as Appendix 4.1. The ASA assesses whether there are other any alternative sites available for delivery of a replacement HOAC facility. The ASA draws on published information, including a Lake Options Report<sup>3</sup> prepared by HS2 in 2015 (the ‘HS2 Lake Options Report’ which is included as Appendix 1 to the ASA) and other available data sets, together with site surveys. The ASA includes consideration of whether the existing Dews Lane site could be re-used, although the reasons for discounting this alternative are included above at Section 4.3 for ease of reference.
- 4.4.3 A draft version of the ASA was shared with Natural England prior to submission they responded with comments (included at Appendix 7.13). The Applicant sought to address the comments raised in an updated version of the ASA (Appendix 4.1).
- 4.4.4 The HS2 Lake Options Report provided a summary assessment of HOAC’s review of surrounding lakes which could facilitate the relocation of the new facility. The HS2 Lake

Options Report (Appendix 1 of the ASA) identified a list of lakes which could potentially be suitable for delivery of replacement HOAC facility and appraised them against a set of recreational criteria required to meet the needs of HOAC. Due to the time that has elapsed since the HOAC Lake Options Report was prepared, the potential alternative sites have been revisited by the Applicant within the ASA.

- 4.4.5 The ASA identifies a ‘Long List’ of potential alternative HOAC relocation sites based on a Search Area defined by an area that is within a reasonable distance to the previous HOAC. This has been defined as within a 10km radius of the previous HOAC to ensure that the new facility is accessible to the communities that previously used HOAC. This search area encompasses the majority of lakes within the Colne Valley. Some areas beyond this search area were also included network.
- 4.4.6 Figure 4.1 presents the Search Area, the identified lakes on the Long List of Sites is included in Table 4.1.
- 4.4.7 The Applicant confirmed that there are specific site requirements for the project in order for HOAC to maintain land and water-based activities in line with that HOAC formerly offered at the Dews Lane site. The Long List of Sites has been assessed against the following recreational criteria for HOAC:
- **Lake and Land Surface Area** – surface area of at least 18 hectares (45 acres) of lake and a 2 hectare (5 acre) land area. These relate to the extents of the previous HOAC facility to ensure at least a like-for-like size is provided. An area of the surface area of the lake would need to be approximately 225 m x 250 m to allow for the running of the waterside activities. A length of 600 metres would be required for rowing activities. The positioning of each group in relation to each other would be influenced by factors such as water depth, wind and ability of the groups. Safety boats for each activity will require unimpeded access from the point of any activity to the Activity Centre building;
  - **Accessibility** - accessibility to the existing strategic road network / highways;
  - **Site Availability** - sites with active uses and sites with granted outline or full planning permission as well as those with applications pending consideration are deemed unavailable. Also, a site which is not being promoted for development but is in multiple and fragmented ownership not a viable alternative;
  - **Depth** – a minimum lake water depth requirement of 1.5 metres with an average depth of 4 metres. This is necessary to ensure that dinghies can safely capsize without a mast or equipment getting caught on an obstacle on the lake floor, as well as preventing algae blooms which create obstructions for sailing and other water-based activities;
  - **Accessibility of Lake from Level Landform** – this is required to provide multiple launch and recovery points. The site needs to be of a size to accommodate at least three pontoons so that sailing boats, safety boats and other craft to manoeuvre, ingress and egress the water simultaneously and safely. Accessibility could be hindered by lack of available space, height changes from the water to landform or existing public uses conflicting with the HOAC future activities;

- **Water Quality** – the water quality the lake must be of good quality with clean water and reliable water levels. No natural or man-made contamination to the lake which could cause a risk to human health;
- **Restrictions** – there must be no restrictions for training and non-powered recreation. Ecological sensitivities could limit certain activities;
- **Site Security / Exclusive Access** – ability to make site secure and ensure exclusive use;
- **Access to Wider Amenities** – access to woodlands, fields of a level campsite and a grassed area for 40+ people; and
- **Wind Conditions** – good wind conditions. Extensive, dense tree lined lakes of a smaller size creates poor wind conditions for wind.

4.4.8 Table 4.1 summarises the Applicant’s justification for discounting sites from further detailed assessment. Sites deemed prohibitively constrained and therefore unsuitable for HOAC were discounted.

4.4.9 Of a total of 28 sites considered in the Long List (including re-use of the Dews Lane site), three sites were shortlisted for further detailed consideration as alternative sites:

- Broadwater Lake (Site 8);
- Troy Lake (Site 11); and
- Ruislip Lido (Site 13).

4.4.10 Discussion of each of the sites and the justification for filtering out sites to the Short List Assessment is provided below.

Figure 4.1: Location Map - Long List of Sites

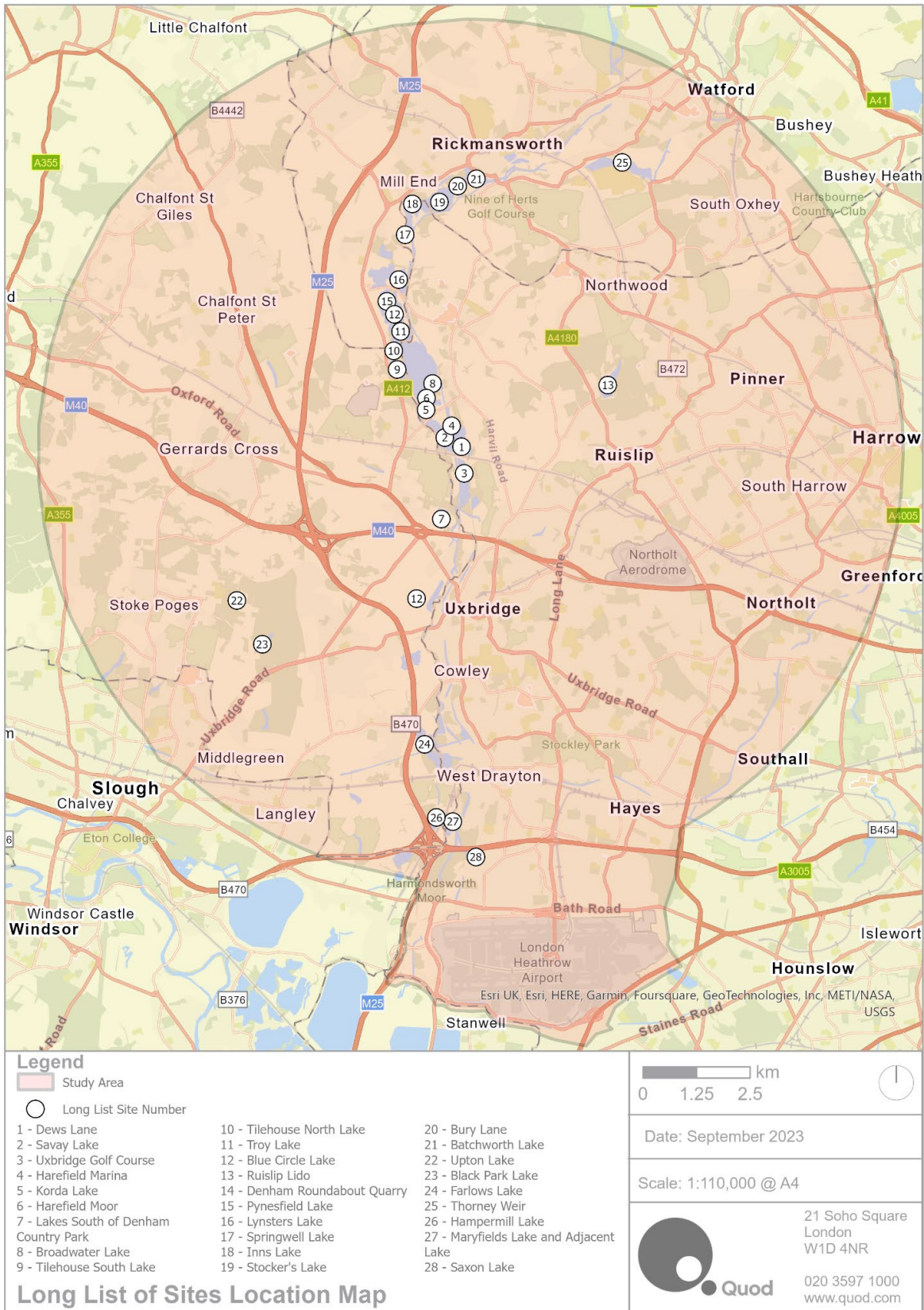


Table 4.1: Filtering the Long List of Sites

Site No.	Site Name	Justification for Scoping out of Short List Assessment
1	Dews Lane (Previous HOAC Site)	<p>The previous HOAC site is unavailable due to a CPO by HS2. The route for HS2 will see a viaduct cut through the existing Site and lake, preventing HOAC from continuing to operate in this location. The construction of the viaduct began in 2021 with full completion expected in May 2025. The presence of the viaduct requires a safety buffer zone either side of the railway. The remaining portions of the lake would be too small and inadequate for HOAC activities to be conducted. In addition, once the viaduct is complete and operational, the noise and vibration from the high-speed trains would result in an unsafe environment for future users as there would be difficulty hearing and following instructions.</p>
2	Savay Lake	<p>The Site compromised by future HS2 viaduct to be constructed above the lake. This lake would be severely impacted during the extensive construction stage which commenced in 2021 and is anticipated to be completed by Q4 2025. The location would be beneath the new proposed HS2 viaduct which would impact the function of the HOAC.</p>
3	Uxbridge Golf Course	<p>Uxbridge Golf Course and the adjacent lakes are owned by the LBH. Four lakes are present which are fragmented and split by landforms. Existing uses of the Uxbridge Golf Course Site include the public 12-hole golf course owned and managed by the LBH which has been present since the 1940s, as well as use of the lakes by the Uxbridge Rovers and Angling Conservation Society.</p> <p>There are two access points to the centre of the lakes by Harvil Road and Skip Lane. The existing access points are both heavily constrained in width and the drive is in need of extensive repairs.</p> <p>To the South of the lakes is Fray's River, a semi-canalised short river that branches off the River Colne at Uxbridge Moor and re-joins it in West Drayton. The wetlands surrounding the Fray's River are protected by Sites of Specific Scientific Interest (SSSI) status. Two portions the north east and north south east of the Uxbridge Golf Course site are designated as the Harefield Place Nature Reserve and is protected by the Hillingdon Natural History Society. These two areas now also form part of the Frays Valley Local Nature Reserve. There are two trails contained within these woodland areas which would require careful consideration and protection.</p> <p>In 2019, Uxbridge Golf Course was explored as an option for the future HOAC. Technical work to RIBA Stage 1 was undertaken to explore the potential options for redevelopment. Due to the fragmented nature of the lakes and the required lake surface area for the future HOAC, the only way this site could meet future users would be to remove the landforms between the four lakes to merge into one lake. This would require excavation of approximately 21,577m<sup>2</sup> of land which would result in significant disturbance to existing ecological features. A hydrological survey was undertaken which confirmed that the four separate lakes have varying lake</p>



Site No.	Site Name	Justification for Scoping out of Short List Assessment
		depths (from 1.85m to 3.34m). Further to the land excavation, dredging would be required to ensure consistent water levels across the lake beds. A cost analysis was undertaken for this Site which determined this site as unviable due to the significant amount of excavation, dredging and site access upgrades that would be required to meet the future uses of the Site. During construction stage, there would be difficulty for construction vehicles to enter and exit the site due to the constrained lanes. During operation, the access road would be unsuitable for coaches.
4	Harefield Marina	Lake area not large enough to facilitate HOAC activities (maximum length is 475m in length, 165m in width). Existing use as a commercial marina which houses 200 non-residential moorings for cruisers and narrowboats, making the site unavailable to HOAC. Marina also connects into the Grand Union Canal.
5	Korda Lake	Site compromised by future HS2 viaduct to be constructed above the lake. This lake would be severely impacted during the extensive construction stage which commenced in 2021 and is anticipated to be completed by Q4 2025. The location would be beneath the new proposed HS2 viaduct which would impact the function of the future HOAC.
6	Harefield Moor	Lake surface area not large enough to facilitate HOAC activities.
7	Lakes South of Denham Country Park	Lake surface area not large enough to facilitate HOAC activities.
8	Broadwater Lake	Shortlisted for further assessment.
9	Tilehouse South Lake	Site compromised by future HS2 viaduct to be constructed above the lake. This lake would be severely impacted during the extensive construction stage which commenced in 2021 and is anticipated to be completed by Q4 2025. The location would be beneath the new proposed HS2 viaduct which would impact the function of the future HOAC. Existing uses of the site include the Denham Waterski Club which is used consistently in the summer months. Not large enough to facilitate HOAC activities (two lakes of 8 hectares and 5 hectares in size). Dense woodland surrounds of the southern lake creates reduced windy conditions required for sailing activities.
10	Tilehouse North Lake	Site compromised by future HS2 viaduct to be constructed above the lake. This lake would be severely impacted during the extensive construction stage. The location would be beneath the new proposed HS2 viaduct which would impact the function of the HOAC.

Site No.	Site Name	Justification for Scoping out of Short List Assessment
11	Troy Lake	Shortlisted for further assessment.
12	Blue Circle Lake	Lake surface area not large enough to facilitate HOAC activities (11.5 hectares / 28.5 acres). The widest length of the lake is 415 metres, which does not meet the criteria for rowing activities. The lake lies outside the LBH boundary. There is a heavy tree cover of willow and alder which could disrupt the wind conditions required for sailing. There are existing users of this lake by Rickmansworth Conservative Club and District Angling Society which could disrupt interface between land based and water based recreation.
13	Ruislip Lido	Shortlisted for further assessment.
14	Denham Roundabout Quarry*	It is acknowledged that Denham Quarry was subject to a planning application for the restoration and relocation of HOAC (ref. 16/01217/CM). This application was consented in 2016 and an ES accompanied the application. However, since consent was achieved, the current owners have advised they are not willing to sell and evacuate the premises, and as such the Denham Roundabout Quarry is not available to deliver HOAC. Further, access to the site off Oxford Road was not able to be secured due to ownership issues. In addition to the ownership and access constraints, the lakes within the Denham Quarry Roundabout site have since been infilled and therefore would not meet any of the criteria required to deliver HOAC.
15	Pynesfield Lake	While this lake has an overall area of just under 20 hectares (49 acres), the lake is bisected by a spit of land from the north east of the lake into the central portion of the lake. Along this spit is a footpath linking West Hyde and the Coy Carp public house. It would therefore not be possible to incorporate the necessary security measures required for safeguarding of children using the facility and make it difficult to meet the recreational criteria to allow simultaneous water-based activities as required by HOAC. The widest length of the lake is approximately 390 metres, which does not meet the requirement for rowing activities. The shores are heavily fished by Rickmansworth Conservative Club and District Angling Society. The lake is notably shallow according to site visits undertaken as a part of the HS2 Lake Options Study.
16	Lynsters Lake	While the overall body of the lake is large (23 hectares / 56 acres), it is subdivided into three subsidiary lakes by extensive spits and bunds. This lake would therefore not meet the recreational criteria to allow water-based activities as required by HOAC. Shores are heavily fished by local angling groups. Large areas of land are present to the north which could be utilised for outdoor recreational activities / camping, but access to them appears

Site No.	Site Name	Justification for Scoping out of Short List Assessment
		problematic via Lynsters Farm and around the back of the Maple Lodge Sewage Treatment Works.
17	Springwell Lake	The lake is too narrow to accommodate the sailing and rowing area (the widest extent is 195 m across). Other sensitivities include Stockers Lake Local Nature Reserve lying immediately to the north. Existing uses include fishing by local angling groups.
18	Inns Lake	Lake surface area not large enough to facilitate HOAC activities (9 hectares / 9.1 acres). The lake is tree-lined which means a significant number of trees would have to be removed to enable access to land from the water.
19	Stockers Lake	The lake meets the Surface Area criteria (28 hectares / 69 acres), but it is characterised by many islands, spits, and shallow waters which would prevent simultaneous water-based activities as required by HOAC. Access is provided around the eastern end of the lake via footpaths from Stocker's Farm to the south and the A412 to the north is problematic especially as these involve crossings over the River Colne to the north and the canal to the south. This Lake is a Local Nature Reserve managed by the Herts and Middlesex Wildlife Trust along with volunteers from Friends of Stocker's Lake. It is perceived as being as important for birdlife as the Broadwater Lakes SSSI complex.
20	Bury Lake	This Lake not large enough to facilitate HOAC activities (9 hectares). Bury Lake is part of the Rickmansworth Aquadrome Local Nature Reserve. The lake is already used by a number of recreational groups and capacity to the future HOAC would be limited and / or conflict the existing users. The existing users include: Bury Lake Young Marines, The Three Rivers Yachting Club, Ricky Windsurfing Club, Rickmansworth Water Ski Club, Nomad Kayak Club and Uxbridge Rovers Angling and Conservation Society.
21	Batchworth Lake	Lake surface area not large enough to facilitate HOAC activities.
22	Upton Lake	Lake surface area not large enough to facilitate HOAC activities.
23	Black Park Lake	Lake surface area not large enough to facilitate HOAC activities.
24	Farlows Lake	Farlows Lake is fragmented into three separate water bodies, with the largest of an irregular shape which does not enable the different similar activities required by future HOAC. Existing use as a carp fishery by Farlows Lake Premier Fishing Complex.
25	Thorney Weir	Lake is not large enough to facilitate HOAC activities (north-south distance is 300m).

Site No.	Site Name	Justification for Scoping out of Short List Assessment
26	Hampermill Lake	Lake surface area not large enough to facilitate HOAC activities.
27	Mayfields Lake and Adjacent Lake	Lake is not large enough to facilitate HOAC activities (longest length of water is 250m).
28	Saxon Lake	Not large enough to facilitate HOAC activities (longest length of water within the lake is 250m).

## Broadwater Lake

4.4.11 The key features of the Broadwater Lake site are as follows:

- Lake size: approximately 62 ha (153 acres);
- Distance from Dews Lane site (former HOAC site): 1.49 km;
- The lake is already used by Broadwater Sailing Club (BSC), Gerrards Cross and Uxbridge District Angling Society and British Carp Study Group; and
- Broadwater Lake forms a component part of the Mid-Colne Valley SSSI, designated for breeding and over-wintering birds.

4.4.12 The advantages of the Site include:

- Lake Surface Area and Land Surface Area – the Site meets the area requirements for both water and land based activities;
- Accessibility - The Site has good transport links. The access road is currently shared with the adjacent land occupiers GRS Bagging, Harleyford Aggregates and a small number of residential properties. The access is a simple priority junction with no right-hand turn lane present from Moorhall Road. A Public Right of Way (U74) runs adjacent to the eastern portion of the Site, which also forms part of the Colne Valley Trail and London Loop;
- Other - the lake is close to the Dews Lane site, which would re-provide the displaced community facility in a close proximity to the previous users of the Site; and
- Other (Environmental Considerations) – there are no major sensitivities with respect to air quality or landscape/heritage associated with development at the Broadwater Lake Site.

4.4.13 The disadvantages of the Site are:

- Depth - Some localised dredging would need to be undertaken to ensure the minimum depth is achieved throughout the Sailing Area;
- Other (Ecological Considerations) - The location within the Mid Colne Valley SSSI is an ecological sensitivity. Broadwater Lake and Stocker's Lake (a separate lake, approximately 3 kilometres north of the Mid Colne Valley SSSI), form the two most significant refuge/roost sites attracting almost the whole range of water birds in the valley; they both support over 1,000 birds at peak periods. Broadwater Lake attracts

nationally important populations of Gadwall, Tufted Duck, Great Crested Grebe and Cormorant; and

- Other (Heritage Considerations) – consideration of the setting of Widewater Lock Cottage (Grade II) would need to be made during the construction and operational stage of any future development.

## Troy Lake

4.4.14 The key features of Troy Lake are as follows:

- Lake size: approximately 21 ha (52 acres);
- Distance from original HOAC site: 2.7km;
- The lake is already used by Rickmansworth Sailing Club;
- Designated as a LWS of County value for wintering birds; and
- The lake is being considered for inclusion within the Mid Colne Valley SSSI by NE.

4.4.15 The advantages of this Site are as follows:

- Lake Surface Area - The lake meets the required 22 hectare surface area;
- Other - the lake is close to the previous HOAC location, which would re-provide the displaced community facility in a close proximity to the previous users of the site; and
- Other (Environmental Considerations) – there are no major sensitivities with respect to air quality or landscape associated with development at the site.

4.4.16 The Applicant's main reasons for discounting Troy Lake are as follows:

- Accessibility - There is an existing single track, long access road to the Rickmansworth Sailing Club site. This would pose a challenge during both the construction stage and the operational stage. The River Colne runs immediately adjacent to the north of the existing site access route. There is no feasible option to upgrade the existing site access as there is no available land between the River Colne and the Troy Lake waterline;
- Land Surface Area - the area of land surrounding the lake is smaller than the required 5 acres as specified within the recreational criteria. Furthermore, it is unlikely that over three pontoons could be provided;
- Access to Wider Amenities - There is no access to woodlands or fields for camping as specified within the recreational criteria;
- Other (Existing Uses) - Development at this Site could require displacement of the existing uses on the Site which includes the Rickmansworth Sailing Club and the Uxbridge Rovers Angling and Conservation Society. There could be shared lake use but would be subject to discussions with existing users and specific zones for use of lake / land area by different users to prevent conflict;
- Other (Receptors) - There are a number of sensitive receptors near to the Site including the adjacent Black Jack's Cottage (Grade II Listed Building) (also referred to as 'Jack's Mill'), neighbouring residential properties, commercial premises and a narrow boat charity;
- Other (LPA Boundary) - The lake lies outside LBH boundary;

- Other (Ecological Considerations) – The Site is of at least county value to wintering birds as demonstrated by its designation as a LWS. The Site is being considered by NE to be included within the extent of the Mid Colne Valley SSSI. The lake may act as a supporting habitat for wintering birds which are a designated feature of the Mid Colne Valley SSSI. Use of the lake as a recreational facility may cause a disturbance effect on the birds using the LWS site itself and potential cause a secondary effect on the Mid Colne Valley SSSI. This could be overcome by having specific locations for HOAC activities further from the bird assemblages; and
- Other (Heritage Considerations) – consideration of the setting of Black Jack’s Cottage (Grade II) (‘Jack’s Mill’) would need to be made during the construction and operational stage of any future development.

4.4.17 Troy Lake was discounted as a viable option due to the lack of land surface area adjacent to the lake to enable the provision of three pontoons and boat storage areas, as well as no land available to establish campsites or outdoor activities as required by the future HOAC operations. In addition, the access route is considerably long, meandering along the north of the lake. Due to the nature of the future site users which will include schoolchildren and disabled users, the access roads would need to cater for emergency vehicles, school coaches and disabled minibuses. There is no feasible option to upgrade the existing site access as there is no available land between the River Colne and the Troy Lake waterline. Troy Lake is currently closed to the local angling clubs due to a recent fish kill, which prevents fishing at the lake. While the cause of the fish kill is unknown, water quality tests would have to be undertaken to determine there are no potential human health effects associated with the water.

### Ruislip Lido

4.4.18 Key Features:

- Lake size: approximately 13 ha (33 acres);
- Distance from original HOAC site: 3.60km;
- Currently operates as a lido for recreational purposes. To the south of the lido is an artificial beach with a children’s play area and the Woodland’s Centre/Lakeside Café. The site has an extremely popular narrow-gauge railway. On a Bank Holiday, upwards of 3000 visitors can be expected at the Lido; and
- Adjacent to Ruislip Woods National Nature Reserve (NNR).

4.4.19 The advantages of the site include:

- Public Accessibility - Access to the site is established. There is vehicular access from Reservoir Road which leads to the lido car park and overflow car park. However, in peak season it is likely that these car parks would be full and therefore result in a potential conflict with HOAC’s use;
- Access to Wider Amenities - The site includes Large Poor Field which is common land which could be utilised as a campsite;
- Other (Ecological Considerations) - It has little apparent ecological value except as a buffer to the adjacent Ancient Woodland and due to mature oak woodland around three sides of the field. The grassland habitat would appear compatible with recreational use by HOAC and is already accessible to people; and

- Other (Environmental Considerations) – there are no major sensitivities with respect to air quality or landscape/heritage associated with development at this site.

4.4.20 The Applicant's main reasons for discounting the site are as follows:

- Depth – the results of a recent bathymetric survey confirm that the average depth of the Ruislip Lido is only 0.5 metres – 1 metre, with only small localised areas in the south-western portion of the lake which are less shallow;
- Water Quality / Contamination - The presence of microscopic parasites present within the water would mean the Water Quality / Contamination Recreational Criteria is not met, as there is contamination of the water that could cause harm to those undertaking activities within the water;
- Land Surface Area - There are two small areas of potential for the required land-based activities. The first area is an area (1ha) of lakeside land north of the Woodland's Edge public house and adjacent to the overflow car park. There would be some conflict on this grass field with existing informal recreation and the parcel of land appears too small. The second area (2ha) is a grass field adjacent to the main car park dominated by improved rye grass where it is adjacent to the car park at the western end and semi-improved fescues at the eastern end. The existing site has limited potential for incorporation of the land based activities of HOAC and is already heavily used by families with small children and elderly people. Land based activities may conflict with existing users of the lake and the adjacent NNR. Within NNR and potential land area is common land. As such additional ecological surveys and mitigation would be required for development here; and
- Other (Flooding) – should the water levels be raised to enable HOAC activities due to the existing artificially low water levels, this could increase off-site flooding potential. This would be of particular concern on Cannon Brook, given historic flooding affecting a number of properties present in the surrounds.

4.4.21 Ruislip Lido was discounted as a viable option for a number of reasons. A recent Bathymetric survey of the Ruislip Lido confirmed that the average depth of the water is 0.5 – 1m in depth, which does not meet the requirements for sailing. Should the water levels be raised to enable the Proposed Development activities due to the existing artificially low water levels, this could increase off-site flooding potential. There are only two small land areas on the artificial beach which are too small to deliver the required three pontoons and boat storage areas required. The existing uses of the site include public use which would conflict with the activities of the Proposed Development. Swimming within the lido is forbidden due to the presence of microscopic parasites within the water which could pose a human health effect.

## Conclusion

4.4.22 The Applicant considers there are no alternative sites for the HOAC replacement facility. Broadwater Lake meets the majority of the Recreational Criteria in terms of lake surface area, land surface area, accessibility of the lake from level landform, water quality and contamination, recreational restrictions, public accessibility, site security, access to wider amenities and site availability.

## 4.5 Alternative locations and the sequential test

- 4.5.1 Paragraph 159 of the NPPF states that inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere. Paragraph 162 states that the aim of the Sequential Test is to steer new development to areas with the lowest probability of flooding. Paragraph 102 states that if, following application of the Sequential Test, it is not possible, consistent with wider sustainability objectives, for the development to be located in zones with a lower probability of flooding, the Exception Test can be applied if appropriate. For the Exception Test to be passed:
- it must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk, informed by a Strategic Flood Risk Assessment where one has been prepared; and
  - a site-specific flood risk assessment must demonstrate that the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and where possible, will reduce flood risk overall.
- 4.5.2 The NPPF requires both elements of the Exception Test to be passed for development to be permitted.
- 4.5.3 The flood risk of each alternative site option was a key consideration in the study for alternative locations. The Sequential Test was applied to each of the alternative site options as detailed in the Flood Risk Assessment (Appendix 8.2). The sequential assessment indicates that Troy Lake and Ruislip Lido are not sequentially preferable to the application Site in terms of flood risk.
- 4.5.4 It is therefore concluded that there are no alternative sites at a lower risk of flooding that are available and suitable. The Development is therefore considered to be compliant with the sequential approach to site selection as set out in the NPPF.

## 4.6 Alternative Locations for Development within the Site

- 4.6.1 Table 4.2 sets out the alternatives that were considered for the location of BSC, Hillingdon Outdoor Activity Centre (HOAC) within the Site, including the reason they were discounted and a comparison of potential effects with the Proposed Development (see Figure 2.2 In Chapter 2: Site and Setting for existing location of BSC and the peninsula within the Site).

**Table 4.2: Alternative Siting Locations within Broadwater Lake Comparison of Environmental Effects of the Development**

Alternative Location	Reason Discounted	Comparison of Effects with the Proposed Development
Retain BSC in existing location. Locate HOAC at existing BSC site.	A high-pressure gas main bisects BSC at its current location, this limits the possibility of constructing a modern facility to current standards. The presence of the gas main restricts the	Not considered further as this as discounted (it is not a reasonable alternative).



Alternative Location	Reason Discounted	Comparison of Effects with the Proposed Development
	<p>feasibility to lay foul drainage and the other services that would be required for the Site to accommodate both HOAC and BSC.</p> <p>HOAC delivers numerous outdoor activities. The existing BSC site is not large enough to deliver the replacement HOAC facilities that LBH is required to deliver. Were the facilities currently delivered by HOAC located within the area of the BSC, the site would be too congested to effectively, or safely deliver the mandated outputs. Due to the relatively congested nature of the BSC site, safely accommodating the increased traffic volume would impact significantly on the day-to-day operation of the site.</p> <p>The BSC provides space to its members for the storage on site of privately owned boats and dinghies. The site is not large enough for BSC, and HOAC to both store the boats, and other waterside equipment. This would severely impact on the ability to operate both facilities at the current BSC site.</p>	
<p>Retain BSC in its existing location. Locate HOAC on the peninsula</p>	<p>Avoiding, managing, and minimising the potential impact on ecological receptors (such as wintering and breeding birds) has been at the forefront of all alternative proposals. Were both BSC and HOAC to operate at Broadwater Lake, but from different locations the ability to manage and minimise the impacts would be severely curtailed. By co-locating both facilities, the space available within the Site can be utilised more efficiently, decreasing the areas that could be impacted by the proposed and current</p>	<p>Avoiding, managing, and minimising the potential impact on ecological receptors (such as wintering and breeding birds) has been at the forefront of the proposals. Were both BSC and HOAC to operate at Broadwater Lake, but from different locations the ability to manage and minimise the impacts would be severely</p>

Alternative Location	Reason Discounted	Comparison of Effects with the Proposed Development
	<p>activities. Co-location will also make it possible to implement and enforce management procedures designed to avoid, manage, and minimise the potential impact ecological receptors.</p>	<p>curtailed. By co-locating both facilities, the space available within the Site can be utilised more efficiently, decreasing the areas that could be impacted by the proposed and current activities. Co-location will also make it possible to implement and enforce management procedures designed to avoid, manage, and minimise the potential impact ecological receptors.</p>

## 4.7 Alternative Activities and Uses

- 4.7.1 Given the statutory requirement to re-provide the activities and uses at HOAC and the need to accommodate existing uses and facilities associated with BSC, no alternative activities or uses have been considered. Existing angling use is also proposed to continue at the Site.
- 4.7.2 The existing facilities at the Dews Lane HOAC site and BSC (at Broadwater Lake) have been developed on an ad hoc basis over several decades. The facilities at the Proposed Development cannot be provided as an exact 'like for like' basis to those currently at HOAC and the BSC. Whilst safe, their design does not meet modern best practice or statutory and mandatory compliance, and notably with regard to safeguarding, disabled persons access and special needs. They are also not optimised to meet net zero and modern sustainability requirements. As such, an exact like-for-like replacement is not considered to be a reasonable alternative by the Applicant.
- 4.7.3 The level of use for each facility (HOAC and BSC) will be the same as the existing operating activities. Intensification of the level of usage was not considered as a reasonable alternative.

## 4.8 Alternative Layouts for Peninsula and Reclaimed Land

- 4.8.1 The main alternatives considered for the layout of the Proposed Development at the peninsula included the use of reclaimed areas of land, are shown in Figure 4.2. A description of each of the main alternatives is provided below:

1. **Existing Peninsula Only** - A concept masterplan was developed as a 'graphic brief' that set out all the required components of the Proposed Development including both HOAC and BSC. This initial layout was prepared in advance of full knowledge of topographic, bathometric, ecological and arboricultural conditions at the Site. A number of alternative layouts were considered at this stage as presented in Appendix 4.2 (see Options 1 to 6C). However, these layout studies were conceived before the results of the extensive surveys undertaken at the Site.
  2. **Existing Peninsula and Reclaimed Land (West)** - Ecological surveys established that the wet woodland in the centre and to the west of the peninsula was highly sensitive and provides habitat for foraging and roosting bats, badgers and woodland breeding birds. In response, a strategy was developed to avoid loss of this priority habitat. The Applicant therefore chosen to reclaim land from the lake to the west of the peninsula to deliver elements of the Proposed Development including the Main Building and boat parking. This reclaimed land was included to create new habitats to mitigate habitat loss and include ecological enhancement measures.
  3. **Existing Peninsula and Reclaimed Land (North)** - Following further ecological surveys, ecological mitigation measures were developed to avoid impacts as far as possible by creating screened places of refuge around the lake (with the main area located to the southwest of Broadwater Lake). This provides areas into which water birds would settle if disturbed by the proposed activities. The proposed area of reclaimed land was relocated from the west of the peninsula, away from the sensitive wet woodland and lake refuge area, to the longer northern shore of the peninsula.
  4. **Existing Peninsula and Reclaimed Land (North – Further Options)** - In response to feedback from Natural England and information received from the arboricultural survey, buildings were moved further north to avoid existing trees. Approximately 50m of open water was provided between the peninsula and islands created to the west to minimise predation risks. The extent of reclaimed land was aligned closely to the shallowest water to minimise the amount of fill material required. Figure 4.3 sets out the alternative options considered for the reclamation of land to the north of the peninsula (which are considered further in Section 4.12) with Revision E being the selected option as it has less impact on the loss of open water.
- 4.8.2 A comparison of the environmental effects of the alternative options for the layout of the peninsula is presented in Table 4.3. The final masterplan was chosen in response to ecological sensitivities of the Site, minimising the quantity of fill material for land reclamation and reducing visual impact on the openness of the Green Belt.

Table 4.3: Comparison of Alternative Peninsula Layouts

Alternative Layout	Reason Discounted	Comparison of Effects with the Proposed Development
1. Existing peninsula only	Ecological surveys established the presence of sensitive habitats on-site which would be impacted by development on the peninsula. Impacts could not be avoided unless the area of the land was increased to accommodate the facilities needed by HOAC.	Development on the existing peninsula would result in significant effects on ecological receptors. These effects are avoided by reclaiming additional land to accommodate the facilities needed by HOAC. As such

Alternative Layout	Reason Discounted	Comparison of Effects with the Proposed Development
		the Proposed Development avoids effects on lowland mixed deciduous woodland through land reclamation.
2. Existing peninsula and Reclaimed Land (West)	Land reclamation in this location would minimise opportunities to provide areas of refuge for birds disturbed by the proposed activities.	The Proposed Development provides a screened area of refuge in the south-west of the lake which mitigates disturbance impacts on sensitive bird species. The effects would be worse if land is reclaimed to the west of the peninsula as the area of refuge provided to birds would be reduced.
3. Existing peninsula and Reclaimed Land (North)	In response to feedback from Natural England, 50m of open water was created between the peninsula and islands created to the west to minimise predation risks for birds. Therefore the extent and design of the reclaimed land needed to be further refined to achieve this requirement.	The Proposed Development maintains 50m of open water between the peninsula and islands to minimise predation risks for birds. The effects on bird populations would be worse if this distance were not maintained.
4. Existing peninsula and Reclaimed Land (North – Further Options)	C	Revision C resulted in the loss of trees along the existing shoreline. The Main Building also needed to be moved further north to avoid loss of trees on the existing peninsula.
	D	Revision D extends the area of land reclamation further into the lake and results in loss of more open water.
		Revision C results in the loss of more trees than the Proposed Development and therefore has worse effects.
		Revision D has a worse effect on the loss of open water than the Proposed Development. The final proposals for land reclamation were designed with the benefit of the completed AVR study and in particular viewpoint 15 from the Old Orchard Inn with respect to openness of the Green Belt. The Proposed Development reduces the

Alternative Layout	Reason Discounted	Comparison of Effects with the Proposed Development
		area of land within the viewing corridor by half.

- 4.8.3 Technical studies including visual analysis of the proposals informed the landscape strategy and siting of the buildings to minimise the potential visibility of the proposals and land-based activities operations in particular from Viewpoint 15 which is the location of greatest potential visibility of the Proposed Development (See Chapter 10: Landscape and Visual Impact Assessment for further details). The AVRs and ‘guiding ‘ lines from the Viewpoint 15 were used to inform the siting of the Main Building with a backdrop of the existing wooded peninsula and reduce the extent of made land so as to maintain visible open water between the peninsula and westernmost appearing extent of the first island east of the peninsula. Furthermore, this maintains the perception of the extent of lake visible into the distance.

Figure 4.2: Peninsula Layout and Reclaimed Land Alternatives

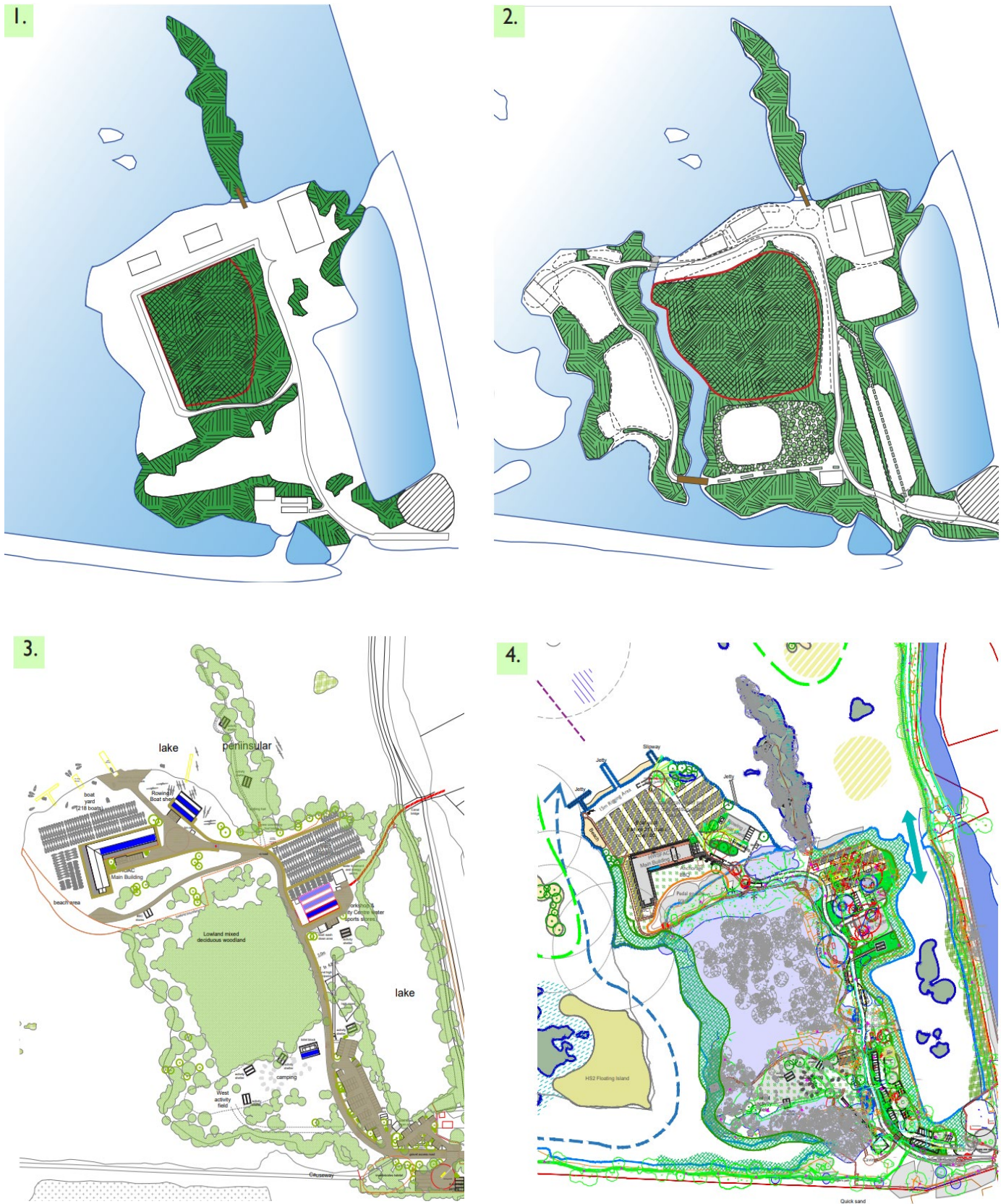
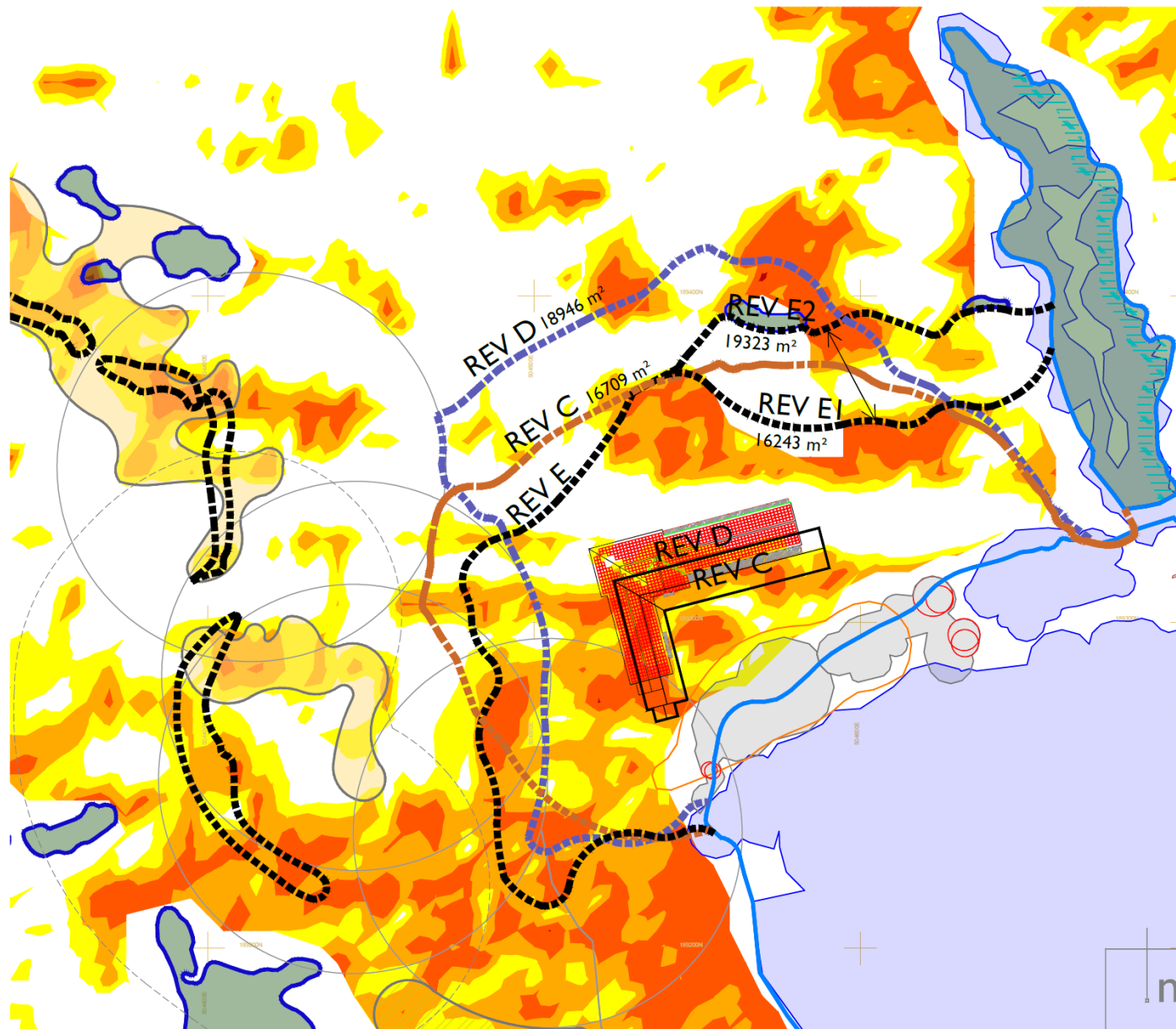






Figure 4.3: Land Reclamation Alternative Extents



The use of drawings by the Customer acts as an agreement to the following statements. The Customer must not use the drawings if it does not agree with any of the following statements:  
 All drawings are based upon site information supplied by third parties and as such their accuracy cannot be guaranteed. All features are approximate and subject to clarification by a detailed topographical survey, statutory service enquiries and confirmation of the legal boundaries. Do not scale the drawings. Figured dimensions must be used in all cases. All dimensions must be checked on site. Any discrepancies must be reported in writing to Colour-UDL before proceeding. All drawings are copyright protected. Refer to full Terms & Conditions at [www.colour-udl.com](http://www.colour-udl.com)

Shoreline Options

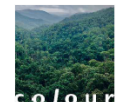
-  Existing shoreline
-  Former's proposed layout - Option C
-  Former's proposed layout - Option D
-  Colour's proposed layout - Option E

01	First Issue	06.06.23	JR	PO
Rev	Amendments	Date	Drwn	Chkd

Project  
 HWSFAC Broadwater Lakes  
 Drawing Title  
 Proposed shoreline options

Project No. 2121	Scale @ A3 NTS	Project Status For comments
Drawing No. HWSFAC-COL-00-XX-DR-L-1001		Revision 01

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## 4.9 Alternative Materials Considered for Land Reclamation

- 4.9.1 The lake works have been informed by ecological survey information so as to avoid the loss of the most valuable island habitats in the lake. As such these islands would remain and materials for land reclamation have been sought from these islands. Two islands have been identified for removal which are not assessed as important ecological features.
- 4.9.2 The removal and re-use of existing 'hardstanding' on the peninsula as fill material for land reclamation was considered and discounted by the design team. The majority of this material is being retained in situ with the exception of small areas of excavation to avoid potential risks of contamination to surface and groundwater. See Chapter 5: Description of Development and Chapter 9: Ground Conditions and Contamination for further information). A cut and fill drawing for the Proposed Development is included as Figure 5.1.
- 4.9.3 Importing significant quantities of fill material from off-site locations was discounted to avoid potential impacts associated with additional HGV movements on the local road network and potential impacts on local/regional material supplies. Once appointed the principal contractor will explore the possibility of transporting waste via boat on the Grand Union Canal and use of materials from the businesses located off the access road.
- 4.9.4 The re-use of dredged material from the lake is proposed to form the reclaimed land on the peninsula and the creation of new islands. Material will be extracted from the deepest part of the lake which has been assessed as less ecologically sensitive than shallower locations.

## 4.10 Alternative Siting of Water Based Activities within Broadwater Lake

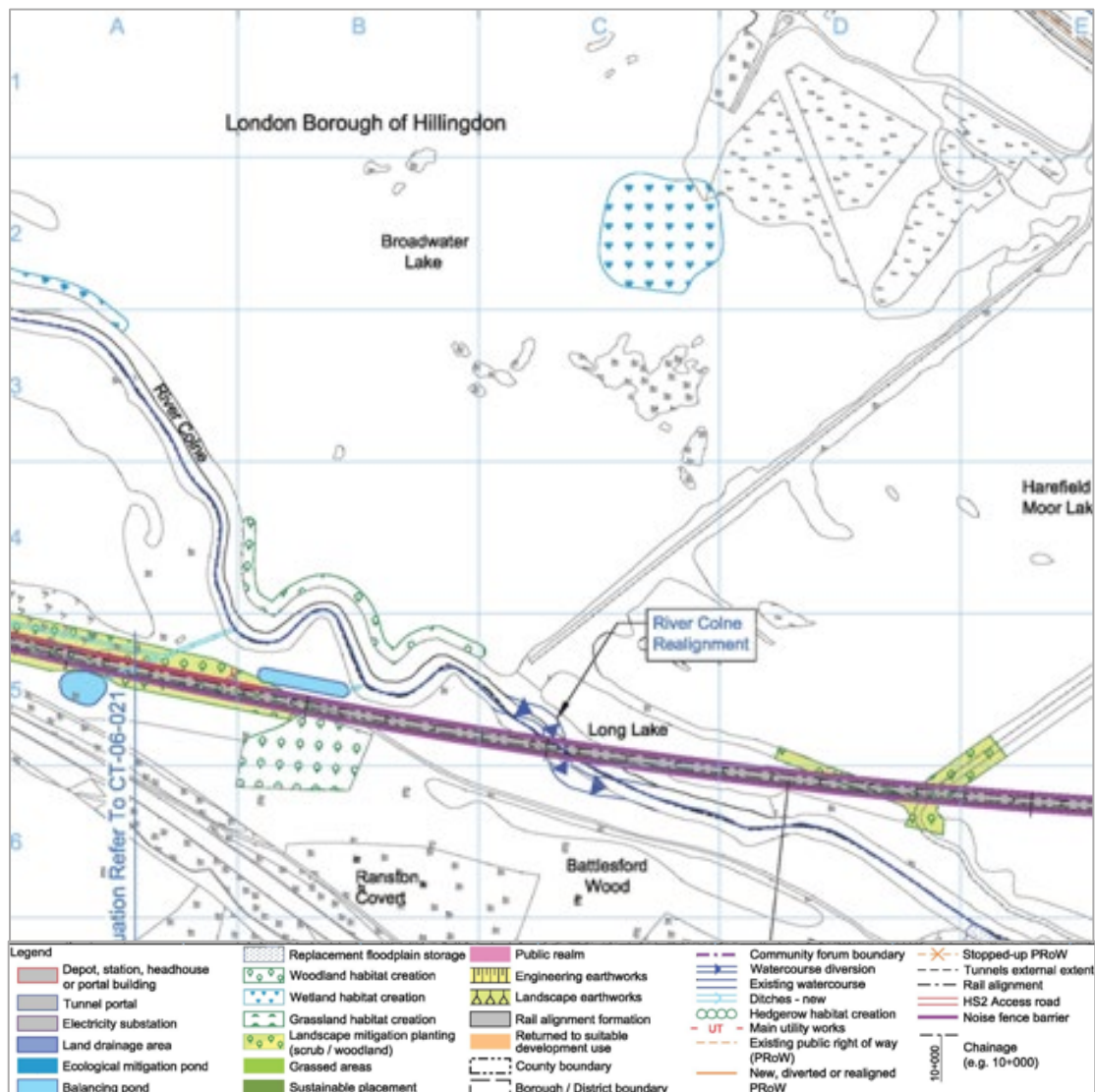
- 4.10.1 No other alternatives were considered for the location of water based activities within Broadwater Lake for the following reasons:
- The proposed location of water based activities is within the existing area of the lake used by BSC, and therefore avoids additional areas of disturbance;
  - It is located in the area of the deepest water in the lake which is more suitable for the proposed uses and would demand less dredging than areas of shallower water; and
  - It avoids areas of the lake which are more ecologically sensitive and provides opportunities for enhancements in these areas.

## 4.11 Alternative HS2 Ecological Mitigation Siting

- 4.11.1 As described in Chapter 2: Site and Setting, a number of 'gravel islands/rafts' were proposed by HS2 as part of a package of mitigation and enhancement measures within Broadwater Lake. The location of the proposed gravel islands and rafts included as Figure CT-06-20 from the HS2 ES (Volume 2, CFA7 Map Book) is shown in Figure 4.4.



Figure 4.4: HS2 Gravel Islands/Rafts



Source : HS2 ES (Volume 2, CFA7 Map Book)

4.11.2 The land reclamation proposed as part of the Proposed Development would result in the gravel island proposed by HS2 being less than 50m from the peninsula which raises the risk of predators being able to access the birds it would be designed to provide for. As such, the Applicant proposes to relocate the island approximately 100m to the south to minimise the risk of predation and also disturbance from the activities associated with the Development. Inclusion of the island in the location proposed in the HS2 ES was therefore discounted as an option by the Applicant in favour of an alternative position.

## 4.12 Alternative Access and Rights of Way

4.12.1 A Public Right of Way (PRoW) (U74) runs adjacent to the eastern Site boundary, this ProW forms part of the Colne Valley Trail and London Loop. For security and safeguarding reasons the Applicant discounted public access enhancements within the Proposed Development to protect the safety of future users of the Site (including children).

4.12.2 The existing bridge (Bridge No. 179) over the Grand Union Canal is proposed to be upgraded and used for routing utility services only (including 6.6kv cable) (see Chapter 5:

Description of Development). The Applicant discounted use of the bridge for pedestrian or vehicular access because the eastern side of the canal bridge is private land and is therefore not publicly accessible.

- 4.12.3 Existing vehicular access to the Site is provided from Moorhall Road to the south. Vehicular access from the north adjacent to Jack's Mill was discounted as not being technically feasible. The adjacent canal bridge over the Grand Union Canal has a 5 tonne weight limit. This would also result in potential effects to ecological receptors, residential receptors and the setting of the locally listed Jack's Mill cottage. No other alternative access points were considered given existing constraints that surround the Site including other lakes, the River Colne, Grand Union Canal, and HS2.

#### **4.13 Alternative External Appearance of Buildings and Structures**

- 4.13.1 Initially, the Proposed Development's facilities were designed as separate buildings, each with their own changing rooms, sanitary facilities, and dedicated spaces such as a classroom for HOAC and a social area for BSC. However, in order to minimize footprint of and reduce visual impact, the decision was made to consolidate these functions into a single building – the main building.
- 4.13.2 The external appearance of buildings and structures have been designed in response to the sensitivities of the Site, the Applicant's design brief which includes the operational requirements of HOAC. The extent of the building footprint has been minimised using efficient layouts and non-reflective materials have been implemented on facades in order to minimise visual disturbance to ecological and visual receptors.

## References

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<sup>1</sup> HM Government. High Speed Rail (London - West Midlands) Act 2017 (c. 7).

<sup>2</sup> [https://webarchive.nationalarchives.gov.uk/ukgwa/20140806173331/http://assets.dft.gov.uk/hs2-environmental-statement/volume-5/community/Vol5\\_CFA7\\_Community\\_Community\\_data\\_CM-001-007.pdf](https://webarchive.nationalarchives.gov.uk/ukgwa/20140806173331/http://assets.dft.gov.uk/hs2-environmental-statement/volume-5/community/Vol5_CFA7_Community_Community_data_CM-001-007.pdf)

<sup>3</sup> HS2, 2015. HOAC Lake Options Report. Document Number: C252-ETM-EV-REP-020-0000075 P04